

AUSTRALIAN SILICA QUARTZ GROUP LIMITED

Maiden 17Mt JORC Resource at 99.04% SiO₂ at Quartz Hill Project



- Australian Silica Quartz Group Limited ('ASQ' ASX:ASQ) is pleased to announce that it has completed a Mineral Resource Estimate ('MRE' or 'Resource') reported in accordance with the JORC 2012 Code for the Quartz Hill Metallurgical Grade Silicon ('MGSi') Project located 300km northwest of Townsville in Far North Queensland.
- Following the drilling undertaken in August/September 2023, **ASQ reports a Resource of 17.3Mt total MGSi quartz at 99.04% SiO₂ of which, 7.6Mt at 99.09% SiO₂ is reported in the Indicated category.**
- The JORC Resource confirms the deposit's potential for MGSi Quartz Lump feedstock.
- The Resource is the result of the first subsurface exploration completed on the project and was completed under the Project Development Heads of Agreement with Private Energy Partners Pty Ltd, a wholly owned affiliate of Quinbrook Infrastructure Partners ('Quinbrook').
- Quinbrook is a 'value add' investment manager with a specialist focus on the energy transformation, across low carbon and renewable energy supply, storage, grid stability, data centre, industrial and supply chain decarbonisation and related assets and businesses.
- Quinbrook was recently conditionally allocated a 200 hectare portion of the Lansdown Eco-Industrial Precinct on which it proposes to develop and build a multibillion dollar state-of-the-art polysilicon manufacturing facility, powered by a large-scale solar and battery storage project it plans to build on land adjacent to Lansdown ([Lansdown Eco-Industrial Precinct \(townsville.qld.gov.au\)](https://www.townsville.qld.gov.au)).
- ASQ received \$1 million from Quinbrook in return for the exclusive right to purchase 10 million tonnes of MGSi Quartz from the mine gate at Quartz Hill at a 10% discount to the prevailing MGSi Quartz market price or such price that would constitute a fair market return to ASQ (whichever is the greater).

Commenting on the resource estimate, Robert Johansen - Senior Director, Minerals at Private Energy Partners, Quinbrook's development affiliate, said "This mineral resource estimate is well in excess of the initial expected volumes and is a very positive step in securing the quartz supply for Quinbrook's planned polysilicon facility which was recently awarded a substantial allotment of land by the Townsville City Council at the Lansdown Eco-Industrial precinct. Subject to further detailed quality testing and feasibility work, this significant resource seems increasingly likely to be able to support even the very largest scale polysilicon plant that is being studied for Lansdown."

12 December 2023

ASX Code: ASQ
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Discussion

In August and September 2023 ASQ completed 14 Reverse Circulation (RC) drill holes for 1,499m delivering a Mineral Resource Estimate of 17.3Mt total MGSi quartz with 99.04% SiO₂ (Table 1) reported in accordance with the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (The Joint Ore Reserves Committee Code – JORC 2012 Edition). 7.6Mt at 99.09% SiO₂ is reported in the Indicated category. 9.7Mt is reported in the Inferred category with an average grade of 99.0 SiO₂.

Table 1: 2023 Quartz Hill Mineral Resource Estimate

Quartz Hill MGSi Deposit

December 2023 Mineral Resource Estimate (98% SiO₂ Cut-off)

Class	Total Mineral Resource								
	Tonnage Mt	SiO ₂ %	Al ₂ O ₃ %	CaO %	Fe ₂ O ₃ %	MgO %	Na ₂ O %	TiO ₂ %	ΣOxides %
Indicated	7.6	99.09	0.67	0.005	0.16	0.008	0.02	0.03	0.91
Inferred	9.7	99.00	0.73	0.009	0.17	0.012	0.03	0.03	1.00
Total	17.3	99.04	0.70	0.007	0.17	0.010	0.03	0.03	0.96

Note:

All Mineral Resources figures reported in the table above represent estimates at December 2023. Mineral Resource estimates are not precise calculations, being dependent on the interpretation of limited information on the location, shape and continuity of the occurrence and on the available sampling results. The totals contained in the above table have been rounded to reflect the relative uncertainty of the estimate. Rounding may cause some computational discrepancies. Mineral Resources are reported in accordance with the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (The Joint Ore Reserves Committee Code – JORC 2012 Edition).

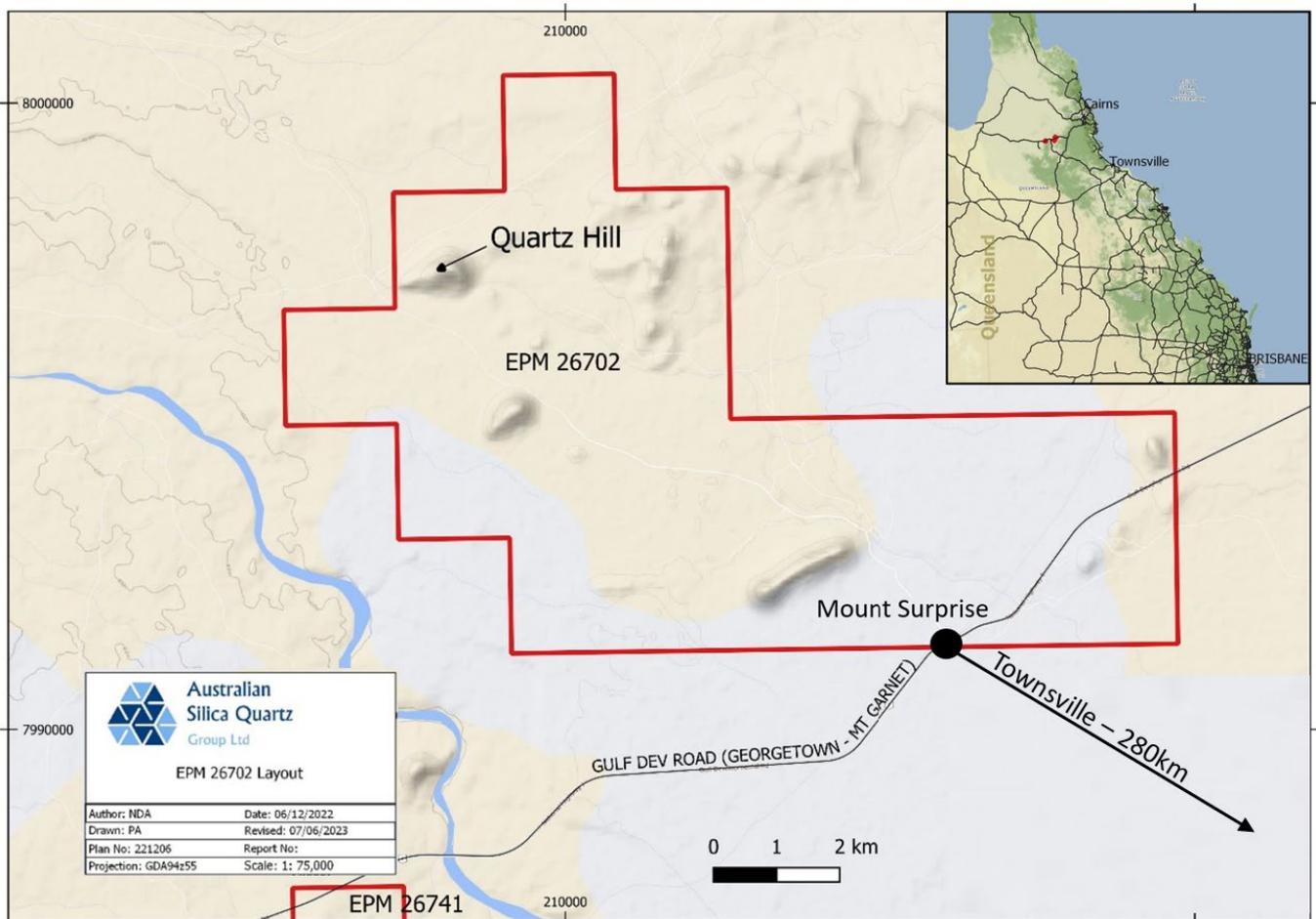


Figure 1: Quartz Hill MGSi Quartz Project Locality and Tenement Plan

Material Information Summary – Resource Estimation

Pursuant to ASX listing rule 5.8.1 and complementing JORC Table 1 (attached), ASQ advises that the Resource was estimated by an independent consultant from Ashmore Advisory Pty Ltd (“Ashmore”). Ashmore worked in conjunction with ASQ and Terrasearch Pty Ltd geologists. Commentary on the relevant input parameters for the Resource process is contained at the end of this announcement.

Location and Region

Quartz Hill is located on EPM 26702 (ASQ 100%) 10km north of the town of Mount Surprise which is accessed by the Gulf Development Road, 200km southwest of Cairns and 290km northwest of Townsville in North Queensland (Figure 1).



Figure 2: Outcropping Quartz at the Quartz Hill MGSi Project

Geological Interpretation and Wireframing

The outcropping Quartz Hill occurrence is hosted within the Paleoproterozoic aged Einasleigh Metamorphics. The Einasleigh Metamorphics consists of migmatites grading into gneissic granite and schist.

Quartz Hill is a very large, 1,300m long ridge elevated up to 140m in vertical elevation above the surrounding flatter country dominated by continuously outcropping rubbly quartz forming the core of the steep-sided ridge. The bulk of the quartzitic mass tends to dip steeply southwards at around 60° from horizontal.

The quartz lodes are thought to have been formed from the processes of metamorphism.

Sandwiched between quartz lodes are sections of mica schist wallrock. The footwall is gneiss, amphibolite, and lesser pegmatite and foliated granite.

The mineralisation was constrained by wireframes prepared using logged quartz geology as well as down hole geochemistry where calculated silica grades were generally greater than 97 to 98%. Zones of internal dilution (<97% SiO₂) were wireframed separately within the main quartz units and interpolated separately.

Surface sampling was utilised in the creation of the mineralisation wireframes, however the assays were excluded from the composites and estimation as they were single composites for each surface line sample.

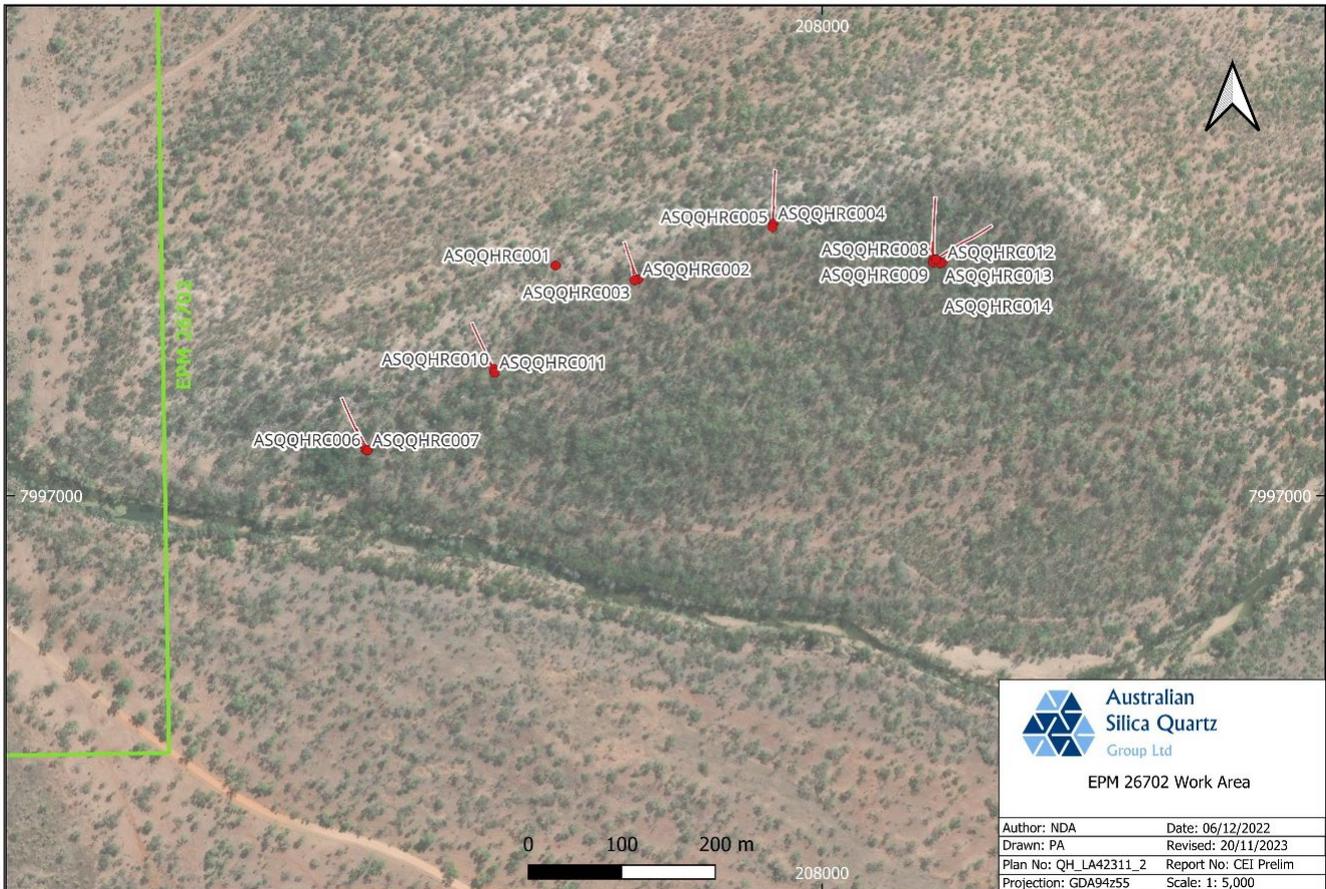


Figure 3: Quartz Hill 2023 RC Drill Hole Locations

Sectional outlines were manually triangulated to form wireframes. To form ends to the wireframes, the end section strings were copied to a position midway to the next section and adjusted to match the dip, strike and plunge of the mineralisation. The wireframed domains were validated using Surpac software and set as solids.

Three quartz units and seven internal waste units were created and used to code the mineralisation within the block model. A single weathering surface for the top of fresh rock was prepared based on geological logging. A surface was prepared for the alluvium/surface scree.

Measure Australia (Townsville) completed a LiDAR and Photogrammetry survey by drone over 267Ha of the Project area. This generated a DTM surface with 50mm vertical accuracy. The topographic surface was provided to Ashmore at a 1m resolution.



Figure 4: 2023 RC Drilling at Quartz Hill

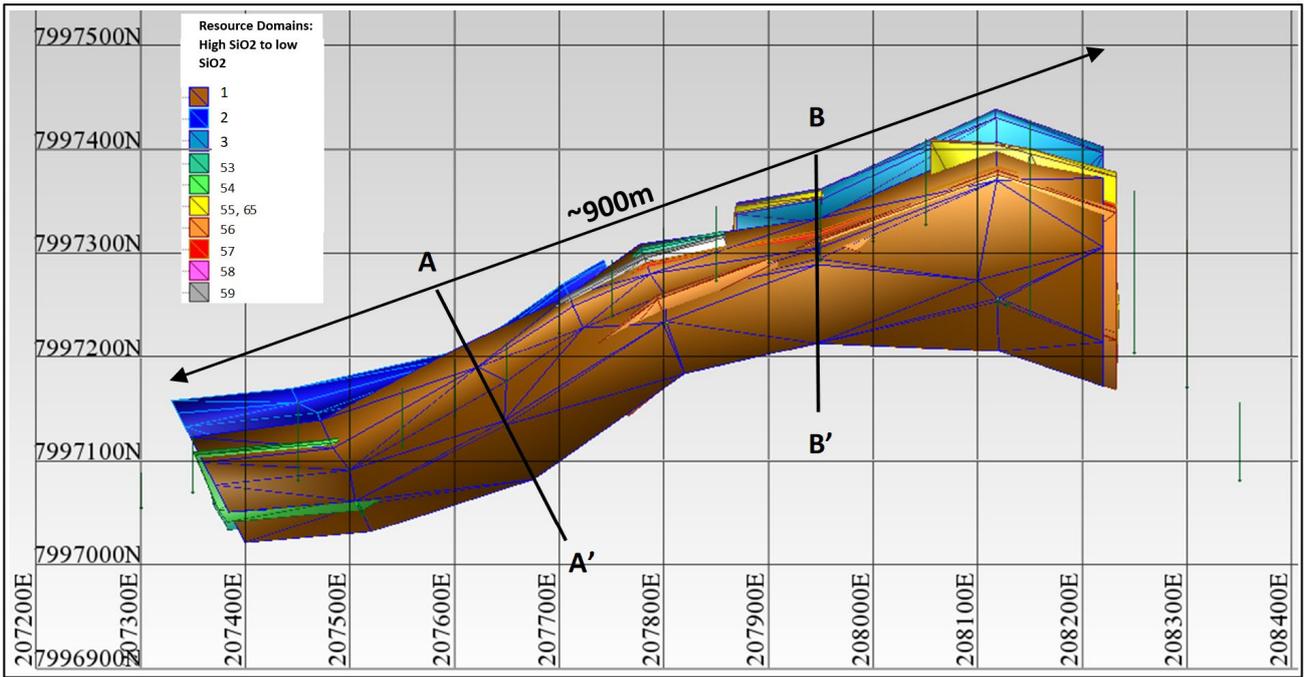


Figure 5: Plan View of Quartz Hill Wireframes showing section A-A' and B-B'

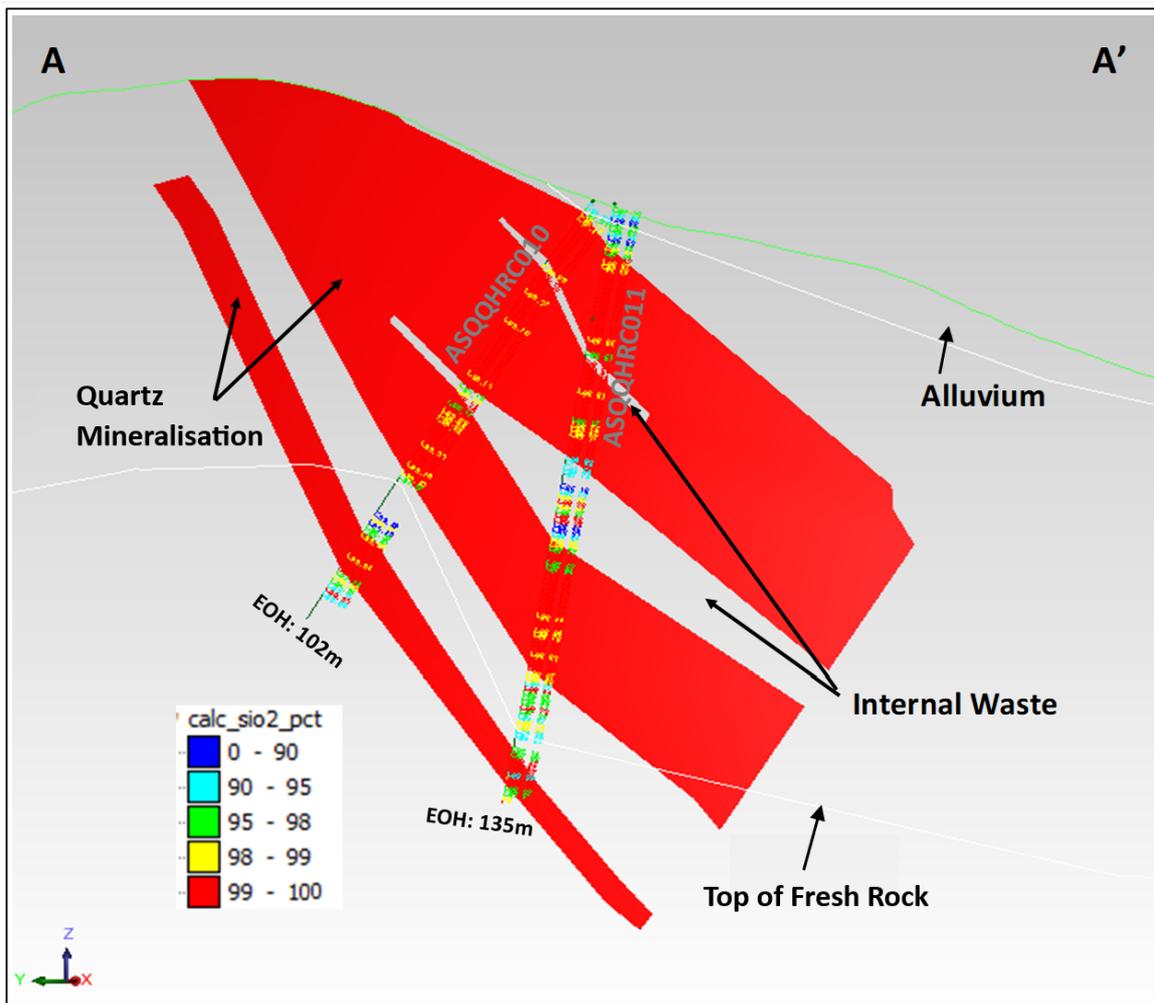


Figure 6: Cross Section of Quartz Hill Wireframes – Section A-A'

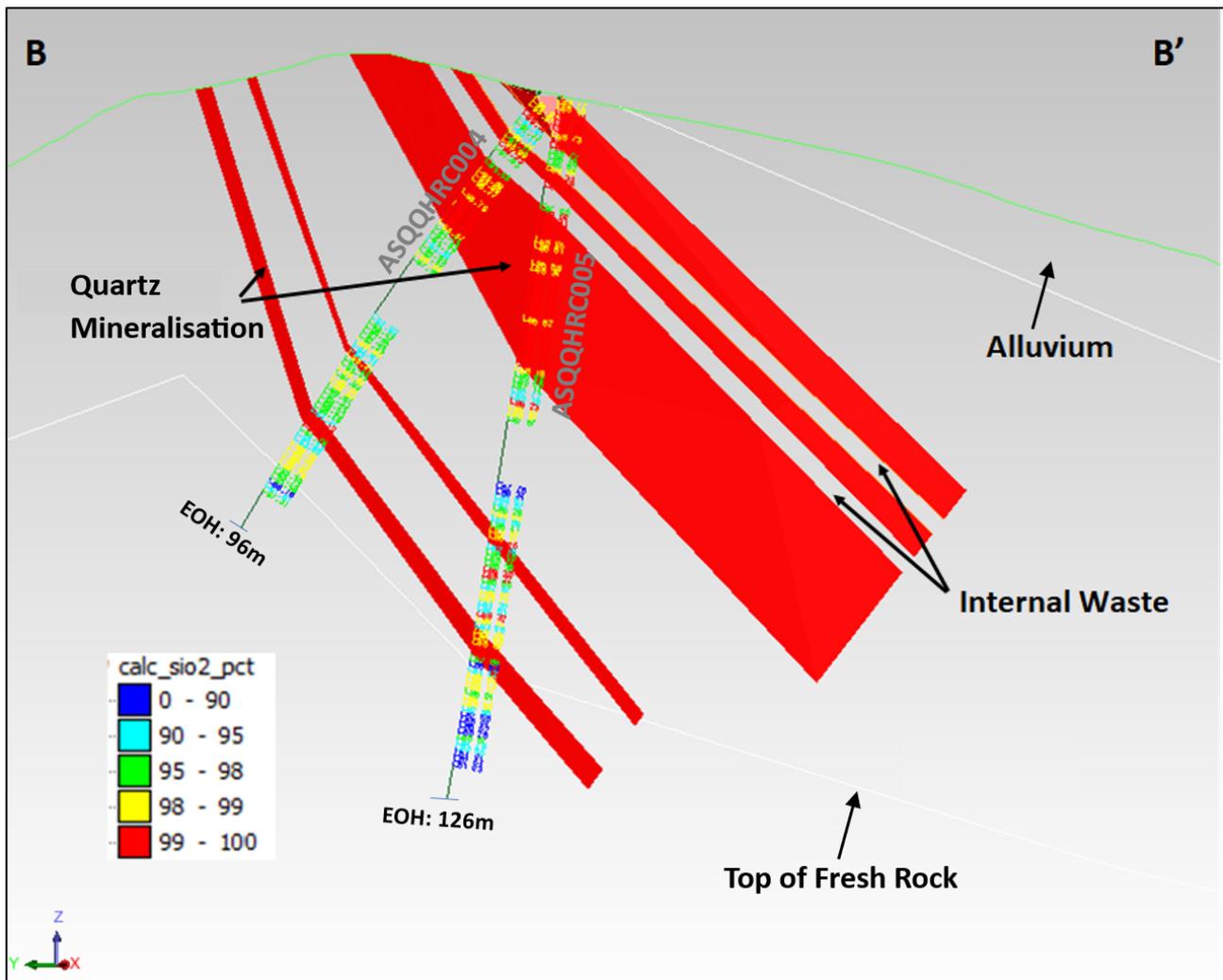


Figure 7: Cross Section of Quartz Hill Wireframes – Section B-B'

Drilling Techniques

During August and September 2023, Associated Exploration Drilling Pty Ltd (“AED”) completed 14 Reverse Circulation drill holes for 1,499m at the Quartz Hill quartz occurrence. Drilling was carried out with a UDR U650 drill rig. RC drilling was selected over diamond core technique as coring was expected to be exceedingly slow in the hard-wearing quartz. In contrast the percussion drilling achieved good penetration rates in the quartz zone albeit with significant wear on drill bits and inner tubes. The holes were challenging to establish in the rubbly scree material on the flanks of the ridge. With efforts to establish the pre-collar often taking as long as completing the rest of the hole. All drillholes, bar a solitary vertical one, were drilled roughly south to north at angles of -55°/-60° and then -80° to horizontal from each of five drill pads. Hole diameter was 5 inches (127mm).

Sampling and Subsampling Techniques

Drill spoil sampling was completed at 1m metre intervals with the sample riffle split at a ratio of 25:75 at the cyclone underflow.

At the laboratory, samples were received, sorted and checked against submission sheets for missing or additional samples. Samples were dried, weighed, split and dry screened to +1.0mm. The course fraction was pulverised to P85 75µ, in a tungsten carbide bowl and puck set.

Only the +1mm fraction for each sample was analysed as this is considered to be most representative of the likely lump quartz product. Further, it is expected that the fine fraction would be heavily contaminated by wear material from the drilling process.



Figure 8: RC Rig Drilling at the Project during 2023

Analysis and QAQC

Each sample was subjected to a mixed acid digest with the elemental chemistry determined by ICP-OES.

Every 5th sample from the first batch of 200 samples was analysed for boron by sodium peroxide fusion with ICP-AES finish to confirm boron was not present in the quartz at any significant concentration.

Analysis results provided by the laboratory are expressed as elemental concentrations. ASQ calculated the expected oxide concentrations for expected oxides present. The SiO₂ concentration was calculated by subtracting the sum of oxides for each sample from 100.

Duplicate field samples were inserted at a rate of 1 in every 25 samples. Company high purity quartz standards were inserted at a rate of 1 in 50 samples.

QAQC results have, in the main, accurately reflected the original assays and expected values. Field duplicates show repeatable results. A recognised laboratory has been used for analysis of samples.

Overall, the QAQC data does not indicate any bias and supports the assay data used in the Mineral Resource.

Estimation Methodology

Ashmore was retained to produce a Resource estimate for the Quartz Hill Project. Validated drillhole data and geological interpretations were supplied by ASQ. Ashmore estimated the Mineral Resource using standard processes and procedures including wireframing, data selection, compositing, variography and estimation by Kriging Neighbourhood Analysis and ordinary kriging interpolation prior to model validation.

Estimates were completed for SiO₂, Al₂O₃, BaO, CaO, Cr₂O₃, Fe₂O₃, MgO, Mn₃O₄, Na₂O, P₂O₅ and TiO₂.

Block Model and Resource Estimation

A block model was created using Surpac software. The mineralisation was constrained by wireframes prepared using geological logging and geochemistry.

The block dimensions used in the model were 40m EW by 5m NS by 5m vertical with sub-cells of 2.5m by 1.25m by 1.25m. The parent block size was selected based on Kriging Neighbourhood Analysis, while dimensions in other directions were selected to provide sufficient resolution to the block model in the across-strike and vertical direction.

The Ordinary Kriging ("OK") algorithm was used for the grade interpolation and the wireframes were used as a hard boundary for the grade estimation of each domain. Up to three interpolation passes were used for the interpolation. Bulk density values were assigned in the block based on similar geological terrains, with assigned values of 2.6 to 2.65t/m³ for the quartz units dependent on weathering.

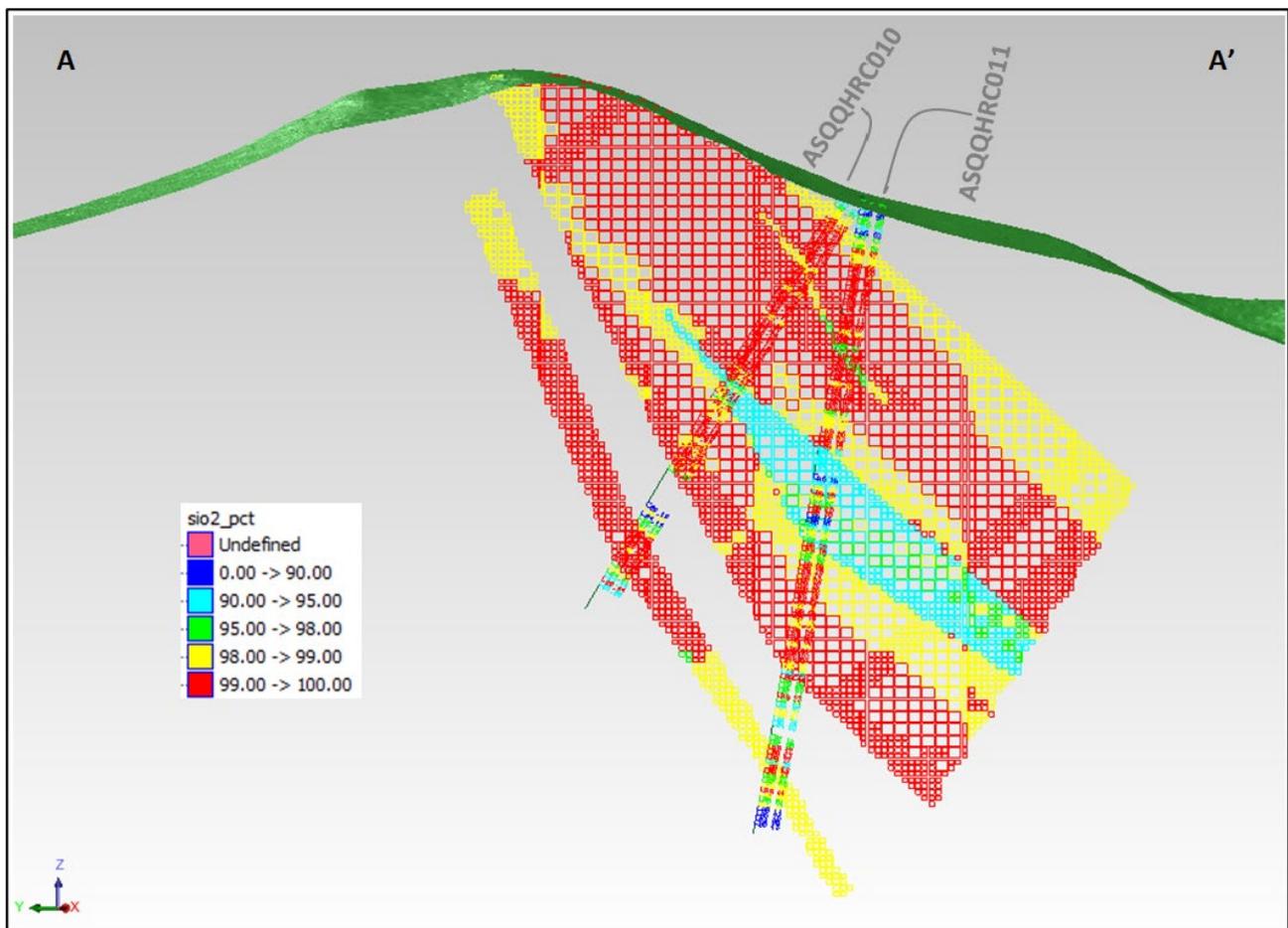


Figure 9: Cross Section of Quartz Hill Block Model SiO₂ Grades on Section A-A'

Cut Off Grade

The Statement of Mineral Resources has been constrained by the mineralisation solids and reported above a SiO₂ cut-off grade of 98%.

Resource Classification

The Mineral Resource was classified as Indicated and Inferred Mineral Resource based on data quality, sample spacing, and lode continuity. The Indicated Mineral Resource was defined within areas of closer spaced RC drilling of less than 200m by 50m, and where the continuity and predictability of the lode positions was good. The Inferred Mineral Resource was assigned to areas where drill hole spacing was greater than 200m by 50m, where small, isolated pods of mineralisation occur outside the main mineralised zones, and to geologically

complex zones. A plan view and oblique view of the mineralised blocks coloured by classification is shown in Figure 10 and Figure 11.

The extrapolation of the lodes along strike has been limited to 100m and down-dip to 80m.

The JORC Code (2012) describes a number of criteria which must be addressed in the documentation of Mineral Resource estimates prior to public release of the information. The criteria provide a means of assessing whether or not parts of or the entire data inventory used in the estimate are adequate for that purpose. The Mineral Resources stated in this document are based on the criteria set out in Table 1 of that Code. These criteria are listed in Appendix 1.

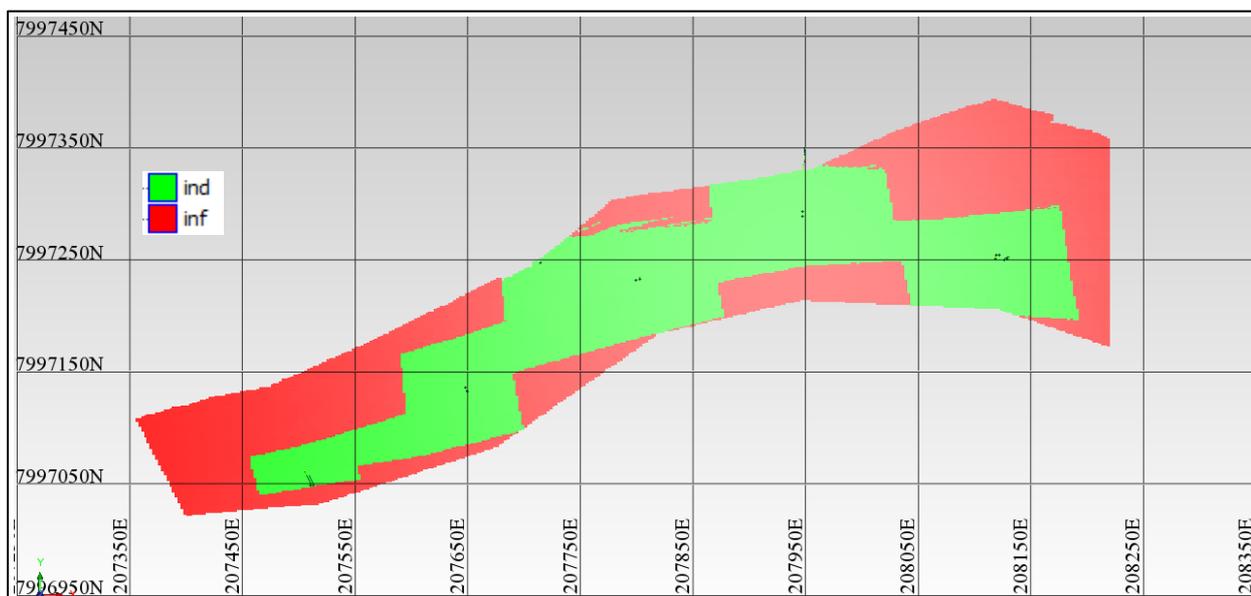


Figure 10: Quartz Hill Classification (Plan View)

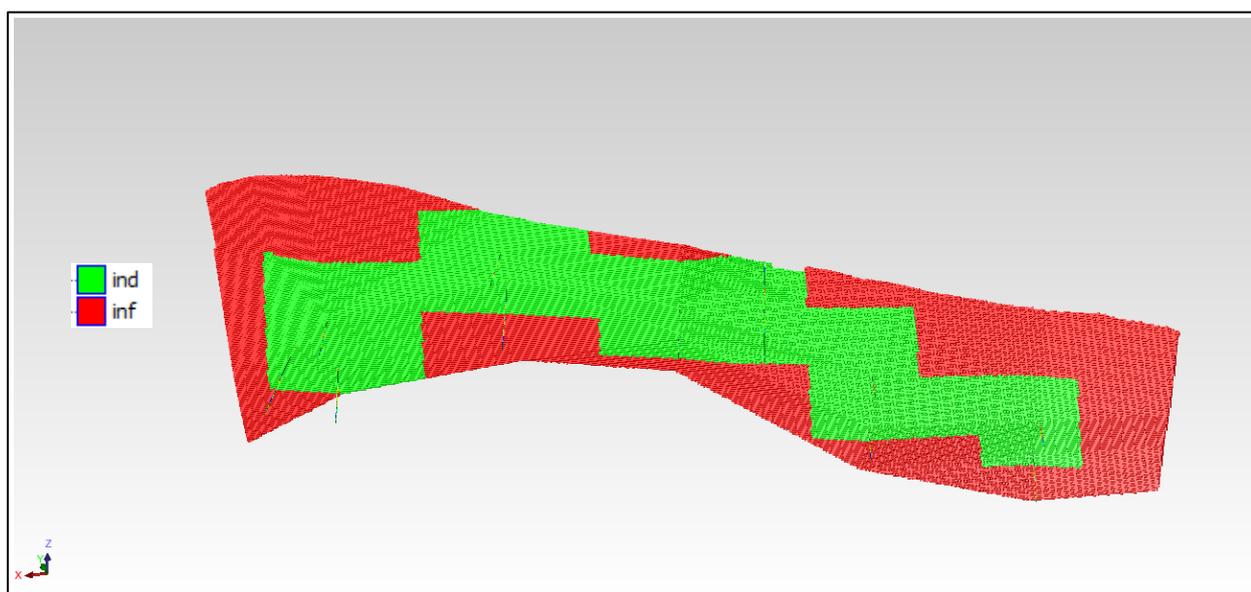


Figure 11: Quartz Hill Classification (Oblique Long Section View Facing 165°)

Mining and Metallurgical Methods and Parameters, and Other Material Modifying Factors Considered to Date

The Statement of Mineral Resources has been constrained by the mineralisation solids and reported above a SiO₂ cut-off grade of 98%. An open pit mining method is the most likely development scenario at Quartz Hill. Additional optimisation, mine design and more detailed and accurate cost estimate mining studies and test work are required to confirm viability of extraction.

High grade quartz is required by the solar silicon manufacturing industry as a precursor feedstock for the production of MGSI. ASQ is working with Quinbrook to assess Quartz Hill as a source of MGSI feedstock. Quinbrook is a 'value add' investment manager with a specialist focus on the energy transformation, across low carbon and renewable energy supply, storage, grid stability, data centre, industrial and supply chain decarbonisation and related assets and businesses. Quinbrook was recently conditionally allocated a 200 hectare portion of the Lansdown Eco-Industrial Precinct on which it proposes to develop and build a multibillion dollar state-of-the-art polysilicon manufacturing facility, powered by a large-scale solar and battery storage project it plans to build on land adjacent to Lansdown.

In addition, high-purity Silica is a raw ingredient used for semiconductors in electronics, computer processors, crucibles for manufacture of monocrystalline silicon, optical fibres, high performance ceramics and specialty glass applications. High purity silica is most likely to be produced from deposits of very chemically clean hard rock quartz.

This announcement has been approved for release by the Board

Please refer to the following announcements for further details on the Quartz Hill MGSI Quartz Project and related exploration results:

Release Date	Announcement Title
17 Aug 2023	DRILLING COMMENCES AT QUEENSLAND QUARTZ PROJECT
12 Jul 2023	ASQ RECEIVES \$1 MILLION FOR QUARTZ HILL DEVELOPMENT
07 Jul 2023	ASQ FINALISES EXCLUSIVE RIGHTS TO 10MT QUARTZ OFFTAKE
02 May 2023	HARD ROCK SILICA QUARTZ - QUEENSLAND PROJECTS CLARIFICATION
27 April 2023	HARDROCK SILICA QUARTZ – QUEENSLAND PROJECTS UPDATE

The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcements and that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. The company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.

Cautionary Statement

This announcement and information, opinions or conclusions expressed in the course of this announcement contains forecasts and forward-looking information. Such forecasts, projections and information are not a guarantee of future performance, involve unknown risks and uncertainties. Actual results and developments will almost certainly differ materially from those expressed or implied. There are a number of risks, both specific to ASQ, and of a general nature which may affect the future operating and financial performance of ASQ, and the value of an investment in ASQ including and not limited to title risk, renewal risk, economic conditions, stock market fluctuations, commodity demand and price movements, timing of access to infrastructure, timing of environmental approvals, regulatory risks, operational risks, reliance on key personnel, reserve estimations, native title risks, cultural heritage risks, foreign currency fluctuations, and mining development, construction and commissioning risk.

Competent persons statement – Resource Estimation

The Mineral Resource has been compiled under the supervision of Mr. Shaun Searle who is a director of Ashmore Advisory Pty Ltd and a Registered Member of the Australian Institute of Geoscientists. Mr. Searle has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity that he has undertaken to qualify as a Competent Person as defined in the JORC Code.

Competent persons statement – Exploration Results

The information in this document that relates to exploration results is based on data collected under the supervision of Mr. Nick Algie in his capacity as Exploration Manager for Australian Silica Quartz Group Limited. Mr. Algie is a registered member of the Australian Institute of Mining and Metallurgy (AusIMM) and has sufficient experience that is relevant to the type of deposit and style of mineralisation under consideration to qualify as a competent person under the 2012 edition of the "Australian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr. Algie consents to the inclusion of the data in the form and context in which it appears.

Table 2: Significant Intersections >98% SiO₂

HoleID	From (m)	To (m)	Interval (m)	Calc. SiO ₂ (%)
ASQQHRC001	2	4	2	98.3
ASQQHRC001	27	31	4	99.0
ASQQHRC001	32	36	4	98.6
ASQQHRC001	41	42	1	99.0
ASQQHRC001	43	47	4	98.3
ASQQHRC001	54	56	2	98.9
ASQQHRC001	59	62	3	98.7
ASQQHRC001	63	66	3	98.3
ASQQHRC002	0	8	8	99.0
ASQQHRC002	9	24	15	99.1
ASQQHRC002	25	29	4	99.1
ASQQHRC002	31	32	1	99.5
ASQQHRC002	34	36	2	99.1
ASQQHRC002	38	42	4	98.8
ASQQHRC002	44	45	1	98.7
ASQQHRC002	48	51	3	99.2
ASQQHRC002	53	57	4	98.8
ASQQHRC002	58	60	2	99.0
ASQQHRC002	65	66	1	98.7
ASQQHRC003	2	9	7	98.9
ASQQHRC003	10	14	4	98.9
ASQQHRC003	15	26	11	99.3
ASQQHRC003	28	60	32	99.2
ASQQHRC003	61	65	4	99.0
ASQQHRC003	67	73	6	98.9
ASQQHRC003	76	78	2	98.7
ASQQHRC003	85	87	2	98.7
ASQQHRC004	1	5	4	99.1
ASQQHRC004	8	9	1	98.3
ASQQHRC004	10	13	3	98.8
ASQQHRC004	16	30	14	99.0
ASQQHRC004	36	37	1	98.9
ASQQHRC004	55	56	1	98.6
ASQQHRC004	58	59	1	98.2
ASQQHRC004	61	65	4	98.5
ASQQHRC004	71	74	3	99.1
ASQQHRC004	77	82	5	98.4
ASQQHRC005	0	9	9	99.1
ASQQHRC005	12	16	4	99.2
ASQQHRC005	20	49	29	99.1
ASQQHRC005	54	58	4	98.6
ASQQHRC005	74	75	1	98.8
ASQQHRC005	77	80	3	98.6

Table 2 (continued): Significant Intersections >98% SiO₂

HoleID	From (m)	To (m)	Interval (m)	Calc. SiO ₂ (%)
ASQQHRC005	84	86	2	99.3
ASQQHRC005	88	90	2	98.7
ASQQHRC005	92	94	2	98.9
ASQQHRC005	103	106	3	98.4
ASQQHRC005	107	109	2	98.6
ASQQHRC006	23	46	23	99.0
ASQQHRC006	47	48	1	98.4
ASQQHRC006	49	54	5	98.8
ASQQHRC006	55	56	1	99.5
ASQQHRC006	57	65	8	99.2
ASQQHRC006	68	70	2	99.0
ASQQHRC006	74	80	6	99.2
ASQQHRC006	81	85	4	99.0
ASQQHRC007	56	64	8	99.1
ASQQHRC007	65	77	12	99.4
ASQQHRC007	79	81	2	98.2
ASQQHRC007	93	99	6	98.9
ASQQHRC007	100	104	4	99.0
ASQQHRC007	106	114	8	99.0
ASQQHRC007	115	121	6	99.2
ASQQHRC007	122	124	2	98.7
ASQQHRC007	127	129	2	99.1
ASQQHRC008	3	10	7	99.1
ASQQHRC008	11	13	2	98.8
ASQQHRC008	15	16	1	98.0
ASQQHRC008	17	48	31	99.2
ASQQHRC008	49	60	11	99.4
ASQQHRC008	63	77	14	99.0
ASQQHRC008	78	80	2	98.9
ASQQHRC008	91	93	2	98.8
ASQQHRC008	95	96	1	99.3
ASQQHRC008	97	98	1	99.1
ASQQHRC008	99	106	7	98.9
ASQQHRC009	10	11	1	99.1
ASQQHRC009	18	44	26	99.3
ASQQHRC009	46	51	5	99.2
ASQQHRC009	53	54	1	99.0
ASQQHRC009	56	70	14	99.0
ASQQHRC009	71	73	2	99.2
ASQQHRC009	79	89	10	99.0
ASQQHRC009	90	96	6	99.0
ASQQHRC009	103	105	2	99.0

Table 2 (continued): Significant Intersections >98% SiO₂

HoleID	From (m)	To (m)	Interval (m)	Calc. SiO ₂ (%)
ASQQHRC009	122	129	7	98.7
ASQQHRC009	140	143	3	99.0
ASQQHRC010	5	45	40	99.4
ASQQHRC010	47	49	2	99.5
ASQQHRC010	50	68	18	99.1
ASQQHRC010	81	90	9	99.2
ASQQHRC011	11	53	42	99.2
ASQQHRC011	73	100	27	99.2
ASQQHRC011	116	119	3	99.3
ASQQHRC011	120	122	2	99.1
ASQQHRC014	4	36	32	99.1
ASQQHRC014	39	41	2	99.4
ASQQHRC014	43	45	2	98.8
ASQQHRC014	48	50	2	99.2
ASQQHRC014	51	58	7	99.0
ASQQHRC014	59	61	2	99.2
ASQQHRC014	62	64	2	99.1
ASQQHRC014	67	69	2	99.2
ASQQHRC014	75	77	2	99.3
ASQQHRC014	78	79	1	99.0
ASQQHRC014	81	84	3	99.0
ASQQHRC014	85	91	6	99.0
ASQQHRC014	100	101	1	99.0
ASQQHRC014	126	133	7	99.0
ASQQHRC014	137	138	1	99.2

Table 3 - Drill Collar Data (GDA94 MGAz55)

Hole ID	Northing	Easting	RL (m ASL)	Dip	Grid Azimuth	End of Hole (m)	Drilling Type
ASQQHRC001	7997248	207715	489.9	-90°	334°	102	RC
ASQQHRC002	7997233	207803	495.1	-55°	334°	72	RC
ASQQHRC003	7997233	207799	494.9	-80°	340°	96	RC
ASQQHRC004	7997294	207948	524.8	-50°	0°	96	RC
ASQQHRC005	7997290	207947	523.8	-80°	0°	126	RC
ASQQHRC006	7997050	207511	427.4	-55°	334°	108	RC
ASQQHRC007	7997049	207513	427.2	-80°	333°	133	RC
ASQQHRC008	7997255	208119	524.2	-55°	358°	132	RC
ASQQHRC009	7997252	208119	523.9	-80°	356°	163	RC
ASQQHRC010	7997137	207648	455.4	-55°	334°	102	RC
ASQQHRC011	7997133	207649	455.0	-80°	334°	135	RC
ASQQHRC012	7997252	208129	523.8	-55°	56°	30	RC
ASQQHRC013	7997251	208127	523.9	-55°	56°	36	RC
ASQQHRC014	7997255	208122	524.4	-60°	55°	168	RC

JORC Code, 2012 Edition – Table 1 report template
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"> 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. 	<ul style="list-style-type: none"> Drill spoil sampling was completed at 1m intervals with the sample riffle split at a ratio of 25:75 at the cyclone underflow. The 75% split was placed in green bags with metre intervals marked on the bags. The 25% split was collected in pre numbered calico bags and were riffle split a second time and weighed by field staff at the rig to reduce the sample mass to less than 3kg for lab submission. At the laboratory, samples were received, sorted and checked against submission sheets for missing or additional samples. Samples were dried, weighed, split and dry screened to +1.0mm. The coarse fraction was pulverised to P85 75µ, in a tungsten carbide bowl and puck set.
Drilling techniques	<ul style="list-style-type: none"> 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). 	<ul style="list-style-type: none"> During August and September 2023, Associated Exploration Drilling Pty Ltd ("AED") completed 14 Reverse Circulation ("RC") drill holes for 1,499m at the Quartz Hill quartz occurrence. Drilling was carried out with a UDR U650 drill rig.
Drill sample recovery	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> All RC samples were visually checked for recovery, moisture and contamination. No relationship exists between sample recovery and grade.
Logging	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> All drill holes were field logged by a company geologist. Various qualitative geological features were logged. All drill holes were logged in full in an excel spreadsheet. Logging was qualitative in nature.
Sub-sampling techniques and sample preparation	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> Samples were 1m down hole intervals with the entire sample collected. Drill spoil sampling was completed at 1m intervals with the sample riffle split at a ratio of 25:75 at the cyclone underflow. The 75% split was placed in green bags with metre intervals marked on the bags. The 25% split was collected in pre numbered calico bags and were riffle split a second time and weighed by field staff at the

Criteria	JORC Code explanation	Commentary
	<p>samples.</p> <ul style="list-style-type: none"> 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. 	<p>rig to reduce the sample mass to less than 3kg for lab submission.</p> <ul style="list-style-type: none"> The 75% split was grab sampled by spear probe and wet sieved to +2mm at the rig for observation and logging by the supervising geologist. At the laboratory, samples were received, sorted and checked against submission sheets for missing or additional samples. Samples were dried, weighed, split and dry screened to +1.0mm. The course fraction was pulverised to P85 75µ, in a tungsten carbide bowl and puck set. Only the +1mm fraction for each sample was analysed as this is considered to be most representative of the likely lump quartz product. Further, it is expected that the fine fraction would be heavily contaminated by wear material from the drilling process. QC procedures involved the inclusion of duplicate field samples were inserted at a rate of 1 in every 25 samples. Company high purity quartz standards were inserted at a rate of 1 in 50 samples. The standard (ASQ-HPS-1) is a non-certified reference material sourced from XRF Scientific in Perth. Sample sizes are considered appropriate to correctly represent the mineralisation based on the style of mineralisation, the thickness and consistency of the intersections, the sampling methodology and assay value ranges for quartz.
Quality of assay data and laboratory tests	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> Each sample was subjected to a mixed acid digest with the elemental chemistry determined by ICP-OES. Every 5th sample from the first batch of 200 samples was analysed for boron by sodium peroxide fusion with ICP-AES finish to confirm boron was not present in the quartz at any significant concentration. Analysis results provided by the laboratory are expressed as elemental concentrations. ASQ calculated the expected oxide concentrations using conversion multipliers. The sum of oxides for each sample is subtracted from 100 to give the calculated SiO₂ concentration. Laboratory QAQC includes the use of internal standards using certified reference material, laboratory duplicates and pulp repeats. A full analysis of all the quality control data has been undertaken. This analysis validates the drill assay dataset and conforms with the guidelines for reporting under the JORC 2012 code. The QAQC results confirm the suitability of the drilling data for use in the resource estimation.
Verification of sampling and assaying	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> The RC drill hole intersections were verified by the ASQ geologist. The ASQ logging process involves placing drill samples for each 1m interval into chip trays which are then retained to provide a permanent record of the down hole lithology for audit and validation purposes and reconciliation of assay results with geology. The ASQ geologist logged all drill samples at the rig, with a minimum logging interval of 1m.

Criteria	JORC Code explanation	Commentary
Location of data points	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • The collar location of each drill hole was surveyed using a Spectra Geospatial SP60 DGPS with position dilution of position (“PDOP”) values ranging from 0.8 to 1.2. Collar orientation was measured using a handheld sighting compass and mast angle was measured with a clinometer to give collar dip. Down hole survey was completed at 30m intervals and end of hole using a Reflex Single Shot downhole instrument located within a non-ferrous drill rod to avoid magnetic interference. • Collars have been located in MGA1994, Zone 55 co-ordinates. • Measure Australia (Townsville) completed a LiDAR and Photogrammetry survey by drone over 267Ha of the Project area. This generated a DTM surface with 50mm vertical accuracy.
Data spacing and distribution	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • The drilling was spread evenly across the quartz outcrop with drill hole spacing around 200m by 50m. • The mineralised domains have demonstrated sufficient continuity in both geological and grade continuity to support the estimation procedure and classification applied under the 2012 JORC Code. • Samples were composited to 1m intervals prior to estimation.
Orientation of data in relation to geological structure	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • The orientation of the drilling -55 to -80° is approximately perpendicular to the southerly dipping mineralisation and is unlikely to have introduced any significant sampling bias. • No orientation based sampling bias has been identified in the data
Sample security	<ul style="list-style-type: none"> • The measures taken to ensure sample security. 	<ul style="list-style-type: none"> • Samples selected for analysis were packaged in labelled bulk bags sealed with zip ties and transported by freight contractors to SGS Laboratories in Townsville.
Audits or reviews	<ul style="list-style-type: none"> • The results of any audits or reviews of sampling techniques and data. 	<ul style="list-style-type: none"> • Audits have not yet been conducted due to the early stage of exploration.

Section 2: Reporting of Exploration Results

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	<ul style="list-style-type: none"> 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 license to operate in the area. 	<ul style="list-style-type: none"> The Project is located on EPM 26702 within Mount Surprise Station, approximately 200km southwest of Cairns in Far North Queensland. The tenement is 100% owned and held by ASQ. The tenements are in good standing with no known impediments to future mining operations.
Exploration done by other parties	<ul style="list-style-type: none"> Acknowledgment and appraisal of exploration by other parties. 	<ul style="list-style-type: none"> No previous sub-surface exploration has been undertaken, however, during 2010 to 2012, KS Mining Pty Ltd completed surface rockchip quartz sampling and a resource of approximately 14 million tonnes of 99% SiO₂, to a depth of 100m was estimated and categorised as Inferred under the JORC Code 2004.
Geology	<ul style="list-style-type: none"> Deposit type, geological setting and style of mineralisation. 	<ul style="list-style-type: none"> The outcropping Quartz Hill occurrence is hosted within the Paleoproterozoic aged Einasleigh Metamorphics. The Einasleigh Metamorphics consists of migmatites grading into gneissic granite and schist. Quartz Hill is a very large, 1,300m long ridge elevated up to 140m in vertical elevation above the surrounding flatter country dominated by continuously outcropping rubbly quartz forming the core of the steep-sided ridge. The quartz lodes are thought to have been formed from the processes of metamorphism, due either to pre-existing siliceous rocks being definitively metamorphosed, or quartzitic material being produced by metamorphic processes.
Drill hole information	<ul style="list-style-type: none"> 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"> 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. 	<ul style="list-style-type: none"> All information has been included in the report. No drill hole information has been excluded.
Data aggregation methods	<ul style="list-style-type: none"> In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. 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. 	<ul style="list-style-type: none"> Exploration results are not being reported. Not applicable as a Mineral Resource is being reported. Metal equivalent values have not been used.

Criteria	JORC Code explanation	Commentary
Relationship between mineralisation widths and intercept lengths	<ul style="list-style-type: none"> • <i>These relationships are particularly important in the reporting of Exploration Results.</i> • <i>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</i> • <i>If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').</i> 	<ul style="list-style-type: none"> • The orientation of the drilling -55 to -80° is approximately perpendicular to the southerly dipping mineralisation.
Diagrams	<ul style="list-style-type: none"> • <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> 	<ul style="list-style-type: none"> • Relevant diagrams have been included within the Mineral Resource report main body of text.
Balanced Reporting	<ul style="list-style-type: none"> • <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> • <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> 	<ul style="list-style-type: none"> • All drill hole collars were located by DGPS in MGA1994 Zone 55 grid. • Exploration results are not being reported.
Other substantive exploration data	<ul style="list-style-type: none"> • <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> 	<ul style="list-style-type: none"> • Surface chip sampling was utilised to guide the interpretation and excluded from the estimation.
Further work	<ul style="list-style-type: none"> • <i>The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).</i> • <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> 	<ul style="list-style-type: none"> • Further drilling will be conducted to improve the confidence in the geological continuity. • Refer to diagrams in the body of text within the Mineral Resource report.

Section 3 Estimation and Reporting of Mineral Resources

Criteria	JORC Code explanation	Commentary
Database integrity	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> The database is validated by ASQ geologists. All drill logs are validated digitally by the database geologist once assay results are returned from the laboratory. Ashmore also performed data audits in Surpac and checked collar coordinates, down hole surveys and assay data for errors. No errors were found.
Site visits	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> A site visit was conducted by Ashmore during August 2023 which included drilling observation.
Geological interpretation	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> The confidence in the geological interpretation is considered to be good. The geological setting is a southerly dipping quartz unit. Geochemistry has been used to assist identification of the rock type applied in the interpretation process. Clear boundaries define the mineralisation. Outcropping of mineralisation has supported geochemistry. The mineralised domains are wireframed based on geochemistry and geological logging.
Dimensions	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> The Quartz Hill Mineral Resource area extends over a strike length of 865m (from 207,350mE to 208,215mE, has a maximum width of 80m and was modelled from surface to a depth of approximately 160m below surface.
Estimation and modelling techniques	<ul style="list-style-type: none"> 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 Mineral Resource estimate 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 	<ul style="list-style-type: none"> Ordinary Kriging ("OK") was used to estimate average block grades in up to three passes using Surpac software. Linear grade estimation was deemed suitable for the Quartz Hill Mineral Resource due to the geological control on mineralisation. The extrapolation of the lodes along strike has been limited to 100m and down-dip to 80m. The SiO₂ (%), Sum Oxides (%), Al₂O₃ (%), BaO (%), CaO (%), Cr₂O₃ (%), Fe₂O₃ (%), MgO (%), Mn₃O₄ (%), Na₂O (%), P₂O₅ (%) and TiO₂ (%) grades were interpolated into the block model. All other oxide elements are considered deleterious. The block dimensions used in the model were 40m EW by 5m NS by 5m vertical with sub-cells of 2.5m by 1.25m by 1.25m. The parent block size was selected based on KNA, while dimensions in other directions were selected to provide sufficient resolution to the block model in the across-strike and vertical direction. An orientated search ellipse with an 'ellipsoid' search was used to select data for interpolation. The search ellipse was consistent with the interpreted geology. Up to three passes were used for the estimate. The first pass had a range of 200m, with a minimum of 6 or 8 samples. For the second pass, the range was extended to 400m, with a minimum of 4 samples. The final pass had a range of 600m, with a minimum of 2 samples. A maximum of 16 samples was used

Criteria	JORC Code explanation	Commentary
	<i>data, and use of reconciliation data if available.</i>	<p>for each pass with a maximum of 6 samples per hole.</p> <ul style="list-style-type: none"> No assumptions were made on selective mining units. Correlation analysis was conducted on the main domain. The mineralisation was constrained by wireframes prepared using logged quartz geology as well as down hole geochemistry where calculated silica grades were generally greater than 97 to 98%. Zones of internal dilution (<97% SiO₂) were wireframed separately within the main quartz units and interpolated separately. Statistical analysis was carried out on data from the main domains on 1m composite data. Following a review of the population histograms and log probability plots and noting the low coefficient of variation statistics, it was determined that the application of high grade cuts was not warranted. Validation of the model included detailed visual validation, comparison of composite grades and block grades by easting and elevation. Validation plots showed good correlation between the composite grades and the block model grades.
Moisture	<ul style="list-style-type: none"> Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content. 	<ul style="list-style-type: none"> Tonnages and grades were estimated on a dry in situ basis.
Cut-off parameters	<ul style="list-style-type: none"> The basis of the adopted cut-off grade(s) or quality parameters applied. 	<ul style="list-style-type: none"> The Statement of Mineral Resources has been constrained by the mineralisation solids and reported above a SiO₂ cut-off grade of 98%.
Mining factors or assumptions	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> Ashmore has assumed that the deposit could potentially be mined using open pit techniques.
Metallurgical factors or assumptions	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> No assumptions have been made regarding metallurgy other than the material could be upgraded to a metallurgical grade silicon metal product. Further test work is ongoing.
Environmental factors or assumptions	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> The Quartz Hill MGSi Project is not subject to any environmental liabilities.

Criteria	JORC Code explanation	Commentary
	<p><i>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.</i></p>	
Bulk density	<ul style="list-style-type: none"> • <i>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.</i> • <i>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.</i> • <i>Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.</i> 	<ul style="list-style-type: none"> • Bulk density values applied in the block model were assumed. Bulk density values were assigned in the block based on similar geological terrains, with assigned values of 2.6 to 2.65t/m³ for the quartz units dependent on weathering.
Classification	<ul style="list-style-type: none"> • <i>The basis for the classification of the Mineral Resources into varying confidence categories.</i> • <i>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).</i> • <i>Whether the result appropriately reflects the Competent Person's view of the deposit.</i> 	<ul style="list-style-type: none"> • The Mineral Resource estimate is reported here in compliance with the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves' by the Joint Ore Reserves Committee (JORC). The Mineral Resource was classified as Indicated and Inferred Mineral Resource based on data quality, sample spacing, and lode continuity. The Indicated Mineral Resource was defined within areas of closer spaced and RC drilling of less than 200m by 50m, and where the continuity and predictability of the lode positions was good. The Inferred Mineral Resource was assigned to areas where drill hole spacing was greater than 200m by 50m, where small, isolated pods of mineralisation occur outside the main mineralised zones, and to geologically complex zones. • The input data is comprehensive in its coverage of the mineralisation and does not favour or misrepresent in-situ mineralisation. The definition of mineralised zones is based on high level geological understanding producing a robust model of mineralised domains. • The Mineral Resource estimate appropriately reflects the view of the Competent Person.
Audits or reviews	<ul style="list-style-type: none"> • <i>The results of any audits or reviews of Mineral Resource estimates.</i> 	<ul style="list-style-type: none"> • Internal audits have been completed by Ashmore which verified the technical inputs, methodology, parameters and results of the estimate.