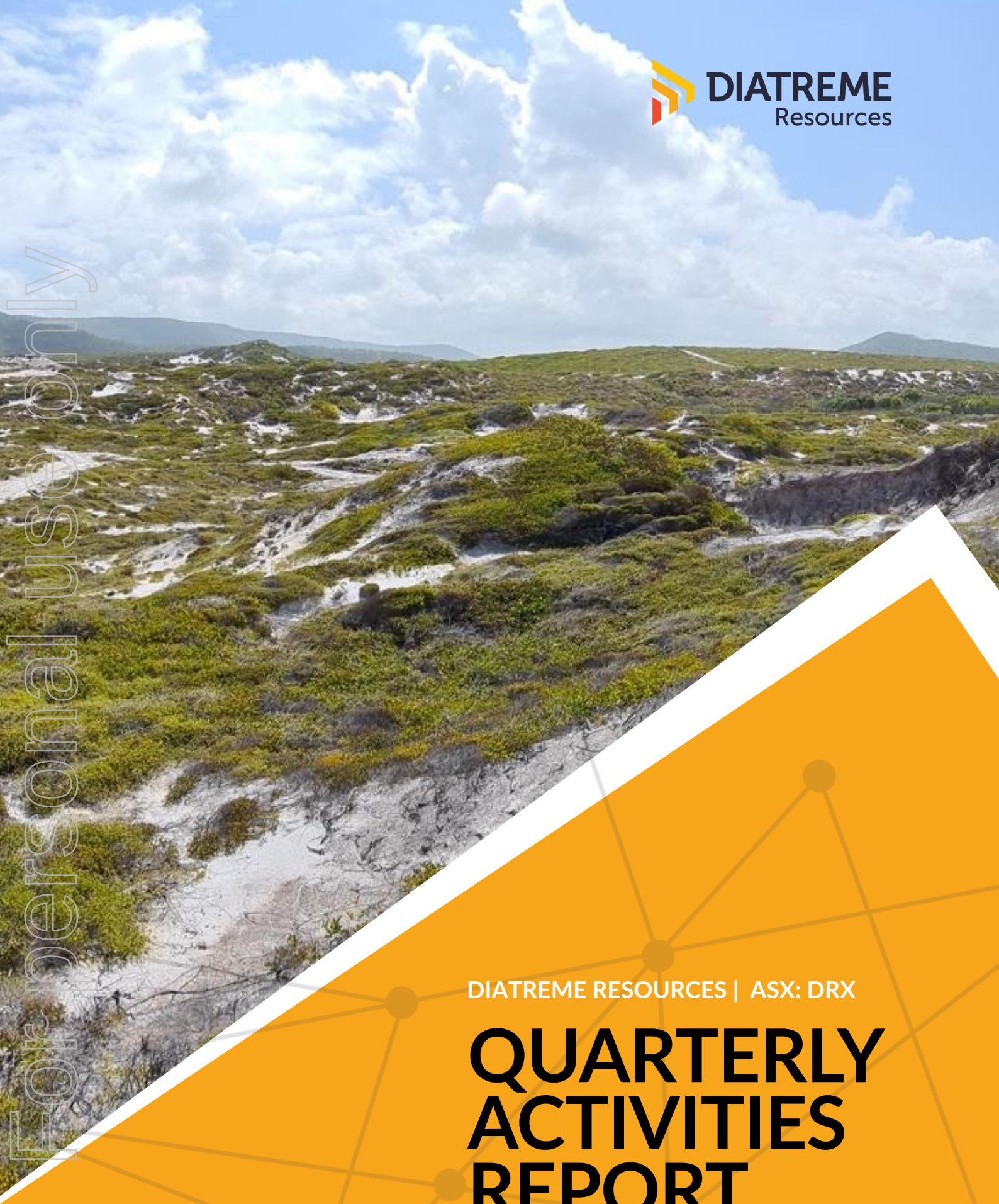

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DIATREME Resources

DIATREME RESOURCES | ASX: DRX

QUARTERLY ACTIVITIES REPORT

FOR THE PERIOD ENDED 31 March 2022

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ASX RELEASE

29 April 2022

Quarterly Activities Report

For the period ended 31 March 2022

This announcement was authorised for release by the Board.

Neil McIntyre
Chief Executive Officer

Wayne Swan
Chairman

Contact – **Mr Neil McIntyre**
Ph 07 3397 2222

Website - diatreme.com.au
E-mail - manager@diatreme.com.au

For media queries, please contact:

Anthony Fensom, Republic PR
anthony@republicpr.com.au;
Ph: +61 (0) 407 112 623

CORPORATE

Diatreme released its Full Year Statutory Accounts on 24 March 2022, with the results showing a substantial increase in net assets to $30.76 million as of 31 December 2021, up 32% from the prior year's $23.2 million.

The vast majority (98%) of Company expenditure during the year was on its silica projects (Galalar & Si2 North), which continues to expand the portfolio and develop as a major world class high-grade silica sand resource province.

The Company's cash and liquids position as at 31 March 2022 **totalled $4.8m.**

Noosa Mining Investor Conference presentation, July 2022

Diatreme continues to engage with investors, with the Company's CEO Neil McIntyre scheduled to present at the 2022 Noosa Mining Investor Conference, to be held from 20-22 July at Peppers Noosa Resort in Noosa (refer https://www.noosaminingconference.com.au/).

For shareholders unable to attend the event, Mr McIntyre's presentation will be available online and a recording posted on the Company's website post-event.

DIATREME Resources

QUARTERLY HIGHLIGHTS

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Galalar Silica Project & Si2 North Project, Qld

- Diatreme's total silica resource base expands to nearly 200 million tonnes (Mt) across its Galalar Silica Project and new Si2 North Project, providing for potentially multiple operations producing high-grade silica product
- Si2 North Project's Inferred Mineral Resource increases 134% to 124 Mt @ 99.33% SiO_2
- Diatreme assessing optional approaches for development across Northern Regional Project (NRP) area, including mining lease pre-lodgement discussions with relevant stakeholders.

Clermont Copper / Gold Project, Qld

- Farm-out partner Metallica Minerals (ASX:MLM) undertakes initial drilling in early March; assay results expected in Q2 2022.

Cyclone Zircon Project, WA

- Talks continuing with potential development partners amid upturn in mineral sands market, with zircon price rising due to constrained supply and increasing ceramics demand.

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COMING JUNE QUARTER 2022 ACTIVITIES

Diatreme's operational focus for the June quarter 2022 comprises the following:

Galalar Silica Project and Si2 North Project (NRP)

Galalar

- Further engagement with project partners, Hopevale Congress, affected native title holders and relevant regulatory/government agencies to advance project approvals and preferred logistics solution;
- Progression towards formalised offtake or marketing agreements;
- Further bulk sampling and testing for resource upgrades and mine planning for definitive feasibility study (DFS) completion.
- Lodgement of finalised EIS studies for public comments process.
- Detailed tendering and project costs analysis for use in DFS studies
- Further market engagement on silica product diversification including "value add" market development and downstream product development.

Si2 North Project (NRP)

- Further resource definition and expansion drilling programs
- Engagement with regulatory agencies regarding permitting and approvals process
- Commencement of early desk top Project financial analysis (scoping study)
- Lodgment of mining lease applications
- Early EIS relevant studies (water, flora & fauna, etc.) planning.

Cyclone Zircon Project

- Continue progress in preparing the Project to facilitate the assembling of an optimum mix of commercial parties to facilitate project's development or divestment, amid rising demand and constrained supply of zircon and titanium products.

GALALAR SILICA PROJECT, QLD

Diatreme's silica sand resources further expanded during the March quarter 2022, with the discovery of a new high-grade silica deposit (Si2 North Project) within the Company's Northern Resource Project near Cape Flattery.

This combined with the existing resource at the Company's flagship Galalar Silica Project increased Diatreme's total silica sand resource to an estimated 199.5 Mt, providing a major resource base in a stable and ESG-compliant jurisdiction and in proximity to fast-growing solar PV markets.

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High-grade silica deposit confirmed near Cape Flattery

Diatreme's potential to develop a multi-project silica sand operation was boosted in January, with the confirmation of a Maiden Inferred Mineral Resource for the new Si2 North Project, located within the Northern Resource Project (NRP) area of the Cape Bedford exploration tenement (EPM17795).

The new discovery comprised 53.2 million tonnes @ 99.32% SiO2, following exploration drilling undertaken in late 2021 (refer ASX announcement 10 January 2022).

Given the nature of the resource and its proximity to existing infrastructure, including the Cape Flattery port operations (State owned - Ports North) the Company is conducting preliminary investigations for lodgement of a mining lease application (MLA) covering the northern section of the tenement to facilitate the "fast tracking" of a second major high purity silica operation.

Table 1 – Maiden Inferred Resource Estimate – Si2 North Project (NRP)

Si2 North Project - Maiden Inferred Mineral Resource Estimate, December 2021

JORC Resource Category	Silica Sand (Mt)	SiO_2 (%)	Fe_2O_3 (%)	TiO_2 (%)	Al_2O_3 (%)	LOI (%)	Silica Sand (Mm^3)	Density (t/m^3)	Cut-off Grade SiO_2 (%)
Inferred	53	99.32	0.12	0.16	0.08	0.15	33	1.6	98.5

***Note**: Under the JORC Code, 2012 Edition an Indicated Mineral Resource is that part of a Mineral Resource for which quantity, grade (or quality), densities, shape and physical characteristics are estimated with sufficient confidence to support mine planning and evaluation of the deposit's economic viability. An Inferred Mineral Resource has a lower level of confidence than an Indicated or Measured Mineral Resource.*

Figure 1: Dune view, north-western section of Si2 North Project

Diatreme subsequently expanded its NRP exploration, with drilling in early 2022 targeting specific dunes extending over 150 sq km, in proximity to Cape Flattery (refer ASX release 23 February 2022).

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The drilling selectively tested extensions to dunes with low impact exploration activities. This included the involvement of a number of Aboriginal clan groups, assisting in field programs within their respective clan areas, further highlighting Diatreme's commitment to engagement with the Traditional Owners.

Further to the north, silica dune thickness reduces, with exploration focussed on a broad dune field extending north to the Cape Flattery silica mine leases.

Exploration activities at Si1 South were completed in 2021, with the sand quality remarkably consistent throughout the dune system. Assay results indicated the elevated heavy mineral sands (HMS) contain up to 0.07 % ZrO2 and 0.58% TiO2. Colouration in the sand is primarily due to clays.

Drilling undertaken in the NRP as of 23 February 2022 is shown in Table 2:

Area	Air Core drilling (holes/m)	Hand Auguring (holes/m)
Si2 North	94/2004	NA
PLT	51/450	NA
Si1 North reconnaissance	46/382	NA
Si1 South	22/614	95/460

Diatreme has commenced assessing infrastructure options, environmental permitting and associated planning towards a development plan for the NRP. Meetings with government and the state-owned port authorities have commenced along with meetings with regional stakeholders to examine and advance areas for mutual co-operation.

Further progress towards the lodgement of mining lease applications (MLA's) and associated infrastructure leases is anticipated in Q2 2022 covering the northern sections of EPM17795.

Diatreme's minimised footprint mining and processing plant solutions, combined with progressive supported rehabilitation will also be applied in the NRP, aimed at delivering a low impact standalone operation.

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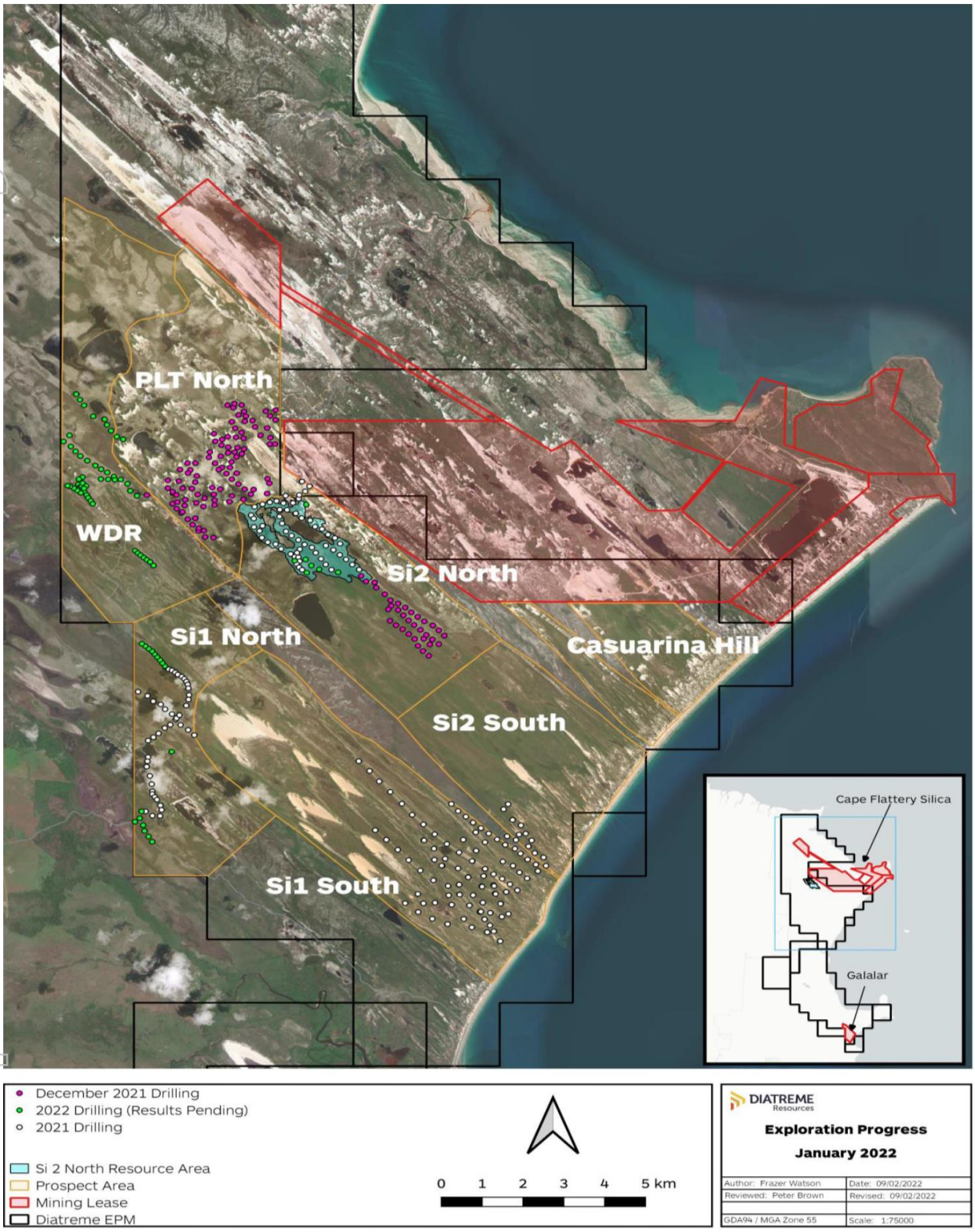

Figure 2: NRP location plan, drilling and Si2 North resource

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Resource base expands to nearly 200 Mt

In March, Diatreme announced a significant expansion to the Inferred Mineral Resource estimate for the Si2 Project, which increased by 134% to 124 Mt @ 99.33% SiO_2. Significantly, the project remains open to the south-east, with potential for additional drilling to identify further significant extensions to the silica resource.

Combined with the existing Galalar Silica Project estimated Mineral Resource of 75.5 Mt (refer ASX release 20 September 2021), Diatreme now has a total silica sand resource of 199.5 Mt.

Table 3: Inferred Resource Estimate – Si2 North Project, March 2021

Resource category	Silica sand (Mt)	SiO_2 (%)	Fe_2O_3 (%)	Tio2 (%)	Al_2O_3 (%)	LOI (%)	Total	Silica sand (Mm^3)	Density (t/m^3)	Cut-off grade SiO_2 (%)
Inferred	124.1	99.33	0.11	0.15	0.08	0.12	99.85	77.6	1.6	98.5

***Note**: Under the JORC Code, 2012 Edition an Indicated Mineral Resource is that part of a Mineral Resource for which quantity, grade (or quality), densities, shape and physical characteristics are estimated with sufficient confidence to support mine planning and evaluation of the deposit's economic viability. An Inferred Mineral Resource has a lower level of confidence than an Indicated or Measured Mineral Resource.*

Table 4 – Total Resource Estimate Galalar Silica Project & Si2 North

	JORC Resource Category	Silica sand (Mt)	Silica sand (Mm^3)	Cut-off SiO_2 (%)	SiO_2 %	Fe_2O_3 %	TiO_2 %	LOI %	Al_2O_3 %	Density (t/m^3)
Galalar	Measured	43.12	26.95	98.5	99.21	0.09	0.11	0.16	0.13	1.60
Galalar	Indicated	23.12	14.45	98.5	99.16	0.09	0.13	0.24	0.10	1.60
Galalar	Inferred	9.22	5.76	98.5	99.10	0.11	0.16	0.27	0.11	1.60
Galalar	**Sub Total****	**75.46**	47.16	98.5	99.18	0.09	0.12	0.20	0.12	1.60
Si2 North	**Inferred**	**124.1**	77.56	98.5	99.33	0.11	0.15	0.12	0.08	1.60
Combined	Total	**199.56**		98.5						1.60

** Resource estimate current as of 13 September 2021*

*** Galalar Sub-total inferred, indicated and measured*

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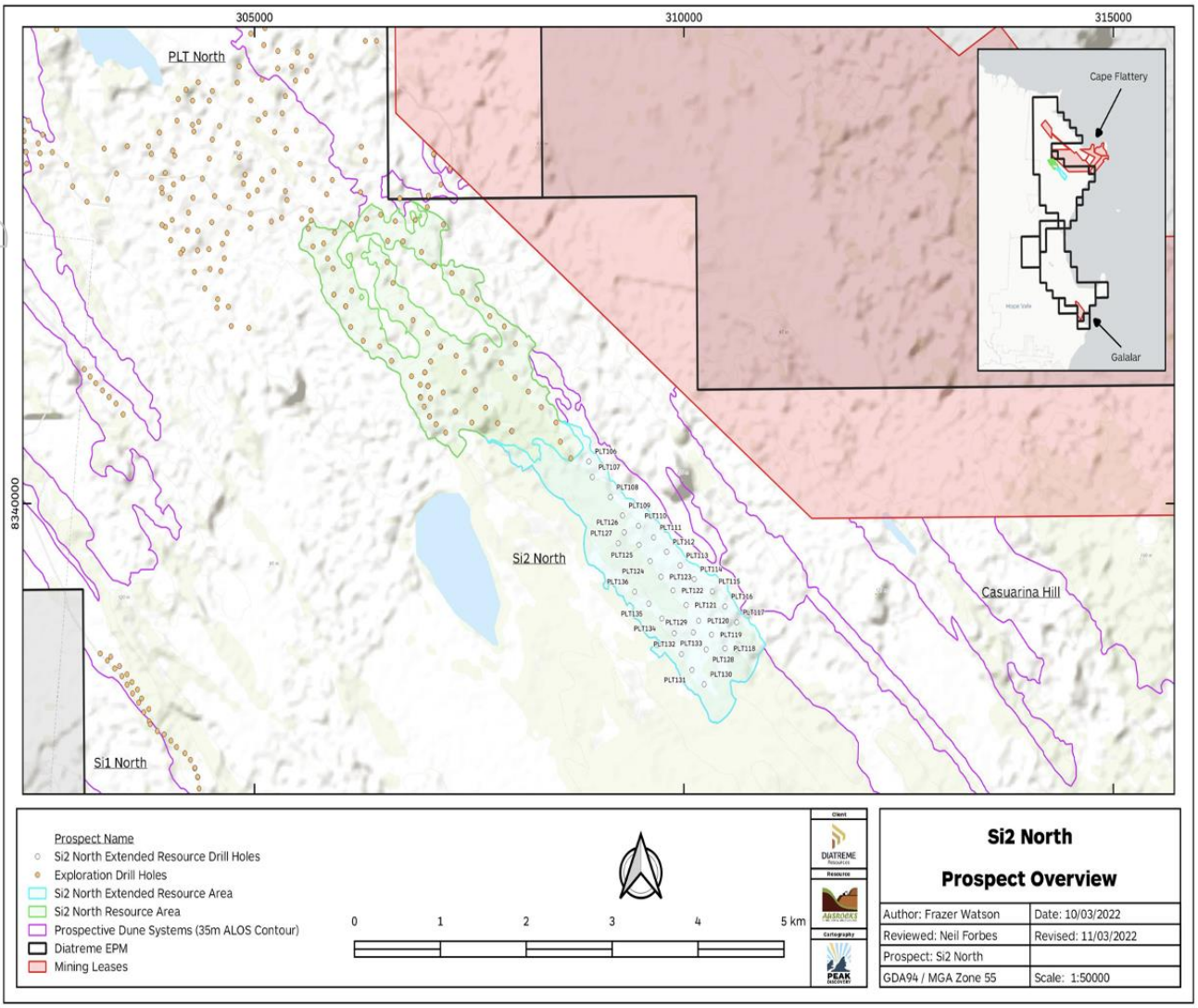

Fig 3: Si2 North Project Resource Overview

NRP – further development

Diatreme is targeting the following next steps for the NRP, including the Si2 North Project:

- Diatreme is continuing to drive exploration and project development efforts though the 2022 wet season, focussed on the PLT and Si2 North dune systems, which are located within the NRP area. The focus is on multiple resource definition over a large area located immediately to the south of the Cape Flattery operation.
- Preliminary engineering scoping is determining optimal paths to permitting and potential development in the area. This will be factored into additional investigation of the Si2 North deposit, including solutions on infrastructure and export leveraged to the Cape Flattery Port.
- Bulk sample metallurgical test work on Si2 North will determine amenability to processing utilising Diatreme's Galalar optimised silica product processing criteria. This targets assessment and delivery of a high value low iron, high purity silica product.

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- Preparation of Mining Lease Applications for this northern section of the tenement, aligned to appropriate solutions for infrastructure development and export, with the aim of fast tracking a second major high purity silica operation.
- Undertaking relevant logistics and economics studies as appropriate to determine the economic development case.

Galalar Project – next steps

Meanwhile, Diatreme has continued to advance the regulatory approval process for the Galalar project. A draft EIS is being finalised, with the aim of receiving the necessary environmental approvals and grant of a Mining Lease in the second half of 2022, together with the finalisation of a definitive feasibility study.

Diatreme continues to engage with a range of potential project development partners, including potential offtake and other agreements, amid increasing demand for high-grade silica from the fast-growing solar PV industry.

This year is expected to see a new record of more than 200 gigawatts of solar capacity installed globally, with analysts BloombergNEF predicting this will further grow to 334 GW by 2030. Amid growing global momentum towards decarbonisation and diminishing supply of high-grade silica sand, Diatreme is well placed to advance its projects for the benefit of all stakeholders.

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CLERMONT COPPER/GOLD PROJECT, QLD

Diatreme announced on 5 August 2021 a binding Memorandum of Understanding (MOU) with Metallica Minerals Limited (ASX:MLM) for the Company's Clermont Copper/Gold Project (EPM 17968).

The MOU required Metallica to spend a minimum of $300,000 on exploration before 31 December 2021 to earn a 25% interest in the project.

On 26 October 2021, Metallica requested an extension to the initial expenditure stage, which was agreed by Diatreme and extended to 29 April 2022.

The key terms of the MOU comprise:

- Metallica to invest a minimum of $300,000 on exploration expenditure no later than 29 April 2022 to earn a 25% interest in the project;
- Should Metallica commit to continue to invest in the project, by investing a further $700,000, Metallica will gain an additional 26% interest;
- Metallica will then have the right to invest a further $1 million in the joint venture to hold a 75% interest;
- The partners will then be entitled to contribute further funding to the project on a pro-rata basis.

Metallica commenced drilling at the project in early March, with the first hole drilled to a depth of 530m. Drilling on a second hole has begun and is expected to be finished by the end of April.

Metallica expects the first batch of assay results will be received during Q2 2022 (refer Metallica's quarterly activities report, released 20 April 2022).

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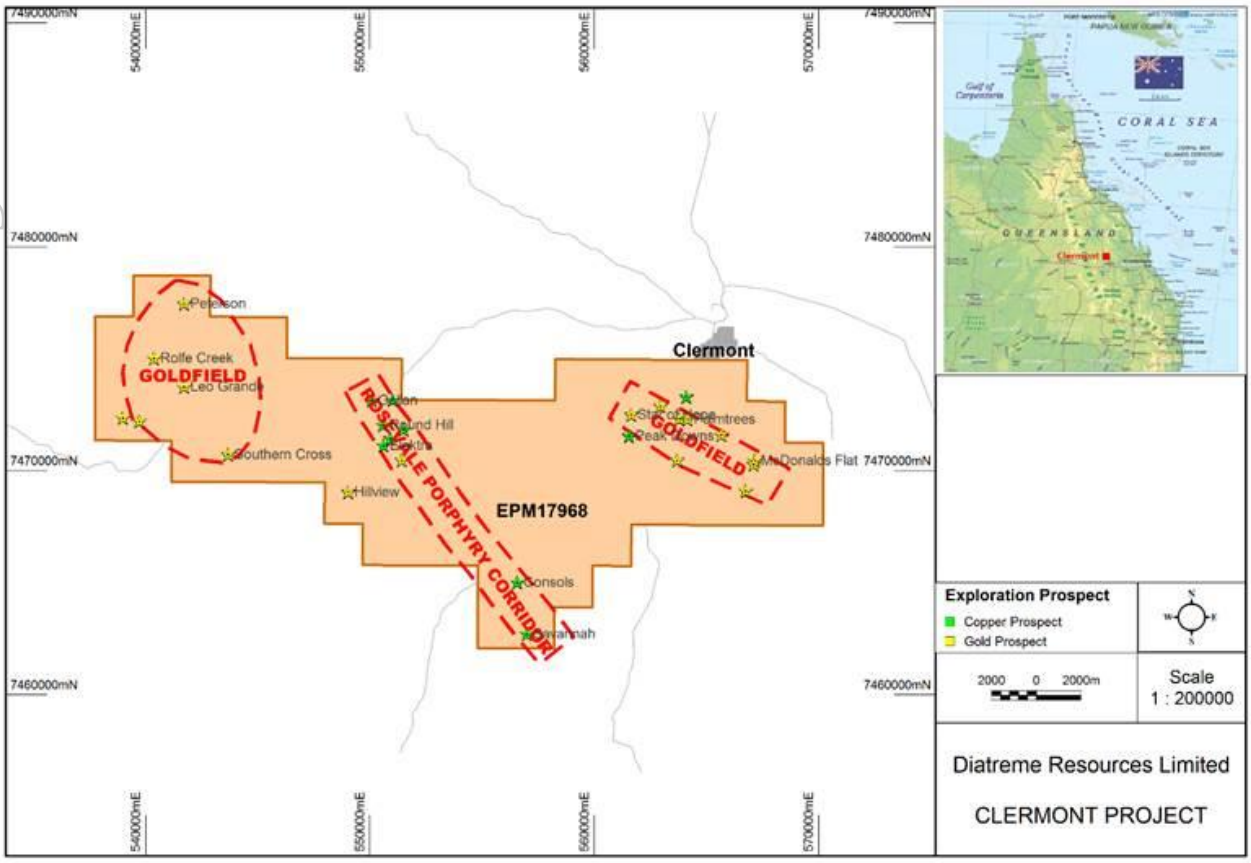

Figure 5: Clermont Copper/Gold Project

CYCLONE ZIRCON PROJECT, WA

Diatreme has continued to advance discussions with potential development partners for the Cyclone Zircon Project, which is set to benefit from an upturn in the global mineral sands market.

Global zircon production is declining as mine depletions continue, with no meaningful new capacity expected to come online in the near term, according to major producer Iluka Resources (refer Iluka's full-year results presentation, 24 February 2022).

With ceramics industry demand increasing, the zircon price increased to US$1,590 per tonne in the fourth quarter of 2021, up 23% from the corresponding quarter a year prior. Iluka increased its price by US$220/t, effective 1 January 2022, with its zircon sales in the first quarter "fully contracted."

Similarly, the rutile price rose last year, increasing to US$1,264/t, up 4% from the 2020 fiscal year, according to Iluka, with demand outstripping supply.

These positive market dynamics support Diatreme's aim to maximise value from Cyclone by attracting a suitable investment partner to develop this shovel-ready project. The Company will keep the market fully informed when talks potentially transition to a more formally documented process.

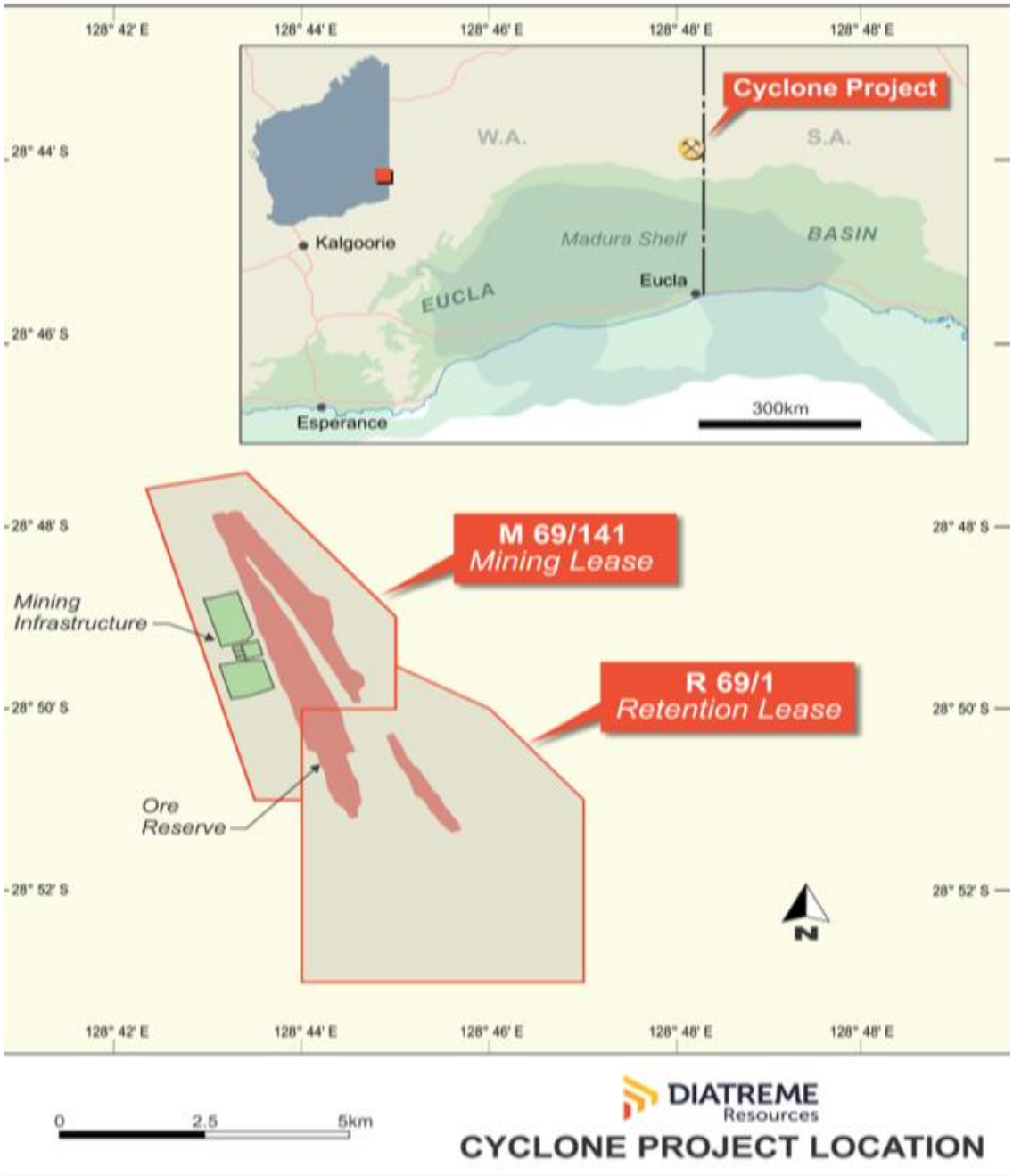

Figure 6: Cyclone project location

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MINERAL SANDS AND SILICA - COMPETENT PERSON STATEMENTS

The information in this report that relates to Mineral Resources at the Cape Bedford Project (including the Galalar Silica Project) is based on information compiled by Bryce Mutton from Ausrocks Pty Ltd who has significant experience in Industrial Minerals and Quarry Resource assessments.

Bryce Mutton has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity for which he is undertaking to qualify as a Competent Person as defined in the 2012 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (The JORC Code). Bryce Mutton consents to the inclusion in the report on the matters based on their information in the form and context in which it appears.

The information in this report that relates to Exploration Results and Exploration targets from the Cape Bedford Project is based on information reviewed and compiled by Mr. Neil Mackenzie-Forbes, a Competent Person who is a Member of the Australian Institute of Geoscientists. Mr. Mackenzie-Forbes is a director of Sebrof Projects Pty Ltd (a consultant geologist to Diatreme Resources Limited). Mr. Mackenzie-Forbes has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr. Mackenzie-Forbes consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

The information in this report, insofar as it relates to Mineral Resources at the Cyclone Project is based on information compiled by Mr Ian Reudavey, who was a full time employee of Diatreme Resources Limited and a Member of the Australian Institute of Geoscientists. Mr Reudavey has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he has 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 Reudavey consents to the inclusion in the report of the matters based on the information in the form and context in which it appears.

The information in this report, insofar as it relates to Ore Reserves at the Cyclone Project is based on information compiled by Mr Phil McMurtrie, who is a director of Tisana Pty Ltd (a consultant to Diatreme Resources Limited), and a Member of the Australasian Institute of Mining and Metallurgy. Mr McMurtrie has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he has 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 McMurtrie consents to the inclusion in the report of the matters based on the information in the form and context in which it appears.

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APPENDIX 1

Appendix 1 provides information required under ASX listing rule 5.3.3 for mineral exploration entities.

Interest in mining tenements at end of quarter

State	Tenement Name	Tenement ID	Status	Location	Interest	Holder
WA	Cyclone	M 69/141	Granted	Eucla Basin	100%	LSPL
WA	Cyclone Extended	R 69/1	Granted	Eucla Basin	100%	DRX
QLD	Clermont	EPM 17968	Granted	Clermont	100%	CHAL
QLD	Cape Bedford	EPM 17795	Granted	Hopevale	100%	DRX
QLD	Cape Bedford	EPM 27265	Granted	Hopevale	100%	DRX
QLD	Cape Bedford	EPM 27212	Granted	Hopevale	100%	DRX
QLD	Cape Bedford	EPM 27430	Granted	Hopevale	100%	DRX
QLD	Cape Bedford	MLA 100235	Application	Hopevale	(Pending)	DRX
QLD	Cape Bedford	MLA 100285	Application	Hopevale	(Pending)	DRX

Beneficial percentage interests held in farm-in or farm-out agreements at end of quarter

State	Project name	Agreement type	Parties	Interest held at end of quarter by exploration entity or child entity	Comments
WA	Cyclone Zircon Project	Farm-out Heads of Agreement	LSPL and Perpetual Mining Holding Limited	94%	HoA announced Jan 2014, initial 6% farm-out completed 18 Sept 2014 – Subject to dilutionary non-contribution clauses.

Abbreviations:

M	Western Australia	Mining Lease	DRX - Diatreme Resources Limited
R	Western Australia	Retention Licence	CHAL – Chalcophile Resources Pty Ltd
EPM	Queensland	Exploration Permit for Minerals	LSPL – Lost Sands Pty Ltd
EPMA	Queensland	Exploration Permit for Minerals Application	
MLA	Queensland	Mining Lease Application	