



## DIATREME RESOURCES LIMITED

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ASX : DRX

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13 March 2018

### **Re-release of Announcement on 2 March 2018 titled “TESTWORK CONFIRMS PROSPECTS FOR NEW SILICA AND MINE”**

Diatreme Resources Limited wishes to notify shareholders of the re-release of the above announcement on Cape Bedford initially released to the market on the 2 March 2018.

The announcement has been amended to incorporate the following changes:

- addition of further relevant JORC Table 1 commentary
- material drill holes included in the metallurgical sampling have been further referenced and highlighted in accordance with ASX Listing Rule 5.7.2, by separate annexure and
- the Competent Person statement is now further clarified as to the person responsible for exploration results and targets.

Yours faithfully

Tuan Do  
Company Secretary

# ASX

## ANNOUNCEMENT



## TESTWORK CONFIRMS PROSPECTS FOR NEW SILICA SAND MINE

Diatreme Resources Limited is an Australian based diversified mineral explorer with significant projects in WA and QLD.

The Board and senior personnel exhibit wide experience, ranging through the exploration, development and financing phases of resource project management.

Australian Securities Exchange  
Codes: DRX

Board of Directors Non-Executive  
William Wang - Chairman  
Gregory Starr  
Andrew Tsang  
Daniel Zhuang

Executive:  
Neil McIntyre – Chief Executive

Key Projects:  
• Cyclone Zircon Project  
• Tick Hill Gold Project  
• Cape Bedford Silica/HMS Project  
• Clermont Copper Project

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### 2 March 2018

- **Results from initial metallurgical testwork show Cape Bedford Silica/Heavy Minerals Project capable of producing high-quality glass-grade silica sand**
- **Plans for additional drilling to allow resource definition at project located near world's biggest silica sand mine**

Prospects for a new world-class silica sand mine in North Queensland have received a boost, with Diatreme Resources Limited (ASX:DRX) announcing today results from initial metallurgical testwork showing the project capable of producing high quality glass-grade silica sand.

Six bulk samples were wet tabled to simulate conventional washing and gravity separation typical of silica sand processing, with c. 80% recovery of a primary silica sand product ranging from 99.6 – 99.9% SiO<sub>2</sub> with <0.02% Fe<sub>2</sub>O<sub>3</sub> – easily meeting specifications for glass-grade silica sand.

Situated near the world's largest silica sands mine, Cape Bedford is favourably positioned to access growing markets for silica sand in Asia. The silica sand market is seen reaching nearly US\$10 billion in revenues by 2022, amid growth from both developed and emerging markets.

Diatreme's CEO, Neil McIntyre, said: "Cape Bedford's potential as a supplier of high quality silica sand has been reaffirmed by these latest results, with the prospects of generating valuable new jobs for the region and becoming a profitable near-term mining operation as an important part of our mineral sands portfolio.

"We are determined to further test its potential as quickly as possible through additional drilling, based on support from the traditional owners and regulatory approvals, as we work to unlock value for shareholders."

## Cape Bedford Project Summary

- \* One of the largest high purity silica exploration land packages in Australia, covering an area of 542 sq km in Queensland's Eastern Cape York region, around 200km north of Cairns
- \* Cape Bedford EPM17795 covers a large Quaternary sand dune field, part of which is currently being mined by Mitsubishi Corporation subsidiary, Cape Flattery Silica Mines Pty Ltd and is the world's largest silica sand mining operation
- \* Closest proximity high-grade undeveloped project to the world's largest silica markets in China, Japan, South Korea and Taiwan
- \* High-grade silica used in glass manufacture, foundry casting, electronics, ceramics and construction – industries in demand and growing in developing Asia, with the market expected to expand at a compound annual growth rate of 7.2% through to 2022, reaching revenues of US\$9.6 billion (source: IMARC Group)

## MARKET METRICS

Silica sand is currently enjoying healthy growth, with a CAGR of nearly 8.7% in value terms from 2009 to 2016 and a market value of US\$6.3 billion (source: IMARC Group). This has been fuelled by its applications across a range of industries, including glass making, foundry casting, water filtration, chemicals and metals, along with the hydraulic fracturing process. IMARC expects the demand for silica sand to exhibit a CAGR of 7.2% through to 2022, reaching revenues of US\$9.6 billion.

As one of the major consumers of high purity silica, the global glass market has recently realised significant growth due to increased demand from the construction and automotive markets, along with expanding per capita income and technological advancements. Currently there are no direct substitutes for silica sand in the majority of its applications. As a result, the threat of competitor products remains low.

Meanwhile, construction sand is a major global industry, with an estimated 11 billion tonnes of sand mined for construction alone in 2010.

The primary structural component in a range of building and construction products, whole-grain silica is used in flooring compounds, roofing shingles, skid-resistant surfaces and other applications requiring packing density and flexural strength. Ground silica adds durability, anti-corrosion and weathering properties in caulks, epoxy-based compounds and sealants.

Growing Asian markets for construction sand include Singapore, with other Asian emerging markets also showing growth, including India and Vietnam. For further information on the silica sand market, refer to Diatreme's ASX announcement dated 30 November 2017.

## EXPLORATION OVERVIEW – CAPE BEDFORD

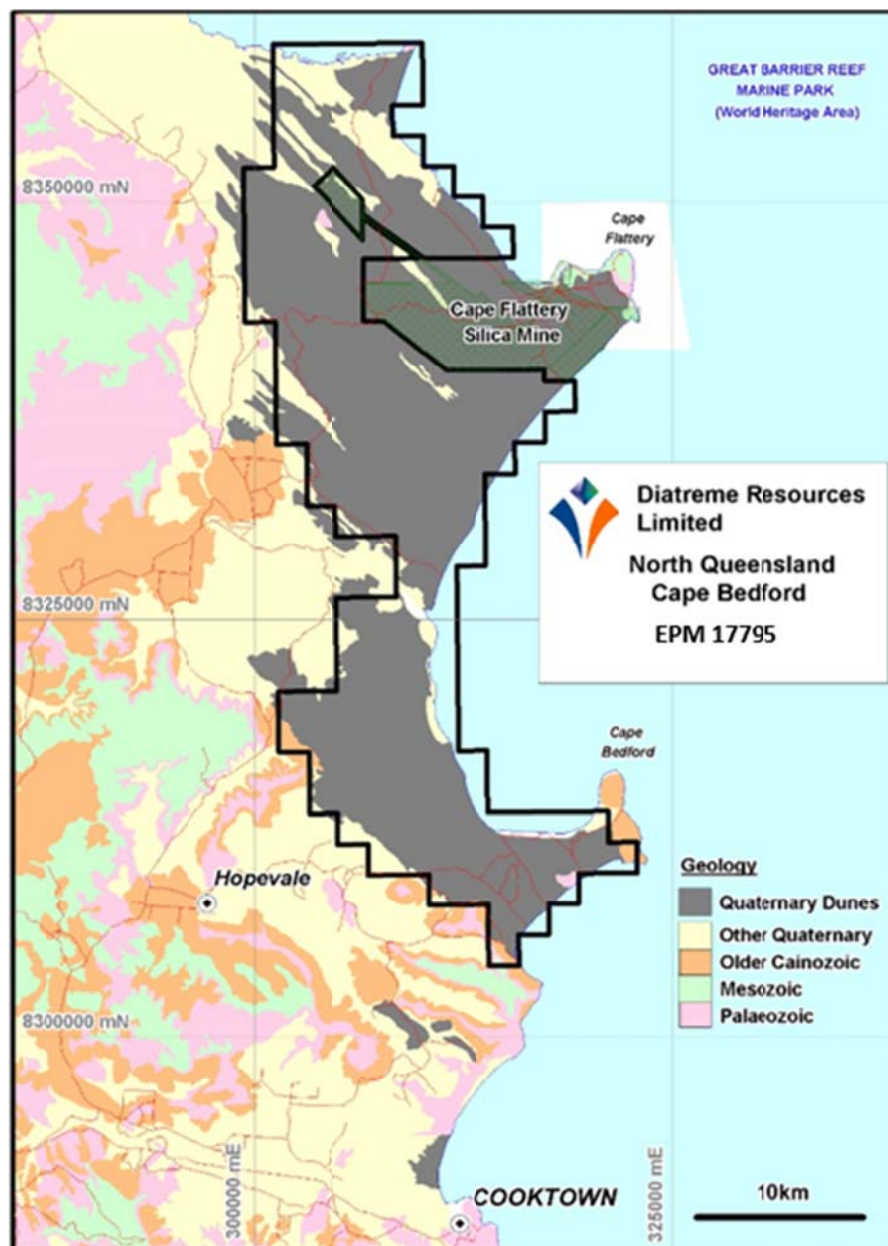
The Cape Bedford EPM17795 is located approximately 200km north of Cairns in North Queensland, and covers the extent of a large Quaternary sand dune field, part of which is currently being mined by Cape Flattery Silica Mines Pty Ltd (CFSM), a wholly owned subsidiary of Mitsubishi Corporation. Cape Flattery has operated since 1967 and is the world's largest silica sand mining operation.

The Cape Bedford / Cape Flattery region of north Queensland is dominated by an extensive Quaternary sand mass and dune field that stretches inland from the present coast for approximately 10km and

extends 50km from north to south.

Historical exploration has focused on the Cape Flattery area, within the Mining Leases of CFSM, but reconnaissance exploration has been carried out over the entire dune field in the late 1960's and again in the early 1980's. This exploration confirmed the presence of both silica sand and heavy mineral sands, and Diatreme intends to build on the existing data and initially target those areas (e.g. Nob Point) where prospective silica sand dunes have been identified and access is readily available.

The company executed a Conduct and Compensation Agreement (CCA) in January 2017, and a Cultural Heritage Agreement (CHA) in June 2017 with the traditional owners, the Hopevale Congress. The CCA allows access for ground disturbing exploration activity and ensures the traditional owners share in the potential economic benefits of this new project, while the CHA sets out the protocol for cultural heritage issues. Cultural heritage surveys for the first proposed exploration program were undertaken in August and subsequent exploration access granted in September 2017.



## Reconnaissance Exploration – September 2017

Following the process defined by the CHA, Diatreme assisted with a Cultural Heritage survey in August 2017 over the proposed reconnaissance exploration area in the Nob Point to Elim Beach area in the southern part of EPM17795. A reconnaissance exploration program was subsequently approved, and Diatreme commenced exploration in September 2017 utilising a Company-owned and operated air-core drilling rig. Reconnaissance drilling was planned alongside established roads and tracks, with line clearing and reconnaissance drilling also planned over a dune system in the southern part of the EPM.

During September, 29 holes were drilled along Elim Road and a related beach access track, for a total of 606m with an average hole depth of 21m. The logged geology was reasonably consistent in defining large areas of fine grained quartz sand, but sand colour was variable, with a variety of coloured sands particularly apparent towards Elim Beach. Results from the drilling were presented in the ASX announcement dated 30 November 2017.

## Reconnaissance Exploration – October 2017

During October, 26 holes were drilled along cleared access tracks over a dune complex near Nob Point, for a total of 670m with an average hole depth of 26m. The logged geology was reasonably consistent in defining large areas of fine grained quartz sand, but sand colour was variable throughout the drilled area of the dune system, suggesting a complex depositional (and erosional) history for the dune complex.

Several large zones of white, fine grained quartz sand extending over 400m in length along the dune ridges were evident from surface down to 30m depth, with extensive cream coloured sands also logged. This suggests that most of the area drilled represents a body of sand with sufficient size that may allow large scale silica sand extraction for commercial purposes. Results from the drilling were presented in the December 2017 Quarterly Activities Report released to the ASX on 31 January 2018.

## Bulk Sample Metallurgical Testwork

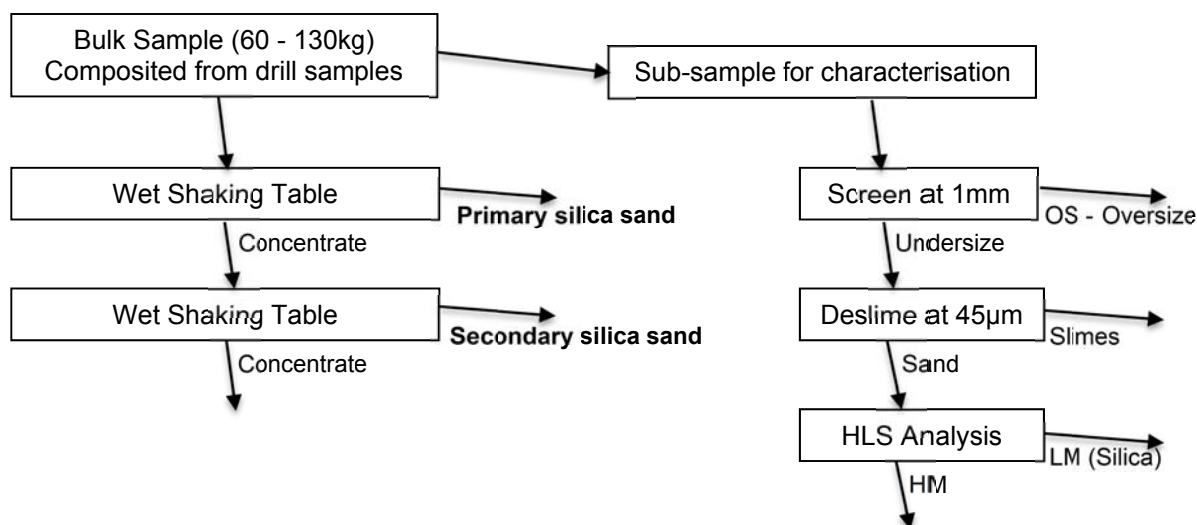
Subsequently, bulk samples of approximately 100kg each from six separate drill holes (CB037, CB038, CB047, CB048, CB053, CB054) were submitted for preliminary metallurgical testwork to assess the potential to generate a high-quality silica sand product from the white quartz sands intersected from the October drilling program.

The testwork confirmed the potential of the area drilled at Nob Point to generate a high-quality silica sand product suitable for glass making, with a range of 99.61 - 99.87% SiO<sub>2</sub> sand with <0.02% Fe<sub>2</sub>O<sub>3</sub> and 0.04 - 0.06% Al<sub>2</sub>O<sub>3</sub> produced as a primary silica sand product from the testwork, with an average 80% recovery to product.

The secondary silica sand product also displayed high grade silica sand characteristics, with a range of 99.3 - 99.5% SiO<sub>2</sub> with <0.04% Fe<sub>2</sub>O<sub>3</sub> and 0.06 - 0.15% Al<sub>2</sub>O<sub>3</sub> produced. Blending of these two streams could generate a glass-grade silica sand product with 97-98% recovery of feed to product.

Sizing of the primary silica sand product shows it to dominantly comprise 150 – 250um material (~50%), although samples CB047 and CB048 were slightly coarser grained.

The testwork flowsheet comprised:



Sample	% weight recovery*	SiO <sub>2</sub> %	Al <sub>2</sub> O <sub>3</sub> %	Fe <sub>2</sub> O <sub>3</sub> %	TiO <sub>2</sub> %
CB037	86	99.67	0.04	0.01	0.02
CB038	69	99.78	0.06	0.02	0.03
CB047	79	99.66	0.04	0.01	0.02
CB048	83	99.87	0.04	0.01	0.02
CB053	84	99.61	0.05	0.01	0.02
CB054	84	99.64	0.05	0.01	0.02

**Primary Silica Sand testwork**

\*relative to primary wet table feed

Sample	% weight recovery*	SiO <sub>2</sub> %	Al <sub>2</sub> O <sub>3</sub> %	Fe <sub>2</sub> O <sub>3</sub> %	TiO <sub>2</sub> %
CB037	12	99.5	0.11	0.03	0.07
CB038	28	99.5	0.11	0.04	0.07
CB047	18	99.5	0.06	0.01	0.03
CB048	14	99.5	0.06	0.02	0.05
CB053	15	99.3	0.12	0.03	0.07
CB054	15	99.3	0.15	0.04	0.08

**Secondary Silica Sand testwork**

\*relative to primary wet table feed

Size µm	CB037		CB038		CB047		CB048		CB053		CB054	
	%	Cum%	%	Cum%	%	Cum%	%	Cum%	%	Cum%	%	Cum%
1000	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0
850	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1
600	1.5	1.6	0.9	1.0	4.6	4.7	1.7	1.9	1.0	1.1	1.7	1.8
425	5.7	7.3	3.9	4.9	21.5	26.2	8.8	10.7	5.4	6.5	6.3	8.1
300	14.9	22.1	12.7	17.6	34.3	60.6	20.4	31.1	15.3	21.9	16.3	24.4
250	12.9	35.0	13.1	30.6	15.1	75.7	13.7	44.8	14.2	36.1	15.2	39.7
150	53.5	88.5	60.4	91.0	21.4	97.2	44.7	89.6	52.2	88.3	49.3	89.0
125	6.9	95.4	5.8	96.8	1.0	98.2	5.8	95.4	6.9	95.2	6.1	95.1
90	2.9	98.3	2.0	98.7	0.6	98.8	2.8	98.2	3.7	98.9	2.9	98.0
45	1.6	99.9	1.3	100.0	1.1	99.9	1.6	99.8	1.1	100.0	1.9	99.9
0	0.1	100.0	0.0	100.0	0.1	100.0	0.2	100.0	0.0	100.0	0.1	100.0

**Primary Silica Sand sizing (% retained)**

Sample	Bulk kg	Sample kg	OS %	Slimes %	HM %	ZrO <sub>2</sub> % In HM	TiO <sub>2</sub> % In HM
CB037 (3-21m)	95	0.52	0.3	2.5	0.19	4.2	24.8
CB038 (3-21m)	92	0.50	0.1	1.4	0.32	7.0	32.4
CB047 (3-27m)	133	0.50	0.0	2.1	0.06	1.7	14.5
CB048 (3-27m)	121	0.51	0.0	2.0	0.18	5.1	30.6
CB053 (3-21m)	96	0.51	0.0	2.2	0.16	3.9	24.7
CB054 (3-12m)	60	0.50	0.1	3.1	0.18	4.1	22.7

#### Head feed characterisation testwork

Sample	% weight recovery*	ZrO <sub>2</sub> % In HM	TiO <sub>2</sub> % In HM
CB037	0.12	6.7	32.5
CB038	0.25	9.8	39.9
CB047	0.03	4.4	23.1
CB048	0.10	6.5	35.9
CB053	0.12	8.3	35.3
CB054	0.13	10.3	38.3

#### Secondary Concentrate HLS HM testwork

\*relative to primary wet table feed

The head feed characterisation work shows that the raw sand material has very low levels of oversize and fines, as is typical of coastal aeolian sand dunes. Heavy mineral content is also quite low, but does contain a significant proportion of zircon and titanium minerals such that if any concentrations of HM are present within the dune mass they would have the potential to generate a valuable by-product HM concentrate.

Selected drill samples were also submitted to a specialist laboratory to commence a series of tests to determine the characteristics of the Nob Point dune sand and assess its potential for use as a construction sand. To date only sizing data has been reported, and this confirmed that the sand would be suitable as a fine-grained aggregate for concrete, provided that other physical and chemical characteristics are in specification. Further testwork is pending.

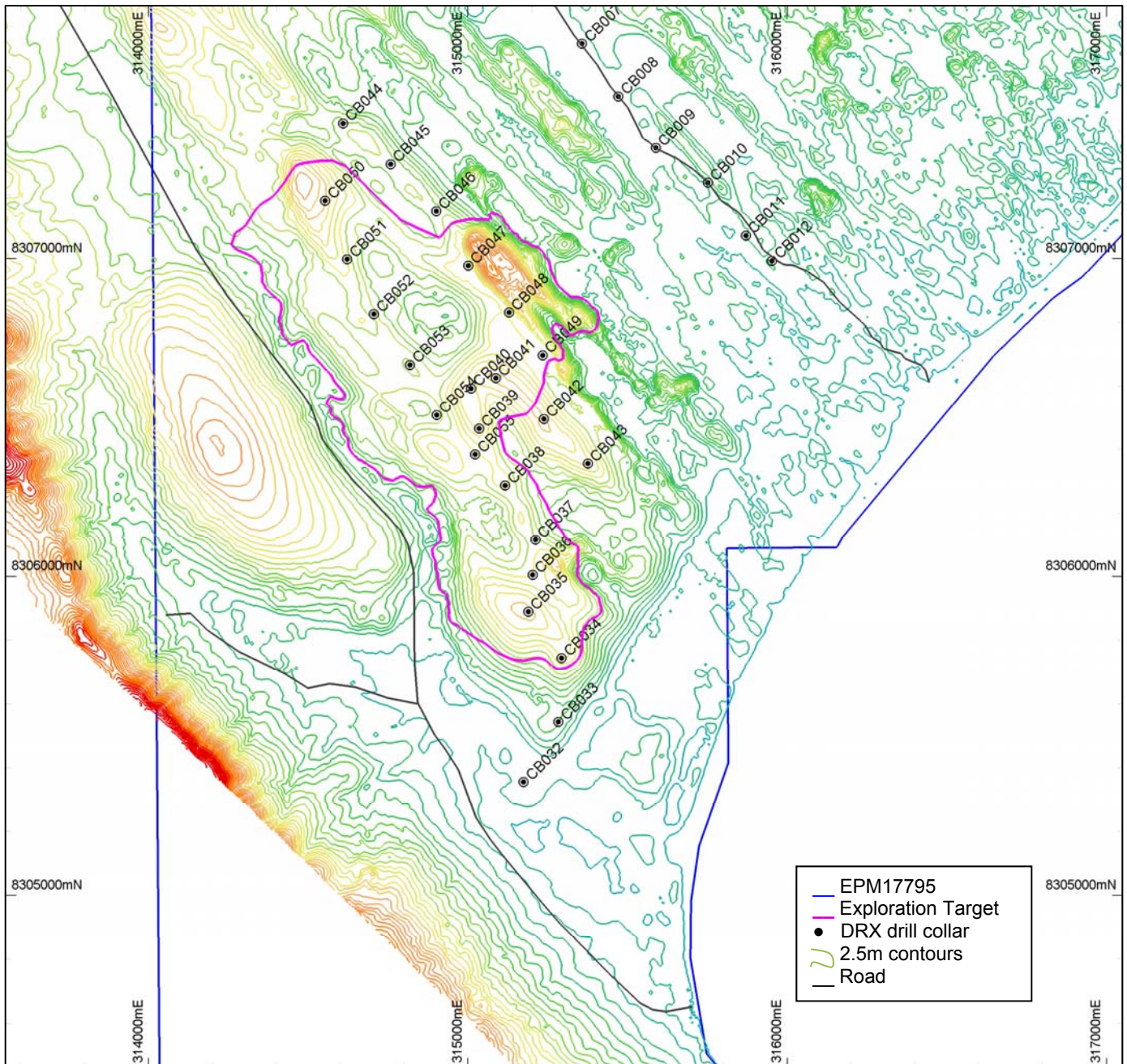
### Exploration Target

Based upon the results from reconnaissance drilling and the initial metallurgical testwork, an Exploration Target for potential high-grade silica sand has been generated for the Nob Point dune area of 15 million to 20 million tonnes of high quality silica sand.

**The potential quality and grade of this Exploration Target is conceptual in nature. There has been insufficient exploration to estimate a Mineral Resource; it is uncertain if further exploration will result in the estimation of a Mineral Resource.**

The Exploration Target includes two interconnected dune ridges within the broad dune structure between the Nob Point access road to the SW and the Deep Creek lowlands and swamp to the NE. The potential volume is estimated by extrapolating the base RL of the pale sands (or logged water table) observed in reconnaissance drilling, SW and NE to intersect the edge of the dune mass. Extrapolation of a practical batter slope NW and SE between drill holes along the ridge lines that define the limit of the white and cream coloured sand mass provide the strike extent of the target.

The estimate assumes that between 60% and 90% of the dune sand is mineable and an in-situ bulk density of 1.6t/m<sup>3</sup> is used to calculate tonnage. A target grade of 99% SiO<sub>2</sub> is considered appropriate as drill samples assayed to date exceed this value, and metallurgical testwork has demonstrated an increase in grade using conventional processes. The area is readily accessible from existing roads, and in close proximity to a potential barge / ship loading site.



**Silica Sand Exploration Target over Nob Point dune system**



## Proposed Exploration Drilling – Southern Area

Planning for the next stage of exploration drilling in the southern EPM area is underway, with a vegetation survey partially completed in January 2018 to assess the presence of a threatened vegetation species within the NW extension of the Nob Point dunes drilled in October. A second target area is currently being surveyed, but given the timeline for the vegetation survey reporting and subsequent applications for vegetation clearing, no further drilling is likely until after the tropical wet season (second quarter 2018).

Compilation of the reconnaissance data together with a high-resolution satellite image (and related topographic data processing) that was acquired in September 2017 helped facilitate detailed planning for the next stages of exploration.

A combination of infill drilling and further reconnaissance drilling is proposed for the Nob Point dune area drilled in October 2017, to provide further data for geological interpretation and confirmation of the continuity of the white sand mass. This drilling is planned to allow a mineral resource estimate to be compiled for part of the Nob Point dune system.

## Proposed Exploration Drilling - Regional

During 2018, Diatreme intends to carry out regional reconnaissance drilling over accessible areas of the EPM. This proposed exploration will be subject to appropriate (cultural heritage) approvals being obtained from Hopevale Congress to proceed with exploration activity.

Diatreme has identified numerous areas of interest for both silica sands and mineral sands exploration, and will work with Hopevale Congress and government departments to gain any necessary approvals for the exploration program to be further expanded.

Diatreme's CEO Mr McIntyre added: "Cape Bedford could prove a highly valuable addition to our project pipeline as we progress our exploration activities. Our flagship Cyclone Zircon Project in Western Australia remains our primary focus and is currently progressing through final definitive feasibility studies towards mine establishment. Recent industry forecasts point to an improving pricing environment for mineral sands, and amid constrained supply, our projects are perfectly placed to capitalise for shareholders' benefit."

For further information, please contact:

Neil McIntyre, CEO

## Competent Person Statement

*The information in this report, insofar as it relates to Exploration Results and Exploration Target is based on information compiled by Mr Ian Reudavey, who is 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.*

Table 1: Drill Hole collar and assay information

Hole_ID	East	North	RL	From	To	Int.	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	TiO <sub>2</sub>
	UTM Zone55L GDA			m	m	m	%	%	%	%
CB035	315190	8305889	46	0	24	24	98.97	0.14	0.10	0.12
CB037	315213	8306114	33	3	21	18	99.37	0.07	0.04	0.08
CB038	315118	8306286	35	3	24	21	99.08	0.10	0.08	0.16
CB047	315002	8306977	37	3	30	27	99.41	0.05	0.02	0.05
CB048	315130	8306829	35	0	27	27	99.21	0.06	0.04	0.09
CB050	314554	8307180	44	0	33	33	99.32	0.07	0.05	0.09
CB052	314707	8306824	31	0	21	21	99.26	0.07	0.04	0.10
CB053	314820	8306666	33	0	24	24	99.26	0.09	0.05	0.10
CB054	314904	8306507	29	0	12	12	99.50	0.05	0.03	0.07

Table 2: Drill Hole collar and logged silica sand intervals

Hole_ID	East	North	RL	From	To	Int.	Summary Log
	UTM Zone55L GDA			m	m	m	
CB034	315295	8305744	15	0	7.5	7.5	White sand
CB035	315190	8305889	46	0	12	12	White sand
				12	25	13	Cream sand
CB036	315204	8306004	35	0	4	4	Yellow sand (overburden)
				4	21	17	White sand
CB037	315213	8306114	33	0	5	5	Grey sand
				5	21	16	White sand
CB038	315118	8306286	35	0	4	4	Grey sand
				4	9	5	Cream sand
				9	21	12	White sand
				21	27	6	Cream sand
CB039	315036	8306465	42	0	7.5	7.5	Light brown sand (overburden)
				7.5	22	14.5	White sand
CB040	315011	8306592	44	0	9	9	Light brown sand (overburden)
				9	18	9	Cream sand
				18	33	15	White sand, water table at 33m
CB041	315089	8306624	46	0	6	6	Light brown sand (overburden)
				6	21	15	Cream sand
				21	36	15	White sand, water table at 34m
CB047	315002	8306977	37	0	5	5	Grey sand
				5	30	25	White sand, water table at 27m
CB048	315130	8306829	35	0	6	6	Grey sand
				6	28	22	White sand, water table at 27m
CB049	315235	8306696	34	0	3	3	Grey sand
				3	10	7	White sand
CB050	314554	8307180	44	0	22	22	White sand
				22	33	11	Cream sand, water table at 27m
CB051	314623	8306997	35	0	24	24	White sand, water table at 21m
CB052	314707	8306824	31	0	21	21	White sand, water table at 20m
CB053	314820	8306666	33	0	24	24	White sand, water table at 20m
CB054	314904	8306507	29	0	14	14	White sand
CB055	315024	8306383	34	0	3	3	Grey sand
				3	13.5	10.5	Cream sand

Table 3: Bulk sample information

Hole_ID	East	North	RL	From	To	Int.	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	TiO <sub>2</sub>
	UTM Zone55L GDA			m	m	m	%	%	%	%
CB037A	315213	8306114	33	6	21	15	99.42	0.06	0.04	0.08
CB038A	315118	8306286	35	3	21	18	99.15	0.09	0.07	0.12
CB047A	315002	8306977	37	3	27	24	99.47	0.05	0.02	0.04
CB048A	315130	8306829	35	3	27	24	99.24	0.06	0.04	0.09
CB053A	314820	8306666	33	3	21	18	99.34	0.07	0.04	0.09
CB054A	314904	8306507	29	3	12	9	99.51	0.05	0.04	0.07

\*grade derived from averaging drill sample assays

## JORC Code, 2012 Edition – Table 1

### Section 1 Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	<ul style="list-style-type: none"> <li>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.</li> <li>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</li> <li>Aspects of the determination of mineralisation that are Material to the Public Report.</li> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>Drilling samples are 3m down hole intervals of air-core drill cuttings collected from cyclone mounted rotary splitter, approximately 3-4kg (representing ~20%) of drill material returned via the cyclone is sampled.</li> <li>Sample was submitted to commercial laboratory for drying, splitting (if required), pulverisation in a tungsten carbide bowl, and XRF analysis</li> <li>Sampling techniques are mineral sands "industry standard" for dry beach sands with low levels of induration and slime.</li> <li>As the targeted mineralisation is silica sand, geological logging of the drill material is a primary method for identifying mineralisation</li> <li>Metallurgical samples are composited intervals of white and cream sands logged in drilling with collection of the entire volume of air-core drill cuttings from the cyclone in to large plastic sample bags.</li> <li>A twinned hole was drilled to collect the bulk sample from the logged interval of interest.</li> </ul>
Drilling techniques	<ul style="list-style-type: none"> <li>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).</li> </ul>	<ul style="list-style-type: none"> <li>Vertical NQ air-core drilling utilizing blade bit, 3m drill runs</li> </ul>
Drill sample recovery	<ul style="list-style-type: none"> <li>Method of recording and assessing core and chip sample recoveries and results assessed.</li> <li>Measures taken to maximise sample recovery and ensure representative nature of the samples.</li> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>Visual assessment and logging of sample recovery and sample quality</li> <li>Reaming of hole and clearance of drill string after every 3m drill rod</li> <li>Sample chute cleaned between samples and regular cleaning of cyclone to prevent sample contamination</li> <li>No relationship is evident between sample recovery and grade</li> </ul>
Logging	<ul style="list-style-type: none"> <li>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.</li> <li>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</li> <li>The total length and percentage of the relevant intersections logged.</li> </ul>	<ul style="list-style-type: none"> <li>Geological logging of the total hole by field geologist, with retention of sample in chip trays to allow subsequent re-interpretation of data if required.</li> <li>The total hole is logged; logging includes colour, grain size, sorting, induration and estimates of HM, slimes and oversize utilizing panning.</li> <li>Logging is captured in Micromine data tables, with daily update of field database and regular update of master database.</li> </ul>

Criteria	JORC Code explanation	Commentary
<i>Sub-sampling techniques and sample preparation</i>	<ul style="list-style-type: none"> <li>• <i>If core, whether cut or sawn and whether quarter, half or all core taken.</i></li> <li>• <i>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</i></li> <li>• <i>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</i></li> <li>• <i>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</i></li> <li>• <i>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.</i></li> <li>• <i>Whether sample sizes are appropriate to the grain size of the material being sampled.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Drilling samples rotary split on site (approx. 80:20), resulting in approximately 3 – 4kg of dry sample</li> <li>• Sample was coned and quartered to generate a 1-2kg sample for submission to the laboratory, with surplus retained as a reference sample.</li> <li>• Sample size is considered appropriate for the material sampled</li> </ul>
<i>Quality of assay data and laboratory tests</i>	<ul style="list-style-type: none"> <li>• <i>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</i></li> <li>• <i>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.</i></li> <li>• <i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Drilling samples were submitted to ALS Townsville, where they were dried, weighed and split.</li> <li>• Analysis was undertaken by ALS Brisbane utilizing a Tungsten Carbide pulverization, ME-XRF26 (whole rock by Fusion/XRF) and ME-GRA05 (H<sub>2</sub>O/LOI by TGA furnace)</li> <li>• Metallurgical samples were submitted to IHC Robbins for characterisation testwork (screening, de-sliming, sizing, HLS and XRF analysis) and wet-tabling (two stage) to generate products for sizing and XRF analysis.</li> </ul>
<i>Verification of sampling and assaying</i>	<ul style="list-style-type: none"> <li>• <i>The verification of significant intersections by either independent or alternative company personnel.</i></li> <li>• <i>The use of twinned holes.</i></li> <li>• <i>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</i></li> <li>• <i>Discuss any adjustment to assay data.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Significant intersections validated against geological logging and local geology / geological model.</li> <li>• Twinned holes were completed to generate material for bulk sampling and metallurgical testwork. Geological logging is comparable, no direct assay comparison has been made at this time.</li> <li>• All data captured and stored in both hard copy and electronic format.</li> </ul>
<i>Location of data points</i>	<ul style="list-style-type: none"> <li>• <i>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.</i></li> <li>• <i>Specification of the grid system used.</i></li> <li>• <i>Quality and adequacy of topographic control.</i></li> </ul>	<ul style="list-style-type: none"> <li>• All holes initially located using handheld GPS with an accuracy of 5m for X,Y.</li> <li>• UTM coordinates, Zone 55L, GDA94 datum.</li> <li>• Topographic surface generated from processing Stereo WorldView-3 satellite imagery and DGPS control points, collar RL's levelled against this surface to ensure consistency in the database.</li> </ul>
<i>Data spacing and distribution</i>	<ul style="list-style-type: none"> <li>• <i>Data spacing for reporting of Exploration Results.</i></li> <li>• <i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Drill lines were completed at ~200m spacing along the prepared access tracks.</li> <li>• Drill spacing and distribution is not sufficient to allow valid interpretation of geological and grade continuity for Mineral Resource estimation</li> <li>• No sample compositing (down hole) has been undertaken for XRF analysis of drill samples. Down hole sample compositing was undertaken to generate a</li> </ul>

Criteria	JORC Code explanation	Commentary
	<ul style="list-style-type: none"> <li>Whether sample compositing has been applied.</li> </ul>	single bulk sample for holes CB037, CB038, CB047, CB048, CB053 and CB054.
Orientation of data in relation to geological structure	<ul style="list-style-type: none"> <li>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</li> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>The dune field has ridges dominantly trending 320° - 330°.</li> <li>The drill access tracks typically run along or sub-parallel to dune ridges which suggests unbiased sampling, some cross dune tracks linking the ridges were also drilled.</li> </ul>
Sample security	<ul style="list-style-type: none"> <li>The measures taken to ensure sample security.</li> </ul>	<ul style="list-style-type: none"> <li>Sample collection and transport from the field was undertaken by company personnel following company procedures.</li> <li>Samples were delivered direct to ALS in Townsville.</li> </ul>
Audits or reviews	<ul style="list-style-type: none"> <li>The results of any audits or reviews of sampling techniques and data.</li> </ul>	<ul style="list-style-type: none"> <li>There has been no audit or review of sampling techniques and data at this time.</li> </ul>

## Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
<i>Mineral tenement and land tenure status</i>	<ul style="list-style-type: none"> <li>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.</li> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>The Cape Bedford Project occurs within EPM17795 in Queensland and is held by Diatreme Resources.</li> <li>The tenement is in good standing</li> <li>A Compensation and Conduct Agreement, and a Cultural Heritage Agreement is in place with the landholder and native title party (Hopevale Congress)</li> </ul>
<i>Exploration done by other parties</i>	<ul style="list-style-type: none"> <li>Acknowledgment and appraisal of exploration by other parties.</li> </ul>	<ul style="list-style-type: none"> <li>Previous exploration has been carried out in the area during the 1970's by Ocean Mining and 1980's by Breen Organisation.</li> <li>The historical exploration data is of limited use since it comprises shallow hand auger drilling and is typically not accurately located.</li> </ul>
<i>Geology</i>	<ul style="list-style-type: none"> <li>Deposit type, geological setting and style of mineralisation.</li> </ul>	<ul style="list-style-type: none"> <li>The geology comprises variably re-worked aeolian sand dune deposits associated with a Quaternary age sand dune complex.</li> <li>Mineralisation occurs within aeolian dune sands.</li> </ul>
<i>Drill hole Information</i>	<ul style="list-style-type: none"> <li>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: <ul style="list-style-type: none"> <li>easting and northing of the drill hole collar</li> <li>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</li> <li>dip and azimuth of the hole</li> <li>down hole length and interception depth</li> <li>hole length.</li> </ul> </li> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>A tabulation of the material drill holes is presented in the main body of this report.</li> </ul>
<i>Data aggregation methods</i>	<ul style="list-style-type: none"> <li>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.</li> <li>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.</li> <li>The assumptions used for any reporting of metal equivalent values should be clearly stated.</li> </ul>	<ul style="list-style-type: none"> <li>The assay data presented for the silica sand is an arithmetic average of the 3m individual sample results.</li> <li>No minimum of maximum grade truncations have been used.</li> <li>The grade is relatively consistent and the aggregate intercepts use a simple arithmetic average.</li> </ul>
<i>Relationship</i>	<ul style="list-style-type: none"> <li>These relationships are particularly important in the reporting of</li> </ul>	<ul style="list-style-type: none"> <li>As the mineralisation is associated with aeolian dune sands the majority will</li> </ul>

Criteria	JORC Code explanation	Commentary
<i>between mineralisation widths and intercept lengths</i>	<p><i>Exploration Results.</i></p> <ul style="list-style-type: none"> <li><i>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</i></li> <li><i>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').</i></li> </ul>	<p>be essentially horizontal, some variability will be apparent on dune edges and faces.</p> <ul style="list-style-type: none"> <li>All drilling is vertical; hence the drill intersection is essentially equivalent to the true width of mineralisation.</li> </ul>
<i>Diagrams</i>	<ul style="list-style-type: none"> <li><i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>A map of the drill collar locations is incorporated with the main body of the announcement. Representative cross-sections are not attached as there is insufficient drilling at this time to generate meaningful sections.</li> </ul>
<i>Balanced reporting</i>	<ul style="list-style-type: none"> <li><i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>All exploration assay results have been reported at this time.</li> </ul>
<i>Other substantive exploration data</i>	<ul style="list-style-type: none"> <li><i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>Geological observations are consistent with aeolian dune mineralisation</li> <li>No bulk density measurements have been undertaken</li> <li>Abundant groundwater was intersected during drilling, as expected given the dune complex is an aquifer and drilling was undertaken to considerable depth.</li> <li>The mineralisation is unconsolidated sand</li> <li>There are no known deleterious substances at this time.</li> <li>Metallurgical test results from 6 bulk samples from 6 individual drill holes demonstrate that a high-quality glass grade silica sand product could be produced from the material using conventional wet separation techniques (i.e. washing and gravity separation)</li> </ul>
<i>Further work</i>	<ul style="list-style-type: none"> <li><i>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).</i></li> <li><i>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</i></li> </ul>	<ul style="list-style-type: none"> <li>Additional drilling to test for lateral extensions of mineralisation are planned.</li> <li>The areas of possible extensions are considered to be potentially politically and culturally sensitive, and not appropriate for publishing at this time.</li> </ul>