Shakespeare Project Feasibility Study
Technical Report

Shakespeare Township, Ontario Canada

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Units of Measure

Above mean sea level	amsl
Acre	ac
Ampere	A
Annum (year)	a
Billion	B
Billion tonnes	Bt
Billion years ago	Ga
British thermal unit	BTU
Centimetre	cm
Cubic centimetre	cm3
Cubic feet per minute	cfm
Cubic feet per second	ft3/s
Cubic foot	ft3
Cubic inch	in3
Cubic metre	m3
Cubic yard	yd3
Coefficients of Variation	CVs
Day	d
Days per week	d/wk
Days per year (annum)	d/a
Dead weight tonnes	DWT
Decibel adjusted	dBa
Decibel	dB
Degree	°
Degrees Celsius	°C
Diameter	ø
Dollar (American)	US$
Dollar (Canadian)	C$
Dry metric ton	dmt
Foot	ft
Gallon	gal
Gallons per minute (US)	gpm
Gigajoule	GJ
Gigapascal	GPa
Gigawatt	GW
Gram	g
Grams per litre	g/L
Grams per tonne	g/t
Greater than	>
Hectare (10,000 m2)	ha

Hertz	Hz
Horsepower	hp
Hour	h
Hours per day	h/d
Hours per week	h/wk
Hours per year	h/a
Inch	"
Kilo (thousand)	k
Kilogram	kg
Kilograms per cubic metre	kg/m3
Kilograms per hour	kg/h
Kilograms per square metre	kg/m2
Kilometre	km
Kilometres per hour	km/h
Kilopascal	kPa
Kilotonne	kt
Kilovolt	kV
Kilovolt-ampere	kVA
Kilovolts	kV
Kilowatt	kW
Kilowatt hour	kWh
Kilowatt hours per tonne (metric ton)	kWh/t
Kilowatt hours per year	kWh/a
Less than	<
Litre	L
Litres per minute	L/min
Megabytes per second	Mb/sec
Megapascal	MPa
Megavolt-ampere	MVA
Megawatt	MW
Metre	m
Metres above sea level	masl
Metres Baltic sea level	mbsl
Metres per minute	m/min
Metres per second	m/s
Metric ton (tonne)	t
Microns	µm
Milligram	mg
Milligrams per litre	mg/L
Millilitre	mL
Millimetre	mm
Million	M
Million bank cubic metres	Mbm3
Million tonnes	Mt
Minute (plane angle)	'

Minute (time)	min
Month	mo
Ounce	oz
Pascal	Pa
Centipoise	mPa·s
Parts per million	ppm
Parts per billion	ppb
Percent	%
Pound(s)	lb
Pounds per square inch	psi
Revolutions per minute	rpm
Second (plane angle)	"
Second (time)	sec
Specific gravity	SG
Square centimetre	cm2
Square foot	ft2
Square inch	in2
Square kilometre	km2
Square metre	m2
Thousand tonnes	kt
Three Dimensional	3D
Tonne (1,000 kg)	t
Tonnes per day	t/d
Tonnes per hour	t/h
Tonnes per year	t/a
Tonnes seconds per hour metre cubed	ts/hm3
Total	T
Volt	V
Week	wk
Weight/weight	w/w
Wet metric ton	wmt

Abbreviations and Acronyms

Absolute Relative Difference	ABRD
Acid Base Accounting	ABA
Acid Rock Drainage	ARD
Alpine Tundra	AT
Atomic Absorption Spectrophotometer	AAS
Atomic Absorption	AA
British Columbia Environmental Assessment Act	BCEAA
British Columbia Environmental Assessment Office	BCEAO
British Columbia Environmental Assessment	BCEA
British Columbia	BC
Canadian Dam Association	CDA
Canadian Environmental Assessment Act	CEA Act
Canadian Environmental Assessment Agency	CEA Agency
Canadian Institute of Mining, Metallurgy, and Petroleum	CIM
Canadian National Railway	CNR
Carbon-in-leach	CIL
Caterpillar's® Fleet Production and Cost Analysis software	FPC
Closed-circuit Television	CCTV
Coefficient of Variation	CV
Copper equivalent	CuEq
Counter-current decantation	CCD
Cyanide Soluble	CN
Digital Elevation Model	DEM
Direct leach	DL
Distributed Control System	DCS
Drilling and Blasting	D&B
Environmental Management System	EMS
Flocculant	floc
Free Carrier	FCA
Gemcom International Inc.	Gemcom
General and administration	G&A
Gold equivalent	AuEq
Heating, Ventilating, and Air Conditioning	HVAC
High Pressure Grinding Rolls	HPGR
Indicator Kriging	IK
Inductively Coupled Plasma Atomic Emission Spectroscopy	ICP-AES
Inductively Coupled Plasma	ICP
Inspectorate America Corp.	Inspectorate
Interior Cedar – Hemlock	ICH
Internal rate of return	IRR
International Congress on Large Dams	ICOLD
Inverse Distance Cubed	ID3
Land and Resource Management Plan	LRMP

Lerchs-Grossman	LG
Life-of-mine	LOM
Load-haul-dump	LHD
Locked cycle tests	LCTs
Loss on Ignition	LOI
Metal Mining Effluent Regulations	MMER
Methyl Isobutyl Carbinol	MIBC
Metres East	mE
Metres North	mN
Mineral Deposits Research Unit	MDRU
Mineral Titles Online	MTO
National Instrument 43-101	NI 43-101
Nearest Neighbour	NN
Net Invoice Value	NIV
Net Present Value	NPV
Net Smelter Prices	NSP
Net Smelter Return	NSR
Neutralization Potential	NP
Northwest Transmission Line	NTL
Official Community Plans	OCPs
Operator Interface Station	OIS
Ordinary Kriging	OK
Organic Carbon	org
Potassium Amyl Xanthate	PAX
Predictive Ecosystem Mapping	PEM
Preliminary Assessment	PA
Preliminary Economic Assessment	PEA
Qualified Persons	QPs
Quality assurance	QA
Quality control	QC
Rhenium	Re
Rock Mass Rating	RMR ‘76
Rock Quality Designation	RQD
SAG Mill/Ball Mill/Pebble Crushing	SABC
Semi-autogenous Grinding	SAG
Standards Council of Canada	SCC
Stanford University Geostatistical Software Library	GSLIB
Tailings storage facility	TSF
Terrestrial Ecosystem Mapping	TEM
Total dissolved solids	TDS
Total Suspended Solids	TSS
Tunnel boring machine	TBM
Underflow	U/F
Valued Ecosystem Components	VECs
Waste rock facility	WRF

Forward Looking Statements

This Technical Report, including the economics analysis, contains forward-looking statements within the meaning of the United States Private Securities Litigation Reform Act of 1995 and forward-looking information within the meaning of applicable Canadian securities laws. While these forward-looking statements are based on expectations about future events as at the effective date of this Report, the statements are not a guarantee of Magna's future performance and are subject to risks, uncertainties, assumptions, and other factors, which could cause actual results to differ materially from future results expressed or implied by such forward-looking statements. Such risks, uncertainties, factors, and assumptions include, amongst others but not limited to metal prices, mineral resources, mineral reserves, capital and operating cost forecasts, economic analyses, smelter terms, labour rates, consumable costs, and equipment pricing. There can be no assurance that any forward-looking statements contained in this Report will prove to be accurate, as actual results and future events could differ materially from those anticipated in such statements.

1 SUMMARY

1.1 Introduction

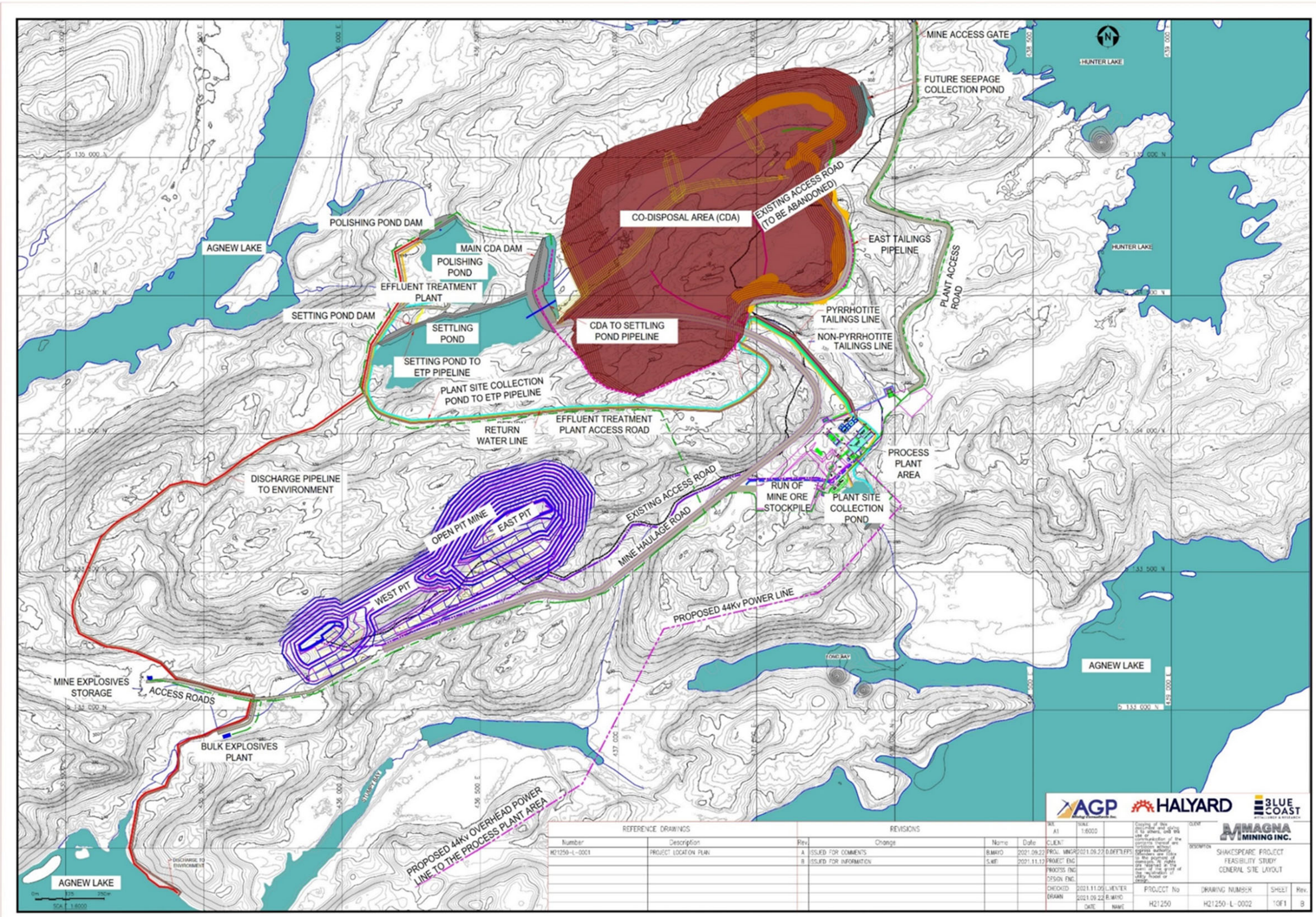
Magna Mining Inc. (Magna) is a Canadian exploration and development company, based in Toronto, Canada and is publicly-listed on the Toronto Stock Exchange (TSX). Magna is focused on the development of the Shakespeare Project (the Project) which is a past producing Ni-Cu-PGM project located 70 km southwest of Sudbury, Ontario.

Magna retained independent consultants to prepare a Technical Report (the Report) for a Feasibility Study (FS) on the Shakespeare Project. The Report is a statement of the mineral reserves of the Project using the mineral resources which were updated June 1, 2021. The mineral resources have been estimated in conformity with the widely accepted CIM Estimation of Mineral Resource and Mineral Reserve Best Practices Guidelines (2019). The reporting of the mineral resources and mineral reserves comply with all disclosure requirements set out in the NI 43-101 Standards of Disclosure for Mineral Projects (2016). The classification of the mineral resources and mineral reserves are consistent with current CIM Definition Standards - For Mineral Resources and Mineral Reserves (2014).

The following consultants were the primary contributors to this study:

- AGP Mining Consultants Inc. (AGP) – lead author
- SGS Canada Inc. (SGS)
- XPS Consulting and Testwork Services (XPS)
- Blue Coast Research Inc. (Blue Coast)
- SLR Consulting (Canada) Ltd. (SLR)
- Halyard Inc. (Halyard)

Figure 1-1: Magna Shakespeare Project Site Layout



1.2 Property Location and Description

The Shakespeare project has an existing NI 43-101 resource, major permits for both the construction of a 4,500 tpd mill and the recommencement of open pit mining, and a surrounding 180 km^2 land package that is highly prospective for further nickel, copper, and PGM discoveries.

The Project is easily accessible by road from the nearby Trans Canada highway, and more importantly has a strategically important location within trucking distance of milling and smelting capacity in Sudbury.

1.3 History

In 1941, Frobisher Exploration staked the property and over the next several years carried out a plane table survey, geological mapping, and diamond drilling in the area of the west zone. Drill holes completed in 1942 included twelve short holes totaling 819 m on the Shakespeare deposit. These holes ranged in length from 12 to 136 m. Drill holes completed in 1948 included three holes totaling 1,360 m. These holes, number 13, 14 and 15 were drilled to depths of 320, 568 and 472 m, respectively.

In 1947, Falconbridge Nickel Mines Limited ("Falconbridge") (now Glencore) acquired the claims from Frobisher Exploration, and commenced a program designed to more thoroughly explore and to provide more detailed information with respect to the Shakespeare West mineral deposit, including the possibility of enrichment with depth.

Drilling in 1951 included twelve short holes, numbered 16 to 27, totaling 1,892 m. The length of the holes range from 91 to 192 m and were designed for the purpose of checking the width and grade of mineralization to a 152 m depth.

In 1985, sixteen holes totaling 1,030 m were drilled. These holes were drilled to test the near-surface resource and to evaluate the precious metal (Au, Pt and Pd) potential of the zone. Holes from the program were designed to provide coverage on 30.5 m (100-foot) centres across the Shakespeare deposit at depths less than 30.5 m from surface.

In 1986, four holes totaling 1,617 m were drilled to test the deposit at depth and along strike to the southwest. Two of the holes were drilled on 2900W, one on 2300W and the other on 1800 W. All of the holes were drilled to total depths of 355 to 457 m and designed to test the deposit at a depth below surface of approximately 152 m.

Results of the historic diamond drill data indicated a continuous zone of sulphide and precious metal mineralization extending over a total strike length of 549 m to a depth of approximately 76 m with very few holes testing below the 250-foot (76 m) level. This is now part of the west mineral zone at Shakespeare. The Centre of the zone is usually close to the baseline or slightly north of this and the dip variable, from shallow to steep north.

Possible explanations for the variability in dip are faulting or that the overall shape of the zone is arcuate with a slight curve to the north. If the zone is in fact arcuate in shape, then it is possible that the variations in dip observed on sections are simply a function of where the various drill holes intersected this.

The width of most intersections ranges between 23 and 38 m (75 and 125 feet), with the longest intersection of 79.6 m (261.8 feet) being recorded in 'hole 1' (Table 6 1) and the shortest of 0.9 m being in hole 85-4. The range of grades intersected for nickel was 0.09% to 0.49%, copper 0.09 to 0.61%, gold 0.11 to 0.30 g/t, platinum 0.15 to 0.57 g/t, and palladium 0.17 to 0.57 g/t.

Ultimately Falconbridge concluded in 1986 that the project could not sufficiently meet the various economic parameters required to move the project forward. At that time, the Shakespeare West mineral deposit / advance prospect was sufficiently remote enough and difficult to reach, effectively discouraging any further efforts. It is important to highlight that this conclusion was made prior to the construction of logging roads and a haulage access road into the property and the discovery of the larger east mineral zone in 2002-2003.

No further work was performed on the Shakespeare property until 2000, when it was acquired by Ursa Major, through a "Joint Venture" agreement with Falconbridge. Early work carried out by Ursa Major in 2000 and 2001 had involved digital compilation, geological mapping, sampling, and some limited geophysical surveys. From 2002 through to the 2012 an extensive amount of diamond drilling was conducted on the Shakespeare property. In June of 2003 Ursa Major discovered the Shakespeare East mineral deposit. From there on, Ursa Major carried out an extensive amount of exploration work which included additional ground and bore hole geophysics, surface trenching, geotechnical mapping probing, feasibility and base line environmental studies, public consultations, and successful permitting. Ursa Major carried out diamond drilling programs on the deposit from 2002-2006 and from 2010-2012.

Resource estimations have been conducted in 1951, 1974 and 1985 by personnel working for Falconbridge. Micon has completed three resource estimates for the Shakespeare deposit: the initial estimate in 2003; a second estimate, in support of a preliminary feasibility study, was released in 2004 after the completion of the 2003/2004 drilling program; and a third estimate, in support of a feasibility study, was released in 2006 after the completion of the 2005 drilling.

Wellgreen completed an internal updated resource estimate in 2014 in support of an internal feasibility study.

In late 2006, Ursa Major announced an agreement with Xstrata nickel providing for the milling of an approximately 50,000 tonne bulk sample from the Shakespeare west deposit at the Strathcona mill and the subsequent processing of concentrates. Ursa Major completed the trucking of the 50,000 tonne bulk sample in October 2007. Batch processing of the sample at Xstrata Nickel's ("Xstrata's") Strathcona mill was completed in October 2007, and in November 2007 blending tests with Shakespeare ore and Strathcona ore feed were also completed. Based on mill balances, the batch test processed 45,487 dry metric tonnes (dmt) of ore with a head grade of 0.40% nickel, 0.46% copper, 0.026% cobalt, 0.186 g/t gold, 0.378 g/t platinum, and 0.483 g/t palladium.

Overall nickel and copper recoveries into concentrates were 76.20% and 89.42% respectively. Cobalt recovery into concentrate was 60.03%. Gold, platinum, and palladium recoveries into concentrate were 62.56%, 66.12%, and 46.28% respectively. The batch ore sample produced 124.22 tonnes contained nickel in nickel concentrate, 186.86 tonnes contained copper in both copper concentrate and nickel concentrate, and 6.31 tonnes contained cobalt in nickel concentrate. Contained gold, platinum and palladium are 5.30 kg (170 oz.), 11.38 kg (366 oz.), and 10.18 kg (327 oz.) respectively.

During 2008, the Ursa Major shipped and processed a total of 83,029 tonnes of ore at Xstrata's Strathcona mill. This ore had average grades of 0.39% nickel, 0.40% copper, 0.03% cobalt and over 1 gram/tonne precious metals. During the third quarter of 2008, the Ursa Major announced a temporary suspension of preproduction mining operations due to low commodity prices. However, in early 2009, an additional shipment of 10,000 tonnes of available ore was made.

For the quarter ended April 30, 2010, the Shakespeare Mine was again in pre-production. In February and March 2010, 29,533 tonnes of ore were delivered with contained metals totalling approximately 118,000 pounds of nickel, 182,000 pounds of copper, 6,000 pounds of cobalt and 380 ounces of precious metals. The ore shipped in February and March was mainly broken ore that had been on site since 2008. This ore averaged 20% below the average budgeted grade for 2010 that is based on the previous bulk sample and preproduction mined grades of 0.39% nickel, 0.44% copper, 0.03% cobalt and 1.1 gram/tonne precious metals.

Ursa Major declared commercial production on May 27, 2010 and was in production until January 27, 2012. On December 13, 2011, Ursa Major announced that it had limited operations at the Shakespeare Mine to crushing of existing broken ore, ore sampling and trucking operations as a consequence of reduced base metals prices. On February 3, 2012, Ursa announced it had temporarily suspended operations at the Shakespeare Property following the expiration, on December 31, 2011, of the two year milling agreement and Ursa Major was not able to conclude a new processing agreement for Shakespeare ore with Xstrata.

During the nine months of production ending January 31, 2011, Ursa Major delivered a total of 166,913 tonnes of ore to the Strathcona Mill at a grade of 0.357% nickel, 0.407% copper, 0.025% cobalt, 0.373 g/t platinum, 0.409 g/t palladium, 0.207 g/t gold and 2.328 g/t silver. Contained metals in the delivered ore totalled approximately 1,314,000 pounds of nickel, 1,499,000 pounds of copper, 92,204 pounds of cobalt and 1,900 ounces of platinum, 2,100 ounces of palladium, 1,100 ounces of gold and 12,100 ounces of silver.

During the year of operation ending January 31, 2012, Ursa Major delivered 151,910 tonnes of ore to the Strathcona Mill for processing. Ore shipments were 47,090 tonnes below budget for the year ended January 31, 2012, primarily as a result of suspension of operations in December 2011.

Contained metals in the delivered ore for the year ended January 31, 2012, totalled approximately 1,052,000 pounds of nickel, 1,234,000 pounds of copper, 64,700 pounds of cobalt and 1,650 ounces of platinum, 1,840 ounces of palladium, 960 ounces of gold and 10,260 ounces of silver. The recovered and contained metals are subject to smelter recoveries and to further smelter deductions.

For the year ended January 31, 2012, the ore averaged 0.314% nickel, 0.368% copper, 0.019% cobalt, and 0.941 grams/tonne precious metals. This is approximately 84% of the average budgeted grade for 2011 that is based on the previous mined grades 0.373% nickel, 0.419% copper, 0.027% cobalt and 1.069 grams/tonne precious metals.

1.4 Geological Setting and Mineralization

The Shakespeare copper-nickel deposit is hosted within gabbroic rocks (Shakespeare Intrusion) of the Nipissing Intrusive Suites situated along the north contact between the mafic intrusive body which crosses the Property and quartzites of the Mississagi Formation.

The Shakespeare intrusion hosts semi-massive to disseminated sulfides (Sproule et al. 2007). Sulfides, including pyrrhotite, chalcopyrite, pentlandite, and lesser pyrite, are present throughout the intrusion in varying proportions, mostly in trace amounts. Significant accumulations are present as:

- disseminations of pyrrhotite, chalcopyrite, and pentlandite close to the melagabbro/gabbro contact, usually ~1 mm in size, typically comprising <1% of the rock
- heavily disseminated to patchy net-textured (10-15%) pyrrhotite, chalcopyrite, and pentlandite, in rounded blebs that reach up to 2-5 cm in size, in the upper zone of the melagabbro
- blebby pyrrhotite and chalcopyrite in the lower sections of the melagabbro and the base of the quartz gabbro

The sulfides have experienced variable degrees of deformation and recrystallization during metamorphism. They vary from pristine magmatic blebs, to recrystallized blebs, to stringers, the latter of which tend to be richer in chalcopyrite.

Where the mineralization is proximal to shear zones that cross-cut the deposit, the sulphides are often sheared and attenuated. These sheared sulphides, together with the patchy-network textured mineralization, create an interconnectivity in the sulphides that allows portions of the deposit to be identified by remote electromagnetic (EM) geophysics surveys, a valuable tool in exploring for extensions to the deposit. The mineralized zones also contain abundant inclusions of quartzite, blue quartz eyes, and rare diorite. The sulfides have compositions consistent with having been derived from liquid immiscibility within the Shakespeare magma and they have equilibrated at moderate magma: sulphide ratios (500-1000) to generate the range of Ni, Cu, Co, and precious metal sulphide tenors.

The total strike length of Shakespeare mineralization is approximately 1,700 m and the mineralization extends to a depth of ~550m (open at depth). The deposit is subdivided into a West and East resource zone.

- The west zone plunges broadly to the west at ~15° and is of a slightly lower grade than the East zone. It is currently defined to a depth of ~120m and abruptly terminates at its western-most edge, possibly due to offsetting by faults. Deeper exploratory holes by Ursa Major identified two lenses of mineralization down to ~210m depth. Although more work is required to better define these lenses, they may represent a down-dip, possibly fault-displaced extension of the east zone mineralization.
- The east zone plunges ~30° to ~40° east from surface and generally has higher grade mineralization, particularly nearer surface. The mineralized zones currently extends over ~1km and plunges from surface to a depth of ~ 550m. It remains open to the west and the up-dip and down-dip extensions have not been tested by drilling, leaving considerable opportunity to expand the resource.

1.5 Exploration and Drilling

Since acquisition of the Property in 2017, Magna has completed a number of surface exploration campaigns including mapping, surface stripping and geophysics, and multiple drill programs.

In 2018, borehole EM (BHEM) surveys were completed on 18 holes drilled in the early to mid-2000's around the Shakespeare Mine. This data was then combined with existing geophysics to generate EM plates across the deposit.

Subsequent to the BHEM surveys, Magna completed 13 holes in 2018 on the property for a total of 3,740 metres. All holes were focussed on the Shakespeare resource with nine of the holes testing conductive plates identified using BHEM. The remaining 4 holes were designed to provide more information about the resource, improve confidence through conversion of category, and provide material for metallurgical testing.

Exploration in 2019 was largely focussed on verifying historical anomalies across the property and mapping of the Shakespeare deposit to develop a better understanding of the property and mine in general. In total 50 samples were submitted for assay from across the property with 25 samples being taken in the immediate area around the deposit. The remaining 25 samples were collected from regional targets such as on Palladium Valley (12 samples), Stumpy Bay (11 samples), and C-1 (2 samples).

In the fall of 2019 surface stripping was completed in the up-dip area of the eastern resource where anomalous surface samples returned values up to 1.24 gpt Pd, 0.62 gpt Pt, 0.35 gpt Au, and 0.32% Cu with 0.039% Ni. Trenching revealed that the same sequence of mineralization was present at surface as is recorded in drilling with a blebby dominated style of mineralization in the northern portion that comes into contact with disseminated mineralization to the south. Overall, the mineralized zone is approximately 4 m wide on surface.

Work during the 2020 season was largely focussed on following up on surface stripping completed at the Bird's Bane trench. A total of twenty-four channel samples were taken in addition to six QAQC samples.

At the end of 2020 Magna completed surface IP over the Shakespeare Deposit. This amounted to a total of approximately 20 line kilometers.

Magna completed the second round of drilling at Shakespeare in 2021. The program included 26 drill holes and the deepening of one 2018 hole for a total of 6,574m. Drilling was largely focussed on the West deposit and in-filling the Gap-Zone; however, 5 holes were drilled for exploratory purposes around the deposit.

In addition to the drilling work, Magna also contracted out 1:1000 mapping of the deposit. Emphasis was placed on trying to differentiate between the various types of gabbro on surface and delineating finer details on the mineralization at surface

January of 2021 saw the completion of a large EM grid over the Shakespeare mine site. The survey was successful in identifying conductors around the deposit and identified poorly constrained conductors at depth.

1.6 Mineral Resources

The general requirement that all Mineral Resources have "reasonable prospects for economic extraction" implies that the quantity and grade estimates meet certain economic thresholds and that the Mineral Resources are reported at an appropriate cut-off grade taking into account extraction scenarios and processing recoveries. In order to meet this requirement, the Author considers that the Shakespeare deposit mineralization is amenable for open pit and underground extraction.

In order to determine the quantities of material offering “reasonable prospects for economic extraction” by an open pit, Whittle™ pit optimization software 4.7.1 and reasonable mining assumptions to evaluate the proportions of the block model (Indicated and Inferred blocks) that could be “reasonably expected” to be mined from an open pit were used. The pit optimization was completed by SGS. The pit optimization parameters used are summarized in Table 1-2. A Whittle pit shell at a revenue factor of 0.96 was selected as the ultimate pit shell for the purposes of this MRE. The corresponding strip ratio is 7.9:1 and reaches a maximum depth of approximately 390 m below surface.

The reader is cautioned that the results from the pit optimization are used solely for the purpose of testing the “reasonable prospects for economic extraction” by an open pit and do not represent an attempt to estimate mineral reserves. The results are used as a guide to assist in the preparation of a Mineral Resource statement and to select an appropriate resource reporting cut-off grade. A selected base case cut-off grade of 0.2% NiEq is used to determine the in-pit MRE for the Shakespeare deposit.

In order to determine the quantities of material offering “reasonable prospects for economic extraction” by underground mining methods, reasonable mining assumptions to evaluate the proportions of the block model (Indicated and Inferred blocks) that could be “reasonably expected” to be mined from underground are used. Based on a review of the size, geometry, and continuity of mineralization of the Deposit, it is envisioned that the Deposit may be mined using the longitudinal longhole retreat mining method (a branch of the generic mining method known as sublevel stoping). The underground parameters used, based on this mining method, are summarized in Table 1-2. Based on these parameters, a selected base case cut-off grade of 0.4% NiEq is used to determine the below-pit MRE for the Shakespeare deposit.

The reader is cautioned that the reporting of the underground resources are presented undiluted and in situ (no minimum thickness), constrained by continuous 3D wireframe models, and are considered to have reasonable prospects for eventual economic extraction. There are no underground mineral reserves reported at this time.

The current MRE for the Shakespeare deposit is presented in Table 1-1 and includes an open pit and an underground Mineral Resource (estimated from the bottom of the 2021 pit).

Highlights of the Shakespeare deposit Mineral Resource Estimate are as follows:

- The open pit Mineral Resource includes, at a base case cut-off grade of 0.2% NiEq, 16,508,000 tonnes grading 0.34% Ni, 0.36% Cu, 0.02% Co, 0.33 g/t Pt, 0.36 g/t Pd and 0.19 g/t Au in the Indicated category.
- The underground Mineral Resource includes, at a base case cut-off grade of 0.4% NiEq, 3,832,000 tonnes grading 0.31% Ni, 0.36% Cu, 0.02% Co, 0.30 g/t Pt, 0.32 g/t Pd and 0.19 g/t Au in the Indicated category, and 2,355,000 tonnes grading 0.33% Ni, 0.40% Cu, 0.02% Co, 0.34 g/t Pt, 0.37 g/t Pd and 0.20 g/t Au in the Inferred category.

Table 1-1: Shakespeare Deposit Open Pit (A) and Underground (below-pit) (B) Mineral Resource Estimate, June 1, 2021

(A)

Cut-off Grade	Tonnes	Ni %	Cu %	Co %	Pt g/t	Pd g/t	Au g/t	NiEq %
Indicated								
0.2% NiEq	16,508,000	0.34	0.36	0.02	0.33	0.36	0.19	0.56

(B)

Cut-off Grade	Tonnes	Ni %	Cu %	Co %	Pt g/t	Pd g/t	Au g/t	NiEq %
Indicated								
0.4% NiEq	3,832,000	0.31	0.36	0.02	0.30	0.32	0.19	0.53
Inferred								
0.4% NiEq	2,355,000	0.33	0.40	0.02	0.34	0.37	0.20	0.20

Mineral Resources are exclusive of material mined.

CIM (2014) definitions were followed for Mineral Resources Reporting.

Mineral resources which are not mineral reserves do not have demonstrated economic viability. All figures are rounded to reflect the relative accuracy of the estimate. Composites have been capped where appropriate.

Open pit Mineral Resources are reported at a base case cut-off grade of 0.2% NiEq within a conceptual pit shell.

Underground (below-pit) Mineral Resources are estimated from the bottom of the pit and are reported at a base case cut-off grade of 0.4% NiEq. The underground Mineral Resource grade blocks were quantified above the base case cut-off grade, below the constraining pit shell and within the constraining mineralized wireframes. At this base case cut-off grade the deposit shows excellent deposit continuity.

Based on the size, shape, and orientation of the Deposit, it is envisioned that the underground mineralization may be mined using the longitudinal longhole retreat mining method (a branch of the generic mining method known as sublevel stoping).

A fixed specific gravity value of 3.00 was used to estimate the resource tonnage from block model volumes; an SG of 2.85 for waste.

NiEq Cut-off grades are based on metal prices of $7.50/lb Ni, $3.25/lb Cu, $21.00/lb Co, $1,000/oz Pt, $2,000/oz Pd and $1,600/oz Au, and metal recoveries of 75% for Ni, 96% for copper, 56% for Co, 73% for Pt, 39% for Pd and 36% for Au.

The results from the pit optimization are used solely for the purpose of testing the “reasonable prospects for economic extraction” by an open pit and do not represent an attempt to estimate mineral reserves. The results are used as a guide to assist in the preparation of a Mineral Resource statement and to select an appropriate resource reporting cut-off grade.

The estimate of Mineral Resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues. There is no certainty that all or any part of the Inferred Mineral Resource will be upgraded to an Indicated or Measured Mineral Resource as a result of continued exploration.

Table 1-2: Whittle™ Pit Optimization Parameters

Parameter	Value	Unit
Nickel Price	$7.50	US$ per pound
Copper Price	$3.25	US$ per pound
Cobalt Price	$21.00	US$ per pound
Platinum Price	$1,000.00	US$ per ounce
Palladium Price	$2,000.00	US$ per ounce
Gold Price	$1,600.00	US$ per ounce
Exchange Rate	0.76	$US/$CDN
In-Pit Mining Cost	$2.20	US$ per tonne mined
Underground Mining Cost	$45.00	US$ per tonne mined
Processing Cost (incl. crushing)	$11.00	US$ per tonne milled
In-Pit General and Administrative	$1.75	US$ tonne of feed
Underground General and Administrative	$3.50	US$ tonne of feed
Overall Pit Slope	55	Degrees
Nickel Recovery	75	Percent (%)
Copper Recovery	96	Percent (%)
Cobalt Recovery	56	Percent (%)
Platinum Recovery	73	Percent (%)
Palladium Recovery	39	Percent (%)
Gold Recovery	36	Percent (%)
Mining loss / Dilution (open pit)	5 / 5	Percent (%) / Percent (%)
Mining loss/Dilution (underground)	10/10	Percent (%) / Percent (%)
Waste Specific Gravity	2.85	
Mineral Zone Specific Gravity	3.00	
Block Size	5 x 5 x 5	
Re-block for Pit Optimization	10 x 10 x 10	

1.7 Mineral Processing and Metallurgical Testing

The Shakespeare deposit is composed primarily of ~90% silicates and ~5% sulphides with minor amounts of oxides and carbonates. The sulphide minerals are pyrrhotite, chalcopyrite and pentlandite.

The copper in the deposit occurs almost exclusively as chalcopyrite. Eighty-five percent of the nickel occurs as pentlandite and another 4% occurs as pyrrhotite and other sulphides. Ten percent of the nickel occurs as non sulphides in clays (7%) and Amphiboles (3%).

The Shakespeare deposit has had numerous metallurgical studies since 2003. The reports cover the evolution of this project from initial evaluation, evaluation of processing through Strathcona Mill (Glencore) to a stand-alone concentrator producing a bulk concentrate and finally an evaluation of producing separate copper and nickel concentrate.

The metal recovery from this resource has been very consistent in the lock cycle tests performed. Differences in recovery were driven by changes in bulk concentrate grade with higher concentrate grades resulting in lower metal recoveries for all metals but copper.

Copper/nickel separation testwork has indicated that 60% to 75% amount of the copper can be removed from the early part of the process to produce a separate copper concentrate containing <1% nickel.

The level of deleterious elements measured in testing were low and the concentrates can be processed in copper or nickel smelters.

The metallurgical testing from various studies have shown that the results are both predictable and repeatable. The testing has also demonstrated that this material has a very consistent response from all samples tested. The process developed metallurgical recoveries used are to a level sufficient to support basic engineering and advance towards production.

1.8 Mineral Reserves

The Probable Mineral Reserves at the Shakespeare project have been classified in accordance with the 2014 CIM Definition Standards for Mineral Resources and Mineral Reserves. The Mineral Reserves are defined within a mine plan, with open pit phase designs guided by Lerchs-Grossmann optimized pit shells.

The Shakespeare project has no Proven Mineral Reserves.

The Mineral Reserve estimate for the Shakespeare project, effective January 28, 2022, is summarized in Table 1-3.

Table 1-3: Shakespeare Project – Probable Reserves – January 28, 2022

Reserve Category	Tonnes (Mt)	Ni %	Cu %	Co %	Pt g/t	Pd g/t	Au g/t
Proven	-	-	-	-	-	-	-
Probable	11.87	0.33	0.35	0.02	0.32	0.36	0.18
Total Proven + Probable	**11.87**	**0.33**	**0.35**	**0.02**	**0.32**	**0.36**	**0.18**

Note: This mineral reserve estimate is as of January 28, 2022 and is based on the mineral resource estimates for the Shakespeare Project dated June 1, 2021 by SGS Canada. The mineral reserve calculation was completed under the supervision of Gordon Zurowski, P.Eng. of AGP., who is a Qualified Person as defined under NI 43-101.

Mineral reserves are stated within the final design pits based on a $US 6.50/lb nickel price, $US 3.00/lb copper price, $US 17.00/lb cobalt price, $US 900/oz platinum price, $US 1,700/oz palladium price and $US 1,500/oz gold price.

The mine cut-off grade used was 0.23% nickel.

Open pit mining costs averaged $2.30/t mined.

Processing costs averaged $15.23/t ore and G&A costs were $2.59/t ore.

Metal recoveries were 76.7% for nickel, 95.1% for copper, 55.9% for cobalt, 76.2% for platinum, 42.9% for palladium and 38.3% for gold, respectively.

Metal payables for the nickel concentrate were 65% for nickel, 65% for copper, 40% for cobalt, 80% for platinum, 80% for palladium and 80% for gold, respectively. For the copper concentrate the metal payables were 96.6% for copper, 70% for platinum, 70% for palladium and 95% for gold.

1.9 Mining

The Shakespeare Project is planned as an open pit operation using conventional mining equipment. Open pit mining will be completed by an owner operated mining fleet.

The mine schedule is based on Mineral Reserves and 11.87 Mt of Probable ore grading 0.33% nickel, 0.35% copper, 0.02% cobalt, 0.32 g/t platinum, 0.36 g/t palladium and 0.18 g/t gold to the process plant over a current design life of 7.1 years plus a year of prestripping.

Waste tonnage totals 59.1 Mt to be placed in the Co-disposal area (CDA) or used in the construction of various infrastructure items. The overall strip ratio is 4.98:1 mined.

Previous slope study work by third party consultants remains valid and was used in the pit designs. In general, the inter-ramp angles are 55 degrees, with variation of the berm width and bench face angle in different areas. Overall slope angles vary from 44 to 55 degrees depending on pit area and wall orientation due to ramp placement in the pit.

The mine schedule anticipates peak mining in Years 2 and 3 at 11.99 Mt total material movement, including rehandle, then tapering off as the mine advances. A small amount of material is feed to the plant in Year -1 for commissioning. The mine schedule is shown in Table 1-4.

Table 1-4: Life of Mine Schedule

	Units	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Total
Plant Feed	Mt	0.32	1.62	1.62	1.62	1.62	1.62	1.62	1.62	0.21	11.87
Nickel	%	0.25	0.34	0.29	0.32	0.40	0.28	0.35	0.35	0.16	0.33
Copper	%	0.31	0.34	0.32	0.33	0.44	0.29	0.38	0.38	0.15	0.35
Cobalt	%	0.02	0.02	0.02	0.02	0.03	0.02	0.02	0.02	0.01	0.02
Platinum	g/t	0.30	0.32	0.28	0.31	0.39	0.27	0.35	0.34	0.15	0.32
Palladium	g/t	0.34	0.35	0.31	0.34	0.45	0.30	0.38	0.39	0.16	0.36
Gold	g/t	0.16	0.17	0.16	0.16	0.22	0.15	0.20	0.21	0.08	0.18
Mine to Mill	Mt	0.28	1.54	1.45	1.53	1.62	1.37	1.60	1.60	-	10.99
Mine to Stock	Mt	0.25	0.07	0.17	0.18	-	-	0.21	-	-	0.88
Stock to Mill	Mt	0.04	0.08	0.17	0.09	-	0.25	0.02	0.02	0.21	0.88
Waste	Mt	10.10	10.20	10.20	10.20	9.00	7.22	1.68	0.50	0.03	59.12
Total Material	**Mt**	**10.68**	**11.89**	**11.99**	**11.99**	**10.62**	**8.84**	**3.51**	**2.12**	**0.23**	**71.87**

1.10 Recovery Methods

The processing plant for the Shakespeare project is designed as a conventional crush/grind/float operating with a throughput of 4,500 tpd. Mine haul trucks tip into a surge bin feeding a primary jaw crusher. The primary crushed ore is conveyed to a covered stockpile ahead of a 24' by 10' SAG mill closed with a screen. Screen undersize reports to the ball mill circuit consisting of a 15' x 25' overflow discharge ball mill closed with cyclones.

Cyclone overflow, at a P80 of 85 µm, gravitates to the flotation circuit conditioning tanks where the pH is adjusted though lime addition and flotation collector is added. The rougher-scavenger circuit consists of six tank flotation cells in series, with the first three cells recovering a bulk sulfide concentrate and the last three cells recovering a nickel scavenger concentrate.

The bulk rougher concentrate undergoes one stage of bulk cleaning followed by two stages of copper flotation to produce the final copper concentrate product. The bulk circuit cleaner tails are combined with the nickel scavenger rougher concentrate and reground ahead of nickel cleaner flotation. Three stages of cleaner flotation are used to produce the nickel scavenger concentrate which is combined with the copper cleaner tailings to form the final nickel concentrate product. The final copper and nickel concentrates are thickened, filtered, and shipped in bulk to a smelter.

The nickel scavenger 1st cleaner tailings combine with the nickel scavenger tailings as feed to the pyrrhotite flotation circuit. The rougher concentrate undergoes one stage of cleaning to generate the pyrrhotite rich tailings to be pumped for disposal in the CDA. Non-pyrrhotite tailings, consisting of the nickel scavenger tailings and the nickel scavenger 1st cleaner tailings, are thickened, and pumped to the tailings management facility.

1.11 Infrastructure

The overall Shakespeare Project site plan is shown in Figure 1-1.

The Shakespeare Project will include the construction of a new 4,500 tpd process plant together with a Co-Disposal Area (CDA) for combined waste rock and tailings storage, administration buildings, power substation and associated site roads. The process plant will be within a short haul distance of the mine and enroute to the CDA.

Waste rock mined during early development of the mine will be used as rockfill to construct earth berms in the CDA as well as the base to the process plant area terrace.

Power will be supplied to the site with a newly constructed power line from the existing transformer station located at Espanola near Sudbury. Where the powerline is required to cross Agnew Lake, this will be by means of a submerged cable.

No camp facilities are required due to the project's close proximity to the neighbouring towns and the city of Sudbury.

The mine waste rock and tailings produced can be stored in the CDA without the need for amending the current approved closure plan provided that the later years PAG mine rock and pyrrhotite tailings are diverted to the mined out West Pit and co-mingling of NAG mine rock and flotation tailings is implemented in the later years of the project.

The CDA internal berms and toe stabilization platform within the valley are provided to enhance stability of the NAG waste pile slope where it abuts the valley to conserve space for PAG waste disposal and flooding. The perimeter access road will be used to direct runoff into the basin and provide a stable area to run the pyrrhotite tailings pipeline along.

According to the site-wide water balance modelling results, surface runoff collection within the Shakespeare project footprint can meet the water demand for the project without the need to withdraw water from natural water bodies or aquifers through groundwater wells. Not withstanding the aforementioned, small freshwater for reagent preparation and domestic consumption is required. Even during dry years (i.e., annual precipitation below average), modelling shows that there is a net water surplus at the site that needs to be discharged to the receiving environment after treatment. In order to mitigate the seasonal water availability fluctuations, on site water storage is required in order to have sufficient water available for make-up water to supply the facility during the winter months. Various insulated and heat traced pipelines as well as overhead electrical lines traverse the site to deliver raw and treated water and electrical power to various locations.

1.12 Environmental

The Shakespeare project is well advanced in its permitting owing to it status as a past producer. The mine operated in compliance with its existing permits and regulations and continues to maintain compliance through care and maintenance. Magna maintains an environmental management system (EMS) for the Project. The EMS is a tool that has been implemented to identify and manage environmental risks and compliance obligations for the Property.

A number of operational permits are in the process of being amended to allow for the next stage of the project and permitting is expected to take 12-18 months. Magna can commence construction for Project components in accordance with the filed (approved) Closure plan.

No biological values (i.e. species at risk, ecologically significant features, regionally significant wetlands, significant wildlife habitat feature, etc.) or environmentally sensitive areas that would preclude the development of the Project have been identified to date. Archaeological assessment work by Horizon Archaeology (2005) and consultation to date with Sagamok First Nation has not identified any areas with a high potential to host cultural heritage values in the vicinity of the Project.

Consultation with the local communities was undertaken as part of the permitting process and will continue as the Project evolves. This will include meeting with the municipal and provincial government as well as other interested stakeholders and specific planned activities and permitting requirements.

Consultation to date with First Nations has not identified the presence of cultural heritage values that would be affected by the Project. A 2009 agreement provides a framework within which Magna and Sagamok First Nation will continue to work together during future phases of the Project.

1.13 Markets

The Shakespeare Project will produce two products for sale to the world market; a nickel concentrate and copper concentrate.

A review of various options for the sale of the nickel concentrate was completed and two scenarios were considered for the financial analysis with the selected case being the variable terms. The variable terms included increase payables for nickel should the price be above a certain threshold, but reduced PGE payables compared to the fixed term sheet. For the Feasibility financial analysis, the variable terms were used. The terms provided to Magna for the Feasibility are indicative based on the market review completed and will be further negotiated as the project advances to a construction decision.

The Shakespeare Project produces an above average grade copper concentrate of 29% copper with minor amounts of nickel, cobalt, platinum, palladium. The terms and conditions are consistent with standard industry practices with consideration for smelting, refining and transportation. The terms applied have the only payable for the copper concentrate as copper. All other metals present in the concentrate did not meet the thresholds for payability. No penalties are applied to the concentrate as the concentrate is free of those.

1.14 Capital and Operating Costs

The life of mine capital costs over the 7.1 year mine life are estimated to be $242 million. Currency is in Canadian dollars unless otherwise noted. The initial capital costs are primarily associated with the capitalized mine pre-stripping, mine equipment purchasing, process plant, co-disposal area development and environmental permitting. Sustaining capital is primarily closure costs and some mining equipment purchases. The capital costs are summarized in Table 1-5.

Table 1-5: Shakespeare Project Capital Cost Estimate

Area	Initial ($M)	Sustaining ($M)	Total ($M)
Open Pit Mining	58.7	2.6	61.4
Preproduction Stripping	48.8	-	48.8
Open Pit Capital	9.9	2.6	12.6
Processing	63.5	1.3	64.8
Infrastructure	59.3	-	59.3
Environmental/Closure	1.8	5.2	7.0
Subtotal	**183.4**	**9.1**	**192.5**
Indirects	29.9	-	29.9
Contingency	19.6	0.1	19.7
Total	**232.9**	**9.2**	**242.1**

The total operating cost for the Shakespeare Project is $41.18 /t processed.

The open pit mining cost is based on an owner operated fleet with financing to lower the initial capital costs. The cost of financing is included in the operating cost for the mine. The mine operating cost is based on vendor quotations for consumables and maintenance parts with owner maintenance. The mine operating cost is estimated at $3.98/t mined or $20.53/t milled.

The process operating cost is based on the forecast consumable and material costs from vendor quotations. The cost is estimated to be $15.14/t milled.

A camp setting is not required for the project due to its proximity to Sudbury and the surrounding towns. The G&A cost considers all site overhead and labour but does not consider corporate expenses. The estimated cost is $2.98/t milled.

Three other costs have been included in the operating cost: transport and refining, carbon offsets and royalties.

The transport and refining cost covers those charges to deliver the concentrate to the appropriate smelters and any additional refining costs not included in the term sheets.

The carbon offsets are purchases of credits to offset the forecast GHG emissions. This enables the Shakespeare mine to provide carbon neutral metals in concentrate to the smelters.

There are two royalties payable during the mine operation. The cost for these has been included in the operating cost.

The operating costs are summarized in Table 1-6.

Table 1-6: Shakespeare Project Operating Cost Estimate

Area	Units	LOM Cost ($M)	$/tonne
Open Pit Mining	$/t mined		3.98
Open Pit Mining	$/t milled	243.7	20.53
Processing	$/t milled	179.7	15.14
General and Administrative	$/t milled	35.3	2.98
Transport & Refining Charges	$/t milled	9.2	0.78
Carbon Offset Purchases	$/t milled	3.1	0.26
Royalties	$/t milled	17.7	1.49
Total Operating Costs	**$/t milled**	**488.8**	**41.18**

1.15 Financial Analysis

A discounted cash flow model was prepared to complete the economic analysis. The economic analysis uses the Mineral Reserves and LOM plan presented in this report and confirms the outcome is positive cash flow that supports the statement of Mineral Reserves. The analysis was completed with the metal prices shown in Table 1-3.

The results indicate a post-tax NPV6% of $140 million, IRR of 21.5% and 3.5 year payback for the 7.1 year mine life.

Taxation included in the analysis reflects the current Ontario and Federal legislation. Life of mine taxes total $113 million and represent 33% of the pre-tax cash flow.

Royalty payments are included for several royalties with estimated payments for the life of the mine totaling $18 million.

The Shakespeare Project is most sensitive to exchange rate, followed by metal price, operating cost and then capital costs. This is shown in Table 1-8.

Table 1-7: Shakespeare Project – Discounted Cashflow Financial Summary

Parameter		Units	Pre-Tax	Post-Tax
Nickel Price		$US/lb	8.50	
Copper Price		$US/lb	3.95	
Cobalt Price		$US/lb	24.00	
Platinum Price		$US/oz	950	
Palladium Price		$US/oz	1,750	
Gold Price		$US/oz	1,600	
Exchange Rate		$US:$CDN	0.77	
Economic Indicators				
Net Present Value (6%)		$M	221	140
Internal Rate of Return (IRR)		%	27.2	21.5
Net Revenue		$M	1,078	1,078
Total Operating Cost (including Royalties)		$M	489	489
Life of Mine Capital Cost		$ M	242	242
Net Taxes		$ M	-	113
Net Cash Flow		$ M	347	234
Nickel Cash Cost		$US/lb Ni	8.00	9.85
Nickel Cash Cost (including by-product credits)		$US/lb Ni	(0.76)	1.10
Nickel All-in Sustaining Cost (AISC)		$US/lb Ni	8.15	8.15
Nickel AISC (including by-product credits)		$US/lb Ni	(0.61)	(0.61)
Mine Life		Years	7.1	
Operating Costs				
		$ M	**$/t Ore Milled**	**$/t Ore Mined**
Open Pit Mining		243.7	20.53	3.98
Processing		179.7	15.14	
G & A		35.3	2.98	
Transport and Refining Charges		9.2	0.78	
Carbon Offset Purchases		3.1	0.26	
Royalties		17.7	1.49	
Total		**488.8**	**41.18**	
Capital Costs				
Initial Capital		$ M	233	
Sustaining Capital		$ M	9	
Total Capital		$ M	242	
Production Summary - Metals				
Metal	**Mill Feed Contained Metal (M lbs, K oz)**	**Recovery (%)**	**Concentrate Contained Metal (M lbs, K oz)**	
Nickel	85.6	76.8	65.7	
Copper	91.1	95.1	86.7	
Cobalt	5.4	55.9	3.0	
Platinum	122	76.2	93	
Palladium	136	42.9	58	
Gold	69	38.3	26	

Table 1-8: After-Tax Sensitivity

Variance	Operating Cost NPV (6%) $M	Capital Cost NPV (6%) $M	Exchange Rate		Nickel Price	
			($US:$CDN)	NPV (6%) $M	$US/lb.	NPV (6%) $M
-20 %	191	176	0.62	277	6.80	73
-10 %	165	158	0.69	205	7.65	106
Base	**140**	**140**	**0.77**	**140**	**$8.50**	**140**
10 %	113	121	0.85	84	9.35	172
20%	87	103	0.92	43	10.20	200

1.16 Conclusions

Based on the evaluation of the data available and the design work completed, the Qualified Persons (QPs) confirm there are no known factors related to, environmental, permitting, legal, title, taxation, socio-economic, marketing, or political issues which could materially affect the Mineral Resource or Reserve estimates.

1.16.1 Geology and Exploration

The Shakespeare copper-nickel deposit is hosted within gabbroic rocks of the Nipissing Intrusive Suites. The intrusion hosting the deposit is comprised of semi-massive to disseminated sulfides including pyrrhotite, chalcopyrite, pentlandite, and lesser pyrite. The sulfides are broadly categorized into three groups; disseminated, heavily disseminated and blebby.

The total strike length of Shakespeare mineralization is approximately 1,700 m and the mineralization extends to a depth of ~550m (open at depth). The deposit is subdivided into a West and East resource zone.

The current Mineral Resource Estimate for the Shakespeare deposit includes an open pit and an underground Mineral Resource (estimated from the bottom of the current pit design).

Highlights of the Shakespeare deposit Mineral Resource Estimate are as follows:

- The open pit Mineral Resource includes, at a base case cut-off grade of 0.2% NiEq, 16,508,000 tonnes grading 0.34% Ni, 0.36% Cu, 0.02% Co, 0.33 g/t Pt, 0.36 g/t Pd and 0.19 g/t Au in the Indicated category.
- The underground Mineral Resource includes, at a base case cut-off grade of 0.4% NiEq, 3,832,000 tonnes grading 0.31% Ni, 0.36% Cu, 0.02% Co, 0.30 g/t Pt, 0.32 g/t Pd and 0.19 g/t Au in the Indicated category, and 2,355,000 tonnes grading 0.33% Ni, 0.40% Cu, 0.02% Co, 0.34 g/t Pt, 0.37 g/t Pd and 0.20 g/t Au in the Inferred category.

Areas of uncertainty that may affect the mineral resource estimates include mining cost assumptions, metal prices, process recoveries and changes to the geological model.

1.16.2 Mining

The FS LOM plan is based upon Probable Mineral Reserves of 11.8 Mt with a nickel grade of 0.33%, copper grade 0.35%, cobalt grade of 0.02%, platinum grade of 0.32 g/t, palladium grade of 0.36 g/t and gold grade of 0.18 g/t. Waste to be moved totals 59.1 Mt for an overall strip ratio of 4.98:1 (waste: ore). Mining of the deposit occurs in four phases over a 7.1 year mine life after a year of prestripping for a total mine life of 8.1 years.

The fleet will be comprised of two 165 mm down the hole drills, one 13 m3 front end loader and one 7.6 m3 hydraulic excavator. The truck fleet will total 9 trucks in Year 1 and rise to 12 trucks from Year 3 onwards. The usual assortment of dozers, graders, small backhoes, and other support equipment is considered in the equipment costing. A smaller front end loader (7.8 m3) will be stationed at the primary crusher.

The waste dumps are located at the Co-Disposal Area (CDA) where NAG and PAG rock will be comingled with the tailings. From Year 4 onwards, PAG mine rock and pyrrhotite tailings will be placed in the West pit for storage while NAG mine rock will go to the CDA.

1.16.3 Metallurgy and Processing

The metallurgical recoveries used are to a level sufficient to support Mineral Reserves declaration.

The processing plant for the Shakespeare project is designed as a conventional crush/grind/float operating with a throughput of 4,500 tpd. This plant and proposed flowsheet will be able to produce both a nickel and copper concentrate.

1.16.4 Infrastructure

The existing and planned infrastructure, availability of staff, power water and the requirements to establish such, are understood by Magna.

1.16.5 Costs and Financial Model

Detailed capital and operating cost estimates developed includes initial capital requirements of the open pit mine, plant, co-disposal area, environmental permitting. Sustaining capital needs for the open pits, process plant, infrastructure, and reclamation and closure costs have also been estimated.

The economic analysis, including taxation, shows the Shakespeare Project has positive economics and technical merit.

1.17 Recommendations

Based on the results of the Shakespeare Feasibility, the QP's recommend that the project is ready for basic engineering leading to a construction decision by Magna Mining should market conditions permit.

The following recommendations and associated budgets are provided by the QP's to advance the project forward. The estimated costs have been tabulated in Table 1-9.

Table 1-9: Estimate of Recommended Basic Engineering Budgets

Area of Study	Approximate Cost ($Cdn)
Geology	$2,277,000
Mining	$150,000
Metallurgy	$500,000
Processing	$1,150,000
Infrastructure	$1,215,000
Environmental	$320,000
TOTAL	**$5,612,000**

2 INTRODUCTION

2.1 Issuer and Purpose

Magna Mining retained independent industry consultants to prepare a Feasibility Study on their Shakespeare Project located approximately 70 km west-southwest of Sudbury, Ontario, Canada.

The preparation of the Report is led by AGP Mining Consultants Inc. (AGP) but includes contributions by SGS Canada – Geological Services (SGS), XPS Consulting and Testwork Services (XPS), Blue Coast Research (Blue Coast), SLR Consulting (SLR) and Halyard.

This Technical Report was prepared in compliance with National Instrument 43–101 Standards of Disclosure for Mineral Projects (NI 43–101) and summarizes the results of the estimation of mineral resources and mineral reserves on the Shakespeare.

Unless specified, all measurements in this Report use the metric system and the Report currency is expressed in Canadian dollars.

The study includes the current mineral resource and mineral reserve estimates. Key aspects included in the study are further advancement on metallurgical testwork, pit design, mine schedule, updated costs, and financial model. The findings and conclusions are based on information available at the time of preparation and data supplied by other consultants as indicated Qualified Persons.

The Qualified Persons (QPs), as that term is defined in NI 43–101, responsible for the preparation of the Report include:

- Allan Armitage, Ph.D., P.Geo., Senior Resource Geologist (SGS)
- Gordon Marrs, P.Eng., Metallurgical Specialist (XPS)
- Gordon Zurowski, P.Eng., Principal Mine Engineer (AGP)
- Lyn Jones, P.Eng., Manager Process Engineering (Blue Coast)
- Justin Taylor, P.Eng., Director, Senior Project Manager (Halyard)
- David Ritchie, P. Eng., Principal Geotechnical Engineer (SLR)

Table 2-1 provides a summary listing of the QPs who have contributed to the preparation and content of this Technical Report.

Table 2-1: Shakespeare Project Technical Report Qualified Persons and Areas of Responsibility

Name	Professional Designation	Title	Responsible for Sections
Mr. Allan Armitage	Ph.D., P.Geo	Senior Resource Geologist SGS Canada Inc.	Sections 1.2 – 1.6, 4 to 12, 14, 23, 25.1, 26.1, 27
Mr. Gordon Marrs	P.Eng.	Metallurgical Specialist XPS Consulting & Testwork Services	Sections 1.7, 13, 26.3
Mr. Gordon Zurowski	P.Eng.	Principal Mine Engineer AGP Mining Consultants Inc.	Sections 1.1, 1.8, 1.9, 1.11 - 1.17, 2, 3, 15, 16, 18.6, 19, 20, 21.1,21.2.1, 21.2.5, 21.3.1, 21.3.2, 21.3.4 – 21.3.7, 22, 24,25.2, 25.5, 25.6, 25.7, 26.2, 26.6
Mr. Lyn Jones	P.Eng.	Manager Process Engineering Blue Coast Research Inc.	Section 1.10, 17, 21.3.3, 25.3, 26.4.1
Mr. Justin Taylor	P.Eng.	Director, Senior Project Manager Halyard Inc.	Sections 18.1- 18.3 and 21.2.2, 21.2.3, 21.2.4, 21.2.6, 25.4, 26.4.2, 26.5.2
Mr. David Ritchie	P. Eng.	Principal Geotechnical Engineer SLR Consulting (Canada) Ltd.	Section 18.4, 18.5, and 26.5.1

2.2 Site Visits and Scope of Personal Inspection

2.2.1 Geology

Mr. Armitage personally inspected the Property on July 30, 2018, accompanied by Jonathan O'Callaghan, consulting Project Geologist for Magna. Mr. Armitage examined several core holes and drill logs. Mr. Armitage completed a tour of the Property including the open pit, drill sites, office, and core storage facilities. At the time of the visit, there was no active exploration or mining activities on the Property and Magna had completed no exploration on the Property to date.

Mr. Armitage conducted a second site visit on November 28 and 29, 2018 accompanied by Marshall Hall, Project Geologist for Magna; Magna was in the process of completing a drill program. Mr. Armitage inspected the camp, drill, and recent drill sites in the field as well as core security in the field. Mr. Armitage also inspected the offices, core logging facilities (located in Sudbury) and reviewed the logging and sampling procedures and core sample security. Mr. Armitage examined several recent core holes and accompanying drill logs and assay certificates; assays were examined against drill core mineralized zones.

Mr. Marc-Antoine Laporte ("Laporte") conducted a control site visit on November 11, 2020 accompanied by Marshall Hall. The main purpose of the site visit by Mr. Laporte was to confirm the current status of the project area and confirm that limited exploration work was carried out on the Property since the last site visit by Mr. Armitage and the last drill program in 2018. Mr. Laporte inspected the camp and recent trench sample sites in the field as well as core logging facilities (located in Sudbury). Only minor surface work (one trench and prospecting work) was done on the project site since Mr. Armitage's last visit in 2018. No other recent groundwork has been completed on the Project as determined by lack of fresh disturbance as would be expected by drilling, trenching, bulk sampling, or mining. The open pit is currently full of water.

Mr. Armitage conducted a third site visit on July 26 and 27, 2021 accompanied by Jason Jessup, CEO & Director of Magna, and Marshall Hall, Exploration Manager for Magna; at the time of the site visit, Magna was conducting their planned 9,000 m, Phase I drilling program. Although a number of drill holes had been completed before the site visit, assay data was only available for the first two holes, MMC-21-14, and MMC-21-15. Mr. Armitage inspected the drill and recent drill sites in the field as well as core security in the field. Mr. Armitage also inspected the offices, core logging facilities (located in Sudbury) and reviewed the logging and sampling procedures and core sample security. Mr. Armitage examined several recent core holes and accompanying drill logs and assay certificates; assays were examined against drill core mineralized zones.

2.2.2 Mining

Mr. Zurowski conducted a site visit to the Property on July 26th, 2021. The Project site was inspected for 1 day during the site visit.

While on site, Mr. Zurowski reviewed drill core from the pit area, visited the pit area and proposed infrastructure locations including the Co-disposal area, proposed plant and stockpile locations, site access road and nearby gravel and sand quarry.

2.2.3 Metallurgy

Mr. Marrs conducted a site visit to the Property on July 26th, 2021. The Project site was inspected 1 day during the site visit.

While on site, Mr. Marrs acquainted himself with the potential site for the processing facility and tailings facility for the purposes of confirming process options.

2.2.4 Processing

Mr. Lyn Jones did not conduct a site visit to the property.

2.2.5 Infrastructure

Mr. Ritchie completed a site visit to the Property on October 24, 2018. The Project site was inspected for 1 day during the site visit.

The other Infrastructure QP, Mr. Justin Taylor, did not conduct a site visit to the property. Two employees of Halyard, Mr. Dion Deetlefs and Mr. Louis Venter, under the direction supervision of Mr. Taylor visited the site on July 26th, 2021 to acquaint themselves with the plant and infrastructure locations for the purposes of study design work.

2.2.6 Summary of Site Visits

A summary of the site visits is shown in Table 2-2.

Table 2-2: Dates of Site Visits

Name	Site Visit	Dates
Allan Armitage, Ph.D., P. Geo	Yes	July 30, 2018 November 28-29, 2018 July 26-27, 2021
Gordon Marrs, P.Eng.	Yes	July 26, 2021
Gordon Zurowski, P. Eng.	Yes	July 26, 2021
Lyn Jones, P.Eng.	No	n/a
Justin Taylor, P.Eng.	No	n/a
David Ritchie, P.Eng.	Yes	October 24, 2018

2.3 Effective Dates

The effective date for the Mineral Resource Estimate for the Shakespeare Project is June 1, 2021.

The effective date for the Mineral Reserve Estimate for the Shakespeare Project is January 28, 2022.

The effective date of the Technical Report is January 31, 2022.

2.4 Information Sources and References

In preparing the Shakespeare Feasibility MRE, Mr. Armitage has utilized a digital database provided to SGS by Magna. Mr. Armitage has reviewed geological reports and miscellaneous technical papers, and other public information as listed in Section 27 (References). In addition, Mr. Armitage has reviewed news releases and Management's Discussions and Analysis ("MD&A") which are posted on SEDAR (www.sedar.com) under the previous owners' profiles, URSA Major Minerals Incorporated ("URSA Major") and Nickel Creek Platinum Corp. ("Nickel Creek").

SEDAR, "The System for Electronic Document Analysis and Retrieval", is a filing system developed for the Canadian Securities Administrators to:

- facilitate the electronic filing of securities information as required by Canadian Securities Administrator.
- allow for the public dissemination of Canadian securities information collected in the securities filing process; and
- provide electronic communication between electronic filers, agents, and the Canadian Securities Administrator

The Property's most recent Technical Report was prepared by SGS in 2021 and was titled "Mineral Resource Estimate Update for the Shakespeare Ni-Cu-PGE Sulphide Deposit, Shakespeare Project, Ontario, Canada" dated January 29, 2021. The report was authored by Mr. Armitage and Marc-Antoine Laporte for Magna Mining Corp.

The Property was also the subject of a Technical Report by SGS in 2019 and is presented in an internal Technical Report titled "2019 Mineral Resource Estimate Update for the Shakespeare Ni-Cu-PGE Sulphide Deposit, Shakespeare Project, Ontario, Canada" dated April 23, 2019. The report was prepared by Mr. Armitage for Magna Mining Corp.

The Property was the subject of a Technical Report by SGS in 2018 and is presented in an internal Technical Report titled "Technical Report on the Updated Mineral Resource Estimate for the Shakespeare Ni-Cu-Pge Deposit, Shakespeare Project, Ontario, Canada" dated September 25, 2018. The report was prepared by Mr. Armitage for Magna Mining Corp.

The Property was the subject of a Technical Report by Littlerock Consultants in 2014 and is presented in an internal Technical Report titled "2014 Mining Reserve / Mining Resource Technical Report, Shakespeare Mine Ontario, Canada" dated October 27, 2014. The report was completed for Wellgreen Platinum Ltd. ("Wellgreen") now Nickel Creek. However, the report was for internal use only. The resources/reserves were never released, and the report was not posted on SEDAR.

The Property was the subject of a technical report by Micon International Limited ("Micon") and is presented in a NI 43-101 Technical Report titled "An Updated Mineral Resource Estimate and Feasibility Study on the Shakespeare Deposit, Shakespeare Property, Near Espanola, Ontario" dated March, 2006. The report is filed on SEDAR under the profile of URSA Major.

The Authors have carefully reviewed all Property information and assumes that all information and technical documents reviewed and listed in the "References" are accurate and complete in all material aspects. Information regarding the property history, regional property geology, deposit type and metallurgical test work have been sourced from the previous technical reports and company filings on SEDAR and revised or updated as required.

Historical Mineral Resource figures contained in this report, including any underlying assumptions, parameters, and classifications, are quoted "as is" from the source.

AGP, SLR, Blue Coast, XPS, Halyard, and SGS have sourced information from reports and other reference documents as cited in the text and summarized in Section 27 of this Report. The sources for all figures and tables are cited as per the details in Table 2-3.

Table 2-3 Technical Report Table and Figure Sources

In-Text Source Citation	Description
SGS (2021)	Created by SGS for the Technical Report
AGP (2021)	Created by AGP for the Technical Report
SLR (2021)	Created by SLR for the Technical Report
XPS (2021)	Created by Equinox for the Technical Report
Halyard (2021)	Created by Halyard for the Technical Report
Blue Coast (2021)	Created by Blue Coast for the Technical Report
Other	All other figures and tables are cited using references in Section 27

2.5 Previous Technical Reports

Magna, or a predecessor to Magna, has filed the following historical Technical Reports for the Project as summarized in Table 2-4 below.

Table 2-4: Summary of Technical Reports on the Shakespeare Project

Technical Report Title	Company	Lead Author (Issuer)	Effective Date	Authors	In-text Reference
2019 Mineral Resource Estimate Update for the Shakespeare Ni-Cu-PGE Sulphide Deposit, Shakespeare Project, Ontario, Canada	SGS	Allan Armitage	Feb. 15, 2019	Allan Armitage, P.Geo.	Internal Technical Report
Technical Report on the Updated Mineral Resource Estimate for the Shakespeare Ni-Cu-PGE Deposit, Shakespeare Project, Ontario, Canada	SGS	Allan Armitage	Sep. 25, 2018	Allan Armitage, P. Geo.	Internal Technical Report
2014 Mining Reserve/Mining Resource Technical Report, Shakespeare Mine Ontario, Canada	Littlerock Consultants	M. Petrina	Oct. 27, 2014	M. Petrina, R. Bruggeman, G. Darling, J. Eggert, K. Masun, R. Melo, B. Ouellet	Internal Report
An Updated Mineral Resource Estimate and Feasibility Study on the Shakespeare Deposit, Shakespeare Property, Near Espanola, Ontario	Micon	B.T. Hennessey	March, 2006	B.T. Hennessey, E. Puritch, R. Gowans, L. Poulin, S. Aiken, D.P. Welch	Technical Report
Technical Report for the Shakespeare Property, Shakespeare Township, Ontario,	E.A. Kallio	E.A. Kallio	Dec 2, 2002	E.A. Kallio	Internal Technical Report

2.6 Units of Measure

This report uses the International System of Units (SI) including metric tonnes "t". Monetary units are expressed in Canadian Dollars ($) unless otherwise specified. Table 2-5 shows the Units of Measure used in this study.

Table 2-5: Units of Measure

Unit	Abbreviation	Unit	Abbreviation
Above mean sea level	amsl	Acre	ac
Ampere	A	Annum (year)	a
Billion	B	Billion tonnes	Bt
Cubic centimetre	cm^3	Cubic feet per minute	cfm
Cubic feet	ft^3	Cubic feet per second	ft^3/s
Cubic inch	in^3	Cubic metre	m^3
Cubic yard	yd^3	Coefficients of variation	CVs
Day	d	Days per week	d/wk
Days per year (annum)	d/a	Dead weight tonnes	DWT
Decibel	dB	Decibel adjusted	dBa
Degree	°	Degrees Celsius	°C
Diameter	Ø	Dollar (American)	US$
Dollar (Canadian)	C$	Dry metric ton	dmt
Foot	ft	Gallon	gal
Gallons per minute (US)	gpm	Gigajoule	GJ
Gigapascal	GPa	Gigawatt	g
Gram	g	Grams per litre	g/L
Grams per tonne	g/t	Greater than	>
Hectare (10,000 m^2)	ha	Hertz	Hz
Horsepower	hp	Hour	h
Hours per day	h/d	Hours per week	h/wk
Hours per year	h/a	Inch	"
Kilo (thousand)	k	Kilogram	kg
Kilograms per cubic metre	kg/m^3	Kilograms per hour	kg/h
Kilograms per square metre	kg/m^2	Kilometre	km
Kilometres per hour	km/h	Kilopascal	kPa
Kilotonne	kt	Kilovolt	kV
Kilovolt-ampere	kVA	Kilowatt	kW
Kilowatt hour	kWh	Kilowatt hours per tonne (metric ton)	kWh/t
Kilowatt hours per year	kWh/a	Less than	<
Litre	L	Litres per minute	L/min
Megabytes per second	Mb/sec	Megapascal	MPa
Megavolt-ampere	MVA	Megawatt	MW

Unit	Abbreviation
Metre	m
Metres below sea level	mbsl
Metres per second	m/s
Microns	ųm
Milligrams per litre	mg/L
Millimetre	mm
Million bank cubic metres	Mbm^3
Minute (plane angle)	‘
Month	mo
Pascal	Pa
Parts per billion	ppB
Pound(s)	lb(s)
Revolutions per minute	rpm
Second (time)	sec
Square centimetre	cm^2
Square inch	in^2
Square metre	m^2
Three dimensional	3D
Tonnes per day	t/d
Tonnes per year (annum)	t/a
Total	T
Week	wk
Wet metric ton	wmt

Unit	Abbreviation
Metres above sea level	masl
Metres per minute	m/min
Metric ton (tonne)	t
Milligram	mg
Millilitre	mL
Million	M
Million tonnes	Mt
Minute (time)	min
Ounce	oz
Parts per million	ppM
Percent	%
Pounds per square inch	psi
Second (plane angle)	“
Specific gravity	SG
Square foot	ft^2
Square kilometre	km^2
Thousand tonnes	kt
Tonne (1,000 kg)	t
Tonnes per hour	t/h
Tonnes seconds per hour metre cubed	ts/hm^3
Volt	V
Weight per weight	w/w

2.7 Terms of Reference (Abbreviations & Acronyms)

Table 2-6 shows Terms and Abbreviations used in this study. Table 2-7 shows the Conversions for Common Units.

Table 2-6: Terms of Reference

Unit	Abbreviation/Acronym
Absolute Relative Difference	ABRD
Acid Base Accounting	ABA
Acid Rock Drainage	ARD
ACME Analytical Laboratories Ltd	ACME
Advanced Mineral Technology Laboratory, Ltd.	AMTL
Albite Altered Diorite	ADT
AGP Mining Consultants Inc.	AGP
ALS Global	ALS
Annual Tax per Hectare	TAH
Atomic Absorption Spectrophotometer	AAS

Unit	Abbreviation/Acronym
Atomic Absorption	AA
Atomic Absorption Spectrometry	AAS
Canadian Institute of Mining, Metallurgy, and Petroleum	CIM
Carbon-in-Leach	CIL
Carbon-in-Pulp	CIP
Certified Reference Material	CRM
Closed-circuit Television	CCTV
Cobalt	Co
Coefficient of Variation	CV
Community Development Committee	CDC
Copper	Cu
Copper Equivalent	CuEq
Counter-current decantation	CCD
Cyanide Soluble	CN
Diamond Drilling	DD
Digital Elevation Model	DEM
Direct Leach	DL
Distributed Control System	DCS
Drilling and Blasting	D&B
Electro Magnitudes	EM
Environmental Impact Assessment	EIA
Environmental Management System	EMS
Feldspar Quartz Diorite	FQD
Flocculant	floc
Frequency Domain Electromagnetics	EM
Gabbro intrusive rocks	GBB
Gemcom International Inc.	Gemcom
General and Administration	G&A
Global Positioning System	GPS
Gold	Au
Gold Equivalent	AuEq
Heating, Ventilating, and Air Conditioning	HVAC
High Pressure Grinding Rolls	HPGR
Indicator Kriging	IK
Induced Polarization	IP
Inductively Coupled Plasma	ICP
Inductively Coupled Plasma Atomic Emission Spectroscopy	ICP-AES
Industrial Air Services	SAI
Internal Rate of Return	IRR
International Congress on Large Dams	ICOLD
Inverse Distance	ID

Unit	Abbreviation/Acronym
Inverse Distance cubed	ID^3
Inverse Distance squared	ID^2
Joint Venture	JV
Land and Resource Management Plan	LRMP
Lerchs-Grossman	LG
Light Detection and Ranging	LiDAR
Life-of-Mine	LOM
Load-haul Dump	LHD
Locally Varying Anisotropy	LVA
Locked Cycle Tests	LCTs
Loss on Ignition	LOI
Metcon Research	Metcon
Metal Mining Effluent Regulations	MMER
Metavolcaniclastic rocks	MVC
Methyl Isobutyl Carbinol	MIBC
Metres East	mE
Metres West	mW
Metres North	mN
Metres South	mS
Mineral Deposits Research Unit	MDRU
Mineral Titles Online	MTO
Non-Acid Generating	NAG
National Instrument 43-101	NI 43-101
Nearest Neighbour	NN
Net Invoice Value	NIV
Net Present Value	NPV
Net Smelter Price	NSP
Net Smelter Return	NSR
Neutralization Potential	NP
Nickel	Ni
Nomos Laboratories	Nomos
Northwest Transmission Line	NTL
Official Community Plans	OCPs
Operator Interface Station	OIS
Ordinary Kriging	OK
Organic Carbon	org
Palladium	Pd
Platinum	Pt
Potassium Amyl Xanthate	PAX
Potentially Acid Generating	PAG
Predictive Ecosystem Mapping	PEM

Unit	Abbreviation/Acronym
Preg-robbing Index	PRI
Preliminary Assessment	PA
Preliminary Economic Assessment	PEA
Qualified Person	QP
Quality Assurance	QA
Quality Control	QC
Quality Assurance and Quality Control	QA/QC
Real Time Kinetic Global Positioning System	RTK GPS
Reduced Major Axis	RMA
Reverse Circulation	RC
Rhenium	Re
Rock Mass Rating	RMR
Rock Quality Designation	RQD
Run-of-Mine	ROM
SAG Mill/Ball Mill/Pebble Crushing	SABC
Semi-autogenous Grinding	SAG
Silver	Ag
Silver Equivalent	AgEq
SNC-Lavalin Inc.	SNC
Standards Council of Canada	SCC
Stanford University Geostatistical Software Library	GSLIB
Tailings Storage Facility	TSF
Terrestrial Ecosystem Mapping	TEM
Total Dissolved Solids	TDS
Total Suspended Solids	TSS
Tunnel Boring Machine	TBM
Ultramafic rocks	UMR
Underflow	U/F
Valued Ecosystem Components	VECs
Waste Rock Facility	WRF
Waste Storage Facility	WSF
Water Balance Model	WBM
Weak Acid Dissociable	WAD
Work Breakdown Structure	WBS
Workplace Hazardous Materials Information System	WHMIS
World Health Organization	WHO
X-ray Fluorescence Spectrometer	XRF

Table 2-7: Conversions for Common Units

Metric Unit	Imperial Measure
1 hectare	2.47 acres
1 metre	3.28 feet
1 kilometre	0.62 miles
1 gram	0.032 ounces (troy)
1 tonne	1.102 tons (short)
1 gram/tonne	0.029 ounces (troy)/ton (short)
1 tonne	2,204.62 pounds
Imperial Measure	**Metric Unit**
1 acre	0.4047 hectares
1 foot	0.3048 metres
1 mile	1.609 kilometres
1 ounce (troy)	31.1 grams
1 ton (short)	0.907 tonnes
1 ounce (troy)/ton (short)	34.28 grams/tonne
1 pound	0.00045 tonnes

3 RELIANCE ON OTHER EXPERTS

The QP's conclusions, opinions, and estimates contained herein are based on:

- information available at the time of preparation of this report
- assumptions, conditions, and qualifications as set forth in this report
- data, reports, and other information supplied by Magna and other third-party sources

3.1 Ownership, Mineral Tenure, and Surface Rights

Ownership information was provided by Magna, and this has been relied upon by the QP's who have not independently researched property title, mineral rights or overlying surface rights for the Project and express no opinion as to the ownership status of the Property.

The QP's have fully relied upon and disclaim responsibility for information derived from Magna staff and their legal experts. This information is used in Section 4 of the Report and in support of the Mineral Resource estimate in Section 14, Mining Reserves in Section 15 and the financial analysis in Section 22.

3.2 Environmental Liabilities and Permitting

Explanation of the Environmental Liabilities and Permitting information was provided by Blue Heron Environmental's Linda Byron for Section 20. AGP has relied upon this information and have not researched this information nor express an opinion as to the current status of the various permits and compliance.

3.3 Taxation

Magna provided guidance on applicable taxes, royalties, and other government levies or interests, applicable to revenue or income from Project. The QP's have fully relied upon and disclaim responsibility for taxation information derived from experts retained by Magna for this information.

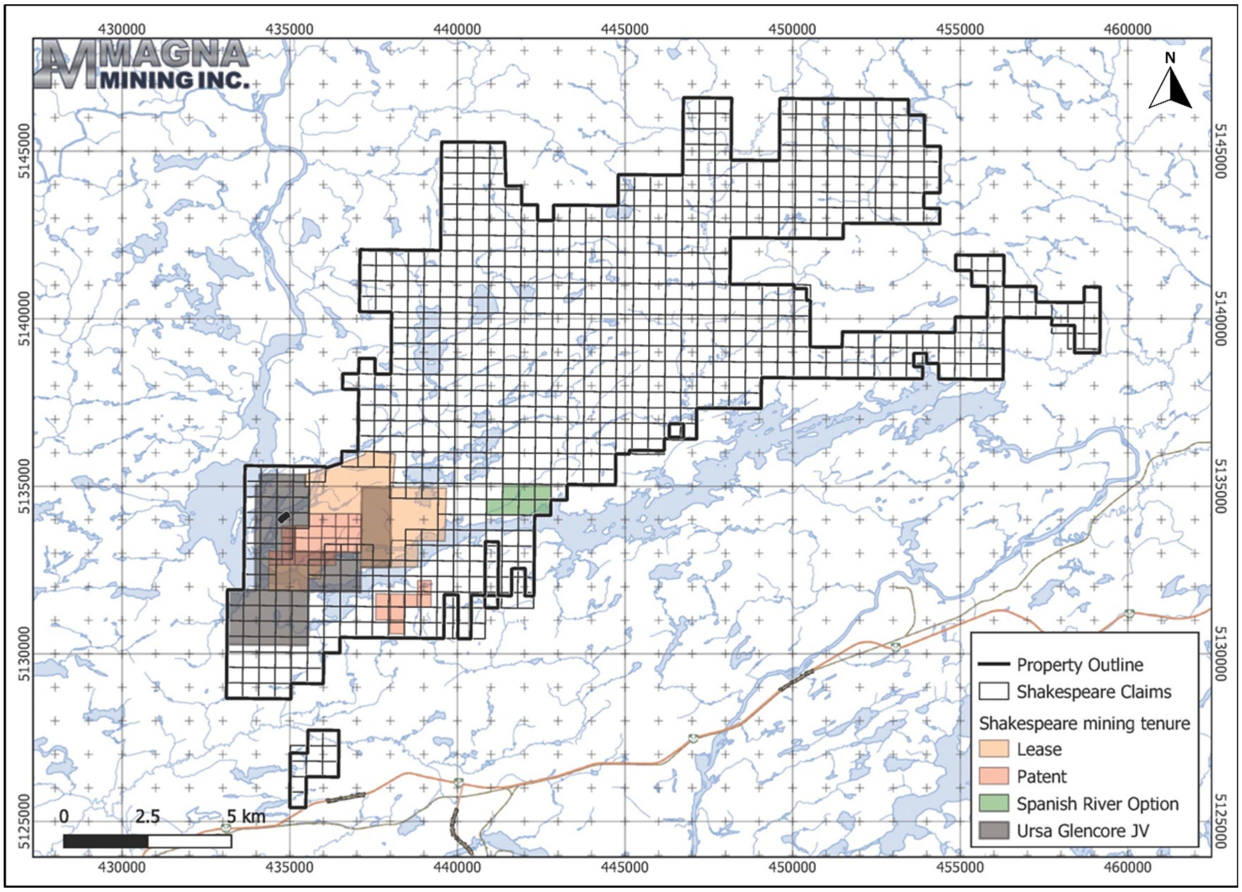
Magna provided the explanation for royalties on the project which are discussed in more detail in Section 4.3 of this technical report. The QP's have fully relied upon and disclaim responsibility for information derived from this information.

Except for the purposes legislated under provincial securities laws, any use of this report by any third party is at that party's sole risk.

4 PROPERTY DESCRIPTION AND LOCATION

The Property is located in Shakespeare Township, immediately north and east of Agnew Lake (Figure 4-1). The Property is approximately 70 km west-southwest of Sudbury, Ontario. The closest towns are Webbwood, which is 9 km southwest of the property, and Espanola, which is 11 km southeast. The Property is situated on N.T.S. 41I/5 near Latitude 46°21'00"N and Longitude 81°49'47"W.

Figure 4-1: Property Location Map and Land Tenure Map



4.1 Mineral Tenure

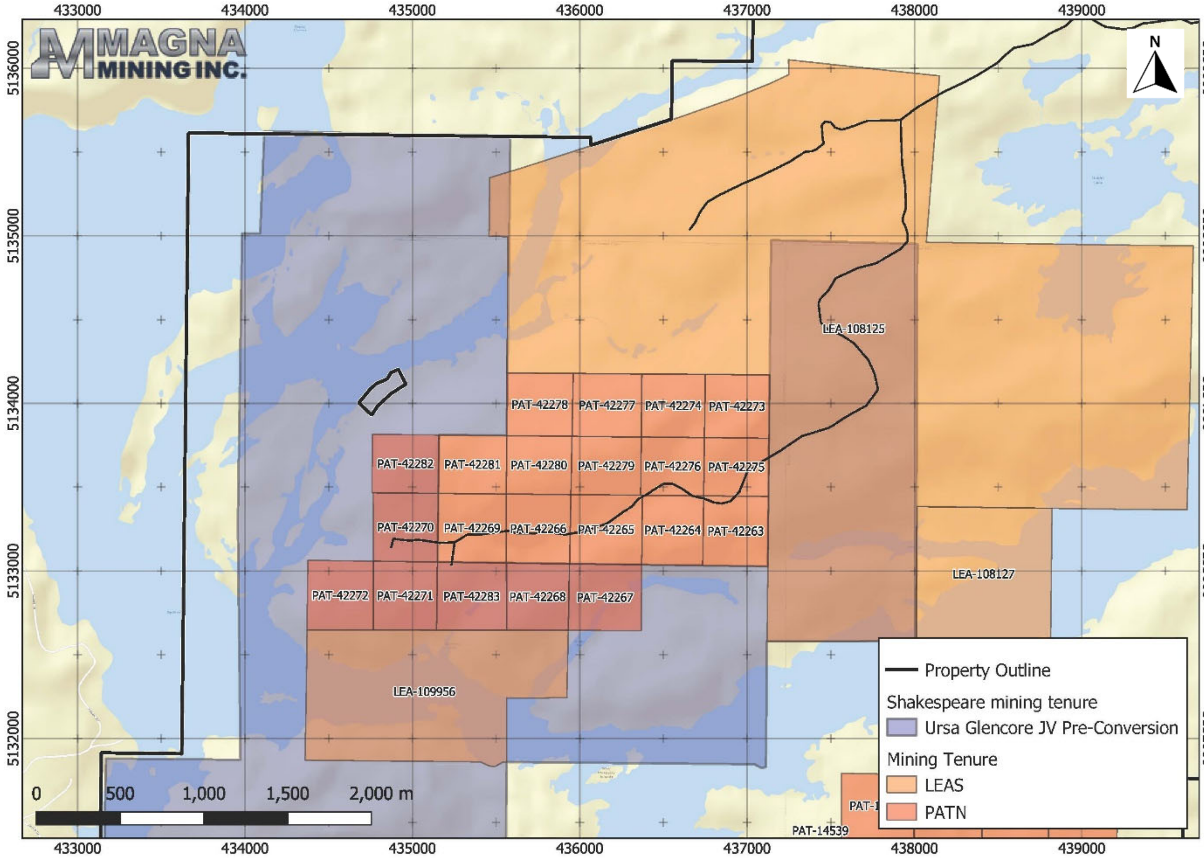
The Shakespeare project is currently comprised of 29 patented claims, 3 leased claims and 787 mining claims within Dunlop, Porter, Shakespeare, Hyman, and Baldwin Townships, and covers an area of 18,178 ha. Magna currently has a 100% interest in most of the Shakespeare project with 83.9% ownership of a joint venture on certain claims, leases, and patents surrounding the Shakespeare Project (Table 4-1; Figure 4-2) (Appendix A).

Over the course of 2021, Magna acquired 9 mining patents in Baldwin Township (Figure 4-1).

Table 4-1: Patents and Leases

MLAS Tenure	Township	Area (Ha)	MLAS POPULATED_NAME	%	Other Holder
LEA-107256	Shakespeare	112.66	URSA Major Minerals Incorporated	84.31	Glencore Canada Corporation
LEA-108125	Dunlop, Porter, Shakespeare, Baldwin	786.28	URSA Major Minerals Incorporated	84.31	Glencore Canada Corporation
LEA-108127	Baldwin	63.922	URSA Major Minerals Incorporated	100	
PAT-42263	Shakespeare	15.325	URSA Major Minerals Incorporated	100	
PAT-42264	Shakespeare	15.325	URSA Major Minerals Incorporated	100	
PAT-42265	Shakespeare	16.187	URSA Major Minerals Incorporated	100	
PAT-42266	Shakespeare	16.187	URSA Major Minerals Incorporated	100	
PAT-42267	Shakespeare	16.187	URSA Major Minerals Incorporated	100	
PAT-42268	Shakespeare	16.187	URSA Major Minerals Incorporated	84.31	Glencore Canada Corporation
PAT-42269	Shakespeare	16.187	URSA Major Minerals Incorporated	100	
PAT-42270	Shakespeare	16.187	URSA Major Minerals Incorporated	84.31	Glencore Canada Corporation
PAT-42271	Shakespeare	16.187	URSA Major Minerals Incorporated	84.31	Glencore Canada Corporation
PAT-42272	Shakespeare	16.187	URSA Major Minerals Incorporated	84.31	Glencore Canada Corporation
PAT-42273	Shakespeare	14.72	URSA Major Minerals Incorporated	100	
PAT-42274	Shakespeare	14.72	URSA Major Minerals Incorporated	100	
PAT-42275	Shakespeare	14.72	URSA Major Minerals Incorporated	100	
PAT-42276	Shakespeare	14.72	URSA Major Minerals Incorporated	100	
PAT-42277	Shakespeare	16.187	URSA Major Minerals Incorporated	100	
PAT-42278	Shakespeare	16.455	URSA Major Minerals Incorporated	100	
PAT-42279	Shakespeare	16.187	URSA Major Minerals Incorporated	100	
PAT-42280	Shakespeare	16.276	URSA Major Minerals Incorporated	100	
PAT-42281	Shakespeare	16.187	URSA Major Minerals Incorporated	100	
PAT-42282	Shakespeare	16.187	URSA Major Minerals Incorporated	84.31	Glencore Canada Corporation
PAT-42283	Shakespeare	16.187	URSA Major Minerals Incorporated	84.31	Glencore Canada Corporation
PAT-14534	Baldwin	16.83	URSA Major Minerals Incorporated	50	Government of Canada
PAT-14533	Baldwin	15.08	URSA Major Minerals Incorporated	50	Government of Canada
PAT-14535	Baldwin	15.29	URSA Major Minerals Incorporated	50	Government of Canada
PAT-14536	Baldwin	15.46	URSA Major Minerals Incorporated	50	Government of Canada
PAT-14537	Baldwin	16.56	URSA Major Minerals Incorporated	50	Government of Canada
PAT-14538	Baldwin	16.56	URSA Major Minerals Incorporated	50	Government of Canada
PAT-14539	Baldwin	17.12	URSA Major Minerals Incorporated	50	Government of Canada
PAT-14532	Baldwin	16.82	URSA Major Minerals Incorporated	50	Government of Canada
		1,425.27			

Figure 4-2: Shakespeare Property Land Tenure Map



4.2 Property Claim Status

The Shakespeare property was initially staked prior to 2018 under Ontario's ground-based claim staking process. On 10 April 2018, Ontario converted its manual system of ground and paper staking and maintaining unpatented mining claims to an online mining claim registration system known as the Mining Land Administration System (MLAS). All active, unpatented claims (legacy claims) were converted from their legally defined location by claim posts on the ground or by township survey to a cell-based provincial grid. The provincial grid is built on the latitude- and longitude-based National Topographic System (NTS) and is made up of more than 5.2 million cells each measuring 15 seconds latitude by 22.5 seconds longitude and ranging in size from 17.7 ha in the north to 24 ha in the south. Cells in the Property area are approximately 22 ha in size. Each cell has a unique identifier based on the cell's position in the grid.

Ontario mining claims are now legally defined by their cell position on the grid and UTM coordinate location in the online MLAS Map Viewer. Legacy claims were not cancelled but continue as one or more cell claims or boundary claims that resulted from conversion.

As defined in the Mining Act, a cell claim is a mining claim that relates to all the land included in one or more cells on the provincial grid that is open for mining claim registration. A cell claim is created as a new registration after 10 April 2018 or at conversion where there are one or more legacy claims in a cell, and all are held by the same holder. In this case, if there is more than one legacy claim in a cell, those claims will merge into one cell claim. A cell claim created from conversion can be a minimum of one cell (single cell mining claim or SCMC) though it can be amalgamated to form a multi-cell mining claim (MCMC) up to a maximum of 25 cells.

As defined in the Mining Act, a boundary claim is created at conversion when there are multiple legacy claims within a cell that cannot merge into a cell claim. There are two circumstances where mining claims will not merge into a cell claim:

- when the legacy claims are held by different holders
- when the legacy claims are held by the same person who chooses to keep them separate by making an election through the Claim Boundary Report process

Unpatented mining claims include no surface rights however a right to acquire the surface rights for development purposes exists through the Ontario Mining Act. The Mining Act also provides legal access to the land for the purpose of exploration.

Mining claims are generally subject to the following Crown reservations:

- the surface rights over a width of no more than 120 m from the high-water mark where a mining claim includes land covered with water or bordering on water
- where a highway or road constructed or maintained by the Ministry of Transportation crosses a mining claim, the surface rights over a width of no more than 90 m, measured from the outside limits of the right
- right of way of the highway or road along both sides of the highway or road
- sand and gravel reserved
- peat reserved

Certain mining claims also:

- are MRO or part MRO where all or part of the surface rights within the claim are held by a third party
- exclude hydro right of ways
- exclude withdrawn areas

Given the nature of Ontario's MLAS cell-based map staking system, certain cell claims overlap areas which are withdrawn from mineral exploration and development. Such cell claims are referred to as encumbered claims. Features that are an encumbrance on a cell claim include:

- land that is part of an Indian reserve
- provincial park or a conservation reserve
- mining leases except for surface rights only leases
- freehold patents except those for surface rights only
- licences of occupation
- designated protected area in a community-based land use plan under the Far North Act
- land withdrawn under the Mining Act from prospecting, registration of mining claim, sale, or lease for the following reasons:

- land included in a proposed Aboriginal land claim settlement
- land intended to be added to an Indian reserve
- land part of a provincial park, conservation reserve or forest reserve created under Ontario's Living
- Legacy Land Use Strategy
- land that meets the criteria for a site of Aboriginal Cultural Significance
- land designated as an area of provisional protection under the Far North Act

Where a cell or boundary claim overlaps a withdrawn area, the claim holder is only entitled to work on the claim area outside the withdrawn area.

Annual assessment work requirements per mining claim, to be filed on or before the claim due date (anniversary date), are:

- Single cell claim: $400 (unless a cell was encumbered at conversion)
- Multi-cell claim: $400 per cell (unless a cell was encumbered at conversion)
- Boundary claim: $200
- If a cell is encumbered at conversion, the assessment work requirement for a cell claim in that cell will be $200. This special rule applies only if the conversion process results in a claim holder having a cell claim in an encumbered cell. If that cell claim forfeits, the cell will be open for claim registration, subject to the encumbrance but any new cell claim registered for that cell will have the assessment work requirements set at the standard cell claim amount of $400.

4.3 Underlying Agreements

On February 8, 2017, Magna acquired a 100% interest in URSA Major Minerals Incorporated ("URSA Major") from Wellgreen. Underlying acquired assets of URSA Major included various ownership interests in Ontario properties including the Shakespeare Mine, Shining Tree, Stumpy Bay, Porter, and Baldwin. As a corporate acquisition, Magna assumed all assets and liabilities of URSA Major, including the restricted cash supporting a Letter of Credit related to the mine reclamation provision for the Shakespeare property and all existing royalty agreements.

Pursuant to the acquisition, Wellgreen retained a 1.0% net smelter returns ("NSR") royalty interest on the Shakespeare property (100% of the 1.0% NSR can be purchased by Magna).

Parts of the Shakespeare Mine Property is subject to a 1.5% NSR in favour of Glencore.

Various exploration mineral claims that surround the Shakespeare Property are subject to an 84.31/16.1 joint venture between the Company and Glencore.

An option agreement is also in place for 7 claim cells referred to as the Spanish River Option. The option requires a total of $75,000 in cash payments, 100,000 shares issued, and $100,000 in exploration expenditures over 3 years to acquire 100% ownership of the property. At this point the property will be subject a 1.5% NSR with the option of purchasing 0.75% back for $1,000,000.

SGS is not aware of any other underlying agreements relevant to the Project.

4.4 Permits and Authorization

The Ontario Mining Act regulations require exploration plans and permits, with graduated requirements for early exploration activities of low to moderate impact undertaken on mining claims, mining leases and licences of occupation. Exploration plans and permits are not required on patented mining claims. The proposed work program by Magna includes diamond drilling to infill and expand current resources along strike. The proposed drilling by Magna for 2022 will be conducted on patented mining claims and therefore no permits are required.

An Impact Benefit Agreement with the Sagamok Anishnawbek is in place and the project has an approved Closure Plan for construction of an open pit mine, mineral processing plant and tailings storage facilities.

SGS is unaware of any other significant factors and risks that may affect access, title, or the right, or ability to perform the exploration work recommended for the Property.

4.4.1 Exploration Plans and Permits Required under the Mining Act

The Ontario Mining Act regulations require exploration plans and permits, with graduated requirements for early exploration activities of low to moderate impact undertaken on mining claims, mining leases and licences of occupation. Exploration plans and permits are not required on patented mining claims.

There are several exploration activities that do not require a plan or permit and may be conducted while waiting for a plan or permit is effective. These may include the following:

- prospecting activities such as grab/hand sampling, geochemical/soil sampling, geological mapping
- stripping/pitting/trenching below thresholds for permits
- transient geophysical surveys such as radiometric, magnetic
- other baseline data acquisition such as taking photos, measuring water quality, etc.

<u>Exploration Plan</u>

Those proposing to undertake minimal to low impact exploration plan activities (early exploration proponents) must submit an exploration plan. Early exploration activities requiring an exploration plan include:

- geophysical activity requiring a power generator
- line cutting, where the width of the line is 1.5 m or less
- mechanised drilling for the purposes of obtaining rock or mineral samples, where the weight of the drill is 150 kg or less
- mechanised surface stripping (overburden removal), where the total combined surface area stripped is less than 100 m^2 within a 200 m radius
- pitting and trenching (of rock), where the total volume of rock is between 1 m^3 and 3 m^3 within a 200 m radius.

To undertake the above early exploration activities, an exploration plan must be submitted, and any surface rights owners must be notified. Aboriginal communities potentially affected by the exploration plan activities will be notified by the MNDM and have an opportunity to provide feedback before the proposed activities can be carried out.

Exploration Permit

Those proposing to undertake moderate impact exploration permit activities (early exploration proponents) must apply for an exploration permit. Early exploration activities that require an exploration permit include:

- line cutting, where the width of the line is more than 1.5 m
- mechanised drilling, for the purpose of obtaining rock or mineral samples, where the weight of the drill is greater than 150 kg
- mechanised surface stripping (overburden removal), where the total combined surface area stripped is greater than 100 m^2 and up to advanced exploration thresholds, within a 200 m radius
- pitting and trenching (rock), where the total volume of rock is greater than 3 m^3 and up to advanced exploration thresholds, within a 200 m radius.

The above activities will only be allowed to take place once the permit has been approved by the MNDM. Surface rights owners must be notified when applying for a permit. Aboriginal communities potentially affected by the exploration permit activities will be consulted and have an opportunity to provide comments and feedback before a decision is made on the permit.

4.5 Environmental Considerations

As far as SGS is aware, the environmental liabilities related to the Project, if any, are negligible. There is a financial assurance with the Ministry of Northern Development and Mines (Ontario) ("MNDM") in the form of a cash deposit as part of the Stage 1 Closure Plan.

5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE, AND PHYSIOGRAPHY

5.1 Accessibility

The Shakespeare Property is situated in Shakespeare Township on NTS 41I/5 near latitude 46°21'N and Longitude 81°50'W. It is ~10km north of the town of Webbwood and 70km west of Sudbury.

The access road to the site is from the northeast via a secondary road branching north from the Trans Canadian Highway # 17 approximately 7.5 km east of Nairn Centre. An existing decent quality logging road connects to the west side of the secondary road, approximately 13 km from Highway 17 and allows access to the property. For exploration purposes, the logging road does not require significant upgrading although minor brush clearing, and grading may be necessary from time to time. The property can also be accessed by boat from Agnew Lake, ~1km south of the Shakespeare deposit. In 2003 URSA Major constructed an exploration camp and access road from the Stumpy Bay/Agnew Lake shoreline. The camp facilities included a core logging shack, shipping container for mineralized sections and core storage racks.

5.2 Local Resources and Infrastructure

Power can be provided to the site by 44 kV overhead lines from the existing 115 kV grid lines located both north (4 km) and south (6.5 km) of the Shakespeare Deposit. Substations with 10 MVA capacity can be built at the connection with the grid (115 kV/44 kV) and at the end of the 44 kV line. This will provide sufficient energy to operate a processing plant (44 kV/4,160 V) and other future site facilities.

Commercial air service is available from Montréal or Toronto to Sudbury on a daily basis. The Property may also be serviced by road or by float plane from air bases located Sudbury. The site's proximity to Sudbury affords access to experienced staff and personnel with good mining and processing experience. Consumables for the mine and mill, including fuel, propane, and cement; are readily available.

5.3 Climate

Climate is typical of temperate continental conditions with moderately long, cold winters and shorter, warm summers. Winter temperatures may drop below minus 20º C for extended periods, and, in summer, maximum daily temperatures may exceed 25º C for extended periods. From December through March, daily mean temperatures typically are below 0º C. Precipitation is moderate. The wettest months are between May and October, but rainfall is generally distributed evenly through the year. Estimated average annual precipitation is 899 mm with 657 mm falling as rain and the balance (242 mm water equivalent) as snow. The climate is classified as 'Dfb' according to the Koppen-Geiger classification system.

Exploration on the Property can and has been conducted year round. However, seasonal variations can affect exploration to some extent in the region, i.e. geological mapping cannot be done in the winter, geophysics and drilling are best done at certain times of the year etc (May to October and January to

March), stripping and chip and channel sampling is don typically in late spring to early fall (May to September). The climate would not significantly hamper mining operations.

5.4 Physiography

The topography on the property is rugged with abrupt ridges and valleys. The elevation of land above sea level ranges from approximately 260 m (852 ft +/-) (level of Agnew Lake) to a maximum of 330 m (1082 ft +/-), on top of some of the highest quartzite hills in the area (averaging about 300 m above sea level). The average topographic relief is about 90 m and bedrock outcrops are common. Much of the general area is covered by timber resources which consist of second growth birch, poplar, oak, maple, jack pine and spruce.

The principal drainage channel is the Spanish River. The Spanish River and its tributaries drain a major part of the property. The part of the river near the property has been dammed for hydroelectric power generation and has resulted in the creation of Agnew Lake. Numerous private cottages and several commercial tourist operators are located on Agnew Lake.

6 HISTORY

The exploration history presented here has been presented in previous technical reports on the Property and recently summarized by Jon O'Callaghan, Consulting Geologist for Magna (internal report).

6.1 Historical Exploration

In 1941, Frobisher Exploration staked the property and over the next several years carried out a plane table survey, geological mapping, and diamond drilling in the area of the west zone. Drill holes completed in 1942 included twelve short holes totaling 819 m on the Shakespeare deposit. These holes ranged in length from 12 to 136 m. Drill holes completed in 1948 included three holes totaling 1,360 m. These holes, number 13, 14 and 15 were drilled to depths of 320, 568 and 472 m, respectively.

In 1947, Falconbridge Nickel Mines Limited ("Falconbridge") (now Glencore) acquired the claims from Frobisher Exploration, and commenced a program designed to more thoroughly explore and to provide more detailed information with respect to the Shakespeare West mineral deposit, including the possibility of enrichment with depth.

Drilling in 1951 included twelve short holes, numbered 16 to 27, totaling 1,892 m. The length of the holes range from 91 to 192 m and were designed for the purpose of checking the width and grade of mineralization to a 152 m depth.

In 1985, sixteen holes totaling 1,030 m were drilled. These holes were drilled to test the near-surface resource and to evaluate the precious metal (Au, Pt and Pd) potential of the zone. Holes from the program were designed to provide coverage on 30.5 m (100-foot) centres across the Shakespeare deposit at depths less than 30.5 m from surface.

In 1986, four holes totaling 1,617 m were drilled to test the deposit at depth and along strike to the southwest. Two of the holes were drilled on 2900W, one on 2300W and the other on 1800 W. All of the holes were drilled to total depths of 355 to 457 m and designed to test the deposit at a depth below surface of approximately 152 m.

Results of the historic diamond drill data indicated a continuous zone of sulphide and precious metal mineralization extending over a total strike length of 549 m to a depth of approximately 76 m with very few holes testing below the 250-foot (76 m) level. This is now part of the west mineral zone at Shakespeare. The Centre of the zone is usually close to the baseline or slightly north of this and the dip variable, from shallow to steep north.

Possible explanations for the variability in dip are faulting or that the overall shape of the zone is arcuate with a slight curve to the north. If the zone is in fact arcuate in shape, then it is possible that the variations in dip observed on sections are simply a function of where the various drill holes intersected this.

The width of most intersections ranges between 23 and 38 m (75 and 125 feet), with the longest intersection of 79.6 m (261.8 feet) being recorded in 'hole 1' (Table 6-1) and the shortest of 0.9 m being in hole 85-4. The range of grades intersected for nickel was 0.09% to 0.49%, copper 0.09 to 0.61%, gold 0.11 to 0.30g/t, platinum 0.15 to 0.57g/t, and palladium 0.17 to 0.57g/t.

Ultimately Falconbridge concluded in 1986 that the project could not sufficiently meet the various economic parameters required to move the project forward. At that time, the Shakespeare West mineral deposit / advance prospect was sufficiently remote enough and difficult to reach, effectively discouraging any further efforts. It is important to highlight that this conclusion was made prior to the construction of logging roads and a haulage access road into the property and the discovery of the larger east mineral zone in 2002-2003.

Table 6-1: Results from Pre-2002 Diamond Drilling

Hole-ID	From (ft)	To (ft)	Interval (ft)	Wt Ni %	Wt Cu %	Wt Pt (g/t)	Wt Pd (g/t)	Wt Au (g/t)	Wt Co %
1			261.8	0.43	0.47				
2			103.5	0.38	0.41				
3			48	0.39	0.44				
4			90	0.09	0.09				
5			79	0.26	0.35				
6			50	0.27	0.34				
7			142.5	0.41	0.61				
8			95	0.26	0.26				
9			17	0.45	0.19				
10			43.5	0.36	0.39				
11			112.5	0.33	0.38				
12	**Missed the Zone**								
13			86.8	0.36	0.48				
14/15/16	**Missed the Zone**								
17			5	0.09					
18			5	0.24	0.09				
19			19.8	Trace	0.42				
20			16	0.38	0.33				
21			128	0.28	0.42				
22			112.2	0.21	0.30				
23			31.1	0.29	0.24				
24			4.1	0.23	0.19				
25			119.1	0.23	0.19				
26			125	0.35	0.42				
27			16	0.16	0.19				
85-1	113	128	15	0.33	0.35	0.35	0.43	0.25	
85-2	**Values All Low**								
85-3	24.5	126.5	102	0.39	0.38	0.44	0.50	0.25	
85-4	88	91	3	0.15	0.19				
85-5	43.5	110	66.5	0.36	0.41	0.41	0.50	0.28	
85-6	10	140	130	0.28	0.32	0.31	0.38	0.18	
85-7	55	145	90	0.28	0.32	0.34	0.34	0.18	
85-8	72	195		0.36	0.40	0.40	0.44	0.21	
85-9	53.5	156	102.5	0.43	0.43	0.45	0.48	0.23	
85-10	81	160	79	0.29	0.29	0.32	0.31	0.17	
85-11	39	123.5	84.5	0.39	0.42	0.36	0.44	0.22	
85-12	207	235.3	28.3	0.39	0.47	0.46	0.57	0.23	
85-13	104.5	228	123.5	0.49	0.56	0.57	0.56	0.30	
85-14	87.3	184	96.8	0.41	0.44	0.52	0.51	0.27	
85-15	237	252.5	15.5	0.22	0.18	0.15	0.17	0.11	
85-16	239.5	273	33.5	0.21	0.18	0.21	0.22	0.17	
F86-1	1181	1188	7	0.10	0.14				
F85-2	890	917.5	27.5	0.15	0.30	0.22	0.24	0.15	
F85-3	1180	1238	58	0.09	0.18				
F85-4	**Values All Low**								

No further work was performed on the Shakespeare property until 2000, when it was acquired by URSA Major, through a “Joint Venture” agreement with Falconbridge. Early work carried out by URSA Major in 2000 and 2001 had involved digital compilation, geological mapping, sampling, and some limited geophysical surveys. From 2002 through to the 2012 an extensive amount of diamond drilling was conducted on the Shakespeare property. In June of 2003, the company discovered the Shakespeare East mineral deposit. From there on, the company carried out an extensive amount of exploration work which included additional ground and bore hole geophysics, surface trenching, geotechnical mapping probing, feasibility and base line environmental studies, public consultations, and successful permitting. URSA Major carried out diamond drilling programs on the deposit from 2002-2006 and from 2010-2012.

6.1.1 2002-2003

The winter 2002/2003 exploration program consisted of diamond drilling on the discovery at the East Zone and early-stage geophysical programs on adjacent claims controlled 100% by URSA Major. The geophysical program was conducted on the along-strike continuation of the lithologies hosting the Shakespeare deposit. Most holes were drilled from south to north across the projected dip of the zone at angles of between -50 to -65 degrees. Drill collars were spotted relative to the property grid which had been re-cut in 2000 by URSA Major along the same lines as the Falconbridge grid from 1985 and 1986.

Results from the diamond drilling to the south-west of Shakespeare that were designed to test under mineralized boulders discovered in 2001 were generally disappointing. Both holes intersected mainly barren gabbro and/or quartzite with no significant assays. However, results of the diamond drilling carried out east of the Shakespeare deposit were very good. Holes intersected several wide intervals of mineralization at distances of up to 1,400 feet beyond the east limit of the resource defined by Falconbridge in 1985. Typical widths of mineralization intersected were generally wider and grades for nickel and copper significantly higher than from past drilling at the original Shakespeare deposit. Grades for gold and platinum group elements were also marginally higher (Table 6-2).

Table 6-2: Results from 2002 Diamond Drilling

Hole-ID	From (ft)	To (ft)	Interval (ft)	Ni %	Cu %	Pt (g/t)	Pd (g/t)	Au (g/t)	Co %
UR-03-03	61.0	79.4	18.4	0.53	0.58	0.44	0.44	0.21	0.04
UR-03-04	103.3	396.1	292.8	0.57	0.64	0.56	0.61	0.32	0.04
including	186.0	351.4	165.4	0.63	0.71	0.62	0.66	0.34	0.04
UR-03-05	197.9	402.2	204.3	0.45	0.53	0.42	0.51	0.25	0.03
including	297.2	369.4	72.2	0.55	0.66	0.51	0.62	0.28	0.03
	499.7	538.3	38.6	0.60	0.40	0.31	0.29	0.17	0.04
	613.2	624.3	11.1	0.25	0.43	0.37	0.35	0.25	0.02
	665.0	720.9	55.9	0.32	0.29	0.24	0.25	0.16	0.02
UR-03-06	111.5	377.3	265.8	0.66	0.61	0.47	0.54	0.27	0.04
Including	111.5	262.5	151.0	0.73	0.66	0.54	0.64	0.30	0.04
	292.0	377.3	85.3	0.63	0.58	0.39	0.43	0.25	0.05
UR-03-07	181.9	436.0	254.1	0.39	0.54	0.44	0.54	0.26	0.03
UR-03-08	291.2	423.4	132.2	0.47	0.53	0.42	0.49	0.23	0.03
Including	291.2	347.8	56.6	0.54	0.58	0.49	0.50	0.25	0.03
UR-03-09	347.8	515.1	167.3	0.48	0.50	0.41	0.49	0.26	0.03
Including	360.9	416.7	55.8	0.55	0.56	0.42	0.49	0.25	0.03
	390.4	419.9	29.5	0.49	0.62	0.42	0.56	0.25	0.03
	439.6	498.7	59.1	0.52	0.55	0.48	0.58	0.33	0.03
	555.3	593.8	38.5	0.36	0.46	0.38	0.50	0.33	0.02

During the summer 2003 field season, after completion of the East Zone MRE, URSA Major commenced further exploration activity at the Shakespeare project consisting of a trenching and mapping program and further drilling. Channel sampling was conducted in areas of exposed outcrop or where stripping of thin soil and moss cover could expose sub-crop over the deposit. The sampling protocols were conducted in such a way that the samples were continuous and could be entered into the database as pseudo drill holes. The trenching concentrated on increasing knowledge over the East Zone and searching along strike to the east. The work created considerable new surface exposure on the mineralized structure and extended the area of interest to the southeast of the current East Zone Mineral Resource. URSA Major also completed a winter drill program at the Shakespeare property commencing in November 2002 and continuing to March 2003. This program concentrated on an area to the east of the Shakespeare deposit outlined by Falconbridge in work performed up to 1985. A total 3,263 m of drilling was completed in 18 holes. To the end of March 2003, a total of 4,758 m were drilled by URSA Major on the Shakespeare project.

Core recovery in all the drill holes was very good and estimated at 95% plus. The holes were drilled on five sections (1+00 E, 3+00 E, 5+00 E, 7+00 E and 9+00 E), each section being spaced approximately ~60 m apart.

The earlier 2002 program determined that the dip of the mineralization in the East Zone area was approximately 65° to grid north. All holes for the 2002/2003 winter program were drilled from grid north to south at an azimuth of 147° with dips ranging from -44° to -80°. This orientation resulted in intersections of the mineralized zone which approximated, as closely as possible, true width. Drill hole collar locations and dips were selected to intersect the zone with approximate 100 ft (30 m) down dip spacing. Holes were limited to less than 300 m length in order to outline near-surface mineralization that could potentially be amenable to open pit extraction. A total of 800 ft (~250 m) of strike length (1+00 E to 9+00 E) was drilled off.

Most holes intersected a wide interval of sulphide mineralization and collectively defined a single zone of blebby and net-textured to disseminated sulphide mineralization (Table 6-3). Typical widths of mineralized intersections reported are approximately 40 m and grades for nickel, copper and precious metals are higher than the average grade of the original Shakespeare deposit. The mineralization remains open on strike in both directions and open at depth.

The drilling program had shown the mineralization in the East Zone is contained within an approximately 80 m thick differentiated sill, here named the Shakespeare sill, which has intruded between quartzite in the northwest (hanging wall) and Nipissing gabbro in the southeast (footwall). From northwest to southeast the Shakespeare sill grades downward from biotite-quartz diorite to biotite-quartz gabbro, then mineralized gabbro and melagabbro and finally downward into non-mineralized gabbro. Magmatic sulphides in the mineralized zone progress downward from sporadically disseminated, to scattered multi-centimetre sized blebby composite pyrrhotite- chalcopyrite grains, to more evenly distributed, heavily-disseminated to locally net-textured magmatic sulphides. Strong mineralization starts at the contact between the quartz gabbro and the gabbro-melagabbro and persists through most of the melagabbro. Intrusive contacts and the mineralized zone dip north at 80º to 85º and become shallower (to 60°) with depth.

Table 6-3: Summary of Results, Winter 2002/2003 Drill Program

Hole-ID	From (ft)	To (ft)	Length (ft)	Length (m)	Ni %	Cu %	Co %	Pt (g/t)	Pd (g/t)	Au (g/t)
UR-03-10	274.01	419.32	145.31	44.30	0.41	0.41	0.02	0.37	0.46	0.27
UR-03-11	352.80	466.25	113.45	34.58	0.37	0.36	0.02	0.32	0.34	0.18
UR-03-12	461.69	623.20	161.51	49.23	0.47	0.52	0.03	0.43	0.47	0.24
UR-03-13	590.70	671.10	80.40	24.51	0.39	0.40	0.02	0.47	0.45	0.27
UR-03-14	116.30	180.40	64.10	19.54	0.45	0.50	0.03	0.46	0.47	0.23
UR-03-15	185.90	245.70	59.80	18.22	0.40	0.38	0.03	0.34	0.36	0.21
UR-03-16	233.40	369.80	136.40	41.58	0.50	0.52	0.03	0.47	0.50	0.27
UR-03-17	288.10	378.80	90.70	27.67	0.39	0.04	0.01	0.62	0.67	0.04
Including	302.60	330.30	27.40	8.35	0.65	0.03	0.02	0.87	0.91	0.04
UR-03-19	402.50	495.90	93.30	28.50	0.39	0.39	0.02	0.38	0.41	0.19
Including	465.40	495.90	30.50	9.30	0.56	0.56	0.03	0.59	0.62	0.26
UR-03-20	596.00	648.50	52.50	16.00	0.21	0.18	0.02	0.18	0.16	0.10
UR-03-21	427.10	498.60	71.50	21.80	0.50	0.55	0.04	0.54	0.53	0.31
UR-03-23	413.30	530.00	116.70	35.60	0.47	0.52	0.03	0.47	0.51	0.23
UR-03-24	554.30	618.00	63.70	19.40	0.47	0.49	0.04	0.48	0.52	0.33
UR-03-26	413.10	581.90	168.80	51.50	0.48	0.51	0.03	0.49	0.53	0.25
UR-03-27	519.20	649.20	130.0	39.60	0.43	0.43	0.02	0.46	0.52	0.24

6.1.2 2003-2004

During the summer, fall and early winter of 2003/2004 a program of additional diamond drilling was performed by URSA Major on the Shakespeare project. This work was carried out from May 21, 2003 through to February 12, 2004 with the primary goal of further expanding and defining the limits of the Shakespeare East Zone. Efforts were also directed to the West Zone including the drilling of several holes to correlate the old Falconbridge exploration data with the newly-generated data and model and to develop a better understanding of the geology, stratigraphy, mineralization, and the structural complexities known to occur within the area. Drilling completed totaled 6,274.63 m in 29 diamond drill holes (Table 6-4).

During this period 4,005.6 m in 15 diamond drill holes was drilled on the East Zone and 2,057.0 m in 13 diamond drill holes were completed on the original Falconbridge Shakespeare deposit (West Zone). Southeast of the Shakespeare mineral deposit area, one drill hole, 212.2 m in length was completed to explore the extent of Shakespeare-like sulphide mineralization that had been discovered during surface trenching work carried out in the summer of 2003.

The earlier 2002 drilling resulted in the understanding that the dip of the mineralized zone was approximately 65º to grid north. For the 2003/2004 diamond drilling program 26 of the 29 holes were drilled from grid north to south at an azimuth of 147º, while three of the 29 holes were drilled from grid south to north at an azimuth of 327º due to access constraints. The drill hole collar inclinations varied from -44 to -85 degrees from the horizontal. For holes drilled to grid south, this resulted in intersections of the mineralized zone which approximated true width. Drill hole inclinations were adjusted to intersect the zone with approximate 30 m down dip spacing. The depths of holes varied depending on collar locations relative to the local topography and estimated position of the sulphide mineralization. Consequently, the holes varied in depth from 89.69 m to a maximum of 363.00 m. The average depth of hole for the program was 216.37 m.

The holes were drilled on ten parallel sections where each section was separated by 200 feet (61 m). Core recovery within the various diamond drill holes was very good, typically in excess of 95%.

Table 6-4: Summary of Results, Winter 2003/2004 Drill Program

Hole-ID	From (m)	To (m)	Length (m)	Ni %	Cu %	Co %	Pt (g/t)	Pd (g/t)	Au (g/t)
UR-03-29	137.90	145.60	7.60	0.30	0.26	0.02	0.29	0.32	0.16
UR-03-30	177.70	235.00	57.30	0.42	0.44	0.03	0.40	0.47	0.25
Including	177.70	187.40	9.70	0.67	0.46	0.05	0.47	0.42	0.26
UR-03-31	200.60	250.00	49.40	0.39	0.46	0.03	0.38	0.43	0.24
UR-03-33	229.50	241.80	12.30	0.35	0.39	0.02	0.31	0.36	0.18
UR-03-34	6.40	28.00	21.70	0.40	0.49	0.03	0.44	0.46	0.23
and	56.70	64.50	6.80	0.41	0.51	0.02	0.41	0.46	0.23
UR-03-35	40.40	60.30	19.90	0.36	0.43	0.02	0.39	0.43	0.21
UR-03-36	76.00	97.20	21.20	0.35	0.41	0.02	0.37	0.41	0.20
UR-03-37				NSV	NSV	NSV	NSV	NSV	NSV
UR-03-38	58.10	65.10	7.00	0.31	0.30	0.02	0.27	0.35	0.16
UR-03-39	132.50	137.00	4.50	0.30	0.41	0.03	0.22	0.21	0.18
UR-03-40	49.69	77.55	27.86	0.60	0.50	0.03	0.54	0.58	0.25
UR-03-41	103.82	118.37	14.55	0.42	0.46	0.03	0.44	0.47	0.22
UR-03-42	149.03	153.90	4.87	0.21	0.30	0.02	0.26	0.32	0.13
UR-03-43	96.50	126.47	29.97	0.44	0.49	0.03	0.43	0.46	0.23
UR-03-44				NSV	NSV	NSV	NSV	NSV	NSV
UR-03-45	58.85	62.85	4.00	0.41	0.04	0.02	0.44	0.46	0.14
UR-03-46	122.10	129.48	7.38	0.19	0.13	0.02	0.25	0.21	0.07
UR-03-47				NSV	NSV	NSV	NSV	NSV	NSV
UR-03-48	145.70	197.65	51.95	0.43	0.48	0.03	0.43	0.45	0.26
Including	145.70	153.10	7.40	0.52	0.46	0.04	0.32	0.32	0.19
and	174.75	194.65	19.90	0.50	0.60	0.03	0.55	0.58	0.33
UR-03-49	170.20	212.30	42.10	0.42	0.45	0.03	0.41	0.43	0.23
Including	196.53	212.53	16.00	0.47	0.55	0.03	0.50	0.55	0.28
UR-03-50	195.47	229.28	33.81	0.39	0.42	0.02	0.35	0.39	0.20
UR-03-51	236.05	257.75	16.70	0.46	0.43	0.04	0.39	0.60	0.46
Including	238.20	243.00	4.80	0.63	0.50	0.05	0.34	1.10	1.00
UR-03-52	207.00	221.00	14.00	0.30	0.35	0.02	0.30	0.35	0.23
UR-03-53	230.28	291.83	61.55	0.40	0.42	0.03	0.39	0.42	0.26
Including	230.28	237.00	6.72	0.52	0.41	0.04	0.39	0.40	0.23
and	254.00	280.83	26.83	0.47	0.52	0.03	0.50	0.52	0.32
UR-03-54	254.40	290.30	35.90	0.41	0.46	0.02	0.35	0.38	0.20
Including	254.40	260.40	6.00	0.58	0.45	0.03	0.41	0.37	0.22
UR-03-55	123.10	144.42	21.32	0.37	0.39	0.02	0.28	0.31	0.17
Including	123.10	126.42	3.32	0.61	0.40	0.04	0.34	0.31	0.22
Including	384.68	389.31	4.63	0.72	0.49	0.06	0.33	0.35	0.20
UR-03-61	413.33	463.60	50.27	0.39	0.39	0.03	0.33	0.35	0.23
Including	413.33	427.44	14.11	0.52	0.41	0.05	0.34	0.33	0.20
Including	419.13	425.44	6.31	0.69	0.44	0.06	0.37	0.38	0.20
UR-03-62	433.70	451.05	17.35	0.34	0.41	0.02	0.30	0.35	0.19
and	454.36	460.20	5.84	0.41	0.60	0.03	0.37	0.43	0.28
UR-03-63	463.03	467.50	4.47	0.28	0.32	0.02	0.16	0.26	0.27
and	471.00	482.70	11.70	0.26	0.33	0.02	0.14	0.30	0.30
UR-03-64	510.40	518.00	7.60	0.19	0.13	0.02	0.06	0.11	0.12
and	523.00	551.00	28.00	0.31	0.41	0.02	0.17	0.30	0.35

Following the completion of the 2003/2004 drill programs, Micon completed an updated MRE (Hennessey and Puritch, 2004) followed by a Preliminary Feasibility Study (Lattanzi et al., 2004). Reports are posted on SEDAR under URSA Majors profile.

6.1.3 2004-2005

Between February 16, 2004, and September 15, 2004 URSA Major completed a further ten NQ-sized, inclined drill holes for a total of 3,648.9 m. The bulk of this drilling was performed on the East Zone mineralization and potential strike extensions. Seven of the ten drill holes (UR-03-59 through to UR-03-65) were targeted on known mineralization in the deposit for a total of 3,331.9 m (Table 6-5).

During the period from March 12, 2005 to June 24, 2005, URSA Major completed an additional 18 NQ-sized drill holes (17 inclined and one vertical) plus one vertical HQ-sized drill hole at the Shakespeare project (Table 6-6). The 19 drill holes represented a total of 2,443.1 m of drilling. Of the 19 drill holes completed in 2005, 15 were drilled principally to provide locally needed information on mineralization contacts in the deposit and to fill in sampling and grade information for the geological model and MRE. Four of the 19 holes were drilled for geotechnical purposes related to mine design for the feasibility study presented herein. These were not assayed but were logged for geological and geotechnical information.

In late 2005 an NI43-101 compliant feasibility study for the Shakespeare deposit was completed by Micon and RPA (Hennessey et al. 2006). This report incorporated bulk sample metallurgical and extraction tests conducted in 2004 and 2005. The report is posted on SEDAR under URSA Majors profile.

Table 6-5: Summary of Results, 2004 Drill Program

Hole-ID	From (m)	To (m)	Length (m)	Ni %	Cu %	Co %	Pt (g/t)	Pd (g/t)	Au (g/t)
UR-03-56	Exploration hole, not located near Shakespeare deposit								
UR-03-57	Exploration hole, not located near Shakespeare deposit								
UR-03-58	Exploration hole, not located near Shakespeare deposit								
UR-03-59	337.17	384.85	47.68	0.37	0.43	0.02	0.38	0.41	0.21
Including	368.85	375.85	7.00	0.57	0.67	0.03	0.56	0.63	0.31
UR-03-60	383.83	444.90	61.07	0.44	0.42	0.03	0.43	0.45	0.24
Including	383.83	399.76	15.93	0.53	0.41	0.04	0.46	0.46	0.27
Including	384.68	389.31	4.63	0.72	0.49	0.06	0.33	0.35	0.20
UR-03-61	413.33	463.60	50.27	0.39	0.39	0.03	0.33	0.35	0.23
Including	413.33	427.44	14.11	0.52	0.41	0.05	0.34	0.33	0.20
Including	419.13	425.44	6.31	0.69	0.44	0.06	0.37	0.38	0.20
UR-03-62	433.70	451.05	17.35	0.34	0.41	0.02	0.30	0.35	0.19
and	454.36	460.20	5.84	0.41	0.60	0.03	0.37	0.43	0.28
UR-03-63	463.03	467.5	4.47	0.28	0.32	0.02	0.16	0.26	0.27
and	471.00	482.7	11.70	0.26	0.33	0.02	0.14	0.30	0.30
UR-03-64	510.40	518.00	7.60	0.19	0.13	0.02	0.06	0.11	0.12
and	523.00	551.00	28.00	0.31	0.41	0.02	0.17	0.30	0.35

Table 6-6: Summary of Results, Winter/Spring 2005 Drill Program

Hole-ID	From (m)	To (m)	Length (m)	Ni %	Cu %	Co %	Pt (g/t)	Pd (g/t)	Au (g/t)
UR-03-66	1.2	20.9	19.7*	0.49	0.55	0.028	0.55	0.58	0.25
UR-03-67				NSV	NSV	NSV	NSV	NSV	NSV
UR-03-68	21.5	31.8	10.3	0.30	0.27	0.025	0.29	0.28	0.15
UR-03-69	33.8	102.2	68.4	0.42	0.49	0.027	0.43	0.45	0.23
Including	66.0	74.0	8.0	0.56	0.67	0.032	0.57	0.65	0.32
UR-03-70	4.7	17.6	12.9	0.47	0.54	0.020	0.42	0.48	0.28
UR-03-71	25.7	43.7	18.0	0.47	0.42	0.032	0.46	0.46	0.25
UR-03-72	45.8	52.8	7.0	0.33	0.38	0.023	0.32	0.38	0.19
UR-03-73	Geotechnical Hole								
UR-03-74	90.5	116.8	26.3	0.36	0.41	0.023	0.38	0.45	0.29
UR-03-75	89.4	145.6	56.2	0.46	0.51	0.027	0.46	0.52	0.25
Including	89.4	106.1	16.7	0.59	0.62	0.033	0.58	0.61	0.31
UR-03-76	180.2	190.5	10.3	0.20	0.18	0.017	0.17	0.18	0.10
UR-03-77				NSV	NSV	NSV	NSV	NSV	NSV
UR-03-78	Geotechnical Hole								
UR-03-79	62.2	74.9	12.7	0.45	0.44	0.029	0.42	0.46	0.21
UR-03-80	Geotechnical Hole								
UR-03-81	11.8	26.8	15.0	0.18	0.18	0.014	0.16	0.19	0.10
UR-03-82	90.0	164.2	74.2	0.47	0.54	0.030	0.44	0.54	0.26
Including	101.7	111.4	9.7	0.61	0.73	0.037	0.57	0.66	0.30
UR-03-83	49.5	105.0	55.5	0.40	0.44	0.023	0.48	0.53	0.20
UR-03-84	Geotechnical Hole								

6.1.4 2010-2012

Fill-in and step-out drilling in the underground portion of the East Zone, lying beneath the feasibility open pit, was carried out in 2010 and 2011 and consisted of 8,024 m in 13 diamond drill holes which represents 35% (by metres) of the drill hole database for the East Zone. The underground MRE for the East Zone was updated by P&E in August 2012. The updated underground East Zone MRE was disclosed in a press release of the Company dated September 12, 2012. The Company then completed two holes in December 2012 (holes U-03-133 and U-03-134) to test the underground down plunge extent of mineralization in the East Zone.

The Company initiated mining activities in 2010, declared commercial production on May 27, 2010 and was in production until January 27, 2012. Ore was processed under a two year toll milling agreement at Xstrata's Sudbury processing facility. On December 13, 2011, URSA Major announced that it had limited operations at the Shakespeare Nickel Mine to crushing of existing broken ore, ore sampling and trucking operations as a consequence of reduced base metals prices. On February 3, 2012, Ursa announced it had temporarily suspended operations at the Shakespeare Property following the expiration, on December 31, 2011, of the milling agreement and the Company was not able to conclude a new processing agreement for Shakespeare ore with Xstrata.

6.1.5 2010-2017

Prophecy Platinum became Wellgreen Platinum in 2013 (now Nickel Creek Platinum) and completed an internal updated feasibility study on the Shakespeare deposit in 2014 with Littlerock Consulting

(Petrina et al. 2014). Although two holes were planned to test the up-dip extension of the east mineral zone, these holes were never drilled. The deposit remained under care and maintenance as a non-core asset until its sale, along with all of Wellgreen's Ontario assets, to the Magna in early-2017.

6.1.6 2018

In 2018 Magna Mining completed their first exploration program on the property. This included surveying a number of Ursa Major diamond drill holes with borehole EM and following up on the results of this geophysics with diamond drilling.

Table 6-7: Summary of Drilling from 2018

Hole No.	From	To	Length	Ni EQ	Ni%	Cu%	Co%	TPM gpt	Au_ppm	Pt_ppm	Pd_ppm
MMC-18-01	No economic mineralization encountered										
MMC-18-02	223.5	249.9	18.04	0.36	0.22	0.17	0.02	0.47	0.09	0.20	0.17
MMC-18-03	359.68	371.81	12.13	0.63	0.34	0.37	0.03	0.89	0.21	0.33	0.35
MMC-18-04	194.52	205.33	10.81	0.53	0.34	0.28	0.02	0.59	0.11	0.24	0.24
MMC-18-05	240.62	257.6	16.98	0.41	0.24	0.21	0.02	0.46	0.08	0.20	0.19
MMC-18-06	247	260.81	13.81	0.27	0.18	0.08	0.02	0.31	0.04	0.14	0.14
MMC-18-07	347.09	353.29	6.2	0.26	0.18	0.07	0.02	0.27	0.06	0.13	0.09
	382.51	383.73	1.22	0.42	0.34	0.12	0.03	0.09	0.01	0.06	0.03
MMC-18-08	93.8	139.5	45.7	0.71	0.40	0.43	0.03	1.05	0.23	0.39	0.43
MMC-18-09	324.45	330.17	5.72	0.34	0.19	0.23	0.02	0.42	0.11	0.13	0.17
MMC-18-10	87.78	146.09	58.31	0.74	0.41	0.47	0.03	1.04	0.21	0.39	0.44
MMC-18-11	96.78	169.38	72.6	0.74	0.41	0.47	0.03	1.10	0.22	0.40	0.48
MMC-18-12	83.67	151.3	67.63	0.70	0.39	0.43	0.03	1.05	0.20	0.39	0.46
MMC-18-13	70.63	90.4	19.77	0.62	0.38	0.33	0.03	0.89	0.22	0.31	0.36

6.1.7 2019-2020

During 2019 and 2020 Magna had minor field programs that largely consisted of verification mapping and sampling around the pit area. This work led to the delineation of mineralization in the Bird's Bane trench area that was trenched in 2019 and channel sampled in 2020.

Figure 6-1: Map Outlining Geology and Sample Locations at the Bird's Bane Trenches

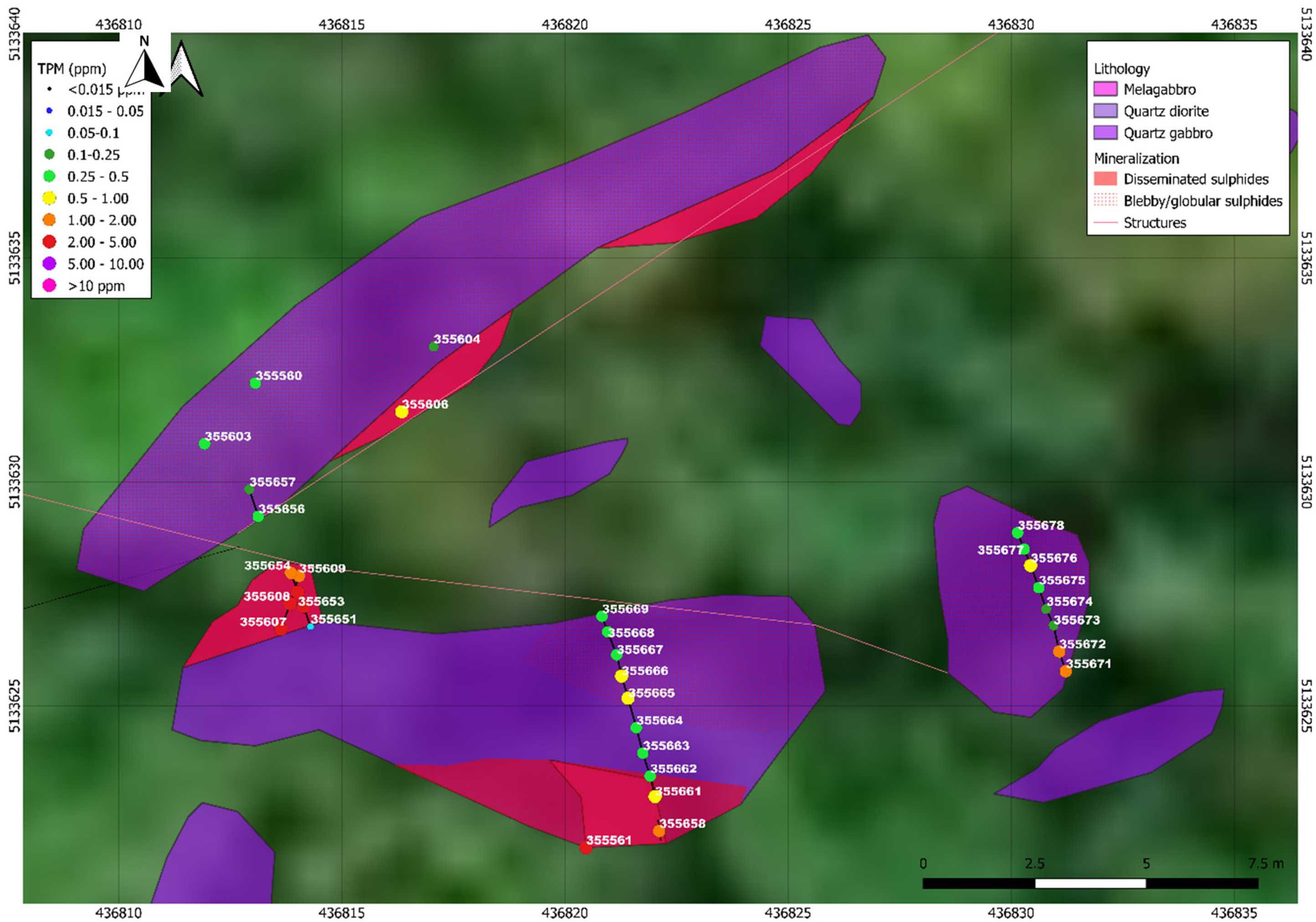


Table 6-8 Summary of channel sampling from the Bird's Bane trenches.

Sample	Easting (83)	Northing (83)	Channel Length (m)	Ni %	Cu %	Co %	Au ppm	Pt ppm	Pd ppm	TPM ppm
355651	436814.3	5133627	0.62	0.0182	0.031	0.00462	0.01	0.02	0.05	0.08
355652	436814.1	5133627	0.49	0.164	0.691	0.0131	0.39	0.52	1.27	2.18
355653	436814	5133628	0.49	0.139	0.953	0.0125	0.53	0.48	1.08	2.09
355654	436813.9	5133628	0.59	0.121	0.712	0.0105	0.37	0.42	0.79	1.58
Composite			2.19	0.105545	0.568429	0.009865	0.308776	0.342767	0.751411	1.402954
355656	436813.1	5133629	0.49	0.0647	0.122	0.00777	0.08	0.15	0.18	0.41
355657	436812.9	5133630	0.5	0.0304	0.0752	0.00594	0.04	0.07	0.09	0.20
Composite			0.99	0.047377	0.098364	0.006846	0.059818	0.111091	0.134525	0.305434
355658	436822.1	5133622	0.35	0.16	0.76	0.0133	0.33	0.49	1.16	1.98
355661	436822	5133623	0.2	0.088	0.342	0.00776	0.19	0.21	0.52	0.92
355662	436821.9	5133623	0.5	0.0354	0.125	0.00592	0.08	0.11	0.22	0.41
355663	436821.7	5133624	0.5	0.0465	0.152	0.00701	0.08	0.09	0.21	0.39
355664	436821.6	5133625	0.53	0.0571	0.121	0.0097	0.07	0.14	0.25	0.45
355665	436821.4	5133625	0.55	0.0354	0.199	0.00714	0.16	0.19	0.20	0.55
355666	436821.3	5133626	0.47	0.0481	0.212	0.00757	0.11	0.18	0.28	0.57
355667	436821.2	5133626	0.51	0.0407	0.0913	0.00525	0.15	0.12	0.23	0.49
355668	436821	5133627	0.54	0.0408	0.114	0.00627	0.07	0.09	0.14	0.31
355669	436820.8	5133627	0.6	0.0395	0.107	0.00653	0.08	0.09	0.17	0.35
Composite			4.4	0.044859	0.148283	0.00696	0.105177	0.128634	0.224209	0.45802
355671	436831.2	5133626	0.5	0.0844	0.525	0.00696	0.23	0.31	0.84	1.38
355672	436831.1	5133626	0.4	0.0889	0.488	0.00678	0.21	0.31	0.66	1.18
355673	436830.9	5133627	0.58	0.0307	0.089	0.0057	0.05	0.07	0.08	0.19
355674	436830.8	5133627	0.52	0.0336	0.0769	0.00591	0.06	0.06	0.13	0.24
355675	436830.6	5133628	0.46	0.0348	0.161	0.00581	0.09	0.08	0.17	0.34
355676	436830.4	5133628	0.5	0.0638	0.0884	0.0114	0.08	0.21	0.28	0.58
355677	436830.3	5133629	0.54	0.0563	0.218	0.00791	0.11	0.15	0.16	0.42
355678	436830.1	5133629	0.44	0.042	0.132	0.00648	0.07	0.08	0.13	0.29
Composite			3.94	0.053256	0.214053	0.007123	0.109173	0.152061	0.295477	0.556711

7 GEOLOGICAL SETTING AND MINERALIZATION

The geological setting for the Shakespeare deposit is described in a Technical Report entitled "Technical Report for the Shakespeare Property, Shakespeare Township, Ontario, NTS 41I/5, for URSA Major Minerals Incorporated, Volume 1 of 2", a report authored by Eric. A. Kallio, P. Geo., dated November 28, 2002 and filed with SEDAR on December 2, 2002 under URSA Majors profile. Both the regional and property geology descriptions have been updated by Magna Geologists (internal reports).

7.1 Regional Geology

The Dunlop-Shakespeare-Baldwin-Porter Township area is located along the southern margin of the Superior Province of the Canadian Shield and has had a prolonged evolutionary history involving the interaction between three structural provinces including the Superior, Southern and Grenville.

The bedrock underlying the area is dominated by rocks of Precambrian age, including Early Precambrian (Archean) felsic plutonic rocks of the Superior Province and by Middle Precambrian (Proterozoic) supracrustal rocks of the Huronian Supergroup of the Southern Province (Figure 4-1). These rocks have been cut by mafic intrusions of several ages including the East Bull Lake Suite, Nipissing Suite and Sudbury Breccia which is part of the Sudbury Igneous Complex.

The rocks of the Southern Province unconformably overly the Archean basement rocks. The Southern Province forms a discontinuous belt extending 750 miles (1,200 km) west from Quebec to central Minnesota along the southern margin of the Superior Province. The western portion of the Southern Province comprises a passive margin supracrustal sequence of the Marquette Range Supergroup, whereas in central Ontario the Southern Province is defined by the distribution of the Huronian Supergroup succession which is part of a basin forming rift margin. The Huronian Supergroup consists of a thick sequence (12,000 m) of clastic metasedimentary rocks. The Huronian rocks include sandstone, conglomerate, siltstone and greywacke, which were derived from the Archean granitoid terrains to the north.

Mafic to intermediate metavolcanics, including flows and pyroclastic rocks are intercalated with the metasedimentary units in the basal part of the Huronian Supergroup succession.

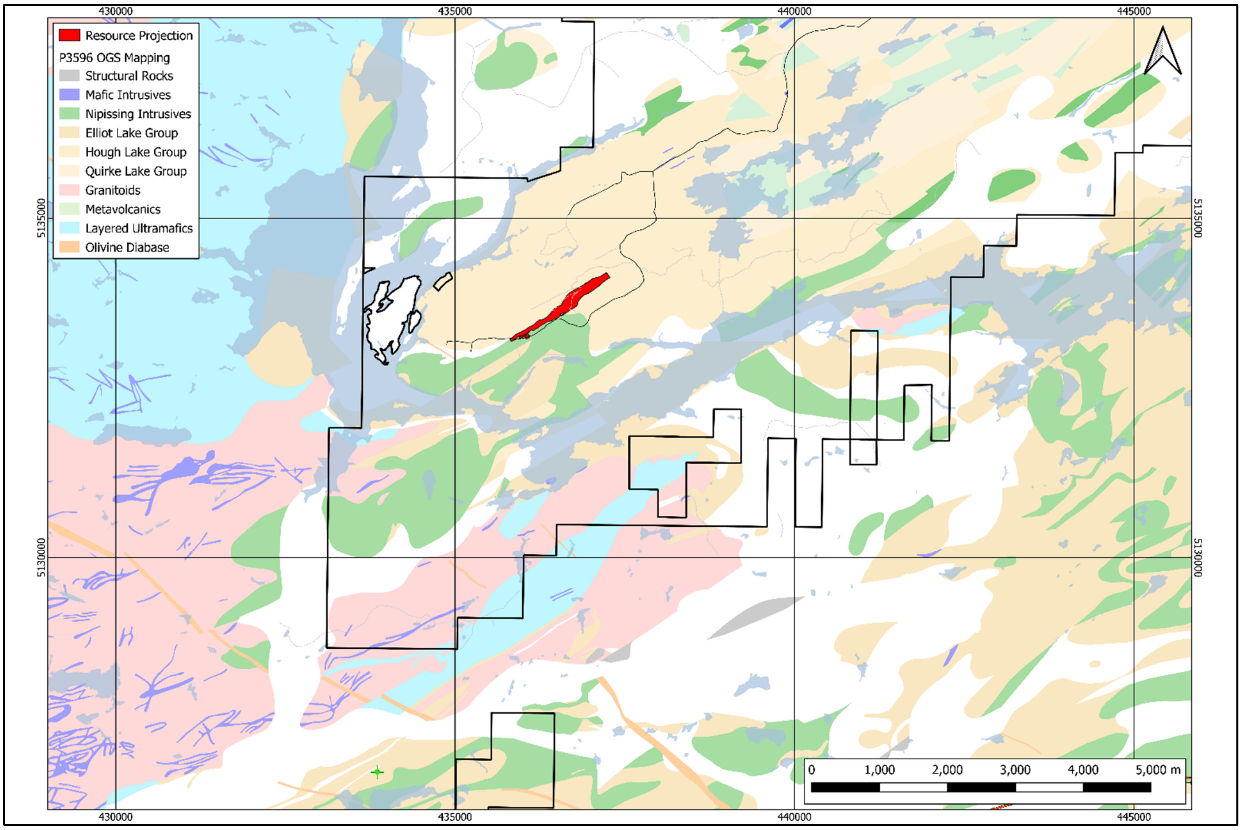
The East Bull Lake Suite is part of a major magmatic episode that occurred at 2480 – 2470 Ma in Central Ontario contemporaneous with rifting of the Archean Superior Province Protocontinent and the formation of the Huronian Rift Zone, now represented by the Southern Province. The intrusions typically occur near the boundary between the Archean Superior Province and the Early Proterozoic Southern Province, and 14 generally appear to have been emplaced as large sills. Magmatism is also manifested in the form of mafic dikes, and as bimodal continental flood basalt sequences (Huronian Volcanics). The most prominent intrusions of the East Bull Lake suite surrounding the project include the: East Bull Lake, Agnew, and May Township Intrusions. The Nipissing Suite was emplaced at roughly 2.2 Ma and forms a trend extending from Sault St. Marie through the Sudbury Region to the Cobalt and Gowganda Regions (Card 1976).

The intrusions are located predominantly within the Huronian Supergroup but are also localized along the Archean- Proterozoic unconformity. The intrusions primarily consist of gabbros with lesser diabase and granophyre, which range in thickness from a few hundred meters to over a thousand meters and typically outcrop at the present erosional levels as open ring structures, ring dikes, cone sheets, dykes and undulatory sills (Hriskevich, 1952, 1968). The Nipissing Intrusions have traditionally been described as undulatory sheets consisting of a series of basins and arches connected by limbs (Hriskevitch, 1968). The basinal portions of the sills consist of quartz diabase overlain by Hypersthene gabbro and are overlain by vari-textured gabbro with pegmatoidal patches. The arches consist of vari-textured gabbro overlain by quartz diorite, granodiorite, granophyre and aplitic granitoids.

The west limit of the Sudbury Igneous Complex is centered close to Sudbury and was emplaced at approximately 1.85 Ma. The Sudbury Igneous Complex occurs along the contact between the Superior and the Southern Province and consists of a thick composite mafic- felsic intrusion forming an elliptical ring having a major east-northeast trending axis that is 60 kilometres in length and a minor axis of 27 kilometres.

The present outcrop distribution of the Huronian Supergroup does not reflect the size and shape of the original depositional system but has rather been determined by syn- and post-Huronian folding, faulting and erosion. The most prominent faulting is syndepositional normal faulting along the east-northeast trending Murray Fault system which is considered to have controlled the accumulation and preservation of most of the Huronian Supergroup in Central Ontario". Uranium-lead (U-Pb) age determinations on zircon from the gabbroic rocks hosting the Shakespeare deposit confirm that the host rocks of the Shakespeare deposit belong to the Nipissing Suite (Sutcliffe et al. 2002).

Figure 7-1: Regional Geology of Agnew Lake area from Ontario Geological Survey, P3596 Map (Easton et al. 2004) Outline of 2018 Shakespeare Deposit Mineral Resource and Claim Boundary of Property also Projected



Source: Base Geology from OGS Publication P3596

7.2 Property Geology

The area surrounding the Shakespeare property is predominantly underlain by units of the Huronian-aged Mississagi quartzite and gabbroic intrusions, which trend approximately north northeast and dip moderate to steeply north. In particular, the Mississagi quartzites dominate the north and south limit of the land package and are typically whitish, medium grained and uniform, with cross-bedding features providing way-up indicators.

The Shakespeare intrusion is a differentiated gabbroic intrusive sill that occurs predominantly in the south to central portion of the Shakespeare property and is between 300-500m wide, extending over a 14 km strike length. In cross-section, the intrusion has an arcuate profile in which the dip shallows with depth, from ~80° to 40° to the North (Figure 7-2). The gabbroic intrusive have been interpreted by the Ontario Geological Survey (OGS) (Card, 1976) as Nipissing Diabase, but others suggest that some may be part of the Agnew Intrusion, (Vogel, 1996) or even the Sudbury Igneous Complex. Subsequent radiometric dating has constrained the intrusion age to ~2217 Ma, 400 million years prior to the creation of the Sudbury Igneous Complex (Sutcliffe et al. 2002) and are contemporaneous to Nipissing Gabbros.

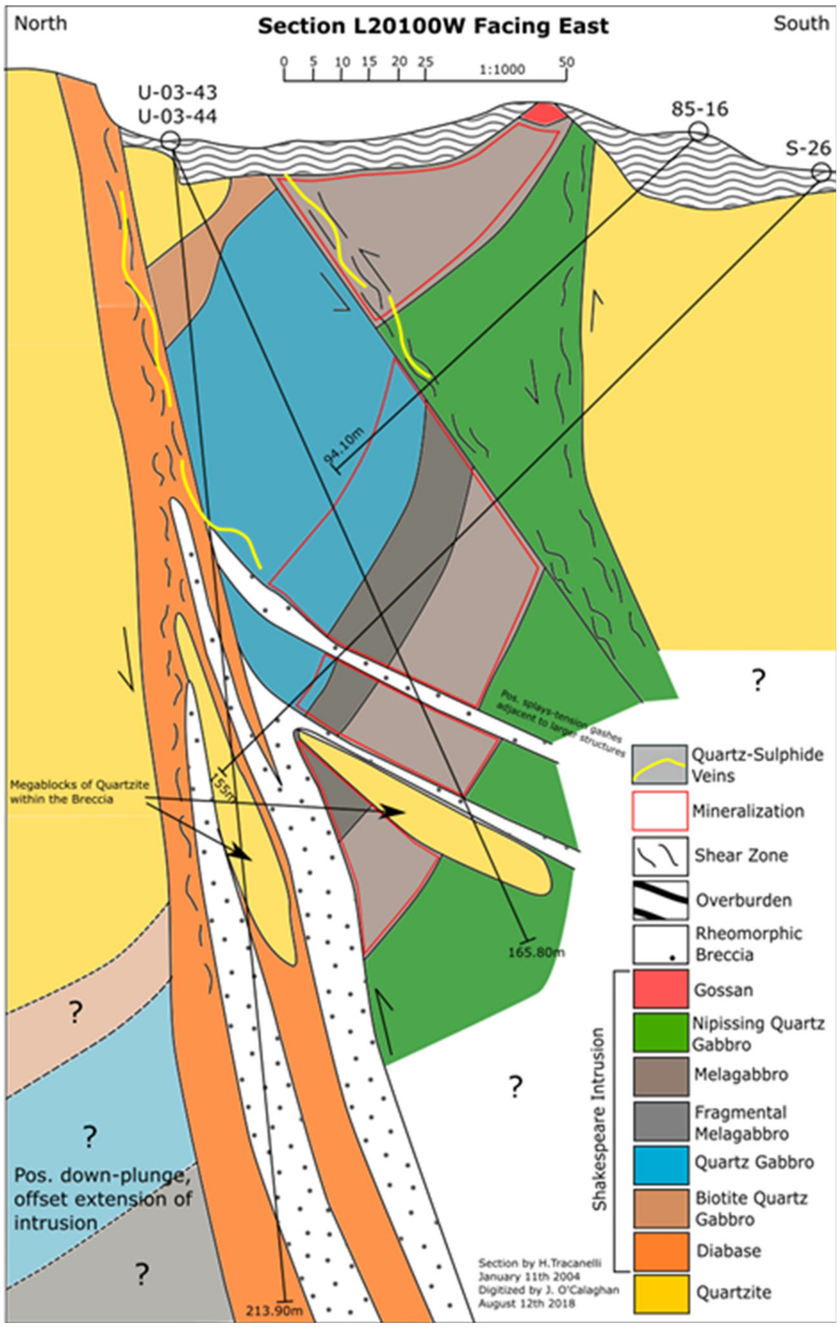
The intrusive sill is mainly dark-grey, fine grained and predominantly consists of gabbro. According to Sproule (et al. 2007), the intrusion can be subdivided into; 1) the Lower Group composed of unmineralized pyroxenite and gabbro and 2) an Upper Group composed of mineralized melagabbro, quartz gabbro, and biotite quartz gabbro-diorite. The base of the Upper Group is the primary host for the sulphide mineralization in the Shakespeare complex (Figure 7-1). The presence of a chilled margin between the Upper and Lower Groups suggests that the Lower Group was partly crystallized as a second pulse of sulfur-saturated magma, (i.e., the Upper Group) entered the sill complex. Mineralized melagabbro dykes are also recorded intruding into the lower unmineralized gabbro/pyroxenite package of the Lower Group. This may represent feeder dykes to the overlying Upper Group or small injections of Upper Group material, cutting downward into the underlying Lower Group (Sproule et al. 2007; Dastil 2014). The entire intrusion has subsequently undergone greenschist facies metamorphism, likely associated with the regional Penokean orogeny (1900-1850 Ma) (Dastil 2014).

The north and south limits of the intrusion are bounded by the Mississagi quartzite. Inclusions, or entrained blocks of quartzite also occur locally within the overall limits of the intrusion, varying from near-zero to up to 30 vol.%. The contacts between the gabbro and the quartzites is locally sheared and altered. In places, the lower contact of the Shakespeare intrusion forms a visibly sharp, chilled contact with the adjacent rocks, while at several locations the contact appears evident as an irregular 5 to 15-meter-wide zone of admixture comprising melagabbro rocks and the underlying Nipissing Suite of gabbroic rocks. In some historic literature, this unit is referred to as the lower contact footwall zone.

The upper contact between the Shakespeare intrusion and the Mississauga quartzite is marked by ~5-10m wide, sharply defined rheomorphic breccia comprising a dark grey, aphanitic, fine grained matrix with sheared, elongate and partially melted blocks of quartzite. Although the breccia shares similarities with the 1850 Ma Sudbury breccia observed in target rocks surrounding the Sudbury impact structure (situated east of the Shakespeare intrusion), the high matrix to clast ratio and the elongated, contorted shape of some of the quartzite blocks is distinct from the Sudbury breccia. Instead, the rheomorphic breccia may represent a late injection of clast-laden diabase material into a shear zone active during the waning phases of the emplacement of the Shakespeare intrusion (Figure 7-1). Shear zones provide favorable conduits into which mafic intrusions can be injected. Furthermore, vein hosted and disseminated Cu-Co mineralization in a shear zone at Stumpy Bay (~1km South of the Shakespeare intrusion) may represent the hydrothermal remobilization of metals from the Shakespeare intrusion into proximal, still-active shear zones. Quartz-chalcopyrite veins are also observed adjacent to the rheomorphic breccia in the north side of the west pit. There are three main faults recorded in the vicinity of the Shakespeare intrusion, all of which appear to be splays of the Hunter Lake Fault. The strike of the faults is generally northeast-southwest and dip steeply. Several more northerly trending cross faults have also been identified.

Another major structure in the vicinity of the Shakespeare intrusion is the Porter Syncline. The main axis of the syncline is located north of the Shakespeare property and trends in a north-easterly direction. All rocks within the area including the mafic intrusions appear to have been folded into a series of tight to moderately open, upright, complex folds with axes trending roughly parallel to the above syncline. Mapping at the Shakespeare property suggests that there may also be a major northeast trending anticline located on the Stumpy Bay joint venture lands to the south of the Shakespeare deposit, which trends parallel to the Porter syncline. The axis of the projected fold is just south of the Shakespeare deposit and the central part of the fold is defined by a prominent quartzite lens.

Figure 7-2: Section plan through the Western most section of the Shakespeare Deposit; section modified after H. Tracanelli 2004 (unpublished internal diagrams) - the section highlights the differentiated nature of the intrusion and its relationship to the adjacent host rocks and shear zones



Source: Tracanelli 2004, Unpublished Cross-sections

7.3 Deposit Geology and Mineralization

The Shakespeare intrusion hosts semi-massive to disseminated sulfides (Sproule et al. 2007). Sulfides, including pyrrhotite, chalcopyrite, and lesser pyrite, are present throughout the intrusion in varying proportions, mostly in trace amounts. Significant accumulations are present as:

- disseminated pyrrhotite and chalcopyrite blebs at the melagabbro/gabbro contact, usually ~1 mm in size, typically comprising <1% of the rock
- heavily disseminated to patchy net-textured (10-15%) pyrrhotite, chalcopyrite, pentlandite, and gersdorfite in rounded blebs that reach up to 2-5 cm in size, in the upper zone of the melagabbro
- blebby pyrrhotite and chalcopyrite in the lower sections of the melagabbro and the base of the quartz gabbro

The sulfides have experienced variable degrees of recrystallization during metamorphism. They vary from pristine magmatic blebs, to recrystallized blebs, to stringers, the latter of which tend to be richer in chalcopyrite.

Where the mineralization is proximal to shear zones that cross-cut the deposit (Figure 7-2), the sulphides can be sheared and attenuated. These sheared sulphides, together with the patchy-network textured mineralization, create an interconnectivity in the sulphides that allows portions of the deposit to be identified by remote electromagnetic (EM) geophysics surveys, a valuable tool in exploring for extensions to the deposit. The mineralized zones also contain abundant inclusions of quartzite, blue quartz eyes, and rare diorite. The ores have compositions consistent with having been derived from the Shakespeare magma and to have equilibrated at moderate magma: sulphide ratios (500-1000).

The total strike length of Shakespeare mineralization is approximately 1,700 m and extends to a depth of ~550m. The deposit is subdivided into a West and East resource zone.

- The west zone appears to plunge to the west at ~15° and is of a slightly lower grade than the East zone. It is currently defined to a depth of ~120m and abruptly terminates at its western-most edge, possibly due to offsetting by faults. Deeper exploratory holes by URSA Major identified two lenses of mineralization down to ~210m depth. Although more work is required to better define these lenses, they may represent a fault-displaced down-dip extension of the east zone mineralization.
- The east zone plunges ~30° to ~40° east from surface and generally has higher grade mineralization, particularly nearer surface. The mineralized zones currently extends over ~1km and plunges from surface to a depth of ~ 550m. It remains open to the west and the up-dip and down-dip extensions have not been tested by drilling, leaving considerable opportunity to expand the resource.

8 DEPOSIT TYPES

The regional deposit models for the Shakespeare deposit were originally described in a Technical Report entitled "Technical Report for the Shakespeare Property, Shakespeare Township, Ontario, NTS 41I/5, for URSA Major Minerals Incorporated, Volume 1 of 2", a report authored by Eric. A. Kallio, P. Geo., dated November 28, 2002 and filed with SEDAR on December 2, 2002 under URSA Majors profile. These deposit model descriptions have since been updated by Magna Mining Geologists.

Within the area of interest, numerous occurrences of copper and nickel sulphides along with platinum group elements have been identified.

Copper, nickel sulphide mineralization containing platinum group elements (PGEs) and gold is typically associated with gabbroic rocks of the: East Bull Lake, Nipissing, and Sudbury Complex Intrusive Suites. Mineralization also occurs to a lesser degree in Huronian metavolcanic and metasedimentary rocks. Mineralization typically occurs as fine disseminations of magmatic pyrrhotite, chalcopyrite and pentlandite with some of the sulphides exhibiting magmatic blebby textures.

Deposit models for the area include the Nipissing model, (Lightfoot, P. G. and Naldrett, A. J., 1996) and the Sudbury Offset model proposed by Lewis, C. L. (1949) and Sutcliffe, R. H, (2002).

The Nipissing model is based on the recognition of close spatial relationships of nickel, copper, and platinum group elements with the Nipissing Diabase, (Lightfoot, 1996). Significant observations regarding mineralization according to the Nipissing model are described in Lightfoot, (1996) and include the following:

- Magmatic nickel, copper, and PGE mineralization is spatially associated with Nipissing intrusions [which] lie on a trend extending from Whitefish Falls to River Valley.
- The sulphides occur as fine disseminations of magmatic pyrrhotite (50 - 75%) with lesser chalcopyrite and pentlandite.
- The disseminated sulphides tend to be localized in the interior of the sills, (100 - 300 m above the base), within coarse grained gabbro-norites and hypersthene rich gabbros.
- Sulphides occurring locally as basal concentration can carry 1 - 15 % copper, 2.5 - 6.3 ppm Pt, 17 - 53 ppm Pd, and 1 - 6 ppm Au (i.e. Wanapetei Intrusion).

The Sudbury offset model considers that mineralization to be related to radial dykes extending outwards from the Sudbury Igneous Complex. Key characteristics for mineralization related to offset dykes are discussed in Dressler (1991). Economic mineralization within offset dykes is typically spatially associated with inclusion rich quartz-diorite and local thinning. Sulphides often form blebs in the quartz Norite matrix. Past studies indicated a possible zoning in ore composition characterized by an increase in chalcopyrite content with increasing distance from discontinuities in the dyke, Cochrane (1984). According to Lewis (1949) some of the rocks surrounding the Shakespeare deposit contain similarities in texture, composition, and mineral content to rocks of the Worthington and Copper Cliff offset dykes.

Radiometric age dating appears to eliminate the possibility of a Sudbury offset model as the intrusive hosting the mineralization is some 400 million years too old and defines the Shakespeare deposit as being hosted in Nipissing-aged intrusions.

The Shakespeare deposit has recently been interpreted to represent a new style of mineralization for the Nipissing Gabbro with Ni-Cu-PGE mineralization hosted inside the intrusion (Sproule et al. 2007).

The intrusion is a complex differentiated sill approximately 14 km in strike length and approximately ~300 to ~430 in thickness. It comprises two distinct magmatic packages: 1) a Lower Group composed of unmineralized pyroxenite and gabbro, and 2) an Upper Group composed of mineralized melagabbro, quartz gabbro, and biotite quartz gabbro-diorite.

The Shakespeare intrusion formed from a tholeiitic parental magma (Sproule, et al., 2007). All of the rocks in the intrusion are enriched in LREE relative to MREE and HREE, enriched in highly incompatible lithophile elements (HILE: Cs, Rb, U, Th, Nb, Ta, LREE) relative to moderately incompatible lithophile elements (MILE: Zr, Ti, HREE) and are strongly depleted in Nb and Ti relative to elements of similar incompatibility. These geochemical characteristics suggest that the Shakespeare magma underwent extensive degrees of crustal contamination prior to emplacement. Although other parts of the Nipissing Gabbro suite exhibit similar geochemical characteristics, the Shakespeare intrusion is more enriched in HILE and more strongly depleted in Nb-Ti, and therefore appears to have undergone greater degrees of crustal contamination.

Heavily disseminated to patchy net-textured (10-15%) Fe-Cu-Ni sulfides (pyrrhotite–chalcopyrite–pentlandite) occur in the upper zone of the melagabbro near and at the contact with the overlying quartz gabbro and in the melagabbro dykes. The mineralized zone contains abundant inclusions of quartzite, blue quartz eyes, and rare diorite. The ores have compositions consistent with having been derived from the Shakespeare magma and to have equilibrated at moderate magma: sulfide ratios (500-1000).

The Ni-Cu-PGE mineralization in the Shakespeare deposit appears to have resulted from the following processes:

- generation of Nipissing magmas in the mantle
- contamination of Nipissing magmas by continental crust enroute through the crust
- introduction and crystallization of contaminated but sulfide-undersaturated magmas into the Shakespeare intrusion, forming the Lower Group
- further, and apparently relatively local crustal contamination and sulfide saturation, of Nipissing magmas, resulting in the incorporation of abundant xenoliths of country rocks and the generation of moderate amounts of Ni-Cu-(PGE) sulfide melt
- introduction of the xenoliths and sulfide-bearing magma into the Shakespeare intrusion, forming the Upper Group, with heavier sulfides settling at the base of the new crystallization floor resulting in low-moderate R factor values. (Sproule et al. 2007; Dastil 2014)

The elevated U-Th content of the gabbroic rocks hosting the Shakespeare deposit suggests sulphide saturation was reached by assimilation of U-Th-rich crustal material. The proximal pyritic-quartz-pebble-conglomerates of the Matineda Formation are rich in uranium, thorium and are proposed as the source for the crustily-derived sulphur (Dastil 2014).

9 EXPLORATION

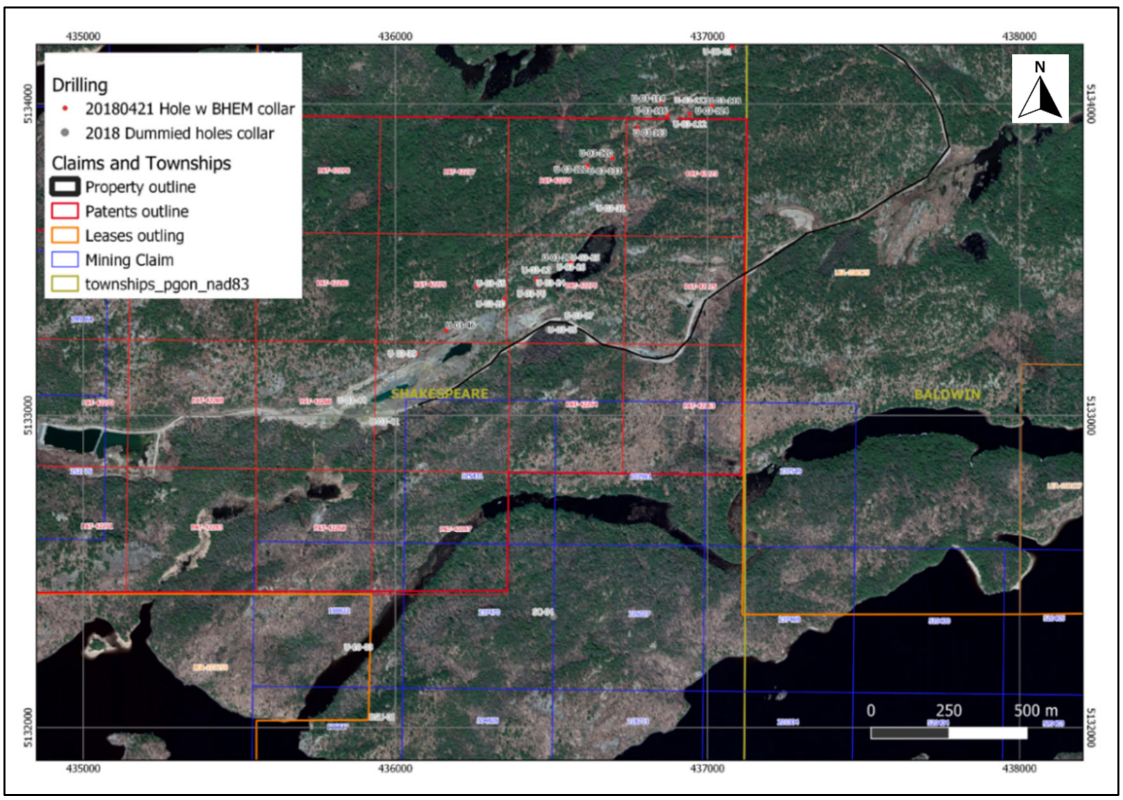
Since acquisition of the Property in 2017, Magna has completed a number of surface exploration campaigns including mapping, surface stripping and geophysics, and multiple drill programs which is described in Section 10 below. All other exploration on the Property has been completed by other issuers and is described in Section 6: History.

9.1 Mine Exploration

2018: Borehole EM surveys were completed on 18 holes drilled in the early to mid-2000's around the Shakespeare Mine (Figure 9-1). This data was then combined with existing geophysics to generate EM plates across the deposit.

Subsequent to the BHEM surveys Magna completed 13 holes on the property. All holes were focussed on the Shakespeare resource with nine of the holes testing conductive plates identified using BHEM. The remaining 4 holes were designed to provide more information about the resource, improve confidence through conversion of category, and provide material for metallurgical testing. For further information on drill results see Section 10.

Figure 9-1: Location of Holes Surveyed with Borehole Electromagnetic Methods



Source: Magna Mining Internal Map

2019: Exploration in 2019 was largely focussed on verifying historical anomalies across the property and mapping of the Shakespeare deposit to develop a better understanding of the property and mine in general. In total 50 samples were submitted for assay from across the property with 25 samples being taken in the immediate area around the deposit. The remaining 25 samples were collected from regional targets such as on Palladium Valley (12 samples), Stumpy Bay (11 samples), and C-1 (2 samples). With the exploratory nature of this program, only one QAQC sample was submitted to support the reconnaissance scale sampling program.

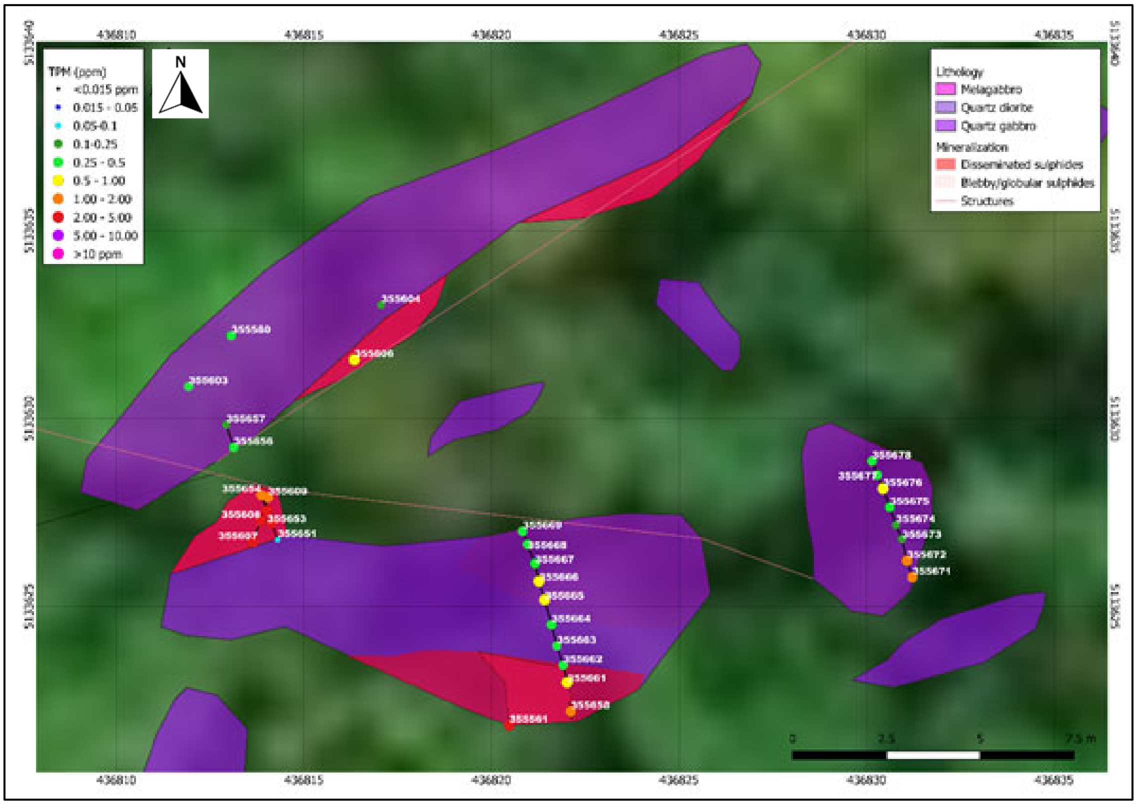
In the fall of 2019 surface stripping was completed in the up-dip area of the eastern resource where anomalous surface samples returned values up to 1.24 gpt Pd, 0.62 gpt Pt, 0.35 gpt Au, and 0.32% Cu with 0.039% Ni. Trenching revealed that the same sequence of mineralization was present at surface as is recorded in drilling with a blebby dominated style of mineralization in the northern portion that comes into contact with disseminated mineralization to the south. Overall, the mineralized zone is approximately 4 m wide on surface.

In addition to the mineralization discovered above the eastern resource, the mapping program revealed a series of mineralized corridors cutting country rock in the vicinity of the Shakespeare resource. Mapping patterns revealed that this is likely the result of a “mega-breccia”, with mineralized phases of gabbro surrounding poorly to non-mineralized blocks of gabbro. Although similar in bulk chemistry to that of the Shakespeare resource, samples from these mineralized zones have higher PGE content in relation to Cu which is also higher than typical for the deposit.

2020: Work during this season was largely focussed on following up on surface stripping completed at the Bird’s Bane trench. A total of 24 channel samples were taken in addition to 6 QAQC samples (Figure 9-2) (Table 9-1).

At the end of 2020 Magna completed surface IP over the Shakespeare Deposit. This amounted to a total of approximately 20 line kilometers and was completed by SJ Geophysics of Vancouver, BC. The survey was designed to be contiguous with EM to be completed in Jan of 2021.

Figure 9-2: Map Outlining the Location of Channel Samples Taken In 2020 Over the Bird's Bane Trench



Source: Magna Mining Internal Mapping

Table 9-1: Summary of 2020 Channel Samples from Bird's Bane Trenching. Note Coordinates are Rounded to Nearest Meter (UTM Nad 83)

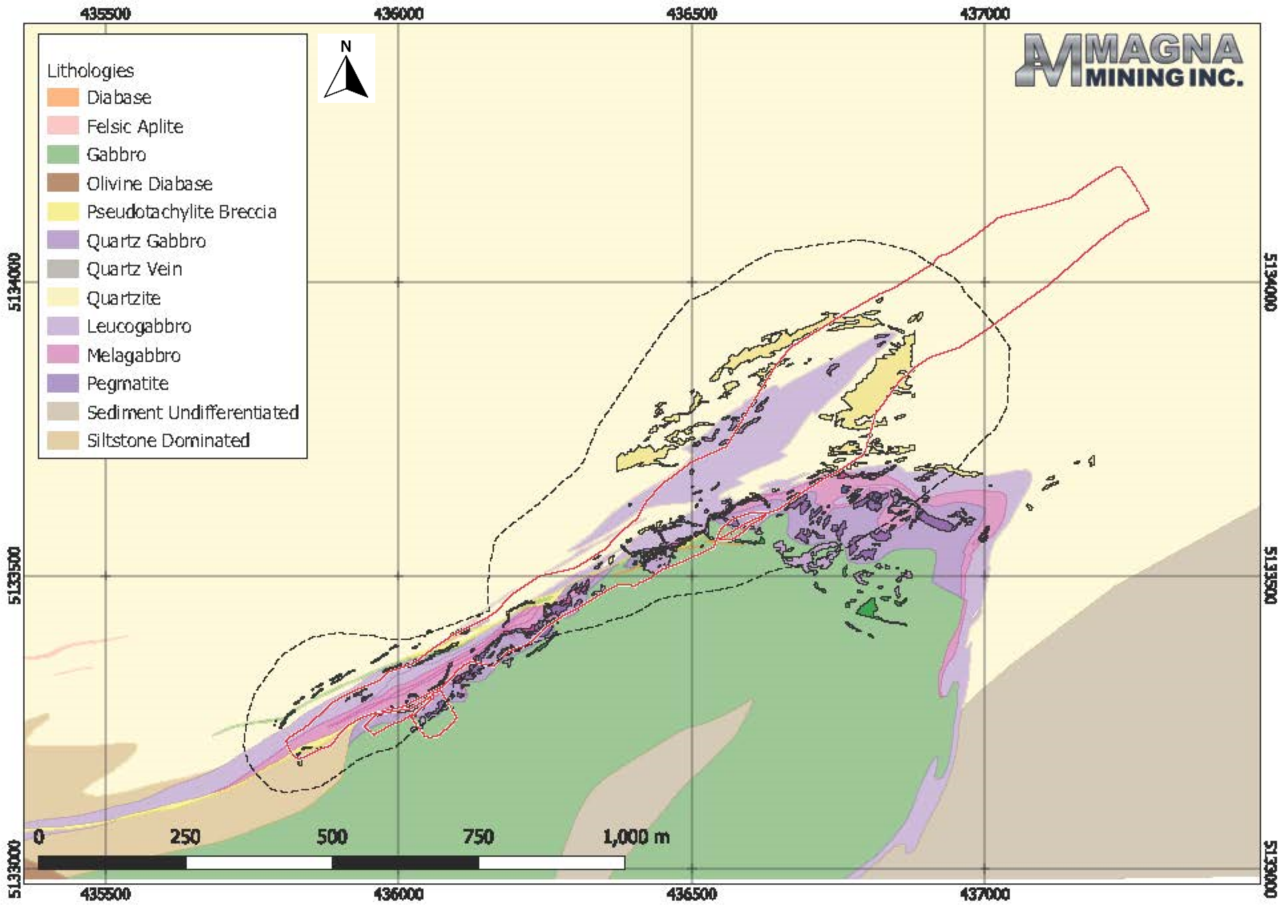
Sample	Easting (83)	Northing (83)	Channel Length (m)	Ni %	Cu %	Co %	Au ppm	Pt ppm	Pd ppm	TPM ppm
355651	436814	5133627	0.62	0.02	0.03	0.00	0.01	0.02	0.05	0.08
355652	436814	5133627	0.49	0.16	0.69	0.01	0.39	0.52	1.27	2.18
355653	436814	5133628	0.49	0.14	0.95	0.01	0.53	0.48	1.08	2.09
355654	436814	5133628	0.59	0.12	0.71	0.01	0.37	0.42	0.79	1.58
Composite			219	0.11	0.57	0.01	0.31	0.34	0.75	1.40
355656	436813	5133629	0.49	0.06	0.12	0.01	0.08	0.15	0.18	0.41
355657	436813	5133630	0.50	0.03	0.08	0.01	0.04	0.07	0.09	0.20
Composite			0.99	0.05	0.10	**0.01**	0.06	0.11	0.13	0.31
355658	436822	5133622	0.35	0.16	0.76	0.01	0.33	0.49	1.16	1.98
355661	436822	5133623	0.20	0.09	0.34	0.01	0.19	0.21	0.52	0.92
355662	436822	5133623	0.50	0.04	0.13	0.01	0.08	0.11	0.22	0.41
355663	436822	5133624	0.50	0.05	0.15	0.01	0.08	0.09	0.21	0.39
355664	436822	5133625	0.53	0.06	0.12	0.01	0.07	0.14	0.25	0.45
355665	436821	5133625	0.55	0.04	0.20	0.01	0.16	0.19	0.20	0.55
355666	436821	5133626	0.47	0.05	0.21	0.01	0.11	0.18	0.28	0.57
355667	436821	5133626	0.51	0.04	0.09	0.01	0.15	0.12	0.23	0.49
355668	436821	5133627	0.54	0.04	0.11	0.01	0.07	0.09	0.14	0.31
355669	436821	5133627	0.60	0.04	0.11	0.01	0.08	0.09	0.17	0.35
Composite			4.40	0.04	0.15	0.01	0.11	0.13	0.22	0.46
355671	436831	5133626	0.50	0.08	0.53	0.01	0.23	0.31	0.84	1.38
355672	436831	5133626	0.40	0.09	0.49	0.01	0.21	0.31	0.66	1.18
355673	436831	5133627	0.58	0.03	0.09	0.01	0.05	0.07	0.08	0.19
355674	436831	5133627	0.52	0.03	0.08	0.01	0.06	0.06	0.13	0.24
355675	436831	5133628	0.46	0.03	0.16	0.01	0.09	0.08	0.17	0.34
355676	436830	5133628	0.50	0.06	0.09	0.01	0.08	0.21	0.28	0.58
355677	436830	5133629	0.54	0.06	0.22	0.01	0.11	0.15	0.16	0.42
355678	436830	5133629	0.44	0.04	0.13	0.01	0.07	0.08	0.13	0.29
Composite			3.94	0.05326	0.21405	0.00712	0.10917	0.15206	0.29548	0.55671

2021: Magna completed the second round of drilling at Shakespeare this year. The program included 26 drill holes and the deepening of one 2018 hole for a total of 6,574m. Drilling was largely focussed on the West deposit and in-filling the Gap-Zone; however, 5 holes were drilled for exploratory purposes around the deposit. (see Section 10 for details).

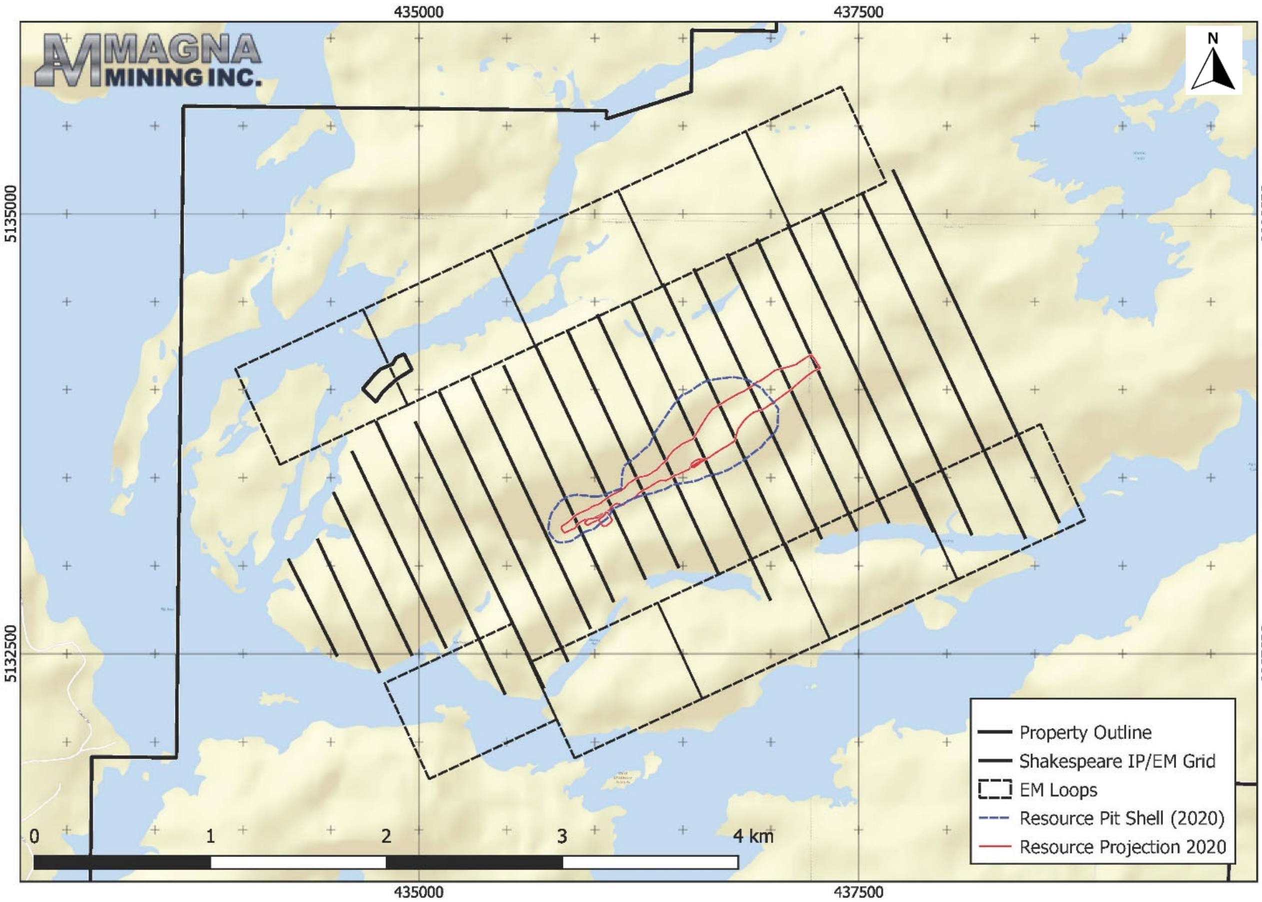
In addition to the drilling work, Magna also contracted Orix Geoscience out to perform 1:1000 mapping of the deposit. Emphasis was placed on trying to differentiate between the various types of gabbro on surface and delineating finer details on the mineralization at surface (Figure 9-3).

January of 2021 saw the completion of a large EM grid over the Shakespeare mine site. This survey was completed by SJ Geophysics from Vancouver, BC. The survey was successful in identifying conductors around the deposit and identified poorly constrained conductors at depth (Figure 9-4).

9-3: Geological Interpretation from Mapping in 2021



9-4: Mine Site Geophysics Completed in Dec 2020 and Jan 2021



9.2 Regional Exploration

2019: Outside of the Shakespeare deposit area exploration was focussed on the proximal Stumpy Bay Copper occurrence and the BT trenches of Palladium Valley (Figure 9-5). One day was also spent at the C-1 anomaly, where mapping revealed the presence of native copper in trace amounts on the margin of an EM anomaly.

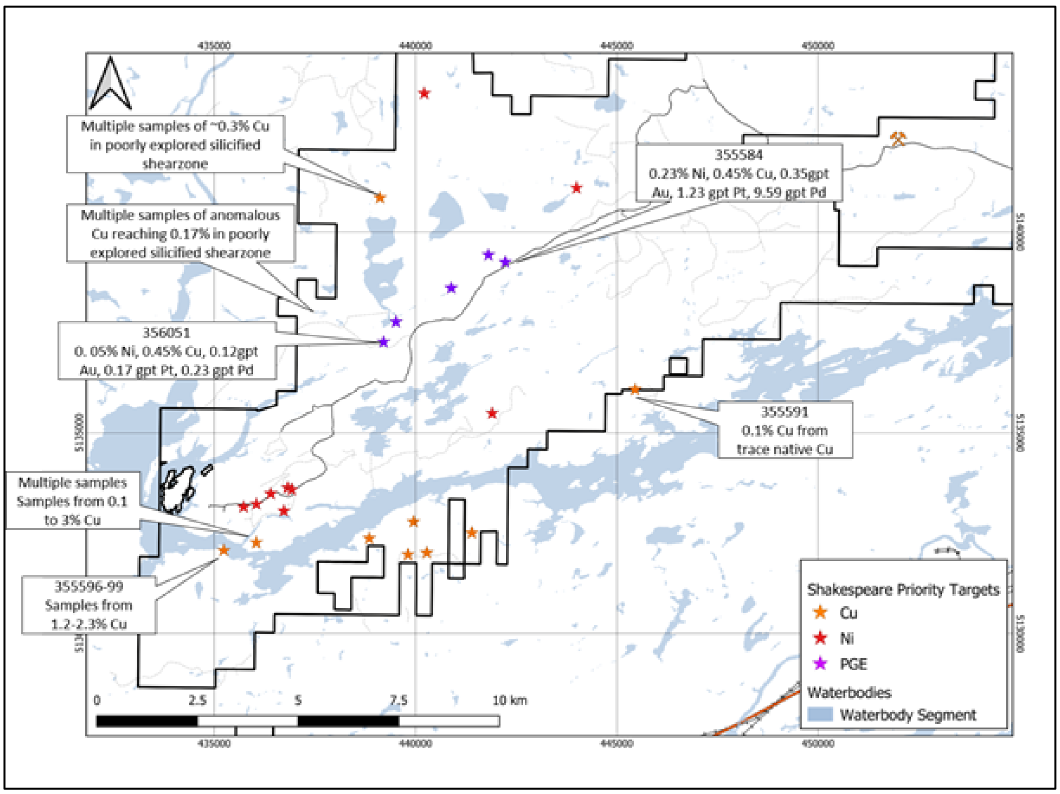
At Stumpy Bay mapping confirmed the presence of Cu within silicified shear zones trending towards the NE. Prospecting further along strike also revealed historic blast pits along previously unknown shear zones. This new occurrence is located to the SW of Stumpy Bay and extended the mineralized zone for an additional kilometer. Assays from this area returned with values of up to 3% Cu with elevated Zn, Pb, Ag, and Au (Table 9-2).

Along the Palladium Valley trend, most work was focussed on the Brunne-Turcotte Trenches (BT trenches) where historic assays reported values of up to 15 gpt Pd in addition to Au & Pt. Recon mapping was also conducted along the Palladium Valley trend with exploration focussing on the Main Skarn area and the Hanover occurrence. This work confirmed the presence of high grade Pd at the BT trenches in sample 355584 with 9.59 gpt Pd, and elevated Cu (0.45%) and anomalous PGE's at the Hanover occurrence (Table 9-2).

2020: Exploration was conducted along the Palladium Valley trend and successfully delineated additional zones of brecciated rocks and shear zones. No new anomalous occurrences were discovered.

More regional exploration was conducted on the Northern Lights and Mag/Grav targets. Both of these were geophysical targets with no major discoveries. Mapping at the Crowpot occurrence was completed over one day and successfully identified copper mineralization in a silicified shear zone with two assays returning up to 0.3% Cu. Another Cu anomaly was discovered along the west boundary of the property with Cu values of up to 0.17% in a small, silicified shear zone (Table 9-2).

Figure 9-5: Summary Map Outlining Location of Anomalous Samples Taken From 2019 & 2020



Source: Unpublished Map from Magna Mining

Table 9-2: Summary Table of Metal Values from Surface Samples Taken In 2019 & 2020

Sample	Area	Easting	Northing	Ni (pct)	Cu (pct)	Co (pct)	Au (ppm)	Pt (ppm)	Pd (ppm)	TPM (ppm)
B0015603	Blebby Trench	436926	5133586	0.0433	0.173	0.00731	0.087	0.07	0.095	0.252
B0015602	Blebby Trench	436904	5133600	0.0948	0.311	0.00863	0.142	0.19	0.192	0.524
B0015601	Blebby Trench	436889	5133604	0.0798	0.266	0.00831	0.123	0.09	0.173	0.386
526420	Stumpy Bay	435962	5132246	0.003	1.3669	0.1276	0.11	0	0	0.11
526419	Stumpy Bay Zone	436250	5132405	0.002	0.0115	0.0025	0.0025	0	0	0.0025
526418	Stumpy Bay	436219	5132389	0.0022	0.1194	0.0061	0.0025	0	0	0.0025
526417	Stumpy Bay	436185	5132390	0.0019	0.1705	0.0017	0.027	0	0	0.027
526416	Stumpy Bay	436172	5132372	0.0026	0.1155	0.0194	0.014	0	0	0.014
526415	Stumpy Bay	436151	5132366	0.0022	0.2778	0.0098	0.045	0	0	0.045
526414	Stumpy Bay	436149	5132367	0.0018	0.0822	0.0023	0.008	0	0	0.008
526413	Stumpy Bay	436148	5132364	0.0021	0.1912	0.0226	0.02	0	0	0.02
526412	Stumpy Bay	435958	5132241	0.0045	1.6962	0.1004	0.219	0	0	0.219
526411	Stumpy Bay	435958	5132241	0.0078	1.1298	0.2358	0.095	0	0	0.095
526410	Stumpy Bay	436096	5132340	0.0037	0.6805	0.1413	0.049	0	0	0.049
526409	Stumpy Bay	436033	5132312	0.0028	0.7418	0.0225	0.057	0	0	0.057
526408	Stumpy Bay	436026	5132303	0.0037	0.5922	0.0939	0.046	0	0	0.046
526407	Stumpy Bay	435936	5132240	0.0063	1.3794	0.2397	0.096	0	0	0.096
526406	Stumpy Bay	435931	5132238	0.0018	0.0826	0.0267	0.008	0	0	0.008
526405	Stumpy Bay	435922	5132240	0.005	0.4629	0.1605	0.033	0	0	0.033
526404	Stumpy Bay	435902	5132228	0.0031	0.6654	0.0676	0.151	0	0	0.151
526403	Stumpy Bay	435892	5132217	0.002	0.0844	0.0017	0.064	0	0	0.064
526402	Stumpy Bay	435858	5132227	0.0021	0.1474	0.0072	0.011	0	0	0.011
526401	Stumpy Bay	435802	5132191	0.0022	0.3141	0.0187	0.035	0	0	0.035
356051	Hanover	439504	5137242	0.046	0.452	0.007	0.119	0.17	0.229	0.518
356052	Hanover	439596	5137370	0.004	0.003	0.001	0.001	0.01	0.001	0.012
356053	Big Swan	440833	5138656	0.002	0.039	0.003	0.018	0.01	0.001	0.029
356054	Big Swan	440886	5138607	0.002	0.114	0.006	1.004	0.01	0.001	1.015
356055	Big Swan	440743	5138564	0.001	0.02	0.002	0.042	0.01	0.001	0.053
355551	Big Swan	440726	5138503	0.001	0.078	0	0.015	0.01	0.001	0.026
355552	South of settling pond	434734	5132916	0.0412	0.0231	0.00644	0.002	0.012	0.014	0.028
355553	South of settling pond	434851	5132737	0.0113	0.0824	0.00484	0.019	0.01	0.004	0.033
355554	South of settling pond	434885	5132758	0.011	0.0099	0.00473	0.001	0.01	0.007	0.018

Sample	Area	Easting	Northing	Ni (pct)	Cu (pct)	Co (pct)	Au (ppm)	Pt (ppm)	Pd (ppm)	TPM (ppm)
355555	Main Skarn	440694	5138483	0.003	0.012	0.001	0.006	0.01	0.001	0.017
355560	Bird's Bane	436813	5133632	0.0406	0.1764	0.00574	0.104	0.159	0.22	0.483
355561	Bird's Bane	436820	5133622	0.0362	0.3174	0.00383	0.351	0.617	1.237	2.205
355562	Bird's Bane	436797	5133619	0.0387	0.1382	0.00602	0.074	0.12	0.175	0.369
355563	East Extension	436662	5133640	0.0656	0.0881	0.0136	0.021	0.102	0.095	0.218
355565	East Extension	436647	5133642	0.0506	0.0674	0.00957	0.015	0.032	0.051	0.098
355566	West Pit South	436371	5133474	0.1748	0.3415	0.0154	0.4	0.366	0.396	1.162
355567	West Pit South	436258	5133389	0.3255	0.6166	0.0195	0.356	0.547	0.664	1.567
355568	West Pit South	436122	5133314	0.3218	0.3212	0.0182	0.18	0.32	0.418	0.918
355570	West Pit South	436177	5133302	0.2253	0.2577	0.0106	0.443	0.586	0.624	1.653
355573	Macbeth Trenches	436714	5133020	0.0365	0.0403	0.00673	0.019	0.041	0.045	0.105
355577	Gap zone trenches	436493	5133560	0.1746	0.0848	0.0151	0.027	0.187	0.206	0.42
355581	West of pit	436158	5133521	0.4569	0.4748	0.0259	0.274	0.524	0.66	1.458
355582	Stumpy bay	435918	5132244	0.002	1.3867	0.1073	0.09	0.01	0.001	0.101
355583	Stumpy extension	435205	5131780	0.0118	0.012	0.00471	0.003	0.011	0.007	0.021
355584	Brunne-Turcotte	442212	5139241	0.2277	0.4491	0.018	0.351	1.239	9.59	11.18
355585	Brunne-Turcotte	442210	5139236	0.1871	0.6278	0.00741	0.416	0.879	7.702	8.997
355586	Brunne-Turcotte	442207	5139249	0.0081	0.623	0.00298	0.424	0.01	0.038	0.472
355587	Brunne-Turcotte	442222	5139249	0.0033	0.0125	0.00226	0.001	0.01	0.007	0.018
355588	Brunne-Turcotte	442253	5139218	0.0016	0.0201	0.0242	0.004	0.01	0.004	0.018
355589	Stumpy Bay	435951	5132259	0.0044	0.7969	0.1689	0.116	0.01	0.002	0.128
355590	Stumpy Extension	435204	5131670	0.0262	0.0048	0.00632	0.003	0.011	0.009	0.023
355591	C-1	445601	5135958	0.0037	0.0919	0.00726	0.008	0.01	0.002	0.02
355592	C-1	445869	5136254	0.0052	0.0195	0.00391	0.001	0.01	0.003	0.014
355593	Stumpy Bay	436039	5132314	0.0045	3.0035	0.1045	0.06	0.01	0.001	0.071
355594	Stumpy Bay	436170	5132373	0.0037	0.7784	0.1374	0.034	0.01	0.001	0.045
355595	Stumpy Bay	436215	5132387	0.0012	0.9827	0.1554	0.106	0.01	0.001	0.117
355596	Stumpy Extension	434805	5131937	0.0016	1.1908	0.0465	0.076	0.01	0.001	0.087
355597	Stumpy Extension	434848	5131951	0.0014	2.0614	0.0298	0.088	0.01	0.001	0.099
355598	Stumpy Extension	434857	5131954	0.0014	2.1232	0.1384	0.421	0.01	0.002	0.433
355599	Stumpy Extension	434858	5131954	0.0005	2.3126	0.00675	0.039	0.01	0.001	0.05
355603	Bird's Bane	436812	5133631	0.0474	0.2025	0.00589	0.066	0.108	0.147	0.321
355604	Bird's Bane	436817	5133633	0.0396	0.0993	0.00679	0.026	0.068	0.067	0.161

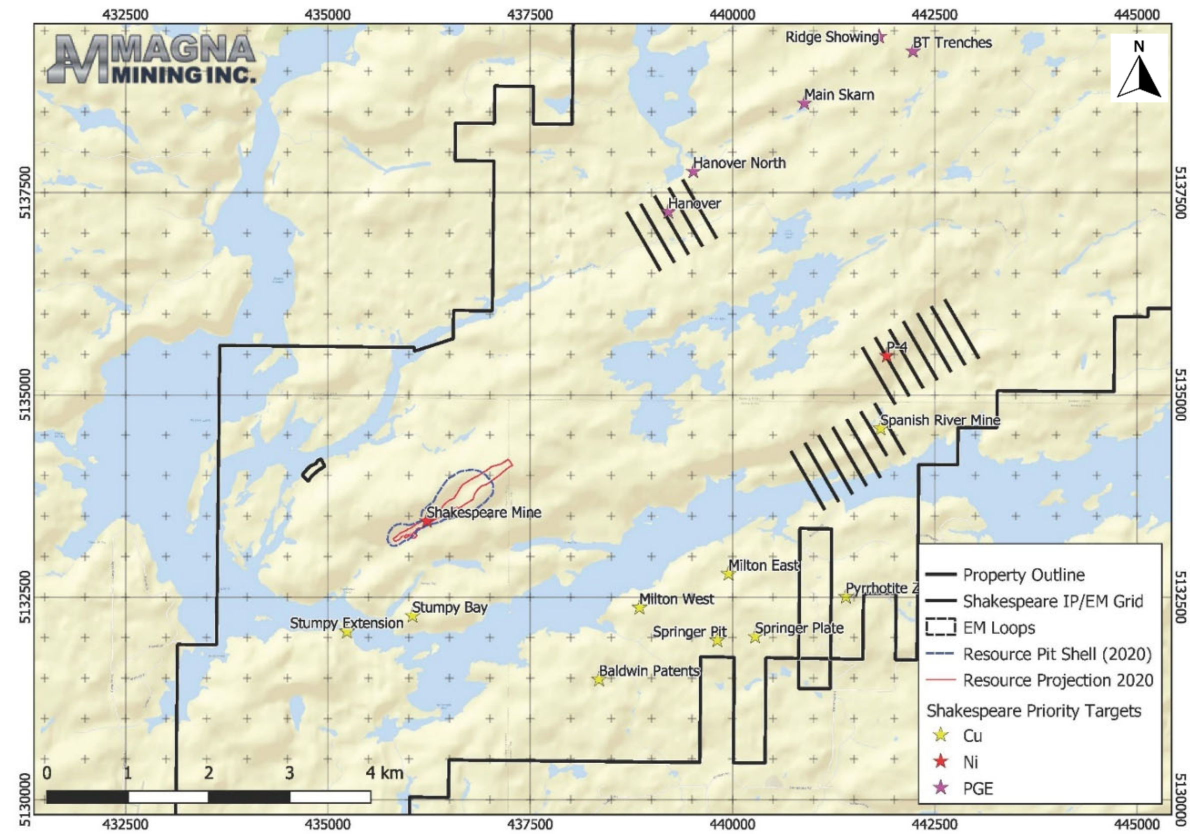
Sample	Area	Easting	Northing	Ni (pct)	Cu (pct)	Co (pct)	Au (ppm)	Pt (ppm)	Pd (ppm)	TPM (ppm)
355606	Bird's Bane	436816	5133632	0.1276	0.4024	0.0109	0.124	0.191	0.253	0.568
355607	Bird's Bane	436814	5133627	0.1523	0.8285	0.0134	0.381	0.544	1.274	2.199
355608	Bird's Bane	436814	5133627	0.1956	1.052	0.0152	0.379	0.509	1.159	2.047
355609	Bird's Bane	436814	5133628	0.1976	0.7868	0.0141	0.353	0.475	0.904	1.732
355612	Brunne-Turcotte	442210	5139227	0.0208	0.0965	0.01	0.04	0.04	0.6	0.671
355614	West Pit South	436032	5133270	0.4257	0.47	0.0241	0.216	0.484	0.539	1.239
355616	West Pit South	436146	5133334	0.4578	0.4909	0.0267	0.275	0.469	0.588	1.332
355617	West Pit South	436229	5133376	0.336	0.4548	0.0234	0.285	0.471	0.571	1.327
355618	West Pit South	436262	5133397	0.2324	0.3628	0.0188	0.255	0.352	0.46	1.067
355620	Hanover	439504	5137256	0.0022	0.806	0	0.34	0.005	0.02	0.364
355621	Hanover	439458	5137226	0.0156	0.228	0.04	0.04	0.005	0.01	0.046
355622	Hanover	439460	5137224	0.0028	0.21	0.01	0.04	0.005	0	0.047
355623	Brunne-Turcotte	442677	5139428	0.0278	0.0497	0.01	0.02	0.022	0.1	0.141
355624	Prospecting	440434	5145162	0.0043	0.0145	0	0.02	0.005	0	0.024
355625	Big Swan	440726	5138537	0.00025	0.0188	0	0.02	0.005	0	0.022
355626	Prospecting	444117	5141099	0.0051	0.0047	0.01	0	0.005	0	0.009
355627	Prospecting	444001	5141097	0.0047	0.0056	0.01	0	0.005	0	0.008
355628	Prospecting	443818	5141083	0.0023	0.011	0	0.01	0.005	0	0.012
355630	Hanover	439084	5137479	0.0022	0.119	0.01	0.02	0.005	0	0.024
355631	Hanover	439083	5137479	0.0024	0.0212	0.01	0	0.005	0	0.009
355632	Hanover	439117	5137453	0.0026	0.0707	0	0.01	0.015	0.01	0.034
355633	Prospecting	438790	5142156	0.0069	0.0064	0	0	0.005	0	0.007
355635	Prospecting	438835	5142169	0.0063	0.0111	0.01	0	0.005	0	0.008
355636	Prospecting	439172	5142314	0.0047	0.0088	0	0.01	0.005	0	0.014
355637	Prospecting	439177	5142406	0.0046	0.0005	0	0	0.005	0	0.009
355638	Prospecting	438794	5142561	0.003	0.0049	0	0	0.005	0	0.007
355639	Prospecting	438004	5143588	0.0009	0.0006	0	0.01	0.005	0	0.017
355640	Prospecting	438838	5142569	0.0056	0.0005	0	0	0.005	0	0.008
355643	Prospecting	442008	5139200	0.0012	0.0249	0.00023	0.038	0.0025	0.01	0.0475
355644	Prospecting	441842	5139432	0.0042	0.128	0.00263	0.081	0.0025	0	0.0875
355645	Prospecting	441826	5139421	0.0432	0.118	0.00451	0.043	0.051	0.33	0.427
355646	Prospecting	441836	5139428	0.0321	0.0374	0.0062	0.009	0.011	0.03	0.053
355647	Prospecting	442290	5139391	0.0583	0.129	0.00478	0.05	0.061	0.58	0.688

Sample	Area	Easting	Northing	Ni (pct)	Cu (pct)	Co (pct)	Au (ppm)	Pt (ppm)	Pd (ppm)	TPM (ppm)
355648	Prospecting	439206	5140796	0.0013	0.382	0.00109	0.034	0.0025	0	0.037
355649	Prospecting	439031	5140904	0.0014	0.337	0.00121	0.017	0.0025	0	0.0215
355651	Bird's Bane	436814	5133627	0.0182	0.031	0	0.01	0.02	0.05	0.081
355652	Bird's Bane	436814	5133627	0.164	0.691	0.01	0.39	0.52	1.27	2.176
355653	Bird's Bane	436814	5133628	0.139	0.953	0.01	0.53	0.48	1.08	2.087
355654	Bird's Bane	436814	5133628	0.121	0.712	0.01	0.37	0.42	0.79	1.582
355656	Bird's Bane	436813	5133629	0.0647	0.122	0.01	0.08	0.15	0.18	0.412
355657	Bird's Bane	436813	5133630	0.0304	0.0752	0.01	0.04	0.07	0.09	0.201
355658	Bird's Bane	436822	5133622	0.16	0.76	0.01	0.33	0.49	1.16	1.983
355661	Bird's Bane	436822	5133623	0.088	0.342	0.01	0.19	0.21	0.52	0.92
355662	Bird's Bane	436822	5133623	0.0354	0.125	0.01	0.08	0.11	0.22	0.405
355663	Bird's Bane	436822	5133624	0.0465	0.152	0.01	0.08	0.09	0.21	0.387
355664	Bird's Bane	436822	5133625	0.0571	0.121	0.01	0.07	0.14	0.25	0.45
355665	Bird's Bane	436821	5133625	0.0354	0.199	0.01	0.16	0.19	0.2	0.549
355666	Bird's Bane	436821	5133626	0.0481	0.212	0.01	0.11	0.18	0.28	0.573
355667	Bird's Bane	436821	5133626	0.0407	0.0913	0.01	0.15	0.12	0.23	0.493
355668	Bird's Bane	436821	5133627	0.0408	0.114	0.01	0.07	0.09	0.14	0.305
355669	Bird's Bane	436821	5133627	0.0395	0.107	0.01	0.08	0.09	0.17	0.349
355671	Bird's Bane	436831	5133626	0.0844	0.525	0.01	0.23	0.31	0.84	1.376
355672	Bird's Bane	436831	5133626	0.0889	0.488	0.01	0.21	0.31	0.66	1.179
355673	Bird's Bane	436831	5133627	0.0307	0.089	0.01	0.05	0.07	0.08	0.194
355674	Bird's Bane	436831	5133627	0.0336	0.0769	0.01	0.06	0.06	0.13	0.238
355675	Bird's Bane	436831	5133628	0.0348	0.161	0.01	0.09	0.08	0.17	0.338
355676	Bird's Bane	436830	5133628	0.0638	0.0884	0.01	0.08	0.21	0.28	0.578
355677	Bird's Bane	436830	5133629	0.0563	0.218	0.01	0.11	0.15	0.16	0.42
355678	Bird's Bane	436830	5133629	0.042	0.132	0.01	0.07	0.08	0.13	0.287

2021: Exploration drilling, and minor mapping was carried out over the Shakespeare property during this year. Exploration was largely focussed on Springer, P-4, and Hanover all of which had minor mapping and some drilling completed. Minor channel sampling was completed at the Spanish River Deposit as well as a small outcrop washing program.

During February of 2021 Magna completed three geophysical surveys across the property. These targeted P-4, Spanish River, and Hanover. The plates generated from these surveys became the basis of drill targeting at both P-4 and Hanover see Figure 9-6 for details.

9-6: Map Outlining the Location of Regional Geophysics Completed in 2021



10 DRILLING

10.1 2018 Drill Program

Magna completed a drill program in November and December of 2018. Thirteen holes were drilled for a total of 3,740m. Nine of the holes tested conductive plates identified using borehole electromagnetic methods. The remaining 4 holes were designed to provide more information about the resource, improve confidence through conversion of category, and provide material for metallurgical testing. A summary of collar information and targets is shown in Table 10-1.

Drilling of the borehole electromagnetic targets systematically intersected zones of blebby to net-textured sulfides, confirming that the electromagnetic method is sensitive in the identification of extensions of mineralization. The in-fill drilling confirmed previous records of wide intervals of mineralization. Grades encountered in the in-fill holes are comparable to those of the overall deposit (Table 10-2). Interpretation of the data shows a general transition towards sulfides richer in Ni relative to Cu towards the west and towards lower elevations in the mineral zone (Figure 10-1). The data for the in-fill holes also indicate that there is a narrow (<5m) halo of PGE-enrichment within the footwall of mineralized gabbroic rocks.

Hole MMC-18-01 was targeted to evaluate the potential up-dip extension of mineralization towards a known magmatic sulfide occurrence at the surface in the eastern mineral zone. The hole was designed to investigate the potential to add to the pit resource at higher elevation where the material is presently classified as waste rock. Trace amounts of disseminated sulfide within Nipissing gabbro were intersected, but comparable melagabbro host rocks to those of the deposit were not encountered. Further work is required to investigate the linkages between the East Zone and the surface occurrence of mineralization.

Holes MMC-18-03, 07 and 09 targeted a borehole electromagnetic plate that extends beyond the base of the shallow portion of the eastern pit (Figure 10-1). Mineralized intersections were shorter than those of the main East Zone, but the data (Table 10-2) indicate that mineralization extends along the down-dip flank at 60-80m distance from the edge of the resource, with potential to impact pit design once remodeling of the resource is complete.

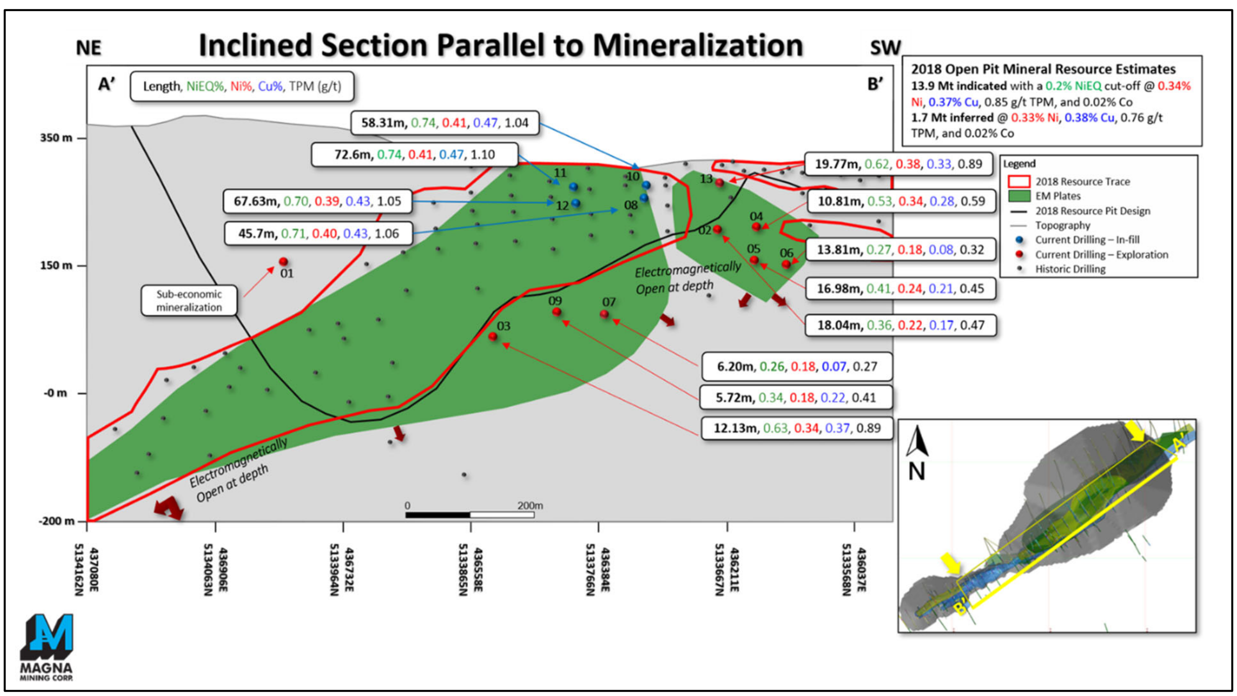
Holes MMC-18-02, 04-06, 13 were drilled to test the continuity of a conductive plate located between the east and west pits; this domain is termed the “Link Plate” (Figure 10-1). All of the holes intersected mineralization with the shortest intersection being 10.81m (Table 10-2). The Ni equivalent grades of these holes is lower than that of East pit, but this is consistent with the grade of the resource modelled in the lower portion of the West pit. Interestingly almost all holes drilled in this plate have Ni dominated sulfides (as expressed by higher Ni tenors compared to Cu tenors), and this trend appears to increase with depth and towards the West.

In-fill drilling has confirmed the width and grade of intersections, and at the same time it has increased confidence by reducing drill spacing from 60-70 m to 25-40 m. These results are used to support a revised resource model for the portion of the pit in the earliest phase of life of mine.

Table 10-1: 2018 Drill Hole Summary

Hole ID	Target	Easting 83	Northing 83	Elevation	Depth (m)	Azimuth	Dip
MMC-18-01	Exploration	436852.23	5133964.50	350.68	401.00	150	-65
MMC-18-02	Link Plate	436169.09	5133605.99	356.38	302.00	125	-45
MMC-18-03	East Plate	436511.02	5133896.64	360.23	435.00	150	-65
MMC-18-04	Link Plate	436168.40	5133605.19	356.24	281.07	140	-45
MMC-18-05	Link Plate	436167.97	5133605.72	356.34	282.01	140	-60
MMC-18-06	Link Plate	436167.14	5133605.10	356.38	281.00	160	-60
MMC-18-07	East Plate	436376.22	5133807.08	377.55	425.75	150	-65
MMC-18-08	In-fill	436403.00	5133599.58	324.07	152.75	150	-60
MMC-18-09	East Plate	436451.32	5133839.90	368.98	400.75	150	-60
MMC-18-10	In-fill	436403.20	5133599.57	324.67	176.75	150	-45
MMC-18-11	In-fill	436490.99	5133646.65	320.06	225.75	140	-65
MMC-18-12	In-fill	436491.26	5133646.36	320.08	200.75	140	-45
MMC-18-13	In-fill/link plate	436294.27	5133522.36	323.24	175.00	130	-45
Total					**3,739.58**		

Figure 10-1: Inclined section view of drilling intersections. Notice that assays are comparable to pit average at higher elevations and towards the East. Moving West and down samples develop higher Ni than Cu and on average intersection lengths decrease.



Source: Magna Mining Internal Press Release Feb 2019

Table 10-2: Summary of Results, Winter 2018 Drill Program

Hole No.	From	To	Length	Ni EQ	Ni %	Cu %	Co %	Au ppm	Pt ppm	Pd ppm
MMC-18-01	NSA									
MMC-18-02	223.5	249.9	18.04	0.36	0.22	0.17	0.02	0.09	0.20	0.17
MMC-18-03	359.68	371.81	12.13	0.63	0.34	0.37	0.03	0.21	0.33	0.35
MMC-18-04	194.52	205.33	10.81	0.53	0.34	0.28	0.02	0.11	0.24	0.24
MMC-18-05	240.62	257.6	16.98	0.41	0.24	0.21	0.02	0.08	0.20	0.19
MMC-18-06	247	260.81	13.81	0.27	0.18	0.08	0.02	0.04	0.14	0.14
MMC-18-07	347.09	353.29	6.2	0.26	0.18	0.07	0.02	0.06	0.13	0.09
	382.51	383.73	1.22	0.42	0.34	0.12	0.03	0.01	0.06	0.03
MMC-18-08	93.8	139.5	45.7	0.71	0.40	0.43	0.03	0.23	0.39	0.43
MMC-18-09	324.45	330.17	5.72	0.34	0.19	0.23	0.02	0.11	0.13	0.17
MMC-18-10	87.78	146.09	58.31	0.74	0.41	0.47	0.03	0.21	0.39	0.44
MMC-18-11	96.78	169.38	72.6	0.74	0.41	0.47	0.03	0.22	0.40	0.48
MMC-18-12	83.67	151.3	67.63	0.70	0.39	0.43	0.03	0.20	0.39	0.46
MMC-18-13	70.63	90.4	19.77	0.62	0.38	0.33	0.03	0.22	0.31	0.36

10.2 2021 Drill Program

Magna completed a drill program in the central and western parts of the Shakespeare deposit from late April to early October of 2021. A total of 26 drill holes (MMC-21-14 to MMC-21-39) were drilled for a total of 6,402 m (Table 10-3). Significant drill results are presented in Table 10-4.

On June 24, 2021, Magna announced drill results for the first two drill holes at its Shakespeare Property. Diamond drilling on the Shakespeare Property commenced in late April, with one diamond drill focused on better defining the area between the East and West zones, referred to as the Gap Zone, and at depth, below the East Zone.

- Drillhole MMC-21-15 intersected 0.51% Nickel Equivalent ("Ni Eq") over 33.8 m in the Gap Zone (Figure 10-2).

On November 4, 2021, Magna announce additional assay results from recent drilling at its Shakespeare Property. All holes reported are in the immediate vicinity of the Shakespeare West Zone, Gap Zone, and East Zone.

- Hole MMC-21-20 intersected 8.65 m of mineralization grading 0.69% NiEq directly between the West Zone and East Zone Mineral Resources, within the current open pit Mineral Resource pit shell and located only 36 m from surface (Figure 10-3).
- Hole MMC-21-22 was drilled to test the depth extend of the central West Zone area. This hole intersected 24.20 m assaying 0.59% NiEq. This intersection is located approximately 10 m below and to the south of the existing Mineral Resource wireframe for the West Zone (Figure 10-3).
- Drill hole MMC-21-25 was drilled to test the Gap Zone area immediately west of the current Mineral Resource. This hole intersected 52.57 m grading 0.84% NiEq (Figure 10-3).

On January 5, 2021, Magna announce the assay results from a further nine holes drilled at the Shakespeare Property. Highlights from this batch of assay results include wide Gap Zone intersections (Figure 10-3).

- Hole MMC-21-27 intersected 47.68 m at 0.25% Ni, 0.30% Cu, 0.02% Co, 0.24 g/t Pt, 0.27 g/t Pd, 0.13 g/t Au including 33 m at 0.30% Ni, 0.36% Cu, 0.02% Co, 0.30 g/t Pt, 0.33 g/t Pd, 0.17 g/t Au. This hole was designed to follow-up on the wide mineralized intersection in hole MMC-21-25. The intersection pierced the East Zone wireframe in an area 24.5 m east of hole MMC-21-25. This hole intersected the mineralization 4.5m above the current mineral resource wireframe and continued 20.70 m beyond the wireframe.
- Holes MMC-21-29 & MMC-21-30 each intersected multiple zones of mineralization including 64.16 m at 0.34% Ni, 0.41% Cu, 0.02% Co, 0.34 g/t Pt, 0.41 g/t Pd, 0.23 g/t Au starting just 30.0 m down hole MMC-21-29. This intersection pierced a portion of the West Zone wireframe but initially intersected the mineralization 27.30 m outside the upper portion of the wireframe and inside of the current open pit resource shell. Follow-up drilling is required to test for further mineralization closer to surface. The primary purpose of these holes was to test the Gap Zone at depth. The holes were successful in intersecting multiple zones of mineralization within the Gap Zone.
- Hole MMC-21-34 was drilled in the Gap Zone, approximately 36 m to the east of Hole MMC-21-20. Mineralization was intersected over 11.45 m grading 0.20% Ni, 0.25% Cu, 0.01% Co, 0.22 g/t Pt, 0.27 g/t Pd, 0.15 g/t Au starting at 24.5 m downhole.

Table 10-3: 2021 Drill Hole Summary

Hole ID	Easting	Northing	Elevation	Depth (m)	Azimuth	Dip
MMC-21-14	436255	5133489	320	178	170.2	49.73
MMC-21-15	436250	5133496	317	201	115.27	49.92
MMC-21-16	436072	5133397	317	309	189.97	53
MMC-21-17	436074	5133413	317	150.48	145.03	56.66
MMC-21-18	436286	5133526	317	426	105.11	82.12
MMC-21-19	436144	5133442	317	252	150	75
MMC-21-20	436305	5133492	323	126	159.73	50.17
MMC-21-21	435994	5133371	307	399	149.84	80.36
MMC-21-22	435942	5133178	282	300	334.6	50.28
MMC-21-23	436008	5133376	315	102	330.7	65
MMC-21-24	436016	5133391	318	318	145	76
MMC-21-25	436016	5133391	318	282	135	65
MMC-21-26	435977	5133151	276	258	330	50
MMC-21-27	436044	5133410	319	249	140	62
MMC-21-28	436122	5133368	316	75	140	45
MMC-21-29	436003	5133219	277	321	345	53
MMC-21-30	436003	5133219	277	279	325	60
MMC-21-31	436022	5133387	340	316.5	150	86
MMC-21-32	436117	5133456	320	180	150	50
MMC-21-33	436117	5133456	320	222	150	83
MMC-21-34	436310	5133490	324	63	110	45
MMC-21-35	435619	5133214	284	237	150	50
MMC-21-36	436816	5133700	347	126	185	45
MMC-21-37	436816.4	5133700	347	159	185	80
MMC-21-38	436513	5133540	292	708	145	72
MMC-21-39	436003	5133220	277	165	150	55
Total				**6401.98**		

Table 10-4: Summary of Significant Results, 2021 Drill Program

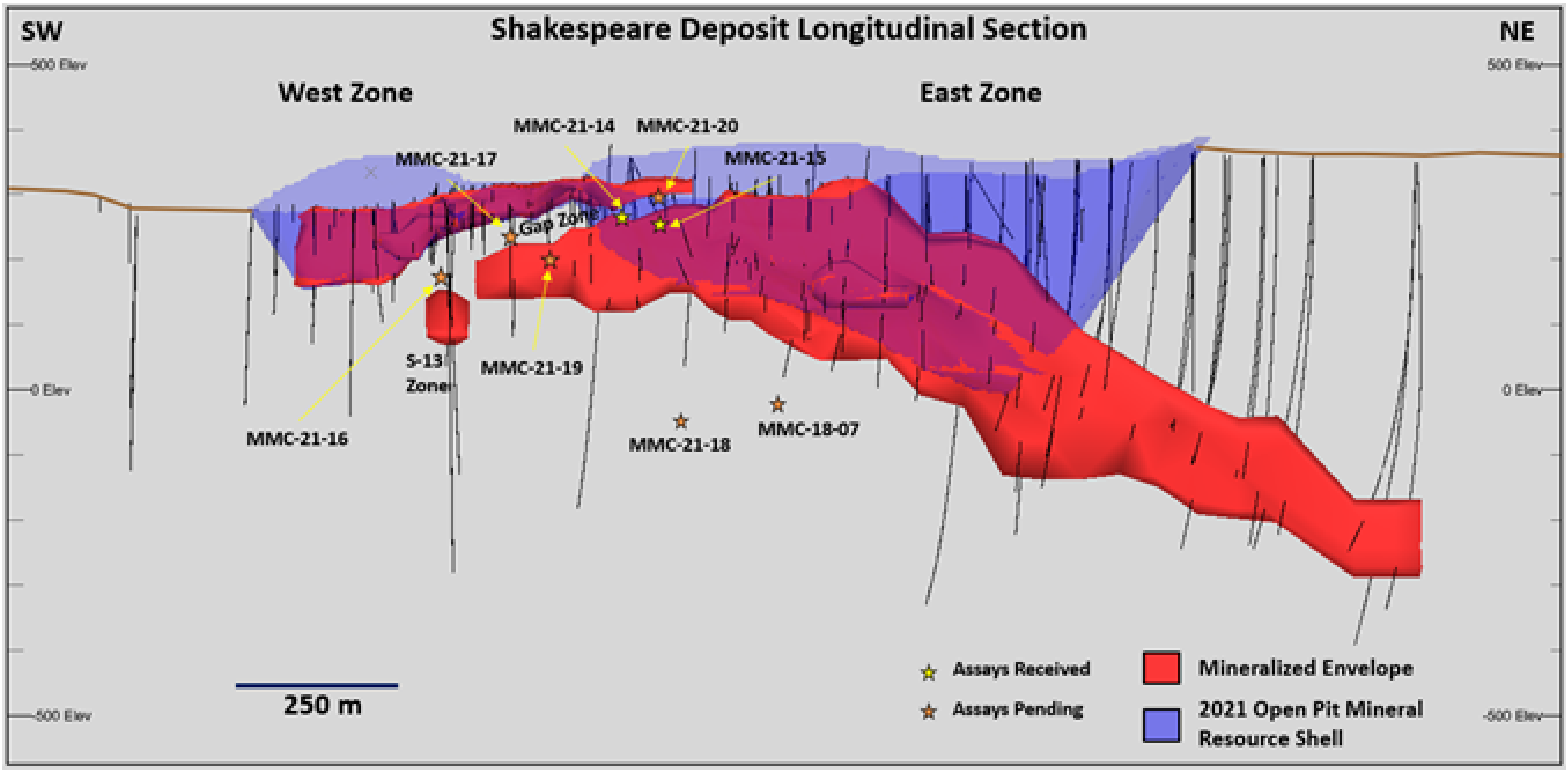
DDH	Zone	Including	From (m)	To (m)	Length (m)	Cu %)	Ni (%)	Co (%)	Pt (g/t)	Pd (g/t)	Au (g/t)	Ni Eq
MMC-21-14	Gap		63.0	65.0	2.0	0.08	0.13	0.01	0.15	0.16	0.08	0.21
MMC-21-15	Gap		49.8	52.6	2.8	0.01	0.27	0.00	0.01	0.00	0.00	0.23
	Gap	and	90.5	124.3	33.8	0.31	0.27	0.02	0.26	0.34	0.19	0.51
		Including	**90.5**	**112.2**	**21.6**	**0.37**	**0.34**	**0.03**	**0.32**	**0.42**	**0.24**	**0.64**
	East FW		131.9	134.7	2.8	0.51	0.39	0.02	0.45	0.49	0.25	0.73
MMC-21-16	In-fill West Deposit		48.50	62.00	13.50	0.25	0.31	0.02	0.32	0.30	0.14	0.48
	Gap Zone	and	74.17	79.42	5.25	0.42	0.52	0.02	0.44	0.54	0.23	0.77
	FW	and	208.38	211.02	2.64	0.14	0.29	0.01	0.19	0.22	0.13	0.34
MMC-21-17	In-fill East Deposit		43.13	52.11	8.98	0.15	0.17	0.01	0.55	0.19	0.09	0.35
MMC-21-18	HW		79.45	80.75	1.30	0.18	0.01	0.02	0.01	0.00	0.01	0.20
	East Deposit	and	143.46	148.00	4.54	0.16	0.07	0.01	0.18	0.20	0.10	0.26
MMC-21-19	In-fill East Deposit		116.43	123.00	6.57	0.18	0.28	0.02	0.15	0.17	0.08	0.36
MMC-21-20	Gap Zone		43.74	52.39	8.65	0.37	0.42	0.02	0.42	0.52	0.31	0.69
MMC-21-21	S-13/Gap Zone		146.29	155.25	8.96	0.27	0.33	0.02	0.22	0.23	0.14	0.49
MMC-21-21	S-13/Gap Zone	and	178.80	191.13	12.33	0.23	0.27	0.02	0.22	0.26	0.15	0.43
MMC-21-22	West Deposit Ext.		119.80	144.00	24.20	0.29	0.45	0.02	0.31	0.38	0.24	0.59
		including	**138.79**	**141.25**	**2.46**	**0.46**	**0.64**	**0.02**	**0.57**	**0.69**	**0.36**	**0.89**
MMC-21-23		No significant values - drilled to north of deposit for lithologies										
MMC-21-24	S-13/Gap Zone		136.37	139.56	3.19	0.26	0.25	0.02	0.21	0.24	0.13	0.45
	S-13/Gap Zone	and	163.86	166.05	2.19	0.25	0.36	0.02	0.21	0.27	0.13	0.48
MMC-21-25	S-13/Gap Zone		141.00	193.57	52.57	0.46	0.54	0.03	0.48	0.55	0.25	0.84
		including	178.49	181.74	3.25	0.54	0.80	0.03	0.60	0.69	0.33	1.06
MMC-21-26	West		166.10	170.60	4.50	0.07	0.13	0.01	0.06	0.07	0.05	0.16

DDH	Zone	Including	From (m)	To (m)	Length (m)	Cu %)	Ni (%)	Co (%)	Pt (g/t)	Pd (g/t)	Au (g/t)	Ni Eq
	West	and	196.00	197.00	1.00	0.11	0.20	0.01	0.08	0.13	0.08	0.25
MMC-21-27	Gap		69.64	73.60	3.96	0.16	0.18	0.01	0.18	0.19	0.09	0.30
	East	and	125.30	172.98	47.68	0.25	0.30	0.02	0.24	0.27	0.13	0.46
		including	**139.84**	**156.47**	**16.63**	**0.38**	**0.43**	**0.02**	**0.37**	**0.40**	**0.19**	**0.68**
MMC-21-28	West		3.20	15.46	12.26	0.18	0.23	0.01	0.21	0.28	0.13	0.36
MMC-21-29	West		30.00	94.16	64.16	0.34	0.41	0.02	0.34	0.41	0.23	0.62
	West		30.00	57.33	27.33	0.34	0.40	0.02	0.33	0.41	0.26	0.62
		including	**30.00**	**39.00**	**9.00**	**0.42**	**0.44**	**0.02**	**0.41**	**0.52**	**0.40**	**0.75**
		including	**45.37**	**57.33**	**11.96**	**0.46**	**0.56**	**0.03**	**0.44**	**0.54**	**0.30**	**0.84**
	West	and	57.33	94.16	36.83	0.34	0.41	0.02	0.35	0.41	0.20	0.62
		including	**57.33**	**81.00**	**23.67**	**0.47**	**0.54**	**0.03**	**0.48**	**0.55**	**0.28**	**0.84**
	Gap	and	120.30	130.54	10.24	0.30	0.37	0.02	0.30	0.34	0.17	0.55
	Gap	and	168.78	184.53	15.75	0.23	0.24	0.02	0.20	0.21	0.15	0.41
MMC-21-30	Gap		124.78	131.16	6.38	0.25	0.32	0.01	0.29	0.36	0.17	0.48
	Gap	and	142.58	155.37	12.79	0.34	0.46	0.02	0.39	0.48	0.20	0.65
	Gap	and	162.00	164.59	2.59	0.24	0.18	0.02	0.13	0.17	0.08	0.38
	Gap	and	186.40	190.83	4.43	0.23	0.17	0.02	0.24	0.22	0.22	0.41
MMC-21-31		No significant values										
MMC-21-32		Assays pending										
MMC-21-33		Assays pending										
MMC-21-34	Gap		4.46	4.76	0.30	0.33	0.45	0.02	0.40	0.50	0.27	0.66
	Gap	and	24.55	36.00	11.45	0.20	0.25	0.01	0.22	0.27	0.15	0.38
MMC-21-35		Assays pending										
MMC-21-36		Assays pending										
MMC-21-37		Assays pending										
MMC-21-38		Assays pending										
MMC-21-39		Assays pending										

All composite intervals are reported as core length as true width has not been determined.

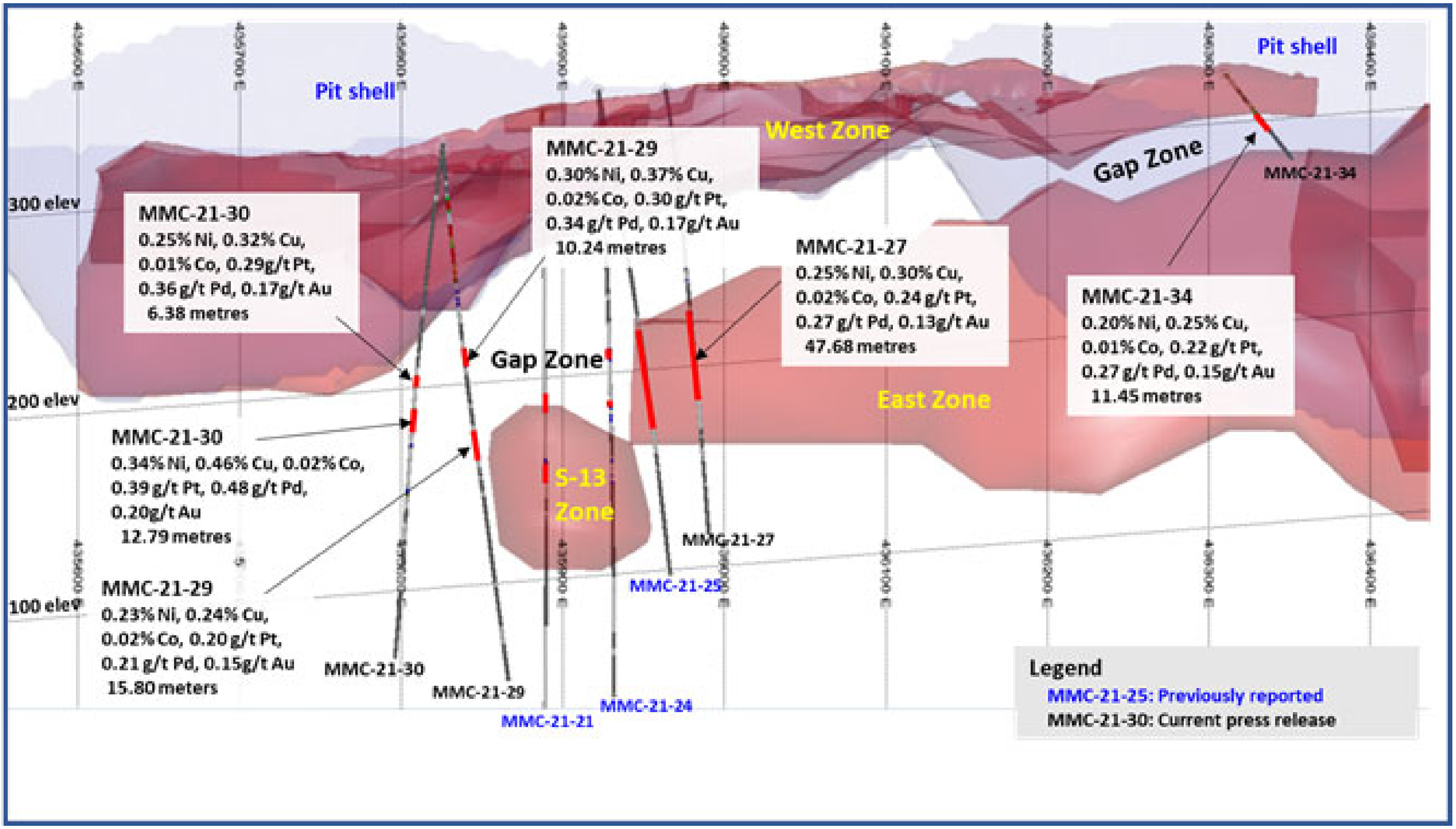
Nickel Equivalent (NiEq) grade is calculated based on metal prices of $6.25/lb Ni, $2.80/lb Cu, $31.00/lb Co, $950/oz Pt, $900/oz Pd and $1,250.00/oz Au, and metal recoveries of 76.4% for Ni, 95.9% for Cu, 71% for Co, 74.8% for Pt, 42.4% for Pd and 38.4% for Au.

Figure 10-2: Shakespeare Deposit Longitudinal Section; Location of 2021 Drillholes MMC-21-14 to MMC-21-20



Source: Magna Mining Press Release June 24, 2021

Figure 10-3: Shakespeare Deposit Longitudinal Section; 2021 Drillhole Location w/ Significant Drill Intercepts MMC-21-21 to MMC-21-34



Source: Magna Mining Jan 5, 2022 Press Release

10.3 Exploration Drilling

2021: The exploration drill program completed was a total of 2,046m and consisted of two holes at P-4 for 741m, two drill holes at Hanover for 285m, and four holes at Springer for 1,020m. As a result of this drilling Magna delineated minor Cu at Springer and Hanover, with a new Cu-Ni-PGE discovery at the P-4 location. These locations are summarized in Figure 10-4 and highlights from P-4 are shown in Table 10-5.

Figure 10-4: Map Showing Location of Regional Exploration Drilling

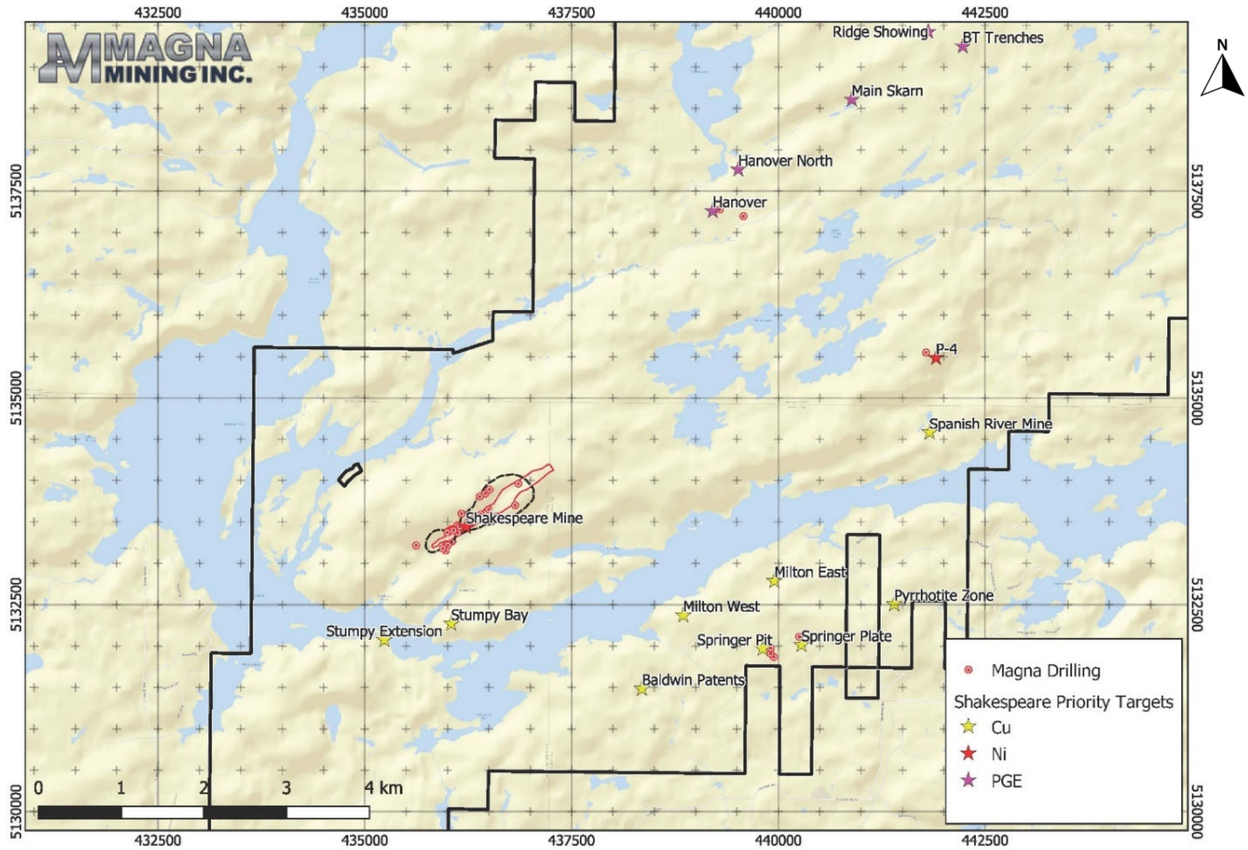


Table 10-5: Highlights from Regional Exploration Drilling

DDH		From (m)	To (m)	Length (m)	Ni (%)	Cu (%)	Co (%)	Pt (g/t)	Pd (g/t)	Au (g/t)	NiEq (%)
MP4-21-01		154.8	156.8	1.91	0.39	0.56	0.03	0.45	0.67	0.61	1.19
	Including	155.8	156.8	0.92	0.58	0.84	0.04	0.70	1.00	0.94	1.79
MP4-21-02		178.4	182.1	3.66	0.45	0.55	0.03	0.28	0.37	0.34	1.05
	Including	178.7	179.2	0.53	0.46	1.32	0.03	0.50	0.58	0.56	1.60
	Including	180.2	180.4	0.21	1.16	0.10	0.06	0.08	0.19	0.51	1.59

11 SAMPLE PREPARATION, ANALYSES, AND SECURITY

Sample preparation, analyses, and security for the Project prior to acquisition by Magna is described in previous technical reports on the Project. Armitage assumes that the sample preparation, analyses, and security for drilling completed prior to the Magna acquisition has been reviewed and validated by previous authors of resource estimates including Micon, P&E Mining and RPA and has not been reviewed by Armitage for the current resource estimate. Armitage assumes that sample preparation, analysis and security by previous operators was completed in a manner consistent with industry standard sampling techniques at the time.

Basically the results of prior QA/QC programs to date on the Project indicate there are no significant issues with the drill core assay data. The data verification programs undertaken on the data collected from the Project support the geological interpretations, and the analytical and database quality, and therefore data can support a mineral resource estimation.

11.1 2018 Drill Program

The results of the 2018 Sample Preparation, Analyses, Security and QA/QC program (November-December 2018) have been written up by Marshall Hall of Magna and reviewed by the Armitage. The results of the 2018 Sample Preparation, Analyses, Security and QA/QC program are detailed in Appendix B.

The results indicate there are no significant issues with the drill core assay data. The data verification program undertaken on the 2018 data collected from the Project support the geological interpretations, and the analytical and database quality, and therefore data can support mineral resource estimation.

All core samples were shipped to SGS Laboratories in Garson Ontario for crushing and pulverizing. Representative pulps were then shipped to Burnaby, British Columbia for analysis. The Author (SGS Geological Services) is independent of SGS's Laboratory Services.

11.2 2020 Channel Sampling

For the surface and channel sampling, Magna has followed the same QAQC procedure as outlined in the 2018 drilling program. QAQC samples were inserted every 10 samples as a mix between CDN standards and a blank quartz material acquired from local landscape supply store. All standards passed with two standard deviations and there were no anomalous values included in the blanks. The data has therefore been deemed as acceptable by Marshall Hall, Project Geologist for Magna Mining.

11.3 2021 Drill Program

Magna continues to follow a rigorous QAQC program for drilling. For 2021, sample QA/QC practices for Magna have been designed to meet or exceed industry standards. Drill core is collected from the diamond drill and placed in sealed core trays for transport to Magna's core facilities. The core is then logged, and samples marked in intervals of up to 1.5 m and cut with a diamond saw. Samples are then bagged in plastic bags with 10 bagged samples being placed into rice bags for transport to SGS Laboratories, Sudbury. Samples are submitted in batches of 50 with 5 QA/QC samples including, 2 certified reference material standards, 2 samples of blank material and 1 duplicate.

The 2021 drilling program saw 3,064 samples submitted to SGS laboratories and 262 samples submitted to Swastika Laboratories Ltd. Of these 3,326 samples, 323 (9.7% of all samples) were samples submitted for quality control purposes. This was composed of 132 standards, 134 blanks, and 46 duplicates. The results of the 2018 Sample Preparation, Analyses, Security and QA/QC program are detailed in Appendix B. The results indicate there are no significant issues with the 2021 drill core assay data. The data verification program undertaken on the 2021 data collected from the Project support the geological interpretations, and the analytical and database quality and therefore data can support a revised mineral resource estimation, to be completed in 2022.

12 DATA VERIFICATION

The following section summarise the data verification procedures that were carried out and completed and documented by the Authors for this technical report.

As part of the verification process, the Author reviewed all geological data and databases as well as past public and in-house technical reports.

Since acquisition of the Property, exploration by Magna included drill programs conducted in late 2018 (November-December), and 2021. All previous drilling has been completed by other issuers and is described in Section 6: History. The Author assumes that the sample preparation, analyses, and security for drilling completed by other issuers prior to the effective date of this report has been reviewed and validated by previous authors of resource estimates including Micon, P&E Mining and RPA. Armitage assumes that sample preparation, analysis and security by previous operators was completed in a manner consistent with industry standard sampling techniques at the time.

Armitage conducted an independent verification of the assay data in the drill sample database. Approximately 10-20% of the available digital assay records were randomly selected and checked against the laboratory assay certificate reports by Armitage. Armitage reviewed the assay database for errors, including overlaps and gapping in intervals and typographical errors in assay values. In general, the database was in good shape and no adjustments were required to be made to the assay values contained in the assay database.

Verifications were also carried out on drill hole locations, down hole surveys, lithology, SG, trench data, and topography information. Minor errors were noted and corrected during the validation process but have no material impact on the 2021 MRE presented in the current report. The database is of sufficient quality to be used for the current MRE.

In addition, as described below, the Author conducted site visits to better evaluate the veracity of the data.

The project is at an advanced stage of exploration. The project has had numerous studies completed, including Feasibility studies, and has had numerous past authors complete site visits, data verification programs, and complete mineral resource estimates and mineral resource estimate reviews (Micon, P&E Mining and RPA). The Project has seen numerous bulk samples collected and has seen past production (open pit). As such, the Authors did not deem it necessary to collect check samples.

12.1 July 2018 Site Inspection and Data Verification

Armitage personally inspected the Property on July 30, 2018, accompanied by Jonathan O'Callaghan, consulting Project Geologist for Magna. Armitage completed a tour of the Property which included visits to various outcrops to review the property geology, visit to various mineralized outcrops, tour of the open pit to view the deposit mineralization, and tour of historic channel sample locations, historic drill sites, the current office, and core storage facilities. There is currently no exploration or mining activities on the Property and Magna had completed no exploration on the Property prior to the date of this site visit.

Armitage examined a number of selected mineralized core intervals from diamond drill holes from the Deposit. Armitage examined accompanying drill logs and assay certificates and assays were examined against the drill core mineralized zones. All core boxes were labelled and properly stored outside. Sample tags were still present in the boxes, and it was possible to validate sample intervals and confirm the presence of mineralization in witness half-core samples from the mineralized zones.

12.2 November 2018 Site Inspection and Data Verification

Armitage conducted a second site visit on November 28 and 29, 2018 accompanied by Marshall Hall, Project Geologist for Magna; Magna was in the process of completing a drill program. Armitage inspected the camp, the drill and recent drill sites in the field as well as core security in the field. Armitage also inspected the offices, core logging facilities (located in Sudbury) and reviewed the logging and sampling procedures and core sample security. Armitage examined several recent core holes and accompanying drill logs and available assay certificates; available assays were examined against drill core mineralized zones.

12.3 November 2020 Site Inspection

Marc-Antoine Laporte ("Laporte") conducted a control site visit on November 11, 2020 accompanied by Marshall Hall. The main purpose of the site visit by Laporte was to confirm the current status of the project area and confirm that limited exploration work was carried out on the Property since the last site visit by Armitage and the last drill program in 2018. Laporte inspected the camp and recent trench sample sites in the field as well as core logging facilities (located in Sudbury). Only minor surface work (one trench and prospecting work) was done on the project site since Armitage's last visit in 2018. No other recent groundwork has been completed on the Project as determined by lack of fresh disturbance as would be expected by drilling, trenching, bulk sampling, or mining. The open pit is currently full of water.

12.4 2021 Site Inspection

Armitage conducted a third site visit on July 26 and 27, 2021 accompanied by Jason Jessup, CEO & Director of Magna, and Marshall Hall, Exploration Manager for Magna; at the time of the site visit, Magna was conducting their planned 9,000 m, Phase I drilling program. Although a number of drill holes had been completed before the site visit, assay data was only available for the first two holes, MMC-21-14, and MMC-21-15. Armitage inspected the drill and recent drill sites in the field as well as core security in the field. Armitage also inspected the offices, core logging facilities (located in Sudbury) and reviewed the 2021 logging and sampling procedures and core sample security. Armitage examined several recent core holes and accompanying drill logs and assay certificates; assays were examined against drill core mineralized zones.

12.5 Conclusion

All geological data has been reviewed and verified by Armitage as being accurate to the extent possible and to the extent possible all geologic information was reviewed and confirmed. There were no errors or issues identified with the database. Armitage is of the opinion that the database is of sufficient quality to be used for the current MRE.

13 MINERAL PROCESSING AND METALLURGICAL TESTING

13.1 Metallurgical Testwork

The Shakespeare deposit has had numerous metallurgical studies since 2003. The reports reviewed in preparation of this section are from SGS Lakefield and cover the evolution of this project from initial evaluation, evaluation of processing through Strathcona Mill (Glencore) to a stand-alone concentrator producing a bulk concentrate and finally an evaluation of producing separate Cu and Ni concentrate.

13.1.1 Mineralogy

The Shakespeare deposit is composed primarily of ~90% silicates and ~5% sulphides with minor amounts of oxides and carbonates. The silicates minerals are chlorites/clays, amphiboles, feldspars, plagioclase, quartz, epidote, and micas. The sulphide minerals are pyrrhotite, chalcopyrite and pentlandite. The resource lithology was identified as 68% disseminated and 32% blebby.

The copper in the deposit occurs almost exclusively (99%) as Chalcopyrite. Eighty-five percent of the nickel occurs as pentlandite and another 4% occurs as pyrrhotite and other sulphides. Ten percent of the nickel occurs as non sulphides in clays (7%) and Amphiboles (3%).

At the designed grind of 80 µm, 88% of the Cu sulphides and 84% of the Ni sulphides are free or liberated. In the coarser size fraction of 106 µm, liberation fell by 5% and 4% for Cu and Ni, respectively.

13.1.2 Hardness Testing

Hardness data is required for the design of the grinding circuit to achieve the tonnage required at the product size necessary to achieve metallurgical results. Measurements of hardness have been made through various metallurgical studies of the Shakespeare deposit.

The initial metallurgical sample collected was used to evaluate the processing of Shakespeare through the Strathcona mill currently operated by Glencore. As the Strathcona grinding circuit already exists, only standard Bond Rod and Ball indices were required to assess grindability of the ore. A rod work index (RWI) of 15.9 kWh/t was measured which is considered medium hard. A ball work index (BWI) of 12.6 kWh/t was measured using a screen size of 150 µm to represent Strathcona's grind. The BWI is considered medium soft.

Metallurgical flotation results indicated that increased Cu and Ni recovery was achievable with a grind P80 of 80 µm. A study was conducted by SGS in 2005 to generate the data required to design of a stand alone grinding circuit to achieve a finer, optimum grind with a P80 of 80 µm. The BWI measurements were performed with a screen size of 100 µm to reflect the finer target.

This major grinding study conducted in 2005 analysed 19 variability and 3 composite samples from across the resource. Measurements of rock density, drop weight test parameters, bond indices and abrasion index were measured.

The density of the material was determined to be 3.02 g/m3.

The drop weight tests used to generate parameters for use in JKSimMet© modelling programs. These tests are appropriate for determining energy requirements for circuits consisting of semi-autogenous

(SAG) mills and crushers. The parameters reported from the tests include A x b (unitless parameters derived from the JK Drop test), tα (the percentage of material after breakage that is less than the 'α' percentage of original drop particle size, where α is commonly set to 10%) and DWi (drop weight index). These are standard hardness parameters measured for ores to be processed in SAG circuits (SGS 2004). The magnitude of the parameters determined can be compared to parameters determined on other ore samples providing an indication of the relative hardness. The Shakespeare samples tested fell between the 90th and 99th percentile of hardest measured samples in the JK Drop test database and are classified as very hard.

The Bond ball tests generates a Bond work index (BWI) estimate for use in the sizing of ball mills. The tests were performed at a closing size of 100 µm, which is appropriately sized to reflect the mill's current grind target. The measured work index of averaging 13.3 kWh/t is moderate hardness falling at about 45th percentile of the SGS database.

The results of hardness testing are presented in Table 13-1 and indicate that the lithologies are very consistent in hardness.

Table 13-1: Table: Hardness Data

Sample I.D.	Lithology	Density (g/m3)	Drop Weight Test Parameters A	b	Axb	*ta*	DWi	Bond Index (kW/t) RWI	BWI	Abrasion *Ai*
SVMLO-1	Surface	3.10	84.3	0.34	28.7		9.5	17.2	14.5	
SVMLO-2	Surface	3.06	81.8	0.34	27.8		9.9	18.7	15.8	
SVMLO-3	Surface	3.01	60.6	0.42	25.5		10.5	15.7	13.3	
SVMLO-4	Surface	2.97	70.9	0.37	26.2		10.2	14.6	12.3	
SVMLO-5	Surface	3.00	80.8	0.28	22.6		11.7	17.6	14.9	
SVMLO-6	Surface	3.22	72.9	0.47	34.3		8.5	17.1	14.4	
SVMLO-7	Surface	3.00	50.9	0.60	30.5		8.8	16.4	13.8	
SVMLO-8	Surface	3.00	74.9	0.33	24.7		10.8	16.7	14.1	
SVMDC-1	Disseminated	3.01	66.5	0.37	24.6		11.0	17.1	14.5	
SVMDC-2	Disseminated	2.99	66.6	0.37	24.6		10.8	15.5	13.1	
SVMDC-3	Blebby	3.04	59.8	0.40	23.9		11.5	15.5	13.0	
SVMDC-4	Disseminated	3.03	52.4	0.52	27.2		9.9	14.8	12.5	
SVMDC-5	Blebby	3.02	74.7	0.32	23.9		11.2	15.1	12.7	
SVMDC-6	Disseminated	3.03	76.1	0.28	21.3		12.9	15.4	13.0	
SVMDC-7	Blebby	2.97	63.2	0.41	24.9		10.1	14.1	11.9	
SVMDC-8	Disseminated	3.04	100.0	0.21	21.0		13.1	16.5	13.9	
SVMDC-9	Blebby	3.03	82.4	0.28	23.1		11.8	14.5	12.2	
SVMDC-10	Disseminated	3.00	100.0	0.20	20.0		13.6	15.9	13.4	
SVMDC-11	Disseminated	2.85	100.0	0.21	21.0		12.2	15.4	13.0	
Shake SAG-1	Surface	3.05	100.0	0.22	22.0	0.23	12.4	16.3	13.8	
Shake SAG-1	Surface	3.02	100.0	0.23	23.0		11.7			
Calc Comp 2,4,6,8	Disseminated	3.02	73.8	0.35	23.5		11.7		13.1	0.217
Calc Comp 3,5,7,9	Blebby	3.02	70.0	0.35	24.2		11.2		12.5	0.145
Average		3.02	77.1	0.34	24.8	0.23	11.1		13.5	
	Median	**3.02**	**74.9**	**0.34**	**24.6**		**11.0**		**13.3**	

* shaded values calculated

An additional hardness sample from Shakespeare (Shake 2008) was acquired in 2008 for the evaluation of high pressure grinding rolls. The results shown in Table 13-2 and are consistent with previous testing.

Table 13-2: Follow-up Hardness Data

Sample I.D.	Lithology	Density (g/m3)	Drop Weight Test Parameters A	b	Axb	*ta*	DW*i*	Bond Index (kW/t) RWI	BWI	Abrasion *Ai*
Shake 2008 Comp	Composite	2.98	75.9	0.25	19.0	0.27		15.8	13.5	0.169

13.1.3 Flotation Testing

Scoping Flotation Testing

The flotation testing program commenced in 2003 with a scoping level review. The program evaluated diamond drill samples from two holes (Table 13-3). Sample U3Met1 consisted of hole U3-08 (86.32-108m) and hole U3-09 (107-132m) which reportedly represented the upper half of the deposit and sample U3Met2 consisted of hole U3-08 (108-129.05m) and U3-09 (132-157m) which reportedly represented the lower half of the deposit. The samples and drill holes were listed and were consistent with the geological data reported.

Table 13-3: Metallurgical Sample Head Assay for 2003 SGS Test Program

Sample	Cu %	Ni %	Pt g/t	Pd g/t	Au g/t
U3Met1	0.59	0.53	0.57	0.55	0.25
UsMet2	0.49	0.44	0.45	0.53	0.25

The finding indicated that the resource responds very well to flotation. The flotation kinetics improved with fineness of grind and that an 80% passing size (k_{80}) of 82 µm was selected on trade-off of PGE recovery against Ni recovery. Rougher recoveries of 97%Cu, 85% Ni, 85% Pt, 60% Pd, and 55% Au were observed on average. Open circuit cleaning of rougher concentrate resulted in losses of Ni and PGE minerals. Average overall recovery of the best two open circuit tests achieving a Cu+Ni grade of 22.2 % averaged 92.5% Cu, 65% Ni, 64% Pt, 22.5% Pd, 21% Au although expected to improve in LCT.

13.1.4 Flotation Evaluation for Treatment at Strathcona Mill (Glencore)

Based on the scoping level results, consideration of batch toll processing the resource through the existing processing facility of Strathcona mill in Sudbury were evaluated. Three (3) samples of Shakespeare material were provided for metallurgical testing. A composite of Strathcona feed was also provided for blending tests. The Shakespeare samples were identified as Blebby Yr1-5, Composite Yr1-5 and Disseminated Yr1-5 and were crushed to -10 mesh (-2mm). The head assay of these samples is provided in Table 13-4. The resource is approximately 70% disseminated lithology and 30% blebby lithology although variability testwork reported later indicates little difference in metallurgical performance.

Table 13-4: Composite Analysis for Strathcona Flowsheet

Sample	Cu %	Ni %	Pt g/t	Pd g/t	Au g/t
Composite Yr1-5	0.43	0.39	0.33	0.42	0.21
Disseminated Yr1-5	0.39	0.34	0.37	0.40	0.20
Blebby Yr 1-5	0.42	0.5	0.48	0.50	0.34

The laboratory flotation LCT tests on each sample was performed at the coarser grind of Strathcona mill a k80 of 150 µm. The results are presented in Table 13-5.

The higher overall recoveries from the blebby sample are the result of lower bulk concentrate grade of a Cu+Ni of 8.04% versus the other samples bulk concentrate grade of approximately Cu+Ni 14% which is typical in operations.

A bulk sample of 45,487 tonnes was subsequently processed through Strathcona mill and the balance is presented in Table 13-6. The plant trial demonstrated that the continuous nature of the grinding circuit enhanced Pd and Au recovery whereas Cu, Co and Pt were negatively impacted. Ni recovery was as expected at the bulk concentrate grade of 14.6%

Table 13-5: LCT Using Strathcona Flowsheet

Stream	Weight	Assays							Distribution (%)						
	%	Cu (%)	Ni (%)	Co (%)	Pt (g/t)	Pd (g/t)	Au (g/t)	Ag (g/t)	Cu	Ni	Co	Pt	Pd	Au	Ag
Blebby															
Feed	100.00	0.40	0.48	0.03	0.42	0.55	0.40		100.0	100.0	100.0	100.0	100.0	100.0	
Cu Conc	2.46	14.00	1.20	0.09	1.72	3.02	3.17		86.9	6.2	6.1	10.1	13.6	19.6	
Ni Conc	7.19	0.38	5.21	0.36	4.15	2.52	1.32		6.9	78.5	75.6	71.3	33.2	23.8	
Calc Bulk	9.65	3.85	4.19	0.29	3.53	2.65	1.79		93.8	84.7	81.7	81.4	46.8	43.4	
Disseminated															
Feed	100.00	0.37	0.33	0.02	0.32	0.37	0.21		100.0	100.0	100.0	100.0	100.0	100.0	
Cu Conc	1.50	20.90	1.35	0.10	2.81	1.87	1.32		84.8	6.1	6.7	13.3	7.6	9.5	
Ni Conc	2.87	0.99	7.89	0.43	5.22	2.99	1.26		7.7	67.9	57.5	47.4	23.4	17.3	
Calc Bulk	4.37	7.82	5.65	0.31	4.39	2.61	1.28		92.5	73.9	64.2	60.7	31.0	26.8	
Composite															
Feed	100.00	0.42	0.39	0.02	0.34	0.41	0.24		100.0	100.0	100.0	100.0	100.0	100.0	
Cu Conc	1.92	18.90	1.47	0.11	3.93	2.70	1.71		87.2	7.3	8.7	22.3	12.6	13.6	
Ni Conc	2.92	1.04	9.32	0.50	4.46	3.73	1.63		7.3	70.5	62.5	38.4	26.4	19.7	
Calc Bulk	4.84	8.12	6.21	0.34	4.25	3.32	1.66		94.5	77.8	71.2	60.7	38.9	33.2	
Strathcona Mill															
Feed	100.00	0.46	0.40	0.03	0.48	0.38	0.19	2.68	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Cu Conc	1.06	28.16	2.70	0.14	5.13	5.23	4.09	74.23	65.0	7.2	5.7	11.3	14.7	23.3	29.5
Ni Conc	3.80	2.95	7.18	0.37	4.45	5.12	1.92	30.20	24.4	69.0	54.3	35.0	51.5	39.2	43.0
Calc Bulk	4.87	8.45	6.20	0.32	4.60	5.14	2.39	39.81	89.4	76.2	60.0	46.3	66.1	62.6	72.4

Table 13-6: Strathcona Mill Bulk Sample Results

Stream	Weight		Assays							Distribution (%)						
	dmt	%	Cu (%)	Ni (%)	Co (%)	Pt (g/t)	Pd (g/t)	Au (g/t)	Ag (g/t)	Cu	Ni	Co	Pt	Pd	Au	Ag
Feed	45,487	100.00	0.46	0.40	0.03	0.48	0.38	0.19	2.68	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Cu Conc	483	1.06	28.16	2.70	0.14	5.13	5.23	4.09	74.23	65.0	7.2	5.7	11.3	14.7	23.3	29.5
Ni Conc	1,730	3.80	2.95	7.18	0.37	4.45	5.12	1.92	30.20	24.4	69.0	54.3	35.0	51.5	39.2	43.0
Calc Bulk	2,213	4.87	8.45	6.20	0.32	4.60	5.14	2.39	39.81	89.4	76.2	60.0	46.3	66.1	62.6	72.4

Flotation Testing for Bulk Cu-Ni Concentrate

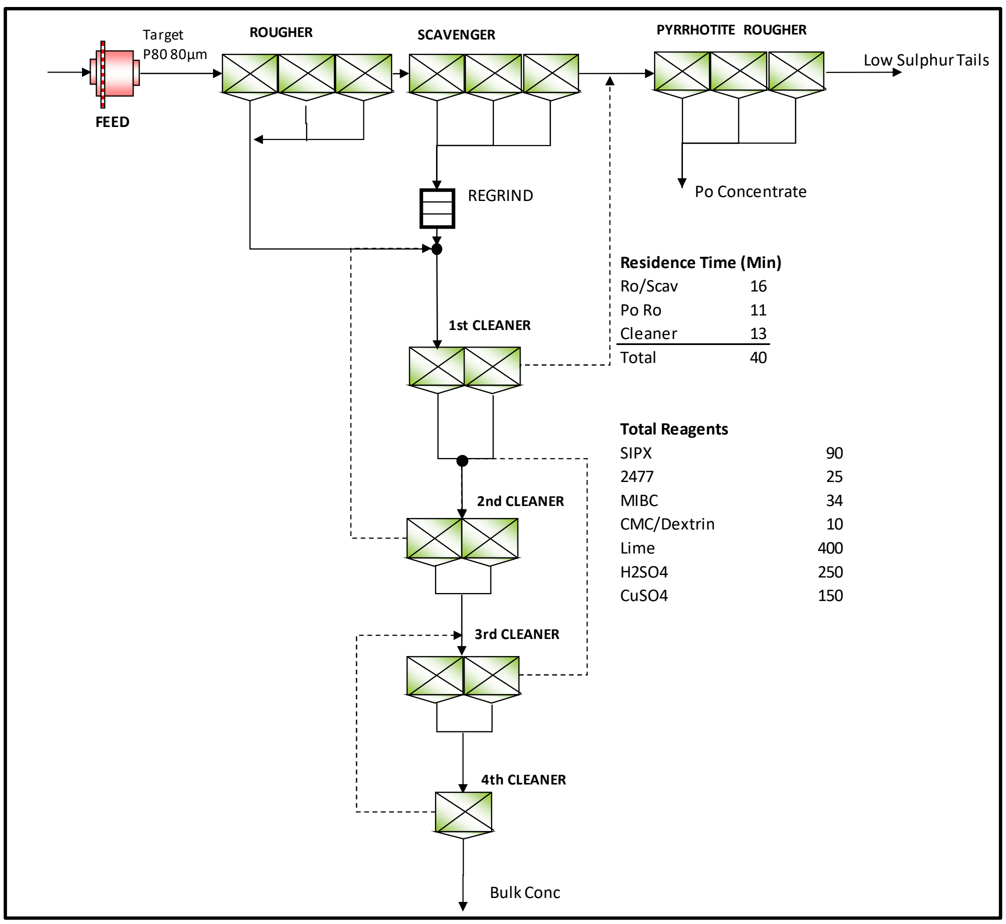
A feasibility report was prepared by SGS for the design of a stand alone concentrator. The composite tested was made from variable samples from across the resource and the average of triplicate assays are presented in Table 13-7.

Table 13-7: Shakespeare Composite Analysis

Sample	Cu %	Ni %	Pt g/t	Pd g/t	Au g/t
Shakespeare Comp	0.42	0.37	0.34	0.41	0.21

The test program developed a process to produce a bulk Cu-Ni concentrate. The process developed was to grind to a P80 of 80 µm, adjust the pH to 9.5. Sodium iso-propyl xanthante (SIPX) and a dithiophosphate (3477) were added as collectors. A carboxymethyl cellulose (CMC) was used as a dispersant in the four stages of cleaner. And methyl isobutyl carbinol (MIBC) was used as a frother throughout all stages. A regrind was used on the scavenger concentrate to enhance recovery. The flowsheet is presented in Figure 13-1and LCT were performed to develop metallurgical balances to produce different concentrate grades. The results are presented in Table 13-8.

Figure 13-1: Bulk Flotation Circuit



Source: SGS Feasibility Study Testwork 10616-003; 3-Feb-2006; p. 5

Table 13-8: Bulk Flotation LCT Results

LCT 38 Products	Weight %	Assay Cu %	Ni %	S %	Pt g/t	Pd g/t	Au g/t	% Distribution Cu	Ni	S	Pt	Pd	Au
4th Clnr Conc	5.8%	6.51	5.10	27.8	4.52	3.45	1.81	95.2%	81.7%	72.7%	86.0%	52.7%	46.1%
1st Clnr Tail	7.1%	0.04	0.23	4.39	0.31	0.5	0.29	0.7%	4.6%	14.2%	7.3%	9.4%	9.1%
Rougher Tail	87.1%	0.01	0.06	0.33	0.023	0.17	0.11	2.2%	14.5%	13.0%	6.6%	39.1%	42.2%
Combined Final Tails	94.2%	0.02	0.07	0.64	0.045	0.19	0.13	4.8%	18.3%	27.3%	14.0%	47.3%	53.9%
Calc Heads	100%	0.40	0.36	2.21	0.30	0.38	0.23	100%	100%	100%	100%	100%	100%
LCT 40 Products	**Weight %**	**Assay Cu %**	**Ni %**	**S %**	**Pt g/t**	**Pd g/t**	**Au g/t**	**% Distribution Cu**	**Ni**	**S**	**Pt**	**Pd**	**Au**
4th Clnr Conc	3.6%	10.30	7.38	26.21	6.17	4.16	2.40	95.1%	77.5%	47.3%	77.2%	46.3%	40.8%
1st Clnr Tail	7.2%	0.04	0.30	8.22	0.39	0.53	0.28	0.7%	6.3%	29.7%	9.8%	11.8%	9.5%
Rougher Tail	89.2%	0.01	0.06	0.51	0.042	0.16	0.12	2.3%	15.6%	22.8%	13.0%	44.1%	50.5%
Combined Final Tails	96.4%	0.02	0.08	1.09	0.068	0.18	0.13	4.9%	22.5%	52.7%	22.8%	53.7%	59.2%
Calc Heads	100%	0.39	0.34	2.00	0.29	0.32	0.21	100%	100%	100%	100%	100%	100%
LCT 43 Products	**Weight %**	**Assay Cu %**	**Ni %**	**S %**	**Pt g/t**	**Pd g/t**	**Au g/t**	**% Distribution Cu**	**Ni**	**S**	**Pt**	**Pd**	**Au**
4th Clnr Conc	2.4%	15.21	8.24	27.2	6.88	3.2	2.32	94.9%	66.6%	29.3%	58.6%	22.3%	21.9%
1st Clnr Tail	8.9%	0.06	0.47	12.37	0.90	1.18	0.50	1.4%	14.3%	50.1%	28.8%	30.9%	17.8%
Rougher Tail	88.7%	0.01	0.06	0.51	0.033	0.18	0.16	2.3%	18.2%	20.6%	10.5%	47.1%	56.8%
Combined Final Tails	97.6%	0.02	0.1	1.59	0.118	0.27	0.20	5.1%	33.4%	70.7%	41.4%	77.7%	78.1%
Calc Heads	100%	0.38	0.29	2.20	0.28	0.34	0.25	100%	100%	100%	100%	100%	100%
LCT 47 Products	**Weight %**	**Assay Cu %**	**Ni %**	**S %**	**Pt g/t**	**Pd g/t**	**Au g/t**	**% Distribution Cu**	**Ni**	**S**	**Pt**	**Pd**	**Au**
4th Clnr Conc	3.4%	11.67	7.57	29.4	7.1	4.11	2.08	95.4%	75.0%	46.6%	71.7%	37.9%	34.6%
1st Clnr Tail	11.1%	0.05	0.34	7.96	0.5	0.7	0.34	1.3%	10.9%	40.7%	16.3%	20.8%	18.2%
Rougher Tail	85.5%	0.02	0.06	0.32	0.05	0.18	0.11	4.1%	14.7%	12.6%	12.5%	41.2%	45.4%
Combined Final Tails	96.6%	0.02	0.09	1.2	0.1	0.24	0.14	4.6%	25.0%	53.4%	28.3%	62.1%	65.4%
Calc Heads	100%	0.42	0.35	2.17	0.34	0.37	0.21	100%	100%	100%	100%	100%	100%

The testwork indicated a 95% recovery of Cu and 76% recovery of Ni to a bulk concentrate with a combined Cu+Ni grade of 18% using a rougher and four counter current cleaning stages. The testwork also indicated that the Ni recovery could be increased to 79.8% by reducing the bulk concentrate grade to combined Cu+Ni grade of 15%.

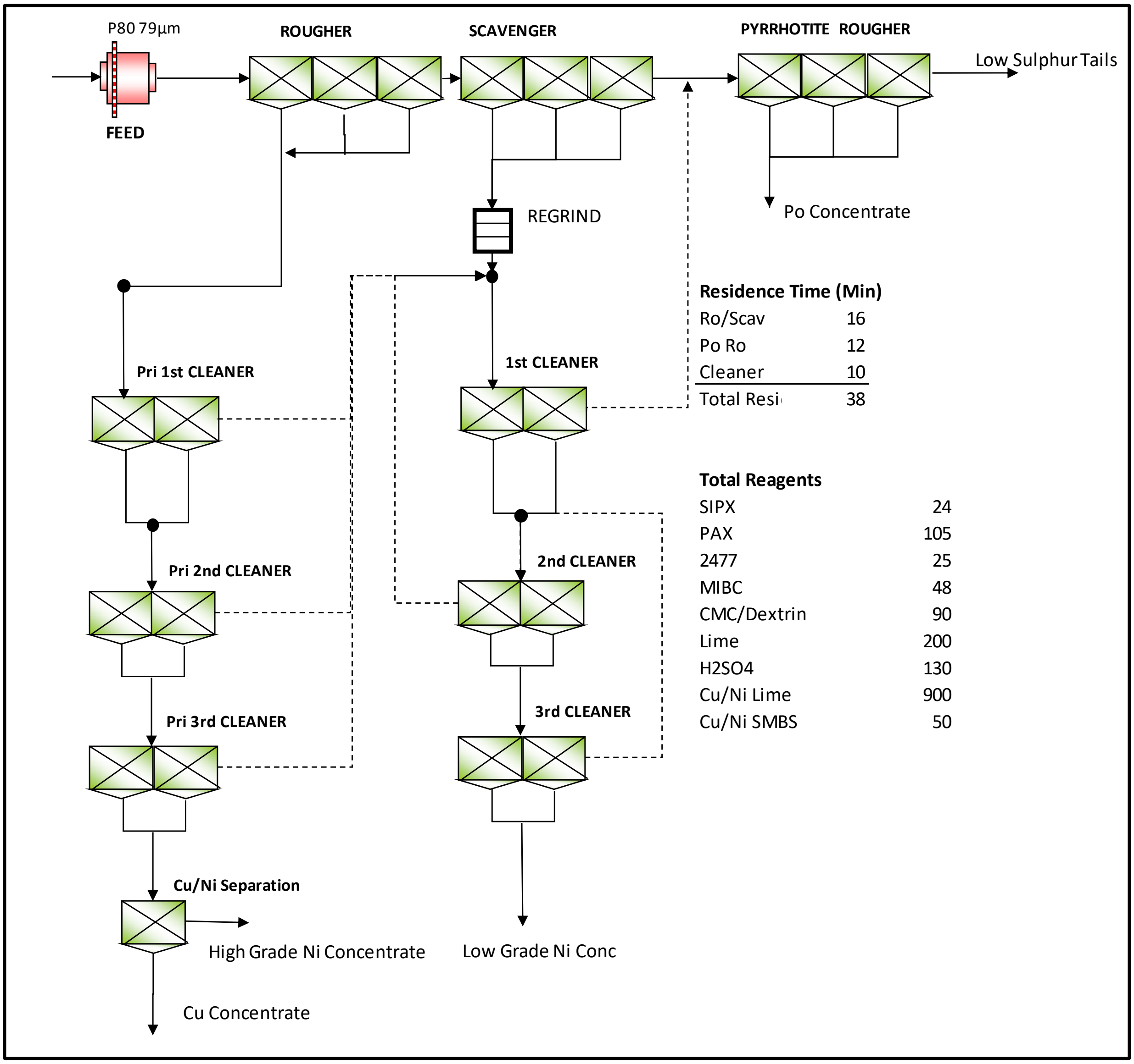
The Cu flotation was excellent in all tests. As Cu minerals float first, Cu recovery was not affected by final concentrate grade and SGS suggests between 95%-96% recovery.

The LCT results determined that 75%, 42% and 38% respective recovery predictions Pt, Pd and Au. The rougher recoveries for Pt, Pd and Au were 91%, 63% and 48% consistently in all the tests but cleaner recoveries were inconsistent and there was an indication that higher concentrate grades may result in lower overall PGM recoveries. Further, the base recoveries are based on the on the 0.34 Pt, 0.41 Pd and 0.21 Au in the sample tested.

13.1.5 Flotation Testing for Separate Cu-Ni Concentrates

Subsequent to the development of the process to produce a bulk concentrate, two separate programs on two representative samples have been conducted by SGS to demonstrate the ability to make separate Cu and Ni concentrates from the resource. The approach of both programs was similar with the primary bulk Cu-Ni rougher which was already separately recovered in the bulk circuit, being cleaned and split using a high lime circuit. The flowsheet is presented in Figure 13-2 below.

Figure 13-2: Cu-Ni Separation Flowsheet



Source: SGS Laboratory Testing Report 10616-005; 8-Apr-2008; p.7

The first program was conducted on a composite comprised of samples remaining from the bulk flotation testing program. The assay of the Cu-Ni Composite sample is shown in Table 13-9 below.

Table 13-9: Cu-Ni Composite Analysis

Sample	Cu %	Ni %	Pt g/t	Pd g/t	Au g/t
Cu-Ni Comp	0.45	0.4	0.28	0.47	0.26

Test program concluded a primary grind of 80 µm was optimum to produce a Cu-Ni separation. The flowsheet was Open circuit Cu-Ni separation tests were successful in recovering 62.2% of the Cu into a separate concentrate with a Ni assay of 0.57% which is acceptable to Cu smelters.

A single LCT was performed to demonstrate the overall process, but the test did not achieve stability and the targeted Cu-Ni separation split was not achieved. The recovery of Cu to Cu concentrate was 62%. The bulk concentrate produced had a combined Cu+Ni grade or 16.9% (9.5%Cu+7.4%Ni) with corresponding lower recoveries of 92.8% Cu and 72.9% Ni. The results are presented in Table 13-10.

Table 13-10: Cu-Ni LCT Results

Stream	Weight	Assay								Distribution (%)							
	%	Cu %	Ni %	S %	Co %	Pt g/t	Pd g/t	Au g/t	Ag g/t	Cu	Ni	S	Co	Pt	Pd	Au	Ag
Cu Concentrate	1.76	20.4	5.22	26.5	0.26	7.04	1.42	0.91	66.8	79.9	20.7	19.7	14.9	26.0	5.1	6.2	35.5
High Grade Ni Conc	1.50	2.23	11.7	28.2	0.66	11.1	5.35	1.89	46.8	7.4	39.4	17.9	32.2	34.9	16.5	11.0	21.1
Low Grade Ni Conc	1.12	2.18	5.11	23.4	0.39	7.57	8.88	4.24	42.8	5.4	12.8	11.1	14.2	17.8	20.4	18.4	14.4
Ni Clnr 1 Tails	7.60	0.08	0.66	12	0.04	0.41	0.82	0.45	3.95	1.4	11.3	38.6	9.9	6.5	12.8	13.3	9.1
Scavenger Tails	88.0	0.03	0.08	0.34	0.01	0.08	0.25	0.15	0.75	5.9	15.8	12.7	28.7	14.8	45.2	51.2	19.9
Comb. Ni Concentrate	2.61	2.21	8.88	26.15	0.54	9.59	6.86	2.89	45.09	12.9	52.2	29.0	46.4	52.7	36.8	29.3	35.6
Comb. Bulk Concentrate	**4.37**	**9.53**	**7.41**	**26.29**	**0.43**	**8.56**	**4.67**	**2.10**	**53.82**	**92.8**	**72.9**	**48.7**	**61.4**	**78.7**	**42.0**	**35.5**	**71.0**
Calculated Feed	100	0.45	0.44	2.36	0.03	0.48	0.49	0.26	3.31	100	100	100	100	100	100	100	100

A second test program was conducted to confirm the earlier Cu-Ni separation testwork which demonstrated that a clean (> 1% Ni) copper concentrate can be recovered from the resource.

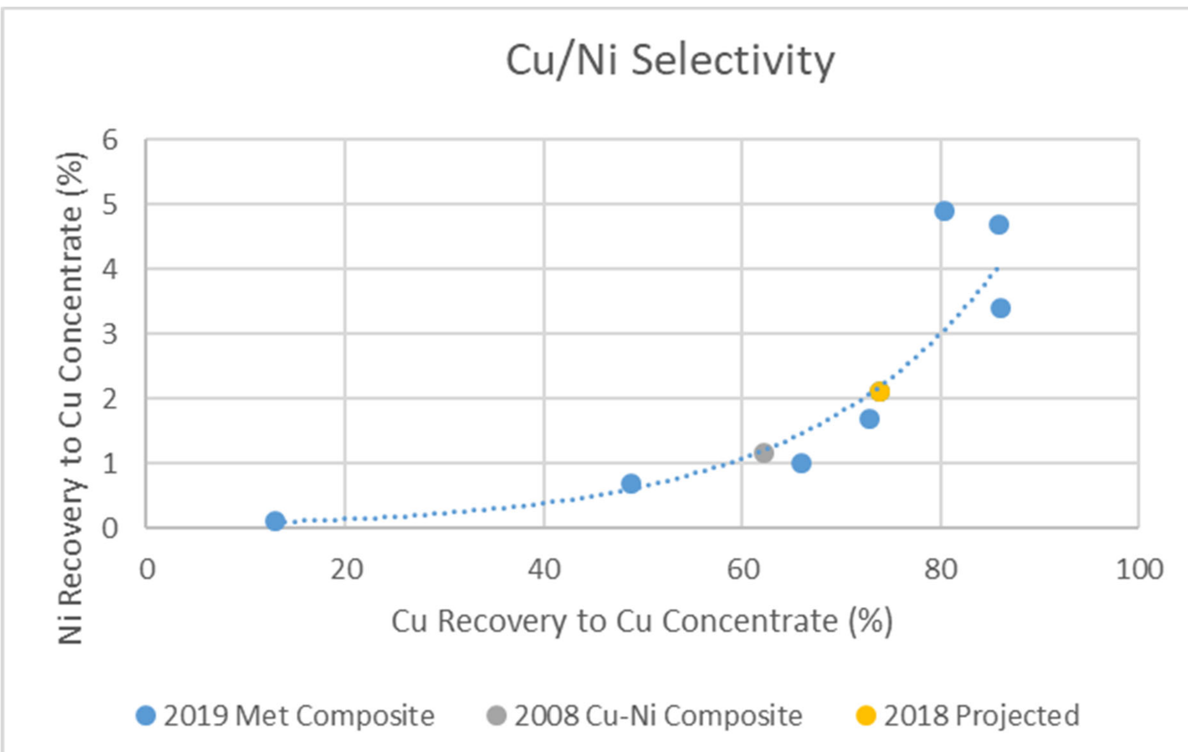
A new sample was acquired based to represent the expanded resource published on July 31, 2018. A comparison of the new 2019 Met Composite and the target resource grade is provided in Table 13-11.

Table 13-11: 2019 Met Sample and 2018 Target Resource Grade

Sample	Cu %	Ni %	Co %	Pt g/t	Pd g/t	Au g/t
2019 Met Comp	0.37	0.34	0.02	0.31	0.39	0.24
Target Resource 2018	0.37	0.34	0.02	0.31	0.35	0.18

The confirmation of the test conditions were again confirmed in open circuit on the first increments of concentrate recovered in the Cu/Ni bulk roughers. The cleaned bulk Cu/Ni concentrate was consistently produced for the Cu/Ni separation circuit containing 95% of the Cu and between 71 and 75% of the Ni at a Cu + Ni grade of 17%. The amount of Cu that was recovered to a separate Cu concentrate and the corresponding Ni recovery to Cu concentrate is presented in Figure 13-3.

Figure 13-3: Cu-Ni Separation Selectivity Curve



Source: Created from data in SGS reports 10616-005 dated 08-Apr-2008 and SGS 17127-01 dated 04-Oct-2019

A LCT was performed to demonstrate the overall performance of the circuit and the following balance was produced in Table 13-12.

Table 13-12: 2019 Met Sample LCT Results

Product	Weight		Assays							% Distribution						
	g	%	Cu %	Ni %	S %	Co %	Pt g/t	Pd g/t	Au g/t	Cu	Ni	S	Co	Pt	Pd	Au
Cu Concentrate	288.6	1.2	26.86	2.68	30.54	0.14	4.73	2.52	1.42	89.6	9.8	17.6	6.6	17.1	8.4	9.8
Hi Grade Ni Conc	307.5	1.3	1.50	15.94	21.70	0.82	11.30	4.61	1.86	5.3	62.1	13.3	41.1	43.5	16.4	13.6
Low Grade Ni Conc	111.6	0.5	0.98	3.48	24.77	0.26	5.83	9.05	4.73	1.3	4.9	5.5	4.7	8.1	11.7	12.6
Combined Ni Conc	**419.1**	**1.8**	**1.36**	**12.62**	**22.52**	**0.67**	**9.84**	**5.79**	**2.62**	**6.6**	**67.0**	**18.9**	**45.8**	**51.7**	**28.1**	**26.2**
Calc Bulk Conc	707.7	3.0	11.76	8.57	25.79	0.45	7.76	4.46	2.13	96.2	76.8	36.5	52.4	68.8	36.5	35.9
Po Rougher Conc	1258.95	5.3	0.09	0.66	24.04	0.06	1.29	1.60	0.58	1.3	10.6	60.5	12.1	20.3	23.3	17.4
Po Rougher Tail	21782.7	91.7	0.01	0.05	0.07	0.01	0.04	0.16	0.09	2.5	12.6	2.9	35.5	10.9	40.3	46.7
Head (Calc.)	23749.35	100	0.36	0.33	2.11	0.03	0.34	0.36	0.18	100	100	100	100	100	100	100
Head (Dir.)			0.37	0.34	2.33	0.02	0.31	0.39	0.24							

The test achieved high grade concentrates at very high recoveries with 96% of the Cu and 76.8% of the Ni reporting to concentrates. Although separate Cu and Ni concentrates were produced, excess recovery of Cu to Cu concentrate resulted in high Ni losses to Cu concentrate.

The separation of Cu and Ni is a difficult process to consistent replicate in laboratory scale. Often, due to the small mass of Cu produced and the requirement for re-cleaning of the small mass, simulated data is used in metallurgical modeling. In the case of Shakespeare, even though the mass of concentrate produced is small, the Cu-Ni separation was robust and demonstrated repeatedly in open scale. In the final selected process, the Cu-Ni separation has been designed to be operated in open circuit and is not and does not impact recirculating loads which require evaluation in LCT. It is for this reason, that application of the open circuit selectivity curve is appropriate in determining Cu-Ni separation performance expectations for a plant process.

13.1.6 Gravity Testing

A single gravity test was performed on the Ni Scavenger tails to evaluate the potential of additional precious metal recovery. The Ni Scavenger tails contain 23% of the Pt, 54% of the Pd and 60% of the Au in the feed. The single pass Knelson test recovered provided an additional 9% Pt, 8% Pd and 11% Au recovery. Although the upgrading of PGM's was 8.5 time the feed, the concentrate grade was below smelter deduction limits. Further gravity testing was not pursued.

13.1.7 Flotation Testing to Produce Low Sulphur Tails

Production of a low sulphur tail form the process is necessary for the tailings deposition plan. To produce a low sulphur tail, a sulphide concentrate, containing mostly pyrrhotite (Po) must be floated from the Ni scavenger tailings. The amenability to produce a low sulphurs from variable samples and composites were assessed during the various test programs conducted.

A standard Po flotation circuit using acid to lower the pH and xanthate to promote the remaining sulphides in the Ni scavenger tails was employed in the design. This approach was demonstrated to produce a low sulphur tail necessary for the tailings design.

An option to reduce the mass of Po concentrate which requires separate handling was also evaluated. A cleaner was added to the flowsheet which resulted in a 30% reduction in mass of high sulphur concentrate. The tests also indicated that the tailings from the Po cleaner are low in S and can be potentially discarded with the low sulphur tails. A table of the low sulphur tails produced is provided in Table 13-13 below.

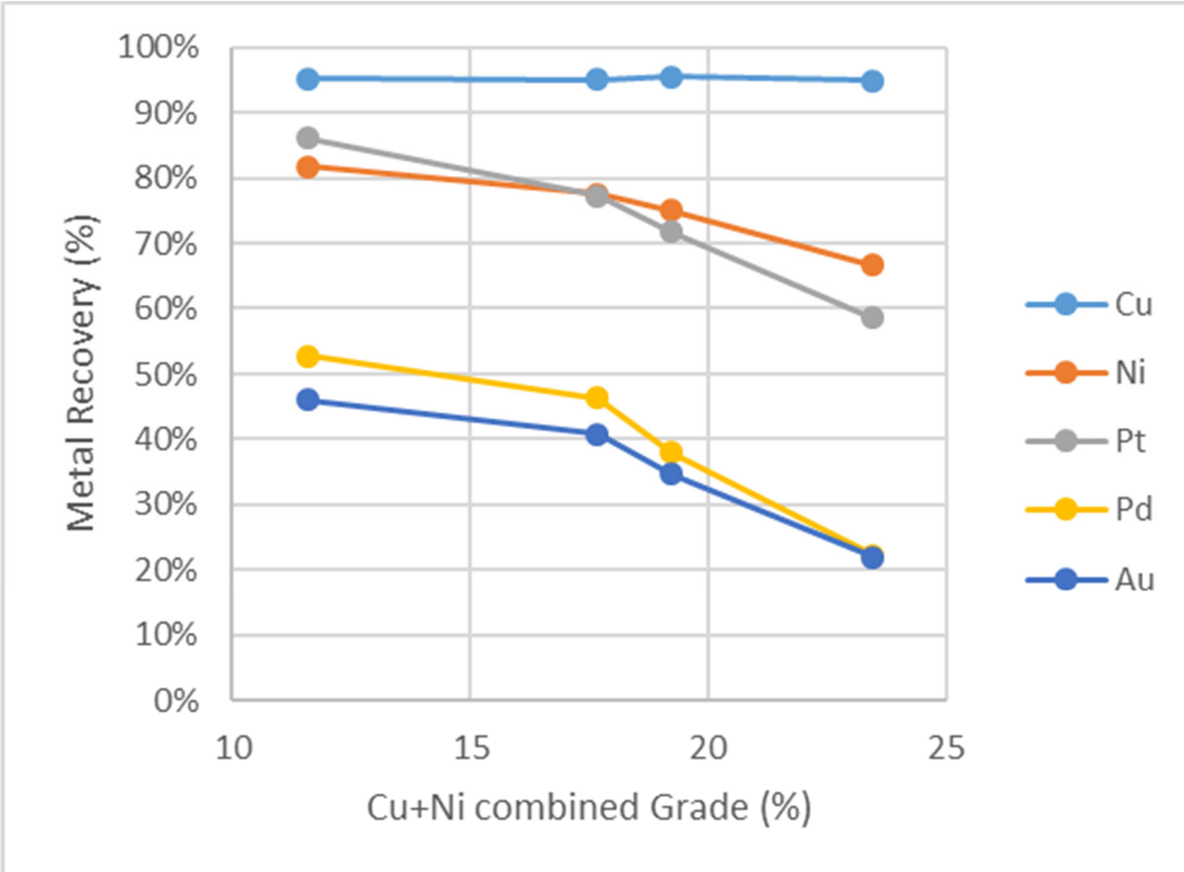
Table 13-13: Analysis of Low Sulphur Tails Produced From Various Samples

Sample	S %	Cu %	Ni %
DC1 Low Sulphur Tails	0.12	0.03	0.08
DC2 Low Sulphur Tails	0.10	0.03	0.06
DC3 Low Sulphur Tails	0.15	0.02	0.06
DC4 Low Sulphur Tails	0.15	0.02	0.06
DC5 Low Sulphur Tails	0.10	0.02	0.05
DC6 Low Sulphur Tails	0.09	0.02	0.05
DC7 Low Sulphur Tails	0.19	0.02	0.06
DC8 Low Sulphur Tails	0.11	0.02	0.06
DC9 Low Sulphur Tails	0.08	0.01	0.05
DC10 Low Sulphur Tails	0.14	0.03	0.07
DC11 Low Sulphur Tails	0.07	0.01	0.04
Average Variability Low S Tails	0.12	0.02	0.06
2019 Comp Low Sulphur Tails	0.07	0.01	0.05
2019 Comp Low S Tails with Po Cleaner	0.09	0.01	0.05

13.2 Recovery Estimates

The metal recovery from this resource has been very consistent in the LCT performed. The overall metal recovery to all concentrates is a function of the combined bulk concentrate grade of Cu+Ni % produced. Differences in recovery were driven by changes in bulk concentrate grade with higher concentrate grades resulting in lower metal recoveries for all metals but Cu. The relationship between bulk concentrate grades and recovery were established through LCT and presented in Figure 13-4 below.

Figure 13-4: Metal Recoveries against Cu+Ni Bulk Concentrate Grade



Source: SGS Feasibility Study Testwork 10616-003; 3-Feb-2006; p. 26

The 2019 LCT metal recoveries to a combined bulk concentrate of 20% Cu+Ni grade are 96% Cu, 77% Ni, 69% Pt, 37% Pd and 36% Au, which are consistent with earlier testing. Cobalt in the heads is between 0.02% and 0.03% and was not consistently measured in the earlier tests. In the 2019 LCT, 52% of the Co was recovered to a combined bulk concentrate.

Cu/Ni separation testwork has indicated that 60% to 75% amount of the Cu can be removed from the early part of the process to produce a separate Cu concentrate containing <1% Ni. The limit of 1% Ni was chosen as it is the typical limit for Ni in copper smelter feeds. Based on the observed Cu/Ni separation results the amount of the total Bulk Concentrate metal recovery which can be directed to a separate Cu concentrate can be estimated. Ni recovery to Cu concentrate is defined by a separation curve and will be 0.7% at 50% Cu recovery, 1.1% at 60% Cu recovery and 1.8% at 70% Cu recovery. A test achieving 30% Cu and under 1% Ni, containing 74% of the Cu and 2.1% of the Ni resulted in 2.1% of the Co, 3.3% of the Pt, 3.3% of the Pd and 4.5% of the Au reporting to Cu concentrate.

Based on LCT results and open circuit Cu-Ni Separation test the balance presented in Table 13-14 can be obtained from the average resource average grade of Shakespeare targeting a bulk concentrate of 17.5% Cu+Ni grade.

Table 13-14: Metallurgy Projected from Resource Average Feed Grade

Product	Weight	Assays								% Distribution						
	%	Cu %	Ni %	Cu+Ni	S %	Co %	Pt g/t	Pd g/t	Au g/t	Cu	Ni	S	Co	Pt	Pd	Au
Cu Concentrate	0.7	30.00	0.96		30.50	0.06	1.38	1.74	1.46	60.0	2.1	9.7	2.1	3.3	3.3	4.5
Combined Ni Conc	*2.8*	*4.70*	*9.19*		*27.33*	*0.36*	*8.30*	*6.08*	*3.12*	*35.1*	*74.7*	*32.4*	*50.3*	*74.0*	*43.1*	*35.9*
Calc Bulk Conc	3.5	10.04	7.45	*17.50*	28.00	0.30	6.84	5.16	2.77	95.1	76.8	42.1	52.4	77.3	46.4	40.4
Ni Scav Tails	96.5	0.02	0.08		1.40	0.01	0.07	0.22	0.15	4.9	23.2	57.9	47.6	22.7	53.6	59.6
Po Rougher Conc	5.4	0.14	0.64		24.00					2.0	10.1	55.3				
Po Cleaner Conc	3.6	0.11	0.81		35.00					1.1	8.6	54.2				
Po Cleaner Tails	1.8	0.20	0.29		1.46					0.9	1.5	1.1				
Po Rougher Tails	91.1	0.01	0.05		0.07					2.5	13.5	2.6				
Final Tails	92.9	0.01	0.05		0.09					3.5	15.0	3.7				
Head	100	0.37	0.34		2.33	0.02	0.31	0.39	0.24	100	100	100	100	100	100	100

Metallurgical Variability

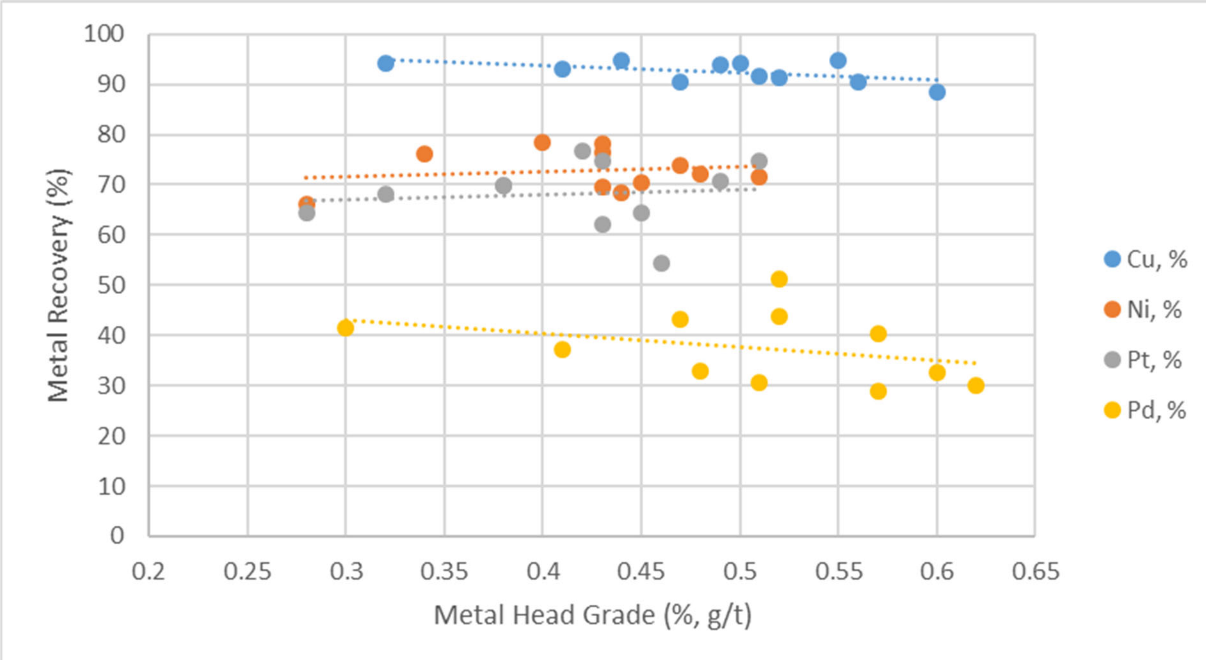
A variability test program was conducted by SGS on 11 samples from across the resource to determine the variability of open circuit rougher and cleaner recovery. The testing was conducted on drill core material tested from depth. The analysis for the samples are in Table 13-15.

Table 13-15: Review of Variability Samples Tested

Sample	Cu %	Ni %	S %	Pt g/t	Pd g/t
DC1	0.60	0.51	2.72	0.51	0.60
DC2	0.51	0.45	2.40	0.46	0.57
DC3	0.52	0.44	2.47	0.38	0.48
DC4	0.47	0.43	2.46	0.43	0.51
DC5	0.50	0.43	2.72	0.42	0.47
DC6	0.41	0.34	1.97	0.32	0.41
DC7	0.49	0.48	3.10	0.49	0.62
DC8	0.55	0.43	2.51	0.38	0.52
DC9	0.44	0.40	2.09	0.43	0.52
DC10	0.56	0.47	2.59	0.45	0.57
DC11	0.32	0.28	1.51	0.28	0.30
Average	**0.49**	**0.42**	**2.41**	**0.41**	**0.51**

The tests performed were open circuit tests and were based on the flowsheet developed which included three or 4 cleaners. The results were analysed by comparing the recovery in open circuit achieved at a Cu+Ni grade of 15%. There was no significant recovery correlation found to head grade over the range of grades tested as presented in Figure 13-5.

Figure 13-5: Open Circuit Recovery to a Bulk Concentrate Grade of 15% Cu+Ni



Source: SGS Variability Report 10616-003 Report 2, 03-Feb-06, p.14

13.3 Deleterious Elements

Analyses for deleterious elements were performed on samples of concentrates produced by LCT. Both bulk concentrate and separate Cu and Ni concentrates were assayed. The results are presented in Table 13-16. The level of deleterious elements measured were low and the concentrates can be processed in Cu or Ni smelters.

Table 13-16: Detailed Analysis of Concentrates including Deleterious Elements

Element		Bulk Concentrate	Cu Conc	Ni Conc
Cu	%	13.5	21.6	2.2
Fe	%	24.7	26.0	30.4
Ni	%	8.75	3.95	9.78
Pb	%	0.013	0.01	0.02
Mo	g/t	150	30	111
Zn	%	0.094	0.322	0.059
As	%	0.16	0.03	0.23
Sb	%	<0.002	<0.001	0.001
U	%	<0.002	<0.005	<0.005
Pt	g/t	8.58	6.49	10.31
Pd	g/t	4.07	1.33	6.87
Au	g/t	1.78	0.91	2.66
C (total)	%	0.27		
S	%	24.5	25.9	27.4
Cl	g/t	54		
F	%	<0.01		
Hg	g/t	<0.3	<0.3	<0.3
P	g/t	<100	<200	315
Bi	%	0.008	<0.006	0.017
Cd	%	0.0014	<0.004	<0.004
Co	%	0.47	0.21	0.59
INSOL	%	<0.002		
Al	%	1.89	1.20	1.73
Ca	%	2.02	1.00	1.54
Cr	%	<0.05	0.006	0.017
Mg	%	0.83	0.69	1.01
Mn	%	0.028	0.018	0.026
Si	%	8.49		
Ti	%	0.11	0.07	0.12
V	%	<0.1	0.000	0.004
Na	%	0.56	0.38	0.48
K	%	0.25	0.16	0.21
Ga	g/t	6		
Ge	g/t	3		
Se	g/t	100	110	116
Te	g/t	20		
Tl	g/t	2	<30	<30

14 MINERAL RESOURCE ESTIMATES

14.1 Introduction

The current MRE is an update to a NI 43-101 MRE completed for CT Developers (now Magna) (Armitage and Laporte, 2021) and published on March 31, 2021 (see news release dated March 31, 2021 posted on SEDAR under Magna's profile). The current MRE involved revising the orientation of several historic drill holes in the west end of the deposit, updated three-dimensional (3D) mineral resource models, and revised metal prices and metal recoveries (revised NiEq grades).

Ordinary Kriging ("OK") and Inverse Distance squared ("ID") restricted to mineralized domains were used to Interpolate grades for Ni (%), Cu (%), Co (%), Pt (g/t), Pd (g/t), Au (g/t) and NiEq (%) into a block model. Indicated and Inferred Mineral Resources are reported in the summary tables in Section 14-10. The MRE takes into consideration that the Shakespeare Deposit will be mined by both open pit and underground mining methods. Open pit mining was selected as the starting method to of development of the Shakespeare deposit. This is based on the size of the resource, tenor of the grade, grade distribution, and proximity to topography. The Author is of the opinion that with current metal pricing levels and knowledge of the mineralization, open-pit mining offers the most reasonable approach for initial development of the deposit.

14.2 Drill Hole Database

In order to complete an updated MRE for the Shakespeare deposit, a database comprising a series of comma delimited spreadsheets containing drill hole and trench information was provided by Magna. The database included hole and trench location information (NAD83 / UTM Zone 17n), survey data, assay data, lithology data and specific gravity data. The data in the assay table included assays for Ni (%), Cu (%), Co (%), Pt (g/t), Pd (g/t) and Au (g/t); value for NiEq (%) was calculated for each assay sample. The data was then imported into GEOVIA GEMS version 6.8.1 software ("GEMS") for statistical analysis, block modeling and resource estimation.

NiEq grades are based on metal prices of $7.50/lb Ni, $3.25/lb Cu, $21.00/lb Co, $1,000/oz Pt, $2,000/oz Pd and $1,600/oz Au, and metal recoveries of 75% for Ni, 96% for copper, 56% for Co, 73% for Pt, 39% for Pd and 36% for Au.

The database comprises data for 183 surface drill holes, 41 blast holes (for grade control) and 28 channels and includes data for drill holes completed in 2018 by Magna (Table 14-1). The database totals 9,838 assay samples.

The database was checked for typographical errors in drill hole locations, down hole surveys, lithology, assay values and supporting information on source of assay values. Overlaps and gapping in survey, lithology and assay values in intervals were checked. Minor issues were identified and corrected. Gaps in the assay sampling were assigned a grade value of 0.001 for Ni, Cu, Co, Pt, Pd and Au.

Table 14-1: Summary of Database for the Shakespeare deposit

	Year	All Data		Data Used for MRE	
		Number	Metres	Number	Metres
Drill Holes	< 1950, 2010-2012,2018	183	39,797.32	137	30,236.44
Blast Holes	2011	41	94.07	40	93.2
Trench/Channels	2003	28	288	19	217
Total		**252**	**40,179.39**	**196**	**30,546.64**

14.3 Topography

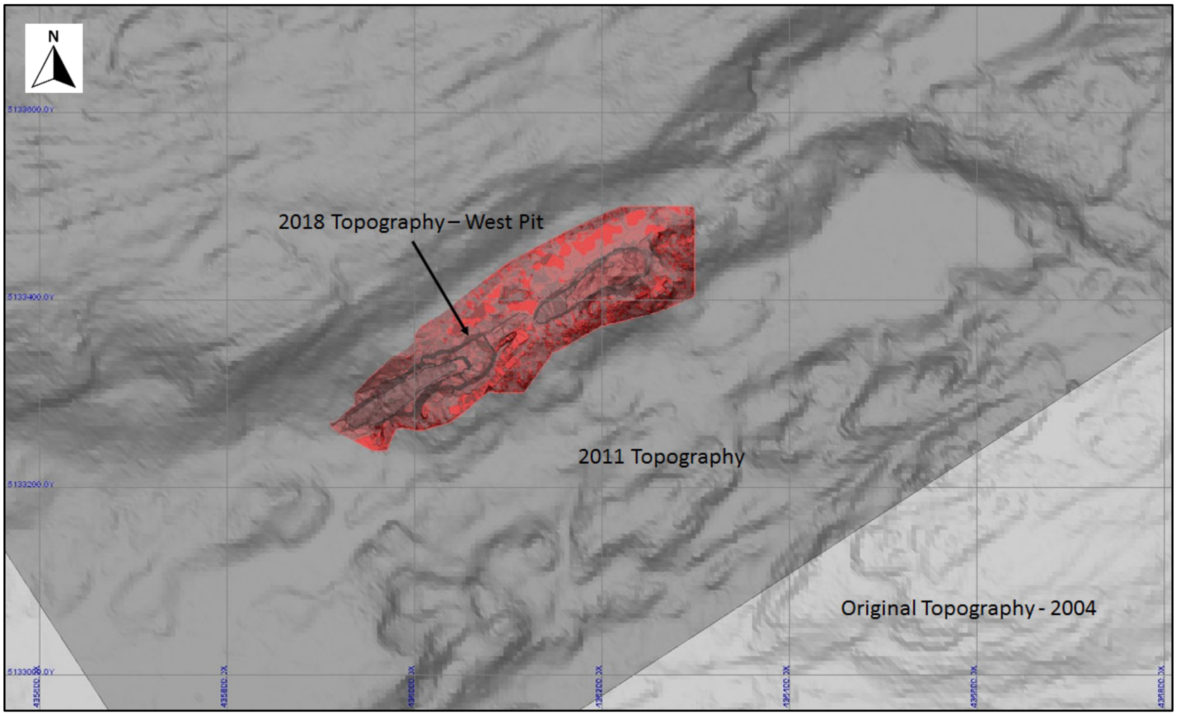
Magna provided topographic surface data from previous studies as well as a recent survey completed by Magna in 2018.

Topographic surface data was obtained from an airborne LIDAR (Light Detection and Ranging) survey completed in 2004 by Mosaic Mapping Systems Inc (Figure 14-1). The data was provided by Magna as a point data file that was imported into GEMS and converted into a 3D topographic surface for modelling.

A revised topographic surface file based on a 2011 survey of the west pit was provided by Magna as a three-dimensional (3D) DXF file (Figure 14-2). The 2011 topographic surface file was created by extracting contour data from the west pit to update the 2004 LiDAR topography surface file in order to account for the mined out area.

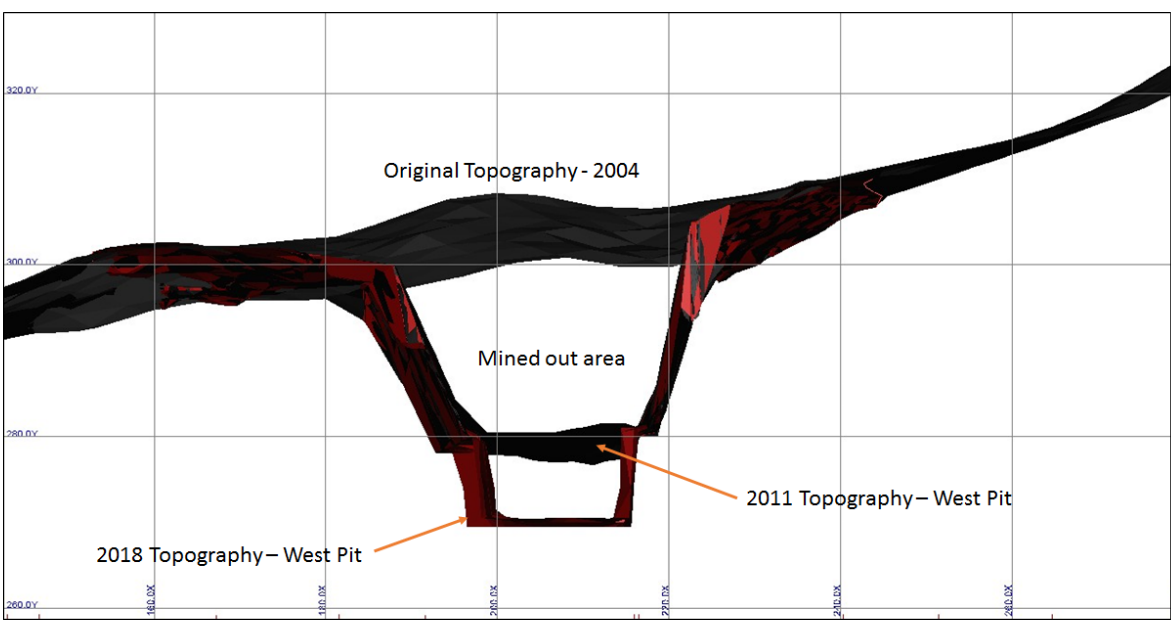
Mining of the west pit continued briefly in 2011 after the 2011 survey of the west pit. As a result, Magna had a bathometric survey completed in the west pit (as it was partially filled with water) in order to revise the 2011 pit topographic surface to reflect the mined out area of the Shakespeare deposit. The bathometric survey was completed by Tulloch Engineering of Sudbury, Ontario in June of 2018. A 3D DXF file of the contour data for the west pit was provided and imported into GEMS (Figure 14-2), to be used to extract mined material from the in-pit MRE.

Figure 14-1: Plan View of Shakespeare Deposit Area Showing Various Topographic Surfaces and Mined Out Area



Source: SGS Geological Services

Figure 14-2: Vertical Section Looking Southwest Showing Various Topographic Surfaces and Mined Out Area



Source: SGS Geological Services

14.4 Mineral Resource Modelling and Wireframing

For the current MRE, the three-dimensional (3D) wireframe models used for the March, 2021 MRE were reviewed and minor revisions were made, resulting in a minimal change in the volume of the solids (Table 14-2). The models, revised by SGS, reflect mineralization at an approximate 0.2% Ni + Cu. For consistency with previous MREs, modelling of the Shakespeare deposit was subdivided into four domains: the East and West Disseminated Domains and the East and West Blebby domains, representing the two styles of sulphide mineralization in the deposits. The current 3D wireframe models incorporate the results of the 2018 drilling completed by Magna (Figure 14-3 to Figure 14-5).

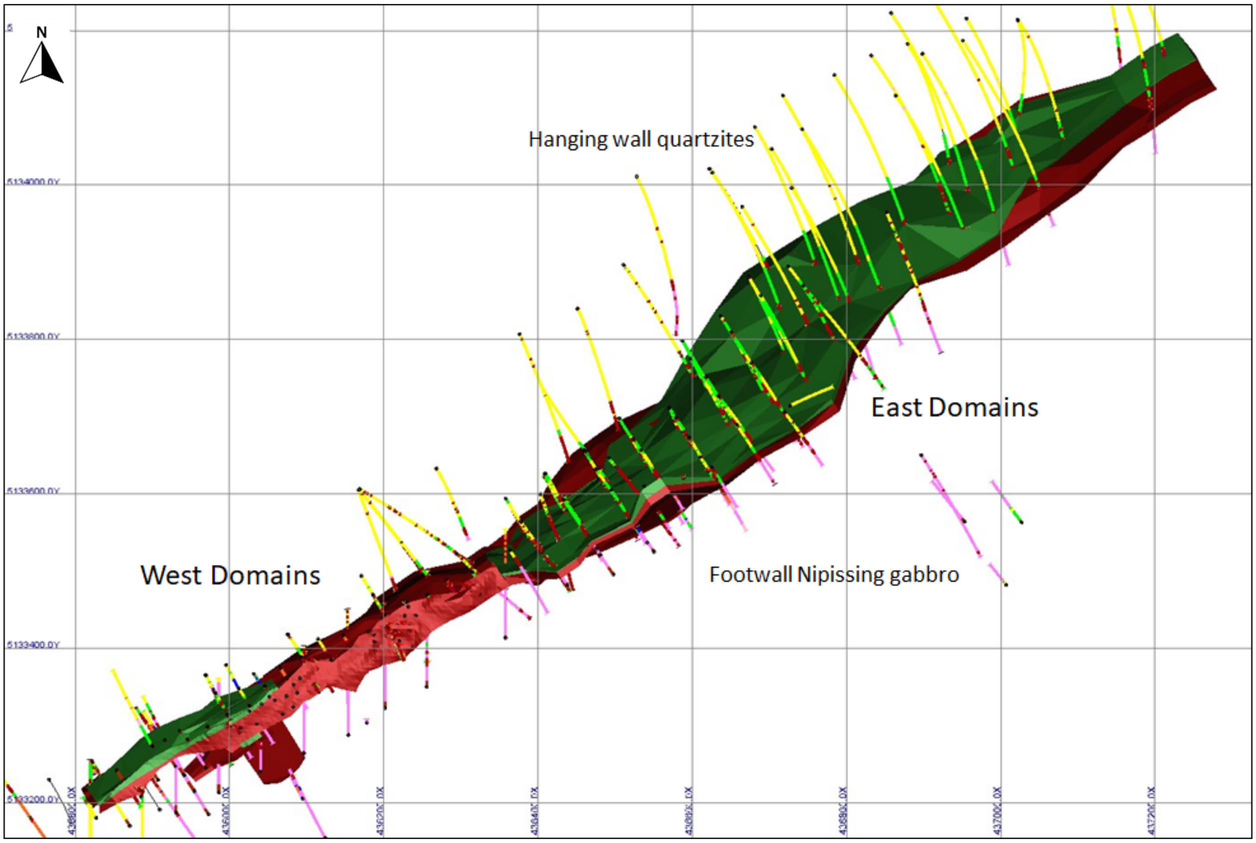
Table 14-2: Shakespeare Deposit – Domain Description: Clipped to Topography and Pit Surface

Domain	Rock Code	Domain Volume	Domain Tonnage	Domain Volume	Domain Tonnage	% Change
		March, 2021		June, 2021		
East Disseminated	20	6,636,719	19,910,157	6,719,292	20157876	1.24%
East Blebby	10	1,701,246	5,103,738	1,729,067	5187201	1.64%
West Disseminated	21	1,164,223	3,492,669	1,164,223	3492669	0.00%
West Blebby	11	110,893	332,679	110,893	332679	0.00%
TOTAL		**9,613,081**	**28,839,243**	**9,723,475**	**29,170,425**	**1.15%**

The 3D grade-controlled models were built by visually interpreting mineralized intercepts from cross sections using Ni and Cu values. Polygons of mineral intersections (snapped to drill holes) were made on each cross section, and these were wireframed together to create continuous resource wireframe models in GEMS.

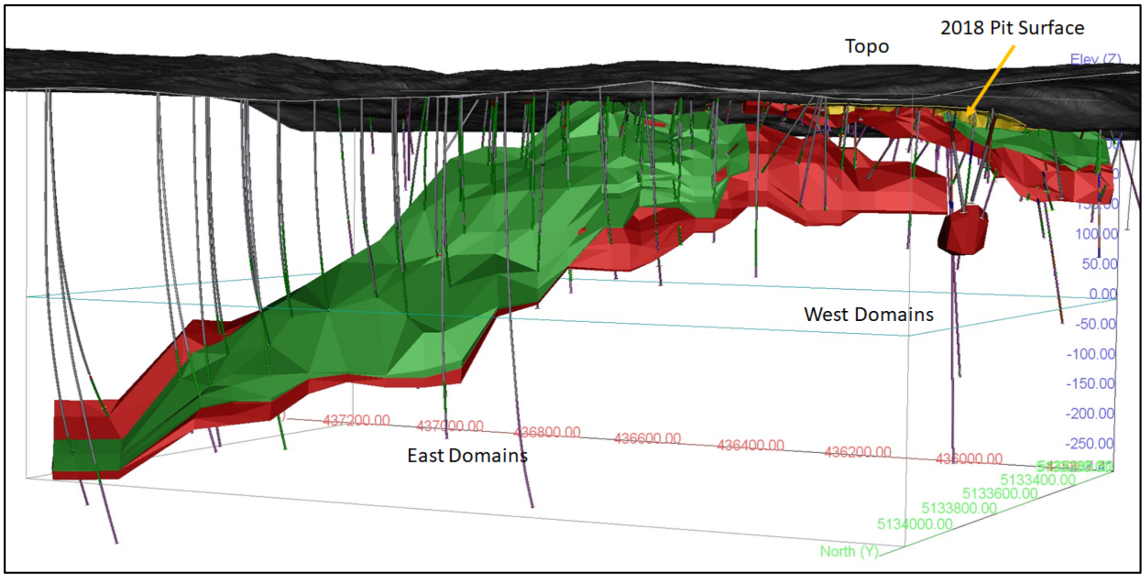
The East domain polygons of mineral intersections were constructed on 60 m spaced sections (21 sections looking west) with a 30 m sectional influence. The West domain polygons were constructed on 30 m sections (23 sections looking west) with a 15 m sectional view. The sections were created perpendicular to the general strike of the mineralization and the spacing of the modeling was conducted based on the general spacing of the drill holes and channels. The models were extended 30 to 40 m beyond the last known intersection along strike and 15 – 30 m up and down dip. The modeling exercise provided broad controls of the dominant mineralizing direction. The East and West domains extend for an aggregate length of approximately 1,730 m, dip steeply to the northwest and extend to a maximum depth of 250 m in the West domains and 600 m in the East domains. All domains were clipped to the 2018 topographic surface. The total volume of the East and West grade control model is 9,613,081 m^3 (29,170,425 tonnes) (Table 14-2).

Figure 14-3: Plan view of the Shakespeare Deposit Area Showing Drill Holes, Channels, and mineralized Models (red – disseminated mineralization, green – blebby mineralization): clipped to topography and pit surface



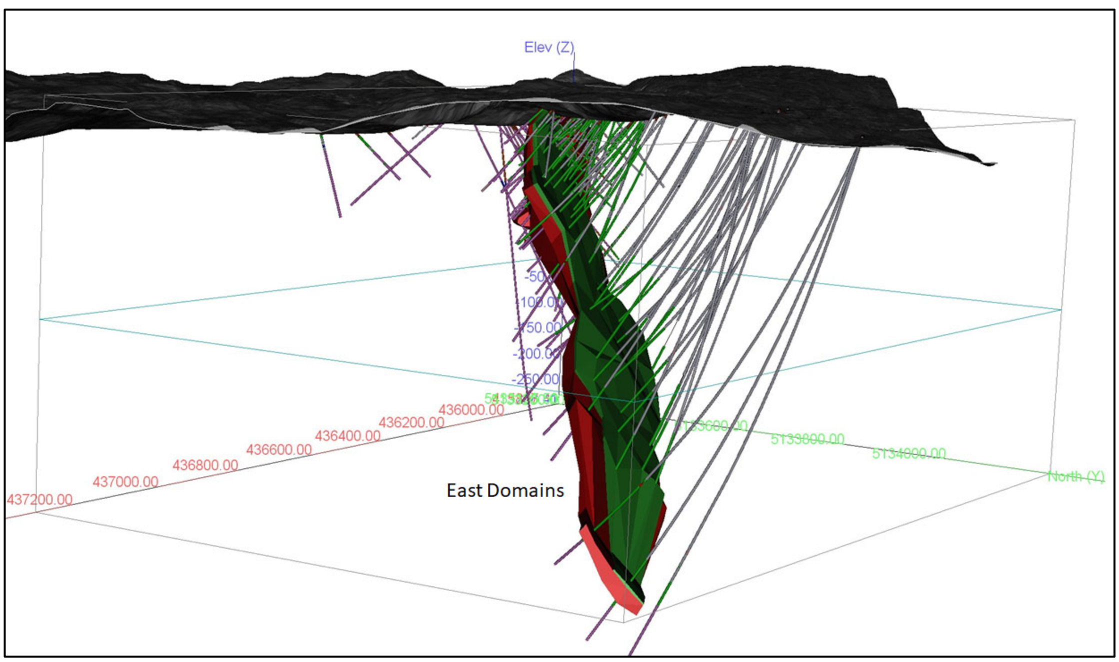
Source: SGS Geological Services

Figure 14-4: Isometric View Looking South of the Shakespeare Deposit Area Showing Drill Holes, Channels, and mineralized Models (red – disseminated mineralization, green – blebby mineralization): clipped to topography and pit surface



Source: SGS Geological Services

Figure 14-5: Isometric View Looking Southwest of the Shakespeare Deposit Area Showing Drill Holes, Channels, and mineralized Models (red – disseminated mineralization, green – blebby mineralization): clipped to topography and pit surface



Source: SGS Geological Services

14.5 Compositing

The assay sample database available for the revised resource modelling totalled 9,838 representing 9,436.17 m of drilling and channel sampling. This includes 1,303 assays representing 1,166.83 m of drilling from the 2018 drill holes. A total of 5,740 assays from 155 drill holes and 39 channels occur within the Shakespeare deposit mineral domains. A statistical analysis of the assay data from within the mineralized domains is presented in (Table 14-3). Average length of the assay sample intervals is 0.98, within a range of 0.13 m to 3.81 m. Of the total assay population approximately 86 % are 1.00 m or less with approximately 14% of the samples greater than 1.00 m in length and only 8% greater than 1.50 m (Figure 14-6). To minimize the dilution and over smoothing due to compositing, a composite length of 1.00 m was chosen as an appropriate composite length for the current MRE.

Further analysis of the data indicates the elements of interest within the Shakespeare deposit are generally well correlated (Table 14-4). The best correlation is between Ni, Cu, Pt and Pd.

Composites were generated starting from the collar of each hole. Un-assayed intervals were given a value of 0.001 for Ni, Cu, Co, Cu, Pb and Zn. Composites were then constrained to the mineral domains. The constrained composites were extracted to point files for statistical analysis and capping studies. The constrained composites were grouped based on the mineral domain (rock code) of the constraining wireframe model.

A total of 3,598 composite sample points occur within the resource wire frame models (Table 14-5 and Table 14-6). These values were used to interpolate grade into resource blocks.

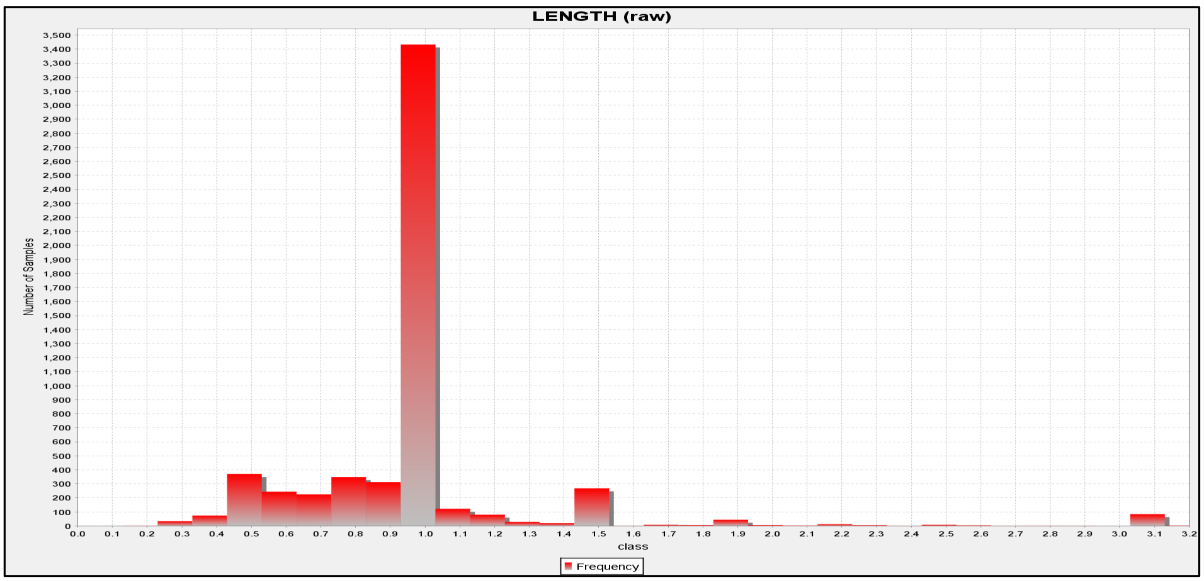
Table 14-3: Statistical Analysis of the Drill and Channel Assay Data from Within the Shakespeare Deposit Mineral Domains

Variable	Ni %	Cu %	Co %	Pt g/t	Pd g/t	Au g/t
Total # Assay Samples	5,740					
Average Sample Length	0.98 m					
Minimum and Maximum Length	0.13 to 3.81 m					
Minimum Grade	0.00	0.00	0.00	0.00	0.00	0.00
Maximum Grade	1.38	2.85	0.30	1.93	4.09	3.87
Mean	0.33	0.37	0.02	0.33	0.36	0.19
Median	0.34	0.37	0.02	0.33	0.37	0.19
Variance	0.04	0.05	0.00	0.04	0.05	0.02
Standard Deviation	0.19	0.22	0.02	0.19	0.21	0.12
Coefficient of variation	0.57	0.61	0.69	0.58	0.59	0.66
97.5 Percentile	0.70	0.77	0.05	0.68	0.73	0.40

Table 14-4: Shakespeare Deposit Correlation Coefficient Analysis of Assays

	NI_%	CU_%	CO_%	AU_GPT	PT_GPT	PD_GPT
NI_%	1.00					
CU_%	0.76	1.00				
CO_%	0.68	0.49	1.00			
AU_GPT	0.66	0.69	0.44	1.00		
PT_GPT	0.77	0.75	0.50	0.83	1.00	
PD_GPT	0.78	0.73	0.49	0.75	0.90	1.00

Figure 14-6: Sample length histogram for Drill and Channel Assay Samples from Within the Shakespeare Deposit Mineral Domains



Source: SGS Geological Services

Table 14-5: Summary of the 1.0 m Composite Data Constrained by the Shakespeare Mineral Resource Models (Drill and Channel Samples)

Variable	Ni %	Cu %	Co %	Pt g/t	Pd g/t	Au g/t
Total # of Composites	5,756					
Average Composite Length	0.99 m					
Minimum value	0.00	0.00	0.00	0.00	0.00	0.00
Maximum value	0.97	2.63	0.30	1.27	4.09	3.87
Mean	0.32	0.36	0.02	0.32	0.36	0.18
Median	0.33	0.37	0.02	0.33	0.37	0.19
Variance	0.03	0.04	0.00	0.03	0.04	0.01
Standard Deviation	0.18	0.21	0.02	0.18	0.20	0.12
Coefficient of variation	0.55	0.57	0.76	0.57	0.58	0.64
97.5 Percentile	0.66	0.73	0.04	0.65	0.70	0.38

Table 14-6: Summary of the 1.0 m Composite Data Subdivided by Vein Domain

Variable	Ni %	Cu %	Co %	Pt g/t	Pd g/t	Au g/t
Domain	East Disseminated					
Total # of Composites	2,738					
Minimum value	0.00	0.00	0.00	0.00	0.00	0.00
Maximum value	0.97	1.27	0.11	0.98	4.09	3.87
Mean	0.34	0.38	0.02	0.34	0.39	0.20
Median	0.35	0.40	0.02	0.35	0.40	0.21
Variance	0.03	0.04	0.00	0.03	0.05	0.02
Standard Deviation	0.19	0.21	0.01	0.19	0.22	0.13
Coefficient of variation	0.54	0.55	0.51	0.54	0.56	0.66
97.5 Percentile	0.67	0.75	0.04	0.68	0.73	0.43
Domain	East Blebby					
Total # of Composites	603					
Minimum value	0.00	0.00	0.00	0.00	0.00	0.00
Maximum value	0.93	1.16	0.10	0.84	0.91	0.52
Mean	0.29	0.25	0.02	0.23	0.23	0.12
Median	0.24	0.20	0.02	0.19	0.19	0.10
Variance	0.04	0.03	0.00	0.02	0.02	0.01
Standard Deviation	0.19	0.19	0.01	0.15	0.16	0.09
Coefficient of variation	0.66	0.75	0.61	0.68	0.68	0.75
97.5 Percentile	0.73	0.67	0.06	0.56	0.56	0.32
Domain	West Disseminated					
Total # of Composites	2,285					
Minimum value	0.00	0.00	0.00	0.00	0.00	0.00
Maximum value	0.83	2.63	0.30	1.27	0.88	0.61
Mean	0.31	0.36	0.02	0.32	0.36	0.18
Median	0.33	0.38	0.02	0.35	0.38	0.19
Variance	0.03	0.04	0.00	0.03	0.03	0.01
Standard Deviation	0.16	0.20	0.02	0.17	0.18	0.09
Coefficient of variation	0.53	0.54	1.09	0.50	0.50	0.50
97.5 Percentile	0.57	0.70	0.04	0.61	0.64	0.33
Domain	West Blebby					
Total # of Composites	130					
Minimum value	0.00	0.00	0.00	0.00	0.00	0.00
Maximum value	0.66	0.98	0.04	0.65	0.68	0.36
Mean	0.25	0.26	0.01	0.23	0.24	0.13
Median	0.23	0.22	0.02	0.23	0.23	0.13
Variance	0.02	0.03	0.00	0.03	0.03	0.01
Standard Deviation	0.13	0.17	0.01	0.16	0.17	0.09
Coefficient of variation	0.54	0.64	0.77	0.70	0.71	0.69
97.5 Percentile	0.54	0.65	0.04	0.56	0.56	0.28

14.6 Grade Capping

A statistical analysis of the composite database within the Shakespeare 3D wireframe models (the "resource" population) was conducted to investigate the presence of high grade outliers which can have a disproportionately large influence on the average grade of a mineral deposit. High grade outliers in the composite data were investigated using statistical data (Table 14-6), histogram plots, and cumulative probability plots of the 1.0 m composite data. The statistical analysis was conducted by domain and was completed using GEMS.

After reviewing it is the Author's opinion that minimal capping of high grade composites to limit their influence during the grade estimation is necessary for Cu, Pt, Pd and Au. A summary of grade capping values by Vein Domain is presented in Table 14-7.

The capping values chosen resulted in a total of 6 composite samples capped (East and West Dissem. domains). The capped composites were used for grade interpolation into the Shakespeare deposit block model.

Table 14-7: Gold Grade Capping Summary by Vein Domain

Domain	Total # of Composites	Capping Value					
		Ni %	Cu %	Co %	Pt g/t	Pd g/t	Au g/t
East Disseminated	2,738	No Capping	1.4	No Capping	1.0	1.0	1.0
East Blebby	603	No Capping	1.4	No Capping	1.0	1.0	1.0
West Disseminated	2,285	No Capping	1.4	No Capping	1.0	1.0	1.0
West Blebby	130	No Capping	1.4	No Capping	1.0	1.0	1.0

14.7 Specific Gravity

The specific gravity values used for previous MREs were obtained from measurements taken from test work performed by URSA Major personnel on drill hole numbers UR-03-23, UR-03-26, UR-03-30, and UR-03-36. Representative samples from all lithologies were taken and subjected to a wet/dry bulk specific gravity determination test. A total of 257 samples were analyzed. The results are set out in Table 14-8. The mineralization is contained within lithological units 4b and 4f. For the current MRE update an SG of 3.00 is used for mineralized domains. An SG of 2.85 is used for waste as quartzite forms the hanging wall of the deposit and will be a significant portion of the waste rock from the open pit.

Table 14-8: Specific Gravity Data for the Shakespeare Deposit (2006 Feasibility Study)

Lithology	Lithology Code	Bulk Specific Gravity
Quartzites	1a	2.67
Biotite Quartz Diorite	4d	2.78
Quartz Gabbro	4c	2.91
Rock Fragment Phase	4f	3.00
Melagabbro	4b	3.02
Nipissing Gabbro	3a	2.97
Mafic Dyke	6a	3.08

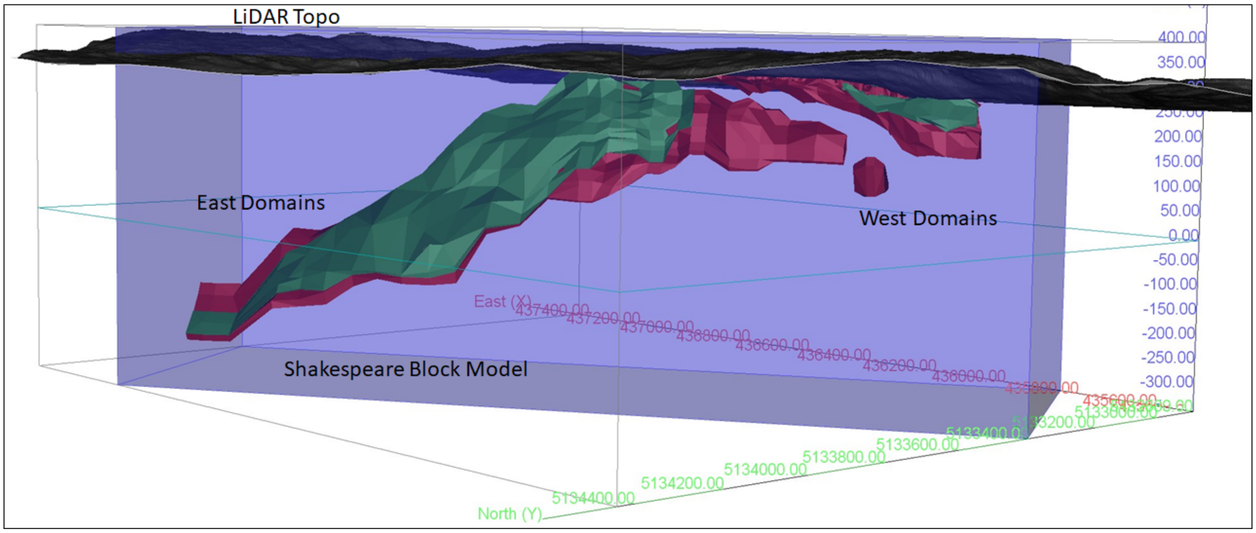
14.8 Block Model Parameters

The Shakespeare deposit grade control models were used to constrain composite values chosen for interpolation, and the mineral blocks reported in the estimate of the Mineral Resource. A block model within NAD83 UTM Zone 17N (Table 14-9) space (no rotation) (Figure 14-7) with block dimensions of 5 x 5 x 5 m in the x (east), y (north) and z (level) directions was placed over the grade shells with only that portion of each block inside the shell recorded (as a percentage of the block) as part of the MRE (% Block Model). The block size was selected based on borehole spacing, composite length, the geometry of the mineralized domains, and the selected starting mining method (Open Pit). At the scale of the Shakespeare deposit this provides a reasonable block size for discerning grade distribution, while still being large enough not to mislead when looking at higher cut-off grade distribution within the model. The block model is intersected with surface topography to exclude blocks, or portions of blocks, which extend above the bedrock surface.

Table 14-9: Deposit Block Model Geometry

Model Name	UH Deposit		
	X (North)	Y (East)	Z (Level)
Origin (NAD83 UTM Zone 17N)	435850	5132880	400
Extent	380	125	150
Block Size	5	5	5
Rotation (counter-clockwise)	33°		

Figure 14-7: Isometric View Looking Southeast Showing the Shakespeare Deposit Mineral Resource Block Model and Mineralization Domains



Source: SGS Geological Services

14.9 Grade Interpolation

Nickel, copper, cobalt, platinum, palladium, and gold were estimated for each domain in the Shakespeare deposit. Blocks within each mineralized domain were interpolated using composites assigned to that domain. To generate grade within the blocks, the Ordinary Kriging (OK) interpolation method was used for the East mineralized domains. The interpolation method was inverse distance squared (ID^2) for the West mineralized domains.

The search ellipse used to interpolate grade into the resource blocks for the East domains by OK is based on 3D semi-variography analysis of Ni for the 1.0 m composites within the domains using GEMS. Based on the well correlated nature of the remaining elements with Ni, the same semi-variograms were used to interpolate grades of all metals into each block in the East domains (Table 14-10).

For the West domains, the search ellipse was interpreted based on orientation and size the mineralized domains. The search ellipse axes are generally oriented to reflect the observed preferential long axis (geological trend) of the vein structures and the observed trend of the mineralization down dip (Table 14-10).

Three passes were used to interpolate grade into all of the blocks in the grade shells (Table 14-10). For Pass 1 the search ellipse size (in metres) for all mineralized domains was set at 30 x 30 x 15 in the X, Y, Z direction; for Pass 2 the search ellipse size for each domain was set at 60 x 60 x 30; for Pass 3 the search ellipse size was set at 120 x 120 x 60. Blocks were classified as Indicated if they were populated with grade during Pass 1 and during Pass 2 of the interpolation procedure. The Pass 3 search ellipse size was set to assure all remaining blocks within the wireframe were assigned a grade. These blocks were classified as Inferred. Note: The in-pit calculated Inferred resources using this method was minimal. As a result, based on continuity of mineralization and grade, it was decided to convert in-pit Inferred resources to Indicated.

Grades were interpolated into blocks using a minimum of 6 and maximum of 12 composites to generate block grades during Pass 1 and Pass 2 (maximum of 3 sample composites per drill hole), and a minimum of 2 and maximum of 12 composites to generate block grades during pass 3 (Table 14-10).

Table 14-10: Grade Interpolation Parameters by Domain

Parameter	East Domains			West Domains		
	Pass 1 Indicated	Pass 2 Indicated	Pass 3 Inferred	Pass 1 Indicated	Pass 2 Indicated	Pass 3 Inferred
Calculation Method	Ordinary Kriging			Inverse Distance squared		
Search Type	Ellipsoid			Ellipsoid		
Principle Azimuth	17.7°			325°		
Principle Dip	-37.8°			-60°		
Intermediate Azimuth	261.0°			55°		
Anisotropy X	30	60	120	30	60	120
Anisotropy Y	30	60	120	30	60	120
Anisotropy Z	15	30	60	15	30	60
Min. Samples	6	6	2	6	6	2
Max. Samples	12	12	12	12	12	12
Min. Drill Holes	2	2	1	2	2	1

14.10 Mineral Resource Classification Parameters

The Mineral Resource Estimate presented in this Technical Report was prepared and disclosed in compliance with all current disclosure requirements for mineral resources set out in the NI 43-101 Standards of Disclosure for Mineral Projects. The classification of the current Mineral Resource Estimate into Indicated and Inferred is consistent with current 2014 CIM Definition Standards - For Mineral Resources and Mineral Reserves, including the critical requirement that all mineral resources "have reasonable prospects for eventual economic extraction".

The current Mineral Resource is sub-divided, in order of increasing geological confidence, into Inferred and Indicated categories. An Inferred Mineral Resource has a lower level of confidence than that applied to an Indicated Mineral Resource. An Indicated Mineral Resource has a higher level of confidence than an Inferred Mineral Resource but has a lower level of confidence than a Measured Mineral Resource.

A Mineral Resource is a concentration or occurrence of solid material of economic interest in or on the Earth's crust in such form, grade or quality and quantity that there are reasonable prospects for eventual economic extraction.

Interpretation of the word 'eventual' in this context may vary depending on the commodity or mineral involved. For example, for some coal, iron, potash deposits and other bulk minerals or commodities, it may be reasonable to envisage 'eventual economic extraction' as covering time periods in excess of 50 years. However, for many gold deposits, application of the concept would normally be restricted to perhaps 10 to 15 years, and frequently to much shorter periods of time.

The location, quantity, grade or quality, continuity and other geological characteristics of a Mineral Resource are known, estimated, or interpreted from specific geological evidence and knowledge, including sampling.

14.10.1 Indicated Mineral Resource

An 'Indicated Mineral Resource' is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, and physical characteristics can be estimated with a level of confidence sufficient to allow the appropriate application of technical and economic parameters, to support mine planning and evaluation of the economic viability of the deposit.

Geological evidence is derived from adequately detailed and reliable exploration, sampling and testing and is sufficient to assume geological and grade or quality continuity between points of observation.

An Indicated Mineral Resource has a lower level of confidence than that applying to a Measured Mineral Resource and may only be converted to a Probable Mineral Reserve.

Mineralization may be classified as an Indicated Mineral Resource by the Qualified Person when the nature, quality, quantity, and distribution of data are such as to allow confident interpretation of the geological framework and to reasonably assume the continuity of mineralization. The Qualified Person must recognize the importance of the Indicated Mineral Resource category to the advancement of the feasibility of the project. An Indicated Mineral Resource Estimate is of sufficient quality to support a Preliminary Feasibility Study which can serve as the basis for major development decisions

14.10.2 Inferred Mineral Resource

An Inferred Mineral Resource is that part of a Mineral Resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling. Geological evidence is sufficient to imply but not verify geological and grade or quality continuity.

An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.

An Inferred Mineral Resource is based on limited information and sampling gathered through appropriate sampling techniques from locations such as outcrops, trenches, pits, workings, and drill holes. Inferred Mineral Resources must not be included in the economic analysis, production schedules, or estimated mine life in publicly disclosed Pre-Feasibility or Feasibility Studies, or in the Life of Mine plans and cash flow models of developed mines. Inferred Mineral Resources can only be used in economic studies as provided under NI 43-101.

There may be circumstances, where appropriate sampling, testing, and other measurements are sufficient to demonstrate data integrity, geological and grade/quality continuity of a Measured or Indicated Mineral Resource, however, quality assurance and quality control, or other information may not meet all industry norms for the disclosure of an Indicated or Measured Mineral Resource. Under these circumstances, it may be reasonable for the Qualified Person to report an Inferred Mineral Resource if the Qualified Person has taken steps to verify the information meets the requirements of an Inferred Mineral Resource.

14.11 Mineral Resource Statement

The general requirement that all Mineral Resources have "reasonable prospects for economic extraction" implies that the quantity and grade estimates meet certain economic thresholds and that the Mineral Resources are reported at an appropriate cut-off grade taking into account extraction scenarios and processing recoveries. In order to meet this requirement, the Author considers that the Shakespeare deposit mineralization is amenable for open pit and underground extraction.

In order to determine the quantities of material offering "reasonable prospects for economic extraction" by an open pit, Whittle™ pit optimization software 4.7.1 and reasonable mining assumptions to evaluate the proportions of the block model (Indicated and Inferred blocks) that could be "reasonably expected" to be mined from an open pit were used. The pit optimization was completed by SGS. The pit optimization parameters used are summarized in Table 14-11. A Whittle pit shell at a revenue factor of 0.96 was selected as the ultimate pit shell for the purposes of this MRE. The corresponding strip ratio is 7.9:1 and reaches a maximum depth of approximately 390 m below surface.

The reader is cautioned that the results from the pit optimization are used solely for the purpose of testing the "reasonable prospects for economic extraction" by an open pit and do not represent an attempt to estimate mineral reserves. The results are used as a guide to assist in the preparation of a Mineral Resource statement and to select an appropriate resource reporting cut-off grade. A selected base case cut-off grade of 0.2% NiEq is used to determine the in-pit MRE for the Shakespeare deposit.

In order to determine the quantities of material offering "reasonable prospects for economic extraction" by underground mining methods, reasonable mining assumptions to evaluate the proportions of the block model (Indicated and Inferred blocks) that could be "reasonably expected" to be mined from underground are used. Based on a review of the size, geometry, and continuity of mineralization of the Deposit, it is envisioned that the Deposit may be mined using the longitudinal longhole retreat mining method (a branch of the generic mining method known as sublevel stoping). The underground parameters used, based on this mining method, are summarized in Table 14-11. Based on these parameters, a selected base case cut-off grade of 0.4% NiEq is used to determine the below-pit MRE for the Shakespeare deposit.

The reader is cautioned that the reporting of the underground resources are presented undiluted and in situ (no minimum thickness), constrained by continuous 3D wireframe models, and are considered to have reasonable prospects for eventual economic extraction. There are no underground mineral reserves reported at this time.

The current MRE for the Shakespeare deposit is presented in Table 14-12 and includes an open pit and an underground Mineral Resource (estimated from the bottom of the 2021 pit) (Figure 14-8 and Figure 14-9).

Highlights of the Shakespeare deposit Mineral Resource Estimate are as follows:

- The open pit Mineral Resource includes, at a base case cut-off grade of 0.2% NiEq, 16,508,000 tonnes grading 0.34% Ni, 0.36% Cu, 0.02% Co, 0.33 g/t Pt, 0.36 g/t Pd and 0.19 g/t Au in the Indicated category.

- The underground Mineral Resource includes, at a base case cut-off grade of 0.4% NiEq, 3,832,000 tonnes grading 0.31% Ni, 0.36% Cu, 0.02% Co, 0.30 g/t Pt, 0.32 g/t Pd and 0.19 g/t Au in the Indicated category, and 2,355,000 tonnes grading 0.33% Ni, 0.40% Cu, 0.02% Co, 0.34 g/t Pt, 0.37 g/t Pd and 0.20 g/t Au in the Inferred category.

Table 14-11: Whittle™ Pit Optimization Parameters

Parameter	Value	Unit
Nickel Price	$7.50	US$ per pound
Copper Price	$3.25	US$ per pound
Cobalt Price	$21.00	US$ per pound
Platinum Price	$1,000.00	US$ per ounce
Palladium Price	$2,000.00	US$ per ounce
Gold Price	$1,600.00	US$ per ounce
Exchange Rate	0.76	$US/$CDN
In-Pit Mining Cost	$2.20	US$ per tonne mined
Underground Mining Cost	$45.00	US$ per tonne mined
Processing Cost (incl. crushing)	$11.00	US$ per tonne milled
In-Pit General and Administrative	$1.75	US$ tonne of feed
Underground General and Administrative	$3.50	US$ tonne of feed
Overall Pit Slope	55	Degrees
Nickel Recovery	75	Percent (%)
Copper Recovery	96	Percent (%)
Cobalt Recovery	56	Percent (%)
Platinum Recovery	73	Percent (%)
Palladium Recovery	39	Percent (%)
Gold Recovery	36	Percent (%)
Mining loss / Dilution (open pit)	5 / 5	Percent (%) / Percent (%)
Mining loss/Dilution (underground)	10/10	Percent (%) / Percent (%)
Waste Specific Gravity	2.85	
Mineral Zone Specific Gravity	3.00	
Block Size	5 x 5 x 5	
Re-block for Pit Optimization	10 x 10 x 10	

Table 14-12: Shakespeare Deposit Open Pit (A) and Underground (below-pit) (B) Mineral Resource Estimate, June 1, 2021

(A)

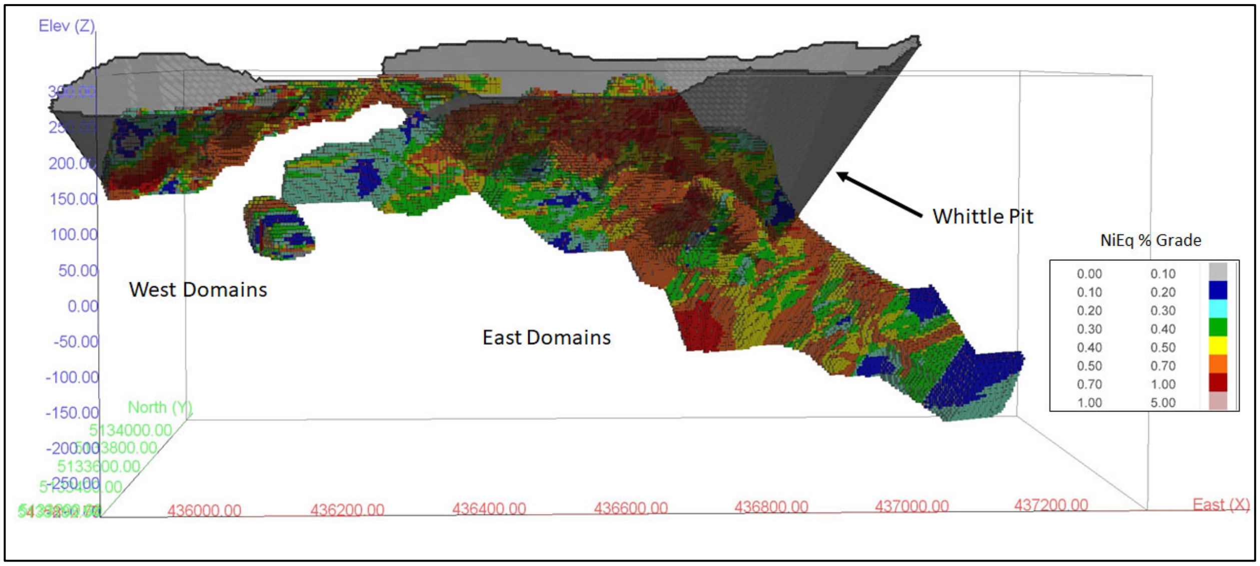
Cut-off Grade	Tonnes	Ni %	Cu %	Co %	Pt g/t	Pd g/t	Au g/t	NiEq %
Indicated								
0.2% NiEq	16,508,000	0.34	0.36	0.02	0.33	0.36	0.19	0.56

(B)

Cut-off Grade	Tonnes	Ni %	Cu %	Co %	Pt g/t	Pd g/t	Au g/t	NiEq %
Indicated								
0.4% NiEq	3,832,000	0.31	0.36	0.02	0.30	0.32	0.19	0.53
Inferred								
0.4% NiEq	2,355,000	0.33	0.40	0.02	0.34	0.37	0.20	0.57

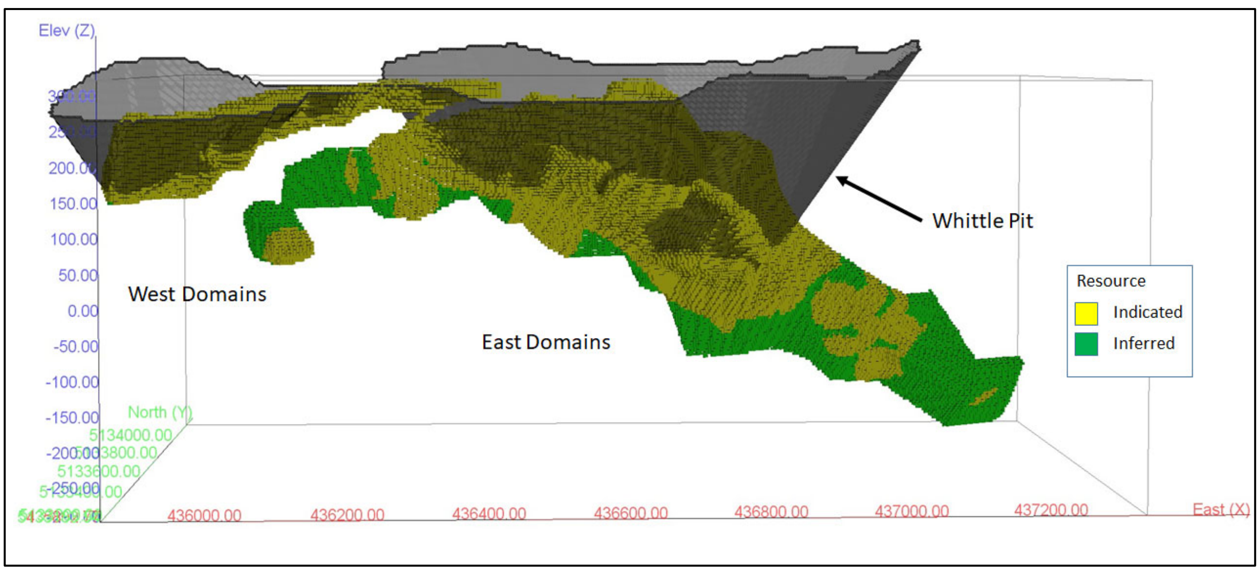
1. Mineral Resources are exclusive of material mined.
2. CIM (2014) definitions were followed for Mineral Resources Reporting.
3. Mineral resources which are not mineral reserves do not have demonstrated economic viability. All figures are rounded to reflect the relative accuracy of the estimate. Composites have been capped where appropriate.
4. Open pit Mineral Resources are reported at a base case cut-off grade of 0.2% NiEq within a conceptual pit shell.
5. Underground (below-pit) Mineral Resources are estimated from the bottom of the pit and are reported at a base case cut-off grade of 0.4% NiEq. The underground Mineral Resource grade blocks were quantified above the base case cut-off grade, below the constraining pit shell and within the constraining mineralized wireframes. At this base case cut-off grade the deposit shows excellent deposit continuity.
6. Based on the size, shape, and orientation of the Deposit, it is envisioned that the underground mineralization may be mined using the longitudinal longhole retreat mining method (a branch of the generic mining method known as sublevel stoping).
7. A fixed specific gravity value of 3.00 was used to estimate the resource tonnage from block model volumes; an SG of 2.85 for waste.
8. NiEq Cut-off grades are based on metal prices of $7.50/lb Ni, $3.25/lb Cu, $21.00/lb Co, $1,000/oz Pt, $2,000/oz Pd and $1,600/oz Au, and metal recoveries of 75% for Ni, 96% for copper, 56% for Co, 73% for Pt, 39% for Pd and 36% for Au.
9. The results from the pit optimization are used solely for the purpose of testing the “reasonable prospects for economic extraction” by an open pit and do not represent an attempt to estimate mineral reserves. The results are used as a guide to assist in the preparation of a Mineral Resource statement and to select an appropriate resource reporting cut-off grade.
10. The estimate of Mineral Resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues. There is no certainty that all or any part of the Inferred Mineral Resource will be upgraded to an Indicated or Measured Mineral Resource as a result of continued exploration.

Figure 14-8: Isometric View Looking North of the Shakespeare Deposit Mineral Resource Block Grades and Whittle Pit



Source: SGS Geological Services

Figure 14-9: Isometric View Looking North of the Shakespeare Deposit Indicated and Inferred Mineral Resource Blocks and Whittle Pit

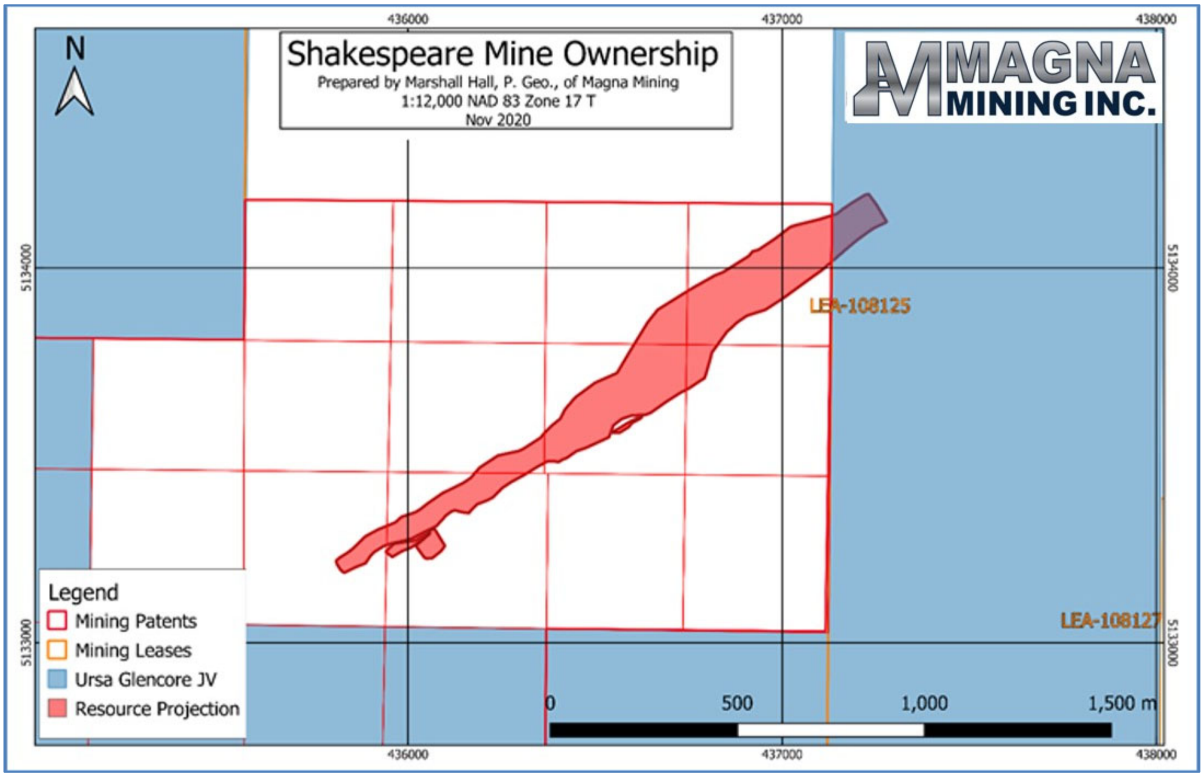


Source: SGS Geological Services

14.12 Mineral Resource Estimate Divided By Ownership

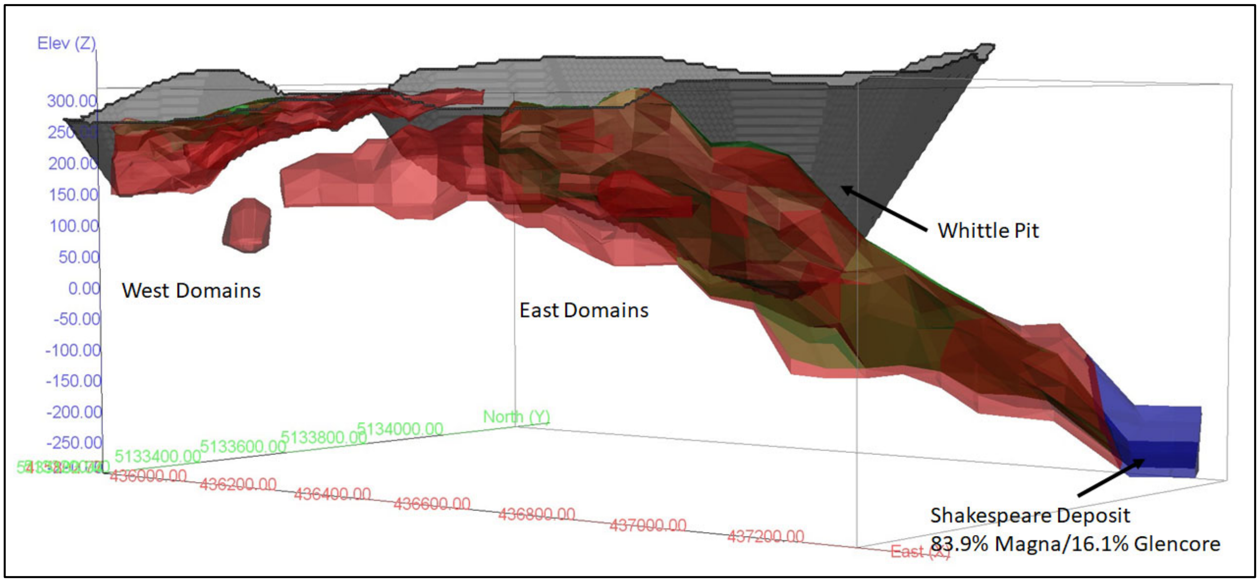
As discussed in section 4 above, various exploration mineral claims that surround the Shakespeare Property are subject to an 83.9/16.1 joint venture between the Company and Glencore. The northeast end of the Shakespeare deposit is subject to this joint venture agreement (Figure 14-10). That portion of the global MRE that is 16.1% Glencore property is limited to 3,600 tonnes of inferred underground resources and are a negligible part of the global resource estimate (Figure 14-11 and Table 14-13).

Figure 14-10: Shakespeare Deposit Subdivided by Property Ownership



Source: SGS Geological Services

Figure 14-11: Isometric View Looking Northwest of the Shakespeare Deposit Identifying the Part of the Property that is under 16.1% Glencore Ownership



Source: SGS Geological Services

Table 14-13: Portion of the Total Resource Estimate that is 16.1% Glencore (Inferred, Below-pit)

Cut-off Grade	Tonnes	Ni %	Cu %	Co %	Pt g/t	Pd g/t	Au g/t	NiEq %
Inferred								
0.4% NiEq	7,200	0.25	0.38	0.02	0.29	0.33	0.16	0.48

14.13 Model Validation and Sensitivity Analysis

The total volume of the Shakespeare deposit resource blocks in the Mineral Resource model, at a 0.0% NiEq cut-off grade value compared well to the total volume of the mineralization wireframes with the total volume of the block model being 0.42% lower than the total volume of the mineralized domains (Table 14-14). The slightly higher volume of the domains is the result of minor overlapping of domains. However, where solids overlap, GEMS assigns the data to the first possible solid based on the “Solid Precedence” setting.

Visual checks of block grades gold against the composite data on vertical section showed good correlation between block grades and drill intersections.

A comparison of the average composite grades with the average grades of all the blocks in the block model, a 0.0% NiEq cut-off grade was completed and is presented in Table 14-15. The block model average grades compared well with the composite average grades. The lower block grades are likely due to grade smoothing during the interpolation procedure.

Table 14-14: Comparison of Block Model Volume with the Total Volume of the Vein Structures

Deposit	Total Domain Volume	Block Model Volume	Difference %
Shakespeare Deposit	9,723,475	9,682,689	0.42%

Table 14-15: Comparison of Average Composite Grades with Block Model Grades

Deposit	Variable	Ni %	Cu %	Co %	Pt g/t	Pd g/t	Au g/t
Shakespeare Deposit	Composites Capped	0.32	0.36	0.02	0.32	0.36	0.18
	Resource (0.0% Cut-off)	0.29	0.33	0.02	0.29	0.32	0.17

Sensitivity to Cut-off Grade

The Shakespeare deposit Mineral Resource has been estimated at a range of cut-off grades presented in Table 14-16 to demonstrate the sensitivity of the resource to cut-off grades. The current Mineral Resources are reported at a cut-off grade of 0.2% NiEq within a conceptual pit shell and underground Mineral Resources are reported at a cut-off grade of 0.4% NiEq below the conceptual pit shell.

Table 14-16: Shakespeare Deposit Open Pit (A) and Underground (B) Mineral Resource Estimate, January 29, 2021 at Various NiEq Cut-off Grades

(A)

Cut-off Grade NiEq (%)	Tonnes	Ni %	Cu %	Co %	Au g/t	Pt g/t	Pd g/t	NiEq %
Indicated								
0.1	16,894,000	0.33	0.36	0.02	0.19	0.32	0.36	0.55
0.2	16,508,000	0.34	0.36	0.02	0.19	0.33	0.36	0.56
0.3	15,333,000	0.35	0.38	0.02	0.20	0.34	0.38	0.58
0.4	13,290,000	0.37	0.40	0.02	0.21	0.36	0.40	0.62
0.5	10,521,000	0.40	0.43	0.02	0.23	0.39	0.43	0.66
0.6	6,862,000	0.43	0.47	0.03	0.24	0.43	0.48	0.72

(B)

Cut-off Grade NiEq (%)	Tonnes	Ni %	Cu %	Co %	Au g/t	Pt g/t	Pd g/t	NiEq %
Indicated								
0.1	6,643,000	0.25	0.29	0.02	0.15	0.25	0.27	0.43
0.2	6,410,000	0.26	0.30	0.02	0.15	0.25	0.28	0.44
0.3	5,411,000	0.28	0.32	0.02	0.17	0.27	0.29	0.48
0.4	3,832,000	0.31	0.36	0.02	0.19	0.30	0.32	0.53
0.5	2,108,000	0.35	0.39	0.02	0.21	0.34	0.37	0.59
0.6	826,000	0.40	0.43	0.02	0.23	0.38	0.41	0.66
Inferred								
0.1	5,349,000	0.22	0.28	0.01	0.14	0.23	0.25	0.39
0.2	4,412,000	0.25	0.32	0.01	0.16	0.26	0.28	0.44
0.3	3,228,000	0.29	0.36	0.02	0.18	0.30	0.33	0.51
0.4	2,355,000	0.33	0.40	0.02	0.20	0.34	0.37	0.57
0.5	1,495,000	0.37	0.43	0.02	0.23	0.37	0.40	0.63
0.6	890,000	0.42	0.45	0.02	0.24	0.42	0.42	0.69

1. Open pit Mineral Resources are reported at a cut-off grade of 0.2% NiEq within a conceptual pit shell and underground Mineral Resources are reported at a cut-off grade of 0.4% NiEq from the bottom of the conceptual pit shell. Values in this table reported above and below the cut-off grades should not be misconstrued with a Mineral Resource Statement. The values are only presented to show the sensitivity of the block model estimates to the selection of cut-off grade. All values are rounded to reflect the relative accuracy of the estimate and numbers may not add due to rounding.
2. All figures are rounded to reflect the relative accuracy of the estimate. Composites have been capped where appropriate.

14.14 Disclosure

All relevant data and information regarding the Project are included in other sections of this Technical Report. There is no other relevant data or information available that is necessary to make the technical report understandable and not misleading.

The Author is not aware of any known mining, processing, metallurgical, environmental, infrastructure, economic, permitting, legal, title, taxation, socio-political, or marketing issues, or any other relevant factors not reported in this technical report, which could materially affect the current Mineral Resource Estimate.

15 MINERAL RESERVE ESTIMATES

The reserves for the Shakespeare Project are based on the conversion of Indicated resources within the Feasibility study mine design. Indicated resources are converted directly to Probable Reserves.

The Shakespeare Project has no Proven Mineral Reserves.

The total reserves for the Shakespeare Project are shown in **Error! Reference source not found.**. Some variation may exist due to rounding.

The QP has not identified any known legal, political, environmental, or other risks that would materially affect the potential development of the Mineral Reserves.

Table 15-1: Shakespeare Project – Proven and Probable Reserves – January 28, 2022

Reserve Category	Tonnes (Mt)	Ni %	Cu %	Co %	Pt g/t	Pd g/t	Au g/t
Proven	-	-	-	-	-	-	-
Probable	11.87	0.33	0.35	0.02	0.32	0.36	0.18
Total Proven + Probable	**11.87**	**0.33**	**0.35**	**0.02**	**0.32**	**0.36**	**0.18**

Note: This mineral reserve estimate is as of January 28, 2022 and is based on the mineral resource estimates for the Shakespeare Project dated June 1, 2021 by SGS Canada. The mineral reserve calculation was completed under the supervision of Gordon Zurowski, P.Eng. of AGP., who is a Qualified Person as defined under NI 43-101.
Mineral reserves are stated within the final design pits based on a $US 6.50/lb nickel price, $US 3.00/lb copper price, $US 17.00/lb cobalt price, $US 900/oz platinum price, $US 1,700/oz palladium price and $US 1,500/oz gold price.
The mine cut-off grade used was 0.23% nickel.
Open pit mining costs averaged $2.30/t mined.
Processing costs averaged $15.23/t ore and G&A costs were $2.59/t ore.
Metal recoveries were 76.7% for nickel, 95.1% for copper, 55.9% for cobalt, 76.2% for platinum, 42.9% for palladium and 38.3% for gold, respectively.
Metal payables for the nickel concentrate were 65% for nickel, 65% for copper, 40% for cobalt, 80% for platinum, 80% for palladium and 80% for gold, respectively. For the copper concentrate the metal payables were 96.6% for copper, 70% for platinum, 70% for palladium and 95% for gold.

15.1 Mining Method and Mining Costs

The Shakespeare mine is planned as an open pit only operation using conventional mining equipment.

Open pit mining will be completed with an owner operated fleet. Costs have been estimated with vendor quotations for equipment maintenance and applied to appropriate haulage profiles using the current life of mine plan generated for this Feasibility Study.

All work is based on the current life of mine operating plans generated for this Feasibility Study.

The current resource model dated June 1, 2021 was used for all mine design work. Only Measured and Indicated resources were used in the determination of reserves pits for the Shakespeare mine design.

15.1.1 Geotechnical Considerations

Open pit highwall slope angle criteria vary slightly from by area within the pit. Recommendations from the geotechnical consultant are an inter-ramp angle of 55 degrees with a minimum of an 8.5 m safety bench spaced 20 m vertically. To achieve this overall angle, the bench face angle needs to be 75 degrees. In one area of the pit, the West pit hangingwall, the safety bench width is recommended to be 10.5 m with an 80 degree bench face angle. This yields an inter-ramp angle of 55 degrees.

Careful pre-split blasting of the full 20 m high faces in one pass is required together with narrow trim blasts adjacent to the pre-split line. The drills proposed for the Shakespeare project are down the hole hammers (DTH) which have greater control on deviation down hole that a top hammer arrangement.

The overall slope angle varies from 44 – 55 degrees dependent on the location of ramps in the wall.

An analysis of the potential failure modes of the rock wall slopes predicted the possibility of bench scale failures primarily on the East pit hangingwall. These may take the form of wedges, planar or toppling dependent on wall orientation. The berms have been designed to allow collection of the material and space for cleaning of the berm should it be required.

15.1.2 Economic Pit Shell Development

The final pit designs are based on pit shells using the Lerch-Grossman procedure in Hexagon Mining's MinePlan software. The pit optimization shells are generated with the current resource model date June 1, 2021. Only Measured and Indicated blocks were used in the pit shell generation.

The parameters for the pit shells are shown in Table 15-2.

Pits were generated using various revenue factors of the base metal prices described in Table 15-2. For the Feasibility study pit design, a revenue factor (RF) equal to 0.75 pit shell was used to guide the design. This equates to metal prices of $US 2.77/lb nickel, $US 1.25/lb copper, $US 4.11/lb cobalt, $US 511.50/oz platinum, $US 979.71/oz palladium and $US 870.92/oz gold.

Discrepancies between the costs used in the pit optimization (Table 15-2) and the final cashflow model reflect further cost determination throughout the study to arrive at more accurate values. The pits were verified with the newer costs and terms and remained valid for use in the Feasibility study.

An exchange rate of 0.77:1 $US:$CAD was used for calculation conversions.

Table 15-2: Open Pit Optimization Parameters

Parameter	Units	Nickel	Copper	Cobalt	Platinum	Palladium	Gold
Metal Price	$US/lb, $US/oz	6.50	3.00	17.00	900.00	1700.00	1500.00
Royalty	%	1.5	1.5	1.5	1.5	1.5	1.5
Metal Recoveries	%	76.7%	95.1%	55.9%	76.2%	42.9%	38.3%
Nickel Concentrate							
Payable	%	65	65	40	80	80	80
Refining	$US/lb, $US/oz	0.68	0.36	2.95	24.88	24.88	10.89
Transportation	$US/wmt	7.00					
Concentrate Moisture	%	8.0					
Concentrate Grade	%, g/t	9.0	3.9	0.4	8.3	5.0	2.2
Copper Concentrate							
Payable	%	-	96.6	-	70	70	95
Smelting Charge	$US/dmt	-	80.00				
Refining	$US/lb, $US/oz	-	0.08	-	23.00	23.00	5.00
Transportation	$US/wmt	45.77					
Concentrate Moisture	%	8.0					
Concentrate Grade	%, g/t	0.9	29.0	0.1	1.3	1.2	0.9
Geotechnical Wall Slopes (overall angle)							
East Pit Hangingwall	degrees	53					
East Pit Footwall	degrees	46					
West Pit Hangingwall	degrees	55					
West Pit Footwall	degrees	44					
Operating Costs							
Waste or Ore Mining	$/t moved	2.30					
Processing	$/t ore	15.23					
General and Administrative	$/t ore	2.59					

15.1.3 Cut-off Grade

The marginal cut-off was used for the statement of reserves for the Shakespeare Project. Using the updated cost estimates and metal pricing the nickel cut-off was 0.23% nickel.

15.1.4 Dilution

The resource model is an ore percent model with dimensions of 5m on all sides. No grades were estimated outside of the low grade wireframe.

The percentage of dilution is calculated for each contact side using the same assumed 1.0 m contact dilution distance. If one side of the 5m block is touching waste, then it is estimated that dilution of

20.0% would result. If two sides are contacting, it would rise to 40.0%. Three sides would be 60.0%, and four sides 80.0%. Four sides represent an isolated block of ore.

The ore block was determined based on the marginal cut-off grade.

MinePlan enables the user to query surrounding blocks against a set of conditions. For the dilution percentage calculation, the procedure was run to determine how many waste blocks contacted an ore block, which determined the dilution percentage to apply. This dilution percentage was stored in the block.

The dilution percentage was added to the existing ore percent item and stored in a new diluted ore percent item used in reporting mined tonnages. The diluted grades were stored as a diluted items for reporting of grades.

The pit tonnages were then reported with these diluted items for use in mine scheduling. The results of the dilution calculation on all the models by area is shown in Table 15-3 and indicate a 6.5% increase in ore tonnage due to dilution.

Table 15-3: Dilution Percentages by Grade Item

	Units	Insitu	Diluted	Difference (%)
Ore Tonnage	t	11,154,600	11,874,000	+ 6.5
Nickel	%	0.348	0.327	- 6.0
Copper	%	0.371	0.348	- 6.2
Cobalt	%	0.022	0.021	- 4.6
Platinum	g/t	0.341	0.320	- 6.2
Palladium	g/t	0.378	0.355	- 6.1
Gold	g/t	0.192	0.180	- 6.3

Tonnes and grade for the open pit designs and reserves are reported with the diluted tonnes and grade and assume a 100% recovery of material in pit.

15.2 Mine Design

The pit optimization shells are generated with the current resource model date June 1, 2021. The shells were used to guide the pit design for the Feasibility study.

The pits are built with 10 m bench heights with 8.5 to 10.5 m wide safety berms spaced 20 m apart vertically. Inter-ramp angles are 55 degrees, but the overall angles vary from 44 to 55 degrees depending upon the wall orientation and ramp placement. Ramps are at maximum 10% gradient and vary in width from 15 m (single lane width) to 24 m (double lane width). They have been designed for 91 t haulage trucks.

The mine schedule includes a year of pre-stripping which prepares the pit for sending ore to the process plant and also provides material to build the Co-disposal area structures and other infrastructure items. A small amount of ore was mined and processed in Year -1 for commissioning. This was 0.32 Mt. Utilizing the pit and phase designs, 1.62 Mt per year of ore is sent to the process plant from Year 1 to Year 7 then 0.21 Mt in Year 8, the final year.

Total mine production peaks at 11.99 Mt/yr in Years 2 and 3, then tapers off to the end of the mine life. Total Probable reserves mined are 11.8 Mt together with 59.1 Mt of waste for an overall strip ratio of 4.98:1 (waste: ore). Waste material is to be placed in the Co-disposal area (CDA) and as needed in various infrastructure facilities.

15.3 Mine Reserves Statement

The total reserves for the Shakespeare Project are shown in Table 15-4 and Table 15-5.

Table 15-4: Shakespeare Project Proven and Probable Reserves – January 28, 2022

Reserve Category	Tonnes (Mt)	Ni %	Cu %	Co %	Pt g/t	Pd g/t	Au g/t
Proven	-	-	-	-	-	-	-
Probable	11.87	0.33	0.35	0.02	0.32	0.36	0.18
Total Proven + Probable	**11.87**	**0.33**	**0.35**	**0.02**	**0.32**	**0.36**	**0.18**

Table 15-5: Shakespeare Project Mineral Reserves – January 28, 2022

	Reserves				Contained Metal			
Ore/Metal	Units	Proven	Probable	Total	Units	Proven	Probable	Total
Ore	**Mt**	**-**	**11.87**	**11.87**	**Mt**	**-**	**11.87**	**11.87**
Nickel	%	-	0.33	0.33	M lbs	-	85.6	85.6
Copper	%	-	0.35	0.35	M lbs	-	91.1	91.1
Cobalt	%	-	0.02	0.02	M lbs	-	5.4	5.4
Platinum	g/t	-	0.32	0.32	K oz	-	122.2	122.2
Palladium	g/t	-	0.36	0.36	K oz	-	135.7	135.7
Gold	t/t	-	0.18	0.18	K oz	-	68.9	68.9

16 MINING METHODS

16.1 Introduction

The Shakespeare Project (Project) is located in Ontario and is situated approximately 70 km southwest of Sudbury. The Project was subject to open pit mining operations between 2007 to 2012 at a small scale sending material for toll milling at the Strathcona mill near Sudbury.

The Mineral Resources for the Project are dated June 1, 2021. AGP's opinion is that with current metal pricing levels and knowledge of the mineralization and previous mining activities, open pit mining offers the most reasonable approach for development of the Project. This is based on the size of the resource, tenor of the grade, grade distribution and proximity to topography for the deposits.

The mine plan consists of 11.87 Mt of mill feed grading 0.33% nickel, 0.35% copper, 0.02% cobalt, 0.32 g/t platinum, 0.36 g/t palladium and 0.18 g/t gold over a mine life of 7.1 years plus a year of pre-stripping. Open pit waste tonnage totals 59.12 Mt and will be placed into the Co-disposal area (CDA) with tailings. The overall open pit strip ratio is 4.98:1. The mine schedule feeds the process plant at a rate up to a maximum of 1.62 Mtpa.

The current mine life includes one year of pre-stripping followed by 7.1 years of mining. A small quantity of mill feed, 0.32 Mt is sent in Year -1 for commissioning of the mill. The mining starts with pre-stripping in Year -1 and continues uninterrupted until Year 8 at which time the stockpile is fully removed.

16.2 Mining Geotechnical

Geotechnical knowledge for this Feasibility is based on the Golder 2006 Geotechnical report for Ursa Major. No changes to the geotechnical recommendations have been made since that time and AGP has applied them accordingly.

The pit slope recommendations provided in the Golder report were based on field data gathering which included outcrop mapping, drill core review and specific geotechnical hole. An optical televiewer was used in selected holes and compared against the other data sets collected.

Because much of the field data was collected around the actual pit, where the televiewer results were specific to the pit, greater weight was applied to the televiewer information. The televiewer provides information not only on the discontinuity spacing but also condition of those discontinuities such as whether they are open, tight or healed.

Point load tests were also completed by the Ursa Major team and assessed by Golder as part of their study to assess compressive strengths for each lithology. Both uniaxial compressive strength (UCS) testing and International Society for Rock Mechanics (ISRM) tests were completed for six boreholes in the 2005 geotechnical program. A comparison of the point load tests and the UCS tests showed good agreement between the two sets. Uniaxial compressive strength (UCS) testing results showed strengths ranging from 64 MPa to 343 MPa.

Golder developed rock mass classifications based on the 2005 drill work. This has been summarised in Table 16-1.

Intact rock strengths have been determined from previous (limited) laboratory testing and geotechnical core logging (Table 16-1).

Table 16-1: Intact Rock Strength

Pit Domain	Main Lithology	Q1 Min	Q Average	Q Max	RMR $_{Equiv}$ Min.	RMR $_{Equiv}$ Avg.	RMR $_{Equiv}$ Max.
East Pit Hanging Wall	Quartzite	0.2	10.0	58.5	28.3	59.2	80.6
East Pit Footwall	Gabbro	1.4	12.3	200.0	47.0	60.1	91.7
West Pit Hanging Wall	Quartzite	0.3	13.3	39.1	33.5	63.6	77.0
West Pit Footwall	Gabbro	0.5	17.1	387.8	37.1	56.5	97.6

Based on the calculated Q values the typical rock mass conditions for both pits Golder concluded had rock quality that falls within the "Good" category. What Golder did note was the number of open discontinuities logged with the televiewer is significantly lower than recorded during the geotechnical logging. The number of fractures induced by the drilling and handling of the core indicates that the Q rating may be slightly understated and may be in the range of "Good to very good".

Based on the competent nature of the rock forming the pit slopes, Golder concluded that any failure that may occur in the pit would be controlled by local geological structure and not solely through intact rock.

Golder completed a kinematic stability analysis which is summarized in Table 16-2.

Table 16-2: Golder Report – Potential Failure Modes

Pit Domain	Wedge (Dip/Dip Direction)	Planar (Dip/Dip Direction	Topple (Dip/Dip Direction)
East Pit Hanging Wall	Bench Scale 81°/069° 73°/165°	Bench Scale 73°/165°	Bench Scale 70°/133°
East Pit Footwall	Unlikely	Bench Scale Minor	Bench Scale 68°/154° 73°/136°
West Pit Hanging Wall	Unlikely	Bench Scale Minor	Bench Scale 89°/339°
West Pit Footwall	Unlikely	Bench Scale 59°/313°	Unlikely

The design of the slopes based on the kinematic stability and limit equilibrium information resulted in Golder recommending the wall slope parameters in Table 16-3.

Table 16-3: Recommended Wall Slope Parameters

Wall Slope Sector	Inter-Ramp Angle (degrees)	Bench Face Angle (degrees)	Height Between Berms (m)	Catch Bench Width (m)
East Pit Hanging Wall	55	75	20	8.5
East Pit Footwall	55	75	20	8.5
West Pit Hanging Wall	55	80	20	10.50
West Pit Footwall	55	75	20	8.5

16.3 Open Pit

16.3.1 Geologic Model Importation

The 2021 resource estimates were created using GEMS software for mineralization domains and block modelling. SGS provided AGP with resource models in CSV block model format for open pit mine planning. The final resource model provided to AGP for the Shakespeare project was an ore percent model.

Framework details of the open pit block model is provided in Table 16-4. The final mine planning model items are displayed in Table 16-5. The mining model created by AGP in Hexagon MinePlan® includes additional items for mine planning purposes. MinePlan® was used for the mining portion of the Feasibility, utilizing their Lerchs Grossman (LG) shell generation, pit and dump design and mine scheduling tools. The MinePlan model was extended to allow room for the pit shells to expand. Default waste densities were applied to those blocks and no addition mineralized material was added.

Table 16-4: Open Pit Model Framework

Framework Description	Shakespeare Model Original Value	Shakespeare Model Extended
MinePlan® file 10 (control file)	MM10.dat	MMex10.date
MinePlan® file 15 (model file)	MM.15	MMext.15
X origin (m)	435,850	435761.78
Y origin (m)	5,132,880	5,132,465
Z origin (m) (max)	400	400
Rotation (degrees counterclockwise)	33	33
Number of blocks in X direction	380	440
Number of blocks in Y direction	125	185
Number of blocks in Z direction	150	150
X block size (m)	5	5
Y block size (m)	5	5
Z block size (m)	5	5

Only Indicated resources were used for the Feasibility study. No Measured resources were reported in the model provided. The block density values provided in the resource models were estimated by the geology team while the blocks without values received default values of 2.85 t/m3.

Table 16-5: Shakespeare Model Item Descriptions

Field Name	Min	Max	Precision	Units	Comments
RTYPE	0	50	1	-	Rock Type
SG	0	4	0.01	t/cu m	Density. (Domain 10-21=3, Country Rock=2.85)
ORE%	0	100	0.01	%	Percent Model to Open Pit Surface
Ni	0	100	0.001	%	Undiluted Nickel grade
Cu	0	100	0.001	%	Undiluted Copper grade
Co	0	100	0.001	%	Undiluted Cobalt grade
Au	0	5	0.001	g/t	Undiluted Gold grade
Pd	0	5	0.001	g/t	Undiluted Palladium grade
Pt	0	5	0.001	g/t	Undiluted Platinum grade
Nieq	0	10	0.001	%	Recoverable NIEQ grade (estimated in model)
Class	0	5	1	-	2=Indicated, 3=Inferred,
Topo%	0	100	100	%	Topo information code using 2021
SLP	0	1	10	-	Design sector 1: East Hanging Wall, 2: East Footwall, 3:West Hanging Wall, 3:West Footwall Wall
VLT1	0	999	0.01	$/t	Preliminary pit shell value per tonne
VLB1	0	-999999	0.01	$/t	Preliminary pit shell value per Block
ROUTE	0	0	3	-	Flag item used for dilution script, whole mine 1 and air 0
BLOKT	0	0	1000	-	count of mill feed blocks touching each waste block
OWFL	0	0	3	-	In-situ block flag where 1=ore, 2=waste
DDEN	0	0	5	t/cu m	Diluted Density
DNI	0	100	0.001	%	Diluted Nickel grade
DCU	0	100	0.001	%	Diluted Copper grade
DCO	0	100	0.001	%	Diluted Cobalt grade
DAU	0	5	0.001	g/t	Diluted Gold grade
DPD	0	5	0.001	g/t	Diluted Palladium grade
DPT	0	5	0.001	g/t	Diluted Platinum grade
DORE%	0	100	100	%	Diluted Ore Percent Model
DWAS%	0	100	100	%	Diluted Waste Percent Model
NPAG	0	100	1	-	PAG material 17:Gabbro-NPAG, 20:Melagabbro-PAG, 37:Metasediments-NPAG, 6:Pyroxenites-NPAG, 38:Quarz-Gabbro -NPAG

16.3.2 Economic Pit Shell Development

The open pit ultimate size and phasing opportunities were completed with various input parameters including estimates of the expected mining, processing, and G&A costs, as well as metallurgical recoveries, smelting and refining terms, pit slopes, and reasonable long-term metal price assumptions.

Wall slopes for pit optimization were based on the geotechnical recommendations described in Section 16.2. Slopes were flattened as required due to inclusion of haulage ramps or geotechnical berms. The overall slope angles for use in LG routines are shown in Table 16-6.

Table 16-6: Pit Optimization Pit Shell Slopes

Item	Units	East Pit Hanging Wall	East Pit Footwall	West Pit Hanging Wall	West Pit Footwall
Inter-ramp Angle	degrees	55	55	55	55
Bench Face Angle	degrees	75	75	80	75
Height between Berms	metres	20	20	20	20
Safety Bench Width	metres	8.5	8.5	10.5	8.5
Number of Haul Roads	number	0	3	0	2
Haul Road width	metres	25.6	25.6	25.6	25.6
Number of Geotech Berms	number	1	0	0	0
Geotech Berm Width	metres	20	0	0	0
Slope Height	Metres	300	300	150	150
Overall Angle	Degrees	53	46	55	44

The initial mining costs are estimates based on previous cost estimates for the Project completed internally for Magna. The costs represent what is expected as a blended cost over the life of the mine for all material types to the various dump locations. Process costs were developed by Blue Coast and the initial G&A costs were developed by AGP in consultation with Magna personnel. Terms for the concentrate were based on general industry terms.

The parameters used are shown in Table 16-7. The values are in Canadian dollars unless otherwise noted. The mining cost estimates are based on the use of 91 tonne trucks. Nickel, copper, cobalt, platinum, palladium, and gold are the elements used in the revenue calculations. The smelting terms and recovery assumptions are based on creating a nickel and a copper concentrate. The nickel concentrate grade was estimated to be 9% nickel and the copper concentrate grades was 29% copper, both with various percentages of all the metals contained within them.

An exchange rate of 0.77:1 $US:$CAD was used for calculation conversions.

Table 16-7: Economic Pit Shell Parameters (Canadian dollars unless otherwise noted)

Parameter	Units	Nickel	Copper	Cobalt	Platinum	Palladium	Gold
Metal Price	$US/lb, $US/oz	6.50	3.00	17.00	900.00	1700.00	1500.00
Royalty	%	1.5	1.5	1.5	1.5	1.5	1.5
Metal Recoveries	%	76.7%	95.1%	55.9%	76.2%	42.9%	38.3%
Nickel Concentrate							
Payable	%	65	65	40	80	80	80
Refining	$US/lb, $US/oz	0.68	0.36	2.95	24.88	24.88	10.89
Transportation	$US/wmt	7.00					
Concentrate Moisture	%	8.0					
Concentrate Grade	%, g/t	9.0	3.9	0.4	8.3	5.0	2.2
Copper Concentrate							
Payable	%	-	96.6	-	70	70	95
Smelting Charge	$US/dmt	-	80.00				
Refining	$US/lb, $US/oz	-	0.08	-	23.00	23.00	5.00
Transportation	$US/wmt	45.77					
Concentrate Moisture	%	8.0					
Concentrate Grade	%, g/t	0.9	29.0	0.1	1.3	1.2	0.9
Geotechnical Wall Slopes (overall angle)							
East Pit Hanging Wall	degrees	53					
East Pit Footwall	degrees	46					
West Pit Hanging Wall	degrees	55					
West Pit Footwall	degrees	44					
Operating Costs							
Waste or Ore Mining	$/t moved	2.30					
Processing	$/t ore	15.23					
General and Administrative	$/t ore	2.59					

Nested LG p shells were generated using various revenue factors of the base metal prices described in Table 16-7. This was done to gain an understanding of the deposit and highlight potential opportunities in the design process to follow. Undiluted Indicated resource material was used in the analysis. The net smelter return (NSR) was varied by applying revenue factors of 0.10 to 1.20 at 0.05 increments, to generate a set of nested LG shells. The chosen set of revenue factors result in a net nickel price (after transportation, smelting and payables) varying from US$0.37/lb up to US$4.43/lb. The other metal prices varied in the same manner. All other parameters were fixed. The resulting nested pit shells assist in visualizing natural breakpoints in the deposit and selecting shells to act as design guidance for phase design. The net profit before capital for each pit was calculated on an undiscounted basis for each pit shell using the above base case prices. Mill feed/waste tonnages and net profit were plotted against the nickel price in $US and is displayed in the Figure 16-1.

Figure 16-1: Shakespeare Project Net Pit Profit vs. Price by Pit Shell

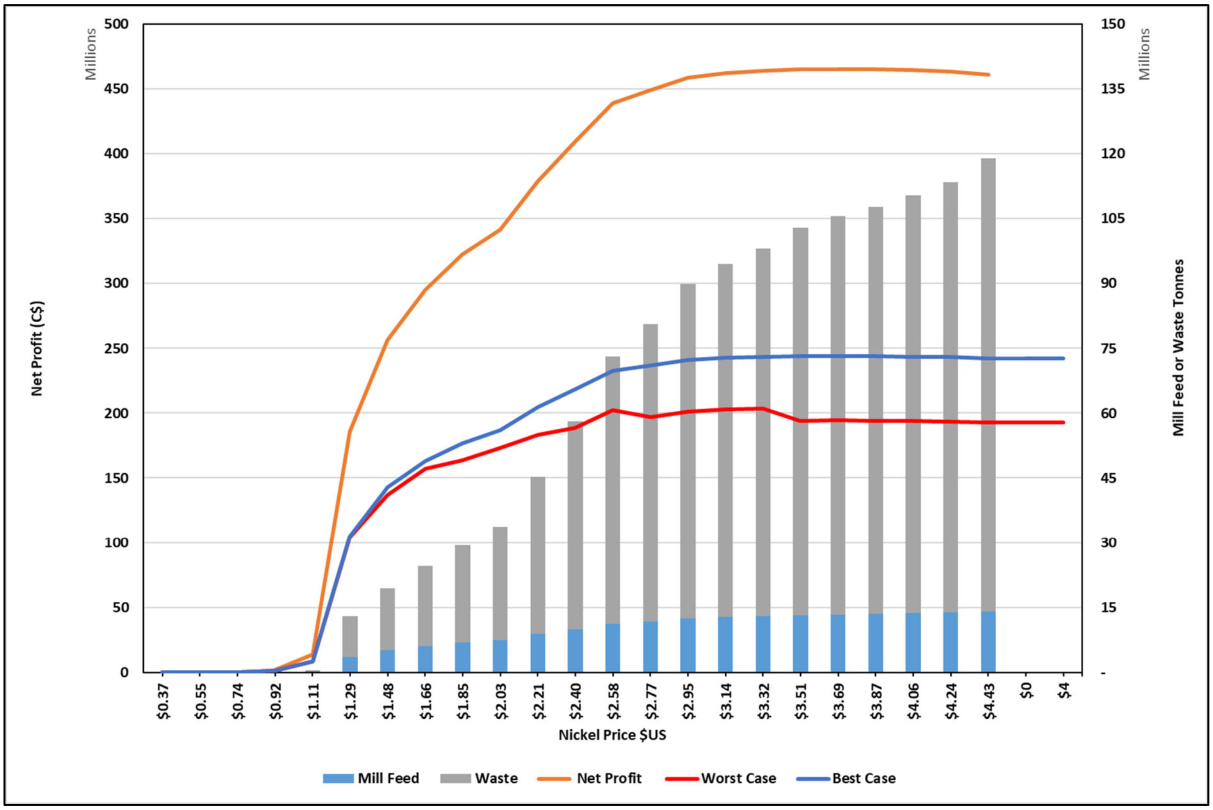


Figure 16-1 illustrates various break points in the pit shells. With each incremental increase in the waste tonnage, and to a lesser degree the mill tonnage, the undiscounted net profit also increased. In the case of the first break point shown at net $US 1.29/lb nickel, the cumulative waste tonnage is 9.3 Mt, with a corresponding mill feed tonnage of 3.3 Mt or a strip ratio of 2.7:1. The net profit also increased beyond this point showing that there was still value to be obtained by going with a higher metal price or an additional phase. This break point represented 40% of the net value of the pit with the base metal prices but with only 10% of the waste of the larger pit shell. This pit shell was used for the pit design of Phase 1.

The second break point was at net $US2.21/lb nickel. This shell was examined against what was believed to be the best ultimate pit (net $US2.77/lb nickel) and the working space between the potential phases was too small to be workable. This second break point was not used.

The third major break point was at net US$2.77/lb nickel or a revenue factor of 0.75. The results in 97% of the revenue for 75% of the waste as a cumulative. This shell was used to guide the ultimate pit design.

16.3.3 Dilution

The Shakespeare resource model is an ore percentage format. This means the grades from the wireframes were reported into separate percentage parcels of mill feed and waste in each block.

To account for mining dilution, AGP modeled contact dilution into the in-situ resource blocks. To determine the amount of dilution, and the grade of the dilution, the size of the block in the model was examined. The block size within the model was 5 m x 5 m in plan view, and 5 m high. Mining would be completed on 10 m benches for waste. Five metre lifts for mill feed is considered for dilution reduction and the equipment selected is capable of mining in that manner.

The percentage of dilution is calculated for each contact side using an assumed 1.0 m contact dilution distance. This dilution skin thickness was selected by considering the spatial nature of the mineralization, proposed grade control methods, and blast heave.

If one side of a mineralized block above cut-off is in contact with a waste block, then it is estimated that dilution of 20% (1m/5m) would result. If two sides are contacting, it would rise to 40%. Three sides would be 60%, and four sides 80%. Four sides represent an isolated block of mill feed.

The net value per tonne that was stored to the block model during the LG runs was used as the grade for cut-off application. This was calculated to be 0.23% nickel approximately but with multiple metals providing value in varying amounts the actual nickel grade may be lower in select blocks.

As that net value per tonne is inclusive of all on-site operation costs except for mining, applying a $0.01/t cut-off represents the marginal cut-off grade to flag initial feed and waste blocks. Using this marginal cut-off grade, all model blocks were flagged as either (1) feed blocks, (2) waste blocks within mineralized material, or (3) default waste blocks outside of mineralization.

MinePlan enables the user to query surrounding blocks against a set of conditions. For the dilution percentage calculation, the procedure was run to determine how many waste blocks contacted an ore block, which determined the dilution percentage to apply. This dilution percentage was stored in the block.

The dilution percentage was added to the existing ore percent item and stored in a new diluted ore percent item used in reporting mined tonnages. The diluted grades were stored as a diluted items for reporting of grades.

The pit tonnages were then reported with these diluted items for use in mine scheduling. The results of the dilution calculation on the model is shown in Table 16-8.

Table 16-8: Dilution Percentages by Grade Item

	Units	Insitu	Diluted	Difference (%)
Ore Tonnage	t	11,154,600	11,874,000	+ 6.5
Nickel	%	0.348	0.327	- 6.0
Copper	%	0.371	0.348	- 6.2
Cobalt	%	0.022	0.021	- 4.6
Platinum	g/t	0.341	0.320	- 6.2
Palladium	g/t	0.378	0.355	- 6.1
Gold	g/t	0.192	0.180	- 6.3

Comparing the in-situ to the diluted values for the designed final pit, the diluted feed contained 6.5% more tonnes and generally 6% lower metal grades than the in-situ feed summary. AGP considers these dilution percentages to be reasonable considering the expected seasonal working conditions as well as the narrow mineralized zones.

For mine scheduling, AGP has assumed 100% recovery of material in the pit.

16.3.4 Pit Design

The geotechnical parameters discussed in Section 16.2 (Table 16-3) were applied to the pit designs.

Equipment sizing for ramps and working benches is based on the use of 91 tonne rigid frame haul trucks. Ramps are at maximum 10% gradient and vary in width from 15 m (single lane width) to 24 m (double lane width). Ramp gradients are 10% for the pits and 8% for the dumps. Working benches were designed for 35 to 40 m minimum mining width on pushbacks.

The pit design initially consisted of two phases in the pit with a first phase then the ultimate pit. Those phases are shown in Figure 16-2 and Figure 16-3.

Figure 16-2: Initial Phase 1

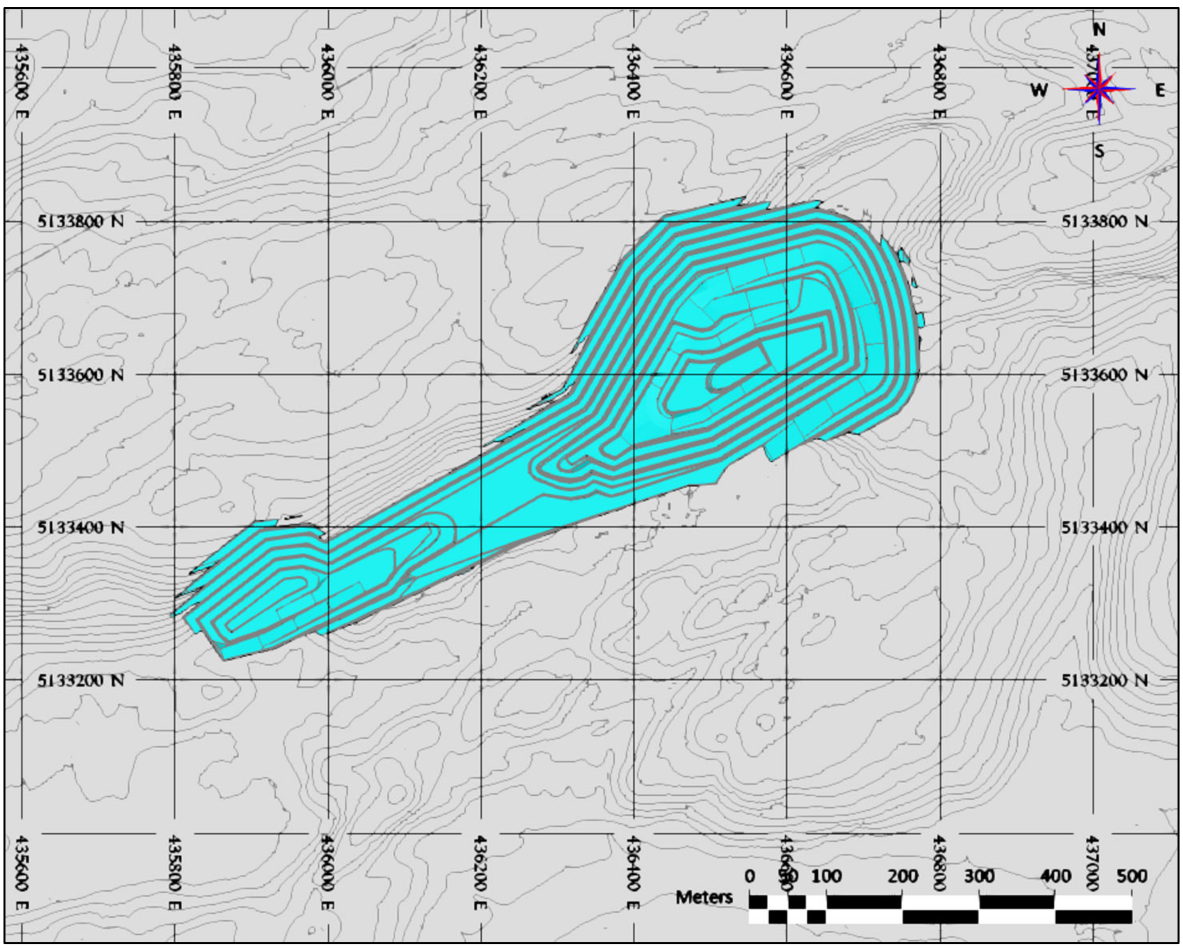
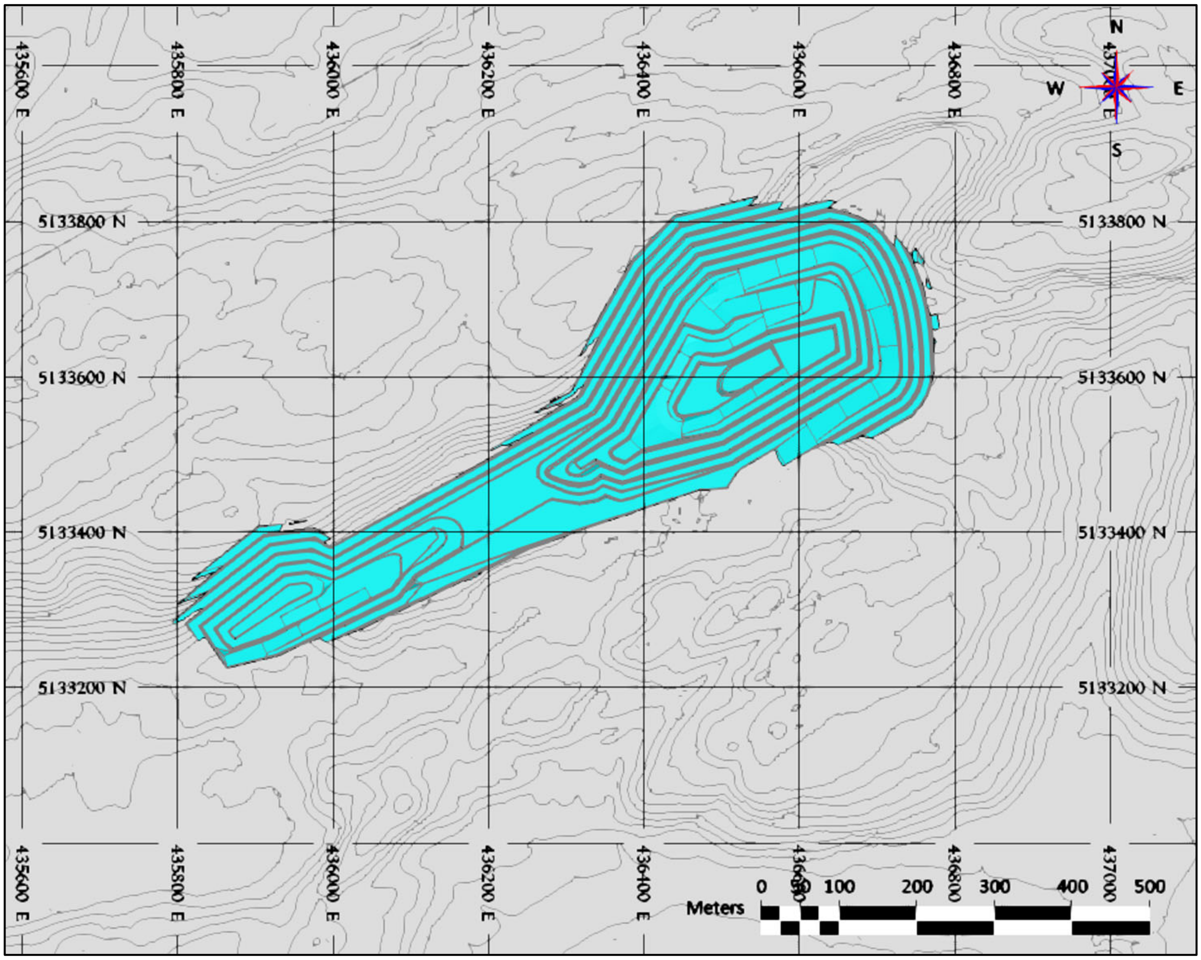


Figure 16-3: Phase 2 - Ultimate Pit



When the two phases were sequenced in the mine schedule, it was noted that opportunities to stack waste until later or advance waste earlier for construction existed. Using the two phases as guides, the phases were adjusted to make five phases that arrive at the same ultimate pit design. These provided a smoother mine production schedule yet were still practical to mine with the anticipated bench advances.

All the pits were design with 10 m benches but could be mined on five metres to reduce dilution.

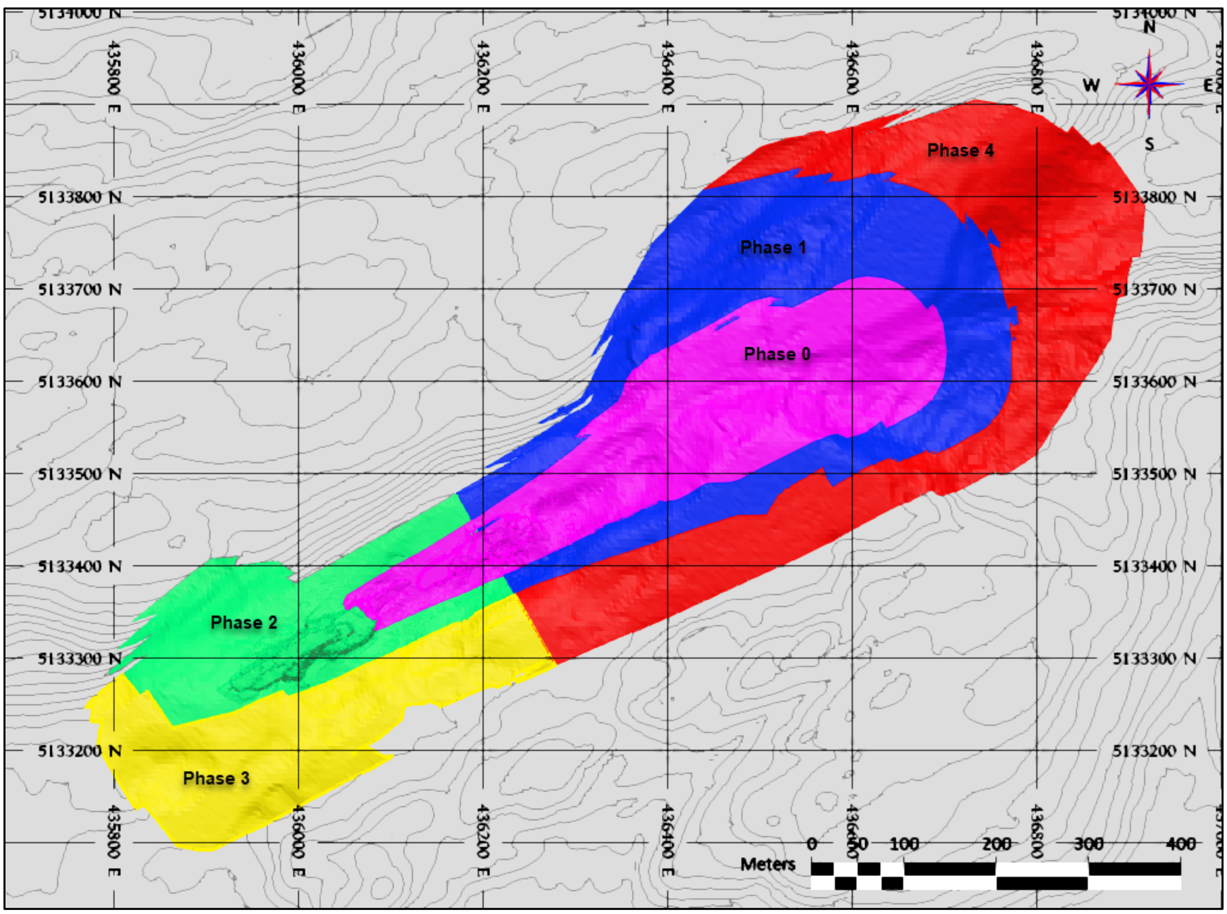
Tonnes and grade for the designed pit phases are reported in Table 16-9 using the diluted tonnes and grade from the model with a mining recovery of 100%.

Table 16-9: Pit Phase Tonnages and Grades

Phase	Mill Feed (Mt)	Ni (%)	Cu (%)	Co (%)	Pt (g/t)	Pd (g/t)	Au (g/t)	Waste (Mt)	Total (Mt)	Strip Ratio
0	2.19	0.33	0.34	0.02	0.32	0.35	0.17	6.74	8.93	3.07
1	2.70	0.38	0.40	0.02	0.37	0.42	0.20	15.84	18.55	5.84
2	1.07	0.25	0.29	0.02	0.26	0.28	0.15	3.28	4.35	3.05
3	1.14	0.27	0.31	0.01	0.26	0.29	0.14	4.11	5.25	3.61
4	4.75	0.32	0.35	0.02	0.32	0.35	0.19	29.16	33.91	6.13
Total	**11.87**	**0.33**	**0.35**	**0.02**	**0.32**	**0.36**	**0.18**	**59.12**	**70.99**	**4.98**

The phase designs are described in further detail in the following sections. The overall sequence of the phases is shown in Figure 16-4.

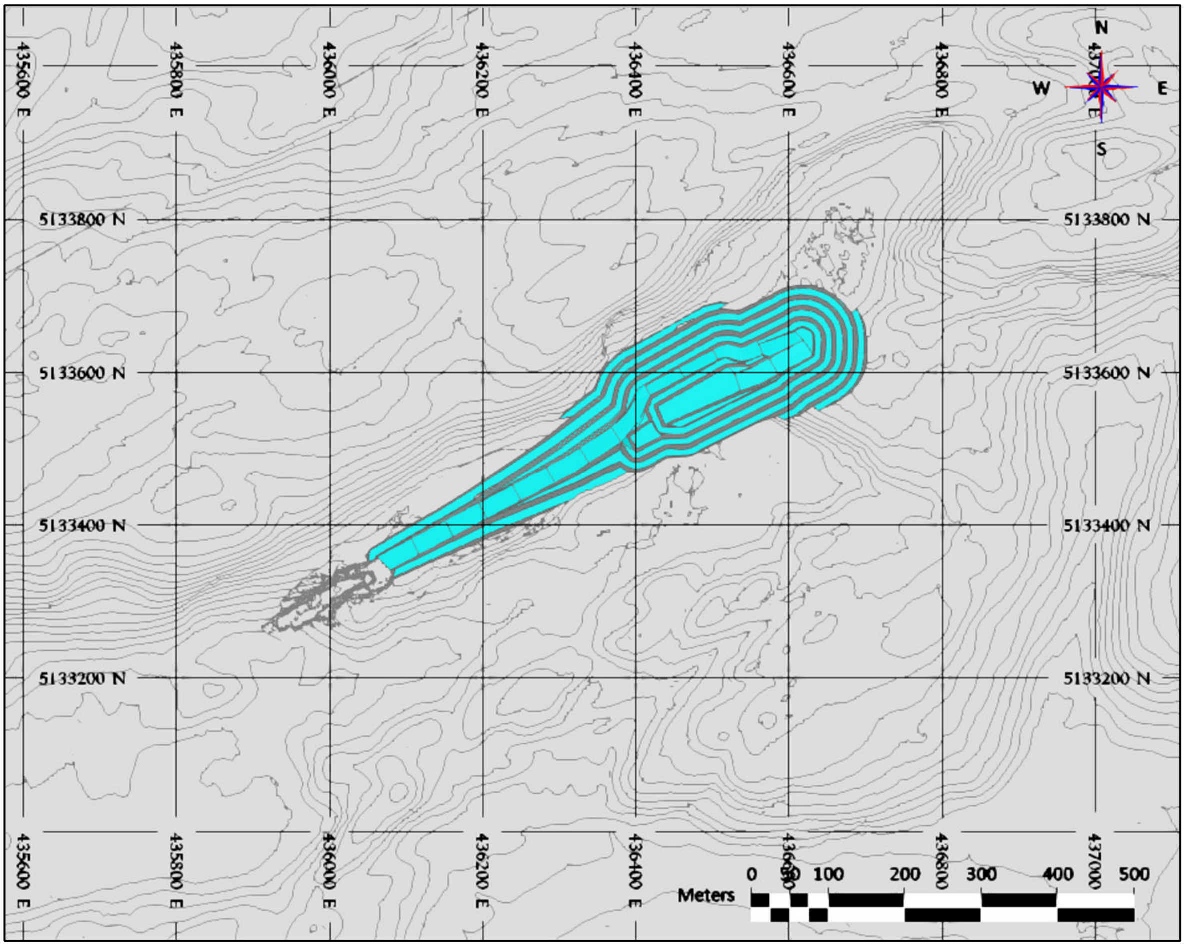
Figure 16-4: Overall Phase Location



Phase 0

This is the initial phase to mine ore in the pit at a lower strip ratio. It is mined from 340 masl to 230 masl. Mill feed from this early phase provides some of the initial processing material. The design is shown in Figure 16-5.

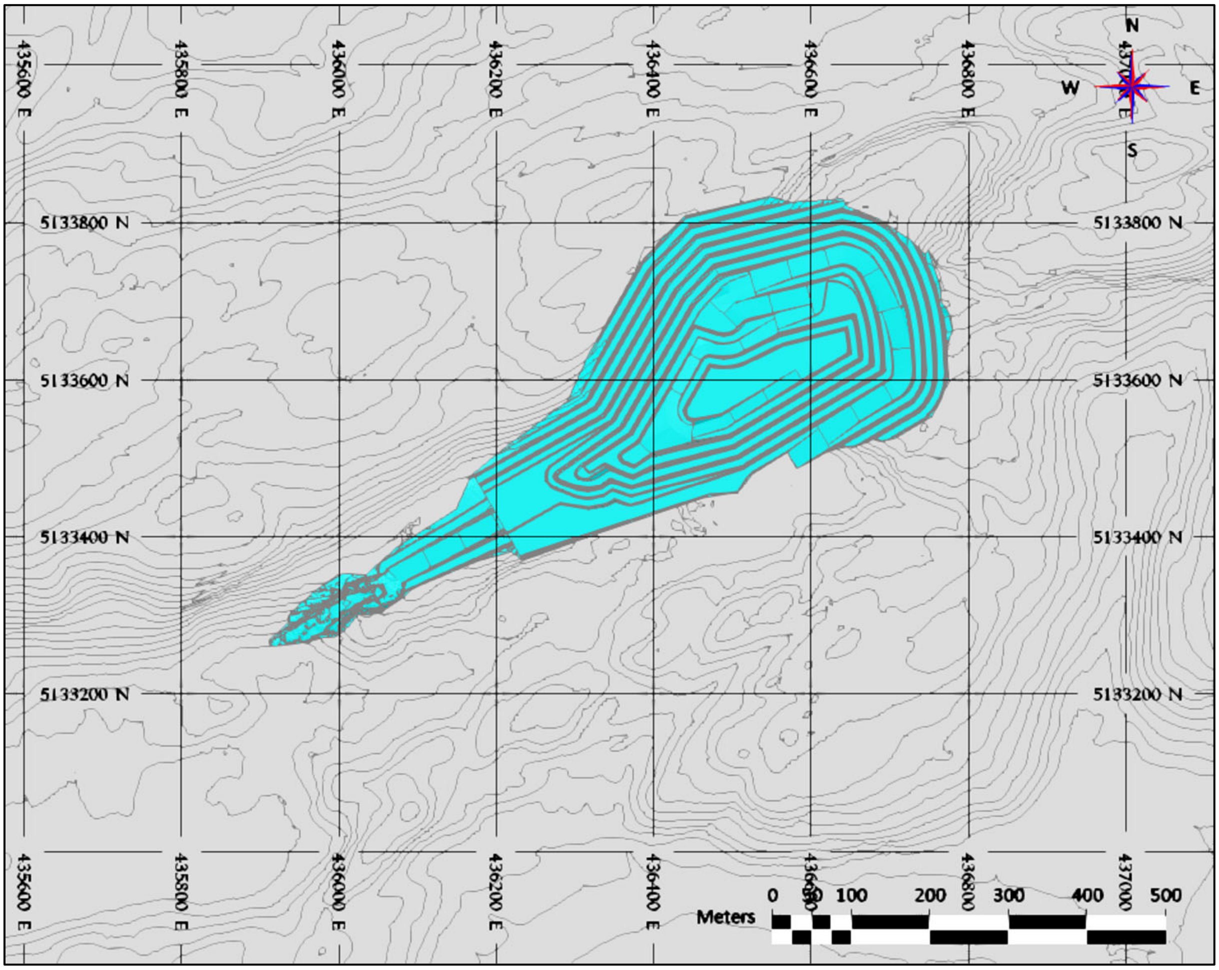
Figure 16-5: Phase 0 Design



Phase 1

Phase 1 expands to the east of Phase 0 to continue the drive deeper for the mill feed in the eastern portion of the pit. Access for this phase takes advantage of a topographic contour to shorten the haulage of mill feed and waste. Phase bench elevations range from 380 masl down to 190 masl. The design is shown in Figure 16-6.

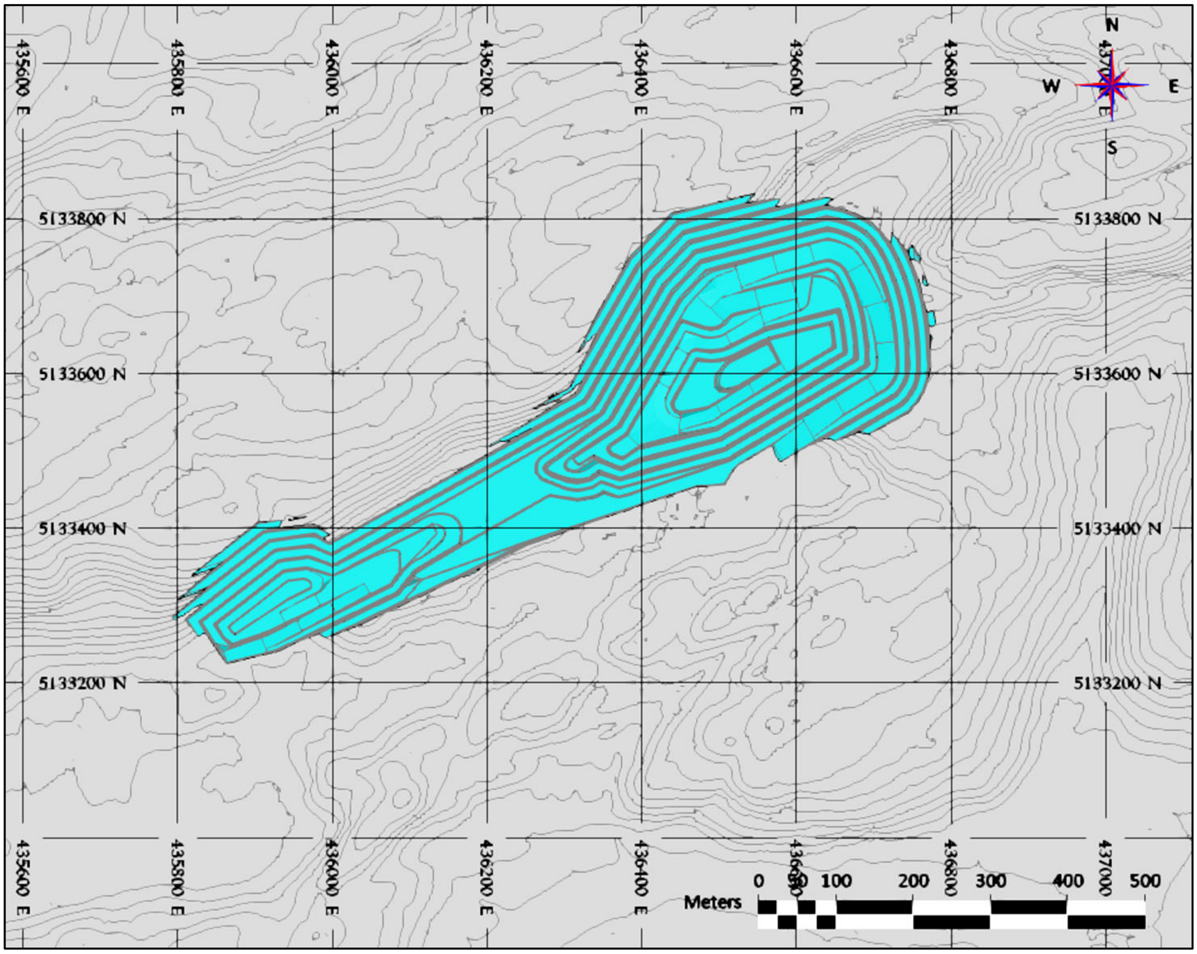
Figure 16-6: Phase 1 Design



Phase 2

Phase 2 is the initial mining in the west end of the pit. This phase has the mine access to the southwest then will join into the mine haulroad. It mines what material it can in what is termed the “gap zone” between the West and East ends of the ultimate pit. Phase bench elevations range from 355 masl down to 235 masl. The design is shown in Figure 16-7.

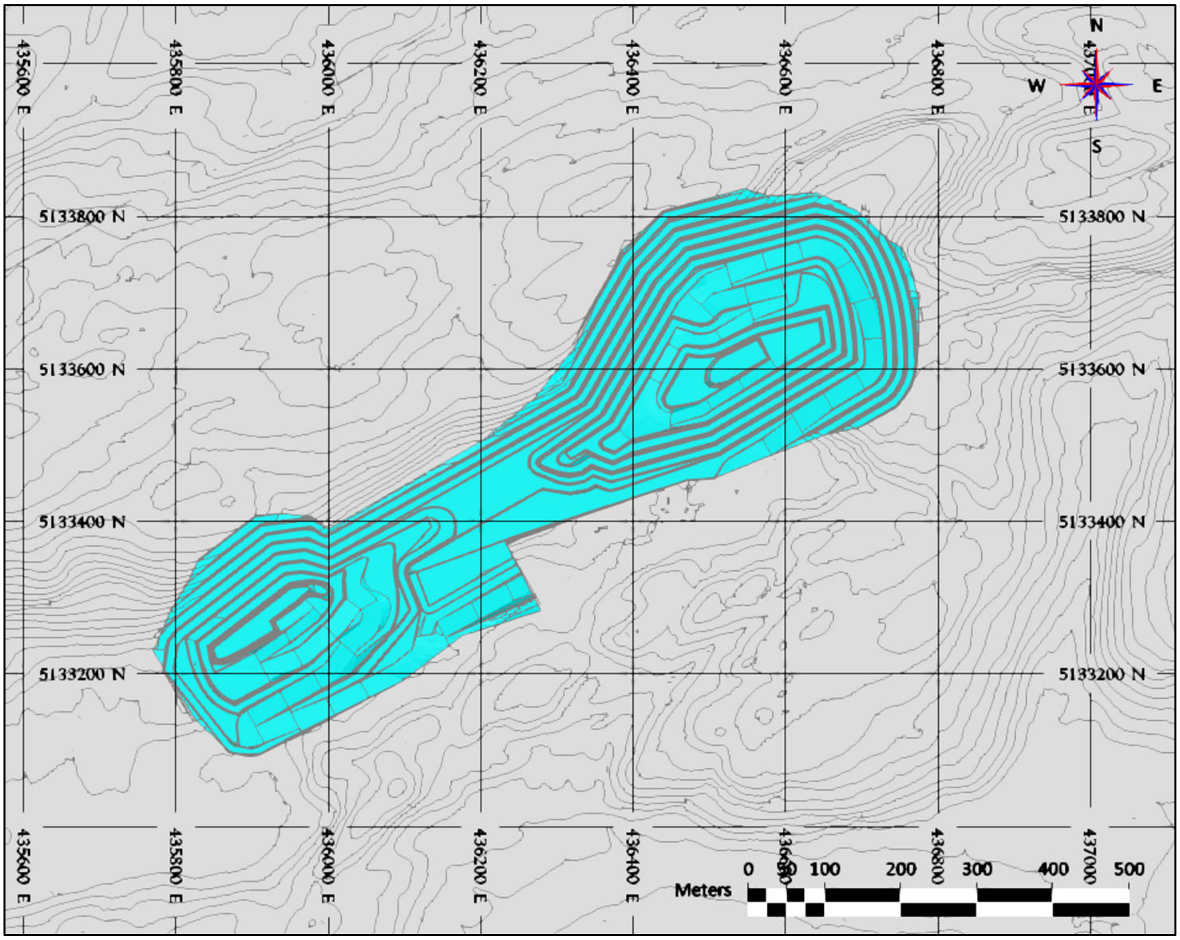
Figure 16-7: Phase 2 Design



Phase 3

Phase 3 takes the western end of the pit to ultimate limits. Completion of mining this phase allows pyrrhotite tailings to be stored in this area. The ramp system swings back towards the process plant to tie into the haulroad. Phase bench elevations range from 300 masl down to 185 masl. The design is shown in Figure 16-8.

Figure 16-8: Phase 3 Design

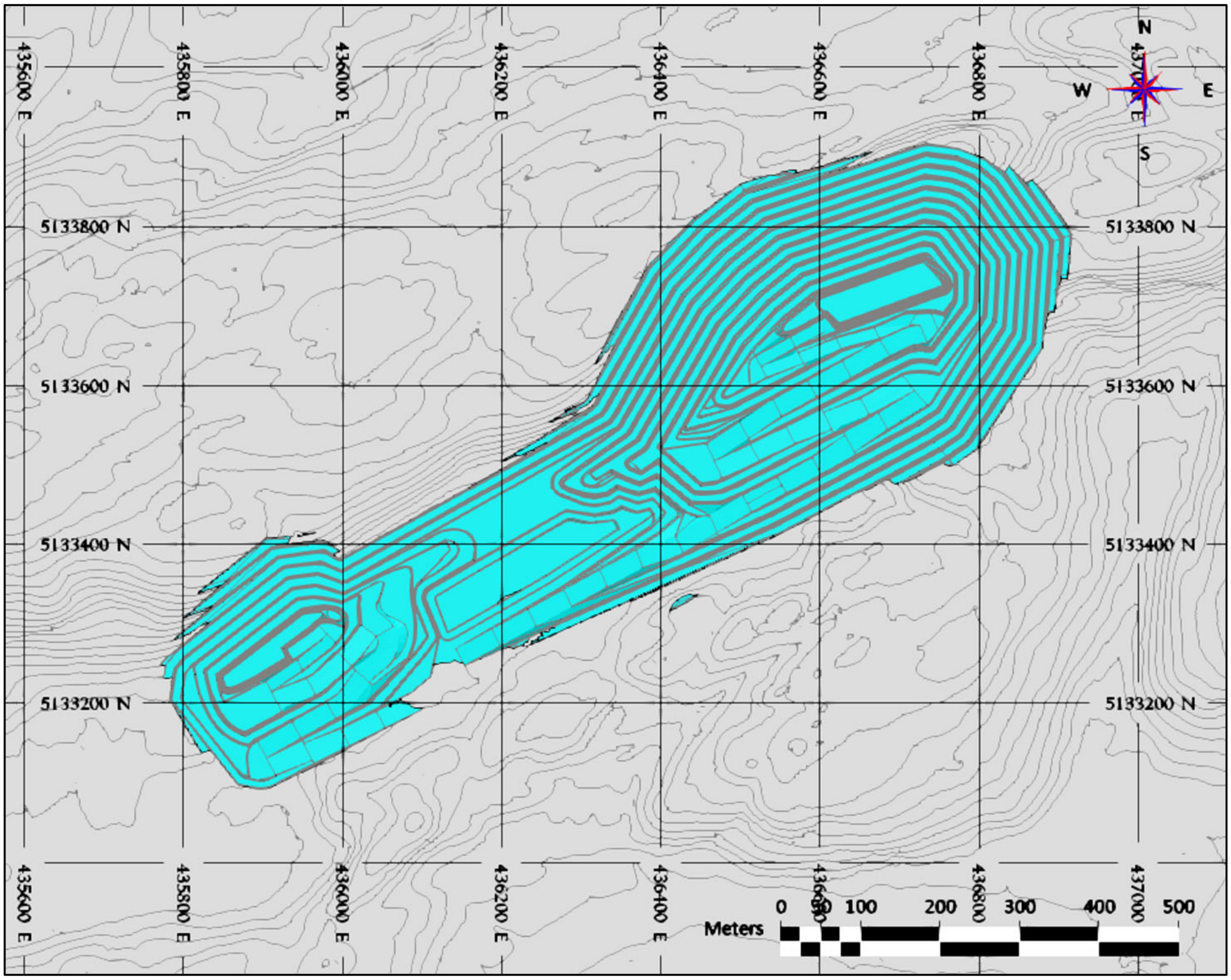


Phase 4

Phase 4 is the completion of the ultimate pit design. The crest of this phase is at 375 masl and the pit bottom in phase 4 is 100 masl. This is achieved by excavation in the floor with the large excavator in a retreat manner.

Initial mining is this higher strip ratio phase occurs in the preproduction period. The waste in the upper benches is readily available for construction and so some of those benches are mined strictly for material to build infrastructure. Figure 16-9 shows the Phase 4 or ultimate pit design.

Figure 16-9: Phase 4 Design – Ultimate pit



16.3.5 Waste Dump Design

Waste material from the pit is segregated into NAG and PAG. The NAG material will be used for various infrastructure needs at site. The PAG waste rock will be stored in the Co-disposal area (CDA) with the pyrrhotite tailings and stored subaqueously. The NAG waste will then be placed over top of the impoundments of this material.

The tonnages of NAG and PAG waste rock are 57.5 Mt and 1.6 Mt respectively. The PAG tonnage has been based on a lithology code within the model. Mine operations will be tracking S% to make the NAG/PAG separation for proper placement in the CDA.

The design of the rock waste dumps used a swell factor of 1.30. The lift height of 10 m was used for all storage facilities. With the swell, the volume of waste material is 26.3 Mm^3 (loose) for the NAG material and 0.74 Mm^3 (loose) for the PAG material in the CDA for a total of 27.04 Mm^3 (loose).

The capacities and top lift elevations for the CDA are displayed in Table 16-10.

Table 16-10: CDA Facilities Summary

Waste Storage Facility	Storage Capacity (Bank Mm^3)	Storage Capacity (Loose Mm^3)	Top Lift Elevation (masl)
Main Mine Route	0.72	0.94	356
Plant Base Area	0.23	0.30	320
Cofferdam	0.50	0.65	326
Start Dam 1	0.00	0.00	337
Start Dam 2	0.15	0.20	305
Start Dam 3	0.01	0.01	335
Dam 1	0.12	0.16	320
Dam 2	0.01	0.01	316
Dam 8-9	0.56	0.73	320
Waste Dump 1	7.20	9.36	380
Waste Dump 2	7.43	9.66	380
Waste Dump 3	3.31	4.30	360
PAG Ponds	0.56	0.73	323
Total	**20.79**	**27.04**	

The CDA will be actively reclaimed as it is developed in areas that will not be expanded upon. Dozers will re-slope those areas as they are advanced to allow revegetation to occur as soon as possible. Drainage ditches will be in place along the CDA boundaries so that water does not flow directly into other waterways.

16.3.6 Mine Equipment Selection

The mining equipment selected to meet the required production schedule is conventional mining equipment, with additional support equipment for snow removal and surface ditching maintenance.

Drilling will be completed with down the hole hammer (DTH) drills with a 165 mm bit. This provides the capability to drill 10 m bench heights in multiple passes plus the ability to drill the 20 m preshear lines.

The primary loading unit will be a 13 m^3 front end loader. Additional loading will be completed by a 6.7 m^3 hydraulic excavator. An additional smaller loader will be at the primary crusher for the majority of its operating time. The haulage trucks will be conventional 91 tonne rigid body trucks.

The support equipment fleet will be responsible for the usual road, pit, and CDA maintenance requirements. The support fleet will be able to manage the expected snowfall common in the area in addition to water management. A smaller road maintenance equipment fleet is included to keep drainage ditches open and sedimentation ponds functional.

16.3.7 Blasting and Explosives

Blast patterns are the same for feed and waste material. The blast patterns will be 4.8 m x 4.2 m (spacing x burden). Holes will be 10 m plus an additional 1.3 m sub-drill for a total 11.3 m.

The powder factor with the patterns size will be 0.35 kg/t for mill feed and 0.385 kg/t for waste. Only emulsion explosives will be used due to the expected wet conditions and ease of transport.

16.3.8 Grade Control

Grade control will be completed using the blasthole cuttings. The nature of the deposit does not require the need for a separate fleet of reverse circulation (RC) drill rigs.

Blasthole cuttings samples collected will be sent to the assay laboratory and assayed for use in the short range mining model. These assays will help determine the ore and waste contacts.

16.4 Production Schedule

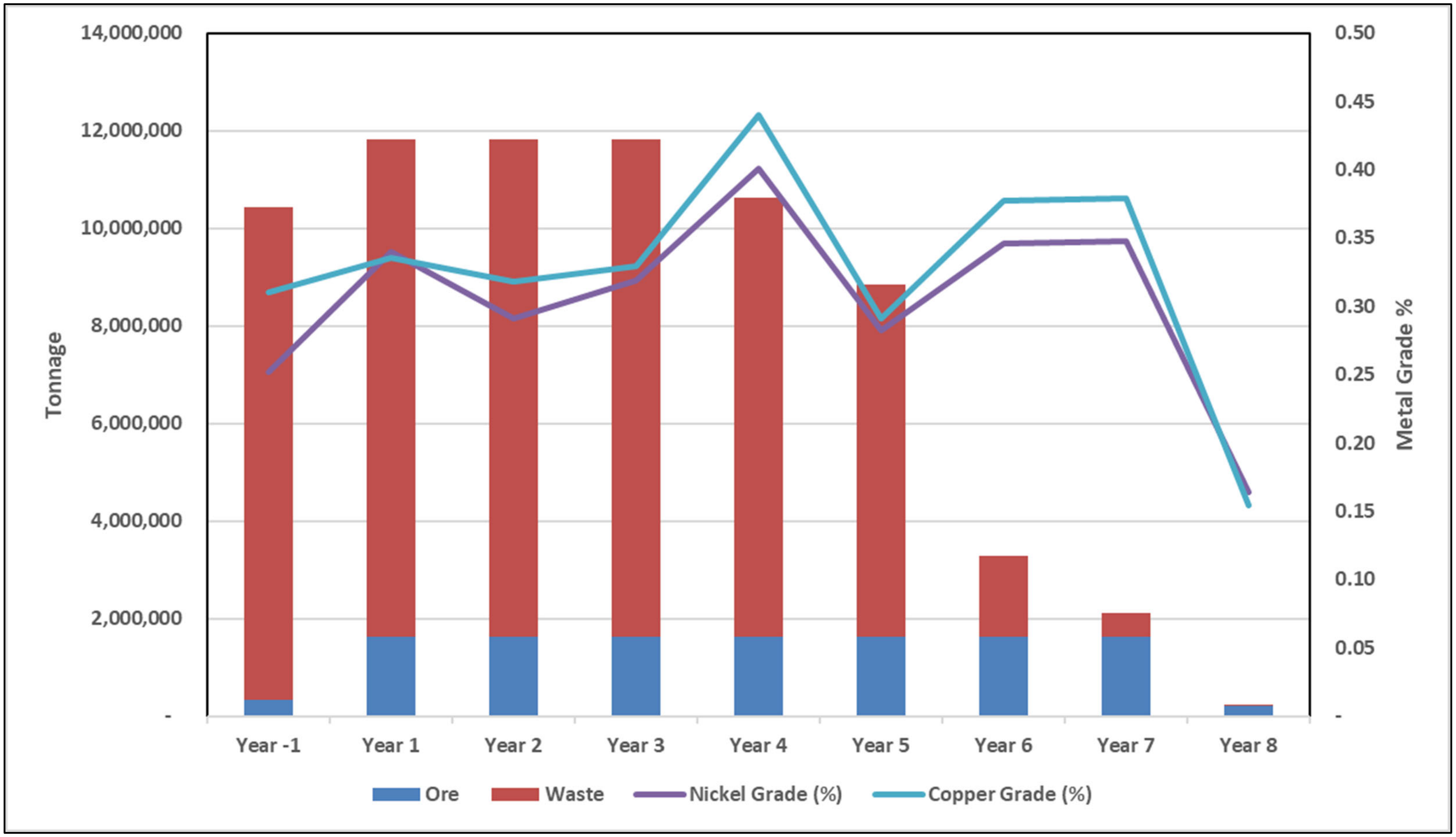
The mine schedule consists of 11.87 Mt of mill feed grading 0.33% nickel, 0.35% copper, 0.02% cobalt, 0.32 g/t platinum, 0.36 g/t palladium and 0.18 g/t gold over a mine life of 7.1 years plus a year of prestripping. Open pit waste tonnage totals 59.12 Mt and will be placed into the Co-disposal area (CDA). The overall open pit strip ratio is 4.98:1. The mine schedule utilizes the pit phasing described previously to send a maximum of 1.62 Mtpa of feed to the mill facility.

The current mine life includes one year of pre-stripping followed by 7.1 years of mining. Mill feed is stockpiled during the pre-production year, but 0.32 Mt is sent to the process plant to assist in commissioning. A peak stockpile capacity of 0.28 Mt was reached near the end of year 4 and was reclaimed completely in Year 8.

A maximum descent rate of six 10-metre benches per year was applied to ensure that reasonable mining operations and mill feed control would occur. The open pit mining was starting in year -1 and continued uninterrupted until year 8. The mill was run at full capacity until year 8, then was reduced to the amount of material remaining in stockpile.

Process tonnages and nickel and copper grades by year are shown in Figure 16-10.

Figure 16-10: Process Tonnage and Nickel and Copper Grades



The detailed mine schedule was completed on an annual basis and is shown in Table 16-11.

Table 16-11: Feasibility Mine Schedule

	Y-1	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Total
Mining Summary										
Waste (Mt)	**10.10**	**10.20**	**10.20**	**10.20**	**9.00**	**7.22**	**1.68**	**0.50**	**0.03**	**59.12**
Mine to Mill (Mt)	**0.28**	**1.54**	**1.45**	**1.53**	**1.62**	**1.37**	**1.60**	**1.60**	**-**	**10.99**
Ni (%)	0.26	0.35	0.31	0.33	0.40	0.29	0.35	0.35	0.22	0.34
Cu (%)	0.32	0.34	0.33	0.34	0.44	0.31	0.38	0.38	0.28	0.36
Co (%)	0.02	0.02	0.02	0.02	0.03	0.02	0.02	0.02	0.01	0.02
Pt (g/t)	0.31	0.32	0.30	0.32	0.39	0.28	0.35	0.34	0.22	0.33
Pd (g/t)	0.35	0.35	0.33	0.36	0.45	0.30	0.38	0.39	0.26	0.37
Au (g/t)	0.17	0.18	0.17	0.17	0.22	0.16	0.20	0.21	0.16	0.19
Mine To Stockpile (Mt)	**0.25**	**0.07**	**0.17**	**0.18**	**-**	**-**	**0.21**	**-**	**-**	**0.88**
Ni (%)	0.18	0.16	0.12	0.27	-	-	0.17	-	-	0.19
Cu (%)	0.24	0.11	0.12	0.24	-	-	0.17	-	-	0.19
Co (%)	0.01	0.01	0.01	0.01	-	-	0.01	-	-	0.01
Pt (g/t)	0.24	0.12	0.09	0.28	-	-	0.17	-	-	0.19
Pd (g/t)	0.27	0.12	0.09	0.31	-	-	0.18	-	-	0.21
Au (g/t)	0.13	0.05	0.05	0.11	-	-	0.09	-	-	0.10
Stockpile To Mill (Mt)	**0.04**	**0.08**	**0.17**	**0.09**	**-**	**0.25**	**0.02**	**0.02**	**0.21**	**0.88**
Ni (%)	0.19	0.19	0.17	0.12	-	0.23	0.14	0.29	0.16	0.19
Cu (%)	0.25	0.24	0.20	0.13	-	0.20	0.14	0.37	0.15	0.19
Co (%)	0.01	0.01	0.01	0.01	-	0.01	0.01	0.02	0.01	0.01
Pt (g/t)	0.25	0.23	0.20	0.11	-	0.23	0.11	0.31	0.15	0.19
Pd (g/t)	0.27	0.26	0.21	0.11	-	0.25	0.12	0.36	0.16	0.21
Au (g/t)	0.13	0.13	0.10	0.06	-	0.10	0.06	0.21	0.08	0.10
Total (Mt)	**10.68**	**11.89**	**11.99**	**11.99**	**10.62**	**8.84**	**3.51**	**2.12**	**0.23**	**71.87**
Processed Material										
Mill Feed (Mt)	**0.32**	**1.62**	**1.62**	**1.62**	**1.62**	**1.62**	**1.62**	**1.62**	**0.21**	**11.87**
Ni (%)	0.25	0.34	0.29	0.32	0.40	0.28	0.35	0.35	0.16	0.33
Cu (%)	0.31	0.34	0.32	0.33	0.44	0.29	0.38	0.38	0.15	0.35
Co (%)	0.02	0.02	0.02	0.02	0.03	0.02	0.02	0.02	0.01	0.02
Pt (g/t)	0.30	0.32	0.28	0.31	0.39	0.27	0.35	0.34	0.15	0.32
Pd (g/t)	0.34	0.35	0.31	0.34	0.45	0.30	0.38	0.39	0.16	0.36
Au (g/t)	0.16	0.17	0.16	0.16	0.22	0.15	0.20	0.21	0.08	0.18

Year -1 has mining initiated in all phases of the pit to provide waste for construction. The focus will be in the easter portion of the pit to establish the benches. This also provides on contour access for the material movement to the haulroad being built. Waste material will be used to construct the haulroad to the plant/crusher and to the CDA. The CDA construction will include the various dams (main, polishing and settling) as well as the internal berms and the toe buttress for the NAG waste. The plant pad, crusher pad and plant dam will also be supplied with material. Ore mining commences with 0.28

Mt being direct feed to the process plant for commissioning and 0.25 Mt to the stockpile pad. A total of 10.1 Mt of waste will be mined in this year.

Year 1 production assumes the plant is fully commissioned and will take 1.62 Mt of feed material. The NAG storage in the CDA will reach 375 masl. PAG material will be deposited in the cell in the NE of the CDA. Total material movement will be 11.89 Mt.

Year 2 mill feed production is at 1.62 Mt of mill feed. Mill feed is coming from accelerated mining in the eastern end of the pit with the waste material being stacked in the eastern end. The West end of the pit is starting to sink while waste is being left stacked on the south side. The NAG storage in the CDA is at 380 masl and the PAG storage in the NE is being covered with NAG to the 335 masl. PAG deposition in the CDA is in the middle of the facility below the 320 masl. Total material movement is 11.99 Mt.

Year 3 mining in the pit has the western end of the pit complete at the 185 masl. Waste mining on the southern side has started and further deepening of the eastern end to the 225 masl and 275 masl respectively is occurring. Mill feed totaling 1.62 Mt is sent to the mill. The NAG storage level in the NE side of the CDA is at 355 masl.

Year 4 mining uses the southern side of the pit for the ultimate access as this waste material is mined. Pyrrhotite tailings are now being deposited in the western end of the pit. The eastern end of the pit is at 195 masl and 235 masl at the end of Year 4. The upper platform of the NAG storage in the CDA has advanced at the 380 masl over the NE corner of the facility. The lower level placement of NAG over the PAG rock in the CDA is at the 320 masl. A further 1.62 Mt of mill feed is sent to the process plant.

Year 5 mining continues in the eastern end of the pit and is at the 185 masl. The process plant will receive 1.62 Mt of feed material. The CDA facility NAG storage is at 350 masl.

Year 6 mining in the eastern end of the pit is at the 160 masl. The process plant again receives 1.62 Mt of feed material. The CDA facility NAG storage is at 355 masl.

Year 7 mining in the eastern end of the pit is at the 100 masl. The process plant receives 1.62 Mt of feed material. The CDA facility NAG storage is at 360 masl and reclamation activity is occurring in earnest.

Year 8 mining is complete in the pit and the feed for the plant comes from the stockpile, which is exhausted in this year and the stockpile pad is reclaimed. The CDA facility is being reclaimed actively.

16.4.1 End of Year Plans

End of year positions for the Feasibility study are shown in Figure 16-11 to Figure 16-19.

Figure 16-11: End of Pre-Production - Year -1

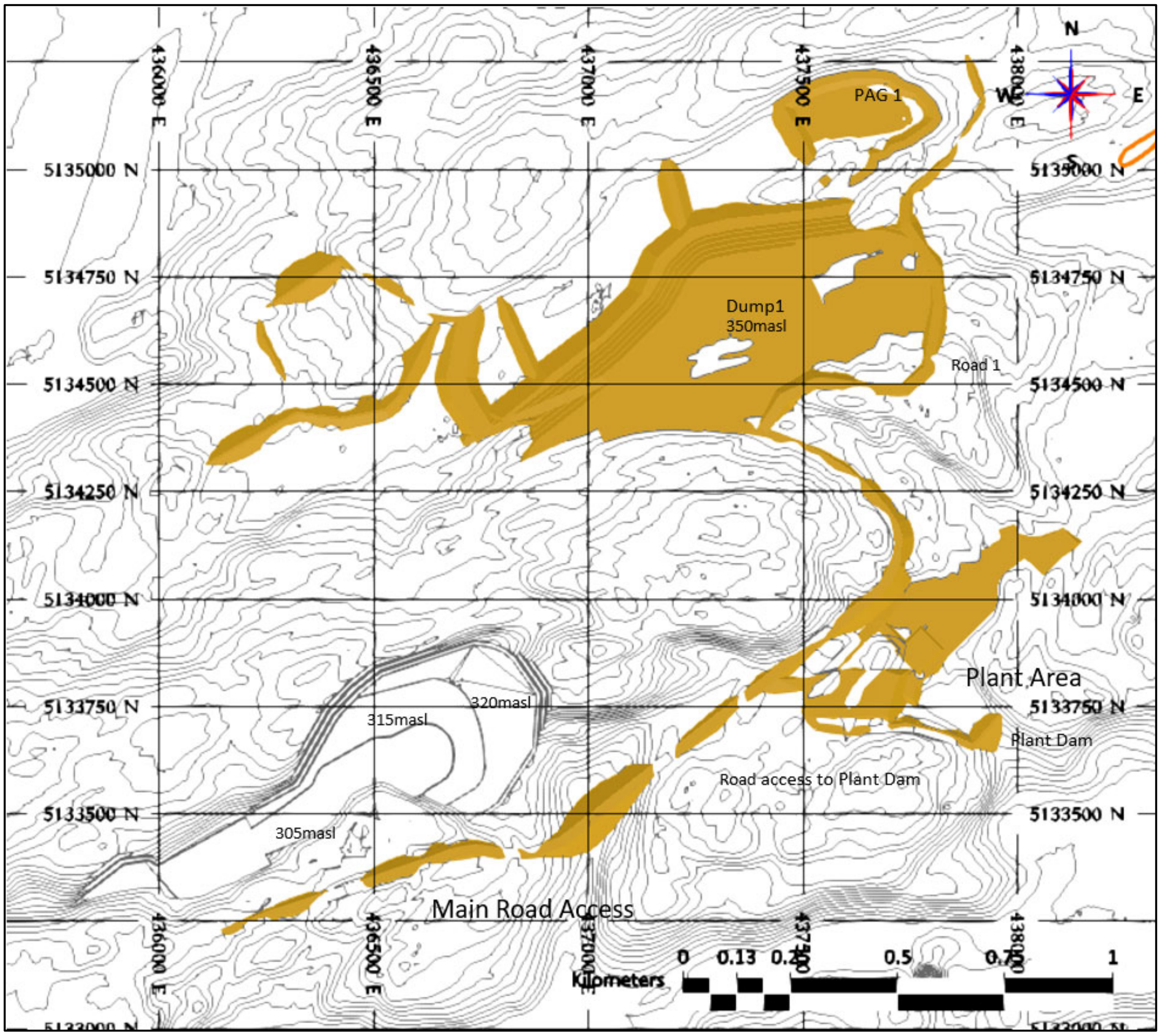


Figure 16-12: End of Year 1

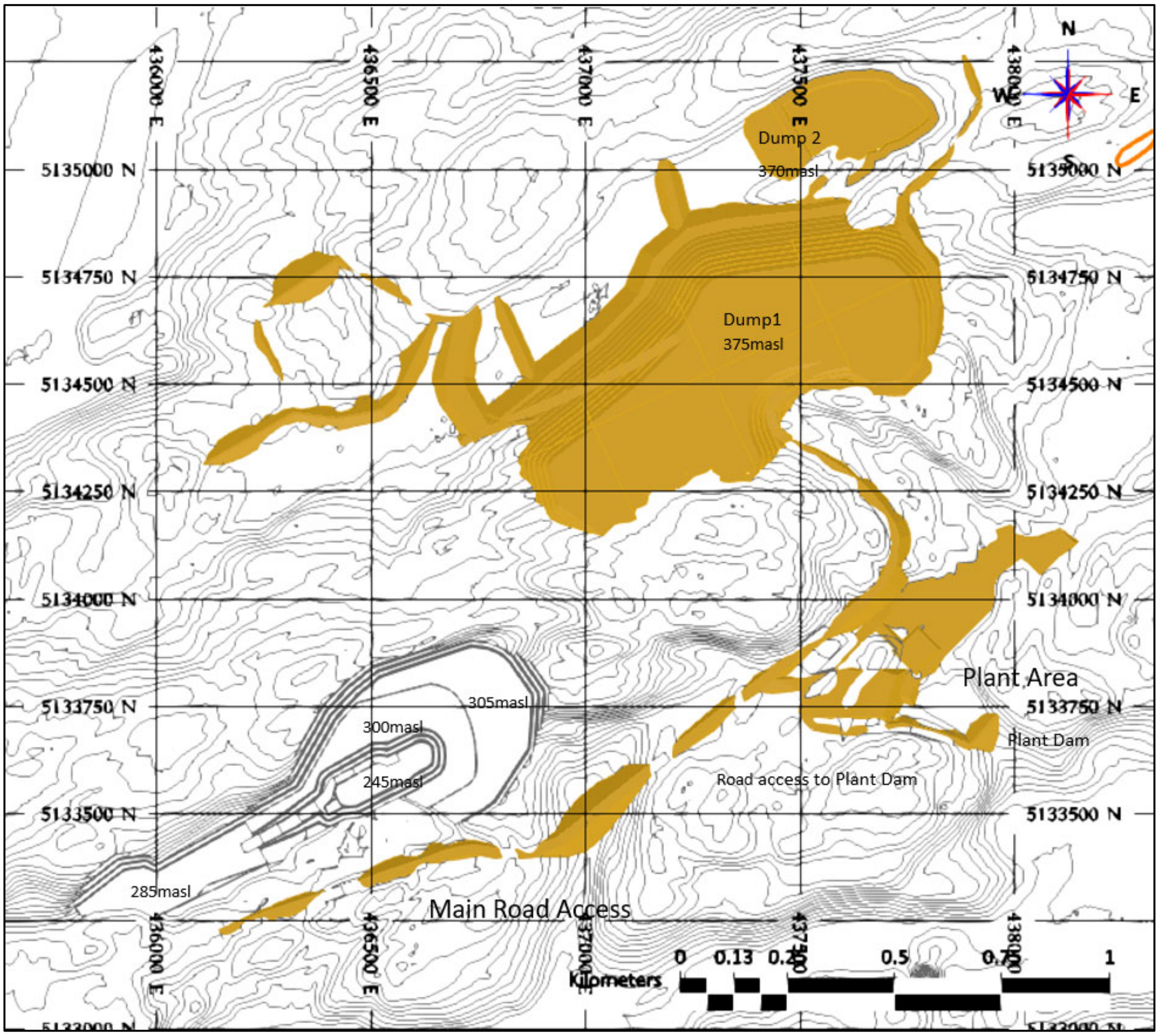


Figure 16-13: End of Year 2

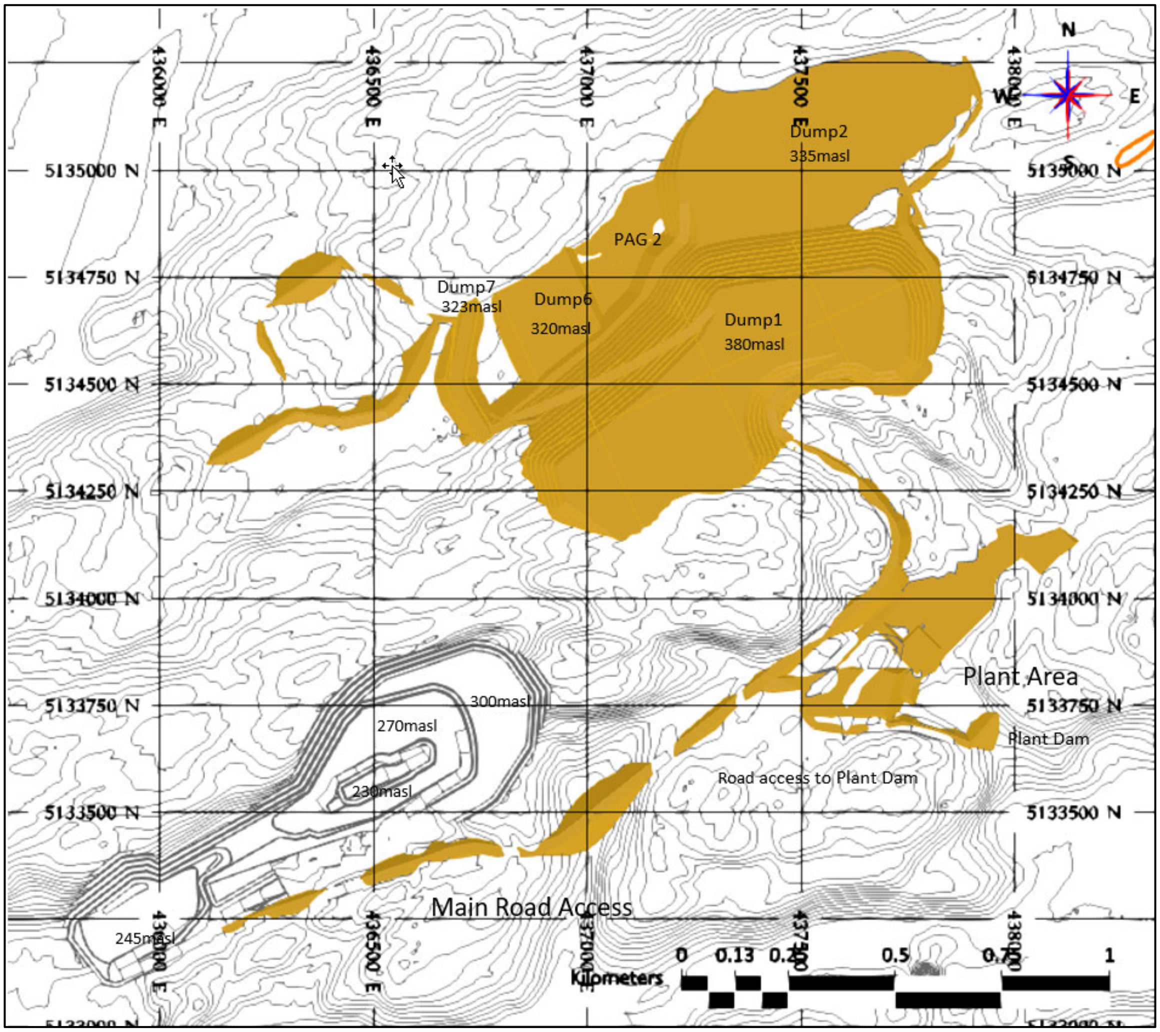


Figure 16-14: End of Year 3

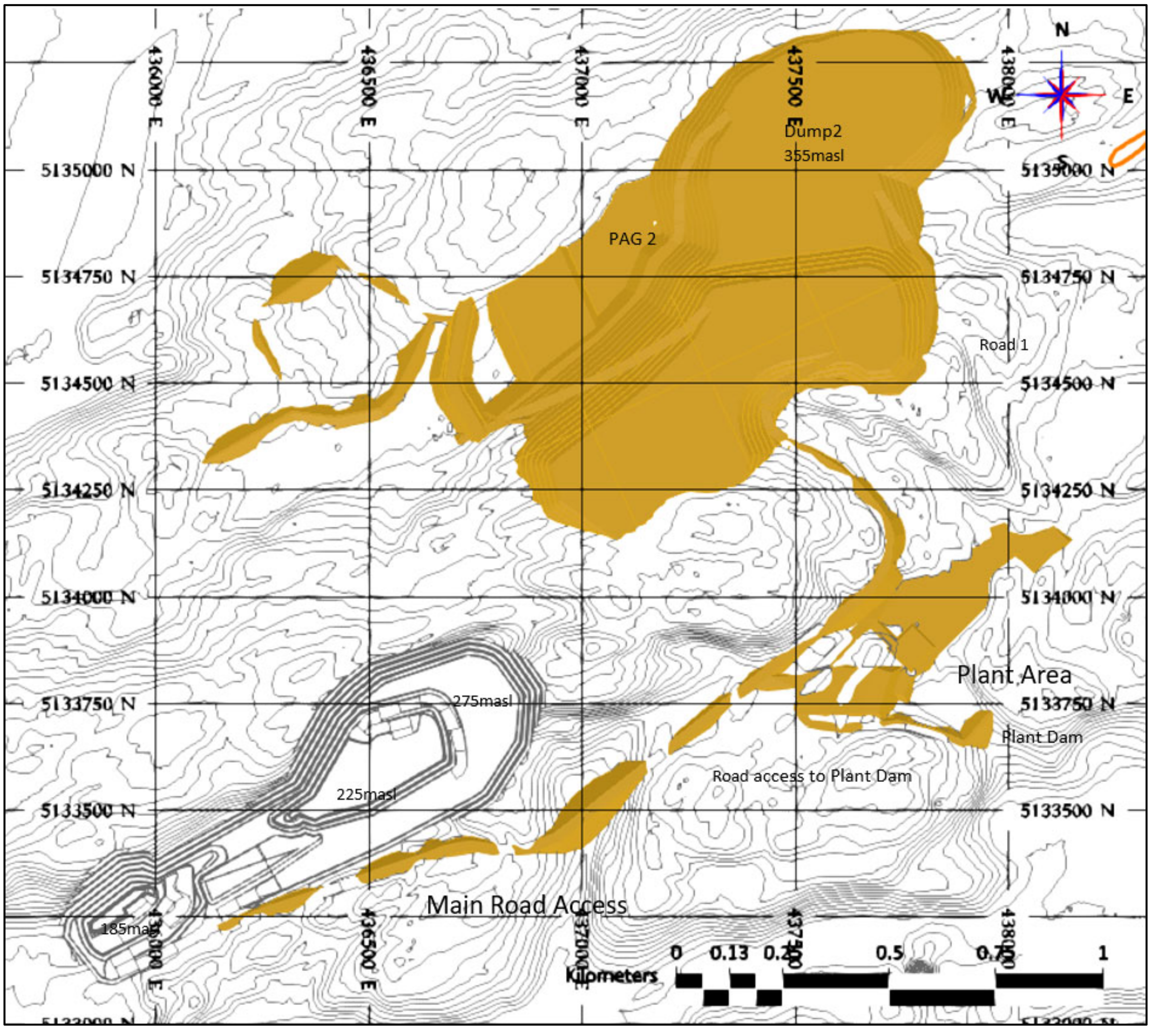


Figure 16-15: End of Year 4

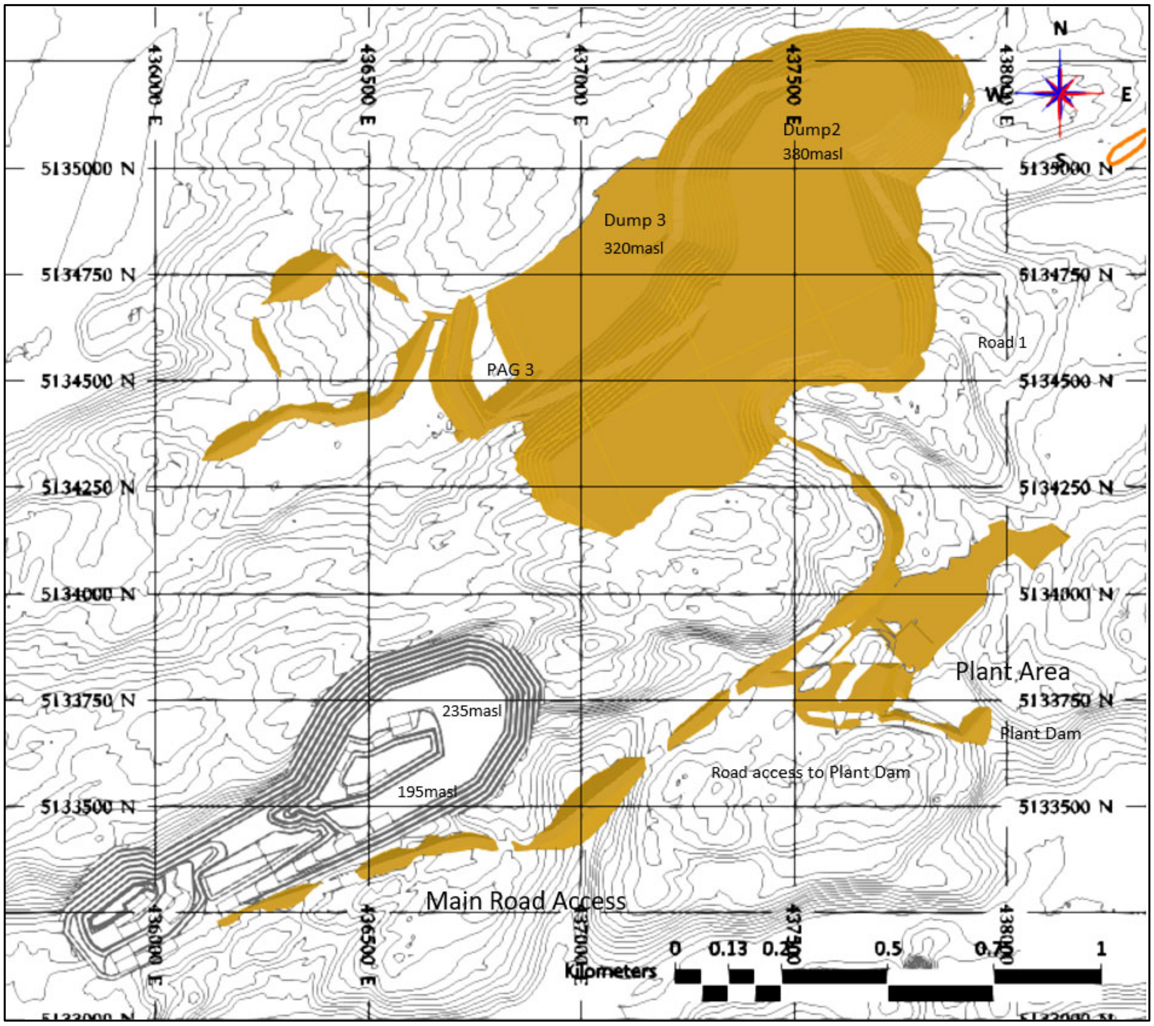


Figure 16-16: End of Year 5

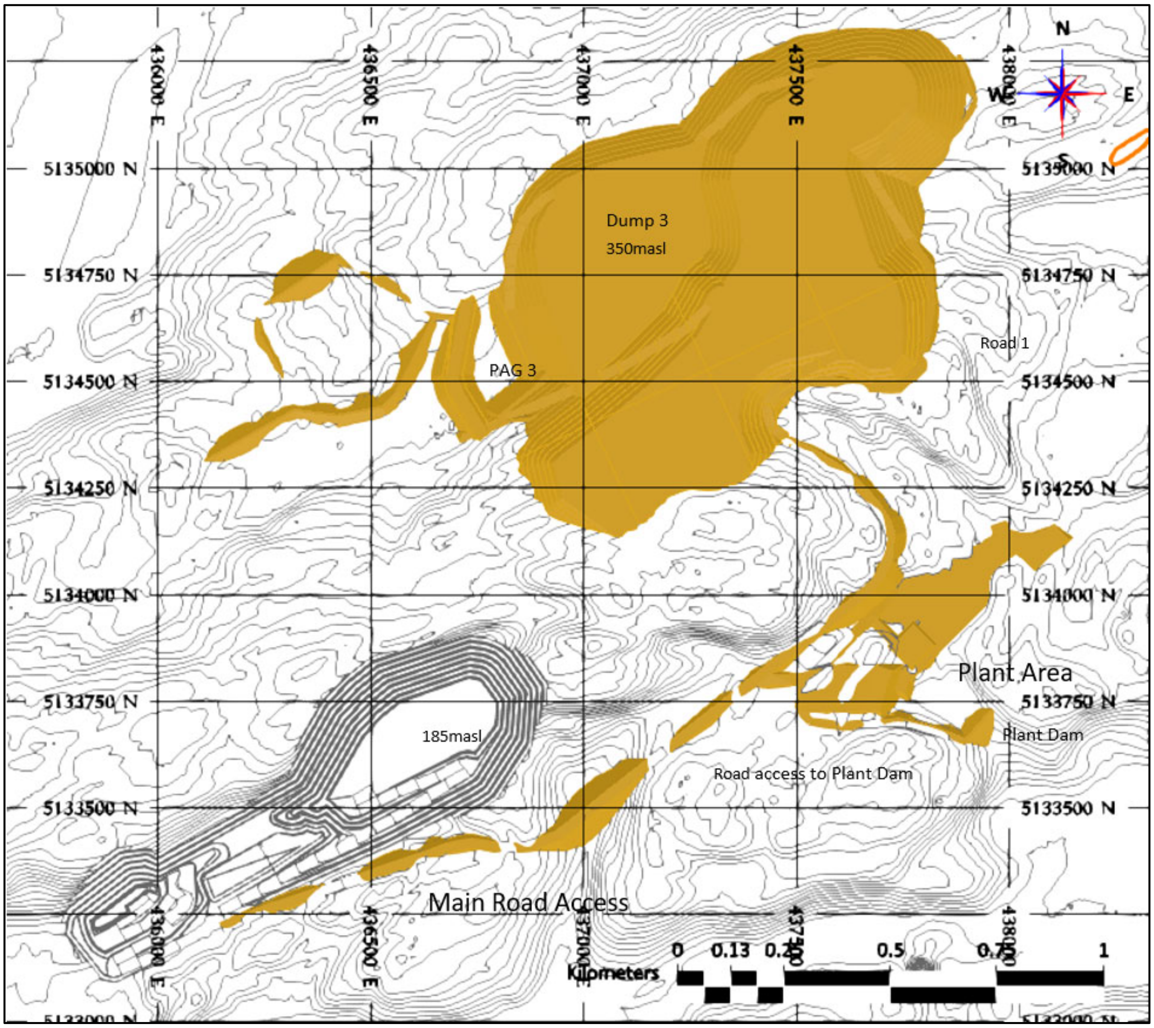


Figure 16-17: End of Year 6

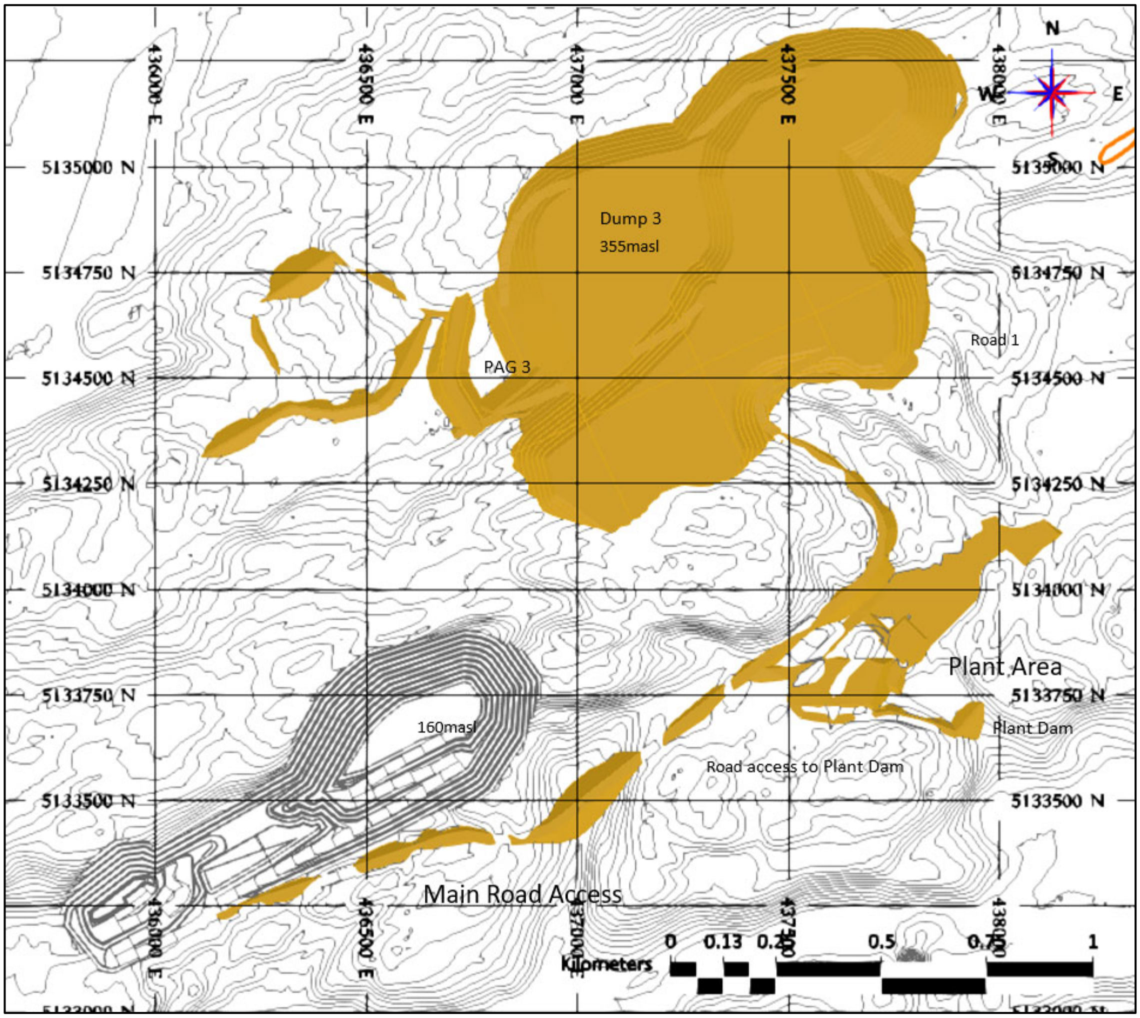


Figure 16-18: End of Year 7

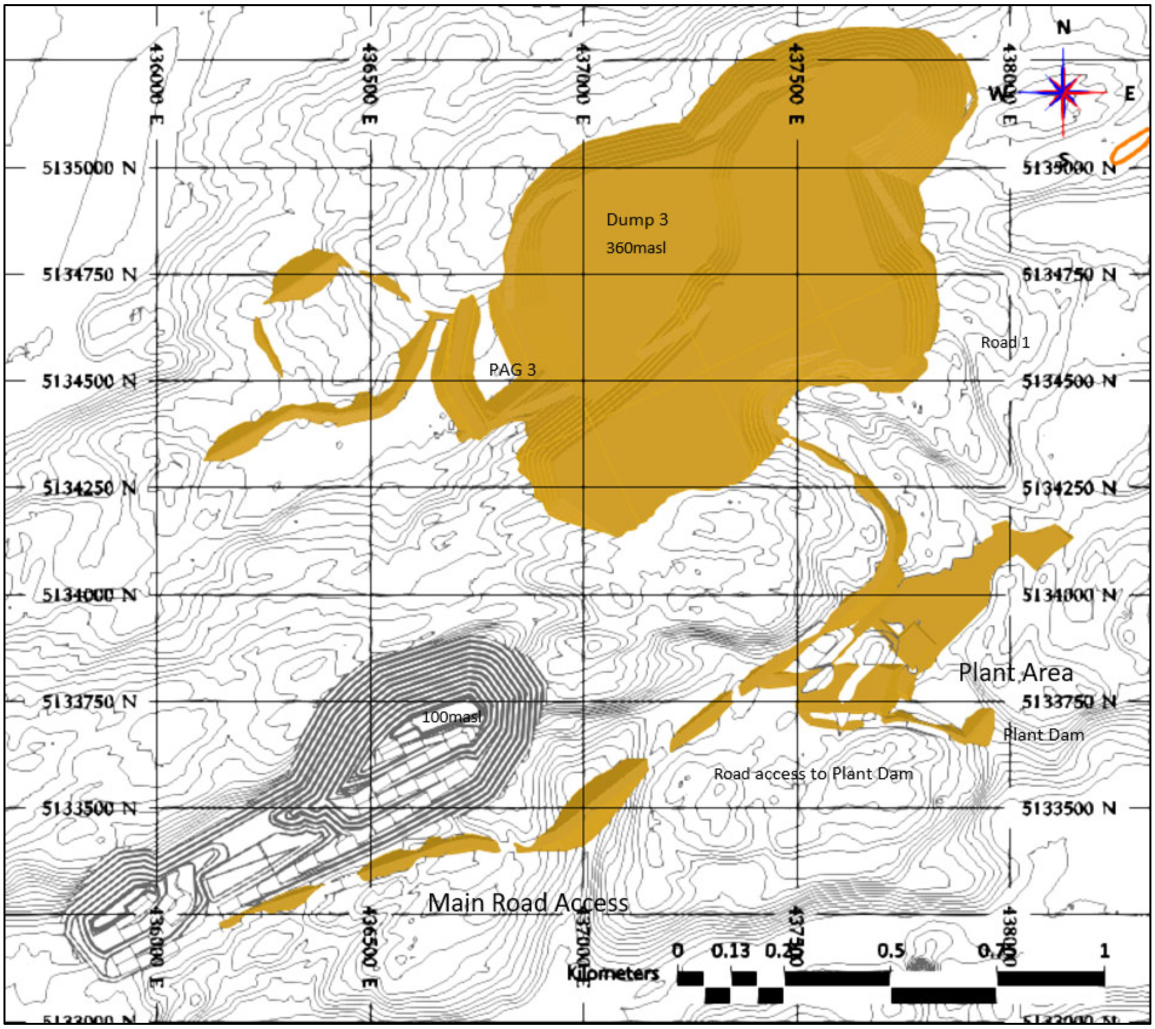
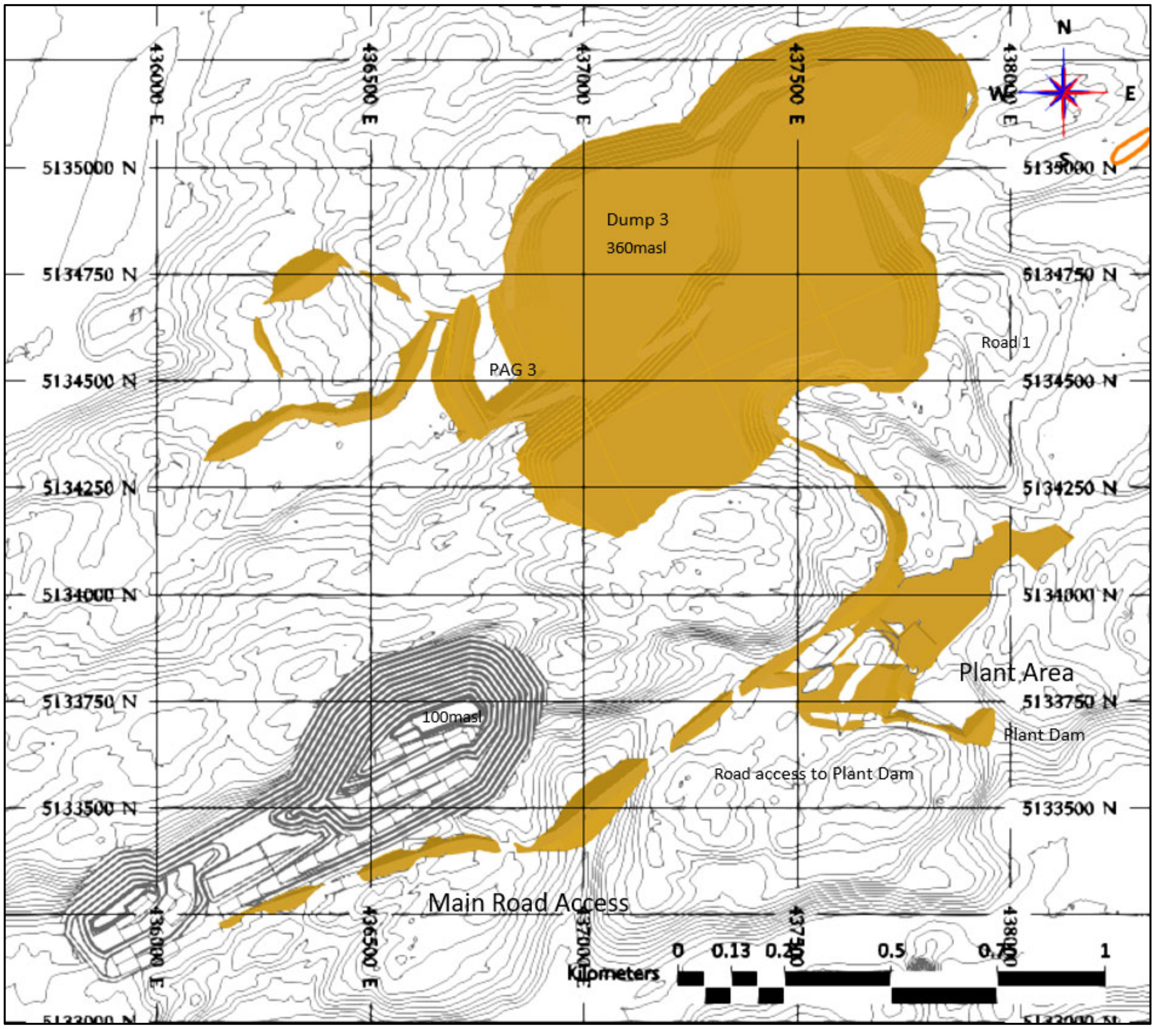


Figure 16-19: End of Year 8



17 RECOVERY METHODS

17.1 Introduction

This section describes the parameters used to design a new concentrator for the Shakespeare Project near Espanola, Ontario. The Shakespeare concentrator is designed for a nominal 135,000 tonnes per month of run-of-mine feed.

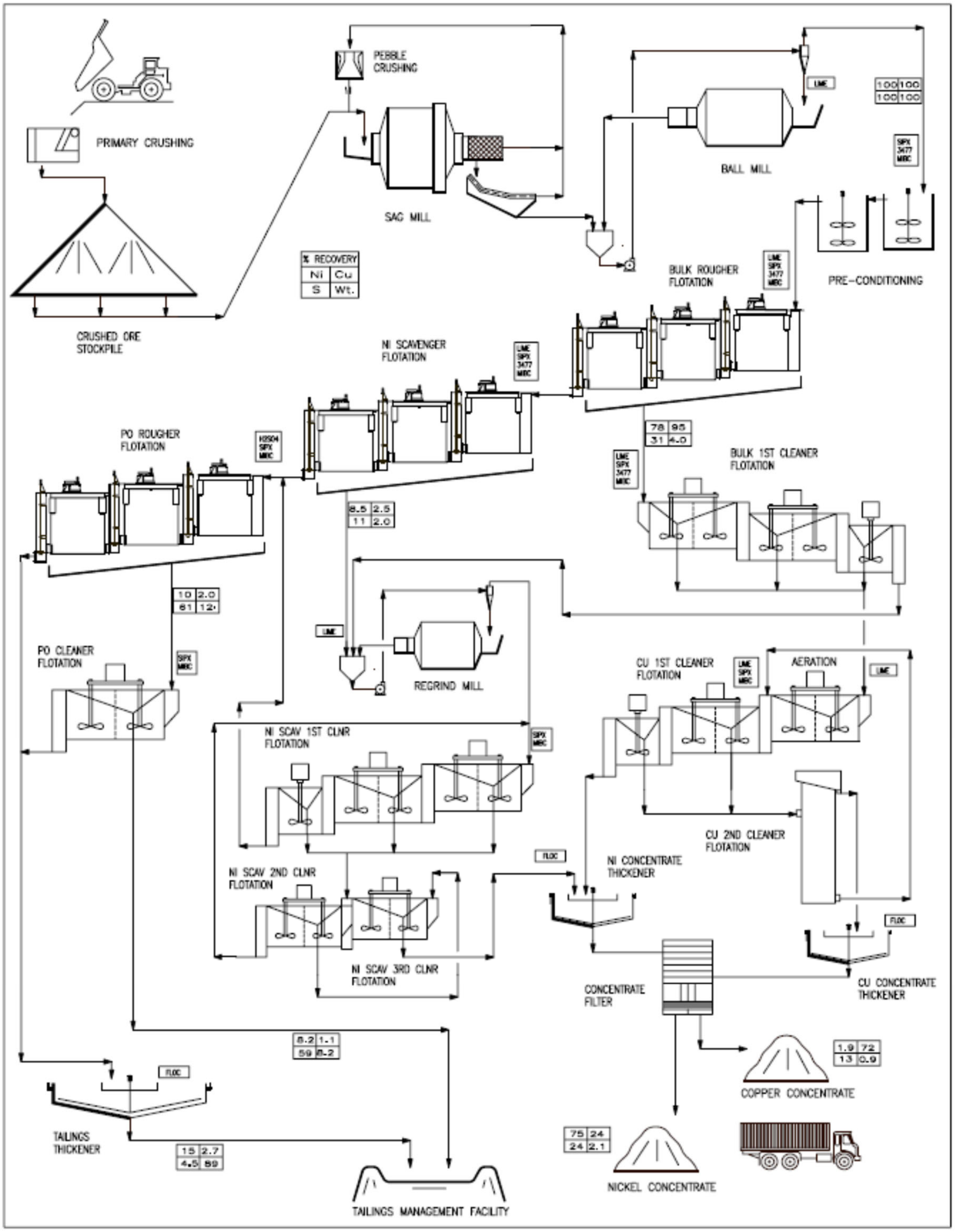
The proposed method of copper and nickel recovery from the Shakespeare deposit consists of conventional crushing and milling, followed by rougher and cleaner froth flotation to produce separate copper and nickel concentrates. The concentrates are filtered and transported off-site in bulk for treatment by toll smelting. This section describes the flowsheet, design criteria, and process description for an on-site concentrator to process 4500 tpd of mill feed.

17.2 Process Flowsheet

From the lab testwork conducted on Shakespeare deposit samples, a flowsheet was developed consisting of primary jaw crushing, SAG/ball mill grinding, froth flotation, concentrate dewatering, and tailings thickening. A schematic of the proposed flowsheet, from mill feed to final tailings and concentrate, is presented in Figure 17-1.

A site plan and layout drawing for the process plant are shown in Figure 17-2 and Figure 17-3, respectively.

Figure 17-1: Flowsheet for the Shakespeare Processing Plant



Source: Blue Coast Research, 2022

Figure 17-2: Site Plan for the Shakespeare Processing Plant

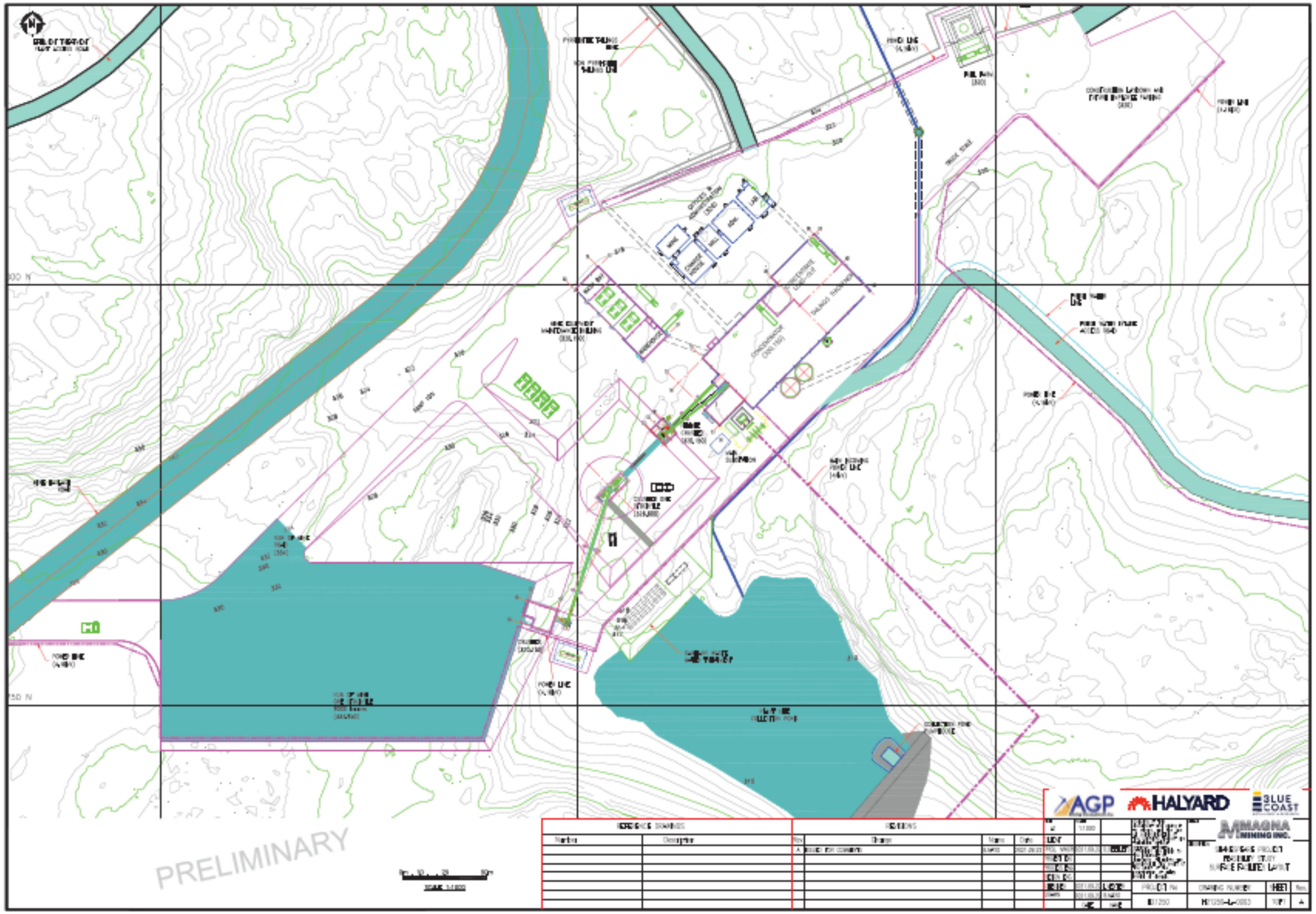
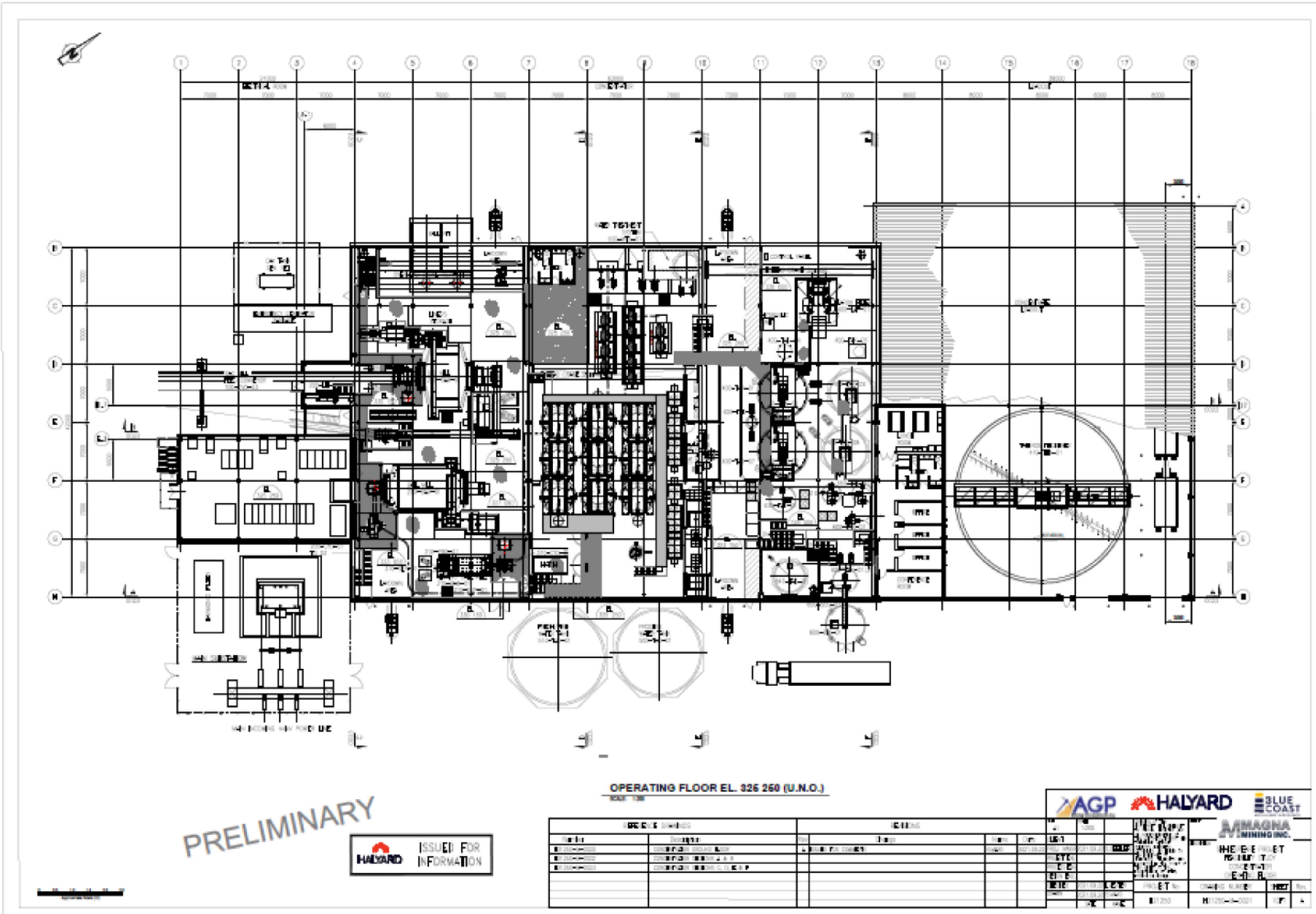


Figure 17-3: Operating Floor Plan View for the Shakespeare Processing Plant



17.3 Design Criteria

Based on the metallurgical data, a set of plant design criteria was developed that provides all the specific unit operation process details required for the equipment sizing and selection. A summary of the design criteria is presented in Table 17-1.

Table 17-1: Summary of Process Design Criteria

Parameter	Design Data
Nickel Head Grade	0.33 %
Copper Head Grade	0.36%
Sulphur Head Grade	4.0%
Plant Throughput	4,500 tpd
Crushing Circuit Availability	70.0 %
Grind/Float Circuit Availability	92.0 %
SAG Mill Feed Size, F_{80}	150 mm
SAG Mill Transfer Size, T_{100}	2.0 mm
Ball Mill Circuit Product size, P_{80}	85 µm
Bulk Rougher Flotation Time	15 min
Ni Scavenger Flotation Time	18 min
Po Rougher Flotation Time	18 min
No. of Stages of Bulk Cleaning	2
No. of Stages of Cu Cleaning	1
Ni Scavenger Concentrate Regrind Size	50 µm
No. of Stages of Ni Scavenger Cleaning	3
No. of Stages of Po Cleaning	1
Mass Recovery to Ni Flotation Concentrate	2.8 %
Ni Recovery to Ni Flotation Concentrate	74.7 %
Cu Recovery to Ni Flotation Concentrate	35.1
Ni Grade of Ni Flotation Concentrate	13.3 %
Mass Recovery to Cu Flotation Concentrate	0.7 %
Cu Recovery to Cu Flotation Concentrate	60.0 %
Cu Grade of Cu Flotation Concentrate	30.0 %
Po Tailings Sulphur Grade	35.0 %
Po Tailings Mass Recovery	3.7 %
Non-Po Tailings Sulphur Grade	<0.1
Non-Po Tailings Mass Recovery	89.1 %
Process Plant Fresh Water Consumption	0.60 m3/t
Process Plant Power Consumption	36.6 kW/t

17.4 Process Description - Concentrator

17.4.1 Summary

Mine haul trucks tip into a surge bin feeding a primary jaw crusher designed for 72% availability. The primary crushed ore is conveyed to a covered stockpile with a 24 hour live capacity. Reclaimed feed from the stockpile is then conveyed to the SAG mill feed chute.

The SAG mill includes a pebble crusher and operates in closed circuit with a vibrating screen to achieve a transfer size T_{80} (80% passing size) of 1000 µm. Screen underflow reports to the cyclone feed pump box. The cyclones are designed for a P_{80} product size of 85 µm. Cyclone underflow is fed to the ball mill with the ball mill discharge flowing by gravity to the cyclone feed pump box.

Cyclone overflow gravitates to the flotation circuit conditioning tanks where the pH is adjusted though lime addition and flotation collector is added. The rougher-scavenger circuit consists of six tank flotation cells in series, with the first three cells recovering a bulk sulfide concentrate and the last three cells recovering a nickel scavenger concentrate.

The bulk rougher concentrate goes to the bulk 1st cleaner stage where copper and nickel sulfides are recovered to the concentrate, whereas middlings and entrained gangue are rejected to the tailings. The bulk 1st cleaner concentrate then undergoes two stages of copper cleaner flotation, the second of which is conducted in a column cell. The copper 2nd cleaner concentrate is the final copper concentrate product, whereas the copper 1st cleaner tailings form the majority of the final nickel concentrate. The bulk 1st cleaner tailings report to the nickel scavenger regrind circuit to recover additional contained nickel.

Concentrate produced from the three nickel scavenger cells are combined with the bulk 1st cleaner tailings and fed to the regrind circuit cyclone classification step. Regrinding of the cyclone underflow improves liberation of nickel sulfide middling particles. The regrind mill discharge reports to the cyclone feed pump box.

Regrind circuit cyclone overflow reports to the first stage of three stages of nickel scavenger concentrate cleaning. The third cleaner nickel scavenger concentrate is combined with the copper first cleaner tailings as the final nickel concentrate.

The nickel scavenger 1st cleaner tailings combine with the nickel scavenger tailings as feed to the pyrrhotite flotation circuit. The rougher concentrate undergoes one stage of cleaning to generate the pyrrhotite rich tailings to be pumped for disposal in the CDA.

Non-pyrrhotite tailings, consisting of the nickel scavenger tailings and the nickel scavenger 1st cleaner tailings, are thickened, and pumped to the tailings management facility.

Reagents are stored, mixed, and distributed from a central reagents area. Frother, collector, and lime are pumped from the reagents area to the flotation section using peristaltic reagent pumps to accurately dose the process. A more detailed process description, by major process area, now follows.

17.4.2 Crushing

Ore will be delivered to the primary tip by 90 t haul trucks at a frequency averaging 3-4 trucks per hour. Peak delivery rate is assumed to be 360 tph. Ore is discharged directly into a rail-lined, 135 tonne surge bin.

A vibrating grizzly feeder at the bottom of the surge bin discharges +70 mm oversize into the primary crusher feed chute. Grizzly undersize drops onto the classification screen feed conveyor. The primary crusher consists of a 36” x 48” jaw crusher with a closed side setting of 100 mm and can accept a top size of 700 mm. Crushed ore discharges onto a sacrificial conveyor, which in turn discharges onto the stockpile feed conveyor.

The crushing circuit is expected to run at 72% availability, seven days per week. A dust collection system is used to prevent excessive dust generation at the primary crusher and the transfer point to the stockpile feed conveyor.

17.4.3 Grinding

Two reciprocating feeders (one operating, one standby) located in the reclaim tunnel beneath the crushed ore stockpile are used to transfer crushed ore onto the SAG mill feed conveyor. This conveyor discharges via head chute and into the SAG mill feed hopper.

The SAG mill is a 24’ diameter by 10’ long, grate discharge, semi-autogenous grinding mill with a 2650 kW variable speed drive. Slurry and pebbles exit the mill after passing through the mill discharge grate and pebble ports onto a trommel screen fixed to the mill discharge trunnion. Trommel screen oversize material (pebbles) is directed by chute onto the SAG mill pebble conveyor for re-cycling. Trommel screen undersize gravitates onto a 6’ by 12’ vibrating classification screen with 2 mm openings. Screen undersize slurry gravitates via the screen to the ball mill cyclone feed box. Screen oversize material discharges via the oversize chute onto the pebble conveyor.

SAG mill slurry spillage is collected in a drive-in sump and then returned to process by a submersible slurry pump. The milling area is served by an overhead crane. Relining is achieved using a common relining machine.

SAG Mill grinding media is stored in a ball bunker located part-way along the mill feed belt. The bunker is served with a small spillage pump and a ball loading crane and magnet. Balls are added to mill feed at timed intervals via a ball loading chute.

Classification screen underflow is fed by gravity to the cyclone pump feed box in the ball milling circuit. The cyclone cluster consists of three, 660 mm cyclones (2 operating, 1 standby) with a cut-point of 85 µm. Cyclone underflow reports to the ball mill feed chute. The ball mill consists of a 15’ diameter by 25’ long overflow discharge ball mill with a 2,650 kW, single pinion drive. The discharge end of the mill is fitted with a trommel screen with 10 mm openings. Oversize tramp material, woodchips, etc. drop through a chute into a drum or skip. The material passing through the trommel is collected in a chute and fed to the screen pump feed box.

Cyclone underflow gravitates to the feed chute of the ball mill. The cyclone overflow reports to a linear trash screen for removal of woodchips and other tramp material prior to flotation. The screened cyclone overflow stream gravitates to the flotation circuit. The stream of woodchips and tramp plastic from the linear screen is dewatered by a woodchip sieve bend before being dumped in a storage area.

Spillage contained in the ball mill area is pumped to the mill cyclone feed pump box for re-treatment. Ball mill grinding media is delivered to the plant in bulk and is stored in the ball mill ball bunker. The ball bunker is serviced by a crawl and electric hoist arrangement allowing balls to be lifted into a kibble using the ball loading magnet and tipped into the mill via a ball loading chute. Spillage contained in the grinding area is pumped to the mill discharge sump for re-treatment. Ball mill grinding media is delivered to the plant in bulk and is stored in the ball mill ball bunker. The ball bunker is serviced by a crawl and electric hoist arrangement allowing balls to be lifted into a kibble using the ball loading magnet and tipped into the mill via a ball loading chute.

The milling circuit and all subsequent areas of the plant operate at 92% availability on a 24/7 schedule.

17.4.4 Bulk/Cu Flotation

The ball mill cyclone overflow gravitates to two conditioning tanks in series. The line to the conditioning tanks includes a sampling station consisting of a sampling launder and an automatic sampler. In the conditioning stage, lime is added to control pH and SIPX and Aero 3477 are added as flotation collectors to improve sulfide recovery.

Overflow from the second conditioning tank feeds the Bulk Rougher circuit that consists of three, 50 m^3, tank flotation cells equipped with automatic air flow regulation and pinch valves for level control. Concentrate froth is fed by a launder to the Bulk Concentrate pump which transfers the slurry through a sampling station to the feed box of the Bulk 1st Cleaner. Tailings from the Bulk Rougher circuit are fed by gravity to the Ni Scavenger circuit.

The Bulk 1st Cleaner consists of a bank of five, 4.3 m^3 trough cells in series with automatic air flow control and pulp level control by modulating dart valves. Bulk 1st Cleaner concentrate is pumped to the Cu 1st Cleaner flotation bank, whereas the Bulk 1st Cleaner tailings flow by gravity to the cyclone pump feed box in the Ni Scavenger Regrind circuit.

No concentrate is collected from the first two cells in the bank, as these cells act as an aeration/conditioning step prior to the separation of copper and nickel sulfides. Concentrate from the last three cells in the bank is pumped to the Cu 2nd Cleaner. Tailings from the Cu 1st Cleaner are rich in nickel sulfide and reports to the Final Nickel Concentrate.

The Cu 2nd Cleaner consists of a single, 1.5 m diameter by 5.7 m high, flotation column, equipped with a fine bubble sparger and pinch valve level control. Wash water is used to reduce gangue mineral entrainment in the concentrate. Concentrate from the column cell is pumped to the Final Copper Concentrate thickener. The 2nd Cu Cleaner tailings are returned to the feed box of the Cu 1st Cleaner.

Spillage in the rougher section is collected in a common sump and pumped back into the first rougher cell using a submersible spillage pump.

17.4.5 Nickel Scavenger Flotation

The Ni Scavenger circuit consists of three, 50 m^3, tank flotation cells equipped with automatic air flow regulation and pinch valves for level control. Concentrate froth is fed by a launder to the Ni Scavenger regrind cyclone pump box. Tailings from the Ni Scavenger circuit report to an automatic sampler and then are fed by gravity to the Pyrrhotite Rougher circuit.

Feed to the regrind cyclone cluster consist of regrind mill discharge, Ni Scavenger concentrate, and Bulk 1st Cleaner tailings. The regrind cyclone cluster consists of two, 254 mm cyclones (one operating, one standby). Cyclone overflow gravitates to the feed box of the Ni Scavenger 1st Cleaner circuit. Cyclone underflow feeds the regrind mill. The regrind mill consists of a 6.5' diameter by 10' long grate discharge ball mill with a 100 kW, variable speed drive.

The Ni Scavenger 1st Cleaner consists of a bank of five, 4.3 m^3 trough cells in series with automatic air flow control and pulp level control by modulating dart valves. Ni Scavenger 1st Cleaner concentrate is pumped to the Ni Scavenger 2nd Cleaner flotation bank, whereas the Ni Scavenger 1st Cleaner tailings are automatically sampled and pumped to the Po Rougher circuit.

The Ni Scavenger 2nd Cleaner consists of a bank of two, 4.3 m^3 trough cells in series with automatic air flow control and pulp level control by modulating dart valves. Ni Scavenger 2nd Cleaner concentrate is pumped to the Ni Scavenger 3rd Cleaner flotation bank, whereas the Ni Scavenger 2nd Cleaner tailings are transferred to the feed box of the Ni Scavenger 1st Cleaner.

The Ni Scavenger 3rd Cleaner consists of a bank of two, 4.3 m^3 trough cells in series with automatic air flow control and pulp level control by modulating dart valves. Ni Scavenger 3rd Cleaner concentrate is fed by gravity to the Final Ni Concentrate pump where it combines wit the Cu 1st Cleaner tailings. The Ni Scavenger 2nd Cleaner tailings are transferred to the feed box of the Ni Scavenger 2nd Cleaner.

17.4.6 Pyrrhotite Flotation

The Pyrrhotite Rougher circuit consists of three, 50 m^3, tank flotation cells equipped with automatic air flow regulation and pinch valves for level control. Concentrate froth is fed by a launder to the Pyrrhotite Rougher Concentrate pump which transfers the slurry to the feed box of the Pyrrhotite 1st Cleaner. Tailings from the Pyrrhotite Rougher circuit are fed by gravity to the Non-Pyrrhotite Tailings pump box.

The Pyrrhotite 1st Cleaner consists of a bank of two, 4.3 m^3 trough cells in series with automatic air flow control and pulp level control by modulating dart valves. Pyrrhotite 1st Cleaner concentrate is fed by gravity to the Pyrrhotite Tailings pump box and then pumped to the CDA. The Pyrrhotite 1 Cleaner 1st tailings gravitate to the Non-Pyrrhotite Tailings pump box.

17.4.7 Concentrate Dewatering

Final copper concentrate, consisting of Cu 2nd Cleaner concentrate, is pumped from the flotation area, through an automatic sampler, to a 6 m diameter high-rate thickener located in the concentrate dewatering area. The thickener is equipped with rake lift, bed level detection and bed mass monitoring. Thickener overflow gravitates to an overflow tank and is then pumped to the process water tank. The thickener underflow is withdrawn from the cone by a centrifugal underflow pump and pumped forward to the Cu concentrate storage tank or is recycled to the thickener feed if of insufficient density.

The copper concentrate is pumped from the mechanically agitated storage tank to a common Cu/Ni pressure filter for dewatering. When filtering copper concentrate the filtrate from the pressure filter is returned to the copper concentrate thickener feed box to recover any entrained solids. A cloth wash tank and pumps allow high pressure washing of the filter cloth at the end of each cycle.

Cu filter cake is discharged from the press via a discharge chute onto a bi-directional conveyor which deposits the cake on the concentrate stockpile. A front-end loader serves the cake stockpile and loads cake into trucks which transport the concentrate to a toll smelter. Trucks are weighed and auger-sampled at the weighbridge prior to dispatch.

Final nickel concentrate, consisting of combined Cu 1st Cleaner tailings and Ni Scavenger 3rd Cleaner concentrate, is pumped from the flotation area, through an automatic sampler, to a 6 m diameter high-rate thickener located in the concentrate dewatering area. The thickener is equipped with rake lift, bed level detection and bed mass monitoring. Thickener overflow gravitates to an overflow tank and is then pumped to the process water tank. The thickener underflow is withdrawn from the cone by a centrifugal underflow pump and pumped forward to the Ni concentrate storage tank or is recycled to the thickener feed if of insufficient density.

The thickened nickel concentrate is filtered using the same pressure filter as the copper concentrate. The operation of the filter is analogous, except that when processing nickel the filtrate is pumped back to the nickel concentrate thickener and the cake conveyor operates in the reverse direction and feeds the nickel concentrate stockpile.

17.4.8 Tailings Dewatering

The Non-Pyrrhotite Tailings, consisting of the Po Rougher and Po 1st Cleaner tailings, are pumped to the feed box of a 20 m diameter high-rate thickener. The thickener is equipped with rake lift, bed level detection, and bed mass monitoring. Thickener overflow gravitates to the process water tank, while the thickener underflow is withdrawn from the cone by a centrifugal underflow pump and pumped to the CDA.

17.4.9 Services

Process water is stored in a centralized tank and is distributed to the plant by a process water pump. Plant hosing/flushing water is provided by the hose-down water supply pumps. The process water tank is also used to feed the diesel-powered fire water pump from a separate (lower) offtake, thus guaranteeing availability.

Clean water is piped into the plant from the settling pond and stored in the plant clean water tank. From the storage tank, water is pumped around the plant for use as reagent mixing water, slurry pump gland seal water, and as required for mill lubrication system cooling.

Plant and instrument air is provided by two compressors. Air quality is maintained by a filter. Instrument air is dried using a refrigeration drier. An air receiver is provided for compressed and instrument air lines, to allow for surges in demand. Low pressure air is supplied to the flotation plant by two separate blowers. The blowers are fixed speed, with manifold pressure controlled by a modulating valve on an exhaust line.

17.4.10 Reagents

PH Modifier – Quicklime

Quicklime (calcium oxide) is delivered to the plant in bulk and pneumatically loaded into the lime hopper. Dry quicklime is metered from the hopper into a slaking system by a screw feeder. Mixed lime slurry at 10% solids is pumped to an agitated dosing tank. A circulation pump supplies lime to the flotation circuit via a ring main.

PH Modifier – Sulfuric Acid

Concentrated sulfuric acid is delivered in bulk and transferred to the acid storage tank in the reagents area. From the storage tank the acid is metered into the Ni Scavenger tailings box using peristaltic pumps in order to achieve the target pH in the Po Rougher circuit.

Promotor – Aero 3477

Flotation reagent Aero 3477 is delivered to the plant storage tank in 200 L drums. Peristaltic hose pumps meter the reagent directly from the storage tank to several addition points throughout the plant.

Collector – SIPX

Sodium Isopropyl Xanthate (SIPX) is delivered to the plant as dry pellets packed in 200 L drums. The drums are emptied into a hopper that feeds an agitated mixing tank. Prepared SIPX solution is dosed to the flotation circuit using peristaltic metering pumps.

Frother - MIBC

Liquid Methyl Isobutyl Carbinol (MIBC) is delivered to site in 1m^3 totes. As delivered (100% strength) MIBC is pumped directly to the dosing points by dedicated peristaltic pumps.

Depressant – Carboxy Methyl Cellulose

Carboxy Methyl Cellulose (CMC) is delivered to the plant powdered, in 1 tonne bulk bags. The bags are emptied into a hopper which feeds an agitated mixing tank. CMC solution is transferred to a storage tank and pumped to the process by peristaltic metering pumps.

Flocculant – Magnafloc 10

Flocculant powder is delivered to site in one tonne bags and stored in the reagent storage area. Bags are lifted by the reagent area crane and added to the flocculant powder hopper. Powder is withdrawn by the flocculant screw feeder and blown through a venturi to a wetting head located on top of the mechanically agitated mixing tank. Mixed flocculant is transferred to a storage tank and then metered to the tailings and concentrate thickeners.

Reagent spillage is pumped to the tailings thickener or stored in totes for disposal.

18 PROJECT INFRASTRUCTURE

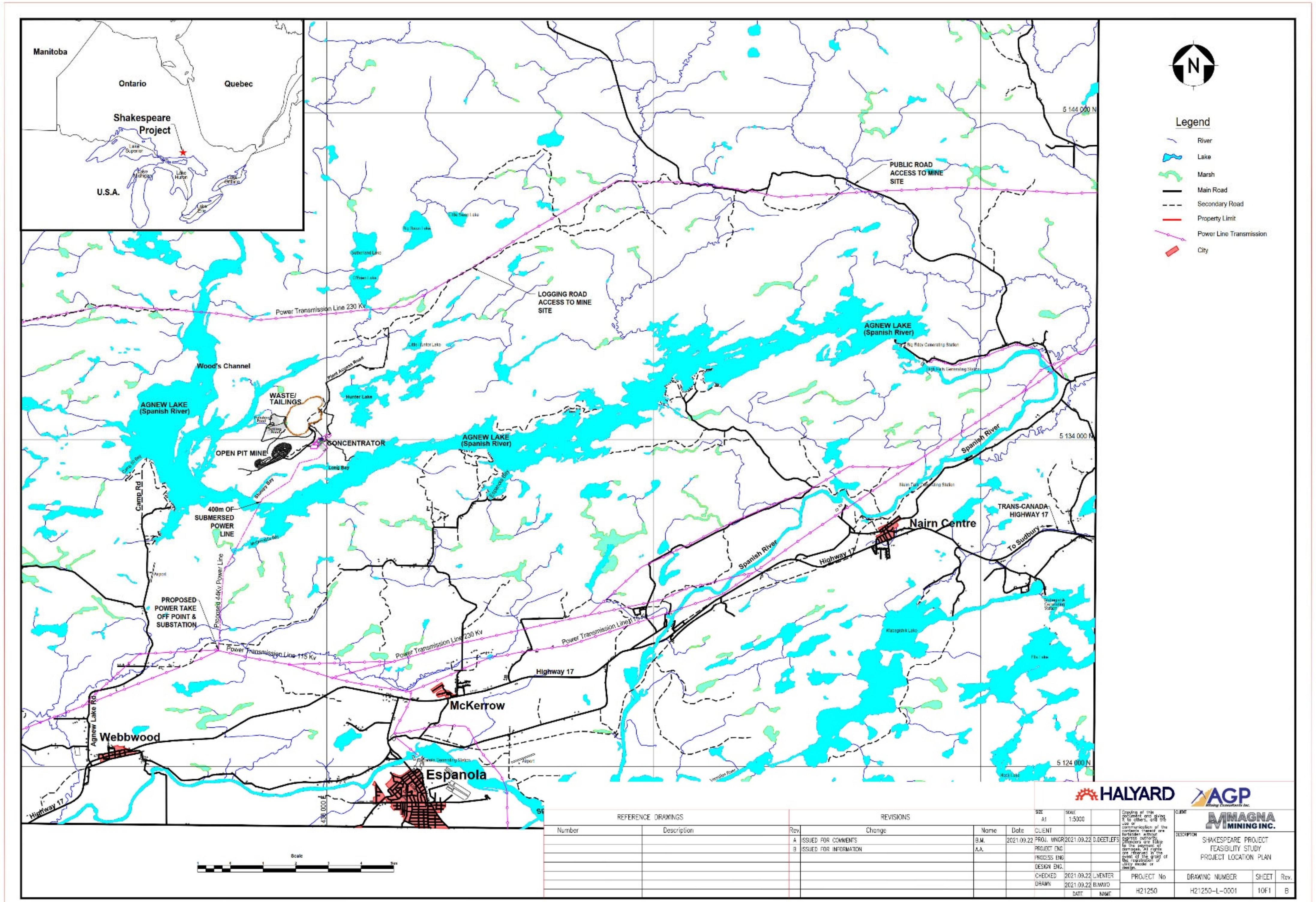
18.1 Introduction

The proposed Shakespeare project is located approximately 10 km north-northwest of the town of Espanola, Ontario. Espanola lies adjacent the Trans-Canada Highway 17, approximately 80 km west of Sudbury. To access the mine site, a public road turnoff located approximately 20 km before Espanola must be taken to the north. This public road is followed for approximately 13 km to a logging road turnoff to the west that accesses the mine property. The mine entrance gate is located approximately 14 km further along this logging access road. The travel time from Sudbury to the mine access gate by road is approximately 50 minutes.

Being located relatively close to Sudbury, this project has inherent infrastructure and construction cost advantages over other development mine sites that are located remotely. A construction and accommodation camp is not required. Professional services are located nearby on a relatively short turn around when compared to remote mine sites. Established mining service offerings such as laboratory testwork, equipment maintenance and engineering services are located nearby. Skilled labour should be readily available, which invariably is not the case with most remote mine sites, where access to skilled labour and site travel costs tend to be expensive. Material and equipment costs should also benefit with Sudbury's close location.

The proposed mine development site itself is relatively compact and bound in the south and west by Agnew Lake set upon the Spanish River. The existing access roads are shown in Figure 18-1 as well as the mine's locality.

Figure 18-1: Overall Site Plan with Key Plan Showing Locality to Sudbury



The proposed mine site consists mainly of an open pit mine, a combined tailings, and mine waste rock storage facility, referred to as the Co-disposal Area (CDA), and a process plant area. The existing open pit mine will be further developed on the site. Additional major features include a haul road to the CDA and a process plant terrace containing an ore stockpile, process plant and other buildings, facilities, services, and utilities. Minor features proposed for the site include several earth embankment dams, numerous pipelines for site-wide water collection and distribution, minor access roads, overhead power supply and distribution and explosives storage facilities.

18.2 Existing Road Access and Infrastructure

The mine site property is connected to existing public roads via an existing good quality gravel logging road. This gravel access road requires minimal upgrade up to the property's access gate. Construction of the process plant will require one small bridge to be upgraded along the route to enable passage of large and heavy pieces of equipment. Equipment supplies and product transport will use the existing access road and public roads for transit.

A good quality internal access road exists from the property's access gate to an existing open pit mine. The existing open pit will be developed future during the operations period of the mine. Some existing laydown area and a small mobile office is available currently on site near to the existing open pit mine.

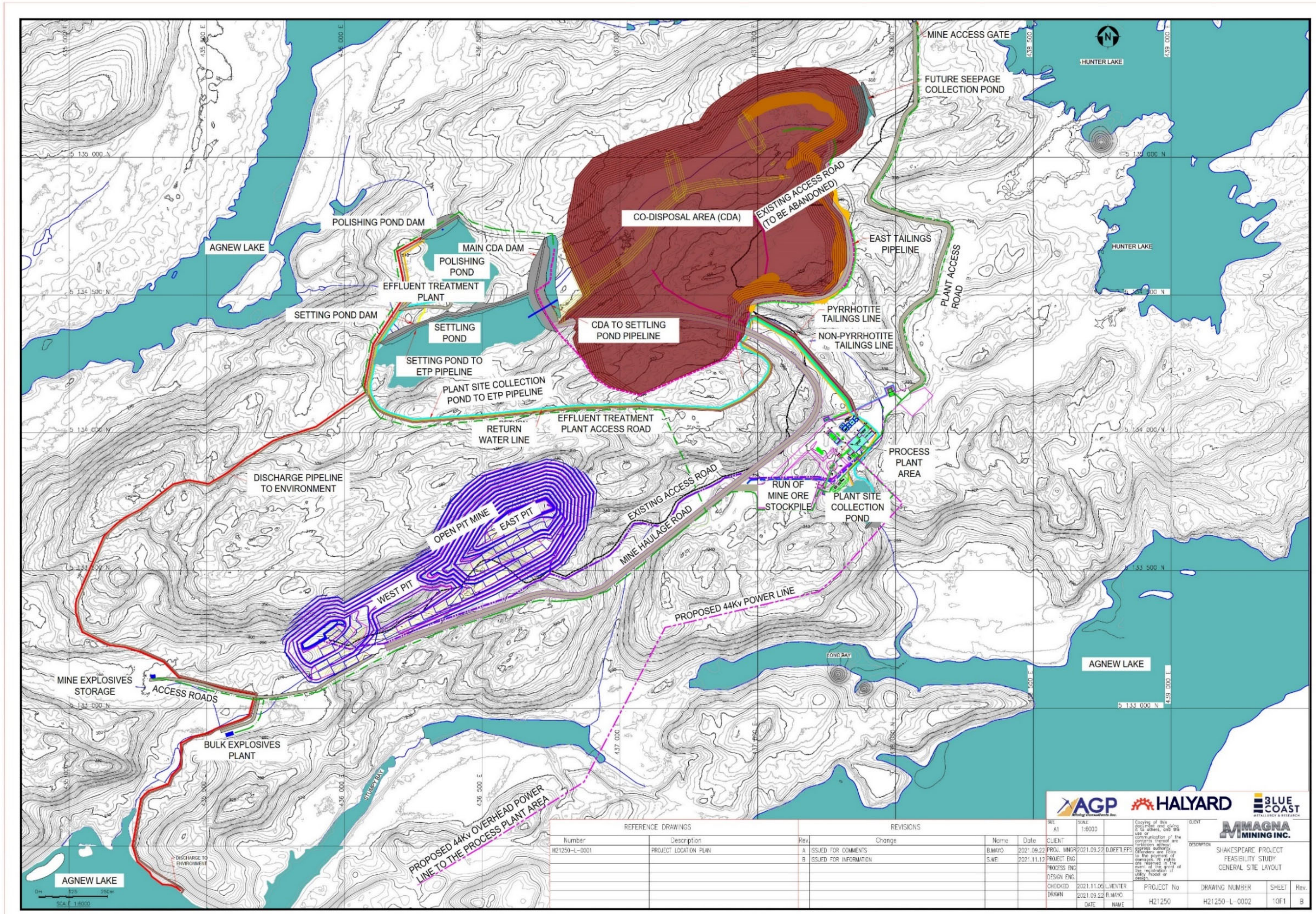
Small power is available currently utilizing diesel generators. Drilling water is taken from an existing environmental settling pond with earth dam where surface water is collected, tested, and treated if required, before outfall to the environment.

18.3 Proposed On-Site Infrastructure

18.3.1 General

The proposed Shakespeare site layout is presented below in Figure 18-2.

Figure 18-2: Site Layout



The proposed site layout is designed to be compact to fit cost effectively to contours associated with the property and to minimize the environmental impacts. The process plant's truck dump structure and jaw crusher is located next to the proposed haul road outside the safe blast radius of the nearest open pit mine edge within 1 km of the open pit mine to reduce mined ore haul distances. The CDA is located further along the proposed haul road within a large natural valley area to the northeast of the pit.

The process plant terrace area is located to the east-northeast of the open pit mine within a mostly slightly sloped swamp-like hollow depression area at a distance averaging 1.7 km from the middle point located between the West and East pit. The site area is covered by trees, mainly pine and spruce. About 40% of the surface area is the exposed to bedrock and based on test pits excavated by URSA in September 2005, the balance of the area has an overburden thickness averaging less than 1.5 m.

Stormwater runoff is contained in a relatively small catchment area. A plant site collection pond will be constructed below the proposed plant terrace area to capture stormwater runoff for reuse as process water or for treatment prior to release of excess water to the environment.

The process plant and CDA are both located to minimize noise and visibility for cottagers on the Agnew Lake edge.

18.3.2 Roads, Platforms, and Helipad

There are various roads and terrace areas on the site. In general they are described below:

Process Plant Access Road

The existing open pit mine access road from the property's access gate will be abandoned after construction of a new 1 km process plant terrace access road as it traverses the proposed CDA footprint. The road will be approximately 10 m in width and designed to withstand the traffic loading including stormwater ditches and culverts as required for stormwater drainage.

Mine Haul Road

A mine haul road from the open pit mine to the CDA passes by the ore stockpile side of the process plant terrace area and follows the existing internal access road alignment to a large extent near the pit area. This existing internal access road, where possible, will be redeveloped to withstand heavy load traffic and to be wider with less gradient and gradient fluctuation for use by large and heavy haul trucks. New sections of haul road will be constructed where the alignment requires this.

Access Roads

A smaller service road will be developed to access the settling and polishing pond location. This road will allow for medium and light vehicle access. The proposed effluent treatment plant (ETP) facility to be located at the settling and polishing pond location will require regular lime and other reagent deliveries.

Some existing internal roads will be maintained for access purposes such as those leading to the existing environmental settling pond and explosive magazines locations.

Main Parking Area

A light vehicle parking lot for mine and process personnel (excluding management and key personnel) is proposed to be located outside the property's access gate to reduce the use of light vehicles to enter the site. The parking lot will be partially equipped with electric vehicle charge points and receptacles for engine block heaters. Busses are to transport personnel to the process plant building area on a dedicated access road not used by heavy mine haul trucks nor equipment.

Helipad

A 20 m diameter helipad will be constructed adjacent to the process plant area entrance and will be maintained over life of mine for emergency access. The helipad can be utilized in case of an emergency that would benefit from a medivac situation.

Laydown Areas

Site construction laydown areas and temporary construction office areas will be created when the process plant terrace is constructed. These laydown areas will be outside the footprint of the areas to be constructed as far as possible.

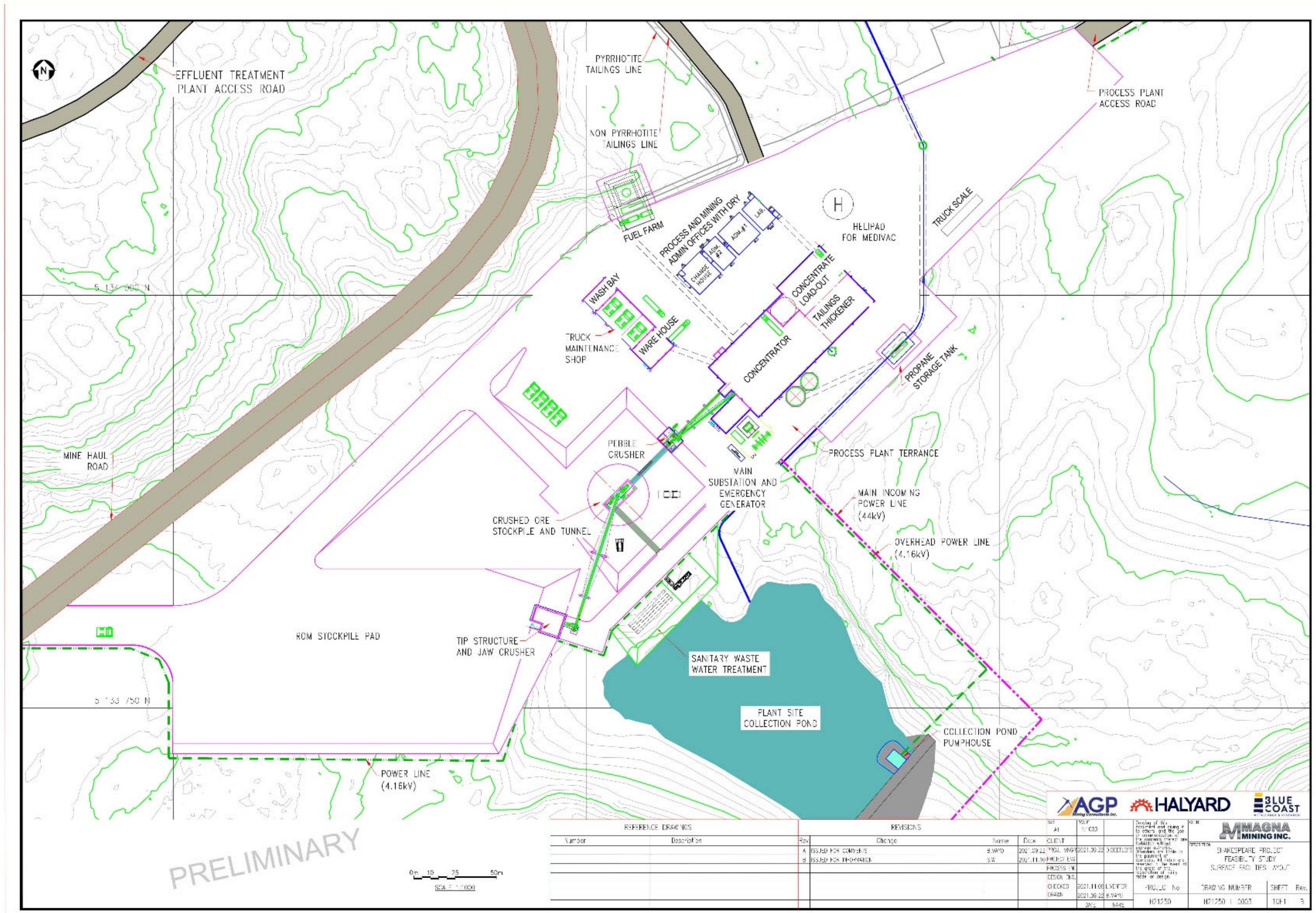
Temporary construction facilities will be the responsibility of the site contractor(s) to erect and maintain as will be the contractor mobilization and demobilization of equipment. It is assumed that no construction camp will be required and that construction crews will have off-site accommodation in Sudbury or the surrounding area. Transportation to and from the site will be the contractors' responsibility and no catering services to be provided during construction.

The laydown areas will be managed as temporary staging areas by the various contractors on the site. The area to the east of the process plant will be converted at construction end to a small parking area for management and mine vehicles, including busses.

Buildings and Facilities

The proposed Shakespeare site buildings and facilities are presented below in Figure 18-3.

Figure 18-3: Buildings and Facilities



The main operational and support buildings are located on the process plant terrace outside of the 500 m buffer zone for blasting. The process plant terrace will house amongst others, the process plant, truck maintenance shop with warehousing, the process and mining administration buildings and other facilities. The section of land gently slopes downhill to the south. The tip (truck dump) and jaw crusher structure are closest to the open pit mine.

The general mine and process surface facilities assumptions include the following:

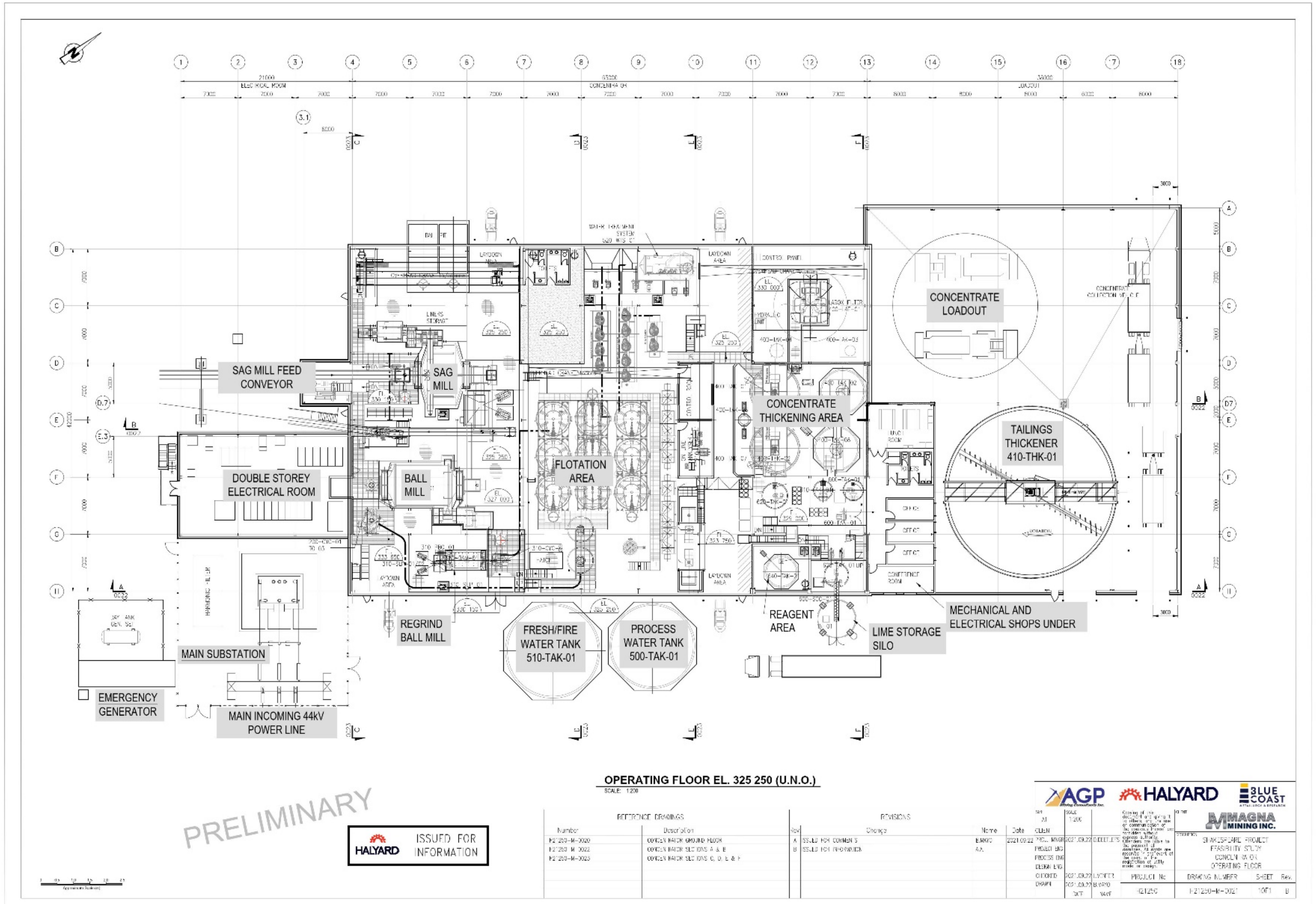
- process plant building including control room, offices, and lunchroom
- tip (truck dump) structure and jaw crusher building
- pebble crusher building
- truck wash, truck maintenance shop and warehouse facility
- security gatehouse
- process and mining administration offices with change house
- explosives storage and distribution
- core shed and a core storage yard

The intended construction method of the process plant terrace area is to strip, clear and remove on average approximately 1.5 m of unsuitable material in approximately 60% of the area to reach bedrock. The balance of the area is exposed bedrock already. Construction will then move to filling, utilizing waste rock from the mining operation to construct a large, compacted rock terrace. Selected blast rock that will be dumped in layers and compacted to suit. The area will be built to approximately 1 m below the top surface area. The top 1 m of the terrace will be constructed using material constructed in 250 mm compacted layers from suitable selected and screened granular material.

Process Plant Building

The proposed Shakespeare process plant building layout is presented below in Figure 18-4.

Figure 18-4: Process Plant Layout



The process plant will be housed within a pre-engineered building with a ground floor area of approximately 4,700 m^2. Approximately 2,650 m^2 being the pre-engineered building in three bays side by side, each 21 m wide x 42 m long, each bay being serviced by an overhead crane. The balance of the building area are two lean-to sections.

The building will be a weather-proof steel framed building with metal cladding, insulation, framed openings for conveyors and HVAC, several man doors and roller doors for mobile equipment access, elevated crane runway beams with overhead cranes and external snow guards overhead.

The pre-engineered building steel frame will be installed on concrete foundations and plinths and has a concrete wall around the perimeter of the building for thermal insulation and frost protection. The walls will be backfilled and compacted on the interior and exterior of the building. There will be concrete floor slabs in the process plant along with sloped floors which are directed towards sumps in areas in which there is potential for spillage. The sumps will be equipped with sump pumps which will direct spillage to specific parts of the process.

The process building will be equipped with overhead cranes in three main bays within the building, each 21 m wide. The main building will have lean to structures attached. On the west side, two levels of MCC rooms will be located, complete with double doors to allow for the installation and removal of MCC tiers and drives. A second means of egress will also be included the MCC room located adjacent to the substation yard. On the east side, a concentrate load out and thickener lean too extension is located.

The control room is located near to the SAG mill area and mill operations offices and a lunchroom are located next to the thickener building extension. These offices will be for operations and supervisors. A mechanical and electrical workshop is located beneath these offices.

The ore will enter the process plant via a SAG mill feed conveyor on the northwest side of the building. The process will generally flow from the west towards the east end of the building where the concentrate will be stockpiled for load out and collection.

There will be several pieces of equipment on the exterior of the process plant, such as a SAG, ball and regrind mill, flotation cells, concentrate thickeners, reagent area, the tailings thickener, process and freshwater tanks, lime silo are located next to the building on the southeast end.

In general, the concrete for these equipment items be separate from the concrete works of the pre-engineered building. This will allow for the pre-engineered building to be erected independently which is advantageous since this permits construction to continue within the building during the winter season.

Tip Structure (Truck Dump) and Jaw Crusher Building

The tip structure (truck dump) building is a tall 24 m high building with a relatively small footprint of 266 m^2. This building has a concrete wall on the side facing the ROM pad as this acts as the retaining wall against which the pad is built. The opposite side has a steel frame and is cladded. Trucks dump the mined ore into a bin which then under gravity is crushed and placed on a conveyor that leads to the crushed ore stockpile. This building is equipped with an overhead crane, a bag house and heating.

Pebble Crusher Building

The pebble crusher building is a tall 18 m high building with a relatively small footprint of 105 m^2. This building has a concrete wall on the lower half of the back (and sides) facing the crushed ore stockpile as this acts as the retaining wall against which the pad is built. The opposite side has a steel frame and is cladded. This building is equipped with an overhead crane, a bag house and heating. Two conveyors lead from this building to the process plant building. The first conveyor takes the pebble crushed ore to the sag mill inside of the process plant building and the second back from oversized material to recirculate for re-crushing to the pebble crusher.

Truck Wash, Maintenance Shop, Warehouse Facility

A 615 m^2, heated, pre-engineered building will be constructed for the Truck Maintenance Shop and Warehouse to allow for sheltered space to perform maintenance on heavy and light vehicles as well as stores space for mining equipment and consumables. An upstairs area (above the Warehouse will contain offices and the Electrical room.

The truck shop will be equipped with a combined 15-t overhead crane. The shop will be fitted with roller overhead doors to allow for mobile equipment to drive into the bays.

An oil/water separator will be included for the separation of oils and lubricants from the wash water prior to the wastewater being pumped to the containment pond. The truck shop will contain two large vehicle bays initially, with room for future expansion when mine development reaches peak production, and more trucks are in circulation.

The warehouse will have 312 m^2 of open storage space in the main floor. A fenced and access controlled open laydown area will be located adjacent to the warehouse facility to allow for outdoor storage of larger items.

A truck wash facility will be constructed as an additional bay of the Truck Maintenance Shop and be 205 m^2. The facility will be equipped with water hoses for manual washing of trucks. Platforms on both sides of the facility will allow for operators to reach the top of the trucks.

Security Gatehouse and Truck Weigh Scale

A gate house will be constructed at the entrance of the mine site. The gate house will control access in and out of the site as well as the truck scale operation. The weigh scale will be required to provide accurate measurement of concentrate shipment weights. The weigh scale indicator and ticket printer will be located in the gate house.

Process and Mining Administrative Offices and Dry

A modular, 880 m^2 office complex comprised of 13 modular trailers will accommodate general management and admin staff and includes the following:

- office space for management, technicians, safety personnel, administration, and other staff
- first aid facility
- conference room
- kitchen
- washrooms

- mechanical and IT room
- dry for mining and process persons

The dry will service both male and female workers separately with facilities sized for 70 persons at an 80%/20% male to female split.

A modular facility was chosen to minimize concrete works as well as the ease of piping from the kitchen and washrooms to the sewage holding tank from where the sewage is pumped to the sewage treatment plant.

Explosives Storage and Distribution

The explosives storage magazines will be located east of the mine site, away from the process plant area towards the existing mine water collection and treatment environmental pond. Emulsion will be stored in a 20' x 8' x 7' Type 4 magazine as per the Natural Resources Canada – Explosives Regulatory Division's requirements. The emulsion magazine will have the capacity to store 12,000 kg of product.

A separate storage magazine cabinet, away from the emulsion magazine, will be used to store the detonators. This magazine will have a capacity of 500 kg. Each of the magazines will be complete with lockable doors.

Explosive materials will be delivered to and distributed from these magazines on blasting days. Berms will be built around the proposed explosives magazines which will be fenced as well.

Core Shed and Core Storage

A core shed and core storage area will be provided for the exploration drill core. The shed, made from shipping containers will have rack storage space available alongside.

18.3.3 Site Services and Utilities

The proposed Shakespeare services and utilities are also presented on Figure 18-2. The general mine and process surface service and utilities inclusion assumptions include the following:

- fuel supply and storage
- propane supply and storage
- power supply and distribution
- water treatment and distribution
- sewage collection, treatment, and disposal
- solid waste and hazardous material collection and disposal

Fuel Supply and Storage

A fuel storage and distribution facility will be located to the north of the of the Truck Maintenance Shop. The preparation of the earthworks and bunded containment area will be undertaken by the client appointed earthwork's contractor but the tanks and dispensing equipment will be supplied and maintained by the chosen fuel and lubrication service provider. This facility will store the diesel and low sulphur diesel tank and dispensing equipment. Any spillage at the facility will be contained within a bunded area with drainage available to the oil-water separator located at the Truck Maintenance Shop.

Low Sulphur and Diesel Storage Distribution: Storage and dispensing equipment for low sulphur diesel will be constructed for use by the mine's mobile equipment. The low sulphur diesel will be delivered to site in the supplier's tanker trucks. The storage facility will be equipped with a high flow pump to fill the haul trucks and service truck that will be used to fill the open pit and CDA mobile equipment.

Regular Diesel Storage and Distribution: Storage and dispensing equipment for regular diesel will be constructed for use by generators used initially for construction, the standby generator as well as filling smaller vehicles.

Propane Supply and Storage

A propane storage and distribution facility will be located to the southeast of the process plant building. The preparation of the earthworks and concrete foundation will be undertaken by the client, but the tank and dispensing equipment will be supplied and maintained by the chosen service provider. This facility will store the propane to be used by the HVAC units and for heating in particular.

Power Supply and Distribution

The electrical power required of approximately 10-11 MVA will be supplied from the 115 kV hydropower grid with a take-off to the southwest of the project at a new substation (115 kV/44 kV) to be constructed just northeast of Webbwood, Ontario. A liquid filled transformer will step down the 115 kV distribution voltage to 44 kV for supply to the mine site. Power factor correction equipment will be provided at the main substation.

A 7.5 km overhead power line transmits the 44 kV power to the process plant area new substation (44 kV/4.16 kV). A liquid filled transformer will step down the 44 kV supply voltage to 4.16 kV for overhead line supply to the mine site areas below or 600V in the process plant. Approximately 400 m of the 44 kV power supply route traverses Agnew Lake, via a submersed cable section. The substation adjacent to the process plant will be the source of the 4.16 kV overhead power lines distributing electricity to the open pit mine area, polishing pond area, plant site collection pond pumps and to the explosives magazines.

In the case of a power failure, the emergency generator, sized to allow for the ongoing use of the critical equipment such as first aid facility, treatment plants, agitators, lighting, certain pumps, heat tracing etc. will kick-in a provide emergency power. The emergency generator is located at the substation next to the process plant building and fed by gravity from the fuel storage area.

Water Collection and Distribution

Process water will be obtained from the mine pit dewatering, surface water runoff into the plant site collection pond, treated sewage effluent and from the CDA settling pond. Any excess process water, treated to strict specifications at the ETP, will be returned to Agnew Lake via an overland pipe from the polishing pond to a specific approved location.

Site-wide water distribution pipelines and overhead power lines will follow the mine haul and ETP access road alignments where possible.

Potable water will be made using water pumped from Agnew Lake to the southeast of the process plant to the potable water treatment containerized system for treatment, storage, and distribution.

Sewage Collection, Treatment and Distribution

A sewage treatment plant will treat sewage generated on the site to specific strict standards for release into the plant site collection pond. The treatment plant will be located to the south of the process plant building. Sewage from the dry and the process plant building will be collected under gravity in a pit and pumped to the treatment plant storage tank for treatment. All treated effluent will be pumped to the plant site collection pond for reuse as process water.

Solid Waste and Hazardous Material Collection and Disposal

Solid waste such as plastic, paper, cardboard, wood, and rubber originating from the site will be collected and stored in a solid waste collection area. The waste will be collected and sent away for disposal. Hazardous materials such as spent oil, batteries, corrosive products, etc. will be disposed of appropriately. The mine's Health and Safety Department will ensure signage, SDS's, and Standard Operating Procedures are available and current for all hazardous materials that will be used on site.

Hazardous materials will be transported from the site by specialist contractors that are trained and equipped to deal with accidental spills.

18.4 Tailings and Mine Rock Storage Facilities

Tailings and mine waste rock will be co-disposed in the Co-Disposal Area (CDA) whereby the non-acid generating (NAG) mine rock and floatation tailings are placed within and above potentially acid generating (PAG) pyrrhotite tailings and mine rock to meet environmental design criteria and limit the project footprint. The West Pit will be available for in-pit disposal of mine rock and tailings 4 years after start-up of the mill.

The CDA comprises the Main Dam to contain the flooded PAG mine waste, with internal dykes to facilitate the tailings and mine rock deposition plan. Perimeter ditching and ponds are provided to manage runoff and seepage. The design concept for the CDA is to deposit the PAG waste in the bottom of the basin in a saturated condition within the Main Dam impoundment to inhibit oxidation. NAG mine rock and floatation tailings will then be deposited to encapsulate the flooded PAG. NAG mine rock and floatation tailings will be co-mingled to reduce the overall volume occupied and negate the need to raise the Main Dam.

18.4.1 Design Criteria

The design of the CDA provides an estimated storage capacity of 34.9 Mm3 for tailings and mine rock (Table 18-1). All NAG mine rock and floatation tailings produced during pre-production and 8-year life-of-mine will be deposited in the CDA. PAG mine rock and pyrrhotite tailings will be deposited in the CDA until the end of years 3 and 4 after start-up, respectively, after which they will be deposited in the mined-out West Pit. The design is based on an average mill throughput of 4,500 tpd.

Table 18-1: Mine Waste Tonnage and Volumes to be Stored in the Co-Disposal Area

	NAG Mine Rock	PAG Mine Rock	Flotation Tailings	Pyrrhotite Tailings
Tonnage (Mt)	57.5	1.0	10.4	0.6
Dry density (t/m^3)	2.0	2.2	1.6	1.9
Volume (Mm^3)	28.8	0.5	6.4	0.3
Total volume deposited in CDA (Mm^3)	36.2			
Total volume of CDA (Mm^3)	35.1			
Volume of void filling required (Mm^3)	1.1			
NAG mine rock void filling ratio required	12%			

The overall design objective of the Co-Disposal Area is to safely contain mine waste (tailings and mine rock) in a single facility while protecting groundwater and surface water resources during operations and long term.

The principal drivers of the design and operational controls include:

- geochemical characteristics of tailings and mine rock that require a water cover for the deposited pyrrhotite tailings and PAG mine rock
- management of spring freshet runoff
- design for closure including the possibility of early suspension or shut-down of operations

Main dam bedrock foundation grouting and natural clay lining within the basin will limit seepage in order to maintain the PAG mine rock and pyrrhotite tailings submerged in the long term.

18.4.2 Design Assumptions

The following assumptions were used in the deposition plan:

- approximately 10% of the tailings will be PAG and this proportion is constant throughout the 8-year life-of-mine
- flotation tailings are NAG and will be thickened to 65% solids by mass consistent with a non-segregating, high-density slurry
- pyrrhotite tailings are PAG and will be discharged as a slurry with an estimated density of 34% solids by mass
- floatation tailings and NAG mine rock will be co-disposed within NAG mine rock cells. The waste rock and tailings will be deposited in alternating lifts and compacted to squeeze the tailings into the waste rock voids
- the porosity of the deposited NAG mine rock is 0.3 meaning that the total void volume available for co-mingling tailings is 8.2 Mm^3
- PAG mine rock and pyrrhotite tailings will be diverted from the CDA to the mined-out West Pit starting in years 4 and 5 after start-up, respectively

18.4.3 Tailings and Mine Rock Deposition Plan

Development of the CDA will be carried out in stages. Initially the valley will be filled from east to west, first with PAG waste in order to maintain pond storage capacity for mill make-up water and runoff management.

The pyrrhotite tailings will be discharged into the pond as a slurry from a pipeline outfitted with multiple spigots. PAG mine rock would be pushed into the flooded valley from the PAG internal berms and access roads.

The NAG waste will be co-disposed with the flotation tailings. Tailings will be pumped into cell-like depressions constructed with NAG mine rock. Co-mingling of the tailings and rock will occur by alternating tailings and mine rock deposition into the cells. Tailings will be pumped into the cell in a lift of 1 to 2 m thick, followed by placement and compaction of mine rock which partially squeeze the tailings into the mine rock void space. At any time, multiple cells will be opened to manage disposal of the tailings and mine rock simultaneously and provide contingency for upset conditions or inclement weather.

The CDA will be developed in the four stages described below:

Stage 1 (Pre-production to End of Year 1):

- During pre-production NAG mine rock will be used to construct internal berms and access roads. The remainder of the rock will be stockpiled on high ground south of the valley.
- Starting in year 1, pyrrhotite tailings and PAG rock will be deposited in the east end of the basin.
- Flotation tailings and NAG rock will be deposited on the high ground south of the valley up to the ultimate elevation 380 m.

Stage 2 (Years 2 and 3):

- Flotation tailings and NAG rock deposition will shift to the northeast end of the basin and cover the PAG waste deposited during Stage 1.
- Pyrrhotite tailings and PAG rock will be discharged in the central part of the basin, west of the area of NAG deposition.

Stage 3 (Years 4 and 5):

- Flotation tailings and NAG rock deposition will shift to the central part of the basin and cover the PAG waste deposited during Stage 2.
- Pyrrhotite tailings will be discharged in the west part of the basin until start of year 5.
- PAG rock will be stockpiled outside of the West Pit in year 4 and then deposited in the West Pit starting in year 5.

Stage 4 (Years 6 to end of year 8):

- Flotation tailings and NAG rock deposition will shift to the west part of the basin and cover the PAG waste deposited during Stage 3.

The process of enhancing the degree of co-mingling NAG tailings into the NAG mine rock void spaces will be developed in Stage 1 when the footprint area for NAG deposition is largest. Enhanced co-mingling efficiencies, if realized through the deposition processes, equipment, cell size and depth, tailings discharge locations and pipeline movement, etc. may increase the overall storage expansion opportunities.

Important operational controls required to ensure stability of the CDA slopes include:

- a toe reinforcement platform will be constructed on a prepared bedrock or till foundation in the preproduction period to mitigate stability concerns for the NAG pile during Stage 1.
- the external NAG mine rock slopes have an overall slope of 2.5H:1V and abut shallow bedrock around the rim of the valley.
- within the valley, the NAG pile will be buttressed by deposited PAG mine rock and tailings through stages 2 to 4.
- the external 10 m of the CDA will be composed of only NAG mine rock to avoid potential shear surfaces where tailings decrease the rock particle to particle friction
- during the winter months, NAG tailings should be deposited nearer to the centre of the CDA to avoid potential slope stability issues related to freezing.
- the pyrrhotite tailings pipeline from the mill to the CDA will be within the CDA drainage catchment or in a lined corridor if it is outside of the CDA footprint.

18.4.4 Dam Design

The Main Dam is a central core dam with rockfill shells that will be raised to an ultimate elevation of 327 masl in three stages by the centreline raise method. Where the dams are underlain by glaciolacustrine (varved) clay, a downstream toe berm is provided to provide counter-weight to ensure the required slope stability factors of safety are met. The toe berm will be expanded when dam raises are constructed. The ultimate configuration of the toe berm should be reviewed and adjusted as needed based on the measured shear strength determined in future investigations and during construction of the starter dam.

The clay for the central core will be borrowed from the desiccated crust of the glaciolacustrine deposit within the CDA basin. The core is protected on either side with a sand filter zone and a gravel transition zone on the downstream side. The core is supported by rockfill shells and drainage will be enabled using a sand blanket drain. A grout curtain will be installed beneath the core where the dam is founded on shallow bedrock.

An emergency spillway is situated in the left abutment bedrock and will be shifted during each raise as the dam lengthens and abuts at a higher elevation. The later stage spillways can tie into the existing outlet channel and plunge pool.

Design Criteria

The Hazard Potential Classification (HPC) was assessed using Canadian Dam Association (CDA) Dam Safety Guidelines (CDA, 2013) and have been classified as having a “Significant” consequence of failure. However, because the Main Dam will exist in perpetuity, the longer-return period criteria of a “Very High” classification were used for design.

The dam was designed to safely store the EDF below the emergency spillway invert and the emergency spillway was sized to safely pass the IDF, which is two thirds the interval between the 1:1,000 year 24-hour storm runoff event and the 24-hour Probable Maximum Flood (PMF).

The minimum factors of safety for slope stability under static, end of construction, and pseudo-static conditions were assessed as recommended in the Canadian Dam Association Dam Safety Guidelines (CDA, 2013). The seismic criteria for pseudo-static analysis was half the interval between the 1:2,475 and 1:10,000 year peak ground acceleration (PGA).

Geotechnical Considerations

The primary geotechnical considerations for the dams are slope stability and seepage control. Stability and seepage analyses were conducted to support the design of the dams.

Geotechnical investigations were carried out at the Main Dam location to characterize the subsurface stratigraphy and measure the bedrock hydraulic conductivity.

The key observations relevant for dam design are as follows:

- The bottom of the basin has been characterized as a glaciolacustrine deposit of soft, normally consolidated clay with a stiffer, desiccated crust, which was found to be up to 8 m thick beneath the Main Dam. Due to the thickness of this deposit and water retaining properties of this soil, it will remain in place and form the dam foundation.
- The dam abutments generally consist of shallow bedrock that will be exposed with moderately low permeability. Bedrock foundation grouting will be provided where the core is found on bedrock to seal fractures and restrict seepage under the dam.

Embankment Materials

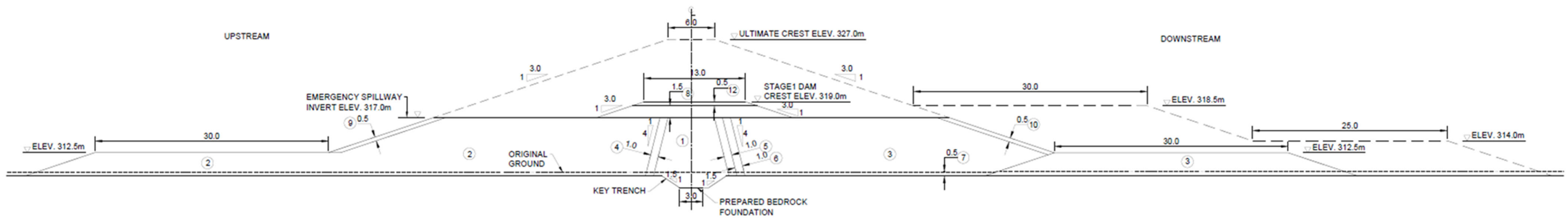
The embankment consists of 12 distinct zones, namely:

- central clay core
- upstream and downstream sand filters
- downstream gravel transition
- downstream sand blanket drain
- upstream and downstream rockfill shells
- upstream and downstream riprap erosion protection
- frost protection cap (to minimize frost impacts where the core is to be raised)
- granular road surfacing

The clay core will be constructed using borrow from the weathered crust of the glaciolacustrine clays within the valley of the CDA. Rockfill will come from mining or quarrying operations. The sand and gravel fills are expected to come from commercial granular pits in the area.

Figure 18-5 shows the dam typical cross-sections for the Main Dam.

Figure 18-5: Typical Cross Section for the Main Dam



MAIN DAM (STAGE 1) TYPICAL SECTION

LIST OF MATERIALS

1. CORE (CLAYEY SOIL)
2. UPSTREAM SHELL (PROCESSED NPAG ROCK OR GRANULAR SOIL)
3. DOWNSTREAM SHELL (PROCESSED NPAG ROCK OR GRANULAR SOIL)
4. UPSTREAM FILTER (PROCESSED FINE SAND)
5. DOWNSTREAM FILTER (PROCESSED FINE SAND)
6. DOWNSTREAM TRANSITION (PROCESSED SAND AND GRAVEL)
7. BLANKET DRAIN (PROCESSED SAND AND GRAVEL)
8. FROST PROTECTION (RANDOM GRANULAR SOIL)
9. UPSTREAM EROSION PROTECTION (PROCESSED NPAG ROCK OR GRANULAR SOIL)
10. DOWNSTREAM EROSION PROTECTION (PROCESSED NPAG ROCK OR GRANULAR SOIL)
11. TOE DRAIN (PROCESSED SAND AND GRAVEL)
12. ROAD SURFACE (PROCESSED SAND AND GRAVEL)

Source: SLR 2021

Foundation Preparation

The Main Dam is expected to be founded on soil across the valley and bedrock on the abutments. Dam foundation preparation will include stripping unsuitable soils and proof-rolling of soil subgrades. A key trench excavated along the dam centreline will extend a minimum 1.5 m and key into suitable low permeability (clay) foundation.

Where shallow bedrock is encountered, it will be cleaned, mapped, and slush grouted. Consolidation grouting of the upper bedrock will be carried out to ensure fractures are sealed and a grout curtain will be installed to provide a seepage barrier that extends to the lower permeability deep bedrock.

Construction Considerations

A cofferdam is required upstream of the Main Dam to maintain dry working conditions for the construction and allow establishment of the clay borrow area within the CDA basin. Dewatering pumps or sumps may be required to manage water in or around the borrow areas.

Constructing a low permeability dam core requires careful compaction control to ensure that the successive lifts are bonded together, and the soil mass is uniform with low permeability. To meet compaction targets, the water content of the clay must be within a specified range. This may require adding water or allowing it to dry. Clay soil that is excessively wet may not be suitable for construction

Dam fills that are sensitive to freezing (e.g. the clay core and sand filter) should be constructed during the non-winter months of the year. If it is necessary to construct in the winter, frost impacted fills must be removed and replaced with non-frozen fill. Rockfill is not sensitive to freezing and may be used for construction year-round.

18.5 Water Management

The water management infrastructure includes a series of water management ponds, as well as water transfer pumps and pipelines, to manage process water and collect surface runoff from precipitation originating within disturbed areas (i.e. contact water). The runoff from the catchment areas within the Project footprint is conveyed to collection ponds to promote settling of suspended solids prior to sending the water to a user within the mine operation or releasing it to the environment.

The water management system of the Project includes the following main components:

- co-disposal facility internal pond(s)
- settling pond located immediately downstream of the main dam
- polishing pond located north of the settling pond
- process plant site pond located south of the process plant area
- water treatment plant for discharge of treated water to the polishing pond

There is also an existing sedimentation pond constructed in 2008 to the west of the open pits, which was built to support the advanced exploration stage of the Project. The Sedimentation Pond could be used to manage pit water in the initial stages of mining while the water management ponds are being built.

The water management system involves the following two circuits:

1. Mill-CDA-Settling Pond
2. Open pits-Process Plant Pond-Polishing Pond

Water conveyance in the Mill-CDA-Settling Pond circuit is as follows:

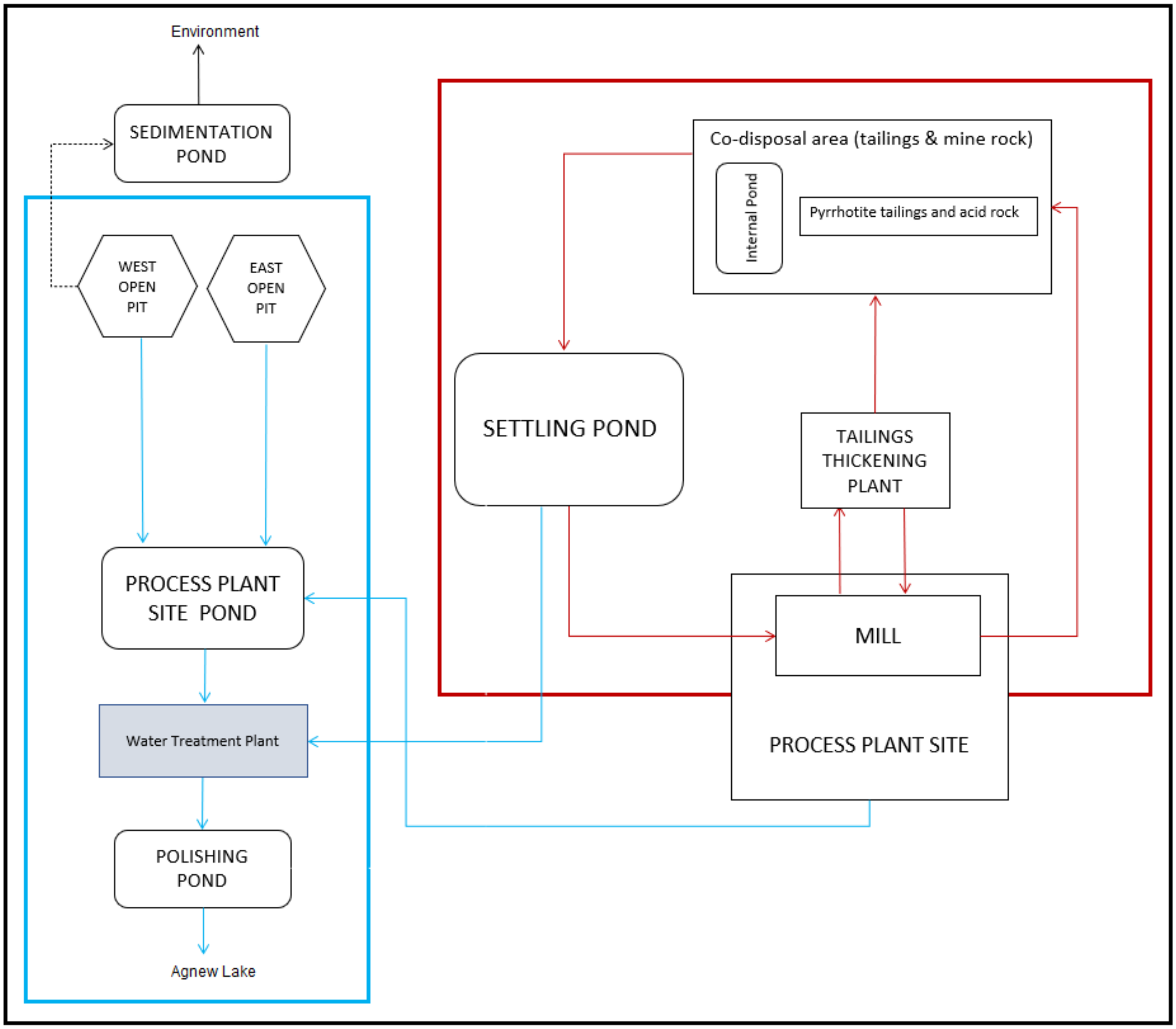
- water leaving the mill with the pyrrhotite tailings is discharged to the CDA
- water leaving the mill with the main tailings (sulphur reduced) stream is discharged to the tailings thickener
- water leaving the thickener with the tailings (thickener underflow) is discharged to the CDA
- overflow from the thickener is recovered at the process plant area and returned directly to the mill
- water collected in the CDA internal pond is pumped to the settling pond
- water collected in the settling pond is reclaimed to the mill to meet make-up water requirements for ore processing
- surplus water collected in the settling pond is conveyed to a water treatment plant prior to discharge to the polishing pond

Water conveyance in the Open pits-Process Plant Pond-Polishing Pond circuit is as follows:

- water inflows to the open pits (groundwater entering the pit plus surface runoff from precipitation) are pumped to the process plant site pond
- water collected in the process plant site pond (water pumped from the pits and surface runoff) is conveyed to a water treatment plant prior to discharge to the Polishing Pond
- water collected in the polishing pond is discharged to the receiving environment (Agnew Lake)

The flow logic diagram representing the water management strategy is shown on Figure 18-6.

Figure 18-6: Water Management Strategy



Source: SLR 2021

18.5.1 Design Objectives

The main objectives of the water management plan are as follows:

- minimize the use of freshwater by maximizing recirculation of process water and contact water runoff
- ensure a continuous supply of make-up water to the process plant

- intercept and store the contact water generated on site (open pits dewatering, process water discharge and surface runoff from disturbed surfaces) by channeling or pumping the water to water management ponds
- store excess contact water that does not meet water quality standards for discharge or provide water treatment prior to its release to the environment
- allow safe operation of the CDA and water management ponds for a wide range of climatic and operating conditions

Contact water is defined as surface water that has been exposed to excavated materials (e.g., ore, tailings, and waste rock) or mining process facilities (e.g., water within the Process Plant).

18.5.2 Water Management Design Criteria

The key design criteria of the water management components are as follows:

- The water management pond used as a source of water supply for ore processing (i.e. the Settling Pond) is designed with storage capacity to maintain one month of make-up water supply.
- The water management ponds are designed with an operating range with storage capacity for surface runoff volumes during the spring freshet under the 1:25 year wet annual precipitation conditions and considering a 9 month discharge period (i.e., non winter months).
- The water management ponds are designed with storage capacity to contain the Environmental Design Flood (EDF) above the normal operating range. The EDF is defined as the runoff resulting from the largest storm event that can be stored without discharge to the environment through the emergency spillway. Two events were considered to define the EDF volume: the 1:100 year, 30-day rain on snow event in the spring, and the 1:100-year, 24-hour rainfall storm event in the summer. The largest runoff volume resulting from these two events was used as the EDF.
- The pond emergency spillways are designed to safely convey the Inflow Design Flood (IDF) while maintaining a minimum freeboard to prevent dam overtopping. The IDF is the maximum flood for which a dam is to be designed or evaluated, as indicated in CDA (2013). The IDF used for sizing of the emergency spillways is two thirds the interval between the 1:1,000 year 24-hour storm runoff event and the 24-hour Probable Maximum Flood (PMF). The IDF was selected based on the dam consequence classification (see Section 18.4.4).
- Minimum dam freeboards selected according to the Technical Bulletin for Spillways and Flood Control Structures from the Ontario Ministry of Northern Development, Mines, Natural Resources and Forestry (MNR, 2011).

18.5.3 Site Wide Water Balance

Deterministic water balance modelling developed in spreadsheets was carried out for the operating stage to:

- estimate the available surface runoff that could be collected from the Project facility footprints
- verify that the process make-up water demands can be met

- simulate the transfer of water between water management ponds to either store, use the water collected on site to support mining activities, or discharge excess water to the receiving environment

The water balance modelling considered the following:

- all excess water collected in the ponds were assumed to be discharged to other facilities or to the environment to prevent accumulation of water from one year to the next
- ultimate facility footprints
- maximum water treatment rate of 6,330 m^3/day per approved permit
- discharge to the environment from May through January (no discharge from February through April)
- freshwater (i.e. raw water) required for gland water and reagent mixing as part of the ore processing that will be taken from either groundwater wells or Agnew Lake

The site wide water balance simulations were developed for average annual precipitation conditions as well as dry and wet annual precipitation conditions considering two (2) return periods: 25 years and 100 years. The modelling results show that even during dry years (i.e., annual precipitation below average), there is a water surplus that must be discharged to the receiving environment. The analysis indicates that surface runoff collection can meet the water demand for the Project without the need to withdraw water from natural water bodies or aquifers through groundwater wells, even under dry annual precipitation conditions.

18.5.4 Water Management Ponds

The sizing of the water management ponds considered the following:

- All the ponds include a provision for dead storage (i.e. minimum pond volume) to account for irregularities of the pond bottom ground and the accumulation of settled sediments with time. The minimum pond volume defined for the water management ponds provides a residence time of 5 days for settling of solids.
- All the ponds include a provision for an operating pond volume calculated based on the maximum accumulated monthly inflow under the 25 year wet annual precipitation conditions (obtained from water balance modelling) accounting for spring freshet.
- The Settling Pond also includes a provision to store one month of make-up water demand as a contingency to assure make-up water availability (approximately 84,400 m^3, which corresponds to 117 m^3/hr of water supply for ore processing for one month).
- All the ponds include a provision to store the EDF. This is the largest flood resulting from a discrete precipitation event that could be stored in the pond without pond overflow. An overflow of the pond would result in the activation of the emergency spillway to prevent dam overtopping. Activation of the emergency spillway will result in a direct discharge of water to the environment for all the ponds, except the CDA Main Dam (the flow discharge would be directed to the Polishing Pond).
- The emergency spillways were sized to convey the IDF.
- All the ponds include a provision for a minimum freeboard (vertical distance between the IDF maximum water elevation and the dam crest elevation).

The construction of the water management ponds will require containment dams. The emergency spillways and outlet channels will be built in one of the abutments of the pond dams and will be excavated in bedrock. All spillway outlet channels will be equipped with a plunge pool at the end to provide energy dissipation and to reduce peak flow velocities.

18.5.5 Water Management Ponds Dam Design

The water dams are a central core dams with rockfill shells. Emergency spillways will be situated in the abutment bedrock with plunge pools at the end of the outlet channels for energy dissipation.

The central clay core will use clay borrowed from the desiccated crust of the glaciolacustrine deposit within the CDA basin. The core is protected on either side with a sand filter zone and a gravel transition zone on the downstream side. The dams will be supported by rockfill shells and drainage will be enabled using a sand blanket drain. A toe berm and shear key will be constructed for the Polishing Pond Dam across the valley for slope stability.

Design Criteria

The Hazard Potential Classification (HPC) was assessed using the Canadian Dam Association (CDA) Dam Safety Guidelines (CDA, 2013) and have been classified as having a “Significant” consequence of failure. The factors of safety for slope stability under static, end of construction, pseudo-static, and rapid drawdown conditions were assessed as recommended in the CDA Dam Safety Guidelines for “Significant” classification dams (CDA, 2013).

Geotechnical Considerations

The primary geotechnical considerations for the dams are slope stability and seepage control. Stability and seepage analyses were conducted to support the design of the dams.

Geotechnical investigations were carried out at the Polishing Pond Dam and Settling Pond Dam locations to characterize the subsurface stratigraphy and measure the bedrock hydraulic conductivity. No geotechnical investigations have been carried out at the Plant Site Pond Dam to date due to access restrictions at the time when the field investigations were conducted.

The key observations relevant for dam design are as follows:

- The bottom of the basin upstream of the Settling Pond Dam has been characterized as a glaciolacustrine deposit of soft, normally consolidated clay with a stiffer, desiccated crust.
- The overburden across the low-lying areas tend to comprise clay soils that are useful for restricting seepage and are recommended to be left in place as much as is practical.
- The dam abutments generally consist of shallow bedrock that will be exposed. Bedrock grouting will be required beneath the dam core where it is constructed over exposed bedrock to restrict seepage under the dam.

Embankment Materials

The embankment materials consist of a total of 12 distinct zones and include the following:

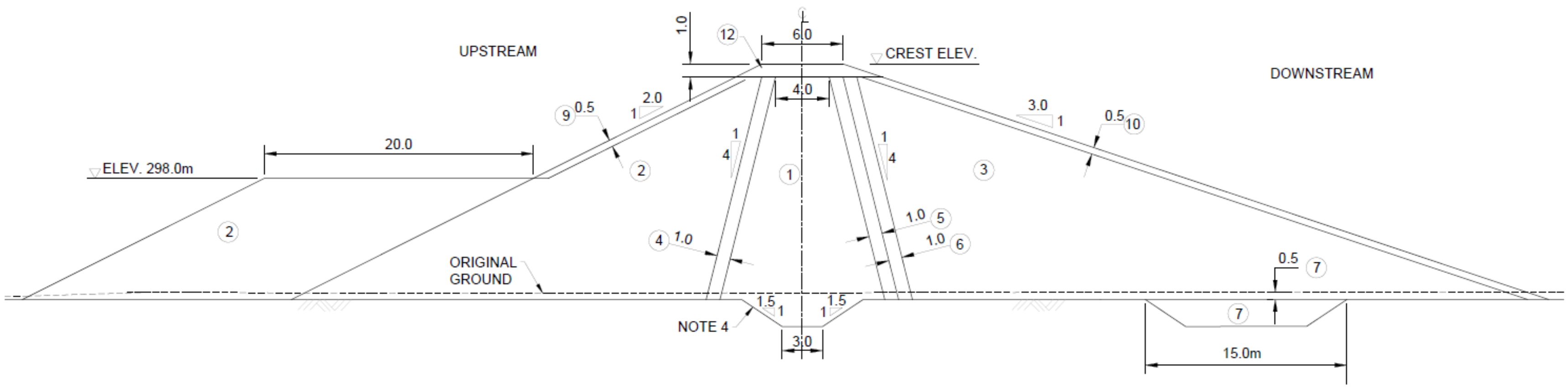
- central clay core
- upstream and downstream sand filters
- downstream gravel transition

- downstream sand blanket drain
- upstream and downstream rockfill shells
- upstream and downstream riprap erosion protection
- frost protection cap
- granular road surfacing

The clay core will be constructed using borrow from the weathered crust of the glaciolacustrine clays within the valley of the CDA. Rockfill may come from mining or quarrying operations. The sand and gravel fills are expected to come from commercial granular pits in the area.

Figure 18-7 shows the dam typical cross-section for the water management pond dams.

Figure 18-7: Water Management Ponds Dam Typical Section



WATER MANAGEMENT PONDS DAM TYPICAL SECTION

LIST OF MATERIALS

1. CORE (CLAYEY SOIL)
2. UPSTREAM SHELL (PROCESSED NPAG ROCK OR GRANULAR SOIL)
3. DOWNSTREAM SHELL (PROCESSED NPAG ROCK OR GRANULAR SOIL)
4. UPSTREAM FILTER (PROCESSED FINE SAND)
5. DOWNSTREAM FILTER (PROCESSED FINE SAND)
6. DOWNSTREAM TRANSITION (PROCESSED SAND AND GRAVEL)
7. BLANKET DRAIN (PROCESSED SAND AND GRAVEL)
8. FROST PROTECTION (RANDOM GRANULAR SOIL)
9. UPSTREAM EROSION PROTECTION (PROCESSED NPAG ROCK OR GRANULAR SOIL)
10. DOWNSTREAM EROSION PROTECTION (PROCESSED NPAG ROCK OR GRANULAR SOIL)
11. TOE DRAIN (PROCESSED SAND AND GRAVEL)
12. ROAD SURFACE (PROCESSED SAND AND GRAVEL)

Source: SLR 2021

Foundation Preparation

The dams are expected to be founded on soil in low areas and bedrock on the abutments. Dam foundation preparation will include stripping unsuitable soils and proof-rolling of soil subgrades. A key trench excavated along the dam centreline will extend a minimum 1.5 m and key into suitable low permeability (clay) foundation.

Where shallow bedrock is encountered, it will be cleaned, mapped, and slush grouted. The upper bedrock will be consolidation grouted to ensure fractures are sealed.

Construction Considerations

A cofferdam will be constructed upstream of the Main Dam to maintain dry working conditions for the construction of the Settling Pond and Polishing Pond Dams downstream and allow establishment of the clay borrow area within the CDA basin. Dewatering pumps or sumps may be required to manage water in or around the borrow areas. A cofferdam may also be required upstream of the Plant Site Pond.

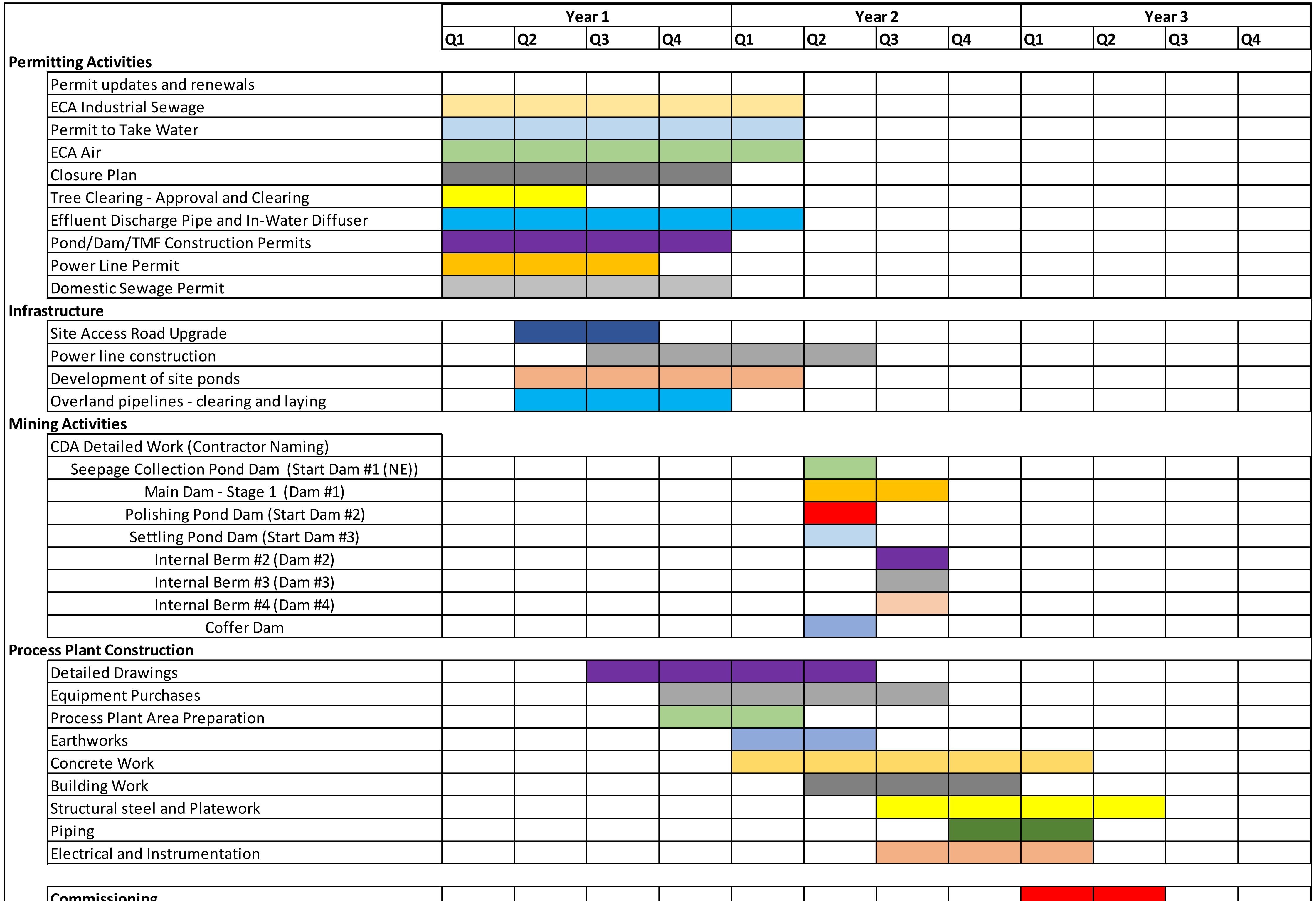
Dam soil fills are sensitive to freezing and should be constructed during the non-winter months of the year. If it is necessary to construct in the winter, frost impacted fills must be removed and replaced with non-frozen fill. Rockfill is not sensitive to freezing and may be used for construction year-round.

Constructing a low permeability dam core requires careful compaction control to ensure that the successive lifts are bonded together, and the soil mass is uniform with low permeability. To meet compaction targets, the water content of the clay must be within specified range. This may require adding water or allowing to dry. Clay soil that is excessively wet may not be suitable for construction.

18.6 Site Preparation and Development

The proposed site layout is presented in Figure 18-2. The proposed breakdown of the construction development schedule at a high level is shown below in Figure 18-8. A more detailed construction schedule is shown in Section 24.

Figure 18-8: Proposed Breakdown of Construction Development Schedule



Prior to earthworks construction commencement, the site will start to be cleared of trees in the areas to be developed. After a period of tree felling and removal, the earthworks and construction can start with site areas to be built up being stripped of vegetation with organics stockpiled for future surface reclamation. There is generally 0 to 2 m of overburden material on the site underlain by bedrock.

Upon engineering design completion and earthworks contractor mobilization, the first area to be developed will be the process plant terrace and new access road to it. The earthworks contractor will clear and grub and then remove material to bedrock at the process plant terrace area in preparation for building up the terrace. Any topsoil available will be spared and stockpiled separately.

Clearing and grubbing will include the cutting and disposing of trees, timber, brush, roots, and stumps. The general areas around infrastructure will be roughly graded prior to construction.

Topsoil removed from the site will be stored in the designated soil storage area for reclamation. The actual volume of stripped topsoil stored for reclamation will be determined with a complete site investigation and geotechnical assessment. The base and top of the soil storage area will be lined to mitigate contamination and erosion of the soil.

At or about the same time, waste rock development of the open pit mine will take place with some waste rock being stockpiled for crushing and screening to produce granular (gravel like) material for structural earthwork layers for roads and terrace topping as well as for concrete stone aggregate making. The crushing and screening plant will be established at the open pit mine laydown area. Other waste rock will be hauled directly to the Process Plant terrace to allow speedy development of the open pit mine.

Selected, suitably sized waste rock will be hauled from the open pit mine development and dumped to build up the process plant terrace from the bedrock. Drainage will be built through and into this rock fill area. The waste rock will be dumped in 500 mm layers and compacted using heavy padfoot vibratory rollers, to ensure compaction to specification. This waste rock fill will continue until the terrace is raised to within 1 m of final levels. Geofabric will be introduced to prevent fine material from washing into the rock fill underneath. Granular fill layers will be spread in 300 mm layers compacted to approximately 250 mm over the top until the 1 m level is built up to finished level. This terrace will give follow on contractors room to set-up trailers and stage equipment during the next phases of construction.

Midway through the construction of the Process Plant terrace, the rest of the site development will also start with clearing and grubbing to support the construction of the remaining surface infrastructure including the CDA waste rock areas and the remaining ponds and road areas.

At the completion of the process plant terrace, the concrete contractor can establish the concrete batch plant near the future ore stockpile area. This area represents the shortest haul distance for stone from the crushing and screening plant at the open pit mine laydown area. Temporary construction offices can be established and removed progressively on the Process Plant terrace as other contractors start up or complete work in a timely manner as the project develops.

19 MARKET STUDIES AND CONTRACTS

19.1 Market Studies

The Shakespeare Project will produce two products for sale to the world market; a nickel concentrate and copper concentrate. Life of mine the expected concentrate grades are shown in Table 19-1.

Table 19-1: Life of Mine Concentrate Grades

Metal	Units	Nickel Concentrate	Copper Concentrate
Nickel	%	**9.00**	0.91
Copper	%	3.79	**29**
Cobalt	%	0.41	0.06
Platinum	g/DMT	8.59	1.42
Palladium	g/DMT	5.26	1.26
Gold	g/DMT	2.26	0.99
Moisture	%	8.0	8.0

19.1.1 Nickel Concentrate

A review of various options for the sale of the nickel concentrate was completed and two scenarios were considered for the financial analysis with the selected case being the variable terms. The variable terms included increase payables for nickel should the price be above a certain threshold, but reduced PGE payables compared to the fixed term sheet. For the Feasibility Study financial analysis, the variable terms were used.

The copper payable for the variable terms is also variable for the nickel concentrate and dependent on the final copper grade.

The terms provided to Magna for the Feasibility Study are indicative based on the market review completed and will be further negotiated as the project advances to a construction decision.

19.1.2 Copper Concentrate

The Shakespeare Project produces an above average grade copper concentrate of 29% copper with minor amounts of nickel, cobalt, platinum, palladium as shown in Table 19-1.

A market study for the copper concentrate was commissioned to examine opportunities for sale of this product. The terms and conditions are consistent with standard industry practices with consideration for smelting, refining and transportation. The market for copper concentrate is more transparent than nickel concentrate sales which are more tightly controlled.

The payable terms for the copper concentrate used in the study are shown in Table 19-2.

Table 19-2: Copper Concentrate Terms

Metal	Units	Payable (%)	Deduct (%, g/DMT)	Hurdle (%, g/DMT)	Smelting ($US/DMT)	Refining ($US/lb. or oz payable)
Nickel	%	0.0	0.0	0.0	-	-
Copper	%	96.6	1.0	0.0	80.00	0.08
Cobalt	%	0.0	0.0	0.0	-	-
Platinum	g/DMT	70.0	3.0	0.0	-	23.00
Palladium	g/DMT	70.0	3.0	0.0	-	23.0
Gold	g/DMT	95.0	1.0	0.0	-	5.00

The terms from this study indicated that the only payable would be the copper in the concentrate. All other items did not meet the thresholds for payability.

No penalties are applied to the concentrate as the concentrate is free of those.

For the Feasibility Study, the copper concentrate was assumed to be sold to local North American smelters rather than utilizing seaborne transportation to access other copper concentrate markets. With the smaller quantity of copper concentrate produced, metal traders likely would be involved for the seaborne trade reducing the benefit for the Shakespeare project.

19.2 Commodity Price Projections

The metal price history for Spot (June 4, 2021 and January 10, 2022), 2-year, 3-year, 5-year, and 10-year used for generating the pit shells are noted in Table 19-3.

Table 19-3: Metal Price History

Metal	Unit	Jan 10, 2022, Spot Price	Jun 4, 2020, Spot Price	Jun 4, 2020, 2-Year	Jun 4, 2020, 3-Year	Jun 4, 2020, 5-Year	Jun 4, 2020, 10-Year
Nickel	$US/lb	$9.55	$7.99	$6.77	$6.41	$5.86	$6.40
Copper	$US/lb	$4.38	$4.47	$3.03	$2.96	$2.86	$2.99
Cobalt	$US/lb	$31.83	$19.28	$15.78	$18.12	$20.64	$16.85
Platinum	$US/oz	$957	$1,163	$949	$910	$933	$1,151
Palladium	$US/oz	$1,918	$2,838	$2,100	$1,797	$1,415	$1,056
Gold	$US/oz	$1,797	$1,890	$1,689	$1,545	$1,438	$1,418

The prices shown in Table 19-3 formed the basis for the pit shells and pit designs.

The metal prices used in the economic analysis favoured the current price outlook from various studies based on consideration for market economics and increased electric vehicle (EV) production.

19.3 Contracts

Consumables such as diesel fuel, explosives, tires, reagents, and other normal operating supplies are sourced from local vendors. Quotations were received that followed standard terms and conditions consistent with normal mine operating practices for supply and delivery.

No firm contracts have been signed for the signed and the pricing reflects budgetary quotations sufficient for the level of this study.

20 ENVIRONMENTAL STUDIES, PERMITTING, AND SOCIAL OR COMMUNITY IMPACT

The Property is located in an area of northern Ontario which has hosted mineral exploration and mining projects for more than 100 years. The Property has a history of exploration being carried out since 1940's and production from the Mine with off-site milling in 2010-2011. The Mine is currently in a *State of Inactivity,* as defined pursuant to Ontario's *Mining Act*.

No environmental liabilities exist related to previous exploration activities. Material environmental liabilities at the Mine are described in the Shakespeare Mine Closure Plan ("Closure Plan"), filed with the Ministry of Northern Development, Mines, Natural Resources and Forestry ("NDMNRF") pursuant to Part VII of Ontario's *Mining Act.*

20.1 Environmental Regulatory Setting

The environmental assessment (EA) and permitting framework for metal mining in Canada is well established. The federal impact assessment and provincial EA processes provide a mechanism for reviewing major projects to assess potential impacts. Following a successful IA/EA, the operation undergoes a permitting phase to allow operations to proceed. The project is then regulated through all phases (construction, operation, closure, and post-closure) by both federal and provincial departments and agencies.

20.1.1 Federal Impact Assessment Process and Requirements

The Project is not required to complete a federal impact assessment, as per Section 19 of the *Physical Activities Regulations* made under the *Impact Assessment Act*. However, under Section 9(1) of the *Impact Assessment Act*, the Minister of Environment and Climate Change Canada may designate a physical activity that is not prescribed by the Physical Activities Regulations if, in his or her opinion, either the carrying out of that physical activity may cause adverse effects within federal jurisdiction or adverse direct or incidental effects, or public concerns related to those effects warrant the designation.

20.1.2 Provincial Environmental Assessment Process and Requirements

The provincial *Environmental Assessment Act* is administered by the Ministry of the Environmental, Conservation and Parks (MECP). The *Environmental Assessment Act* promotes responsible environmental decision making and ensures that interested parties have an opportunity to comment on projects that may affect them. Interested parties may make a designation request to the MECP Minister to have a project referred to an individual EA. MECP assesses the merits of the request and may make a recommendation to the Minister. The consultation and engagement associated with the previous permitting processes for the Mine have not resulted in designation requests for the Mine to be subject to an individual EA.

Mining projects in Ontario are not usually subject to the *Environmental Assessment Act* because the act does not apply to private companies unless designated by regulation or the proponent has volunteered to be subject to the requirements of the *Environmental Assessment Act.* However, some of the activities associated with the development of a mining project may be subject to the requirements of the *Environmental Assessment Act* through existing class EAs or regulations. Such activities include the ones listed below:

- granting permits on Crown land, disposition of Crown resources (MNR, 2003)
- constructing power generation or transmission facilities (Ontario Regulation 116/01)
- constructing infrastructure related to provincial transportation facilities
- establishing a waste management facility
- Magna is currently in the process of completing the Class EA for Resource Stewardship and Facility Development in accordance with MNR (2003) for the implementation of the Project. Once completed, NDMNRF will be able to issue the permits listed in Table 20-2 required by the *Lakes and Rivers Improvement Act, Public Lands Act* and the *Crown Forest Sustainability Act.*

Legislative changes to the provincial EA process have been proposed by the current government and will need to be evaluated prior to Project implementation.

20.1.3 Current Regulatory Status

Permits that have been issued for Shakespeare Mine are summarized in Table 20-1.

Table 20-1: Summary of Issued Permits

Permit	Regulatory Agency	Relevant Legislation	Rationale
Permit to Take Water 1401-AP5HJB	Ministry of Environment, Conservation, and Parks	Ontario Water Resources Act	Withdrawal of water from open pit
Industrial Sewage Environmental Compliance Approval 2495-7CVHWG		Environmental Protection Act	Approve industrial sewage works (storm and wastewater treatment and discharge)
Air Environmental Compliance Approval 6150-75EKXR		Environmental Protection Act	Approve site wide air emissions
Aggregate License 605001	Ministry of Natural Resources and Forestry	Aggregate Resources Act	Approve development and closure of proximal gravel pit
Shakespeare Mine Closure Plan	Ministry of Northern Development, Mines, Natural Resources and Forestry	Mining Act	Approve development and closure of the Project

Mining patents and mining leases (surface and mining rights) are in place for the Project Site portion of the Property, as described herein. This form of land tenure provides the ability for Magna to clear land and construct select Project components such as roads and trails. The Project Site adjoins the all-weather road network of the North Shore Forest Sustainable Forest License that provide year-round access to Highway 17.

Permits or permit amendments that would be required to implement the Project are listed in Table 20-2.

Table 20-2: Permits Required to Implement the Project

Permit / Permit Amendment	Regulatory Agency	Relevant Legislation	Rationale for Permit Issuance	Rationale for Amendment / New Permit
Amendment to Permit to Take Water 1401-AP5HJB	Ministry of Environment, Conservation, and Parks	Ontario Water Resources Act	Withdrawal of water from open pit	Approve installation of groundwater wells for process and domestic purposes
Amendment to Industrial Sewage Environmental Compliance Approval 2495-7CVHWG		Environmental Protection Act	Approves industrial sewage works (storm and wastewater treatment and discharge)	Additional treatment equipment to ensure site specific effluent criteria and federal effluent limits are consistently met, add domestic sewage system, update administrative references, modernize the approval to incorporate Limited Operational Flexibility provisions, update to reflect detailed design and water management strategies
Amendment to Air Environmental Compliance Approval 6150-75EKXR		Environmental Protection Act	Approve site wide air emissions	Modernize the approval to incorporate Limited Operational Flexibility provisions
Location Approval for Dams	Ministry of Northern Development, Mines, Natural Resources and Forestry	Lakes and Rivers Improvement Act	Approve construction of dams	Authorizes proponent to seek Plans and Specifications Approvals for construction of dams associated with site water management and collection ponds
Plans and Specifications Approval for Dams			Approve construction of dam	Authorizes proponent to seek Plans and Specifications Approvals for construction of dams associated with site water management and collection ponds
Forest Resource License		Crown Forest Sustainability Act	For removal of any trees reserved to the crown	Approve the harvest of Crown owned merchantable timber within the Project Site footprint [(1)]
Land Use Permit		Public Lands Act	For use of crown land for temporary infrastructure	Secure surface rights for power line corridor on Crown land and effluent diffuser in Agnew Lake
Work Permit			For work on crown land (in water, on shorelands)	Install power line (including submarine cable) on Crown land and install effluent diffuser in Agnew Lake
Closure Plan Amendment / Notice of Material Change		Mining Act	Approve development and closure of the Project	Modifications to the site footprint or infrastructure designs that arise during detail design and modernize the document to conform to the current format in O. Regulation 240/00 (as amended)

Section 92 *Mining Act* provides limited ability to harvest Crown owned timber

Magna will continue to collaborate with the North Shore Sustainable Forest License holder regarding road maintenance and road upgrades, so no work permits need to be obtained by Magna.

Magna can commence construction for Project components and commence selected activities in accordance with the filed (approved) Closure Plan. However, construction of specific Project components or activities may not commence until the requisite permit or amendment is obtained. These details will be identified in a project execution plan so that construction and commissioning may be done in an efficient manner without work disruptions due to the permit acquisition schedule.

As engineering designs and execution plans for the Project are refined, Magna will consult the government agencies regarding the permits listed in Table 20-3.

Table 20-3: Summary of Planned Consultation with Government Agencies

Permit	Regulatory Agency	Relevant Legislation	Rationale
Approval to refine outside Canada	Ministry of Northern Development, Mines, Natural Resources and Forestry	Mining Act	Required to refine or treat ore outside Canada, see Section 91
Overall Benefit Permit	Ministry of Environment, Conservation, and Parks	Endangered Species Act	Supplemental due diligence baseline work has been completed to determine if the Project will adversely affect Species at Risk or if mitigation measures can be applied to prevent an adverse effect and the requirement for this permit
Encroachment Permit	Ministry of Transportation	*Public Transportation and Highway Improvement Act; Highway Traffic Act*	Magna will consult Hydro One regarding the precise location of the grid connection to confirm it will be outside the Highway 17 corridor, eliminating the need for this permit
Clearance Letter	Ministry of Tourism, Culture and Sport	*Heritage Act*	Confirmation that appropriates archeological studies and any necessary mitigation have been completed for the Project
Authorization for Harmful Alteration, Disruption or Destruction of Fish Habitat	Fisheries and Oceans Canada	*Fisheries Act*	Supplemental due diligence baseline work has been completed to determine if the Project will adversely affect fish habitat or if mitigation measures can be applied to prevent an adverse effect and the requirement for this permit
Works in Navigable Waters	Transport Canada	*Canadian Navigable Waters Act (formerly Navigable Waters Protection Act)*	In-water effluent diffuser and submarine cable portion of grid connection could require this permit
Radioisotope License	Canadian Nuclear Safety Commission	Nuclear Safety Control Act	Authorization for nuclear density gauges / X-ray analyzer in process plant
Manufacturing, storage, and transportation of explosives	Natural Resources Canada	*Explosives Act*	Based on feedback from explosives suppliers in the region, explosives will be stored on-site, and an on-site explosives production facility is not required

Consultation with regulatory agencies is conducted on an ongoing basis as a matter of process and is designed to ensure that the permit application and approval process is efficiently executed.

20.2 Environmental Studies and Management

This section indicates the environmental studies that have been completed for the Project, environmental aspects of concern and current management systems that are in place for the Project.

20.2.1 Environmental Studies

The Closure Plan describes current conditions at the Property. Baseline monitoring activities and areas of study to date are listed below and have been incorporated into the Closure Plan, annual environmental performance reports and other submissions to regulatory agencies:

- archaeological assessment
- species at risk and significant wildlife habitat surveys
- aquatic biological assessment and delineation of fish habitat
- effluent mixing and plume delineation studies
- hydrogeological characterization
- geochemical characterization of development rock, mineralized material, and tailings
- geotechnical assessments to ensure pit wall stability
- regular sampling of groundwater monitoring wells and surface water monitoring sites

No biological values (i.e. species at risk, ecologically significant features, regionally significant wetlands, significant wildlife habitat feature, etc.) or environmentally sensitive areas that would preclude the development of the Project have been identified to date. Archaeological assessment work by Horizon Archaeology (2005) and consultation to date with Sagamok First Nation has not identified any areas with a high potential to host cultural heritage values in the vicinity of the Project.

20.2.2 Environmental Management

Magna maintains an environmental management system (EMS) for the Project. The EMS is a tool that has been implemented to identify and manage environmental risks and compliance obligations for the Property. The elements of the EMS are listed below:

- commitments from management regarding legislative compliance, pollution prevention and continual improvement, in the form of policy(ies)
- provides list of significant environmental aspects, and includes a process to risk-assess new aspects, and identify those that need to be managed
- lists of the relevant legislation, approvals, agreements, and documents that contain Magna's environmental obligations
- divide the Property into discrete environmental management programs, each area having a description of the environmental control obligations, and monitoring requirements
- procedures to deal with actual and potential corrective and preventive action related to non-conformances, including environmental incidents
- emergency prevention, preparedness, and response programs
- personnel (staff and contractor) training to ensure environmental obligations are met, including risk mitigation, reporting and corrective actions
- guidance for documentation requirements, regular updates, and regular internal reporting on performance and auditing

The EMS identifies the Project's compliance obligations and outlines monitoring, including inspection and audit protocols to ensure compliance issues are identified, reported, mitigated, and documented.

The EMS also addresses community engagement/consultation obligations and includes a commitments registry. The EMS will evolve into a tool to manage corporate social responsibility commitments and obligations.

Monitoring of environmental conditions surrounding the Project will continue for the life of the Project and also post closure.

20.2.3 Environmental Aspects and Sensitivities

The Project Site adjoins Agnew Lake, a valued recreational lake. As such, emphasis has been placed on controlling discharges of water, fugitive dust, and noise.

20.2.4 Development Rock

Development rock will be used for construction purposes at the Project Site. Surplus development rock will be placed at the Tailings/Waste Rock Co-Disposal Area (CDA). Development rock lifts will be placed with stable embankment slopes that are adequate for long-term physical stability so no further work will be required at closure.

Golder Associates and more recently Chem-Dynamics were engaged to evaluate geochemical properties of waste rock and tailings. Chem-Dynamics (2021) provides guidance regarding the segregation of chemically stable waste rock from Potentially Acid Generating (PAG) waste rock that poses a risk of acid generation. Magna will implement a real-time PAG rock segregation plan and proactive monitoring plan for the life of the mine to identify and manage potential chemical stability concerns, consistent with standard industry practice.

20.2.5 Tailings

Tailings will be thickened and co-disposed with development rock in the CDA to reduce the area of disturbance, environmental impact and cost. The relatively small acid generating (pyrrhotite) portion of the tailings will be separated in the mill. The pyrrhotite concentrate, along with the acid generating mine rock, (also a relatively small volume), will be disposed in the base of the CDA in the early years of operation, and then in the mined out West Open Pit in the later years. In both of these areas, the acid generating material will be kept permanently submerged to inhibit oxidation and thus inhibit acid generation.

The CDA dams will be designed and constructed under engineering control to ensure adequate Factors of Safety are met and no supplemental work will be required at closure for long-term stability.

20.2.6 Water Discharge

Water discharge will be minimized by recycling water to the extent practical using the practices listed below:

- water will be accumulated in the CDA / Settling Pond and recycled to the process plant for use in the process.
- stormwater runoff will be collected and recycled to the process plan for use in the process

Surplus water that is not needed for processing will be treated and discharged to an underwater diffuser in Agnew Lake that has been engineered for efficient mixing. Effluent criteria specified in the site-specific permit (ECA No. 2495-7CVHWG) and the federal Metal and Diamond Mine Regulations (MDMER) are presented in Table 20-4.

The water treatment process to ensure effluent criteria are consistently met consists of conventional chemical conditioning (pH adjustment, coagulant addition, flocculant addition, metal precipitant addition) and settling, with contingency filtration to remove precipitated metals, phosphates, and other suspended solids. Final pH adjustment prior to discharge will be implemented as necessary to meet discharge criteria. Strategies that focus on efficient management of explosives, control on blasting practices combined with natural oxidation and contingency adsorption methods (i.e. zeolite) will control ammonia in discharge water. The risk of treatability issues associated with residual flotation reagents is mitigated by operating the CDA / Settling Pond as a closed loop, effectively minimizing the potential presence of residual flotation reagents in discharge water.

The Project will adhere to a conventional seasonal discharge window from spring melt until freeze-up, though effluent discharge is permitted year round in accordance with the issued Industrial Sewage Environmental Compliance Approval 2495-7CVHWG.

Table 20-4: Effluent Criteria

Parameter	ECA Monthly Average Concentration Limit(1)	MDMER Monthly Mean Concentration Limit(2)
Total Suspended Solinds (mg/l)	15	
Un-ionized Ammonia expressed as Nitrogen (N) (mg/l)	none	0.50
pH Range (units)	6.0 to 9.5	
Total Arsenic (mg/l)	0.5	0.30
Total Copper (mg/l)	0.3	0.50
Total Lead (mg/l)	0.2	0.10
Total Nickel (mg/l)	0.5	0.50
Total Zinc (mg/l)	0.5	0.50
Total Iron (mg/l)	3.0	none
Radium-226 (Bq/l)	none	0.37 Bq/L
Rainbow Trout and Daphnia Magna (acute lethality)	Less than 50% mortality in 100% effluent	

(1) Monthly average effluent limit specified in Sewage Environmental Compliance Approval 2495-7CVHWG

(2) Monthly mean effluent limit specified in MDMER

20.2.7 Fugitive Dust

Air emission sources will comprise diesel-fired mobile equipment, propane and natural-gas-fired combustion heating units, fugitive dust emissions from vehicle operation, erodible portions of the CDA surface, crushing and material stockpiling and handling typically associated with a surface mining and milling operation. Practices to minimize fugitive dust are listed below:

- minimize vehicle speed and travel time, utilize dust suppressants on travelled roads, minimize track-out of fines from material handling areas
- minimize coarse mineralized material stockpile size, enclose the fine mineralized material stockpile, and utilize buildings and treelines as windbreaks to the maximum extent practical
- frequent re-location of the tailings discharge location in order to maintain a wetted tailings surface, use of coarse development rock to prevent entrainment of fine erodible particles
- enclose material transfer points, conveyor belt discharge streams and utilize water sprays to suppress dust
- other applicable industry best practices

Magna will implement a best management practices plan for the control of fugitive dust, consistent with standard industry practice. Fugitive dust is considered in the site wide emission summary and dispersion modelling (ESDM) report that is prepared to support the Air ECA amendment application listed in Table 20-2. The ESDM report must demonstrate compliance with MECP air quality criteria during worst-case scenarios.

20.2.8 Noise

Agnew Lake has recreational values and residential uses in some areas. Magna plans to include noise mitigation measures in designs to protect these receptors. Modern abatement measures included in Project designs include enclosures around noise sources, strategically situating building openings, white noise back-up alarms, acoustic treatments on mobile equipment and restrictions on rock-breaker locations. Applicable measures will be implemented.

20.3 Social and Community

The area is characterized by wilderness, forestry, and mineral exploration land uses. The Property is within the North Shore Forest Sustainable Forest License.

There are no known abandoned mine hazards within the Property and all known mine hazards are addressed in the closure plan. A review of the NDMNRF's Abandoned Mine Information System did not identify mine hazards in the vicinity of the Project.

20.3.1 Indigenous Consultation

Magna has undertaken consultation on behalf of the Crown and as directed by NDMNRF regarding exploration and development activities on the Property since acquiring the Property.

Consultation to date with First Nations has not identified the presence of cultural heritage values that would be affected by the Project.

Consultation efforts will continue throughout the project.

Sagamok First Nation

Ursa entered into an impact benefit agreement with Sagamok First Nation in 2009. The agreement provides a framework within which Magna and Sagamok First Nation will continue to work together during future phases of the Project.

20.3.2 Public Consultation

Consultation with the local communities was undertaken as part of the permitting process for the Mine and will continue as the Project evolves. This will include meeting with the municipal and provincial government as well as other interested stakeholders and specific to planned activities and permitting requirements. This consultation will include meetings, public information sessions, web postings, social media announcements, direct mail outs and other communications to ensure interested stakeholders are aware of Magna's plans and concerns can be identified and managed in an efficient manner. Table 20-5 summarizes formal public consultation to date.

Table 20-5: Public Consultation to Date

Date	Summary of Public Consultation Undertaken	Summary of Information Provided
May 11, 2005	Open House	An information session and open house was held in Espanola on May 11, 2005
April 25, 2006	Notice	Flyer describing open house invitation and project description (Identifies Complete Project to Stage 3 Production for 4,500 tonne/day mine, mill, and co-disposal area)
April 25, 2006	Open House	Espanola Recreation Complex - Identifies Complete Project to Stage 3 Production for 4,500 tonne/day mine, mill, and co-disposal area
October 3, 2006	Open House	Espanola Recreation Complex - Identifies Complete Project to Stage 3 Production for 4,500 tonne/day mill Posters for all topics
October 16, 2006	Newspaper	Osprey -Mid North Monitor - article - Mine could benefit the North Shore (open house)
June 20, 2007	Open House	Open House at Nairn Community Centre - main topic was transportation routes from site to Strathcona Mill
January 2, 2008	Meeting	50,000 tonnes batch of ore from Shakespeare Nickel Project to Xstrata's Strathcona Mill in Levack Ontario. Once the 50,000 tonne batch is delivered to Xstrata Nickel, we will be continuing shipments of ore to Strathcona for blending with their ore starting at a rate of 500 tonnes per day.
January 24, 2008	Open House	Public open house will be held on January 24, 2008, at the Beaver Lake Sport and Cultural Centre, at 45 Club Road in Worthington, Ontario, from 4 p.m. to 7 p.m. Transportation routes and posters for complete Project

20.4 Closure

In order for a project to proceed, a closure plan must be filed that meets requirements of the *Mine Rehabilitation Code of Ontario* contained in Ontario Regulation 240/00 (*Mining Act*) and is consistent with any traditional land uses and occupancy by Indigenous communities. A closure plan outlines how project lands will be rehabilitated to a productive land use post closure, meet the requirements of the *Mine Rehabilitation Code of Ontario,* and describe the costs associated with doing so as well as implementing a monitoring program. To ensure that the rehabilitation work outlined in a closure plan is successfully performed, financial assurance equal to the estimated cost of the rehabilitation work must be provided by the proponent to be held in trust by the NDMNRF. Financial assurance must be included with the submission of a closure plan and may be provided in tranches prior to milestones that are agreed to by NDMNRF.

General elements of the closure plan for the Project are summarized below:

- Buildings, infrastructure, and equipment that are not required for water management will be removed and salvaged, recycled or disposed of. Contractor owned items and leased items will be removed by the respective owners.
- Contaminated soil will be managed in accordance with MECP requirements.

- Boulder fence will be installed around the open pit to mitigate safety risks while it is flooded to the static water level.
- Temporary collection of runoff and treatment prior to discharge to the pit to accelerate flooding and/or Agnew Lake.
- The co-disposal area will be covered with a lift of soil that is tilled and seeded.
- The plant site will be scarified, and fill embankments will be sloped for long-term physical stability. Soil will be placed over the plant site and the area will be re-vegetated using a commercially available seed mix prior to planting seedlings consistent with prescriptions in the North Shore Forest Management Plan.
- Once water treatment is no longer required because the incoming runoff to water collection areas meets the criteria that are developed with MECP and NDMNRF, the dams will be breached, and remaining embankments will be erosion proofed for long-term physical stability.
- Removal of grid connection, electricity distribution system and water management infrastructure.
- Site roads will be rehabilitated in general accordance with MNR (1995) as removed from use.
- Post closure monitoring for 5 years.

21 CAPITAL AND OPERATING COSTS

21.1 Summary

The life of mine capital costs are summarized in Table 21-1. All costs are expressed in Canadian currency (CDN$) unless otherwise stated and based on 2021 Q3 pricing.

Table 21-1: Shakespeare Mine Capital Cost Estimate

Area	Initial ($M)	Sustaining ($M)	Total ($M)
Open Pit Mining	58.7	2.6	61.4
Preproduction Stripping	48.8	-	48.8
Open Pit Capital	9.9	2.6	12.6
Processing	63.5	1.3	64.8
Infrastructure	59.3	-	59.3
Environmental/Closure	1.8	5.2	7.0
Subtotal	**183.4**	**9.1**	**192.5**
Indirects	29.9	-	29.9
Contingency	19.6	0.1	19.7
Total	**232.9**	**9.2**	**242.1**

The life of mine operating cost estimate summary is shown in Table 21-2.

Table 21-2: Shakespeare Mine Operating Cost Estimate

Area	Units	LOM Cost ($M)	$/tonne
Open Pit Mining	$/t mined		3.98
Open Pit Mining	$/t milled	243.7	20.53
Processing	$/t milled	179.7	15.14
General and Administrative	$/t milled	35.3	2.98
Transport & Refining Charges	$/t milled	9.2	0.78
Carbon Offset Purchases	$/t milled	3.1	0.26
Royalties	$/t milled	17.7	1.49
Total Operating Costs	**$/t milled**	**488.8**	**41.18**

21.2 Capital Cost Estimate

The capital cost estimate, with the base pricing as of Q3 2021, was prepared by AGP Mining Consultants and Halyard Inc. AGP Mining Consultants were responsible for the mining related capital cost estimate and Halyard Inc for the processing and associated site facilities capital estimate. The estimate was supported by input from SLR Consultants with regards to the CDA and site wide pond design and quantities.

The Feasibility Study (FS) level design is based on a projected 7.1 year mine life at a nominal processing rate of 4,500 t/d. The CDA has been sized to permanently store approximately 60 million tonnes of waste rock and approximately 11 million tonnes of tailings or 36 million m³.

The previously developed process and general arrangement drawings were primarily used and updated as required. The material quantities were derived from these drawings. Discipline specific engineers, suppliers and contractors were used to update the capital cost as follows :

- revalidate the process and update the process flow sheets
- update the mechanical equipment list and obtain updated vendor costing for supply of mechanical equipment and estimate manhours to install equipment
- update the material quantities for earthworks, concrete and structural steel works and update contractor supply and install rates
- obtain updated supplier costs for the supply and install of pre-engineered buildings
- estimate and factorise piping
- develop material quantities and obtain supplier and installation rates for electrical and instrumentation items
- obtain cost estimates for the electrical power supply

Table 21-3 summarizes the total capital cost estimate by area.

Table 21-3: Summary of Capital Costs by Area

Area	Initial ($M)	Sustaining ($M)	Total ($M)
Open Pit Mining	58.7	2.6	61.4
Preproduction Stripping	48.8	-	48.8
Open Pit Capital	9.9	2.6	12.6
Processing	63.5	1.3	64.8
Infrastructure	59.3	-	59.3
Environmental/Closure	1.8	5.2	7.0
Subtotal	**183.4**	**9.1**	**192.5**
Indirects	29.9	-	29.9
Contingency	19.6	0.1	19.7
Total	**232.9**	**9.2**	**242.1**

21.2.1 Mining Capital Costs

The mining capital cost estimate is grouped into three main categories:

- Pre-production stripping costs
- Mining equipment capital
- Miscellaneous mine capital

The mining capital cost breakdown is shown in Table 21-4.

Table 21-4: Mining Capital Cost Estimate

Mining Capital Category	Initial Cost ($M)	Sustaining Cost ($M)	Total Capital Cost ($M)
Pre-Production Stripping	48.8	-	48.8
Mine Equipment Capital	8.9	1.9	10.8
Miscellaneous Mine Capital	1.0	0.8	1.8
TOTAL	**58.7**	**2.6**	**61.4**

Pre-Production Stripping

Mining activity commences in advance of the process plant achieving commercial production. This includes the movement of 10.1 Mt of waste and placement of 0.25 Mt of mill feed in a stockpile adjacent to the primary crusher. The mine operating costs associated with this time period are included in the capital cost estimate and expected to cost $48.8 million. This cost covers all associated management, drilling, blasting, loading, hauling, support, engineering and geology departments labour, grade control costs and financing costs.

Mining Equipment Capital

The mining equipment capital costs reflect the use of financing of the major equipment and most support equipment. Equipment prices used current quotations from local vendors. A 20% down payment is included in the capital cost for those units financed. The remaining cost is included in operating costs discussed later in Section 21.

Initial capital cost requirements totaled $8.9 million while sustaining (new and replacement equipment) was $1.9 million.

The base costs provided by the vendors are included in a calculation for each unit cost calculation and options added to that value. The capital cost if it was to be purchased outright is shown for comparison. The cost of financing and down payment of some of the major equipment is shown in Table 21-5.

Table 21-5: Major Mine Equipment – Capital Cost, Full Finance Cost and Down Payment

Equipment	Unit	Capacity	Full Finance Cost ($)	Down Payment ($)	Capital Cost ($)
Production Drill	mm	165	1,549,000	300,000	1,471,000
Production Loader	m3	13	4,342,000	576,000	4,121,000
Hydraulic Excavator	m3	6.7	2,448,000	465,000	2,323,000
Haulage Truck	t	91	1,895,000	360,000	1,799,000
Crusher Loader	m3	7.8	1,146,000	218,000	1,088,000
Support Excavator with hammer	m3	3.2	611,000	116,000	580,000
Track Dozer	kW	264	1,106,000	210,000	1,050,000
Grader	kW	163	493,000	94,000	468,000

The cost of spare truck boxes, loader buckets and is included in the capital cost for the major equipment cost estimate.

The distribution of capital costs is completed using the number of units required within a period. If new or replacement units are needed, that number of units, by the unit cost (20% of that for major equipment) is applied to the capital cost in that period. There is no allowance for escalation in any of these costs

The balancing of equipment units based on operating hours is completed for each major piece of mine equipment. The smaller equipment was based on number of units required, based on operational experience. This includes such things as pickup trucks (dependent on the field crews), lighting plants, mechanics trucks, etc.

The most significant piece of major mine equipment is the haulage trucks. At the peak of mining, 12 – 91 Mt units are necessary to maintain mine production. This happens from Year 3 onwards. The maximum hours per truck/per year are set at 6,000. There are periods where the maximum hours per unit are below what the maximum possible can be. In those situations, increasing the maximum on the number of trucks still leaves residual hours required to complete the material movement, therefore, the number of total trucks is unchanged. In these cases, the hours required are distributed evenly across the number of trucks on site and available. The other major mine equipment is determined in the same manner.

With a mine life of 7 years the major equipment does not require a replacement cycle. Some support equipment is replaced within the mine life. The support equipment is usually replaced on a number of year's basis. For example, pickup trucks are replaced every three years, with the older units possibly being passed down to other departments on the mine site, but for capital cost estimating new units are considered for mine operations, engineering, and geology.

The number of pieces of major equipment required by year are shown in Table 21-6

Table 21-6: Major Mine Equipment on Site

Equipment	Yr -1	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8
Production Drill (165mm)	2	2	2	2	2	2	2	2	2
Production Loader (13 m3)	1	1	1	1	1	1	1	1	1
Hydraulic Excavator (6.7 m3)	1	1	1	1	1	1	1	1	1
Haulage Truck (91 mt)	9	9	10	12	12	12	12	12	12
Crusher Loader	1	1	1	1	1	1	1	1	1
Support Excavator with hammer	1	1	1	1	1	1	1	1	1
Track Dozer	3	3	3	3	3	3	3	3	3
Grader	1	1	1	1	1	1	1	1	1

The production drills, production excavator and haulage trucks (91 mt) used for mining are also used in the construction of the coffer dams, roads, and preparation of the co-disposal area with the mine waste rock. The drills selected are used for preshear drilling as well as normal production. They are also capable of drilling at a -5 degree angle for putting in drain holes should they be required for slope stability. The production excavator will be used to clean the hangingwall and footwall of the ore zones to minimize dilution as well as loading.

The expected equipment life is:

- Production Drill (140 mm) = 25,000 hrs
- Hydraulic Excavator (6.7 m3) = 35,000 hrs
- Production Loader (13 m3) = 35,000 hrs
- Haulage Truck (91 mt) = 60,000 hrs
- Track Dozer = 35,000 hrs
- Grader = 35,000 hrs

Other support equipment is normally determined in number of years and varies by its duty in the mine. Light plants for example are replaced each 4 years. The integrated tool carrier for site support is purchased once at the project start and is not replaced over the mine life.

Miscellaneous Mine Capital

The miscellaneous mine capital includes:

- engineering office equipment such as mining software, survey equipment and computers
- communication network including radios
- dewatering system including pumps and piping for the pit

The total cost of the miscellaneous mine capital over the mine life is estimated to be $1.8 million.

21.2.2 Processing and Infrastructure Capital Costs

The balance of the Capital cost estimate is included in the processing facility and the associated infrastructure, buildings and equipment needed to produce products. This section also includes the Co-Disposal area (CDA) costs.

Basis of Estimate

The capital cost estimate has an expected accuracy range defined as AACE Class 3 being in the range of +30%/-20% weighted average accuracy with a combination of actual costing with some factorising used with the project definition expressed between 10% and 40%.

Taxes and duties are not included in the capital cost and there is no allowances for inflation nor escalation. The capital cost estimate assumes currency exchange rates as per Table 21-7 below although the majority of quotations were received in Canadian dollars.

Table 21-7: Summary of Exchange Rates used in the Capital Cost Estimate

Currency Description	Currency Code	Base	Exchange Rate	Canadian Dollar
Euro	EUR	1.00	1.440	1.440
United States Dollar	USD	1.00	1.240	1.240
South African Rand	ZAR	1.00	0.084	0.084

The following documents formed the basis for the capital cost estimate:

- Preliminary Process Flow Diagrams – generated by Micon and updated by Blue Coast
- Mechanical Equipment List including a sitewide electrical load list - generated by Micon and updated by Halyard and Blue Coast
- Process Design Criteria – produced by Blue Coast
- Equipment Budget Quotes – received from vendor bids
- Site and mechanical equipment Layouts – generated by Micon and updated by Halyard. These were used to check and update quantities earthworks, concrete, structural steel, tanks and building work costs. Quantities were estimated from these drawings with some basic engineering assumptions used.
- Conceptual Engineering Design of the Open Pit Mine - development by AGP, site wide water balance and piping and pump designs by SLR and Halyard respectively, CDA development by SLR.
- Halyard's database for historical data was used for fabrication rates for concrete, structural steel and platework and installation rates of earthworks, concrete, structural steel, mechanical and electrical equipment. Supply and install rates are changing significantly at the time of this report and the rates used were also benchmarked and adjusted against a similar project currently being estimated.

The following assumptions were considered in updating the FS capital cost estimate:

- Long lead equipment can be bought in time for installation and delays due to manufacture, logistic and installation do not disrupt the construction schedule.
- Earthworks will include the use of waste rock generated by the open pit mine early development. This waste rock is free issued and supplied by mining haul trucks to where the material is required for a minimal unit cost per cubic meter. An earthworks contractor will spread and compact the waste rock in place at a separate unit rate per cubic meter.
- The earthworks contractor will collect crushed and screened granular material as required for producing granular layer works on terraces and roads free issued from the mining operation. The mining capital cost includes a crushing and screening plant setup and periodic operation to produce the granular material needed for the earthworks. The earthworks contractor will collect the material and place and compact it in place.
- The concrete will be produced on site using stone free issued as well from the crushing and screening plant specially produced for the concrete manufacture operations. A separate concreting contractor will form and place the concrete in situ.
- The process plant concentrator building will be a pre-engineered building supplied and installed in summer in preparation for winter construction within. The mine equipment workshop will be a sprung structure supplied and installed in summer for winter works within.
- All equipment and materials will be new ordered by the owner with the assistance of the EPCM contractor.
- The construction execution works will be continuous without interruptions or stoppages. Summer and winter works shall be timed accordingly. Additional costs for unprotected winter

works have not been allowed for e.g. Placing concrete in winter if not within a heated structure.

- Construction contractors will be contracted by the owner under unit rate /price contracts. An allowance for mobilization and demobilization as well as administrative personnel costs has been allowed for in the indirect cost estimate.
- Estimated installation manhours for mechanical equipment, tank and platework were generated based on historical data and experience from similar projects. The install costs were estimated using the manhours multiplied by the all inclusive labour rates.
- Within the direct costs, all inclusive labour rates were ascertained from unionised contractors and are assumed (inclusive of bussing costs from parking area to site) for the purposes of this capital cost estimate. No living away from home allowance or meal allowance is assumed nor allowed for.
- The project will be executed through an EPCM contract. The estimated hours for and EPCM team to undertake the work over a proposed duration of 1 year for design and 1 year for construction was calculated and multiplied by hourly rates. The project proposed timeline includes approximately 1 year pre-production construction period

The following are excluded from the capital cost estimate:

- project financing costs
- land acquisition, leasing or rights costs for land or areas of planned mine and process infrastructure
- taxes, import duties, finance costs, interest during construction or third party payments not mentioned above
- sunk costs to date
- any further engineering trade off studies
- costs due to fluctuations in exchange rates or escalation or inflation
- insurances - other than a transit insurance allowance
- depreciation or depletion allowances
- environmental permitting
- changes in the scope of work, design criteria or Canadian legislation
- builder's risk insurance or performance bonds
- Force Majeure implications nor severe weather conditions or an accelerated schedule
- pandemic nor other considerations driving up costs
- labour conflicts nor costs related to non-availability of qualified and other labour
- consideration due to a lack of detailed geotechnical definitions or differing soil conditions

The estimate includes direct and indirect costs. The direct cost estimates are based on engineering definition considered to be of the order of 20% to 60% across the various disciplines. Process and mechanical definition is considered as being well defined and in plant piping and instrumentation as less defined currently.

Shakespeare Work Breakdown Structure

The process plant and associated work direct capital cost estimate is presented in the format of the Work Breakdown Structure (WBS) for the various areas on the proposed processing site as displayed in Table 21-8.

Table 21-8: Process Plant and Infrastructure Capital Cost Work Breakdown Structure (WBS)

WBS Area Code	Description
100	General Sitework and Access Roads
200	Process Plant Site Preparation
300	Primary Crushing Area
400	Reclaim Tunnel Area including Conveyor
500	Pebble Crushing Area and Sag Mill Conveyors
600	Concentrator Building (Areas 200/300/310/400/410)
700	Office Complex, Dry & Lab
800	Mine Equipment Maintenance Building
900	Fuel Storage and Fueling System
1000	Tailings System
1100	Tailings Dams and Ponds
1200	Water Systems
1300	Effluent Treatment Area
1400	Bulk Explosive Storage Areas
1500	Main Substation
1600	Truck Sale
1650	Propane Tank Storage Area
1700	Plant Mobile Equipment
1800	Global Costs (Piping, Electrical & Instrumentation)

The Initial Process Plant and Infrastructure direct capital cost totals $122.8 million. This cost is summarized by direct cost component per discipline in Table 21-9.

Table 21-9: Initial Direct Capital Cost Summary by Discipline

Discipline	Material Cost	Spares	Equipment Cost	Installation Cost	% of Supply	Freight $	Total $	Percentage of Total Direct
Earth Works	$6,594,918	-	-	$9,572,205	145%	$1,913	$16,169,036	13.2%
Concrete	$3,679,956	-	-	$5,500,035	149%	-	$9,179,991	7.5%
Other	$193,500	-	-	$209,450	108%	-	$402,950	0.3%
Piping	$8,911,048	$84,976	-	$3,086,277	35%	$668,329	$12,665,654	10.3%
Electrical	$2,376,300	$263,239	$8,472,040	$5,988,015	55%	$479,678	$17,316,033	14.1%
Structural Steel	$3,443,660	-	-	$2,093,648	61%	$258,275	$5,795,583	4.7%
Architectural/Buildings	$7,632,789	-	-	$5,267,753	69%	$636,459	$13,537,001	11.0%
Platework	$40,000	$27,500	$2,273,891	$453,633	20%	$173,542	$2,941,066	2.4%
Mechanical	$52,500	$3,480,465	$31,812,038	$4,824,469	15%	$2,273,291	$38,962,298	31.7%
Ventilation	-	$63,364	$2,317,800	$132,793	6%	$173,835	$2,624,428	2.1%
Instrumentation	-	$69,375	$1,387,500	$231,593	17%	$104,063	$1,723,155	1.4%
Tanks	-	$58,990	$1,179,806	$199,417	17%	$88,485	$1,467,708	1.2%
SUBTOTAL	**$32,924,672**	**$4,047,909**	**$47,443,075**	**$37,559,287**	**47%**	**$4,857,869**	**$122,784,903**	**100%**

The Initial direct cost estimates included in the capital cost were built from the material take off quantities, equipment, and material supply costs, either all inclusive rates for earthworks, concrete and structural steel rates or equipment installation manhour estimates based on experience and expected unionised hourly labour rates. The capital cost includes allowances for the supply of spares (as an indirect cost) and for freight (as a direct cost) to the project site, where required.

In general, the scope of works considered in the capital cost includes:

- **On Site Infrastructure:** Construction of a new access road to the proposed process plant site. This includes clearing and grubbing, overburden removal, waste rock fill, selected granular material layers and drainage structures. Quantities were measured and "all in" rates for supply (where required) and execution or installation were used to ascertain costs.
- **Process Plant Site:** Construction of the process plant site terrace includes clearing and grubbing, overburden removal, waste rock fill, selected granular material layers and drainage structures. Quantities were measured and all in rates for supply and installation were used to ascertain costs.
- **Process Plant Structures:** The scope includes primary crushing, reclaim tunnel and conveyors, pebble crusher and sag mill conveyors and the process plant concentrator building areas. The costs include for earthworks, concrete works, pre-engineered building costs (for the concentrator building), structural steel and cladding costs (for the crusher structures), mechanical equipment costs, structural steel, flooring and handrailing estimates for elevated platforms with the concentrator plant, tanks, and piping. Material quantities were derived, supply and install rates used to ascertain costs. Mechanical equipment items updated bids were received and installation timing and manhour rates applied to ascertain the mechanical costs.
- **Office Complex, Dry, and Lab Area:** The capital cost includes 12 months rental for demountable structures within the capital cost. Minor costs for the earthworks and concrete works are also included based on quantities and rates for the work. The costs include things such as laboratory equipment, water wells, a potable water treatment plant and a sewage water treatment system.
- **Mine Equipment Maintenance Building:** Costs include for earthworks and concrete estimates based on quantities and rates applied. A sprung structure cost estimate including access doors, insulation and overhead cranage for equipment maintenance was obtained. The maintenance building includes 5 bays (inclusive of a wash bay) with maintenance equipment, lubrication, and tool allowances. HVAC units are also allowed for. An elevated area with offices, lunchroom, and an electrical room, made from brick and concrete is allowed for which houses a warehousing area beneath it. Quantities and unit rates were used to ascertain costs.
- **Fuel Storage and Fueling System:** The costs include for minor earthworks preparation for the fuel storage tanks and fuelling systems to be provided by the selected vendor to install on site as part of the supply arrangement. Quantities and rates were used to ascertain this.
- **Tailings System:** The costs include for the minor earthworks and concrete works and for the overland tailings disposal piping (both Non-Pyrrhotite and Pyrrhotite tailings pipelines) required. Quantities were measured and unit rates were used, except for the pipeline installation where estimated manhours and labour rates were used, to ascertain costs.

- **Tailings Dams and Ponds:** The quantities were provided by SLR Consultants for the CDA and ponds. AGP mining Consultants included these quantities alongside the mining activities. Earthwork and other unit rates received were optimized and included within the capital cost estimate for this section. The costs included for the waste rock and other earthworks required as described in Section 21.2.1. This section thus includes for the CDA start up and all other site pond construction. The SLR Consultants supplied quantities were used and tender rates received, adjusted where required, to ascertain the costs used in the capital cost estimate.
- **Water Systems:** The costs allow for earthworks and concrete works associated with pump stations at various locations around the site, namely the plant site pond, CDA retention pond, settling pond and polishing pond. The pipelines required to distribute the water are also included here. After the site wide water balance was re-calculated, the basic engineering design was undertaken in order to size the pumps and overland pipelines required to distribute the water around the site. Quantities were measured and supply and install unit rates were applied, except for the piping installation where installation manhours were estimated and unit labour rates were applied, to ascertain the costs.
- **Effluent Treatment Area:** The costs include for earthworks, concrete works and building work for the Effluent Treatment Plant (ETP) to be located at the polishing pond. Also included are equipment, tanks and pumps needed to treat the water to strict environmentally acceptable set points before release of excess water from the site wide water distribution system.
- **Bulk Explosives Areas:** As per the fuel storage area above, this area is earthworks only preparation for the explosives supply vendor
- **Main Substation:** The cost includes for earthworks and concrete work preparation for the main substation adjacent to the process plant concentrator building. A fence is also provided around this area.
- **Truck Scale:** The costs allow for the earthworks, concrete works and mechanical equipment required for the scale.
- **Propane Tank Storage Area:** The costs allow for earthworks and concrete work preparation for the tank to be provided by the selected vendor to install on site. A fence is also allowed for around the tank area.
- **Plant Mobile Equipment:** The costs include for a forklift and bobcat loader for use around the process plant concentrator building. An allowance for the supply of these items is included here.
- **Global Costs (Piping, Electrical and Instrumentation):** The piping costs exclude the tailings and site wide distribution piping. The balance of the piping costs are captured here and are a mixture of factorised and estimated costs. The in-plant process piping cost was factorised. Piping for the wastewater was estimated and a unit rate for supply and install per meter was applied. Allowances for the process plant and mining equipment buildings' fire protection and for heating within the buildings were used based on historical data. The electrical costs were itemised and estimated. These costs include electrical power supply overhead lines, switchgear, transformers, Motor Control Centres (MCCs) cable equipment, heat tracing, cabling, cable racking and lighting has been estimated with costs associated to the itemised estimate list. The costs are a mixture of bids for the electrical power supply overhead lines and material take offs with unit rates for supply and install of equipment. The instrumentation cost was estimated

based on allowances for field instruments and the DCS system. The engineering definition for the electrical and piping allowances are low and need to be developed further.

Labour Assumptions

The earthworks, concrete and structural steel installation costs include for construction labour within the installation unit rates. The equipment and some piping, electrical and instrumentation installation manhours were estimated from historical data of similar projects executed to date. Labour costs for unionised labour in the Sudbury area were used and are listed below in Table 21-10.

Table 21-10: All Inclusive Unit Labour Installation Rates Adopted in the Capital Cost Estimate

Resource	Rate (CAD/hr.)
Millwright	$152.63
Iron Worker	$153.65
Electrician / Instrument Technician	$165.42
Pipe Fitter	$159.14
Labourer	$119.87
Civil Works	$150.14
Equipment incl. Operator	$193.06

Material Costs

Materials quantities required for the construction were redefined or remeasured and included in the capital cost estimate. Material unit rate costs were built up or adopted from historical data for the following disciplines:

- earthworks (drainage structures, fencing, a portion of supply of backfill materials from mining area to site)
- concrete works (costs for concrete manufacture and reinforcing supply material)
- steel works (costs for supply of structural steel, stairs, floor grating, handrailing materials)
- building works (costs for design, fabrication and supply of buildings, doors etc materials)
- CDA and pond work (unit costs for supply of material for the works associated with the bill of quantities prepared by SLR Consultants for the CDA and pond construction work based on bids received from mining contractors)
- piping work (for drainage piping and fire protection loop materials)
- electrical work (overhead power lines, allowances for material costs for heat tracing of pipes, building lighting, electrical cables, and cable tray material)

Earthworks material quantities related to the CDA and various ponds on site were supplied by SLR Consultants. The processing plant terrace, access roads and detailed excavation and layer works were determined by material take off quantities from preliminary conceptual designs and drawings. All earthworks quantities were assumed to be neat in place. The waste rock and crushed stone or granular materials required would be produced by the mining operation where allowance for crushing and screening is accounted for.

21.2.3 Process Plant Capital Costs

The process capital cost component of the overall process plant and associated works is considered to be as follows:

- plant site preparation (WBS area 200)
- primary crushing (WBS area 300)
- reclaim tunnel and conveyors (WBS area 400)
- pebble crushing (WBS 500)
- concentrator building (WBS 600)

The life of mine cost for the process plant includes the initial direct capital costs as well as the estimate for sustaining capital. The sustaining capital has been estimated based on 2% of the initial direct capital cost of the process plant distributed over the operating life of the plant.

The initial plant capital cost is estimated to be $ 63.5 million. Sustaining capital is forecast to be $ 1.3 million.

21.2.4 Infrastructure Capital Costs

The balance of the WBS areas can be considered as infrastructure capital costs namely:

- general site work and access roads (WBS 100)
- office complex, Dry and Lab (WBS 700)
- mine equipment maintenance building (WBS 800)
- fuel storage and fueling system (WBS 900)
- tailings system (WBS 1000)
- tailings dams and ponds (WBS 1100)
- water systems (WBS 1200)
- effluent treatment area (WBS 1300)
- bulk explosive storage areas (WBS 1400)
- main substation (WBS 1500)
- truck scale (WBS 1600)
- propane tank storage area (WBS 1650)
- plant mobile equipment (WBS 1700)
- global costs (piping and electricity) (WBS 1800)

The total costs for these areas amounted to $ 59.3 million. There is no sustaining capital attributed to these items as ongoing costs would be covered under operating costs.

21.2.5 Environmental and Closure Capital Costs

The closure costs include the bond payment, interest payments on the bond, repayments of the bond and final closure costs. The closure costs account for labour and equipment costs to dismantle buildings and equipment. It is assumed that the salvage value of buildings and equipment will offset the cost of removal of the equipment and material.

In general, the following work will be done upon closure:

- ensure drainage of the site to not allow for standing water
- cover the top of the CDA with topsoil and revegetate with seed
- narrow roadway by ripping and topsoiling with 0.2m and revegetate with seed
- cut pond walls to facilitate free drainage as no longer required
- leave the concrete in place where necessary

The closure costs are summarized in Table 21-11.

Table 21-11: Environmental and Closure Capital Costs

Cost Category	Initial ($M)	Sustaining ($M)	Total ($M)
Initial Bond Payment	1.8		1.8
Annual Interest	-	1.7	1.7
Bond Repayment	-	-1.8	-1.8
Final Closure Cost	-	5.3	5.3
Total	**1.8**	**5.2**	**7.0**

The bond is based on the proposed financial assurance. In the calculation of the financial assurance, any scrap credits cannot be applied. As well, the financial assurance includes a net present cost calculation for the long term care and maintenance of the site.

The long term care and maintenance calculation totals $1.48 million and includes the following items:

- operation of the water treatment facility for 5 years ($695,000)
- sampling for 10 years ($10,000)
- testing of water samples for 10 years ($60,000)
- maintenance of the open pit fencing ($286,000)
- annual physical inspections ($427,000)

The closure costs totaled $5.9 million with 10% Engineering and Project Management included in that total

The proposed financial assurance, which is the sum of the closure costs and the long term maintenance, is $7.4 million.

The bond value is set at 25% of the proposed financial assurance or $1.8 million.

The interest on the bond is 2.5% annually which is paid from the start of production until the completion of the reclamation. In this case with a mine life of approximately 7 years and two years of closure activities, the payment is made until Year 9. Life of mine the interest payments will total $1.7 million.

In Year 9, after reclamation and closure is complete, the bond is repaid to Magna (-$1.8 million).

A credit for scrap metal salvage is calculated but may not be used in the determination of the financial assurance. This was estimated to be $2 million and would be a credit applied in Year 9

The Closure cost calculation that is used at the end of the mine life in the calculation is shown in Table 21-12.

Table 21-12: Closure Cost Calculation

Cost Category	Total ($M)
Closure Capital Costs	5.4
Engineering and Project Management (10%)	0.5
Scrap Credit	-2.0
Long Term Care and Maintenance	1.4
Total	**5.3**

21.2.6 Indirect Costs

The Indirect costs incurred in the project are shown in Table 21-13.

Table 21-13: Indirect Costs

Indirect Cost Category	Total ($M)
EPCM (Process Plant and Infrastructure)	11.5
Construction Indirects	16.9
Working Capital	1.5
Total	**29.9**

The Indirect capital costs include costs other than direct construction related costs and include construction indirect costs, an Engineering, Procurement and Construction Management (EPCM) fee estimate, and also the Working Capital for the project. These are described below.

EPCM cost estimate

An engineering, procurement and construction management schedule was built for the project and hourly rates assigned to ascertain an EPCM estimate. The estimate allows for various resources to undertake the following functions:

- project and construction management
- administration and document control
- detailed engineering and construction drawings
- procurement assistance and contract management on behalf of the client
- field engineering and construction supervision (in conjunction with the client)
- health and safety co-ordination with contractors
- commissioning assistance

Engineering and Construction management is considered at approximately 12 months each (including overlap). The EPCM cost allowance is $11.5 million, or 9.4% of the estimated direct costs for the process plant and infrastructure.

Construction Indirect Costs

This section relates to costs associated with the direct construction costs. This includes for the contractor's indirect costs, construction support costs, equipment indirect costs and client overhead costs.

The contractors' indirect costs, expressed as a percentage of the direct construction costs are incorporated here. These costs are split for civil contractor works (earthworks and concrete works), mechanical contractor works (structural steel, platework and mechanical equipment installation) and electrical contractor works (electrical and instrumentation works). These costs are expected to cover the mobilization and demobilization and ongoing support staff required to enable the direct construction work required on site. Only the pre-engineered process building and the sprung mining equipment maintenance building direct installation costs are not subject to the indirect cost addition.

Construction indirect costs include for the client hiring site supervision, the setting up and demobilization of a concrete batch plant on the site and a heavy lifting and scaffold allowance for works. The supervision allowance includes for a civil, two mechanical and an electrical supervisor to assist the EPCM contractor and to ensure quality control compliance.

The equipment indirect costs include an equipment spares allowance, commissioning support allowance by suppliers and vendors and first fill lubricants, mill grinding media and miscellaneous chemicals (lime and reagents in particular) that are not considered in the ongoing operating costs. Commissioning support is related to vendor representation possibly during construction and for commissioning to verify that the installation of the main equipment has been performed in compliance with technical specifications for warranty purposes.

The client overhead cost has an allowance for insurances needed to be taken for procurement and transport of items once the items leave the manufacture factory.

The Construction Indirect cost estimate is $ 16.9 million.

Working Capital Cost

An additional allowance of $1.5 million has been allocated in the Indirects cost for working capital. This is aligned with the construction period and ramp up of the project. The following costs are what would be included in the working capital costs:

- any additional owner related costs before implementation phase including any owner labour, consultant costs, permit updates, etc.
- owner's mine and process plant start-up and commissioning crew
- recruitment and training of operation and maintenance staff
- community associated costs
- corporate affairs and administration
- any other internal fees and costs

Contingency

The contingency for the project is shown in Table 21-14.

Table 21-14: Shakespeare Project Contingency

Contingency Category	Initial ($M)	Sustaining ($M)	Total ($M)
Process Plant and Infrastructure	19.1	-	19.1
Mining	0.5	0.1	0.6
Total	**19.6**	**0.1**	**19.7**

The project contingency is meant to cover the normal inadequacies that are inherent in design definition, execution definition, and estimating deficiencies. Contingency is a provision for unknown project costs which are expected to occur, but which cannot be identified for estimating purposes due to the lack of complete, accurate, and detailed information, as well as limited engineering knowledge.

It is important to note that contingency does not cover force majeure, adverse weather conditions, schedule delays, government policy changes, currency fluctuations, escalation, and other project risks. As well, the contingency will be based solely on the capital estimate and not on other project risks, HAZOP assessment changes.

The addition of a contingency is required to capture the possible additional expected cost of the project at execution and is applied to the total capital cost per area. The area contingency percentages have been obtained by reviewing the engineering completeness and estimating the confidence pertaining to the overall supply and construction costs within each area.

The contingency percentages for mining equipment and each area of the process plant and infrastructure work are shown in Table 21-15.

Table 21-15: Contingencies per area Applied to Capital Costs

Area	Contingency %
General Access Road	20.0%
Plant Site Preparation	20.0%
Primary Crushing Area	12.5%
Reclaim Tunnel Area including Conveyor	12.5%
Pebble Crushing Area and Sag Mill Conveyors	12.5%
Concentrator Building (Areas 200/300/310/400/410)	10.0%
Office Complex, Dry & Lab	12.5%
Mine Equipment Maintenance Building	12.5%
Fuel Storage and Fueling System	12.5%
Tailings System	17.5%
Tailings Dams and Ponds	20.0%
Water Systems	20.0%
Effluent Treatment Area (42)	17.5%
Bulk Explosive Building (Services Only)	12.5%
Main Substation	12.5%
Truck Sale	10.0%
Propane Tank Storage Area	10.0%
Plant Mobile Equipment	10.0%
Global Costs (Piping, Electrical & Instrumentation)	12.5%
EPCM	10.0%
Contractor and Project Indirects	10.0%
Mining Equipment	5.0%

21.3 Operating Cost Estimates

21.3.1 Summary

The operating cost estimate is based on a combination of vendor quotations, first principal calculations, reference projects and factors as appropriate for a Feasibility Study. The operating cost estimate by area is shown in Table 21-16.

Table 21-16: Operating Cost Estimate Summary

Area	Units	LOM Cost ($M)	$/tonne
Open Pit Mining	$/t mined		3.98
Open Pit Mining	$/t milled	243.7	20.53
Processing	$/t milled	179.7	15.14
General and Administrative	$/t milled	35.3	2.98
Transport & Refining Charges	$/t milled	9.2	0.78
Carbon Offset Purchases	$/t milled	3.1	0.26
Royalties	$/t milled	17.7	1.49
Total Operating Costs	**$/t milled**	**488.8**	**41.18**

For the study, a delivered diesel fuel price based on quotations of $1.05 /litre was used. Electricity pricing of $0.085/ kWh was used.

21.3.2 Mine Operating Costs

The mine operating cost was based on an owner operated fleet powered by diesel. The fleet will be financed, and the finance costs carried as an operating expense.

<u>Labour</u>

Labour costs for the various job classifications were obtained from salary surveys in Ontario and other operations. A burden rate of 31% was applied to the various rates. Labour was estimated for both staff and hourly on a 12-hour shift basis utilizing a rotation of either 4 days on/4 days off or 4x3. Mine positions and salaries are shown in Table 21-17.

Table 21-17: Mine Staffing Requirements and Annual Employee Salaries (Year 3)

Position	Employees	Annual Salary (CDN$/a)
Mine Maintenance		
Maintenance Shift Foremen	2	138,000
Maintenance Planner/Contract Administration	1	124,000
Clerk	1	66,000
Subtotal	**4**	
Mine Operations		
Senior Shift Foreman	4	138,000
Subtotal	**4**	
Mine Engineering		
Chief Engineer	1	183,000
Open Pit Planning Engineer	1	138,000
Blasting/Geotechnical Technician	1	92,000
Surveyor/Mining Technician	1	92,000
Surveyor/Mining Technician Helper	1	85,000
Clerk	1	66,000
Subtotal	**6**	
Geology		
Chief Geologist	1	170,000
Grade Control Geologist/Modeler	1	118,000
Sampling/Geology Technician	2	92,000
Subtotal	**4**	
TOTAL	**18**	

The mine staff labour remains constant from Year 2 until Year 7 when positions are removed as the mine winds down. During the pre-production period and part of Year 1 there is a trainer position in mine operations.

Hourly employee labour force levels in mine operations and maintenance fluctuate with production requirements. The Year 3 hourly labour requirements are shown in Table 21-18.

Table 21-18: Hourly Manpower Requirements and Annual Salaries (Year 3)

Position	Employees	Annual Salary ($/a)
Mine General		
General Equipment Operator	4	80,000
Road/Pump Crew	2	80,000
General Mine Labourer	4	74,000
Tire Technician	1	108,000
Lube Truck Driver	4	74,000
Subtotal	**15**	
Mine Operations		
Driller	6	92,000
Blaster	1	108,000
Blast Helper	2	68,000
Loader Operator	3	108,000
Hydraulic Excavator Operator	4	108,000
Haul Truck Driver	48	92,000
Dozer Operator	8	101,000
Grader Operator	3	101,000
Crusher Loader Operator	2	101,000
Snowplow/Water Truck	3	77,000
Subtotal	**80**	
Mine Maintenance		
Heavy Duty Mechanic	19	141,000
Welder	10	141,000
Electrician	1	141,000
Apprentice	4	92,000
Subtotal	**34**	
Total Hourly	**129**	

Labour costs are based on an owner operated scenario with Magna responsible for the maintenance of the equipment with its own employees.

Overseeing all the mine operations, maintenance, engineering, and geology functions is the General Manager covered in the G&A costs. This person would have the Mine Shift Foremen, Maintenance Shift Foremen reporting to him, as well as the Chief Engineer and Chief Geologist.

The Mine General Foreman would have the shift foremen report directly to him.

The mine has four mine operations crews, each with a Senior Shift Foremen. The Training Foreman is only required on site until the middle of Year 1, at which time the position is eliminated.

The Chief Engineer has one open pit engineer reporting to him. The Blasting technician is included in the short-range planning group and would double as drill and blast foreman as required.

The short-range planning group in engineering also has one surveyor/mine technician and one surveyor/mine helper. These people will assist in the field with staking, surveying, and sample collection with the geology group; they will have a clerk/secretary to assist the team.

In the Geology department, there is one Grade Control modeler reporting to the Chief Geologist. They will be responsible for short range and grade control drilling. There are also two grade control/sampling technicians.

Two Mine Maintenance Shift Foremen will report to the General Manager. As well, there is a maintenance planner/contract administrator and a clerk.

The hourly labour force includes positions for the tire man, and lube truck drivers. These positions all report to Maintenance. There are generally one of lube truck driver per crew. Other general labour includes general mine labourers (one per crew) and trainees (one per crew) plus 2 road/pump crew personnel per crew for water management/snow removal.

The drilling labour force is based on one operator per drill, per crew while operating. This peaks at 8 drillers in Year 1 and then drops down over time as the drilling hours are diminished.

Excavator and loader operators peak at 8 in Year 1 and then slowly drop until Year 8. Haulage truck drivers peak at 48 in Year 3 and then tapers off to the end of the mine life.

Maintenance factors are used to determine the number of heavy-duty mechanics, welders and electricians are required and are based on the number of equipment operators. Heavy duty mechanics work out to 0.25 mechanics required for each drill operator for example. Welders are 0.25 per operator and electricians are 0.05 per operator.

The number of loader, truck and support equipment operators is estimated using the projected equipment operating hours. The maximum number of employees is four per unit to match the mine crews.

Equipment Operating Costs

The vendors provided repair and maintenance (R&M) costs for each piece of equipment selected for the Shakespeare Project. Fuel consumption rates were estimated from the supplied information and knowledge of the working conditions. The costs for the R&M are expressed in $/h form.

Tire costs were also collected from various vendors for the sizes expected to be used. Estimates of tire life are based on AGP's experience and discussions with the vendors. The operating cost of the tires is expressed in a $/hr form also. The life of the haulage truck tires is estimated at 5,500 hours per tire with proper rotation from front to back. Each truck tire costs $14,000 so the cost per hour for tires is $15.27 /hr for the truck using six tires in the calculation.

Ground engaging tools (GET) costing is estimated from other projects and is an area that would be fine-tuned once the project was operational.

Drill consumables are estimated as a complete drill string using the parts list and component lives provided by the vendor. Drill productivity is estimated at 24.9 m/hr for mill feed and waste. The equipment costs used in the estimate are shown in Table 21-19.

Table 21-19: Major Equipment Operating Costs – No Labour ($/hr)

Equipment	Fuel/ Power	Lube/Oil	Tires/ Undercarriage	Repair & Maintenance	GET/ Consumables	Total
Production Drill (165mm)	55.65	5.57	-	132.60	185.00	378.82
Production Loader (13m3)	84.00	8.40	33.76	72.94	7.00	206.10
Hydraulic Excavator (6.7m3)	63.00	12.60	-	60.55	6.00	142.15
Haulage Truck (91mt)	73.50	7.35	15.27	49.88	3.00	149.00
Track Dozer	31.50	3.15	10.00	39.26	10.00	93.91
Grader	23.10	2.31	4.00	18.58	5.00	52.99

Drilling

Drilling in the open pit will use down the hole hammers drill rigs with 140 mm bits with the small diesel drill and rotary bits with the 251 mm electric drill. The material is designed to be blasted smaller and finer to improve productivity and reduce maintenance costs as well as improve plant performance. The drilling pattern parameters are shown in Table 21-20.

Table 21-20: Drill Pattern Specifications

Specification	Unit	Production Drill		
		Mill Feed	Waste	Preshear
Bench Height	m	10	10	10
Sub-drill	m	1.3	1.3	0.0
Blasthole diameter	mm	165	165	165
Pattern Spacing - Staggered	m	4.8	4.8	1.70
Pattern Burden – Staggered	m	4.2	4.2	1.9
Hole Depth	m	11.3	11.3	10.0

The sub-drill is included to allow for caving of the holes in weaker zones, reducing re-drill requirements or short holes that would affect bench floor conditions.

The parameters used to estimate drill productivity are shown in Table 21-21.

Table 21-21: Drill Productivity Criteria

Drill Activity	Unit	Production Drill
Pure Penetration Rate	m/min	0.52
Hole Depth	m	11.3
Drill Time	min	21.7
Move, Spot and Collar Hole	min	3.00
Level Drill	min	0.50
Add Steel	min	1.0
Pull Drill Rods	min	1.0
Total Setup/Breakdown Time	min	5.50
Total Drill Time per Hole	min	27.2
Drill Productivity	m/hr	24.9

Blasting

An emulsion product will be used for blasting to provide water protection. With the high rainfall, large snowmelt and working below lake level it is expected that a water-resistant explosive will be required. The powder factors used in the explosive calculation are shown in Table 21-22.

Table 21-22: Design Powder Factors

	Unit	Production Drill	
		Mill Feed	Waste
Powder Factor	kg/m3	1.09	1.09
Powder Factor	kg/t	0.35	0.38

The blasting cost is estimated using quotations from a local explosive vendor. The emulsion price is $91.00/100 kg. The mine is responsible for guiding the loading process, including placement of boosters/Nonels, and stemming and firing the shot.

The explosives vendor also leases the accessories magazines for a monthly cost. Additionally, a service charge for the vendors pickup trucks, pumps, labour, are included. The explosives would be trucked from a nearby plant. The total monthly cost was $50,000 per month.

Loading

Loading costs for both mill feed and waste are based on the use of electric hydraulic shovels and front-end loaders. The shovels are the primary diggers with the front-end loaders as backup/support units. The average percentage of each material type that the various loading units are responsible for is shown in Table21-23.

Table 21-23: Loading Parameters – Year 3

	Unit	Hydraulic Excavator	Front End Loader
Bucket Capacity	m3	6.7	13
Truck Capacity Loaded	t	91	91
Waste Tonnage Loaded	%	32	68
Mill Feed Tonnage Loaded	%	46	54
Bucket Fill Factor	%	95	95
Cycle Time	sec	38	40
Trucks present at loading unit	%	80	80
Loading Time	min	5.13	2.70

The trucks present at the loading unit refers to the percentage of time a truck is available to be loaded. To maximize truck productivity and reduce operating costs, it is more efficient to slightly under-truck the loading unit. One of the largest operating cost items is haulage and minimizing this cost by maximizing the truck productivity is crucial to lower operating costs. The value of 80% comes from the standby time shovels typically encounter due to a lack of trucks.

Hauling

Haulage profiles were determined for each pit phase to the primary crusher or the CDA destinations by period. For the preproduction periods this was completed monthly to properly account for the CDA dam construction. Cycle times were generated for the appropriate period tonnage by destination and phase to estimate the haulage costs. Maximum speed on the trucks is limited to 50 km/hr for tire life and safety reasons although few locations in the mine plan appeared to offer the truck the opportunity to accelerate to that velocity. Calculation maximum speeds for various segments are shown in Table 21-24.

Table 21-24: Haulage Cycle Speeds

	Flat (0%) on surface	Flat (0%) Inpit, Crusher, Dump	Slope Up (8%)	Slope Up (10%)	Slope Down (8%)	Slope Down (10%)
Loaded (km/hr.)	50	40	16	12.1	30	30
Empty (km/hr.)	50	40	35	25	35	35

Support Equipment

Support equipment hours and costs are determined on factors applied to various major pieces of equipment. For the study, the factors used are shown below in Table 21-25.

Table 21-25: Support Equipment Operating Factors

Mine Equipment	Factor	Factor Units
Track Dozer	25%	Of haulage hours to maximum of 3 dozers
Grader	10%	Of haulage hours to maximum of 1 grader
Crusher Loader	15%	Of loading hours to maximum of 1 loader
Snowplow/Water Truck	5%	Of haulage hours to maximum of 2 trucks
Road Crew Backhoe	1	hours/day/unit
Road Crew Dump Truck	1	hours/day/unit
Lube/Fuel Truck	6	hours/day/unit
Mechanics Truck	6	hours/day/unit
Blasting Loader	6	hours/day/unit
Blaster's Truck	8	hours/day/unit
Integrated Tool Carrier	3	hours/day/unit
Light Plants	10	hours/day/unit
Pickup Trucks	10	hours/day/unit

These factors resulted in the need for three track dozers, one grader, and one crusher loader. Their tasks include clean-up of the working faces, roads, CDA maintenance, and blast patterns. The grader will maintain the crusher and waste haul routes. In addition, snowplows/water trucks have the responsibility for patrolling the haul roads for snow removal and controlling fugitive dust for safety and environmental reasons. The small backhoe and road crew dump trucks will be responsible for cleaning out sedimentation ponds and water ditch repairs. The small backhoe also has a rock hammer to help reduce the size of oversize material.

The hours generated in this manner are applied to the individual operating costs for each piece of equipment. Many of these units are support equipment so no direct labour is allocated to them due to their variable function. The operators come from the General Equipment operator pool.

Grade Control

Grade control will be completed using the blasthole cuttings. The nature of the deposit does not require the need for a separate fleet of reverse circulation (RC) drill rigs.

Blasthole cuttings samples collected will be sent to the assay laboratory and assayed for use in the short range mining model. These assays will help determine the ore and waste contacts.

Dewatering

Pit dewatering is an important part of mining at Shakespeare. The water from the pit will be pumped to the plant dam for use in processing operations.

Based on past data and current information the water volume to be pumped is estimated to be 1.4 Mm3 per year.

The dewatering will be completed with a pump in the pit and a pump on the surface to push the water to the plant pond. These pumps are diesel to avoid the cost of a separate powerline for the pumps only.

Additional dewatering in the form of horizontal drill holes is part of the dewatering costs. These holes will be campaigned and will be part of the sustaining mine capital.

Dewatering is expected to cost $2.4 million over the mine life.

Financing

Financing of the mine fleet is considered a viable option to reduce initial capital. Various vendors offer this as an option to help select their equipment.

Indicative terms for financing provided by the vendors are:

- Down payment = 20% of equipment cost
- Term Length = 3-5 years depending on equipment type
- Interest Rate = LIBOR plus a percentage
- Residual = $0

The proposed interest rate is used to calculate a multiplier on the amount being financed. The multiplier is 1.067 to equate to the rate. It does not consider a declining balance on the interest but rather the full amount of interest paid over the term, equally distributed over those years. The calculation is as follows:

- Annual Finance Cost = {[(Initial Capital Cost) x 80%] x 1.067} / term in years

The initial capital, down payments, and overall cost of financing were shown previously in the capital cost area of this section.

The support equipment fleet is calculated in the same manner as the major mining equipment.

All of the major mine equipment, and the majority of the support equipment where it was considered reasonable, was financed. If the equipment has a life greater than the finance term length, then the following years onward after payments are complete do not have a finance payment applied. In the case of the mine trucks, with an approximate 10-year working life, the financing would be complete, and the trucks would simply incur operating costs after that time. For this reason, the operating cost would vary annually depending on the equipment replacement schedule and timing of the finance payments.

Utilizing the financing option adds $ 0.44/t moved to the mine operating cost over the life of the mine. On a cost per tonne of feed basis, it was $ 2.27/t mill feed.

Total Mine Costs

The total life of mine operating costs per tonne of material moved (including rehandle and tailings backhaul) and per tonne of mill feed processed are shown in Table 21-26 and Table 21-27.

In the General Mine Engineering is the cost associated with an owner operated crushing plant to make stemming material, road crush and any material needed for the CDA. The cost is approximately $400,000 per year.

Table 21-26: Open Pit Mine Operating Costs – with Financing ($/t moved)

Open Pit Category	Unit	Year 1	Year 3	Year 5	LOM Average
General Mine and Engineering	$/t moved	0.63	0.33	0.46	0.46
Drilling	$/t moved	0.47	0.40	0.40	0.41
Blasting	$/t moved	0.57	0.50	0.52	0.52
Loading	$/t moved	0.38	0.28	0.28	0.29
Hauling	$/t moved	1.28	1.44	1.48	1.34
Support	$/t moved	0.35	0.49	0.52	0.47
Grade Control	$/t moved	0.01	0.01	0.01	0.01
Finance Costs	$/t moved	0.49	0.54	0.14	0.44
Dewatering	$/t moved	0.03	0.03	0.04	0.04
Total	**$/t moved**	**4.21**	**4.03**	**3.84**	**3.98**

Table 21-27: Open Pit Mine Operating Costs – with Financing ($/t mill feed)

Open Pit Category	Unit	Year 1	Year 3	Year 5	LOM Average
General Mine and Engineering	$/t mill feed	4.57	2.44	2.43	2.37
Drilling	$/t mill feed	3.43	2.96	2.13	2.09
Blasting	$/t mill feed	4.13	3.65	2.78	2.67
Loading	$/t mill feed	2.78	2.07	1.47	1.52
Hauling	$/t mill feed	9.31	10.57	7.84	6.93
Support	$/t mill feed	2.58	3.62	2.75	2.41
Grade Control	$/t mill feed	0.06	0.06	0.05	0.05
Finance Costs	$/t mill feed	3.60	3.99	0.72	2.27
Dewatering	$/t mill feed	0.23	0.23	0.23	0.22
Total	**$/t mill feed**	**30.70**	**29.59**	**20.39**	**20.53**

21.3.3 Process Operating Costs

The process plant operating costs were estimated using standard practices including budget quotations for consumables such as reagents and grinding media, database rates for labour, and current local supply costs for electrical power and diesel.

The process plant operating cost is estimated at $24.5 million per annum, or $15.14 per tonne processed. A breakdown of these costs by area is provided in Table 21-28.

Table 21-28: Operating Cost Estimate for the Process Plant

Area	Cost	
	($/a)	($/t)
Labour	6,879,800	4.25
Electricity	5,026,000	3.10
Reagents	3,311,300	2.04
Plant Maintenance	3,091,400	1.91
Mill Balls	3,819,600	2.36
Mill Liners	1,490,400	0.92
Assay Laboratory	284,700	0.18
Diesel	234,000	0.14
Piping	243,000	0.15
Safety Equipment	82,500	0.05
Lubricants	60,000	0.04
Total	**24,522,700**	**15.14**

The largest components of the plant operating costs are labour and electricity, which combined account for almost 50% of the total cost.

Fixed costs are estimated at $4.75/t, or about 31% of the total operating cost. Fixed costs are comprised primarily of labour, safety equipment, and the assay laboratory, along with a small component of the power and diesel.

Labour

Labour costs were calculated using typical plant staffing levels. Pay scales were based on recent database rates. The plant schedule is based on 12 hour shifts on a 4x4 (four days on, four days off) rotation for operating personnel. Plant management would report on day shift on a 5/2 schedule. Table 21-29 shows the estimated labour breakdowns.

Table 21-29: Mill/Flotation Plant Labour Cost Summary

Area	No. of Persons	Shifts	Total Persons	Total Cost ($/a)
Plant Management/Admin				
Plant Manager	1	1	1	197,400
General Foreman	1	1	1	151,800
Metallurgical Engineer	1	1	1	151,800
Plant Metallurgist	1	2	2	242,900
Maintenance Planner	2	1	2	242,900
Plant Operation				
Shift Foreman (Shift)	1	4	4	575,500
Control Room Operators	1	4	4	511,600
Plant Operators	3	4	12	1,458,000
Reagent Operators	1	2	2	217,400
Custodial	1	4	4	383,700
Maintenance				
Maintenance Foreman	1	4	4	575,500
Millwright	1	4	4	511,600
Electrician	1	4	4	530,800
Instrument/Control Tech	1	2	2	265,400
Labourers	1	2	2	191,400
Laboratory				
Chemist	1	2	2	255,800
Analytical	1	2	2	223,800
Sampler	1	2	2	191,800
Total			**55**	**6,879,800**

The mill is estimated to require a total complement of 55 persons at an annual cost of $6.88 million, or $4.75 per tonne. Cost includes hourly rate or annual salary, as well as benefits. Note that all of the laboratory and some of the maintenance personnel would operate on a 4x4 schedule on day shift only.

Electricity

Power to the processing plant is supplied to the plant MCC from the main substation. A summary of the total cost calculation for electricity is presented in Table 21-30.

Table 21-30: Process Plant Power Cost Estimate

Item	Unit	Value
Total Connected Power	kW	10,836
Load Factor	%	68.8
Estimated Power Consumed	kW	7456
Annual Running Time	H	7,950
Annual Consumption	MWh	59,130
Cost per MWh	$	85
Total	**$**	**5,026,000**

The total connected power is taken directly from the mechanical equipment list, with load factors applied for each piece of equipment. A power supply rate of $85 per MWh has been used for line power supplied to site. This equates to an annual operating cost of $3.10 per tonne of mill feed treated.

Flotation Reagents

Reagent costs were estimated using unit costs from vendors and consumption rates from the lab testwork. A summary of the costs for each reagent is presented in Table 21-31. Table 21-31The total reagent cost amounts to $2.04 per tonne of mill feed.

Table 21-31: Summary of Estimated Reagent Operating Costs

Reagent Consumption	Annual Cost	Unit Cost
	($)	**($/t)**
MIBC	622,500	0.38
Aero 3477	779,200	0.48
SIPX	178,000	0.11
Lime	775,700	0.48
CMC	153,400	0.09
H2SO4	256,000	0.16
Magnafloc 338	546,500	0.34
Total	**3,311,300**	**2.04**

Grinding Media and Liners

Costs for grinding media and liners were estimated based on calculated consumption rates from metallurgical testwork along with budget quotations and database rates for material supply. Table 21-32 shows the cost of grinding balls and crusher/mill liners, including the cost for transportation to site.

Table 21-32: Grinding Media and Liner Operating Costs

Steel Consumption	Annual Cost ($)	Unit Cost ($/t)
SAG Mill Balls	1,292,800	0.80
Ball Mill Balls	2,229,500	1.38
Regrind Mill Balls	297,300	0.18
Crusher Liners	243,000	0.15
Mill Liners	1,247,400	0.92
Total	**5,310,000**	**3.28**

Maintenance and Supplies

An allowance for plant maintenance was factored from the mechanical supply cost for each area. The factor ranged from 7-9% based on the specific area, with transportation included. The cost of labour associated with replacement, installation, and maintenance are covered in the labour allowances shown earlier in this section. An additional factor of 1.5% was applied to the overall mechanical supply cost to cover electrical/instrumentation maintenance.

Fixed allowances were included to cover minor costs associated with miscellaneous items, assay lab supplies, and safety equipment. Costs in this area include training, monitoring equipment, first aid supplies, and personal protective equipment. Laboratory costs include lab supplies as well as external assaying costs for selected elements.

The cost of diesel for plant vehicles; light trucks, loader, etc., was estimated based on typical consumption rates and a delivered diesel supply cost of $1.05 per litre.

21.3.4 General and Administrative Operating Costs

A bottom up approach was used to develop the G&A costs over the life of mine. The G&A costs over the mine life averaged $2.98/t milled with initial costs being higher and later costs being lower dependent on production tonnage. The lower overall G&A average cost is possible due to the Shakespeare Project being located near Sudbury which did not require the use of a camp.

The G&A labour costs were estimated by developing a headcount profile for each department. Benefits were determined based on other local sites and set at 35%.

Health and safety equipment, and human resource costs were determined by referencing recent projects. The IT and telecommunications costs for telecommunication, networking, Internet, computers, radio system, and repairs were estimated as allowances.

21.3.5 Transport and Refining Charges

The transportation and refining charges are based on the haulage of the two different concentrates to their respective smelters. The copper concentrate is expected to be further away but has fewer tonnes to move.

The cost was estimated based on trucking costs per tonne-km. A rate of $0.14 per tonne-km was used for the transportation.

Over the life of the mine, the transportation and refining costs totaled $9.2 million or $0.78/t mill feed.

21.3.6 Carbon Offset Purchases

A calculation of the GHG generated annually from the mine plan, and site activities was used to help determine what the potential offset should be. The use of biodiesel in the cost estimate helps in the reduction of GHG.

A price of $25 per tonne of carbon equivalent was used in the calculation.

The life of mine cost of the carbon offset purchases is $3.1 million or $0.26/t mill feed.

21.3.7 Royalties

The buyback of the Wellgreen 1.0% royalty is considered at the beginning of the project. This costs $500,000 and reduces the overall royalty to 1.5%. The purchase of this royalty is included in the Initial Working Capital cost estimate under Indirects and not included in the royalties.

The 1.5% royalty remaining is attributed to Glencore.

An additional third party royalty, occurs after project payback with a total payment of $1.5 million over the life of the mine.

The total royalty payments life of mine is $17.7 million or $1.49/t mill feed. The royalties are shown in Table 21-33

Table 21-33: Royalties

Royalty	%	Royalty Value LOM ($M)	Owner and Details
Wellgreen	1.0	-	1.0% Royalty bought at beginning of project for $0.5 M
Glencore	1.5	16.2	Glencore

22 ECONOMIC ANALYSIS

22.1 Introduction

This section presents the life of mine cash flow forecast model for the Shakespeare Project. This is used in the financial evaluation to determine the Net Present Value (NPV) of the mine, Internal Rate of Return (IRR) and project payback period.

Annual cash flow projections were estimated over the life of the mine based on the mine schedule, capital expenditure estimates and estimated operating costs.

Revenue calculations are based on the production of two saleable concentrates: nickel and copper. The nickel concentrate carries value from nickel and also from the contained copper, cobalt, platinum, palladium, and gold. The copper concentrate has value from the copper only even though other metals are present, they are not in quantities sufficient to be payable with the assumed payment terms.

The estimates of capital expenditures and site production costs have been developed specifically for this project and have been presented in earlier sections of this report.

The following key parameters were used in the construction of the cash flow model and the economic results:

- Nickel price at US$8.50/lb, copper price at US$3.95/lb
- 100% equity financing with no debt component
- revenues and costs reported in constant 2021 Q3 Canadian dollar terms without escalation

This analysis was completed primarily utilizing a Microsoft Excel-based discounted cash flow model. Currency is provided in Canadian dollars unless otherwise noted (ex. World metal prices).

Taxation calculations were completed with the assistance of MNP, a Canadian tax firm AGP has worked with previously on mining projects. MNP are familiar with the Ontario and Canadian tax laws pertinent to the Shakespeare project. The Magna team also reviewed their analysis together with AGP.

22.2 Summary Economic Analysis

Table 22-1 presents the summary economic analysis results for the Shakespeare Feasibility Study at the prices illustrated.

Table 22-1: Shakespeare Project – Discounted Cash Flow Financial Summary

Parameter		Units	Pre-Tax	Post-Tax
Nickel Price		$US/lb	8.50	
Copper Price		$US/lb	3.95	
Cobalt Price		$US/lb	24.00	
Platinum Price		$US/oz	950	
Palladium Price		$US/oz	1,750	
Gold Price		$US/oz	1,600	
Exchange Rate		$US:$CDN	0.77	
Economic Indicators				
Net Present Value (6%)		$M	221	140
Internal Rate of Return (IRR)		%	27.2	21.5
Net Revenue		$M	1,078	1,078
Total Operating Cost (including Royalties)		$M	489	489
Life of Mine Capital Cost		$ M	242	242
Net Taxes		$ M	-	113
Net Cash Flow		$ M	347	234
Nickel Cash Cost		$US/lb Ni	8.00	9.85
Nickel Cash Cost (including by-product credits)		$US/lb Ni	(0.76)	1.10
Nickel All-in Sustaining Cost (AISC)		$US/lb Ni	8.15	8.15
Nickel AISC (including by-product credits)		$US/lb Ni	(0.61)	(0.61)
Mine Life		Years	7.1	
Operating Costs				
		$ M	**$/t Ore Milled**	**$/t Ore Mined**
Open Pit Mining		243.7	20.53	3.98
Processing		179.7	15.14	
G & A		35.3	2.98	
Transport and Refining Charges		9.2	0.78	
Carbon Offset Purchases		3.1	0.26	
Royalties		17.7	1.49	
Total		**488.8**	**41.18**	
Capital Costs				
Initial Capital		$ M	233	
Sustaining Capital		$ M	9	
Total Capital		$ M	242	
Production Summary - Metals				
Metal	**Mill Feed Contained Metal (M lbs, K oz)**	**Recovery (%)**	**Concentrate Contained Metal (M lbs, K oz)**	
Nickel	85.6	76.8	65.7	
Copper	91.1	95.1	86.7	
Cobalt	5.4	55.9	3.0	
Platinum	122	76.2	93	
Palladium	136	42.9	58	
Gold	69	38.3	26	

22.3 Mine Production Statistics

Mine production is reported as open pit mill feed ore and waste. The annual production figures were obtained from the mine plan discussed in Section 16 earlier in this report. The life of mine ore, waste quantities, and ore grade are presented in Table 22-2.

Table 22-2: Mill Feed, Waste and Metal Grades (0.23 Ni% Cut-off)

	Units	Open Pit
Mine Mill Feed	Mt	11.9
Nickel	%	0.33
Copper	%	0.35
Cobalt	%	0.02
Platinum	g/t	0.32
Palladium	g/t	0.36
Gold	g/t	0.18
Waste	Mt	59.1
Total	**Mt**	**71.0**
Strip Ratio	**(Waste:Ore)**	**4.98**

22.4 Plant Production Statistics

Feed from the open pits supply the 4,500 tpd process plant. The mill feed will be processed using a conventional primary crusher using a jaw crusher feeding a SAG-Ball mill comminution circuit with pebble crusher. This is followed by a flotation rougher-scavenger circuit, then cleaner circuit. Regrinding has been included in the circuit. The tailings stream will be split into pyrrhotite rich and non-pyrrhotite and pumped for disposal in the CDA. Two concentrates will be produced: nickel and copper.

The estimated recoveries vary by metal and life of mine are estimated to be:

- Nickel – 76.8%
- Copper – 95.1%
- Cobalt – 55.9%
- Platinum – 76.2%
- Palladium – 42.9%
- Gold – 38.3%

22.5 Marketing Terms

The Shakespeare Project will produce two products for sale to the world market; a nickel concentrate and copper concentrate.

A review of various options for the sale of the nickel concentrate was completed and two scenarios were considered for the financial analysis with the selected case being the variable terms. The variable terms included increase payables for nickel should the price be above a certain threshold, but reduced PGE payables compared to the fixed term sheet. For the Feasibility Study financial analysis, the variable terms were used.

The Shakespeare Project produces an above average grade copper concentrate of 29% copper with minor amounts of nickel, cobalt, platinum, palladium. The terms and conditions are consistent with standard industry practices with consideration for smelting, refining and transportation. The terms applied have the only payable for the copper concentrate as copper. All other metals present in the concentrate did not meet the thresholds for payability. No penalties are applied to the concentrate as the concentrate is free of those.

22.6 Capital Expenditures

22.6.1 Capital

The financial indicators have been determined with 100% equity financing of the initial capital. Capital costs included in the financial model are shown below in Table 22-3, and detailed in Section 21.

Table 22-3: Shakespeare Mine Capital Costs

Area	Initial ($M)	Sustaining ($M)	Total ($M)
Open Pit Mining	58.7	2.6	61.4
Preproduction Stripping	*48.8*	-	*48.8*
Open Pit Capital	*9.9*	*2.6*	*12.6*
Processing	63.5	1.3	64.8
Infrastructure	59.3	-	59.3
Environmental/Closure	1.8	5.2	7.0
Subtotal	**183.4**	**9.1**	**192.5**
Indirects	29.9	-	29.9
Contingency	19.6	0.1	19.7
Total	**232.9**	**9.2**	**242.1**

<u>Initial Capital</u>

Preproduction stripping has been capitalized for this analysis and represent the bulk of the initial mining capital. The mining equipment down payments, plant and infrastructure capital are also part of the initial capital. An amount of $1.8 million has been allocated to initial capital for the initial reclamation bond payment. These items total $183.4 million.

Indirects and contingency associated with the initial equipment purchases total $49.5 million. This equates to a total initial capital of $232.9 million.

<u>Sustaining Capital</u>

The bulk of this is associated with additional mine equipment purchases and on going capital needs of the process plant. Interest payments on the reclamation bond are also included in the sustaining capital as well as the final closure cost for a total of $5.2 million in Environmental/Closure.

22.6.2 Salvage Value

No allowance has been included in the cash flow analysis for salvage value.

22.6.3 Reclamation/Closure Costs

Interest payments and reclamation/closure costs are estimated to be $5.2 million and account for activities required for facility decommissioning, land recontouring and revegetation plus long term care and maintenance.

22.7 Net Revenue

The metal price assumptions used for the financial analysis are shown in Table 22-4 together with the spot prices at the time of the analysis for comparison.

Table 22-4: Financial Analysis Metal Pricing and Exchange Rate

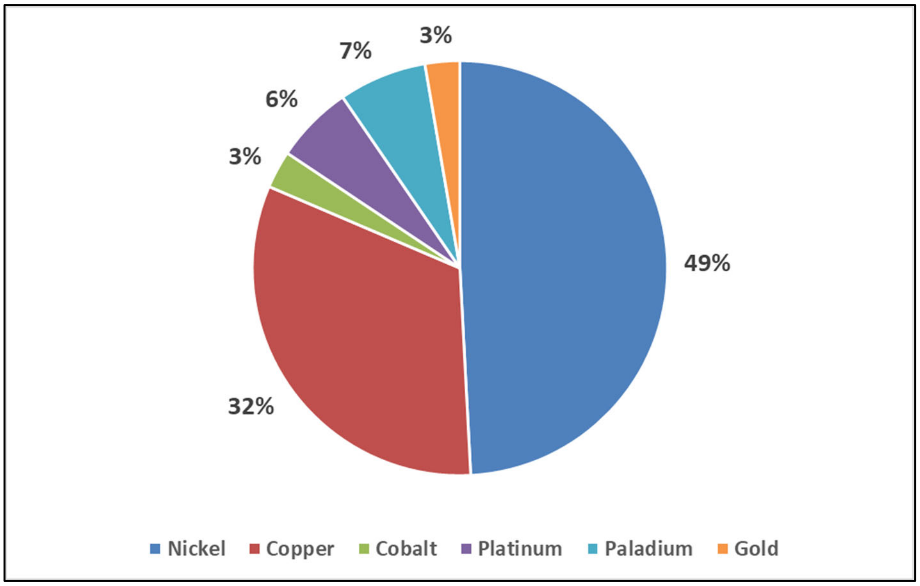
Parameter	Units	Price Used	Spot Price Jan 25, 2022
Nickel Price	$US/lb	8.50	10.28
Copper Price	$US/lb	3.95	4.44
Cobalt Price	$US/lb	24.00	32.66
Platinum Price	$US/oz	950	1,030
Palladium Price	$US/oz	1,750	2,153
Gold Price	$US/oz	1,600	1,838

An exchange rate of $0.77 US$:CDN$ is used in the analysis.

Net revenue was determined by applying the financial analysis metal prices to the estimated metal payables for each year. Sales prices have been applied to all life of mine production without escalation or hedging. The revenue is the value of payable metals sold minus treatment. The transportation and royalties are included in the operating costs.

The project receives the majority of its revenue from nickel 49%, followed by copper (32%) as shown in Figure 22-1.

Figure 22-1: Shakespeare Revenue by Metal



Source: AGP Mining 2021

22.8 Operating Cost

Life of mine Cash Operating Costs include mine operations, process plant operations, general administrative cost, refining/transportation charges, carbon offsets and royalties. Table 22-5 shows the estimated operating cost by area as life of mine cost and per ton of ore processed.

Table 22-5: Operating Cost Summary

Area	Units	LOM Cost ($M)	$/tonne
Open Pit Mining	$/t mined		3.98
Open Pit Mining	$/t milled	243.7	20.53
Processing	$/t milled	179.7	15.14
General and Administrative	$/t milled	35.3	2.98
Transport & Refining Charges	$/t milled	9.2	0.78
Carbon Offset Purchases	$/t milled	3.1	0.26
Royalties	$/t milled	17.7	1.49
Total Operating Costs	**$/t milled**	**488.8**	**41.18**

22.8.1 Royalties

The buyback of the Wellgreen 1.0% royalty is considered at the beginning of the project. This costs $500,000 and reduces the overall royalty to 1.5%. The purchase of this royalty is included in the Initial Capex Indirects and not included in the royalties.

The 1.5% royalty remaining is attributed to Glencore.

An additional third party royalty, occurs after project payback with a total payment of $1.5 million over the life of the mine.

The total royalty payments life of mine is $17.7 million. The royalties are shown in Table 22-6.

Table 22-6: Royalties Summary

Royalty	%	Royalty Value LOM ($M)	Owner and Details
Wellgreen	1.0	-	1.0% Royalty bought at beginning of project for $0.5 M
Glencore	1.5	16.2	Glencore

22.9 Taxation

The taxation on the Shakespeare project reflects current Federal and Provincial legislation. Estimates for the Canadian Development Expenses (CDE), the Canadian Exploration Expenses (CEE) and Capital Cost Allowance (CCA) were incorporated into the cash flow model to properly model taxation on an annual basis for the project schedule.

The LOM taxes determined were:

1) Ontario Taxes = $ 30.2 million
2) Federal Taxes = $ 83.1 million
3) Total Taxes = $ 113.3 million

The amount of tax is approximately 33% of the pre-tax cash flow. Taxation added 0.1 years to the payback period of the project.

22.10 Project Financial Indicators

The financial evaluation presents the determination of the Net Present Value (NPV) for the Shakespeare Project Feasibility Study. Using metal prices of:

- Nickel = 8.50 $US/lb
- Copper = 3.95 $US/lb
- Cobalt = 24.00 $US/lb
- Platinum = 950 $US/oz
- Palladium = 1,750 $US/oz
- Gold = 1,600 $US/oz

The evaluation shows the following financial indicators with owner operated mining for the open pit:

- Undiscounted Cashflow, After-Tax $234 million
- NPV @ 6%, After-Tax $140 million
- IRR, After-Tax 21.5%
- Payback Period, After-Tax 3.5 years

The detailed information in the cashflow model is shown in Table 22-7.

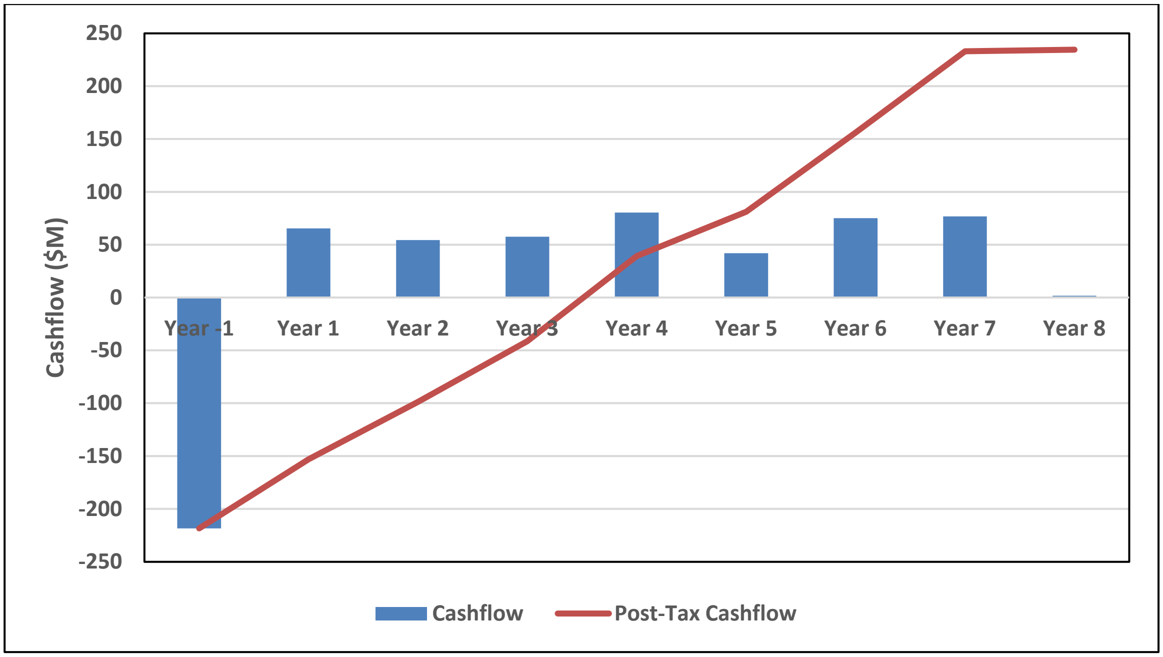
The Shakespeare Project Feasibility Study Cumulative Cashflow is shown in Figure 22-2. The Net Revenue versus operating and capital costs plus taxes is shown in Figure 22-3.

Table 22-7: Detailed Financial Model

		Total			Year -1	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11
Mill Production																
Total Mill Feed	tonnes	11,872,422			323,500	1,620,000	1,620,000	1,620,000	1,620,000	1,620,000	1,620,000	1,620,000	208,922	-	-	-
Nickel	%	0.33	85,610,006		0.25	0.34	0.29	0.32	0.40	0.28	0.35	0.35	0.16	-	-	-
Copper	%	0.35	91,123,428		0.31	0.34	0.32	0.33	0.44	0.29	0.38	0.38	0.15	-	-	-
Cobalt	%	0.02	5,425,698		0.02	0.02	0.02	0.02	0.03	0.02	0.02	0.02	0.01	-	-	-
Platinum	gpt	0.32	3,801,558		0.30	0.32	0.28	0.31	0.39	0.27	0.35	0.34	0.15	-	-	-
Palladium	gpt	0.36	4,220,001		0.34	0.35	0.31	0.34	0.45	0.30	0.38	0.39	0.16	-	-	-
Gold	gpt	0.18	2,142,673		0.16	0.17	0.16	0.16	0.22	0.15	0.20	0.21	0.08	-	-	-
Con Quantities and Recovered Metals																
Ni Concentrate	DMT	321,875			6,745	45,585	39,119	42,830	53,785	37,890	46,442	46,635	2,843	-	-	-
Nickel	pounds	63,865,064	74.6%		1,338,286	9,044,873	7,761,909	8,498,112	10,671,804	7,517,998	9,214,817	9,253,100	564,165	-	-	-
Copper	pounds	26,881,411	29.5%		653,580	3,535,428	3,349,939	3,473,445	4,633,172	3,063,656	3,973,108	3,988,920	210,163	-	-	-
Cobalt	pounds	2,908,174	53.6%		61,820	432,255	335,239	339,368	479,451	356,080	436,137	436,316	31,508	-	-	-
Platinum	ounces	88,856	72.7%		2,271	12,105	10,768	11,627	14,912	10,301	13,133	12,990	749	-	-	-
Palladium	ounces	54,406	40.1%		1,401	7,289	6,543	7,191	9,311	6,193	7,949	8,093	436	-	-	-
Gold	ounces	23,422	34.0%		577	3,076	2,848	2,857	3,882	2,691	3,566	3,741	185	-	-	-
Cu Concentrate	DMT	93,498			2,273	12,297	11,652	12,081	16,115	10,656	13,819	13,874	731	-	-	-
Nickel	pounds	1,883,420	2.2%		39,467	266,739	228,903	250,615	314,718	221,710	271,751	272,880	16,638	-	-	-
Copper	pounds	59,776,969	65.6%		1,453,386	7,861,834	7,449,355	7,723,999	10,302,919	6,812,740	8,835,115	8,870,277	467,346	-	-	-
Cobalt	pounds	124,791	2.3%		2,653	18,548	14,385	14,562	20,573	15,280	18,715	18,723	1,352	-	-	-
Platinum	ounces	4,278	3.5%		109	583	518	560	718	496	632	625	36	-	-	-
Palladium	ounces	3,799	2.8%		98	509	457	502	650	432	555	565	30	-	-	-
Gold	ounces	2,962	4.3%		73	389	360	361	491	340	451	473	23	-	-	-
Concentrates																
Ni Concentrate (DMT) - Grades	DMT	321,875			6,745	45,585	39,119	42,830	53,785	37,890	46,442	46,635	2,843	-	-	-
Nickel	%	9.00%			9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	0.00%	0.00%	0.00%
Copper	%	3.79%			4.40%	3.52%	3.88%	3.68%	3.91%	3.67%	3.88%	3.88%	3.35%	0.00%	0.00%	0.00%
Cobalt	%	0.41%			0.42%	0.43%	0.39%	0.36%	0.40%	0.43%	0.43%	0.42%	0.50%	0.00%	0.00%	0.00%
Platinum	g/DMT	8.59			10.47	8.26	8.56	8.44	8.62	8.46	8.80	8.66	8.19	-	-	-
Paladium	g/DMT	5.26			6.46	4.97	5.20	5.22	5.38	5.08	5.32	5.40	4.77	-	-	-
Gold	g/DMT	2.26			2.66	2.10	2.26	2.07	2.24	2.21	2.39	2.50	2.02	-	-	-
Ni Concentrate (WMT)	WMT	349,864			7,331	49,549	42,521	46,554	58,462	41,185	50,480	50,690	3,091	-	-	-
Ni Concentrate Delivered to Smelter (less losses)	DMT	320,266			6,711	45,358	38,924	42,616	53,516	37,701	46,210	46,402	2,829	-	-	-
Cu Concentrate (DMT) - Grades	DMT	93,499			2,273	12,297	11,652	12,081	16,115	10,656	13,819	13,874	731	-	-	-
Nickel	%	0.91%			0.79%	0.98%	0.89%	0.94%	0.89%	0.94%	0.89%	0.89%	1.03%	0.00%	0.00%	0.00%
Copper	%	29.00%			29.00%	29.00%	29.00%	29.00%	29.00%	29.00%	29.00%	29.00%	29.00%	0.00%	0.00%	0.00%
Cobalt	%	0.06%			0.05%	0.07%	0.06%	0.05%	0.06%	0.07%	0.06%	0.06%	0.08%	0.00%	0.00%	0.00%
Platinum	g/DMT	1.42			1.50	1.47	1.38	1.44	1.39	1.45	1.42	1.40	1.53	-	-	-
Palladium	g/DMT	1.26			1.34	1.29	1.22	1.29	1.25	1.26	1.25	1.27	1.29	-	-	-
Gold	g/DMT	0.99			1.00	0.98	0.96	0.93	0.95	0.99	1.02	1.06	1.00	-	-	-
Cu Concentrate (WMT)	WMT	101,629			2,471	13,366	12,665	13,132	17,516	11,583	15,021	15,081	795	-	-	-
Cu Concentrate Delivered to Smelter (less losses)	DMT	93,031			2,262	12,235	11,593	12,021	16,035	10,603	13,750	13,805	727	-	-	-

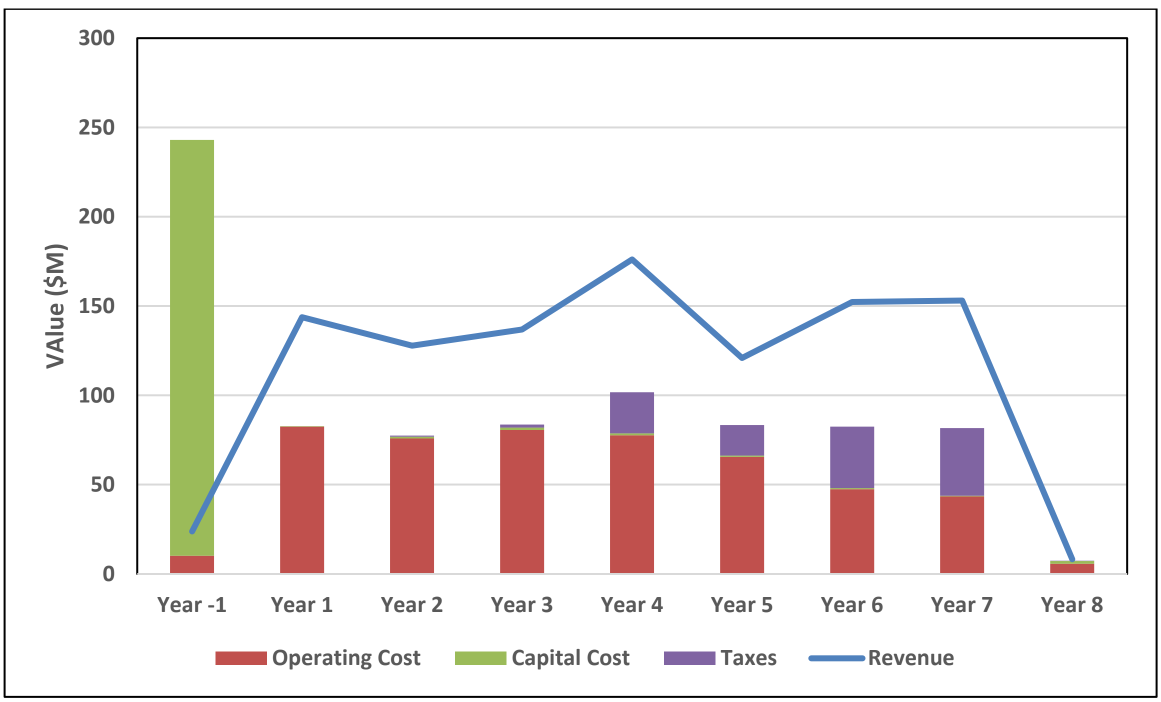
Mine Production					Year -1	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11
Open Pit																
Mill Feed																
Feed to Mill	tonnes	10,993,409			279,641	1,543,014	1,447,103	1,529,106	1,620,000	1,372,668	1,595,131	1,602,743	4,002	-	-	-
Feed to Stockpile	tonnes	879,014			252,585	72,996	168,161	175,743	-	-	209,529	-	-	-	-	-
Stockpile to Mill	tonnes	879,013			43,859	76,986	172,897	90,894	-	247,332	24,869	17,257	204,919	-	-	-
Waste	tonnes	59,124,456			10,100,000	10,201,577	10,200,000	10,200,000	9,000,000	7,217,700	1,675,598	504,604	24,978	-	-	-
Total Material	tonnes	71,875,892			10,676,085	11,894,573	11,988,161	11,995,743	10,620,000	8,837,700	3,505,126	2,124,604	233,900	-	-	-
Strip Ratio		4.98			31.22	6.30	6.30	6.30	5.56	4.46	1.03	0.31	0.12	-	-	-
Operating Cost			$/t feed	$/t mined												
Open Pit Mining	dollars	243,705,823	20.53	3.98	Prestripping capitalized	49,726,142	43,375,394	47,939,266	43,666,644	33,027,006	14,308,332	10,219,931	1,443,107	-	-	-
Processing	dollars	179,718,588	15.14		4,896,976	24,522,723	24,522,723	24,522,723	24,522,723	24,522,723	24,522,723	24,522,723	3,162,552	-	-	-
G&A	dollars	35,345,428	2.98		4,362,760	4,362,760	4,362,760	4,362,760	4,362,760	4,362,760	4,362,760	4,362,760	443,348	-	-	-
Concentrate Trucking - Nickel Concentrate	dollars	3,183,763	0.27		66,715	450,900	386,942	423,643	532,004	374,783	459,371	461,280	28,124	-	-	-
Concentrate Trucking - Copper Concentrate	dollars	6,046,934	0.51		147,022	795,289	753,564	781,346	1,042,225	689,165	893,745	897,302	47,276	-	-	-
Port Costs	dollars	0	0.00		-	-	-	-	-	-	-	-	-	-	-	-
Carbon Offset Purchase	dollars	3,142,130	0.26		306,499	414,412	441,840	480,782	459,034	398,847	276,017	241,880	122,818	-	-	-
Subtotal Operating	dollars	471,142,664			9,779,972	80,272,226	73,843,223	78,510,521	74,585,391	63,375,283	44,822,948	40,705,876	5,247,225	0	0	0
Capital Cost																
Open Pit Mining	dollars	61,366,164			58,731,701	85,545	618,345	831,018	631,391	306,745	161,418	-	-	-	-	-
Processing	dollars	64,800,273			63,529,679	-	216,001	216,001	216,001	216,001	216,001	190,589	-	-	-	-
Infrastructure	dollars	59,255,223			59,255,223	-	-	-	-	-	-	-	-	-	-	-
Environment Costs	dollars	7,029,845			1,844,050	184,405	184,405	184,405	184,405	184,405	184,405	184,405	1,526,955	2,368,005	-	-
Indirect	dollars	29,925,208			29,925,208	-	-	-	-	-	-	-	-	-	-	-
Contingency	dollars	19,701,568			19,569,845	4,277	30,917	41,551	31,570	15,337	8,071	-	-	-	-	-
Subtotal Capital	dollars	242,078,281			232,855,706	274,227	1,049,668	1,272,975	1,063,366	722,488	569,895	374,994	1,526,955	2,368,005	-	-
	$/tonne feed	$ 20.39			$ 719.80	$ 0.17	$ 0.65	$ 0.79	$ 0.66	$ 0.45	$ 0.35	$ 0.23	$ 7.31	$ -	$ -	$ -
Revenue (after smelting, refining, payables, etc)			$Cdn/DMT	$US/DMT												
Nickel Concentrate																
Subtotal Ni Concentrate Revenue	dollars	798,907,541	$ 2,494.52	$ 1,918.86	17,744,391	111,454,500	96,993,344	104,990,248	134,093,372	93,449,393	116,289,107	116,956,780	6,936,407	-	-	-
Copper Concentrate																
Subtotal Copper Concentrate Revenue	dollars	279,309,878	$ 3,002.32	$ 2,309.48	6,789,380	36,725,959	34,799,096	36,082,077	48,129,303	31,825,196	41,285,798	41,489,898	2,183,171	-	-	-
less Royalty	dollars	17,673,261	$ 42.76	$ 32.89	368,007	2,222,707	1,976,887	2,116,085	3,033,340	2,179,119	2,663,624	2,676,700	436,794	-	-	-
Net Revenue	dollars	1,060,544,158	$ 2,566.06	$ 1,973.89	24,165,765	145,957,752	129,815,553	138,956,240	179,189,334	123,095,470	154,911,282	155,769,978	8,682,784	-	-	-
	$/tonne feed	$ 89.33			$ 74.70	$ 90.10	$ 80.13	$ 85.78	$ 110.61	$ 75.98	$ 95.62	$ 96.15	$ 41.56	$ -	$ -	$ -
Revenue Summary by Metal																
Nickel	dollars	530,146,215			11,109,163	75,081,817	64,431,892	70,543,135	88,587,035	62,407,172	76,492,531	76,810,317	4,683,153	-	-	-
Copper	dollars	347,915,886			8,459,043	45,757,703	43,356,980	44,955,476	59,965,386	39,651,732	51,422,427	51,627,077	2,720,062	-	-	-
Payable By-Products	dollars	200,155,318			4,965,566	27,340,938	24,003,567	25,573,714	33,670,252	23,215,685	29,659,947	30,009,285	1,716,363	-	-	-
Pre-Tax Cashflow																
Operating Cost	dollars	471,142,000	$ 1,139.96	$ 876.89	9,780,000	80,272,000	73,843,000	78,511,000	74,585,000	63,375,000	44,823,000	40,706,000	5,247,000	0	0	0
Capital Cost	dollars	242,078,000	$ 585.72	$ 450.56	232,856,000	274,000	1,050,000	1,273,000	1,063,000	722,000	570,000	375,000	1,527,000	2,368,000	0	0
Revenue	dollars	1,060,544,000	$ 2,566.06	$ 1,973.89	24,166,000	145,958,000	129,816,000	138,956,000	179,189,000	123,095,000	154,911,000	155,770,000	8,683,000	0	0	0
Pre-Tax Cashflow	dollars	347,324,000			-218,470,000	65,412,000	54,923,000	59,172,000	103,541,000	58,998,000	109,518,000	114,689,000	1,909,000	-2,368,000	0	0
Pre-Tax Cumulative Cashflow	dollars				-218,470,000	-153,058,000	-98,135,000	-38,963,000	64,578,000	123,576,000	233,094,000	347,783,000	349,692,000	347,324,000	0	0
Post-Tax Cashflow																
Ontario Mining Tax	dollars	30,177,752	9%		-	-	615,277	1,698,550	6,996,698	2,496,687	7,744,555	10,596,409	29,576	-	-	-
Federal Taxes	dollars	83,128,575	24%		-	-	-	-	16,079,512	14,568,602	26,710,143	27,318,044	156,372	- 1,376,881	- 189,413	- 137,805
Total Tax	dollars	113,306,327	33%		-	-	615,277	1,698,550	23,076,210	17,065,289	34,454,698	37,914,453	185,949	(1,376,881)	(189,413)	(137,805)
Post-Tax Cashflow	dollars	234,017,673			-218,470,000	65,412,000	54,307,723	57,473,450	80,464,790	41,932,711	75,063,302	76,774,547	1,723,051	-991,119	189,413	137,805
Post-Tax Cumulative Cashflow	dollars				-218,470,000	-153,058,000	-98,750,277	-41,276,826	39,187,964	81,120,675	156,183,977	232,958,523	234,681,575	233,690,455	233,879,868	234,017,673
		Pre-Tax	Post Tax													
NPV (millions) @	**5%**	$239	$153													
	6.0%	$221	$140	Mine Life									7.1			
	8%	$188	$115													
Payback Period	**years**	3.4	3.5													
Mine Life	**years**	7.1														
IRR	**%**	27.2%	21.5%													

Figure 22-2: Shakespeare Project Feasibility Study Cashflow – Post Tax



Source: AGP Mining 2021

Figure 22-3: Net Revenue versus Operating Cost, Capital Cost and Taxes



Source: AGP Mining 2021

22.10.1 Sensitivity Analysis

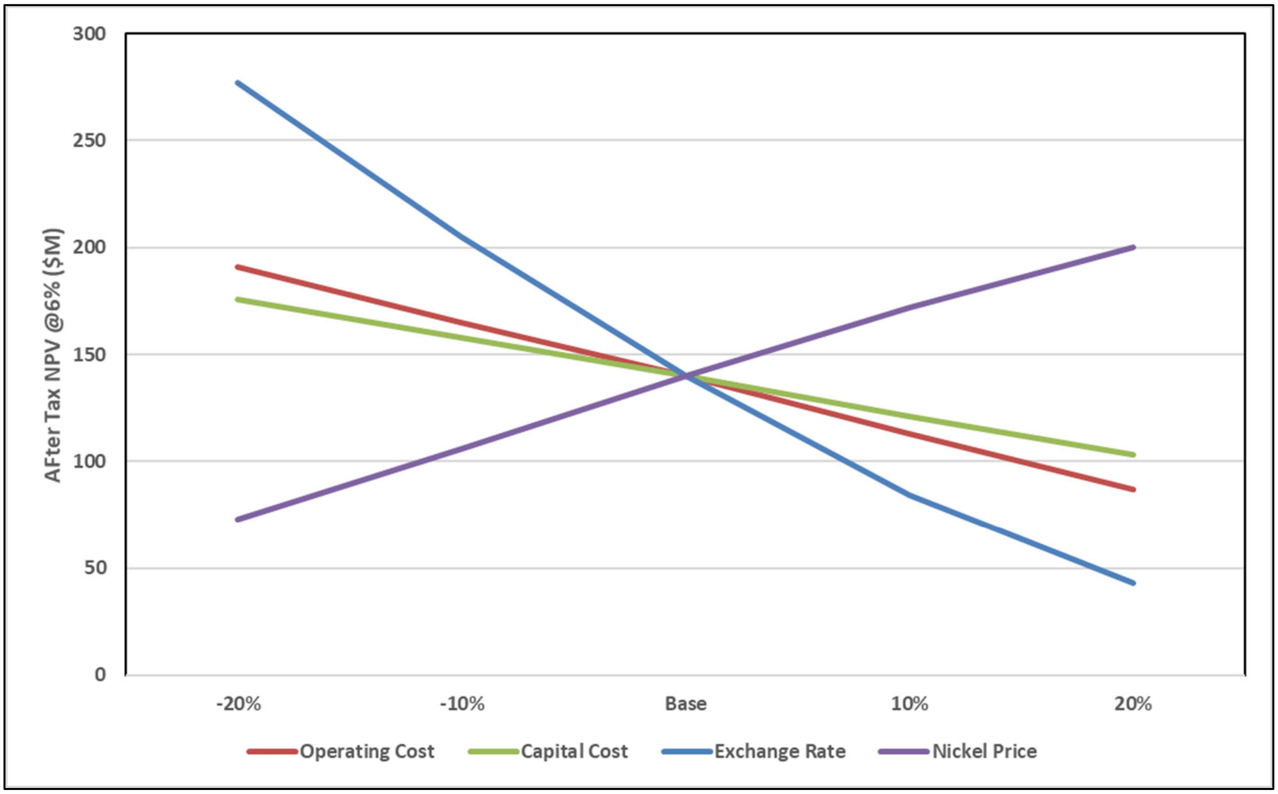
The following tables illustrate the Base Case project economics and the sensitivity of the project to changes in the base case nickel price, exchange rate, operating costs, and capital costs. As nickel represents 49% of the revenue, this was the only metal altered for the sensitivity.

The Shakespeare Project is most sensitive to exchange rate, followed by metal price, operating cost and then capital costs. The sensitivities are presented in Table 22-8 and are also shown graphically in Figure 22-4. As the metal prices in the cashflow model are denoted in United States dollars, variation in the exchange rate has a larger impact as it affects all the metal prices, versus just the singular nickel price.

Table 22-8: After Tax Sensitivity

Variance	Operating Cost NPV (6%) $M	Capital Cost NPV (6%) $M	Exchange Rate		Nickel Price	
			($US:$CDN)	NPV (6%) $M	$US/lb.	NPV (6%) $M
-20 %	191	176	0.62	277	6.80	73
-10 %	165	158	0.69	205	7.65	106
Base	**140**	**140**	**0.77**	**140**	**$8.50**	**140**
10 %	113	121	0.85	84	9.35	172
20%	87	103	0.92	43	10.20	200

Figure 22-4: Sensitivity Analysis – NPV @ 6%



Source: AGP Mining 2021

23 ADJACENT PROPERTIES

There are no adjacent properties of note that impact the Shakespeare Property or Project.

24 OTHER RELEVANT DATA AND INFORMATION

24.1 GHG Emissions

24.1.1 Introduction

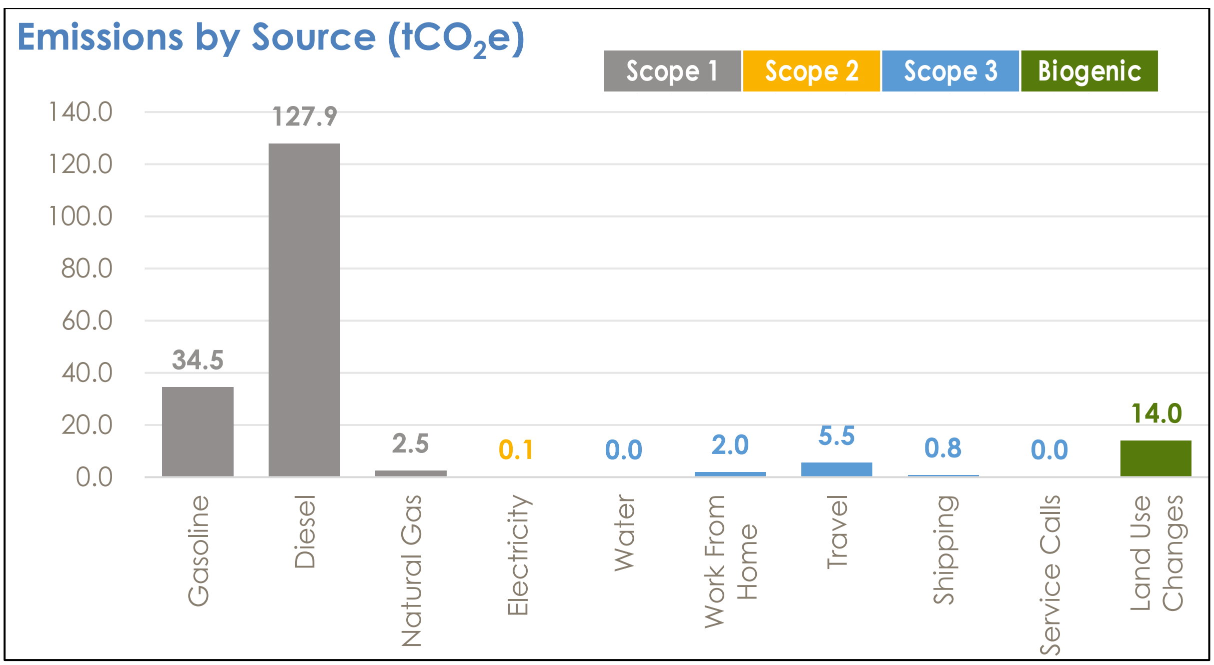
This section describes the Greenhouse Gas (GHG) emissions modelling activities that were undertaken by Synergy Enterprises and presents the projected life-of-mine (LOM) emissions profile of the proposed Shakespeare project. It also summarizes key opportunities for further emissions reductions.

Emissions were modelled in alignment with the principles and methodology outlined in the Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard. Unless otherwise stated, emissions values are given in tonnes of carbon dioxide equivalent (tCO_2e).

24.1.2 Emissions from Exploration Activities

In May 2021, an emissions estimation report for Shakespeare's exploration activities in the 2021 calendar year was completed. Magna used this estimate to offset emissions from exploration and become carbon neutral; a reconciliation of estimated to actuals is expected in early 2022. Magna purchased verified carbon credits from Toronto-based carbon management firm Carbonzero.

Figure 24-1: Emissions from 2021 Exploration Activities by Source



Source: Emissions Estimation Report for Magna Mining, Synergy Enterprises 2021

The results of this report as given in Figure 24-1 indicate annual emissions during the exploration of the Shakespeare site of 187.3 tCO_2e. The primary source of emissions during exploration is diesel consumption in the diamond drill, expected to complete 9000+ metres of drilled distance by the close of 2021, as well as diesel and gasoline used in company vehicles. Total emissions from primary fuel consumption are estimated to be 163 tCO_2e. Approximately 0.5 hectares of land is estimated to be cleared, resulting in emissions of 14 tCO_2e.

24.1.3 Emissions from Pre-Production & Production

Boundaries

For the purposes of this analysis, three emissions models were created: a company level, a site level, and a product level.

The company level model estimates Magna Mining's emissions in line with the GHG Protocol's Corporate Accounting Standard, and includes all material Scope 1, 2 and 3 emissions within the company's operational control.

The site level model estimates emissions from the Shakespeare site in particular and includes only Scope 1 and 2 emissions.

The product level model estimates emissions to the first saleable product ("cradle to gate"), and includes all Scope 1 and 2 emissions, as well as Scope 3 emissions directly related to the transport and processing of the salable product. These boundaries of these models are summarized in Table 24-1 below.

Table 24-1: Pre-Production & Production Emissions Model Boundaries

		Company Level	Site Level	Product Level
Temporal Boundary		One year of pre-production and eight years of mining, based on the proposed LOM for the Shakespeare project.	One year of pre-production and eight years of mining, based on the proposed LOM for the Shakespeare project.	One year of pre-production and eight years of mining, based on the proposed LOM for the Shakespeare project.
Geographic Boundary		The Shakespeare project site, a 180 km^2 land package 10 km north-northwest of Espanola, ON and 70 km southwest of Sudbury, ON.	The Shakespeare project site, a 180 km^2 land package 10 km north-northwest of Espanola, ON and 70 km southwest of Sudbury, ON.	The Shakespeare project site as well as the smelters in Rouyn-Noranda, QC and Sudbury, ON.
Organizational Boundary		All Scope 1, 2 and relevant company-level Scope 3 emissions	All site-level Scope 1 and 2 emissions.	All Scope 1, 2 and relevant product-level Scope 3 emissions.
Emission Sources (Operational Boundary)	Scope 1 (Direct Emissions):	Diesel for vehicles & equipment Propane for heating Explosives	Diesel for vehicles & equipment Propane for heating Explosives	Diesel for vehicles & equipment Propane for heating Explosives
	Scope 2 (Indirect Emissions from Purchased Electricity, Heat or Steam):	Electricity from Hydro One	Electricity from Hydro One	Electricity from Hydro One
	Scope 3 (Indirect Emissions from Other Sources):	Upstream Shipping (e.g. fuel, mill balls) Downstream Shipping (e.g. ore to smelters) Staff Commuting		Downstream Shipping (e.g. ore to smelters) Smelting
	Biogenic Emissions	Biodiesel	Biodiesel	Biodiesel
Excluded Emission Sources		Business Travel G&A emissions from Sudbury office		

Total Emissions over Life of Mine

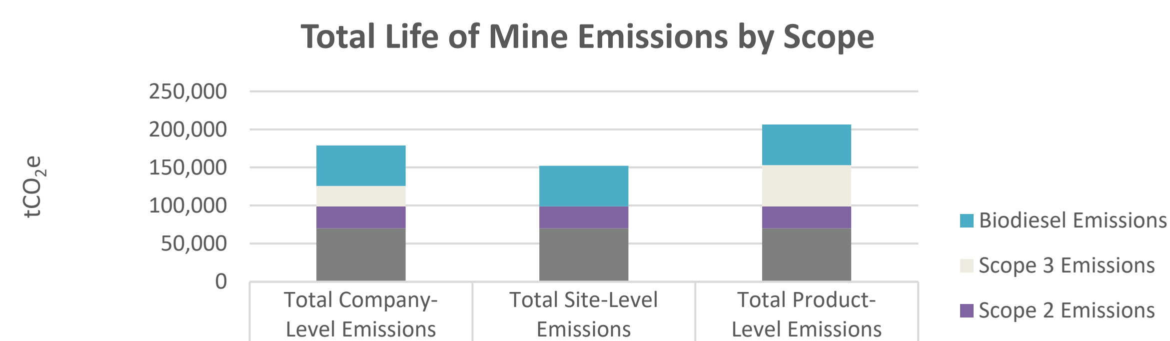
Total emissions are projected to be 178,972 tCO_2e at the company level, 98,904 tCO_2e at the site level, and 206,389 tCO_2e at the product level. Total emissions are summarized and broken down by scope in

Figure 24-2. In each model, 53,287 tCO_2e come from biodiesel due to Magna's use of a B50 blend for all vehicles and equipment.

In each model, 53,287 tCO_2e come from biodiesel due to Magna's use of a B50 blend for all vehicles and equipment. Using biodiesel reduces lifecycle emissions because the carbon dioxide released when the fuel is combusted is offset by the carbon dioxide absorbed from growing the feedstocks used to produce the fuel. For this reason, emissions from biodiesel are reported separately from emissions from fossil sources, and do not need to be offset should Magna choose to remain carbon neutral.

Scope 2 emissions have been reported using the location-based Ontario grid emissions factor. Moving forward, Magna intends to finalize an agreement with Hydro One to provide a power line directly from a nearby dam to the Shakespeare site. When this agreement is in place, Scope 2 emissions will be reporting using the market-based method and will be reduced to zero.

Figure 24-2: Total Life of Mine Emissions by Scope



	Total Company-Level Emissions	Total Site-Level Emissions	Total Product-Level Emissions
Biodiesel Emissions	53,287	53,287	53,287
Scope 3 Emissions	26,782	0	54,199
Scope 2 Emissions	28,904	28,904	28,904
Scope 1 Emissions	69,999	69,999	69,999

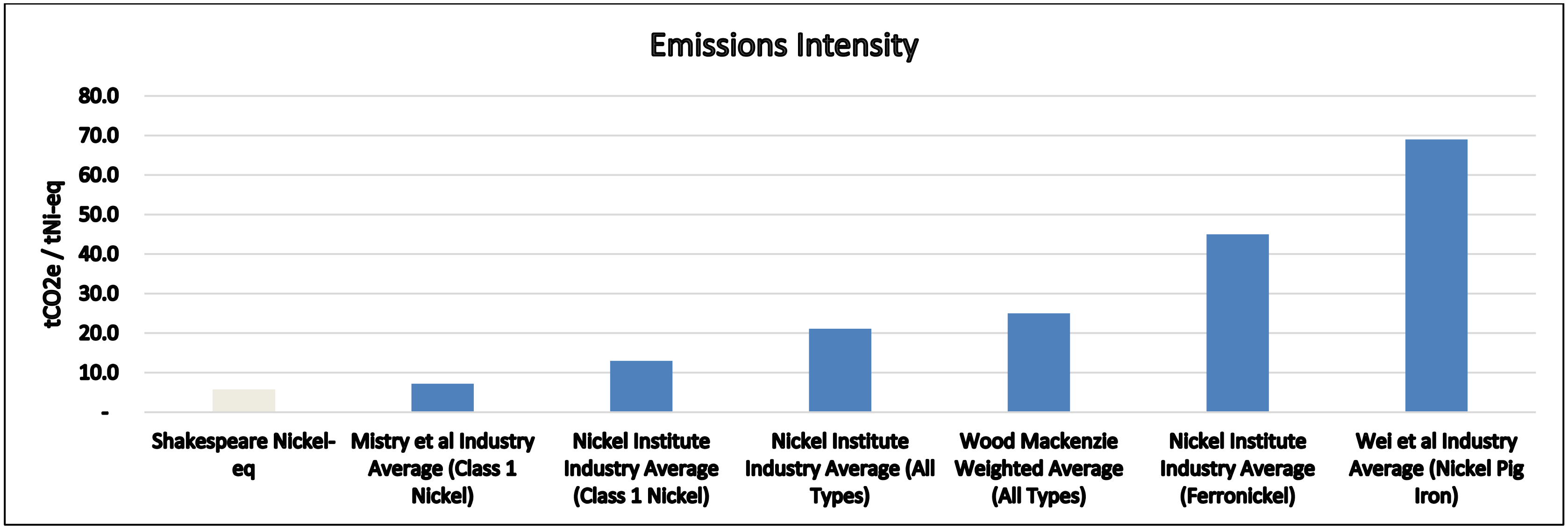
Source: Synergy Enterprises 2021

Emissions Intensity

The emissions intensity (tCO_2e/t Ore) of Shakespeare's nickel are given in Figure 24-3. These values were calculated using the product level model, to allow for meaningful comparisons to industry averages. Shakespeare's emissions intensity is below industry averages published by the Nickel Institute, representing 52% of the global production of Class 1 nickel, and it is well below industry averages for all other types of nickel, particularly ferronickel and nickel pig iron.

One of the main reasons for the variation in emissions intensities is the type of deposit; sulphide ore deposits, which represent 40% of the world's identified nickel resources, tend to be high purity and require extraction processes that are comparatively less energy-intensive than laterite ores. Further, the increasing demand for nickel is driving the development of laterite deposits in countries like Indonesia and China, where energy grids are GHG-intensive. The Shakespeare deposit can achieve an emissions intensity well below averages because it is a sulphide deposit with access to clean power.

Figure 24-3: Emissions Intensity of Shakespeare Nickel-eq compared to Industry Averages



Source: Synergy Enterprises 2021

Note: The Nickel Institute uses the following mass-based functional units: Class 1 Nickel = 1 kg of Class 1 nickel (>99.8%); Ferronickel = 1 kg nickel in ferronickel (with a reference flow of 3.7 kg ferronickel based on 27% nickel content); Nickel Sulphate = 1 kg of nickel sulphate hexahydrate (22% nickel content).

*Citations for graph:

“Life Cycle Assessment of Nickel Products” (Mistry et al., 2016)

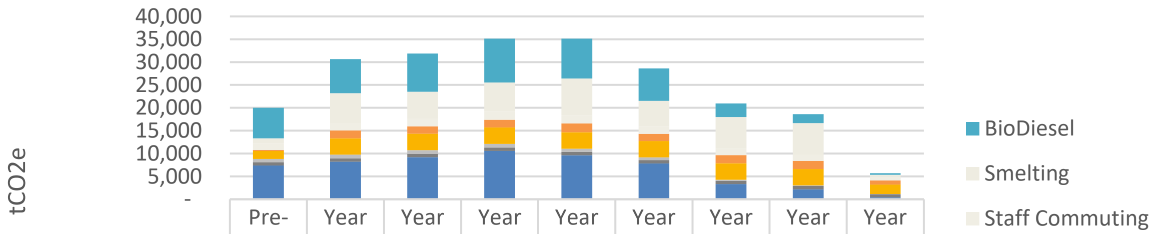
“Life Cycle Data” (Nickel Institute, 2020)

“Energy Consumption and Greenhouse Gas Emissions of Nickel Products” (Wei et al., 2020)

Emissions Profile by Source

Diesel and biodiesel consumption are the largest emission sources at the Shakespeare site, at 26% and 24% of the total respectively (see Figure 24-4). Diesel emissions are followed closely by smelting, at 21% of the total. Emissions from electricity are the third largest emission source, at 13% of the total. All other emission sources account for less than 10% of the total.

Figure 24-4: Year-over-Year Emissions by Source



	Pre-Prod	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
BioDiesel	6,694	7,467	8,358	9,598	8,737	7,113	3,001	1,960	359
Smelting	1,044	6,616	5,834	6,291	8,035	5,561	6,924	6,953	408
Staff Commuting	1,506	1,538	1,724	1,870	1,781	1,643	1,417	1,287	818
Shipping	195	1,711	1,634	1,681	1,941	1,581	1,785	1,788	881
Electricity	1,748	3,581	3,581	3,581	3,581	3,581	3,581	3,581	2,088
Explosives	726	809	816	816	723	601	238	145	16
Propane	719	719	719	719	719	719	719	719	719
Diesel	7,366	8,218	9,199	10,56	9,616	7,828	3,300	2,155	391

Source: Synergy Enterprises 2021

Diesel

Diesel is used for excavation, haulage, and auxiliary services equipment, as well as for support service equipment such as shuttle busses, water and refueling trucks, and light vehicles. Emissions from diesel are calculated based on the total volume of fuel consumed.

Propane

Propane is used for heating in the mine concentrator, the truck shop, the effluent treatment plant and the admin and lab. Emissions from propane are calculated based on the total volume of fuel consumed.

Explosives

Emissions from ammonium nitrate/fuel oil (ANFO) explosives are calculated based on an explosives per tonne of material mined ratio.

Electricity

Electricity is primarily used in the processing plant, as well as for auxiliary infrastructure. Emissions from electricity for milling was calculated based on a kWh/tonne of milled material ratio, while emissions from electricity for auxiliary equipment was based on estimated annual consumption.

Shipping

Inbound shipments include fuel to site and mills balls for the processing plant. Outbound shipments include copper and nickel ore shipped to the Horne Smelter and Vale Smelter. Shipping emissions were calculated based on the estimated weights of all shipments, and the distance traveled.

Staff Commuting

Emissions from staff commuting were modeled for processing labour, general and administrative, and mine staff. Staff were assumed to be located in Sudbury.

Smelting

Emissions from smelting were modeled for copper ore concentrate processed at a smelter in Rouyn-Noranda, QC and nickel ore processed at a smelter in Sudbury, ON. Emissions were estimated based on the total Scope 1 and 2 emissions reported by each facility, weighted per tonne of ore concentrate processed.

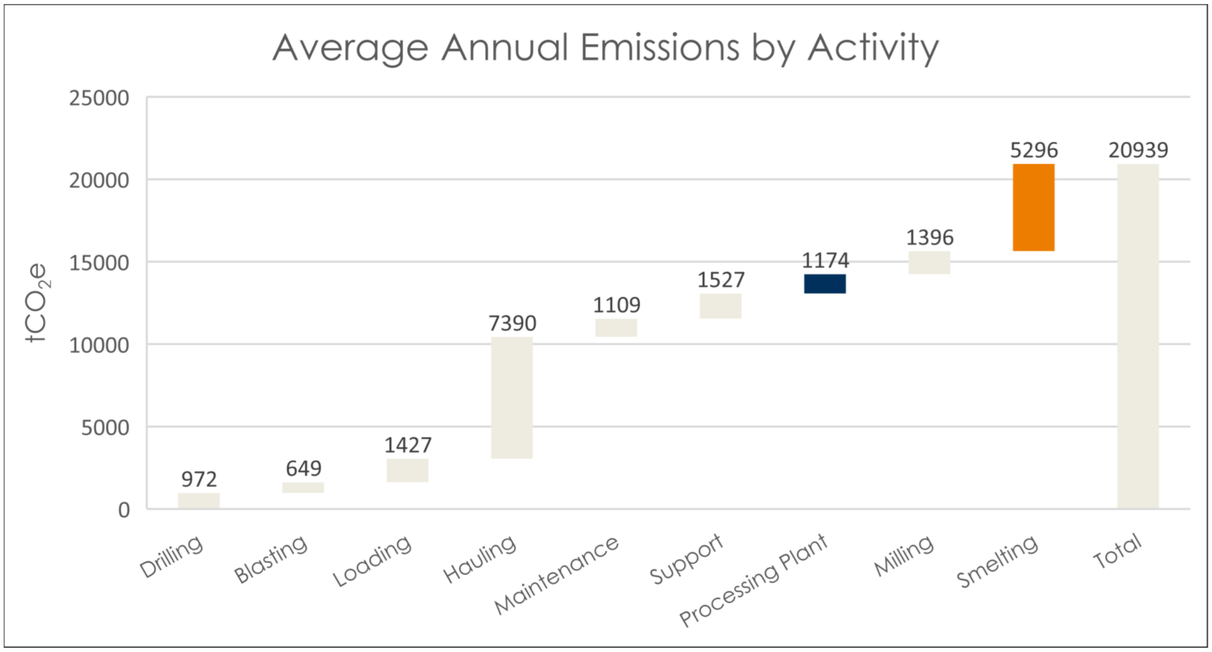
Biodiesel

The use of a B50 diesel blend results in emissions from biodiesel. Biodiesel emissions were calculated based on the total volume of fuel consumed. Because biodiesel emissions are part of the biogenic carbon cycle, these emissions are reported separately from Scopes 1, 2 and 3.

24.1.4 Emissions by Mine Activity

As shown in Figure 24-5, material hauling will generate 37% of the total mine emissions over of the life of the mine. Emissions generated from smelting account for more emissions than drilling, blasting, and loading combined. Mine operations support and maintenance, although not directly involved in material extraction or processing, account for 8% of the total emissions.

Figure 24-5: Average Annual Emissions by Activity



Source: Synergy Enterprises 2021

24.1.5 Reducing Emissions by Design

The Shakespeare project has been designed with the intention of minimizing GHG emissions.

All diesel consumed onsite will have a 50% biodiesel content (B50). Using biodiesel reduces lifecycle emissions because the carbon dioxide released when the fuel is combusted is offset by the carbon dioxide absorbed from growing the feedstocks used to produce the fuel. For this reason, emissions from biodiesel are reported separately from emissions from fossil sources, and do not need to be offset should Magna choose to remain carbon neutral.

Scope 2 emissions have been reported using the location-based Ontario grid emissions factor. Shakespeare's emissions profile benefits from its location in Ontario, which has a relatively clean electricity grid. Due to its reliance on nuclear and hydro power, the average emission intensity of each kWh consumed in Ontario is 0.029 $kgCO_2e/kWh$, one of the lowest of all provinces in Canada and twenty-seven times less GHG intensive than other major nickel-producing regions like Indonesia, at 0.769 $kgCO_2e/kWh$.

Moving forward, Magna intends to finalize an agreement with Hydro One to provide a power line directly from a nearby dam to the Shakespeare site. When this agreement is in place, scope 2 emissions will be reduced to zero.

24.1.6 Further Emissions Reduction Opportunities

Magna is continuing to explore further opportunities for emissions reductions. Several opportunities have been outlined in Tables 24-2, 24-3, and 24-4 and Figure 24-6 based on the GHG reduction potential and the feasibility of their implementation.

If all reduction opportunities were implemented, Magna could further reduce their GHG emissions profile by 71.89%. If only high and medium feasibility initiatives were undertaken, emissions could be reduced by 34.71%.

While common in the mining industry, several opportunities that were not explored include on-site renewable power generation (due to Shakespeare's proximity to clean grid power), and mineral carbonation in mine tailings (as Shakespeare is not a serpentine rock deposit).

Table 24-2: Reduction Opportunities with High Feasibility

Opportunity	Impact	Absolute Reduction	% Reduction	Feasibility Rationale
Hybridization of Haul Trucks	~9% reduction in fuel consumption	5,986	3.3%	Targets the highest fuel consumers with available technology
Hybridization of Loading/Blasting Wheel Loaders	~35% reduction in fuel consumption	2,913	1.6%	Targets heavy equipment with available solutions
Electric Pickup Trucks	No diesel use	3,972	2.2%	Electric Vehicle infrastructure is proven technology
Electric Shuttle Bus	No diesel use	104	0.1%	Electric Vehicle infrastructure is proven technology
Completion of Hydro One Agreement	100% reduction in Scope 2 Emissions	28,904	16.2%	Agreement nearing completion
	TOTAL	**41,879.86**	**23.4%**	

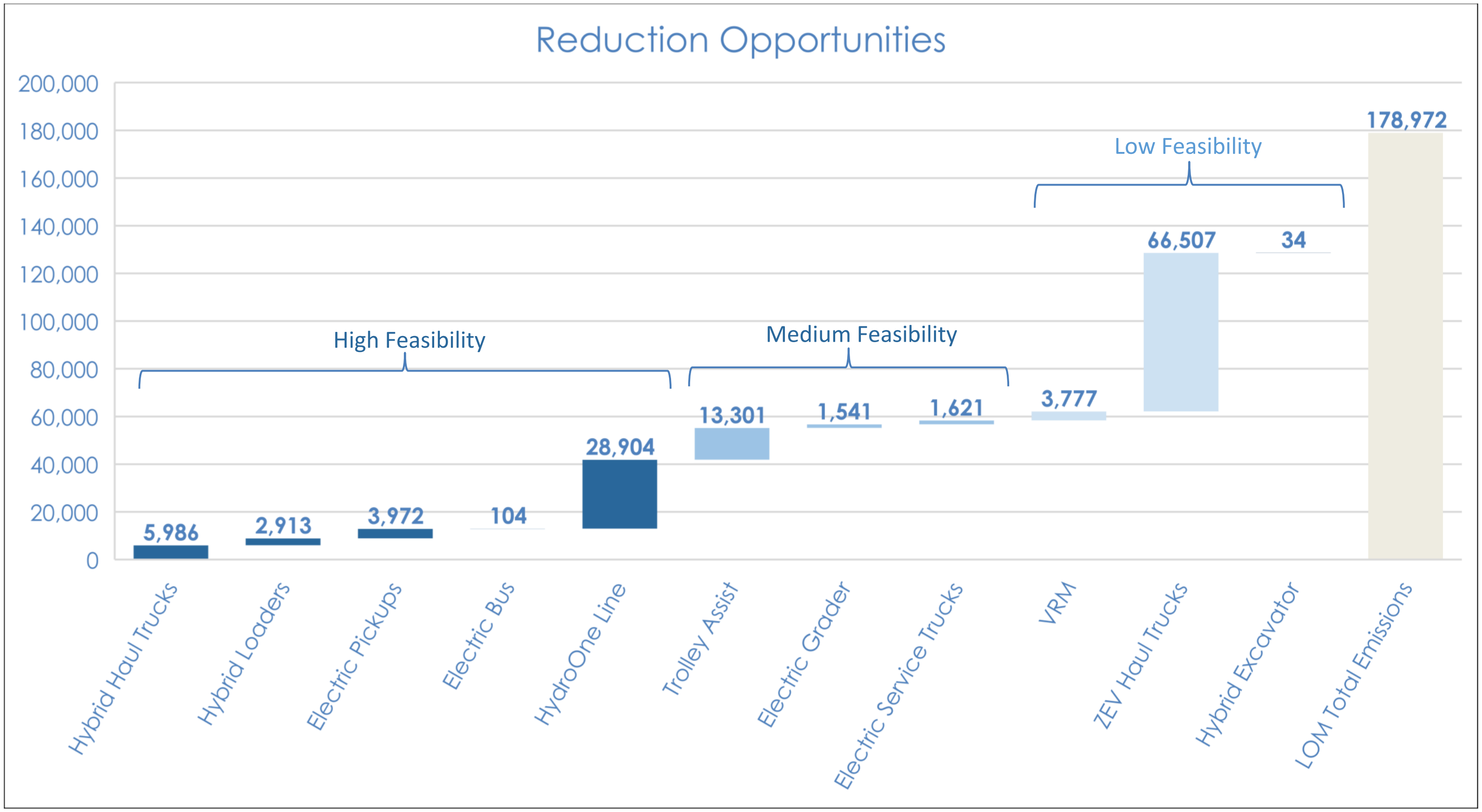
Table 24-3: Reduction Opportunities with Medium Feasibility

Opportunity	Impact	Absolute Reduction	% Reduction	Feasibility Rationale
Haul Truck Trolley Assist	~20% reduction in fuel consumption	13,301	7.4%	Significant reductions but requires extensive infrastructure
Electric Grader Conversion	no diesel use	1,541	0.9%	moderate reduction but requires costly conversion
Electric Service Trucks	no diesel use	1,621	0.9%	moderate reduction but relies on larger electric vehicle availability
Vertical Roller Mills (VRM)	15-30% reduction in energy consumption	3,777	2.1%	would reduce electricity consumption by ~100,000 MWh over LOM
	Total	**20,241**	**11.3%**	

Table 24-4: Reduction Opportunities with Low Feasibility

Opportunity	Impact	Absolute Reduction	% Reduction	Feasibility Reason
Battery Electric or Hydrogen Haul Trucks	No diesel use	66,507	37.2%	Emerging Technology that is unlikely to be available during LOM
Hybrid Maintenance Excavator	~20% reduction in diesel consumption	34	0.0%	Costly equipment for minor reduction
	Total	**66,541**	**37.2%**	

Figure 24-6: Emissions Reduction Opportunities by Feasibility



Source: Synergy Enterprises 2021

24.1.7 Maintaining Carbon Neutrality

Magna is interested in maintaining carbon neutrality once the mine is operational by purchasing verified carbon credits from the voluntary market to offset emissions from mine activities.

If Magna were to offset emissions without pursuing any additional reduction opportunities (including finalizing the power purchase agreement with Hydro One), the LOM cost to maintain carbon neutrality would total $3,142,130, or $349,126 per year. If Magna successfully achieves all emissions reductions opportunities with high feasibility, LOM carbon neutrality costs would decrease to $2,095,133, or $232,793 per year. If they were to achieve all emissions reductions opportunities with medium and high feasibility, LOM carbon neutrality costs would total $1,589,110, or $176,568 per year. All carbon neutrality costs were calculated assuming offsets are available in the voluntary market for an average of $25 per tonne of carbon equivalent.

24.2 Construction Schedule

The Shakespeare project benefits from being a past producer by having many of the required permits in place, requiring only updates to those to advance towards construction.

Considering reasonable timelines for the receipt of the updates and any new permits, a construction schedule was developed to show the anticipated time for construction. This has been shown in Figure 24-7, Figure 24-8, and Figure 24-9 below.

The timeline shows commissioning occurring just under two years from a construction decision by Magna Mining.

Figure 24-7: Construction Schedule – Part 1

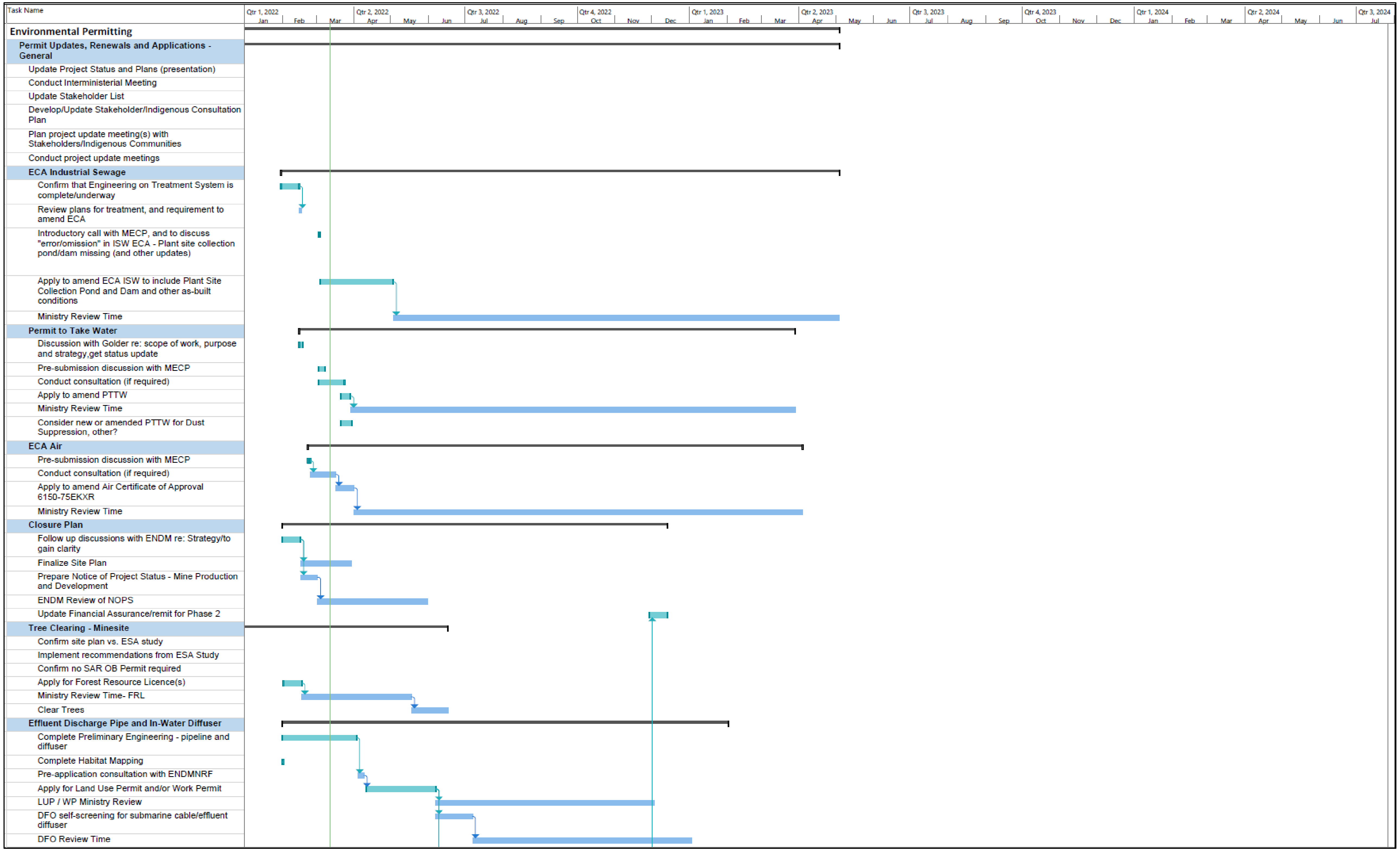


Figure 24-8: Construction Schedule – Part 2

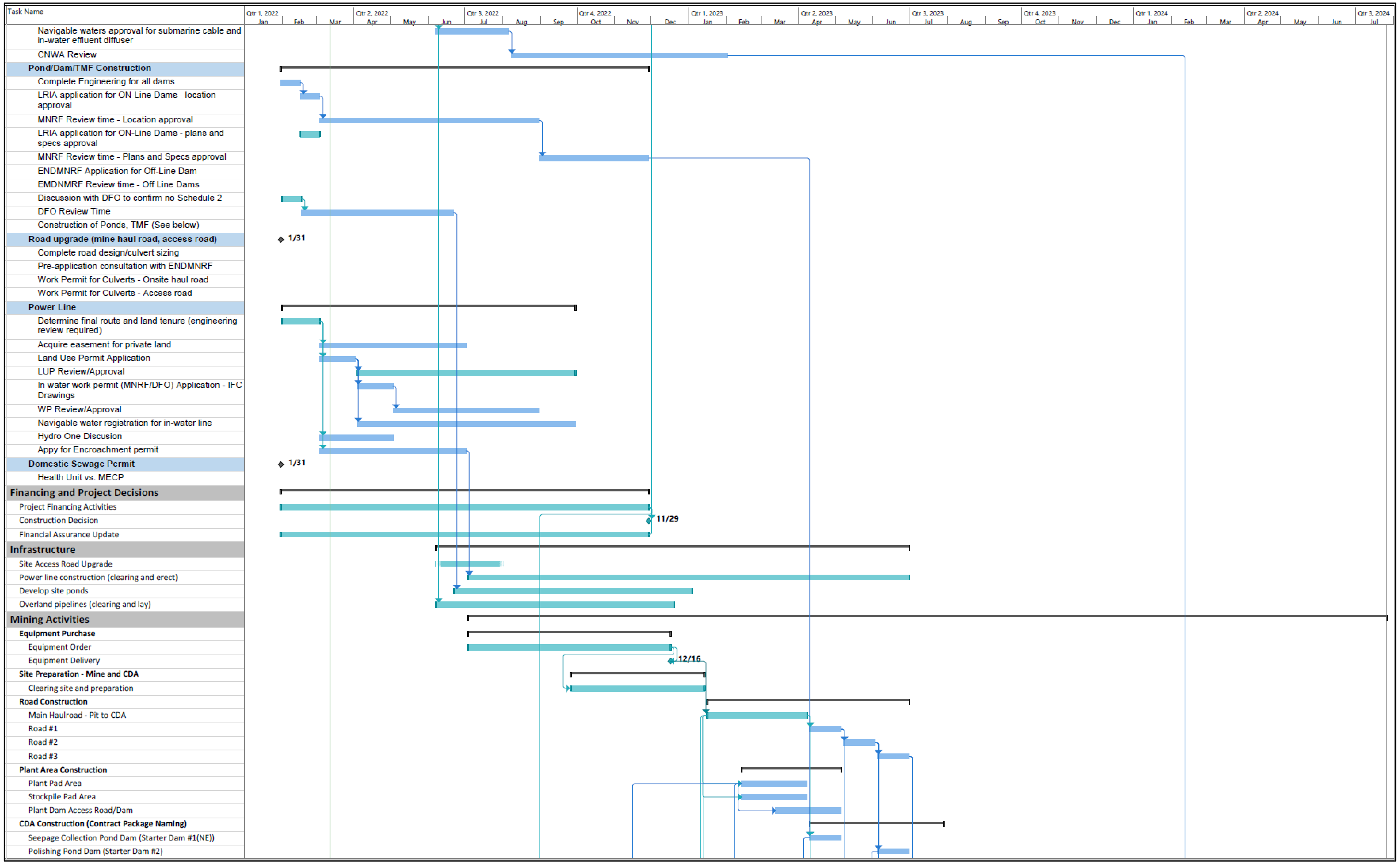
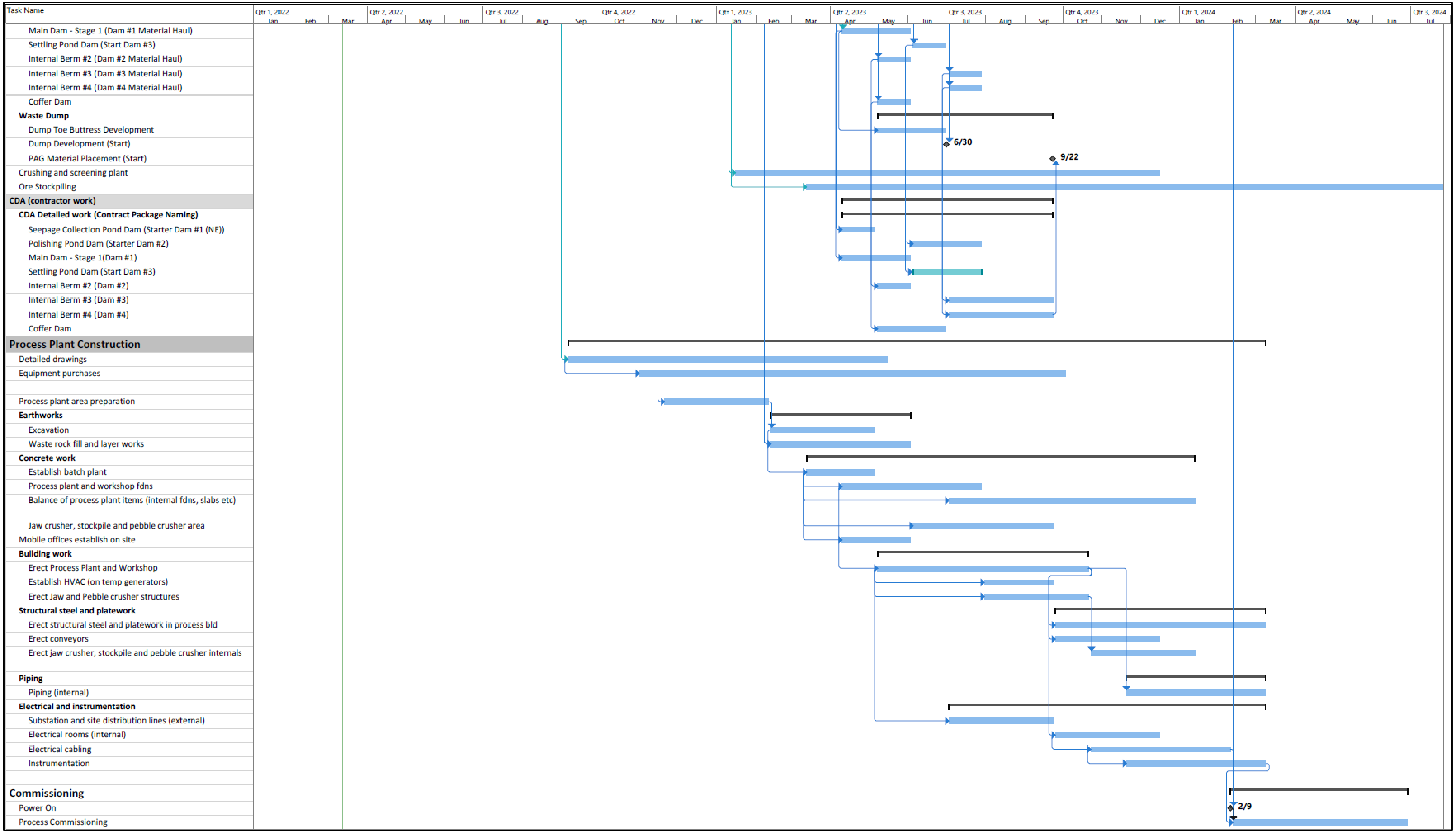


Figure 24-9: Construction Schedule – Part 3



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25 INTERPRETATION AND CONCLUSIONS

The Shakespeare Project Feasibility Study provides a clear conclusion that the Shakespeare mine as envisaged is economically viable based on the assumptions laid out for metal price, metallurgical recoveries, and all other data.

There are no known factors related to, environmental, permitting, legal, title, taxation, socio-economic, marketing, or political issues which could materially affect the mineral resource or reserves estimates.

Based on evaluation of the data available from the Shakespeare Project Feasibility Study, the authors of this report have drawn the following conclusions:

25.1 Geology and Exploration

The Shakespeare copper-nickel deposit is hosted within gabbroic rocks of the Nipissing Intrusive Suites. The intrusion hosting the deposit is comprised of semi-massive to disseminated sulfides including pyrrhotite, chalcopyrite, pentlandite, and lesser pyrite. The sulfides are broadly categorized into three groups; disseminated, heavily disseminated and blebby.

The total strike length of Shakespeare mineralization is approximately 1,700 m and the mineralization extends to a depth of ~550m (open at depth). The deposit is subdivided into a West and East resource zone.

The current Mineral Resource Estimate for the Shakespeare deposit includes an open pit and an underground Mineral Resource (estimated from the bottom of the current pit design).

Highlights of the Shakespeare deposit Mineral Resource Estimate are as follows:

- The open pit Mineral Resource includes, at a base case cut-off grade of 0.2% NiEq, 16,508,000 tonnes grading 0.34% Ni, 0.36% Cu, 0.02% Co, 0.33 g/t Pt, 0.36 g/t Pd and 0.19 g/t Au in the Indicated category.
- The underground Mineral Resource includes, at a base case cut-off grade of 0.4% NiEq, 3,832,000 tonnes grading 0.31% Ni, 0.36% Cu, 0.02% Co, 0.30 g/t Pt, 0.32 g/t Pd and 0.19 g/t Au in the Indicated category, and 2,355,000 tonnes grading 0.33% Ni, 0.40% Cu, 0.02% Co, 0.34 g/t Pt, 0.37 g/t Pd and 0.20 g/t Au in the Inferred category.

Areas of uncertainty that may affect the mineral resource estimates include mining cost assumptions, metal prices, process recoveries and changes to the geological model.

25.2 Mining

The Feasibility Study LOM plan is based upon Proven and Probable Mineral Reserves of 11.8 Mt with a nickel grade of 0.33%, copper grade 0.348%, cobalt grade of 0.02%, platinum grade of 0.32 g/t, palladium grade of 0.36 g/t and gold grade of 0.18 g/t. Waste to be moved totals 59.1 Mt for an overall strip ratio of 4.98:1 (waste: ore). Mining of the deposit occurs in four phases over a 7.1 year mine life after a year of prestripping for a total mine life of 8.1 years.

The pits are built with 10 m bench heights with 8.5 to 10.5 m wide safety berms spaced 20 m apart vertically. Inter-ramp angles are 55 degrees, but the overall angles vary from 44 to 55 degrees depending upon the wall orientation and ramp placement. Ramps are at maximum 10% gradient and vary in width from 15 m (single lane width) to 24 m (double lane width). They have been designed for 91 t haulage trucks.

The mine equipment fleet is anticipated to be financed to lower capital requirements. The fleet will be comprised of two 165 mm down the hole drills, one 13 m3 front end loader and one 7.6 m3 hydraulic excavator. The truck fleet will total 9 trucks in Year 1 and rise to 12 trucks from Year 3 onwards. The usual assortment of dozers, graders, small backhoes and other support equipment is considered in the equipment costing. A smaller front end loader (7.8 m3) will be stationed at the primary crusher.

The waste dumps are located at the Co-Disposal Area (CDA) where NAG and PAG rock will be comingled with the tailings. From Year 4 onwards, PAG mine rock and pyrrhotite tailings will be placed in the West pit for storage while NAG mine rock will go to the CDA.

The LOM operating cost is estimated at $CDN 3.98/t of material mined. This includes equipment financing of $CDN 0.44/t of material mined.

Pre-production stripping costs of $CDN 48.8 million are capitalized. Initial mine equipment capital is $9.9 million with sustaining capital of $CDN 2.6 million.

25.3 Metallurgy and Processing

The metallurgical testing from various studies have shown that the results are both predictable and repeatable. The testing has also demonstrated that this material has a very consistent response from all samples tested. The process developed metallurgical recoveries used are to a level sufficient to support basic engineering and advance towards production.

The processing plant for the Shakespeare project was designed with a throughput of 4,500 tpd. The proposed method of copper and nickel recovery consists of conventional crushing and milling, followed by rougher and cleaner froth flotation to produce separate copper and nickel concentrates. The concentrates are filtered and transported off-site in bulk for treatment by toll smelting.

The process design includes a size reduction circuit consisting of primary jaw crushing, closed circuit SAG milling, and closed circuit ball milling. Cyclone overflow, at a P_{80} of 85 µm, gravitates to the rougher-scavenger circuit consisting of six tank flotation cells in series, with the first three cells recovering a bulk sulfide concentrate and the last three cells recovering a nickel scavenger concentrate.

In the cleaner circuit, the bulk rougher concentrate undergoes one stage of bulk cleaning followed by two stages of copper flotation to produce the final copper concentrate product. Three stages of cleaner flotation are used to produce the nickel scavenger concentrate which is combined with the cleaner copper tailings to form the final nickel concentrate product. The final copper and nickel concentrates are thickened, filtered, and shipped in bulk to a smelter.

Final tailings products consist of a pyrrhotite tailings generated in the pyrrhotite flotation circuit as well as a thickened, non-pyrrhotite tailings comprised of nickel scavenger tailings and the nickel scavenger 1st cleaner tailings. Both tailings streams are pumped to the CDA for separate deposition.

The consumption of power and water in the processing plant are estimated at 36.6 kWh/t and 0.60 m^3/t, respectively.

25.4 Infrastructure and Site Layout

The Shakespeare Project will include the construction of a new 4,500 tpd process plant together with a Co-Disposal Area (CDA) for combined waste rock and tailings storage.

The process plant was located and laid out both to be within a short haul distance of the mine and enroute to the CDA. The process plant was laid out to allow for ease of conveyance of the ore through the various processes required to produce concentrate.

Waste rock mined during early development of the mine will be used as rockfill to construct earth berms in the CDA as well as the base to the process plant area terrace. A crushing and screening plant will convert some waste rock to granular fill and concrete aggregate for use in the construction work. A concrete batch plant will be established on site to undertake the work. Heated buildings will be erected in time for winter construction work within the buildings.

The process plant area will include the jaw and cone crushers, conveyors, ore stockpiles, Process plant building with process equipment (including milling, flotation and concentrate thickening, tailings thickener and load out facilities), administration buildings and power substation.

Power will be supplied to the site with a newly constructed power line from the existing transformer station located at Espanola near Sudbury. Where the powerline is required to cross Agnew Lake, this will be by means of a submerged cable.

No camp facilities are required due to the project’s close proximity to the neighbouring towns and the city of Sudbury.

Off site vehicles and onsite vehicles are clearly separated from interaction within the design of the road infrastructure.

The mine waste rock and tailings produced can be stored in the CDA without the need for amending the current approved closure plan provided that the later years PAG mine rock and pyrrhotite tailings are diverted to the mined out West Pit and co-mingling of NAG mine rock and flotation tailings is implemented in the later years of the project.

The CDA internal berms and toe stabilization platform within the valley are provided to enhance stability of the NAG waste pile slope where it abuts the valley to conserve space for PAG waste disposal and flooding. The perimeter access road will be used to direct runoff into the basin and provide a stable area to run the pyrrhotite tailings pipeline along.

According to the site-wide water balance modelling results, surface runoff collection within the Project footprint can meet the water demand for the Project without the need to withdraw water from natural water bodies or aquifers through groundwater wells. Not withstanding the aforementioned, small freshwater for reagent preparation and domestic consumption is required. Even during dry years (i.e., annual precipitation below average), modelling shows that there is a net water surplus at the site that needs to be discharged to the receiving environment after treatment. In order to mitigate the seasonal water availability fluctuations, on site water storage is required in order to have sufficient water available for make-up water to supply the facility during the winter months. Various insulated and heat traced pipelines as well as overhead electrical lines traverse the site to deliver raw and treated water and electrical power to various locations.

25.5 Permitting

The Shakespeare project is well advanced in its permitting owing to it status as a past producer. The mine operated in compliance with its existing permits and regulations and continues to maintain compliance through care and maintenance.

A number of operational permits are in the process of being amended to allow for the next stage of the project and permitting is expected to take 12-18 months. Magna can commence construction for Project components in accordance with the filed (approved) Closure plan.

25.6 Capital and Operating Costs

Detailed capital and operating cost estimates developed for the Feasibility Study include consideration for all direct and indirect costs associated with the mine development and production. This includes the initial capital requirements for the mine, plant, and co-disposal area plus ongoing capital needs.

Costs associated with closure and reclamation have also been included.

25.7 Economic Analysis

The economic analysis, including taxation and consideration for greenhouse gases, show the Shakespeare Feasibility study has positive economics and technical merit with the given assumptions.

The project yields a post-tax NPV(6%) of $140 million with an IRR of 21.5% and a 3.5 year post tax payback. This is obtained with metal prices of $8.50 US/lb nickel, $3.95 US/lb copper, $24 US/lb cobalt, $950 US/oz platinum, $1,750 US/oz palladium and $1600 US/oz gold.

26 RECOMMENDATIONS

Based on the results of the Shakespeare Project Feasibility Study, the QP's recommend that the project is ready for basic engineering leading to a construction decision by Magna Mining should market conditions permit.

The following recommendations and associated budgets are provided by the QP's to advance the project forward. The estimated costs have been tabulated in Table 26-1.

Table 26-1: Estimate of Recommended Basic Engineering Budgets

Area of Study	Approximate Cost ($)
Geology	$2,277,000
Mining	$150,000
Metallurgy	$500,000
Processing	$1,150,000
Infrastructure	$1,215,000
Environmental	$320,000
TOTAL	**$5,612,000**

26.1 Geology

Magna is planning to complete a two-phase drilling program at the Shakespeare Mine site in 2022. The first phase of drilling will consist of 1,000m to be completed in wintertime with a standard diamond drill rig. The objective of this drilling is to test near mine exploration targets that could have a positive impact on adding additional resources.

The second phase of drilling will be an additional 1,000m of drilling completed with a rig capable of drilling holes at angles less than 45 degrees from vertical. This drilling phase will be targeting the Gap Zone within the proposed pit shell. Drilling in this manner will allow Magna to further in-fill and test areas of the deposit that cannot be achieved due to topography and existing mine infrastructure.

The ore deposit at Shakespeare is open for exploration and at depth.

There remains additional areas around the deposit that could benefit from surface stripping, washing, and mapping. A number of zones have been identified and prioritized for work during the spring/summer of 2022. Additional work will be completed on the P4, Spanish River and Baldwin with 6,100 m of drilling and assaying.

Geophysics will also be complete with normal ground geophysical surveys plus borehole EM and IP surveys at Baldwin, Spanish River and P4.

The program items and cost are outlined in Table 26-2.

Table 26-2: Recommended Drilling Program

Category	Item	Cost ($Cdn)
Core Drilling	Drilling 8,100 m (Shakespeare, P4, Spanish River, Baldwin)	$1,550,000
Core Assays	Assay of core samples	$100,000
Field Support	Truck rentals, and field equipment	$240,000
Ground Geophysics EM/IP Surveys	Borehole EM and IP Surveys	$280,000
Mapping and Trenching	Field mapping and trenching at Baldwin and Shakespeare West	$60,000
Field Assay Samples	Analysis of field samples collected	$16,000
Consulting	Support from consulting geologists	$31,000
TOTAL		**$2,277,000**

26.2 Mining

Control of costs for an operation the size of the Shakespeare project is critical to maximizing shareholder value. Two items need further examination going forward:

4) Contract Mining
    a. Current market volatility provided significant variation in contract quotes, so owner operated was chosen
    b. Contractors should be contacted again to determine if project savings can be obtained over the owner operated scenario
    c. Detailed evaluation of the proposals against the owner operated scenario is recommended.
5) Drill and Blast Optimization
    a. Additional study including detailed test blasting can help lower overall operating costs by:
        i. Increasing fragmentation of the mill feed material, reducing the grinding energy requirement
        ii. Improve mining productivity with faster loading cycles and reduce equipment wear and tear
    b. Selection of a drill and blast provider and jointly working with their technical team to fine tune the drilling and blasting is recommended

The costs associated with this work are expected to cost $150,000 including the test blasting.

26.3 Metallurgy

The testing has demonstrated that metallurgical results are predictable and have been demonstrated at locked cycle test scale.

The opportunity for a small scale piloting of the ore prior to operation would provide operating personnel additional process knowledge to shorten commissioning time.

The cost of a mini pilot plant would be $500,000 plus availability of 1,000 kg of material.

26.4 Processing

26.4.1 Process Flowsheet

The current process design includes conventional flotation cells as a low-risk approach to plant throughput and availability. Several new technologies such as Woodgrove's Staged Flotation Reactor (SFR) and Direct Flotation Reactor (DFR), Eriez's StackCell Flotation, or FLSmidth's Reflux Flotation Cell (RFC), have been developed and are in varying stages of commercialization. These technologies may present an opportunity to reduce the overall footprint of the flotation plant and associated energy costs, and it is recommended that the potential for application to the Shakespeare project be evaluated as the technology matures.

The expect cost to examine these opportunities at a basic engineering level of study is estimated to be $150,000.

26.4.2 Process Plant Design

With the positive economics presented in the study, basic engineering can be advanced to help reduce the project timelines and initiate long lead time equipment purchases. The costs associated with these activities are expected to be in the order of $1,000,000.

26.5 Infrastructure

26.5.1 Co-Disposal Area

The following work is recommended prior to or as part of the detailed engineering design for construction:

- Geotechnical and hydrogeological investigations - $750,000
- Perform a risk assessment and develop a scope of work to address data gaps and any intolerable risks identified. - $10,000
- Develop a numerical groundwater model of the open pits to confirm the pit seepage (pit groundwater inflow) estimates from 2005. Additional requirements for field hydrogeological data, if any, to support the groundwater numerical modelling should be identified. - $70,000
- Consider carrying out a Project climate change vulnerability assessment (especially as it pertains to the sizing and design of water management structures, and refinement of closure concepts for the CDA). - $15,000
- Consider developing a stochastic flow (water balance) model to simulate the site water management strategy contemplating probabilistic climatic scenarios and PAG waste flooding requirements for each year of operation. - $20,000
- Confirm the quantity of PAG tailings produced by year of operation to optimize the Main Dam raising schedule and crest elevations (an average 10% of tailings per year has been assumed in this study).

- Conduct geochemical and water quality analyses to establish environmental criteria for the permissible exposure time before flooding PAG waste. - $50,000

The cost associated with these programs is estimated to be in the order of $915,000.

26.5.2 Plant and Site Layout

It is recommended that a geotechnical study and a ground and surface water survey be undertaken on the proposed process plant site.

The geotechnical study could evaluate the insitu requirements within the process plant footprint as well as to confirm the suitability of the mine development waste rock for bulk earthworks and concrete aggregate use. A search for suitable quality and quantity of clay material needed for use in the water retaining earth structures could also be undertaken at this time.

A hydrogeological investigation would assist with detailing any dewatering and surface water diversion design requirements. The plant area site earthworks includes for the removal of unsuitable insitu material and replacement with rock fill as the base of the terrace.

A geotechnical study undertaken early would greatly assist to finalise the design criteria for the earthworks and concrete work as well as to clarify the availability of clay and materials for earthworks as well as the suitability of crushing and screening the waste rock for use as granular material and concrete aggregate. The construction cost estimate allows for culverts and stormwater diversion structures. Undertaking a ground and surface water survey on the site will assist to allow for early design and start of construction work. These actions would assist to speed up the design to construction timing aspect of the project if completed early.

The costs for the various studies for the plant and site layout are estimated to be $300,000.

26.6 Environmental

26.6.1 Permitting

Additional permitting activities are required to allow the Shakespeare project to advance to a construction decision. Additional engineering is also required to finalize the designs associated with the water treatment facility, diffuser system, power line route and land tenure work.

These activities are currently underway and expected to cost $300,000.

26.6.2 Greenhouse Gas Emissions

With the Shakespeare mine designed to be carbon neutral, additional study should be undertaken to review opportunities to further enhance that position with equipment selection and renewable power procurement. In particular, Magna should advance the development of a renewable power purchase agreement with Hydro One to eliminate Scope 2 emissions from purchased electricity.

Further, the company should continue the existing GHG measurement program, including measuring emissions from exploration activities currently underway, and purchasing verified carbon offsets to maintain carbon neutrality.

The costs associated with the measurement and offsetting activities are expected to be in the range of $10,000-$20,000.

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28 CERTIFICATE OF AUTHORS

28.1 Allan Armitage, Ph.D., P.Geo.

CERTIFICATE OF QUALIFIED PERSON

To accompany the technical report entitled: Shakespeare Project Feasibility Study Technical Report dated March 17, 2022, with an effective date of January 31, 2022 (the "Technical Report").

I, Allan E. Armitage, Ph. D., P. Geol. of 62 River Front Way, Fredericton, New Brunswick, hereby certify that:

- I am a Senior Resource Geologist with SGS Canada Inc., 10 de la Seigneurie E Blvd., Unit 203 Blainville, QC, Canada, J7C 3V5 (www.geostat.com).
- I am a graduate of Acadia University having obtained the degree of Bachelor of Science - Honours in Geology in 1989, a graduate of Laurentian University having obtained the degree of Masters of Science in Geology in 1992 and a graduate of the University of Western Ontario having obtained a Doctor of Philosophy in Geology in 1998.
- I have been employed as a geologist for every field season (May - October) from 1987 to 1996. I have been continuously employed as a geologist since March of 1997.
- I have been involved in mineral exploration and resource modeling at the grass roots to advanced exploration stage, including producing mines, since 1991, including mineral resource estimation and mineral resource and mineral reserve auditing since 2006 in Canada and internationally. I have extensive experience in Archean and Proterozoic load gold deposits, volcanic and sediment hosted base metal massive sulphide deposits, porphyry copper-gold-silver deposits, low and intermediate sulphidation epithermal gold and silver deposits, magmatic Ni-Cu-PGE deposits, and unconformity- and sandstone-hosted uranium deposits.
- I am a member of the Association of Professional Engineers, Geologists and Geophysicists of Alberta and use the title of Professional Geologist (P.Geol.) (License No. 64456; 1999), I am a member of the Association of Professional Engineers and Geoscientists of British Columbia and use the designation (P.Geo.) (Licence No. 38144; 2012), and I am a member of Professional Geoscientists Ontario (PGO) and use the designation (P.Geo.) (Licence No. 2829; 2017), I am a member of the Northwest Territories and Nunavut Association of Professional Engineers and Geoscientists (NAPEG) and use the designation (P.Geo.) (Licence No. L4375, 2019).
- I have read the definition of "qualified person" set out in National Instrument 43-101 *Standards of Disclosure for Mineral Projects* ("NI 43-101") and certify that by virtue of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
- I am independent of the issuer, Magna Mining Inc., as defined in Section 1.5 of NI 43-101.
- I am responsible for Sections 1.2 to 1.6, 4 to 12, 14, 23, 25.1, 26.1 and 27 of the Technical Report and accept professional responsibility for those sections of the Technical Report.
- I have had prior involvement in the Shakespeare Project. I was the author of previous internal technical repots for the Shakespeare Property, dated September 25, 2018 and dated April 23,

2019 for Magna Mining Corp. I was an author of a previous NI 43-101 Technical Report dated January 29, 2021.

- My most recent site visit to the Shakespeare Project was from July 26 to 27, 2021 for two days.
- As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the portions of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the portions of the Technical Report for which I am responsible not misleading.
- I have read NI 43-101 and Form 43-101F1, and the Technical Report has been prepared in accordance with NI 43-101 and Form 43-101F1.

Dated this 17th day of March 2022, at Fredericton, New Brunswick.

“signed electronically”

Allan Armitage, Ph.D., P.Geo.

28.2 Gordon Marrs, P.Eng.

CERTIFICATE OF QUALIFIED PERSON

To accompany the technical report entitled: Shakespeare Project Feasibility Study Technical Report dated March 17, 2022, with an effective date of January 31, 2022 (the "Technical Report").

I, Gordon Marrs, P.Eng., do hereby certify that:

- I am a Metallurgical Specialist with XPS Consulting & Testwork Services, with a business address at Centre 6 Edison Road, Falconbridge, ON, P0M 1S0 Canada.
- I am a graduate of the University of Toronto with a degree in Geological Engineering in 1980.
- I am a member in good standing of the Professional Engineers Ontario 29172509.
- I have practiced my profession in the mining industry continuously since graduation. My relevant experience includes over 35 years of mineral processing operations, process design and process diagnosis. Much of the experience is from both inside and outside the Sudbury region on similar Cu-Zn-PGM ores.
- I have read the definition of "qualified person" set out in National Instrument 43-101 *Standards of Disclosure for Mineral Projects* ("NI 43-101") and certify that by virtue of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
- I am independent of the issuer, Magna Mining Inc., as defined in Section 1.5 of NI 43-101.
- I am responsible for Sections 1.7, 13, and 26.3 of the Technical Report and accept professional responsibility for those sections of the Technical Report.
- I have previously provided technical guidance for a test program at SGS to improve Cu/Ni separation for the Shakespeare Project.
- My most recent site visit to the Shakespeare Project was on July 26, 2021 for one day.
- As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the portions of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the portions of the Technical Report for which I am responsible not misleading.
- I have read NI 43-101 and Form 43-101F1, and the Technical Report has been prepared in accordance with NI 43-101 and Form 43-101F1.

Dated this 17th day of March 2022, in Sudbury, Ontario, Canada.

"signed electronically"

Gordon Marrs, P.Eng.

28.3 Gordon Zurowski, P.Eng.

CERTIFICATE OF QUALIFIED PERSON

To accompany the technical report entitled: Shakespeare Project Feasibility Study Technical Report dated March 17, 2022, with an effective date of January 31, 2022 (the "Technical Report").

I, Gordon Zurowski, P.Eng., do hereby certify that:

- I am a Principal Mining Engineer with AGP Mining Consultants Inc., with a business address at #246-132K Commerce Park Drive, Barrie ON, L4N 0Z7 Canada.
- I am a graduate of the University of Saskatchewan with a B.Sc. Geological Engineering degree from 1989.
- I am a member in good standing of the Professional Engineers of Ontario (PEO) in Canada, membership #100077750.
- I have practiced my profession in the mining industry continuously since graduation. My relevant experience includes over 30 years in Canada, the United States of America, Central and South America, Europe, Asia, Africa, and Australia.
- I have read the definition of "qualified person" set out in National Instrument 43-101 *Standards of Disclosure for Mineral Projects* ("NI 43-101") and certify that by virtue of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
- I am independent of the issuer, Magna Mining Inc., as defined in Section 1.5 of NI 43-101.
- I am responsible for Sections 1.1, 1.8, 1.9, 1.11 to 1.17, 2, 3, 15, 16, 18.6, 19, 20, 21.1, 21.2.1, 21.2.5, 21.3.1, 21.3.2, 21.3.4 to 21.3.7, 22, 24, 25.2, 25.5, 25.6, 25.7, 26.2, and 26.6 of the Technical Report and accept professional responsibility for those sections of the Technical Report.
- I have had no previous involvement with the Shakespeare Project.
- My most recent site visit to the Shakespeare Project was on July 26, 2021 for one day.
- As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the portions of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the portions of the Technical Report for which I am responsible not misleading.
- I have read NI 43-101 and Form 43-101F1, and the Technical Report has been prepared in accordance with NI 43-101 and Form 43-101F1.

Dated this 17th day of March 2022, in Stoufville, Ontario, Canada.

"signed electronically"

Gordon Zurowski, P.Eng.

28.4 Lyn Jones, P.Eng.

CERTIFICATE OF QUALIFIED PERSON

To accompany the technical report entitled: Shakespeare Project Feasibility Study Technical Report dated March 17, 2022, with an effective date of January 31, 2022 (the "Technical Report").

I, Lyn Jones, P.Eng., do hereby certify that:

- I am the Manager, Process Engineering with Blue Coast Research with a business address at 2-1020 Herring Gull Way, Parksville, British Columbia. .
- I graduated from the University of British Columbia with a Bachelor of Applied Science in 1996, and a Master of Applied Science in 1998.
- I am registered as a Professional Engineer in the province of Ontario (PEO licence #100067095).
- I have practiced my profession in the mining industry continuously since graduation. My relevant experience includes over 24 years working on base and precious metals projects in the mining sector with experience including metallurgical testwork, flowsheet development, process engineering, and plant commissioning.
- I have read the definition of "qualified person" set out in National Instrument 43-101 *Standards of Disclosure for Mineral Projects* ("NI 43-101") and certify that by virtue of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
- I am independent of the issuer, Magna Mining Inc., as defined in Section 1.5 of NI 43-101.
- I am responsible for Sections 1.10, 17, 21.3.3, 25.3, and 26.4.1 of the Technical Report and accept professional responsibility for those sections of the Technical Report.
- I have had previous involvement with samples from the Shakespeare Project in 2005 while working as a Project Metallurgist at SGS Lakefield Research. The work involved lab testwork and report writing.
- I have not visited the Shakespeare Project site.
- As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the portions of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the portions of the Technical Report for which I am responsible not misleading.
- I have read NI 43-101 and Form 43-101F1, and the Technical Report has been prepared in accordance with NI 43-101 and Form 43-101F1.

Dated this 17th day of March 2022, in Peterborough, Ontario.

"signed electronically"

Lyn Jones, P.Eng.

28.5 Justin Taylor, P.Eng.

CERTIFICATE OF QUALIFIED PERSON

To accompany the technical report entitled: Shakespeare Project Feasibility Study Technical Report dated March 17, 2022, with an effective date of January 31, 2022 (the "Technical Report").

I, Justin Taylor, P.Eng., do hereby certify that:

- I am a Founder, Director, Senior Project Manager, and Engineer with Halyard Inc. for the last 9 years, with a business address at 212 King St W #501, Toronto, ON M5H 1K5 Canada.
- I am a graduate of the University of Pretoria in South Africa with degrees in Mechanical Engineering, Maintenance Engineering, and a diploma in business administration. I obtained my undergraduate in 1999.
- I am a member in good standing of the Professional Engineers of Ontario membership number 100140330.
- I have practiced my profession in the mining industry continuously since graduation. My relevant experience includes over 20 years of engineering in project development specifically pertaining to minerals processing, materials handling and project management in the mining, processing, and technical industries. Half of this experience is relevant to the Canadian environment whereas the balance is internationally.
- I have read the definition of "qualified person" set out in National Instrument 43-101 *Standards of Disclosure for Mineral Projects* ("NI 43-101") and certify that by virtue of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
- I am independent of the issuer, Magna Mining Inc., as defined in Section 1.5 of NI 43-101.
- I am responsible for Sections 18.1 to 18.3, 21.2.2, to 21.2.4, 21.2.6, 25.4, 26.4.2, and 26.5.2 of the Technical Report and accept professional responsibility for those sections of the Technical Report.
- I have had previous involvement on this project since January 2019 when Halyard undertook the previous study CAPEX update prior to undertaking this reconfigured Feasibility Study.
- Whilst I have not personally visited the Shakespeare Project site, key members of my team under my supervision who undertook significant work visited the site on July 26th, 2021.
- As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the portions of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the portions of the Technical Report for which I am responsible not misleading.
- I have read NI 43-101 and Form 43-101F1, and the Technical Report has been prepared in accordance with NI 43-101 and Form 43-101F1.

Dated this 17th day of March 2022, in Toronto, ON, Canada.

"signed electronically"

Justin Taylor, P.Eng.

28.6 David Ritchie, P.Eng.

CERTIFICATE OF QUALIFIED PERSON

To accompany the technical report entitled: Shakespeare Project Feasibility Study Technical Report dated March 17, 2022, with an effective date of January 31, 2022 (the "Technical Report").

I, David Ritchie, P.Eng., do hereby certify that:

- I am a Principal Geotechnical Engineer with SLR Consulting (Canada) Ltd., with a business address at 55 University Ave Suite 501, Toronto, ON M5J 2H7 Canada.
- I am a graduate of the Ryerson Polytechnic University with a degree in Civil Engineering in 1995 and the University of Western Ontario with a Master of Engineering degree in Geotechnical Engineering in 2000.
- I am a member in good standing of the Professional Engineers Ontario Licence Number 90488198 since 1998.
- I have practiced my profession in the mining industry continuously since graduation. My relevant experience includes over 26 years of tailings and water management and embankment dam design.
- I have read the definition of "qualified person" set out in National Instrument 43-101 *Standards of Disclosure for Mineral Projects* ("NI 43-101") and certify that by virtue of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
- I am independent of the issuer, Magna Mining Inc., as defined in Section 1.5 of NI 43-101.
- I am responsible for Sections 18.4, 18.5, and 26.5.1 of the Technical Report and accept professional responsibility for those sections of the Technical Report.
- I have was involved with the Shakespeare Project in 2018 for geotechnical investigation of the CDA carried out for Magna Mining Inc.
- My most recent site visit to the Shakespeare Project was on October 24, 2018 for one day.
- As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the portions of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the portions of the Technical Report for which I am responsible not misleading.
- I have read NI 43-101 and Form 43-101F1, and the Technical Report has been prepared in accordance with NI 43-101 and Form 43-101F1.

Dated this 17th day of March 2022, in Toronto, ON, Canada.

"signed electronically"

David Ritchie, P.Eng.

APPENDIX A

PROPERTY MINING CLAIMS

APPENDIX A

List of Shakespeare Property Mining Claims

Township / Area	Tenure ID	Tenure Type	Anniversary Date	Tenure Status
PORTER	339259	Single Cell Mining Claim	2022-10-17	Active
PORTER	317149	Single Cell Mining Claim	2023-01-27	Active
PORTER	269911	Single Cell Mining Claim	2022-10-17	Active
PORTER	269910	Single Cell Mining Claim	2023-01-17	Active
PORTER	263170	Single Cell Mining Claim	2023-01-27	Active
PORTER	224588	Single Cell Mining Claim	2022-10-02	Active
PORTER	201560	Single Cell Mining Claim	2023-01-27	Active
PORTER	177098	Single Cell Mining Claim	2023-01-27	Active
PORTER	136905	Single Cell Mining Claim	2023-01-17	Active
PORTER	125400	Single Cell Mining Claim	2023-01-17	Active
PORTER	125399	Single Cell Mining Claim	2023-01-17	Active
PORTER	121326	Single Cell Mining Claim	2022-10-02	Active
PORTER	339609	Single Cell Mining Claim	2022-10-02	Active
PORTER	317521	Single Cell Mining Claim	2022-10-02	Active
PORTER	300874	Single Cell Mining Claim	2022-10-02	Active
PORTER	299327	Single Cell Mining Claim	2022-10-02	Active
PORTER	299326	Single Cell Mining Claim	2022-10-02	Active
PORTER	280632	Single Cell Mining Claim	2022-10-02	Active
PORTER	244775	Single Cell Mining Claim	2022-10-02	Active
PORTER	232628	Single Cell Mining Claim	2022-10-02	Active
PORTER	224588	Single Cell Mining Claim	2022-10-02	Active
PORTER	178031	Single Cell Mining Claim	2022-10-02	Active
PORTER	136706	Single Cell Mining Claim	2022-10-02	Active
PORTER	132816	Single Cell Mining Claim	2022-10-02	Active
PORTER	121326	Single Cell Mining Claim	2022-10-02	Active
PORTER	106616	Single Cell Mining Claim	2022-10-02	Active
PORTER	105343	Single Cell Mining Claim	2022-10-02	Active
PORTER	299327	Single Cell Mining Claim	2022-10-02	Active
PORTER	299326	Single Cell Mining Claim	2022-10-02	Active
PORTER	262645	Single Cell Mining Claim	2022-03-23	Active
PORTER	261268	Single Cell Mining Claim	2022-07-10	Active
PORTER	114401	Single Cell Mining Claim	2022-03-23	Active
PORTER	111373	Single Cell Mining Claim	2022-03-30	Active
PORTER	341863	Single Cell Mining Claim	2023-01-17	Active
PORTER	310431	Single Cell Mining Claim	2023-01-17	Active
PORTER	255019	Single Cell Mining Claim	2023-01-17	Active
PORTER	246849	Single Cell Mining Claim	2023-01-17	Active
PORTER	244775	Single Cell Mining Claim	2022-10-02	Active
PORTER	236344	Single Cell Mining Claim	2023-01-17	Active
PORTER	232628	Single Cell Mining Claim	2022-10-02	Active
PORTER	216085	Single Cell Mining Claim	2023-01-17	Active
PORTER	199620	Single Cell Mining Claim	2023-01-17	Active
PORTER	187399	Single Cell Mining Claim	2023-01-17	Active
PORTER	136905	Single Cell Mining Claim	2023-01-17	Active
PORTER	132816	Single Cell Mining Claim	2022-10-02	Active
PORTER	123419	Single Cell Mining Claim	2023-01-17	Active
PORTER	121326	Single Cell Mining Claim	2022-10-02	Active
PORTER	106616	Single Cell Mining Claim	2022-10-02	Active
PORTER	292730	Single Cell Mining Claim	2023-01-17	Active
PORTER	201560	Single Cell Mining Claim	2023-01-27	Active
PORTER	199620	Single Cell Mining Claim	2023-01-17	Active
PORTER	142916	Single Cell Mining Claim	2023-01-17	Active
PORTER	136905	Single Cell Mining Claim	2023-01-17	Active
PORTER	125400	Single Cell Mining Claim	2023-01-17	Active

Township / Area	Tenure ID	Tenure Type	Anniversary Date	Tenure Status
PORTER	125399	Single Cell Mining Claim	2023-01-17	Active
PORTER	107958	Single Cell Mining Claim	2023-01-27	Active
PORTER	317149	Single Cell Mining Claim	2023-01-27	Active
PORTER	305102	Single Cell Mining Claim	2023-01-27	Active
PORTER	278782	Single Cell Mining Claim	2023-01-27	Active
PORTER	269910	Single Cell Mining Claim	2023-01-17	Active
PORTER	242235	Single Cell Mining Claim	2023-01-27	Active
PORTER	220847	Single Cell Mining Claim	2023-01-27	Active
PORTER	201560	Single Cell Mining Claim	2023-01-27	Active
PORTER	114505	Single Cell Mining Claim	2023-01-27	Active
SHAKESPEARE	233206	Single Cell Mining Claim	2022-07-04	Active
SHAKESPEARE	136837	Single Cell Mining Claim	2022-03-04	Active
BALDWIN,SHAKESPEARE	343568	Single Cell Mining Claim	2022-03-04	Active
SHAKESPEARE	304827	Single Cell Mining Claim	2022-03-04	Active
SHAKESPEARE	304826	Single Cell Mining Claim	2022-03-04	Active
SHAKESPEARE	237470	Single Cell Mining Claim	2022-03-04	Active
BALDWIN,SHAKESPEARE	237469	Single Cell Mining Claim	2022-03-04	Active
SHAKESPEARE	233206	Single Cell Mining Claim	2022-07-04	Active
SHAKESPEARE	226027	Single Cell Mining Claim	2022-03-04	Active
SHAKESPEARE	218713	Single Cell Mining Claim	2022-03-04	Active
BALDWIN,SHAKESPEARE	201004	Single Cell Mining Claim	2022-03-04	Active
SHAKESPEARE	188823	Single Cell Mining Claim	2022-03-04	Active
SHAKESPEARE	188822	Single Cell Mining Claim	2022-03-04	Active
SHAKESPEARE	136837	Single Cell Mining Claim	2022-03-04	Active
BALDWIN,SHAKESPEARE	237549	Single Cell Mining Claim	2022-03-04	Active
SHAKESPEARE	237470	Single Cell Mining Claim	2022-03-04	Active
BALDWIN,SHAKESPEARE	237469	Single Cell Mining Claim	2022-03-04	Active
SHAKESPEARE	226027	Single Cell Mining Claim	2022-03-04	Active
SHAKESPEARE	125431	Single Cell Mining Claim	2022-03-04	Active
SHAKESPEARE	107981	Single Cell Mining Claim	2022-03-04	Active
PORTER	344426	Single Cell Mining Claim	2022-03-30	Active
PORTER	261268	Single Cell Mining Claim	2022-07-10	Active
PORTER	187112	Single Cell Mining Claim	2022-03-30	Active
PORTER	160551	Single Cell Mining Claim	2022-07-10	Active
PORTER	143136	Single Cell Mining Claim	2022-07-10	Active
PORTER	111373	Single Cell Mining Claim	2022-03-30	Active
PORTER	317521	Single Cell Mining Claim	2022-10-02	Active
PORTER	300874	Single Cell Mining Claim	2022-10-02	Active
PORTER	299327	Single Cell Mining Claim	2022-10-02	Active
PORTER	284527	Single Cell Mining Claim	2022-07-10	Active
PORTER	261269	Single Cell Mining Claim	2022-07-10	Active
PORTER	261268	Single Cell Mining Claim	2022-07-10	Active
PORTER	255391	Single Cell Mining Claim	2022-07-10	Active
PORTER	249812	Single Cell Mining Claim	2022-07-10	Active
PORTER	218571	Single Cell Mining Claim	2022-07-10	Active
PORTER	212568	Single Cell Mining Claim	2022-07-10	Active
PORTER	193118	Single Cell Mining Claim	2022-07-10	Active
PORTER	160552	Single Cell Mining Claim	2022-07-10	Active
PORTER	160551	Single Cell Mining Claim	2022-07-10	Active
PORTER	143136	Single Cell Mining Claim	2022-07-10	Active
PORTER	137078	Single Cell Mining Claim	2022-07-10	Active
PORTER	105343	Single Cell Mining Claim	2022-10-02	Active
PORTER	317422	Single Cell Mining Claim	2023-02-08	Active
PORTER	230320	Single Cell Mining Claim	2022-05-27	Active

Township / Area	Tenure ID	Tenure Type	Anniversary Date	Tenure Status
HYMAN,PORTER	203422	Single Cell Mining Claim	2022-07-04	Active
PORTER	184739	Single Cell Mining Claim	2023-02-08	Active
PORTER	184738	Single Cell Mining Claim	2023-02-08	Active
PORTER	184737	Single Cell Mining Claim	2023-02-08	Active
PORTER	184736	Single Cell Mining Claim	2022-05-27	Active
HYMAN,PORTER	165941	Single Cell Mining Claim	2023-02-08	Active
HYMAN,PORTER	165940	Single Cell Mining Claim	2023-02-08	Active
HYMAN,PORTER	128899	Single Cell Mining Claim	2022-07-04	Active
PORTER	128319	Single Cell Mining Claim	2022-05-27	Active
PORTER	106540	Single Cell Mining Claim	2023-02-08	Active
PORTER	344938	Single Cell Mining Claim	2023-02-08	Active
PORTER	339190	Single Cell Mining Claim	2022-07-04	Active
PORTER	246036	Single Cell Mining Claim	2023-02-08	Active
PORTER	244234	Single Cell Mining Claim	2022-05-27	Active
PORTER	234835	Single Cell Mining Claim	2022-05-27	Active
PORTER	226932	Single Cell Mining Claim	2023-02-08	Active
PORTER	184739	Single Cell Mining Claim	2023-02-08	Active
PORTER	184738	Single Cell Mining Claim	2023-02-08	Active
PORTER	184736	Single Cell Mining Claim	2022-05-27	Active
PORTER	172795	Single Cell Mining Claim	2023-02-08	Active
PORTER	141421	Single Cell Mining Claim	2023-02-08	Active
PORTER	122054	Single Cell Mining Claim	2022-05-27	Active
PORTER	344938	Single Cell Mining Claim	2023-02-08	Active
PORTER	246875	Single Cell Mining Claim	2023-02-08	Active
PORTER	218110	Single Cell Mining Claim	2023-02-08	Active
PORTER	184739	Single Cell Mining Claim	2023-02-08	Active
PORTER	172795	Single Cell Mining Claim	2023-02-08	Active
PORTER	144208	Single Cell Mining Claim	2023-02-08	Active
PORTER	246036	Single Cell Mining Claim	2023-02-08	Active
PORTER	218110	Single Cell Mining Claim	2023-02-08	Active
PORTER	172795	Single Cell Mining Claim	2023-02-08	Active
PORTER	139643	Single Cell Mining Claim	2023-02-08	Active
PORTER	289952	Single Cell Mining Claim	2022-05-27	Active
PORTER	246036	Single Cell Mining Claim	2023-02-08	Active
PORTER	179296	Single Cell Mining Claim	2022-05-27	Active
PORTER	122054	Single Cell Mining Claim	2022-05-27	Active
PORTER	327118	Single Cell Mining Claim	2023-02-08	Active
PORTER	312806	Single Cell Mining Claim	2022-07-04	Active
PORTER	285366	Single Cell Mining Claim	2022-07-28	Active
PORTER	248441	Single Cell Mining Claim	2023-02-08	Active
PORTER	248440	Single Cell Mining Claim	2023-02-08	Active
PORTER	246036	Single Cell Mining Claim	2023-02-08	Active
PORTER	209669	Single Cell Mining Claim	2022-05-27	Active
PORTER	191756	Single Cell Mining Claim	2023-02-08	Active
PORTER	191755	Single Cell Mining Claim	2023-02-08	Active
PORTER	179296	Single Cell Mining Claim	2022-05-27	Active
PORTER	173701	Single Cell Mining Claim	2023-02-08	Active
PORTER	159206	Single Cell Mining Claim	2023-02-08	Active
PORTER	159205	Single Cell Mining Claim	2023-02-08	Active
PORTER	139643	Single Cell Mining Claim	2023-02-08	Active
PORTER	128798	Single Cell Mining Claim	2023-02-08	Active
PORTER	109510	Single Cell Mining Claim	2023-02-08	Active
PORTER	315571	Single Cell Mining Claim	2022-05-27	Active
PORTER	315570	Single Cell Mining Claim	2023-02-08	Active

Township / Area	Tenure ID	Tenure Type	Anniversary Date	Tenure Status
PORTER	296121	Single Cell Mining Claim	2023-02-08	Active
PORTER	239572	Single Cell Mining Claim	2022-05-27	Active
PORTER	228716	Single Cell Mining Claim	2022-07-04	Active
PORTER	209669	Single Cell Mining Claim	2022-05-27	Active
PORTER	192838	Single Cell Mining Claim	2022-05-27	Active
PORTER	128798	Single Cell Mining Claim	2023-02-08	Active
PORTER	109510	Single Cell Mining Claim	2023-02-08	Active
HYMAN	319431	Single Cell Mining Claim	2022-07-04	Active
HYMAN	290102	Single Cell Mining Claim	2022-07-04	Active
HYMAN	282043	Single Cell Mining Claim	2022-07-04	Active
HYMAN	253544	Single Cell Mining Claim	2022-07-04	Active
HYMAN	246694	Single Cell Mining Claim	2022-07-04	Active
HYMAN	246693	Single Cell Mining Claim	2022-07-04	Active
HYMAN	217158	Single Cell Mining Claim	2022-07-04	Active
HYMAN	198952	Single Cell Mining Claim	2022-07-04	Active
HYMAN	186738	Boundary Cell Mining Claim	2022-07-04	Active
HYMAN	179457	Single Cell Mining Claim	2022-07-04	Active
HYMAN	179456	Single Cell Mining Claim	2022-07-04	Active
HYMAN	135326	Single Cell Mining Claim	2022-07-04	Active
HYMAN	123864	Single Cell Mining Claim	2022-07-04	Active
HYMAN	123863	Single Cell Mining Claim	2022-07-04	Active
HYMAN	122736	Boundary Cell Mining Claim	2022-07-04	Active
HYMAN	106174	Single Cell Mining Claim	2022-07-04	Active
HYMAN	342789	Single Cell Mining Claim	2022-07-04	Active
HYMAN	330422	Single Cell Mining Claim	2022-07-04	Active
HYMAN	279649	Single Cell Mining Claim	2022-07-04	Active
HYMAN	236736	Single Cell Mining Claim	2022-07-04	Active
HYMAN	230887	Single Cell Mining Claim	2022-07-04	Active
HYMAN	217158	Single Cell Mining Claim	2022-07-04	Active
HYMAN	187347	Single Cell Mining Claim	2022-07-04	Active
HYMAN	187346	Single Cell Mining Claim	2022-07-04	Active
HYMAN	181305	Single Cell Mining Claim	2022-07-04	Active
HYMAN	161814	Single Cell Mining Claim	2022-07-04	Active
HYMAN	161813	Single Cell Mining Claim	2022-07-04	Active
HYMAN	145459	Single Cell Mining Claim	2022-07-04	Active
HYMAN	135326	Single Cell Mining Claim	2022-07-04	Active
HYMAN	123864	Single Cell Mining Claim	2022-07-04	Active
HYMAN	123863	Single Cell Mining Claim	2022-07-04	Active
HYMAN	117265	Single Cell Mining Claim	2022-07-04	Active
HYMAN,PORTER	314102	Single Cell Mining Claim	2022-07-04	Active
HYMAN	279649	Single Cell Mining Claim	2022-07-04	Active
HYMAN	230887	Single Cell Mining Claim	2022-07-04	Active
HYMAN,PORTER	230318	Single Cell Mining Claim	2022-07-04	Active
HYMAN,PORTER	223644	Single Cell Mining Claim	2022-07-04	Active
HYMAN,PORTER	223643	Single Cell Mining Claim	2022-07-04	Active
HYMAN	145459	Single Cell Mining Claim	2022-07-04	Active
HYMAN	117265	Single Cell Mining Claim	2022-07-04	Active
HYMAN	312680	Single Cell Mining Claim	2022-07-04	Active
HYMAN	296928	Single Cell Mining Claim	2022-07-04	Active
HYMAN,PORTER	259493	Single Cell Mining Claim	2022-07-04	Active
HYMAN	230887	Single Cell Mining Claim	2022-07-04	Active
HYMAN,PORTER	230318	Single Cell Mining Claim	2022-07-04	Active
HYMAN,PORTER	211501	Single Cell Mining Claim	2022-07-04	Active
HYMAN,PORTER	203422	Single Cell Mining Claim	2022-07-04	Active

Township / Area	Tenure ID	Tenure Type	Anniversary Date	Tenure Status
HYMAN	158173	Single Cell Mining Claim	2022-07-04	Active
HYMAN,PORTER	128899	Single Cell Mining Claim	2022-07-04	Active
HYMAN	101924	Single Cell Mining Claim	2022-07-04	Active
HYMAN	327814	Single Cell Mining Claim	2022-07-04	Active
HYMAN	315099	Single Cell Mining Claim	2022-07-04	Active
HYMAN	312680	Single Cell Mining Claim	2022-07-04	Active
HYMAN	308413	Single Cell Mining Claim	2022-07-04	Active
HYMAN	296928	Single Cell Mining Claim	2022-07-04	Active
HYMAN	249137	Single Cell Mining Claim	2022-07-04	Active
HYMAN	230887	Single Cell Mining Claim	2022-07-04	Active
HYMAN	212437	Single Cell Mining Claim	2022-07-04	Active
HYMAN	193914	Single Cell Mining Claim	2022-07-04	Active
HYMAN	193913	Single Cell Mining Claim	2022-07-04	Active
HYMAN	192974	Single Cell Mining Claim	2022-07-04	Active
HYMAN	192973	Single Cell Mining Claim	2022-07-04	Active
HYMAN	187347	Single Cell Mining Claim	2022-07-04	Active
HYMAN	161814	Single Cell Mining Claim	2022-07-04	Active
HYMAN	158173	Single Cell Mining Claim	2022-07-04	Active
HYMAN	145803	Single Cell Mining Claim	2022-07-04	Active
HYMAN	123864	Single Cell Mining Claim	2022-07-04	Active
HYMAN	112202	Single Cell Mining Claim	2022-07-04	Active
HYMAN	112201	Single Cell Mining Claim	2022-07-04	Active
HYMAN	101924	Single Cell Mining Claim	2022-07-04	Active
PORTER	337692	Single Cell Mining Claim	2022-07-04	Active
PORTER	263778	Single Cell Mining Claim	2022-07-04	Active
PORTER	214359	Single Cell Mining Claim	2022-07-04	Active
PORTER	108397	Single Cell Mining Claim	2022-07-04	Active
PORTER	339190	Single Cell Mining Claim	2022-07-04	Active
PORTER	214359	Single Cell Mining Claim	2022-07-04	Active
PORTER	213895	Single Cell Mining Claim	2022-07-04	Active
PORTER	161843	Single Cell Mining Claim	2022-07-04	Active
PORTER	141240	Single Cell Mining Claim	2022-07-04	Active
PORTER	135806	Single Cell Mining Claim	2022-07-04	Active
PORTER	311631	Single Cell Mining Claim	2022-07-04	Active
PORTER	304867	Single Cell Mining Claim	2022-07-04	Active
PORTER	247842	Single Cell Mining Claim	2022-07-04	Active
PORTER	193685	Single Cell Mining Claim	2022-07-04	Active
PORTER	182283	Single Cell Mining Claim	2022-07-04	Active
PORTER	107939	Single Cell Mining Claim	2022-07-04	Active
BALDWIN,PORTER	326120	Single Cell Mining Claim	2022-07-04	Active
PORTER	324769	Single Cell Mining Claim	2022-07-04	Active
PORTER	223526	Single Cell Mining Claim	2022-07-04	Active
BALDWIN,PORTER	100796	Single Cell Mining Claim	2022-07-04	Active
SHAKESPEARE	339686	Single Cell Mining Claim	2022-07-04	Active
SHAKESPEARE	318126	Single Cell Mining Claim	2022-07-04	Active
SHAKESPEARE	252213	Single Cell Mining Claim	2022-07-04	Active
SHAKESPEARE	233919	Single Cell Mining Claim	2022-07-04	Active
SHAKESPEARE	232568	Single Cell Mining Claim	2022-07-04	Active
SHAKESPEARE	179360	Single Cell Mining Claim	2022-07-04	Active
SHAKESPEARE	166626	Single Cell Mining Claim	2022-07-04	Active
SHAKESPEARE	106078	Single Cell Mining Claim	2022-07-04	Active
SHAKESPEARE	339688	Single Cell Mining Claim	2022-07-04	Active
SHAKESPEARE	339687	Single Cell Mining Claim	2022-07-04	Active
SHAKESPEARE	339686	Single Cell Mining Claim	2022-07-04	Active

Township / Area	Tenure ID	Tenure Type	Anniversary Date	Tenure Status
SHAKESPEARE	318126	Single Cell Mining Claim	2022-07-04	Active
SHAKESPEARE	301449	Single Cell Mining Claim	2022-07-04	Active
SHAKESPEARE	281217	Single Cell Mining Claim	2022-07-04	Active
SHAKESPEARE	281216	Single Cell Mining Claim	2022-07-04	Active
SHAKESPEARE	252213	Single Cell Mining Claim	2022-07-04	Active
SHAKESPEARE	233209	Single Cell Mining Claim	2022-07-04	Active
SHAKESPEARE	233208	Single Cell Mining Claim	2022-07-04	Active
SHAKESPEARE	233207	Single Cell Mining Claim	2022-07-04	Active
SHAKESPEARE	233206	Single Cell Mining Claim	2022-07-04	Active
SHAKESPEARE	232568	Single Cell Mining Claim	2022-07-04	Active
SHAKESPEARE	232567	Single Cell Mining Claim	2022-07-04	Active
SHAKESPEARE	225183	Single Cell Mining Claim	2022-07-04	Active
SHAKESPEARE	178109	Single Cell Mining Claim	2022-07-04	Active
SHAKESPEARE	178108	Single Cell Mining Claim	2022-07-04	Active
SHAKESPEARE	164579	Single Cell Mining Claim	2022-07-04	Active
SHAKESPEARE	148850	Single Cell Mining Claim	2022-07-04	Active
SHAKESPEARE	133411	Single Cell Mining Claim	2022-07-04	Active
PORTER	312806	Single Cell Mining Claim	2022-07-04	Active
PORTER	285366	Single Cell Mining Claim	2022-07-28	Active
PORTER	238835	Single Cell Mining Claim	2022-07-04	Active
PORTER	219464	Single Cell Mining Claim	2022-07-28	Active
PORTER	344195	Single Cell Mining Claim	2022-07-28	Active
PORTER	326529	Single Cell Mining Claim	2022-07-04	Active
PORTER	326528	Single Cell Mining Claim	2022-07-04	Active
PORTER	255391	Single Cell Mining Claim	2022-07-10	Active
PORTER	228716	Single Cell Mining Claim	2022-07-04	Active
PORTER	169752	Single Cell Mining Claim	2022-07-04	Active
PORTER	289511	Single Cell Mining Claim	2023-01-27	Active
PORTER	256210	Single Cell Mining Claim	2023-01-27	Active
PORTER	212320	Single Cell Mining Claim	2023-01-27	Active
PORTER	205170	Single Cell Mining Claim	2023-01-27	Active
PORTER	195138	Single Cell Mining Claim	2023-01-27	Active
PORTER	185673	Single Cell Mining Claim	2023-01-27	Active
PORTER	133032	Single Cell Mining Claim	2023-01-27	Active
PORTER	107988	Single Cell Mining Claim	2023-01-27	Active
PORTER	312169	Single Cell Mining Claim	2023-01-27	Active
PORTER	292756	Single Cell Mining Claim	2022-05-27	Active
PORTER	284733	Single Cell Mining Claim	2023-01-27	Active
PORTER	284732	Single Cell Mining Claim	2023-01-27	Active
PORTER	256210	Single Cell Mining Claim	2023-01-27	Active
PORTER	226122	Single Cell Mining Claim	2022-05-27	Active
PORTER	201589	Single Cell Mining Claim	2023-01-27	Active
PORTER	157599	Single Cell Mining Claim	2022-05-27	Active
PORTER	145365	Single Cell Mining Claim	2022-05-27	Active
PORTER	142939	Single Cell Mining Claim	2023-01-27	Active
PORTER	107988	Single Cell Mining Claim	2023-01-27	Active
PORTER	107987	Single Cell Mining Claim	2023-01-27	Active
HYMAN,PORTER	314102	Single Cell Mining Claim	2022-07-04	Active
PORTER	277945	Single Cell Mining Claim	2023-01-27	Active
HYMAN,PORTER	223644	Single Cell Mining Claim	2022-07-04	Active
HYMAN,PORTER	223643	Single Cell Mining Claim	2022-07-04	Active
PORTER	201589	Single Cell Mining Claim	2023-01-27	Active
PORTER	157599	Single Cell Mining Claim	2022-05-27	Active
PORTER	139819	Single Cell Mining Claim	2023-01-27	Active

Township / Area	Tenure ID	Tenure Type	Anniversary Date	Tenure Status
PORTER	128318	Single Cell Mining Claim	2022-05-27	Active
PORTER	107987	Single Cell Mining Claim	2023-01-27	Active
PORTER	292756	Single Cell Mining Claim	2022-05-27	Active
PORTER	272080	Single Cell Mining Claim	2022-05-27	Active
PORTER	263778	Single Cell Mining Claim	2022-07-04	Active
PORTER	244234	Single Cell Mining Claim	2022-05-27	Active
PORTER	234835	Single Cell Mining Claim	2022-05-27	Active
PORTER	226122	Single Cell Mining Claim	2022-05-27	Active
PORTER	198078	Single Cell Mining Claim	2022-05-27	Active
PORTER	184736	Single Cell Mining Claim	2022-05-27	Active
PORTER	176125	Single Cell Mining Claim	2022-05-27	Active
PORTER	157600	Single Cell Mining Claim	2022-05-27	Active
PORTER	145366	Single Cell Mining Claim	2022-05-27	Active
PORTER	145365	Single Cell Mining Claim	2022-05-27	Active
PORTER	128319	Single Cell Mining Claim	2022-05-27	Active
PORTER	115152	Single Cell Mining Claim	2022-05-27	Active
PORTER	108397	Single Cell Mining Claim	2022-07-04	Active
PORTER	339190	Single Cell Mining Claim	2022-07-04	Active
PORTER	263778	Single Cell Mining Claim	2022-07-04	Active
PORTER	244234	Single Cell Mining Claim	2022-05-27	Active
PORTER	214359	Single Cell Mining Claim	2022-07-04	Active
PORTER	339190	Single Cell Mining Claim	2022-07-04	Active
PORTER	289952	Single Cell Mining Claim	2022-05-27	Active
PORTER	238835	Single Cell Mining Claim	2022-07-04	Active
PORTER	213895	Single Cell Mining Claim	2022-07-04	Active
PORTER	161843	Single Cell Mining Claim	2022-07-04	Active
PORTER	122054	Single Cell Mining Claim	2022-05-27	Active
HYMAN,PORTER	314102	Single Cell Mining Claim	2022-07-04	Active
PORTER	259494	Single Cell Mining Claim	2022-05-27	Active
HYMAN,PORTER	259493	Single Cell Mining Claim	2022-07-04	Active
PORTER	230320	Single Cell Mining Claim	2022-05-27	Active
PORTER	230319	Single Cell Mining Claim	2022-05-27	Active
HYMAN,PORTER	230318	Single Cell Mining Claim	2022-07-04	Active
HYMAN,PORTER	211501	Single Cell Mining Claim	2022-07-04	Active
HYMAN,PORTER	203422	Single Cell Mining Claim	2022-07-04	Active
PORTER	157600	Single Cell Mining Claim	2022-05-27	Active
PORTER	157599	Single Cell Mining Claim	2022-05-27	Active
PORTER	145366	Single Cell Mining Claim	2022-05-27	Active
PORTER	145365	Single Cell Mining Claim	2022-05-27	Active
PORTER	145364	Single Cell Mining Claim	2022-05-27	Active
PORTER	128319	Single Cell Mining Claim	2022-05-27	Active
PORTER	128318	Single Cell Mining Claim	2022-05-27	Active
BALDWIN,PORTER	326120	Single Cell Mining Claim	2022-07-04	Active
BALDWIN	315492	Single Cell Mining Claim	2022-05-27	Active
BALDWIN	288054	Single Cell Mining Claim	2022-05-27	Active
BALDWIN,PORTER	256940	Single Cell Mining Claim	2022-05-27	Active
BALDWIN	248919	Single Cell Mining Claim	2022-05-27	Active
BALDWIN	228053	Single Cell Mining Claim	2022-05-27	Active
BALDWIN,PORTER	218083	Single Cell Mining Claim	2022-05-27	Active
BALDWIN	192257	Single Cell Mining Claim	2022-05-27	Active
BALDWIN	128718	Single Cell Mining Claim	2022-05-27	Active
BALDWIN	228067	Single Cell Mining Claim	2022-05-27	Active
BALDWIN	228053	Single Cell Mining Claim	2022-05-27	Active
BALDWIN,PORTER	326120	Single Cell Mining Claim	2022-07-04	Active

Township / Area	Tenure ID	Tenure Type	Anniversary Date	Tenure Status
PORTER	311631	Single Cell Mining Claim	2022-07-04	Active
PORTER	304867	Single Cell Mining Claim	2022-07-04	Active
BALDWIN,PORTER	256940	Single Cell Mining Claim	2022-05-27	Active
PORTER	223526	Single Cell Mining Claim	2022-07-04	Active
BALDWIN,PORTER	218083	Single Cell Mining Claim	2022-05-27	Active
BALDWIN,PORTER	107940	Single Cell Mining Claim	2022-05-27	Active
PORTER	107939	Single Cell Mining Claim	2022-07-04	Active
PORTER	326529	Single Cell Mining Claim	2022-07-04	Active
PORTER	326528	Single Cell Mining Claim	2022-07-04	Active
PORTER	315571	Single Cell Mining Claim	2022-05-27	Active
PORTER	304867	Single Cell Mining Claim	2022-07-04	Active
PORTER	247842	Single Cell Mining Claim	2022-07-04	Active
PORTER	228716	Single Cell Mining Claim	2022-07-04	Active
PORTER	192838	Single Cell Mining Claim	2022-05-27	Active
PORTER	191654	Single Cell Mining Claim	2022-05-27	Active
PORTER	139040	Single Cell Mining Claim	2022-05-27	Active
PORTER	344195	Single Cell Mining Claim	2022-07-28	Active
PORTER	285366	Single Cell Mining Claim	2022-07-28	Active
PORTER	247540	Single Cell Mining Claim	2022-07-28	Active
PORTER	239572	Single Cell Mining Claim	2022-05-27	Active
PORTER	228716	Single Cell Mining Claim	2022-07-04	Active
PORTER	209669	Single Cell Mining Claim	2022-05-27	Active
PORTER	312806	Single Cell Mining Claim	2022-07-04	Active
PORTER	289952	Single Cell Mining Claim	2022-05-27	Active
PORTER	238835	Single Cell Mining Claim	2022-07-04	Active
PORTER	179296	Single Cell Mining Claim	2022-05-27	Active
PORTER	324769	Single Cell Mining Claim	2022-07-04	Active
BALDWIN,PORTER	312051	Single Cell Mining Claim	2023-01-27	Active
PORTER	312050	Single Cell Mining Claim	2023-01-27	Active
PORTER	294955	Single Cell Mining Claim	2023-01-27	Active
BALDWIN,PORTER	288212	Single Cell Mining Claim	2023-01-27	Active
PORTER	257618	Single Cell Mining Claim	2023-01-27	Active
PORTER	257617	Single Cell Mining Claim	2023-01-27	Active
PORTER	257616	Single Cell Mining Claim	2023-01-27	Active
PORTER	156211	Single Cell Mining Claim	2023-01-27	Active
PORTER	156210	Single Cell Mining Claim	2023-01-27	Active
PORTER	126924	Single Cell Mining Claim	2023-01-27	Active
BALDWIN,PORTER	100796	Single Cell Mining Claim	2022-07-04	Active
PORTER	321786	Single Cell Mining Claim	2023-01-27	Active
PORTER	224588	Single Cell Mining Claim	2022-10-02	Active
PORTER	177098	Single Cell Mining Claim	2023-01-27	Active
PORTER	136706	Single Cell Mining Claim	2022-10-02	Active
PORTER	344426	Single Cell Mining Claim	2022-03-30	Active
PORTER	324769	Single Cell Mining Claim	2022-07-04	Active
PORTER	312050	Single Cell Mining Claim	2023-01-27	Active
PORTER	305638	Single Cell Mining Claim	2023-01-27	Active
PORTER	257616	Single Cell Mining Claim	2023-01-27	Active
PORTER	223526	Single Cell Mining Claim	2022-07-04	Active
PORTER	189731	Single Cell Mining Claim	2023-01-27	Active
PORTER	182283	Single Cell Mining Claim	2022-07-04	Active
PORTER	157261	Single Cell Mining Claim	2023-01-27	Active
PORTER	143136	Single Cell Mining Claim	2022-07-10	Active
PORTER	137078	Single Cell Mining Claim	2022-07-10	Active
PORTER	107939	Single Cell Mining Claim	2022-07-04	Active

Township / Area	Tenure ID	Tenure Type	Anniversary Date	Tenure Status
PORTER	331441	Single Cell Mining Claim	2023-01-27	Active
PORTER	326529	Single Cell Mining Claim	2022-07-04	Active
PORTER	305638	Single Cell Mining Claim	2023-01-27	Active
PORTER	255391	Single Cell Mining Claim	2022-07-10	Active
PORTER	247842	Single Cell Mining Claim	2022-07-04	Active
PORTER	193685	Single Cell Mining Claim	2022-07-04	Active
PORTER	182283	Single Cell Mining Claim	2022-07-04	Active
PORTER	160552	Single Cell Mining Claim	2022-07-10	Active
PORTER	137078	Single Cell Mining Claim	2022-07-10	Active
PORTER	344195	Single Cell Mining Claim	2022-07-28	Active
PORTER	321787	Single Cell Mining Claim	2023-01-27	Active
PORTER	321786	Single Cell Mining Claim	2023-01-27	Active
PORTER	284527	Single Cell Mining Claim	2022-07-10	Active
PORTER	255391	Single Cell Mining Claim	2022-07-10	Active
PORTER	226530	Single Cell Mining Claim	2023-01-27	Active
PORTER	218571	Single Cell Mining Claim	2022-07-10	Active
PORTER	218570	Single Cell Mining Claim	2023-01-27	Active
PORTER	183216	Single Cell Mining Claim	2022-07-28	Active
PORTER	169752	Single Cell Mining Claim	2022-07-04	Active
PORTER	136706	Single Cell Mining Claim	2022-10-02	Active
PORTER	105343	Single Cell Mining Claim	2022-10-02	Active
PORTER	324729	Single Cell Mining Claim	2023-01-27	Active
PORTER	321786	Single Cell Mining Claim	2023-01-27	Active
PORTER	317149	Single Cell Mining Claim	2023-01-27	Active
PORTER	305204	Single Cell Mining Claim	2023-01-27	Active
PORTER	263170	Single Cell Mining Claim	2023-01-27	Active
PORTER	238835	Single Cell Mining Claim	2022-07-04	Active
PORTER	226530	Single Cell Mining Claim	2023-01-27	Active
PORTER	220847	Single Cell Mining Claim	2023-01-27	Active
PORTER	219464	Single Cell Mining Claim	2022-07-28	Active
PORTER	183216	Single Cell Mining Claim	2022-07-28	Active
PORTER	177098	Single Cell Mining Claim	2023-01-27	Active
PORTER	161843	Single Cell Mining Claim	2022-07-04	Active
PORTER	156766	Single Cell Mining Claim	2023-01-27	Active
PORTER	137215	Single Cell Mining Claim	2023-01-27	Active
PORTER	135806	Single Cell Mining Claim	2022-07-04	Active
PORTER	112283	Single Cell Mining Claim	2022-07-28	Active
PORTER	317149	Single Cell Mining Claim	2023-01-27	Active
PORTER	305102	Single Cell Mining Claim	2023-01-27	Active
PORTER	242235	Single Cell Mining Claim	2023-01-27	Active
PORTER	220847	Single Cell Mining Claim	2023-01-27	Active
PORTER	195139	Single Cell Mining Claim	2023-01-27	Active
PORTER	337692	Single Cell Mining Claim	2022-07-04	Active
PORTER	220847	Single Cell Mining Claim	2023-01-27	Active
PORTER	214359	Single Cell Mining Claim	2022-07-04	Active
PORTER	195139	Single Cell Mining Claim	2023-01-27	Active
PORTER	141240	Single Cell Mining Claim	2022-07-04	Active
PORTER	135806	Single Cell Mining Claim	2022-07-04	Active
PORTER	337692	Single Cell Mining Claim	2022-07-04	Active
PORTER	278782	Single Cell Mining Claim	2023-01-27	Active
PORTER	256210	Single Cell Mining Claim	2023-01-27	Active
PORTER	242235	Single Cell Mining Claim	2023-01-27	Active
PORTER	226122	Single Cell Mining Claim	2022-05-27	Active
PORTER	212320	Single Cell Mining Claim	2023-01-27	Active

Township / Area	Tenure ID	Tenure Type	Anniversary Date	Tenure Status
PORTER	195139	Single Cell Mining Claim	2023-01-27	Active
PORTER	195138	Single Cell Mining Claim	2023-01-27	Active
PORTER	193587	Single Cell Mining Claim	2023-01-27	Active
PORTER	176125	Single Cell Mining Claim	2022-05-27	Active
PORTER	108397	Single Cell Mining Claim	2022-07-04	Active
PORTER	108396	Single Cell Mining Claim	2023-01-27	Active
PORTER	289511	Single Cell Mining Claim	2023-01-27	Active
PORTER	278782	Single Cell Mining Claim	2023-01-27	Active
PORTER	201560	Single Cell Mining Claim	2023-01-27	Active
PORTER	195138	Single Cell Mining Claim	2023-01-27	Active
PORTER	114505	Single Cell Mining Claim	2023-01-27	Active
PORTER	107958	Single Cell Mining Claim	2023-01-27	Active
DUNLOP	315654	Single Cell Mining Claim	2022-06-16	Active
DUNLOP	308915	Single Cell Mining Claim	2022-06-16	Active
DUNLOP	308914	Single Cell Mining Claim	2022-06-16	Active
DUNLOP,SHAKESPEARE	281277	Single Cell Mining Claim	2022-06-16	Active
DUNLOP,SHAKESPEARE	225184	Single Cell Mining Claim	2022-06-16	Active
DUNLOP,SHAKESPEARE	148851	Single Cell Mining Claim	2022-06-16	Active
DUNLOP	129392	Single Cell Mining Claim	2022-06-16	Active
DUNLOP,SHAKESPEARE	106750	Single Cell Mining Claim	2022-06-16	Active
SHAKESPEARE	339690	Single Cell Mining Claim	2022-06-16	Active
SHAKESPEARE	318173	Single Cell Mining Claim	2022-06-16	Active
SHAKESPEARE	301511	Single Cell Mining Claim	2022-06-16	Active
SHAKESPEARE	289364	Single Cell Mining Claim	2022-06-16	Active
DUNLOP,SHAKESPEARE	281277	Single Cell Mining Claim	2022-06-16	Active
SHAKESPEARE	252776	Single Cell Mining Claim	2022-06-16	Active
DUNLOP,SHAKESPEARE	225184	Single Cell Mining Claim	2022-06-16	Active
SHAKESPEARE	224538	Single Cell Mining Claim	2022-06-16	Active
SHAKESPEARE	185475	Single Cell Mining Claim	2022-06-16	Active
SHAKESPEARE	185474	Single Cell Mining Claim	2022-06-16	Active
SHAKESPEARE	178688	Single Cell Mining Claim	2022-06-16	Active
SHAKESPEARE	178110	Single Cell Mining Claim	2022-06-16	Active
SHAKESPEARE	164632	Single Cell Mining Claim	2022-06-16	Active
DUNLOP,SHAKESPEARE	106750	Single Cell Mining Claim	2022-06-16	Active
SHAKESPEARE	106565	Single Cell Mining Claim	2022-06-16	Active
SHAKESPEARE	339690	Single Cell Mining Claim	2022-06-16	Active
SHAKESPEARE	225185	Single Cell Mining Claim	2022-06-16	Active
DUNLOP,SHAKESPEARE	225184	Single Cell Mining Claim	2022-06-16	Active
SHAKESPEARE	178110	Single Cell Mining Claim	2022-06-16	Active
SHAKESPEARE	148852	Single Cell Mining Claim	2022-06-16	Active
DUNLOP,SHAKESPEARE	148851	Single Cell Mining Claim	2022-06-16	Active
SHAKESPEARE	317452	Single Cell Mining Claim	2022-06-16	Active
SHAKESPEARE	300821	Single Cell Mining Claim	2022-06-16	Active
SHAKESPEARE	244733	Single Cell Mining Claim	2022-06-16	Active
SHAKESPEARE	232568	Single Cell Mining Claim	2022-07-04	Active
SHAKESPEARE	232567	Single Cell Mining Claim	2022-07-04	Active
SHAKESPEARE	224539	Single Cell Mining Claim	2022-06-16	Active
SHAKESPEARE	224538	Single Cell Mining Claim	2022-06-16	Active
SHAKESPEARE	106565	Single Cell Mining Claim	2022-06-16	Active
PORTER	344195	Single Cell Mining Claim	2022-07-28	Active
PORTER	285366	Single Cell Mining Claim	2022-07-28	Active
PORTER	247540	Single Cell Mining Claim	2022-07-28	Active
PORTER	219464	Single Cell Mining Claim	2022-07-28	Active
PORTER	183216	Single Cell Mining Claim	2022-07-28	Active

Township / Area	Tenure ID	Tenure Type	Anniversary Date	Tenure Status
PORTER	112283	Single Cell Mining Claim	2022-07-28	Active
PORTER	332216	Single Cell Mining Claim	2022-03-03	Active
PORTER	328700	Single Cell Mining Claim	2022-03-03	Active
PORTER	315943	Single Cell Mining Claim	2022-03-03	Active
PORTER	315942	Single Cell Mining Claim	2022-03-03	Active
PORTER	315941	Single Cell Mining Claim	2022-03-03	Active
PORTER	315940	Single Cell Mining Claim	2022-03-03	Active
PORTER	309388	Single Cell Mining Claim	2022-03-03	Active
PORTER	309225	Single Cell Mining Claim	2022-03-03	Active
PORTER	250611	Single Cell Mining Claim	2022-03-03	Active
PORTER	232056	Single Cell Mining Claim	2022-03-03	Active
PORTER	230001	Single Cell Mining Claim	2022-03-03	Active
PORTER	225438	Single Cell Mining Claim	2022-03-03	Active
PORTER	213355	Single Cell Mining Claim	2022-03-03	Active
PORTER	160719	Single Cell Mining Claim	2022-03-03	Active
PORTER	146674	Single Cell Mining Claim	2022-03-03	Active
PORTER	114092	Single Cell Mining Claim	2022-03-03	Active
PORTER	335623	Single Cell Mining Claim	2022-07-18	Active
PORTER	309388	Single Cell Mining Claim	2022-03-03	Active
PORTER	295885	Single Cell Mining Claim	2022-07-18	Active
PORTER	288587	Single Cell Mining Claim	2022-03-03	Active
PORTER	249487	Single Cell Mining Claim	2022-03-03	Active
PORTER	242154	Single Cell Mining Claim	2022-03-03	Active
PORTER	241352	Single Cell Mining Claim	2022-07-18	Active
PORTER	241351	Single Cell Mining Claim	2022-03-03	Active
PORTER	230001	Single Cell Mining Claim	2022-03-03	Active
PORTER	230000	Single Cell Mining Claim	2022-03-03	Active
PORTER	222011	Single Cell Mining Claim	2022-03-03	Active
PORTER	172458	Single Cell Mining Claim	2022-03-03	Active
PORTER	163250	Single Cell Mining Claim	2022-03-03	Active
PORTER	140785	Single Cell Mining Claim	2022-03-03	Active
PORTER	140764	Single Cell Mining Claim	2022-03-03	Active
PORTER	129286	Single Cell Mining Claim	2022-03-03	Active
PORTER	106990	Single Cell Mining Claim	2022-03-03	Active
PORTER	104820	Single Cell Mining Claim	2022-03-03	Active
PORTER	335623	Single Cell Mining Claim	2022-07-18	Active
PORTER	322665	Single Cell Mining Claim	2022-03-03	Active
PORTER	320475	Single Cell Mining Claim	2022-03-03	Active
PORTER	275822	Single Cell Mining Claim	2022-07-18	Active
PORTER	254468	Single Cell Mining Claim	2022-03-03	Active
PORTER	207299	Single Cell Mining Claim	2022-03-03	Active
PORTER	172458	Single Cell Mining Claim	2022-03-03	Active
PORTER	169318	Single Cell Mining Claim	2022-03-03	Active
PORTER	106990	Single Cell Mining Claim	2022-03-03	Active
PORTER	325407	Single Cell Mining Claim	2022-03-03	Active
PORTER	320475	Single Cell Mining Claim	2022-03-03	Active
PORTER	305884	Single Cell Mining Claim	2022-03-03	Active
PORTER	258205	Single Cell Mining Claim	2022-03-03	Active
PORTER	257234	Single Cell Mining Claim	2022-03-03	Active
PORTER	257233	Single Cell Mining Claim	2022-03-03	Active
PORTER	254468	Single Cell Mining Claim	2022-03-03	Active
PORTER	239920	Single Cell Mining Claim	2022-03-03	Active
PORTER	222141	Single Cell Mining Claim	2022-03-03	Active
PORTER	216071	Single Cell Mining Claim	2022-07-18	Active

Township / Area	Tenure ID	Tenure Type	Anniversary Date	Tenure Status
PORTER	202125	Single Cell Mining Claim	2022-03-03	Active
PORTER	180103	Single Cell Mining Claim	2022-07-18	Active
PORTER	169318	Single Cell Mining Claim	2022-03-03	Active
PORTER	162749	Single Cell Mining Claim	2022-03-03	Active
PORTER	157949	Single Cell Mining Claim	2022-03-03	Active
PORTER	134897	Single Cell Mining Claim	2022-07-18	Active
PORTER	134896	Single Cell Mining Claim	2022-07-18	Active
PORTER	115022	Single Cell Mining Claim	2022-03-03	Active
PORTER	100239	Single Cell Mining Claim	2022-03-03	Active
PORTER	100238	Single Cell Mining Claim	2022-03-03	Active
PORTER	295560	Single Cell Mining Claim	2022-03-03	Active
PORTER	295559	Single Cell Mining Claim	2022-03-03	Active
VERNON	295538	Single Cell Mining Claim	2022-03-03	Active
VERNON	295537	Single Cell Mining Claim	2022-03-03	Active
VERNON	288784	Single Cell Mining Claim	2022-03-03	Active
PORTER	258205	Single Cell Mining Claim	2022-03-03	Active
PORTER	258183	Single Cell Mining Claim	2022-03-03	Active
PORTER	229007	Single Cell Mining Claim	2022-03-03	Active
PORTER,VERNON	222215	Single Cell Mining Claim	2022-03-03	Active
PORTER	210188	Single Cell Mining Claim	2022-03-03	Active
PORTER,VERNON	210164	Single Cell Mining Claim	2022-03-03	Active
PORTER	202125	Single Cell Mining Claim	2022-03-03	Active
PORTER	156809	Single Cell Mining Claim	2022-03-03	Active
PORTER,VERNON	126987	Single Cell Mining Claim	2022-03-03	Active
PORTER	115022	Single Cell Mining Claim	2022-03-03	Active
PORTER	115021	Single Cell Mining Claim	2022-03-03	Active
PORTER	115020	Single Cell Mining Claim	2022-03-03	Active
PORTER,VERNON	114991	Single Cell Mining Claim	2022-03-03	Active
PORTER	100239	Single Cell Mining Claim	2022-03-03	Active
PORTER	100238	Single Cell Mining Claim	2022-03-03	Active
DUNLOP,PORTER	255484	Single Cell Mining Claim	2022-03-03	Active
PORTER	236857	Single Cell Mining Claim	2022-03-03	Active
PORTER	200869	Single Cell Mining Claim	2022-03-03	Active
PORTER	181432	Single Cell Mining Claim	2022-03-03	Active
PORTER	136225	Single Cell Mining Claim	2022-03-03	Active
DUNLOP,PORTER	136208	Single Cell Mining Claim	2022-03-03	Active
PORTER	136207	Single Cell Mining Claim	2022-03-03	Active
DUNLOP,PORTER	124722	Single Cell Mining Claim	2022-03-03	Active
PORTER	124721	Single Cell Mining Claim	2022-03-03	Active
PORTER	313665	Single Cell Mining Claim	2022-03-03	Active
PORTER	282712	Single Cell Mining Claim	2022-07-18	Active
PORTER	275833	Single Cell Mining Claim	2022-03-03	Active
PORTER	199609	Single Cell Mining Claim	2022-07-18	Active
PORTER	158458	Single Cell Mining Claim	2022-03-03	Active
PORTER	158457	Single Cell Mining Claim	2022-03-03	Active
PORTER	150878	Single Cell Mining Claim	2022-07-18	Active
PORTER	138342	Single Cell Mining Claim	2022-03-03	Active
PORTER	136225	Single Cell Mining Claim	2022-03-03	Active
PORTER	136207	Single Cell Mining Claim	2022-03-03	Active
PORTER	124721	Single Cell Mining Claim	2022-03-03	Active
PORTER	109888	Single Cell Mining Claim	2022-03-03	Active
PORTER	313770	Single Cell Mining Claim	2022-03-03	Active
PORTER	313665	Single Cell Mining Claim	2022-03-03	Active
PORTER	310431	Single Cell Mining Claim	2023-01-17	Active

Township / Area	Tenure ID	Tenure Type	Anniversary Date	Tenure Status
PORTER	306995	Single Cell Mining Claim	2022-03-03	Active
PORTER	306994	Single Cell Mining Claim	2022-03-03	Active
PORTER	306993	Single Cell Mining Claim	2022-03-03	Active
PORTER	303406	Single Cell Mining Claim	2022-07-18	Active
PORTER	276434	Single Cell Mining Claim	2022-03-03	Active
PORTER	247763	Single Cell Mining Claim	2022-03-03	Active
PORTER	239686	Single Cell Mining Claim	2022-03-03	Active
PORTER	191061	Single Cell Mining Claim	2022-03-03	Active
PORTER	191060	Single Cell Mining Claim	2022-03-03	Active
PORTER	187399	Single Cell Mining Claim	2023-01-17	Active
PORTER	158458	Single Cell Mining Claim	2022-03-03	Active
PORTER	150878	Single Cell Mining Claim	2022-07-18	Active
PORTER	136225	Single Cell Mining Claim	2022-03-03	Active
PORTER	341656	Single Cell Mining Claim	2022-07-18	Active
PORTER	303406	Single Cell Mining Claim	2022-07-18	Active
PORTER	290753	Single Cell Mining Claim	2022-07-18	Active
PORTER	282712	Single Cell Mining Claim	2022-07-18	Active
PORTER	254173	Single Cell Mining Claim	2022-07-18	Active
PORTER	246849	Single Cell Mining Claim	2023-01-17	Active
PORTER	234684	Single Cell Mining Claim	2022-07-18	Active
PORTER	216085	Single Cell Mining Claim	2023-01-17	Active
PORTER	216071	Single Cell Mining Claim	2022-07-18	Active
PORTER	199620	Single Cell Mining Claim	2023-01-17	Active
PORTER	199609	Single Cell Mining Claim	2022-07-18	Active
PORTER	187399	Single Cell Mining Claim	2023-01-17	Active
PORTER	187398	Single Cell Mining Claim	2022-07-18	Active
PORTER	186867	Single Cell Mining Claim	2022-07-18	Active
PORTER	180121	Single Cell Mining Claim	2022-07-18	Active
PORTER	180120	Single Cell Mining Claim	2022-07-18	Active
PORTER	180119	Single Cell Mining Claim	2022-07-18	Active
PORTER	180103	Single Cell Mining Claim	2022-07-18	Active
PORTER	150878	Single Cell Mining Claim	2022-07-18	Active
PORTER	134898	Single Cell Mining Claim	2022-07-18	Active
PORTER	134897	Single Cell Mining Claim	2022-07-18	Active
PORTER	134896	Single Cell Mining Claim	2022-07-18	Active
PORTER	123419	Single Cell Mining Claim	2023-01-17	Active
PORTER	106331	Single Cell Mining Claim	2022-07-18	Active
PORTER	106330	Single Cell Mining Claim	2022-07-18	Active
PORTER	332972	Single Cell Mining Claim	2022-07-18	Active
PORTER	331391	Single Cell Mining Claim	2022-07-18	Active
PORTER	301252	Single Cell Mining Claim	2022-07-18	Active
PORTER	292730	Single Cell Mining Claim	2023-01-17	Active
PORTER	275822	Single Cell Mining Claim	2022-07-18	Active
PORTER	254468	Single Cell Mining Claim	2022-03-03	Active
PORTER	234684	Single Cell Mining Claim	2022-07-18	Active
PORTER	203139	Single Cell Mining Claim	2022-07-18	Active
PORTER	199620	Single Cell Mining Claim	2023-01-17	Active
PORTER	187398	Single Cell Mining Claim	2022-07-18	Active
PORTER	180119	Single Cell Mining Claim	2022-07-18	Active
PORTER	151568	Single Cell Mining Claim	2022-07-18	Active
PORTER	149282	Single Cell Mining Claim	2022-07-18	Active
PORTER	142916	Single Cell Mining Claim	2023-01-17	Active
PORTER	134896	Single Cell Mining Claim	2022-07-18	Active
PORTER	107958	Single Cell Mining Claim	2023-01-27	Active

Township / Area	Tenure ID	Tenure Type	Anniversary Date	Tenure Status
PORTER	335623	Single Cell Mining Claim	2022-07-18	Active
PORTER	295885	Single Cell Mining Claim	2022-07-18	Active
PORTER	275822	Single Cell Mining Claim	2022-07-18	Active
PORTER	241352	Single Cell Mining Claim	2022-07-18	Active
PORTER	210438	Single Cell Mining Claim	2022-07-18	Active
PORTER	203139	Single Cell Mining Claim	2022-07-18	Active
PORTER	158447	Single Cell Mining Claim	2022-07-18	Active
PORTER	138330	Single Cell Mining Claim	2022-07-18	Active
HYMAN	620947	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620946	Single Cell Mining Claim	2022-11-27	Active
HYMAN,PORTER	620945	Single Cell Mining Claim	2022-11-27	Active
PORTER	620944	Single Cell Mining Claim	2022-11-27	Active
PORTER	620943	Single Cell Mining Claim	2022-11-27	Active
PORTER	620942	Single Cell Mining Claim	2022-11-27	Active
PORTER	620941	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620940	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620939	Single Cell Mining Claim	2022-11-27	Active
HYMAN,PORTER	620938	Single Cell Mining Claim	2022-11-27	Active
PORTER	620937	Single Cell Mining Claim	2022-11-27	Active
PORTER	620936	Single Cell Mining Claim	2022-11-27	Active
PORTER	620935	Single Cell Mining Claim	2022-11-27	Active
PORTER	620934	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620933	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620932	Single Cell Mining Claim	2022-11-27	Active
HYMAN,PORTER	620931	Single Cell Mining Claim	2022-11-27	Active
PORTER	620930	Single Cell Mining Claim	2022-11-27	Active
PORTER	620929	Single Cell Mining Claim	2022-11-27	Active
PORTER	620928	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620927	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620926	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620925	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620924	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620923	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620922	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620921	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620920	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620919	Single Cell Mining Claim	2022-11-27	Active
HYMAN,PORTER	620918	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620917	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620916	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620915	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620914	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620913	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620912	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620911	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620910	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620909	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620908	Single Cell Mining Claim	2022-11-27	Active
HYMAN,PORTER	620907	Single Cell Mining Claim	2022-11-27	Active
TOTTEN	620906	Single Cell Mining Claim	2022-11-27	Active
TOTTEN	620905	Single Cell Mining Claim	2022-11-27	Active
TOTTEN	620904	Single Cell Mining Claim	2022-11-27	Active
TOTTEN	620903	Single Cell Mining Claim	2022-11-27	Active
TOTTEN	620902	Single Cell Mining Claim	2022-11-27	Active

Township / Area	Tenure ID	Tenure Type	Anniversary Date	Tenure Status
TOTTEN	620901	Single Cell Mining Claim	2022-11-27	Active
TOTTEN	620900	Single Cell Mining Claim	2022-11-27	Active
TOTTEN	620899	Single Cell Mining Claim	2022-11-27	Active
TOTTEN	620898	Single Cell Mining Claim	2022-11-27	Active
TOTTEN	620897	Single Cell Mining Claim	2022-11-27	Active
TOTTEN	620896	Single Cell Mining Claim	2022-11-27	Active
TOTTEN	620895	Single Cell Mining Claim	2022-11-27	Active
TOTTEN	620894	Single Cell Mining Claim	2022-11-27	Active
TOTTEN	620893	Single Cell Mining Claim	2022-11-27	Active
TOTTEN	620892	Single Cell Mining Claim	2022-11-27	Active
TOTTEN	620891	Single Cell Mining Claim	2022-11-27	Active
TOTTEN	620890	Single Cell Mining Claim	2022-11-27	Active
TOTTEN	620889	Single Cell Mining Claim	2022-11-27	Active
TOTTEN	620888	Single Cell Mining Claim	2022-11-27	Active
TOTTEN	620887	Single Cell Mining Claim	2022-11-27	Active
HYMAN,TOTTEN	620886	Single Cell Mining Claim	2022-11-27	Active
HYMAN,TOTTEN	620885	Single Cell Mining Claim	2022-11-27	Active
TOTTEN	620884	Single Cell Mining Claim	2022-11-27	Active
TOTTEN	620883	Single Cell Mining Claim	2022-11-27	Active
TOTTEN	620882	Single Cell Mining Claim	2022-11-27	Active
TOTTEN	620881	Single Cell Mining Claim	2022-11-27	Active
TOTTEN	620880	Single Cell Mining Claim	2022-11-27	Active
TOTTEN	620879	Single Cell Mining Claim	2022-11-27	Active
TOTTEN	620878	Single Cell Mining Claim	2022-11-27	Active
TOTTEN	620877	Single Cell Mining Claim	2022-11-27	Active
TOTTEN	620876	Single Cell Mining Claim	2022-11-27	Active
TOTTEN	620875	Single Cell Mining Claim	2022-11-27	Active
TOTTEN	620874	Single Cell Mining Claim	2022-11-27	Active
TOTTEN	620873	Single Cell Mining Claim	2022-11-27	Active
TOTTEN	620872	Single Cell Mining Claim	2022-11-27	Active
TOTTEN	620871	Single Cell Mining Claim	2022-11-27	Active
TOTTEN	620870	Single Cell Mining Claim	2022-11-27	Active
TOTTEN	620869	Single Cell Mining Claim	2022-11-27	Active
TOTTEN	620868	Single Cell Mining Claim	2022-11-27	Active
TOTTEN	620867	Single Cell Mining Claim	2022-11-27	Active
TOTTEN,VERNON	620866	Single Cell Mining Claim	2022-11-27	Active
TOTTEN	620865	Single Cell Mining Claim	2022-11-27	Active
TOTTEN	620864	Single Cell Mining Claim	2022-11-27	Active
TOTTEN,VERNON	620863	Single Cell Mining Claim	2022-11-27	Active
TOTTEN	620862	Single Cell Mining Claim	2022-11-27	Active
TOTTEN	620861	Single Cell Mining Claim	2022-11-27	Active
TOTTEN,VERNON	620860	Single Cell Mining Claim	2022-11-27	Active
TOTTEN	620859	Single Cell Mining Claim	2022-11-27	Active
TOTTEN	620858	Single Cell Mining Claim	2022-11-27	Active
TOTTEN,VERNON	620857	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620856	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620855	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620854	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620853	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620852	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620851	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620850	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620849	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620848	Single Cell Mining Claim	2022-11-27	Active

Township / Area	Tenure ID	Tenure Type	Anniversary Date	Tenure Status
HYMAN	620847	Single Cell Mining Claim	2022-11-27	Active
HYMAN,PORTER	620846	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620845	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620844	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620843	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620842	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620841	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620840	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620839	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620838	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620837	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620836	Single Cell Mining Claim	2022-11-27	Active
HYMAN,PORTER	620835	Single Cell Mining Claim	2022-11-27	Active
HYMAN,TOTTEN	620834	Single Cell Mining Claim	2022-11-27	Active
HYMAN,TOTTEN	620833	Single Cell Mining Claim	2022-11-27	Active
HYMAN,TOTTEN	620832	Single Cell Mining Claim	2022-11-27	Active
HYMAN,TOTTEN	620831	Single Cell Mining Claim	2022-11-27	Active
HYMAN,TOTTEN	620830	Single Cell Mining Claim	2022-11-27	Active
HYMAN,TOTTEN	620829	Single Cell Mining Claim	2022-11-27	Active
HYMAN,TOTTEN	620828	Single Cell Mining Claim	2022-11-27	Active
HYMAN,TOTTEN	620827	Single Cell Mining Claim	2022-11-27	Active
HYMAN,TOTTEN	620826	Single Cell Mining Claim	2022-11-27	Active
HYMAN,TOTTEN	620825	Single Cell Mining Claim	2022-11-27	Active
HYMAN,PORTER,TOTTEN,VERNON	620824	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620823	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620822	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620821	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620820	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620819	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620818	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620817	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620816	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620815	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620814	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620813	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620812	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620811	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620810	Single Cell Mining Claim	2022-11-27	Active
HYMAN,TOTTEN	620809	Single Cell Mining Claim	2022-11-27	Active
HYMAN,TOTTEN	620808	Single Cell Mining Claim	2022-11-27	Active
HYMAN,TOTTEN	620807	Single Cell Mining Claim	2022-11-27	Active
DRURY	620806	Single Cell Mining Claim	2022-11-27	Active
DRURY	620805	Single Cell Mining Claim	2022-11-27	Active
DRURY	620804	Single Cell Mining Claim	2022-11-27	Active
DRURY	620803	Single Cell Mining Claim	2022-11-27	Active
DRURY	620802	Single Cell Mining Claim	2022-11-27	Active
DRURY	620801	Single Cell Mining Claim	2022-11-27	Active
DRURY	620800	Single Cell Mining Claim	2022-11-27	Active
DRURY	620799	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620798	Single Cell Mining Claim	2022-11-27	Active
DRURY	620797	Single Cell Mining Claim	2022-11-27	Active
DRURY	620796	Single Cell Mining Claim	2022-11-27	Active
DRURY	620795	Single Cell Mining Claim	2022-11-27	Active

Township / Area	Tenure ID	Tenure Type	Anniversary Date	Tenure Status
DRURY	620794	Single Cell Mining Claim	2022-11-27	Active
DRURY,HYMAN	620793	Single Cell Mining Claim	2022-11-27	Active
DRURY	620792	Single Cell Mining Claim	2022-11-27	Active
DRURY	620791	Single Cell Mining Claim	2022-11-27	Active
DRURY,HYMAN	620790	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620789	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620788	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620787	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620786	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620785	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620784	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620783	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620782	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620781	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620780	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620779	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620778	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620777	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620776	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620775	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620774	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620773	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620772	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620771	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620770	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620769	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620768	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620767	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620766	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620765	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620764	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620763	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620762	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620761	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620760	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620759	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620758	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620757	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620756	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620755	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620754	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620753	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620752	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620751	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620750	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620749	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620748	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620747	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620746	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620745	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620744	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620743	Single Cell Mining Claim	2022-11-27	Active
HYMAN	620742	Single Cell Mining Claim	2022-11-27	Active
PORTER	620741	Single Cell Mining Claim	2022-11-27	Active

Township / Area	Tenure ID	Tenure Type	Anniversary Date	Tenure Status
DUNLOP,PORTER	620740	Single Cell Mining Claim	2022-11-27	Active
DUNLOP	620739	Single Cell Mining Claim	2022-11-27	Active
PORTER	620738	Single Cell Mining Claim	2022-11-27	Active
DUNLOP,PORTER	620737	Single Cell Mining Claim	2022-11-27	Active
DUNLOP	620736	Single Cell Mining Claim	2022-11-27	Active
BALDWIN	620735	Single Cell Mining Claim	2022-11-27	Active
BALDWIN	620734	Single Cell Mining Claim	2022-11-27	Active
BALDWIN	620733	Single Cell Mining Claim	2022-11-27	Active
BALDWIN	620732	Single Cell Mining Claim	2022-11-27	Active
BALDWIN	620731	Single Cell Mining Claim	2022-11-27	Active
BALDWIN	620730	Single Cell Mining Claim	2022-11-27	Active
SHAKESPEARE	620729	Single Cell Mining Claim	2022-11-27	Active
BALDWIN,SHAKESPEARE	620728	Single Cell Mining Claim	2022-11-27	Active
SHAKESPEARE	620727	Single Cell Mining Claim	2022-11-27	Active
SHAKESPEARE	620726	Single Cell Mining Claim	2022-11-27	Active
BALDWIN,SHAKESPEARE	620725	Single Cell Mining Claim	2022-11-27	Active
SHAKESPEARE	620724	Single Cell Mining Claim	2022-11-27	Active
SHAKESPEARE	620723	Single Cell Mining Claim	2022-11-27	Active
SHAKESPEARE	620722	Single Cell Mining Claim	2022-11-27	Active
SHAKESPEARE	620721	Single Cell Mining Claim	2022-11-27	Active
SHAKESPEARE	620720	Single Cell Mining Claim	2022-11-27	Active
SHAKESPEARE	620719	Single Cell Mining Claim	2022-11-27	Active
SHAKESPEARE	620718	Single Cell Mining Claim	2022-11-27	Active
SHAKESPEARE	620717	Single Cell Mining Claim	2022-11-27	Active
SHAKESPEARE	620716	Single Cell Mining Claim	2022-11-27	Active
SHAKESPEARE	620715	Single Cell Mining Claim	2022-11-27	Active
SHAKESPEARE	620714	Single Cell Mining Claim	2022-11-27	Active
SHAKESPEARE	620713	Single Cell Mining Claim	2022-11-27	Active
SHAKESPEARE	620712	Single Cell Mining Claim	2022-11-27	Active
SHAKESPEARE	620711	Single Cell Mining Claim	2022-11-27	Active
SHAKESPEARE	620710	Single Cell Mining Claim	2022-11-27	Active
SHAKESPEARE	620709	Single Cell Mining Claim	2022-11-27	Active
SHAKESPEARE	620708	Single Cell Mining Claim	2022-11-27	Active
SHAKESPEARE	620707	Single Cell Mining Claim	2022-11-27	Active
HALLAM,SHAKESPEARE	620706	Single Cell Mining Claim	2022-11-27	Active
SHAKESPEARE	620705	Single Cell Mining Claim	2022-11-27	Active
SHAKESPEARE	620704	Single Cell Mining Claim	2022-11-27	Active
SHAKESPEARE	620703	Single Cell Mining Claim	2022-11-27	Active
SHAKESPEARE	620702	Single Cell Mining Claim	2022-11-27	Active
SHAKESPEARE	620701	Single Cell Mining Claim	2022-11-27	Active
SHAKESPEARE	620700	Single Cell Mining Claim	2022-11-27	Active
SHAKESPEARE	620699	Single Cell Mining Claim	2022-11-27	Active
SHAKESPEARE	620698	Single Cell Mining Claim	2022-11-27	Active
SHAKESPEARE	620697	Single Cell Mining Claim	2022-11-27	Active
PORTER	571645	Single Cell Mining Claim	2023-01-27	Active
PORTER	571644	Single Cell Mining Claim	2023-01-27	Active
PORTER	571643	Single Cell Mining Claim	2023-01-27	Active
PORTER	571642	Single Cell Mining Claim	2023-01-27	Active
PORTER	571641	Single Cell Mining Claim	2023-01-27	Active
PORTER	571640	Single Cell Mining Claim	2023-01-27	Active
PORTER	571639	Single Cell Mining Claim	2023-01-27	Active
PORTER	571636	Single Cell Mining Claim	2023-01-27	Active
VERNON	571635	Single Cell Mining Claim	2023-01-27	Active
VERNON	571634	Single Cell Mining Claim	2023-01-27	Active

Township / Area	Tenure ID	Tenure Type	Anniversary Date	Tenure Status
PORTER	571633	Single Cell Mining Claim	2023-01-27	Active
PORTER,VERNON	571632	Single Cell Mining Claim	2023-01-27	Active
PORTER	571631	Single Cell Mining Claim	2023-01-27	Active
PORTER	571630	Single Cell Mining Claim	2023-01-27	Active
PORTER	571629	Single Cell Mining Claim	2023-01-27	Active
PORTER	569567	Single Cell Mining Claim	2023-01-16	Active
DUNLOP,PORTER	569566	Single Cell Mining Claim	2023-01-16	Active
PORTER	569565	Single Cell Mining Claim	2023-01-16	Active
PORTER	569564	Single Cell Mining Claim	2023-01-16	Active
PORTER	569563	Single Cell Mining Claim	2023-01-16	Active
DUNLOP,PORTER	569562	Single Cell Mining Claim	2023-01-16	Active
PORTER	569561	Single Cell Mining Claim	2023-01-16	Active
PORTER	569560	Single Cell Mining Claim	2023-01-16	Active
PORTER	569559	Single Cell Mining Claim	2023-01-16	Active
DUNLOP,PORTER	569558	Single Cell Mining Claim	2023-01-16	Active
PORTER	569557	Single Cell Mining Claim	2023-01-16	Active
PORTER	569556	Single Cell Mining Claim	2023-01-16	Active
PORTER	569555	Single Cell Mining Claim	2023-01-16	Active
DUNLOP,PORTER	569554	Single Cell Mining Claim	2023-01-16	Active
PORTER	569553	Single Cell Mining Claim	2023-01-16	Active
PORTER	569552	Single Cell Mining Claim	2023-01-16	Active
PORTER	569551	Single Cell Mining Claim	2023-01-16	Active
DUNLOP,PORTER	569550	Single Cell Mining Claim	2023-01-16	Active
DUNLOP	569549	Single Cell Mining Claim	2023-01-16	Active
PORTER	569548	Single Cell Mining Claim	2023-01-16	Active
PORTER	569547	Single Cell Mining Claim	2023-01-16	Active
DUNLOP,PORTER	569546	Single Cell Mining Claim	2023-01-16	Active
PORTER	569545	Single Cell Mining Claim	2023-01-16	Active
PORTER	569544	Single Cell Mining Claim	2023-01-16	Active
PORTER	569543	Single Cell Mining Claim	2023-01-16	Active
BALDWIN,PORTER	556727	Single Cell Mining Claim	2022-09-04	Active
BALDWIN	556726	Single Cell Mining Claim	2022-09-04	Active
BALDWIN	556725	Single Cell Mining Claim	2022-09-04	Active
BALDWIN	521971	Single Cell Mining Claim	2022-05-23	Active
BALDWIN	520433	Single Cell Mining Claim	2022-05-02	Active
BALDWIN	520432	Single Cell Mining Claim	2022-05-02	Active
BALDWIN	520431	Single Cell Mining Claim	2022-05-02	Active
BALDWIN	520430	Single Cell Mining Claim	2022-05-02	Active
BALDWIN	520429	Single Cell Mining Claim	2022-05-02	Active
BALDWIN	520428	Single Cell Mining Claim	2022-05-02	Active
BALDWIN	520427	Single Cell Mining Claim	2022-05-02	Active
BALDWIN	520426	Single Cell Mining Claim	2022-05-02	Active
BALDWIN	520425	Single Cell Mining Claim	2022-05-02	Active
BALDWIN	520424	Single Cell Mining Claim	2022-05-02	Active
BALDWIN	520423	Single Cell Mining Claim	2022-05-02	Active
BALDWIN	520422	Single Cell Mining Claim	2022-05-02	Active
BALDWIN	520421	Single Cell Mining Claim	2022-05-02	Active
BALDWIN	520420	Single Cell Mining Claim	2022-05-02	Active
BALDWIN	520419	Single Cell Mining Claim	2022-05-02	Active
BALDWIN	520418	Single Cell Mining Claim	2022-05-02	Active
BALDWIN	520417	Single Cell Mining Claim	2022-05-02	Active
BALDWIN	520416	Single Cell Mining Claim	2022-05-02	Active
BALDWIN	520415	Single Cell Mining Claim	2022-05-02	Active
BALDWIN	520414	Single Cell Mining Claim	2022-05-02	Active

Township / Area	Tenure ID	Tenure Type	Anniversary Date	Tenure Status
BALDWIN	520413	Single Cell Mining Claim	2022-05-02	Active
BALDWIN	520412	Single Cell Mining Claim	2022-05-02	Active
BALDWIN	520411	Single Cell Mining Claim	2022-05-02	Active
BALDWIN	520410	Single Cell Mining Claim	2022-05-02	Active
BALDWIN	520409	Single Cell Mining Claim	2022-05-02	Active
BALDWIN	520408	Single Cell Mining Claim	2022-05-02	Active
BALDWIN	520407	Single Cell Mining Claim	2022-05-02	Active
BALDWIN	520406	Single Cell Mining Claim	2022-05-02	Active
BALDWIN	520405	Single Cell Mining Claim	2022-05-02	Active
BALDWIN	520404	Single Cell Mining Claim	2022-05-02	Active
BALDWIN	520403	Single Cell Mining Claim	2022-05-02	Active
BALDWIN	520402	Single Cell Mining Claim	2022-05-02	Active
BALDWIN	520401	Single Cell Mining Claim	2022-05-02	Active
BALDWIN	520400	Single Cell Mining Claim	2022-05-02	Active
BALDWIN	519161	Single Cell Mining Claim	2022-04-26	Active
BALDWIN	519160	Single Cell Mining Claim	2022-04-26	Active
BALDWIN	519159	Single Cell Mining Claim	2022-04-26	Active
BALDWIN	519158	Single Cell Mining Claim	2022-04-26	Active
BALDWIN	519157	Single Cell Mining Claim	2022-04-26	Active
BALDWIN	519156	Single Cell Mining Claim	2022-04-26	Active
BALDWIN	519155	Single Cell Mining Claim	2022-04-26	Active
BALDWIN	519154	Single Cell Mining Claim	2022-04-26	Active
BALDWIN	519153	Single Cell Mining Claim	2022-04-26	Active
BALDWIN	519152	Single Cell Mining Claim	2022-04-26	Active
BALDWIN	519151	Single Cell Mining Claim	2022-04-26	Active
BALDWIN	519150	Single Cell Mining Claim	2022-04-26	Active
BALDWIN	519149	Single Cell Mining Claim	2022-04-26	Active
BALDWIN	519148	Single Cell Mining Claim	2022-04-26	Active
BALDWIN	519147	Single Cell Mining Claim	2022-04-26	Active
BALDWIN	519146	Single Cell Mining Claim	2022-04-26	Active
BALDWIN	519145	Single Cell Mining Claim	2022-04-26	Active
BALDWIN	519144	Single Cell Mining Claim	2022-04-26	Active
BALDWIN	519143	Single Cell Mining Claim	2022-04-26	Active

APPENDIX B

RESULTS OF 2018 & 2021 DRILL SAMPLE PREPARATION, ANALYSIS, SECURITY, QA-QC PROGRAMS

APPENDIX B

Results of the 2018 and 2021 Drill Sample Preparation, Analysis, Security and QA/QC Programs

2018 Drilling

Sampling Method and Approach

Drill core sampling

Once core was logged the geologist would then select intervals for sampling. Samples were selected such that boundaries between rock types, alteration, and mineralization were not crossed by the sample intervals. To accomplish this, samples were given a minimum length of 30cm and maximum length of 1.5m. In general the geologists endeavored to keep samples in approximate range of 1m.

Samples were measured from meter marks created by the geologist or core technician before core logging began. In zones of continuous sampling, measurements are carried down from the previous sample. This is done to ensure that sample lengths are accurate, and in cases where the driller blocks did not align with measured distances, the latter were taken as correct. The only exception to this was samples that were extremely blocky, gravelly, or otherwise indicative of potential core loss. In these cases samples would be reset at the next driller block. Once the sample was marked out, a sample tag was placed at the end of the sample and a reference line was drawn on top of the core.

Upon completion of sample markup, the core was then cut using a diamond core saw. Core was placed in the core tray with the reference line perpendicular to the blade and cut. Core was then placed back in the tray in its original position. The top half (side of core with reference line) was then placed in a labelled plastic bag along with a copy of the assay tag and sealed. The remaining half of core is then stored for future reference, sampling and review.

In cases where large zones of sulfide were cut, the blade would be cleaned by cutting properly sized pieces of cement block to remove any possible sulfide contamination on the blade. As the saw used recirculated water, the water source would also be changed upon completion of sampling mineralized zones.

The newly bagged samples were then placed into standard fibre rice bags for shipping. An average of 10 samples were placed in the rice bags to keep weight <50lbs. Rice bags were clearly labelled with batch number, number of rice bags per batch, samples contained within the bag, and with the companies contact information. To ensure that samples did not fall out of the rice bags, they were zip-tied shut after “spot-checks” were completed to ensure rice bags contained the samples listed on them.

Once all rice bags were filled and checked for QAQC they were then transported by truck to SGS Laboratories Garson facility. While dropping samples at the facility, Magna personnel would then confirm the samples being dropped off and have an SGS representative sign-off as confirmation of sample receipt.

Lab Work

SGS Processing

Once at SGS the samples were crushed and pulverized at the Garson, Ontario facility and were then sent to Burnaby, British Columbia for analysis. Once at Burnaby the primary 3 methods of analysis were GE IMS90AS (34 elements), GE FAI313 (Au), and GE FAI313AE (Pt, Pd). In some instances samples would exceed detection limits and need to be analyzed using GO FAG303 (Au), or GO ICP90Q (base metals) (Tables A-1 to A-4).

Table A-1: Sample preparation codes and description

Method Code	Description
LOG02	Pre-preparation processing, sorting, logging, boxing etc.
	SAMPLE PREPARATION
PRP89	Weigh, dry <3.0kg, crush to 75% passing 2mm, split 250g, pulverize to 85% passing 75 microns.
	Sample Preparation Charges only applicable to overweight samples (>3.0kg)
DRY11	Dry samples >3.0kg at 105°C, per kg rate.
CRU22	Crush >3.0kg to 75% passing 2mm, per kg rate.
	Sample Preparation Charges only applied to samples received as pulps or to client requested pulp duplicates
WGH79	Weighing of samples and reporting of weights.
SPL26	Split into representative sub-samples using riffle splitter, per kg rate.
PUL45	Pulverize 250g, Cr steel to 85% passing 75 microns.
	SAMPLE HANDLING AND STORAGE
STO98	Storage of pulps, 30 day rate. Rate applied after initial 90 day free storage period expires.
STO99	Storage of rejects, 30 day rate. Rate applied after initial 30 day free storage period expires.
RTN96	All samples will be returned to the client at cost plus 15%.
DIS94	Disposal of samples, per kg rate.

Table A-2: Sample analysis codes and descriptions with detection limits

Method Code	Description
	PRIMARY ANALYSIS METHODS
GE IMS90AS	34 element Standard package - sodium peroxide fusion, ICP-MS. See table below for elements and limits.
GE FAI313	Au - 30g Fire Assay, ICP-AES. Reporting limits 1 - 10 000ppb.
GE FAI313AE	Pt or Pd - additional element by GE FAI313. Reporting limits Pt 10 - 10 000ppb, Pd 1 - 10 000ppb.
	OVER LIMIT ANALYSIS METHODS
GO FAG303	Au - ore grade 30g Fire Assay, gravimetric. Reporting limits 0.5 - 10000ppm.
GO ICP90Q	Single element - ore grade sodium peroxide fusion, ICP-AES. See table below for available elements and limits.
GO ICP90QAE	Additional element by GO ICP90Q.

Table A-3: Detection limits for the 34 element GE IMS90A S method

Elements and Limit(s)					
Ag	1 – 200 ppm	Fe	0.01 – 25 %	Si	0.1 – 40 %
Al	0.01 – 25 %	K	0.1 – 30 %	Sn	1 – 10 000 ppm
As	3 – 10 000 ppm	La	0.1 – 10 000 ppm	Sr	10 – 10 000 ppm
Ba	10 – 10 000 ppm	Li	5 – 10 000 ppm	Te	1 – 1000 ppm
Be	1 – 2500 ppm	Mg	0.01 – 30 %	Ti	0.01 – 30 %
Bi	0.1 – 1000 ppm	Mn	10 – 10 000 ppm	V	5 – 10 000 ppm
Ca	0.1 – 25 %	Mo	2 – 10 000 ppm	W	5 – 10 000 ppm
Cd	0.2 – 10 000 ppm	Ni	5 – 50 000 ppm	Y	0.5 – 10 000 ppm
Co	0.5 – 10 000 ppm	P	0.01 – 25 %	Yb	0.1 – 1000 ppm
Cr	5 – 10 000 ppm	Pb	2 – 50 000 ppm	Zn	5 – 50 000 ppm
Cs	0.1 – 10 000 ppm	S	1 – 25 %		
Cu	2 – 50 000 ppm	Sb	1 – 10 000 ppm		

Table A-4: Detection limits for the GO ICP90Q (overlimits) method

Elements and Limit(s)					
Co	0.01 – 30 %	Mo	0.01 – 30 %	Zn	0.01 – 30 %
Cu	0.01 – 30 %	Ni	0.01 – 30 %		
Fe	0.05 – 30 %	Pb	0.01 – 30 %		

SGS Internal Quality Control (standards and blanks)

SGS routinely added quality control samples such that they comply with ISO/IEC 17025. Standards are selected to match the typical matrix of samples submitted to ensure that grades are being reported accurately. SGS quality control personnel monitor and submit QAQC documentation as well as reporting their QC sample analysis with assay certificates. Review of these analysis shows that results are within acceptable limits.

SGS Internal Duplicates

SGS routinely analyzes random samples for duplicate analysis. This is done to ensure the machines are reporting accurately and to estimate the reproducibility related to uncertainties in analytical methods and the homogeneity of sample pulps. Essentially this tests the precision of the labs analytical procedures, which are expected to be less than 10%. Meaning that at 95% confidence the duplicate assay will be within ±10% of the original assay value. Lab duplicates are shown in A2 to A-4 and it can be seen that there is minor variation outside of the 10% threshold. However, the variation is limited; lab precision is acceptable.

Figure A-1: Ni (%) variation within lab duplicates

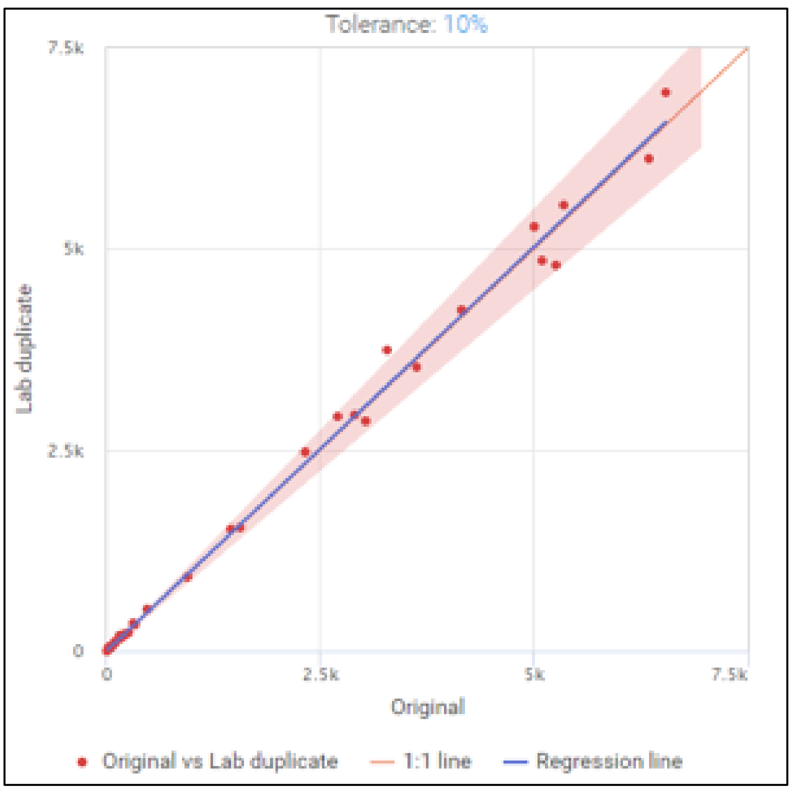


Figure A-2: Cu (%) variation within lab duplicates

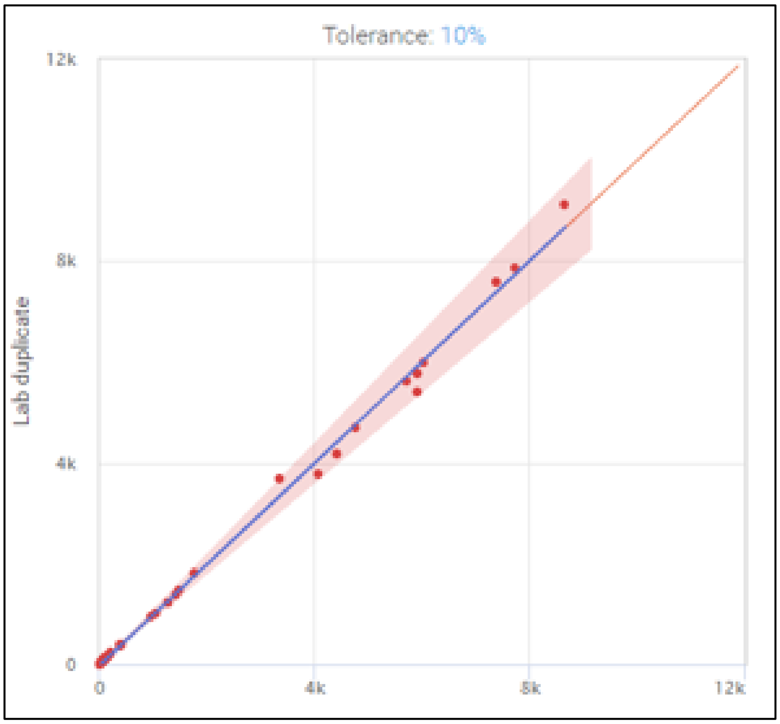


Figure A-3: Pt (ppb) variation within lab duplicates

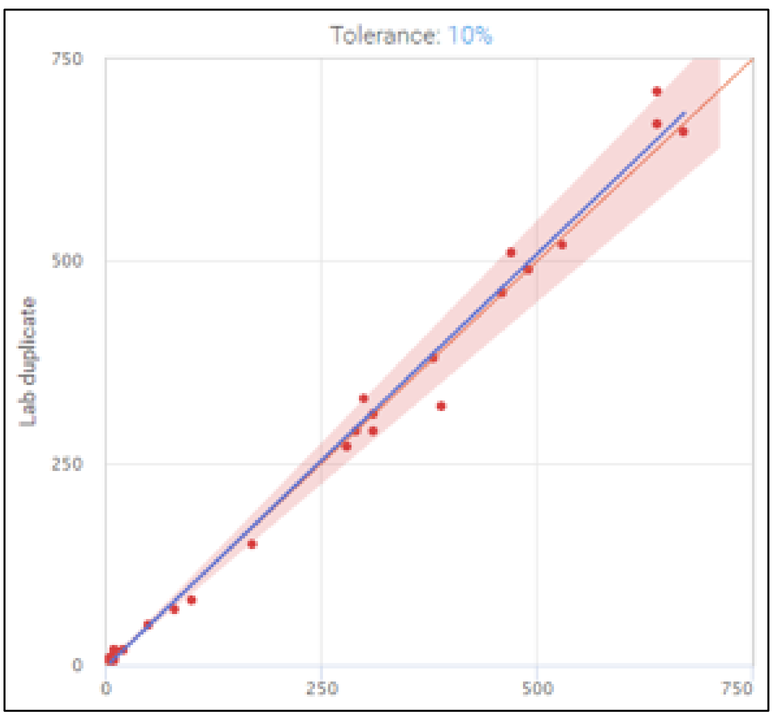
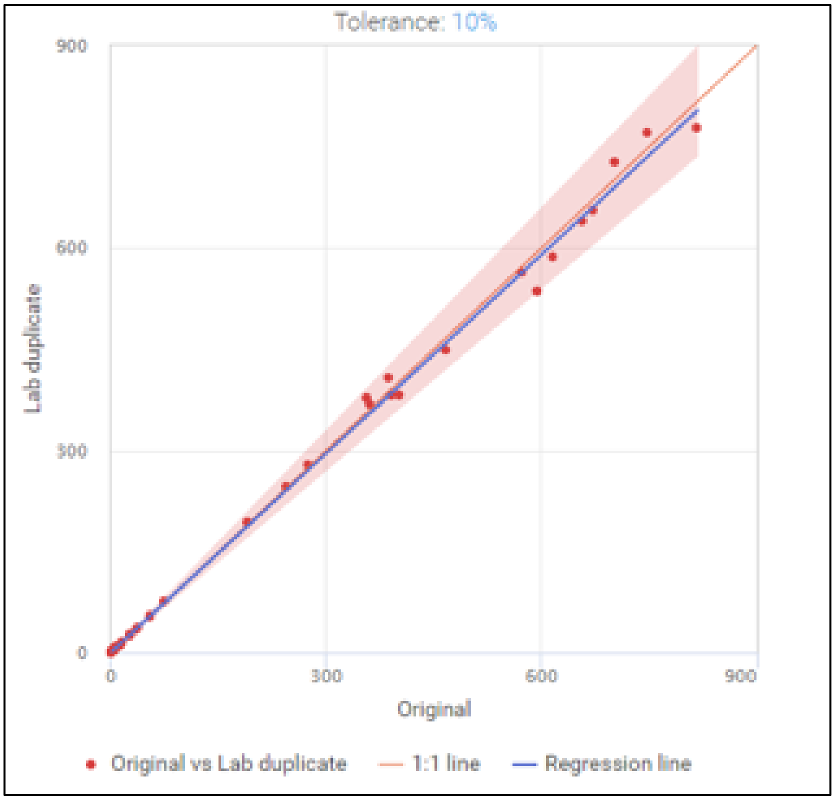


Figure A-4: Pd (ppb) variation within lab duplicates



Data Verification – Magna Mining's Internal Protocol

To ensure proper reporting and analysis by SGS Magna inserted standards and blanks at regular intervals throughout the 2018 drill program as part of a QAQC program. These QC samples underwent the same sample preparation as drill core. They were submitted at predetermined intervals such that there was one CDN-ME-1208, one CDN-ME-1310, one field duplicate, one CDN-BL-10, and one quartz pebble blank submitted in every 50 samples. Random quartz pebble blanks were also inserted in mineralized sections to ensure that contamination between samples is being kept to a minimum. It should be noted that the quartz pebble blank was added during the program and the first few holes did not have any submitted and were submitted with only CDN-BL-10 powdered blanks. In the duration of the 2018 drilling program a total of 59 standards, 29 field duplicates, 92 blanks were submitted for a total of 180 control samples or 12% of the samples taken in this program.

Magna Submitted Standards

Certified reference materials (CRM) are routinely submitted with samples to establish long term assay bias or problems with specific sample batches. Magna utilized two standards that were selected to cover the spectrum of mineralized grades expected to be seen at the Shakespeare deposit. Of the 59 standards submitted only one failed to fall within 3 standard deviations and that was only for method GE FAI313 (**Figure A-5**). This sample passed analysis for Cu and Ni. This was brought to the attention of SGS and the standard was re-assayed as well as the previous 5 samples, the standard was the last sample in that batch and therefore no samples were assayed after the standard. The values reported from the re-assay were extremely close for the samples before the standard and within acceptable limits for the standard itself (Figures A-6 and A-7) and because of this it is assumed that the remaining assays of this batch are acceptable. Detailed results are outlined in Figures A-8 to A-11) and show all analysis falling within 3 standard deviations and because of this all analysis are assumed to be correct for the 2018 program.

It is important to note that the values for gold are provisional and therefore the three samples exceeding 2 standard deviations have been deemed to be within acceptable levels.

Figure A-5: Original assay certificates for all standards including one failed standard. Note that gold values are provisionary with the analytical technique used and are therefore deemed as acceptable.

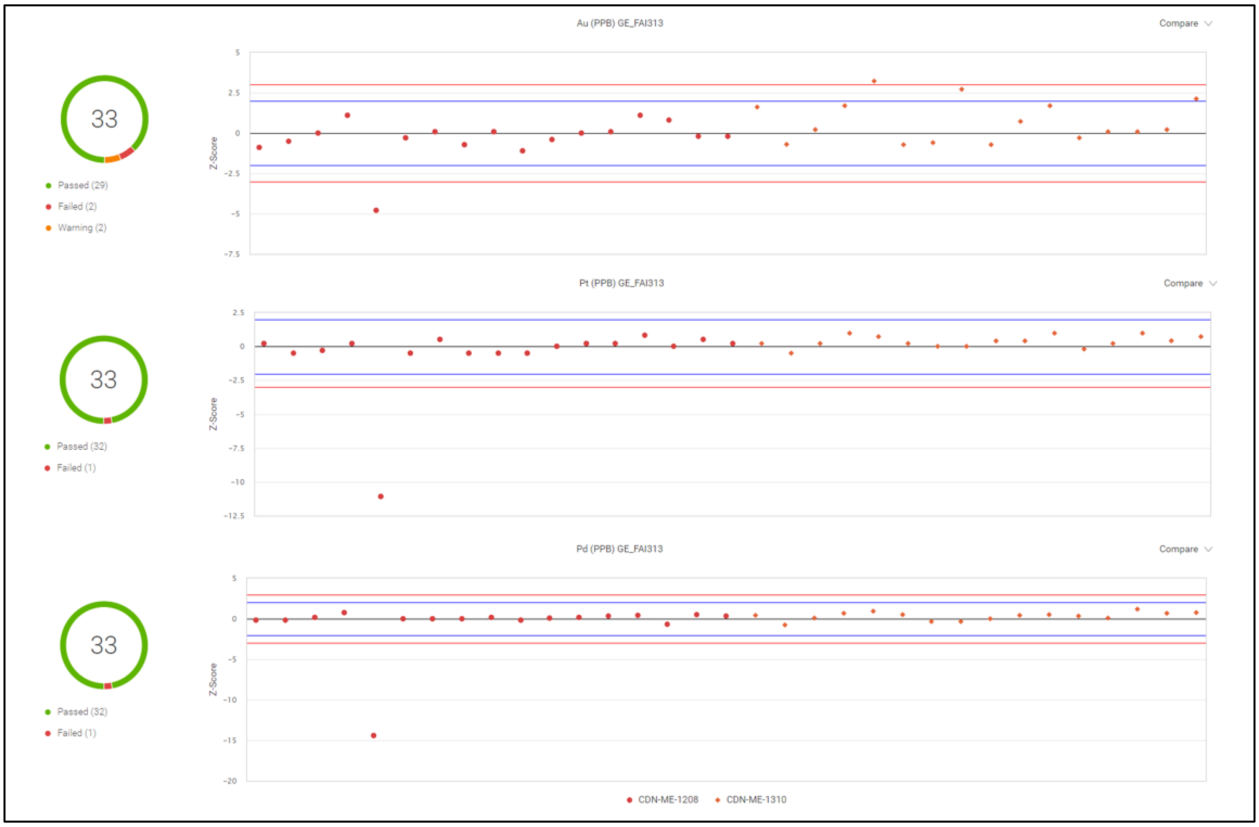


Figure A-6: Z-score plot of all standards after reanalysis of failed sample for method GE FAI313 (Au, Pt, Pd). Note that gold values are provisionary with the analytical technique used and are therefore deemed as acceptable.

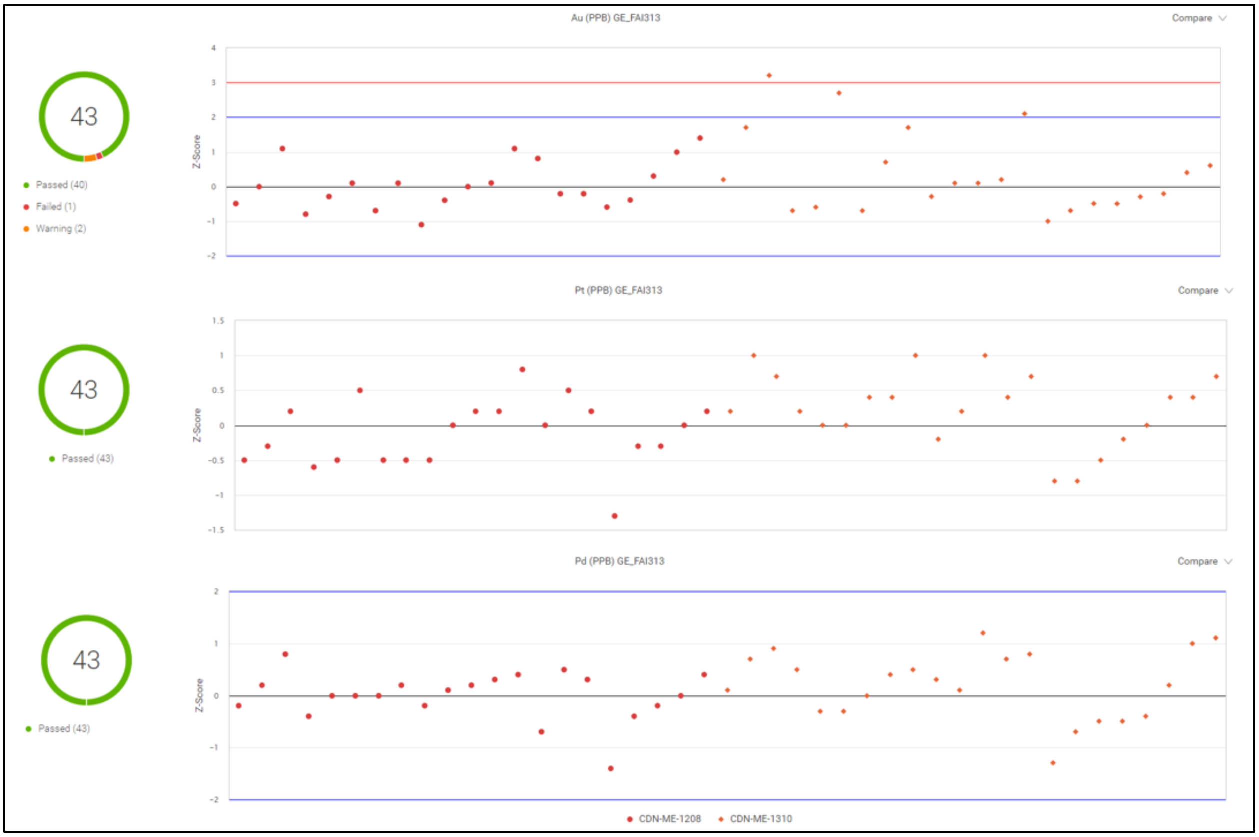


Figure A-7: Z-score plot of all standards for method GE IMS90A (Cu and Ni)

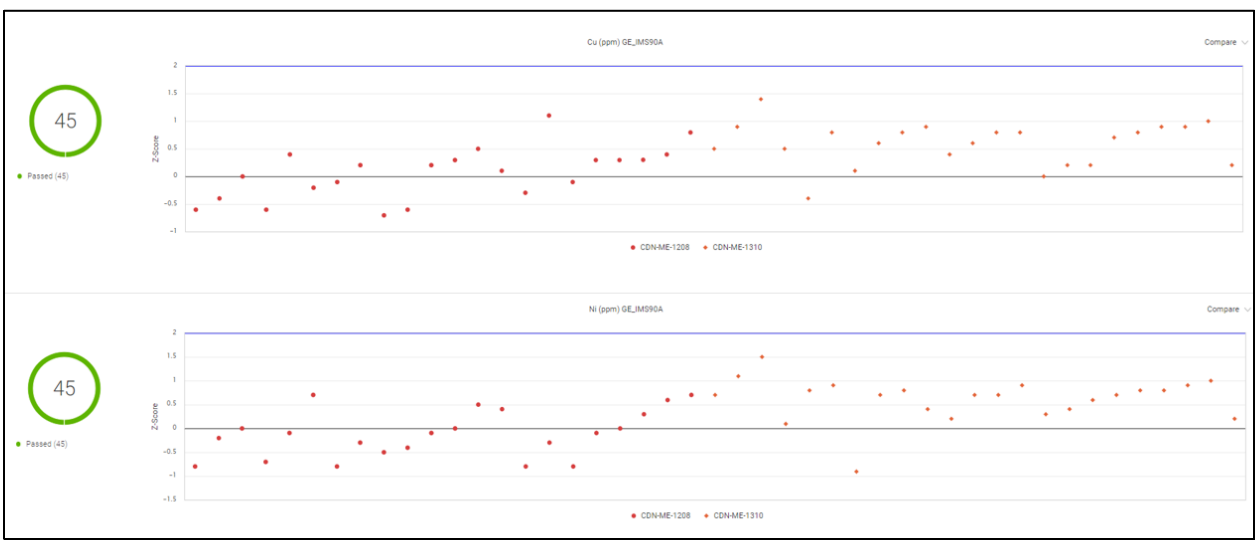
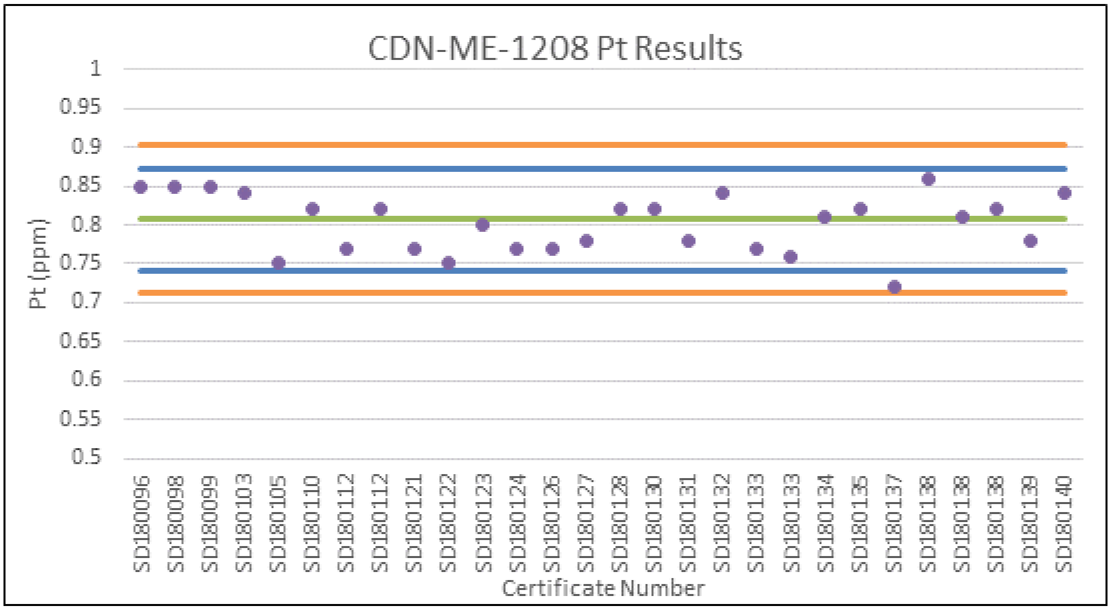


Figure A-8: Results of standard analysis for Pt and Pd. Note that all samples fall within 3 standard deviations



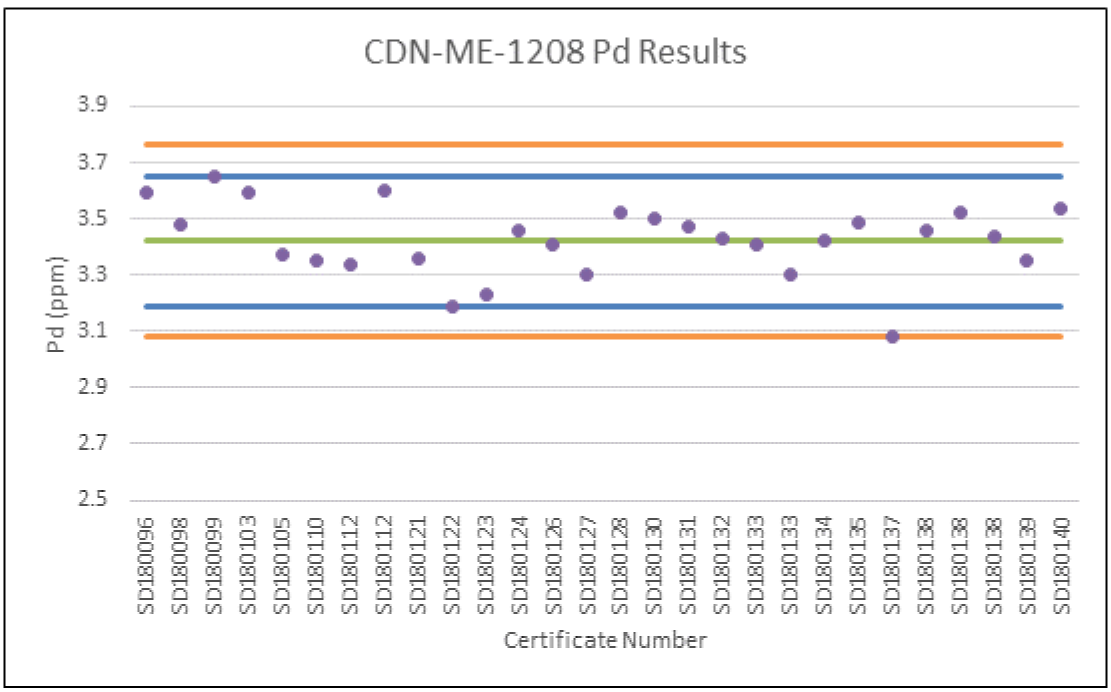
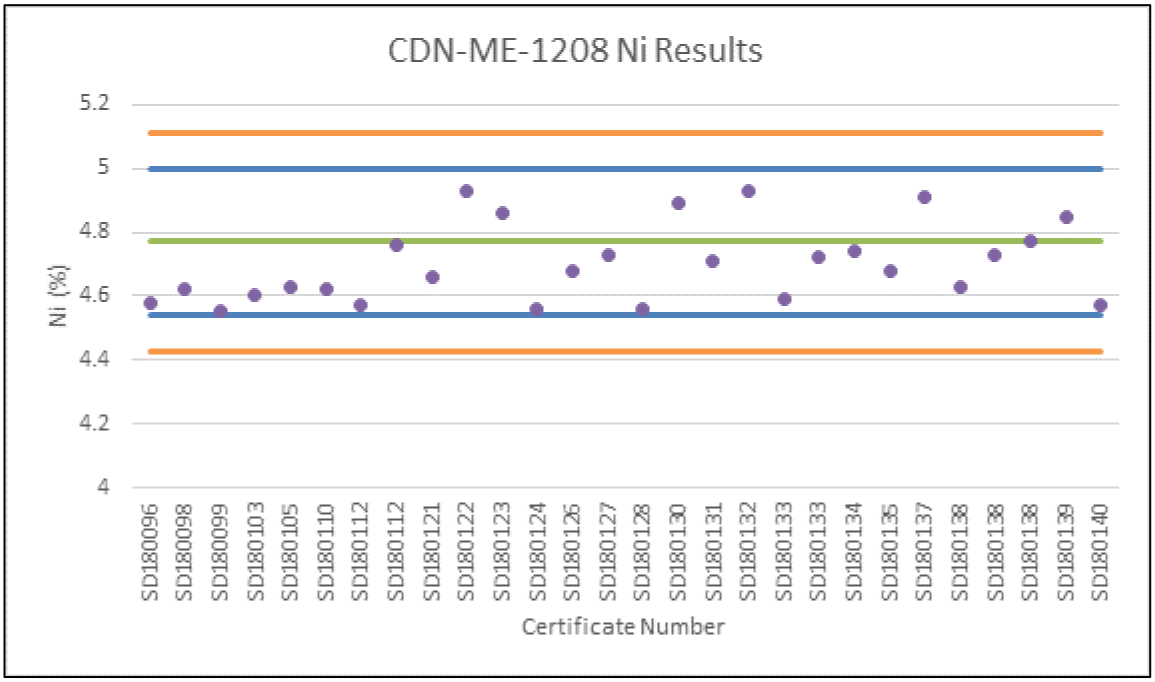


Figure A-9: Results of standard analysis for Ni and Cu. Note that all samples fall within 3 standard deviations



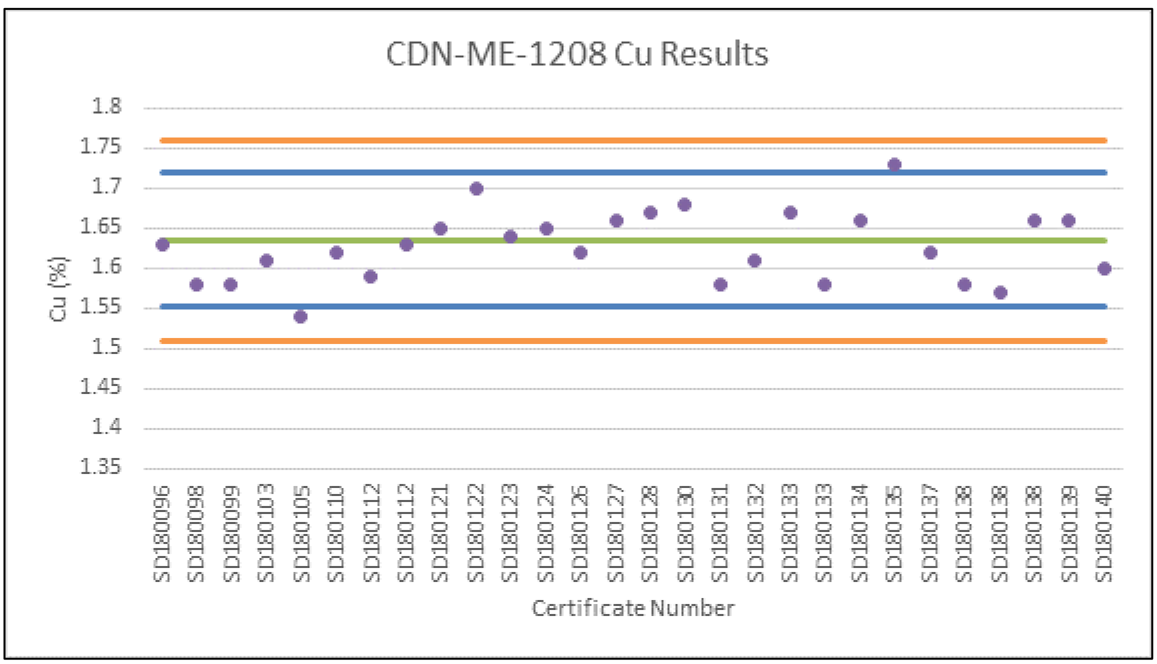
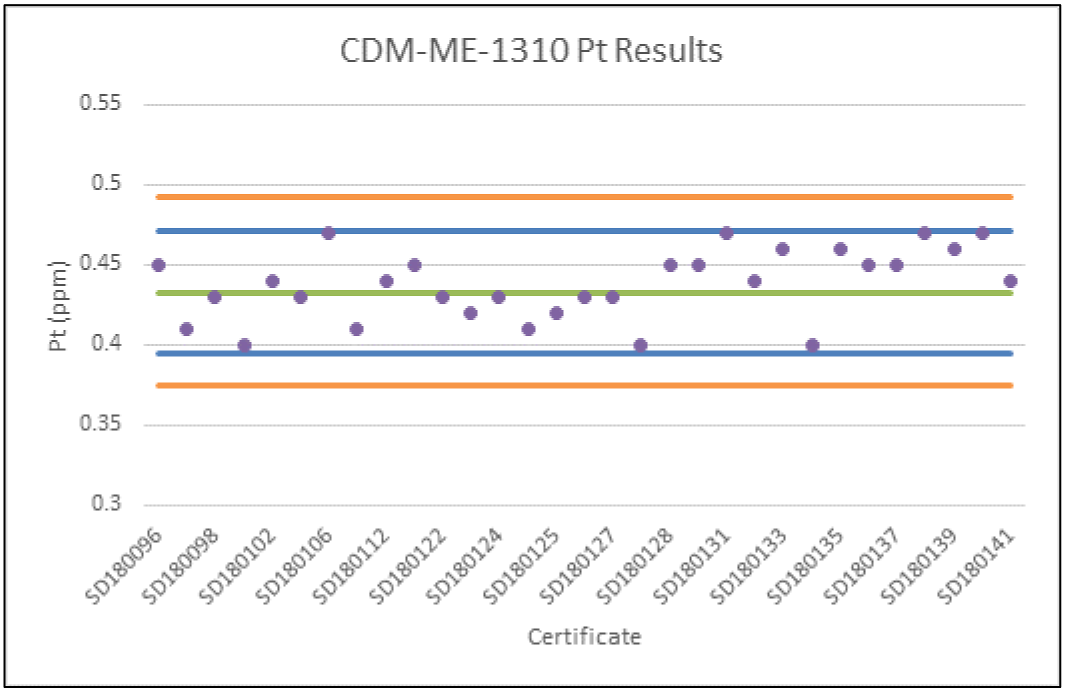


Figure A-10: Results of standard analysis for Pt and Pd. Note that all samples fall within 3 standard deviations



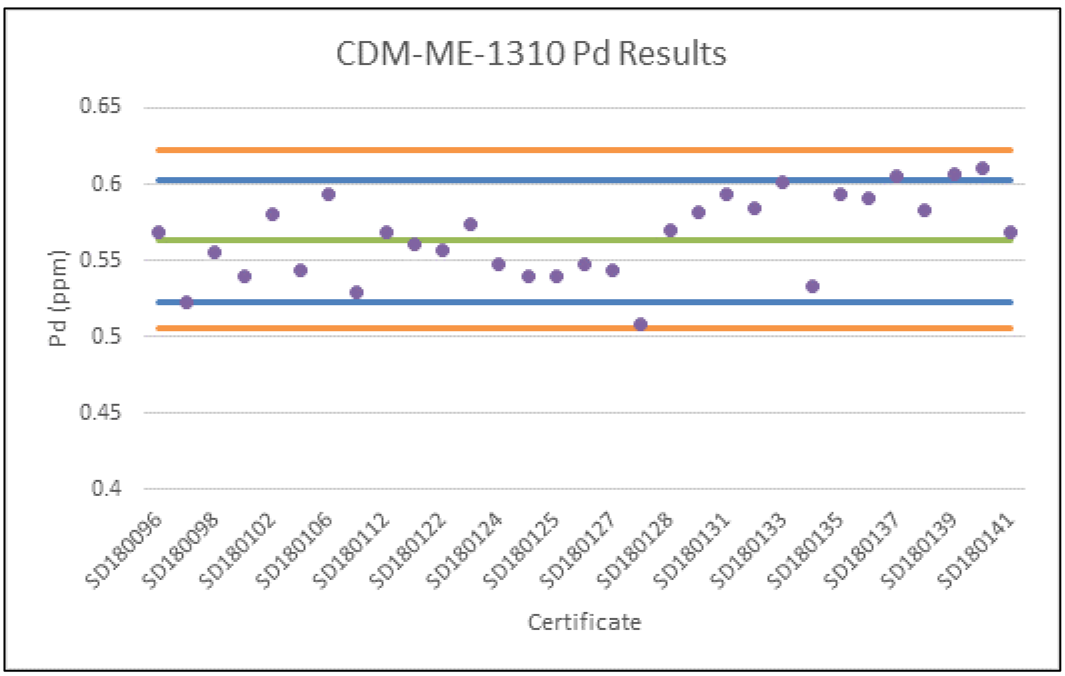
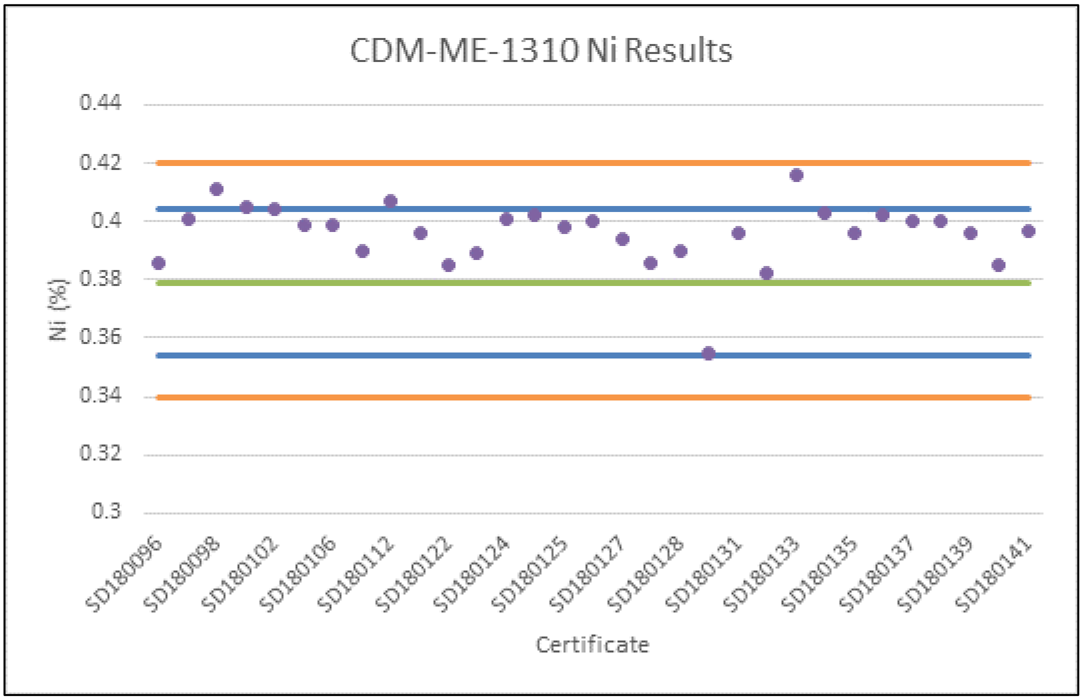
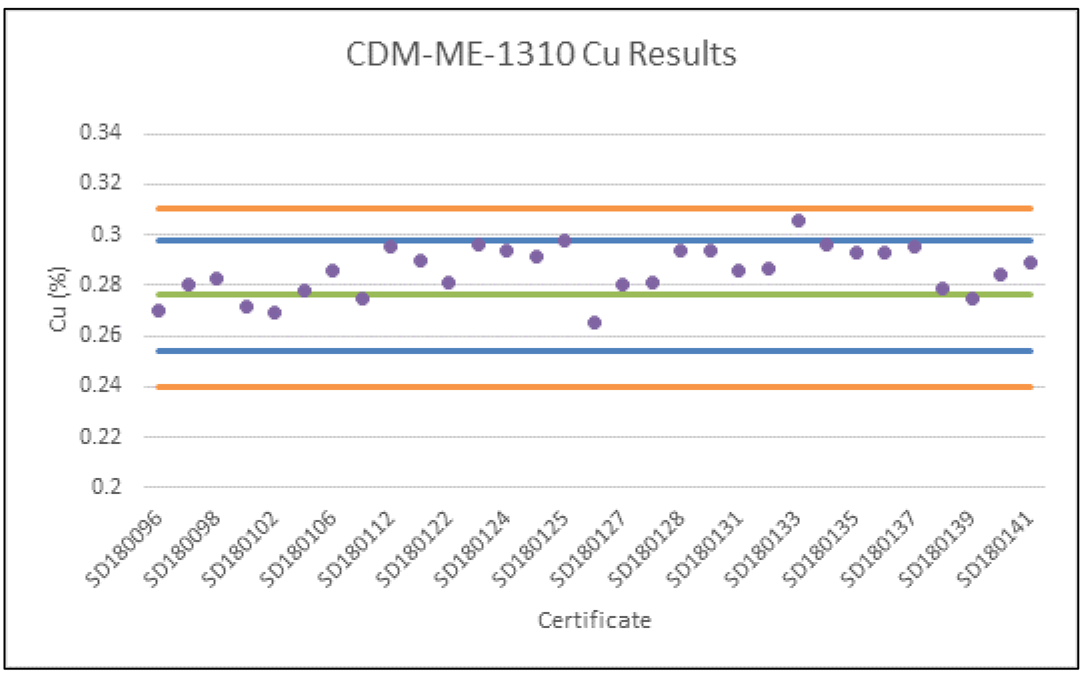


Figure A-11: Results of standard analysis for Ni and Cu. Note that all samples fall within 3 standard deviations





Magna Submitted Blanks

During the crushing and preparation of samples at the lab there is potential for mineralized samples to contaminate subsequent samples. To test if this is occurring two types of blanks were submitted into the sample sequence. Powdered blanks (CDN-BL-10; powdered from granitic material) and 2-4cm quartz gravel chunks. Metal values for gravel blanks are assumed to be near zero and values for powdered blanks are also negligible. Both blanks were inserted into the sample chain at regular intervals and the quartz gravel was inserted randomly in mineralized zones. The purpose of this is twofold, it allows for testing for contamination of samples, and also helps clean the laboratory equipment.

Failure limits for the standards are defined as 4ppb (Au), 40 ppb (Pt), and 4 ppb (Pd) for powdered blanks as defined by CDN thresholds. For coarse blanks these thresholds were carried over, however, it's important to note that the gravel blanks are not certified materials and there could be natural variation in the samples. Neither of the blank types have defined failure limits for Ni and Cu and failure limits were set at 150 ppm Cu and 50 ppm Ni for powdered blanks and 50 ppm Cu and 50 ppm Ni for quartz gravels. Results of the blank assays are shown in Figure A-12 to Figure A-15.

The figures show that there is some contamination of samples within mineralized zones. However, the degree of contamination is relatively limited and only rarely exceeds defined thresholds. In these cases the exceeded values are within a few ppb for Au, Pt, and Pd; and all within acceptable levels for Cu and Ni. It is therefore assumed that contamination of samples from the 2018 program did not occur.

Figure A-12: Powdered blank analysis for method GE FAI313 (Au, Pt, Pd)

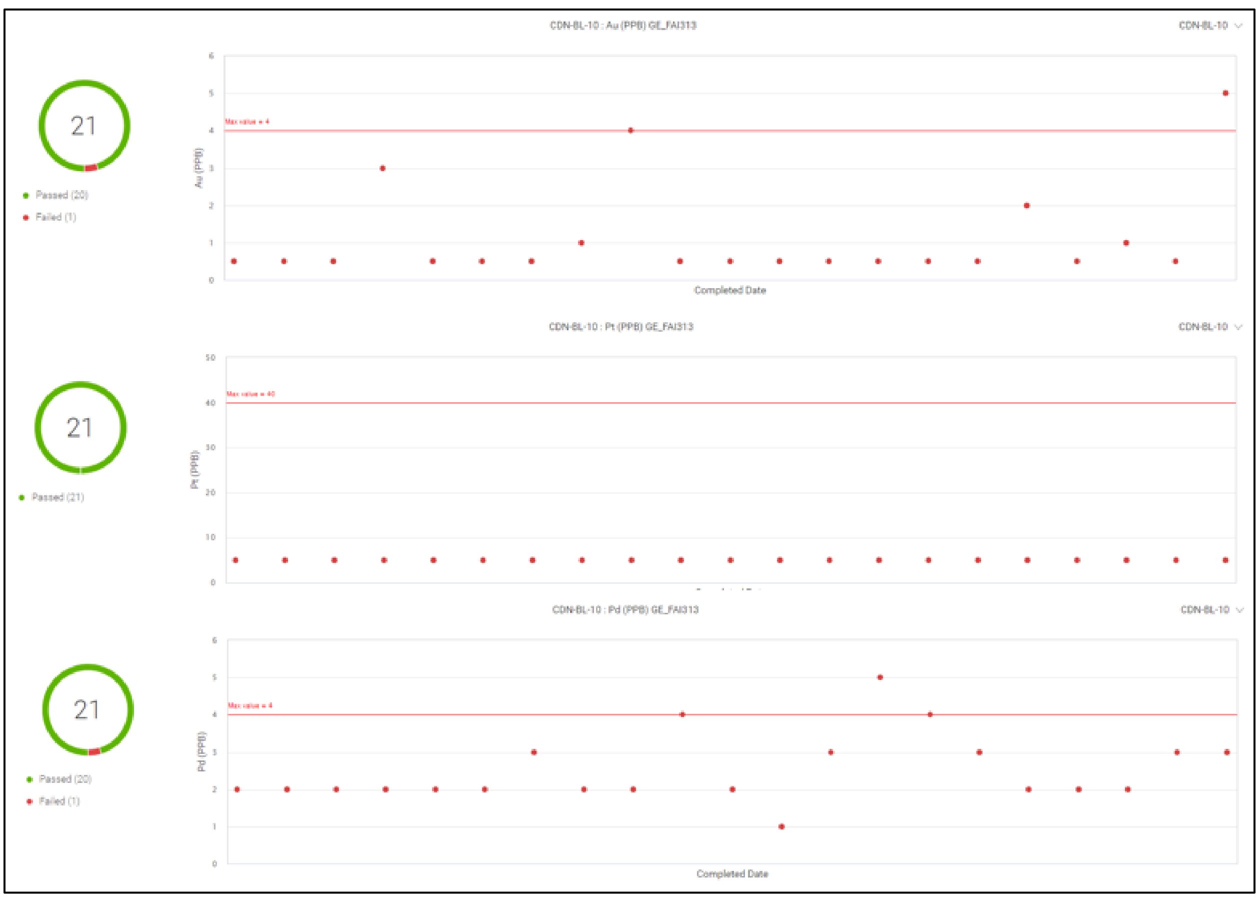


Figure A-13: Coarse blank analysis for method GE FAI313 (Au, Pt, Pd)

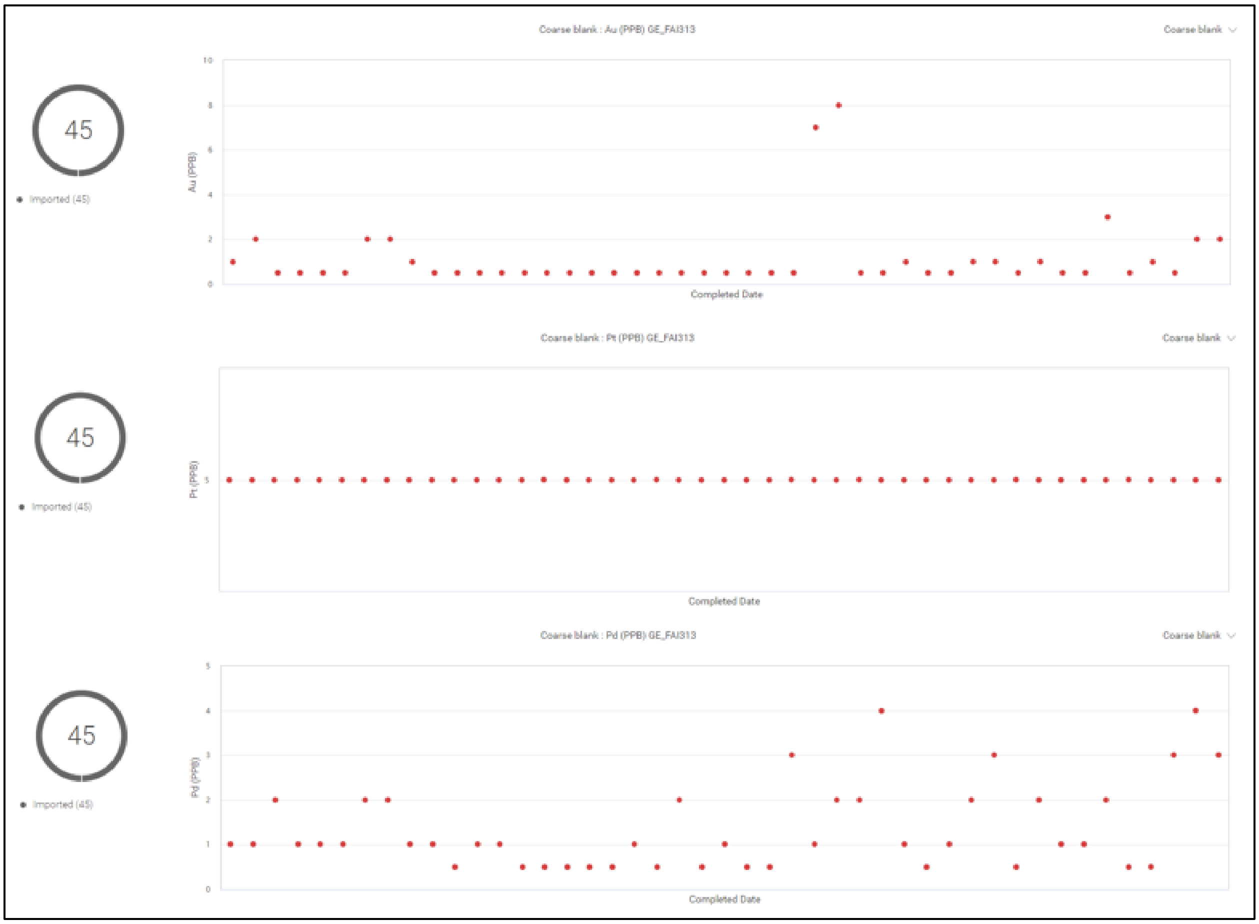


Figure A-14: Powdered blank analysis for method GE IMS90A (Cu, Ni)

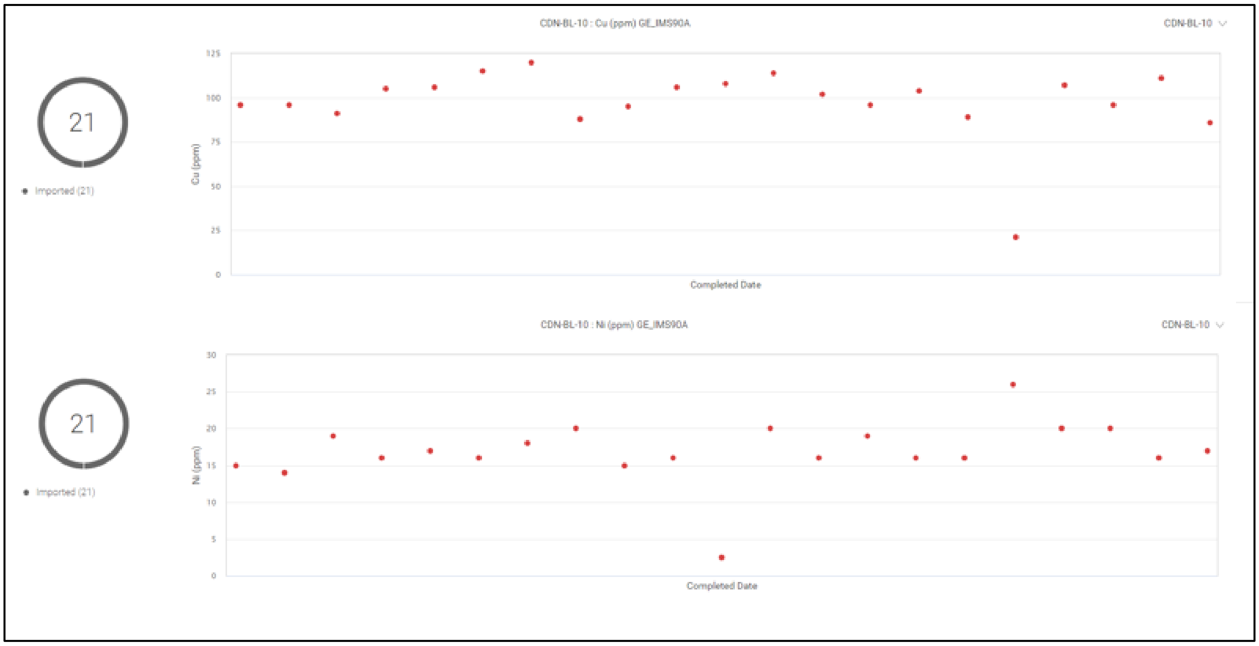
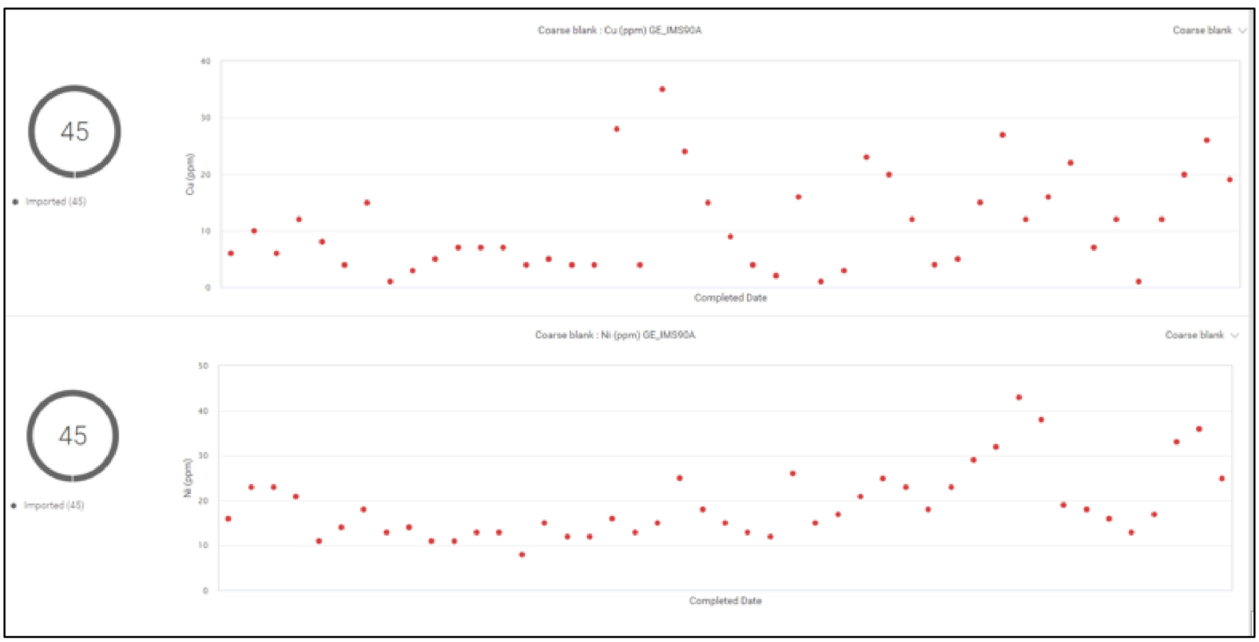


Figure A-15: Coarse blank analysis for method GE IMS90A (Cu, Ni)



Magna Field Duplicates

Since natural variation is present in all rocks, such as ore/mineral distribution. Sample duplicates were placed systematically within the sample chain. These samples were submitted to test the variability within the rocks themselves and independently test the precision of the lab. Results of the field duplicates are seen in Figure A-16 and Figure A-17.

The scatter of these analysis is much higher than that of the laboratory duplicates. In most cases this variation can be attributed to the nugget effect and variable distribution of ore within the core. These duplicates are based on ¼ and therefore made it difficult to insure even distribution of mineralization between duplicates.

Figure A-16: Results of field duplicates for Pt (top) and Pd (bottom)

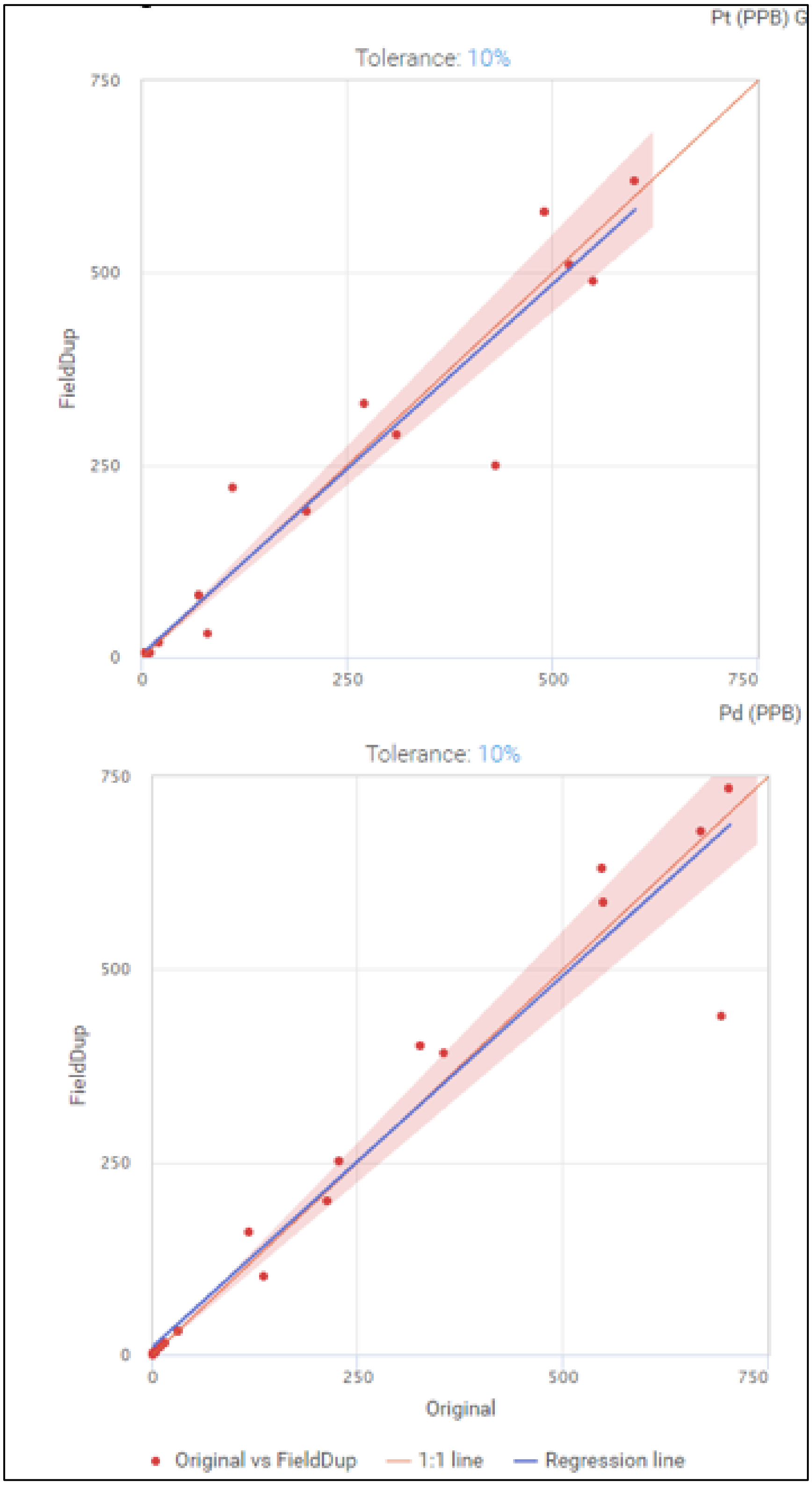
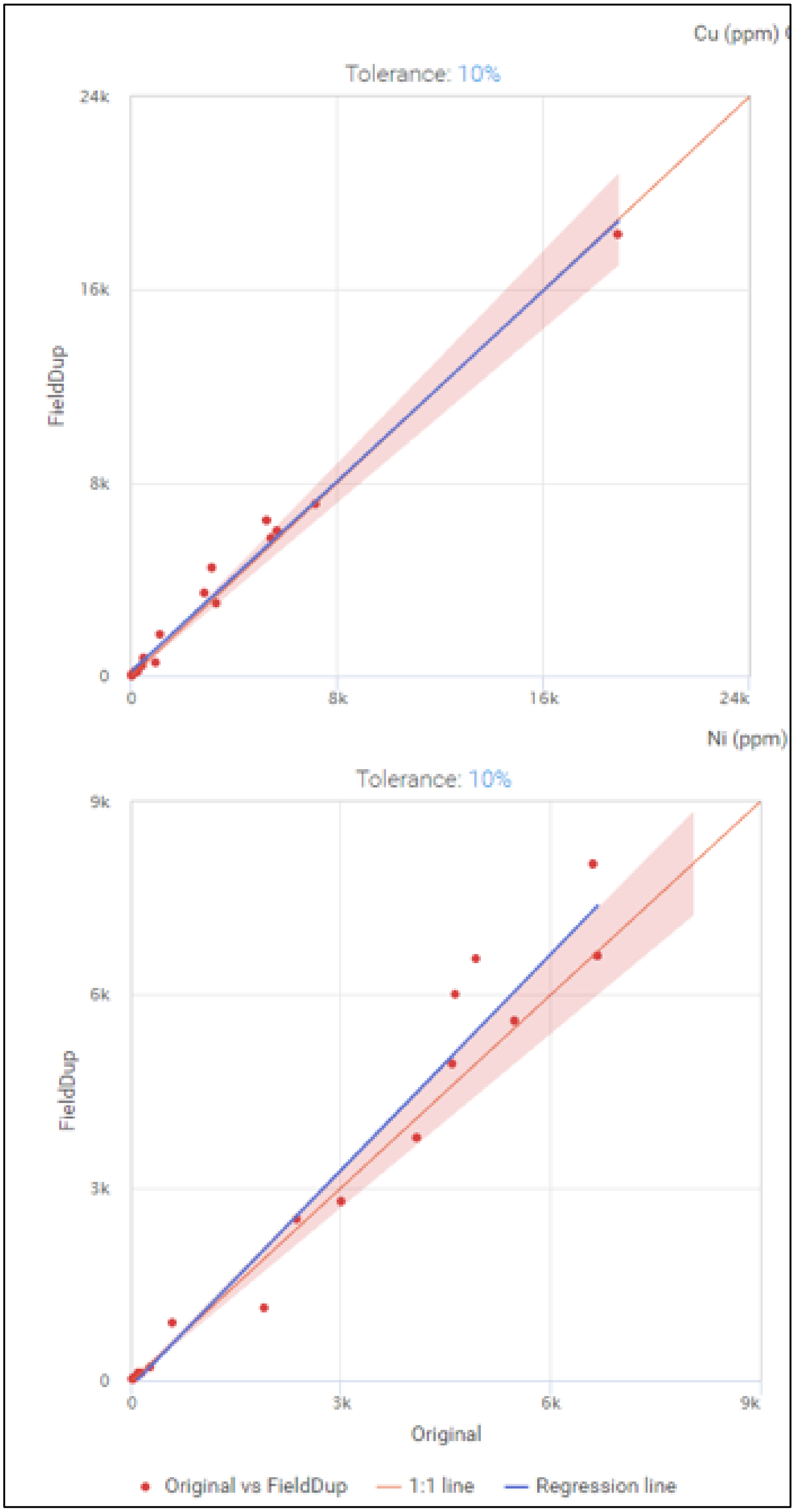


Figure A-17: Results of field duplicates for Cu (top) and Ni (bottom)



2021 Drilling

Sampling Method and Approach

Drill core sampling

Once core was logged the geologist would then select intervals for sampling. Samples were selected such that boundaries between rock types, alteration, and mineralization were not crossed by the sample intervals. To accomplish this, samples were given a minimum length of 30cm (in some instances smaller samples would be selected to verify metal contents within veins) and maximum length of 1.5m. In general, the geologists endeavored to keep samples in approximate range of 1m.

Samples were measured from meter marks created by the geologist or core technician before core logging began. In zones of continuous sampling measurements are carried down from the previous sample. This is done to ensure that sample lengths are accurate, and in cases where the driller blocks did not align with measured distances, the latter were taken as correct. The only exception to this was samples that were extremely blocky, gravelly, or otherwise indicative of potential core loss. In these cases, samples would be reset at the next driller block. Once the sample was marked out, a sample tag was placed at the end of the sample and a reference line was drawn on top of the core.

Upon completion of sample markup, the core was then cut using a diamond core saw. Core was placed in the core tray with the reference line perpendicular to the blade and cut. Core was then placed back in the tray in its original position. The top half (side of core with reference line) was then placed in a labelled plastic bag along with a copy of the assay tag and sealed. The remaining half of core is then stored for future reference, sampling and review.

In cases where large zones of net textured to semi-massive sulfide were cut, the blade would be cleaned by cutting properly sized pieces of cement block to remove any possible sulfide contamination on the blade. As the saw used recirculated water, the water source would also be changed upon completion of sampling mineralized zones.

The newly bagged samples were then placed into standard fibre rice bags for shipping. An average of 10 samples were placed in the rice bags to keep weight <50lbs. Rice bags were clearly labelled with batch number, number of rice bags per batch, samples contained within the bag, and with the company's contact information. To ensure that samples did not fall out of the rice bags, they were zip-tied shut after quality assurance checks were completed to ensure rice bags contained the samples listed on them.
Once all rice bags were filled and checked for QAQC they were then transported by truck to SGS Laboratories Garson facility. While dropping samples at the facility, Magna personnel would confirm the samples being dropped off and have an SGS representative sign-off as confirmation of sample receipt. Alternatively, samples would be taken to Ontario Northland's bus terminal in New Sudbury. Here samples would be dropped off for shipment to Swastika Laboratories in Kirkland Lake.
The 2021 drilling program saw 3,064 samples submitted to SGS laboratories and 262 samples submitted to Swastika Laboratories. Of these 3,326 samples 323 (9.7% of all samples) were samples submitted for quality control purposes. This was composed of 132 standards, 134 blanks, and 46 duplicates.

Lab Work

SGS Processing

Once at SGS the samples were crushed and pulverized at the Garson, Ontario facility and were then sent to Burnaby, British Columbia for analysis. Once in Burnaby the primary 3 methods of analysis were GE IMS90A50 (34 elements), GE_FAI30V5 (Au), and GE_FAI30V5AE (Pt, Pd). In some instances, samples would exceed detection limits and need to be analyzed using GO FAG303 (Au, Pd, Pt), or GO ICP90Q (base metals).

SGS Internal Quality Control (standards and blanks)

SGS routinely added in quality control samples such that they comply with ISO/IEC 17025. Standards are selected to match the typical matrix of samples submitted to ensure that grades are being reported accurately. SGS quality control personnel monitor and submit QAQC documentation as well as reporting their QC sample analysis with assay certificates. Review of these analysis shows that results are within acceptable limits.

SGS Internal Duplicates

SGS routinely analyzes random samples for duplicate analysis. This is done to ensure the machines are reporting accurately and to estimate the reproducibility related to uncertainties in analytical methods and the homogeneity of sample pulps. This tests the precision of the labs analytical procedures, which are expected to be less than 10%. Meaning that at 95% confidence the duplicate assay will be within ±10% of the original assay value. Lab duplicates are shown in

Figure **A-2: Cu (%) variation within lab duplicates**

to 4. Minor variation outside of the 10% threshold is present. However, the variation is very limited and is assumed that lab precision is acceptable.

Swastika Processing

Upon arrival at the Kirkland Lake bus terminal Swastika laboratories would pick up the sample bags and bring them to the lab for processing. Here they would complete crushing and pulverizing of the samples, performing screen tests to ensure samples were within specified parameters. The crushers and pulverisers are washed between clients' samples and after high grade samples.

Swastika Internal Quality Control

Swastika routinely added in quality control samples and is and accredited lab by CALA (accreditation No A3937). Standards are selected to match the typical matrix of samples submitted to ensure that grades are being reported accurately. Swastika quality control personnel monitor this, submit QAQC documentation, and report their QC sample analysis with assay certificates. Review of these analysis shows that results are within acceptable limits.

Swastika Internal Duplicates

Swastika routinely analyzes random samples for duplicate analysis. This is done to ensure the machines are reporting accurately and to estimate the reproducibility related to uncertainties in analytical methods and the homogeneity of sample pulps. This data is then reviewed and approved by Swastika personnel.

Data Verification – Magna Mining's Internal Protocol

To ensure proper reporting and analysis by the analytical facilities, Magna inserted standards, blanks, and duplicates at regular intervals throughout the drill program as part of a QAQC protocol. These QC samples underwent the same sample preparation as drill core. QAQC samples were submitted every 10 samples following this sequence blank, high standard, duplicate, blank, low standard. Blank material consists of barren quartz gravel measured to be the approximate size of samples in that batch, standards are certified reference material selected to be in the approximate range of the Shakespeare deposit, and duplicates consist of ¼ core. It should be noted that random blanks were added in areas of mineralization to confirm contamination is not occurring between samples.

Magna Submitted Standards (SGS)

Certified reference materials (CRM) are routinely submitted with samples to establish long term assay bias or problems with specific sample batches. Magna utilized two standards that were selected to cover the spectrum of mineralized grades expected to be seen at the Shakespeare deposit. Of the 121 standards submitted to SGS there was a total of 14 failures. Thirteen of these failures belonged to the high standard used in this program and most of these failures belonged to either Cu or Ni. These failures are attributed to detection limits of the procedure and in all cases re-analysis of the failed standards provided accurate values. Standard 431700 plotted at the threshold of 3 standard deviations on Pt. As such the data reported have been deemed acceptable for this program. The remaining standard that failed belong to the low standard. This standard (430620) failed for Ni and was reanalysed. The data was not reported as being within acceptable tolerance of the failed standard and as such samples surrounding this standard were re-analysed and this data has been used within the database. Figure 1 below shows the Z-score for Pd, Pt, Cu, & Ni with failed standards labelled. Table 1 and figure 1 below outlines the failed standards and compares the scores to the re-analysis.

Magna Submitted Blanks (SGS)

During the crushing and preparation of samples at the lab, there is potential for mineralized samples to contaminate subsequent samples. To test if this is occurring, blanks were submitted into the sample sequence. Two-to-four-centimeter quartz gravel chunks were used for the blank material (garden gravel). Metal values for gravel blanks are assumed to be near zero. Blanks were inserted into the sample chain at regular intervals and the quartz gravel was inserted randomly in mineralized zones. The purpose of this is to allow for testing for contamination of samples and helps clean the laboratory equipment.
Failure limits for the standards are defined as 4 ppb (Au), 40 ppb (Pt), and 4 ppb (Pd) from powdered blanks (as defined by CDN thresholds) used in a previous program. For coarse blanks in this program these thresholds were carried over, however, gravel blanks are not certified materials and there could be natural variation in the samples. Failure limits for Ni and Cu were set at 150 ppm arbitrarily (as per previous reports). Results of the blank assays are shown in Figure 2.

The results show there is no contamination within Pd and Pt. Both Cu and Ni show some variability but are predominantly within the defined limits. One sample in Ni breaches 150 ppm and was still in very close proximity to the threshold and below 175 ppm or 0.0175% the sample was accepted.

Magna Submitted Duplicates (SGS)

A total of 64 duplicates were cut and submitted to SGS laboratories as part of Magna's QAQC procedure. With these duplicates being of ¼ core there is some variation within the samples. This can largely be attributed to nugget effect of the mineralization as one side of the quartered core may contain more mineralization than the other. When the lab duplicates (based on pulps) there is much greater reproducibility amongst the samples. In both cases the duplicate plots for Magna submitted and lab duplicates are comparable and have been deemed acceptable. These plots can be seen in Figure 3 & 4.

Figure 1: Z-score plots of standards submitted to SGS in Magna's 2021 drilling campaign.

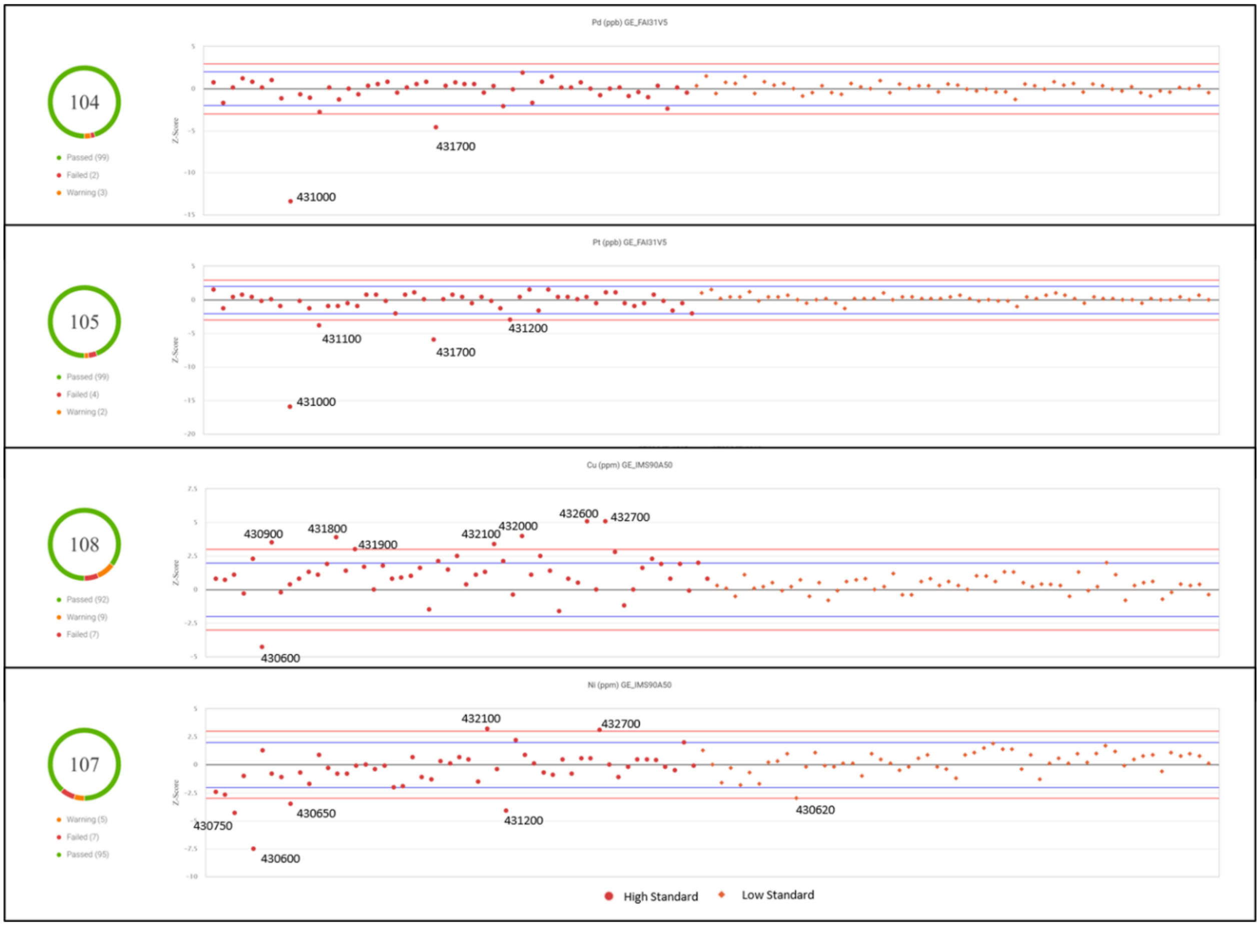


Table 1: Chart showing standards that failed on SGS initial submissions and passed second screenings.

Sample number	Cert. number	Status	CRM code	**Value**	Certified value	Standard deviation	Analyte	Unit	Sample workflow
S00430600	BBM21-10178	Failed	HIGH STANDARD	**11221**	15720	590	Ni	ppm	SGS
	BBM21-12306	Passed		**15781**	15720	590	Ni	ppm	SGS
	BBM21-10178	Failed		**3632**	4070	100	Cu	ppm	SGS
	BBM21-12306	Passed		**4109**	4070	100	Cu	ppm	SGS
S00430620	BBM21-10199	Failed	LOW STANDARD	**3005**	3790	250	Ni	ppm	SGS
	BBM21-12307	Passed		**4016**	3790	250	Ni	ppm	SGS
S00430650	BBM21-10199	Failed	HIGH STANDARD	**13592**	15720	590	Ni	ppm	SGS
	BBM21-12307	Passed		**16124**	15720	590	Ni	ppm	SGS
S00430750	BBM21-10214	Failed	HIGH STANDARD	**13133**	15720	590	Ni	ppm	SGS
	BBM21-12308	Passed		**16018**	15720	590	Ni	ppm	SGS
S00430900	BBM21-10340	Failed	HIGH STANDARD	**4423**	4070	100	Cu	ppm	SGS
	BBM21-12309	Passed		**4179**	4070	100	Cu	ppm	SGS
S00431000	BBM21-10447	Failed	HIGH STANDARD	**221**	992	57	Pd	ppb	SGS
	BBM21-12310	Passed		**997**	992	57	Pd	ppb	SGS
	BBM21-10447	Failed		**120**	568	28	Pt	ppb	SGS
	BBM21-12310	Passed		**590**	568	28	Pt	ppb	SGS
S00431100	BBM21-10628	Failed	HIGH STANDARD	**460**	568	28	Pt	ppb	SGS
	BBM21-12538	Passed		**550**	568	28	Pt	ppb	SGS
S00431200	BBM21-10829	Failed	HIGH STANDARD	**13264**	15720	590	Ni	ppm	SGS
	BBM21-13931	Passed		**16023**	15720	590	Ni	ppm	SGS
	BBM21-10829	Failed		**480**	568	28	Pt	ppm	SGS
S00431700	BBM21-11592	Failed	HIGH STANDARD	**723**	992	57	Pd	ppb	SGS
	BBM21-12817	Passed		**997**	992	57	Pd	ppb	SGS

Sample number	Cert. number	Status	CRM code	**Value**	Certified value	Standard deviation	Analyte	Unit	Sample workflow
	BBM21-11592	Failed		**400**	568	28	Pt	ppb	SGS
	BBM21-12817	Passed		**580**	568	28	Pt	ppb	SGS
S00431800	BBM21-11628	Failed	HIGH STANDARD	**4465**	4070	100	Cu	ppm	SGS
	BBM21-12539	Warning		**4322**	4070	100	Cu	ppm	SGS
S00432000	BBM21-11717	Failed	HIGH STANDARD	**4471**	4070	100	Cu	ppm	SGS
	BBM21-13932	Warning		**4301**	4070	100	Cu	ppm	SGS
S00432100	BBM21-11857	Failed	HIGH STANDARD	**17637**	15720	590	Ni	ppm	SGS
	BBM21-13934	Passed		**15995**	15720	590	Ni	ppm	SGS
	BBM21-11857	Failed		**4410**	4070	100	Cu	ppm	SGS
	BBM21-13934	Passed		**4260**	4070	100	Cu	ppm	SGS
S00432600	BBM21-13038	Failed	HIGH STANDARD	**4582**	4070	100	Cu	ppm	SGS
	BBM21-12306	Passed		**4109**	4070	100	Cu	ppm	SGS
S00432700	BBM21-13389	Failed	HIGH STANDARD	**17568**	15720	590	Ni	ppm	SGS
	BBM21-13389	Failed		**4579**	4070	100	Cu	ppm	SGS

Figure 2: Plots of blank material submitted by Magna in the 2021 drilling campaign to SGS Laboratories.

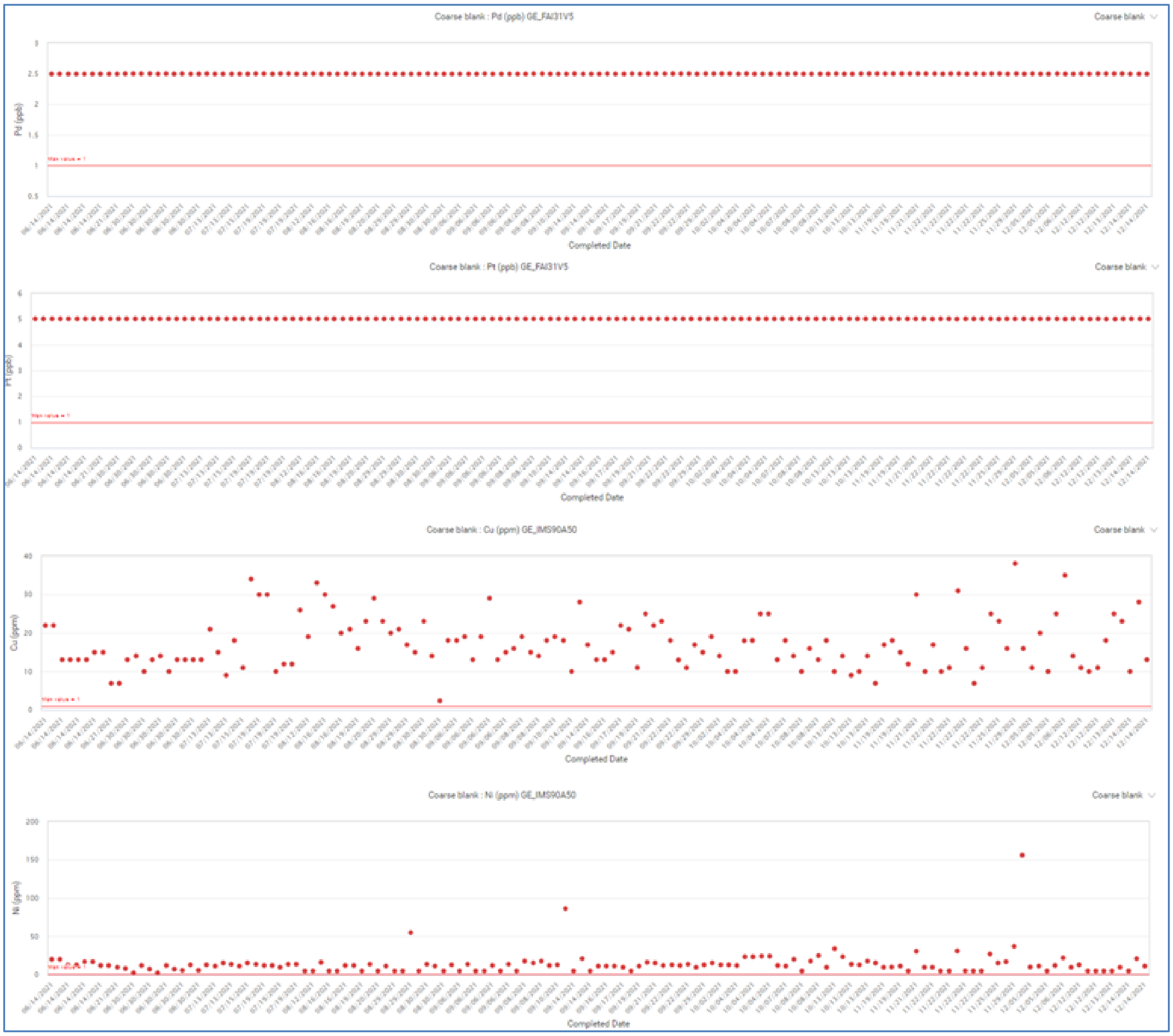


Figure 3: Plots of duplicate data for Pd (top) and Pt (bottom). In both cases Magna submitted duplicates can be seen on the left and SGS laboratories are shown on the right.

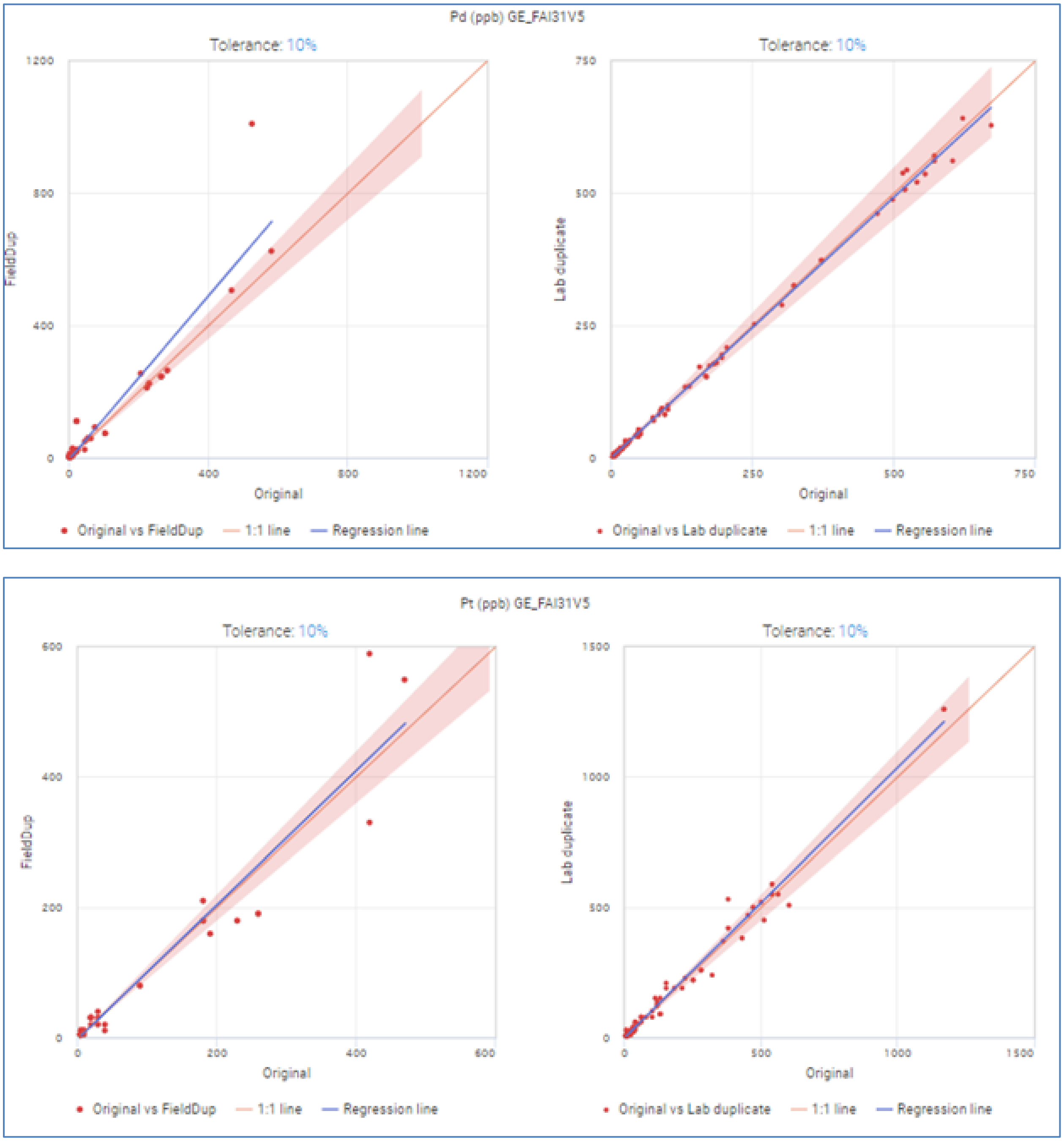
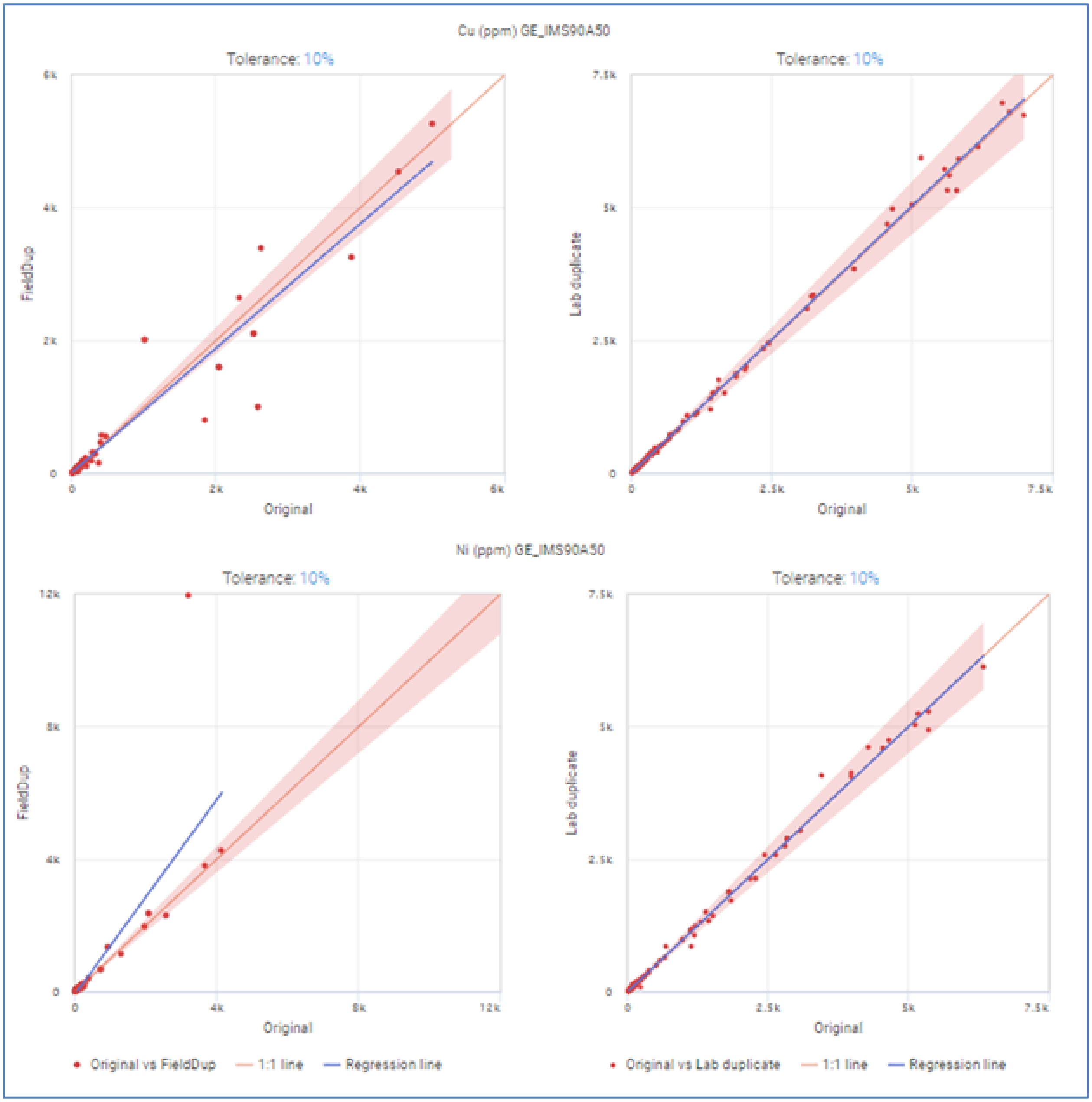


Figure 4: Plots of duplicate data for Cu (top) and Ni (bottom). In both cases Magna submitted duplicates can be seen on the left and SGS laboratories are shown on the right.



Magna Submitted Standards (Swastika)

During the 2021 drilling campaign Magna submitted 17 standards to Swastika Laboratories as part of our QAQC procedures. These standards were the same as submitted to SGS and followed the same procedures except for sample E5947712 which was submitted so that a standard would be included with a sample submission. A total of 3 high standards were submitted with the remaining 8 being of the chosen low standard for this drilling program. In all cases the standards passed QAQC within 2 standard deviations. This data can be seen in figure 5 & 6.

Magna Submitted Blanks (Swastika)

Magna submitted 19 blanks in the 2021 drilling program to Swastika Laboratories. All blanks returned within acceptable limits for Cu, Ni, Pd, & Pt. This data can be seen in Figure 7.

Magna Submitted Duplicates (Swastika)

Magna submitted duplicates at regular intervals in the sample sequence. These duplicates are comparable to what was seen in those submitted to SGS. More samples of barren rock were submitted to Swastika and as such many of the samples plot closer to lower detection limit. This data can be seen in figure 8.

Figure 5: Standard plots for high standards submitted by Magna Mining.

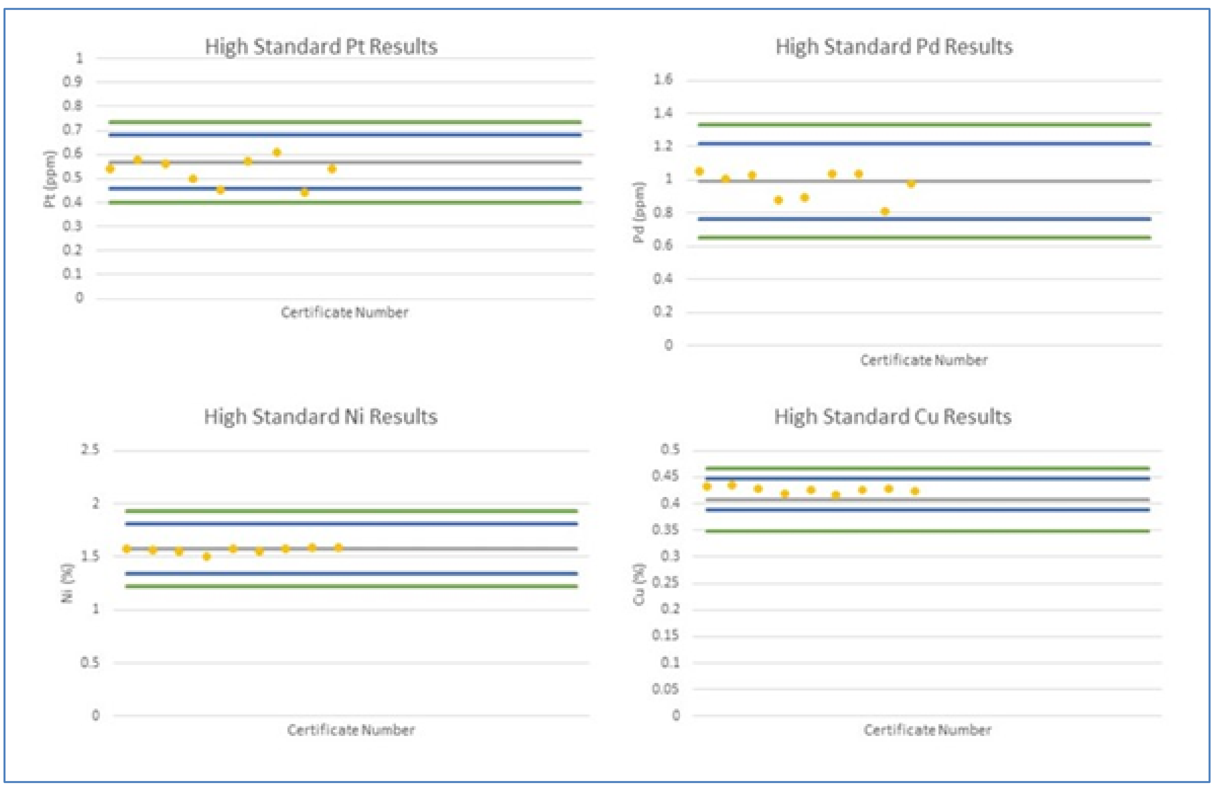


Figure 6: Standard plots for low standards submitted by Magna.

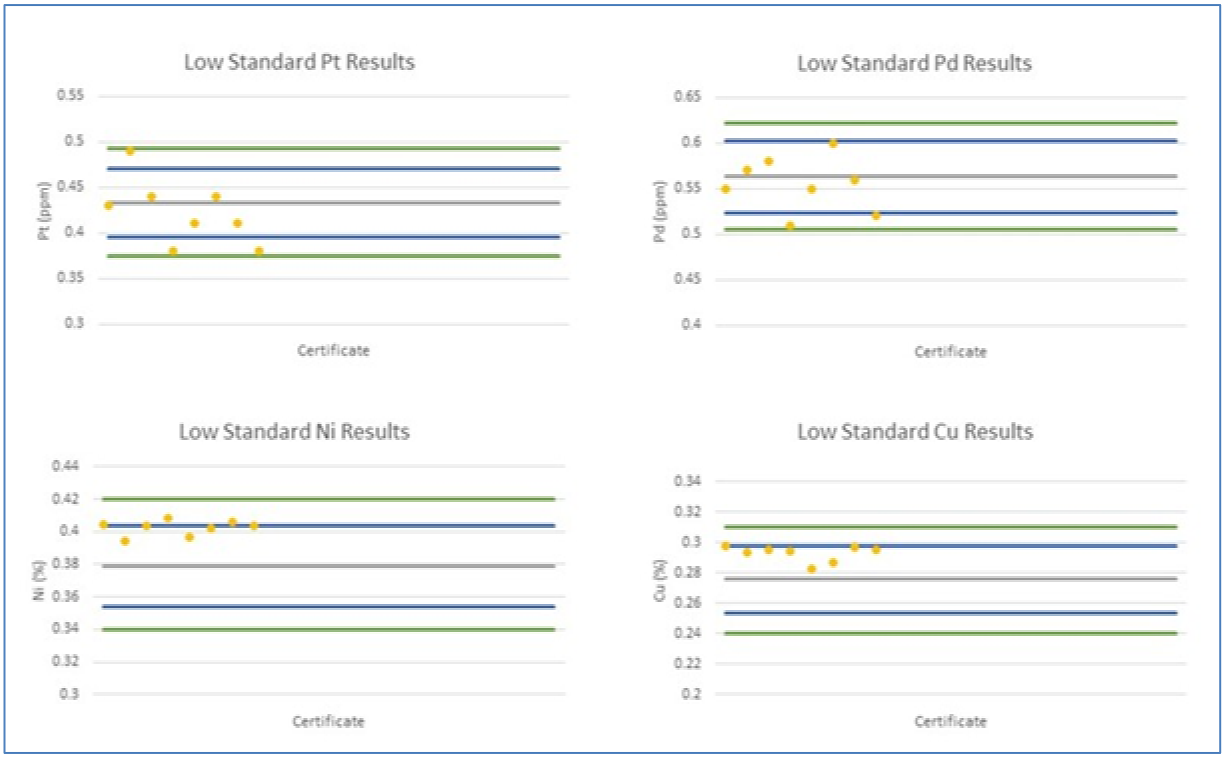


Figure 7: Blank plots for coarse blanks submitted by Magna to Swastika Laboratories.

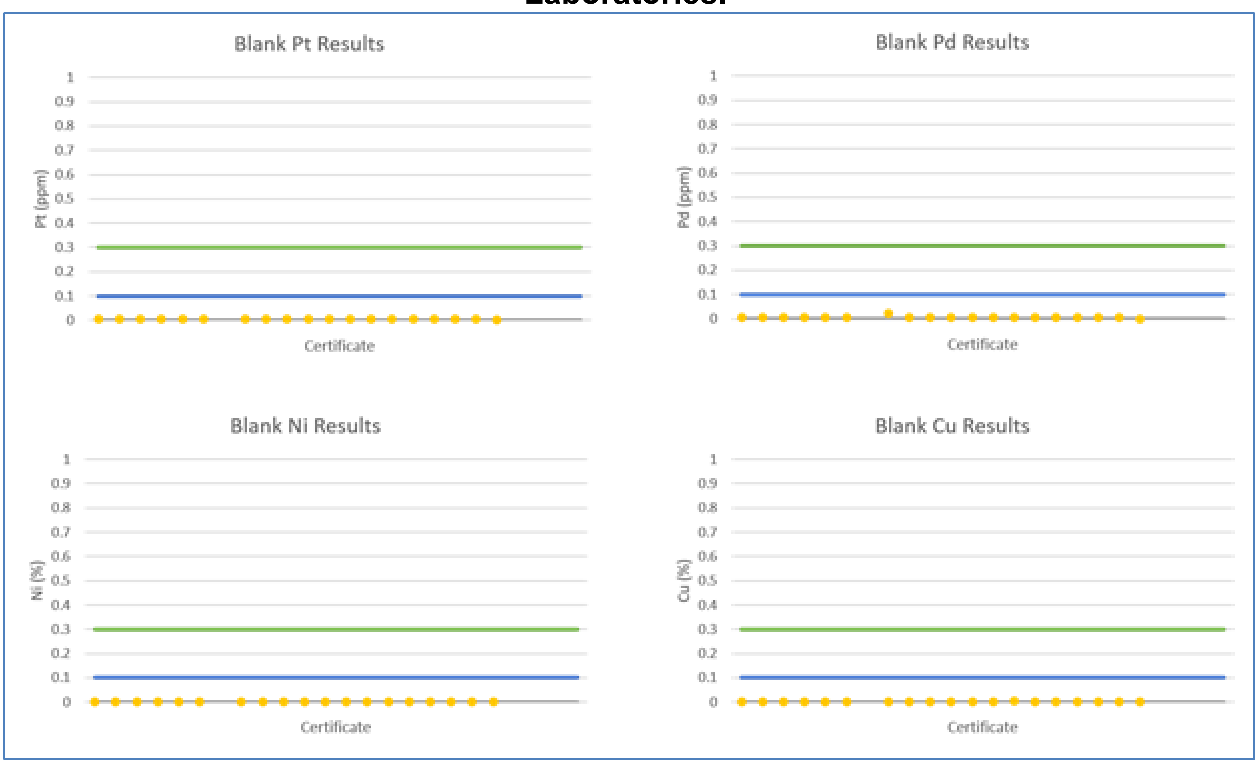


Figure 8: Plots of duplicates submitted by Magna to Swastika Laboratories.