Lubalisi Resources (T) Ltd

Work progress on PL 10695/2015

Lubalisi Project
Kapalagulu Intrusion

Lubalisi Resources

October 2022

1 WORK COMPLETED

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Focus is on metallurgical and mineralogical testwork to identify economic options for extraction of nickel from laterite ore

Laterite nickel ore needs to be stripped from underlying low-grade nickel sulphide mineralised layer

- Comprehensive review and compilation of **historical work**
- **Rehabilitation** of infrastructure (roads, airstrip, stream crossings)
- Excavation of **six shafts** for the collection of metallurgical samples
- Air freight of 5 tonnes of **metallurgical samples** to laboratories in Canada, France and Australia
- Extensive **mineral deportment studies** in France, Canada, Australia and Sweden
- **Metallurgical testwork** at Eramet Ideas (France) and Independent Metallurgical Operations (Australia)
- Updated JORC 2012 **Resource estimations** in 2019 and in 2022
- **Pit optimization and Scoping Study** by Snowden Resource Consultants
- **Closely-spaced AC drilling** to upgrade part of resource to Indicated status for reserve estimates
- **Prefeasibility study** in progress by Snowden Resource Consultants
- **EIA study** to be accelerated by Paulsam Geo-Engineering Company

2 EXCAVATION OF 15m DEEP SHAFTS FOR BULK METALLURGICAL SAMPLES

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- Company policy **employs Tanzanians** from local villages where possible
- Emphasis is on employing experienced **Tanzanian geologists and technicians**
- Priority given to **Local Content contractors and consultants**
- Mentoring and **training** important to motivate employees

3 PIT 1 DRILLING FOR ORE RESERVE

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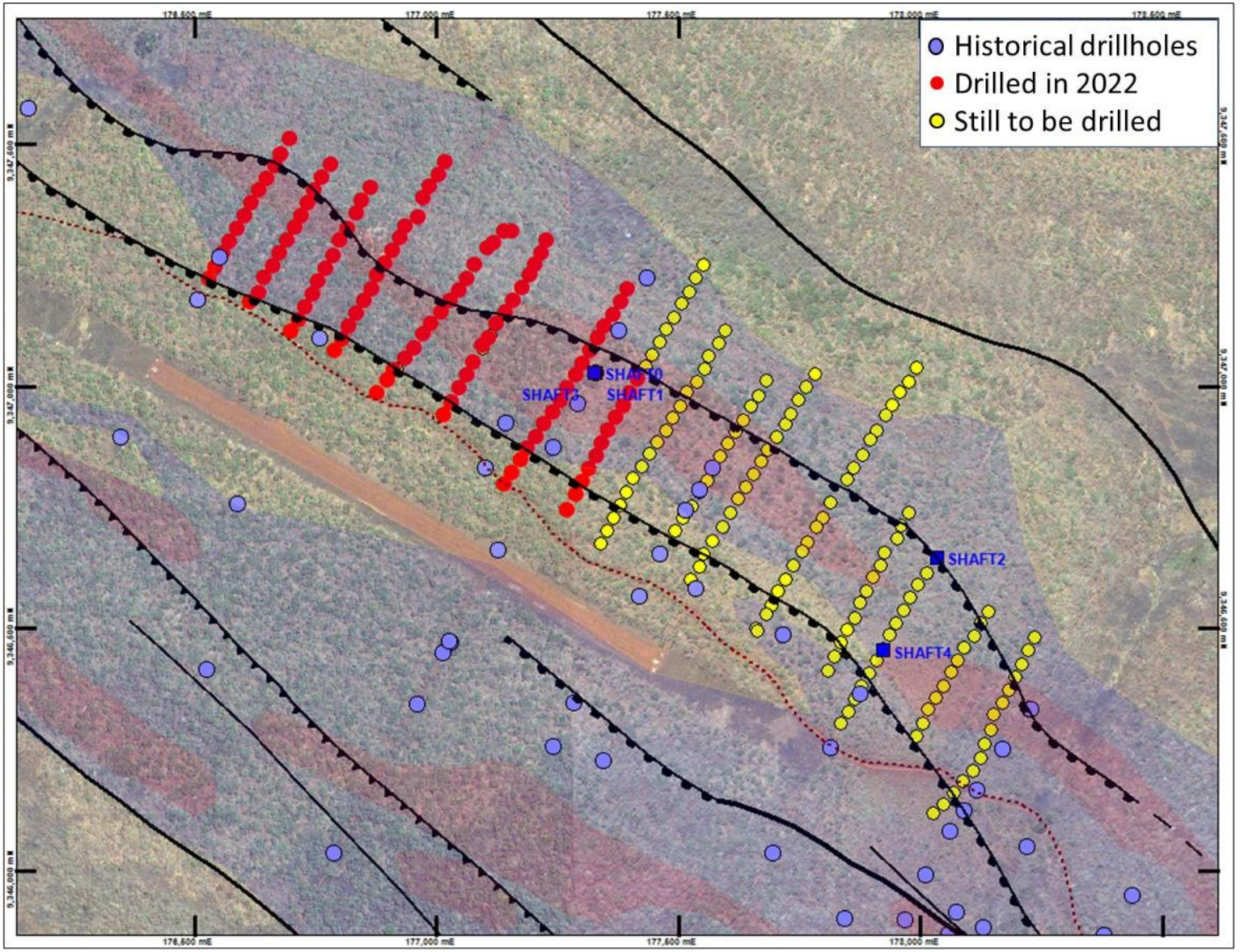

Infill drilling will upgrade JORC Inferred Resource to an Indicated Resource statement for Ore Reserve

4 ACHIEVEMENTS

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- Extensive review of all past historical work results in **identification of new areas of mineralization** that require follow-up
- Understanding of **Nickel and Cobalt deportment** within the laterite which is imperative to identify metallurgical routes to extract Nickel and Cobalt
- **Re-estimations of oxide Nickel Resource** to conform with 2012 JORC standard
- **Identification of a metallurgical route** for the removal of the deleterious chromite from the oxide ore. The presence of chromite interferes with the acid leaching of the Ni oxide ore.
- Creation of three-dimensional **geometallurgical models**
- Creation of **metal grade models** within each geometallurgical model
- **In-fill resource drilling** of Pit 1 to upgrade Inferred Resource to Indicated
- **Block modelling of complete resource** using various Ni and Co cut-offs
- **Pit optimization** and scoping study after resource re-classification based on geometallurgical domains
- **Rehabilitation of local access tracks using a bulldozer** after ever wet season
- **Field preparations for drilling** to upgrade resource estimations from Inferred to Indicated by air core drilling on a tighter drill pattern
- Currently employing **30 casual workers** from the local village

5 OPEN PIT MINING SCENARIOS

Lubalisi oxide strip mine followed by sulphide open pit

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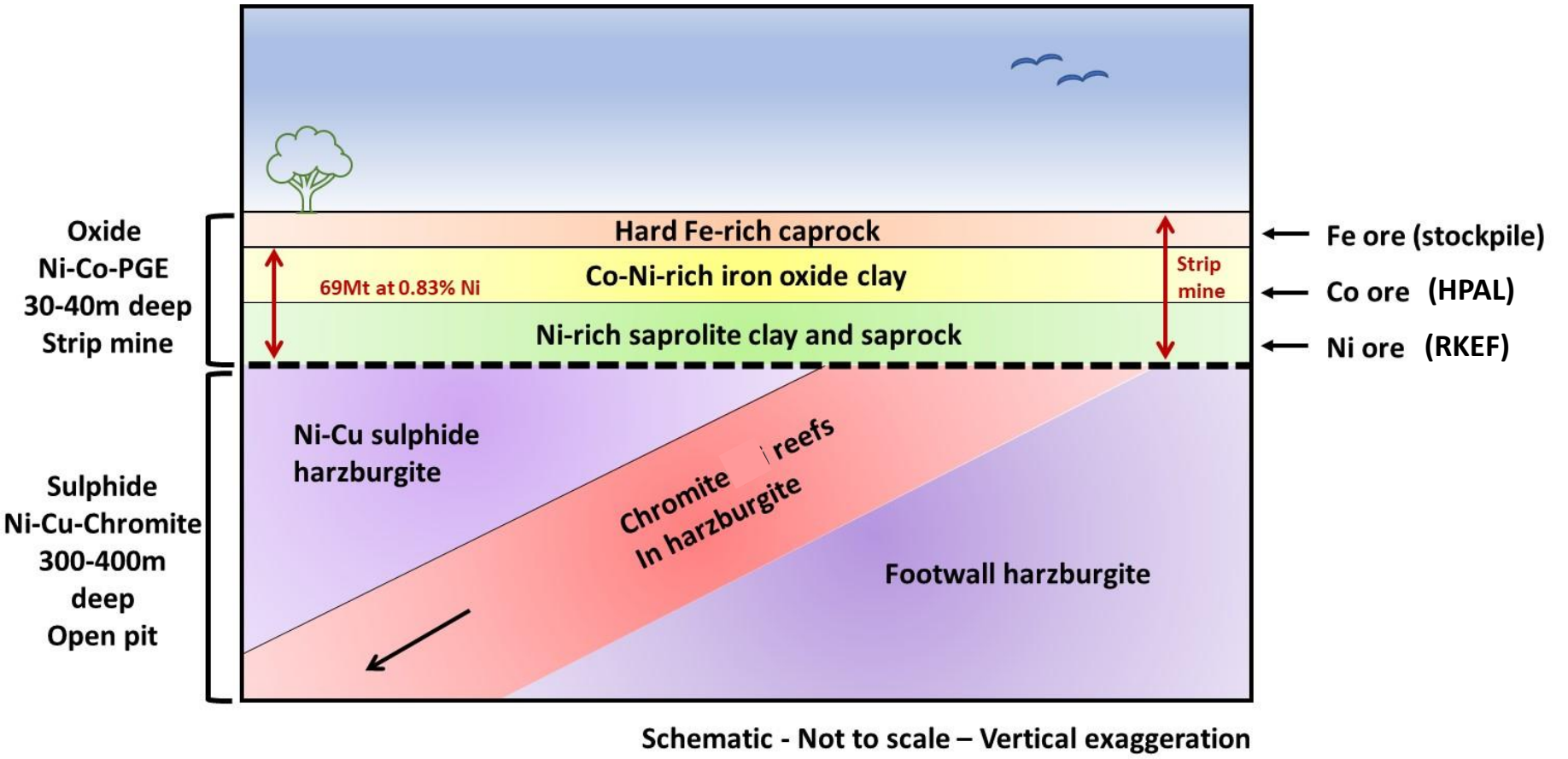
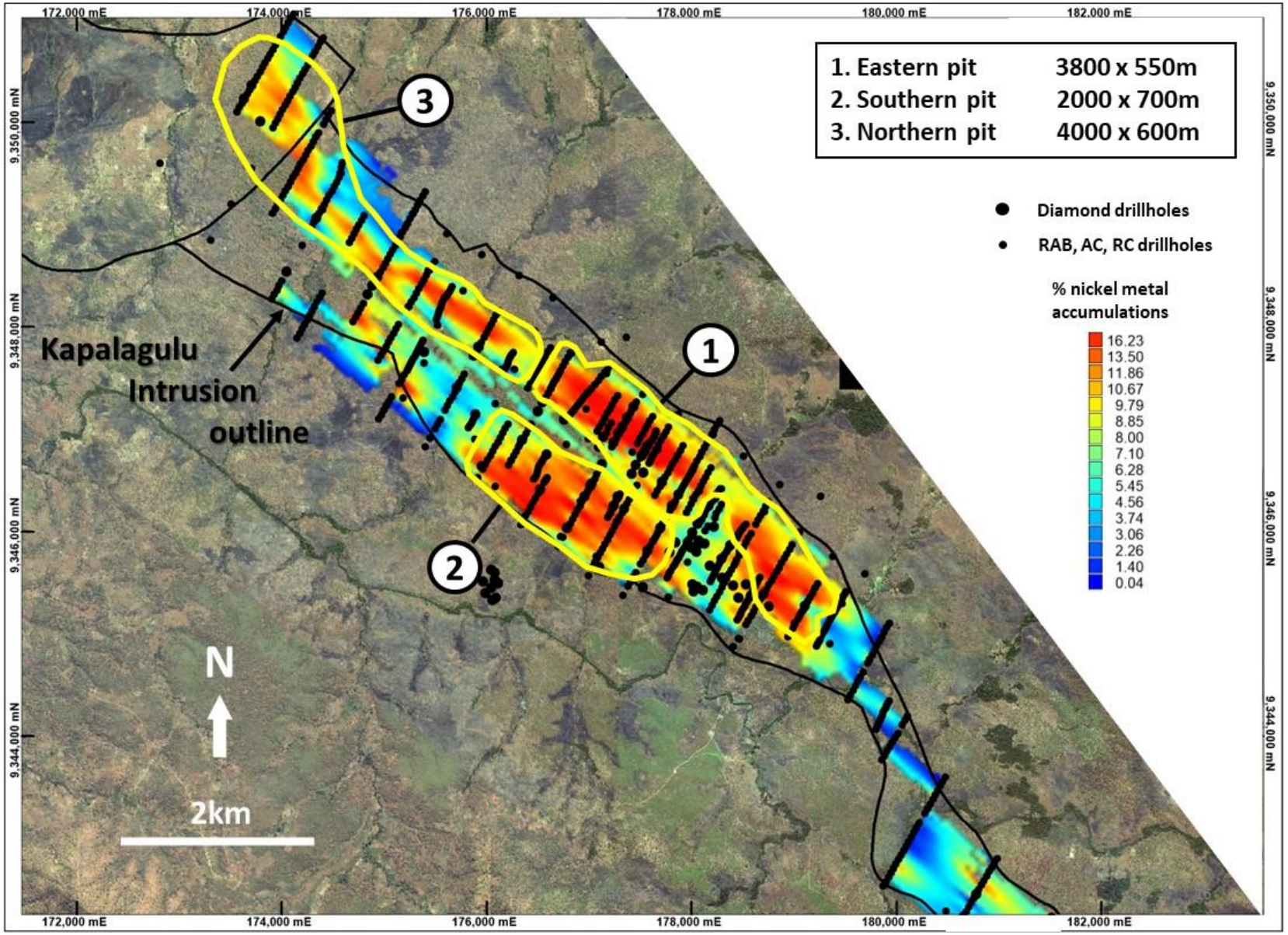


PROPOSED OXIDE OPEN PITS

Proposed strip mine over nickel metal accumulations

Lubalisi Resources



7 PROPOSED MINE INFRASTRUCTURE

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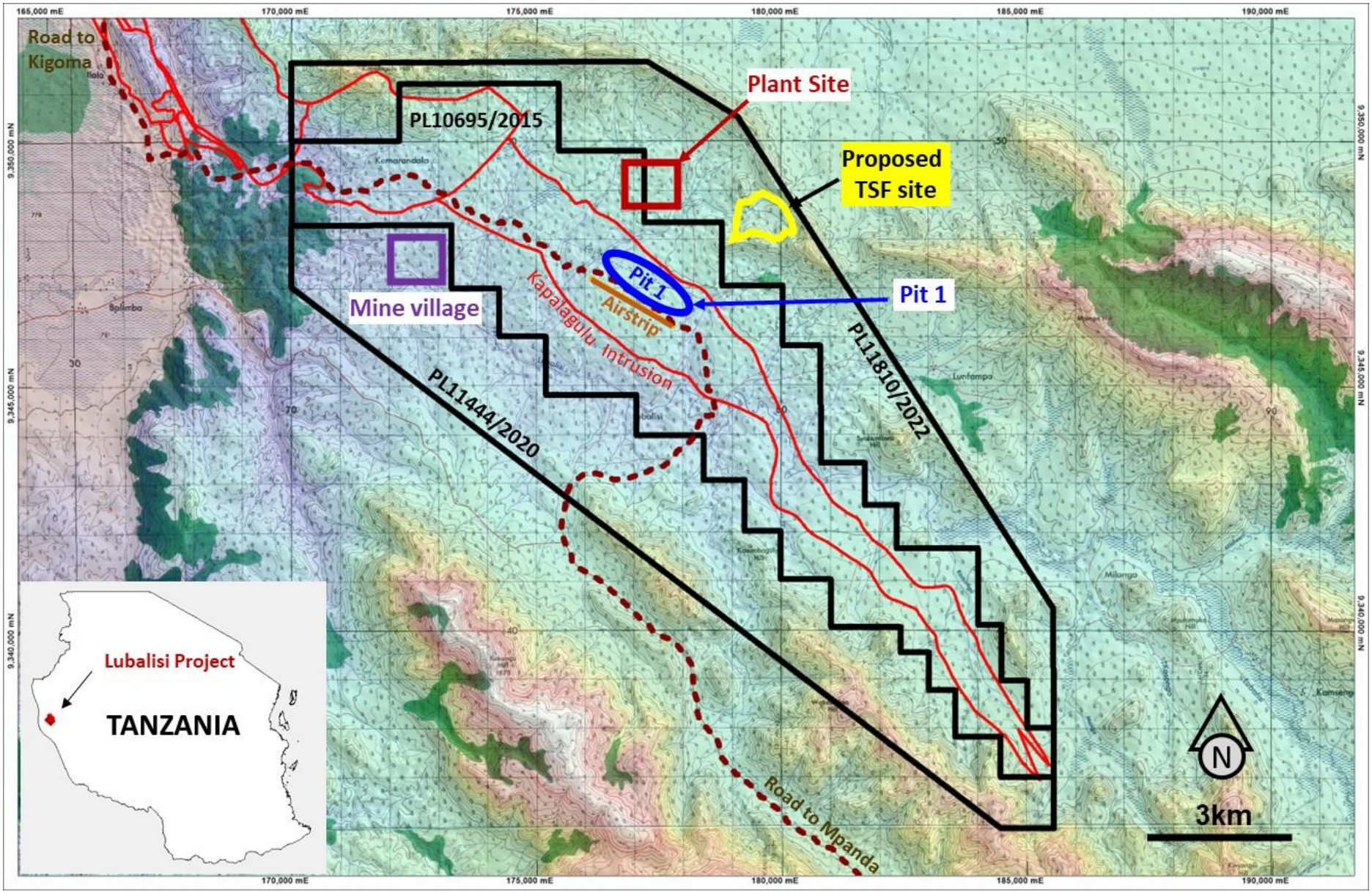

8 JORC RESOURCE ESTIMATE

Source: S&P Market IQ

Resource is being updated by Snowden Optiro for Pit Optimisation and Feasibility Study

Infill drilling is in progress to confirm metal grades within a small area (Pit 1) for ore reserve classification

Lubalisi Zone
Polymetallic oxide resource

0.8% Ni cut-off
54.2 million tons at
0.96% **Ni**
0.06% **Co**
0.12% **Cu**

0.5% Ni cut-off
112 million tons at
0.82% **Ni**
0.054% **Co**
0.10% **Cu**

1g/t Pt+Pd+Au cut-off
5.5 million tons at
1.52g/t **Pt+Pd+Au**
0.96% **Ni**

9 PIT OPTIMISATION PARAMETERS

Lubalisi Resources

- Pit optimization in progress using new resource estimates to define areas of mining using economic parameters from existing nickel laterite mines

Parameter	Value	Comment/Source
Treatment rate at 0.6 % Ni feed	1.2 Mtpa to 3.1 Mtpa	Snowden
Ni price	$20,000/t	Snowden/Rift
Co price	$70,000/t	Snowden/Rift
Mining cost ore and waste	$5.15/t	Sherritt Moa 2019
Processing cost	$77.5/t	Sherritt Moa 2019
Selling cost	$1.92 per Ni lb produced ($4,233/t Ni)	Sherritt Moa 2019
Recoveries	85 % Ni and 47 % Co	Sherritt Moa 2019
Mining dilution	5%	Snowden
Mining loss	5%	Snowden
Slope angles	30 degrees	Snowden
Ramp up	50 % yr 1	Snowden
Discount rate	10%	Snowden/Rift

SNOWDEN Optiro

NICKEL LATERITE OPTIMISED PITS

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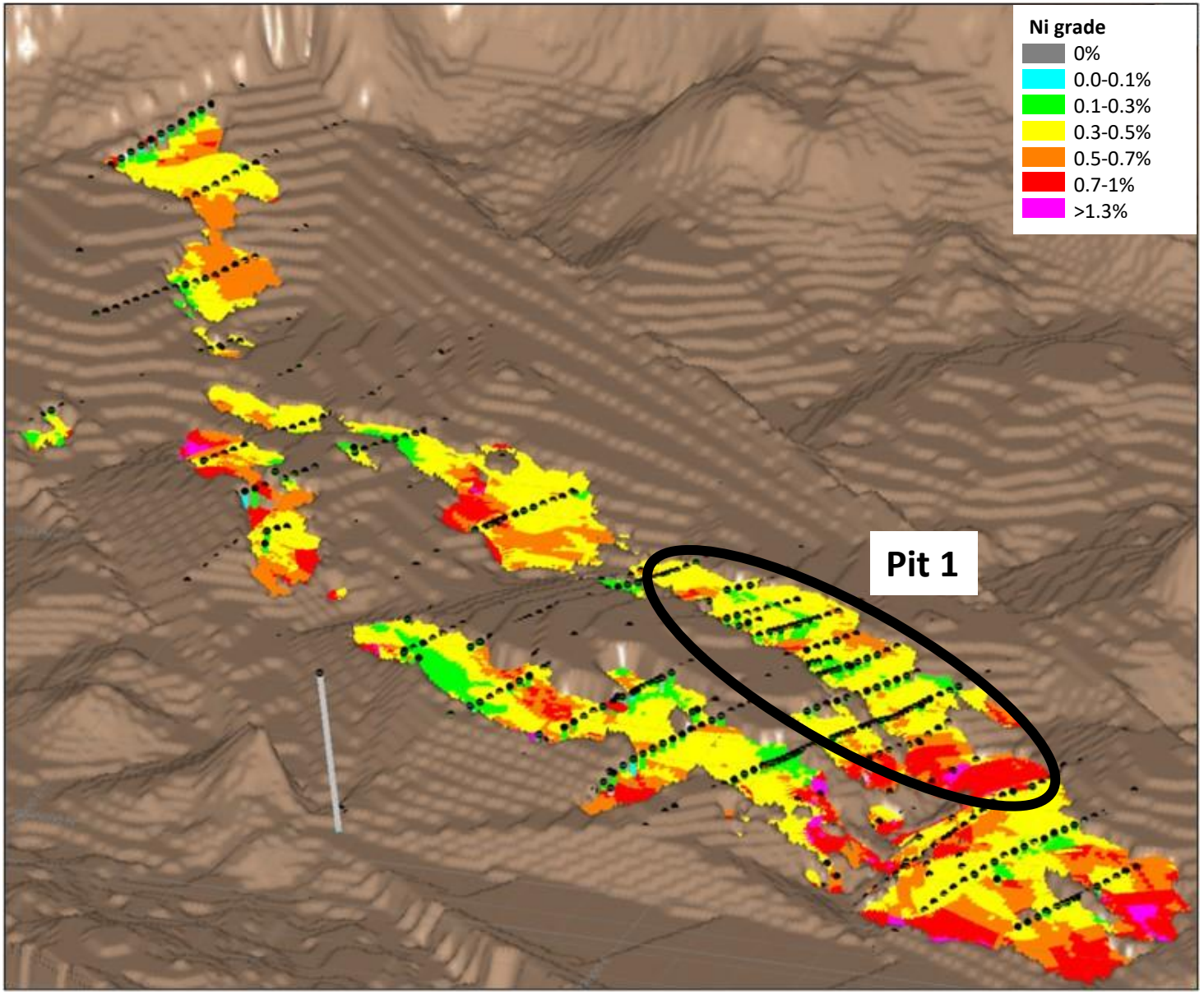

SNOWDEN Optiro

11 METALLURGICAL TESTWORK

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- Focus on gravity beneficiation to produce chromite and nickel and manganese concentrates at Independent Metallurgical Operations (IMO)
- Chromite is a deleterious mineral in leaching of nickel oxide ore
- Testwork by IMO shows that it will be simple to remove chromite from ore by the use of spiral beneficiation systems

Wilfley Table separation of chromite

Nickel laterite ore

Magnetic separation of chromite

12 NICKEL OXIDE METALLURGY

Lubalisi Resources

- **High Pressure Acid Leach** of goethite clay layer (HPAL) to extract Ni and Co
- **Rotary Kiln Electric Furnace** (RKEF) of saprolite clay layer to extract Ni
- **Removal of refractory chromite** from ore by gravity beneficiation
- Focus of present testwork is on developing pilot metallurgical plant that includes the use of **spirals** and **shaking tables to** remove chromite and produce an additional Ni-Co concentrate
- Need to collect bulk samples for **atmospheric** and **pressure acid leach testwork**
- Metallurgical testwork is being completed at **Independent Metallurgical Operations (IMO)** in Perth, West Australia

NI OXIDE METALLURGICAL TESTWORK

Lubalisi Resources

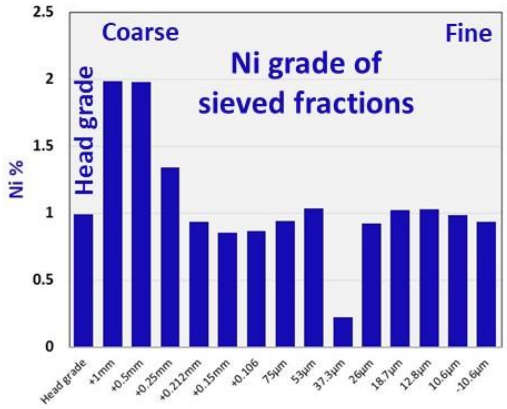
Preliminary mineralogical and metallurgical testwork demonstrates potential for an easy route to recover the oxide Ni-Co

Mineralogy

- Iron oxides and saprolite clay matrix
- **Ni and Co deportment in manganese oxide nodules and veins**
- PGE as very fine-grained platinum and palladium alloys

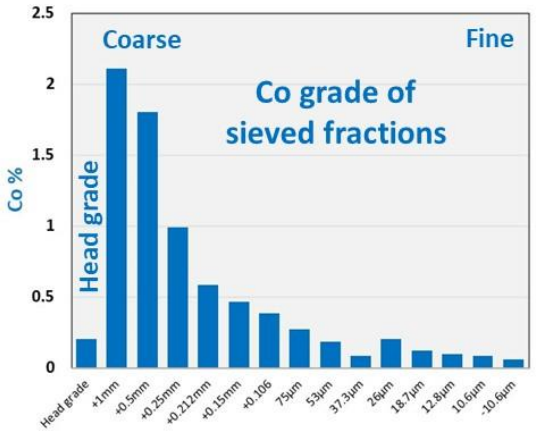
Lubalisi iron oxide clay beneficiation

- PGE and Au concentrate by gravity separation
- Chromite and magnetite concentrate by magnetic and spiral separation
- Ni-Co-Mn oxide concentrate by sizing and gravity separation



Lubalisi concentrate leaching

- Atmospheric tank leaching of polymetallic oxide concentrate
- Solvent extraction of Ni-Co-Cu



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ENVIRONMENTAL IMPACT ASSESSMENT AND SOCIAL STUDIES

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Environmental Impact and Social Studies include

- Develop an understanding of the site and provide a description of the area.
- Identify potential environmental sensitivities and risks.
- Develop Environmental Management Plan
- Initiate biodiversity baseline sampling within the priority study areas
- Describe Issues and Risks with regard to operating in the area.
- Produce a Site Visit Report.
- Test river and stream water to provide chemical analyses.
- Collect samples from the saline warm spring waters located in the Ibalaba stream drainage system
- Parameters that will be assessed at each of the sampling sites will include: pH, Dissolved Oxygen (DO), Electrical Conductivity (EC) and water temperature.
- GPS coordinates to be given for sample points so that they can be plotted onto satellite images.
- Prepare a short ecological report detailing potential risks from an ecological point of view.
- Prepare Environmental Management Plan.
- Propose Mitigation measures.
- Prepare Environmental Impact Assessment Statement for submission to NEMC.
- Prepare first draft of EIA for submission to NEMC.
- Develop an understanding of the socio-economic aspects of the environment.
- The names of community leaders and contacts need to be identified. Interaction with relevant authorities at the ward level (Councillors), village level and sub-village level (Chairpersons and Executive Officers).
- Understand the number of people who live in the Prospecting Licence area, their source of livelihoods.
- Detailed study the ecology and biodiversity

PLANNED WORK OVER NEXT 2 YEARS

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Key Objectives

- Develop an oxide Ni, Co, Cu, Cr, Pt, Pd strip mine
- Followed by development of an underlying sulphide Ni-Cu-PGE open pit

Develop a Mine Model

- In-fill drilling to bring Inferred JORC Resource to Indicated and Measured Status for Ore Reserve
- Strip mine with free dig and very low stripping ratio
- Potential 2Mt of oxide ore mined per year to produce
- Bulk standard metallurgical treatment will be defined during the feasibility study with potential to produce about 1,200 tonnes of cobalt, 10,000 tonnes of nickel, 1,200 tonnes of copper

Proposed work programmes over 18 to 24 months

- Scoping Study (in progress)
- Pre-Feasibility Study (in progress)
- Definitive Feasibility Study
- Mining Licence application

Proposed infrastructure

- Mine village
- Road access
- Tailings Storage Facility
- Hydro-electric plant or hybrid solar/diesel generators

Proposed engineering

- Mechanical, Structural, Civil, Electrical
- Piping layouts and instrumentation diagrams
- Oxide Strip Mine Construction

TIME LINES FOR LUBALISI NICKEL OXIDE

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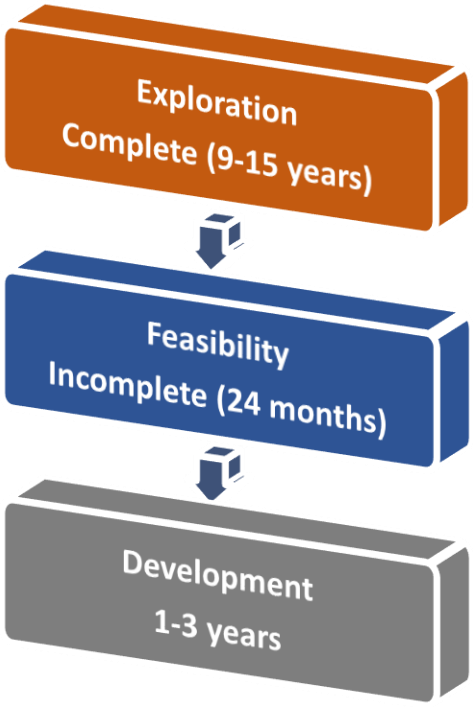
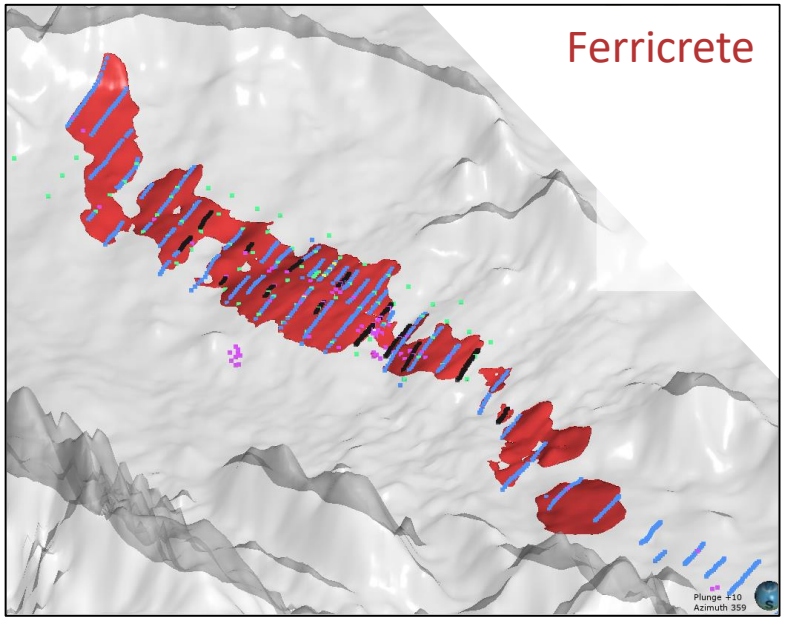
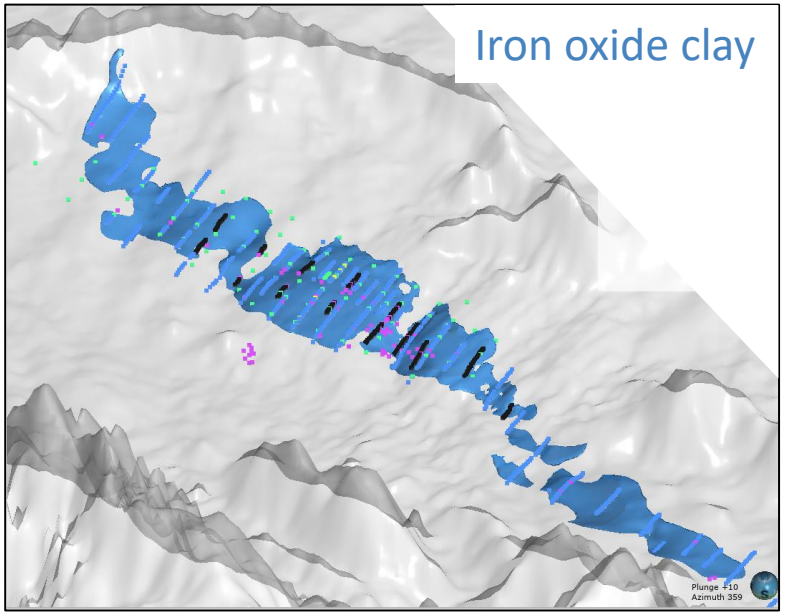


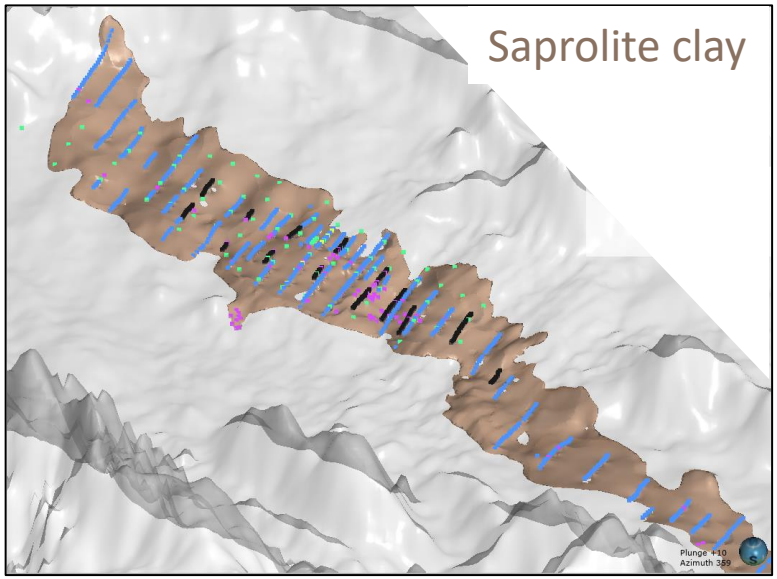
Feasibility and Oxide Development Plan	2022				2023				2024			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Funding												
In-fill drilling												
Feasibility study & EIA												
Investment decision												
Mining licence												
Development												

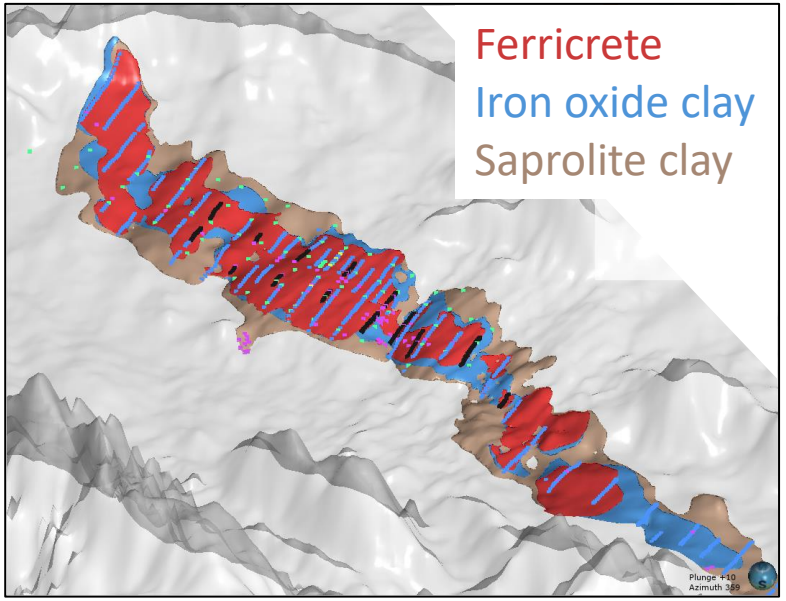
Estimated cost over the next two years: USD6 million or TZS13.8 billion

GEOLOGY MODELS FOR OXIDE ORE DEPOSIT

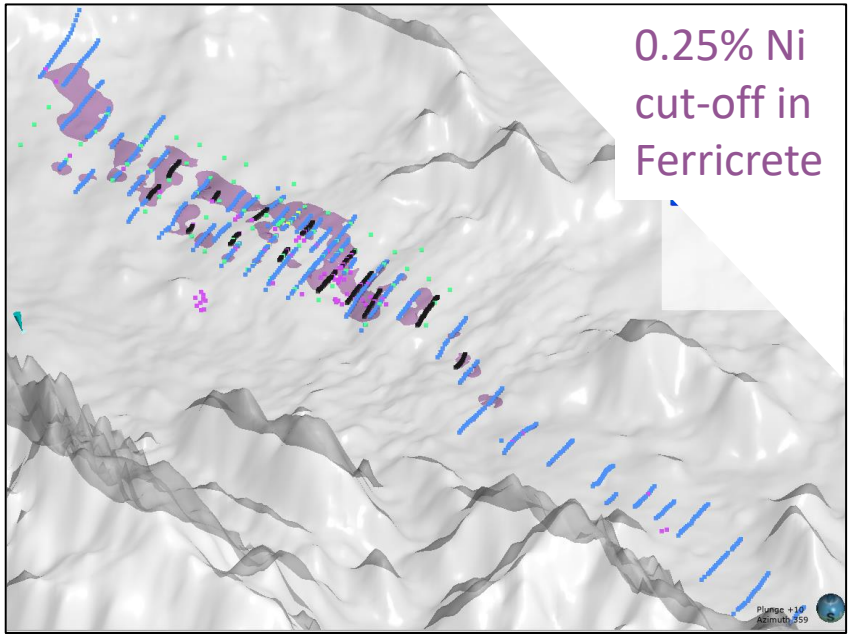


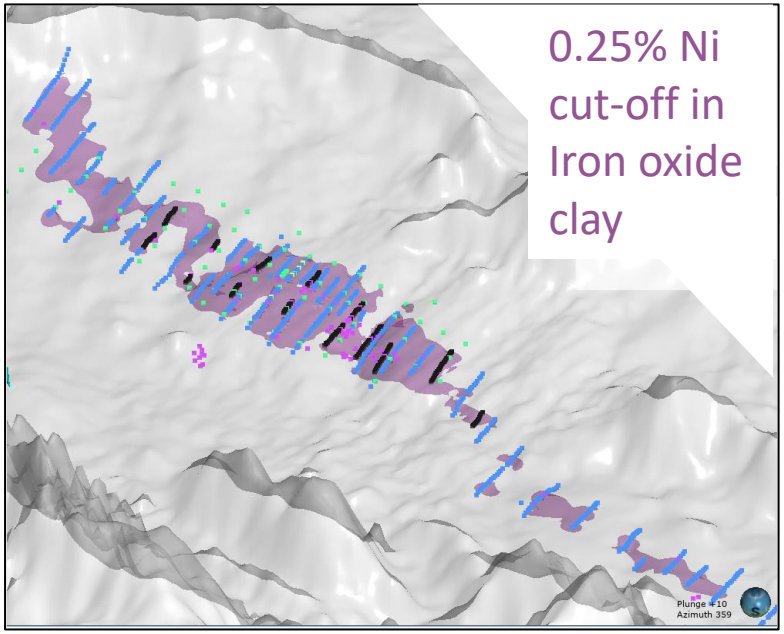


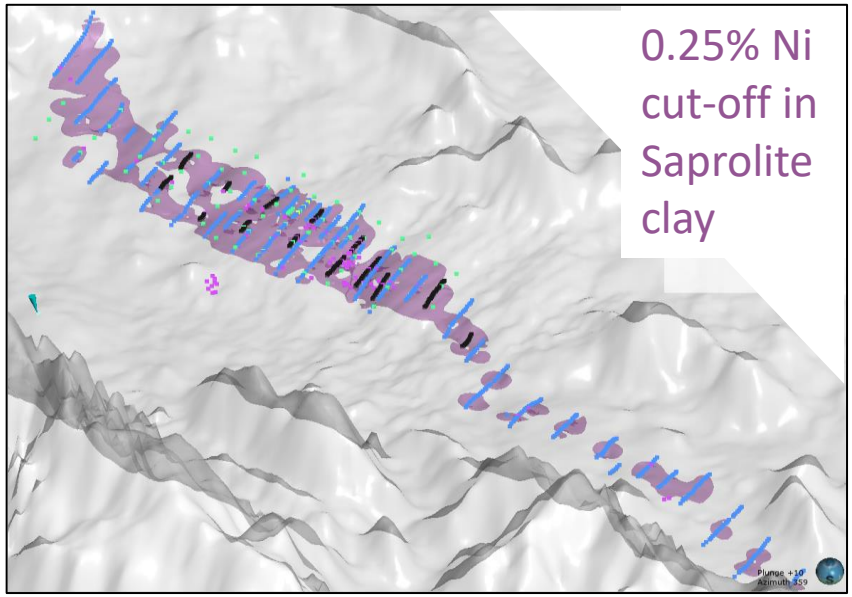


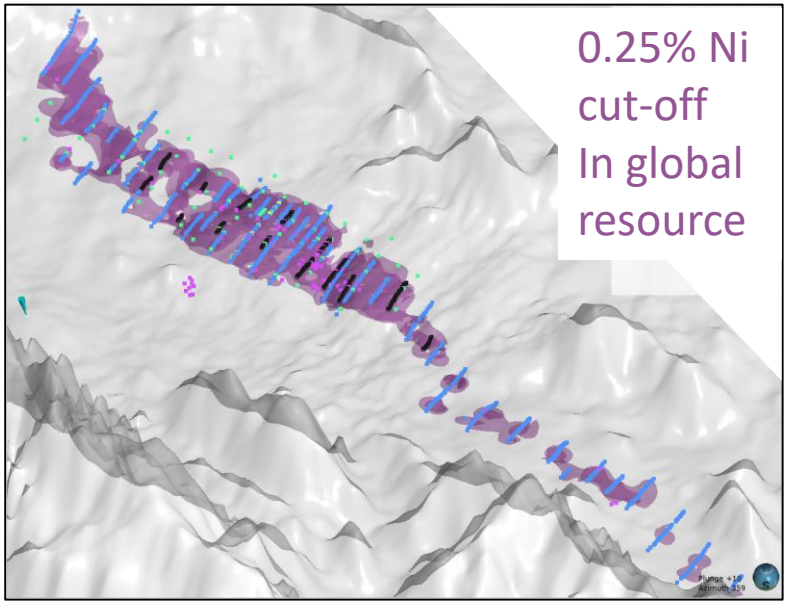


NICKEL GRADE MODEL FOR OXIDE ORE DEPOSIT

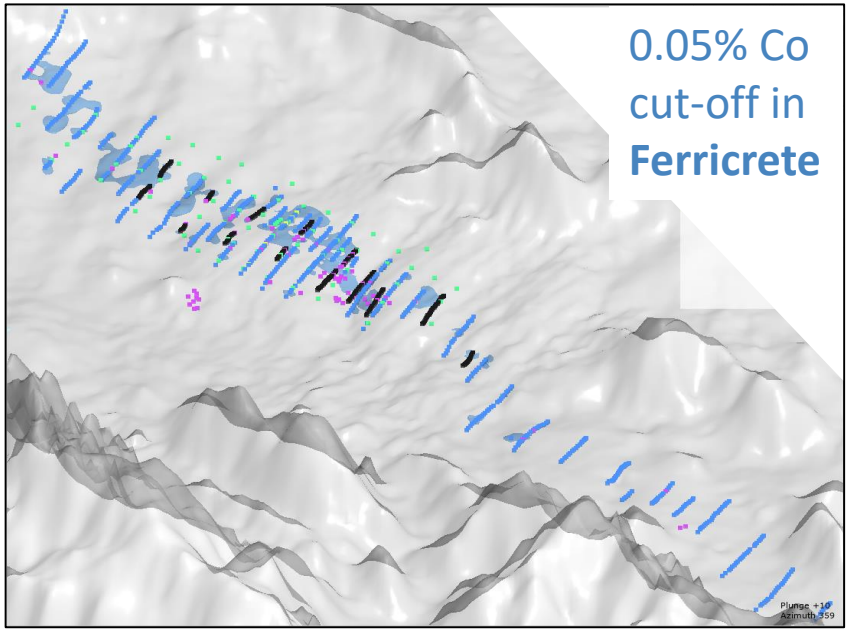


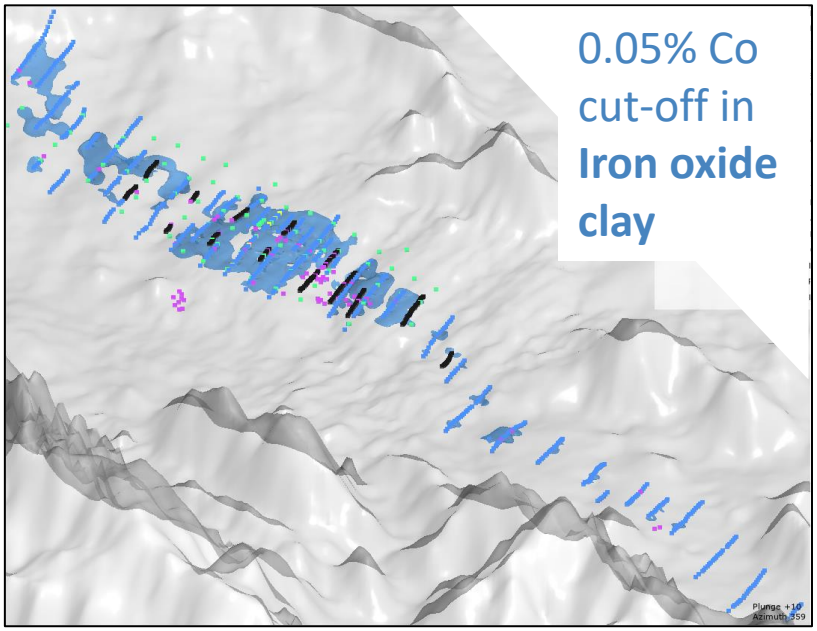


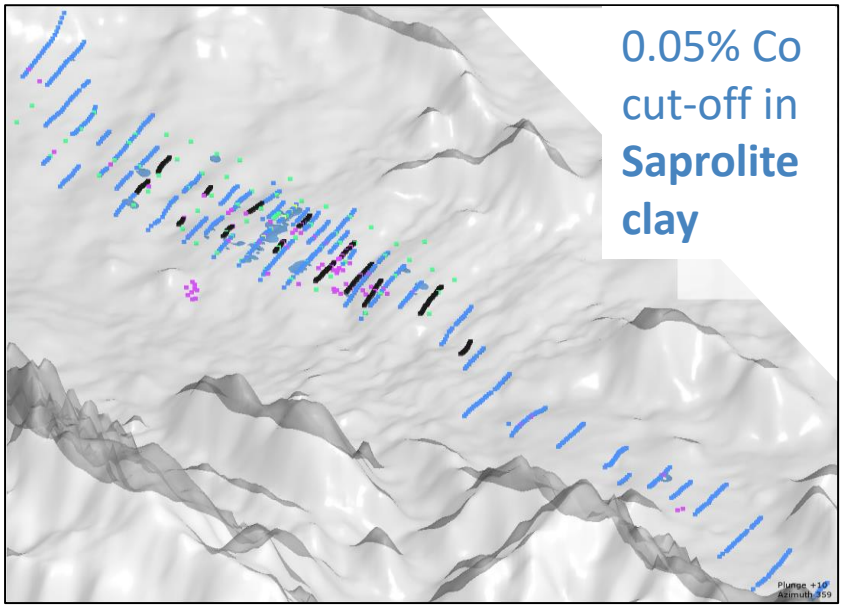


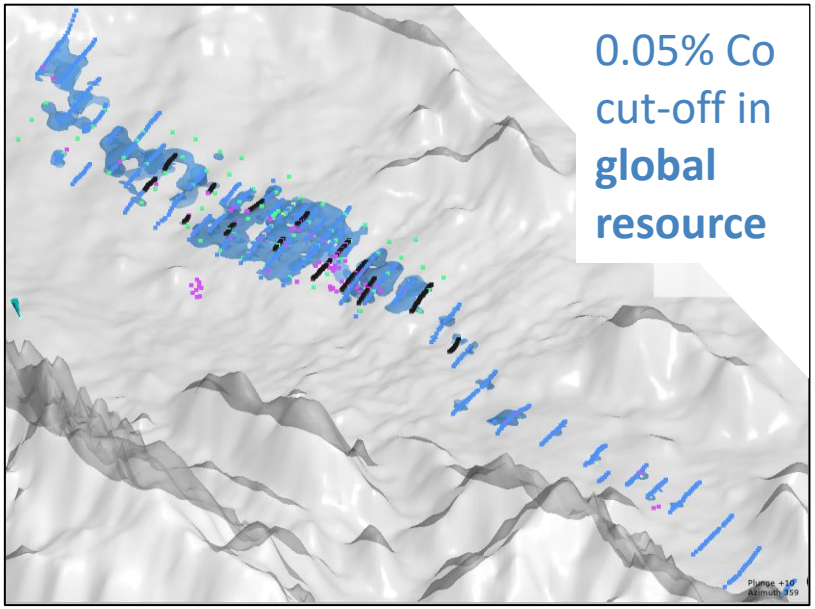


COBALT GRADE MODEL FOR OXIDE ORE DEPOSIT







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SITE SAFETY
MANDATORY
ALL VISITORS MUST REPORT TO SITE OFFICE
HARD HATS
HIGH VISIBILITY VEST
SAFETY GLASSES
SAFETY SHOES
EAR PROTECTION
HAND PROTECTION