

Vara Mada Project

(Formerly known as the Toliara Project)

Feasibility Study

NI43-101 & S-K 1300 Technical Summary

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1 SUMMARY

1.1 INTRODUCTION

The purpose of this Technical Report is to disclose the results of the Feasibility Study (**2025 FS**) for the Vara Mada Mineral Sands and Rare Earths Project (the **Project**). Until recently, the Project was known as the Toliara Project. To maintain consistency with past reports and existing technical documents, and to avoid confusion, this report continues to refer to the Project from time to time as the **Toliara Project**.

This Technical Report satisfies the requirements of Canadian National Instrument 43-101 Standards of Disclosure for Mineral Projects (**NI 43-101**) and the United States Securities and Exchange Commission's (**SEC**) Modernized Property Disclosure Requirements for Mining Registrants as described in Subpart 229.1300 of Regulation S-K, Disclosure by Registrants Engaged in Mining Operations (**S-K 1300**) and Item 601(b)(96) Technical Report Summary.

Energy Fuels Inc. (**Energy Fuels**) is a US-based critical minerals company, focused on uranium, rare earth elements, heavy mineral sands, vanadium and medical isotopes. Energy Fuels is listed on the NYSE American (symbol: UUUU) and the Toronto Stock Exchange (symbol: EFR). In October 2024, Energy Fuels acquired Base Resources Limited (**Base Resources**), and as a result owns 100% of the Toliara Project through its wholly-owned subsidiary Base Toliara SARL (**Base Toliara**). Base Resources prepared this Technical Report for Energy Fuels. Energy Fuels, Base Resources and Toliara are collectively referred to herein from time to time as “the Company.”

All amounts have been presented in United States Dollars (\$) unless otherwise indicated.

1.2 PROPERTY LOCATION AND BACKGROUND

The Project is based on the Ranobe deposit located in southwest Madagascar, 18 km inland and 45 km north of the regional port city of Toliara, approximately 640 km southwest of Antananarivo, the capital of Madagascar (Figure 1-1).

The region experiences a semi-arid climate with an average temperature of 24.5°C and seasonal rainfall averaging 650 mm. Vegetation is dominated by dry thicket, characterized by high levels of endemism. The area also contains several protected areas that support high biodiversity.

The deposit lies immediately west of a prominent north-south trending escarpment, bordered by tertiary limestone to the east and unconsolidated sandy sediments to the west. Spanning approximately 22 km in length and 2.0 km to 4.5 km in width, the mineralized dune sands average 3 m to 39 m in thickness. Notably, heavy mineral mineralization, including ilmenite, rutile, zircon, and monazite, is prevalent from the surface, with higher concentrations observed within the initial 500 m west of the escarpment.

Situated between 100 m and 180 m above current sea level, the deposit lacks immediate infrastructure, with existing transport connections accessible via the bituminized National Route 9 (**RN9**) road, passing within 15 km of the proposed Toliara project mine site. Minor dirt tracks extend from RN9 to the site, necessitating detailed transport planning, particularly for larger or abnormal loads during the construction phase.

The Ranobe deposit is covered by Permis D'Exploitation (Exploitation Permit) PE 37242 (**PE 37242**), which provides the right to exploit ilmenite, zircon, leucoxene, rutile, guano, basalt, and limestone. The Ranobe deposit also contains a significant amount of monazite, a rich source of rare earth elements (**REEs**). Base Toliara intends to add monazite to PE 37242 under applicable Malagasy law and to undertake other steps necessary to permit its exploitation.



Figure 1-1: Location of the Toliara Project

The Project has had a long history of exploration, beginning in 2001 with the discovery of several heavy mineral sands (**HMS**) mineralization zones between Toliara and Morombe in southwest Madagascar. Between 2001 and 2017, a number of drill programs, mineral resource estimates and feasibility studies were completed by several different companies. Base Resources acquired the Toliara Project in January 2018 and subsequently completed a concept study in 2018, a Pre-Feasibility Study (**PFS**) in 2019 (**2019 PFS**), a Definitive Feasibility Study (**DFS**) in 2019 (**2019 DFS**), an enhanced DFS in 2021 (**2021 DFS**) and monazite PFS in 2023 (**2023 Monazite PFS**).

1.3 PROJECT DESCRIPTION

This report addresses Stages 1 and 2 of the Project, with Stage 2 commencing approximately four years after Stage 1 mining and concentrating commences, as ore grades fall. As the deposit is shallow and has no overburden present, an open pit mining methodology will be employed.

Stage 1 will consist of a single dry mining unit (**DMU**) operating at 12.6 Mtpa feeding a wet concentrator plant (**WCP**) with a throughput of 1,750 tph to produce a heavy mineral concentrate (**HMC**) which is subsequently processed in a 150 tph mineral separation plant (**MSP**) to produce ilmenite, rutile and zircon. A monazite-rich tailings stream from the MSP will then be upgraded in the monazite concentrator plant (**MCP**) operating at 28 tph to a 90% monazite product.

Stage 2 will add an identical DMU and WCP to increase mining rates to 25.0 Mtpa and concentrating throughput to 3,500 tph. The MSP will also be upgraded to a capacity of 220 tph and the MCP to 40 tph.

Significant infrastructure is required for the project, including mine support facilities, process plant access and services, bulk water and power supply, mine access and site roads, a mineral haulage corridor, fuel storage, waste management, accommodation village, communications, and an export facility for shipping mineral products. All infrastructure has been sized and designed to accommodate Stage 2 operations from the outset, with only minimal additions required for expansion. These include installation of additional boreholes, minor extensions to overhead power lines and mine access tracks.

All products will be exported from the project's own export facility.

The Life of Mine (**LOM**) for Stages 1 and 2, as scheduled, is 38 years. Additional stages are expected to be assessed and added to the LOM as the Project progresses based on exploration results and additional resource definition.

The key annual production parameters for the LOM are shown in Figure 1-2.

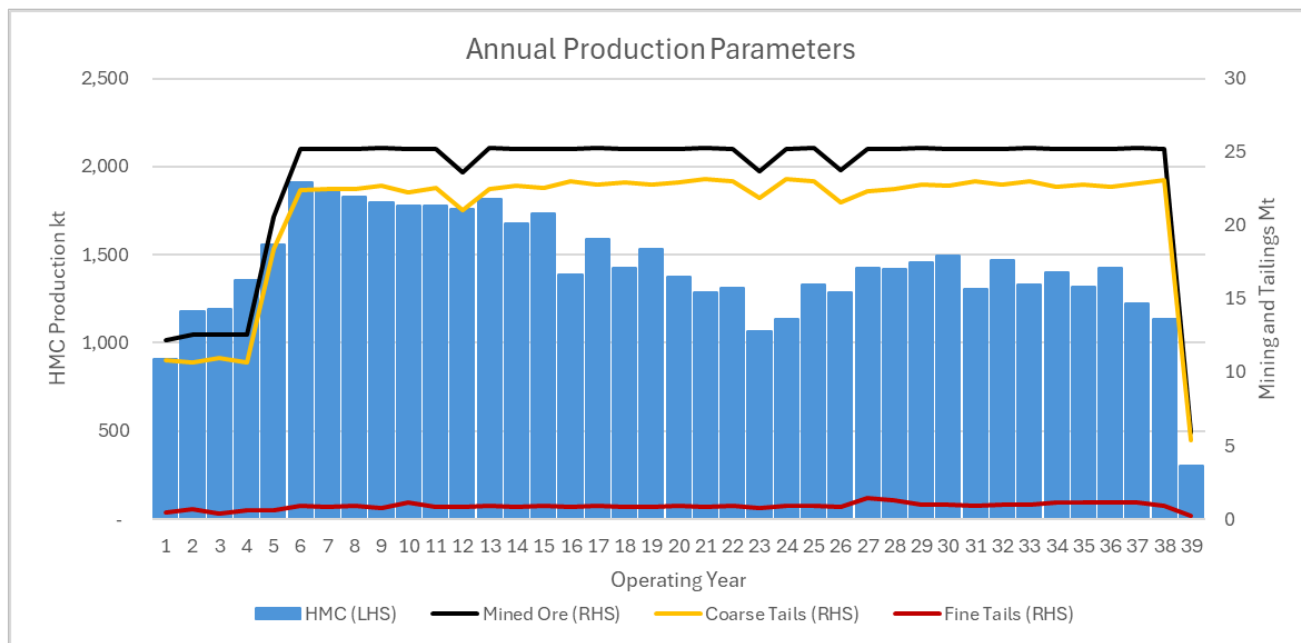


Figure 1-2: Key physical parameters for LOM

LOM mining rates, grades, and production volumes are presented in Table 1-1 and Table 22-5.

Table 1-1: Life of mine production totals

Production profile	Total	Years 1-38 Annual average*	Stage 1 Years 3-5 average*	Stage 2 Years 6-38 average*	Stage 2 Years 6-15 average*
Ore mined (Mt)	904	24.0	12.6	25.0	25.0
HM%	6.1%	6.1%	9.6%	5.9%	7.1%
HMC produced (Mt)	55.6	1.5	1.2	1.5	1.8
Produced (kt):					
Sulphate ilmenite	16,944	450	393	455	566
Slag ilmenite	9,806	260	228	263	327
Chloride ilmenite	9,374	249	217	251	313
Total ilmenite	36,124	959	838	969	1,206
Rutile	284	8	6	8	9
Zircon	2,476	66	59	67	82
Monazite	895	24	20	24	29

* Excludes first and last partial operating years

1.4 GEOLOGICAL SETTING AND MINERALIZATION

The Ranobe deposit comprises five mineralized units: the upper sand unit (USU) and its sub-units, the surface silt unit (SSU) and an upper silty sand unit (USSU), the intermediate clay sand unit (ICSU), and the lower sand unit (LSU). Historically, the Ranobe deposit mineral resource estimate only included material from the USU due to the limited number of drill holes of sufficient depth to reach the lower mineralized units. After acquiring the Toliara Project, Base Resources broadened the focus, through additional drilling, to include all mineralized horizons in the mineral resource

estimate where supported by sufficient data and a reasonable prospect for economic extraction. Drilling was undertaken in 2018–2019, and samples collected from all five mineralized units allowed material from the ICSU to be included in the Ranobe deposit Mineral Resource estimate for the first time. While the LSU has been excluded from the current Mineral Resource estimate because of observed differences in the mineral assemblage and limited available mineralogical and metallurgical data for this unit, significant upside potential is believed to exist based on existing drilling results and future exploration and resource definition is planned. There is, however, no guarantee that additional drilling, assaying, or mineralogical test work relating to the LSU will convert the targets to mineral resource.

In addition to the Mineral Resource currently reported, the Ranobe deposit presents substantial upside exploration potential across multiple mineralized horizons beyond the Upper Sand Unit (USU). Recent drilling has confirmed the presence of laterally extensive and consistently mineralized Intermediate Clay Sand Unit (ICSU) material, which has now been incorporated into the Mineral Resource estimate. Furthermore, drilling to date indicates that the Lower Sand Unit (LSU)—although presently excluded from the Mineral Resource due to limited mineralogical and metallurgical data—hosts significant thicknesses of mineralized material with a mineral assemblage that may support future resource definition pending additional drilling, sampling, and test work.

If future exploration work demonstrates continuity, economic mineral assemblage, and recoverability sufficient for Mineral Resource classification, the combined contribution of the ICSU, LSU, and the open extensions of the USU has the potential to materially increase the total Mineral Resource inventory. This upside could translate into a substantial extension of the current 38-year mine life, subject to successful drilling, assaying, metallurgical test results, and subsequent conversion to reserve. No assurance can be given that future exploration will result in the delineation of additional Mineral Resource.

1.5 EXPLORATION

Exploration of the Ranobe deposit has been undertaken primarily by air core drilling methods, supported by airborne topographic surveys and mapping of the Ranobe Formation, surface silt unit, and limestone stratigraphic units via satellite imagery and ground truthing traverses.

Successive drilling campaigns have been carried out at the Ranobe deposit, with the most recent completed by Base Resources in 2018 and 2019. Since exploration began at Ranobe, a total of 1,942 holes have been drilled for a total of 56,472.9 m.

1.6 MINERAL RESOURCE ESTIMATE

The Mineral Resource estimate for the Ranobe deposit, prepared by IHC Mining, reported a total Measured and Indicated Mineral Resource (inclusive of Mineral Reserve) of 1,390 Mt at 5.1% total heavy minerals (**THM**) with an assemblage of 72% ilmenite, 1.0% rutile, 1.0% leucoxene, 5.9% zircon, and 1.9% monazite, shown in Table 1-2. Excluding Mineral Reserves, the reported Mineral Resource estimate includes a Measured and Indicated Mineral Resource of 485 Mt at 3.3% THM and 10% slimes containing 16.3 Mt of THM with an assemblage of 70% ilmenite, 1.1% rutile, 1.1% leucoxene, 6.0% zircon, and 2.0% monazite, shown in Table 1-3. The Mineral Resource estimate includes Measured, Indicated, and Inferred categories.

Note that Mineral Resources that are not Mineral Reserves have not demonstrated economic viability.

Table 1-2: Mineral Resource estimate for the Ranobe deposit, inclusive of Mineral Reserve (as at June 30, 2025)

Summary of Mineral Resource ⁽¹⁾							THM Assemblage ⁽²⁾				
Mineral Resource Category	Material	In Situ THM	BD	THM	SLIMES	OS	ILM	RUT	LX	ZIR	MON
	(Mt)	(Mt)	(t/m ³)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Measured	597	36	1.7	6.1	4.3	0.2	74.2	1.0	1.0	5.9	1.9
Indicated	793	35	1.7	4.4	7.1	0.5	70.6	1.0	1.0	5.9	1.9
Measured & Indicated	1,390	71	1.7	5.1	5.9	0.4	72.4	1.0	1.0	5.9	1.9
Inferred	1,190	39	1.6	3.3	9.7	0.6	69.2	1.0	1.0	5.8	2.0

(1) Mineral Resources reported at a cut-off grade of 1.5% THM.

(2) Mineral assemblage is reported as a percentage of in situ THM content.

(3) Mineral Resources that are not Mineral Reserve do not demonstrate economic viability.

(4) Reported Mineral Resource excludes material affected by planned infrastructure and tailings storage.

(5) Reported Mineral Resource includes Measured and Indicated Resource that are also reported as Mineral Reserve.

(6) The reference point for the Mineral Resource is in situ.

(7) The Ranobe Mineral Resource has been classified and reported in accordance with the guidelines of NI 43-101 and S-K 1300.

(8) Total HM is from within the +63 µm to -1 mm size fraction and is reported as a percentage of the total material. Slimes is the -63 µm fraction and oversize is the +1 mm fraction.

(9) All tonnages and grades have been rounded to reflect the relative uncertainty of the estimate; thus, the sum of columns may not equal.

(10) Assumed price per metric tonne for Ilmenite \$199, Rutile \$1,250, Leucoxene \$0 (when processed, Leucoxene reports to Ilmenite and Rutile products), Zircon \$1,200, Monazite \$6,600.

(11) Assumed recovery for Ilmenite 89.6%, Rutile 49.9%, Leucoxene 17.5%, Zircon 77.2%, Monazite 78.6%.

(12) Assumed operating costs \$1.00/t mined, \$0.64/t feed to WCP, \$13.38/t feed to MSP ilmenite, \$18.04/t feed to MSP rutile, leucoxene, zircon, monazite, \$3.45/t product transport to port, \$8.91/t product wharf cost, \$1.71/t mined overhead cost.

Table 1-3: Mineral Resource estimate for the Ranobe deposit, exclusive of Mineral Reserve (as at June 30, 2025)

Summary of Mineral Resource ⁽¹⁾							THM Assemblage ⁽²⁾				
Mineral Resource Category	Material	In Situ THM	BD	THM	SLIMES	OS	ILM	RUT	LX	ZIR	MON
	(Mt)	(Mt)	(t/m ³)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Measured	164	6.2	1.7	3.8	5.7	0.4	71.5	1.1	1.1	5.8	2.1
Indicated	321	10	1.7	3.1	12.0	0.9	68.3	1.2	1.1	6.2	1.9
Measured & Indicated	485	16	1.7	3.3	9.8	0.7	69.6	1.1	1.1	6.0	2.0
Inferred	1,190	39	1.6	3.3	9.7	0.6	69.2	1.0	1.0	5.8	2.0

(1) Mineral Resources reported at a cut-off grade of 1.5% THM.

(2) Mineral assemblage is reported as a percentage of in situ THM content.

(3) Mineral Resources that are not Mineral Reserves do not demonstrate economic viability.

(4) Reported Mineral Resource excludes material affected by planned infrastructure and tailings storage.

(5) Reported Mineral Resource excludes Measured and Indicated Resource that are reported as Mineral Reserve.

(6) The reference point for the Mineral Resource is in situ.

(7) The Ranobe Mineral Resource has been classified and reported in accordance with the guidelines of NI 43-101 and S-K 1300.

(8) Total HM is from within the +63 µm to -1 mm size fraction and is reported as a percentage of the total material. Slimes is the -63 µm fraction and oversize is the +1 mm fraction.

(9) All tonnages and grades have been rounded to reflect the relative uncertainty of the estimate; thus, the sum of columns may not equal.

(10) Assumed price per metric tonne for Ilmenite \$199, Rutile \$1,250, Leucoxene \$0 (when processed, Leucoxene reports to Ilmenite and Rutile products), Zircon \$1,200, Monazite \$6,600.

(11) Assumed recovery for Ilmenite 89.6%, Rutile 49.9%, Leucoxene 17.5%, Zircon 77.2%, Monazite 78.6%.

(12) Assumed operating costs \$1.00/t mined, \$0.64/t feed to WCP, \$13.38/t feed to MSP ilmenite, \$18.04/t feed to MSP rutile, leucoxene, zircon, monazite, \$3.45/t product transport to port, \$8.91/t product wharf cost, \$1.71/t mined overhead cost.

1.7 MINERAL RESERVE ESTIMATE

The Mineral Reserve estimate for the Ranobe deposit as at June 30, 2025 reported a total Proven and Probable Mineral Reserve of 904 Mt at 6.1% total heavy minerals with an assemblage of 73% ilmenite, 1.0% rutile, 1.0% leucoxene, 5.9% zircon, and 1.9% monazite, presented in Table 1-4.

The Mineral Reserve stated herein has been classified in accordance with the **CIM Definition Standards** (CIM, 2014), which are incorporated by reference into NI 43-101 and in accordance with S-K 1300.

1.8 MINING

The Mineral Reserve is a shallow lying deposit with no overburden present and will therefore employ an open pit mining methodology. The mining cycle commences with vegetation and topsoil removal and storage for later rehabilitation use. This is followed by ore extraction, which will utilize Caterpillar D11 bulldozers feeding, initially one and ultimately two, DMUs. The DMUs are designed to be relocatable.

A coarse static grizzly (300 mm) on top of the DMU hopper ensures any large rocks do not enter the process stream. A large belt/apron feeder then transports the ore to a slurry box, where it is mixed with water and evenly deposited onto a screen with an aperture size of 35 mm. This screen removes oversize as well as organic matter such as sticks and roots which can cause issues by blocking pump suctions. The undersize from this screen is then pumped to the WCP for further processing.

An ex-pit tailings storage facility (**TSF**) has been designed to accommodate the first 24 months of tailings deposition prior to the commencement of in-pit disposal. Located north of the MSP, the facility is sized to store up to 20 Mt of co-disposed sand and slimes tailings and includes provision for tailings water recovery via return sumps. The TSF will be decommissioned once in-pit deposition becomes available. Mined-out areas that have been backfilled, will be contoured and then have topsoil returned for rehabilitation to native vegetation or seeded for farming purposes.

The mining method is a well-established methodology with a proven track record of delivering high throughput with low operating costs.

Table 1-4: Mineral Reserve Estimates (as at June 30, 2025)

Area	Mineral Reserve Category	THM Assemblage										
		Material	In situ THM	BD	THM	SLIMES	OS	ILM	RUT	LX	ZIR	MON
		(Mt)	(Mt)	(t/m ³)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Stage 1	Proven	68	6	1.7	9.1	4.1	0.2	76	1.0	1.0	6.2	1.9
	Probable	0	0									
	Subtotal	68	6	1.7	9.1	4.1	0.2	76	1.0	1.0	6.2	1.9
Stage 2	Proven	364	24	1.7	6.5	3.7	0.1	75	1.0	1.0	5.9	1.9
	Probable	472	25	1.7	5.3	3.9	0.2	72	1.0	1.0	5.8	1.9
	Subtotal	836	49	1.7	5.8	3.8	0.2	73	1.0	1.0	5.8	1.9
Subtotal	Proven	433	30	1.7	6.9	3.8	0.1	75	1.0	1.0	6.0	1.9
	Probable	472	25	1.7	5.3	3.9	0.2	72	1.0	1.0	5.8	1.9
Total		904	55	1.7	6.1	3.8	0.1	73	1.0	1.0	5.9	1.9

(1) Mineral assemblage is reported as a percentage of in situ THM content.

(2) The reference point for the Mineral Reserve is the point of feed to the DMU.

(3) The Ranobe Mineral Reserve has been classified and reported in accordance with the guidelines of NI 43-101 and S-K 1300.

(4) Total HM is from within the +63 µm to -1 mm size fraction and is reported as a percentage of the total material. Slimes is the -63 µm fraction and oversize is the +1 mm fraction.

(5) All tonnages and grades have been rounded; thus, the sum of columns may not equal.

(6) Assumed price per metric tonne for Ilmenite \$199, Rutile \$1,250, Leucoxene \$0 (when processed, Leucoxene reports to Ilmenite and Rutile products), Zircon \$1,200, Monazite \$6,600.

(7) Assumed recovery for Ilmenite 89.6%, Rutile 49.9%, Leucoxene 17.5%, Zircon 77.2%, Monazite 78.6%.

(8) Assumed operating costs \$1.00/t mined, \$0.64/t feed to WCP, \$13.38/t feed to MSP ilmenite, \$18.04/t feed to MSP rutile, leucoxene, zircon, monazite, \$3.45/t product transport to port, \$8.91/t product wharf cost, \$1.71/t mined overhead cost.

1.9 PROCESSING

The Ranobe ore characteristics are typical of many mineral sands orebodies currently exploited throughout the world. The valuable heavy minerals ilmenite, rutile, zircon, and monazite are present as liberated grains within unconsolidated sand. These can be separated from the quartz and other gangue minerals due to differences in mineral specific gravity, magnetic susceptibility, and conductivity.

Historical metallurgical test work indicated that ilmenite, rutile, and zircon products could be produced from the Ranobe deposit using conventional mineral sands recovery techniques. After acquiring the Toliara Project, Base Resources conducted additional test work on three bulk samples representative of the Ranobe deposit. The samples were taken in low, medium and high grade areas on the upper sandy unit and the medium grade sample was processed for flowsheet development. The samples were passed through a typical WCP, MSP and a MCP flowsheet. The low and high-grade samples were used for validation and variability testing. The WCP test work produced a bulk HMC at 91% HM, which was used in the MSP test work.

The initial test work indicated that the MSP could produce three ilmenite products: sulfate, slag, and chloride ilmenite. A rutile and standard grade zircon product could also be produced. The MSP test work also produced a tailings stream with a high monazite content, which was processed through a MCP flowsheet to produce a 90% monazite product.

The Toliara Project processing plants are designed for a maximum production capacity of 621 ktpa of sulfate and slag ilmenite during Stage 1 operations, increasing to 893 ktpa in Stage 2.

1.9.1 Ore screening and desliming

The particle size distribution of the run-of-mine (**ROM**) ore from three separate test work samples, as well as the core drilling analysis, was analyzed to determine the required screening and desliming requirements for the DMU and WCP.

Coarse, oversized material is screened out at the DMU. The feed will be further screened at the WCP at 3 mm to remove any potential oversize that might influence spiral and cyclone performance.

For the desliming circuit, several cyclone model simulations were conducted based on the analysis of the tested feed samples, covering all expected quantities of fine tailings and heavy minerals.

1.9.2 Wet concentrator plant

Extensive metallurgical test work during the 2019 PFS established the following spiral selection and nominal throughputs for use in the WCP:

- Rougher spirals, Mineral Technologies MG12, 2.5 tph/start
- Middling/scavenger spirals, Mineral Technologies MG12, 2.5 tph/start
- Cleaner spirals, Mineral Technologies VHG, 1.5 tph/start.

The spiral loading is conservative, providing increased flexibility and robustness to the WCP, which caters for the variability in ROM HM grade and fines levels of low, medium, and high-grade bulk samples.

1.9.3 Mineral separation plant

The MSP capacity and circuitry have been designed on the following criteria:

- Stage 1: Ability to produce 621 ktpa of sulfate and slag ilmenite, satisfying the predicted market quantity requirements

- Stage 2: Ability to produce 893 ktpa of sulfate and slag ilmenite, satisfying the predicted market quantity requirements
- Ability to efficiently produce chloride ilmenite, zircon, and rutile in balance with the sulfate and slag ilmenite production, satisfying market quantity requirements
- Ability to direct process or stockpile and reclaim HMC produced from the WCPs, to allow for differences in production and consumption rates between the WCP and MSP
- Flexibility to optimize production rates of each of the three different ilmenites to satisfy varying marketing objectives over time and cater for varying orebody and mineral assemblage properties.

1.9.4 Monazite concentrator plant

The MCP is designed to process MSP rejects containing approximately 20% monazite and upgrade them to a 90% monazite product. The plant has been designed to produce up to 20 ktpa of monazite product in Stage 1 and up to 29 ktpa in Stage 2.

1.10 INFRASTRUCTURE

Existing infrastructure required for the project is limited and a significant proportion of the capital cost for the project is to establish new infrastructure. The infrastructure scope for the project includes mine support facilities, process plant access and services, bulk water and power supply, roads, a mineral haulage corridor, fuel storage, waste management, accommodation village, communications, and an export facility for shipping mineral products. Temporary infrastructure, including fly camps, causeway bypasses, and secondary road upgrades, will support early construction activities.

All products will be exported. Secure and safe transport from the mine site to the project's export facility will require construction of a 45km mineral haulage corridor and bridge across the Fiherenana River. The existing port at Toliara is unsuitable for the project's anticipated export requirements as it can only service small coastal vessels due to the shallow draft necessitating construction of a new export facility.

There is an existing airport at Toliara with regular scheduled flights to the capital, Antananarivo, and has previously operated international services. As road transport between Toliara and Antananarivo is not practical due to road conditions, all fly-in, fly-out (**FIFO**) personnel movements will be by air.

Construction employees from outside the Toliara region will be housed on the mine site. This will require a village to meet construction accommodation requirements that will later be converted to use as an employee village during the mine's operational phase.

The infrastructure layout has been developed in consultation with operations, environmental, social, and logistics teams to minimize environmental impact, optimize materials sourcing, and ensure resilience under climatic extremes, including cyclones and seasonal flooding.

1.11 PRODUCT MARKETING

The Toliara Project is designed to produce monazite, zircon, a suite of ilmenite products, and a small quantity of rutile. Forecast market conditions are highly supportive of the Toliara product suite, with the various industry sectors being highly dependent on major new sources of supply entering the market by the late 2020s. This is reflected in attractive price forecasts for each of the products.

Monazite from the project is expected to be transferred to the rare earth refinery being developed by Energy Fuels at the White Mesa Mill in Utah, USA with the valuable magnet rare earth oxides (**REOs**) separated and sold into the downstream market. Transfer pricing and commercial arrangements are expected to be established on an arm's length basis.

Toliara zircon is expected to meet the requirements of all end-use sectors in China, the world's largest zircon market. Zircon is expected to be shipped in bulk (in combination with ilmenite), with most being sent to a bonded warehouse facility at a major port in China where it will be bagged and distributed to major end users in the Asian market.

The three Toliara ilmenite product specifications are suitable for the target end markets of sulfate pigment, chloride slag, and chloride pigment. Major end users in the sulfate pigment and chloride slag sectors exist across China, Europe, Saudi Arabia, and Malaysia. Sales of chloride ilmenite for the chloride pigment sector will most likely target western producers who have the capability to use chloride ilmenite as a direct feedstock. Importantly, the design of the Toliara MSP allows significant flexibility to adjust the proportions of each of the various grades produced to suit the market conditions.

1.12 ENVIRONMENTAL STUDIES, PERMITTING, AND SOCIAL OR COMMUNITY IMPACT

Permitting for the Toliara Project is reasonably well-progressed. Key permits and authorizations already obtained include Exploitation Permit PE 37242 and **Permis Environnementale** (Environmental Permit) N°55-15-MEEMF/ONE/DG/PE.

Through the Environmental and Social Impact Assessment (**ESIA**) process, the project's Environmental Permit and its associated **Plan de Gestion Environnementale** (**PGE**; which serves as the permit conditions) were approved and granted on June 23, 2015.

In 2017, an Addendum ESIA reflecting a number of changes to the project design was approved by the Office National Environnement (**ONE**; Madagascar's Environment Authority) through the issuance of **PGE Addendum 1** in December 2017.

An updated ESIA (**ESIA Update**) is being prepared to address additional project changes and new regulatory requirements, and to update environmental and social baseline conditions. This is being conducted in accordance with national requirements and international best practice standards and supported by a suite of environmental and social specialist studies to be undertaken by various national and international subject matter specialists. A comprehensive Environmental and Social Management System (**ESMS**) and supporting documentation will be prepared for the project.

PE 37242 provides the right to exploit ilmenite, zircon, leucoxene, rutile, guano, basalt, and limestone, but currently does not include the right to exploit monazite. Base Toliara intends to add monazite to PE 37242 under applicable Malagasy law and to undertake other steps necessary to permit its exploitation.

1.13 CAPITAL AND OPERATING COST

1.13.1 Capital cost estimate

The capital estimate, presented in Table 1-5, has been prepared in accordance with AACE guidelines to a Class 2 level of accuracy (+10% / -5%), with an estimate base date of Quarter 2, 2025.

Table 1-5: Toliara capital cost estimate summary

Primary work breakdown structure area	Pre-FID Stage \$ million	Stage 1 \$ million	Stage 2 \$ million
100 – Mining	-	15	10
200 - Process Plant	-	156	70
300 - Plant Services & Utilities	-	25	3
400 - Infrastructure	6	157	4
500 - Port Facility	4	136	-
600 - Professional Services (EPCM)	8	49	14
700 - Owners Project Development Indirect Costs	9	41	7
800 - Owners Project Development Direct Costs	43	55	22
900 - Owners Operational Costs	48	61	-
000 - Contingency	3	74	13
Total	121	769	142

1.13.2 Operating cost estimate

During Stage 1, unit operating costs are forecast to average \$8.61/t mined. As the mining rate increases following commissioning of Stage 2, unit operating costs will fall to an average of \$4.79/t mined. Over the LOM, unit operating costs are forecast to average \$4.95/t mined or \$112.52/t produced. LOM average annual operating costs are \$118.8 million (Table 1-6).

Table 1-6: Toliara Project operating cost summary by operating department

Department	LOM total \$ million	\$ million per annum*	\$/t mined*	\$/t product*
Mining	633	16.5	0.69	15.67
Processing	1,478	38.7	1.61	36.69
Maintenance	926	24.2	1.01	22.89
Port and logistics	508	13.4	0.56	12.65
Support services **	1,009	26.0	1.08	24.61
Total operating costs	4,554	118.8	4.95	112.50
* Excludes first and last partial operating years, excludes royalties				
** Environment, finance and administration, human resources, health, safety and wellness, training				

1.14 ECONOMIC ANALYSIS

A life-of-mine financial model was developed for the Toliara Project to undertake a discounted cash flow (**DCF**) analysis with inputs derived from mining schedules, process test work, capital costs using quantities from engineering documents and pricing from budget quotations, operating costs leveraging insights from the Kwale mineral sands mine in Kenya, and product price forecasts.

The DCF analysis derived the project net present value (**NPV**) and an internal rate of return (**IRR**) by discounting the Toliara Project's future cash flows.

The Toliara Project has an NPV of \$1,415 million (10% discount rate, post tax, real) and an IRR of 22.1%, measured at June 30, 2025 on a real (uninflated) basis. A summary of key financial statistics for the project is included in Table 1-7.

Table 1-7: DCF results (all post-tax real)

		Unit	Total
NPV at June 30, 2025, 10% discount rate		\$ million	1,415
NPV at project FID, 10% discount rate		\$ million	1,757
IRR at June 30, 2025		%	22.1
IRR at project FID		%	24.9
Capital payback period (Stages 1 and 2)		Years	4.8
LOM operating costs + royalties*		\$/t ore mined	6.08
LOM operating costs + royalties*	(A)	\$/t produced	138
LOM revenue	(B)	\$/t produced	510
LOM cash margin	(B-A)	\$/t produced	372
LOM revenue: cost of sales ratio	(B/A)	Ratio: 1	3.7
LOM free cash flow (operating cash flow less capex)		\$ million	10,040
* Excludes first and last partial operating years.			

1.15 OTHER RELEVANT DATA AND INFORMATION

Energy Fuels acquired control over the Toliara Project on October 2, 2024 through its acquisition of Base Resources. Shortly after the acquisition, on November 28, 2024, the Government of Madagascar lifted a suspension on the project that had been in place since November 2019. Post lifting of the suspension, the Company has been in the process of re-commencing development efforts and investment in the project, re-establishing community and social programs, and advancing the technical, environmental, social and other activities necessary to support the project's development.

On December 5, 2024, the Company entered into an MOU with the Government outlining key fiscal terms applicable to the project, including development, community, and social project funding, subject to final agreement on long-term fiscal and stability arrangements. Consistent with the MOU, the Company and the Government have, over the past year, been negotiating the terms of an investment agreement to be submitted to the Madagascar Parliament for approval and promulgated as a law. The investment agreement is intended to provide the key pillars for a bankable large-scale project, including mechanisms for ensuring long-term legal and fiscal stability, select tax and customs benefits, adjustments to foreign exchange rules, protections from expropriation and access to international arbitration for dispute resolution.

In addition, the Company is in the process of acquiring surface rights to portions of PE 37242 and other areas required for the project's infrastructure which must be obtained before development work can start. The Company is working to obtain such rights through private treaty arrangements with landowners holding legal title and individuals having

customary occupation rights. If private arrangements cannot be made, the law provides for expropriation through a declaration of public utility (**DUP**) process.

Foreign entities are not entitled to own land in Madagascar. Instead, occupation of land by foreign entities is typically through a long-term lease, which can be for a maximum of 99 years. After entering into private treaty arrangements and/or expropriation, the Company anticipates registering the relevant parcels in the name of the Government and then entering into one or more long-term (99-year) leases over the land needed to support the project.

1.16 CONCLUSION AND RECOMMENDATIONS

The Toliara Project is underpinned by strong fundamentals, scalable development, and has a clear path to near-term cash flow.

Over its 38-year operational life, the project is expected to produce an annual average of 959 kt ilmenite, 66 kt zircon, 8 kt rutile and 24 kt of monazite, delivering an NPV₁₀ of \$1,415 million and an IRR of 22.1%.

Forecast market conditions are highly supportive of the Toliara product suite, with the industry being highly dependent on major new sources of supply entering the market by the late 2020s. This is reflected in attractive price forecasts for each of the products which result in robust financial metrics for the Toliara Project.

Key steps to progress the project include the following:

- Entering into an acceptable Investment Support Regime with the Government of Madagascar
- Securing land access to the required areas within PE 37242 and for the Toliara Project's infrastructure.
- Completing updated environmental and social baseline to facilitate the ESIA Update
- Adding monazite to Base Toliara's PE 37242 and undertaking the other steps necessary to permit its exploitation

2 INTRODUCTION

The purpose of this Technical Report is to disclose the Feasibility Study (2025 FS) results for the Toliara Mineral Sands and Rare Earths Project and to allow the inclusion of Toliara Mineral Resource and Mineral Reserve in the current Energy Fuels Mineral Resource and Mineral Reserve.

The Qualified Persons prepared this Technical Report for Energy Fuels Inc. and its subsidiary Base Toliara SARL. In October 2024, Base Resources was acquired by Energy Fuels and, as a result, Energy Fuels became the indirect owner of 100% of the Toliara Project. Energy Fuels is a US-based critical minerals company, focused on uranium, rare earth elements, heavy mineral sands, vanadium and medical isotopes. Energy Fuels is listed on the NYSE American (symbol: UUUU) and the Toronto Stock Exchange (symbol: EFR).

This 2025 FS is an update of the 2021 DFS of the Toliara Project, outlining a 12.6 Mtpa mining operation expanding to 25.0 Mtpa in Year 4 of operation. The operation includes a dry mining unit, wet concentrator plant, mineral separation plant, monazite concentrator plant, export facility, and supporting infrastructure.

2.1 TERMS OF REFERENCE

This report constitutes a Technical Report that satisfies the requirements of a feasibility study under Canadian National Instrument 43-101 Standards of Disclosure for Mineral Projects (NI 43-101) and a Technical Report Summary that satisfies the requirements of a feasibility study under the United States Securities and Exchange Commission's (SEC) Modernized Property Disclosure Requirements for Mining Registrants as described in Subpart 229.1300 of Regulation S-K, Disclosure by Registrants Engaged in Mining Operations (S-K 1300) and Item 601(b)(96) Technical Report Summary.

The Toliara Project is located in southwest Madagascar, 18 km inland and 45 km north of the regional port city of Toliara, approximately 640 km southwest of Antananarivo, the capital of Madagascar.

The following companies have undertaken work in preparation for the 2025 FS:

- Base Resources: Overall report preparation, property description and location, ownership, mineral tenure, environmental studies, permitting, social, marketing, operating cost estimating, and economic analysis
- ERM and Nomad Consulting: Environmental and Social Management System (ESMS) components
- IHC Mining: Geology, drill hole data validation, Mineral Resource, Mineral Reserve, mining methods and mineral separation plant and monazite concentrator plant metallurgical test work
- Lycopodium: Infrastructure and capital cost estimate
- Mineral Technologies: Process plant development (recovery methods) and WCP metallurgical test work
- Zutari (Roads): Mineral haulage corridor
- Zutari (Power): Power station
- PRDW: Export facility – offshore
- John W Fooks & Co: Malagasy legal regime components.

Unless otherwise stated, the units of measurement in this report are compliant with the International System of Units (SI). All currency is in United States dollars unless otherwise indicated.

2.2 QUALIFIED PERSONS AND SECTION AUTHORS

Table 2-1 provides an overview of the people who served as Qualified Persons (QPs) as defined in NI 43-101 and S-K 1300:

Table 2-1: Summary of QP responsibilities – Toliara Mineral Sands and Rare Earths Project

Qualified Person	Company	Title/Position	Section
Ian Bernardo	Base Resources	Study Manager	1, 2, 3, 4, 19, 20, 21.2, 22, 23, 24, 25, 26, 27
Chris Sykes	IHC Mining	Mining Engineer	15 and 16
Greg Jones	IHC Mining	Principal Advisor Geology and Mining	05, 06, 07, 08, 09, 10, 11, 12 and 14
Etienne Raffailac	Mineral Technologies	Principal Metallurgist	13 (WCP), 17
Mitchell Ryan	IHC Mining	Senior Metallurgist	13 (MSP and MCP)
Alwyn Scholtz	Lycopodium	Study Manager	18.1 to 18.4, 18.6 to 18.8 and 21.1
Francois van Reenen	Zutari	Technical Engineering Specialist	18.5
Warwick Donaldson	PRDW	Director	18.9

Each QP is an employee of their respective firm named above. Except in the case of Base Resources, which is a subsidiary of Energy Fuels, none of the firms is affiliated with Energy Fuels, nor do any of the firms have any ownership, royalty or other interest in the Toliara Project.

2.3 SITE VISITS

The following list describes the Toliara site visits by the Qualified Persons, the date of the visit, and the general purpose of the visit:

- Ian Bernardo visited the site for two days from June 16 to June 17, 2025. The purpose of the visit was to inspect the mining area and potential locations of the process plants and supporting infrastructure
- Chris Sykes visited the site for two days, from June 16 to June 17, 2025. The purpose of the visit was to inspect the landscape and geological characteristics of the project area and consider their impact on mine planning and operations for the project, and verify mining, processing, and logistics strategies as suitable to ensure a reasonable prospect of economic extraction
- Greg Jones visited the site for five days, from July 30 to August 4, 2018. The purpose of the visit was to inspect exploration activity and processes, including drilling and sampling. He also inspected the landscape and geological characteristics of the project area and considered their impact on mine planning and operations for the project, and verified mining, processing and logistics strategies as suitable to ensure a reasonable prospect of economic extraction
- Francois van Reenen visited the project site for five days in February 2025. The purpose of the visit was to inspect potential locations of roads and supporting infrastructure
- Etienne Raffailac, Mitchell Ryan and Warwick Donaldson did not conduct a personal inspection of the Toliara project. On-ground exploration and development activities in Madagascar were formally suspended by

decision by the Council of Ministers in November 2019. This suspension was only lifted in late 2024. During this period, no field programs were conducted. After the suspension was lifted in late 2024, an appropriate opportunity for a Qualified Person site visit could not be arranged within the timeframe for preparation of this Technical Report. The absence of a site visit by these QPs is not considered to materially affect the reliability of the data reviewed or the conclusions presented in this report

- Alwyn Scholtz did not conduct a personal inspection of the Toliara Project and relied on the on-site inspection performed by senior members of his employer, Lycopodium, from 12 to 22 February 2025, which has been deemed sufficient for the purposes of this report and is not considered to materially affect the reliability of the data reviewed or the conclusions presented in this report.

2.4 EFFECTIVE DATES

The report outlines the status of the Toliara Project with effective dates as follows:

- The effective date of this report is June 30, 2025
- The effective date of the Mineral Resource estimate is June 30, 2025
- The effective date of the Mineral Reserve estimate is June 30, 2025.

2.5 SOURCES OF INFORMATION

This Technical Report was prepared using available information contained in, but not limited to, the:

- JORC Code compliant 2021 DFS Report (Base Resources, 2021)
- JORC Code compliant 2021 Ore Reserve Estimate Technical Report (Reudavey, 2021)
- JORC Code compliant 2021 Mineral Resource Estimate Technical Report (Reudavey et al., 2021)
- JORC Code compliant 2023 Monazite Pre-Feasibility Study Report (Base Resources, 2023).

In addition to the above reports, engineering development continued to further define the process plants and infrastructure components of the project. Capital and operating cost estimates, along with the implementation schedule and planning, were updated in Quarter 2 (Q2) 2025 to support the Technical Report.

Additional reports and documents used to prepare this 2025 FS are listed under Sections 3 and 27.

2.6 LIST OF ABBREVIATIONS, ACRONYMS AND DEFINITIONS

Abbreviation	Definition
2019 PFS	Pre-feasibility Study completed on March 21, 2019
2019 DFS	Definitive Feasibility Study completed on December 12, 2019
2021 DFS	Definitive Feasibility Study completed on September 27, 2021
2023 Monazite PFS	Monazite Pre-feasibility Study completed on December 14, 2023
AASHTO	American Association of State Highway and Transportation Officials
ANCOLD	Australian National Committee on Large Dams

Abbreviation	Definition
AML	Allied Mineral Laboratories
AMSL	Above mean sea level
ARI	Annual recurrence interval
ASX	Australian Securities Exchange
BAP	Biodiversity Action Plan
Base Toliara	Base Toliara SARL
BCMM	Bureau de Cadastre Minier de Madagascar
BD	Bulk density
BESS	Battery energy storage system
BV	Bureau Veritas Laboratories
CCM	Cahier des Charges Minières
CCTV	Closed-circuit television
CD	Chart datum
CD	Constant density
CFR	Cost and freight
CIM	Canadian Institute of Mining, Metallurgy and Petroleum
CIM Definition Standards	CIM Definition Standards for Mineral Resources & Mineral Reserves (CIM, 2014)
CRM	Certified reference material
DCF	Discounted cash flow
DES	Definitive Engineering Study
DFS	Definitive Feasibility Study
DGPS	Differential Global Positioning Systems
DMU	Dry mining unit
DUP	Declaration of public utility
EBITDA	Earnings Before Interest, Taxes, Depreciation, and Amortization
EDGAR	United States system for Electronic Data Gathering, Analysis and Retrieval
Energy Fuels	Energy Fuels Inc.
EPC	Engineering, procurement, and construction
EPCM	Engineering, procurement, and construction management
ERM	Environmental Resource Management, an environmental consultancy
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
ESMS	Environmental and Social Management System
FEED	Front-end engineering design
FEL	Front-end loader
FID	Final investment decision
FIDIC	Fédération Internationale Des Ingénieurs-Conseils
FIFO	Fly-in, fly-out
FOB	Free on board
FS	Feasibility Study
GISTM	Global Industry Standard on Tailings Management
GPS	Global Positioning System
GSC	Geotextile sand container
GWh	Gigawatt-hour, 1 billion Watt-hours
ha	Hectare
HG	High grade
HM	Heavy mineral
HMC	Heavy mineral concentrate
HME	Heavy mobile equipment

Abbreviation	Definition
HMS	Heavy mineral sands
HTRS	High tension roll separator
IAEA	International Atomic Energy Agency
ICSU	Intermediate clay sand unit
IFC	International Finance Corporation
ILM	Ilmenite, a valuable heavy mineral
IMP	IMPLABS is a professional metallurgical laboratory in Gauteng, South Africa
Investment Support Regime	A stability mechanism and other key requirements agreed with the Government to support development of the project
IRM	Induced roll magnet
IRMS	Induced roll magnetic separator
IRR	Internal rate of return
ISO	International Organization for Standardization
IUCN	International Union for Conservation of Nature
JORC	Joint Ore Reserves Committee of The Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia
JORC Code	The Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (2012 Edition) (JORC, 2012)
KNA	Kriging Neighborhood Analysis
kt	Kilo tonne; 1,000 tonnes
ktpa	Kilo tonnes per annum
L	Liter
LG	Low grade
LGIM	Law No 2001-031 on large-scale mining investments dated 8 October 2002 as amended by Law No 2005-022 dated 27 July 2005
LiDAR	Light detection and ranging
LOM	Life of mine
L/s	Liter per second
LST	Limestone
LSU	Lower sand unit
LX	Leucoxene, a valuable heavy mineral
M	Million
MA98	Multi-angle spectrophotometer
MACNUM	Mineral assemblage composite sample number
MBBR	Moving bed biofilm reactor
MBM	Multi-buoy mooring
MCC	Motor control center
MCP	Monazite concentrator plant
MECIE 2025	Mise en Compatibilite des Investissements avec l'Environnement updated with the adoption of Decret No2025-080 on January 28, 2025, principal legislation governing compatibility of investments with the environment
MG	Medium grade
MGA	Malagasy Ariary, the national currency of Madagascar
m ³ /h	Cubic meter per hour
MON	Monazite, a valuable heavy mineral
MRNL	Madagascar Resources NL
MSA	Mine services area
MSP	Mineral separation plant
Mt	Million tonnes.

Abbreviation	Definition
MTLA	Mineral Technologies and Lycopodium Alliance
Mtpa	Million tonnes per annum
MW	Megawatt, 1 million Watts
µm	Micrometer; micron
N/C	Non-conductors
New Mining Code	Law 2023-007 of July 27, 2023 relating to the new Mining Code
NdPr	Neodymium-praseodymium
NI 43-101	National Instrument 43-101 – Standards of Disclosure for Mineral Projects.
N/M	Non-magnetics
NORM	Naturally occurring radioactive material
NPV	Net present value
O/F	Overflow
OGV	Ocean-going vessel
OMNIS	Office des Mines Nationales et des Industries Stratégiques
ONE	Office National pour l'Environnement
OS	Oversize material, for Ranobe it is defined as material >1mm in size
Permis Environnementale	Environment Permit
Permis d'Exploitation	Exploitation Permit; PE
Permis De Recherche	Exploration Permit, PR
PGE	Plan de Gestion Environnementale
PGES	Plan de Gestion Environnementale et Social
PGES-S	Plan de Gestion Environnementale et Social – Spécifique
PFS	Pre-Feasibility Study
Plan de Gestion Environnementale or PGE	An Environmental Management Plan approved by the Government of Madagascar in June 2015 and sets the environmental permit conditions.
PLSA	Power Lease and Services Agreement
ppm	Parts per million
PRDW	PRDW Consulting Port and Coastal Engineers
project	Toliara Mineral Sands and Rare Earths Project
PV	Photovoltaic
QA	Quality assurance
QC	Quality control
QEMSCAN	A system providing automated, rapid and accurate mineralogical analysis
QP or Qualified Person	Qualified Person as defined in NI 43-101 and S-K 1300
RAP	Resettlement Action Plan
RED	Rare earth drum magnetic separator
REE	Rare earth element
Renewal Conditions	Conditions under which a Permis d'Exploitation may be renewed
REO	Rare earth oxide
RERS	Rare earth roll separator
RL	Reduced level
RN9	National Route 9 road
RNF	Ranobe Formation
RO	Reverse osmosis
ROM	Run of mine
RUT	Rutile, a valuable heavy mineral
SAMTRA	South African Maritime Training Academy
SCADA	Supervisory control and data acquisition
SEC	United States Securities and Exchange Commission

Abbreviation	Definition
SEDAR	Canadian System for Electronic Document Analysis and Retrieval
SEM	Scanning electron microscopy
SI	International System of Units
S-K 1300	United States Securities and Exchange Commission's Modernized Property Disclosure Requirements for Mining Registrants as described in Subpart 229.1300 of Regulation S-K, Disclosure by Registrants Engaged in Mining Operations
SL	Slimes, fine material (defined as <63 µm at Ranobe)
SSU	Surface silt unit
Stage 1	Scheduled to commence in Month 21 following the final investment decision.
Stage 2	Scheduled to commence 4.25 years from Month 21 following the final investment decision
t	Tonne; 1,000 kilograms
TBE	Tetrabromoethane
t/m ³	Tonnes per cubic meter
THM	Total heavy mineral
Toliara Project	Toliara Mineral Sands and Rare Earths Project
TREE	Total rare earth elements
TREO	Total rare earth oxides
TSF	Tailings storage facility
TZMI	TZ Minerals International Pty Ltd
UCC	Up-current classification
U/F	Underflow
USSU	Upper silty sand unit
US or the United States	United States of America
US Exchange Act	Securities Exchange Act of 1934 (United States federal law), as amended and the rules and regulations thereunder
US Securities Act	Securities Act of 1933 (United States federal law), as amended, and the rules and regulations thereunder
USD or US\$	United States Dollar
USU	Upper sand unit
UTM Zone 38S	Universal Transverse Mercator, coordinate reference system
UV	Ultraviolet
VHG	Very high grade
VHM	Valuable heavy mineral
w/w	Weight per weight
WCP	Wet concentrator plant
White Mesa Mill	The uranium, vanadium and REE milling and processing operation carried out in San Juan County, Utah, United States of America
WGL	Western Geochem Labs
WGS 84	World Geodetic System 1984, a standard geodetic datum and coordinate system used for mapping and navigation
WTH	World Titane Holdings
WTR	World Titanium Resources Limited
WWTP	Wastewater treatment plant
XRD	X-ray diffraction
XRF	X-ray fluorescence
ZIR	Zircon, a valuable heavy mineral

Mineral abbreviation	Definition
FeTiO ₃	ilmenite
FeTiO ₃ .TiO ₂	leucoxene
TiO ₂	titanium dioxide
ZrSiO ₄	zircon
Ce, La, Th, Nd, Y.PO₄	monazite
Nd ₂ O ₃	neodymium
Pr ₆ O ₁₁	praseodymium
Dy ₂ O ₃	dysprosium
Tb ₄ O ₇	terbium
CeO ₂	cerium
La ₂ O ₃	lanthanum
U+Th	uranium + thorium
Sm ₂ O ₃	samarium
Eu ₂ O ₃	europium
Gd ₂ O ₃	gadolinium
Y ₂ O ₃	yttrium
SEG	Samarium, Europium oxide and Gadolinium oxide
Ho+	Holmium oxide plus heavy rare earth oxides

3 RELIANCE ON OTHER EXPERTS

This Technical Report has been prepared by the Qualified Persons for Energy Fuels and its subsidiary Base Toliara. The information, conclusions, opinions, and estimates contained herein are based on:

- Information available to the QPs at the time of preparation of this Technical Report
- Assumptions, conditions, and qualifications as outlined in this Technical Report
- Data, reports, and other information supplied by Base Resources and other third-party sources.

The technical data and information in this report were compiled by the authors using material sourced from the document archives at Base Resources and contributions from various sub-consultants. While the authors did not conduct a comprehensive review of each consultant's work, the sections of this report are based on the expertise of experienced and reputable professionals. There is no reason to question the accuracy or reliability of the information provided.

3.1 RELIANCE ON INFORMATION PROVIDED BY THE REGISTRANT

For the purpose of this Technical Report, the QPs have relied on information provided by the Company for the following:

- Legal aspects of ownership information for the project as described in Section 4 Property Description and Location, Section 24.1 Government and Legal and the Summary of this Technical Report relied upon a legal opinion of Themo Georgiou, Base Resources' General Manager - Legal. The QP has not researched legal aspects of property title or mineral rights for the project, as this is outside his expertise and he considers it reasonable to rely on the General Manager - Legal, who is responsible for maintaining this information
- Legal aspects of royalties and other encumbrances for the project were confirmed by Kevin Balloch, Base Resources' Chief Financial Officer (**CFO**), as part of the compilation of the financial model and relevant Technical Report sections, because this is outside the expertise of the QP and the QP considers it reasonable to rely on Base Resources' CFO for this information
- The QP has not reviewed the project taxation position and relied on Base Resources' CFO for guidance on applicable taxes and other government levies or interests, applicable to revenue or income, to evaluate the viability of the Mineral Reserve stated in Section 22 Economic Analysis, and the relevant sections of this Technical Report, as these governmental factors are outside the expertise of the QP
- Environmental and permitting information for the property, as described in Section 4 Property Description and Location, Section 20 Environmental Studies, Permitting, and Social or Community Impact, and the relevant sections of the summary, was provided by Georgina Jones, Group Sustainability Manager, and Themo Georgiou, General Manager - Legal. The QP considers this reliance reasonable because such information is outside the expertise of the QP
- The QP has relied on Stephen Hay, Base Resources' Executive General Manager Marketing & Partnerships, to compile Section 19 Market Studies and Contracts, and did not do a comprehensive review of the information provided in the section, as there is no reason to question the accuracy or reliability of the information provided.

Except as provided by applicable laws, any use of this Technical Report by any third party is at that party's sole risk.

4 PROPERTY DESCRIPTION AND LOCATION

4.1 LOCATION

The Toliara Project is based on the Ranobe deposit, situated approximately 45 km north of the coastal port city of Toliara. The project area also includes proposed infrastructure such as an accommodation village, processing plants, a mineral haulage corridor and an export facility. The geographic center of the Ranobe deposit is located at approximately latitude 22.977°S, longitude 43.684°E, shown in Figure 4-1.

The deposit comprises a single continuous body of mineralization approximately 22 km long, 1.5 km to 4.5 km wide and, 3 m to 39 m in thickness. It is situated immediately west of a prominent north-south escarpment. Mineralization (including ilmenite, rutile, zircon, and monazite) extends from the surface.

The primary access to the Toliara Project area is via National Route 9 (**RN9**) which is a sealed road that runs north-south and links the city of Toliara with the towns north of the Manombo River. From the RN9, access to the project area is via 4WD tracks and old seismic cut-lines.

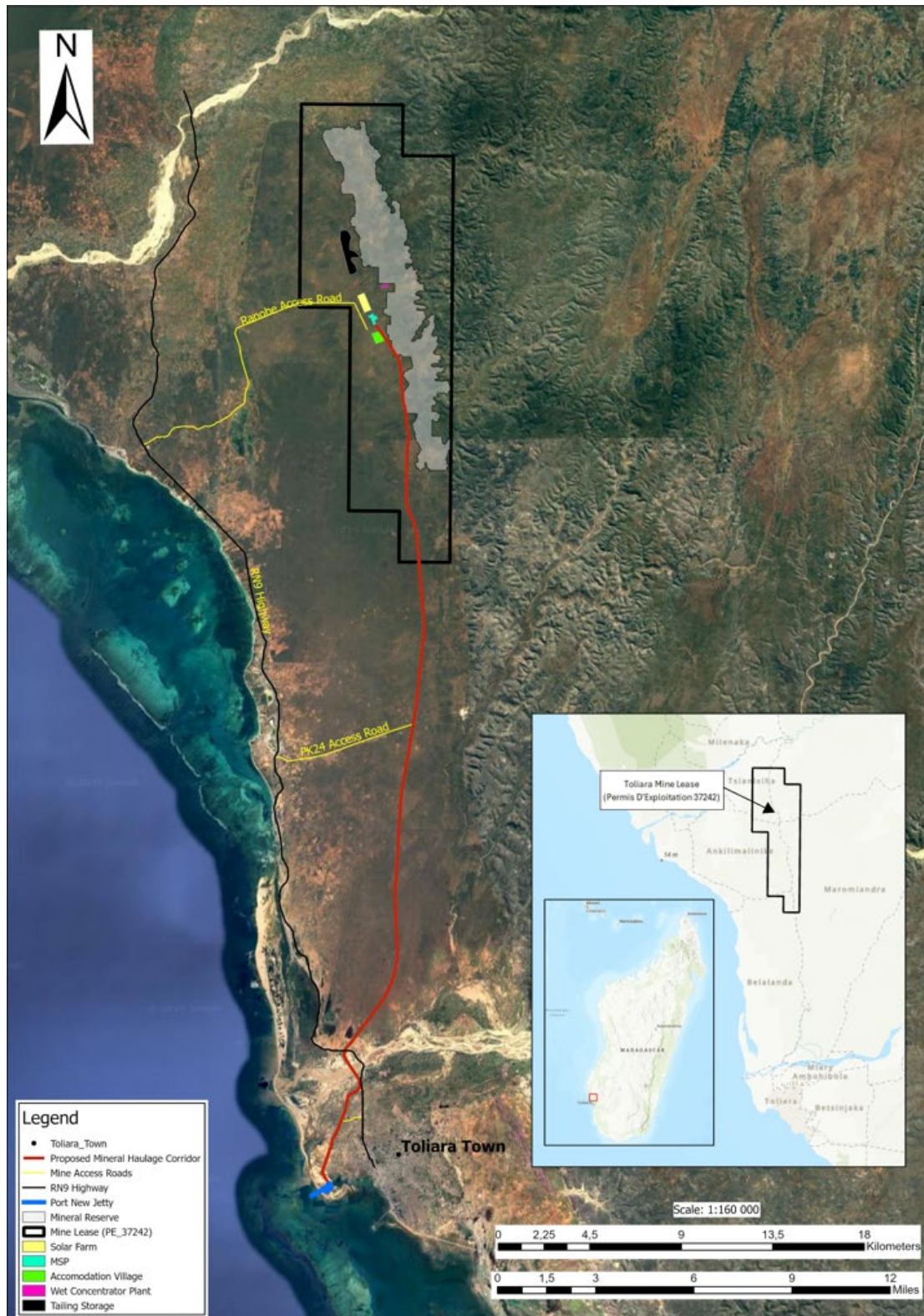


Figure 4-1: Location diagram

4.2 TENURE

4.2.1 Legal framework

Mining in Madagascar is principally governed by Law 2023-007 of July 27, 2023 (the **New Mining Code**), which was published in the Official Gazette on October 2, 2023 and its implementing decree, which was adopted on July, 23 2024. The New Mining Code repealed all existing provisions of any law, including the former Mining Code, being Law 2005-021 of 17 October 2005 amending Law No. 99-022 of 19 August 1999 (the **Former Mining Code**), that conflicted with the New Mining Code. Further, all provisions of the Former Mining Code were incorporated in the New Mining Code except for those provisions that were deliberately revised or which contained new concepts. Therefore, while the Former Mining Code was not strictly replaced by the New Mining Code, in practical terms, the New Mining Code supersedes and replaces the Former Mining Code in its entirety.

The New Mining Code has not changed key mine permitting conditions relevant to the project. Madagascar remains divided into squares of 625 m a side (Article 2) and only one permit per square is allowed. The Permis D'Exploitation (**PE** or **Exploitation Permit**) also remains the permit necessary for the commercial exploitation of minerals for large-scale projects. Further, introduction of the New Mining Code did not affect the validity of permits granted under the Former Mining Code, such as the Toliara Project's PE 37242.

The other key permit for large-scale mines is the Permis De Recherche (**PR** or **Exploration Permit**), which confers on its holder the exclusive right to carry out prospecting and research within the delineated perimeter.

While the initial term of an Exploitation Permit has been reduced to 25 years in the New Mining Code (Article 61), Exploitation Permits granted under the Former Mining Code remain valid for 40 years. The first renewal period for an Exploitation Permit is now 15 years, irrespective of whether the permit was granted under the Former Mining Code or the New Mining Code (Article 61). Article 61 also states that, beyond this period, further renewals may be granted provided the Renewal Conditions (defined below) remain satisfied.

- An Exploitation Permit will be renewed if the conditions below are satisfied (the **Renewal Conditions**): Payment of administrative fees for the previous year
- Payment of the special fees and taxes on mining products (Droits et Taxes spéciaux sur les produits miniers), referred to as royalties under the Former Mining Code, for the previous year
- Satisfaction of the terms and conditions of the specifications book, namely the technical and financial reporting obligations
- Satisfaction of all tax obligations
- Holding a valid environmental permit
- Justifying the need for renewal by the submission of an updated feasibility study along with a commitment to perform all contemplated exploitation works.

The renewal of the Exploitation Permit is subject to the payment of a fixed fee, the amount of which is determined by order of the Ministry of Mines.

An Exploitation Permit holder is only permitted to exploit and export the products that are listed on its Exploitation Permit. Consequently, if minerals are found within a permit area that are not listed on the Exploitation Permit, these must either be left in the ground or the mineral must be added to the Exploitation Permit.

All aspects of mine permitting are administered by the Bureau de Cadastre Minier de Madagascar (**BCMM**), which is a public entity operating under the supervision of the Ministry of Mines. Among other responsibilities, the BCMM processes any mining permit application and makes recommendations to the Ministry of Mines for the issuance of a

mining permit. Thereafter, and based on the BCMM's opinion, the Ministry of Mines issues an order granting the mining permit. The order is then transmitted to the BCMM, which will deliver the mining permit to the applicant after it has been duly signed by the BCMM managing director. The BCMM also records any movements (issuances, renewals, transfers, additions of new minerals, transformations, and cancellations) in connection with a mining permit upon review of the applicant's dossier.

4.2.2 Mineral tenure

The tenure instrument securing the Ranobe deposit is Permis d'Exploitation 37242 (**PE 37242**), which is a mining lease under Malagasy law. PE 37242 was issued to Base Toliara on October 23, 2017 and covers 125 km². It was created by the "transformation" and "merger" of three pre-existing tenure instruments (exploitation permits 37242 and 39130 and exploration permit 3315). PE 37242 expires on March 20, 2052, 40 years from the date of grant of the original pre-merger exploitation permit 37242, but may be extended as noted in Section 4.2.1.

PE 37242 (Table 4-1) provides the right to exploit ilmenite, zircon, leucoxene, rutile, guano, basalt, and limestone. The Ranobe deposit also contains a significant amount of monazite, a rich source of REEs. Base Toliara is taking steps necessary to permit exploitation of monazite, including adding it to the Exploitation Permit. For details about the steps required to permit the exploitation of monazite, refer to Section 24.

The Company has met all obligations in respect of the payment of administration fees and lodgment of activity reports, and the tenure is in good standing.

Table 4-1: Description of Exploitation Permit PE 37242

Permit No.	37242
Type	PE
Location	Tsianisiha – Mitsinjo Kiliarivo – Maromiandra – Belalanda – Ankilimanilike –Toliara
No. of squares	320 (of 625 m x 625 m)
Date of issue	October 23, 2017 (by order no 26539/2017)
Valid until	March 20, 2052
Term	40 years (and may be renewed once for a further 15-year term)
Minerals covered	Ilmenite, zircon, leucoxene, rutile, guano, basalt, and limestone
Annual permit fee	MGA 211,200,000 (approximately \$47,000)

4.3 ISSUER'S INTEREST

Energy Fuels Inc. owns 100% of the Toliara Project through its wholly-owned subsidiary, Base Toliara SARL, which it acquired in October 2024 following a merger with Base Resources Limited. Base Resources Limited acquired the Toliara Project in January 2018 and subsequently completed a concept study in 2018, a Pre-Feasibility Study in 2019, a Definitive Feasibility Study in 2019, an enhanced DFS in 2021 and a monazite PFS in 2023.

A summary of the history of the Toliara Project prior to its acquisition by Base Resources Limited is as follows:

- Madagascar Resources NL (MRNL) started exploring for minerals in Madagascar in 1995 and discovered several zones of HM mineralization
- In 2003, Ticor Ltd (now Exxaro Resources) negotiated an option over the project. Drilling occurred at Ranobe and Basibasy, and a PFS was commenced on the Ranobe deposit. Between 2005 and July 2009, a bankable feasibility study commenced, but was not completed (strategic focus shifted)

- MRNL, which became World Titanium Resources Limited (WTR) in 2011, engaged TZ Minerals International Pty Ltd (TZMI) to undertake a comprehensive review of the project, resulting in completion of a definitive engineering study (DES) in September 2012
- A concept to produce only an ilmenite and non-magnetic concentrate as the saleable product (at a time of weak overall market conditions) was developed
- In early 2016, African Minerals and Exploration Development Fund II purchased a majority stake in WTR and increased the proposed project scale from a mining rate of 8 Mtpa to 12.8 Mtpa. A definitive study was completed by external consultants, Hatch.

4.4 SURFACE RIGHTS

In addition to registered legal title, Madagascar has a system of customary occupation rights, recognizing land rights of traditional occupiers of land.

Foreign entities are not entitled to own land in Madagascar. Instead, occupation of land by foreign entities is typically through a long-term lease which can be for a maximum of 99 years.

To develop the project, the Company proposes securing access to 9,947.5 ha of land parcels, comprising 9,559 ha within PE 37242 and the balance for the project infrastructure, such as the mineral haulage corridor and export facility (refer to Figure 4-1).

Generally, the land is uninhabited and used primarily for grazing and charcoal production. Existing land tenure varies over the proposed project footprint, with registered titles existing south of the Fiherenana River and north of the river primarily consisting of untilted lands over which customary occupation rights are held (including PE 37242). It is believed that there are only 23 land parcels that have an existing formal land title. These are either situated along the proposed mineral haulage corridor or on the site of the proposed export facility.

Base Toliara is in the process of securing surface rights for necessary portions of the mining permit area and other areas covered by the project's proposed infrastructure (i.e., the mineral haulage corridor and the export facility).

The Company intends to seek private treaty arrangements directly with landowners and holders of customary occupation rights to vest titled land in the Government and extinguish the rights of holders of customary occupation rights for untitled land. As a backup, a declaration of public utility process (referred to as DUP) may be undertaken. DUP is a compulsory acquisition process under Malagasy law and would provide a backstop where private treaty negotiations are unsuccessful. DUP can be applied to both land that is titled and land where customary occupation rights exist.

Following the acquisition of titled land and extinguishment of customary occupation rights, the "large land acquisition procedure" under Malagasy law is expected to be implemented over all project areas. In brief, this procedure culminates in the handover of all project areas to the Government and titling of the land in the name of the Government. This will then enable the Company to seek one or more long-term leases of up to 99 years with the Government over those areas to formally secure tenure.

If a DUP process is undertaken, the Company anticipates that there would be a single DUP decree covering all Project areas (mine site, mineral haulage corridor and export facility) and that this would be commenced (and only implemented in respect of any landowners or holders of customary occupation rights that do not enter private treaty arrangements). The provisional footprint for the Project is shown in Figure 4-2.

The Company intends to develop and implement an international best practice-compliant Resettlement Action Plan (RAP) as the mitigation control for managing the risks and impacts associated with the resettlement of project-affected

persons in accordance with applicable IFC Performance Standards. This will be done in consultation with the affected persons.

If a DUP process is undertaken, this would be run in parallel to the Government-led DUP process to ensure legal compliance and adherence to IFC Performance Standards.

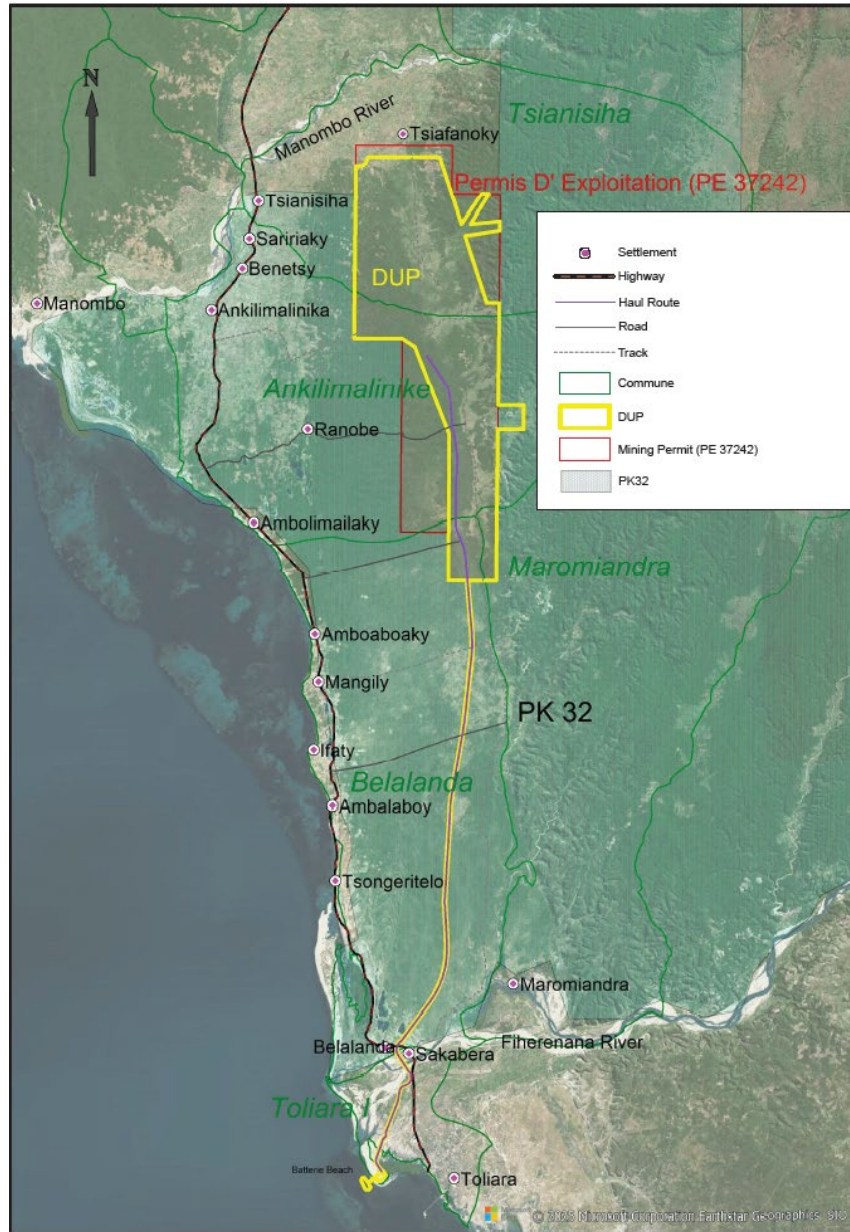


Figure 4-2: Provisional plan for project footprint

4.5 ROYALTIES, BACK-IN RIGHTS, PAYMENTS, AGREEMENTS, ENCUMBRANCES

The Government royalty payable is set out in the New Mining Code, which is 5% of the value of the mining products sold on a free on board (**FOB**) basis. There are no other royalties payable, and there are no back-in rights or encumbrances with respect to PE 37242. In addition to payment of a 5% royalty, the Company has committed to development,

community, and social project funding, both on an upfront and periodic basis, in a Memorandum of Understanding (**MOU**) entered with the Government in December 2024. It is proposed that these commitments would replace the community spend requirements in the New Mining Code. For further details about the key terms of the MOU, refer to Section 24.1.

4.6 ENVIRONMENTAL LIABILITIES

The New Mining Code requires the holder of an Exploitation Permit to establish financial assurance for environmental rehabilitation; carry out rehabilitation work—as mining activities progress and/or at the end of mining—according to the terms defined in the project’s ESIA; and provide proof of completion of the environmental rehabilitation work to initiate the process of obtaining an environmental discharge. On fulfilment of the environmental rehabilitation and restoration obligations, the New Mining Code establishes that the financial assurance will be returned.

5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

5.1 PHYSIOGRAPHY

The Toliara region lies in a broad coastal sand plain, bounded by a limestone escarpment to the east that rises to 200 m RL in places, and the Mozambique Channel to the west. A large offshore barrier reef extends north from Toliara for approximately 18 km.

The Toliara Project lies at an altitude of 100 m RL to 180 m RL in an area comprising eroded longitudinal and parabolic sand dunes that abut the prominent limestone escarpment. The dunes have remnant light to moderate shrubby vegetation as they have been significantly impacted by human activity undertaken by local communities, including hardwood timber extraction, charcoal production, and livestock grazing. Isolated stands of baobab trees and clusters of tamarind trees occur throughout the project area, primarily because baobab timber has no commercial use, and the tamarinds have cultural significance. Some remnant forest occurs immediately east of Ranobe village due to the local community's careful management and conservation efforts.

The deposit is immediately west of a prominent north-south trending escarpment with Tertiary limestone to the east and unconsolidated sand sediments to the west. The mineralized dune is approximately 22 km long, 2.0 km to 4.5 km wide, and averages 3 m to 39 m in thickness. The heavy mineral mineralization (including ilmenite, rutile, zircon, and monazite) extends from the surface, with higher grades found within the first 500 m west of the escarpment.

There are no permanent inhabitants in the project area, but the area is utilized for nomadic livestock grazing activity by local communities, and seasonal cropping occurs in the rainy season on the silty flood plains where large drainages exit the escarpment.

5.2 ACCESSIBILITY

The primary access to the Toliara Project area is via RN9, a sealed road that runs north-south along the coast west of the project and links the city of Toliara with the coastal town of Morombe to the north. Access to the project area, which is ~15 km east of RN9, is via 4WD tracks and old seismic cut-lines branching off RN9 and linking with a north-south baseline running through the core of the project area.

The RN9 passes through several settlements between the Toliara port and the Toliara Project mine site turnoff, with buildings and stalls only meters from the edge of the road. The close proximity of these buildings requires careful risk analysis and transport planning, particularly for the larger or abnormal loads required during the implementation phase.

The existing bridge crossing the Fiherenana River, 6 km north of Toliara city, narrows to a single lane, is in fairly poor condition, and is unsuitable to support operational activity.

Site access can be restricted during high rainfall events, with flash flooding experienced in the vicinity of drainage outfalls from the limestone hinterland and localized erosion of the unformed roads and tracks. Vehicle access in areas of poorly vegetated sands can be problematic if poorly equipped vehicles and/or inappropriate driving techniques are applied in areas of free-flowing surface sands.

There is an existing airport at Toliara with daily scheduled flights to Antananarivo. The airport has a sealed runway of adequate length to accept Boeing 737 aircraft and equivalents. As road transport between Toliara and Antananarivo is not advised, FIFO personnel movements will be by air.

5.3 LOCAL RESOURCES

The Toliara Project lies 45 km north of the city of Toliara, the capital of the Atsimo-Andrefana region. Toliara has a population of around 170,000 (2018) and is serviced by a container port handling small-scale import/export operations and an international airport, although this is only currently receiving daily flights from Antananarivo. Toliara has a local university, the University of Toliara, established in 1971, and a Fisheries and Marine Sciences Institute.

While Toliara has a government-serviced electrical and water supply, this does not extend beyond the city limits.

The local economy is based on agricultural production, traditional fishing activity, and small-scale salt production at multiple localities along the coast. Eco-tourism is a growing industry based on the unique local attractions and transport availability from Toliara.

There is a general lack of construction skills within the population near the Toliara Project. Therefore, to support construction activities, Base Resources expects to recruit a significant number of expatriates and personnel from other areas of Madagascar. From organizational design, community, and accommodation availability perspectives, it is anticipated that construction employees from outside the Toliara region will be housed on the mine site on a FIFO basis. This will require a village to meet construction accommodation requirements that will later be converted for use as an employee village during the mine's operational phase.

5.4 CLIMATE

The Toliara region is classified as "BWh" by the Köppen-Geiger system. The average temperature is 24.5°C, with seasonal rainfall averaging 650 mm falling over fewer than 20 days on site. The lowest levels of precipitation occur during the months of May to October, averaging 2 mm, with the greatest amount of precipitation occurring in January, with an average of 100 mm (see Table 5-1 and Figure 5-1). The region commonly experiences a strong prevailing wind from the south.

Southern Madagascar is classified as semi-arid and influenced by climate change, with recent El Niño events potentially providing a lens for the future. Currently, average rainfall for the region is relatively low at 350 mm due to the rain-shadow effect in the south-east of the country from the Anosyenne Mountains. In addition, an oceanic upwelling located offshore also induces cold currents limiting the development of clouds along the southern coast.

Madagascar has a cyclone season that runs from December to April, with strong winds, heavy rainfall, and storm surges causing flooding, landslides, displacements, and crop and livestock destruction in the area of landfall. Since 2000, 47 tropical storms and cyclones have made landfall in Madagascar, with the east coast of Madagascar having the highest frequency and impact. The Toliara district typically experiences flooding from high rainfall in the hinterland related to cyclones dissipating upon hitting the east coast, or strong winds and localized flooding from cyclones passing through the Mozambique Channel, with very limited direct landfall events.

Field operations are best undertaken during the cooler months (April to October), as conditions can be draining due to the high temperatures and humidity experienced during the summer. However, operations can readily occur year-round with appropriate precautions, although minor disruptions could occur due to tropical cyclone events during summer. The Tropic of Capricorn lies just south of Toliara city.

Table 5-1: Climate data for Toliara city

	January	February	March	April	May	June	July	August	September	October	November	December
Avg. Temperature °C (°F)	27.3 °C (81.2) °F	27.3 °C (81.1) °F	27.3 °C (81.1) °F	25.9 °C (78.5) °F	23.8 °C (74.8) °F	22.2 °C (71.9) °F	21.5 °C (70.6) °F	22.4 °C (72.3) °F	23.8 °C (74.8) °F	25.3 °C (77.5) °F	26.6 °C (79.8) °F	27.4 °C (81.4) °F
Min. Temperature °C (°F)	24.5 °C (76.1) °F	24.4 °C (75.9) °F	24.1 °C (75.5) °F	22.3 °C (72.1) °F	19.9 °C (67.8) °F	18.1 °C (64.6) °F	17.2 °C (62.9) °F	17.8 °C (64) °F	18.9 °C (66.1) °F	20.8 °C (69.5) °F	22.4 °C (72.3) °F	23.9 °C (75.1) °F
Max. Temperature °C (°F)	30.9 °C (87.6) °F	30.8 °C (87.5) °F	31.2 °C (88.1) °F	30.3 °C (86.6) °F	28.6 °C (83.5) °F	27.2 °C (80.9) °F	26.6 °C (79.9) °F	27.8 °C (82.1) °F	29.5 °C (85.2) °F	30.6 °C (87.2) °F	31.5 °C (88.7) °F	31.6 °C (88.9) °F
Precipitation / Rainfall mm (in)	217 (8)	138 (5)	66 (2)	24 (0)	8 (0)	5 (0)	4 (0)	4 (0)	5 (0)	12 (0)	31 (1)	85 (3)
Humidity(%)	75%	75%	72%	68%	64%	63%	61%	60%	59%	62%	65%	69%
Rainy days (d)	14	11	7	3	2	1	1	1	1	2	4	9
avg. Sun hours (hours)	10.1	9.9	9.9	9.7	9.3	9.2	9.4	9.8	10.4	10.9	11.3	11.0

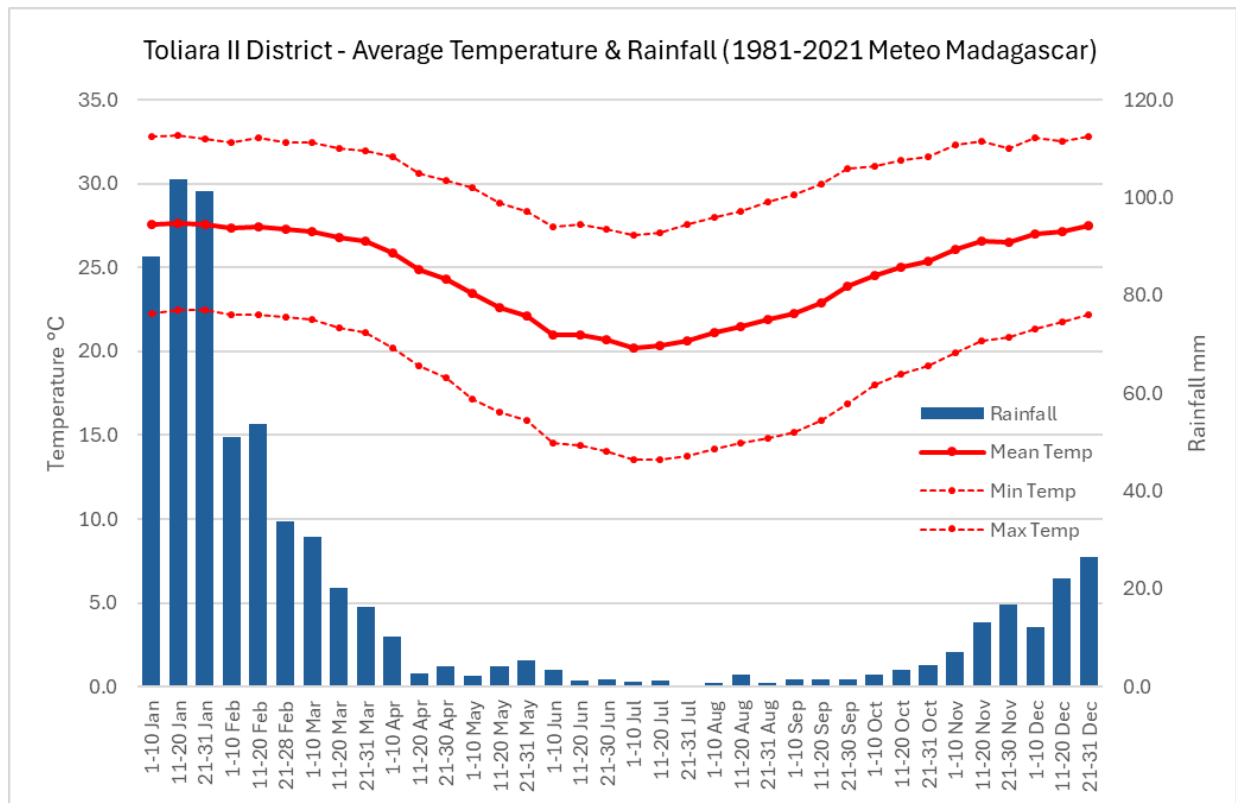


Figure 5-1: Average rainfall and temperature, Toliara district

5.5 INFRASTRUCTURE

The development of the Toliara Project will incorporate all the infrastructure required to support the mining, mineral processing, product haulage, and shipment of peak volumes of 1,326 ktpa of ilmenite, zircon, rutile, and monazite products. The existing infrastructure is either unavailable or incapable of supporting a large-scale mining operation.

Essential services such as water supply, sewage treatment, power generation, communications, security, fuel supply, and waste disposal are integral components of the Toliara Project's infrastructure. Extensive infrastructure will be required to support mining and processing activities, e.g., roads, offices, workshops, equipment stores, product stores, laboratories, and accommodation facilities.

Base Toliara is in the process of securing surface rights for areas covered by the Project's proposed infrastructure. Surface rights can be obtained through private treaty arrangements with landowners or expropriation through a declaration of public utility process.

As all products are destined for export, the Toliara Project requires secure and safe transport from the Toliara mine to the point of loading on ocean-going vessels.

The existing port at Toliara is unsuitable for the Toliara Project requirements as it can only handle coastal vessels due to its low draft (~7 m) and not the large OGV required to transport bulk minerals economically. Furthermore, the available port storage space is inadequate for the Toliara Project's storage requirements, and it would not be feasible for bulk road trains to negotiate Toliara's crowded and narrow roads. A new export facility on the northern edge of Toliara thus forms part of the project's infrastructure requirements.

The new export facility is 45 km from the mine site and will be connected by a new mineral haulage corridor and bridge across the Fiherenana River.

5.6 COMMENTS BY QUALIFIED PERSON

- The mineralized dune, extending 22 km in length and 2.0 km to 4.5 km in width, is a high-grade deposit situated west of a limestone escarpment. The shallow depth of mineralization supports efficient extraction
- The semi-arid climate with predictable seasonal rainfall permits year-round operations, although extreme weather events may cause occasional disruptions
- There is limited existing infrastructure, including substandard roads and bridges, which underscores the need for comprehensive development of roads, transport systems, and port facilities to support large-scale mining and export
- The limited construction expertise within the local population will require the importation of skilled workers. A FIFO workforce model will mitigate housing shortages while fostering regional economic development.

6 HISTORY

6.1 PRIOR OWNERSHIP

MRNL started exploring for minerals in Madagascar in 1995 and discovered several heavy mineral sands mineralization zones between Toliara and Morombe in southwest Madagascar in 2001. In 2003, Ticor Ltd (later Kumba Resources and subsequently Exxaro Resources) negotiated an option over the Toliara Project, which included all areas drilled to that date. Drilling was carried out at the Ranobe deposit, and a PFS was completed. Between 2005 and July 2009, Exxaro worked on a Bankable Feasibility Study (**BFS**) on the Ranobe deposit, but the study was not completed. In July 2009, Exxaro concluded that the Toliara Project no longer aligned with the company's new business focus and terminated its rights to the Toliara Project. In 2011, Madagascar Resources NL became World Titanium Resources Limited, then engaged mineral sand consultants TZMI to undertake a comprehensive review of the Toliara Project, which resulted in the completion of a Definitive Engineering Study in September 2012.

WTR undertook further work after the DES. Due to weak overall market conditions, it included an alternative concept to produce only an ilmenite and non-magnetic concentrate as the saleable product. In early 2016, African Minerals and Exploration Development Fund II purchased a majority stake in WTR. They reverted the Toliara Project concept back to the base case plan presented in the 2012 DES study. Recognizing the need to increase the project scale, a definitive feasibility study was completed by Hatch in 2017 based on an increased mining rate of 12 Mtpa (up from 8 Mtpa) and with a contribution from by-product rutile and zircon in the form of a non-magnetic concentrate.

Base Resources announced a binding agreement to acquire the Toliara Project in December 2017, with the transfer of an initial 85% interest occurring in January 2018, following a successful equity raise to fund the acquisition. Base Resources completed the acquisition of the outstanding 15% interest in 2020.

The property has been subjected to several major evaluation campaigns by three companies:

- MRNL applied for exploration tenure in 2001 and completed multiple exploration and evaluation programs that delineated the Toliara Project
- In 2011, MRNL listed on the Australian Securities Exchange (**ASX**) as WTR, after a reverse takeover of Bondi Mining. In early 2016, African Minerals and Exploration Development Fund II purchased a majority stake in WTR
- In 2020, Base Resources completed its acquisition of the Toliara Project.

6.2 EXPLORATION HISTORY

The Ranobe deposit has been the subject of four historical reverse circulation drilling exploration programs by WTR (or its predecessors/subsidiaries and partners) between 2001 and 2012, with a total of 26,728 m drilled. The drilling programs are listed in Table 6-1 and shown in Figure 6-1. All programs used Wallis Drilling to perform the drilling. The focus of historical drilling was the upper sand unit (USU), with only a small percentage of drill holes penetrating to the base of the lower sand unit (LSU).

Table 6-1: Drilling program summary

Program	Company	# Holes	# Meters
2001	MRNL	121	3,074
2003	Ticor Ltd (subsequently Kumba Resources Limited and now Exxaro Resources Limited)	400	9,424
2005	Kumba Resources Limited (now Exxaro Resources Limited)	288	6,135
2012	WTR	363	8,087
2018-19	Base Resources	770	29,743
Total		1,942	56,473

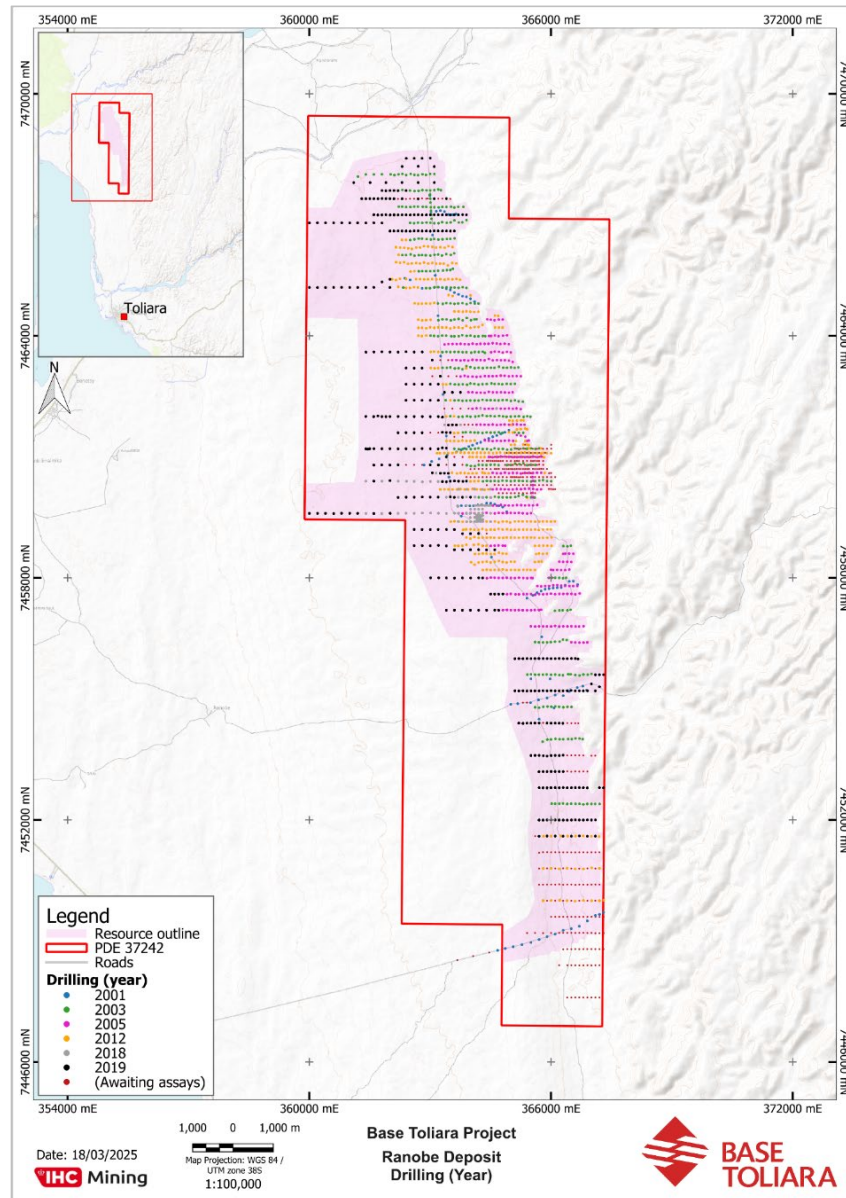


Figure 6-1: Drilling program summary

Exploration for heavy mineral sands along the southwest coast of Madagascar commenced in 1995 by a junior Australian exploration company, MRNL. During 1999, MRNL completed reconnaissance air core drilling between a prominent limestone escarpment and the sea to test the coastal plain south of Toliara for heavy mineral sands. The initial wide-spaced drilling to the south of Toliara suggested limited potential for economically viable heavy mineral sand deposits primarily due to the high trash component of the heavy mineral (**HM**) and carbonate cementing of the sand.

MRNL's focus then turned towards the coastal plains north of Toliara to conduct reconnaissance exploration, where HM mineralization comprising ilmenite with minor zircon and limited trash was identified during field trips in 2000 and 2001. This work defined a large dunal sand system extending approximately 150 km between Ranobe and Morombe as a potential target for significant volumes of heavy mineral concentration. The mineralogical data generated from the reconnaissance surveys indicated an overall northward increase in TiO₂ content of ilmenite from 48% at Ranobe to 55-60% near Morombe, with zircon also increasing from 6% to 8% of total HM heading north.

MRNL completed an air core drilling program in late 2001, investigating the dune system in the north between the Manombo River and Morombe, and completing eight traverses on existing access in the Ranobe area. This work identified six main areas as potential exploration targets: Ranobe, Morombe, Basibasy, Antseva, Befandefa, and Ankililoka, which were collectively referred to as the Toliara Sands Project. The drill lines at Ranobe enabled an initial inferred resource estimate (non-compliant with the JORC Code) of 1,335 Mt at 5.1% HM, comprising 75% ilmenite with TiO₂ content of approximately 48%, 5% leucoxene, 5–7% zircon, and 1% rutile. The drilling undertaken between the Manombo River and Morombe also indicated positive results.

In October and November of 2003, Exploitation Madagascar SARL (a subsidiary of MRNL) drilled a further 30 holes (for 885 m) between Manombo and Morombe and 400 resource definition holes (9,424 m) at Ranobe as part of an option agreement with Ticor. Drilling utilized a Mantis air core rig and was aimed at increasing geological confidence in the mineralization and a more detailed assessment of the mineralogy. MRNL signed an option agreement with Ticor Ltd for the Toliara Sands Project, and a "back-to-back" agreement was also signed with Kumba Resources, giving the company a 60% financial stake in the project, in November 2003.

During October and November 2005, Exploitation Madagascar SARL and Kumba Resources utilized a Wallis Mantis air core rig from Perth, Australia, to complete a further 288 holes (6,135 m) at Ranobe, 42 holes (1,486 m) at Ankililoka, 38 holes (1,386 m) at Basibasy, and 8 holes (237 m) between Manombo River and Morombe. The drilling at Ranobe aimed to define a JORC Code-compliant Measured Resource of >100 Mt, including assessment of the underlying limestone basement to assist evaluation of mining methods, and define a resource and the underlying basement in the central area (which contains numerous outcropping limestone pinnacles) for a possible future dredge path linking the defined southern and northern mineralization.

Kumba Resources Limited became part of Exxaro Resources Limited in November 2006, and the option agreement was also transferred at that time.

A PFS for the Ranobe deposit was completed in February 2005, and an extensive BFS was undertaken internally by Exxaro Resources during 2006 to 2009 based on the extensive exploration work and metallurgical test work completed. As these studies were for internal evaluation, they were not published. Exxaro Resources proposed a large-scale dredging operation at Ranobe to provide smelter feed for their operation in South Africa. However, a combination of adverse economic and political conditions led to Exxaro Resources terminating the agreement with MRNL in July 2009. All project information was transferred to MRNL, and TZMI was subsequently engaged to undertake a comprehensive project review.

In 2011, MRNL was listed on the ASX as WTR, after a reverse takeover of Bondi Mining. WTR engaged McDonald Speijers in 2012 to undertake an independent JORC Code (2004 edition) compliant resource estimate for the Ranobe deposit, using data from the 2001, 2003, and 2005 drilling programs. WTR completed further infill drilling of the Ranobe deposit during 2012, following recommendations from TZMI and McDonald Speijers to increase the Measured Resource component and extend the resource limits north and south. A total of 363 holes for 8,087 m were drilled.

As the resource estimate undertaken by McDonald Speijers was completed prior to the 2012 drilling program and issued under the 2004 edition of the JORC Code, an updated resource estimate was completed internally by WTR in January 2016 and reported under the 2012 edition of the JORC Code.

In early 2016, African Minerals and Exploration Development Fund II purchased a majority stake in WTR and proceeded with a feasibility study that increased the scale of operations to account for market conditions and generate a robust economic evaluation in order to attract development partners.

6.3 PREVIOUS MINERAL RESOURCE ESTIMATES

The Qualified Person has not done sufficient work to classify the historical estimates as current Mineral Resource and the estimates do not satisfy the requirements of NI43-101 or S-K 1300. Historical estimates are not being treated as a current Mineral Resource. They are being disclosed for background purposes only and they should not be relied upon. The most recent Mineral Resource estimate for PE 37242 was prepared by IHC Mining (Reudavey, 2021), as disclosed in Section 14.

Three historical resource estimates and three previous JORC Code-compliant Mineral Resource estimates were prepared prior to Base Resources' ownership; all but the 2004 estimate were based solely on the USU mineralization.

- In 2004, a mineral resource estimate (non-compliant with the JORC Code) for Ranobe was prepared by Tigor Ltd and reported to be in the order of 1,470 Mt at 4.7% HM, comprising 50% ilmenite, 20% altered ilmenite, 3% leucoxene, 7% zircon, and 2% rutile
- In 2006, Exxaro Resources Ltd completed an internal Mineral Resource estimate which is not available for review, but has been separately reported as totaling 710 Mt at 6.29% HM in Measured, Indicated, and Inferred categories
- In 2010, on behalf of Madagascar Resources NL, Geocraft Consulting reviewed previous estimates and generated a polygonal resource estimate of 707 Mt at 6.55% HM in Measured, Indicated and Inferred categories
- In 2012, McDonald Speijers estimated a JORC Code compliant Mineral Resource based upon drilling completed before 2006, using a 3% HM cut-off and maximum 30% slimes. This reported a total Mineral Resource of 959 Mt at 6.10% HM with an assemblage of 72.2% ilmenite, 2.3% rutile, and 5.6% zircon (see Table 6-2)
- A 2016, JORC Code compliant Mineral Resource estimate was prepared by Ian Ransome (WTR Competent Person) based on drilling completed before 2013 and used a 3% HM cut-off. This reported a total Mineral Resource of 884 Mt @ 6.2% total heavy mineral (THM) (at 3% HM cut-off) and 4% slimes containing 55 Mt of THM with an assemblage of 72.0% ilmenite, 2.3% rutile, 5.6% zircon, and 1.9% monazite (see Table 6-3)
- In 2017, Base Resources' Competent Person, Scott Carruthers, prepared a JORC Code compliant Mineral Resource estimate based on the same pre-2013 drilling and also used a 3% HM cut-off, see Table 6-4. This estimate was prepared as part of the Toliara Project assessment and due diligence process to include additional mineralogical information in the form of both QEMSCAN and MA98 results into the model. It reported a total Mineral Resource of 857 Mt @ 6.2% THM (at 3% HM cut-off) and 4% slimes containing 53 Mt of THM with an assemblage of 72% ilmenite, 2% rutile, and 6% zircon.

Following Base Resources' acquisition of the project, IHC Robbins completed a JORC Code-compliant Mineral Resource estimate in January 2019 utilizing additional drilling data from the 2018 program and a refined definition of the mineralogical data, see Table 6-5. The cut-off grade was revised to 1.5% HM following evaluation of the project economics as part of a 2019 PFS, and parts of the intermediate clay sand unit (ICSU) were incorporated into the resource estimate for the first time.

Table 6-2: 2012 Mineral Resource at 3% HM low and 30% slimes high cut-offs, estimated by McDonald Speijers

Category	Measured	Indicated	Inferred	Total
Zone	USU	USU	USU	
Tonnes Mt	209	226	524	959
HM Mt	15.9	13.8	28.8	58.5
HM %	7.6	6.1	5.5	6.1
Slimes %	4.0	4.0	4.4	4.2
Ilmenite % of HM	72.2	71.8	72.3	72.2
Rutile % of HM	2.4	2.2	2.3	2.3
Zircon % of HM	5.6	5.6	5.6	5.6

Table 6-3: 2016 Mineral Resource at 3% HM low cut-off grade, estimated by Ian Ransome

Category	Measured	Indicated	Inferred	Total
Zone	USU	USU	USU	
Tonnes Mt	360	171	353	884
HM Mt	26.0	10.2	18.5	54.7
HM %	7.2	5.9	5.3	6.2
Slimes %	4.0	3.9	5.0	4.4
Ilmenite % of HM	71.6	72.3	72.3	72.0
Rutile % of HM	2.3	2.3	2.3	2.3
Zircon % of HM	5.6	5.6	5.6	5.6
Monazite % of HM	1.8	1.9	1.9	1.9

Table 6-4: 2017 Mineral Resource at 3% HM cut-off grade, estimated by Scott Carruthers

Category	Measured	Indicated	Inferred	Total
Zone	USU	USU	USU	
Tonnes Mt	282	330	245	857
HM Mt	20.3	20.5	12.4	53.2
HM %	7.2	6.2	5.0	6.2
Slimes %	4	4	5	4
Oversize %	0	0	1	0
Ilmenite % of HM	72	72	71	72
Rutile % of HM	2	2	1	2
Zircon % of HM	6	6	5	6

Table 6-5: 2019 Mineral Resource at 1.5% and 3% HM cut-off grade, estimated by IHC Robbins

	Measured	Indicated	Inferred	Total
Category at 1.5% HM cut-off				
Zone	USU & ICSU	USU & ICSU	USU & ICSU	
Tonnes Mt	419	375	499	1,293
HM Mt	28	18	20	66
HM %	6.6	4.9	3.9	5.1
Slimes %	4	8	7	6
Oversize %	0	17	15	4
Ilmenite % of HM	75	72	70	72
Rutile % of HM	2.0	2.1	2.1	2.0
Zircon % of HM	5.9	5.7	5.4	5.7
Category at 3% HM cut-off				
Zone	USU & ICSU	USU & ICSU	USU & ICSU	
Tonnes Mt	398	306	318	1,021
HM Mt	27	17	15	59
HM %	6.8	5.5	4.8	5.8
Slimes %	4	6	6	5
Oversize %	0	0	1	0
Ilmenite % of HM	75	72	70	73
Rutile % of HM	2.0	2.2	2.11	2.0
Zircon % of HM	5.9	5.7	5.4	5.7

6.4 PREVIOUS MINERAL RESERVE ESTIMATES

The 2012 DES undertaken by TZMI for WTR resulted in estimating a Mineral Reserve within PE 37242 (noting that this was prior to the amalgamation and expansion of PE37242 to its current shape), see Table 6-6. A pit optimization study based on cost and revenue parameters supplied by TZMI and constrained to the USU was undertaken, and a pit was designed within the boundaries of PE 37242 and the extent of mineralized sands. An allowance was made for 1 m of ore loss on the pit floor due to the irregular nature of the limestone basement.

Table 6-6: 2012 Mineral Reserve for PE 37242, estimated by TZMI

Category	Proved	Probable	Total
Zone	USU	USU	
Tonnes Mt	148	13	161
HM Mt	12.0	1.20	13.2
HM %	8.12	9.18	8.20
Slimes %	4.02	3.65	3.99
Ilmenite % of HM	72.3	72.1	72.3
Rutile % of HM	2.4	2.3	2.4
Zircon % of HM	5.5	5.4	5.5

The 2017 DES undertaken by Hatch for WTR resulted in the estimation of a Mineral Reserve within the expanded PE 37242 tenure, see Table 6-7. Hatch drew upon the 2012 study and captured all Measured and Indicated Resource within defined battery limits. An allowance was made for 0.5 m of ore loss on the pit floor, 0.2 m of topsoil, and a 30° batter angle from the mining perimeter.

Table 6-7: 2017 Mineral Reserve for PE37242, estimated by Hatch

Category	Proved	Probable	Total
Zone	USU	USU	
Tonnes Mt	195.0	30.2	225.1
HM Mt	16.0	2.1	18.1
HM %	8.22	6.96	8.05
Slimes %	4.04	3.71	3.99
Ilmenite % of HM	-	-	71.4
Rutile % of HM	-	-	2.3
Zircon % of HM	-	-	5.6

The 2019 PFS and subsequent 2019 DFS undertaken by Lycopodium for Base Resources enabled the estimation of a Mineral Reserve for the Toliara Project, see Table 6-8. IHC Robbins and Base Resources undertook the work with key parameters including the USU domain, a mining recovery of 100% with an allowance for loss of 0.25 m of topsoil, and a 30° batter angle applied from the mining perimeter.

Table 6-8: 2019 Mineral Reserve for PE 37242, estimated by IHC Robbins

Category	Proved	Probable	Total
Zone	USU	USU	
Tonnes Mt	347	239	586
HM Mt	24	14	38
HM %	7.0	5.8	6.5
Slimes %	3.8	4.2	3.9
Ilmenite % of HM	75	73	74
Rutile % of HM	1.0	1.3	1.1
Leucoxene % of HM	1.0	0.8	0.9
Zircon % of HM	5.9	5.7	5.9

6.5 HISTORICAL FEASIBILITY STUDIES

The 2005 PFS and the subsequent 2009 BFS undertaken by Exxaro are not available for review. Exxaro Resources proposed a large-scale dredging operation at Ranobe to provide smelter feed for its operation in South Africa; however, a combination of adverse economic and political conditions led to Exxaro Resources terminating the option agreement with MRNL in July 2009.

The 2012 DES undertaken by TZMI for WTR identified the following base case for the development of the Ranobe deposit:

- A mine and mineral separation plant located at the deposit
- Dry mining using front-end loaders

- Primary processing by wet concentrator to produce a 90–95% HMC
- Further processing by a mineral separation plant utilizing magnetic, electrostatic, and gravity separation
- Production of two ilmenite products: primary (49% TiO₂) and secondary (57% TiO₂)
- Production of a non-magnetic (zircon/rutile) concentrate
- Trucking of products from the mine and storage at Toliara
- Export of products by shipping from a dedicated port facility.

The economic evaluation based on the project operational parameters, operational costs, capital costs, and forecast product prices returned a project NPV (10% discount rate) of \$257 million. The project IRR was 27%, with an initial payback period of three years. The estimated annual free cash flow per annum was \$47 million.

Despite the positive financial outcomes, WTR could not secure funding to progress the project development.

The 2017 DFS undertaken by Hatch for WTH utilized the parameters from the 2012 study, but scaled throughput from 8 Mtpa to 12 Mtpa. Capital and operating costs were updated, but financial outcomes were not reported.

6.6 PRODUCTION

There has been no production from the Ranobe deposit.

6.7 COMMENTS BY QUALIFIED PERSON

- Extensive and comprehensive exploration by various companies between 2001 and 2019 has identified heavy mineral sands zones between Ranobe and Morombe, establishing the geological and mineralogical profile of the deposit, with a notable focus on ilmenite, rutile, zircon, and monazite
- Multiple Mineral Resource estimates have been prepared over the life of the exploration period, each evolving and improving with advances in geological understanding and mineralogical analysis. The 2019 estimate by IHC Robbins reports 1,293 Mt @ 5.1% THM, reflecting increased understanding of the deposit through the integration of additional data
- Two major Mineral Reserve estimates (2012 and 2017) highlight the economic potential of the Ranobe deposit. The 2017 study stated a Mineral Reserve estimate of 225.1 Mt @ 8.05% HM, encompassing improvements in technical and economic parameters
- Despite significant Mineral Resource and Mineral Reserve assessments, no production has occurred to date, primarily due to shifts in project ownership, economic conditions, and strategic alignments.

7 GEOLOGICAL SETTING AND MINERALIZATION

7.1 REGIONAL GEOLOGY

The Ranobe deposit lies within the Phanerozoic cover sequences of the Morondava Basin. The oldest rocks within the region comprise Cretaceous sandstones in the east, which unconformably overlie a Precambrian meta-igneous basement. The sandstone units are punctuated by a series of late Cretaceous basalt and gabbroic intrusions of limited extent. These are progressively overstepped westwards along a series of disconformities by a sequence of Mesozoic limestones and marls, and Tertiary (Eocene) limestones, chalks, and marls, which form the bulk of the limestone plateau of Mahafaly.

Post-Eocene extension has produced several coastal parallel faults and insubordinate conjugate faults striking N100°E and N010°E. The most prominent of the coastal parallel faults can be traced from Cap St. Marie in the south of the island to north of Toliara (over 300 km) which produces a coastal parallel escarpment and defines the eastern boundary of the coastal plain. The downthrown coastal plain is predominantly underlain by Eocene limestone disposed in a series of poorly defined horst and grabens. Isolated inliers of Cretaceous basalts are also present in the rocks underlying the coastal plain, sub-cropping as tectonic windows.

Post Eocene to Quaternary unconsolidated sediments overlie the coastal plain. These are almost exclusively clastic sequences, comprised of a series of shallow marine to subaerial aeolian deposits. The predominant subaerial transport direction is from south to north. The coastal plain is cut by several rivers draining westwards from the highland of the limestone plateau of Mahafaly. The regional geology is shown in Figure 7-1.

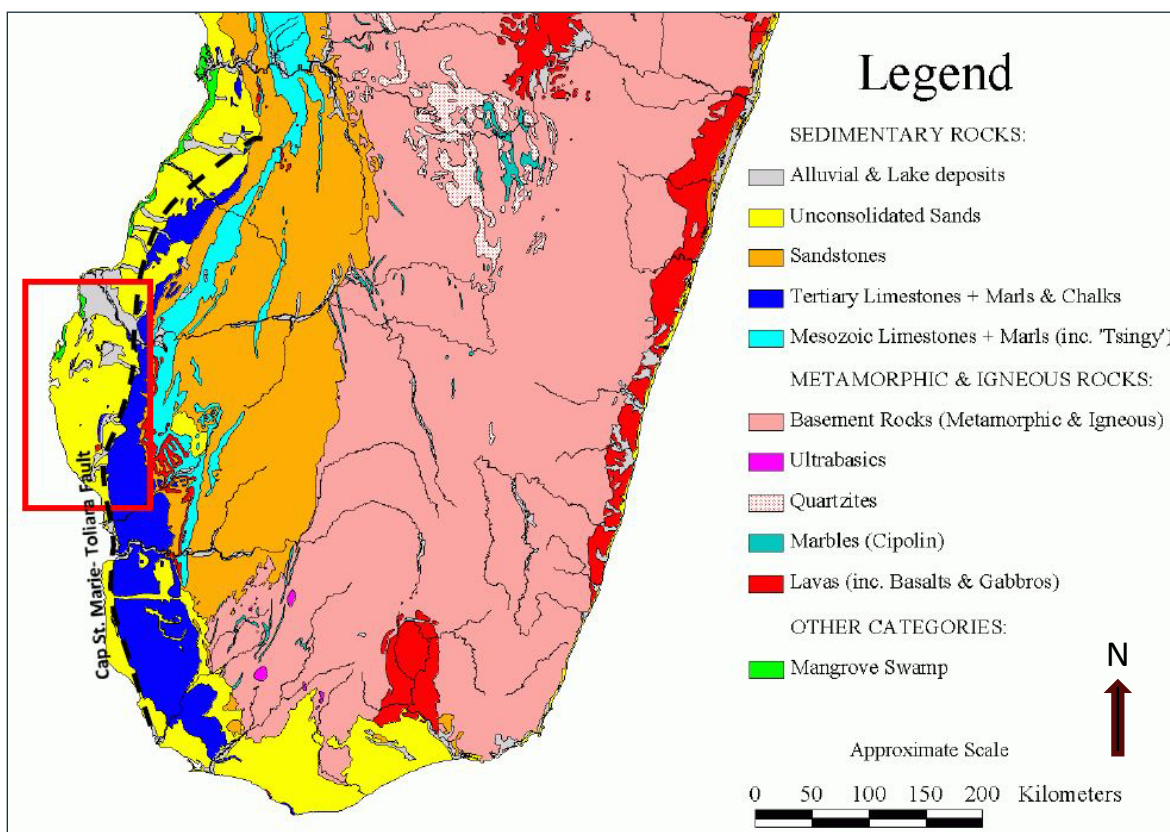


Figure 7-1: Regional geology map

7.2 LOCAL GEOLOGY

The deposit comprises an aeolian dune system, with little induration, low clay content, and variable HM concentrations (averaging approximately 6%, but up to 25% HM), overlying a fluvial or lagoonal unit of clayey sand with minor induration, moderate clay content and low HM concentrations. Along the western margin of the deposit, a thick marginal marine sand sequence occurs at depth, containing minor indurated horizons, low to moderate clay content, and variable HM concentrations (including strandlines), with up to 40% HM.

The HM of economic interest are ilmenite, leucoxene, rutile, zircon, and monazite, although significant quantities of garnet have been observed in the deeper marine sands.

7.2.1 Stratigraphic sequence

The local stratigraphic sequence was initially defined from a series of air core drill holes drilled between 2001 and 2005 by MRNL and the Ticor/Kumba joint venture and further refined by comprehensive drilling completed by Base Toliara during 2018–2019. A summary of the local stratigraphic sequence is given in Figure 7-2 and a series of stylized cross-sections are shown in Figure 7-3. The Ranobe deposit comprises three primary mineralized units: USU, the ICSU, and the LSU.

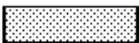
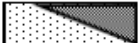
THICKNESS range	THICKNESS average	LITHOLOGY	STRATIGRAPHIC UNIT	CODE	EPOCH
0 – 3m	1m		RANOBE FORMATION	RNF	HOLOCENE
0 – 6m	2m		SILT FACIES	SSU	
0 – 40m	25m		UPPER SAND	USU	PLEISTOCENE
0 – 6m	3m		SILT FACIES	USSU	
<i>Unconformity</i>					
0 – 9m	3m		INTERMEDIATE CLAY SAND	ICSU	PLEISTOCENE
0 – 60m	40m		LOWER SAND	LSU	PLEISTOCENE
<i>Unconformity</i>					
0 – 1.5m	0.5m		SOIL		
>20m	na		LIMESTONE	LST	EOCENE

Figure 7-2: Local stratigraphic sequence

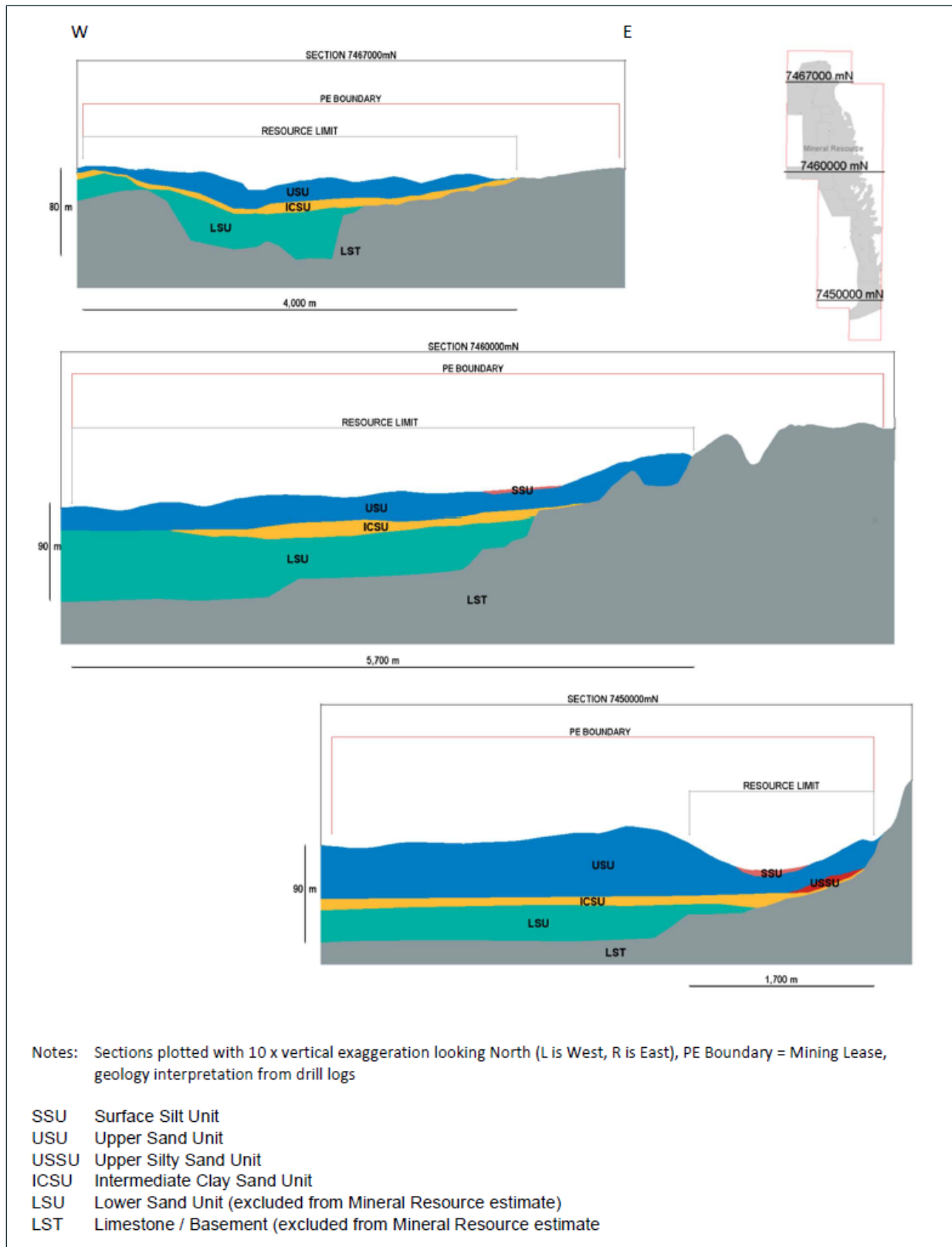


Figure 7-3: Stylized cross-sections from north to south

Historically, the Ranobe deposit mineral resource estimates only included material from the USU due to the limited number of drill holes that tested the lower mineralized units. Since acquiring the project, Base Toliara has broadened the drilling focus to include all mineralized horizons in the Mineral Resource estimate where supported by sufficient data and a reasonable prospect for economic extraction. The drilling completed by Base Toliara in 2018–2019 generated samples from all three mineralized units and allowed material from the ICSU to be included in the Ranobe deposit Mineral Resource estimate for the first time. The LSU has been excluded from the current Mineral Resource estimate because of observed differences in the mineral assemblage and limited mineralogical data for this unit.

The USU is a well-sorted fine-grained unconsolidated aeolian sediment. It contains approximately 4% slimes (**SL**) or clay and approximately 6% HM, mainly ilmenite, zircon and rutile, and low oversize (OS) on average, less than 0.2%. The ICSU is a thin unit primarily consisting of high slimes content with a dark red to orange-brown sandy clay and clayey sand material. It typically averages 3% HM and 25% SL. It is interpreted to have been deposited in a low-energy lagoonal environment. The LSU is orange-brown to yellow-brown medium-grained quartz sand with moderately low slimes content. It averages 8% HM and 9% SL. The LSU onlaps the LST basement and, much like the USU unit, its thickness increases to the west. The base of the LSU unit has the facies indicators of a shallow marine strand facies depositional environment, although this has not been tested extensively.

7.2.1.1 Limestone

The effective basement within the Toliara Project area is represented by the LST unit which also defines the eastern extent of the overlying unconsolidated sands where it forms a prominent north-south-trending LST scarp, albeit heavily dissected with a dendritic drainage pattern.

The LST unit comprises light grey to white LST that is often capped by weathered LST or a calcium-iron cemented crust. It constitutes the basement for the Ranobe deposit, and outcrops as both a north-south trending LST escarpment along the eastern border of the deposit and as isolated pinnacles and ridges in the central part of the deposit. The lithology is variable, but predominantly comprises unsupported biosparite/packstone or biomicrite.

A broad platform of LST with a shallow dip of 2° to 4° to the west-southwest is present across most of the deposit with a secondary buried LST escarpment feature 1 km to 2 km west of the outcropping escarpment that effectively controls the depositional extent of the LSU.

The LST appears massive to semi-massive with little bedding or internal structure visible. The lithology is variable, predominantly comprised of unsupported biosparite/packstone or biomicrite with some development of a sparry calcite cement within the packstones. The lithological assemblage is typical of a shallow-water back-reef depositional environment.

Figure 7-4 shows the relationship between the LST and the USU.



Figure 7-4: USU in the foreground with LST ridge in the background (view to east)

7.2.1.2 Lower sand unit

The LSU is comprised of orange-brown to yellow-brown and khaki medium-grained quartz sand with moderately low slimes content (<10%). The unit onlaps the LST basement, with the secondary buried LST escarpment typically defining the eastern extent of the LSU. The LSU thickness increases to the west, and its vertical extent was often beyond the practical limits (i.e., >90 m) of air core drilling. The LSU does not routinely occur on the LST platform, but has been intersected in isolated pockets or deep gullies and depressions in the LST platform.

The basal part of the LSU unit has the facies indicators of a shallow marine strand facies depositional environment, and some very high HM grades (up to 65% HM) have been intersected in horizons that appear to represent elongate strandlines. Thin beds of clayey sand may be present, and some consolidation is evident in the lower levels of the LSU, occasionally terminating air core drilling.

Additional drilling is required to improve the delineation and definition of the sedimentary characteristics of the LSU, but it is apparent that the LSU has a number of sub-units and the majority of these display a mineral assemblage markedly different from the USU. This suggests a different provenance and depositional environment for the sedimentary material making up the LSU.

7.2.1.3 Intermediate clay sand unit

The ICSU is a thin unit primarily consisting of dark red to orange-brown sandy clay and clayey sand material with a high slimes content. The ICSU unit onlaps directly over the LST basement in some areas and is present in depressions in the LST surface, but typically does not extend to the LST cliff as it appears confined to <100 m RL. It onlaps the LSU to the west. It can contain significant clay, but conversely may also be represented by a red-brown sand, particularly on the western margin of the deposit some distance from the LST escarpment. The unit's thickness is relatively homogenous, and it typically has a gentle dip to the west, perhaps representing a lagoonal low-energy environment related to marine regression or tectonic uplift. Thick sections of ICSU do occur within the subsurface floor of the large valley features exiting the LST hinterland, and there is an area within the central part of the deposit where slimes grades in excess of 50% are common.

Limestone gravel has been logged in the ICSU, and the unit can be semi-consolidated in places due to a combination of clay and/or induration.

As discussed above, the base of the USU often displays a thin orange-brown silty sand and/or a brown silty sand (soil) where it directly overlies LST basement, and the geological interpretation of the drilling data suggests this horizon transitions laterally into ICSU to the west. The nature of this transition is difficult to identify given the differences in logging data and sample intervals, but the "soil" horizon only occurs immediately above LST basement. For the purposes of resource estimation, it appears this horizon can be considered as a subset of the ICSU given that they occupy the same stratigraphic position, have similar mineralization characteristics and typically have distinct spatial extents (i.e., grade influence will only occur along the transition lateral contact which parallels the LST escarpment).

7.2.1.4 Upper sand unit

The stabilized aeolian USU consists of pale orange, well-sorted, well-rounded fine-grained quartz sand, separated by underlying units (ICSU and LSU) with a subaerial erosional unconformity. The USU thickness increases westward as it moves away from the LST escarpment in the east, such that it ranges from 0.5 m to 45 m thick. The unit is primarily unconsolidated with rare occurrences of insignificant cementation reported at the LST contact during historical drilling campaigns.

Within broad drainage features (i.e., large valleys exiting the LST hinterland or basins within the dune sands), the surficial sands of the USU can contain significant silt extending several meters downhole. This material has been designated as SSU and has been defined in four separate locations across the deposit during geological interpretation for resource modelling. Although interpreted to be primarily formed as part of subsequent weathering and erosional modification of the deposit, there is also some thought that the silt present in the LST valleys relates to aeolian deposition of more mobile finer grained material on and within the LST escarpment.

In the southern part of the deposit where the LST escarpment occurs as a strong linear feature, lenses of silty sand occur within the USU, primarily within the lower parts of the USU and typically abutting the LST escarpment. This material is slightly darker (orange to red), and the HM within the silty sand is finer-grained than the typical USU mineralization. This material has been designated as USSU and has been defined as a single elongate lens with a 6.5 km strike extent during geological interpretation for resource modelling.

Similarly, the base of the USU often displays a thin orange-brown silty sand, which often transitions to a brown silty sand (soil) where it directly overlies LST basement. Until a more detailed interpretation is possible (utilizing sonic drilling or exposure during mining), this material is typically incorporated with the ICSU as discussed below.

At the contact with the LST, LST talus is often present within the USU over a zone extending some tens of meters from the contact itself, Figure 7-5, with larger LST blocks intercalated with fluvial run-off features.



Figure 7-5: Polymict zone at the contact between the USU and LST

7.2.1.5 *Ranobe formation*

The Ranobe Formation (**RNF**) is a medium to fine grained yellow-orange aeolian unit which onlaps the USU from the west. It can be distinguished from the USU by its coarser grain size, lighter color, and relatively low slimes content. Refer to Figure 7-6. During drilling, a distinctive white dust is given off and fine-grained LST grains have been observed within part of the unit. Despite mapping by WTR that defined a boundary for the RNF, drilling during 2018 and 2019 has failed to systematically differentiate between RNF and USU, and it is postulated that the RNF represents a veneer of material draping the USU. The RNF essentially has no material impact on the economic geology of the deposit and is included in the local stratigraphy due to its historical context.



Figure 7-6: Visual comparison between the Ranobe Formation (left) and USU (right)

7.2.2 Geomorphology

The project area occurs on a coastal plain which is bounded to the west by the Mozambique Channel and to the east by an LST plateau with a coast sub-parallel escarpment, which runs the length of an extensive dune system between the Manombo and Fiherenana Rivers. The coastal dune field rises from sea level to 40 m above mean sea level (AMSL) over the first 12 km inland, prior to reaching a maximum altitude of approximately 140 m AMSL over 20 km inland.

Local topographic variations reflect the geomorphology of longitudinal and parabolic dunes, which dominate the interior of the coastal plain. Between Ranobe village and the Ranobe deposit, a north-northwest trending dunal topographic high to the west is related to horst and graben faulting of the basement. The northern margin of the Manombo-Toliara coastal plain is defined by the Manombo River, a broadly east-west flowing feature, which provides most of the regional irrigation water for agriculture. The southern margin is defined by the Fiherenana River, approximately 5 km north of Toliara, which also flows westwards to the sea.

The geomorphology of the project area can be categorized into the following four zones, from east to west, as shown in Figure 7-7:

- A north-northwesterly striking LST escarpment which bounds the eastern margin of the deposit and locally forms the high ground, varying in altitude between 150 m and 220 m AMSL
- A north-northwesterly striking hybrid parabolic and linear fixed echo mega-dune system, which impinges on the LST bluff to the east
- A stabilized aeolian scour/fluvial plain, which is open to the south, and partially closes to the north with the onlap of the younger parabolic dune system
- A series of stabilized leeward younger parabolic dune systems overlying a LST basement ridge to the west, the Ranobe Formation.

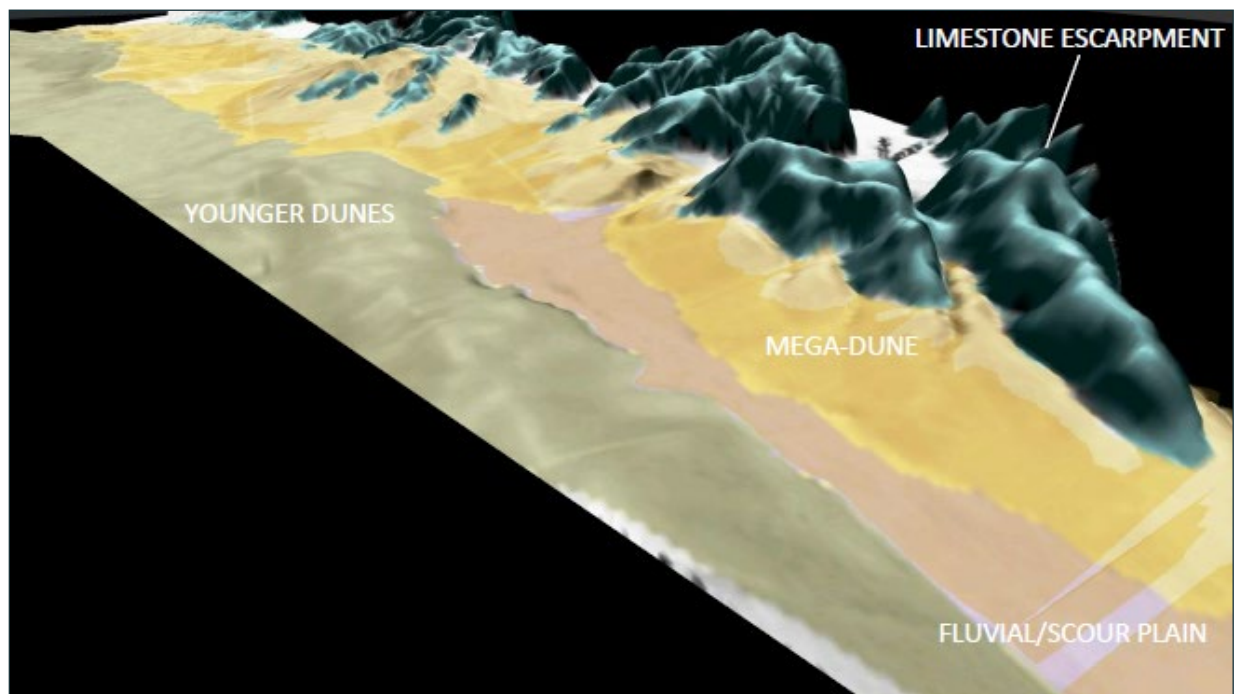


Figure 7-7: Geomorphology of the Ranobe deposit

The LST escarpment is characterized by a flat plateau, with a scarp slope developed at a maximum of approximately 20° and displays typical karst topography, with pock marks and proto honeycomb structures being developed. At the contact between the LST and the hybrid dune system, several small sink holes are developed where surface run-off from the LST high ground has collected in contact parallel drainage, causing dissolution of the LST. Climbing dunes are occasionally developed along the contact between the hybrid dune and LST scarp along southwest-facing slopes.

The crest line of the hybrid dune system runs almost continuously for over 16 km, forming one massive dune with some minor parasitic dunes, segmented into four sections by ephemeral drainage systems which drain from the LST hinterland northeast to southwest. The drainage systems appear to be coeval with dune accretion, rather than a superimposed feature.

Windward slopes are typically in the order of 2° dip, reaching up to 5° in places, with leeward slopes typically in the 1° range of dip. Dune toes are only developed within the valley opening along the impinging LST scarp. Where these occur, attenuation of the slimes component of the dune system by the prevailing winds has deposited a silt veneer over the valley floors. At the northern end of the dune, the crest line swings from north-northwest to west-southwest, forming the parabolic component of the hybrid dune, with the associated leeward apron and toe delineating the northern extent of the hybrid dune. The predominant dune transport vector appears to have been from the south-southwest to north-northeast.

The fluvial/aeolian scour plain of the inter-dune area is only preserved in the southern and northern sectors of the deposit area, where it is characterized by flat-lying featureless stabilized vegetated sand. In the south, it is bounded to the east by the stoss slopes of the hybrid dune, and to the west by the contact of younger onlapping dunes, reaching a width of up to 800 m. In the central and northern sector of the area, the plain is absent, having been overlapped by younger dunes. In the far north of the deposit, the scour plain is again found north of the parabolic component of the hybrid dune apron, where it comprises the palaeo-scour surface to dune migration.

The younger western dune system crest lines strike to the north-northwest, paralleling the older hybrid dune, rising above the leeward scour plain along a presumed basement ridge striking the same direction. The dune field is composite and anastomosing, with both intersecting and branching crest lines.

Three principal drainage systems are developed within the project area (see Figure 7-8). The southern drainage system exits the LST hinterland and turns almost due south, exploiting the inter-dune area. The central drainage system runs westwards until encountering the western dune system, where it filters away into the sands. The northern drainage system exits the LST hinterland and turns north, draining to the Manombo River catchment. The drainage system appears to have originally exploited an inter-dune area between the hybrid dune and the western dunes, which subsequently closed with the north-easterly migration of the latter. The drainage across the area is ephemeral and typically braided within sheet wash outflow areas. Little to no transport of allochthonous material within the channel is evident and, typically, the floor of the drainage channels is comprised of dune sand.

7.2.3 Structure

No folding or faulting in the mineralised units is observed nor interpreted from the drill log information at the Ranobe deposit.

7.2.4 Weathering

There is no physical or biological weathering of the Ranobe deposit's mineralized units. Chemical weathering of the LST basement is likely, but there is no evidence of re-precipitated calcium carbonate cementing the overlying units, nor is there evidence of iron leachate cementation (which leads to very hard iron cemented sandstone at deposits elsewhere in the world).

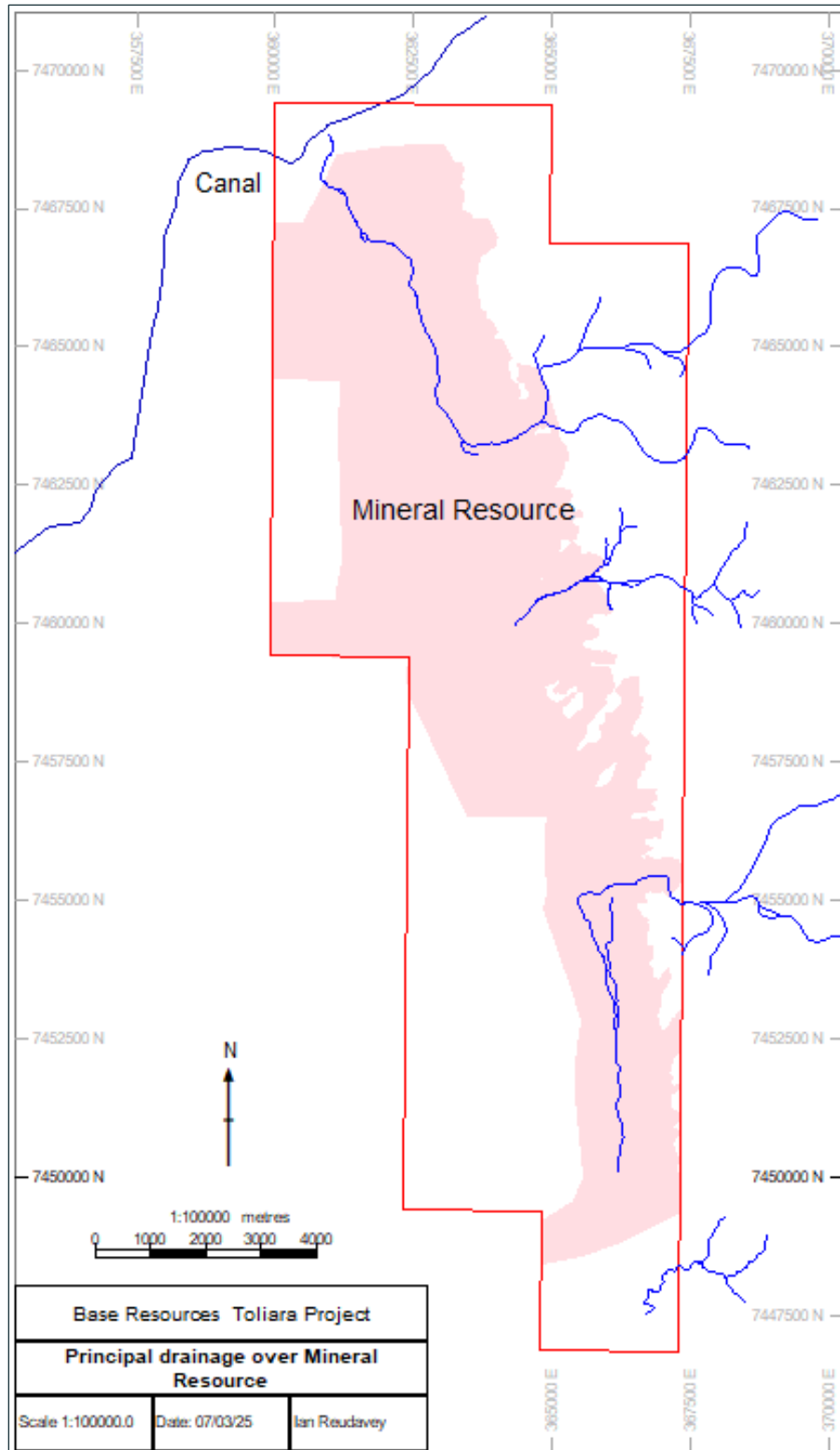


Figure 7-8: Principal drainage over the Ranobe deposit

7.2.5 Alteration

Alteration of ilmenite since deposition is the likely explanation for the range of titanium and iron oxides found within ilmenites at Ranobe, giving rise to leucoxene and the different ilmenite products: sulfate, slag, and chloride ilmenite, which have progressively increased titanium compared to iron content. Clay is a typical alteration product at most mineral sand mines and the generally low levels of clay at Ranobe are an indication that the clay-forming minerals, mainly plagioclase, were absent at the time of deposition.

7.3 MINERALIZATION

The deposit is hosted within a stabilized mega-dune system, which is arrested along the basement scarp and extends for approximately 22 km north-northwest. The entire dune unit is mineralized with an assemblage of ilmenite, zircon, rutile, and monazite concentrated within the sands by aeolian winnowing. The mineralization generally thickens (from 3 m to 39 m) and decreases in grade westwards away from the scarp slope. The deposit anisotropy parallels the escarpment slope, with higher HM grades concentrated along the mega-dune crest line. The geological controls on mineralization appear related to areas where the morphology of the LST escarpment (and the ridgelines that extend west from the escarpment) has acted as a barrier to aeolian transport mechanisms of the mobile sand mass that has resulted in concentration of heavy minerals via winnowing of the lighter material.

The aeolian dune system has little induration, low clay content, and variable HM concentrations (averaging approximately 6%, but up to 25% HM) overlying a fluvial or lagoonal unit of clayey sand with minor induration, moderate clay content, and low HM. Along the western margin of the deposit, a thick marginal marine sand sequence occurs at depth, which contains minor indurated horizons, low to moderate clay content, and variable HM concentrations (including strandlines) with up to 40% HM.

The mineral resource extends for 20 km north-south and averages 3 km wide east-west. The average depth of mineralization from the surface to the 1.5% HM cut-off is 20 m, with a range of 3 m to 39 m.

The heavy minerals of economic interest (in order of abundance) are ilmenite, zircon, monazite, leucoxene, and rutile, although significant quantities of garnet have been observed in the deeper marine sands.

The heavy minerals were eroded from hinterland basement rocks, transported by rivers to the ocean, and from there reworked by wave action and deposited as detrital grains on a beach. Subsequently, they were blown by the wind to their ultimate position in the Ranobe deposit, along with detrital grains of quartz.

7.4 COMMENTS BY QUALIFIED PERSON

- The Ranobe deposit comprises ilmenite, rutile, zircon, and monazite, with distinct mineralogical variations across the region. Notable increases in TiO_2 content and zircon concentration are observed from south to north
- Increased exploration activity has improved the Mineral Resource confidence; however, gaps in geological understanding remain, particularly in the underlying lithological controls and variability in mineral assemblages. In particular, the southern third of the deposit would benefit from further mineral assemblage composite work to understand mineral assemblage variability
- The LSU does not currently form part of the Mineral Resource estimate and presents potential for considerable opportunity to expand the resource in the future.

8 DEPOSIT TYPES

8.1 MINERAL DEPOSIT TYPE

Mineral sands (or heavy mineral sands) is the term given to a group of typically resistant minerals with relatively high specific gravity commonly found together in water or wind-concentrated sedimentary deposits. The principal valuable minerals included ilmenite (FeTiO_3), leucoxene ($\text{FeTiO}_3 \cdot \text{TiO}_2$), rutile (TiO_2), zircon (ZrSiO_4), and monazite ($\text{Ce, La, Th, Nd, Y, PO}_4$) and they represent primary sources of titanium, zircon, and rare earths that can be readily processed into concentrates for downstream processing (e.g., pigment industry for titanium, ceramics industry for zircon). The components of mineral sands deposits all have high specific gravity (greater than 2.85) and tend to lag or concentrate during depositional events (e.g., wave action, stream flow, mobile dune movement) when lighter components, such as quartz, are carried away.

The HM assemblage is predominantly reflective of the local or regional provenance, although variation can occur within deposits and individual strandlines. Prospective source rocks can include igneous (e.g., I-type granites), sedimentary (e.g., sandstone), or metamorphic (e.g., eclogite). The chemical characteristics of the component HM are also reflective of the provenance, with an example of this being that ilmenite sourced from anorthosite complexes is typically low in TiO_2 content and high in vanadium and chrome, with all three characteristics negatively affecting the salability of final products. Post-depositional influences, such as weathering/induration, can result in beneficial or deleterious changes to the chemistry of some minerals. Some examples of this include leaching of iron from ilmenite to upgrade the TiO_2 content (to eventually form leucoxene), which is beneficial, or iron staining of zircon that impacts its application in the ceramics industry.

Variability in mineralization grade of the Ranobe deposit occurs both down the mega-dune system profile and laterally. This reflects the mechanism of mineralization where HM is concentrated within the sands by aeolian winnowing, within a mobile dune complex that has experienced multiple episodes of deposition and erosion during the dune building process. The mineralization generally thickens (from 3 m to 39 m) and decreases in grade westwards away from the scarp slope. The deposit anisotropy parallels the scarp slope, with higher HM grades concentrated along the mega-dune crest line.

The primary factor controlling grade and geology continuity is mega-dune morphology. The limestone morphology also impacts sand deposition and continuity of grade along the eastern extents of the Ranobe deposit and in the central part of the deposit, where numerous limestone pinnacles occur.

A geological model was developed that identifies the boundaries of mineralization and other features such as overburden, water table, clay horizons, gravel horizons, cementation, induration, the presence of deleterious minerals that may adversely affect mining or mineral recoveries, and the likely quality of the mineral concentrate to be produced.

8.2 COMMENTS BY QUALIFIED PERSON

- The geological model of mineralization is sound and is supported by the extensive exploration history and development of significant mineral resource estimates
- This deposit model has the potential to be repeated along the south-west coastline of Madagascar and provides potential for exploration opportunities.

9 EXPLORATION

9.1 EXPLORATION DATA ACQUISITION

Base Toliara commenced an exploration drilling program in 2018, which continued through 2019 until the Malagasy Government formally suspended field activity for the project. The drilling program is detailed in Section 10.

This section provides contextual information related to other exploration.

9.1.1 Survey control

All data in the form of assays, geology, collar and drill hole data was provided with survey reference to Universal Transverse Mercator (**UTM**) Zone 38S and the projection is based on the World Geodetic System 1984 (**WGS 84**) spheroid. Adjustment has been made to z values to ensure a consistent height datum across the entire project (inclusive of construction and port planning activities). The LiDAR data was processed using an ellipsoid geoid model reduced level datum, but has since been adjusted down by 0.819 m to align with the National Geodetic Survey RL datum adopted by the project implementation team.

The LiDAR data was initially captured by Southern Mapping Corporation in 2007, with an additional survey flown by Southern Mapping in 2019 to extend data capturing across the entire lease and project area. The LiDAR data points were captured using an aircraft mounted 70 kHz laser, which classified the data points into ground and non-ground points. To assist with processing capabilities, the work was broken into a number of 1,500 m by 1,500 m grids. The final recorded coordinates were transformed from ellipsoidal to orthometric heights via the geoidal model. The survey data is stored in ASCII format x, y, and z under projection WGS 84 Zone 38S. The relative accuracy of this survey method is 15 cm root mean square in the vertical and 30 cm root mean square in the horizontal.

The ASCII data was converted into a multi-resolution raster file within MapInfo, which was resampled on a 4 m by 4 m grid using bicubic interpolation to generate a point file for import to Datamine Studio, with a digital terrain model subsequently created from these points. It is considered an accurate representation of topographic RL for geological interpretation and modelling.

9.1.2 Geophysics

Resistivity and passive seismic geophysical surveys were completed by Base Toliara during 2019 over several valley areas along the escarpment that were considered targets for water bore installation. The surveys were undertaken to assist with the definition of the LST basement depth and identify any large-scale structural features (e.g. faults) in the LST basement that could be used to guide water bore locations. Both methods were successful in defining the contact of the Pleistocene sandy sediments with the Eocene LST but did not clearly identify basement structures.

The geophysical data have not been used for exploration purposes and are therefore not discussed in detail.

9.1.3 Mapping

The contact between the RNF and the USU was mapped using ground traverses and handheld GPS by Ian Ransome in 2016. The areas of silty outwash deposits from the LST range and LST outcrop within PE 37242 were subsequently mapped using a combination of LiDAR elevation model and satellite imagery, with the 2016 LST mapping data used as a guide for this work.

9.1.4 Bulk density

In 2003, rudimentary measurements of bulk density (**BD**) were taken by WTR geologists at two locations within the area of mineralization and yielded values of 1.67 tonnes per cubic meter (**t/m³**) and 1.70 t/m³.

In situ density tests were conducted by a South African civil engineering test company Soillab Pty Ltd in 2007 using sand replacement dry density tests conducted at 14 sites across the deposit in excavated trenches ranging from 1 m to 2.15 m depths. Five sites had 2 m depth samples in addition to the 1 m depth sample, with the 19 test values reporting an average density of 1.701 t/m³ with a standard deviation of 0.084 after rejection of one outlier sample value. HM grades of the samples were not determined.

In 2012, McDonald Speijers suggested this method of density measurement was biased towards higher-than-average HM grades for the deposit, with the first 3 m of the mineralization adjacent to the sample sites exhibiting grades in the order of 9.3% HM. Therefore, a BD formula was applied to the model using an industry-wide standard calculation of specific gravity, where HM% is the percentage of heavy minerals:

$$\text{specific gravity} = 1.61 + (0.01 \times \text{HM}\%).$$

9.2 HYDROGEOLOGY AND GEOTECHNICAL

The characterization of hydrogeology for the project has been completed as part of groundwater studies related to infrastructure (refer to Section 18), as exploration drilling has shown that hydrogeology is not relevant to the mineralization considered for economic development.

Geotechnical information has not been routinely collected during exploration, as the mineralization considered for economic development comprises unconsolidated sands with known geotechnical properties. Geotechnical assessment is considered in relation to mining parameters for ore reserves (refer to Section 15), and in relation to infrastructure designs (refer to Section 18), and is not considered relevant to exploration.

9.3 EXPLORATION TARGET

An Exploration Target, see Table 9-1 and Figure 9-1, is reported for the LSU at Ranobe, on the basis that sufficient drilling has been completed to establish the exploration potential of heavy mineral sand mineralization within the LSU; however, the reader should understand that (i) the ranges of potential tonnage and grade of the exploration target are conceptual in nature, (ii) there has been insufficient exploration in relation to the mineral assemblage to estimate a Mineral Resource, (iii) it is uncertain if further exploration will result in the estimation of a Mineral Resource, and (iv) the exploration target therefore does not represent, and should not be construed to be, an estimate of a Mineral Resource or a Mineral Reserve.

Table 9-1: Estimate of LSU Exploration Target for the Ranobe deposit

Summary of Exploration Target ⁽¹⁾⁽²⁾							
Class.	ZONE	Material	In Situ THM	BD	THM	SLIMES	OS
		(Mt)	(Mt)	(t/m ³)	(%)	(%)	(%)
Exploration target	10 (LSU)	1,200–1,600	127–135	1.7	8–10	8–9	1–2
(1) Exploration Target reported at cut-off grades of 1.5% to 3.0% THM and the THM, SLIMES and OS grades are approximations							
(2) Reported Exploration Target excludes material affected by planned infrastructure and tailings storage							

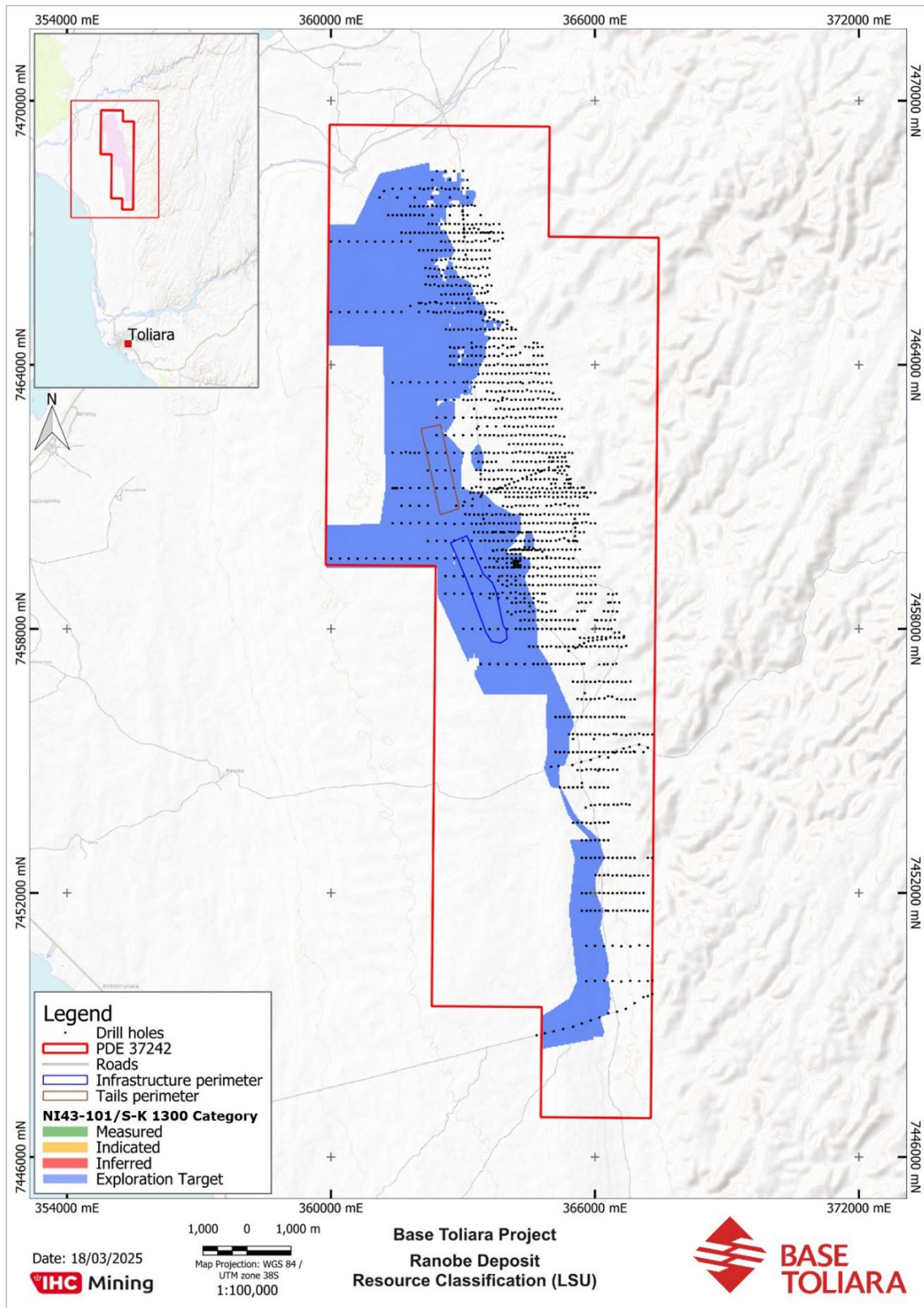


Figure 9-1: LSU Exploration Target for Ranobe deposit

A conceptual geological model for the LSU was developed from the drillhole logging data and the assay data. The LSU is comprised of orange-brown to yellow brown and khaki medium grained quartz sand with moderately low slimes content (<10%). The unit onlaps the LST basement, with the secondary buried LST escarpment typically defining the eastern extent of the LSU. The LSU thickness increases to the west, and its vertical extent was often beyond the practical limits (i.e. >90 m) of aircore drilling. The basal part of the LSU unit has the facies indicators of a shallow marine strand facies depositional environment, and some very high HM grades (up to 65% HM) have been intersected in horizons that appear to represent elongate strandlines. Thin beds of clayey sand may be present, and some consolidation is evident in the lower levels of the LSU, occasionally terminating aircore drilling.

Additional drilling is required to improve the delineation and definition of the sedimentary characteristics of the LSU – but it is apparent that the LSU has a number of sub-units and the majority of these display a mineral assemblage markedly different from the USU. This suggests a different provenance and depositional environment for the sedimentary material making up the LSU.

The LSU was included in the resource modelling process for the Ranobe deposit and was reported utilizing a lower cut-off grade of 1.5% HM and an upper cut-off grade of 3.0% HM within the area having 1,600m x 200m drill spacing. The tonnes and grades were reported as a range related to the 1.5 - 3.0% HM cut-off and are considered approximations due to the uncertainty introduced by the broad drill data spacing.

The exploration target is therefore based on actual exploration drilling results generated from the 2018 – 2019 exploration drilling program. Additional drilling of the LSU exploration target is proposed for 2026 over a 2-month period, together with collection of a bulk sample for metallurgical characterization and processing flowsheet development. The drilling will comprise progressive infill and N-S edge definition of the exploration target, initially at 800 m x 200 m spacing, then moving to 400 m x 200 m in areas of interest.

The ranges of tonnage and grade of the exploration target could change as the proposed exploration activities are conducted.

9.4 COMMENT BY QUALIFIED PERSON

- Internationally recognized coordinate reference systems, and standard and best practice topography surveys have been used for the project
- Density measurements have been highly localized and limited to a small number of data points, which does not allow for statistically significant measures of representation or variability. The bulk density algorithm utilized is considered industry standard for geology, material types and mineralization grades, and based on the experience of the Qualified Person has a low risk of generating tonnage estimates that will negatively impact the project
- Based on the work carried out to date, it is recommended that a program of additional in situ and laboratory density tests be carried out, focusing on varying depths and lithologies, to validate and refine the applied bulk density model. This can be done using a Troxler Nuclear Density Meter, but given this is an in-ground method, it will likely only be possible once mining and widespread excavation activities are well advanced. For now, the current density algorithm will provide an appropriate estimation of the bulk density
- There is significant upside potential for the Mineral Resource given the indicative Exploration Target for the LSU material. As is the case with an Exploration Target, there is no guarantee that additional drilling, assaying, or mineralogical test work will convert the target to Mineral Resource.

10 DRILLING

This section provides a summary of all drilling activity at the Ranobe Deposit from 2001 to 2019.

10.1 DRILLING COLLAR SURVEY

The 2001 drill holes were surveyed by hand-held GPS, whereas the 2003, 2005, 2012, 2018, and 2019 drilling were set-out and surveyed by handheld GPS with subsequent DGPS survey upon completion of drilling. All holes were oriented vertically using spirit level for rig set-up, and no downhole surveying has been completed given that minimal hole deviation is expected given the unconsolidated nature of the material.

All collar data were provided with survey reference to UTM Zone 38S and the projection is based on the WGS 84 spheroid. The entire project area is covered by LiDAR topographic survey, with data from a project-wide survey in 2019 being merged with the historical 2007 data and processed to generate a uniform dataset. All collar RLs have been generated by levelling against the digital terrain model generated from the LiDAR survey.

10.2 DRILLING METHOD

Drilling at Ranobe during the 2001, 2003, and 2005 programs was carried out using a Mantis 75 reverse circulation air core drill rig provided and operated by Wallis Drilling Pty Ltd. The 2012, 2018, and 2019 drilling programs utilized a Mantis 80 reverse circulation air core drill rig, also provided by Wallis Drilling Pty Ltd. Air core is considered a standard mineral sands industry technique for evaluating HM mineralization where the sample is collected at the drill bit face and returned inside an inner tube. A standard 96 mm diameter (HQ) drill rod was used in the early programs, whereas a standard 76 mm diameter (NQ) rod was used in the 2018–2019 program, with both rods 3 m in length.

Ground conditions are essentially dry with excellent sample recovery reported and no drilling within the upper sand unit was terminated due to poor ground conditions. Occasional water injection was utilized to assist in penetrating the more clayey parts of the intermediate clay sand unit and there are areas where the ICSU contained swelling clays that led to drilling issues. Deeper drilling within the northwestern project area routinely intersected groundwater in the LSU immediately above induration or basement, often resulting in holes being abandoned.

10.3 DRILLING PATTERN

A variety of drill spacings occur for the Ranobe Deposit from wide line spacing during early stages, progressing to tighter infill drilling over the core of the deposit and wider spacing over the extremities. Drill hole locations are presented in Figure 10-1 and cross-section in Figure 10-2. A summary of the deposit drilling and assaying is presented in Table 10-1.

Early drilling during 2001 by MRNL consisted of eight latitudinal lines and one longitudinal line utilizing existing access, resulting in a variable line spacing approximating 1,500 m apart ranging to 5,800 m in the southern extremities of the project. The majority of drill hole spacing was at 100 m intervals, extending to 200 m intervals on the western boundary of the deposit.

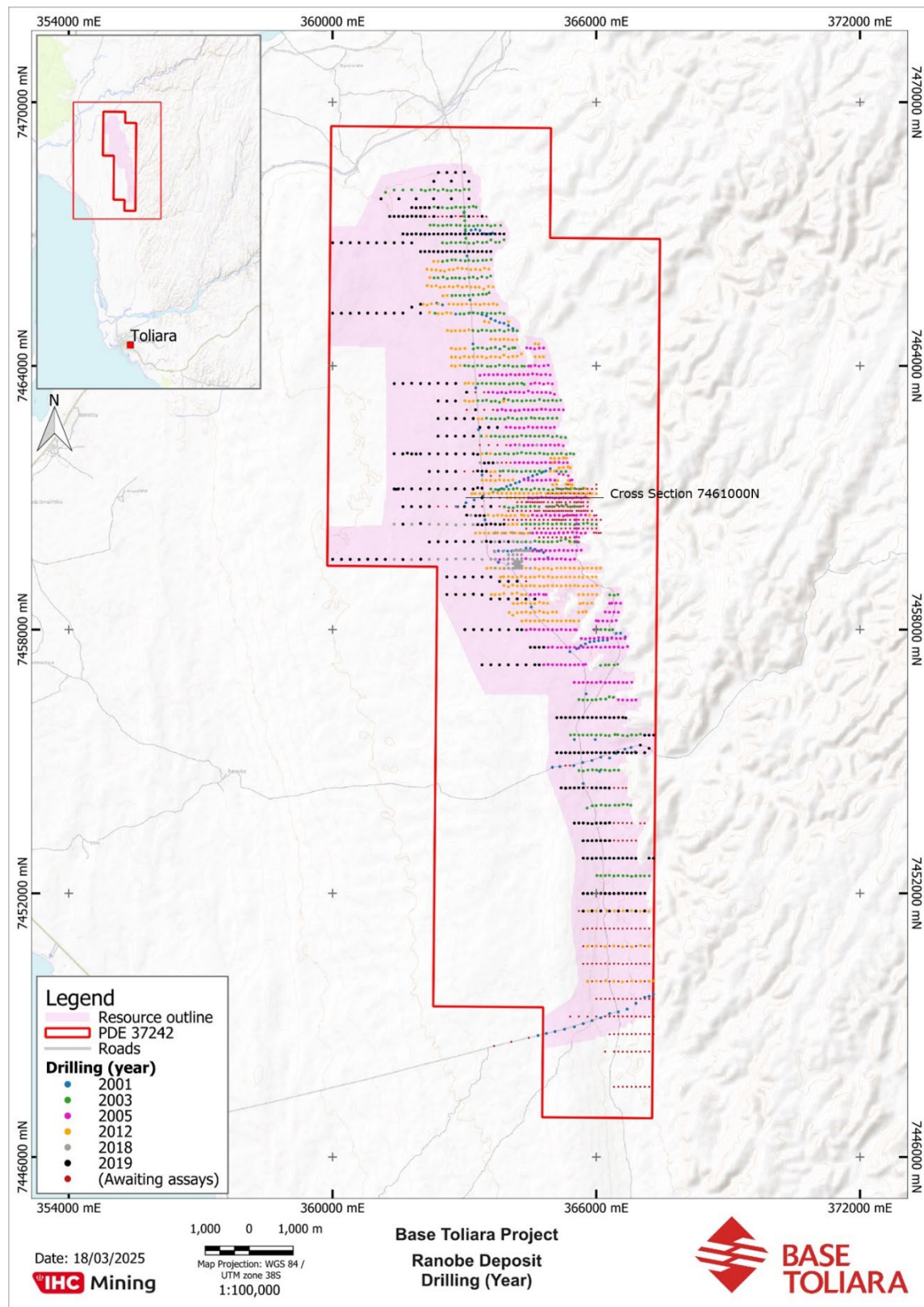


Figure 10-1: Plan of the resource outline and drill hole locations by year for Ranobe

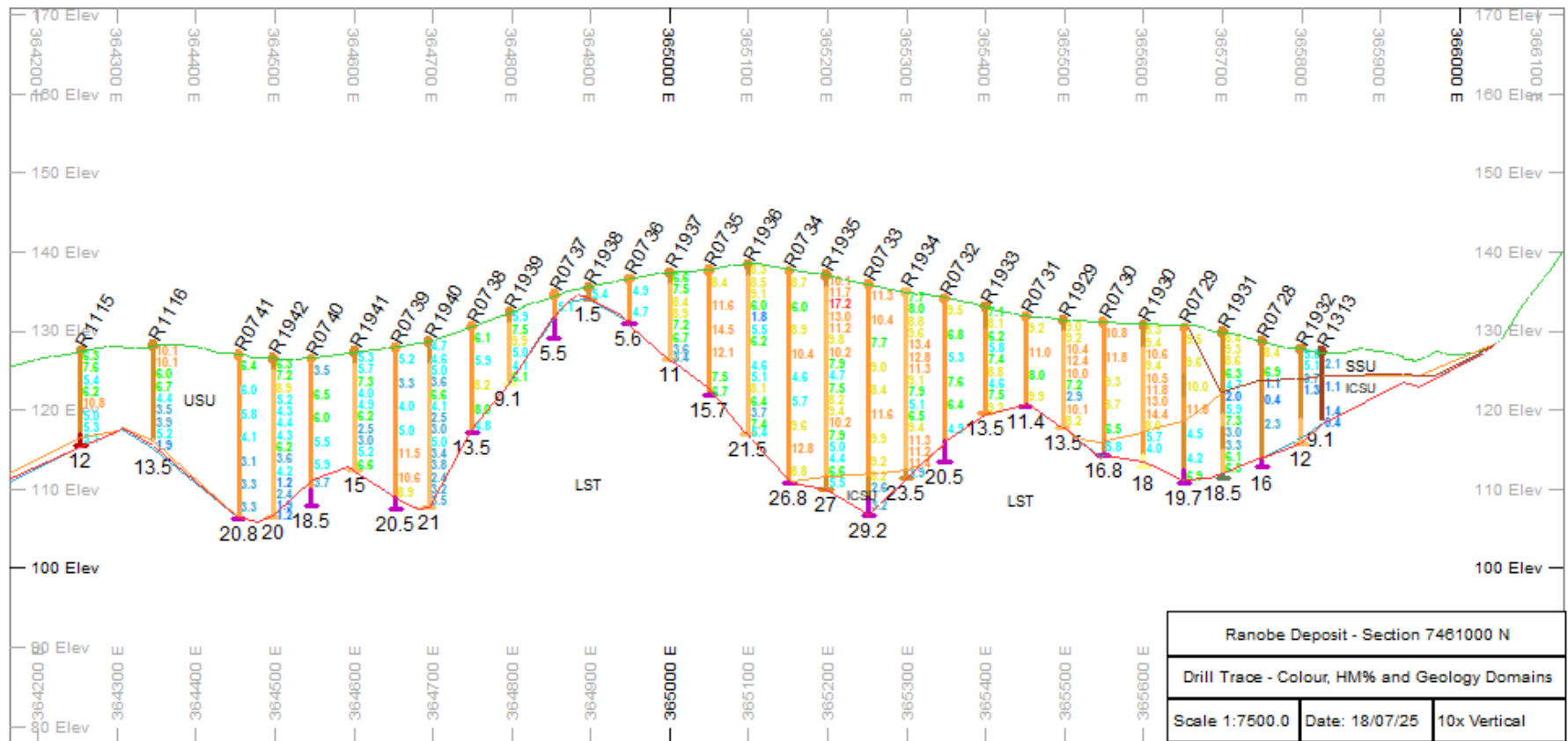


Figure 10-2: Drill hole cross-section – initial mining area

Table 10-1: Summary of deposit drilling and assaying

Year	Number of holes	Hole range	Max. depth	Min. depth	Average depth	Meters	Meters %	Assays count	Assays %
2001	121	R0001–R0121	54	3	25.4	3,074	5.4%	1,225	5.4%
2003	400	R0201–R0600	48	2	23.6	9,424.1	16.7%	3,045	13.6%
2005	288	R0601–R0888	48	1.1	21.3	6,134.7	10.9%	2,130	9.4%
2012	363	R1000–R1358 MB001–MB004	69	2.1	22.3	8,086.7	14.3%	3,578	15.7%
2018	78	R1359–R1436	81	6	46.4	3,617	6.4%	2,266	10.0%
2019	692*	R1437–R2106	102	1.5	37.8	26,136.4	46.3%	10,492**	46.9%
Total	1,942		102	1.1	29.1	56,472.9	100%	22,736	100%
* Includes 20 re-drilled holes (due to samples being destroyed) and 2 twin holes									
** Approximately 5,350 samples were assayed in 2025 following lifting of suspension									

The drilling program in 2003 by MRNL/Ticor was conducted along 29 latitudinal lines and one longitudinal line. Of the northern drilling transects, 21 utilized a 400 m by 100 m drill spacing. Much like the 2001 drilling program, the hole spacing increased to 200 m intervals at the western boundary. The central and southern sectors of the deposit consisted of seven transects, which used an 800 m by 100 m spacing. The southernmost transect was offset by 1,200 m with 100 m hole spacing intervals. No drilling was undertaken in the central forested area of the deposit as directed by Office National pour l'Environnement's environmental conditions for the exploration program.

The 2005 drilling program by MRNL/Kumba was undertaken to infill the 2003 drilling with a set of 25 latitudinal lines and one longitudinal line for geostatistical purposes. This infill program followed a 200 m by 100 m drill pattern for the majority of drill lines, with a few line spacings set at 400 m intervals. In the central part of the deposit, a 50 m easting offset from previous drilling was utilized, resulting in a staggered drill grid pattern.

The 2012 drilling program by WTR consisted of 29 latitudinal lines and was used to extend the 2003 and 2005 drilling westward, and to reduce the latitudinal spacing of the existing drill grid to 200 m. Drill hole intervals remained at 100 m spacing, but an additional three lines were drilled at 800 m by 200 m spacing to increase coverage over the southern extent of the mineralization.

The 2018 drilling program by Base Toliara targeted extending the resource westward and at depth. Tightly spaced 50 m by 50 m drilling took place for geostatistical purposes, which was then stepped out to 100 m by 100 m drill spacing. The drill spacing increased heading westward to 800 m by 200 m intervals and then again to 800 m by 400 m spacing at the western boundary. The program also included drilling to greater depths than previously undertaken to determine the nature and geological characteristics of the ICSU and LSU, particularly given that high-grade HM mineralization had been previously intersected in LSU in deeper holes. Unfortunately, the 2018 drilling program was disrupted by multiple events relating to community unrest and subsequent restricted access to the site.

The 2019 drilling program by Base Toliara continued the 2018 program objectives to extend the resource further west and at depth from current limits using a consistent 400 m by 100 m drill spacing over the southern part of the deposit. Drilling was also completed in the northern part of the deposit to ensure adequate coverage of MinModel mineral assemblage samples, with infill lines being completed to give a consistent 200 m line spacing and 100 m hole spacing. The program was not completed due to a range of access issues, and some of the western extents of mineralization remain untested. A significant number of samples from the 2019 drilling program were held in storage in Toliara due to the Government suspension of project activity; and these subsequently underwent analysis with HM results reported in May 2025 and mineral assemblage results in progress. Interpretation and integration of data cannot be progressed until all results are finalized.

10.4 COMMENTS BY QUALIFIED PERSON

- Drilling has been carried out in a systematic manner using an industry-leading drilling contractor, with progressive infill and collection of geological information at each step
- Sampling has been carried out on varying lengths as the needs of the exploration programs have dictated, with the final and dominant 1.5 m sample interval considered to be completely fit for purpose
- Challenges in sample integrity and chain of custody have been infrequent; however, sample residues from earlier campaigns were not always retained and some later samples have been lost or deteriorated due to logistical challenges and community unrest. This has highlighted the importance of secure and consistent sample management protocols
- Deeper drilling in recent campaigns encountered issues such as groundwater in the LSU and swelling clays in the ICSU, underscoring that there is some geological complexity within the deposit that requires definition.

11 SAMPLE PREPARATION, ANALYSIS AND SECURITY

This section describes the sample collection, preparation, and analytical procedures used to provide confidence in the estimation of mineral resource and the economic evaluation of the deposit.

11.1 TWIN DRILLING

As a result of the staged drilling campaigns and the 2018 geostatistical drilling program, which comprised a detailed grid pattern over part of the deposit already drilled, there are 34 holes with assay data that have been twinned (i.e., drilled within 20 m of an existing hole). The analysis of the twinned data is discussed in more detail below, with the relationship between twinned holes summarized in Table 11-1.

Table 11-1: Twinned drilling

Year	2001	2003	2005	2012	2018	2019
2001	0	-	-	-	-	-
2003	4	0	-	-	-	-
2005	1	0	0	-	-	-
2012	1	0	3	0	-	-
2018	1	3	9	8	0	-
2019	1	1	0	0	0	2
Total	8	4	12	8	0	2

Analysis of twinned holes of the 2001 drilling suggests that the assaying is as follows:

- Biased low for oversize: Although OS grades are very low, it is apparent that in other years some OS were recorded, whereas no 2001 samples reported OS
- Biased low for slimes: Although SL grades only average around 4% to 5%, the 2001 results are lower than other years by approximately 20%
- Biased high for HM: A range of HM grades has been twinned, and the 2001 results are consistently higher than other years by 10% to 20%.

The lack of details on the 2001 assaying method prevents a firm conclusion from being reached, but it is possible that lower quality screening and de-sliming methods that generated lower oversize and slimes grades could artificially inflate HM grades. Given the low number of 2001 assays utilized in the resource estimate and their broad geographical spread, the potential impact on the resource estimate is considered minimal.

For the 2003 drilling, there are insufficient data points across the twinned drilling programs to draw any firm conclusions regarding potential bias, but the available data suggests no meaningful bias between the 2003 and 2018 drilling programs.

For the 2005 drilling, it is reasonable to conclude that the assaying is as follows:

- Biased high by 10% to 20% for both slimes and HM relative to 2012
- Consistent with the 2018–2019 drilling.

For the 2012 drilling, it is reasonable to conclude that the assaying is within a reasonable range of variance relative to the 2018–2019 drilling and assaying.

Reviewing all of the above data suggests that the 2018–2019 drilling data may have a small negative bias for slimes (i.e., reports lower than historical drilling) and a smaller positive bias for HM (i.e., reports higher than historical drilling). However, the bias is generally within the range of natural variance. Analysis of the assay data for blind standards does suggest the 2018–2019 drill data is reporting lower slimes grades, but no bias is evident for HM.

The two holes twinned in 2019 report the following:

- For hole R1578: A correlation between individual HM assays of 0.965, slimes assays of 0.870, and oversize assays of 0.701
- For hole R1603: A correlation between individual HM assays of 0.973 and slimes assays of 0.810.

This aligns with expected trends for mineral sands where assay precision decreases from HM to slimes to oversize.

11.2 DRILLING SAMPLES

Each drilling program at the Ranobe deposit utilized a Wallis Mantis air core drill rig to collect complete interval samples via a basic cyclone separation system discharging into plastic buckets. Air core drilling is considered industry standard for the mineral sands industry as the technique yields good recoveries with little to no contamination. Wallis Mantis drill rigs use face discharge bits, at low air pressures (105–140 kPa) and low rotation speeds (45–65 rpm) to maximize sample recovery.

Weighting of sample recovery was visually controlled by the site geologist for each of the drilling programs with no empirical procedure in place. All recoveries were reported to be sufficient with no significant material loss, although some deeper holes in 2019 were terminated due to poor sample recovery.

The majority of the 2001 drilling consisted of 2 m interval sampling and, to a lesser extent, 3 m intervals. Two subsamples were taken from each interval, a 300–400 g series A sample in a sealed plastic bag for analysis in Australia, and a 2–3 kg series B sample in a calico bag for bulk sample compositing. Sample residues were not retained for this program, presumably due to the reconnaissance nature of exploration and the absence of a designated storage facility.

The 2003 drilling used 3 m composite interval samples, with drilling paused every 1 m to allow sample discharge to a plastic bucket, which was then 1:1 riffle split. One split was bagged and the other was retained in a bucket to composite with other samples. At the end of the 3 m rod, the composited 1 m splits were split twice through a 1:8 splitter to generate a 300–400 g subsample (series A) for analysis. Additional samples (series B and C) were generated every 20th sample for check analysis. Sample residues for this program were largely consumed by subsequent metallurgical test work and no surplus was retained.

The 2005 drilling used nominal 3 m interval samples, sample discharging samples into a plastic bucket, although if a change in lithology occurred within the 3 m interval, the bucket was changed out to collect separate samples. The sample was split using a Jones splitter with a 4 cm aperture, with one half (~8 kg) then split three times using a Jones splitter with a 2 cm aperture to generate a 1 kg subsample (series A). The residue from all splitting was retained as reference. An additional 1 kg of samples (series B and C) were generated every 20th sample for check analysis. Sample residues from this program were retained on site, but there has been some deterioration of the sample bags over time, and many samples were damaged and lost during relocation from site following community unrest and repeated vandalism in 2019.

The 2012 drilling used a combination of 1.5 m and 3 m sample intervals, except for four drill holes (MB001–MB004) which utilized 1 m intervals to facilitate comprehensive mineralogical analysis. Sample splitting was carried out as per the 2005 drilling. Sample residues from this program were retained on site, but there has been some deterioration of the sample bags over time, and some samples were damaged and lost during relocation from site following community unrest and repeated vandalism in 2019.

The Base Toliara 2018 and 2019 drilling programs utilized 1.5 m sampling intervals to provide greater downhole resolution for sampling and identification of key stratigraphic contacts. The sample was collected in a plastic bucket and split on site using a single pass through a Jones splitter with a 2 cm aperture to generate a subsample for analysis, with the remainder laid out on site to assist logging and interpretation. A field duplicate sample with a unique sample number was collected at a rate of 1 in 33 by bagging the second split. Additional sample preparation was undertaken before analysis, including air drying and multiple passes through a 1 cm aperture riffle splitter to generate a 500 g to 800 g sample for analysis, with the surplus re-bagged and retained for reference.

The distribution of assay sample interval for assays utilized for the resource estimate shows the dominance of 1.5 m intervals (around 63% of samples), with a large secondary population of 3 m intervals (around 30% of samples), and minor 2 m and 1 m populations (4% and 2% of samples respectively relating to the initial 2001 drilling and the 2012 detailed drilling for mineral assemblage). There is also a very small but even spread of 0.1 m intervals ranging up to 2.9 m, which reflects holes being terminated due to basement intercepts.

An assessment of sample weights for the 2018/2019 drilling was undertaken to verify that samples collected were of a consistent mass and were representative of the drilled interval. The theoretical sample mass is approximated by the following calculation:

$$5.5 \text{ kg} = (\pi r^2 \times \text{sample length} \times \text{BD} \times 50\% \text{ split or } \pi \times (0.076^2) \times 1,500 \times 1.64 \times 0.5),$$

The 17,973 1.5 m interval samples that were weighed reported an average mass of 4.8 kg. This suggests minor sample loss during drilling, splitting, and sampling operations, and is consistent with reverse circulation drilling operations. The distribution of sample mass is normal with no bias (see Figure 11-1) and 92% of samples weigh between 3 kg and 7 kg.

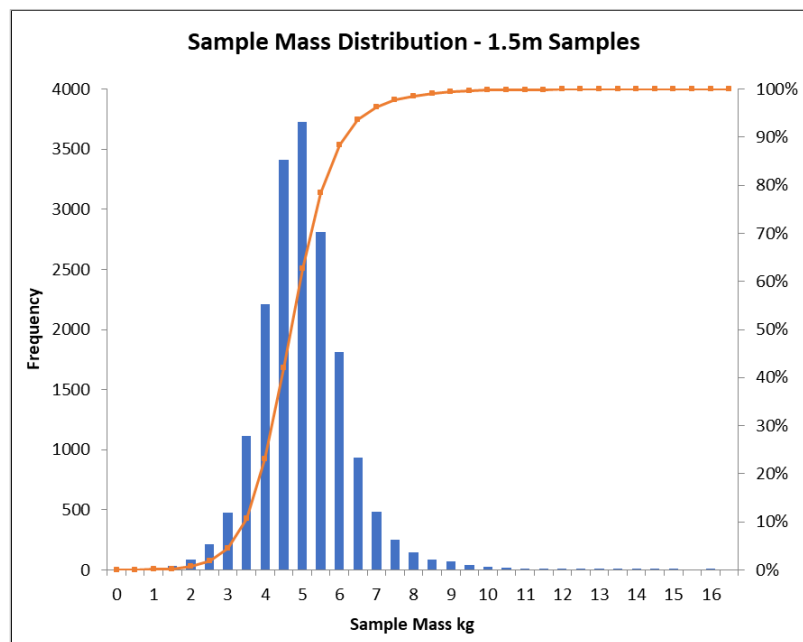


Figure 11-1: Histogram and cumulative frequency plot for 2018–2019 sample mass

11.3 DRILL SAMPLE LOGGING

All samples were visually checked and logged on-site by a rig geologist and logged for lithotype, grain size, sorting, color, competence (hardness and induration), and moisture content. A small subsample was taken for each drill sample interval and manually panned for estimation of slimes and HM content.

Base Resources has developed logging codes to capture data relevant to understanding the geological setting, mineralization characteristics, and mining characteristics. For the 2018/2019 drilling program, the data was captured on site in Excel worksheets using ruggedized tablets, with validation rules established to ensure standardized codes are applied. The daily logging data was downloaded to a master database and subjected to a further round of validation, including creation of cross-sections and preliminary geological interpretation.

11.4 SAMPLE SECURITY

All drill samples were placed in calico bags and grouped in rice bags by drill hole. Samples were transported daily to the exploration office and stored in a secure compound in Toliara.

The sample bags were labelled with both permanent marker and aluminum tags for drill hole number, sample depth, and/or sample number.

Following sample preparation, the subsamples were delivered to the laboratory in buckets with lids secured by packing tape, or in polythene bags sealed with cable ties and with a shipment form.

11.5 SAMPLE PREPARATION

The calico bag samples from the drill site were air-dried before subsampling. Any material that was bound together by clay was manually attritioned before splitting so it would pass through the splitter. The material was split using a 10 mm single-tier riffle to produce a sample for analytical submission to an external laboratory of approximately 0.5 kg to 1.0 kg in a small calico sample bag.

11.6 SAMPLE QA/QC

11.6.1 2003 field duplicates

Field duplicates (series B samples) were collected as 1 kg splits at a rate of 1 in 20 during the 2003 drilling program. Routine (series A) samples were sent to IMPLABS (**IMP**) in South Africa, and the two check subsample series B and C to Western Geochem Labs (**WGL**) in Australia. An internal company report for the 2003 drilling program observed a slight bias of about 5% towards higher THM results from WGL but did not establish a cause for the bias. It was noted that WGL series B and C sample weights typically ranged from 75 g to 125 g whilst the IMP series A sample weights were 300 g to 400 g.

The possible under-reporting of HM for the IMP series A samples means that resource estimates using these assays are possibly slightly conservative. The scatter with slimes results is not considered to affect the resource estimate, as the slimes levels in the USU are low and there is no bias evident.

11.6.2 2005 field duplicates

Field duplicates (series B) were collected as 1 kg splits at a rate of 1 in 20 during the 2005 drilling program. Routine samples (series A) were sent to ACL in South Africa, and the two check subsamples series B and C to WGL in Australia. Additional duplicate grab samples were collected from drill intervals that appeared to have high-grade HM, and from hole R0871 (series K samples).

In general, the HM analysis of the series B samples from WGL corresponded well with ACL series A samples, except for four samples. There is a slight bias for WGL to report a higher HM grade (by around 4%), but the correlation coefficient at 0.9873 is relatively high.

In general, the slimes analysis of the series B samples from WGL corresponds well with ACL series A samples, although the variance is considerably higher than for HM. Four anomalous samples were noted, including sample 2220 with a very poor correlation, but it was not investigated further as it was outside of the resource limits.

In general, HM analysis of the 24 additional duplicate grab samples (series K) by WGL corresponded well with the ACL series A samples, except for one sample. Given that the repeats correspond with their original values, this appears due to a site sampling issue rather than a laboratory issue and is not unexpected given that the extra samples were collected as grab samples. The slimes analysis shows a broad scatter and a much lower level of correspondence; however, there is no apparent bias.

11.6.3 2012 field duplicates

For the 2012 program, routine samples (series A) were sent to ACL in South Africa and a total of 179 check subsamples series B and C to WGL in Australia. The scatter plots of both THM and slimes exhibit a reasonably good fit, with a couple of aberrant points. These aberrant points are possibly the result of sample mix-ups. The THM regression analysis exhibits a correlation within 5% of the original series A sample values; however, the slimes analyzed by WGL exhibit a systematic lower trend. This trend is difficult to account for but may be related to slight variations in screening and attritioning of slimes between the two laboratories. Check analysis over several drilling programs has shown WGL to consistently report lower slimes grades than other laboratories.

11.6.4 2018 field duplicates

The QA/QC analysis for the 66 field duplicates from the 2018 drilling programs is presented in Table 11-2. The comparison of THM for the field duplicates is quite close in general, with only a couple of outliers. The correlation coefficient is also strong, as expected from the paired comparison of key statistical measures. The result of the slimes comparison for the duplicate sampling is also close in general terms and there does not appear to be any bias in the duplicate sample analysis. The results of the oversize comparison for the duplicate sampling show greater spread although a similar mean value. However, there does not appear to be any bias in the duplicate sample analysis and the spread of results is as expected for oversize, given the coarse grain size and irregular distribution throughout the mineralized profile.

Overall, the 2018 duplicate results would indicate (albeit based on a relatively small and geographically constrained statistical population) that the splitting and subsampling process undertaken at the drill rig and in the exploration camp is producing a representative result.

Table 11-2: Summary statistics for 2018 field duplicates

Field duplicates	OS_%	OS_% dup	% diff dup	SL_%	SL_% dup	% diff dup	HM_%	HM_% dup	% diff dup
Mean	1.17	1.13	-4.2%	10.34	10.50	1.6%	3.51	3.57	1.7%
Standard error	0.38	0.35	-7.4%	1.74	1.75	0.4%	0.25	0.26	3.6%
Median	0.00	0.00	0.0%	4.46	4.29	-3.8%	2.97	3.03	2.1%
Std deviation	3.10	2.87	-7.4%	14.14	14.19	0.4%	2.07	2.14	3.6%
Variance	9.58	8.23	-14.2%	199.95	201.46	0.8%	4.26	4.58	7.4%
Kurtosis	11.11	10.46	-5.9%	4.09	3.86	-5.8%	1.44	1.89	31.1%
Skewness	3.24	3.17	-2.1%	2.11	2.08	-1.5%	1.18	1.25	5.8%
Range	16.67	15.12	-9.3%	62.20	62.35	0.2%	9.15	10.01	9.5%
Minimum	0.00	0.00	0.0%	0.94	0.97	3.0%	0.91	0.94	3.3%
Maximum	16.67	15.12	-9.3%	63.14	63.31	0.3%	10.05	10.95	8.9%
Sum	77.53	74.30	-4.2%	682.21	692.95	1.6%	231.86	235.80	1.7%
Count	66	66		66	66		66	66	
Correlation	0.863			0.998			0.990		

11.6.5 2019 field duplicates

The QA/QC analysis for the 331 field duplicates from the 2019 drilling programs is summarized in Table 11-3.

Table 11-3: Summary statistics for 2019 field duplicates

Field duplicates	OS_%	OS_% dup	% diff dup	SL_%	SL_% dup	% Diff dup	HM_%	HM_% dup	% diff dup
Mean	0.47	0.45	-4.1%	7.11	7.03	-1.0%	4.78	4.70	-1.8%
Standard error	0.10	0.09	-11.2%	0.48	0.48	-0.1%	0.25	0.24	-1.1%
Median	0.02	0.02	-0.1%	4.23	4.13	-2.2%	3.54	3.52	-0.7%
Std deviation	1.75	1.55	-11.2%	8.699	8.691	-0.1%	4.48	4.43	-1.1%
Variance	3.05	2.41	-21.1%	75.68	75.53	-0.2%	20.05	19.63	-2.1%
Kurtosis	89.50	43.42	-51.5%	18.17	13.67	-24.8%	12.30	13.76	11.9%
Skewness	8.21	5.92	-27.8%	3.70	3.35	-9.7%	2.88	3.03	5.1%
Range	22.82	14.48	-36.5%	68.88	58.39	-15.2%	34.24	35.08	2.5%
Minimum	0.00	0.00	0.0%	0.79	0.77	-2.7%	0.32	0.26	-18.5%
Maximum	22.82	14.48	-36.5%	69.67	59.16	-15.1%	34.56	35.34	2.3%
Sum	156.7	150.2	-4.1%	2352.4	2328.0	-1.0%	1583.4	1555.7	-1.8%
Count	331	331		331	331		331	331	
Correlation	0.912			0.970			0.994		

The comparison of THM for the field duplicates is close in general with only a couple of outliers. The largest outliers (one positive and one negative) both have oversize and slimes sample pairs that reported with reasonable correlation, while the THM in the duplicate sample was 30% and 200% of the original. This implies these extreme errors are due to laboratory errors in HM analysis rather than non-representative sampling. The correlation coefficient is also strong at 0.987 (as expected from the paired comparison of key statistical measures).

The results of the slimes comparison for the duplicate sampling are also close in general terms, with a slightly greater spread; however, there does not appear to be any bias in the duplicate sample analysis, and the spread of results is

typically as expected for slimes. The clumpy, imprecise nature of clay material will often result in a poorer correlation coefficient (0.941) than HM.

The results of the oversize comparison for the duplicate sampling show a greater spread, although a similar mean value. However, there does not appear to be any bias in the duplicate sample analysis, and the spread of results is typically as expected for oversize given the coarse-grain size and irregular distribution throughout the mineralized profile.

Overall, the 2019 field duplicate results would indicate that the splitting and subsampling process undertaken at the drill rig and at the exploration sample shed is producing a representative result.

11.7 ANALYSIS

11.7.1 Analysis laboratories

Analysis of the Ranobe deposit has been carried out in a series of distinct phases related to the associated drilling programs. All the laboratories used were commercial facilities considered independent of WTR or Base Resources, but only Bureau Veritas Laboratories South Africa is known to be an International Organization for Standardization (ISO) certified laboratory.

Original assay certificates for the pre-2018 drilling samples are not available; the assays are presented in digital database format. Historical exploration and resource estimation reports give confidence that the sample analysis and data was verified and accepted as fit for purpose.

The 2001 series A samples were shipped (in the container with the drill rig) to WGL in Perth, Western Australia for analysis of the oversize, slimes, and HM content.

The 2003 drilling program series A samples were airfreighted to IMPLABS in South Africa to undergo oversize, slimes, and HM analysis. IMPLABS also utilized a magnetic separation process on the HM fraction to report a magnetite, magnetic, magnetic others, and non-magnetic fraction. The series B and C samples were shipped to Australia with the Wallis drill rig. The series B samples were sent to WGL, which was used as an umpire laboratory, and the series C series samples were held in reserve.

The 2005 drilling program followed a similar system of three series of subsamples, series A, B, and C. Series A samples were airfreighted (1-1709) and shipped (1710-3320) from Madagascar to ACL in South Africa for oversize, slimes, and HM analysis. Series B and C samples were airfreighted to WGL in Perth, Western Australia, as check samples for oversize, slimes, and HM analysis.

The 2012 series A subsamples were analyzed by ACL Laboratories, including control samples, and series B and C subsamples were sent to WGL for analysis.

The 2018 and 2019 drilling samples were sent to BV in Centurion, South Africa, for comprehensive oversize, slimes, and HM content analysis. Early batches were airfreighted to quickly generate results, and later batches were shipped via a regular service running between Toliara and Durban. Some control (standard) sample residues were then sent from BV to Diamantina Laboratories in Perth, Western Australia, which was used as an external umpire laboratory for oversize, slimes, and HM analysis.

The 2025 analysis of outstanding 2019 drilling samples was performed by the Base Titanium Kwale Operations Laboratory in Kenya, which is an ISO accredited laboratory and is operated by a related entity. This sample analysis has not been utilized for resource and reserve estimations disclosed in this report, as mineral assemblage data modelling is still in progress.

11.7.2 Assay methodology

The 2001, 2003, and 2005 assaying procedures have not been documented, but they all utilized de-sliming at 63 μm , oversize screening at 1 mm, and tetrabromoethane (TBE) heavy liquid separation.

In general, received samples were dried at 110°C until samples were completely dry and then weighed. Weighed samples were then screened at +1 mm for the oversize fraction, and -63 μm for the slimes fraction. The two coarser size fractions (+1 mm, -1 mm to +63 μm) were then dried and reweighed, with the slimes weight back-calculated by subtracting oversize and sand from the initial weight. The sand fraction (-1 mm to +63 μm) was submitted for heavy liquid separation using TBE with a density of 2.95 t/m^3 . The THM sinks with a density greater than 2.95 t/m^3 were then washed with acetone, dried, and weighed; the floats were discarded. The corresponding fraction weights were then calculated as a percentage in terms of oversize, slimes, and HM (or THM).

BV utilized the following procedure for analysis of the 2018 and 2019 Base Toliara exploration samples:

- Samples received and checked against the supplied dispatch list and logged into a Laboratory Information Management System
- The whole sample was oven-dried at 110°C (+/-5°C) and the dry start mass recorded
- The dried sample was split using a rotary splitter into a smaller subsample of between 120 g and 150 g
- Every 20th sample was split with a rotary splitter into two sub-lot samples and treated as a duplicate (replicate)
- Samples deslimed at 63 μm after attritioning with 1 mm considered OS
- The dry mass of +1 mm and -1,000 μm +63 μm was recorded, and the loss from the start mass was considered as slimes
- The -1,000 μm +63 μm sand fraction was then separated using TBE which has been tested in a certified (A-grade) volumetric flask to ensure a density of between 2.94 t/m^3 and 2.98 t/m^3 into the quartz (floats) and THM fraction (sinks)
- After separation, the two fractions were rinsed with acetone to remove excess TBE and dried
- The dried fractions were weighed and the mass was recorded
- After QA/QC, the THM fractions were packed in plastic zip-lock bags and returned, and the float fraction retained until authorization was given to dispose of it
- The remaining reserves were kept in storage until instructions were received for disposal
- Results were reported in Excel and hard copy certificate (PDF format).

There are slight variations between laboratory procedures, primarily relating to sample submission and assay sizes, and screening technology, but the same general analytical technique has been utilized throughout.

11.7.3 Assay reproducibility

The rate of submission for field duplicates was 1 in 33, which is in line with industry standards of between 1 in 20 and 1 in 40. The rate of submission for laboratory duplicates was 1 in 20, which provides a high level of precision QA.

Standard samples were initially prepared internally and submitted for the generation of certified reference material (CRM) with known mean and standard deviation for internal QA/QC. Unfortunately, the standard deviation generated from the CRM analyses was not considered tight enough to use as a QA/QC control. Umpire assay analysis of these CRM results also resulted in moderate reproducibility, which raised concern over the laboratory process at BV and

Diamantina. However, the level of precision in the laboratory duplicates indicates that the BV laboratory assay process is reproducing results at an acceptably high level.

From mid-2019, a CRM from an independent supplier was utilized, allowing effective QA/QC control. Blind standards were submitted at a rate of 1 in 50.

A summary of the samples submitted as part of the various QA/QC programs is presented in Table 11-4 below.

Table 11-4: QA/QC rates of submission for drilling programs

Type & Year	2001	2003	2005	2012	2018–19
Total analyses	1,225	1,715	2,117	3,580	12,086
Lab replicates	-	-	72	282	683
Lab repeats	-	-	-	194	357
Client repeats	-	-	117	46	45
Control	-	-	68	146	264
B duplicate	-	152	97	177	397
C duplicate	-	45	110	2	40
Base Resources 2018–19 Drilling					
Type	Laboratory	# samples	Submission rate actual	Submission rate plan	
Field duplicates	Bureau Veritas	397	1 in 30	1 in 33	
Lab replicates	Bureau Veritas	683	1 in 18	1 in 20	
Lab repeats	Bureau Veritas	357	1 in 34	n/a	
Base repeats	Bureau Veritas	45	1 in 269	n/a	
Blind standards	Bureau Veritas	264	1 in 46	1 in 50	
Lab standards	Bureau Veritas	81	1 in 149	n/a	
Umpire analysis	Diamantina Labs	40	1 in 302	n/a	

11.8 MINERAL ASSEMBLAGE

Mineral assemblage composites are used to characterize the HM content of mineral sands deposits for preliminary economic evaluation. A variety of analytical methods are available, ranging from optical grain counting and QEMSCAN to advanced techniques combining physical separation (gravity, magnetic, electrostatic) with X-ray fluorescence (XRF) and wet chemistry.

Multiple studies have examined the HM component of the Ranobe deposit. Early assessments (2001, 2003) by TZMI and Tigor reported an ilmenite-dominant assemblage with minimal spatial variability. The 2005 drilling campaign introduced QEMSCAN as the preferred method, compositing 80 holes into 152 samples. In 2017, QEMSCAN was again employed on 195 samples from the 2012 drilling, targeting both downhole variability and data gaps. By 2018, Base Resources had developed the MinModel methodology to enhance mineralogical resolution across the deposit, which has been adopted as the preferred analytical method for mineral assemblage analysis due to a combination of proven performance at the Kwale Operations, economics (analysis is cost-effective relative to other methods once initial mineral reference and calibration work is complete) and the ability for cross-referencing between resource models and production outputs.

A summary of the reported mineral assemblage for the Ranobe deposit Mineral Resource is presented in Table 11-5.

Table 11-5: Mineral Resource mineral assemblage estimates

Source	Ilmenite	Leucoxene	Rutile	Zircon	Monazite	Garnet
Ticor 2004	70–75	2.5–3.5	1.7–2.0	7.2–7.4	-	-
Exxaro 2006	64.7	5.1	1.9	5.6	1.9	-
McDonald Speijers 2012	72.2	-	2.3	5.6	1.9	-
Ransome 2016	72.0	-	2.3	5.6	1.9	-
Base Resources 2017	72	-	2	6	2	-
IHC Robbins 2018	72.8	0.9	1.1	5.7	1.9	3.3
Base Resources 2021	72.1	1.0	1.0	5.9	1.9	3.2

This data shows relative consistency in the mineral assemblage data from 2006 onwards, despite the range of techniques utilized, with the key differences relating to the classification of higher-grade titanium minerals, leucoxene and rutile. The consistency gives confidence that the mineral assemblage can be readily quantified and is relatively homogenous throughout the USU, which has formed the basis of Mineral Resource estimates to date. As stated, one of the challenges has been to identify and classify the various ilmenite and leucoxene minerals present, with the MinModel method taking an approach that strongly aligns mineral assemblage with mineral products generated from metallurgical test work.

11.8.1 MinModel methodology

MinModel is an iterative modelling technique developed by Base Resources to derive deposit mineralogy from XRF analysis of magnetic fractions (Figure 11-2). The method uses an error minimization algorithm to match observed oxide values to those calculated from known mineral chemistries. Calibration relies on two foundational datasets: the mineral species present in the deposit and the oxide composition of each species.

The Ranobe deposit's MinModel calibration used 30 USU composite samples from 128 drill holes and two bulk sample locations and included the following supporting analyses:

- Whole-rock XRF (Bureau Veritas, South Africa)
- Fe²⁺ wet chemistry (SGS, South Africa)
- QEMSCAN, XRF, XRD (SGS, South Africa)
- Scanning electron microscopy (**SEM**) (XPS Process Mineralogy, Canada).

As XRF only measures total iron (Fe₂O₃), ferrous iron (Fe²⁺) was determined separately via wet chemistry to differentiate ilmenite, magnetite, and hematite. QEMSCAN was used for most mineral data, whereas SEM data was preferred for rutile and leucoxene due to QEMSCAN's limitations in distinguishing them.

Once mineralogical and oxide datasets are established, sample data—comprising HM content, magnetic separation results, and XRF assays—are formatted for input. The model runs independently on magnetic and non-magnetic XRF data, iteratively adjusting mineral proportions to minimize the difference between measured and theoretical oxide values. The result is a precise estimate of the sample's whole mineral composition.

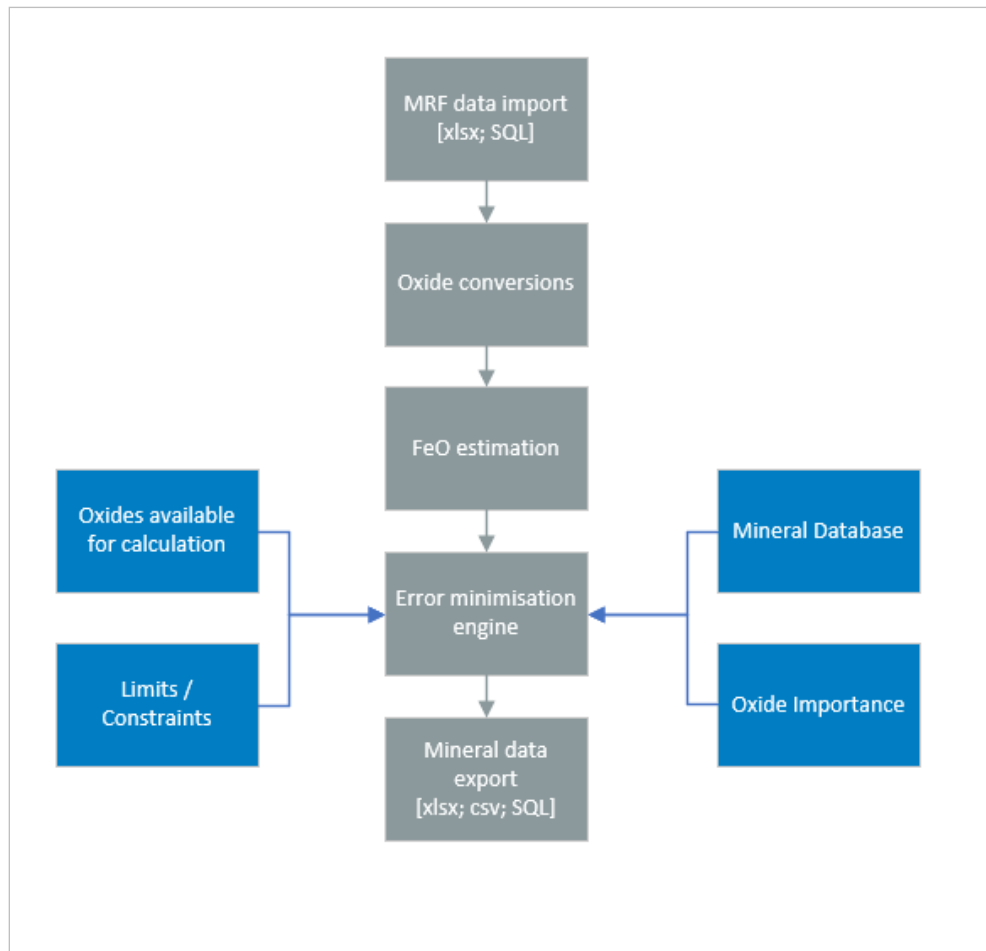


Figure 11-2: Flowchart showing the MinModel methodology

11.8.2 MinModel sample composites

Base Toliara prepared mineralogy sample composites across the full extent of the USU and ICSU domains within the deposit to standardize the mineral assemblage analysis for the Ranobe deposit using the MinModel methodology. These composites were generated by targeting a single hole on a nominal 400 m by 400 m grid with nominal 6 m composite samples downhole. The composites were sourced from a combination of stored reference samples from the 2005 and 2012 drilling programs and samples from the 2018 and 2019 drilling programs, with some holes drilled primarily to provide samples for MinModel. Base Toliara chose the grid-based approach to allow for future infilling of mineral assemblage data, if required.

The location of the MinModel composites is shown in Figure 11-3.

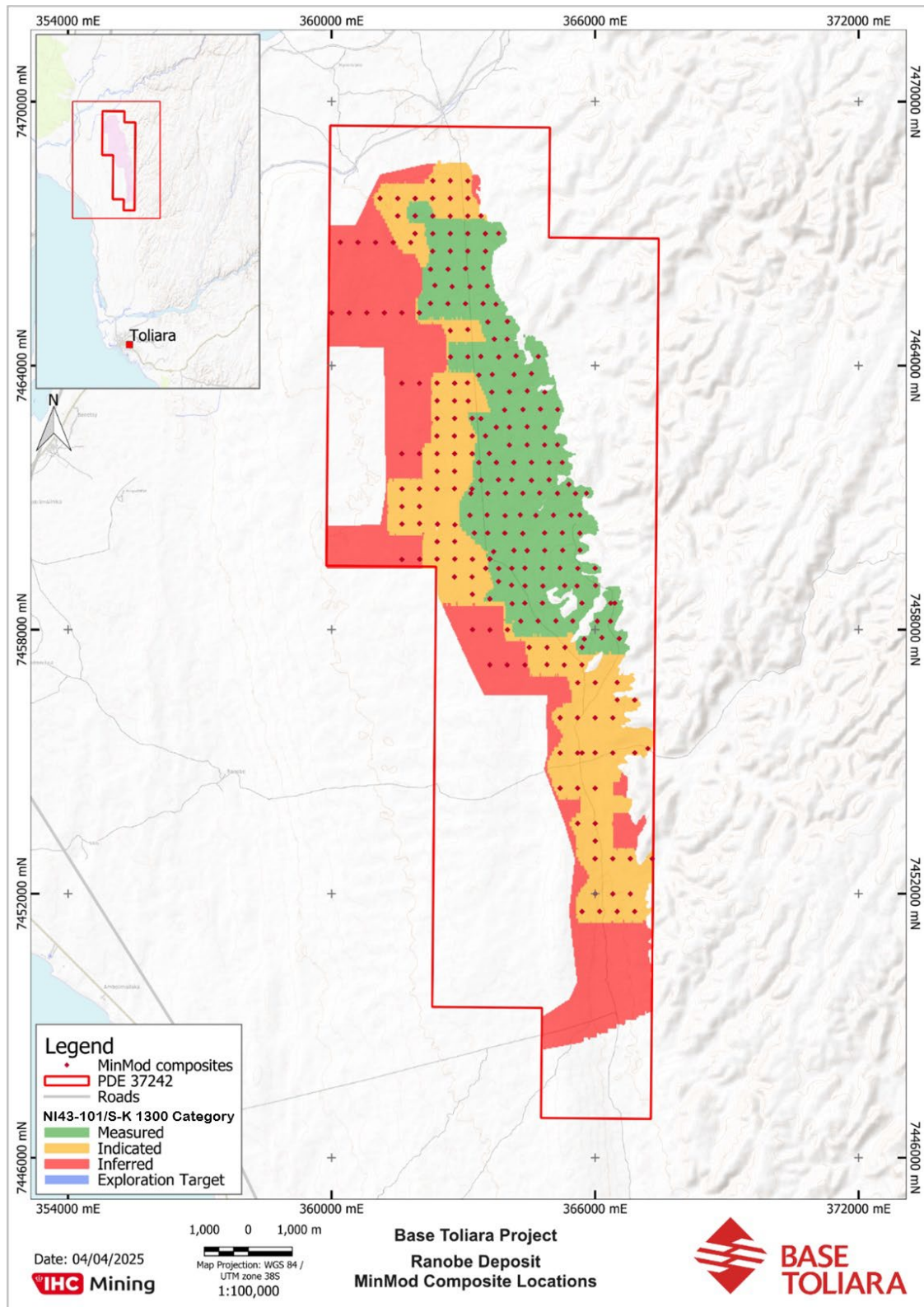


Figure 11-3: Location of MinModel composites used for interpolation

11.8.3 MinModel results

The mineral assemblage analyses comprised a wide suite of mineral species, and for the purpose of including results in the block models and for simplicity and transparency in reporting, it was decided to group some minerals together to form general buckets, such as ilmenite and accessory minerals (others). Mineral species with their definitions are presented in Table 11-6.

Table 11-6: Mineralogical abbreviations and their definitions

Mineral Group	Name	Details
Zircon	ZIR	ZrSiO ₄
Rutile	RUT	Rutile or anatase with calculated TiO ₂ > 90%
Leucoxene	LX	Altered ilmenite with calculated TiO ₂ of 70–90%
Ilmenite	ILM	FeTiO ₃ (total ilmenite)
Sulfate ilmenite	ILM_SU	Ilmenite with low TiO ₂ and FeO > Fe ₂ O ₃
Slag ilmenite	ILM_SL	Ilmenite with low TiO ₂ and Fe ₂ O ₃ > FeO
Chloride ilmenite	ILM_CH	Ilmenite with moderate TiO ₂ and low FeO
Monazite	MON	(Ce,La,Nd,Th)(PO ₄ ,SiO ₄) cerium and rare earth phosphate mineral
Garnet	GARN	Almandine Fe ₃ Al ₂ (SiO ₄) ₃
Quartz	QTZ	SiO ₂
Others	OTH	Trash heavy minerals (includes magnetite, spinel, hematite/goethite)

The reported presence of quartz in the mineral assemblage generated by MinModel is of some concern given that quartz is not a heavy mineral. It is possible that the quartz represents minor contamination of the HM sink fraction (as can occur if quartz is entrained by a large mass of sink material), and also possible that the quartz represents composite "heavy" particle(s) that are dominantly quartz. It does not appear to be related to the MinModel algorithm as quartz is reported in HM samples analyzed by other methods.

The impact of the quartz is negligible as it will be easily separated in the mineral separation plant and therefore does not impact on mineral production.

11.9 COMMENTS BY QUALIFIED PERSON

- Over the history of the project, the quality of sampling, assaying, and QA/QC, including sample preparation, security and analytical procedures, has been maintained at acceptable industry standards, with consistent improvements with each subsequent program of data acquisition. The approach taken by all practitioners has been to an adequate industry standard for mineral sands, and the entire dataset constitutes an adequate base on which to prepare Mineral Resource estimates
- The sample preparation technique, sample size, and riffle aperture used are considered appropriate for mineral sands and is appropriate for the material type that comprises the Ranobe deposit. The Qualified Person has not identified any issues that could materially affect the accuracy, reliability, or representativeness of the results
- Where there have been potential issues with sample security (during times of political unrest), attention has been focused on re-drilling any impacted samples
- Overall, the 2018 and 2019 laboratory duplicates for THM, slimes, and oversize show a high level of precision when comparing the two sets of results, thereby giving confidence in the precision of the overall assay process.

12 DATA VERIFICATION

The Qualified Person visited the Ranobe project in August 2018 whilst Base Toliara was drilling and sampling. The complete sample custody process was observed and advised on by the Qualified Person and was deemed to be appropriate. The data from drill sample logging and drilling conditions was recorded on a field tablet/laptop and then captured in the Company database. This database was reviewed, and the data were confirmed as correct when compared to the drill logs.

Extensive database reviews were conducted to test for missing intervals, duplicate intervals, negative or out-of-range values (flagging of significant outliers if present), and verified intervals that were not assayed.

Once the drill hole file was de-surveyed in Datamine, it was imported into the Studio RM 3D environment for validation and review. Collar coordinates (northing and easting) falling outside expected ranges were examined, along with general checks on key field values and data ranges to ensure internal consistency.

The Qualified Person deems that the collar, assay, and lithology data to be satisfactory and suitable for a block model build and to support the Mineral Resource estimate.

12.1 QA/QC REVIEWS BY QUALIFIED PERSON

The Qualified Person undertook the QA/QC analysis for the Mineral Resource estimate. The drilling and assay QA/QC was undertaken by the Company geologist and reviewed by the Qualified Person. This included assessment of the following:

- Field duplicates
- Laboratory replicates
- Standards
- Repeats
- Mineralogy.

Apart from the very early years of exploration drilling, the amount of sampling/sample submission and quality of QA/QC protocols has been to an acceptable standard. Adequate umpire laboratory sample analysis has been carried out, and all steps of QA/QC analysis and review, as well as justification and rectification where required, have been undertaken.

For future correlation coefficient analysis, the Qualified Person would recommend using a Spearman rank correlation coefficient to compare population relationship. It is more robust than a standard correlation coefficient determination given that it does not require the populations to be normally distributed (and mineral sands population distributions are normally positively skewed).

The amount of twinned drilling has improved in the most recent drilling programs which is a positive trend.

The overall performance of standards has been mixed. The Qualified Person was involved in preparing standards during the 2018 Ranobe site visit; unfortunately, these standards performed poorly. The results of the slimes assays should be taken in context with the low grades. This will impact the accuracy and precision of any comparative results, especially for standards ranging from 1.5% to 2% slimes.

Overall, the Qualified Person deems that the level of QA/QC sampling, the results of that sampling, and the review of all QA/QC data meet appropriate industry standards and provide confidence in the data set used to prepare the Mineral Resource estimates for the Toliara project.

12.2 COMMENTS BY QUALIFIED PERSON

In the opinion of the Qualified Person, an appropriate level of verification has been completed, and no material issues have been identified from the programs undertaken. The Qualified Person has reviewed and completed checks on the data and is of the opinion that the data verification and QA/QC programs undertaken during sample acquisition and assaying and then collated into the database, adequately support the geological interpretations and preparation of the Mineral Resource and Mineral Reserve estimates for the Ranobe deposit.

13 MINERAL PROCESSING AND METALLURGICAL TESTING

This section presents a summary of all mineral processing and metallurgical testing conducted to assess the feasibility of mineral extraction. It documents the testing methods used, key results obtained, and the assumptions made regarding mineral recovery.

The Ranobe deposit consists of liberated free-flowing discrete sand particles with low levels of fine sand, silt, and clay. The deposit is mineralized from surface with no overburden. Only topsoil will be removed prior to mining.

The ore characteristics are typical of many mineral sands orebodies currently exploited throughout the world. The valuable heavy minerals ilmenite, rutile, zircon, and monazite are present as liberated grains within unconsolidated sand. These can be separated from the quartz and other gangue minerals due to differences in mineral specific gravity, magnetic susceptibility, and conductivity.

13.1 HISTORICAL METALLURGICAL TEST WORK

Historical test work was performed on behalf of WTR between 2007 to 2013 by AML, a subsidiary of TZMI. TZMI was performing the feasibility studies for WTR and oversaw the test work. The quality of the test work and its supervision allowed Base Resources to have confidence in the conclusions drawn regarding ore amenability to conventional mineral sands wet and dry processing. This enabled the historical test work results to be used as a basis for planning the test work to suit Base Resources' feasibility study requirements. Table 13-1 lists all the historical test work campaigns conducted on the Ranobe deposit.

Table 13-1: Historical test work

Company	Completion date	Description	Result
Ticor/Kumba	2004	Metallurgical test work conducted as part of a PFS in 2004 processed composite drill core samples from the different dune layers within the Ranobe deposit	Two ilmenite, rutile, and zircon products were produced from the test work and indicated the Ranobe deposit could be separated using conventional mineral sands separating techniques
Exxaro	2007	In 2007, Exxaro commenced a feasibility study which included pilot scale wet concentration to produce bulk samples of HMC from four different zones of mineralization	Indicated 4-stage WCP would be required to produce a HMC 89% to 91%. The recoveries were ilmenite 95.9%, rutile 89.9%, zircon 95.5%, and monazite 99.4%
Exxaro	2007	Test work was conducted at AML in Perth on HMC samples generated from the 2007 Exxaro pilot spiral plant trials in Madagascar. The objective of the test work was to generate final products to determine expected product grades and a process flow diagram for project development based on the Ticor/Kumba flowsheet	The test work was carried out on an HMC sample with a grade of approximately 95% HM. Two grades of ilmenite, similar in grade and mass yield to those produced in the 2004 PFS. Test work indicated rutile and zircon product grades could be achieved. The zircon was acid leached to lower the product iron levels

Company	Completion date	Description	Result
Exxaro	2009	AML carried out additional test work on selected HMC samples, dating back to the Exxaro pilot plant work to verify the results from the earlier AML 2007 test work and develop a simplified flowsheet, producing a non-magnetic concentrate rather than rutile and zircon products	The ilmenite products were generated at similar mass yields to the 2007 work. The non-magnetic concentrate was produced by processing the ilmenite circuit non-magnetics over an air table, simulating an up-current classifier
WTR	2013	WTR engaged AML to perform test work to assess the impact of orebody variability on the flowsheet developed from the 2007 flowsheet design in order to understand the process risk and meet the requirements for a DFS	The test work data confirmed that the proposed MSP flowsheet is robust and could deliver consistent performance across a range of different ore grades and mineral compositions. Additional HTRS equipment was included in the process design to support the consistent production of a 57% TiO ₂ secondary ilmenite product

13.2 SAMPLE REPRESENTATIVITY

13.2.1 Bulk sample

Since acquiring the Toliara project, Base Resources has performed test work on three bulk samples (low, medium, and high HM grade). These bulk samples were selected based on the HM content to design a suitable processing flowsheet to treat the expected range of ore grades and mineral assemblages, particularly in the wet concentrator plant. The medium grade sample was used for the detailed WCP flowsheet development test work, with the low and high grade samples processed for flowsheet verification and to test circuit performance over a range of ore grades. The location of these samples is shown on Figure 13-1.

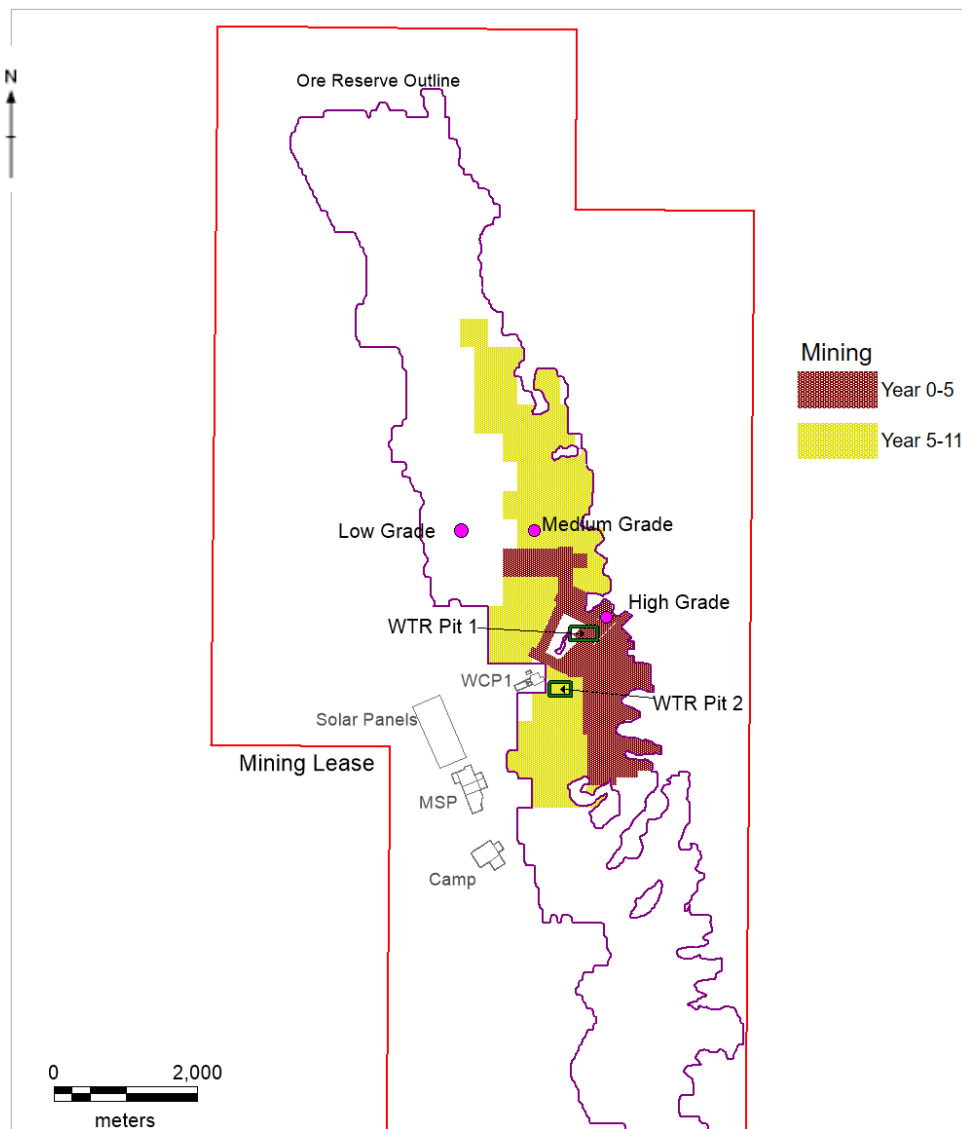


Figure 13-1: Origin of bulk samples

The bulk samples were excavated by backhoe. Samples were taken below 2 m from surface to conform to Australian quarantine restrictions. The samples were loaded into bulk bags and then into containers for shipment to Australia. A total of 94 bulk bags of sample weighing 103.5 t were transported to Australia. The details of each sample are presented in Table 13-2.

Table 13-2: Bulk sample weight

	Ore depth from (m)	Ore depth to (m)	# Bulk bags	Gross weight (t)
Low grade (LG)	2.5	4.5	40	47.3
Medium grade (MG)	2.5	4.5	32	34.0
High grade (HG)	2.5	4.5	22	22.2
Total			94	103.5

Sufficient sample was excavated at each location to ensure a representative rutile product could be made for marketing samples. This was calculated based on in situ rutile grades and recognition of low rutile recovery in historical test work.

The samples all have low oversize material (+1 mm) and low levels of slimes (<63 µm). Drilling assays indicate that there are areas within the resource with higher levels of slimes. On average, the slimes in the resource are 5.6%.

The HM (specific gravity >2.85) content of the low, medium, and high grade samples, D₅₀ particle sizing of the total sample, HM, and quartz (specific gravity <2.85) are given in Table 13-3.

Table 13-3: Bulk sample characteristics

	Low grade	Medium grade	High grade
% HM	5.0	8.2	10.5
% Total ilmenite (% of HM)	65.0	70.7	73.3
% Rutile (% of HM)	1.40	1.58	1.71
% Zircon (% of HM)	5.20	5.35	5.62
HM D ₅₀ (µm)	164	152	135
Quartz D ₅₀ (µm)	262	223	178
Total sample D₅₀ (µm)	256	217	174

13.2.2 MinModel mineralogy methodology

The MinModel methodology was developed using magnetic fractionation and XRF data to determine the mineral content of a given mineral sands HM sample. The concept is to have a single method for determining mineral content in samples that can be used for both exploration and production purposes. MinModel is used in this report to determine the mineral assemblage of various test work samples.

This approach to mineralogy modelling is common in the mineral sands industry due to being faster and more economical than direct mineralogical assaying. The MinModel has been validated against conventional QEMSCAN mineralogy results and is deemed acceptable for its use herein.

13.3 METALLURGICAL TEST WORK

The following section describes the metallurgical test work performed by Mineral Technologies and IHC Mining on behalf of Base Resources to satisfy the requirements of NI 43-101, S-K 1300, and Base Resources' internal feasibility study standards. Mineral Technologies conducted metallurgical test work and process design for the WCP, while IHC Mining conducted metallurgical test work and process design for the MSP and MCP. All the test work campaigns are listed in Table 13-4.

IHC Mining's testing laboratory, located in Yatala, Australia, is accredited in accordance with the following international standards:

- ISO9001:2015: The globally recognized quality management standard for organizations engaged in business-to-business operations
- ISO45001:2018: The international standard for Occupational Health and Safety Management Systems
- ISO14001:2015: The international standard for effective environmental management systems.

Mineral Technologies, located in Carrara, Australia and IHC Mining used Bureau Veritas (**BV**) laboratories in Perth as the testing laboratory. BV's testing laboratories are accredited in accordance with the following international standards:

- ISO 17025:2017: This standard defines the general requirements for the competence, impartiality, and consistent operation of testing and calibration laboratories
- ISO 9001:2015: The globally recognized quality management standard for organizations engaged in business-to-business operations
- ISO 14001: The international standard for effective environmental management systems
- OHSAS 18001 – A framework for occupational health and safety management, helping organizations to control risks and improve safety performance.

Table 13-4: Metallurgical test work

Project number	Completion date	Description	Result
1409-1	Jun 2018	MSP (wet and dry plant) flowsheet development and confirmation that the production of three Ilmenite products is feasible from two available WTR Toliara HMC samples	Three ilmenite products produced, and desired ilmenite product grades achieved from both HMC samples
1409-2	Jan 2019	Using the flowsheet developed in project 1409-1, prove that the same results can be achieved with HMC produced from the 2019 PFS WCP flowsheet test work	Initially, 1409-2 was to be completed as process development and market sample preparation; however, issues with the representivity of the as-received HMC samples caused the focus to shift away from market sample production. The sample was returned to Mineral Technologies and mixed with the HMC from the recirculating loads to represent the full WCP flowsheet as developed (test program 1601 followed with newly produced HMC)
1409-2b	Apr 2019	Developed a flowsheet that produced a monazite product from the reject streams containing monazite from the 1409-2 flowsheet	A simple, yet effective flowsheet was developed. A 90% monazite product was produced with good yield and recovery
1480	Aug 2018	Ilmenite process value optimization on one of the 1409-1 HMC samples to achieve an ilmenite product distribution and quality that maximized collective value from different markets	An optimal range of ilmenite product mixes was established from this sample that was typically: 60% sulfate ilmenite, 17% slag ilmenite, 24% chloride ilmenite. However, sulfate ilmenite quality was sub-optimal which indicated further optimization work was required
1534	Aug 2018	A subset of the original HMC produced at Mineral Technologies was submitted for an attritioning study on "medium grade" Toliara HMC sample as part of flowsheet development	Attritioning had no effect on the processing and separation efficiency of the sample. It was also noted that for similar yields (product splits) as in 1409-1/1480, the slag ilmenite product grade was not achieved. This observation led to the 1556 optimization test work program

Project number	Completion date	Description	Result
1556	Aug 2018	Following the conclusion from the 1480 test work, further ilmenite process sighter tests and value optimization were conducted on the remnant 1534 "medium grade" Toliara HMC sample (HMC not attritioned) to further test optimum ilmenite product distribution and quality that maximized collective value from different markets	An optimal range of ilmenite product mixes was established that was typically: 37% sulfate ilmenite, 35% slag ilmenite, 29% chloride ilmenite. This formed the basis of further designs, marketing and production estimates
1601	Aug 2019	Variability test work as in 1409-1, but with a different reconstituted HMC to include all recirculating loads (scav cons and cleaner mids) from the WCP	Demonstrated that the addition of extra high tension rolls and a rare earth roll was required to ensure the optimal grades, product mixes and recoveries were achieved for varying orebody types
1652	Jan 2020	Further test work and flowsheet development to test the feasibility of including a spiral separator on the UCC overflow stream in the MSP feed preparation circuit	Inclusion of a screen to remove coarse silica and a spiral circuit to scavenge HM from the UCC overflow proved successful. This improved process robustness with no compromise on product grade or recovery
1765	Jan 2020	Testing consolidation of wet non-mag circuit and wet zircon circuit: results from previous test work indicated that there is a possibility to consolidate the two wet circuits into one circuit and reduce the number of dryers required	Test work confirmed that the two wet circuits could be consolidated without sacrificing grade or recovery. It reduced the requirement for dryers from two to one
2563	Feb 2025	Further test work and flowsheet development to optimize monazite concentrator flowsheet	Inclusion of additional stages in the flowsheet proposed in 1409-2b and overall improved monazite recovery. Also produced 30–40 kg of monazite product for rare earth refinery process development test work

13.3.1 Wet concentrator summary

The following were key outcomes from the WCP test work:

- Minimal oversize was observed in the bulk samples
- Mineral Technologies MG12 spirals were selected for WCP rougher and scavenger duties as they provide superior recovery and concentrate grade to the Mineral Technologies MG6.3 spirals
- The Mineral Technologies VHG spiral was selected for the WCP cleaner duty as it gave a superior concentrate grade compared to the Mineral Technologies HG10 spiral
- An up-current classifier (**UCC**)/spiral circuit did not show sufficient recovery increase to justify incorporation into the WCP circuit over a traditional spiral circuit
- A three-stage spiral circuit was the selected flowsheet option.

13.3.2 MSP test work summary

IHC Mining's processing of the bulk samples through the ilmenite flowsheet confirmed that three ilmenite products (chloride, slag, and sulfate) could be produced in marketable quantities and quality. All three ilmenite products produced meet or exceed the target specifications set by Base Resources.

Rutile products produced from bulk samples contain >95% TiO₂ with low levels of contaminants and meet typical product requirements.

A leucoxene concentrate containing >85.8% TiO₂ for the bulk sample was produced as a by-product of rutile production. This leucoxene concentrate contains elevated levels of ZrO₂+HfO₂ and U+Th and will be blended with the chloride ilmenite to the extent that it does not influence the marketability of the product. It is calculated that, given the small quantity of leucoxene concentrate representing <7.0% of the combined chloride ilmenite, blending will not impact the chloride ilmenite quality. Approximately 21.1% of this leucoxene concentrate will be blended in with the rutile product, without adversely affecting the quality of the rutile product. The remainder (78.9%) will be added to the chloride ilmenite.

The zircon product meets all requirements for a standard zircon. The only reason a premium zircon cannot be produced is the high level (>500 ppm) of U+Th in the product.

13.3.3 MCP test work summary

The Toliara monazite circuit optimization test work has confirmed effective circuit configurations, equipment selection, and operating parameters for the recovery of a monazite product from the MSP rejects. This is achieved by a simple circuit utilizing only electrostatic and magnetic separation. The MCP recovered 88.0% of the monazite from monazite-enriched MSP reject streams. The monazite product contained 53.9% total rare earth oxides (TREO), 25.8% CeO₂, 10.1% La, 8.3% Nd, and 2.4% Pr.

13.4 PRODUCT RECOVERIES

13.4.1 WCP product recoveries

All recovery values in the WCP are calculated using mass balance simulation models developed by Mineral Technologies, based on test work data. The model assumes an HMC product grade of 91% HM, which is consistent with the grade used in the Toliara Project financial model. All recoveries are based on ROM ore.

13.4.1.1 Rutile, zircon, ilmenite, and HM recovery

Recovery numbers generated by the Mineral Technologies WCP model for the low, medium, and high-grade bulk samples are summarized in Table 13-5.

Table 13-5: Mineral Technologies WCP modelling recoveries

	LG 91% HM in HMC	MG 91% HM in HMC	HG 91% HM in HMC	Max	Min	Average
Feed grade %HM	4.8	7.3	10.5	12.0	2.0	8.8
Rutile recovery %	97.1	95.8	93.8	97.1	93.8	95.6
Zircon recovery %	98.5	98.6	98.7	98.7	98.5	98.6
Ilmenite recovery %	97.1	96.6	96.4	97.1	96.4	96.7

The recovery values generated by the model are regarded as recoveries the WCP would achieve under optimum conditions; that is, all spirals are evenly fed at the correct loadings, all spirals are clean, and all splitters are set to the correct positions. In an operating plant this is rarely the case. The recovery numbers generated by the high grade bulk sample model run will be used to represent the test work outcome; the recoveries were the lowest for rutile and ilmenite, but slightly higher for zircon. All recoveries were further discounted by 1.5% to allow for suboptimal plant conditions; these discounted values were used in the Toliara Project financial model.

Leucoxene recovery was not modelled in the Mineral Technologies WCP model. The leucoxene recovery is calculated based on the non-magnetic TiO_2 recovery observed in the cleaner concentrate from the WCP test work and the estimated leucoxene percentage in the stream. The recovery does not include leucoxene, which will be recovered from the cleaner tailings stream, making the approach conservative.

The HM, magnetic and non-magnetic XRF assays generated as part of the MinModel procedure were used to calculate the non-magnetic TiO_2 content, as follows:

$$\% \text{ Non Magnetic } \text{TiO}_2 = \% \text{ HM} \times \% \text{ non-mags} \times \% \text{ TiO}_2 \text{ (XRF Assay)}$$

The ratio of leucoxene to non-magnetic TiO_2 was calculated using the XRF and mineralogy assays of IHC Mining's HMC head feed WTR series A and B samples. These samples were used in the 2025 FS as part of the determination of the MSP flowsheet. This gave the following relationship for the HMC:

$$\text{leucoxene} = 0.089 \times \text{Non Magnetic } \text{TiO}_2$$

The leucoxene recoveries to WCP cleaner concentrate are low-grade ~85%, medium-grade ~ 80% and high-grade ~ 70%.

A conservative WCP leucoxene recovery of 75% was selected for use in the financial model.

Monazite was not directly modelled in the Mineral Technologies WCP model. Typically, monazite recovery in a WCP is similar to zircon recovery; however, a conservative value of 86.5% is used in the financial model since monazite is finer than zircon and can be entrained with reject material.

13.4.1.2 Other HM recovery

The Mineral Technologies model was used to estimate the other HM (non-valuable heavy mineral) recovery. The recoveries predicted by the model for the low, medium and high-grade samples were 87%, 79%, and 72%, respectively. The medium-grade recovery of 79% was selected for use in the financial model as it provides a more conservative value than the high-grade result (additional non-valuable component in the HM suite). The increase in the recovery of non-valuable mineral has the effect of diluting the valuable components of the HM in the HMC. This in turn increases the amount of HMC that must be processed in the MSP to produce a given amount of ilmenite, rutile, and zircon. This has had the effect of increasing the MSP throughput requirement by 7.1% over MSP feed rate value determined in the 2019 FS to maintain final product output.

13.4.1.3 Financial model recovery values

The recovery values used for the WCP in the 2025 FS financial modelling are given in Table 13-6.

Table 13-6: 2025 FS financial modelling WCP recovery values

Recovery	Recovery %
Rutile	92.3
Zircon	97.2
Total ilmenite	94.9
Leucoxene	75.0
Monazite	90.9
Other HM	79.0

These recoveries, combined with mining rates, determine the HMC mineral assemblage and production throughout the mine's life. Along with MSP recoveries, they estimate the final product tonnage.

13.4.2 MSP product recoveries

13.4.2.1 Ilmenite MSP recovery

Due to the expected variation in ilmenite feed grades, product splits to satisfy market demands and product qualities, an overall ilmenite recovery target (of the combined three ilmenite recoveries) rather than an individual ilmenite product recovery is determined for use in financial modelling. This could mean that less chloride ilmenite and more slag ilmenite may be produced to get a slightly higher quality, or less slag ilmenite and more chloride ilmenite is produced to increase product yield and therefore higher revenue.

Flowsheet development test work undertaken by IHC Mining achieved ilmenite recoveries as presented in Table 13-7. The ilmenite recovery was calculated using the circuit-by-circuit method, which involves multiplying the ilmenite recoveries from each stage of the process to determine overall recovery. The head feed elemental analysis (XRF) was converted to mineralogy using MinModel.

Table 13-7: Ilmenite recovery

	LG ilmenite (%)	MG ilmenite (%)	HG ilmenite (%)	Ave ilmenite (%)
Feed preparation circuit	99.9	99.8	99.8	99.8
Ilmenite circuit	93.2	89.7	90.9	91.3
Overall plant	93.1	89.5	90.7	91.1

The final MSP ilmenite recovery used in the Toliara Project financial model is 91.1%. The ilmenite recovery is 91.3% when ilmenite from the ilmenite circuit is combined with leucoxene from the rutile circuit.

13.4.2.2 Rutile MSP recovery

Flowsheet development test work undertaken by IHC Mining produced a relatively high TiO₂ grade rutile product. One of the by-products was a leucoxene material with a TiO₂ content that varied between 82% and 85.6%. The rutile product had >96% TiO₂, but the U+Th content was higher than titanium metal producers will accept. To balance processing recoveries and marketability, a rutile product quality target suitable for chloride pigment producers (rather than metal producers) was used. The minimum allowable TiO₂ would be 95.0%.

The rutile recoveries were calculated using the circuit-by-circuit method and are tabulated in Table 13-8. This method involves multiplying the rutile recoveries from each stage of the process to determine overall recovery. The head feed elemental analysis (XRF) was converted to mineralogy using MinModel.

Table 13-8: Contained recovery method for rutile

	LG rutile (%)	MG rutile (%)	HG rutile (%)	Ave rutile (%)
Ilmenite circuit	99.7	99.5	98.6	99.3
Wet non-mag circuit	90.3	89.4	90.8	90.2
Rutile circuit	70.8	67.6	59.3	65.9
Overall plant	63.7	60.1	53.1	59.0

Various combinations and permutations of equipment settings have been tested during the 2025 FS. The final MSP rutile recovery recommended for use in the Toliara Project financial model is 59.0%. The combined recovery rate of rutile, factoring in both rutile and some leucoxene, stands at 63.7%.

In operation, additional rutile will be recovered from the Dry Zircon circuit; however, this has not been included in the financial model recoveries.

13.4.2.3 Zircon MSP recovery

Flowsheet development test work conducted by IHC Mining produced a standard-grade zircon product. Plant recoveries were calculated using the circuit-by-circuit method, which involves multiplying the zircon recoveries from each stage of the process. Zircon content was determined by converting elemental ZrO_2+HfO_2 assay results into mineralogical data, so the MinModel mineral suite determination is not required. These recoveries are presented in Table 13-9.

Table 13-9: Stage by stage zircon recovery

	LG ZrO_2+HfO_2 (%)	MG ZrO_2+HfO_2 (%)	HG ZrO_2+HfO_2 (%)	Ave ZrO_2+HfO_2 (%)
Ilmenite circuit	92.4	91.8	87.7	90.6
Wet non-mag circuit	96.3	97.0	98.0	97.1
Rutile circuit	98.3	98.5	97.7	98.2
Dry zircon circuit	91.5	92.9	92.3	92.2
Overall plant	80.0	81.5	77.5	79.7

Mineral separation plant zircon recovery used in the Toliara Project financial model is 79.7%.

In operation, additional zircon will be recovered from the MCP, however, this has not been included in the financial model recoveries.

13.4.2.4 Monazite MSP Recovery

Flowsheet development testwork undertaken by IHC Mining produced a monazite concentrate suitable to feed the MCP. The majority of the MCP feedstock originates from the Ilmenite circuit's non-conductors, with a small amount being recovered from the Dry Non-Mag circuit and the Dry Zircon circuit. CeO_2 recoveries (a proxy for monazite) through the MSP are shown in Table 13-10.

Table 13-10: MSP Overall Monazite Recovery

	LG monazite (%)	MG monazite (%)	HG monazite (%)	Ave monazite (%)
Ilmenite circuit	86.7	88.6	95.1	90.1
Dry non-mag circuit	11.3	8.3	3.2	7.6
Dry zircon circuit	0.2	0.2	0.1	0.2
MSP Total	98.2	97.1	98.4	97.9

Mineral separation plant monazite recovery to the MCP used in the Toliara Project financial model is 97.9%

13.4.3 MCP product recoveries

Flowsheet development test work undertaken by IHC Mining produced a high-quality monazite product. Plant recoveries were calculated using the circuit-by-circuit method, which involves multiplying the monazite recoveries from each stage of the process. Monazite content was determined by converting elemental CeO_2 assay results into mineralogical data, so the MinModel mineral suite determination is not required. Stage-by-stage and overall recoveries for monazite are shown in Table 13-11.

Table 13-11: Stage by stage monazite recovery

Stage	Sighter flowsheet	Optimized flowsheet	Var
MSP side magnets	90.4%	94.3%	3.9%
MCP wet circuit	96.6%	99.3%	2.7%
MCP dry circuit	93.2%	94.0%	0.8%
Overall MCP	81.4%	88.0%	6.6%

The MCP monazite recovery used in the Toliara Project financial model is 86.5%, with a 1.5% discount applied to the optimized flowsheet recovery to account for operational plant inefficiencies.

13.4.4 Overall product recoveries

The overall recovery of each product is shown in Table 13-12.

Table 13-12: Overall product recoveries

Plant	% Ilmenite Recovery	% Rutile Recovery	% Zircon Recovery	% Monazite recovery
WCP	94.9	92.3	97.2	90.9
MSP	94.4	54.1	79.4	94.3
MCP	-	-	-	91.7
Overall facility	89.6	49.9	77.2	78.6

13.5 COMMENTS BY QUALIFIED PERSON

Extensive metallurgical test work has been completed historically and recently on the Ranobe ore.

The Ranobe deposit consists of liberated free-flowing discrete sand particles with low levels of fine sand, silt, and clay. The deposit is mineralized from surface with no overburden; only topsoil will be removed prior to mining.

The sampling techniques and sample source locations are considered appropriate for the deposit type and level of project development and provide a high level of confidence that the material used for metallurgical test work is representative of the mineralised zone. The analytical methods and test procedures applied are consistent with industry standards for the type and style of mineralisation.

The ore characteristics are typical of many mineral sands orebodies currently exploited throughout the world. The valuable heavy minerals ilmenite, rutile, zircon, and monazite are present as liberated grains within unconsolidated sand. These can be separated from the quartz and other gangue minerals due to differences in mineral specific gravity, magnetic susceptibility, and conductivity.

All studies completed have demonstrated that the ore responds favourably to conventional methods of beneficiation.

The level of analysis for the mineral processing and metallurgical testing is considered suitable to support the 2025 Feasibility Study with a high level of confidence in the metallurgical performance, considering the following:

- The feed grade, mineral composition, and ore characteristics are consistent with historical data
- The beneficiation techniques employed are conventional and proven techniques
- The response to beneficiation (product grade and recovery performance) is consistent with historical data
- The MinModel data has been validated against conventional QEMSCAN mineralogy results and is deemed acceptable for the purpose of mineral recovery calculations.

14 MINERAL RESOURCE ESTIMATE

14.1 GEOLOGICAL INTERPRETATION

Locally within the Ranobe deposit, the following seven geological units are recognized:

- The RNF is a medium to fine grained yellow orange aeolian sand unit which onlaps the USU as a veneer from the west. It has relatively low slimes and HM content.
- The SSU consists of a thin layer of orange-brown, red-brown, and brown silt and silty sand that is found in topographic lows and basins generally associated with alluvial outwash channels and fans.
- The stabilized aeolian USU consists of pale orange, well-sorted, well-rounded, fine-grained quartz sand with low slimes content (<5%) and variable HM content. The USU thickness increases westward and HM grades gradually decrease with increasing distance away from the limestone escarpment in the east.
- The USSU occurs as an elongate lens of orange to orange-brown silty sand within the basal part of the USU in the southern part of the deposit. Slimes content is elevated (average 25%), but comprises silt with minimal clay, and HM grades are moderate to high (5–10% HM).
- The ICSU is a thin unit primarily consisting of dark red to orange brown sandy clay and clayey sand material with a moderate to high slimes content (10–50%) and typically low HM content (0.5–2%).
- The LSU is comprised of orange-brown to yellow-brown and khaki medium-grained quartz sand with moderately low slimes content (<10%). The unit onlaps the deep LST basement and as with the USU unit, its thickness increases to the west.
- The LST unit constitutes the basement for the Ranobe deposit and outcrops as both a north-south trending limestone escarpment along the eastern border of the deposit and as isolated pinnacles and ridges in the central part of the deposit.

Geological interpretations were completed by Base Toliara geologists as digitized strings and wireframes based on sectional interpretation of the drilling data.

The geological domains are referred to as zones and align with the primary geological units of the deposit. The USU domain is Zone 1, the SSU domain is Zone 2, the USSU domain is Zone 3, the ICSU domain is Zone 5, the LSU domain is Zone 10, and the basement is Zone 200.

14.2 RESOURCE ASSAYS

A total of 1,933 drill holes were used for the geological interpretation, but only 1,581 drill holes for the resource estimate for the Ranobe deposit, as some historical holes were not sampled or are outside of the current tenure, and many of the 2019 drill hole assays were not available. The holes/collars, meters and samples by year for the resource estimate are summarized in Table 14-1.

Drill hole collars were surveyed using DGPS from 2003 onwards to establish horizontal and vertical control to UTM Zone 38S, WGS 84. The 2001 drill collars were surveyed by handheld GPS. All collars have been levelled to the LiDAR digital terrain surface to ensure consistency and alignment with future mine planning and construction. All collar positions were deemed satisfactory and fit for purpose for the geological interpretation and interpolation processes.

Table 14-1: Summary of drill data by year for the Ranobe resource estimate

Year	Number of holes	Hole range	Maximum depth	Minimum depth	Average depth	Meters	Meters %	Assays	Assays %
2001	108	R0001–R0116	54	5	25.6	2,764	6.0%	1,117	4.9%
2003	397	R0201–R0600	48	3	23.7	9,408.1	20.3%	3,045	13.5%
2005	288	R0601–R0888	48	1.1	21.3	6,134.7	13.2%	2,120	9.4%
2012	363	R1000–R1358	69	2.1	22.3	8,086.7	17.4%	3,579	15.8%
2018	78	R1359–R1436	81	6	46.4	3,617	7.8%	2,266	10.0%
2019	347*	R1437–R2106	102	4.5	47.3	16,397.9	35.3%	10,492**	46.4%
Total	1,581		102	1.1	29.4	46,408.4	100%	22,619	100%

* Includes two twin holes

** Approximately 5,350 assays were not available for the resource estimate

14.2.1 Mineralogy composite preparation

Mineralogy sample composites were prepared by Base Toliara across the full extent of the USU and ICSU domains within the deposit to standardize the mineral assemblage analysis for the Ranobe deposit using the MinModel methodology as discussed in Section 11.8.

A total of 901 mineral assemblage composites from the USU and ICSU were used for the interpolation of the Ranobe deposit (Table 14-2). The location of the MinModel composites is shown in Section 11.

Table 14-2: Summary of mineral assemblage composites by zone

Zone	Unit	Composites	Comment
1	USU	805	Includes 15 composites comprising mix of SSU and USU
2	SSU	17	Includes 15 composites comprising mix of SSU and USU
3	USSU	3	-
5	ICSU	91	-
	Total	901	

14.2.2 Mineral assemblage

The mineral assemblage analyses comprised a wide suite of mineral species, and for the purpose of including results in the block models and for simplicity and transparency in reporting, it was decided to group some minerals together. Mineral species with their definitions are presented in Section 11.

For Mineral Resource reporting purposes, the ilmenite species are reported as Total Ilmenite, as the specifications for the various ilmenites are subject to change based on customer and market conditions and mineral separation plant performance.

14.3 TREND ANALYSIS

Variography analysis was undertaken on THM assays within the geological domains to determine the relationship between samples in space, support the drill spacing used for the resource estimation, and support the resource classification selected for the Ranobe deposit. No variogram modelling was undertaken for other primary assays, and the mineral assemblage composites have mixed sample support, making them unsuitable for variogram determination.

The results of the variography were also used to guide the preparation of the control strings used for the strike or trend direction for the grade interpolation process.

The Ranobe deposit has been largely drilled on 200 m north-south spacing and on 100 m east-west spacing. There are some areas of the deposit with drilling on 400 m north-south and 100 m east-west spacing, while the western part of the deposit has widely spaced drilling of up to 800 m north-south and 200 m east-west. The variogram models were developed from domained assays as per the resource model assignment. Variography was undertaken using Snowden Supervisor software which incorporates the variogram fan analysis from which directions of strongest trend can be selected. In general, all domains show a very strong north-northwest to south-southeast orientation and a very low nugget defined by the downhole variogram. The along-strike variography seems to be influenced by the overall length of the deposit. The continuity models for Zones 1, 5 and 10 are presented in Figure 14-1 to Figure 14-3; Zones 2 and 3 are not included due to their modest contribution to the resource.

The results of the experimental variogram for Zone 1 (Figure 14-1) showed strong grade relationships up to 2,000 m range while the across-strike variograms showed strong relationships up to 600 m. The downhole variogram shows a shorter scale structure which is well informed by sample pairs at closer spacing of drilling. The strong downhole sample relationship is highlighted by a very pronounced short-scale rise to approximately 10 m lag distance and then a continued strong relationship out to 20 m. While a 3 m downhole sampling could be recommended based on the downhole variography, this would be a drawback in accurately defining the domain boundaries of the deposit. A drill spacing of 100 m across strike and 200 m in the north-south direction could be used for Measured classification.

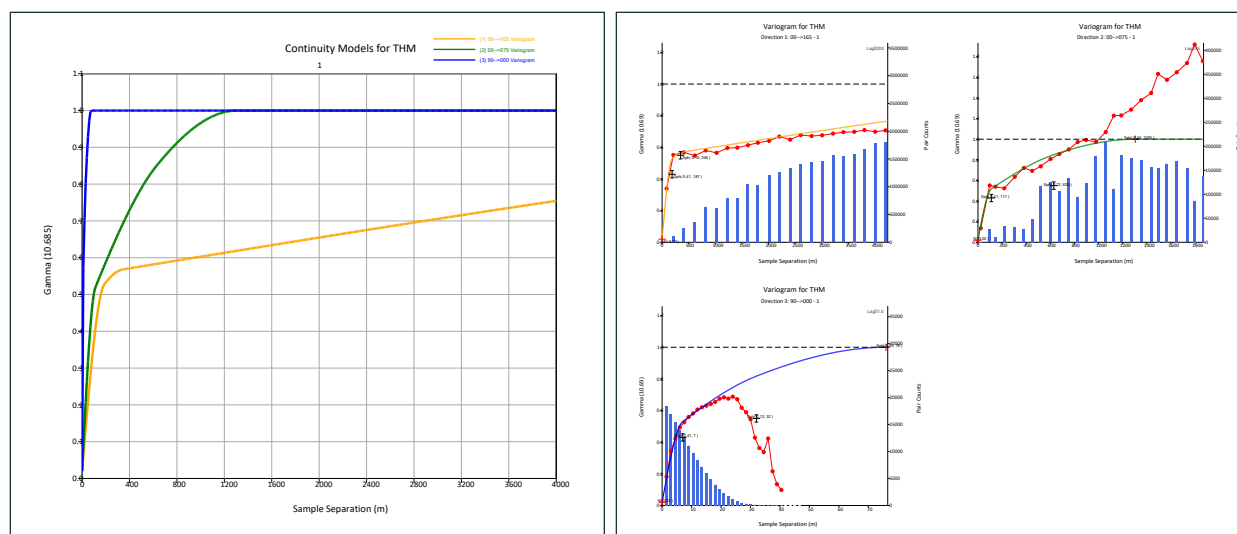


Figure 14-1: Continuity model and variogram models for Zone 1 (USU)

The variograms for Zone 2 show a reasonable structure in both the X and Y directions and limited pairs in the Y direction, restricted by the narrow domain. The results of the variogram modelling for Zone 2 (SSU) indicate that a drill spacing of 200 m in the east-west direction and 200 m in the north-south direction could be used for Indicated classification.

Zone 3 shows a reasonable structure in the X direction and a limited number of sample pairs in the Y and Z directions. The wide drill spacing within the zone does not adequately define the structure along strike, while the Z structure is influenced by the limited number of samples due to the restricted extent of the domain.

The experimental variograms developed for the ICSU (Zone 5) domain are variable in their structure with the Y-axis (Figure 14-2) demonstrating a well defined structure up to 1,800 m. The cross-strike variogram is not well developed at short ranges and is likely to be influenced by the wide drill spacing in that direction.

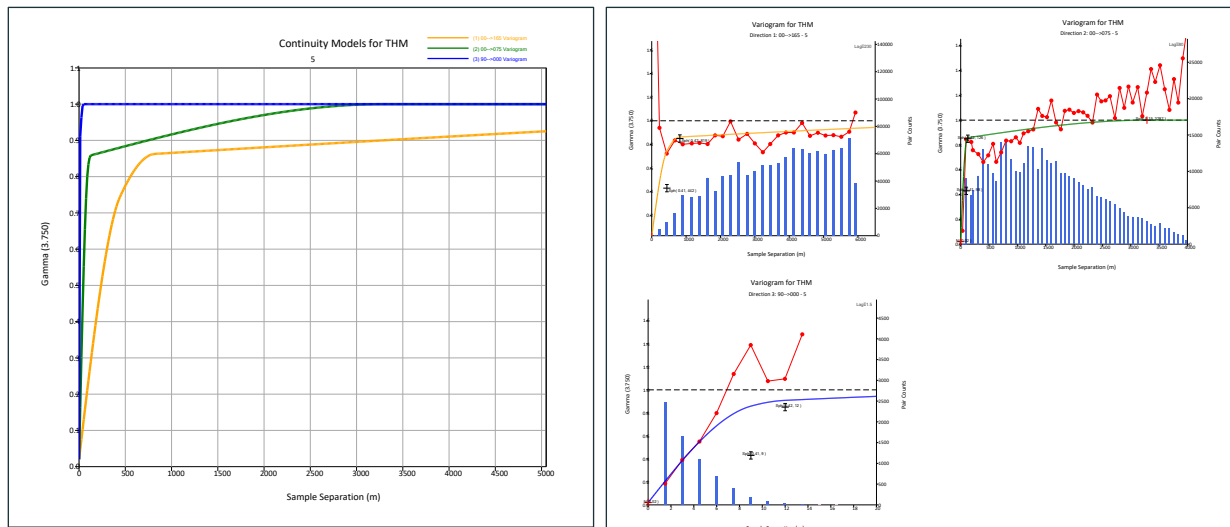


Figure 14-2: Continuity model and variogram models for Zone 5 (ICSU)

The experimental variograms developed for the LSU (Zone 10) domain are variable in their structure with the Y-axis (Figure 14-3) demonstrating well-defined structure up to 1,400 m and beyond that, support becomes quite poor. The cross-strike variogram demonstrates a short-range behavior, and this is likely to be influenced by the limited sample pairs at closer ranges.

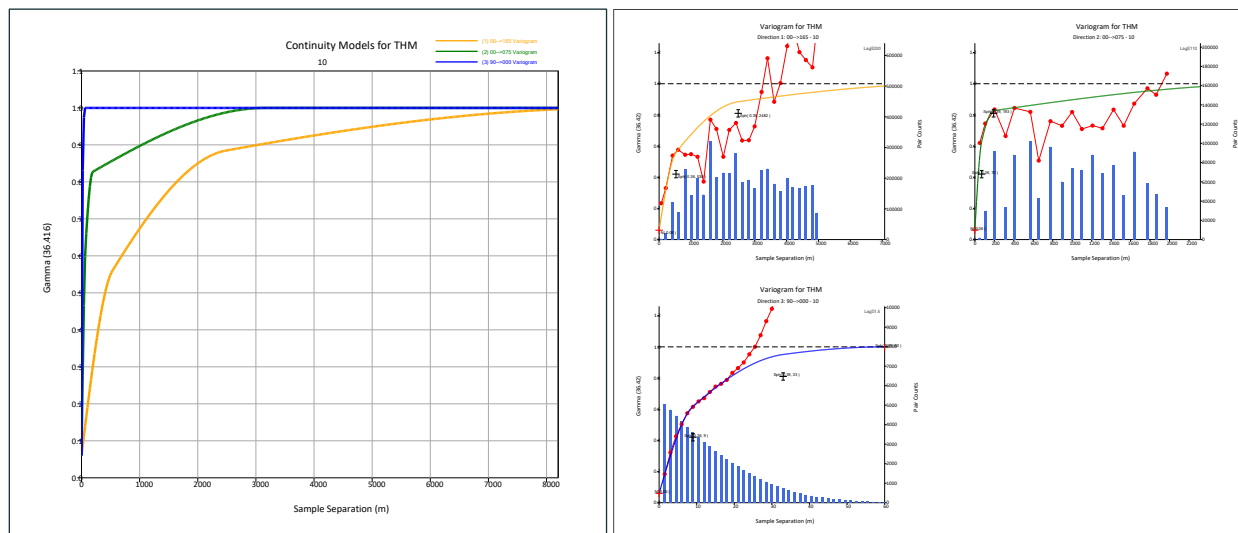


Figure 14-3: Continuity model and variogram models for Zone 10 (LSU)

While the main structure of the deposit seems to be influenced by the overall body length, the prevailing wind direction, which comes from the south-west to influence dune building appears to have some control on the direction of heavy mineral accumulations in the 040° to 070° directions. An investigation of the variogram structures in this direction showed continuity in the along and across strike directions, but the structures were not as well developed as those striking northwest-southeast. The northeast-southwest orientation identified in the variogram structure has been used to generate some of the dip-trend strings used in the dynamic ellipse routine for Zone 2.

14.4 BULK DENSITY

In 2003, rudimentary measurements of bulk density (BD) were made by MRNL geologists at two locations in an area of typical USU mineralization. These yielded values of 1.67 t/m³ and 1.70 t/m³.

In 2007, Soillab Pty Ltd conducted in situ density tests by sand replacement dry density tests at 14 sites across the deposit in excavated trenches ranging from 1 m to 2.15 m in depth. These tests determined an average density of 1.701 t/m³ with a standard deviation of 0.084.

In 2012, McDonald Speijers suggested this method of density measurement was biased due to higher than average HM grades for the deposit, with the first 3 m of the material tested in the area subject to the 2007 testing exhibiting grades in the order of 9.3% HM. A bulk density formula using an industry-wide standard calculation for sand deposits with low slimes content was proposed:

$$\text{specific gravity} = 1.61 + (0.01 \times \text{HM}\%), \text{ where HM\% is the percentage of heavy minerals}$$

As the USU has low slimes content, this approach is considered a reasonable method in determining density and has been utilized for the purpose of this resource estimation update. It should be noted that the USU forms the bulk of the resource, is the primary target for mining and hosts all the currently defined Ore Reserve.

However, the bulk density calculation is likely not appropriate for the ICSU and parts of the LSU where slimes levels can be considerably higher, although in these cases it will underestimate the bulk density and hence generate a conservative tonnage estimate. Additional data will be gathered when appropriate to allow a revision and further development of a deposit-specific bulk density formula.

As the model build and interpolation incorporated both inverse distance weighting and ordinary kriging estimates of HM, the bulk density was also calculated for both methods of HM estimation and the matching BD utilized for reporting tonnages in association with the selected method of HM interpolation utilized for reporting grade estimates.

14.5 BLOCK MODELS

Block modelling was carried out using Datamine Studio RM mining software. All string, wireframe, and block model development was carried out using standardized IHC Mining techniques developed over 30 years of experience.

Modelling convention has the largest parent cell size possible used, which is generally based on half the distance between holes of the dominant drill hole spacing in the X and Y dimensions. Cell dimensions are generally used to avoid the use of overly small cells that imply a level of refinement in the model that is not justified by the drill hole spacing.

Convention in model estimation practices holds that a model cell size that is half the distance between drill holes and drill sections is the minimum recommended cell size. There is also the issue of volume variance in the block model exceeding that of the drill hole and assay spacing (by having many more model cells than drill hole assays). This volume variance effect can be demonstrated by performing a Kriging Neighborhood Analysis (**KNA**).

In practice, however, the KNA does not always lead to the most practical result, and the experience of the Qualified Person and interpolation results from different cell sizes can determine the final selected cell size.

The dominant drill grid spacing for the Ranobe deposit was 200 m north-south spaced drill lines with 100 m east-west spacing. This led to the selection of parent cell dimensions of 50 m by 100 m by 1.5 m (X, Y, Z) in order to have a floating cell between drill holes and drill lines.

The summary of the parent cell, model origin, and number of cells is presented in Table 14-3. The selected X and Y model origin coordinates are such that the model cell centroid is centered on the dominant drill hole X and Y coordinates (although in a variable and non-regular grid, this was only occasionally the case). Whilst the drill collar spacing is approximate to a regular grid, they do vary from the ideal northings and eastings due to a combination of poorly managed/aligned line clearing, avoidance of significant vegetation, and the presence of limestone outcrop.

Table 14-3: Ranobe model prototype

Direction	Parent cell size	Model origin	Number of cells	Distance covered	Max model extent
X	50	359,325	282	14,100	373,425
Y	100	7,441,450	331	33,100	7,474,550
Z	1.5	-5.8	190	285	279.3

The rationale for this approach (centering the cells on drill holes) is that the grade in the drill hole assay is the best in-ground representation of the grade at the center of the drill hole and so should have the greatest chance of influencing the model cell grade in the interpolation. There is a factor in the Datamine interpolation process that prevents a cell from receiving exactly the THM grade of the sample if that sample falls exactly on the epicenter of the model cell (as would be the outcome in the inverse distance interpolation method approach taken for this project).

Sub-cell splits of 2 by 4 in the X and Y and to the nearest 20 cm in the Z direction were used to control sub-cell splitting of parent cells (as dictated by the modelling routine used in Studio RM).

It should also be noted that the X model origin of the model prototype was adjusted by -3,400 m (to the west) to provide further capacity for potential exploration to the west of the current known deposit extents.

14.6 CUT-OFF GRADE

The nominal cut-off grade used to estimate resource for the Toliara Project is 1.5% HM. The 1.5% HM cut-off grade generally follows a natural geological boundary, allowing smooth geometric shapes to be modelled. The 1.5% HM cut-off grade also captures all material within the deposit that has the potential to be economically extracted.

Other factors contributing to cut-off grade are:

- The thickness of the mineralization, consistency of grade from surface and overburden.
- Consistent mineral assemblage throughout the deposit
- Continuity of mineralization (at the selected cut-off grade)
- Inflection points on the grade-tonnage curves
- Given consideration of the above, a 1.5% HM break-even cut-off grade for the deposit was assessed at the time of resource estimation.

The Mineral Resource estimate reported in Table 14-5 has been tested with the following high-level costs:

- \$2 per bank cubic meter (**BCM**) for soil removal
- \$2/t for mining cost
- \$40/t HMC for processing cost
- \$15/t HMC for transport cost.

The following mineral prices were used, reflecting TZMI long-term inducement prices from 2035:

- \$280/t of ilmenite
- \$1,400/t of rutile
- \$1,750/t of zircon.

Monazite revenue was not considered during evaluation of the cut-off grade; hence, the cut-off grade can be considered conservative given the value that monazite contributes to the project.

Under the economic factors outlined for the technical report, the Toliara Project does show robustness at the selected cut-off grade and, in the opinion of the Qualified Person, has reasonable prospects for eventual economic extraction.

14.7 CLASSIFICATION

The Mineral Resource estimate classification for the Ranobe deposit has been classified in accordance with the definitions for Mineral Resource in S-K 1300, which are consistent with CIM Definition Standards (CIM, 2014) definitions which are incorporated by reference in NI 43-101. Classification has taken into consideration the drill hole spacing in plan view, as well as the sample support within domains, the size, weighting, and distribution of the mineral assemblage composites and the variography.

The deposit has been assigned a classification of Measured, Indicated, and Inferred with the LSU domain classified as Exploration Target and is supported by the following criteria:

- Drill hole spacing that adequately defines the geology and THM mineralization distribution and trends
- Domain controlled variography for THM that supports the drill spacing for each of the classifications
- Distribution of mineral assemblage composites having adequately identified the various mineralogical domains as well as the variability within those domains.

The drill pattern is not regular across the entire deposit, but in general, Measured category material has a drill spacing of 100 m by 200 m and has MinModel mineral assemblage. Material in the Indicated category typically has hole spacing at 200 m by 400 m and MinModel mineralogy. Where line spacing is greater than 400 m, but less than 1,600 m, and/or limited mineralogical information is available, material is classified as Inferred.

There have been industry standard QA/QC data supporting the assaying process, the use of a specialized and reputable mineral sands laboratory, and the drilling, sampling, and assaying procedures overall have fully supported the development of the Measured, Indicated, and Inferred Mineral Resource estimate. The use of a commercially prepared standard has supported the QA/QC for the laboratory assaying and ongoing duplicates in both the field and laboratory.

The sample support and distribution of mineral assemblage composites is to an adequate level of density for the Mineral Resource classification. Consideration of the operational mining rate and production of THM has been undertaken in order to assess whether the mineral assemblage composites are providing sufficiently detailed coverage of potential variability in the mineral assemblage along the length of the deposit.

In addition to all of the criteria discussed in this section, there is also the consideration of the cut-off grade used to report the Mineral Resource estimate. Cut-off grade and grade tonnage figures and discussion are presented in Sections 14.6 and 14.9.

The selection of the HM cut-off grade used for reporting was based on the results of the 2021 DFS, the experience of the Qualified Person, and by considering the continuity of mineralization at that cut-off-grade as well as the inflection points on the grade tonnage curves.

The Mineral Resource classification outlines for individual domains are presented in Figure 14-4 to Figure 14-7.

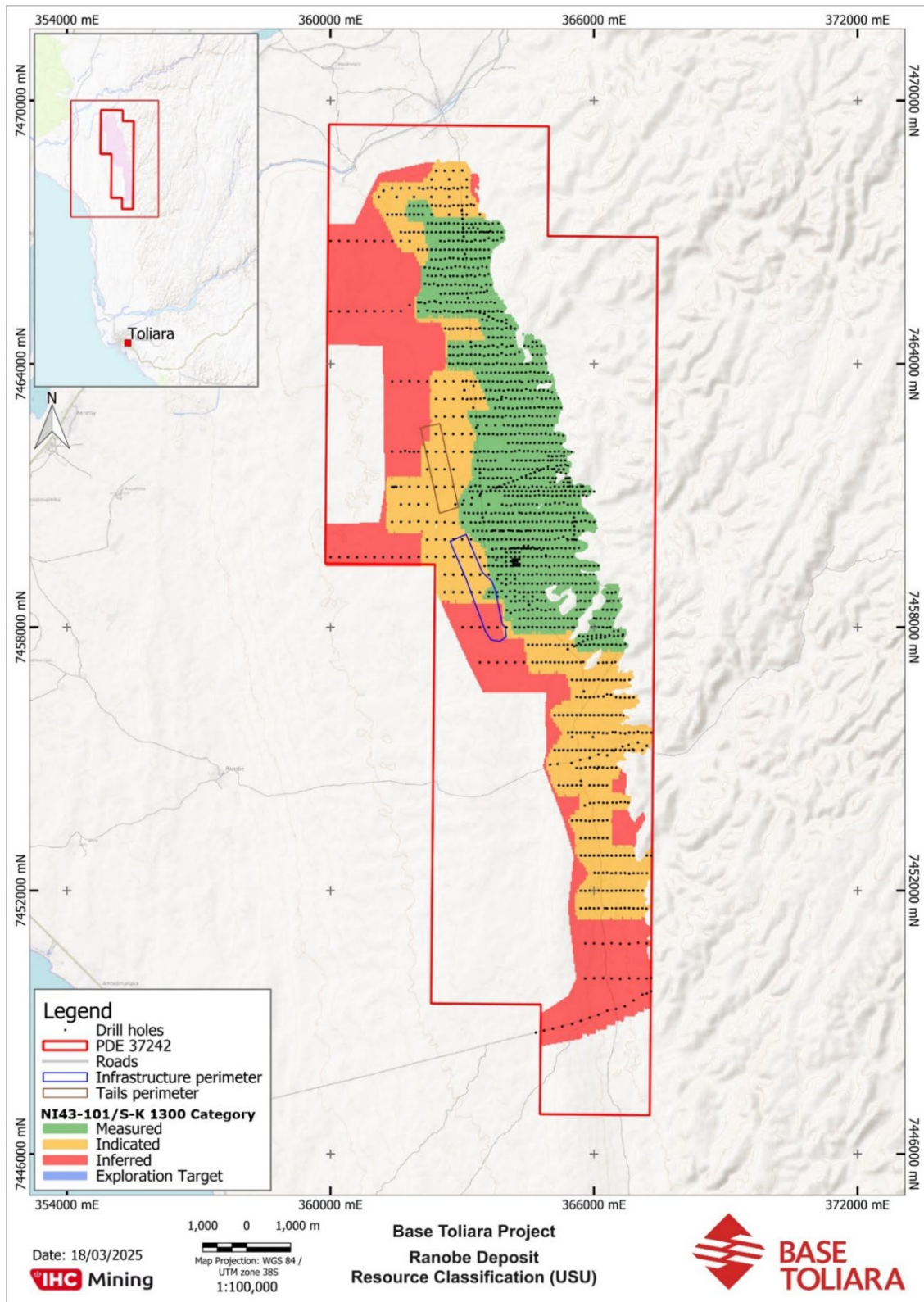


Figure 14-4: Mineral Resource classification for Ranobe deposit (USU)

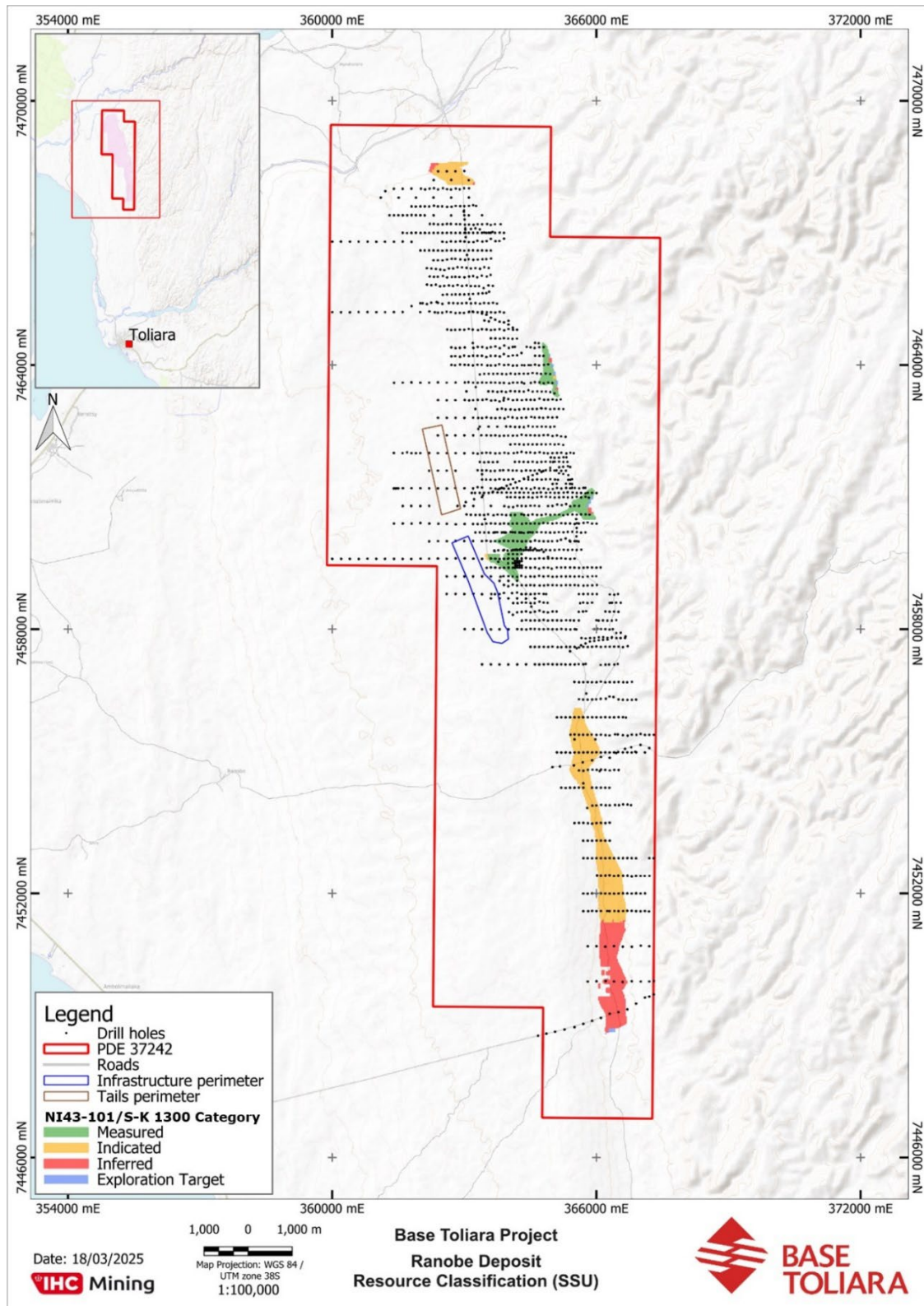


Figure 14-5: Mineral Resource classification for Ranobe deposit (SSU)

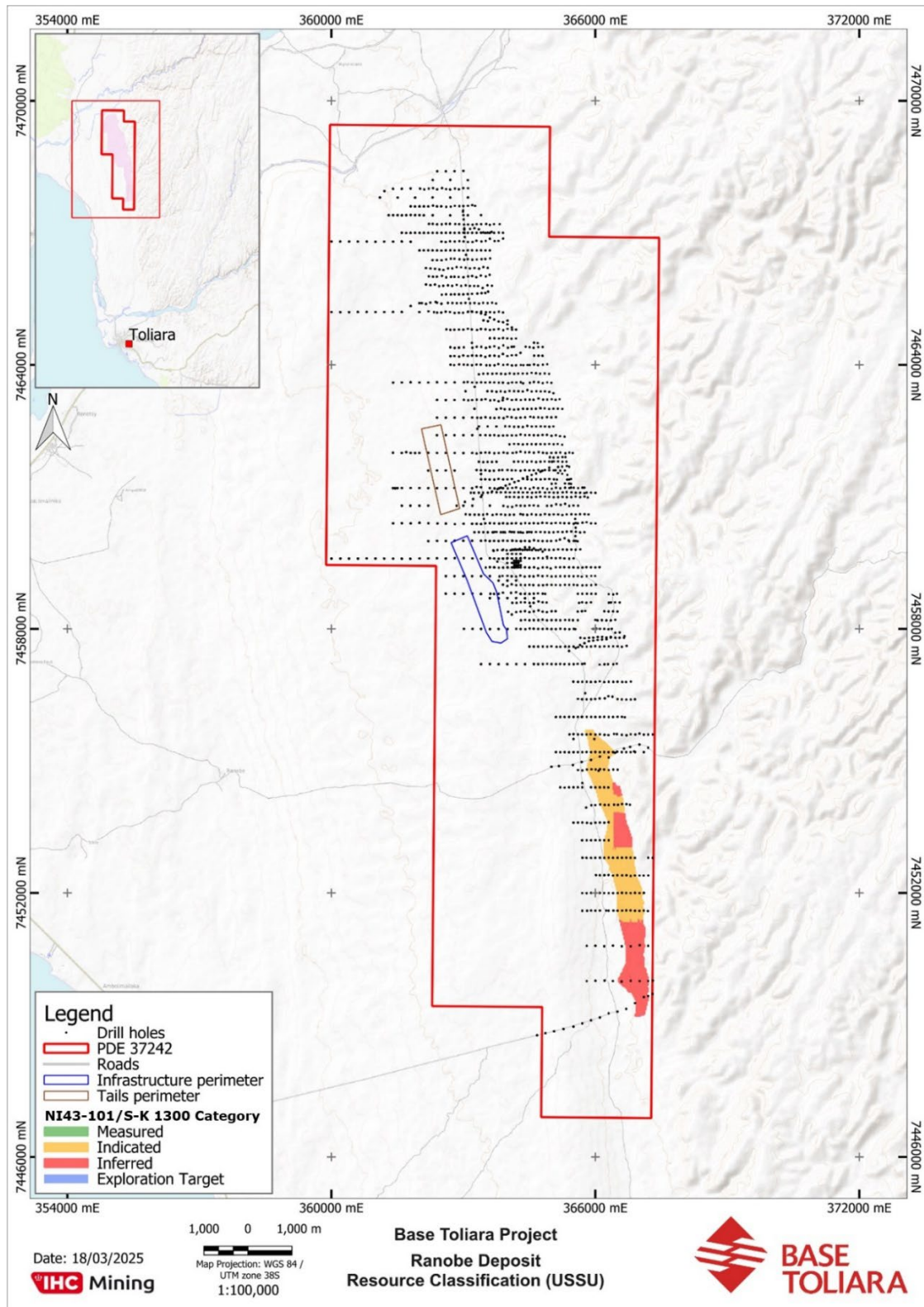


Figure 14-6: Mineral Resource classification for Ranobe deposit (USSU)

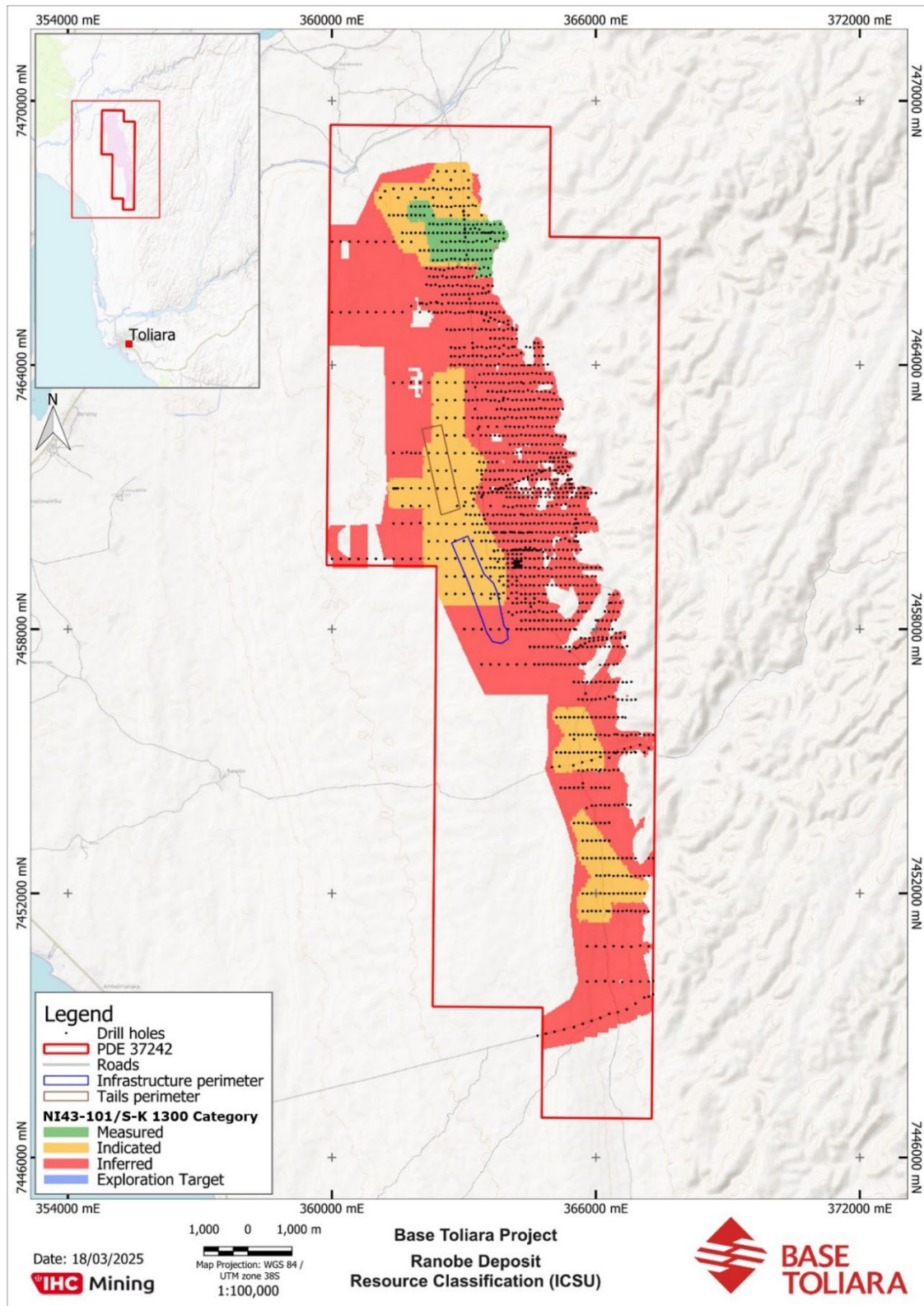


Figure 14-7: Mineral Resource classification for Ranobe deposit (ICSU)

14.8 BLOCK MODEL VALIDATION

The validation of the domains assigned in the block model against those assigned to drill holes allows for a robust assessment of the effectiveness of the grade interpolation. A rigorous review of the grade estimations has been undertaken; however, only assay grade comparison figures (HM, slimes and oversize) along with zone definitions are included in this section. The discussion regarding validation, including its outcomes and processes, is described below.

14.8.1 Volume model and drill hole coding

The volume model and drill hole file for the Ranobe deposit were validated against the geology and basement wireframes to ensure zone allocation had been correctly assigned. The volume model was validated to ensure that adequate resolution was obtained with the use of sub-cells. The location of the model cells with respect to drill section spacing (as outlined above) was checked in both X and Y directions. Any miscoded drill hole values were identified, and wireframes corrected to ensure the correct assignment was made.

14.8.2 Grade interpolation review

On-screen validation of the resource estimates was conducted by viewing the coded drill holes with the estimates for each field. The model was interrogated in east-west and north-south cross-sections with the model viewed at intervals equivalent to the parent cell size. Typical THM mineralization and domain geometries in east-west cross-section showing the main zones are presented in Figure 14-8.

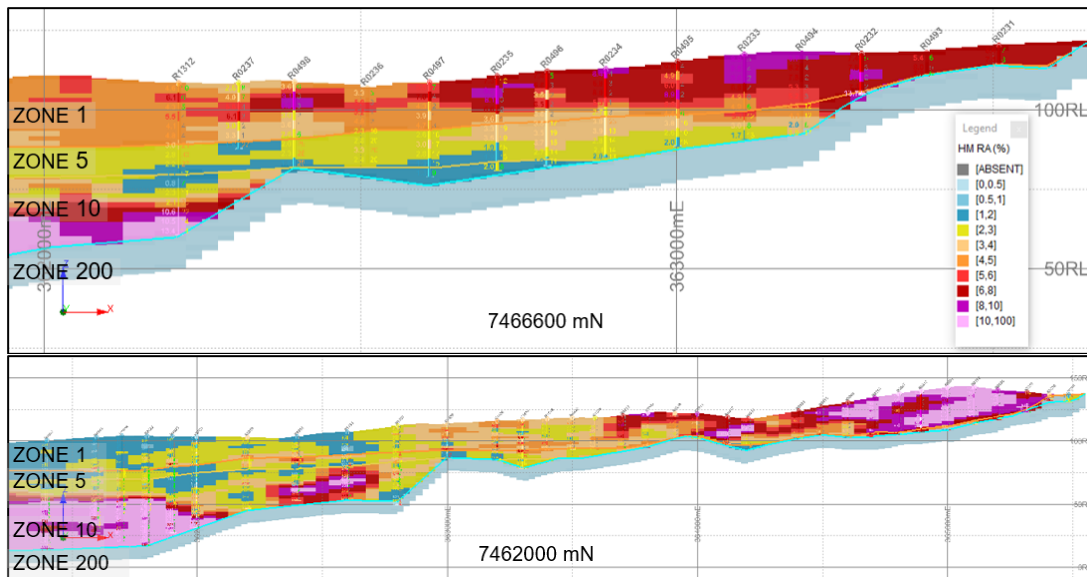


Figure 14-8: Ranobe sections showing THM (5x vertical exaggeration)

14.8.3 Visual inspection

The target mineralized domains of Zones 1, 3, 5 and 10 are mostly continuous along strike trending north-northwest. Across strike, Zones 1, 5 and 10 thin to the east and increase in thickness towards the west, whilst Zone 3 is quite narrow but thickens to the east where it abuts the basement limestone. The strike, continuity, and thickness of Zone 2 is variable as it reflects the deposition of silt on topographically controlled flood plains within the dune mass.

The eastern extent of Zones 1, 3 and 5 is terminated by the limestone escarpment thereby closing out the eastern boundary of the deposit. Zones 1 and 5 are partially open to the west in the central and southern sectors of the deposit.

The 2019 drilling program often tested the full width of the tenure and confirmed that USU mineralization extends west, albeit with a reduction in grade away from the limestone escarpment.

Oblique views for the Ranobe deposit displaying THM and slimes are presented in Figure 14-9 and Figure 14-10.

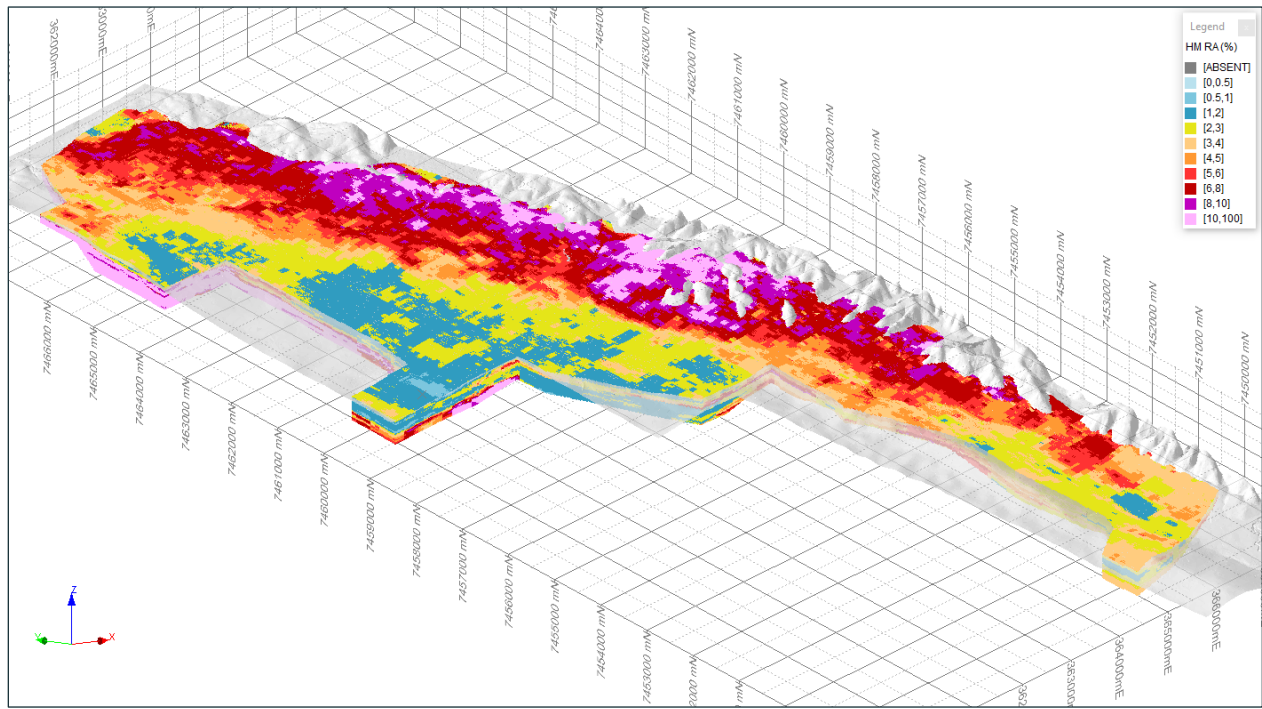


Figure 14-9: Oblique view with model cells colored on THM grade (5x vertical exaggeration)

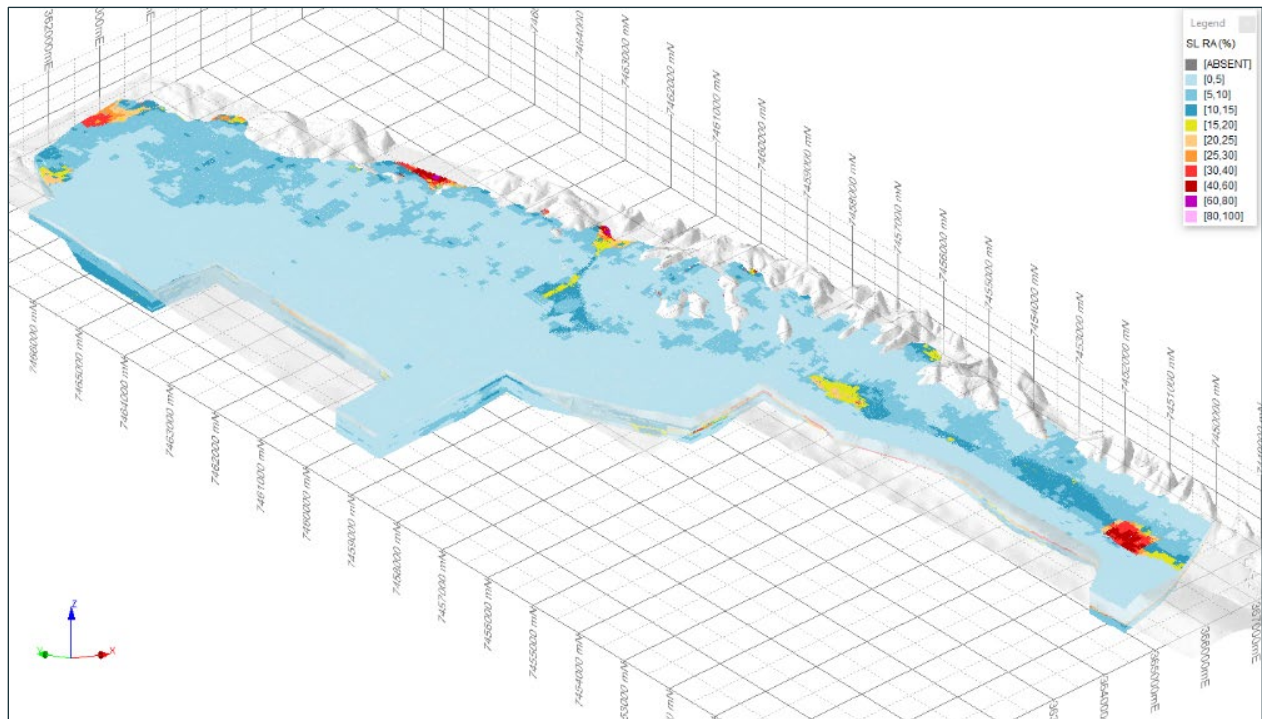


Figure 14-10: Oblique view with model cells colored on slimes grade (5x vertical exaggeration)

14.8.3.1 Statistical presentation

Population distributions were calculated for the primary assay fields and THM as lognormal distributions for both model and drill hole values. These populations were further isolated to domain coded zone unique values and then compared for representativity. This section covers the assay fields for the Ranobe deposit.

The graphs presented in Figure 14-11 and Figure 14-12 demonstrate that the THM grade interpolation has worked effectively in representing the drill hole assay results into the 3D block model. There has been some over smoothing in Zone 1, which could be associated with areas with limited sampling and grades being interpolated over relatively longer distances.

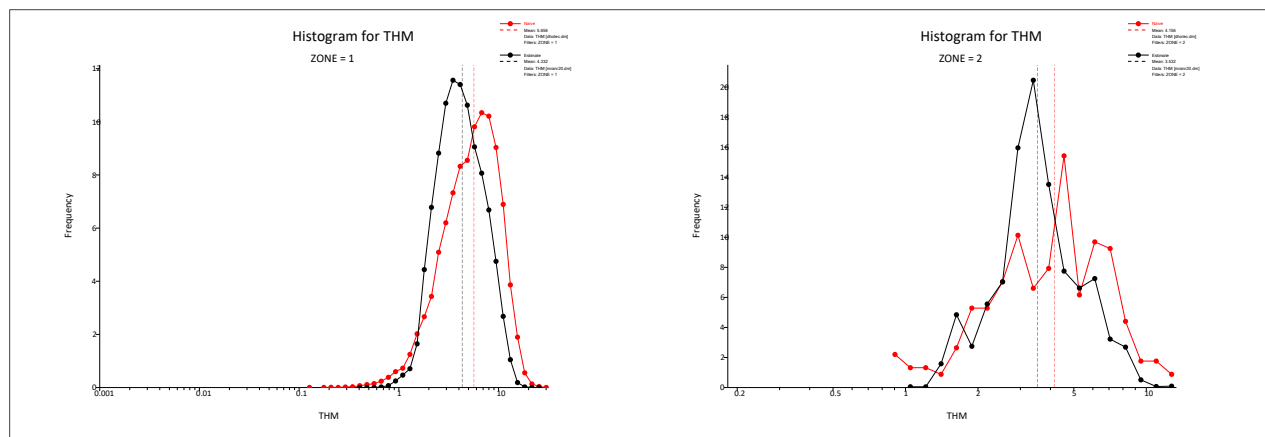


Figure 14-11: Lognormal distributions showing drill hole vs model for THM (Zones 1 and 2)

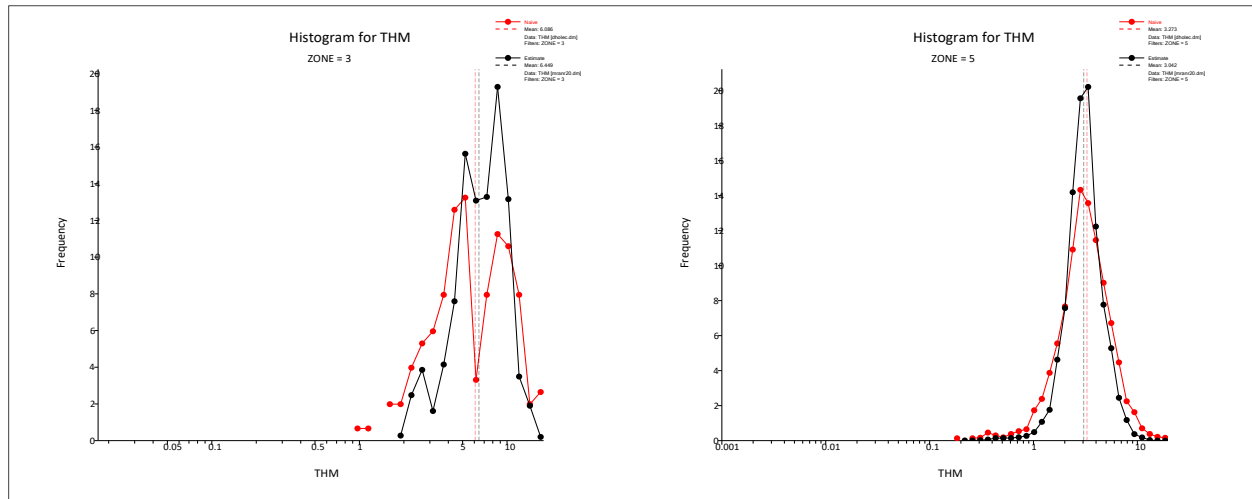


Figure 14-12: Lognormal distributions showing drill hole vs model for THM (Zones 3 and 5)

Generally, the grade interpolation has worked quite effectively in representing the drill hole assay results into the 3D block model. The THM, slimes and oversize interpolation is quite reasonable. The block model shows higher values than the drill holes in Zones 1, 2 and 5 for THM values between 2% and 4%. The block model also shows higher values for slimes between 24% and 35% for Zones 3 and 5 and for oversize values between 2% and 4% for Zones 1 and 3. This could be due to over-smoothing in areas with low sample numbers.

14.8.3.2 Graphical presentation

Another method of comparing the effectiveness of the interpolation is to calculate and compare assay averages by model and drill hole northing. The average for the drill hole results were compared to the weighted averages of the interpolated grades during the modelling process on a domain basis. Comparisons between model and drill hole grades for THM in Zone 1 are displayed in Figure 14-13.

A comparison between the model block grades and the drill hole results for THM shows relatively higher drill hole average grades than block model grades between 365000 mE and 367000 mE and between 7460000 mN and 7468000 mN. These areas have widely spaced drilling and have been classified as Inferred or Indicated category. Generally, the grade interpolation for THM is reasonable and shows higher variances between block model and drill hole grades in areas with low sample numbers.

A comparison between the model block grades and the drill hole grades for slimes and OS shows that the grade interpolation has performed well for each of the domains for the slimes and OS assay grades. Higher variances between block model and drill hole grades are confined to areas with limited sampling.

The model and drill hole comparisons for each of the primary assay grade fields, their corresponding zone and model all showed trends consistent with an effective interpolation of grades from drill holes into the block model. This is attributed to the tight domaining, regular drill grid and sampling downhole, and dynamic ellipse routine used by IHC Robbins. As predicted, there is higher variance between model and drill hole assay fields where sample numbers are low.

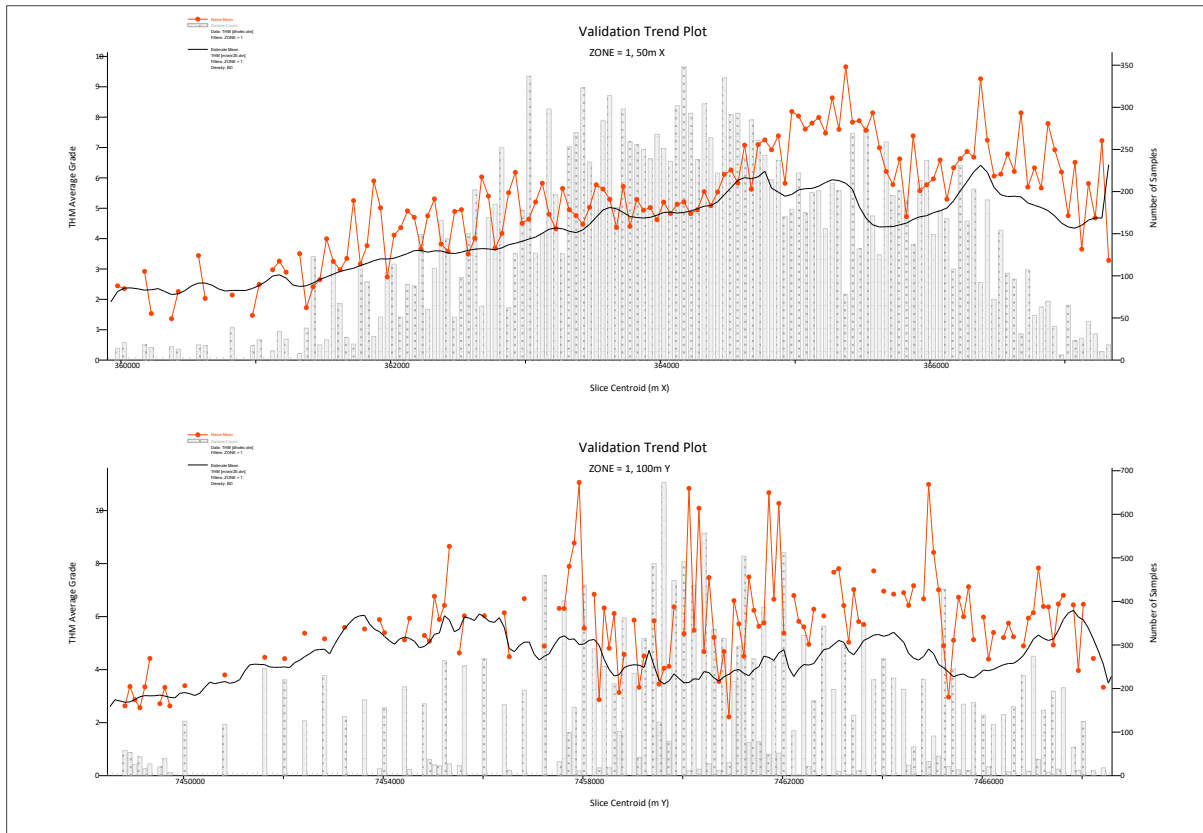


Figure 14-13: Comparison of THM grade in drill holes vs model (Zone 1)

14.8.4 Mineralogy interpolation review

The mineralogy is interpolated into the block model using the mineral assemblage composite number (MACNUM) by nearest neighbor. This honors the basis by which the composites are prepared (differing sample support due to the input of varying numbers of samples), simplifies the interpolation process (only one variable to handle and monitor), and allows for a meaningful review (can compare tonnages assigned directly to each mineral assemblage composite and assess whether there has been any assignment of MinModel results to domains that were not originally in the sample selection process).

14.8.4.1 Visual review

Following the initial grade and field interpolation into the block model, the estimation field (BSEST - which records the search ellipse utilized) is reviewed to determine whether the cells have been interpolated with a degree of confidence during the estimation process. Once the interpolation has been validated for the model and each domain, a visual assessment of the mineralogy assignment and distribution can take place, see Figure 14-14.

Mineral assemblage composite assay data is then joined into the block model and the grade distribution for each species is examined. This is also compared to the heat maps for each mineral species within the deposit.

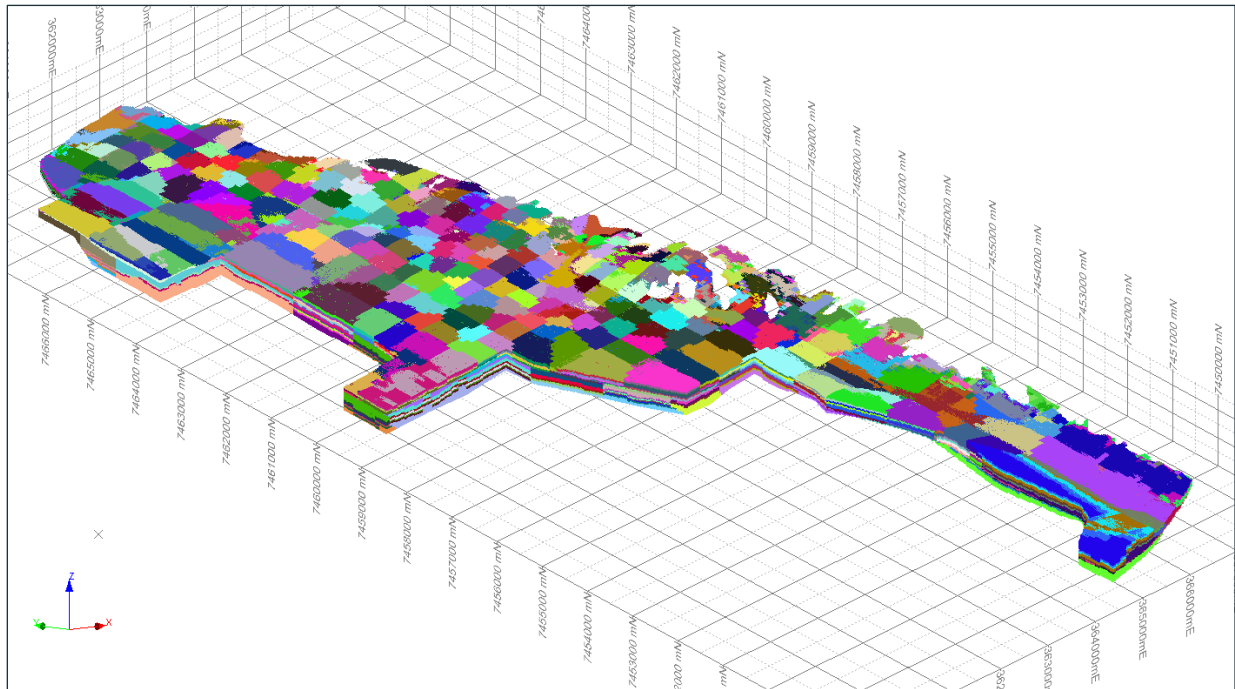


Figure 14-14: Oblique view of the model showing mineral assemblage composite influence (5x vertical exaggeration)

14.8.4.2 Graphical review

In addition to the visual review, summary graphs were prepared that show the grade and associated HM tonnage for each mineral species along the length of the deposit at approximately 100 m intervals and at 50 m intervals across strike. Only ilmenite has been included as Figure 14-15 to illustrate the validation process. Each domain is represented as a line of weighted average grade and the associated tonnage for each domain is plotted as a bar graph. This allows an independent observer to take into account the grade and the tonnage that it represents on any given northing.

This process clearly demonstrated the effectiveness of the restriction by domain for the mineral assemblage composites. It also demonstrates the relationship between THM grade/tonnes and the grade of valuable heavy minerals (VHM) (generally higher THM grades will yield a higher value assemblage).

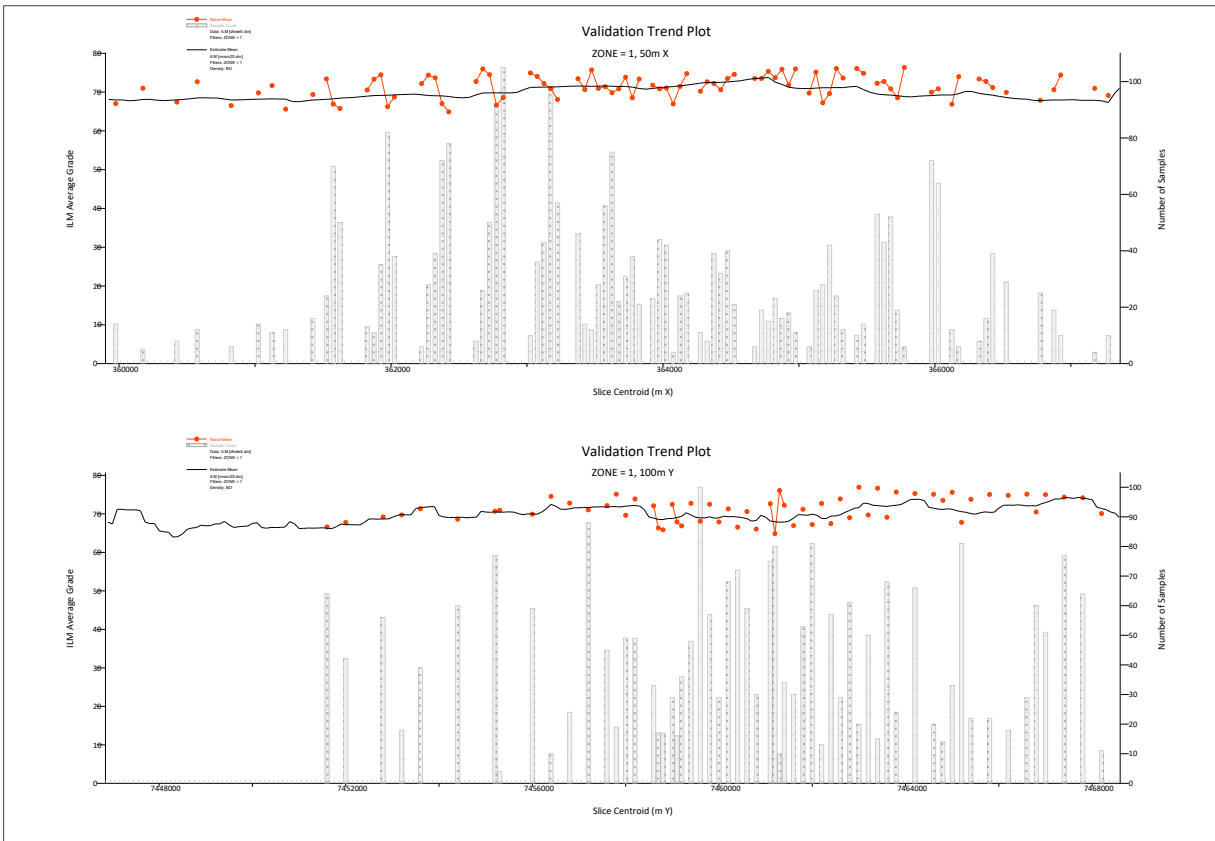


Figure 14-15: Comparison of ilmenite grade in drill holes vs model (ZONE=1)

14.8.4.3 Tonnage Review

Once the MACNUM interpolation was deemed satisfactory, a review of the tonnage and HM tonnage allocation to each composite was undertaken.

There are a number of different approaches to determining how appropriately the MACNUM assignment has performed. An appropriate tonnage may be one that would be reflective of a typical parcel of HM from a production scenario (either per shift, week, or month). The average monthly production from the Toliara Project will be around 75,000 t of THM.

The reported tonnage per composite can be reviewed as one of the following:

- Percentage of the total model
- Percentage of each zone
- Percentage of the mineral resource above the nominal cut-off grade.

The most reasonable approach would be to review the MACNUM assignment based on the reported resource estimate above the nominal cut-off grade; however, this was not needed as the material for the mineralized Zones 1, 2, 3 and 5 were all above cut-off grade. At a planned mining rate of 1,750 tph and a range of THM head feed grades from 6% to 9% THM, the expected monthly HMC production may range from 65 kt to 110 kt. Figure 14-16 shows the distribution of MinModel composites within the USU, binned by 50 kt intervals. Approximately 53% of the total USU is defined by composites that are 100 kt or less. Given the overall low variability of THM grade and mineralogy, this level of representation and weighting strongly supports the resource classification.

Scanning the reported tonnages for each of the zones shows that there are a number of mineral assemblage composites that are in excess of the monthly production profile, i.e., they are influencing larger tonnages of the deposit. The counter point is that the mineral assemblage composites have been prepared after careful consideration of geological observations and interpretations. Any in-ground variability has been identified given the spacing of holes and sampling downhole, and this increases the confidence in the sampling representivity.

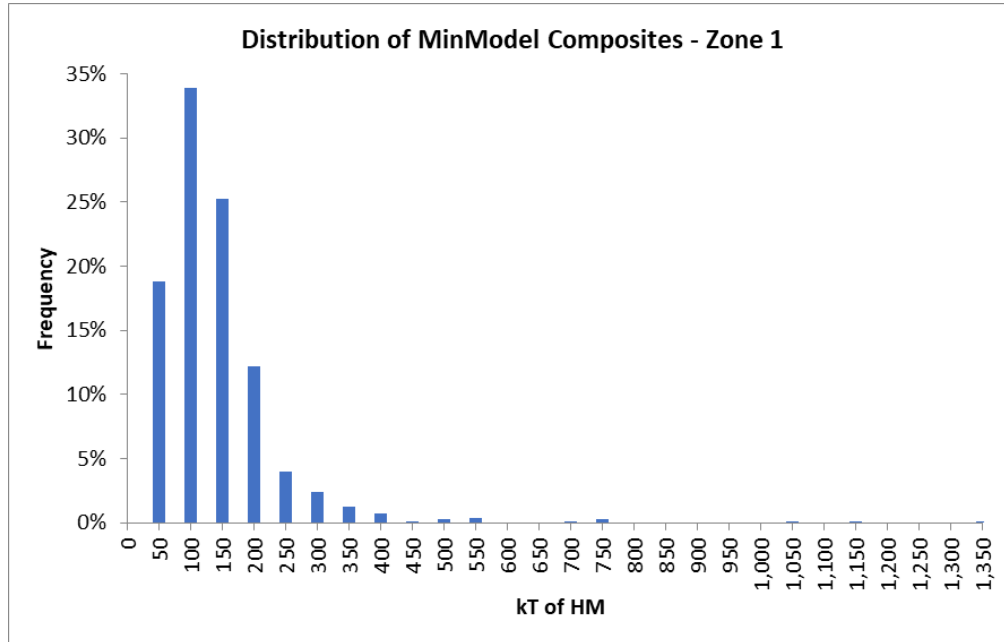


Figure 14-16: Distribution of MinModel composites by HM kt within Zone 1 (USU)

An analysis of MinModel composites from Zone 1 (USU), which forms the bulk of the resource, shows that there are small groups of composites that account for slightly larger HM tonnages, including the following:

- R0690_B, R0693_A, R0703_A: These holes lie on basement topographic highs surrounding a broad and deep valley of relatively high-grade material and have been extrapolated into the valley fill. An additional hole can be sampled to improve the MinModel distribution for the next model update
- R0875_A, R0878_C: Similar to above, these samples occur on the high-grade eastern margin of the deposit in an area of irregular topography and have been extrapolated into valley fill. An additional hole can be sampled to improve the MinModel distribution for the next model update
- R1547, R1564: These holes are located near an area along the eastern boundary where infill drilling has been completed, but assays are awaited. Once the assaying is complete, the influence of composites from these holes will be reduced to normal levels
- R1582, R1584: These holes are located along the southwestern edge of the deposit where Inferred Resource classification extends for some distance, allowing extrapolation of the composites over larger than normal volumes of material
- R1674, R1676, R1677, R1679: These holes represent the southernmost line of 2019 drilling that has been assayed, and hence the composites have been extrapolated well to the south into Inferred Resource classification in the absence of other available data. Infill drilling has been completed to the south, but assays are awaited. Once the assaying is complete, the influence of composites from these holes will be reduced to normal levels.

There are also some USU MinModel composites that have a restricted distribution and subsequent small influence on the total resource; these are generally related to lower-grade mineralization along the western boundary of the resource, particularly where material lies beneath permanent infrastructure and has been excluded from the resource.

The MinModel composite distribution in Zone 2 (SSU) is somewhat irregular, particularly in the south of the deposit where the drilling is wider spaced. However, the small size of the SSU resource mitigates this, as the largest composite only accounts for 2.2 kt of HM.

There are limited MinModel composite samples utilized for Zone 3 (USSU), but as this mineralization is classified as Indicated and Inferred, and assay results are awaited for a large area of the USSU that has been drilled, the MinModel composite distribution is not a significant issue and will be improved once additional assaying is complete.

While there is good general coverage of MinModel composites in Zone 5 (ICSU), the influence of samples is somewhat irregular (Figure 14-17). This is largely due to the lack of historical drilling through the full thickness of the ICSU and the subsequent lack of samples available for MinModel analysis. This issue will be rectified by both a review of available drill samples for compositing and additional infill drilling.

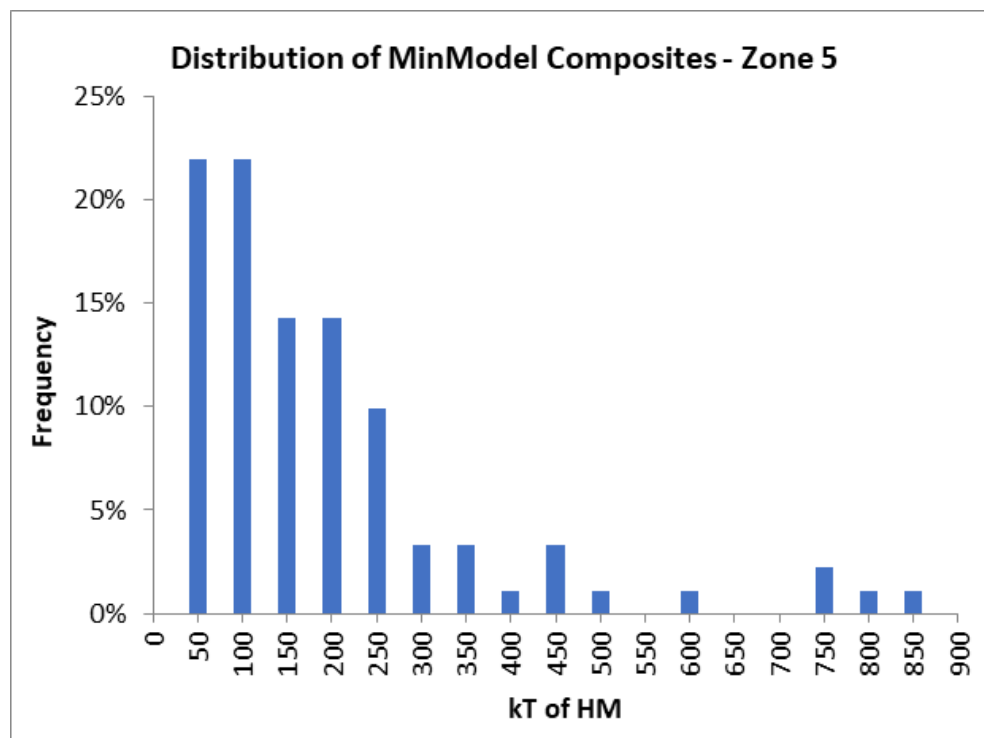


Figure 14-17: Distribution for MinModel composites by HM kt within Zone 5 (ICSU)

14.9 GRADE TONNAGE SENSITIVITY

Grade tonnage curves for the Ranobe deposit were prepared at varying cut-off grades to demonstrate the relationship to THM grade and tonnages for both material and THM contained tonnes. The selection of cut-off grade was made in increments of 0.5% from 0% up to 10%.

The material tonnage versus THM grade for the Ranobe deposit is presented in Figure 14-18.

Figure 14-19 shows the Ranobe deposit grade tonnage curve for THM tonnes versus THM grade.

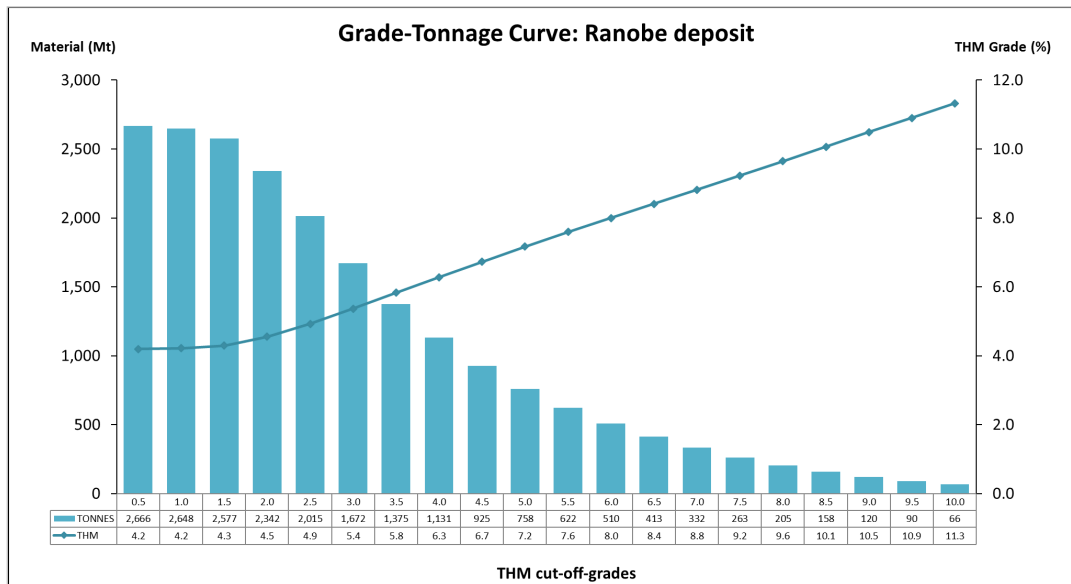


Figure 14-18: Grade tonnage curve showing material tonnes versus grade

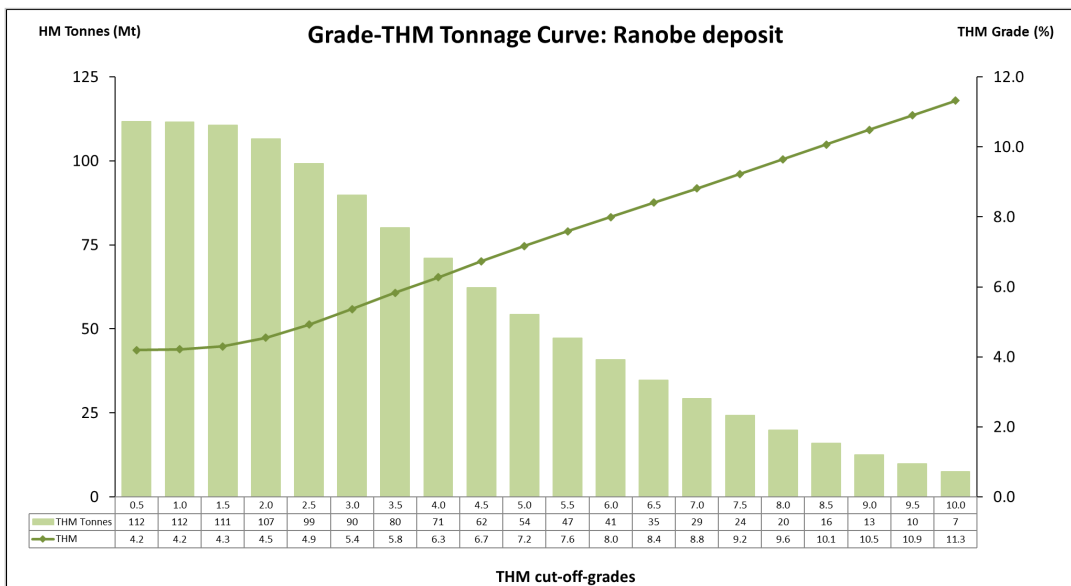


Figure 14-19: Grade tonnage curve showing THM tonnes versus grade

14.10 TECHNICAL AND ECONOMIC FACTORS

The Mineral Resource estimate was originally prepared as part of the 2021 DFS for the Toliara Project that demonstrated the economic potential of the Mineral Resource. The 2025 FS has confirmed the economic potential of the Mineral Resource. A summary of the relevant technical and economic factors is discussed below.

14.10.1 Site infrastructure

The development of the Toliara Project will require infrastructure to support mining, mineral processing, and product haulage and shipment. Temporary infrastructure, including fly camps, causeway bypasses, and road upgrades, will support early construction activities.

Due to a local shortage of construction expertise, Base Resources anticipates recruiting personnel from other regions of Madagascar to support implementation activities. Construction employees from outside the Toliara region will be housed on the mine site on a FIFO basis. This will require a village to meet construction accommodation requirements that will later be converted for use as an employee village during the mine's operational phase.

Essential services such as water supply, sewage treatment, power generation, communications, security, fuel supply, and waste disposal are integral components of the Toliara Project's infrastructure. Extensive infrastructure will be required to support mining and processing activities, ranging from earthworks and drainage to plant roads, offices, workshops, equipment stores, product stores, laboratories, and messing facilities.

As all products are expected to be exported, secure and safe transport from the Ranobe mine site to the point of loading on ocean-going vessels will be required.

The existing port at Toliara is unsuitable for the Toliara Project's anticipated export requirements as it can only service coastal vessels due to the shallow draft (7 m) and not the large ocean-going vessels required to transport bulk minerals economically. Furthermore, the available onshore port warehousing space is inadequate for the Toliara Project's expected storage requirements, and it would not be possible for product haulage road trains to navigate Toliara's crowded and narrow roads. A new export facility on the northern edge of Toliara, at Batterie Beach, forms part of the Toliara Project's infrastructure requirements. The export facility is 45 km from the mine site and will be connected by a new haul road and bridge across the Fiherenana River.

There is an existing airport at Toliara with regular scheduled flights to Antananarivo and Mauritius via Saint Denis, Reunion. The airport has a sealed runway of adequate length to accept Boeing 737 aircraft and equivalents. As road transport between Toliara and Antananarivo is not advised, FIFO personnel movements will be by air.

14.10.2 Mine design and planning

The mining cycle commences with removal of vegetation and topsoil and storage for later rehabilitation use. This is followed by ore extraction, which will utilize Caterpillar D11 bulldozers feeding, initially one and ultimately two, DMUs which will screen out oversized material and pump the remaining ore to a WCP for processing. Tailings are returned to mined-out areas, which are backfilled, contoured, and have topsoil and vegetation returned for native vegetation rehabilitation or seeded for farming purposes. The second DMU, mining pit, and WCP are required to maintain HMC output as ore grades decline.

The sequence of mining activities to be planned and implemented includes the following:

- Clearing vegetation
- Topsoil stripping and stockpiling for later use in rehabilitation
- Feeding ROM ore from the mining face to the DMU for screening to remove oversize and control feed rate to the WCP
- Pumping DMU screened ROM ore to the WCP
- Depositing mixed coarse and fine tailings to mined-out areas
- Reconstructing landform according to the coarse tailings stacking plan

- Managing coarse and fine tailings process return water
- Mixing of fine tailings and coarse tailings and return to mined-out voids
- Returning topsoil to reconstructed dunes to stabilize the landform and undertake rehabilitation.

The mining method selected for the proposed Ranobe operation is a well-established methodology with a proven track record of delivering high throughput with low operating expenses.

The mining sequence will deliver the required feed and product streams and all reasonable constraints and considerations have been taken into account with appropriate risk mitigation strategies where possible.

14.10.3 Processing

The Ranobe deposit consists of liberated free-flowing discrete sand particles with low levels of fine sand, silt and clay. The deposit is mineralized from surface with no overburden. Only topsoil will be removed prior to mining.

The ore characteristics are typical of many mineral sands orebodies currently exploited throughout the world. The valuable heavy minerals ilmenite, rutile, leucoxene, zircon and monazite are present as liberated grains within unconsolidated sand. These can be separated from the quartz and other gangue minerals due to differences in mineral specific gravity, magnetic susceptibility and conductivity. The WCP will process approximately 1,750 tph (Stage 1) to produce a high-grade HMC assaying >91% THM. Downstream separation of the HMC into its valuable mineral constituents or products is carried out by a combination of further wet gravity, wet classification, dry magnetic, and dry electrostatic process steps in the MSP feed preparation circuit, MSP, and MCP.

Processing of ore will be conducted in three distinct stages. The WCPs receive ore as slurry from the mine and after removal of clay and silt, the sands will be concentrated by spiral gravity separators to yield a concentrate of mixed heavy minerals (HMC). The HMC will be pumped to the MSP, where valuable minerals are progressively removed as final products. In the MSP, multiple stages of magnetic and electrostatic separation will be employed in the initial dry section of the plant to isolate the ilmenite product, with some leucoxene reporting to ilmenite product. The non-magnetic fraction will be upgraded using wet gravity separation process, and the concentrate further processed with magnetic and electrostatic stages to produce the rutile and zircon products, with any remaining leucoxene reporting to rutile product. The ilmenite non-conductor rejects will be pumped to the MCP, upgraded with a wet gravity separation process and processed through magnetic separation, to generate a monazite product.

All completed processing studies demonstrate that the ore responds favorably to conventional beneficiation methods.

14.10.4 Environmental compliance and permitting

On June 23, 2015, the Toliara Project was granted Environment Permit No 55-15/MEEMF/ONE/DG/PE by the Office National Pour l'Environnement (ONE). An Environmental and Social Impact Assessment (ESIA), compliant with international best practice guidelines and requirements, was approved through the granting of the Project's Environment Permit and its associated environmental permitting conditions, Plan de Gestion Environnementale (PGE).

In December 2017, an Addendum ESIA reflecting a number of changes to the original project design was approved through the issuance of PGE Addendum 1.

Base Resources acquired the project in January 2018 and has continued to progress the Toliara Project with the preparation of detailed engineering studies and the development and preparation of the Project's Environmental and Social Management System (ESMS) and supporting documentation. The completion of the engineering feasibility studies has resulted in a significantly improved and progressed project compared to that detailed and assessed in the original ESIA and Addendum ESIA.

An updated ESIA (**ESIA Update**) is being prepared to address project changes and new regulatory requirements, and to update environmental and social baseline conditions. This is being conducted in accordance with national requirements and international best practice standards and supported by a suite of environmental and social specialist studies to be undertaken by various national and international subject matter specialists.

PE 37242 provides the right to exploit ilmenite, zircon, leucoxene, rutile, guano, basalt, and limestone, but currently does not include the right to exploit monazite. Base Toliara intends to add monazite to PE 37242 under applicable Malagasy law and to undertake other steps necessary to permit its exploitation.

The process for obtaining the remaining permits and authorizations and undertaking the legal steps necessary for a final investment decision and construction has ramped up following the lifting of the on-ground suspension by the Government in November 2024. On December 5, 2024, the Company entered into a MOU with the Government outlining key fiscal terms applicable to the project, including development, community, and social project funding. With the MOU in place, the Company has been engaging with the Government to formalize the terms and conditions set out in the MOU and to establish the necessary legal regime to support development of the Project. Further details are presented in Section 24.1.

14.11 MINERAL RESOURCE ESTIMATES

The Mineral Resource for the Ranobe deposit reported at a cut-off grade of 1.5% THM is presented in Table 14-4 exclusive of Mineral Reserve. The Mineral Resource estimate reported at 1.5% THM cut-off grade is the base case or preferred scenario for reporting. Mineral Resource are reported inclusive of Mineral Reserve and at a cut-off grade of 1.5% HM in Table 14-5. A breakdown of the Mineral Resource classification by geological domain at a cut-off grade of 1.5% THM is presented in Table 14-6 (exclusive of Mineral Reserves) and Table 14-7 (inclusive of Mineral Reserves).

The Mineral Resource outline for the Ranobe deposit is presented in Figure 14-20, and the classification outlines for the individual domains are presented in Section 14.7 in Figure 14-4 to Figure 14-7.

At a cut-off grade of 1.5% THM and exclusive of Mineral Reserve, the Ranobe deposit comprises a Measured and Indicated Mineral Resource of 485 Mt at 3.3% THM and 10% slimes containing 16.3 Mt of THM with an assemblage of 70% ilmenite, 1.1% rutile, 1.1% leucoxene, 6.0% zircon, and 2.0% monazite, including the following categories:

- Measured Mineral Resource of 164 Mt at 3.8% THM and 6% slimes containing 6 Mt of THM with an assemblage of 71.5% ilmenite, 1.1% rutile, 1.1% leucoxene, 5.8% zircon, and 2.1% Monazite
- Indicated Mineral Resource of 321 Mt at 3.1% THM and 12% slimes containing 10 Mt of THM with an assemblage of 68.3% ilmenite, 1.2% rutile, 1.1% leucoxene, 6.2% zircon, and 1.9% Monazite
- Inferred Mineral Resource of 1,190 Mt at 3.3% THM and 10% slimes containing 39 Mt of THM with an assemblage of 69.2% ilmenite, 1.0% rutile, 1.0% leucoxene, 5.8% zircon, and 2.0% Monazite.

Note that Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.

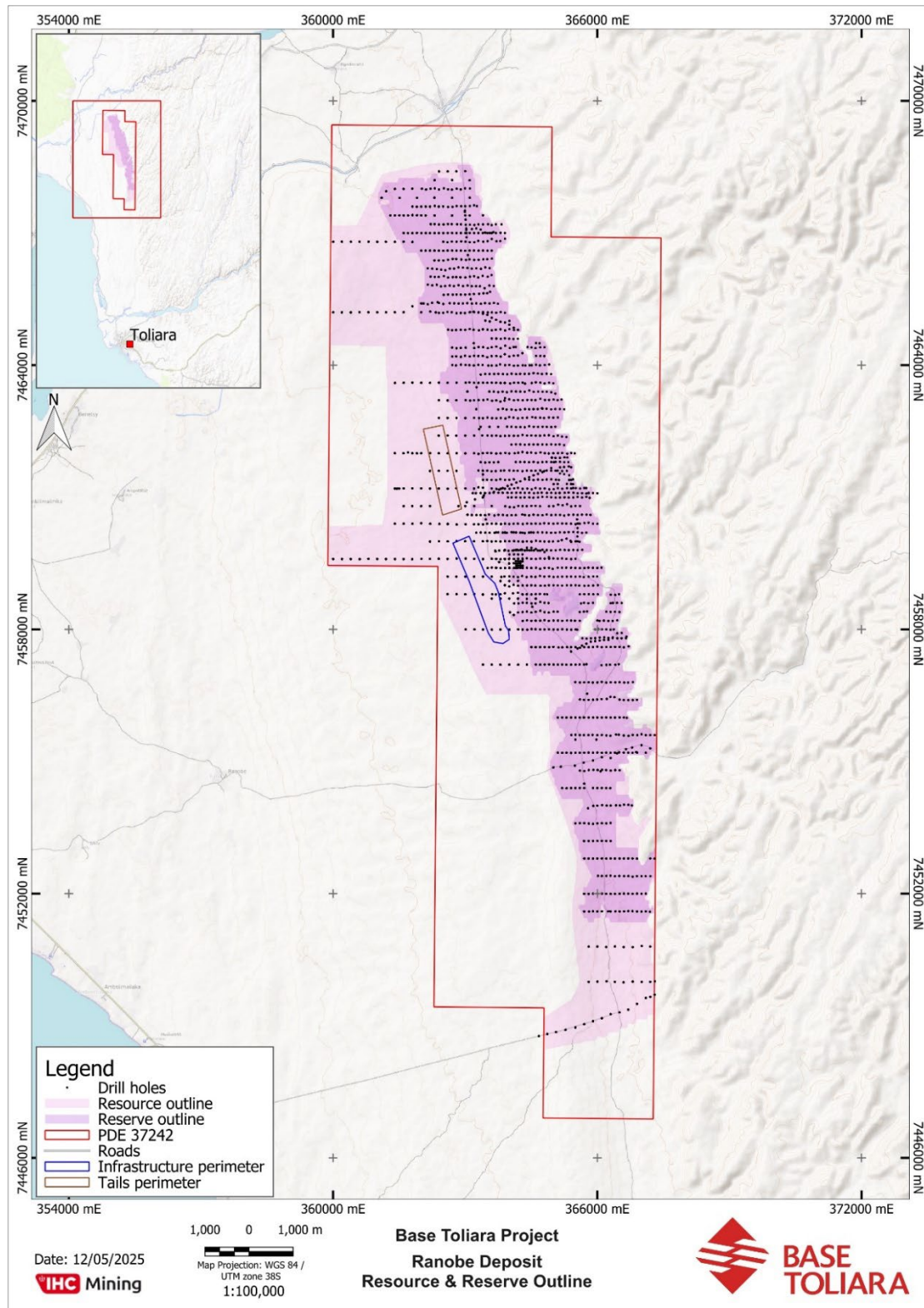


Figure 14-20: Resource outline of the Ranobe deposit, exclusive of Mineral Reserve

Table 14-4: Mineral Resource estimate for the Ranobe deposit (>1.5% THM) exclusive of Mineral Reserve (as at June 30, 2025)

Summary of Mineral Resource ⁽¹⁾							THM Assemblage ⁽²⁾				
Mineral Resource Category	Material	In Situ THM	BD	THM	SLIMES	OS	ILM	RUT	LX	ZIR	MON
	(Mt)	(Mt)	(t/m ³)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Measured	164	6.2	1.7	3.8	5.7	0.4	71.5	1.1	1.1	5.8	2.1
Indicated	321	10	1.7	3.1	12.0	0.9	68.3	1.2	1.1	6.2	1.9
Measured & Indicated	485	16	1.7	3.3	9.8	0.7	69.6	1.1	1.1	6.0	2.0
Inferred	1,190	39	1.6	3.3	9.7	0.6	69.2	1.0	1.0	5.8	2.0

(1) Mineral Resources reported at a cut-off grade of 1.5% THM.

(2) Mineral assemblage is reported as a percentage of in situ THM content.

(3) Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.

(4) Reported Mineral Resource excludes material affected by planned infrastructure and tailings storage.

(5) Reported Mineral Resource excludes Measured and Indicated Resource that are reported as Mineral Reserve.

(6) The reference point for the Mineral Resource is in situ.

(7) The Ranobe Mineral Resource has been classified and reported in accordance with the guidelines of NI 43-101 and S-K 1300.

(8) Total HM is from within the +63 µm to -1 mm size fraction and is reported as a percentage of the total material. Slimes is the -63 µm fraction and oversize is the +1 mm fraction.

(9) All tonnages and grades have been rounded to reflect the relative uncertainty of the estimate; thus, the sum of columns may not equal.

(10) Assumed price per metric tonne for Ilmenite \$199, Rutile \$1,250, Leucoxene \$0 (when processed, Leucoxene reports to Ilmenite and Rutile products), Zircon \$1,200, Monazite \$6,600.

(11) Assumed recovery for Ilmenite 89.6%, Rutile 49.9%, Leucoxene 17.5%, Zircon 77.2%, Monazite 78.6%.

(12) Assumed operating costs \$1.00/t mined, \$0.64/t feed to WCP, \$13.38/t feed to MSP ilmenite, \$18.04/t feed to MSP rutile, leucoxene, zircon, monazite, \$3.45/t product transport to port, \$8.91/t product wharf cost, \$1.71/t mined overhead cost.

Table 14-5: Mineral Resource estimate for the Ranobe deposit (>1.5% THM) inclusive of Mineral Reserve (as at June 30, 2025)

Summary of Mineral Resource ⁽¹⁾							THM Assemblage ⁽²⁾				
Mineral Resource Category	Material	In Situ THM	BD	THM	SLIMES	OS	ILM	RUT	LX	ZIR	MON
	(Mt)	(Mt)	(t/m ³)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Measured	597	36	1.7	6.1	4.3	0.2	74.2	1.0	1.0	5.9	1.9
Indicated	793	35	1.7	4.4	7.1	0.5	70.6	1.0	1.0	5.9	1.9
Measured & Indicated	1,390	71	1.7	5.1	5.9	0.4	72.4	1.0	1.0	5.9	1.9
Inferred	1,190	39	1.6	3.3	9.7	0.6	69.2	1.0	1.0	5.8	2.0

(1) Mineral Resources reported at a cut-off grade of 1.5% THM.

(2) Mineral assemblage is reported as a percentage of in situ THM content.

(3) Mineral Resources that are not Mineral Reserves do not demonstrate economic viability.

(4) Reported Mineral Resource excludes material affected by planned infrastructure and tailings storage.

(5) Reported Mineral Resource includes Measured and Indicated Resource that are also reported as Mineral Reserve.

(6) The reference point for the Mineral Resource is in situ.

(7) The Ranobe Mineral Resource has been classified and reported in accordance with the guidelines of NI 43-101 and S-K 1300.

(8) Total HM is from within the +63 µm to -1 mm size fraction and is reported as a percentage of the total material. Slimes is the -63 µm fraction and oversize is the +1 mm fraction.

(9) All tonnages and grades have been rounded to reflect the relative uncertainty of the estimate; thus, the sum of columns may not equal.

(10) Assumed price per metric tonne for Ilmenite \$199, Rutile \$1,250, Leucoxene \$0 (when processed, Leucoxene reports to Ilmenite and Rutile products), Zircon \$1,200, Monazite \$6,600.

(11) Assumed recovery for Ilmenite 89.6%, Rutile 49.9%, Leucoxene 17.5%, Zircon 77.2%, Monazite 78.6%.

(12) Assumed operating costs \$1.00/t mined, \$0.64/t feed to WCP, \$13.38/t feed to MSP ilmenite, \$18.04/t feed to MSP rutile, leucoxene, zircon, monazite, \$3.45/t product transport to port, \$8.91/t product wharf cost, \$1.71/t mined overhead cost.

Table 14-6: Mineral Resource estimate for the Ranobe deposit by model domain (>1.5% THM) exclusive of Mineral Reserve (as at June 30, 2025)

Summary of Mineral Resource ⁽¹⁾								THM Assemblage ⁽²⁾				
ZONE	Mineral Resource Category	Material	In Situ THM	BD	THM	SLIMES	OS	ILM	RUT	LX	ZIR	MON
		(Mt)	(Mt)	(t/m ³)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
1 (USU)	Measured	144	5.7	1.6	4.0	3.5	0.1	72.0	1.0	1.1	5.7	2.0
	Indicated	188	5.6	1.6	3.0	3.2	0.1	67.7	1.1	1.1	6.2	2.1
	Inferred	816	27.1	1.6	3.3	2.8	0.1	69.1	1.0	1.0	5.8	2.0
	Total Zone 1	1,149	38.4	1.6	3.3	3.0	0.1	69.3	1.0	1.0	5.8	2.0
2 (SSU)	Measured	2	0.1	1.7	4.1	22.1	0.3	73.2	1.2	0.9	5.9	2.1
	Indicated	2	0.0	1.6	2.4	26.7	1.5	68.4	1.0	1.0	6.6	2.0
	Inferred	6	0.2	1.6	3.0	17.9	0.4	70.3	0.7	1.0	7.7	1.7
	Total Zone 2	10	0.3	1.6	3.2	20.3	0.6	70.9	0.9	1.0	7.1	1.8
3 (USSU)	Indicated	13	0.8	1.7	6.3	23.4	2.3	72.2	0.9	0.8	6.5	1.5
	Inferred	10	0.7	1.7	6.6	26.2	0.7	72.7	0.8	0.8	6.4	1.6
	Total Zone 3	23	1.5	1.7	6.4	24.6	1.6	72.4	0.8	0.8	6.5	1.6
5 (ICSU)	Measured	18	0.5	1.6	3.0	22.7	3.0	67.9	1.3	1.2	6.4	2.2
	Indicated	118	3.6	1.6	3.0	24.4	1.8	68.0	1.1	1.1	6.1	2.2
	Inferred	354	11.4	1.6	3.2	25.3	1.8	69.2	1.0	1.0	5.8	2.1
	Total Zone 5	490	15.5	1.6	3.2	25.0	1.8	68.8	1.1	1.1	5.9	2.1
Total	Measured	164	6.3	1.6	3.9	2.8	0.4	71.6	1.1	1.1	5.8	2.0
	Indicated	321	10.0	1.6	3.1	11.9	0.8	68.2	1.1	1.1	6.2	2.1
	Inferred	1,190	39.3	1.6	3.3	9.7	0.6	69.2	1.0	1.0	5.8	2.0
	Total	1,670	55.7	1.7	3.3	9.8	0.6	69.3	1.0	1.0	5.9	2.0

(1) Mineral Resources reported at a cut-off grade of 1.5% THM.

(2) Mineral assemblage is reported as a percentage of in situ THM content.

(3) Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.

(4) Reported resource excludes material affected by planned infrastructure and tailings storage.

(5) Reported Mineral Resource excludes Measured and Indicated Resource that are reported as Mineral Reserve.

(6) The reference point for the Mineral Resource is in situ.

(7) The Ranobe Mineral Resource has been classified and reported in accordance with the guidelines of NI 43-101 and S-K 1300.

- (8) Total HM is from within the +63 µm to -1 mm size fraction and is reported as a percentage of the total material. Slimes is the -63 µm fraction and oversize is the +1 mm fraction.
- (9) All tonnages and grades have been rounded to reflect the relative uncertainty of the estimate, thus the sum of columns may not equal.
- (10) Assumed price per metric tonne for Ilmenite \$199, Rutile \$1,250, Leucoxene \$0 (when processed, Leucoxene reports to Ilmenite and Rutile products), Zircon \$1,200, Monazite \$6,600.
- (11) Assumed recovery for Ilmenite 89.6%, Rutile 49.9%, Leucoxene 17.5%, Zircon 77.2%, Monazite 78.6%.
- (12) Assumed operating costs \$1.00/t mined, \$0.64/t feed to WCP, \$13.38/t feed to MSP ilmenite, \$18.04/t feed to MSP rutile, leucoxene, zircon, monazite, \$3.45/t product transport to port, \$8.91/t product wharf cost, \$1.71/t mined overhead cost.

Table 14-7: Mineral Resource estimate for the Ranobe deposit by model domain (>1.5% THM) inclusive of Mineral Reserve (as at June 30, 2025)

Summary of Mineral Resource ⁽¹⁾⁽³⁾								THM Assemblage ⁽²⁾				
ZONE	Mineral Resource Category	Material	In Situ THM	BD	THM	SLIMES	OS	ILM	RUT	LX	ZIR	MON
		(Mt)	(Mt)	(t/m ³)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
1 (USU)	Measured	575	35.6	1.7	6.2	3.7	0.1	74.3	1.0	1.0	5.9	1.9
	Indicated	654	30.3	1.7	4.6	3.6	0.2	70.8	1.0	1.0	5.9	1.9
	Inferred	816	27.1	1.6	3.3	2.8	0.1	69.1	1.0	1.0	5.8	2.0
	Total Zone 1	2,045	93.0	1.7	4.5	3.3	0.1	71.7	1.0	1.0	5.9	1.9
2 (SSU)	Measured	4	0.2	1.7	5.2	21.3	0.4	73.3	1.1	0.8	5.9	2.0
	Indicated	8	0.3	1.6	3.7	16.2	0.7	69.1	0.8	1.0	5.7	2.0
	Inferred	6	0.2	1.6	3.0	17.9	0.4	70.3	0.7	1.0	7.7	1.7
	Total Zone 2	18	0.7	1.6	3.8	17.9	0.5	70.7	0.9	0.9	6.3	1.9
3 (USSU)	Indicated	13	0.8	1.7	6.3	23.4	2.3	72.2	0.9	0.8	6.5	1.5
	Inferred	10	0.7	1.7	6.6	26.2	0.7	72.7	0.8	0.8	6.4	1.6
	Total Zone 3	23	1.5	1.7	6.4	24.6	1.6	72.4	0.8	0.8	6.5	1.6
5 (ICSU)	Measured	18	0.5	1.6	3.0	22.7	3.0	67.9	1.3	1.2	6.4	2.2
	Indicated	118	3.6	1.6	3.0	24.4	1.8	68.0	1.1	1.1	6.1	2.2
	Inferred	354	11.4	1.6	3.2	25.3	1.8	69.2	1.0	1.0	5.8	2.1
	Total Zone 5	490	15.5	1.6	3.2	25.0	1.8	68.8	1.1	1.1	5.9	2.1
Total	Measured	597	36.3	1.7	6.1	4.3	0.2	74.2	1.0	1.0	5.9	1.9
	Indicated	793	35.0	1.7	4.4	7.1	0.5	70.6	1.0	1.0	5.9	1.9
	Inferred	1,190	39.3	1.6	3.3	9.7	0.6	69.2	1.0	1.0	5.8	2.0
	Total	2,580	110.7	1.7	4.3	7.7	0.4	71.3	1.0	1.0	5.9	2.0

- (1) Mineral Resources reported at a cut-off grade of 1.5% THM.
- (2) Mineral assemblage is reported as a percentage of in situ THM content.
- (3) Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
- (4) Reported Mineral Resource excludes material affected by planned infrastructure and tailings storage.
- (5) Reported Mineral Resource includes Measured and Indicated Resource that are reported as Mineral Reserve.
- (6) The reference point for the Mineral Resource is in situ.
- (7) The Ranobe Mineral Resource has been classified and reported in accordance with the guidelines of NI 43-101 and S-K 1300.
- (8) Total HM is from within the +63 μ m to -1 mm size fraction and is reported as a percentage of the total material. Slimes is the -63 μ m fraction and oversize is the +1 mm fraction.
- (9) All tonnages and grades have been rounded to reflect the relative uncertainty of the estimate, thus the sum of columns may not equal.
- (10) Assumed price per metric tonne for Ilmenite \$199, Rutile \$1,250, Leucoxene \$0 (when processed, Leucoxene reports to Ilmenite and Rutile products), Zircon \$1,200, Monazite \$6,600.
- (11) Assumed recovery for Ilmenite 89.6%, Rutile 49.9%, Leucoxene 17.5%, Zircon 77.2%, Monazite 78.6%.
- (12) Assumed operating costs \$1.00/t mined, \$0.64/t feed to WCP, \$13.38/t feed to MSP ilmenite, \$18.04/t feed to MSP rutile, leucoxene, zircon, monazite, \$3.45/t product transport to port, \$8.91/t product wharf cost, \$1.71/t mined overhead cost.

The MRE could be affected by known environmental, permitting, legal, title, taxation, socio-economic, marketing, sovereign risk, or other relevant factors as follows:

- Environmental: Proximity to PK32 and the existence of previously identified areas of high environmental significance within PE 37242
- Permitting: Including addition of the right to exploit monazite to PE 37242, and satisfaction of the other steps required to exploit monazite (refer to Section 24 for a summary of relevant steps)
- Socio-economic: Access issues due to community concerns and related actions, , including access to the northern area where the project abuts agricultural land and, more critically, access to Batterie Beach for the export facility
- Marketing: Large volumes of ilmenite entering the market and potentially impacting prices (leveraging effect)
- Investment Support Regime: Negotiating acceptable modifications to the legal and fiscal regime an appropriate stability mechanism to "lock-in" that regime
- Sovereign risk: Government instability, resource nationalism, expropriation and changes in law or interpretations of the law (refer to Section 24 for the protections the Company proposes to implement).

14.12 COMMENTS BY QUALIFIED PERSON

The Mineral Resource estimate has encompassed a very broad and robust campaign of drilling, assaying, mineralogical investigation, and geological interpretation. The understanding of the deposit has grown with each phase of exploration and investigation and the current level of understanding of the deposit and the reasonable prospects of eventual economic extraction are supported at levels that reflect the resource classification. It is the QP's opinion that all issues relating to all relevant technical and economic factors likely to influence the prospect of economic extraction can be resolved with further work.

There is significant upside potential for the Mineral Resource given the indicative Exploration Target for the LSU material. As is the case with an Exploration Target, there is no guarantee that additional drilling, assaying, or mineralogical test work will convert the target to Mineral Resource.

15 MINERAL RESERVE ESTIMATE

The estimates are based on a Feasibility Study and include the application of relevant Modifying Factors such as mining, processing, metallurgical, economic, environmental, legal, and social considerations. All Mineral Reserve are reported above an economic cut-off grade that is supported by these modifying factors.

For clarity, the 2025 Mineral Reserve estimate directly reflects the 2021 Ore Reserve estimate prepared under JORC, with changes being the inclusion of Monazite and a revised reporting format to comply with NI 43-101 and S-K 1300 requirements. The 2021 Ore Reserve estimate was based upon a pit optimization exercise that utilized parameters from the 2019 DFS. Subsequent feasibility studies have further defined the Toliara Project scope and improved financial outcomes, confirming the economic viability of the Mineral Reserve.

15.1 MINERAL RESERVE ESTIMATE TABULATION

The Mineral Reserve estimate for the Ranobe deposit as at June 30, 2025 is shown in Table 15-1. Tonnages and grades are rounded as appropriate for public disclosure and mineral assemblage is reported as a percentage of in situ HM. The reference point for the Mineral Reserve is the point of feed to the DMU, i.e., the tonnes and grade reported are in situ.

The Mineral Reserve cut-off grade is “value” based – with a cash value for each resource model cell derived and a series of pit shells generated in revenue decrements from a 100% revenue pit shell which represents the outer boundary where the total incremental revenue from mining the shell equals the total incremental costs.

The reserve estimates are calculated utilising a resource optimisation process using a series of complex mathematical routines (generally known as the Lerch-Grossman algorithm). Inputs to the process include mineral product pricing, mineral product yield (recovery), variable costs and fixed costs. When the optimization process is run on a three-dimensional resource model, which contains variable HM grades, variable mineralogy, variable slimes content, and variable orebody thickness the optimization process determines which parts of the resource could be converted to reserve. As such, it is not possible to quote a single cut-off grade as the reserve at any given location is a combination of HM%, Slimes%, mineralogy, and orebody thickness.

The baseline assumptions used for this optimization process were:

- Mineral product yield (recovery) of ilmenite 89.6%, rutile 49.9%, leucoxene 17.5% (when processed, leucoxene reports to ilmenite and rutile products) and zircon 77.2%
- Mineral product prices per metric tonne of \$199 for ilmenite (a weighted average of \$257 for chloride ilmenite, \$168 for sulfate ilmenite and \$177 for slag ilmenite), \$1,250 for rutile, and \$1,200 for zircon
- Operating cost for mining \$1.00 per metric tonne mined, WCP processing \$0.64 per metric tonne of feed, MSP processing \$13.38 per metric tonne feed of ilmenite and \$18.04 per metric tonne feed of rutile and zircon, transport to port \$3.45 per metric tonne product, and wharf cost of \$8.91 per metric tonne product
- Mineral prices used were substantially in line with the prices of mineral products published by third-party independent consultants.

The selected pit shell(s) were based on assessing a combination of NPV, mine life, and production, then subject to detailed mine planning and scheduling to generate Mineral Reserve.

15.1.1.1 Criteria for reserve classification

There is a high degree of confidence in the Modifying Factors used in this Mineral Reserve estimation, which are all derived from the 2019 DFS. Consequently, the classification primarily follows the Mineral Resource estimate classification, and material classified as Measured in the Mineral Resource estimate is classified as Proven here. Similarly, material classified as Indicated in the Mineral Resource estimate is classified as Probable here. The only exception is for Stage 2 of mining, where the mine path scheduling is not detailed, and the pit floor geometry has not been examined in detail. In these areas, the material in the lowest 1.5 m of a scheduled block is classified as Probable, regardless of whether the Mineral Resource estimate classification was Measured or Indicated. Inferred Mineral Resource is not included in the reported Mineral Reserve estimation.

Table 15-1: Mineral Reserve Estimate tabulation (as at June 30, 2025)

Area	Mineral Reserve Category	THM Assemblage										
		Material	In situ THM	BD	THM	SLIMES	OS	ILM	RUT	LX	ZIR	MON
		(Mt)	(Mt)	(t/m ³)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Stage 1	Proven	68	6.2	1.7	9.1	4.1	0.2	75.6	1.0	1.0	6.2	1.9
	Probable	0	0	0	0	0	0	0	0	0	0	0
	<i>Subtotal</i>	<i>68</i>	<i>6.2</i>	<i>1.7</i>	<i>9.1</i>	<i>4.1</i>	<i>0.2</i>	<i>75.6</i>	<i>1.0</i>	<i>1.0</i>	<i>6.2</i>	<i>1.9</i>
Stage 2	Proven	364	24	1.7	6.5	3.7	0.1	74.6	1.0	1.0	5.9	1.9
	Probable	472	25	1.7	5.3	3.9	0.2	71.5	1.0	1.0	5.8	1.9
	<i>Subtotal</i>	<i>836</i>	<i>49</i>	<i>1.7</i>	<i>5.8</i>	<i>3.8</i>	<i>0.2</i>	<i>73.0</i>	<i>1.0</i>	<i>1.0</i>	<i>5.8</i>	<i>1.9</i>
Subtotal	Proven	433	30	1.7	6.9	3.8	0.1	74.8	1.0	1.0	6.0	1.9
	Probable	472	25	1.7	5.3	3.9	0.2	71.5	1.0	1.0	5.8	1.9
	Total	904	55	1.7	6.1	3.8	0.2	73.3	1.0	1.0	5.9	1.9

(1) Mineral assemblage is reported as a percentage of in situ THM content.

(2) The reference point for the Mineral Reserve is the point of feed to the DMU.

(3) The Ranobe Mineral Reserve has been classified and reported in accordance with the guidelines of NI 43-101 and S-K 1300.

(4) Total HM is from within the +63 µm to -1 mm size fraction and is reported as a percentage of the total material. Slimes is the -63 µm fraction and oversize is the +1 mm fraction.

(5) All tonnages and grades have been rounded; thus, the sum of columns may not equal.

(6) Assumed price per metric tonne for Ilmenite \$199, Rutile \$1,250, Leucoxene \$0 (when processed, Leucoxene reports to Ilmenite and Rutile products), Zircon \$1,200, Monazite \$6,600.

(7) Assumed recovery for Ilmenite 89.6%, Rutile 49.9%, Leucoxene 17.5%, Zircon 77.2%, Monazite 78.6%.

(8) Assumed operating costs \$1.00/t mined, \$0.64/t feed to WCP, \$13.38/t feed to MSP ilmenite, \$18.04/t feed to MSP rutile, leucoxene, zircon, monazite, \$3.45/t product transport to port, \$8.91/t product wharf cost, \$1.71/t mined overhead cost.

15.1.2 Risk factors

Factors affecting the estimates include changes to Mineral Reserve Modifying Factors such as commodity price assumptions, operating cost assumptions, geotechnical and hydrogeological factors, metallurgical recoveries, open pit design, social, and approval/permitting. The Qualified Person is satisfied that the classification at Toliara is a reasonable reflection of the overall Mineral Reserve risks associated with the varying levels of reserve categories assigned and discussed in this report.

15.2 MODIFYING FACTORS

All economic parameters and other modifying factors assumed for this reserve estimate, and discussed in the following sections, are derived from the 2019 DFS except where stated otherwise.

15.2.1 Commodity prices

Product prices are a function of supply and demand, as well as product quality. Those used for optimization value modelling purposes are included in Table 15-2, together with long-term product price forecasts used for economic evaluation. The Mineral Reserve prices were based on Base Resources' marketing team's assessment of the market in late 2019. The Qualified Person is satisfied that the commodity price estimates are reasonable and suitable for assessment to determine economic viability.

Table 15-2: Product prices

	Mineral Reserve 2019 forecast Operating years 5 to 7	Current 2025 forecast Operating years 5 to 7	Current 2025 forecast Long Term Pricing
Mineral Product	\$/t product	\$/t product	\$/t product
Ilmenite – chloride	257	333	327
Ilmenite – sulfate	168	305	198
Ilmenite – slag	177	333	313
Rutile	1,250	1,200	1,428
Zircon	1,200	1,650	1,829
Monazite	not applicable	6,925	6,622

While no sales contracts have been negotiated, the test work derived predicted product specifications are within ranges currently accepted by end-users. This is reasonable grounds to expect that sales contracts will be negotiated at the appropriate time.

Product pricing forecasts through to 2030 were derived from Base Resources' internal supply and demand analysis, then adjusted to TZMI's long-term inducement prices from 2035. The prices in Table 15-2 are the mean of prices from years 2026–2028, taken from the 2019 DFS financial model.

A quality discount of \$15/t was applied to the sulfate ilmenite forecast prices to factor in the relatively low TiO₂ and higher Fe₂O₃ content. For slag ilmenite, a 5% quality premium was applied to forecast prices based on the relatively higher TiO₂ content.

Chloride ilmenite forecast prices were based on a benchmark 60% TiO₂ chloride ilmenite product. Forecast prices to 2030 were based on the rutile price forecast, using a historical relative economic value basis and a discount multiple of

4.7. A 5% quality discount was applied to the forecast price due to the relatively lower TiO₂ content. For conservatism, the long-term forecast prices factored in a discount of ~\$30/t to the TZMI inducement prices (prior to the quality discount).

The forecast generic zircon market price referred to a premium zircon product. The Toliara standard-grade zircon has a \$50 discount applied to the forecast prices, consistent with historical experience relating to minor staining and U+Th levels.

Rutile price forecasts assumed a >95% TiO₂ product, being the Toliara target specification. Based on past rutile sales arrangements, an adjustment was assumed of \$5/t for every 0.1% the TiO₂ level is below 95.0%. Figure 15-1 summarizes the pricing forecasts.

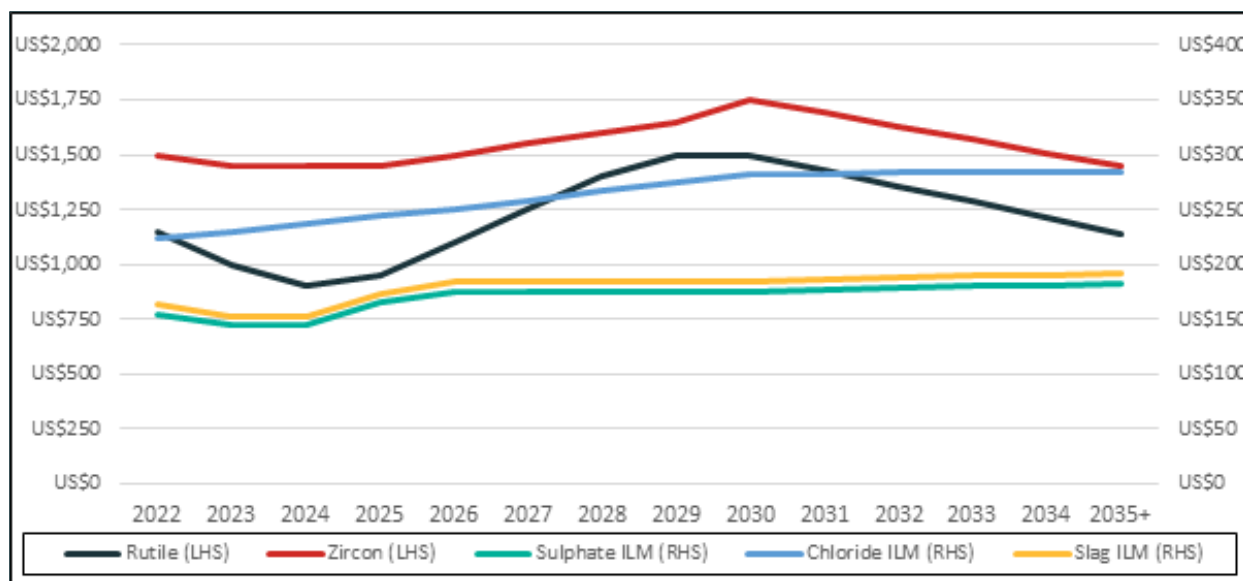


Figure 15-1: 2019 DFS forecast product pricing (real 2019 basis)

15.2.2 Product quality

Test work indicates the targeted specifications for all products are achievable and suitable for a wide range of applications. Ilmenite will be split into three products with qualities that specifically target different ilmenite markets. This maintains flexibility and optimizes overall revenue value. The expected final ilmenite product specifications are summarized in Table 15-3. Processing plant design flexibility and test work indicate that qualities can be adjusted to respond to ore variations and market requirements.

Table 15-3: Ilmenite product specifications

Ilmenite	TiO ₂	Cr ₂ O ₃	ZrO ₂	CaO	MgO	MnO	Fe ₂ O ₃	FeO	P ₂ O ₃	Nb ₂ O ₅	V ₂ O ₅	U+Th
	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(ppm)
Sulfate	48.3	0.1	0.0	NA	0.6	0.8	18.9	29.6	0.0	0.1	0.2	35
Slag	50.5	0.1	0.0	NA	0.5	1.0	26.6	18.6	0.0	0.1	0.2	63
Chloride	57.0	0.1	0.0	<0.01	0.3	1.5	30.7	6.0	0.1	0.2	0.2	177

Sulfate ilmenite is of similar quality to Kwale ilmenite, which suits a significant portion of the accessible market for sulfate pigment production in China, with the following minor differences: Fe_2O_3 levels lower than Kwale ilmenite (improves marketability) and elevated Nb_2O_5 means some customers may need to mitigate by blending.

Slag ilmenite has a higher TiO_2 (>50%) which makes it more attractive to chloride and sulfate slag producers where the elevated Fe_2O_3 has no detriment. An option exists to re-blend it with sulfate ilmenite to have more volume, targeting either the sulfate pigment market (albeit with a higher Fe_2O_3 specification than the sulfate ilmenite stream) or the slag market (albeit with lower TiO_2 than the slag ilmenite stream).

Chloride ilmenite has 57% TiO_2 , which optimizes revenue, while generating a product that suits direct feed chloride pigment and Chinese slag production. It does have elevated MnO levels, which reduces suitability for synthetic rutile feed, although this can be mitigated by blending.

Test work indicates that a good standard-grade zircon product will be produced, which is acceptable to all key end-use sectors, particularly in China.

Elevated levels of U+Th (above an industry standard of 500 ppm for premium zircon) may limit access to some geographic markets (e.g., Japan and the USA will not be accessible). Table 15-4 summarizes the expected zircon product specifications.

Table 15-4: Zircon product specifications

$\text{ZrO}_2 + \text{HfO}_2$	TiO_2	Fe_2O_3	Al_2O_3	U+Th
(%)	(%)	(%)	(%)	(ppm)
> 65.5	< 0.15	< 0.15	< 1.3	< 600

Test work indicates that a rutile suitable for chloride pigment production will be produced. A rutile product with TiO_2 of 95.0% can be produced (with an option to reduce to 93.5% if significant recovery benefits can be achieved).

15.2.3 Royalties

Royalties include provision for Malagasy Government royalties and are assigned based on a percentage of the sales price.

An ad valorem royalty of 2% was used in the optimization study, but it is noted that the royalty prescribed by the New Mining Code is 5%. The impact of this change is not considered significant to the optimization study, given that mineral product pricing is conservative, the selected pit shell has a high revenue to cost margin and monazite has subsequently been included in the reserve further improving economics.

15.2.4 Discount rates and inflation

A discount rate of 10% has been applied to final costs/revenues. Inflation has not been considered. All fixed and variable operating cost assumptions have been supplied by Base Resources.

15.2.5 Operating costs

The operating cost and revenue assumptions used for pit optimization are summarized in Table 15-5, and these are derived from the 2019 DFS financial model. No contingency has been applied to operating cost because the pit limit selection process always selects a pit shell that assumes a reduced revenue (effectively the same as increased cost). Base Resources assesses the impact of cost changes during each phase of feasibility analysis. The operating cost assumptions are based on Base Resources' Kwale operation in Kenya, when using a DMU, and have been modified to account for the different ore characteristics, plant design, and personnel levels at the Toliara Project.

The Qualified Person is satisfied that the operating cost estimates are sound and suitable for assessing economic viability.

Table 15-5: Operating cost assumptions

Description	Unit	Value
Surface costs		
Clearing & topsoil removal cost	\$/ha	4,976
Rehabilitation cost	\$/ha	23,103
Mining costs		
Overburden removal cost (if applicable)	\$/BCM	0.98
Mining unit Stage 1 cost	\$/t mined	1.00
Oversized handling cost	\$/t OS generated	0.58
WCP costs		
Fine tails handling cost (HM%<5%)	\$/t fine generated	1.10
Fine tails handling cost (HM%>5%, <9%)	\$/t fine generated	0.44
Fine tails handling cost (HM%>9%)	\$/t fine generated	0.29
WCP cost	\$/t feed in	0.64
Tailings cost	\$/t mined	0.08
Miscellaneous costs		
Royalty - percentage of sales price	%	2.00
Overhead cost	\$/t mined	1.71
Mineral separation plant (MSP) costs		
Transport cost to MSP	\$/t moved	0.13
MSP cost ilmenite	\$/t feed in	13.38
MSP cost all other products	\$/t feed in	18.04
Shipping and Storage		
Transport cost to export facility	\$/t moved	3.45
Export facility handling and logistics cost	\$/t moved	8.91

15.2.6 Processing recoveries

Process recoveries and yields used in this study have been provided by Base Resources. To simulate commissioning of the plants, a reduced recovery profile was assumed in the LOM schedules, the recoveries values, as shown in Table 15-6, were applied when conducting the optimization process.

Monazite recovery is reflected as not applicable in Table 15-6 as it was not considered as part of the pit optimization process in 2021.

Table 15-6: Product recoveries

	WCP	MSP	Total
Rutile	92.3%	54.1%	49.9%
Zircon	97.2%	79.4%	77.2%
Ilmenite	94.9%	94.4%	89.6%
Leucoxene	75.0%	23.3%	17.5%
Monazite	90.9%	NA	NA

Three ilmenite products will be sold: sulfate, slag, and chloride ilmenite. The mineral separation plant has been designed with sufficient separator redundancy to cope with feed variations, allowing the yield of the three ilmenite products to be varied so that product specifications can be met or the yield of more valuable products can be increased. Leucoxene is not produced as a final product, but the recovered leucoxene reports to either chloride ilmenite (74%) or rutile (26%).

15.2.7 Social

From a reserve estimation standpoint, the key outcome of the social engagement process is securing surface rights to allow mining and processing activities and construction of associated infrastructure. The Qualified Person is satisfied that there are sufficient grounds to reasonably expect that necessary surface rights for the project will be obtained.

Since taking ownership of the Toliara Project, considerable community and stakeholder engagement has been done, particularly with affected communities at the village level. This relationship is important to managing the acceptance of all phases of activities, from exploration through to operations.

The Company is in the process of acquiring surface rights to portions of PE 37242 which must be obtained before development work can start. The Company is working to obtain such rights through private treaty arrangements with landowners holding legal title and individuals having customary occupation rights. If private arrangements cannot be made, the law provides for expropriation through a declaration of public utility (**DUP**) process.

Beyond land acquisition, there are several other key factors that determine the success of a project induced resettlement as set out in International Finance Corporation (**IFC**) Performance Standard 5, commonly regarded as the definition of good practice.

The identification of resettlement requirements began in 2015 when the ESIA was submitted to ONE. The PGE issued by ONE included a requirement to develop and implement a Resettlement Action Plan (RAP) that addresses relocation and compensation for all project areas. Apart from Malagasy regulations on land acquisition, additional activities are designed to satisfy IFC Performance Standard 5. These are recognized in both the ESIA and the Plan de Gestion Environnementale et Social (**PGES**) and form the basis for the RAP.

Base Resources' approach is focused on reaching out to communities in the following specific areas of development:

- Health sector
- Education programs
- Community infrastructure
- Livelihood enhancement projects.

15.2.8 Approvals

The Qualified Person is satisfied that there are grounds to reasonably expect that approvals will be obtained to allow for the planned exploitation of the Ranobe deposit by Base Toliara.

The instrument securing the resource is PE 37242 covering 125 km², issued to Base Toliara on October 23, 2017. PE 37242 will expire on March 20, 2052. It may be renewed for a further period of 15 years, subject to satisfaction of specified Renewal Conditions (set out in Section 4.2.1). Thereafter, further renewals could be forthcoming provided the Renewal Conditions remain satisfied.

PE 37242 provides the right to exploit ilmenite, zircon, leucoxene, rutile, guano, basalt, and limestone. The Ranobe deposit also contains a significant amount of monazite and the law allows for the addition of substances to an existing permit, subject to satisfaction of certain regulatory requirements. For details about the steps required for monazite to be added to the permit, refer to Section 24.1.

PE 37242 provides Base Toliara the right to mine and process ore, subject to obtaining "surface rights" and the terms of the New Mining Code. Base Toliara plans on securing surface rights through private treaty arrangements with landowners or individuals having customary occupation rights, or through expropriation through a declaration of public utility (DUP) process.

The Toliara Project holds Environment Permit No 55-15/MEEMF/ONE/DG/PE and associated PGE granted by ONE. ONE subsequently issued PGE Addendum 1 for the Project in December 2017 to reflect the changes to the original project design.

An update of the project's ESIA is planned to reflect the project changes, as detailed in Section 20, following the collection of data on the current environmental and social baseline, along with an assessment of the project changes to be prepared in accordance with the requirements of MECIE 2025.

15.3 ECONOMIC EVALUATION FOR MINERAL RESERVE ESTIMATION

The cost, recovery, and price parameters were input to the resource model using the Datamine software and applied to Measured and Indicated Resource cells.

For the purposes of this optimization process, a global mining recovery of 98% was applied to the resource model during the economic evaluation. Inferred Resource cells were excluded and their revenue reset to zero. Cells that were not USU or SSU (Zones 1 or 2) were also excluded and their revenue reset to zero.

The resultant cash value for each resource model cell was then derived. The model was optimized using Datamine MaxiPit software and a pit shell generated. The 100% revenue pit shell represents maximum total value but includes material that does not support an acceptable earnings before interest, taxes, depreciation, and amortization (EBITDA) nor make a return on capital. The optimization process was repeated at 1% or 2% decrements in revenue (while maintaining the same cost) and a new pit shell was derived. The purpose of this is to generate incrementally smaller, higher-grade pits that are all assessed at a high level, ultimately selecting the pit limits that include only material that supports an acceptable EBITDA and return on capital.

This estimation methodology is a more rigorous method of determining pit limits than using cut-off grades; therefore, cut-off grades have not been used.

The results of the nested pits generated by the MaxiPit software optimization of the Ranobe deposit are shown in Figure 15-2; this provided the basis for further and more detailed analysis. The results are exclusive of capital costs, detailed mine design and scheduling, and other operational parameters such as project ramp-up to full production.

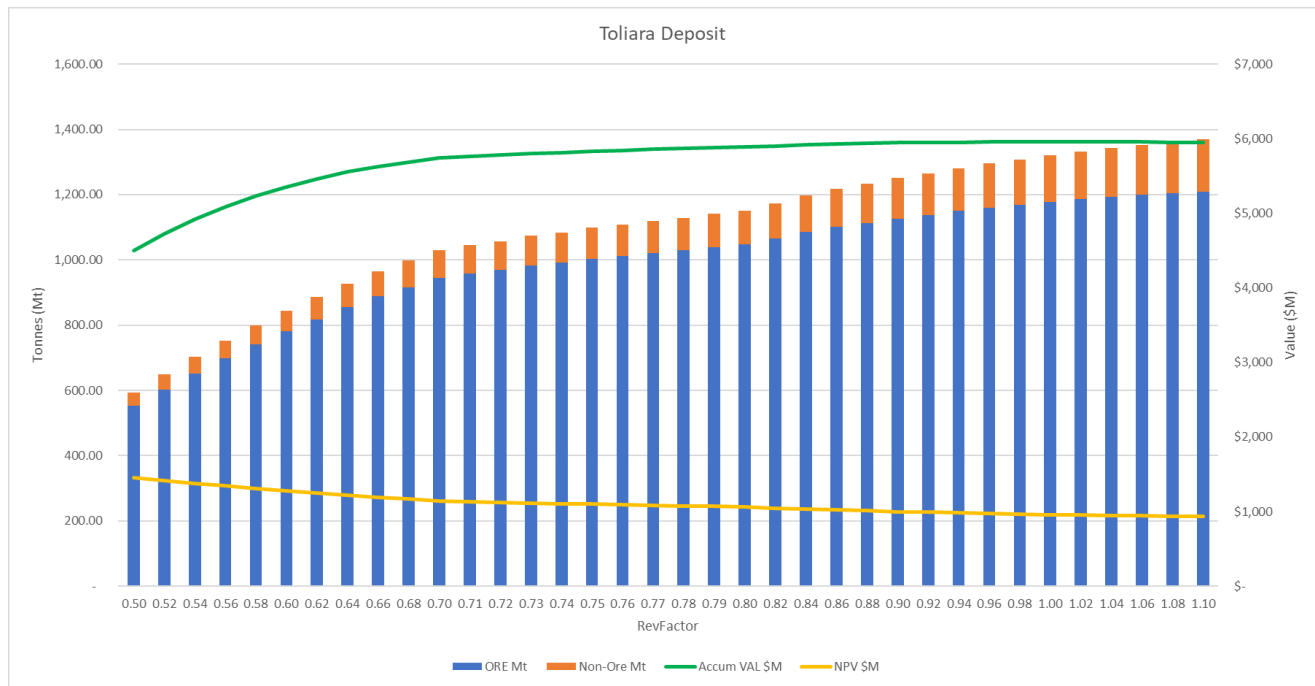


Figure 15-2: MaxiPit pit shell results

15.3.1 Pit limits

Initial pit optimization work completed for the Mineral Reserve estimate in 2019 investigated a broad range of pit shells targeting a combination of mining rates, production volumes and economic returns. Pit shells in the 71% to 80% revenue factor range deliver the optimal results. The pit optimization work completed for the 2021 Mineral Reserve estimate therefore assessed the same ten pits (accounting for 71% to 80% of revenue) for high-level scheduling and financial modelling, from which several financial metrics were generated for each.

The 74% pit shell was selected for detailed mine planning as it produced a better match of HMC production to MSP feed rate without generating excessive HMC stockpiles. The metrics for the pit shells are summarized in Table 15-7 and four selected pit shell outlines (71%, 74%, 77% and 80%) are shown in Figure 15-3.

Table 15-7: Pit shell metrics

Pit shell (% of revenue)	71%	72%	73%	74%	75%	76%	77%	78%	79%	80%
Ore mined (Mt)	942.8	952.5	961.5	967.8	976.4	987.1	993.3	999.8	1,006.3	1,016.1
HM (%)	6.09%	6.07%	6.05%	6.03%	6.01%	5.98%	5.96%	5.94%	5.92%	5.90%
HM (Mt)	57.46	57.79	58.21	58.38	58.66	59.05	59.18	59.43	59.60	59.94
HMC produced (t)	58.2	58.56	58.87	59.09	59.37	59.73	59.92	60.12	60.32	60.65
Life of mine (years)	52.3	52.9	53.7	53.9	54.3	54.7	55.3	55.6	55.9	56.3
Revenue - Base Internal - Base (\$B)	11.72	11.79	11.85	11.89	11.94	12.02	12.06	12.10	12.14	12.20
Operating Cost (incl. royalties) (\$B)	3.58	3.61	3.65	3.65	3.68	3.70	3.72	3.73	3.75	3.77
Operating profit (\$B)	8.14	8.18	8.20	8.24	8.27	8.32	8.34	8.37	8.39	8.43
EBITDA (\$B)	7.77	7.80	7.82	7.85	7.88	7.92	7.94	7.97	7.99	8.02
Revenue per tonne final product produced (\$/t)	287.8	287.9	287.8	287.8	287.8	287.9	288.0	288.0	288.0	288.0
Op costs per tonne final product produced (\$/t)	88.0	88.1	88.6	88.4	88.6	88.7	88.9	88.8	88.9	89.1
Revenue: operating cost ratio	3.27	3.27	3.25	3.26	3.25	3.25	3.24	3.24	3.24	3.23
After-tax/pre-debt (\$B)	5.64	5.67	5.67	5.71	5.72	5.76	5.77	5.79	5.81	5.83
NPV (discounted cash flows) (\$M)	645.9	644.0	642.3	641.4	638.5	635.5	630.4	627.0	623.4	619.3
IRR	20.8%	20.8%	20.8%	20.7%	20.7%	20.7%	20.7%	20.6%	20.6%	20.6%

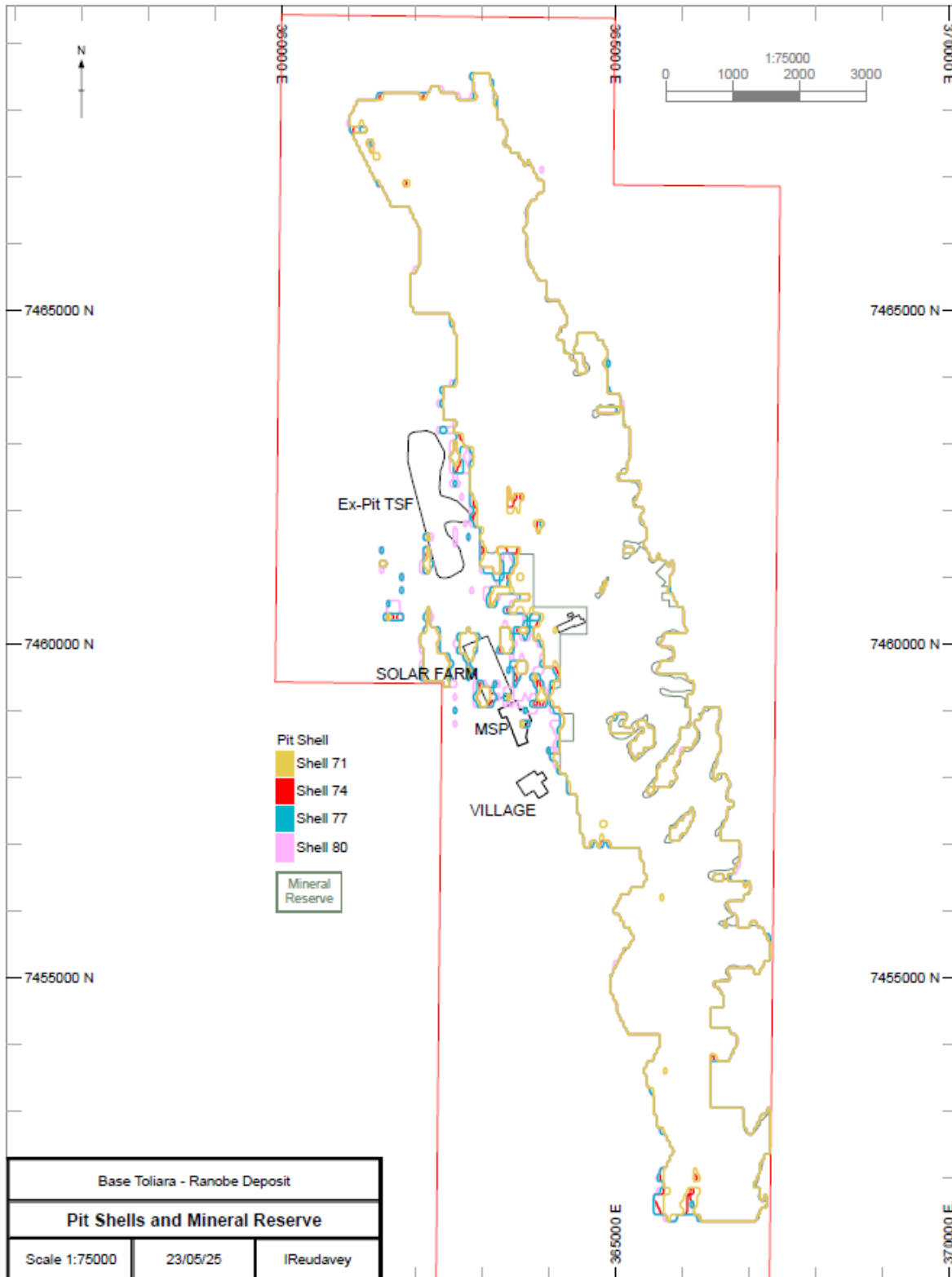


Figure 15-3: Pit shell outlines and Mineral Reserve outline

15.3.1.1 Verification of monazite

Monazite was not included in the 2021 pit optimization process due to a combination of factors including lack of regulatory approval to extract monazite and the absence of a defined market for monazite product.

Scoping level pit optimization work was carried out during mid-2024 to determine whether the inclusion of Monazite as a saleable product would materially change the 2021 Mineral Reserve estimate for the Ranobe deposit. The 2024 pit optimization, which attributed revenue to monazite with low incremental capital and operating costs, demonstrated that the current pit shell being used as a baseline for the Mineral Reserve, mine planning, and production is still appropriate, although conservative. The primary constraint identified during this work was the extent of measured and indicated Mineral Resource. Determining the production schedule to extract the maximum value from the resource will be the next important phase of work that was not investigated during the pit optimization work.

Monazite brings a substantial increased valuation to the project and is expected to be included in the next phase of pit optimization and mine planning work. In addition, Base Toliara plans to seek necessary regulatory approvals from the Government to add monazite to PE 37242 and allow for its exploitation.

15.4 OPEN PIT MINERAL RESERVE

The Ranobe deposit is shallow and mineralized from surface and will be extracted via open pit mining methods.

15.4.1 Geotechnical

The Ranobe Mineral Reserve material is unconsolidated sand and by definition and observation (during test pitting) has a natural batter angle of approximately 35°. The mine pit walls will be slightly shallower than this, approximately 33°. The pit walls will be stable as there are no indurated or clay layers within the USU that could cause over-steepening or allow development of planes of weakness for mass slope failure.

15.4.2 Hydrogeological

The water table is significantly below the mining base. Any inflows into the mining pit working area should be the result of seasonal rain and run-off.

15.4.3 Sterilization

The resource model was modified to include a topsoil layer of 0.25 m depth from surface, these cells were included in the optimization process to allocate costs associated with topsoil management such as stripping and rehabilitation but have been excluded from the mine scheduled ore feed.

An area around each of the WCP locations and associated infrastructure has been excluded from the mine schedule. The ore within these areas was assumed as sterilized for the purpose of this reserve work; however, some of this material may be mined in the future subject to mine scheduling optimization.

Low-grade mining blocks predominately along the western edge of the deposit, which did not satisfy scheduling requirements, and small-isolated pockets of ore deemed impractical to mine were excluded from the mine schedule (refer to Figure 15-3). Within the area of mining of the first concentrator location, 18.4 Mt of ore at an average grade of 3.8% HM was sterilized to maintain maximum MSP throughput.

15.4.4 Mine design

All mine design work was undertaken using Datamine Studio OP software.

No provision has been made for in-pit ramps, as it is expected that temporary production ramps will be pushed up within ore zones or sand tails as required.

15.4.5 Mining method

The mining operations at Ranobe will be based on a conventional dozer trap DMU, using Caterpillar D11 dozers to feed the DMU (Figure 15-4).



Figure 15-4: Dry mining dozer push

The DMU receives ROM ore mined by bulldozers. The DMU is designed to be relocatable and is placed adjacent the lower ore level of the mine face. Caterpillar D11 bulldozers push the ROM ore into a large hopper, the dozer trap, that is buried into the mine face.

A coarse static grizzly (300 mm) on top of the hopper ensures any large rocks do not enter the process stream. A large belt/apron feeder then transports the ore to a slurry box, where it is mixed with water and evenly deposited onto a screen with an aperture size of 35 mm. This screen removes oversize as well as organic matter such as sticks and roots which can cause issues by blocking pump suctions.

The undersize from this screen is then pumped to the WCP for further processing. Water addition on the screen is minimized in order to keep the pulp density of the WCP feed at a nominal 50% w/w for pumping. Lower slurry densities result in higher transport of water which increases power consumption per tonne of ore. The block flow diagram is depicted in Figure 15-5.

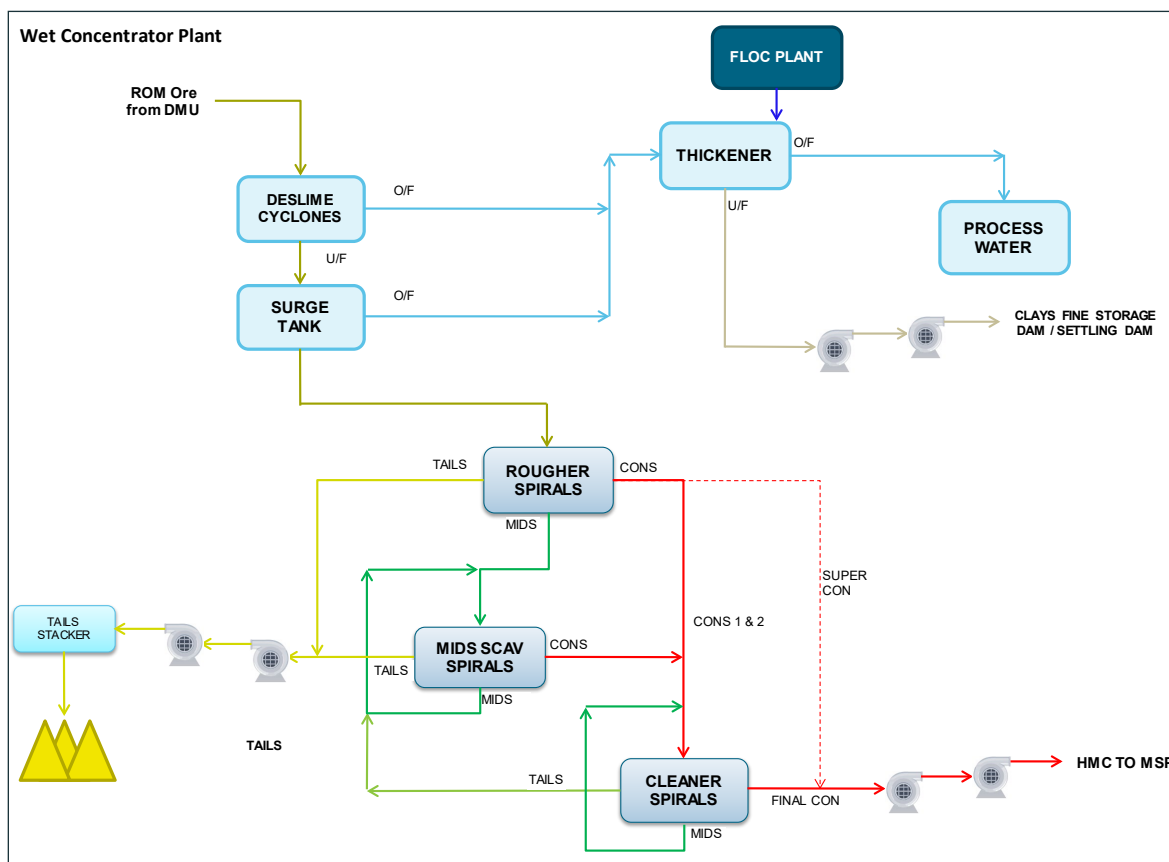


Figure 15-5: WCP Block Flow Diagram

The nominal ROM throughput for both DMU1 and DMU2 is 1,750 t/h on a dry tonnage basis.

15.4.6 Dilution and recovery

Minor amounts of sub-economic material that report in the design shells add planned dilution to the design inventory.

The Stage 1 mine design is based on providing a practical floor for the DMU using the selected nested shell from the optimization study as a guidance. Due to the geometry of the deposit floor, small amounts of economic material have been excluded from the Mineral Reserve, while small amounts of sub-economic material have been included. This provides an opportunity during mining operations under the supervision of grade control personnel to improve recovery of these minor pockets of economic material and exclude material that is sub-economic.

Due to the geometry of the deposits and the non-selective mining methods employed, there is no ore/waste discrimination (other than topsoil stripping), so adding additional dilution factors is not considered appropriate.

15.5 MINE SCHEDULING

Mine scheduling has been undertaken using Datamine Studio OP software and MS Office Excel spreadsheets.

Stage 1 mining was scheduled to commence during the dry season, to ensure mining of the low-lying areas before the wet season commences. During Stage 1, one mining unit and a WCP are capable (due to high in-situ grades of HM) of maintaining the MSP feed rate. Stage 2 commences 4.25 years after the start of Stage 1, when declining grades require additional ore to be mined in order to maintain MSP feed.

For Stage 1 of the mine plan, rectangular mining blocks of 200 m by 100 m, representing the maximum material per DMU location were placed in sequence. These shapes are based on the assumption of a maximum 100 m dozer push with a 33° slope. These shapes overlap, resulting in an obtuse trapezoidal volume of material per DMU location.

Where the total tonnage within one mining shape is lower than one week's worth of production, (mainly along the edge of the deposit where the deposit becomes too thin to mine efficiently), this ore was classified as being mined by auxiliary equipment (excavator and trucks) with the ore being placed in front of a current or future DMU location.

Mine scheduling for Stage 2, until the end of the mine life, was based on mining blocks typically 400 m by 200 m.

Mine scheduling modelling was based on the entire mining operation, from pit to product, therefore incorporating HMC feed to the MSP, HMC stockpile management, and final product.

The primary objectives of the mine scheduling were as follows:

- Providing nominal ROM throughputs for each DMU of 1750 tph on a dry tonnage basis
- Keeping nominal HMC production below 200 tph per WCP unit
- Providing nominal HMC throughput at the MSP of 150 tph for Stage 1 and 220 tph for Stage 2
- Maintaining HMC stockpiles within design/manageable levels of above 50 kt and below 250 kt, where possible
- Keeping both WCP units operating until Mineral Reserve are fully depleted.

15.5.1 Extraction sequencing

The extraction sequence for the Ranobe deposit is based on mining the highest grades in the first four years (Stage 1). After Year 4 of operation (Stage 2), the lower grade requires commissioning the second DMU and WCP to achieve increased HMC production. This is shown in Figure 15-6.

Other operational considerations are as follows:

- Commencing at a low reduced level floor point to establish an initial drainage/sump collection point for water management
- Minimizing the need for the dozers to push uphill (meaning a low point must be selected for any starter pit)
- Ensuring that the DMUs are not located in areas that could be flooded during the wet seasons (December to March)
- Minimizing the number of long (>500 m) DMU moves
- Minimizing the number of WCP moves
- Opening large contiguous voids for tailing
- Minimizing the number of DMU starter pits
- Scheduling topsoil stripping and stockpiling to nominally occur three months ahead of mining operations.

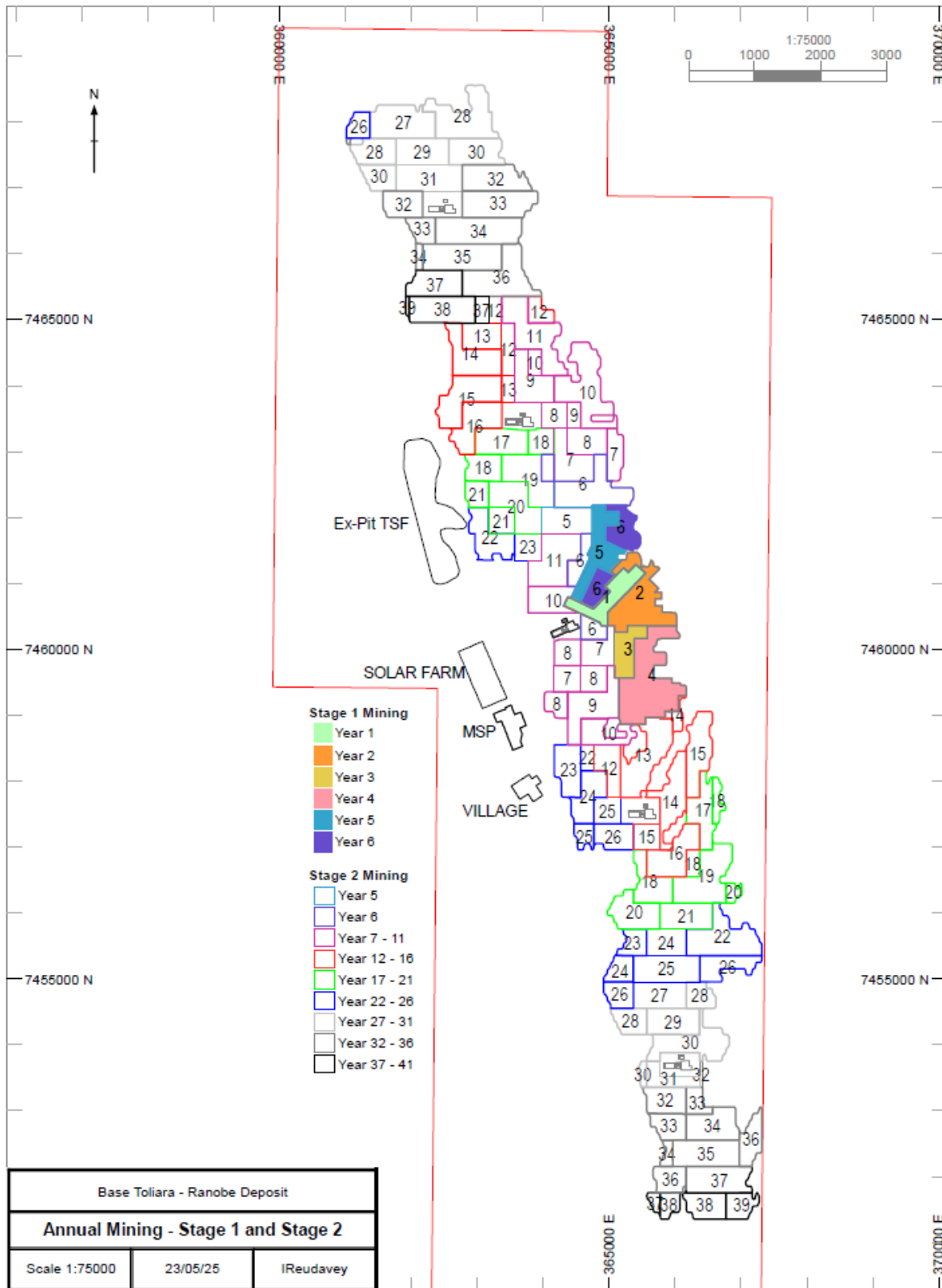


Figure 15-6: Annualized mining sequence

Figure 15-7 illustrates the total contained net value (revenue less operating cost) per block column and the outline of the area mined by the end of Year 5. This illustrates the high-value ore scheduled to be mined in early years. The higher values are a function of in situ HM grade, ore thickness, and modifying factors. The initial concentrator site was chosen to allow the largest high-value area to be mined early in the schedule.

15.5.2 Tailings sequencing

Designs have been completed for the initial ex-pit TSF and in-pit tailing storage methodology for the first five years of operations, after which appropriate in-pit tails deposition assumptions have been applied (Figure 15-8).

Designs for temporary fines tailings storage have been completed for the first two years of operations; however, it is anticipated that there will be minimal requirements for this given the low slimes content of the ore and the ability to utilize co-disposal.

15.5.3 Schedule parameters and production rates

During Stage 1, the required mine production is met by mining at 1,750 tph at an average DMU availability and utilization of 82.2%. This average considers DMU moves, DMU maintenance, dozer fleet availability, and downtime due to WCP stoppages. Each DMU move is scheduled to take approximately 14 hours.

For Stage 2, the required mine production will increase to 3,500 tph by the addition of a second DMU/WCP unit at 1,750 tph, with an average DMU availability and utilization of 82.2%, as for Stage 1.

Other scheduling parameters assumed include the following:

- An initial three-month production ramp-up for the commissioning of each DMU/WCP unit, covering both throughput and recoveries
- An initial nine-month production ramp-up for the commissioning of the MSP, covering both throughput and recoveries
- A six-week shutdown period for the WCP relocation to the next section of the deposit, following the depletion of accessible ore and the DMU pumping distance exceeds operational parameters.

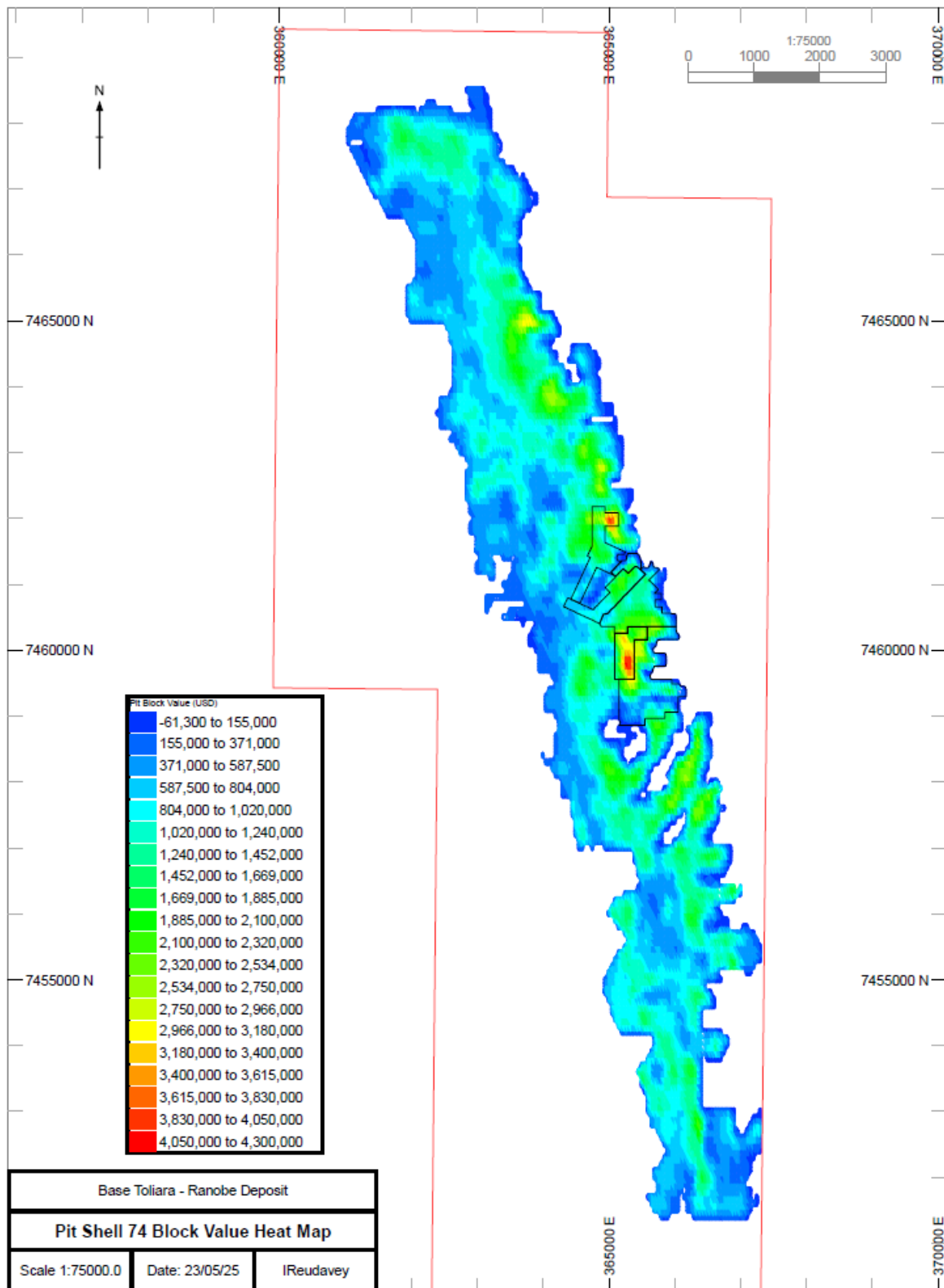


Figure 15-7: Value heat map and DMU 1 pit outline at 5 years

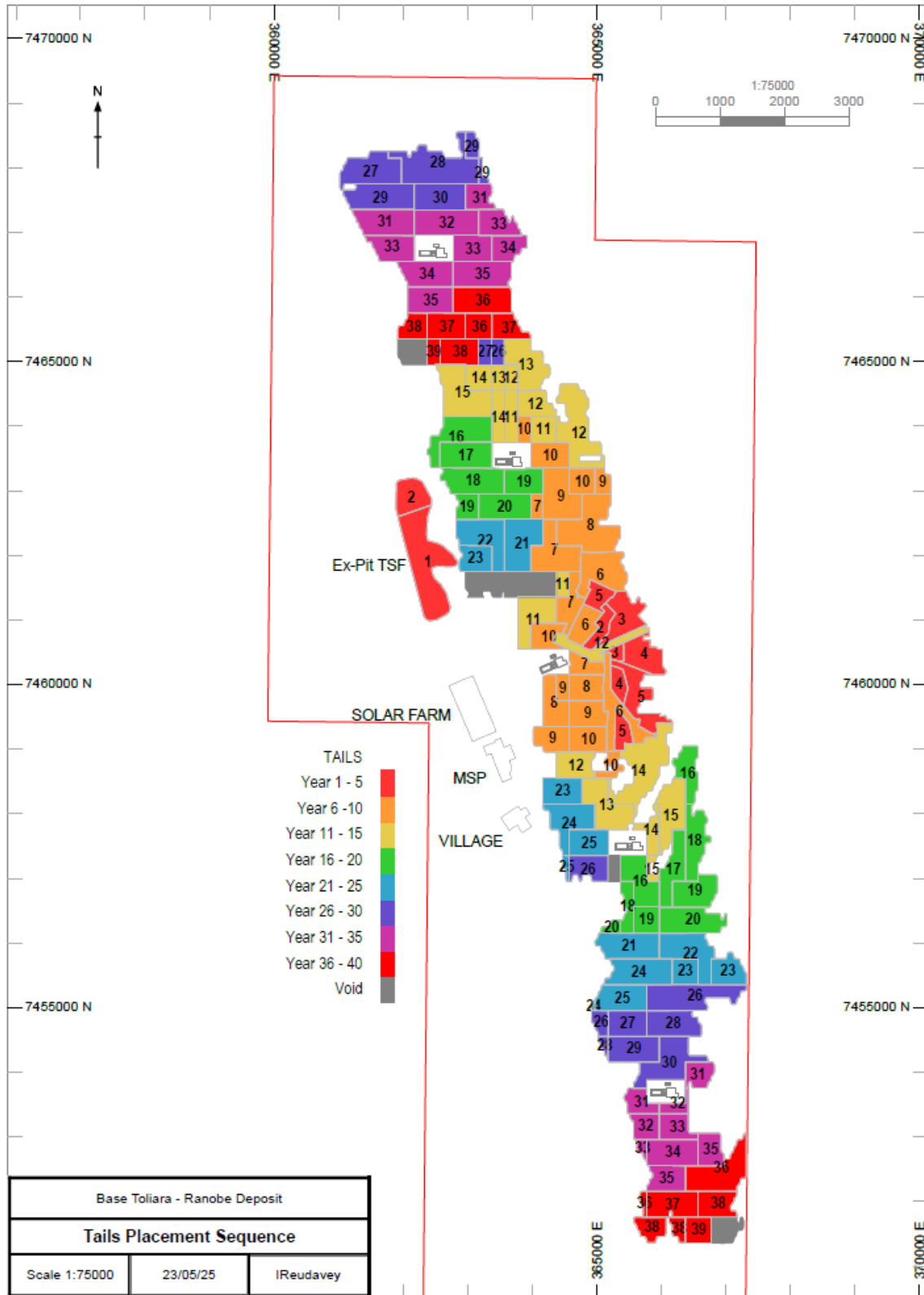


Figure 15-8: Annualized tailing sequence

15.5.4 Schedule key performance indicators

Monthly schedule charts for key performance indicators (KPIs) are included in Figure 15-9 through Figure 15-11.

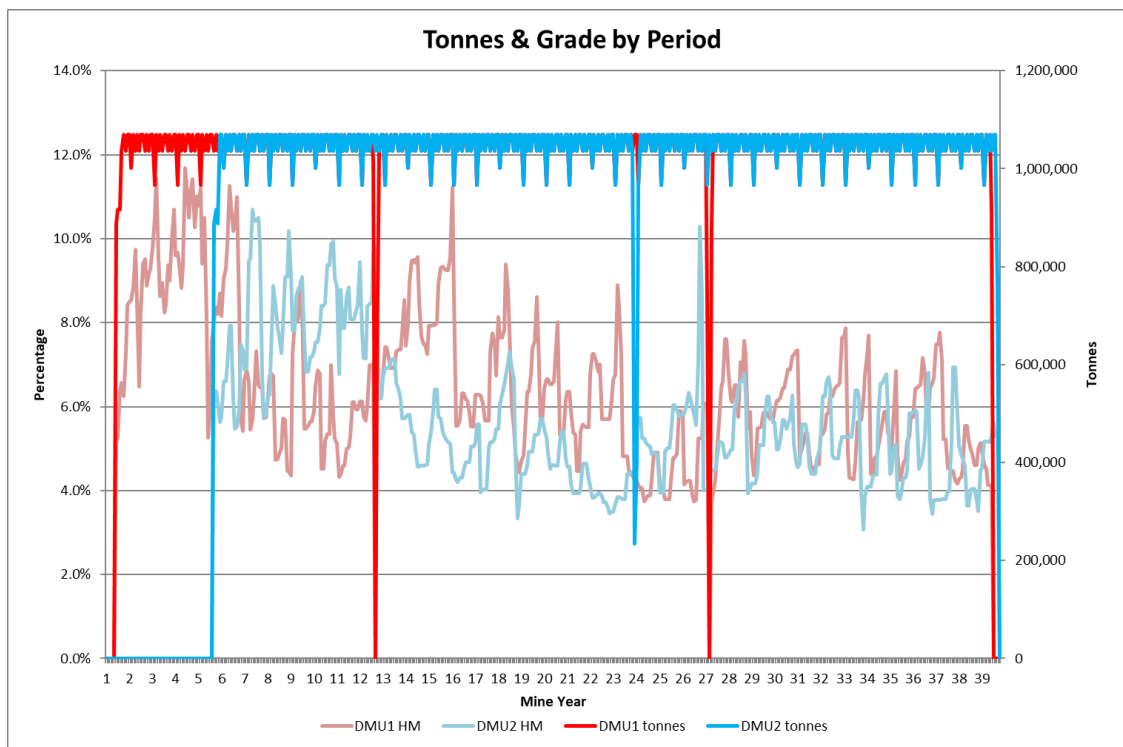


Figure 15-9: Ore mining tonnes and HM grade

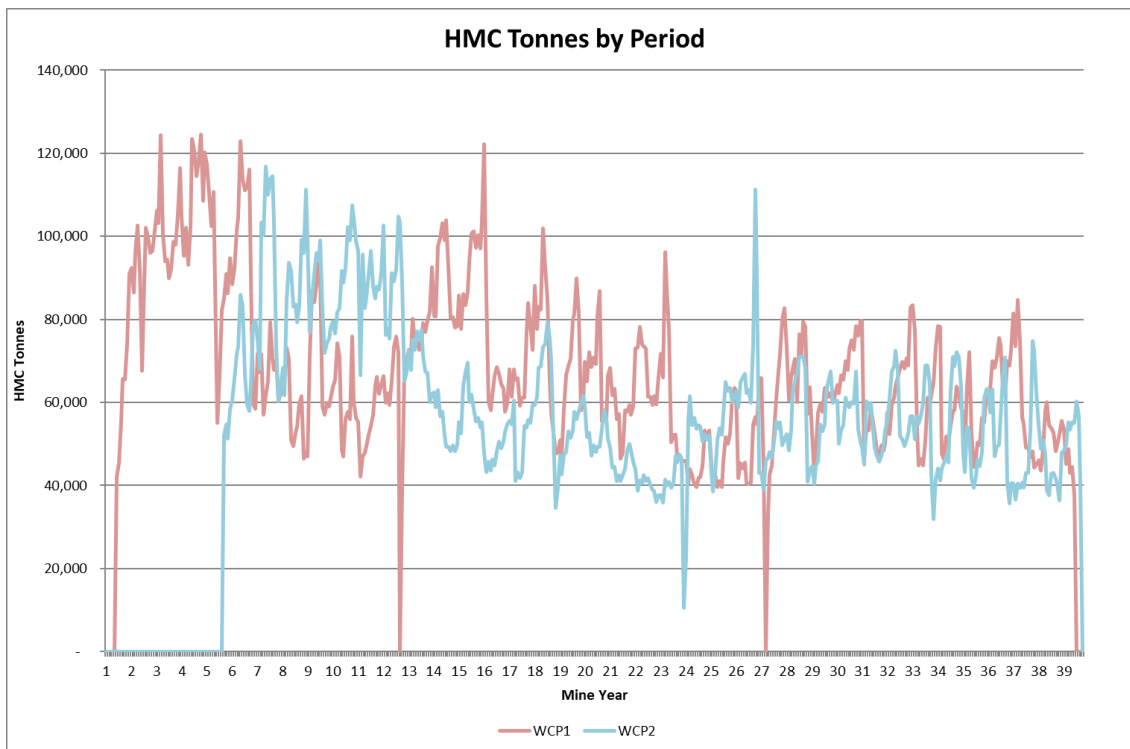


Figure 15-10: HMC production

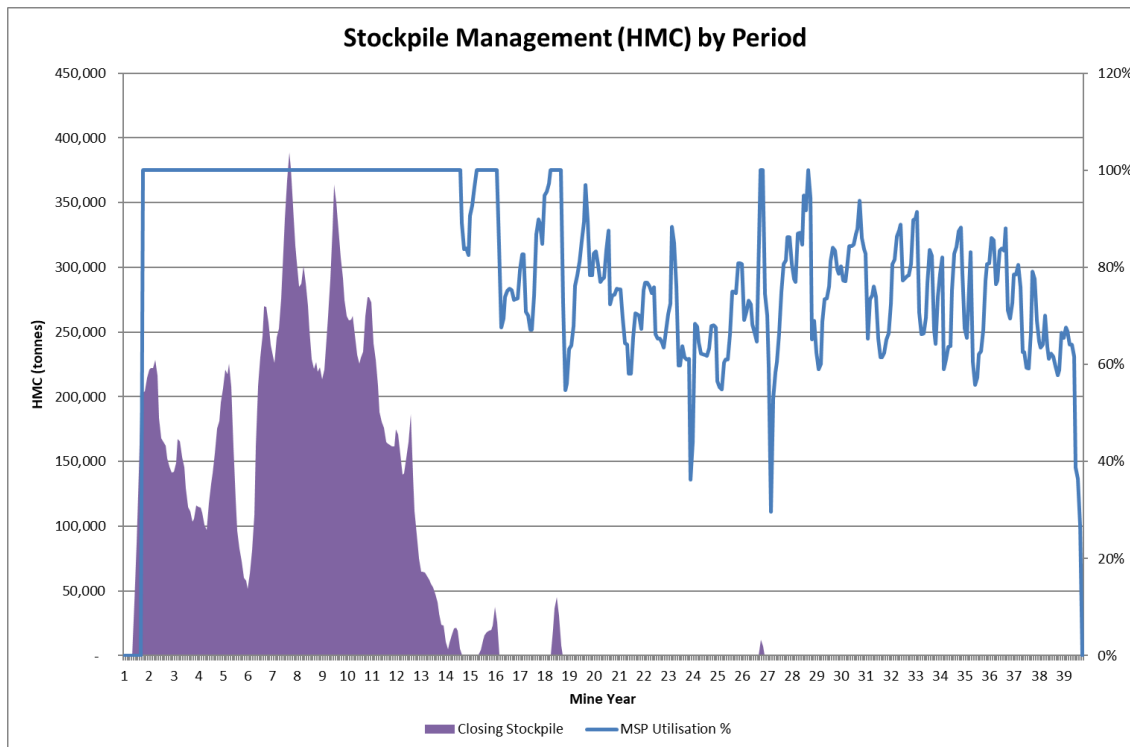


Figure 15-11: HMC stockpile

15.6 COMMENTS BY QUALIFIED PERSON

The Qualified Person is satisfied that the results of the feasibility study confirm that the deposit may be economically mined and that those results are in line with preliminary results generated during the pit optimization process.

There is substantive value to be derived from the inclusion of monazite into the project and is planned to be included in the next phase of pit optimization and mine planning work.

16 MINING METHODS

16.1 MINING OPERATIONS

The operating philosophy will be owner-operator at all stages of the mining operations. The Mineral Reserve is a shallow lying deposit with no overburden present and will therefore employ an open pit mining methodology.

16.1.1 Description of operations

The operation will employ a DMU system, utilizing Caterpillar D11 bulldozers to push ore into a dozer trap. The ore is then processed through the DMU, where it is slurried and pumped directly to the WCP, which is designed to operate at a matched capacity for continuous and efficient feed.

The DMU consists of three skid-mounted modules:

- Apron feeder and grizzly: This unit regulates the flow of ore and removes oversized material before screening
- Screen and hopper: The screen classifies the material, directing undersize into the hopper where it is combined with water to form slurry
- Control room with motor control center (**MCC**) and pump: This houses the MCC, which enables control and monitoring of the DMU operations and the slurry pump to transfer ore slurry to the WCP.

Operations will run year-round (365 days per year, 24 hours per day) on 12-hour shifts.

Stage 1 will involve the installation of the first Dozer Mining Unit (DMU1) and the first Wet Concentrator Plant (WCP1). DMU1 will operate at a feed rate of 1,750 tph, equivalent to 12.6 Mtpa mined.

Stage 2 will add a second DMU (DMU2) and a second WCP (WCP2) and is scheduled to begin 4.25 years after Stage 1 commences. At this stage, these units will replicate the design of DMU1 and WCP1. Once DMU2 and WCP2 are commissioned, total mining capacity will double to 3,500 tph (25.0 Mtpa).

Both DMU1 and DMU2 will be purpose-built by Piacentini & Son, a Western Australia-based mining contractor and experienced designer/builder of dozer traps.

The mine planning department will prepare short-term rolling three-month mine plans that provide more detail to the scheduling of activities.

The sequence of mining activities to be planned and implemented includes the following:

- Clearing vegetation
- Stripping topsoil and stockpiling for later use in rehabilitation
- Feeding ROM ore from the mining face to the DMU for screening to remove oversize and control feed rate to the WCP
- Pumping DMU screened ROM ore to the WCP
- Depositing mixed tailings (coarse and fines tailings) to mined-out areas
- Managing coarse and fines tailings process return water.

In conjunction with the mining activities, the following ancillary activities will be performed and support services provided:

- Dust suppression
- Pit dewatering: The water table is significantly below the mining base, but a mobile pit dewatering pump will manage seasonal storm water that collects in the mining pit.
- Pit lighting
- Water supply for DMU
- DMU relocation.

16.1.2 Vegetation clearing

Vegetation clearing will precede topsoil stripping and will be stockpiled separately from topsoil so that it can be utilized by the local community or be turned into woodchips for rehabilitation. Typical vegetation cover at the Ranobe mine site is depicted in Figure 16-1. A Caterpillar D8 bulldozer fitted with a bush rake blade, or an excavator, and two 40 t dump trucks will be utilized for the clearing activity. An average one-way haul distance of 700 m was assumed. A bulldozer fitted with a bush rake is depicted in Figure 16-2 and a 30 t excavator fitted with a grab attachment in Figure 16-3. Approximately 17 machine hours per month will be needed (including approximately 10 dozer hours) in Stage 1 mining and 22 hours per month (20 dozer hours) in Stage 2 mining operations.



Figure 16-1: Example of vegetative cover at Ranobe mine site



Figure 16-2: Bulldozer fitted with a bush rake blade



Figure 16-3: Excavator fitted with a grab attachment

16.1.3 Topsoil stripping

Topsoil stripping will be completed approximately three months in advance of mining operational areas to allow for flexibility in mine planning. This timing is dependent on the usual constraints associated with scheduling mining and clearing activities, including optimization and allocation of resources. Topsoil will be stripped to a nominal depth ranging from 0.2 m to 0.3 m and stockpiled to a maximum height of 2 m. Initially, topsoil stockpiles will be located off the mining path, but near the pit crest, to minimize handling and transport distances and cost, see Section 16.2. Where possible, stripped topsoil will be dumped on ground which has been contoured for rehabilitation, i.e., not stockpiled. The purpose of this approach is to minimize topsoil degradation that occurs when it is stockpiled.

A Caterpillar 352 excavator, two dump trucks, a Caterpillar D8 bulldozer, a watercart, and grader will be utilized for topsoil stripping. An average one-way haul distance of 700 m was assumed. Total machine hours will be approximately 200 per month (including approximately 35 excavator hours) in Stage 1 mining and 300 hours per month (55 excavator hours) in Stage 2 mining operations.

16.1.4 Excavate ROM and feed DMU

Stage 1 mining is scheduled to commence in 23 months after the final investment decision, and Stage 2 commences 4.25 years after the start of Stage 1 mining.

The ROM excavation area and WCP feed pipeline, water supply, and electricity supply corridor options will be planned as part of the rolling three-month mine plan, see Section 16.2 for mine layout plans.

ROM ore will be pumped as a slurry from the DMU to the WCP at a density between 48% and 55% solids w/w feeding the oversize removal screen at the WCP.

The mine schedule is discussed in Section 16.1.15.

The Ranobe deposit's highest average ore grades are mined in the first four years. The lower average ore grades after this require the development and commissioning of DMU2 and WCP2 to increase HMC production.

The primary objective of the mining sequence is to produce a nominal 621 ktpa of sulfate and slag ilmenite (Stage 1). Other operational considerations are as follows:

- Minimizing the need for the D11 bulldozers to push ROM ore uphill (meaning a low point should be selected for any starter pit)
- Ensuring that the DMUs are not located in areas that could be flooded during the wet season (December to March) to reduce the risk of the DMU being flooded, and a flood mitigation drain to release water from the pit will be constructed (refer to Section 16.1.9)
- Minimizing the number of long (>500 m) DMU moves
- Minimizing the number of WCP moves
- Opening large contiguous voids for in-pit tailings: The ratio of tailings disposal volume available to ore volume mined is higher for large voids because of the ~33° mining pit batter angles and the design criteria for >50 m stand-off between ore and tailings. For example, the first year of mining removes approximately 7.5 Mm³ of ore, but the batter angle and stand-off means only approximately a quarter of that could be used for in-pit tailings deposition. The second and subsequent years create almost the same tailings deposition volume as the ore that is removed. If a large void is not opened, more tailings will need to be placed in ex-pit storage.
- Minimize the number of DMU starter pits.

Most ore will be mined directly by D11 bulldozers pushing to the DMU in rectangular pits of 200 m by 100 m, which give an average bulldozer push distance of ~100 m. If the ore is thick (nominally >20 m), smaller pits may be deployed to reduce the average diesel consumption per tonne of ore mined without significantly increasing the frequency of DMU moves. Conversely, larger pits may be employed to decrease DMU move frequency in shallow ore (nominally <10 m), but at the cost of increased diesel consumption per tonne of ore mined. The optimum pit size for mining will be determined by mine planners as part of the detailed mine scheduling activity.

The Caterpillar D11 bulldozer fleet productivity is important as this defines the maximum mining rate achievable for each machine. The Caterpillar handbook nominates an individual D11 bulldozer productivity of 1,200 tph based on the following parameters:

- D11 bulldozer fitted with a carry blade
- Average of 100 m push distance
- Slot dozing
- Excellent skill level operators after the first 12 months
- A 50-minute hour job efficiency
- A material factor of 1 (in situ ore, normal material, not hard to cut, possibly hard to drift)
- Grade correction factor of 1.0 (level dozing)
- Expansion factor of 1.25 (from bank cubic meters to loose cubic meters).

During the first four years of mining, the required HMC production is achieved by mining at 1,750 tph at an average DMU combined availability and utilization of 82.2%. This average is derived from Kwale operational experience and considers DMU moves, DMU maintenance, bulldozer fleet availability, and downtime transmitted from the WCP. Maintaining production requires a fleet of three D11 bulldozers and assumes that on the rare occasions when two D11 bulldozers are down at once for maintenance, a D10 bulldozer will be made available to assist pushing ore. The primary risk to maintaining the required production profile is the estimated individual D11 bulldozer production of 1,200 tph. Mitigations for this production risk include the following:

- Reduce the average ROM push distance; this comes with the penalty of increased frequency of DMU moves and increased DMU downtime
- Operate the bulldozers side by side
- Push ore forward when the DMU is offline
- Set the mining pit up so that there is slight downward grade
- Retain the experienced operator/trainers for a longer period
- Employ a relief operator on the shift panel to limit break time utilization loss.

When DMU2 enters production, a total of 3,500 tph of ore will be mined, which requires a fleet of five D11 bulldozers.

The D11 bulldozer fleet can satisfy the overall mining rate by scheduling the equipment between the two DMU mining pits. A CAT 740B and 110 t capacity trailer will be purchased to transport heavy mobile equipment (HME), including D11 bulldozers, to where they are required on the mine site.

The Ranobe deposit contains thin ore (<5 m) that may not be suitable for DMU mining. In the first five years, this comprises <5% of the ore mined. The thin ore is found on the eastern margin of the deposit, where it gradually pinches

out against a shallow sloping basement, and along the margins of sub-cropping or outcropping limestone basement, where the basement is steeper. The material over a shallow sloping basement will likely be moved by truck and excavator to stockpiles on nearby ore that will be mined by bulldozers. Material overlying steeper basement may be pushed by bulldozer to the nearby active DMU pit. For financial modelling, 50% of this material is assumed to be pushed by D10 and 50% moved using a truck and excavator. An average one-way haul distance of 400 m was assumed for the trucks. For the dozed material, an average push distance of 75 m was assumed.

The layouts at commencement of Stage 1 of mining and at the commencement of Stage 2 of mining are discussed and shown in Section 16.2.

Screening is performed at the DMU to remove oversize material. The average oversize content of the ROM ore is generally low (<0.1%) but will be greater near the pit floor where limestone float is expected. For context, oversize production is expected to be 5 tph to 30 tph.

The DMU screen aperture will be 35 mm. The screen will have sufficient capacity (with a 50% margin) to handle the 1,750 tph solids feed at 50% solids. Pilot test work demonstrated negligible oversize losses.

The front-end loader (FEL) hours for oversize removal and excavator hours to side cast material from the edges of the pit are included in the ROM feed hours scheduled for general DMU mining activity.

16.1.5 Pumping ROM ore from the DMU to the WCP

ROM ore from DMU1 will be pumped to WCP1 at the feed rate nominated by the WCP1 control room supervisor to satisfy WCP1 operational conditions. This is not expected to vary significantly and will average 1,750 tph. There will normally be two DMU1 moves per month and a 12-hour WCP1 shut once per month, coinciding with one of the DMU moves. Approximately 900 D11 bulldozer, 80 excavator, and 180 FEL hours will be used per month to feed DMU1.

ROM ore from DMU2 will feed WCP2 at the rate nominated by the WCP2 control room supervisor to satisfy WCP2 operational conditions and will typically be 1,750 tph. The mine schedule calls for the second DMU to commence 4.25 years after start of mining operations. An additional 900 D11 bulldozer, 80 excavator, and 180 FEL hours will be used per month to feed DMU2.

16.1.6 Tailings deposition

The ultimate rehabilitation aim is to return the land to native vegetation over the backfilled mining pit. Co-disposal of coarse (sand) and fine (slimes) tailings will be utilized to mimic in situ fines grades, and is considered readily achievable based upon the low slimes content of the ore and the design and operational experience gained at Kwale in recent years.

At the commencement of operations, the tailings will be pumped to a surface tailings storage facility (TSF) area until sufficient space becomes available for tailings placement in a mined-out section of the pit. The surface TSF will be required to store approximately 13 Mm³ of tailings and result in a tailings stockpile with final dimensions of approximately 20 m high, 2,000 m long, and 450 m wide. The TSF is located on low-grade inferred resource material near the initial WCP1 location to keep pumping costs low. The TSF will be progressively rehabilitated, to minimize dust levels and allow the operations rehabilitation team to test various vegetation mixes and monitor regrowth rates to refine the rehabilitation strategy. The southern part of the surface TSF is required for the first 24 months of operation and is scheduled to be ready for rehabilitation in Year 3.

WCP2 will use the northern part of TSF and the same emergency fine tailings pond until in-pit tailings space becomes available.

Designs have been completed for the initial surface TSF and in-pit tailing storage methodology for the first five years of operations, after which appropriate in-pit tails deposition assumptions have been applied.

The tailings system will comprise three dewatering cyclones mounted on stackers to deposit the co-disposed material. Two of the three stackers will be operational at any time, with the third being relocated to a new position. Stacker overflow water will report directly to a water recovery hopper. Stacker underflow water will be collected in sumps then pumped to a water recovery hopper. There will be limited capacity to deposit pure slimes tailings during periods of upset conditions, and designs for an emergency slimes tailings storage have been completed for the initial years of operations.

Several systems and associated activities are required to transfer tailings slurry from the WCP to the tailings stacking area and place it in the mining void, including the following:

- Coarse tailings transfer system: Each WCP will have a dedicated coarse tailings transfer system. The coarse tailings slurry will be pumped from the WCP to a tailings stacker at approximately 50% solids. The tailings stacker comprises a boom-mounted dewatering cyclone on a skid, which dewateres the coarse tailings, depositing solids into the mining void and recovering water. The transfer system design incorporates multiple tailings stackers to allow pipe and stacker movement between stacking locations without impacting mining throughput or WCP operation.
- Coarse tailings return water system: Water collected from stacker dewatering of the coarse tailings slurry and storm water will be pumped back to the WCP thickener. Two in-series water collection sumps at each seepage and storm water return point in the pit will be constructed to allow solids to settle before the water is returned to the process water dam.
- Thickened fines tailings (slimes) are pumped to the deposition point and mixed with coarse tailings using the existing stacker arrangement, which includes a cyclone-mounted ring for distributing the fines tailings. The distribution tank in the field is piped to all three stackers, and the line capacity of each is sufficient to feed the fines to any stacker, providing online switching and redirecting capability for the slimes.
- As tailings are being placed in the mine void, flocculant can be dosed to control return water clarity and stacking angle of repose. The flocculation storage and dosing system is similar to the Kwale rehabilitation mix system. This will ensure that flocculant is available if required when the slimes increase beyond the 5% threshold.

Tailings water recovery assumptions are as follows:

- All of the tailings stacker overflow water is recovered to the WCP thickener
- Tailings stacker underflow is 74% w/w solids; 25% of water that reports to the underflow will be recovered to the WCP process water dam.

These assumptions result in 80% of the water pumped with the coarse tailings being returned to the WCP.

Toliara Project's initial bore water demand is estimated at 845 m³/h, rising to 1,315 m³/h with the introduction of WCP2. The overall water balance is discussed in Section 18. Coarse tailings water recovery is a high priority and will be enhanced by the use of a dewatering cyclone mounted on the tailings stackers. The cyclone overflow will be gravity piped to a lined sump and then pumped to WCP.

The ultimate morphology and land use for the tailings areas are yet to be agreed with the Government. The conservative assumption is that the pre-existing ground surface will be re-created, where practicable, for in-pit tailings. Coarse tailings scheduling is discussed in Section 16.1.15; it broadly follows the mining schedule but is delayed by 12 months. The coarse tailings pipeline and electricity supply corridor layouts form part of the rolling 3-month mine plan.

The tailings management is expected to use 180 D10, 60 D8, 60 FEL and 360 excavator hours per month during Stage 1 and will double during Stage 2 of mining to 360 D10, 120 D8, 120 FEL and 720 excavator hours per month.

16.1.7 Landform reconstruction, topsoil return, and rehabilitation

Base Resources' rehabilitation strategy objective is to return the land to native vegetation. Where practicable, the existing landform will be recreated post mining, which will be achieved by contouring the surface of the co-disposed tailings material.

Topsoil will be returned as soon as is practicable to areas that have been contoured, ready for rehabilitation, and wherever possible will be directly returned as part of the topsoil removal cycle. This includes the initial tailing area wall slopes and top, areas inside the mined pit envelope, and other ex-pit disturbed areas. The aim of the topsoil management strategy is to effect rehabilitation as soon as possible, to minimize the amount of topsoil in stockpile, and maximize the efficacy of the topsoil. Topsoil stockpiles will be periodically turned over to aerate the topsoil to prevent anaerobic heat build-up, which leads to topsoil degradation. This approach will ensure that the disturbed area at any time is minimized, generation of dust reduced, robust vegetation promoted, regulatory requirements satisfied, and help to maintain Base Resources' social license to operate.

Machine hours for topsoil return per month are expected to average 30 D10, 60 D8 hours during Stage 1. This doubles during Stage 2.

Topsoil replacement scheduling is discussed in Section 16.1.15.

The majority of the post mining areas will likely return to endemic vegetation. Base Resources established an indigenous tree and plant research nursery in the Toliara region in 2019 and has been undertaking research to identify seed germination, propagation, and nursery maintenance techniques on the region's species. Significant success has been achieved with methodologies established for over 200 locally endemic plant species to date. These methodologies will enable propagation of endemic species, including rare species, for use in rehabilitation and restoration programs. During operations, Base Toliara will establish an on-site nursery in addition to the research nursery to propagate endemic species for planting into rehabilitated areas.

Base Toliara's environment department plans to undertake seasonal seed collection at the appropriate times for each of the local species that will be propagated, primarily from within the mining lease, but also from further afield if necessary. The lessons learned from the rehabilitation of bulk sample test pits in the mining lease will be applied to operational rehabilitation activities to maximize plant germination and survival rates.

Windbreaks constructed from UV-resistant woven shade netting strung between poles will be used where necessary to prevent soil movement and damage to seedlings.

Some of the initial tailings areas are likely to be used to expand the solar electricity generation capacity and will therefore not be immediately rehabilitated with endemic vegetation.

Given access to water, power, and infrastructure, large areas of post mined land have the potential to be transformed into agricultural use for local, national, or export markets. Over a period of time, these alternatives will be investigated, and the flexibility that the tailings design and operation provides can accommodate varying subsoil properties.

16.1.8 Dust suppression

Commercially available dust suppression products will be applied on unsealed roads to ensure control of dust pollution from both light and heavy vehicles.

16.1.9 Pit dewatering

The mining pit shells do not intersect the water table, so pit dewatering is only required to remove process spillage and stormwater.

Digging drains to dewater the pit and manage storm water will need to be planned during the three-month schedules and executed with 50 t excavators. Water will be returned to the WCP process water dams using diesel-powered pit pumps. Stormwater not entering the mine pit will flow along natural drainage paths. Stormwater captured in the pit will, for all but the largest rainfall events, mostly seep into the pit floor, and only a portion will be pumped to the WCP. Very large rainfall events represent a risk to the DMU when surface water enters the pit. To mitigate this, a drain will be excavated to allow water to escape the pit at a level of 110 m, and the mine path schedule ensures that the DMU is situated above 110 m during wet seasons (December to March). This is discussed further in Section 16.2.

16.1.10 Pit lighting

Pit lighting is necessary so that operations can be conducted safely at night. Based on previous operating experience, four lighting plants are required per DMU pit. Diesel-powered lighting plants are planned to be used. Solar/battery plants will be investigated during the implementation phase of the project.

16.1.11 Water supply for the DMU

Process water will be pumped from the process water dam at the relevant WCP to supply makeup water at the DMU to slurry the screened ore and provide spray bar water for the screening operation. The process water demand will average 1,750 m³/h for DMU1 and an additional 1,750 m³/h for DMU2. Water for each DMU will be pumped from the respective WCP process water dam. This total of 3,500 m³/h approximates the amount of water circulating in the DMU/WCP system at any time, with a small amount added to dilute spiral flows in the WCP. The DMU/WCP recycles 80% of circuit water.

16.1.12 Dry mining unit relocation

The DMU and all associated infrastructure, including the pump station, slurry pipes, and electricity supply, need to be relocated when ore is exhausted within a DMU mining block. At a mining rate of 1,750 tph, this will occur approximately every 14 days. Each DMU move is scheduled to take approximately 14 hours. In summary, the DMU move process is as follows:

- On the day before the move, dozers will be replaced by an excavator to mine the "cone", which is the last remaining ore, at approximately 4:00 p.m. A D10 bulldozer may be required to assist if there is remnant ore on the pit floor, which it will push up to the cone to feed the excavator
- Once all material has been fed into the unit, mining stops. This should be a few hours before night shift ends so that the ROM line may be flushed clean and night shift operators can commence decoupling and night shift maintenance crew can ensure all the machines are serviced and available
- Moving the hopper and control skids commences on day shift after the pre-start meeting (normally by 7:30 a.m.) using three bulldozers (two D11 and one D10)
- Once all sections of the DMU are in the new location, re-assembly can commence. Normally, the dozers are free and a production D11 dozer will enter the pit and start pushing ore to the feeder. The area of influence of the ore cone is cordoned off with barricading tape
- Pipe relocation occurs independently of the DMU equipment moves, subject to safety
- The last pipes and other re-assembly tasks will continue as the ore cone is re-established

- Once the DMU has been tested and is running on water, ore can be introduced and operations can commence.

A DMU move requires a high degree of coordination, preparation, and supervision to be achieved in the allocated time frame. Figure 16-4 shows a relocation in progress with the hopper/conveyor unit being pushed into place. The unit is approximately 15 m from its destination. The disconnected screen and pump stations waiting to be moved are shown in the background.

16.1.13 Mining fleet

Initially, the mining fleet will comprise three D11 bulldozers. If two D11 bulldozers are down for maintenance simultaneously, it is assumed a D10 bulldozer will be made available to assist to push ore. When DMU2 enters production, a total of 3,500 tph of ore will be mined, which requires a fleet of five D11 bulldozers. The D11 bulldozer fleet can satisfy the overall mining rate by scheduling the equipment between the two DMU mining pits. A CAT 740B and 110 t capacity trailer will be purchased to transport HME, including D11 bulldozers, to where they are required on the mine site. The heavy mobile equipment fleet is presented in Table 16-1.

Table 16-1: Heavy mobile equipment fleet

HME	Stage 1	Stage 2	Combined
CAT D11T bulldozer	3	2	5
CAT D10T bulldozer	2	2	4
CAT 980H wheel loader-HMC	1	0	1
CAT 980H wheel loader DMU	1	1	2
CAT 980H wheel loader PORT	3	0	3
CAT 352 hydraulic excavator	2	2	4
CAT 740B and 110 t capacity trailer	1	0	1
CAT 740B EJ articulated truck	2	2	4
CAT D8	1	1	2
CAT 14M motor grader	1	0	1
CAT 320E excavator	2	2	4
CAT 725 articulated truck (water)	1	1	2
CAT 725 articulated truck (SERV M)	2	1	3
Other equipment	49	27	76
Total	71	41	112

Other equipment includes a 60 t crane, reach stackers, Manitou forklift, lighting plants, Caterpillar forklift, Caterpillar 432E backhoe loader, 226B3 Caterpillar skid steer bobcat, and Lincoln 500 diesel welder.



Figure 16-4: Dry mining unit relocation

16.1.14 Management of mining operations

The operations phase of Toliara Stage 1 and Stage 2 will require management, supervisory, professional, administrative, trades, operations, and general labor skills. The skills required for operations are not currently available in the local area and expatriate workers will be necessary in specialist technical and leadership roles until those roles can be developed locally. Training strategies employed to build local capacity before and during the implementation phase, are designed to mitigate future skills shortfalls in trades and operations areas. All unskilled workers are to be sourced locally.

Most roles within mining operations will require continuous coverage over a 24-hour period. Subject to endorsement of the roster by local labor authorities, employees in these roles will work a 4/4/4/4 x 12-hour shift roster (i.e., four days on, followed by four days off, followed by four nights on, then four days off, with 12-hour shifts). The 4/4/4/4 x 12-hour roster will require four people for each shift role.

Initially, the Mine Manager, superintendents, and supervisors will be expatriate employees. The majority of these are expected to be employed on a fly-in, fly-out (FIFO) roster and accommodated at the on-site accommodation camp. The expatriate FIFO roster expected to be 6 weeks on, 3 weeks off, working a 12-day fortnight on site.

The expected structure of the Mining Department is depicted in Figure 16-5.

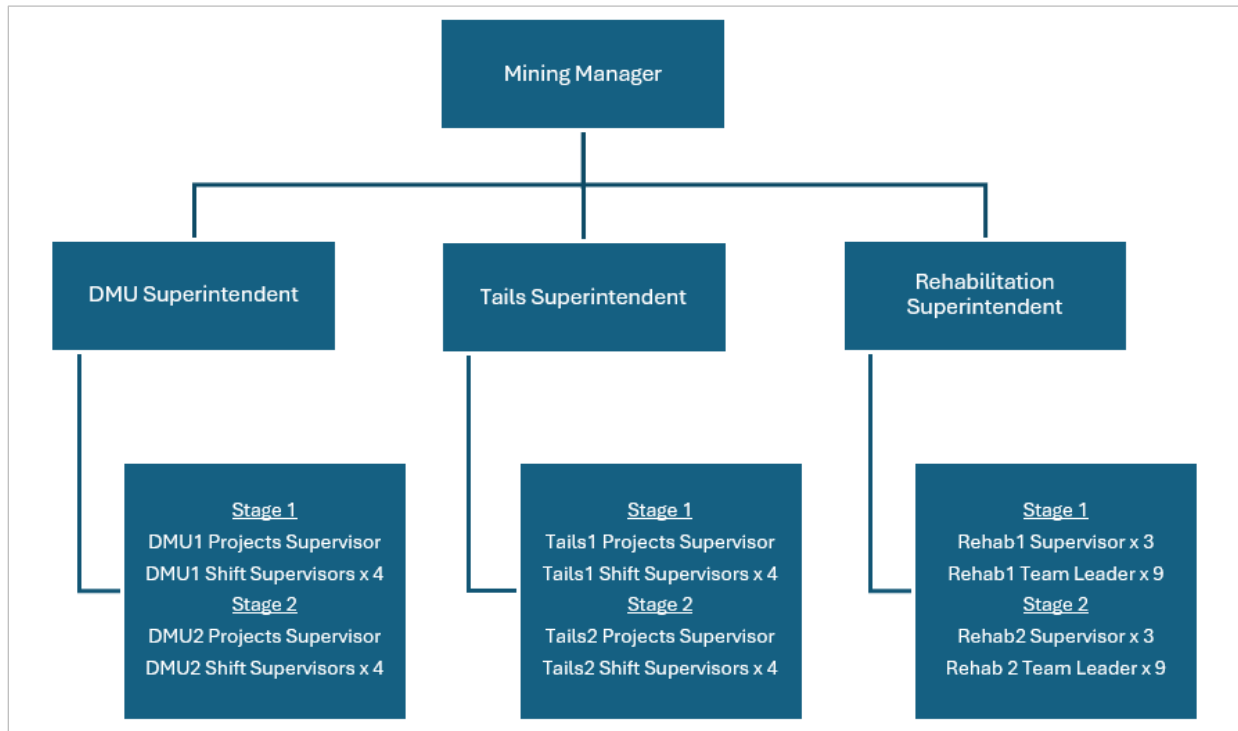


Figure 16-5: Mining department structure

Figure 16-6 shows the progressive ramp-up of personnel.

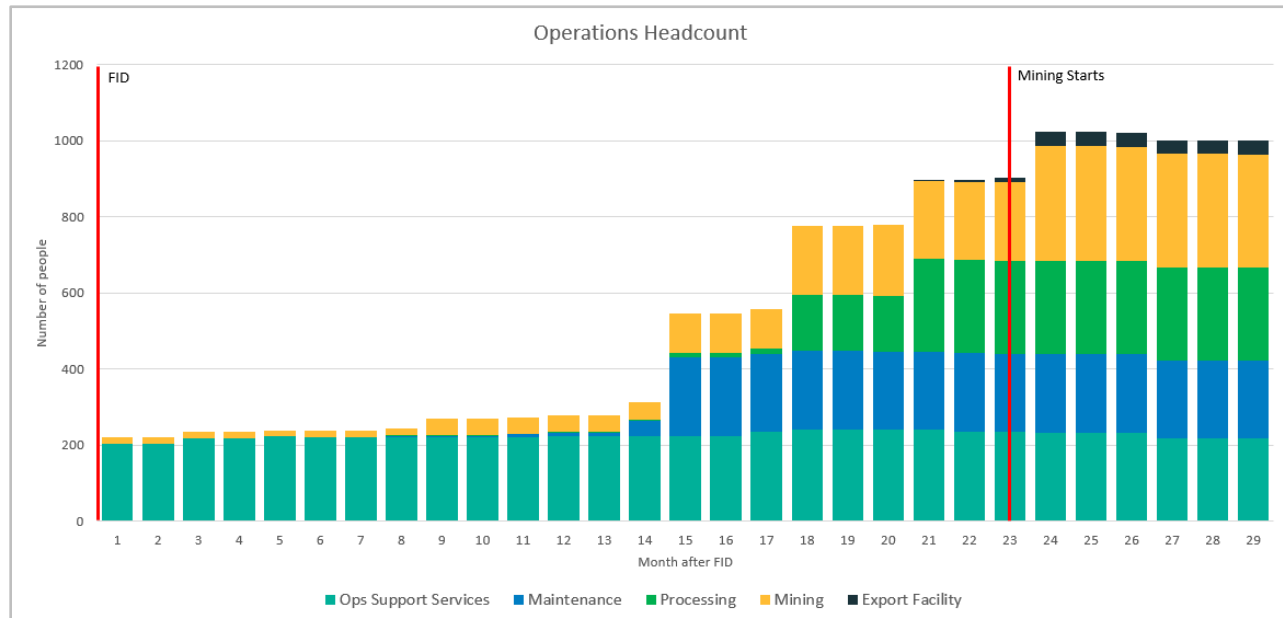


Figure 16-6: Operations manning ramp up

16.1.15 Scheduling

The key annual production parameters for the life of mine are shown in Figure 16-7 and Table 16-2.

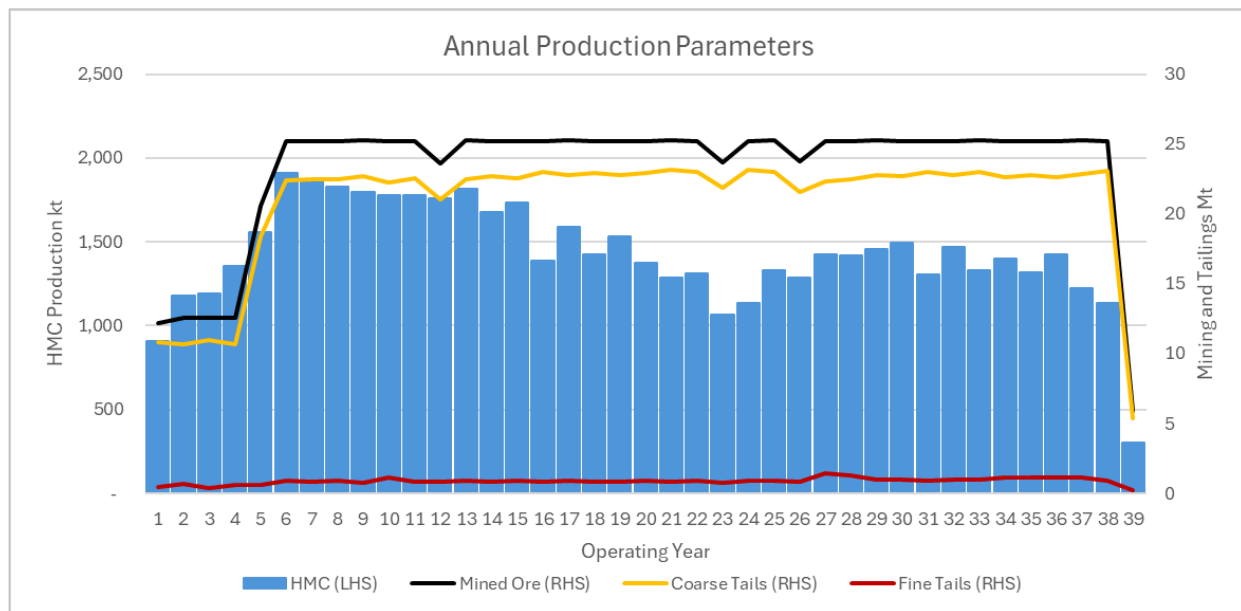


Figure 16-7: Key physical parameters for LOM

Table 16-2: Indicative average period between commencement of activities

Activity	Months relative to mining
Clearing	-4
Topsoil stripping	-3
Mining	0
Coarse tailings	12
Fine tailings	12
Topsoil replacement	16
Rehabilitation	18

Figure 16-8 and Figure 16-9 depict the mining, tailings, and final landform creation/topsoil replacement schedules. The material scheduled to be fed to a particular WCP location is enclosed in a bold black polygon. The blocked-out color shaped scheduling blocks are the rectangular individual DMU blocks up until the second WCP is needed. The rectangular scheduling blocks (which contain approximately four DMU blocks) are colored by year.

The Life of Mine (LOM) for Stages 1 and 2, as scheduled, is 38 years. Additional stages are expected to be assessed and [potentially] added as the project progresses.

The tailings schedule shows an ex-pit tailings areas needed west of the first WCP1 location until sufficient in-pit area becomes available. The northern end of the off-path tailings may be required to accommodate tailings during the start-up of WCP2 during Year 5. The grey areas (within the mined pits) will not have tailings emplaced during operations as they represent the active mining void immediately prior to WCP relocation; post mining earthmoving will be required to construct acceptable final landforms.

The use of co-disposal tailings may alter the planned topsoil replacement and rehabilitation schedule which would be brought forward by several months because the scheduled time to construct evaporation ponds and then pour and desiccate the fine tailings would not be required. The comparative and indicative timeframes for both tailings approaches are compared in Table 16-2.

The topsoil replacement schedule generally lags the fine tailings schedule by 9 months to 12 months. The process leading to topsoil replacement is as follows:

- Topsoil is stockpiled from commencement until Year 3 of operations
- Tailings are placed to approximate the finished landform level
- Landforms are reconstructed by final contouring of the surface to the finished level
- Topsoil is replaced, with priority given to topsoil freshly stripped from the next area of mining.

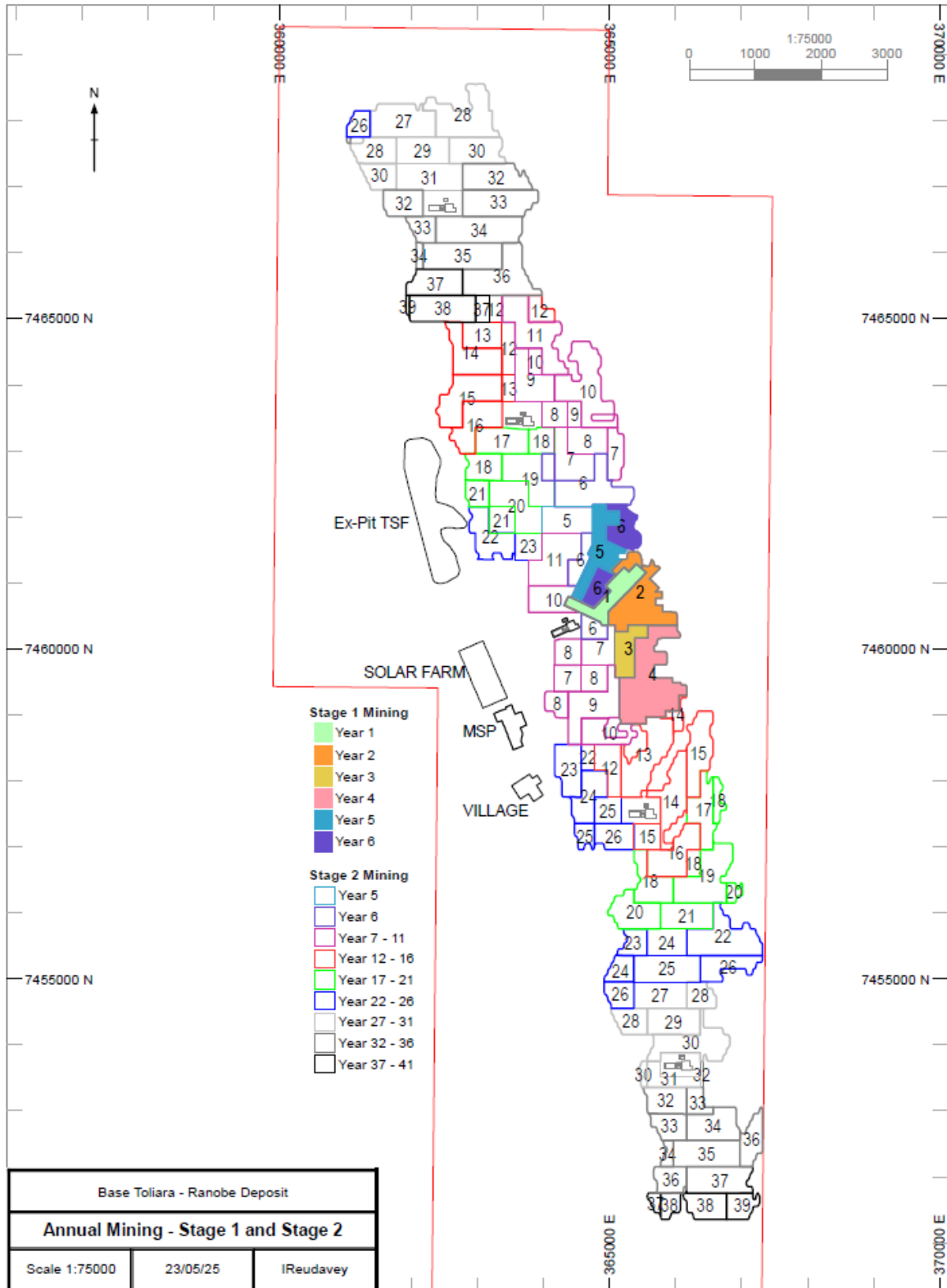


Figure 16-8: Mine schedule overview

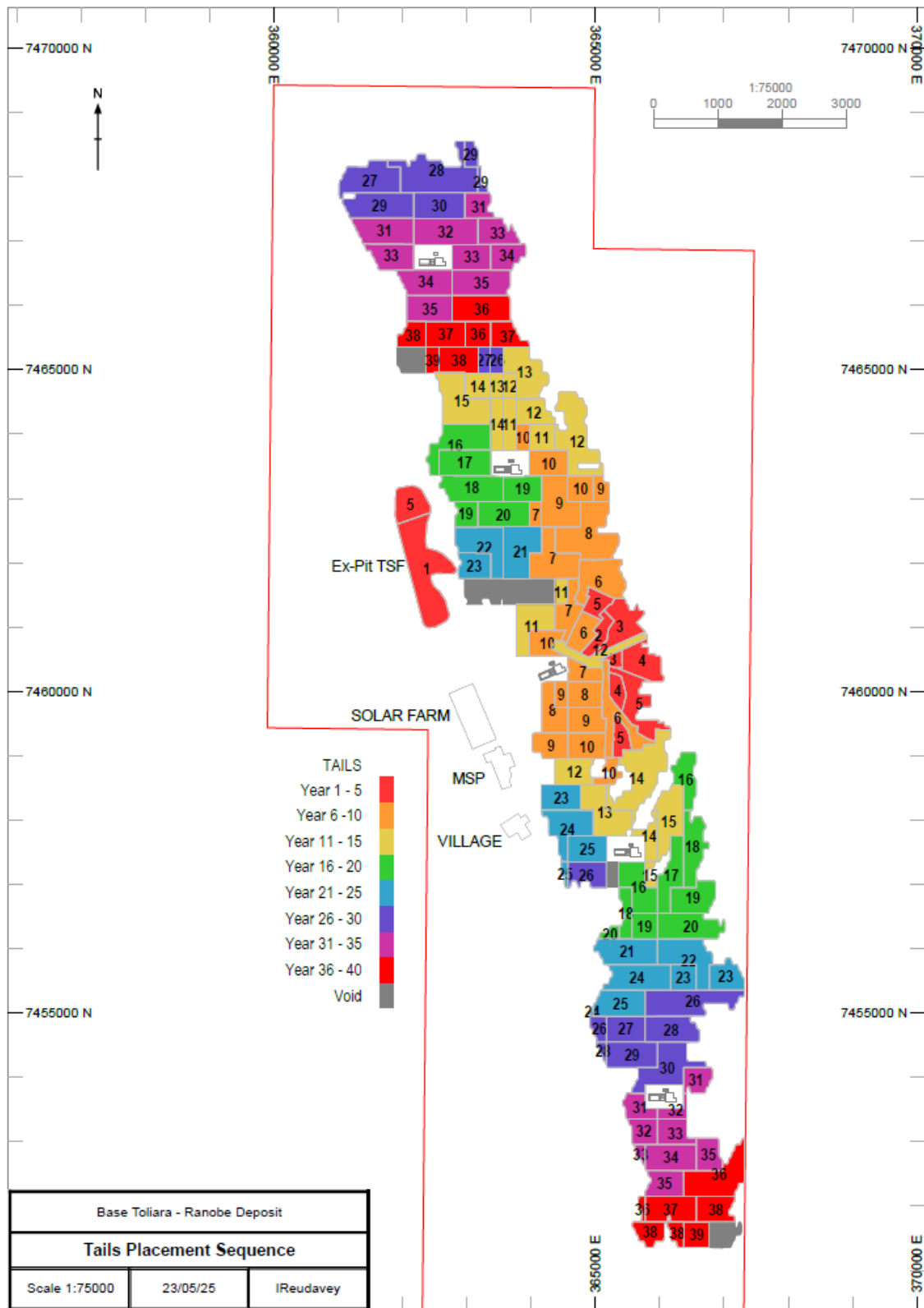


Figure 16-9: Tailings schedule

16.2 MINE DESIGN AND LAYOUT

The final mine layout is shown in Figure 16-8. Figure 16-10 and Figure 16-11 show the mine layout at commencement of Stage 1 and Stage 2 operations, respectively.

16.2.1 Geotechnical

The Ranobe reserve material is unconsolidated sand and, by observation, has a natural batter angle of approximately 35°. The mine pit walls will be slightly shallower than this, approximately 33°. The pit walls will be stable as there are no indurated or clay layers within the upper sand unit that could cause over-steepening or allow development of planes of weakness for mass slope failure.

16.2.2 Hydrological

The water table is significantly below the mining base, so any inflows into the mining pit working area should be the result of seasonal rain and run-off.

A flood mitigation drain is required as there is a risk that DMU1 could become flooded. The drain will allow flood water to exit the mined void at a level of 110 m. Mine scheduling ensures that DMU1 is not situated below this level during wet seasons. Historical rainfall data shows that heavy rainfall events may occur from December to March, so during this period, the DMU will mine in areas where the pit floor is higher than 110 m. The drain will only be needed after the mined void intersects the drainage line that runs past the WCP (approximately where the area of active topsoil stripping is shown).

Flood water flow modelling indicates that the drain will be necessary for at least the 1-in-20 year annual recurrence interval (**ARI**) and greater events. The 5-year ARI event is likely to partially flood the pit void, but to a level lower than 110 m. The risk will remain until WCP1 moves after 12 years. Therefore, a means of allowing water to escape from the pit at a level that keeps the DMU safe is a requirement for the time WCP1 remains at its first location. This will be achieved by the drain for the first seven years. After that time, the DMU will have mined a deeper channel which will remain open until after WCP1 moves.

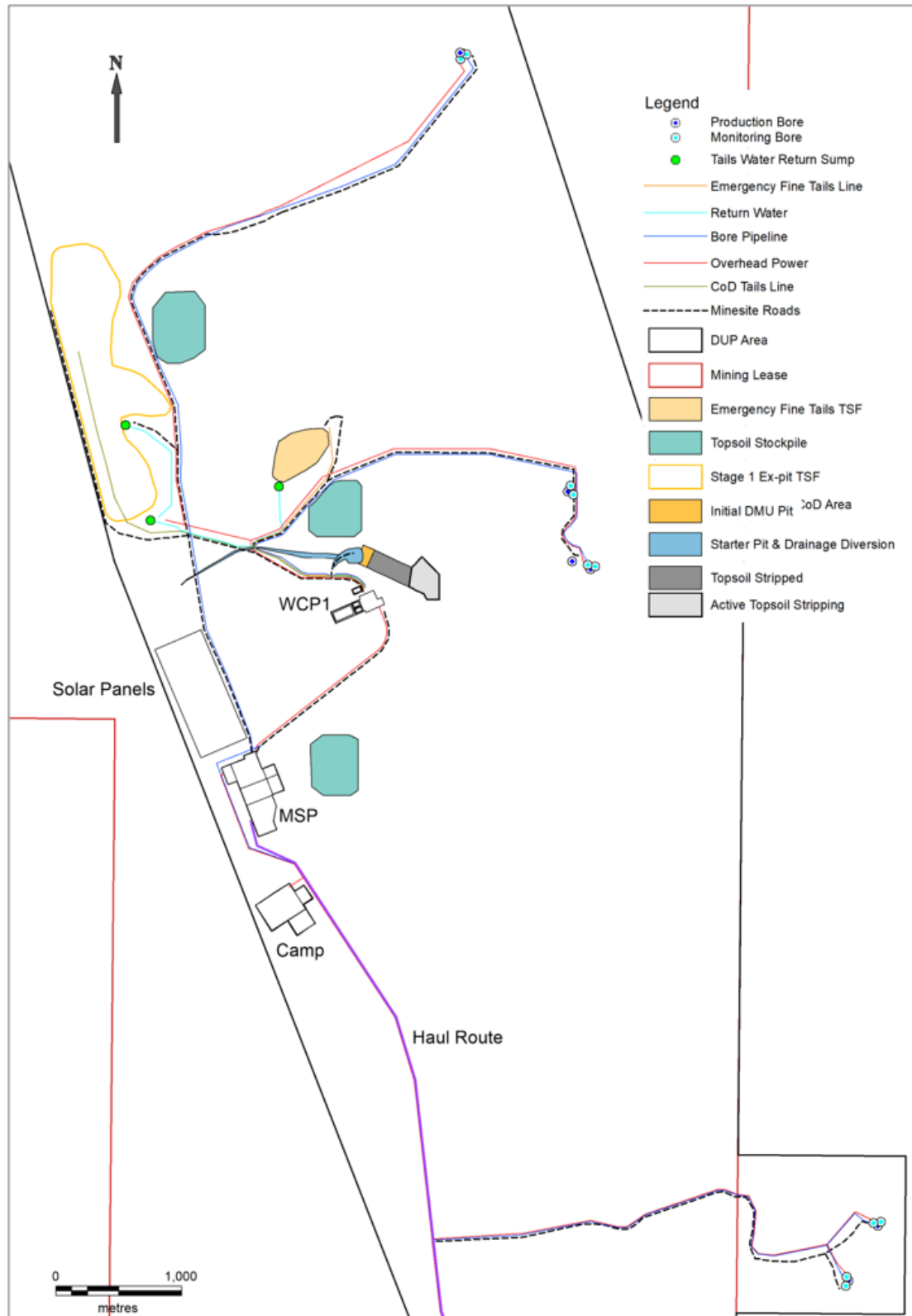


Figure 16-10: Layout at commencement of Stage 1 mining

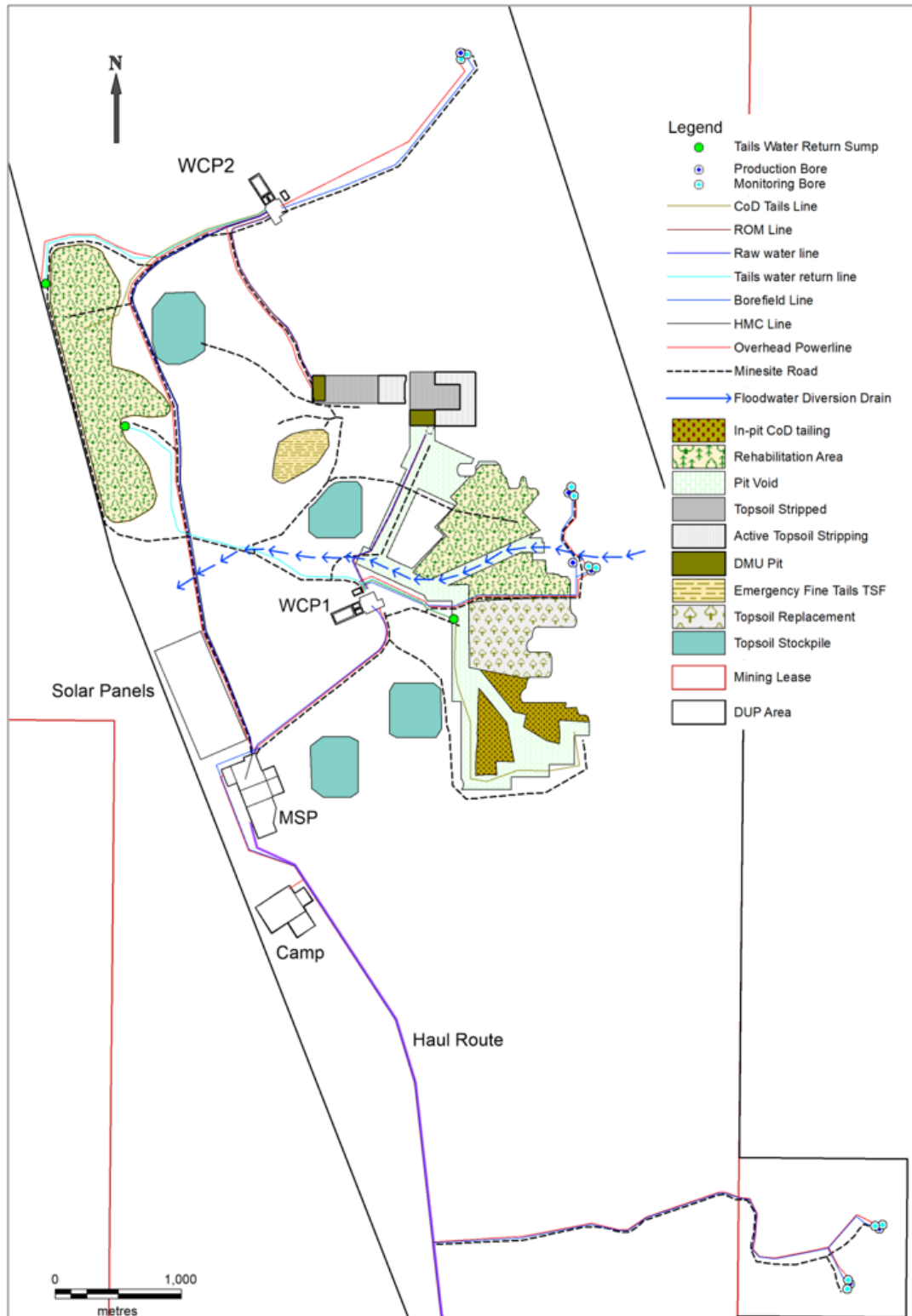


Figure 16-11: Layout at commencement of Stage 2 mining

16.3 PRODUCTION RATES

The market constraint assumed for the 2025 FS design criteria is based on the ilmenite market's capacity to consume 621 ktpa of sulfate and slag ilmenite during Stage 1 without materially lowering prices. This product output level is the basis for determining the mining and processing rates for Stage 1, with Stage 2 essentially replicating Stage 1 and increasing sulfate and slag ilmenite output to levels constrained primarily by feed grade and/or MSP capacity.

Mining is constrained by several factors as follows:

- The bulldozer mining method limits ore blending opportunities
- The mining equipment (Caterpillar D11 bulldozers) requires a maximum push distance of 100 m or less to maintain the required production level. This determines the frequency of DMU moves and the resultant loss of run time
- The decline in ore grade and increase in production rates from Year 5 of operation requires the introduction of a second mining and concentrating operation to increase HMC output.

The ROM ore is not expected to present significant handling difficulties that could constrain mining.

The WCPs are designed to treat varying feed grades, but a HMC stockpile is required to buffer the differences between WCP outputs and the MSP constant HMC feed rate requirement.

The MSP has been designed to produce 621 ktpa of sulfate and slag ilmenite requiring a feed rate of 150 tph HMC during Stage 1, with in-built capacity for expansion to 220 tph HMC during Stage 2. The MSP has sufficient circuit flexibility to treat varying mineral assemblages in feedstocks and to produce three grades of ilmenite.

A two-stage production profile has been defined, reflecting a planned increase in mining rates as the mining advances into areas of lower grade around Year 5.

Stage 1 mining lasts 4.25 years while grades are high enough to meet the marketing objective of 621 ktpa production of sulfate and slag ilmenite, which corresponds to approximately 923 ktpa of total product output. When the mining rate can no longer support this output, Stage 2 will commence, commissioning a second 1,750 tph DMU and WCP, bringing the total mining rate to 3,500 tph. Stage 2 extends the mine life to approximately 38 years.

For Stage 1 of the mine plan, rectangular mining shapes representing the maximum material per DMU location were placed in sequence. These shapes assume a maximum 100 m dozer push with a 33° slope. These shapes overlap, resulting in an obtuse trapezoidal volume of material per DMU location.

Where the total tonnage within one of the mining shapes is lower than one week's worth of production, (mainly along the edge of the deposit where the deposit becomes too thin to mine efficiently), this ore was classified as being mined by auxiliary equipment (excavator and trucks or dozer) with the ore being moved and placed in front of a current or future DMU unit.

Mine scheduling modelling was based on the entire mining operation, from pit to product, therefore incorporating HMC feed to the MSP, HMC stockpile management and final product.

The primary objectives of the mine scheduling are as follows:

- Providing nominal HMC throughput of 150 tph during Stage 1 and 220 tph during Stage 2 at the MSP

- Providing nominal ROM ore throughputs of 1,750 tph on a dry tonnage basis for each DMU1 and DMU2
- Keeping nominal HMC production below 200 tph per WCP unit
- Maintaining HMC stockpiles within design/manageable levels of above 50 kt and below 250 kt, where possible
- Keep both WCP units operating until exhaustion of the Mineral Reserve.

The extraction sequence for the Ranobe deposit is based on mining the highest grades in the first four to five years (Stage 1). The lower grades after this require the commissioning of DMU2 and WCP2 to increase HMC production. This is shown in Section 16.2.

Other operational considerations include the following:

- Commencing at a low reduced level floor point to establish an initial drainage/sump collection point for water management
- Minimize the need for dozers to push uphill (meaning a low point must be selected for any starter pit)
- Ensuring that the DMUs are not located in areas that could be flooded during the wet seasons (December to March)
- Minimizing the number of long (>500 m) DMU moves
- Minimizing the number of WCP moves
- Opening large contiguous voids for tailings
- Minimizing the number of DMU starter pits
- Scheduling topsoil stripping and stockpiling to occur three months before mining operations.

16.3.1 Dilution and recovery

Minor amounts of sub-economic material included in the design shells add planned dilution to the design inventory.

The Stage 1 mine design is based on providing a practical floor for the DMU using the selected nested shell from the optimization study as guidance. Due to the geometry of the deposit floor, small amounts of economic material are excluded from the ore reserve, while at the same time, small amounts of sub-economic material are included. This provides an opportunity during mining operations under the supervision of grade control personnel to recover these minor pockets of economic material and exclude the sub-economic material.

Due to the geometry of the deposits and the non-selective mining methods employed, there is no ore/waste discrimination (other than topsoil stripping). It is not considered appropriate to add additional dilution factors.

16.4 COMMENTS BY QUALIFIED PERSON

- The mining method selected for the proposed Ranobe operation is a well-established methodology with a proven track record of delivering high throughput with low operating expenses
- Mining lifecycle activities from topsoil removal through mining, tailings, and final landform profiling have been developed using industry standard methods
- All reasonable constraints and considerations have been taken into account with appropriate risk mitigation strategies, where practicable, to enable the mining sequence to deliver the required feed and product streams

- The DMU moves are highly coordinated and based on the operational experience of Base Resources' Kwale operation in Kenya. This places a high level of confidence in the ability of the Company to meet DMU availability and usage
- Tailings management will utilize existing mine voids and use contemporary co-disposal of coarse and fine tailings streams

17 RECOVERY METHODS

17.1 INTRODUCTION

Base Resources engaged Mineral Technologies and IHC Mining to progress the engineering development of processing plants for recovering saleable mineral sand products from mined ore.

Work carried out during the 2019 PFS laid the foundations for the plant design, which was further developed in the 2019 DFS and the 2021 DFS. The 2025 FS consolidates work from the 2021 DFS and work completed as part of the Monazite PFS, completed in 2023.

The main design metrics and principles used in the 2025 FS are reflected in Table 17-1.

Table 17-1: Design metrics

Design metrics	Stage 1	Stage 2
DMU	1,750 tph	3,500 tph (1,750 tph + 1,750 tph)
WCP feed rate	1,750 tph	3,500 tph (1,750 tph + 1,750 tph)
MSP feed rate	150 tph	220 tph
Average MSP production		
• Sulfate and slag ilmenite	621 ktpa	893 ktpa
• Chloride ilmenite	217 ktpa	313 ktpa
• Zircon	59 ktpa	82 ktpa
• Rutile	6 ktpa	9 ktpa
• Monazite	20 ktpa	29 ktpa
Product storage capacity at MSP		
• Sulfate ilmenite	2,000 t silo, shed 16,250 t	2,000 t silo, shed 29,000 t
• Slag ilmenite	2,000 t silo, shed 16,250 t	2,000 t silo, shed 25,000 t
• Chloride ilmenite	1,000 t silo, shed 6,250 t	1,000 t silo, shed 14,500 t
• Zircon	1,000 t silo, shed 0 t	1,000 t silo, shed 6,500 t
• Rutile	350 t silo, shed 0 t	350 t silo, shed 0 t
• Monazite	3,600 t (200 containers)	3,600 t (200 containers)
Process plant combined availability and utilization		
• WCP1		82 %
• WCP2		82 %
• MSP		95 %
• MCP		95 %
HMC stockpile capacity at WCP	8 h	8 h
HMC stockpile capacity at MSP	250,000 t (2.5 months)	
Water requirements		
• Major slurry and water lines (WCP1 and WCP2)		1,714 m ³ /h
• Water from process water dam to each DMU		2,406 m ³ /h
• DMU1 to WCP1 and DMU2 to WCP2		2,176 m ³ /h
• Coarse tailings		1,110 m ³ /h
• Water return from stacker overflow(s) to thickener		1,027 m ³ /h
• Water recovery from mine to process water dam		180 m ³ /h
• HMC from WCP to MSP		218 m ³ /h

Design metrics	Stage 1	Stage 2
Process plant operating power requirements		
• DMU1 and WCP1	6,132 kW	6,132 kW
• DMU2 and WCP2	N/A	6,132 kW
• MSP	4,962 kW	Incremental increase
• MCP	470 kW	Incremental increase
Process plant personnel requirements		
• WCP1	59	59
• WCP2	N/A	59
• MSP	63	67
• MCP	39	39
Haul truck to export facility load capacity	90 t	
Construction methodology	Stick build	
WCP1	Relocation in Years 12 and 26 after start-up,	
WCP2	Relocation in Year 23 (19 years after Stage 2 start-up)	
Human–vehicle interaction	Minimize	

17.2 PLANT EXPANDABILITY

Plant expansion has been considered during the plant design to enable future market opportunities to be met.

As the scheduled ore grade of the Ranobe deposit declines, from Year 5 onwards, and forecast market demand for product continues to increase, a second DMU and WCP will be introduced to mine an additional 1,750 tph of ore to increase HMC production from an average of 150 tph to 220 tph to feed the expanded Stage 2 MSP.

When HMC production is increased, the MSP must be expanded to treat the additional HMC produced. The MSP footprint and equipment layout have been designed for logical future expansion, which can be achieved by increasing the number of machines in the building and adding an annex to the existing structure. Equipment with the longest lead times and greatest retrofit challenges in an MSP, such as belt filters, dryers, up-current classifiers, classifying screens, and surge bins, cannot incrementally increase their respective capacities. To address this, these components have been incorporated into the Stage 1 plant design with 50% excess capacity to accommodate the planned Stage 2 expansion. This strategy enables the construction and installation of additional Stage 2 processing equipment to proceed while the MSP remains operational, requiring only a short shutdown for final tie-ins. As a result, production disruptions during the expansion are minimized.

17.3 PLANT LOCATION

The overall site location is predicated on developing a mine path to mine high-grade ore early in the operations, allowing sufficient HMC to be produced by DMU1 and WCP1 operations to support the targeted ilmenite production.

The location of the MSP was selected based on minimizing sterilization of Mineral Resource, minimizing HMC pumping distances from WCP1 and WCP2, allowing for initial off mine path tailings deposition, topsoil stockpiling requirements, general site topography, and a hydrogeological review.

The WCP1 starting location is selected to minimize the pumping distance to the MSP, topsoil stockpiling requirements, and DMU to WCP ore pumping distances during the first 12 years of operation.

The location of WCP2 was selected based on the HM grade of the ore in the area, which complements the grade of the ore that will be mined by DMU1, allowing for balanced HMC production. Additionally, minimizing the distance between DMU2 and WCP2 reduces pipe and pumping requirements.

The HMC from WCP1 and WCP2 will be pumped separately to the surge bin at the MSP. Having both WCPs operating independently allows the MSP to continue operating while being fed by a single WCP if the other is unavailable. This minimizes the disruption to the MSP's operation, as stockpiled HMC can be used to supplement the feed during periods when HMC production is not adequate for the required MSP throughput.

The location of the MSP and WCP1 in relation to other project infrastructure is indicated in Figure 18-2.

17.4 DESIGN CRITERIA

The broad considerations in deriving the detailed process design criteria as the basis for the engineering design are as follows:

- Enabling the process plants to treat variable ore types and meet changing market conditions over time
- Optimizing ilmenite, zircon, rutile, and monazite recoveries from pit to product
- Generating products to required quality specifications
- Allowing reasonable throughput design buffers to ensure practical plant operation
- Minimizing operating cost and power utilization
- Balancing capital and operating costs to ensure maximum project return on investment
- Allowing stockpiling capacity for HMC and product storage to accommodate reasonable variations to the plan and climatic events
- Optimizing water storage capacities at all plant locations
- Complying with applicable standards and specifications.

The flowsheets have been developed through process modelling to establish maximum and minimum flows throughout the plants, while equipment capacities, as specified in the datasheets, have been matched to accommodate these maximum and minimum flows.

17.5 PROCESS DESCRIPTION

The Toliara Project consists of the following four main sections:

- Dry mining unit
- Wet concentrator plant
- Mineral separation plant
 - Feed preparation circuit
 - Ilmenite circuit
 - Wet non-magnetic (N/M) circuit

- Rutile circuit
- Dry zircon circuit
- Product loading
- Monazite concentrator plant.

17.5.1 Dry mining unit

The DMU consists of a feed hopper that receives ROM material pushed by dozers as feed to the process. An oversize protection static grizzly tops the dump hopper to cast large oversize aside. The sump discharges onto a belt feeder that regulates the feed rate to the WCP. The belt feeder discharges into a slurry chute where water is added to the ROM material to form a slurry as feed to the vibrating screen fitted with nominal 35 mm aperture screen panels. The oversize material is set aside in an oversize stockpile and the undersize slurry is directed to the DMU delivery sump/pump where the slurry is pumped to the WCP.

The equipment used in the DMU is included in the Process Design Criteria and Mechanical Equipment List and the block flow diagram is shown in Figure 17-1.

New DMU's, similar to the DMU used successfully at Base Resources' Kwale operation, will be purchased for use in Stage 1 and Stage 2 operations. The Kwale DMU was supplied by Piacentini & Son, Western Australia, and is considered a proven, robust design that is ideally suited to the Ranobe deposit due to its low clay content and the free-flowing properties of the ore. It is a compact and versatile mobile dozer trap design that is readily relocatable, which aids in optimal move frequency and pit design. This DMU worked well at the Kwale operation and its operation is well understood.

These replica DMU units for Stages 1 and 2 will enable commonality of spares, simplifying operation and training.

17.5.2 Wet concentrator plant

WCP1 is designed for a feed rate of 1,750 tph from DMU1. A second identical WCP (WCP2) will be brought into operation 4.25 years after the start of Stage 1 to increase HMC production.

The major equipment of the WCP is shown schematically in Figure 17-2.

As shown in Figure 18-3, the WCP and site layout considered the overall mine site layout, terrain, capital cost, operating and maintenance activities and costs, and infrastructure design, to ensure an overall functional design was created.

The WCP accepts the ROM slurry from the DMU and first passes through a 3 mm screen to remove oversize (OS) material. This is followed by the removal of ultrafine slimes ($-53 \mu\text{m}$) material in a cyclone cluster prior to gravity separation. The prepared feed is directed to a three-stage spiral separation circuit, which beneficiates the ROM material to a HMC as feed to the MSP. The WCP also includes sections for water recovery and tailings (slimes and sand) processing and disposal. The process is discussed in greater detail below.

ROM slurry from the DMU reports to the desliming cyclone cluster, where the bulk of the slimes are removed and discharged to the cyclone cluster overflow (O/F), which in turn reports to the thickener collection pot. The cyclone cluster underflow (U/F) discharges into the constant density (CD) tank, which provides buffer and surge capacity to the WCP, allowing the spiral stage to receive a steady feed supply and a second stage of desliming. The CD tank O/F, containing slimes, reports to the thickener collection pot. Fluidization water is provided to the CD tank to maintain slurry mobility and desliming water.

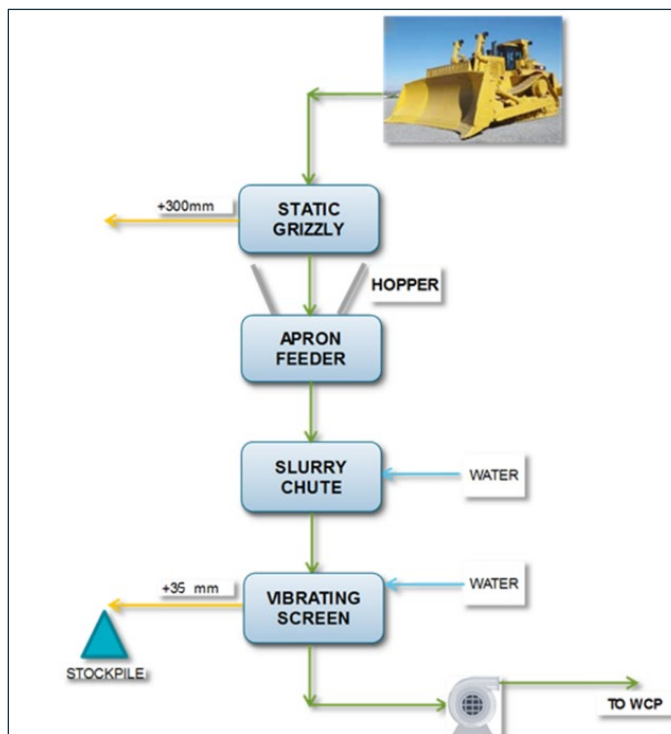


Figure 17-1: General process flow for DMU mining

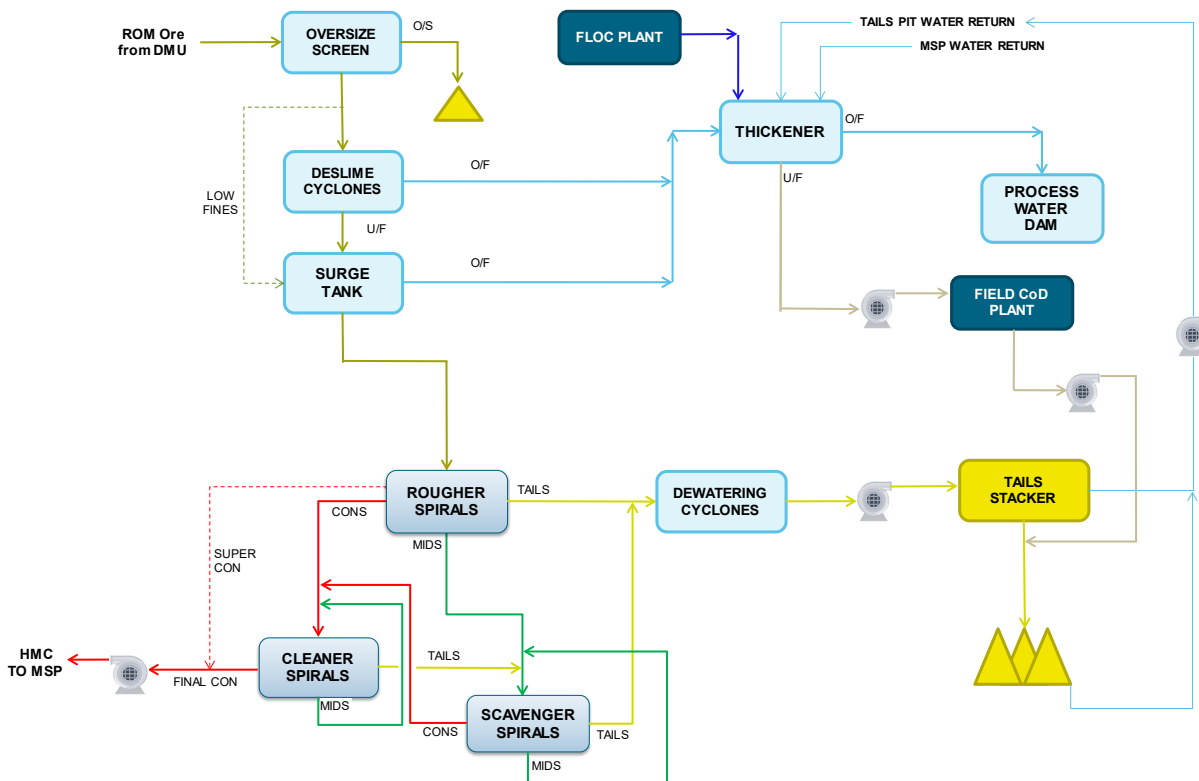


Figure 17-2: WCP block flow diagram

The rougher spiral feed pump draws slurry from the CD tank at the desired density, which has been adjusted via the density control water pump. The rougher spiral feed pump supplies feed to the rougher spirals via the distribution system. The MG12 model spiral separator provides two concentrate streams (Con1 and Con2), a middling stream and tailings stream. In the initial design of the WCP, both concentrate streams are combined and sent to the cleaner stage for further upgrading. However, as Con1 could potentially be of sufficiently high grade, the option of sending this stream directly to HMC has been incorporated into the flowsheet.

The rougher middling stream contains some valuable heavy mineral and is therefore directed to a scavenging spiral stage.

The barren rougher tailings, which are at a relatively low density, are directed to the tailings disposal area either directly via the final tailings sump pump or via the tailings dewatering cyclone cluster. The dewatering cyclone cluster increases the tailings disposal pumping density, thereby reducing operating costs.

The mid-scavenger spirals feed sump receives feed from the rougher mid, the mid-scavenger mid, and the cleaner tailings. The slurry density is adjusted to the required mid-scavenger stage feed density and pumped to the mid-scavenger spirals via the distribution system. The two concentrate streams (Con1 and Con2) of the MG12 model spiral separators are combined and directed to the cleaner stage. The midstream is directed to the mid-scavenger spirals feed sump, and the tailings stream is directed to the tailings dewatering cyclone feed sump.

The cleaner spirals feed sump/pump receives feed from the rougher and mid-scavenger concentrate streams, as well as the cleaner middling. The slurry density is adjusted to the required cleaner stage feed density and supplies feed to the cleaner spirals via the distribution system. The concentrate stream of the VHG model spirals reports to the HMC sump/pump. The middling is directed to the cleaner spirals feed pump and the tailings is directed to the mid-scavenger spirals feed pump.

The HMC pumping system provides two HMC handling options:

- MSP operating: Direct pumping to the MSP feed preparation HMC Surge Bin
- MSP offline: Pump to WCP HMC stacker cyclone; stacker cyclone O/F returned to the HMC sump via WCP HMC stockpile sump pump or pump directly to the MSP stacker cyclone.

The final tailings are pumped from the plant using several booster pump stages to the mining pit or initially to an off-path tailings facility. During WCP operations, MSP rejects are injected into the final tailings line to disperse this material into the mining pit at a similar or lesser grade than pre-mining.

The thickener O/F is returned to the process water dam via a settling pond used to capture any fugitive slimes not captured by the thickener. The thickener U/F (slimes) is pumped to the slimes tank via several stages of booster pumps. The sand tailings material reports to two of three stacking dewatering cyclones, two operating and one being repositioned to the next disposal location. Toliara is utilizing a co-disposal system where the slimes are pumped from the slimes tank to the tailings stackers stockpile area, where they are deposited on top of the final tailings stockpile, with flocculant added inline to assist with agglomeration and water release.

17.5.3 Mineral separation plant

17.5.3.1 Plant description

The MSP location is fixed for the life of the mine. All permanent infrastructure is located at the MSP site, including the main workshops, administration buildings, power generation facilities, fuel storage facilities, laboratory, and warehouse. The MSP site is shown in Figure 17-3 and Figure 18-4.

The general site configuration has been updated since the 2021 DFS and was developed over the course of several iterations of review meetings looking at many aspects including, product truck movement, heavy vehicle/light vehicle interaction, integration of the MCP and exclusion zones, plant operation, maintenance and access, pedestrian activity, constructability, topography, environment, and refueling requirement.

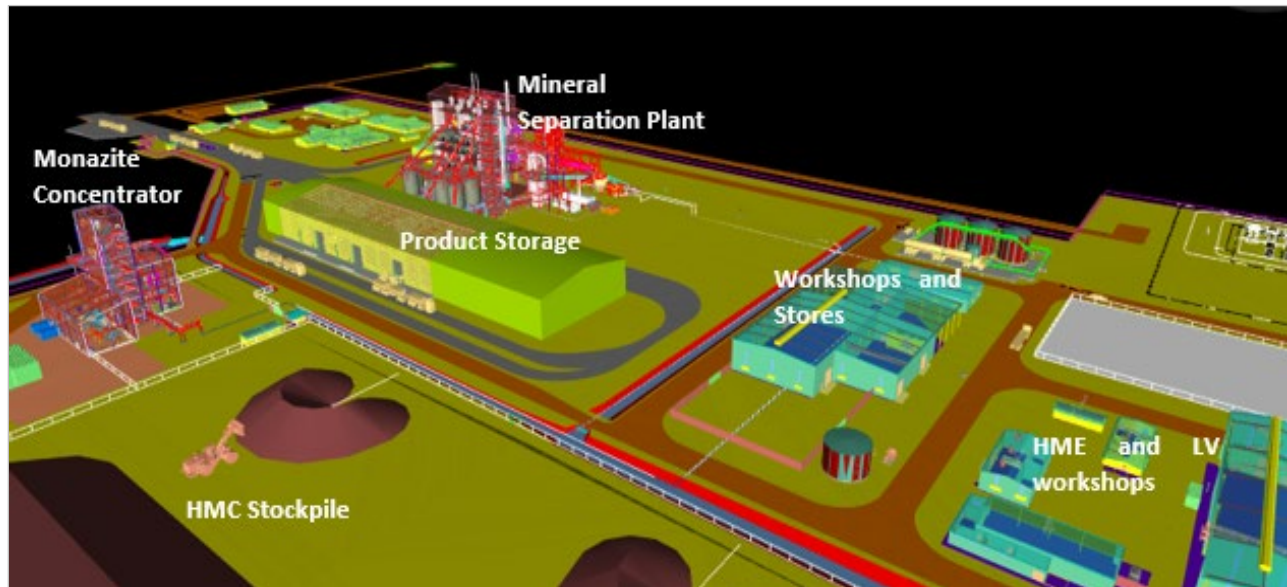


Figure 17-3: 3D MSP site model

The MSP has three major structures: the feed preparation circuit, wet MSP, and dry MSP buildings.

The dry MSP building shown in Figure 17-4 incorporates the ilmenite circuit, rutile circuit, and dry zircon circuit. The dry MSP building is designed to minimize the use of materials handling equipment (conveyors and elevators) by utilizing gravity flows wherever possible. This necessitates a taller building but simplifies the mechanical aspects of the plant leading to lower operational and maintenance costs. Many MSPs have one or two machine levels that rely on numerous bucket elevators to lift material between separation stages. The Toliara MSP has four machine levels, allowing material to cascade down between separation stages. This significantly reduces the number of bucket elevators and associated electric motors required to transport mineral streams, simplifying the process flow and reducing maintenance requirements.

The top floor of the dry MSP building is 42 m above ground level (Figure 17-5). The MSP has two control rooms, so operators oversee areas that are half the overall height of the building, approximately 21 m, which is less than the height of typical MSPs seen elsewhere in the industry, thereby eliminating operational issues associated with tall buildings.

The circuits within the dry MSP building are well separated, especially the zircon circuit, which must be free from contamination by titanium-bearing minerals.

The wet area of the MSP shown in Figure 17-6 houses the feed preparation circuit, wet N/M (U/F and O/F) circuits, and the combined tailings sump from which all final MSP and MCP tailings are pumped back to the WCP for blending with WCP tailings before deposition in the mined-out void.



Figure 17-4: MSP dry building designated areas

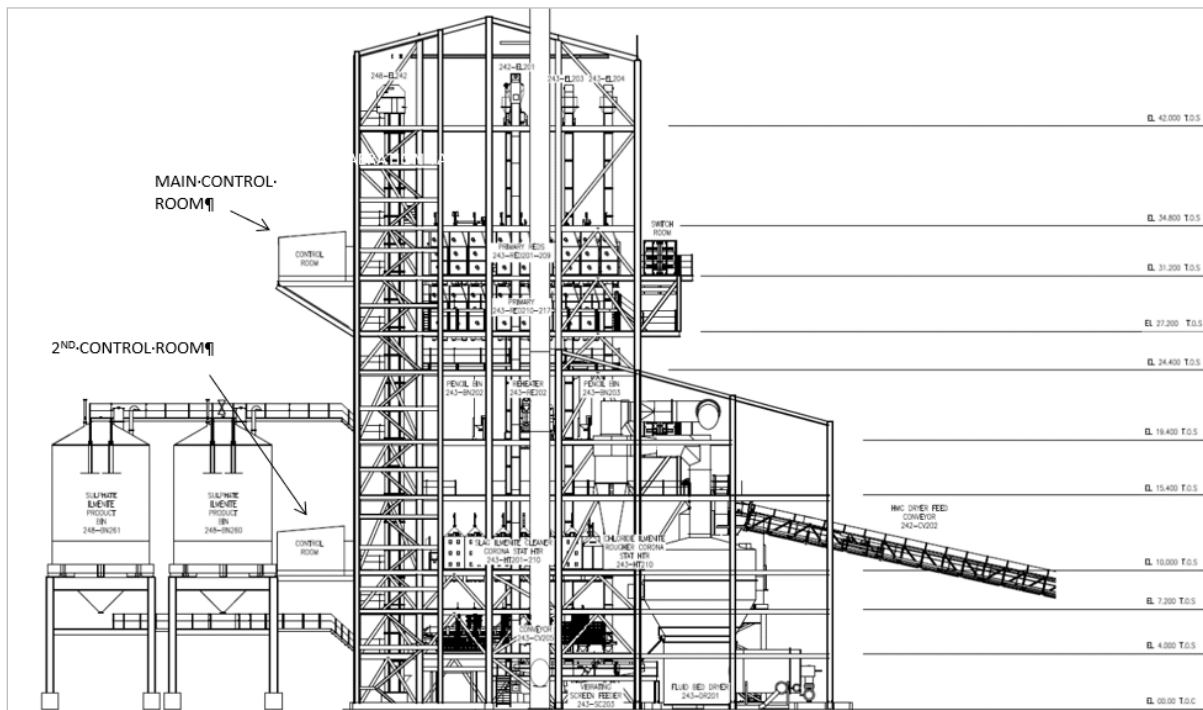


Figure 17-5: Dry MSP building

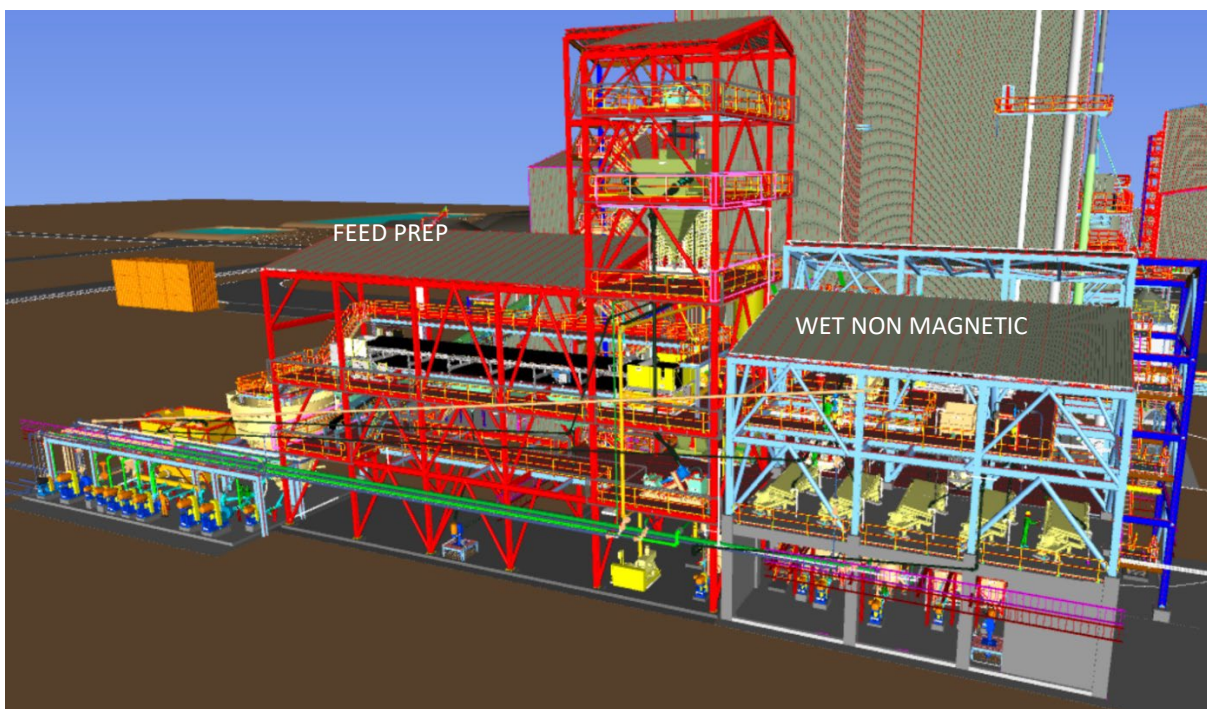


Figure 17-6: Wet MSP building

The equipment used in the MSP is detailed in the Process Design Criteria and Mechanical Equipment List.

The MSP comprises five plant sections and other infrastructure, discussed below.

17.5.3.2 Feed preparation circuit

The feed preparation section of the MSP receives HMC from the WCP HMC pumping system. This feed can be supplemented by recovering material from HMC excess stockpiles via a dump hopper, feeder, slurring chute, trash screen, and HMC stockpile reclaim pump.

The HMC generated by the WCP is further upgraded in this section of the MSP by removing most of the remaining light HM material.

Feed from the WCP and/or supplemented by material from the excess HMC stockpile enters the HMC surge bin. This surge bin operates in a similar manner to the WCP CD tank, with the primary focus on providing a consistent feed in terms of density and solids flow rate to the circuit. The surge bin has the added benefit of allowing an additional pump to be installed. Separate dedicated pumps provide the fluidization water and density control water.

As the WCP will generate more HMC than the MSP will process in the first few years of operations, an excess HMC stockpile is created by a dual HMC cyclone stacking arrangement:

- Stacking cyclone feed pump: Feeds the HMC stockpile cyclone, where the U/F discharges onto the stockpile and the O/F is recovered to the process water tank via the stockpile sump pump
- Discharge diversion on the screen feed pump: Feeds the HMC stockpile cyclone, where the U/F discharges onto the stockpile and the O/F is recovered to the process water tank via the stockpile sump pump.

The classifying screen feed pump delivers slurry to the classifying screen feed distributor, which splits the feed onto the two classifying screens fitted with 400 µm nominal aperture screen panels. The screen oversize (waste) is discharged into the feed preparation tails sump and the undersize discharges into the HMC UCC cyclone feed sump. This pump discharges into the HMC UCC cyclone, where the O/F returns to the process water tank, and the U/F is directed to the HMC UCC.

The UCC provides the required upgrading of the HMC using hindered settling and UCC, with the upgraded HMC reporting to the U/F, which discharges directly onto the belt filter. The UCC O/F contains significant fine heavy mineral which is recovered by a bank of model VHG spiral separators. The up-current water is provided by a dedicated raw water pump.

The dilute UCC O/F is first dewatered using a gravity-fed cyclone, where the O/F reports to the feed preparation tails sump, and the U/F reports to the HMC UCC O/F sump, which feeds to the O/F spiral separators. The feed density to the spirals is adjusted using water from the raw water system.

The O/F spiral separators recover fine heavy mineral to the concentrate stream, which is directed to the belt filter. The mid stream is recycled via the HMC UCC O/F sump, and the tailings stream is directed to the feed preparation tailings sump.

The belt filter removes moisture from the HMC, which is directed to the MSP ilmenite circuit via a conveyor system. The filtrate is recovered into the process water tank. Belt filter spray water is provided from the raw water system.

The feed preparation tailings material is pumped to the feed preparation tailings cyclone, where the U/F is directed to the MSP final rejects sump, and the O/F is directed to the MSP water sump.

The raw water tank supplies raw water to the MSP wet circuit, the belt filter, and the UCC up-current water.

The process water tank receives feed from the excess HMC and HMC stockpile sump pumps, cyclone O/F, belt filter filtrate, and the HMC surge bin O/F. Process water is supplied for density control, fluidization, process water, spray water, and washdown water. Makeup water is provided and the tank O/F is directed to the MSP return water sump for return to the WCP thickener. The major components of the feed preparation circuit are illustrated in the block flow diagram (Figure 17-7).

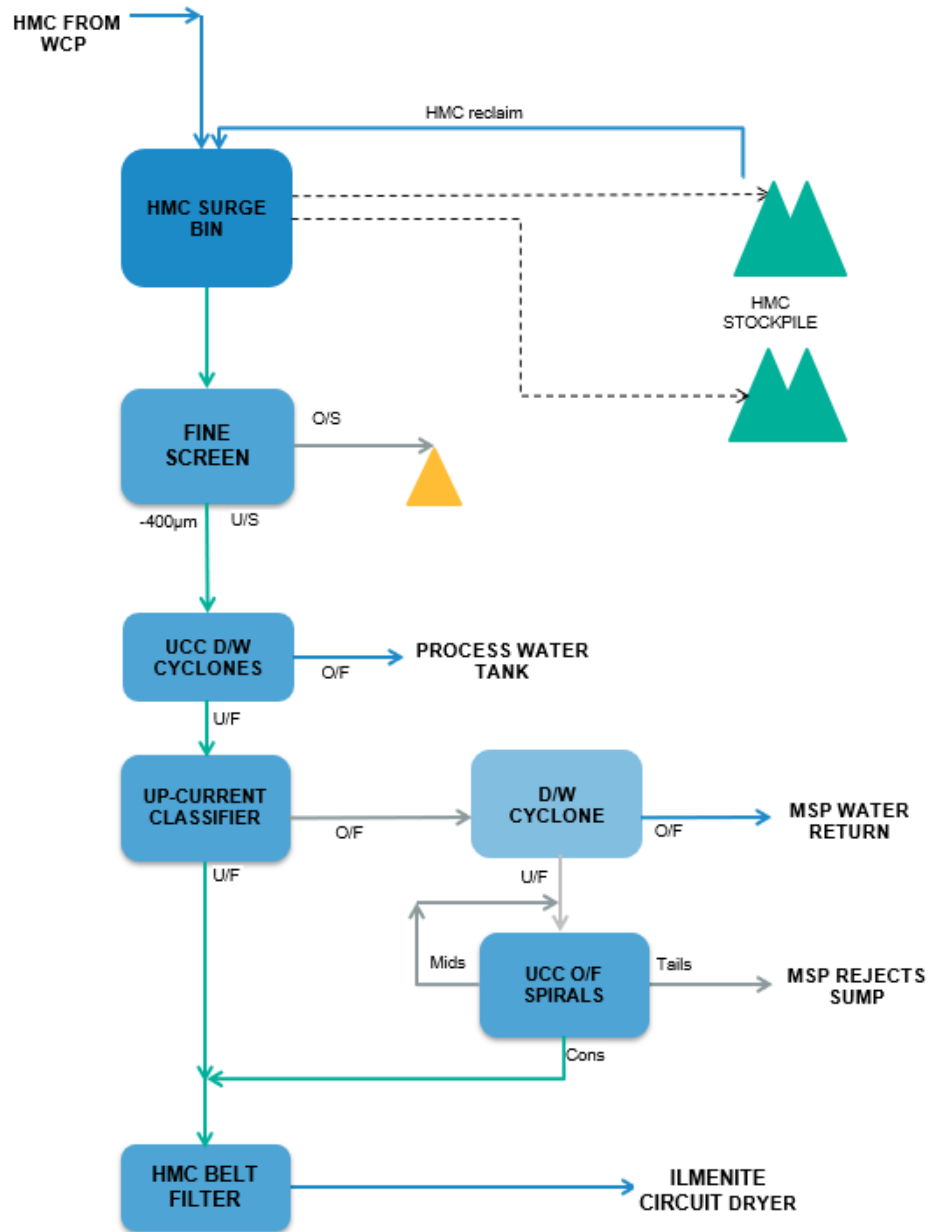


Figure 17-7: Feed preparation circuit block flow diagram

17.5.3.3 Ilmenite circuit

The ilmenite circuit separates the non-magnetics and monazite from the ilmenite in the feedstock. The ilmenite circuit produces three final ilmenite products, sulfate ilmenite, slag ilmenite, and chloride ilmenite, with the flexibility to alter the production ratio between them. The monazite present in the HMC reports to the ilmenite non-conductors, which is the majority of the MCP feed. The non-magnetics feed the next MSP circuit, the wet N/M circuit.

The major components of the ilmenite circuit are shown in Figure 17-8.

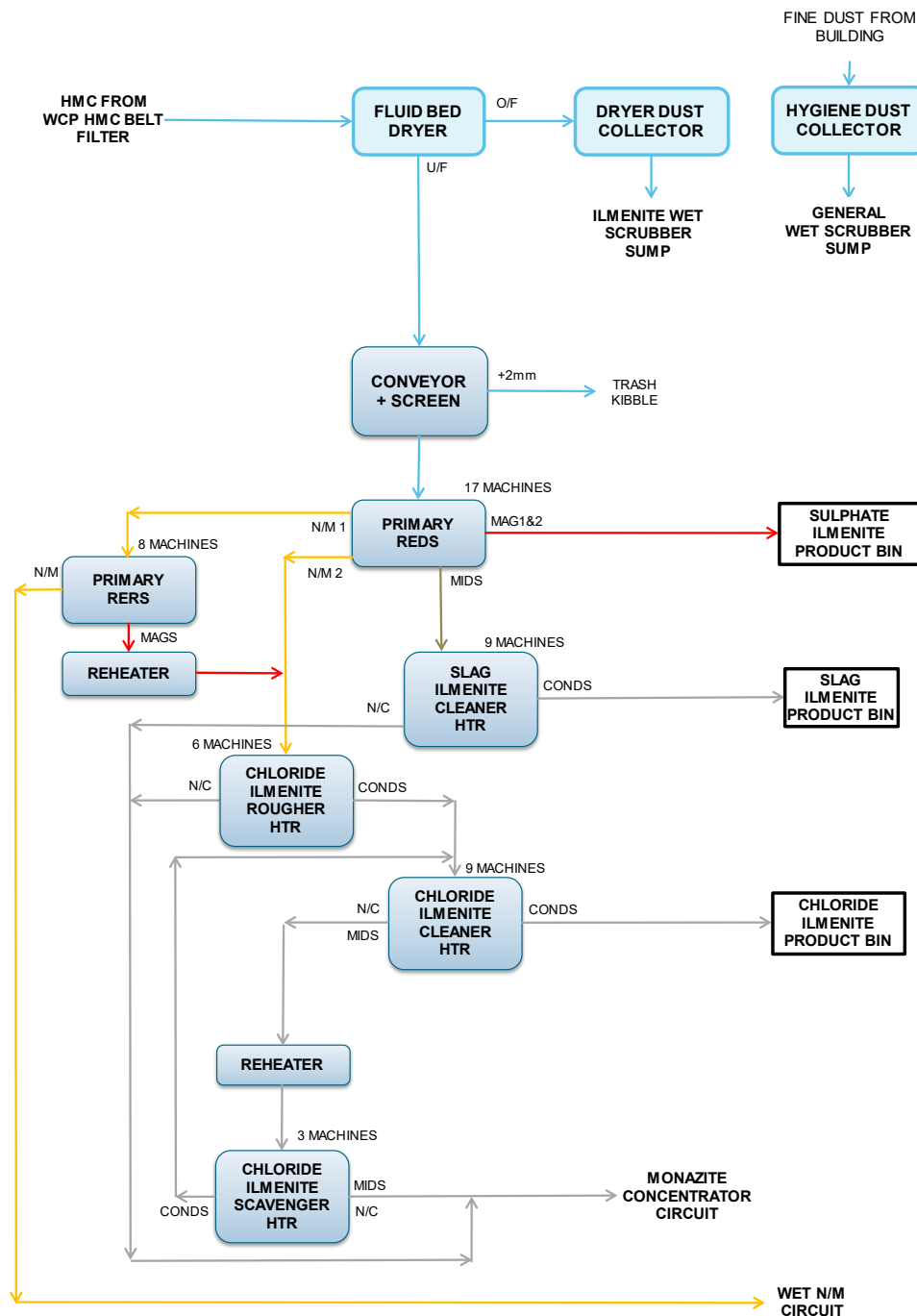


Figure 17-8: Ilmenite circuit block flow diagram

Generally, throughout the dry circuits of the MSP, all bucket elevators feeding separation equipment are fitted with pencil bins. These bins are sized according to the number of units following the bucket elevator using the following minimum guidelines:

- Sufficient capacity to allow one machine to be offline for approximately 1 hour

- Approximately 1-hour capacity of full flow for small flows
- Minimum capacity of 5 t.

The ilmenite section of the MSP receives moist HMC from the MSP feed preparation circuit (belt filter discharge). The HMC is dried in a hybrid (diesel/electric) fluid bed dryer before reporting to the primary rare earth drum magnets, where:

- High susceptible rejects fraction is directed to slag ilmenite product loading
- Magnetic 1&2 fractions are directed to sulfate ilmenite product loading
- Mid fraction is directed to slag ilmenite cleaner rare earth roll separator (**RERS**)
- N/M 2 fraction is directed to chloride ilmenite rougher high tension roll separator (**HTRS**)
- N/M 1 fraction is directed to primary RERS.

The primary rare earth roll magnets receive feed from the primary rare earth drum magnets N/M 1, where:

- Magnetic 1, 2, and 3, plus the mid fraction, are directed to a reheater, which discharges to chloride ilmenite rougher HTRS
- N/M fraction is directed to the wet N/M circuit.

The slag ilmenite cleaner HTRS receives feed from the primary rare earth drum magnetic separator (**REDs**) middling, where:

- Conductor fraction is directed to slag ilmenite product loading
- Combined non-conductor and middling fraction is directed to the MCP (MSP-based equipment) via the MSP rejects bucket elevator.

The chloride ilmenite rougher HTRS receives feed from primary REDs middling and primary RERS magnetics and middling after reheating, where:

- Conductor fraction is directed to the chloride ilmenite cleaner HTRS
- Combined non-conductor and middling fraction is directed to the MCP (MSP-based equipment) via the MSP rejects bucket elevator.

The chloride ilmenite cleaner HTRS receives feed from chloride ilmenite rougher HTRS conductor and chloride ilmenite scavenger conductors, where:

- Conductor fraction is directed to chloride ilmenite product loading
- Combined non-conductor and middling fraction is directed to the chloride ilmenite scavenger HTRS via reheater.

The chloride ilmenite scavenger HTRS receive feed from the chloride ilmenite cleaner HTRS combined non-conductor and middling fraction via the reheater, where:

- Conductor fraction is recycled to the chloride ilmenite cleaner HTRS
- Combined non-conductor and middling fraction is directed to the MCP (MSP-based equipment) via the MSP rejects bucket elevator.

The MSP rejects bucket elevator feeds the MCP (MSP-based equipment) with the first stage of processing being the MCP's primary RERS.

17.5.3.4 Wet non-magnetics circuit

The purpose of the wet N/M circuit is to reject quartz and other light-heavy gangue minerals that remain in the stream after the removal of the magnetics to ilmenite products.

The major processing equipment in the wet N/M circuit is shown in Figure 17-9.

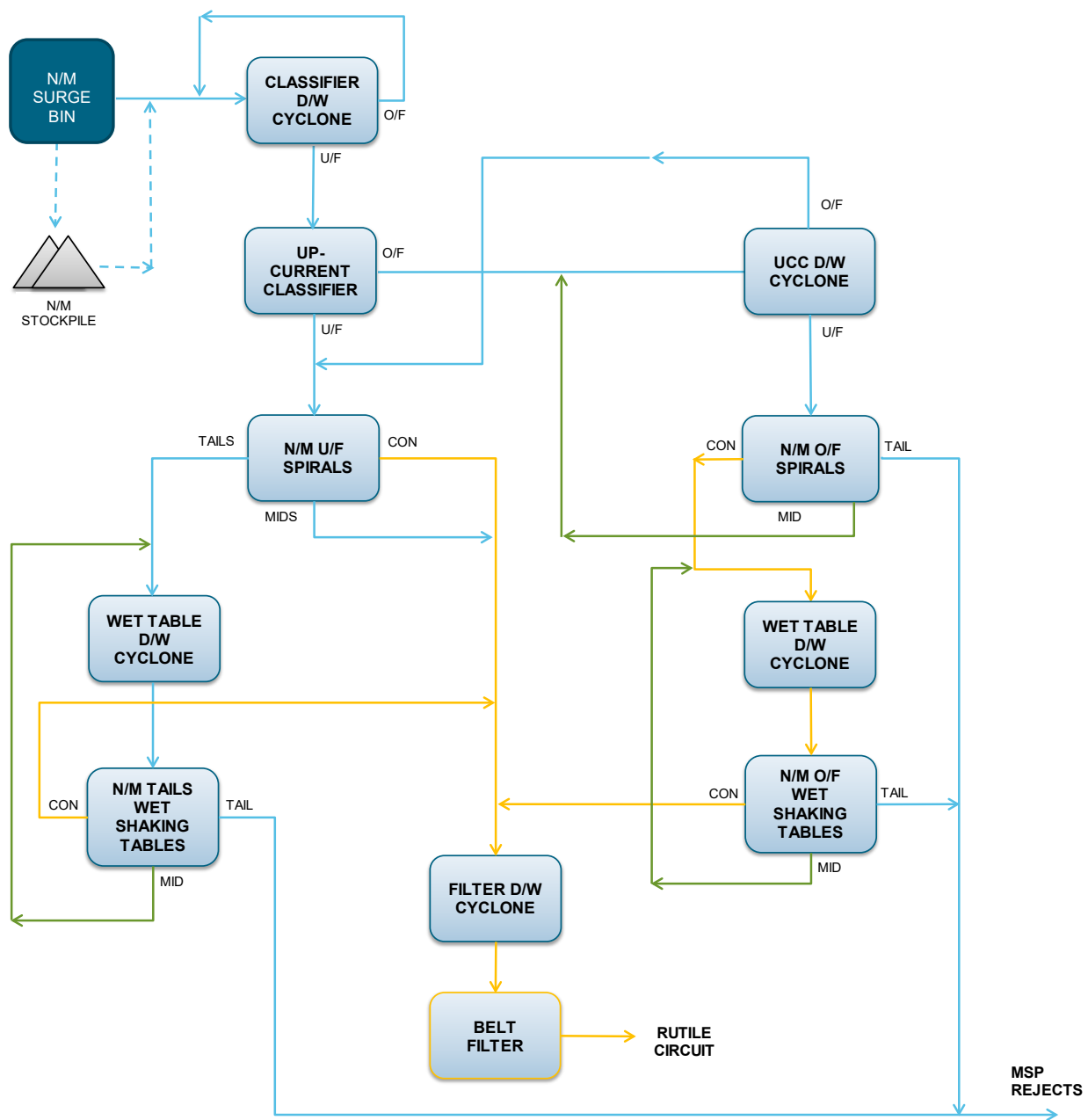


Figure 17-9: Wet non-magnetics block flow diagram

The 200 t capacity N/M surge bin accepts feed from the ilmenite circuit primary RERS N/M stream. The bin discharges into a slurring chute where MCP zircon tailings, N/M stockpile reclaim, and process water are combined with the solids and discharged into the N/M UCC cyclone feed sump. The pump feeds the N/M UCC cyclone, where:

- Cyclone O/F is returned to the process water tank
- Cyclone U/F is directed to the N/M up-current classification.

Should the quantity of non-magnetic feed be in excess of the circuit capacity, then there is provision to divert the excess to the N/M O/F stockpile via a dewatering cyclone. The excess material can be fed back into the N/M circuit via a loader, dump hopper, feeder, slurring chute, and transfer pump, where it will supplement the new feed into the circuit through the feed slurring chute.

The up-current classifier receives feed from the N/M UCC cyclone U/F, where:

- O/F is directed to the N/M UCC O/F spirals cyclone feed sump
- U/F is directed to the N/M U/F spirals feed sump
- Raw water is provided as up-current water.

The N/M UCC O/F spirals cyclone feed pump receives feed from the N/M UCC O/F, middling from the N/M UCC O/F spiral separators, and tailings from N/M O/F wet shaking tables and discharges to the N/M UCC O/F cyclone, where:

- O/F is directed to the MSP final rejects sump
- U/F is directed to a slurring chute to adjust the feed density to the N/M UCC O/F spiral separators with N/M belt filter cyclone O/F and raw water.

The N/M U/F spirals feed pump receives feed from the N/M UCC U/F and discharges to the N/M U/F spirals, where:

- Spiral concentrate and middling are directed to the final N/M belt filter cyclone feed sump
- Spiral tailings are directed to the N/M tailings wet shaking table cyclone feed sump.

The N/M tailings wet shaking table cyclone feed pump receives feed from the N/M U/F spiral tailings and middling from the N/M tailings wet shaking tables and discharges to the N/M tailings cyclone, where:

- O/F is directed to the process water tank
- U/F is directed to the N/M tails wet shaking table distributor.

The wet shaking table distributor receives feed from the N/M tailings cyclone U/F and raw water for density adjustment and discharge to the N/M tailings wet shaking tables, where:

- Concentrate is directed to the final N/M belt filter cyclone feed sump
- Middling is directed to the N/M tailings wet shaking table cyclone feed sump for recycling
- Tailings is directed to the MSP final rejects sump.

The slurring chute receives feed from the N/M UCC O/F cyclone U/F, the N/M belt filter cyclone O/F, and raw water for density adjustment and discharges to the N/M UCC O/F spiral separators, where:

- Concentrate is directed to N/M O/F wet shaking tables cyclone feed sump

- Middling is directed to the N/M UCC O/F spirals cyclone feed sump for recycling
- Tailings is directed to the MSP final rejects sump.

The N/M O/F wet shaking tables cyclone feed pump receives feed from the N/M UCC O/F spiral concentrate and middling from the N/M O/F wet shaking tables and discharges to N/M UCC O/F cyclone, where:

- O/F is directed to the feed preparation tails sump
- U/F is directed to N/M O/F wet shaking table distributor.

The wet shaking table distributor receives feed from the N/M O/F cyclone U/F and raw water for density adjustment and discharges to the N/M O/F wet shaking tables, where:

- Concentrate is directed to the N/M O/F table concentrate sump, which then discharges to the final N/M belt filter cyclone feed sump
- Middling is directed to the N/M O/F wet shaking tables cyclone feed sump for recycling
- Tailings is directed to the N/M UCC O/F spirals cyclone feed sump.

The final N/M belt filter cyclone feed pump receives feed from N/M O/F table concentrate pump, concentrate and middling from N/M U/F spirals, concentrate from the N/M tails wet shaking tables, and N/M belt filter barometric tank O/F and discharges to N/M belt filter cyclone, where:

- O/F is directed to the N/M UCC O/F cyclone U/F slurring chute
- U/F is directed to the N/M belt filter.

The N/M belt filter receives feed from the N/M belt filter cyclone U/F, where:

- Filter cake is directed to the N/M dry circuit via N/M conveyor system
- Filtrate is directed to the N/M belt filter barometric tank.

17.5.3.5 Rutile circuit

The function of the rutile section is to produce a rutile product and a zircon concentrate. The zircon concentrate is processed through the dry zircon circuit. The magnetic reject streams from the rutile circuit are returned to the ilmenite circuit.

The major processing equipment in the rutile circuit is shown in Figure 17-10.

The rutile circuit accepts feed from the N/M belt filter. The feed is dried in the fluid bed dryer, which discharges onto the non-magnetics HTRS via a vibrating screen conveyor and bucket elevator, where:

- Conductors are directed to the rutile conductor cleaner HTRS
- Middling is directed to the rutile scavenger reheater
- Non-conductors are directed to the rutile N/C cleaner HTRS.

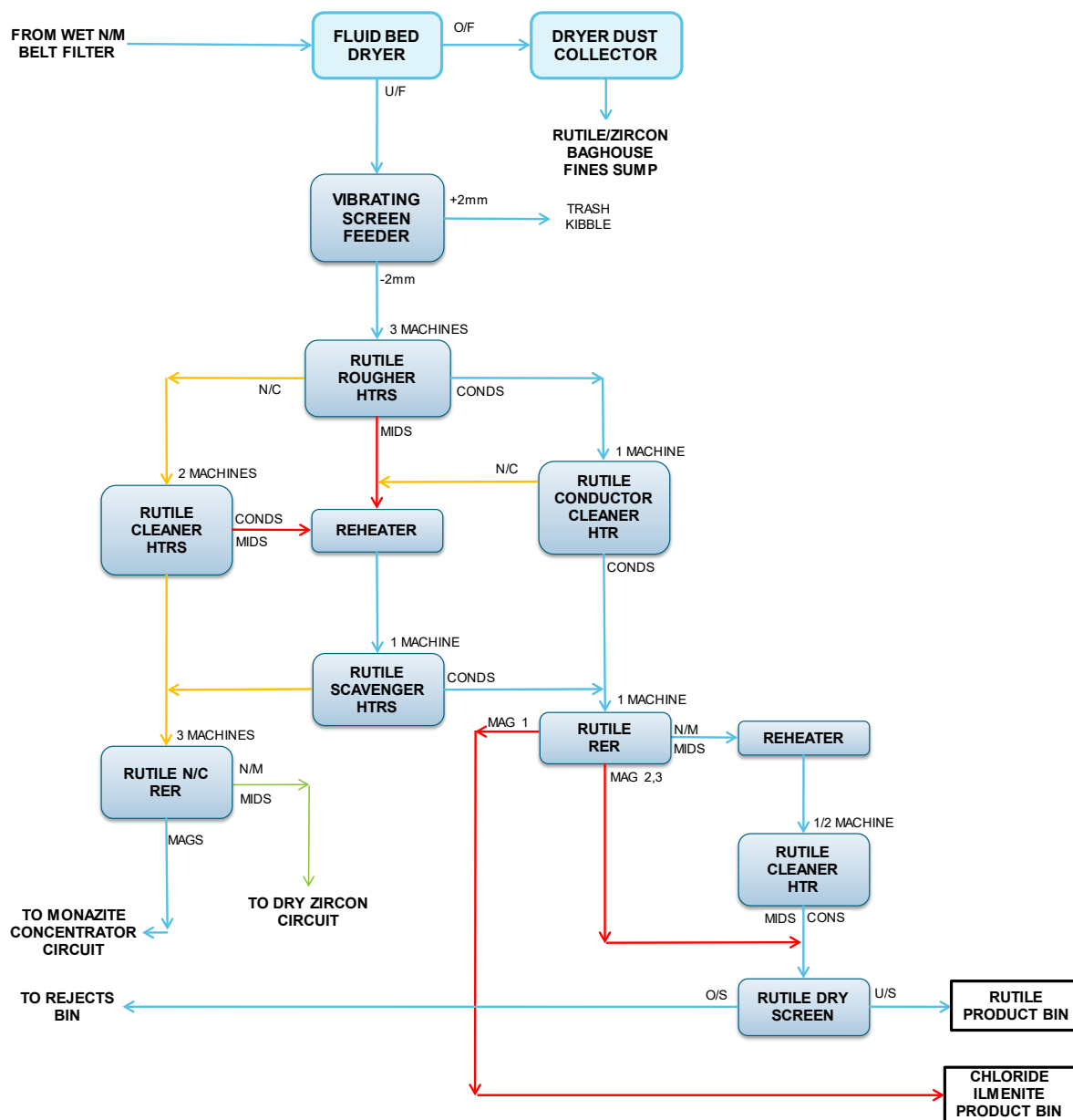


Figure 17-10: Rutile circuit block flow diagram

The rutile N/C cleaner HTRS receives feed from the non-magnetics HTRS non-conductors, where:

- Combined conductor and middling stream is directed to the rutile scavenger reheater
- Non-conductor stream is directed to the rutile N/C RERS.

The rutile N/C RERS receives feed from the rutile N/C cleaner HTRS non-conductors and the rutile scavenger HTRS non-conductors, where:

- Magnetics are directed to the MSP dry ilmenite circuit (MSP rejects bucket elevator)
- Non-magnetics/middling are directed to the zircon rougher HTRS.

The rutile scavenger reheater is fed from non-magnetics rougher HTRS middling, rutile N/C cleaner HTRS conductor/middling, rutile conductor cleaner HTRS non-conductors/middling, and conductors/middling stream from the zircon conductor cleaner HTRS (from the dry zircon circuit) and discharges to the rutile scavenger HTRS feed bucket elevator, where:

- Non-conductors are directed to the rutile N/C RERS
- Combined conductors and middling is directed to rutile RERS.

The rutile conductor cleaner HTRS receives feed from the non-magnetics HTRS conductor stream, where:

- Conductors are directed to the rutile RERS
- Combined non-conductors/middling is directed to the rutile scavenger reheater.

The rutile RERS receives feed from the rutile conductor cleaner HTRS conductor and the rutile scavenger HTRS conductors/middling stream, where:

- Magnetic 1 stream is directed to the chloride ilmenite product system
- Magnetic 2 and 3 stream is directed to the rutile dry screen feed bucket elevator
- Non-magnetics/middling stream is directed to the rutile cleaner reheater.

The rutile cleaner reheater receives feed from the rutile RERS non-magnetics/middling and discharges to the rutile cleaner HTRS, where:

- Conductors/middling is directed to the rutile dry screen feed bucket elevator
- Non-conductors are directed to the rutile scavenger HTRS via the feed bucket elevator.

The rutile dry screen receives feed from rutile RERS magnetics 2 and 3 and rutile cleaner HTRS conductors/middling, where:

- Oversize is directed to the monazite concentrator magnetics rejects bin (MCP equipment located at the MSP)
- Undersize is directed to rutile product loading system.

17.5.3.6 Dry zircon circuit

The function of the dry zircon circuit is to produce a premium zircon product and, as a result, return conductors to the dry non-magnetic section and magnetics back to the ilmenite section.

The major processing equipment in the dry zircon circuit is shown in Figure 17-11.

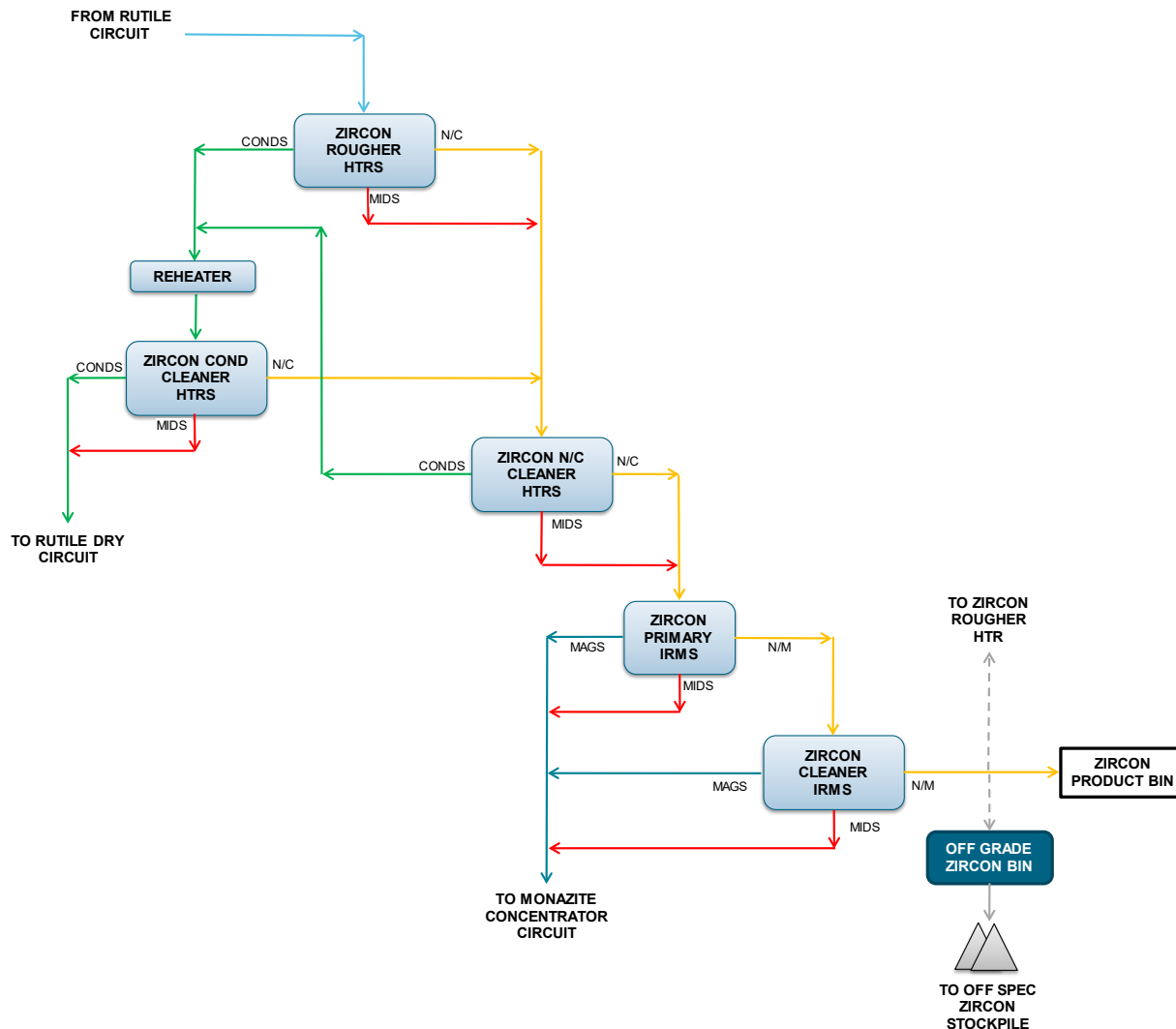


Figure 17-11: Dry zircon block flow diagram

The dry zircon circuit accepts feed from the rutile N/C RERS non-magnetic/middling stream. The feed is sent to the zircon rougher HTRS via a bucket elevator, where:

- Conductors are directed to the zircon reheater
- Non-conductors/middling are directed to the zircon N/C cleaner HTRS.

The zircon N/C cleaner HTRS receives feed from the zircon rougher HTRS non-conductors/middling stream and the non-conductors from the zircon conductor cleaner HTRS, where:

- Combined non-conductors and middling stream is directed to the zircon primary induced roll magnetic separator (IRMS)
- Conductors stream is directed to the zircon reheater.

The zircon reheater receives feed from the zircon rougher HTRS conductors and the non-conductor cleaner HTRS conductors and discharges to the zircon conductor cleaner HTRS, where:

- Non-conductors stream is directed to the zircon N/C cleaner HTRS feed bucket elevator
- Combined middling and conductors stream is returned to the rutile scavenger reheater.

The zircon primary IRMS receives feed from the zircon N/C cleaner HTRS combined non-conductors and middling stream, where:

- Non-magnetics stream is directed to the zircon cleaner IRMS
- Combined middling and magnetic stream is directed to the dry ilmenite circuit conveyor (to the MSP rejects bucket elevator).

The zircon cleaner IRMS receives feed from the primary IRMS N/M stream, where:

- Non-magnetics stream is directed to the zircon product loading system
- Combined middling and magnetics stream is directed to the dry ilmenite circuit conveyor (to the MSP rejects bucket elevator).

The zircon product bucket elevator accepts feed from the zircon cleaner IRMS N/M stream and the dry stream analyzer discharge and depending on the grade, discharges to one of the following:

- Zircon rougher HTRS feed bucket elevator
- Off-grade zircon bin
- Zircon dry stream analyzer
- Zircon impact weigher and sampler.

The main flow discharges onto the zircon product conveyor before the product silo. The flow can be manually transferred to the off-grade bin if the zircon dry stream analyzer indicates the stream is off grade.

The off-grade bin discharges into a transfer pump and sump, which directs the slurry to the off-grade zircon stockpile via a dewatering cyclone. The off-grade zircon can be reclaimed using the same system as the wet N/M circuit, resulting in the off-grade zircon being fed back into the start of the wet N/M circuit (N/M surge bin slurring chute).

17.5.3.7 MSP site product storage

MSP site product storage is considered in conjunction with storage provided at the export facility to optimize capacity at each location. The resultant storage capacity has been calculated on the following production rates: Table 17-2

Table 17-2: Production rates used to calculate storage capacity

Product	Stage 1	Stage 2
Sulfate ilmenite	47 tph	68 tph
Slag ilmenite	27 tph	39 tph
Chloride ilmenite	26 tph	37 tph
Rutile	1 tph	1.5 tph
Zircon	7 tph	10 tph

The sulfate and slag ilmenite each have two 1,000 t product storage bins, chloride ilmenite and zircon each have a single 1,000 t product storage bin, and the rutile has a single 350 t product storage bin for storage of final products. To avoid contamination, the zircon product storage bin is located away from the other product storage bins.

The ilmenite product storage bins provide approximately two days of product storage before they overflow into a separate ilmenite storage shed with a capacity of 38,750 t, providing two weeks of storage. During Stage 2, the MSP storage shed capacity will increase to 75,000 t, retaining two weeks of storage at the MSP. Including storage capacity at the export facility, the overall product storage is approximately four weeks of production. The ilmenite storage shed is fed by a gravity overflow system when the ilmenite product bins fill. The rutile bin can store three weeks of production, and the zircon bin one week.

17.5.4 Monazite concentrator plant

The MCP is designed to cater for both the initial plant throughput and the planned expansion of the MSP in Stage 2. The main design metrics used in the 2025 FS are reflected in Table 17-3.

Table 17-3: Design metrics

Design metrics	Stage 1	Stage 2
Feed to MSP-based equipment (20% monazite)	28 tph	40 tph
Feed to monazite concentrator	10.4 tph	14.9 tph
MCP feed storage at the MSP	130 t (12 hours)	130 t (8 hours)
90% monazite product produced	3.4 tph	4.9 tph
Product storage capacity (Bin)	33 t (10 hours)	33 t (7 hours)
Container storage at site	250 containers 18 t per container 4 containers/day	250 containers 18 t per container 5–6 containers/day

The major processing equipment in the monazite concentrator plant is shown in Figure 17-12.

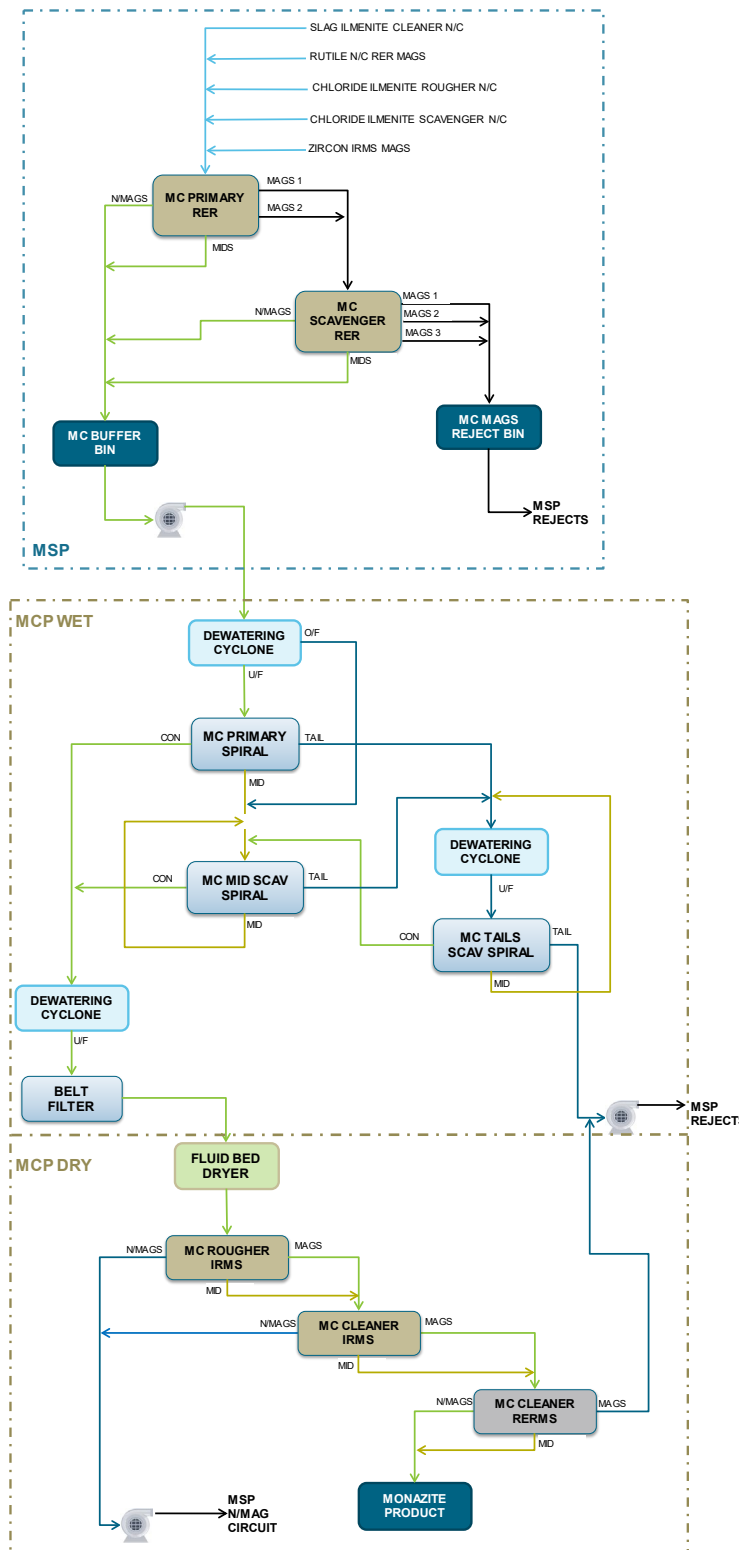


Figure 17-12: Monazite concentrator plant flowsheet

The MCP consists of three main areas: the wet plant, the dry building, and the product loadout facility as shown in Figure 17-13.



Figure 17-13: Monazite concentrator plant (some items removed for clarity)

The MCP feed is composed of a variety of MSP streams (slag ilmenite cleaner N/C, rutile N/C RER magnetics, chloride ilmenite rougher N/C, chloride ilmenite scavenger N/C, zircon IRMS magnetics), which report to a bucket elevator discharging onto the MCP primary RERS, where:

- The MSP rejects bucket elevator discharges onto the MC primary RERS, where:
 - Magnetism stream (combined magnetism 1 and 2) is directed to the MCP scavenger RERS
 - Non-magnetic/middling stream is directed to the MCP buffer bin.
- The MCP scavenger RERS receives feed from the MCP primary RERS combined magnetism stream, where:
 - Combined magnetism stream is directed to the MCP magnetism reject bin
 - Non-magnetic/middling stream is directed to the MCP buffer bin.

The MCP magnetism reject bin accepts feed from the MCP scavenger RERS, combined magnetism stream, and the rutile dry screen oversize. The bin discharges into a slurring chute and process water is combined with the solids and discharged into the MSP tailings sump. The pump discharges to the MSP final rejects sump.

The MCP buffer bin accepts feed from the MCP primary RERS combined non-magnetism/middling stream and the MCP scavenger RERS combined non-magnetism/middling stream. The bin discharges into a slurring chute, where raw water is combined with the solids and then discharged into the MCP transfer sump. The pump discharges into the MCP wet circuit feed sump, located at the MCP building.

The MCP wet circuit feed pump receives feed from the MCP transfer pump (located at the MSP) as well as the outputs from the three MCP floor sump pumps and discharges to the MC primary spirals dewatering cyclone, where:

- O/F is directed to the MCP mid-scavenger spiral feed sump, with a portion of the stream diverted into the slurring chute on the cyclone U/F
- U/F is directed to a slurring chute to adjust the feed density to the MCP primary spiral.

The slurring chute receives feed from the MCP primary spiral dewatering cyclone U/F, a portion of the cyclone O/F, and return water for density adjustment and discharges to the MC primary spiral, where:

- Concentrate is directed to the MCP concentrate sump
- Middling is directed to the MCP mid-scavenger spiral feed sump
- Tailings is directed to the MC tailings scavenger spiral feed sump.

The MCP mid-scavenger spiral feed pump receives feed from the MCP primary spirals dewatering cyclone O/F, MCP primary spiral middling, MCP mid-scavenger spiral middling, and the concentrate from the MCP tailings scavenger spiral and discharges to the MCP mid-scavenger spiral, where:

- Concentrate is directed to the MCP concentrate sump
- Middling directed to the MCP mid-scavenger spiral feed sump for recycling
- Tailings is directed to the MCP tailings scavenger spiral feed sump.

The MCP tailings scavenger spiral feed pump receives feed from the MCP primary spiral tailings, MCP mid-scavenger spiral tails, and the middling from the MC tails scavenger spiral and discharges to the MCP tailings scavenger dewatering cyclone, where:

- O/F is directed to the MCP spiral tails sump, with a portion of the stream diverted into the distributor on the cyclone U/F
- U/F is directed to the MCP tailings scavenger spiral distributor.

The MCP tailings scavenger spiral distributor receives feed from the MCP tailings scavenger dewatering cyclone U/F and a portion of the cyclone O/F and discharges to the MCP tailings scavenger spiral, where:

- Concentrate is directed to the MCP mid-scavenger spiral feed sump
- Middling directed to the MCP tailings scavenger spiral feed sump for recycling
- Tailings is directed to the MCP spiral tailings sump.

The MCP spiral tailings pump receives feed from the MCP tailings scavenger dewatering cyclone O/F and tailings from MCP tailings scavenger spiral and discharges to the MCP final tailings dewatering cyclone, where:

- O/F is directed to the MCP spiral wash water header tank; this tank supplies the wash water for all spirals in the MCP
- U/F is directed to the MCP final tailings sump.

The MCP final tailings pump receives feed from the MCP final tailings dewatering cyclone U/F, MCP dry tailings, MCP dryer scrubber discharge pump, and MCP hygiene scrubber discharge pump and discharges to the MSP rejects sump located at the MSP building (one of two slurry lines returning to the MSP).

The MCP concentrate pump receives feed from MCP primary spiral concentrate and MCP mid-scavenger spiral concentrate and discharges to MCP belt filter dewatering cyclone, where:

- O/F is directed to the MCP floor sump pump 2
- U/F is directed to the MCP belt filter.

The MCP belt filter receives feed from the MCP belt filter dewatering cyclone U/F, where:

- Filter cake is directed to the MCP dryer via MCP belt filter conveyor
- Filtrate is directed to the MCP floor sump pump 2.

The monazite-rich feed is dried in the fluid bed dryer which discharges onto the MCP rougher IRMS via a bucket elevator, where:

- Non-magnetics stream is directed to the MCP zircon tails sump via a slurry chute
- Combined middling and magnetics stream is directed to the MCP cleaner IRMS.

The MCP cleaner IRMS receives feed from the MCP rougher IRMS combined middling and magnetics stream, where:

- Non-magnetics stream is directed to the MCP zircon tails sump via a slurry chute
- Combined middling and magnetics stream is directed to the MCP cleaner RERS via a bucket elevator.

The MCP zircon tails pump receives the non-magnetics stream from both the MCP rougher IRMS and the MCP cleaner IRMS. This material is slurried with raw water and pumped back to the MSP, to the N/M surge bin slurring chute (or the MSP final rejects sump).

The MCP cleaner RERS receives feed from the MCP cleaner IRMS combined middling and magnetics stream, where:

- Magnetics stream is directed to the MCP dry tailings sump via a slurry chute which reports to the MCP final tailings sump
- Combined middling and non-magnetics stream is directed to the MCP product bin.

The MCP product bin discharges onto the MCP product conveyor, which feeds the MCP product bagging module.

18 INFRASTRUCTURE

18.1 OVERVIEW

The development of the Toliara Project will incorporate all the infrastructure required to support the mining, concentration, separation, haulage, and shipment required to support Stages 1 and 2.

Infrastructure is split across three primary zones: the mine and processing complex at Ranobe, a mineral haulage corridor linking the mine to the coast, and an export facility at Batterie Beach. Supporting elements include power and water supply networks, accommodation camps, communications systems, and port and marine structures.

Engineering input was provided by specialized consultants: Zutari (power and access corridors), PRDW (marine and coastal infrastructure), Knight Piésold (geotechnical and hydrology), and Lycopodium (support infrastructure). This collaborative approach ensures fit-for-purpose, regulatory-compliant infrastructure supporting the long-term success of the project.

Figure 18-1 illustrates the site overview indicating the mine and processing complex, mineral haulage corridor, village, bridge and export facility.

Although road access to the project site is available via the RN9, the existing bridge over the Fiherenana River, located approximately 6 km north of Toliara, is in poor condition. The bridge narrows to a single lane and is not suitable for supporting ongoing operational activities; hence, a new bridge will be constructed. A temporary causeway will be constructed across the Fiherenana River to permit transport of heavy items to site before the new bridge is completed.

All products from the process plants are intended for export. Secure and efficient transport from the Ranobe mine site to ocean-going vessels is critical. The existing port at Toliara is inadequate for this purpose due to its shallow 7 m draft, limited space for bulk storage, and narrow urban roads unsuitable for road trains. To address this, a new export facility will be developed at Batterie Beach, on the northern edge of Toliara. This facility, located 45 km from the MSP, will be linked to the mine site via a purpose-built mineral haulage corridor and a new bridge across the Fiherenana River.

Due to the limited availability of skilled construction labor in the Toliara region, a substantial portion of the workforce will need to be sourced from other regions of Madagascar or overseas. These personnel will operate on a FIFO basis. To accommodate them, an accommodation village will be developed near the MSP in the north, while a separate construction camp will be established near the export facility in the south.

Toliara has an existing airport with regular commercial flights to Antananarivo. However, current commercial flights are not reliable, and dedicated project charters will be investigated if the current commercial flights' performance proves to introduce schedule risk to the project. The runway at Toliara is sealed and capable of accommodating Boeing 737-class aircraft, making it suitable for FIFO travel, as road transport between Toliara and Antananarivo is not recommended. International flights to Antananarivo operate from various major international cities, including Paris, Dubai, and Johannesburg.

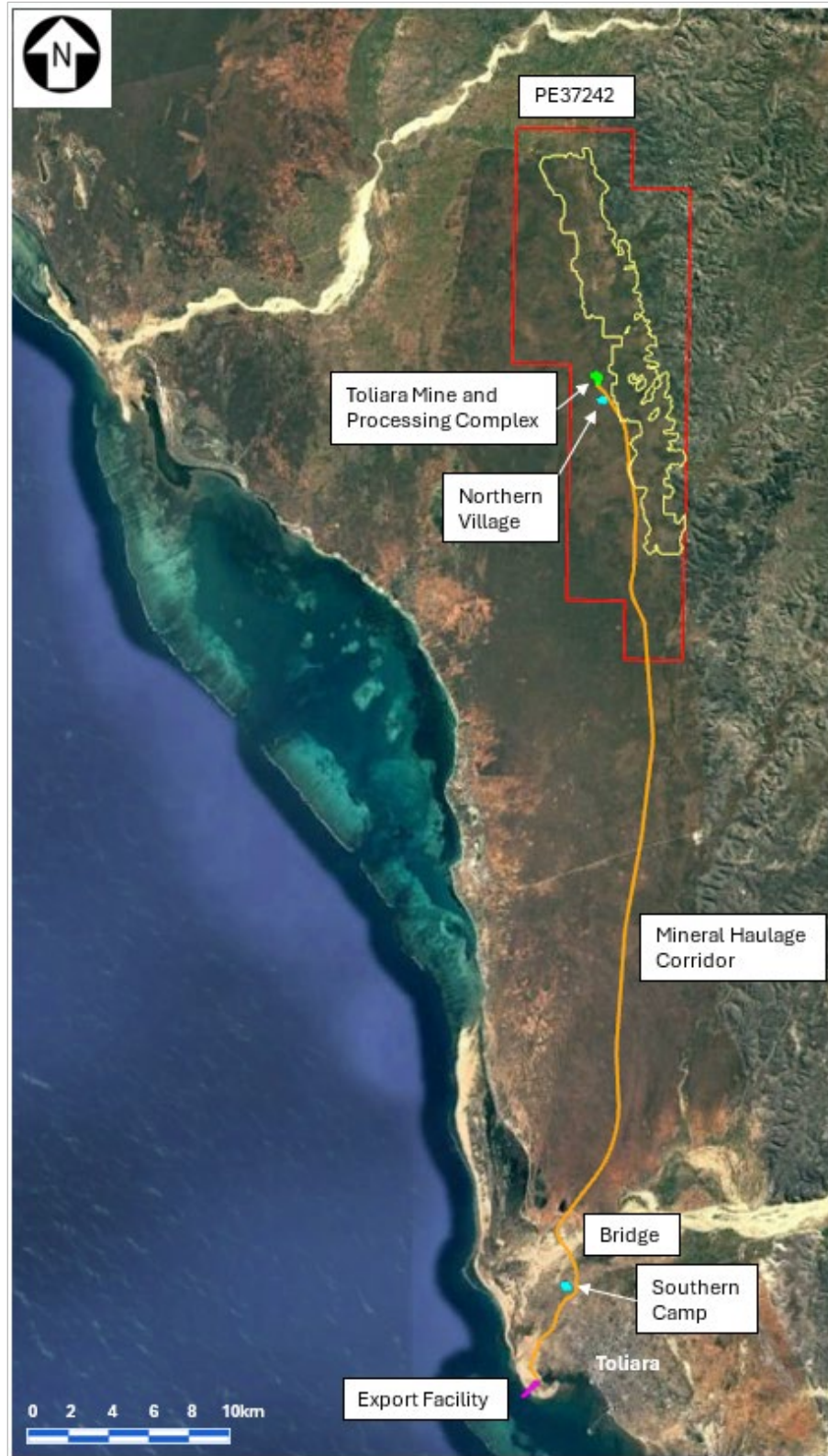


Figure 18-1: Toliara Project site overview

18.2 GEOTECHNICAL

Geotechnical investigations were undertaken across key infrastructure sites, including the MSP, WCP, mine access corridors, and the export facility. These studies confirmed variable ground conditions, with sandy alluvium at the mine site and highly compressible soils at Batterie Beach, requiring ground improvement for major foundations.

Limestone underlies the site at variable depths and, although no cavities were encountered, the risk of karst features exists, especially with groundwater drawdown. Subgrade material near the Fiherenana River is predominantly deep alluvium with soft layers, presenting engineering challenges for the bridge structure.

LiDAR surveys of the project area confirm gently rolling coastal terrain with low vegetation cover and limited topsoil, offering favourable conditions for infrastructure development, albeit with the need for erosion control and engineered drainage. Additional investigations will be conducted during front-end engineering design (**FEED**) to finalize foundation designs and assess the suitability of quarry materials.

18.3 MINE AND PROCESSING COMPLEX

The mine and processing complex comprises several key components: the DMUs, which are supported by the mine services area, WCP, MSP, and MCP. General site infrastructure—including raw water supply, site access roads, and power distribution—connects and supports these facilities. The overall layout of the mine and processing complex is shown in Figure 18-2. Figure 18-3 illustrates the general arrangement of the WCP and Figure 18-4 illustrates the MSA, MSP, and MCP.

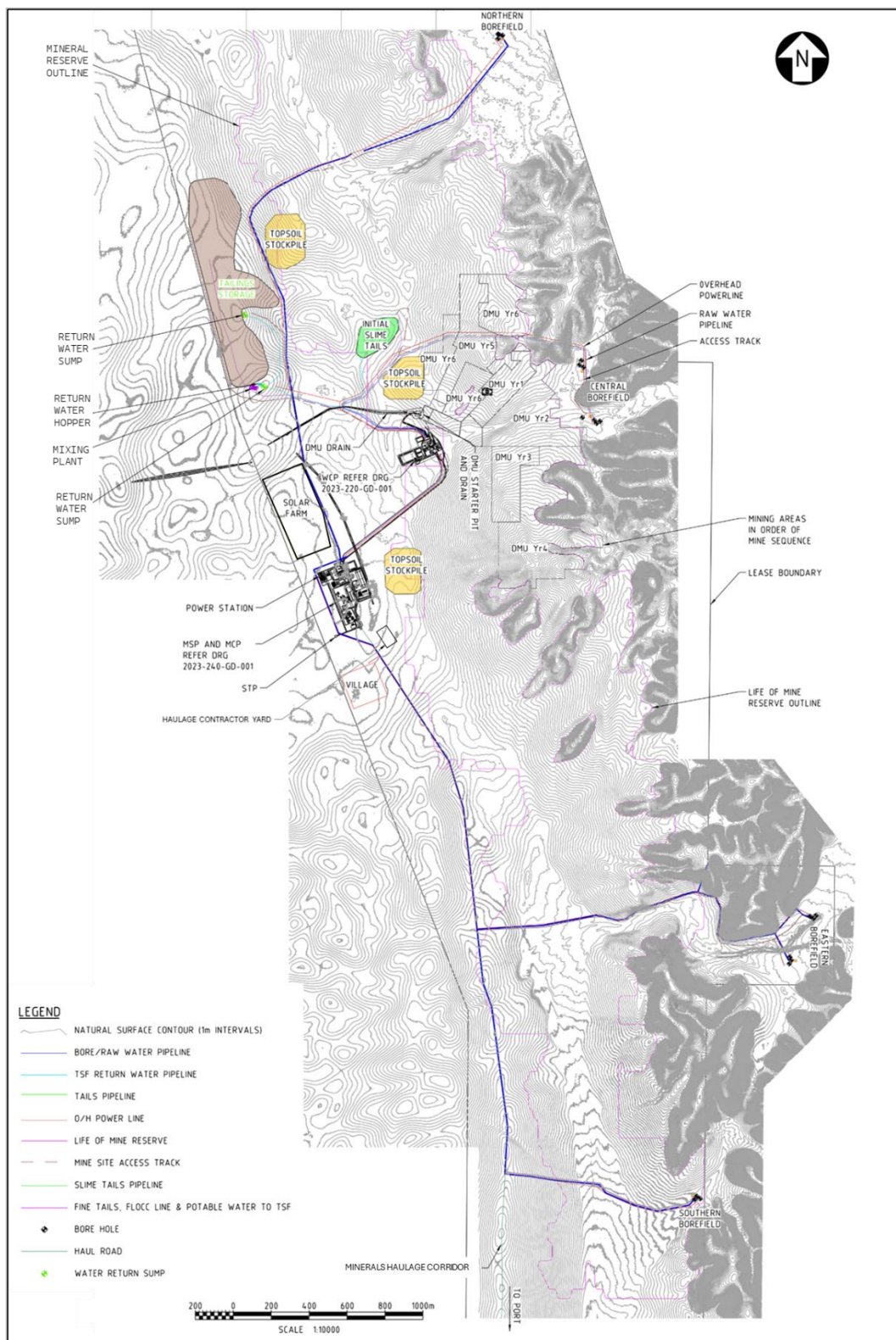


Figure 18-2: Mine and processing complex general site layout

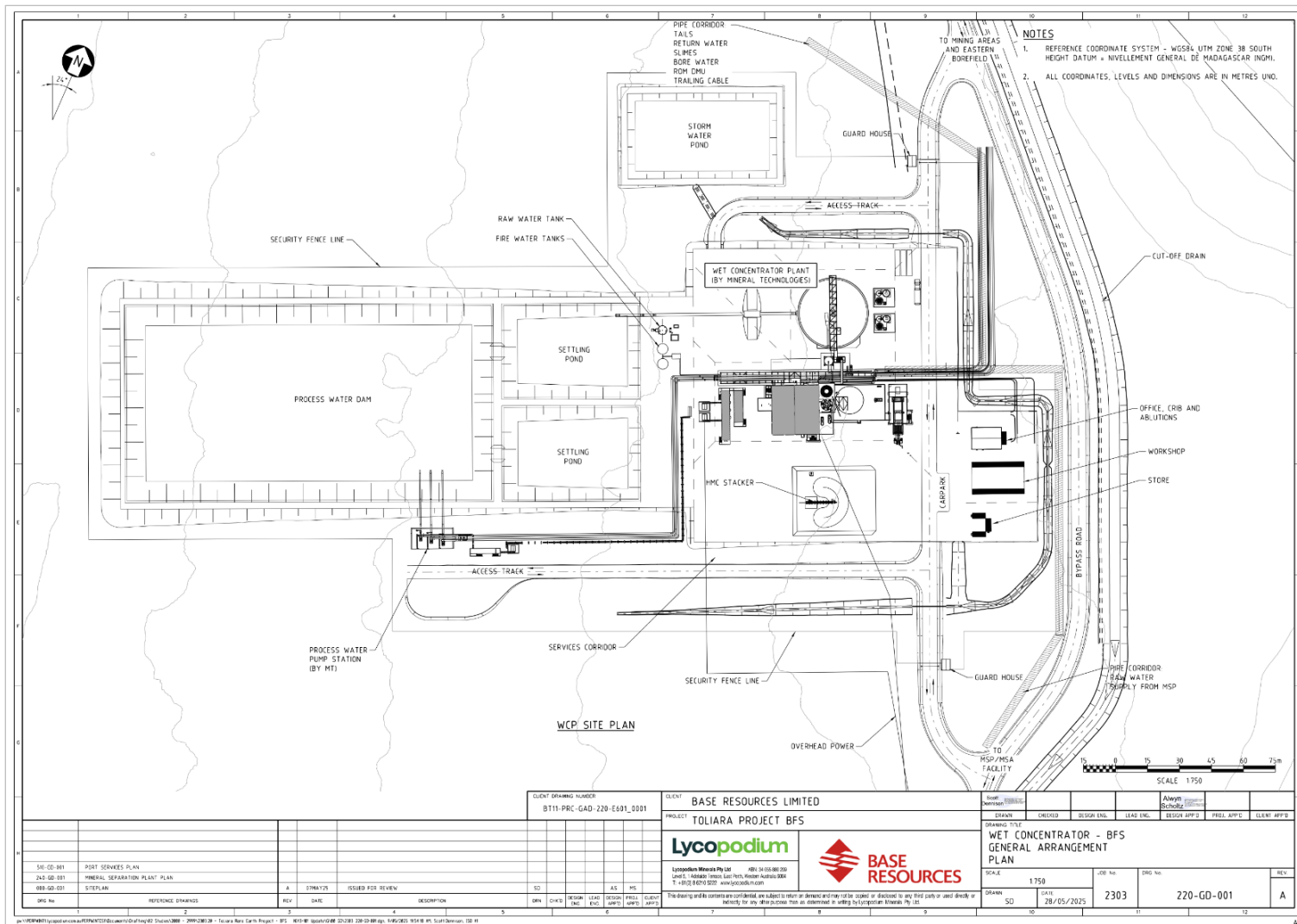


Figure 18-3: Wet concentrator plant general arrangement

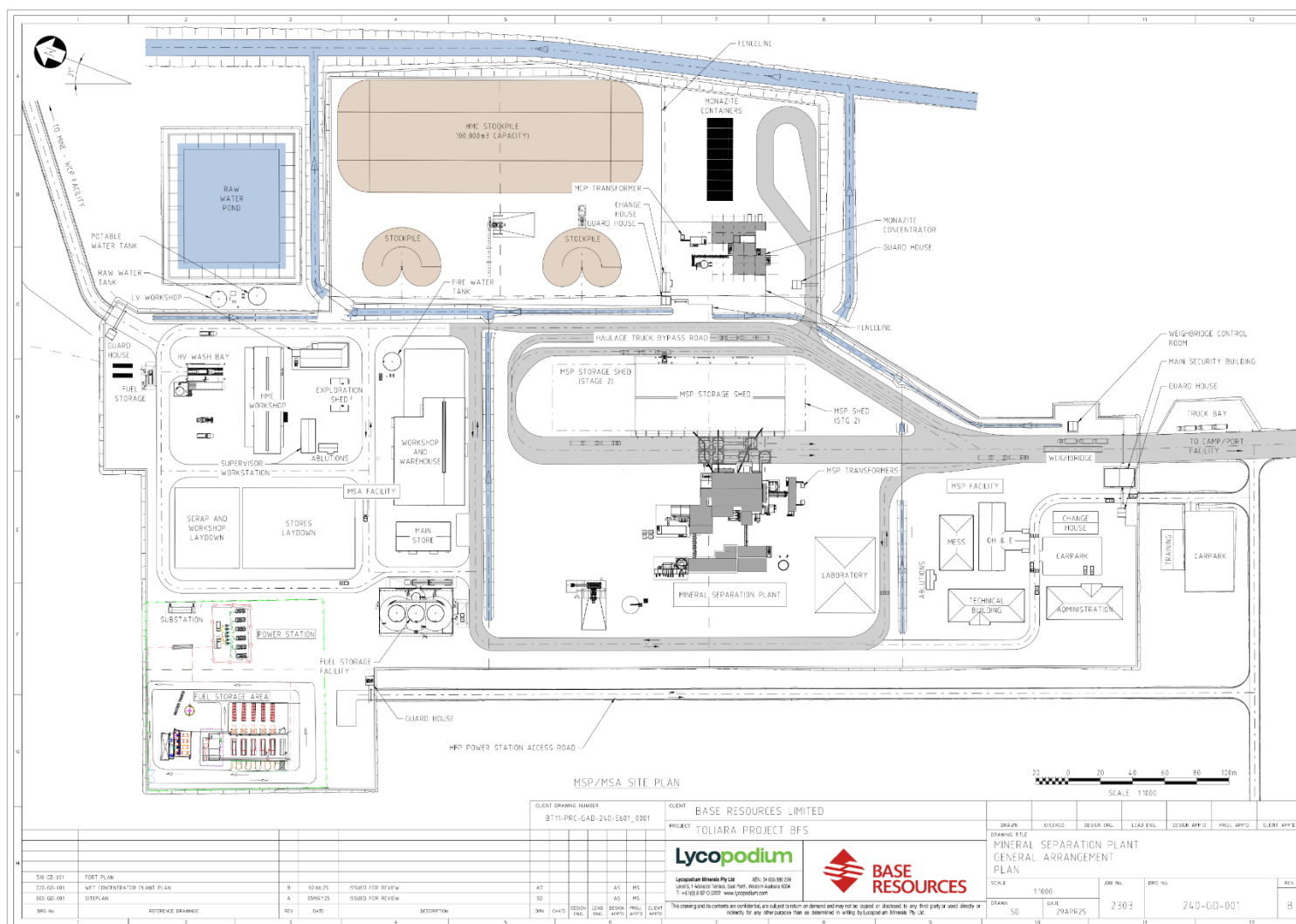


Figure 18-4: MSA, MSP, and MCP general arrangement

18.3.1 Earthworks and roads

The MSP, WCP and supporting infrastructure will be built on cleared and graded construction pads. All topsoil will be removed to a depth of 200 mm (to meet environmental requirements) and selected fill imported to provide drainage and working surfaces.

18.3.1.1 Flood assessment

Flood risk assessments were carried out for three zones: the WCP, the MSA area (including the MSP and solar farm), and the DMU.

Flood modelling for the WCP was based on a 1-in-50 year ARI storm event. To mitigate potential flooding at the facility, the following measures were recommended and incorporated into the terrace design:

- Raising the pad level of critical process infrastructure to ensure it remains above projected flood levels
- Installing diversion drains along the north-eastern perimeters of the facility to direct surface run-off away from the earthworks pads.

Flood modelling for the MSA/MSP, solar farm, and northern village facilities area was assessed using the same design parameters. A swale drain will be constructed to manage surface run-off by diverting floodwaters northward before discharging them westward, reducing the risk of localized flooding.

A starter pit drain will be required to drain the area where mining will occur. This drain will divert any water towards the same low point as the swale drain, which will serve the MSA/MSP, solar farm, and northern village area.

18.3.1.2 Mine access tracks

All facilities will be accessed from formed tracks, which will generally be unsealed, except for the main product loadout loop, the MCP container loading and offloading loop, the road to the fuel farm, and the road accessing the laboratory, which will be constructed from asphalt.

18.3.2 Bulk water

Bulk water supply for the project will be provided by a series of bore fields situated along the eastern boundary of the mining lease. These include the Northern, Central, Eastern, and Southern bore fields, spaced across an approximate distance of 18 km (Figure 18-5). The final bore field configuration and layout will be confirmed through ongoing hydrogeological investigations and modelling.

The total projected water demand has been estimated to support two key operational phases:

- Stage 1 (Years 1–4): A 12.6 Mtpa processing plant requiring a supply of approximately 234 L/s (845 m³/h). This demand will be met by eight duty boreholes and one standby borehole, each designed to yield 30 L/s.
- Stage 2 (Years 5–38): 25.0 Mtpa processing plants requiring a total supply of 365 L/s (1,315 m³/h), necessitating 13 duty and two standby boreholes, each yielding 30 L/s.

The installation of the boreholes will be phased, beginning with the Central bore field, followed by the Eastern, Southern, and finally, the Northern bore field.

Two boreholes—previously installed and tested by the former project owners—demonstrated sustained yields of 50 L/s. The original water abstraction license, which permitted a withdrawal rate of up to 886 m³/h, has since lapsed. A new application is currently in progress to renew the license in line with the project's water supply requirements.

Bore field placement and abstraction volumes have been informed by groundwater modelling to minimize the potential impact on nearby surface water bodies, particularly the Manombo River and the Andoharano Canal to the north of the site. Preliminary geophysical investigations using Tremino and electrical resistivity techniques have also been carried out to validate the proposed borehole locations and ensure sustainable yield potential.

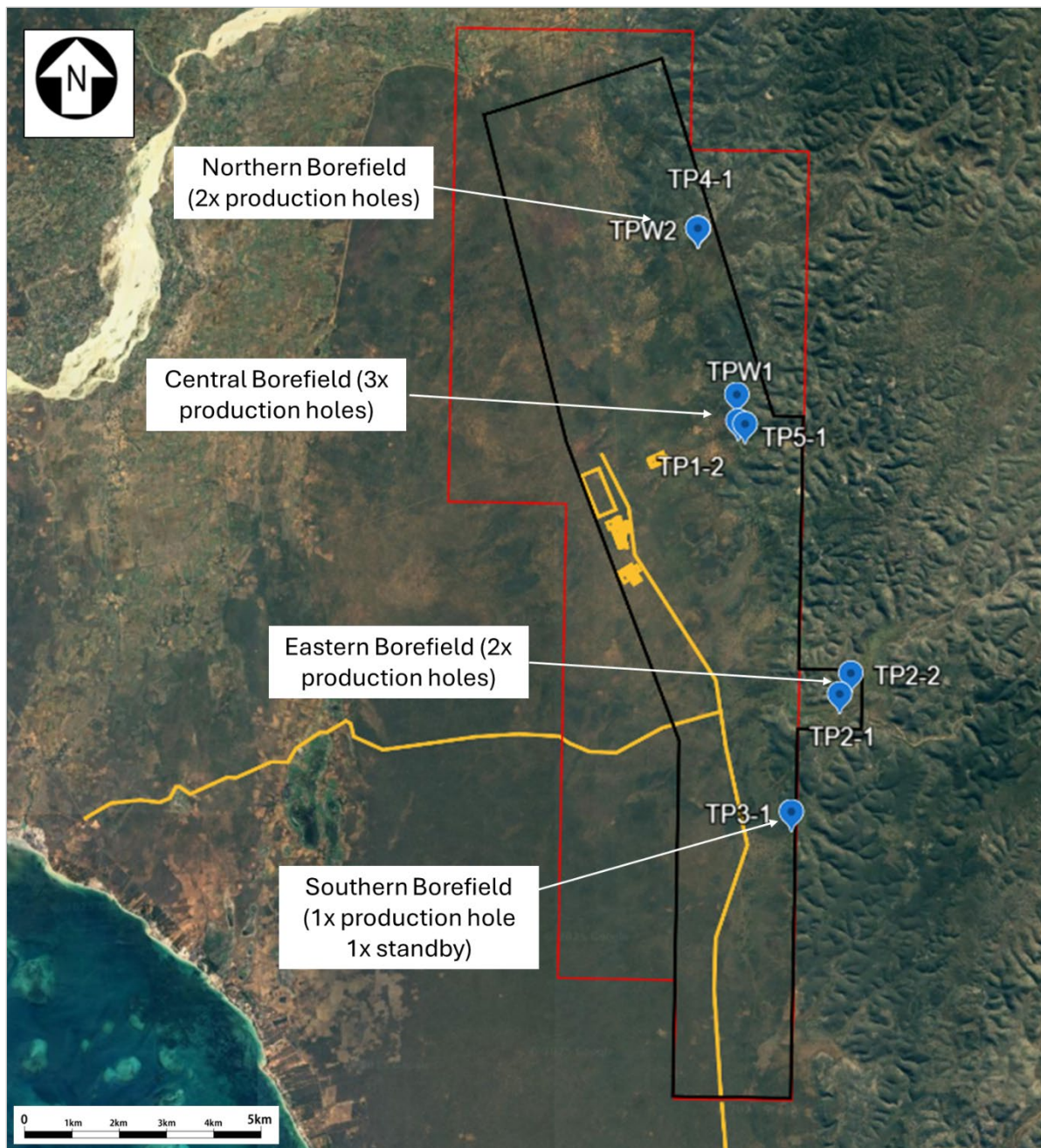


Figure 18-5: Proposed bore locations

18.3.2.1 Bulk water supply infrastructure

Each production borehole will be drilled to a maximum depth of 150 m and equipped with a 250 mm diameter casing. Water from each borehole will be discharged into a raw water collection tank, with one tank provided per bore field.

Raw water from the Northern and Central bore fields will be collected in local tanks and intermittent transfer tanks before being conveyed to a central tank. Similarly, water from the Southern and Eastern bore fields will be collected into a separate tank. Both streams will then be pumped back to the raw water dam located at the MSP. From there, dedicated pumping systems will distribute water to the WCP, MSP, MCP, and the accommodation village.

18.3.3 Bulk power supply

18.3.3.1 Power supply sources

Mine and processing site power will be supplied by a power contractor under a 20-year Power Lease and Services Agreement (**PLSA**). The power contractor will develop, own, operate, and maintain a hybrid power station, which Base Toliara will lease.

The export facility will rely on owner-operated diesel generators, supplemented by solar photovoltaic (**PV**) panels.

18.3.3.2 Hybrid power plant site location

The hybrid power plant (reciprocating gensets) will be located adjacent to the MSP with a separate area allocated for the solar PV farm, as shown in Figure 18-2 and Figure 18-4.

The allocated hybrid power plant site is 1.6 ha and will be sufficient to locate reciprocating gensets, battery energy storage system (**BESS**), fuel treatment system, water management system, security system, substation, administration, workshop building(s), and balance of plant required by the power contractor.

The solar PV farm's indicative area is 38 ha and is sufficient to locate solar PV panels and mounting structures, inverters, transformers and balance of plant.

18.3.3.3 Procurement approach

Following an expression of interest and a request for tender process, negotiations with a preferred power contractor are underway. Power demand profiles and supply strategies, including ramp-up/down and outages, were defined in the tender.

18.3.3.4 Mine power requirements

The mine's electrical load is divided into "firm" and "flexible" categories. Firm load refers to essential systems and equipment requiring continuous, highly reliable power; this includes the MCP, MSP, WCPs, DMUs, water supply infrastructure and the accommodation village. These are powered by hybrid solar and diesel generators and supported by the BESS to ensure uninterrupted operation.

The flexible load is associated primarily with the ilmenite dryer, which is designed as a hybrid system capable of using either direct diesel combustion or electrical heating. The electrical component of the dryer is powered using surplus solar PV generation when available. This opportunistic use of renewable energy helps reduce diesel consumption and operating costs. Importantly, diesel generators are not used to power the flexible load via electric heaters, as the round-trip energy losses would be inefficient compared to direct diesel combustion. This approach allows the plant to maximize renewable energy use without compromising critical system reliability.

Table 18-1 summarizes the maximum annual firm operating load requirements for Stages 1 and 2 of operation.

Table 18-1: Power demand and usage forecasts

Parameter	Units	Stage 1 (MW)	Stage 2 (MW)
Installed capacity	MW	27.2	38.8
Maximum load	MW	16.7	23.7
Operating load	MW	13.3	19.4
Average load (usage)	MW	11.3	16.5
Average yearly energy	GWh	134.5	196.9
Average monthly energy	GWh	11.2	16.4

18.3.3.5 General responsibilities

The power contractor is responsible for full engineering, procurement, and construction (EPC), operations, and maintenance of the hybrid power plant. Base Toliara will clear the sites and build access roads.

18.3.3.6 Power station design

The power contractor will optimize the design for cost and performance. Diesel engines will follow an N+2 configuration. The solar and battery sizes are optimized for site conditions. The facility includes fire protection, security (CCTV, fencing), and controlled access. Table 18-2 lists the key equipment for the power plant.

Table 18-2: Hybrid power plant design sizes

Item	Unit	Value
Solar PV capacity (HUANSUN PV modules with single-axis trackers)	kWp	22,932
Diesel engine capacity (4 off ABC 6DL36-750 and 2 off 8DL36-750 diesel generator sets) (2 of each units at 100% load, @43°C)	kWac	15,900
BESS energy capacity (DHYBRID containerized battery system)	kWh	20,000
BESS power capacity	kW	7,500

18.3.3.7 Electrical connection to the mine

The power station's main switchboard and transformers will contain protection, auxiliary power, and uninterruptible power supply systems for control, earthing, and lightning protection. They will connect to the mine's main 11 kV incomer, with electricity metering and protection interfaces.

18.3.3.8 Meteorological measurement equipment and controls

Meteorological data, including irradiation measurements, will be collected to assess system performance through three on-site weather stations, two of which will be located within the solar PV farm. A supervisory control and data acquisition (SCADA) monitoring and control system will monitor and control the power plant and its interface with the mine's 11 kV switchboard and SCADA system. The system will calculate and automatically transmit to Base Toliara a rolling weather and power forecast, as well as the status of each system component. The forecast system will be used to optimize the benefit from the solar PV system over time.

18.3.3.9 Operating philosophy

Power plant operations can generally be characterized into two operating scenarios: normal operations and operations during contingencies.

Normal operation

Diesel generators supply the primary (baseload) power continuously. During daylight hours, solar power and BESS supplement diesel generation, reducing fuel use. Any surplus solar energy is directed to flexible loads to avoid wasting energy (curtailment). To ensure consistent and reliable power, standby capacity is maintained through spinning reserves provided by both diesel generators and BESS.

Operations during contingencies

The expected hybrid power plant operating philosophy and PLSA performance criteria allow for typical contingency events, such as sudden cloud cover, loss of thermal generating units, start-up of largest loads, frequency disturbance due to sudden loss of load and voltage disturbance due to varying power requirements.

18.3.3.10 Power plant performance

Table 18-3 shows the production and performance values expected from the power plant for the first year of commercial operation.

Table 18-3: Power plant performance (annual estimate)

Item	Unit	Value
Firm Load		
Consumption	MWh	96,240
PV injection into load (P90)	MWh	33,264
PV injection into BESS	MWh	4,623
BESS injection into load	MWh	4,161
Diesel engine production	MWh	58,815
Diesel consumption	kL	14,100
Flexible Load		
PV injection into load (P90)	MWh	8,375
General		
Total PV production (P90)	MWh	52,123
PV curtailment	MWh	5,861
Engine operating hours	h	21,116

18.3.3.11 Schedule

The power contractor will, as stipulated in the PLSA, ensure the staged capacity of the hybrid power plant as detailed in Table 18-4.

Table 18-4: Staged completion schedule for the hybrid power plant

Milestone	Description	Capacity (MW)	Due Date
Stage 1A commissioning	Start-up of bores, fuel supply facility, accommodation village permanent supply	3.6	FID + 14m
Stage 1B commissioning	Start of DMU1 and WCP1	7.2	FID + 15m
Stage 1C commissioning	Start of MSP, MCP, facilities and utilities	10.8	FID + 17m
Stage 1 commercial operations	Stage 1 post ramp-up	14.4	FID + 21m
Stage 2 commercial operations	Full operation of DMU2, WCP2 and upgraded MSP	19.4	FID (S2) + 18m

18.3.3.12 Export facility power supply

The export facility will use owner-operated diesel generators as its primary source of power, supplemented by a small-scale solar PV installation to support office and shed lighting during daylight hours. Shiploading is expected to occur approximately 15 times per year during Stage 1, increasing to 22 events per year in Stage 2. Each loading event will operate continuously for five to six days. The facility's peak power demand during bulk loading operations is 855 kW, while routine operations, including administration, workshop, container handling, and general equipment, require an average load of approximately 80 kW.

18.3.3.13 Decarbonization

The operation's energy demand is comprised of three main loads: the electrical demand, the heat demand from the rutile and ilmenite dryers, and the vehicle fleet. During the 2019 DFS, electricity was to be generated by heavy fuel oil generators, which are significant carbon emitters. The mobile fleet comprising mining vehicles and haul trucks relies on diesel fuel, which contributes further to the site's emissions. Additionally, the rutile and ilmenite dryers, which are essential for processing mineral products, are generally diesel-fired. These combined sources form the baseline for the mine's energy-related carbon emissions.

An initial decarbonization goal—to replace heavy fuel oil with diesel and supplement diesel power generation with solar PV and BESS—has been adopted as the project baseline at the start of operations in 2028. Stage 1 plans also include converting the monazite dryer from a diesel-fired to an electric-heated system, and utilizing excess solar energy to offset part of the diesel consumption of the ilmenite dryer. These measures are expected to reduce greenhouse gas emissions by approximately 20% compared to the baseline.

In the longer term, the aim is to achieve net-zero greenhouse gas emissions by 2043 through a phased strategy leveraging technological innovations, integrating renewable energy sources, and utilizing carbon offsets to mitigate any remaining greenhouse gas emissions.

The following initiatives and milestones have been identified to achieve these longer-term targets:

- From the start of Stage 2 operations (2033): Convert existing diesel haul trucks to battery electric vehicles and purchase new battery electric haul trucks to support the additional haulage required for the Stage 2 expansion. Expand solar PV and BESS at the power plant to support the additional process plant electrical loads required for the Stage 2 expansion. Greenhouse gas emissions are expected to be approximately 50% lower than the original baseline
- From 2038: Expansion of the solar PV and BESS at the power plant, capitalizing on forecast reduction in technology costs by this time, to further reduce diesel consumption from the diesel generators. Greenhouse gas emissions are expected to be approximately 70% lower than the baseline

- From 2043: Convert the ilmenite dryer to fully electric-heated and convert/replace heavy mining vehicles, such as large dozers, to battery electric vehicles. Expand the solar PV and BESS at the power plant to supply the additional electrical loads (i.e. ilmenite dryer and battery electric mining vehicles) and to further reduce diesel consumption from the generators at the power plant. Any remaining emissions at this stage may be offset through the purchase of carbon credits, ensuring the mine achieves net-zero status.

From a financial perspective, the decarbonization pathway described above is expected to be cost-neutral with the baseline (i.e., compared to continued reliance on diesel only) at worst and approximately 5% to 10% lower than the baseline at best. The intention, as with Stage 1, is to continue contracting the power plant expansions through a Power contractor who would be responsible for the design, finance, construction, operation, and maintenance of the power plant. This approach reduces the requirement for capital investment.

The financial evaluation presented in Section 22 does not incorporate the adoption of the longer-term decarbonization targets described above. The implementation of these decarbonization milestones will be motivated by bespoke business cases at the appropriate time.

18.3.4 Power supply and distribution

All high- and low-voltage electrical systems will comply with IEC standards. Power will be distributed at 11 kV from the power station substation to the mine via redundant underground and overhead lines. Buried cables will serve the MSP, MCP, and associated substations and overhead lines will extend to site-wide facilities, excluding the export facility, which operates independently. Temporary generators will supply power during construction and will be retained as backup. Future expansion is supported with spare capacity in the main switchboard.

18.3.5 Fuel supply, storage and dispensing

Fuel requirements are estimated at 2,500 m³/month to 3,500 m³/month across both project stages. Diesel will be sourced from licensed distributors and delivered to on-site facilities at the MSA and export facility.

The MSA will host a 2,400 m³ storage facility comprising three 800 m³ tanks and one 100 m³ quarantine tank. Features include bunding, unloading pads, fire suppression systems, and oil-water separation. Fuel will support power generation, mining fleet, dryers, and MSP operations.

At the Batterie Beach export facility, a 30 m³ self-bunded tank will support generator operations and mobile equipment. This facility will include hard-piped distribution, a bowser, and refueling infrastructure. All systems are designed to allow redundancy and compliance with fire safety codes.

18.3.6 Potable water and wastewater treatment

Potable water will be supplied to the MSP, WCP, and accommodation villages via modular water treatment plants using multimedia filtration, UV sterilization, and reverse osmosis where required. Treated water will be stored in dedicated tanks fitted with chlorination and UV systems for disinfection. Peak demand is estimated at 350 m³/day during construction, reducing to 160 m³/day during operations. Potable water for the export facility will be delivered by truck and stored in tanks, with equivalent disinfection safeguards in place.

Wastewater will be treated using a central MBBR plant for the northern village and a smaller plant at the southern camp. Sewage from remote sites will be transported by tanker. The MBBR system meets Class A discharge standards, and treated effluent is reused or safely disposed. Interim solutions will be implemented during early works prior to full commissioning of permanent plants.

18.3.7 Buildings

Permanent infrastructure at the mine, including MSA and processing plants, includes blockwork buildings for administration, health, safety, and wellbeing, environment and social, laboratory, training, and mess facilities, as well as steel-framed workshops for fixed and mobile equipment maintenance. Modular units serve as early-stage or auxiliary structures. The buildings located at the MSP, MCP, and MSA are summarized in Table 18-5 and buildings inside the WCP area are included in Table 18-6.

Table 18-5: MSA and MSP list of buildings

Facility	Size (m ²)	Construction Type	Description
MSP			
Training Centre	325	Blockwork	Center to be used staff training and visitor inductions
Security Building	277	Blockwork	Main security at MSP gate for access control; additional guardhouses at MSA and accommodation village
HSE & Emergency Response	770	Blockwork	Reception, waiting, treatment room, paramedic office, stores, rest room, covered ambulance bay, HSE offices
Mess	637	Blockwork	Seats 244 personnel; includes food preparation and servery (cooking done at accommodation village)
Ablutions - Mess	44	Blockwork	Sanitary facilities for plant personnel
Admin Building	882	Blockwork	Offices, reception, conference rooms, server room, storage, and ablutions for administration and management personnel (approximately 60 people)
Technical	882	Blockwork	Offices, reception, conference/training rooms, server room, storage, ablutions (approximately 60 people)
Weighbridge + Operator house	184	Blockwork	Supports 33 m weighbridge used for weighing road trains and trucks near MSP gate
Laboratory	1789	Blockwork	Sample prep, wet/dry processing, analysis, offices, stores, tearoom, male/female toilets
Change House - MSP	341	Blockwork	Includes male/female showers, lockers (400 lockers in total), and ablutions
Guard House - Main Entrance	19	Blockwork	-
MCP			
Guard House - MCP	19	Blockwork	-
Change House - MCP	44	Blockwork	Includes male/female showers, lockers, and ablutions

Facility	Size (m ²)	Construction Type	Description
MSA			
Main Workshop	2749	Steel frame clad	Includes machine shop, welding bay, rubber lining, electrical/instrument workshop, 20 t crane, hardstand, racking, container offices
HME Workshop	1487	Steel frame clad	Three-bay workshop, tire/welding bays, concrete slab with embedded rails, 20 t crane, compressor, container stores with upstairs offices.
LV Workshop	570	Steel frame clad	Servicing light vehicles, buses, forklifts; includes hydraulics workshop (105 m ²) for equipment repairs and hose manufacturing
Maintenance - Area Ablution	44	Blockwork	Basic sanitary facilities near MSA
Stores - Main Store	593	Steel frame clad	-
Supervisor workstations area	156	Blockwork	-
Guard House - MSA Exit	19	Blockwork	-
Exploration sample shed	231	Steel frame clad	Storage for boxed samples and secure geological equipment

Table 18-6: WCP buildings

Facility	Size (m ²)	Construction Type	Description
WCP Guardhouse Entrance	19	Blockwork	A small modular gatehouse installed at the entry to the WCP facilities
WCP Guardhouse Exit	19	Blockwork	A small modular gatehouse installed at the exit of the WCP facilities
WCP Offices, Crib and Ablutions	138	Sea container	Office, crib, and ablutions complex assembled from fitted-out shipping containers and a covered breezeway, providing supervisory and support facilities for the WCP
WCP Workshop	440	Sea container	WCP store and workshop constructed from modified shipping containers with a fabric dome roof structure for a covered work area
Mobile Laboratory	44	Sea container	Mobile containerized laboratory

18.3.8 Tailings storage facility

A Tailings Storage Facility (TSF) will be constructed for the initial 24 months of operation to store approximately 20 Mt of combined coarse sand and fine tailings. The TSF is located north of the MSP and solar farm area (Figure 18-2). The facility is intended as an interim storage solution and will be decommissioned once in-pit deposition becomes feasible.

Tailings will be co-disposed, with cyclone underflow used for sand placement and a bleed line for flocculated slimes. A target combined solids content of approximately 67 % w/w has been adopted for planning purposes. The indicative layout has a footprint of about 2,200 m by 450 m and a maximum embankment height of approximately 20 m (Figure 18-6). These parameters will be confirmed and refined during detailed design.

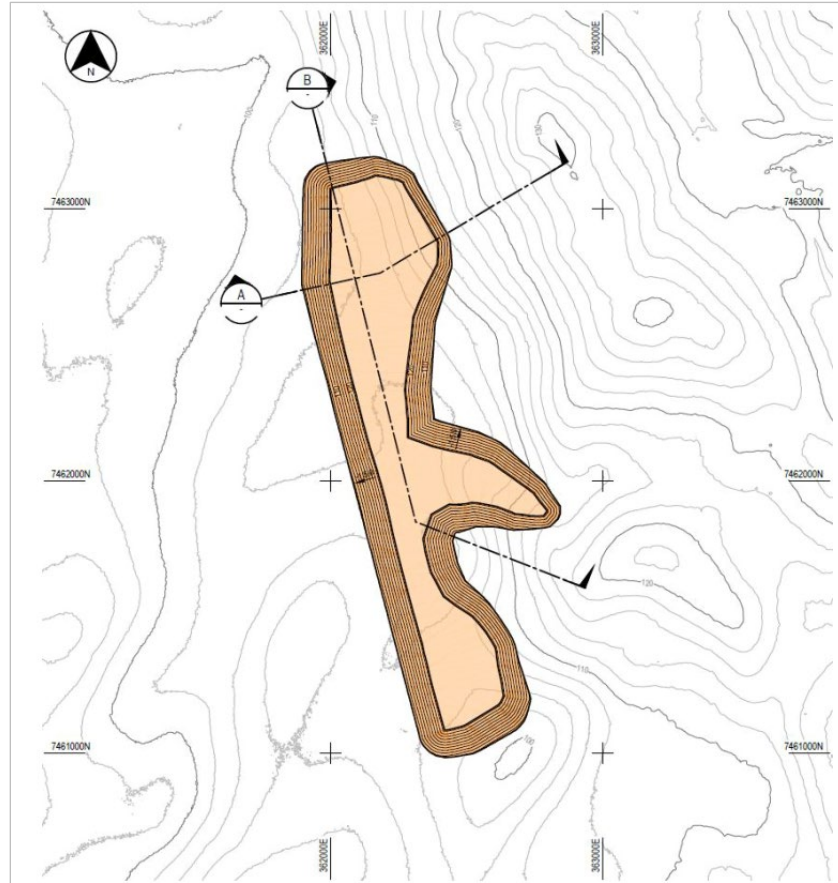


Figure 18-6: TSF layout

The design approach reflects the principles of responsible tailings management outlined in the Global Industry Standard on Tailings Management (GISTM) and the relevant ANCOLD guidelines. Full compliance with these standards will be addressed during the detailed design phase, which will incorporate additional technical work recommended in the TSF review prepared by Red Earth Engineering. This includes completion of the required geotechnical investigations at the TSF site, detailed stability and seepage analyses, hydrological assessment, water balance refinement, liquefaction assessment of both foundation and tailings materials, and a formal consequence category assessment supported by a dam-break study.

Further work will also include confirmation of foundation permeability, assessment of run-off and erosion controls, and development of a comprehensive Operations, Maintenance and Surveillance (OMS) Manual. These activities will be completed as part of the detailed engineering prior to implementation of the facility.

18.4 ACCOMMODATION

Accommodation infrastructure for the Toliara Project comprises two primary facilities designed to support the distinct phases and functions of the project: the permanent northern village and the southern camp, which will serve as a temporary construction camp.

18.4.1 Northern village

The northern village is the principal accommodation hub and is located approximately 530 m south of the MSP. It is designed to house up to 750 personnel during the peak construction period and will be delivered in four sequential construction phases. Once the project transitions into steady-state operations, occupancy will reduce to approximately 300 operational staff and core personnel. The village will consist of modular accommodation units offering a mix of long-term and short-term lodging. Long-stay units will serve permanent site personnel, while short-stay quarters will accommodate rotating shift workers, visiting specialists, contractors, and consultants.

In addition to living quarters, the village will include centralized facilities such as a dry mess, wet mess, laundry, recreational areas, medical clinic, administration offices, and storage. Full utility services—potable water supply, sewage treatment, and electricity—will be integrated into the site infrastructure. All buildings are designed to be modular, durable, and compliant with regional climate resilience standards, ensuring comfort and safety for occupants under extreme weather events. The site layout and phasing allow for gradual demobilization or repurposing of units as workforce demands evolve.

18.4.2 Southern construction camp

The southern construction camp is a smaller, temporary facility that will accommodate up to 100 personnel involved in early-phase construction activities at the export facility, Fiherenana Bridge, and haulage corridor. The camp will be established using prefabricated modular units for rapid deployment and cost-efficiency. It will provide essential services including sleeping quarters, ablutions, a dry mess with food preparation capability, and limited recreation spaces.

A key feature of the southern camp is the structurally reinforced dry mess building, which is engineered to act as a cyclone-rated shelter for all residents during severe weather events. Other camp structures will be rated to standard specifications appropriate for their function and occupancy. The camp will be self-contained with dedicated water (potable and wastewater) and power systems and will interface with the main project logistics and waste management infrastructure.

Both accommodation sites have been planned to meet health, safety, and security standards, while prioritizing worker wellbeing and operational efficiency. Their designs consider lifecycle flexibility, ease of maintenance, and the potential for phased decommissioning or handover as project needs change.

18.5 ROADS

This section focuses on the mineral haulage corridor from the mine to the export facility, the Ranobe access road, the PK24 road and a minor realignment of the RN9 at the intersection with the minerals transport corridor. Several other intersections, most of which are minor, are included in both the design and construction. An overview of the mineral haulage corridors is illustrated in Figure 18-7.

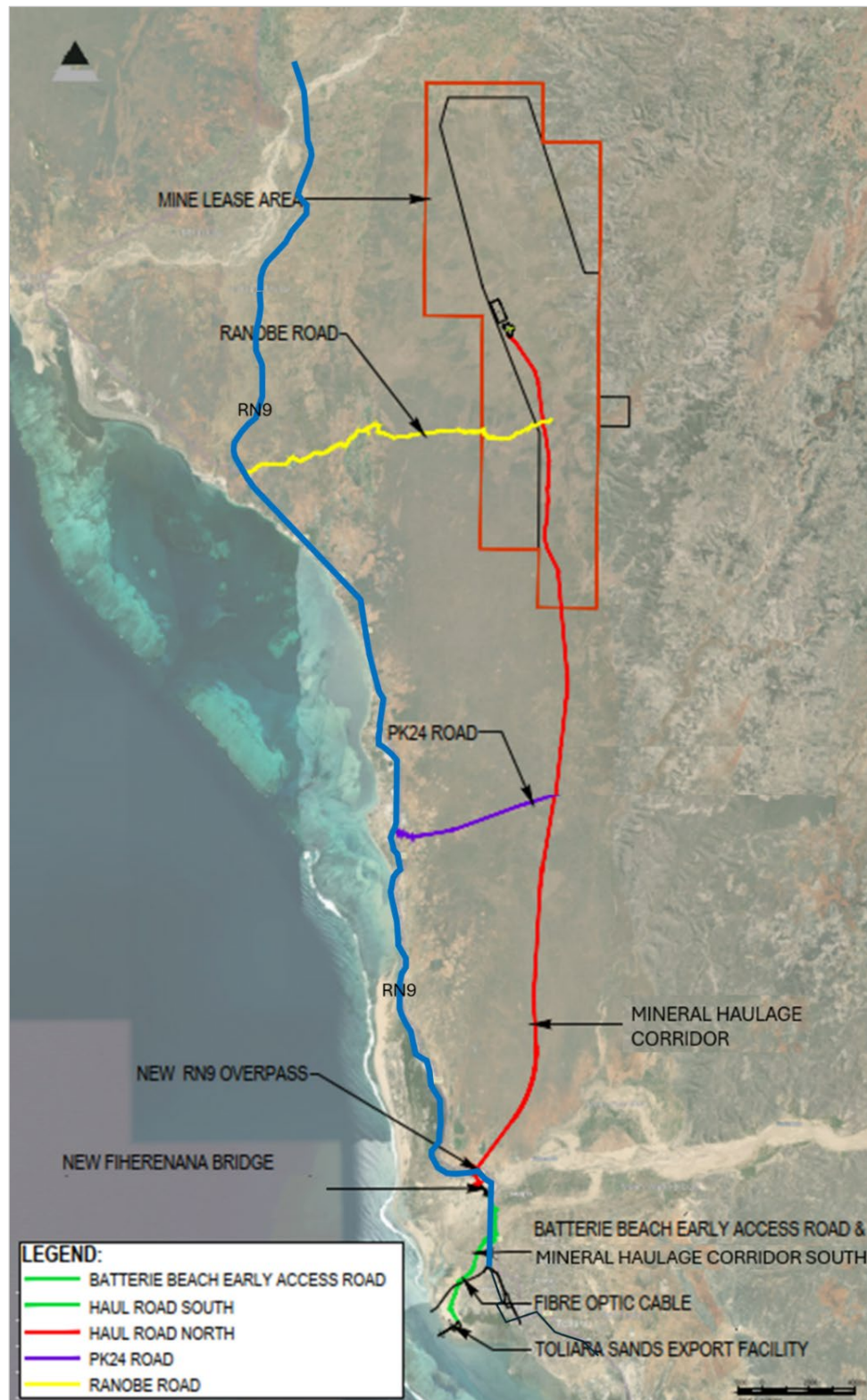


Figure 18-7: Overview of project mineral haulage corridors

18.5.1 Design criteria/standards

The minimum design criteria for all roads are based on AASHTO standards, with the mineral haulage corridor designed for speeds up to 80 km/h and access roads for 60 km/h. The mineral haulage corridor includes 3.5 m wide lanes with 0.75 m shoulders in each direction and adheres to geometric and vertical alignment parameters optimized for safe haulage. The terrain generally supports effective drainage, with side drains and high-density polyethylene or box culverts installed in low-lying or flood-prone areas. The RN9 crossing includes a prefabricated corrugated metal arch culvert, supported on a reinforced concrete footing, designed for both standard and 90 t payloads.

Two key access routes link the mineral haulage corridor with the RN9. The Ranobe Access Road follows an existing gravel alignment through Ranobe village (which will be bypassed) and is suitable for buses and delivery trucks. The PK24 road will support early-stage access to the northern mineral haulage corridor.

A flood assessment confirmed the Fiherenana River as the primary risk, with modelling indicating potential overtopping during 1-in-100 year ARI storm events. To mitigate risk, the mineral haulage corridor has been routed along elevated ridgelines where possible and incorporates multiple drainage structures to allow westward water flow toward the coast, protecting downstream communities.

18.5.2 Road pavements

Pavement designs were developed to suit varying load demands and subgrade conditions. Key roads such as the mineral haulage corridor north and south are surfaced and designed for 20 years; support roads like Ranobe and PK24 will be gravel and maintained over shorter periods. Material sourcing considers proximity and quality, drawing from limestone quarries and nearby sand borrow sources located along the mineral haulage corridor.

Ongoing maintenance is integral to the long-term mineral haulage corridor performance. This includes routine works (pothole patching, drainage clearing), periodic interventions (re-graveling, resurfacing) and emergency responses to storm or accident damage. All designs are structured to provide safe, reliable transport while supporting the project's phased construction and operational logistics.

18.6 BRIDGE OVER THE FIHERENANA RIVER

The existing bridge linking the Port of Toliara to the project site is not capable of supporting the project loads greater than 15 t. Consequently, a new bridge will be constructed across the river downstream of the existing bridge. As an interim solution during the construction of the new bridge, a rubble mound bypass will be developed as a causeway to support the project's logistical requirements.

As illustrated in Figure 18-8, a 630 m long, single-lane reinforced concrete bridge will span the Fiherenana River, delivered under an EPC contract in accordance with Eurocode standards. The bridge will support mining traffic, including road trains (133 t) and large equipment, and is designed for a 50-year life with flood resilience to the 1-in-100 year ARI event. It will include concrete piles, pile caps, and a 4.5 m wide deck 5.3 m above the riverbed with concrete barrier rails.

Hydrology and geotechnical assessments were undertaken to guide design, identifying potential subsurface risks such as cavities, variable soil strength, and a southern fault structure. A reinforced levee will be extended to protect the approach during floods. The bridge meets the transport needs of the mining operation.

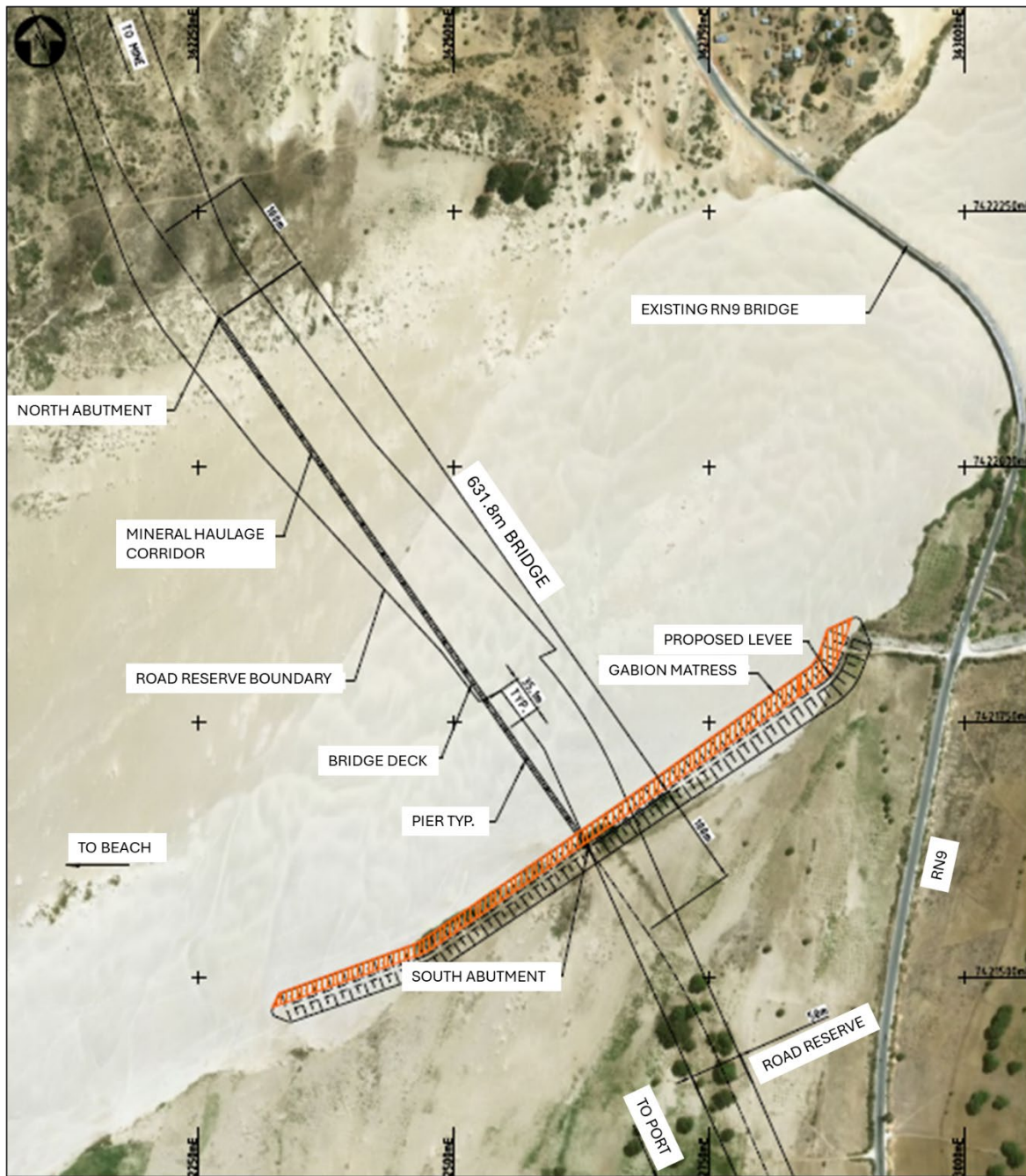


Figure 18-8: Fiherenana River bridge and levee

Traffic will be managed by a vehicle-activated signal system prioritizing loaded southbound haul trucks. Detection loops and sensors will coordinate traffic flow, with signals staying red until the bridge is cleared. The system will be solar-powered with battery backup and fiber optic communications for reliability.

This bridge provides a critical and resilient crossing that supports safe, continuous access between the mine and export facilities.

18.7 PRODUCT LOGISTICS

The Toliara Project's logistics strategy manages both inbound and outbound movements, ensuring safe and cost-effective delivery of mineral products and operational supplies. Outbound logistics handle up to 1,297 ktpa of final mineral sands product and 29 ktpa of monazite, all of which are exported via the Batterie Beach export facility.

18.7.1 Product haulage – mine to port

Final products are transported from the MSP/MCP to the export facility using 90 t triple-trailer road trains. Haulage will be fully outsourced with contractors supplying vehicles, personnel, emergency response, and maintenance support. Base Toliara will provide an area within the mine lease where the contractor can establish a yard from which to base its operations.

At the MSP, product is loaded from silos or storage sheds. Road trains are weighed before and after loading for reconciliation. Trucks travel via the sealed minerals haulage corridor, with controlled access across the Fiherenana Bridge. At the export facility, products are unloaded into bunkered storage by side-tipping and front-end loaders. Operations run 12 hours per day, 7 days per week.

18.7.2 Monazite container haulage

Monazite is packaged in half-height containers and transported separately. Reach stackers load containers at the MCP and trucks follow the same route as bulk products. Containers are stored in a dedicated, secure yard at the export facility, stacked up to five high and spaced for access. The operation averages three trips to the export facility per day.

18.7.3 Inbound logistics

Inbound materials—including fuel, flocculant, spares, and consumables—are shipped to Toliara Port and trucked to site. Bulk diesel is stored in on-site tanks.

Personnel transport is supported by contractor buses and FIFO arrangements via Antananarivo and Toliara airports.

18.7.4 Traffic management and road safety

Key safety measures include vehicle-activated signals at the Fiherenana Bridge, controlled RN9 intersections, buffer stock at the MSP, and community engagement to manage at-grade crossings and reduce pedestrian risks.

18.7.5 Permits and regulatory compliance

Haulage operations will comply with Malagasy road laws, axle limits, and permit requirements. Agreements with local authorities will govern haul route access and safety protocols.

18.8 EXPORT FACILITY ONSHORE

The project's annual production is shown in Table 18-7.

Table 18-7: Annual production

Production	Stage 1 (ktpa) (Years 3-5)	Stage 2 (ktpa) (Years 6–15)
Sulfate ilmenite	393	566
Slag ilmenite	228	327
Chloride ilmenite	217	313
Zircon	59	82
Rutile	6	9
Monazite	20	29

The export facility, located at Batterie Beach near Toliara, will include two large bulk product storage sheds and a dedicated containerized monazite storage yard. The facility will support shiploading rates for ilmenite, rutile, and zircon of 14 to 17 vessels per year during Stage 1, increasing to 20 to 26 vessels during peak Stage 2 production. Monazite shipping will occur in batches of 200 containers, approximately six to seven times per year.

18.8.1 Storage capacity – export facility

Product storage capacity at the export facility has been optimized to align with sales volumes, parcel sizes, ship frequency, and contingency for weather or shipping delays. Combined storage at the MSP and export facility allows for up to four weeks of production plus the full shipping parcel. Design storage capacities at the export facility are as follows:

- Sulfate Ilmenite: 70 kt
- Slag Ilmenite: 30 kt
- Chloride Ilmenite: 35 kt
- Zircon: 17 kt
- Rutile: 10 kt
- Monazite: 1,200 containers (stacked five high).

Zircon will be stored in a separate building to eliminate the risk of cross-contamination. Monazite containers will be stored in a dedicated open yard located immediately north of the product storage sheds. Reach stackers will be used to manage stacking and transport of containers. The site layout is shown in Figure 18-9.

The project's base case assumes dispatching 200 container shipments to ports in the United States of America, adhering to current legislative constraints for Class 7 (radioactive) cargo. It is anticipated that these constraints will be eased, allowing for approximately 500 container (10,000 t) loads to be shipped. The container yard is designed to accommodate anticipated future legislative changes regarding the import of Class 7 materials into the United States of America.



18.8.2 Export storage facility operation and outloading

Trucks with triple 30 t side-tippers will unload inside the sheds onto a reinforced concrete slab. Material will be stacked into assigned bunkers using CAT 980H front-end loaders equipped with telescopic pusher blades (Figure 18-10), forming stockpiles up to 9 m high. Efficient stacking and buffer capacity at the MSP allow the sheds to be sized to minimize ground loading and reduce ground improvement requirements.



Figure 18-10: Typical FEL stacking with pusher blade

Outloading from each of the two export facility product sheds is by FEL into hoppers straddling belt conveyors. The hoppers discharge onto the ship-loading jetty conveyor via the product sampling stations at a design rate of 1,000 tph requiring two CAT 980H FELs for outloading. A pipe conveyor minimizes spillage, dust generation, and contamination. Sampling stations and belt scales track tonnage and ensure product quality.

18.8.3 Sampling

Each mineral product will be sampled during the loading of the ship. A two-stage sampler will be installed on both the ilmenite/rutile and zircon conveyors. The primary sampler will be a linear cross-cut sampler cutting the trajectory off the head pulley. The secondary sampler will be a rotary vezin type directing the sample into sample pots. The pots holding the sample representing the batches of loaded mineral product will be stored at the export facility and sent to the MSP laboratory for analysis and documentation. The jetty conveyor trade-certified belt weigh scale will control the frequency of the sampling operation and measure the tonnage loaded onto the vessel.

18.8.4 Export facility ancillary facilities

The following support facilities will be installed at the export facility:

- Administration office: The blockwork construction building incorporates administration facilities, including a reception area, offices, a meeting room, a customs office, a server room, ablution facilities, and storage areas
- Security guardhouse: A small blockwork gatehouse building at the entrance to the export facility
- Workshop and store: A small metal-framed workshop with a vehicle wash bay, maintenance and vehicle service bay, stores area, and sample pot storage room. The facility will mainly service the FELs. An oily water separator will trap grease and oils from the wash bay. Wash water will be directed to the evaporation pond
- Ablutions: A small blockwork building will be situated next to the office to provide toilet facilities for the workforce
- Control room: A small, modular, prefabricated building will be situated near the motor control center to control operations
- Power supply: Light and small power for the storage shed and export facilities will be supplied by a solar power system with 400 kVA diesel backup generators. During ship-loading periods, two 400 kVA generators will supply the power requirements for the two out-loading conveyors, the jetty conveyor, and the shiploader. As the main power demand of 300 kW will be the jetty conveyor head end drive and the shiploader, a high-voltage feeder cable will supply these drives with power from a 500 kVA dry transformer located at the end of the jetty
- Fuel storage: Diesel will be stored in a self-bunded, 30 m³ storage tank located near the generators. The fuel facility will include a bowser for FEL refueling and be hard-piped to the generators
- Water supply and sewage: Raw and potable water for the facilities will be trucked in from the MSP and stored in tanks at the export facility. Sewage will be collected and trucked back to the sewage treatment plant adjacent to the northern village.

18.8.5 Foundation conditions and improvements

The Batterie Beach site is underlain by loose silty sands and soft clays, unsuitable for supporting heavy structures without improvement. Ground conditions necessitate the installation of rigid inclusions (mortar piles) beneath the high-load areas, including the bulk storage sheds and the monazite container storage yard.

A 2.0 m thick geogrid-reinforced engineered fill platform will be constructed over the piles prior to installation of foundations. This system provides adequate stiffness to minimize differential settlement and distributes heavy loads from stacked mineral products and front-end loader activity. Figure 18-11 illustrates the schematic of the ground improvement concept for the storage sheds.

To support the ilmenite/rutile and zircon product storage sheds and monazite container storage, rigid inclusions will be installed beneath the footprint. Design parameters for the product storage shed areas are as follows:

- Pile type: Rigid inclusions (mortar piles)
- Diameter: 350 mm
- Depth: Up to 24 m
- Compressive strength: ≥ 20 MPa at 28 days
- Low-load area spacing: 3.2 m by 3.2 m

- High-load zones spacing: 1.4 m by 1.4 m (e.g., under stockpiles).

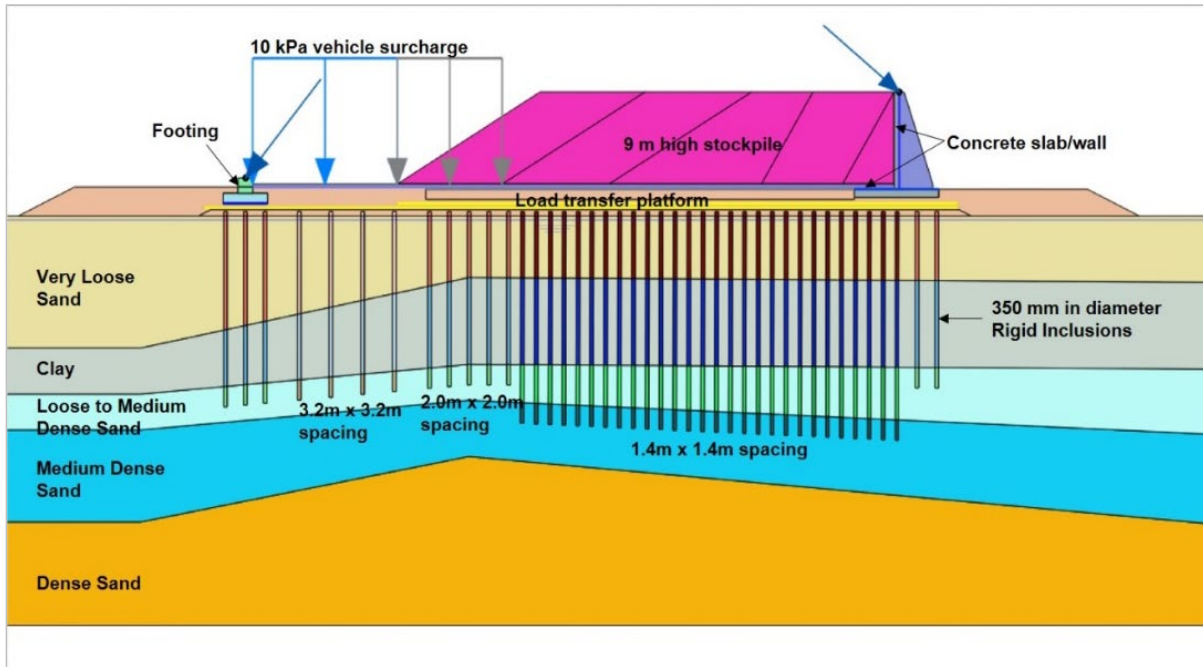


Figure 18-11: Section showing a schematic of mortar piles foundation improvement

Rigid inclusion ground improvement is also applied to the monazite container storage yard, where containers are stored (each 20 t, stacked up to five high). Based on the initial geotechnical assessment done by Knight Piésold, the following density of rigid inclusions is required:

- Container area: Rigid inclusions at 2.0 m by 2.0 m spacing and of 22 m length
- Forklift area and empty container area: Rigid inclusions at 2.8 m by 2.8 m spacing and of 18 m length.

The container area is designed with a reinforced concrete slab founded on the mortar piles to handle concentrated point loads at each container corner. The layout allows for access and twist-lock anchoring for cyclone resilience. This design ensures both structural stability and operational safety.

18.9 EXPORT FACILITY – OFFSHORE

18.9.1 Export facility operation

The offshore facility enables safe mooring, berthing, and loading of design vessels via fixed marine infrastructure. Prior to bulk loading, the system is tested and cleaned. Marine pilots, supported by the selected charter operator's tug and line boat (together procured through a service contract), oversee the berthing and departure of vessels. Loading is controlled via a programmable logic controller and human-machine interface system, linking the shiploader to onshore operations. Bulk vessels are warped to access multiple hatches, while container ships handle cargo with their onboard cranes.

18.9.2 Marine infrastructure

As illustrated in Figure 18-12 and Figure 18-13, the marine layout includes the following:

- Berth pocket: Selected position where the seabed is -14.1 m chart datum (**CD**) to ensure under keel clearance
- Access trestle: 550 m long, single-lane width, with passing bay and pipe conveyor
- Loading platform: Hosts the shiploader, gangway, container operations, and cyclone tie-downs
- Shiploader: Fixed 1,000 tph unit with slewing, luffing, and telescoping functions; designed for cyclone resistance with a mobile support frame (see Figure 18-14)
- Pipe conveyor: Enclosed system from storage to shiploader with dust control and weigh scale
- Moorings: Six-point system for bulk carriers; dolphins for container vessels
- Services: Power, raw/fire water, ablutions, lighting
- Safety and navigation: Includes metocean instruments, fire and life-saving equipment, and fencing.

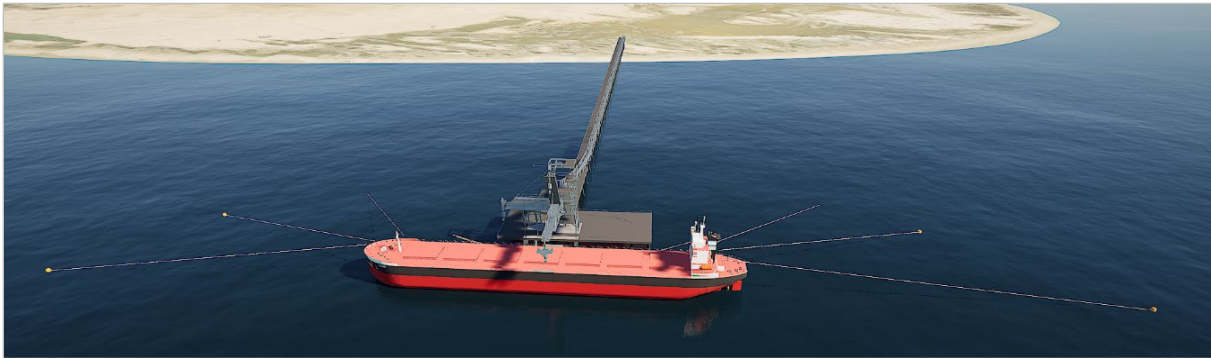


Figure 18-12: Marine facility general layout (bulk carrier operations)



Figure 18-13 Marine facility general layout (general cargo operations)

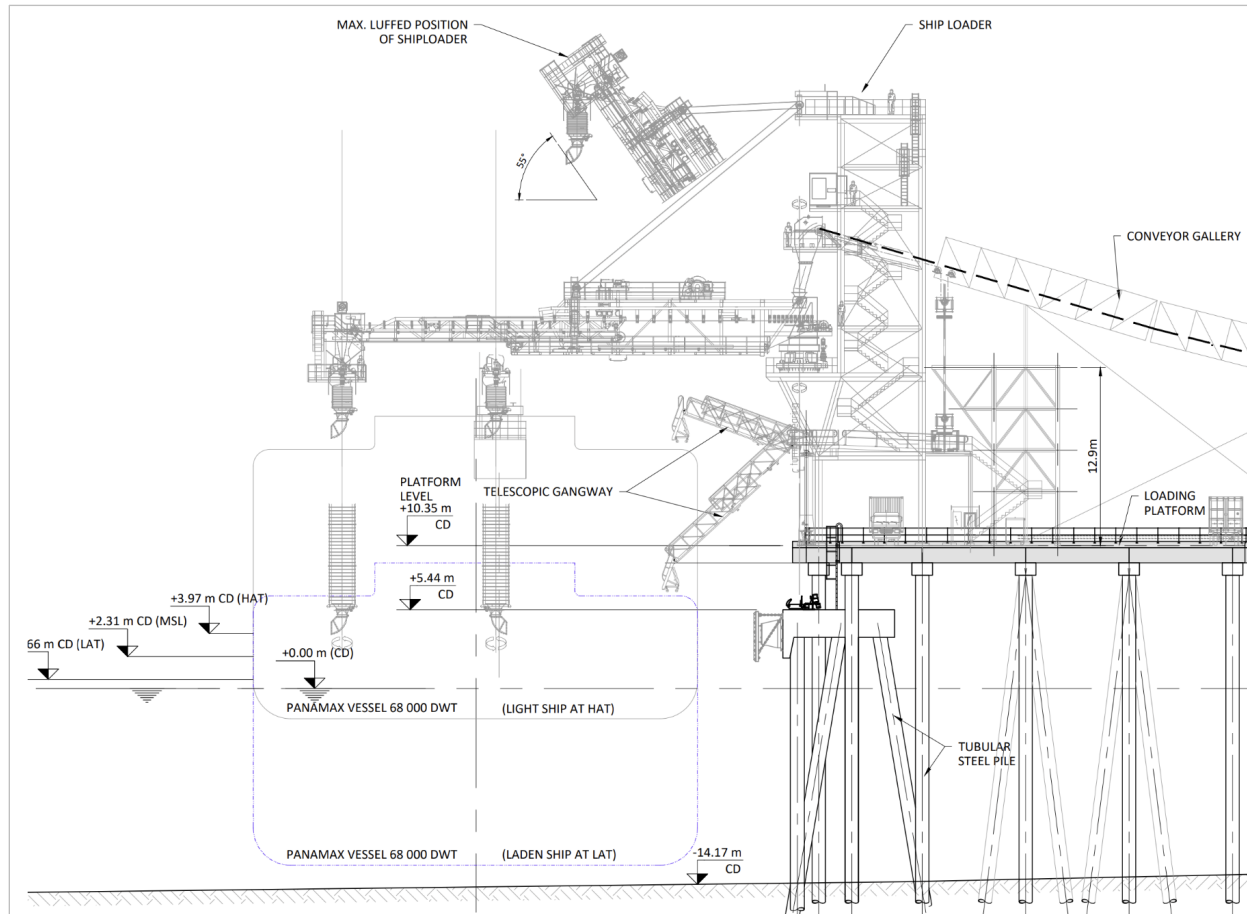


Figure 18-14: Proposed 1,000 tph shiploader

18.9.3 Coastal protection

The landside components of the export facility are protected by a revetment formed from geotextile sand containers (GSCs), which serve to mitigate the impact of storm waves. GSC sizing is adjusted based on wave exposure conditions. Along the more exposed western, southern, and northern edges, 2.5 m³ GSCs are used for increased stability, whereas 0.75 m³ GSCs are utilized on the more sheltered eastern side. The design wave height H_s is 1.34 m with a peak period T_p of 13.3 seconds. The platform crest level is +7.5 m CD, ensuring protection against overtopping, while the toe level is set at +2.8 m CD, allowing for future erosion and maintenance intervention if the level reaches +2.0 m CD. Backfilling will use excess site sand.

The trestle abutment, located at the seaward transition to the platform, is protected with 500 kg concrete cubes placed on a slope of 1V:1.5H to account for direct wave exposure. This zone requires enhanced stability due to the geometric complexity and exposure to multiple wave directions.

18.9.4 Navigation

A series of navigation simulation studies confirmed the feasibility of operating bulk carriers and container vessels at the proposed MBM facility in Toliara. These included a Full Mission Bridge simulation at SAMTRA and a 2D desktop simulation by PRDW using SimFlex4. The Full Mission Bridge study, with 32 real-time runs, validated safe operations for Handymax and Panamax vessels under wind speeds up to 10 m/s and tidal currents of 0.6 m/s, while the desktop

simulation evaluated Handysize vessel performance under transverse winds up to 12 m/s. Both studies confirmed that the navigation layout, turning basin, and aids to navigation are adequate for safe vessel operations within defined environmental limits.

18.9.5 Dynamic mooring assessment

Dynamic mooring studies found the berth suitable year-round for bulk carriers and seasonal for container ships. Ballast conditions showed more sensitivity to wind and waves. Operational planning around tides is required for monazite shipments.

18.9.6 Discrete event simulation

Simulations across Stages 1 and 2 showed average bulk throughput of 1,032 kt and 1,297 kt, and containerized monazite up to 29 kt. Bottlenecks were linked to trucking delays and berth scheduling. Mitigation includes longer shifts and improved stockpile planning.

19 MARKET STUDIES AND CONTRACTS

Through the successful marketing of mineral sands products from its Kwale operation in Kenya, Base Resources has gained a strong reputation in the global mineral sands markets and established solid relationships with major consumers across the global TiO₂ pigment, titanium metal, welding consumables, opacifier (milled zircon for ceramics), and zirconium chemicals industries. This market presence forms the foundation on which Base Resources will build a solid market position for its Toliara Project heavy mineral sands products.

From a volume and traditional HMS perspective, the Toliara Project is regarded as an ilmenite project with a significant contribution from monazite and zircon as co-products. Approximately 838 ktpa of combined ilmenite production is planned in the first three years of Stage 1 followed by 1,206 ktpa in the first ten years of Stage 2 production. Of this, approximately 621 ktpa is a slag and sulfate ilmenite growing to approximately 893 ktpa during the first ten years of Stage 2 production.

The Toliara Project will also produce approximately 217 ktpa of chloride ilmenite growing to approximately 313 ktpa during the first ten years of Stage 2 production. This will be a new product for Base Resources and allow the Company to enter the niche chloride ilmenite market.

The design of the MSP allows the ratio of the three ilmenite products to be varied to suit the market conditions and/or take advantage of market opportunities as they arise. This significantly mitigates the market risk of each of the individual ilmenite products, particularly when expanding to the higher output levels in Stage 2 of the project.

The zircon contribution from the Toliara Project will provide Base Resources with a significant presence in the high value zircon market. Approximately 59 ktpa of zircon will be produced from the Toliara Project during the first three full years of full production and this will increase to approximately 82 ktpa during the first ten years of Stage 2 production.

The growing importance of REOs as critical minerals in western supply chains led Energy Fuels to develop its own REO supply chain strategy through the acquisition of Base Resources in 2024 in order to secure the future supply of monazite from the Toliara Project. It is intended that all monazite produced from the Toliara Project will be internally transferred to the Energy Fuels' REO refinery being developed in Utah, USA.

It is the rapid emergence of demand for permanent magnets in new green technologies, specifically electric vehicles and wind turbines, that has dramatically altered the REO landscape. Growth in demand for the REOs needed in permanent magnets, neodymium (Nd), praseodymium (Pr), dysprosium (Dy), and terbium (Tb), is expected to exceed supply and create a supply gap that the world will find challenging to close over the long term.

19.1 PRODUCT SPECIFICATION

The following six core products will be produced from the Toliara Project:

- Sulfate ilmenite
- Slag ilmenite
- Chloride ilmenite
- Zircon
- Rutile

- Monazite.

Marketing samples of each grade of ilmenite have been reviewed by key customers. The specifications of all products are consistent with market requirements.

19.1.1 Sulfate ilmenite

Indicative specifications for sulfate ilmenite quality are presented in Table 19-1.

Marketing samples closely resembling this specification were sent to key sulfate pigment producers for feedback.

The specification is generally regarded as an acceptable sulfate pigment feedstock. The Fe_2O_3 level is at the higher end of the range currently being consumed by Chinese sulfate pigment producers (approximately 7% to 25%), but is consistent with the levels in Kwale ilmenite (approximately 20%) supplied extensively to the Chinese market from 2014 to 2025.

Table 19-1: Indicative specification for the Toliara Project sulfate ilmenite

	Value	Proposed guarantee
TiO_2	48.5%	>48.0%
Fe_2O_3	21.0%	<21.5%
FeO	26.8%	
SiO_2	0.6%	
Al_2O_3	0.5%	
Cr_2O_3	0.08%	<0.10%
MgO	0.6%	
MnO	0.8%	
ZrO_2	0.02%	
P_2O_5	0.02%	<0.15%
U	<10 ppm	
Th	30 ppm	
V_2O_5	0.24%	<0.25%
Nb_2O_5	0.12%	<0.15%
CaO	0.01%	
Particle size (d_{50})	141 μm	

19.1.2 Slag ilmenite

Indicative specifications for slag ilmenite quality are presented in Table 19-2.

Marketing samples closely resembling this specification were sent to key chloride slag producers for feedback. A number of major chloride slag producers have approved this specification and expressed a desire to enter major offtake agreements for Toliara slag ilmenite.

Table 19-2: Indicative specification for the Toliara Project slag ilmenite

	Value	Proposed guarantee
TiO ₂	50.5%	>50%
Fe ₂ O ₃	27.5%	
FeO	16.0%	
SiO ₂	1.2%	
Al ₂ O ₃	1.0%	
Cr ₂ O ₃	0.08%	<0.10%
MgO	0.4%	<1.0%
MnO	1.0%	<1.2%
ZrO ₂	0.04%	
P ₂ O ₅	0.07%	<0.10%
U	<10 ppm	
Th	75 ppm	
V ₂ O ₅	0.23%	
Nb ₂ O ₅	0.15%	
CaO	0.03%	<0.10%
SO ₃	0.02%	
Particle size (d ₅₀)	138 µm	

19.1.3 Chloride ilmenite

Indicative specifications for chloride ilmenite quality are presented in Table 19-3.

Marketing samples closely resembling this specification were sent to key chloride pigment and synthetic rutile producers for feedback. It has been confirmed by chloride pigment, synthetic rutile, and chloride slag producers that this product would meet their requirements.

Table 19-3: Indicative specification for the Toliara Project chloride ilmenite

	Value	Proposed guarantee
TiO ₂	57.0%	>56.5%
Fe ₂ O ₃	30.5%	
FeO	6.0%	
SiO ₂	1.0%	
Al ₂ O ₃	0.9%	
Cr ₂ O ₃	0.10%	<0.20%
MgO	0.3%	
MnO	1.5%	<1.7%
ZrO ₂	0.03%	
P ₂ O ₅	0.06%	<0.10%
U	<10 ppm	
Th	138 ppm	
V ₂ O ₅	0.22%	<0.50%
Nb ₂ O ₅	0.20%	<0.25%
CaO	0.02%	<0.06%
SO ₃	0.03%	
Particle size (d ₅₀)	171 µm	

19.1.4 Zircon

Indicative specifications for zircon quality are presented in Table 19-4.

This quality of zircon is regarded as a good standard grade zircon and is acceptable to all key end use sectors. The elevated levels of U+Th (above an industry benchmark of 500 ppm for premium zircon) are not expected to create any quality related concerns by end users but may restrict the geographic markets into which it can be sold without additional approvals. The specification meets all requirements for target customers in China and other key Asian markets.

Customers who have received samples, including two large milling companies in China and a large fused zirconia producer in China, have expressed an interest in entering into a major offtake agreement for Toliara zircon.

Table 19-4: Indicative specification for the Toliara Project zircon

	Value	Proposed guarantee
ZrO ₂ + HfO ₂	65.6%	>65.5%
SiO ₂	32.9%	
Al ₂ O ₃	0.89%	<1.30%
Fe ₂ O ₃	0.12%	<0.15%
TiO ₂	0.09%	<0.15%
P ₂ O ₅	0.10%	
U+Th	550 ppm	<600 ppm
Particle size (d ₅₀)	138 µm	

19.1.5 Rutile

Indicative specifications for rutile quality are presented in Table 19-5.

This quality of rutile is readily accepted by target chloride pigment producers and welding consumable producers.

Table 19-5: Indicative specification for the Toliara Project rutile

	Value	Proposed guarantee
TiO ₂	95.0%	>95.0%
Fe ₂ O ₃	0.81%	<1.5%
SiO ₂	1.09%	
Al ₂ O ₃	0.59%	
Cr ₂ O ₃	0.15%	
MgO	0.01%	
MnO	0.01%	
ZrO ₂	0.84%	<1.5%
P ₂ O ₅	0.03%	
U	77 ppm	
Th	163 ppm	
V ₂ O ₅	0.59%	
Nb ₂ O ₅	0.47%	
CaO	<0.01%	
SO ₃	0.01%	
SnO ₂	0.05%	
Particle size (d ₅₀)	140 µm	

19.1.6 Monazite

Toliara monazite contains approximately 53.9% total REOs with ~24% of these being NdPr oxides and ~0.7% of these being DyTb oxides (refer to the specification in Table 19-6). As is typical with REO minerals, most of the REO content (~70%) is in the form of the much lower value light REOs cerium (Ce) and lanthanum (La). Most global sources of monazite contain in the order of 50% to 60% total REOs and, as demonstrated in Table 19-6, most REO-containing minerals have an assemblage of 20% to 25% of NdPr oxides and low levels of DyTb oxides. The Toliara monazite specification is regarded as a typical monazite product in the global market with a relatively high weighting of sought after NdPr oxide.

Current and emerging downstream customers who have reviewed the Toliara monazite specification have expressed interest in future offtake agreements for this quality of monazite.

CeLa oxides within the monazite are used in a range of applications including auto catalysts. However, due to an expected significant oversupply and very low value over the long-term future, the presence of CeLa oxides are not expected to add saleable value to the monazite product. Monazite customers will be focused more on the content of the magnet minerals, NdPr oxides and DyTb oxides. For the purposes of the 2025 FS, the value of the Toliara monazite is based only on the content of the magnet minerals.

Table 19-6: REO-mineral assemblage of Toliara monazite and selected third-party projects

	Distribution of elemental oxides											
	Lanthanum	Cerium	Praseodymium	Neodymium	Samarium	Europium	Gadolinium	Terbium	Dysprosium	Yttrium	Others	Total
Asset Name	La ₂ O ₃	CeO ₂	Pr ₆ O ₁₁	Nd ₂ O ₃	Sm ₂ O ₃	Eu ₂ O ₃	Gd ₂ O ₃	Tb ₄ O ₇	Dy ₂ O ₃	Y ₂ O ₃		
Toliara Project	22.90	46.40	5.20	18.60	2.90	0.10	1.50	0.20	0.50	1.60	0.20	100.0
Donald Project	18.30	37.78	4.44	15.90	3.02	0.18	2.48	0.36	2.04	12.77	2.84	100.0
Mt Weld	23.90	47.60	5.20	18.10	2.40	0.50	1.10	0.10	0.30	0.80	0.00	100.0
Browns Range	2.01	4.98	0.71	3.24	2.17	0.45	5.77	1.30	8.71	58.29	12.37	100.0
Yangibana	11.20	41.70	8.00	32.60	3.30	0.70	1.40	0.10	0.30	0.60	0.10	100.0
Dubbo	22.08	36.28	3.63	14.11	1.72	0.05	1.64	0.21	1.87	15.80	2.61	100.0
Eneabba	21.80	45.00	4.60	16.60	2.50	0.10	1.40	0.20	0.90	5.60	1.30	100.0
Wimmera	17.70	37.40	4.00	16.10	2.70	0.10	2.30	0.30	2.00	14.20	3.20	100.0
Balranald	20.80	45.50	4.90	16.60	3.00	0.00	2.00	0.20	1.00	5.00	1.00	100.0
Ngualla	27.61	48.24	4.77	16.46	1.60	0.29	0.61	0.04	0.07	0.01	0.30	100.0
Mountain Pass	32.60	49.90	4.30	12.10	0.90	-	-	0.00	0.00	-	0.20	100.0

19.2 DEMAND AND SUPPLY FORECASTS

The demand and supply analysis has been broken down into the key market segments for each of the Toliara Project products.

19.2.1 Sulfate feedstock market

The sulfate market segment concerns the Toliara Project sulfate ilmenite and slag ilmenite. While the slag ilmenite will be converted by buyers into chloride slag (which then becomes part of the high-grade chloride feedstock market discussed below), it still forms part of the sulfate feedstock market as it could technically be used as a direct sulfate pigment feedstock but would not be suitable as a direct chloride pigment feedstock.

The outlook for sulfate feedstocks, depicted in Figure 19-1, indicates a market that will be subject to a significant amount of "swing supply" and some demand upside through to 2035. The swing supply refers to ilmenite produced in Vietnam and from some of the mineral concentrates imported into China. These sources of ilmenite are generally high cost and come in and out of the market depending on market opportunities and pricing.

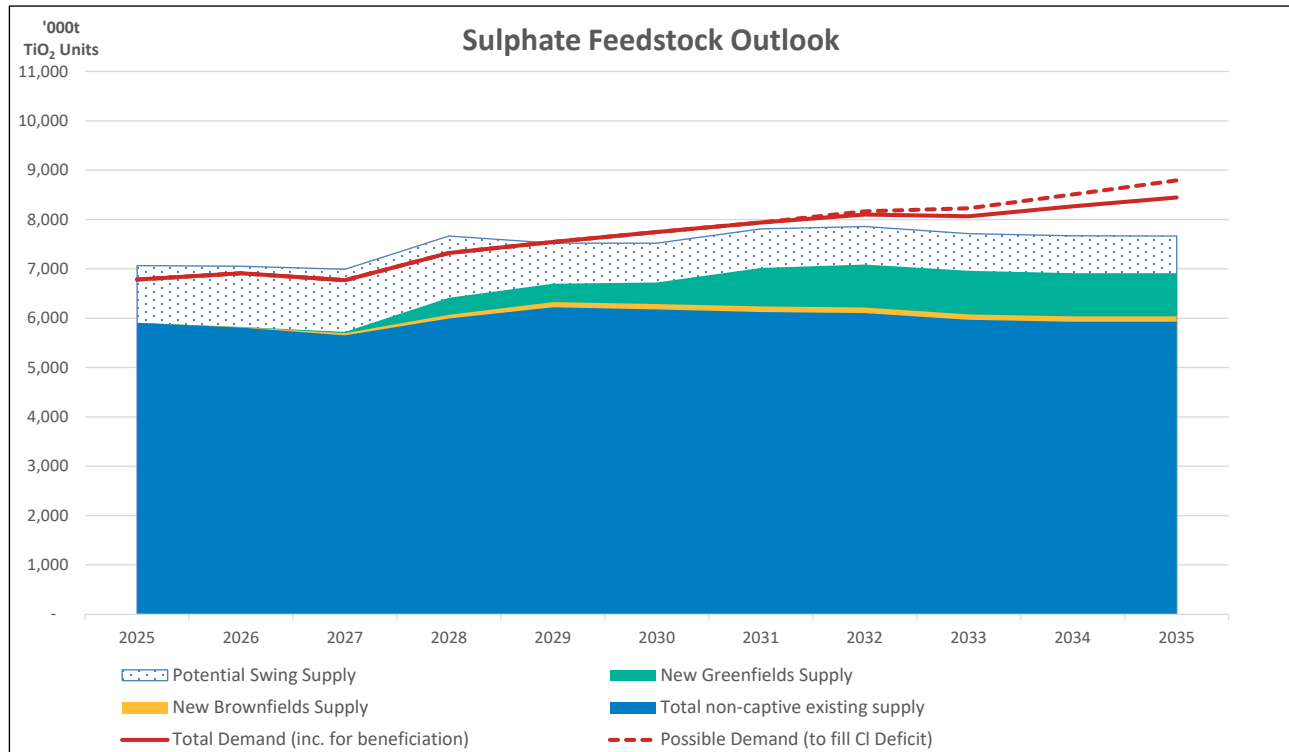


Figure 19-1: Sulfate feedstock outlook

There is a likelihood of improvement to sulfate feedstock demand during the early 2030s, driven by a forecast shortfall in the chloride feedstock market as discussed in Section 19.2.2. If there is insufficient chloride feedstock to meet demand, the market will react as follows:

- Build more chloride slag capacity to fill the gap
- Produce less chloride pigment (due to insufficient feedstock being available) so that demand reduces to match supply.

Under the first scenario, the demand for sulfate feedstock will increase as more ilmenite will be required to feed the new chloride slag production. Under the second scenario, the demand for sulfate feedstock also increases as a lack of chloride pigment in the market would result in a surge in demand for sulfate pigment requiring an increase in demand for sulfate feedstocks. Importantly, sulfate pigment production is not constrained by capacity and so it is realistic to assume that sulfate pigment production could fill any gap left by a shortfall in chloride pigment production.

A significant proportion of sulfate feedstock demand growth is attributed to the forecast growth in non-integrated chloride slag production. Almost all of this growth is attributed to new chloride slag capacity coming online, with the expansion of slagers in Saudi Arabia, the expansion of the biggest producer in China, new slag/pigment facilities being built in China, and a new slag facility in Oman expected to be the main sources of growth.

19.2.2 Chloride feedstock market

This market segment concerns the Toliara Project chloride ilmenite (a low-grade chloride feedstock) and rutile (a high-grade chloride feedstock).

The long-term outlook for chloride feedstock is depicted in Figure 19-2. The total supply of merchant chloride ilmenite in 2025, as a sub-set of overall chloride feedstock supply, is constrained and remains well below demand from niche end-use market segments. The remainder of the chloride feedstock market consists predominantly of high-grade feedstocks – rutile, synthetic rutile, upgraded slag, and chloride slag.

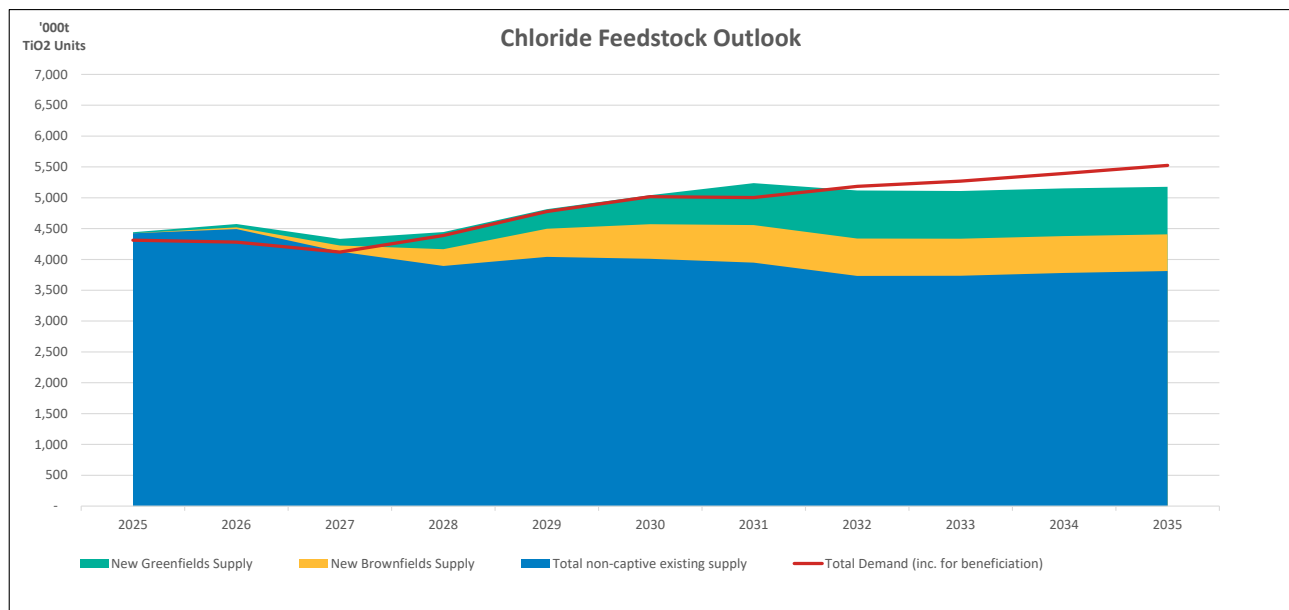


Figure 19-2: Overall chloride feedstock outlook

Chloride ilmenite demand generally far outstrips supply and is therefore constrained by the available supply. One major pigment producer has a large demand for chloride ilmenite as their "low-grade feedstock strategy" is their biggest source of competitive advantage. Their competitors are not able to use significant quantities of chloride ilmenite as a direct feedstock and must rely on relatively higher priced high-grade feedstocks. In this environment, those who have the capability to use chloride ilmenite will typically demand as much chloride ilmenite as they can source and take the balance as high-grade feedstock.

With merchant supply of chloride ilmenite from existing sources expected to decline, there is likely to be a significant shortfall of supply to the pigment sector and this sector will need to compete for feedstock with other chloride ilmenite users, such as some Eastern European titanium metal producers, Chinese high-grade slag producers, and synthetic rutile producers who are not fully self-sufficient.

The long-term forecast for a shortfall in overall chloride feedstock supply presents a solid long-term opportunity for the marketing of Toliara Project rutile and chloride ilmenite and bodes well for market prices. The influx of greenfield supply from 2026 to 2032 is mostly attributed to the Toliara Project, the Kasiya project in Malawi, and new chloride slag capacity, which is expected to be built and commissioned as the existing sources of chloride feedstocks diminish. If these projects come online as currently planned, there could be a period of balanced or oversupply from 2027 to 2032, but the market would fall into deficit from 2032 onwards. This will force the market to build more chloride slag capacity (as natural rutile becomes increasingly scarce) than currently forecast to keep up with demand or result in a sharp drop in chloride pigment production, which would fuel stronger than forecast demand for sulfate pigment, discussed above.

19.2.3 Zircon

The long-term outlook for zircon supply and demand, depicted in Figure 19-3, is positive even after assuming a very significant increase in supply from new greenfields projects. Numerous existing sources of zircon supply are coming to the end of their life from 2026 and 2027, requiring a significant amount of new production to come from greenfields projects, including the Toliara Project.

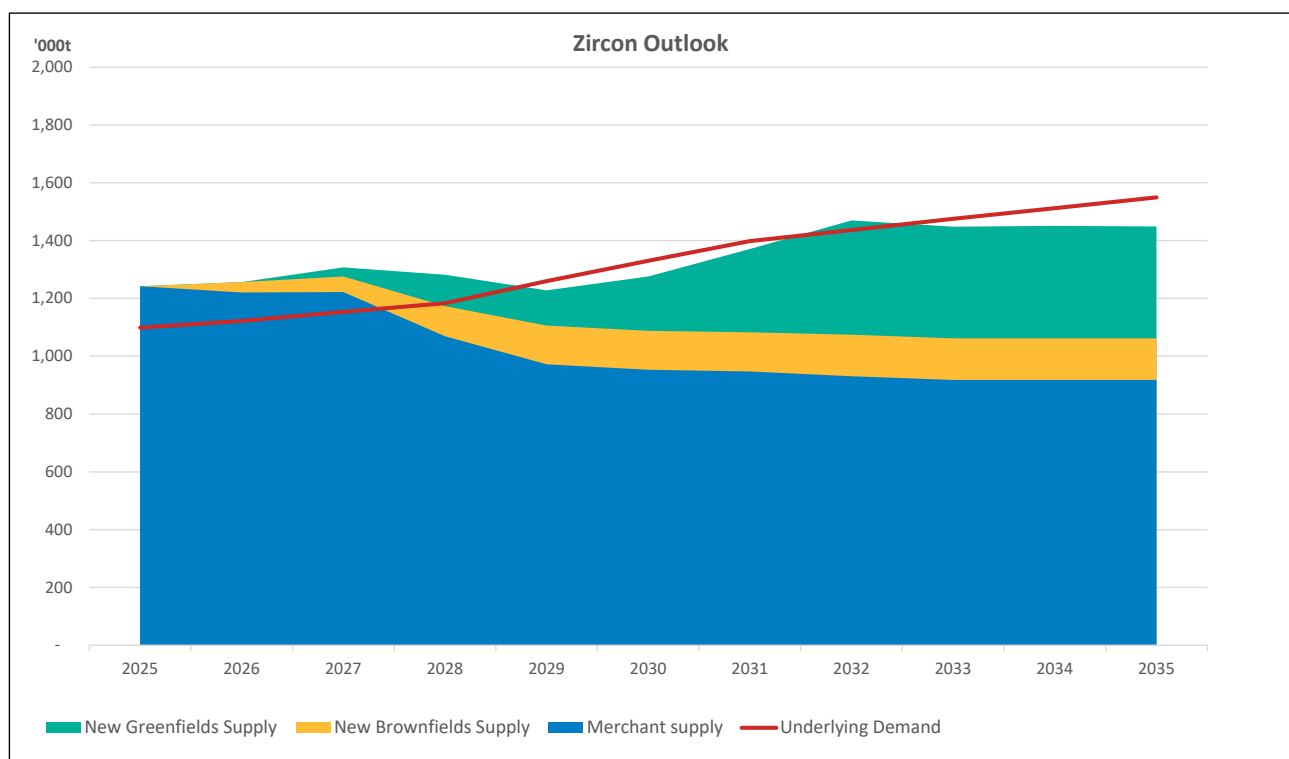


Figure 19-3: Zircon outlook

19.2.4 New mineral sands projects

In all the supply/demand analyses it is clear that supply from greenfields projects has a significant impact on the market outlook. There is a large amount of uncertainty in predicting which projects will come online, by when, and at what scale. The estimated return on capital rankings for all projects and other key variables have been used to determine the most logical order for these projects to come into operation and has been factored into the supply/demand analyses. Any change in the actual development progress of these projects could significantly alter the forecast. All sources of supply, including new projects, are constantly monitored by Base Resources' marketing department to ensure the supply/demand outlook is kept up to date and regularly used to review the marketing strategy.

19.2.5 Monazite

The clear driver for the monazite market is the contained magnet REOs (as these are the main determinant of the price achieved for monazite). Therefore, the market dynamics for monazite focuses exclusively on these end products.

After consideration of the small number of available industry sources, Base Resources has determined that the market outlook provided by Adamas Intelligence is the most reliable independent view available in the industry and has chosen to use this as the basis for forecasting the future monazite market opportunity.

Figure 19-4 summarizes the aggregated supply and demand for all four of the individual magnet REOs. The chart clearly illustrates that an increasing supply deficit is expected for each of the magnet REOs as supply for each of these elements fails to keep pace with the expected demand growth.

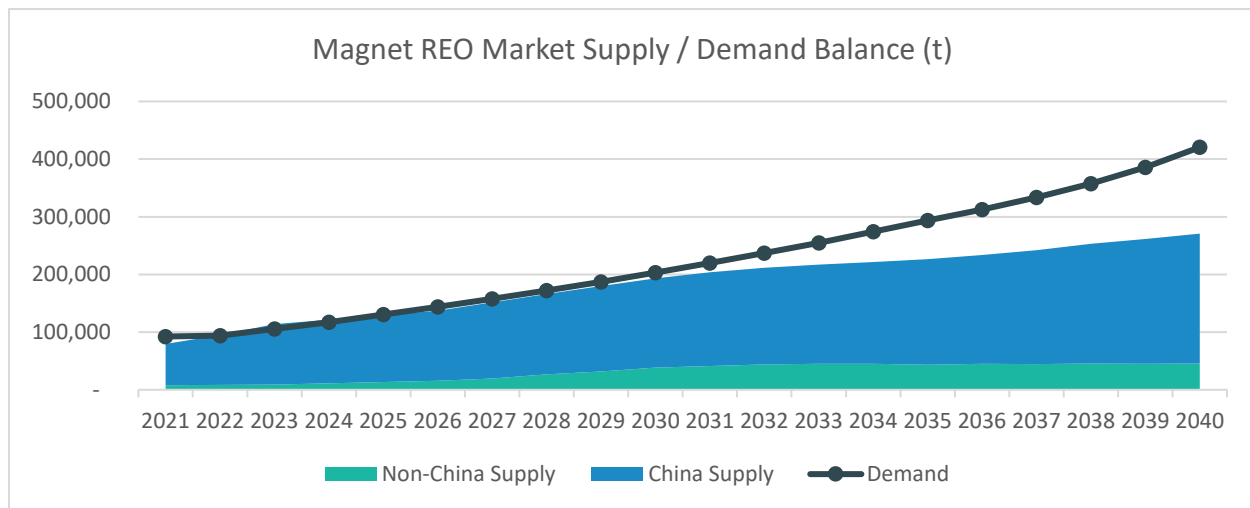


Figure 19-4: Total Magnet REO supply and demand outlook (Source: Adamas Intelligence and Base Resources analysis)

Adamas Intelligence has advised that their supply outlook takes into account numerous major new non-China greenfields REO mineral projects coming into production over the forecast period.

The inclusion of all of these new projects could be considered optimistic since a number of the projects are already experiencing challenges maintaining their planned timelines and there have been very few greenfield REO minerals projects outside of China starting up over the past 10–15 years.

Demand for permanent magnets requiring magnet REOs are directly linked to the growth expected in the major end use applications, wind turbines and traction motors in electric vehicles. China is expected to remain the major source of demand over the long term, but existing alternative markets (such as Germany and Japan) and numerous emerging markets are expected to grow rapidly.

Figure 19-5 indicates the breakdown of the expected demand growth for permanent magnets, clearly indicating the most rapid growth coming from electric vehicles and wind turbines.

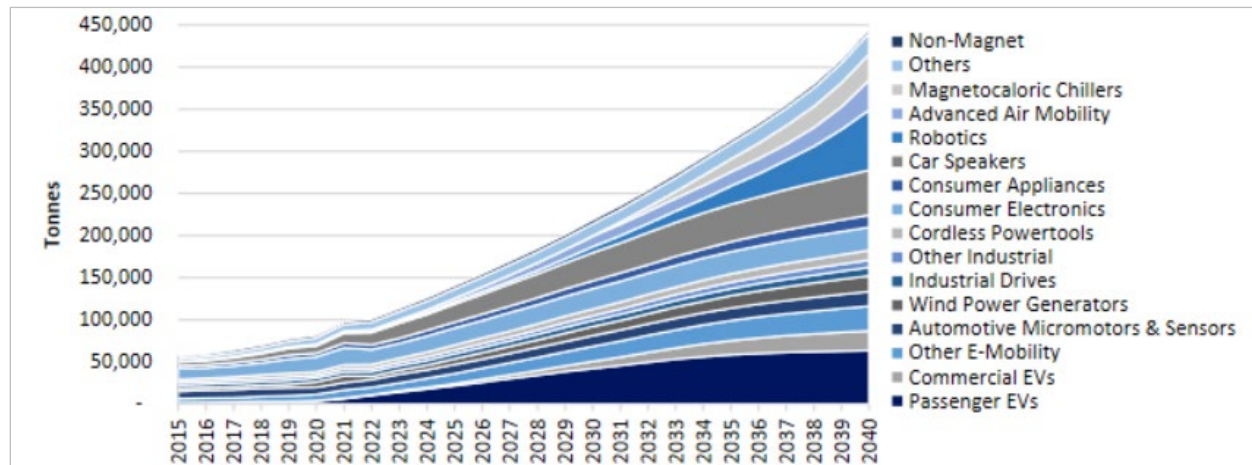


Figure 19-5: Magnet REO demand forecast by end application (Source: Adamas Intelligence)

As further highlighted by Figure 19-4, China will remain the major source of REO mineral supply over the long-term market forecast. Chinese supply is typically unpredictable since it is subject to the issuance of government quotas. Changes to such quotas often happen with little or no prior notice. However, even at full production and with anticipated future expansions, it is unlikely that Chinese supply would be able to keep pace with long-term demand growth. In any event, there is a real possibility that China's supply will become increasingly quarantined as the rest of the world develops alternative fully integrated supply chains, actively moving to operate independently of China.

Similar significant shortfalls in future supply are being presented by other data sources including Argus Metals.

The same market dynamic applies to the products derived from the downstream refining and processing of monazite. It is important to note that, given the growing shortage of REO minerals, it is likely that monazite will become increasingly scarce and hold a significant proportion of the overall supply chain value as downstream processes and users become increasingly focused on securing future supply of raw materials.

19.3 MARKETING STRATEGY

There is a distinction between the traditional minerals sands suite of products to be produced from the Toliara Project (ilmenite products, zircon, and rutile) and monazite. The former category could be categorized as HMS products and will have a distinct strategy and marketing approach compared to that of monazite which is currently intended to be consumed internally by the Energy Fuels group.

The marketing strategy for HMS products is to pursue all realistic options for each product type. Discussions with all potential customers for all products are ongoing, and available marketing samples have been sent to each of them for analysis. It is important to maintain appropriately flexible product specifications in any offtake agreements to ensure value is optimized as market and ore conditions vary. The specific focus of the marketing strategy for each of the Toliara Project products is summarized in the following sections.

19.3.1 Sulfate ilmenite

The target market for sulfate ilmenite is expected to be global sulfate pigment producers, with a focus on the largest market, the Chinese sulfate pigment industry. Base Resources successfully built a solid market presence in China with Kwale ilmenite which closely resembles the quality of the Toliara Project sulfate ilmenite. Most of the Chinese customers of Kwale ilmenite have capacity to consume large quantities of Kwale type ilmenite and present an obvious target for

Toliara Project sulfate ilmenite. Brownfield expansions planned by some of these customers is expected to assist in supporting demand. Opportunities also exist to diversify the customer base outside of China to other established Kwale ilmenite customers.

A significant opportunity exists if the demand for ilmenite for use as a chloride slag feedstock out-strips supply. This would provide an option to sell the sulfate ilmenite stream from the Toliara Project into that market together with the dedicated slag ilmenite.

19.3.2 Slag ilmenite

It has been identified that new chloride slag capacity will present a very large and rapidly growing source of demand for sulfateable ilmenite. The slag ilmenite product from the Toliara Project (while technically still classed as a sulfate ilmenite) is expected to be tailored to this market. Most of the new chloride slag production is expected to come from Saudi Arabia, expansions and new capacity in China, and a new slag facility in Oman.

19.3.3 Chloride ilmenite

Given the forecast shortfall of chloride ilmenite over the long term, major consumers of this feedstock are highly motivated to secure a long-term offtake arrangement.

19.3.4 Zircon

Toliara Project zircon will be shipped in bulk in combination with ilmenite products to achieve freight cost efficiencies. Most bulk zircon is planned to be sent to a bonded warehouse facility in China where it will be bagged and stored. Sales of zircon would then be made ex-bonded warehouse and target Chinese zircon millers (ceramics sector) and zirconium oxychloride producers (zirconium chemicals sector) or customers in neighboring Asian markets. The major global producers of zircon have successfully operated with this model for over ten years. The low bulk freight cost achieved by the project relative to most other zircon suppliers (resulting from the combining of zircon with ilmenite shipments) is expected to more than off-set the costs incurred in storing zircon at a bonded warehouse facility.

19.3.5 Monazite

Base Resources plans to ship all Toliara Project monazite internally to the REO refinery at Energy Fuel's White Mesa Mill in Utah, USA. In the event that some monazite is to be sold into the merchant market, Base Resources intends to target only western monazite processing plants that meet all the requirements for responsible and fully licensed radiation management and waste disposal. Such customers must be situated in countries that have well established and clear and approved import procedures and regulations for internal handling, logistics, and waste disposal.

19.3.6 Offtake strategy

The sales and logistics strategy for HMS products is formulated around securing the best efficiencies and commercial outcomes for the Toliara Project by leveraging existing market reputation and customer relationships and targeting high-growth and high-value market sectors in the most logical locations. Securing offtake agreements with specific contract commitments required by lenders may only be acceptable to certain customers. Equally, debt providers may only be willing to accept such offtake contracts being secured with customers of a certain standard and/or within certain jurisdictions.

It is intended that 100% of the monazite produced at the Toliara Project will be internally transferred to the Energy Fuels White Mesa REO facility in Utah, USA, under an offtake agreement.

Ongoing discussions with debt finance advisors will continue to shape the marketing strategy for the Toliara Project as it moves towards FID.

19.4 PRICING STRATEGY

19.4.1 Heavy mineral sands

The price forecast out to 2035 for each of the Toliara Project HMS products is derived from market intelligence and experience and the detailed analysis of the supply/demand outlook. Prices beyond the 2035 forecast period are forecast to align with the long-term inducement prices as forecast by TZMI. To avoid the potential of significant misalignment between the internal forecast prices in 2035 and TZMI's long-term inducement prices, a smooth adjustment to the forecast prices is assumed from 2035 to bring them in line with the inducement prices by 2040.

19.4.2 Monazite

Given the adoption of the Adamas Intelligence market outlook for REOs, it is also appropriate to adopt the Adamas Intelligence price forecast through to 2040. The Adamas price forecast methodology now assumes that the long-term shortage of supply will result in REO demand destruction as the market is forced to develop technologies for alternative, less effective materials to substitute for REOs in some applications. This results in prices easing and then stabilizing during the mid-2030s at levels that are deemed to limit further substitution efforts and balance supply and demand. The positive case assumes the Adamas Intelligence's price forecast.

Prices are based on a payability ratio that sets the monazite price at a percentage of the total value of the contained REOs within the monazite (the TREO basket value). The spot price for monazite in China is the best indication of the payability ratio that may be expected under a long-term arrangement. Adamas Intelligence has monitored this payability in recent years and reports actual payability rates on a monthly basis. Figure 19-6 shows that the payability ratio has mostly been in the range of 30% to 40% since 2021 and averaged 34%. On this basis, Base Resources has assumed that Toliara monazite will achieve a 34% payability ratio for the total value of the contained permanent magnet REOs (and not on the total value of all the contained REOs).

Final pricing is based on delivery to the customer, with a portion of the logistics costs potentially being recovered from the customer (Figure 19-6). Figure 19-7 shows the monazite and REO long term price forecast.

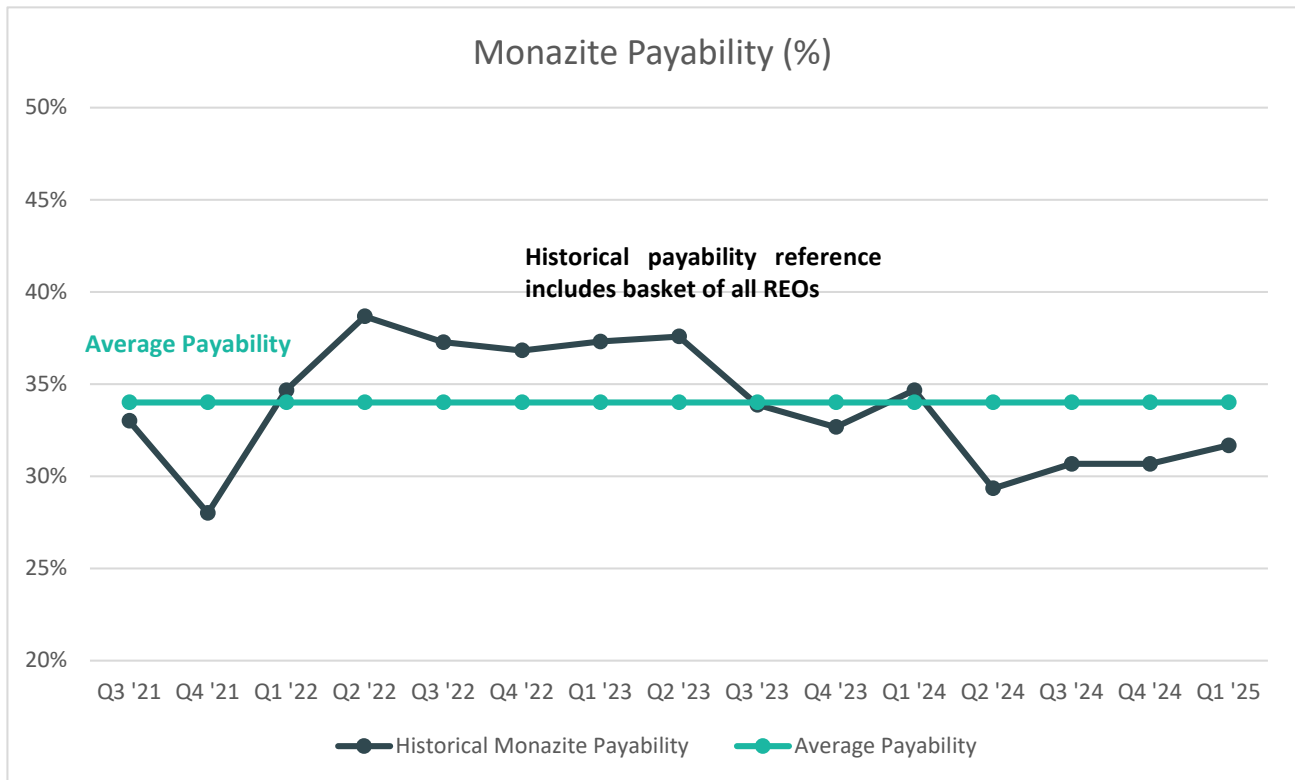


Figure 19-6: Monazite payability

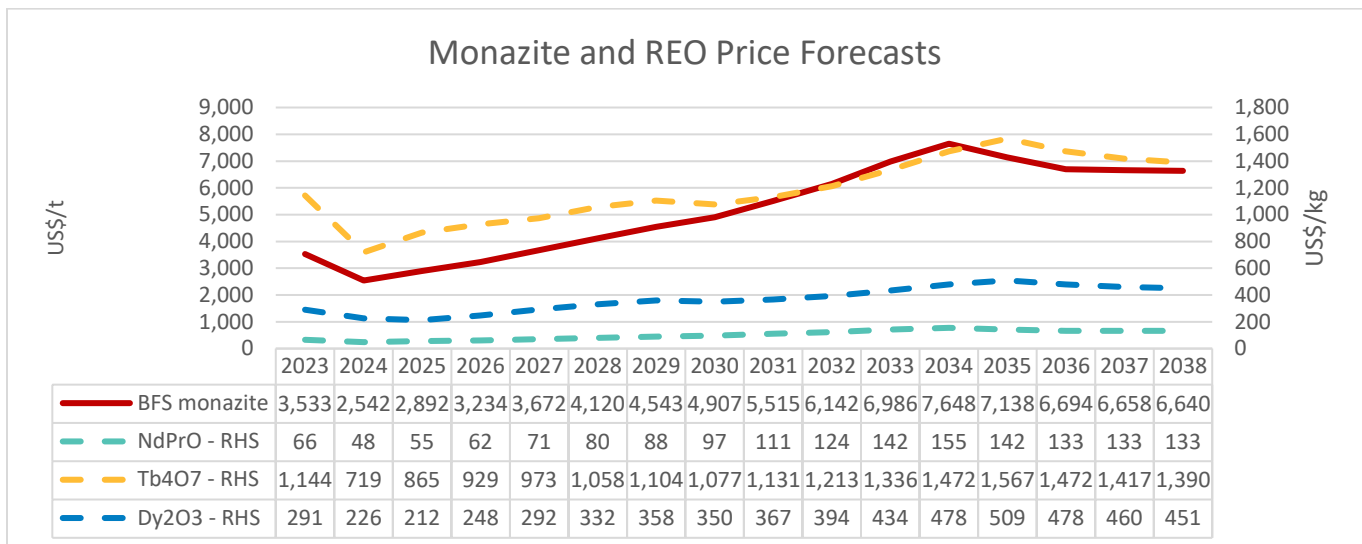


Figure 19-7: Base case price forecasts

19.5 CONTRACTS

19.5.1 Offtake contracts

The main target markets and customers for offtake contracts have been referred to in section 19.3. Ultimately, the final number of offtake agreements entered into, the quantity of production committed under these offtake agreements, and the counter parties with whom the contracts will be established will depend on the requirements of debt providers during funding discussions and negotiations. While detailed offtake contracts may not all have to be finalized by FID, it is intended that at least a binding term-sheet for such offtake contracts will have been agreed prior to FID.

19.5.2 Implementation and operations contracts

There are no existing utilities (power, fuel, water, waste treatment) or services (communications, transport, accommodation) that the Toliara Project can draw from in the area. These utilities and services must be established as a component of the Toliara Project in conjunction with the construction of plant and infrastructure.

The overarching contracting strategy is to maintain continuity and project knowledge through continuing successful relationships with customers, key engineering contractors, and legal services, which have been developed to date. This is further supported by the adoption of appropriate risk-based project delivery models such as EPC, EPCM, build-own-operate, and supply and install contracts based on internationally recognized FIDIC terms and conditions.

The project involves sales of multiple product streams and the establishment of multiple facilities and infrastructure, requiring a comprehensive contracting strategy that includes the following:

- Monazite offtake contract
 - An internal sales contract to the Energy Fuels' White Mesa Mill
- Offtake contracts for the heavy mineral sands product suite
 - Contract terms (particularly duration, product volumes, shipping arrangements and pricing structure) to vary depending on product and customer size, location and company type
 - Typically, large public companies or state-owned companies for bulk products would enter into high-value, multi-year offtake contracts with pricing determined on a 6 or 12-month basis
 - Smaller, less sophisticated, private companies typically purchase products on a shipment-by-shipment basis or under short-form offtake contracts covering shipments agreed to occur at a fixed price for one calendar quarter
- EPCM contracts
- Key implementation contracts
 - Construction of the new Finerenana Bridge
 - Construction of the mineral haulage corridor
 - Construction of offshore marine works
 - Completion of foundation improvements at the export facility
 - Construction of all structural, mechanical, piping, electrical and instrumentation components of the project scope
 - Completion of bulk earthworks
 - Completion of all civil works
 - Construction of all accommodation facilities and buildings

- Procurement of the DMU.
- Key operational contracts
 - Construction and operation of the power station
 - Marine operations
 - Product haulage operations between the mine and export facility
 - Operation of the accommodation facilities
 - Fuel supply to operations
 - Provision of security services to the operation.

19.6 COMMENTS BY QUALIFIED PERSON

Detailed analysis of the market gives a high degree of confidence in the long-term price forecasts, which underpin the strong financial metrics of the Toliara Project and provide it with an exceptional competitive advantage for the life of operations. Base Resources' long-established presence and proven performance in the mineral sands market, including existing strong long-term relationships with major customers across all markets, mean not successfully achieving the marketing strategy for Toliara products is an overall low risk. Target customers have a strong interest in the development of the Toliara Project, and most have already expressed a strong desire to enter into offtake arrangements for Toliara products to secure their long-term supply requirements.

The inability to secure bankable offtake agreements required for debt funding presents a risk to the project. The risk will be mitigated by early engagement with debt financiers to gauge the requirements for revenue cover and ongoing engagement with target offtake partners to ensure efficient negotiation of offtake terms once the required parameters of offtake contracts are known. In addition, Energy Fuels may explore joint venture funding and US Government debt providers who may be willing to underwrite/guarantee the monazite offtake with White Mesa.

Another project risk is unforeseen demand or supply that results in an oversupply of key products in the market and significantly suppresses prices and market opportunities – causing lower than forecast financial outcomes. In particular, the threat of unforeseen supply of ilmenite and zircon from significant quantities of concentrates imported into China. The risk is mitigated by close monitoring of market conditions with regular updates to supply, demand and price outlooks and securing long-term offtake agreements and maintaining strong relationships with a diverse range of key, reliable customers across a number of major markets. Long-term financial outcomes are secured by the high revenue to cash cost ratio (operating margin) for the Toliara project – ranking near the very top of the industry curve.

20 ENVIRONMENTAL STUDIES, PERMITTING, AND SOCIAL OR COMMUNITY IMPACT

Permitting for the Toliara Project is well-progressed, with Exploitation Permit PE 37232 and Environmental Permit N° 55-15-MEEMF/ONE/DG/PE having already been obtained.

Through the Environmental and Social Impact Assessment (**ESIA**) process, the project's Environment Permit was approved and granted on June 23, 2015, together with its associated Plan de Gestion Environnementale (PGE) which presents the project's environmental permitting conditions. In 2017, an Addendum ESIA was prepared and approved through the issuance of the PGE Addendum 1 in January 2018.

An ESIA Update is currently under preparation for assessment of project changes since the previous approval and will include the exploitation of monazite, an update of the environmental and social baseline, and new ESIA regulatory requirements. The ESIA Update will be developed consistent with national and international best practice standards. A suite of environmental and social specialist studies undertaken by international and national subject matter specialists will inform the project's ESIA Update.

20.1 ENVIRONMENTAL AND SOCIAL STUDIES

The Toliara Project ESIA studies have been undertaken in compliance with national legislative requirements and international best practice guidelines and requirements in the form of the Equator Principles, IFC Performance Standards and the World Bank Group Environment, Health, and Safety (**EHS**) Guidelines – General and Sector Specific. The ESIA was supported by specialist studies undertaken by local and international subject matter experts and stakeholder disclosure.

Since 2005, a series of environmental and social studies and documents have been prepared for the Toliara Project and submitted to the *Office National Environnement* (ONE). During 2005, a Scoping Study was undertaken and the Scoping Report submitted to ONE in 2006. The Scoping Report included a Plan of Study for an ESIA, as well as terms of reference for various specialist studies to support the ESIA. Following approval of this document by ONE, specialist studies were conducted during 2006 and 2007, and an ESIA identifying key environmental and social issues was prepared. However, this document was never formally submitted to the Malagasy authorities due to a change in project ownership.

During 2011 and 2012, under the new ownership of WTR, the project design concept was significantly modified and a revised Scoping Report was submitted to ONE and released for public review in April 2012. Various specialist assessments were re-done and/or the studies from 2006 and 2007 updated. These assessments formed the specialist volumes of the ESIA that was submitted to ONE in December 2014. In June 2015, the ESIA was approved and a PGE¹ issued by ONE, representing the permit conditions for Environmental Permit N° 55-15/MEEMF/ONE/DG/PE.

¹ *Plan de Gestion Environnementale* (PGE) – translates as "environmental management plan." It is prepared by ONE and issued together with the Environment Permit as the permit conditions. PGEs are a high-level document with broad, standard recommendations consistent with the ESIA commitments, regional and industry standards. It sets the minimum standards and objectives to which a project proponent and its contractors will be held accountable by the Malagasy authorities and defines the standards and guidelines for implementation of legislative policy, standards, management system and design actions and provisions to avoid significant adverse impacts. It details the project proponents' requirements to: comply with national legal, environmental, social, and health and safety requirements; develop the project and operate consistent with the international best practice recommendations and requirements committed to in the ESIA; and address and manage the potential positive and negative impacts of the project through the implementation of the mitigation measures presented in ESIA's with additional and specific control measures required to reduce negative impacts and maximize positive impacts key issues detailed.

The project assessed and approved through the ESIA comprised the following:

- Mining at 8 Mtpa using a dry mining process, including clearing of vegetation and topsoil stockpiling (for subsequent replacement during rehabilitation), excavation and slurring of ore for transport to the processing plant, back filling of mined area with tailings, and progressive rehabilitation of the mining void following reapplication of stockpiled topsoil and replanting of vegetation
- Production of heavy mineral concentrate from slurried ore at a processing plant with tailings returned to the mining void
- Separation of heavy mineral concentrate into saleable mineral products
- Transport of the final products by truck to the export facility via a dedicated mineral haulage corridor through the Ranobe-PK32 Protected Area, with:
 - Ilmenite products bulk loaded and transported via conveyor along a dedicated jetty directly onto vessels docked alongside the jetty
 - Zircon/rutile concentrate either loaded into containers at the export facility and transported to the Toliara Port Quay for loading onto container vessels or bulk vessels using the same infrastructure as for ilmenite

Subsequent to the ESIA, WTR made changes to the original project design and in 2017 an Addendum ESIA was submitted to ONE for approval which reflected the following assessed changes to the project:

- Increase in mining rate from 8 Mtpa to 12 Mtpa of ore with associated:
 - Increase in water usage from 560 m³/h to 886 m³/h
 - Increase in energy requirements with a 50% increase in diesel fuel
- Relocation of the MSP and associated realignment of the haul road and relocation of the initial ex-pit TSF.
- Extension of the mining footprint
- Inclusion of a construction access road through the Ranobe-PK32 Protected Area.

Following the review and approval of the Addendum ESIA, ONE subsequently issued PGE Addendum 1 for the project in December 2017.

Base Resources acquired the Toliara Project in January 2018 and completed a series of detailed studies which has resulted in enlarged Mineral Resource and Mineral Reserve estimates, significantly increasing and enhancing the project compared to that detailed and assessed in the Addendum ESIA.

As a result of changes to the project, changes in environmental (and social) legislation, and changes to the environmental and social baseline since the Addendum ESIA, an ESIA Update will be prepared. The ESIA Update will be supported by the collection of data on the current environmental and social baseline, an assessment of the project changes on the biophysical and social environment by ESIA and subject matter specialists, and disclosure to stakeholders in accordance with the requirements of MECIE 2025² and international best practice.

² The principal legislation governing the compatibility of investments with the environment (*Mise en Compatibilite des Investissements avec l'Environnement*) was updated with the adoption of Decret N°2025-080 on January 28, 2025 (MECIE 2025). Compared with prior versions of this legislation, MECIE 2025 provides more advanced social, climate and biodiversity considerations aligned with international standards.

The ESIA Update is designed to assess the following changes introduced since the Addendum ESIA:

- Production, transport and export of containerized monazite product; previously, monazite was treated as a waste stream disposed of with other tailings
- Increase in mining rate from 12.6 Mtpa to 25.0 Mtpa in Stage 2 and consequential increase in production volume, with associated:
 - Increase in water usage from 886 m³/h to 1,315 m³/h in Stage 2
 - Increased rate of land clearing and increased area exposed at one time
- Relocation of the mine site infrastructure and mine plan to optimize exploitation of the resource and improve operational efficiencies
- Increased Mineral Reserve leading to an extended mining footprint
- Relocation of the TSF and increase in volume to 22 Mt of co-disposed slimes and sand mix from a 0.68 Mt slimes dam and separate sand tailings storage area
- Power generation updated to a hybrid system that incorporates solar PV and battery storage with diesel generators, providing opportunities to deliver a net-zero project in the future
- Changes to the export facility and jetty to allow for ship-loading by conveyor and direct loading of containerized monazite product
- Dedicated mineral haulage corridor route to be upgraded to a paved surface (previously unpaved) to reduce environmental impact
- Consideration of climate change impacts.

The purpose of the ESIA Update is to assess and predict the potential adverse social and environmental impacts of the project changes and to develop suitable mitigation measures which will be presented in the project's Environmental and Social Management Plans (ESMPs). To manage the risks, impacts and opportunities on the biophysical and social environment, a comprehensive Environmental and Social Management System (ESMS) will be developed and implemented. The ESMS will be developed consistent with national and international best practice standards and incorporate a suite of management plans and programs. As part of the ESMS documentation, ESMPs will be developed for the construction, operational, and closure phases of the project.

Various environmental and social specialist studies are being undertaken by international and national subject matter specialists to inform the project's ESIA Update and ESMS documentation. Consistent with best practice, these specialist studies will be informed by the collection of ecological, physical environmental, and socio-economic data in the region to ensure that potential adverse impacts on the biophysical and social environment can be assessed and suitable mitigation measures identified.

20.2 ENVIRONMENTAL AND SOCIAL SETTING

The project is situated in a sensitive environment, with unique flora and fauna and complex social dynamics, which make it vulnerable to environmental degradation and social unrest. The environmental and social setting presented below has been informed by the various ESIA specialist studies conducted as part of the original ESIA, Addendum ESIA, and data in the public domain. The specialist studies currently underway will provide the information to develop a current understanding of the project's environmental and social setting prior to the commencement of construction activities and provide a baseline against which change can be monitored.

20.2.1 Environmental setting

Madagascar is the world's fourth largest island and is recognized as one of the world's top ten hotspots for biodiversity, owing to its unique biota and exceptional species diversity. It is estimated that there are over 13,600 plant species on the island. Of these, 80% or more occur nowhere else. Human settlement commenced in Madagascar between 4,500 and 2,000 years ago and has resulted in the clearing of much of the island's forest habitats. Madagascar is globally important in terms of its biodiversity; it is within the Madagascar and Indian Ocean Islands Biodiversity Hotspot, as designated by Conservation International. Despite considerable biological interest, knowledge of the biodiversity in the region is still hampered by unresolved taxonomic challenges and poor sampling.

The Toliara Project area is within the Critically Endangered Madagascar Spiny Thicket Ecoregion, which is divided into succulent woodlands and spiny thickets. The total size of the ecoregion is 124,000 km², being part of the larger deserts and succulent shrublands habitat type of Madagascar. The spiny thicket is exceptional in this regard, with 89% of all plant species and 48% of the genera of the species occurring in the ecoregion endemic to Madagascar. The thicket is dominated by members of the endemic Didiereaceae family. Fauna is also important for this region, with the Spiny Thicket Ecoregion having high levels of endemism, of which several species have limited distribution ranges.

The conservation of forested habitats is a priority as they are subject to the greatest anthropogenic threats. There are few protected areas within the Critically Endangered Madagascar Spiny Thicket Ecoregion, with very little known about the biodiversity and ecology of the region. Reserves protect approximately 3% of the region, leaving the rest susceptible to degradation. The main threats include charcoal production, logging for construction, grazing of domestic animals (primarily zebu cattle, but also goats) and slash-and-burn agriculture. Invasive plant species are also causing a loss of habitat, as is illegal collecting of endemic and endangered species for commercial trade.

The project is located between the two semi-dry river systems of the Fiherenana and Manombo, on the border of the Spiny Forest Protected Area, referred to as "Ranobe-PK32 Protected Area" (Nicoll & Langgrand, 1989), and includes some identified high-value conservation zones within a broader area identified for sustainable use (see Section 20.2.2).

A Biodiversity Action Plan (BAP), as required by MECIE 2025 and IFC Performance Standard 6, will be developed as part of the project's ESMS documentation. The BAP will identify mitigation strategies for managing the adverse impacts to the region's flora and fauna and the ecosystems on which they and local communities depend. The BAP will also identify opportunities for improving conservation and biodiversity outcomes in the region, which will be implemented through the project's biodiversity programs.

20.2.2 Ranobe-PK32 Protected Area

The southern, eastern and western boundaries of PE37242 abut Ranobe-PK32 Protected Area (see Figure 20-1) and the project's purpose-built and dedicated mineral haulage corridor will traverse the protected area.

The Ranobe-PK32 Protected Area is a multiple-use protected area, approximately 168,000 ha, of limestone plateaux and coastal sands between the Fiherenana and Manombo Rivers in southwest Madagascar. It supports a rich flora and faunal biodiversity and diverse avifauna. The formal declaration of the protected area occurred on May 5, 2015. It is a multiple-use protected area primarily zoned for sustainable natural resources use by local communities. The Ranobe-PK32 Protected Area is zoned into core conservation zones with the remainder for sustainable use comprising controlled occupied zones for commercial exploitation of forest resource and sustainable management areas. Under the International Union for Conservation of Nature (IUCN) Protected Area categories, it is assigned as Category VI: Protected Areas with Sustainable Use of Natural Resources.

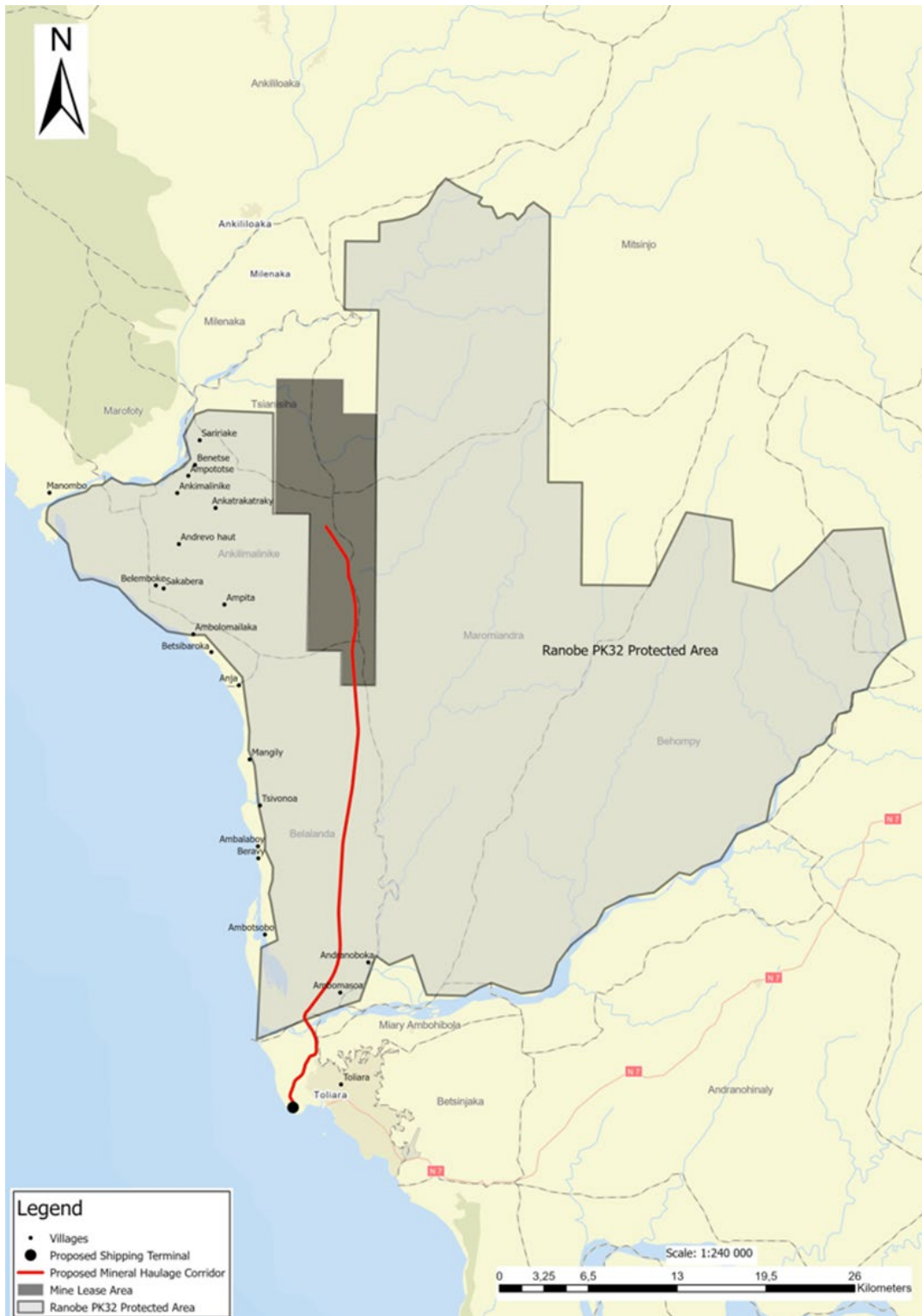


Figure 20-1: Plan of PE 37242 and Ranobe-PK32 Protected Area

The Ranobe-PK32 Protected Area, like much of the Spiny Thicket Ecoregion, is subject to anthropogenic threats, including charcoal production, logging, grazing of domestic animals, slash-and-burn agriculture, spread of invasive plant species, and illegal collection of endemic and endangered flora and fauna species. These threats have resulted in significant loss of habitat. Efforts to conserve the protected area have so far had limited success in halting the loss of habitat, although positive progress has been made with conservation organizations and regional authorities working in partnership with communities to protect and improve five core conservation areas designated within the larger protected area. The core conservation areas cover less than 13.5%³ of the protected area. Research in the project area has been limited and generally conducted by researchers working on behalf of the conservation non-governmental organizations in the Ranobe-PK32 Protected Area.

The development and operation of the Toliara Project in close proximity and within this environmentally sensitive area requires the implementation and monitoring of control mitigations to manage the risk and impacts to the protected area. Mitigations identified during the ESIA process will be incorporated into the ESMS documentation, including the construction and operational environmental and social management plans and will be monitored through the project's environmental and social monitoring programs.

The BAP, as planned, will present the strategic framework outlining the project's plan for conserving biodiversity in the region of operation, including the Ranobe-PK32 Protected Area and other regional protected areas. Informed by flora, fauna and biodiversity specialist studies, the BAP will include the following:

- Mitigation measures for protecting and conserving Ranobe-PK32 through undertaking and supporting research
- Implementation of strict mitigation controls
- Implementation of monitoring programs
- Implementation and support of conservation initiatives for improving biodiversity and protecting species and habitats to mitigate the impact of the project on the protected area
- Opportunities for improving conservation and biodiversity in the broader spiny thicket ecoregion through the support of conservation initiatives and implementation of offset programs in other protected areas within the ecoregion.

20.2.3 Socio-economic setting

Madagascar is a very poor country (\$516 per capita gross domestic product (World Bank, 2022a)), with 75% of people in Madagascar living in poverty in 2022 (World Bank, 2022b). Two political crises over the past 15 years have resulted in very low growth and almost no investment in physical infrastructure such as road networks, education, and health facilities. Poverty reduction strategies are hampered by poor access to markets across the nation and severe infrastructure deficits. Although economic growth decelerated from 5.7% in 2021 to 3.8% in 2022, largely due to the spillover effects of COVID-19 and climate shocks, it has been gradually recovering. Madagascar also suffers from high inflation, with a headline rate of 8.5% expected in 2024-2025.

Combined with this, Madagascar has been affected by climate change impacts and has faced several severe climate shocks in recent years which have impacted the agricultural sector. The southern region of Madagascar, where the Toliara Project is located, has been particularly affected by extreme weather events, including droughts, cyclones, landslides, and locust plagues. These impacts have resulted in increases in moderate acute malnutrition among children under five years of age. Several interventions by humanitarian organizations have been implemented to reduce

³ The current Ranobe-PK32 Protected Area is larger than the area mapped and categorized in Virah-Sawmy, *et al.* (2014).

malnutrition incidences, but none have been able to adequately build resilience into the agricultural systems to provide a buffer during times of climate shocks and disasters (Healy, 2018).

Land within the mine site is primarily utilized for grazing and collection of natural resources by households residing outside of the mine site. A Resettlement Action Plan (**RAP**) will be developed consistent with the requirements of IFC Performance Standard 5 and will detail the process for resettlement of households that will be displaced through the surface rights acquisition process.

Sites of cultural heritage significance have been identified within the mine lease and the haulage corridor wayleave. These include tombs, sacred trees, cultural heritage sites, and archaeological sites. A cultural heritage and archaeological specialist study and associated Cultural Heritage Management Plan will identify and confirm the sites of cultural heritage significance and present the mitigation controls for managing these sites. The RAP will detail the process of relocation of tombs within the mine lease and haulage corridor.

20.3 WASTE AND TAILINGS DISPOSAL, SITE MONITORING, AND WATER MANAGEMENT

20.3.1 Tailings management

Co-disposal of coarse (sand) and fine (slimes) tailings will be utilized and can be readily achieved based upon the low slimes content of the ore and the design and operational experience gained at Kwale in recent years.

At the commencement of operations, the tailings will be pumped to a surface TSF until sufficient space is available for tailings placement in a mined-out section of the pit. The TSF will be required to store approximately 14 Mm³ of tailings and result in a landform with final dimensions of approximately 20 m high, 2,200 m long, and 450 m wide. The TSF is located on low-grade Inferred Resource material near the initial WCP1 location to keep pumping costs low. The tailings landform will be progressively rehabilitated to minimize dust levels and allow the operations rehabilitation team to test various vegetation mixes and monitor regrowth rates to refine the rehabilitation strategy. The TSF is required for the first 24 months of operations.

Once sufficient space becomes available in the mined area, tailings are returned to mined-out voids, which are backfilled, contoured, and then have topsoil and vegetation returned for endemic vegetation rehabilitation.

Designs have been completed for the initial ex-pit TSF and in-pit tailing storage methodology for the first five years of operations, after which appropriate in-pit tailings deposition assumptions have been applied.

For more information on tailings deposition and management, refer to Section 16, and for layout of the proposed TSF, refer to Section 18. The ESMS Tailings Management Plan will detail the mitigation controls for managing the risks and impacts associated with the construction and operation of the TSF and the in-pit tailings management. A comprehensive tailing monitoring program will be developed and implemented to monitor the effectiveness of the control mitigations.

20.3.2 Water management

A global water balance has been established for the Toliara Project mine for Stage 1 operations and for the increased Stage 2 mining rates. The water balance accounts for the moisture contained in the ROM (calculated in addition to the 1,750 tph of dry tonnes mined), water recycling, and losses in the system due to evaporation and the disposal of coarse and fine tailings. The raw water makeup demand for Stage 1 is calculated to be 845 m³/h increasing to 1,315 m³/h in Stage 2. Raw water is sourced from boreholes drawing from groundwater (see Section 18).

The process water dam at each WCP has been sized to allow 48 hours of operation in the absence of makeup water from the bores. The MSP can run independently for 24 hours using water from the MSP raw water storage without water from either the bores or the WCP.

20.3.3 Sewerage and wastewater treatment and management

A central wastewater treatment plant (WWTP) will be established north of the northern accommodation village to manage all sewage and domestic wastewater generated during both the construction and operational phases of the project. This includes effluent from the MSP, MSA, WCP, power station ablution blocks, and the accommodation village.

Wastewater from the MSA, MSP, and power station will be transported to the WWTP via a network of macerator pumps and pipelines. Sewage from remote locations—including the export facility, southern Accommodation Camp and outlying WCPs—will be collected and transported to the WWTP by road tanker.

More information related to wastewater treatment is included in Section 18.

20.3.4 Radiation management

The integration of monazite processing, product transport, and export into the Toliara Project introduces additional radiation management and monitoring measures to ensure that risks to employees, the public, and the environment are understood and managed according to international best practice, good international industry standards, Malagasy regulations, and International Atomic Energy Agency (IAEA) standards and recommendations.

A radiation management system, reflecting the following core principles, will be developed and implemented before project commissioning:

- Compliance with the Malagasy law governing radiation protection and management
- Compliance with IAEA recommendations, requirements and standards; as a member state of IAEA, Madagascar is required to implement measures to meet IAEA standards
- Compliance with international best practice and good international industry standards
- Adoption of established industry-standard radiation control measures that have proven effective for managing radiation risks associated with the mining, processing, and transport of mineral sands and monazite, including the implementation of a radiation monitoring program to measure the effectiveness of radiation control and ensure that the mining, processing, and transport of mineral sands and monazite do not pose a risk or impact employees, communities, or the environment
- Provision for auditing of the project's radiation management controls and monitoring program by the *Autorité Nationale de Protection et de Sureté Radiologique* through the Institut National des Sciences et Techniques Nucléaires, Madagascar's radiation regulatory authority.

20.3.4.1 Radiation controls

- The management of radiation risk is a mature and established process, having been successfully implemented on a global scale for many decades. The Toliara Project will benefit from Energy Fuel's extensive experience in managing radiation risks and impacts at its operations in the United States of America. While radiation exposure risk to employees is inherently low, the Company is committed to implementing all practicable measures to further mitigate risk and minimize radiation exposure to the fullest extent practicable. The Radiation Management Plan and associated operational and environmental monitoring programs will be informed by international best practice and good international industry standards.

The following operational controls to manage radiation exposure are detailed in a preliminary Radiation Management Plan:

- Classification of workplaces as Unsupervised, Supervised, Controlled, and Restricted; based on varying exposure levels, plant areas are categorized with specific management controls implemented for each category
- Management of waste from controlled and restricted sites
- Occupational and Environmental Radiation Monitoring programs, focusing on:
 - Contamination due to adherence of radioactive materials via alpha monitoring of surfaces
 - Radon/thoron gas monitoring
 - Dust monitoring
 - Water testing for contamination by radioactive solids
 - Stack emission testing for solids containing thorium and uranium
 - Establishment and monitoring of community and environmental exposure pathways
 - Environmental monitoring along the haulage corridor and in the marine environment at the export facility
- A work permit system for minimizing and monitoring personal radiation exposures in all plant areas.

20.3.5 Hazardous materials management

Hazardous reagents, primarily used in the laboratory, will be securely stored in appropriate containers and on-site storage tanks within a bunded area to prevent spills and ensure environmental protection. Hydrocarbon products and hydrocarbon waste will be securely stored in appropriate containers and on-site storage tanks within a bunded area to prevent spills and ensure environmental protection. Hazardous medical waste from the on-site clinic will be stored and disposed in accordance with international best practice and Malagasy regulation.

Used oils, lubricants, and hydrocarbon-contaminated waste—including soil, absorbent pads, oil filters, and rags—will be stored in designated containers in bunded areas behind the HME workshop. Waste oil will be returned to the supplier or recycled through authorized channels. Other hydrocarbon waste streams will be handled separately and disposed of following international best practice and good international industry practices.

Due to the presence of naturally occurring radioactive material (NORM) in monazite, additional precautions will be applied to any waste potentially contaminated through handling activities in the MCP. General waste from the MCP will undergo a controlled washdown process to remove residual dust or contamination prior to entering the standard waste stream. Any items that cannot be adequately cleaned will be disposed of as low-level contaminated waste according to the site's Radiation Management Plan.

20.3.6 Waste management

Waste management across the project has been designed to comply with international best practice, Malagasy regulations, and good international industry standards, ensuring that impact to the environment is minimized through the implementation of management controls and practices.

Construction activities will generate various waste streams, including offcuts, packaging, and scrap materials. Contractors will be required to sort and segregate these wastes at dedicated laydown areas. Recyclable materials will be processed separately, while non-recyclable inert materials will be transported to the controlled landfill. Hazardous construction waste (e.g., paint cans, solvents, adhesives) will be stored securely and disposed of by licensed contractors.

General solid waste and putrescible kitchen waste generated from operational and accommodation areas will be collected and disposed of at a controlled landfill facility located to the south of the northern village and west of the mineral haulage corridor. Waste will be transported in covered vehicles and managed in accordance with approved waste handling procedures to avoid littering, odor, or pest issues.

Materials with potential for reuse or recycling (e.g., wood, plastics, metals) will be repurposed where feasible and recyclable materials will be sold or transported off-site to licensed recycling facilities.

Waste management will be tracked through a site-wide reporting system with regular reporting and audits to ensure compliance with the project's ESMPs and reporting requirements. Staff and contractors will receive training in appropriate segregation, storage, and reporting procedures as part of the project's induction and training programs.

20.4 ENVIRONMENTAL AND SOCIAL MANAGEMENT SYSTEM

A comprehensive ESMS and associated ESMPs will be developed and implemented to meet the requirements of the project's ESIA, corporate policies, legislative requirements, and international best practice for the Toliara Project.

The project's ESMPs will ensure that the social and environmental impacts, risks, and liabilities identified during the ESIA process are effectively managed during the construction, operation, and closure phases of the project and that identified opportunities for improving mitigations are implemented. The ESMPs are designed to provide a framework for the implementation of the issue-specific environmental and social management mitigation requirements and initiatives. The ESMPs will be informed by the findings of the specialist studies and current baseline data, legislative requirements and good industry standard practices. The suite of ESMPs for the Toliara Project are designed to address key issues through the following plans:

- **Biodiversity Action Plan:** The BAP will be developed and implemented in consultation with biodiversity, ecological, floral, and faunal specialists. The BAP will identify and present the project's strategy and programs for managing biodiversity and will consider and address threatened species and habitats and ecosystem services consistent with the requirements of IFC Performance Standard 6 and its associated Guidance Note
- **Cultural Heritage Management Plan:** Informed by the cultural heritage and archaeological specialist studies, this ESMP will identify and confirm the sites of cultural heritage significance and present the mitigation controls for managing risks and impacts to these sites. It will also identify opportunities for preserving the region's cultural heritage through programs developed in consultation with community elders
- **Hazardous Materials Management Plan:** This ESMP will detail the mitigations and operational controls for managing hazardous material
- **Hazardous Waste Management Plan:** This ESMP will detail the mitigations and operational controls for managing the risks and impacts for the project's hazardous waste
- **Labor Recruitment and Influx Management Plan:** This ESMP will present the mitigations to manage risks and impacts associated with project induced in-migration and ensure opportunities for maximizing local employment and procurement are incorporated into project development and operations. This will ensure that employment and supplier procurement opportunities for the Toliara communities are maximized
- **Livelihood Replacement Plan:** This ESMP will detail the strategy and programs that will be implemented for those whose livelihoods are impacted by the project. It will be developed consistent with IFC Performance Standard 5 recommendations and associated Good Practice Handbook on Land Acquisition and Involuntary Resettlement (IFC, 2023)

- **Radiation Management Plan:** This ESMP will detail how the project will comply with Malagasy law, IAEA recommendations, requirements and standards, IBP international best practice, and good international industry standards, and adopt established industry-standard radiation control measures for managing radiation risks associated with the mining, processing, and transport of mineral sands and monazite. It will provide for auditing of the project's radiation management controls and monitoring program and demarcation of all work areas into unsupervised, supervised, controlled, and restricted areas subject to varying levels of supervision and control to manage the risk to employees and members of the public
- **Resettlement Action Plan:** The RAP will detail the resettlement and compensation processes that will be followed to address and mitigate impacts on persons displaced by the Toliara Project. Relocation of tombs within project-impacted areas will be addressed in the RAP. It will be developed consistent with IFC Performance Standard 5 recommendations and associated Good Practice Handbook on Land Acquisition and Involuntary Resettlement (IFC, 2023)
- **Sewerage and Wastewater Management Plan:** This ESMP will detail the mitigations and operational controls for managing the project's sewerage and wastewater
- **Stakeholder Engagement Management Plan:** This ESMP will detail the stakeholder mapping and engagement that has been undertaken to date and will provide the strategy and approach for the engaging with local communities and other external stakeholders during construction and operational phases of the project
- **Tailings Management Plan:** This ESMP will detail how the project's tailings will be managed and the practices that will be adopted to optimize the use of tailings to ensure successful reclamation
- **Waste Management Plan:** This ESMP will detail the mitigations and operational controls for managing the risks and impacts for the project's non-process waste. To reduce the amount of waste sent to landfill the project will identify and pursue sustainable waste opportunities through adoption of the principles of reduce, reuse, and recycle
- **Water Resources Management Plan:** This ESMP will detail the mitigations and operational controls for managing the project's water resources to ensure that water resources are managed responsibly, and that legislative requirements, and good international industry practices are implemented, and opportunities for reducing water consumption through climate smart initiatives are implemented. It will present the water standards and monitoring controls that the project will adopt.

Comprehensive environmental, social, and occupational monitoring programs will be developed and implemented to assess the effectiveness of the mitigation controls on the biophysical and social environments and to monitor change against the baseline. The monitoring programs will be developed in consultation with subject matter specialists and the findings of the specialist studies. They will be designed to meet legislative and permitting requirements, international best practice, and good international industry standards to ensure that the project's impact on the biophysical and social environment is limited and management controls and mitigations are implemented effectively. The monitoring programs will assess, and measure change against baseline.

In addition to the issue specific ESMPs, various phase-specific *Plans de Gestion Environnementale et Social – Spécifique* (PGES-S') will be developed for the different phases of the Project and submitted to ONE as detailed in Section 20.7.

20.5 REHABILITATION AND ECOLOGICAL RESTORATION

On completion of mining, the land will be rehabilitated to the same or an improved condition than it was prior to the commencement of mining. With the exception of a small area of subsistence mixed agricultural use in the northeastern section of the mine lease, the land within the mine lease is endemic spiny forest vegetation that has been subjected to extensive anthropogenic pressure predominantly in the form of clearing and burning of vegetation for charcoal

production, wood fuel, and grazing pressures. Invasive cactus or prickly pear species of the genus *Opuntia* are a common sight in the region's landscape, including within the mine lease. Informed by high resolution satellite imagery and on-site verification, the land use and land change specialist study, and the vegetation specialist study, a pre-mining baseline will be documented and used as the baseline against which land restoration and rehabilitation can be measured and monitored.

ESIA studies have identified critical habitats within the mine lease that are required to be protected. The extent and current condition of critical habitats within and bordering the project footprint will be established through the specialist studies. Control of these will be managed through the project's construction and operational ESMPs. The BAP will identify opportunities for conserving and improving biodiversity within critical habitat through the implementation of targeted biodiversity programs.

The project's strategy extends beyond rehabilitation, to ecological restoration with an objective of restoring ecological function to rehabilitated areas. Working with external specialists, rehabilitation of construction-impacted areas will begin following completion of construction activities and will provide an opportunity to identify rehabilitation methodologies that are effective and adapted to Madagascar's unique spiny forest biodiversity and vegetation for use in future rehabilitation of mined areas. Assessment and monitoring by external specialists will be undertaken to provide assurance to project stakeholders, including environmental authorities, that the land has been successfully rehabilitated and ecological function restored.

To minimize impact and maximize opportunities for successful rehabilitation, vegetation clearance will be minimized during construction. During mining operations, the vegetation clearance and topsoil management strategy is to minimize the area exposed at any one time and to effect rehabilitation as soon as possible, to minimize the amount of topsoil in stockpile and maximize the efficiency of topsoil (see Section 16.1.7). When vegetation clearing is required, extensive faunal sweeps will be conducted in the weeks leading up to the clearing to find and relocate nesting, roosting, slow-moving, or burrowing species that cannot move away from the heavy machinery. Cleared vegetation will be pushed to the side of cleared areas to provide temporary refuge for faunal species. Cleared vegetation will later be chipped and mulched for use in the project's restoration and rehabilitation efforts.

Recontouring of the mined areas will be undertaken progressively as mining activities transition to new mining blocks (see Section 16.1). Following recontouring, stockpiled topsoil from the same block (where practically feasible) will be replaced in preparation for revegetation. Endemic seeds will be collected for use in the project's on-site rehabilitation nursery, providing the endemic vegetation required for rehabilitation in a successive approach that emulates natural selection which is extremely slow in arid regions. Throughout this successive rehabilitation, alien vegetation will be removed to prevent invasive species from taking hold in disturbed areas. This approach is designed to ensure that the disturbed area at any time is minimized, growth of endemic vegetation and natural succession is promoted, ecological functioning can be restored, regulatory requirements satisfied, and the project's social license to operate sustained.

20.6 DECOMMISSIONING AND CLOSURE

The mine site will be progressively rehabilitated throughout operations as detailed above, which will minimize the areas requiring reclamation and rehabilitation at the end of project's mine life. Infrastructure will be decommissioned consistent with good international industry standards or handed over to the Government in cases where infrastructure can be repurposed for the benefit of the region, as may be the case with some of the supporting infrastructure.

Prior to the start of operations, a five-year rehabilitation plan detailing the rehabilitation requirements and plan for the first five years of operations is required to be prepared and submitted to ONE. Subsequent five-year plans are required thereafter.

A conceptual closure plan will be prepared prior to the start of operations, consistent with good international industry standards. This plan will ensure that closure is an integral part of the mine operations' core business and considers environmental, social, and economic factors through the life of the mine. It will provide updated closure planning and costs based on the as-built infrastructure and mine plan. Based on recent experience gained decommissioning the Company's Kwale Mine, a high-level decommissioning and closure cost estimate of \$20 million has been made for the Toliara Project, which is included in the project's financial model.

20.7 PERMITTING

Permitting for the Toliara Project is well-progressed. Exploitation Permit PE 37242 has been received and the Environmental Permit N° 55-15/MEEMF/ONE/DG/PE was granted on June 23, 2015.

The primary legislation governing the process and requirements for an ESIA, and the subsequent issuance of an Environment Permit, is *Mise en Compatibilité des Investments avec l'Environnement* (MECIE) which was recently updated by Decree no. 2025-080 on January 28, 2025 (MECIE 2025). Various other pieces of legislation governing aspects of the natural and social environments require consideration when preparing an ESIA and associated mitigations and recommendations as reflected in a project's ESMS.

PGE Addendum 1 will be updated as part of the ESIA Update process to reflect project changes and associated mitigation controls consistent with the requirements of MECIE 2025, which will now be in the form of a *Plan de Gestion Environnementale et Social* (PGES) rather than a *Plan de Gestion Environnementale* (PGE) as was required under the previous version of MECIE. The change in terminology from PGE to PGES reflects the elevation of the importance, and requirement, of fully considering and integrating the social environment within the ESIA process. This aligns with current international best practice and good international industry standards. This updated PGES will be submitted by the Company to ONE, together with the ESIA Update, whereupon ONE will issue the *Cahier de Charges Environnementale* detailing any additional permit conditions. Prior to MECIE 2025, ONE prepared and issued the PGE, based on the ESMP submitted with the ESIA, to serve as the permitting requirements.

Consistent with the requirements of MECIE 2025 and PGE Addendum 1 that it will supersede, the PGES will require a number of phase and area specific ESMPs to be submitted to ONE prior to the commencement of the construction, operational and closure phases of the project. These phase and area specific ESMPs and *Plans de Gestion Environnementale et Social – Spécifique* (PGES-S') will provide design and implementation information relevant to the four primary project areas for each phase of the project as detailed in Table 20-1. Given that Stage 2 of the project implements significant operational changes, it is anticipated that PGES-S' will also be required to be prepared prior to the commencement of Stage 2 construction and operations.

Table 20-1: Specific PGES-S' developed for the Toliara Project

Authority	Project phase	Plans de Gestion Environnementale et Social – Spécifique	Date of submission	Status
ONE	Construction phase	- Quarry Construction PGES-S - Road Construction PGES-S - Mine Site Construction PGES-S - Jetty and Export Facility Construction PGES-S	To be submitted three months prior to construction start	In preparation
ONE	Operational phase (Stage 1)	- Quarry Operation PGES-S - Road Operation PGES-S - Mine Site Operation PGES-S - Jetty and Export Facility Operation PGES-S	To be submitted three months prior to start of operations	To be prepared during the construction phase to meet submission requirements
ONE	Operational phase (Stage 2)	- Mine Site Stage 2 PGES-S – Construction - Mine Site Stage 2 PGES-S – Operation	To be submitted three months prior to the start of Stage 2 construction activities and operations, respectively	To be prepared during the Stage 1 operational phase to meet submission requirements
ONE	Closure and decommissioning phase	- Quarry Decommissioning and Closure PGES-S - Road Decommissioning and Closure PGES-S - Mine Site Decommissioning and Closure PGES-S - Jetty and Export Facility Decommissioning and Closure PGES-S	To be submitted three months prior to decommissioning	To be prepared during the State 2 operational phase to meet submission requirements

The following key licenses and approvals are active for the Toliara Project (Table 20-2). The date of issue, the permit and approvals details and authorizing authority and expiry date (where applicable) are detailed. In addition to the key active licenses and approvals temporary occupation authorizations have been obtained from land owners and local authorities authorizing access to the land to undertake engineering and ESIA studies prior to the completion of the land acquisition process.

Table 20-2: Toliara Project active key licenses and approvals

Authority	Date of Issue	License / Approval	Expiry
Ministere Aupres de la Presidence Charge des Mines et du Petrole	03/21/2012	Mining License PE37242 – Exploitation Permit PE 37242	03/20/2052
ONE	06/15/2015	Environmental Permit N° 55-15/MEEMF/ONE/DG/PE The ESIA Update and associated ESMP will reflect the project changes and updated mitigation measures, including the processing and transport of monazite product.	N/A
Direction Generale des Travaux Publics	10/14/2014	Principle Agreement (Accord de Principe No. 302-MT/SG/DGTP/14) from the Directorate of Public Works) for the construction of an access road connecting the mine site to Batterie Beach, a causeway over the Fiherenana River and an intersection over the national road to transport products.	N/A
Agence Portuaire Maritime et Fluviale	06/05/2015	Principle Agreement (Accord de Principe No 549-APMF/DG/15) from the Ports Authority for the construction of a new facility and jetty at Batterie Beach for the export of product.	N/A
Direction Generale des Forets	06/10/2017	Principle Agreement (Accord de Principe No. 001/17/MEED/SG/DGF) from the Directorate of Forests – Approval of the construction and operation of “improved option 2” road for the construction and operation of a road for transport of product through the Ranobe-PK32 Protected Area.	N/A
Direction Generale des Forets	01/22/2018	Principle Agreement Amendment (Avenant a l’Accord de Principe No. 001/17/MEED/SG/DGF) from the Directorate of Forests – Approval for the use of the PK32 Baobab Road for access to the mine site.	N/A

20.8 COMMENTS BY QUALIFIED PERSON

Base Toliara holds a valid Environment Permit. The ESIA Update and supporting ESMS documents will provide the necessary basis for authorization to construct, operate, and close the project. It is the opinion of the qualified person that the ESIA Update, prepared by consultants, ERM, and subject matter specialists, will adequately identify risks and impacts to the biophysical and social environment. Development of the ESMPs, including environmental, social and occupational monitoring programs informed by current specialist baseline studies and prepared by specialists and implementation of these by the Toliara Project team, will ensure that the mitigation controls are effective and provide a mechanism for implementation of improvements or changes as required. The operation of a Good International Industry Standard (GIIP) ESMS as planned for the Toliara Project will ensure that any issues related to environmental and social compliance, permitting and engagement with stakeholders are appropriately managed and addressed.

Project delays arising from local political interference and/or civil unrest represent a key risk. To mitigate this, stakeholder mapping is being undertaken to identify and assess regional stakeholders, engaging is ongoing at the national level to maintain support from the Government of Madagascar, and community and stakeholder consultation programs are being implemented. In addition, a grievance mechanism is being established, designed to align with traditional and cultural practices, providing timely responses to concerns. Employment opportunities and training, as

well as investment in broader social programs will be implemented to support local communities and strengthen social licence to operate.

Another key risk to the project is the presence of endangered species within the project area. The presence of the Critically Endangered Belalanda Chameleon *Fucifer belalandaensis* habitat in close proximity to the mineral haulage corridor may affect the alignment of the corridor. A Species Action Plan will be developed to define measures for mitigating impacts of the corridor's construction, and operation on the species. The plan will also explore opportunities to enhance conservation outcomes through research, conservation programs, and species protection initiatives.

21 CAPITAL AND OPERATING COST

21.1 CAPITAL COST ESTIMATE

The capital estimate has been prepared in accordance with AACE guidelines, with a Class 2 level of accuracy (+10%/-5%) and a base date of Quarter 2, 2025.

The cost estimate includes the required enabling activities (Pre-FID), mining, concentration, separation, haulage, and shipment of product for the following project stages.

- Pre-FID Stage: Includes the social, environmental, licensing, land acquisition and FEED (Front-end Engineering Design) activities required to ensure that the project is technically, financially and regulatorily sound
- Stage 1: 1,750 tph mining operation; 1.2 Mtpa production of HMC, 903 ktpa of product (ilmenite, rutile, and zircon) and 20 ktpa monazite
- Stage 2: 3,500 tph mining operation; 1.8 Mtpa production of HMC, 1,297 ktpa of product (ilmenite, rutile, and zircon) and 29 ktpa monazite.

The high-level schedule is presented in Figure 21-1, and the corresponding capital cost summary by work breakdown structure area is provided in Table 21-1.

Table 21-1: Toliara capital cost estimate summary

Primary work breakdown structure area	Pre-FID Stage \$ million	Stage 1 \$ million	Stage 2 \$ million
100 – Mining	-	15	10
200 - Process Plant	-	156	70
300 - Plant Services & Utilities	-	25	3
400 - Infrastructure	6	157	4
500 - Port Facility	4	136	-
600 - Professional Services (EPCM)	8	49	14
700 - Owners Indirect Costs	9	41	7
800 - Owners Direct Costs	43	55	22
900 - Owners Operational Costs	48	61	-
000 - Contingency	3	74	13
Total	121	769	142

The total capital requirement for the project is structured by project phase, reflecting both timing and funding responsibility.

Prior to the final investment decision, the Pre-FID expenditure of \$121 million is expected to be fully self-funded . Stage 1 implementation capital is estimated at \$769 million, which is included within the project funding plan and represents the capital necessary to achieve full Stage 1 commissioning. Stage 2 capital expenditure of \$142 million is scheduled to be incurred over operating years three and four and is expected to be fully funded from the project's operational cash flows.

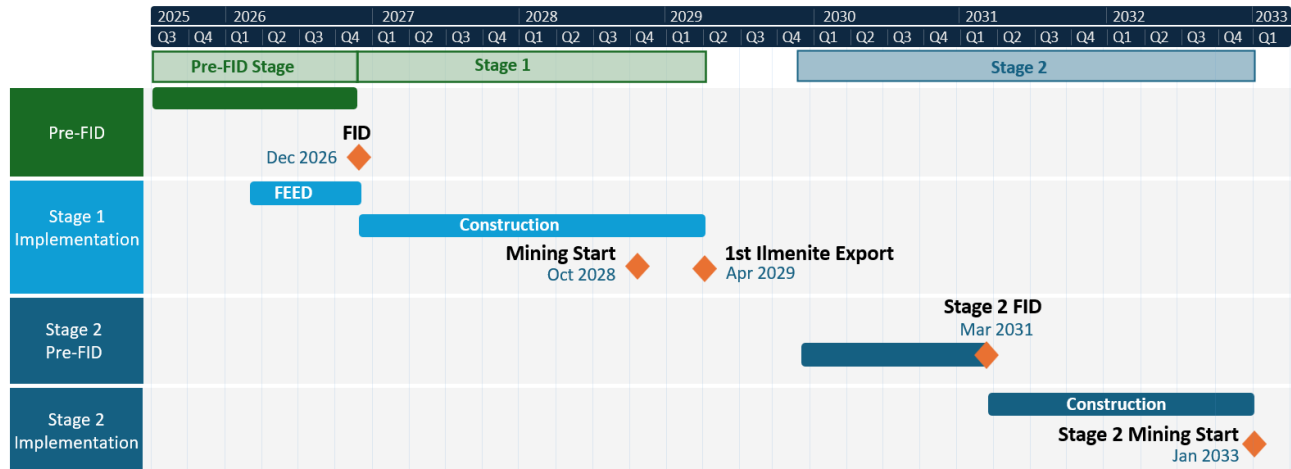


Figure 21-1: High-level schedule

A cash flow projection is illustrated in Figure 21-2, showing capital expenditure aligned with the current project schedule.

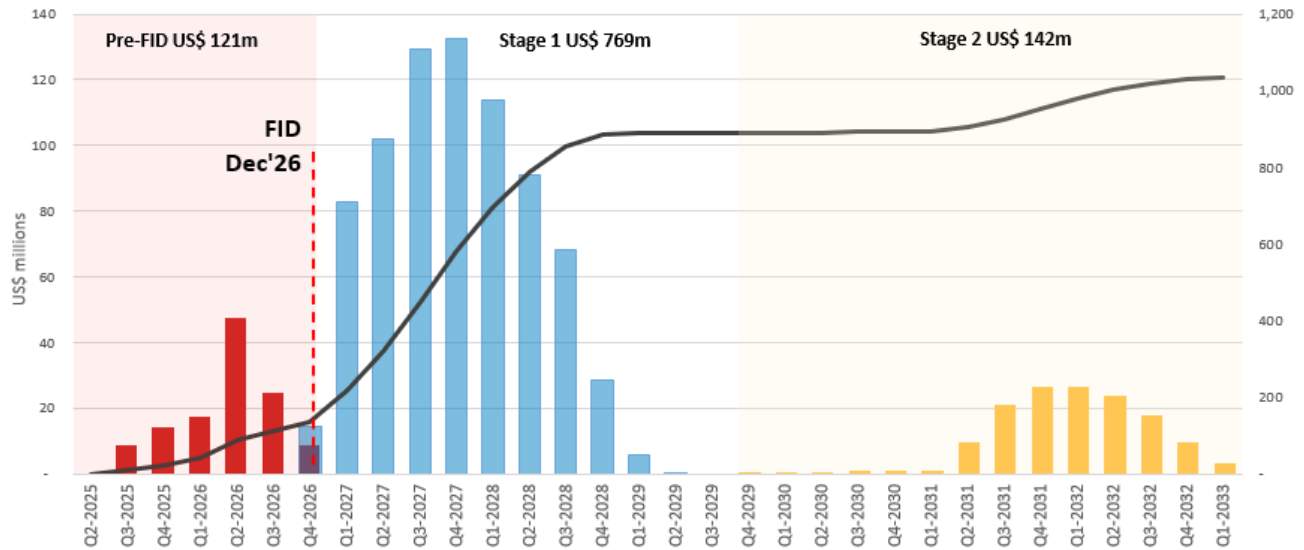


Figure 21-2: Toliara cashflow (pre-FID, Stage 1 and Stage 2)

The estimate was developed using a first-principles approach based on:

- Detailed engineering drawings and discipline-level quantity take-offs
- Budget quotations obtained through a formal budget quotation request process
- Unit rates derived by benchmarking multiple contractor submissions received for each bulk package (typically 2–3 or more per package) and validated against cost data from internal databases and comparable projects across Africa
- Vendor pricing for all major mechanical, electrical, and structural packages.

The estimate includes provisions for:

- EPCM, Consultant and Operations Labour and Expenses
- Supply (equipment and materials)
- Installation (labor, equipment, and contractor indirect costs)
- Freight and logistics
- Field indirect costs (temporary facilities and services)
- Contingency, based on a deterministic model tied to input quality and scope maturity.

The estimate is presented in United States Dollars (USD). Pricing for materials, equipment, or services quoted in foreign currencies has been incorporated into the estimate in their native currencies and converted to USD using the exchange rates provided by Base Resources, as detailed in Table 21-2. The table outlines the project's exposure to exchange rate fluctuations. Variations in exchange rates during project implementation have not been included in the capital cost estimate.

Table 21-2: Rates of exchange and exposure in USD

Currency	Exchange rate to USD	Pre-FID Stage exposure (\$ million)	Stage 1 exposure (\$ million)	Stage 2 Exposure (\$ million)	%
Euro (EUR)	1.060	1.1	2.9	0.2	<1%
Australian Dollar (AUD)	0.630	8.7	103.1	27.1	13%
Great Britain Pound (GBP)	1.280	0.5	2.0	0	<1%
South African Rand (ZAR)	0.053	2.1	15.9	6.5	2%
United States Dollar (USD)	1.000	108.6	645.1	108.6	84%
Total		121.0	769.0	142.4	100%

A contingency amount has been included using a structured cost risk analysis Monte Carlo simulation. The outcome, as shown in Figure 21-3, supports a P91 confidence level at the Stage 1 estimate value of \$1.03 billion (Pre-FID Stage \$121m, Stage 1 \$769m and Stage 2 \$142m).

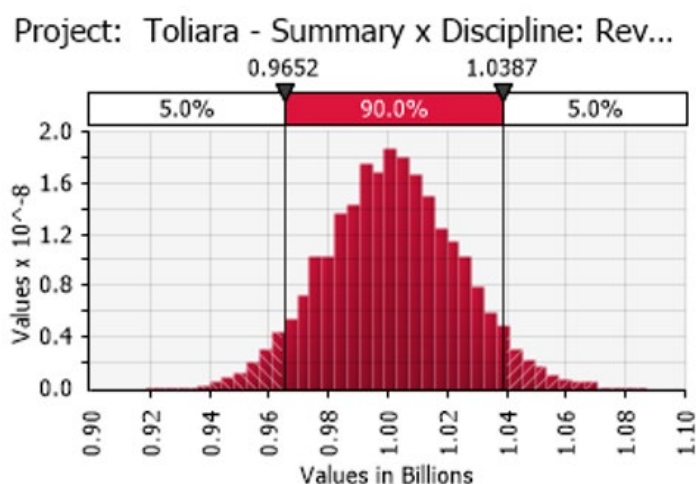


Figure 21-3: Cost risk analysis outcome

The following cost elements are excluded from the overall Post FID capital cost estimate:

- Working capital (provided for in the financial model)
- Exchange rate fluctuations
- Contractor escalation
- Sustaining capital (covered under Operating Cost)
- Financing and funding related costs (provided for in the financial model)
- Corporate overheads or fees (provided for in the financial model)
- Rehabilitation, salvage, and closure costs (provided for in the financial model).

21.2 OPERATING COST ESTIMATE

21.2.1 Overview

Operating costs as presented in Table 21-3 and Table 21-4, are all costs incurred in producing saleable product on a free on board (FOB) basis at the Toliara export facility. The operating cost estimate was developed using a combination of known variables and methodologies derived from Base Resources' mineral sands operating experience at its Kwale Mine in Kenya or estimated from first principles for variables specific to the Toliara Project and its operating environment. Contractor quotations were obtained for some of the material operating costs, including power, fuel, product transport, and logistics. All costs presented are on a 2025 real basis in USD with a level of accuracy of +/-10%.

During Stage 1, when the mining rate is 12.6 Mtpa, unit operating costs are forecast to average \$8.61/t mined. As the mining rate increases to 25.0 Mtpa following commissioning of Stage 2, unit operating costs will fall to an average of \$4.79/t mined. Over the LOM, unit operating costs are forecast to average \$4.95/t mined or \$112.50/t produced. LOM average annual operating costs are \$118.8 million.

21.2.2 Operating costs by department

Table 21-3: Toliara Project operating cost summary by operating department

Department	LOM total \$ million	\$ million per annum*	\$/t mined*	\$/t produced*
Mining	633	16.5	0.69	15.67
Processing	1,478	38.7	1.61	36.69
Maintenance	926	24.2	1.01	22.89
Port and logistics	508	13.4	0.56	12.65
Support services **	1,009	26.0	1.08	24.61
Total operating costs	4,554	118.8	4.95	112.50
* Excludes first and last partial operating years				
** Environment, finance and administration, human resources, health, safety and wellness, training				

Mining operations account for 14% of operating costs with power, labor, and diesel primary contributors. Power costs are driven by demand from the DMUs (water and slurry pumping) and booster pumps to transport the slurry to the WCPs. Labor headcount increases from 298 personnel during Stage 1 to 568 personnel in Stage 2 operations. Heavy mobile equipment, including the primary mining fleet of D10 and D11 bulldozers, consume the majority of the

department's diesel, with additional consumption from ancillary mobile equipment. Burn rates for all equipment are based on Kwale experience and operating hours are derived from a build-up of activity hours by equipment.

Processing includes the WCP, MSP, and MCP and accounts for 32% of the projects total operating costs, making it the largest cost department. Power is responsible for approximately 70% of the department's cost with pumps and, to a lesser extent the HMC hybrid dryer (using a combination of power and diesel), responsible for the majority of consumption. Diesel used in the hybrid dryers is also a significant cost, as is labor with 236 personnel during Stage 1, increasing to 314 personnel in Stage 2 operations.

Maintenance covers both fixed plant and heavy and ancillary mobile equipment and is responsible for 20% of total operating costs. Fixed maintenance costs relate to a wide range of areas, including the DMU, process plants, workshops, utilities (water, camp, buildings, accommodation village etc.), and marine infrastructure, and have been determined with reference to experience from Kwale or external consultant advice. Mobile equipment maintenance costs are based on a flat hourly rate applied to the forecast activity-based operating hours. Hourly rates are derived from the actual maintenance costs incurred over the life of each type of equipment at Kwale and averaged over their respective lifetime operating hours. With a large number of expatriate employees at the commencement of operations, labor is initially a significant cost; however, the number of expatriates quickly reduce over time as skills are transferred to Malagasy nationals. Labor headcount increases from 206 personnel during Stage 1 to 230 personnel in Stage 2.

Port and logistics costs account for 11% of total operating costs and are dominated by transport and marine operating costs. Bulk transport of ilmenite (sulfate, slag, chloride), rutile, and zircon products, and containerized transport of monazite from the mine site to the export facility via a 45 km mineral haulage corridor are based on contractor quotations. Marine operations will be contracted to a specialist marine service provider, with the cost based on vendor quotations.

Support services represent all activities that are not directly linked to production and include environment, finance and administration, human resources, health, safety and wellness, and training departments. Significant costs within these departments include facilities (mess, employee transport, accommodation village), insurance, environmental programs, procurement and logistics, and power for the offices and facilities.

Annual operating costs by department over the life of mine are shown in Figure 21-4.

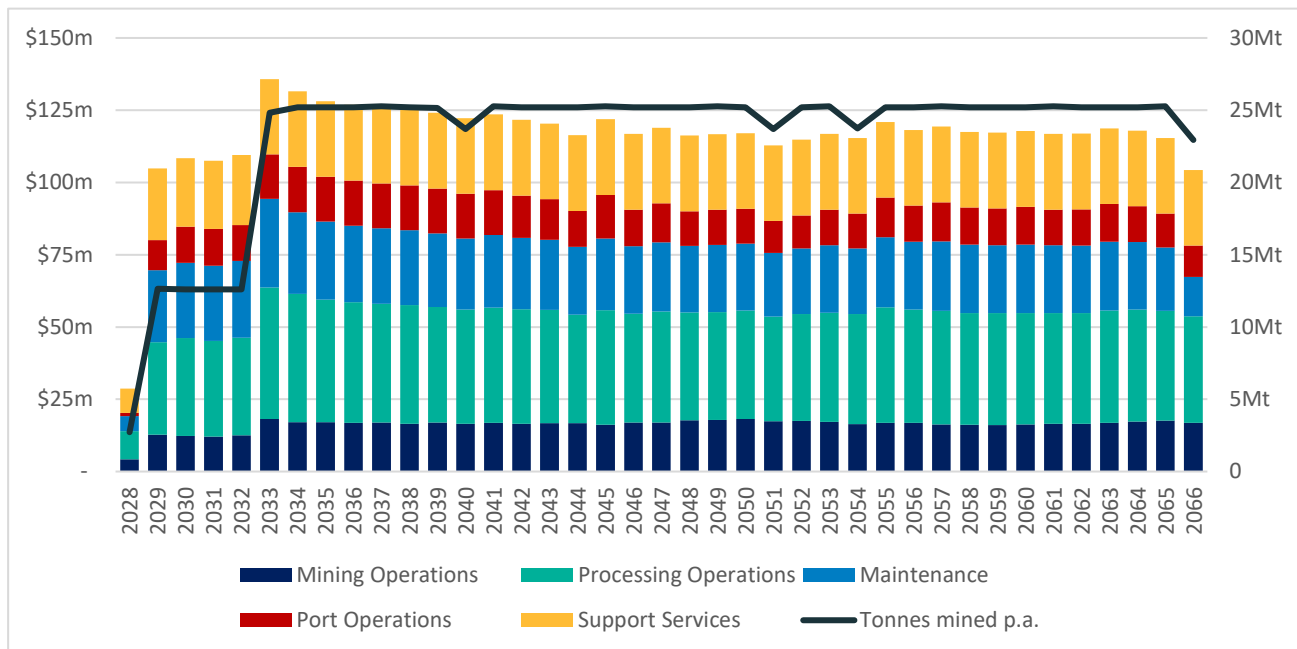


Figure 21-4: LOM annual operating costs by department

21.2.3 Operating costs by expense type

Table 21-4: Toliara Project operating cost summary by cost type

Operating cost category	LOM total \$ million	\$ million per annum*	\$/t mined*	\$/t produced*
Power	1,338	35.1	1.46	33.24
Labor	530	13.2	0.55	12.53
Mobile equipment maintenance	357	9.4	0.39	8.93
Fixed plant and other maintenance	438	11.6	0.48	10.94
Diesel	334	8.8	0.37	8.34
Port and logistics	272	7.2	0.30	6.82
All other costs	1,285	33.5	1.39	31.71
Total operating costs	4,554	118.8	4.95	112.50
* Excludes first and last partial operating years				

Power for the mine site will be provided by an external power provider with the pricing formula a mix of fixed and variable components that include capital payback, operation, and maintenance costs and based on detailed vendor quotation. LOM average power costs are anticipated to be \$0.22/kWh and assume a diesel usage rate of 0.22L/kWh and 35% solar penetration.

A separate standalone solar PV system is directly linked to the HMC hybrid dryer in the MSP which is anticipated to offset diesel consumption by 27% on average over a 24-hour period. This "flex load" power will be charged at \$0.056/kWh.

Diesel is forecast at a delivered price of \$0.802/L based on the average from three vendors' quotations.

Mobile equipment maintenance costs are based on a flat hourly rate applied to the forecast activity based operating hours. Hourly rates are derived from the actual maintenance costs incurred over the life of each type of equipment at Kwale (rebased to 2025) and averaged over their respective lifetime operating hours.

Labor costs are highest in the first five years of operations as a higher proportion of expatriate roles are required to commission and run the operation, as well as train local workers. Expatriate roles are reduced from Years 6 to 9 as local workers take over, corresponding with lower total labor costs.

Annual operating costs by cost type over the life of mine are shown in Figure 21-5.

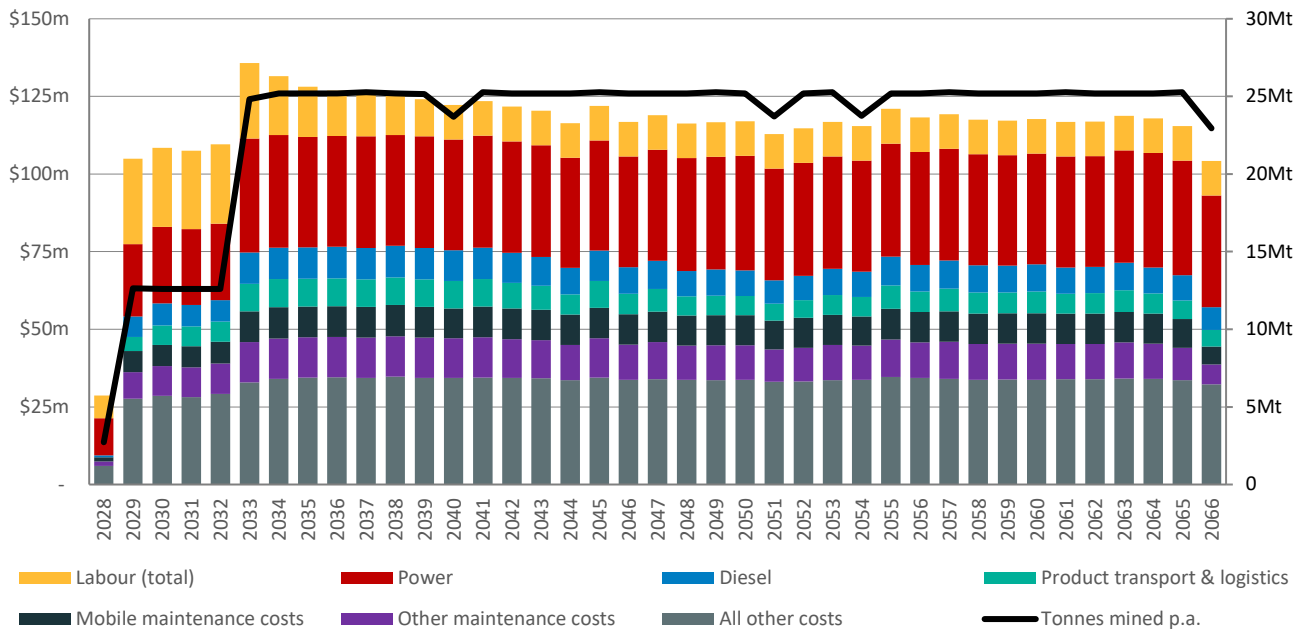


Figure 21-5: LOM annual operating costs by cost type

21.2.4 Other non-operating costs

In addition to direct operating costs, a number of other costs are expected to be incurred. The estimated LOM non-operating costs, expressed in 2025 real terms, are shown in Table 21-5.

Table 21-5: Other non-operating costs summary

Other costs	LOM total \$ million	\$ million per annum
External affairs	80.9	2.1
Regional & community affairs	435.9	11.2
Selling costs & product marketing	57.2	1.5
Management fees recharged from parent	116.3	3.0
Total other costs	690.2	17.8

The regional and community affairs category includes the Company's commitment to invest \$4 million annually (indexed at 2% annually) over the life of the project on community development programs as set out in the MOU entered into with the Government in December 2024 (refer to Section 24). Other material items included within the regional and community affairs category are external security contractors (\$3.2 million per annum) and social management and stakeholder engagement costs (\$1.8 million annually).

22 ECONOMIC ANALYSIS

22.1 SUMMARY OF INVESTMENT EVALUATION

A LOM financial model was developed for the Toliara Project to undertake a DCF analysis with inputs derived from mining schedules, process test work, capital and operating costs, and product price forecasts.

The DCF analysis incorporated estimated capital costs, operating costs, and revenue assumptions and derived the project NPV and IRR by discounting the Toliara Project future cash flows. This valuation method is appropriate where future cash flows can be forecast with a reasonable degree of accuracy over the life of the project. All references to years represent calendar years, January 1 to December 31.

The Toliara Project has an NPV of \$1,415 million (10% discount rate, post tax, real) and an IRR of 22.1%, measured at June 30, 2025 on a real (uninflated) basis. A summary of key financial statistics for the project is included in Table 22-1.

Table 22-1: DCF results (all post tax real)

		Unit	Total
NPV at June 30, 2025, 10% discount rate		\$ million	1,415
NPV at project FID, 10% discount rate		\$ million	1,757
IRR at June 30, 2025		%	22.1
IRR at project FID		%	24.9
Capital payback period (Stages 1 and 2)		Years	4.8
LOM operating costs + royalties*		\$/t ore mined	6.08
LOM operating costs + royalties*	(A)	\$/t produced	138
LOM revenue	(B)	\$/t produced	510
LOM cash margin	(B-A)	\$/t produced	372
LOM revenue: cost of sales ratio	(B/A)	Ratio: 1	3.7
LOM free cash flow (operating cash flow less capex)		\$ million	10,040
* Excludes first and last partial operating years.			

22.2 FINANCIAL AND ECONOMIC ASSUMPTIONS

22.2.1 Economic assumption

Key project dates and financial modelling assumptions are shown in Table 22-2 and Table 22-3, respectively. The economic analysis assumes a positive FID is made in December 2026. The actual date of a positive FID depends on a number of factors being satisfied and the actual FID date might differ from the December 2026 date.

Table 22-2: Key project milestones

Milestone	Date
FID	December 2026
Stage 1 construction commencement	December 2026
Stage 1 construction complete	March 2029
Mining and concentrating (DMU1 and WCP1) operations commence	October 2028
MSP operations commence (ilmenite, zircon, and rutile production)	February 2029
MCP operations commence (monazite production)	April 2029
First finished product shipment	April 2029
Stage 2 construction commencement	March 2031
Stage 2 construction complete	December 2032
Second mining and concentrating (DMU2 and WCP2) operations commence	January 2033

Table 22-3: Financial model assumptions

Parameter	Units
Base date	June 30, 2025
Construction cash flows	Monthly
Operating years 1–10	Monthly
Operating years 11+	Semi-annually
Timing of cash flows	Average over period
Discount rate	10%
Inflation rate	0% (real)
USD:MGA exchange rate	4,500
Corporate tax rate	20%
Mineral royalties	5%
VAT rate	20%

22.2.2 Cash flow analysis

The project free cash flow (post tax, real) is reflected in Figure 22-1, which illustrates the strength of the operating cash flows once production begins, with the capital payback (both Stages 1 and 2 capital) expected to occur after 4.8 years, in December 2033. The maximum negative cash position of \$1,066 million (excluding all funding and debt service) occurs shortly after the completion of Stage 1 construction. **Table 22-4** presents a summary of the LOM financial model.

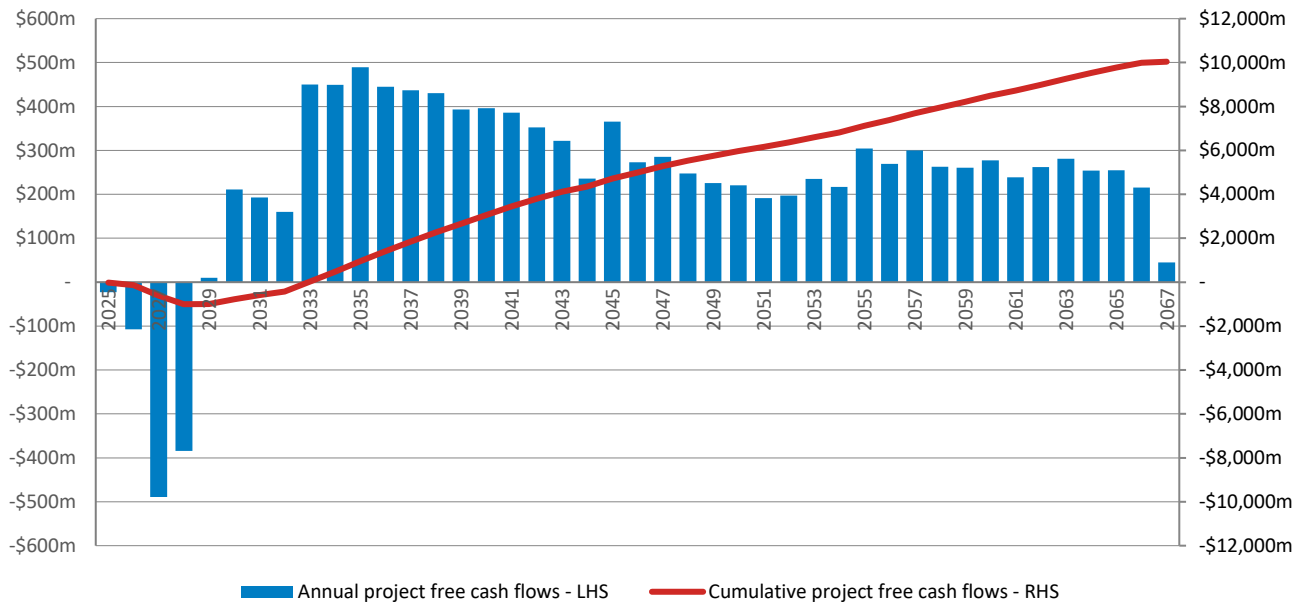


Figure 22-1: Projected project free cash flow (post tax, real)

Table 22-4: LOM Financial Model Summary

	Unit	Total	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2041-50	2051-60	2061-67	
Ore Mined	kt	904,196		-	-	2,722	12,636	12,601	12,601	12,601	24,823	25,203	25,203	25,203	25,272	25,203	25,148	23,695	25,272	25,203	25,203	250,730	250,702	74,178	
Sales Volumes																									
Sulphate Ilmenite	kt	16,944		-	-	-	280	360	400	400	560	600	560	560	600	560	560	560	600	520	480	4,000	4,240	1,104	
Slag Ilmenite	kt	9,806		-	-	-	160	220	240	220	320	340	340	320	340	320	340	320	340	300	280	2,320	2,440	646	
Chloride Ilmenite	kt	9,374		-	-	-	150	210	210	240	300	330	300	330	300	330	300	330	300	300	270	2,220	2,340	614	
Rutile	kt	284		-	-	-	-	-	10	10	10	10	-	10	10	10	10	10	10	10	10	70	70	24	
Zircon	kt	2,476		-	-	-	20	60	60	60	80	90	80	90	80	80	80	90	80	70	70	580	630	176	
Monazite	kt	895		-	-	-	7	22	22	18	29	29	32	29	25	29	29	29	29	29	25	220	227	67	
Revenue																									
Mineral Sands (ilmenite, rutile, zircon)	\$m	14,865		-	-	-	129	317	352	355	494	554	601	568	541	542	493	500	483	435	434	3,420	3,604	1,042	
Rare Earths (monazite)	\$m	5,425		-	-	-	29	79	105	99	183	203	192	181	177	176	168	175	175	175	161	1,338	1,381	428	
Total	\$m	20,289		-	-	-	158	396	457	454	677	756	793	749	718	718	661	675	658	611	595	4,757	4,986	1,470	
Operating Costs																									
Mining Operations	\$m	-605		-	- -	4 -	11 -	11 -	11 -	11 -	17 -	16 -	16 -	16 -	16 -	16 -	16 -	16 -	16 -	16 -	16 -	167 -	159 -	54	
Mining Technical Services	\$m	-28		-	- -	0 -	2 -	1 -	1 -	1 -	1 -	1 -	1 -	1 -	1 -	1 -	1 -	1 -	1 -	1 -	1 -	6 -	6 -	2	
Processing Operations	\$m	-1,393		-	- -	9 -	28 -	30 -	29 -	30 -	42 -	40 -	39 -	39 -	39 -	39 -	38 -	38 -	38 -	38 -	38 -	359 -	371 -	110	
Processing Technical Services	\$m	-85		-	- -	1 -	4 -	4 -	4 -	4 -	4 -	4 -	3 -	3 -	3 -	2 -	2 -	2 -	2 -	2 -	2 -	17 -	17 -	6	
Maintenance	\$m	-926		-	- -	5 -	25 -	26 -	26 -	27 -	31 -	28 -	27 -	26 -	26 -	26 -	25 -	25 -	25 -	25 -	24 -	233 -	236 -	60	
Port Operations	\$m	-508		-	- -	1 -	10 -	12 -	13 -	12 -	15 -	16 -	16 -	16 -	16 -	15 -	15 -	16 -	16 -	15 -	14 -	125 -	128 -	38	
Finance & Administration	\$m	-787		-	- -	7 -	18 -	18 -	18 -	18 -	20 -	20 -	21 -	21 -	21 -	21 -	21 -	20 -	21 -	21 -	21 -	205 -	205 -	73	
Environmental	\$m	-88		-	- -	1 -	3 -	3 -	3 -	3 -	3 -	2 -	2 -	2 -	2 -	2 -	2 -	2 -	2 -	2 -	2 -	22 -	22 -	8	
Human Resources	\$m	-93		-	- -	0 -	2 -	2 -	2 -	2 -	2 -	2 -	2 -	2 -	2 -	2 -	2 -	2 -	2 -	2 -	2 -	24 -	24 -	9	
Health and Safety	\$m	-36		-	- -	0 -	1 -	1 -	1 -	1 -	1 -	1 -	1 -	1 -	1 -	1 -	1 -	1 -	1 -	1 -	1 -	9 -	9 -	3	
Training	\$m	-6		-	- -	0 -	1 -	0 -	0 -	0 -	0 -	0 -	0 -	0 -	0 -	0 -	0 -	0 -	0 -	0 -	0 -	1 -	1 -	0	
Total	\$m	-4,554		-	- -	29 -	105 -	108 -	108 -	110 -	136 -	132 -	128 -	127 -	126 -	125 -	124 -	122 -	124 -	122 -	120 -	1,168 -	1,179 -	363	
Royalties	\$m	-1,014		-	-	- -	11 -	20 -	23 -	23 -	35 -	40 -	39 -	38 -	35 -	35 -	34 -	34 -	33 -	31 -	28 -	237 -	250 -	69	
Total Operating Costs + Royalties	\$m	-5,569		-	- -	29 -	115 -	129 -	131 -	133 -	171 -	172 -	167 -	165 -	161 -	160 -	158 -	156 -	156 -	152 -	149 -	1,406 -	1,429 -	432	
Operating Profit	\$m	14,720		-	- -	29	43	267	327	321	506	585	627	584	557	558	504	520	501	458	446	3,352	3,557	1,038	
Other Non-Operating Costs and Cash Flows																									
External Affairs, Community, Marketing, WC, Income Tax etc.	\$m	-690		6 -	32 -	54 -	21 -	19 -	17 -	19	64 -	18 -	22 -	19 -	18 -	19 -	20 -	18 -	18 -	18 -	19 -	175 -	174 -	60	
Income Tax	\$m	-2,427		-	-	-	- -	26 -	42 -	43 -	92 -	108 -	106 -	103 -	94 -	100 -	57 -	92 -	88 -	80 -	89 -	563 -	574 -	172	
Total	\$m	-3,117		6 -	32 -	54 -	21 -	45 -	59 -	62 -	27 -	126 -	128 -	123 -	112 -	118 -	77 -	110 -	107 -	97 -	108 -	738 -	748 -	232	
Cash Flow from Operations	\$m	11,603		6 -	32 -	82	22	222	267	259	479	458	499	462	446	439	427	410	395	361	339	2,614	2,809	806	
Capital expenditure																									
Pre-FID Expenditure	\$m	-121	- 23 -	98	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Capital Expenditure - Construction	\$m	-862	-	14 -	434 -	283 -	6 -	3 -	59 -	62	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Capital Expenditure - Mobile Equipment	\$m	-50		- -	12 -	19	-	- -	9 -	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Capital Expenditure - National & Regional Development Projects	\$m	-50		- -	10	-	-	-	- -	20 -	20	-	-	-	-	-	-	-	-	-	-	-	-	-	
Operating Sustaining Capital Expenditure	\$m	-467		-	-	- -	6 -	7 -	7 -	7 -	9 -	9 -	9 -	16 -	9 -	9 -	34 -	14 -	9 -	9 -	17 -	136 -	137 -	23	
Total	\$m	-1,550	- 23 -	113 -	457 -	302 -	12 -	11 -	74 -	99 -	29 -	9 -	9 -	16 -	9 -	9 -	34 -	14 -	9 -	9 -	17 -	136 -	137 -	23	
Closure, rehab. salvage																									
Mine closure rehabilitation		-20		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	- -	20	
PP&E salvage value at end of mine life		7		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	
Total	\$m	-13		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	- -	13	
Cash Flow (pre-debt)	\$m	10,040	- 23 -	107 -	489 -	384	10	211	193	160	450	449	489	445	437	430	393	396	386	352	321	2,477	2,673	770	
Cumulative cash flow	\$m		- 23 -	130 -	619 -	1,003 -	993 -	782 -	589 -	429	21	470	960	1,405	1,842	2,272	2,665	3,061	3,447	3,799	4,121	6,598	9,271	10,040	

22.3 CAPITAL COSTS

22.3.1 Construction costs

Estimated construction costs are detailed in Section 21. The base currency of the capital cost is USD and approximately 84% of the estimate is based in USD, with several other currencies contributing to the cost build-up. The most prevalent of these are listed below, together with the exchange rate used to convert to USD for inclusion in the capital cost estimate:

- Australian Dollar (AUD) denominated costs represent 13% of the estimate and have been converted to USD using an AUD:USD exchange rate of 0.630
- South African Rand (ZAR) denominated costs represent 2% of the estimate and have been converted to USD using a ZAR:USD exchange rate of 0.053.

Exchange rates for ZAR and AUD were derived from bank-provided consensus foreign exchange rate forecasts and applicable to the expected construction period.

22.3.2 Sustaining capital costs

Sustaining capital expenditure during operations is forecast to be 1% of the construction capital cost (excluding heavy mobile equipment cost which is forecast separately). From the end of Stage 1 construction, sustaining capital expenditure of \$7.4 million per annum is forecast and increases by a further \$1.2 million per annum upon commissioning of Stage 2 to an annual total of \$8.6 million. Sustaining capital totals \$307.9 million over the life of mine.

Heavy mobile equipment is replaced over the life of mine based on accumulated operating hours for each piece of equipment (estimated at 28,000 hours to 36,000 hours). Replacement heavy mobile equipment totals \$84.4 million over the life of mine.

22.3.3 WCP relocation capital costs

Both concentrators are designed to be relocated to maintain a reasonable working distance to the mining operations they support. Each concentrator move is estimated to cost \$25.0 million, with WCP1 scheduled to move in Year 12 and Year 26. WCP2 is scheduled to move in operating Year 23. Total concentrator relocation cost over the mine life is \$75.0 million.

22.3.4 Government of Madagascar Development Project Funding

In December 2024, Base Toliara entered into an MOU with the Government, setting out certain key terms for the project (refer to Section 24.1). One of the key terms of the MOU is that Base Toliara will deliver \$80 million in development, community, and social project funding, as follows:

- \$30 million after achievement of LGIM certification or similar stability mechanism
- \$10 million after achieving a positive FID
- \$20 million after the third anniversary of the effective operations start date (first commercial shipment)
- \$20 million after the fourth anniversary of the effective operations start date

The development, community, and social project funding is treated as capital expenditure in the financial model.

22.4 OPERATING ASSUMPTIONS

22.4.1 Production assumptions

The basis for the development of the mining schedule is detailed in Section 15. LOM mining rates, grades, and production volumes are presented in Table 22-5 and Figure 22-2.

Table 22-5: Life of mine production totals

Production profile	Total	Annual average*	Stage 1 average*	Stage 2 Years 6–15 average*	Stage 2 average*
Ore mined (Mt)	904	24.0	12.6	25.0	25.0
HM%	6.1%	6.1%	9.6%	7.1%	5.9%
HMC produced (Mt)	55.6	1.5	1.2	1.8	1.5
Produced (kt):					
Sulphate ilmenite	16,944	450	393	566	455
Slag ilmenite	9,806	260	228	327	263
Chloride ilmenite	9,374	249	217	313	251
Total ilmenite	36,124	959	838	1,206	969
Rutile	284	8	6	9	8
Zircon	2,476	66	59	82	67
Monazite	895	24	20	29	24

* Excludes first and last partial operating years.

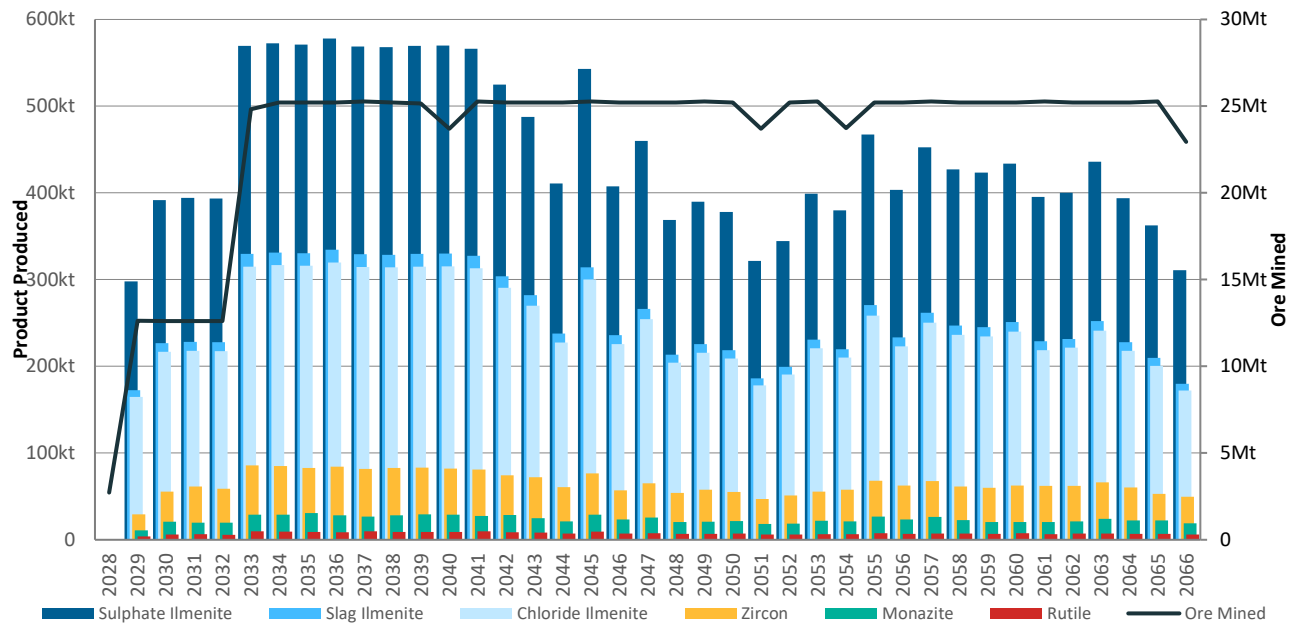


Figure 22-2: Annual mining and production schedule

22.4.2 Operating costs

The operating cost estimates and their main drivers are discussed in Section 21 and are forecast to be \$4.95/t mined or \$112.50/t produced.

22.5 FISCAL REGIME

The Company is engaging with the Government to formalize an appropriate stability mechanism and other key requirements to support development of the Project (**Investment Support Regime**). The Investment Support Regime is intended to provide the key pillars for a bankable large-scale project, including legal and fiscal stability and select tax and customs benefits.

The existing LGIM establishes a special regime for large scale mining investments and provides a number of benefits to mining projects certified as eligible. However, with the introduction of the New Mining Code, the LGIM contains a number of ambiguities and inconsistencies. Consequently, to achieve a suitable Investment Support Regime, the Company and the Government have been negotiating the terms of an investment agreement which would be submitted to Parliament for approval as a law.

It is expected that the fiscal terms of an investment agreement will be at least equivalent to those offered under the LGIM. However, until the investment agreement or alternative stability mechanism to achieve the required Investment Support Regime have been finalized, the 2025 Feasibility Study assumes the taxation and customs benefits are those available under the LGIM regime.

The LGIM mandates maximum tax rates, but provides that the Company can benefit from any more favorable provisions in the General Tax Code (corporate income tax) in force on December 31, 1999, or any subsequent changes up to the date of certification.

Further details of the options for achieving the Investment Support Regime and emerging government policy issues are discussed in Section 24.1.

22.5.1 Taxation

22.5.1.1 Corporate income tax

The income tax rate applicable under the LGIM is 25%. The current prescribed company income tax under the General Tax Code is 20%. As outlined above, the LGIM affords the automatic right to benefit from more favorable provisions, therefore the lower rate of 20% will apply and has been adopted for the 2025 Feasibility Study.

In addition, the General Tax Code provides for a rebate of corporate income taxes on capital investments undertaken (capital expenditure) from the commencement of operations equivalent to 25% of the capital expenditure in any given year, at the applicable corporate income tax rate. Any rebate in corporate income tax not used in a given year can be carried forward to future years until fully utilized. It is assumed this will apply to all sustaining, Stage 2 construction costs, and WCP relocation capital expenditure.

22.5.1.2 Royalties

The LGIM does not set a maximum royalty rate but defers to the New Mining Code which currently prescribes a royalty rate of 5% on the FOB sales value.

22.5.1.3 Value-added tax

In Madagascar, VAT is applicable on all in-country costs, both operating and capital, and reverse-VAT is applicable to imported services, materials, goods, and equipment. The VAT rate is currently 20%. The LGIM regime provides for VAT exemption on materials, goods, and equipment imported for the initial construction phase.

The following conservative approach has been taken to VAT refunds for the project:

- Stage 1 construction capital VAT: An estimated 50% of the Stage 1 construction capital costs and 100% of the heavy mobile equipment purchased in-country are forecast to be subject to VAT. This will result in \$80 million of VAT being incurred over the Stage 1 construction period. The construction VAT has been conservatively assumed to be refunded 48 months after first shipment, in April 2033, as a lump sum
- Operational period VAT: An estimated 70% of all operational and capital costs after the completion of Stage 1 construction are subject to VAT and forecast to be refunded six months after being incurred.

22.5.1.4 Customs duties and import tax

The LGIM regime provides for customs duties and import tax exemption on materials, goods, and equipment imported by the Company or its subcontractors during the initial construction phase. Instead, those items attract a 1% customs stamp duty, which has been incorporated into the Stage 1 capital cost estimate.

The LGIM regime also provides that during the operational phase all materials, goods, and equipment imported by the Company are subject to preferential combined customs duty and import tax at a rate of 5%. Customs stamp duty does not apply for the operational phase of the project.

22.5.2 Depreciation

All assets are depreciated over their life, with maximum annual depreciation rates set by the General Tax Code. Capital expenditure that is not attributable to a physical asset will be depreciated over the remaining life of mine. There is no difference between accounting and tax depreciation.

22.6 REVENUE ASSUMPTIONS

22.6.1 Ilmenite, rutile, and zircon

Pricing assumptions up to 2035 are based on Base Resources' internal price forecast (refer to Section 19) for ilmenite, rutile and zircon. From 2040, prices are assumed to be the long-term inducement prices, as forecast by TZMI in Quarter 2, 2025, rebased to 2025 real. Prices transition between 2035 and 2040 in a straight line.

All prices are quoted on an FOB basis after adjusting for the Toliara Project's expected product quality. There is an assumed two-month delay between revenue recognition/product shipping and revenue receipt for cash flow forecasting purposes.

The ilmenite, rutile, and zircon price forecast used in the financial model is presented in Figure 22-3.

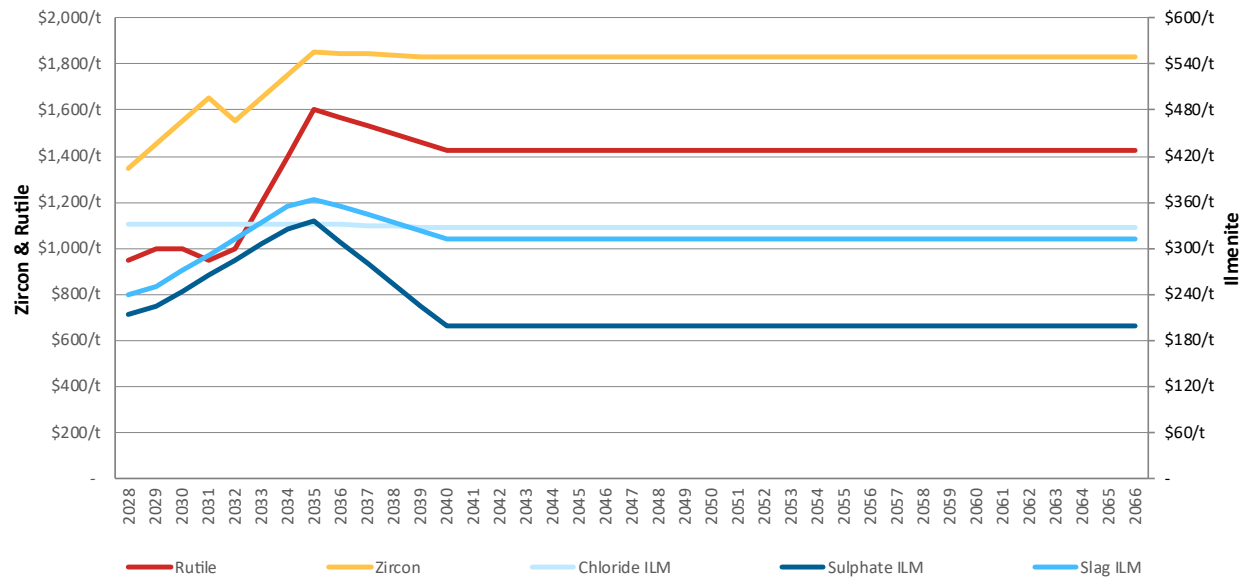


Figure 22-3: Ilmenite, rutile and zircon pricing assumptions (\$ real 2025 basis)

22.6.2 Monazite

The monazite price is derived from the basket value of the contained permanent magnet REOs, when separated into individual oxides, and the payability ratio that sets the proportion of the final oxide price that the monazite producer receives (refer to Section 19). The Adamas Intelligence price forecast from July 2025 has been used for separated REOs through to 2040, where it ends, with prices held flat post 2040. All prices are real 2025. The payability ratio for monazite has also been derived from Adamas Intelligence historical average between 2021 and Quarter 1, 2025, being 34%.

Monazite prices are traditionally quoted and forecast on a cost and freight (CFR) equivalent basis. The cost of freight for delivery to the customer's port is deducted to arrive at an FOB equivalent for project revenue. In the financial model, it is assumed that monazite is shipped to a port in the United States of America for delivery to the Company's White Mesa Mill in lots of 200 containers (3,600 t) at a cost of \$1.9 million per shipment or \$531/t. There is an assumed two-month delay between revenue recognition/product shipping and revenue receipt for cash flow forecasting purposes.

The monazite price forecast used in the financial model, on a CFR basis, is presented in Figure 22-4.

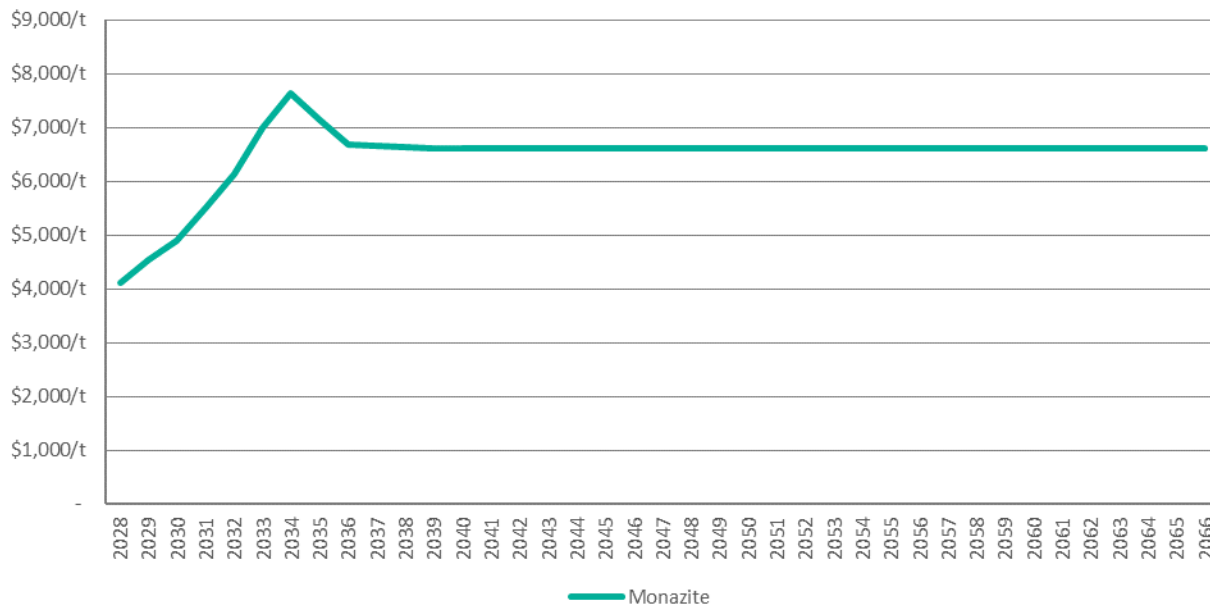


Figure 22-4: Monazite CFR pricing assumptions (\$ real 2025 basis)

The monazite produced from the Toliara project will be processed and value added at the Company's wholly owned White Mesa Mill located in Blanding, UT, the price of monazite paid by the Company to the Toliara project is shown as revenue to Base Toliara (a wholly owned subsidiary of Energy Fuels Inc.). The final products sold by Energy Fuels Inc. will be rare earth oxides and carbonates, namely NdPr, Tb and Dy oxides and SEG and Ho+ carbonates. For accounting purposes at the Energy Fuels Inc. level, the margin received at Base Toliara for monazite will be an offset to the purchase price of monazite by the Company at the White Mesa Mill. In addition to the revenues and margins attributed to the Company's individual operating entities the Company intends to report on the economic performance of its individual product segments (across business entities). The Company's accounting segment reporting will attribute margins associated with the sale of monazite by Base Toliara as well as rare earth oxides and carbonates produced from that monazite at the White Mesa Mill to its rare earth segment. Margins associated with the sale of other heavy mineral sands products will be attributed to its heavy mineral sands segment.

22.7 SENSITIVITY ANALYSIS

A sensitivity analysis was completed to understand the influence of key variables on NPV valuations. Analysis indicates the Toliara Project is most sensitive to the following:

- Commodity prices, particularly for ilmenite and monazite which represent 76% of total revenue
- WCP recoveries of concentrate, which impacts production of all final products
- MSP ilmenite recoveries.

The degree of sensitivity to a change in each key project parameter is represented in the Tornado diagram in Figure 22-5 and represents the best and worst case expected for each parameter.

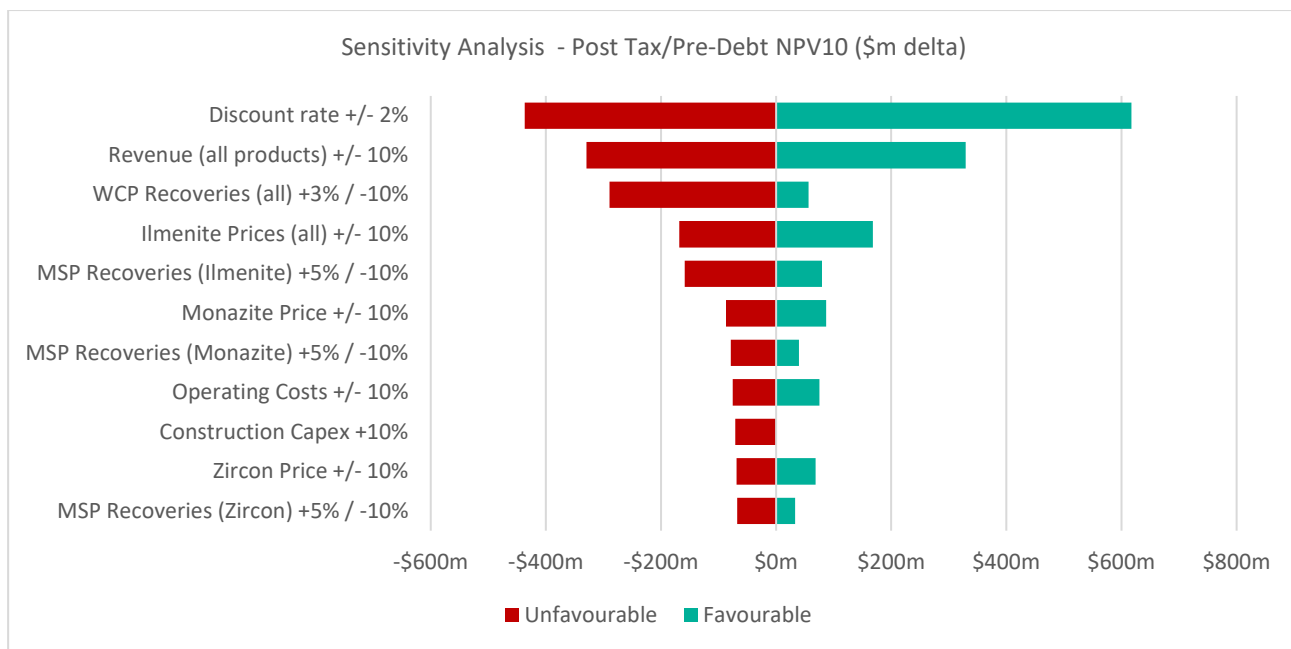


Figure 22-5: Sensitivity analysis

23 ADJACENT PROPERTIES

There are no adjacent properties to the Toliara Project that have been subject to exploration activities; hence, there are no examples of production history or guidance on mining and processing activities.

24 OTHER RELEVANT DATA AND INFORMATION

24.1 GOVERNMENT AND LEGAL

24.1.1 Mining regime

24.1.1.1 Mining legislation

The mining regime in Madagascar was recently refreshed with the introduction of the New Mining Code and its implementing decree on July 23, 2024. In practical terms, the New Mining Code replaced the Former Mining Code – see section 24.1.1.2 for further details.

The other key piece of legislation within the mining sector in Madagascar is Law No 2001-031 on large scale mining investments dated October 8, 2002 as amended by Law No 2005-022 dated July 27, 2005 (the **LGIM**), which was put into effect with Decree No 2003-784 dated January 8, 2003.

24.1.1.2 Transitional provisions in the New Mining Code

The New Mining Code repeals all existing provisions of any law (including the Former Mining Code) that conflict with the New Mining Code. Further, all provisions of the Former Mining Code have been incorporated in the New Mining Code except for those provisions deliberately revised or which contain new concepts. Therefore, while the Former Mining Code was not strictly replaced by the New Mining Code, in practical terms, the New Mining Code supersedes and replaces the Former Mining Code in its entirety.

The regime in the New Mining Code in respect of permitting largely remains the same as the former Mining Code. Among other aspects of the regime, the Permis D'Exploitation remains the instrument necessary for the commercial exploitation of minerals for large-scale projects (refer to Section 4).

Base Toliara holds PE 37242, which was granted under the Former Mining Code and covers the entirety of the Ranobe deposit. The validity of permits granted under the Former Mining Code was unaffected by the introduction of the New Mining Code, and PE 37242 remains in good standing (refer to Section 4).

24.1.1.3 Fiscal regime

Key aspects of the fiscal regime in the New Mining Code are as follows:

- A 5% combined royalty, payable on the value of mining products sold on an FOB basis
- A contribution of 3% of the direct investment amount is required to the Mining Fund for Social and Community Investment.

24.1.1.4 Steps to exploit monazite

Monazite is not presently listed as a mineral substance on PE 37242. For the exploitation of monazite to be permitted, it must be added to the Exploitation Permit and certain other steps must be carried out.

The steps to add monazite to the Exploitation Permit include the following:

- Base Toliara is to submit an application to the BCMM. This application is to be accompanied by a revised work program, financing plan, and revised mining specifications book (referred to as a *Cahier des Charges Minières (CCM)*)

- Ministry of Mines to give its opinion on the application
- Minister of Mines to make a decision and issue a ministerial order confirming the addition
- BCMM to register the addition and provide the updated Exploitation Permit.

The steps that need to be taken before monazite can be exploited include the following:

- Tripartite agreement to be entered with the *Institut National des Sciences et Techniques Nucléaires* and the *Office des Mines Nationales et des Industries Stratégiques (OMNIS)*. This agreement sets out measures and instructions relating to radioprotection, including the permit holder's commitment to comply with Malagasy laws and regulations with respect to radioprotection and management of radioactive waste and with International Atomic Energy Agency regulations
- Bipartite agreement to be entered with OMNIS. This agreement sets out the duration, rights, and obligations of the parties, work phases, use and transfer of all exploration and operational data and terms and conditions for termination
- Approval of the *Autorité Nationale de Protection et de Sûreté Radiologiques de Madagascar* (National Authority for Radiation Protection and Safety) of the proposed radioactive activities.

Some aspects of the above steps need clarification and the Company has been working with Government to obtain the necessary clarity. In particular, as between relevant statutory instruments, it is not clear whether an Updated ESIA and updated environmental permitting are required before monazite can be added to PE 37242 or whether these can occur after PE 37242 is extended to include monazite. In either case, an Updated ESIA and updated environmental permitting are required before any exploitation of monazite.

24.1.2 Investment support

24.1.2.1 Memorandum of Understanding with Government

On December 5, 2024, the Company entered a MOU with the Government outlining key fiscal terms applicable to the project, including development, community, and social project funding. Entry of the MOU was the culmination of extensive negotiations with the Government and represented a major step forward in advancing the project. A summary of the key terms of the MOU is set out in Table 24-1.

Table 24-1: Key terms of the MOU

The Company's commitments	Government's commitments
• Pay a 5% royalty on mining products • Deliver \$80 million in development, community, and social project fundings, as follows: ◦ \$30 million after achievement of a bankable investment support regime ◦ \$10 million after achieving a positive FID ◦ \$20 million after the third year of operations ◦ \$20 million after the fourth year of operations • Spend at least \$1 million prior to FID in the Atsimo Andrefana Region on community and social investments, and \$4 million annually thereafter, indexed at 2% per annum, from commencement of construction after a positive FID These commitments are conditional on: • Implementation of a legal and fiscal stability regime acceptable to the Company • Monazite being added to PE 37242 • There being no changes to the laws of Madagascar (as they apply to the Company and the Toliara Project as at the date of the MOU) that are adverse to the Company or the Toliara Project.	• Assist the Company with obtaining all necessary administrative authorizations for the purpose of adding monazite to PE 37242 • Support the prompt development of the Toliara Project, including (without limitation) by causing all relevant State authorities to consider (on a timely basis) and grant all complete applications for permits, licenses or authorizations necessary or desirable for the development and operation of the Toliara Project in accordance with the laws of Madagascar • Maintain the fiscal, legal and customs stability of the Toliara Project • Not, directly or indirectly, receive, take or have an interest (including an economic interest or form of production sharing arrangement, and whether carried or free-carried) in the Company or any of its assets, including the Toliara Project • Provide active and public support for the Toliara Project, including by publicly announcing the State's support for the Toliara Project and its development • Undertake legislative steps to ensure reasonable financial, operational and legal requirements and necessary certainty of financial and legal requirements to support the bankability of the Toliara Project and the ability of the Company to achieve a positive FID.

24.1.2.2 Pathways to implement an appropriate Investment Support Regime

With the MOU in place, the Company has been engaging with the Government to formalize the terms and conditions set out in the MOU and to establish the necessary legal regime to support development of the Project. Through the Investment Support Regime, the Company proposes establishing the key pillars for a bankable large-scale project, including the following:

- **Stability regime:** An appropriate legal and fiscal stability regime to reasonably protect the Company and the Toliara Project (including its contractors) from adverse changes in law
- **Protections from expropriation:** An indemnity from the Government in favor of the Company if the Company's interests are expropriated by the Government
- **Access to international arbitration:** Access to independent dispute resolution through international arbitration for any disputes between the Company and the Government
- **Entitlements to use foreign currencies and hold foreign bank accounts:** Streamlining the foreign currency regime to allow sufficient flexibility for funding arrangements and operations
- **Tax and customs regimes:** Tax and customs regimes that are at least equivalent to the LGIM.

Through the Investment Support Regime, it is also proposed to clarify that the Company's commitments to development, community, and social project funding, as set out in the MOU, would replace the community spend requirements in the New Mining Code.

To establish a bankable Investment Support Regime and to address various inconsistencies in existing law, the Company and the Government have, over the past year, been negotiating the terms of an investment agreement that would be submitted to the Madagascar Parliament for approval and promulgated as a law. Another viable option is to seek project certification under the existing LGIM, which would necessitate entry into a Parliamentary approved "side agreement" to clarify and supplement existing law, as needed, to support bankability and to address existing inconsistencies in the law.

In October 2025, after a period of social unrest and political instability, there was a change in Government, with the former President, Andry Rajoelina, being replaced by Colonel Michaël Randrianirina.⁴ The Company's discussions regarding an appropriate Investment Support Regime, including with respect to an investment agreement, have continued with the new government.

24.1.3 Comments by Qualified Person

Establishing an Investment Support Regime is a pre-requisite to FID. Accordingly, any delays to establishing such a regime will delay project progression. Although other pathways to securing an Investment Support Regime exist, the Company is currently focused on entering a standalone investment agreement with the Government for approval by Parliament as law. The Company will continue to closely monitor developments and seek necessary engagements to secure an appropriate Investment Support Regime as soon as possible, with a preference for a standalone investment agreement. As an additional mitigant, under the existing MOU with the Government, the Company's fiscal commitments remain conditional on, among other requirements, establishment of an acceptable Investment Support Regime.

⁴ This change, which occurred without an election, was supported by rulings of Madagascar's High Constitutional Court (referred to as the *Haute Cour Constitutionnelle* or HCC), which is vested with exclusive jurisdiction over the interpretation of Madagascar's Constitution and was requested to resolve the existing political crisis.

25 INTERPRETATIONS AND CONCLUSIONS

25.1 PROPERTY DESCRIPTION AND LOCATION

The Toliara Mineral Sands and Rare Earths Project is based on the Ranobe deposit in Madagascar.

25.1.1 Key interpretations

- Project and location:
 - The Ranobe deposit is located in southwest Madagascar, 18 km inland and 45 km north of Toliara
 - Exploitation Permit PE 37242 covers 125 km² and is valid until 2052, and is also renewable for an initial period of 15 years. Further renewals could be forthcoming thereafter.
- Ownership and rights:
 - Energy Fuels Inc., via Base Toliara SARL, owns 100% of the deposit
 - PE 37242 permits the mining of several minerals, including ilmenite, zircon, and rutile. It does not currently permit the mining of REE-bearing monazite.
- Environmental compliance:
 - Environment Permit No 55-15/MEEMF/ONE/DG/PE is valid
- Current challenges:
 - Implementation of an Investment Support Regime on terms satisfactory to the Company and the addition of REE-bearing monazite to PE 37242 and the satisfaction of the requirements to permit its exploitation are pending and critical for project progression.

25.1.2 Conclusions

The Toliara Project holds significant potential for mineral extraction and regional development. Success largely hinges on achieving a Investment Support Regime and the addition of REE-bearing monazite to PE 37242 (and satisfaction of the other requirements to permit its exploitation), advancing environmental compliance, and fostering government collaboration. Timely resolution of these issues is expected to enable the project to proceed, contributing to Madagascar's economic and social goals.

25.2 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

The Toliara Project represents a significant mining opportunity, characterized by a substantial deposit of heavy mineral sands containing ilmenite, rutile, zircon, and monazite. The region's physiography, accessibility, and climate, while presenting logistical challenges, also provide a framework for sustainable development through careful infrastructure planning and community integration.

The Toliara Project's success hinges on robust infrastructure development, efficient resource management, and integration with local communities. While challenges such as inadequate transport links, lack of local expertise, and climatic constraints exist, they can be addressed through strategic planning. The project has the potential to establish a sustainable and economically beneficial mining operation that aligns with environmental and social considerations.

25.3 HISTORY

The Toliara Project has had a long history of exploration, beginning in 2001 with the discovery of several HMS mineralization zones between Toliara and Morombe in southwest Madagascar. Between 2001 and 2017, a number of drill programs, mineral resource estimates and feasibility studies were completed by several different companies and determined the project to be world-class in scale, grade and economic potential. Base Resources acquired the Toliara Project in January 2018 and subsequently completed further drilling and concept, prefeasibility and definitive feasibility studies over seven years, prior to its acquisition by Energy Fuels in 2024, increasing the project's scale and economics.

25.4 GEOLOGICAL SETTING AND MINERALIZATION

The project represents a well-studied dunal HM sands deposit with significant economic potential, underpinned by decades of exploration and evolving resource assessments. The Ranobe deposit has been systematically explored through multiple drilling programs, which have progressively enhanced the understanding of its mineralogical composition and distribution. The deposit's high ilmenite content, along with valuable by-products such as rutile, zircon, and monazite, underscores its strategic importance. Although not part of the current Mineral Reserve estimate, there are some gaps in geological knowledge, with respect to the ICSU and LSU grades, mineralogical variability, and lithological controls. Investigating, addressing, and evaluating these gaps will allow for the full realization of the deposit potential.

As a part of future deposit studies, enhanced exploration techniques and interdisciplinary studies will be focused to address these ICSU and LSU knowledge gaps. Increasing drilling density, refining mineralogical analyses, and integrating advanced geophysical and stratigraphic modelling will provide greater confidence in resource estimates and support optimal extraction strategies. By prioritizing a deeper geological understanding, the Toliara Project can maximize its resource utilization, mitigate risks, and ensure long-term viability within the global minerals industry.

25.5 EXPLORATION

The exploration of the Ranobe deposit has primarily employed air core drilling methods supported by detailed topographic surveys, stratigraphic unit mapping, and metallurgical sampling.

25.6 DRILLING

Drilling activities at the Ranobe deposit have been conducted in a series of campaigns from 2001 to 2019, utilizing reverse circulation air core methods. These programs have progressively improved the geological understanding and resource delineation of the deposit through methodical refinement of drilling patterns, spacing, and sampling techniques. Despite interruptions caused by political, logistical, and environmental challenges, substantial data have been collected to support robust resource estimation.

The drilling programs at Ranobe deposit have provided a comprehensive dataset, enabling successive advancements in resource modelling and estimation and stratigraphic understanding. By progressively refining drilling methods and patterns, the campaigns have delivered high-quality data for resource estimation. However, interruptions to field activities and challenges with sample integrity have constrained the ability to fully characterize some areas of the deposit. Addressing these gaps will require resumption of fieldwork and enhanced sample management practices.

These findings underscore the potential of the Ranobe deposit, contingent on resolving logistical and regulatory barriers to ensure future exploration activities can build on the substantial groundwork laid to date.

25.7 SAMPLE PREPARATION, ANALYSIS, AND SECURITY

The study of the Ranobe deposit demonstrates a comprehensive, methodical approach to sample preparation, analysis, and mineralogical characterization.

25.7.1 Interpretation

- Standard procedures were implemented for collecting, drying, and splitting samples to ensure representativeness and accuracy. Duplicate sampling (A series, B series and C series) provided a robust quality assurance framework
- Analytical methodologies evolved, with consistent use of industry-standard procedures such as desliming, oversize screening, and heavy liquid separation. Laboratories in South Africa and Australia conducted the assaying, with cross-checking mechanisms in place, such as standards and duplicates to validate results
- Early studies to determine mineral assemblage utilized methods including magnetic separation and QEMSCAN, which was then progressed to advanced techniques such as the MinModel methodology, which was developed by the Company. The MinModel iterative error-minimization approach, which integrates XRF and Fe^{2+} data, yielded a consistent and reliable determination of heavy mineral species
- Over time, mineral assemblage data exhibited minimal variation, supporting confidence in the homogeneity of the deposit. The methodology facilitated the reproducible classification of complex minerals such as ilmenite and leucoxene, enabling informed resource estimation.

25.7.2 Conclusions

The integration of evolving methodologies, robust QA/QC measures, and advanced analytical tools has resulted in a reliable and detailed characterization of the Ranobe Deposit. This comprehensive approach underpins confidence in the Mineral Resource estimations and the economic evaluation of the deposit.

25.8 DATA VERIFICATION

The comprehensive data verification process demonstrates a robust framework for ensuring the accuracy and reliability of Mineral Resource estimates for the Ranobe deposit. The integration of drill hole data, wireframes, and surface models, coupled with rigorous QA/QC measures, underscores the commitment to maintaining industry standards.

25.8.1 Interpretation

- Data validation: Historical and recent data underwent thorough checks and corrections, ensuring suitability for geological interpretation and resource estimation. Outstanding assays, though a limitation, were accounted for in geological interpretations
- Sampling and QA/QC: Submission rates for field duplicates, laboratory duplicates, and standards were consistent with industry benchmarks, contributing to confidence in sample integrity and assay precision and accuracy
- Drill hole surveying: Reliable survey methods, including DGPS and LiDAR leveling, provided high-quality positional data, ensuring the accuracy of spatial datasets
- Analysis of field duplicates: Results indicate representative sampling and minimal bias, with acceptable variability reflecting expected material characteristics

- Laboratory replicates and standards: Analysis highlighted consistent performance, although moderate reproducibility in earlier CRM results prompted a shift to independent CRM.

25.8.2 Conclusions

Despite minor discrepancies in the standards, occasional periods of insufficient QA/QC sample submission, and challenges such as assay backlog and historical data limitations (including mineral assemblage samples at lower densities in some domains), the processes employed consistently demonstrate high reliability and adherence to best practices. These factors collectively affirm the robustness of the Mineral Resource estimate.

25.9 MINERAL PROCESSING AND METALLURGICAL TESTING

Extensive metallurgical test work has been completed historically and recently on the Ranobe ore.

The Ranobe deposit consists of liberated free-flowing discrete sand particles with low levels of fine sand, silt and clay. The deposit is mineralized from surface with no overburden; only topsoil will be removed prior to mining.

The ore characteristics are typical of many mineral sands orebodies currently exploited throughout the world. The valuable heavy minerals ilmenite, rutile, zircon, and monazite are present as liberated grains within unconsolidated sand. These can be separated from the quartz and other gangue minerals due to differences in mineral specific gravity, magnetic susceptibility, and conductivity.

The WCP will process approximately 1,750 tph of ore (Stage 1) to produce a high-grade HMC assaying >91% THM. Downstream separation of the HMC into its valuable mineral products is carried out by a combination of further wet gravity, wet classification, dry magnetic, and dry electrostatic process steps in the MSP and MCP.

All studies completed have demonstrated that the ore responds favorably to conventional methods of beneficiation.

The level of analysis for the mineral processing and metallurgical testing is considered suitable to support the 2025 Feasibility Study with a high level of confidence in the metallurgical performance, considering the following:

- The feed grade, mineral composition, and ore characteristics are consistent with historical data
- The beneficiation techniques employed are conventional and proven techniques
- The response to beneficiation (product grade and recovery performance) is consistent with historical data
- The MinModel data has been validated against conventional QEMSCAN mineralogy results and is deemed acceptable for the purpose of mineral recovery calculations.

25.10 MINERAL RESOURCE ESTIMATE

There has been a considerable volume of historical drilling, assaying, and mineral assemblage work undertaken on the Ranobe deposit. This work has been carried out under the direction of WTR (and associated precursor companies) with various Mineral Resource estimates undertaken by external consultants and Company staff. As can be the case with a project with a long and intermittent history of exploration and development, some gaps in documentation and collation of data can occur. Prior to the introduction of the JORC Code 2012 Edition, the requirement to document data and the exploration process was not as stringent for external reporting and that is evident in some of the internal reporting for the historical exploration.

A significant amount of drilling, assaying, and mineral assemblage work has been undertaken on the Ranobe deposit by Base Toliara since the 2018 resource estimate, primarily focused on defining the western and vertical extents of mineralization.

Historical resource estimates focused on the USU unit, although the 2018 resource estimate update incorporated the ICSU and established the potential of LSU material. For this resource estimate update, the USU and ICSU have been included as a Mineral Resource, but the LSU remains as an Exploration Target. The resource estimate has also been reported within interpreted geological domains to allow for greater transparency, as the mineralization displays different characteristics between domains. The basis for incorporating multiple domains in the resource estimate has been as follows:

- Base Toliara has investigated the entire mineralized sequence at Ranobe for development and has completed drilling programs to achieve this outcome. Additional drilling programs are planned in 2026 to continue to assess mineralization, particularly higher grade and shallower portions of the LSU
- Field observations and assay data warrant the inclusion of the ICSU unit into the resource estimate based on the HM content and the presence of a silt-based component of the slimes assay within the ICSU
- Base Toliara has undertaken significant work to update the mineralogy for the Ranobe deposit. This has been executed under the experienced guidance of Base Resources metallurgical personnel with the physical selection of sample locations undertaken by Base Toliara geological personnel
- Field observations and mineralogical assessment show that the LSU has a variable mineral assemblage with elevated levels of garnet and other trash HM relative to the USU. The LSU will not be reported as a Mineral Resource until mineralogy and test work that demonstrates acceptable recovery and product quality has been completed.

The differential in the Mineral Resource estimate for the current work compared with the previously reported estimate (at a cut-off grade of 1.5% THM) has resulted in an increase in overall reported tonnage, and positive movement in Measured, Indicated, and Inferred tonnages. The combined Measured and Indicated Resource has increased by 740 Mt for 30 Mt of contained THM.

With the inclusion of monazite production for the project, there is an opportunity to revise the HM cut-off grade and potentially incorporate lower-grade mineralization into the Mineral Resource.

The new resource estimate has a more robust geological interpretation as a result of additional drilling data and wireframing completed by the project geologist, giving rise to improved boundary and block resolution and geological contact control. There is improved consistency and quality in the mineral assemblage composites due to the increased density of MinMod composite coverage, which now encompasses the entire resource.

25.11 MINERAL RESERVE ESTIMATE

The high level of confidence in the technical study and modifying factors used to generate this Mineral Reserve estimate is grounds to expect that the eventual exploitation of the deposit is feasible. This Mineral Reserve estimate underpins the Toliara Project Feasibility Study update (2025 FS).

The Mineral Reserve estimates for the Ranobe Deposit within the Toliara Project, as detailed in the 2025 FS, demonstrate a robust resource with well-defined reserve classified under NI 43-101 and S-K 1300. The estimates are derived through rigorous economic, geological, and metallurgical assessments supported by definitive Modifying Factors. Proven Mineral Reserve of 433 Mt and Probable Mineral Reserve of 472 Mt collate to a total Mineral Reserve of 904 Mt with a 6.1%

heavy mineral grade. The project profitability is underscored by key metrics such as a pre-debt NPV of \$1,415 million, a revenue-to-cost ratio of 3.7, and 38 years of mine life.

The phased mining plan (Stage 1 and Stage 2) optimizes the economic recovery of the high-grade resource, while modern methodologies, including pit optimization and recovery efficiency in the mineral separation plant, contribute to operational sustainability. Social and environmental considerations, including surface rights acquisition and stakeholder engagement, are addressed comprehensively.

25.12 MINING METHODS

Mining at the Toliara Project will be conducted primarily by Caterpillar D11 bulldozers pushing ore to a DMU.

Processing of ore will be conducted in three distinct stages. The WCPs receive ore as slurry from the mine and after removal of clay and silt, the sands will be concentrated by spiral gravity separators to yield a mixed heavy mineral concentrate. The HMC will be pumped to the MSP, where progressive removal of valuable minerals into final products will be achieved. In the MSP, multiple stages of magnetic and electrostatic separation will be employed in the dry section of the plant to isolate the ilmenite product. The non-magnetic fraction will be upgraded using a wet gravity separation process. The concentrate will be further processed with magnetic and electrostatic stages to produce the rutile and zircon products. The ilmenite non-conductor rejects will be pumped to the MCP upgraded with a wet gravity separation process and processed through magnetic separation, where a monazite product will be produced.

Coarse and fine tailings will initially be pumped back to an ex-pit co-disposal areas and, when available, deposited into previously mined-out void areas.

The proposed mining methodology is appropriate for mining activity and should be suitable to achieve the proposed mining rate.

25.13 RECOVERY METHODS

Equipment selection for the process plant has been based on design criteria developed from metallurgical test work and multiple flowsheet scenarios, considering variations in grade, slimes content, and throughput. Test work was conducted on full-scale or scalable mineral processing equipment. This approach ensures that the plant design can accommodate a wide range of expected operating conditions.

The plant layout follows established principles commonly used in successful mineral sands operations. Equipment included in the design has been sourced from reputable suppliers and selected for its proven performance in similar applications.

To mitigate risk associated with the performance of separating equipment, focused test work was conducted in collaboration with the key original equipment manufacturers. Furthermore, MSP equipment capacities were conservatively de-rated by 10% relative to test work throughputs to provide an operational buffer.

In addition, to reduce product handling risk, thickener trials and filtration assessments were completed. To mitigate general material handling risks, pump and pipe loop testing and mass flow property analyses were performed to inform the design of bins, chutes, and transfer points.

Collectively, these efforts significantly reduce risks to plant performance, operability, and reliability.

A primary risk for the process plant is variability in feed material that may deviate from the conditions used during test work and design. This risk has been addressed through comprehensive metallurgical test programs, which covered a wide range of samples, and by designing flexibility and robustness into the process flowsheet. Furthermore, an extensive drilling program has informed material characterization, and the ability to blend feed materials provides an additional layer of risk mitigation.

For the Stage 2 expansion, DMU2 and WCP2 are planned to replicate the Stage 1 plant. Consequently, the design and operational insights gained from Stage 1 will directly inform the engineering of Stage 2, ensuring no additional risks are introduced during the expansion.

25.14 PROJECT INFRASTRUCTURE

The infrastructure developed for the Toliara Project is suitable to support the construction and long-term operation of the mine. Engineering designs have been completed to Feasibility Study standard, with all key infrastructure scoped, sized, and located to meet the operational demands of both Stage 1 and Stage 2 throughput. The infrastructure layout supports modular expansion and integration of additional process and logistics components as required by future phases.

Geotechnical and topographical conditions across the mine, mineral haulage corridor, and export facility locations have been assessed to sufficient detail to enable FS-level engineering and cost estimation. However, selected areas require further investigation during FEED to confirm foundation and subgrade conditions, particularly at the Fiherenana River bridge and Batterie Beach export facility.

Ground conditions at the export facility site are highly compressible and require improvement by means of rigid inclusions and engineered fill platforms. At the mine site, compressive loads can generally be resisted without piling. The mineral haulage corridor and bridge infrastructure designs mitigate climate-related and hydrological risks through the implementation of appropriate elevation, drainage structures, and flood resilience measures.

The contracting model employed for power supply and the general format of the Power Lease and Services Agreement are common for mining projects in Africa and Australia. This augments the rigorous process followed in selecting the power contractor and is further supported by the Power Contractor's selected advisors, consultants, and contractors, all of whom have relevant experience in delivering projects of this nature in Africa. Finalization of the PLSA with the power contractor is at an advanced stage, with most key commercial provisions agreed. The power contractor's technical solution, as detailed in this report, has been scrutinized by Zutari and Osmotic Engineering Group with no material technical risks identified at this stage.

The proposed export facility, including the multi-buoy mooring system and offshore trestle platform, has been validated through navigation simulations and dynamic mooring assessments, confirming its ability to support bulk and container vessel operations under site-specific environmental conditions. The proposed marine facility at Batterie Beach is well-conceived and technically robust, offering a fit-for-purpose solution for the Toliara Project's final product export requirements. The facility's design is responsive to local environmental conditions, leveraging the natural protection of the fringe reef and favorable bathymetry to support the safe and efficient mooring of bulk carriers and container vessels. The MBM system, complemented by a 550 m access trestle and a well-integrated loading platform, enables flexible vessel handling across a wide range of fleet while ensuring compliance with international design codes and safety standards.

Extensive simulations and design studies support the operational viability of the facility. Navigation and mooring assessments confirm high berth availability (>96% for bulk carriers), with manageable environmental constraints through operational planning. The fixed shiploader, designed with dust control and efficient trimming in mind, and the pipe conveyor system contribute to both environmental and logistical performance. Discrete event simulation of the full

logistics chain further validates the system's throughput capacity across both project phases, with only minimal constraints anticipated for containerized monazite exports during specific tide and wind conditions. Collectively, these elements affirm the overall suitability of the proposed infrastructure to reliably and safely meet the project's export demands over its 38-year design life.

The infrastructure is aligned with Malagasy regulatory requirements and applicable international standards (IFC, Australian, and Eurocode standards). It is considered technically sound and economically feasible, with identified risks appropriately mitigated or scheduled for resolution during FEED.

25.15 MARKET STUDIES AND CONTRACTS

25.15.1 Marketing

Offtake contracts for Toliara mineral sands products will be secured with major global consumers of these products, many of whom have had long-term offtake arrangements with Base Resources for products from the Kwale operation. Target customers for these products have tested samples and are showing a strong desire to secure offtake contracts. All monazite produced from the Toliara Project will be transferred to Energy Fuels under an arm's length offtake contract reflecting standard commercial terms for the rare earth minerals industry.

Attractive market dynamics and price forecasts for each of the Toliara products result in robust financial metrics for the Toliara Project. The Toliara Project's extraordinarily high revenue-to-cash cost ratio is a significant competitive advantage that will allow it to weather any unforeseen market downturns and provide important long-term security of supply for customers.

25.15.2 Contracts

The contracting strategy is robust and designed to ensure the effective implementation and operation of the project. The strategy includes detailed plans for project implementation, major operational support, and intellectual property acquisition. Project delivery will include relationships with key contractors and legal services, supported by appropriate risk management and contract delivery models. The contracting strategy will be designed to address the unique challenges of the Toliara Project, leveraging the expertise of key contractors and ensuring compliance with local and environmental requirements to achieve successful project outcomes.

25.16 ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT

While the Toliara Project holds an Environment Permit, the ESIA is now dated and the project that will be developed differs from what was assessed in the ESIA. The ESIA therefore requires updating with current baseline specialist studies, assessment of the project changes, fresh disclosure to stakeholders, and inclusion of additional studies and processes required under MECIE 2025. Upon submission of the ESIA Update and PGES to ONE, ONE will issue updated permit conditions reflecting the assessed and planned project. The ESIA Update documentation will provide a single current document that reflects the project as it will be developed.

25.17 ECONOMIC ANALYSIS

The Toliara Project delivers robust project economics, as demonstrated by its NPV of \$1,415 million (10% discount rate, post tax, real), IRR of 22.1%, capital payback period of 4.8 years (Stages 1 and 2), revenue to cost ratio of 3.7:1, and forecast LOM free cash flows (post tax, real) of \$10,040 million. Sensitivity analysis completed confirms the project will deliver strong returns even under conservative assumptions for key variables. The project is most sensitive to commodity prices, particularly for ilmenite, monazite, and zircon, as well as WCP recoveries and MSP ilmenite recoveries.

25.18 OTHER RELEVANT DATA AND INFORMATION

25.18.1 Government and legal

Permitting for the Toliara Project is well-progressed. Key permits already obtained include PE 37242, which covers the entirety of the Ranobe deposit, and Environment Permit No 55-15/MEEMF/ONE/DG/PE as approved through the ESIA process.

The process for obtaining the remaining permits, authorizations and approvals and undertaking the legal steps necessary for a final investment decision has ramped up following the lifting of the on-ground suspension by the Government in November 2024 and the subsequent entry into the MOU.

In addition to setting out the key fiscal terms, the MOU provided a platform for implementation of the legal regime necessary to support development of the project. A key step for a final investment decision is to formalize the terms and conditions set out in the MOU and implement an appropriate Investment Support Regime.

To establish a bankable investment support regime and to address certain inconsistencies in existing law, the Company and the Government have, in the past year, been negotiating the terms of an investment agreement that would be submitted to the Madagascar Parliament for approval and promulgated as a law. Another viable option is to seek project certification under the existing LGIM, which would necessitate entry into a Parliamentary approved “side agreement” to clarify and supplement existing law, as needed, to support bankability and to address existing inconsistencies in the law.

Securing land access to the required areas within PE 37242 and for the Toliara Project’s infrastructure is another key legal step. The areas required for the project comprise a mix of titled (or registered) land and unregistered land where customary occupation rights are held.

In brief, the land access process will involve entry into private treaty arrangements with landowners for titled land to vest their land in Government and holders of customary occupation rights for untitled land to extinguish their rights. An expropriation process (known as DUP) is available as a backstop in the event any private treaty negotiations are unsuccessful. Once titled land has been vested in the Government and customary occupation rights have been extinguished, long-term leases will be entered into with the Government to secure rights to the land.

Monazite is also not presently listed as a mineral substance on PE 37242. For its exploitation to be permitted, monazite will need to be added to PE 37242 and certain other steps undertaken, including updated environmental permitting (which, in turn, will require an ESIA Update), an updated CCM (or mining specifications book), entry of bipartite and tripartite agreements with Government agencies, and approval of the authority in charge of radiation protection and safety.

26 RECOMMENDATIONS

26.1 PROPERTY DESCRIPTION AND LOCATION

The following activities are planned to progress the development of the Toliara Project:

- Implementation of an Investment Support Regime
- Addition of REE-bearing monazite to PE 37242 and satisfaction of the other requirements to permit its exploitation
- Securing land access to the required project areas.

26.2 GEOLOGICAL SETTING AND MINERALIZATION

Although not part of the current Mineral Reserve estimate, there are some gaps in geological knowledge with respect to the ICSU and LSU grade, mineralogical variability, and lithological controls.

Enhanced exploration techniques and interdisciplinary studies will be focused on addressing these knowledge gaps. Increasing drilling density, refining mineralogical analyses, and integrating advanced geophysical and stratigraphic modelling will provide greater confidence in resource estimates and support optimal extraction strategies. By prioritizing a deeper geological understanding, the Toliara Project can maximize its resource utilization, mitigate risks, and ensure the project's longevity.

26.3 EXPLORATION

Perform additional in situ and laboratory density tests, focusing on varying depths and lithologies, to validate and refine the applied bulk density model. This can be done using a Troxler Nuclear Density Meter, but given this is an in-ground method, it will likely only be possible once mining and widespread excavation activities are well advanced. For now, the current density algorithm provides an appropriate estimation of the bulk density.

26.4 SAMPLE PREPARATION, ANALYSIS AND SECURITY

The following recommendations should be considered during further development of the Ranobe deposit:

- Refinement of sampling protocols:
 - Implement empirical weighting protocols for sample recovery to complement visual controls
 - Expand duplicate sampling strategies to ensure further accuracy and reproducibility (umpire laboratory samples, 1 in 120 triplicates)
 - Establish industry standard laboratory preparation and assaying laboratory for the project site
- Enhanced analytical techniques: Broaden the use of MinModel for other mineral sand deposits to leverage its accuracy and cost-effectiveness

- Data integration and reporting: Develop a standardized protocol for integrating and comparing data across various laboratories and techniques
- Resource optimization: Prioritize zones with significant economic potential based on mineralogical trends and consistency
- Continued QA/QC measures:
 - Regularly audit laboratory procedures to align with industry standards
 - Retain residues and control samples for long-term verification and reanalysis if needed.

26.5 DATA VERIFICATION

To enhance data integrity and support ongoing resource estimation efforts, the following actions are recommended:

- Assay backlog resolution: Prioritize integration of the 5,350 outstanding assays to refine geological interpretations and improve resource confidence
- Enhanced CRM use: Continue using independently certified reference materials for QA/QC to maintain high assay accuracy and precision
- Data management: Consolidate historical QA/QC raw data into a centralized repository to facilitate future statistical analyses and audits
- Training and protocol review:
 - Regular staff training on sampling and assay protocols should be conducted to minimize variability and enhance reproducibility
 - Maintain ongoing QA/QC data analysis as assay programs are being completed, allowing samples to be readily identified for re-analysis if required
- Twinned hole analysis: Expand twinned drilling programs to validate interpretations across broader deposit areas, improving model reliability
- Continuous QA/QC monitoring: Implement automated tools to monitor QA/QC performance metrics in real-time, ensuring early detection of anomalies (through an advanced assay management database).

26.6 MINERAL RESOURCE ESTIMATE

The following additional exploration activity is recommended to generate expansion and improvements to the resource estimate:

- Further drilling and mineral assemblage composite work on the LSU geological domain to bring that into Indicated and Inferred resource from Exploration Target category. Further drilling and bulk sample collection for metallurgical testwork is planned during 2026, following the resumption of site access and project activities
- The drilling and resource estimate has highlighted potential for significant extension of low to moderate grade USU mineralization present in the south of the deposit, further west into a large dune mass. Base Toliara will assess this potential as part of the exploration and development strategy for the Toliara Project
- Review of the cut-off grade to incorporate the additional revenue generated by Monazite. This work would be completed as part of a Mineral Resource Estimate update related to additional drilling referenced above

- Further drilling and mineral assemblage composite work on the ICSU geological domain to allow an increase in the Measured resource from the Indicated category. This generally relates to areas where historical drilling was terminated immediately upon intersecting the ICSU and the full thickness of the ICSU remains untested. Base Toliara views this as a low priority, and it will likely be undertaken during the course of infill drilling for mine planning purposes during operational development
- Additional MinModel analysis throughout the deposit to infill gaps in sample coverage related to:
 - Absence of samples from historical drilling (e.g. no samples available from 2003 drilling, some samples lost/damaged from 2005 and 2012 drilling)
 - The 400 m by 400 m spacing not being achieved or appropriate due to basement outcrop and irregular basement topography, and/or an irregular drill pattern
 - Areas where lenses or zones of higher-grade mineralization have not been representatively sampled for MinMod analysis
- There is potential to consider downhole 3 m sample lengths based on the downhole continuity demonstrated from the variography analysis, although the definition of geological contacts will be compromised.

26.7 MINERAL RESERVE ESTIMATE

Additional future work is recommended to refine the mining operations, including the following:

- Optimization of mining equipment, DMU operational requirements, and locations: This will maximize utilization and availability, minimize costs, and maximize recovery
- Tailings disposal requirements and scheduling: Fines tailings generation is expected to be low and the long-term advantages of rehabilitating the mined areas as quickly as possible are high; therefore, mine design and mine scheduling to minimize ex-pit or temporary storage requirements should be investigated
- Inclusion of monazite: It has been confirmed that monazite significantly enhances the project's valuation; consequently, it is recommended to include it in the upcoming phases of pit optimization and mine planning. There is potential for a significant increase in Mineral Reserves (and mine life) via the inclusion of monazite
- Revise commencement schedule: The extraction sequence for Stage 1 is based on commencing in the month of June. However, this schedule will need to be revisited once the on-site commencement date is confirmed, to ensure the DMU is not located in areas that could be flooded during the wet seasons (December to March).

26.8 MINING METHODS

The following recommendation should be considered during mining operations:

- Implement a strategic grade control program to maximize the efficiency of Stage 1 mining before transitioning to Stage 2.

26.9 RECOVERY METHODS

To date, the project has followed a proven development pathway, progressing through clearly defined study phases, including scoping, pre-feasibility, feasibility, and bulk test work on a range of samples. It is recommended that the project proceed with a structured FEED phase to further refine the engineering design before moving into detailed design, fabrication, and construction.

The FEED phase should focus on selecting preferred vendors and finalizing layouts and plant configurations based on the chosen equipment. This approach will ensure the project transitions to the detailed design phase with a high degree of maturity, supported by rigorous design reviews and hazard and operability workshops.

26.10 PROJECT INFRASTRUCTURE

The feasibility study has defined the infrastructure to the level required for a Final Investment Decision. To support the transition into FEED, detailed design, and construction, the following recommendations are made:

- Geotechnical and site investigations
 - Complete confirmatory boreholes at the Fiherenana Bridge site, export facility, WCP, and proposed limestone quarry areas
 - Undertake supplemental test pits, dynamic cone penetration tests, and laboratory characterization to finalize foundation design parameters for access roads, mine-site infrastructure, and the export facility
- Groundwater and hydrogeology
 - Install permanent monitoring bores and level loggers to support long-term management
 - Conduct aquifer testing and update the hydrogeological model to refine Stage 2 water demand predictions
- Tailings Storage Facility
 - Complete the consequence classification and dam-break assessment in accordance with GISTM and ANCOLD requirements as part of the detailed design phase.
 - Prepare the Operations, Maintenance, and Surveillance Manual for implementation during construction and operations
 - Develop and refine slope stability, seepage, and water balance models using site-specific geotechnical, hydrological and tailings data obtained during FEED and detailed design.
 - Undertake a full liquefaction assessment of both the foundation soils and tailings materials, supported by appropriate laboratory testing (e.g., cyclic triaxial, consolidation, permeability testing)
- Early works and enabling infrastructure
 - Advance preparatory construction works including Batterie Beach access, mine and export site pads, communications and temporary power, and the Toliara Port causeway bridge bypass. Optimize the monazite container storage facility size based on an updated simulation study
- Power supply and integration:
 - Finalize the PLSA with the selected independent power contractor
 - Optimize solar PV integration and flexible load management to reduce diesel usage and improve efficiency

- Mineral haulage corridor and local access management:
 - Finalize the location and treatment of local community crossing points along the mineral haulage corridor through traffic studies and community consultation
 - Implement appropriate safety measures such as staffed gates or booms
- Export facility:
 - Conduct additional marine geotechnical investigations, obstruction survey, and updated bathymetric survey as part of detailed design
 - Complete seabed ROV survey and real-time current/tide monitoring system to refine offshore installation planning
 - Undertake a follow-up full-mission bridge simulation prior to commissioning
- Construction phase requirements:
 - Confirm wastewater treatment and sewage disposal logistics with early earthworks contractors
 - Procure and mobilize a medical clinic and ambulance before the start of construction
- Environmental and social management:
 - Implement MCP waste screening and washing protocols to manage NORM-related risks
 - Maintain regular site audits, training, and segregation procedures to comply with the ESMP
 - Alternative corridor route assessment - To assess the different route options to mitigate or avoid impact on endangered species.

26.11 MARKET STUDIES AND CONTRACTS

- Engage with debt financiers to understand requirements for offtake contracts
- Explore joint venture funding opportunities and US Government debt providers who may be willing to underwrite/guarantee the monazite offtake with White Mesa.

26.12 ENVIRONMENTAL STUDIES, PERMITTING, AND SOCIAL OR COMMUNITY IMPACT

It is recommended to update the ESIA to establish a current understanding of the project's environmental and social setting. This should include updated baseline specialist studies, an assessment of project changes, disclosure to relevant stakeholders, and the incorporation of any additional studies and processes required under MECIE 2025, ensuring that an accurate and up-to-date baseline is established prior to the commencement of construction activities.

Developing a robust ESMS to implement and monitor controls to manage environmental and social risks, mitigation controls, and biodiversity and community programs is key to managing the ecological and social sensitivities associated with the Toliara Project. In addition, the identification and implementation of stringent environmental controls and mitigation measures are critical for managing risk and impacts associated with constructing and operating a mineral haulage corridor through a protected area. The development and implementation of a comprehensive BAP is therefore critical for managing the risks associated with developing and operating a mining project in close proximity to a protected area.

Other key ESMS components that will be developed as the project progresses to construction include the following:

- ESMPs for the construction phase, including the area specific PGES-S' required to be submitted to ONE
- Issue specific ESMPs for the operational phase of the project and area specific PGES-S' for the operational phase for submission to ONE
- Prepare and implement Resettlement Action Plan and Livelihood Replacement Plan for households impacted by the Toliara Project land acquisition requirements
- Prepare and implement Biodiversity Action Plan developed in consultation with biodiversity, ecological, floral, and faunal specialists
- Implement the environment, social and occupational monitoring programs based on the findings and recommendations of the subject matter specialist studies
- Prepare an endangered species action plan to enhance conservation outcomes and define mitigation measures for project construction and operations on the species.

26.13 COST ESTIMATE

Table 26-1 presents a cost estimate reflecting the cost of implementing the proposed recommendations.

Table 26-1: Cost estimate to progress Recommendations

Description	Operating Cost (\$ millions)	Capital Cost (\$ millions)	Budget Source
Tenure and surface rights	0.1	13.1	Pre-FID Budget
Geological Setting and Mineralisation, incl all drilling	1.5	0	Corporate Budget
Exploration	0.1	0	Pre-FID Budget
Sample Preparation and Data Verification	0.2	0	Corporate Budget
Mineral Resource Estimate	0.7	0	Corporate Budget
Mineral Reserve Estimate	0.2	0	Corporate Budget
Mining Methods	0.1	0	Corporate Budget
Recovery Methods	0	4.0	Pre-FID Budget
Infrastructure	0	9.0	Pre-FID Budget
Market studies	0.1	0	Corporate Budget
Environmental studies and permitting	0	2.0	Pre-FID Budget
Total Cost	3.0	28.1	

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28 CERTIFICATES OF QUALIFIED PERSON

28.1 IAN BERNARDO

I, Ian Bernardo, B.Eng, as an author of this report entitled "*Technical Report on the Toliara Project Feasibility Study*" (the Technical Report), with an effective date of June 30, 2025, prepared for Energy Fuels, do hereby certify that:

1. I am the Study Manager with Base Resources located at 46 Colin Street, West Perth, 6005, Australia
2. I am a professional mechanical engineer, having graduated in 1990 with a Bachelor's degree from the University of Stellenbosch, South Africa
3. I am a member in good standing with Engineers Australia (EA ID:3343279)
4. I have 33 years of engineering experience since graduating, including approximately 15 years in project development (studies), 3 years in project implementation, and 15 years in mining and process plant operations
5. I have read the definition of "Qualified Person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfil the requirements to be a "Qualified Person" for the purposes of NI 43-101
6. I visited the Toliara Project, which is the subject of this Technical Report, in June 2025. The purpose of the visit was to inspect the mining area and potential locations of the process plants and supporting infrastructure
7. I have supervised the preparation of Sections 1, 2, 3, 4, 19, 21.2, 22, 23, 24, 25, 26 and 27 of the Technical Report
8. I am not independent of the Issuer applying the test set out in Section 1.5 of NI 43-101
9. I have had prior involvement with the property that is the subject of the Technical Report. I was the Engineering Manager for the process plant engineering development during the 2019 DFS and the Study Manager for the 2021 DFS and 2023 Monazite PFS
10. I have read NI 43-101, and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1
11. At the effective date of the Technical Report, to the best of my knowledge, information, and belief, Sections 1, 2, 3, 19, 21.2, 22, 24, 25, 26 and 27 of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 5th day of December 2025 at Perth, Western Australia, Australia.

(Signed & Sealed) *Ian Bernardo*

Ian Bernardo, B.Eng (Mechanical), MIEAust

28.2 GREGORY JONES

I, Gregory Norman Jones, B.Sc (Geology), FAusIMM as an author of this report entitled *“Technical Report on the Toliara Project Feasibility Study”* (the Technical Report), with an effective date of June 30, 2025, prepared for Energy Fuels, do hereby certify that:

1. I was employed as Principal Advisor, Geology and Mining, with IHC Mining
2. I graduated with a B.Sc. in Geology with Honours from Ballarat University College in 1992
3. I am a member in good standing of:
 - a. Australasian Institute of Mining and Metallurgy at the member grade of Fellow
 - b. Membership Number: 110193
4. I have practised my profession continuously for over 30 years, including experience in mineral exploration and resource estimation
5. I have read the definition of "Qualified Person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined by NI 43-101) and past relevant work experience, I fulfil the requirements to be a "Qualified Person" for the purposes of NI 43-101
6. I visited the project site on July 30, 2018 for 4 days
7. I am responsible for Sections 5 to 12 and 14
8. I am independent of the Issuer as described in Section 1.5 of NI 43-101
9. I have had prior involvement with the property that is the subject of the Technical Report
10. I have read NI 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that Instrument and Form
11. As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the portions of the Technical Report for which I am responsible not misleading

Dated this 5th day of December 2025 at Bunbury, Western Australia, Australia.

(Signed & Sealed)

Gregory Jones, B.Sc (Geology), FAusIMM

28.3 CHRISTOPHER SYKES

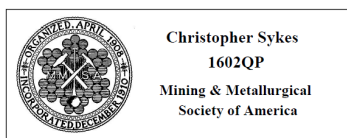
I, Christopher Michael Sykes, B.E (Mining), an author of this report entitled *“Technical Report on the Toliara Project Feasibility Study”* (the Technical Report), with an effective date of June 30, 2025, prepared for Energy Fuels, do hereby certify that:

1. I am employed as Principal Mining Engineer with IHC Mining
2. I graduated with a B.E. in Mining with Honours from the University of NSW in 1990
3. I am a member in good standing of:
 - a. Mining and Metallurgical Society of America as a Qualified Professional
 - b. Membership Number: 1602
4. I have practiced my profession continuously for over 35 years, including experience in mining, and reserve estimation
5. I have read the definition of "Qualified Person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined by NI 43-101) and past relevant work experience, I fulfil the requirements to be a "Qualified Person" for the purposes of NI 43-101
6. I have visited the project site on June 17, 2025
7. I am responsible for Sections 15 and 16
8. I am independent of the Issuer as described in Section 1.5 of NI 43-101
9. I have had prior involvement with the property that is the subject of the Technical Report
10. I have read NI 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that Instrument and Form
11. As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the portions of the Technical Report for which I am responsible not misleading.

Dated this 5th day of December 2025 at Adelaide, South Australia, Australia.

(Signed & Sealed)

Christopher Sykes, B.E (Mining), QP



28.4 MITCHELL RYAN

I, Mitchell Ryan, B.Eng, B Sc, MAusIMM, as an author of this report entitled *“Technical Report on the Toliara Project Feasibility Study”* (the Technical Report), with an effective date of June 30, 2025, prepared for Energy Fuels, do hereby certify that:

1. I am a Senior Metallurgist with IHC Mining (previously IHC Robbins) located at 2/112 Darlington Drive, Yatala, 4207, Queensland, Australia
2. I am a professional Chemical & Metallurgical Engineer and Geological Scientist, having graduated in 2015 with Bachelor's degrees from the University of Queensland, Australia
3. I am a member in good standing of the Australian Institute of Mining and Metallurgy "AusIMM" (AusIMM ID: 319615)
4. I have 9 years of engineering experience since graduating, entirely pertaining to the metallurgy and process plant design of mineral sands deposits
5. I have read the definition of "Qualified Person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfil the requirements to be a "Qualified Person" for the purposes of NI 43-101
6. Between 2018 to 2024, I conducted various metallurgical test work programs pertaining to the Toliara Project's Mineral Separation Plant, which is discussed in Section 13 of this Technical Report
7. I have authored or reviewed and take responsibility for Section 13 (MSP and MCP)
8. I am independent of the Issuer applying the test set out in Section 1.5 of NI 43-101
9. I have had prior involvement with the property that is the subject of the Technical Report. I was a Metallurgist with IHC Mining involved in the Toliara Mineral Separation Plant metallurgical test work during the 2019 DFS, 2021 DFS and 2023 Monazite PFS
10. I have read NI 43-101, and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1
11. At the effective date of the Technical Report, to the best of my knowledge, information, and belief, Section 13 of the Technical Report, which I have independently reviewed, contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 5th day of December 2025 at Yatala, Queensland, Australia

(Signed & Sealed)

Mitchell Ryan, B.Eng (Chemical & Metallurgical), B.Sc (Geological Sciences), MAusIMM

28.5 ETIENNE RAFFAILLAC

I, Etienne Raffailac, M.Met.Eng., MAUSIMM, an author of this report entitled "*Technical Report on the Toliara Project Feasibility Study*" (the Technical Report), with an effective date of June 30, 2025, prepared for Energy Fuels, do hereby certify that:

1. I am a Principal Metallurgist with Mineral Technologies Pty Ltd at its Carrara office located at 11 Elysium Road, Carrara QLD 4211, Australia
2. I am a professional mineral process engineer having graduated with a master's degree in Geological Engineering, specialisation in Minerals Processing, from the Ecole Nationale Supérieure de Géologie (ENSG) in Nancy France (2002)
3. I am a Member of the Australian Institute of Mining and Metallurgy since 2013 (Member 313931)
4. I have practised my profession continuously as a metallurgist/process engineer for the past 22 years in the mineral resources sector and engaged in the assessment, development, and operation of mineral projects both within Australia and internationally
5. I have read the definition of "Qualified Person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined by NI 43-101) and past relevant work experience, I fulfil the requirements to be a "Qualified Person" for the purposes of NI 43-101
6. I am independent of the Issuer as described in Section 1.5 of NI 43-101
7. I have authored or reviewed and take responsibility for:
 - a. Section 13 (WCP)
 - b. Section 17 of the Technical Report.
8. I have not conducted a recent and current site inspection
9. I have had prior involvement with the property that is the subject of the Technical Report
10. I have read NI 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that Instrument and Form
11. As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the portions of the Technical Report for which I am responsible not misleading.

Dated this 5th day of December 2025 at Carrara, Queensland, Australia.

(Signed & Sealed)

Etienne Raffailac, M.Met.Eng., MAUSIMM

28.6 WARWICK DONALDSON

I, Warwick Donaldson, PrEng BSc(Eng) MSAICE, an author of this report entitled "*Technical Report on the Toliara Project Feasibility Study*" (the Technical Report), with an effective date of June 30, 2025, prepared for Energy Fuels, do hereby certify that:

1. I am a Director with PRDW Africa Pty Ltd at its Cape Town office located on 5th Floor Nedbank Building, Clock Tower Precinct, V&A Waterfront, Cape Town, 8002, South Africa
2. I am a professional engineer registered with the South African Engineering Council (Registration number 20150377) specialising in marine infrastructure, having graduated with a BSc(Eng) Honors's degree in Civil Engineering, from the university of Cape Town in 2008
3. I am a Member of the South African Institution of Civil Engineering since 2009 (Member number 200781)
4. I have practised my profession continuously as a marine infrastructure engineer for the past 17 years and have been involved in the assessment and development of marine export facilities for mineral projects throughout Africa
5. I have read the definition of "Qualified Person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined by NI 43-101) and past relevant work experience, I fulfil the requirements to be a "Qualified Person" for the purposes of NI 43-101
6. I am independent of the Issuer as described in Section 1.5 of NI 43-101
7. I have authored or reviewed and take responsibility for Section 18.9
8. I have not conducted a recent and current site inspection
9. I have had prior involvement with the property that is the subject of the Technical Report
10. I have read NI 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that Instrument and Form
11. As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the portions of the Technical Report for which I am responsible not misleading.

Dated this 5th day of December 2025 at Cape Town, South Africa.

(Signed & Sealed)

Warwick Donaldson, PrEng BSc(Eng) MSAICE

28.7 FRANCOIS VAN REENEN

I, Francois van Reenen, B.Eng (Civil), an author of this report entitled “*Technical Report on the Toliara Project Feasibility Study*” (the Technical Report), with an effective date of June 30, 2025, prepared for Energy Fuels, do hereby certify that:

1. I am employed as a Technical Engineering Specialist with Zutari Pty Ltd
2. I graduated with a B.Eng (Civil) in Civil Engineering from Pretoria University in 1981
3. I am a professional engineer, registered with the Engineering Council of South Africa, registration nr 930211
4. I am a member in good standing of:
 - a. The South Africa Institution of Civil Engineering
 - b. Membership Number: 206863
5. I have practised my profession continuously for over 40 years, including experience in road and drainage design, cost estimation and mine access and development
6. I have read the definition of "Qualified Person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined by NI 43-101) and past relevant work experience, I fulfil the requirements to be a "Qualified Person" for the purposes of NI 43-101
7. I have visited the project site in February 2025 for 5 days
8. I am responsible for Section 18.5
9. I am independent of the Issuer as described in Section 1.5 of NI 43-101
10. I have had prior involvement with the property that is the subject of the Technical Report
11. I have read NI 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that Instrument and Form
12. As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the portions of the Technical Report for which I am responsible not misleading.

Dated this 5th day of Decemberr 2025 at Tshwane, Gauteng, South Africa.

(Signed & Sealed)

Francois van Reenen, B.Eng (Civil)

28.8 ALWYN JACOBUS SCHOLTZ

I, Alwyn Jacobus Scholtz, B.Eng, M.Sc, MAusIMM, an author of this report entitled *“Technical Report on the Toliara Project Feasibility Study”* (the Technical Report), with an effective date of June 30, 2025, prepared for Energy Fuels, do hereby certify that:

1. I am a Study Manager with Lycopodium Limited, located at 1 Adelaide Terrace, East Perth, WA 6004, Australia
2. I am a member in good standing of the Australian Institute of Mining and Metallurgy (AusIMM Member No. 3048611)
3. I hold a Bachelor of Engineering (Mining) degree from the University of Pretoria (2008) and a Master of Science degree from the University of the Witwatersrand (2018)
4. I have practised my profession continuously since 2009 and have been involved in numerous feasibility studies since 2011, including mining, mine infrastructure, and general surface infrastructure such as roads, bulk power supply, and water systems across South Africa and other parts of Africa
5. I have read the definition of "Qualified Person" set out in National Instrument 43-101 ("NI 43-101") and certify that, by virtue of my education, professional affiliation, and relevant work experience, I meet the requirements to be a "Qualified Person" for the purposes of NI 43-101
6. I have not personally conducted a site inspection. However, representatives of Lycopodium, Geoff Allen (Manager of Projects) and Gordon Loxton (Senior Project Engineer), visited the Toliara Project site from February 12 to February 22, 2025. They were accompanied by representatives from Knight Piésold (Geotechnical), Zutari (Mineral Haulage Corridor), and Base Resources. Their site visit included key locations such as the haul road crossing, quarry, mining area, existing boreholes, Ranobe access road, proposed bridge and underpass locations, and the Battery Beach export facility. I have been thoroughly briefed by these individuals on their visit and observations
7. I am responsible for the preparation or supervision of the following sections of the Technical Report: Sections 18.1 to 18.4, 18.6 to 18.8 and Section 21.1
8. I am independent of the issuer, Base Resources Limited, as defined by Section 1.5 of NI 43-101
9. I have read NI 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that Instrument and Form
10. As of the effective date of the Technical Report, to the best of my knowledge, information, and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to ensure that those sections are not misleading.

Dated *this 5th day of December 2025* at Perth, Western Australia, Australia.

(Signed & Sealed)

Alwyn Scholtz, B.Eng, M.Sc, MAusIMM