

## **Outstanding detailed feasibility study results support Talga's anode project**

Battery anode and graphene company (“**Talga**” or “**the Company**”) (**ASX:TLG**) is pleased to advise the outcomes of feasibility work and studies completed on its Vittangi Anode Project (“**Project**”) in northern Sweden.

Talga is building an integrated graphite anode facility in Sweden running on 100% renewable electricity, to produce ultra-low emission coated anode for greener lithium-ion (“**Li-ion**”) batteries. Production of the Company’s flagship fully coated anode product, Talnode®-C, will be based initially on the unique flake graphite of its Nunasvaara South deposit near Vittangi.

Project development has been marked by operational impacts during the COVID-19 pandemic. In consideration of these impacts, the development of the Project will now be combined into a single commercial stage, amalgamating the two stages previously outlined in the Project Pre-feasibility Study (“**PFS**”). The overall economic and financial parameters for the combined stages remain materially unchanged from the PFS (see Appendix Table 1).

Since the publication of the PFS in May 2019 (**ASX:TLG 23 May 2019**) Talga has undertaken further studies into the Talnode-C product, anode production, graphite processing and battery market as part of detailed feasibility work on the Project.

Completed feasibility work on the start-up phase (Stage 1) of the Project show highly positive outcomes which will be refined further in the upcoming commercial Detailed Feasibility Study (“**DFS**”). Improvements in Project performance identified in the latest feasibility work include:

- Project development to proceed directly to commercial phase with Project commissioning in 2022 and commercial production in 2023, subject to commercial DFS planned for Q1 2021
- Yield of Talnode-C (from graphite concentrate) increased to 99%, up from 88% in PFS
- Total recovery of Talnode-C (from graphite ore) increased to 90%, up from 80% in PFS
- Energy savings of 30% in graphite concentrate production
- Successful piloting of proprietary sustainable purification process producing battery-grade graphite concentrate without use of industry standard hydrofluoric acid (“**HF**”)
- Ability to produce Talphene graphene products for battery and polymer composite applications from anode refinery stream
- Positive feedback on Talnode-C from major battery manufacturers including high capacity and fast-charge performance during qualification tests
- Refinement of Talnode-C coating treatment based on input from automotive OEM customers
- Pre-production scale Talnode-C pilot plant to satisfy larger automotive OEM qualification process
- Further cost optimisations and growth opportunities identified including resource expansion and underground mining options

**The fast track pathway simplifies Project development and enables the Company to progress directly to commercial anode production of 19,000 tonnes per annum (“**tpa**”) with commencement of construction in 2022 and production in 2023, as outlined in the PFS. Talga’s potential Project partners and customers have indicated that they support this plan.**



**Commenting on the feasibility study results, Talga Managing Director Mark Thompson said:** *“I credit our staff members and technical partners for their work in realising these significant improvements which span every area of our anode project development. In spite of COVID-19 disruptions our commercial development remains firmly on track thanks to the ingenuity of the Talga team. The great results of the recent feasibility work shows significant benefits to be gained in the short and long term and support the simplified amalgamated development plan.*

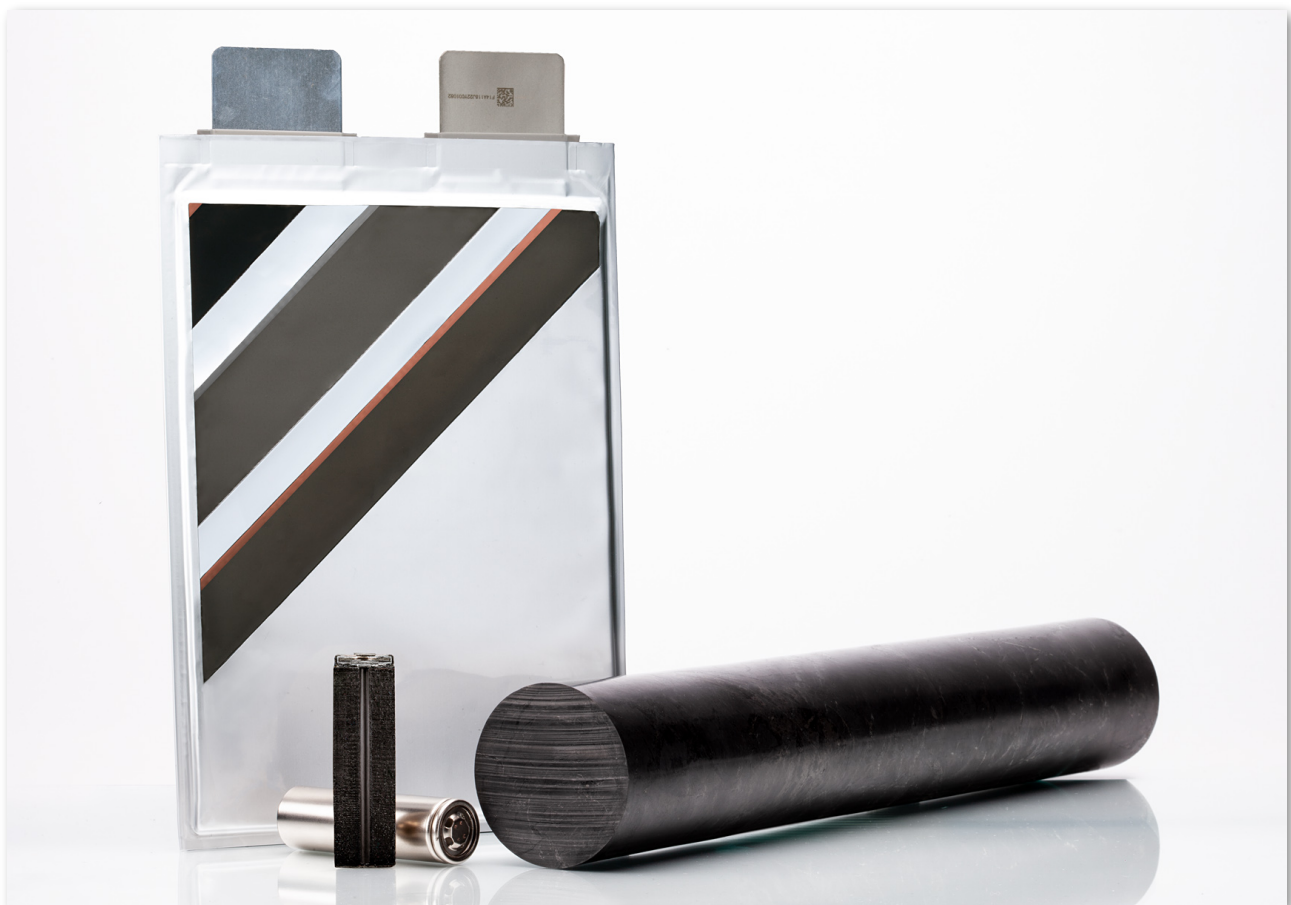
*With increasing demand for Li-ion battery anode sourced from secure and clean supply chains Talga is attracting attention as a potential major anode producer outside China. The range of parties we are engaged with, from product sales to project development partnerships, are truly world-class and well-suited to our project execution strategy. We look forward to sharing more results of these partnerships over the coming months.”*

Work has now commenced with multiple industry participants to finalise the DFS for the commercial scale operation to be used as the basis for valuation and Project financing agreements. The study is planned to be concluded in the latter part of Q1 2021. An updated Project development timeline is in Appendix Figure 1.

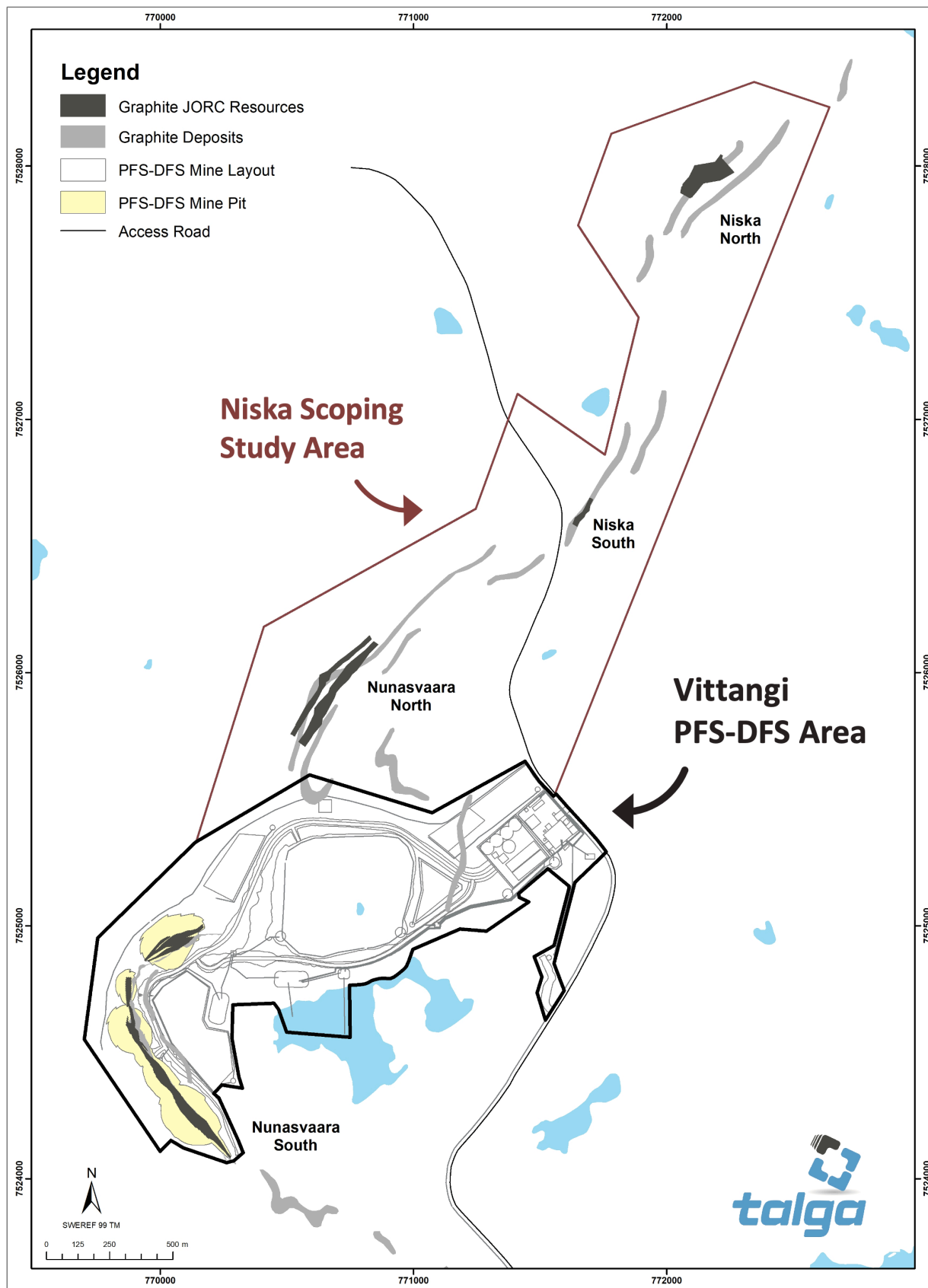
The Company plans to accelerate its growth strategy to meet demand for anode materials. The Vittangi Anode Project DFS is solely based on open-pit development of the Nunasvaara South graphite deposit (see Figure 2 & 5) under which development applications have been submitted.

In addition a scoping study is running in parallel on the large Niska discovery just to the north including open-pit and underground mining options, that will be considered to amalgamate with Nunasvaara South in future.

**Figure 1.** Vittangi graphite drill core and selection of cylindrical and pouch type Li-ion battery cells sectioned to show anode materials inside.



**Figure 2.** Vittangi Graphite Project showing parallel stages of permitting and development underway. The Vittangi Anode Project PFS-DFS area utilises the Nunasvaara South ore reserve. The upcoming Niska Scoping Study will utilise the Niska North, Niska South and Nunasvaara North resources.



## FEASIBILITY WORK PROGRAM

Following the publication of the Vittangi PFS a team of external contractors, technical partners and Talga internal management has completed feasibility work and studies to further progress development of the Project. The work completed to date spanned anode product development and testing, marketing and qualification with customers, processing technology development, mine site logistics and environmental surveys. See Table 1 below for a list of contributing parties.

**Table 1.** Contributors to the Stage 1 feasibility studies and work.

Scope Area	Consultants and Partners
EV Market Report	Rho Motion
Anode Price Report	Benchmark Minerals Intelligence
Product Specification Evaluation Report	Kyoto Research Institute
Beneficiation Bulk Testing Report	GTK Geological Survey Finland
Transportable Moisture Report	Microanalysis
HiG Mill Test Report	Outotec
Mill Technology Report	Core Metallurgy
Rheology Report	Newpark Drilling Fluids
Thickener Tests	Outotec
UFG Optimisation Tests	Core Metallurgy
Luleå Site Infrastructure	Licab
EVA Plant Installation	Swerim
Purification Test Report	Centre Terra et Pierre
Dryer Test Report	Drytech
Anode Coating Test Report	Powder technology Company - Osaka
Anode Shaping Test Report	Machinery supplier - Tokyo
Anode Pyrolysis Test Report	Multiple Japanese technology providers
Rotary Hearth Kiln Engineering	European suppliers
Coating Engineering Study	Powder technology Company - Osaka
Purification Plant Equipment Study	Engineering Group - China
Tailings Study	GHD
Comminution Modelling and sizing	Daniel and Morrell Comminution Consulting Pty Ltd
Capital and Cost Estimating	Core Metallurgy
Mining Study	Golder
Classification test	Centre Terra et Pierre
Analytical Analysis	Medac LTD
Gas Analysis for Permit	TTC
Concentrate and Tailings Filtration Tests	Outotec
Tailings Filtration Tests	Aqseptence (Diemme)
Material Transportation Tests	Microanalysis Australia
Tailings Geotech Tests	GTI Perth



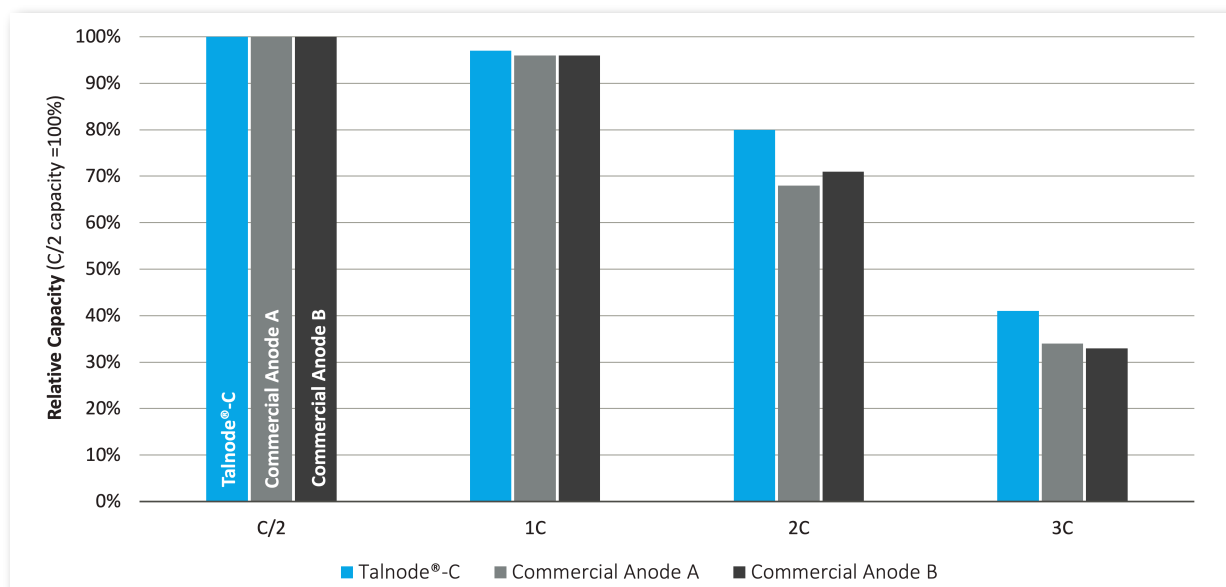
## Talnode®-C Product & Market

Talga is running concurrent market and product qualification programs of its Talnnode anode products with a number of Li-ion battery and anode producers. Targeted battery market segments for the Company's Talnnode product range include batteries for automotive applications, energy storage systems ("ESS") and computers, communications and consumer electronics ("3C").

As part of the feasibility study work Talga has further refined its fully coated Talnnode-C product, with optimised coating treatments for Electrical Vehicle ("EV") battery cells completed based on input from its automotive original equipment manufacturers ("OEM") customers. In independent testing by a major battery customer, Talnnode-C anode produced battery cells with lower internal cell resistance and higher capacity retention under fast-charge conditions against current commercial natural and synthetic anode brands (see Figure 3).

Talga's anode characteristics are particularly suited to EV battery industry demand for 'supercharging' and consumer trends towards fast-charging capability. OEMs are also interested in a low internal resistance anode as it offers greater retention of cell capacity as the batteries are used over time. The positive customer qualification results and feedback supports Talnnode-C's product positioning and continued commercialisation.

**Figure 3.** Customer 'fast-charge' tests of Talnnode®-C benchmarked against commercial natural and synthetic anode. Results show Talnnode®-C retaining markedly higher capacity as charging speeds ('C' rate) increase.



Benchmark Mineral Intelligence ("Benchmark") has reviewed Talga's anode product pricing model and has confirmed there are no material changes in the forecast long-term market dynamics and the basis on which the Company's Talnnode-C prices have been forecast. Market prices for Talga's coated anode product Talnnode-C remains unchanged from the PFS.

In the automotive battery segment, qualification processes are extensive and require demonstration of a continuous manufacturing process. To satisfy OEM requirements and quality control, Talga is assessing options to build an electric vehicle anode sample facility ("EVA") capable of producing 100-200tpa of pre-production Talnnode-C samples.

These samples would be earmarked for customer qualification processes already progressed with automotive OEMs, and their battery manufacturing partners, towards purchase agreements for commercial production of 19,000tpa commencing in 2023. The ramp-up of customer samples for 3C and ESS battery market segments continue to be adequately served from Talga's existing pilot facilities and toll partners.

Samples will be produced using existing graphite ore stockpiles and, in the event additional ore is required, the option to utilise the permitted 25,000 tonne trial mine could be completed in 2021.



## Process Technology

Extensive metallurgical process development and testing to pilot scale was completed as part of the feasibility studies (see Figure 4). During refinery process technology work, Talga successfully developed a graphite concentrate purification process replacing industry-standard hydrofluoric acid (“HF”) with a more environmentally friendly process. The new proprietary HF-free process was successfully run at pilot scale, producing >99.9% C feed to the anode coating plant, and showed high reagent recyclability.

Optimisation of the refinery micronising, spheronising and purification process resulted in significantly increased yields of anode product from graphite concentrate feed. Depending on customer specifications, Talnode-C production yields up to 99% were achieved, up from 88% in the PFS and far above industry standard anode yields of approximately 50%.

The updated refinery processes, plus milling and concentrator optimisations, enabled an overall increase in total recovery of Talnode-C from 80% in the PFS to 90% recovery from run of mine graphite ore to final marketable product. Additionally, energy savings of 30% in the concentrator operation were achieved via pilot scale optimisations of the milling and regrind circuits.

Some of the benefits of higher yields and energy savings have been partially offset by higher reagent costs for purification. However, the work has determined that the overall unit operating cost of production are in line with the PFS. The processing and production gains achieved will be further optimised as part of the Vittangi Anode Project commercial DFS.

### **Commenting on the completed feasibility study results, Talga COO Martin Phillips said:**

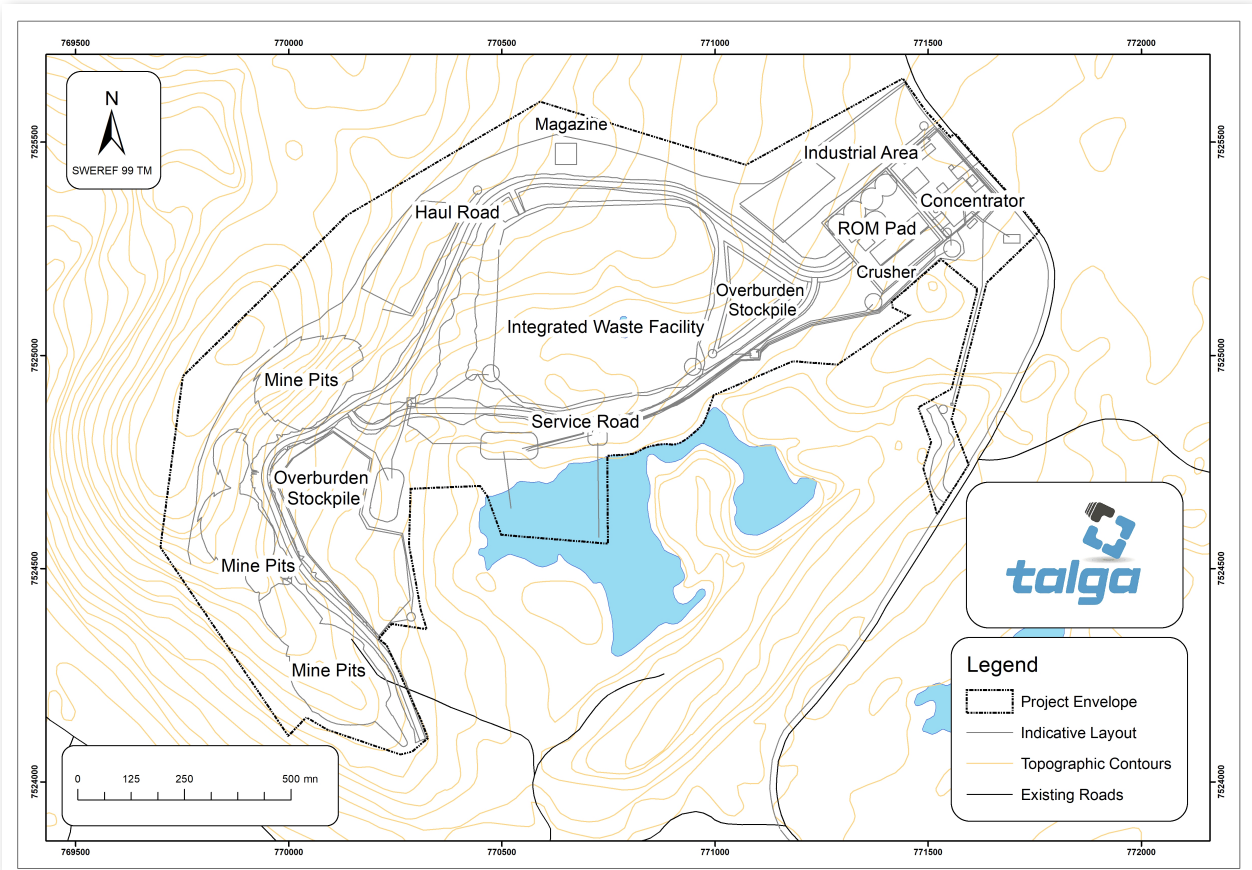
*“Our battery manufacturing customers and partners find Talnode®-C very attractive as an anode material. The work completed on our initial development stage has demonstrated Talga’s ability to produce coated anode material at a very high yield and with consistent high quality using a process that is more sustainable than current standards. Positive market demand and customer feedback reinforces our opportunity to become a large scale, low cost leader in the anode industry and we are pro-actively planning for this growth.”*

In addition, Talphene® graphene products were successfully produced at Talga’s pilot plant in Germany using purified graphite from the Talnode-C process work samples. Initial tests of Talphene made from the process were successful in making Talnode-Si (silicon anode product) and Talphene additives for several customer polymer composite applications. This demonstrates the potential for certain Talphene products and Talnode-Si to be manufactured using the Company’s anode production stream as a feedstock. The positive development provides a second large-scale process option for Talga to make Talphene products, for Talnode-Si and composite markets, in addition to the Company’s proprietary electrochemical exfoliation method.

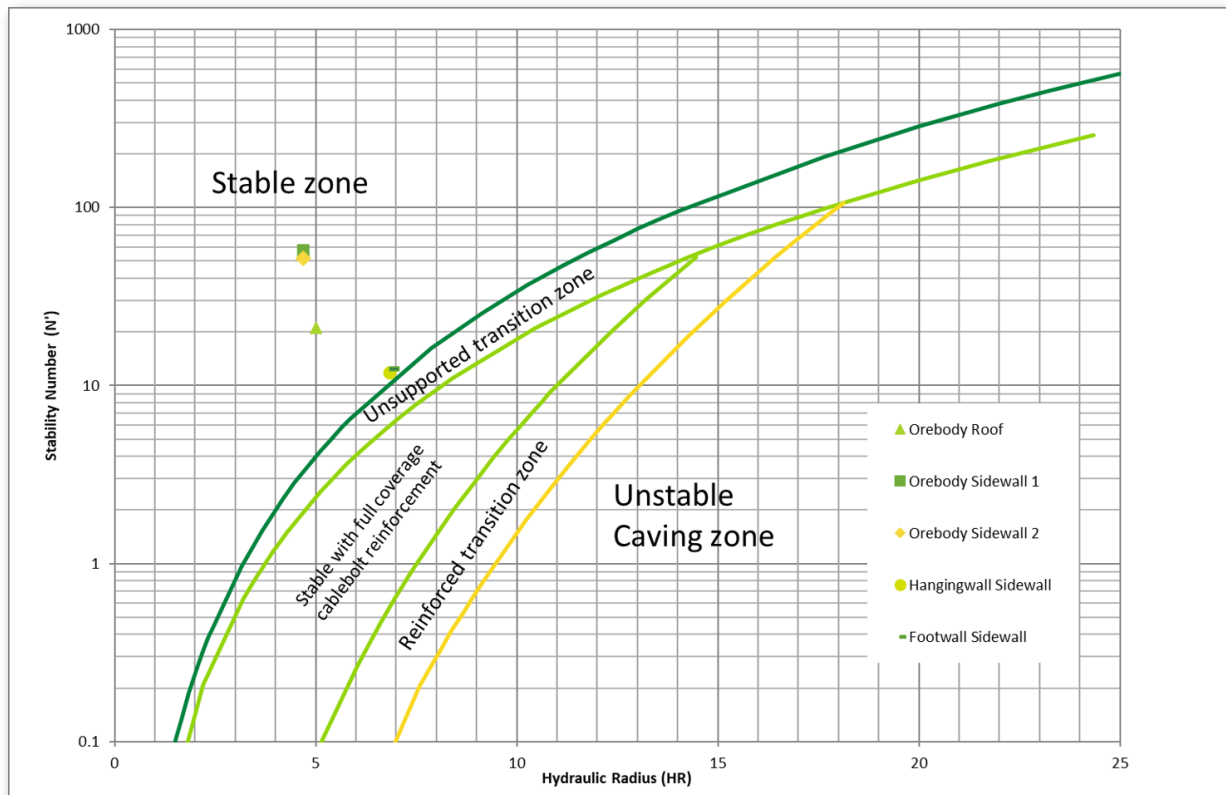
**Figure 4.** Graphite mill and concentrator (GTK) used in toll processing to date by Talga (L) and qualification sample of fully coated Talnode-C being produced at toll processing partner in Japan (R).



**Figure 5.** Vittangi Anode Project PFS-DFS mine area and indicative site layout.



**Figure 6.** Current (scoping level) underground testwork indicates conservative stope sizes would result in stable stoping conditions at Vittangi (Empirical Stope Stability Chart; 25m levels, 30m strike, 15m width).



## Mining Operation & Resource Growth Potential

A range of milling and process equipment were tested and successfully implemented at pilot scale, supporting use of this equipment for commercial scale production where a modular design will be implemented to meet targeted PFS capital costs.

The full-scale commercial mine design and production parameters remain materially unchanged from the PFS, with planned annual production of 100,000 tonnes per annum of mined graphite ore from the Nunasvaara South ore reserve of 1.9 million tonnes (See Figure 5). Ore will be processed onsite at Vittangi to produce a concentrate for purification and coating at an integrated anode refinery plant in Luleå.

To 'close off' the Vittangi project graphite deposits, which all currently remain open along strike and at depth, Talga has decided to commence further extensional, infill and geotechnical drilling. This will allow the Company to best design the layout of mine and processing infrastructure without sterilising deposits and better define the ultimate tonnage potential. In the short term, an update of the global mineral resources will be undertaken to standardise cut-off grades and resource estimate parameters for better development planning across the whole project.

Additionally, an initial geotechnical assessment has indicated that ground conditions should be suitable for underground mining at Vittangi (see Figure 6). Such development could take advantage of Sweden's innovative and efficient underground mining technology, and highly experienced workforce present at nearby mining centres such as Kiruna and Malmberget.

A future transition to underground mining has the potential to increase mine life while decreasing operational cost and site footprint. Further underground mining studies have commenced for inclusion in the upcoming DFS and the Niska scoping study.

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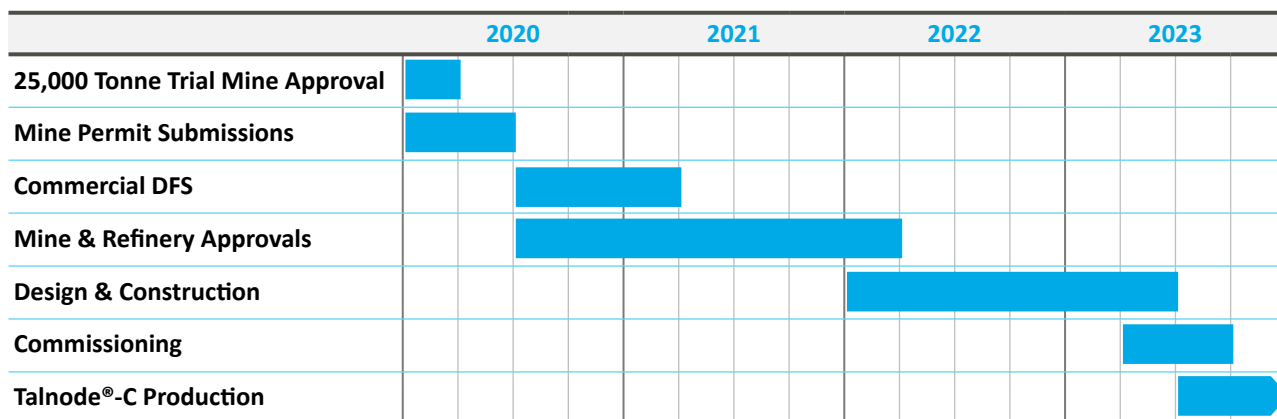


**APPENDIX**

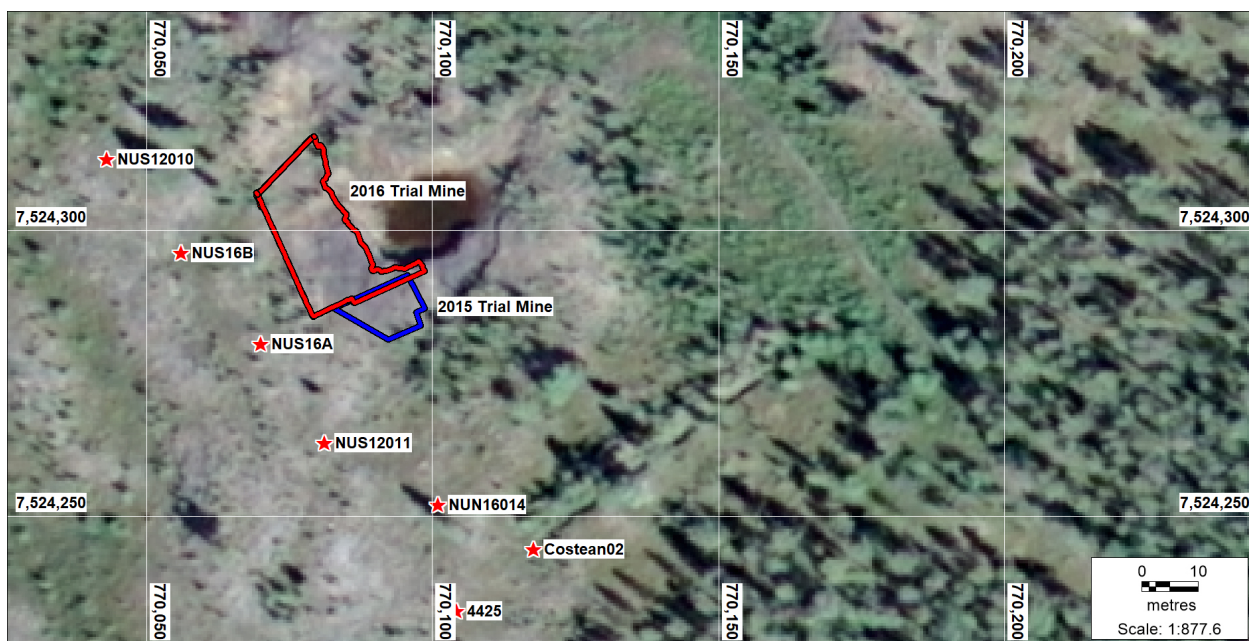
**Table 1. Pre-feasibility Study Estimated Key Outcomes (All in USD)**

Parameter	Units	Outcome
Annual ore mining rate	tonnes	100,000
Average annual production of Talnode®-C	tonnes	19,000
Life of Mine (LOM)	years	22
Pre-tax NPV <sub>8</sub> (real)	\$M	\$1,056
Pre-tax IRR	%	55%
Total Capex (Stage 1+2)	\$M	\$174
Payback	years	1.5
Talnode®-C average price	\$/t product	\$11,250
Revenue (LOM)	\$M	\$4,148
Cash cost of production of Talnode®-C	\$/t product	\$1,852
EBITDA (LOM)	\$M	\$3,254
Net profit before tax (LOM)	\$M	\$3,133

**Figure 1. Vittangi Anode Project development timeline**



**Figure 2. Bulk sample location plan for trial mine at Vittangi, material of which was used in the metallurgical testwork reported in this announcement.**



**Table 2.** Bulk sample location data for the trial mine at Vittangi, material of which was used in the metallurgical testwork reported in this announcement.

Project	ID	Year	Northing (TM99)	Easting (TM99)	RL
Vittangi	Trial Mine	2016	7524285.10	770092.50	320

**Table 3.** Total Vittangi Project Graphite Mineral Resources

Deposit	Resource Category	Tonnage (t)	Graphite (% Cg)	Contained Graphite (t)
Nunasvaara South	Indicated	8,900,000	25.0	2,225,000
	Inferred	1,500,000	23.0	345,000
Nunasvaara North	Indicated	1,800,000	29.4	529,200
	Inferred	100,000	27.4	27,400
Niska North	Indicated	4,160,000	25.8	1,074,528
Niska South	Indicated	480,000	25.8	123,696
Sub-total	<b>Indicated</b>	<b>15,340,000</b>	<b>25.8</b>	<b>3,952,424</b>
	<b>Inferred</b>	<b>1,600,000</b>	<b>23.9</b>	<b>382,400</b>
<b>Total</b>	<b>Indicated &amp; Inferred</b>	<b>16,940,000</b>	<b>25.6</b>	<b>4,334,824</b>

**Note:**

1. Mineral Resources are reported at various cut-off grades: Nunasvaara 17% Cg and Niska 10% Cg.
2. Niska South and North Indicated Mineral Resources rounded down to nearest 1000t.
3. Nunasvaara Mineral Resources rounded to nearest 100,000t.
4. Due to rounding totals may not reconcile exactly.
5. The Nunasvaara Mineral Resource was disclosed in April 2017 in accordance with the 2012 JORC Code (ASX: TLG 27 Apr 2017).
6. The Niska Mineral Resource was disclosed in October 2019 in accordance with the 2012 JORC Code (ASX: TLG 15 Oct 2019).

**Table 4.** Nunasvaara MRE-High Grade Domain (30% Cg lower cut-off grade, April 2017). Note that the Inferred Resource at a lower cut-off grade of 30% Cg is less than 50Kt in all areas and is excluded

Deposit	Resource Category	Tonnage (t)	Graphite (% Cg)	Contained Graphite (t)
Nunasvaara South	Indicated	1,100,000	32.2	354,200
Nunasvaara North	Indicated	900,000	33.0	297,000
<b>Total</b>		<b>2,000,000</b>	<b>32.6</b>	<b>652,000</b>

**Note:** 1. Due to rounding totals may not reconcile exactly.

**Table 5.** Vittangi Project Nunasvaara Probable Ore Reserve Statement

Deposit	Reserve Category	Tonnage (t)	Graphite (% Cg)	Contained Graphite (t)
Nunasvaara South	Proven	0	0	0
	Probable	1,935,000	23.53	455,305
<b>Total</b>		<b>1,935,000</b>	<b>23.53</b>	<b>455,305</b>

**Note:**

1. Due to rounding totals may not reconcile exactly.
2. The Nunasvaara Ore Reserve was disclosed in May 2019 in accordance with the 2012 JORC Code (ASX: TLG 23 May 2019).



## Competent Persons Statement

The information in this document that relates to metallurgy results is based on information compiled by Martin Phillips, a Competent Person who is a Member of the Australian Institute of Mining and Metallurgy (Membership No.108230). Martin Phillips is a full-time employee of Talga Resources Ltd. Martin Phillips has sufficient experience, which is relevant to the style of mineralisation and types of deposits under consideration and to the activity which has been 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 (JORC Code). Martin Phillips consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

The information in this document that relates to exploration results is based on information compiled by Amanda Scott, a Competent Person who is a Member of the Australian Institute of Mining and Metallurgy (Membership No.990895). Amanda Scott is a full-time employee of Scott Geological AB. Amanda Scott has sufficient experience, which is relevant to the style of mineralisation and types of deposits under consideration and to the activity which has been 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 (JORC Code). Amanda Scott consents to the inclusion in the report of the matters based on her information in the form and context in which it appears.

The Niska Mineral Resource estimate was first reported in the Company's announcement dated 15 October 2019 titled 'Talga Substantially Increases Flagship Graphite Resource Size, Grade and Status'. The Company confirms that it is not aware of any new information or data that materially affects the information included in the previous market announcement and that all material assumptions and technical parameters underpinning the Resource estimate in the previous market announcement continue to apply and have not materially changed.

The Nunasvaara Mineral Resource estimate was first reported in the Company's announcement dated 27 April 2017 titled 'Talga boosts Swedish graphite project with maiden Niska resource'. The Company confirms that it is not aware of any new information or data that materially affects the information included in the previous market announcement and that all material assumptions and technical parameters underpinning the Resource estimate in the previous market announcement continue to apply and have not materially changed.

The Nunasvaara Ore Reserve statement was first reported in the Company's announcement dated 23 May 2019 titled 'Outstanding PFS results support Vittangi graphite development'. The Company confirms that it is not aware of any new information or data that materially affects the information included in the previous market announcement and that all material assumptions and technical parameters underpinning the Reserve estimate in the previous market announcement continue to apply and have not materially changed.

The Company first reported the production targets and forecast financial information referred to in this announcement in accordance with Listing Rules 5.16 and 5.17 in its announcement titled 'Outstanding PFS results support Vittangi graphite development' dated 23 May 2019. The Company confirms that all material assumptions underpinning those production targets and forecast financial information derived from those production targets continue to apply and have not materially changed.

The new information disclosed in this announcement is by way of update only as to the Company's progress and the decision that the development of the Project will now be combined into a single commercial stage, amalgamating the two stages previously outlined in the PFS. The overall economic and financial parameters for the combined stages remain materially unchanged from the PFS.



## **Forward-Looking Statements & Disclaimer**

Statements in this document regarding the Company's business or proposed business, which are not historical facts, are forward-looking statements that involve risks and uncertainties, such as estimates and statements that describe the Company's future plans, objectives or goals, including words to the effect that the Company or management expects a stated condition or result to occur. Since forward-looking statements address future events and conditions, by their very nature, they involve inherent risks and uncertainties. Actual results in each case could differ materially from those currently anticipated in such statements. Investors are cautioned not to place undue reliance on forward-looking statements.

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## **About Talga**

Talga Resources Ltd (ASX:TLG) is building a European source of battery anode and graphene additives, to offer graphitic products critical to its customers' innovation and the shift towards a more sustainable world. Vertical integration, including ownership of several high-grade Swedish graphite projects, provides security of supply and creates long-lasting value for stakeholders. Joint development programs are underway with a range of international corporations.

Company website: [www.talgagroup.com](http://www.talgagroup.com)



## JORC Code 2012 Edition

### Section 1 Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
Sampling techniques	<ul style="list-style-type: none"> <li>Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as downhole 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. 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 (e.g. '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 (e.g. submarine nodules) may warrant disclosure of detailed information.</li> </ul>	<ul style="list-style-type: none"> <li>Bulk samples for metallurgical work were collected from a 2,000m<sup>3</sup> pit of the Nunasvaara South graphite deposit, part of the Vittangi Graphite project.</li> <li>Samples were chosen in such a manner as to ensure minimal dilution and ensure representivity across the deposit.</li> <li>Mineralisation in this area has previously been defined from diamond drilling and forms part of Nunasvaara South graphite ore reserve.</li> <li>Bulk samples of 5-8 tonnes were collected using wire-saw quarry techniques and 80 tonnes of blocks representative of the pit chosen for toll milling in a 4 tp/h pilot plant mill at GTK Finland.</li> </ul>
Drilling techniques	<ul style="list-style-type: none"> <li>Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. 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>No drill samples were used in the bulk sample.</li> <li>A 30 tonne Volvo excavator was used to remove topsoil and a front-end loader with forklift attachment was used to lift the cut ore blocks from the pit.</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>No drill samples were used in the bulk sample.</li> <li>Bulk samples were lifted whole from the pit by forklift and carefully placed in a clean storage area, with no visible dilution or contamination.</li> <li>The bulk sample consisted wholly of graphite ore material.</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>No drill samples were used in this bulk sample.</li> <li>Selected geological reference samples were collected at the discretion of the site supervisor and photogrammetry surveys were completed of pit area as it developed.</li> </ul>
Sub-sampling techniques and sample preparation	<ul style="list-style-type: none"> <li>If core, whether cut or sawn and whether quarter, half or all core taken.</li> <li>If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.</li> <li>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</li> <li>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</li> <li>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.</li> <li>Whether sample sizes are appropriate to the grain size of the material being sampled.</li> </ul>	<ul style="list-style-type: none"> <li>The bulk sample was delivered to the GTK pilot plant in Finland and the whole subjected to a crush-grind-flotation process which is considered by Talga to be an industry-standard metallurgical process for the extraction and beneficiation of graphite ore.</li> <li>The whole bulk sample was fed into the pilot plant and milled.</li> <li>Samples were ground to a P80 of 75µm in a bulk rod mill and then floated (rougher). Assays were taken for the rougher concentrates and tails. Rougher concentrates were then processed in a regrinding mill to a P80 less than 15µm. The ground rougher concentrates were processed in multiple stages of cleaning to achieve the final grade, as per industry standard practice to produce concentrate.</li> <li>The sample size was considered appropriate for the type of mineralisation (graphite) under consideration.</li> </ul>

Criteria	JORC Code Explanation	Commentary
Quality of assay data and laboratory tests	<ul style="list-style-type: none"> <li>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</li> <li>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.</li> <li>Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.</li> </ul>	<ul style="list-style-type: none"> <li>Concentrates are initially subject to hydrochloric acid to dissolve selected species. A caustic leach step is used to selectively dissolve silicates. A final leach is used to dissolve remaining impurities followed by water washing to meet specific purity requirements.</li> <li>The Loss on Ignition (LOI) method was used to measure the graphitic carbon grade of each batch of purified graphite with ICP analysis to identify non-carbon elements. Together the techniques can be considered a total assay method.</li> <li>The purified graphite was spheronised &amp; coated with a carbon based material. The resulting composite material is heat treated to pyrolyse the carbon coating.</li> <li>BET and Particle Size measurements were completed on the final anode material, which was then electrochemically characterised in lithium-ion battery cells.</li> <li>The analytical methods are considered appropriate for this style of mineralisation.</li> <li>No geophysical tools or handheld instruments were utilised in the preparation of this announcement.</li> <li>Laboratory QAQC methods included the insertion of certified reference material standards, blanks, and duplicates.</li> </ul>
Verification of sampling and assaying	<ul style="list-style-type: none"> <li>The verification of significant intersections by either independent or alternative company personnel.</li> <li>The use of twinned holes.</li> <li>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</li> <li>Discuss any adjustment to assay data.</li> </ul>	<ul style="list-style-type: none"> <li>Reported metallurgical results were verified by alternative company personnel and contractors both in person and via electronic data. The graphite products produced as a result of the most recent metallurgical testwork reported in this announcement have been compared with commercial-grade equivalents.</li> <li>No drilling has been used in this bulk sample.</li> <li>All geological, metallurgical and location data is stored in Talga's database. Data entry was by manual and/or automatic input and validation of the data has been done by checking input on screen prior to saving.</li> <li>No adjustments or calibrations have been made to any assay data used in this report.</li> </ul>
Location of data points	<ul style="list-style-type: none"> <li>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.</li> <li>Specification of the grid system used.</li> <li>Quality and adequacy of topographic control.</li> </ul>	<ul style="list-style-type: none"> <li>The bulk sample location was documented with handheld GPS, Lidar topography and in-pit photogrammetry with differential GPS control.</li> <li>Grid system used was Swedish Coordinate system SWEREF99 (TM99).</li> <li>Topographic control was of adequate quality tested by handheld GPS and cross-correlation with digital (Lidar) topographic imagery.</li> </ul>
Data spacing and distribution	<ul style="list-style-type: none"> <li>Data spacing for reporting of Exploration Results.</li> <li>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.</li> <li>Whether sample compositing has been applied.</li> </ul>	<ul style="list-style-type: none"> <li>The bulk sample pit was selectively sited within the ore reserve in order to achieve a representative sample.</li> <li>The bulk sample blocks spacing and distribution is considered sufficient to establish a degree of geological and grade continuity. JORC-compliant MREs and an Ore Reserve for the bulk sample site have been completed and previously reported by Talga.</li> <li>The bulk sample used for the metallurgical testwork reported in this announcement has been composited.</li> </ul>
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 bulk sample pit was orientated to cut across the entire width of the strike of geological units and mineralisation and is considered an appropriate test of a deposit of this type.</li> <li>The bulk sample pit was well located on the outcropping deposit and perpendicular to the deposit strike however bias introduced by the orientation of the pit with respect to structures is not known.</li> </ul>

Criteria	JORC Code Explanation	Commentary
<i>Sample security</i>	<ul style="list-style-type: none"> <li><i>The measures taken to ensure sample security.</i></li> </ul>	<ul style="list-style-type: none"> <li>Chain of custody of the bulk sample was managed by company representatives and considered appropriate. The ore blocks were clearly marked in pit and location logged, loaded onto a truck and stored in a locked storage facility before transporting by truck to the pilot plant where the ore blocks were stored in a locked gated area before being fed into the pilot plant crusher.</li> </ul>
<i>Audits or reviews</i>	<ul style="list-style-type: none"> <li><i>The results of any audits or reviews of sampling techniques and data.</i></li> </ul>	<ul style="list-style-type: none"> <li>No external audits or reviews of the sampling techniques and data have been completed to date whilst internal review has been completed by experienced Talga staff and metallurgical partners listed in Table 1 of this announcement.</li> </ul>

## Section 2 Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
Mineral tenement and land tenure status	<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 Vittangi Project is located on licences Nunasvaara nr 2 and Vittangi nr 2. The trial mine bulk sample site is located on the Nunasvaara nr 2 licence.</li> <li>All licences are owned 100% by the Company's Swedish subsidiary, Talga Graphene AB.</li> <li>The licences are wholly owned by the Company and are located in forested areas. The areas are used for seasonal grazing by local indigenous Sami reindeer herders.</li> <li>The licences are in good standing with no known impediments.</li> </ul>
Exploration done by other parties	<ul style="list-style-type: none"> <li>Acknowledgment and appraisal of exploration by other parties.</li> </ul>	<ul style="list-style-type: none"> <li>Graphite was first identified at Nunasvaara in the early 1900's and has been extensively explored since that time. In the early 1980's LKAB completed diamond drilling and test mining at Nunasvaara. More recently the area has been explored by Anglo American and Teck Cominco for copper and base metals prospectivity.</li> </ul>
Geology	<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 graphite mineralisation at the Vittangi Project is a sub-vertical, ~20-70m wide lithologically continuous unit of very fine grained, dark-grey to black graphite containing 10-45% graphitic carbon. The hangingwall is comprised of volcanoclastics and tuffaceous units and the footwall to the mineralisation is a mafic intrusive (gabbros and dolerites). The graphite units are regionally extensive over many kilometres and are interpreted to have developed in a shallow freshwater basin in the early Proterozoic (Circa 1.8 billion years). Subsequent deformation, possibly related to domal intrusive bodies have metamorphosed and tilted the units to the sub-vertical orientations present today. The graphite at the Vittangi Project is very fine-grained flake and very high grade. Metallurgical testwork completed by the Company shows battery-grade graphite and graphene products can be produced.</li> </ul>
Drill hole Information	<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 meters) 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>Information relating to bulk sample metallurgical testwork reported in this announcement is summarised in the body text and Table 3 and Figure 8 of this announcement.</li> </ul>
Data aggregation methods	<ul style="list-style-type: none"> <li>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.</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>No data aggregation was carried out.</li> <li>No high-grade cut-offs have been used in this announcement.</li> <li>No metal equivalents have been used in this announcement.</li> </ul>
Relationship between mineralisation widths and intercept lengths	<ul style="list-style-type: none"> <li>These relationships are particularly important in the reporting of Exploration Results.</li> <li>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</li> <li>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').</li> </ul>	<ul style="list-style-type: none"> <li>No drilling results are reported in this announcement.</li> <li>The geometry of the graphite mineralisation at the Nunasvaara trial mine is well understood and the bulk sample site was located across the true width of the deposit perpendicular to the strike of the mineralisation.</li> </ul>



Criteria	JORC Code Explanation	Commentary
Diagrams	<ul style="list-style-type: none"> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>Appropriate maps have been included in this announcement.</li> </ul>
Balanced reporting	<ul style="list-style-type: none"> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>The report provides the total information available to date and is considered to represent a balanced report.</li> </ul>
Other substantive exploration data	<ul style="list-style-type: none"> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>A substantial amount of work has been completed at the Vittangi Project by both historic explorers and more recently by Talga. Work has included geophysical surveys, rock chip sampling, MMI soil sampling, trenching, diamond drilling, metallurgical testwork and trial mining. The most recent metallurgical testwork completed using graphite material from the Vittangi Project is the subject of this announcement.</li> </ul>
Further work	<ul style="list-style-type: none"> <li>The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).</li> <li>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</li> </ul>	<ul style="list-style-type: none"> <li>A DFS for the Nunasvaara South deposit of the Vittangi Project is currently being prepared by Talga and a 25,000 tonne bulk ore sample has been environmentally approved for extraction in 2021-22.</li> <li>Infill and extensional diamond drilling at the Vittangi Project is currently being planned by Talga.</li> </ul>