17 July 2023

CAPE FLATTERY SILICA DFS CONFIRMS EXCELLENT ECONOMICS

Highlights

- Cape Flattery Silica Sand Project's (CFS) Definitive Feasibility Study (DFS) confirms potential for a long-life, low operating cost silica sand project producing high purity silica sand for use in the manufacture of solar PV glass and other applications
- The DFS forecasts life of Project cash revenue of A$2,910M, returning pre-tax Net Present Value (NPV10) of A$437.3M, and an Internal Rate of Return (IRR) of 32.2%
- The initial Capital Cost of CFS is estimated to be $165M (including a 10% contingency of $13.6M) with a payback period from commencement of production of 2.85 years. All production is based on the Ore Reserve only (refer Table 4 – Ore Reserve)
- The Ore Reserve of 47 million tonnes (Mt) @ 99.18% SiO_2 (within a Mineral Resource of 49.5Mt @ 99.19% SiO_2, refer to Tables 4 and 5), is to be processed over a 25-year Project life yielding high-quality silica sand of 1.5Mt per annum
- A purpose-built jetty is planned to be constructed (subject to Development Approval (DA)) to allow barge loading and transhipping operations. Importantly, this infrastructure is located within the Port Limit of Cape Flattery
- Development of the CFS Project will deliver employment, apprenticeship training and new business opportunities to the townships of Hope Vale and Cooktown, particularly the local Indigenous communities
- CFS will contribute to and benefit from the Queensland Government's Critical Minerals Strategy which supports development of 'new economy' minerals projects in Far North Queensland

Queensland-based high purity silica sand developer, Metallica Minerals Limited (Metallica, ASX: MLM) is pleased to announce the results of the DFS for its 100%-owned Cape Flattery Silica Sand Project.

The DFS has built upon the 2022 Pre-Feasibility Study (PFS) (refer ASX release 21 March 2022) and confirms the CFS Project's potential as a low-cost, long-life, high-purity silica sand operation which could achieve consistently attractive profit margins given strong current and forecast market dynamics in the Asia-Pacific region.

Metallica Minerals Executive Chairman, Theo Psaros said the company is very pleased with the results of the DFS:

"The DFS confirms Cape Flattery Silica sand's status as a low-cost, high purity silica sand project that can achieve attractive profit margins. Combined with our location in Far North Queensland and support from the Queensland Government's Critical Minerals Strategy, Metallica is well positioned to become a leading provider of high purity silica sand to the booming Asia-Pacific market. "

"With the DFS now complete, we look forward to advancing the Environmental Impact Statement, progressing negotiations with Traditional Landowners, and looking at other initiatives to enhance the value of the project."

"The Project's development will be a major boost to the Far North Queensland economy, leveraging its strategic location within the declared Cape Flattery Port area and adjacent to a world-renowned source of high purity silica sand."

"The CFS Project will deliver employment and training opportunities to Hope Vale and Cooktown. The Traditional Owners have already voiced their interest in new businesses that can be established to support the services the mine will require."

Table 1 summarises the key results of the Discounted Cash Flow (DCF) model on a pre-tax and post-tax basis. Table 2 summarises the key sand extraction and processing metrics and Table 3 presents underlying key assumptions.

Table 1: Summary of key outcomes – Definitive Feasibility study (A$ — Australian dollars) mid 2025 AUD

Key Financial Metrics	Unit	Total
Pre-Tax Project NPV 10(nominal)	AUD m	$437.3
Pre-Tax Project IRR	%	32.19
Post-Tax Project NPV 10(nominal)	AUD m	$279.9
Post-Tax Project IRR	%	26.59
Total Silica Sales	Tonnes m	36.1
Initial Construction CAPEX	AUD m	$165.0
Payback (no tax)	Years	2.85
LOM Revenue	AUD m	$2,910.1
LOM C1 OPEX (excl Qld Gov't royalty)	AUD m	$1,198.2
LOM EBITDA	AUD m	$1,679.5
Cash Flow Pre-Tax	AUD m	$1,341.0
C1 Cost/t product	$/prod tonne	$33.16
AISC/t product (including sustaining CAPEX)	$/prod tonne	$37.90

CAPEX pricing reflects market conditions as of Q2, 2023. The base date of the estimate is then escalated to mid-2025.

Table 2: Key Sand Extraction & Processing Metrics

	Unit	Total
Mineral Resources (see Table 5)	Tonnes M	49.5
Ore Reserve (see Table 4)	Tonnes M	47
LOM	Years	25
Sand mined & processed	LOM Tonnes M	44.6
Silica sand production	LOM Tonnes M	36.1
Plant operating capacity	Mtpa	1.8 - 1.9
Plant yield	%	77.8 – 84.8%
Silica sand product sold	Mtpa	1.4 - 1.5

Notes

» The Probable Ore Reserve and Measured and Indicated Mineral Resource underpinning the above production assumption targets has been prepared by a Competent Person in accordance with the requirements of the JORC Code 2012 (refer Table 2 – Ore Reserves; and Table 3 – Mineral Resources).

Table 3: Discounted cash flow financial model key assumptions

LOM assumptions	Unit	Value
Exchange rate	AUD:USD	0.72
Discount rate (nominal, unleveraged)	% p.a.	10.00
Average yield	%	81
Average sales price - real 2025	USD/prod t	$57.92
Average sales price - real 2025	AUD/prod t	$80.54

Project site layout

The DFS continues to use the same project footprint as delineated in the PFS, but with significant reconfiguration. The CFS Project is designed to utilise conventional mining equipment and 'off the shelf' processing plant within the same, small footprint.

The key components of the Project are:

- Silica sand processing plant & plant pad;
- Extending the overland conveyor from the product stockpile to the Jetty Infrastructure Area (JIA);
- Design of the Barge Loading Facility (BLF) and associated jetty (located two to three nautical miles to ocean going ship-loading swing basin);
- Material Offload Facility (MOF) for delivery of personnel and supplies by marine vessels;
- Purpose-built accommodation facility for 48 people;
- Barging and transhipment operations;
- Site access road to the jetty;
- Site-wide services;
- Mine Infrastructure Area (MIA) facilities; and
- Product stockpile of 100,000 tonnes.

Further details of the non-process infrastructure can be found in section 8 of the Executive Summary.

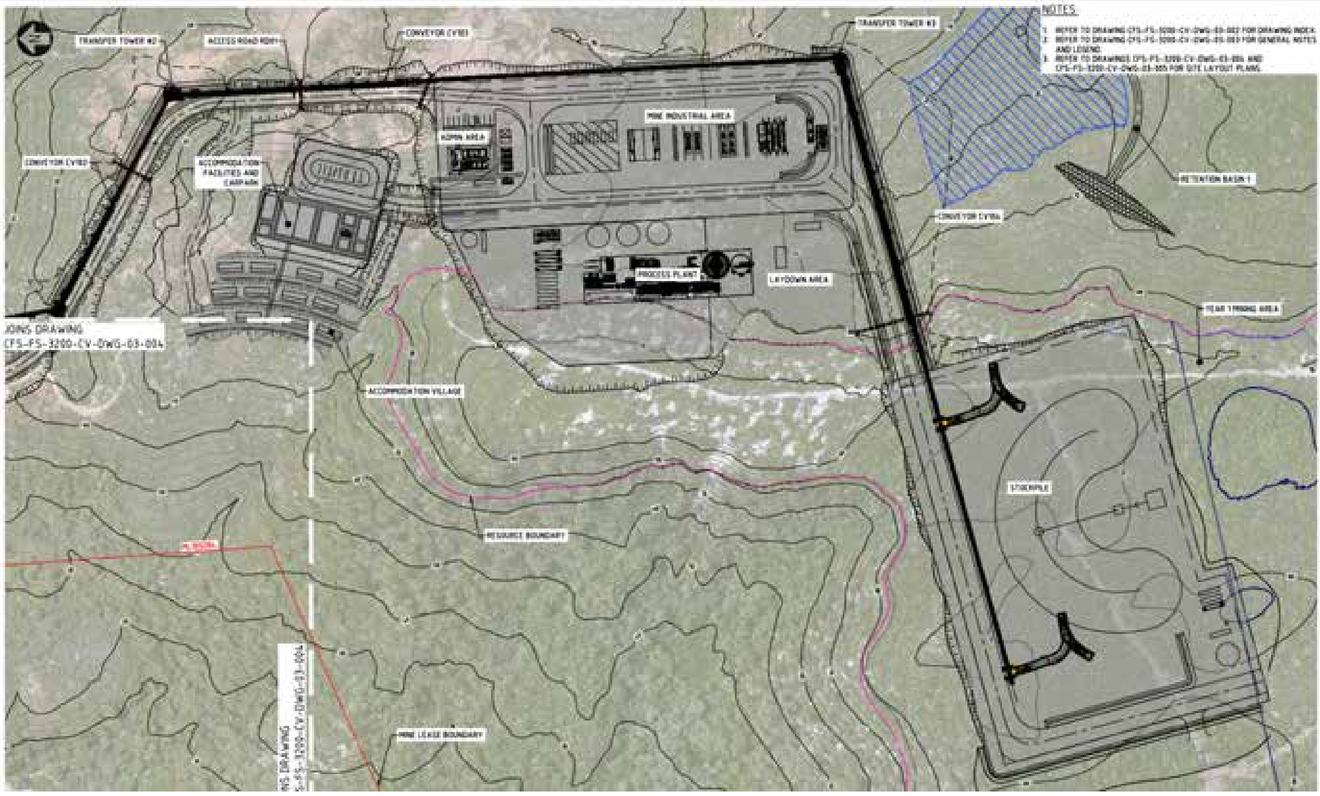

Figure 1: Mine infrastructure looking east

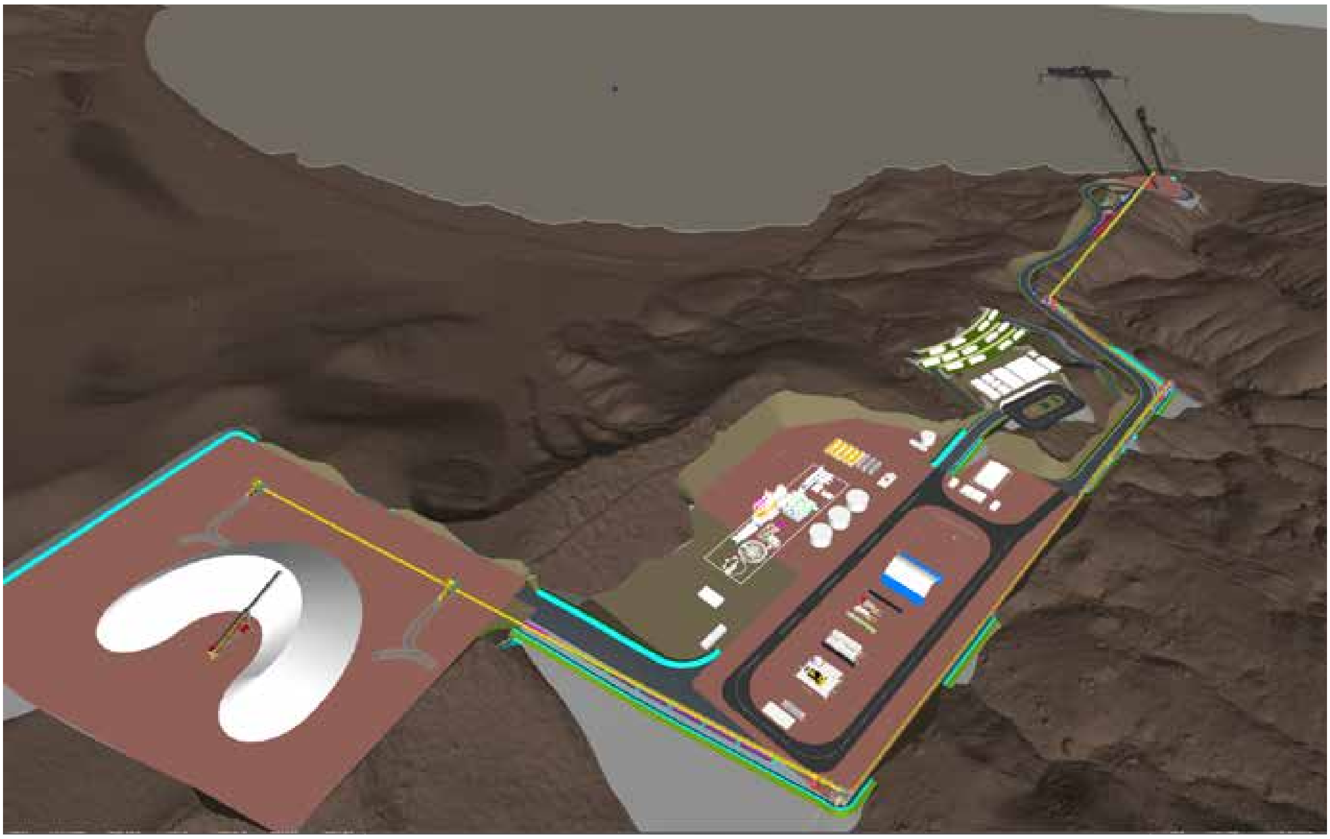

Figure 2: 3D render of Mine Infrastructure and Marine infrastructure looking northwest

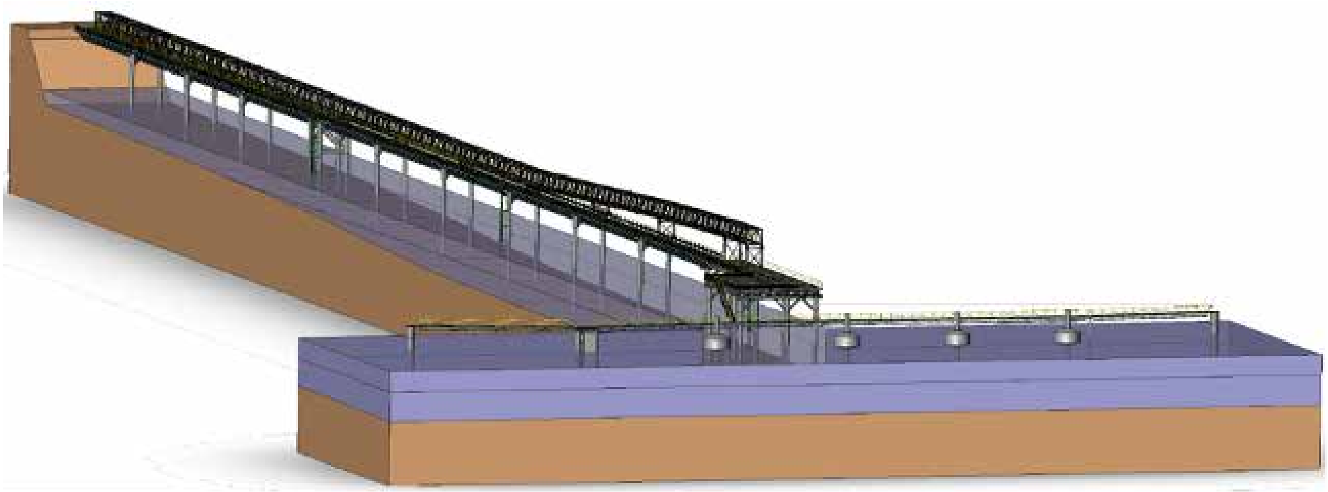

Figure 3: Barge Loading Facility - Looking southwest

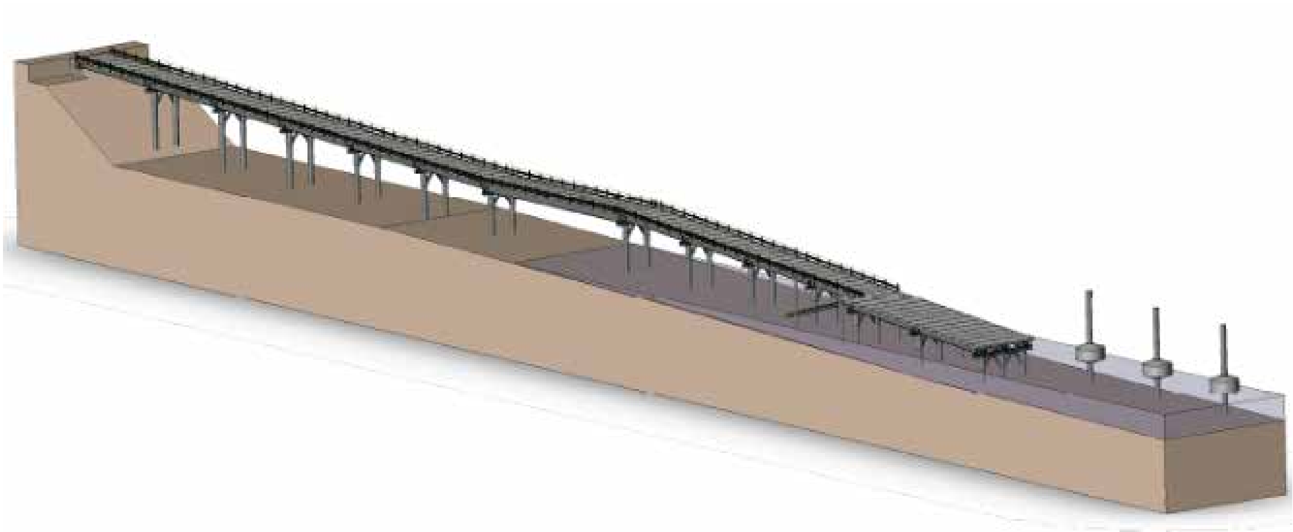

Figure 4: Material Offload Facility - Looking southwest

Ore Reserve

The Ore Reserve has been updated by the independent firm, Ausrocks Pty Ltd (Ausrocks). The Ore Reserve of 47Mt at 99.11% SiO_2 represents 95% of the Mineral Resource of 49.5Mt at 99.10% SiO_2 (see Tables 4 and 5).

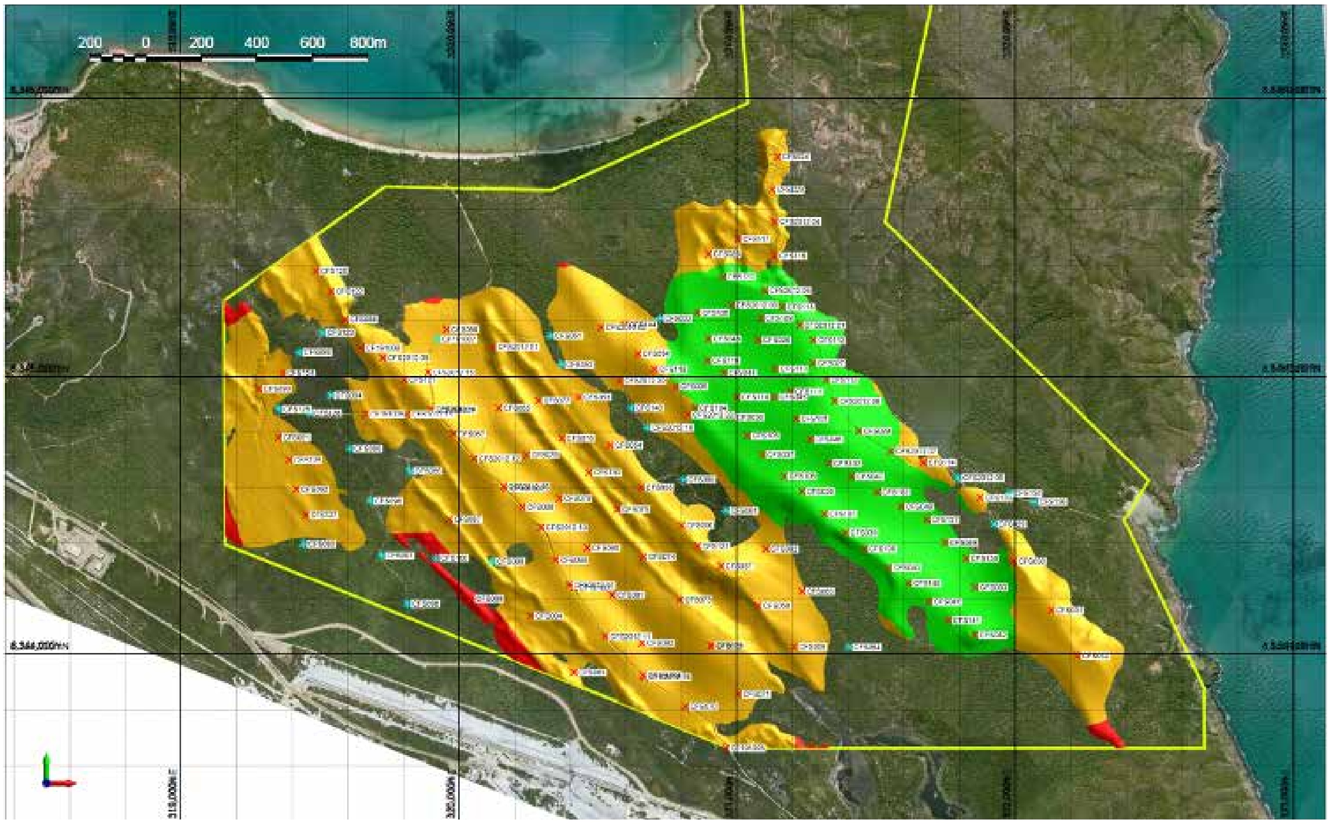

Figure 5: Overview of Drillholes and Resource Category Areas with Mining Lease (ML) boundary

Table 4: Ore Reserve

Ore Reserve Category	Tonnage Mt	SIO_2 %	FE_2O_3 %	TIO_2 %	AL_2O_3 %	LOI %	Waste Mt
Probable Reserve	47	99.11	0.09	0.14	0.15	0.24	4.0

The Mineral Resource of 49.5Mt includes results from drilling campaigns in 2019 (hand auger), December 2020, July/August 2021 and December 2021. In total, eight (8) 5-meter-deep auger holes and one-hundred and forty-four (144) vertical holes comprising 2,524m of drilling have been completed within CFS's Mining Lease Application (MLA) area over a 2-year period, The data from these holes has been used in the resource estimate for the CFS Project.

Table 5: Cape Flattery Silica Sand Project – Mineral Resource for the Eastern Resource Area

Resource Category	Silica Sand Mt	SIO_2 %	FE_2O_3 %	TIO_2 %	LOI %	AL_2O_3 %	Density t/m³	Silica Sand Mm³
Measured	16.1	99.20	0.08	0.12	0.13	0.22	1.6	10.1
Indicated	33.2	99.05	0.10	0.18	0.15	0.25	1.6	20.7
Inferred	0.2	99.00	0.12	0.27	0.13	0.28	1.6	0.1
Total	**49.5**	**99.10**	**0.09**	**0.16**	**0.14**	**0.24**	**1.6**	**30.9**

The Mineral Resource Estimate was completed by Ausrocks in accordance with JORC Code 2012 guidelines using Micromine Origin 2023 to model and evaluate the resource. The parameters used in the Resource model are detailed in the Executive Summary. These results show there is positive potential to produce a premium grade silica product using standard processing techniques.

Metallurgical Bulk Testing

Metallica engaged Mineral Technologies (MT) to complete several detailed metallurgical sample characterisations for the Project, with the objective of confirming the product grades that could be produced. The program, which is on-going, has demonstrated the ability to produce a product aligned to the market target purity of 99.9% Silica and <120pmm Fe_2O_3.

The most recent phase of bulk testwork currently underway at the MT facility utilises the same flowsheet established during the PFS. This bulk sample has been composited as a representative sample from the first 5 years of operation and includes both JORC Indicated and JORC Measured resource. The purpose of this testwork is to prove that the desired specification product can be produced from a representative bulk sample and produce sufficient product for additional testing and validation.

Testwork has included rougher spiral sighter release tests on the MG12 spiral. The results of the release tests showed that at a feed grade of 0.05% Fe_2O_3 and a spiral feed rate of 2tph, a product yield of between 77.8% to 84.8% to the rougher spiral product produced a silica product with assay results ≤120ppm Fe_2O_3.

This is the result before the bulk sample has been processed in subsequent phases through attritioning, size classification and Wet High Intensity Magnetic Separators (WHIMS) stages, where previous characterisation testwork has always shown an improvement (reduction) in iron content. Importantly, a middlings fraction rejected from the rougher spirals stage is designed to be added back in to the product stream after processing through the scavenger spirals, which is expected to achieve the aforementioned final product yields (see Table 2) after full processing has been achieved.

Silica Sand Mining

Sand mining is planned to commence in the closest part of the Ore Reserves to the MIA. The sand extraction is planned to progress south and to the west over the course of the life of mine.

Following vegetation clearing, topsoil is planned to be removed across a small initial footpring using a dozer or grader with separation of the soil and sub-soil horizon to an average depth of 500mm. Topsoil is planned to be stockpiled in 2m high (maximum) piles at the boundary of the clearing area to be used for progressive rehabilitation.

Following removal of the topsoil, silica sand extraction can commence by free digging loading from the working face with a wheeled loader. The loader is sized to facilitate loading of silica sand into a mobile feeder unit. Areas of poorer quality silica sand are planned to be encountered and this sand is not planned to be processed and shall be placed in rehabilitation areas.

Water is added to the silica sand as it passes into the mobile feeder and the resulting slurry pumped to the processing plant.

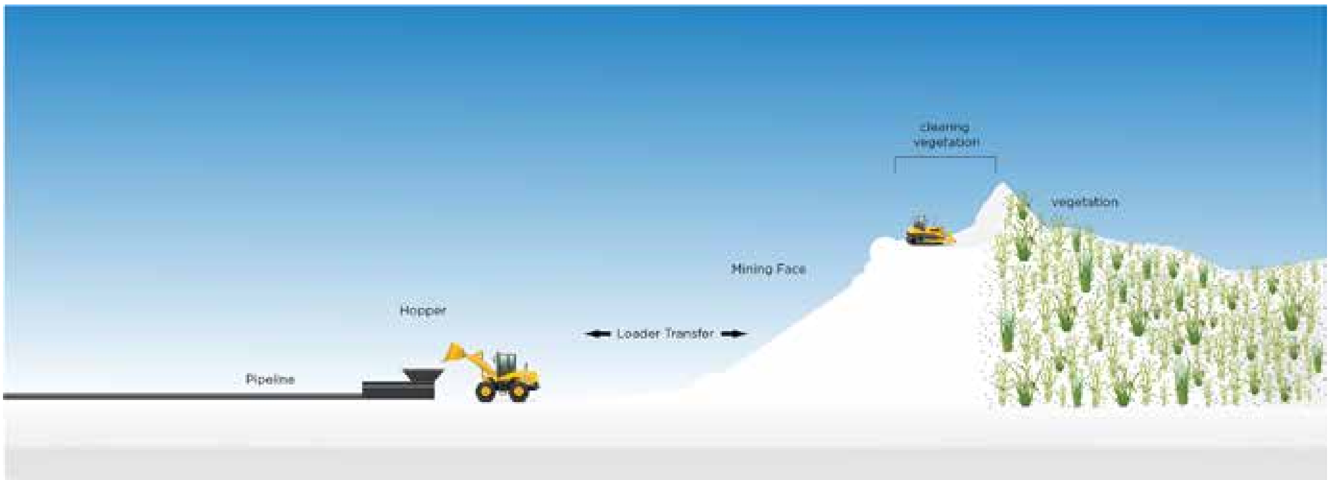

Figure 6: Production Overview

The Wet Concentration Plant (WCP) is designed to reduce heavy mineral content in the sand, being principally Fe_2O_3 and Al_2O_3 contaminants. It is located to the northeast of the sand extraction area, near the MIA and BLF. No chemicals are added to the sand as it is processed through the WCP.

The reject material from the WCP contains low-grade silica sand containing Fe_2O_3 and Al_2O_3 and other minerals. These all occur naturally in the Cape Flattery region at concentrations similar to the reject grade and do not pose a threat to the environment. Rejected material will be pumped back to the active rehabilitation faces to progressively rehabilitate the extraction area.

Processing

The WCP utilises an industry standard process and is designed for continuous operation 24 hours per day, 300 days per year, with approximately 82% utilisation resulting in the nominal operating parameters.

Figure 7: CDE Group modular process plant

Capital Expenditure

The capital cost estimate including contingency and escalations to represent the 2025 CAPEX is AUD$165M.

The capital cost estimate has been developed in line with the requirements of the Association for the Advancement of Cost Engineering International (AACEi) Class 3 estimate in accordance with AACEi 47R-11 with an accuracy of -10% to +15%.

CAPEX pricing reflects market conditions as of Q2, 2023. The base date of the estimate is then escalated to mid-2025.

The initial CAPEX is AUD141.4 million before contingency and escalation.

Total initial CAPEX is AUD165 million, including an estimated contingency of AUD13.6 million and escalation of AUD10.0 million.

Deferred capital includes the delayed installation of the WHIMS.

Deferred capital also includes two BOOT arrangements:

» A balloon payment for the transfer of ownership of the 48-bed camp; and
» A balloon payment for transfer of ownership of the generator sets and solar and battery system.

Table 6: Level 1 LOM CAPEX Summary – Real mid-2025 $

Description	Initial Construction CAPEX
L1 WBS	**Total, AUD m**
Mining / MIA	3.9
Processing Plant	44.6
On-Site Infrastructure	18.9
Product Transportation	32.8
Off-Site Services / Utilities	-
Subtotal Direct Costs	**100.2**
Common Construction Facilities & Services	19.1
Implementation Contractors	10.9
Owner's Costs	11.1
Subtotal Indirect Costs	**41.2**
Subtotal Base Estimate	**141.4**
Contingency	13.6
Escalations	10.0
Subtotal Escalation & Contingency	**23.6**
Total Installed Cost	**165.0**

Operating Expenditure

Operating costs for CFS were developed based on work undertaken by CFS in conjunction with Turner Townsend Jukes Todd. The level of effort for each of the line items meets the Class 3 estimate as defined by the AACEi, and the extent of work performed allows for a ±10% to 15% accuracy.

Table 7: Operating Cost Summary Real mid-2025 $

Operating costs	Lom Total (AUD million)	Average (AUD/ROM)	Average (AUD/product tonne)	First 10 years Average (AUD/product tonne)
Mining/MIA	**165.5**	3.71	4.58	**5.04**
Processing Plant	**274.6**	6.16	7.60	**7.38**
On-Site Infrastructure	**103.3**	2.32	2.86	**2.85**
Product Transportation	**360.5**	8.09	9.98	**9.95**
Off-Site Services/Utilities	**65.0**	1.46	1.80	**1.79**
General & Administrative*	**100.0**	**2.24**	**2.77**	**2.76**
Other Fees **	**129.2**	**2.90**	**3.58**	**3.31**
C1 cash cost	**1,198.1**	**26.88**	**33.16**	**33.07**
Qld Government Royalties	**32.5**	**0.73**	**0.90**	**0.90**
FOB cash costs	**1,230.6**	**27.61**	**34.06**	**33.97**

* General & Administrative expenditure includes HR, HSEC, IT, warehousing, pre-production drilling, freight, and general site office costs.

** Other Fees expenditure includes TLO Royalties, demurrage, marketing fees and water licence fees.

For comparative purposes, Table 8 shows the C1 Cash Cost and FOB Cash Cost at today's dollars, Real – Mid 2023.

Table 8: OPEX summary (Real – Mid 2023)

Operating costs Real – Mid 2023	Lom Total (AUD million)	Average (AUD/ROM tonne)	Average (AUD/product tonne)	First 10 years Average (AUD/product tonne)
C1 cash cost - Real – Mid 2023	**1,129.5**	25.34	31.26	**31.18**
FOB cash costs - Real – Mid 2023	**1,160.2**	26.03	32.11	**32.03**

Silica Sand Marketing and Price Forecast

Hong Kong-based marketing consultant, Prime Gain Limited (PGL), was again engaged to study current trends in demand and pricing for High Purity Silica Sand (HPSS). Prime Gain provided a study for the Pre-Feasibility Study released in March 2022.

The demand for HPSS (which is high-silica low iron silica sand) in Asia, particularly in China, has been growing rapidly over the last five years, with a Compound Annual Growth Rate (CAGR) of 8.4%. China's own demand for imported silica sand has grown even faster at 27.9% CAGR, resulting in a foreseeable supply deficit of 4Mt or more by 2026. The main driving force behind this demand is the increasing need for PV glass in the solar industry, which relies heavily on supply of HPSS.

Australia has been the dominant supplier of HPSS to Asia-Pacific markets, particularly China, Japan, Taiwan, and South Korea, with exports totalling 3,897,978 metric tonnes in 2022. HPSS produced at Cape Flattery, in particular, is well positioned to meet this demand due to its specification, logistics advantages and because it is already a well-recognised product.

As the world shifts towards greener technologies, the demand for HPSS is expected to continue its exponential growth, driven by the structural transition from fossil fuels to renewables, particularly solar. China remains the leading global producer of solar glass, with HPSS making up approximately 72% of every 100kg of PV glass.

Using a "Sum-of-the-parts" methodology (refer to Executive Summary) and aggregating the forecast demand based on the CAGR of each major buying country in Asia (China, Japan, South Korea, Taiwan and Thailand), regional seaborne import demand is estimated to reach 14,410,882 tonnes by the end 2026. This demand is largely driven by China who are expected to account for 71% of that demand.

The 2026 pricing estimate for a high-grade low iron Cape Flattery HPSS product has been revised to FOB USD 54.00 to USD 65.00 / AUD 75.00 to AUD 90.28 per tonne. This revision is based on larger foreseeable supply shortfalls of HPSS, particularly to the PV glass industry, where demand is growing exponentially. PGL's pricing estimate assumes quality product is produced and reliably supplied at sufficient scale, with efficient logistics and freight access convenience.

Prime Gain advised that "a high-grade Cape Flattery silica sand product could reasonably achieve FOB pricing of AUD$75.00 to $A90.28 per tonne, subject to various market conditions and variables"

Table 9: Prime Gain pricing analysis – Pricing estimate for a Cape Flattery high purity commencing 2026 from Australia to China using forward ocean freight rates

	Low-range estimate	High-range estimate
FOB AUD/t	75.00	90.28
FOB USD/t	54.00	65.00
Ocean Freight USD/t	16.00	16.00
CIF USD/t China	70.00	81.00

For the purposes of the DFS, CFS has used US$57.92/A$80.54/t FOB for the financial modelling of the Project's economics (Average sales price in real mid-2025 dollars).

Project Risks

The principal risks for CFS include

- Inability to secure appropriate offtake agreements;
- Inability to secure future funding for the Project;
- Loss of product sales revenue;
- Multiple competitors entering the market;
- Environmental and social licences to operate, including delays to project approvals;
- Long lead delays in project delivery;
- Major weather events;
- Delivery of Transshippment Vessel (TSV) (barge) infrastructure; and
- Disruption to shipping and increased shipping costs.

Additional areas of risk such as engineering and logistics are detailed in section 21.2 of the Executive Summary.

Metallica continually reviews and respond to project risks as part of planning and operational management processes. A sensitivity analysis has been undertaken and is in section 20.4 of the Executive Summary.

Funding Plan

The DFS illustrates the potential for strong economic returns from a long-life project. Metallica expects these strong economic returns may facilitate preparation of a structured project finance package from debt providers and further equity investment.

Metallica has been previously supported by major shareholders who have contributed to prior equity capital raisings.

A preliminary funding plan has been prepared that details the steps to be taken to progress funding the project.

The objective of the funding plan is to provide certainty of the funding for the CFS Project and provide Metallica with the flexibility to pursue value enhancement opportunities where these are warranted. To achieve the production targets and forecast financial information contained in the DFS, Metallica and the CFS Project will require a suitable funding solution.

The extent and form of project finance will, in part, depend on risk, the bankability of offtake agreements, cost and allocation of capital. A combination of finance options are expected to be available to Metallica to progress funding the development of the CFS Project, including debt, equity, and government assistance.

The financing solution and capital management strategy includes:

- Securing a fully funded solution for the CFS Project;
- Maximising returns to all stakeholders whilst minimising dilution to existing shareholders; and
- Capitalising on prevailing positive trends in the silica sand market.

The Company is evaluating its financing strategy with the objective of minimising dilution for existing shareholders and for managing priorities of all invested stakeholders. Metallica anticipates that, subject to prevailing economic conditions, it should be able to secure funding on terms consistent with peer project developers. Metallica has held multiple discussions with potential financiers, in Australia, Asia, and Europe who have expressed an interest in project funding.

Regardless of the strong economic returns of the project and developed funding plans, the future funding of the Project has an inherent risk until funding is secured. Project funding can be impacted by a number of factors including the macroeconomic environment at the time funding is being secured. As such, there is no guarantee that Metallica will be able to secure the total funding required to develop the Project, and the amount of dilution for shareholders from the funding is uncertain until the funding is secured.

Next Steps

The DFS has delivered very positive findings and provided significant financial results that support Metallica in continuing to develop the CFS Project.

The immediate priority is to start the Environmental Impact Study (EIS). While finalisation of the Terms of Reference with relevant statutory bodies has not yet happened, Metallica's Board has approved a number of studies related to the EIS to be commenced as soon as possible.

While the project approval application process is underway, a series of works have been identified that are designed to place the Project in a position of project readiness immediately upon finalisation of permitting thus minimising the implementation timeline and delivering product to market in the shortest possible time. Details regarding the permitting and approvals pathway can be round in section 17 of the Executive Summary.

These works are expected to provide opportunities that both directly and indirectly benefit the project through:

- Identification of further optimal value to shareholders;
- Delivery of greater certainty to the project; and
- Provides the opportunity for project readiness that will ensure the quickest possible speed to market once FID is attained.

The Company is continuing formal negotiations with the Traditional Landowners, namely Hopevale Congress Aboriginal Corporation (Hopevale Congress), as agent for the Nguurruumungu Clan, and Walmbaar Aboriginal Corporation, as agent for the Dingaal Clan.

Metallica has received interest from a number of potential offtake parties who have expressed a need to secure a HPSS product and a number of these parties have visited the project. Meetings are planned to be held with these parties in coming months and these are anticipated to progress to more formal discussions on the potential to enter into MOUs and product sales contracts.

Table 10: Conceptual project milestones

Milestone	Target Date
EA approval	Qtr 1 2025
ML and DA approvals complete	Qtr 1 2025
Bankable Feasibility Study	Qtr 1 2025
Construction and commissioning completion	Qtr 1 2027
Production start	Qtr 2 2027
First export	Qtr 2 2027

Additional Information

Included below in this announcement are supporting material containing detailed information about the DFS and its outcomes. This information includes, as applicable, the material assumptions, underlying methodologies and detailed reasoning supporting and used to derive the financial and production outcomes and other forward-looking statements set out in this release (including above), such as the material price and operating cost assumptions. Accordingly, this announcement should be read together with these supporting materials.

The Company has concluded that it has a reasonable basis for providing the forward-looking statements and forecast financial information included in this announcement. The detailed reasons for that conclusion are outlined throughout this announcement and all material assumptions including the JORC modifying factors, upon which the forecast financial information is based are disclosed in this announcement. This announcement has been prepared in accordance with JORC Code 2012 and the ASX Listing Rules.

The PFS discussed herein has been undertaken to study a range of options to further develop the technical and economic feasibility of the CFS Project. The production target incorporates the Maiden Ore Reserve that sits within the proposed sand extraction area. Drilling completed in December 2021 (see ASX release 23 February 2022) has not been assessed for inclusion in the Mineral Resource and Ore Reserve.

The Ore Reserve and Mineral Resource Estimate underpinning the PFS have been prepared by Competent Persons in accordance with the requirements of the JORC Code. Competent Persons' Statements are included in this document. Production scheduling and pit design is document in further detail and can be found in section 5.3 of the Executive Summary.

Previous ASX Announcements

The Company confirms that:

A. All the material assumptions underpinning the production target, or the forecast financial information derived from a production target, in initial public report referred to in Listing Rules 5.16 or rule 5.17 (as the case may be) that are cited in this announcement, continue to apply and have not materially changed; AND

B. In relation to ASX announcements cited in this announcement that contained exploration results or estimates, the Company is not aware of any new information or data that materially affects the information included in those announcements and that all assumptions and technical parameters underpinning the estimates in those announcements continue to apply and have not materially changed.

Investors should note that there is no certainty that the Company will be able to raise the funding required to commercialise the Project when needed. It is also possible that such funding may only be available on terms that may be dilutive to or otherwise affect the value of the Company's existing shares. It is also possible that the Company could pursue other 'value realisation' strategies to provide alternative funding options.

Given the uncertainties involved, investors should not make any investment decisions based solely on the results of the Project's DFS. Actual results and development of projects may differ materially from those expressed or implied by these forward-looking statements depending on a variety of factors. A key conclusion of the DFS, which is based on forward-looking statements, is that the Project is considered to have positive economic potential.

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

For further information, please contact:

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COMPETENT PERSON STATEMENT

Cape Flattery Silica Sand Exploration Results

The information in this report that relates to the Exploration Sampling and Exploration Results

is based on information compiled by Mr Patrick Smith, a Competent Person who is a Member of the Australian Institute of Mining and Metallurgy

Mr Smith is the owner and sole Director of PSGS Pty Ltd and is contracted to Metallica Minerals as its Exploration Manager. Mr Smith confirms there is no potential for a conflict of interest in acting as the Competent Person. Mr Smith has sufficient experience that is relevant to the style of mineralisation and type of deposits under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves".

Mr Smith consents to the inclusion of this information in the form and context in which it appears in this release/report.

The overall resource work for the Cape Flattery Silica Project – Eastern Resource Area is based on the direction and supervision of Mr Mutton who has sufficient experience that is relevant to the style of mineralisation and type of deposits under consideration and to the activity being undertaken.

Cape Flattery Silica Sand Resource

The information in this report that relates to the Cape Flattery Silica Project – Eastern Resource Area is based on information and modelling carried out by Chris Ainslie, Project Engineer, who is a full-time employee of Ausrocks Pty Ltd and a Member of the Australasian Institute of Mining & Metallurgy. The work was supervised by Mr Carl Morandy, Mining Engineer who is Managing Director of Ausrocks Pty Ltd and a Member of the Australasian Institute of Mining & Metallurgy, and also by Mr Brice Mutton who is a Senior Associate Geologist for Ausrocks Pty Ltd. Mr Mutton is a Fellow of the Australasian Institute of Mining & Metallurgy and Fellow the Australian Institute of Geoscientists. Mr Morandy and Mr Ainslie and Mr Mutton are employed by Ausrocks Pty Ltd which has been engaged by Metallica Minerals Ltd to prepare this independent report, there is no conflict of interest between the parties.

Mr Morandy, Mr Ainslie and Mr Mutton consent to the disclosure of information in the form and context in which is appears in this report.

The overall resource work for the Cape Flattery Silica Project – Eastern Resource Area is based on the direction and supervision of Mr Mutton who has sufficient experience that is relevant to the style of mineralization and type of deposits under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves".

Cape Flattery Silica Sand Ore Reserves

The information in this report that relates to Ore Reserves at the Cape Flattery Silica Sand Project is based on information reviewed or work undertaken by Mr Carl Morandy. Mr Morandy is a Mining Engineer, the Managing Director of Ausrocks Pty Ltd and a Member of the Australasian Institute of Mining & Metallurgy. Mr Morandy has relied on Metallica Minerals Limited for marketing, environmental, economic, social and government permitting. Ausrocks Pty Ltd have been engaged by Metallica Minerals Limited to prepare this independent report and there is no conflict of interest between the parties.

Mr Morandy has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the preparation of mining studies to qualify as a Competent Person as defined in the 2012 edition of the Australasian Code for Reporting of Ore Reserves (The JORC Code). Mr Morandy consents to the inclusion in the report on the matters based on their information in the form and context in which it appears. The corresponding JORC 2012 Table 1 is attached.

Cape Flattery Silica Sand Metallurgy

The technical information in this report that relates to process metallurgy is based on work completed by Mineral Technologies and information reviewed by Etienne Raffaillac (MAusIMM), who is a Principal Process Engineer and employee of Mineral Technologies. The metallurgical aspects including process flowsheet design, product grades and recoveries and assumptions for the metallurgical sample processing and characterisation that relate to the Cape Flattery Silica Sand project have been reviewed and accepted by Mr Raffaillac.

Mr Raffaillac has sufficient experience that is relevant to the type of processing under consideration and to the activity being undertaken to qualify as a Competent Person as defined by the JORC Code 2012. Mr Raffaillac consents to inclusion in the report of the matters based on his information in the form and context in which it appears.

Cape Flattery Silica Sand Process Design and Engineering

The technical information in this report that relates to process design and engineering is based on work and information reviewed by Jeff Brown, who is a qualified consultant Metallurgist. The process design and engineering aspects including process plant design and assumptions for the processing that relate to the Cape Flattery Silica Sand project have been reviewed and accepted by Jeff Brown.

Jeff Brown has sufficient experience that is relevant to the type of process plant design under consideration and to the activity being undertaken. Jeff Brown consents to the inclusion in the report of the matter based on his information in the form and context in which it appears.

Reference to Previous Releases

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

Forward-looking Statements

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

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

DEFINITIVE FEASIBILITY STUDY

EXECUTIVE SUMMARY

> "Metallica's proposal is to extract and process raw sand to produce a high purity silica sand product of suitable quality for glassmaking in the manufacture of solar PV glass, display panels, e-glass and in particular solar PV glass of which over 80% of global supply is manufactured in the Asia Pacific region."

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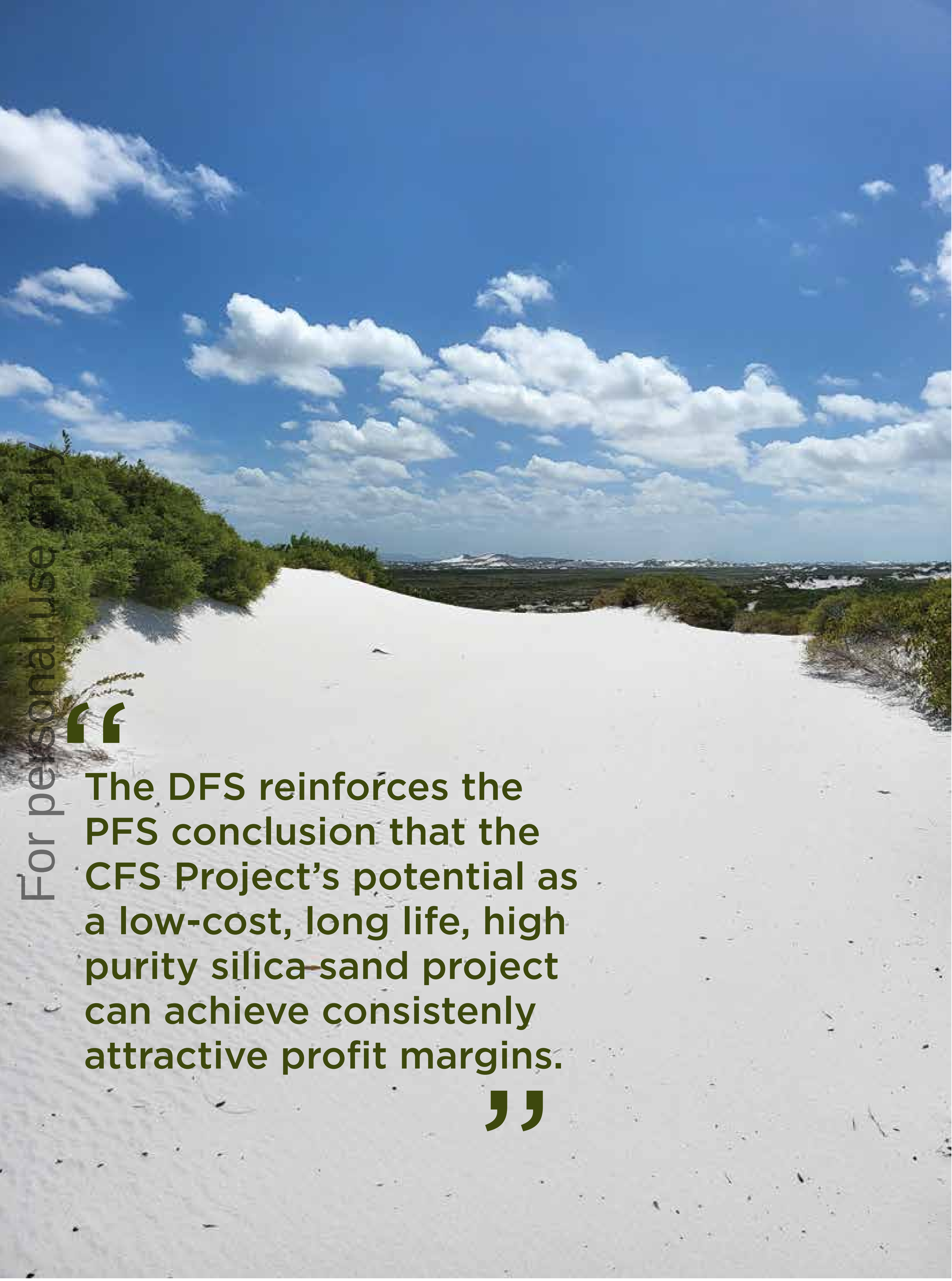
JORC TABLE 1

LIST OF ABBREVIATIONS

Term	Definition
AACEi	Association for Advancement of Cost Engineering International
ALARA	As low as reasonably achievable
ASX	Australia Securities Exchange
BIBO	Boat In Boat Out
BOM	Bills Of Materials
BOOT	Build Own Operate Transfer
CAGR	Compound Annual Growth Rate
CAPEX	Capital Expenditure
CFS	Cape Flattery Silica Limited
CFSM	Cape Flattery Silica Mines Pty Ltd
CT	Calendar Time
CTV	Crew Transfer Vessel
D&C	Design and Construct
DA	Development Approval
DCF	Discounted Cash Flow
DFS	Definitive Feasibility Study
DMU	Dry Mining Unit
EA	State Environmental Approval
EIS	Environment Impact Statement
EPBC	Environmental Protection and Biodiversity
EPCM	Engineering, Procurement, and Construction Management
EPM	Exploration Permit for Minerals
ESG	Environmental, Social, Governance
FEL	Front End Loader
FID	Financial Investment Decision
FOB	Free On Board
HPSS	High Purity Silica Sand
HAZID	Hazard Identification
HAZOP	Hazard and Operability
IDW	Inverse Distance Weighting

Term	Definition
IFC	Issued for Construction
IPMT	Integrated Project Management Team
IRR	Internal Rate of Return
ITR	Independent Technical Review
ICP—MS	Induced Coupled Plasma – Mass Spectrometry
IDW	Inverse Distance Weighting
IEA	International Energy Agency
IRR	Internal Rate of Return
JIA	Jetty Infrastructure Area
LCT	Landing Craft Tank
LGSS	Low Grade Silica Sand
LOM	Life of Mine
LOI	Loss on Ignition
LV	Low voltage
Metocean	Meteorology and oceanography
ML	Mining Lease
MLM	Metallica Minerals Limited
MRE	Mining Resource Estimate
MTO	Material Take-Offs
NPI	Non-Process Infrastructure
MIA	Mine Infrastructure Area
MLA	Mining Lease Application
MOF	Material Offloading Facility
MT	Mineral Technologies
MTPA	Million Tonnes Per Annum
NPI	Non-Process Infrastructure
OEM	Original Equipment Manufacturer
OGV	Ocean Going Vessel
OK	Ordinary Kriging
OPEX	Operating Expenditure
RNTBC	Registered Native Title Body Corporate

Term	Definition
PFD	Process Flow Diagram
PGL	Prime Gain Limited
PFS	Pre-Feasibility Study
PPM	Parts Per Million
PRCP	Progressive Rehabilitation and Closure Plan
PT	Productive Time
PV	Photo Voltaic
ROM	Run of Mine
SDPWO	State Development and Public Works Organisation
SHMS	Safety Health Management System
SSE	Senior Site Executive
SSEA	Site Specific Environmental Authority
TSV	Transshipment Vessel
UAV	Unmanned Aerial Vehicle
WCP	Wet Concentrator Plant
WBS	Work Breakdown Structure
WHIMS	Wet High Intensity Magnetic Separators
XRF	X-ray Fluorescence



> "The DFS reinforces the PFS conclusion that the CFS Project's potential as a low-cost, long life, high purity silica sand project can achieve consistently attractive profit margins."

1. INTRODUCTION

Metallica Minerals Limited (Metallica) is an ASX-listed company (ASX:MLM) developing silica sand assets in Queensland, Australia.

Metallica's Cape Flattery Silica Sand Project (CFS) is a highly prospective development being progressed at Cape Flattery in Far North Queensland (see Figure 1). Metallica's proposal is to extract and process raw sand to produce a high purity silica sand (HPSS) product of suitable quality for glassmaking in the manufacture of display panels, e-glass and in particular solar PV glass of which over 80% of global supply is manufactured in the Asia Pacific region. Export by ship is planned from Cape Flattery to glass manufacturing companies, most likely in Asia.

The Project area is bounded by the Cape Flattery coastline in the Cape Flattery Port area (Figure 2), which is owned and operated by Ports North, a Queensland Government-owned corporation. Ports North owns the Mitsubishi-leased jetty, just south of the Project's tenement, with the jetty's ship-loading equipment primarily owned by Mitsubishi Corporation (Mitsubishi).

This Definitive Feasibility Study (DFS) builds on the 2022 Pre-Feasibility Study (PFS) (ASX release: Cape Flattery Silica Confirms Excellent Economics, 21 March 2022). The DFS reinforces the PFS conclusion that the CFS Project's HPSS can be delivered via a low-cost operation, with capacity to generate strong financial outcomes.

Figure 1: Cape Flattery Project Location

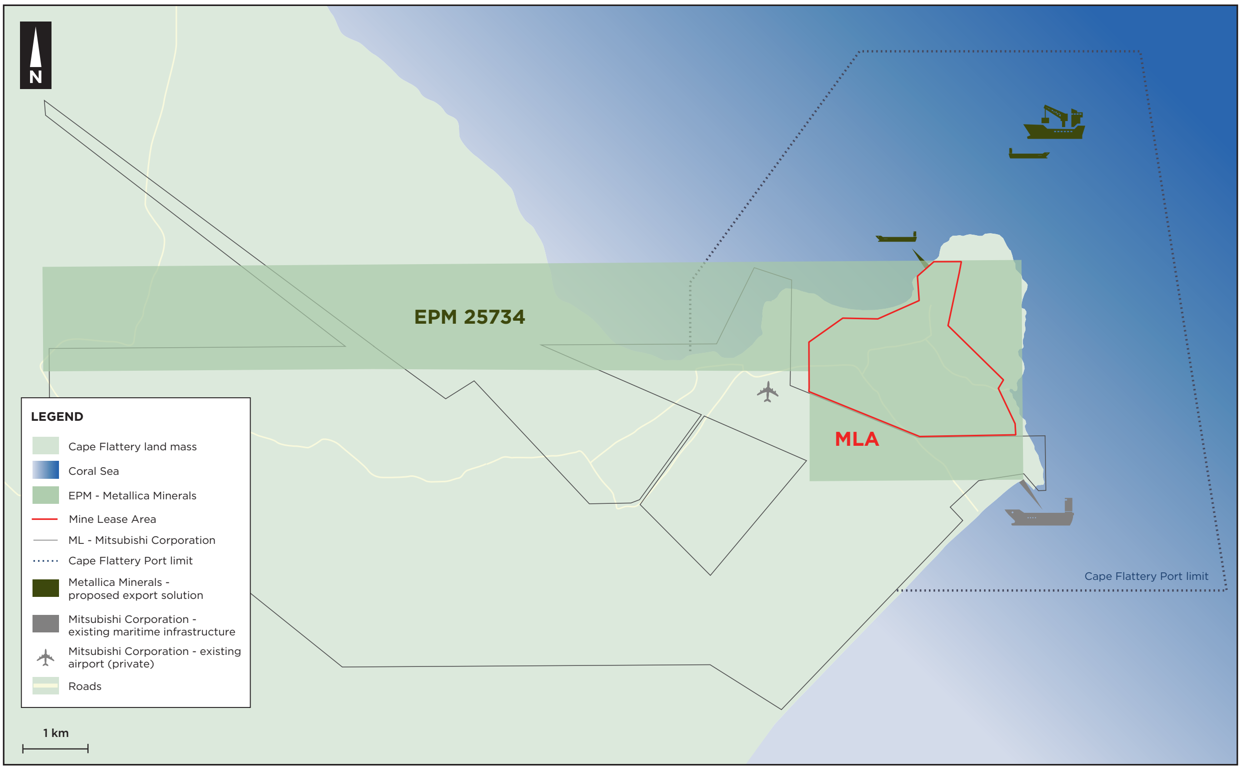


Figure 2: Cape Flattery Port location and Project proximity

2. STRATEGY

CFS has a clear vision of becoming a leading Australian silica sand development company focusing on the production and supply of HPSS products from its CFS Project (Project) in Far-North Queensland. CFS is aiming to develop the Project to deliver value to its shareholders and benefits for all its stakeholders, particularly the Traditional Landowners on whose country the CFS Project is located.

The immediate focus for the CFS Project is to deliver an Environmental Impact Statement (EIS), finalise mining and cultural agreements with all Traditional Landowners, and following these key milestones be granted a mining lease (ML) to enable development of the Project. The Project has a large Probable Reserve of HPSS that will enable the company to take advantage of the forecast increase in global demand for silica sand.

CFS, as a wholly owned subsidiary of MLM remains confident that the many positive attributes of the Project support the development through to project operation.

2.1 Strategic scope

CFS is proposing to mine and process raw sand from its Project site to produce a HPSS product with a quality suitable for use in a diverse range of industries. This silica sand product is planned to be exported by ship from Cape Flattery to customers, most likely in the Asia Pacific region.

The silica sand resource in the Cape Flattery region is extensive and has been exploited since the mid-1970's by Mitsubishi, whose operation is located immediately adjacent to the Project. The CFS Project has the potential to support a 25-year mine life and has been designated a Project of Regional Significance by the Queensland Government. This designation recognises the substantial benefits the Project can offer the region and Queensland generally (see Asx Announcement, 24 February 2022, Cape Flattery Silica granted Project of Regional Significance).

Silica sand is used in a broad range of industries including glassmaking, foundry casting, water filtration, chemicals and metals, along with hydraulic fracturing. The key drivers for increasing demand of HPSS, such as that which will be produced by CFS, are the manufacture of display panels, e-glass and in particular solar PV glass of which over 80% of global supply is manufactured in the Asia Pacific region. The Project is favourably located to access these growing markets.

Metallurgical analysis results from bulk and benchtop testing (see – Metallurgical Testwork) indicate that the Project's silica sand has the attributes to produce high purity saleable products that meet the specification requirements of both global glassmaking and foundry industries, amongst others. CFS's target market is the high-quality glass manufacturing industry, however other industries can also use the silica sand produced by the Project and will be explored for opportunities.

The key strategic benefits for CFS and the region in developing this Project are:

- Establishment of a new silica sand supplier in Far North Queensland that will provide economic benefit to Queensland and particularly, the nearby townships of Hope Vale and Cooktown;
- Increasing Queensland's participation in the critical minerals sector through supplying HPSS to the growing global market, for use in the manufacture of glass used in solar panels, a key component of the renewable energy industry;
- Employment opportunities for nearby Hope Vale and Cooktown residents;
- Royalties for Traditional Landowners and the State of Queensland;
- New economic activity for local contractors and service industries; and
- Provide a potential domestic supply of HPSS should an Australian solar panel industry be developed.

2.2 Strategic summary

The development of the Project will transform Metallica Minerals from an exploration company into a company supplying a critical mineral to global markets. It will deliver an outcome that is consistent with the Company's vision to be a leading Australian silica sand development and supply company.

Metallica's strategy is to position the Project as a supplier of HPSS products into an expanding market. The market factors supporting this rationale and the value opportunities for Metallica are summarised in — Market Analysis (Sales and Marketing).

This strategy will be achieved through:

- Engagement of an experienced project development and operations management team supported by expert consultants;
- The strategic location of the Project and exploitation of a high-quality resource;
- Metallica developing a sustainable operation through engaging with Traditional Landowners, minimising the operational footprint, practicing progressive rehabilitation, and to lower the operations carbon footprint through use of renewables; and

- Creating value for shareholders and other stakeholders based on successful project execution and operation.

The proposed Project fits with this strategic rationale in the following ways:

- The Project will be based in Australia, which is a tier one global mining jurisdiction;
- The Project will produce HPSS products, which is matched to forecast the growing customer demand;
- The Project will adopt a traditional processing route to underpin reduced technical risk and speed to market; and
- Metallica has appointed a Board and management team with experience in the mining sectors.

3. MARKET ANALYSIS

3.1 Silica sand marketing

Continuing on from work undertaken in the PFS, Metallica engaged Hong Kong-based marketing consultant, Prime Gain Limited (PGL), to study the current trends in demand and pricing for HPSS.

The study identifies a significant increase in demand for seaborne HPSS from Australia, particularly to Asia and China. The study also emphasises the key role that silica sand plays in the production of photovoltaic (PV) glass and identifies it as a major long-term driver of the growth in demand for seaborne silica sand.

The demand for HPSS (high silica low iron silica sand) in Asia has been growing rapidly over the last five years, with a Compound Annual Growth Rate (CAGR) of 8.4%. China's own demand for imported silica sand has grown even faster at 27.9% CAGR, resulting in a foreseeable supply deficit of 4 million tonnes in 2026. The key demand driver is the increasing need for PV glass in the solar industry, which requires HPSS for its manufacture.

Australia has been the dominant supplier of HPSS to Asia Pacific markets, particularly China, Japan, Taiwan, and South Korea, with exports totalling 3.9 million tonnes in 2022. HPSS produced at Cape Flattery in particular, is well-positioned to meet this demand due to its specification, logistics advantages and because, through Mitisubishi's long operating history, it is already a well-recognised product.

As the world shifts towards greener technologies, the demand for HPSS is expected to continue its growth, driven by the structural transition from fossil fuels to renewables, particularly solar. China remains the leading global producer of PV glass, with HPSS making up approximately 72.2% of every 100 kg of PV glass. Discussions with some of the largest Chinese PV glass producers, who are also the largest in the world, indicate aggressive expansion plans for production of PV glass out to 2030 which will flow through to demand for HPSS.

In its World Energy Outlook 2022 report, the International Energy Agency (IEA) laid out the capacity development path for renewables in the Net Zero Emissions by 2050 Scenario. Solar PV power capacity by 2030 in the Net Zero Scenario is forecast to be 5,052 GW. The IEA uses a CAGR of 21.25% in its capacity forecast and estimates in its "Solar PV Global Supply Chains – Analysis" report that China is on track to provide 81.2% of the world's modules by 2025. PGL estimates that the rest of Asia will provide an additional 5% by 2025.

Based on this information PGL extrapolated the annual increase in PV capacity and China's attributable proportion of that output, and from that derived a year-on-year demand growth for HPSS out to 2026. The results are presented in Table 1 below. Based on discussions with the top manufacturers of PV glass in China, PGL believes the IEA has underestimated the current capacity, and potentially the projected capacity out to 2030 as well.

Whilst new Australian suppliers are seeking to enter the market, the level of supply-demand imbalance by 2026 is significant, leading to tight supply and a corresponding increase in the price of HPSS. The market study provides a pricing estimate for a high-grade Cape Flattery silica sand product at FOB USD 54.00 to USD 65.00 per tonne in 2026, subject to various market conditions and variables.

Competition for HPSS supply with Australian suppliers exists primarily from domestic suppliers in China and seaborne supply from Indonesia and Malaysia. However, unless China massively increases its silica sand acid washing capacity and efficiency, which is challenging and environmentally controversial, it will fail to provide sufficient supply of HPSS.

Table 1: Forecast HPSS demand derived from IEA World Energy Outlook 2022 Net Zero Emissions by 2050 Scenario

IEA Forecast PV Power Capacity to Silica Sand (Metric Tonnes)					
Year	2022	2023	2024	2025	2026
Panels #	510,600,313	619,104,563	750,667,313	910,164,250	1,103,602,438
Sand (Tonnes)	9,584,989	11,621,831	14,091,527	17,085,603	20,716,825

Table 2: Upside Case for Volume Demand—Supply Equation for estimating the 2026 Demand (Deficit)/Surplus volume in Metric Tonnes for high-purity silica sand exported to buyers in the Asia Pacific Region.
Source: Prime Gain Report, May 2023

Volume Demand – Supply Forecast for 2026 (Metric Tones)			
	2022 Current Tonnes	**Metric**	**2026 Projected Tonnes**
Australia CFSM	3,060,661	Flat	3,060,661
Australia Existing	1,155,133	CAGR 6.37%	1,478,618
Australia New	—	CFS + Others	1,500,000
Malaysia	1,726,211	CAGR 11.5%	2,668,228
Indonesia	904,198	CAGR 11.5%	1,397,631
Vietnam	423,627	CAGR -7.86%	305,326
Total Supply From Majors	**7,269,800**		**10,410,464**
China	3,861,405	CAGR 27.9%	10,278,014
Japan	1,070,731	CAGR -1.38%	1,012,699
Taiwan	1,490,699	CAGR 0.76%	1,536,536
S Korea	927,309	CAGR -2.20%	848,235
Thailand	215,748	CAGR 35.88%	735,398
Total Demand From Majors	**7,565,892**		**14,410,882**
Demand (Deficit)/Surplus	**(296,092)**		**(4,000,418)**

Buyers are expected to continue to seek silica sand suppliers that have sufficient scale of HPSS product, are able to provide consistent quality and reliable supply with fewer logistics issues. With the demand for HPSS sand set to continue for the long-term, the CFS product is very well-positioned to meet this demand.

In short, the forecast demand growth for HPSS is underpinned by long-term global growth drivers, including the shift towards renewable energy and the transition away from fossil fuels. Solar power generation is a key driver of demand for HPSS, as it is an essential ingredient in the production of PV glass. With solar energy projected to experience immense multi-decade growth, the corresponding demand for HPSS is directly correlated and expected to continue to escalate correspondingly.

4. GEOLOGY AND MINERAL RESOURCES

4.1 Introduction

In mid-2021, Metallica commissioned Ausrocks Pty Ltd (Ausrocks) to complete an Upgraded Mineral Resource Estimation (MRE) on the CFS Project. Since then, Ausrocks has re-addressed the MRE for the CFS Project. This update was based on new information derived from metallurgical test work conducted as part of the DFS. The updated Mineral Resources forms the basis upon which the CFS Project will commence production.

This DFS work follows a Maiden Mineral Resource Estimate (ASX Announcement, 30 November 2020), an Upgraded Mineral Resource Estimate (ASX announcement, 31 March 2021), an Upgraded Mineral Resource Estimate (ASX Announcement, 21 October 2021) a Maiden Mineral Reserve (ASX Announcement, 21 March 2022) and an Upgraded Mineral Resource Estimate as part of the DFS for the Cape Flattery Silica Project (ASX Announcement, 17 July 2023). All estimations of the Mineral Resources were completed by Ausrocks.

The Project lies within EPM 25734 which is held by CFS which is a wholly owned subsidiary of MLM. EPM 25734 comprises 11 contiguous sub-blocks covering the northern end of the extensive Cape Bedford/Cape Flattery dune field complex.

Large northwest-trending transgressive elongate and parabolic sand dunes, stretching up to 10 kilometres inland from the coast, characterise the dunefield.

4.2 Drilling and sampling

Exploration data, results and interpretation used for the MRE are:

- Queensland Globe (Qld Government), World Imagery aerial photos and acquired LiDAR Surface Contours and Image (2021) with sub-metre accuracy;
- Eight (8) shallow hand-auger holes drilled in 2019 and associated field work. Auger coverage is restricted to the western side of the resource area and spaced approximately 400m apart. Twenty-two (22) vacuum holes drilled in December 2020 and associated field work. The holes drilled were using a tractor mounted vacuum rig, Figure 3, and the drilling was confined to pre-existing tracks. The holes were drilled approximately 200m apart. The central and southern part of the potential resource was sparsely drilled due to lack of access. All holes were drilled vertically to a determined basement or refusal level, with 100% sample recovery received throughout. Sufficient silica sand material was collected in this drilling program to provide material for a bulk sample for metallurgical test work which was completed by IHC Robbins in mid 2021;
- An additional ninety-eight (98) vacuum drillholes were completed on the resource area between July and August 2021. New drill tracks were cleared to enable the potential resource area to be drilled on a nominal 200m by 200m grid. Cultural Heritage clearances of the tracks were undertaken prior to drilling. All the holes drilled were vertical and sampled

Figure 3: Tractor Mounted Vacuum Drilling rig used at Cape Flattery

at one (1) metre intervals. The holes were terminated at refusal or when water or highly ferruginous sand was intersected at the base of the hole; and

- A third vacuum drilling program was completed in December 2021, this program comprised 24 holes and was designed to infill gaps in the resource to increase the Measured component of the resource and to better define the western and eastern margins of the resource. Drill hole locations are presented on Figure 4.

In total, eight (8) 5-metre-deep auger holes and one-hundred and forty-four (144) vertical holes comprising 2,524m of drilling have been completed within CFS's MLA area over a 2-year period, The data from these holes has been used in the resource estimate for the CFS's silica sand project.

4.2.1 Assays, density and cut-off grade

All assaying has been carried out by ALS Laboratories, Brisbane — a global leader with over 71 laboratories worldwide and ISO/IEC 17025:2017 accredited. ALS is NATA Accredited, Corporate Accreditation No. 825, Corporate Site No. 818.

Assaying was carried out on all (1) metre and half metre (0.5m) samples from the drill holes. Assaying was primarily to determine the SiO_2, Fe_2O_3, Al_2O_3, TiO_2, LOI content of the sand. A verified assay file for SiO_2, Fe_2O_3, Al_2O_3, TiO_2, and LOI was constructed and utilised for the modelling and estimation. No correction or adjustment to the assays and assay totals has been made for LOI. A total of 2,229 SiO_2 assays were used in the estimation.

Density measurements were taken at 39 sites throughout the resource area with determinations ranging from 1.50 — 1.66t/m^3 with an average 1.6t/m^3 adopted for the tonnage calculations. This is in line with other silica sand projects in the area.

In the PFS, a SiO_2% grade cut-off was used to define the in-situ resource to achieve a marketable HPSS. Subsequently the understanding of the market for HPSS has matured resulting in the focus for the Resource definition shifting from solely silica content, to include iron content. This was implemented as iron is deleterious to product quality and the iron content of the final product has a major bearing on the saleability of the product.

The (post process) target product specification of 120ppm Fe_2O_3 or lower with a silica sand grade of 99.9% SiO_2 are the parameters upon which the DFS Resource has been calculated.

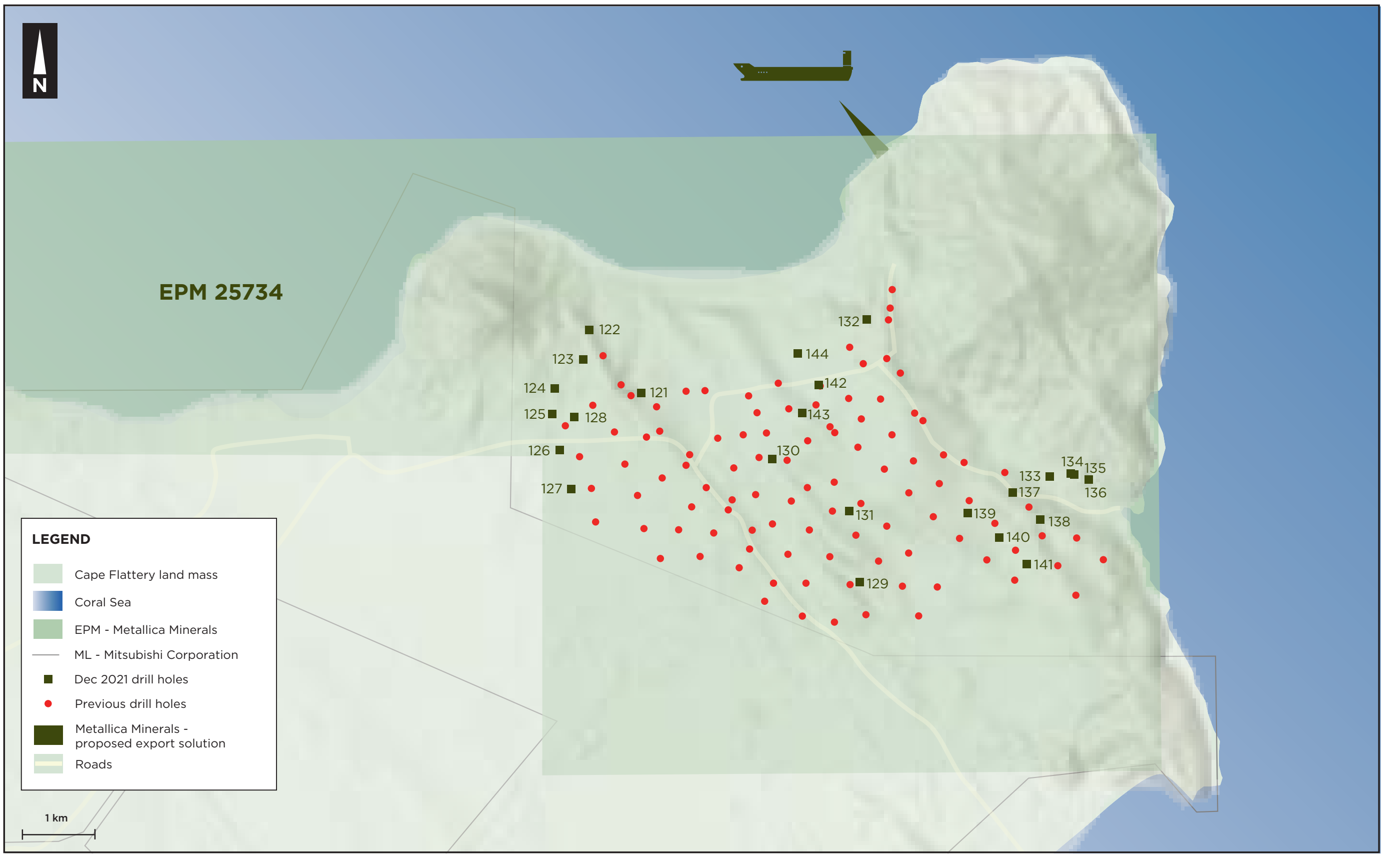


Figure 4: Drilling at CFS, December 2020 (black labels) and July / August 2021 (red labels)

For the purposes of mining practicality and subsequent rehabilitation, a topsoil layer from surface (0.5m) was excluded from the MRE.

4.2.2 Resource Summary

The MRE was completed by AusRocks in accordance with JORC Code 2012 guidelines using Micromine Origin 2023 to model and evaluate the resource. The parameters used in the resource model are detailed below.

Statistics — The final checked assay file was subject to statistical and geostatistical analysis for SiO_2, Fe_2O_3, Al_2O_3, TiO_2 and, LOI. Silica had a range of values from 91.72% to 100% with a mean of 99.12% and the main contaminant Fe_2O_3 had a range of 0.01% to 0.79% with a mean of 0.09%.

Cut-Off Grade — Geological logging and returned assay grades showed intersections of HPSS above 98.5% SiO_2. The silica based grade cut-off was used as an initial basis for interval definition and resource profile to achieve an overall marketable high-grade silica sand.

Results from metallurgical testing were then used to sub-define the resource based on a hierarchy of physical and chemical characteristics. Testing has shown that coloured sand (orange, red and brown variants) is a factor that inhibits production of a high-grade silica sand product and is therefore, the first characteristic targeted.

Blocks modelled with >4000ppm Fe_2O_3 were classified as lower grade silica sand and excluded from the resource model. In blocks modelled with <4000ppm Fe_2O_3, but more than 1000ppm Fe_2O_3, the Fe / Ti ratio was used to guide the classification. High Fe and high Ti indicate the iron presented is part of the ilmenite mineral in the sand which has been demonstrated to be easily removed in processing. Low-grade silica sand intervals were categorised as waste in the model regardless of meeting the aforementioned criteria. The intervals that did meet the selection parameters were included in the deposit for modelling and counted toward the MRE.

The surface to one (1) metre interval consistently returned a <98.5% silica assay and returned higher than normal LOI (indicating high organic content). This logged interval included an average 0.5m topsoil and recorded organic material that was the source of minor contamination. To address this organic contamination, this one (1) metre interval grade was adjusted by adopting the assay of the metre beneath it and then a the top 0.5m layer of topsoil was removed and excluded from the MRE. This 0.5m of topsoil will be used for rehabilitation.

Density — Density measurements were taken on 39 sites throughout the project area ranging from 1.50 to 1.66 $t/^3$ with an average 1.6 t/m^3 adopted for the tonnage calculations. This is in line with other silica sand deposits.

Model Boundaries — Surface and basement models (base of white sand) were generated in Micromine. The surface boundary was generated by a combination

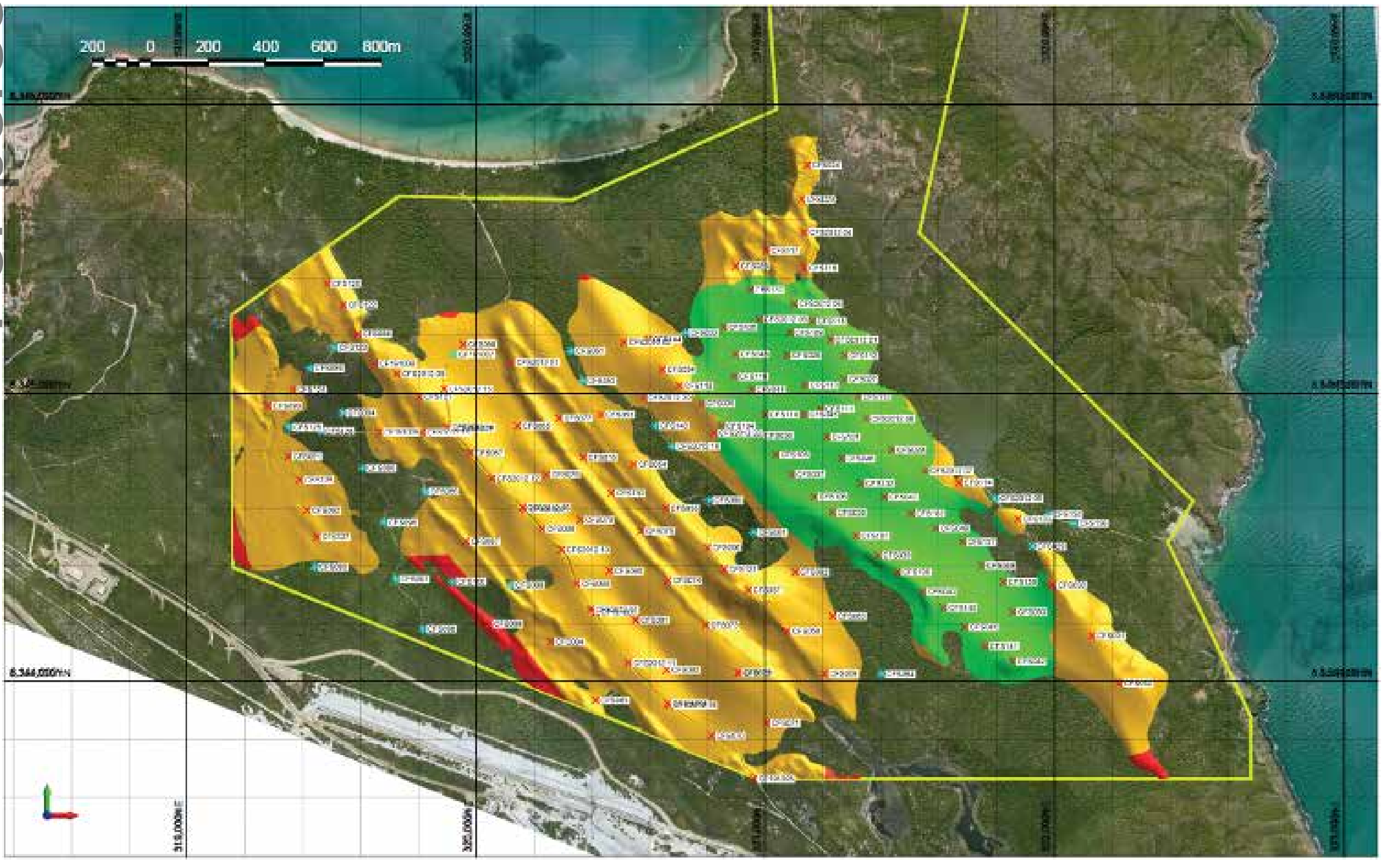


Figure 5: Overview of Drillholes and Resource Category Areas
Note: *Green: Measured; Orange: Indicated; Red: Inferred

of the interpreted geological boundaries and ML boundaries. A topsoil or humus layer of 0.5m was excluded from the model. A 400m limit was used to guide drill hole continuity where information became sparse or non-existent.

The base of the resource model was determined from selected drillhole depths (>98.5% SiO_2), then modelled and adjustments made for intersections with surface topography and other continuity limits. The model was further controlled by cross section checks.

Modelling — Low grade silica sand (LGSS or 'waste') was modelled separately from within the Resource. Each LGSS area was given an individual attribute based on the LGSS interval data and the blocks were loaded back into Micromine. A 1m exclusion zone was placed above and below the waste zones which was categorised as mining loss, and included in the waste volume. The LGSS blocks were populated using Inverse Distance Weighting (IDW - 2:1).

For the Resource intervals, blocks of 25m (L) x 25m (W) x 4m (H) with sub blocks 1m (L) x 1m (W) x 1m (H) were used to generate the block model. The blocks were constrained by the model boundaries and populated by the Ordinary Kriging (OK) estimation method to interpolate assay grades for each of the chosen elements (SiO_2, Fe_2O_3, Al_2O_3, TiO_2 and LOI). The estimated Mineral Resource covers an area of approximately 300 hectares with an average resource thickness of approximately 10.3m.

Resource Classification — Drill spacing and interpreted geological continuity has allowed three resource categories to be defined and are detailed as follows:

Measured Mineral Resource — Area with drill holes at a semi-gridded spacing <150m x 150m ending in basement (clay/coloured sands) or when very damp sand or water was intersected.

Indicated Mineral Resource — Area with drill holes at a confirmatory level spacing (150mx250m) ending in basement (clay/coloured sands) or when very damp sand or water was intersected.

Inferred Mineral Resource — Areas with drill holes at a scout level spacing (250m—400m) ending in basement (clay/coloured sands) or when very damp sand or water was intersected.

Estimation checks/validation — Micromine Origin 2023 was extensively utilised to validate data and refine the model parameters and assumptions. The block model was checked to validate the interpolation technique with swath plots and histograms. Inverse Distance Weighting (IDW — 2:1) and a flat Resource model (normalised drill holes to a zero topography) were also used to check the model and yielded results within an acceptable tolerance.

The locations of the three resource categories are shown in Figure 5. A deposit cross section and long section through the Mineral Resource is shown in Figure 6 and Figure 7 respectively and the results of the Updated MRE of the CFS Project — Eastern Resource Area are provided in Table 3.

Table 3: Flattery Silica Sand Project - Eastern Resource

Resource Category	Silica Sand Mt	SiO_2 %	Fe_2O_3 %	TiO_2 %	LOI %	Al_2O_3 %	Density t/m³	Silica Sand Mm³
Measured	16.1	99.20	0.08	0.12	0.13	0.22	1.6	10.1
Indicated	33.2	99.05	0.10	0.18	0.15	0.25	1.6	20.7
Inferred	0.2	99.00	0.12	0.27	0.13	0.28	1.6	0.1
Total	**49.5**	**99.10**	**0.09**	**0.16**	**0.14**	**0.24**	**1.6**	**30.9**

The Mineral Resource Estimate has been reported in accordance with the JORC Code 2012. These results show there is good potential to produce a premium grade silica product using standard processing techniques.

Table 4: Ore Reserve Statement

Ore Reserve Category	Tonnage Mt	SIO_2 %	FE_2O_3 %	TIO_2 %	AL_2O_3 %	LOI %	Waste Mt
Probable Reserve	47	99.11	0.09	0.14	0.15	0.24	4.0

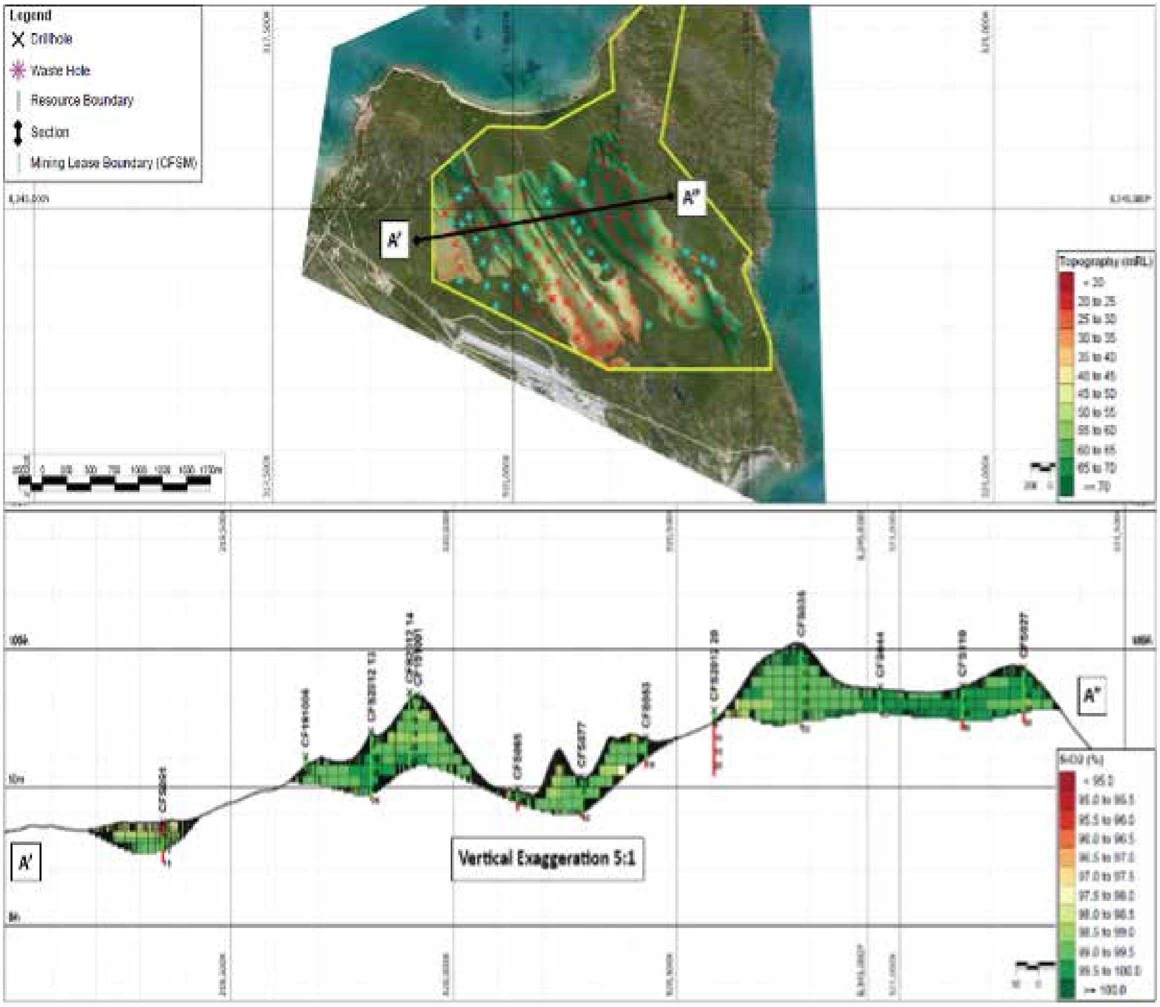


Figure 6: Cross Section (West to East) through Block Model

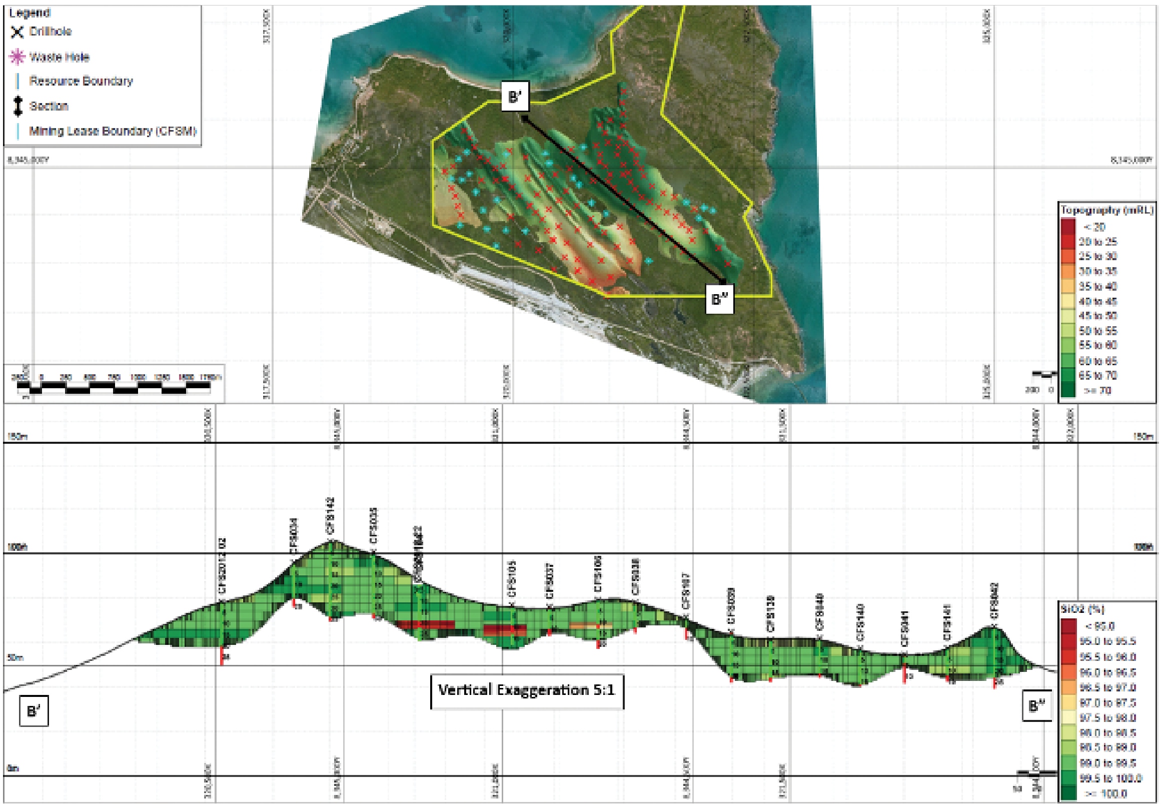


Figure 7: Long section (Southeast to northwest) through Block Model

5. MINING AND ORE RESERVE

5.1 Introduction

CFS has commissioned Ausrocks to complete a Mining Study of the CFS Project. The mining method assessment determined that the most viable option is open-cut mining with a rubber tyred front end loader (FEL) and slurry pumping extraction method. The material to be mined is free-flowing silica sand of up to 37m thickness. The undulating floor profile of the ore body results in the majority of pit boundaries daylighting to natural topography and a maximum floor slope of ~10%. Mining will occur to the depth of the defined water table (with 1m standoff) or the high-grade silica floor, whichever occurs first

5.2 Mine Hydrogeological Considerations

The management of surface and groundwater is a key consideration in achieving long-term rehabilitation success. A 5x5m watershed analyses was conducted to model the drainage and flooding behaviours of surface waters. The final landform will be free-draining and blended in with surrounding topography. Reject materials do not contain significant levels of any material that would be considered a contaminant or regarded as a risk to environmental values of the receiving environment. No infiltration and seepage intervention and collection controls are required.

5.3 Mine Design

5.3.1 General Approach

A further infill drilling program may be undertaken prior to mining with subsequent assays and fine tuning of the model completed to improve definition of high and low grade boundaries within the area to be mined. Vegetation clearing will follow, with the preservation of the organic rich layers away from the mining area and stockpiled for future rehabilitation.

Once the dune sand is exposed, mining can commence with direct loading from the face by a FEL. The loader will tram from the face to the mobile feeder unit, with tramming distances around 150m expected. Two FEL units will be available for mining in order to maintain the desired productivity. This also allows for up to 250m tramming distance from the face should this be required.

A broad mining face allows for a range of silica sand grades to be exposed at the face, from which selective extraction can occur if needed. This facilitates mining of high and low grade zones if required to meet product specification. When waste blocks are encountered the FEL will set aside the waste material away from the advancing face. Should the mining rate be impacted as a result of waste removal action, then the second FEL will be activated.

5.3.2 Ore Reserve

An Ore Reserve model was generated using the Mineral Resource model and its established constraints. This was paired with the criteria developed through extensive metallurgical testwork. This culminated in the use of the following parameters:

- Consideration of sand colour (white sand considered primary);
- Ti/Fe Ratio (>0.5 ratio considered primary); and
- Fe_2O_3 content (Formulas from Metallurgical Study factoring in Attritioning vs Magnetic Separation). In addition, where:
  - SiO_2 content (96% considered lower limit); and
  - Where mixing of Interburden was considered, a 'carry assessment' was conducted to test the average feed grade considering the Interburden as diluted. If target feed grades were still achieved then the Interburden was included in the pit shell.

This approach resulted in an update to the shape and size of the Resource, primarily due to the shift from a cut-off grade of <98.5% SiO_2, to a new low-grade silica sand definition (as outlined by the new cut-off parameters bullet pointed above).

The mineral resource model was subsequently finalised on 5 May 2023 and is kept on company records for future reconciliation. Table 3 provides a summary of the Resource used for the basis of the conversion.

Mining loss has been factored into the Reserve model, calculated from a 1.0m buffer that has been included on the top and bottom of modelled waste zones. A 100% mining recovery factor for the remaining material (excluding loss and waste zones) was used in the conversion to Reserve. This is supported by the mining method being simplistic with direct loading from face to the Dry Mining Unit (DMU).

5.3.3 Mine Production Rate

The CFS operation is planning to commence mining at 1.2Mtpa (1Mt product) in year 1 and ramp up to a full production of 1.8Mtpa (1.5Mt product) from year 2 onwards. The full level of production is supported in the market due to the high demand for silica sand (refer Market Analysis). There is scope in the equipment and plant to increase the mine production rate, which may be considered as opportunity for future value enhancement outside of the Study scope.

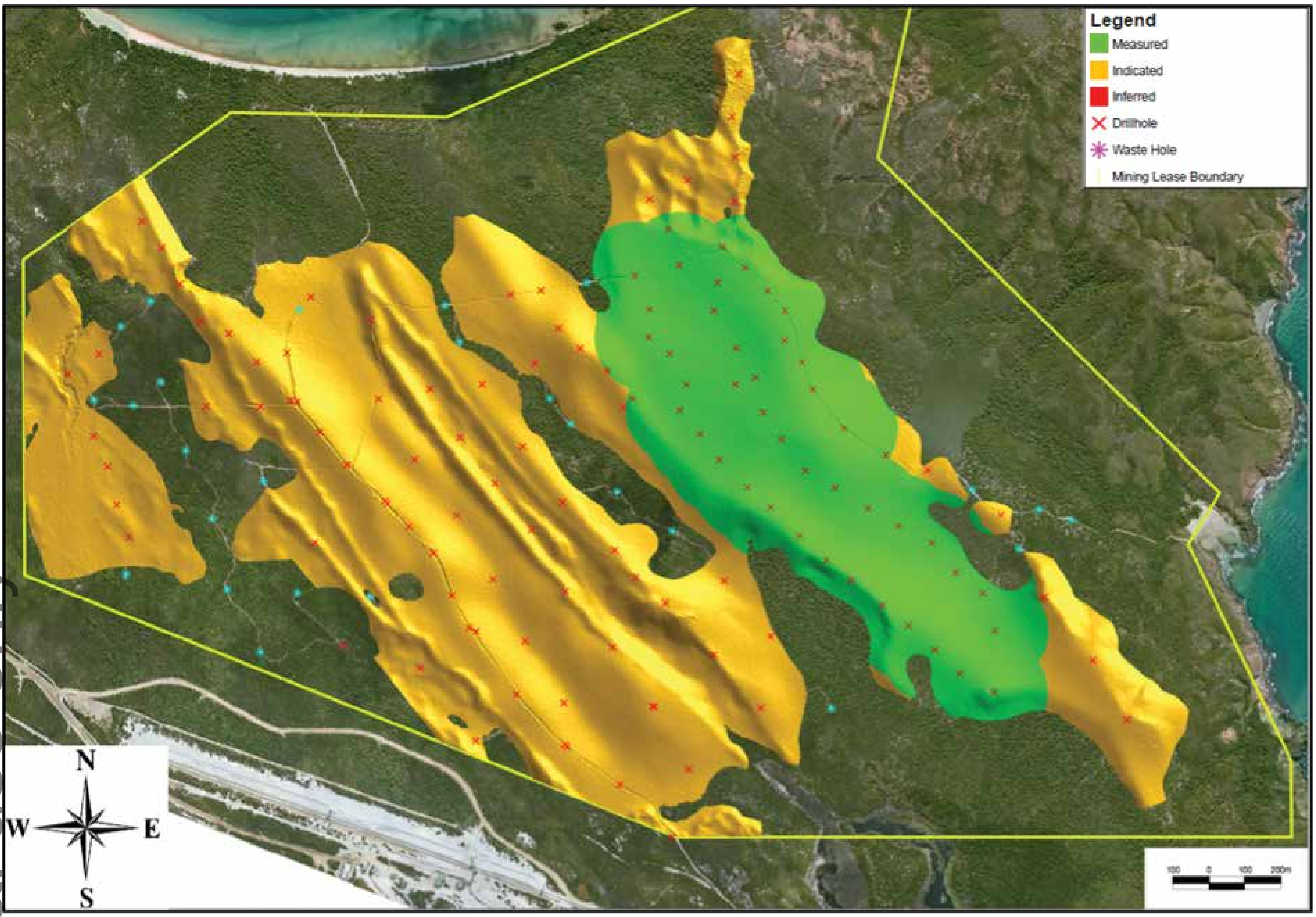


Figure 8: Mineral Resources

5.3.4 Mining Method

The sand will be extracted through the use of a rubber tyred FEL to free dig sand and direct feed the processing plant via the DMU. A dozer and excavator are included in the support fleet.

FELs are predominantly used for extraction in the neighbouring Mitsubishi operation and represent a good blend of operational flexibility, productivity and scalability.

5.3.5 Ore/Waste Determination

Grade control drilling is intended to be completed prior to mining for the purposes of resource optimisation. The drilling is anticipated to be completed on a 40x40m grid with 1—2m downhole intervals. If required, the grid may be tightened to ~20 x 20m to refine areas around known high Fe zones or extended out to 60 x 60m where existing drilling shows low risk.

5.3.6 Pit Design

The Silica Sand at Cape Flattery is a bulk commodity with limited overburden, broadly consistent in SiO_2 grade and variable contaminant grades (Fe_2O_3, Al_2O_3, TiO_2 etc).

Pit shell design was carried out manually using the following parameters:

- Perimeter of the pit where it daylights to the surface based on the geological assumptions, or at a batter angle of 30 degrees where the pit meets the ML boundary; and
- The base of the pit is predominantly defined by the modelled undulating geological floor profile, except in the southwestern corner where a buffer is maintained to the estimated water table level.

Pit design has been completed manually using the block model and Micromine Origin Software.

5.3.7 Final Mine Layout

Mining has been assumed to the depth of the defined water table (with a 1.0m standoff) or the low-grade silica sand floor, whichever occurs first. The undulating floor profile resulted in the majority of pit boundaries daylighting to natural topography and an average floor slope of ~6 degrees.

5.3.8 Production Schedule

A MLA has been lodged for a 25-year mine life (See ASX Release, June 15 2021, Cape Flattery Silica Sand Project advances as Mining Lease Application Lodged). The Reserve Report has calculated that a >25 year mine life is possible. Accordingly, a ML extension may be sought at a later time.

Figure 9: Final Mine Layout

The Mining Schedule has been developed to prioritise <900ppm Fe_2O_3 feed grade in the first 5 years, which results in a range between 540ppm and 690ppm and an average of 620ppm Fe_2O_3. This provides certainty that the proposed plant will operate as designed and provide product within specification.

Year 5 onwards contain on average a higher Fe_2O_3 content of around 1100ppm with one outlier in year 10 at 1400ppm. It is anticipated that as mining progresses on site, the plant flow will be optimised to suit the designated product. Current metallurgy testing indicates that all the material within the Reserve can be processed into high grade product, by switching the Wet High Intensity Magnetic Separation (WHIMS) system on and off.

Backfilling requirements will be in line with production, with between ~15.2% (non WHIMS) and 21.2% (WHIMS) of material mined returned to the pit as 'rejects'. This material is benign 'low grade' sand and will be dewatered in the pit and used for recontouring works and final rehabilitation.

5.3.9 Mine Rehabilitation

Metallica's proposed method of rehabilitation and mine closure is well proven in the mineral sands industry with progressive back-fill and rehabilitation to the pre-mining state. The quantity of backfill returned to the pit is approximately 25% of all material removed, and therefore the final landform will be lower than the pre-existing landscape. Due to the undulating nature of the Resource base, the final landform will be reprofiled to mimic the pre-mining elongated dune formation and will blend in with the natural lower slopes to the south of the operation.

Revegetation will occur naturally from the seed bank in the topsoil, additional seeding and planting of seedlings with preferred species. All of this will be undertaken to suit the final landform and ecosystem. Seed mixes and seedling propagation will be developed through consultation with the Traditional Landowners and through site specific trials. Prior to vegetation clearing, appropriate native vegetation seed collection will be undertaken, with collected seeds to be used for seedling propagation and planting in the mine rehabilitation process.

A Progressive Rehabilitation and Closure Plan (PRCP) has been developed by the Company and will be required to be approved by the administering authority as part of the EA grant.

5.3.10 Mine Equipment Requirements

Equipment Selection for the Mining Study includes equipment that is required to facilitate production of ore, supporting mine operations (eg pre-production and rehabilitation), personnel transport and maintenance.

The mining method is open cut direct excavation from the face using rubber tyred wheel loaders, with an 11.5 m^3 bucket. Two FELs will be required to excavate and feed the required 1.8Mtpa into the processing plant as well as place all waste sand in its final location.

Ancillary required to support the operation includes a 30t dozer with a rotating bush track to clear and grub, push topsoil and re-contour backfill material for rehabilitation is this all rubber wheeled FEL.

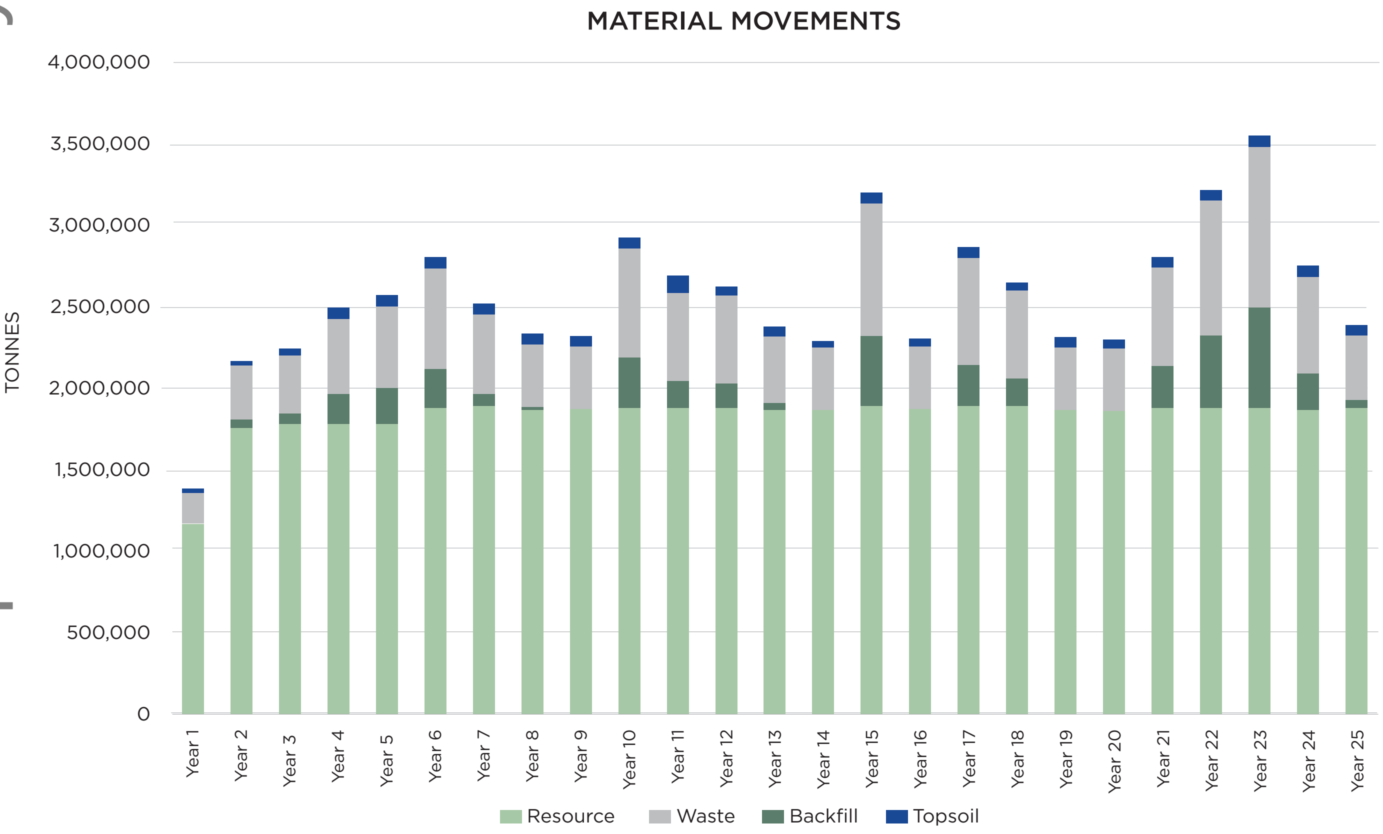


Figure 10: Yearly Material Movement including Ore, Waste, Backfill & Topsoil


CAPE
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6. METALLURGICAL TEST WORK

6.1 Introduction

The CFS metallurgical testwork program has been developed and executed to evaluate and build confidence in the quality of the ore body. It has focussed on substantiating the ability to create a marketable product via a robust and technically proven process pathway.

The most recent characterisation testwork undertaken on a bulk sample composited from the first 5 years of operation yielded a final non-magnetic product with Fe_2O_3 grade of 100ppm from a 600ppm Fe_2O_3 head grade. While bulk testing is ongoing, Mineral Technologies (MT) have confirmed that results to date indicate that the final non-magnetic product will contain less than or equal to 120ppm Fe_2O_3.

Prior testwork on a bulk sample included mid-scavenger spiral release curves which demonstrated similar Fe_2O_3 to the rougher spiral stage in that testwork program. It is reasonable to expect that the silica product from the mid-scavenger stage in this current testwork program will perform the same as the rougher stage and produce ~120ppm Fe_2O_3 grade in the product. With additional processing by attritioning and sizing, followed by magnetic separation, further iron rejection will occur.

Based on this information, provided by MT the CFS ore body can reliably produce marketable product of 120ppm or better with high yields, circa 80—85%.

6.2 Concept Studies

The CFS ore body has been evaluated to understand its composition and amenability for commercial scale processing.

Initial concept study petrography conducted by Geochempet Services, indicated good segregation of target mineral and primary deleterious matter, with some surface and interstitial contamination. A range of separation and processing techniques were trialled to determine possible processing routes. This information formed the basis of proceeding to further flowsheet development and Pre-Feasibility work.

6.3 Pre-Feasibility Study

During the PFS, both IHC Robbins and MT were engaged to provide metallurgical testwork and flowsheet development.

Similar concept flowsheets were developed by both laboratories, with minor variation in the sequence of the process stages. Both Pre-Feasibility flowsheets included separation processes for size, density and magnetic susceptibility combined with an attritioner cleaning stage.

The Pre-Feasibility testwork programs made significant steps toward identifying the key criteria necessary to achieve the target specification product. So, while the target specification wasn't reached at the Pre-Feasibility stage, this work made a significant contribution to understanding how critical the orange-stained sand was on the product grade. Consequently, it has been determined that orange material does not form part of the ore body due to the nature of its high iron presentation and inherent lack of responsiveness to removal through processing.

A further takeaway from this work was the sensitivity of the process to the level of contaminant in the feed material of orange sand and the resultant categorisation of the ore body into "white" and "orange" sand.

Both programs provided a significantly better understanding of the ore body and the ability to reliably upgrade the product through traditional wet processing stages. This knowledge combined with proper feed selection, provided confidence to proceed with additional bulk testwork currently underway at the time of writing.

During the Pre-Feasibility stage, MT also produced a process flow diagram (PFD) balanced for water and solids based on a throughput of 250tph to provide basis of design figures and conducted settling tests concluding that a combination of flocculent and coagulant provide adequate clarification performance.

Additional characterisation testwork was also conducted during the PFS to provide further understanding of the relationship between the in-ground ore body and the likely product grade produced by the plant. The result from this work provides good correlation between the individual bench top testwork sample performance and that of the bulk testwork. This work also supports the development of a more refined mine model based on recovery performance rather than arbitrary cut off grades from bulk samples.

6.4 Definitive Feasibility Study

The second phase of bulk testwork currently underway at the MT facility utilises the same flowsheet established during the PFS. This bulk sample has been composited as representative sample from the first 5 years of operation and includes both JORC Indicated and JORC Measured resource. The purpose of this testwork is to prove that the desired specification product can be produced from a representative bulk sample and produce sufficient product for additional testing and validation.

Testwork has included rougher spiral sighter release tests on the MG12 spiral. The results of the release tests showed that at a feed grade of 0.05% Fe_2O_3 and a spiral feed rate of 2tph, a product yield of 80% to the rougher spiral product produced a silica product with assay results ≤120ppm Fe_2O_3. This is the result before the bulk sample has been processed in subsequent phases through attritioning, size classification and WHIMS stages, where previous characterisation testwork has always shown an improvement (reduction) in iron content.

6.5 Detection Limits Observation

Two methods of detection are traditionally used in assaying of silica sand samples, either XRF or ICP—MS.

XRF is less cost intensive and faster to execute, however is limited in its accuracy to within 0.01% or the nearest 100ppm. This makes is useful for initial assaying of drill cuttings where large volumes of sample material require analysis and a quicker turnaround speed is desirable to help identify areas of interest within a resource.

ICP—MS is more accurate but slower to execute and has higher cost by comparison. ICP—MS does however have the added benefit of detecting levels within 0.001% or 10ppm. This is particularly useful in post process material where more exacting specifications are important.

Critically, all CFS product specification results obtained from laboratory and bulk processing testwork have used the ICP—MS method to ensure the highest accuracy analysis is achieved.

7. PROCESSING

Figure 11: CDE Group modular process plant

MT and CDE Group have been engaged to provide technical, design and estimating support for the development of this DFS. This study scope covers the relocatable Dry Mining Unit (DMU) that receives the Run of Mine (ROM) ore, Wet Concentrator Plant (WCP) that receives the sand slurry from the DMU, product dewatering and stacking, and reject handling.

The sand processing requirements have been derived from bulk sample and characterisation test work campaigns completed by the metallurgical department in the MT laboratory. Four process flow routes were developed to demonstrate the mass flows for alternate options within the WCP. These include:

- Full circuit – includes all process units;
- Excluding wet high intensity magnetic separators (WHIMS);
- Bypassing Attritioning; and
- The initial capital investment case – excluding WHIMS and includes an option to bypass Attritioning.

Due to the site's remote location, the design philosophy is to maximise the use of modular construction methods to allow for offsite fabrication and preassembly and to minimise the use of onsite construction. The extent of modularisation is determined predominantly by logistics constraints.

The life of mine (LOM) relocatable and fixed plant design is required to withstand 250km/h cyclonic wind loads and allowance is included for the addition of field booster pumps to support the active mining face as it progresses away from the plant location during the mining life. The product stockpile area will remain in position for the life of mine and is located to the southwest of the processing plant.

The processing plant has a capacity of 1.88Mtpa of ROM silica sand for an anticipated 1.53Mtpa of high-grade silica product. The processing facilities are designed around a 250t/h feed rate and 7,500 operating hour annual production scenario.

Test work has indicated that suitably marketable product can be produced during the first 5 years of production without the need for magnetic separation. Therefore, the WHIMS circuit is designed as a standalone module and has been deferred to reduce the initial capital expenditure. The final investment decision for the WHIMS plant is expected after successful operations are established.

In parallel to this study, MTs also conducted further test work on specific areas of the ore body however this data was not available during the development of this process plant report. For further metallurgical discussion, refer to Metallurgical Testwork.

The proposed plant location, and therefore the layout, is constrained by physical, permit, and visual amenity considerations.

The plant and product stacking areas will be located separately, approximately 500m apart. The plant will be to the northeast of the product stacking area.

The WCP and product stacking facilities will be integrated with non-process infrastructure including:

- The marine based ship loading and material off-loading facilities;
- Accommodation camp;
- Mine Infrastructure Area (MIA); and
- Product reclaim area and overland conveying.

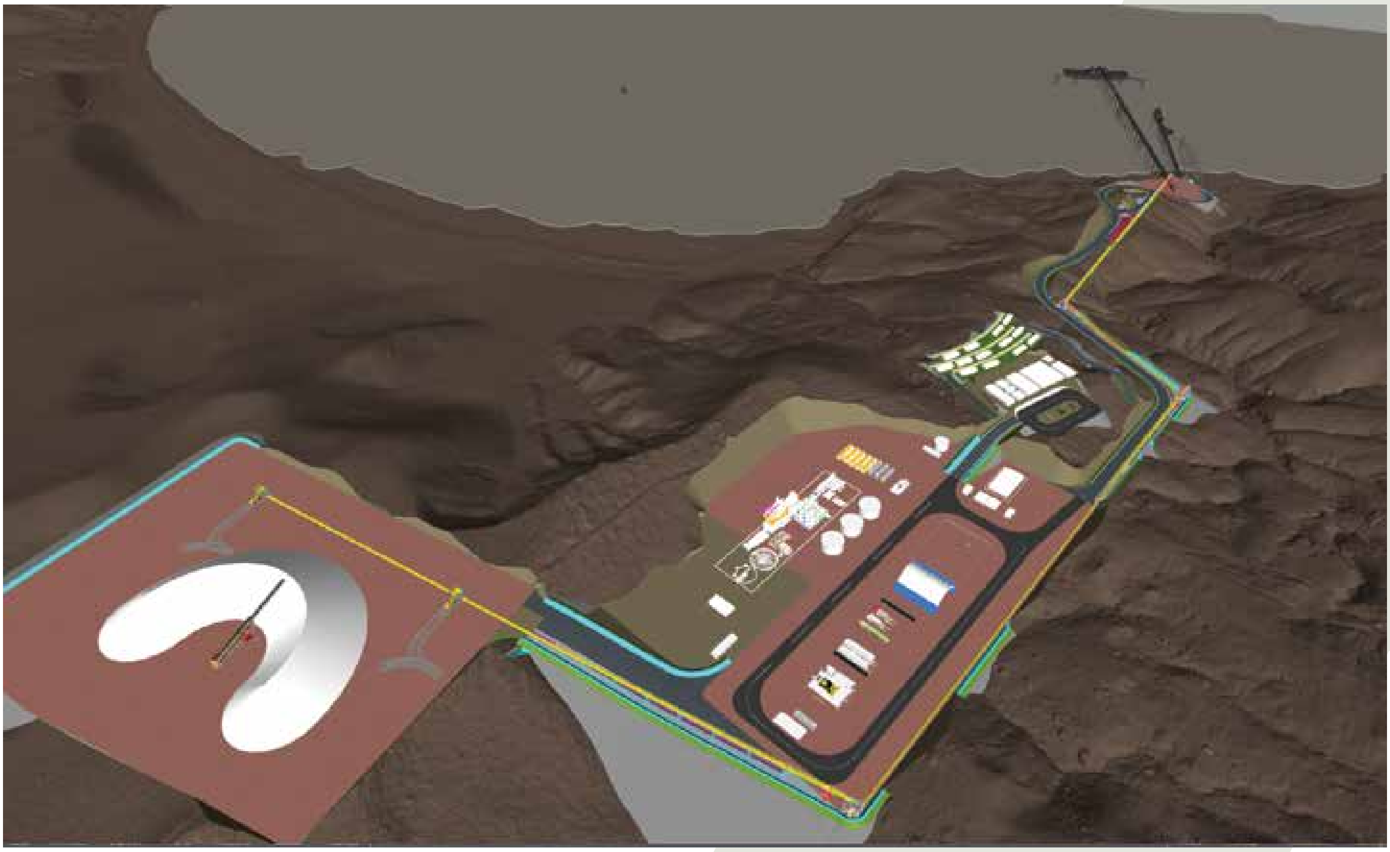


Figure 12: Proposed site layout of all facilities

Project logistics will need to be carefully managed as site access is restricted due to a combination of barging to and from site, and limited onsite truck transport. The current design and project delivery methodology has accounted for these restrictions.

The land-based Non-Process Infrastructure (NPI) supporting the operation on land has been designed reflecting site-wide design considerations including:

- The lowest possible visual impact from Connie's Beach;
- Consideration of culturally significant areas adjacent to the mine operation;
- Separation of camp from operations mitigating noise, light and dust considerations;
- Stockpile location as close as possible to the jetty while ensuring separation from the camp;
- Water management design to maximise water efficiency; and
- Power facility design recognising the need to minimise diesel consumption and ultimately decarbonise operations.

The resulting site layout is as shown in Figure 12 above.

8. NON-PROCESS INFRASTRUCTURE

8.1 All Weather Access

An all-weather site access road leading from the JIA to the MIA, has been designed at a maximum 10% gradient. This road is the single road linking the incoming materials and the site operations.

8.2 Camp

A 48-bed accommodation village includes messing and ancillary facilities, located away from operations and overlooking the sandy bay overlooking Cape Flattery.

8.3 Raw Water

Raw water is planned to be sourced from a productive borefield approximately 3.2km by track from the MIA. At a processing rate of 1.8Mtpa feed to the process plant, total raw water demand is estimated at 750 Megalitres per annum.

8.4 Mine Infrastructure Area

The MIA includes workshop, containerised warehousing, wash-bay, fuel storage, water infrastructure, laboratory and administration facilities.

8.5 Communications

Offsite communications to all areas of the site will be via commercial satellite communications.

On-site communications will be via UHF two-way radio.

8.6 Diesel Supply Transfer, and Storage

Diesel transfer system that transports bulk delivered diesel from a barge moored on the jetty to the bulk fuel self-bunded storage facility located at the MIA. Total fuel storage on site is equivalent to three weeks' consumption.

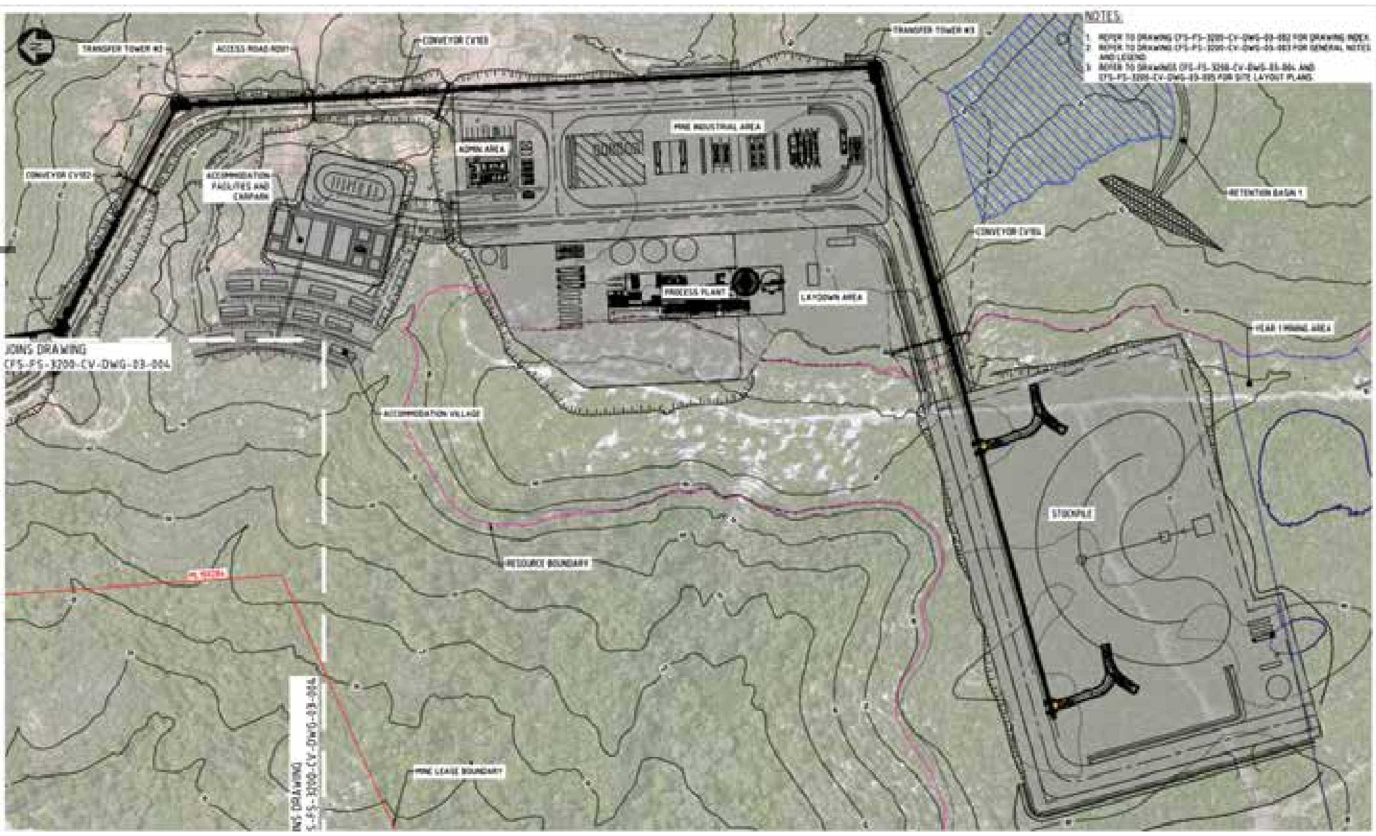


Figure 13: Mine Industrial Area General Pads and Basin

8.7 Power generation

A low voltage (LV) diesel power generation and LV reticulation supplies the main power loads of process plant and camp, that are augmented in Year 2 of operation by battery storage and solar power production. Satellite load centres are provided with standalone diesel gensets.

8.8 Water Management

A retention basin is designed south of the MIA to capture surface water runoff, sized to facilitate a 1 in 100 year rain event plus 20% for sediment build-up. Total size is 75,000m^3. Water will be drawn from this basin as a priority for water make-up where required.

8.9 Product Stockpile

A 100,000 tonne product stockpile includes dewatering infrastructure to minimise stockpile dewatering time. Product stacking is by telescopic radial stacker and reclaim is via two Caterpillar 988 FELs, independently feeding separate hoppers that load the loadout conveyor system.

8.10 Waste Disposal

All general and regulated waste generated on site will be sorted and returned to Cairns from where a waste management company will manage its disposal at the appropriate facility.

9. MARINE INFRASTRUCTURE

The absence of substantial road infrastructure in the region means that access to the CFS site is totally dependent on effective access from the sea and the establishment, by the Project, of marine infrastructure.

The Project will provide:

- Temporary pioneer landing facilities;
- Crew transfer facilities;
- Material offloading facilities (MOF); and
- Product loadout facilities via transhipping vessel (TSV).

Metocean data has been collected over an extended period that has been used in the development of the marine designs. All marine structures and operations consider the need to protect the local fringing reef wherever possible.

9.1 Pioneer Landing

Pioneer landing facilities are required to provide temporary landing facilities in the early days of construction while the MOF is constructed. This will be a “dumb” (unpowered) barge with a drop-down ramp and strengthened hull to cater to the possibility of beaching of the barge to allow machinery to offload.

9.2 Material Offloading Facility

A MOF is required to support the logistics of the mine construction and the operational logistics once in operation. This will consist of a barge ramp to facilitate berthing of landing craft (LCTs) for supply barge operations.

The MOF is a piled structure designed for vehicles up to 70 tonnes. The piled structure extends seaward from the JIA approximately 200 metres allowing LCTs with drop-down ramps on the bow to offload their cargo, providing access for all plant and materials for the

Figure 14: Drone image of jetty location

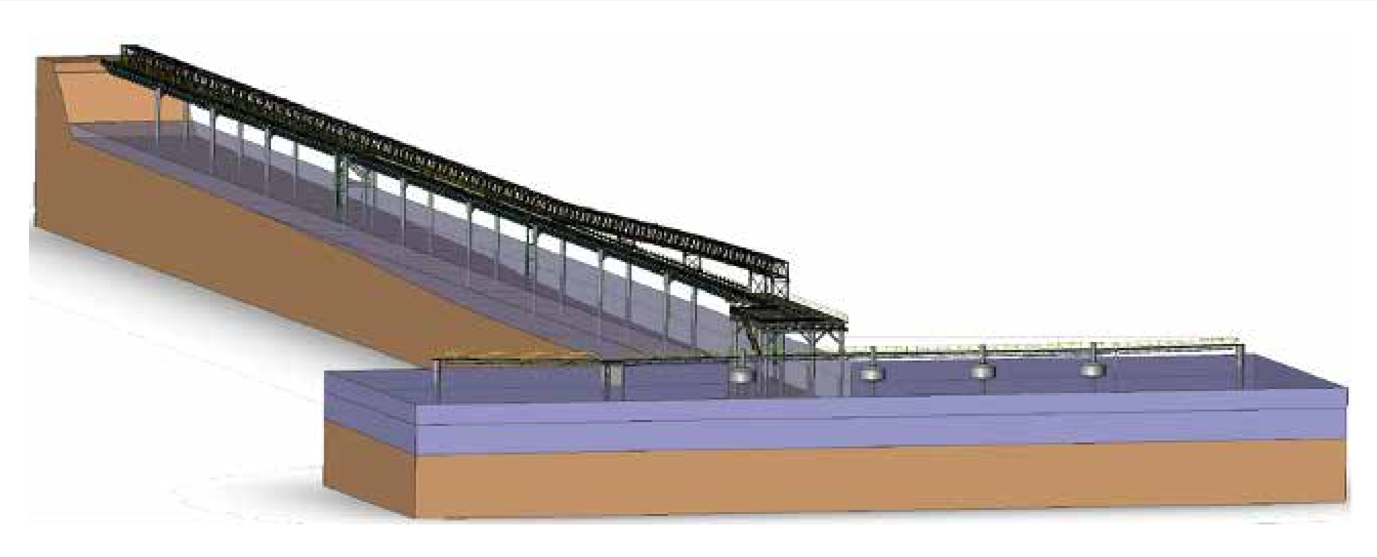


Figure 15: Barge Loading Facility - Looking southwest

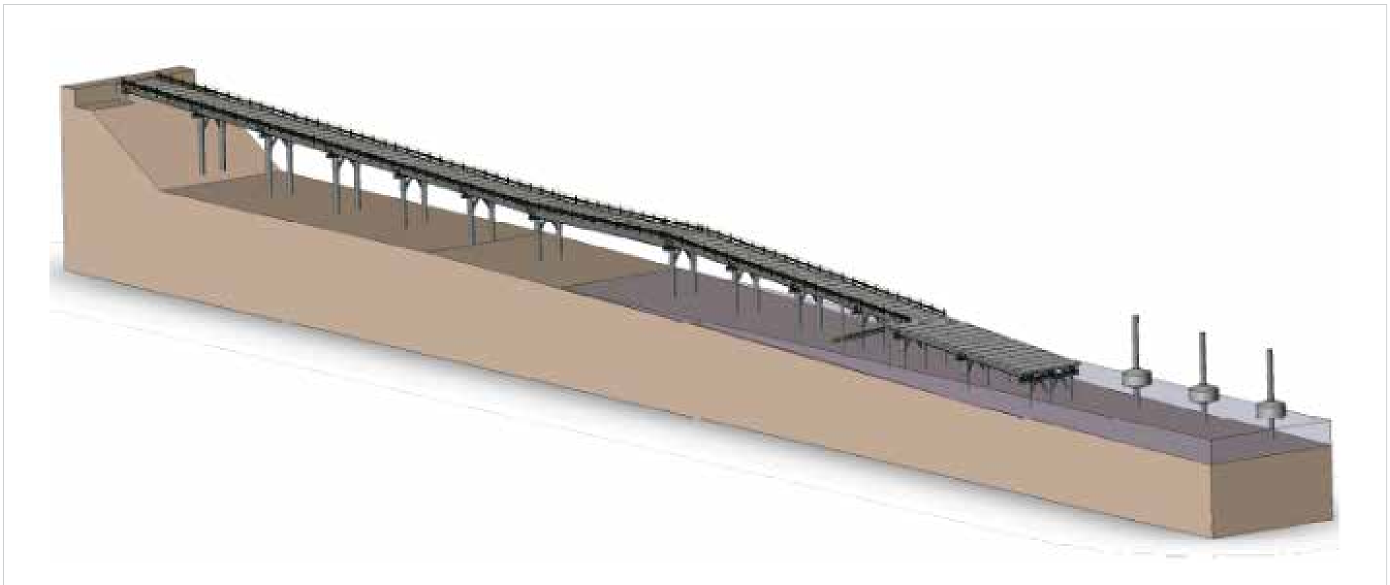


Figure 16: Material Offloading Facility - Looking southwest

project and ongoing operations. This structure will be installed ahead of commencement of construction on land and will minimise the duration that the pioneering landing is required to be used.

9.3 Product Loadout Facility

Sitting inside the limits of the Cape Flattery Port, the navigable water depths off the coast of Cape Flattery are too shallow to allow direct access to the mine port facility by an Ocean Going Vessel (OGV) without significant capital cost. The proposed method of product export is to transfer the ore from the product stockpile to OGV using a transhipment barge.

The 400m long jetty and barge loading system is designed to work with the TSV that transports product sand from site to the swing basin, approximately 2 nautical miles offshore, where it will load OGV. The overall system is designed to loadout approximately 10,000 tonnes of product per day.

Product is reclaimed from the product stockpile at an average rate of 1,000 tonnes per day and conveyed approximately 1,350 metres to the JIA where it is conveyed out the 400m long jetty and is discharged onto the TSV via a retractable telescopic conveyor.

9.4 Fuel Supply and Transfer

In operation, a fuel barge will moor at the jetty approximately once a week and discharge in the order of 135,000 litres of fuel per week via a pumped diesel transport system to the bulk storage at the MIA for the power generation and mobile equipment. The diesel system can also be used to refuel the Crew Transfer Vessel (CTV) and TSV from the bulk storage facility.

9.5 Transhipping Vessel

The TSV is a self-propelled, self-discharging vessel, capable of cycle times that support the 10,000 tonne per day OGV loading rate that is operated under a contract transhipping arrangement.

Other vessels utilising the marine infrastructure include, supply barges (LCTs), fuel barge and CTV.

9.6 Crew Transfer Vessel

The CTV is required to transport all personnel to and from site. The CTV is a fast catamaran design, approximately 20 metres in length, with twin propellor drives that move the vessel up to 25 knots, which will also be used for transhipping support and pilotage.

10. PRODUCT EXPORT

CFS is proposing to extract and process raw sand from the Project site to produce a HPSS product suitable for high end uses such as the manufacture of PV glass. This silica sand product is planned to be exported by ship from Cape Flattery to end-users in Asia.

Shipping of product to export markets will be achieved via CFS's own transhipping solution from within the port limits of Cape Flattery.

10.1 Stockpile and Reclaim

The product stockpile has been sized for 100,000 tonnes of product, allowing for a maximum OGV size of approximately 80,000 tonnes (Panamax). Based on current trade and freight economics, the most likely size of the OGV is a Supramax loading 50,000 tonnes +/-10%. Modelling shows that a 100,000 tonne stockpile is capable of feeding two Supramax's back-to-back while still providing stockpile capacity for drying time of newly processed product.

Product is reclaimed from the stockpile by two Caterpillar 988 FELs and fed onto a covered 1.35km conveyor system to the JIA where it transfers to the jetty material handling system and is loaded onto the TSV via a telescopic barge loader.

The TSV is a self-propelled, self-unloading barge capable of ship loading rates of 10,000 tonnes per day.

10.2 Shipping

A variety of OGV sizes ranging from 30,000 tonnes up to approximately 80,000 tonnes will be suitable for loading by CFS. The vessel size will be determined by the commercial arrangements with customers as will the sales incoterm, that is whether or not CFS is the vessel charterer (CIF/CFR) or the customer elects to take this task on (FOB). At the time of writing, it is likely there will be a mix of incoterms however this will be determined by negotiations with customers.

10.3 Quality Control

The quality specifications of the silica sand product is required to be within certain limits to satisfy sales contract requirements, particularly in relation to the silica and iron content. Contamination with foreign material originating from the operation itself is also to be avoided as this will negatively impact the end-user's operations. For this reason, the production and export processes have various quality control measures that are intended to provide assurance that a clean high-quality product is delivered. An on-site laboritory will be established at CFS.

11. SUPPLY LOGISTICS

The CFS operations are located on a remote site with very limited road access and no available airstrip at this time. All access to site is by sea from either Cooktown or Cairns. Travel time from Cairns by barge is approximately 12 hours. Travel from Cooktown by CTV will be approximately 1.5 hours.

The operational requirements for the mine will comprise movements of goods such as fuel, food, operational consumables, and periodic replacement parts or components as well as personnel movements to and from site.

11.1 Supply Strategy

All supplies to site will come from Cairns and be transported by a barge. Well-established and existing supply runs exist out of Cairns that service various island communities, mines and towns around the Cape York Peninsula. Operating on a weekly basis it is anticipated that the CFS operation will be included in this run.

The third-party barging contractor and the CFS Inbound Logistics Coordinator will be responsible for organising the delivery and consolidation of all goods at the barging contractor's premises in Cairns.

The CTV will be utilised for delivery of supplies to site.

Any materials or supplies coming to site from overseas must come via Brisbane or Townsville due to customs and quarantine requirements. Goods will then either be railed or trucked to Cairns and transported to site by barge.

11.2 Personnel Logistics

Most personnel are expected to be sourced from Hope Vale, Cooktown or Cairns, with some potentially flying in from further afield. Those flying into Cooktown from Cairns will make their own way to Cairns air charter services at Aeroglen, where personnel will be flown via small aircraft to Cooktown airport. A bus will transport personnel from Cooktown airport to Cooks Landing in Cooktown where the CTV be waiting to transport passengers to site. Personnel living in Cooktown, Hope Vale or other local environs will make their own way to Cooks Landing.

11.3 Organisation

The Procurement/Contracts Officer, Maintenance Superintendent, Logistics Coordinator, Camp Cooks and Storeperson all can order equipment and supplies in the Pronto Procurement Module.

The Inbound Logistics Coordinator will be responsible for organising the movement of materials to site, working with the Third-Party Barge Contractor.

The Administration Superintendent will be responsible for organising commercial flights where required by personnel.

12. HUMAN RESOURCES

As a remote greenfield project, CFS has the challenge of recruiting and developing a new workforce and the opportunity to create a positive and efficient culture committed to working safely and creatively to benefit stakeholders.

At its core the culture will be laid out through a range of policies and processes and also driven by leaders trained and motivated to achieve the company vision. Leadership is key to success and the company will train and develop its leaders from potential supervisors through to the site manager in how to achieve their objectives.

The Company has a strong engagement with the Traditional Owners and will provide opportunities to develop as employees and leaders. Whether through traineeships for employees at the start of their careers or Supervisor Development programs for those seeking advancement, the company intends to maximise the opportunities for the local people.

Metallica recognises that the company will prosper by using an integrated performance management system supported by detailed processes to deal with the relevant people matters and to continually improve communications across the workforce. CFS acknowledges that a well-informed workforce motivated by trust and understanding will be efficient and proactive.

The Project has several factors that define the approach to Human Resources. These include:

- Remote site reached by boat and nearest town has limited resources;
- Agreements with Traditional Owners providing employment targets;
- Low level of experienced mineworkers in the region; and
- Requirement to achieve high retention and motivated workforce.

The study development lays out the framework to recruit, mobilise and develop the workforce required to operate the CFS project. This includes elements, including processes and systems, that will form the basis for the operational plans. It provides guidance and a framework for managers, employees and contractors employed on the project. The study also lays out the employment conditions that will support the workforce with a focus on the longer term, motivation and retention.

A Human Resources Plan has been designed to lay out the purpose, plans and procedures that the HR team will use to support the management team through construction to operations. The strategy draws on the company's values and existing policies to provide a framework for the employees of CFS to achieve the company's objectives.

Key considerations shaping the Human Resource Strategy are:

- The remote nature of the project location;
- CFS commitment to maximising the employment of labour from the Traditional Owner groups; and
- CFS will operate year-round on a 24-hour, seven days a week basis and will require shift rosters to be implemented.

12.1 Rosters and Lifestyle

The Project requires the workforce to be transported to site by CTV from Cook's Landing on the Endeavour River, in Cooktown. The Company will offer an 8/6 roster for staff and a 5/2—4/3 roster for Managers (Superintendents and above).

12.2 Accommodation, Transport and Logistics

Workers will be accommodated on site and will be operating on a Boat In Boat Out (BIBO) basis via a CTV from Cooktown. Personnel will make their own way from Hope Vale and Cooktown to Cook's Landing where they will board the CTV. Travel time to site via CTV is approximately 1 hour 30 mins.

Once the CTV arrives on site, personnel will be transported from the MOF to the camp via 12-seater bus. At this point accommodation will be allocated for the duration of the swing. All food is provided whilst personnel are on site.

12.3 Recruitment and Engagement Strategy

The recruitment process for the Project Execution will commence at Financial Investment Decision (FID) and expand over the following months in preparation for the start of construction. Key technical and maintenance staff who are engaged early will be used in the Owner's Team for the construction duration, after which they will transition into operational roles. Senior Operations personnel will be engaged three months prior to the commencement of commissioning to familiarise themselves with the plant and to conduct recruitment of operators prior to start-up.

Environment and rehabilitation staff will be recruited as soon as possible after FID to ensure plant supplies and rehabilitation procedures are ready well ahead of operations commencement.

12.4 Local Capability Development

Reaching the Indigenous workers will be undertaken through its Community Liaison Officers to ensure the various local groups can see that the company is actively recruiting in their community.

CFS will work closely with the Dingaal people and Nguurruumungu people to maximise employment & training opportunities.

12.5 Indigenous Hiring and Development

CFS has set an objective of achieving 40% of the workforce coming from the Traditional Landowners and Indigenous Australian communities. CFS will maximise the education, training, and employment of Aboriginal People in connection with the Project, with the following order of preference:

- First preference to Dingaal people and Nguurruumungu people (equally);
- Second preference given to partners of Nguurruumungu people and Dingaal people; and
- Third preference to Aboriginal people or Torres Strait Island people who hold native title over adjacent land or who live in Hope Vale / Cooktown.

At the same time the company retains the right of selection and underlines the need to maintain a safe balance of experienced workers and trainees.

> “Cape Flattery Silica has set an objective of achieving 40% of the workforce coming from the Traditional Landowners and Indigenous Australian communities.”

13. PROJECT IMPLEMENTATION

13.1 Introduction

The DFS has undertaken the development and documentation of a project execution strategy and associated plan that demonstrates the readiness of the project to proceed from study into project execution upon project funding approval.

A detailed execution plan has been developed for the CFS Project that identifies the requirements of all disciplines and functions that make up the project. The plan documents the specific requirements of the CFS Project with individual sub-plans developed to address all aspects of the project from project start-up to closeout and with particular focus on the efficient transition from study to execution including:

- Documented health and safety actions;
- Project start-up including pre-approval tasks in preparation to execute;
- Project organisation and people management; and
- Establishment of project controls.

The plan is supported by a suite of key reference documentation that clearly defines the project including:

- Delegated authority matrix;
- Execution schedule;
- Capital estimate / baseline budget; and
- Active risk register.

The CFS Project will be delivered by an Integrated Project Management Team (IPMT) model, leveraging the strengths of the existing operational experience, augmented with project delivery skillsets where required.

The CFS Project is a greenfield project including:

- Establishment of mining operations (pre-production);
- Design and construction of process equipment;
- Design and construction of supporting infrastructure as a capital project, delivered by the IPMT with support from an engineering services consultant contracted through a Master Services Agreement;
- Common project delivery functions provided across the full scope of work by the Owner's Representative; and
- Operational readiness and key operational contracts by the Owner's Team.

Project completion is defined by the structured handover of the project to operations and the successful loading of the first OGV and acceptance of the product by the customer.

13.2 Execution Strategy

Delivery of the CFS Project will be undertaken with the overall strategy to:

- Deliver the Project with zero harm to people and environment;
- Address Safety in Design across all aspects of the project;
- Deliver the project in the shortest possible time, while ensuring safety and quality are maintained;
- Build an IPMT leveraging the skill sets of a suite of engineering and project services individuals along with CFS employees, all acting as the Owner's Representative;
- Seed the IPMT with a few project delivery specialists to provide governance to the works provided by others;
- Minimise capital expenditure while ensuring the development of a facility that can reliably process and exports up to 1.5 million tonnes of on-specification HPSS;
- Minimise operating costs through the appropriate equipment sizing and efficient operation;
- Identify, quantify and actively mitigate project risk;
- Deliver process plant and NPI through specialists contractors, managed by the Owner's Representative, making an effort to minimise the size of the construction workforce on site as well as minimising interfaces; and
- Deliver marine engineering and construction through a single contractor.

13.3 Delivery Model

The strategy to deliver the Project will be developed in the Transitional Phase leading up to FID. A number of factors will influence the direction taken particularly on the availability of engineering houses to engage and their ability to competently deliver the project.

An approach being considered involves the establishment of an IPMT who will manage contractor deliverables for each of the specialist packages directly. This would entail direct management of the contractors and a clear line of accountability on deliverables.

The IPMT would consist of specialised engineering and technical personnel who will have been individually identified and selected by CFS Management, and who have demonstrated their capability in the provision of services relevant to the Project.

Engineering and technical personnel within the IPMT would be complemented by CFS personnel who will provide support for procurement, contracts management and governance. CFS integration will allow close oversight of the project delivery as well as protection of all stakeholder's interests.

The IPMT model would afford greater control of outcomes, without the extra administrative burden or financial impost that is typically associated with an Engineering, Procurement Construction Management (EPCM) model through an engineering house.

The IPMT would consist of individuals who have:

- Demonstrable experience in the delivery of remote projects;
- Engineering design capability to cover the MIA delivery; and
- Procurement and contract management capability to manage process plant supply and construction and marine design & construct head contracts.

Key areas of the scope for the IPMT would include:

- Engineering;
- Scope and supporting technical document development;
- Site wide design integration;
- Value engineering;
- Field engineering including quantity survey;
- QA inspection, testing and verification;
- Procurement;
- Original equipment manufacturing (OEM) engagement;
- Preparation of contract scopes of work;
- Contract preparation, tender, evaluation and award;
- Claims management;
- Contract management and close-out;

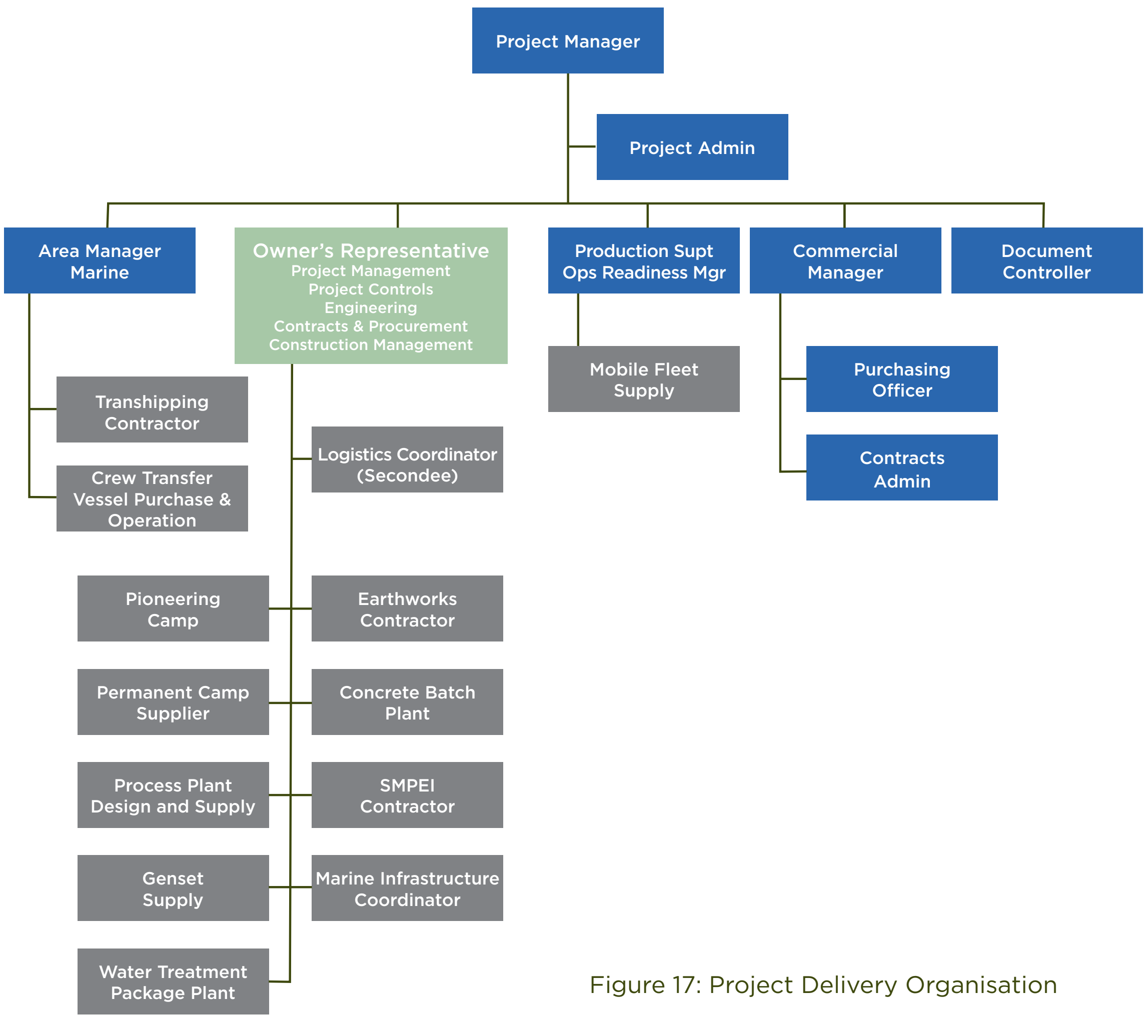


Figure 17: Project Delivery Organisation

- Expediting, logistics and materials management;
- Construction management and supervision;
- Construction management systems;
- Construction verification;
- Construction to commissioning handover interface management;
- Project Services;
- Change Management; and
- Record/document management.

Tighter control on project delivery through an IPMT model would result in a closer relationship with contractors. Management would be able to better align contractors to the project's desired outcomes, ensuring that those responsible for delivering the packages are focussed on the elements that will benefit the project.

13.4 Organisation

The organisation chart (Figure 17) reflects the responsibilities between the Owner's Team and the Owner's Representative. The majority of the project delivery will be the responsibility of the Owner's Representative while contracts and procurement that will continue through commissioning and into operations will be undertaken by the Owner's Team including transhipping, waste management, camp management, crew transfer vessel purchase and operation.

13.5 Implementation Schedule

A FID is expected in Q2 2025. Based on award of critical path contracts immediately upon FID, it is expected that the construction and commissioning of the CFS project will be completed in Q2 2027. The longest path (critical path) through construction is potentially the timing for the supply of the TSV.

At FID contracts will be awarded for:

- Geotechnical investigations (land and marine);
- Owner's Representative;
- Transhipment vessel;
- MOF and Jetty design and construct;
- Process Plant design and supply; and
- Permanent camp.

Construction of the MOF is planned to commence in July 2025 and be complete in Q4 2025. Construction of the Jetty is planned to commence in Q4 2025 and be completed in Q1 2026.

NPI construction contractors are planned to mobilise to site in Q2 2026 (at the end of the wet season) and construction will commence with establishment of an access track from the JIA to the MIA, establishment of the pioneering camp and track to access to the borefield. The MIA will be cleared and the process plant pad established for the mobilisation of the Process Plant construction contractor in May 2026.

NPI is planned to be complete in Q1 2027 with the Process Plant commissioned in February 2027. A period of six weeks has been allowed to produce the first 100,000 tonnes on the product stockpile and this is forecast to be complete by end of March 2027.

TSV delivery is forecast for mid-April 2027 when ship loading can commence. Project completion is nominated as the successful loading of the first OGV.

13.6 Construction Priorities

The Construction Management strategy is predicated on a favourable FID around the end of Q2 2025. This leaves approximately 5 months between FID and the start of the first wet season in the project delivery period.

Given the tropical nature of the area, it is not intended that the bulk earthworks be mobilised at a time when the majority of works would be subject to excessive downtime due to weather events. It is therefore proposed that the earthworks design would be finalised in H2 2025, and mobilisation of bulk earthworks would be delayed until the tail of the 2025 wet season and until April 2026.

Site work expected to be undertaken in H2 2025 and until April 2026 includes the marine and land based geotechnical investigations for confirmation of piling and civil designs. There is also a desire to minimise the time and hence exposure of the pioneering landing to being beached inside the fringing reef and exposing the reef to traffic across it in order to deliver the construction plant and materials.

It is therefore proposed to accelerate the installation of the MOF such that it is complete and commissioned prior to the start of the wet season and will be in place when the wet season ends, ready for mobilisation of bulk earthworks and follow-on trades that can unload onto the permanent MOF.

13.7 Commissioning

A Project Commissioning Management Plan will be developed that will cover the detailed scope, a sequence, verification and validation procedures necessary for a successful commissioning effort. A validation matrix will also be developed by the

Commissioning Manager during the implementation phase that will show all the validation / performance requirements for all items to be commissioning under the CFS Project.

The CFS Commissioning Manager (with support from the Owners Representative construction and commissioning personnel) will liaise with Contractors and provide guidance and instruction regarding pre-commissioning and commissioning requirements.

13.8 Transfer to Operations

The CFS Operational Readiness Plan will ensure that the production and maintenance functions of the new operation and its associated facilities are "operationally ready" to ramp up and operate at the business plan targets.

The transition from Project to Operations is proposed to commence with the involvement of Operations personnel in completion walk-throughs, commissioning activities and acceptance testing. Operations Readiness activities will factor this approach into the scheduling of recruitment, training and establishment of necessary processes and procedures to enable this approach.

14. OPERATIONAL READINESS

CFS recognises the need to develop a detailed plan for both business and operational readiness covering not just the start-up of an operation, but the development of the business to support the site operations.

The CFS Project encompasses the engineering and construction of a mine, process plan, materials handling and ancillary supporting infrastructure for the mining and export of silica sand. The Operational Readiness Plan has been developed during the DFS and describes the activities and people required to develop the business and operations procedures, processes and supporting infrastructure so that the project can be successfully operated once it is completed.

The activities required to get ready for operations are:

- Hiring of an Operations Readiness team;
- Establishing offices in North Queensland to support both the project execution and operations readiness;
- Developing the plans and procedures for the business and for operations;
- Implementing the business and data management systems required;
- Establishing the supply and logistics contracts for site and business operation;
- Establishing the site camp, laboratory and warehouse operations;
- Establishing the rehabilitation nursery in Hope Vale;
- Establishing customers and sales contracts for product export; and
- Hiring and training operations personnel.

Operational Readiness activities will commence after the FID is made and will continue until commissioning of the process plant is complete. It is planned Operational Readiness will be staged as per figure below;

14.1 Scope Overview

Operational Readiness commences at the FID for the project and is completed once the mine, process plant and all associated infrastructure is operating at nameplate capacity and an OGV has been successfully loaded and departed to a customer.

It is the preparation of people, plans and systems for the safe and environmentally responsible operation of the CFS site.

Operational Readiness includes development of all operations strategies, plans and procedures for:

- Development of plans and procedures required to operate all facets of the organisation from the mine to the customer;
- Mining – mine planning, operation and maintenance of equipment, reconciliation to plans and reporting;
- Development of all training materials;
- Hiring people, onboarded and trained, with the skills and knowledge to effectively operate the plant;
- Identification of capable contractors and suppliers to work with the CFS workforce to ensure a smooth-running business;
- Establishment and implementation of an operations contract for the permanent camp;
- Establish offices in North Queensland providing support services to the operation;
- Site selection and ready to operate as a nursery in Hope Vale;
- Establishing all CFS Business Systems to operate from the mine to the port, including business planning, accounts receivable and payable and payroll, business reporting, change management planning;

STAGE 1	STAGE 2	STAGE 3
activities post FID will include establishing North Queensland offices, setting operations strategy and providing project engineering and construction support from an operations perspective.	is planned to commence 6 months prior to process plant commissioning and, during this stage, operations plans, procedures and training material will be developed, business systems implemented, and infrastructure established.	will be the hiring and training of operations personnel and is planned to commence 3 months prior to process plant commissioning.

- Asset Management; caring for the assets – developing the maintenance plans and procedures;
- Supply of spares, consumables and equipment for operations – establishing a procurement framework, a warehouse and inventory management system on site;
- Logistics frameworks for the movement of people and materials to and from site;
- Establish the technical supports required to operate the business such as on-site laboratory establishment and operation, technical input for the process plant, mine planning;
- Setting up a Rehabilitation Nursery in Hope Vale, outfitting the Site Workshop, outfitting the Warehouse, outfitting the Site Laboratory; and
- Sale and export of product – securing the customers and contracts.

15. HEALTH AND SAFETY

The current CFS Safety and Health Management System (SHMS) has been developed to accommodate limited exploration activities on site. With the development of the CFS Project, it has been identified that the SHMS does not cover the needs of a full-scale construction project, nor the requirements after construction that address ongoing operations.

The study developed the SHMS documentation necessary to address the construction requirements and planned the route to further upgrade the SHMS for the purposes of ongoing operations.

The study also identified operating platforms, and requirements such as training, SHMS roll-out and contractor alignment and management.

15.1 Legislation

CFS is committed to its compliance with the requirements of the following Legislation as detailed in the Legal Compliance Register:

- Mining and Quarrying Safety and Health Act 1999;
- Mining and Quarrying Safety and Health Regulation 2017;
- Australian Maritime Safety Authority Act 1990;
- Environmental Protection Act 1994;
- Environmental Protection Regulations 2019;
- Australian Standards;
- Recognised Standards; and
- Minerals Exploration Safety Guidance Notes.

The CFS legislative obligations will be met through the appointment of a Site Senior Executive (SSE) and the allocation of resources by the Mine Operator to ensure that the Safety Health Management System (SHMS) is developed, applied, and maintained to control exposure to as low as reasonably achievable (ALARA).

The SHMS has been developed in alignment with this legislation and shall be consistently applied across the business to ensure consistent compliance with legislative requirements.

15.2 SHMS Framework

The CFS SHMS is a robust system that guides decision-making processes and ultimately the overall operation whilst ensuring adherence to legal requirements, as well as the objectives CFS have outlined in its Safety and Health Policy. It provides a solid structure enabling CFS personnel to manage their own safety as well as that of their colleagues.

15.3 Implementation – Project Phase

The CFS SHMS is incorporated throughout all stages of our operations, commencing with exploration activities and project phase.

The project implementation SHMS was developed during the DFS and subject matter experts and stakeholders across the project workforce will be engaged its implementation to ensure it meets the needs of the business as well as CFS legal compliance obligations.

15.4 Implementation — Operations Phase

To ensure a successful roll out of the SHMS during Operations Phase CFS shall ensure suitable working environments and equipment, suitable management systems and suitable people are in place.

15.5 Safety in Design

The principle of safety in design suggests the opportunity to create a safe workplace is most effective when identified, assessed, and documented in the earliest phases of the asset lifecycle. This is further enhanced by it often being cheaper to install safety components or remove the hazard early in the design phase of the project rather than making changes later in the lifecycle.

Preliminary Hazard Identification (HAZID) studies were undertaken through the DFS. During project execution, all contractors involved in the design of the facility will be required to undertake safety in design workshops, HAZID and Hazard and Operability (HAZOP) design Reviews. These contractors will then be required to implement all agreed mitigations.

16. ENVIRONMENT, COMMUNITY AND STAKEHOLDER RELATIONS

16.1 Context

The study presents the environmental, social and stakeholder baseline studies and activities that have been undertaken to date to support the Projects regulatory approval requirements, relationships with key stakeholders, and to inform the organisational policies and practices that will support the Project's social licence to operate.

The material presented is derived from early studies undertaken to support the development of applications for Commonwealth and State approvals and should be read in that context. The additional environmental and social assessment required for the Coordinated Project EIS process (and the EPBC EIS process) has not commenced at the time of writing and hence updated baseline information, predicted impacts and proposed avoidance, mitigation and management measures will not be finalised until the conclusion of those approval processes.

The terrestrial component of the Project area is characterised by remnant vegetation in a largely undisturbed state though situated next to an adjacent Silica Sand mine. The Marine Infrastructure and loading elements are within the designated Port of Cape Flattery and the overlapping Great Barrier Reef World Heritage Area.

16.2 Community

Cape Flattery and its surrounds are in mostly undeveloped landscapes, with access tracks forming the primary infrastructure within MLA 100284 where the Project (mine and processing plant) will be situated. The Project does not overlap with any other mineral tenements, except for the exploration permit EPM 25734, and it is adjacent to the existing silica sand mine owned by Mitsubishi and operated by Cape Flattery Silica Mines Pty Ltd (CFSM). Land to the south and west of the footprint encompasses ML 2965 and ML 2806 owned and operated by CFSM.

Connie's Beach to the immediate North of the project is used for cultural and recreational purposes by the Traditional Owners and no activities are proposed on or in proximity to this area. Similarly, supporting mine infrastructure has been located away from areas of cultural significance after consultation with Traditional Owners.

The local government areas of Hope Vale and Cooktown comprise the local community with respect to the project's economic and social benefits and impacts.

Hope Vale has a population of around 1,300 people and is the home to thirteen First Nations clan groups. There are a range of community services available albeit in proportion to the local population size and regional location. The local government agency is Hope Vale Aboriginal Shire Council.

Cooktown is the administrative centre of the Cook Shire, one of the largest council areas in Queensland with a population of around 4,400 people. The area has a strong and diverse Indigenous history and industries such as tourism, agriculture and construction The local government agency is Cook Shire Council.

16.3 Stakeholder Relations

The term "stakeholder" includes individuals, groups and/or organisations interested in, affected by, or with the capacity to impact on the Project and could include direct landholders, adjoining landholders, Federal, State and Local government agencies, Indigenous groups, government service representatives, local community, surrounding region, elected representatives, business and commercial leaders / representatives and special interest groups.

Key stakeholders who would potentially be directly or indirectly affected by the Project have been identified and will be reviewed and expanded throughout the ongoing consultation and engagement process. Various individuals and groups will have differing degrees of interest and influence over the Project, and at different stages of the Project. The Project has identified the following stakeholder groups:

- Traditional Owners;
- Private landholders;
- Federal, State, and Local Government including representatives and agencies;
- Business operators and representatives;
- Special interest groups; and
- Local community.

A risk assessment has been undertaken for social impacts to support the approvals processes.

16.4 Environment, Social and Governance

HPSS is a critical mineral resource to support new economy technology including renewable energy and CFS recognises the opportunity to make a positive global contribution as the world transitions towards a low-carbon future.

The CFS leadership team is committed to operating safely, reliably, and efficiently. Business activities will be planned and conducted with due consideration to community, Traditional Owners, and environmental values, and to minimise or offset, and where possible avoid negative impacts on the environment.

The environmental and social impact assessments will identify material impacts, risks and opportunities associated with the project and these studies and approvals will inform the business Environmental, Social Governance (ESG) strategy.

ESG principles and objectives will be embedded into the business decision making processes and approach to the development and operation of CFS. This will enhance both financial and non-financial returns over the short, medium and long term.

16.5 Equator Principles

The Equator Principles are a common baseline and framework for financial institutions to identify, assess and manage environmental and social risks when financing projects. Where a financial institution has committed to implementing the Equator Principles, they will not provide Project Finance to Projects which do not comply with the relevant Equator Principles requirements.

CFS has developed its initial response to the Equator Principles requirements noting that many of these will require the completion of the environmental and social impact assessment, the independent review process, and formal project review and due diligence for lenders that require an assessment against the Equator Principles.

L to R: Ned Yoren, Nicholas Villa, Shailand Deeral-Rosendale, Jansen Jacko and Timothy Yoreen-Hart

17. PERMITS AND APPROVALS

The CFS Project requires a number of statutory approvals and permits for construction and operations.

Baseline environmental studies commenced in 2021 to inform the appropriate approvals pathway and strategy with the initial approach being the pursuit of separate Mining Infrastructure and Marine Infrastructure approvals. This strategy was primarily informed by Queensland Regulation particularly with regard to the required operating approvals for the different elements of the Project.

However, the Referral and Assessment Level Decisions made by the Commonwealth Department of Climate Change, Energy, the Environment and Water under the Environment Protection and Biodiversity Conservation (EPBC) Act 1999 have subsequently required a revision of the initial approvals strategy.

With an EIS required to assess impacts to matters of national environmental significance, the option to seek a coordinated assessment approach across Commonwealth and Queensland legislation has been taken up.

An application for the Project to be declared a "Coordinated Project" is being prepared to be lodged with the Queensland Office of the Coordinator General. Following the declaration, an Environmental and Social Impact Assessment would be undertaken to meet a range of regulatory assessment requirements, including the EIS required by the Commonwealth using the Bilateral Agreement.

At the conclusion of this process, the Coordinator General's recommendation report will then inform the decision stage of the required Construction and Operational approvals.

17.1 Approval Pathway and Strategy

PFS and the development of an approval's strategy commenced in 2021 and were described in the PFS. There are two key project elements, and the approvals strategy was developed to accommodate these two elements as distinct but related activities:

- Mining activities to be carried out on a ML; and
- Marine activities outside the lease to facilitate loading and export of product.

Table 5 describes the Primary project approvals under Queensland and Commonwealth Legislation.

Technical studies were conducted in 2021 and 2022 to support an application for a Site Specific Environmental Authority (SSEA) approval for the Mine component of the Project, wholly within the ML. The Queensland EP Act has specific guidelines with regards to Environmental Authority applications and as the Project did not trigger the EIS thresholds noted in the EP act, the SSEA pathway was determined as the most appropriate rather than an EIS.

Table 5: Primary Project Approvals

Project Element	Queensland	Commonwealth
Mining Activities	A Mining Lease granted by the Department of Resources to permit extraction of mineral resources. An Environmental Authority permit granted by the Department of Environment and Science to permit environmentally relevant activities associated with the extraction of mineral resources.	
Marine Activities	A Development Approval for construction and operation of Marine Infrastructure with accompanying permits to be attached to the Development Approval	
Both Mining and Marine Activities	A Water Licence that permits the extraction if underground water necessary to support the operation of mining and marine activities	An approval under the *Environment Protection and Biodiversity Conservation Act 1999* for the whole of project, if the project was deemed a Controlled Action requiring assessment and approval.

These technical studies were undertaken to also support the preparation of a Development Approval application which was to be assessed through Local Government Planning pathways and joint referral to State Agencies on specific issues.

With respect to the EPBC Act 1999, an internal self-assessment was carried out in 2022 and a decision made to submit a referral under the legislation to determine whether the project was a Controlled Action (as defined by the Act) requiring impact assessment. The outcomes of that Referral is that the CFS project approval pathways is an EIS.

Following the assessment level decision under the EPBC Act, a decision was made to seek a “Coordinated Project” declaration under the State Development and Public Works Organisation (SDPWO) Act for the purposes of coordinating the environmental and social impact assessment requirements for:

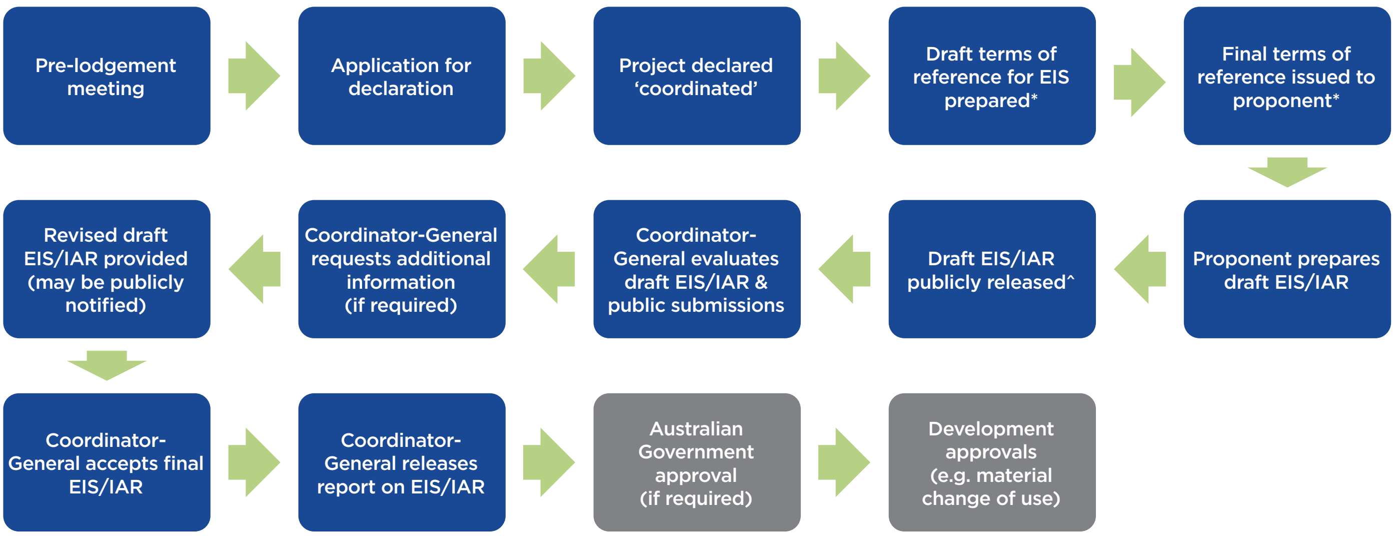
- An Environmental Authority approval;
- The Development Approval and associated permits;
- Water Act Approvals; and
- EPBC Act Approval through the Bilateral Agreement.

17.2 Coordinated Project

Should the application for the Project to be a "Coordinated Project" be successful, the Project will be assessed under the SDPWO Act. This is a coordinated assessment process that addresses the application, assessment and notification stages for each approval. At the conclusion of the Coordinated Project process, the Coordinator General will issue an evaluation report that will include imposed and recommended conditions for subsequent State Approvals.

The Coordinated Project will also undertake the assessment and notification requirements for the EPBC Approval through the arrangements under the Bilateral Agreement between the Commonwealth and the State of Queensland.

Whilst the Coordinated Project process does not have statutory timing, there are specific milestones and steps, as shown in Figure 18.



* Not applicable for projects requiring an IAR.
^ Public release of an IAR in not required in all circumstances

Figure 18: Coordinated Project Key Steps

18. CAPITAL COST ESTIMATE

18.1 CAPEX Estimate summary

The CFS Project capital cost estimate has been prepared as part of the CFS DFS. The capital cost estimate has been developed in line with the requirements of the Association for the Advancement of Cost Engineering International (AACEi) Class 3 estimate in accordance with AACEi 47R—11 with an accuracy of -10% to +15%.

CAPEX pricing reflects market conditions as of Q2, 2023. ***The base date of the estimate is then escalated to mid-2025.***

Initial CAPEX in Q2 2025 dollars totals AUD141.4 million plus. With a total estimated contingency of AUD13.6 million and total escalation of AUD10.0 million.

This makes a total initial CAPEX in mid—2025 dollars of AUD165.0 million.

Sustaining and deferred capital includes:

- The delayed installation of the WHIMS; and
- Two Build Own Operate Transfer (BOOT) arrangements;
  - The balloon payment for the transfer of ownership of the 48 bed camp; and
  - The balloon payment for transfer of ownership of the gen sets and solar and battery system;
- Stay in business capital; and
- Operational capital regime for the duration of the mine life.

Table 6: Level 1 LOM CAPEX Summary – Real mid—2025 $

Description		Initial Construction CAPEX	Sustaining & Deferred CAPEX	Total Capital
L1 WBS	**Description**	**Total, AUD m**	**Total, AUD m**	**Total, AUD m**
1000 — MINING / MIA		3.9	56.3	60.2
2000 — PROCESSING PLANT		44.6	44.8	89.5
3000 — ON-SITE INFRASTRUCTURE		18.9	42.9	61.7
4000 — PRODUCT TRANSPORTATION		32.8	1.3	34.1
5000 — OFF-SITE SERVICES / UTILITIES		—	—	—
SUBTOTAL DIRECT COSTS		**100.2**	145.3	245.5
6000 — COMMON CONSTR. FACILITIES & SERVICES		19.1	10.6	29.7
7000 — IMPLEMENTATION CONTRACTORS		10.9	—	10.9
8000 — OWNER'S COSTS		11.1	0.3	11.4
SUBTOTAL INDIRECT COSTS		**41.2**	10.9	52.1
SUBTOTAL BASE ESTIMATE		**141.4**	156.2	297.6
9100 – CONTINGENCY *		13.6	—	13.6
9200 – ESCALATIONS *		10.0	—	10.0
SUBTOTAL ESCALATION & CONTINGENCY		**23.6**	—	23.6
TOTAL INSTALLED COST		**165.0**	156.2	321.2

* Contingency and escalations for Sustaining & Deferred CAPEX are included in the WBD areas.

18.2 Estimate Development

The capital cost estimate was compiled from the multiple sub-estimates that formed the basis of the estimate.

The engineering to support the CAPEX has been developed by internal and external sources. The preparation of each of the estimates was based on a defined scope of work with identified battery limits between the scope stakeholders, estimate material take-offs (MTOs) or bills of materials (BoMs) and pricings supplied by each of the consultants to support individual scopes of works and a basis of estimate has been developed.

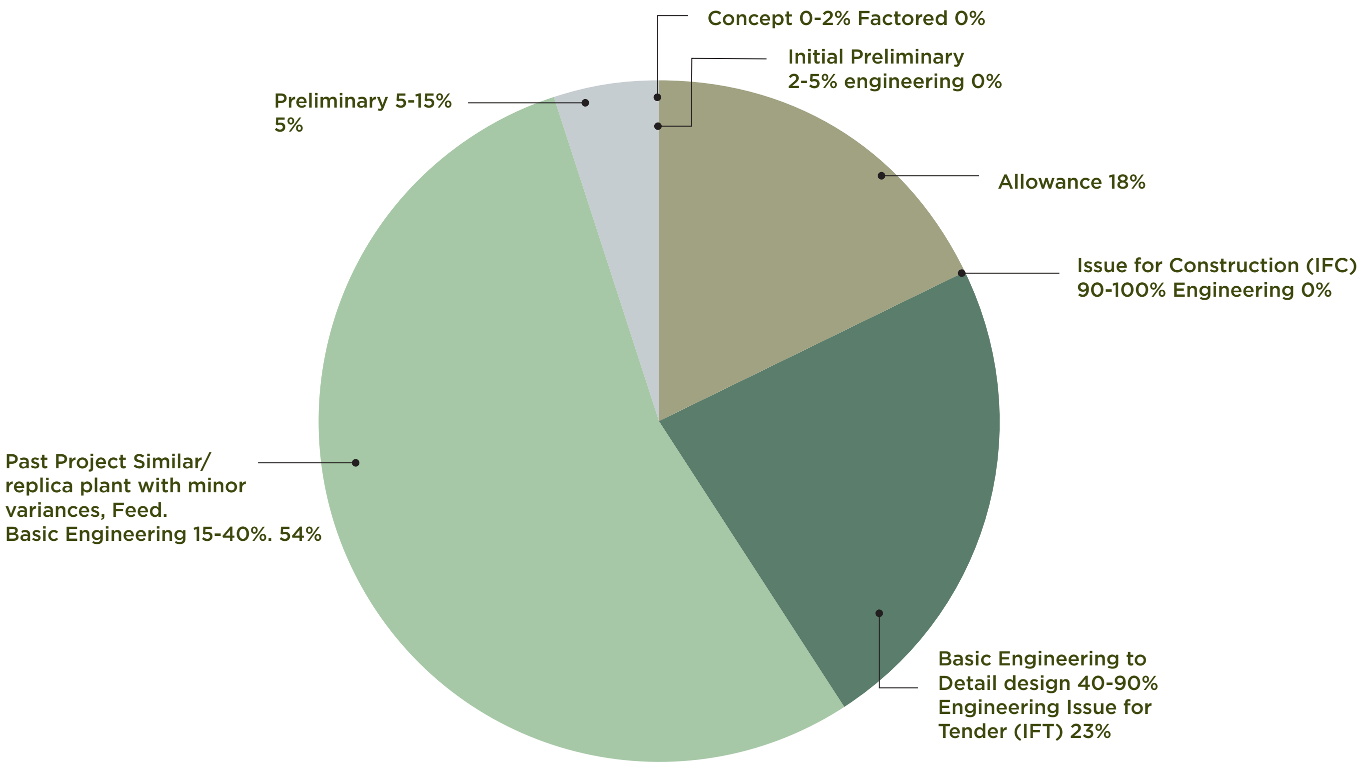


Figure 19: Scope Design Basis

The MTOs/BoMs done by the consultants followed the project Work Breakdown Structure (WBS) and were coded to level 3 or lower of the project commodity code structure. Quantities have been measured net in place, and in accordance with the following categories:

- Issued for construction (IFC), FS level equipment lists, advanced EPC & design and construct (D&C) bids;
- Basic engineering detailed design, PFS level equipment lists, preliminary EPC and D&C bids;
- Past project design;
- Preliminary design;
- Initial preliminary design, historical;
- Concept; and
- Allowance.

Pricing has been obtained by the consultants/contractors from a mixture of sources. Pricing utilised within the estimates has been categorised by the following level of maturity and quality:

- Awarded/project commercial bid evaluated;
- Tenders not evaluated & formal quotations with detail documentation;
- Current project/study formal budget quote;
- Budget quote;
- In-house historical;
- Factored; and
- Allowance.

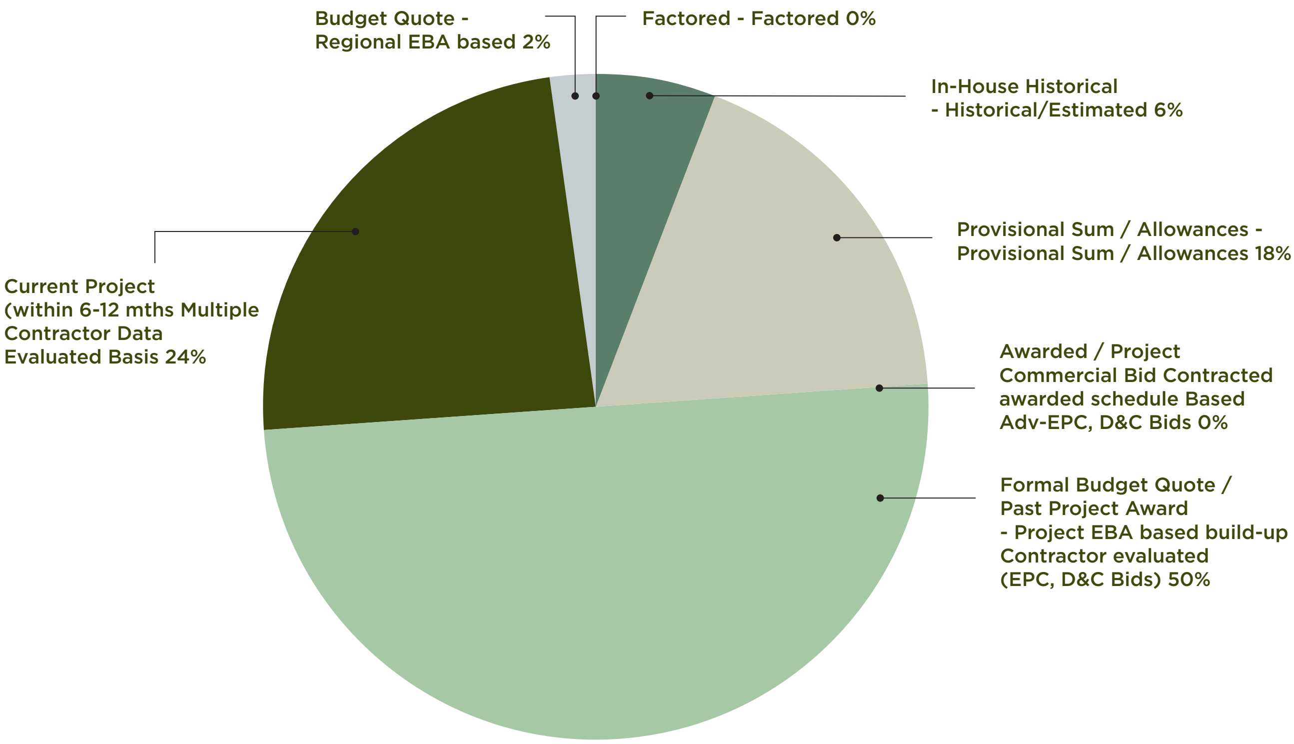


Figure 20: Supply and installation pricing basis

The methodology used to develop and compile the estimates is in line with the project WBS and commodity coding structures and additional grouping tags for initial and sustaining capital.

18.3 Growth Allowance

Each line item of the estimate is developed initially at bare cost only and has been assessed on the maturity and quality of design and pricing. While the assessment was undertaken, no growth has been applied to the estimate. This will be applied nearer to FID.

18.4 Contingency

Contingency of 10% TIC @P50 of the Project, is at the lower end of a Class 3 estimate. This is driven by the materials handling and infrastructure portion of the works being of a high level of definition and quality and pricing maturity.

18.5 Escalation

Escalation for the project has been calculated from the estimate base date of the Q2 2023 to FID at the end of Q2 2025. This has been developed utilising dates from the Project Schedule and the associated cashflow. The total escalation has been included below the line of the estimate as a separate item. Estimated escalation for the period calculates at 6.07% (AUD$10.0M) of total Project initial construction capital cost.

The indices were based on the ABS data for the calculation of escalation.

19. OPERATING EXPENDITURE

Operating costs for CFS were developed based on work undertaken by CFS in conjunction with Turner Townsend Jukes Todd.

The level of effort for each of the line items meets the Class 3 estimate as defined by the AACEi, and the extent of work performed allows for a ±10% to 15% accuracy.

19.1 OPEX assumptions

The operating costs for the site are based upon the following:

- The Project will operate 365 days p.a., less designated non-working days and annual maintenance (major) shutdowns;
- Operations in advance of the sand extraction face, i.e., clearing, grubbing, and topsoil removal, will be undertaken on day shift only;
- Mining operations are undertaken on a 24-hour basis;
- Processing plant will operate to 7,500 hours per annum (feed on to plant); and
- OGVs are loaded by transhipping operation.

19.2 Basis of estimates

The following criteria have informed the determination of the operating cost estimate:

- OPEX costs are based on ROM feed of 1.8Mtpa delivering 1.5Mtpa product;
- Personnel movements to and from site per site rosters will be by CTV ex— Cooktown;
- Operator/maintainers – 8/6 roster with shift change Thursday;
- Operations labour costs have been based on Mercer Salary Survey data 2023. The remuneration costs are fully burdened including superannuation, sick leave, annual leave, training, worker's compensation, payroll tax entitlements etc;
- Regular supply and delivery services to site shall be contracted services for site consumables, food, fuel delivery, and miscellaneous aligned to regular LCT (marine) services operated from Cairns and servicing the Cape York Peninsula;
- Operator site vehicles, buses, mobile equipment (loaders, dozers etc.) are included on a lease basis, with estimated fuel consumptions calculated on estimated operating hours of each unit;
- Annual fuel consumption is based on calculated consumptions for mine fleet, power generation, TSV, CTV and other miscellaneous users;
- Site power has been included as leased generators located locally to the load requirements, and calculation of fuel consumption based on operating hours, and maintenance costs included within the lease provision. Diesel gensets are augmented with 3.3Mw of solar capacity and battery storage after the first year of mining;
- Allowance for offsite logistics to supply labour, parts and materials to site, has been incorporated into the estimate. These services are considered on 'by water' only basis to the site. The specific frequency of service is anticipated to align with current regularly scheduled services available to the area;
- Fuel cost AU$1.70 per litre (Real mid—2025), including the Federal fuel rebate;
- Make up water shall be drawn from onsite bores;
- Thickener dosing of flocculant and coagulant is based on OEM calculated consumption rates;
- Spares and maintenance allowances are per OEM recommendation;
- Accommodation camp supply and installation is based on a Build Own Transfer basis. Operation and maintenance will be on a contract basis with an experienced service provider, including management, cook, and cleaning personnel;
- Transhipment services to be contracted services;
- Product ship size 50,000 to 60,000dwt, average of 55,000dwt for 27 ships per year;
- Average ship loading rate 10,000t per day, therefore average 5 days to load ship with a single self-propelled, self-unloading barge; and
- Commercial royalty for Traditional Landowners included in forecast expenditure.

19.3 OPEX summary

Steady state operating costs are summarised below.

Operating cost breakdown

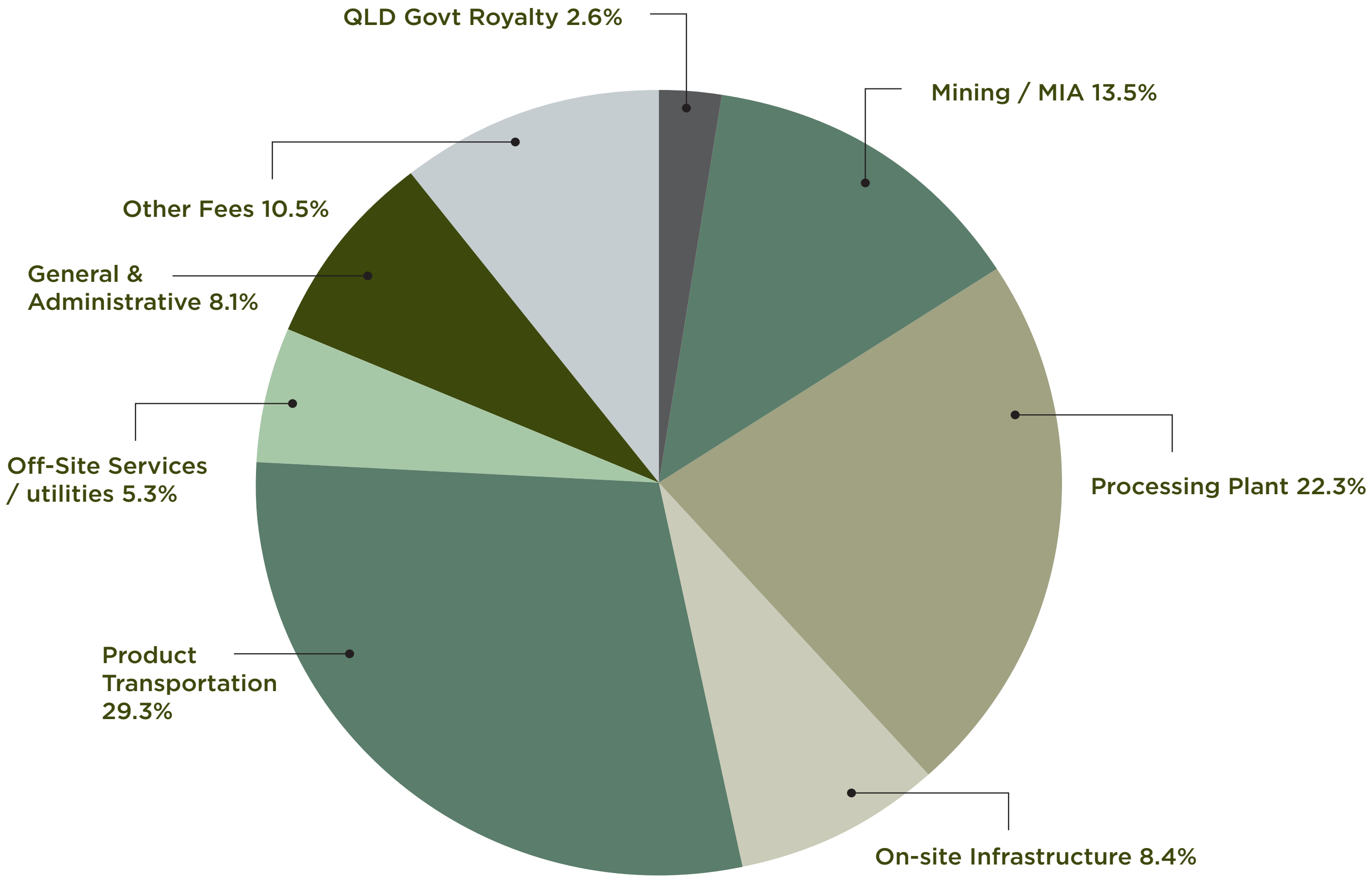


Figure 21: Life of Mine FOB OPEX

Table 7: Operating Cost Summary Real mid—2025 $

Operating costs	LOM Total (AUD million)	Average (AUD/ROM tonne)	Average (AUD/ product tonne)	First 10 years Average (AUD/ product tonne)
Mining / MIA	165.5	3.71	4.58	5.04
Processing Plant	274.6	6.16	7.60	7.38
On-Site Infrastructure	103.3	2.32	2.86	2.85
Product Transportation	360.5	8.09	9.97	9.94
Off-Site Services / Utilities	65.0	1.46	1.80	1.79
General & Administrative*	100.0	2.24	2.77	2.76
Other Fees**	129.2	2.90	3.58	3.31
C1 cash cost	1,198.1	26.88	33.16	33.07
Qld Government Royalties	32.5	0.73	0.90	0.90
FOB cash costs	1,230.6	27.61	34.06	33.97

* General & Administrative expenditure includes HR, HSEC, IT, warehousing, pre-production drilling, freight, and general site office costs.

** Other Fee expenditure includes TLO Royalties, demurrage, marketing fees and water licence fees.

For the sake of comparison, the table 9 below shows the C1 Cash Cost and FOB Cash Cost at today's dollars, Real – Mid 2023.

Table 8: OPEX summary (Real – Mid 2023)

Operating costs Real – Mid 2023	LOM Total (AUD million)	Average (AUD/ROM tonne)	Average (AUD/ product tonne)	First 10 years Average (AUD/ product tonne)
C1 cash cost — Real – Mid 2023	1,129.5	25.34	31.26	31.18
FOB cash costs — Real – Mid 2023	1,160.2	26.03	32.11	32.03

L-R: John Deeral, Nicholas Villa and Ned Yoren

20. FINANCIAL EVALUATION

The combination of the technical and financial analysis undertaken in the DFS delivers a very strong financial result. The DFS Internal Rate of Return (IRR) is consistent with the IRR delivered from the PFS. The NPV increased significantly by approximately 50%. The DFS financial evaluation is based on the PFS assumption of an annual production of 1.8Mtpa or ROM (Run of Mine) sand.

20.1 Discounted Cashflow Analysis

Discounted cash flow (DCF) analysis allows for summary metrics to provide comprehensive analysis as to the economic viability of a project.

The financial model was constructed using real inputs for costs and prices. These real inputs are escalated by an inflation index of average 2.3% p.a. to generate nominal cashflows and these nominal cashflows are discounted by a nominal discount rate to derive an NPV.

The silica sand price estimate is constant in real terms over the life of the model, which means that, in nominal terms, it rises each period with inflation. The treatment of pricing and costs is identical in this respect. Model results are presented in real (un-escalated) terms unless otherwise stated.

The 2026 pricing estimate for a high-grade low iron Cape Flattery HPSS product has been revised to FOB USD 54.00 to USD 65.00 / AUD 75.00 to AUD 90.28 per tonne. For the purposes of the DFS, CFS has used US$57.92/A$80.54/t FOB for the financial modelling of the Project's economics (Average sales price in real mid—2025 dollars).

The nominal discount rate used for the Net Present Value (NPV) calculation was 10%. Table 9 summarises the key results of the DCF model on a pre-tax and post-tax basis. Table 11 presents the key assumptions.

Table 9: DCF summary metrics — real mid—2025

Key metrics (real mid—2025 dollars unless stated otherwise)	**Unit**	**Value**
Pre-Tax Project NPV (nominal)	AUD m	$437.3m
Pre-Tax Project IRR	%	32.19%
Post-Tax Project NPV (nominal)	AUD m	$279.9m
Post-Tax Project IRR	%	26.59%
Total Silica Sales	Tonnes m	36.1m
Initial Construction CAPEX	AUD m	$165.0m
Payback (no tax)	Years	2.85
LOM Revenue	AUD m	$2,910.1m
LOM C1 OPEX (excl Qld Gov't royalty)	AUD m	$1,198.2m
LOM EBITDA	AUD m	$1,679.5m
Cash Flow Pre-Tax	AUD m	$1,341.0m
C1 Cost/t product	$/prod tonne	$33.16
AISC/t product (including sustaining CAPEX)	$/prod tonne	$37.90

Table 10: DCF financial model key assumptions

LOM assumptions	**Unit**	**Value**
Average FX	USD	0.72
Discount rate (nominal, unleveraged)	% p.a.	10.00%
Average yield (rounded)	%	81%
Average sales price — real mid—2025	USD/prod t	$57.92
Average sales price — real mid—2025	AUD/prod t	$80.54

The financial modelling has been undertaken on a nominal basis meaning that price and cost escalation have been included. This methodology has been adopted as tax is nominal in nature, accessible macroeconomic forecasts are often nominal, and consultant costings are often provided on a real basis (as in estimated values in current dollar terms). To align these assumptions, costs and revenues require escalation. Values presented are reported on a real basis except when noted otherwise.

20.2 Base Case Results

Project DCF modelling was prepared on the base case as outlined in this report and throughout this section. Presented here are the base case results in real dollars as at the project commencement (Real mid—2025).

20.3 Annualised Cash Flow Forecast

Figure 22 presents the annualised LOM cash flow forecast including the cumulative cashflow curve to the end of the Project life. Note that annual periods discussed here and presented within the following figures are financial years.

Forecast annual cash flows are relatively consistent in real terms because the mining method, product export and mineral resource are also uniform.

Figure 23 similarly presents an annual cash flow forecast but focusses on the first 10 years from construction commencement. This figure illustrates the robust cash flows through the early periods of operation. In line with the payback period calculations, Figure 23 illustrates that cumulative post tax cash flows become positive within 3.5 years of operations.

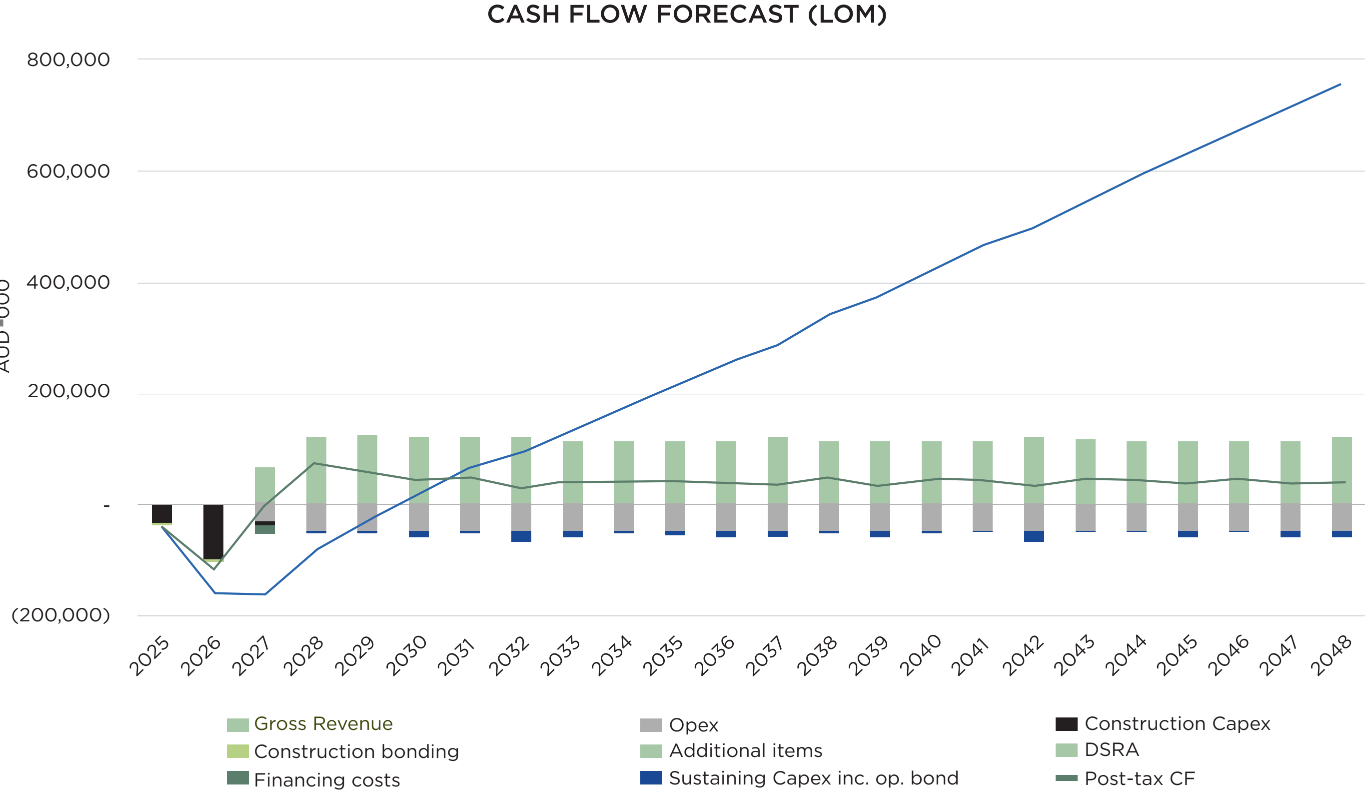


Figure 22: LOM Cash flow forecast

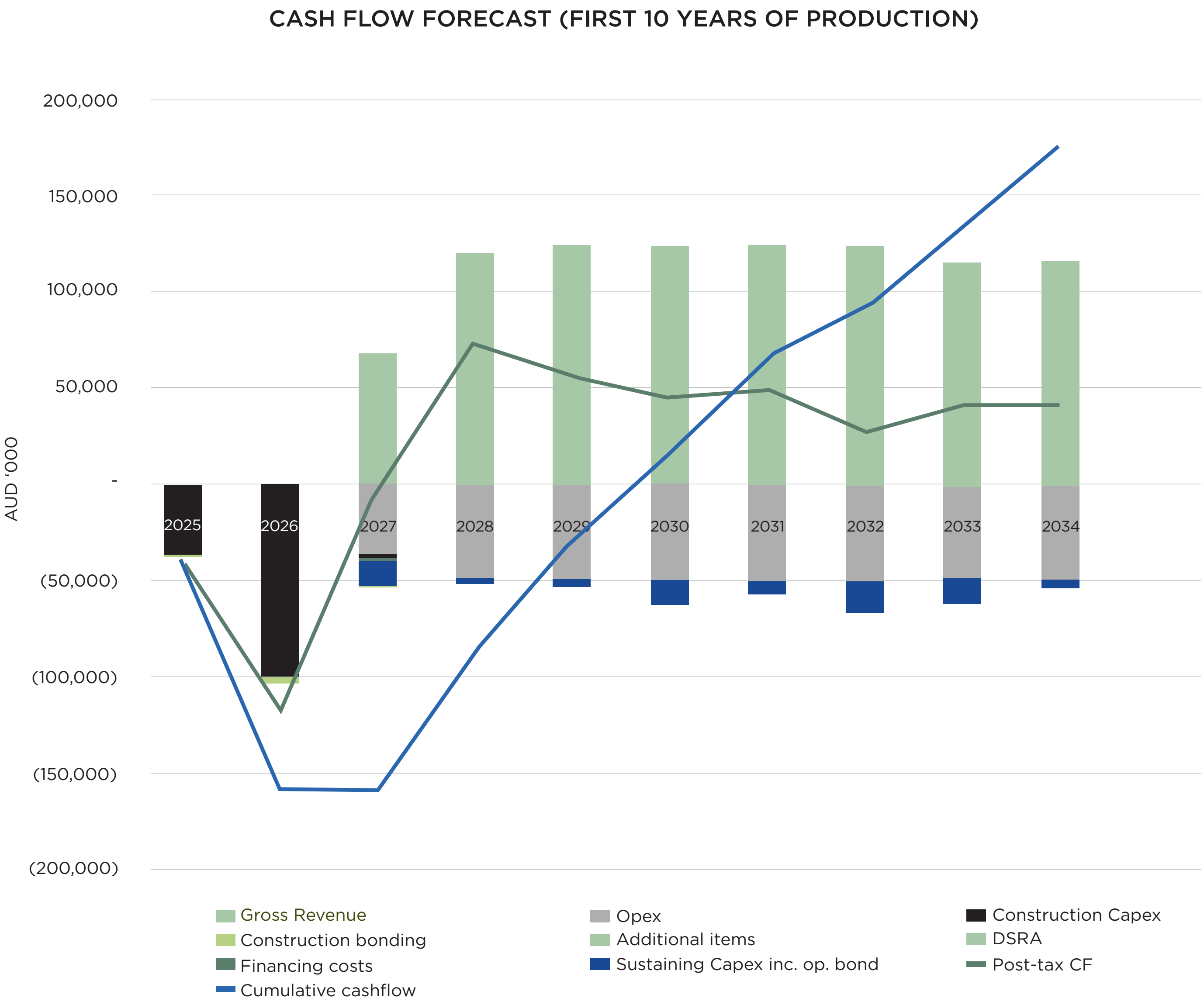


Figure 23: First 10 years cash flow forecast

20.4 Sensitivity analysis

Sensitivity analysis allows the analysis of how different values of an independent variable affect a particular dependent variable under a certain set of assumptions and studies how various sources of uncertainty contribute to the financial forecast's overall uncertainty by posing questions to which the output is an opaque function of several variables.

The following tornado chart illustrates the project's financial sensitivity, on an individual basis, to the five key drivers and assumptions. The chart shows the project can withstand strong changes in the economic environment. The project is most sensitive to (from most to least sensitive):

- Exchange rate;
- Silica sand Price;
- Yield;
- OPEX; and
- CAPEX.

Figure 24 illustrates the dollar value change in pre-tax nominal NPV (measure in A$'000) for a 10% favourable and 10% unfavourable change in each of the named variables.

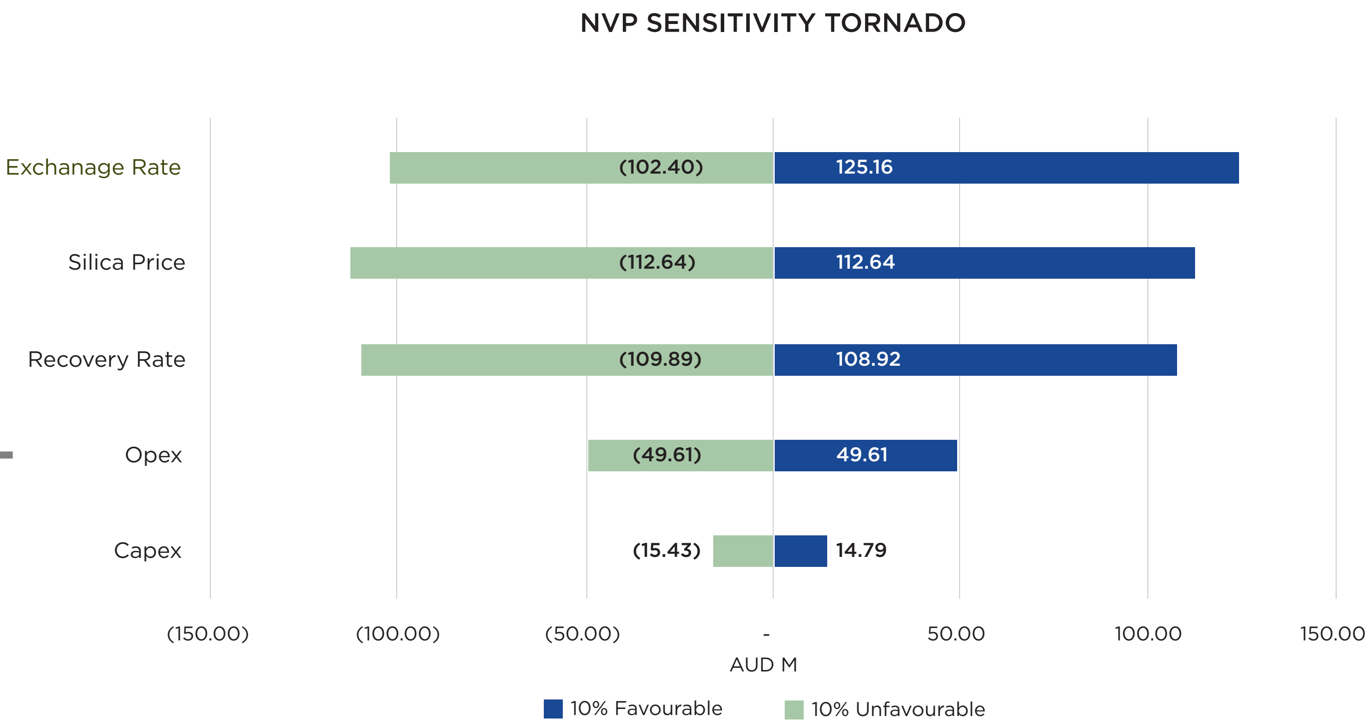


Figure 24: NPV sensitivity tornado – result of 10% change in x-axis variable

21. PROJECT RISK

21.1 Risk summary

CFS recognises that risk is an integral part of business and is characterised by both potentially negative impact risks, and positive impact opportunities.

CFS has developed an Enterprise Risk Management Standard to outline a consistent framework for and a standard approach to the management of risk across both company and client business activities.

As part of the DFS, the Project established a risk management process which aligns with the Australian/International Standard AS/NZS/ISO 31000:2009 Risk Management Principles and Guidelines.

During the PFS, an initial set of risks were identified through a risk review to identify, assess and manage ongoing project risk. These risks were collated, categorised and refined in the risk management platform "Active Risk Manager" for the DFS. The risk register for the DFS was developed and reviewed monthly using this platform, for the duration of the study.

At completion of the study, there were a total of 67 risks and opportunities identified in the register, of which 38 are currently rated high risks, 28 medium risks and 1 low risk.

Several of the Project's core risks relate to compliance with relevant commercial, statutory, and regulatory obligations. Once the environmental compliance requirements are confirmed during the development of the Project EIS, a compliance register will be developed on a common platform with the risk register for ongoing review and control.

21.2 Risks by discipline

The consolidated product of that identification and assessment process is presented to the project management team to validate assessments, agree effective mitigation responses, and define accountability. All risks are captured in Active Risk Manager.

Risks are catagorised under the following headings and allocated to appropriate owners accordingly:

Approvals	Marketing
Community	Mining
Contracts & Procurement	People
Corporate	Production
Engineering	Project Management
Financial	Reputation
Logistics	Technical

Further, risks are identified by the phase in which they present a risk, or opportunity, e.g:

- Study;
- Project execution;
- Construction;
- Commissioning;
- Operations; and
- All phases.

Figure 25 below shows the distribution of risks by category, with the majority of risks being mine related, followed by people and approvals.

RISK DISTRIBUTION BY CATEGORY

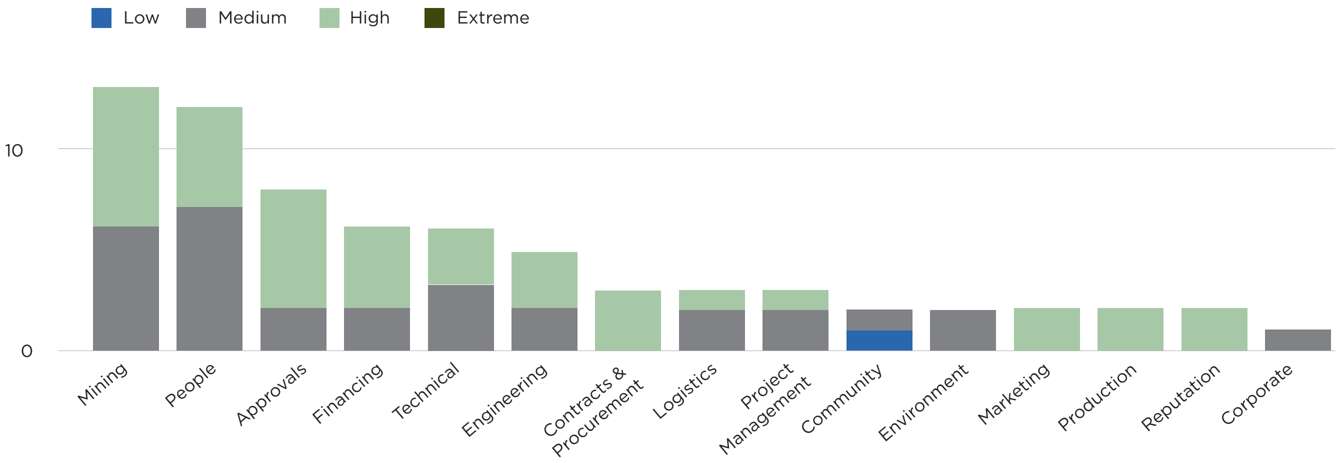


Figure 25: Risk Distribution by Category

22. OWNERSHIP, LEGAL AND CONTRACTUAL

CFS, an Australian registered company, owns 100% of the CFS Project.

CFS wholly owns EPM 27534 and has applied for ML 100284 but will require further ownership of mineral rights and access to the lands necessary to undertake the Project, including building and operating the mine and connected infrastructure to produce and sell products.

The EPM and ML application are in good standing and annual rentals and Environmental Authority (EA) fees are paid up to date. Expenditure requirements for the EPM are ahead of schedule.

22.1 Native Title and Cultural Heritage

Under the Native Title Act, (1993), before the ML can be granted, CFS must negotiate access with Native Title Determination parties upon whose land the Project is on.

Two Body Corporate entities represent two respective clans who have an overlapping interest in the same area. The Body Corporate entities are known as "Walmbaar" for the Dingaal Clan, and "Hopevale Aboriginal Corporation Cicada Nguurruumungu" for the Nguurruumungu Clan.

At time of writing, CFS is in the process of negotiating royalties as part of the native title agreements.

22.2 Vendor Royalty

CFS owns the Project 100%. There are no vendor royalties associated with the Project at the time of publication of this DFS.

22.3 State Royalty

CFS will be obliged to pay state royalties for the product produced for the Project, which equates to A$0.90 per tonne sold.

22.4 Lands

The Project lies within the very northern end of the extensive Cape Bedford/Cape Flattery dunefield complex and is characterised by large northwest trending transgressive elongate and parabolic sand dunes.

CFS has been proactive in developing connections with local community members and in particular, Hope Vale Congress Aboriginal Corporation Registered Native Title Body Corporate (RNTBC) Trustee – on behalf of the Nguurruumungu Clan, and Walmbaar Aboriginal Corporation – on behalf of the Dingaal Clan.

CFS has signed a Conduct and Compensation Agreement and Aboriginal Cultural Heritage Agreement (ACHA) with Hope Vale Congress Aboriginal Corporation. The ACHA was also signed with Walmbaar Aboriginal Corporation.

22.5 Landowners

The Hopevale Congress are registered as the owner of Lot 35 SP232620. Due to the large extent of the Lot, which the Project is part of, there are various landholders identified who have households in the same Lot with whom the Project is already in consultation. Significant consultation and negotiations have been undertaken with the Traditional Owner clans, being Dingaal and Nguurruumungu. The negotiations for approval of the mine and a Cultural Heritage Management Plan agreement are continuing.

22.6 Contractual Arrangements

22.6.1 Operations

During the progression of the project implementation phase, CFS will engage and negotiate with prequalified contractors for the provision of services to support the operation.

22.6.2 Marketing

Marketing of the Cape Silica product will be handled by CFS engaging directly with customers and end users, and/or may involve a marketing agent.

22.6.3 Material Contracts

No material contracts have been entered into between CFS and other parties as at the time of this DFS. Such contracts will be established as part of the operational readiness scope of work.

Table 11: Tenement holdings

Tenure	Project	Status	Commenced	Grant	Expiry	Location	Area HA	Area S/B	Area Km^2
EPM 25734	Cape Flattery	C	25/05/2015	25/05/2020	24/05/2025	200km N of Cairns	0	11	54.4
ML 100284	Cape Flattery	A	15/06/2021			50km N of Cooktown	615.9	0	

23. FORWARD WORK PLAN

The CFS DFS has been completed in Q2 2023, however during the delivery of the study both state and federal agencies have imposed an EIS on the project rather than a site specific assessment.

This provides opportunities that both directly and indirectly benefit the project through:

- Review of options to deliver optimal value to shareholders;
- Delivery of greater certainty to the project; and
- Opportunity for project readiness that will ensure the quickest possible speed to market once FID is attained.

A series of works have been identified that will place the Project in a position of project readiness immediately upon FID, minimising the implementation timeline and delivering product to market in the shortest possible time.

Completion of these works will ensure that:

- CAPEX and OPEX estimates are revalidated;
- Independent Technical Review (ITR) completed and all actions from the ITR closed out;
- Finance agreed and in place;
- All approvals, licences and permits received;
- Owner's Representative engaged;
- Contract's for critical path scope competitively tendered, evaluated and negotiated, and awarded subject to Conditions Precedent; and
- Key Owner's personnel recruited, ready to be engaged.

Resources, budget and schedule for the transition works have been identified.

APPENDIX 1 JORC TABLE 1. SAMPLING TECHNIQUES AND DATA

JORC Code, 2012 Edition – Table 1 Report

Cape Flattery Silica Project — Eastern Resource Area Ore Reserve Estimate – Probable, March 2022

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code Explanation	Commentary
Sampling techniques	• Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling. • Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used. • Aspects of the determination of mineralisation that are Material to the Public Report. • In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.	• Sampling was primarily one (1) metre drill samples, with the exception of two holes (CFS003 and CFS004) which were sampled at 0.5m intervals and a limited number of one (1) metre hand auger samples. • One (1) auger program was completed in 2019 comprising of eight (8) holes. • Three (3) main programs of drilling were completed, twenty two (22) drill holes in December 2020, ninety eight (98) drill holes in July/August 2021 and twenty four (24) drill holes in December 2021. • A total of 152 holes were drilled, comprising vacuum (144) and auger (8) drill holes totalling 2,564m of drilling. • Drilling was completed using a tractor mounted vacuum rig, with samples collected every one metre. Except for holes CFS003 and CFS004. Occasionally samples of less than one metre were collected (usually at the top of the holes first metre). The drilled sand was collected from a cyclone and 100% of the sample was collected and placed into a pre-numbered sample bag, with each sample having a mass of between 2.5 to 4kg. • Seven hand auger samples from a 2019 programme were used in the MRE. The hand auger holes samples were between 1—2kg in weight (~50%) of drill material returned via the auger) and collected and bagged. Care was taken to remove possible contamination from the Shell Auger. • In the case of the drill samples the entire 1m sample was collected on site and dispatched to the laboratory for splitting and analysis (2021 programme). In the 2020 programme a spear sample of the 1m was taken and submitted for assay. • Sampling techniques are mineral sands "industry standard" for dry aeolian sands with low levels of induration and slime. • Samples from the drilling programmes have been selected for metallurgical testwork. These samples were composited to form a bulk sample.

Criteria	JORC Code Explanation	Commentary
Drilling techniques	• Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).	• Two (2) drilling techniques were used to collect samples for the Updated MRE, namely hand-auger samples collected by Metallica and vacuum drilling operated by Yearlong Drilling Contractors. All holes were drilled vertically. • Vacuum drilling was by a 4x4 tractor mounted drill rig with a blade drill bit diameter of 60mm equivalent to NQ sample size, using 1.8m rods. • Holes were terminated in a basement layer (clay/ coloured sands) or when damp sand or water was intersected.
Drill sample recovery	• Method of recording and assessing core and chip sample recoveries and results assessed. • Measures taken to maximise sample recovery and ensure representative nature of the samples. • Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	• Visual assessment and logging of sample recovery and sample quality was completed onsite as drilling progressed. • Vacuum drilling is low disturbance and low impact, minimising drill hole wall impact and contamination. • Samples were collected in a cyclone which has a clear perspex casing allowing visual inspection of sample as they are being collected. • Regular cleaning of cyclone and drill rods was carried out to prevent sample contamination. • No known sample bias occurred between sample recovery and grade. • Sample recovery of between 90 to 100% was achieved. Only lower recoveries (less than 80%) were recorded in the top 1m of each hole due to the presence of organic matter and topsoil.
Logging	• Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies. • Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography. • The total length and percentage of the relevant intersections logged	• Geological logging was completed onsite by a geologist as drilling progressed, with retention of each one (1) sample in chip trays to provide a record of the drilling and to allow geological and data logging. • The total hole was logged at 1m intervals; logging includes qualitative descriptions of colour, grain size, sorting, induration and estimates of HM, slimes and oversize utilising panning. • Photographs of each chip tray were taken to provide a digital record. • Logging has been captured through field drill log sheets and transferred through to an excel spreadsheet which was then transferred to a central database and storage.

Criteria	JORC Code Explanation	Commentary
Sub-sampling techniques and sample preparation	• If core, whether cut or sawn and whether quarter, half or all core taken. • If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry. • For all sample types, the nature, quality and appropriateness of the sample preparation technique. • Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples. • Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/ second-half sampling. • Whether sample sizes are appropriate to the grain size of the material being sampled.	• Hand-auger holes were sampled in 1m intervals with 1—2kg (~50% of drill material returned via the auger) collected and bagged. • For the vacuum drilling programs, samples for the entire 1m interval were collected from the cyclone. • The entire one-metre (1) sample were placed in a pre-numbered calico bag (2021 program), or subsamples of approximately 500g were speared (2020 program) and separately numbered, bagged in plastic bags and sealed ready for assaying prior to being placed in a poly-weave sack for dispatch to the laboratory. • Each one-metre sample weighed between 2.5 to 4.0kg. • The sample size is considered appropriate for the grain size of material, average grain size (87% material by weight between 0.125mm and 0.5mm. • The sample sizes are considered appropriate for the type of material being sampled.
Quality of assay data and laboratory tests	• The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total. • For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc. • Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.	• All assaying has been carried out by ALS Mineral Laboratories, Brisbane. ALS is a global leader with over 71 laboratories worldwide providing laboratory testing, inspection certification and verification solutions. ALS Quality Assurance and all ALS geochemical hub laboratories are accredited to ISO/IEC 17025:2017 for specific analyses, which includes their Townsville and Brisbane laboratories. ALS is NATA Accredited, Corporate Accreditation No. 825, Corporate Site No. 818. • The samples were split to 100-gram samples for analysis in the laboratory under laboratory-controlled methods. • XRF was chosen as the most cost-effective assaying method for silica and minor elements for all exploration samples. • Analysis was undertaken by ALS Brisbane utilising a Tungsten Carbide pulverization preparation technique, ME—XRF26 (whole rock by Fusion/XRF) for analyses of major and minor elements and OA—GRA05 (H2O/LOI by TGA furnace) for Loss of Ignition (LOI) for organic matter. • A total of 2,592 %SiO_2 assays were completed on 1m downhole intervals over various drilling programs. • Assaying was primarily to determine the silica (SiO_2%) percentage, but as part of the method results were obtained for a range of minor elements, namely Al_2O_3, BaO, CaO, Cr_2O_3, Fe_2O_3, K_2O, MgO, MnO, Na_2O, P_2O_5, SO_3, SrO, TiO_2. • Internal laboratory QAQC checks include the analyses of standards, blanks and duplicates. • QA/QC identified assay issues with holes CFS001 to CFS022 which were re-assayed with a focus on Fe_2O_3 grades. This work was completed in November 2022 and updated assays were incorporated to the 2023 Resource Model. The changes did not materially alter the MRE. • External umpire laboratory checks have been carried out against the original assay intersections, including checks of assay methods (XRF vs ICP). • Acceptable levels of precision and accuracy were established.

Criteria	JORC Code Explanation	Commentary
Verification of sampling	• The verification of significant intersections by either independent or alternative company personnel. • The use of twinned holes. • Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols. • Discuss any adjustment to assay data.	• Significant intersections were independently validated by Ausrocks against geological logging and the geological model. • Five (5) holes have been twinned with vacuum and hand-auger to check repeatability of drill results. To date, there is a strong correlation between results from different type holes and different assay batches. Downhole variability is matched in different drill programs and different assay batches. • Significant intersections were validated against geological logging and local geology/geological model. • The semi-gridded and infill drilling in 2021 validated the 2020 program as the intercepts and grade of the silica were consistent along the various sections. • No adjustments were made to assay data.
Location of data points	• Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation. • Specification of the grid system used. • Quality and adequacy of topographic control.	• All holes initially located using handheld GPS with an accuracy of 5m for X, Y. • UTM coordinates, Zone 55L, GDA94 datum. • LiDAR topography and imagery with a vertical accuracy of <10cm was used as the topographic surface. Collar RL's draped against this surface verifies the accuracy of the hole locations. The Lidar imagery which was produced by Aerometrex.

Data spacing and distribution	• Data spacing for reporting of Exploration Results.
	• Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.
	• Whether sample compositing has been applied.
		• Drilling was completed on existing tracks and newly cleared lines which are 100m to 200m apart. The lines are orientated approximately NW – SE, along with a number of determined orthogonal cross lines.
		• The holes were spaced approximately 200 meters apart and in some areas were infilled to 100m and 50m centres.
		• Drill spacing and distribution is sufficient to allow valid interpretation of geological and grade continuity.
		• Drill spacing and interpreted geological continuity has allowed three resource categories to be defined which have been estimated in accordance with the JORC Code (2012) and are defined as follows:
		  • **Measured Mineral Resource:** Area with drill holes at a semi-gridded spacing <150m x 150m ending in basement (clay/coloured sands) or when very damp sand or water was intersected.
		  • **Indicated Mineral Resource:** Area with drill holes at a confirmatory level spacing (150m x 250m) ending in basement (clay/coloured sands) or when very damp sand or water was intersected.
		  • **Inferred Mineral Resource:** Areas with drill holes at a scout level spacing (250m—400m).
		• No sample compositing was undertaken.

Criteria	JORC Code Explanation	Commentary
Orientation of data in relation to geological structure	• Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type. • If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	• The dune field has ridges dominantly trending 320° — 330°. • The drill access tracks typically run along or sub-parallel to dune ridges, with some cross-dune tracks linking the ridges were also drilled. • Silica deposition occurs as windblown with angle of rest approximately sub-horizontal and locally up to 35°. Drilling orientation is appropriate for the nature of deposition. • The orientation of the drilling undertaken is assessed to provide representative intersections and unbiased data for the deposit. All drilling is vertical, intersecting the dune field geology essentially normal or at 90° to the dune sand formation.
Sample security	• The measures taken to ensure sample security.	• Sample collection and transport from the field was undertaken by company personnel as the drilling progressed and following company procedures. • Samples in calico bags were aggregated into larger polyweave bags and sealed with plastic zip ties. Bags were labelled and put into palette-crates and sealed prior to being road transported to Cairns where they were transferred to another freight truck and delivered to ALS Laboratories in Brisbane for sample preparation and analysis.
Audits or reviews	• The results of any audits or reviews of sampling techniques and data.	• Ongoing reviews were conducted internally by Metallica Minerals Ltd and by third-party consultant, Ausrocks prior to undertaking a MREs.

TABLE 2. REPORTING OF EXPLORATION RESULTS

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	JORC Code Explanation	Commentary
Mineral tenement and land tenure status	• Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings. • The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	• The Cape Flattery Silica Sands Project is located within EPM 25734 in Queensland and is held by Metallica Minerals Ltd through subsidiary company Cape Flattery Silica Pty Ltd. • The project is located in Far North Queensland, approx. 220km north of Cairns and approx. 50km north of Cooktown and lies within EPM 25734. EPM 25734 is held by Cape Flattery Silica Pty Ltd, a wholly owned subsidiary of Metallica Minerals Pty Ltd and comprises 11 contiguous subblocks covering the very northern end of the extensive Cape Bedford/Cape Flattery dunefield complex. The dunefield complex is characterised by large northwest trending transgressive elongate and parabolic sand dunes, stretching inland from the coastline for kilometres. • A compensation and conduct agreement is in place with the landholder (Hopevale Congress) and native title party. • The tenement is in good standing and there are no impediments to conduct exploration programs on the tenements.
Exploration done by other parties	• Acknowledgment and appraisal of exploration by other parties.	• Previous exploration has been carried out in the area during the 1970's and 1980's by Cape Flattery Silica Mines (CFSM). CFSM reported seven (7) holes drilled for 84 meters. These holes intersected sand dunes between 10 and 20 meters in thickness. • The historical exploration data is of limited use since as it was never assayed for SiO_2 and with a focus on iron oxide content. Further, there is poor survey control to determine exact locations of historical holes. • All current exploration programs are managed by Metallica Minerals.

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

Drill hole Information	• A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:
	  • easting and northing of the drill hole collar
	  • elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar
	  • dip and azimuth of the hole
	  • down hole length and interception depth
	  • hole length.
	• If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.
		• A tabulation of the material drill holes used in this Mineral Resource Estimation is attached to this JORC Table 1.
		• No additional drilling has been undertaken since the April 2022 MRE.
		• Previous Drilling:
		  • Eight (8) shallow (5m) hand auger holes drilled in 2019
		  • Twenty-two (22) vacuum drill holes drilled in December 2020
		  • Ninety-eight (98) vacuum drill holes drilled between July and August 2021
		  • Twenty-four (24) vacuum drill holes drilled in December 2021

Criteria	JORC Code Explanation	Commentary
Data aggregation methods	• In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated. • Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail. • The assumptions used for any reporting of metal equivalent values should be clearly stated.	• Overall the silica grade is highly consistent over appropriate length intercepts throughout each individual drill hole. • No top cuts were applied to the data. • Metal equivalents are not applicable and therefore not reported.
Relationship between mineralisation widths and intercept lengths	• These relationships are particularly important in the reporting of Exploration Results. • If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported. • If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').	• All drilling was vertical (-90°) intersecting undulating flat-lying aeolian dune sands. • Down hole length correlates with apparent true width. • As the mineralisation is associated with aeolian dune sands the majority sub-horizontal, some variability will be apparent on dune edges and faces.
Diagrams	• Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported. These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	• A map of the drill collar locations is incorporated in public releases and within the main body of the report. • A representative geologically interpreted and modelled cross section and long section is also incorporated public releases. Additional sections are included in MRE report.
Balanced reporting	• Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	• All exploration results are reported in a balanced manner. All results are supported by clear and extensive diagrams and descriptions. • No assays or other relevant information for interpreting the results have been omitted.

Criteria	JORC Code Explanation	Commentary

Other substantive exploration data	• Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	• Geological observations are consistent with aeolian dune mineralisation. All exploration results are detailed in the MRE report.
		• Drilling was terminated in approximately 47 drill holes due to hitting damp/wet drilling conditions where drill penetration became difficult. Several holes, especially in lower elevation collar positions, were terminated due to intersecting and returning water. It is assessed that the majority of dam/wet hole terminations were due to intersecting saturated sand and or sandy/clay layers well above the true underlying project groundwater level. This implies that high-quality sand may extend, in places, deeper than currently determined for this resource assessment.
		• The relationship of the groundwater intersected during drilling terminating holes to the regional groundwater table is unknown. It is likely that the true groundwater table is well below the termination depth of the majority of current drill holes.
		• Initially, IHC Robbins completed a bulk laboratory sample in early 2021. The bulk sample was composited from the individual samples over a full drill hole and/or groups of drill holes over the wider resource for metallurgical testwork. This bulk sample testwork did not achieve the target product specification.
		• In 2021/2022 Mineral Technologies completed a bulk sample focussed on samples from 20 holes in the Measured Resource area, representing the first 5 years of the project life. This bulk sample testwork did not achieve the target product specification due to inclusion of several elevated Fe_2O_3 samples that skewed the results.
		• In 2022/2023 Mineral Technologies completed a characterisation study focussed on the first 5 years of project life. This characterisation study was designed to link in-ground grade to indicative plant product grade. Testing was carried out to produce a product with the following specifications:
		  • 99.90% SiO_2
		  • 120ppm Fe_2O_3
		  • 300ppm Al_2O_3
		  • 200ppm TiO_2
		  • +30 to +140 mesh (600µm to 106µm) with 0% -106µm
		• Mass yield of 78.8% (WHIMS) to 84.8% (attritioning)
		• Iron (Fe_2O_3) in various forms potentially acts as a contaminant for very high-quality “processed” end products and examined in testwork.
		• A range of testwork concluded TiO_2 and Al_2O_3 product specifications are likely to be achieved over a wide range of feed grades.

Further work	• The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling). • Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	• Only a limited amount of further infill drilling is required, especially on dune edges and to close a few areas of wider drill spacing. However, it is considered highly unlikely that this drilling will materially change overall results. • The likely next steps for geological assessment is grade control drilling prior to production, followed by production reconciliation. • Targeted and/or infill drilling to investigate the distribution of higher Fe_2O_3 zones.

TABLE 3. ESTIMATION AND REPORTING OF MINERAL RESOURCES

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	JORC Code Explanation	Commentary
Database integrity	• Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes. • Data validation procedures used.	• The database was originally constructed, validated and electronically provided by Metallica Minerals to Ausrocks. • Ausrocks reformatted the database into appropriate file formats checking the veracity of the assay results. The data was further validated and cross checked against the geological logs and the chip tray photographs. • Micromine 2023 was used to validate the files used for the MRE.
Site visits	• Comment on any site visits undertaken by the Competent Person and the outcome of those visits. • If no site visits have been undertaken indicate why this is the case.	• A site visit was carried out by Ausrocks Brice Mutton (Competent Person) from 13th —18th Dec 2020 during the 2020 drilling program. • A site visit was carried out by Ausrocks Chris Ainslie and Carl Morandy from 19th — 20th October 2021. • Both site visits have enabled an appraisal of the dune geology and setting, facilitating the geological modelling and resource estimation.
Geological interpretation	• Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit. • Nature of the data used and of any assumptions made. • The effect, if any, of alternative interpretations on Mineral Resource estimation. • The use of geology in guiding and controlling Mineral Resource estimation. • The factors affecting continuity both of grade and geology.	• The Cape Flattery Silica Sand Deposit has been well defined by drilling and the geological controls are reasonably well understood. • The known nature and formation of the dune sands, together with consistent high silica grades achieved in drill holes, places a high degree of confidence in the geological interpretation. Continuity of geology (chip tray photographs) and grade (assays) can be readily identified and traced between all drill holes. • The interpreted geology of the Cape Flattery Silica Sand Deposit is robust, and any alternative interpretation of the deposit is considered unlikely to have a significant influence on the total MRE undertaken. • The CFS project is dominated by several elongate dunes rising in elevation to the northwest. The deposit is by far dominated by high-grade silica (quartz) sand. The sands are mainly very fine-grained and pure white in colour and in places a slight creamy colour. Based on the MRE, the depth of clean white high-grade sand within the model from surface averages 10.3m in thickness and up to a maximum drilled thickness of 35m. • Sand colouration is from surface coating on the grains or as interstitial material in cracks and fissures in the sand grains of Iron (Fe) rich clay material including Fe_2O_3. It only takes a trace percentage of Fe_2O_3 to colour the sand. In several places these coloured sands are exposed on the surface.

Criteria	JORC Code Explanation	Commentary

		• Isolated coloured intervals within the dominant white sand profile are interpreted to be blown in from these older exposed sands.
		• No major factors affect continuity both of grade and geology.
		• Geological controls were applied to multiple cross and long sections to constrain the final resource wireframe.
		• Prior to interpolating and assigning assay values to each block, a solid was generated to model the overall deposit shape and volume by applying the following parameters:
		  • Top surface — defined as the base of topsoil which is 0.5m below surface topography.
		  • Bottom surface – a gridded surface based on drillhole depths and geological interpreted boundary points.
		  • Boundary – the resource boundary was defined by the following considerations:
		    • Surface dune extents based on imagery and interpretation.
		    • Geological interpretation of drill holes.
		    • The area where the top and bottom surfaces intersected.
		    • Area of influence around drill holes determined by confidence level.
		    • Several iterations were run to cross check boundary sensitivities.

Dimensions	• The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	• The extent and variability of the Mineral Resource is expressed in terms of the full Resource Area • **Max Length (along strike):** 2.4km • **Max Width:** 2.3km • **Area:** The Mineral Resource covers an area of approximately 315ha. • **Drill Hole Thickness:** The sand intercept (SiO_2) thickness ranges from 2m to 36m averaging 19m. • **Top of Resource:** The top of the resource corresponds to the topography ranging from 10mRL to 105mRL. • **Bottom of Resource:** The base of the resource corresponds to basement/water table ranging from 5mRL to 85mRL.

Criteria	JORC Code Explanation	Commentary
Estimation and modelling techniques	• The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used. • The availability of check estimates, previous estimates and/or mine production records and whether the MRE takes appropriate account of such data. • The assumptions made regarding recovery of by-products. • Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation). • In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed. • Any assumptions behind modelling of selective mining units. • Any assumptions about correlation between variables. • Description of how the geological interpretation was used to control the resource estimates. • Discussion of basis for using or not using grade cutting or capping. • The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	• The MRE was completed in accordance with The JORC Code, 2012 Edition guidelines with Micromine 2023 used to model and evaluate the resource. • Using Micromine 2023, Statistical and Geostatistical analyses was undertaken on silica (SiO_2) and the key impurities (Fe_2O_3, TiO_2, Al_2O_3 and LOI) of the dataset. Assay methods also returned results for BaO, CaO, Cr_2O_3, K_2O, MgO, MnO, Na_2O, P_2O_5, SO_3 and SrO but they were not examined due to their very low grades (at or near detection range). • All sample intervals underwent basic statistical analysis (minimum, maximum, mean etc.). All variables showed that there were no requirements for top or bottom cutting. • The raw data distribution for silica and the key impurities (Fe_2O_3, TiO_2, Al_2O_3 and LOI) were analysed in detail and used in the block modelling. • The surface boundary was generated by a combination of the interpreted geological boundaries and ML boundaries. A topsoil or humus layer of 0.5m was excluded from the model. A 400m limit was used to guide drillhole continuity where information became sparse or non-existent. Multiple cross section iterations were used to further define and constrain the model where data was minimal. • The base of the resource model was determined from selected drillhole depths (>98.5% silica grade), then modelled and adjustments made for intersections with surface topography and other continuity limits. The model was further controlled by cross section checks. • Low grade silica sand (LGSS or 'waste') was modelled separately from within Resource. The drillholes with LGSS intervals (excluding holes with no resource or where open at depth) were loaded into Global Mapper and a Voronai/Thiessen Diagram was generated from the point features. Each LGSS area was given an individual attribute based on the LGSS interval data and the blocks were loaded back into Micromine. A 1m (height) exclusion zone was placed on the top and bottom of the waste zones to avoid contamination of ROM feed. This is accounted for as mining loss. The LGSS blocks were populated using nearest neighbour method. • Parent blocks of 25mE (X direction) by 25mN (Y direction) by 4mRL (Z direction) were used with sub-blocking splitting these blocks by 1m in the X direction, 1m in the Y direction and 1m in the Z direction. All sub-blocks have the same interpolated values as their parent blocks. • The blocks were constrained by the model boundaries and populated by the Ordinary Kriging (OK) estimation method to interpolate assay grades for each of the chosen elements (SiO_2, Fe_2O_3, Al_2O_3, TiO_2 and LOI). Inverse Distance Weighting (IDW - 2:1) was used to check the model and yielded similar results. • The block model was validated by comparing basic statistics and histograms of modeled data (block model) against the input data (drilling data) which showed similar means, range of data and data distribution. Additionally, cross-section throughout the block model were compared with the same sections through the drillhole data showing that the modelling completed was indicative of the input data and the mineralisation. • Grade cutting or capping was not applicable as no SiO_2 values exceeded 100%.

Criteria	JORC Code Explanation	Commentary
Moisture	• Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	• All samples used for density measurement were placed into bags and sealed so samples would be received with slightly less than in-situ moisture. • Tonnage estimated assuming a moisture content of 2.5%.
Cut-off parameters	• The basis of the adopted cut-off grade(s) or quality parameters applied.	• An initial cut-off grade of 98.5% silica has been used to define the base of the resource model, differentiating the low grade silica sand (LGSS or 'waste') from within Resource. This base was clearly defined visually by a colour and SiO_2 content change. • To meet end product specifications, based on the metallurgical testwork the cutoff was modified to take account of three controlling factors including colour (white variants, subjectively determined), Fe/Ti ratio (>1.5), Fe_2O_3 grade (<4000ppm). These three controlling factors guided the selection of significant intercepts for each drill hole. With a limited range of intercepts as low as 95% SiO_2 taking account of one or more of the above factors. This cutoff was used to define the LGSS ('waste') intervals that guided the 'waste block model'. • The surface to one (1) metre interval consistently returned a <98.5% silica assay and returned higher than normal LOI. This logged interval included topsoil and organic material which caused minor contamination. This one (1) metre interval was adjusted by adopting the succeeding one metre assay (1-2m interval) grade. A topsoil layer from surface (0.0m to 0.5m) was excluded from the MRE as it will be used for rehabilitation. • The initial silica grade cut-off of 98.5% SiO_2 remains robust and was subsequently modified to account for three factors to complete resource modelling and MRE, for all reporting levels.
Mining factors or assumptions	• Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	• It is expected that mining will be conducted with Wheel Loader from the face, which will load a feed bin fitted with a grizzly screen. The feed bin will then transfer sand to a trommel and target sands will fall into a slurry bin for pumping to the processing plant. This mining method is flexible and is considered suitable for the deposit and is not likely to unnecessarily constrain the Mineral Resources. • A 1m (height) exclusion zone was placed on the top and bottom of the Interburden low grade silica sand ('waste') zones to represent mining loss. Estimated mining loss in these exclusion zones is approximately 31% of the low grade silica sand ('waste') model, or approximately 2.5% of the total Mineral Resource. • Low grade silica sand ('waste') occurs as overburden and interburden. These zones will be mined separately using truck and shovel method. Due to the colour differential • Based on the sample assays and geological logs, the top 0.5m of the deposit has been excluded from the MRE as it is assumed that this would be a soil and vegetation layer and would be scalped when mining the deposit and re-used for rehabilitation.

Criteria	JORC Code Explanation	Commentary

Metallurgical factors or assumptions	• The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	• Metallurgical testing was conducted and the results were used to guide the Mineral Resource Assessment.
		• The main factors or assumptions used to guide the MRE were:
		  • SiO_2 grade (primarily to define floor)
		  • Colour
		  • Fe_2O_3 grade
		  • Fe/Ti Ratio

Environmental factors or assumptions	• Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	• Early environmental studies have been carried out to support development applications to the Commonwealth and the State. Whilst baseline technical studies have identified matters of State and National Environmental Significance that are potentially impacted by the Project, the design and operational approach has been to seek to avoid and/or mitigate the scale of environmental impacts where possible. As a result, no areas have been excluded from the resource until these areas have been accurately categorized. • Due to the high-grade nature of the deposit, it is expected that there will be a small portion of low grade silica sand produced through processing, this material will be used as backfill in the mined voids as part of the rehabilitation strategy.
Bulk density	• Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples. • The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit. • Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	• Thirty-nine density measures have been completed over the wider resource area in February 2021 and December 2021 returning an average density of 1.6t/m³ which has been used to convert all volumes to tonnes. • The field density measurements appear adequate but need to be confirmed by certified testing.

Criteria	JORC Code Explanation	Commentary

Classification	• The basis for the classification of the Mineral Resources into varying confidence categories.
	• Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).
	• Whether the result appropriately reflects the Competent Person's view of the deposit.
		• Drill spacing and interpreted geological continuity has allowed three resource categories to be defined and are defined as follows:
		  • **Measured Mineral Resource:** Area with drill holes at a semi-gridded spacing <150m x 150m ending in basement (clay/coloured sands) or when very damp sand or water was intersected.
		  • **Indicated Mineral Resource:** Area with drill holes at a confirmatory level spacing (150m x 250m) ending in basement (clay/coloured sands) or when very damp sand or water was intersected.
		  • **Inferred Mineral Resource:** Areas with drill holes at a scout level spacing (250m–400m).
		• The result appropriately reflects the Competent Persons view of the deposit.

Audits or reviews	• The results of any audits or reviews of MREs.	• Previous MREs have been completed and reviewed internally by Ausrocks. • Ausrocks have reviewed variogram and kriging methodology and their applications, in consultation with a third-party specialist/training geostatistician.
Discussion of relative accuracy/ confidence	• Where appropriate a statement of the relative accuracy and confidence level in the MRE using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate. • The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used. • These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	• It is the opinion of the Competent Person that the relative accuracy and confidence level across the reported geological intervals is adequate, given the drill density and continuity of geochemical samples. • The Mineral Resource boundary and the reported geological confidence intervals is relatively tightly constrained based on the drill density, although some further drill definition should be undertaken to better constrain dune sides/perimeters. • No production data is available at present as this is a Greenfields project. However, CFSM lies in the same adjoining coastal dunes immediately to the East and the North, suggesting potential viability.

TABLE 4. ESTIMATION AND REPORTING OF ORE RESERVES

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	JORC Code Explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	• Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve. • Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.	• The Mineral Resource Estimate used as a basis for the conversion to an Ore Reserve was developed by Ausrocks (Chris Ainslie & Brice Mutton) as part of the 'Cape Flattery Silica Project – Upgraded Mineral Resource Estimate — Measured, Indicated and Inferred, 5 May 2023. The block model was developed in Micromine Origin 2023 and titled 'CFSP_BM DFS_05_2023'. • Approximately 96% of the Measured and Indicated Mineral Resources were converted to Ore Reserves. Approximately 95% of the Total Mineral Resources were converted to Ore Reserves. • Factors affecting the conversion of Resources to Reserves include ecological constraints, groundwater table, zones of elevated Fe_2O_3 as well as proximity to the ML Boundary. • The Ore Reserve is sufficient to satisfy the planned DFS 25 year mine life. The viability to mine remainder of the Mineral Resource is subject to future operating conditions. • The Mineral Resources reported above are inclusive of the Ore Reserves.
Site visits	• Comment on any site visits undertaken by the Competent Person and the outcome of those visits. • If no site visits have been undertaken indicate why this is the case.	• The Competent Persons for Exploration Results, Mineral Resources & Ore Reserves; Pat Smith, Brice Mutton, Chris Ainslie & Carl Morandy have completed site visits to the Cape Flattery Silica Sand Project. • Pat Smith and Brice Mutton have spent a number of days working on site during drilling campaigns, providing an understanding of the topography, vegetation, groundwater and other Mineral Resource assumptions. • Chris Ainslie and Carl Morandy completed a site visit on 20th October 2021, which provided an understanding of the project assumptions used in estimating the Ore Reserves.
Study status	• The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves. • The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.	• CFS has completed a DFS for the Project. This Ore Reserve was completed in conjunction with the DFS and is therefore reported concurrently. • The Competent Persons are satisfied that the Modifying Factors have been suitably addressed by the level of study undertaken to support the conversion of Mineral Resources to Ore Reserves.

Criteria	JORC Code Explanation	Commentary
Cut-off parameters	• The basis of the cut-off grade(s) or quality parameters applied.	• An initial 98.5% SiO_2 Cut-off grade was used to define the base of the Resource Model, differentiating the low grade silica sand (LGSS or 'waste') from within Resource. This base was clearly defined visually by a colour and SiO_2 content change. To meet end product specifications, based on the metallurgical testwork the cutoff was modified to take account of three controlling factors including colour (white variants, subjectively determined), Fe/Ti ratio (>1.5), Fe_2O_3 grade (<4000ppm). These three controlling factors guided the selection of significant intercepts for each drill hole. • Intermediate sub-marginal silica grades were encountered rarely in drillholes, but these intervals were restricted to several vertical meters or less. Here the grades were still >95% SiO_2 and may be considered as an alternative product, but for the purposes of the Reserve these materials are classified as 'waste'. The total volume of waste within the Pit Shell is 4.0Mt, which represents approximately 8% of the mined volume (47Mt Reserve + 4.0Mt Waste). • Consideration was given to the XRF test method, liaising with ALS Laboratories it was concluded this method very marginally under-reports silica grade and possibly slightly overestimates iron (Fe_2O_3) grade, however no adjustments were made. • The surface to one (1) metre interval consistently returned a <98.5% silica assay and retuned higher than normal LOI. This logged interval included an average 0.5m topsoil which includes organic material and is considered minor contamination. This one (1) metre interval was adjusted by adopting the succeeding one metre assay grade. A topsoil layer from surface (0.0m to 0.5m) was excluded from the Mineral Resource and Ore Reserve Estimates. It is assumed the topsoil material will be utilised for rehabilitation.
Mining factors or assumptions	• The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).	
	• The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.	• The deposit is in a remote region, close to the surface with only limited vegetation and topsoil covering. Based on these characteristics, the deposit is amenable to open-cut mining methods. Underground mining methods are not justified.
	• The assumptions made regarding geotechnical parameters (eg pit slopes, stope sizes, etc), grade control and pre-production drilling.	• The extraction floor is anticipated to follow the resource base, which is undulating but predominantly contains slopes <18 degrees. Therefore the open pit highwalls are considered low risk and geotechnical parameters are selected based on experience in similar mining environments. Highwalls are relatively low and excavation depths are relatively limited. A 30 degree batter angle has been selected which is more conservative than the angle of repose (for sand).

Criteria	JORC Code Explanation	Commentary
		• No benches have been stipulated due to the 30 degree batter angle and relatively low depth of excavation at the pit boundaries, the deepest portions of excavation are central to the pits where mining daylights on either side. • Grade control at a 40 x 40m grid on average (varying between 20 x 20m to 60 x 60m) has been assumed pre-mining to assist with pit optimisation.
	• The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).	• The lack of overburden and relatively limited waste blocks (8% of total pit void) resulted in a limited overall gain from detailed pit optimization. Therefore the pit design was primarily based on the maximum allowable extents of the orebody based on environmental and other constraints rather than strip ratio.
	• The mining dilution factors used.	• For all areas of Interburden low grade silica sand (LGSS), a 1.0m buffer of waste has been added to the top and bottom surfaces of the Interburden lense during modelling. This additional material represents mining loss to waste. Approximately 1.2Mt of this mining loss has been specified, which as a proportion of the total LGSS is 31%, or approximately 2.5% of the total Ore Reserve. • The removal of topsoil is a simple process and is expected to be efficient and well managed. The surrounding material for the pit is generally high silica sand, which results in minimal risk of contamination from topsoil.
	• The mining recovery factors used.	• A 100% mining recovery is assumed for material other than waste or mining loss in the model, due to simplistic extraction process from loader to DMU. This is further supported by a high level of survey accuracy and quality control in-pit to maximise recovery. All other losses are factored into either the mining loss or plant yield.
	• Any minimum mining widths used.	• No minimum mining width is used, the mining method allows variable mining widths down to approx 3x machine width (~<20m). The pit design includes limited regions which approach this width and the average mining face width is expected to be 250m.
	• The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.	• No Inferred Resources are utilised to support the Reserve Estimate, whilst small quantities of Inferred Resources are located around the periphery of Indicated Resources, these have not been factored into the current studies but may be considered for future assessments.
	• The infrastructure requirements of the selected mining methods.	• No fixed infrastructure is required to support the mining method. The equipment is designed to be mobile with the flexibility to be moved around site frequently to minimise haul and tram distances. • The processing plant infrastructure includes the processing plant, jetty, barge ramp, product conveyors, bunker and amenities. • Non-processing buildings include administration buildings, heavy vehicle workshops, fuel & lube facility, potable water treatment plant, services reticulation, sewerage treatment plant, car & bus parking, generator compound and accommodation.

Criteria	JORC Code Explanation	Commentary
Metallurgical factors or assumptions	• The metallurgical process proposed and the appropriateness of that process to the style of mineralisation. • Whether the metallurgical process is well-tested technology or novel in nature. • The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied. • Any assumptions or allowances made for deleterious elements. • The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole. • For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?	• Mineral Technologies (MT) were engaged to prepare laboratory scale and bulk characterisation testing for the purposes of the DFS. This work included operating and technical requirements to achieve a suitable silica sand processing facility for the operation. • The proposed metallurgical process is well developed in the silica sand industry and uses mainly off-the-shelf plant and components that are tried and tested at sites with similar operating parameters. • The selected plan includes a Dry Mining Unit (DMU), Wet Concentrator Plant (WCP) and Product Stockpile. The WCP includes a Lyons Feed Control Unit Surge Bin, Spiral Separation, Attritioner, Up Current Classifier, Low Intensity & WHIMS, Thickener and product dewatering. The plant is capable of 250t/h. • Metallurgical testing conducted to date is sufficient to support the DFS study. The program, which is ongoing, has demonstrated the ability to produce a product aligned to the market target purity of 99.9% Silica and <120ppm Fe_2O_3. • Bulk samples representative of the first 5 years mining within the Measured Resources were used in the latest metallurgical testing. Additional samples from other locations have also been used for variability testing. • A mass yield of 84.8% was achieved as non-magnetic product of 99.9% SiO_2, <120ppm Fe_2O_3 where feed grades were below 900ppm Fe_2O_3. A mass yield of 78.8% was achieved as non-magnetic product of 99.9% SiO_2, <120ppm Fe_2O_3 where feed grades were below 900ppm Fe_2O_3. Recovery rates of 84.8% have been used for the first 5 years, then conservatively an average of 80% has been used for years 6 onwards to reflect the variability of the feed grade and the need to turn WHIMS on and off throughout the remainder of the Ore Reserve to achieve the target Fe_2O_3 grade of ≤120ppm. • The main contaminant Fe_2O_3 (present as interstitial SiO_2 grain fill and grain coating) has been assessed. The mitigation measure adopted was to prioritise first 5 years of the mine schedule to contain the lowest Fe_2O_3 feed suitable for non-WHIMS plant operation. Higher Fe_2O_3 occurs intermittently during years 6 onwards (up to 1400ppm) which will be resolved by toggling on and off the WHIMS plant to cater for production of <120ppm product from this material, corresponding to the lower yield of 78.8%.
Environ-mental	• The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.	• An assessment of the Environmental and Social Impacts have been undertaken for the CFSSP, these have been undertaken to a satisfactory level including risk mitigation. • Whilst the project is located in close proximity to sensitive environmental areas, the adoption of suitable mitigation measures including environmental management buffers, the presence of the neighbouring mine, the lack of chemical use for treatment and benign nature of the material, result in the operation anticipated to maintaining a low risk to the natural environment.
Infra-structure	• The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.	• CFS have carried out studies to determine the feasibility of the jetty and barge infrastructure which is critical for the transport process. • Labour, accommodation and other services have been assessed and appropriate services have been allowed in the DFS.

Criteria	JORC Code Explanation	Commentary
Costs	• The derivation of, or assumptions made, regarding projected capital costs in the study. • The methodology used to estimate operating costs. • Allowances made for the content of deleterious elements. • The source of exchange rates used in the study. • Derivation of transportation charges. • The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc. • The allowances made for royalties payable, both Government and private.	• Capital and operating cost items have been estimated using a mixture of fee proposals from suppliers, factored costs, benchmarking similar operations and industry knowledge. • Capital Cost Estimates are estimated to an accuracy of -10% to +15% • A 15% Capital Cost Contingency has been factored. • Operating Cost Estimates have a target accuracy +/-10% to +/-15% • A 0% Operating Cost Contingency has been factored. • AUD:USD exchange rate of ~USD$0.72 • Inflation and/or escalation has been considered. • Shipping costs have been derived from shipping consultants who estimate a softening in future shipping costs. • All likely royalties including Government and TLOs have been considered.
Revenue factors	• The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc. • The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.	• Head grade has been determined by mine scheduling averaged annually. • No actively traded spot markets are available for silica sands. • Prices are estimated FOB and include barge loading and marine costs calculated by ‘bottom-up’ estimates with smaller items as per industry practice for DFS level assessment.
Market assessment	• The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future. • A customer and competitor analysis along with the identification of likely market windows for the product. • Price and volume forecasts and the basis for these forecasts. • For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	• A Marketing study by CFS has assessed the likely sale price, consumption and competition with other suppliers in the industry. • The demand for HPSS has been growing over the last five years, with a Compound Annual Growth Rate (CAGR) of 8.4% with the main driving force being the increasing need for PV Glass in the solar industry. • Reputable market bodies have indicated the demand for silica sand is increasing and that the sand produced at the CFS Project will be readily accepted by the market. • Silica Sand product pricing has been based on market assessment, with prices between $75.00 and $90.28 sighted in the DFS, with a weighted average sales price of $80.54/t (real 2025). • The target production rate of 1.5Mtpa (product) is conservative compared to the global market for silica sand across the glass industry, foundry, hydraulic fracturing, filtration, abrasives and others. • In 2022, Australia exported 3.89Mt of HPSS to China, Japan, Taiwan and South Korea. • Silica sand specifications anticipated to be marketed by CFS incl 99.9% SiO_2, 120ppm Fe_2O_3, 300ppm Al_2O_3 and 200ppm TiO_2 & 1.2% -106µm particles.

Criteria	JORC Code Explanation	Commentary

Economic	• The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.
	• NPV ranges and sensitivity to variations in the significant assumptions and inputs.
		• CFS have completed a comprehensive economic analysis including inputs from the various project team members with the following key outcomes;
		  • NPV – Pre-tax (10%) $437.3M
		  • IRR – Pre-tax 32.19%,
		  • NPV – Post-tax (10%) $279.9M
		  • IRR – Post-tax 26.59%,
		  • Payback period 2.85 years
		  • Initial CAPEX ($143.5M)
		  • Lowest Cash Point (ungeared) ($195.2M)
		  • LOM Revenue $2,910.1M
		  • Total Silica Sales 36.135Mt
		  • LOM OpEx (excl. royalties) $1,198.2M
		  • Cash Flow Pre-Tax $1,341.0M
		  • LOM EBITDA $1,679.5M
		  • AISC/t Silica $37.90/t
		  • C1 Cost/t Silica $33.16/t
		  • Weighted Average Sales Price (real 2025) $80.54/t
		  • Mineral Resources 49.5Mt
		  • Ore Reserve 47Mt
		  • LOM 25 years
		  • Plant operating capacity 1.875Mtpa
		  • Yield 77.8 to 84.8%
		  • Silica product 1.5Mtpa

Social	• The status of agreements with key stakeholders and matters leading to social licence to operate.	• Appropriate social and government processes have been followed and CFS have engaged with Cook Shire Council, Hopevale Aboriginal Shire Council, Nguurruumungu Clan, and Dingaal Clan to establish a suitable social framework. • It is anticipated that CFS will be able to progress these agreements to final completion in a reasonable timeframe. • Risk Assessments have been completed for various key areas of the project including approvals, community, contracts & procurement, corporate, engineering, financial, logistics, marketing, mining, people, production, project management, reputation and technical. Chapter 21 of the DFS study provided a risk assessment process which was collated in an Active Risk Manager • MLAs have been submitted in favour of the proposed operations. CFS has reasonable grounds that approval for these MLs will be granted within the timeframes nominated in the DFS.

Criteria	JORC Code Explanation	Commentary
Other	• To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves: • Any identified material naturally occurring risks. • The status of material legal agreements and marketing arrangements. • The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.	• Risk Assessments have been completed for various key areas of the project including approvals, community, contracts & procurement, corporate, engineering, financial, logistics, marketing, mining, people, production, project management, reputation and technical. Chapter 21 of the DFS study provided a risk assessment process which was collated in an Active Risk Manager • MLAs have been submitted in favour of the proposed operations. CFS has reasonable grounds that approval for these MLs will be granted within the timeframes nominated in the DFS.
Classification	• The basis for the classification of the Ore Reserves into varying confidence categories. • Whether the result appropriately reflects the Competent Person's view of the deposit. • The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	• The Ore Reserve has been classified 100% as Probable Ore Reserves. • The classification of the Reserves appropriately reflects the Competent Person's view in that whilst a high level of understanding of the deposit has been maintained, the project may not progress to Proven Reserves until production commences. • The first 5 years of mine life are derived from ~94% Measured Resources and ~6% Indicated Mineral Resources. Overall Ore Reserves were derived from ~34.3% Measured Resources and ~65.7% Indicated Mineral Resources.
Audits or reviews	• The results of any audits or reviews of Ore Reserve estimates.	• Ore Reserve estimates have been reviewed internally by CFS. • No external audits of Ore Reserve estimates have been conducted at this stage.

Criteria	JORC Code Explanation	Commentary
Discussion of relative accuracy/ confidence	• Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate. • The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used. • Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage. • It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	• The Ore Reserve is based on a DFS which has been completed to a level of detail expected for the project at its current stage. A global accuracy for the Ore Reserve cannot be stated, however CAPEX estimates were completed to -10% to +15%. and OPEX were completed to ±10% to ±15% accuracy. • Further work is required to evaluate Fe_2O_3 distribution throughout the orebody, which could be used for estimation of relevant confidence intervals for the Ore Reserve. • Key risks to the Ore Reserve are the metallurgical recoveries, product price and shipping costs. The competent person believes that appropriate level of detail has been provided for these factors and that the assumptions made are of a conservative nature.

CAPE FLATTERY SILICA

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