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UPDATED MINERAL RESOURCE ESTIMATE, AND PRELIMINARY ECONOMIC ASSESSMENT OF THE GREAT BURNT COPPER-GOLD PROPERTY, CENTRAL NEWFOUNDLAND

LATITUDE 48° 22' 33" N LONGITUDE 56° 08' 04" W
UTM WGS84 Zone 21N 564,080 m E 5,358,450 m N;
NTS 12A/08

FOR
SPRUCE RIDGE RESOURCES LTD.

NI-43-101 & 43-101F1
TECHNICAL REPORT

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1.0 EXECUTIVE SUMMARY

1.1 INTRODUCTION

This report was prepared to provide a National Instrument ("NI") 43-101 Technical Report, updated Mineral Resource Estimate and Preliminary Economic Assessment of the copper and gold mineralization contained in the Great Burnt Copper-Gold Property (the "Property" or "Great Burnt Property") in central Newfoundland ("NL"), Canada. Spruce Ridge Resources Ltd. ("Spruce Ridge") owns 100% interest in the Great Burnt Property.

1.2 PROPERTY DESCRIPTION AND LOCATION

Spruce Ridge's Great Burnt Property is located in south-central Newfoundland, 75 km southwest of the City of Grand Falls-Windsor, NL and 56 km northwest of the Town of St. Alban's, NL. The Property is 40 km southeast of Teck Resources Limited's ("Teck") past-producing Duck Pond Cu-Zn Mine and 70 km southeast of the past-producing Buchans Mining Company Ltd. ("Buchans") Cu-Zn-Pb-Ag-Au Deposit. This report provides updated NI 43-101 Mineral Resource Estimates for the Great Burnt Copper, North Stringer Zone and South Pond Copper-Gold Deposits on the Property. The Great Burnt Copper Deposit is located at Latitude 48° 22' 33" N, Longitude 56° 08' 04" W; UTM WGS84 Zone 21N 564,080 m E 5,358,450 m N; NTS 12A/08.

The Property consists of one 165 ha mining lease (ML211) and four map-staked mining claims (27013M, 9881M, 20961M, and 6683M) covering 109 contiguous claim units, for a total area of 2,884 ha.

1.3 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

The southern part of the Property, including the Great Burnt Copper Deposit, is road accessible from St. Alban's, NL, by the Upper Salmon access road, an all-weather gravel road maintained by NL Hydro. It is approximately 73 km by the Upper Salmon Road from St. Alban's to the Property. Access to the northern part of the Property is by trails suitable for all terrain vehicles, helicopter or float plane.

St. Alban's has a population of approximately 1,400 and is located on the south shore of NL. St. Alban's provides motel accommodation, supplies and several small stores as well as saltwater port access. From St. Alban's it is 148 km by road, north along route 360 and the Trans-Canada Highway, to Grand Falls-Windsor. Grand Falls-Windsor with a population of 13,725 is the largest town in central NL and most major supplies and services can be obtained. Gander is 234 km by road northeast of St. Alban's and is the location of Gander International Airport. St. John's, the provincial capital, is 428 km by road from Grand Falls-Windsor and 565 km by road from St. Alban's.

To the north of the Property, logging roads extend south from Grand Falls-Windsor to the Atlantic Lake area and are within 15 km of the South Pond Copper-Gold Deposit. Extending these logging roads onto the Property would significantly improve access to the Property from Grand Falls-

Windsor, Gander and the Buchans area. NL Hydro has a power transmission line that services the Great Burnt Dam at the south end of the Property.

The Property area lies within the Central Plateau of NL. Topography is characterized by forested hills and ridges with intervening swampy areas. The hills rise from a base elevation of approximately 240 m asl to over 350 m asl. Great Burnt Lake is at an elevation of approximately 246 m asl. The terrain is locally hummocky with glacial drift and 5 to 10% exposed bedrock. Vegetation consists of relatively open bush with typical boreal forest of balsam fir and spruce, and local dense growths of alder in swampy lowlands. The climate of central NL is a cool summer subtype of humid continental. Exploration and mining activities can be undertaken on a year-round basis.

1.4 HISTORY

The Great Burnt Property has been explored by several operators since 1948. Between 1951 and 1971, 133 drill holes (over 20,345 m) were completed by the Buchan's Mining Company and subsequently ASARCO in the 14 km-long favourable metavolcanic and metasedimentary stratigraphy that hosts several zones of copper and gold mineralization. Numerous airborne and ground geophysical surveys have been conducted along with soil and till geochemical surveys. Celtic Minerals Ltd. ("Celtic") acquired the Property from Noranda and completed an additional 6,367 m in 34 drill holes between 2001 and 2008. Spruce Ridge acquired the Property from Pavey Ark Minerals Inc. ("Pavey Ark"), in 2015, who acquired the Property in 2013 from Celtic.

1.5 GEOLOGICAL SETTING AND MINERALIZATION

The Great Burnt Property is underlain by rocks of the Dunnage Zone that contain the majority of polymetallic volcanogenic massive sulphide deposits in NL, including Teck's past-producing Duck Pond Mine and the world-class past-producing Buchans Deposits. On the Great Burnt Property, the Dunnage Zone consists of greenschist facies Ordovician metavolcanics, metasediments and an ophiolite complex that formed within island-arc and back-arc basins. The Property straddles the fault boundary between the Exploits Subzone of the Dunnage Zone and the Meelpaeg Subzone of the Gander Zone, which records the early Paleozoic opening and closure of the Iapetus Ocean.

Copper mineralization at the Great Burnt Property occurs within metavolcanic-metasedimentary rocks that include reworked tuffs, volcaniclastics and clastic sediments associated with mafic volcanics that are interpreted to have formed in a back-arc basin. This type of sedimentary dominated volcanogenic massive sulphide ("VMS") mineralization has historically been classified as a "Besshi-type VMS", and more recently as mafic-siliciclastic type or mafic-pelitic type VMS. There are similarities between the mineralization at Great Burnt and the Rambler VMS deposits located on the Baie Verte Peninsula, NL.

1.6 EXPLORATION AND DRILLING

Following acquisition of the Great Burnt Property from Pavey Ark in 2015, Spruce Ridge conducted data reviews of the historical drill hole databases and geophysical surveys. A new

Property-wide airborne geophysical survey was flown in 2020 to detect electromagnetic conductor features for drill testing.

Drill programs were completed by Spruce Ridge in 2016, 2018 and 2020. In February and March, 2016, Spruce Ridge completed an 11-hole diamond drill program for a total of 1,602 m. Seven of the holes were drilled on untested targets previously identified by Celtic to the north of the Great Burnt Lake Deposit. The remaining four holes were designed to collect sufficient mineralized core for metallurgical testing on the Great Burnt Lake Main Zone. Highlight intersections from the 2016 drill program are:

- GB16-08: 7.50 m of 9.45% Cu and 0.36 g/t Au, including 3.0 m of 19.3% Cu and 0.29 g/t Au.

- GB16-09: 5.75 m of 6.68% Cu and 0.871 g/t Au, including 1.5 m of 11.7% Cu and 0.13 g/t Au.

In November and December 2018, Spruce Ridge completed a 10-hole diamond drilling program totalling 1,438 m on the Great Burnt Property. Six of the holes were drilled to obtain material for metallurgical testing and to follow-up on high-grade intercepts obtained from the 2016 drill program. Two of the holes were drilled to test for continuity of the North Stringer Zone at various levels along strike and up-dip, based on re-interpretation of geological and geophysical data.

Two additional holes were drilled to test for both shallow and deep continuity of the Main Stringer Zone intersected in historical 2008 drilling. Highlighted intersections from the 2018 drill program are:

- GB18-05: 20.94 m of 6.21% Cu and 0.09 g/t Au, including 6.98 m of 10.71% Cu and 0.14 g/t Au.

- GB18-06: 9.97 m of 7.45% Cu and 0.081 g/t Au, including 5.03 m of 11.42% Cu and 0.094 g/t Au.

In 2020, Spruce Ridge planned a 22-hole 3,100 m diamond drill program on the Great Burnt Copper Deposit. The program was planned to firm-up the Indicated and Inferred Mineral Resource Estimates of the Deposit. The 2020 program focused on additional drilling on and between the historical section lines (spaced 61 m apart). The 1960s historical drilling used mainly EX drill core (22 mm diameter) and non-wireline drilling, which produced poor core recovery from the sulphide mineralized zone. Infill drilling with NQ drill core (47 mm diameter) and wireline technology resulted in close to 100% drill core recovery from the Main Zone and the Stringer Zone. Highlight intersections from the 2020 drill program are:

- GB20-05: 27.20 m of 8.06% Cu, including 7.75 m of 16.88% Cu (Main Zone).
- GB20-10: 7.95 m grading 7.33% Cu, including 5.25 m of 9.52% Cu (Main Zone).
- GB20-20: 22.75 m of 6.89% Cu, 0.05 g/t Au, including 12.55 m of 10.59% Cu and 0.07 g/t Au (Main Zone).
- GB20-08: 1.0 m of 1.23% Cu and 0.35 g/t Au (Stringer Zone).
- GB20-09: 3.0 m of 2.45% Cu (Stringer Zone).
- GB20-16: 3.1 m of 2.35% Cu (Stringer Zone).

1.7 SAMPLE PREPARATION, ANALYSIS AND SECURITY

The data reviewed for this Technical Report and used for geological modelling and Mineral Resource estimation combines various phases of historical exploration by several companies. A significant proportion of the drilling was completed by Buchans and ASARCO prior to 1971 and Celtic between 2001 and 2008. The most recent drilling was completed by Spruce Ridge in 2020.

It is the opinion of the authors of this Technical Report that sample preparation, security and analytical procedures for the Great Burnt Project are adequate, and that the data is of good quality and satisfactory for use in the Mineral Resource Estimate reported herein.

1.8 DATA VERIFICATION

The Great Burnt Property was visited by Mr. Eugene Puritch, P.Eng., of P&E on October 26, 2014 and August 12, 2019 for the purposes of completing a site visit and conducting independent sampling. In addition to the site visits, Mr. Puritch visited the Newfoundland Department of Natural Resources Core Storage Facility located at Buchans, NL on October 27, 2014, for the purpose of reviewing and sampling archived drill core from the Great Burnt Property that is stored at the Buchans Core Storage Facility. Mr. Tim Froude, P. Geo., of P&E, visited the Property on December 7, 2020 for the purpose of carrying out a site visit and independent verification sampling program. The QPs consider that there is acceptable correlation between copper, gold and zinc assay values in Spruce Ridge’s database and the independent verification assays. It is opinion of the authors of this Technical Report that the data are of excellent quality and appropriate for use in a Mineral Resource Estimate.

1.9 MINERAL PROCESSING AND METALLURGICAL TESTING

An investigative test program was completed at SGS Lakefield in 2021. A composite sample was made up of quartered drill core from the 2020 drilling program on the Great Burnt Main Zone, with an average grade of 2.82% Cu and 0.03 g/t Au, to approximate the run-of-mine grade. It responded well to preliminary flotation tests. A locked-cycle test run on material ground to 80% minus 55 µm produced a concentrate grading 25.1% Cu and 0.23 g/t Au, with copper recovery of 98.5% and gold recovery of 58.6%. Mineralogical examinations indicated high liberation of chalcopyrite and other sulphides at a moderate grind size. Grinding tests indicated moderate abrasion and grinding indices. The PEA is based on a grind to 80% minus 50 µm, a copper recovery of 96%, a concentrate grade of 25% Cu and a gold recovery of 55%.

The applicability of mineralized material sorting was tested to address the potential costs of long-distance material haulage and toll mineral processing. The sorting tests indicated potential, however, the sorting reject copper grade was determined to be elevated. Additional tests may be justified depending on a cost-benefit analysis and the availability of sorting machinery for the predicted short mine life.

1.10 MINERAL RESOURCE ESTIMATE

In a Company news release dated July 8, 2021, Spruce Ridge announced an updated Mineral Resource Estimate for the Great Burnt Property that incorporates the results of the 2020 diamond drilling program on the Great Burnt Main Zone. The Mineral Resource Estimate was prepared by P&E and includes the Main Zone and the South Pond "A" Copper-Gold Deposit as shown in Table 1.1. The effective date of this Mineral Resource Estimate is March 9, 2022.

TABLE 1.1
GREAT BURNT UNDERGROUND MINERAL RESOURCE ESTIMATE AT 0.90% CUEQ CUT-OFF (1-5)

Classification	Tonnes (k)	Cu (%)	Au (g/t)	CuEq (%)	Cu (Mlb)	Au (koz)	CuEq (Mlb)
Great Burnt Main Zone							
Indicated	667	3.21	Nil	3.21	47.2	Nil	47.2
Inferred	482	2.35	Nil	2.35	25.0	Nil	25.0
South Pond "A" Deposit							
Indicated	214	1.26	1.21	2.10	6.0	8.3	9.9
Inferred	145	1.07	1.02	1.78	3.4	4.8	5.7
Total							
Indicated	881	2.74	0.29	2.94	53.2	8.3	57.1
Inferred	627	2.05	0.24	2.22	28.4	4.8	30.7

Notes:

1) *Mineral Resources, which are not Mineral Reserves, do not have demonstrated economic viability. The estimate of Mineral Resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues, although Spruce Ridge is not aware of any such issues.*
2) *The Inferred Mineral Resource in this estimate has a lower level of confidence that that applied to an Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of the Inferred Mineral Resource could be upgraded to an Indicated Mineral Resource with continued exploration.*
3) *The Mineral Resources were estimated using the Canadian Institute of Mining, Metallurgy and Petroleum (CIM), CIM Standards on Mineral Resources and Reserves, Definitions (2014) and Best Practices Guidelines (2019).*
4) *The 0.90% Cu cut-off grade was derived from the June 2021 Consensus Economics long term forecast Cu and Au prices of US$3.62/lb and US$1,650/oz, US$ exchange rate of $0.76, 95% process recovery, underground mining CAD$55/t, processing CAD$15/t, G&A CAD$5/t and smelting/refining CAD$10/t.*
5) *CuEq% = Cu% + (Au g/t x 0.687).*

This updated Mineral Resource Estimate is based on a database containing 287 drill holes totalling 40,295 m, of which 43 drill holes were completed in 2016 to 2020. The Great Burnt Main Zone and South Pond "A" Deposit are open along strike and down dip, and further drilling may provide additional Mineral Resources.

1.11 MINING METHODS

The Great Burnt Copper Deposit will initially be mined by a 20 m deep open pit followed by underground ramp access and longhole sublevel retreat, cut-and-fill ("C&F"), and drift-and-fill

("D&F") mining methods. Underground mineralized material production includes both development and stopes. The South Pond Deposit will only be mined by a 25 m deep open pit with no underground mining currently planned.

The primary underground mining method at the Great Burnt Copper Deposit will be conventional longitudinal longhole sublevel retreat, with cemented rock ("CRF") backfill. Underground longhole sublevels will be developed at 15 m vertical intervals. Sublevel drifts in mineralization will be developed the full length of the Deposit. These drifts will provide access for the successive operations of slot raise development, blasthole drilling, blasting and loading, and backfill placement. The average thickness of the Great Burnt longhole mineralization is 4.3 m. Remotely-operated underground load-haul-dump ("LHD") units will remove broken mineralization from the stopes at an estimated external dilution of 19.2%, at a diluting grade of 0.79% Cu. Mining recovery (extraction) is estimated at 90%.

The D&F and C&F mining methods will be utilized to mine the bottom third of the Deposit in the Great Burnt Lower Zone. Horizontal access cross cuts will be driven to the Deposit from the access ramp at vertical heights every 10 m or 20 m. Drifts in mineralization will be driven from the cross cuts the full strike length of the mineralized zones. The D&F mining method will be implemented where the mineralized zone is relatively flat lying or less than a 45° dip. The C&F mining method will be implemented where the mineralized zone dip is greater than 45°, narrow, irregular in dip and strike, or undulating on dip. The envisaged D&F and C&F mining methods are estimated to experience external dilution of 10.0%, at a diluting grade of 0.34% Cu. Mining recovery (extraction) is estimated at 95%.

Development will be sized to support 20 t haul trucks and 3.2 m^3 LHDs. Trucks will haul waste rock and mineralized material to stockpiles located on surface near the mine portal.

Open pit mining will be done by a contractor. Underground mining and development will be performed entirely by Company personnel, with an owner fleet. Mineral processing will be performed at an offsite toll processing plant. A contract haulage company will be engaged to transport broken mineralized material from the stockpiles on the Property to the toll processing plant.

The Great Burnt Project is planned to produce at a nominal production rate of 1,000 tpd over a four-year mine life. Production will consist of 786,600 t of the mine plan portion of the Indicated Mineral Resource at 2.24% Cu and 0.08 g/t Au and 281,700 t of the mine plan portion of the Inferred Mineral Resource at 1.82% Cu and 0.09 g/t Au.

1.12 RECOVERY METHODS

With a Mineral Resource limited to approximately 1 Mt, the construction and operation of a processing facility at the remote site in southern NL that has no supporting infrastructure is expected to be uneconomic. The shipment of ROM (run of mine) mineralized material to an existing process plant, subject to tolls or sale to the process plant operator are options to be considered.

While distant from the Great Burnt Property, the Rambler Metals and Mining Canada Limited Nugget Pond process plant has a flowsheet that closely resembles that selected for Great Burnt in the 2021 test program at SGS Lakefield. The only apparent required modification would be finer primary grind to P_{80} of 50 µm from 120 µm reported as a Nugget Pond design criteria. A finer grind is possible by increasing grinding ball charges to the SAG mill and ball mill as well as the modification of primary cyclone overflow.

The extensive shipping distance by road and highway (approximately 315 km) from the Great Burnt Property to the Nugget Pond process plant, if it is the selected processing location, is a significant Project challenge. Initial tests were conducted in 2021 on the use of mineralized material sorting technology to upgrade and reduce the mass of Great Burnt mineralized material that would be shipped to a toll process plant. In tests on a -76+13 mm fraction of crushed drill core, the copper grade was increased by 80% and mass reduced by 56%. However, 20% of the copper remained in the rejects at a copper grade of 1%. Additional tests combined with economic analyses are justified to maintain a high grade in sorted and shipped mineralized material, while reducing tonnes shipped and minimizing losses to sorter rejects.

1.13 PROJECT INFRASTRUCTURE

There is currently no infrastructure at the Great Burnt Property. The southern part of the Property, including the Great Burnt Copper Deposit, is accessible from St. Alban's, NL, by the Upper Salmon access road, an all-weather gravel road maintained by Newfoundland Hydro. North of the Property, logging roads extend South from Grand Falls-Windsor to the Atlantic Lake area and are within 15 km of the South Pond Copper-Gold Deposit.

Processing will be on a toll basis, therefore, there will be no process plant or tailings facility on site. There will be a water treatment facility on site for potential acid rock drainage and metal leaching. Potable water will be sourced from local lakes and will be treated to make it potable if necessary. There will be no camp, and employees will be expected to travel from nearby communities.

1.14 MARKET STUDIES AND CONTRACTS

There are no existing contracts in place related to the Great Burnt Project. The Project is open to the spot copper and gold price market and there are no streaming or forward sales contracts in place. December 2021 long term metal price forecasts by Consensus Economics Inc. were followed, with adjustments to more closely account for recent trends. A copper price of US$4.00/lb and a gold price of US$1,675/oz were used in this PEA, with an exchange rate of 0.77 US$ per CAD$.

1.15 ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT

The construction, operation, and closure of the Project will require both federal and provincial regulatory approvals. Progressive mine rehabilitation and closure is required by Provincial legislation. The Mining Regulations under the Mining Act require the mine operator to develop and submit a Development Plan, an Operational Plan, a Rehabilitation and Closure Plan as well as Annual Reports. Financial Assurance for relevant costs including ongoing monitoring and site maintenance is also required.

During operations, potentially acid-generating ("PAG") waste rock stored on surface will be separately stockpiled. As mining of each open pit is completed and on closure the PAG waste rock will be deposited into the mined-out pits. The pits will be allowed to naturally flood, inhibiting acid generation and metal leaching. The envisaged final closure plan will include the decommissioning of surface facilities associated with the proposed open pit and underground operations and mineralized material shipment.

1.16 CAPITAL AND OPERATING COSTS

1.16.1 Capital Costs

The envisioned elapsed time to mobilize and set up facilities to start open pit mining is very short, and initial capital costs have been treated as sustaining capital since they are incurred in the first year of production. Commercial production is planned to commence three months after the start of site set-up. Sustaining capital cost estimates include mine and stope development; the purchase of underground mining equipment; underground infrastructure; surface infrastructure, and closure bond/salvage credit, including a 15% contingency allowance. The LOM total sustaining capital cost of the Great Burnt Project is estimated at $59.0 M. A breakdown of these estimates is provided in Table 1.2.

TABLE 1.2
SUMMARY OF TOTAL LOM CAPITAL COSTS ($M)

Item	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Total ($M)
Mine Development in Waste Rock	9.6	15.6	1.4			**26.6**
Mine Equipment - UG	8.9	7.1	1.0			**17.1**
UG Infrastructure	0.8	1.3	0.2			**2.3**
Surface Infrastructure	14.1	2.0				**16.1**
Closure Bond and Salvage	0.0	0.0	0.0	-3.3	0.3	**-3.1**
Total CAPEX ($M)	**33.4**	**26.0**	**2.7**	**-3.3**	**0.3**	**59.0**

Note: *Yr = year, UG = underground.*

1.16.2 Operating Costs

Mineralization at Great Burnt will be mined by both open pit and underground methods. Underground mining and development will be performed entirely by Company personnel, whereas a contractor will be engaged to mine the open pits.

Open pit mineralization mining is estimated at $3.50/t and waste rock mining is estimated at $3.00/t. Underground mining is estimated to average $104.40/t mined over the LOM, including sustaining development.

The OPEX estimates include the cost of supervisory, operating and maintenance labour; contractors; operating consumables, materials, and supplies; haulage and toll processing. A 15% contingency has been included in the 'Stope Development in Mineralization' operating cost and no contingency has been included in the other operating costs. The yearly operating cost varies from $109.20/t to $136.45/t processed and averages $125.71/t over the LOM. A summary of the average operating cost estimates for the Great Burnt Project is provided in Table 1.3.

TABLE 1.3
SUMMARY OF AVERAGE OPERATING COST PER TONNE PROCESSED

Description	Total ($/t)
Open Pit Mobilization and Demobilization	0.09
Open Pit Mineralization Mining	0.85
Open Pit Waste Mining	1.82
Stope Development in Mineralization	20.38
Longhole Stoping	3.73
Cut and Fill Stoping	0.60
Drift and Fill Stoping	1.48
Underground Support Services	13.34
Cemented Rock Fill Backfill	8.98
Toll Process Plant	25.00
Haulage to Process Plant	37.80
Underground Haulage	5.75
G&A Costs	5.89
Total Operating Cost	**125.71**

1.17 ECONOMIC ANALYSIS

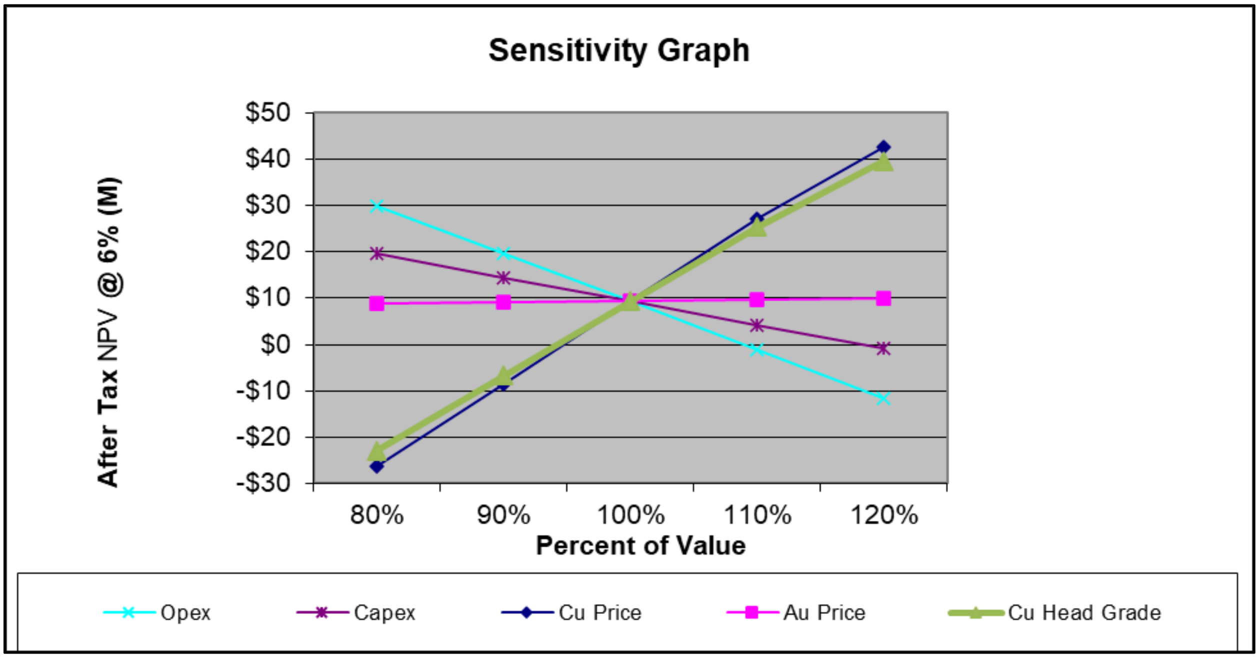
The mineralized material production rate is planned at a 1,000 tpd throughput rate and the mine life is planned over a four-year period, from initial set up to closure.

Table 1.4 presents a summary of the PEA financial results, including the NPV, IRR and payback period of the Project under baseline inputs (6% discount rate, US$4.00/lb Cu price, US$1,675/oz Au price, OPEX and CAPEX as in Tables 1.2 and 1.3 above). Provincial and Federal income taxes are estimated to total 30%.

Table 1.4 **PEA Financial Results**			
Item	**Units**	**Result**	
General			
Copper Price	US$/lb	4.00	
Gold Price	US$/oz	1,675	
Exchange Rate	US$:CAD$	0.77	
Life-of-Mine	years	4	
Production			
Open Pit and Underground	tonnes	1,068,300	
Diluted Copper Grade	%	2.13	
Diluted Gold Grade	g/t	0.08	
Copper Production	Mlb	46.5	
Gold Production	oz	1,340	
Revenue	$M	215.7	
Operating Costs			
Open Pit Mining	$/t processed	2.76	
Underground Mining	$/t processed	54.26	
Haulage to Process Plant	$/t processed	37.80	
Toll Processing	$/t processed	25.00	
G&A	$/t processed	5.89	
Total Operating Costs	$/t processed	125.71	
LOM Operating Costs	$M	134.3	
NSR Royalty	%	2.5% Great Burnt Copper Deposit, 2.0% South Pond A Deposit	
Cash Costs	US$/lb Cu	2.27	
AISC	US$/lb Cu	3.24	
Capital Cost	$M	59.0	
Taxes	$M	7.6	
Financials	**Units**	**Pre-Tax**	**After-Tax**
NPV @ 6%	$M	15.6	9.3
IRR	%	33.2	23.3
Payback	years	2.7	2.9

The after-tax base case NPV is most sensitive to copper metal price followed by copper head grade, copper recovery in the copper concentrate, OPEX, CAPEX and gold price, as shown in Figure 1.1.

FIGURE 1.1 AFTER-TAX NPV SENSITIVITY GRAPH



1.18 OTHER RELEVANT DATA AND INFORMATION

Risks and opportunities have been identified for the Project. Anticipated risks with the highest potential impact on the Project are the availability of a toll process plant with a suitable metallurgical configuration, and a Mineral Resource that consists of 881 kt Indicated and 627 kt Inferred Mineral Resource to be mined over a four-year period.

Opportunities consist of a Mineral Resource that is open along strike and down dip, and that the Project is highly leveraged to the copper price.

1.19 CONCLUSIONS

The authors of this PEA are of the opinion that the Great Burnt Project has potential economic viability for an open pit and underground mining plan with toll processing. At a 6% discount rate and metal prices of US$4.00/lb Cu and US$1,675/oz Au, the after-tax NPV of the Project is estimated at $9.3M with an IRR of 23.3%. This results in a payback period of approximately 2.9 years. The after-tax NPV is most sensitive to copper metal price followed by copper head grade, copper recovery in the copper concentrate, OPEX, CAPEX and gold price.

Cash costs over the LOM, including royalties, are estimated to average US$2.27/lb Cu. All-In Sustaining Costs ("AISC") over the LOM are estimated to average US$3.24/lb Cu.

1.20 RECOMMENDATIONS

An infill diamond drilling program, totalling approximately 2,500 m in 15 drill holes is recommended at the Great Burnt Main Zone, designed to add new data that will potentially increase the size of the Mineral Resource Estimate for the Main Zone. 11 of the drill holes will test the zone within the limits of the conceptualized starter pit. Down-hole electromagnetic surveying is also planned for the deeper holes, to search for downward extensions of the Great Burnt Main Zone.

Further metallurgical test work should focus on grinding and flotation performance as well as concentrate thickening and filtration performance that may be encountered in a constructed or toll processing facility.

A further 2,500 m drill program is planned to firm up the Mineral Resource Estimate on the Lower Zone, also with down-hole EM surveying to look for extensions of the Lower Zone and/or new zones in the vicinity.

A proposed $1.1M work program is recommended in Table 1.5 that consists of 5,000 m of infill drilling, field expenses and metallurgical test work.

TABLE 1.5
RECOMMENDED PROGRAM AND BUDGET

Program	Budget (CAD$)
5,000 m Infill Drilling at the Main and Lower Zones	750,000
Field Expenses	50,000
Geologists	50,000
Geochemical Analyses	20,000
Metallurgical Testing	100,000
Contingency @ 15%	145,000
Total	**1,115,000**

2.0 INTRODUCTION AND TERMS OF REFERENCE

2.1 TERMS OF REFERENCE

Spruce Ridge Resources Limited ("Spruce Ridge") retained P&E Mining Consultants Inc. ("P&E") to complete an independent, Updated Resource Estimate, Preliminary Economic Assessment ("PEA") and NI 43-101 Technical Report for the copper and gold mineralization contained in the Great Burnt Property (the "Property" or "Great Burnt Property"), located in south-central Newfoundland, Canada. Spruce Ridge owns 100% interest in the Great Burnt Property.

This Technical Report was prepared by P&E at the request of Mr. John Ryan, President and Director of Spruce Ridge, a public Ontario Corporation that is listed on the TSX Venture Exchange and trades under the symbol "SHL". Spruce Ridge has its head office at 7735 Leslie Road West, Puslinch, Ontario, Canada, N0B 2J0.

Mr. Tim Froude, P.Geo., of P&E, a Qualified Person under the regulations of NI 43-101, conducted a site visit on December 7, 2020, during which an independent data verification sampling program was completed as part of the on-site review. Previously, Mr. Eugene Puritch, P.Eng., of P&E, a Qualified Person under the regulations of NI 43-101, conducted site visits to the Property on October 26, 2014 and August 12, 2019, at which times independent data verification sampling programs were conducted as part of the on-site reviews. Mr. Puritch also visited the Newfoundland Department of Natural Resources Core Storage Facility located at Buchans, Newfoundland, on October 27, 2014, as part of the 2014 independent data verification sampling program.

This Technical Report is considered current as of the effective date March 9, 2022.

This Technical Report updates an earlier NI 43-101 Technical Report dated September 8, 2015, that was prepared for Spruce Ridge by P&E, and supersedes the earlier Mineral Resource Estimates, also prepared by P&E, summarized in news releases dated February 18, 2015 and July 07, 2016 (news releases are publicly available on www.sedar.com).

In addition to the site visits, P&E held discussions with technical personnel from the Company regarding all pertinent aspects of the Project and carried out a review of all available literature and documented results concerning the Property. The reader is referred to those data sources, which are outlined in the References section of this Technical Report, for further information.

The present Technical Report is prepared in accordance with the requirements of NI 43-101 and in compliance with Form NI 43-101F1 of the Ontario Securities Commission ("OSC") and the Canadian Securities Administrators ("CSA"). The Resource Estimate is prepared in compliance with the CIM Definitions and Standards on Mineral Resources and Mineral Reserves, prepared by the CIM Standing Committee on Reserve Definitions (2014) and Best Practices Guidelines (2019) that are in force as of the effective date of this Technical Report.

2.2 SOURCES OF INFORMATION

This Technical Report is based, in part, on internal Company technical reports, maps and technical correspondence, published government reports, news releases and public information as listed in the References section at the conclusion of this report. Several sections from reports authored by other consultants have been directly quoted or summarized in this report and are so indicated where appropriate. Table 2.1 summarizes the Qualified Persons and responsibilities for the Technical Report sections.

TABLE 2.1
QUALIFIED PERSONS RESPONSIBLE FOR THIS TECHNICAL REPORT

Qualified Person	Company	Sections of Technical Report
Ms. Jarita Barry, P.Geo.	P&E Mining Consultants Inc.	Author 11 and Co-author 1, 12, 25, 26
Mr. D. Grant Feasby, P.Eng.	P&E Mining Consultants Inc.	Author 13, 17, 20 and Co-author 1, 25, 26
Mr. Timothy Froude, P.Geo.	P&E Mining Consultants Inc.	Co-author 1, 12, 25, 26
Mr. William Stone, Ph.D., P.Geo.	P&E Mining Consultants Inc.	Author 4 to 10, 23 and Co-author 1, 25, 26
Mr. Eugene Puritch, P.Eng., FEC, CET	P&E Mining Consultants Inc.	Author 2, 3, 14, 15, 16, 18, 19, 21, 22, 24 and Co-author 1, 12, 25, 26

2.3 UNITS AND CURRENCY

In this Technical Report, all currency amounts are stated in Canadian dollars (“$”) unless otherwise stated. At the time of this Technical Report the 24-month trailing average exchange rate between the US dollar and the Canadian dollar is 1 US$ = 1.30 CAD$ or 1 CAD$ = 0.77 US$.

Unless otherwise stated all units used in this Technical Report are metric. Copper (Cu) assay values are reported in weight %. Gold (Au) assay values are reported in grams of metal per tonne (“g/t Au”) unless ounces per ton (“oz/T Au”) are specifically stated. The CAD$ is used throughout this report unless the US$ is specifically stated.

Commodity prices are typically expressed in US dollars (“US$”) and will be so noted where appropriate. Quantities are generally stated in Système International d’Unités (“SI”) metric units including metric tons (“tonnes”, “t”) and kilograms (“kg”) for weight, kilometres (“km”) or metres (“m”) for distance, hectares (“ha”) for area, grams (“g”) and grams per tonne (“g/t”) for metal grades. Abbreviations and terminology are summarized in Tables 2.2 and 2.3.

Grid coordinates for maps are given in UTM WGS84 Zone 21N or as latitude/longitude.

TABLE 2.2
TERMINOLOGY AND ABBREVIATIONS

Abbreviation	Meaning
$	dollar(s)
°	degree(s)
°C	degrees Celsius
<	less than

TABLE 2.2
TERMINOLOGY AND ABBREVIATIONS

Abbreviation	Meaning
>	greater than
%	percent
µm	micrometre or micron
3-D	three-dimensional
AA	atomic absorption
AAS	atomic absorption spectrometry
ABA	acid-base accounting
Ag	silver
AGAT	AGAT Laboratories
Ai	abrasion
AISC	all-in sustaining costs
AMAG	aerial magnetic
Anglo NL	Anglo Newfoundland Development Company
ARD	acid rock drainage
ASARCO	American Smelting and Refining Company
asl	above sea level
ASTER	advanced spaceborne thermal emission and reflection radiometer
Au	gold
BMi	bond ball mill
BP	BP Resources Canada Ltd.
Brinex	British Newfoundland Exploration Ltd.
BTEM	borehole transient electromagnetic (survey)
Buchans	Buchans Mining Company Ltd.
C&F	cut-and-fill
CAD$	Canadian Dollar
CAPEX	capital expenditure
CDN	CDN Resource Laboratories Ltd.
CEAA	Canadian Environmental Assessment Act
Celtic	Celtic Minerals Ltd.
CIM	Canadian Institute of Mining, Metallurgy, and Petroleum
cm	centimetre(s)
Company, the	Spruce Ridge Resources Ltd.
CRF	cemented rock fill
CRM or standards	certified reference material
CSA	Canadian Securities Administrators
Cu	copper
CuEq	copper equivalent
CoV	coefficient of variation
D&F	drift-and-fill
DDH	diamond drill hole
°C	degree Celsius

TABLE 2.2
TERMINOLOGY AND ABBREVIATIONS

Abbreviation	Meaning
Deposit, the	Great Burnt Copper Deposit
$M	dollars, millions
dmt	dry metric tonne(s)
E	east
EA	environmental assessment
Eastern Analytical	Eastern Analytical Ltd., Springdale, Newfoundland
EM	electromagnetic
ft	foot, feet
g	gram
g/t	grams per tonne
Great Burnt Property	Great Burnt Copper-Gold Property, the Great Burnt Property that is the subject of this Technical Report
GRUB	Gander River Ultrabasic Belt
ha	hectare(s)
ICP	inductively coupled plasma
ICP-OES	inductively coupled plasma- optical emission spectrometry
ICP-MS	inductively coupled plasma-mass spectrometry
ID	identity
ID^2	inverse distance squared
IP	induced polarization
IP/RES	induced polarization / resistivity survey
IRR	internal rate of return
ISO	International Standards Organization
Jumbo	electric-hydraulic powered development drill jumbo, typically with one or two drill booms
k	thousand(s)
kg	kilograms(s)
km	kilometre(s)
kt	thousand tonnes or kilotonne(s)
kW	kilowatt
kWh/t	kilowatt hours per tonne
lb	pound (weight)
level	mine working level referring to the nominal elevation, metres relative level (m RL), eg. 4285 level (mine workings at 4285 m RL)
LHD	load, haul and dump unit (underground loader)
LOM	life of mine
M	million(s)
m	metre(s)
m^3	cubic metre(s)
m^3/d	cubic metre(s) per day
m^3/h	cubic metre(s) per hour

TABLE 2.2
TERMINOLOGY AND ABBREVIATIONS

Abbreviation	Meaning
m^3/s	cubic metre(s) per second
m^3/y	cubic metre(s) per year
max	maximum
min	minimum
ML	mining lease, e.g. ML211
ML	metal leaching
Mlb	million pounds
mm	millimetre
MMI	mobile metal ion
Moz	million ounces
MS	mass spectrometer
Mt	mega tonne or million tonnes
Mtpa	million tonnes per annum
N	north
NAD	North American Datum
NAG	net acid generating
NI 43-101	National Instrument 43-101
NL	Newfoundland
NN	nearest neighbour
NSR	net smelter return
NPV	net present value
OP	open pit
OPEX	operating expenses
OSC	Ontario Securities Commission
oz	ounce
P_{80}	80% percent passing
P&E	P&E Mining Consultants Inc.
PAG	potentially acid-generating
Pavey Ark	Pavey Ark Minerals Inc.
PAX	potassium amyl xanthate
Pb	lead
PEA	preliminary economic assessment
P.Eng.	Professional Engineer
P.Geo.	Professional Geoscientist
portal	initial surface entrance prepared for ramp tunnel
ppb	parts per billion
ppm	parts per million
Property, the	the Great Burnt Property, formerly the Great Burnt Lake Property, that is the subject of this Technical Report
Q1, Q2, Q3, Q4	first quarter, second quarter, third quarter, fourth quarter of the year
QA/QC or QC	quality assurance/quality control

TABLE 2.2
TERMINOLOGY AND ABBREVIATIONS

Abbreviation	Meaning
QMS	quality management system
R^2	coefficient of determination
ramp	tunnel excavated in downward (upward) inclination
ROM	run of mine
RQD	rock quality determination
S	south
SEDAR	system for electronic document analysis and retrieval
SGS	SGS Lakefield Laboratory or SGS Canada Inc.
Spruce Ridge	Spruce Ridge Resources Ltd.
standards or CRM	certified reference material
t	metric tonne(s)
t/m^3	tonnes per cubic metre
Technical Report	NI 43-101 Technical Report
Teck	Teck Resources Limited
TEM	transient electromagnetic
tpd	tonnes per day
UG	underground
US$	United States dollar(s)
UTM	Universal Transverse Mercator grid system
VLF	very low frequency
VLF-EM	very low frequency electromagnetic
VMS	volcanogenic massive sulphide
W	west
XRT	x-ray transmission
yr	year
Zn	zinc

TABLE 2.3
UNIT MEASUREMENT ABBREVIATIONS

Abbreviation	Meaning	Abbreviation	Meaning
μm	microns, micrometre	m^3/s	cubic metre per second
$	dollar	m^3/y	cubic metre per year
$/t	dollar per metric tonne	mØ	metre diameter
%	percent sign	m/h	metre per hour
% w/w	percent solid by weight	m/s	metre per second
¢/kWh	cent per kilowatt hour	Mt	million tonnes
°	degree	Mtpy	million tonnes per year
°C	degree Celsius	min	minute
cm	centimetre	min/h	minute per hour
d	day	mL	millilitre

TABLE 2.3
UNIT MEASUREMENT ABBREVIATIONS

Abbreviation	Meaning	Abbreviation	Meaning
ft	feet	mm	millimetre
GWh	Gigawatt hours	MV	medium voltage
g/t	grams per tonne	MVA	mega volt-ampere
h	hour	MW	megawatts
ha	hectare	oz	ounce (troy)
hp	horsepower	Pa	Pascal
k	kilo, thousands	pH	Measure of acidity
kg	kilogram	ppb	part per billion
kg/t	kilogram per metric tonne	ppm	part per million
km	kilometre	s	second
kPa	kilopascal	t or tonne	metric tonne
kV	kilovolt	tpd	metric tonne per day
kW	kilowatt	t/h	metric tonne per hour
kWh	kilowatt-hour	t/h/m	metric tonne per hour per metre
kWh/t	kilowatt-hour per metric tonne	$t/h/m^2$	metric tonne per hour per square metre
L	litre	t/m	metric tonne per month
L/s	litres per second	t/m^2	metric tonne per square metre
lb	pound(s)	t/m^3	metric tonne per cubic metre
M	million	T	short ton
m	metre	tpy	metric tonnes per year
m^2	square metre	V	volt
m^3	cubic metre	W	Watt
m^3/d	cubic metre per day	wt%	weight percent
m^3/h	cubic metre per hour	yr	year

3.0 RELIANCE ON OTHER EXPERTS

P&E assumes that all information and technical documents listed in the References section of this Technical Report are accurate and complete in all material aspects. While P&E carefully reviewed all available information presented to it, P&E cannot guarantee its accuracy and completeness. P&E reserves the right but will not be obligated to revise our Technical Report and conclusions, if additional information becomes known to us subsequent to the date of this Technical Report.

Copies of the tenure documents, operating licenses, permits, and work contracts were not reviewed. Information relating to tenure was reviewed on March 9, 2022 by means of the public information available through the NL Department of Natural Resources website at: http://www.nr.gov.nl.ca/nr/mines/exploration/minerallands/index.html.

The authors of this Technical Report have relied upon this public information, and tenure information from Spruce Ridge and has not undertaken an independent detailed legal verification of title and ownership of the Great Burnt Property ownership. The authors have not verified the legality of any underlying agreement(s) that may exist concerning the licenses or other agreement(s) between third parties, however, has relied on, and considers that there is a reasonable basis to rely upon Spruce Ridge to have conducted the proper legal due diligence.

A draft copy of this Technical Report has been reviewed for factual errors by Spruce Ridge. Any changes made as a result of these reviews did not involve any alteration to the conclusions made. Hence, the statement and author's opinions expressed in this document are given in good faith and in the belief that such statements and opinions are not false and misleading at the date of this Technical Report.

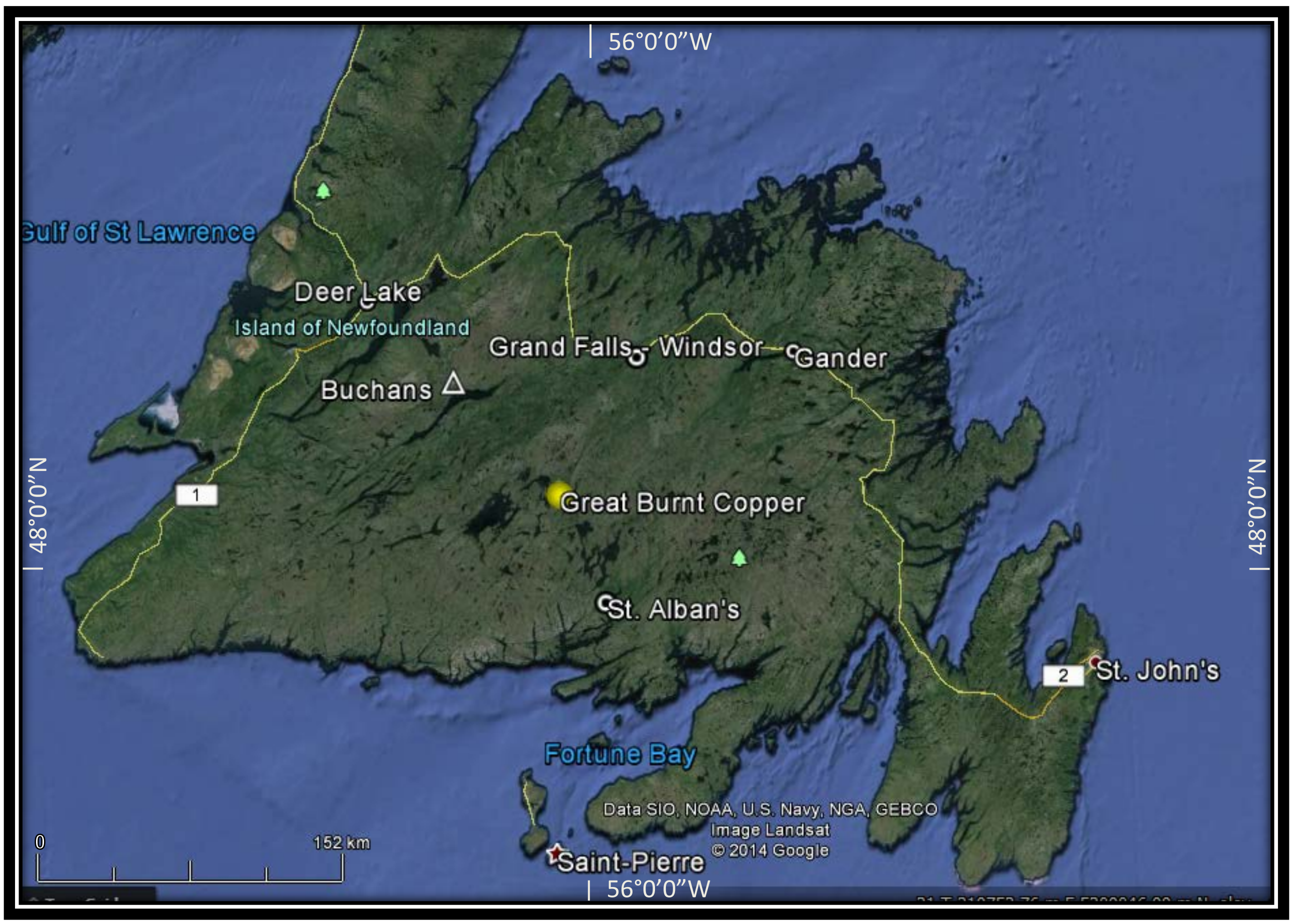
4.0 PROPERTY DESCRIPTION AND LOCATION

4.1 PROPERTY LOCATION

The Great Burnt Property is located in central Newfoundland, 75 km southwest of the City of Grand Falls-Windsor, NL and 56 km northwest of the Town of St. Alban's, NL (Figure 4.1). The Property is 40 km southeast of Teck Resources Limited's ("Teck") past-producing Duck Pond Cu-Zn Mine and 70 km southeast of the past-producing Buchans Mining Company Ltd. ("Buchans") Cu-Zn-Pb-Ag-Au Deposit.

The Great Burnt Copper Deposit is located at Lat 48° 22' 33" N and Long 56° 08' 04" W; UTM WGS84 Zone 21N 564,080 m E 5,358,450 m N; NTS 12A/08.

FIGURE 4.1 LOCATION OF THE GREAT BURNT PROPERTY IN CENTRAL NEWFOUNDLAND



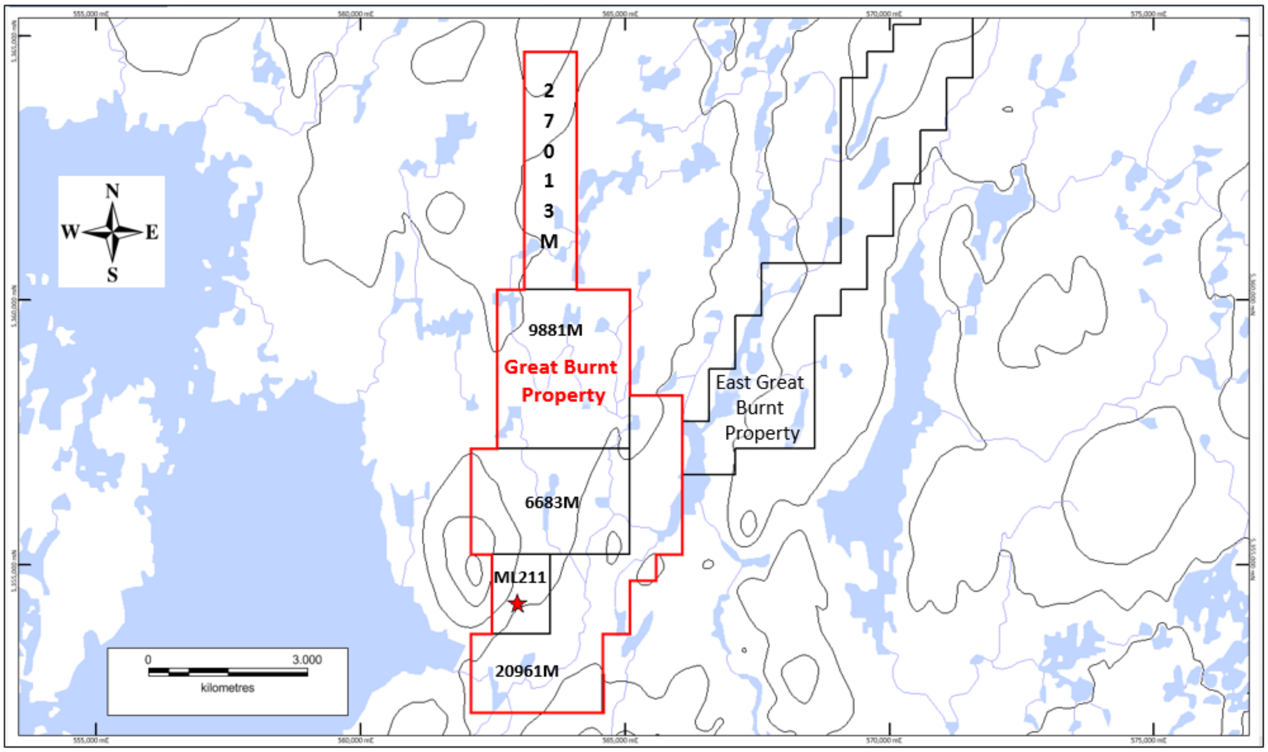
Source: *Google Earth (2014)*

4.2 PROPERTY DESCRIPTION AND TENURE

4.2.1 Great Burnt Property

The Property consists of one 164.6 ha mining lease (ML211) and four map-staked mining claims (27013M, 9881M, 20961M, and 6683M) covering 109 contiguous claim units, for a total area of 2,884 ha (Figure 4.2) (Table 4.1).

FIGURE 4.2 LAND TENURE MAP OF THE GREAT BURNT PROPERTY



Note: *Great Burnt Property outlined in red.*
The red star on ML211 denotes location of the Great Burnt Copper Deposit.

TABLE 4.1 LAND TENURE RECORDS FOR GREAT BURNT PROPERTY *				
Licence/ Lease ID	**Tenure**	**Licence Holder**	**Area (ha)**	**Renewal Date**
ML211	Mining Lease	Pavey Ark Minerals Inc.	164.6	10-Jun-23
027013M	Mineral Licence	Spruce Ridge Resources Ltd.	448.9	01-Mar-23
006683M	Mineral Licence	Spruce Ridge Resources Ltd.	598.6	01-Mar-23
009881M	Mineral Licence	Spruce Ridge Resources Ltd.	748.2	02-Feb-24
020961M	Mineral Licence	Spruce Ridge Resources Ltd.	922.8	29-Mar-23
Total			**2,884**	

** Land tenure records effective March 9, 2022*

Land tenure information for mineral exploration is available on-line through the Newfoundland and Labrador Department of Natural Resources at the following website: http://www.nr.gov.nl.ca/nr/mines/exploration/minerallands/index.html. ML211 is a 10-year lease valid until June 10, 2023, and is renewable, subject to an annual fee payment of $120/ha. All four of the mineral licences are also in good standing as of the effective date of this Technical Report.

4.3 PROPERTY ACQUISITION

Spruce Ridge executed a letter of intent on an option agreement to acquire a 100% interest in the Property from Pavey Ark Minerals Inc. ("Pavey Ark") on February 27, 2015. The Company announced on September 4, 2015 that it acquired 100% interest in the Great Burnt Property.

A Company news release, dated September 4, 2015, outlined the conditions for Spruce Ridge to complete acquisition of the Property:

- Spruce Ridge are required to pay Pavey Ark $390,000.00 plus issue 200,000 common shares and 300,000 Warrants.

- The acquisition agreement provides for the majority of the payment in the form of a $365,000 non-convertible loan, with principal and interest at 8% (annually) amortized over 36 months with payments starting August 2015.

- Pavey Ark will retain a 0.5% Net Smelter Return ("NSR") royalty on any production from Mining Lease ML211 and that part of Exploration Licence 21732M that was part of former Exploration Licence 10210M.

- Pavey Ark will retain a 2% NSR royalty on any production from the Mineral Exploration Licenses numbered 6682M, 6683M, 9881M, 20961M and that part of 21732M that was not part of former Exploration Licence 10210M. In the event that the loan is paid in full prior to December 31, 2015, the 2% NSR royalty on and production from the Mineral Exploration Licenses numbered 6682M, 6683M, 9881M, 20961M and that part of 21732M that was not part of former Exploration Licence 10210M will be reduced to 1.5%. During the term of the loan, the Property will remain registered to Pavey Ark.

In addition to the royalties in favour of Pavey Ark, there is a 2% NSR royalty in favour of Glencore (as a successor to Noranda) on mining lease ML211, which covers the area of the Great Burnt Copper Deposit. If commercial production commences from this lease, Spruce Ridge is required to make a cash payment of CAD$1,000,000 or issue shares with equivalent value to Glencore.

Pavey Ark had previously acquired the Property from Celtic Minerals Ltd. in 2013. Subsequent to acquiring the Property, Pavey Ark converted parts of former mineral licence 10210M into the mining lease (ML211) and acquired the claims 20961M and 21732M by map staking. As required for approval of a mining lease, a surveyor registered in Newfoundland and Labrador completed a land survey of the mining lease perimeter of ML211 in 2013.

4.4 NEWFOUNDLAND MINERAL TENURE

Mineral exploration licences in Newfoundland and Labrador are acquired through map staking. A single claim unit measures 500 m square (25 ha) based on one-quarter of a Universal Transverse Mercator ("UTM") grid square. Licence boundaries are referenced to the map staked claims using UTM coordinates. A map staked licence can be up to a maximum of 256 claims. A fee of $65 per claim is required at time of on-line staking. The $65/claim fee consists of a $15/claim staking recording fee and a $50/claim staking security deposit. The staking security deposit is refunded upon submission and acceptance of the report covering the 1st year requirements. A mineral exploration licence is issued for a term of five years, however, it may be held for a maximum of 30 years. To retain claims in good standing from year to year an assessment report is required describing work completed annually and is due on or before the anniversary date. Licence renewal fees and requirements are summarized in Table 4.2. A deposit can be made in lieu of annual expenditure.

TABLE 4.2
NEWFOUNDLAND CLAIMS RENEWAL FEES AND WORK REQUIREMENTS

Year of Issue	Renewal Fee	Minimum Annual Assessment Expenditure
1	n/a	$200 per claim
2	n/a	$250 per claim
3	n/a	$300 per claim
4	n/a	$350 per claim
5	$25 per claim	$400 per claim
6 through 10	$50 per claim year 10	$600 per claim
11 through 15	$100 per claim year 15	$900 per claim
16 through 20	$200 per claim year 20	$1,200 per claim
21 through 25	$200 per claim per year	$2,000 per claim
26 through 30	$200 per claim per year	$2,500 per claim

Note: *n/a = not applicable*

In order to obtain a mining lease, an applicant must demonstrate to the satisfaction of the Minister of Natural Resources, that a Mineral Resource exists under the area of application that is of significant size and quality to be potentially economic. This must be confirmed by a Qualified Person. An application for a mining lease made pursuant to a map staked licence is to be accompanied by a legal survey of the area being applied for. An annual fee of $105 per hectare is payable with respect to a mining lease.

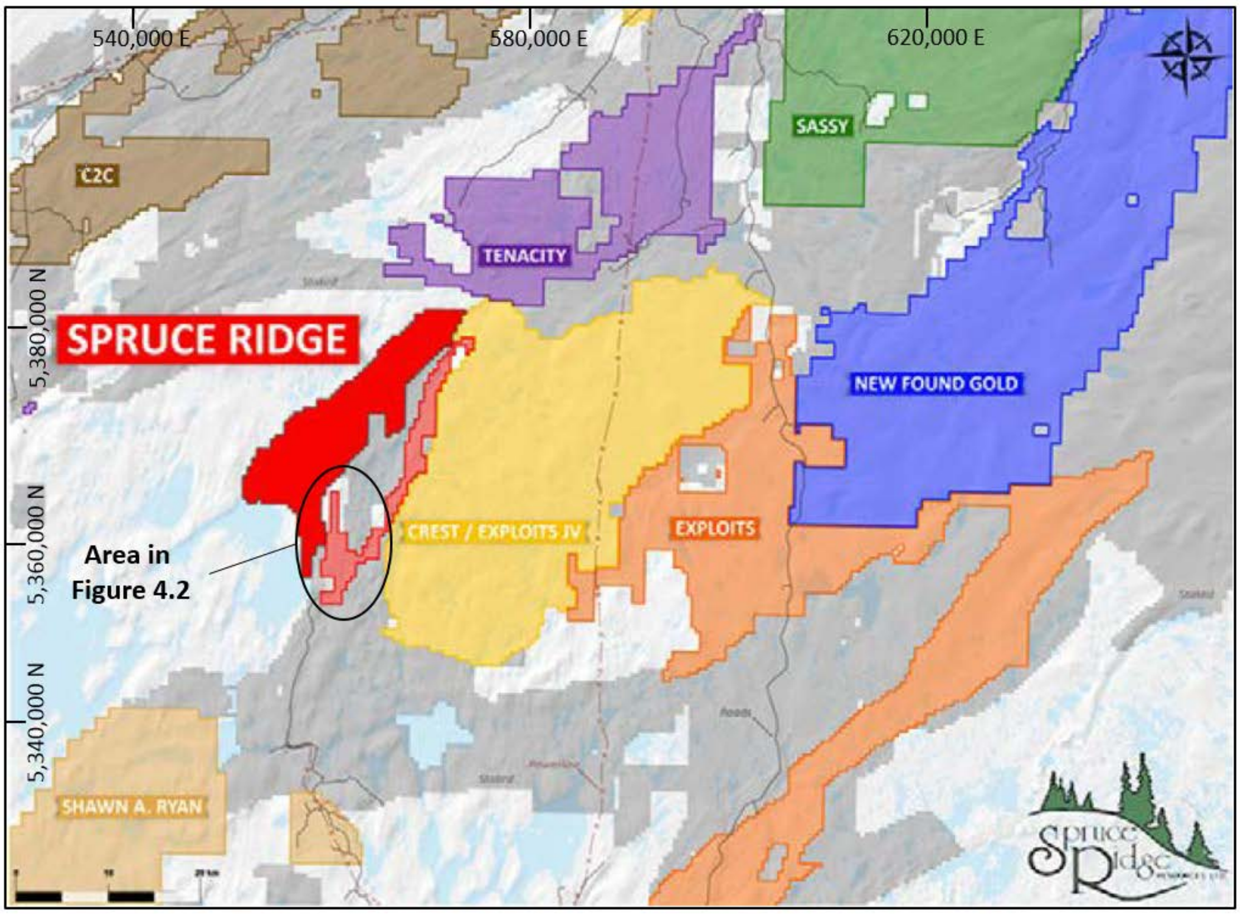
4.5 ENVIRONMENTAL LIABILITIES

At the effective date of this Technical Report, the author of this Technical Report section is unaware of any current or pending challenges to ownership of the Great Burnt Property mineral tenures, or of any environmental liabilities or actual or alleged breach of any environmental laws, regulations, policies or permits associated with the Spruce Ridge claim holdings. Spruce Ridge has obtained the required approval from the government of NL Department of Natural Resources for all exploration carried out on the Property.

4.6 OTHER PROPERTIES OF INTEREST

Substantial adjacent and nearby claims also held by Spruce Ridge include blocks of map-staked claims that make up the East Great Burnt Property and the Foggy Pond Property (Figure 4.3; Table 4.3). The East Great Burnt Property consists of one map-staked claim (30962M) covering 183 contiguous claim units. The Foggy Pond Property consists of three map-staked mining licences (33214M, 33215M and 33216M) covering 767 contiguous claim units. These two properties cover a total area of approximately 23,000 ha.

FIGURE 4.3 OTHER PROPERTIES OF INTEREST IN THE GREAT BURNT PROPERTY AREA



Source: *Spruce Ridge (news release dated 14 September 2021).*

TABLE 4.3
LAND TENURE INFORMATION FOR OTHER SPRUCE RIDGE PROPERTIES OF INTEREST

Licence Number	Property	Status	Issue Date	Renewal Date
030962M	East Great Burnt	active	01/08/2020	01/08/2025
033214M	Foggy Pond	active	07/08/2021	07/08/2026
033215M	Foggy Pond	active	07/08/2021	07/08/2026
033216M	Foggy Pond	active	07/08/2021	07/08/2026

Note: *Land tenure records effective March 9, 2022*

5.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

5.1 ACCESS

The southern part of the Property, including the Great Burnt Copper Deposit, is accessible from St. Alban's, NL, by the Upper Salmon access road, an all-weather gravel road maintained by Newfoundland Hydro (Figure 5.1). It is approximately 73 km by the Upper Salmon Road from St. Alban's to the Property. The road was constructed by Newfoundland Hydro to service the Upper Salmon hydroelectric development project, including the North Salmon Dam at Great Burnt Lake. A locked gate limits access north of the North Salmon Dam at Great Burnt Lake and permission to access the gate is obtained from the local Hydro office in St. Alban's. The driveable road ends on the Property 800 m northeast of the North Salmon Dam, at a rock quarry that was used for dam construction. Newfoundland Hydro does not maintain the last 20 km of the gravel road in winter.

The former drill trail continues from the rock quarry at the end of the drivable road in a northerly direction for about 15 km to the South Pond Project area. Access to the northern part of the Property is by ATV trails, helicopter or float plane.

FIGURE 5.1 MAP SHOWING ROAD ACCESS TO THE GREAT BURNT PROPERTY

Source: *Google Earth (2014)*

5.2 CLIMATE

The climate of central Newfoundland is a cool summer subtype of humid continental. The climate has a maritime influence, since the Property is less than 80 km from the Gulf of St. Lawrence. Annual precipitation is approximately 1,350 mm and at times there is heavy snowfall. The area has mean summer temperatures of approximately 14°C and mean winter temperatures of approximately -4°C. Average maximum snow depth is between 50 cm and 99 cm. Exploration, such as drilling and mining activities, can be completed during both the summer and winter months.

5.3 LOCAL RESOURCES AND INFRASTRUCTURE

Unpaved forest access roads are common throughout the area and have been developed to provide access to hydroelectric sites and interior harvesting areas for commercial logging activity.

St. Alban's has a population of approximately 1,400 and is located on the south shore of Newfoundland. St. Alban's provides motel accommodation, supplies and several small stores, and saltwater access. From St. Alban's, it is 148 km by road north along route 360 and the Trans-Canada Highway to Grand Falls-Windsor. Grand Falls-Windsor with a population of 14,171 (2016 Census), is the largest town in central Newfoundland and most major supplies and services can be obtained. Gander is 234 km by road northeast of St. Alban's on route 360 and the Trans-Canada Highway. Gander has a population of 11,688 (2016 Census) and is the location of Gander International Airport with regularly scheduled air service to St. John's, Halifax and Toronto. St. John's, the provincial capital, is 428 km by road from Grand Falls-Windsor and 565 km by road from St. Alban's.

North of the Property, logging roads extend South from Grand Falls-Windsor to the Atlantic Lake area and are within 15 km of the South Pond Copper-Gold Deposit. Extending these logging roads onto the Property would significantly improve access to the Property from Grand Falls-Windsor, Gander and the Buchans area.

A 230 kV transmission line runs from the Upper Salmon Hydroelectric Development at Godaleich Brook south to the powerhouse at Bay d'Espoir. A second 230 kV transmission line runs from Baie d'Espoir north to Grand Falls-Windsor and passes approximately 30 km east of the Property. Newfoundland Hydro has a power supply line that services the Great Burnt Dam at the South end of the Property.

Mining and mineral exploration is an important component of the Central Newfoundland economy.

5.4 PHYSIOGRAPHY

The area lies within the Central Plateau of NL. Topography is characterized by forested hills and ridges with intervening swampy areas. The hills rise from a base elevation of approximately 240 m asl to over 350 m asl. Great Burnt Lake is at an elevation of approximately 246 m asl. One of the higher points is a hill east of Great Burnt Lake that reaches 374 m asl. A northeast-trending linear ridge west of South Pond reaches approximately 370 m asl.

The terrain is locally hummocky with glacial drift and 5% to 10% exposed bedrock. Vegetation consists of relatively open bush with typical boreal forest of balsam fir and spruce, and local dense growths of alder in swampy lowlands. Bogs, swamps and shallow lakes are common and form in glacially-scoured low areas. The area has been extensively glaciated and is generally covered by a veneer of drift, boulders and minor clays.

Most of the northern part of the area drains into the North Salmon River through the Gulp Pond-Pipestone Pond and Sitdown Pond watersheds. The West Salmon River is the focus for drainage in the southern part of the area, and since construction of the Upper Salmon hydroelectric dam, also receives water from the Great Burnt Lake watershed. Both rivers drain into Round Pond and thence into Bay d'Espoir and the Gulf of St. Lawrence, 50 km to the southeast.

6.0 HISTORY

The Great Burnt Property has been explored by several operators since 1948. This section provides a brief history of historical exploration on the Property and is largely summarized from Webster and Wolfson (2010), who produced an NI 43-101 technical report on the Great Burnt Property (formerly the "Great Burnt Lake Property") for Celtic.

6.1 EXPLORATION HISTORY

6.1.1 1948 to 1999 Mineral Exploration

In 1948, the Anglo Newfoundland Development Company ("Anglo NL") and the Buchans Mining Company Ltd. ("Buchans") were granted exploration rights in a large area in central Newfoundland. In 1950, Buchans mapped the Great Burnt Lake and Pipestone Pond areas. Discovery and tracing of boulders hosting chalcopyrite and pyrrhotite mineralization led to trenching and the discovery of copper at the South Pond Copper Prospect (now called the South Pond Copper-Gold Deposit), near the south shore of South Pond in 1951.

Starting in August 1951, Buchans completed 11 drill holes (CL-1 to CL-11) for 1,760 m into the South Pond Copper Prospect. The drill holes were collared at AX 33 mm diameter and narrowed to EX 22 mm diameter. The first hole, CL-1, intersected 1.3 m assaying 4.2% Cu. The 11 drill holes intersected disseminations and veinlets of pyrrhotite and chalcopyrite. By 1953, drilling stopped, having outlined copper values along a 910 m strike length to a depth of 150 m.

In 1957, a year before the original concession agreement expired, Aerophysics of Canada Ltd. conducted an airborne electromagnetic survey over the Buchans properties. This survey included the Great Burnt Lake Property (called the Southern Area) and covered 230.1 line-km . The survey outlined 70 anomalies, which were subsequently investigated by ground EM and geochemical surveys in 1958. There was overall strong correlation between the geological formations, the magnetic contours and the broad areas of EM response. In 1958, Buchans continued exploration, conducting a ground EM survey and collecting 4,500 reconnaissance B-horizon soil samples over the airborne and ground EM anomalies, and within the rock package along strike from the South Pond Deposit. In 1959, the concession agreement was renewed, but over a smaller area that included the South Pond, Sitdown Pond and Great Burnt Lake areas.

In 1960, Buchans was dissolved with the remaining operations consolidated as the American Smelting and Refining Company, Buchans Unit ("ASARCO"). A 20-hole drill program was completed on a mineralized zone located 200 m north of the Great Burnt Copper Deposit, which was subsequently named the North Stringer Zone by Noranda. A new extended concession agreement was signed in 1964, but further reduced in size to approximately 62 km^2.

Exploration resumed in 1965, with reconnaissance stream sediment and soil surveys over a 52 km^2 area around the South Pond Deposit. An anomalous zone east of Great Burnt Lake was followed up with more detailed geochemical surveys in 1966 and a new copper-bearing outcrop was discovered. The outcrop was drilled in the fall of 1966 with a portable drill. Drill hole GB-1 intersected 1.68 m of 4.8% Cu. During the summer of 1967, a diamond drilling program outlined the Great Burnt Copper Deposit.

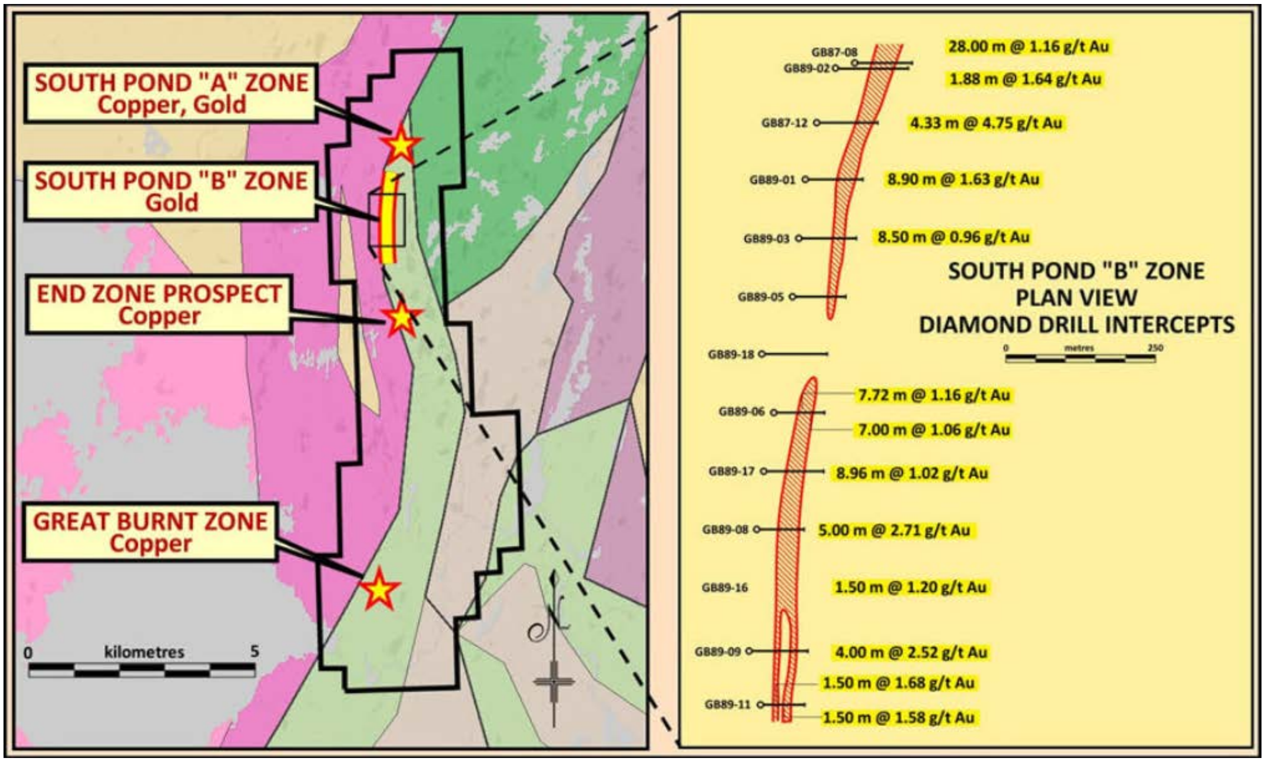
A 25-year mining lease was applied for and became effective Dec 31, 1967, covering both the South Pond and Great Burnt Lake Deposits. It was held equally by Price (Newfoundland) Pulp and Paper Company Ltd. (the successor to Anglo NL) and ASARCO. By December 1969, the companies outlined a historical Mineral Reserve at the Great Burnt Copper Deposit. By September 1971, ASARCO had completed 133 holes for 20,345 m of mainly EX-sized drill core at the Great Burnt Copper Deposit. In 1976, Anglo NL relinquished its entire mineral claim to Price Brothers & Company Limited, a subsidiary of Abitibi Paper Company Ltd. and the mining lease was subsequently jointly owned by Abitibi-Price (Mineral Resources Division) and ASARCO.

Abitibi-Price resumed limited drilling on the Property in 1979. During 1984-1985 Abitibi-Price analyzed approximately 3,000 archived soil sample pulps from the 1960s for gold, which returned numerous anomalies in a 2.5 km-long continuous region south of the South Pond Deposit. Gold values up to 3,327 ppb were obtained and this area was named the South Pond Gold Prospect. During this time, the re-analysis of drill core pulps from the South Pond Deposit also yielded anomalous gold values up to 5,333 ppb. Soil and drill core pulps from the Great Burnt Lake Deposit were also analyzed for gold, however, returned insignificant results (Desnoyers, 1987, 1991).

In 1985, BP Resources Canada Ltd. ("BP") purchased the Great Burnt Mining leases from Abitibi-Price and ASARCO. Exploration activity during 1986 focused on the South Pond area and included re-logging and sampling of archived drill core, analysis of an additional 1,185 archived soil samples for gold and 30 elements (ICP analysis) from alternate grid lines, line cutting (36.6 line-km), Very Low Frequency Electro Magnetic ("VLF-EM") and magnetic surveys, outcrop sampling and geological mapping. A selection of archived soil sample and drill core pulps from the Great Burnt Lake Deposit was also analyzed (Desnoyers, 1987, 1991).

In 1987, BP (with joint venture partner Exador Resources) initiated a drilling program to test gold in soil anomalies. Drill hole GB-87-08 intersected a 28 m section assaying 1.16 g/t Au, including 5.5 m assaying 2.21 g/t Au (Figure 6.1). The gold reportedly occurred within a distinct magnetic horizon that extended south from the South Pond Deposit and bordered the western margin of the soil anomaly. Drill intersections show the gold zone varying in thickness from 12 to 25 m, dipping steeply west and having a minimum strike length of 3 km, including the South Pond Deposit.

FIGURE 6.1 HISTORICAL DRILL HOLE INTERSECTIONS AT SOUTH POND "B" GOLD ZONE



Source: *Spruce Ridge website (July 2021)*

In 1989, BP continued drilling to test coincident VLF-EM and magnetic anomalies, following the gold-mineralized horizon to the south. By the end of 1989, 4,200 m of drilling had been completed and the gold mineralized zone had been traced over 1.4 km along strike. Mineralization consisted of 10 to 40% pyrrhotite and 1 to 2% chalcopyrite in variably silicified and locally brecciated mafic volcanic rocks.

In February 1993, Noranda acquired the Great Burnt Lake properties as part of its purchase of the Newfoundland mineral holdings of BP. In 1994, Noranda focussed on identifying deeper drill targets adjacent to known mineralization. A two-hole drill program was completed and intersected a "zone of light erratic copper mineralization" located approximately 200 m northeast of the Great Burnt Copper Deposit. This zone was previously drilled by ASARCO in the 1960s and Noranda named it the "North Stringer Zone" and produced a longitudinal section, which showed that the better grade zones appear to plunge gently towards the south. Noranda considered that this zone could represent the edges of another mineralized zone, which could contain more massive sulphides down-plunge to the south, and proposed that 100 to 150 m vertical holes be drilled to test this model.

Noranda completed two short drill holes on the North Stringer Zone, however, significant mineralization did not occur at the expected sedimentary rock/mafic volcanics contact. Minor stringer pyrrhotite-chalcopyrite was intersected in the mafic volcanics. Hole GBL95-2 contained up to 10 to 15% combined pyrrhotite-chalcopyrite over 10 to 40 cm intervals and the best assay returned 2.56% Cu over 60 cm. The zone was considered open at depth along strike to the south.

6.1.2 1999 to 2008 Mineral Exploration by Celtic Minerals Ltd.

Celtic Minerals Ltd. ("Celtic") acquired the Property from Noranda in 1999. Between 1999 and 2008, Celtic completed extensive geophysical, geochemical, remote sensing and diamond drilling programs over much of the Property (Figure 6.2). These programs are summarized in chronological order below.

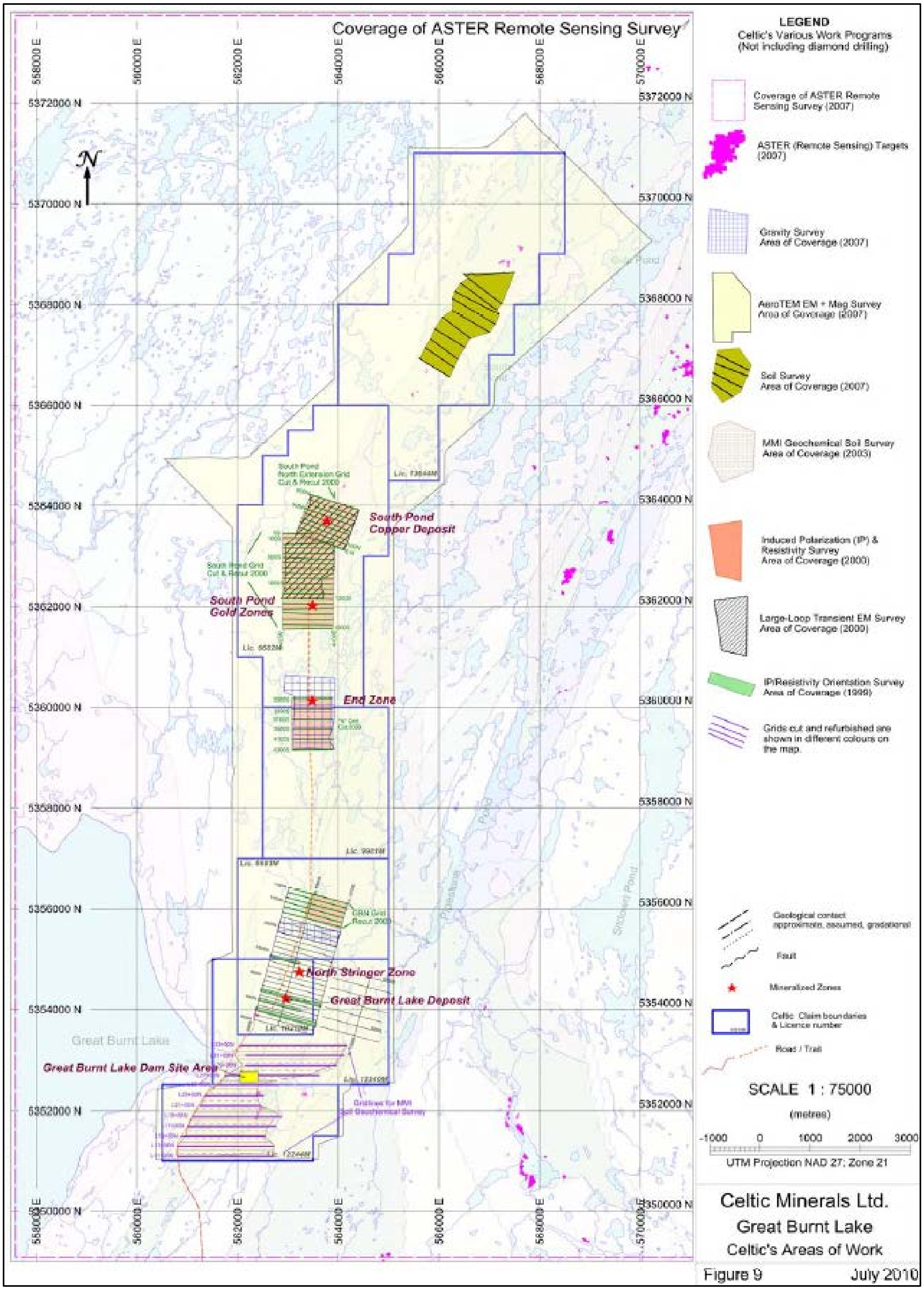
6.1.2.1 1999-2000 Surface Exploration and Desktop Review

In 1999, after acquiring the Property from Noranda, Celtic completed 3.85 line-km of IP-resistivity surveys over licence 4192 using a pole-dipole array with a spacing of 50 m and a maximum depth of penetration of 150 m.

In February and March 2000, Celtic completed an IP-Resistivity survey over 37.2 line-km of grid at Great Burnt Lake and the southern portion of the South Pond grid. Discovery Geophysics Inc. performed a Time-Domain Spectral IP survey using a pole-dipole array. In the spring of 2000, a ground magnetic survey (9 line-km) and a Transient EM ("TEM") survey (approximately 21 line-km) were carried out over the remaining portion of the South Pond grid and the South Pond North Extension grid. Discovery Geophysics reported that IP survey results from the Great Burnt Lake and South Pond grids were disappointing, due to lack of strong correlation between the most intense chargeability and resistivity anomalies. Graphitic metasedimentary rocks appear to have caused the most intense resistivity lows. Poor responses from known mineralized horizons led Celtic to conclude that IP methods are not the optimal geophysical survey techniques for this geological environment.

A large-loop TEM survey completed on the northern portions of the South Pond Grid provided more definitive targets. The program outlined a belt of long semi-continuous, sub-parallel conductors and provided better resolution of these targets than the airborne EM surveys in the area. The most conductive anomaly is coincident with the known location of the favourable horizons that host the South Pond Copper and Gold prospects. Most of the other anomalies were explained as being associated with sedimentary and graphitic rocks. Since large-loop TEM appears to discriminate graphitic conductors from massive sulphide conductors, based on the rate of decay of the TEM response, additional surveys were recommended along strike of the conductors.

FIGURE 6.2 CELTIC AREAS OF EXPLORATION WORK ON THE GREAT BURNT PROPERTY 1999-2008



Source: *Webster and Wolfson (2010)*

In August 2000, Celtic contracted geological consultant Roger Wallis to complete a review of geology and historical drilling and make recommendations for further work. Based on his review, Wallis (2000) made the following observations:

- All mineral deposits display a 30° south-plunging lineation and this was observed in outcrop on the Property;
- A second lineation with a 70° south plunge was observed in outcrop and this second structural episode could provide fold interference patterns that could create zones of thicker or higher-grade mineralization observed in the longitudinal section of the Great Burnt Copper Deposit;
- The contact between the sulphide mineralization and the hanging wall and footwall rocks of the Great Burnt Copper Deposit is sharp, and there is no stockwork zone in the immediate footwall; and
- There is a lack of obvious alteration in either the immediate footwall or hanging wall.

Wallis (2000) summarized his observations and suggested several structural dislocation scenarios to explain the distribution of mineralized zones. Wallis, (2000) made specific recommendations, which included a detailed compilation of past work on the Property, re-logging of selected historical drill core, the development of a new digital database, and specific structural studies to assist in better understanding the distribution of mineralization on the Property.

6.1.2.2 2001-2002 Drilling Program

The 2001-2002 diamond drilling program was completed between November 2001 and February 2002 and focused on the Great Burnt Lake Deposit and South Pond Deposit areas. Drilling was completed by Major Ideal Drilling Ltd. of Moncton, New Brunswick using a skid-mounted Boyles-37 drill rig and NQ drill rods. Drills were moved by a track-mounted Nodwell or by helicopter supplied by Canadian Helicopters of Pasadena, NL. A camp was established at the site to support geology and drill crews. All work was supervised by Celtic geological staff. Half drill core samples were sent to Eastern Analytical for Fire Assay and ICP analysis.

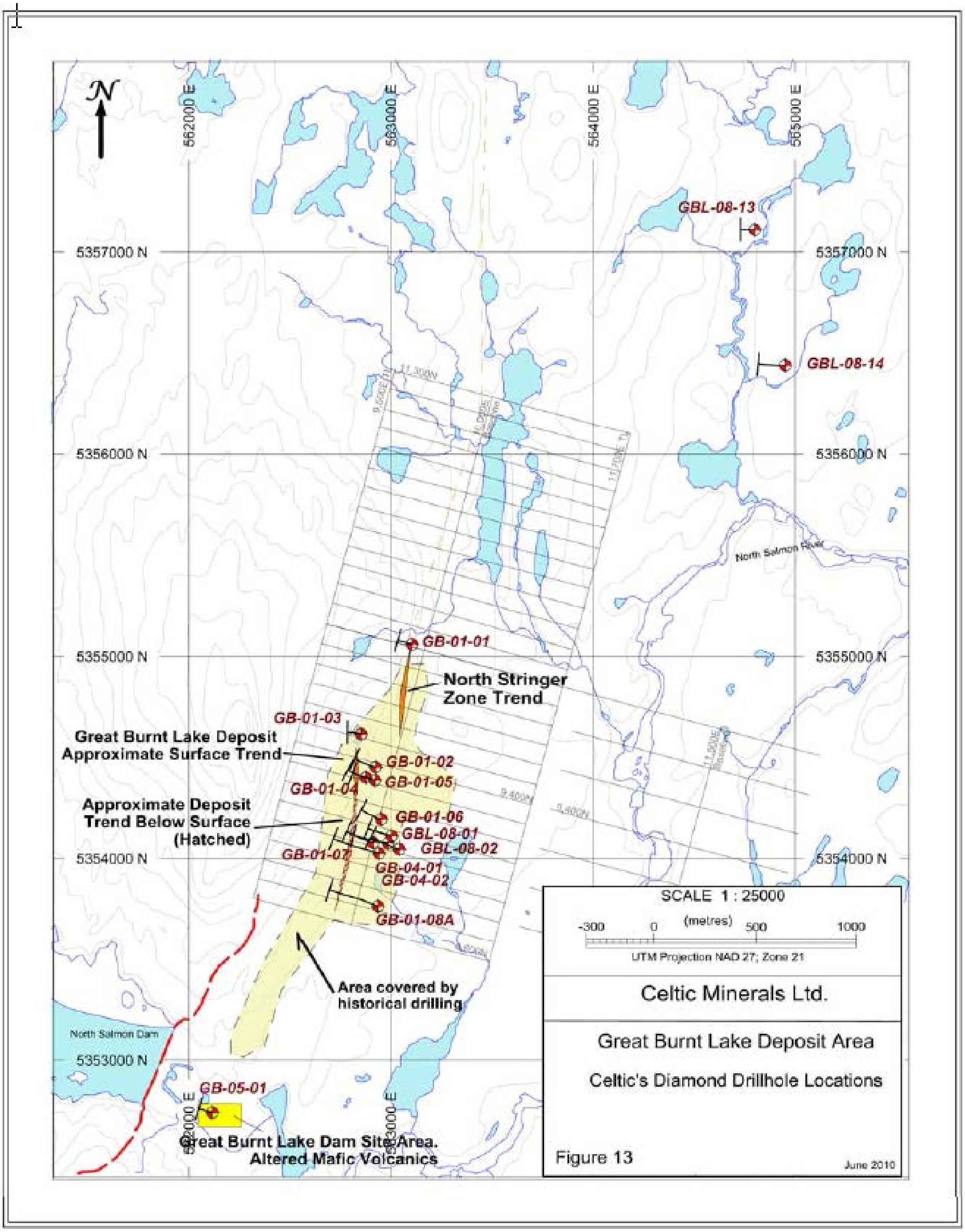
In 2001-2002, Celtic completed approximately 2,546 m in 15 NQ-sized drill holes, designed to test the down-dip extensions of the Great Burnt Copper Deposit, South Pond Deposit and South Pond Gold Zone, and several coincident geophysical and soil geochemistry anomalies on the Property (Table 6.1 and Figure 6.3). Drill hole GB-01-04 was completed to confirm historical drill core intersections near drill hole GB-77.

TABLE 6.1
2001-2002 CELTIC DIAMOND DRILL HOLE COLLAR LOCATIONS, ORIENTATIONS, HOLE LENGTHS AND TARGETS

Drill Hole ID	Year	Core Size	UTM Easting	UTM Northing	UTM Projection	Elev. (m)	Azimuth (°)	Dip (°)	Length (m)	Target
GB-01-01	2001	NQ	563,104	5,355,060	NAD 27 Zone 21N	281	285	-45	100	North Stringer Zone
GB-01-02	2001	NQ	562,925	5,354,450	NAD 27 Zone 21N	268	285	-45	150	Great Burnt
GB-01-03	2001	NQ	562,853	5,354,613	NAD 27 Zone 21N	262	285	-45	95	Great Burnt
GB-01-04	2001	NQ	562,876	5,354,399	NAD 27 Zone 21N	265	285	-45	95	Great Burnt
GB-01-05	2001	NQ	562,922	5,354,385	NAD 27 Zone 21N	260	285	-45	197	Great Burnt
GB-01-06	2001	NQ	562,952	5,354,193	NAD 27 Zone 21N	245	285	-60	183	Great Burnt
GB-01-07	2001	NQ	562,913	5,354,078	NAD 27 Zone 21N	242	285	-65	303	Great Burnt
GB-01-08a*	2001, 2005	NQ	562,937	5,353,763	NAD 27 Zone 21N	240	285	-57	434	Great Burnt
SP-01-01	2001	NQ	563,096	5,361,950	NAD 27 Zone 21N	284	90	-50	231	South Pond
SP-01-02	2001	NQ	563,105	5,362,167	NAD 27 Zone 21N	282	90	-53	265	South Pond
SP-01-03	2001	NQ	563,485	5,362,167	NAD 27 Zone 21N	280	90	-45	74	South Pond
SP-01-04	2001	NQ	563,217	5,362,875	NAD 27 Zone 21N	296	90	-50	217	South Pond
SP-01-05	2001	NQ	562,993	5,362,881	NAD 27 Zone 21N	305	90	-45	102	South Pond
SP-02-06	2002	NQ	563,356	5,363,421	NAD 27 Zone 21N	312	110	-45	251	South Pond
SP-02-07	2002	NQ	564,180	5,363,982	NAD 27 Zone 21N	294	110	-45	100	South Pond

***** *Hole GB-01-08a was stopped short of target in 2001, but was completed in 2005.*

FIGURE 6.3 2001 AND 2004 DRILLING PROGRAMS IN THE GREAT BURNT COPPER DEPOSIT AREA



Source: *Webster and Wolfson (2010)*

In 2001, Celtic completed eight diamond drill holes totalling 1,557.80 m to test targets in the Great Burnt Lake Deposit. The drill holes were selected to test geophysical anomalies outlined from ground-based IP and TEM surveys and to test the down-dip extension of the known mineralization outlined by previous historical drilling. A summary of the Great Burnt significant drill assays is presented in Table 6.2.

TABLE 6.2
SIGNIFICANT INTERCEPTS IN CELTIC 2001 DRILLING AT GREAT BURNT COPPER DEPOSIT

Drill Hole ID	From (m)	To (m)	Core Length (m)	Approx. True Width (m)	Cu (%)	Au (g/t)	Zn (%)	Notes
GB01-04	53.48	62.35	8.87	8	1.78	0.01	0.01	pyrrhotite-chalcopyrite stringer zone in chloritic rock
and	64.46	69.34	4.88	4.8	2.61	0.03	0.02	pyrrhotite-chalcopyrite stringer zone in black chlorite rock
GB-01-02	51.79	52.29	0.5	0.49	0.90	2.75	<0.02	mafic volcanic breccia with quartz-carbonate alteration
GB-01-07	245.13	247.8	2.71	2.6	1.33	0.12	2.11	fine-grained massive pyrrhotite-pyrite-chalcopyrite-sphalerite in sedimentary rock
and	259.62	260.4	0.82	0.6	0.51	0.01	0.30	semi-massive pyrrhotite-chalcopyrite-sphalerite in sedimentary rock

Source: *Webster and Wolfson (2010)*

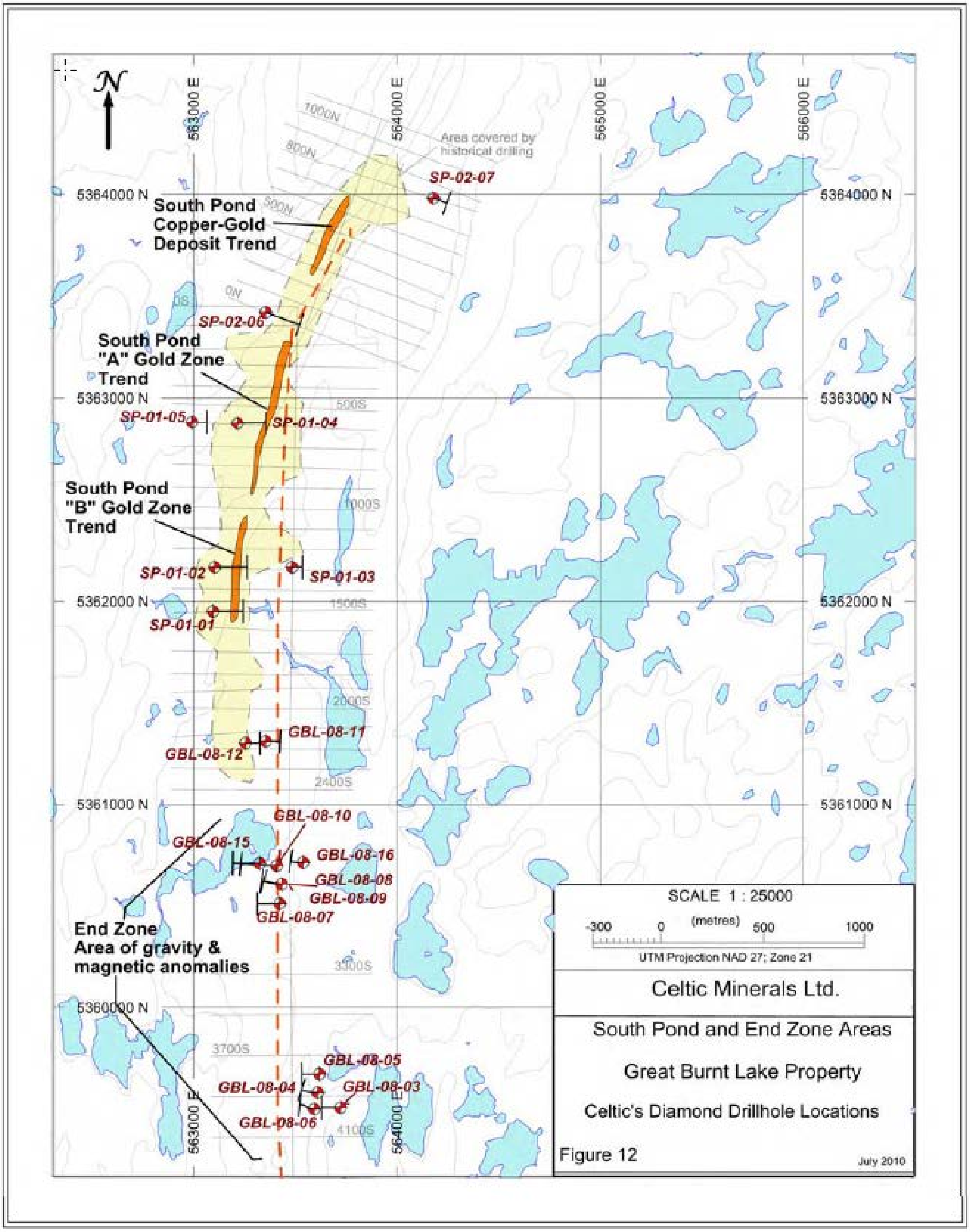
In February and March of 2001, a borehole transient EM survey (“BTEM”) was conducted on six of the Celtic drill holes and one historical Noranda hole. A limited amount of surface surveying was also carried out on two lines from one of the borehole transmitter loops, to provide additional information for the interpretation of the borehole TEM data. The borehole transient EM survey of drill holes GB-01-01 to GB-01-07 was successful in detecting major conductors. Although the known massive sulphide zone in drill hole GB-01-07 was detected, the highest geophysical response appears to be associated with stringer mineralization. The contractor suggested that transient EM would not be suitable for discriminating between massive and stringer mineralized zones, but it remains a useful tool for detecting sulphide mineralization in general. Off-hole conductors were interpreted from drill holes GB-01-02 and GB-01-05, approximately 40 to 50 m east of the interpreted position of the Great Burnt Lake Zone. These conductors may be either a separate mineralized horizon or more likely the same horizon folded back to the east in a syncline, which would explain the absence of mineralized intersections at depth. A 70 to 100 m long drill hole at 45° was recommended between these drill holes to test the off-hole anomalies and determine if they represent new sulphide mineralization or the folded Great Burnt Lake Zone.

Drilling at the South Pond Deposit and South Pond Gold Zones in 2001-2002 was limited to seven drill holes totalling 1,235.67 m (Table 6.1) (Figure 6.4). The program was designed to test and confirm copper mineralization grades, to examine and undercut the gold mineralized zones, and to test significant geophysical anomalies proximal to known mineralized zones. The drilling showed that both gold and copper mineralized zones, with pyrrhotite and chalcopyrite, occur within the same sedimentary rock sequence. This appears to resemble the same position that mineralization occurs at the Great Burnt Lake Deposit (Green and Rice 2000). One down-plunge drill hole (GBL-01-08) was terminated before the South Pond Gold Zone target was intersected, however, was completed in 2005 (GBL-01-08A). A summary of the significant intercepts at South Pond is presented in Table 6.3.

TABLE 6.3
SIGNIFICANT INTERCEPTS IN 2001-02 DRILLING AT SOUTH POND

Drill Hole ID	From (m)	To (m)	Core Length (m)	Approx. True Width (m)	Cu (%)	Au (g/t)	Zn (%)	Notes
SP-01-04	48.37	49.61	1.24	0.7	0.05	3.87	<0.01	pyrrhotite-pyrite-chalcopyrite fracture fill in silicified breccia at a tuff-sedimentary rock contact
and	54.38	54.56	0.18	unknown	0.23	2.87	<0.01	18 m breccia zone in pelite; pyrrhotite-chalcopyrite infill
and	87.43	88.66	1.23	1.0	0.02	1.18	<0.01	disseminated pyrrhotite-chalcopyrite in siltstone

FIGURE 6.4 2001 AND 2008 CELTIC DRILLING IN THE SOUTH POND ZONE AND END ZONE AREAS



Source: *Webster and Wolfson (2010)*

6.1.2.3 2003 Geochemistry Survey

In 2003, Celtic completed a 306 sample MMI ("Mobile Metal Ions") soil survey program along 12 grid lines that covered the southern half of mineral licence 7262M (now part of mineral licences 12240M and 12244M), south of the Great Burnt Lake Deposit. The most significant geochemical anomaly was a north-trending, multi-sample and multi-element zinc-cadmium-cobalt-palladium anomaly. Based on the tenor of the MMI geochemical response this feature may consist of disseminated mineralization with localized high-grade mineralized zones, or the mineralization could be deeply buried.

6.1.2.4 2004-2005 Drilling Program

Between December 4, 2004 and January 24, 2005, Celtic completed four drill holes totalling 1,106 m to test the down-dip and down-plunge potential of the Great Burnt Lake Deposit (Table 6.4). This drilling included extending drill hole (GB-01-08) that caved in 2001 (Figure 6.3). Three drill holes tested the down-dip and down-plunge potential of the Great Burnt Lake Deposit and one drill hole (GB-05-01) tested the sulphide horizon near the North Salmon Dam. The program was supervised by Celtic personnel. Drilling was undertaken by Petro Drilling Company, Ltd. of Springdale, Newfoundland utilizing NQ size drill rods and a skid-mounted Boyles 37 drill. The drill and other equipment were mobilized to site by tractor trailer and skidder. A base camp was established on site to support drill crews and Celtic support staff. Half drill core samples were cut on site and shipped to Eastern Analytical in Springdale for Fire Assay Au-30-element ICP and selected quantitative base metal analysis.

Drilling at the Great Burnt Lake Deposit intersected <1 m thick zones of massive sulphides and up to 18 m intersections of lower-grade copper. Drill hole GB-04-02 intersected 17.61 m of 0.90% Cu and 1.91 g/t Au at the Great Burnt Lake Deposit. Drill hole (GB-05-01) was completed to test a silicified zone near the North Salmon Dam (Great Burnt Lake Dam Site area in Figure 6.3), intersected a 3.43 m zone of weakly sericitized rock flooded with abundant calcite veins and up to 3% disseminated, very fine- to coarse-grained pyrrhotite-pyrite with no significant target metals. Significant assays from the 2004-2005 Great Burnt Lake drilling are presented in Table 6.5.

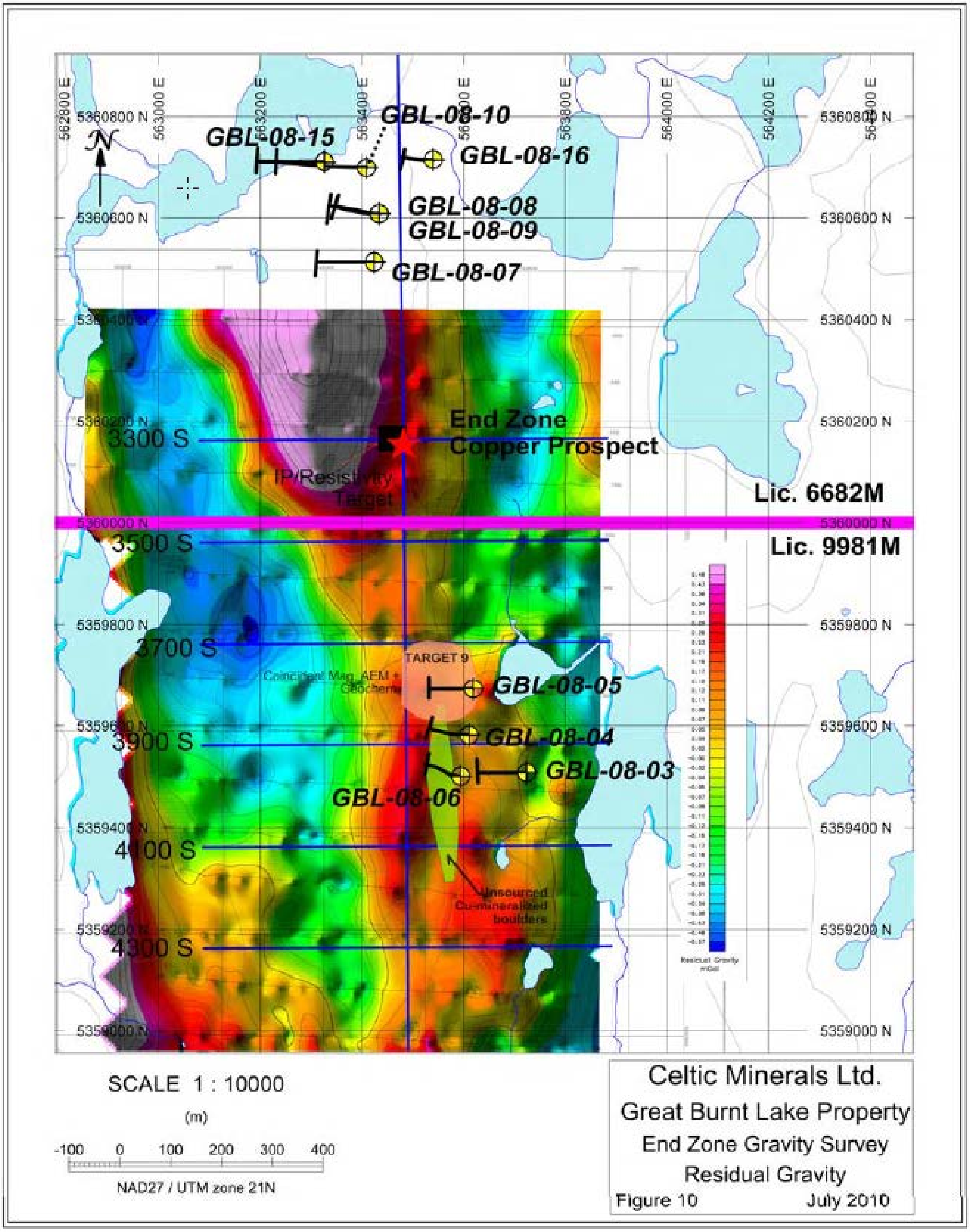
Table 6.4 **2004-2005 Celtic Diamond Drill Hole Collar Locations, Orientations, Hole Lengths and Targets**									
Drill Hole ID	**Year**	**Core Size**	**UTM NAD27 Zone 21N**		**Elev. (m)**	**Az-imuth (m)**	**Dip (°)**	**Length (m)**	**Target**
			Easting	**Northing**					
GB-04-01	2004	NQ	562,642	5,354,024	239	287	-59	374	Great Burnt
GB-04-02	2004	NQ	562,986	5,354,075	239	282	-70	379	Great Burnt
GB-05-01	2005	NQ	562,117	5,352,742	232	285	-49	101	Great Burnt

Table 6.5 **Significant Intercepts from the 2004 Great Burnt Drilling**								
Drill Hole ID	**From (m)**	**To (m)**	**Core Length (m)**	**Approx. True Width (m)**	**Cu (%)**	**Au (g/t)**	**Zn (%)**	**Notes**
GB04-01	315.28	316.15	0.87	0.70	5.40	0.12	1.66	sheared contacts; possible breccia?
GB04-02	253.14	270.75	17.61	13.5	0.58	0.95	<0.10	upper contact brecciated; interval with breccia zone and sulphides in fractures
including	258.63	267.02	8.39	6.40	0.90	1.91	<0.10	

6.1.2.5 2007 Geophysical and Remote Sensing Surveys

In the spring of 2007, a ground gravity survey was conducted by Eastern Geophysics Ltd. over two grids totalling 31.2 line-km (approximately 1,280 stations). The survey outlined a gravity high that was open to the north due to the limits of the survey (Figure 6.5). Celtic contracted GeoScott Exploration Consultants Inc. to complete an interpretation of the anomaly. The contractor found asymmetry of the east-west profile that suggested that the body is dipping steeply to the east. The top of the body was interpreted to be approximately 55 m below the surface. It has a depth extent of approximately 275 m and a strike length of approximately 530 m. For a density contrast of 1.0 g/cc, the consultant obtained a thickness of approximately 175 m. For a density contrast of 2.0 g/cc, the consultant obtained a thickness of approximately 88 m.

FIGURE 6.5 IMAGE FROM THE GRAVITY SURVEY OVER THE END ZONE AREA, GREAT BRUNT PROPERTY

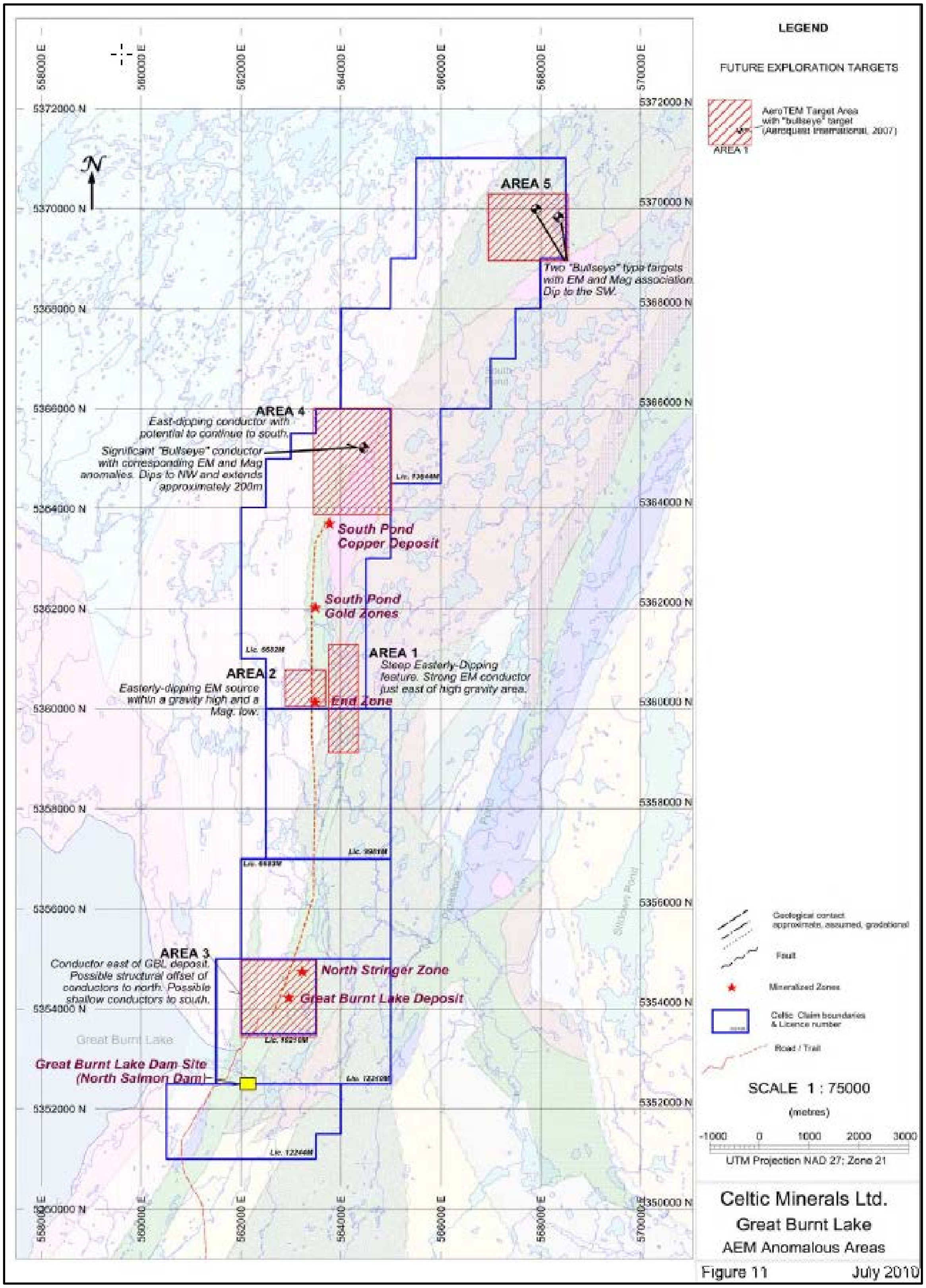


Source: *Webster and Wolfson (2010)*

In August 2007, Aeroquest International conducted a helicopter-borne AeroTEM and magnetic survey of Celtic's entire claim block. The survey covered 880.9 line-km and was flown on a 100 m line spacing within two survey blocks: one block had a traverse line direction of east-west; the second northern part of the claim block had a traverse line direction of 135°/315° azimuth. The principal geophysical sensor is Aeroquest's AeroTEM II time-domain helicopter electromagnetic system, which is employed in conjunction with the Geometrics G-823A high-sensitivity caesium vapour magnetometer. Nominal survey speed over relatively flat terrain is 75 km/hr and is generally lower in rougher terrain. Aeroquest attributed the high magnetic responses to the relative abundance and strength response of magnetite over other magnetic minerals such as pyrrhotite. Many EM anomalies were highlighted for follow-up (Figure 6.6).

Also in 2007, the entire Property was subject to an ASTER remote sensing survey by International Natural Resources Development, which carried out multispectral processing of satellite images. The company identified a number of possible gossanous areas for further follow-up by Celtic. Celtic personnel carried out a limited soil geochemical survey in the northernmost licence (13644M), with 175 samples collected. A number of samples returned gold values above 20 ppb, with the highest at 86 ppb.

FIGURE 6.6 ANOMALOUS AREAS HIGHLIGHTED FROM 2007 AIRBORNE ELECTROMAGNETIC SURVEY



Source: *Webster and Wolfson (2010)*

6.1.2.6 2008 Drilling Program

Early in 2008, Celtic conducted a review of all the geophysical data to select potential drill targets. A total of 20 anomalies in five areas (Figure 6.5) were selected for possible follow-up by diamond drilling (see also Figures 6.2 to 6.4). As a result of this targeting exercise, 16 drill holes (2,714.97 m) were completed throughout the Property (Table 6.6), starting in February 2008. Drilling was undertaken by Cartwright Drilling of Goose Bay Labrador utilizing NQ size drill rods. The drill was supported by a helicopter supplied by Guardian Helicopters of Calgary, Alberta. Half drill core samples were cut on site and shipped to Eastern Analytical in Springdale NL for Fire Assay-ICP and limited quantitative base metal analysis. A base camp was established on site to support drill crews and Celtic support staff and the program. The program was supervised by Celtic personnel. Significant intercepts are presented in Table 6.7.

TABLE 6.6
2008 CELTIC DIAMOND DRILL HOLE COLLAR LOCATIONS, ORIENTATIONS, HOLE LENGTHS AND TARGETS

Drill Hole ID	Year	Core Size	UTM NAD27 Zone 21N		Elev. (m)	Az-imuth (°)	Dip (°)	Length (m)	Target
			Easting	Northing					
GB-08-01	2008	NQ	563,004	5,354,111	245	282	-70	287	Great Burnt
GB-08-02	2008	NQ	563,041	5,354,045	244	282	-73	378	Great Burnt
GB-08-03	2008	NQ	563,594	5,359,501	273	270	-45	103	End Zone
GB-08-04	2008	NQ	563,611	5,359,582	272	270	-45	113	End Zone
GB-08-05	2008	NQ	563,619	5,359,673	272	270	-45	117	End Zone
GB-08-06	2008	NQ	563,724	5,359,508	259	270	-50	146	End Zone
GB-08-07	2008	NQ	563,424	5,360,513	272	270	-45	157	Mud Pond
GB-08-08	2008	NQ	563,434	5,360,608	272	270	-45	130	Mud Pond
GB-08-09	2008	NQ	563,434	5,360,608	272	270	-70	281	Mud Pond
GB-08-10	2008	NQ	563,409	5,360,699	273	270	-45	250	Mud Pond
GB-08-11	2008	NQ	563,355	5,361,310	275	90	-45	98	South Pond
GB-08-12	2008	NQ	563,257	5,361,301	275	90	-45	99	South Pond
GB-08-13	2008	NQ	564,800	5,357,110	228	270	-45	101	Gut Pond
GB-08-14	2008	NQ	564,950	5,346,440	232	270	-45	174	Gut Pond
GB-08-15	2008	NQ	563,326	5,360,711	275	270	-45	182	Mud Pond
GB-08-16	2008	NQ	563,540	5,360,715	271	270	-55	99	Mud Pond

TABLE 6.7 SIGNIFICANT INTERCEPTS FROM THE 2008 GREAT BURNT DRILLING								
Drill Hole ID	**From (m)**	**To (m)**	**Core Length (m)**	**Approx. True Width (m)**	**Cu (%)**	**Au (g/t)**	**Zn (%)**	**Notes**
GBL-08-01	240.87	241.20	0.33	0.20	9.30	5.82	<0.10	breccia zone with calcite-chalcopyrite-pyrrhotite
and	248.89	250.11	1.22	0.80	0.26	3.06	<0.10	disseminated chalcopyrite in glassy mafic volcanic
and	258.57	259.92	1.35	0.90	1.74	0.58	<0.10	fractured mafic flow with chalcopyrite-pyrrhotite-calcite infill
GBL-08-02	326.23	328.21	1.98	1.60	0.17	1.01	<0.10	stringer pyrrhotite-chalcopyrite in calcite-quartz-chlorite matrix in tuff
GBL-08-09	254.80	255.73	0.93	0.70	0.08	1.21	<0.10	stringer pyrrhotite-chalcopyrite-quartz-chlorite in sedimentary rocks and tuff
GBL-08-15	80.30	80.79	0.49	0.48	0.09	2.47	<0.10	brecciated tuff with pyrrhotite-chalcopyrite-quartz

Celtic contracted Eastern Geophysics Ltd. to complete down-hole pulse EM surveys of selected drill holes. Using two loops, they surveyed seven drill holes: GB-01-07, GB-04-02, GB-08-01, GB-08-02, GB-08-07, GB-08-09 and GB-08-10. The BHEM survey results were not interpreted (Webster and Wolfson (2010).

6.1.3 2013 to 2014 Mineral Exploration by Pavey Ark

After acquiring the Property from Celtic in 2013, Pavey Ark focused on assembling and validating a drill database for the purpose of completing an NI 43-101 Technical Report and Mineral Resource Estimate.

Pavey Ark located most of the ASARCO casings that were identifiable by original metal tags (Figure 6.7). This work produced precise UTM coordinates for locating the drill holes. Celtic completed differential GPS surveys of most of the drill holes between 2001 and 2008 and a number of these have been subsequently verified by Pavey Ark (and by P&E during an independent site visit in October 2014).

FIGURE 6.7 ASARCO DRILL CASING AT GREAT BURNT COPPER DEPOSIT WITH TAG IDENTIFYING HOLE NUMBER

Source: *Pavey Ark (2014)*

6.2 HISTORICAL MINERAL RESOURCE ESTIMATES

ASARCO completed historical Mineral Resource estimates for the South Pond Copper and Great Burnt Copper Deposits. The reader is cautioned that the historical estimates are not compliant with NI 43-101 and therefore should not be relied upon. The historical estimates are superseded by the Mineral Resource Estimates provided in Section 14 of this Technical Report.

6.2.1 Great Burnt Copper Deposit

In 1969, ASARCO completed a cross-sectional Mineral Resource Estimate for the Great Burnt Copper Deposit based on 10 cross-sections at 61 m intervals. ASARCO estimated a historical Mineral Resource of 856,000 short tons at 3.13% Cu (Larsen, 1969). This historical estimate made no allowance for dilution and was based on a tonnage factor of 9 cubic feet per short ton. Diamond drilling indicated that mineralization continued southwards beyond section 46+00N and ASARCO inferred an additional 144,000 short tons.

In 1974, ASARCO evaluated to potential of developing the Great Burnt and South Pond Copper-Gold Deposits. Great Burnt was evaluated using decline access and sublevel open-stope mining methods over a four-year mine life. ASARCO used published costing data on equipment and infrastructure, and calculated an underground "reserve" of 800,000 short tons at 2.48% Cu for the Great Burnt Copper Deposit and an open-pit "reserve" of 240,000 tons at 1.07% Cu for the South Pond Deposit. The historical estimates used a tonnage factor of 9 cubic feet per short ton. ASARCO also assumed the material would be processed on-site and that the concentrate would be ocean shipped from Botwood, near Grand Falls-Windsor. Using an after-tax minimum rate of return of 10%, ASARCO calculated a required 1976 copper price of at least US$1.20 per pound.

6.2.2 South Pond Copper

ASARCO drilling indicated that the South Pond Copper-Gold Deposit is a shallow plunging zone of pyrrhotite-chalcopyrite mineralization. The best portion of the zone was estimated to be approximately 460 m long and up to 90 m deep. A historical Mineral Resource Estimate was completed using 11 EX-sized diamond drill holes on six cross-sections at 91 m spacing. ASARCO estimated the historical Mineral Resource as 250,000 short tons grading 1.23% Cu. The report estimated that 80% of the reported material was recoverable with 15% mining dilution suggesting a "reserve" of 240,000 short tons at 1.07% Cu. Subsequently, the British Newfoundland Exploration Ltd. ("Brinex") estimated the deposit to contain 323,000 short tons at 1.33% Cu based on a polygonal longitudinal-section calculation using the 11 intersections (Beavan, 1972).

6.3 RECENT MINERAL RESOURCE ESTIMATES

An NI 43-101 Technical Report completed by P&E for Spruce Ridge, with an effective date of September 4th, 2015, estimated Mineral Resources for the Great Burnt Copper Deposit and the South Pond "A" Copper-Gold Deposit (Table 6.8). Note that for the Great Burnt Copper Deposit, Mineral Resources were estimated for the Main, Lower and North Stringer Zones.

TABLE 6.8
GREAT BURNT 2015 MINERAL RESOURCE ESTIMATE AT 1.0% CU CUT-OFF (1-4)

Classification	Tonnes	Grade Cu (%)	Cu (Mlb)
Great Burnt Main			
Indicated	360,000	2.65	21.0
Inferred	239,000	2.44	12.9
Great Burnt Lower Zone			
Indicated	22,000	3.23	1.6
Inferred	424,000	2.23	20.8
North Stringer Zone			
Indicated	13,000	1.24	0.4

TABLE 6.8
GREAT BURNT 2015 MINERAL RESOURCE ESTIMATE
AT 1.0% CU CUT-OFF (1-4)

Classification	Tonnes	Grade Cu (%)	Cu (Mlb)
South Pond Deposit			
Indicated	47,000	1.38	1.4
Inferred	166,000	1.30	4.8
Total			
Indicated	442,000	2.50	24.4
Inferred	829,000	2.11	38.6

1) Mineral Resources, which are not Mineral Reserves, do not have demonstrated economic viability. The estimate of Mineral Resources may be materially affected by environmental, permitting, legal, title, taxation, sociopolitical, marketing, or other relevant issues, although Spruce Ridge is not aware of any such issues.
2) The quantity and grade of reported Inferred Mineral Resources in this estimation are uncertain in nature and there has been insufficient exploration to define these Inferred Mineral Resources as an Indicated or Measured Mineral Resource and it is uncertain if further exploration will result in upgrading them to an Indicated or Measured Mineral Resource classification.
3) The Mineral Resources were estimated using the Canadian Institute of Mining, Metallurgy and Petroleum (CIM), CIM Standards on Mineral Resources and Reserves, Definitions and Guidelines.
4) Values in the table may differ due to rounding.

In a Company news release dated April 18, 2019, the South Pond "A" Zone Mineral Resource Estimates were revised by P&E after additional documentation on copper and gold assays in the 1980s were located (Table 6.9). The increase in Mineral Resource Estimates was considered immaterial and a Technical Report was not required.

TABLE 6.9 GREAT BURNT MINERAL 2019 MINERAL RESOURCE ESTIMATE AT 1.0% CU CUT-OFF			
Classification	**Tonnes**	**Grade Cu (%) [Au (g/t)]**	**Contained Metal Cu (lb) [Au(oz)]**
Great Burnt Main Zone			
Indicated	360,000	2.65	21,000,000
Inferred	239,000	2.44	12,900,000
Great Burnt Lower Zone			
Indicated	22,000	3.23	1,600,000
Inferred	424,000	2.23	2,080,000
North Stringer Zone			
Indicated	13,000	1.24	400,000
South Pond "A" Deposit			
Indicated	47,000	1.77 [1.61 g/t Au]	1,800,000 [2,400]
Inferred	191,000	1.51 [1.06 g/t Au]	6,500,000 [6,500]
Totals			
Indicated	442,000	2.55	24,800,000 [2,400]
Inferred	854,000	2.13	40,200,000 [6,400]

P&E's 2015 and 2019 Mineral Resource Estimates summarized above are superseded by the current updated Mineral Resource Estimates completed by P&E and described in Section 14 of this Technical Report.

7.0 GEOLOGICAL SETTING AND MINERALIZATION

The following geological write-ups in sub-sections 7.1 to 7.3 below are primarily summarized from Webster and Wolfson (2010).

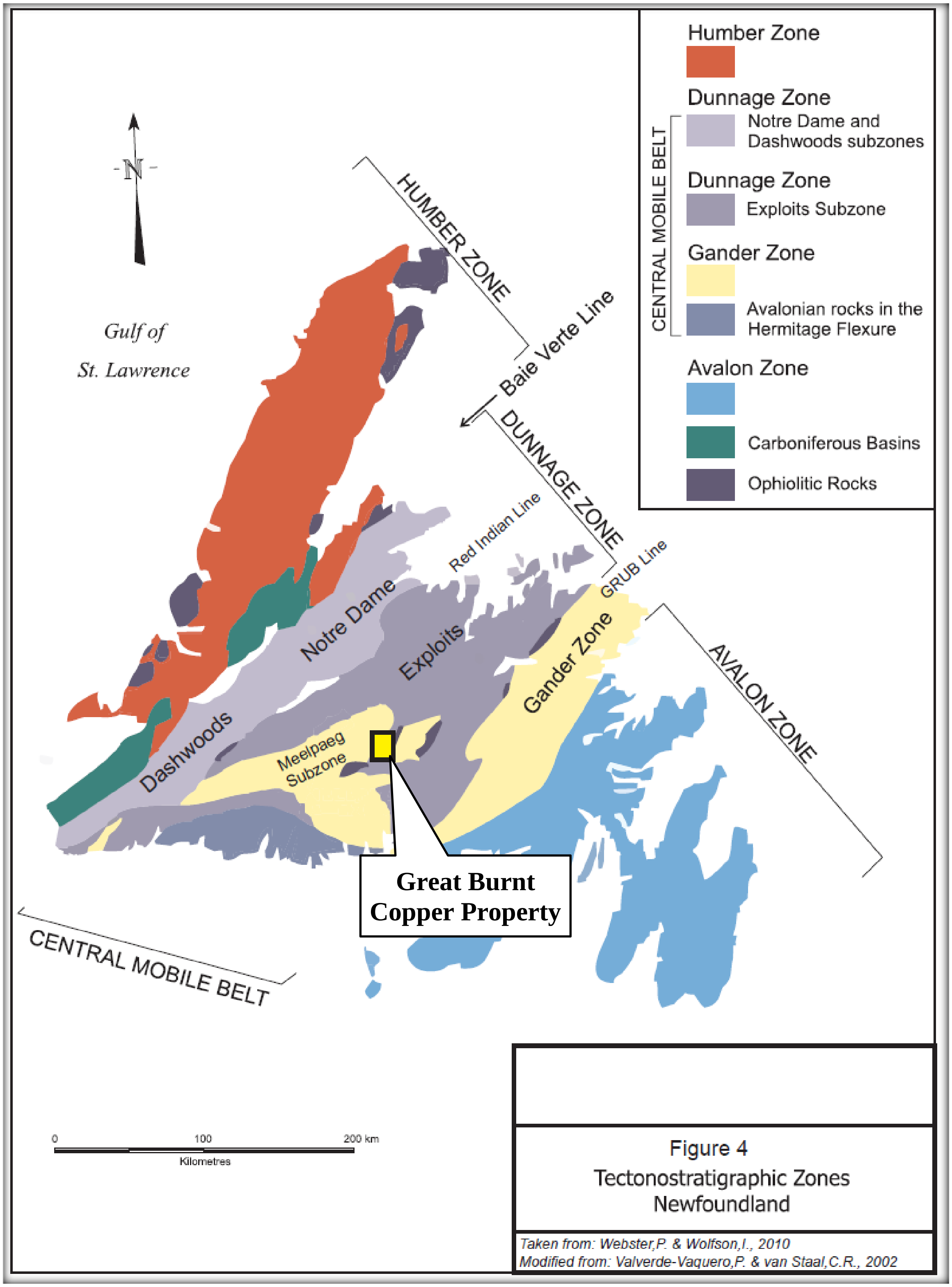
7.1 REGIONAL GEOLOGY

The Great Burnt Copper Deposit is hosted by rocks of the Dunnage Zone that contains the majority of polymetallic volcanogenic massive sulphide ("VMS") deposits in Newfoundland, including Teck's past-producing Duck Pond Mine and the world-class past-producing Buchans Deposits. On the Great Burnt Property, the Dunnage Zone consists of greenschist facies Ordovician metavolcanics, metasedimentary rocks and an ophiolitic complex that formed within island-arc and back-arc basins. The Property straddles the fault boundary between the Exploits Subzone of the Dunnage Zone and the Meelpaeg Subzone of the Gander Zone (Figure 7.1).

The Dunnage Zone consists of remnants of Iapetus oceanic crust with conformably overlying island arc volcanic and associated sedimentary rocks, and is sub-divided into the Notre Dame, Dashwoods, and Exploits Subzones (Figure 7.1). The Dunnage Zone is considered to have been obducted over the Gander Zone in a west-southwest direction during the Early or Middle Ordovician. The Exploits Subzone is fault-bounded to the west by the Dashwoods-Notre Dame Subzone along the Red Indian Line. To the east, the Exploits Subzone is in fault contact with the Gander Zone (continental siliciclastic sedimentary rocks, gneisses and granites) along the Gander River Ultrabasic Belt ("GRUB") Line.

The Exploits Subzone is composed of remnants of oceanic arc and back-arc complexes that formed during the Cambro-Ordovician within the eastern part of the Iapetus Ocean, close to the ancient continent of Gondwana. Within the eastern half of the Exploits Subzone are Upper Cambrian back-arc ophiolitic complexes (e.g., Pipestone Pond) localized along the faulted boundary with arenites and shales of the Gander Zone (which includes the Meelpaeg Subzone).

FIGURE 7.1 REGIONAL GEOLOGY SHOWING MAJOR TECTONIC ZONES OF NEWFOUNDLAND

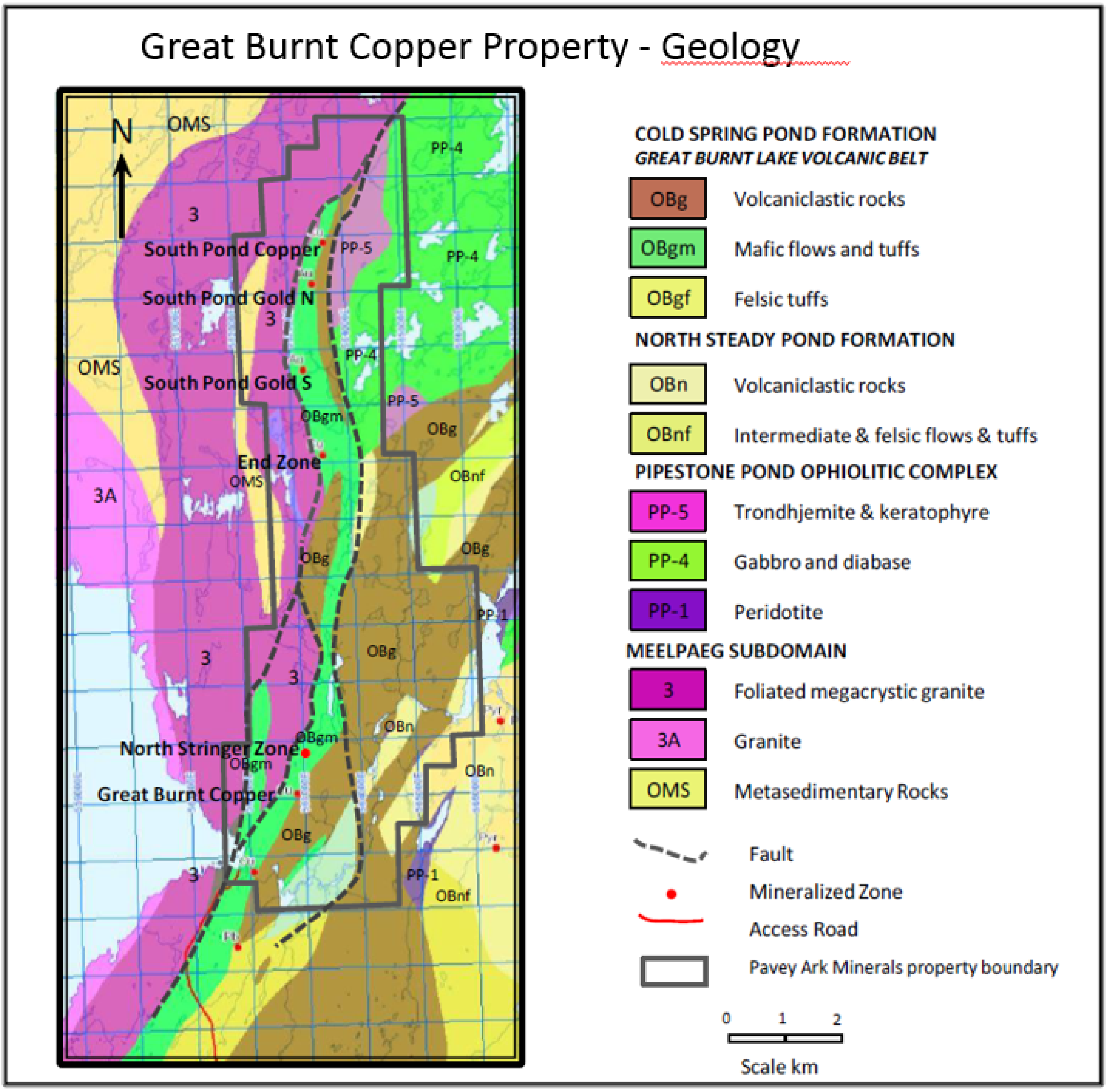


Source: *Webster and Wolfson (2010)*

7.2 LOCAL GEOLOGY

The Great Burnt Property contains three diverse geological terranes. From west to east, these are: the Meelpaeg Subzone, the Great Burnt Lake Volcanic Belt and the Pipestone Pond Ophiolite Complex (Colman-Sadd and Swinden, 1982) (Figure 7.2).

FIGURE 7.2 GEOLOGY OF THE GREAT BURNT PROPERTY



Source: *Geology from NL Department of Natural Resources Website (January 2015)*

7.2.1 Great Burnt Lake Metavolcanic and Metasedimentary Belt

The northeast-southwest trending belt of metavolcanic and metasedimentary rocks that host the main mineralization on the Great Burnt Property, including the Great Burnt Copper and South

Pond Copper-Gold Deposits, is part of the Cold Spring Pond Formation in the Early to Middle Ordovician Baie d'Espoir Group. This north-northeast-trending belt of volcano-sedimentary rocks has been traced from approximately 3.2 km south of Great Burnt Lake to the South Pond area. On the Property, this belt ranges in width from 100 to 750 m, averaging approximately 300 m wide.

Green to grey, fine to medium-grained, psammitic to pelitic ± graphite turbiditic sedimentary rocks are the dominant lithology in the volcano-metasedimentary belt. The sedimentary rocks are interbedded with lenses of tholeiitic volcanic flows and tuffs. The volcanic assemblage makes-up approximately 30% of the belt and consists mainly of massive to pillow basalts, felsic crystal and lapilli tuffs, and mafic tuffs. Minor felsic volcanic rocks occur to the east of the mafic rocks, mainly south and east of Great Burnt Lake. The Cold Spring Pond Formation is in fault contact with the other formations in the area. Its eastern margin is marked by a major north- to northeast-trending fault. Its western margin is a reverse fault against the Meelpaeg Subzone. To the south, the formation is in fault contact with the Pipestone Pond ophiolitic rocks. The volcanic belt eventually pinches out to the north near Gulp Pond, between the western reverse fault and a boundary fault with the Pipestone Pond ophiolites.

Below the dam at Great Burnt Lake, a suite of epidotic, metabasaltic pillow lavas and pillow breccias is interbedded with tuffs and bedded dark shales, all intruded by swarms of diabase dykes and sills. The suite may represent a conformable cover above an ophiolite suite, subsequently separated from it by faulting (Piasecki, et al., 1990).

The most commonly mapped volcanic rocks consist of green to grey-green, very fine-grained and well-foliated aphyric and plagioclase-phyric mafic flows and tuffs, composed principally of chlorite with minor actinolite and local biotite. Accessory titanite, magnetite, leucoxene and apatite are also reported (McBride, 1977). The flows typically have a uniform and massive appearance; pillow selvedges are not typically observed, but possible flow breccias have been mapped. The tuffs are represented by ash to lapilli tuffs and agglomerates and rare heterolithic, fragment-supported tuff-breccia. Clasts tend to be subrounded and heterolithic, commonly light grey and very-fine grained, with minor dark green and flattened chlorite-rich fragments. Where present, the plagioclase phenocrysts are light grey, subhedral and average approximately 1 mm in size (Desnoyers, 1991).

The metasedimentary rocks occur as narrow, discontinuous bands interfingering with the mafic volcanics. They are typically fine-grained argillite, greywacke and wacke/siltstone (Desnoyers, 1991). The most common metasedimentary rock is medium grey to black argillite. The rock is typically fine-grained to aphanitic, locally graphitic, locally silicified (in drill core), well-bedded or strongly foliated and locally folded and crenulated (Desnoyers, 1991). The greywacke unit rarely occurs as thin, discrete layers; it is more commonly found as clasts within argillite. It is light grey, fine- to medium-fine grained and more massive than the other sedimentary rocks.

Rocks of Baie d'Espoir Group are considered to represent the development of an Early to Middle Ordovician island arc and back-arc basin on oceanic crust, represented by the ophiolitic complex. This "early arc" sequence records the initial building of volcanic island arcs on oceanic crust, following the onset of subduction. The felsic and mafic volcanic rocks of the Cold Spring Pond Formation show depletion of sodium and calcium and local enrichment of potassium.

7.2.2 Meelpaeg Subzone

Rocks of the Meelpaeg Subzone occur on the western side of the Great Burnt Property (Webster and Wolfson, 2010). This Ordovician terrane locally comprises variably deformed, locally gneissic, porphyroblastic granitoids and psammitic to semi-pelitic paragneiss and schist metamorphosed under upper greenschist to lower amphibolite-grade facies. The most characteristic feature of these rocks is the abundant pink to white microcline phenocrysts >4 cm in size. The eastern contact of the Meelpaeg Subzone with the Great Burnt Lake Volcanic Belt and the Pipestone Pond Complex is commonly a high-angle reverse fault marked by a mylonitic zone of intensely sheared and folded metasedimentary and metavolcanic rocks, cataclastic crush zones and local sheared and serpentinized peridotite slivers (or possibly an ophiolitic mélange), up to 2 km wide, which can be traced for some 70 km.

At the southern end of Cold Spring Pond, large blocks of serpentinized dunites accompanied by common blocks of quartzite and metasiltstone occur within a chaotic, mylonitic mélange of unbedded, black graphitic phyllonite approximately 500 m wide. This mélange represents the "docking" of the ophiolitic Dunnage oceanic crust over the clastic rocks of the westward Gander Zone during the Early to Middle Ordovician (Piasecki, 1990).

7.2.3 Pipestone Pond Ophiolite Complex

This westward-facing stratigraphic succession of mafic and ultramafic rocks occurs at the eastern side of the Great Burnt Property and represents Ordovician or earlier oceanic crust that was tectonically emplaced on the Gondwanan continental margin east of the Iapetus Ocean during Late Silurian or Early Devonian. The Pipestone Pond ultramafic complex on the eastern side of the Property is one of three main mafic-ultramafic complexes in the region (Webster and Wolfson, 2010).

The stratigraphically lowest rock units of the Pipestone Pond Complex are harzburgite, serpentinized pyroxenite, and minor dunite that pass westwards into pyroxenite and gabbro with smaller amounts of diabase and plagiogranite and mafic volcanic rocks. These rocks form distinctive outcrops; massive peridotite that weathers brown, whereas sheared and serpentinized peridotite that has undergone magnesite alteration typically weathers brownish-red. Leucocratic plagiogranite contains resistant quartz crystals that stick out as knobs on weathered surfaces.

Early reverse faults, dipping moderately to steeply westward and interpreted as eastward directed thrusts, juxtapose Pipestone Pond Complex with the Cold Spring Pond Formation (McBride, 1977).

7.2.4 Structure

The Great Burnt Lake region underwent two periods of deformation: 1) folding of the stratigraphy into steeply-dipping, isoclinal folds (D1); and 2) then refolded of the folded stratigraphy (D2) (McBride, 1977).

The main deformation (D1) formed common tight to isoclinal folds in the sedimentary rocks (Swinden, 1988), as shown by regional schistosity (S1), stretching, and intersection lineations

(L1). The most pervasive feature is a weak to strong, northerly-trending foliation in all lithologies. In the area of Great Burnt Lake, the foliation generally strikes approximately 20° and dips 75° east. The lineations trend 190° and plunge 30°. This deformation is considered to have boudinaged the mineralized horizons on the Property, forming pinch-and-swell zones. An axial planar cleavage is associated the D1 folds (McBride, 1977).

The second period of deformation (D2) is represented by a steeply-dipping crenulation cleavage striking approximately 60°, which occurs sporadically throughout the region. The minor folds associated with D2 plunge steeply southeast to northeast, depending on the attitude of the schistosity. The minor folds have an "S"-shaped asymmetry and generally are centimetre to 0.5 m in size. Locally, the D2 event folds the D1 cleavage around moderately open, asymmetrical folds with steep eastern limbs. In the Great Burnt Lake Volcanic Belt, F2 folds have axes that trend to the northwest (Swinden, 1988).

Peak metamorphism of lower to middle greenschist facies occurred during and shortly after the D1 deformational event and prior to D2 during the Acadian Orogeny. Local higher-grade metamorphic facies occur in the southern part of the Baie d'Espoir Group, west of the Great Burnt Lake volcanic belt and east of the Pipestone Pond Ophiolite Complex.

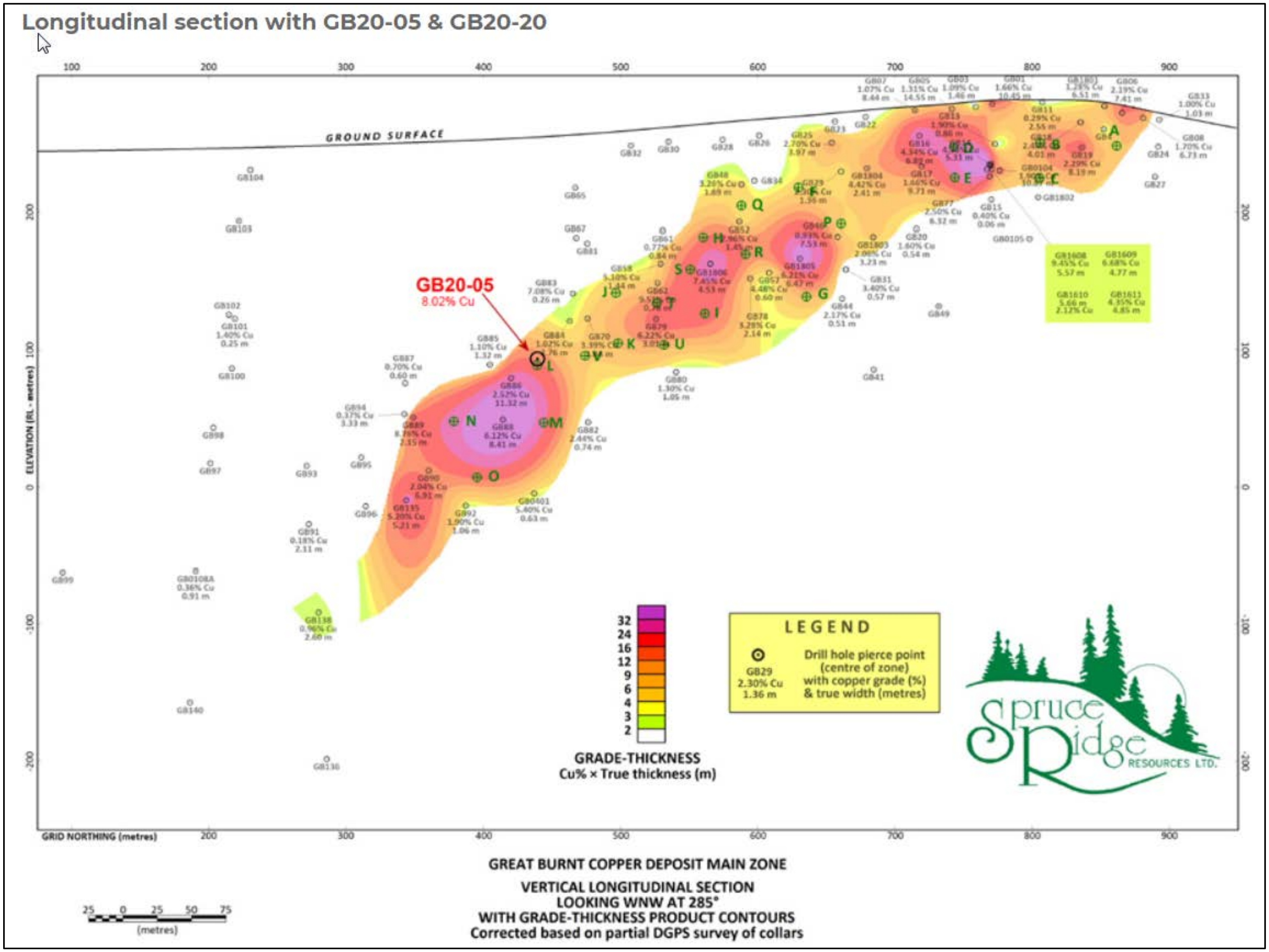
7.3 MINERALIZATION

Four deposits of copper ± gold mineralization have been delineated on the Great Burnt Property: 1) Great Burnt Copper Deposit; 2) South Pond "A" Copper-Gold Zone; 3) South Pond "B" Gold Zone; and 4) End Zone Copper Prospect. The mineralization in each of these four deposits plus the Northern Zone, is described below. It is the Great Burnt Copper Deposit and the South Pond "A" Deposit that are subject to the Mineral Resource Estimates in Section 14 of this Technical Report.

7.3.1 Great Burnt Copper Deposit

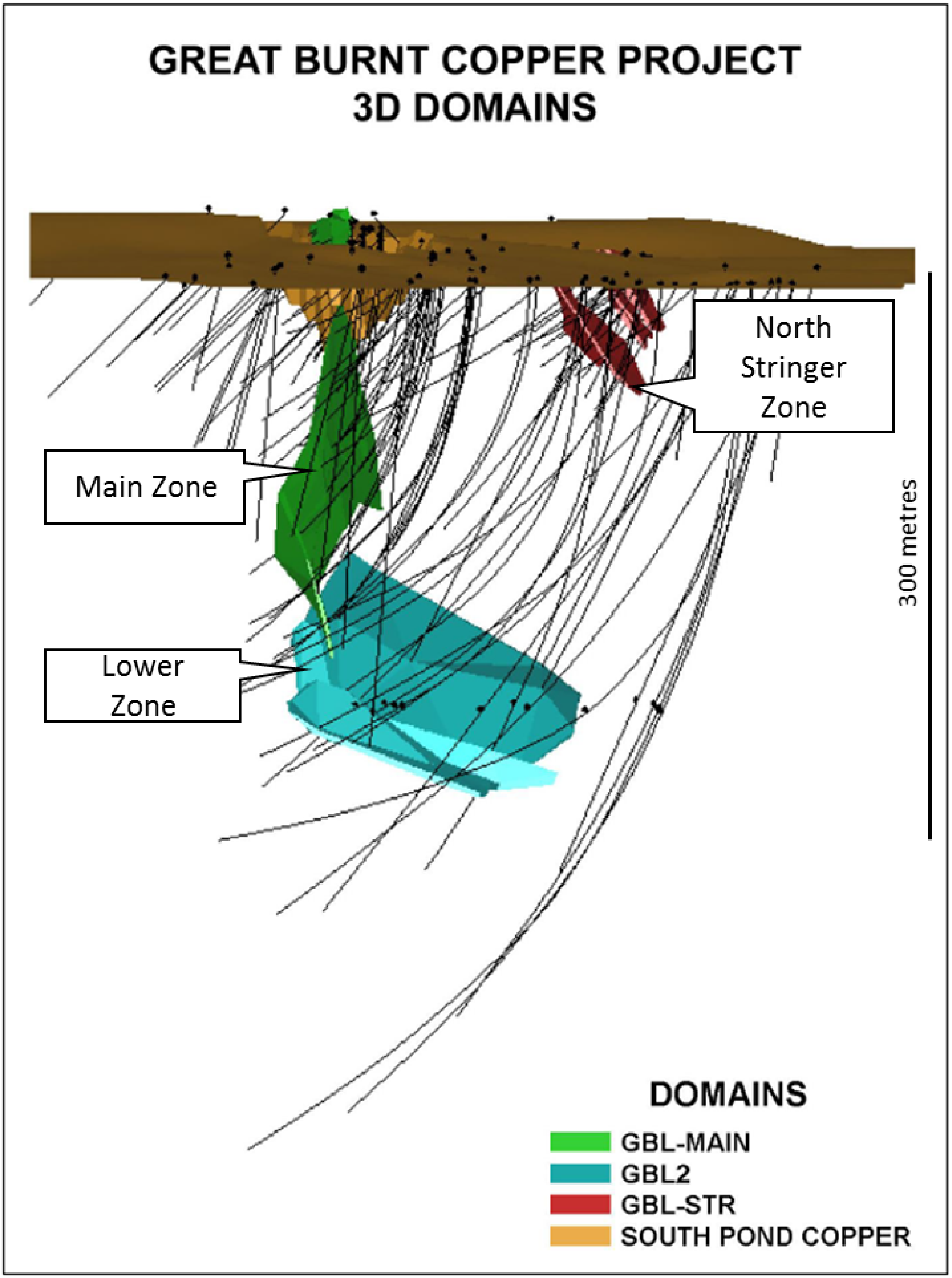
The Great Burnt Copper Deposit is a stratabound, tabular body of pyrrhotite-chalcopyrite mineralization within an interfingering mafic volcanic-metasedimentary contact (Bond and Delaney, 2005). The mineralization strikes approximately 10° to 20° and dips 65° to 80° to the southeast, with a 30° plunge to the south-southwest (Figure 7.3). The mineralization has a plunge length of approximately 600 m, pinches and swells from 2 m to 13 m in width along the plunge axis (McBride 1977), and has an average vertical extent of 120 m with a horizontal (plan) length of 210 m. P&E divided the Great Burnt Copper Deposit into three mineralized zones for the wireframe modelling of the drill hole database: the Main Zone, Lower Zone and North Stringer Zone (Figure 7.4).

FIGURE 7.3 LONGITUDINAL PROJECTION OF GREAT BURNT COPPER DEPOSIT WITH 2020 DRILLING



Source: *Spruce Ridge website (July 2021)*

FIGURE 7.4 3-D VIEW SHOWING THE THREE ZONES OF THE GREAT BURNT COPPER DEPOSIT



Source: *P&E (2015) and Spruce Ridge technical presentation (June 2016).*

Mineralization consists of disseminated to massive and banded, fine- to medium-grained pyrrhotite with coarse chalcopyrite, minor sphalerite and galena, and rare pyrite (Figure 7.5). Pyrrhotite is the dominant sulphide mineral present and occurs generally as massive layers, whereas chalcopyrite forms large blebs within the massive pyrrhotite and discrete layers of massive mineralization up to 6 cm thick. The main mineralized zone carries sulphide concentrations ranging from <40 to 90%. Zinc mineralization was reported by Celtic from drill hole GB-01-07, where assays of a 2.71 m zone of massive sulphide mineralization returned 1.33% Cu and 2.11% Zn (Bond and Delaney, 2005).

FIGURE 7.5 MASSIVE SULPHIDE INTERSECTION FROM 2016 DRILL HOLE GB-01-07 IN GREAT BURNT COPPER DEPOSIT

Source: *Spruce Ridge technical presentation (June 2016)*

A stringer zone of mainly pyrrhotite-chalcopyrite occurs in the upper portions of the Deposit, which suggests proximity to hydrothermal discharge. Farther down-plunge, mineralization becomes more massive and contains pyrrhotite-chalcopyrite-sphalerite in discrete en-echelon lenses up to 14 m wide. The lenses have been interpreted to be primary deposits or a boudinaged and (or) folded and transposed horizon (McBride, 1979; Bond and Delaney, 2005).

The mineralization is hosted by interbedded mafic volcanics and metasedimentary rocks composed of dark green, fine-grained chloritic and actinolitic mafic volcanic tuffs and minor lapilli tuffs interfingered, and in gradational contact with, fine-grained, massive amphibolitic to well-banded biotitic to locally graphitic greywacke and siltstone (McBride, 1979). McBride (1977) noted that mafic volcanics near higher concentrations of sulphides are typically greyish and more siliceous with or without sericite.

The contact between sulphide mineralization and wall rock varies from sharp to gradational with disseminated mineralization. Colman-Sadd and Swinden (1982) interpreted the eastern contact to be the stratigraphic footwall, with 30 to 40 m of the footwall being weakly altered to black chlorite and, locally, quartz with associated stringers of pyrite, pyrrhotite and chalcopyrite. The hanging wall to the west shows little evidence of alteration or mineralized contact between massive sulphide and barren rock. Wallis (2000) described the immediate footwall and hanging wall contacts as sharp with little visible alteration and suggested that the sulphide mineralization had been detached from the footwall stringer zone (found at the North Stringer Zone) during D1 deformation.

The Great Burnt Copper Deposit has an airborne EM geophysical response and an associated moderate magnetic anomaly. A weak copper-zinc soil geochemical anomaly occurs immediately east of the airborne EM anomaly and the Deposit (Bond and Delaney, 2005).

7.3.2 North Stringer Zone

The North Stringer Zone is located approximately 200 m northeast of the Great Burnt Copper Deposit (Figure 7.4). The North Stringer Zone consists of weakly altered and mineralized rocks that have been delineated along a strike-length of 335 m and to a vertical depth of 50 m in 20 EX diamond drill holes. The surface expression of this Zone is characterized by a moderate strength VLF-EM anomaly over a strike length of 400 m with a coincident high magnetic anomaly over 300 m (Collins, 1996).

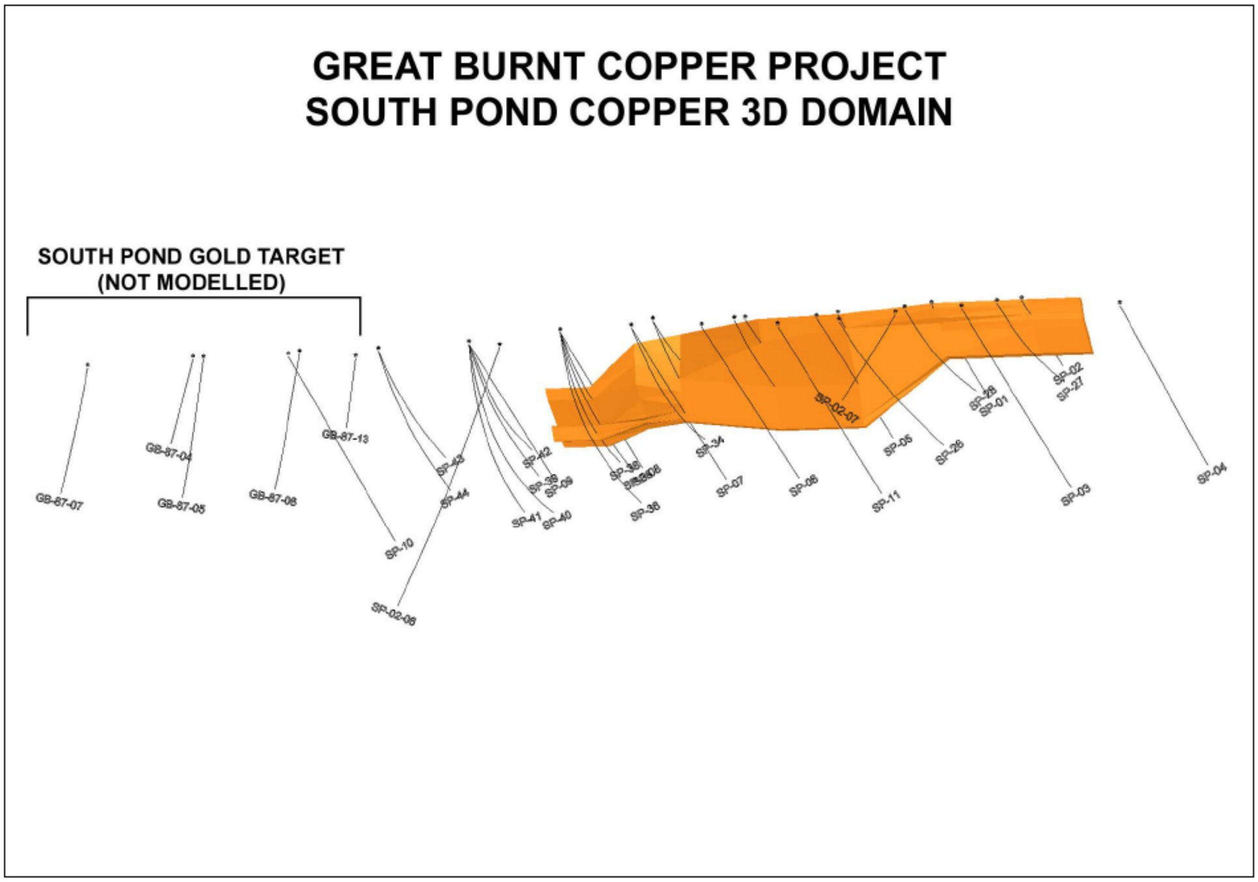
The North Stringer Zone consists of 3 to 20% stringer and disseminated pyrrhotite ± chalcopyrite mineralization in variably chloritized mafic volcanic flows, tuffs and variably graphitic argillites. All of the mineralization occurs in a very fine-grained, hard and silicified dark grey to black host rock that is difficult to identify as either volcanic or sedimentary in origin (Bond and Delaney, 2005). The host rock is very similar to that of the upper portion of the Great Burnt Copper Deposit.

The North Stringer Zone has been interpreted to be the possible sheared-off stringer footwall zone to the Great Burnt Copper Deposit (Wallis, 2000). The Zone may also represent a folded repeat of the horizon hosting the Great Burnt Lake Deposit and could be the edge of a larger mineralized trend that exists farther down-plunge (McBride, 1979).

7.3.3 South Pond “A” Copper-Gold Deposit

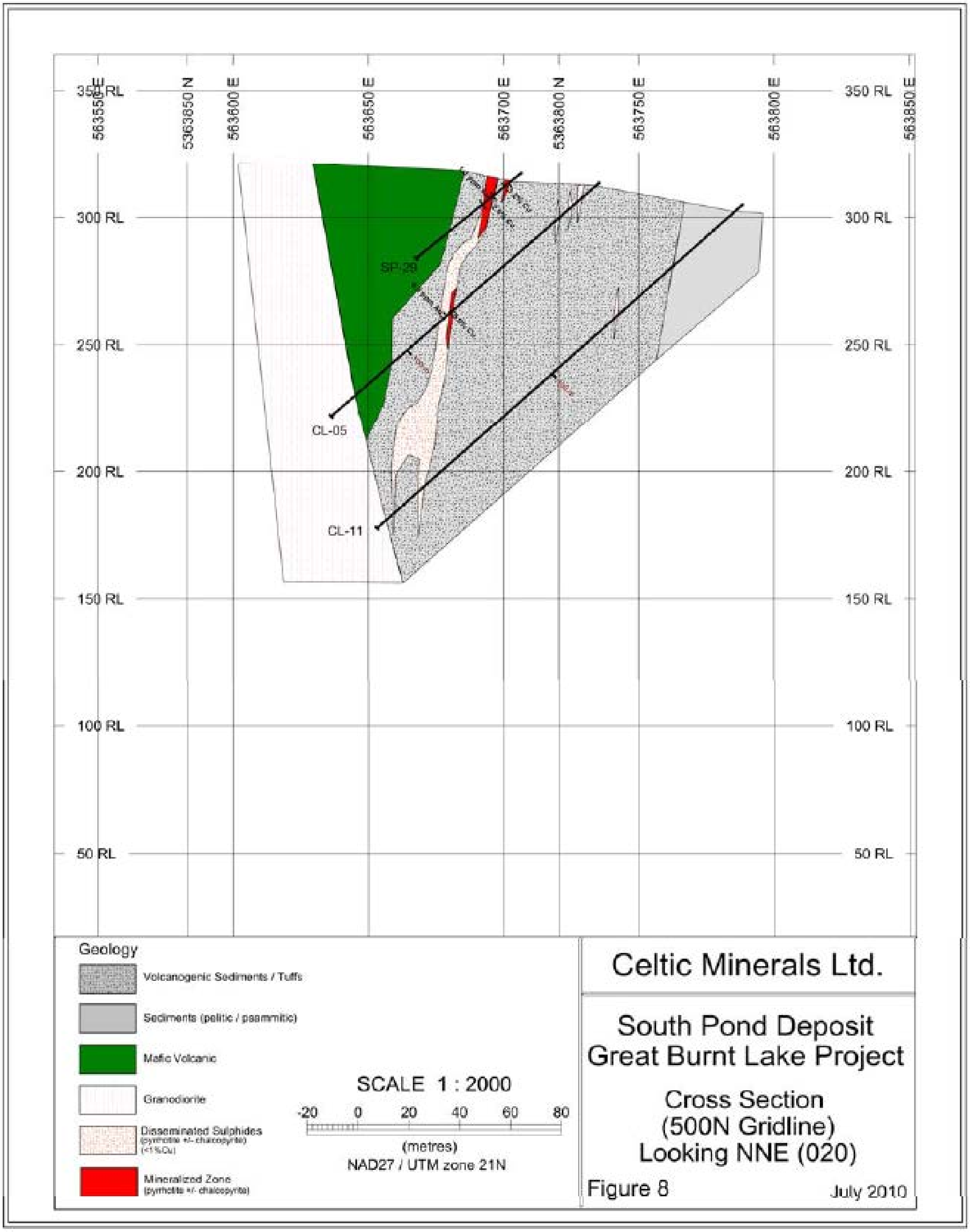
The South Pond “A” Deposit (also known as the South Pond Copper-Gold Deposit) is located 10 km north of the Great Burnt Copper Deposit and 3 km southwest of South Pond (Figure 7.2). The mineralization occurs at a similar stratigraphic level and within similar lithologies to the Great Burnt Copper Deposit. The South Pond “A” Deposit has a 914 m north-easterly strike-length and dips 60° to the west (Figures 7.6 and 7.7). This deposit has been delineated in approximately 30 drill holes to a maximum vertical depth of 152 m, is up to 15 m wide (Collins, 1995a), and discordant to bedding and foliation (Swinden, 1988; Desnoyers, 1991).

FIGURE 7.6 3-D MINERALIZED DOMAIN MODEL OF THE SOUTH POND “A” DEPOSIT



Source: *P&E (2015)*

FIGURE 7.7 CROSS-SECTION OF THE SOUTH POND "A" DEPOSIT



Source: *Webster and Wolfson (2010)*

Mineralization in the South Pond "A" Deposit consists of disseminated to semi-massive pyrrhotite (up to 40%) with 1 to 2% disseminated blebs of chalcopyrite, minor pyrite and rare local arsenopyrite in variably silicified, sheared and locally brecciated mafic volcanic flows and tuffs. Host rocks of the Deposit consist of pillow lava, mafic tuff and fine to medium grained clastic sedimentary rocks in the form of hornblende-albite-biotite-epidote schist and hornfels interbedded with graphitic schist, cherts, quartzite and lesser mica schist and phyllite (Larsen, 1969). The rocks are moderately chloritized with pervasive carbonate alteration in the form of concordant calcite veinlets or fine-grained disseminations (Desnoyers, 1987). The boundaries of the Deposit are gradational and reflect a decrease in total sulphide content and chalcopyrite.

7.3.4 South Pond "B" Gold Zone

The South Pond "B" Zone Gold Zone (also known as South Pond Gold Zone) is an advanced exploration target located one km south of the South Pond "A" Copper-Gold Deposit (Figure 7.2), has been delineated by approximately 4,200 m of BP drilling from 1987 to 1989 (see Figure 6.1, right side). The drilling defines the Zone over approximately 1,400 m in a north-south direction. The Zone is located approximately 600 m south of the South Pond Copper-Gold Deposit and occupies a similar stratigraphic horizon, such that the combined zones occur over 2.0 km of strike length of near surface gold-copper mineralization.

Desnoyers (1991) described the gold mineralization as being associated with disseminated to semi-massive pyrrhotite with 1 to 2% chalcopyrite and minor pyrite. High gold values are associated with elevated copper values. Typical gold assays ranged from 100 to 3,000 ppb, with the highest value of 13.37 g/t Au over 1.17 m in drill hole GB-87-12.

The host rocks consist of mafic metavolcanic and volcaniclastic sediments of the Cold Spring Formation that have been strongly deformed. The rocks display a strong penetrative foliation that strikes north-to-northeast and dips near-vertically.

7.3.5 End Zone Prospect

The End Zone Prospect is a geochemical, gravity, magnetic and EM anomaly located to the south of South Pond Gold Zone and six km north of the Great Burnt Main Zone (Figure 7.2). Historical samples from mineralized boulders in the End Zone area returned assays of up to 13% Cu and 2.5% Zn. The bedrock source of the boulders remains to be determined.

8.0 DEPOSIT TYPES

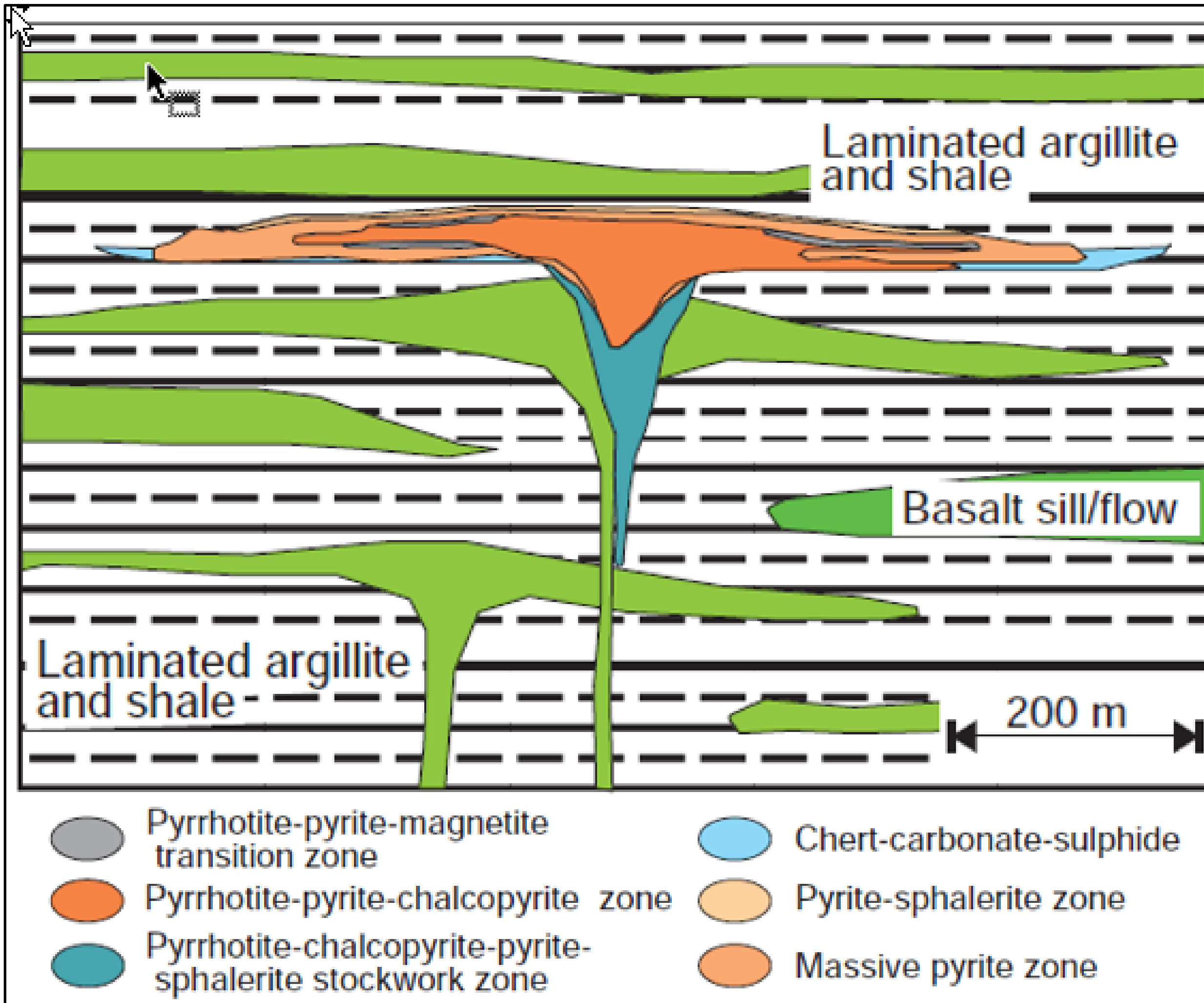
Copper mineralization at the Great Burnt Copper Deposit occurs within metavolcanic-metasedimentary rocks that include reworked tuffs, volcaniclastics and clastic sediments associated with mafic volcanics that are interpreted to have formed in a back-arc basin. This type of sedimentary rock-dominated volcanogenic massive sulphide ("VMS") mineralization has historically been classified as "Besshi-type" (Bond and Delaney, 2005), after the Besshi district of Japan (Figure 8.1). More recently, this type of mineralization has also been classified as mafic-siliciclastic or mafic-pelitic VMS (Galley et al., 2007).

In this environment, sulphide mineralization is formed by focused discharge of metal-enriched hydrothermal fluids, at or near the seafloor in submarine volcanic environments, forming lenses of polymetallic massive sulphide. Such deposits are mound-shaped to tabular bodies of sulphides within enclosing strata ("stratabound"), with an underlying discordant to semi-concordant stockwork of veins and disseminations of sulphides. Upper contacts between sulphide and host rock tend to be sharp, whereas the lower contacts are typically transitional into a stringer zone consisting of disseminated and vein chalcopyrite, pyrrhotite ± pyrite within silica- and (or) chlorite-altered host rocks. Alteration zones are not as marked as in volcanic-dominated regions (Galley et al., 2007).

Piercey (2007) noted similarities between the mineralization at Great Burnt Copper Deposit and the Rambler VMS deposits located to the north in the Baie Verte Peninsula area of Newfoundland. Both have elevated gold grades and occur proximal to ophiolitic complexes. The Rambler deposits are considered part of the upper zones of a segmented ophiolitic complex (i.e., the Betts Cove Complex). The Great Burnt Copper Deposit occurs in mafic volcaniclastics of the Cold Spring Pond Formation, proximal to the Pipestone Pond Ophiolitic Complex to the east.

Gold is a component of mineralization at the South Pond Deposit, the South Pond Gold Zones, and has been identified at the Great Burnt Copper Deposit itself. The South Pond Gold Zones occur within a strongly foliated area that has been termed the "South Pond Deformation Zone". Whether the gold mineralization is syngenetic or epigenetic in origin remains to be determined.

FIGURE 8.1 "BESSHI" OR MAFIC-SILICICLASTIC SUB-TYPE OF VMS DEPOSITS



Graphic representation of the Pelitic-Mafic (or Mafic-Siliciclastic) lithological sub-type classification of VMS deposits

Source: *Galley et al (2007)*

9.0 EXPLORATION

Spruce Ridge completed several desktop and field exploration programs and activities since it acquired the Great Burnt Property in 2015. The nature and results of these exploration programs are summarized below. The drilling components of the exploration programs are summarized in Section 10 of this Technical Report.

9.1 2015 EXPLORATION DATA REVIEW AND COMPILATION

Spruce Ridge obtained complete drill logs from Buchans and ASARCO for their drilling on the Great Burnt Property between 1951 and 1971. These data make-up a large proportion of the drill database for the Great Burnt Copper and South Pond Copper-Gold Deposits.

The drill logs contain header information with drill hole number, local grid coordinates, collar elevation, azimuth, dip, depth of hole, start date, completion date, and drill core size. The drill logs contain footage intervals, geological descriptions, drill core recovery, economic comments, and assays for Au, Ag, Cu, Zn, Pb. Downhole survey information with footage, dip and azimuth at nominal 15 m intervals is provided. Appended to the drill logs are ASARCO assay certificates dated and signed by the assayer providing the assay number, drill hole number and sample interval with assay results for Au, Ag, Cu, Zn, Pb.

As discussed in Section 6 of this Technical Report, Pavey Ark located the majority of the ASARCO casings and measured precise UTM location coordinates for the drill hole collars. Celtic also completed differential GPS surveys for most of the holes drilled between 2001 and 2008 and a number of these were also verified by Pavey Ark and by P&E during their independent site visit in October 2014.

In July 2015, Spruce Ridge carried out a review of all drill holes completed on the Great Burnt Property drilled to the north and south of the Main Zone. Follow-up sampling of archived drill core in the Buchans drill core library took place between July 18 and 27 of 2015, resulting in a total of 173 samples being sent for assay. Findings of the historical sampling program are discussed in Section 11.

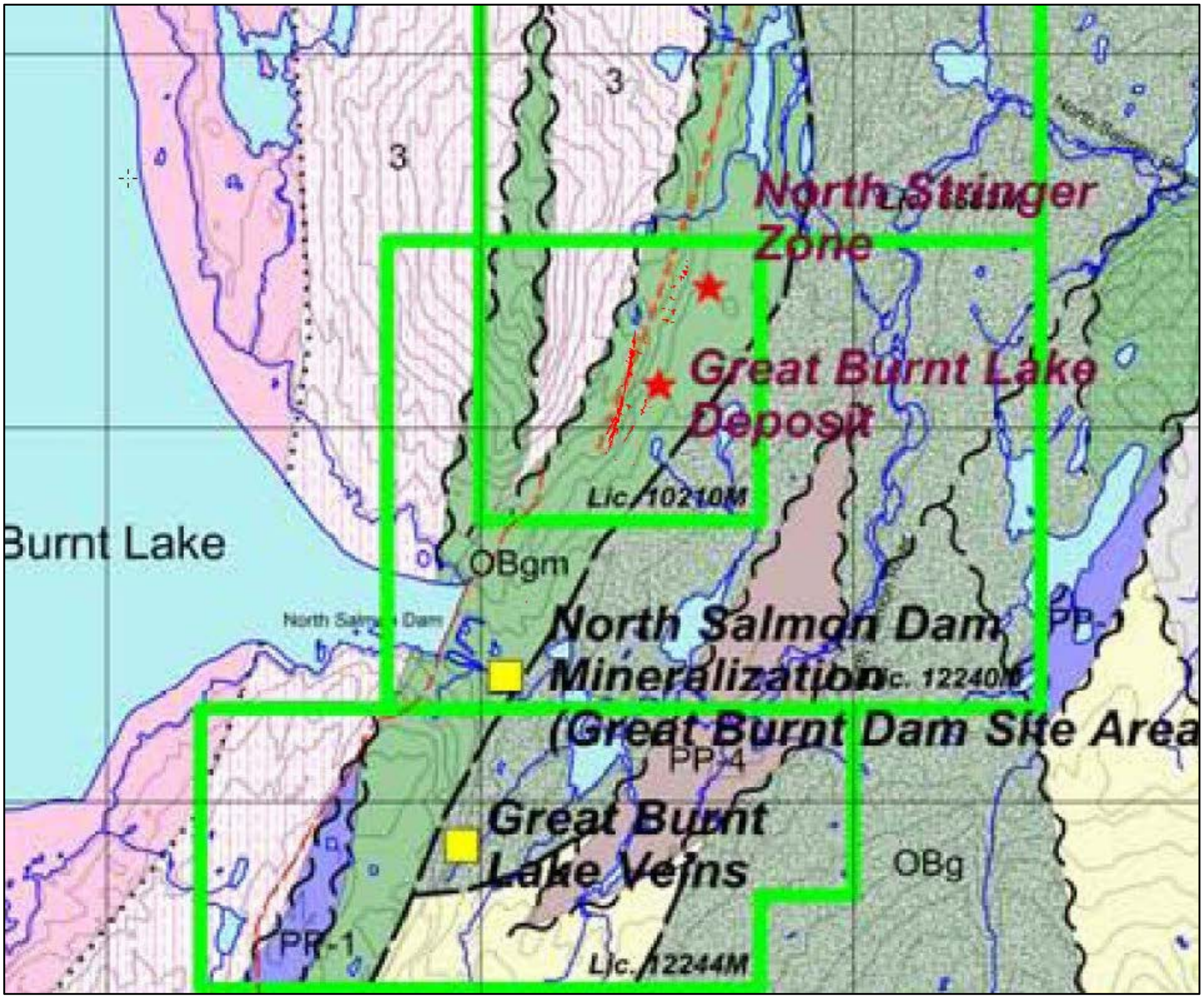
9.2 2018 AIRBORNE GEOPHYSICAL REVIEW

In 2018, Spruce Ridge received a preliminary review and assessment of historical airborne EM and magnetic surveys flown over the Great Burnt Property. The work was carried out by Mr. Steve Balch, P. Geo., President and founder of BECI, a geophysical services and development company. The review focused on the 2007 helicopter-borne AeroTEM airborne survey flown for Celtic Minerals Inc.

The re-interpretation of the historical airborne data revealed that the geology in the vicinity of the main target areas may not be as published maps indicate. Specifically, several areas are identified where bedrock previously mapped as granitoid (Figure 9.1), may actually be an assemblage of volcanic and ultramafic rocks, more similar to the package of rocks hosting the Great Burnt Main Zone (Figure 9.2). These areas also have a number of untested EM anomalies (Figures 9.3 and

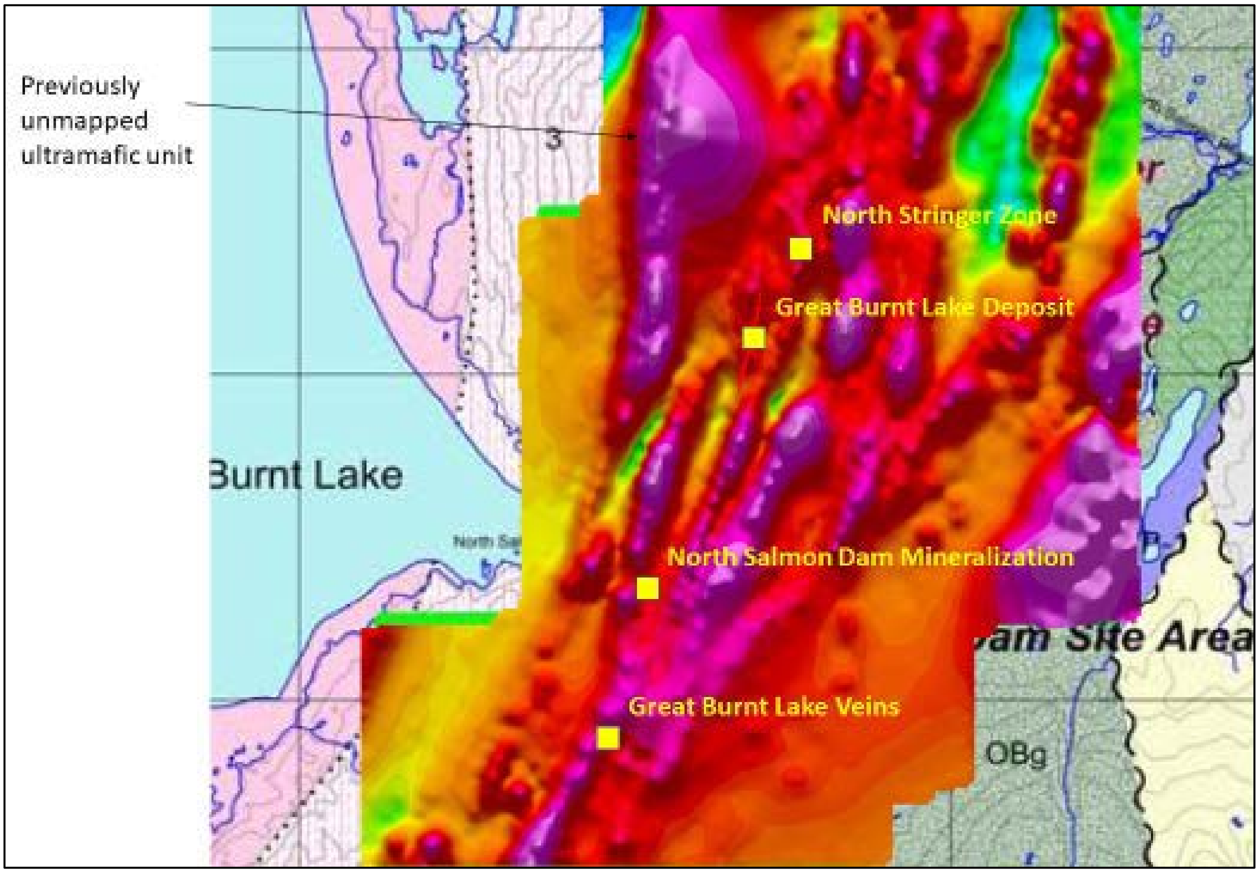
9.4). The re-interpretation produced similar results for the South Pond area to the north of Great Burnt (Figures 9.5 and 9.6).

FIGURE 9.1 GEOLOGY MAP OF THE GREAT BURNT COPPER DEPOSIT AREA



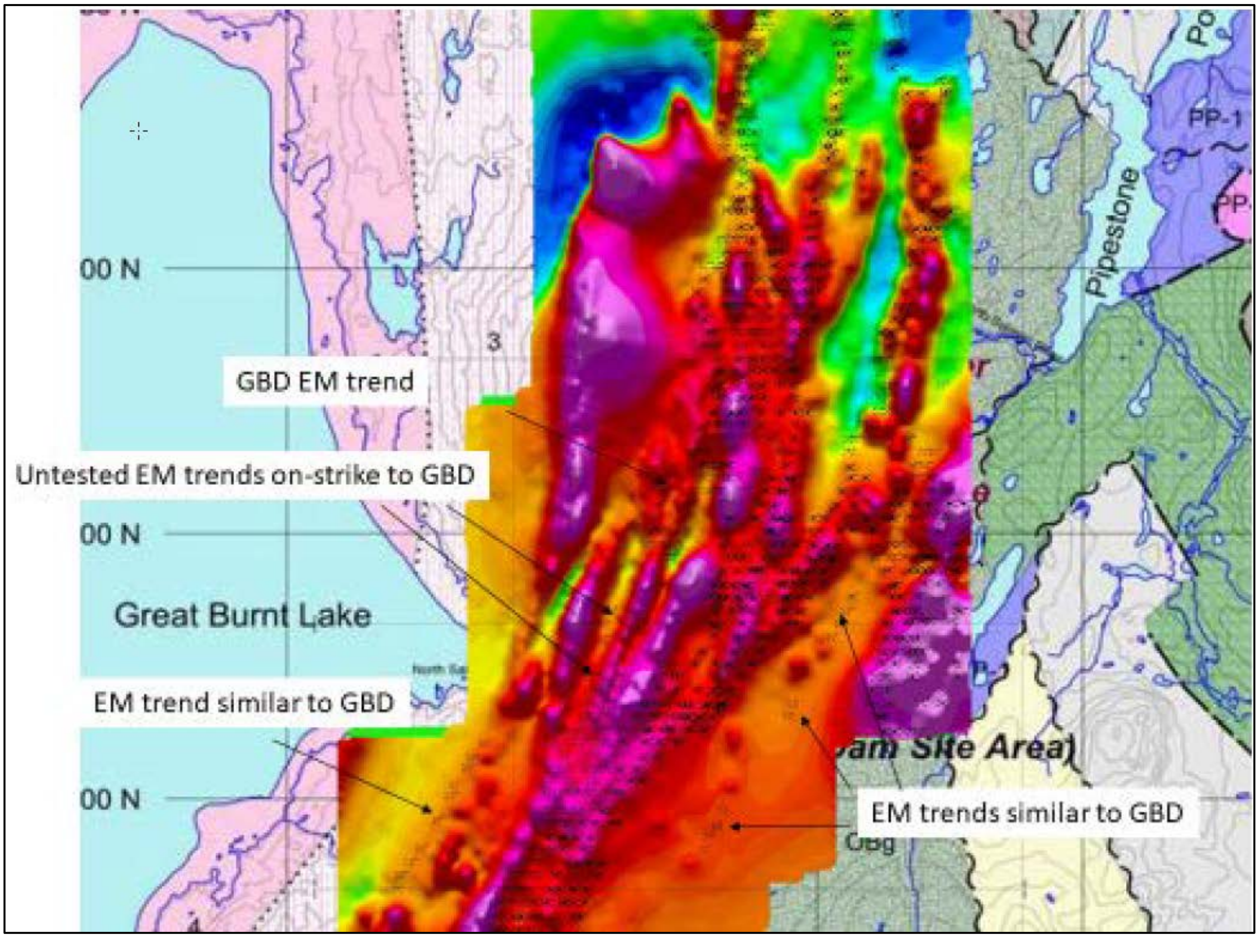
Source: *Spruce Ridge news release dated July 24, 2018*

FIGURE 9.2 AMAG SURVEY OVER THE GREAT BURNT COPPER DEPOSIT AREA



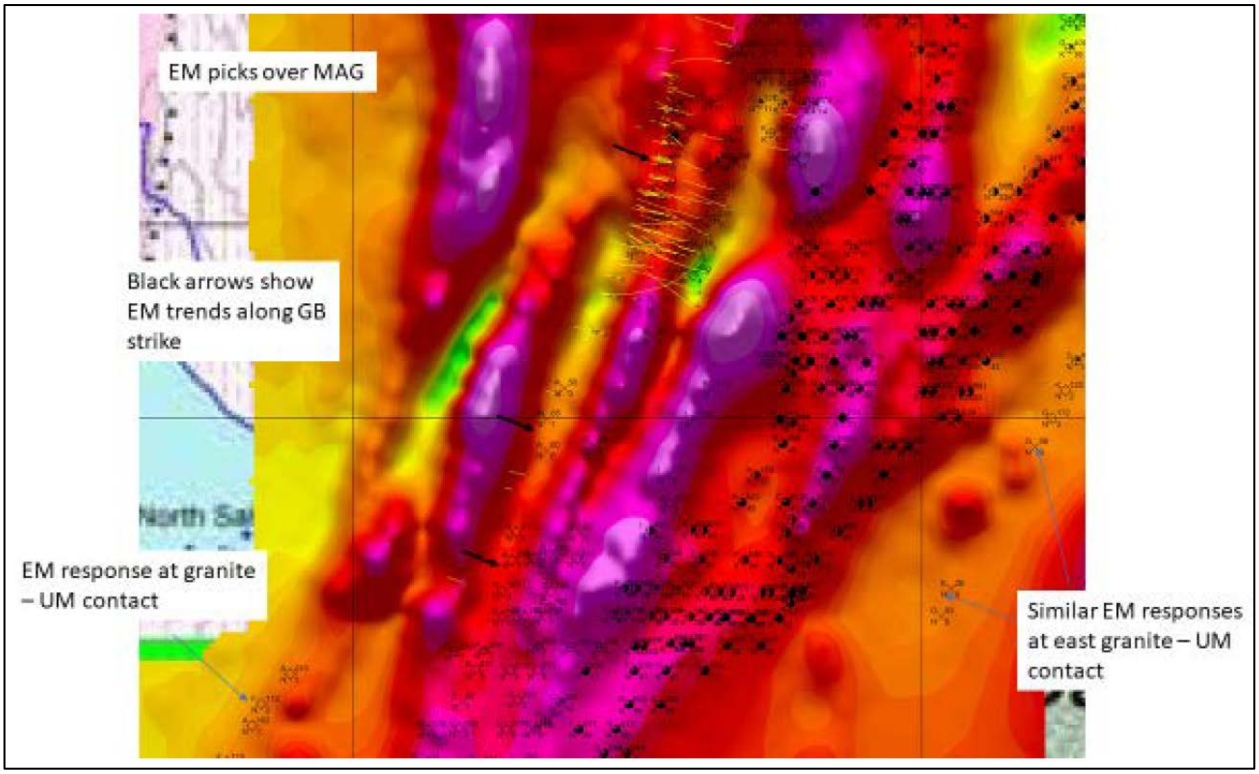
Source: *Spruce Ridge news release dated July 24, 2018*
Note: *AMAG = aerial magnetic.*

FIGURE 9.3 AIRBORNE EM SURVEY RESULTS FOR THE GREAT BURNT COPPER DEPOSIT AREA



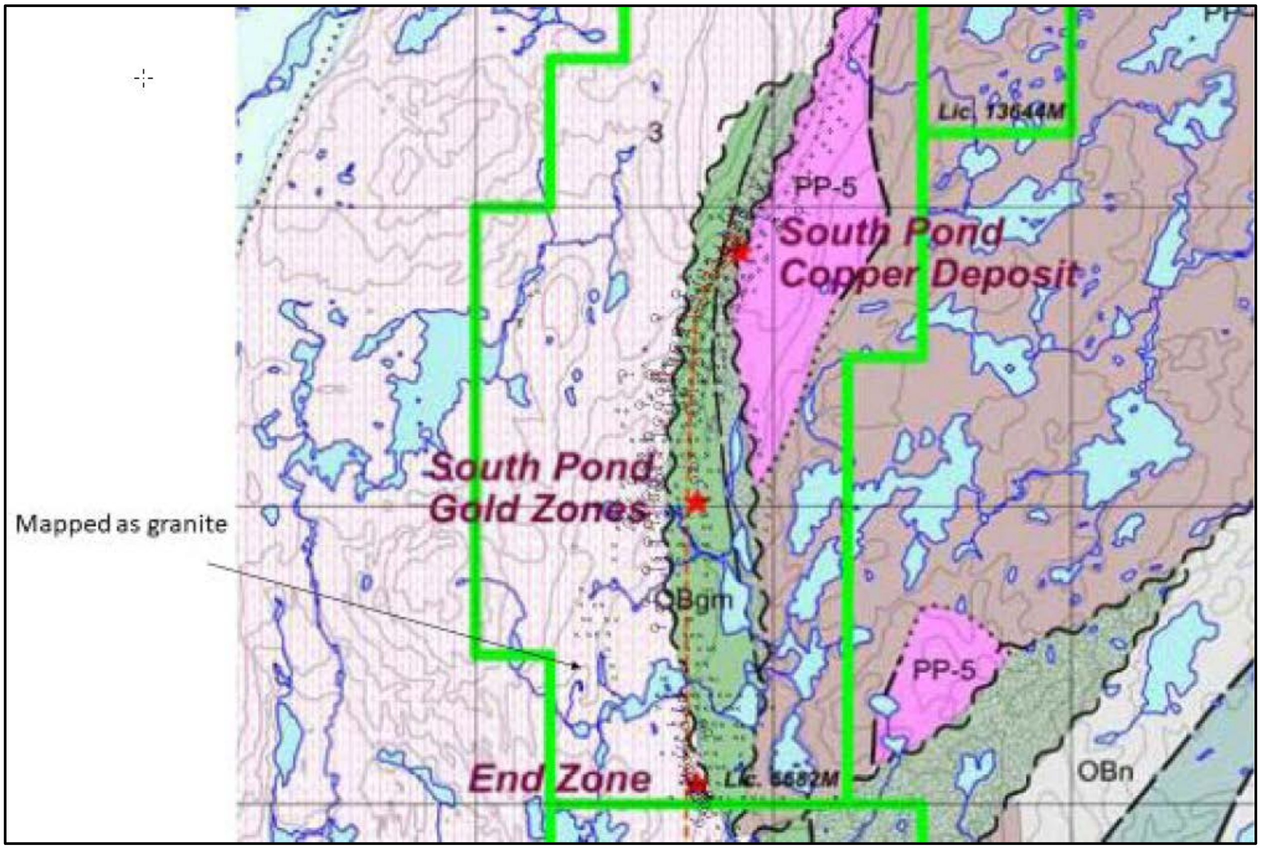
Source: *Spruce Ridge news release dated July 24, 2018*

FIGURE 9.4 AIRBORNE EM SURVEY PICKS ON AMAG IMAGE OF THE GREAT BURNT COPPER DEPOSIT AREA



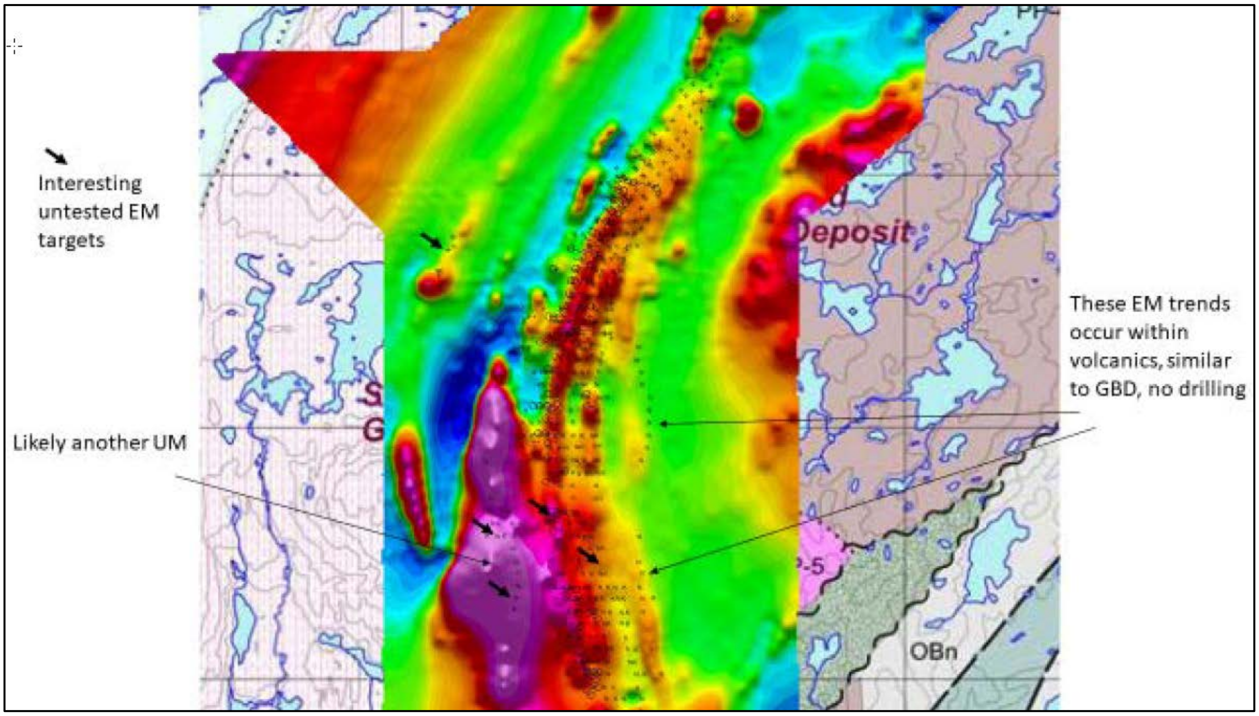
Source: *Spruce Ridge news release dated July 24, 2018*
Note: *AMAG = aerial magnetic.*

FIGURE 9.5 GEOLOGY MAP OF THE SOUTH POND DEPOSIT, SOUTH POND GOLD ZONE AND THE END ZONE



Source: *Spruce Ridge news release dated July 24, 2018*

FIGURE 9.6 UNTESTED EM TARGETS IN THE SOUTH POND GOLD ZONE AND THE END ZONE DEPOSITS AREA



Source: *Spruce Ridge news release dated July 24, 2018*

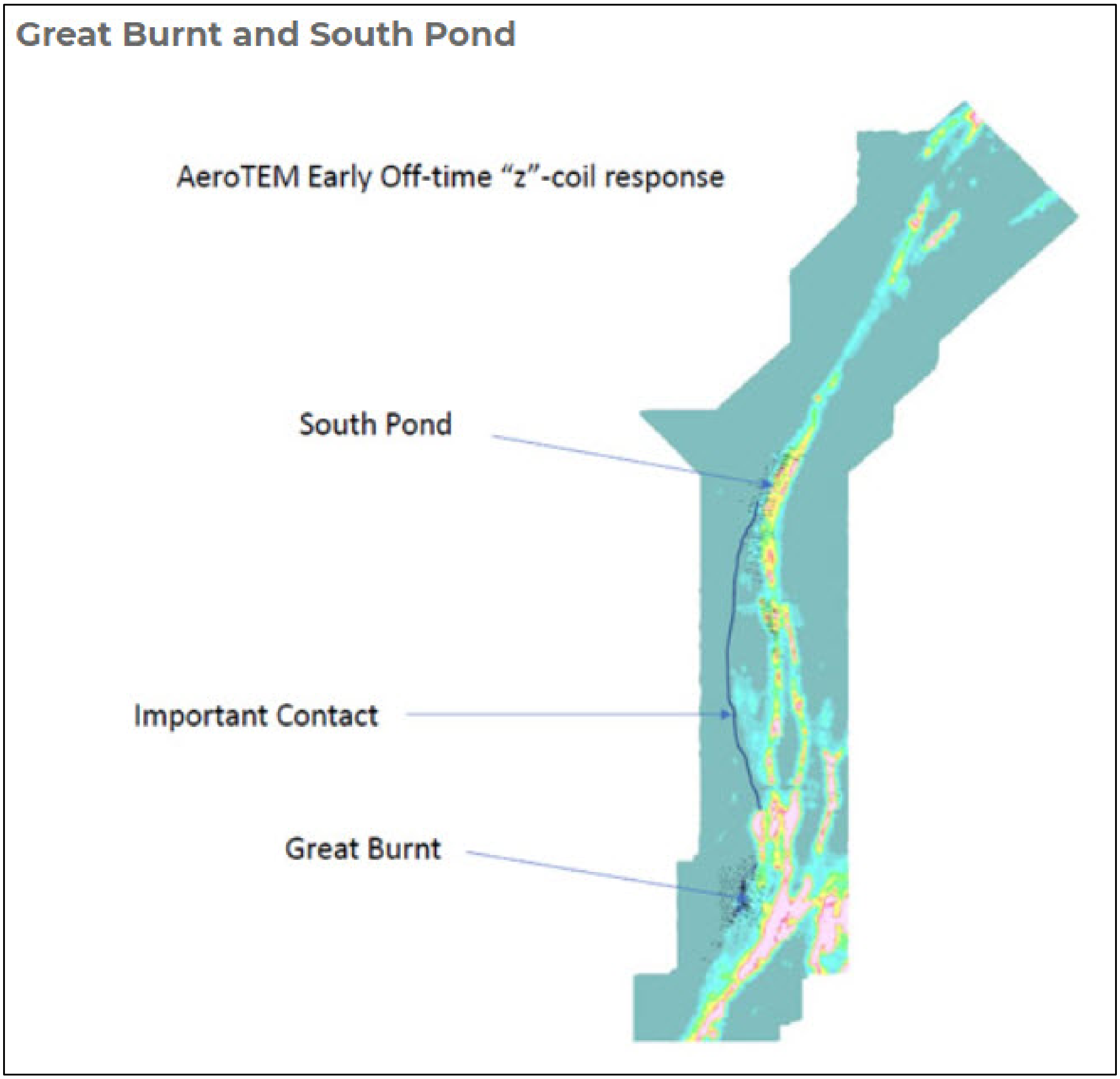
The Company planned to assemble a list of priority targets and conduct field work to verify the geological interpretation of the geophysics. A drill program was to follow where warranted.

9.3 2020 AIRBORNE GEOPHYSICAL SURVEY

In a Company news release dated February 14, 2020, Spruce Ridge announced plans to complete a new helicopter-borne electromagnetic and magnetic survey of the entire Great Burnt Property. The 2020 survey was carried out by Balch Exploration Consulting Inc. using the Triumph AirTEM™ time-domain electromagnetic system, which was flown over 1,100 line-km on a 50 m line-spacing. The 2020 survey was designed to provide better detection of low-conductivity mineralized zones like the Great Burnt Main Zone. Although the Great Burnt Property has been explored intermittently since the 1960s, the lack of outcrop has limited structural geology analysis. The closer line-spacing of the Triumph survey was designed to provide better resolution for improved interpretation of structural complexity that may affect the location and continuity of mineralized zones.

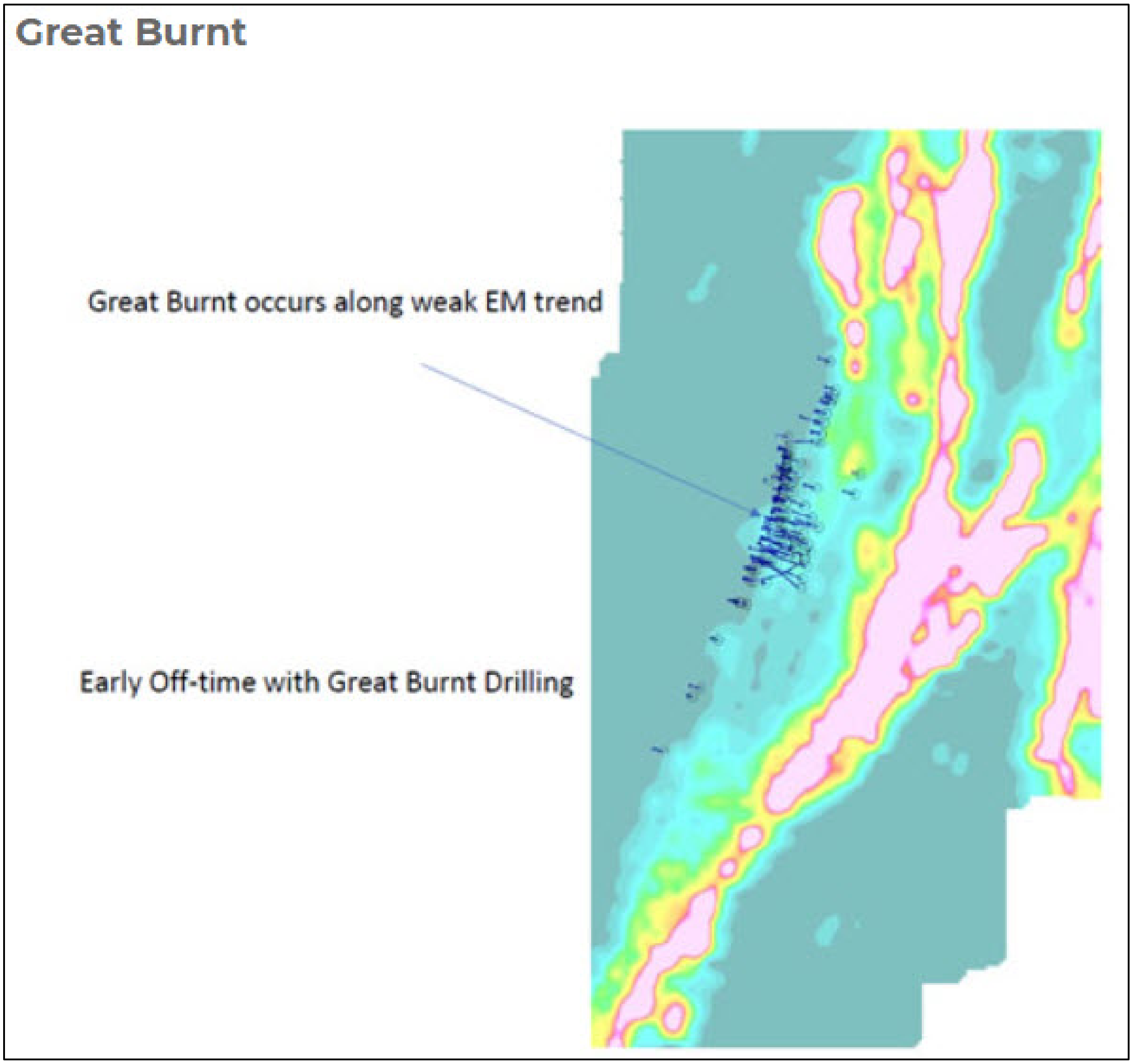
In a Company news release dated June 26, 2020, Spruce Ridge announced that results of the AirTEM™ survey had been received. The results showed more low-conductive responses than the 2007 airborne geophysical survey (Figures 9.7 and 9.8). This response was considered to be an important affirmation, because the Great Burnt Copper Deposit had previously yielded a low-conductivity response, even though it is a massive sulphide deposit. In addition to guiding structural interpretation, the Company anticipated that the airborne survey results would lead to the identification of additional, previously unknown, exploration targets for drill testing later in 2020.

FIGURE 9.7 AIRBORNE EM EARLY-TIME RESPONSE OVER GREAT BURNT TO SOUTH POND DEPOSITS AREA



Source: *Spruce Ridge website (July 06, 2021)*

FIGURE 9.8 AIRBORNE EM EARLY-TIME RESPONSE OVER THE GREAT BURNT COPPER DEPOSIT AREA



Source: *Spruce Ridge website (July 6, 2021)*

9.4 ACCESS TRAIL TO SOUTH POND "B" ZONE

In a Company news release dated July 16, 2021, Spruce Ridge announced that work had begun on making a nine-km long access trail from Great Burnt Main Zone northwards to the South Pond "B" Gold Zone and the South Pond "A" Copper-Gold Zone. When the trail reaches the South Pond "B" Zone, drill sites will be cleared for drilling to commence. Additional drilling is planned on the South Pond "B" Gold Zone, which does not yet have a Mineral Resource Estimate, due to the wide spacing between historical drill holes.

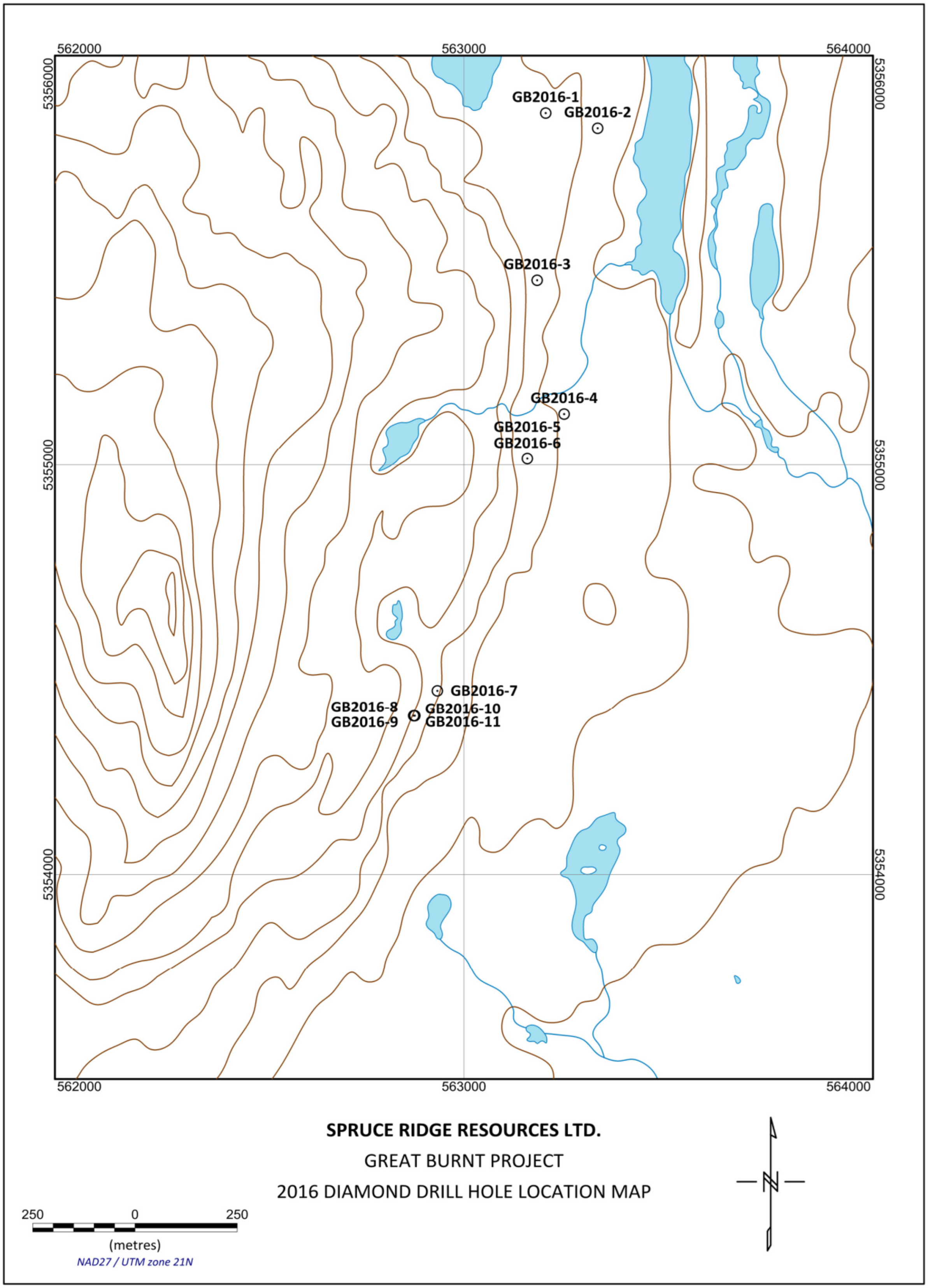
10.0 DRILLING

Since acquiring the Great Burnt Property in 2015, Spruce Ridge completed exploration drilling programs in 2016, 2018, 2019, 2020 and 2021 (results pending). Results from these drill programs are summarized below.

10.1 2016 DRILLING PROGRAM

In February and March 2016, Spruce Ridge completed a Phase 1, 11 hole diamond drill program (Figure 10.1 and Table 10.1), including seven reconnaissance drill holes focused on untested targets identified by Celtic Minerals north of the Great Burnt Lake Deposit; and, a four drill hole program designed to collect sufficient mineralized drill core for metallurgical testing on the Great Burnt Lake Main Zone. Drilling totalled 1,602 m of NQ core drilled by RnR Drilling Limited of Springdale, NL.

FIGURE 10.1 SPRUCE RIDGE 2016 DRILL HOLE LOCATION MAP



Source: *Froude (2016)*

TABLE 10.1 2016 DIAMOND DRILL HOLE LOCATION AND DEVIATION SUMMARY													
Drill Hole ID	**UTM NAD27 Zone 21N**		**Elev. (m)**	**Grid East**	**Grid North**	**Depth (m)**	**Azimuth 1 Collar**	**Dip 1 Collar**	**Azimuth 2 at 23 m**	**Dip 2 at 23 m**	**Azimuth 3 at 221 m**	**Dip 3 at 221 m**
	East	**North**										
GB-2016-1	563,200	5,355,860	272	9,820	10,800	221	285	-45	284	42.7	293	36.2
GB-2016-2	563,327	5,355,823	256	9,950	10,800	233	285	-45	20 m	20 m	221 m	221 m
									283	43.5	286	34.3
GB-2016-3	563,179	5,355,451	270	9,900	10,400	213	285	-45	20 m	20 m	221 m	221 m
									284	46.4	286	38.4
GB-2016-4	563,245	5,355,125	262	10,150	9,300	272	285	-45	20 m	20 m	269 m	269 m
									291	42.2	288	27.8
GB-2016-5	563,155	5,355,015	280	9,982	9,275	143	285	-45	20 m	20 m	143 m	143 m
									281	42.9	282	35.5
GB-2016-6	563,155	5,355,015	280	9,982	9,275	68	285	-55	20 m	20 m	68 m	68 m
									284	53.8	281	50.7
GB-2016-7	562,935	5,354,449	268	9,925	9,360	101	285	-45	20 m	20 m	101 m	101 m
									284	43.3	293	38.1
GB-2016-8	562,877	5,354,387	278	9,875	9,287	95	285	45	23 m	23 m	95 m	95 m
									281	44.1	284	39.9
GB-2016-9	562,877	5,354,387	278	9,875	9,287	101	285	40	20 m	20 m	101 m	101 m
									284	37.8	286	33.1
GB-2016-10	562,880	5,354,387	278	9,878	9,287	80	285	45	20 m	20 m	80 m	80 m
									284	44.2	289	40.9
GB-2016-11	562,880	5,354,387	278	9,878	9,287	75	285	40	20 m	20 m	75 m	75 m
									285	39.7	283	36
Total						**1,602**						

Source: *Froude (2016)* ***Notes:*** *1) Celtic DDH GB-01-04 location 562875E and 5354398 N (Mercator Technical Report).*
2) Metallurgical Holes GB-2016-8, -9, -10, -11 were drilled within a few metres of casing for Celtic's GB-01-04.
3) GB-2016-8 and -9 were drilled from the same setups but with different dips.
4) GB-2016-10 and -11 were drilled from same setup (different dips) at 3 m behind setup GB-2016-8 and -9.
5) Gird coordinates referred to in above table are local ASARCO grid coordinates.

A Duralite drill was towed to the drill hole collars with an excavator. RnR Drilling also carried out camp setup and management and provided a cook and foreman, snow clearing and all other camp maintenance services. A bunkhouse, kitchen, and washroom/shower trailers were leased from Alantra Leasing in Pasadena, NL, and were towed to site. The camp was established on the south side of the North Salmon Dam.

None of the seven reconnaissance drill holes intersected any significant base metal results. Of note was the intersection of a zone of silicified and pyritic granite in drill holes GB-16-01, GB-16-02 and GB-16-03 that appeared to be prospective for gold, but assaying did not return any significant gold values.

The metallurgical drilling returned strong mineralization including locally impressive massive sulphide mineralization. GB-16-08 returned 3.0 m of massive sulphide mineralization from 61.50 to 64.50 m that returned an average of 19.3% Cu over the 3.0 m interval (Figures 10.2, 10.3 and 10.4). A summary of results is shown in Table 10.2.

FIGURE 10.2 PHOTOGRAPH OF MASSIVE SULPHIDE MINERALIZATION IN DRILL HOLE GB-16-08

Source: *Froude (2016)*

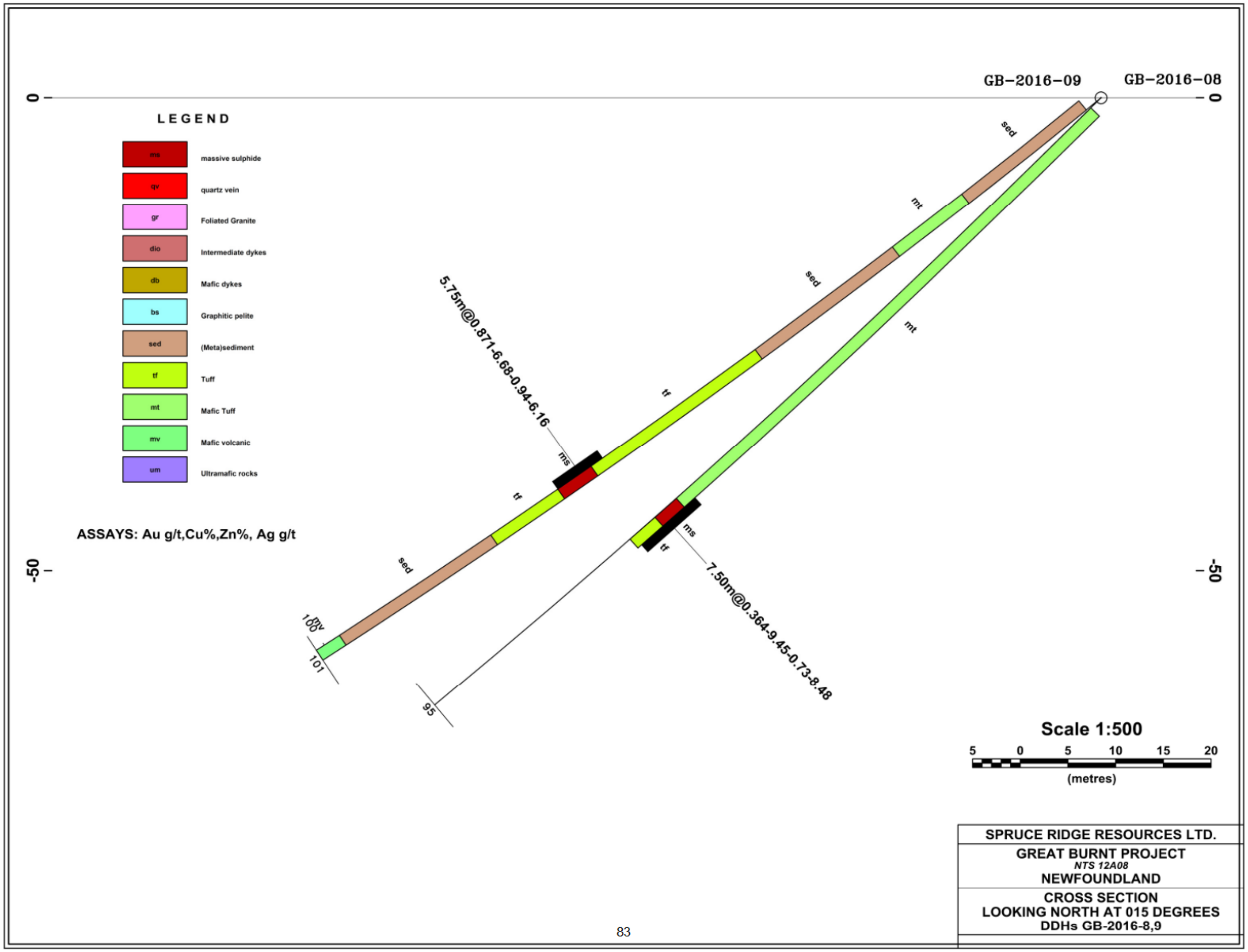
FIGURE 10.3 CLOSE-UP PHOTOGRAPH OF MASSIVE SULPHIDE MINERALIZATION IN DRILL HOLE GB-16-8

Source: *Froude (2016)*

TABLE 10.2 SIGNIFICANT 2016 DRILL HOLE INTERCEPTS							
Drill Hole ID	**From (m)**	**To (m)**	**Length (m)**	**Cu (%)**	**Au (g/t)**	**Zn (%)**	**Ag (g/t)**
GB-16-08	60.00	67.50	7.50	9.45	0.36	0.73	8.5
including	61.50	64.50	3.00	19.30	0.29	1.6	16.7
GB-16-09	64.70	70.45	5.75	6.68	0.87	0.94	6.2
including	66.20	67.70	1.50	11.70	0.13	1.1	10.2
GB-16-09	67.70	69.20	1.50	7.81	2.91	1.3	6.9
GB-16-10	60.50	68.00	7.50	2.12	0.37	0.10	2.50
GB-16-11	63.50	69.50	6.00	4.53	0.78	0.30	3.80
Historical results for comparison							
GB-01-04	64.46	69.34	4.88	2.61	n/a	0.02	1.0

Source: *Froude (2016)*
Notes: *n/a = not analyzed*

FIGURE 10.4 2016 DRILL CROSS-SECTION FOR HOLES GB-16-08 AND GB-16-09



Source: *Spruce Ridge (2016)*

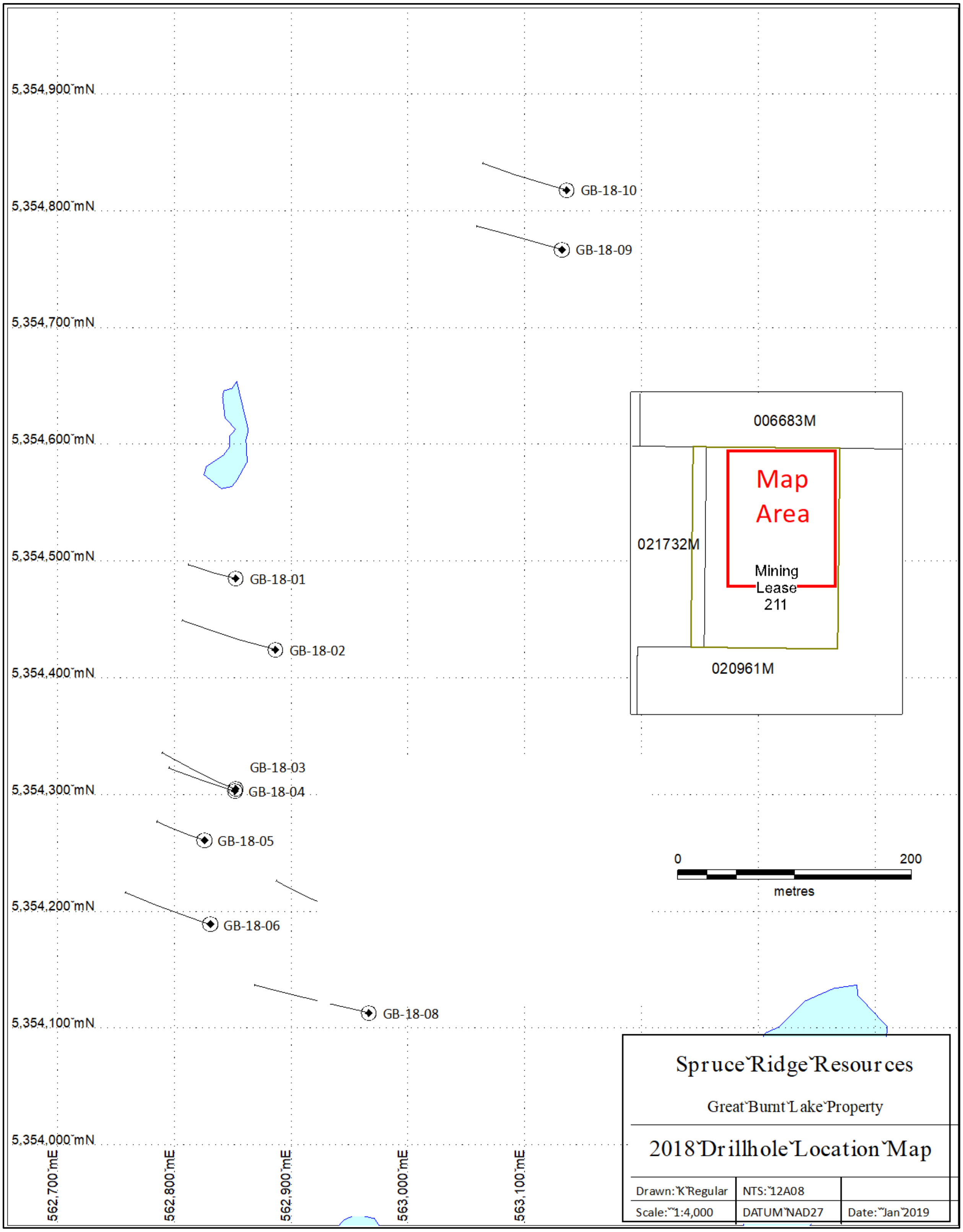
10.2 2018 DRILLING PROGRAM

In November and December 2018, Spruce Ridge completed a 10-hole diamond drilling program on the Great Burnt Property (Table 10.3 and Figure 10.5) utilizing a CS-1000 track-mounted drill. Six of the drill holes were completed to obtain material for metallurgical testing and to follow-up on high-grade intercepts obtained from the 2016 drill program, which included 19.3% Cu over 3.0 m from GB-16-08. Two of the drill holes were completed to test for continuity of the North Stringer Zone at various levels along strike and up-dip, based on re-interpretation of geological and geophysical data. Two additional drill holes were completed to test for both shallow and deep continuity of the Main Stringer Zone intersected in 2008 drilling. A total of 1,438 m of NQ drilling was completed by New Valley Drilling Co. Ltd. of Springdale, NL. Drill hole collar data and drill hole depths are summarized in Table 10.3. Figure 10.5 shows the drill hole locations.

TABLE 10.3
2018 DIAMOND DRILL HOLE SUMMARY

Drill Hole ID	UTM NAD27 Zone 21N		Elev. (m)	Az-imuth (°)	Dip (°)	Depth (m)	Start Date	End Date
	Easting	Northing						
GB-18-01	562,853	5,354,485	291	284	-45	59	20-Nov-18	21-Nov-18
GB-18-02	562,887	5,354,424	276	287	-48	120	18-Nov-18	20-Nov-18
GB-18-03	562,853	5,354,305	278	284	-72	182	25-Nov-18	27-Nov-18
GB-18-04	562,852	5,354,303	280	284	-55	100	27-Nov-18	28-Nov-18
GB-18-05	562,826	5,354,261	285	284	-75	150	29-Nov-18	30-Nov-18
GB-18-06	562,831	5,354,189	267	284	-65	175	30-Nov-18	02-Dec-18
GB-18-07	562,993	5,354,185	256	284	-72	302	03-Dec-18	07-Dec-18
GB-18-08	562,967	5,354,113	253	284	-50	149	07-Dec-18	09-Dec-18
GB-18-09	561,132	5,354,767	267	284	-45	101	09-Dec-18	11-Dec-11
GB-18-10	563,136	5,354,818	261	284	-45	100	11-Dec-18	12-Dec-18
Total						**1,438**		

FIGURE 10.5 **SPRUCE RIDGE 2018 GREAT BURNT COPPER DRILL HOLE LOCATION MAP**



Source: *Willett (2018)*

A summary of significant 2018 drill hole intercepts is provided in Table 10.4. Five of the first six metallurgical drill holes intersected moderate to high-grade copper mineralization, expanding the high-grade Cu-mineralized trend indicated by 2016 drilling to the south-southwest. Metallurgical drill hole GB-18-02, completed north of the high-grade trend did not intersect any significant mineralization. Two drill holes, GB-18-07 and GB-18-08, were completed to test for continuity of the Main Stringer Zone to the north and up-dip, respectively, of the 2008 drill hole intercepts. Both intersected weak stringer style mineralization. Drill holes GB-18-09 and GB-18-10 were designed to test the North Stringer Zone to the south of historical drilling. Drill hole GB-18-09 intersected two thick intervals of low-grade stringer style Cu-mineralization typical of the North Stringer Zone. Drill hole GB-18-10 intersected weakly developed stringer style mineralization in silicified mafic tuff.

TABLE 10.4
2018 SIGNIFICANT DRILL INTERCEPTS

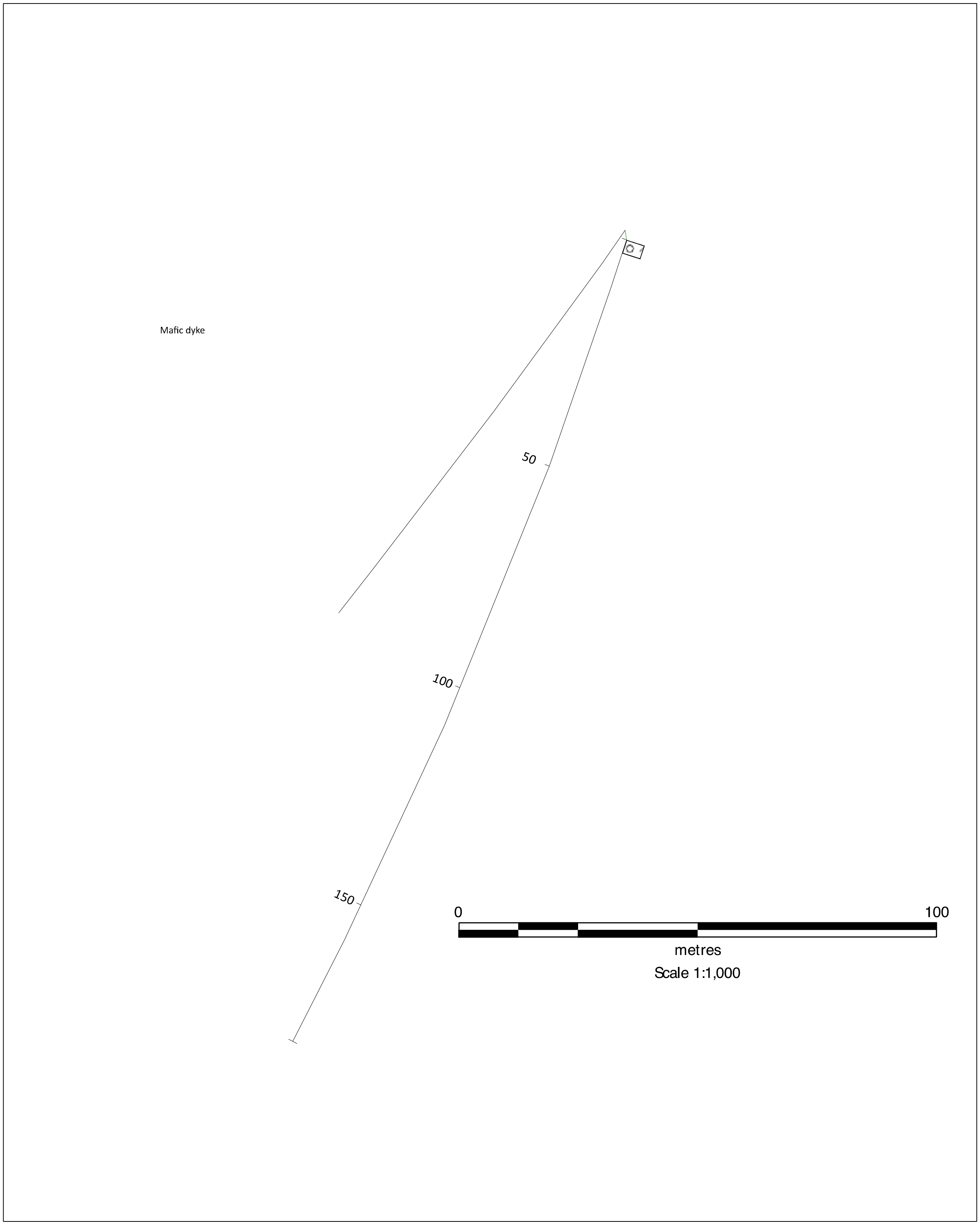
Drill Hole ID	From (m)	To (m)	Length (m)*	Cu (%)	Zn (%)	Co (%)	Au (g/t)	Ag (g/t)
GB-18-01	5.33	15.54	9.21	1.34	0.02	0.009	0.011	0.4
including	7.00	10.00	3.00	2.24	0.03	0.016	0.015	0.9
GB-18-01	24.58	26.87	2.29	1.37	0.08	0.028	0.028	0.7
GB-18-02	no significant mineralization							
GB-18-03	84.17	88.96	4.79	0.68	0.03	0.009	0.016	0.3
GB-18-03	97.54	106.17	8.63	1.81	0.03	0.016	0.015	0.6
including	103.11	106.17	3.06	3.44	0.04	0.007	0.033	1.3
GB-18-04	47.80	51.80	4.00	4.42	0.33	0.030	0.060	2.8
GB-18-05	95.76	116.70	20.94	6.21	0.54	0.040	0.090	7.0
including	100.35	107.33	6.98	10.71	0.90	0.060	0.140	11.9
GB-18-06	104.56	114.53	9.97	7.45	0.43	0.034	0.081	4.5
including	106.80	111.83	5.03	11.42	0.57	0.042	0.094	6.2
GB-18-07	no significant mineralization							
GB-18-08	no significant mineralization							
GB-18-09	39.26	57.26	18.00	0.23	0.01	0.005	0.016	0.4
GB-18-09	73.70	81.85	8.15	0.19	0.01	0.006	0.021	0.2
GB-18-10	31.00	33.40	2.40	0.19	0.06	0.003	0.084	1.0

** Widths are core lengths. True widths not known, but are generally 20% to 30% less than core lengths*

Source: *Spruce Ridge news release dated January 30, 2019*

Figure 10.6 shows the down-hole lithologies encountered for drill holes GB-18-03 and GB-18-04.

FIGURE 10.6 2018 DRILL CROSS-SECTION FOR HOLES GB-18-03 AND GB-18-04



Source: *Willett (2018)*

10.3 2020 DRILLING PROGRAM

In 2020, Spruce Ridge planned a 22-hole, 3,100 m diamond drill program on the Great Burnt Copper Deposit. The program was planned to firm-up the Indicated and Inferred Mineral Resource Estimate on the Deposit.

The 2020 program focused on additional drilling on and between the historical cross-section lines (spaced 61 m) (see drill plans in Appendix A). The 1960s-era historical drilling used mostly EX drill core (22 mm diameter) and non-wireline drilling, which produced poor drill core recovery from the sulphide mineralized zone. Infill drilling with NQ core (47 mm diameter) and wireline technology led to close to 100% drill core recovery. Drill results are presented for the Main Zone in Table 10.5 and for the Stringer Zone in Table 10.6.

TABLE 10.5
2020 DRILL HOLE INTERCEPTS IN MAIN ZONE

Dill Hole ID	From (m)	To (m)	Core Length (m) @ Cu%[1]	True Width (m)[2]	Other Analyses (Au >0.15 g/t, Zn >1%)[3]
GB-20-01B	212.60	227.40	14.8 m @ 2.68%	9.31	
GB-20-03	219.80	220.30	narrow, low-grade		
GB-20-04	10.00	30.50	20.5 m @ 1.98%	14.24	
GB-20-05	161.90	189.10	27.2 m @ 8.06%	15.21	
includes	171.85	179.60	7.75 m @ 16.88%	4.33	
GB-20-06	180.40	185.20	4.8 m @ 5.02%	3.21	
includes	182.30	185.20	2.9 m @ 7.26%	1.94	
GB-20-07	125.00	129.40	4.4 m @ 5.13%	2.83	
GB-20-09	36.00	48.00	12.0 m @ 2.19%	9.19	
GB-20-10	35.75	43.70	7.95 m @ 7.33%	4.56	
includes	38.45	43.70	5.25 m @ 9.52%	3.01	
GB-20-11	161.40	168.45	7.05 m @ 2.79%	3.94	
includes	165.55	168.45	2.9 m @ 5.22%	1.62	0.24 g/t Au, 1.28% Zn
GB-20-12	138.00	146.60	8.6 m @ 2.73%	5.05	
GB-20-13	139.85	143.55	3.7 m @ 6.98%	1.68	0.19 g/t Au, 1.11% Zn
GB-20-14	91.50	102.60	11.1 m @ 2.41%	7.43	
includes	95.40	101.60	6.2 m @ 3.46%	4.15	
GB-20-15	116.30	120.00	3.7 m @ 3.60%	2.17	1.02% Zn
GB-20-16	71.40	78.50	7.1 m @ 1.49%	3.01	
includes	76.80	78.50	1.7 m @ 2.58%	0.72	
GB-20-17	110.20	117.60	7.4 m @ 4.71%	4.24	
includes	110.20	111.80	1.6 m @ 12.95%	0.92	
GB-20-18	85.90	90.00	4.1 m @ 2.79%	2.35	
GB-20-19	143.50	144.10	narrow, edge of zone		
GB-20-20	64.20	86.95	22.75 m @ 6.89%	13.37	

Table 10.5 **2020 Drill Hole Intercepts in Main Zone**					
Dill Hole ID	**From (m)**	**To (m)**	**Core Length (m) @ Cu%[1]**	**True Width (m)[2]**	**Other Analyses (Au >0.15 g/t, Zn >1%)[3]**
includes	73.40	85.95	12.55 m @ 10.59%	7.38	1.27% Zn
includes	84.45	85.95	1.5 m @ 18.15%	0.88	1.98% Zn
GB-20-21	116.4	121	4.6 m @ 3.56%	3.52	1.16% Zn
GB-20-22	30.45	35.5	5.05 m @ 5.57%	3.63	
includes	33.4	36.5	3.1 m @ 8.36%	2.23	

Source: *Spruce Ridge news release dated March 18, 2021*

Notes: *[1] The average Cu grades were calculated using an across-the-zone cut-off grade of 0.9% Cu, without regard to zone thickness*

[2] True widths were estimated from the cross-sections

[3] The last column of the table shows average zinc grades >1% Zn and average gold grades >0.15 g/t Au

Table 10.6 **2020 Drill Hole Intercepts in Stringer Zone**					
Dill Hole ID	**From (m)**	**To (m)**	**Core Length (m) @ Cu%[1]**	**True Width (m)[2]**	**Other Analyses (Au >0.15 g/t, Zn >1%)[3]**
GB-20-02	223.00	226.00	3.0 m @ 0.19%	0.52	0.28 g/t Au
GB-20-08	103.45	104.45	1.0 m @ 1.23%	0.51	0.35 g/t Au
GB-20-09	17.00	20.00	3.0 m @ 2.45%	2.32	
GB-20-10	12.90	14.60	1.7 m @ 4.28%	0.98	
GB-20-12	87.20	87.70	0.5 m @ 1.21%	0.29	
GB-20-13	129.85	130.80	0.95 m @ 2.14%	0.43	
GB-20-15	93.60	94.85	1.25 m @ 5.55%	0.73	0.53 g/t Au
GB-20-15	108.40	110.10	1.7 m @ 1.42%	1.01	
GB-20-16	40.65	43.75	3.1 m @ 2.35%	1.31	
GB-20-17	55.00	55.70	0.7 m @ 4.84%	0.39	

Source: *Spruce Ridge news release dated March 18, 2021*

Notes: *[1] The average Cu grades were calculated using an across-the-zone cut-off grade of 0.9% Cu, without regard to zone thickness*

[2] True widths were estimated from the cross-sections

[3] The last column in the table shows average zinc grades >1% Zn and average gold grades >0.15 g/t Au

In the Main Zone, the thickest massive to semi-massive chalcopyrite intersections and highest copper grades are in drill holes GB-20-05 and GB-20-20. Drill hole GB-20-05 intersected 27.2 m grading 8.02% Cu, including 7.75 m of 16.88% Cu, which in turn included 2.0 m of 21.25% Cu. Hole GB-20-20 intersected 22.75 m grading 6.89% Cu, 0.79% Zn and 0.05 g/t Au, including 12.55

m of 10.59% Cu, 1.27% Zn and 0.07 g/t Au, which in turn included 1.50 m of 18.15% Cu, 1.98% Zn and 0.04 g/t Au. The GB-20-20 intersection is located 187 m north and 108 m higher in elevation than the reported intercept in drill hole GB-20-05.

In 2020, the Main Zone of the Great Burnt Copper Deposit was tested over a length of 500 m and to a depth of 250 m below surface. The Main Zone dips steeply to the east and plunges to the south at approximately 30°. All the drill holes intersected the Main Zone except GB-20-08, which passed below the zone, and GB-20-02, which was drilled as a step-out from a historical intercept that is now considered to be in the Stringer Zone.

The Stringer Zone is a separate zone that occurs between 12 and 20 m east of the Main Zone, is typically narrower than the Main Zone, and is discontinuous, as it was intersected by only 12 of the 22 holes drilled in 2020. The Stringer Zone intersections typically have copper values lower than the Main Zone, but do contain higher gold values. For example, GB-20-15 returned a single gold assay of 0.88 g/t Au.

Silver is a minor component of the Great Burnt Main and Stringer Zones. The highest single silver assay was 16.7 g/t Ag over 1 m in drill hole GB-20-13.

10.4 2021 DRILLING PROGRAM

In a news release dated October 12, 2021, Spruce Ridge announced that it had mobilized a diamond drill rig to the South Pond "B" Gold Zone on the Great Burnt Property.

A 3,000 m drill program was planned to test for gold mineralization. The South Pond "B" Gold Zone had not been explored for 20 years.

As of the effective date of this Technical Report, no results from the drilling have been announced.

11.0 SAMPLE PREPARATION, ANALYSIS AND SECURITY

The data reviewed for this Technical Report and used for geological modelling and Mineral Resource estimation combines various phases of historical exploration by several companies. A significant proportion of the drilling was completed by Buchans and ASARCO prior to 1971 and Celtic between 2001 and 2008. The most recent drilling was completed by Spruce Ridge in 2020.

11.1 HISTORICAL SAMPLING (CELTIC 2001 TO 2008)

From 1951 to 1971, Buchans and ASARCO completed 133 drill holes testing the Great Burnt Copper Deposit and 20 drill holes testing the South Pond Copper-Gold Deposit. AX and EX-size core was recovered from the ASARCO drilling. Drill core recovery was generally good, and samples were collected by, or under the supervision of a geologist. During the early Buchans and ASARCO drilling programs, samples of split drill core were sent to the ASARCO Mine Laboratory in Buchans and assayed for Cu, Zn, Pb, Ag and Au, the latter two by the fire assay method. Spruce Ridge has copies of the Buchans and ASARCO assay certificates, however, descriptions of data verification and quality assurance/quality control ("QA/QC" or "QC") procedures by ASARCO are not available at this time.

11.1.1 Sampling Method and Approach

Celtic's sampling methods have been described by Webster and Wolfson (2010), as part of their NI 43-101 Technical Report. The following description is summarized from the 2010 report.

Celtic sample intervals generally ranged from 0.30 to 2.30 m, with the most common sample length being 1.0 m. The geologist assigned an identification number to each sample using uniquely numbered sample tags. Two of the three tags were marked with the date, project, drill hole number, depth from, depth to and sample interval; the third tag was left blank for inclusion in the sample bag. Webster and Wolfson (2010) report that there were no issues encountered that would materially affect or bias the accuracy and reliability of the analytical results from these drill core samples.

Once marked, the drill core technician cut the drill core at each sample break using an electric tile saw with a diamond-impregnated saw blade. One half of each drill core sample was placed into a 6 mm thick 12 inches x 18 inches plastic bag into which the blank sample tag was placed. The remaining half drill core was put back into the drill core tray; one of the marked sample tags was placed at the beginning of the sample interval and stapled to the wooden tray. The plastic bag with the sample and unmarked tag was rolled up and taped shut with sturdy packing tape, and marked with the sample tag number. Every 5 to 10 samples were placed into a larger fiber rice sack that was then secured with a plastic cable tie.

Celtic's samples were transported under the direct supervision of the geologist or drill core technician to the sample receiving facilities of Eastern Analytical Ltd. ("Eastern Analytical"), in Springdale, NL. A series of certified reference materials ("CRMs") (CDN-FCM-4) and blank materials (CDN-BL-3) purchased from CDN Resource Laboratories Ltd. were inserted with each batch of samples at the discretion of the geologist, using the same sample tags and plastic sample bags as for the drill core. The analytical laboratory also used its own series of blanks, CRMs and duplicates during the analytical process to monitor for any contamination or problems with their sample preparation or analytical processes.

Celtic staff supervised all drill programs completed by Celtic and all drill core was stored on site during the drilling period. Although a locked storage facility was not available, Celtic staff managed access to the drill core, and logging and sampling was generally completed as the drill holes were completed. Once drilling and sampling was completed drill holes from the 2001-2002 and 2004-2005 drill programs were sent to the government of Newfoundland and Labrador drill core storage facility in Buchans, NL. Drill core from the 2008 drilling program is stacked on pallets and stored at the unsecured Great Burnt site.

11.1.2 Sample Preparation and Analysis

Celtic drill core samples were sent to Eastern Analytical for assay. Each sample was crushed to approximately 75% -10 mesh. The complete sample was riffle split to produce 250 to 300 g of material; the remainder of the sample was bagged and stored as coarse reject. The 250 to 300 g split was pulverized using a ring mill to approximately 98% -150 mesh. The sample preparation technician also inspected the rings and bowls after each sample and silica sand was used to clean equipment as needed.

The pulverized gold samples were weighed (15 or 30 g) into an earthen crucible containing a lead oxide flux and then mixed. Silver nitrate was then added and the sample was fused in a fire assay oven to obtain a liquid that was poured into a mold and let cool. The lead button was then separated from the slag and cupelled in the fire assay oven which obtained a silver bead containing the gold. The button was digested with nitric acid, which removed the silver. Hydrochloric acid was added and the liquid was left to cool. After cooling, de-ionized water was added to bring the sample up to a pre-set volume and the liquid was analyzed for gold by atomic absorption.

Multi-element analyses were generally performed on all samples using the 30-element ICP packages. Blanks, duplicates and CRMs were submitted by the logging geologist at the drill site with typically one CRM and one blank per sampled drill hole. Celtic used commercially prepared CRMs supplied by CDN Resource Laboratories Ltd. Any over-limit sample that assayed in excess of 10,000 ppm (1%) copper or 2,200 ppm (0.22%) zinc was re-assayed by quantitative analysis to get a percentage reading.

Eastern Analytical was not an ISO certified lab during Celtic's drill campaigns at the Property, however, had provided independent laboratory analysis to the mining community for many years prior to that time. The lab opened in 1987 to provide a local assay laboratory service to the exploration industry of Newfoundland and Labrador. The laboratory utilized QC procedures including blanks and CRMs and has had independent audits of its laboratory analysis and procedures completed. Webster and Wolfson (2010) were satisfied that the sample preparation, analysis and security procedures utilized by Celtic and its contractors were adequate and met industry standards.

Webster and Wolfson (2010) completed independent sampling of two mineralized intervals reported by Celtic. Drill hole GB-01-04 and GB-01-07 were reviewed while at the government core library in Buchans, NL. Drill core samples were marked for cutting and a one quarter drill core sample was sawn by drill core library staff. Two samples and a commercial CRM were shipped to Eastern Analytical for fire assay and ICP analysis.

Webster and Wolfson (2010) observed good reproducibility for Cu and Zn for the two samples and concluded that the mineralization reported by Celtic from its various drilling programs was accurate and representative of the mineralization present in the drill core.

11.2 RECENT SAMPLING BY SPRUCE RIDGE (SEPTEMBER 2015 TO 2020)

11.2.1 Sampling Method and Approach

Drill core was delivered daily to Spruce Ridge personnel by snowmobile or Nodwell during the drill programs at the Great Burnt Property. The logging protocol included collecting and recording recovery and RQD data, geological logging and sampling and drill core photography.

All drill core was logged on site and cut using a gas-powered drill core saw during both drill programs at the Property. Daily freezing temperatures during December of the 2018 drill program hampered drill core cutting and it was decided to transport the drill core to Deer Lake where the remainder was cut in early January 2019.

The majority of the drill core, with the exception of several boxes from the metallurgical holes, is stacked on site at the drill core building, approximately 500 m northeast of the North Salmon Dam, on License 20961M.

Drill core from non-metallurgical drill holes was sawn in half, and one half of the drill core was submitted to Eastern Analytical for 34-element ICP and gold analysis. The selected half drill core sample was placed in a sample bag, tagged with a unique sample number and the bag sealed before being delivered to the lab. The remaining half drill core was returned to the drill core box and stored at the storage facility for future reference.

Drill core from the metallurgical holes was at first half sawn, and one half of the drill core was placed in vacuum-sealed bags and ear-marked for metallurgical testing. The remaining one-half drill core was cut in half, and the resulting quarter drill core was sent to Eastern Analytical for 34-element ICP and gold analysis.

A total of 126 drill core samples were cut during the 2016 program, including metallurgical samples, and 175 samples were collected for analysis during the 2018 program with 82 samples collected for metallurgical testing. A select number of drill core samples from the 2016 program were also sent to Activation labs for carbon and sulphur analysis.

11.2.2 Sample Preparation and Analysis

Drill core samples were sent to Eastern Analytical for assay. Each sample was crushed to approximately 80% -10 mesh. The complete sample was riffle split to produce approximately 250 g of material; the remainder of the sample was bagged and stored as coarse reject. The 250 g split was pulverized using a ring mill to approximately 95% -150 mesh. The sample preparation technician also inspected the rings and bowls after each sample and silica sand was used to clean equipment as needed.

Samples were analyzed for gold by fire assay with an atomic absorption ("AA") finish on 30 g aliquots, as described in section 11.1.2 of this Technical Report. Samples were also analyzed for an array of 34 elements, including copper, silver, lead and zinc by Multi-Acid digestion with Inductively Coupled Plasma ("ICP") finish. Multi-Acid digestion was performed on samples returning grades greater than 10,000 ppm Cu, 2,200 ppm Zn and 6 g/t Ag.

Eastern Analytical is independent of Spruce Ridge and has implemented a quality system compliant with the International Standards Organization ("ISO") requirements for the competence of testing and calibration laboratories. The company regularly participates in the Canmet Round-Robin proficiency test and passes all criteria.

Eastern Analytical achieved ISO/IEC 17025 accreditation in February 2014 and is ISO 17025 accredited in Fire Assay Au, as well as multi-acid high-grade assays in Cu, Pb, Zn, Ag, Fe and Co.

It is this Technical Report section author's opinion that sample preparation, security and analytical procedures for the Great Burnt Project drilling were adequate for the purposes of this Mineral Resource Estimate.

11.3 QUALITY ASSURANCE/QUALITY CONTROL REVIEW

Spruce Ridge implemented and monitored a thorough QA/QC program for the diamond drilling and drill core sampling program undertaken at the Great Burnt Project from 2015 to 2020. QC protocol has included the insertion of QC samples into every batch sent off for analysis, including CRMs, blanks and field duplicates.

CRMs and blanks were inserted approximately every 1 in 60 samples. In addition, field duplicates consisting of ¼ drill core were collected approximately every 70 samples.

11.3.1 2015 Historical Drill Core Sampling Program

Spruce Ridge undertook a review of historical drill core, as well as a drill core sampling program of the historical drill core in July of 2015. Review was carried out of all drill holes completed on the Great Burnt Property drilled outside (north and south) of the Main Zone. Follow up sampling of archived drill core in the Buchans drill core library took place between July 18 and 27 of 2015, resulting in a total of 173 samples being sent for geochemical analysis to Eastern Analytical. Samples sent for analysis also included blanks, duplicates and CRMs.

A total of 17 blanks, 17 CRMs and 17 duplicates were entered into the sample stream and the author of this Technical Report section reviewed the relevant QC data for both gold and copper for the drill core-sampling program. All CRMs were within acceptable limits, all blanks showed nil or negligible contamination with no material impact on the data, and duplicates showed acceptable precision.

A number of drill core samples sent for analysis by the Company were samples that showed obvious signs of mineralization, however, had never been sampled. The remainder of the samples were sent for analysis to compare with the historical geochemical results and confirm the reported mineralization in the historical drill holes.

The author of this Technical Report section reviewed comparison data for 66 samples for gold and 65 samples for copper over 22 historical holes. The data compared very well and the author is confident that the resampling of the historical drilling has confirmed the reported mineralization for gold and copper.

11.3.2 2016 Spruce Ridge Drilling

A total of 126 drill core samples were cut during the 2016 program, including the metallurgical samples, and sent for Au and ICP-34 analyses at Eastern Analytical. A select number of samples were also sent to Activation labs for carbon and sulphur analysis.

Eastern Analytical's internal laboratory QC was reviewed by the author of this Technical Report section for the 2016 drill program and each batch of samples analyzed by the lab was monitored by a CRM (CDN-CM-15) for gold and copper, as well as a blank and a course replicate or pulp duplicate. Based upon this review, the author does not consider accuracy, contamination or precision to be a material issue with the 2016 data.

11.3.3 2018 Spruce Ridge Drilling

QC samples inserted into the sample stream included a non-certified coarse (Class A) limestone aggregate from Atlantic Ready Mix, Corner Brook, NL and two CRMs; CDN-ME-1208 and CDN-HLHC from CDN. One CRM and one blank were inserted at a rate of approximately one in 20 samples. For drill hole batches with less than 20 samples, at least one blank or one CRM was included in the sample stream.

Results for gold, copper, silver, lead and zinc fall within the certified "between lab" two standard deviation error limits for CDN-HLHC. Results for gold, copper, silver, nickel and cobalt also fall within the certified "between lab" two standard deviation error limits for CDN-ME-1208.

Very low levels and detection limit levels of copper, lead, zinc, gold and silver returned from the blank sample material indicate that no cross-contamination occurred between samples in the sample preparation stage.

The author of this Technical Report section therefore considers the analytical results for the 2018 drill core sampling suitable for use in the current Mineral Resource Estimate.

11.3.4 2020 Spruce Ridge Drilling

11.3.4.1 Performance of Certified Reference Materials

CRMs were inserted into the sample stream approximately every 20 samples from drill hole GB-20-11. One CRM was used during the 2020 drill program to monitor copper, gold and zinc performance; the CDN-FCM-4 CRM. The CDN-FCM-4 CRM was purchased from Canadian Resource Laboratories Ltd., in Delta, BC. The CRM was prepared from mineralized rock derived from the Campo Morado property in Mexico. It is certified for Cu, Au, Zn, Ag and Pb. There were eight data points for this CRM.

Criteria for assessing CRM performance are based as follows. Data falling within ± 2 standard deviations from the accepted mean value pass. Data falling outside ± 3 standard deviations from the accepted mean value, or two consecutive data points falling between ± 2 and ± 3 standard deviations on the same side of the mean, fail.

There was one recorded failure for gold (Figure 11.2) and one sample (sample no. 572786) returned results for all three elements close to lower detection limit levels and is likely a misallocated blank. The author of this Technical Report section considers the CRM data to demonstrate acceptable accuracy and does not consider the single low failure for gold to be of material impact.

Results for the CDN-FCM-4 CRM are presented in Figures 11.1 to 11.3.

The author also reviewed the laboratory's internal CRMs for Cu, Au and Zn and considers this data to also demonstrate acceptable accuracy.

FIGURE 11.1 PERFORMANCE OF CDN-FCM-4 CU CRM FOR 2020 DRILLING AT GREAT BURNT

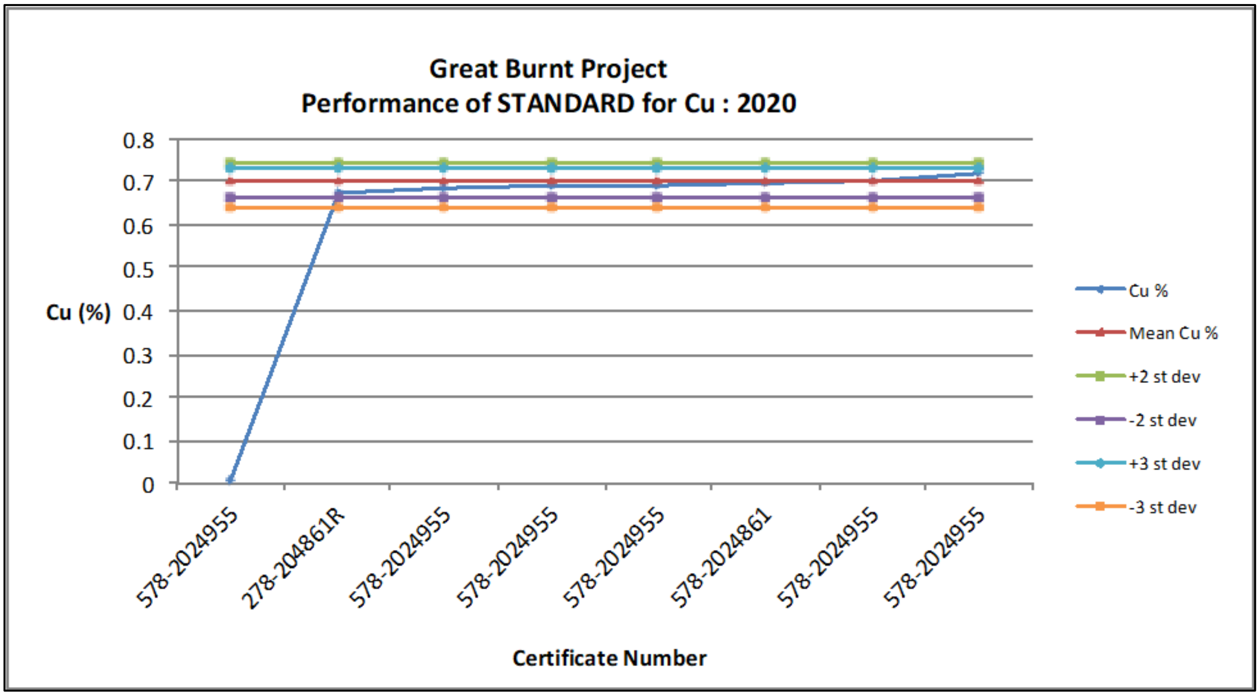


FIGURE 11.2 PERFORMANCE OF CDN-FCM-4 AU STANDARD FOR 2020 DRILLING AT GREAT BURNT

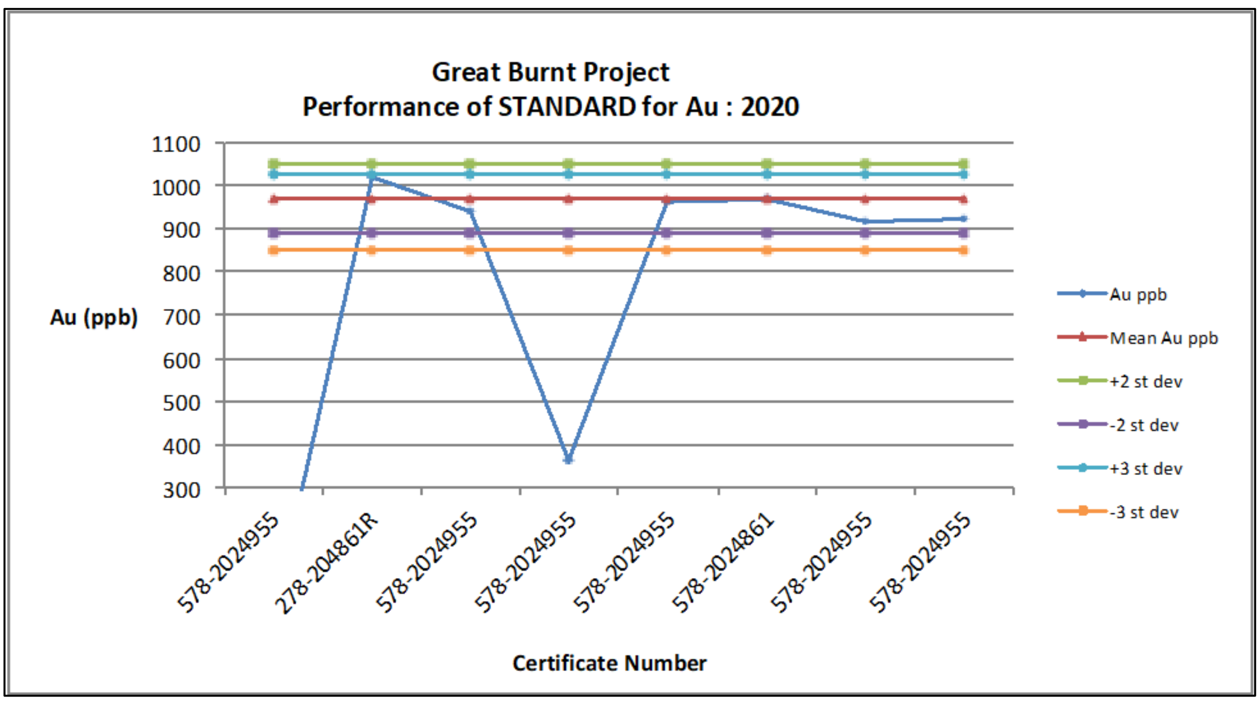
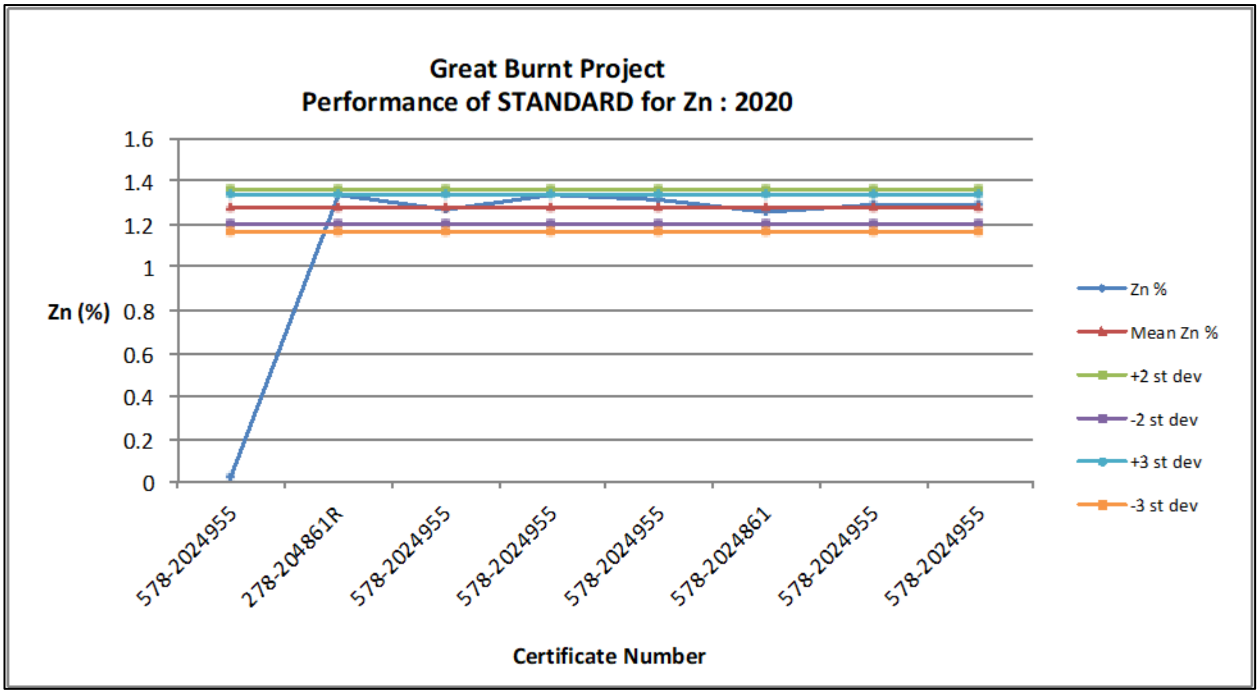


FIGURE 11.3 PERFORMANCE OF CDN-FCM-4 ZN STANDARD FOR 2020 DRILLING AT GREAT BURNT



11.3.4.2 Performance of Blanks

Company blanks were inserted into the analysis stream approximately every 20 samples from hole GB20-11. All blank data for Cu, Au and Zn were graphed (Figures 11.4 to 11.6). If the assayed value in the certificate was indicated as being less than detection limit, the value was assigned the value of one-half the detection limit for data treatment purposes. An upper tolerance limit of three times the detection limit was set. There were four data points to examine.

All data plotted at or below the set tolerance limits.

The author of this Technical Report section also reviewed the laboratory's internal blanks for Cu, Au and Zn and all data plotted below detection limit levels, demonstrating no issues with contamination.

FIGURE 11.4 PERFORMANCE OF CU BLANKS FOR 2020 DRILLING AT GREAT BURNT

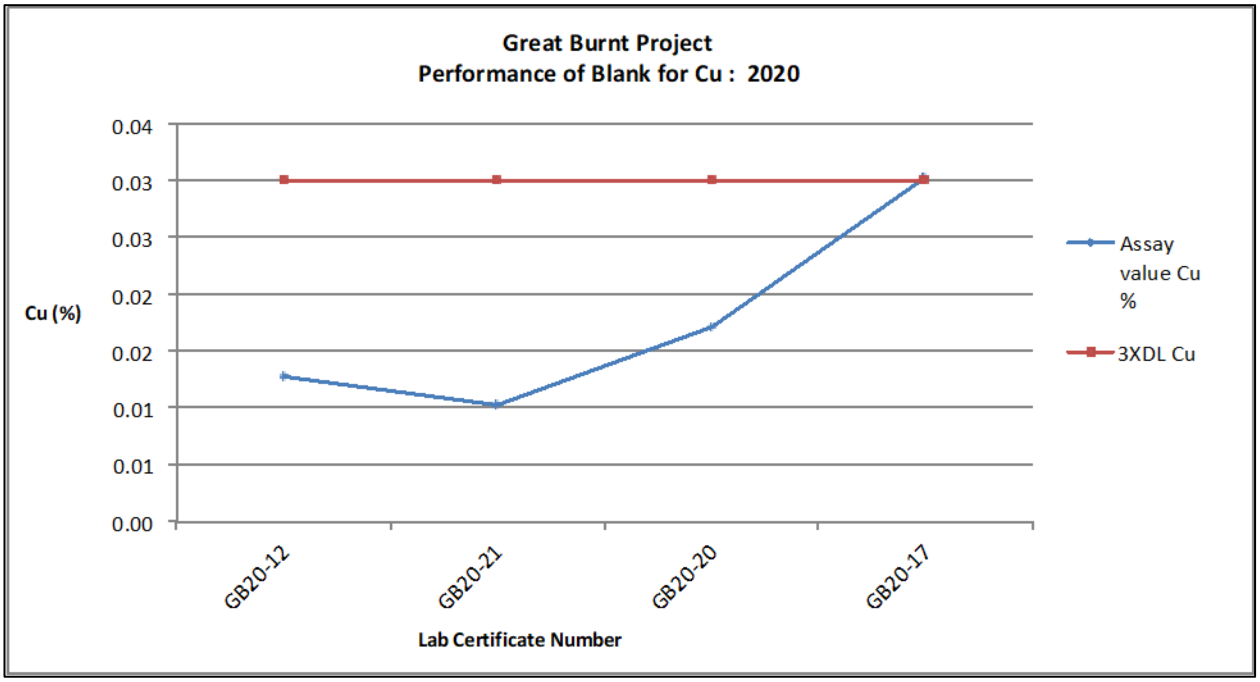


FIGURE 11.5 PERFORMANCE OF AU BLANKS FOR 2020 DRILLING AT GREAT BURNT

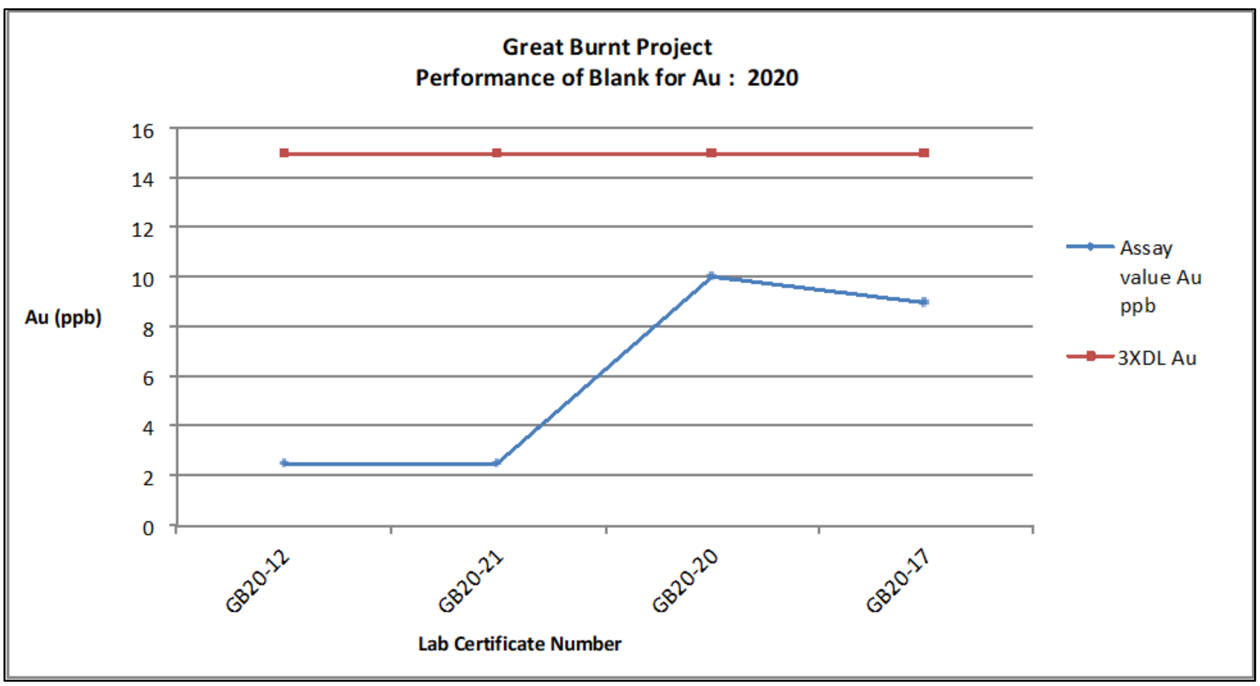
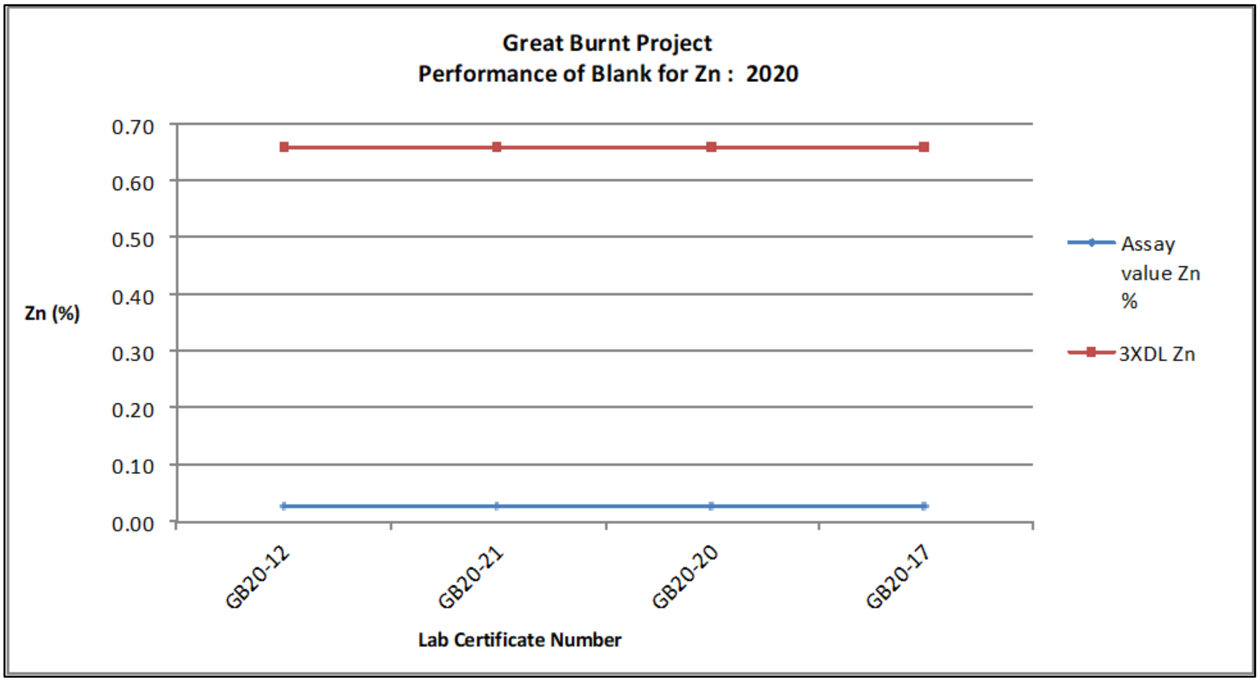


FIGURE 11.6 PERFORMANCE OF ZN BLANKS FOR 2020 DRILLING AT GREAT BURNT



11.3.4.3 Performance of Lab Duplicates

The internal laboratory coarse reject and pulp duplicate data for all analyses were examined for the 2020 drill program for copper, gold and zinc. There were a total of 37 duplicate pairs in the data set. Data were scatter graphed and estimated to have R^2 values (coefficient of determination) at or very close to 1. The average coefficients of variation ("CoV") were also calculated for the coarse reject and pulp duplicate data. Copper and zinc show the least variation, and gold the greatest. The author of this Technical Report section considers all elements to have acceptable precision.

A summary of the duplicate evaluation is given in Table 11.1.

11.4 CONCLUSION

Spruce Ridge implemented a thorough QA/QC program partway through the 2020 drill program undertaken at the Great Burnt Project, with the commencement of QC sample insertion in hole GB20-11. It is recommended that any future drilling at the Property incorporate comprehensive QC protocol with the inclusion of CRMs, blanks and duplicates. It is further recommended that at least 5% of the pulp samples from Spruce Ridge's drill programs be check assayed at a reputable secondary laboratory by equivalent analyses. QC samples should also be inserted into the check assaying sample stream.

The author of this Technical Report section is of the opinion that sample preparation, security and analytical procedures for the Great Burnt Project are adequate and that the data is of good quality and satisfactory for use in the Mineral Resource Estimate in this Technical Report.

TABLE 11.1
SUMMARY OF GREAT BURNT PROJECT LABORATORY DUPLICATE ANALYSIS 2020

Duplicate Type	Cu				Au		Zn			
	Multi-Acid / ICP		Ore Grade		Fire Assay / AA		Multi-Acid / ICP		Ore Grade	
	R^2	CoV %	R^2	CoV %	R^2	CoV %	R^2	CoV %	R^2	CoV %
Coarse Reject	1.0	0.4	0.992	7.0	0.926	19.1	0.992	3.7	1.0	1.6
Pulp	0.999	1.4	1.0	0.4	0.903	13.1	1.0	0.7	1.0	1.4

Note: *R^2 = coefficient of determination, CoV = coefficients of variation.*

12.0 DATA VERIFICATION

12.1 2019 DATABASE VERIFICATION

P&E conducted verification of the 2016 and 2018 drill hole assay data by comparison of the database entries with assay certificates, which were downloaded in digital format directly from Eastern Analytical.

Assay data from 2016 and 2018 were verified for the Great Burnt Property, with 100% (a total of 297 entries) of the drilling assay data checked for both Cu and Au, against the Eastern Analytical certificates. A total of six errors for copper and 23 for Au were detected and subsequently corrected in the database. The majority of the corrections made were updating the database results with revised certificate results, or later-tested total pulp metallic results.

12.2 2021 DATABASE VERIFICATION

P&E conducted verification of the 2020 drill hole assay data by comparison of the database entries with assay certificates, which were provided in digital format directly from Eastern Analytical. Additional verification of the 2016 and 2018 data was also undertaken, with zinc values only checked in 2021.

Assay data from 2020 were verified against the Eastern Analytical certificates, with 100% (a total of 287 entries) of the drilling assay data checked for Cu, Au and Zn. A total of 137 entries, 100% of the 2016 data, were verified for Zn.

No errors were encountered.

12.3 P&E SITE VISIT AND INDEPENDENT SAMPLING

12.3.1 2014 Site Visit

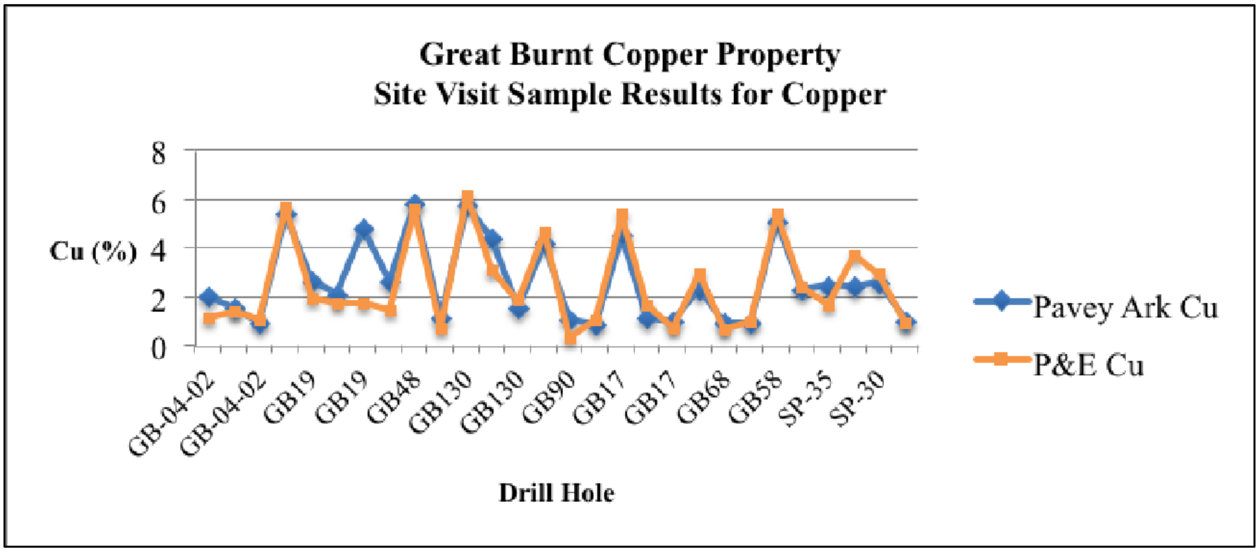
The Great Burnt Property was visited by Mr. Eugene Puritch, P.Eng., of P&E on October 26, 2014 for the purposes of completing a site visit and conducting independent sampling. In addition to the site visit, Mr. Puritch visited the Newfoundland Department of Natural Resources Drill Core Storage Facility located at Buchans, Newfoundland on October 27, 2014, for the purpose of reviewing and sampling archived drill core from the Great Burnt Property that is stored at the Buchans Drill Core Storage Facility.

Mr. Puritch collected 28 samples from 12 diamond drill holes during the 2014 site visit. Four samples were collected from two Celtic NQ drill holes that were stored on the Great Burnt Property. The verification samples from Celtic drill holes were collected from the entire half drill core that remained in the drill core box. At the Buchans drill core storage facility 19 drill core samples were taken from 6 ASARCO EX holes from the Great Burnt Copper Deposit and five drill core samples were taken from four ASARCO EX holes from the South Pond Copper-Gold Deposit. The ASARCO drill core had been split and verification samples were taken by collecting approximately 50% of the split fragments in the original ASARCO assay interval. The samples were bagged and taken directly by Mr. Puritch to AGAT Laboratories ("AGAT") in Mississauga, ON for analysis.

Samples analyzed at AGAT and collected during the 2014 site visit were analyzed for copper, gold and other base metals by ICP-MS. All samples were also analyzed by pychnometer to determine density.

Results of the Great Burnt Project 2014 independent drill core sampling program are presented in Figure 12.1.

FIGURE 12.1 GREAT BURNT PROPERTY 2014 SITE VISIT DRILL CORE SAMPLE RESULTS FOR COPPER



12.3.2 2019 Site Visit

The Great Burnt Property was again visited by Mr. Eugene Puritch, P.Eng., on August 12, 2019, for the purposes of completing a site visit and conducting independent sampling. Mr. Puritch collected six drill core samples from three diamond drill holes during the 2019 site visit. Two drill core samples were collected from one of Spruce Ridge's 2016 drill holes and four drill core samples from two of the 2018 drill holes. Drill core samples were selected over a range of grades from the stored drill core and collected by taking a 1⁄4 split of the half drill core remaining in the drill core box. Samples were placed into plastic bags with a unique tag identification and taken directly by Mr. Puritch to AGAT in Mississauga, ON for analysis.

Drill core samples collected during the 2019 site visit were analyzed at AGAT for copper and other base metals by Sodium Peroxide Fusion with ICP-OES finish. Drill core samples were analyzed for gold by fire assay with AAS finish. All drill core samples were also analyzed to determine core density by the wet immersion method.

AGAT has developed and implemented at each of its locations a Quality Management System ("QMS") designed to ensure the production of consistently reliable data. The system covers all laboratory activities and takes into consideration the requirements of ISO standards.

AGAT maintains ISO registrations and accreditations. ISO registration and accreditation provide independent verification that a QMS is in operation at the location in question. Most AGAT laboratories are registered or are pending registration to ISO 9001:2000.

Results of the Great Burnt Project site visit drill core samples are presented in Figures 12.2 and 12.3.

FIGURE 12.2 GREAT BURNT PROPERTY 2019 SITE VISIT DRILL CORE SAMPLE RESULTS FOR COPPER

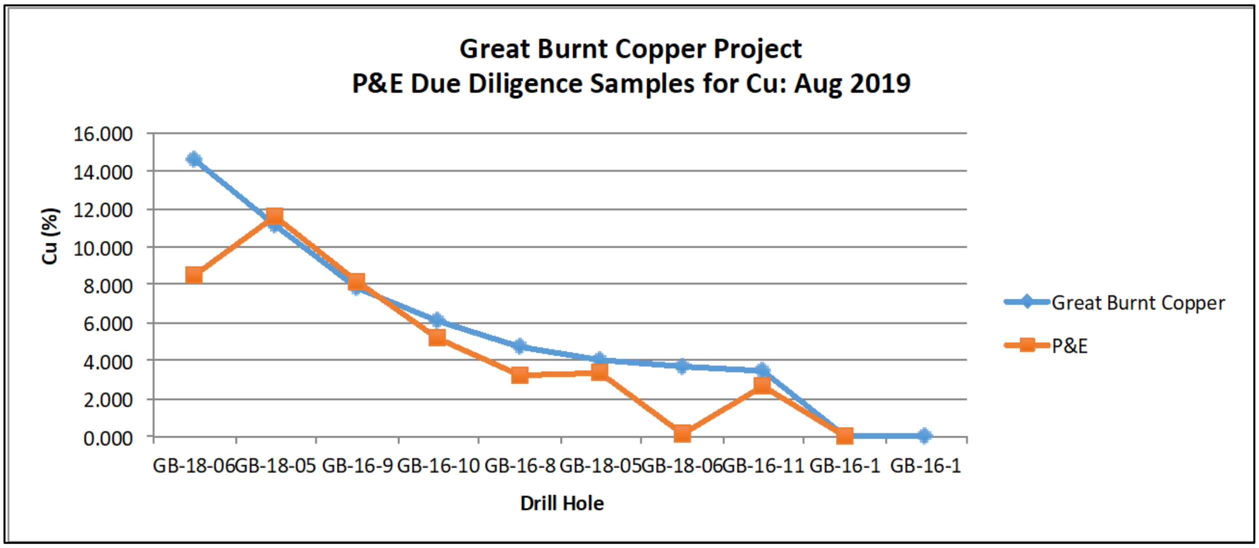
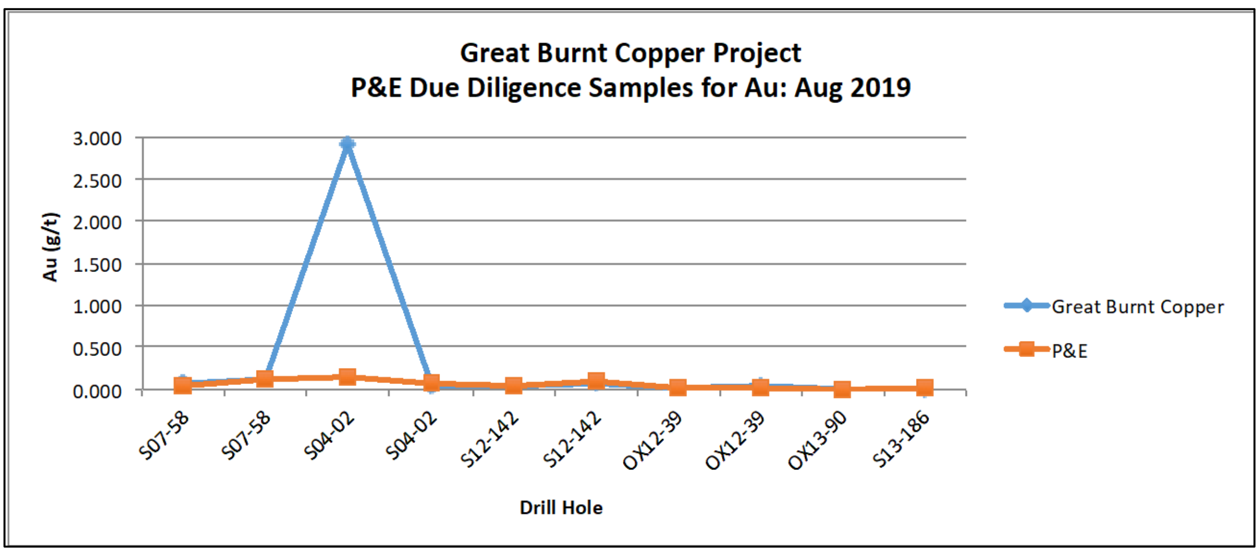


FIGURE 12.3 GREAT BURNT PROPERTY 2019 SITE VISIT DRILL CORE SAMPLE RESULTS FOR GOLD



12.3.3 2020 Site Visit

Mr. Tim Froude, P. Geo., of P&E, visited the Property on December 7, 2020 for the purpose of carrying out a site visit and independent verification sampling program. Mr. Froude collected 18 drill core samples from 15 diamond drill holes drilled during the 2020 drilling at the Project. Drill core samples were collected by Mr. Froude and delivered to and analyzed by AGAT in the same fashion as described in section 12.3.2.

At no time were any employees of Spruce Ridge advised as to the identification of the drill core samples to be chosen during the site visit.

Results of the 2020 Great Burnt Project site visit drill core samples are presented in Figures 12.4 to 12.6.

FIGURE 12.4 GREAT BURNT PROPERTY 2020 SITE VISIT DRILL CORE SAMPLE RESULTS FOR COPPER

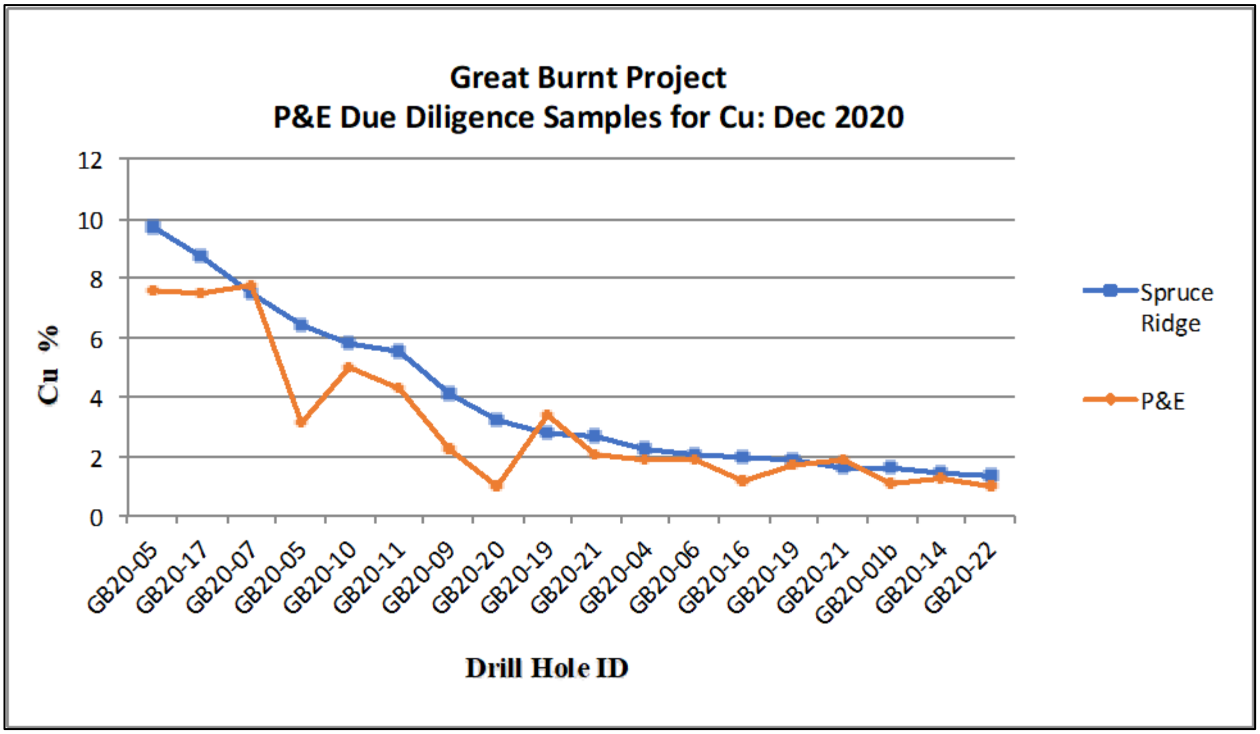


FIGURE 12.5 GREAT BURNT PROPERTY 2020 SITE VISIT DRILL CORE SAMPLE RESULTS FOR GOLD

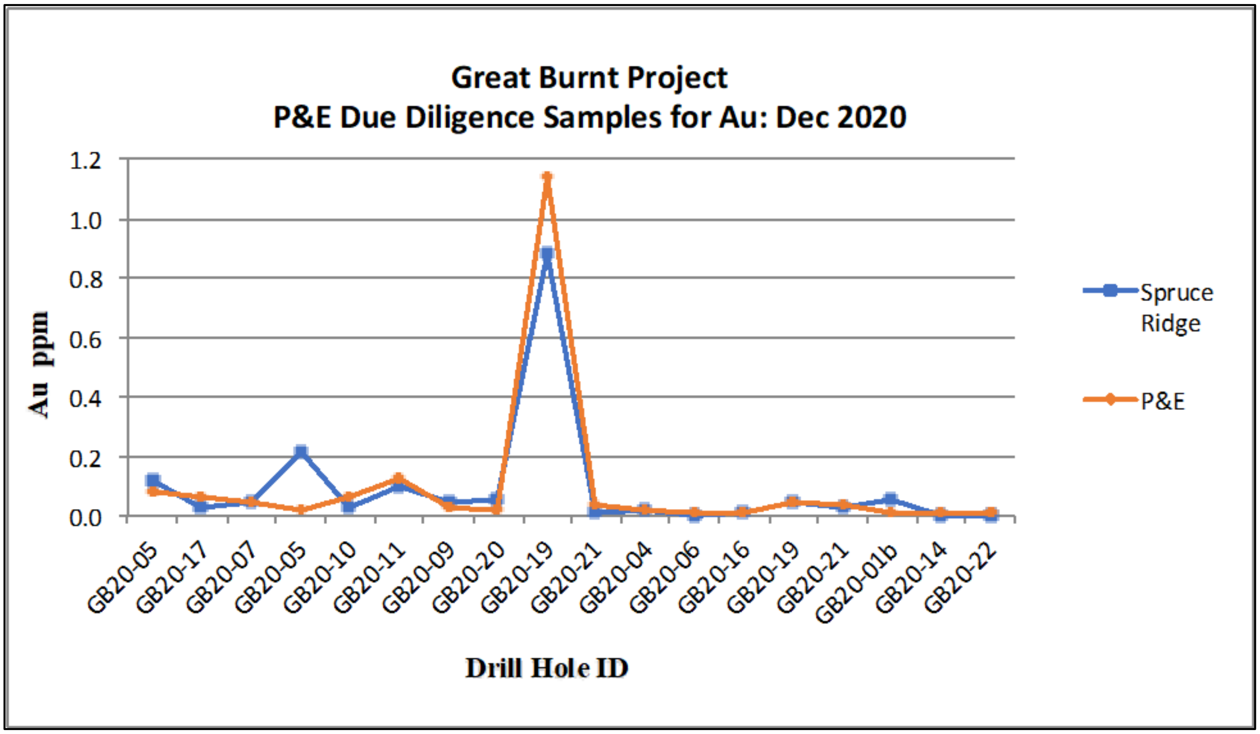
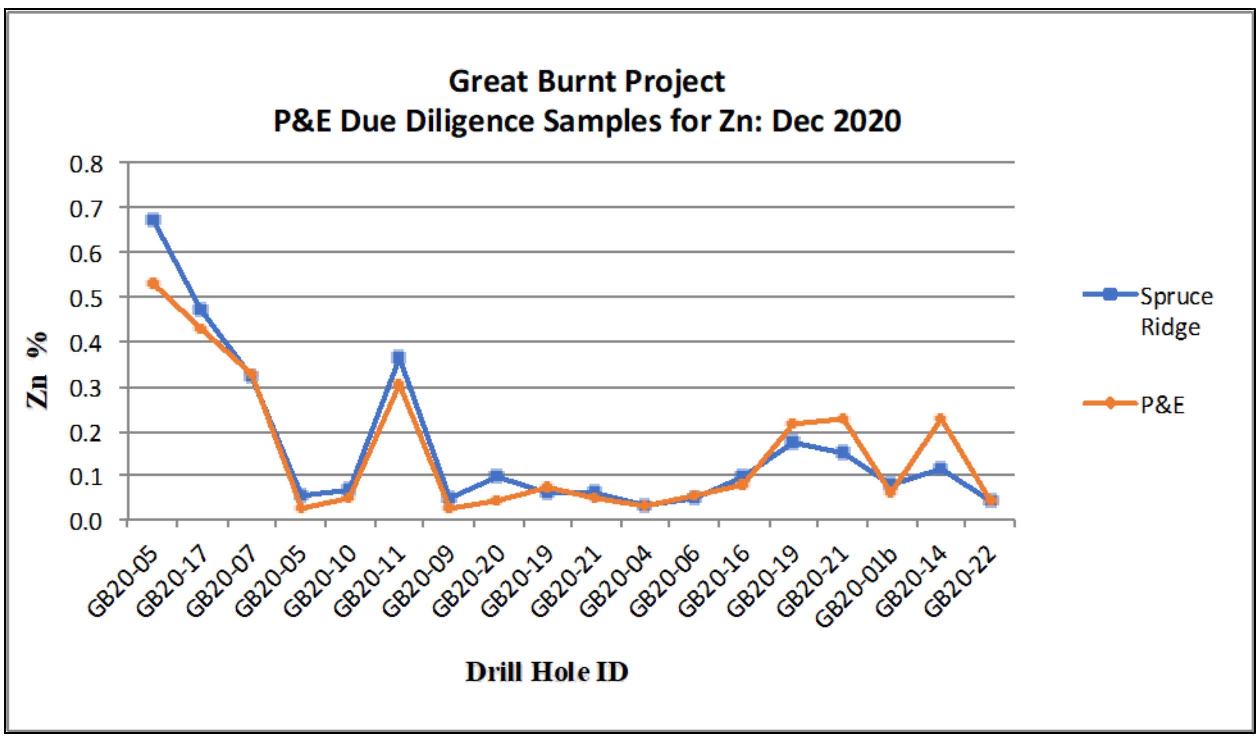


FIGURE 12.6 GREAT BURNT PROPERTY 2020 SITE VISIT DRILL CORE SAMPLE RESULTS FOR ZINC



12.4 CONCLUSION

The authors of this Technical Report section consider that there is acceptable correlation between copper, gold and zinc assay values in Spruce Ridge's database and the independent drill core verification assays. It is also the author's opinion that the data are of excellent quality and appropriate for use in a Mineral Resource Estimate.

13.0 MINERAL PROCESSING AND METALLURGICAL TESTING

13.1 GENERAL

An investigative metallurgical test work program was completed at SGS Lakefield in 2021 on drill core samples originating from the Great Burnt Property. Mineralogical, grinding and flotation tests were performed with the objective of producing a readily-marketable copper concentrate. Since the Mineral Resource tonnage was judged to be relatively low, in the order of 1 million tonnes, and found in a remote location, and the mineralized material could potentially be processed in a custom processing facility, the utility of mineralized material sorting was investigated in a short series of tests.

The results from this test work program are summarized below. A major proportion of this information, including tables and figures, was provided by SGS Lakefield.

13.2 DRILL CORE SAMPLES FOR TESTING

Three sets of drill core samples from the Great Burnt Property were received by SGS Lakefield in mid-May 2021. The material was comprised of quarter-cut NQ drill core samples. The samples were inventoried and segregated into three sample groups - Waste, Mid-Grade (identified by SGS as ROM (Run of Mine)) and High-Grade. Core pieces from each of these sample groups was manually and separately broken into segments targeting a 75 mm (3 inch) top size. The waste, mid-grade and high-grade samples were then screened into two size fractions +13 mm and -13 mm, and the coarser portion was sent for mineralized material sorting test work while the finer portion was held in freezer storage.

The mid-grade drill core material was subsampled, and approximately 60 kg was used for grindability and flotation test work, while the remaining sample was used for mineralized material sorting test work. The mid-grade composite for metallurgical test work was stage-crushed and subsampled for grindability test work. Once the grindability test charges had been collected, the remaining material was crushed to minus 10 mesh and subsampled for head analysis and mineralogy test work. The minus 10 mesh material was homogenously split into 2 kg flotation charges and placed in freezer storage until required for testing.

The analyses of the mid-grade composite material (aka ROM) used for metallurgical testing are summarized in Table 13.1. Not included in the analyses is sulphur. Flotation testing indicated that sulphur content ranged from 10 to 11%.

TABLE 13.1
GREAT BURNT METALLURGICAL COMPOSITE ANALYSES

Sample ID	ROM Head Assay	Sample ID	ROM Head Assay
Cu %	2.82	Mn g/t	1100
Fe %	19.8	Mo g/t	< 10
S %	10.6	Na g/t	8800
Au g/t	0.03	Ni g/t	40
Ag g/t	< 4	P g/t	453
Al g/t	51000	Pb g/t	< 40
As g/t	< 30	Sb g/t	< 20
Ba g/t	66.3	Se g/t	< 60
Be g/t	< 0.3	Sn g/t	< 20
Bi g/t	< 20	Sr g/t	35
Ca g/t	22400	Ti g/t	5790
Cd g/t	< 10	Tl g/t	< 30
Co g/t	242	U g/t	< 30
Cr g/t	110	V g/t	189
K g/t	8070	Y g/t	17.1
Li g/t	< 20	Zn g/t	2410
Mg g/t	45200	-	-

The copper content was identified as 2.82%, a value confirmed in multiple flotation tests (below).

13.3 MINERALOGY

A subsample of the mid-grade composite material was used for a mineralogical study to determine its mineral composition. This sample was stage ground to a targeted particle size P_{80} of 106 µm. The overall mineral composition and liberation data are summarized in Tables 13.2 and 13.3.

TABLE 13.2
GREAT BURNT COMPOSITE MINERAL COMPOSITION

Mineral	Distribution (%)	Mineral	Distribution (%)
Chalcopyrite	8.16	K-Feldspar	0.48
Pyrite	3.21	Other Silicates	0.48
Pyrrhotite	17.8	Calcite	0.80
Sphalerite	0.38	Other Carbonates	0.05
Other Sulphides	0.01	Fe-Oxide	0.06
Quartz	14.6	Rutile	0.73
Micas	8.76	Ilmenite	0.57
Amphibole/Pyroxene	13.8	Other Oxides	0.00
Plagioclase	7.80	Apatite	0.17
Chlorite/Clays	21.4	Other	0.08
Epidote	0.76	-	-

TABLE 13.3
MINERAL LIBERATION, GREAT BURNT COMPOSITE

Mineral Name	Combined	Mineral Name	Combined
Free Pyrite	80.4	**Free Cu-Sulphide**	77.1
Lib Pyrite	9.43	**Lib Cu-Sulphide**	8.66
Midds Pyrite	3.20	**Midds Cu-Sulphide**	5.18
Sub Midds Pyrite	2.62	**Sub Midds Cu-Sulphide**	6.08
Locked Pyrite	4.31	**Locked Cu-Sulphide**	2.95
Total	100.0	**Total**	100.0

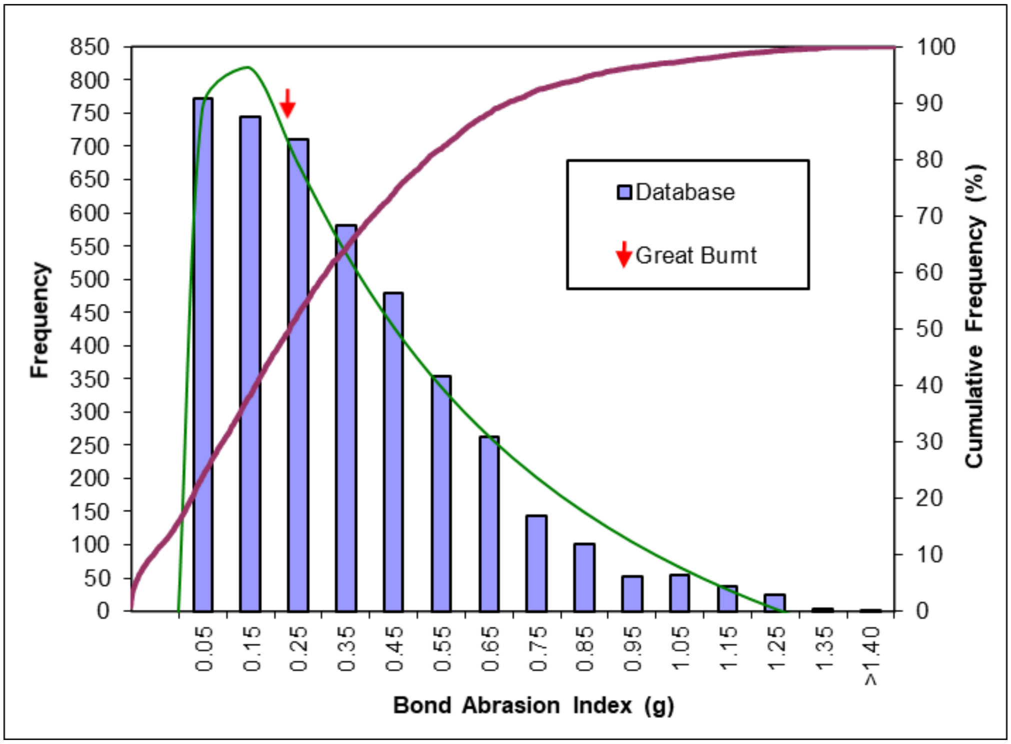
The mineralogy study indicated the majority of the sulphide minerals were chalcopyrite, pyrite, and pyrrhotite, which respectively represent 8.2%, 3.2%, and 17.8% of the sample. The liberation of both pyrite and chalcopyrite was high since these minerals were respectively considered to be 89.8% and 85.7% liberated (free + liberated).

13.4 METALLURGICAL TEST WORK AND RESULTS

13.4.1 Comminution Testing

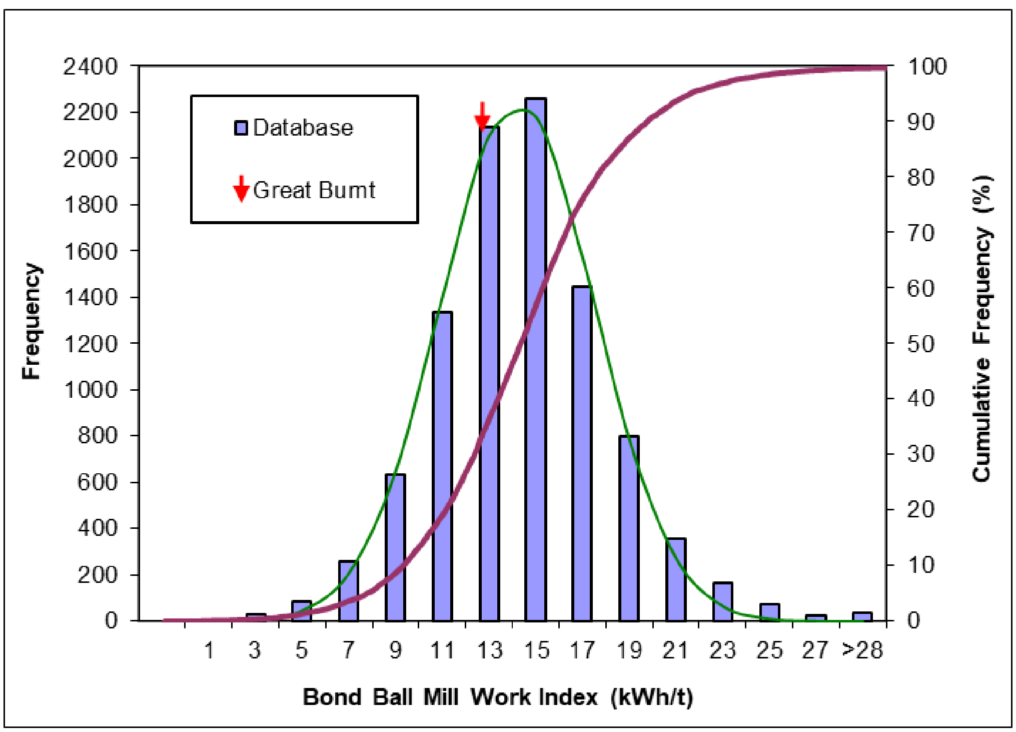
Abrasion (“Ai”) Bond ball mill (“BMi”) indices tests were determined for the Great Burnt drill core composite sample. The abrasion and ball mill work indices results were compared to the SGS database, as shown in Figures 13.1 and 13.2.

FIGURE 13.1 GREAT BURNT SAMPLE - ABRASION INDEX RESULT



Source: *SGS Lakefield (2021)*

FIGURE 13.2 GREAT BURNT SAMPLE - BOND BALL MILL WORK INDEX RESULT



Source: *SGS Lakefield (2021)*

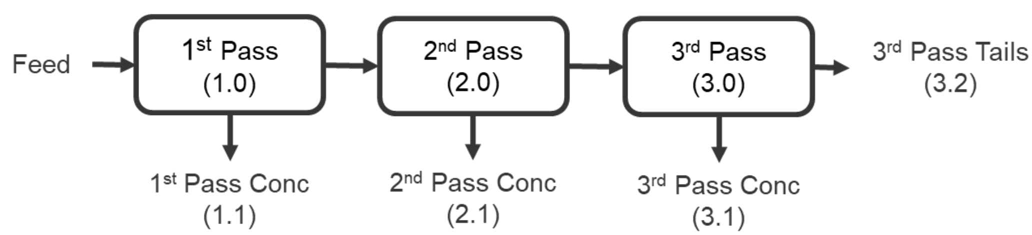
The Bond abrasion and ball mill work indices were 0.225 g and 12.7 kWh/t, respectively. Both can be considered moderately abrasive and hard when compared to the extensive SGS grindability database.

13.4.2 Mineralized Material Sorting

Several drill core composite samples were sent to Steinert in Kentucky, USA, to determine whether Great Burnt mineralization would be amenable to sorting using a selected sorting technology. A representative sample, received as ¼ drill core samples and manually broken into <76 mm pieces and then screened to remove minus 13 mm material while the +13 mm fraction was shipped to Steinert for testing. The fines fraction was weighed, assayed, and stored in freezer storage while awaiting test results from Steinert. Additionally, drill core samples of waste and high-grade mineralization originating from the Great Burnt Copper Deposit were prepared in the same manner as the Mineral Resource-representing sample, excluding assaying, and sent to Steinert to calibrate the mineralized material sorting machine.

Once all the drill core samples were received by Steinert, their sorting machine was calibrated using the waste and high-grade samples using X-ray Transmission ("XRT") sensing which relies on material atomic density. The composite material was then processed through the Steinert equipment to give a preliminary assessment of the material's amenability to sorting. The simplified flowsheet of the test is illustrated in Figure 13.3 and the results are summarized in Table 13.4.

FIGURE 13.3 SIMPLIFIED STEINERT FLOWSHEET



Source: *SGS Lakefield (2021)*

TABLE 13.4
STEINERT TEST RESULTS, 3-PASS TEST

Product	Mass		Assay, %, g/t		Distribution (%)	
	kg	%	Cu	Au	Cu	Au
1st Pass	50.3	30.9	6.18	0.11	64.3	46.7
1st + 2nd Pass	61.8	38.0	5.77	0.11	73.8	55.4
1st + 2nd + 3rd Pass	72.3	44.4	5.35	0.10	80.0	62.5
3rd Pass Tails	88.0	54.1	1.03	0.05	18.7	37.1
Fines	2.5	1.5	2.38	0.02	1.2	0.4
3rd Pass Tails + Fines	90.5	55.6	1.07	0.05	20.0	37.5
ROM (Calc.)	162.8	100.0	2.97	0.07	100.0	100.0

The mineralized material sorting test resulted in a concentrate product grading 5.35% Cu with a copper recovery of 80.0%. Approximately 54% of the starting mass was rejected and the concentrate was upgraded by 1.8 times of the original feed grade. While the preliminary test indicated some potential in upgrading this mineralized material, the 3rd pass tails still graded ~1% Cu, possibly too high to be left behind as rejects.

While the calculated grade of the sample subjected to sorting was higher than average at 2.97% Cu, a simple proportional calculation suggested the rejected material would contain 0.74% Cu. The copper value of such material would be approximately $75/t, close to the total costs of shipping, processing and refining. Additional tests combined with a financial analysis appear to be justified.

13.4.3 Flotation Testing

A flotation test program was performed on the drill core composite sample material to determine concentration potential. Two rougher flotation tests, F1 and F2, were performed to examine the copper flotation kinetics and mass pull characteristics. The rougher test conditions and results are summarized in Table 13.5 and Table 13.6. The very positive rougher copper performance is illustrated in Figure 13.4.

TABLE 13.5
ROUGHER TEST CONDITIONS

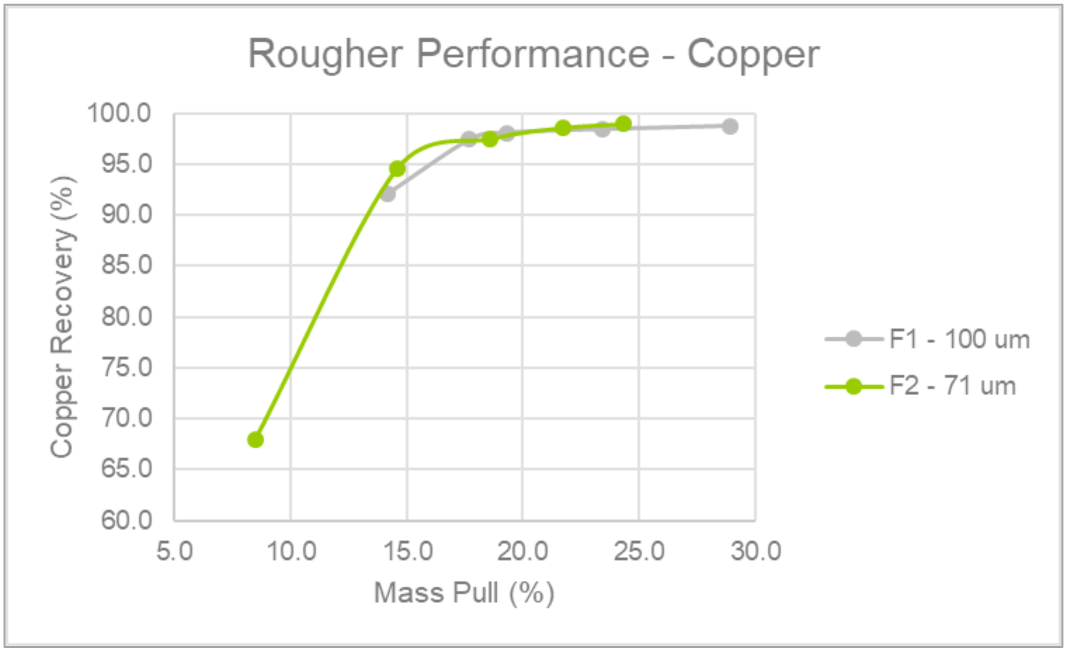
Test	Grind P_{80}	Reagent* (g/t)		Float (min)	pH
		3418A	PAX		
F1	100	40	20	10	8.2 - 8.5
F2	71	40	-	6	8.4 - 8.5

*MIBC added as needed

TABLE 13.6
ROUGHER FLOTATION TEST RESULTS

Test	Product	Weight		Assays, %, g/t				Distribution, %			
		g	%	Cu	Fe	S	Au	Cu	Fe	S	Au
F1	Rougher 1	284.3	14.2	19.0	32.5	31.8	0.12	92.1	22.5	41.3	55.2
	Pb Rougher 1 - 2	354.8	17.7	16.1	33.3	30.8	0.11	97.4	28.8	50.0	65.5
	Pb Rougher 1 - 3	386.9	19.3	14.9	33.8	30.4	0.11	98.1	31.9	53.8	67.5
	Pb Rougher 1 - 4	470.0	23.4	12.3	37.1	31.0	0.09	98.4	42.5	66.6	71.6
	Pb Rougher 1 - 5	580.0	28.9	9.98	39.7	31.3	0.08	98.7	56.2	83.0	76.9
	Rougher Tails	1426.3	71.1	0.05	12.6	2.60	0.01	1.3	43.8	17.0	23.1
	Head (Calc.)	2006.3	100.0	2.92	20.4	10.9	0.03	100.0	100.0	100.0	100.0
F2	Rougher 1	170.3	8.5	22.7	30.5	31.2	0.31	67.9	12.6	23.8	47.0
	Pb Rougher 1 - 2	292.6	14.6	18.4	28.7	28.8	0.24	94.6	20.3	37.8	63.3
	Pb Rougher 1 - 3	373.5	18.6	14.9	30.2	27.8	0.21	97.5	27.2	46.7	68.3
	Pb Rougher 1 - 4	436.7	21.7	12.9	30.8	27.0	0.18	98.6	32.5	52.9	71.1
	Pb Rougher 1 - 5	488.6	24.3	11.5	30.9	26.5	0.17	99.0	36.5	58.2	73.0
	Rougher Tails	1519.3	75.7	0.04	17.3	6.13	0.02	1.0	63.5	41.8	27.0
	Head (Calc.)	2007.9	100.0	2.83	20.6	11.1	0.06	100.0	100.0	100.0	100.0

FIGURE 13.4 ROUGHER PERFORMANCE CURVES



Source: *SGS Lakefield (2021)*

The initial test, F1, was performed using a copper-selective collector, 3418A, for the first two rougher concentrate pulls and then PAX (potassium amyl xanthate) for the last three concentrate pulls. The results of F1 indicated that 97.4% of the copper was recovered in the first two pulls, in four minutes of flotation time, with a mass pull of 17.7%. The last three rougher pulls had small copper gains and only increased overall copper rougher recovery by 1.3%, for a significantly additional mass pull of 11.2%.

Test F2 continued the selective flotation approach, using only 3418A for copper collection and a finer primary grind. Flotation times were reduced and 3418A dosages were incrementally distributed through the rougher stages to determine favourable conditions for reducing gangue collection. The results indicated that copper recovery was 94.6% after one minute of flotation, while the remaining five minutes of flotation had minimal copper gains with increasing mass pull. The finer primary grind did indicate a significant effect on overall copper performance, since the overall performance was comparable to the previous test, F1.

Cleaner flotation test work was performed using conditions explored in the rougher tests to target a final copper concentrate grade of at least 25% Cu. A typical three stage cleaner plus cleaner scavenger circuit was used for this test work to upgrade the copper minerals. The cleaner test conditions and results are summarized in Tables 13.7 and 13.8. The copper cleaner performance is illustrated in Figure 13.5.

TABLE 13.7
CLEANER TEST CONDITIONS

Test	Grind P_{80} (microns)		Reagent* (g/t) 3418A		Float (min)		pH	
	Rougher	Cleaner	Rougher	Cleaner	Rougher	Cleaner	Rougher	Cleaner
F3	99	-	40	7.5	4	10	8.3	10.0
F4	100	-	20	7.5	4	11	11.0	11.0
F5	~100	19	20	7.5	4	12	11.0	11.0
F6	55**	-	20	7.5	4	12	11.0	11.0
F7	70	-	20	7.5	4	12	11.0	11.0

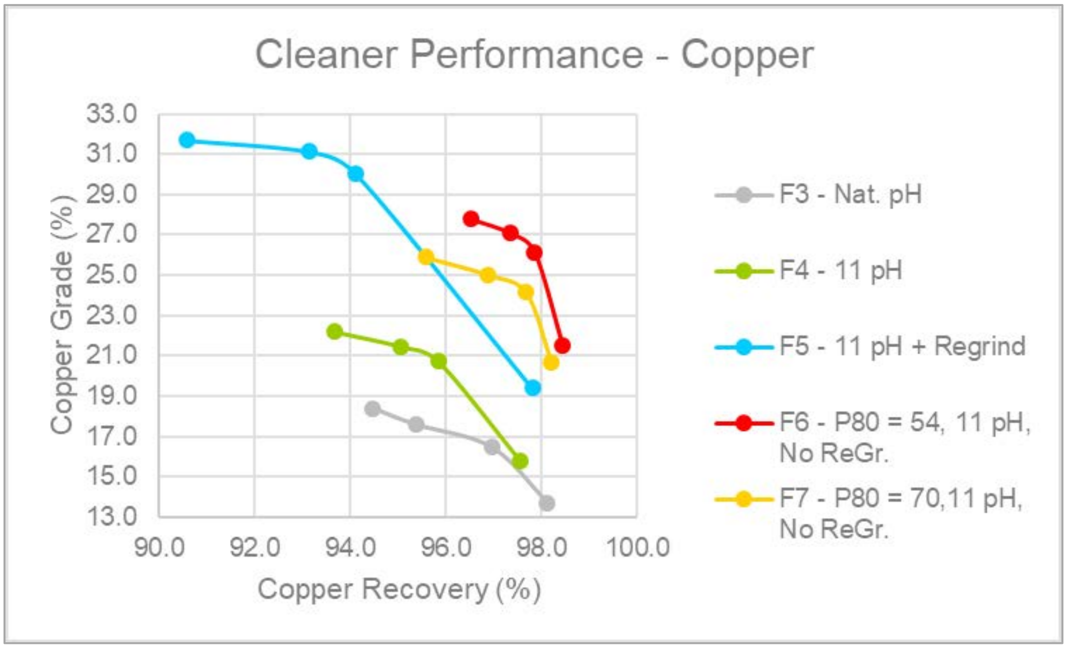
*MIBC and Lime added as needed. ** Rougher Tails

TABLE 13.8
CLEANER FLOTATION TEST RESULTS

Test	Product	Weight		Assays, %, g/t				Distribution, %			
		g	%	Cu	Fe	S	Au	Cu	Fe	S	Au
F3 - Nat. pH	3rd Cleaner Conc	288.6	14.4	18.4	35.4	34.8	0.15	94.5	25.2	45.8	53.5
	2nd Cleaner Conc	304.6	15.2	17.6	35.6	34.4	0.15	95.4	26.7	47.8	55.1
	1st Cleaner Conc	331.2	16.5	16.5	35.6	33.6	0.14	97.0	29.0	50.8	57.4
	Rougher Conc	402.5	20.1	13.7	34.0	30.1	0.12	98.1	33.7	55.2	60.4
	1st Cleaner Scav Conc	17.1	0.9	2.50	43.1	29.6	0.08	0.8	1.8	2.3	1.7
	1st Cleaner Scav Tails	54.2	2.7	0.42	21.4	8.50	0.02	0.4	2.9	2.1	1.3
	Rougher Tails	1602.2	79.9	0.07	16.8	6.14	0.02	1.9	66.3	44.8	39.6
	Head (Calc.)	2004.7	100.0	2.80	20.3	10.9	0.04	100.0	100.0	100.0	100.0
F4 - 11 pH	3rd Cleaner Conc	229.8	11.5	22.2	32.1	33.5	0.19	93.7	18.3	36.1	53.1
	2nd Cleaner Conc	241.2	12.0	21.5	32.2	33.2	0.19	95.0	19.3	37.6	54.4
	1st Cleaner Conc	251.8	12.6	20.7	32.1	32.7	0.18	95.8	20.0	38.6	55.7
	Rougher Conc	337.0	16.8	15.8	29.5	27.2	0.15	97.6	24.7	42.9	59.5
	1st Cleaner Scav Conc	13.8	0.7	5.40	35.2	27.9	0.12	1.4	1.2	1.8	2.0
	1st Cleaner Scav Tails	71.4	3.6	0.27	19.5	7.54	0.02	0.4	3.5	2.5	1.7
	Rougher Tails	1666.8	83.2	0.08	18.2	7.30	0.02	2.4	75.3	57.1	40.5
	Head (Calc.)	2003.8	100.0	2.72	20.1	10.6	0.04	100.0	100.0	100.0	100.0
F5 - 11 pH + Regrind	3rd Cleaner Conc	161.1	8.1	31.7	30.1	34.6	0.22	90.6	12.2	25.8	39.7
	2nd Cleaner Conc	168.7	8.4	31.1	30.0	34.3	0.22	93.1	12.8	26.8	42.2
	1st Cleaner Conc	176.7	8.8	30.0	29.9	33.8	0.22	94.1	13.3	27.7	43.5
	Rougher Conc	284.5	14.2	19.4	30.2	29.7	0.19	97.8	21.7	39.2	61.6
	1st Cleaner Scav Conc	10.9	0.5	15.9	31.1	31.4	1.04	3.1	0.9	1.6	12.7
	1st Cleaner Scav Tails	96.9	4.8	0.36	30.5	22.2	0.05	0.6	7.5	10.0	5.4
	Rougher Tails	1716.0	85.8	0.07	18.1	7.64	0.02	2.2	78.3	60.8	38.4
	Head (Calc.)	2000.5	100.0	2.82	19.8	10.8	0.04	100.0	100.0	100.0	100.0

Test	Product	Weight		Assays, %, g/t				Distribution, %			
		g	%	Cu	Fe	S	Au	Cu	Fe	S	Au
F6 - Finer Pri. P80,11 pH, No ReGr.	3rd Cleaner Conc	197.6	10.0	27.8	30.7	34.7	0.21	96.5	15.2	31.6	42.3
	2nd Cleaner Conc	204.3	10.3	27.1	30.8	34.5	0.21	97.3	15.8	32.4	44.0
	1st Cleaner Conc	212.9	10.8	26.2	30.8	33.9	0.21	97.8	16.4	33.2	45.0
	Rougher Conc	260.7	13.2	21.5	29.3	29.6	0.18	98.4	19.2	35.5	47.5
	1st Cleaner Scav Conc	6.4	0.3	4.51	37.9	27.4	0.25	0.5	0.6	0.8	1.6
	1st Cleaner Scav Tails	41.4	2.1	0.11	20.4	8.01	0.02	0.1	2.1	1.5	0.8
	Rougher Tails	1714.5	86.8	0.05	18.8	8.17	0.03	1.6	80.8	64.5	52.5
	Head (Calc.)	1975.2	100.0	2.88	20.2	11.0	0.05	100.0	100.0	100.0	100.0
F7 - p80 = 70,11 pH, No ReGr.	3rd Cleaner Conc	210.9	10.5	25.9	31.9	34.5	0.21	95.6	16.6	34.1	52.7
	2nd Cleaner Conc	221.2	11.0	25.0	31.9	34.2	0.21	96.9	17.4	35.5	54.3
	1st Cleaner Conc	231.3	11.5	24.1	31.8	33.7	0.20	97.7	18.2	36.5	55.9
	Rougher Conc	271.7	13.5	20.7	30.3	30.1	0.18	98.2	20.3	38.3	58.6
	1st Cleaner Scav Conc	6.5	0.3	3.91	34.4	23.9	0.20	0.4	0.6	0.7	1.5
	1st Cleaner Scav Tails	33.9	1.7	0.15	19.0	6.77	0.03	0.1	1.6	1.1	1.2
	Rougher Tails	1736.6	86.5	0.06	18.6	7.57	0.02	1.8	79.7	61.7	41.4
	Head (Calc.)	2008.3	100.0	2.85	20.2	10.6	0.04	100.0	100.0	100.0	100.0

FIGURE 13.5 COPPER CLEANER PERFORMANCE



Source: *SGS Lakefield (2021)*

Test conditions for flotation test F3 used modified F1 rougher conditions for initial cleaner flotation conditions, which included reduced float times and collector addition. No regrind was implemented to improve copper performance, since copper liberation was indicated to be good according to the mineralogy examination. The resulting copper concentrate had excellent copper recoveries, 94.5%, however, the grade was lower than the target of 25% Cu, at 18.4% Cu.

Test F4 used modified F3 conditions which included reduced collector dosage and raised pH - 11, in both the rougher and cleaner stages. This resulted in better copper selectivity against iron, as iron rougher recovery was lower than F3, from ~34% to ~25%. The copper final concentrate graded 22.2% Cu with a copper recovery of 93.7%. The copper concentrate grade was still lower than the target 25% Cu.

Test F5 explored regrinding the rougher concentrate, with F4's conditions, to improve copper liberation. This resulted in a copper concentrate grade of 31.7% Cu with a copper recovery of 90.6%. Although recovery decreased, the resulting copper grade was higher than the target which suggested potential benefits of increased mineral liberation.

Tests F6 and F7 investigated finer primary grinds to alleviate the need for regrinding and used conditions from F4. Test F6 had the finest primary grind, P_{80} of ~54 microns, while F7 tested a slightly coarser primary grind than F6, P_{80} of 70 microns. Both tests resulted in excellent performances as F6 produced a copper concentrate grading 27.8% Cu with a copper recovery of 96.5% while F7 produced a copper concentrate grading 25.9% Cu with a copper recovery of 95.6%. The finest primary grind test performed the best and demonstrated that a regrind mill is not necessary if mineral liberation is mostly achieved in primary grinding.

A locked cycle test was performed on the drill core composite mineralized material to simulate a continuous flotation process. Test conditions from F6 were used for the locked cycle test to ensure high mineral liberation during primary grinding. The metallurgical projection and stability check for this locked cycle test are summarized in Table 13.9 and Table 13.10.

TABLE 13.9
LOCKED CYCLE TEST RESULTS - METALLURGICAL PROJECTION

Product	Weight		Assays, %, g/t				% Distribution			
	Dry	%	Cu	Fe	S	Au	Cu	Fe	S	Au
Cu 3rd Cl Conc	1338.7	11.1	25.1	32.6	34.9	0.23	98.5	18.1	35.6	58.6
Cu 1st Cl Scav Tails	256.3	2.1	0.17	19.9	8.03	0.03	0.1	2.1	1.6	1.4
Rougher Tails	10430.3	86.7	0.04	18.5	7.91	0.02	1.3	79.8	62.8	40.0
Head (calc.)	12025.3	100.0	2.83	20.1	10.9	0.04	100.0	100.0	100.0	100.0

TABLE 13.10
LOCKED CYCLE TEST - STABILITY CHECK

Total Products	Weight		In/Out (%)			
	g	Wt %	Cu	Fe	S	Au
Cycle A	1974.9	98.3	98.8	97.2	96.4	90.3
Cycle B	1993.7	99.3	99.3	100.0	98.6	96.4
Cycle C	1996.4	99.4	100.9	98.2	99.2	105.8
Cycle D	2020.8	100.6	101.6	98.9	102.4	97.1
Cycle E	2024.6	100.8	99.7	103.5	102.1	106.7
Cycle F	2014.9	100.3	98.9	100.4	99.0	94.7
Average of C-F	-	100.3	100.3	100.2	100.7	101.1

The locked cycle test results indicate very good copper metallurgical performance. The locked cycle final copper concentrate grade was 25.1% Cu with a copper recovery of 98.5%. The produced copper concentrate grade was lower than experienced in F6, which could be attributed to the nature of the test with circulating tailing streams and some collection of gangue and middling material.

The stability of the locked cycle test was high according to the averaged mass and metal accountability in cycles C to F, between 100 to 101%. Gold accountability indicated less stability, between 90 to 107% during all cycles, which could be attributed to the low feed grades and low analytical detection limits.

13.4.4 Summary of Metallurgical Testing and Recommendations

A drill core composite sample, representing the Great Burnt Mineral Resource, assaying 2.82% Cu and 0.03 g/t Au was subject to a series of metallurgical tests at the SGS Lakefield laboratories.

Mineralogical examinations indicated high liberation of chalcopyrite and other sulphides at a moderate grind size.

The applicability of mineralized material sorting was tested to address the potential costs of long-distance material haulage and toll processing. The sorting tests indicated potential, however, the sorting reject copper grade was determined to be elevated. Additional tests may be justified depending on a cost-benefit analysis and the availability of sorting machinery for the predicted short mine life.

Grinding tests indicated moderate abrasion and grinding indices. No additional tests are required.

The drill core composite material responded very well to flotation following a fine primary grind (P_{80} 55 µm), the use of 3418A collector and elevated pH in rougher and cleaner flotation to reject pyrite and pyrrhotite. The regrind of the rougher concentrate appears unnecessary. A single locked cycle test produced a 25.1% Cu concentrate at 98.5% Cu recovery.

A reasonably optimistic predicted process plant performance would be the production of a 25% Cu concentrate at 96% recovery. Gold recovery can be assumed to be 55%; gold in the copper concentrate can be anticipated to exceed the 1 g/t Au payable cut-off late in the first year of production.

Addition tests could focus on testing grinding and flotation performance as well as concentrate thickening and filtration performance that might be encountered in a constructed or toll processing facility. These tests could cost in the order of $75,000.

13.5 ENVIRONMENTAL TESTING

Rougher tails from the last cycle of the locked cycle test were tested to determine its Acid-base Accounting ("ABA") and Net Acid Generating ("NAG") characteristics. The results are shown in Tables 13.11 and 13.12.

TABLE 13.11
ABA TEST RESULTS

Parameter	Unit	Ro Tails F
Sample Weight	g	1.51
Vol. H_2O_2	mL	150
Final pH	no unite	3.2
NaOH	Normality	0.1
Vol. NaOH to pH 4.5	mL	2.47
Vol. NaOH to pH 7.0	mL	8.33
NAG (pH 4.5)	kg H2SO4/tonne	8.00
NAG (pH 7.0)	kg H2SO4/tonne	27.0

Note: *ABA = acid-base accounting*

TABLE 13.12
NAG TEST RESULTS

Parameter	Unit	Ro Tails F
Paste pH	units	7.62
Fizz Rate	-	2
Sample Weight	g	1.99
HCl added	mL	29.0
HCl added	Normality	0.1
NaOH	Normality	0.1
NaOH to pH = 8.3	mL	21.3
Final pH	units	1.59
NP[1]	t $CaCO_3$/1000 t	19.3
AP	t $CaCO_3$/1000 t	181
Net NP	t $CaCO_3$/1000 t	-161
NP/AP	ratio	0.11
S	%	7.9
SO_4	%	2.12
Sulphide	%	5.78
C	%	0.11
Carbonate	%	0.41
CO_3 NP[2]	t $CaCO_3$/1000 t	6.81
CO_3 Net NP	t $CaCO_3$/1000 t	-174
CO_3 NP/AP	Ratio	0.04

[1] Measured in ABA Test

[2] Theoretical, based on CO_3 content alone

Note: *NAG = net acid generating*

The rougher tailings contained approximately 6.0% sulphide sulphur, with little neutralizing mineralization. The NAG test confirms the ABA results that indicated the tailings would present significant acid rock drainage (“ARD”) and metal leaching (“ML”) potential. Portions of Great Burnt waste rock may also present ARD and ML challenges.

14.0 MINERAL RESOURCE ESTIMATES

14.1 INTRODUCTION

The purpose of this Technical Report section is to update the Mineral Resource Estimate for the Great Burnt Project owned by Spruce Ridge. The previous Mineral Resource Estimate for the Great Burnt Project was prepared by P&E with an effective date of September 4, 2015. Since then, 43 drill holes were completed from 2016 to 2020. The purpose of this update is to incorporate this drilling information into the Mineral Resource Estimate. The Mineral Resource Estimate presented herein is reported in accordance with the Canadian Securities Administrators' National Instrument 43-101 (2014) and has been estimated in conformity with the generally accepted CIM "Estimation of Mineral Resource and Mineral Reserves Best Practices" guidelines (2019). Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability. There is no guarantee that all or any part of the Mineral Resource will be converted into a Mineral Reserve. Confidence in the estimate of Inferred Mineral Resource is insufficient to allow the meaningful application of technical and economic parameters or to enable an evaluation of economic viability worthy of public disclosure. Mineral Resources may be affected by further infill and exploration drilling that may result in increases or decreases in subsequent Mineral Resource Estimates.

This Mineral Resource Estimate was based on information and data supplied by Spruce Ridge, and was undertaken by Yungang Wu, P.Geo., and Antoine Yassa, P.Geo., of P&E, under the supervision of Eugene Puritch, P.Eng., FEC, CET of P&E who is an independent Qualified Person in terms of NI 43-101. The effective date of this Mineral Resource Estimate is March 9, 2022.

14.2 PREVIOUS MINERAL RESOURCE ESTIMATE

A previous public Mineral Resource Estimate for the Great Burnt Project was prepared by P&E with an effective date of September 4, 2015. The Mineral Resource Estimate at a cut-off grade of 1% Cu is presented in Table 14.1. This previous Mineral Resource Estimate is superseded by the Mineral Resource Estimate reported herein.

TABLE 14.1
2015 MINERAL RESOURCE ESTIMATE AT 1.0% CU CUT-OFF

Area	Classification	Tonnes (k)	Cu (%)	Cu (Mlb)
Great Burnt	Indicated	395	2.64	23.0
	Inferred	663	2.31	33.8
South Pond	Indicated	47	1.38	1.4
	Inferred	166	1.30	4.8
Total	**Indicated**	**442**	**2.50**	**24.4**
	Inferred	**829**	**2.11**	**38.6**

14.2.1 Database

All drilling and assay data were provided in the form of Excel data files by Spruce Ridge. The GEOVIA GEMS™ V6.8.4 database for this Mineral Resource Estimate, compiled by P&E, consisted of 287 drill holes totalling 40,295 m, of which 43 drill holes were completed in 2016 to 2020, after the completion of the previous Mineral Resource Estimate (see Table 14.2). A drill hole plan showing the hole locations for the Great Burnt Zone and South Pond Zone are shown in Appendix A.

TABLE 14.2
DRILL HOLE DATABASE SUMMARY

Area	Year drilled	Number of Drill Holes	Drill Hole Length (m)	No. of Drill Holes Intersected by Mineralization Wireframes	Length of Drill Holes Intersected by Wireframes (m)
Great Burnt	2016-2020	43	6,165	30	3,971
	Pre-2015	187	26,639	70	9,212
	SubTotal	**230**	**32,804**	**100**	**13,183**
South Pond	Pre-2015	57	7,491	14	1,572
Total		**287**	**40,295**	**114**	**14,755**

The drill hole database contains a total of 4,258 Cu and 3,058 Au assays. The basic statistics of all raw assays and sample length are presented in Table 14.3.

TABLE 14.3
ASSAY DATABASE SUMMARY

Area	Variable	Cu (%)	Au (g/t)	Length (m)
Great Burnt	Number of Samples	3,370	2,200	3,370
	Minimum Value	0.001	0.003	0.04
	Maximum Value	22.40	13.37	11.00
	Mean	0.62	0.10	1.17
	Median	0.01	0.00	1.07
	Geometric Mean	0.03	0.01	1.08
	Variance	4.00	0.28	0.20
	Standard Deviation	2.00	0.53	0.44
	Coefficient of Variation	3.25	5.38	0.38
	Skewness	5.38	14.04	3.99
	Kurtosis	37.90	274.01	83.85
South Pond	Number of Samples	888	858	888

TABLE 14.3 **ASSAY DATABASE SUMMARY**				
Area	**Variable**	**Cu (%)**	**Au (g/t)**	**Length (m)**
	Minimum Value	0.001	0.002	0.06
	Maximum Value	7.90	5.43	7.08
	Mean	0.13	0.14	1.14
	Median	0.02	0.01	1.00
	Geometric Mean	0.02	0.01	1.02
	Variance	0.25	0.23	0.34
	Standard Deviation	0.50	0.48	0.59
	Coefficient of Variation	3.80	3.35	0.51
	Skewness	7.82	5.99	2.71
	Kurtosis	87.99	46.40	20.63

All drill hole survey and assay values are expressed in metric units, with grid coordinates in UTM WGS84 Zone 21N.

14.3 DATA VERIFICATION

Verification of Cu and Au assay database was performed by the authors of this Technical Report section against laboratory certificates that were obtained independently from Eastern Analytical Laboratories in Springdale, Newfoundland. A few insignificant errors were found in the assay data and corrected.

The authors also validated the Mineral Resource database by checking for inconsistencies in analytical units, duplicate entries, interval, length or distance values less than or equal to zero, blank or zero-value assay results, out-of-sequence intervals, intervals or distances greater than the reported drill hole length, inappropriate collar locations, survey and missing interval and coordinate fields. No significant validation errors were found. This Technical Report section authors consider that the supplied database is suitable for Mineral Resource estimation.

14.4 DOMAIN INTERPRETATION

Domain models were generated by the authors of this Technical Report section from successive polylines spaced along drill hole sections oriented perpendicular to the general trend of the mineralization. The domain outlines were influenced by the selection of mineralized material above 0.5% Cu for Great Burnt and 0.5% CuEq (CuEq = Cu% + Au g/t * 0.69) for South Pond that demonstrated lithological and grade continuity along strike and down-dip. Where appropriate, lower-grade mineralization was included for the purpose of maintaining zonal continuity. On each section, polyline interpretations were digitized from drill hole to drill hole, but not typically extended more than 50 m. All polyline vertices were snapped directly to drill hole assay intervals, in order to generate a true three-dimensional representation of the extent of the mineralization.

Domain wireframes were subsequently clipped above the topographic surface created based on the drill hole collars.

A total of eight domains were developed:

- GBL-Main: steeply east-dipping Great Burnt Main Zone;
- GBL2: shallow east-dipping Great Burnt Lower Zone, may be connected to Main by folding;
- GBL-STRs: five steeply dipping low-grade Stringer Zones; and
- SP: South Pond Zone (located approximately 10 km north of Great Burnt Main Zone).

The resulting Mineral Resource domain wireframes were utilized as constraining boundaries during Mineral Resource estimation, for rock coding, statistical analysis and compositing limits. The 3-D domains are presented in Appendix B.

14.5 ROCK CODE DETERMINATION

A unique rock code was assigned to each domain in the Mineral Resource model as presented in Table 14.4.

TABLE 14.4
ROCK CODES USED FOR THE MINERAL RESOURCE ESTIMATE

Domain	Rock Code	Volume (m^3)
GBL-MAIN	100	280,031
GBL2	200	163,936
GBL-STR1	310	54,659
GBL-STR2	320	15,481
GBL-STR3	330	7,662
GBL-STR4	340	5,743
GBL-STR5	350	3,543
SP	400	146,772

14.6 WIREFRAME CONSTRAINED ASSAYS

The basic statistics of all mineralization wireframe constrained assays are presented in Table 14.5.

Table 14.5 Basic Statistics of All Constrained Assays					
Area	**Variable**	**Cu (%)**	**Au (g/t)**	**Bulk Density (t/m^3)**	**Length (m)**
Great Burnt	Number of samples	621	89	173	622
	Minimum value	0.00	0.00	2.77	0.15
	Maximum value	22.40	0.30	4.65	2.75
	Mean	2.96	0.06	3.25	1.15
	Median	1.53	0.04	3.08	1.00
	Variance	14.21	0.00	0.18	0.15
	Standard Deviation	3.77	0.06	0.43	0.39
	Coefficient of Variation	1.27	1.09	0.13	0.34
	Skewness	2.22	1.73	1.19	0.37
	Kurtosis	8.23	6.27	3.64	3.69
South Pond	Number of samples	62	61		62
	Minimum value	0.00	0.00		0.19
	Maximum value	7.90	5.43		3.36
	Mean	1.27	1.15		1.28
	Median	0.75	0.74		1.22
	Variance	1.83	1.41		0.58
	Standard Deviation	1.35	1.19		0.76
	Coefficient of Variation	1.07	1.04		0.60
	Skewness	2.17	1.66		1.03
	Kurtosis	10.24	5.33		3.62

14.7 COMPOSITING

In order to regularize the assay sampling intervals for grade interpolation, a 1.0 m compositing length was selected for the drill hole intervals that fell within the constraints of the Mineral Resource wireframe domains. The composites were calculated for Cu and Au over 1.0 m lengths, starting at the first point of intersection between assay data hole and hanging wall of the 3-D zonal constraint. The compositing process was halted upon exit from the footwall of the aforementioned constraint. Un-assayed composite intervals and below detection limit assays were set to 0.001. The composite length was adjusted to make all intervals of the hole equal, so as not to introduce any short sample bias in the grade interpolation process. The constrained composite data were extracted to a point file for a grade capping study. The composite statistics are summarized in Table 14.6.

TABLE 14.6
COMPOSITE SUMMARY STATISTICS

Area	Variable	Cu_Comp	Cu_Cap	Au_Comp	Length (m)
Great Burnt	Number of Samples	801	801	-	801
	Minimum Value	0.001	0.001	-	0.76
	Maximum Value	22.06	16.00	-	1.37
	Mean	2.52	2.49	-	1.00
	Median	1.29	1.29	-	1.00
	Geometric Mean	0.67	0.67	-	1.00
	Variance	11.21	10.30	-	0.00
	Standard Deviation	3.35	3.21	-	0.05
	Coefficient of Variation	1.33	1.29	-	0.05
	Skewness	2.40	2.11	-	0.49
	Kurtosis	9.76	7.50	-	10.21
South Pond	Number of Samples	83	-	83	83
	Minimum Value	0.00	-	0.00	0.87
	Maximum Value	4.00	-	3.65	1.24
	Mean	1.09	-	0.90	1.01
	Median	0.63	-	0.72	1.02
	Geometric Mean	0.53	-	0.39	1.01
	Variance	1.06	-	0.77	0.00
	Standard Deviation	1.03	-	0.88	0.06
	Coefficient of Variation	0.94	-	0.98	0.06
	Skewness	1.04	-	1.42	0.56
	Kurtosis	3.19	-	4.71	6.71

Note: *Cu_Comp - Cu composites, Cu_Cap - Cu Capped Composites, Au_Comp – Au Composites.*

14.8 GRADE CAPPING

Grade capping was investigated on the 1.0 m composite values in the database within the constraining domain, to ensure that the possible influence of erratic high-grade values did not bias the database. Log-normal histograms and probability plots for Cu and Au composites were generated for the mineralized domain and the selected resulting graphs are shown in Appendix C. A total of nine Cu Composites were capped at 16% for GBL-Main, whereas no capping was required for the other domains. The capped composites were utilized to develop variograms and for block model grade interpolation.

14.9 VARIOGRAPHY

A variography analysis was undertaken using the copper capped composites of GBL-Main as a guide to determining a grade interpolation search distance and ellipse orientation strategy. Selected variograms are presented in Appendix D.

Continuity ellipses based on the observed ranges were subsequently generated and utilized as the basis for estimation search ranges, distance weighting calculations and Mineral Resource classification criteria.

14.10 BULK DENSITY

A total of 243 bulk density measurements were provided by Spruce Ridge, ranging from 2.77 t/m^3 to 4.65 t/m^3, of which 170 bulk densities were constrained within the GBL-Main wireframe. The bulk density of GBL-Main was interpolated into the bulk density block model with the Inverse Distance Squared method. The overall average bulk density of 3.2 t/m^3 was applied to other minor domains in the Great Burnt Mineral Resource Estimate. A uniform bulk density of 2.97 t/m^3 was used for the South Pond block model, which was derived from an average of five measurements determined by AGAT Laboratories on verification samples collected by P&E. The bulk density used for the Mineral Resource Estimate is presented in Table 14.7.

TABLE 14.7
BULK DENSITY USED FOR THE MINERAL RESOURCE ESTIMATE

Variable	All Bulk Densities	GBL-Main	South Pond
Number of Samples	243	170	5
Minimum Value	2.77	2.77	
Maximum Value	3.65	3.65	
Mean	3.20	3.24	2.97
Value used for Block Model	3.20 used for all GBL-STRs	Inverse Distance Squared	2.97

14.11 BLOCK MODELLING

The Great Burnt block model was constructed using GEOVIA GEMS™ V6.8.4 modelling software. The block model origin and block size are presented in Table 14.8. The block model consists of separate model attributes for estimated grades of Cu, Au and CuEq, rock type (mineralization domains), volume percent, bulk density and classification.

TABLE 14.8 **GREAT BURNT BLOCK MODEL DEFINITION**			
Direction	**Origin**	**No. of Blocks**	**Block Size (m)**
X	560,867.285	1,720	1.25
Y	5,354,079.167	710	15
Z	330	80	5
Rotation	-15° (Clockwise)		

All blocks in the rock type block model were initially assigned a waste rock code of 99, corresponding to the surrounding country rocks. The mineralized domain was used to code all blocks within the rock type block model that contain 0.01% or greater volume within the domain. These blocks were assigned rock type codes as presented in Table 14.4. The topographic surface was utilized to assign rock code 0, corresponding to air, to all blocks 50% or greater above the surface.

A volume percent block model was set up to accurately represent the volume and subsequent tonnage that was occupied by each block inside the constraining wireframe domain. As a result, the domain boundary was properly represented by the volume percent model ability to measure individual infinitely variable block inclusion percentages within that domain. The minimum percentage of the mineralized block was set to 0.01%.

The Cu and Au grade blocks were interpolated with the Inverse Distance Squared (“ID^2”) method, and the Nearest Neighbour (“NN”) method was run for grade validation. Multiple passes were executed for the grade interpolation to progressively capture the sample points, in order to avoid over-smoothing and preserve local grade variability. Grade blocks were interpolated using the parameters in Table 14.9.

TABLE 14.9 **BLOCK MODEL INTERPOLATION PARAMETERS**						
Pass	**Major Range (m)**	**Semi-Major Range (m)**	**Minor Range (m)**	**Max No. of Samples per Hole**	**Min No. of Samples**	**Max No. of Samples**
I	45	25	10	2	4	12
II	90	50	20	2	2	12
III	90	50	20	2	1	12

Copper equivalent (“CuEq”) for South Pond was calculated with formula:

CuEq% = Cu% + (Au g/t x 0.687)

Selected cross-sections and plans for the Cu and CuEq blocks are presented in Appendix E and F, respectively.

14.12 MINERAL RESOURCE CLASSIFICATION

In the opinion of the author of this Technical Report section, all the drilling, assaying and exploration work on the Great Burnt Project supports this Mineral Resource Estimate, and based on spatial continuity of the mineralization within a potentially mineable shape, are sufficient to indicate a reasonable potential for economic extraction, thus qualifying it as a Mineral Resource under the 2014 CIM Definition Standards. The Mineral Resource was classified as Indicated and Inferred based on the geological interpretation, variogram performance and drill hole spacing.

Indicated Mineral Resources were classified for the blocks interpolated with the Pass I in Table 14.9, which used at least two holes with 45 m or less spacing. Inferred Mineral Resources were classified for the blocks interpolated with the Passes II and III in Table 14.9, which used at least one hole with 90 m or less spacing. The classifications were manually adjusted on a longitudinal projection to reasonably reflect the distribution of each classification. Selected classification block vertical sections and plans are attached in Appendix G.

14.13 CU CUT-OFF CALCULATION

The Great Burnt Mineral Resource Estimate was derived from applying a CuEq cut-off grade to the block models and reporting the resulting tonnes and grades for potentially underground mineable areas. The following parameters were used to calculate the Cu and CuEq cut-off grades that determine the potentially economic portions of the constrained mineralization.

CuEq Cut-off Grade Calculation

US$:CAD$ Exchange Rate	0.76
Cu Price	US$3.62/lb (Consensus Economics June 2021 forecast)
Au Price	US$1,650/oz ((Consensus Economics June 2021 forecast)
Cu Process Recovery	95%
Au Process Recovery	95%
Smelter Payable	95%
Mining Cost	CAD$55/t
Processing Cost	CAD$15/t
G&A	CAD$5/t
Smelting and refining	CAD$10/t

The CuEq cut-off Grade is calculated as = 0.9% CuEq.

CuEq% = Cu% + (Au g/t x 0.687)

14.14 MINERAL RESOURCE ESTIMATE

The resulting Mineral Resource Estimate at 0.9% CuEq cut-off grade, as of the effective date of this Technical Report, is tabulated in Table 14.10. P&E considers the mineralization of the Great Burnt Project to be potentially amenable to underground economic extraction.

TABLE 14.10
MINERAL RESOURCE ESTIMATE AT 0.9% CUEQ CUT-OFF (1-5)

Area	Class	Tonnes (k)	Cu (%)	Cu (Mlb)	Au (g/t)	Au (koz)	CuEq (%)	CuEq (Mlb)
Great Burnt	Indicated	667	3.21	47.2	Nil	Nil	3.21	47.2
	Inferred	482	2.35	25.0	Nil	Nil	2.35	25.0
South Pond	Indicated	214	1.26	6.0	1.21	8.3	2.10	9.9
	Inferred	145	1.07	3.4	1.02	4.8	1.78	5.7
Total	**Indicated**	**881**	**2.74**	**53.2**	**0.29**	**8.3**	**2.94**	**57.1**
	Inferred	**627**	**2.05**	**28.4**	**0.24**	**4.8**	**2.22**	**30.7**

Notes:

1) *Mineral Resources, which are not Mineral Reserves, do not have demonstrated economic viability. The estimate of Mineral Resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues, although Spruce Ridge is not aware of any such issues.*
2) *The Inferred Mineral Resource in this estimate has a lower level of confidence that that applied to an Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of the Inferred Mineral Resource could be upgraded to an Indicated Mineral Resource with continued exploration.*
3) *The Mineral Resources were estimated using the Canadian Institute of Mining, Metallurgy and Petroleum (CIM), CIM Standards on Mineral Resources and Reserves, Definitions (2014) and Best Practices Guidelines (2019).*
4) *The 0.90% Cu cut-off grade was derived from the June 2021 Consensus Economics long term forecast Cu and Au prices of US$3.62/lb and US$1,650/oz, US$ exchange rate of $0.76, 95% process recovery, underground mining CAD$55/t, processing CAD$15/t, G&A CAD$5/t and smelting/refining CAD$10/t.*
5) *CuEq% = Cu% + (Au g/t x 0.687).*

Mineral Resource Estimates are sensitive to the selection of a reporting CuEq cut-off grade and are demonstrated in Table 14.11.

TABLE 14.11
SENSITIVITY TO MINERAL RESOURCE ESTIMATE

Area	Classification	Cut-off CuEq (%)	Tonnes (k)	Cu (%)	Cu (Mlb)	Au (g/t)	Au (oz)	CuEq (%)	CuEq (Mlb)
Great Burnt	Indicated	3	296	4.99	32.6	-	-	4.99	32.6
		2.5	358	4.60	36.3	-	-	4.60	36.3
		2	433	4.19	40.0	-	-	4.19	40.0
		1.5	523	3.77	43.4	-	-	3.77	43.4
		0.9	**667**	**3.21**	**47.2**			**3.21**	**47.2**
		0.5	799	2.79	49.2	-	-	2.79	49.2
	Inferred	3	109	4.63	11.2	-	-	4.63	11.2

TABLE 14.11 SENSITIVITY TO MINERAL RESOURCE ESTIMATE									
Area	**Classification**	**Cut-off CuEq (%)**	**Tonnes (k)**	**Cu (%)**	**Cu (Mlb)**	**Au (g/t)**	**Au (oz)**	**CuEq (%)**	**CuEq (Mlb)**
		2.5	140	4.21	13.0	-	-	4.21	13.0
		2	200	3.62	15.9	-	-	3.62	15.9
		1.5	333	2.86	21.0	-	-	2.86	21.0
		0.9	**482**	**2.35**	**25.0**			**2.35**	**25.0**
		0.5	629	1.96	27.1	-	-	1.96	27.1
South Pond	Indicated	3	40	2.15	1.9	1.93	2,458	3.49	3.0
		2.5	69	1.96	3.0	1.75	3,874	3.17	4.8
		2	107	1.77	4.2	1.56	5,370	2.84	6.7
		1.5	146	1.58	5.1	1.40	6,584	2.55	8.2
		0.9	**214**	**1.26**	**6.0**	**1.21**	**8,300**	**2.10**	**9.9**
		0.5	231	1.21	6.2	1.14	8,473	2.00	10.2
	Inferred	3	5	2.53	0.3	1.90	306	3.84	0.4
		2.5	15	2.26	0.7	1.25	592	3.12	1.0
		2	38	1.77	1.5	1.11	1,352	2.54	2.1
		1.5	100	1.34	3.0	1.04	3,328	2.06	4.5
		0.9	**145**	**1.07**	**3.4**	**1.02**	**4,800**	**1.78**	**5.7**
		0.5	197	0.90	3.9	0.86	5,417	1.49	6.5

14.15 CONFIRMATION OF ESTIMATE

The block model was validated using a number of industry-standard methods including visual and statistical methods.

- Visual examination of composites and block grades on successive plans and sections were performed on-screen to confirm that the block models correctly reflect the distribution of composite grades. The review of estimation parameters included:
  - Number of composites used for estimation;
  - Number of drill holes used for estimation;
  - Actual distance to closest point;
  - Grade of true closest point;
  - Mean distance to sample used;
  - Number of passes used to estimate grade; and
  - Mean value of the composites used.
- A comparison of mean grades of the GBL-Main and South Pond composites with the block model at global basis are presented in Table 14.12.

TABLE 14.12 **AVERAGE CU GRADE COMPARISON COMPOSITES WITH BLOCK MODEL**					
Domain	**Constrained Assays**	**Composites**	**Capped Composites**	**Block Model ID^2**	**Block Model NN**
GBL_Main	3.27	2.85	2.81	2.69	2.70
SP	1.27	1.09	1.09	1.05	1.09

Notes: ***ID^2 =*** *interpolated with Inverse Distance Squared*
NN = *interpolated using Nearest Neighbour*

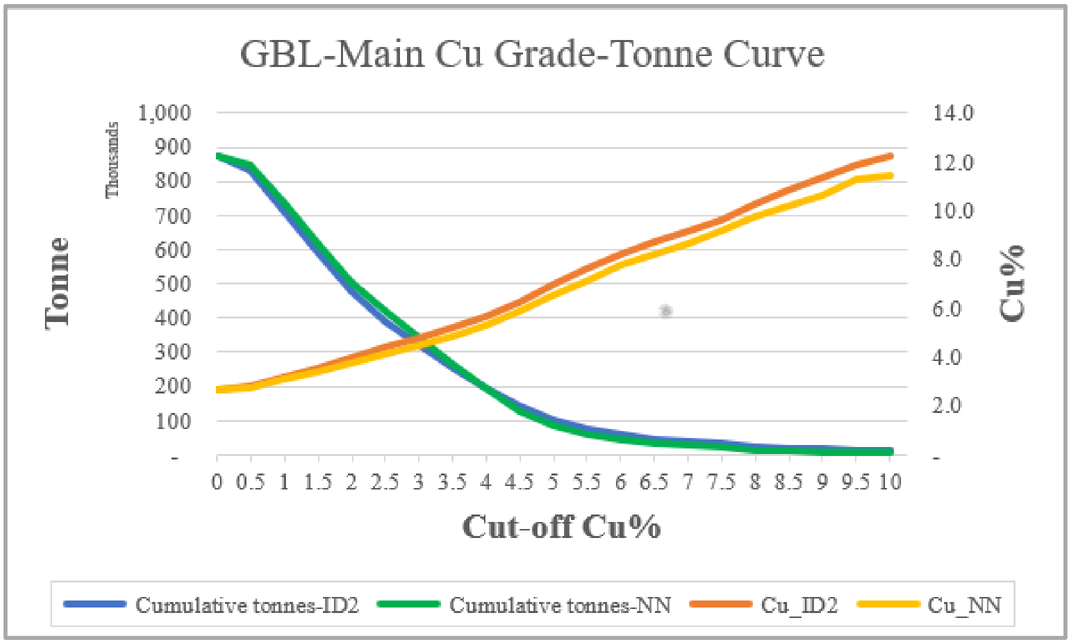
- The comparison shows the average grade of block model was somewhat lower than that of the capped composites used for the grade estimation. These were due to grade interpolation process. The block model values will be more representative than the composites due to 3-D spatial distribution characteristics of the block models.

- A volumetric comparison was performed with the block model volume versus the geometric calculated volume of the domain solids and the differences are shown in Table 14.13.

TABLE 14.13 **VOLUME COMPARISON OF BLOCK MODEL WITH GEOMETRIC SOLIDS**		
Great Burnt	Geometric volume of wireframes	531,055 m^3
	Block model volume	521,096 m^3
	Difference %	1.88%
South Pond	Geometric volume of wireframes	146,772
	Block model volume	146,764
	Difference %	0.01%

- A comparison of the grade-tonnage curves of the GBL-Main Cu grade model interpolated with ID^2 and NN on a global mineralized model basis are presented in Figure 14.1.

FIGURE 14.1 CU GRADE-TONNAGE CURVE FOR ID2 AND NN INTERPOLATION OF GBL-MAIN



- Cu local trends of the GBL-Main were evaluated by comparing the ID^2 and NN estimate against the composites. As shown in Figures 14.2 and 14.3, Cu grade interpolations with ID^2 and NN agreed well.

FIGURE 14.2 CU GRADE SWATH EASTING PLOT OF GBL-MAIN

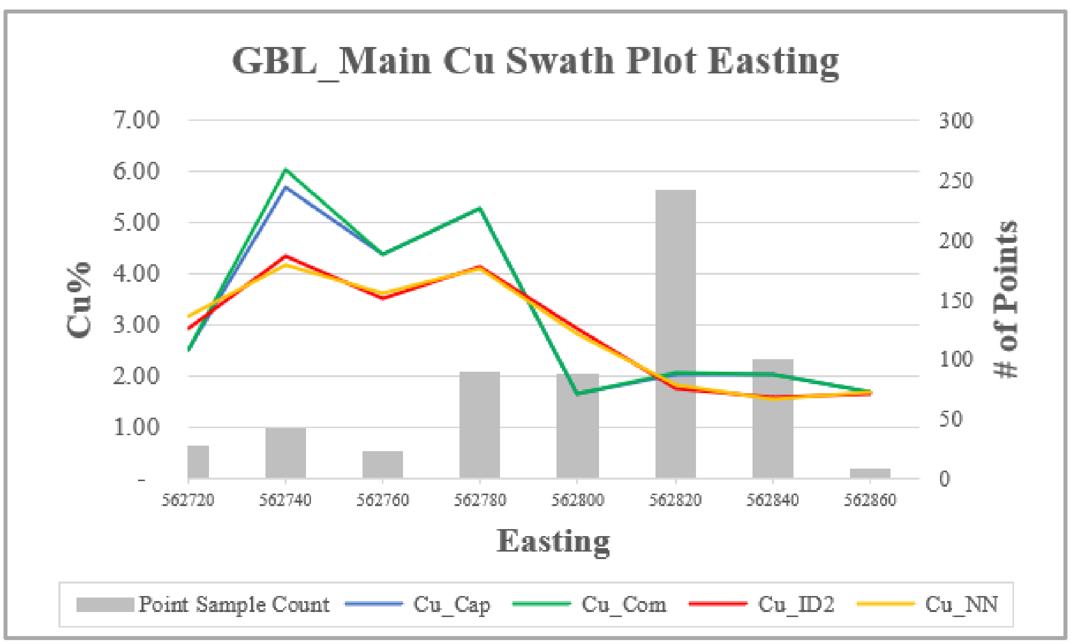
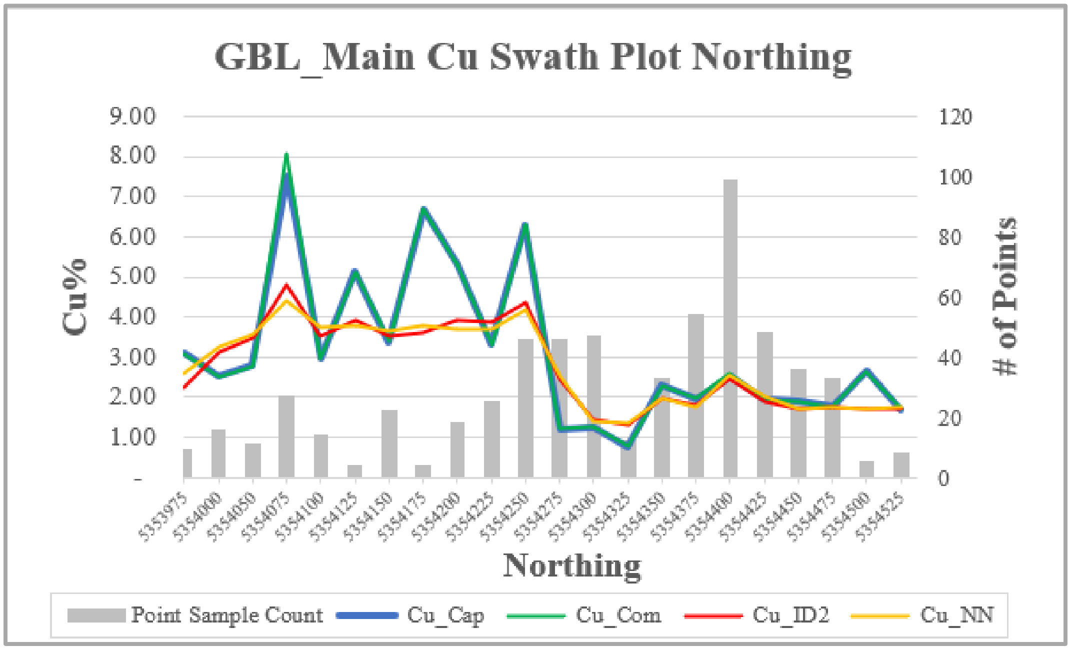


FIGURE 14.3 CU GRADE SWATH NORTHING PLOT OF GBL-MAIN



14.16 COMPARISON TO 2019 MINERAL RESOURCE ESTIMATE

The 2021 Mineral Resource Estimate is compared to the previous 2019 Mineral Resource Estimate for the Great Burnt Main Zone only (no new drilling was done on the South Pond Zones) in Table 14.14. The most prominent change is the increase in copper grades of the Main Zone, **from 2.66% Cu to 3.21% Cu** in the Indicated classification and decrease from 2.41% Cu to 2.35% Cu in the Inferred classification. There was a matching increase in the contained contents of copper from 32.3 (Indicated) and 30.4 (Inferred) million pounds ("Mlb") to 47.2 (Indicated) and 25.0 (Inferred) Mlb. The 2020 drill program comprised only infill drill holes; hence there was only a very minor increase in tonnage of the Great Burnt Main Zone. However, approximately one-fifth of the Inferred tonnage has been moved to the Indicated classification.

Table 14.14 **Great Burnt Main Zone Only,** **2019 and 2021 Mineral Resource Estimates**			
Classification	**Tonnes (k)**	**Cu (%)**	**Cu (Mlb)**
2021 Mineral Resource Estimate			
Indicated	667	3.21	47.2
Inferred	482	2.35	25.0
2019 Mineral Resource Estimate			
Indicated	550	2.66	32.3
Inferred	572	2.41	30.4
Percent change 2021 over 2019			
Indicated	+21%	+21%	+46%
Inferred	-16%	-2%	-18%

The full results of the 22 drill hole, 3,114 m 2020 diamond drill program were published in a Spruce Ridge news release dated March 18th, 2021. The range of copper grades encountered in the 2020 drilling was significantly higher than those reported in historical holes drilled by ASARCO in the 1960s. Similarly higher copper grades had also been reported in the smaller Spruce Ridge drill programs in 2016 and 2018. The provisional conclusion is that the historical drilling, which recovered EX core (22 mm diameter) and used a standard (i.e., non-wireline) drill, had lost a portion of the higher-grade, massive sulphide intervals due to grinding the drill core. This conclusion is supported by the historical drill logs, which reported drill core recoveries in the mineralized zone that range from 13 to 100% and averaged approximately 77%. Use of NQ core size (47 mm) and wireline technologies in the Spruce Ridge drilling resulted in virtually 100% recovery of the drill core.

15.0 MINERAL RESERVE ESTIMATES

No National Instrument 43-101 Mineral Reserve currently exists for the Great Burnt Project. This section is not applicable to this Technical Report.

16.0 MINING METHODS

The underground and open pit mine designs and schedules utilize Inferred Mineral Resources as part of the analysis. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability. This PEA is preliminary in nature in that it includes Inferred Mineral Resources that are considered too speculative to have economic considerations applied to them and should not be relied upon for that purpose, except as allowed by NI 43-101.

The Great Burnt Copper Deposit will initially be mined by a 20 m deep open pit ("OP") followed by underground ("UG") ramp access and longhole sublevel retreat, cut-and-fill ("C&F"), and drift-and-fill ("D&F") mining methods. Underground diluted production includes both development and stopes. The South Pond Deposit will be mined by a 25 m deep open pit. A summary of production by mining method is presented in Table 16.1.

TABLE 16.1
SUMMARY OF PRODUCTION

Source	Type	Item	Classification	Tonnes/ Grades	Percent of Total
OP	Mineralization	Tonnes	Indicated	193,700	18.1
		Cu (%)		1.24	
		Au (g/t)		0.31	
		Tonnes	Inferred	64,200	6.0
		Cu (%)		1.01	
		Au (g/t)		0.41	
UG	Development	Tonnes	Indicated	156,500	14.7
		Cu (%)		2.05	
		Au (g/t)		0	
		Tonnes	Inferred	19,100	1.8
		Cu (%)		1.48	
		Au (g/t)		0	
	Slot Raises	Tonnes	Indicated	12,400	1.2
		Cu (%)		2.90	
		Au (g/t)		0	
		Tonnes	Inferred	1,500	0.1
		Cu (%)		2.10	
		Au (g/t)		0	
	LH Stoping	Mineralized Tonnes	Indicated	424,000	39.7
		Cu (%)		2.75	
		Au (g/t)		0	
		Tonnes	Inferred	51,800	4.8
		Cu (%)		1.99	
		Au (g/t)		0	
	C&F Stoping	Mineralized Tonnes	Inferred	51,000	4.8

TABLE 16.1 SUMMARY OF PRODUCTION					
Source	**Type**	**Item**	**Classification**	**Tonnes/ Grades**	**Percent of Total**
		Cu (%)		2.19	
		Au (g/t)		0	
	D&F Stoping	Mineralized Tonnes	Inferred	94,100	8.8
		Cu (%)		2.13	
		Au (g/t)		0	
	Total U/G	Mineralized Tonnes	Indicated	592,900	55.5
		Cu (%)		2.57	
		Au (g/t)		0	
		Mineralized Tonnes	Inferred	217,500	20.4
		Cu (%)		2.05	
		Au (g/t)		0	
OP and UG	**Mineralization**	**Tonnes**	**Indicated**	**786,600**	**73.6**
		Cu (%)		**2.24**	
		Au (g/t)		**0.08**	
		Tonnes	**Inferred**	**281,700**	**26.4**
		Cu (%)		**1.82**	
		Au (g/t)		**0.09**	

In addition to the 1,068,300 t of mineralization mined, a total of 883,900 t of waste rock will be extracted from the mine workings. A summary of waste tonnes extracted from the mine workings is presented in Table 16.2.

TABLE 16.2 SUMMARY OF WASTE ROCK MINED		
Source	**Total (t)**	**Percent of Total**
Open Pits (t)	646,800	73.2
Underground Development (t)	237,100	26.8%
Total Waste Rock Mined (t)	**883,900**	**100.0%**

Mine design 3-D views of the Great Burnt Project, identifying the mining method areas, are shown in Figures 16.1 and 16.2.

Access to the Great Burnt Copper Deposit will be via a 5 m high by 4.5 m wide -15% ramp from surface to a vertical depth of 288 m. A conceptualized mining plan has been developed using open pit and underground mechanized trackless mining equipment. The primary underground mining method will be conventional longitudinal longhole sublevel retreat, with cemented rock (“CRF”) backfill. Underground longhole sublevels will be developed at 15 m vertical intervals. Sublevel drifts in mineralization will be developed the full length of the Great Burnt Copper Deposit. These drifts will provide access for the successive operations of slot raise development, blasthole drilling, blasting and loading, and backfill placement. The average thickness of the Great Burnt longhole mineralization is 4.3 m. Remotely-operated underground load-haul-dump ("LHD") units will remove broken mineralization from the stopes. The stopes will be backfilled primarily with CRF backfill, and in some cases supplemented with waste rock.

Initially a steady state production rate of 1,000 tpd of open pit mineralization will begin to be mined starting in the 4th month from the start of the Project, on a schedule of 365 working days per year.

A summary of daily average production rates by year and source is presented in Table 16.3.

TABLE 16.3
SUMMARY OF AVERAGE DAILY PRODUCTION RATES IN MINERALIZATION

Source	Yr 1	Yr 2	Yr 3	Yr 4
Open Pits	826	87	0	0
UG Development	158	219	143	0
Slot Raises	16	26	0	0
LH Stoping	0	639	530	533
C&F Stoping	0	0	122	71
D&F Stoping	0	29	205	95
Average Tonnes Per Day	1,000	1,000	1,000	699

Note: *yr = year.*

FIGURE 16.1 GREAT BURNT MINE DESIGN 3-D VIEW LOOKING WEST

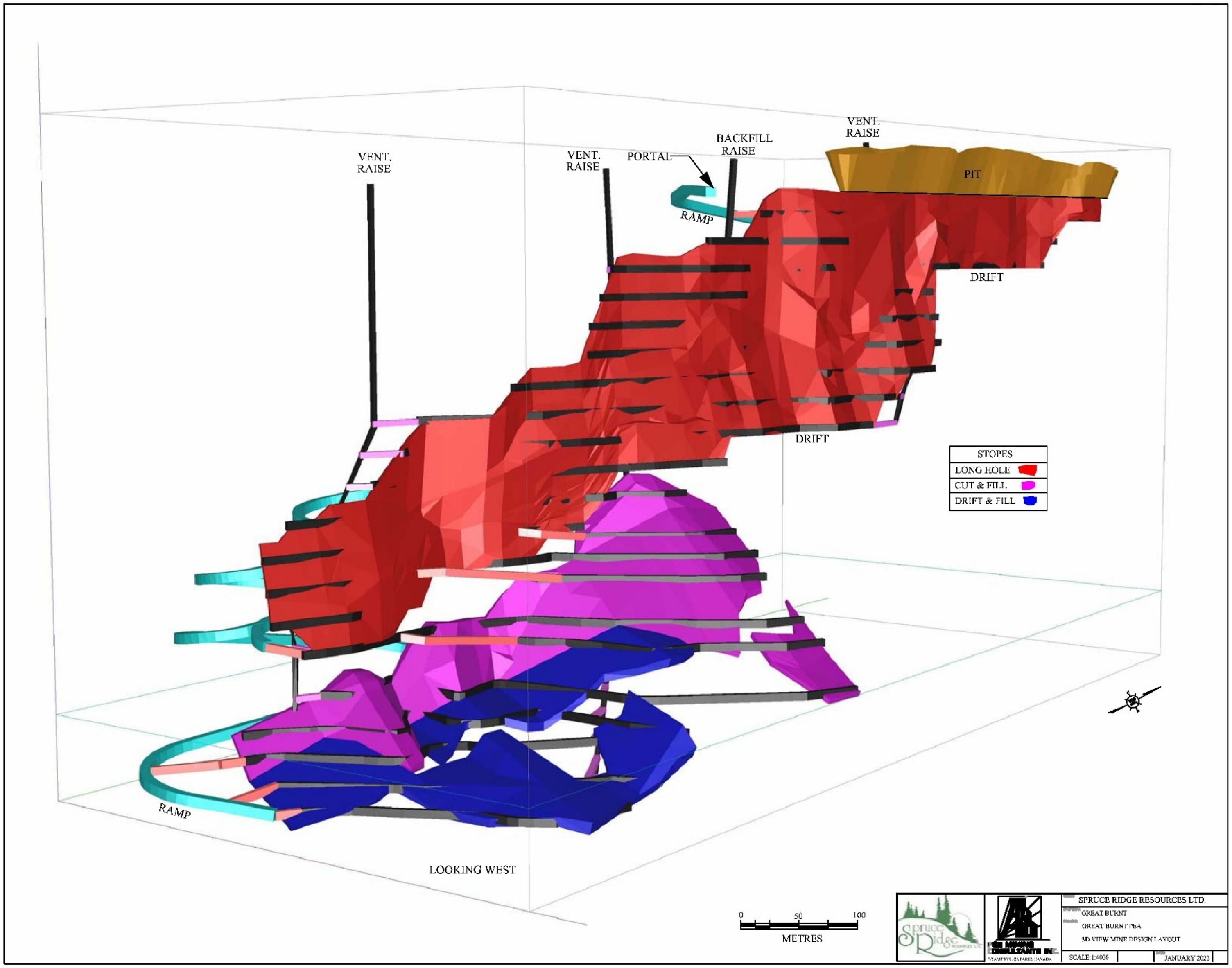
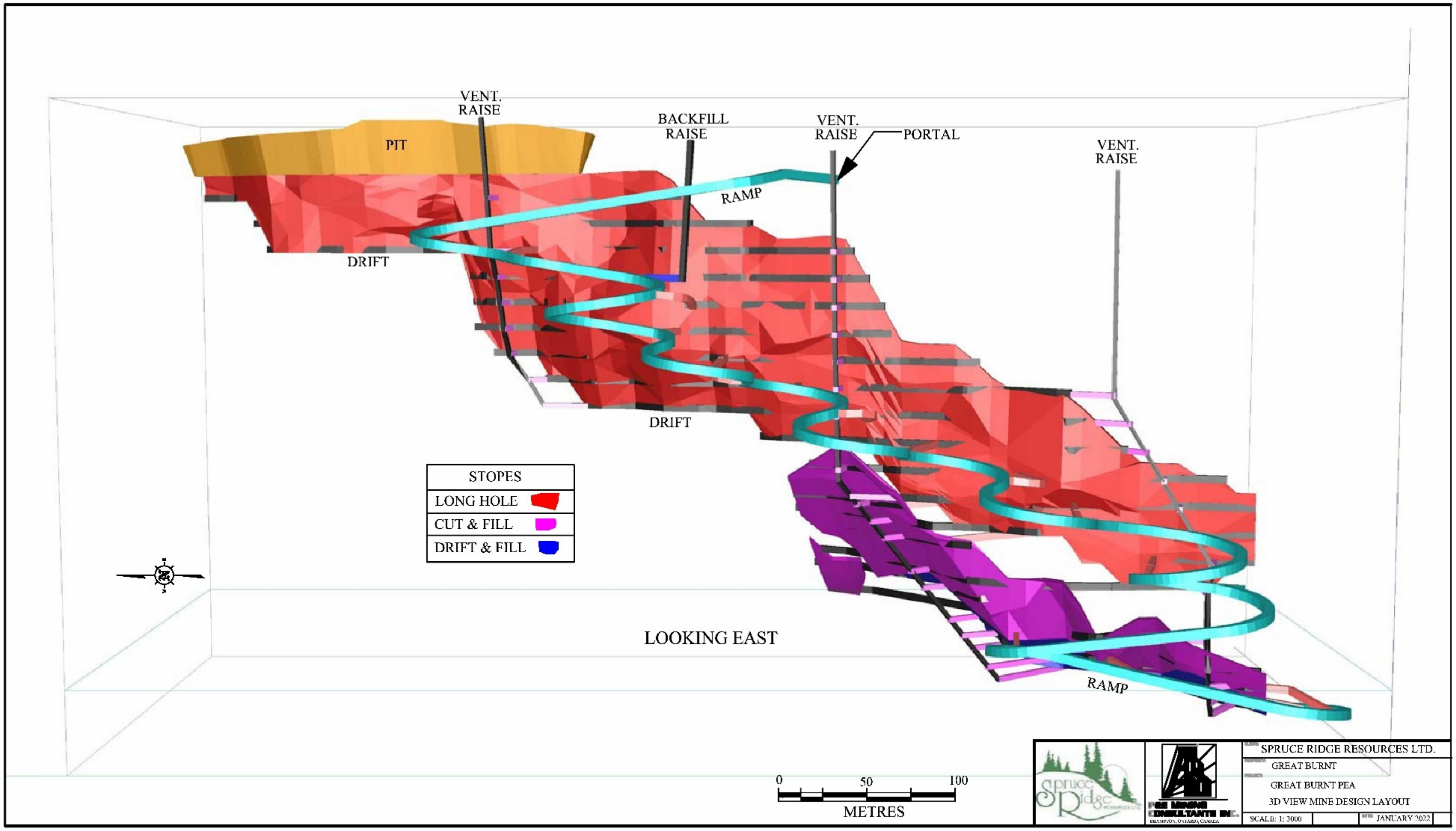


FIGURE 16.2 GREAT BURNT MINE DESIGN 3-D VIEW LOOKING EAST



16.1 LONGHOLE LONGITUDINAL SUBLEVEL RETREAT STOPING METHOD

The longhole longitudinal retreat mining method is initially developed with sublevel drifts developed to the full length of the mineralization every 15 m ("undercuts" and "overcuts"), vertical, from the access cross cuts. A 2.0 m by 2.0 m slot / ventilation / backfill raise is then be driven at the ends of the sublevel drifts, and every 50 m along strike towards the cross cuts, for each 50 m long stope.

Blast holes measuring 92 mm in diameter will be drilled from the sublevel either up or down to break through to adjacent sublevels. These blast holes would typically be drilled on a 2 m by 2 m pattern, to break the rock into the open slot and stope. The blasting powder factor necessary to produce adequate fragmentation of the rock, using emulsion explosives, is estimated at 0.60 kg/t. A typical longhole stope configuration will contain 5,873 tonnes of stope mineralization, 1,446 tonnes of development drift mineralization and 172 tonnes of slot mineralization for a total of 7,491 tonnes of ROM mineralization. A summary of longhole stope drilling and blasting parameters is presented in Table 16.4.

TABLE 16.4
LONGHOLE STOPING DRILLING AND BLASTING PARAMETERS

Parameter	Amount
Total Tonnes Process Plant Feed per Day	1,000
Mineralization Bulk Density (t/m^3)	3.26
Stope Height (m)	15
Nominal Stope Width (m)	4.3
Nominal Stope Length (m)	50
Total Nominal Stoping (t)	5,873
Slot Raises (t)	172
Nominal Sublevel Drifting (t)	1,446
Nominal Longhole (t)	7,491
Longhole Drilling Parameters @ 92 mm Dia Holes	
Total Drilling Per Stope (m)	454
Drill holes Per Stope	43
Drilling Time Per Shift (hrs)	10
Drilled per Shift (m)	76
Total Drilled Per Day (m)	152
Required Metres per Day for Production Schedule (m)	61
Blasting Parameters	
Loading Time Per Shift (hrs)	10
Stemming Length Per Blasted Hole Length (m)	0.3
Load Length per Hole, (m)	10.4
Length of Holes Loaded Per Stope (m)	441

CRF and development waste will be placed in the mined-out stopes from the level above once stope mineralized material extraction is complete.

The stope mining cycle will include longhole drilling, blasting, loading and backfilling. The overall average stope mining productivity is estimated to be 260 tpd per stope. At any given time, a maximum of four sublevels (levels) will be available for stope mining. On average this would provide for a minimum production rate of 196 tpd per level, 784 tpd overall. The maximum daily longhole production rate is 826 tpd which will be achieved in the 19th month of operation. When no other source of mineralized rock is available, a fifth stope sublevel will be available for stope mining.

A summary of longhole stope productivities by operation is presented in Table 16.5.

TABLE 16.5
LONGHOLE STOPE PRODUCTIVITIES

Operation	Productivity
Drilling (tpd)	1,972
Blasting (tpd)	1,972
Loading (tpd)	1,000
Backfill (tpd)	1,211
Average Stope Productivity (tpd)	260
Minimum tpd / level	196
Maximum Number of Working Levels	4

The average longhole stope dimensions will be 4.3 m wide by 11 m high by 50 m long on strike. Longhole stope mining will start during the 14th month on the 195 m Level and proceed upwards to the 240 m Level, on a retreat basis. Initially stopes at the far ends of the drifts in mineralization will mined, followed by stopes being mined successively towards the level cross-cut, on a retreat basis. A second longhole stoping front will start during the 15th month on the 165 m Level. Longhole mining will proceed upwards from this level to the 180 m Level on a retreat basis. A third longhole stoping front will start during the 18th month on the 135 m Level. The final longhole stoping front will start during the 27th month on the 30 m Level. It is estimated that there will be a total of 81 longhole stopes mined over the mine life. The envisaged underground longhole sublevel retreat mining method, for the Great Burnt Mineral Resource, is estimated to experience external dilution of 19.2%, at a diluting grade of 0.79% Cu. Mining recovery (extraction) is estimated at 90%.

16.2 DRIFT AND FILL / CUT AND FILL MINING METHOD

The D&F and C&F mining methods will generally have horizontal access cross cuts driven to the Deposit from the access ramp at vertical heights every 10 m or 20 m. Drifts in mineralization will be driven from the cross-cuts the full strike length of the mineralized zones. The D&F mining method will be implemented where the mineralized zone is relatively flat lying or less than a 45°

dip. The C&F mining method will be implemented where the mineralized zone is greater than a 45° dip, narrow, irregular in dip and strike, or undulating on dip.

Each D&F and C&F stope mining cycle will include jumbo drilling, blasting, loading, ground support, install services and backfilling. The maximum daily C&F production rate is 248 tpd in the 35th and 36th months of operation. The maximum daily D&F production rate is 267 tpd in the 33rd month of operation. The overall maximum combined stope mining productivity is estimated to be 400 tpd from both the D&F and C&F mining methods. At any given time, a maximum of four sublevels (levels) should be available for D&F and/or C&F stope mining.

D&F mining will start during the 23rd month on the -38 m Level and proceed upwards to the 20 m Level. C&F mining will start during the 29th month on the 0 m Level and proceed upwards to the 90 m Level. All D&F and C&F stopes will be backfilled with rock fill or CRF, as required. The envisaged D&F and C&F mining methods, for the Great Burnt Mineral Resource, are estimated to experience external dilution of 10.0%, at a diluting grade of 0.34% Cu. Mining recovery (extraction) is estimated at 95%.

16.3 MINE AND STOPE DEVELOPMENT

All excavations in waste rock are classified as mine development. All development in mineralization that produces process plant feed is classified as stope development. The life of mine ("LOM") schedule includes a total of 5,628 m of mine development (Table 16.6).

TABLE 16.6
LOM SUMMARY OF UNDERGROUND MINE DEVELOPMENT

Description	Size (W x H) (m)	Length (m)
Main Ramp	4.5 x 5.0	2,031
Access X-cut	4.5 x 4.5	536
Safety Bays	0.6 x 1.5	68
Vent. X-cut (N)	4.0 x 4.0	113
Vent Raise (N)	2.4 x 2.4	139
North Waste Drift	3.0 x 4.0	321
South Waste Drift	3.0 x 4.0	219
Access Ramp	4.5 x 5.0	586
Vent. X-cut (C)	4.0 x 4.0	421
Vent Raise (C)	2.4 x 2.4	262
Backfill Station Drift	4.5 x 5.0	23
Backfill Raise	3.0 x 3.0	74
Vent. X-cut (S)	4.0 x 4.0	211
Vent Raise (S)	2.4 x 2.4	259
C/F & D/F Waste Drift	3.0 x 4.0	366
Total		**5,628**

There is a total of 5,667 m of stope development required over the LOM. This includes 4,611 m of drifting in mineralized rock and 1,056 m of slot raising. A summary of stope development is presented in Table 16.7.

TABLE 16.7
LOM SUMMARY OF UNDERGROUND STOPE DEVELOPMENT

Description	Size (W x H) (m)	Length (m)
North Mineralized Drift	3.3 x 4.0	1,677
South Mineralized Drift	3.3 x 4.0	1,376
Slot Raises	2.0 x 2.0	1,056
C/F & D/F Mineralized Drifts	3.2 x 4.0	1,558
Total		**5,667**

In summary there is a total 11,295 m of mine and stope development completed over the LOM. A longitudinal projection of the proposed mine workings is shown in Figure 16.3. Mine plan drawings of three levels are shown in Figures 16.4 to 16.6.

FIGURE 16.3 GREAT BURNT MINE DESIGN LONGITUDINAL PROJECTION

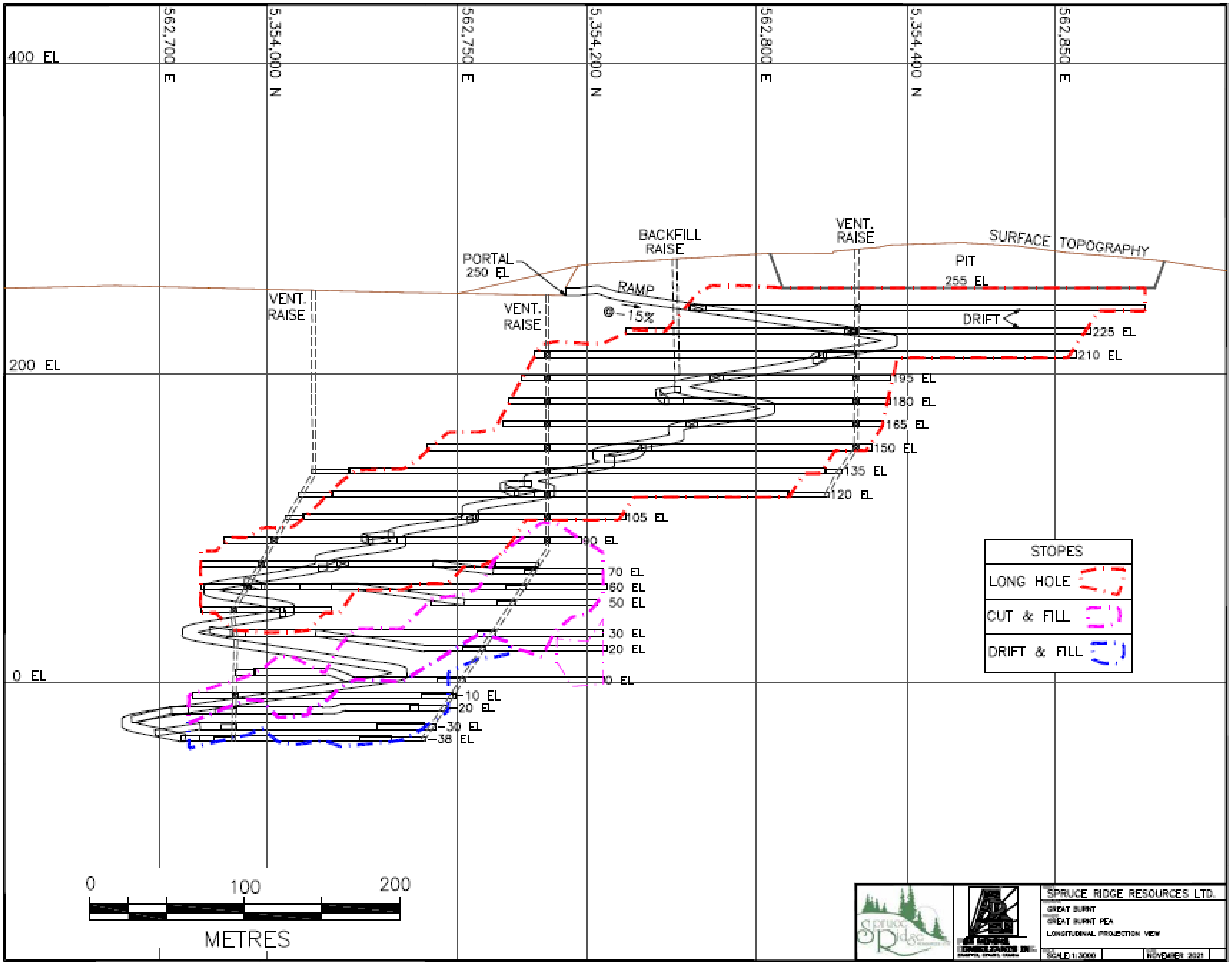


FIGURE 16.4 GREAT BURNT 195 M ELEVATION LEVEL PLAN

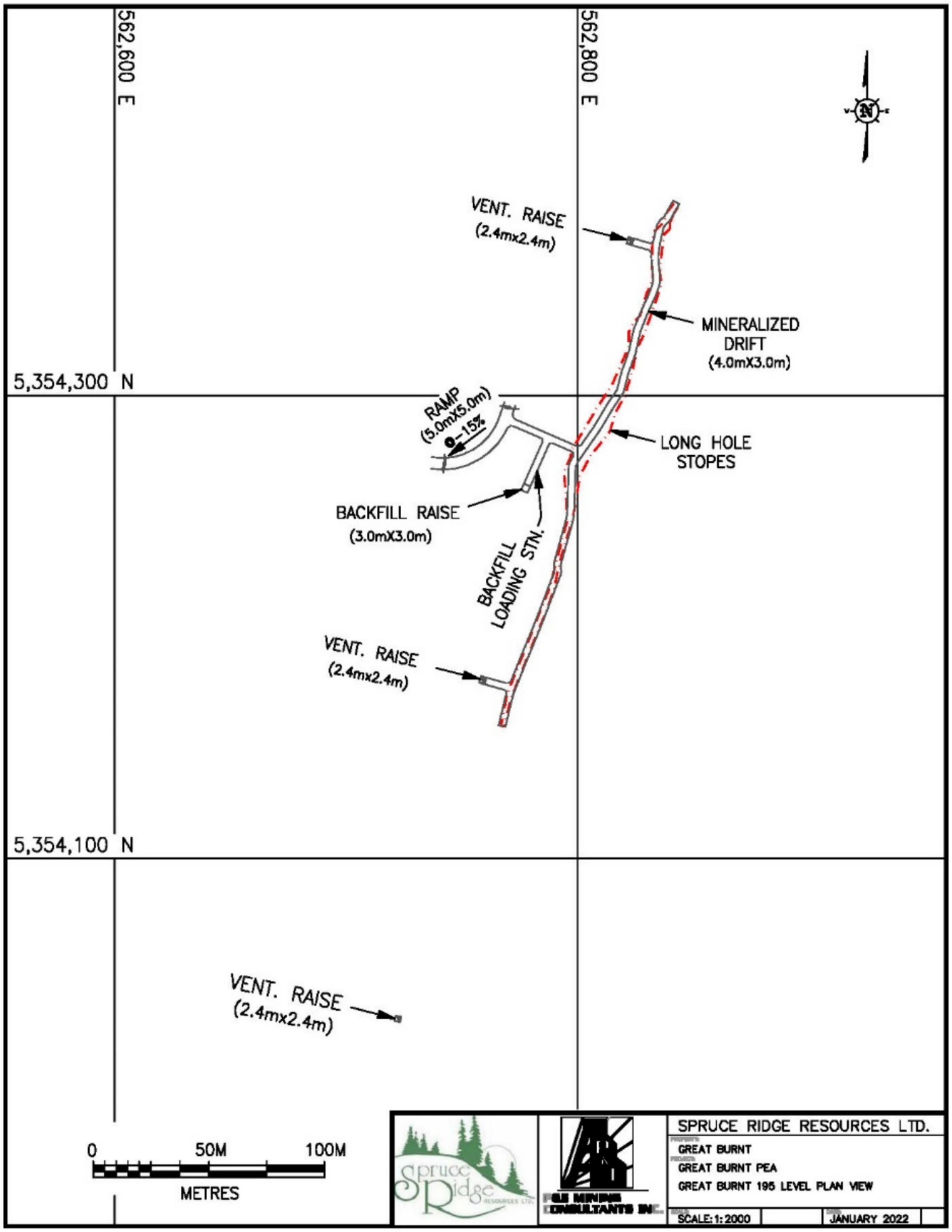


FIGURE 16.5 GREAT BURNT 60 M ELEVATION LEVEL PLAN

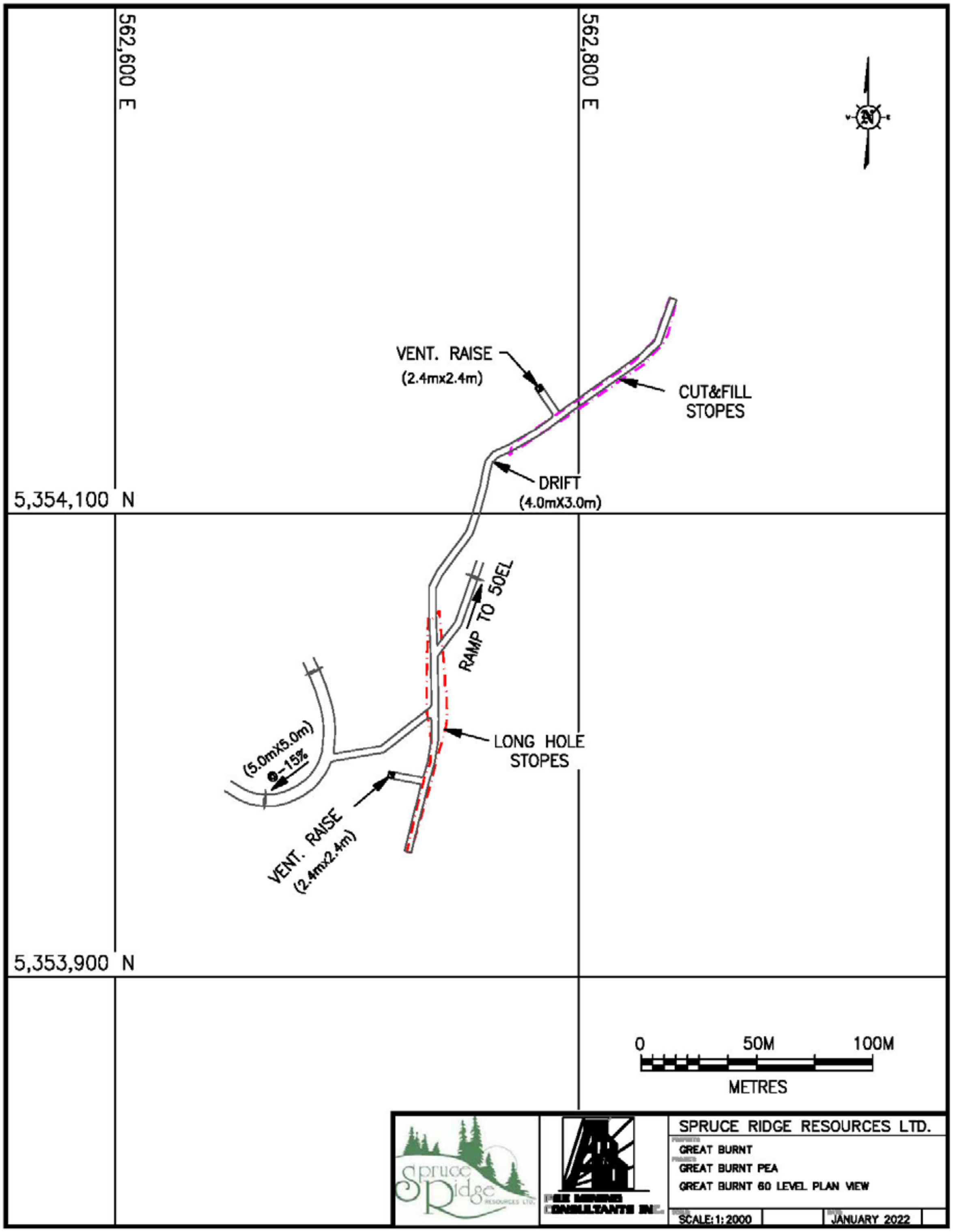
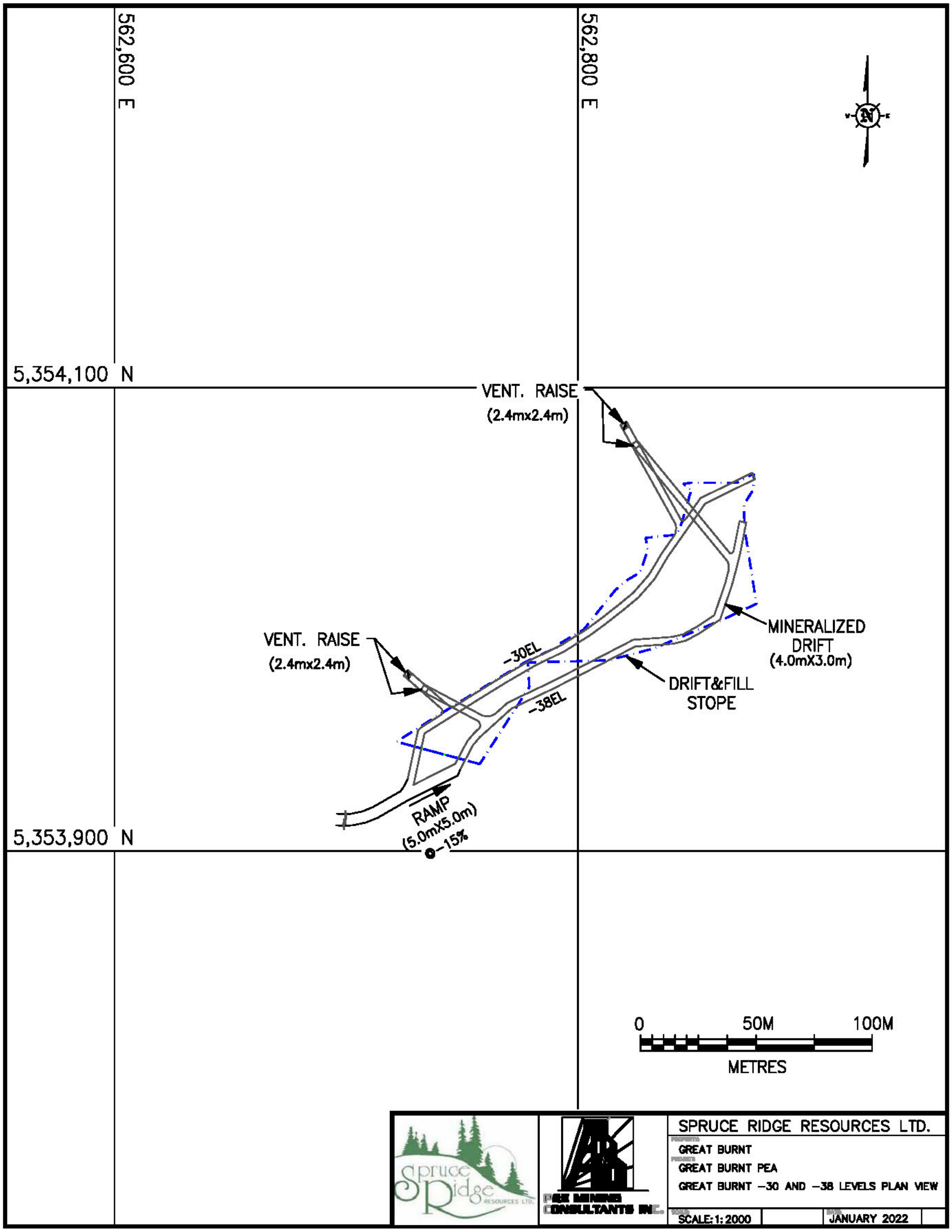


FIGURE 16.6 GREAT BURNT -30 AND -38 M ELEVATIONS LEVEL PLAN



16.4 ACCESS RAMP FROM SURFACE

Access to the Great Burnt Copper Deposit will be via a 5 m high by 4.5 m wide -15% ramp from surface to a vertical depth of 288 m . Portal construction is estimated to take place during the 4th month of the LOM plan.

Excavation of the ramp will be completed by a contractor at an average rate of 6 m/day. The 2,031 m long ramp will be completed during the 22nd month, LOM. This access ramp will allow all men, construction materials, equipment and excavated material to travel between levels and sublevels, as well as to and from surface.

Details of the main ramp development schedule are presented in Table 16.8.

TABLE 16.8
MAIN RAMP DEVELOPMENT SCHEDULE

Level	Metres	Waste Tonnes	Month	
			Start	Finish
Portal (250EL) to 240EL	126	6,598	4.0	4.7
240El to 225EL	101	5,282	4.8	5.4
225El to 210EL	128	6,696	5.6	6.3
210EL to 195EL	74	3,861	6.6	7.0
195El to 180EL	50	2,622	7.2	7.5
180EL to 165EL	152	7,935	7.9	8.7
165EL to 150EL	152	7,953	8.9	9.7
150EL to 135EL	50	2,622	10.1	10.4
135El to 120EL	60	3,106	10.6	10.9
120EL to 105EL	155	8,072	11.3	12.1
105EL to 90EL	65	3,387	12.4	12.8
90El to 75EL	145	7,576	13.2	14.0
75El to 60EL	58	3,047	14.5	14.8
60El to 45EL	142	7,421	15.1	15.9
45EL to 30EL	70	4,544	16.7	17.0
30El to 0EL	246	12,855	17.6	18.9
0EL to -10EL	67	3,519	19.1	19.5
-10EL to -20EL	106	5,525	19.7	20.3
-20EL to -30EL	58	3,051	20.6	20.9
-30EL to -38EL	24	1,277	21.1	21.2
Total	**2,031**	**106,949**	**4.0**	**21.2**

16.5 MINE LEVEL DEVELOPMENT

All excavations in waste rock are classified as mine development. There is a total of 3,529 m of mine level development over the LOM. This excludes 2,031 m of main ramp mine development and 68 m of main ramp safety bays. A summary of the mine development schedule is presented in Table 16.9.

TABLE 16.9
LOM MINE LEVEL DEVELOPMENT SCHEDULE

Level	Description	Metres	Tonnes	Month	
				Start	Finish
Portal (250EL) to 240EL	Access X-cut	26	1,338	4.7	4.8
	Vent. X-cut (N)	17	592	7.5	7.6
	Vent Raise (N)	42	702	7.6	8.0
	North Waste Drift	10	348	4.7	4.8
	North Waste Drift	26	888	4.8	5.3
	South Waste Drift	1	42	4.7	4.7
240El to 225EL	Access X-cut	33	1,700	5.4	5.6
	Vent. X-cut (N)	2	59	8.9	8.9
	Vent Raise (N)	11	184	8.9	9.1
	North Waste Drift	3	114	7.6	7.6
	South Waste Drift	3	102	7.6	7.6
225El to 210EL	Access Ramp	37	1,940	6.3	6.5
	Access X-cut	25	1,292	6.5	6.6
	Vent. X-cut (N)	19	661	10.4	10.6
	Vent. X-cut (C)	11	383	10.4	10.5
	Vent Raise (N)	11	184	11.1	11.2
	Vent Raise (C)	51	852	10.5	11.1
	North Waste Drift	30	1,043	8.9	9.1
	South Waste Drift	32	1,118	8.9	9.2
210EL to 195EL	Access X-cut	31	1,628	7.0	7.2
	Drift Backfill	23	1,201	7.2	7.3
	Backfill Raise	74	1,931	7.3	8.1
	Vent. X-cut (N)	10	348	11.6	11.6
	Vent. X-cut (C)	12	418	11.6	11.7
	Vent Raise (N)	13	217	11.6	11.8
	Vent Raise (C)	11	184	11.8	11.9
	North Waste Drift	3	96	10.6	10.6
	South Waste Drift	3	100	10.6	10.6
195El to 180EL	Access Ramp	51	2,656	7.5	7.7
	Access X-cut	26	1,342	7.7	7.9
	Vent. X-cut (N)	11	383	12.8	12.9
	Vent. X-cut (C)	12	418	12.8	12.9
	Vent Raise (N)	11	184	12.9	13.0
	Vent Raise (C)	11	184	13.0	13.2
	North Waste Drift	10	354	11.7	11.8
	South Waste Drift	8	284	11.7	11.8

TABLE 16.9
LOM MINE LEVEL DEVELOPMENT SCHEDULE

Level	Description	Metres	Tonnes	Month	
				Start	Finish
180EL to 165EL	Access X-cut	33	1,725	8.7	8.9
	Vent. X-cut (N)	11	383	14.0	14.1
	Vent. X-cut (C)	12	418	14.0	14.1
180EL to 165EL	Vent Raise (N)	11	184	14.1	14.2
	Vent Raise (C)	11	184	14.2	14.3
	North Waste Drift	20	679	12.9	13.1
	South Waste Drift	18	612	12.9	13.0
165EL to 150EL	Access Ramp	51	2,657	9.7	10.0
	Access X-cut	25	1,314	10.0	10.1
	Vent. X-cut (N)	8	278	15.3	15.4
	Vent. X-cut (C)	13	452	15.3	15.4
	Vent Raise (N)	13	217	15.4	15.5
	Vent Raise (C)	11	184	15.5	15.6
	North Waste Drift	17	599	14.1	14.2
	South Waste Drift	16	564	14.1	14.2
150EL to 135EL	Access X-cut	28	1,478	10.4	10.6
	Vent. X-cut (N)	9	313	16.7	16.7
	Vent. X-cut (C)	15	522	16.7	16.8
	Vent. X-cut (S)	24	835	16.8	16.9
	Vent Raise (N)	14	234	16.7	16.9
	Vent Raise (C)	11	184	16.9	17.0
	Vent Raise (S)	116	1,938	17.0	18.3
	North Waste Drift	23	800	15.4	15.5
	South Waste Drift	22	762	15.4	15.5
135El to 120EL	Access Ramp	42	2,172	10.9	11.1
	Access X-cut	28	1,436	11.1	11.3
	Vent. X-cut (N)	26	905	18.2	18.4
	Vent. X-cut (C)	15	522	18.2	18.3
	Vent. X-cut (S)	21	731	18.4	18.5
	Vent Raise (N)	13	217	18.4	18.6
	Vent Raise (C)	11	184	18.3	18.4
	Vent Raise (S)	13	217	18.6	18.7
	North Waste Drift	34	1,190	16.9	17.1
	South Waste Drift	26	919	16.9	17.0
120EL to 105EL	Access Ramp	23	1,199	12.1	12.2
	Access X-cut	32	1,680	12.2	12.4
	Vent. X-cut (C)	15	522	19.3	19.4
	Vent. X-cut (S)	12	418	19.3	19.4

TABLE 16.9
LOM MINE LEVEL DEVELOPMENT SCHEDULE

Level	Description	Metres	Tonnes	Month	
				Start	Finish
	Vent Raise (C)	11	184	19.5	19.6
	Vent Raise (S)	13	217	19.4	19.5
	North Waste Drift	26	894	18.5	18.6
	South Waste Drift	26	899	18.5	18.6
105EL to 90EL	Access Ramp	42	2,172	12.8	13.0
	Access X-cut	31	1,639	13.0	13.2
	Vent. X-cut (C)	16	557	20.3	20.4
	Vent. X-cut (S)	8	268	20.3	20.4
	Vent Raise (C)	11	184	20.5	20.6
	Vent Raise (S)	13	217	20.4	20.5
	North Waste Drift	5	160	19.4	19.4
	South Waste Drift	7	234	19.4	19.4
90EL to 75EL	Access Ramp	28	1,446	14.0	14.1
	Access X-cut	32	1,645	14.1	14.3
	Vent. X-cut (C)	26	905	21.2	21.4
	Vent. X-cut (S)	11	383	21.2	21.3
	Vent Raise (C)	14	234	21.5	21.6
	Vent Raise (S)	13	217	21.3	21.5
	North Waste Drift	12	406	20.4	20.5
	South Waste Drift	12	423	20.4	20.5
70EL	Access Ramp	41	2,140	14.3	14.5
	Vent. X-cut (C)	14	487	14.5	14.6
75El to 60EL	Access Ramp	25	1,299	14.8	15.0
	Access X-cut	27	1,405	15.0	15.1
	Vent. X-cut (C)	14	487	22.2	22.3
	Vent. X-cut (S)	14	487	22.2	22.3
	Vent Raise (C)	12	201	22.5	22.6
	Vent Raise (S)	13	217	22.3	22.5
	North Waste Drift	39	1,372	21.4	21.7
	South Waste Drift	26	890	21.4	21.6
60El to 45EL	Access Ramp	23	1,213	15.9	16.0
	Access X-cut	31	1,628	16.0	16.2
	Vent. X-cut (C)	16	557	22.8	22.9
	Vent. X-cut (S)	17	591	22.8	22.9
	Vent Raise (C)	9	150	22.9	23.0
	Vent Raise (S)	13	217	23.0	23.1
	North Waste Drift	8	276	22.3	22.4
	South Waste Drift	14	492	22.3	22.4

TABLE 16.9
LOM MINE LEVEL DEVELOPMENT SCHEDULE

Level	Description	Metres	Tonnes	Month	
				Start	Finish
50EL	Access Ramp	85	4,437	16.2	16.7
	Vent. X-cut (C)	14	487	22.9	23.0
45EL to 30EL	Access X-cut	22	1,148	17.0	17.2
	Vent. X-cut (C)	14	487	23.3	23.4
	Vent. X-cut (S)	21	714	23.0	23.2
	Vent Raise (C)	22	367	23.4	23.6
	Vent Raise (S)	11	184	23.2	23.3
45EL to 30EL	North Waste Drift	56	1,949	23.0	23.3
	South Waste Drift	5	174	23.0	23.0
20EL	Access Ramp	71	3,706	17.2	17.6
	Vent. X-cut (C)	15	522	23.4	23.5
	Vent Raise (C)	9	150	23.5	23.6
30El to 0EL	Access X-cut	42	2,169	18.9	19.1
	Vent. X-cut (C)	22	766	23.5	23.6
	Vent. X-cut (S)	10	348	23.5	23.6
	Vent Raise (C)	22	367	23.8	24.0
	Vent Raise (S)	21	351	23.6	23.8
0EL to -10EL	Access X-cut	42	2,169	19.5	19.7
	Vent. X-cut (C)	23	800	23.6	23.8
	Vent. X-cut (S)	5	170	23.6	23.6
	Vent Raise (C)	9	150	23.7	23.8
	Vent Raise (S)	11	184	23.6	23.7
-10EL to -20EL	Access Ramp	39	2,042	20.3	20.5
	Access X-cut	12	617	20.5	20.6
	Vent. X-cut (C)	28	974	23.8	24.0
	Vent. X-cut (S)	13	441	23.6	23.7
	Vent Raise (C)	7	117	24.0	24.0
	Vent Raise (S)	6	100	23.7	23.7
-20EL to -30EL	Access Ramp	29	1,532	20.9	21.1
	Vent. X-cut (C)	48	1,670	24.0	24.3
	Vent. X-cut (S)	25	870	23.7	23.8
	Vent Raise (C)	12	200	23.9	24.1
	Vent Raise (S)	8	134	23.8	23.9
-30EL to -38EL	Access X-cut	12	626	21.2	21.3
	Vent. X-cut (C)	66	2,297	24.3	24.7
	Vent. X-cut (S)	31	1,079	23.8	24.0
	Vent Raise (C)	7	117	24.7	24.8
	Vent Raise (S)	8	134	24.0	24.1

TABLE 16.9 LOM MINE LEVEL DEVELOPMENT SCHEDULE					
Level	**Description**	**Metres**	**Tonnes**	**Month**	
				Start	**Finish**
60EL C&F	Waste Drift	21	714	29.3	29.4
50EL C&F	Waste Drift	6	194	28.4	28.4
30EL C&F	Waste Drift	29	1,007	27.6	27.7
20EL C&F / D&F	Waste Drift	27	955	26.2	26.4
0EL C&F / D&F	Waste Drift	117	4,085	26.0	26.6
-10EL C&F / D&F	Waste Drift	46	1,604	23.7	23.9
-20EL C&F / D&F	Waste Drift	63	2,188	22.3	22.6
-30EL D&F	Waste Drift	3	98	24.7	24.7
-38EL D&F	Waste Drift	54	1,880	21.1	21.4
Total		**3,529**	**130,161**	**4.7**	**29.4**

16.6 STOPE DEVELOPMENT

All development in mineralization that produces process plant feed is classified as stope development. Stope development includes both drifting and slot raising in mineralized rock. Stope development will start on the 240 m Level during the 5th month in the longhole stoping area. Once all longhole stope development has been completed stope development crews will move to the -38 m Level and proceed to develop all levels and sublevels, upwards, in the C&F and D&F stoping areas up to the 90 m Level.

There is a total of 5,667 m of level and sublevel stope development over the LOM. A summary of the stope development schedule is presented in Table 16.10.

TABLE 16.10 LOM STOPE DEVELOPMENT SCHEDULE					
Level	**Description**	**Metres**	**Tonnes**	**Month**	
				Start	**Finish**
Portal (250EL) to 240EL	North Drift	260	9,669	5.3	7.5
	South Drift	9	327	4.7	4.8
	Slot Raises	88	1,086	4.7	7.5
240El to 225EL	North Drift	164	6,012	7.6	8.9
	South Drift	147	5,400	7.6	8.8
	Slot Raises	88	1,098	7.6	8.9
225El to 210EL	North Drift	146	5,309	9.1	10.3
	South Drift	156	5,687	9.2	10.4
	Slot Raises	99	1,233	9.1	10.4
210EL to 195EL	North Drift	116	4,278	10.6	11.5
	South Drift	121	4,480	10.6	11.6

TABLE 16.10
LOM STOPE DEVELOPMENT SCHEDULE

Level	Description	Metres	Tonnes	Month	
				Start	Finish
	Slot Raises	66	817	10.6	11.6
195El to 180EL	North Drift	129	4,943	11.8	12.8
	South Drift	104	3,971	11.8	12.6
	Slot Raises	77	994	11.8	12.8
180EL to 165EL	North Drift	115	4,497	13.1	14.0
	South Drift	103	4,056	13.04	13.9
	Slot Raises	77	1,018	13.04	14.0
165EL to 150EL	North Drift	136	5,340	14.2	15.3
	South Drift	128	5,025	14.2	15.2
	Slot Raises	77	1,062	14.2	15.3
150EL to 135EL	North Drift	140	5,437	15.5	16.7
	South Drift	133	5,176	15.5	16.6
	Slot Raises	88	1,207	15.5	16.7
135El to 120EL	North Drift	137	5,426	17.1	18.2
	South Drift	106	4,191	17.0	17.9
	Slot Raises	88	1,201	17.0	18.2
120EL to 105EL	North Drift	81	3,175	18.6	19.3
	South Drift	81	3,189	18.6	19.3
	Slot Raises	66	899	18.6	19.3
105EL to 90EL	North Drift	73	2,868	19.4	20.02
	South Drift	107	4,208	19.4	20.3
	Slot Raises	55	748	19.4	20.3
90El to 75EL	North Drift	87	3,480	20.5	21.2
	South Drift	91	3,632	20.5	21.2
	Slot Raises	66	917	20.5	21.2
75El to 60EL	North Drift	69	2,736	21.7	22.2
	South Drift	44	1,774	21.6	21.9
	Slot Raises	55	751	21.7	22.2
60El to 45EL	North Drift	26	1,022	22.4	22.6
	South Drift	46	1,821	22.4	22.8
	Slot Raises	33	447	22.4	22.8
45EL to 30EL	Slot Raises	33	451	23.0	23.3
105EL to 90EL C&F	Drift	25	933	30.1	30.4
90El to 75EL C&F	Drift	84	3,509	29.5	30.1
75El to 60EL C&F	Drift	98	3,696	29.4	30.2
60El to 45EL C&F	Drift	126	4,678	28.4	29.5
45EL to 30EL C&F	Drift	196	8,397	27.7	29.3
30El to 0EL C&F / D&F	Drift	144	4,507	26.4	27.6

TABLE 16.10 LOM STOPE DEVELOPMENT SCHEDULE					
Level	Description	Metres	Tonnes	Month	
				Start	Finish
30El to 0EL C&F / D&F	Drift	214	9,644	26.6	28.4
0EL to -10EL C&F / D&F	Drift	251	9,438	23.9	26.0
-10EL to -20EL C&F / D&F	Drift	129	3,664	22.6	23.7
-20EL to -30EL D&F	Drift	181	7,902	24.7	26.2
-30EL to -38EL D&F	Drift	111	2,122	21.4	22.3
Total		**5,667**	**189,546**	**4.7**	**30.4**

16.7 OPEN PIT AND STOPING FEED PRODUCTION SCHEDULE

Great Burnt open pit process plant feed production starts at the beginning of the 4th month. South Pond open pit production starts during the 7th month. Longhole, C&F and D&F stoping starts during the 14th, 29th and 23rd months, respectively. Longhole, C&F and D&F stope production will all end during the 39th month. A summary of the LOM mineralized material production schedule is presented in Table 16.11. All mineralized material will be crushed at site then loaded into trucks for transport to a toll process plant.

TABLE 16.11 LOM OPEN PIT AND STOPING PRODUCTION SCHEDULE					
Area	Tonnes	Cu (%)	Au (g/t)	Month	
				Start	Finish
Great Burnt OP	131,235	1.33		3.0	7.6
South Pond OP	126,709	1.02	0.68	7.6	11.8
240EL LH	72,120	2.18		21.9	32.0
225EL LH	61,308	2.10		18.7	26.3
210EL LH	39,011	2.13		14.0	23.1
195EL LH	28,742	1.95		13.5	18.0
180EL LH	34,387	2.90		15.8	21.1
165EL LH	41,973	2.97		14.7	20.0
150EL LH	35,491	2.80		26.7	34.1
135EL LH	24,685	2.46		17.9	25.2
120EL LH	25,867	3.18		36.0	38.3
105EL LH	21,525	3.73		33.9	37.3
90EL LH	21,859	4.59		30.9	35.2
75EL LH	26,736	2.96		32.9	37.3
60EL LH	23,210	2.58		32.7	35.2
45EL LH	14,802	2.96		28.8	30.1
30EL LH	4,032	4.20		26.9	27.0
105EL to 90EL C&F	582	3.21		36.0	36.1
90El to 75EL C&F	4,466	1.41		35.2	36.0

TABLE 16.11 LOM OPEN PIT AND STOPING PRODUCTION SCHEDULE					
Area	**Tonnes**	**Cu (%)**	**Au (g/t)**	**Month**	
				Start	**Finish**
75El to 60EL C&F	2,361	1.28		34.8	35.2
60El to 45EL C&F	2,725	1.29		34.4	34.8
45EL to 30EL C&F	6,520	1.40		33.3	34.4
30El to 0EL C&F	6,969	1.33		31.6	33.3
30El to 0EL D&F	3,482	1.40		31.6	33.3
30El to 0EL C&F	16,948	1.88		28.4	31.6
30El to 0EL D&F	2,552	1.03		28.4	31.6
0EL to -10EL C&F	6,047	4.33		36.1	38.4
0EL to -10EL D&F	8,265	1.29		36.1	38.4
-10EL to -20EL C&F	4,351	4.63		33.1	36.1
-10EL to -20EL D&F	13,746	1.96		33.1	36.1
-20EL to -30EL D&F	32,217	2.31		27.8	33.1
-30EL to -38EL D&F	33,823	2.40		22.3	27.8
Total OP and Stoping Feed Mined	**878,744**	**2.15**	**0.10**	**3.0**	**38.4**

Note: *Table 16.11 does not include development and slot raise mineralization.*

16.8 UNDERGROUND MINE AND SUPPORT EQUIPMENT

An estimated 18 pieces of underground mobile equipment will be required, LOM, used mainly for stope drilling, blasting, loading, backfilling and haulage. In addition, an estimated 12 pieces of surface mobile equipment will be required, LOM, to support the underground operations. A list of both mobile, miscellaneous underground and surface equipment is presented in Table 16.12. Please note Table 16.12 does not include contractor's open pit and underground/surface equipment.

TABLE 16.12 MINE UNDERGROUND AND SUPPORT EQUIPMENT		
Type	**Item**	**Quantity**
UG Mobile Equipment	Sandvik LH307 3.2 m^3 LHD	3
	Sandvik TH420 20 t Haul Truck	4
	Top Hammer Drill (DL311-7)	1
	MCU 2700 Blasting Tractor	1
	Sandvik DD421 Prod Jumbo - 2 Boom	1
	Getman Scissor Lift / Boom Truck	1
	Toromont Cat Grader M135H	1
	Getman Personnel Carrier	1
	Mechanics / Electrician Vehicle	2
	Staff Toyota	4
	Subtotal	**18**

TABLE 16.12 MINE UNDERGROUND AND SUPPORT EQUIPMENT		
Type	**Item**	**Quantity**
Misc. UG Equipment	Stopers	4
	Jacklegs	4
	Construction Hand Tools & Equipment	1
	UG Ventilation Fans	14
	Heading Pumps	3
	Main Dewatering Pumps	2
	Main Electric Substations	2
	Portable Electric Substations	2
Surface Mobile Equipment	Motor Grader	1
	FEL - Cat 980G	1
	Flatbed Truck - Sterling (Used)	1
	Garbage Truck w/dumpsters (used)	1
	Bus - 30 Person	1
	Ambulance	1
	Fire/Rescue Truck (PT2 1200)	1
	Pickup Truck - Ford F150	4
	SUV	1
	Subtotal	**12**
Misc. Surface Equipment	Shop Equipment & Tools	Lot
	Warehouse Supplies and Parts	Lot
	Cap Lamps	50
	Safety Gear	50
	Other Safety Gear	Lot
	Mine ERT	1
	Reconditioned Surface Ventilation Fans	2
	Compressors	2

Note: *Table 16.12 does not include contractor's open pit and underground equipment.*

16.9 MANPOWER

An estimated 60 Company personnel will be required on a daily basis; including 16 site administrative staff, 12 underground mine staff and 31 underground mine labourers. A summary of manpower requirements is presented in Table 16.13. The open pit contractor's manpower requirements have not been included in Table 16.13.

TABLE 16.13
SITE MANPOWER REQUIREMENTS

Description	Manshifts/Day
Site Administration	
General Manager	1
Admin Manager	1
Safety / Security Officer	1
Purchasing	1
Security Team	3
Secretary / Receptionist	1
Environmental Officer	1
Accounting / Time Keeping	1
IT Support	1
Warehouse	1
Clerk	1
Labourer	2
Dry Man / Janitor	1
Subtotal	**16**
Mine Staff	
Mine Superintendent	1
Shift Foreman	4
Chief Engineer	1
Mine Engineer/Rock Mechanics/Mine Planner	1
Ventilation/Surveyor Technician	1
Surveyor Helper	1
Chief Geologist	1
Geological Technician	2
Subtotal	**12**
Mine Labour	
Crew Leaders	4
Crew Miners	10
UG Backfill Operators	3
UG Mechanics	7
Electricians	2
Services Leader	1
Grader Operator	1
Pump / Construction Man	1
Mine Labourers	2
Service Truck Operator	1
Subtotal	**32**
Total Labour	**60**

Note: *Table 16.13 does not include open pit contractor's manpower.*

17.0 RECOVERY METHODS

Details of recent metallurgical test work are presented in Section 13. Based on these data, a conventional process flowsheet is proposed. This would include crushing and fine grinding to a P_{80} of 50 µm at a rate of 1,000 tpd. Two stages of flotation, using a special copper gold collector (3418A) would follow producing a cleaner concentrate containing 25% copper and small amounts of gold. The concentrate would be filtered to a moisture content of approximately 8% and shipped to an offshore smelter.

With a Mineral Resource limited to approximately 1 Mt, the construction and operation of a processing facility at the remote site in southern NL that has no supporting infrastructure is expected to be uneconomic. The shipment of ROM (run of mine) mineralized material to an existing process plant, subject to toll processing or sale to the process plant operator are options to be considered. There have been sulphide process plants in the local area in the past – the Buchans and the Duck Pond facilities. Neither location retains the basics of an operable process plant, and the closer one (40 km) Duck Pond, has been closed out to rigorous criteria.

While distant from the Great Burnt Property, the Rambler Metals and Mining Canada Limited Nugget Pond process plant has a flowsheet that closely resembles that selected for Great Burnt in the 2021 test program at SGS Lakefield (Section 13). The only apparent required modification would be finer primary grind – P_{80} of 50 µm versus the size of 120 µm reported as a Nugget Pond design criteria[1]. A finer grind is possible by increasing grinding ball charges to the SAG mill and ball mill as well as the modification of primary cyclone overflow.

The extensive shipping distance by road and highway (approximately 315 km) from the Great Burnt Property to the Nugget Pond process plant, if it is the selected processing location, is a significant Project challenge. Initial tests were conducted in 2021 on the use of mineralized material sorting technology to upgrade and reduce the mass of Great Burnt material that would be shipped to a toll process plant. In tests on a -76+13 mm fraction of crushed core, the copper grade was increased by 80% and mass reduced by 56%. However, 20% of the copper remained in the rejects at a copper grade of 1%.

As described in Section 13, prorating the sorting feed grade to Mineral Resource grade, suggests that the value of the copper in sorter rejects (0.74% Cu) approximates the costs of transport, processing and refining. Additional tests combined with economic analyses are justified to maintain a high grade in sorted and shipped mineralized material, while reducing tonnes shipped and minimizing losses to sorter rejects.

1 Technical Report Update, 2018, WSP, Rambler (MING) Copper Gold Mine

18.0 PROJECT INFRASTRUCTURE

There is currently no infrastructure at the Great Burnt Property. The southern part of the Property, including the Great Burnt Copper Deposit, is accessible from St. Alban's, NL, by the Upper Salmon access road, an all-weather gravel road maintained by Newfoundland Hydro. North of the Property, logging roads extend South from Grand Falls-Windsor to the Atlantic Lake area and are within 15 km of the South Pond Copper-Gold Deposit. Extending these logging roads onto the Property would significantly improve access to the Property from Grand Falls-Windsor, Gander and the Buchans area.

A 230 kV transmission line runs from the Upper Salmon Hydroelectric Development at Godaleich Brook south to the powerhouse at Bay d'Espoir. A second 230 kV transmission line runs from Baie d'Espoir north to Grand Falls-Windsor and passes approximately 30 km east of the Property. Newfoundland Hydro has a power supply line that services the Great Burnt Dam at the South end of the Property. Given the relatively short mine life outlined in Section 16 of this Technical Report, it will likely be less expensive to operate the mine on generators instead of paying to connect to the Newfoundland Hydro grid.

Site layout plans of the Great Burnt Copper Deposit and South Pond Deposit are presented in Figure 18.1 and 18.2, respectively. The plans indicate the main items of proposed infrastructure. Processing will be by off-site toll processing, therefore there will be no process plant or tailings facility on site. There will be a water treatment facility on site for potential acid rock drainage and metal leaching. A septic system will be installed for sanitary waste water. Potable water will be sourced from local lakes and will be treated to make it potable if necessary. There will be no camp, and employees will be expected to travel from nearby communities.

FIGURE 18.1 GREAT BURNT SITE PLAN

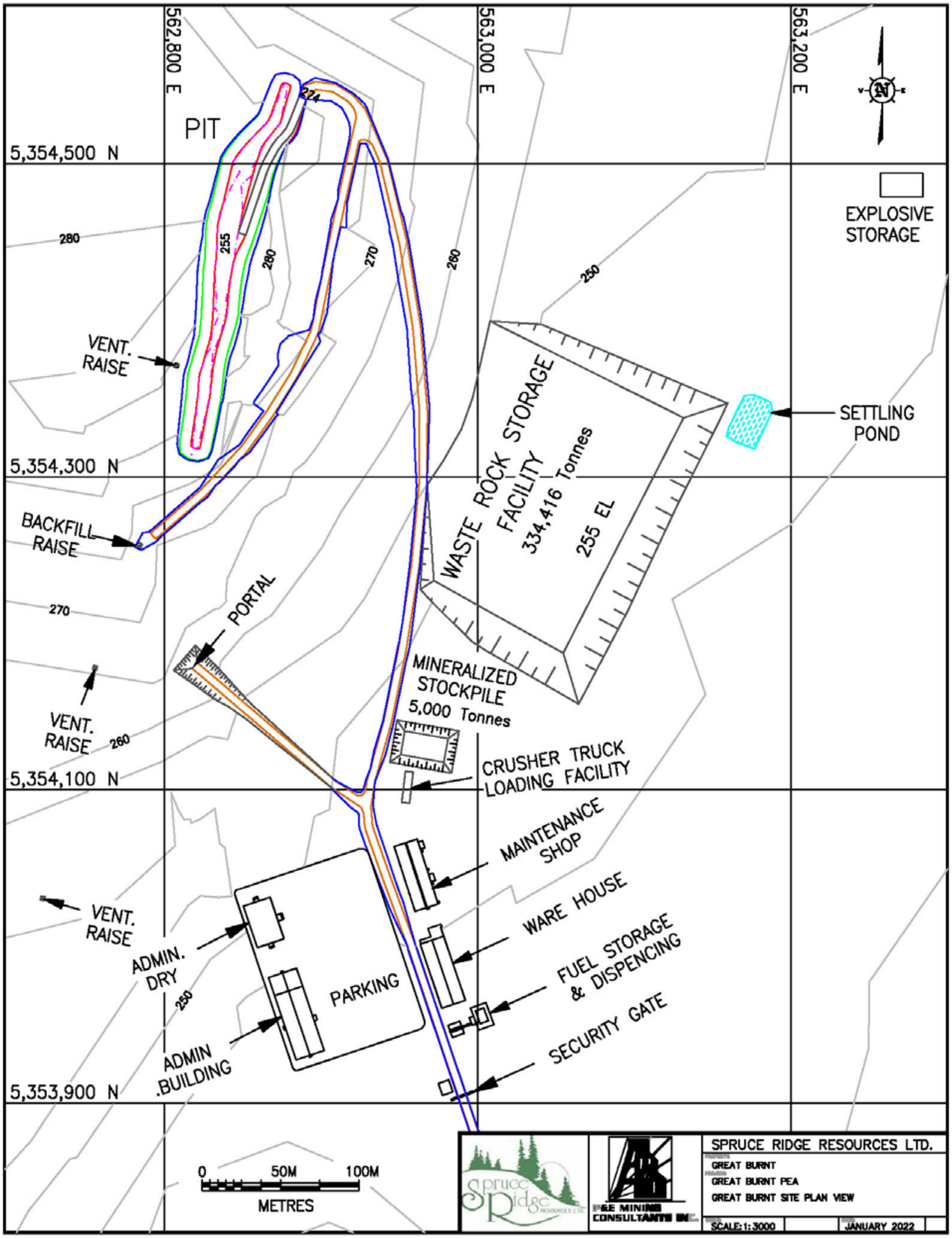
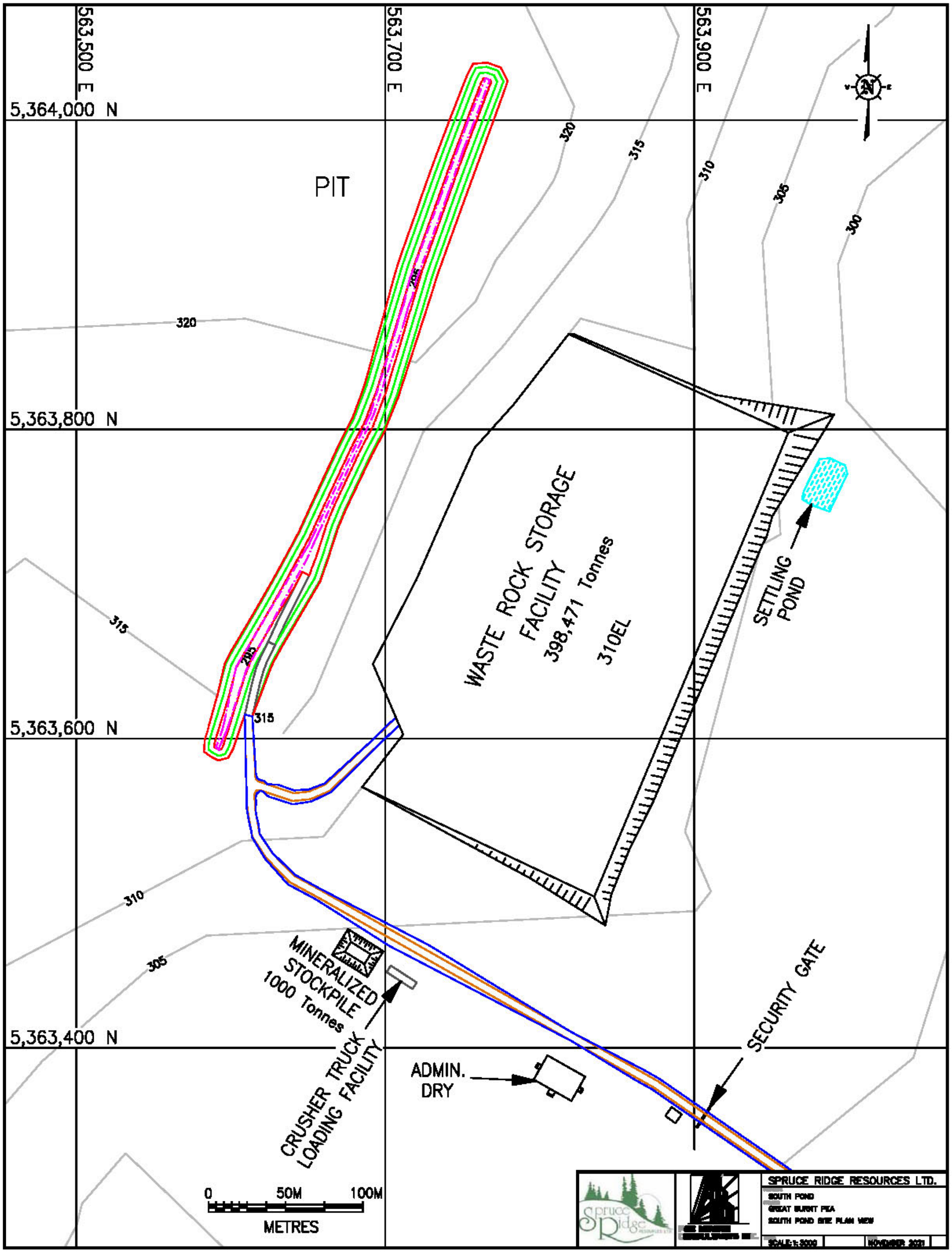


FIGURE 18.2 SOUTH POND SITE PLAN



19.0 MARKET STUDIES AND CONTRACTS

19.1 METAL PRICES AND FOREIGN EXCHANGE

The author of this Technical Report section followed the approximate December 2021 long term price forecasts by Consensus Economics Inc. which averaged data from various banks and brokerage firms for copper and gold, and adjusted the prices to more closely follow recent trends. A copper price of US$4.00/lb and a gold price of US$1,625/oz were used in this PEA, with an exchange rate of 0.77 US$ per CAD$.

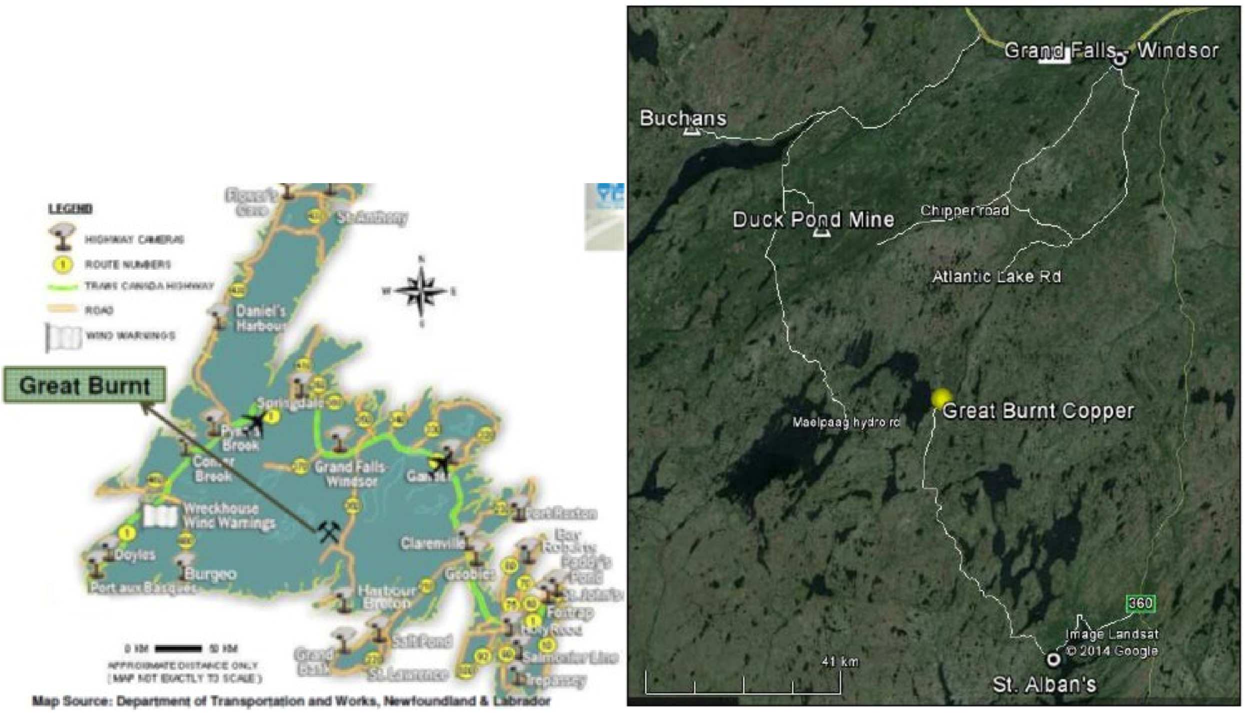
19.2 CONTRACTS

There are no existing contracts in place related to the Great Burnt Project. The Project is open to the spot copper and gold price market and there are no streaming or forward sales contracts in place.

20.0 ENVIRONMENTAL STUDIES, PERMITS, AND SOCIAL OR COMMUNITY IMPACTS

The Great Burnt Project is located in south central Newfoundland near the eastern shore of Great Burnt Lake and 75 (air) km south-southwest of Grand Falls as shown in Figure 20.1. The site has been subject to exploration activity for many years, but no significant environmental liabilities are known at the Property.

FIGURE 20.1 GREAT BURNT COPPER LOCATION



Source: *Spruce Ridge Presentation (June 2016)*

The environmental assessment ("EA") and permitting process for mining and mineral processing projects in Newfoundland and Labrador is well-established and is harmonized with the Federal EA process requirements. The Great Burnt Project would likely require an environmental assessment with public consultation under the Environmental Protection Act (SNL 2002 c.E-14.2). Once approved, the Project would require a Certificate of Approval under section 78 of the Environmental Protection Act, water rights under the Water Resources Act (SNL2002 c.W-4.01), a mine operating license, and other miscellaneous permits.

The Canadian Environmental Assessment Act (CEAA 2012) is not expected to be triggered by the Great Burnt Project since neither the Fisheries Act nor significant social concerns are expected to be realized.

Spruce Ridge would assess the proposed Great Burnt Project's potential environmental and social impacts, carry out public consultations and determine permitting requirements with regulatory authorities.

The proposed Project would be developed, operated and closed in accordance with Provincial environmental and health and safety regulatory requirements. It is expected that engineered controls such as, but not limited to, double walled fuel storage tanks and spill response procedures to eliminate or mitigate environmental risks, would be incorporated into the detailed design of the Project. Waste material management procedures would be in place and waste would be disposed of in accordance with regulatory requirements.

Progressive mine rehabilitation and closure is required by Provincial legislation. The Mining Regulations under the Mining Act require the mine operator to develop and submit a Development Plan, an Operational Plan, a Rehabilitation and Closure Plan as well as Annual Reports. Financial Assurance for relevant costs including ongoing monitoring and site maintenance is also required.

The envisaged final closure works will include the decommissioning of surface facilities associated with the proposed open pit and underground operations and mineralized material shipment. The mine operations will be designed for closure, in particular the management of waste rock.

During operations, potentially acid-generating (“PAG”) waste rock stored on surface will be separately stockpiled. As mining of each open pit is completed and on closure the PAG waste rock will be deposited into the mined-out pits. The pits will be allowed to naturally flood, inhibiting acid generation and metal leaching.

The closed out Great Burnt Project can be expected to be in a safe “walk-away” condition.

21.0 CAPITAL AND OPERATING COSTS

The estimated capital and operating costs related to the construction and operation of the mining and processing facilities are provided in this section.

All capital and operating cost estimates are shown in Canadian dollars as at Q4 2021, unless otherwise stipulated.

21.1 CAPITAL COST ESTIMATES

The time to mobilize and set up facilities to start open pit mining is very short, and initial capital costs have been treated as sustaining capital since they are incurred in the first year of production. Commercial production is planned to commence three months after the start of site set-up. Sustaining capital cost estimates include mine and stope development; the purchase of underground mining equipment; underground infrastructure; surface infrastructure, and closure bond/salvage credit, including a 15% contingency allowance. The LOM total sustaining capital cost of the Great Burnt Project is estimated at $59.0M. A breakdown of these estimates is provided in Table 21.1.

TABLE 21.1
SUMMARY OF TOTAL LOM CAPITAL COSTS ($M)

Item	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Total ($M)
Mine Development in Waste Rock	9.6	15.6	1.4			**26.6**
Mine Equipment – UG	8.9	7.1	1.0			**17.1**
UG Infrastructure	0.8	1.3	0.2			**2.3**
Surface Infrastructure	14.1	2.0				**16.1**
Closure Bond and Salvage	0.0	0.0	0.0	-3.3	0.3	**-3.1**
Total CAPEX ($M)	**33.4**	**26.0**	**2.7**	**-3.3**	**0.3**	**59.0**

Note: *Yr = year*

Details of these estimates are provided in the following subsections.

21.1.1 Mine Development in Waste Rock Capital Costs

An estimated $26.6M of sustaining capital will be spent on mine development in waste rock. All mine development will be completed by a contractor(s). This includes: the cost of the main ramp, cross cuts; sumps, electrical rooms, lunchrooms, re-muck bays, garages and ventilation raises. A summary of mine development in waste rock capital cost estimates is presented in Table 21.2.

TABLE 21.2 MINE AND STOPE DEVELOPMENT CAPITAL COSTS ($M)						
Heading	**Size W x H (m)**	**Unit Cost ($/m)**	**Yr 1**	**Yr 2**	**Yr 3**	**Total ($M)**
Contractor Mob			0.1			**0.1**
Main Ramp	4.0 x 4.5	4,500	5.3	5.2		**10.5**
Access Cross Cut	4.0 x 4.5	4,500	1.3	1.5		**2.8**
Safety Bays	0.6 x 1.5	225	0.0	0.0		**0.0**
Vent Cross Cut (N)	3.0 x 4.0	3,500	0.2	0.3		**0.5**
Vent Raise (N)	2.4 x 2.4	4,000	0.4	0.3		**0.6**
North Waste Drift	3.0 x 4.0	3,500	0.3	1.0		**1.3**
South Waste Drift	3.0 x 4.0	3,500	0.2	0.7		**0.9**
Access Ramp	4.0 x 4.5	4,500	0.9	2.1		**3.0**
Vent Cross Cut (C)	3.0 x 4.0	3,500	0.1	1.2	0.4	**1.7**
Vent Raise (C)	2.4 x 2.4	4,000	0.3	0.8	0.1	**1.2**
Drift Backfill	4.0 x 4.5	4,500	0.1			**0.1**
Backfill Raise	3.0 x 3.0	4,500	0.4			**0.4**
Vent Cross Cut (S)	3.0 x 4.0	3,500		0.8		**0.8**
Vent Raise (S)	2.4 x 2.4	4,000		1.2		**1.2**
C&F / D&F Waste Drift	3.0 x 4.0	3,500		0.7	0.8	**1.5**
Total ($M)			**9.6**	**15.6**	**1.4**	**26.6**

Note: *Yr = year, N = North, C = Central, S = South area of the Deposit.*

21.1.2 Underground Mine Equipment Capital Costs

An estimated $17.1M of sustaining capital will be spent on the purchase of underground mine equipment over the LOM, used mainly for stope drilling, blasting, loading, backfilling and haulage. These costs include: all underground mobile and stationary equipment. A schedule of sustaining capital expenditure estimates for mine underground equipment is presented in Table 21.3.

TABLE 21.3 UNDERGROUND MINE EQUIPMENT CAPITAL COSTS ($M)						
Item	**Unit Cost**	**Units**	**Yr 1**	**Yr 2**	**Yr 3**	**Total ($M)**
Sandvik DD421 Prod Jumbo - 2 Boom	1.5	1		1.5		**1.5**
Top Hammer Drill (DL311-7)	1.1	1	1.1			**1.1**
Getman Scissor Lift / Boom Truck	0.4	1	0.4			**0.4**
Sandvik LH307 3.2 m^3 LHD - Devel / Haul	1.2	1		1.2		**1.2**
Sandvik LH307 3.2 m^3 LHD - Haulage	1.2	2	1.2	1.2		**2.4**
Sandvik TH420 20 t Haul Truck C/W Ejector Box	1.0	4	1.0	2.1	1.0	**4.1**

TABLE 21.3 **UNDERGROUND MINE EQUIPMENT CAPITAL COSTS ($M)**						
Item	**Unit Cost**	**Units**	**Yr 1**	**Yr 2**	**Yr 3**	**Total ($M)**
MCU 2700 UG Blasting Tractor	0.6	1	0.6			**0.6**
Mechanics / Electrician Vehicle	0.1	1	0.1			**0.1**
Grader	0.4	1	0.4			**0.4**
Toyotas	0.1	4	0.2	0.1		**0.3**
Getman Personnel Carrier	0.3	1	0.3			**0.3**
Portable Substations	0.3	2	0.3	0.3		**0.6**
Misc. Underground Equipment			1.0	0.9		**1.9**
Misc. Surface Equipment			2.5	0.1		**2.7**
Total Underground Equipment ($M)			**8.9**	**7.1**	**1.0**	**17.1**

Note: *Some values have been rounded. The totals are accurate summations of the columns of data.*
Yr = year.

21.1.3 Underground Infrastructure Capital Costs

An estimated $2.3M of sustaining capital will be spent on underground infrastructure, LOM. This includes expenditures for: a main sump; a mine air heating system; two lunchroom / refuge stations; a CRF backfill loading station, two latrines, two powder magazines, and 23 ventilation bulkhead / regulators. A summary of underground infrastructure sustaining capital cost estimates is presented in Table 21.4.

TABLE 21.4 **UNDERGROUND INFRASTRUCTURE CAPITAL COSTS ($M)**						
Item	**Qty**	**Unit Cost**	**Yr 1**	**Yr 2**	**Yr 3**	**Total ($M)**
Upper Pump Station	1	0.12	0.1			**0.1**
Sump	1	0.20		0.2		**0.2**
Mine Air Heaters	1	0.25		0.3		**0.3**
Refuge Station	2	0.15	0.2	0.2		**0.3**
CRF Backfill Loading Station	1	0.25	0.3			**0.3**
Latrine	2	0.04	0.0	0.0		**0.1**
Powder Magazine	2	0.05	0.1	0.1		**0.1**
Detonator Magazine	2	0.02	0.0	0.0		**0.0**
Ventilation Walls and Regulators	23	0.03	0.1	0.4	0.2	**0.8**
Total ($M)			**0.8**	**1.3**	**0.2**	**2.3**

Note: *Some values have been rounded. The totals are accurate summations of the columns of data.*
Yr = year

21.1.4 Surface Infrastructure Capital Costs

An estimated $16.1M of sustaining capital will be spent on surface infrastructure. This includes site facilities, buildings, buildings furnishings and surface mobile equipment at both the Great Burnt and South Pond Deposits.

The capital cost of site facilities includes the cost of: the electric power line, substation, switchgear; CRF backfill infrastructure, ventilation raise infrastructure, waste rock and mineralized stockpile infrastructure, site roads; surface parking; fuel storage; lubrication and oil storage facilities; surface explosive magazines; yard piping; the fire prevention and fighting system; the potable water treatment plant and storage tanks, and surface water management infrastructure.

Buildings capital costs include: the main security gate building; the surface mine shop; the warehouse and warehouse equipment; the office building and the dry. The buildings furnishings include: the surface mine shop equipment and tools; the office furniture, computers, etc.; environmental equipment; dry equipment; site communications, safety and medical centre equipment.

Surface mobile equipment capital costs include: a road grader; a front-end loader, a service truck; a garbage truck; an ambulance; a fire / rescue truck and pickup trucks. A summary of estimated surface infrastructure capital costs is presented in Table 21.5.

TABLE 21.5
SUMMARY OF SURFACE INFRASTRUCTURE CAPITAL COSTS ($M)

Description	Yr 1	Yr 2	Total ($M)
Site Facilities	12.6	0.7	**13.3**
Buildings	1.2	0.0	**1.2**
Buildings Furnishings	0.3	0.2	**0.4**
Surface Mobile Equipment	0.0	1.1	**1.1**
Total ($M)	**14.1**	**2.0**	**16.1**

Note: *Some values have been rounded. The totals are accurate summations of the columns of data.*

21.1.5 Mine Closure and Salvage Capital Costs

Closure costs include the cost to place and submerge waste rock in the open pits, cover stockpile areas, remove surface facilities and infrastructure, complete final clean up, and provide ongoing water monitoring and treatment, as required. At closure 5,200 t and 360,100 t of stockpiled waste rock, at the Great Burnt and South Pond sites, respectively, will be placed back into the Great Burnt and South Pond open pits, respectively. An estimate 38,300 t of waste rock will remain on surface at the South Pond site on closure. The estimated mine closure and salvage capital costs are summarized in Table 21.6.

TABLE 21.6 MINE CLOSURE AND SALVAGE SUSTAINING CAPITAL COSTS ($M)			
Description	**Yr 4**	**Yr 5**	**Total ($M)**
Closure			
Waste rock back in pits & surface management	1.47		**1.47**
Remove surface infrastructure	0.05		**0.05**
Final water treatment	0.05		**0.05**
Site monitoring	0.25	0.25	**0.50**
Closure subtotal	**1.82**	**0.25**	**2.07**
Salvage			
Mine Equipment	-4.46		**-4.46**
Surface Infrastructure	-0.69		**-0.69**
Salvage subtotal	-5.15		**-5.15**
Total - closure / salvage ($M)	**-3.32**	**0.25**	**-3.07**

21.2 OPERATING COST ESTIMATES

Mineralization at Great Burnt will be mined by both open pit and underground techniques. The open pit and underground OPEX estimates include the cost of supervisory, operating and maintenance labour; contractors; operating consumables, materials and supplies; haulage and toll processing. A 15% contingency has been included in the 'Stope Development in Mineralization' operating cost and no contingency has been included in the other operating costs. The yearly operating cost varies from $109.20/t to $136.45/t processed and averages $125.71/t over the LOM. A summary of the average operating cost estimates for the Great Burnt Project is provided in Table 21.7.

TABLE 21.7 SUMMARY OF AVERAGE OPERATING COST PER TONNE PROCESSED	
Description	**Total ($/t)**
Open Pit Mob and Demobilization	0.09
Open Pit Mineralization Mining	0.85
Open Pit Waste Mining	1.82
Stope Development In Mineralization	20.38
Longhole Stoping	3.73
Cut and Fill Stoping	0.60
Drift and Fill Stoping	1.48
Underground Support Services	13.34
Cemented Rock Fill Backfill	8.98
Toll Plant Processing	25.00
Haulage to Toll Process Plant	37.80

Table 21.7 Summary of Average Operating Cost per Tonne Processed	
Description	**Total ($/t)**
Underground Haulage	5.75
G&A Costs	5.89
Total Operating Cost	**125.71**

Details of these estimates are provided in the following subsections.

21.2.1 Open Pit Mining

The first mineralization to be mined is by small scale open pit mining techniques at the Great Burnt Copper Deposit followed by small scale open pit mining at the South Pond Deposit. During an 11-month period, (from the 4^{th} to 14^{th} month), mineralized production will vary from 30,400 to 8,870 tonnes per month, depending on underground production during this period. Open pit mining will be completed by a contractor at an estimated excavation cost of $3.50/t mineralization, and $3.00/t waste rock. The total LOM open pit OPEX is estimated to be $2.84M, which consists of $0.90M to mine mineralization and $1.94M for waste rock.

21.2.2 Stope Development in Mineralization

An estimated $21.8M ($20.38/t) will be spent on stope development in mineralization. All stope development will be completed by a contractor(s). This includes: the cost of the drifts in mineralization, slot raises and contractor demobilization. A summary of stope development in mineralization capital cost estimates are presented in Table 21.8.

Table 21.8
Stope Development In Mineralization Operating Costs

Heading	Size W x H (m)	Unit Cost ($/m)	Yr 1	Yr 2	Yr 3	Total ($M)
North Drift ($M)	3.0 x 4.0	3,500	2.9	3.9		**6.8**
South Drift ($M)	3.0 x 4.0	3,500	1.9	3.7		**5.6**
Slot Raises ($M)	2.0 x 2.0	2,600	1.1	2.1		**3.2**
C&F / D&F Drift ($M)	3.0 x 4.0	3,500		1.0	5.3	**6.3**
Contractor Demob ($M)					0.1	**0.1**
Total ($M)			**5.8**	**10.7**	**5.3**	**21.8**
Total ($/t)			**21.14**	**29.17**	**14.59**	**20.38**

21.2.3 Longhole Stope Mining

An estimated 475,700 tonnes of longhole stoping mineralization will be mined, LOM. Production will vary from 25,200 tonnes, in Month 19, to 9,100 tonnes in Month 30, during the longhole 26-month production period. Longhole stope mining operating costs include the cost of material, consumables and direct labour for stope drilling, blasting, ground support, pipe and accessories, services and direct labour. The estimated operating cost of longhole mineralization mined is summarized in Table 21.9. Note that the mine and stope development costs in waste rock have been capitalized.

TABLE 21.9
LONGHOLE STOPE MINING OPERATING COSTS

Description	Stoping ($/t)	Total Mine ($/t)
LOM Tonnes	**475,748**	**1,068,290**
Consumables		
Drilling & Blasting	4.31	1.92
Ground Support	0.28	0.13
Pipe & Accessories	0.23	0.10
Consumables Subtotal	**4.83**	**2.15**
Services	0.79	0.35
Direct Mine Labour	2.77	1.23
Total	**8.38**	**3.73**

Notes:
1) *Some values have been rounded. The totals are accurate summations of the columns of data.*
2) *The column labelled 'Stoping' refers to process plant feed produced by the stoping process and the costs associated with this. The column labelled 'Total Mine' refers to the total process plant feed, LOM. The cost of development, including slot raising, is included in the capital estimates for the mine.*
3) *Note that the longhole mining OPEX estimate does not include: stope loading, UG haulage to surface, ventilation costs, the cost and delivery of backfill to the stopes, equipment maintenance costs and the cost of indirect labour. These costs are included elsewhere.*

21.2.4 Cut and Fill Stope Mining

An estimated 51,000 tonnes of C&F mineralization will be mined, LOM. Production will vary from 7,600 tonnes, in Months 35 and 36, to 1,200 tonnes in Month 39, during the 12-month C&F production period. C&F mining operating costs include the cost of material, consumables and direct labour for stope drilling, blasting, ground support, pipe and accessories, and services. C&F operating costs are estimated to average $12.57/t mined, or $0.60/t of total process plant feed.

The C&F mining OPEX estimate does not include: stope loading, UG haulage to surface, ventilation costs, the cost and delivery of backfill to the stopes, equipment maintenance costs and the cost of indirect labour. These costs are included elsewhere.

21.2.5 Drift and Fill Stope Mining

A total of 94,100 tonnes of D&F mineralization will be mined, LOM. Production will vary from 8,100 tonnes, in Month 33, to 1,600 tonnes in Month 39, during the 17-month D&F production period. D&F mining operating costs include the cost of material, consumables and direct labour for stope drilling, blasting, ground support, pipe and accessories, and services. D&F operating costs are estimated to average $16.76/t mined, or $1.48/t of total process feed.

The D&F mining OPEX estimate does not include: stope loading, UG haulage to surface, ventilation costs, the cost and delivery of backfill to the stopes, equipment maintenance costs and the cost of indirect labour. These costs are included elsewhere.

21.2.6 Underground Support Services

Underground support services include the cost of underground supervision and technical staff, support labour including: UG electricians and mechanics, service leaders, grader operators, pump/construction operators, service truck operators and mine labourers. It also includes the cost of mine air heating, mine surface vehicle operation and maintenance, underground support vehicle operation and maintenance and the cost of all electric power to service the underground. A summary of these operating costs per tonne processed, including open pit tonnes, on a yearly basis, is presented in Table 21.10.

TABLE 21.10
UNDERGROUND SUPPORT SERVICES OPERATING COSTS ($/T)

Item	Yr 1	Yr 2	Yr 3	Yr 4	Total ($/t)
Tonnes Processed	273,938	365,250	365,250	63,853	**1,068,290**
Mine Staff	2.54	3.91	4.00	4.00	**3.60**
Mine Labour	1.32	3.33	3.56	3.56	**2.91**
Mine Air Heating	0.03	0.37	0.54	2.06	**0.44**
Surface Equipment & Vehicles	0.87	0.75	0.75	0.75	**0.78**
Underground Support Vehicles	0.16	0.85	0.94	0.94	**0.71**
Electric Power	1.12	5.89	6.45	6.64	**4.90**
Total / Tonne Processed ($/t)	**6.05**	**15.10**	**16.24**	**17.95**	**13.34**

Note: *Yr = year*

21.2.7 Cemented Rock Fill Backfill

All underground stopes, and development in mineralization, will be backfilled with cemented rock fill (“CRF”). A summary schedule of backfill placement and mineralization mined is presented in Table 21.11.

TABLE 21.11 SUMMARY OF TONNES MINED AND BACKFILL TONNES PLACED						
Description	**Tonnes Mined (k)**	**Yr 1**	**Yr 2**	**Yr 3**	**Yr 4**	**Backfill Tonnes (k)**
LH Mining	600.0	29.3	189.9	119.4	29.8	**368.4**
C&F Mining	88.7	0.0	3.6	46.9	4.0	**54.5**
D&F Mining	121.6	0.0	11.3	57.9	5.4	**74.7**
Total	**810.3**	**29.3**	**204.8**	**224.2**	**39.2**	**497.5**
Tonnes Mined (kt)		**47.7**	**333.6**	**365.2**	**63.8**	**810.3**

Note *Yr = year; LH=Longhole; C&F=Cut and Fill; D&F=Drift and Fill.*
Tonnes mined includes development and slot raise mineralized tonnes.

OPEX includes: backfill haulage from surface and from the backfill raise to underground stopes, 2% to 6% binder, miscellaneous backfill bulkheads, mats, and backfill support structures, and direct labour. An estimated 1,068,300 tonnes of underground and open pit mineralized material will be mined LOM. A summary of the CRF backfill OPEX estimates is presented in Table 21.12.

TABLE 21.12 SUMMARY OF BACKFILL OPERATING COSTS ($M)						
Item	**Yr 1**	**Yr 2**	**Yr 3**	**Yr 4**	**LOM Total ($M)**	**Cost/t Mined ($/t)**
CRF Haulage	0.2	1.4	1.9	0.3	**3.8**	**3.53**
Binder (2-6%)	0.2	1.4	1.5	0.3	**3.3**	**3.09**
Misc. Construction Material	0.1	0.7	0.8	0.1	**1.8**	**1.65**
Backfill Operators	0.0	0.3	0.3	0.1	**0.8**	**0.72**
OPEX ($M)	**0.5**	**3.8**	**4.5**	**0.8**	**9.6**	**8.98**

The average cost to prepare and place CRF backfill is $38.58/m^3.

21.2.7.1 Longhole Backfill

An estimated 368,400 tonnes of longhole CRF backfill will be required at 4% binder. Bulkhead and reinforced concrete floor mats will be installed at the base of initially mined longhole stopes, as required. A summary of longhole CRF backfill OPEX estimates is presented in Table 21.13.

TABLE 21.13 SUMMARY OF LONGHOLE BACKFILL OPERATING COSTS ($M)						
Item	**Yr 1**	**Yr 2**	**Yr 3**	**Yr 4**	**LOM Total ($M)**	**Cost/t Mined ($/t)**
CRF Haulage	0.2	1.3	1.0	0.2	**2.7**	**4.55**
Binder (4%)	0.2	1.2	0.8	0.2	**2.4**	**3.99**
Misc. Construction Material	0.1	0.7	0.4	0.1	**1.3**	**2.15**
Operators	0.0	0.3	0.2	0.0	**0.6**	**0.94**
OPEX ($M)	**0.5**	**3.5**	**2.4**	**0.6**	**7.0**	**11.63**

21.2.7.2 Cut and Fill Backfill

An estimated 54,500 tonnes of C&F CRF backfill will be required at 2% binder. Backfill bulkheads will be required. A summary of C&F CRF backfill OPEX estimates is presented in Table 21.14.

TABLE 21.14 SUMMARY OF CUT AND FILL BACKFILL OPERATING COSTS ($M)						
Item	**Yr 1**	**Yr 2**	**Yr 3**	**Yr 4**	**LOM Total ($M)**	**Cost/t Mined ($/t)**
CRF Haulage		0.0	0.4	0.0	**0.4**	**4.99**
Binder (2%)		0.0	0.2	0.0	**0.2**	**1.99**
Misc Construction Material		0.0	0.1	0.0	**0.1**	**1.53**
Operators		0.0	0.1	0.0	**0.1**	**0.94**
OPEX ($M)		**0.1**	**0.7**	**0.1**	**0.8**	**9.46**

21.2.7.3 Drift and Fill Backfill

An estimated 74,700 tonnes of D&F CRF backfill will be required at 6% binder. This high binder content CRF backfill will be required to support backfill walls adjacent to the lift being mined. Backfill bulkheads will also be required. A summary of the D&F CRF backfill OPEX estimates is presented in Table 21.15.

TABLE 21.15 **SUMMARY OF DRIFT AND FILL BACKFILL OPERATING COSTS ($M)**						
Item	**Yr 1**	**Yr 2**	**Yr 3**	**Yr 4**	**LOM Total ($M)**	**Cost/t Mined ($/t)**
CRF Haulage		0.1	0.5	0.0	**0.6**	**5.16**
Binder (6%)		0.1	0.6	0.1	**0.7**	**5.98**
Misc Const.Mat.		0.1	0.3	0.0	**0.3**	**2.76**
Operators		0.0	0.1	0.0	**0.1**	**0.98**
OPEX ($M)		**0.3**	**1.4**	**0.1**	**1.8**	**14.88**

21.2.8 Toll Plant Processing

It is anticipated that all Great Burnt and South Pond mineralized rock will be toll processed at the Rambler process plant at an estimated OPEX of $25.00/t.

21.2.9 Haulage to Toll Process Plant

It is anticipated that all Great Burnt and South Pond mineralized rock will be truck hauled to the Rambler processing plant by contractor, an estimated distance of 315 km, and at an estimated OPEX of $37.80/t.

21.2.10 Underground Haulage

All underground development and stope mineralized rock will be loaded and hauled up the ramp to the Great Burnt surface stockpile. A summary of the estimated cost for underground haulage is presented in Table 21.16. The LOM average haulage cost is $7.59/t mined underground which equates to $5.75/t processed.

TABLE 21.16 **SUMMARY OF UNDERGROUND HAULAGE OPERATING COSTS**					
Item	**Production Year**				**Total**
	Yr 1	**Yr 2**	**Yr 3**	**Yr 4**	
Truck Operating Costs ($/t)	4.70	5.09	6.29	5.95	**5.67**
LHD Operating Costs ($/t)	2.04	1.85	1.96	1.82	**1.92**
Total Haulage Cost ($/t)	6.75	6.94	8.25	7.78	**7.59**
Total Haulage Cost ($M)	**0.3**	**2.3**	**3.0**	**0.5**	**6.1**

Note: *Yr = year*

21.2.11 General and Administration (G&A)

The general and administration ("G&A") cost items include site administrative staff, surface support vehicles, office expenses, environmental/permitting, safety equipment and personal protective equipment, insurance and community support. A summary of G&A costs per tonne processed is presented in Table 21.17.

TABLE 21.17
SUMMARY OF SITE GENERAL AND ADMINISTRATIVE OPERATING COSTS

Item	Production Year				Total ($M)
	Yr 1	Yr 2	Yr 3	Yr 4	
Site Administration Staff	1.3	1.3	1.3	0.2	**4.2**
Surface Equipment and Support Vehicles	0.1	0.2	0.2	0.0	**0.5**
Office Expenses	0.1	0.1	0.1	0.0	**0.3**
Environmental / Permitting	0.1	0.1	0.1	0.0	**0.4**
Safety Equipment	0.1	0.1	0.1	0.0	**0.2**
Insurance	0.1	0.1	0.1	0.0	**0.4**
Community	0.1	0.1	0.1	0.0	**0.3**
Total ($M)	**1.9**	**2.0**	**2.0**	**0.4**	**6.3**
Total ($/t)	**7.02**	**5.50**	**5.50**	**5.50**	**5.89**

Note: *Yr = year*

21.3 ROYALTIES

The Great Burnt Copper Deposit is subject to a 2.5% NSR royalty, and the South Pond A Deposit is subject to a 2.0% NSR royalty. Total costs associated with NSR royalty payments are estimated at $5.4 M over the LOM.

21.4 CASH COSTS AND ALL-IN SUSTAINING COSTS

Cash costs over the LOM, including royalties, net of by-product credits, are estimated to average US$2.27/lb Cu. All-In Sustaining Costs ("AISC") over the LOM are estimated to average US$3.24/lb Cu.

22.0 ECONOMIC ANALYSIS

Cautionary Statement - The reader is advised that the PEA summarized in this Technical Report is intended to provide only an initial, high-level review of the Project potential and design options. The PEA mine plan and economic model include numerous assumptions and the use of Inferred Mineral Resources. Inferred Mineral Resources are considered to be too speculative to be used in an economic analysis except as allowed by NI 43-101 in PEA studies. There is no guarantee the Project economics described herein will be achieved.

A financial model was developed to estimate the LOM plan comprised of mining the Mineral Resources of the Great Burnt Project. The LOM plan covers a 3.2-year period. Currency is in Q4 2021 Canadian dollars unless otherwise stated. Inflation has not been considered in the financial analysis. Millions of dollars are stated as $ M.

22.1 ECONOMIC CRITERIA

22.1.1 Physical Parameters

Mine life:	38.4 months
Closure:	Year 4 and 5
Production rate:	1,000 tpd @ 365 days/year, 0.37 Mtpa
<u>Total production:</u>	
Total mineralized rock production	1,068,300 t at 2.13% Cu and 0.08 g/t Au
Total concentrate production Cu Conc.	87,400 t
<u>Metallurgical parameters:</u>	
Process recovery	96% Cu and 55% Au
Concentration ratio	Cu Conc. 12.2
Concentrate grade	Cu Conc. 25% Cu
Concentrate moisture content	8%
<u>Total payable metal:</u>	
Copper	21,100 t Cu (46.5 Mlb)
Gold	1,340 oz

22.1.2 Revenue

The commercially saleable product that will potentially be generated by the Project is copper concentrate. Spruce Ridge will be paid once the concentrates have been delivered to a smelter and refinery, off-site. The metal prices used in this PEA are US$4.00/lb Cu and US$1,675/oz Au. Revenues were estimated as Net Smelter Returns ("NSR"). The copper concentrates were estimated to contain mainly payable Cu and minor payable amounts of Au. The NSR payables were based on the following parameters.

Smelter treatment charge	Cu Conc. US$/dmt: $85/t
Concentrate shipping charge	CAD$/WMT: $90/t
Smelter payable	Cu Conc.: 96.5% Cu
Cu concentrate refining charges	US$0.085/lb Cu; US$5.00/oz Au

The CAD$/US$ exchange rate used in the PEA is 0.77.

Net revenue:	$215.7M

22.1.3 Costs

<u>Operating costs:</u>

Total average cost:	$125.71/t processed
Cash Cost	US$2.27/lb Cu, net of by-product credits
All-in sustaining cost ("AISC")	US$3.24/lb Cu, net of by-product credits

<u>Capital costs:</u>

Sustaining	$59.0M

Capital costs include the cost of: mine and stope development; mine equipment; surface infrastructure; underground infrastructure; closure cost; salvage credit; and an average 15% contingency.

22.2 CASH FLOW

An after-tax financial model has been developed for the Great Burnt Project. The model does not take into account the following components:

- Financing cost.
- Insurance.
- Overhead cost for a corporate office.

An after-tax cash flow summary is presented in Table 22.1. All estimated costs are in Q4 2021 Canadian dollars with no allowance for inflation.

TABLE 22.1 CASH FLOW SUMMARY								
Item	**Description**	**Units**	**Production**					**Total**
			Yr 1	**Yr 2**	**Yr 3**	**Yr 4**	**Yr 5**	
OP and UG	Mineralized Production							
	Tonnes	**kt**	**273.9**	**365.3**	**365.3**	**63.9**		**1,068.3**
	Cu (%)	%	1.34	2.38	2.31	3.11		2.13
	Au (g/t)	g/t	0.24	0.06				0.08
Revenue	NSR/t	$/t	133.0	224.2	215.7	290.7		201.9
	Total	**$M**	**36.4**	**81.9**	**78.8**	**18.6**		**215.7**
OPEX	O/P Mob and Demob	$M	0.1	0.1				0.1
	O/P Mineralization Mining	$M	0.8	0.1				0.9
	O/P Waste Mining	$M	1.6	0.3				1.9
	Stope Development	$M	5.8	10.7	5.3			21.8
	LH Stoping	$M		2.0	1.6	0.4		4.0
	C&F Stoping	$M			0.6	0.1		0.6
	D&F Stoping	$M		0.2	1.3	0.1		1.6
	UG Support Services	$M	1.7	5.5	5.9	1.1		14.2
	CRF Backfill	$M	0.5	3.8	4.5	0.8		9.6
	Toll Processing	$M	6.8	9.1	9.1	1.6		26.7
	Haulage to Plant	$M	10.4	13.8	13.8	2.4		40.4
	UG Haulage	$M	0.3	2.3	3.0	0.5		6.1
	G&A COSTS	$M	1.9	2.0	2.0	0.4		6.3
	Total OPEX	**$M**	**29.9**	**49.8**	**47.1**	**7.4**		**134.3**
CAPEX	Development	$M	9.6	15.6	1.4			26.6
	Mine Equipment	$M	8.9	7.1	1.0			17.1
	UG Infrastructure	$M	0.8	1.3	0.2			2.3
	Surface Infrastructure	$M	14.1	2.0				16.1
	Closure Bond and Salvage	$M				-3.3	0.3	-3.1
	Total CAPEX	**$M**	**33.4**	**26.0**	**2.7**	**-3.3**	**0.3**	**59.0**
Taxes	**Provincial and Federal**	**$M**			**4.8**	**2.8**		**7.6**
Cash Flow	**After-Tax CF**	**$M**	**-26.9**	**6.1**	**24.2**	**11.7**	**-0.3**	**14.7**
	After-Tax CCF	$M	-26.9	-20.9	3.3	15.0	14.7	
	After-tax IRR	%	**23.3**					
	After-tax NPV @ 6%	$M	**9.3**					

22.3 BASE CASE CASH FLOW ANALYSIS

The following after-tax cash flow analysis was completed:

- Net Present Value ("NPV") (at 5%, 6%, 7%, 8%, 9% and 10% discount rates).
- Internal Rate of Return ("IRR").
- Payback period.

The summary of the results of the cash flow analysis is presented in Table 22.2.

TABLE 22.2
BASE CASE CASH FLOW ANALYSIS

Description	Discount Rate	Units	Value
Undiscounted After-Tax CF	0%	($M)	14.7
Internal Rate of Return		%	23.3
After-Tax NPV at	5%	($M)	10.1
	6%	($M)	9.3
	7%	($M)	8.6
	8%	($M)	7.9
	9%	($M)	7.2
	10%	($M)	6.5
After-Tax Project Payback Period in Years		Years	2.9

The Project was evaluated on an after-tax cash flow basis which generates a net undiscounted cash flow estimated at $14.7M. This results in an after-tax IRR of 23.3% and an after-tax NPV of $9.9M when using a 6% discount rate. In the base case scenario, the Project has a payback period of 2.9 years from the start. The average life-of-mine cash cost is US$2.27/lb copper, net of gold by-product credits, at an average operating cost of $125.71/t processed. The average life-of-mine all-in sustaining cost ("AISC") is estimated at US$3.24/lb copper, net of gold by-product credits.

22.4 SENSITIVITY ANALYSIS

Project risks can be identified in both economic and non-economic terms. Key economic risks were examined by running cash flow sensitivities to:

- Copper metal price;
- Gold metal price;
- Operating costs;
- Capital costs;
- Copper head grade; and
- Copper recoveries in copper concentrate.

Each of the sensitivity items were varied up and down by 10% and 20% to assess the effect it would have on the NPV at a 6% discount rate. The value of each parameter, at 80%, 90%, 100% base case, 110% and 120%, is presented in Table 22.3.

TABLE 22.3
SENSITIVITY PARAMETER VALUES

Parameter	80%	90%	100%	110%	120%
OPEX ($M)	107.8	121.3	134.3	148.3	161.7
CAPEX ($M)	47.2	53.1	59.0	65.0	70.9
Cu Price (US$/lb)	3.20	3.60	4.00	4.40	4.80
Au Price (US$/oz)	1,340	1,508	1,675	1,843	2,010
Cu Head Grade (g/t)	1.70	1.92	2.13	2.34	2.56
Cu Recoveries in Cu Conc. (%)	N/A	86.4%	96.0%	N/A	N/A

The resultant after-tax NPV @ 6% and IRR values of each of the sensitivity parameters at 80% to 120% are presented in Table 22.4 and 22.5, and Figures 22.1 and 22.2, respectively.

TABLE 22.4
AFTER-TAX NPV SENSITIVITY AT 6% DISCOUNT RATE ($M)

Parameter	80%	90%	100%	110%	120%
OPEX	29.9	19.8	9.3	-1.1	-11.5
CAPEX	19.6	14.4	9.3	4.2	-0.9
Cu Price	-26.3	-8.5	9.3	27.2	42.6
Au Price	8.8	9.1	9.3	9.6	9.9
Cu Head Grade	-22.8	-6.8	9.3	25.4	39.6
Cu Recoveries in Cu Conc.	N/A	-6.8	9.3	N/A	N/A

TABLE 22.5
AFTER-TAX IRR SENSITIVITY (%)

Parameter	80%	90%	100%	110%	120%
OPEX	77.1	47.2	23.3	4.2	-11.5
CAPEX	54.6	36.7	23.3	12.9	4.7
Cu Price	-31.6	-7.7	23.3	64.9	114.2
Au Price	22.1	22.7	23.3	23.9	24.5
Cu Head Grade	-27.4	-5.0	23.3	60.2	103.0
Cu Recoveries in Cu Conc.	N/A	-5.0	23.3	N/A	N/A

FIGURE 22.1 AFTER-TAX NPV SENSITIVITY GRAPH

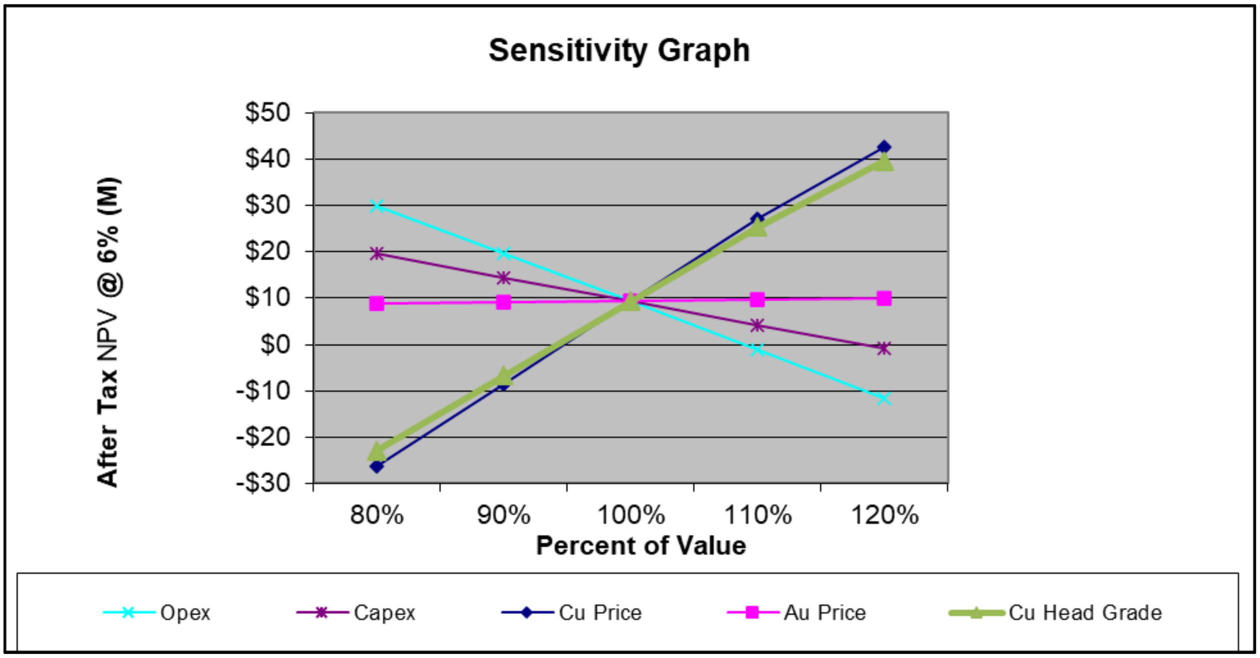
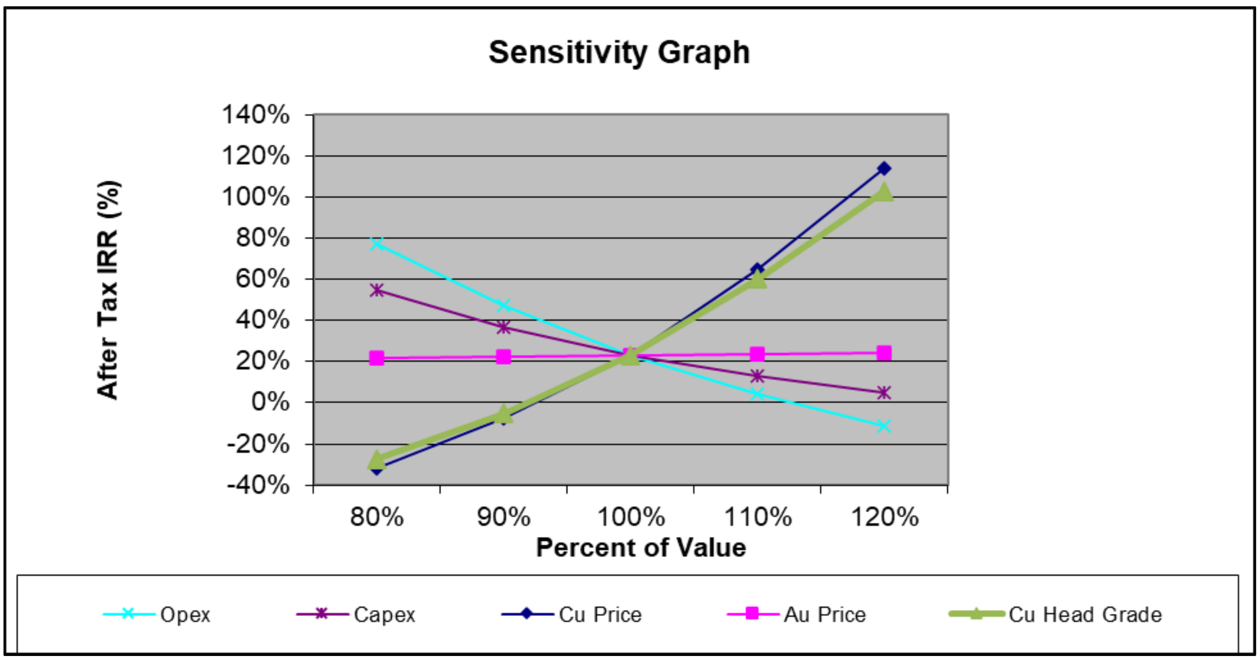


FIGURE 22.2 AFTER-TAX IRR SENSITIVITY GRAPH



The after-tax base case NPV is most sensitive to copper metal price followed by copper head grade, copper recovery in the copper concentrate, OPEX, CAPEX and gold price.

23.0 ADJACENT PROPERTIES

There is one Exploration Licence adjoining the southwest corner of Spruce Ridge's Great Burnt Property. Licence number 027004M (8 claims) is held by Mr. Paul. Delaney of St. John's, NL and was recorded on March 26, 2019. No reports of new exploration work have been filed on the property.

The Great Burnt Property is 40 km southeast of Teck's past-producing Duck Pond Cu-Zn Mine and 70 km southeast of the past-producing Buchans Deposit.

24.0 OTHER RELEVANT DATA AND INFORMATION

24.1 PROJECT RISKS AND OPPORTUNITIES

Risks and opportunities have been identified for the Project. The anticipated impact on the Project is listed in brackets after each item, using low-medium-high categories.

24.1.1 Risks

24.1.1.1 Mineral Resource Estimate

- A Mineral Resource that consists of 881 kt Indicated and 627 kt Inferred Mineral Resource to be mined over a four-year period. (medium)

- Future metal prices could cause a revision of the Mineral Resource Estimate. However, current spot prices are greater than the long-term forecasts used in the financial analysis of this PEA. (low)

24.1.1.2 Open Pit Mining

- Further acid rock drainage ("ARD") and metal leaching ("ML") testing of waste rock needs to be completed to determine if special placement/treatment is required. (low)

- Pit slope geotechnical studies could impact favorably or negatively on the pit designs. Flattening of slopes could have a significant impact on the open pit waste quantity. (low)

- The assumed dilution skin of 0.6 m may be too narrow. Currently it is a design assumption and will be finalized during production. (medium)

- More detailed preparation of an open pit contractor mining cost could result in higher unit costs. (low to medium)

24.1.1.3 Underground Mining

- Geotechnical analysis is required to confirm the proposed stope dimensions and backfill assumptions will present safe mining conditions. (medium)

- Hydrogeology is not well understood. Water re-charge rates are currently unknown. (low)

24.1.1.4 Toll Process Plant and Tailings

- Suitable toll process plant. The Rambler process plant may not be available to accept feed from the Great Burnt Project. (high)

24.1.1.5 Financial Aspects

- Financial viability of the Project is very dependent on metal prices. (medium)

24.1.2 Opportunities

24.1.2.1 Mineral Resource Estimate

- The Great Burnt Mineral Resource remains open along strike and down dip. There is an opportunity to extend the Great Burnt Main Zone and the South Pond A Deposit with additional drilling. (medium)

24.1.2.2 Open Pit Mining

- There is an opportunity to deepen the open pit designs using higher metal prices. (low)

24.1.2.3 Underground Mining

- It may be possible to increase the longhole sublevel height of 15 m. (low)

24.1.2.4 Process Plant and Tailings

- The toll processing and transport costs have potential to be negotiated lower. (low)

24.1.2.5 Financial Aspects

- Copper and gold are currently trading above the prices used in the financial analysis. At February 18, 2022 spot metal prices of US$4.55/oz Cu and US$1,899/oz Au, they result in an After-Tax NPV (using a discount rate of 6%) of $33M and an IRR of 83%. (medium)

25.0 INTERPRETATION AND CONCLUSIONS

Spruce Ridge's Great Burnt Property is located approximately 75 km southwest of the City of Grand Falls-Windsor in central Newfoundland, Canada. The Property is road accessible from St. Alban's, NL, 40 km southeast of Teck's past-producing Duck Pond Cu-Zn Mine, and 70 km southeast of the past-producing Buchans Cu-Zn-Pb-Ag-Au Deposit. This Technical Report provides updated NI 43-101 Resource Estimates for the Great Burnt Copper, North Stringer Zone and South Pond Copper-Gold Deposits on the Property, and a Preliminary Economic Assessment on the Project.

The Property consists of one 165 ha mining lease and four mineral exploration licences covering 109 contiguous claim units, giving a total area of 2,884 ha.

The Great Burnt Property is underlain by rocks of the Dunnage Zone that contain the majority of polymetallic volcanogenic massive sulphide deposits in NL, Teck's past-producing Duck Pond Mine and the world-class past-producing Buchans Deposits. On the Great Burnt Property, the Dunnage Zone consists of greenschist facies Ordovician metavolcanics, metasediments and an ophiolite complex that formed within island-arc and back-arc basins. The Property straddles the fault boundary between the Exploits Subzone of the Dunnage Zone and the Meelpaeg Subzone of the Gander Zone which records the early Paleozoic opening and closure of the Iapetus Ocean.

The Great Burnt Property has been explored by several operators since 1948. Between 1951 and 1971, 133 drill holes (over 20,345 m) were drilled by the Buchan's Mining Company and subsequently ASARCO in the 14 km-long favourable metavolcanic and metasedimentary stratigraphy that hosts several zones of copper and gold mineralization. Numerous airborne and ground geophysical surveys have been conducted along with soil and till geochemical surveys. Celtic acquired the Property from Noranda and drilled an additional 6,367 m in 34 holes between 2001 and 2008. Spruce Ridge acquired the Property from Pavey Ark who acquired the Property in 2013 from Celtic.

Copper mineralization at the Great Burnt Property occurs within metavolcanic-metasedimentary rocks that include reworked tuffs, volcaniclastics and clastic sediments associated with mafic volcanics that are interpreted to have formed in a back-arc basin. This type of sedimentary dominated VMS mineralization has historically been classified as a "Besshi-type VMS" or more recently as mafic-siliciclastic type or mafic-pelitic type VMS. There are similarities between the mineralization at Great Burnt Copper and the Rambler VMS deposits located in the Baie Verte Peninsula, NL.

Mr. Tim Froude, P.Geo., of P&E, a Qualified Person under the regulations of NI 43-101, conducted a site visit on December 7, 2020, during which an independent data verification sampling program was completed as part of the on-site review. Previously, the Great Burnt Property was visited by Mr. Eugene Puritch, P.Eng., FEC, CET of P&E on October 26, 2014 and August 12, 2019 for the purposes of completing a site visit and conducting independent sampling. In addition to the site visits, Mr. Puritch visited the Newfoundland Department of Natural Resources Drill Core Storage Facility located at Buchans, Newfoundland on October 27, 2014, for the purpose of reviewing and sampling archived drill core from the Great Burnt Property that is stored at the Buchans Drill Core Storage Facility. The authors of this Technical Report consider that there is good correlation between copper and gold assay values in Spruce Ridge's database and the independent verification assays. The authors of this Technical Report are of the opinion that the data are of excellent quality and appropriate for use in a Mineral Resource Estimate.

Metallurgical testing has indicated that a reasonably optimistic predicted process plant performance would be the production of a 25% Cu concentrate at 96% recovery with a gold recovery of 55%.

At a cut-off grade of 0.90% CuEq, the Great Burnt Main Zone and South Pond “A” Deposit are estimated to contain Indicated Mineral Resources of 881,000 t grading 2.74% Cu and 0.29 g/t Au, or 57.1 Mlb of CuEq, and Inferred Mineral Resources of 627,000 t grading 2.05% Cu and 0.24 g/t Au, or 30.7 Mlb of CuEq. The effective date of this Mineral Resource Estimate is March 9, 2022. The metal prices used were US$3.62/lb Cu and US$1,650/oz Au with an exchange rate of CAD$1.00 = US$0.76, a process recovery of 95%, and costs of $55/t for underground mining, $15/t processing, $5/t G&A and $10/t smelting/refining.

This updated Mineral Resource Estimate is based on a database containing 287 drill holes totalling 40,295 m, of which 43 drill holes were completed in 2016 to 2020.

The Mineral Resources in this Technical Report were estimated in accordance with the Canadian Institute of Mining, Metallurgy and Petroleum (“CIM”), CIM Standards on Mineral Resources and Reserves, Definitions (2014) and Best Practices Guidelines (2019) prepared by the CIM Standing Committee on Reserve Definitions and adopted by the CIM Council. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability. The estimate of Mineral Resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues. The Inferred Mineral Resource in this estimate has a lower level of confidence than that applied to an Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of the Inferred Mineral Resource could potentially be upgraded to an Indicated Mineral Resource with continued exploration.

The Great Burnt Main Zone and South Pond “A” Deposit are open along strike and down dip, and further drilling may provide additional Mineral Resources.

The Great Burnt Copper Deposit will initially be mined by a 20 m deep open pit followed by underground ramp access and longhole sublevel retreat, cut-and-fill (“C&F”), and drift-and-fill (“D&F”) mining methods. Underground production includes both development and stopes. The South Pond Deposit will be mined by a 25 m deep open pit and there is currently no underground mining planned.

The primary underground mining method at the Great Burnt Copper Deposit will be conventional longitudinal longhole sublevel retreat, with cemented rock (“CRF”) backfill. Underground longhole sublevels will be developed at 15 m vertical intervals. Sublevel drifts in mineralization will be developed the full length of the Deposit. These drifts will provide access for the successive operations of slot raise development, blasthole drilling, blasting and loading, and backfill placement. The average thickness of the Great Burnt longhole mineralization is 4.3 m. Remotely-operated underground load-haul-dump (“LHD”) units will remove broken mineralization from the stopes at an estimated external dilution of 19.2%, at a diluting grade of 0.79% Cu. Mining recovery (extraction) is estimated at 90%.

The D&F and C&F mining methods will be utilized to mine the bottom third of the Deposit in the Great Burnt Lower Zone. Horizontal access cross cuts will be driven to the Deposit from the access ramp at vertical heights every 10 m or 20 m. Drifts in mineralization will be driven from the cross cuts the full strike length of the mineralized zones. The D&F mining method will be implemented where the mineralized zone is relatively flat lying or less than a 45° dip. The C&F mining method will be implemented where the mineralized zone is greater than a 45° dip, narrow, irregular in dip and strike, or undulating on dip. The envisaged D&F and C&F mining methods are estimated to experience external dilution of 10.0%, at a diluting grade of 0.34% Cu. Mining recovery (extraction) is estimated at 95%.

Development will be sized to support 20 t haul trucks and 3.2 m^3 LHDs. Trucks will haul waste rock and mineralized material to stockpiles located near the mine portal.

Open pit mining will be done by a contractor. Underground mining and development will be performed entirely by Company personnel, with an owned fleet. Processing will be performed at an offsite toll processing plant. A contract haulage company will be engaged to transport broken mineralized material from the surface stockpiles on the Property to the toll processing plant.

The Great Burnt Project is planned to produce at a nominal production rate of 1,000 tpd over a four-year mine life. Production will consist of 786,600 t of the mine plan portion of the Indicated Mineral Resource at 2.24% Cu and 0.08 g/t Au and 281,700 t of the mine plan portion of the Inferred Mineral Resource at 1.82% Cu and 0.09 g/t Au.

There is currently no infrastructure at the Great Burnt Property. The southern part of the Property, including the Great Burnt Copper Deposit, is accessible from St. Alban's, NL, by the Upper Salmon access road, an all-weather gravel road maintained by Newfoundland Hydro. North of the Property, logging roads extend South from Grand Falls-Windsor to the Atlantic Lake area and are within 15 km of the South Pond Copper-Gold Deposit.

Processing will be by toll processing, therefore there will be no process plant or tailings facility on site. There will be a water treatment facility on site for potential acid rock drainage and metal leaching. Potable water will be sourced from local lakes and will be treated to make it potable if necessary. There will be no camp, and employees will be expected to travel from nearby communities.

There are no existing contracts in place related to the Great Burnt Project. The Project is open to the spot copper and gold price market and there are no streaming or forward sales contracts in place. December 2021 long term metal price forecasts by Consensus Economics Inc. were followed, with adjustments to more closely account for recent trends. A copper price of US$4.00/lb and a gold price of US$1,675/oz were used in this PEA, with an exchange rate of 0.77 US$ per CAD$.

The construction, operation, and closure of the Project will require both federal and provincial regulatory approvals. Progressive mine rehabilitation and closure is required by Provincial legislation. The Mining Regulations under the Mining Act require the mine operator to develop and submit a Development Plan, an Operational Plan, a Rehabilitation and Closure Plan as well as Annual Reports. Financial Assurance for relevant costs including ongoing monitoring and site maintenance is also required. During operations, potentially acid-generating ("PAG") waste rock stored on surface will be separately stockpiled. As mining of each open pit is completed and on closure the PAG waste rock will be deposited into the mined-out pits. The pits will be allowed to naturally flood, inhibiting acid generation and metal leaching. The envisaged final closure works will include the decommissioning of surface facilities associated with the proposed open pit and underground operations and mineralized material shipment.

The time to mobilize and set up facilities to start open pit mining is very short, and initial capital costs have been treated as sustaining capital since they are incurred in the first year of production. Commercial production is planned to commence three months after the start of site set-up. Sustaining capital cost estimates include mine and stope development; the purchase of underground mining equipment; underground infrastructure; surface infrastructure, and closure bond/salvage credit, including a 15% contingency allowance. The LOM total sustaining capital cost of the Great Burnt Project is estimated at $59.0M.

Mineralization at Great Burnt will be mined by both open pit and underground techniques. The open pit and underground OPEX estimates include the cost of supervisory, operating and maintenance labour; operating consumables, materials and supplies, haulage and toll processing. A 15% contingency has been included in the 'Stope Development in Mineralization' operating cost and no contingency has been included in the other operating costs. The yearly operating cost varies from $109.20/t to $136.45/t processed and averages $125.71/t over the LOM.

The Great Burnt Copper Deposit is subject to NSR royalties of 2.5%. The South Pond A Deposit is subject to NSR royalties of 2.0%. Total costs associated with NSR royalty payments are estimated at $5.4 M over the LOM.

Cash costs over the LOM, including royalties, are estimated to average US$2.27/lb Cu. All-In Sustaining Costs ("AISC") over the LOM are estimated to average US$3.24/lb Cu.

At a 6% discount rate, US$4.00/lb copper price and US$1,675/oz gold price, the after-tax NPV of the Project is estimated at $9.3M with an IRR of 23.3%. This results in a payback period of approximately 2.9 years. The after-tax base case NPV is most sensitive to copper metal price followed by copper head grade, copper recovery in the copper concentrate, OPEX, CAPEX and gold price.

26.0 RECOMMENDATIONS

The Company reported in July 2021 that work was planned to make a 9 km access trail from the Great Burnt Main Zone northwards to the South Pond "A" Copper-Gold Zone and the South Pond "B" Gold Zone. 3,000 m of additional drilling was planned on the South Pond "B" Gold Zone, which does not yet have a Mineral Resource Estimate, due to the wide spacing between historical drill holes. As of the effective date of this Technical Report, there were no results reported on this drilling.

26.1 RECOMMENDED WORK ON THE GREAT BURNT MAIN ZONE

26.1.1 Infill Drilling

An infill-drilling program, totalling approximately 2,500 m of diamond drilling over 15 drill holes is recommended at the Great Burnt Main Zone. The program will be designed to add new data that will potentially increase the size of the Mineral Resource Estimate for the Main Zone. 11 of the drill holes will test the Zone within the limits of the conceptualized starter pit. Down-hole electromagnetic surveying is also recommended for the deeper holes, to search for downward extensions of the Zone. All new drilling should be incorporated into an updated Mineral Resource Estimate, and should include gold assays in addition to copper.

26.1.2 Metallurgical Testing

Further metallurgical testing should focus on testing grinding and flotation performance as well as concentrate thickening and filtration performance that might be encountered in a constructed or toll processing facility.

26.2 RECOMMENDED WORK ON THE GREAT BURNT LOWER ZONE

The Great Burnt Lower Zone is a relatively flat lying zone, with a moderate dip to the southeast. It may be a folded continuation of the Main Zone, or a physically separate zone. It has been drilled on a wide spacing. The best historical drill intercept on the Lower Zone, in hole GB130, averaged 3.49% Cu over 11.62 m (True Width approximately 8.34 m), including 8.54% Cu over 1.98 m (True Width approximately 1.47 m). There are no drill holes that penetrate the plane of the Lower Zone within 75 m of the GB130 pierce point.

Two of the drill intercepts that had been previously interpreted as being in the Lower Zone, GB90 and GB135, appear to align themselves better with the Main Zone.

26.2.1 Diamond Drilling and Down-Hole EM Surveying

A further 2,500 m is planned to firm up the Mineral Resource Estimate on the Lower Zone, also with down-hole EM surveying to look for extensions of the Zone and/or new zones in the vicinity.

26.3 PROPOSED WORK PROGRAM BUDGET

A proposed $1,115,000 work program is recommended in Table 26.1.

TABLE 26.1
RECOMMENDED PROGRAM AND BUDGET

Program	Budget (CAD$)
5,000 m Infill Drilling at the Main and Lower Zones	750,000
Field Expenses	50,000
Geologists	50,000
Geochemical Analyses	20,000
Metallurgical Testing	100,000
Contingency @ 15%	145,000
Total	**1,115,000**

27.0 REFERENCES

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28.0 CERTIFICATES

CERTIFICATE OF QUALIFIED PERSON

JARITA BARRY, P.GEO.

I, Jarita Barry, P.Geo., residing at 4 Creek View Close, Mount Clear, Victoria, Australia, 3350, do hereby certify that:

1. I am an independent geological consultant contracted by P&E Mining Consultants Inc.
2. This certificate applies to the Technical Report titled "Updated Mineral Resource Estimate, and Preliminary Economic Assessment of the Great Burnt Copper-Gold Property, Central Newfoundland", (The "Technical Report") with an effective date of March 9, 2022.
3. I am a graduate of RMIT University of Melbourne, Victoria, Australia, with a B.Sc. in Applied Geology. I have worked as a geologist for over 15 years since obtaining my B.Sc. degree. I am a geological consultant currently licensed by Engineers and Geoscientists British Columbia (License No. 40875), Professional Engineers and Geoscientists Newfoundland & Labrador (License No. 08399) and Northwest Territories and Nunavut Association of Professional Engineers and Geoscientists (License No. L3874). I am also a member of the Australasian Institute of Mining and Metallurgy of Australia (Member No. 305397).

   I have read the definition of "Qualified Person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason 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.

   My relevant experience for the purpose of the Technical Report is:
   - Geologist, Foran Mining Corp. 2004
   - Geologist, Aurelian Resources Inc. 2004
   - Geologist, Linear Gold Corp. 2005-2006
   - Geologist, Búscore Consulting 2006-2007
   - Consulting Geologist (AusIMM) 2008-2014
   - Consulting Geologist, P.Geo. (APEGBC/AusIMM) 2014-Present
4. I have not visited the Property that is the subject of this Technical Report.
5. I am responsible for authoring Section 11 and co-authoring Sections 1, 12, 25 and 26 of this Technical Report.
6. I am independent of the Issuer applying the test in Section 1.5 of NI 43-101.
7. I have had prior involvement with the Project that is the subject of this Technical Report. I was a "Qualified Person" for a Technical Report titled "Technical Report and Resource Estimate on the Great Burnt Copper Property, Central Newfoundland for Spruce Ridge Resources Ltd.", with an effective date of September 4, 2015.
8. I have read NI 43-101 and Form 43-101F1 and the Technical Report has been prepared in compliance therewith.
9. As of the effective date of this Technical Report, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Effective Date: March 9, 2022
Signed Date: April 7, 2022

{SIGNED AND SEALED}
[Jarita Barry]

____

Jarita Barry, P.Geo.

CERTIFICATE OF QUALIFIED PERSON

D. GRANT FEASBY, P. ENG.

I, D. Grant Feasby, P. Eng., residing at 12,209 Hwy 38, Tichborne, Ontario, K0H 2V0, do hereby certify that:

1. I am currently the Owner and President of:
   FEAS - Feasby Environmental Advantage Services
   38 Gwynne Ave, Ottawa, K1Y1W9
2. This certificate applies to the Technical Report titled "Updated Mineral Resource Estimate, and Preliminary Economic Assessment of the Great Burnt Copper-Gold Property, Central Newfoundland", (The "Technical Report") with an effective date of March 9, 2022.
3. I graduated from Queens University in Kingston Ontario, in 1964 with a Bachelor of Applied Science in Metallurgical Engineering, and a Master of Applied Science in Metallurgical Engineering in 1966. I am a Professional Engineer registered with Professional Engineers Ontario. I have worked as a metallurgical engineer for over 50 years since my graduation from university.

   I have read the definition of "Qualified Person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason 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.

   My relevant experience for the purpose of the Technical Report has been acquired by the following activities:
   - Metallurgist, Base Metal Processing Plant.
   - Research Engineer and Lab Manager, Industrial Minerals Laboratories in USA and Canada.
   - Research Engineer, Metallurgist and Plant Manager in the Canadian Uranium Industry.
   - Manager of Canadian National Programs on Uranium and Acid Generating Mine Tailings.
   - Director, Environment, Canadian Mineral Research Laboratory.
   - Senior Technical Manager, for large gold and bauxite mining operations in South America.
   - Expert Independent Consultant associated with several companies, including P&E Mining Consultants, on mineral processing, environmental management, and mineral-based radiation assessment.
4. I have not visited the Property that is the subject of this Technical Report.
5. I am responsible for authoring Sections 13, 17 and 20, and co-authoring Sections 1, 25 and 26 of this Technical Report.
6. I am independent of the issuer applying the test in Section 1.5 of NI 43-101.
7. I have had no prior involvement with the Project that is the subject of this Technical Report.
8. I have read NI 43-101 and Form 43-101F1 and the Technical Report has been prepared in compliance therewith.
9. As of the effective date of this Technical Report, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Effective Date: March 9, 2022
Signed Date: April 7, 2022

{SIGNED AND SEALED}
[D. Grant Feasby]

____
D. Grant Feasby, P.Eng.

CERTIFICATE OF QUALIFIED PERSON

TIMOTHY FROUDE, B.SC., P.GEO.

I, Timothy Froude, B.Sc., P. Geo., residing at 113 Monument Road, Conception Bay South, NL, A1W 2B4, do hereby certify that:

1. I am an independent geologist contracted by P&E Mining Consultants Inc.
2. This certificate applies to the Technical Report titled "Updated Mineral Resource Estimate, and Preliminary Economic Assessment of the Great Burnt Copper-Gold Property, Central Newfoundland", (The "Technical Report") with an effective date of March 9, 2022.
3. I am a graduate of Memorial University of Newfoundland with a Bachelor of Science degree in Geology (1988). I have worked as a geologist for a total of 34 years since graduating in 1988. I am a professional geologist currently licensed by the Association of Professional Engineers and Geoscientists of Newfoundland and Labrador (License No 03046).

   I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that, by reason 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.

   My relevant experience for the purpose of the Technical Report is:
   - President and CEO, Sokoman Minerals Corp. 2007-present
   - Vice President Exploration, Crosshair Exploration Inc. 2003-2007
   - Vice President Exploration, Cornerstone Resources Inc. 2000-2003

4. I have visited the Property that is the subject of this Technical Report on December 7, 2020.
5. I am responsible for co-authoring Sections 1, 12, 25 and 26 of this Technical Report.
6. I am independent of the Issuer applying the test in Section 1.5 of NI 43-101.
7. I have had prior involvement with the Property that is the subject of this Technical Report including contract geological services overseeing geological mapping, prospecting, and archived drill core sampling in 2015, as well as supervising the 11-hole diamond drill program on the Property in 2016. I have also worked on multiple occasions in the jurisdiction.
8. I have read NI 43-101 and Form 43-101F1 and this Technical Report has been prepared in compliance therewith.
9. As of the effective date of this Technical Report, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Effective Date: March 9, 2022

Signed Date: April 7, 2022

{SIGNED AND SEALED}
[Timothy Froude]

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Timothy Froude, B.Sc., P. Geo.

CERTIFICATE OF QUALIFIED PERSON

EUGENE PURITCH, P. ENG., FEC, CET

I, Eugene J. Puritch, P. Eng., FEC, CET, residing at 44 Turtlecreek Blvd., Brampton, Ontario, L6W 3X7, do hereby certify that:

1. I am an independent mining consultant and President of P&E Mining Consultants Inc.
2. This certificate applies to the Technical Report titled "Updated Mineral Resource Estimate, and Preliminary Economic Assessment of the Great Burnt Copper-Gold Property, Central Newfoundland", (The "Technical Report") with an effective date of March 9, 2022.
3. I am a graduate of The Haileybury School of Mines, with a Technologist Diploma in Mining, as well as obtaining an additional year of undergraduate education in Mine Engineering at Queen's University. In addition, I have also met the Professional Engineers of Ontario Academic Requirement Committee's Examination requirement for a Bachelor's degree in Engineering Equivalency. I am a mining consultant currently licensed by the: Professional Engineers and Geoscientists New Brunswick (License No. 4778); Professional Engineers, Geoscientists Newfoundland and Labrador (License No. 5998); Association of Professional Engineers and Geoscientists Saskatchewan (License No. 16216); Ontario Association of Certified Engineering Technicians and Technologists (License No. 45252); Professional Engineers of Ontario (License No. 100014010); Association of Professional Engineers and Geoscientists of British Columbia (License No. 42912); and Northwest Territories and Nunavut Association of Professional Engineers and Geoscientists (No. L3877). I am also a member of the National Canadian Institute of Mining and Metallurgy.

   I have read the definition of "Qualified Person" set out in National Instrument 43-101 ("NI 43-101") and certify that, by reason 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 have practiced my profession continuously since 1978. My summarized career experience is as follows:

   - Mining Technologist - H.B.M.& S. and Inco Ltd., 1978-1980
   - Open Pit Mine Engineer – Cassiar Asbestos/Brinco Ltd., 1981-1983
   - Pit Engineer/Drill & Blast Supervisor – Detour Lake Mine, 1984-1986
   - Self-Employed Mining Consultant – Timmins Area, 1987-1988
   - Mine Designer/Resource Estimator – Dynatec/CMD/Bharti, 1989-1995
   - Self-Employed Mining Consultant/Resource-Reserve Estimator, 1995-2004
   - President – P&E Mining Consultants Inc, 2004-Present

4. I have visited the Property that is the subject of this Technical Report on October 26, 2014 and August 12, 2019, and the Newfoundland Department of Natural Resources Core Storage Facility located at Buchans, NL, where archived drill core from the Great Burnt Property is stored, on October 27, 2014.
5. I am responsible for authoring Sections 2, 3, 14, 15, 16, 18, 19, 21, 22 and 24, and co-authoring Sections 1, 12, 25 and 26 of this Technical Report.
6. I am independent of the Issuer applying the test in Section 1.5 of NI 43-101.
7. I have had prior involvement with the Project that is the subject of this Technical Report. I was a "Qualified Person" for a Technical Report titled "Technical Report and Resource Estimate on the Great Burnt Copper Property, Central Newfoundland for Spruce Ridge Resources Ltd.", with an effective date of September 4, 2015.
8. I have read NI 43-101 and Form 43-101F1. This Technical Report has been prepared in compliance therewith.
9. As of the effective date of this Technical Report, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Effective Date: March 9, 2022

Signed Date: April 7, 2022

{SIGNED AND SEALED}

[Eugene Puritch]___________________________

Eugene Puritch, P.Eng., FEC, CET

CERTIFICATE OF QUALIFIED PERSON

WILLIAM STONE, PH.D., P.GEO.

I, William Stone, Ph.D., P.Geo, residing at 4361 Latimer Crescent, Burlington, Ontario, do hereby certify that:

1. I am an independent geological consultant working for P&E Mining Consultants Inc.
2. This certificate applies to the Technical Report titled "Updated Mineral Resource Estimate, and Preliminary Economic Assessment of the Great Burnt Copper-Gold Property, Central Newfoundland", (The "Technical Report") with an effective date of March 9, 2022.
3. I am a graduate of Dalhousie University with a Bachelor of Science (Honours) degree in Geology (1983). In addition, I have a Master of Science in Geology (1985) and a Ph.D. in Geology (1988) from the University of Western Ontario. I have worked as a geologist for a total of 35 years since obtaining my M.Sc. degree. I am a geological consultant currently licensed by the Professional Geoscientists of Ontario (License No 1569).

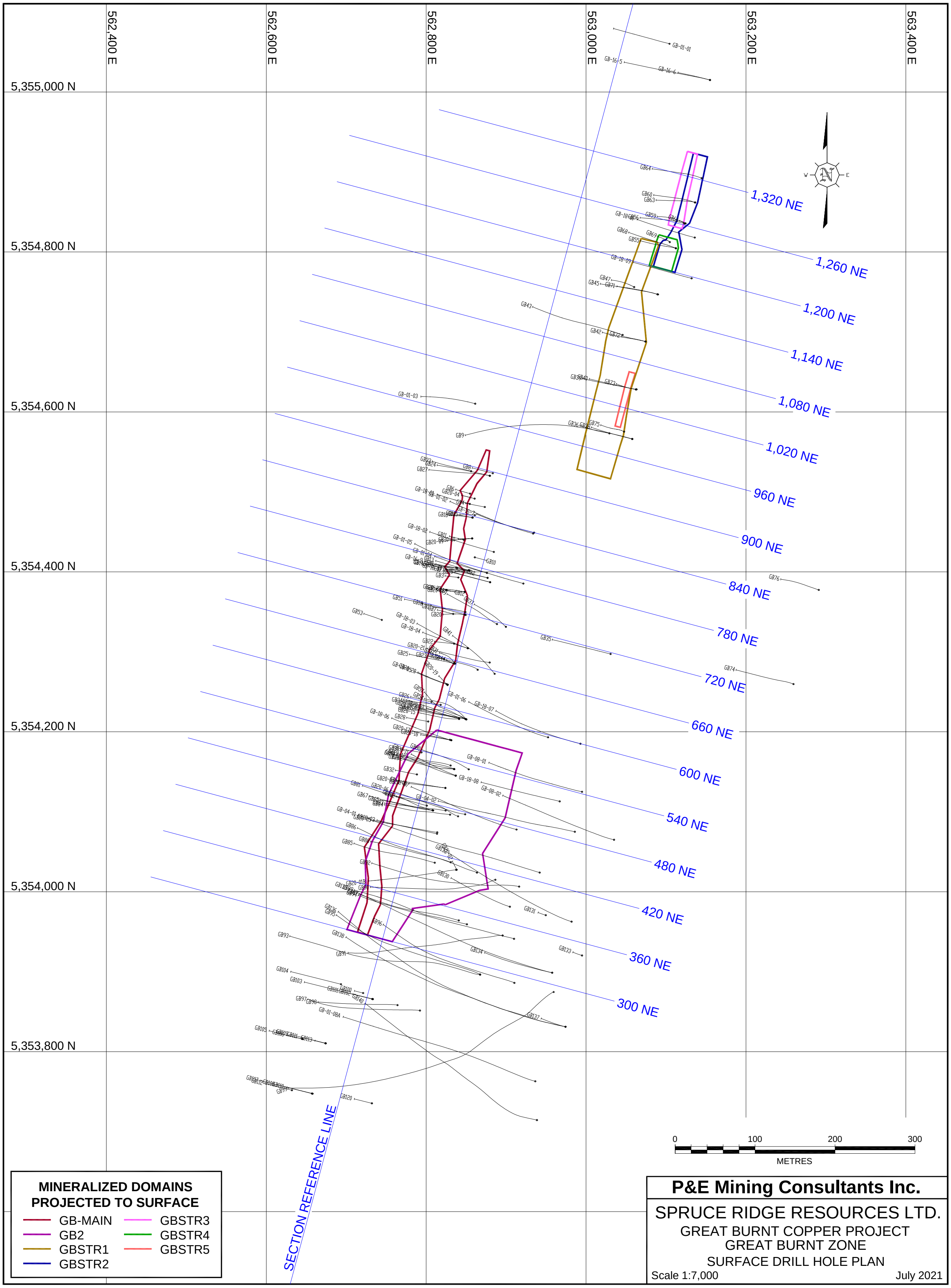
   I have read the definition of "Qualified Person" set out in National Instrument 43-101 ("NI 43-101") and certify that, by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "Qualified Person" for the purposes of NI 43-101.

   My relevant experience for the purpose of the Technical Report is:
   - Contract Senior Geologist, LAC Minerals Exploration Ltd. 1985-1988
   - Post-Doctoral Fellow, McMaster University 1988-1992
   - Contract Senior Geologist, Outokumpu Mines and Metals Ltd. 1993-1996
   - Senior Research Geologist, WMC Resources Ltd. 1996-2001
   - Senior Lecturer, University of Western Australia 2001-2003
   - Principal Geologist, Geoinformatics Exploration Ltd. 2003-2004
   - Vice President Exploration, Nevada Star Resources Inc. 2005-2006
   - Vice President Exploration, Goldbrook Ventures Inc. 2006-2008
   - Vice President Exploration, North American Palladium Ltd. 2008-2009
   - Vice President Exploration, Magma Metals Ltd. 2010-2011
   - President & COO, Pacific North West Capital Corp. 2011-2014
   - Consulting Geologist 2013-2017
   - Senior Project Geologist, Anglo American 2017-2019
   - Consulting Geoscientist 2020-Present
4. I have not visited the Property that is the subject of this Technical Report.
5. I am responsible for authoring Sections 4, 5, 6, 7, 8, 9, 10 and 23, and co-authoring Sections 1, 25 and 26 of this Technical Report.
6. I am independent of the Issuer applying the test in Section 1.5 of NI 43-101.
7. I have had no prior involvement with the Property that is the subject of this Technical Report.
8. I have read NI 43-101 and Form 43-101F1 and this Technical Report has been prepared in compliance therewith.
9. As of the effective date of this Technical Report, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Effective Date: March 9, 2022
Signed Date: April 7, 2022
{SIGNED AND SEALED}
[William Stone]

____
William E. Stone, Ph.D., P.Geo.

APPENDIX A SURFACE DRILL HOLE PLANS



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563,400 E
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1,200 NE
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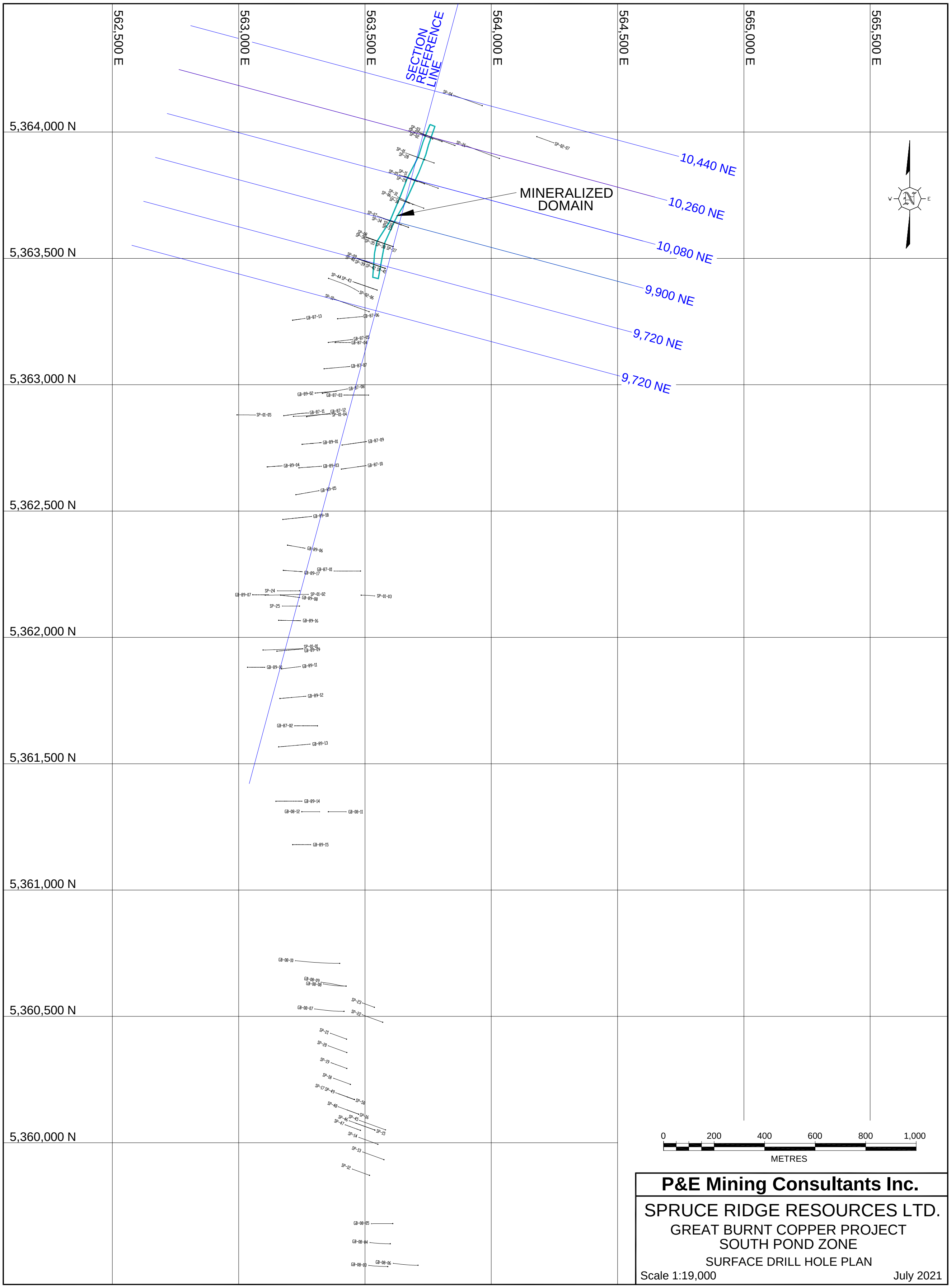
1,080 NE
1,020 NE
960 NE
900 NE
840 NE
780 NE
720 NE
660 NE
600 NE
540 NE
480 NE
420 NE
360 NE
300 NE
SECTION REFERENCE LINE
0
100
200
300
METRES
MINERALIZED DOMAINS PROJECTED TO SURFACE
GB-MAIN
GB2
GBSTR1
GBSTR2
GBSTR3
GBSTR4
GBSTR5
P&E Mining Consultants Inc.
SPRUCE RIDGE RESOURCES LTD.
GREAT BURNT COPPER PROJECT
GREAT BURNT ZONE
SURFACE DRILL HOLE PLAN
Scale 1:7,000
July 2021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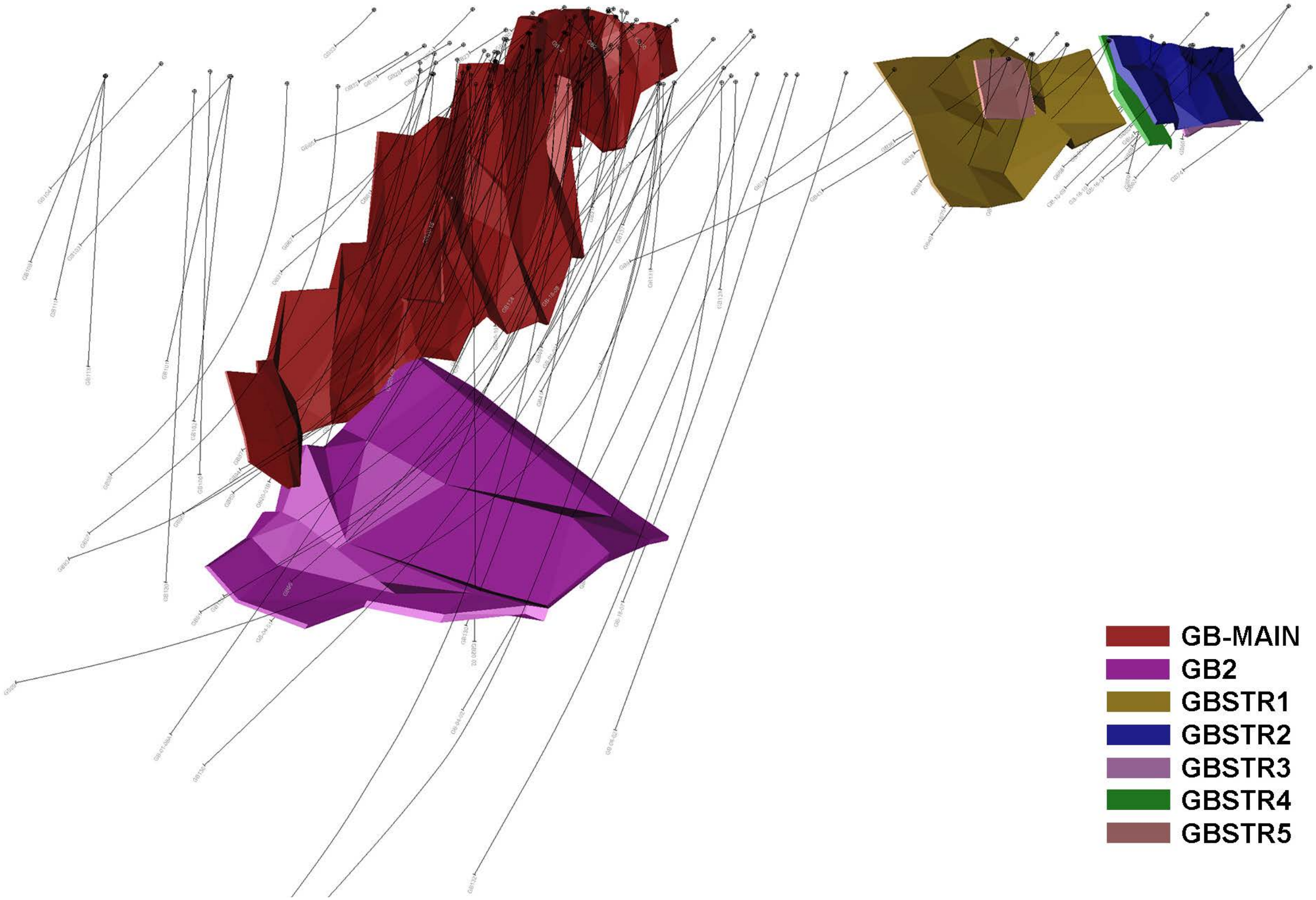
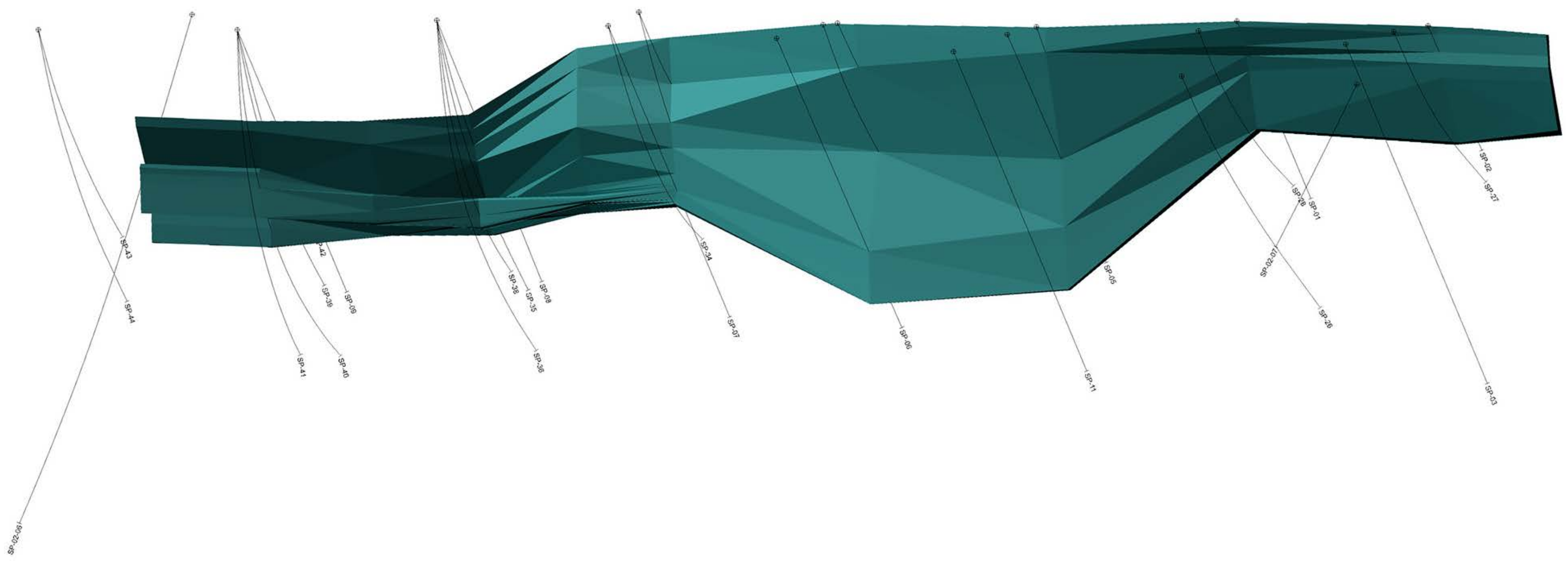
10,260 NE
10,080 NE
9,900 NE
9,720 NE
9,720 NE
MINERALIZED DOMAIN
0
200
400
600
800
1,000
METRES
P&E Mining Consultants Inc.
SPRUCE RIDGE RESOURCES LTD.
GREAT BURNT COPPER PROJECT
SOUTH POND ZONE
SURFACE DRILL HOLE PLAN
Scale 1:19,000
July 2021

APPENDIX B 3-D DOMAINS

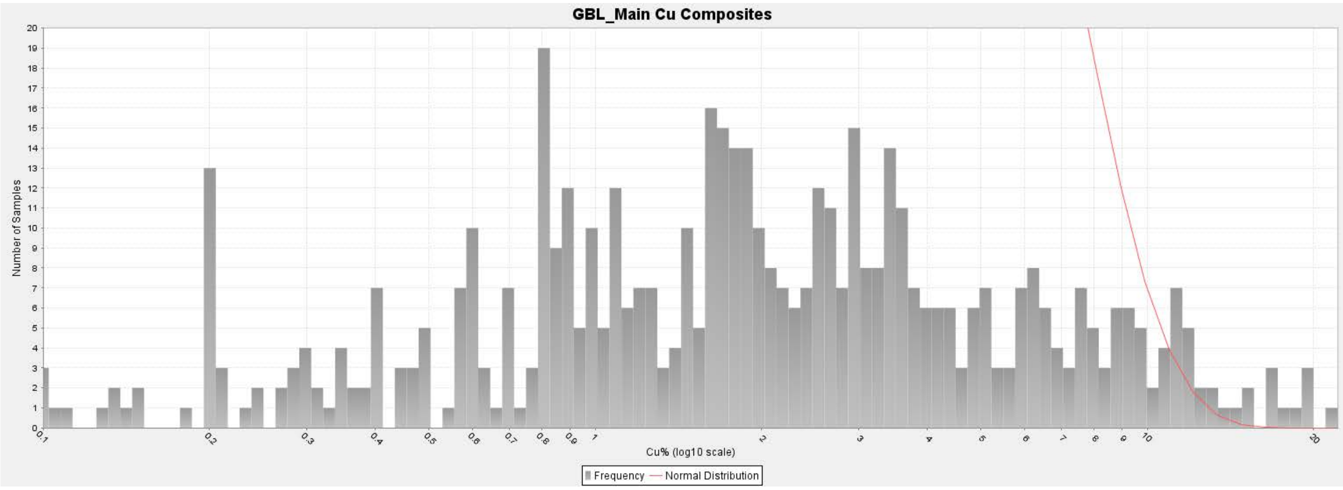
GREAT BURNT COPPER PROJECT
GREAT BURNT ZONE - 3D DOMAINS

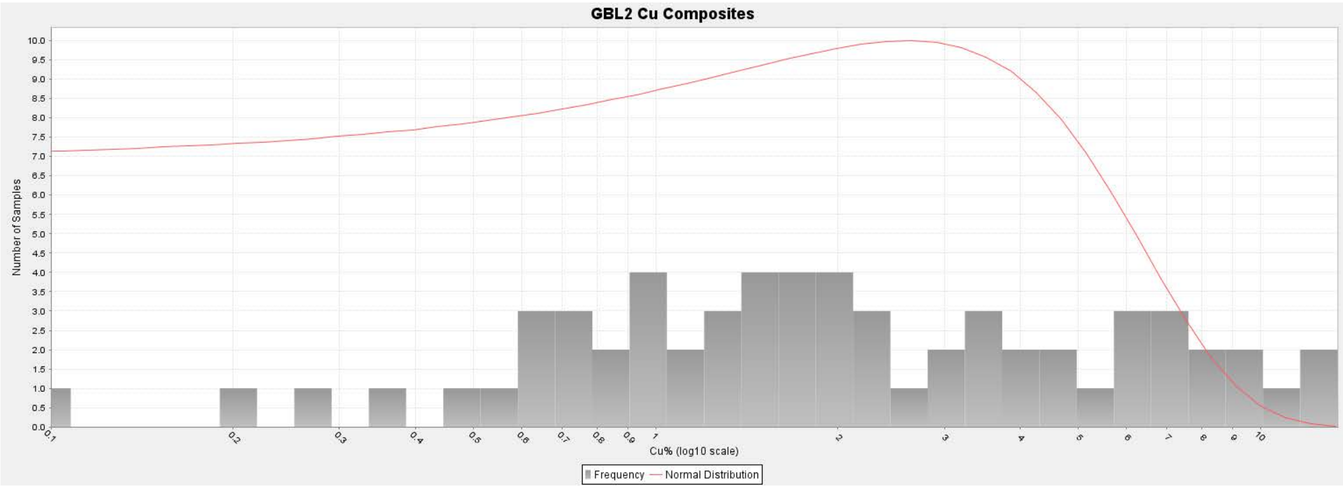


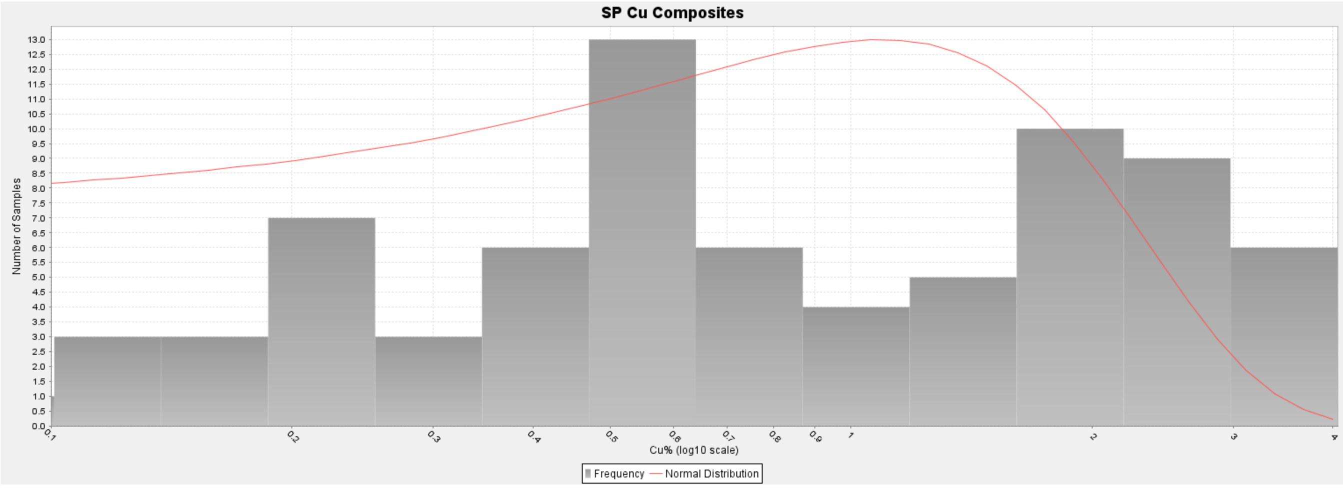
GREAT BURNT COPPER PROJECT
SOUTH POND ZONE - 3D DOMAIN

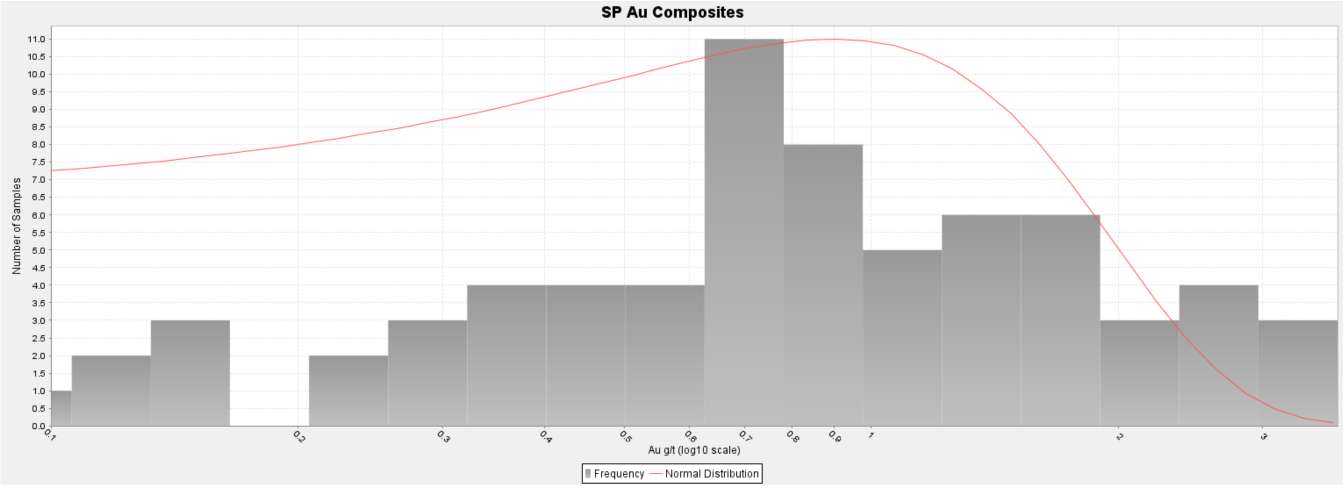


APPENDIX C LOG NORMAL HISTOGRAMS

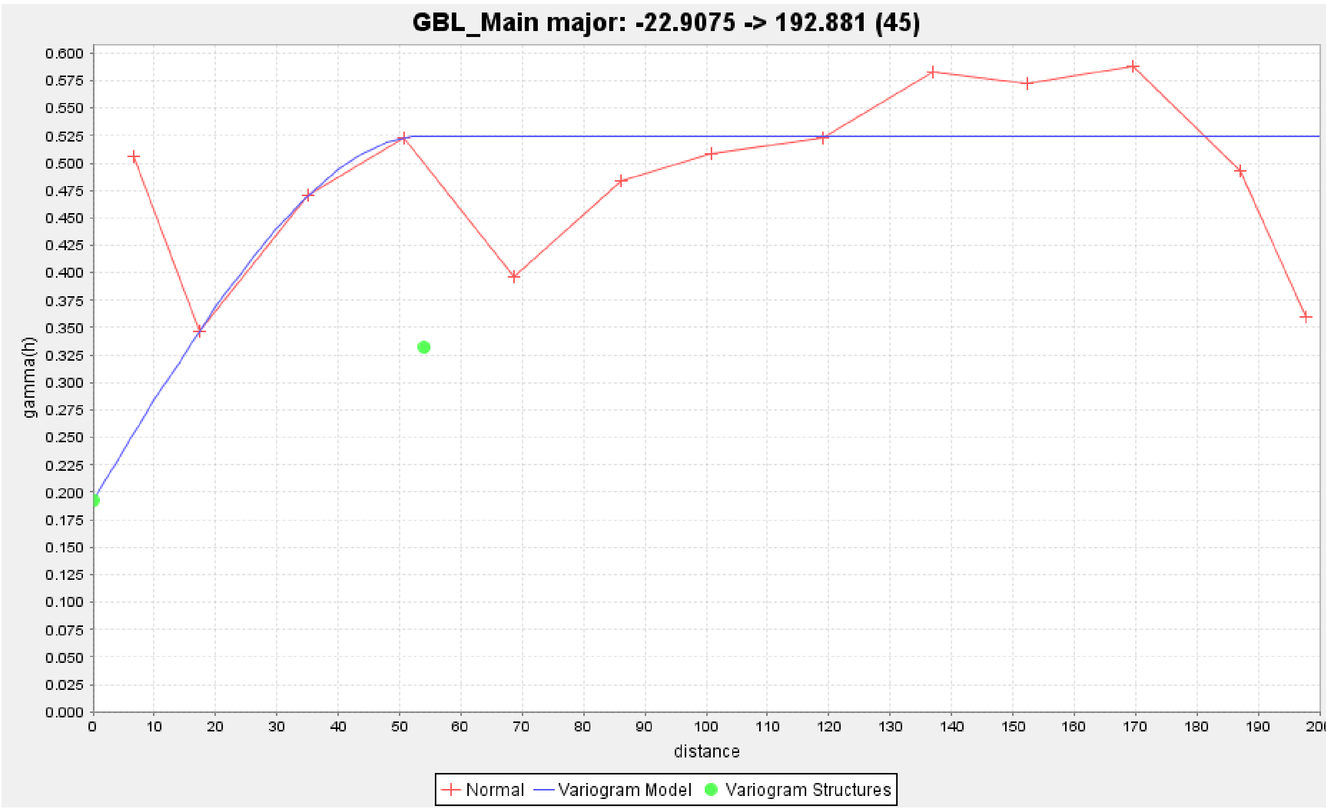


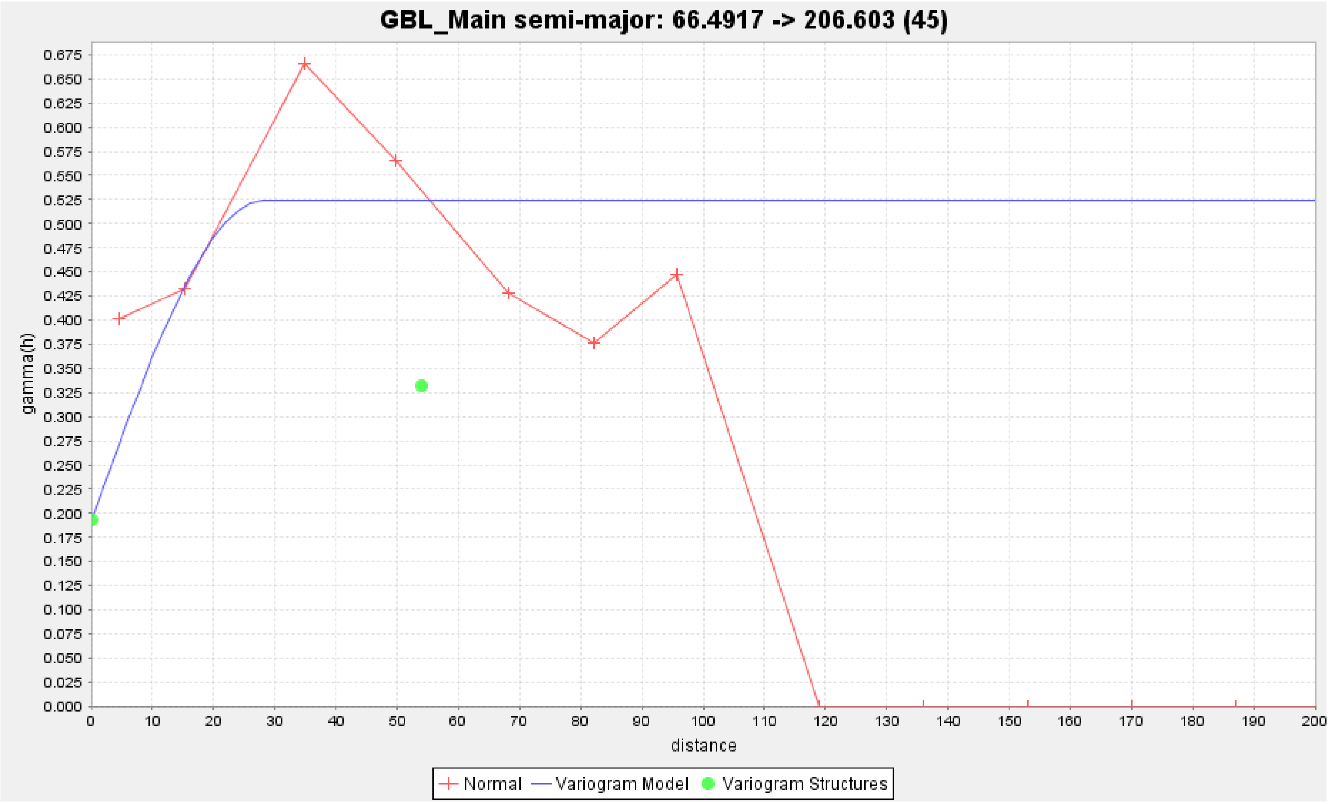



SP Cu Composites
Number of Samples
Cu% (log10 scale)
Frequency
Normal Distribution


SP Au Composites
Number of Samples
Au g/t (log10 scale)
Frequency
Normal Distribution

APPENDIX D VARIOGRAMS

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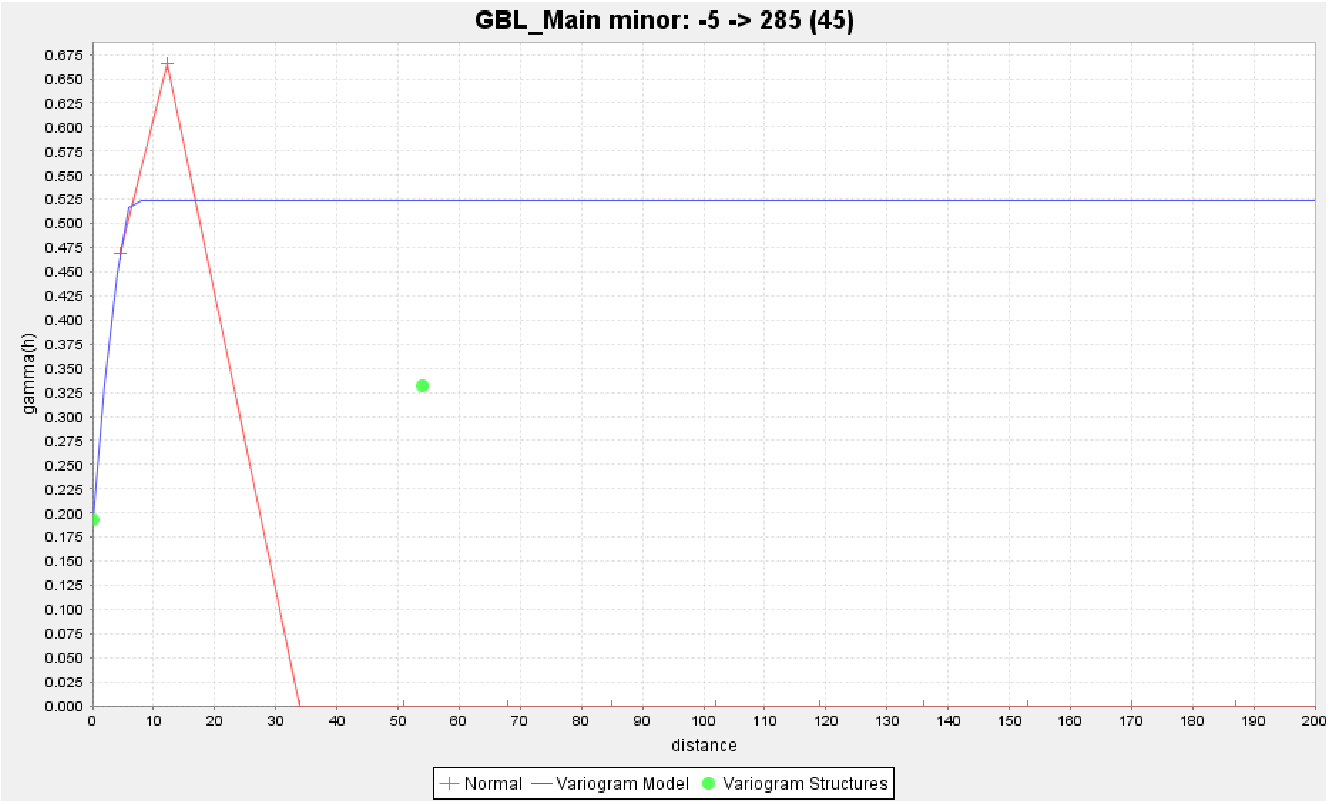
distance
Normal
Variogram Model
Variogram Structures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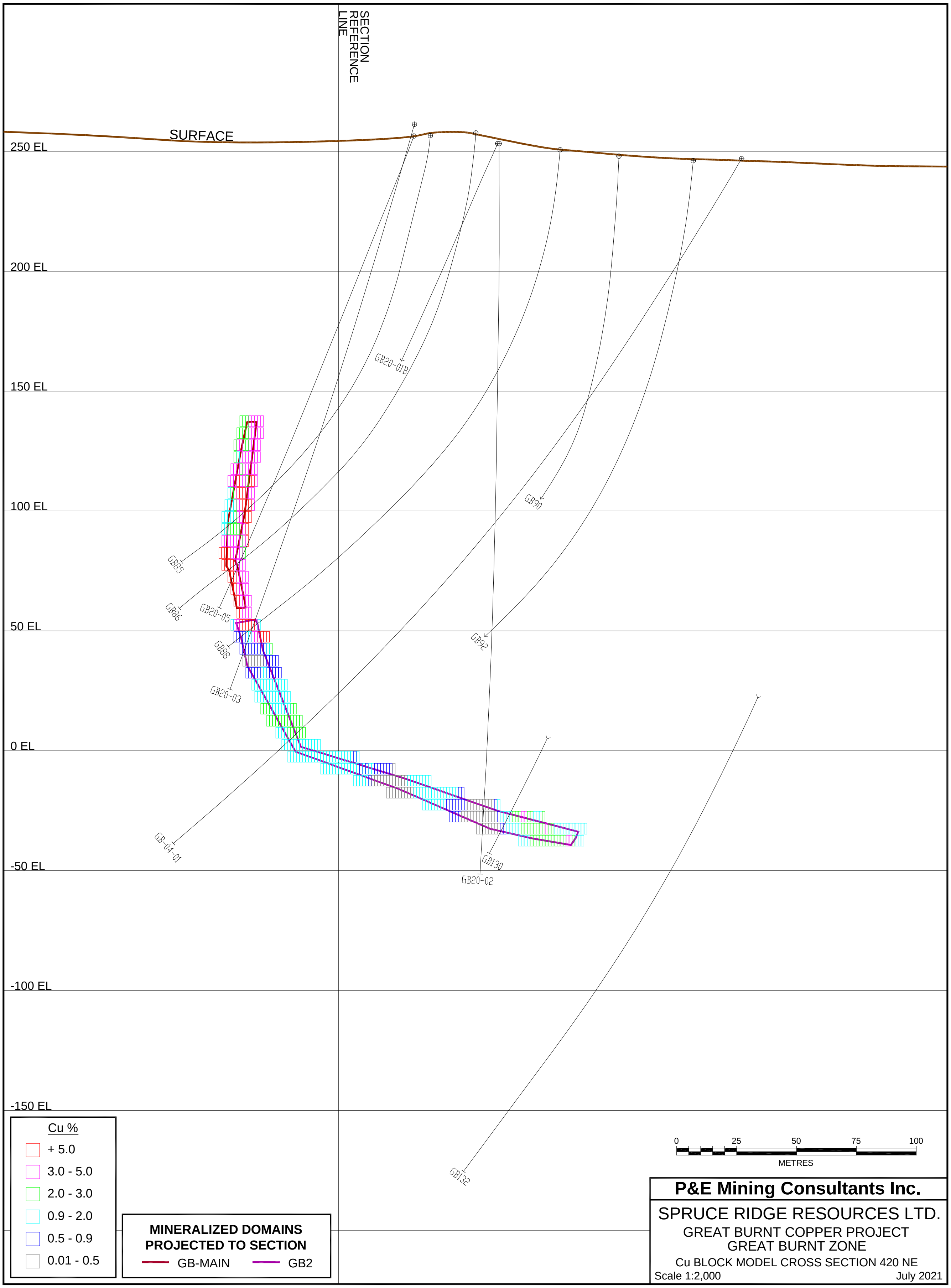
gamma(h)
distance
Normal
Variogram Model
Variogram Structures

APPENDIX E CU BLOCK MODEL CROSS SECTIONS AND PLANS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GB92
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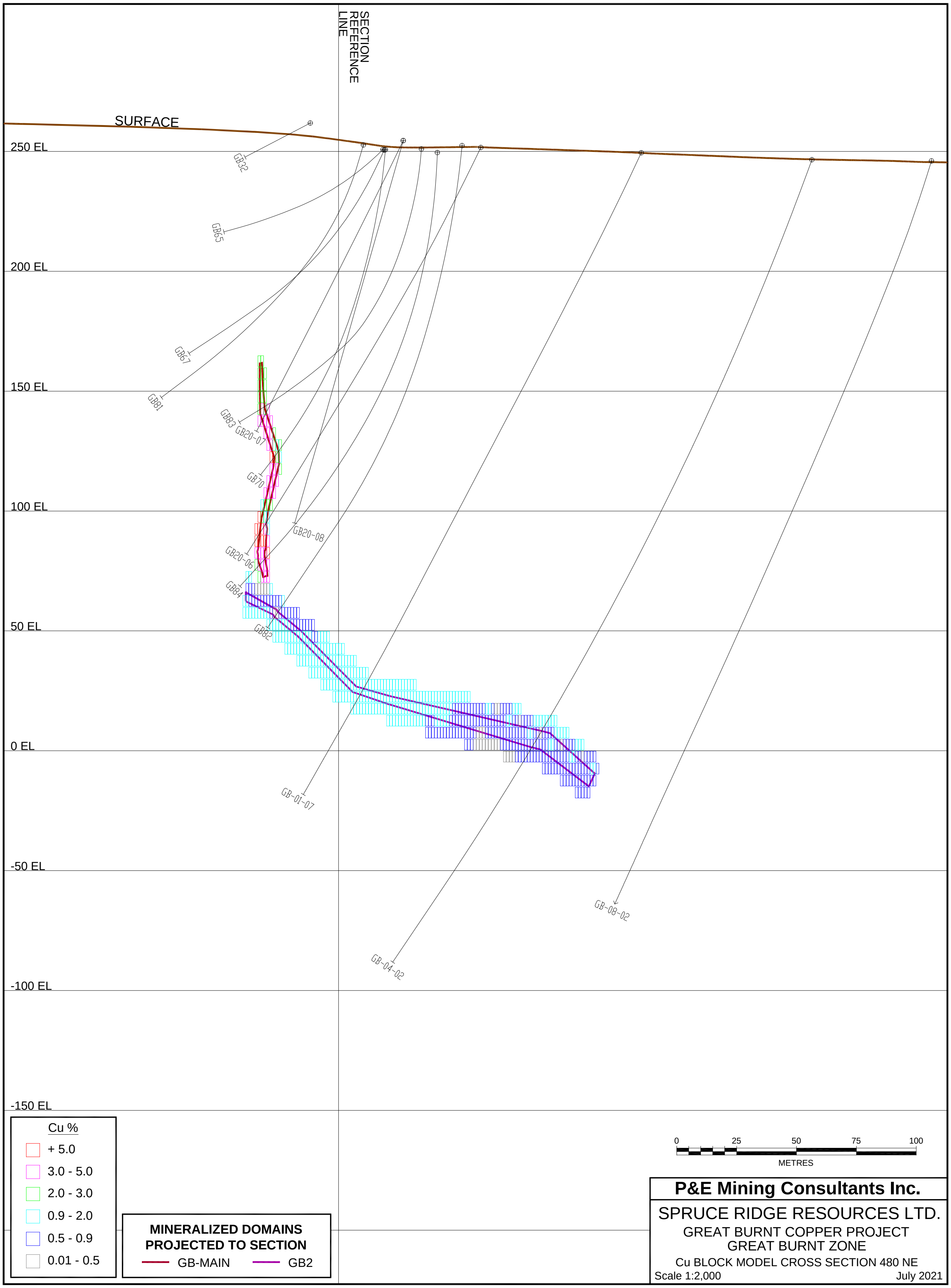
GB-04-01
GB130
GB20-02
GB132
Cu %
+ 5.0
3.0 - 5.0
2.0 - 3.0
0.9 - 2.0
0.5 - 0.9
0.01 - 0.5
MINERALIZED DOMAINS PROJECTED TO SECTION
GB-MAIN
GB2
0
25
50
75
100
METRES
P&E Mining Consultants Inc.
SPRUCE RIDGE RESOURCES LTD.
GREAT BURNT COPPER PROJECT
GREAT BURNT ZONE
Cu BLOCK MODEL CROSS SECTION 420 NE
Scale 1:2,000
July 2021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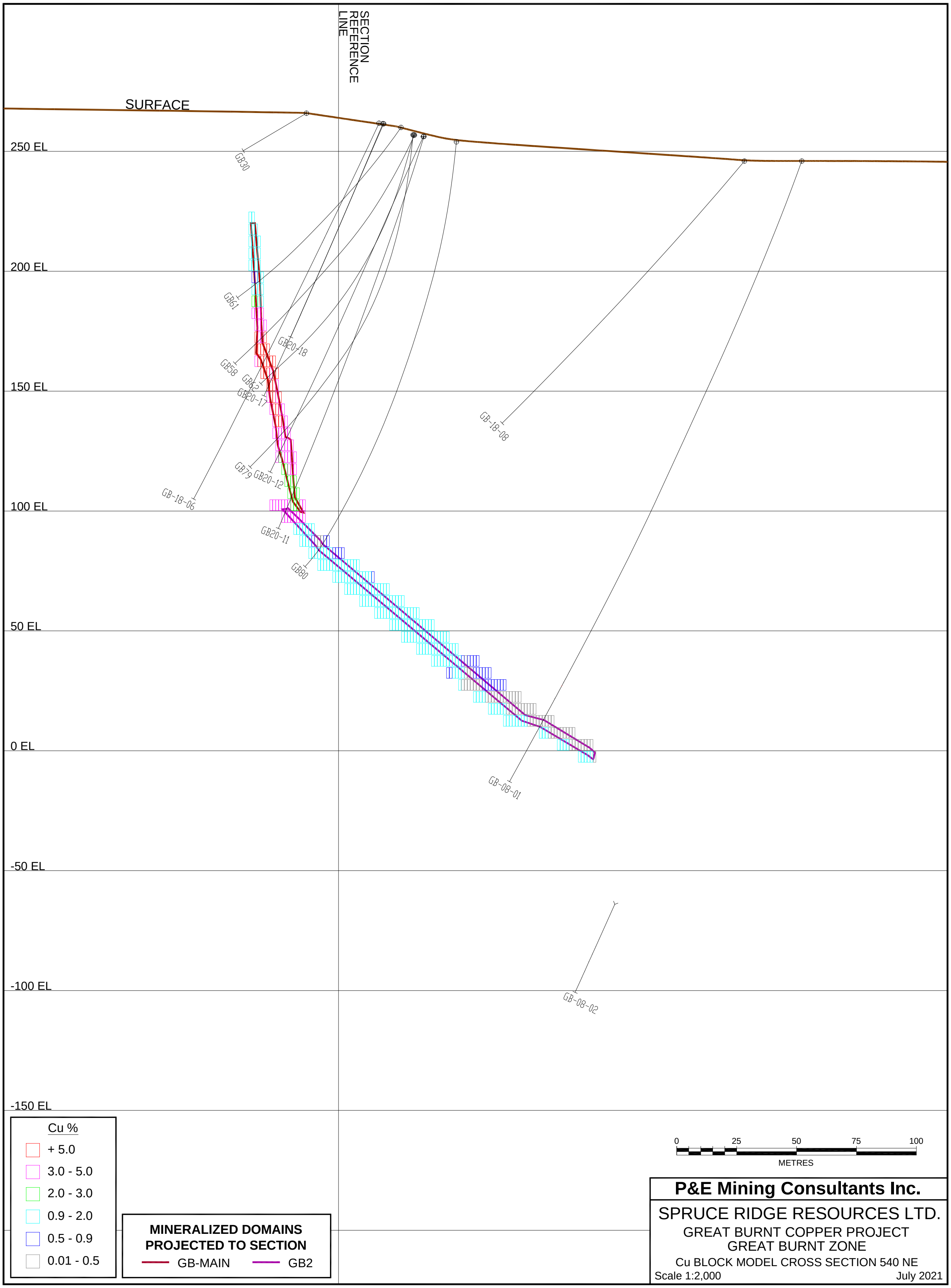
GB84
GB82
GB-01-07
GB-04-02
GB-08-02
Cu %
+ 5.0
3.0 - 5.0
2.0 - 3.0
0.9 - 2.0
0.5 - 0.9
0.01 - 0.5
MINERALIZED DOMAINS PROJECTED TO SECTION
GB-MAIN
GB2
0
25
50
75
100
METRES
P&E Mining Consultants Inc.
SPRUCE RIDGE RESOURCES LTD.
GREAT BURNT COPPER PROJECT
GREAT BURNT ZONE
Cu BLOCK MODEL CROSS SECTION 480 NE
Scale 1:2,000
July 2021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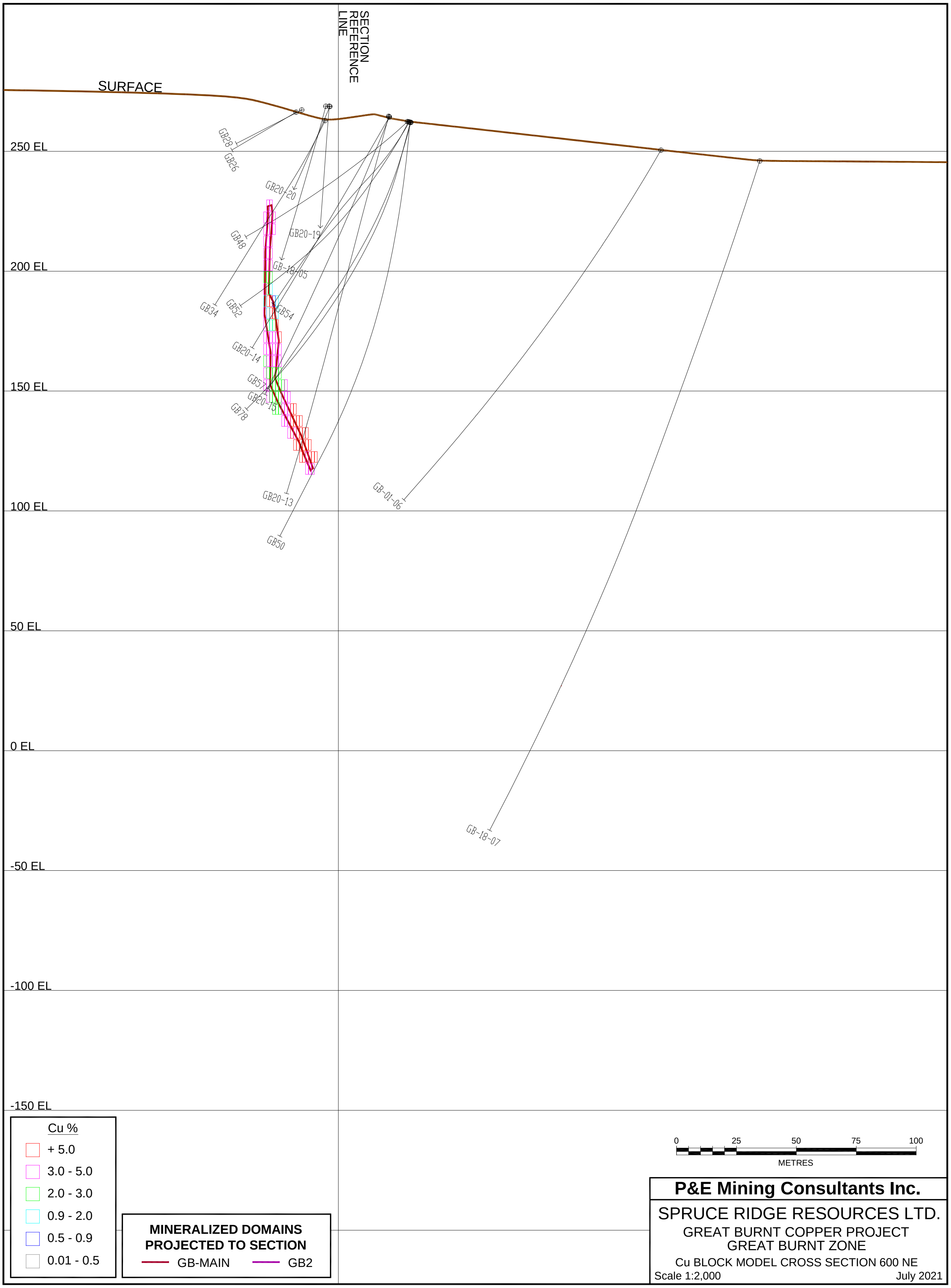
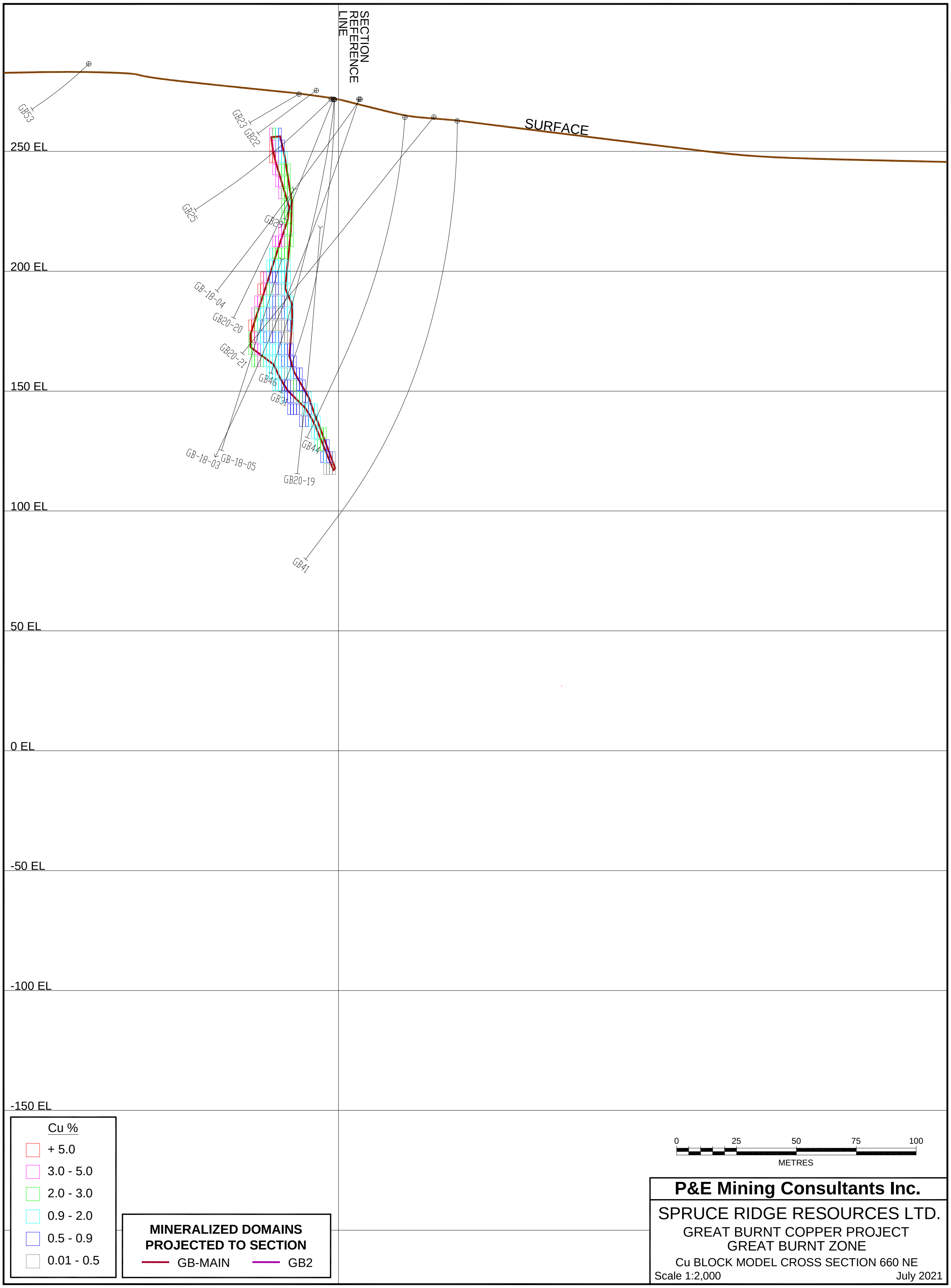
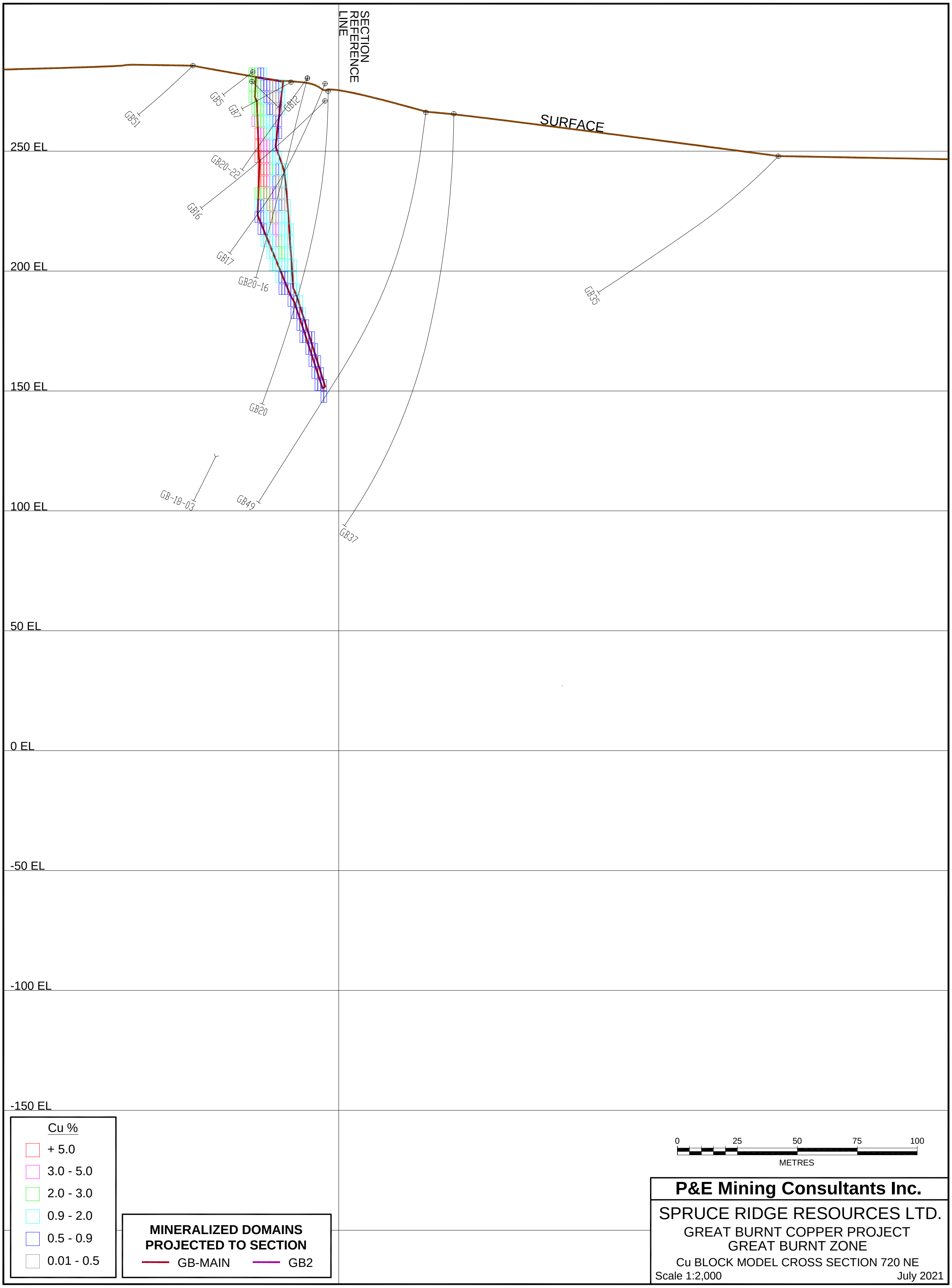
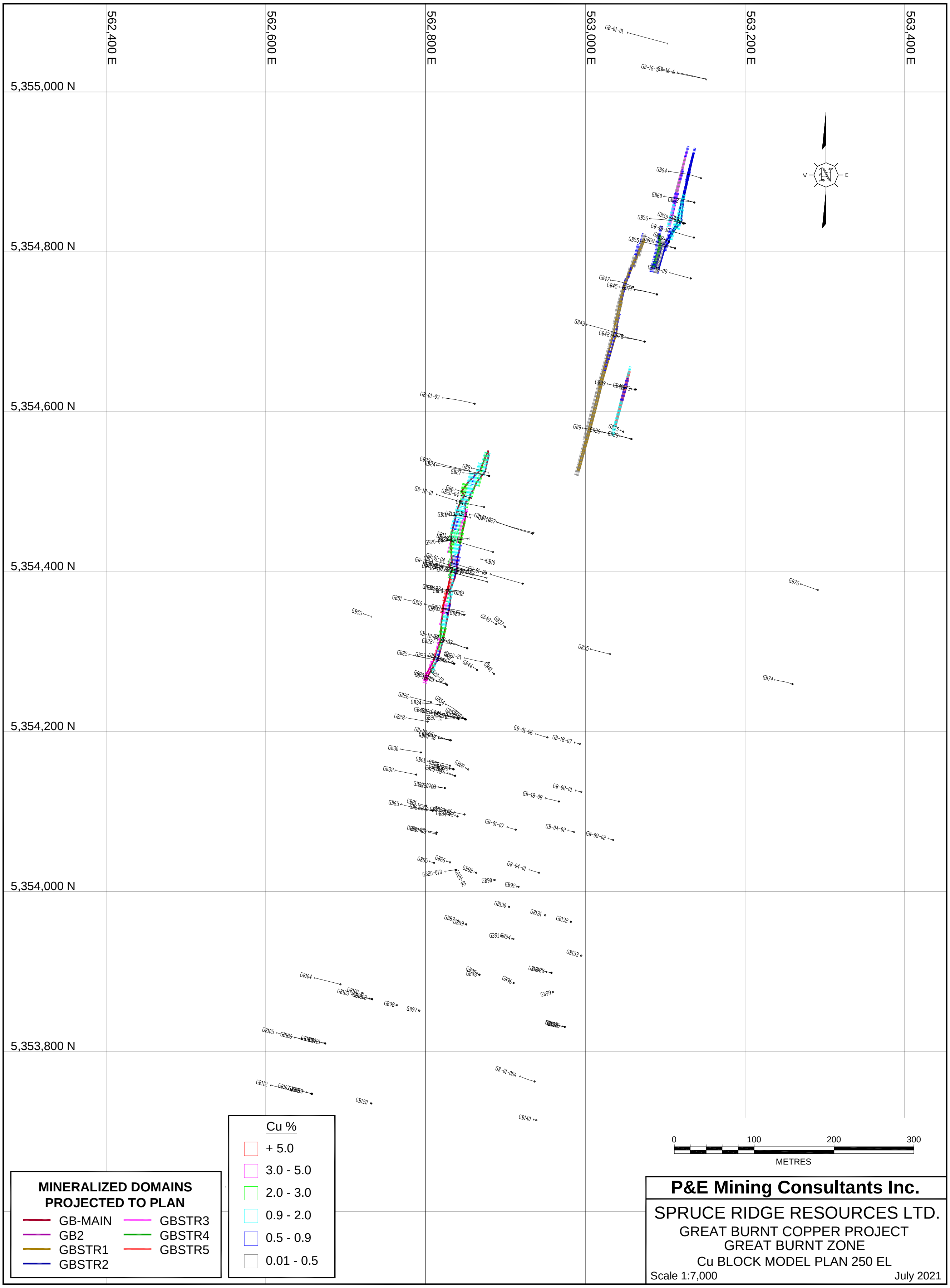
GB20-11
GB80
GB-18-08
GB-08-01
GB-08-02
Cu %
+ 5.0
3.0 - 5.0
2.0 - 3.0
0.9 - 2.0
0.5 - 0.9
0.01 - 0.5
MINERALIZED DOMAINS PROJECTED TO SECTION
GB-MAIN
GB2
0
25
50
75
100
METRES
P&E Mining Consultants Inc.
SPRUCE RIDGE RESOURCES LTD.
GREAT BURNT COPPER PROJECT
GREAT BURNT ZONE
Cu BLOCK MODEL CROSS SECTION 540 NE
Scale 1:2,000
July 2021

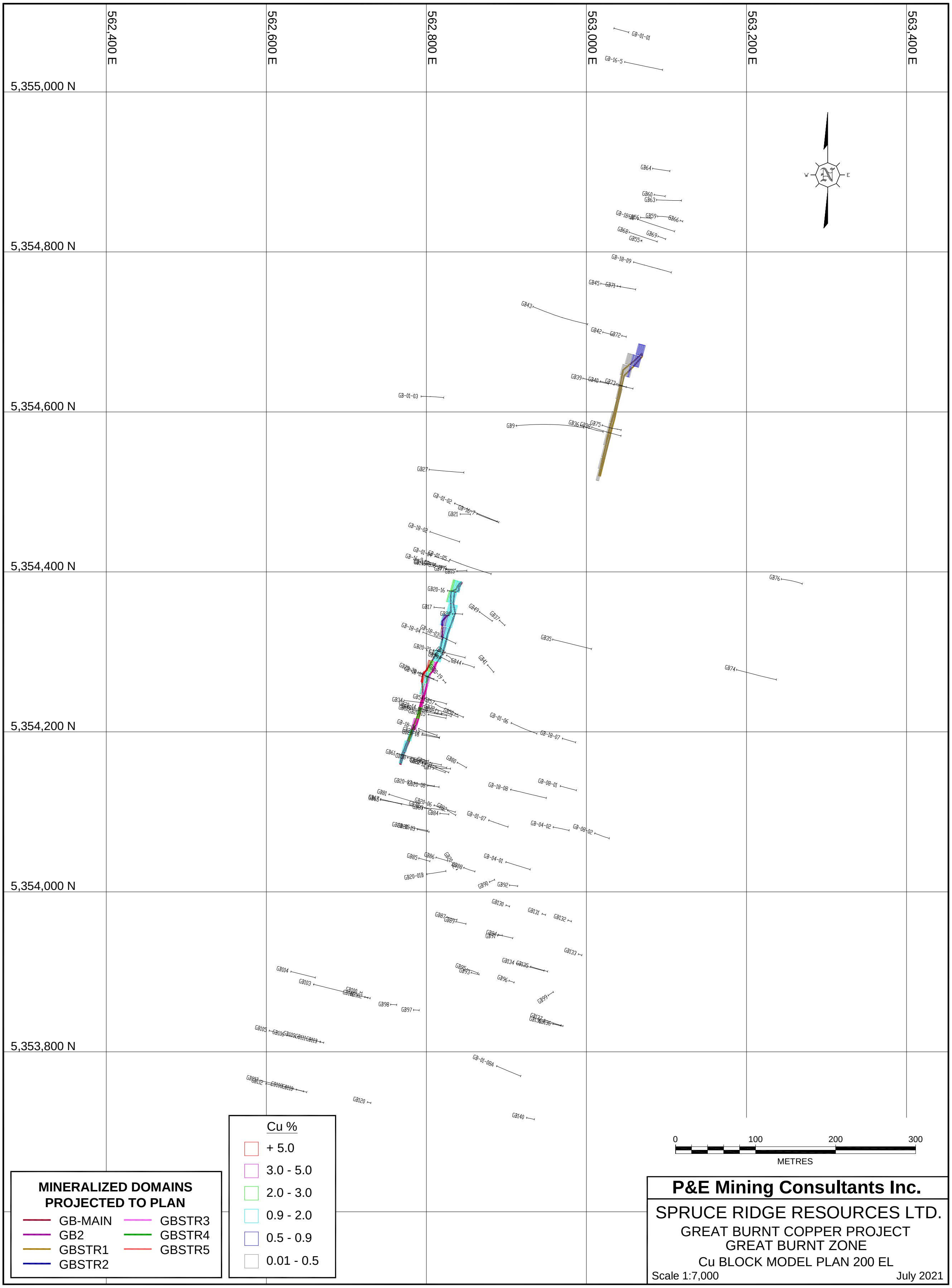


SECTION REFERENCE LINE
SURFACE
250 EL
200 EL
150 EL
100 EL
50 EL
0 EL
-50 EL
-100 EL
-150 EL
GB28
GB26
GB20-20
GB20-19
GB48
GB-18-05
GB34
GB52
GB54
GB20-14
GB57
GB20-15
GB78
GB20-13
GB50
GB-01-06
GB-18-07
Cu %
+ 5.0
3.0 - 5.0
2.0 - 3.0
0.9 - 2.0
0.5 - 0.9
0.01 - 0.5
MINERALIZED DOMAINS PROJECTED TO SECTION
GB-MAIN
GB2
0
25
50
75
100
METRES
P&E Mining Consultants Inc.
SPRUCE RIDGE RESOURCES LTD.
GREAT BURNT COPPER PROJECT
GREAT BURNT ZONE
Cu BLOCK MODEL CROSS SECTION 600 NE
Scale 1:2,000
July 2021


SECTION REFERENCE LINE
SURFACE
250 EL
200 EL
150 EL
100 EL
50 EL
0 EL
-50 EL
-100 EL
-150 EL
GB53
GB23
GB22
GB25
GB-18-04
GB20-20
GB20-21
GB46
GB-18-03
GB-18-05
GB20-19
GB44
GB41
Cu %
+ 5.0
3.0 - 5.0
2.0 - 3.0
0.9 - 2.0
0.5 - 0.9
0.01 - 0.5
MINERALIZED DOMAINS
PROJECTED TO SECTION
GB-MAIN
GB2
0
25
50
75
100
METRES
P&E Mining Consultants Inc.
SPRUCE RIDGE RESOURCES LTD.
GREAT BURNT COPPER PROJECT
GREAT BURNT ZONE
Cu BLOCK MODEL CROSS SECTION 660 NE
Scale 1:2,000
July 2021


SECTION REFERENCE LINE
SURFACE
250 EL
200 EL
150 EL
100 EL
50 EL
0 EL
-50 EL
-100 EL
-150 EL
GB51
GB5
GB7
GB12
GB20-22
GB16
GB17
GB20-16
GB20
GB-18-03
GB49
GB37
GB35
Cu %
+ 5.0
3.0 - 5.0
2.0 - 3.0
0.9 - 2.0
0.5 - 0.9
0.01 - 0.5
MINERALIZED DOMAINS PROJECTED TO SECTION
GB-MAIN
GB2
0 25 50 75 100
METRES
P&E Mining Consultants Inc.
SPRUCE RIDGE RESOURCES LTD.
GREAT BURNT COPPER PROJECT
GREAT BURNT ZONE
Cu BLOCK MODEL CROSS SECTION 720 NE
Scale 1:2,000
July 2021


562,400 E
562,600 E
562,800 E
563,000 E
563,200 E
563,400 E
5,355,000 N
5,354,800 N
5,354,600 N
5,354,400 N
5,354,200 N
5,354,000 N
5,353,800 N
0
100
200
300
METRES
MINERALIZED DOMAINS PROJECTED TO PLAN
GB-MAIN
GB2
GBSTR1
GBSTR2
GBSTR3
GBSTR4
GBSTR5
Cu %
+ 5.0
3.0 - 5.0
2.0 - 3.0
0.9 - 2.0
0.5 - 0.9
0.01 - 0.5
P&E Mining Consultants Inc.
SPRUCE RIDGE RESOURCES LTD.
GREAT BURNT COPPER PROJECT
GREAT BURNT ZONE
Cu BLOCK MODEL PLAN 250 EL
Scale 1:7,000
July 2021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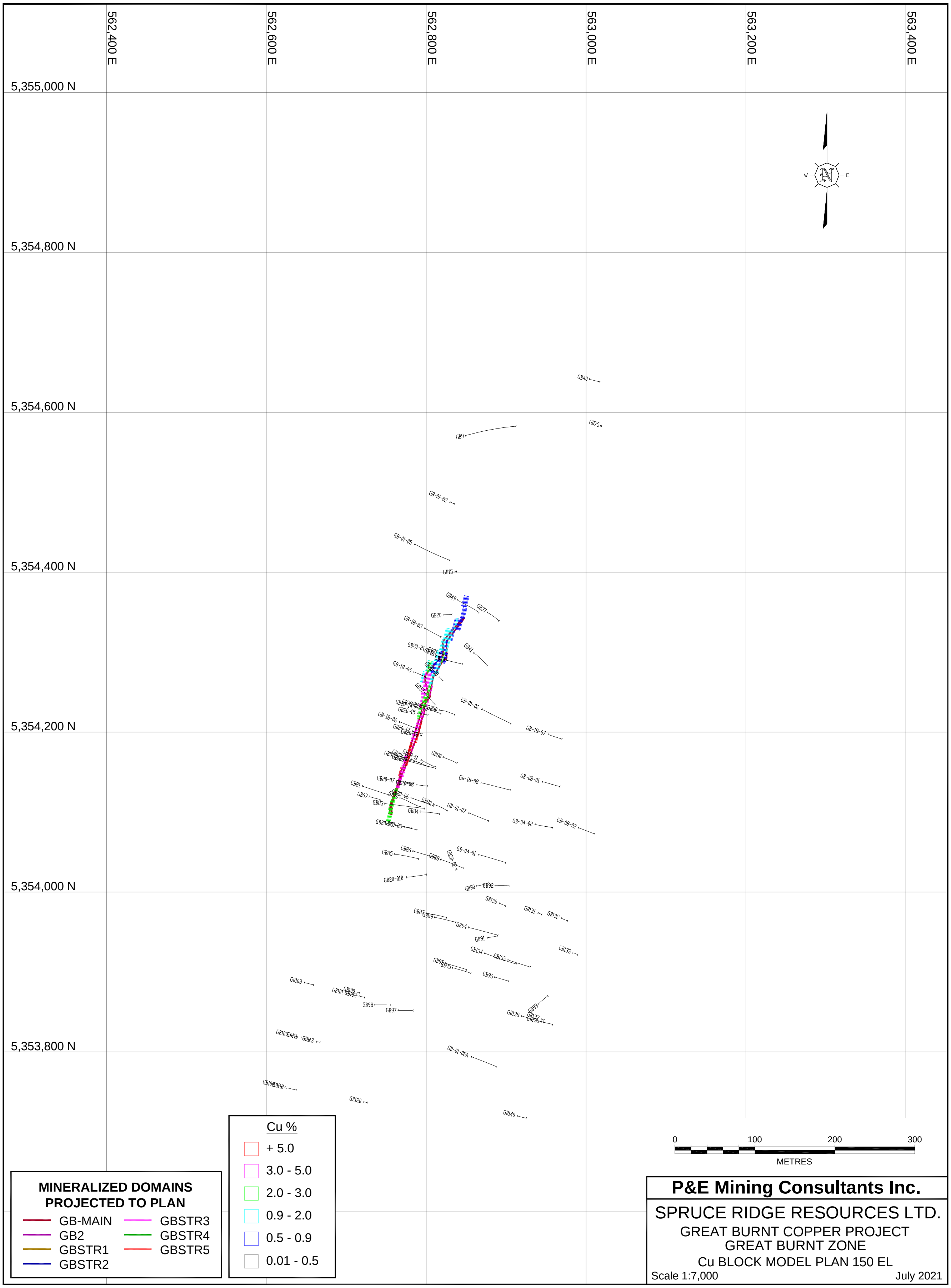
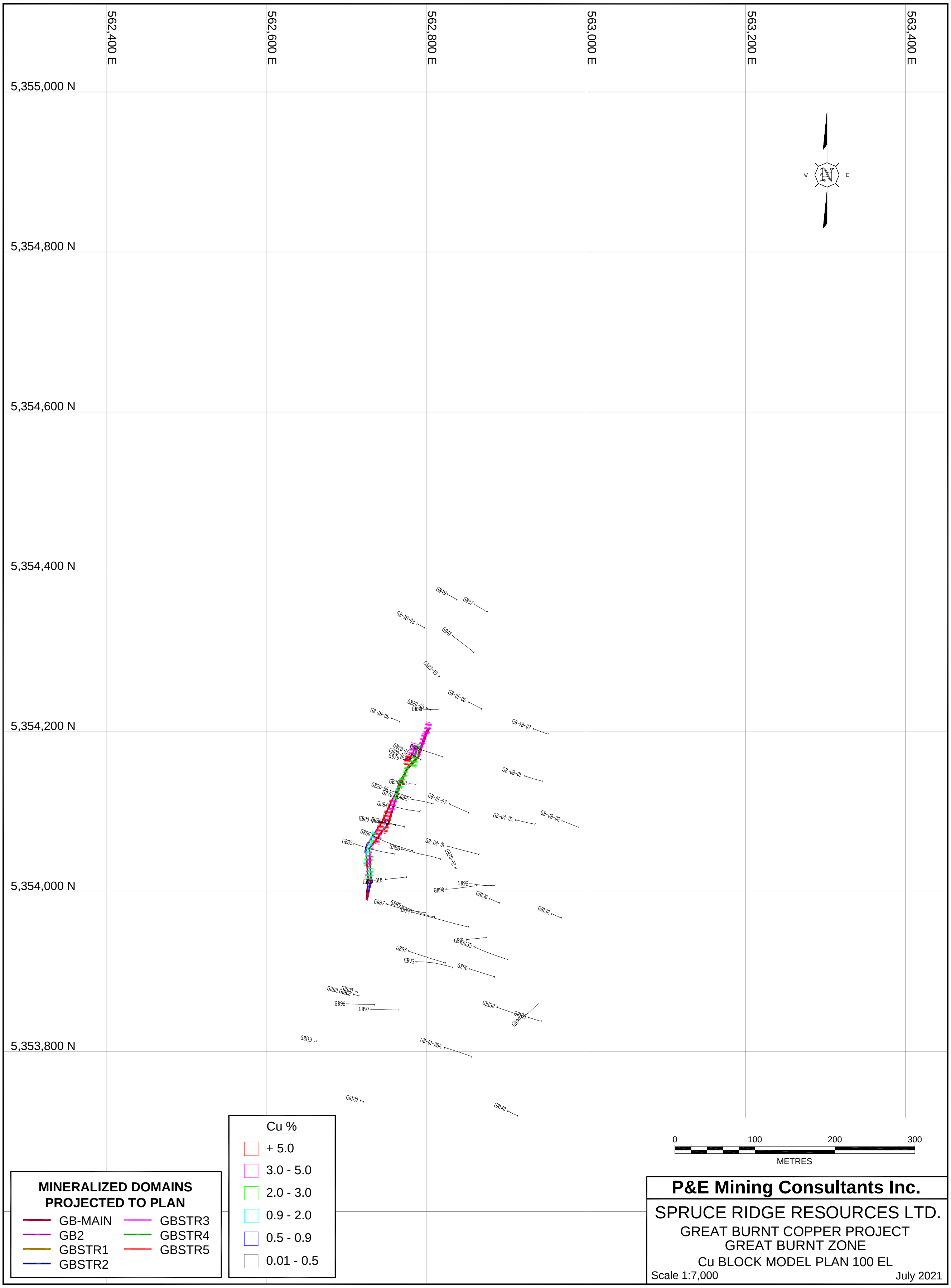
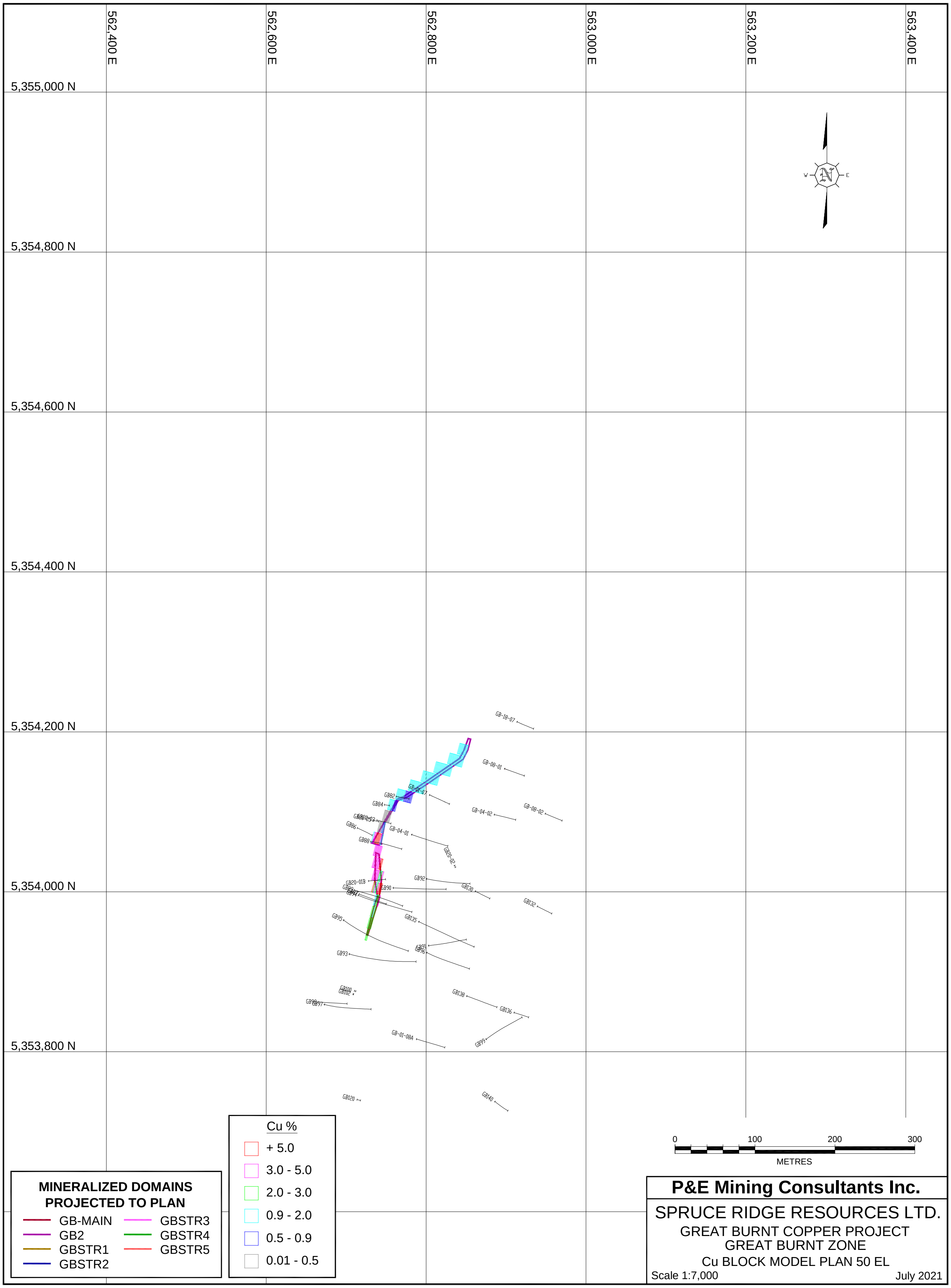
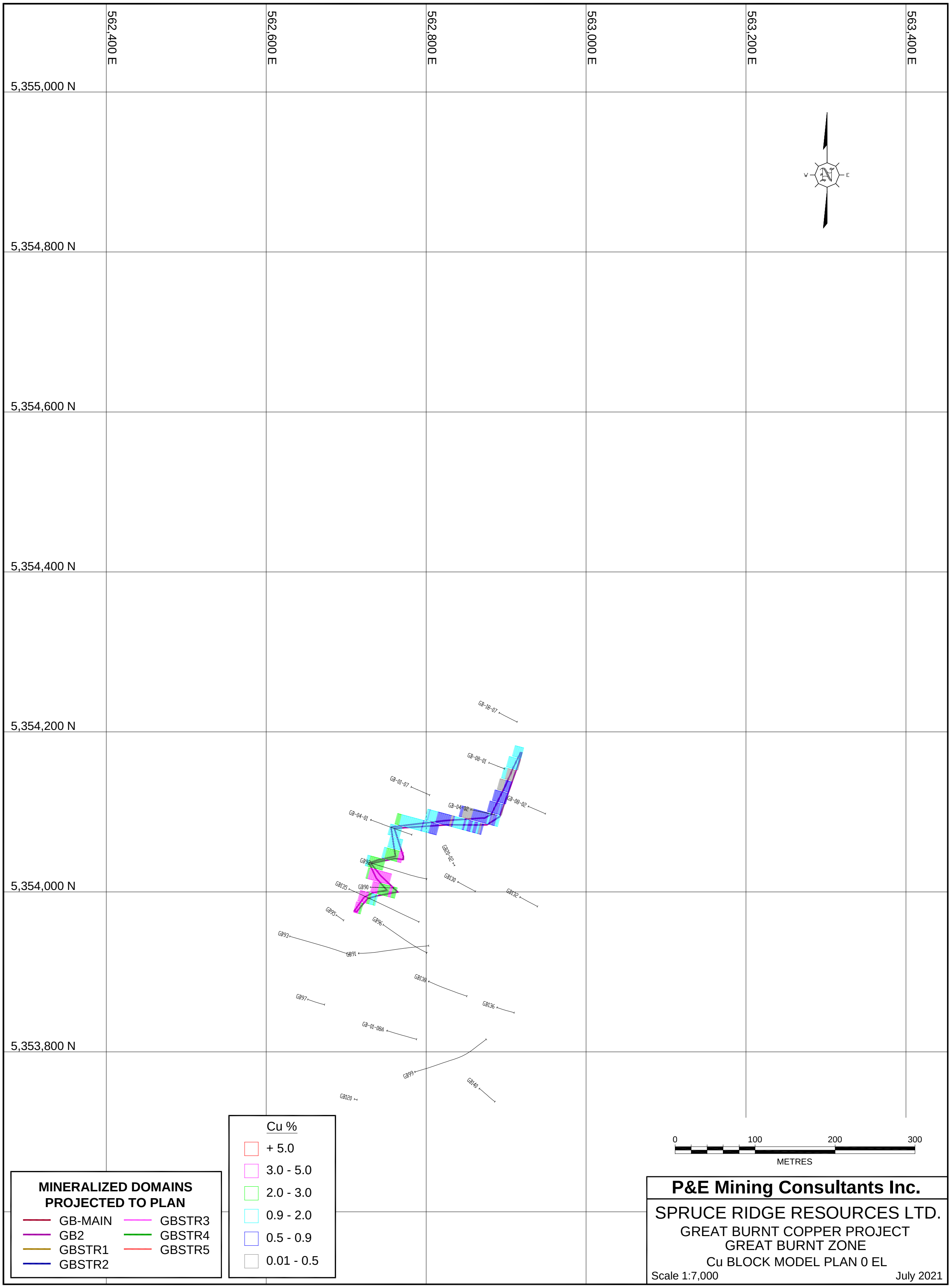
562,600 E
562,800 E
563,000 E
563,200 E
563,400 E
5,355,000 N
5,354,800 N
5,354,600 N
5,354,400 N
5,354,200 N
5,354,000 N
5,353,800 N
MINERALIZED DOMAINS PROJECTED TO PLAN
GB-MAIN
GB2
GBSTR1
GBSTR2
GBSTR3
GBSTR4
GBSTR5
Cu %
+ 5.0
3.0 - 5.0
2.0 - 3.0
0.9 - 2.0
0.5 - 0.9
0.01 - 0.5
0
100
200
300
METRES
P&E Mining Consultants Inc.
SPRUCE RIDGE RESOURCES LTD.
GREAT BURNT COPPER PROJECT
GREAT BURNT ZONE
Cu BLOCK MODEL PLAN 200 EL
Scale 1:7,000
July 2021

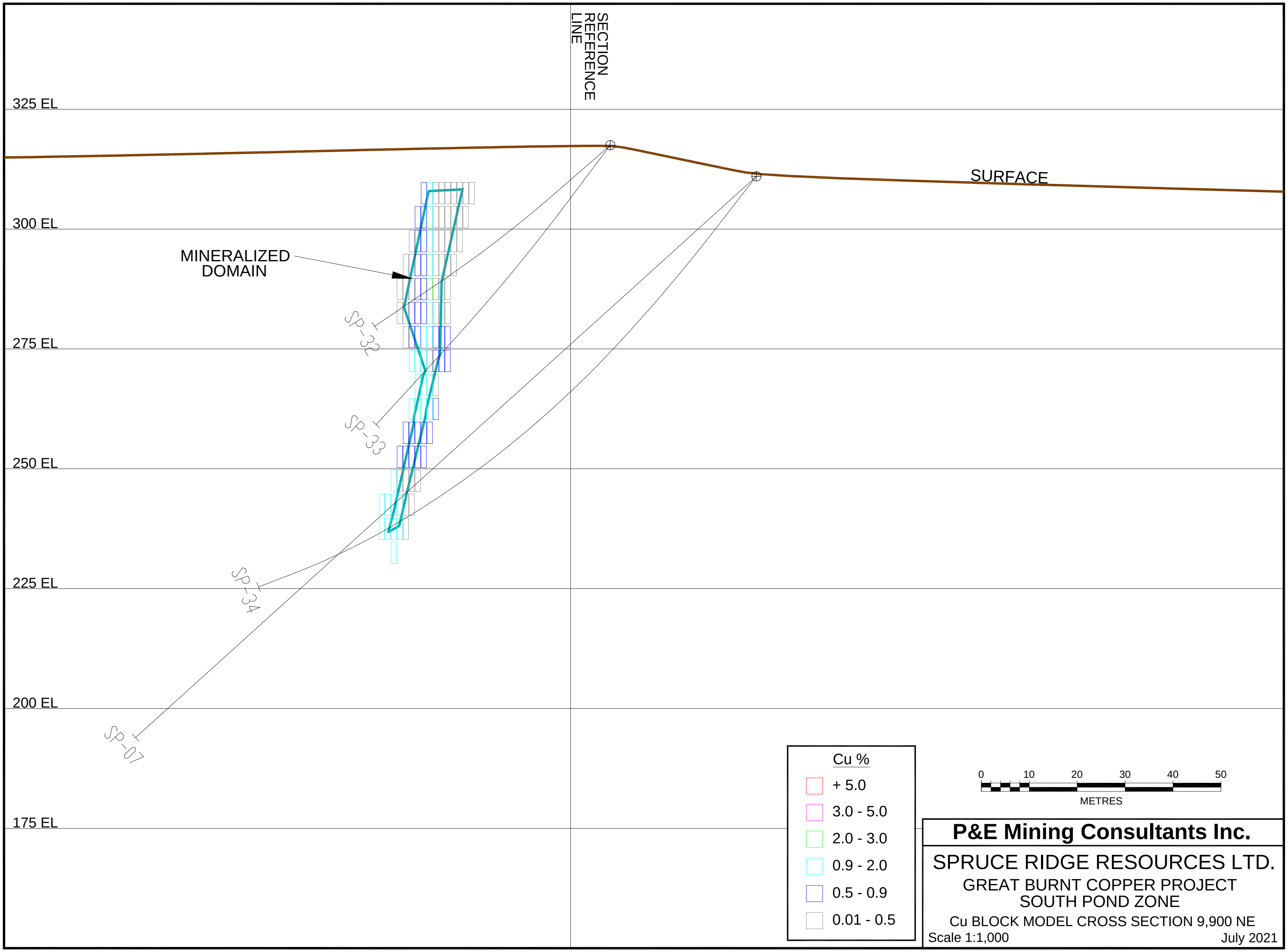

562,400 E
562,600 E
562,800 E
563,000 E
563,200 E
563,400 E
5,355,000 N
5,354,800 N
5,354,600 N
5,354,400 N
5,354,200 N
5,354,000 N
5,353,800 N
N
W
E
MINERALIZED DOMAINS PROJECTED TO PLAN
GB-MAIN
GB2
GBSTR1
GBSTR2
GBSTR3
GBSTR4
GBSTR5
Cu %
+ 5.0
3.0 - 5.0
2.0 - 3.0
0.9 - 2.0
0.5 - 0.9
0.01 - 0.5
0
100
200
300
METRES
P&E Mining Consultants Inc.
SPRUCE RIDGE RESOURCES LTD.
GREAT BURNT COPPER PROJECT
GREAT BURNT ZONE
Cu BLOCK MODEL PLAN 150 EL
Scale 1:7,000
July 2021

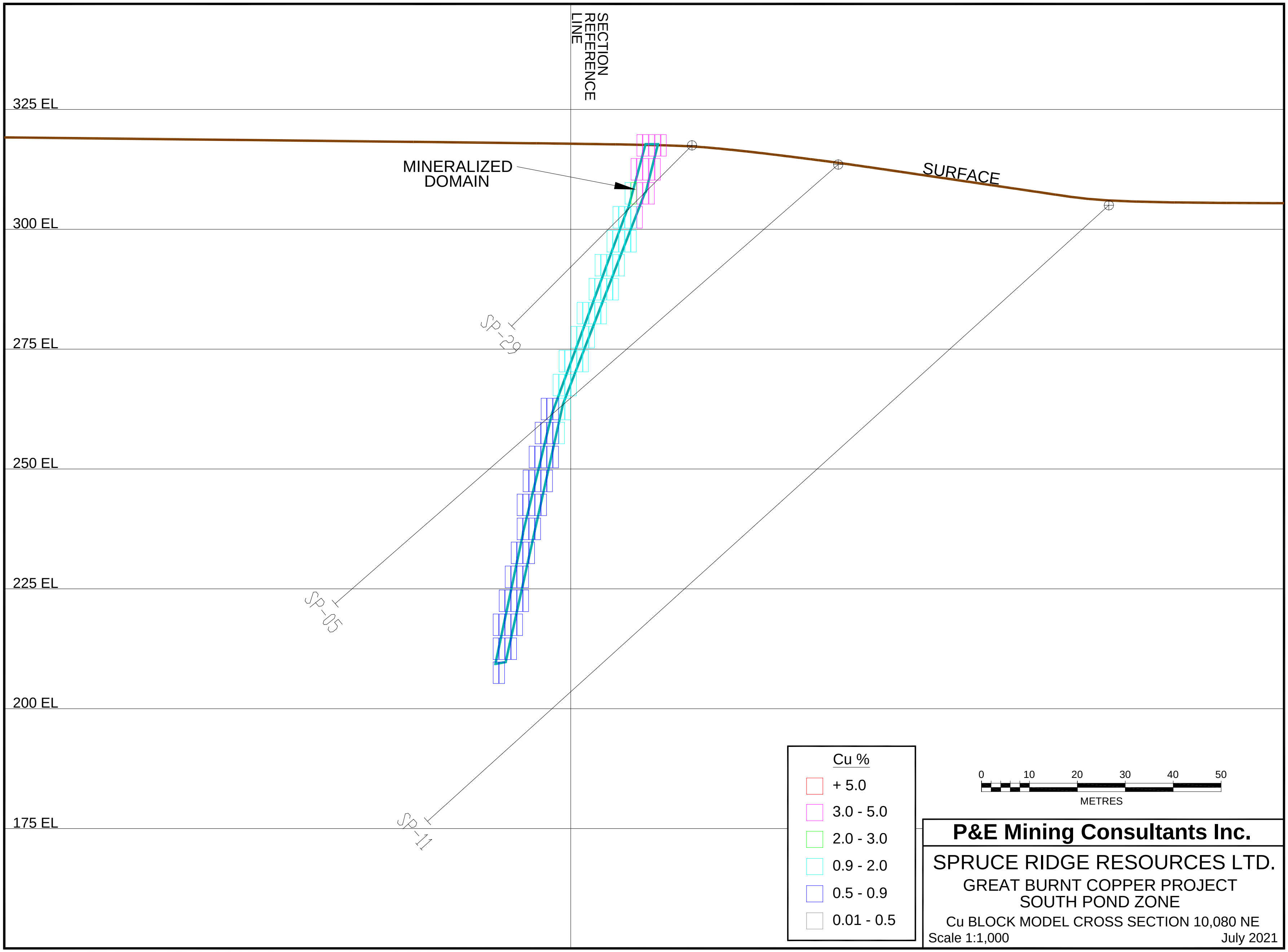

562,400 E
562,600 E
562,800 E
563,000 E
563,200 E
563,400 E
5,355,000 N
5,354,800 N
5,354,600 N
5,354,400 N
5,354,200 N
5,354,000 N
5,353,800 N
MINERALIZED DOMAINS PROJECTED TO PLAN
GB-MAIN
GB2
GBSTR1
GBSTR2
GBSTR3
GBSTR4
GBSTR5
Cu %
+ 5.0
3.0 - 5.0
2.0 - 3.0
0.9 - 2.0
0.5 - 0.9
0.01 - 0.5
0
100
200
300
METRES
P&E Mining Consultants Inc.
SPRUCE RIDGE RESOURCES LTD.
GREAT BURNT COPPER PROJECT
GREAT BURNT ZONE
Cu BLOCK MODEL PLAN 100 EL
Scale 1:7,000
July 2021


562,400 E
562,600 E
562,800 E
563,000 E
563,200 E
563,400 E
5,355,000 N
5,354,800 N
5,354,600 N
5,354,400 N
5,354,200 N
5,354,000 N
5,353,800 N
Cu %
+ 5.0
3.0 - 5.0
2.0 - 3.0
0.9 - 2.0
0.5 - 0.9
0.01 - 0.5
MINERALIZED DOMAINS
PROJECTED TO PLAN
GB-MAIN
GB2
GBSTR1
GBSTR2
GBSTR3
GBSTR4
GBSTR5
0
100
200
300
METRES
P&E Mining Consultants Inc.
SPRUCE RIDGE RESOURCES LTD.
GREAT BURNT COPPER PROJECT
GREAT BURNT ZONE
Cu BLOCK MODEL PLAN 50 EL
Scale 1:7,000
July 2021

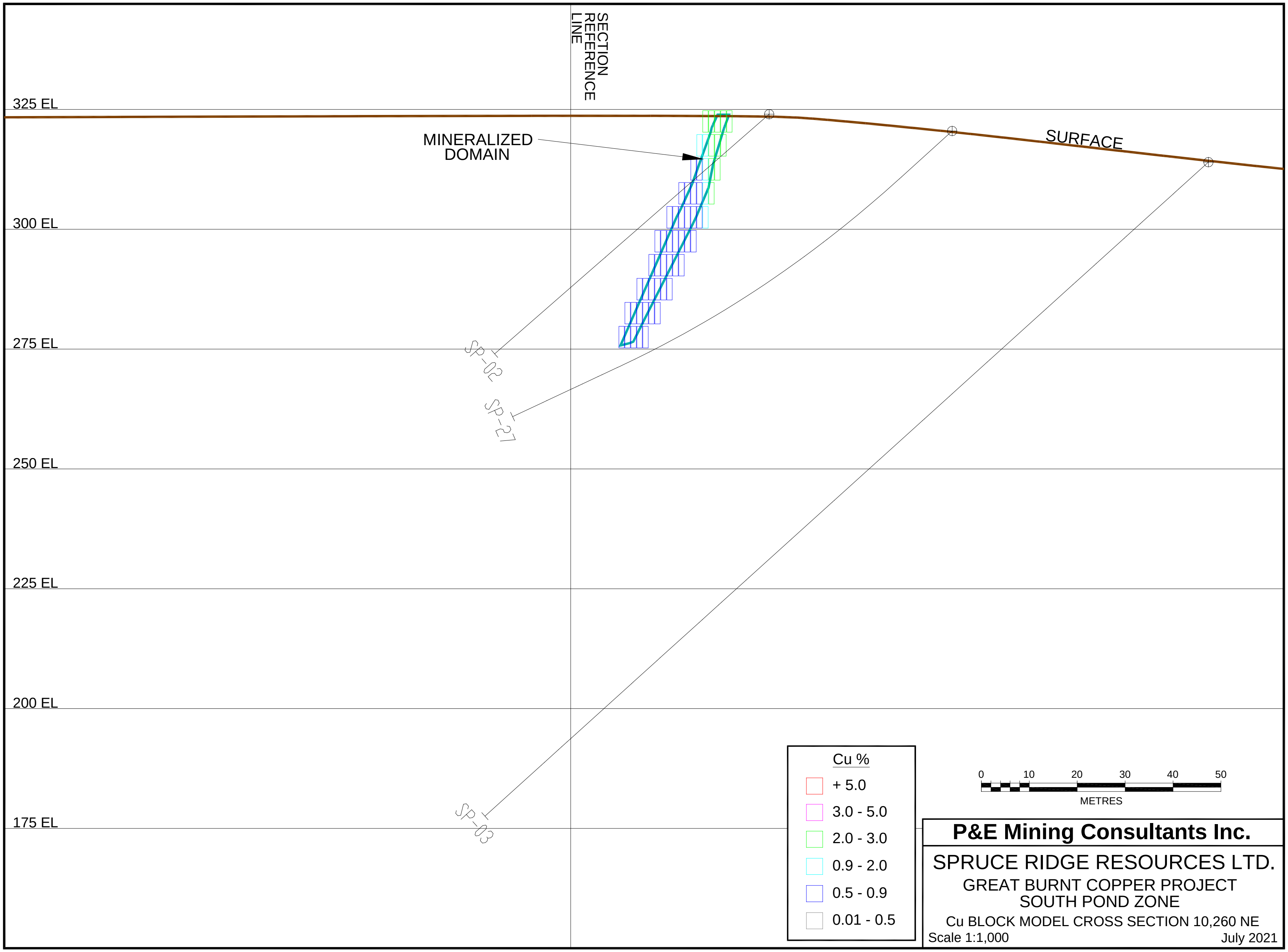


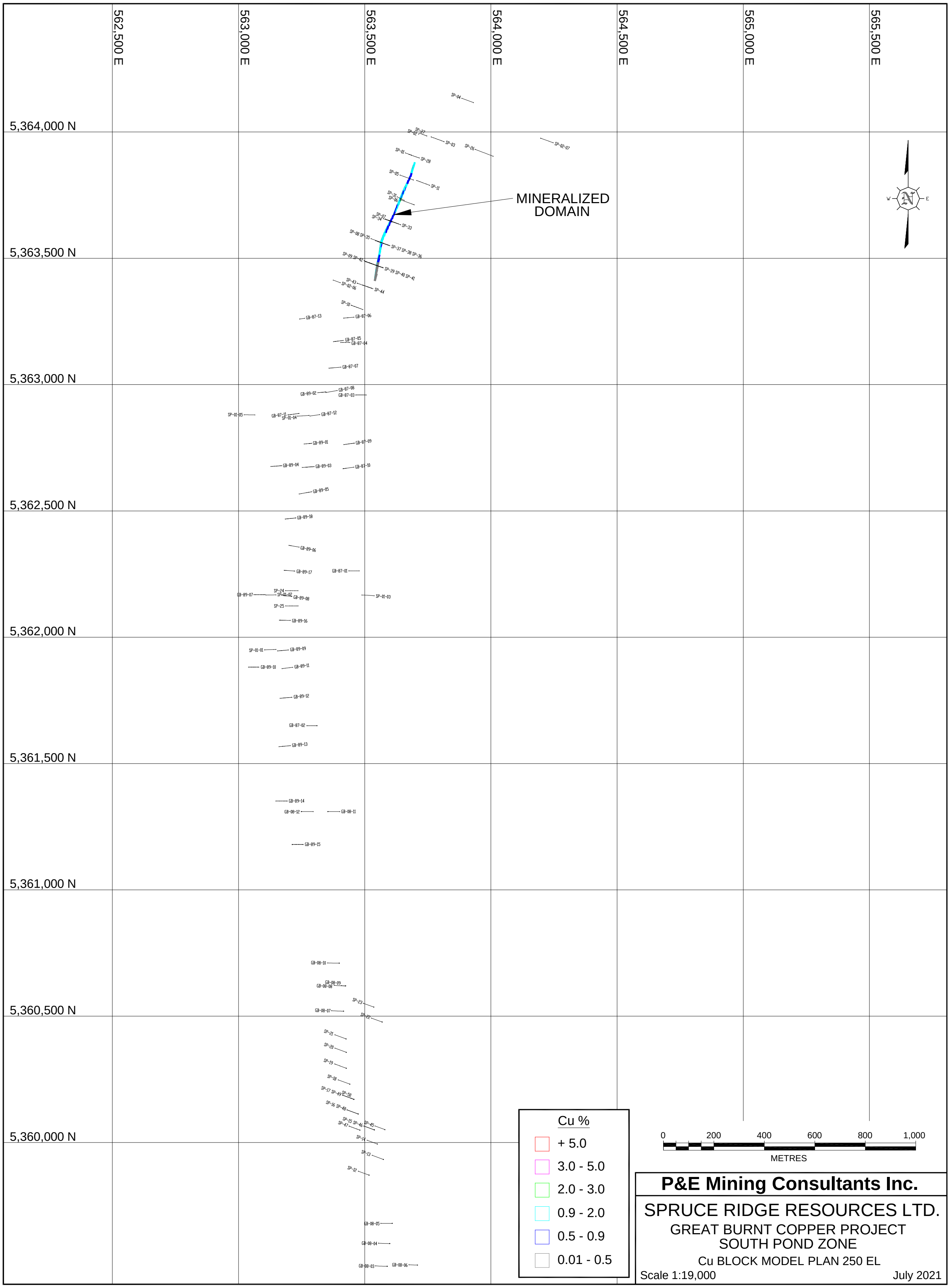
562,400 E
562,600 E
562,800 E
563,000 E
563,200 E
563,400 E
5,355,000 N
5,354,800 N
5,354,600 N
5,354,400 N
5,354,200 N
5,354,000 N
5,353,800 N
W
E
N
MINERALIZED DOMAINS PROJECTED TO PLAN
GB-MAIN
GB2
GBSTR1
GBSTR2
GBSTR3
GBSTR4
GBSTR5
Cu %
+ 5.0
3.0 - 5.0
2.0 - 3.0
0.9 - 2.0
0.5 - 0.9
0.01 - 0.5
0
100
200
300
METRES
P&E Mining Consultants Inc.
SPRUCE RIDGE RESOURCES LTD.
GREAT BURNT COPPER PROJECT
GREAT BURNT ZONE
Cu BLOCK MODEL PLAN 0 EL
Scale 1:7,000
July 2021


SECTION REFERENCE LINE
325 EL
300 EL
275 EL
250 EL
225 EL
200 EL
175 EL
SURFACE
MINERALIZED DOMAIN
SP-32
SP-33
SP-34
SP-07
Cu %
+ 5.0
3.0 - 5.0
2.0 - 3.0
0.9 - 2.0
0.5 - 0.9
0.01 - 0.5
0
10
20
30
40
50
METRES
P&E Mining Consultants Inc.
SPRUCE RIDGE RESOURCES LTD.
GREAT BURNT COPPER PROJECT
SOUTH POND ZONE
Cu BLOCK MODEL CROSS SECTION 9,900 NE
Scale 1:1,000
July 2021

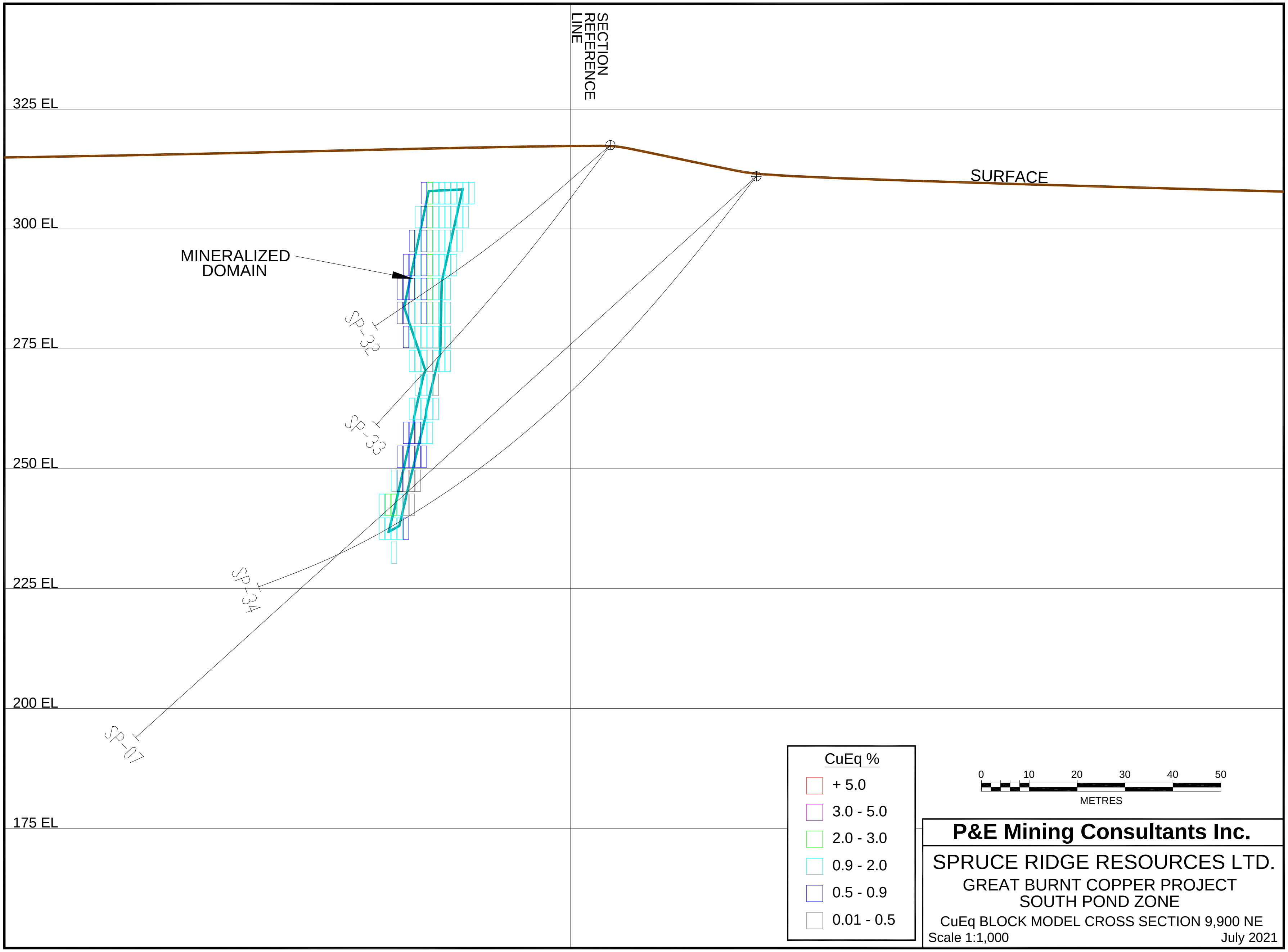


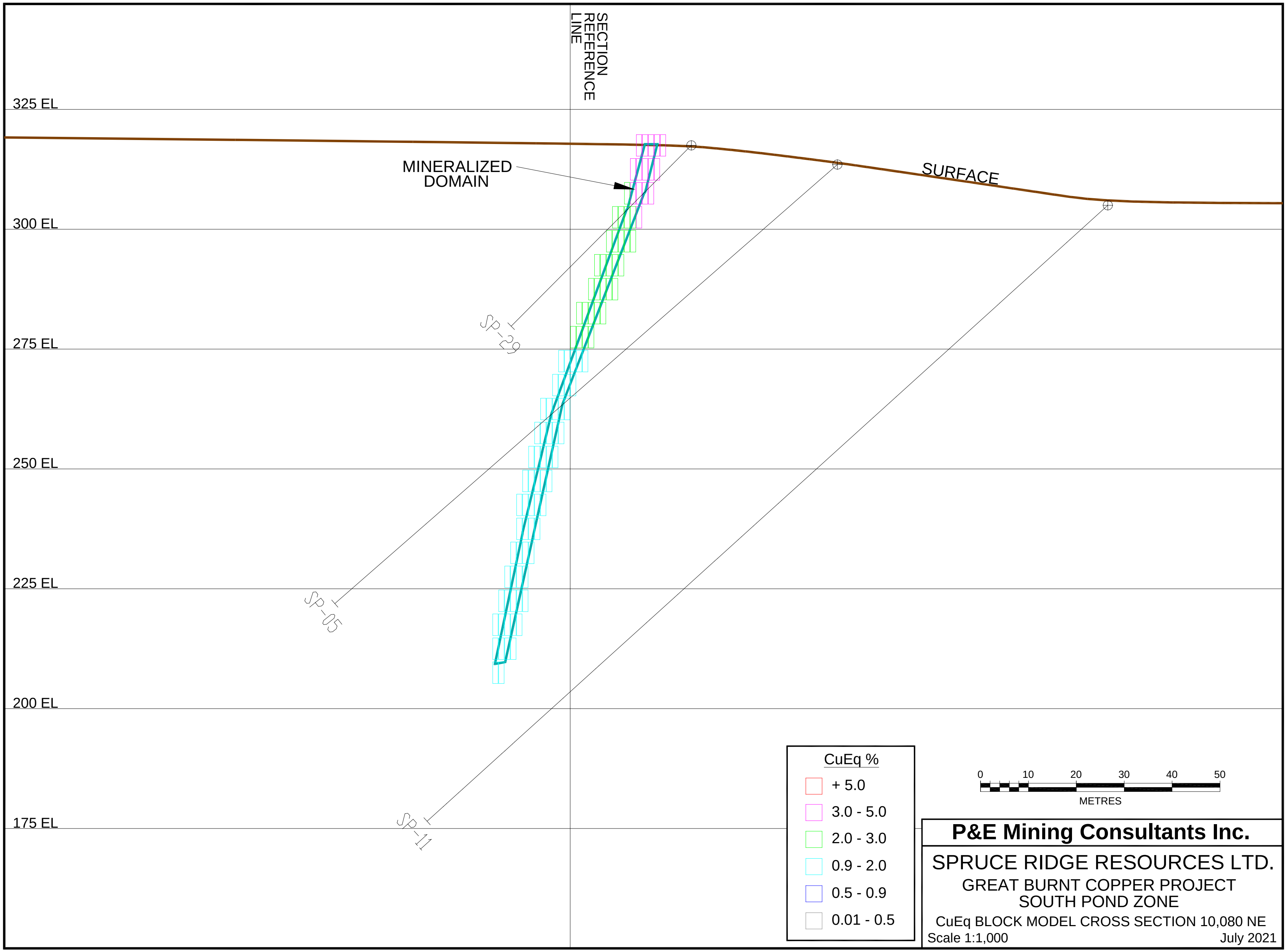
SECTION REFERENCE LINE
325 EL
300 EL
275 EL
250 EL
225 EL
200 EL
175 EL
MINERALIZED DOMAIN
SURFACE
SP-29
SP-05
SP-11
Cu %
+ 5.0
3.0 - 5.0
2.0 - 3.0
0.9 - 2.0
0.5 - 0.9
0.01 - 0.5
0
10
20
30
40
50
METRES
P&E Mining Consultants Inc.
SPRUCE RIDGE RESOURCES LTD.
GREAT BURNT COPPER PROJECT
SOUTH POND ZONE
Cu BLOCK MODEL CROSS SECTION 10,080 NE
Scale 1:1,000
July 2021

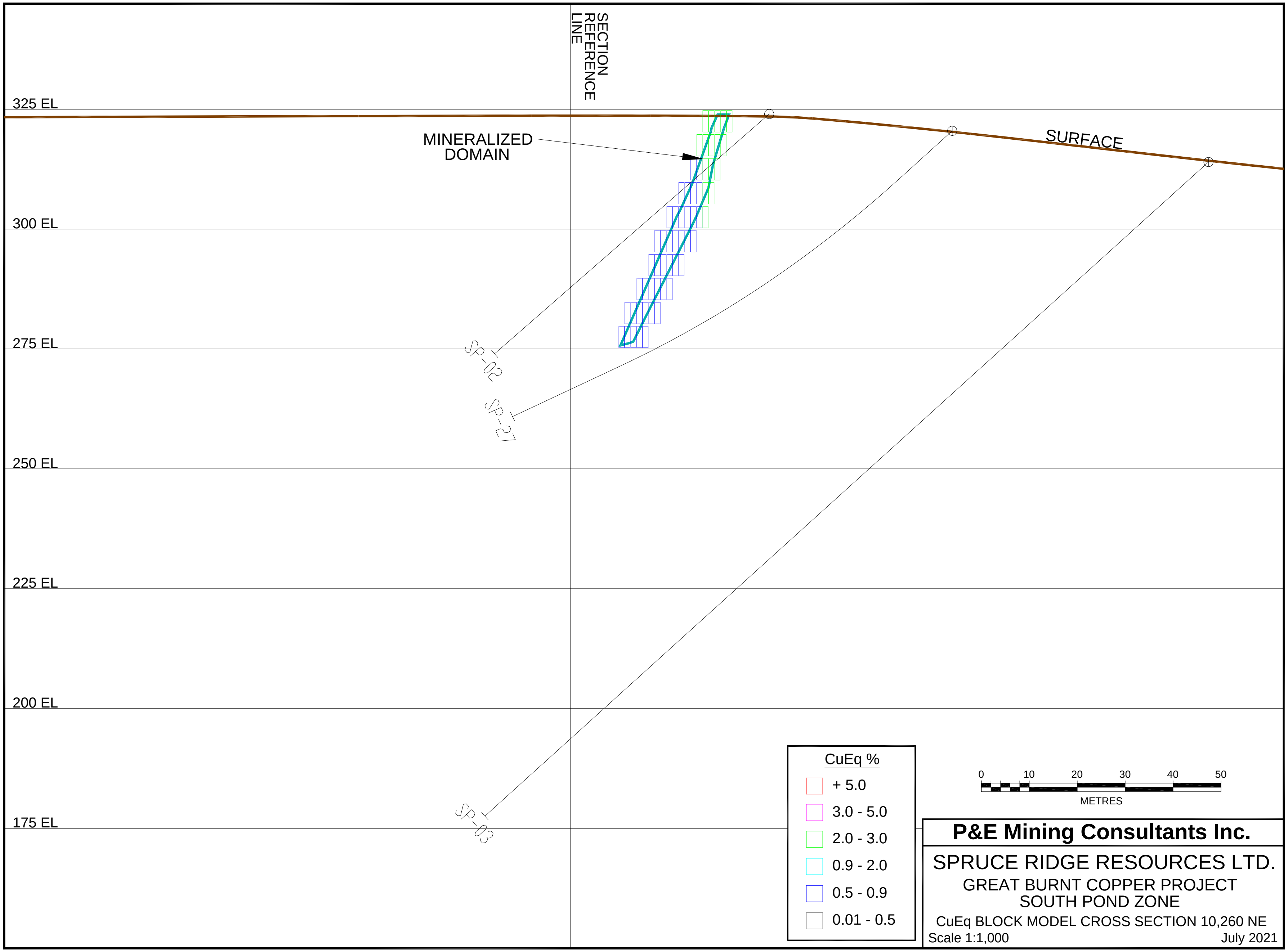

SECTION REFERENCE LINE
325 EL
300 EL
275 EL
250 EL
225 EL
200 EL
175 EL
MINERALIZED DOMAIN
SURFACE
SP-02
SP-27
SP-03
Cu %
+ 5.0
3.0 - 5.0
2.0 - 3.0
0.9 - 2.0
0.5 - 0.9
0.01 - 0.5
0
10
20
30
40
50
METRES
P&E Mining Consultants Inc.
SPRUCE RIDGE RESOURCES LTD.
GREAT BURNT COPPER PROJECT
SOUTH POND ZONE
Cu BLOCK MODEL CROSS SECTION 10,260 NE
Scale 1:1,000
July 2021

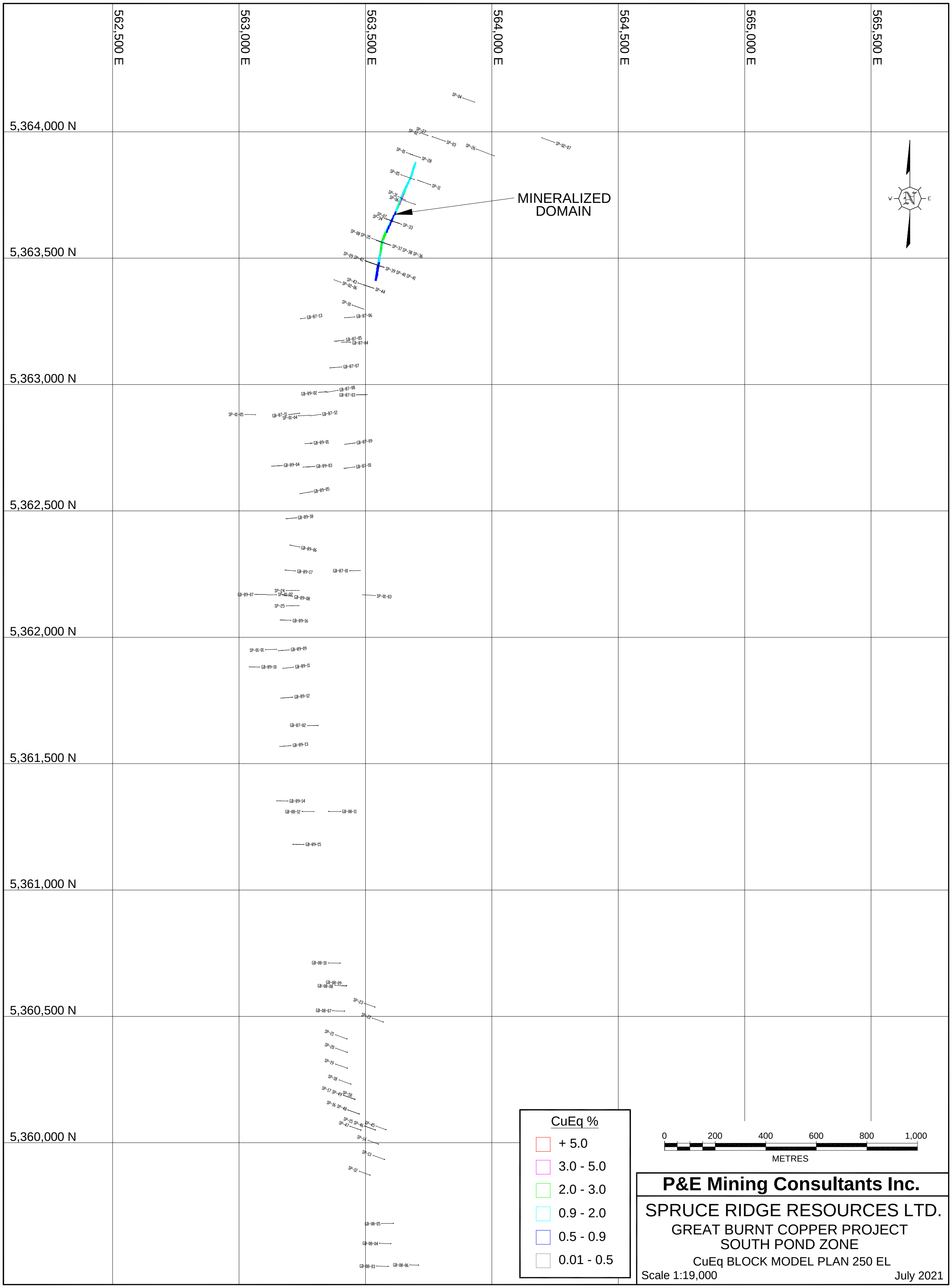

562,500 E
563,000 E
563,500 E
564,000 E
564,500 E
565,000 E
565,500 E
5,364,000 N
5,363,500 N
5,363,000 N
5,362,500 N
5,362,000 N
5,361,500 N
5,361,000 N
5,360,500 N
5,360,000 N
MINERALIZED DOMAIN
Cu %
+ 5.0
3.0 - 5.0
2.0 - 3.0
0.9 - 2.0
0.5 - 0.9
0.01 - 0.5
0
200
400
600
800
1,000
METRES
P&E Mining Consultants Inc.
SPRUCE RIDGE RESOURCES LTD.
GREAT BURNT COPPER PROJECT
SOUTH POND ZONE
Cu BLOCK MODEL PLAN 250 EL
Scale 1:19,000
July 2021

APPENDIX F CUEQ BLOCK MODEL CROSS SECTIONS AND PLANS

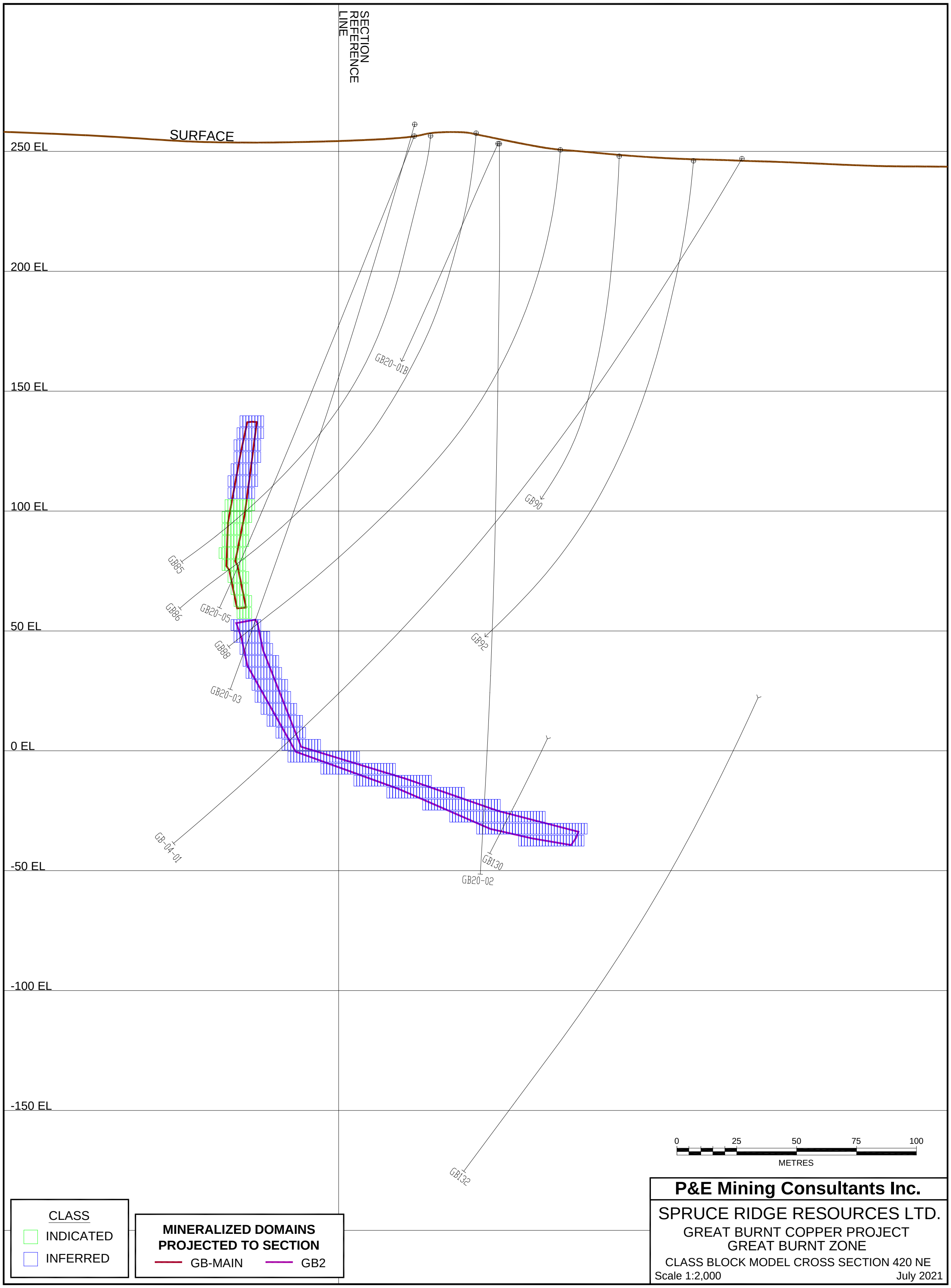

SECTION REFERENCE LINE
325 EL
300 EL
275 EL
250 EL
225 EL
200 EL
175 EL
SURFACE
MINERALIZED DOMAIN
SP-32
SP-33
SP-34
SP-07
CuEq %
+ 5.0
3.0 - 5.0
2.0 - 3.0
0.9 - 2.0
0.5 - 0.9
0.01 - 0.5
0
10
20
30
40
50
METRES
P&E Mining Consultants Inc.
SPRUCE RIDGE RESOURCES LTD.
GREAT BURNT COPPER PROJECT
SOUTH POND ZONE
CuEq BLOCK MODEL CROSS SECTION 9,900 NE
Scale 1:1,000
July 2021

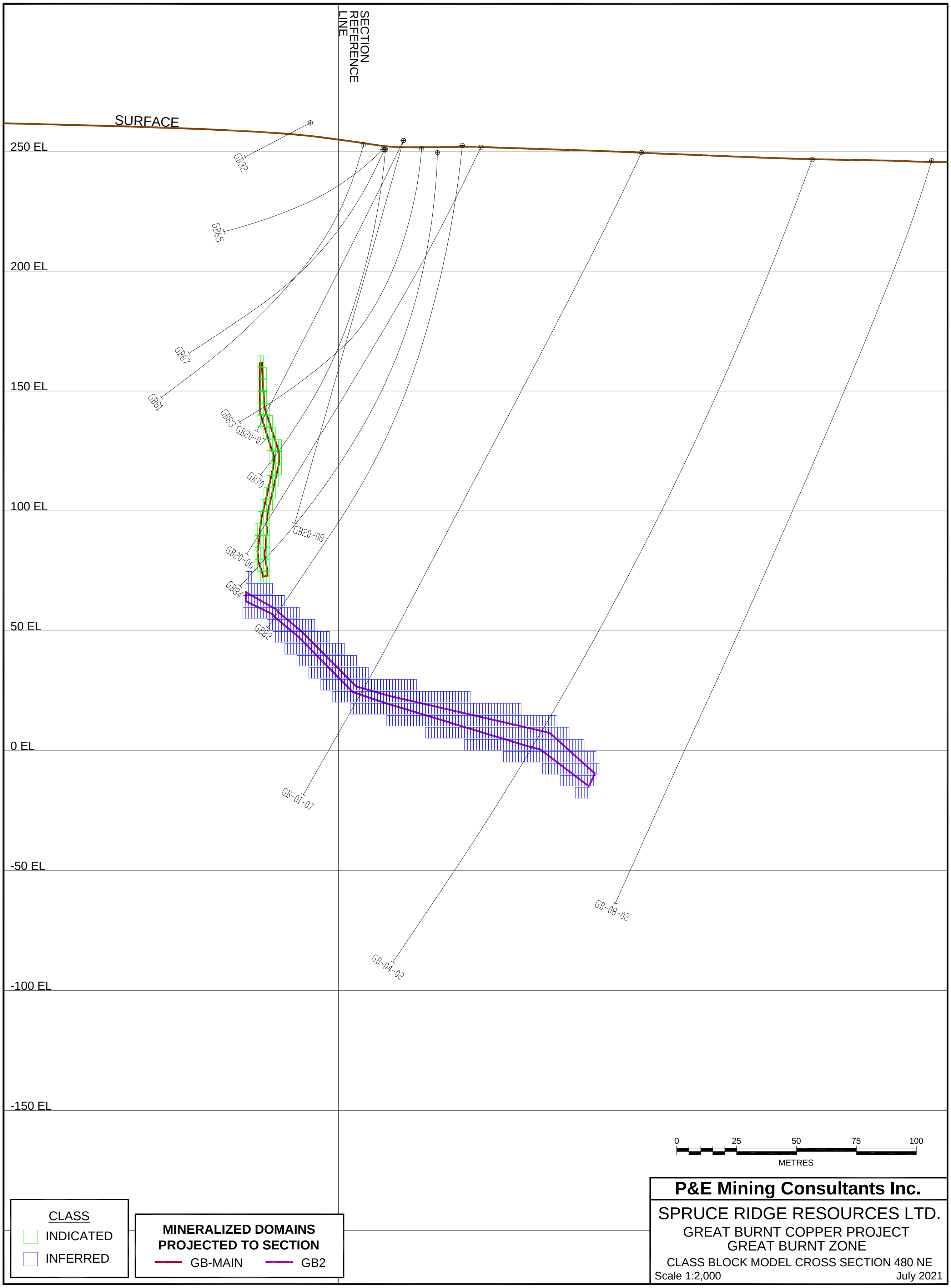

SECTION
REFERENCE
LINE
325 EL
300 EL
275 EL
250 EL
225 EL
200 EL
175 EL
MINERALIZED
DOMAIN
SURFACE
SP-29
SP-05
SP-11
CuEq %
+ 5.0
3.0 - 5.0
2.0 - 3.0
0.9 - 2.0
0.5 - 0.9
0.01 - 0.5
0
10
20
30
40
50
METRES
P&E Mining Consultants Inc.
SPRUCE RIDGE RESOURCES LTD.
GREAT BURNT COPPER PROJECT
SOUTH POND ZONE
CuEq BLOCK MODEL CROSS SECTION 10,080 NE
Scale 1:1,000
July 2021

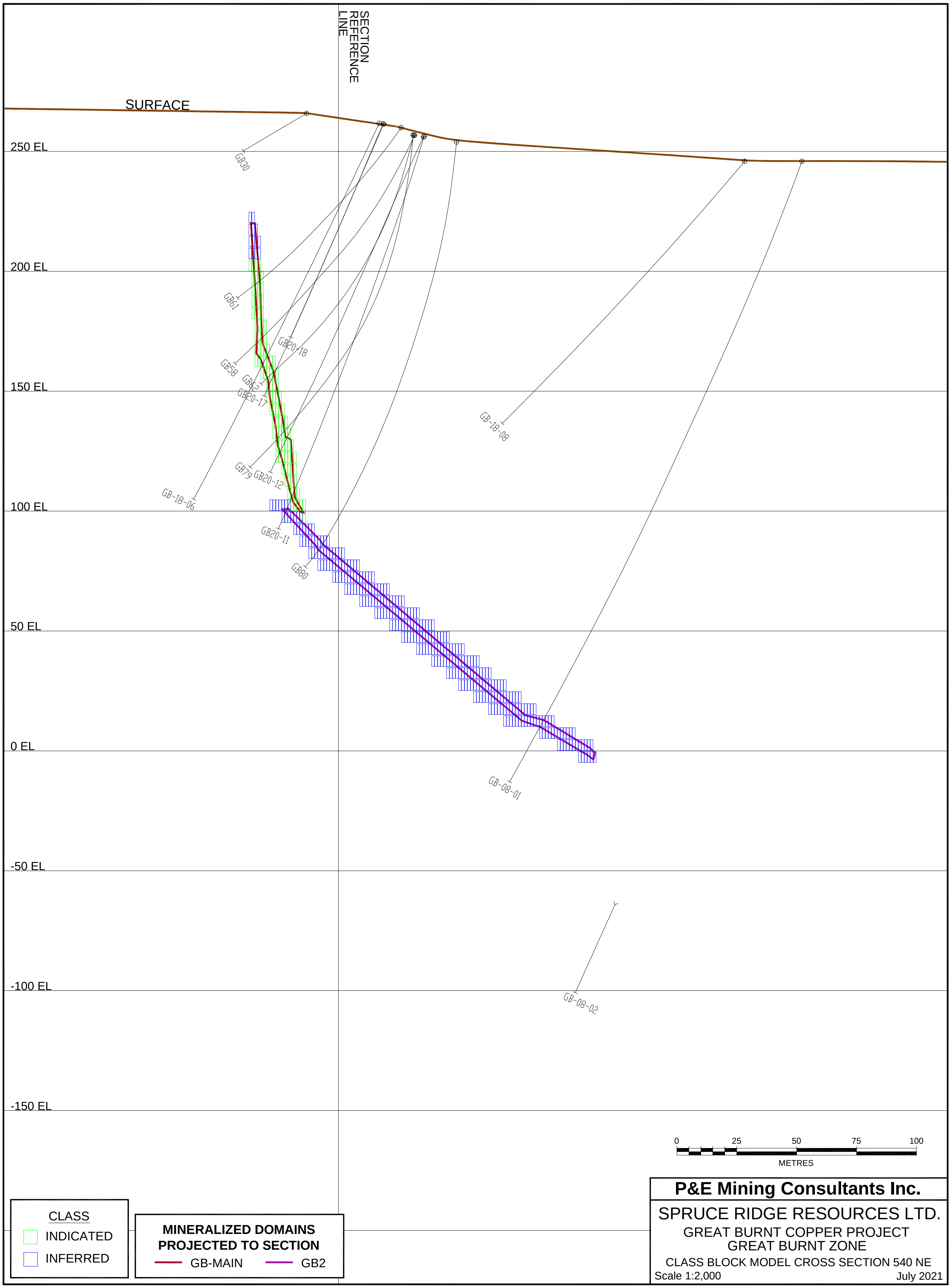

SECTION REFERENCE LINE
325 EL
300 EL
275 EL
250 EL
225 EL
200 EL
175 EL
MINERALIZED DOMAIN
SURFACE
SP-02
SP-27
SP-03
CuEq %
+ 5.0
3.0 - 5.0
2.0 - 3.0
0.9 - 2.0
0.5 - 0.9
0.01 - 0.5
0
10
20
30
40
50
METRES
P&E Mining Consultants Inc.
SPRUCE RIDGE RESOURCES LTD.
GREAT BURNT COPPER PROJECT
SOUTH POND ZONE
CuEq BLOCK MODEL CROSS SECTION 10,260 NE
Scale 1:1,000
July 2021

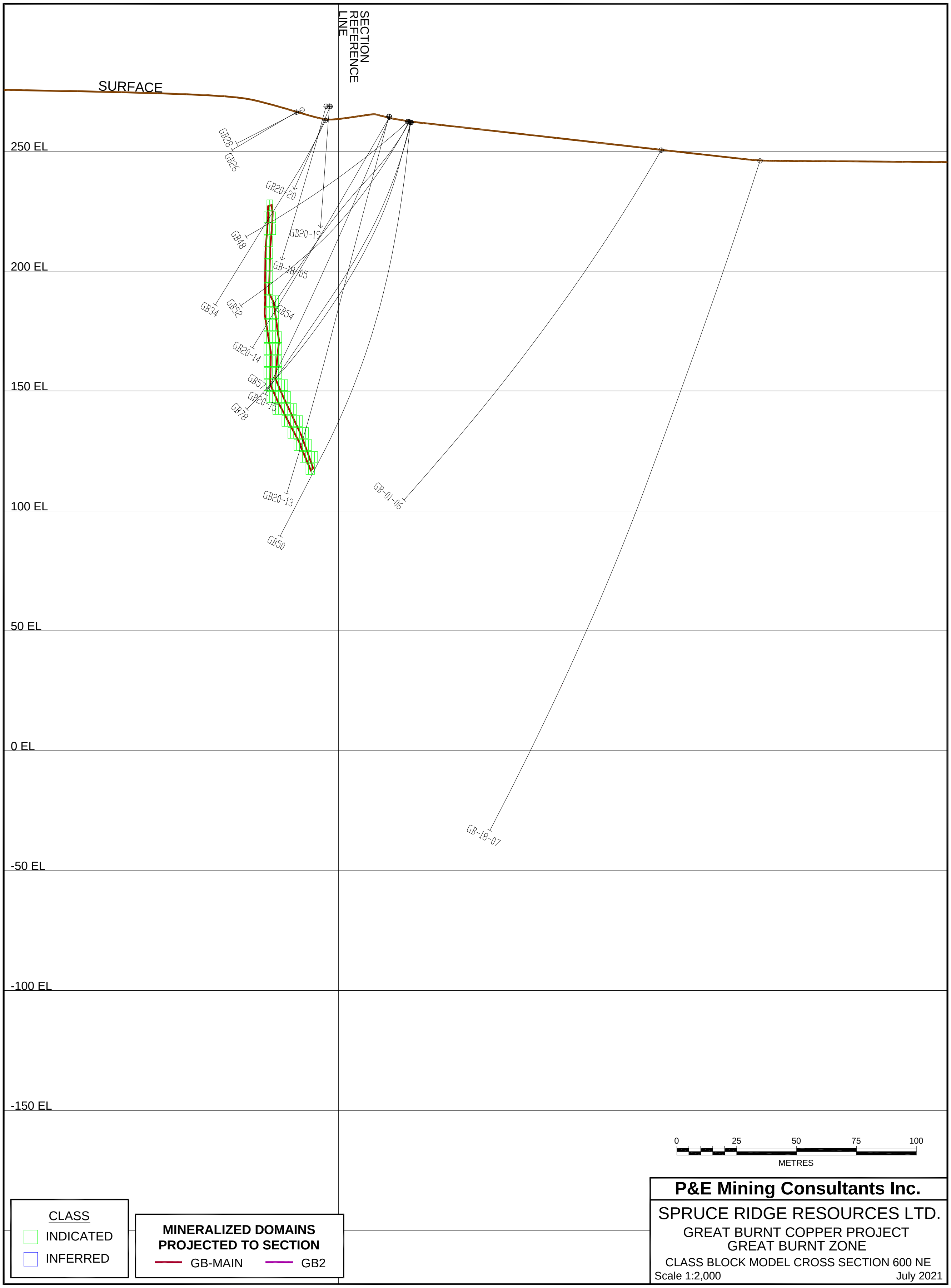

562,500 E
563,000 E
563,500 E
564,000 E
564,500 E
565,000 E
565,500 E
5,364,000 N
5,363,500 N
5,363,000 N
5,362,500 N
5,362,000 N
5,361,500 N
5,361,000 N
5,360,500 N
5,360,000 N
MINERALIZED DOMAIN
CuEq %
+ 5.0
3.0 - 5.0
2.0 - 3.0
0.9 - 2.0
0.5 - 0.9
0.01 - 0.5
0
200
400
600
800
1,000
METRES
P&E Mining Consultants Inc.
SPRUCE RIDGE RESOURCES LTD.
GREAT BURNT COPPER PROJECT
SOUTH POND ZONE
CuEq BLOCK MODEL PLAN 250 EL
Scale 1:19,000
July 2021

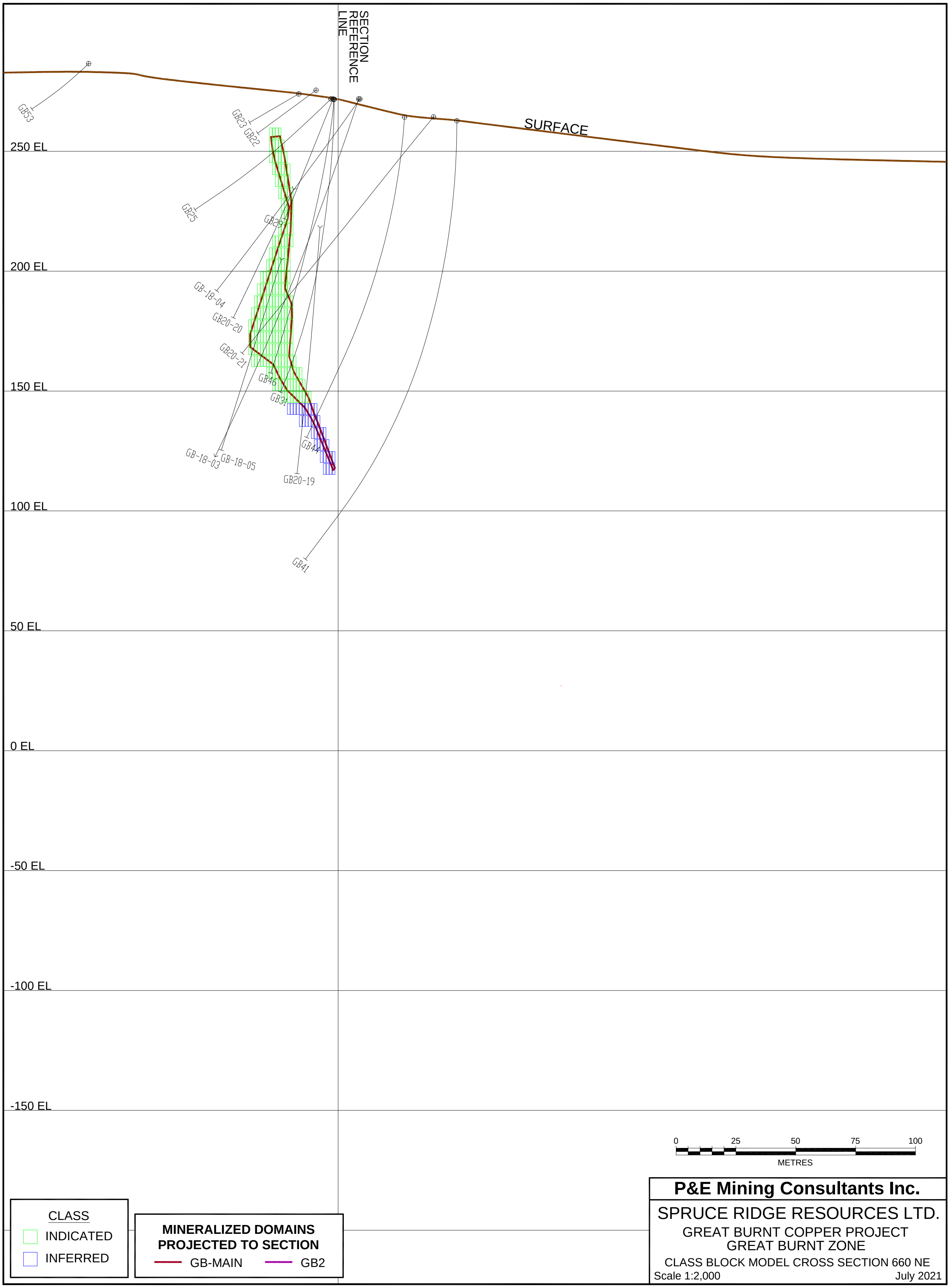
APPENDIX G CLASSIFICATION BLOCK MODEL CROSS SECTIONS AND PLANS

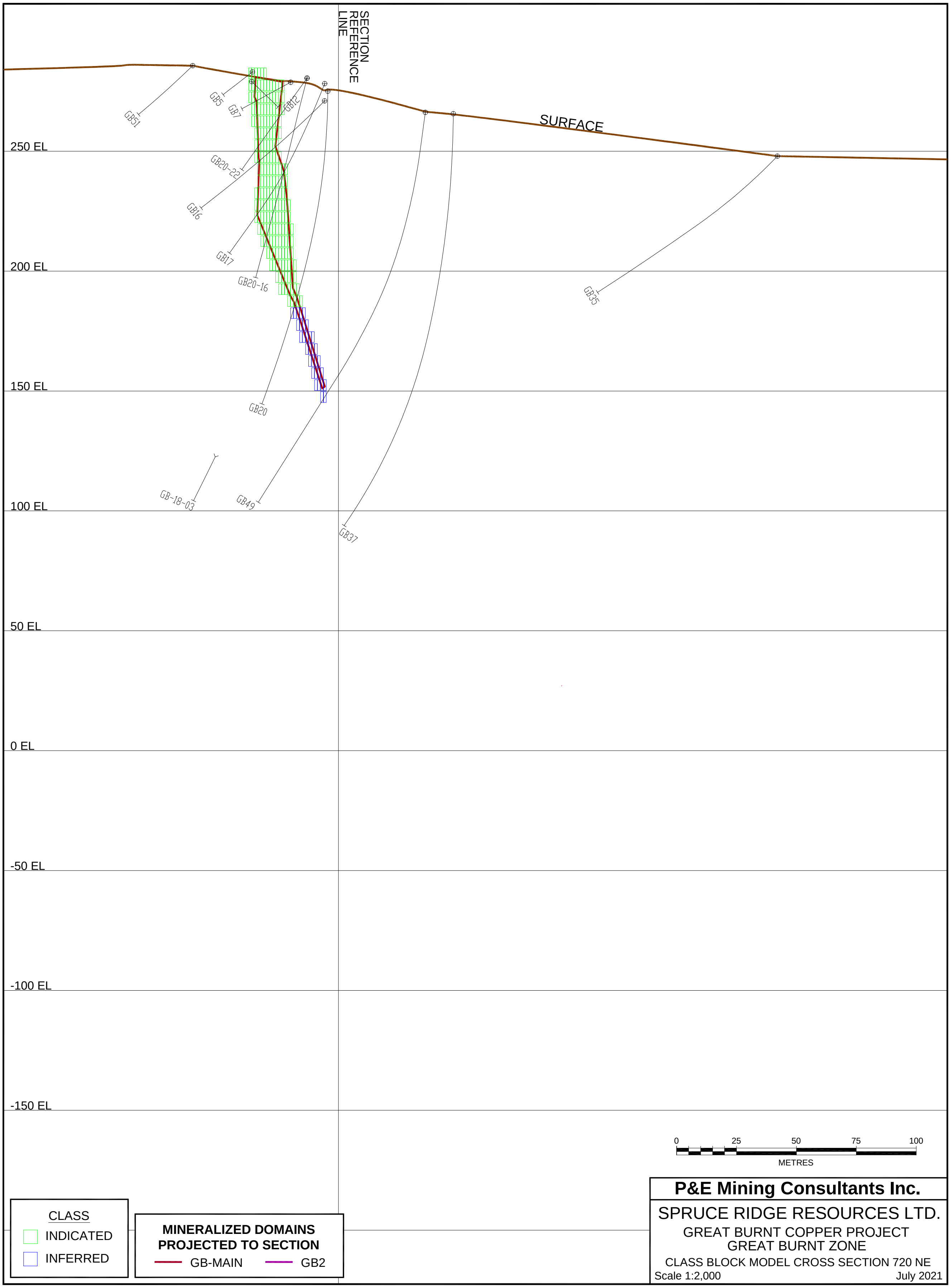

SECTION REFERENCE LINE
SURFACE
250 EL
200 EL
150 EL
100 EL
50 EL
0 EL
-50 EL
-100 EL
-150 EL
GB20-01B
GB90
GB85
GB86
GB20-05
GB88
GB92
GB20-03
GB-04-01
GB130
GB20-02
GB132
0 25 50 75 100
METRES
CLASS
INDICATED
INFERRED
MINERALIZED DOMAINS PROJECTED TO SECTION
GB-MAIN
GB2
P&E Mining Consultants Inc.
SPRUCE RIDGE RESOURCES LTD.
GREAT BURNT COPPER PROJECT
GREAT BURNT ZONE
CLASS BLOCK MODEL CROSS SECTION 420 NE
Scale 1:2,000
July 2021

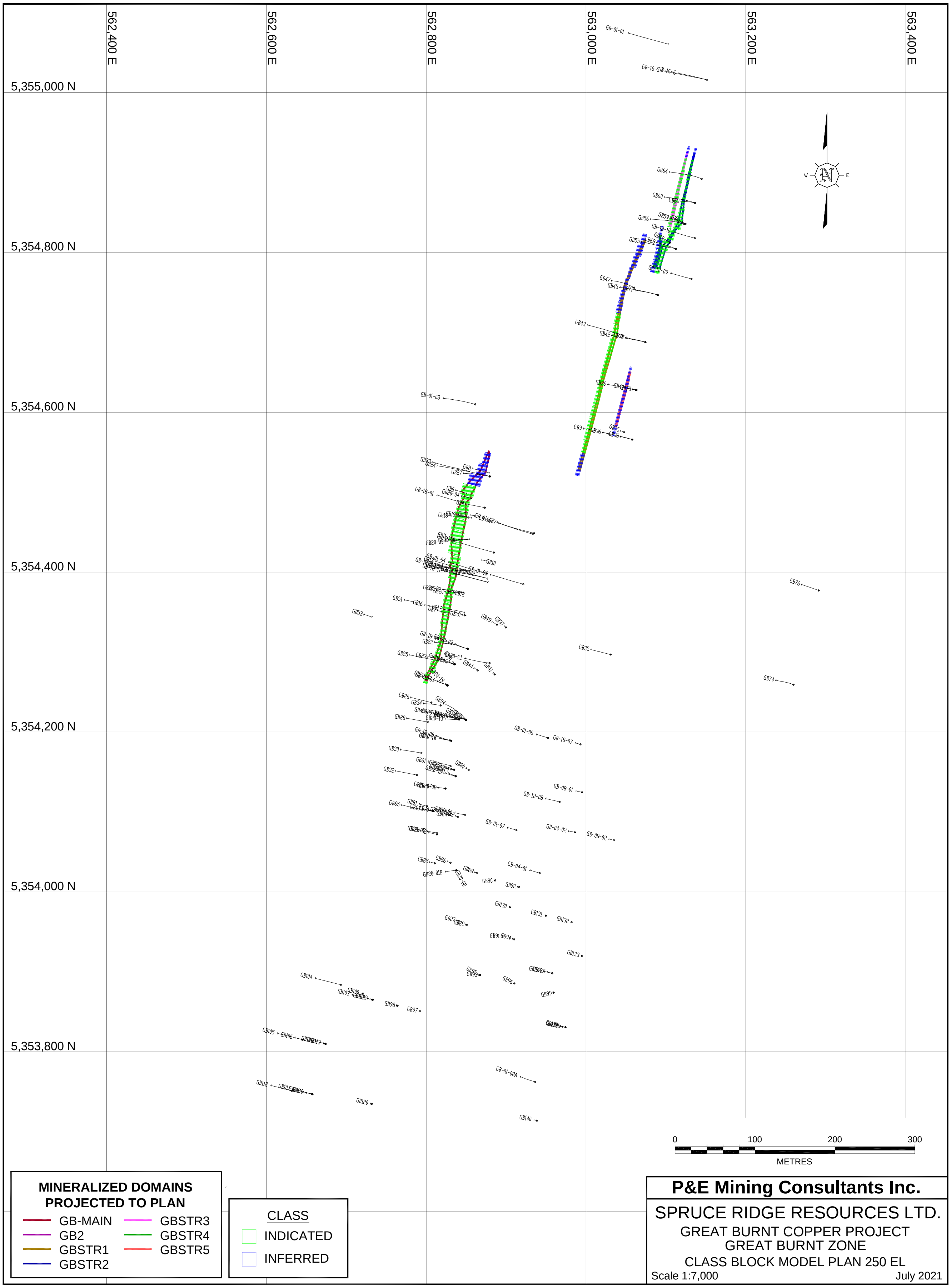

SECTION REFERENCE LINE
SURFACE
250 EL
200 EL
150 EL
100 EL
50 EL
0 EL
-50 EL
-100 EL
-150 EL
GB32
GB65
GB67
GB81
GB83
GB20-07
GB70
GB20-08
GB20-06
GB84
GB82
GB-01-07
GB-08-02
GB-04-02
0
25
50
75
100
METRES
CLASS
INDICATED
INFERRED
MINERALIZED DOMAINS PROJECTED TO SECTION
GB-MAIN
GB2
P&E Mining Consultants Inc.
SPRUCE RIDGE RESOURCES LTD.
GREAT BURNT COPPER PROJECT
GREAT BURNT ZONE
CLASS BLOCK MODEL CROSS SECTION 480 NE
Scale 1:2,000
July 2021


SECTION REFERENCE LINE
SURFACE
250 EL
200 EL
150 EL
100 EL
50 EL
0 EL
-50 EL
-100 EL
-150 EL
GB30
GB61
GB20-18
GB58
GB62
GB20-17
GB-18-08
GB79
GB20-12
GB-18-06
GB20-11
GB80
GB-08-01
GB-08-02
0
25
50
75
100
METRES
CLASS
INDICATED
INFERRED
MINERALIZED DOMAINS
PROJECTED TO SECTION
GB-MAIN
GB2
P&E Mining Consultants Inc.
SPRUCE RIDGE RESOURCES LTD.
GREAT BURNT COPPER PROJECT
GREAT BURNT ZONE
CLASS BLOCK MODEL CROSS SECTION 540 NE
Scale 1:2,000
July 2021

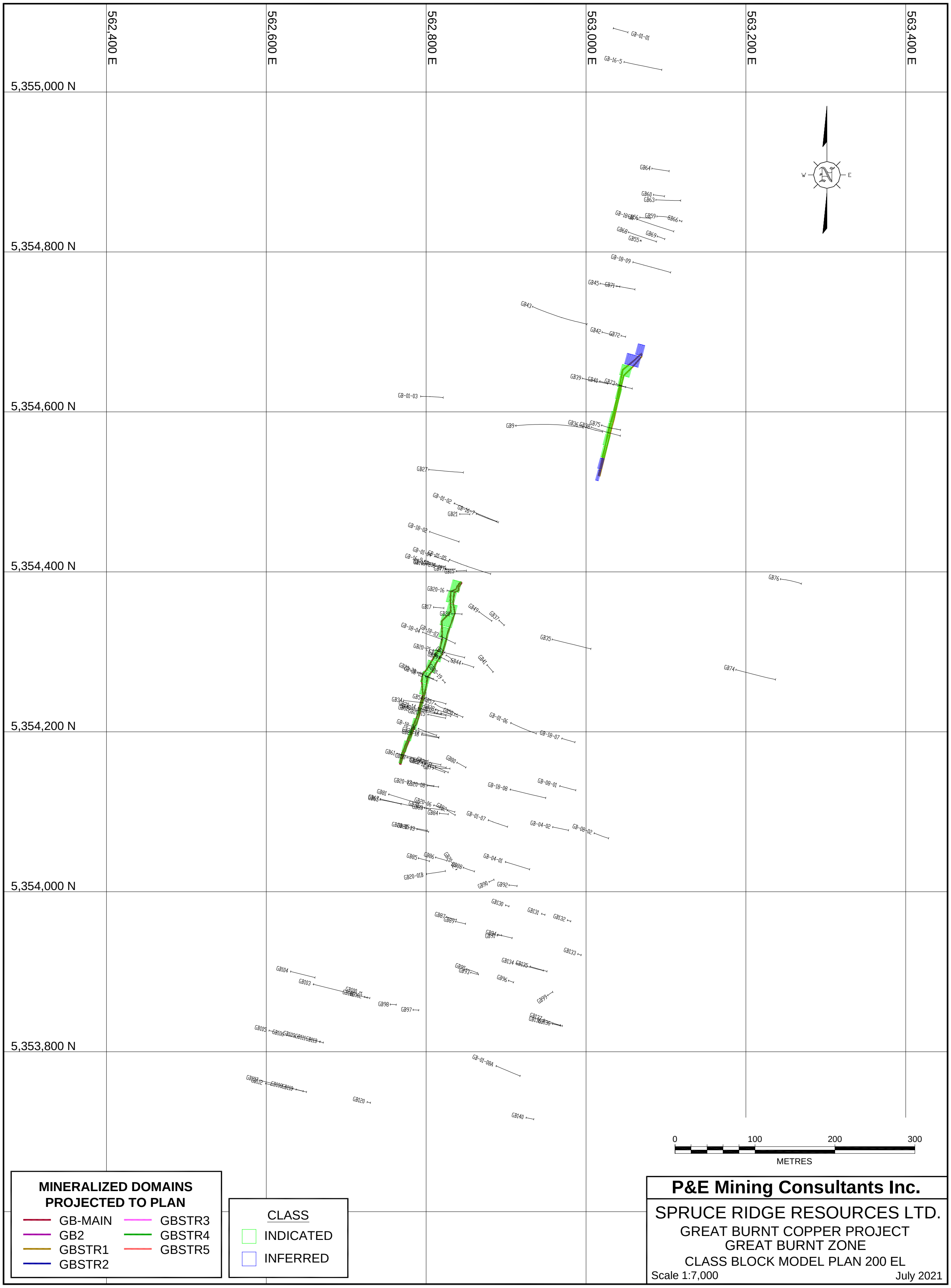

SECTION REFERENCE LINE
SURFACE
250 EL
200 EL
150 EL
100 EL
50 EL
0 EL
-50 EL
-100 EL
-150 EL
GB28
GB26
GB20-20
GB20-19
GB48
GB-18-05
GB34
GB52
GB54
GB20-14
GB57
GB20-15
GB78
GB20-13
GB50
GB-01-06
GB-18-07
0
25
50
75
100
METRES
CLASS
INDICATED
INFERRED
MINERALIZED DOMAINS PROJECTED TO SECTION
GB-MAIN
GB2
P&E Mining Consultants Inc.
SPRUCE RIDGE RESOURCES LTD.
GREAT BURNT COPPER PROJECT
GREAT BURNT ZONE
CLASS BLOCK MODEL CROSS SECTION 600 NE
Scale 1:2,000
July 2021


SECTION REFERENCE LINE
SURFACE
250 EL
200 EL
150 EL
100 EL
50 EL
0 EL
-50 EL
-100 EL
-150 EL
GB53
GB23
GB22
GB25
GB25
GB-18-04
GB20-20
GB20-21
GB46
GB31
GB44
GB-18-03
GB-18-05
GB20-19
GB41
0
25
50
75
100
METRES
CLASS
INDICATED
INFERRED
MINERALIZED DOMAINS PROJECTED TO SECTION
GB-MAIN
GB2
P&E Mining Consultants Inc.
SPRUCE RIDGE RESOURCES LTD.
GREAT BURNT COPPER PROJECT
GREAT BURNT ZONE
CLASS BLOCK MODEL CROSS SECTION 660 NE
Scale 1:2,000
July 2021


SECTION REFERENCE LINE
SURFACE
250 EL
200 EL
150 EL
100 EL
50 EL
0 EL
-50 EL
-100 EL
-150 EL
GB51
GB5
GB7
GB12
GB20-22
GB16
GB17
GB20-16
GB20
GB-18-03
GB49
GB37
GB35
0
25
50
75
100
METRES
CLASS
INDICATED
INFERRED
MINERALIZED DOMAINS
PROJECTED TO SECTION
GB-MAIN
GB2
P&E Mining Consultants Inc.
SPRUCE RIDGE RESOURCES LTD.
GREAT BURNT COPPER PROJECT
GREAT BURNT ZONE
CLASS BLOCK MODEL CROSS SECTION 720 NE
Scale 1:2,000
July 2021



562,400 E
562,600 E
562,800 E
563,000 E
563,200 E
563,400 E
5,355,000 N
5,354,800 N
5,354,600 N
5,354,400 N
5,354,200 N
5,354,000 N
5,353,800 N
0
100
200
300
METRES
MINERALIZED DOMAINS PROJECTED TO PLAN
GB-MAIN
GB2
GBSTR1
GBSTR2
GBSTR3
GBSTR4
GBSTR5
CLASS
INDICATED
INFERRED
P&E Mining Consultants Inc.
SPRUCE RIDGE RESOURCES LTD.
GREAT BURNT COPPER PROJECT
GREAT BURNT ZONE
CLASS BLOCK MODEL PLAN 250 EL
Scale 1:7,000
July 2021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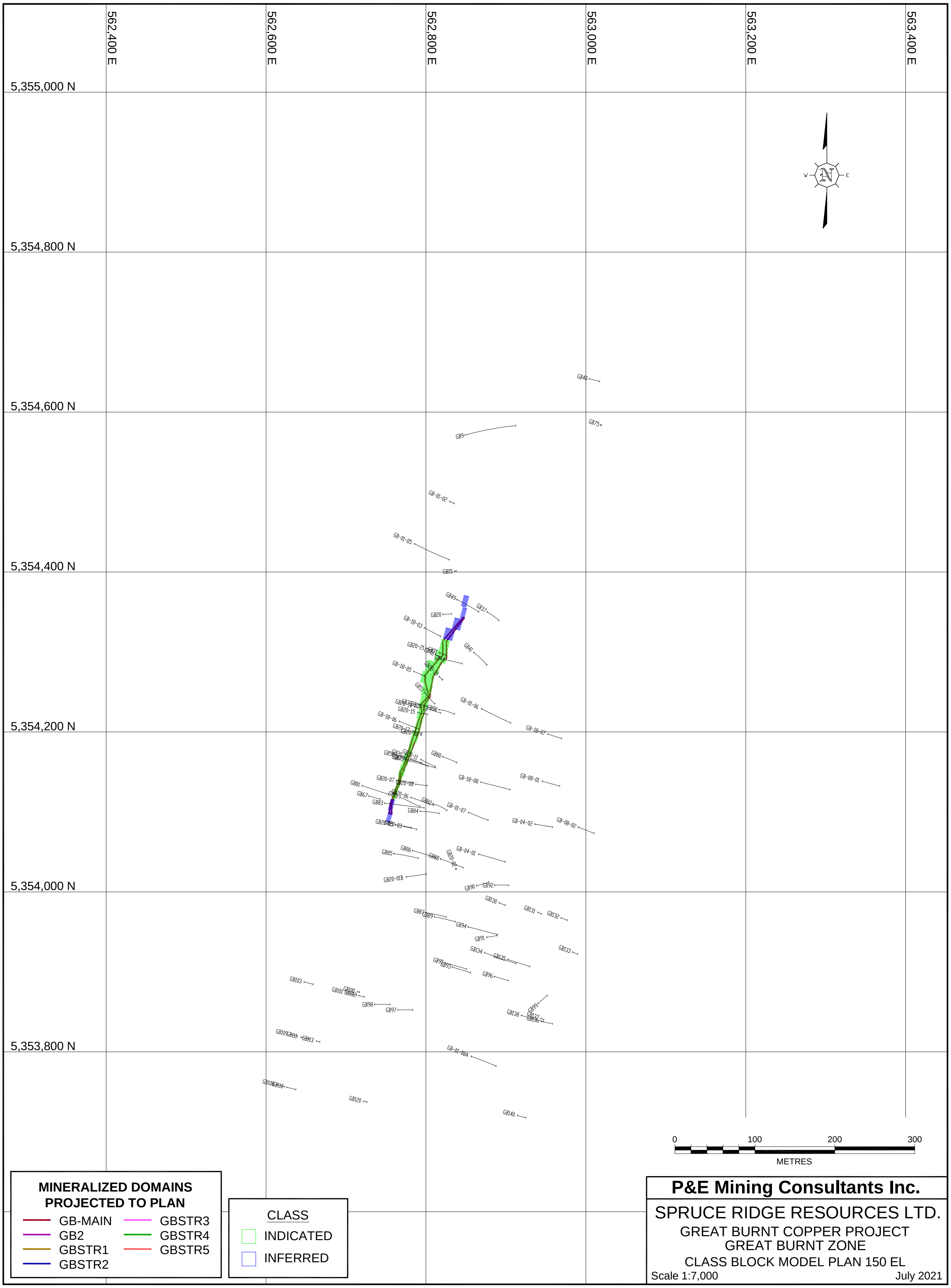
562,800 E
563,000 E
563,200 E
563,400 E
5,355,000 N
5,354,800 N
5,354,600 N
5,354,400 N
5,354,200 N
5,354,000 N
5,353,800 N
0
100
200
300
METRES
MINERALIZED DOMAINS PROJECTED TO PLAN
GB-MAIN
GB2
GBSTR1
GBSTR2
GBSTR3
GBSTR4
GBSTR5
CLASS
INDICATED
INFERRED
P&E Mining Consultants Inc.
SPRUCE RIDGE RESOURCES LTD.
GREAT BURNT COPPER PROJECT
GREAT BURNT ZONE
CLASS BLOCK MODEL PLAN 200 EL
Scale 1:7,000
July 2021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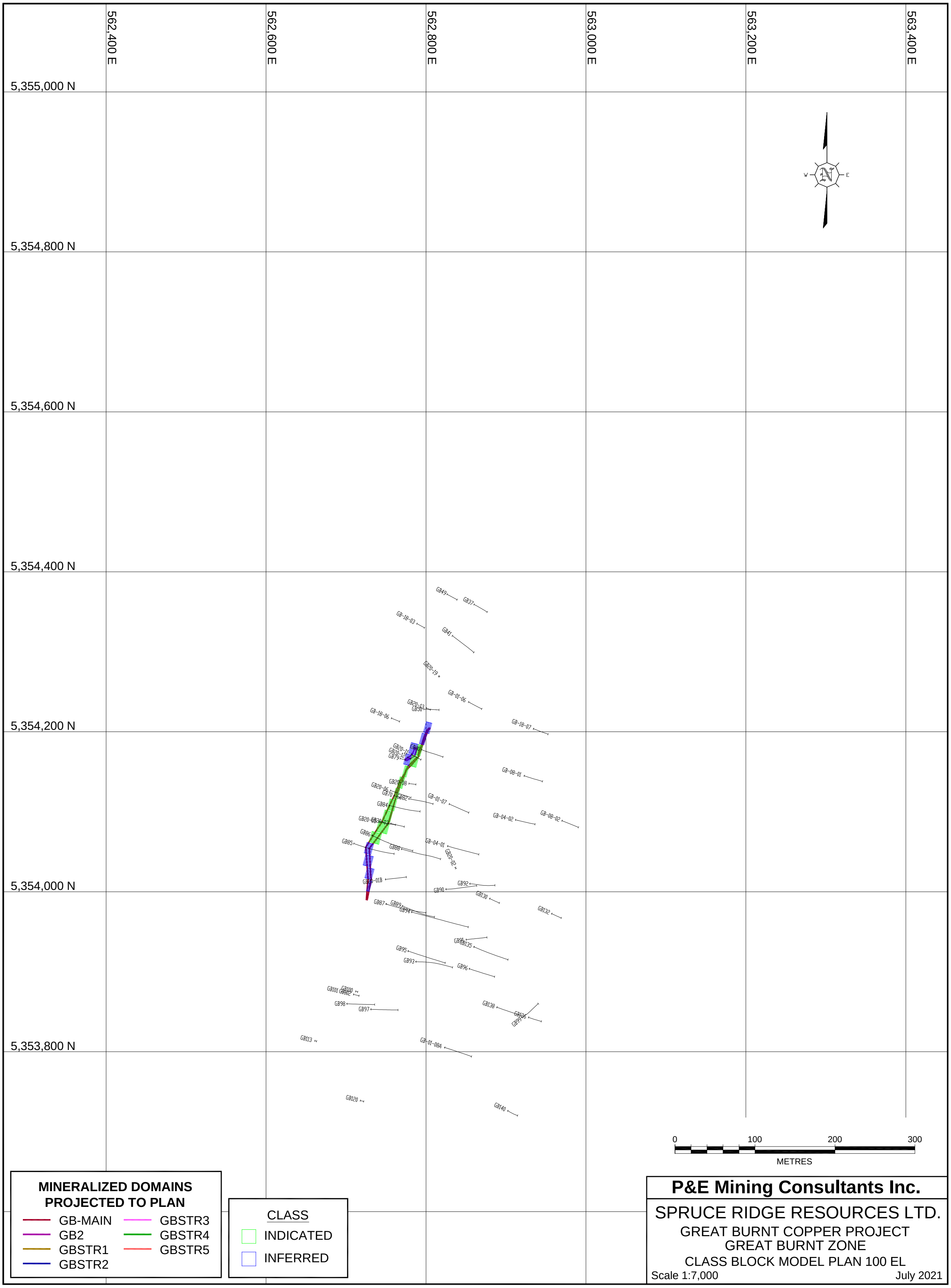
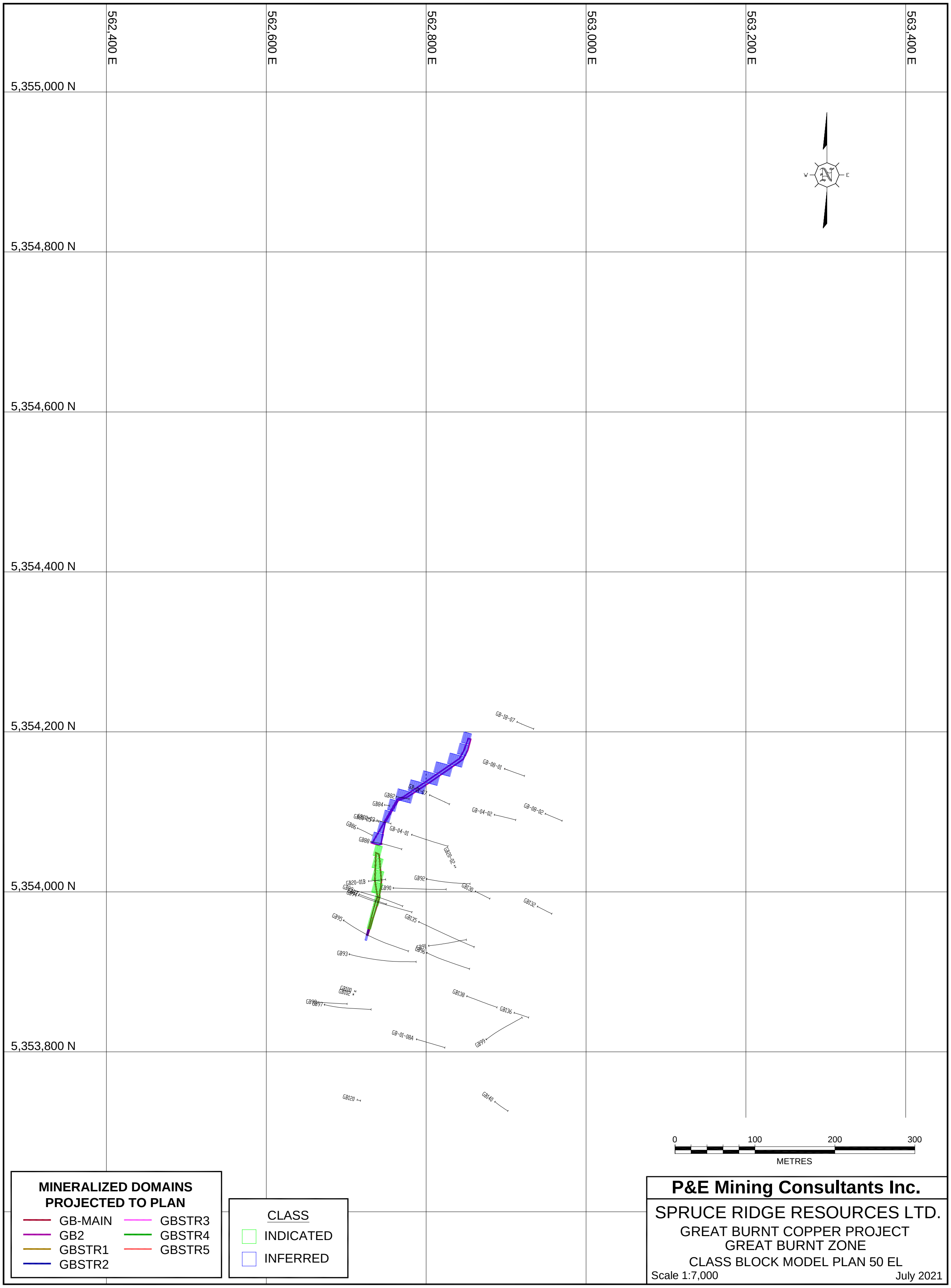
562,800 E
563,000 E
563,200 E
563,400 E
5,355,000 N
5,354,800 N
5,354,600 N
5,354,400 N
5,354,200 N
5,354,000 N
5,353,800 N
N
W
E
0
100
200
300
METRES
MINERALIZED DOMAINS PROJECTED TO PLAN
GB-MAIN
GB2
GBSTR1
GBSTR2
GBSTR3
GBSTR4
GBSTR5
CLASS
INDICATED
INFERRED
P&E Mining Consultants Inc.
SPRUCE RIDGE RESOURCES LTD.
GREAT BURNT COPPER PROJECT
GREAT BURNT ZONE
CLASS BLOCK MODEL PLAN 150 EL
Scale 1:7,000
July 2021



562,400 E
562,600 E
562,800 E
563,000 E
563,200 E
563,400 E
5,355,000 N
5,354,800 N
5,354,600 N
5,354,400 N
5,354,200 N
5,354,000 N
5,353,800 N
0
100
200
300
METRES
MINERALIZED DOMAINS PROJECTED TO PLAN
GB-MAIN
GB2
GBSTR1
GBSTR2
GBSTR3
GBSTR4
GBSTR5
CLASS
INDICATED
INFERRED
P&E Mining Consultants Inc.
SPRUCE RIDGE RESOURCES LTD.
GREAT BURNT COPPER PROJECT
GREAT BURNT ZONE
CLASS BLOCK MODEL PLAN 100 EL
Scale 1:7,000
July 2021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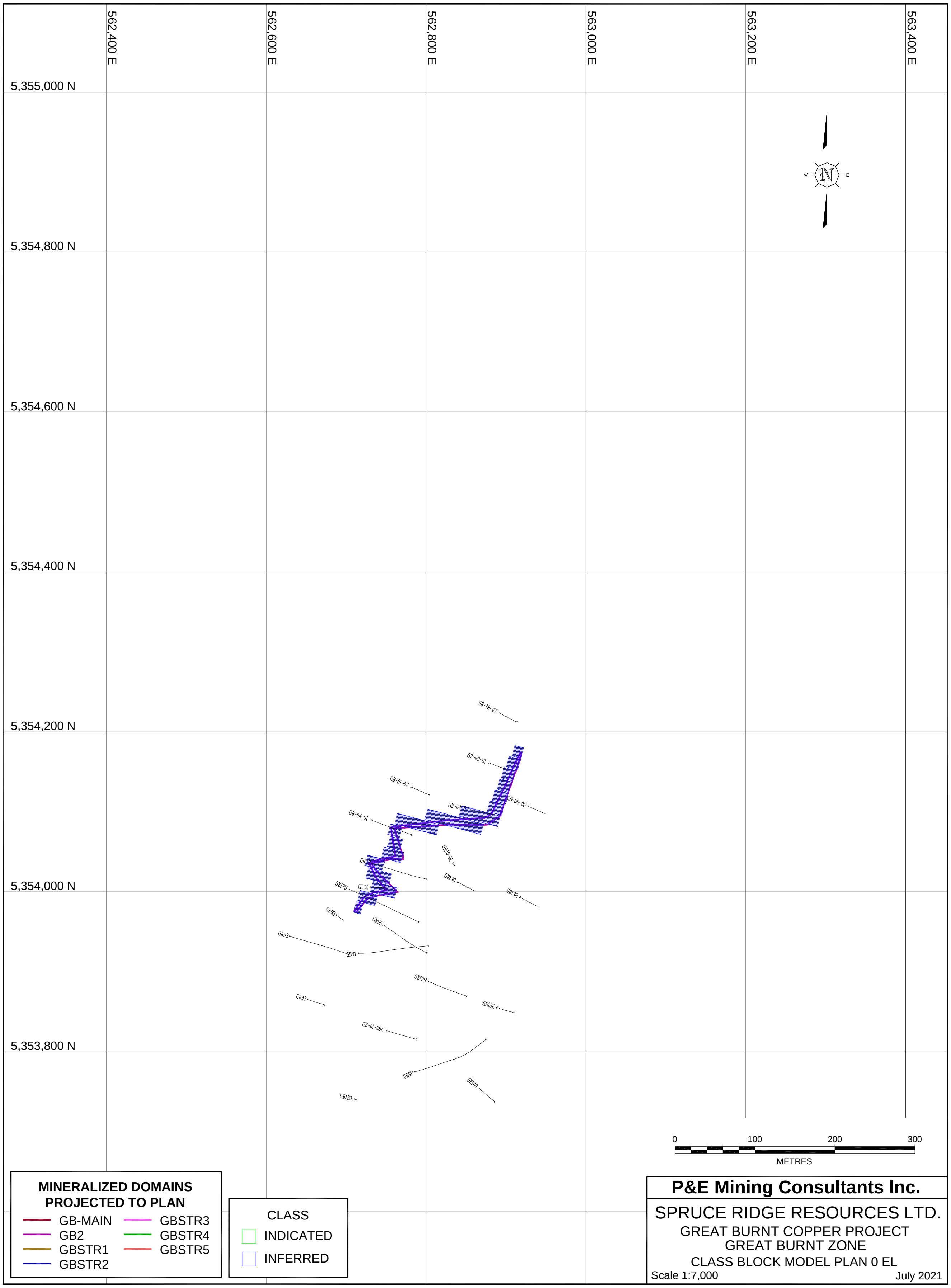
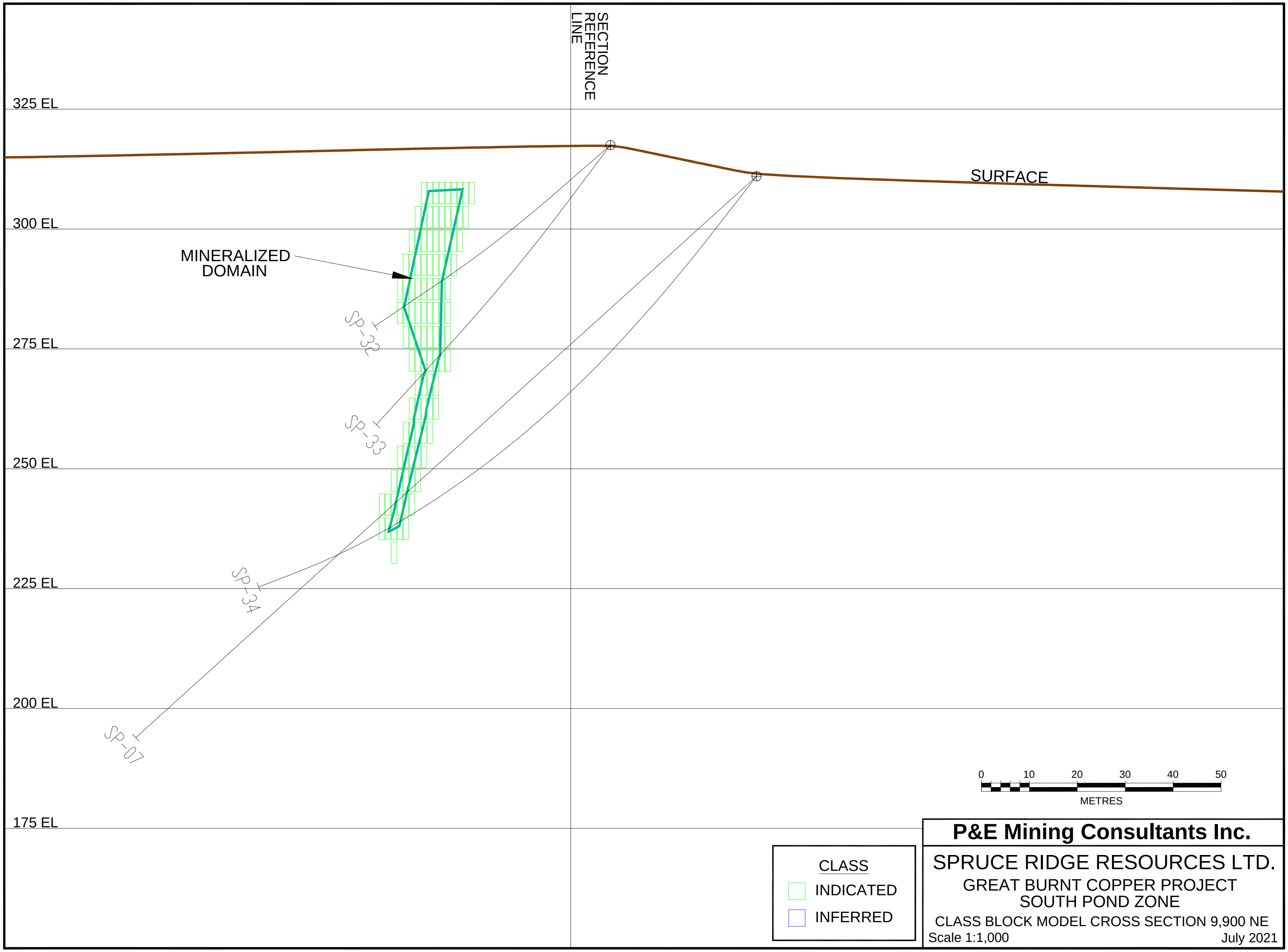
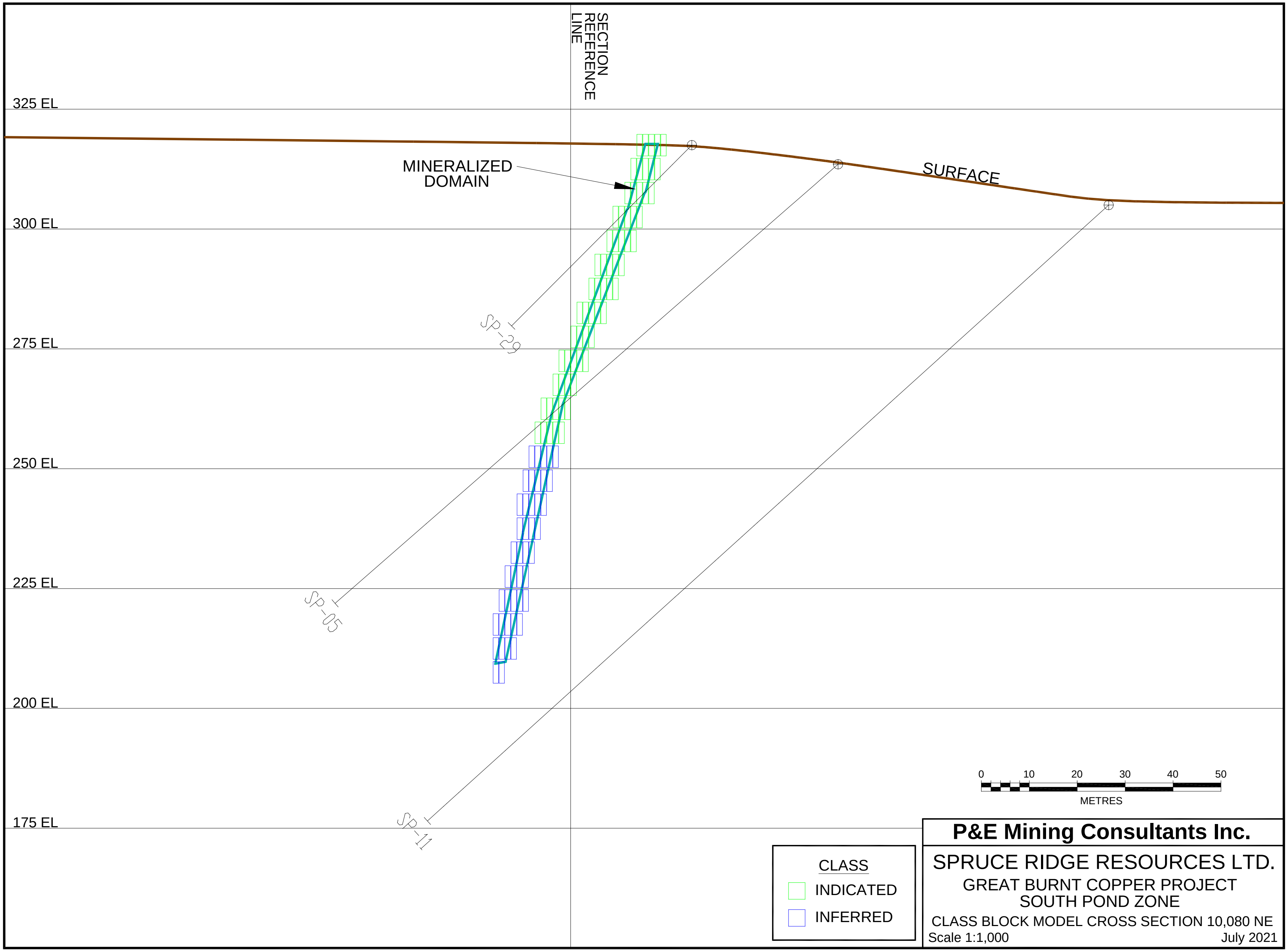
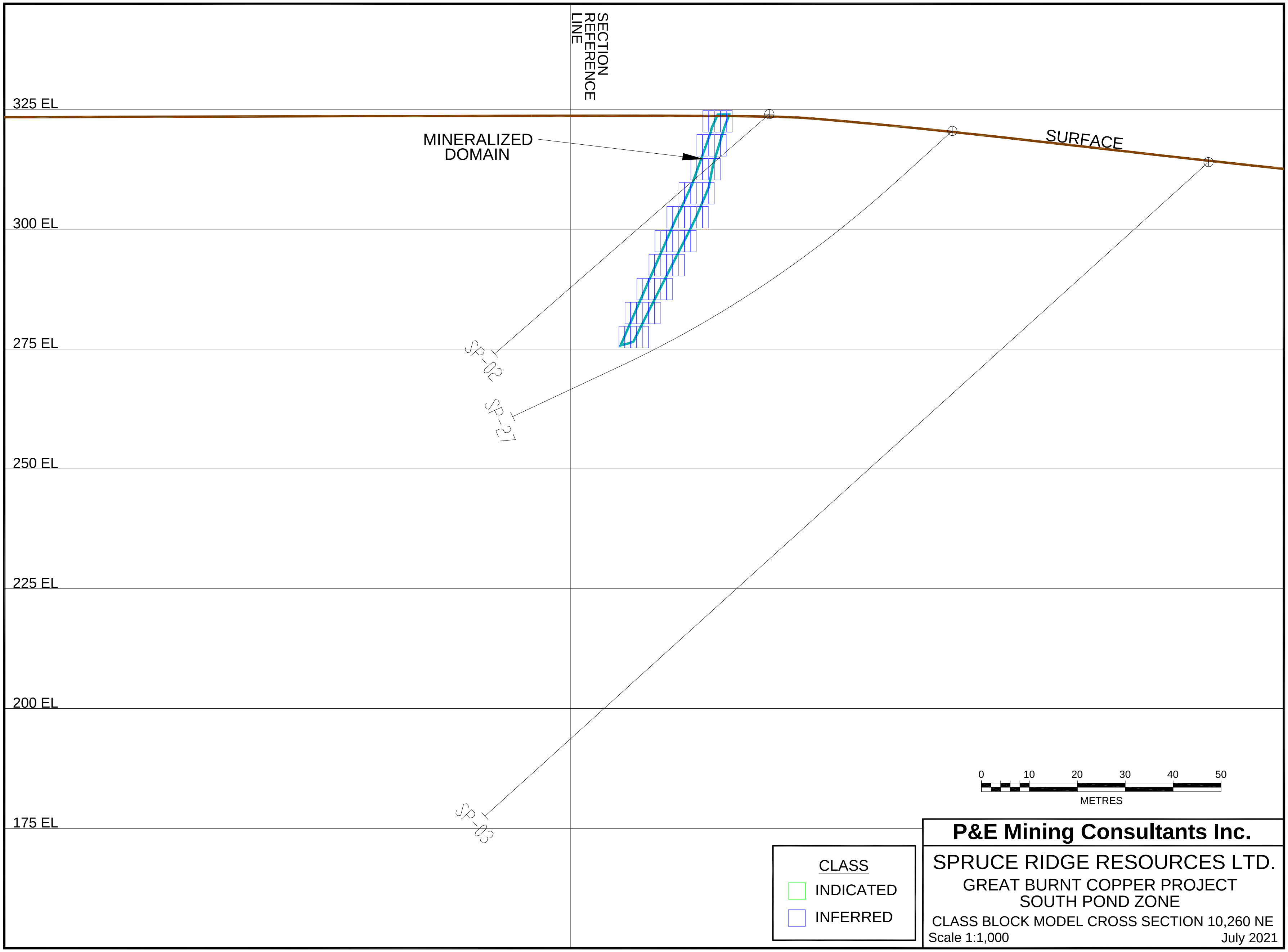
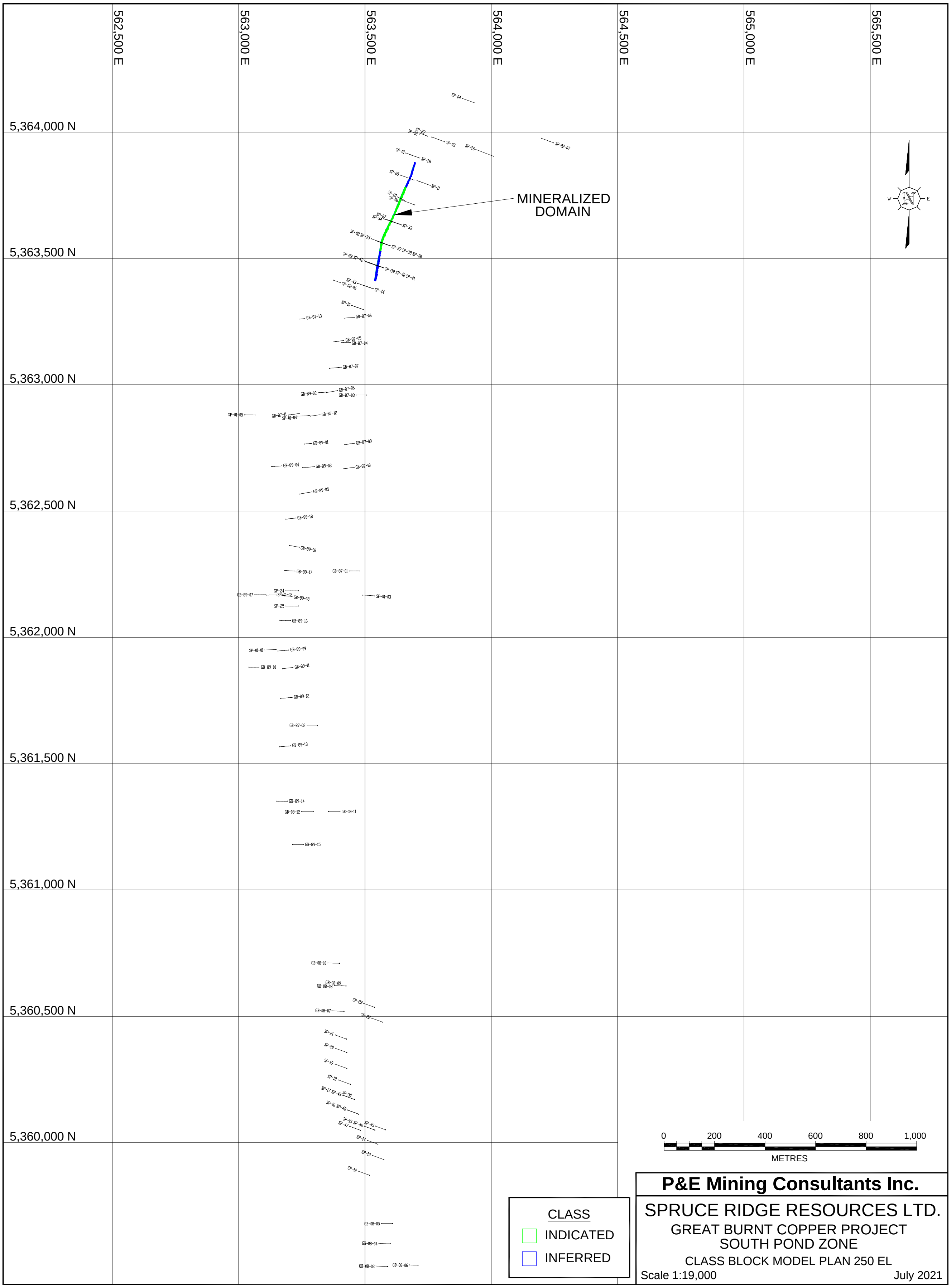
563,000 E
563,200 E
563,400 E
5,355,000 N
5,354,800 N
5,354,600 N
5,354,400 N
5,354,200 N
5,354,000 N
5,353,800 N
0
100
200
300
METRES
MINERALIZED DOMAINS PROJECTED TO PLAN
GB-MAIN
GB2
GBSTR1
GBSTR2
GBSTR3
GBSTR4
GBSTR5
CLASS
INDICATED
INFERRED
P&E Mining Consultants Inc.
SPRUCE RIDGE RESOURCES LTD.
GREAT BURNT COPPER PROJECT
GREAT BURNT ZONE
CLASS BLOCK MODEL PLAN 50 EL
Scale 1:7,000
July 2021


562,400 E
562,600 E
562,800 E
563,000 E
563,200 E
563,400 E
5,355,000 N
5,354,800 N
5,354,600 N
5,354,400 N
5,354,200 N
5,354,000 N
5,353,800 N
MINERALIZED DOMAINS PROJECTED TO PLAN
GB-MAIN
GB2
GBSTR1
GBSTR2
GBSTR3
GBSTR4
GBSTR5
CLASS
INDICATED
INFERRED
0
100
200
300
METRES
P&E Mining Consultants Inc.
SPRUCE RIDGE RESOURCES LTD.
GREAT BURNT COPPER PROJECT
GREAT BURNT ZONE
CLASS BLOCK MODEL PLAN 0 EL
Scale 1:7,000
July 2021


SECTION REFERENCE LINE
325 EL
300 EL
275 EL
250 EL
225 EL
200 EL
175 EL
SURFACE
MINERALIZED DOMAIN
SP-32
SP-33
SP-34
SP-07
0 10 20 30 40 50
METRES
CLASS
INDICATED
INFERRED
P&E Mining Consultants Inc.
SPRUCE RIDGE RESOURCES LTD.
GREAT BURNT COPPER PROJECT
SOUTH POND ZONE
CLASS BLOCK MODEL CROSS SECTION 9,900 NE
Scale 1:1,000
July 2021


SECTION REFERENCE LINE
325 EL
300 EL
275 EL
250 EL
225 EL
200 EL
175 EL
MINERALIZED DOMAIN
SURFACE
SP-29
SP-05
SP-11
0 10 20 30 40 50
METRES
CLASS
INDICATED
INFERRED
P&E Mining Consultants Inc.
SPRUCE RIDGE RESOURCES LTD.
GREAT BURNT COPPER PROJECT
SOUTH POND ZONE
CLASS BLOCK MODEL CROSS SECTION 10,080 NE
Scale 1:1,000
July 2021


SECTION REFERENCE LINE
325 EL
300 EL
275 EL
250 EL
225 EL
200 EL
175 EL
MINERALIZED DOMAIN
SURFACE
SP-02
SP-27
SP-03
0 10 20 30 40 50
METRES
CLASS
INDICATED
INFERRED
P&E Mining Consultants Inc.
SPRUCE RIDGE RESOURCES LTD.
GREAT BURNT COPPER PROJECT
SOUTH POND ZONE
CLASS BLOCK MODEL CROSS SECTION 10,260 NE
Scale 1:1,000
July 2021



562,500 E
563,000 E
563,500 E
564,000 E
564,500 E
565,000 E
565,500 E
5,364,000 N
5,363,500 N
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5,362,500 N
5,362,000 N
5,361,500 N
5,361,000 N
5,360,500 N
5,360,000 N
MINERALIZED DOMAIN
CLASS
INDICATED
INFERRED
0
200
400
600
800
1,000
METRES
P&E Mining Consultants Inc.
SPRUCE RIDGE RESOURCES LTD.
GREAT BURNT COPPER PROJECT
SOUTH POND ZONE
CLASS BLOCK MODEL PLAN 250 EL
Scale 1:19,000
July 2021