



# The Graphite Creek Deposit Seward Peninsula, Alaska

*Alaska's Critical Mineral Supply*

The Alliance - Fairbanks Chapter Luncheon  
March 6, 2019

# Forward-Looking Statements

This presentation contains "forward-looking statements" which are made as of the date it is presented and Graphite One Resources Inc. ("the Company") does not intend, and assumes no obligation, to update these forward-looking statements. Forward-looking statements include, but are not limited to, statements with regard to the actual ability to produce graphite in any form, including spherical graphite, ultimate further and final results of additional test-work, progress of the Company, the timing and successful completion of the feasibility study, industry and Company projections regarding graphite demand, electric vehicles and power storage devices, results of studies being accurate regarding characteristics of the Graphite Creek mineralization, the timing, amount and success of future exploration and exploitation activities, and events or developments that the Company expects.

Information concerning inferred and indicated mineral resource estimates also may be deemed to be forward-looking information in that it reflects a prediction of the mineralization that would be encountered if a mineral deposit were developed and mined. Although the Company believes the expectations expressed in such forward-looking statements are based on reasonable assumptions, such statements are not guarantees of future performance and actual results or developments may differ materially from those in the forward-looking statements.

Forward-looking statements involve known and unknown risks, uncertainties and other factors which may cause the actual results, performance or developments of the Company to be materially different from those in the forward-looking statements. Such factors include, among others, results of product development test work may not be indicative of the advancement of the project as anticipated, or at all, market prices, exploitation and exploration successes, continuity of mineralization, uncertainties related to the ability to obtain permits, licenses and title delays, changes in government policies regarding mining and natural resource exploitation, accidents, labour disputes and other risks of the mining industry; ability to get or delays in obtaining capital and financing, and general economic, market or business conditions.

Readers are cautioned not to place undue reliance on this forward-looking information, which is given as of the date presented. For more information on the Company, investors should review the Company's continuous disclosure filings that are available at [www.sedar.com](http://www.sedar.com).

# Topics for Today:

- Graphite One Resources, Inc.
  - Graphite One (Alaska) Inc.
- Graphite
  - Properties
  - Uses and demand
  - Domestic US Supply
- Our Project
  - Geology
  - Preliminary Economic Assessment (“PEA”)
  - 2018 Field Program
  - Community Engagement
- Summary
- Questions

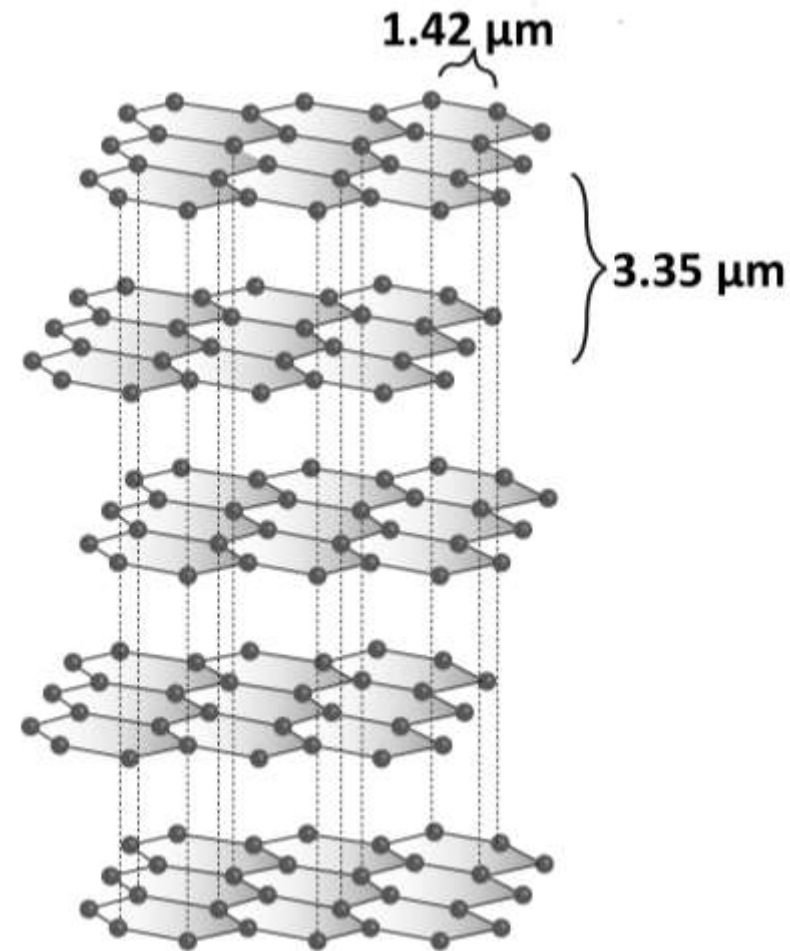
# Graphite One Resources Inc.

## Corporate Structure

- Based in Vancouver, British Columbia
- Graphite One (Alaska) Inc., wholly owned subsidiary
  - Graphite Creek graphite resources
- Trades on the TSX Venture Exchange under the symbol **GPH** and on the OTCQB Market as **GPHOF**
- 465 Million shares, fully diluted
- Ownership widely held

# Graphite's Properties

- High electrical conductivity
- Low density
- Oxidizes under certain conditions
- Retains structural strength at high temperatures
- Low co-efficient of thermal expansion
- High thermal conductivity
- High “melting” point (3,600<sup>0</sup>C), sublimates
- Excellent resistance to thermal shock
- High lubricity
- Inert, insoluble in water and organic solvents
- Flexible but not elastic



6 μm diameter carbon filament,  
50 μm diameter human hair

# Feeding the Energy Storage Beast

Energy storage revenue is forecast to be about \$60 Billion by 2026<sup>1</sup>

Lithium-Ion Batteries powering

MAJOR PRODUCTS DRIVING UNPRECEDENTED DEMAND

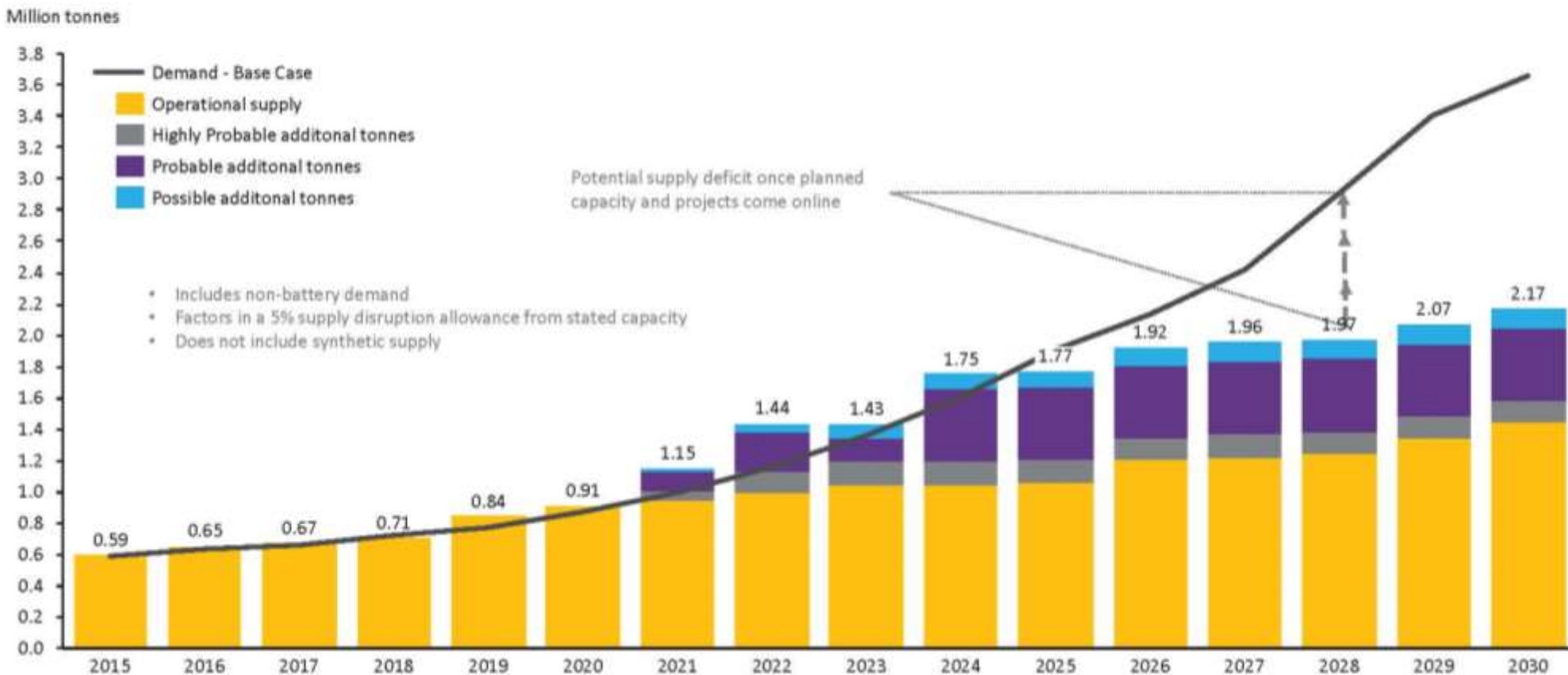
## Electric Vehicles

- 10-30x more graphite than lithium by weight required to produce these batteries
- Projected increase from 1.2 million EVs in 2015 to 100 million by 2035 (6% of the global fleet) <sup>2</sup>



<sup>1</sup> Source: Cairn Energy Research Advisors <sup>2</sup> Source: BP Energy Outlook 2017 Edition

# Long Term Supply Forecasts for Natural Flake 2030



BENCHMARK MINERAL INTELLIGENCE – GRAPHITE & ANODES - COPYRIGHT Used With Permission

# U.S. “wholly dependent on imports”

- **No** domestic natural graphite production since 1950s
- **China** is dominant global producer & price setter (65% of 1.2Mt global production)
- High tech sectors now use specialty graphite in:
  - **Energy Storage**
    - anodes for **lithium-ion batteries**
    - bipolar plates for fuel cells and flow batteries
    - electrodes for supercapacitors
    - high strength composites for fly wheels
    - phase change heat storage
    - solar boilers
  - **Energy Production**
    - pebbles for modular nuclear reactors
    - high strength composites for wind, tide, and wave turbines
  - **Energy Management**
    - high-performance thermal insulation
    - silicon chip heat-dissipation applications
- Graphite listed as **critical** to “the national economy and national security of the United States.”

SOURCE: Schulz, K.J., DeYoung, J.H., Jr., Seal, R.R., II, and Bradley, D.C., eds., 2017, Critical mineral resources of the United States—Economic and environmental geology and prospects for future supply: U.S. Geological Survey Professional Paper 1802, 797 p., <https://doi.org/10.3133/pp1802>.

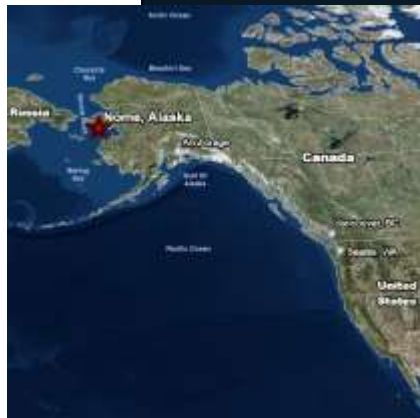
## DID YOU KNOW?

U.S. imports **100%** of its natural graphite.

Graphite One Project, a **secure U.S. based asset**, primed to deliver premium domestic supply.



# Graphite Creek Deposit Location



# Graphite Creek Early Graphite Mining

Early Tweet family adit ca. 1905



# Bibliography

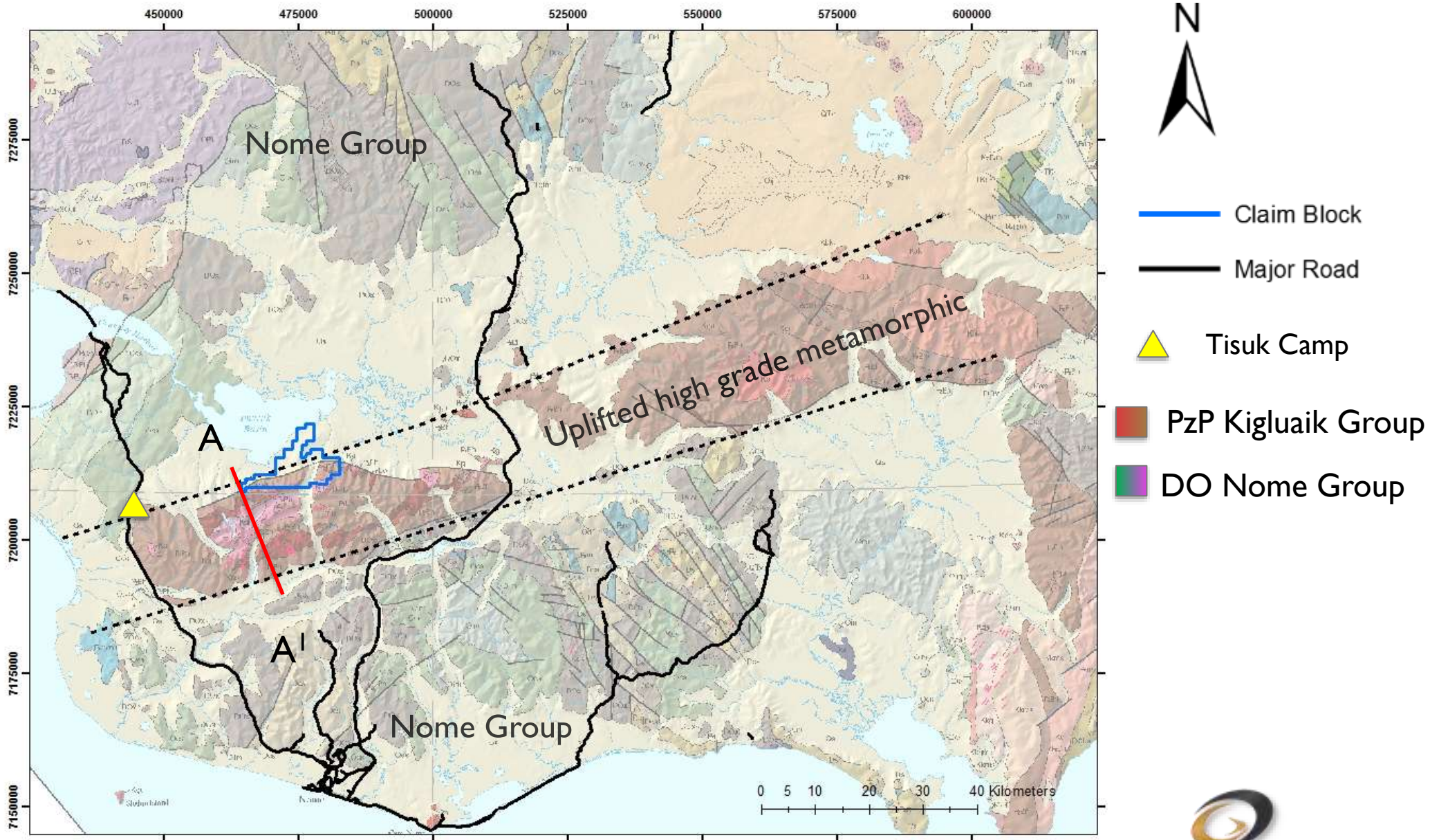
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# Geologic Setting

- Late Proterozoic Mid Paleozoic deposition
- Middle Mesozoic Greenschist metamorphism, crustal imbrication and thickening (pre-120Ma)
- Late Cretaceous Granulite grade metamorphism (91Ma)
  - Okhost-Chukotsk volcanic belt
  - Subduction related intrusions, Kigluaik Gneiss Dome, Crustal roll-back
  - Ksp-Sillimanite-Bio isograds
- Re-activation of Kigluaik normal fault uplifts deposit
  - Imuruk Basin, Kigluaik Mountains
  - Excellent exposure, talus slopes and outcrop
- Glaciation

Precambrian		Phanerozoic										EPOCH						
Hadlean	Archean	Paleozoic					Mesozoic			Cenozoic		Present	PERIOD					
		Cambrian	Ordovician	Silurian	Devonian	Mississippian	Pennsylvanian	Permian	Triassic	Jurassic	Cretaceous			Tertiary				
Paleocene	Eocene											Oligocene	Miocene	Pliocene	Quaternary	Holocene		
		4550	3800	570	505	438	408	360	286	245	208						144	66.4

# Regional Geology



# Geology by Amato, Miller, 2004

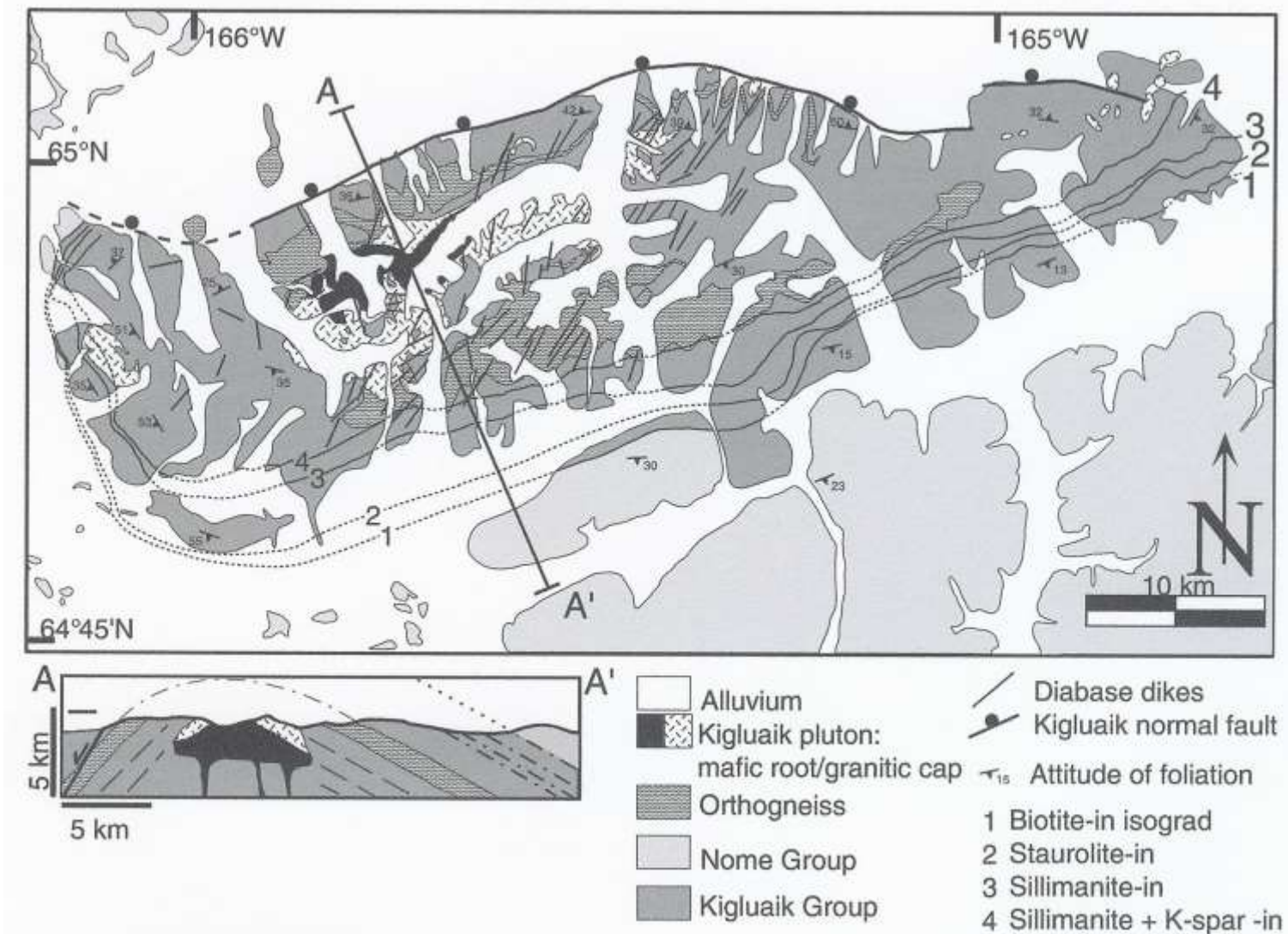
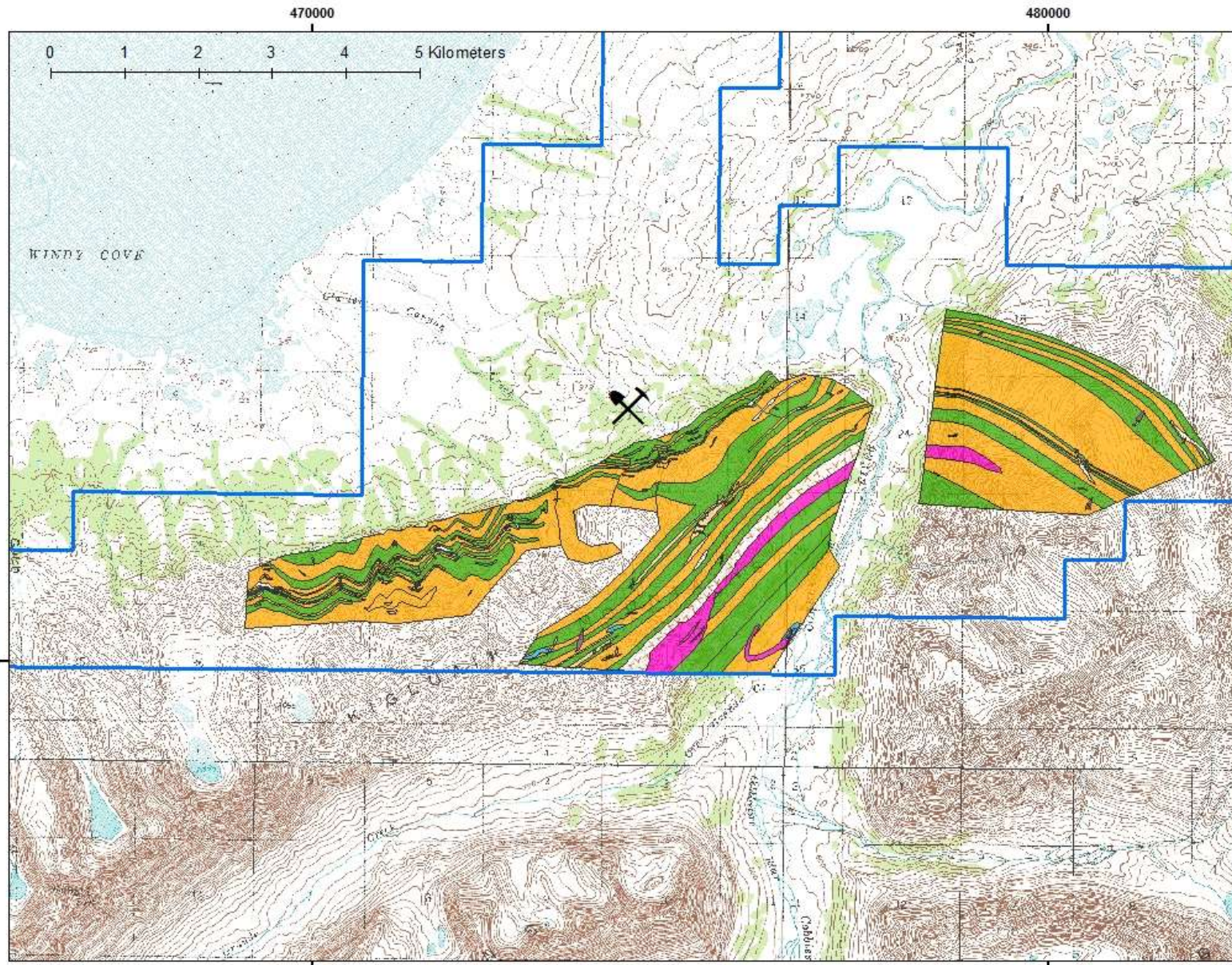


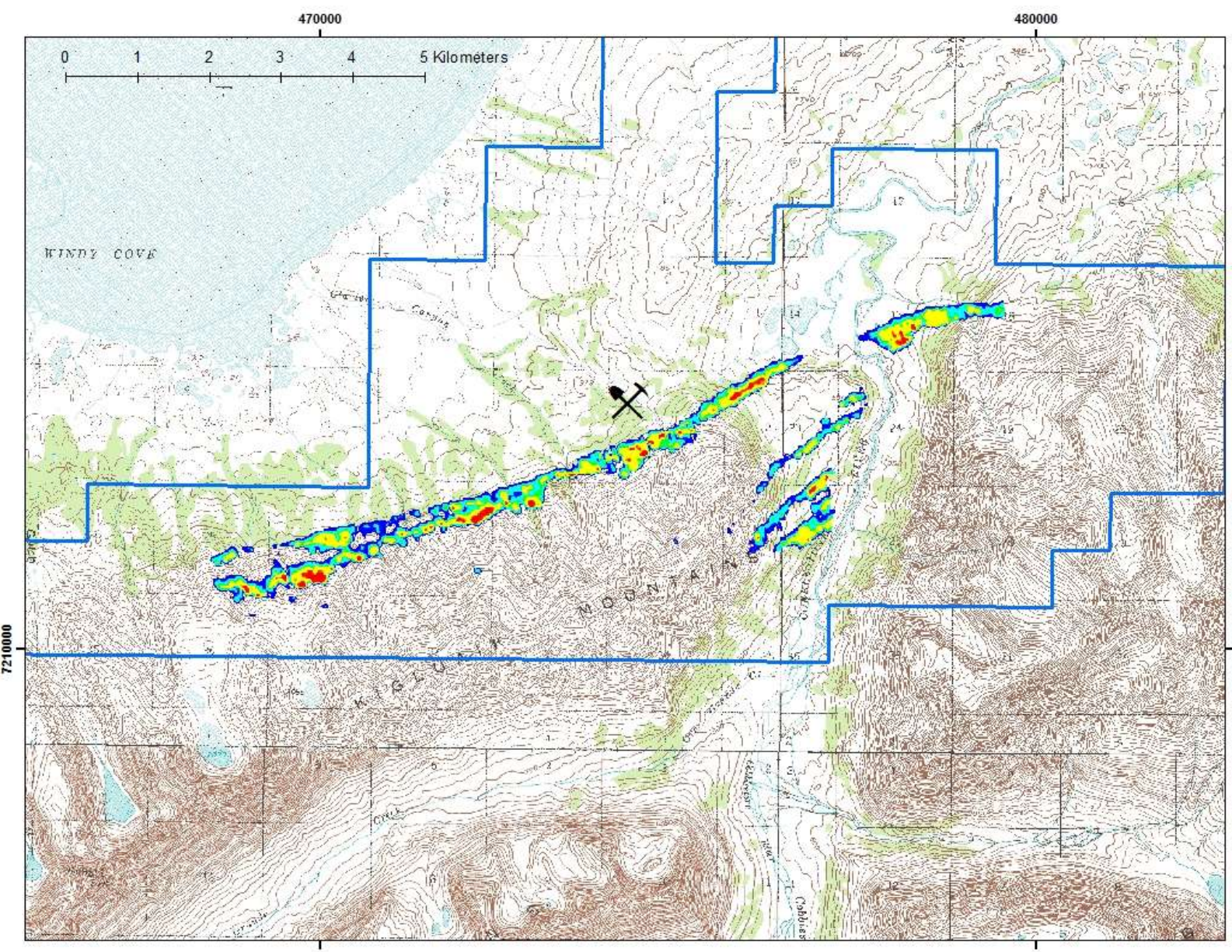
Figure 2. Geologic map of Kigluaik Mountains, showing overall geometry of dome and location of metamorphic isograds.




# Surface Geology



-  Claim Block
-  Camp
-  Drill Area
-  Sill-Grt-Bt-Qtz Schist
-  Bt-Qtz-(+/-Grt) Schist
-  Qtz Diorite
-  Gneiss
-  Marble
-  Quartzite
-  Basalt

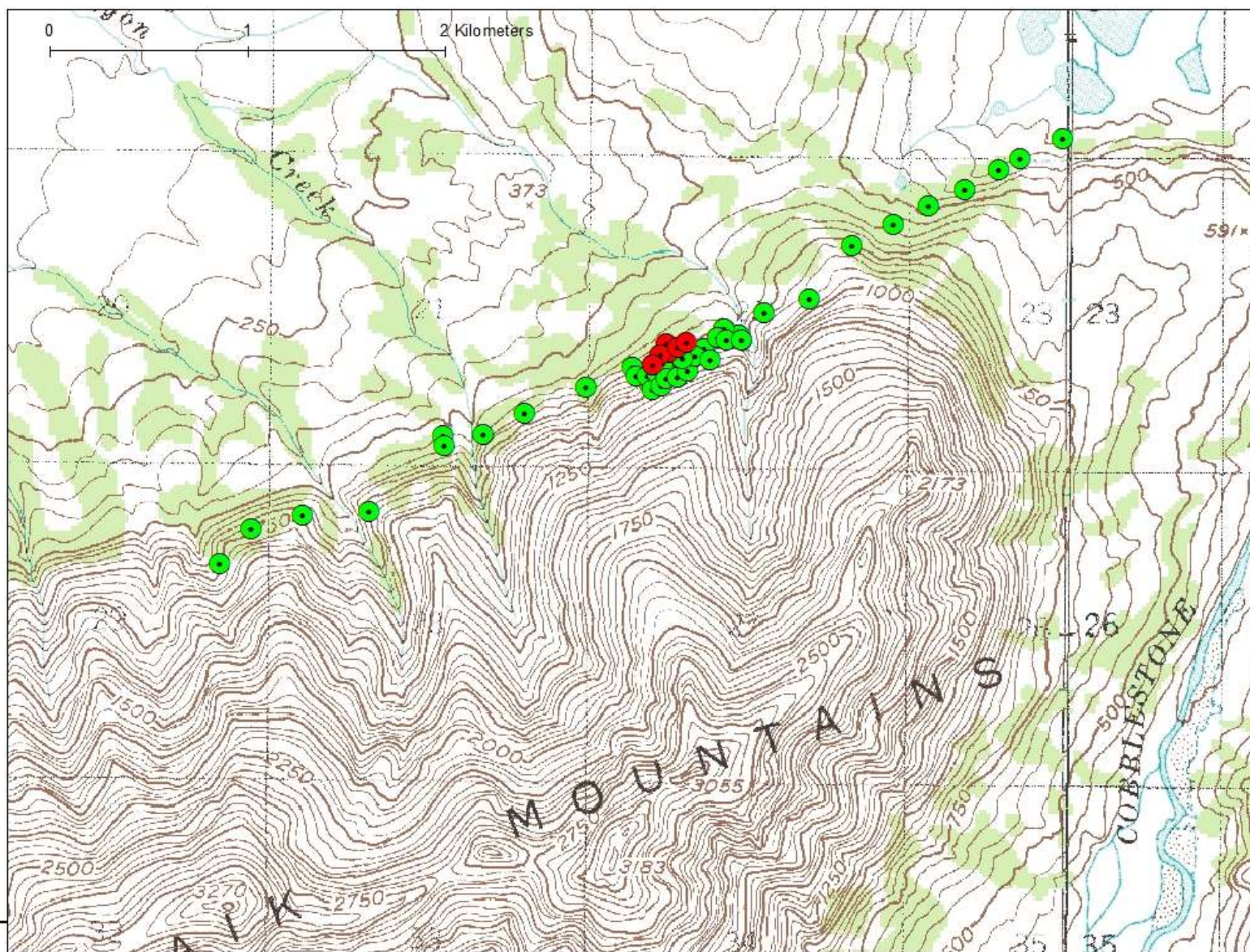
# Geophysics – Airborne EM





-  N
-  Claim Block
-  Camp
-  Drill Area

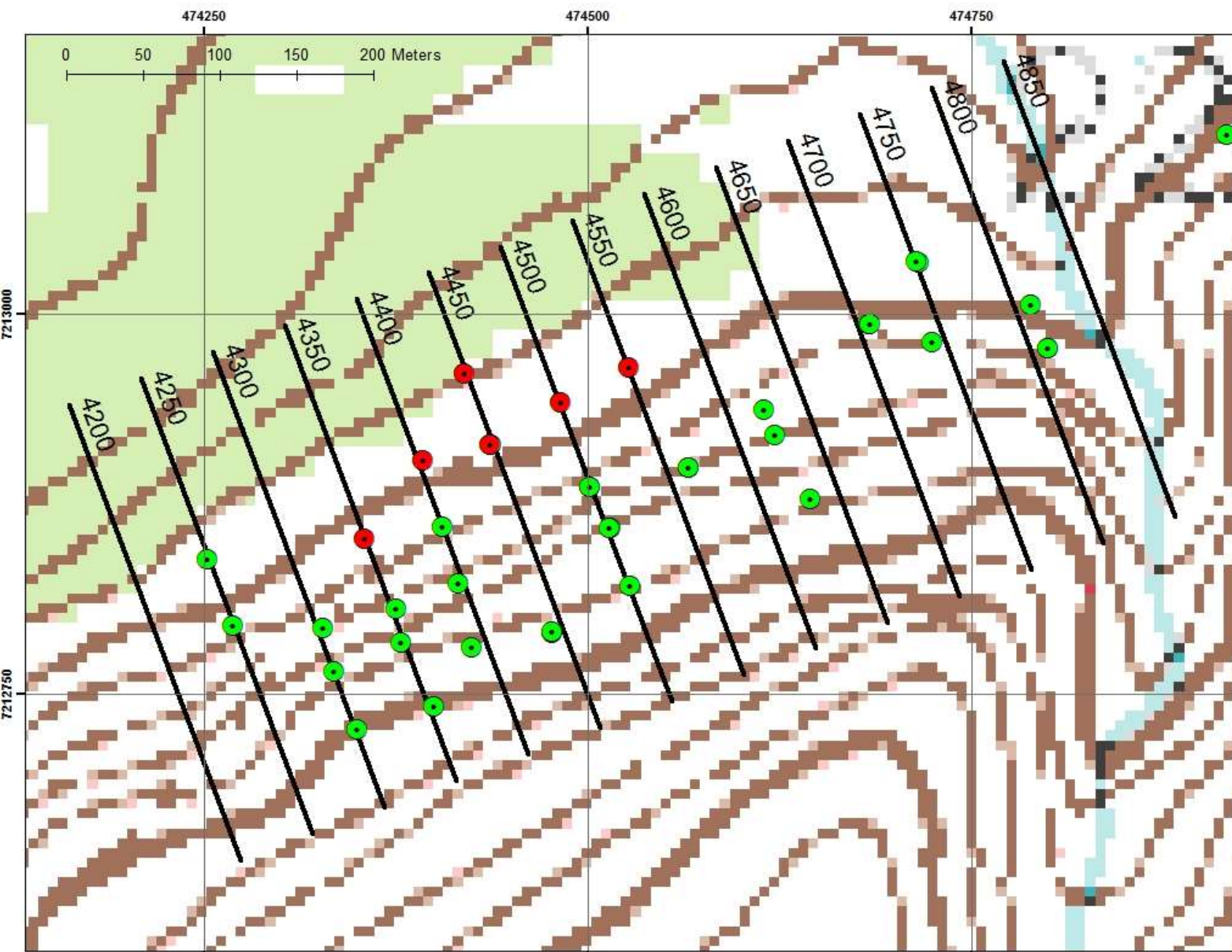






# Drill Hole Location Map



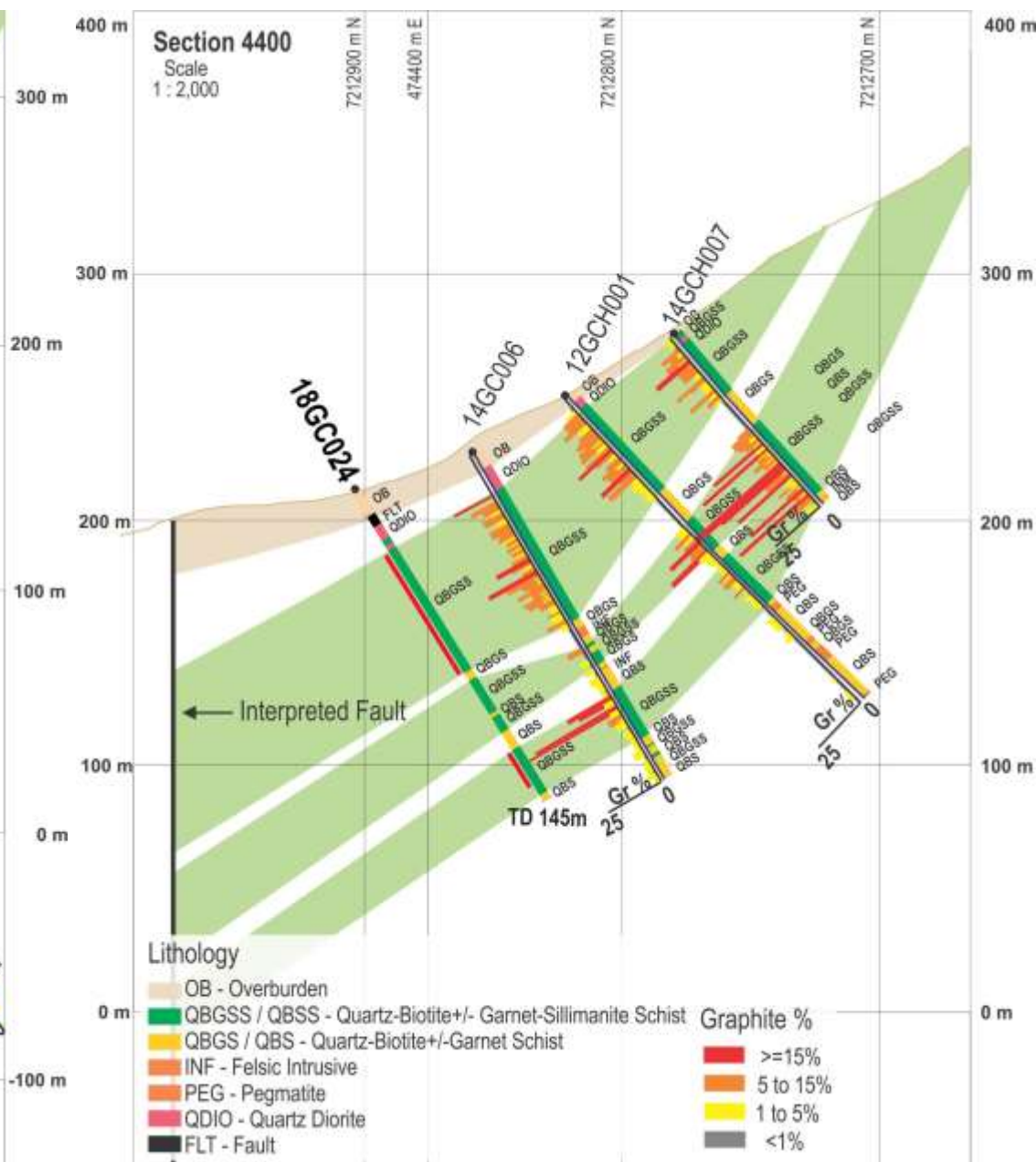
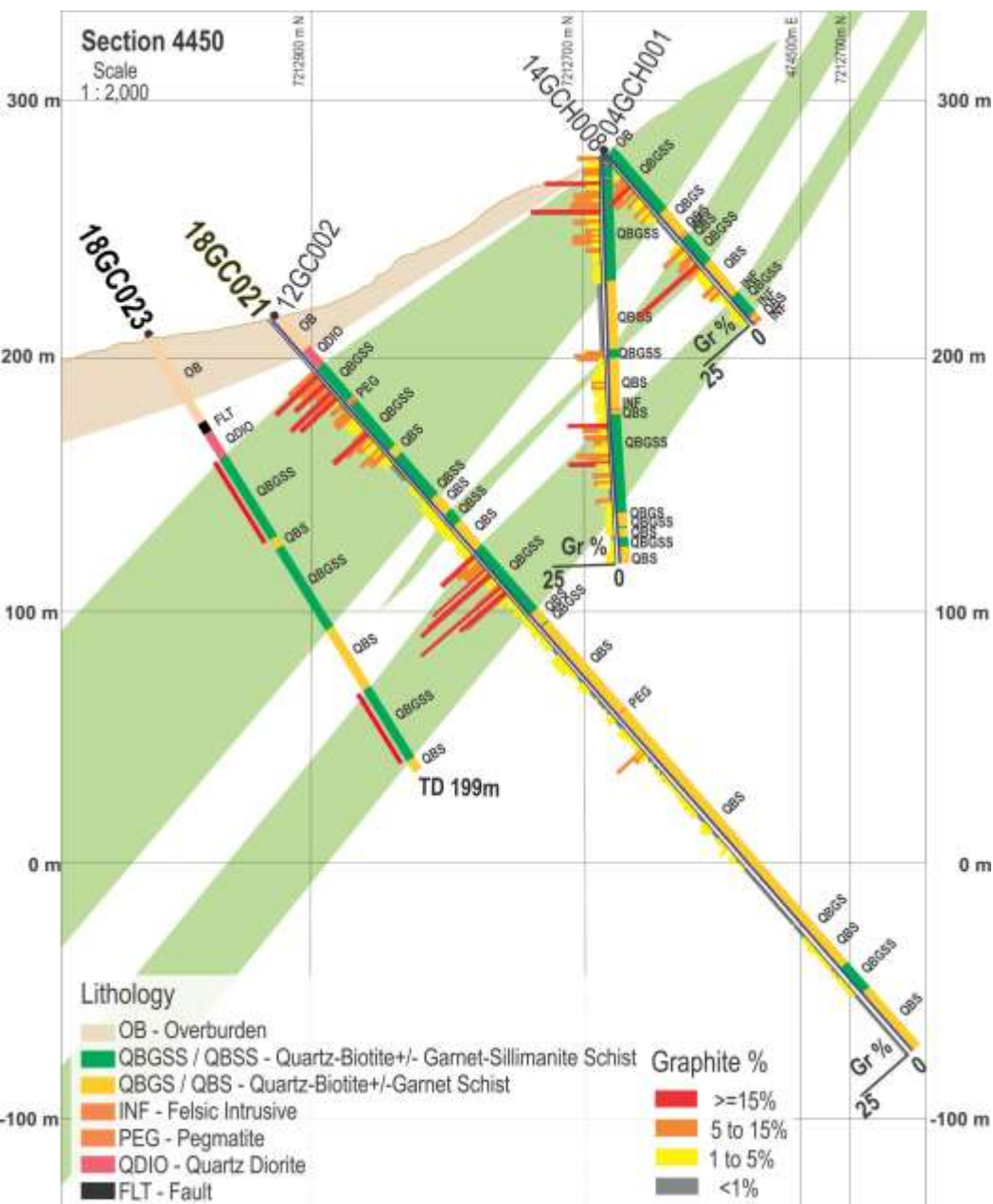
-  2018 Drill Holes
-  Previous Drill Holes

# Drill Hole Location Map



-  N
-  Cross Section Lines
-  2018 Drill Holes
-  Previous Drill Holes

# Geologic Cross Sections



# Graphite in Float and Core

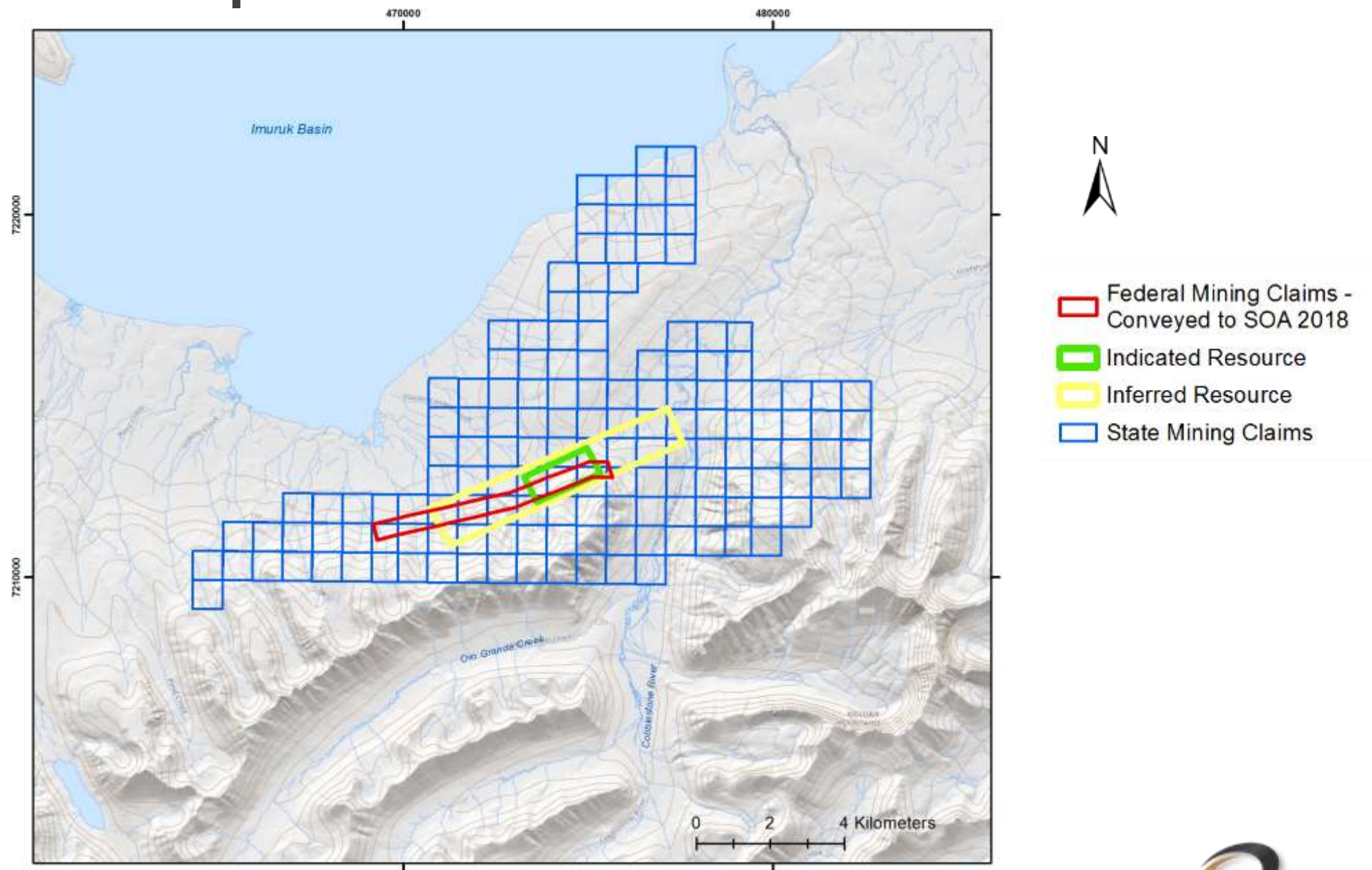


Semi-massive graphite float is common and has a distinct texture and color.

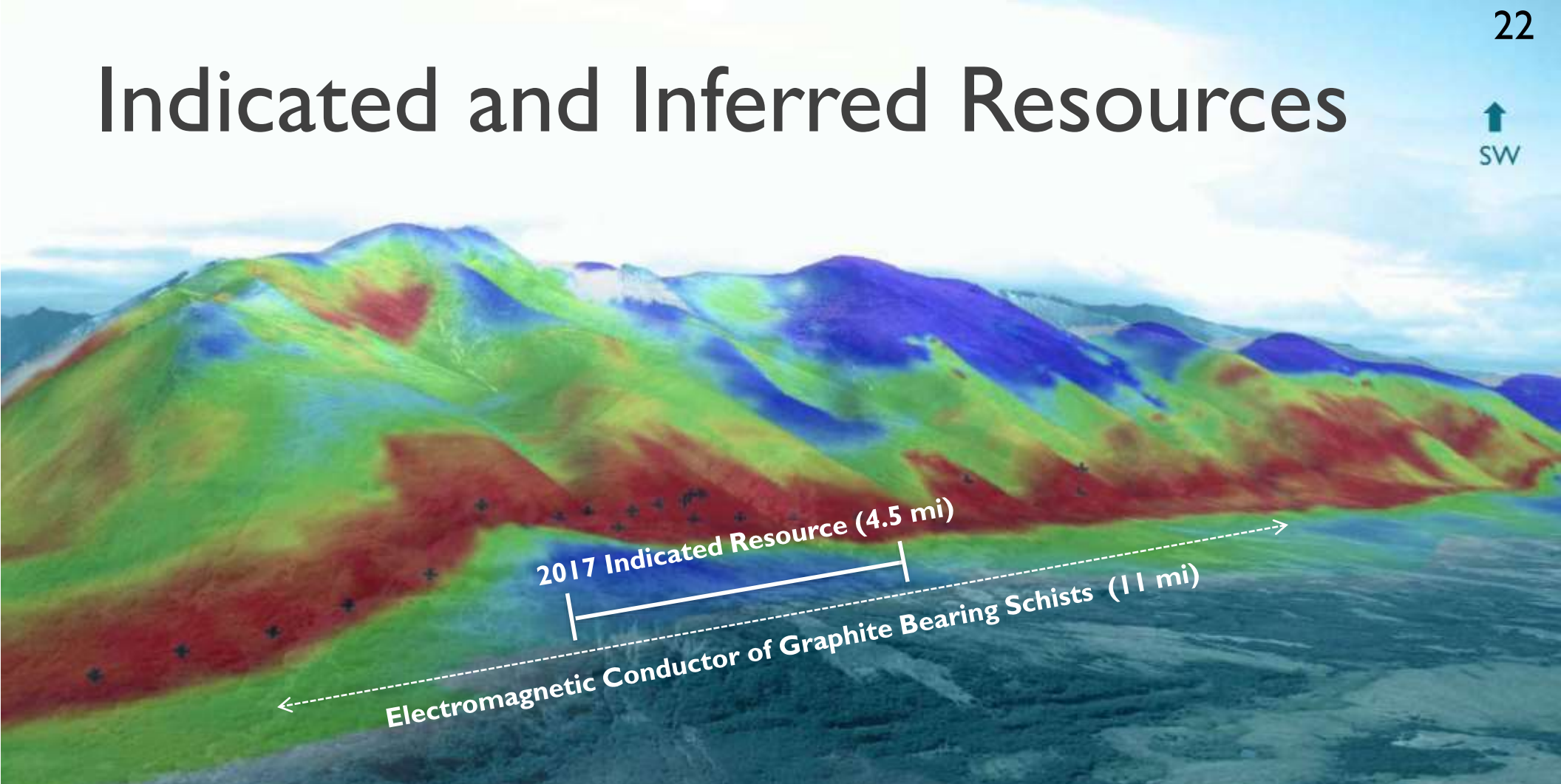


Semi-massive graphite core is common.

# Graphite One - Land Position



# Indicated and Inferred Resources



2017 Indicated Resource (4.5 mi)

Electromagnetic Conductor of Graphite Bearing Schists (11 mi)

	Tonnes	Grade	Cut-Off	In Situ Cg
Indicated	10.32 MM	7.2 %	6.0 %	744,000 t
Inferred	71.24 MM	7.0 %	6.0 %	4,969,000 t

Mineral resources are not mineral reserves and do not have demonstrated economic viability. There is no guarantee that all or any part of the indicated or inferred mineral resource will be converted into a mineral reserve. The collective work to date from the Graphite Creek Property indicates that while the project is in midst of exploration/resource work that indications of the size and grade of the graphite give suggestions that they are of high enough concentration to be of economic interest.

# STAX Graphite Characterization

Analyses of six drill holes across deposit length revealed following mineralization characteristics:

- Pebble-shaped particles (**naturally spherical** graphite)
- **Ultra-thin**, self-scrolling large sheets
- **High-aspect ratio**, elongated thin flakes
- Three-dimensional aggregates of ultra-fine flakes (so-called **pressed flake**)
- Classical natural flake graphite (so-called **integral flake**)
- **Naturally expanded** structures

## STAX GRAPHITE

**S**pheroidal shapes naturally occurring in deposit (**lithium-ion batteries**)

**T**hin flakes (**premium alkaline batteries**)

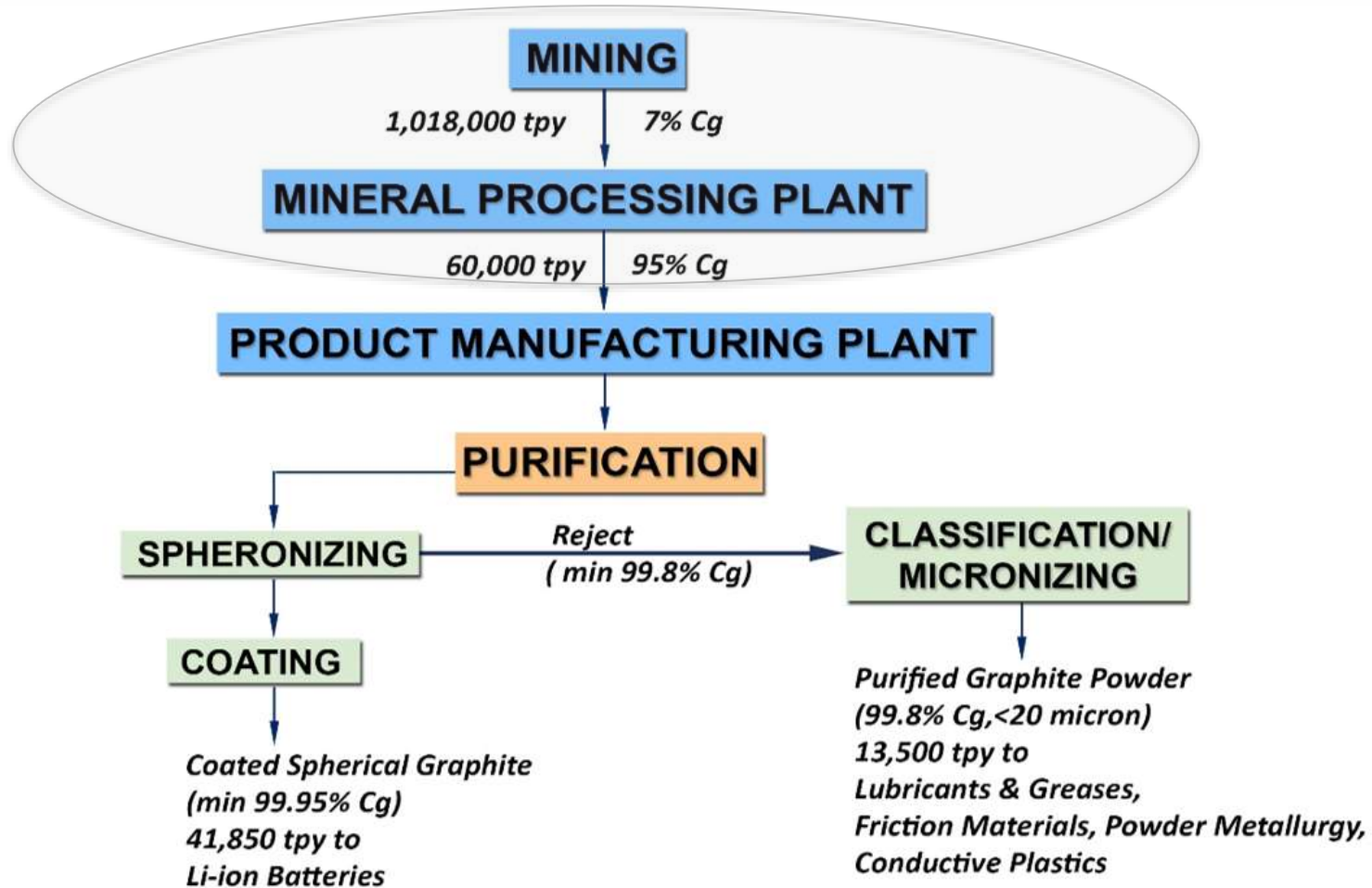
**A**ggregate flakes (**lithium-ion batteries**)

**eX**panded flakes (**flame retardant materials**)

Described as “unique” by graphite consultants

# Graphite One Integrated Project

## Conceptual Process Overview





# PEA Project Capital Costs

Project Capital Cost Estimates (\$US Millions)	
Graphite Creek Mine	\$ 43
Processing Plant	\$158
Infrastructure	\$ 32
Sub-total Graphite Creek	\$233
Manufacturing Plant	\$130
Project Total	\$363

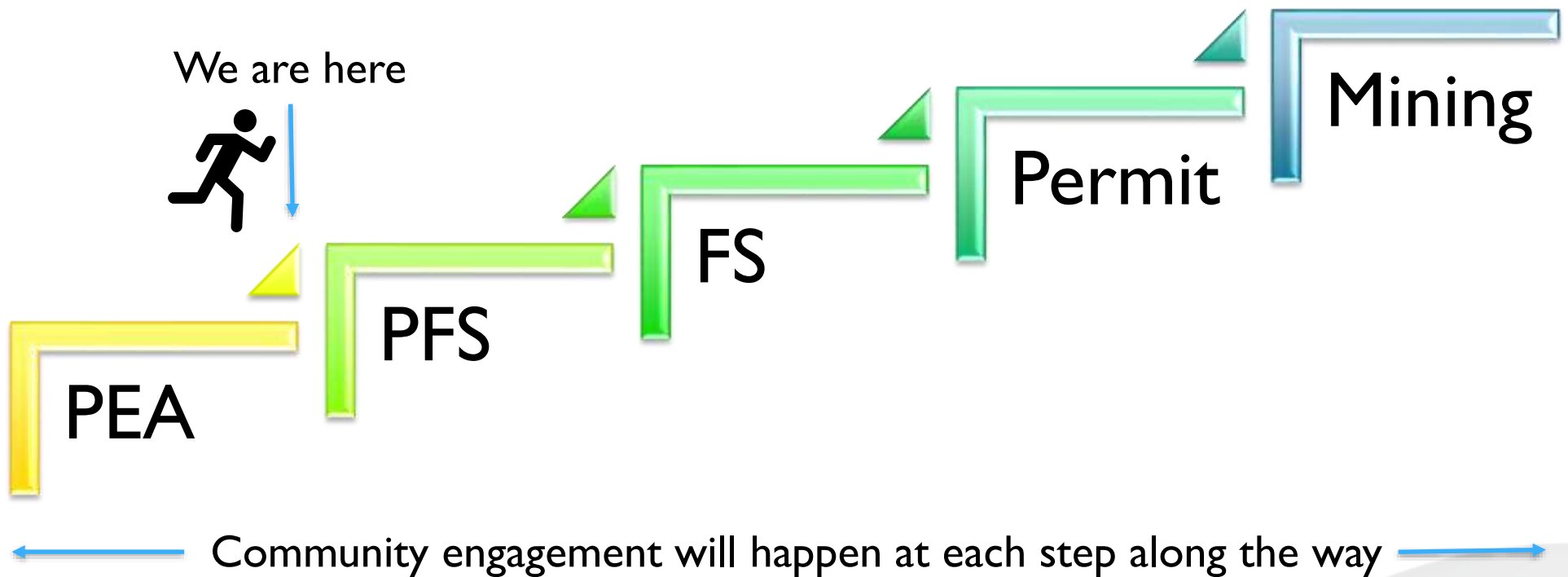
# PEA Proposed Total Employment

Production Unit	Management	Personnel	Total Employment	Graphite Creek Total
Graphite Creek Mine	14	160	174	269
Mineral Processing Plant	15	80	95	
Product Manufacturing Plant	<u>14</u>	<u>88</u>	<u>102</u>	
Totals	43	328	<b>371</b>	

# PEA Financial Summary

- \$616 million Net Present Value of Project's yearly cash flows (post-tax) using a 10% discount rate
- 22% Internal Rate of Return
- 4 Year Payback
- Project's mineral resources have potential to be economically viable based on the PEA's assumptions

# Major Milestones



# Work Plan Status

- 2018 Field Program Included
  - Lidar mapping of project area and potential access road routes
  - Drilling for resource definition, metallurgical testing
  - Surface water quality sampling
  - Aerial aquatics survey
- Next Steps – 2019, 2020, . . .
  - Resource Estimate Update
  - Graphite test work
  - Mine engineering, design and mine planning
  - Environmental baseline data collection
  - Access route comparison
  - Preliminary feasibility studies



# Community Involvement

The economic, social and environmental impacts of mining operations are felt most at the local level.

Graphite One is committed to including the local communities in the important decisions happening where they live.

We stay engaged through community meetings and the Subsistence Advisory Council.

# Community Engagement



# Subsistence Advisory Council





# Graphite One Summary:

- Large, high quality graphite resource
- Historic mining region & pro-development state
- Potential to produce high purity spherical graphite and high performance coated spherical graphite meeting EV battery specs
- Potential for high processing yields and use of less milling energy
- Projected high demand for premium graphite
- Shortage of US domestic supply
- Potential for jobs & other economic benefits



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# POWERING AHEAD

