

# **INDEPENDENT NI 43-101 TECHNICAL REPORT ON THE BANNOCKBURN NICKEL SULPHIDE PROJECT**

Matachewan Area  
Ontario, Canada

## **PREPARED FOR:**



Grid Metals Corp.  
3335 Yonge Street, Suite 304  
Toronto, Ontario  
M4N 2M1, Canada

## **PREPARED BY:**



Caracle Creek International Consulting Inc.  
1545 Maley Drive, Suite 2018  
Sudbury, Ontario  
P3A 4R7, Canada

Effective Date: December 31, 2020  
Issue Date: January 19, 2021

## **Qualified Persons:**

Dr. Scott Jobin-Bevans (PhD, P.Geo., PMP)  
Principal Geoscientist

Mr. Paul Davis (M.Sc., P.Geo.)  
Geoscientist

**Project Number: 605.20.00**

**DATE AND SIGNATURE**

The Report, "Independent NI 43-101 Technical Report on the Bannockburn Nickel Sulphide Project, Matachewan Area, Ontario, Canada", dated the 19<sup>th</sup> January 2021, with an Effective Date of the 31<sup>st</sup> December 2020, and prepared for Grid Metals Corp., was authored by the following:

"signed and sealed original on file"

---

Scott Jobin-Bevans (PhD, P.Geo. #0183, PMP)  
Principal Geoscientist  
Caracle Creek International Consulting Inc. (Canada)

"signed and sealed original on file"

---

Paul Davis (M.Sc., P.Geo. #1109)  
Geoscientist  
Paul Davis Consulting

Dated: January 19, 2021

## TABLE OF CONTENTS

Table of Contents.....	ii
List of Tables .....	iv
List of Figures .....	v
List of Appendices.....	vi
1.0 Summary.....	1
1.1 Introduction .....	1
1.2 Property Description and Location.....	1
1.3 History.....	2
1.4 Geology and Mineralization .....	2
1.5 Deposit Types.....	3
1.6 Exploration .....	4
1.7 Drilling.....	4
1.8 Interpretation and Conclusions.....	4
1.9 Recommendations .....	5
2.0 Introduction .....	6
2.1 Terms of Reference and Project Scope .....	6
2.1.1 Declarations .....	7
2.2 Qualifications of Consultant.....	8
2.3 Details of Inspection – Site Visit .....	8
2.4 Sources of Information.....	10
2.5 Effective Date .....	10
2.6 Units of Measure and Terminology .....	10
2.6.1 Cumulate Igneous Rock Textures.....	10
3.0 Reliance on Other Experts .....	12
4.0 Property Description and Location .....	13
4.1 Mineral Disposition .....	13
4.2 Mining Lands Tenure System in Ontario .....	18
4.2.1 Mining Lease.....	19
4.2.2 Freehold Mining Lands.....	19
4.2.3 Licence of Occupation.....	19
4.2.4 Land Use Permit.....	20
4.3 Mining Law: Province of Ontario.....	20
4.3.1 Required Plans and Permits .....	20
4.3.1.1 Exploration Plans.....	20
4.3.1.2 Exploration Permits .....	21
4.3.1.3 Current Permits and Project Status .....	21
4.4 Royalties and Obligations.....	22
4.5 Environmental Liabilities.....	22
4.6 Other Significant Factors and Risks .....	22
4.6.1 Social or Community Impact .....	22
5.0 Accessibility, Climate, Local Resources, Infrastructure and Physiography .....	23
5.1 Accessibility.....	23
5.2 Climate .....	23
5.3 Local Resources and Infrastructure .....	24
5.4 Physiography.....	24
5.4.1 Flora and Fauna .....	24
5.5 Power, Water, Mine Facilities .....	25

6.0	History .....	26
6.1	Asbestos.....	26
6.2	Nickel Sulphides .....	26
6.3	The Bannockburn Property .....	27
6.3.1	Outokumpu Mines Ltd (1995-1999).....	27
6.3.2	Geological Mapping .....	28
6.3.3	Enzyme Leach Soil Survey .....	28
6.3.4	Mobile Metal Ion (MMI) Soil Survey .....	29
6.3.5	Geophysical Surveys .....	29
6.3.5.1	Ground Magnetometer Survey.....	29
6.3.5.2	HLEM Survey .....	29
6.3.5.3	Surface Pulse EM Survey .....	30
6.3.5.4	Down-Hole Pulse EM Survey .....	30
6.3.5.5	Surface PROTEM Survey .....	30
6.3.5.6	Down-Hole Protem Survey .....	31
6.3.5.7	Down-Hole Mise-à-la-Masse Survey.....	31
6.3.6	Historical Diamond Drilling .....	32
6.3.6.1	Analytical Procedures .....	34
6.4	Historical Petrographic Studies .....	35
7.0	Geological Setting and Mineralization .....	36
7.1	Regional Geology .....	36
7.1.1	Komatiitic Rocks.....	38
7.1.2	Economic Geology .....	39
7.2	Local and Property Geology .....	40
7.3	Mineralization .....	42
7.3.1	B-Zone (Bannockburn) .....	44
7.3.2	C-Zone.....	46
7.3.3	D-Zone .....	47
7.3.4	F-Zone (Thalweg) .....	48
8.0	Deposit Types .....	49
8.1	Komatiite Geological Models .....	49
8.1.1	Komatiite Volcanic Facies .....	50
8.2	B-Zone Analogues: Crawford Ultramafic Complex/Dumont Sill .....	51
8.2.1	Crawford Ultramafic Complex.....	52
8.2.2	Dumont Sill .....	52
9.0	Exploration .....	54
9.1	2003 .....	54
9.1.1	Geophysical Compilation .....	54
9.1.2	Mechanical Stripping C-Zone .....	56
9.2	2004 .....	57
9.2.1	Geophysics – Surface and Borehole TEM Surveys.....	57
9.2.2	Geophysics - Airborne Geophysical Survey .....	57
9.2.3	Geophysics - Physical Properties Study.....	57
9.2.4	Petrographic Study .....	59
9.3	2010 .....	60
9.3.1	Acid Base Accounting.....	60
10.0	Drilling .....	61
9.4	B-Zone.....	61



10.1 C-Zone and C-Zone Offset .....	64
10.2 D-Zone.....	68
10.3 F-Zone (Thalweg Zone).....	69
10.4 G-Zone .....	70
10.5 H-Zone.....	70
11.0 Sample Preparation, Analysis and Security .....	71
11.1 2003-2004: Surface Samples .....	71
11.2 2003-2004: Diamond Drill Core Samples.....	71
11.2.1 Sample Preparation, Analyses and Security .....	71
12.0 Data Verification .....	73
13.0 Mineral Processing and Metallurgical Testing .....	74
14.0 Mineral Resource Estimates .....	75
15.0 Mineral Reserve Estimates .....	75
16.0 Mining Methods .....	75
17.0 Recovery Methods.....	75
18.0 Project Infrastructure .....	75
19.0 Market Studies and Contracts .....	75
20.0 Environmental Studies, Permitting and Social or Community Impact .....	75
21.0 Capital and Operating Costs .....	75
22.0 Economic Analysis.....	75
23.0 Adjacent Properties .....	76
24.0 Other Relevant Data and Information .....	76
25.0 Interpretation and Conclusions .....	77
25.1 Risks and Opportunities .....	78
26.0 Recommendations.....	80
26.1 Phase 1.....	80
26.2 Phase 2.....	80
26.3 Phase 3.....	81
26.4 Phase 4.....	81
26.5 General Recommendations.....	81
27.0 References .....	82
27.1 References Cited .....	82
27.2 References (not cited).....	87
27.3 Website References .....	88

## LIST OF TABLES

Table 2-1. Commonly used terms and abbreviations. ....	11
Table 4-1. Summary of mining claims, Bannockburn Nickel Project, Ontario, Canada. ....	15
Table 4-2. Summary of Legacy Mining Claims, Bannockburn Nickel Project, Ontario.....	17
Table 5-1. Kirkland Lake, Ontario temperature and precipitation data (monthly averages 1971-2000). ....	23
Table 6-1. Summary of exploration work completed by Outokumpu. ....	28
Table 6-2. Summary of diamond drill holes completed by Outokumpu (1996-1999). ....	32
Table 7-1. Pre-mining geologic resource estimates plus mined ore, Komatiite-hosted Ni-Cu-(PGE) mines/deposits, Timmins Mining Camp, Ontario (modified after Houlié <i>et al.</i> , 2017). ....	39
Table 8-1. Features of komatiite volcanic facies (Barnes <i>et al.</i> , 2004).....	51
Table 9-1. Summary of Mustang Minerals' 2003 to 2005 exploration work programs.....	54
Table 10-1. Summary of diamond drilling completed by Mustang Minerals (2003-2004). ....	61
Table 10-2. Summary of diamond drill holes completed at the B-Zone. ....	61
Table 10-3. Summary of significant drill core intercepts for the B-Zone. ....	64

Table 10-4. Summary of diamond drill holes completed at the C-Zone and C-Zone Offset. ....	65
Table 10-5. Summary of diamond drill hole intersections at the C-Zone and C-Zone Offset. ....	67
Table 10-6. Summary of diamond drill holes completed at the D-Zone (2004). ....	68
Table 10-7. Summary of 2004 diamond drill holes completed at the F-Zone (Thalweg Zone). ....	69
Table 10-8. Summary of significant drill core intercepts for the F-Zone (Thalweg Zone). ....	69
Table 10-9. Summary of diamond drill holes completed at the G-Zone. ....	70
Table 10-10. Summary of diamond drill holes completed at the H-Zone (2004). ....	70
Table 26-1. Proposed exploration program budget for the Bannockburn Nickel Project, Ontario. ....	80

## LIST OF FIGURES

Figure 2-1. Provincial-scale location of the Bannockburn Nickel Project (red star) in the Province of Ontario, Canada. ....	7
Figure 2-2. C-Zone Ridge, looking south across Rahn Lake. ....	9
Figure 2-3. B-Zone, looking south along a recent clear cut. ....	9
Figure 4-1. Township-scale map showing the location of the four main mineralized zones (yellow stars) on the Bannockburn Nickel Project, in Bannockburn and Montrose townships, Larder Lake Mining Division, Ontario, Canada. Project unpatented mining claims are outlined in black (SCMC=green; BCMC=dark green). ....	14
Figure 6-1. Location of historical drill holes completed by Outokumpu (1996-1997), nickel sulphide zones (yellow star), and EM conductor axes (red solid/dashed lines), Rahn Lake area. ....	33
Figure 6-2. Location of historical drill holes completed by Outokumpu (1996-1997), nickel sulphide zones (yellow star), and EM conductor axes (red solid/dashed lines), Charlewood Lake area. ....	34
Figure 7-1. Location of the Abitibi Greenstone Belt within the Archean Superior Province, Canada (Monecke <i>et al.</i> , 2017). ....	36
Figure 7-2. General geology of the Abitibi Greenstone Belt and the approximate location of the Bannockburn Nickel Project (red star). Also shown is the location of Canada Nickel's Crawford Nickel-Cobalt Sulphide Project (modified from Thurston <i>et al.</i> , 2008; MERC, 2017). ....	37
Figure 7-3. Regional geology (Abitibi Assemblages) and location of Ni-Cu-(PGE), Gold and VMS deposits across Quebec and Ontario (modified from Ayer <i>et al.</i> , 2005). Also shown are the approximate locations of the Bannockburn Property (red star), Canada Nickel's Crawford Ultramafic Complex (yellow star), both in Ontario, and Dumont Nickel's Dumont Sill (red circle) in Quebec. ....	38
Figure 7-4. Property-scale geology of the Bannockburn Nickel Project with nickel sulphide zones (yellow star) discovered to date (modified after Outokumpu, 1999). ....	41
Figure 7-5. Location of nickel sulphide zones (yellow star), EM conductor axes (red solid/dashed lines), untested EM conductors (red circle), and all diamond drill hole traces. ....	43
Figure 7-6. Idealized cross-section through the B-Zone (looking north), Bannockburn Nickel Sulphide Project (provided by Grid Metals). ....	44
Figure 7-7. Diamond drill hole traces and nickel intersections from the B-Zone superimposed on total magnetic intensity (2004 AeroTEM airborne survey) in the northern portion of the Bannockburn Nickel Sulphide Project (provided by Grid Metals). ....	45
Figure 7-8. Idealized stratigraphic cross-section through the west and east ends of the C-Zone (Taranovic <i>et al.</i> , 2012). ....	46
Figure 9-1. Quantec Geoscience Inc. compilation and interpretation of geophysical surveys to 2003 (from Coulson <i>et al.</i> , 2003). ....	55
Figure 9-2. Regional total field magnetic intensity from the 2004 AeroTEM survey which covered the Bannockburn Property. ....	58
Figure 10-1. Location of all drill holes (Grid Metals and Outokumpu) and priority EM conductor axes (strong=solid red; moderate=dashed red), Rahn Lake area. ....	62
Figure 10-2. Location of all drill holes (Grid Metals and Outokumpu) and priority EM conductor axes (strong=solid red; moderate=dashed red), Charlewood Lake area. ....	63
Figure 10-3. Location of all drill holes (Grid Metals and Outokumpu) in the C-Zone and C-Zone Offset areas and priority EM conductor axes (strong=solid red; moderate=dashed red), Rahn Lake area. ....	66

Figure 10-4. Schematic long-section (looking north) through the C-Zone and C-Zone Offset (Lapierre, 2003). ..... 68

## **LIST OF APPENDICES**

---

APPENDIX 1 - Certificates of Authors

APPENDIX 2 – Drill Hole Plans and Sections

## 1.0 SUMMARY

---

### 1.1 Introduction

At the request of Mr. Robin Dunbar, CEO and President of Canadian company Grid Metals Corp. (“Grid Metals”, the “Company” or the “issuer”), Caracle Creek International Consulting Inc. (“Caracle” or the “Consultant”), a Canadian company, has prepared this disclosure document as a National Instrument 43-101 (“NI 43-101”) Technical Report (the “Report”). The subject of the Report is the Bannockburn Nickel Sulphide Project (the “Project” or the “Property” or the “Bannockburn Project”). Grid Metals is the 100% owner of the mining claims that comprise the Project, with a portion of the claims subject to a 2% Net Smelter Return Royalty (“NSR”).

Grid Metals Corp. (formerly Mustang Minerals Corp.) is a company listed on the Toronto Venture Stock Exchange (“TSX-V”) and the Report is to be used in the normal course of business. The Report has been prepared to be in compliance with the disclosure and reporting requirements set forth in the Canadian Securities Administrators’ National Instrument 43-101, Companion Policy 43-101CP, and Form 43-101F1.

The Report has been completed by professional geoscientists Dr. Scott Jobin-Bevans (PhD, PMP, P.Geo. #0183), Principal Geoscientist with Caracle, and Mr. Paul Davis (M.Sc., P.Geo. #1109), Geoscientist (together the “Consultants” or the “Authors”). The Authors have experience in geology, mineral exploration, mineral resource and mineral reserve estimation and classification, land tenure management, metallurgical testing, mineral processing, capital and operating cost estimation, and mineral economics.

Dr. Jobin-Bevans and Mr. Davis, by virtue of their education, experience, and professional association, are each considered to be a Qualified Person (“QP”), as that term is defined in NI 43-101, for the Report. The Effective Date of the Report is December 31, 2020. The Consultants contracted in the preparation of the Report, have no beneficial interest in Grid Metals and the Consultants are not insiders, associates, or affiliates of the Issuer.

The Report updates the previous disclosures for the Project prepared by Brereton (2003) and Harron (2005) on the behalf of Mustang Minerals Corp. A Qualified Person, for the purposes of NI 43-101, has not done sufficient work to confirm the accuracy of historical information and the data referenced in the Report.

Mr. Paul Davis (M.Sc., P.Geo) visited the Project on November 10, 2020. The field visit was made in order to observe the general Property conditions and validate the conditions of the access roads to the Property and the separate areas of interest. Dr. Scott Jobin-Bevans has not visited the Project.

### 1.2 Property Description and Location

The Bannockburn Nickel Sulphide Project is located approximately 100 km southeast of the City of Timmins and 27 km west of the Town of Matachewan in northeastern Ontario, Canada.

The Project consists of one contiguous claim block totalling 125 unpatented mining claims that cover about 2,700 hectares. The Project comprises 98 single cell mining claims (“SCMC”) and 27

boundary cell mining claims (“BCMC”) which are in good standing until 2021, with lapsing dates ranging from March 24, 2021 to October 15, 2021. The mining claims extend from Bannockburn Township into Montrose Township to the west and are situated within the Larder Lake Mining Division, District of Timiskaming. The approximate centre of the Property is at UTM coordinates 50700mE, 5313050mN (NAD83, Zone 17 North).

Grid Metals was issued on 5 December 2019, an Exploration Permit (number PR-19-000262) valid until 4 December 2022, to complete over 20 diamond drill holes testing both identified nickel mineralized trends and geophysical targets within the Property boundaries. This permit will cover any work outlined in the phased recommended work program as long as it is completed before 4 December 2022.

### **1.3 History**

Gold, first discovered in the Matachewan area in 1916, was an early focus for exploration in the area. The Ashley Mine located just north of the northern boundary of the current Property produced 155.9 kg of gold in the period 1932-36. Minor production of asbestos by Rahn Lake Mines Corporation, Limited was reported in 1936 and 1939 from mining claims that lay within the current Property. Exploration for asbestos targeting the ultramafic (komatiitic) rocks present on the Property continued from the 1950s through the 1970s.

The original “Bannockburn Property” was staked by Outokumpu Mines Ltd. (“Outokumpu”) in March and April of 1995, after an assessment file search revealed the presence up to 30% pyrrhotite and trace chalcopyrite over a 3.65 m-long drill hole intersection in some of the previous work that had focused on the exploration for asbestos. Outokumpu carried out exploration work on the Property during the period between 1995 and 1999; that work led to the discovery of several important zones of Ni-Cu-Co-(PGE) mineralization on the Property.

Mustang Minerals Corp. (now Grid Metals Corp.) optioned the Property from Outokumpu in July, 2003; the terms of that option were satisfied by the payments and subsequent exploration carried out by Mustang Minerals in the period from 2003 to 2005. There are no historical mineral resource or mineral reserve estimates on the Property.

### **1.4 Geology and Mineralization**

The Property is situated in the southwest portion of the Archean-age Abitibi Greenstone Belt on the northeastern side of the Halliday Dome structural feature. The Halliday Dome consists mainly of calc-alkaline felsic and intermediate volcanic rocks with minor quantities of iron formation and basaltic rocks of the Tisdale Assemblage, unconformably overlain by younger Kinojevis Assemblage rocks, which are in turn unconformably overlain by sedimentary rocks of the Porcupine Assemblage.

The Property is underlain by a complex sequence of Neoproterozoic-age calc-alkaline intermediate to felsic volcanic rocks, mafic volcanic rocks, komatiitic basalt to dunite, silicate to sulphide iron formation, gabbro intrusions, and a series of sedimentary rocks including diamictite, arkose, and conglomerate (Préfontaine and Berger, 2005). Proterozoic-age (Huronian Supergroup) sediments (Cobalt Group - Gowganda Formation), composed mainly of clastic metasedimentary rocks such as

conglomerate, sandstone, wackes and argillite, unconformably overlie the Archean supracrustal assemblages.

Nine zones of Ni-Cu sulphide mineralization, defined largely on the basis of geophysics, drill core intersections, rock outcroppings, and mechanical trenching, have been identified on the Bannockburn Property. Six of the zones, the A-Zone, B-Zone, C-Zone, C-Zone Offset (aka C-Zone Extension), D-Zone, and H-Zone are in the northern Rahn Lake area, while three of the zones, E-Zone, F-Zone (Thalweg) and G-Zone, are in the southern Charlewood Lake area.

The three principal areas for current exploration are the B-Zone, the C-Zone (includes C-Zone Offset) and the F-Zone (Thalweg). The B-Zone (Bannockburn) located west of Rahn Lake has disseminated sulphide mineralization occurring centrally within a thick olivine adcumulate body. The B-Zone sulphide deposit is composed of a few percent of pyrrhotite, pentlandite, heazlewoodite, and native nickel. The nickel tenor of this zone is extremely high at >80% Ni in 100% sulphide and is related to the nickel-rich mineralogy. The best drill intersection from this zone is 0.45% Ni over a core length of 23.5 metres.

The F-Zone (Thalweg) located in the Charlewood Lake area and the C- and D-Zones in the Rahn Lake area are associated with massive and heavily disseminated sulphides that occur in footwall embayments at the base of komatiitic flows. The heavily disseminated to massive sulphide mineralization is composed primarily of pyrrhotite and pentlandite with trace amounts of chalcopyrite and a grey alteration mineral. The nickel tenors of the zones range from between 4% to 43.3% Ni in 100% sulphide, but average approximately 5 to 6% Ni in 100% sulphides. The best drill intersection from the C-Zone is 2.2% Ni over a core length of 4.0 metres.

Nickel is the most economically important element in all of the zones with minor amounts of Cu-Co-PGE mineralization being associated.

## **1.5 Deposit Types**

The sulphide mineralization discovered to date on the Bannockburn Project can be characterized as ultramafic extrusive komatiite-hosted Ni-Cu-Co-(PGE) deposit type.

Two sub-types or styles of this deposit are recognized by Lesher and Keays (2002) with those types being: the Kambalda-style, komatiite-hosted, channelized flow type which is dominated by net-textured and massive sulphides situated at or near the basal ultramafic/footwall contact; and, the Mt. Keith-style, thick olivine adcumulate-hosted, sheet flow type which is dominated by disseminated and bleb sulphides, hosted primarily in a central core of a thick, differentiated, dunite-peridotite ultramafic body.

At the Bannockburn Project, eight of the ten sulphide occurrences are interpreted as being Kambalda-style, whereas the B-Zone is interpreted as Mt. Keith-style.

## 1.6 Exploration

Exploration on the Bannockburn Property was carried out by Mustang Minerals Corp. (the predecessor entity of Grid Metals Corp.) from 2003 to 2005 with expenditures on the order of about \$3.2M (\$4.0M combined with Outokumpu). Exploration activities included geological mapping, mechanical stripping, borehole geophysics, ground geophysics, diamond drilling, and petrographic and metallurgical studies.

## 1.7 Drilling

Surface diamond drilling programs were completed by Mustang Minerals at the Property in 2003 and 2004. A total of 84 diamond drill holes were completed for a total of 18,031 m of drilling. The drilling programs were completed in six separate zones, testing for komatiite-hosted Ni-Cu-Co-(PGE) mineralization.

Area / Zone	No of DDH	Metres
B-Zone	10	2,794.00
C-Zone / C-Zone Offset	53	12,095.00
D-Zone	6	1,140.00
F-Zone	9	1,090.00
G-Zone	3	233.00
H-Zone	3	1,016.00
<b>Totals:</b>	<b>84</b>	<b>18,031.00</b>

Diamond drilling was successful in confirming the presence of subsurface nickel sulphide mineralization in all the targets areas tested.

## 1.8 Interpretation and Conclusions

The objective of the Report was to prepare an independent NI 43-101 Technical Report capturing historical information available for the Project area, to evaluate this information with respect to the prospectivity of the Project, and to present recommendations for future exploration and development on the Property.

The Bannockburn Nickel Project shows good potential for developing both low-grade, large tonnage and high-grade, low tonnage nickel (Co, Pt, Pd, Fe) resources and should be investigated further. Analogues in the AGB, like the Crawford Ultramafic Complex (Ontario) and the Dumont Nickel Deposit (Quebec), share many similarities to the B-Zone at Bannockburn. Extensive exploration work by Canada Nickel Company at Crawford and Royal Nickel at Dumont, largely diamond drilling, has resulted in the delineation of large tonnage, low-grade nickel resources and at Dumont, the delivery of a positive Feasibility Study (Ausenco, 2019).

Much more work is required at Bannockburn to fully assess the nickel potential including additional diamond drilling, surface sampling, and mineralogical and metallurgical studies in order to better understand the geology, mineralization, geochemistry, and geometry of the komatiitic bodies and their potential to host nickel deposits.

The ultimate determination of whether an economic size and grade of deposit can be developed at Bannockburn, will be predicated on the success of future exploration, metallurgical test work and the price of nickel and other recoverable metals. The Bannockburn Nickel Project is still very early-stage and, in addition to moving the project forward to resource delineation drilling (especially on the B-Zone), warrants further metallurgical test work to determine if the nickel present in the main mineralized zones can be efficiently recovered into a saleable sulphide concentrate.

It is the opinion of the Authors that, after reviewing historical results and other publicly available information and data from the Bannockburn Nickel Project, the Project presents an excellent opportunity for the Issuer and is worthy of additional exploration work, targeting komatiite-hosted sulphide nickel mineralization. At this stage of the Project, there are no reasonably foreseen contributions from risks and uncertainties identified in the Report that could affect the Project's continuance at its current stage of exploration.

## 1.9 Recommendations

It is the opinion of the Authors that additional exploration expenditures are warranted on the Bannockburn Nickel Project. Given the broad, low-grade nickel intercepts from previous drilling at the B-Zone, it is recommended that this area of the Project become the principal focus for future exploration. The southern portion of a large northwest trending magnetic anomaly covers the drill-tested B-Zone with the northern extension of this magnetic high remaining untested.

A recommended exploration program on the B-Zone and associated budget estimate of approximately C\$1,010,000 is outlined as follows:

Work Type	Description	Cost (C\$)
<b>Phase 1: Geophysical re-interpretation, modelling and targeting</b>		
Geophysics	3D Inversion Model (AeroTEM magnetics)	-
Geophysics	Review EM survey data and anomaly picks	\$25,000
<b>Phase 2: Diamond Drilling (all-in \$250/m)</b>		
Drilling	targeted drilling B-Zone (8 holes; 2,000 m)	\$600,000
<b>Phase 3: Mineralogical Studies</b>		
QEMSCAN	quantitative mineralogical analyses	\$50,000
<b>Phase 4: Diamond Drilling (all-in \$250/m)</b>		
Drilling	drilling of B-Zone northern extension magnetic anomaly (2 holes; 400 m)	\$100,000
Drilling	testing of untested EM conductors (3 holes; 800 m)	\$200,000
<b>General: Mineral Resource Estimate and Reporting</b>		
Mineral Resource Estimate	maiden NI 43-101 mineral resource estimate on B-Zone	\$25,000
Reporting	assessment and internal reports	\$10,000
<b>Total (C\$):</b>		<b>\$1,010,000</b>

The proposed exploration program is phased, with continuance to each subsequent phase predicated on the success of the previous phase.



## 2.0 INTRODUCTION

---

At the request of Canadian public company Grid Metals Corp. (“Grid Metals”, the “Company”, or the “Issuer”), Caracle Creek International Consulting Inc. (“Caracle” or the Consultant), a Canadian private company, prepared this technical report as a National Instrument 43-101 (“NI 43-101”) Technical Report (the “Report”) on the Bannockburn Nickel Sulphide Project (the “Project” or the “Property”). The Project is located in the Province of Ontario (the “Province”), Canada, about 100 km southeast of the City of Timmins and 27 km west of the Town of Matachewan (Figure 2-1).

### 2.1 Terms of Reference and Project Scope

The Report was prepared as an NI 43-101 Technical Report for Grid Metals Corp., a company listed on the Toronto Venture Stock Exchange (“TSX-V”), to be used in the course of normal business and to have a compliant Technical Report should a future transaction present itself. Grid Metals is the 100% owner of the mining claims that comprise the Project. **Grid Metals was formerly known as Mustang Minerals Corp. (“Mustang Minerals”); Mustang Minerals amended their Articles of Corporation, effective on May 31, 2018 (as approved by shareholders on March 9, 2018), to change the corporation’s name to Grid Metals Corp. References to Mustang Minerals herein, therefore, shall be considered to be synonymous with Grid Metals and *vice versa*.**

The Report has been prepared to be in compliance with the disclosure and reporting requirements set forth in the Canadian Securities Administrators’ National Instrument 43-101, Companion Policy 43-101CP, and Form 43-101F1.

The quality of information, conclusions, and recommendations contained herein is consistent with the level of effort involved in Caracle’s services, determined using: i) information available at the time of Report preparation; ii) data supplied by outside sources; and iii) the assumptions, conditions, and qualifications set forth in the Report. The Report is intended for use by Grid Metals, subject to the terms and conditions of its contract with Caracle and relevant securities legislation.

The agreement between Grid Metals and Caracle permits the Issuer to file the Report with Canadian securities regulatory authorities pursuant to NI 43-101 Standards of Disclosure for Mineral Projects. Except for the purposes legislated under provincial securities law, any other use of the Report by any third party is at that party’s sole risk. The responsibility for this disclosure remains with Grid Metals. The user of this document should ensure that this is the most recent technical report for the Project as it is not valid if a new technical report has been issued.

The Report updates the previous disclosures for the Project prepared by Brereton (2003) and Harron (2005) on the behalf of Mustang Minerals.



Figure 2-1. Provincial-scale location of the Bannockburn Nickel Project (red star) in the Province of Ontario, Canada.

### 2.1.1 Declarations

The quality of information, conclusions, and recommendations contained herein is consistent with the level of effort involved in Caracle's services, determined using: i) information available at the time of Report preparation; ii) data supplied by outside sources; and, iii) the assumptions, conditions, and qualifications set forth in the Report. The Report is intended for use by Grid Metals subject to the terms and conditions of its contract with Caracle and relevant securities legislation.

The opinions contained herein are based on information collected throughout the course of investigations by the Qualified Persons to the Report, which in turn reflects various technical and

economic conditions at the time of writing. Given the nature of the mining business, these conditions can change significantly over relatively short periods of time. Consequently, actual results can be significantly more or less favourable.

The Consultants employed in the preparation of the Report have no beneficial interest in Grid Metals and the Consultants are not insiders, associates, or affiliates of Grid Metals. The results of the Report are not dependent upon any prior agreements concerning the conclusions to be reached, nor are there any undisclosed understandings concerning any future business dealings between Grid Metals and the Consultants. The Consultants are being paid a fee for their work in accordance with normal professional consulting practices.

A Qualified Person, for the purposes of NI 43-101, has not done sufficient work to confirm the accuracy of historical information and the data referenced in the Report.

## **2.2 Qualifications of Consultant**

The Report has been completed by professional geoscientists Dr. Scott Jobin-Bevans (PhD, PMP, P.Geo. #0183), Principal Geoscientist with Caracle, and Mr. Paul Davis (M.Sc., P.Geo. #1109), Geoscientist (together the “Consultants” or the “Authors”). The Authors have experience in geology, mineral exploration, mineral resource and mineral reserve estimation and classification, land tenure management, metallurgical testing, mineral processing, capital and operating cost estimation, and mineral economics.

Dr. Jobin-Bevans, by virtue of his education, experience, and professional association, is considered to be a Qualified Person (“QP”), as that term is defined in NI 43-101, for the Report. Dr. Jobin-Bevans is responsible for all sections of the Report, except for Section 2.3. Mr. Davis, by virtue of his education, experience, and professional association, is considered to be a QP, as that term is defined in NI 43-101, for the Report. Mr. Davis is responsible for all sections of the Report. A Certificate of Author for each of the Consultants is provided in Appendix 1.

The Consultants contracted in the preparation of the Report, have no beneficial interest in Grid Metals and the Consultants are not insiders, associates, or affiliates of the Issuer. The results of the Report are not dependent upon any prior agreements concerning the conclusions to be reached, nor are there any undisclosed understandings concerning any future business dealings between Grid Metals and the Consultants. The Consultants are being paid a fee for their work in accordance with normal professional consulting practices.

## **2.3 Details of Inspection – Site Visit**

Mr. Paul Davis (M.Sc., P.Geo) visited the Project on November 10, 2020. The field visit was made in order to observe the general Property conditions and validate the conditions of the access roads to the Property and the separate areas of interest. Mr. Davis confirmed that no new work on the Property has been done since the most recent in 2005 carried out by Mustang Minerals, now Grid Metals. Dr. Scott Jobin-Bevans has not visited the Project.



Having worked on the Property for both Outokumpu Mines Ltd. (the Canadian arm of Outokumpu Oy, Finland) and Mustang Minerals, Mr. Davis felt it unnecessary to re-sample the drill core or surface exposures of targeted mineralization and lithologies. Photographs of the Property conditions related to the C-Zone and the B-Zone are provided in Figures 2-2 and 2-3.



Figure 2-2. C-Zone Ridge, looking south across Rahn Lake.



Figure 2-3. B-Zone, looking south along a recent clear cut.

## **2.4 Sources of Information**

Standard professional review procedures were used by the Authors in the preparation of the Report. The Consultants reviewed data and information provided by Grid Metals and its associates, and conducted a personal inspection (site visit) to confirm features within the Project area, including infrastructure and mineralization, and historical data and information as presented.

Company personnel and associates were actively consulted post and during report preparation and during the Property site visit. Company personnel include Robin Dunbar (President & CEO, Grid Metals Corp.) and Dr. David Peck (Vice President Exploration, Grid Metals). Work completed by the Consultants was supported by geological consultant John Siriunas (M.A.Sc., P.Eng.) who contributed to the research component of the Report.

The Report is based on but not limited to internal Company technical reports, previous studies, maps, published government reports and maps, Company letters, emails and memoranda, and public information as cited throughout the Report and listed in Section 27, References.

The mining lands system for Ontario was accessed online through the Mining Lands Administration System ("MLAS") at: <https://www.mndm.gov.on.ca/en/mines-and-minerals/applications/mining-lands-administration-system-mlas-map-viewer>. Digital data and historical work reports (assessment reports) filed with the Ministry of Energy, Northern Development and Mines ("MENDM"), Ontario were accessed online at: <http://www.geologyontario.mndm.gov.on.ca/index.html>.

Additional company information was reviewed and acquired through public online sources including Grid Metals' website <https://www.gridmetalscorp.com/> and SEDAR ([www.sedar.com](http://www.sedar.com)). Other online sources are listed in Section 27, References.

## **2.5 Effective Date**

The Effective Date of the Report is December 31, 2020.

## **2.6 Units of Measure and Terminology**

All units in the Report are based on the International System of Units ("SI"), except for units that are industry standards, such as troy ounces for the mass of precious metals. Table 2-1 provides a list of commonly used terms and abbreviations from the Report.

Unless specified otherwise, the currency used is Canadian Dollars ("CAD" or "C\$") and coordinates are given in North American Datum 83 ("NAD83"), UTM Zone 17N (EPSG:26917; suitable between 84°W and 78°W, northern hemisphere).

### **2.6.1 Cumulate Igneous Rock Textures**

Igneous rocks formed by sedimentation (accumulation of crystals from a magma either by settling or floating) are termed cumulates and display cumulate textures. Relative to groundmass, adcumulates contain 100-93% accumulated crystals (fine-grained groundmass), mesocumulates

contain between 93 and 85%, and orthocumulates containing between 85 and 75% accumulated minerals in groundmass.

Table 2-1. Commonly used terms and abbreviations.

Units of Measure		Abbreviations and Initialisms	
above mean sea level	AMSL	Atomic Absorption	AA
annum (year)	a	Abitibi Greenstone Belt	AGB
billion years ago	Ga	Association Professional Geoscientists of Ontario	APGO
centimetre	cm	All-Terrain Vehicle	ATV
degree	°	Boundary Claim Mining Claim	BCMC
degrees Celsius	°C	Certified Reference Material	CRM
dollar (Canadian)	C\$	Crawford Ultramafic Complex	CUC
eotvos	Eo	Diamond Drill Hole	DDH
foot	ft	Department of Fisheries and Oceans Canada	DFO
gram	g	Doctor of Philosophy	Ph.D.
grams per tonne	g/t	Electromagnetic	EM
greater than	>	End of Hole	EOH
hectare	ha	European Petroleum Survey Group	EPSG
hour	hr	Fire Assay	FA
inch	in	Geological Survey of Canada	GSC
kilo (thousand)	K	Inductively Coupled Plasma	ICP
kilogram	kg	Interval	Int.
kilometre	km	Lower Detection Limit	LDL
less than	<	Lower Limit of Detection	LLD
litre	L	Letter of Intent	LOI
megawatt	Mw	Land Use Permit	LUP
metre	m	Magnetics or Magnetometer	MAG
millimetre	mm	Master of Science (degree)	M.Sc.
million	M	Ministry of Energy Northern Development and Mines	MENDM
million years ago	Ma	Mining Licences of Occupation	MLO
nanogram per gram (q.v. ppb)	ng/g	Ministry of Natural Resources	MNR
nanotesla	nT	Mining Rights (only)	MR
NQ - 47.6 mm diameter core tube	NQ	Mining and Surface Rights	MSR
ounce	oz	The National Instrument 43-101	NI 43-101
parts per million (by weight)	ppm	North American Datum 83	NAD83
parts per billion (by weight)	ppb	Net Smelter Return Royalty	NSR
percent	%	Ontario Geological Survey	OGS
pound	lb	Professional Engineer	P.Eng.
short ton (2,000 lb)	st	Professional Engineers Ontario	PEO
specific gravity	t/m <sup>3</sup>	Professional Geoscientist Ontario	P.Geo.
square kilometre	km <sup>2</sup>	Quality Assurance / Quality Control	QA/QC
square metre	m <sup>2</sup>	Qualified Person	QP
three-dimensional	3D	Reverse Circulation	RC
tonne (1,000 kg) (metric tonne)	t	Right of First Refusal	ROFR
<b>Elements</b>		Single Cell Mining Claim	SCMC
cobalt	Co	Scanning Electron Microscope	SEM
copper	Cu	Specific Gravity	SG
gold	Au	International System of Units	SI
nickel	Ni	Standard Reference Material	SRM
platinum-group elements	PGE	Surface Rights (only)	SR
palladium	Pd	Township	Twp
platinum	Pt	Universal Transverse Mercator	UTM
silver	Ag	Volcanogenic Massive Sulphide	VMS
sulphur	S		
iron	Fe		

---

### **3.0 RELIANCE ON OTHER EXPERTS**

---

The Authors have mainly relied on Robin Dunbar (President & CEO, Grid Metals) for the legal description and title evaluations of the Project. The Authors express no legal opinion as to the land tenure title or ownership status, other than to comment on the status of mining lands (mining claims) and other information that is publicly available.

## 4.0 PROPERTY DESCRIPTION AND LOCATION

---

The Bannockburn Nickel Sulphide Project is located approximately 100 km southeast of the City of Timmins and 27 km west of the Town of Matachewan in northeastern Ontario, Canada (Figure 4-1).

The Project consists of one contiguous claim block totalling 125 unpatented mining claims that cover about 2,700 hectares (Table 4-1). The mining claims extend from Bannockburn Township into Montrose Township to the west and are situated within the Larder Lake Mining Division, District of Timiskaming. The approximate centre of the Property is at UTM coordinates 50700mE, 5313050mN (NAD83, Zone 17 North).

All known nickel sulphide mineralization that is the focus of the Report and that of Grid Metals is located within the boundary of the mining lands that comprise the Bannockburn Nickel Project.

### 4.1 Mineral Disposition

The Project comprises 98 single cell mining claims ("SCMC") and 27 boundary cell mining claims ("BCMC") which are in good standing until 2021, with lapsing dates ranging from March 24, 2021 to October 15, 2021. As of November 30, 2020, Grid Metals Corp. holds a 100% interest in the unpatented mining claims listed in Table 4-1 and shown in Figure 4-1, subject to a 2% Net Smelter Return Royalty ("NSR") on future mineral production from the Project mining claims, held by Outokumpu Mines Inc.

The SCMC and BCMC lands have annual assessment work requirements totalling \$44,600 and have \$383,852 in previous assessment work credits (Reserve in Table 4-1) that can be applied to the annual assessment work requirement providing an additional nine (9) years of coverage for the entire Property.

A list of the Legacy Claims from which the current claim fabric was derived post April 10, 2018 conversion, is provided in Table 4-2. Twenty-two (22) of the 23 Legacy Claims that comprise the Property were acquired from Outokumpu Mines Inc. pursuant to an option agreement in 2003, with the remaining one Legacy Claim representing a claim staked by Mustang Minerals. Under the Outokumpu Option Agreement dated June 9, 2003, Mustang Minerals earned an undivided 100% interest in the unpatented mining claims by paying \$40,000 on closing and \$60,000 on or before the first anniversary. Mustang Minerals also completed a total of \$350,000 in approved expenditures on or before the first anniversary to exercise its option. Outokumpu retains a 2% Net Smelter Royalty on future mineral production from the claims.

The Property has not been legally surveyed. The legal status of the mining claims is transparent and readily available on the Province's GIS-based website, referred to as MLAS:

<https://www.mndm.gov.on.ca/en/mines-and-minerals/applications/mining-lands-administration-system-mlas-map-viewer>.



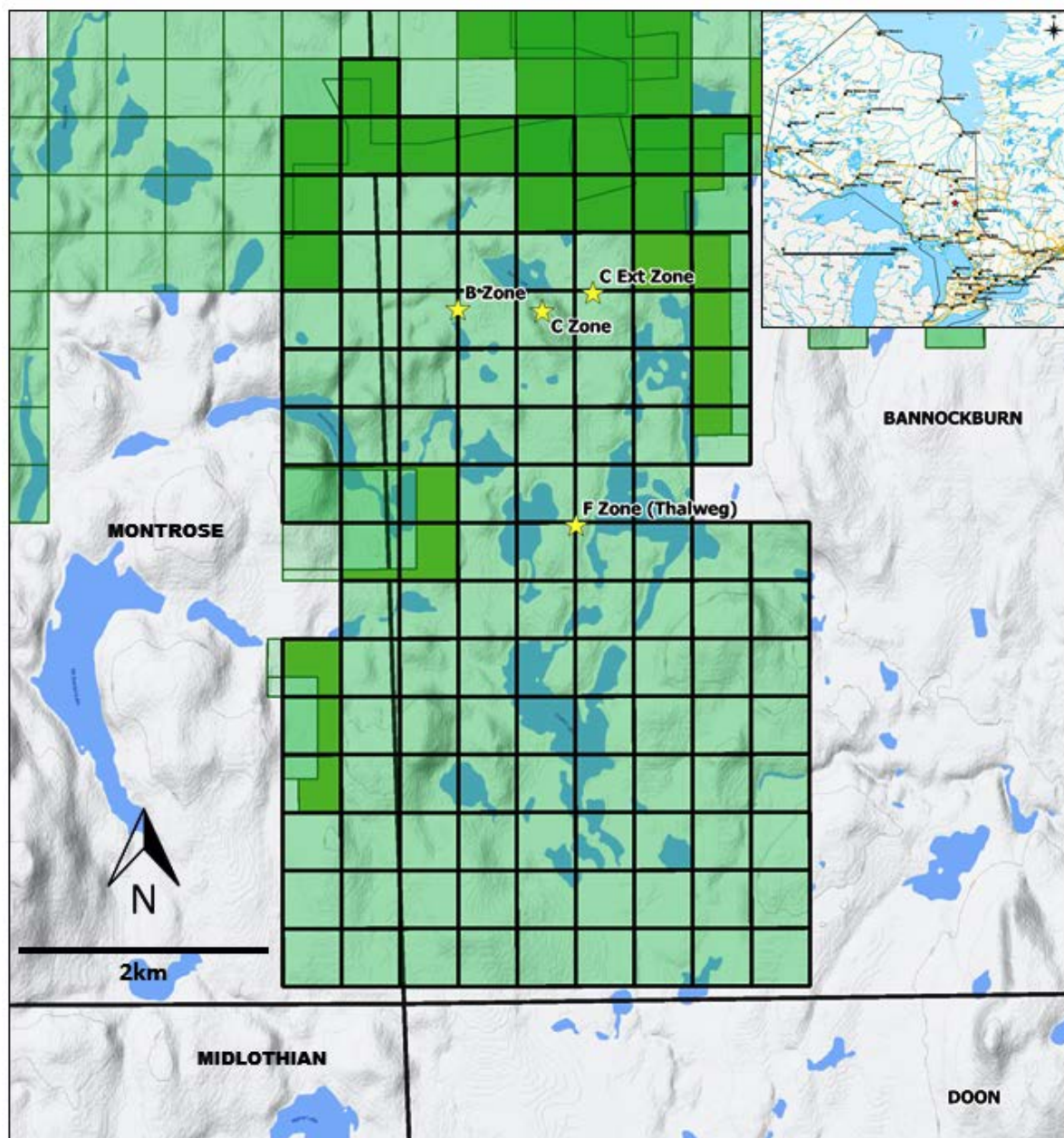


Figure 4-1. Township-scale map showing the location of the four main mineralized zones (yellow stars) on the Bannockburn Nickel Project, in Bannockburn and Montrose townships, Larder Lake Mining Division, Ontario, Canada. Project unpatented mining claims are outlined in black (SCMC=green; BCMC=dark green).

Table 4-1. Summary of mining claims, Bannockburn Nickel Project, Ontario, Canada.

Township / Area	Tenure	Type	Anniversary	Required/ Year	Work Applied	Reserve
BANNOCKBURN	290206	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN	245466	SCMC	2021-05-15	\$400	\$800	\$0
BANNOCKBURN	240066	SCMC	2021-04-11	\$400	\$800	\$14,800
BANNOCKBURN	217897	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN	178165	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN	134997	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN	134076	SCMC	2021-05-01	\$400	\$800	\$0
BANNOCKBURN	122995	SCMC	2021-04-11	\$400	\$800	\$9,856
BANNOCKBURN	318786	SCMC	2021-04-07	\$400	\$800	\$0
BANNOCKBURN	318193	SCMC	2021-04-07	\$400	\$800	\$0
BANNOCKBURN	247485	SCMC	2021-10-15	\$400	\$800	\$36,630
BANNOCKBURN	246046	SCMC	2021-04-07	\$400	\$800	\$0
BANNOCKBURN	227928	SCMC	2021-04-11	\$400	\$800	\$47,438
BANNOCKBURN	179311	SCMC	2021-04-07	\$400	\$800	\$0
BANNOCKBURN	106864	SCMC	2021-04-07	\$400	\$800	\$0
BANNOCKBURN	178710	SCMC	2021-04-07	\$400	\$800	\$0
BANNOCKBURN	302278	SCMC	2021-04-11	\$400	\$800	\$0
BANNOCKBURN	295224	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN	286597	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN	206390	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN	299484	BCMC	2021-10-15	\$200	\$400	\$0
BANNOCKBURN	264381	BCMC	2021-05-15	\$200	\$400	\$0
BANNOCKBURN	287298	SCMC	2021-03-24	\$400	\$800	\$50,000
BANNOCKBURN	233282	SCMC	2021-03-24	\$400	\$800	\$0
BANNOCKBURN	228817	SCMC	2021-03-24	\$400	\$800	\$0
BANNOCKBURN	149431	SCMC	2021-03-24	\$400	\$800	\$0
BANNOCKBURN	287492	SCMC	2021-03-24	\$400	\$800	\$0
BANNOCKBURN,MONTROSE	260459	SCMC	2021-03-24	\$400	\$800	\$0
BANNOCKBURN,MONTROSE	257887	SCMC	2021-03-24	\$400	\$800	\$0
MONTROSE	238315	SCMC	2021-03-24	\$400	\$800	\$0
BANNOCKBURN,MONTROSE	233096	BCMC	2021-03-24	\$200	\$400	\$0
BANNOCKBURN,MONTROSE	204454	SCMC	2021-03-24	\$400	\$800	\$0
MONTROSE	204453	BCMC	2021-03-24	\$200	\$400	\$0
BANNOCKBURN	200787	BCMC	2021-03-24	\$200	\$400	\$0
BANNOCKBURN,MONTROSE	159225	SCMC	2021-03-24	\$400	\$800	\$0
BANNOCKBURN	155465	SCMC	2021-03-24	\$400	\$800	\$0
MONTROSE	145122	SCMC	2021-03-24	\$400	\$800	\$0
MONTROSE	145121	BCMC	2021-03-24	\$200	\$400	\$0
MONTROSE	139660	BCMC	2021-03-24	\$200	\$400	\$0
MONTROSE	257888	SCMC	2021-03-24	\$400	\$800	\$0
MONTROSE	238317	BCMC	2021-03-24	\$200	\$400	\$0
BANNOCKBURN,MONTROSE	238316	BCMC	2021-03-24	\$200	\$400	\$0
BANNOCKBURN,MONTROSE	201858	SCMC	2021-03-24	\$400	\$800	\$0
BANNOCKBURN	189668	SCMC	2021-03-24	\$400	\$800	\$0
BANNOCKBURN	220901	SCMC	2021-03-24	\$400	\$800	\$53,311
BANNOCKBURN	314215	SCMC	2021-03-24	\$400	\$800	\$50,000
BANNOCKBURN	171535	SCMC	2021-03-24	\$400	\$800	\$50,000
BANNOCKBURN	323540	BCMC	2021-03-24	\$200	\$400	\$0

Township / Area	Tenure	Type	Anniversary	Required/ Year	Work Applied	Reserve
BANNOCKBURN	311318	BCMC	2021-03-24	\$200	\$400	\$0
BANNOCKBURN	287493	SCMC	2021-03-24	\$400	\$800	\$14,385
BANNOCKBURN	274849	BCMC	2021-03-24	\$200	\$400	\$0
BANNOCKBURN	220900	BCMC	2021-03-24	\$200	\$400	\$0
BANNOCKBURN	155464	SCMC	2021-03-24	\$400	\$800	\$0
BANNOCKBURN,MONTROSE	119356	BCMC	2021-03-24	\$200	\$400	\$0
BANNOCKBURN	325502	SCMC	2021-03-24	\$400	\$800	\$0
BANNOCKBURN	296212	BCMC	2021-03-24	\$200	\$400	\$0
BANNOCKBURN	278906	BCMC	2021-03-24	\$200	\$400	\$0
BANNOCKBURN	278905	BCMC	2021-03-24	\$200	\$400	\$0
BANNOCKBURN	278904	BCMC	2021-03-24	\$200	\$400	\$0
BANNOCKBURN	258829	SCMC	2021-03-24	\$400	\$800	\$50,000
BANNOCKBURN	258828	BCMC	2021-03-24	\$200	\$400	\$0
BANNOCKBURN	162961	BCMC	2021-03-24	\$200	\$400	\$0
BANNOCKBURN	106784	SCMC	2021-03-24	\$400	\$800	\$0
BANNOCKBURN	307508	BCMC	2021-03-24	\$200	\$400	\$0
BANNOCKBURN	228805	SCMC	2021-03-24	\$400	\$800	\$7,432
BANNOCKBURN	173553	BCMC	2021-03-24	\$200	\$400	\$0
BANNOCKBURN	173552	SCMC	2021-03-24	\$400	\$800	\$0
BANNOCKBURN	127455	BCMC	2021-03-24	\$200	\$400	\$0
BANNOCKBURN	334952	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN	334951	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN	324508	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN	324507	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN	295223	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN	286598	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN	247487	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN	247486	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN	220576	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN	155812	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN	127304	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN	127303	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN	332356	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN	332355	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN	321407	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN	302036	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN	272174	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN	264748	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN	250726	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN	235461	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN	206171	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN	169419	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN	169418	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN	145328	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN	134631	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN	329365	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN	316570	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN	316569	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN,MONTROSE	283867	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN,MONTROSE	238593	SCMC	2021-10-15	\$400	\$800	\$0

Township / Area	Tenure	Type	Anniversary	Required/ Year	Work Applied	Reserve
BANNOCKBURN	213998	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN,MONTROSE	209989	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN	195469	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN	188058	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN,MONTROSE	171973	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN	164699	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN	161353	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN	147310	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN,MONTROSE	143254	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN	105167	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN	164698	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN	164697	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN	136057	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN,MONTROSE	321092	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN,MONTROSE	304908	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN	303010	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN,MONTROSE	284730	BCMC	2021-10-15	\$200	\$400	\$0
BANNOCKBURN	237968	SCMC	2021-10-15	\$400	\$800	\$0
BANNOCKBURN	343500	SCMC	2021-10-15	\$400	\$800	\$0
MONTROSE	283866	BCMC	2021-10-15	\$200	\$400	\$0
MONTROSE	182547	BCMC	2021-10-15	\$200	\$400	\$0
MONTROSE	169092	BCMC	2021-10-15	\$200	\$400	\$0
BANNOCKBURN,MONTROSE	136058	SCMC	2021-10-15	\$400	\$800	\$0
MONTROSE	275947	SCMC	2021-10-15	\$400	\$800	\$0
MONTROSE	209990	SCMC	2021-10-15	\$400	\$800	\$0
MONTROSE	201963	SCMC	2021-10-15	\$400	\$800	\$0
MONTROSE	171974	SCMC	2021-10-15	\$400	\$800	\$0
			<b>Total:</b>	<b>\$44,600</b>	<b>\$89,200</b>	<b>\$383,852</b>

Table 4-2. Summary of Legacy Mining Claims, Bannockburn Nickel Project, Ontario.

Legacy Claim	Units	Township	Ownership	Type of Acquisition	NSR Royalty Interest
L 1198912	4	BANNOCKBURN	100%	Outokumpu Option	2%
L 1198916	4	BANNOCKBURN	100%	Outokumpu Option	2%
L 1198917	1	BANNOCKBURN	100%	Outokumpu Option	2%
L 1206090	1	BANNOCKBURN	100%	Outokumpu Option	2%
L 1207453	1	BANNOCKBURN	100%	Outokumpu Option	2%
L 1218721	11	BANNOCKBURN	100%	Outokumpu Option	2%
L 1218722	6	BANNOCKBURN	100%	Outokumpu Option	2%
L 1218723	1	BANNOCKBURN	100%	Outokumpu Option	2%
L 1218725	7	BANNOCKBURN	100%	Outokumpu Option	2%
L 1218727	7	BANNOCKBURN	100%	Outokumpu Option	2%
L 1218728	1	BANNOCKBURN	100%	Outokumpu Option	2%
L 1218731	1	BANNOCKBURN	100%	Outokumpu Option	2%

Legacy Claim	Units	Township	Ownership	Type of Acquisition	NSR Royalty Interest
L 1218732	11	BANNOCKBURN	100%	Outokumpu Option	2%
L 1218736	1	BANNOCKBURN	100%	Outokumpu Option	2%
L 1228144	8	BANNOCKBURN	100%	Outokumpu Option	2%
L 1228145	16	BANNOCKBURN	100%	Outokumpu Option	2%
L 1228146	16	BANNOCKBURN	100%	Outokumpu Option	2%
L 1228147	8	BANNOCKBURN	100%	Outokumpu Option	2%
L 1228148	6	BANNOCKBURN	100%	Outokumpu Option	2%
L 1228149	6	BANNOCKBURN	100%	Outokumpu Option	2%
L 1218726	1	MONTROSE	100%	Outokumpu Option	2%
L 1228150	8	MONTROSE	100%	Outokumpu Option	2%
L3011800	6	MONTROSE	100%	Grid Staked Claim	0%

## 4.2 Mining Lands Tenure System in Ontario

Traditional claim staking (physical staking) in Ontario came to an end on January 8, 2018 and on April 10, 2018 the Ontario Government converted all existing claims (referred to as Legacy Claims) into one or more “cell” claims or “boundary” claims as part of their new provincial grid system. The provincial grid is latitude- and longitude-based and is made up of more than 5.2 million cells ranging in size from 17.7 ha in the north to 24 ha in the south. Dispositions such as leases, patents and licenses of occupation were not affected by the new system. Mining claims are registered and administrated through the Ontario Mining Lands Administration System (“MLAS”), which is the online electronic system established by the Ontario Government for this purpose.

Mining claims can only be obtained by an entity (person or company referred to as a “prospector”) that is a registered MLAS User, has completed the Mining Act Awareness Program, and holds a valid Prospector’s License granted by the MENDM. A licensed prospector is permitted to register open lands for exploration on the MLAS system onto provincial Crown and private lands that are open for registration. Once the mining claim has been registered, the prospector is permitted to conduct exploratory and assessment work on the subject lands. To maintain the mining claim and keep it properly staked, the prospector must adhere to relevant staking regulations and conduct all prescribed work thereon. The prescribed work is currently set at \$400 per annum per single cell mining claim and \$200 per annum per boundary cell mining claim. The prescribed work must be completed or payments in lieu of work can be made to maintain the claim. No minerals may be extracted from lands that are subject to a mining claim – the prospector must possess either a mining lease or a freehold interest to mine the land, subject to all provisions of the Ontario Mining Act.

A mining claim can be transferred, charged or mortgaged by the prospector without obtaining any consents. Notice of the change of owner of the mining claim or charge thereof should be recorded in the mining registry maintained by the MENDM.

#### **4.2.1 Mining Lease**

If a prospector wants to extract minerals, the prospector may apply to the MENDM for a mining lease. A mining lease, which is usually granted for a term of 21 years, grants an exclusive right to the lessee to enter upon and search for, and extract, minerals from the land, subject to the prospector obtaining other required permits and adhering to applicable regulations.

Pursuant to the provisions of the Ontario Mining Act (the “Act”), the holder of a mining claim is entitled to a lease if it has complied with the provisions of the Act in respect of those lands. An application for a mining lease may be submitted to the MENDM at any time after the first prescribed unit of work in respect of the mining claim is performed and approved. The application for a mining lease must specify whether it requests a lease of mining and surface rights or mining rights only and requires the payment of fees.

A mining lease can be renewed by the lessee upon submission of an application to the MENDM within 90 days before the expiry date of the lease, provided that the lessee provides the documentation and satisfies the criteria set forth in the Act in respect of a lease renewal.

A mining lease cannot be transferred or mortgaged by the lessee without the prior written consent of the MENDM. The consent process generally takes between two and six weeks and requires the lessee to submit various documentations and pay a fee.

#### **4.2.2 Freehold Mining Lands**

A prospector interested in removing minerals from the ground may, instead of obtaining a mining lease, make an application to the Ontario Ministry of Natural Resources (“MNR”) to acquire the freehold interest in the subject lands. If the application is approved, the freehold interest is conveyed to the applicant by way of the issuance of a mining patent. A mining patent can include surface and mining rights or mining rights only.

The issuance of mining patents is much less common today than in the past, and most prospectors will obtain a mining lease in order to extract minerals. If a prospector is issued a mining patent, the mining patent vests in the patentee all of the provincial Crown’s title to the subject lands and to all mines and minerals relating to such lands, unless something to the contrary is stated in the patent.

As the holder of a mining patent enjoys the freehold interest in the lands that are the subject of such patent, no consents are required for the patentee to transfer or mortgage those lands.

#### **4.2.3 Licence of Occupation**

Prior to 1964, Mining Licences of Occupation (“MLO”) were issued, in perpetuity, by the MENDM to permit the mining of minerals under the beds of bodies of water. MLOs were associated with portions of mining claims overlying adjacent land. As an MLO is held separate and apart from the related mining claim, it must be transferred separately from the transfer of the related mining claim. The transfer of an MLO requires the prior written consent of the MENDM. As an MLO is a licence, it does not create an interest in the land.

#### **4.2.4 Land Use Permit**

Prospectors may also apply for and obtain a Land Use Permit (“LUP”) from the MNR. An LUP is considered to be the weakest form of mining tenure. It is issued for a period of 10 years or less and is generally used where there is no intention to erect extensive or valuable improvements on the subject lands. LUPs are often obtained when the land is to be used for the purposes of an exploration camp. When an LUP is issued, the MNR retains future options for the subject lands and controls its use. LUPs are personal to the holder and cannot be transferred or used as security.

### **4.3 Mining Law: Province of Ontario**

In the Province of Ontario, The Mining Act (the “Act”) is the provincial legislation that governs and regulates prospecting, mineral exploration, mine development and rehabilitation. The purpose of the Act is to encourage prospecting, online mining claim registration and exploration for the development of mineral resources, in a manner consistent with the recognition and affirmation of existing Aboriginal and treaty rights in Section 35 of the Constitution Act, 1982, including the duty to consult, and to minimize the impact of these activities on public health and safety and the environment (<https://www.mndm.gov.on.ca/en/mines-and-minerals/mining-act>).

#### **4.3.1 Required Plans and Permits**

There are two types of applications that must be considered prior to starting an exploration program. An Exploration Plan is a document provided to the MENDM by an Early Exploration Proponent indicating the location and dates for prescribed early exploration activities. An Exploration Permit is an instrument which allows an Early Exploration Proponent to carry out prescribed early exploration activities at specific times and in specific locations. An Exploration Plan or Exploration Permit must be submitted prior to undertaking any of the prescribed work listed by the Ministry but neither of these permits are necessary on Crown Patents (patented lands).

Exploration plans, exploration permits and closure plans obtained prior to the conversion are not affected by the conversion of the mining claims or the MLAS registration system. A plan or permit will continue to apply only to the area to which it is applied.

##### **4.3.1.1 Exploration Plans**

Exploration Plans are used to inform Aboriginal Communities, Government and Surface Rights Owners and other stakeholders about these activities. In order to undertake certain prescribed exploration activities, an Exploration Plan application must be submitted, and any surface rights owners must be notified. Aboriginal communities potentially affected by the Exploration Plan activities will be notified by the MENDM and have an opportunity to provide feedback before the proposed activities can be carried out.

Early Exploration Proponents who wish to undertake prescribed exploration activities on claims, leases or licenses of occupation must submit an Exploration Plan. The early exploration activities that require an Exploration Plan are as follows:

- Line cutting that is a width of 1.5 m or less;
- Geophysical surveys on the ground requiring the use of a generator;
- Mechanized stripping a total surface area of less than 100 square metres within a 200-metre radius;
- Excavation of bedrock that removes one cubic metre and up to three cubic metres of material within a 200-metre radius; and
- Use of a drill that weighs less than 150 kilograms.

Exploration Plan applications should be submitted directly to the MENDM at least 35 days prior to the expected commencement of activities. Submission of an Exploration Plan is mandatory.

#### **4.3.1.2 Exploration Permits**

Exploration Permits include terms and conditions that may be used to mitigate potential impacts identified through the consultation process. Some prescribed early exploration activities will require an Exploration Permit. Those activities will only be allowed to take place once the permit has been approved by the MENDM.

Surface rights owners must be notified when applying for an Exploration Permit. Aboriginal communities potentially affected by the Exploration Permit activities will be consulted by the MENDM and have an opportunity to provide comments and feedback before a decision is made on the Exploration Permit. Permit proposals will be posted for comment on the Ontario Ministry of the Environment Environmental Registry for 30 days.

Early Exploration Proponents who wish to undertake prescribed exploration activities on claims, leases or licenses of occupation should submit an Exploration Permit application. The early exploration activities that require an Exploration Permit are as follows:

- Line cutting that is a width greater than 1.5 metres;
- Mechanized stripping of a total surface area of greater than 100 square metres within a 200-metre radius (and below advanced exploration thresholds);
- Excavation of bedrock that removes more than three cubic metres of material within a 200-metre radius; and
- Use of a drill that weighs more than 150 kilograms.

Exploration Permit applications should be submitted directly to the MENDM at least 55 days prior to the expected commencement of activities. Submission of an Exploration Permit is mandatory.

#### **4.3.1.3 Current Permits and Project Status**

Grid Metals was issued on 5 December 2019, an Exploration Permit (number PR-19-000262) valid until 4 December 2022, to complete over 20 diamond drill holes testing both identified nickel mineralized trends and geophysical targets within the Property boundaries. This permit will cover any work outlined in the phased recommended work program as long as it is completed before 4 December 2022.



The Authors are not aware of any other permits or authorizations required to complete the proposed exploration program, however some other regulatory permits and notable requirements for early exploration activities, outside of the MENDM can apply. For example, permits would be required from the Ministry of Natural Resources and Forestry ("MNRF") for road construction, cutting timber, fire permits (burning), and water crossing should they be required (<https://www.ontario.ca/page/ministry-natural-resources-and-forestry>). Projects in close proximity to water may require provisions to protect fish habitats under the jurisdiction of the Department of Fisheries and Oceans Canada (<https://www.dfo-mpo.gc.ca/index-eng.htm>).

#### **4.4 Royalties and Obligations**

A portion of the Project is subject to a 2% Net Smelter Return Royalty on Legacy Mining Claims that formed part of the Outokumpu Option Property acquired by the Company in 2003 (see Table 4-2).

The Authors are unaware of any other royalties or obligations associated with the Property.

#### **4.5 Environmental Liabilities**

At this early stage of the Project's development there are no requirements for environmental studies and the Company will implement best practices in terms of preserving and minimizing its impact on the environment.

The Authors are not aware of any environmental liabilities with respect to the Property.

#### **4.6 Other Significant Factors and Risks**

##### **4.6.1 Social or Community Impact**

The Company will maintain an open dialogue with all stakeholders associated with the Project, including private landowners, government officials and representatives of the Wabun Tribal Council of First Nations (Matachewan First Nation).

The Authors are not aware of any other significant factors and risks that may affect access, title, or the right or ability to perform the proposed work program on the Property.

## 5.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

### 5.1 Accessibility

There is excellent road access to the Property either from Matachewan, heading north and west of the town to the end of Highway 566, a paved and gravel road maintained year-round by the Ontario Government, thence southwest along good quality gravel forest access/logging roads. The Property boundary is approximately 5 km by road from the end of Highway 566. The Property may also be accessed in the summer months from Timmins via a network of good quality gravel logging roads which lead south from the City of Timmins.

Recent forestry operations in the area have improved the access to the north and eastern portions of the Property. Development of a network of forest access roads and clear-cut areas allows for greater access and operational flexibility.

Exploration work such as drilling and geophysical surveys can be completed year-round, with some surface work (*i.e.*, geological mapping, trenching and surface sampling) limited by snow cover during the winter months.

### 5.2 Climate

The climate in the Matachewan, Ontario region is generally suitable for exploration, development and operation of a quarry or mine throughout the year. The average winter temperature (December to February) is -9.1°C and the average summer temperature (June to August) is +17.5°C. The cumulative average annual snowfall is 200.9 cm and the average cumulative annual rainfall is 827 mm. A summary of the average monthly temperature and precipitation data as recorded for Kirkland Lake, Ontario, about 65 km northeast of the Property, is provided in Table 5-1.

Table 5-1. Kirkland Lake, Ontario temperature and precipitation data (monthly averages 1971-2000).

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Daily Average (°C)	-17.1	-14.8	-7.7	1.3	9.8	15.0	17.8	16.5	10.9	4.6	-3.6	-12.9
Standard Deviation	3.4	2.8	2.7	2.3	1.9	1.9	1.1	1.4	1.6	2.1	2.0	3.9
Daily Max. (°C)	-10.7	-7.7	-1.0	7.2	16.3	21.5	24.0	22.3	15.9	8.8	0.2	-7.5
Daily Min. (°C)	-23.4	-21.7	-14.3	-4.7	3.2	8.5	11.6	10.6	5.8	0.4	-7.5	-18.3
Extreme Max. (°C)	8.0	12.0	18.5	29.0	35.6	37.5	38.9	36.7	32.8	26.1	18.9	14.5
Extreme Min. (°C)	-47.0	-43.5	-41.0	-28.9	-12.2	-2.8	0.0	-1.0	-9.5	-13.0	-31.5	-42.0
Rainfall (mm)	1.9	1.2	14.5	33.8	70.7	90.4	9.5	92.0	99.5	70.6	21.8	2.8
Snowfall (cm)	64.9	47.5	46.6	20.2	2.8	0.2	0.0	0.0	0.5	5.8	37.1	68.7
Extreme Daily Rainfall (mm)	22.0	15.2	80.0	41.7	60.5	96.5	53.8	78.5	52.6	71.1	33.8	15.2
Extreme Daily Snowfall (cm)	35.0	38.1	41.9	25.4	10.2	2.0	0.0	0.0	5.0	16.5	29.0	34.0
Extreme Snow Depth (cm)	74.0	90.0	95.0	68.0	7.0	0.0	0.0	0.0	0.0	5.0	60.0	73.0

Source: <https://www.eldoradoweather.com/canada/climate2/Kirkland%20Lake.html>, data courtesy of Environment Canada.

### 5.3 Local Resources and Infrastructure

Essential supplies, food, fuel, and accommodation are available in Matachewan (Matachewan Township: pop. 229 – 2019 estimate). The full range of equipment, supplies and services required for any exploration program and mining development is variably available in the City of Timmins (pop. 41,788 - 2016 Census), the Town of Kirkland Lake (pop. 7,981 - 2016 Census), or the City of Greater Sudbury (pop. 161,531 - 2016 Census), at distances of 100 km, 80 km and 350 km, respectively, from the Property by road. These areas also possess a skilled mining work force from which personnel could be sourced for any new mine development on the Property.

The City of Greater Sudbury is a major mining centre, and as home to both Vale Canada (previously Inco) and Glencore Canada (previously Falconbridge), the Sudbury area is the western world's largest producer of nickel and the location of the largest fully integrated mining, milling, smelting and refining complex in the world. Over 300 companies involved in mining related activities offer expertise covering all areas of underground hardrock mining and environmental rehabilitation.

### 5.4 Physiography

The Project area is well drained with moderate topographic relief. Large sand ridges trend north-south across the Property. Outcrop exposure is approximately 5% but is generally restricted to the calc-alkaline volcanic sequences. The softer, recessive weathering komatiitic rocks tend to lie in topographic lows, covered by swamps and lakes, and outcrop only along the edges of dacite/andesite outcrop areas. Several lakes are located on the Property and represent approximately 10% of the area. There are only a few minor beaver ponds and swampy areas associated with lakes and small streams. Forest cover is a combination of jack pine, aspen, birch, and alders with the occasional red pine and cedar trees. Much of the timber in this area have been designated for cutting or has already been cut by forestry companies. Water accessibility is excellent throughout the year.

The area is dominated by a thick sequence of glacial outwash sands with lesser proportions of clay and gravel. Overburden thicknesses estimated from drilling range from nil to greater than 40 metres. The thicker overburden cover occurs over the komatiitic rocks which appear to have been more susceptible to glacial erosion.

The area lies at an average of 350 - 400 m AMSL with local hills in excess of 450 m AMSL.

#### 5.4.1 Flora and Fauna

The region is within the Lake Abitibi Ecoregion (3E), subarea 3E-5, with mixed forest, coniferous forest, sparse forest, and deciduous forest growth (Crins *et al.*, 2009). Once well forested with white pines “up to 3 feet or more in diameter” as stated by Cooke (1919), Lovell (1967) describes the original spruce and pine in the Matachewan area as being cut “long ago”.

Ecoregion 3E falls within Rowe's (1972) Boreal Forest Region particularly the Missinaibi–Cabonga portion. The vegetation in this ecoregion is boreal, with black spruce, white spruce, balsam fir, jack pine, tamarack, white birch, trembling aspen, and balsam poplar constituting the main forest

species. Species characteristic of the more southerly Great Lakes–St. Lawrence Forest Region, such as eastern white pine and red pine, grow on sandy ridges and other warmer-than-normal sites, and now tend to be found only in small, isolated pockets. American elm and eastern white cedar inhabit protected valleys.

The area is located within the Ontario Ministry of Natural Resources Wildlife Management Unit 29. As with the vegetation, the fauna of the ecoregion is typically boreal. Moose, gray wolf, American marten, Canada lynx, snowshoe hare, red squirrel, beaver, and eastern red-backed vole are characteristic mammals. Common loon, great blue heron, bald eagle, osprey, spruce grouse, gray jay, common raven, Philadelphia vireo, Tennessee warbler, palm warbler, yellow-rumped warbler, Lincoln's sparrow, white-throated sparrow, purple finch, and pine siskin are among the representative birds in the ecoregion. Amphibians and reptiles include spotted salamander, boreal chorus frog, wood frog, mink frog, midland painted turtle, and eastern gartersnake. Representative fish include brook trout, lake whitefish, northern pike, walleye, and yellow perch.

Substrates in the western and southeastern portions of the ecoregion are poorly developed. The varied and steep terrain in these areas yields rock outcrops with poor or no substrate development. The south-central and southeastern portions are blanketed with Humo-ferric Podzols developed on deep sands, rocky areas with forest cover, and scattered pockets of Brunisols.

## 5.5 Power, Water, Mine Facilities

Power lines extend northwest of Matachewan along Highway 566 for approximately 7 km to the Extender Minerals barite processing mill. This line could presumably be extended to the Property if required.

The Authors also note that nickel processing capability is available at Northern Sun Mining's Redstone Mill Facility (<http://northernsunmining.ca/Redstone-Mill/Redstone-Mill-Overview/default.aspx>), south of Timmins, approximately 60 km from the Project. This facility might be available on a custom milling basis for material from the Property thereby obviating the need to build a mill.

Abundant water resources are present in the lakes, rivers, creeks, and beaver ponds on the Property. There would appear to be ample room on the Property to build a mine and mill. A number of locations would appear to offer potential to construct environmentally sound tailings disposal area(s).

## 6.0 HISTORY

---

Exploration in the Matachewan area can be traced back to 1916 with the discovery of gold by Jake Davidson (of Young-Davidson fame). This attracted increasing prospecting and exploration interest to the region including Bannockburn Township. In the 1930s several gold showings were discovered in northwestern Bannockburn Township. Rickaby's work of 1932 highlights the "Bannockburn Gold Area" and the only eventual producer in the immediate area, the Ashley Gold Mine (located 4 km north of Rahn Lake). The Ashley Mine produced 155.9 kg (50,123 ounces) of gold from 142,497 t (157,076 tons) of ore (grading 10.94 g Au/t) in the period 1932-36 (Guindon *et al.*, 2016) with a total reported value of \$1,624,012.08 (Sinclair *et al.*, 1937).

### 6.1 Asbestos

On the Property itself, the earliest exploration in the area was carried out on the asbestos-bearing ultramafic rocks around Rahn Lake in 1919, followed by a period of limited mining in 1936 and 1939 by Rahn Lake Mines Corporation, Limited who acquired the property from Clover Leaf Mining Company Limited and The Empire Asbestos Mines Company. Two shafts were sunk on the Property during this period; the first shaft reached an ultimate depth of 42.8 m (140 feet) and the second shaft reached an ultimate depth of 18.3 m (60 feet). In 1936, a total of 1,784 t (1,966.5 tons) of rock including 1,338.6 t (1,475.5 tons) of asbestos ore were hoisted from the two shafts (Sinclair *et al.*, 1937); asbestos valued at \$250 was shipped (Hewitt and Satterly, 1953). In 1939, a total of 1,069.6 t (1,179 tons) of rock was hoisted from the 30.5 m (100-foot) level of the first shaft producing 547.9 t (604 tons) of sorted crude asbestos ore (Tower *et al.*, 1940) with a final milled product of 16.3 t (18 tons) of asbestos valued at \$720 (Hewitt and Satterly, 1953).

Montrose Mines, Limited ("Montrose") took over the property in 1940 but no further production is reported. Subsequent to Montrose, York Asbestos Mines, Limited took over development of the property. A magnetic survey and 2,691 m (8,500 feet) of follow-up diamond drilling was carried out by Lundberg Exploration, Limited in 1951 and 1952. A "No.5 zone" carrying short-fibre chrysotile is described to be located about 1.5 km south of the main shaft (*ibid.*).

Additional asbestos production in the area comes from the ultramafic rocks in Midlothian Township, 12 km to the south-southeast of Rahn Lake. That area was originally explored around the same time of the work at Rahn Lake; however, it was not until the period between 1975 and 1977 that the Lloyd Lake deposit was exploited by United Asbestos Incorporated (Kretschmar and Kretschmar, 1986).

### 6.2 Nickel Sulphides

This renewed interest in asbestos in the late 1960s and early 1970s attracted Canex Aerial Exploration Limited ("Canex") to complete geophysical and geological surveys over the property area. Several vertical follow-up diamond drill holes were completed on the highly magnetic ultramafic bodies. Sulphide mineralization associated with olivine cumulate rocks was noted in several drill holes that were completed in the area; however, assessment data suggests that these sulphide intercepts were not assayed for their nickel contents (Harron, 2005).

Houlé and Leshar (2011) describe three main periods of nickel exploration within the Abitibi Greenstone Belt, with those periods being: 1907-1920; 1950-1980 (accented by the “Nickel Boom” of 1966-1971 coinciding with the discovery and development of Kambalda and other deposits in Western Australia); and 1988-2011. This latter period features the relatively recent discoveries of nickel mineralization in the Bannockburn Area.

The Ontario Government contracted three programs of airborne geophysical surveying over the Property and surrounding areas. These programs included coverage of the northern half of Bannockburn Township (EM and magnetics by Questor Surveys Ltd.; ODM, 1975), coverage of the northwest and northeast parts of Bannockburn Township (GEOTEM™ and magnetics by Geotorex Limited; Ontario Geological Survey, 1990a, 1990b), and coverage of the southwest and southeast parts of Bannockburn Township (GEOTEM III™ and magnetics by Fugro Airborne Surveys; Ontario Geological Survey, 2000a, 2000b). Collectively, the airborne surveys identified several highly magnetic bodies now known to represent the komatiitic sequences on the main part of the Property. Several EM conductors, parallel to stratigraphy, were also identified by the survey in the northwestern portion of the Property.

### **6.3 The Bannockburn Property**

The original “Bannockburn Property” was staked by Outokumpu Mines Ltd. (“Outokumpu”) in March and April of 1995, after an assessment file search revealed the presence up to 30% pyrrhotite and trace chalcopyrite over a 3.65 m-long drill hole intersection at a peridotite-dacite contact in the work undertaken by Canex. No assays were reported for this drill hole intersection. Outokumpu carried out exploration work on the Property during the period between 1995 and 1999.

Mustang Minerals optioned the Property from Outokumpu in July, 2003. The terms of the option allowed Mustang Minerals to earn a 100% interest in the Property, subject to an underlying net smelter return royalty, by spending \$350,000 on exploration and making cash payments of \$100,000. The terms of the option have been satisfied. Details of the exploration work undertaken by Outokumpu prior to Mustang Minerals optioning the Property in 2003, are presented in the following sections. Historical expenditures on the Property are estimated at about \$4.0M.

There are no historical mineral resource or mineral reserve estimates on the Property.

#### **6.3.1 Outokumpu Mines Ltd (1995-1999)**

Between 1995 and 1999, Outokumpu performed systematic exploration on the Property in a search for economic nickel deposits. Their work included ground magnetic, HLEM, and Pulse EM surveys; down-hole pulse EM surveys, mise-à-la-masse surveys; surface geological mapping; various geochemical surveys and diamond drilling. In 1997, the Property size was increased to the north and south as more land became available for staking. The exploration work that was conducted by Outokumpu is summarized in Table 6-1 and described below in more detail (Davis, 1999; Brereton, 2003; Harron, 2005).

Table 6-1. Summary of exploration work completed by Outokumpu.

Description of Work	Quantity
Diamond Drilling (NQ and BQ)	30 holes – 9,215m
Line Cutting & Mapping	135km
Ground Magnetic Surveys	125m
Ground HLEM Surveys	75m
Ground Pulse EM Surveys	37km
Down Hole Pulse EM Surveys	9,660m
Down Hole Mise a la Masse	4294m
Whole Rock Geochemical Samples	211 samples
Assay Analyses	620 samples
Soil Analyses – Mobile Metal Ion	76 samples
Soil Analyses – Enzyme Leach	76 samples

Co-author, Paul Davis, was working for Outokumpu at the time of the nickel discovery on the Bannockburn Property. Given the familiarity with Outokumpu's data collection methods, it is the opinion of the Authors that the Outokumpu work described herein is of a high standard.

### 6.3.2 Geological Mapping

Geological mapping at a scale of 1:5000 was completed on all gridded portions of the Property. Mapping indicated that the dacitic volcanic rocks comprise the majority of the outcrop on the Property while the komatiitic rocks are more easily eroded and are typically covered by overburden.

Early work by Outokumpu defined the Rahn Lake Zone which correlates with the A-Zone, located west of Rahn Lake and traceable southward, falling along the north-south ultramafic-volcanic contact trend.

### 6.3.3 Enzyme Leach Soil Survey

Seventy-six soil samples were collected over the Thalweg Fe-Ni-Cu sulphide mineralization, subsequent to the discovery of this zone by drill testing of a ground geophysical anomaly. The purpose of this soil survey was to test the sensitivity of the Enzyme Leach partial digestion technique for detecting blind Fe-Ni-Cu sulphide mineralization.

The samples were collected at 20-m intervals and stored in paper bags and allowed to dry at room temperature. Only the B-horizon was sampled. The samples were then shipped to Activation Laboratories for analyses. The analytical technique involves the exposure of the sample to a glucose-rich fluid that dissolves the manganese oxides contained within the sample. The manganese oxides are thought to capture the free moving ions and concentrate them into the solution. The solution is then run through the ICP/MS (inductively coupled plasma-mass spectrometer) which measures the concentrations of the 32 elements with parts per billion detection limits.

Davis (1999), determined that the results of the survey were inconclusive. It was noted that the metal cations (Ni, Co, Cu, Zn) displayed numerous peaks, none of which coincided with known Fe-Ni-Cu sulphide mineralization. The anions (Cl, Br, I) also produced numerous peaks. Additionally,

Haziza (1998), could not correlate the geochemical responses to the known sulphide mineralization or the interpreted geological stratigraphy.

#### **6.3.4 Mobile Metal Ion (MMI) Soil Survey**

Seventy-six samples were collected over the Thalweg Fe-Ni-Cu sulphide mineralization. The purpose of this soil survey was to test the sensitivity of the MMI partial digestion technique for detecting blind Fe-Ni-Cu sulphide mineralization.

The samples were collected and stored in sealed plastic bags in order to maintain the moisture content of the samples. The samples were then shipped to XRAL Laboratories for sample preparation and analysis. The analytical technique involves the exposure of the sample to a weak leaching agent that strips the soil of its stored mobile metal ions. The solution is then run through the ICP/MS (induced coupled plasma-mass spectrometer) which gives the concentrations of the elements with part per billion detection limits. Both the MMI-A (Cu, Pb, Zn, and Cd) and MMI-B (Co, Au, Ag, Pd, and Ni) methods were completed.

Davis (1999), concluded that interpretation of the data was difficult due to the number of peaks recorded on each line. It was also noted that the presence of the Ni-Cu sulphide did not appear to be reflected in the mobile metal ion content of the soils. Haziza (1998), concluded that the data was too noisy to effectively interpret the geochemical results and identify potential targets.

#### **6.3.5 Geophysical Surveys**

Outokumpu personnel completed ground magnetics and horizontal loop electromagnetic (“HLEM”) geophysical surveys over the bulk of their property at that time. Surface Crone Pulse EM and down-hole Pulse EM surveys, and time domain electromagnetic (“TDEM”) survey methods were restricted to the areas of interest over known Fe-Ni-Cu sulphide mineralization. Quantec Geophysics Limited (Quantec Geoscience Inc.) (“Quantec”) completed surface and down-hole Protem surveys (transient electromagnetic (“TEM”) survey methods), and Outokumpu personnel carried out down-hole mise-à-la-masse surveys.

##### **6.3.5.1 Ground Magnetometer Survey**

A total of 125 line-km of ground magnetometer surveying was completed in four separate survey areas by Outokumpu personnel. The magnetic surveys were completed using the BRGM, OMNI IV Base Station system and the Scintrex Envi Mag field system (Grant, 1996 and 1997). The surveys were concentrated over the komatiitic sequences in an attempt to identify areas that may represent channelized flows or thick olivine cumulate sequences. Several areas of interest were identified by the ground magnetic survey.

##### **6.3.5.2 HLEM Survey**

Outokumpu personnel completed 75.1 line-km of ground HLEM (Max-Min) geophysical surveys in conjunction with the ground magnetometer surveys. The surveys were performed using a 120-m coil separation with a station interval of 20 metres. The HLEM surveys were completed with the



Apex Parametrics MaxMin II system. Three frequencies were utilized which include 3555Hz, 1777Hz, and 222Hz and both the in-phase and quadrature components of the secondary field were measured (Grant, 1996 and 1997).

Several weak to strong conductors have been identified within the Property boundaries. Many of these conductors are coincident with the highly magnetic komatiitic rocks and may represent Ni-Cu sulphide mineralization. A few of the conductors are associated with the calc-alkaline volcanic rocks and were interpreted to be related to oxide iron formation.

#### **6.3.5.3 Surface Pulse EM Survey**

A total of 19 line-km was surveyed using the Crone Pulse EM system. The Crone Pulse EM system is a TDEM method that utilizes an alternating pulsed primary current with a controlled shut-off and measures the rate of decay of the induced secondary field across a series of time windows during the off-time (MacNeil, 1997a and 1997b).

Surveys were completed over the Thalweg Fe-Ni-Cu sulphide zone (F-Zone). A strong conductor was identified at the komatiite/dacite contact associated with the Thalweg Fe-Ni-Cu sulphide zone. The conductor can be traced approximately 150 m along strike. A weak conductor was identified to the east of the Thalweg Fe-Ni-Cu sulphide zone located wholly within the hanging wall andesite/dacite.

#### **6.3.5.4 Down-Hole Pulse EM Survey**

A total of 3,359.5 m of Crone down-hole Pulse EM was completed on 11 diamond drill holes at the F-Zone (Thalweg).

Numerous in-hole anomalies were identified within the diamond drill holes that are associated with massive, net-textured and disseminated sulphides. All in-hole anomalies were explained by sulphide zones identified within the diamond drill core.

Off-hole anomalies were identified in association with the Thalweg sulphide zone. These off-hole anomalies were interpreted as representing additional massive and/or net-textured Ni-Cu sulphides and represented targets for future work.

#### **6.3.5.5 Surface PROTEM Survey**

A total of 18.05 line-km of surface Protem was completed by Quantec. The surveys were completed using a Digital Protem Ground Transient Electromagnetic (TEM) System. Two surveys were completed over the komatiite volcanic stratigraphy in the northern portion of the Property associated with the grouping of the Bannockburn and Rahn Lake Ni-Cu sulphide occurrences.

Transient electromagnetic profiling is conducted on lines either adjacent to (Off-Loop mode) or surrounded by (In-Loop mode) a large fixed rectangular transmit loop. Current is passed through the loop, which following the "Turn-Off", produces a primary magnetic field both inside and outside of the loop. This primary field induces a vortex current pattern, which energizes conductors, which in turn create their own secondary magnetic field. The rate of the decaying secondary magnetic flux is measured as the vertical, in-line horizontal, and/or cross line horizontal vector components

on surface using an air-core sensor coil. These measurements of the TEM decay are taken during the “Off-Time”.

A weak conductive body was identified to the north of the Rahn Lake Zone and was interpreted to be associated with Ni-Cu sulphide mineralization intersected by diamond drilling. A very strong, one line anomaly was identified to the east of the Rahn Lake Zone contained wholly within dacite/andesite; however, no surface conductor was identified during mapping even though the anomaly is located in an area of close to 100% outcrop exposure.

#### **6.3.5.6 Down-Hole Protem Survey**

A total of 3,685 m of down-hole Protem were completed by Quantec (Tolley *et al.*, 1997). Surveys were focused around the known mineralization and were completed using the BH-43 3-D Borehole Probe with Tilt Sensors System.

Borehole TDEM surveys were conducted in a 3-D mode. The borehole survey is particularly useful to determine the geometrical relationship between a conductor or a complex swarm of conductors around the drill hole. Of particular importance is its application in cases where the drilling is believed to have missed the target of interest. A survey can effectively determine the direction and distance from the drill hole to the conductor by measuring two orthogonal secondary field components in addition to the axial component. Additionally, conductors located below the end of a drill hole, which either may be too deep and/or have gone previously undetected from surface, may be discovered during the course of a borehole TEM survey.

Several off-hole conductors were identified within the borehole surveys completed on the Thalweg zone. An in-hole and off-hole anomaly was also identified in association with the sulphide mineralization within the Rahn Lake Zone. No anomalies were identified within the holes that intersect the Bannockburn Zone (B-Zone).

#### **6.3.5.7 Down-Hole Mise-à-la-Masse Survey**

A total of 4,294 m of down-hole mise-à-la-masse surveys was completed by Outokumpu personnel (Davis, 1999). Current electrodes were placed into known sulphide mineralization and measurements were taken down the drill hole at 20 m, 10 m, and 5 m intervals depending upon the strength of the result. Current electrodes were placed at the net-textured sulphides in BN-12-97 and the massive sulphides in BN-3-96.

Results from BN-3-96 identified a small bulls-eye target around the known massive sulphide mineralization. This indicates that the sulphide zone is restricted in size and does not appear to have much of a strike or dip extension.

Results from BN-12-97 identified an area of high potential for hosting additional sulphide mineralization. The area is located to the north of BN-12-97 and south of BN-16-97 (Table 6-2). The mise a la masse response was very strong and outlined an area that may host additional accumulations of Ni-Cu sulphide mineralization.

### 6.3.6 Historical Diamond Drilling

From October 1996 to February 1999, Outokumpu completed 30 diamond drill holes (BQ-size core) on the Bannockburn Property totalling 9,215 m of core (Table 6-2).

Diamond drilling was focused in two main areas, namely the Rahn Lake area (Figure 6-1) with 12 drill holes and the Charlewood Lake area with 18 drill holes (Figure 6-2). Drill holes were planned by Outokumpu, targeting ground geophysical results interpreted to represent nickel-bearing sulphide concentrations (Brereton, 2003).

Table 6-2. Summary of diamond drill holes completed by Outokumpu (1996-1999).

BHID	Area	UTM_mE	UTM_mN	Elev (MASL)	Az	Dip	Length (m)	Core Size
BN-1-96	Charlewood Lake	507673	5311481	358	244	-50	363.50	BQ
BN-2-96	Charlewood Lake	507718	5311400	355	250	-55	278.00	BQ
BN-3-96	Charlewood Lake	507555	5311559	356	250	-50	195.50	BQ
BN-4-96	Charlewood Lake	507520	5311416	358	270	-90	90.00	BQ
BN-5-96	Charlewood Lake	507555	5311559	356	250	-65	356.00	BQ
BN-6-96	Charlewood Lake	507493	5311651	359	250	-65	176.00	BQ
BN-7-96	Charlewood Lake	507543	5311832	359	250	-55	104.00	BQ
BN-8-97	Charlewood Lake	507308	5311391	359	70	-50	320.00	BQ
BN-9-97	Charlewood Lake	507343	5311457	359	70	-50	299.00	BQ
BN-10-97	Charlewood Lake	507634	5311459	357	250	-45	275.00	BQ
BN-11-97	Charlewood Lake	507392	5311636	358	70	-50	183.00	BQ
BN-12-97	Charlewood Lake	507681	5311476	358	250	-58	482.00	BQ
BN-13-97	Charlewood Lake	507860	5311580	362	250	-50	488.00	NQ
BN-14-97	Charlewood Lake	507860	5311580	362	250	-58	575.00	NQ
BN-15-97	Charlewood Lake	507650	5311570	356	250	-50	431.00	NQ
BN-16-97	Charlewood Lake	507650	5311570	356	250	-61	458.00	NQ
BN-17-97	Charlewood Lake	507790	5311510	362	250	-58	620.00	NQ
BN-18-97	Charlewood Lake	507865	5311355	362	215	-55	458.00	NQ
BN-19-98	Rahn Lake	506805	5313420	362	250	-50	299.00	BQ
BN-20-98	Rahn Lake	506655	5313370	359	250	-50	365.00	BQ
BN-21-98	Rahn Lake	506470	5313300	360	250	-50	215.00	BQ
BN-22a-98	Rahn Lake	507050	5313570	364	250	-50	190.00	BQ
BN-22-98	Rahn Lake	507115	5313580	362	250	-50	298.00	BQ
BN-23-98	Rahn Lake	506795	5312880	368	250	-50	226.00	BQ
BN-24-98	Rahn Lake	506555	5314110	366	250	-50	410.00	BQ
BN-25-98	Rahn Lake	506655	5313360	359	70	-50	251.00	BQ
BN-26-98	Rahn Lake	506950	5313475	359	250	-50	299.00	BQ
BN-27-98	Rahn Lake	506415	5313285	360	70	-50	95.00	BQ
BN-28-99	Rahn Lake	507150	5313115	360	250	-50	254.00	BQ
BN-29-99	Rahn Lake	507055	5313090	360	250	-50	161.00	BQ
<b>NAD27 Zone 17N</b>							<b>Total:</b>	<b>9,215.00</b>

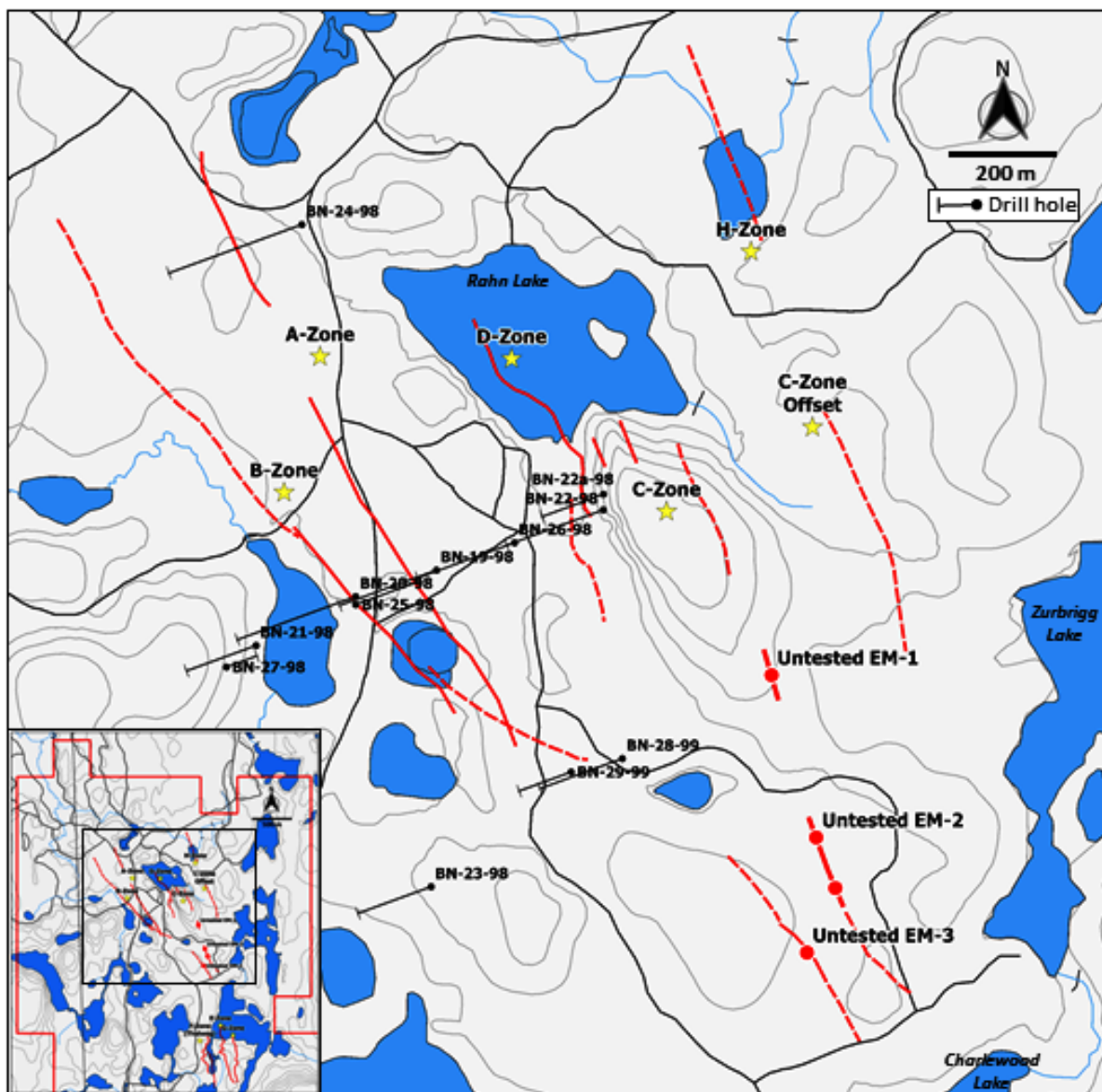


Figure 6-1. Location of historical drill holes completed by Outokumpu (1996-1997), nickel sulphide zones (yellow star), and EM conductor axes (red solid/dashed lines), Rahn Lake area.

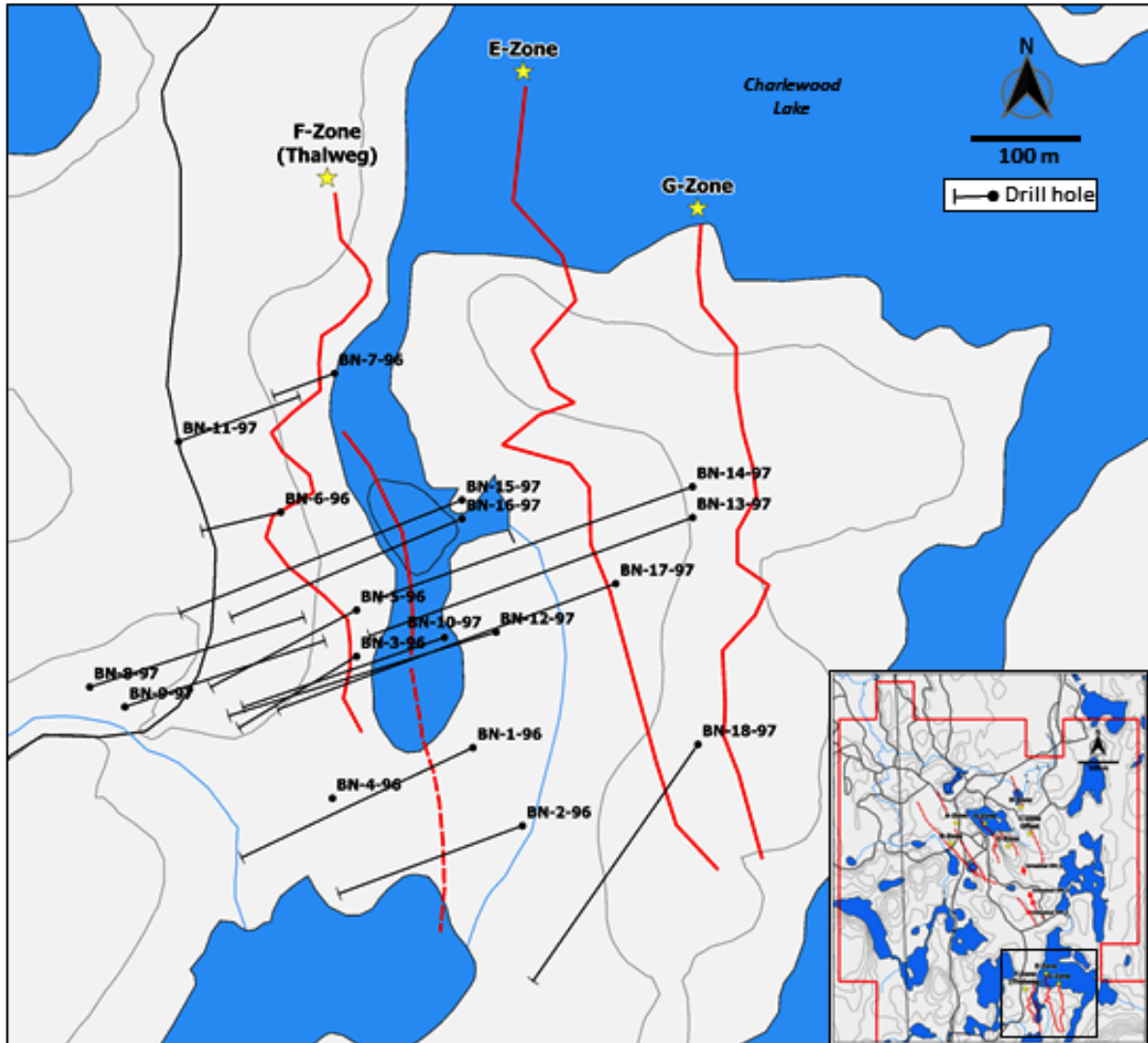


Figure 6-2. Location of historical drill holes completed by Outokumpu (1996-1997), nickel sulphide zones (yellow star), and EM conductor axes (red solid/dashed lines), Charlewood Lake area.

### 6.3.6.1 Analytical Procedures

Representative samples of all rock types encountered on the Property were submitted for analysis. Additional samples were submitted to define geochemical trends and/or clarify the original rock types, generally obscured by extensive alteration. Rock samples and drill core samples were sent to the preparation laboratory of Intertek Testing Services Chimitec Bondar-Clegg (“Bondar-Clegg”), located in Timmins, Ontario.

A total of 211 surface grab samples and core samples was sent for whole rock analysis. Prior to shipping, each sample was cleared of as much of the weathered surface as possible. The least altered samples with the least amount of vein material were sent for analysis (Brereton, 2003).

Samples were analyzed for major oxides ( $\text{Al}_2\text{O}_3$ ,  $\text{SiO}_2$ ,  $\text{Na}_2\text{O}$ ,  $\text{MgO}$ ,  $\text{Fe}_2\text{O}_3$ ,  $\text{CaO}$ ,  $\text{TiO}_2$ ,  $\text{P}_2\text{O}_5$ ,  $\text{MnO}$ ,  $\text{K}_2\text{O}$ ,  $\text{Cr}_2\text{O}_5$ , and LOI plus Ba, Nb, Rb, Sr, Y, and Zr) utilizing the Induced Coupled Plasma-Atomic Emission

Spectroscopy method and borate fusion extraction technique. The samples were also analyzed for trace element composition (Ag, Al, As, Ba, Bi, Ca, Cd, Co, Cr, Cu, Fe, Ga, K, La, Li, Mg, Mn, Mo, Na, Nb, Ni, Pb, Sb, Sc, Sn, Sr, Ta, Te, Ti, V, W, Y, Zr, and Zn) utilizing the Induced Coupled Plasma-Atomic Emission Spectroscopy method and HF-HNO<sub>3</sub>-HClO<sub>4</sub>-HCl extraction technique. The data was added to the whole rock geochemical database in Excel and plotted for interpretation.

A total of 541 samples (mostly drill core) was sent to for multi-element and fire assay at Bondar Clegg. Outokumpu placed an emphasis on selecting meaningful, representative assay samples. Samples and sample intervals were chosen in a manner that reflected the sulphide content of the rock such that each sample was as internally sulphide-consistent as possible. Sulphide-rich and sulphide-poor samples were segregated in this way. Samples of barren rock were taken for assay on either side of mineralized zones to close off the mineralized intervals.

All samples were analyzed for Co, Cu, Fe, Ni, S and Zn. A selected number of samples were analyzed for Au, Ag, Pt, and Pd by Fire Assay method. Inductively Coupled Plasma-Atomic Emission Spectroscopy method and multi-acid digestion technique were used to determine the contents of Co, Cu, Fe, Ni, and Zn and Leco for S. An ICP-AES finish was also used to determine the Au, Pt and Pd contents. Atomic Absorption was used where total Fe exceeded the maximum detection limit for ICP-AES and to determine the Ag content of the samples.

A total of 79 duplicate rejects and one assay sample was submitted to SGS Lakefield for comparison with the Bondar-Clegg results. These repeated within acceptable limits of variance.

#### **6.4 Historical Petrographic Studies**

In 1999, Outokumpu commissioned the Mineral Exploration Research Centre at Laurentian University in Sudbury, Ontario to complete a petrographic report on four drill core samples (BN-3-96, BN-12-97, BN-19-98, BN-22-98) that contained varying proportions of sulphides associated with differing rock types (Gauld, 1999).

Sulphide types in the four core samples included massive (BN-3-96), net-textured (BN-12-97), blebby (BN-19-98), and disseminated/net-textured (BN-22-98), and were composed predominantly of pyrrhotite and pentlandite, with accessory chalcopyrite and titanomagnetite. Gauld (1999), also reported that the pentlandite in the massive sulphide sample occurs as granular, 1-2 mm aggregates or “eyes” with only minor pentlandite exsolution lamellae within the pyrrhotite.

The Ontario Geological Survey and other government departments have completed limited petrographic work on samples collected from the Bannockburn area as part of their regional mapping programs.

## 7.0 GEOLOGICAL SETTING AND MINERALIZATION

### 7.1 Regional Geology

The Bannockburn Nickel Project is situated in Northeastern Ontario, in the southwestern portion of the mineral-rich Abitibi Greenstone Belt (2.8 to 2.6 Ga), within the Superior Province, Canada (Figures 7-1 and 7-2). The Abitibi Greenstone Belt ("AGB") of the Abitibi Subprovince, spans across the Ontario-Quebec provincial border and is considered to be the largest and best-preserved greenstone belt in the world (Jackson and Fyon, 1991; Sproule *et al.*, 2003), covering an area of approximately 700 km from the southeast to northwest and 350 km from north to south and comprising several major east-trending successions of folded volcanic and sedimentary rocks, with associated felsic to ultramafic intrusions. The supracrustal rocks of the AGB are uniquely well preserved and have mostly been overprinted only at a low metamorphic grade (Monecke *et al.*, 2017). The economic importance of the AGB is significant as it contains some of the most important gold and base metal mining camps in Canada, as well as a long history of punctuated production from ultramafic extrusive komatiite-hosted Ni-Cu-(PGE) sulphide deposits.

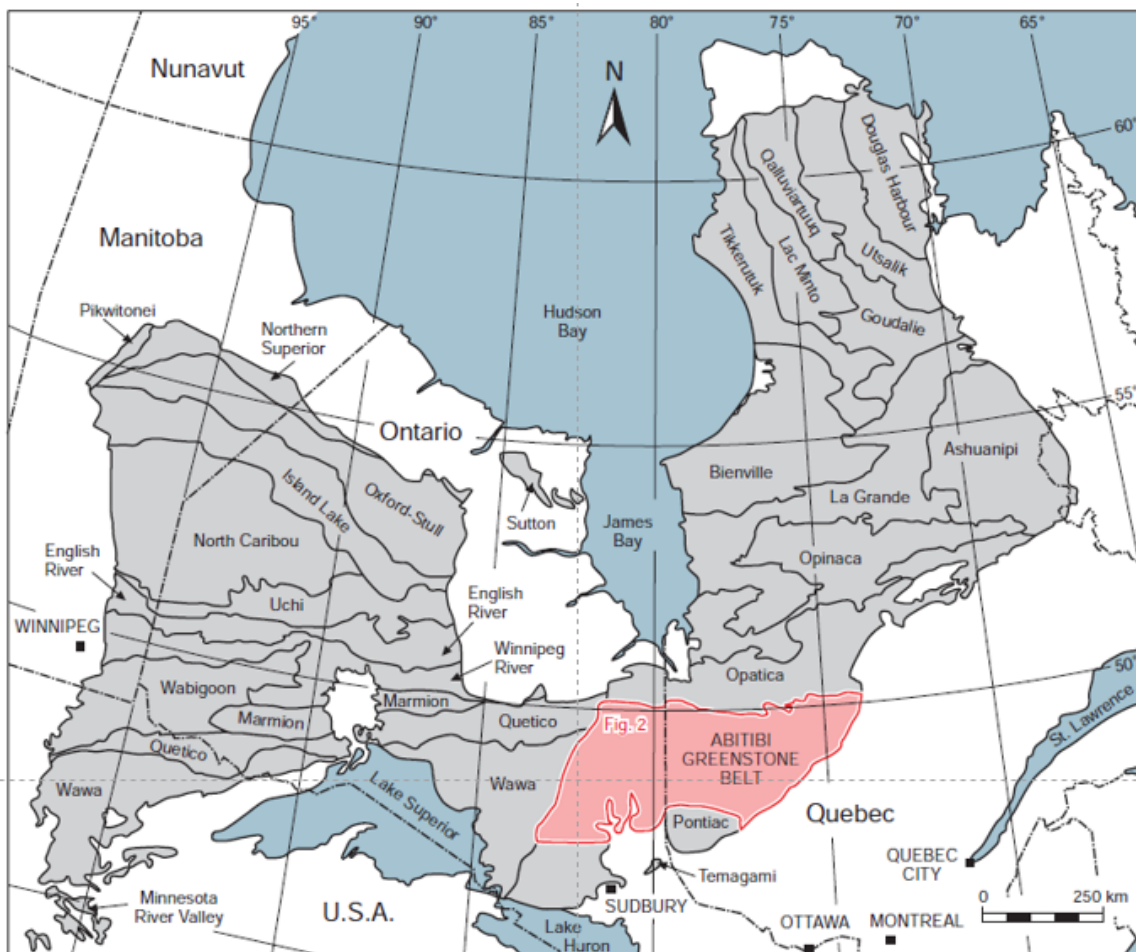


Figure 7-1. Location of the Abitibi Greenstone Belt within the Archean Superior Province, Canada (Monecke *et al.*, 2017).



The AGB has been subdivided into nine lithotectonic assemblages or volcanic episodes (Ayer *et al.*, 2002a, 2002b and 2005) (Figures 7-2 and 7-3); however, the relationships between these assemblages are for the most part ambiguous. Allochthonous greenstone belt models, with each terrane having been formed in a different tectonic environment, predict them to be a collage of unrelated fragments. Autochthonous greenstone belt models allow for the prediction of syngenetic mineral deposits hosted by specific stratigraphic intervals and formed within a structurally deformed singular terrane. Greenstone belts in the Superior Province consist mainly of volcanic units unconformably overlain by largely sedimentary “Timiskaming-style” assemblages, and field and geochronological data indicate that the AGB developed autochthonously (Thurston *et al.*, 2008).

Proterozoic dikes of the Matachewan Dyke Swarm and the Abitibi Dyke Swarm intrude all of the rock in the region. Matachewan dikes generally trend north-northwest while the younger Abitibi Dyke Swarm trends northeast.

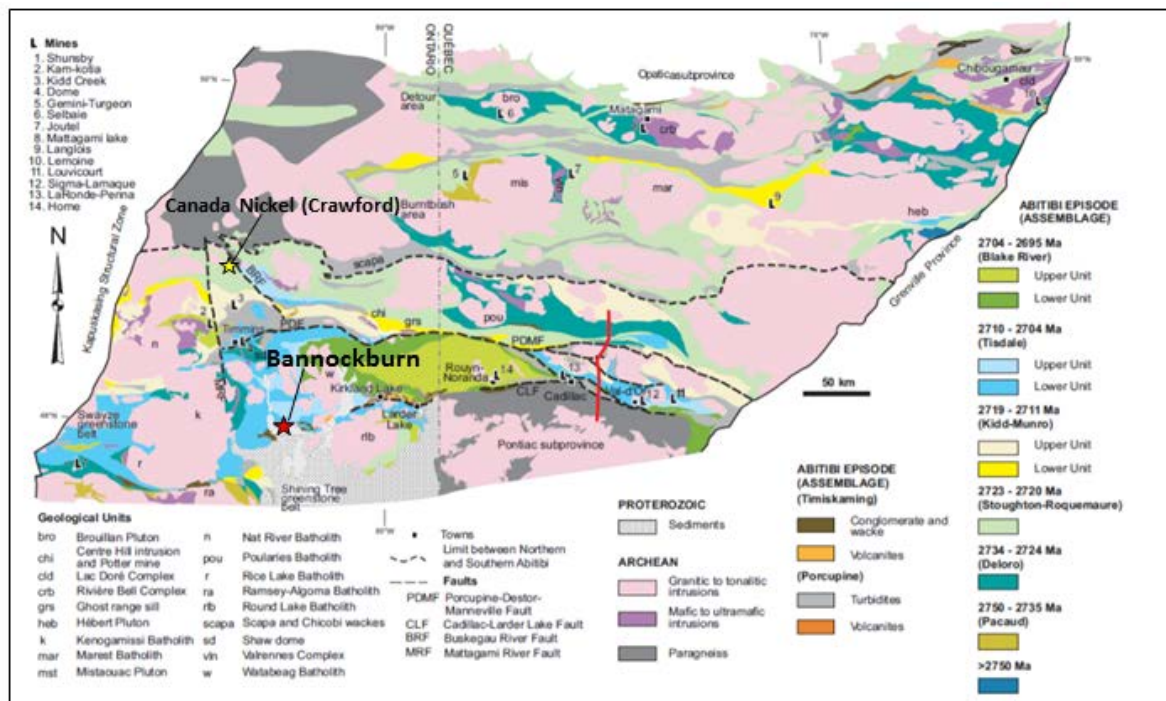


Figure 7-2. General geology of the Abitibi Greenstone Belt and the approximate location of the Bannockburn Nickel Project (red star). Also shown is the location of Canada Nickel’s Crawford Nickel-Cobalt Sulphide Project (modified from Thurston *et al.*, 2008; MERC, 2017).



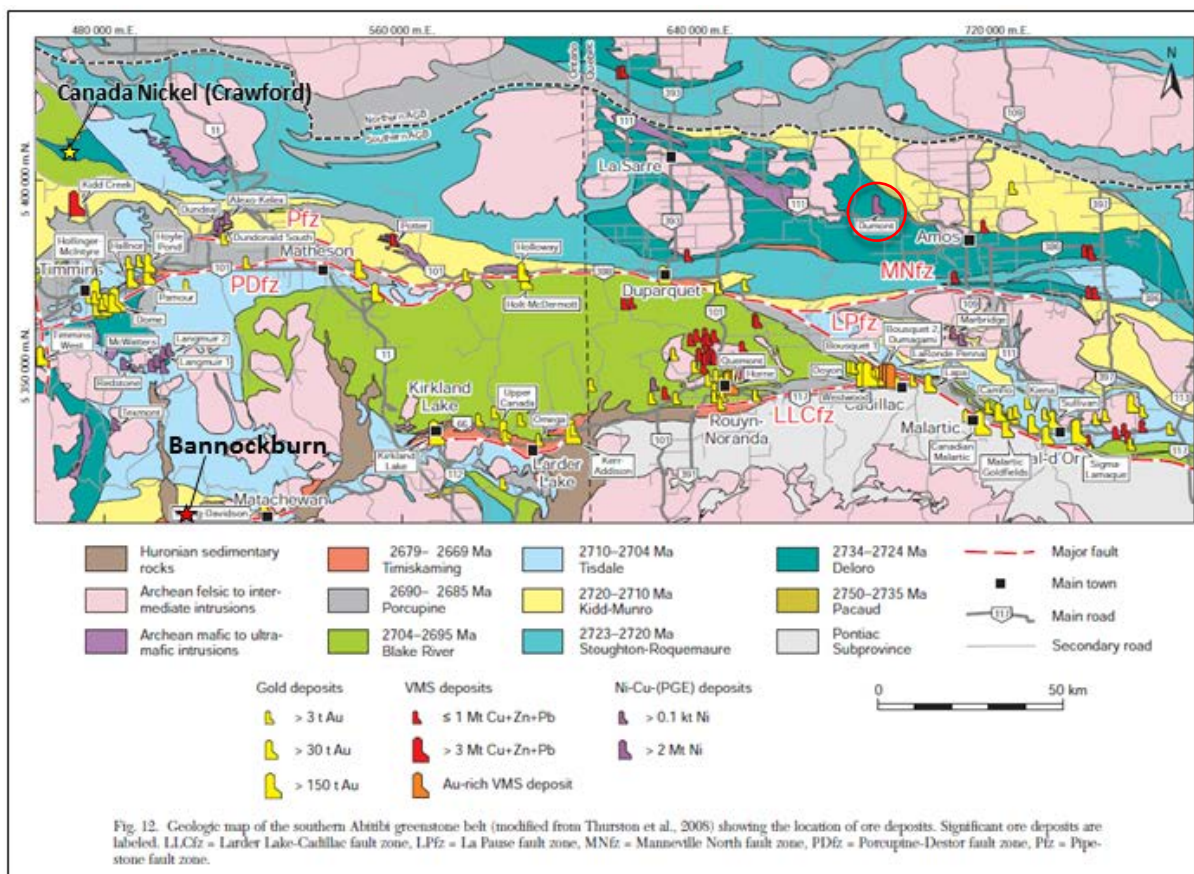


Figure 7-3. Regional geology (Abitibi Assemblages) and location of Ni-Cu-(PGE), Gold and VMS deposits across Quebec and Ontario (modified from Ayer *et al.*, 2005). Also shown are the approximate locations of the Bannockburn Property (red star), Canada Nickel's Crawford Ultramafic Complex (yellow star), both in Ontario, and Dumont Nickel's Dumont Sill (red circle) in Quebec.

### 7.1.1 Komatiitic Rocks

Of the nine distinct lithotectonic assemblages defined in the AGB, only four of these are generally accepted to contain extrusive komatiitic rocks (ultramafic mantle-derived rock with  $\geq 18$  wt% MgO) and therefore considered prospective for komatiite-associated Ni-Cu-(PGE) sulphide deposits (Arndt *et al.*, 2008).

These four assemblages, which differ considerably in the physical volcanology and geochemistry of the komatiitic flows, have distinct and well-defined ages as well as spatial distribution (Sproule *et al.*, 2003; Thurston *et al.*, 2008; Houlé and Leshner, 2011):

- Pacaud Assemblage (2750-2735 Ma)
- Stoughton-Roque-maure Assemblage (2723-2720 Ma)
- Kidd-Munro Assemblage (2719-2711 Ma)
- Tisdale Assemblage (2710-2704 Ma)

The Kidd-Munro and Tisdale assemblages contain a much greater abundance of cumulate komatiites than the other assemblages. The Kidd-Munro Assemblage is east to southeast-striking and comprises komatiitic flows, magnesium to iron-rich mafic volcanic rocks, thin rhyolite units (FIII-type to calc-alkaline), clastic sedimentary rocks (argillite and greywackes, many graphitic), and chemical sedimentary rocks (limestone, dolomite) occurring as interflow horizons. These units are intruded by mafic to ultramafic bodies and minor felsic dikes (Ayer *et al.*, 2002a and 2002b; Sproule *et al.*, 2005; Ayer *et al.*, 2005).

Almost all komatiite-associated Ni-Cu-(PGE) deposits in the AGB are interpreted to be localized in lava channels/channelized sheet flows (*e.g.*, Alexo, Hart, Langmuir, Marbridge, and Texmont) or channelized sheet sills (*e.g.*, Sothman, Dumont, Kelex-Dundead-Dundonald South). One exception is the McWatters deposit, which occurs within a thick mesocumulate to adcumulate peridotite that is interpreted to be a synvolcanic dike (Houlé and Leshar, 2011).

### 7.1.2 Economic Geology

The Timmins Mining camp has a history of nickel production from komatiite-associated Ni-Cu-(PGE) deposits (Table 7-1; Figure 7-3). Several of these deposit types have been identified within the Kidd-Munro Assemblage (*e.g.*, Alexo, Dundonald, Mickel, and Marbridge) and the Tisdale Assemblage (*e.g.*, Hart, Langmuir, Redstone, Texmont, and Sothman).

Table 7-1. Pre-mining geologic resource estimates plus mined ore, Komatiite-hosted Ni-Cu-(PGE) mines/deposits, Timmins Mining Camp, Ontario (modified after Houlé *et al.*, 2017).

Name	Status	Township	Notes	Assemblage	Milled (t)	Reported (t)	Ni (%)
Alexo	Past Producer	Dundonald	extrusive	Kidd-Munro	115,000	-	3.18
Kelex	Past Producer	Clergue	intrusive (subvolcanic sill)	Kidd-Munro	279,000	-	0.97
Dundead	Deposit	Dundonald	intrusive (subvolcanic sill)	Kidd-Munro	-	400,000	2.00
Dundonald	Deposit	Dundonald	intrusive (subvolcanic sill)	Kidd-Munro	-	141,000	2.73
Langmuir #1	Deposit	Langmuir	extrusive; Shaw Dome	Tisdale	1,834,000	-	0.58
Langmuir #2	Past Producer	Langmuir	extrusive; Shaw Dome	Tisdale	1,369,000	-	1.40
McWatters	Past Producer	Langmuir	intrusive; Shaw Dome	Tisdale	1,688,000	-	0.75
Redstone	Past Producer	Eldorado	extrusive; Shaw Dome	Tisdale	2,043,000	-	1.62
Hart	Deposit	Eldorado	extrusive; Shaw Dome	Tisdale	1,868,000	-	1.38
Texmont	Past Producer	Bartlett Geikie	extrusive	Tisdale	3,369,000	-	0.92

In addition to nickel, the Timmins-Porcupine Gold Camp of Northeastern Ontario represents the largest Archean orogenic greenstone-hosted gold camp in the world in terms of total gold production (*e.g.*, Monecke *et al.*, 2017) and world class base metal deposit, Kidd Creek Cu-Zn Mine, owned by Glencore Inc.

The Kidd Creek Cu-Zn Deposit, located about 84 km northwest of the Property in Kidd Township, is the world's largest and highest-grade Archean Volcanogenic Massive Sulphide ("VMS") deposit currently in production. Monecke *et al.* (2017), reported historical past production, reserves and

resources to the 2,990 m level as 170.9 Mt grading 2.25% Cu, 5.88% Zn, 0.22% Pb, and 77 g Ag/t. Discovery hole K55-1 was drilled in 1963 and encountered ore at a depth of 7 m, intersecting 190 m (entire hole) grading 1.21% Cu, 8.5% Zn, 0.8% Pb, and 138 g Ag/t. Today, the orebodies of the deposit are exploited from surface to more than 3-km depth and are open at depth, making Kidd Creek the deepest copper-zinc mine in the world (ibid.).

## 7.2 Local and Property Geology

The Property and environs have been mapped by agencies of the federal and provincial governments starting in the early 20th century; this includes the work of Burrows (1918), Cooke (1919), Gledhill (1926), Rickaby (1932), Lovell (1967), Jensen (1996a, 1996b), Berger and Leblanc (2002), Berger and Préfontaine (2005), and Préfontaine and Berger (2005).

The following, which provides a description of the Property geology, are taken largely verbatim from Harron (2005). Additional descriptions of the Property geology can be found in Brereton (2003), Houlé *et al.*, (2005), and Taranovic *et al.* (2012).

The Property is underlain by a complex sequence of Neoarchean-age calc-alkaline intermediate to felsic volcanic rocks, mafic volcanic rocks, komatiitic basalt to dunite, silicate to sulphide iron formation, gabbro intrusions, and a series of sedimentary diamictite, arkose, and conglomerate (Figure 7-4).

The intermediate to felsic volcanic rocks range in composition from rhyodacite to dacitic andesites. The units display textures ranging from hyaloclastic-fragmental flows to pillowed flows, and massive flows. Chlorite- and quartz-filled amygdules are found throughout the units in varying proportions. Weak chlorite alteration is pervasive with lesser amounts of epidote and hematite alteration. The pillow selvages and flow contacts tend to display stronger chlorite alteration. Pyrrhotite and pyrite mineralization occurs throughout the sequence, but tends to be concentrated, up to 10%, within the hyaloclastic and fragmental zones. Mafic volcanic rocks, with a calc-alkaline affinity, tend to be confined to localized areas within the felsic to intermediate sequence and do not appear to be laterally extensive.

The extrusive komatiitic rocks exhibit flow top rubble zones and spinifex-textured zones which indicate tops are to the east. The intrusive komatiitic rocks range in composition from pyroxenitic cumulates (chlorite-tremolite rocks) to olivine adcumulates (serpentinite rocks). The komatiitic rocks are the most important facies with respect to the exploration and economic potential of the Property.

A preponderance of the komatiitic rocks are olivine orthocumulates to mesocumulates laterally away from olivine adcumulate cores. The komatiitic sequence is only exposed in a few areas and determinations of its composition and laterally continuity are difficult to interpret. The komatiitic rocks strike north-northwest for approximately 20 km as discrete lenses and/or horizons. Based on the ground magnetic surveys there appears to be at least three or possibly four stacked horizons of komatiitic rocks present on the Bannockburn Property.

A second suite of intrusive rocks exhibits a gabbroic composition. This low titanium and high alkaline element gabbro is associated with the margins of the komatiitic sequences, crosscutting olivine cumulates in some areas, and may be associated with the calc-alkaline mafic volcanic rocks.

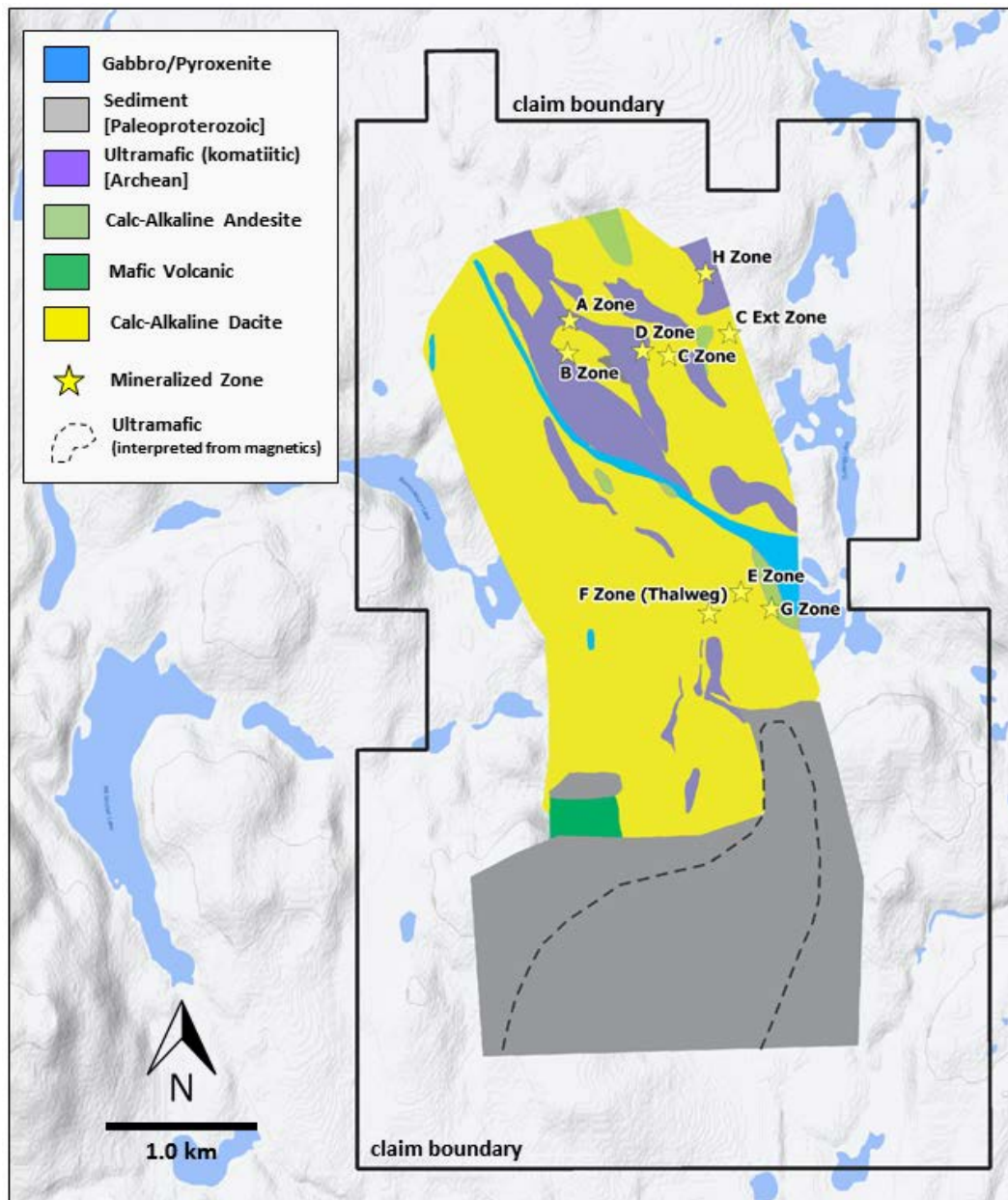


Figure 7-4. Property-scale geology of the Bannockburn Nickel Project with nickel sulphide zones (yellow star) discovered to date (modified after Outokumpu, 1999).

Archean sedimentary rocks, including diamictite, arkose and conglomerate, appear to have a similar strike and dip as the komatiitic rocks over the northern and central portion of the Bannockburn Property. The bed thickness appears to vary throughout the area and ranges from a few centimetres up to several metres. Conglomerates tend to be clast supported and are dominated by

granitic clasts and white quartz clasts with varying proportions of mafic to felsic volcanic clasts and plagioclase porphyry clasts.

Clastic sedimentary rocks cover the southern part of the Property and are correlated with the Proterozoic-age Gowganda Formation of the Cobalt Group of the Proterozoic Huronian Supergroup. These sediments, composed mainly of clastic metasedimentary rocks such as conglomerate, sandstone, wackes and argillite, unconformably overlie the Archean rocks on the Property (Préfontaine and Berger, 2005). A large magnetic anomaly underlies the area of Huronian Supergroup sedimentary cover, interpreted to reflect a buried komatiitic olivine cumulate sequence.

Two separate and distinct mafic dyke intrusions are contained within the Property boundaries. The northwest-trending Sudbury swarm dykes (1,230 Ma) display a moderate to high titanium petrochemistry and can be traced across several tens of kilometres, characterized by pronounced northwest-trending linear magnetic anomalies. The intrusions display diabasic textures to gabbroic textures and crosscut the stratigraphy of the area. Matachewan swarm diabase dykes (2,454 Ma) trend north throughout the area (strong magnetic response), display a tholeiitic petrochemistry, with diabasic to porphyritic textures.

The identification of major structures has been limited to geophysical interpretations due to a lack of outcrop exposure in critical areas. Based on surface mapping and diamond drilling, the volcanic assemblages generally strike north-northwest and dip steeply attesting to pervasive regional isoclinal folding.

Minor faulting occurs throughout the area and displacements of a few metres to tens of metres are commonly observed in outcrop. Minor offsets are also observable within the magnetic surveys. Major fault offsets are not observed although the diabase dikes probably occupy regional tensional fractures.

The area appears to have been exposed to an episode of uplift or transgression as indicated by the development of horst and graben structures. The grabens are now filled with Huronian sediments and occur as arms of sedimentary rocks that extend from the south and pinch out to the north. Sedimentary rocks also occur as isolated occurrences surrounded by Archean lithologies. The near vertical faults have not been observed on surface or in drill holes and are only interpreted based upon the relationships exhibited by the sedimentary units.

### **7.3 Mineralization**

Nine zones of Ni-Cu sulphide mineralization, defined on the basis of geophysics (surface EM conductors), drill core intersections, rock outcroppings, and mechanical trenching, have been identified within the northern and central areas of the Bannockburn Property (Figure 7-5). Six of the zones, the A-Zone, B-Zone, C-Zone, C-Zone Offset (aka C-Zone Extension), D-Zone, and H-Zone are in the northern Rahn Lake area, while three of the zones, E-Zone, F-Zone (Thalweg) and G-Zone are in the southern Charlewood Lake area. The three principal areas for exploration are the B-Zone, the C-Zone (includes C-Zone Offset) and the F-Zone (Thalweg).



Nickel sulphide mineralization is interpreted as ultramafic extrusive komatiite-hosted. Sulphide mineralization in all zones except the B-Zone, which is interpreted as Type II Mt. Keith-style, is interpreted as Type I Kambalda-style, with heavily disseminated to massive sulphides occurring in footwall embayments at the base of komatiitic flows (see Section 8.0, Deposit Models).

Nickel is the most economically significant element in all of the zones with associated elevated concentrations of Cu-Co-PGE (Brereton, 2003; Harron, 2005).

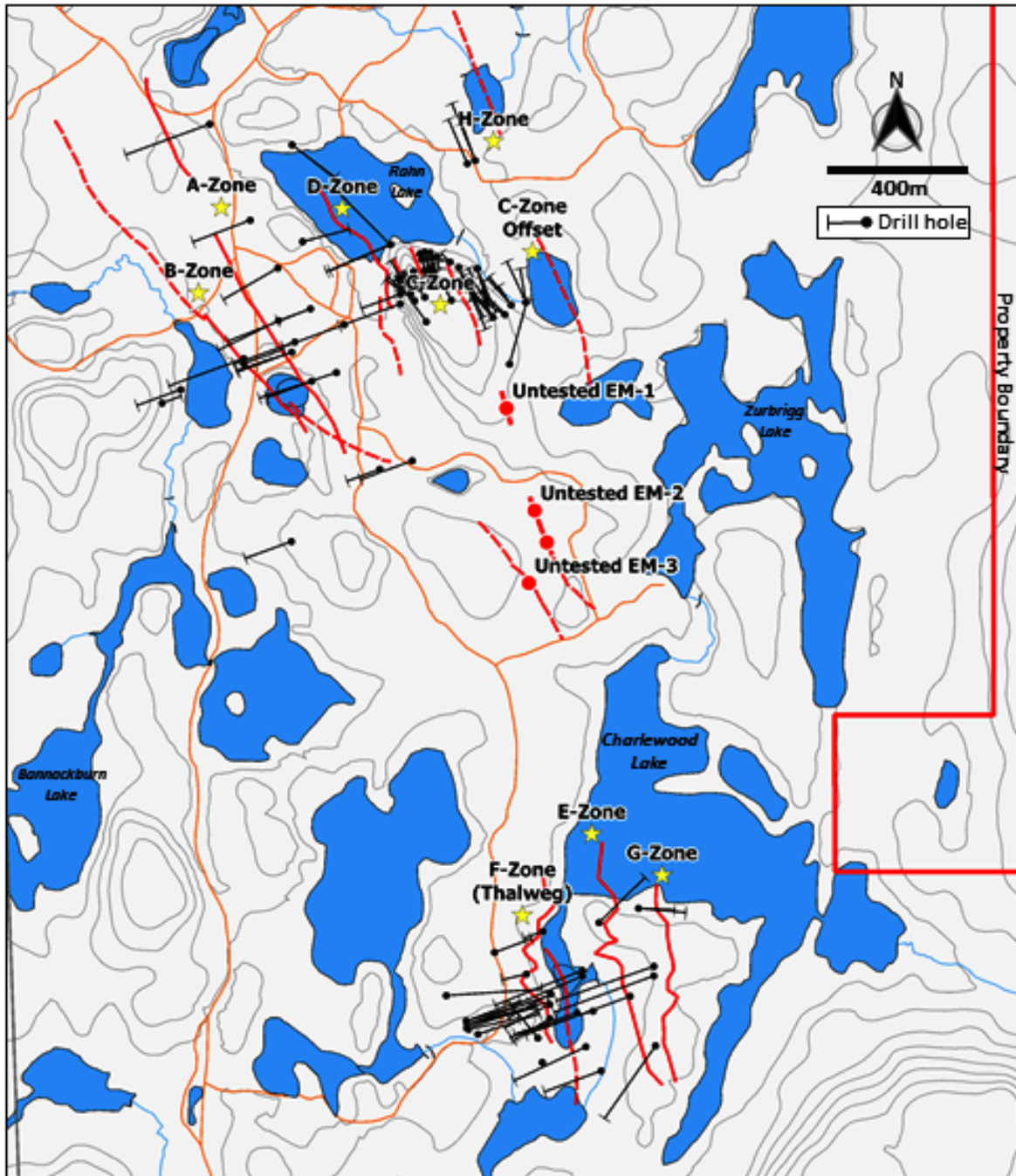


Figure 7-5. Location of nickel sulphide zones (yellow star), EM conductor axes (red solid/dashed lines), untested EM conductors (red circle), and all diamond drill hole traces.

### 7.3.1 B-Zone (Bannockburn)

The B-Zone Ni-Cu sulphide occurrence was discovered in 1998 by Outokumpu, who completed a fence of drill holes across a strong northwest trending magnetic anomaly related to a +2-km long and +200-m thick serpentinized ultramafic body. The discovery hole (BN19-98) intersected 25.25 m of disseminated sulphide grading 0.46% Ni including 10.97 m of 0.66% Ni.

Additional drilling by Mustang Minerals in 2004 extended the B-Zone to a strike length of +350 metres with an interpreted sub-vertical orientation and a true thickness of at least 150 metres (Figure 7-6). Sulphide mineralization is hosted within the thick body of olivine adcumulate to mesocumulate rocks and is open at depth (+275 m vertical) and +3.5 km along strike to the northwest where a second high-intensity magnetic anomaly occurs (Figure 7-7).

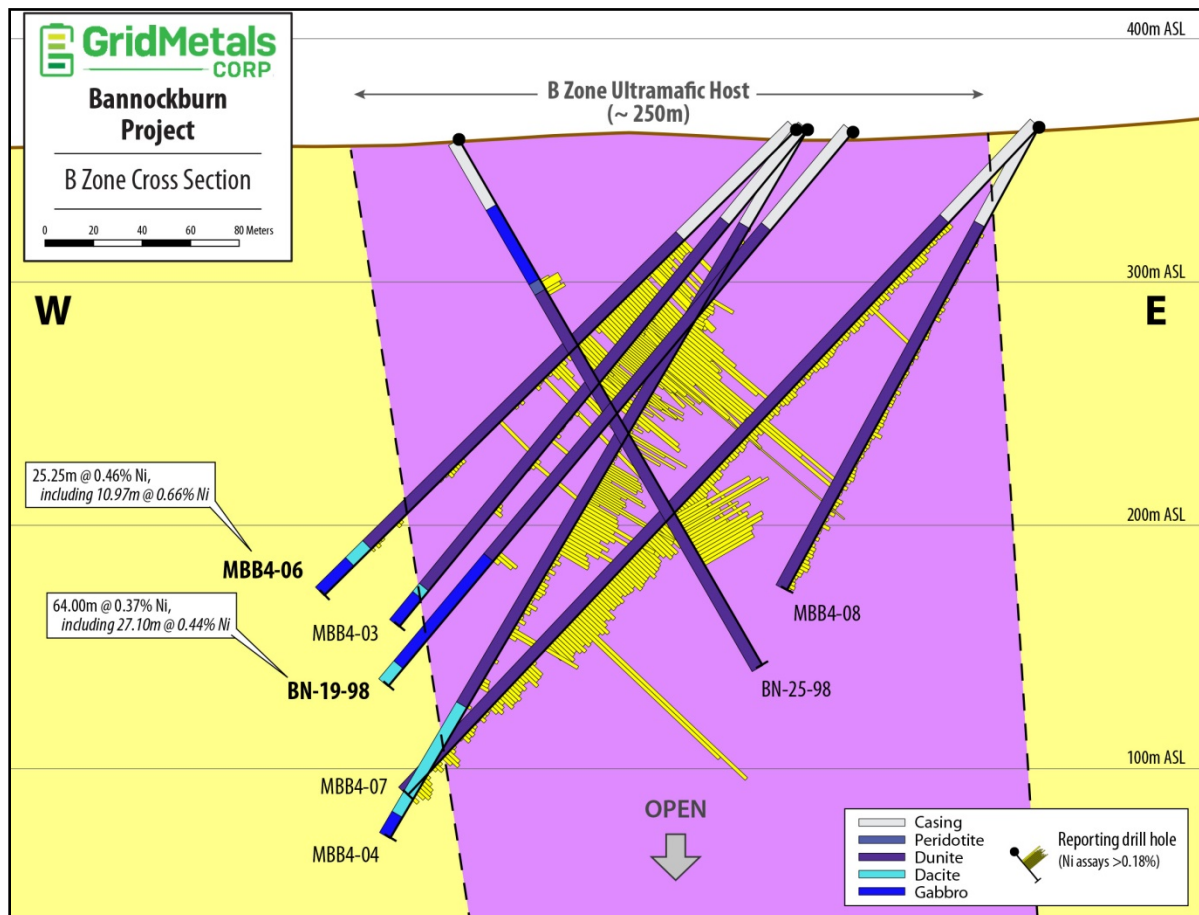


Figure 7-6. Idealized cross-section through the B-Zone (looking north), Bannockburn Nickel Sulphide Project (provided by Grid Metals).

B-Zone sulphide mineralization has been characterized as Type II Mt. Keith-style (sub-type of Komatiite-hosted type), with disseminated sulphides that occur centrally within a thick olivine adcumulate komatiitic body. The B-Zone contains mainly pyrrhotite and pentlandite with trace chalcopyrite. An unidentified grey mineral, with optical properties similar to titanomagnetite, appears to be a nickel sulphide phase (heazlewoodite?). The nickel tenor of the B-Zone is extremely

high at >80% Ni in 100% sulphide. Other sulphide mineralization around Rahn Lake shows a gradational nickel tenor that decreases from >40% Ni to 10% Ni in 100% sulphide, as the basal contact is approached.

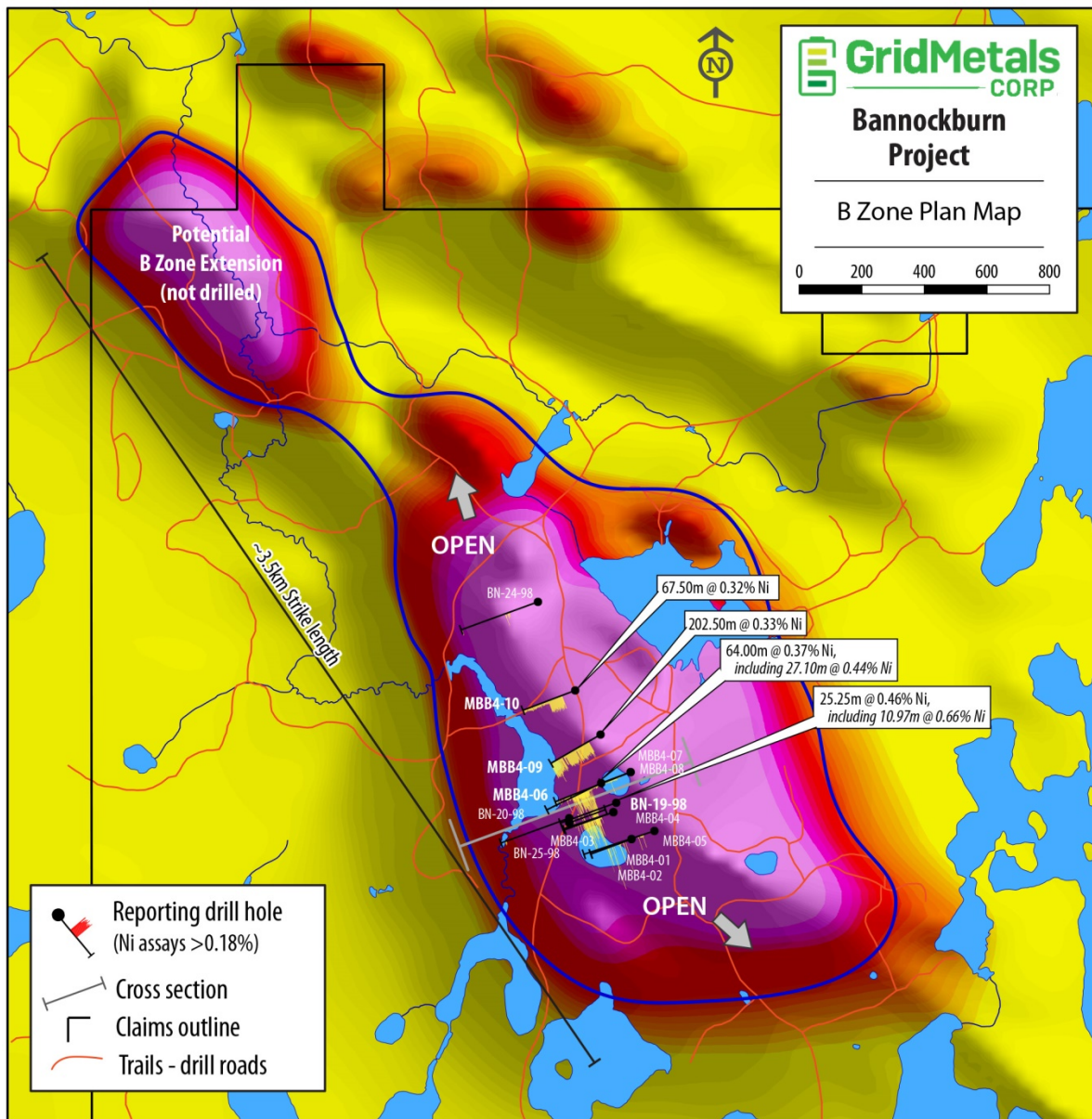


Figure 7-7. Diamond drill hole traces and nickel intersections from the B-Zone superimposed on total magnetic intensity (2004 AeroTEM airborne survey) in the northern portion of the Bannockburn Nickel Sulphide Project (provided by Grid Metals).

In 2004, a petrographic report was completed on 18 drill core samples from the B-Zone (Sproule, 2004). A review of this study is provided in Section 9.2.4. A 2005 metallurgical and mineralogical study completed by SGS Lakefield Research Limited ("SGS Lakefield") using drill core from the B-Zone. Results from the 2005 study are provided in Section 13. In both studies, heazlewoodite ( $\text{Ni}_3\text{S}_2$ )



was identified as the only nickel sulphide phase present with non-sulphide nickel associated with serpentine (lizardite).

### 7.3.2 C-Zone

Discovered by Mustang Minerals in 2003, this sulphide zone is located on the north side of a low hill immediately south of Rahn Lake. The occurrence has been stripped and locally blasted over an east to west length of approximately 150 m and has been tested with over 50 diamond drill holes. Brereton (2003) interpreted the sulphide system as possibly plunging at a moderate angle to the south.

An initial program of selective surface grab sampling by Mustang Minerals yielded nickel concentrations in semi-massive to massive sulphide in the 2% to 5% Ni range, with concentrations of generally less than 1% Ni in more disseminated material. Elevated copper-cobalt concentrations correlate closely with elevated nickel concentrations. Platinum-palladium concentrations were generally low (Brereton, 2003).

Taranovic *et al.*, (2012), completed a detailed study of the C-Zone including an idealized cross-section through the west and east ends of the zone (Figure 7-8). Stratigraphy in the C-Zone is interpreted to strike west to east.

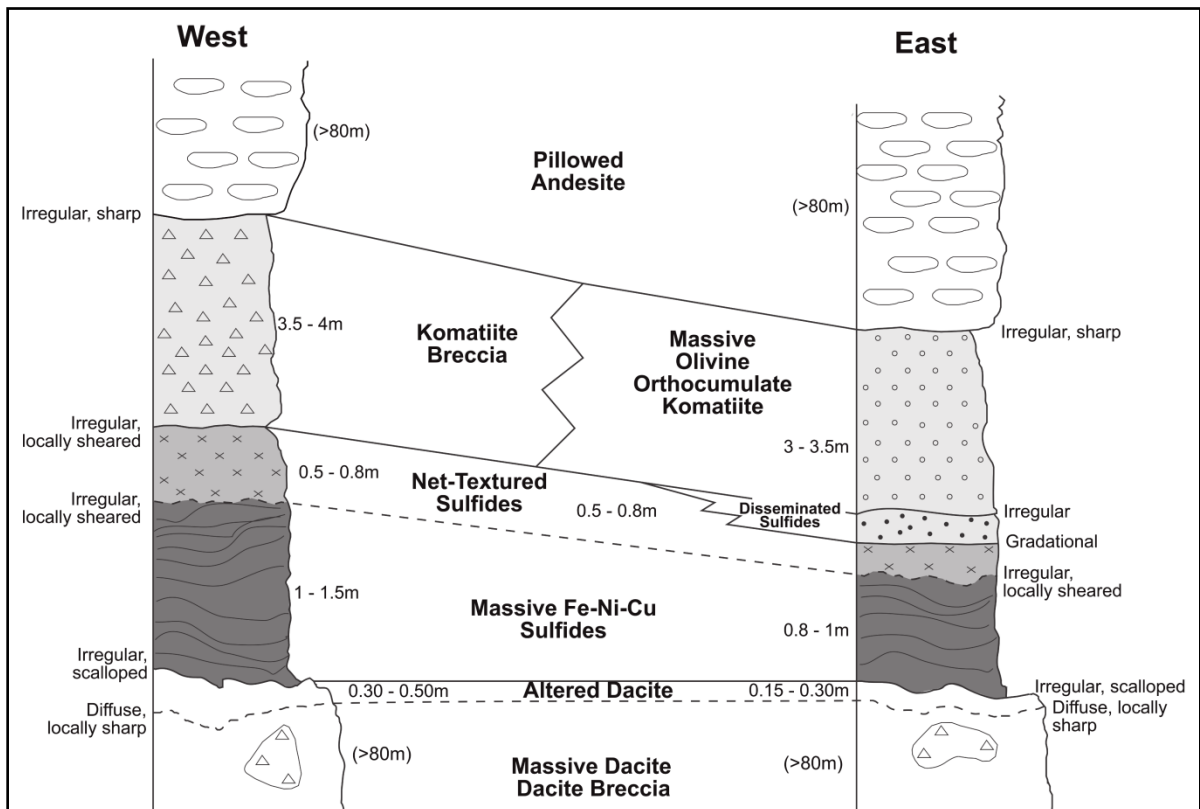


Figure 7-8. Idealized stratigraphic cross-section through the west and east ends of the C-Zone (Taranovic *et al.*, 2012).

A thorough description of the C-Zone is provided by Taranovic *et al.* (2012):

“The mineralized zone is up to 2.5 m thick and comprises (from base to top) massive to semimassive, net-textured, and disseminated sulfide facies characterized by a pyrrhotite-pentlandite-chalcopyrite-magnetite assemblage. The massive sulfide zone contains an anastomosing network of dextral and sinistral shears that are oriented broadly subparallel to the contacts with the footwall dacite and hanging-wall andesite. Some contacts with underlying dacites are sheared, but others are scalloped and bordered by skeletal-euhedral Fe-rich chromites and appear to be primary magmatic features.

The footwall rocks grade from chloritized dacites within 20 to 30 cm of the contact into massive and brecciated plagioclase-phyric dacites farther away from the contact. The host unit is up to 8 m thick and comprises massive olivine and ortho to mesocumulate komatiite in the eastern and central parts and a texturally heterolithic komatiite breccia in the western part. The breccia is composed of subrounded to subangular clasts 1 to 30 cm in length that exhibit mainly fine (<2 mm) olivine porphyritic or fine (<1 cm) random olivine spinifex textures, within a fine-grained, locally spinifex-textured ultramafic matrix. The absence of evidence for a pyroclastic origin and the presence of a spinifex-textured matrix suggest that the breccia is autoclastic.

The hanging-wall rocks are barren differentiated (spinifex/cumulate) komatiite flows (total thickness of the lithostratigraphic package ~22 m) and variolitic pillowed andesites (total thickness >80 m). The komatiitic sequence at the C-Zone is much thinner than most other sequences within the Tisdale volcanic Episode (2710 to 2704 Ma) and is oriented oblique to the northwest trend of the regional stratigraphy, but all contacts appear conformable and all younging indicators are uniformly to the south-southeast, suggesting that the local sequence is intact.

The C-Zone is similar in many respects to other Type I (Kambalda-type) komatiite-associated Ni-Cu-(PGE) deposits in the Abitibi greenstone belt but differs by not being confined within a well-developed footwall embayment and in being partly hosted by komatiitic breccias. The C-Zone Ni-Cu-(PGE) mineralization appears to be hosted in the eastern part of the stripped exposure by a thin lava pathway and in the western part by breccias formed via lateral breakout and roof collapse”.

### 7.3.3 D-Zone

The D-Zone (aka the Rahn Lake Ni-Cu sulphide occurrence) is located approximately 2 km north of the F-Zone and appears to be hosted in a komatiitic flow higher in the volcanic stratigraphy. The sulphide mineralization is associated with a komatiitic peridotite body that lies mainly beneath Rahn Lake with a strike length of approximately 600 m and a thickness of between 100 and 300 metres. Pyrrhotite was identified by Outokumpu in a surface exposure of olivine spinifex-textured komatiites associated with this peridotite body. Limited drilling (1 hole) south of Rahn Lake intersected 0.85% Ni across 4.27 metres. The D-Zone is open in all directions. A surface pulse-EM

anomaly under Rahn Lake and an HLEM (Max-Min) anomaly at both ends of the lake could be associated with the same mineralized horizon intersected in drilling (Brereton, 2003).

#### **7.3.4 F-Zone (Thalweg)**

The F-Zone Ni-Cu sulphide mineralization is associated with a series of komatiitic flows that subcrop beneath Charlewood Lake and have a strike length of approximately 600 m and a thickness of between 50 to 200 metres. Sulphide mineralization appears to be restricted to a footwall embayment into the dacitic volcanics identified by the ground magnetic survey. Reconnaissance diamond drilling in this area discovered that the footwall embayment structure hosts a mineralized nickel-bearing channel. The overall F-Zone is at least 200 m long and locally up to 18 m wide. Limited drilling (18 holes) encountered disseminated to net-textured to massive nickel-bearing sulphides at the komatiitic/dacite contact. Significant drilling results from the F-Zone ranged from 0.81% to 4.54% Ni over widths ranging from 0.25 to 17.6 metres. The F-Zone is open at depth.

The main sulphide zone of the F-Zone is composed of heavily disseminated to net-textured sulphides that comprise between 5% and 25% of the rock. Brereton (2003) interpreted the sulphide mineralization as plunging vertically or steeply to the southeast. The sulphide zone also appears to undulate down plunge. There are several untested, strong, off-hole conductors identified by down-hole pulse-EM surveys in the area of the F-Zone (ibid.).

The F-Zone (Thalweg) contains primarily pyrrhotite and pentlandite with trace amounts of chalcopyrite and also a grey alteration mineral (nickel phase? titanomagnetite?). The nickel tenors in the F-Zone range from 4% to 43.3% Ni in 100% sulphide, but average approximately 5 to 6% Ni in 100% sulphides.

## 8.0 DEPOSIT TYPES

---

Sulphide mineralization discovered to date on the Bannockburn Project can be characterized as ultramafic extrusive komatiite-hosted Ni-Cu-Co-(PGE) deposit type, which recognizes two sub-types or styles (Leshner and Keays, 2002):

- 1) Type I Kambalda-style: komatiite-hosted; channelized flow theory; dominated by net-textured and massive sulphides situated at or near the basal ultramafic/footwall contact with deposits commonly found in footwall embayments up to 200 m in strike length, 10s to 100s of metres in down-dip extent, and metres to 10s of metres in thickness; generally on the order of a million tonnes (usually <1Mt) with nickel grades that are typically much greater than one percent nickel; tend to occur in clusters (*e.g.*, Alexo-Dundonald, Ontario; Langmuir, Ontario; Redstone, Ontario; Thompson, Manitoba; Raglan, Quebec).
- 2) Type II Mt. Keith-style: thick olivine adcumulate-hosted; sheet flow theory; disseminated and bleb sulphides, hosted primarily in a central core of a thick, differentiated, dunite-peridotite dominated, ultramafic body; more common nickel sulphides such as pyrrhotite and pentlandite but also sulphur-poor mineral heazlewoodite ( $\text{Ni}_3\text{S}_2$ ) and nickel-iron alloys such as awaruite ( $\text{Ni}_3\text{-Fe}$ ); generally on the order of 10s to 100s of million tonnes with nickel grades of less than one percent (*e.g.*, Mt. Keith, Australia; Dumont Deposit, Quebec).

At the Bannockburn Project, eight of the nine sulphide occurrences are interpreted as Kambalda-style, whereas the B-Zone is interpreted as Mt. Keith-style. The most advanced Kambalda-style massive sulfide target on the Property is the C-Zone which typically averages 1 to 3 m in thickness with the maximum nickel grade, from drill hole MBC4-23, reported as 3.26% Ni over 1.10 metres.

The Mt. Keith deposit (aka MKD5), located in the Yilgarn Craton of Western Australia, was first drill-tested and discovered in 1968 and put into production in 1993 (Butt and Brand, 2003). The MKD5 deposit is hosted by a serpentinized dunite within a larger, lenticular peridotite-dunite komatiite body, the Mt. Keith Ultramafic Complex and has a complex residual regolith profile of more than 75 m thickness (up to 120 m weathering profile). Disseminated NiS mineralization strikes for 2 km, is 350 m wide, and is open below 600 m depth. In 2002, the deposit had proven and probable reserves of 299 Mt grading 0.56% Ni (0.4% Ni cut-off) (Butt and Brand, 2003).

### 8.1 Komatiite Geological Models

After the discovery of the Kambalda and Mt. Keith Ni-Cu-Co-(PGE) deposits in Australia (*ca.* 1971), geological models were developed for these ultramafic extrusive komatiite-hosted deposits (*e.g.*, Leshner and Keays, 2002; Butt and Brand, 2003; Barnes *et al.*, 2004).

Komatiitic rocks are derived from high degree partial melts of the Earth's mantle. Due to the high degree of partial melting the komatiitic melt is enriched in elements such as nickel and magnesium. When erupted, the melts have a low viscosity and tend to flow turbulently over the substrate eroding the footwall lithologies through a combination of physical and chemical processes.

Due to the low viscosity of the komatiitic melts, the lavas tended to concentrate in topographic lows. Komatiitic eruptions have been envisaged to have a high effusion rate and large volumes of lava and/or magma. The Mt. Keith-style of deposits are no exception, interpreted to be large volume sheet flows several hundreds of metres thick by several kilometres to tens of kilometres long and are composed primarily of olivine adcumulate to mesocumulate.

Further downstream, more distal from the eruptive source, the komatiitic flows become channelized, similar to a river channel today, and begin to erode the substrate forming more defined channel features. This channelization is the cornerstone of the komatiite-hosted deposit model. Denser sulphides would tend to accumulate in the bottom of the channel-like features under the influence of gravity. As the eruption continued the channel would fill with olivine mesocumulate to adcumulate because of the constantly replenished magnesium-rich komatiitic melt.

As the eruption waned the channel would be capped by a sequence of regressive komatiitic flows composed of komatiitic pyroxenite and basalts. In order to develop Ni-Cu sulphides, the komatiitic melt must become sulphide saturated. A komatiitic melt will become sulphur saturated when an external source of sulphur is introduced to the melt by assimilation of a sulphide-rich lithology or by differentiation or contamination of a komatiitic melt until the sulphur content exceeds the saturation point. A strong relationship exists between the presence of footwall lithologies rich in sulphide and the development of Ni-Cu sulphide deposits in the overlying komatiitic flows. This association is strongest in the Kambalda-style Ni-Cu sulphide deposits. Differentiation or the assimilation of rocks rich in certain elements may result in the oversaturation of the komatiitic melt in sulphur. This is the mechanism related to the development of the Mt. Keith-style of deposits.

Komatiite-hosted Ni sulphide deposits, whether they are Archean (*e.g.*, Kambalda, Australia) or Proterozoic (*e.g.*, Thompson, Manitoba; Raglan, Quebec) occur in clusters of small sulphide bodies generally less than 1 million tonnes in size. At 1:250,000 scale, these deposits usually occur at a pronounced thickening of ultramafic stratigraphy, and at 1:5,000 scale, these deposits occur as net-textured to massive sulphide in small embayments up to 200 m in strike length, tens to hundreds of metres in down-dip length and metres to tens of metres thick. The shape can be cylindrical, podiform, or in rare instances tabular.

#### **8.1.1 Komatiite Volcanic Facies**

The five major volcanic facies that are common constituents of komatiitic flow fields include (Barnes *et al.*, 2004) (Table 8-1):

- thin differentiated flows (TDF)
- compound sheet flows with internal pathways (CSF)
- dunitic compound sheet flows (DCSF)
- dunitic sheet flows (DSF)
- layered lava lakes or sills (LLLS).

DCFS and CSF facies represent high-flow magma pathways characterized by olivine cumulates and can be identified by their elevated Ni/Ti and Ni/Cr ratios and low Cr contents (Barnes *et al.*, 2004). Although only DCFS and CSF facies are known to host economic nickel sulfide mineralization (Burley and Barnes, 2019), it does not discount the prospectivity of the other facies, particularly the thick sheets and/or sills associated with the DSF and LLLS types.

Table 8-1. Features of komatiite volcanic facies (Barnes *et al.*, 2004).

Facies	Description	Type Examples
Thin Differentiated Flows (TDF)	Multiple compound spinifex-textured flows; generally less than 10 m thick, with internal differentiation into spinifex and cumulate zones	Munro Township (Pyke <i>et al.</i> , 1973)
Compound Sheet Flows with Internal Pathways (CSF)	Compound sheet flows with internal pathways (CSF) Compound thick cumulate-rich flows, with central olivine-rich lava pathways flanked by multiple thin differentiated units, from tens of metres to ~200 m maximum thickness	Silver Lake Member at Kambalda (Leshner <i>et al.</i> , 1984)
Dunitic Compound Sheet Flows (DCSF)	Thick olivine-rich sheeted units with central lenticular bodies of olivine adcumulates, up to several hundred metres thick and 2 km wide, flanked by laterally extensive thinner orthocumulate-dominated sequences with minor spinifex. CSF and DCSF correspond to 'Flood Flow Facies' of Hill <i>et al.</i> (1995).	Perseverance and Mount Keith (Hill <i>et al.</i> , 1995)
Dunitic Sheet Flows (DSF)	Thick, laterally extensive, unfractionated sheet-like bodies of olivine adcumulates and mesocumulates, in some cases laterally equivalent to layered lava lake bodies	Southern section of the Walter Williams Formation (Gole and Hill, 1990; Hill <i>et al.</i> , 1995)
Layered Lava Lakes and/or Sills (LLLS)	Thick, sheeted bodies of olivine mesocumulates and adcumulates with lateral extents of tens of kilometres, with fractionated upper zones including pyroxenites and gabbros, up to several hundred metres in total thickness	Kurrajong Formation (Gole and Hill, 1990; Hill <i>et al.</i> , 1995)

## 8.2 B-Zone Analogues: Crawford Ultramafic Complex/Dumont Sill

The style of mineralization present in the B-Zone (Mt. Keith-style) is directly comparable to the large tonnage, low-grade nickel resources hosted by the Crawford Ultramafic Complex ("CUC") on the Crawford Nickel-Cobalt Sulphide Project, owned by Canada Nickel Company Inc. ("CNC"), and the Dumont Nickel Deposit ("Dumont"), owned by Dumont Nickel (Magneto Investments L.P.), previously Royal Nickel Corporation ("RNC").

The CUC is located in Crawford Township about 42 km north of Timmins, Ontario whereas the Dumont is located in Quebec, about 220 km to the east of Crawford Township (see Figure 7-3). Like the Bannockburn project, the CUC and Dumont are located within the AGB.

While some similarities between the B-Zone at Bannockburn and the CUC and Dumont deposits exist, exploration of the B-Zone at Bannockburn is very early-stage and, as such, mineralization hosted by the advanced stage Dumont Nickel Project is not necessarily indicative of mineralization hosted on Grid Metals' Bannockburn Nickel Sulphide Project.

### 8.2.1 Crawford Ultramafic Complex

The Archean CUC was first identified by geophysics in the 1960s and confirmed as an ultramafic body in the 1960s and 1970s. The geophysical expression and diamond drilling to date suggests that the CUC is at least 8 km in cumulative strike length and averages about 2 km in width. Both the Main Zone and the East Zone contain several hundred metres (thickness) of dunite-peridotite cumulates and include fractionated upper (northern) zones dominated by pyroxenite and gabbro (and their associated PGE reefs). Drill hole intersections reported by CNC have shown average nickel, cobalt, platinum, and palladium concentrations notably higher than those at Dumont.

The CUC forms a structurally displaced and folded, horseshoe shaped (open to the west) ultramafic body. Canada Nickel Company has discovered potential large tonnage, low-grade nickel sulphide mineralization in four areas on the CUC: the Main, East, West and Thumb zones. CNC has delineated two Ni-Co-PGE mineral resources within the Main and East zones (see Canada Nickel news release dated December 4, 2020) which are hosted by highly serpentinized olivine-rich cumulates (dunite-peridotite).

Contained within conceptual open pit shells, CNC reported from the Main Zone (combined lower- and higher-grade domains), Measured + Indicated Resources of 605.9 Mt grading 0.26% Ni, 0.013% Co, 6.62% Fe, and 0.11% S, and Inferred Resources of 320.1 Mt grading 0.24% Ni, 0.013% Co, 6.80% Fe, and 0.07% S. Within the higher-grade domain of the Main Zone, CNC reported Measured + Indicated Resources of 280.2 Mt grading 0.028 g/t Pd, 0.012 g/t Pt, and Inferred Resources of 109.9 Mt grading 0.026 g/t Pd and 0.013 g/t Pt.

From the East Zone Deposit, CNC reported Measured + Indicated Resources of 47.5 Mt grading 0.26% Ni, 0.013% Co, 6.11% Fe, and 0.04% S, and Inferred Resources of 176.7 Mt grading 0.24% Ni, 0.013% Co, 6.63% Fe, and 0.04% S. CNC also reported on the discovery of discrete PGE reefs within the Main and East zone deposits.

CNC has reported on mineralogical test work that, along with laboratory test work, suggests recoverable nickel, similar to that reported on at Dumont (Jobin-Bevans *et al.*, 2020). Mineralogical studies by CNC show that the most dominant sulphide mineral is heazlewoodite, along with sulphur-free minerals like awaruite, a nickel-iron alloy.

### 8.2.2 Dumont Sill

The Archean Dumont Sill, first reported in 1925, is located about 60 km northeast of Rouyn-Noranda and 25 km by road, northwest of the city of Amos, and within the Abitibi Greenstone Belt (Abitibi Region), northwestern Quebec (Ausenco, 2013).

The komatiitic (>18 wt% MgO), synvolcanic Dumont Sill occurs within a sequence of iron-rich tholeiite lavas and volcanoclastic rocks assigned to the Amos Group and which are part of the Barraute Volcanic Complex. Although the exact age of the Dumont Sill is not known, stratigraphic studies in the AGB suggest that the host rocks (Amos Group) are correlative with the Deloro Assemblage (Monecke *et al.*, 2017; Mercier-Langevin *et al.*, 2017).

The differentiated Dumont Sill, about 7 km long, up to 1 km wide, and extending to a depth of more than 500 m, dips steeply to the northeast. Its lower Ultramafic Zone (~450 m thick) comprises the Lower Peridotite Subzone, an olivine + chromite cumulate, the Dunite Subzone, an olivine  $\pm$  sulphide cumulate, and the Upper Peridotite Subzone, an olivine + chromite cumulate. The overlying Mafic Zone (~250 m thick) comprises the Clinopyroxenite Subzone, a clinopyroxene cumulate, the Gabbro Subzone, a clinopyroxene + plagioclase cumulate, and the Quartz Gabbro which includes plagioclase + pyroxene cumulates as well as non-cumulate gabbro (Duke, 1986; Ausenco, 2013 and 2019).

The Dumont nickel sulphide deposit is usually categorized with its most similar counterpart, the Mt. Keith nickel deposit (Type II Komatiite-hosted) in Western Australia (Naldrett, 1989). Although the Dumont, Crawford Ultramafic Complex and the B-Zone at Bannockburn share some similarities with Mt. Keith, it should be noted that nickel grades reported from reserves at Mt. Keith (e.g., range from 0.48% to 0.57% Ni; <https://miningdataonline.com/property/848/Mt-Keith-Mine.aspx>) are higher than the three previously mentioned Canadian projects.

In addition to its lower grade, the Dumont is differentiated from the Mt. Keith nickel deposit by the abundance of the nickel-iron alloy awaruite and by the restricted extent of talc-carbonate alteration, which is limited to the basal contact of the intrusion and occurs outside the resource envelope. In addition, the Dumont and CUC have not been subjected to the extensive supergene weathering alteration present at the Mt. Keith deposit.

Both the Dumont and Mt. Keith deposits have undergone pervasive serpentinization and local talc-carbonate alteration due to metamorphism to mid-upper greenschist facies. The observed mineralogy of the Dumont is a result of the serpentinization of a dunite protolith (>90% olivine), which locally hosted a primary, disseminated (intercumulus) magmatic sulphide assemblage and contained “trapped” nickel within the unaltered olivine. The pervasive serpentinization process, whereby olivine reacts with water to produce serpentine, magnetite and brucite, creates a strongly reducing environment where the nickel released from the decomposition of olivine is partitioned into low-sulphur sulphides and newly formed awaruite. The final mineral assemblage and texture of the disseminated nickel mineralization in the Dumont deposit and the variability has been controlled primarily by the variable degree of serpentinization that the host dunite has undergone.

An NI 43-101 Mineral Resource Estimate reported by RNC in July 2019 (Ausenco, 2019), quotes Measured plus Indicated Mineral Resources of 1.66 billion tonnes grading 0.27% Ni, 107 ppm Co, 9 ppb Pt and 20 ppb Pd, plus an Inferred Mineral Resource of 0.5 billion tonnes grading 0.26% Ni, 101 ppm Co, 6 ppb Pt and 12 ppb Pd. The same study also included a Mineral Reserve statement with Proven Reserves of 163,140,000 tonnes grading 0.33% Ni, 114 ppm Co, 13 ppb Pt and 31 ppb Pd, and Probable Reserves of 864,908,000 tonnes grading 0.26% Ni, 106 ppm Co, 8 ppb Pt and 17 ppb Pd.

Metallurgical test work by RNC has yielded concentrates with over 29% Ni and 1% Co. The high concentrate grade is a function of the very low sulphur content of the rock, so that most of the recoverable nickel is in low-sulphur minerals like heazlewoodite, or sulphur-free minerals like the nickel-iron alloy awaruite.



## 9.0 EXPLORATION

Exploration on the Bannockburn Property was carried out by Mustang Minerals from 2003 to 2005. Exploration activities have included geological mapping, mechanical stripping, borehole geophysics, ground geophysics, diamond drilling, and petrographic and metallurgical studies that are summarized in Table 9-1.

Table 9-1. Summary of Mustang Minerals' 2003 to 2005 exploration work programs.

Description of Work	Quantity
Diamond Drilling (NQ and BQ)	84 DDH – 18,031 m
Airborne Geophysics (AMAG and AEM)	2,368 line km
Ground Pulse EM Surveys (1994)	15.9 km
Borehole Pulse EM Surveys (1994)	9 DDH – 1,515 m
Stripping Program (C-Zone)	2,000 m <sup>2</sup>
Assay Analysis	3,613 samples
Borehole Rock Physical Properties Survey	1,094 m
Petrographic Study	9 samples
Preliminary Metallurgical Study	B-Zone Material
Geophysical Compilation	Property Scale
Acid Base Accounting Test Work	1 Sample

### 9.1 2003

#### 9.1.1 Geophysical Compilation

Quantec was commissioned to complete a comprehensive review and re-interpretation of all of the Outokumpu ground geophysical data (Coulson *et al.*, 2003). The final compilation map is shown in Figure 9-1.

Quantec identified six conductive features that merited additional work, that were either untested or partial tested, based upon their review of the Outokumpu surface HLEM data. As a result of the review, Quantec highlighted their Conductor "C", located immediately south of Rahn Lake as being a geophysical response associated "with the potential for nickeliferous massive sulphide mineralization". Quantec's interpretation indicated that the causative source was present in "sub-crop, if not outcrop".

During the review, Quantec identified a total of 31 off-hole PEM conductors, within 18 diamond drill holes that were surveyed with down-hole TEM by Outokumpu. These are mainly associated with the F-Zone or Thalweg (Charlewood Lake) area and represented high priority, follow-up drill targets. Outokumpu had previously recognized a number of the off-hole targets, however, the company ceased exploration in Canada before these targets could be followed up.

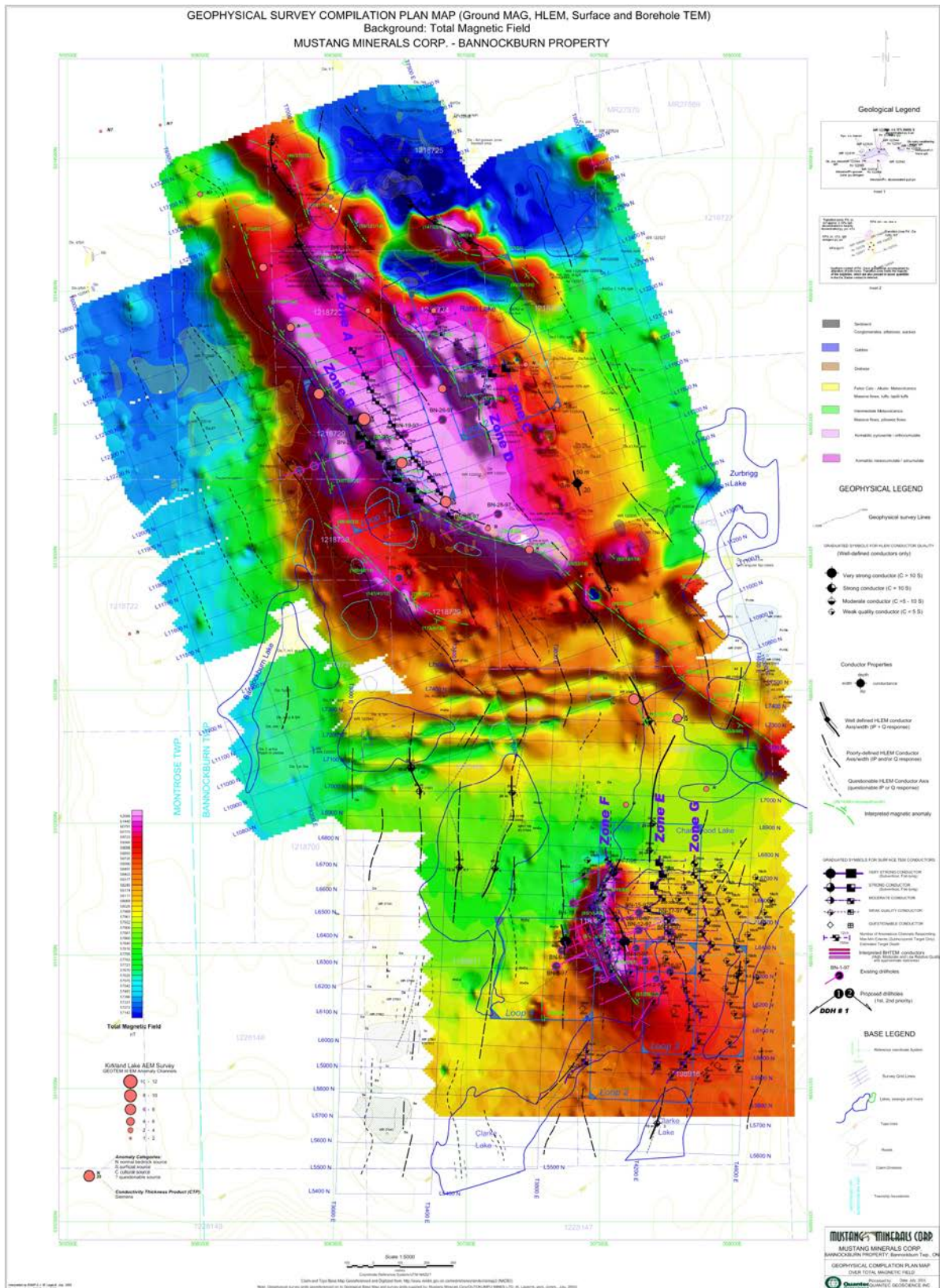


Figure 9-1. Quantec Geoscience Inc. compilation and interpretation of geophysical surveys to 2003 (from Coulson *et al.*, 2003).

### 9.1.2 Mechanical Stripping C-Zone

The C-Zone sulphide mineralization was discovered by Mustang during an excavation and stripping program focused on the “C” conductor in late October 2003. The C-Zone consists of massive to semi-massive sulphides that were exposed by the stripping program under shallow overburden cover.

Surface samples were analyzed at Laboratoire Expert Inc. in Rouyn-Noranda, Quebec. Nickel mineralization associated with the massive sulphides assayed from in the 2-5% Ni range with the disseminated sulphides generally returning assays of less than 1% Ni (Table 9-2). Copper and cobalt correlate closely with elevated nickel values ranging from 67 to 5020 ppm Cu and 28 to 1086 ppm Co. Palladium ranged from 14 to 1370 ppb Pd and platinum from 8 to 390 ppb Pt. Selective surface grab samples yielded maximum values of 4.85% Ni, 0.50% Cu, 0.11% Co, 0.29 g/t Pt, 0.84 g/t Pd and 0.07 g/t Au, typical of komatiitic hosted deposits identified in the Abitibi Greenstone Belt.

Table 9-2. Summary of surface sample assays from the C-Zone (2003).

Sample	Grid (m)	Ni (%)	Cu (%)	Cu+Ni (%)	Massive Sulphide (MS) Disseminated Sulphide (DS)
31132	0 West	3.20	0.11	3.31	MS
31133	0 West	1.09	0.05	1.14	DS
31134	10 West	3.42	0.08	3.50	MS
31135	10 West	0.97	0.06	1.03	DS
46077	25 West	3.22	0.22	3.44	MS
31136	25 West	0.63	0.02	0.65	DS
31137	45 West	3.19	0.11	3.30	MS
31138	45 West	0.98	0.05	1.03	DS
31139	70 West	3.08	0.20	3.28	MS
31140	70 West	0.52	0.02	0.54	DS
31141	85 West	1.97	0.12	2.09	MS
31142	85 West	0.41	0.02	0.43	DS
31143	85 West	3.61	0.19	3.80	MS
31144	85 West	0.66	0.03	0.69	DS
31145	115 West	4.04	0.24	4.28	MS
31146	115 West	3.47	0.32	3.79	MS
31147	115 West	0.19	0.01	0.20	DS
31148	125 West	3.94	0.50	4.44	MS
31149	125 West	4.85	0.24	5.09	MS
31150	125 West	0.58	0.04	0.62	DS
31151	140 West	3.86	0.22	4.08	MS
31152	140 West	3.96	0.18	4.14	MS
46078	140 West	3.30	0.13	3.43	MS
46079	150 West	3.12	0.11	3.23	MS
31154	150 West	4.00	0.13	4.13	MS

## **9.2 2004**

### **9.2.1 Geophysics – Surface and Borehole TEM Surveys**

In February-March 2004, Quantec Geoscience Inc. completed 15.9 line-km of surface TEM and 1,515 m of borehole TEM surveying on nine diamond drill holes that included MBC04-20, MBB04-02, MBB04-03, MBB04-04, MBD04-01, and MBD04-02 (Coulson, 2004). A total of six anomalous features were identified in proximity to known mineralization. Three of the anomalies were interpreted as conductive geological units: two new conductive zones referred to as the C-Zone Extension (C-Zone Offset) and H Zone, and one “off-hole” anomaly identified as the D-Zone (see Figure 7-5).

### **9.2.2 Geophysics - Airborne Geophysical Survey**

Aeroquest International Limited (“Aeroquest”) completed 2,368 line-km of combined airborne electromagnetic (“AEM”) and airborne magnetic (“AMAG”) surveys over the Bannockburn Property. The AeroTEM survey extends beyond the current Property boundaries and covers an area from Zavitz Township eastward to Bannockburn Township. A total of 20 zones of significant conductivity were identified within the survey area. Four of the target areas were flagged for additional exploration work after the completion of preliminary geological mapping and sampling of the conductive responses.

A large, northwest trending, high intensity magnetic anomaly occurs in the area of Rahn Lake, coincident with nearly all of the known nickel sulphide zones and interpreted to reflect the large ultramafic body in this area (Figure 9-2). A second, smaller high intensity magnetic anomaly occurs immediately to the northwest, interpreted to be an untested ultramafic body and the extension of the B-Zone. In the Charlewood Lake area, a high intensity magnetic anomaly is coincident with the E-Zone, F-Zone and G-Zone. A large magnetic high that covers almost a third of the southern part of the Property remains untested and unexplained but is interpreted to reflect a buried ultramafic body (Figure 9-2).

### **9.2.3 Geophysics - Physical Properties Study**

Physical properties were measured in three selected diamond drill holes from the B-, C- and F-Zones (1,094 m) by DGI Geoscience Inc. The physical properties measured included natural gamma, magnetic susceptibility, resistivity, inductive conductivity, fluid resistivity, temperature, and temperature gradient. The physical properties survey concluded that the B-Zone, consisting of highly serpentinized dunite with magnetite, was capable of generating broad conductive features as observed in the Aeroquest AEM survey (“AeroTEM”).

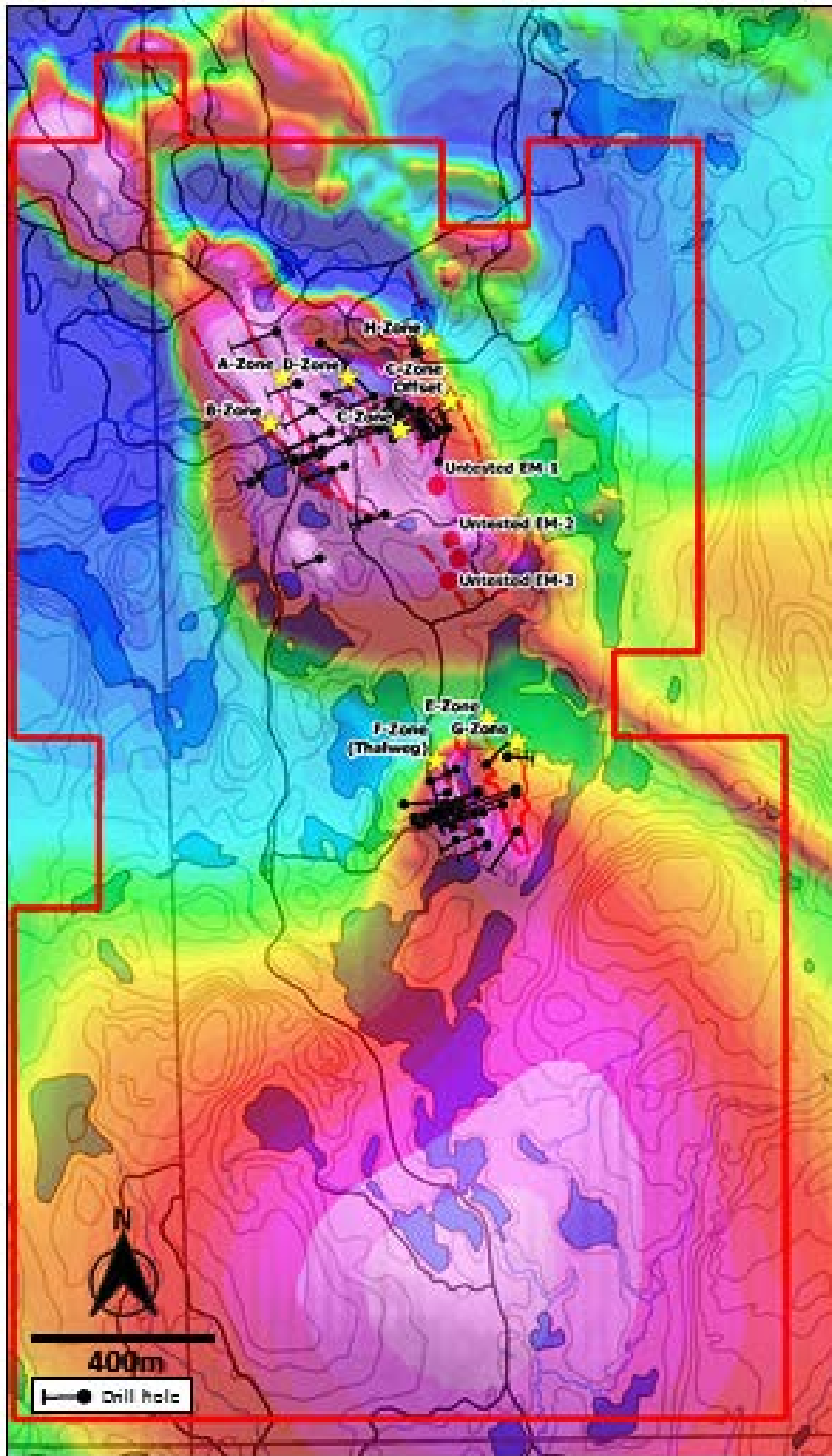


Figure 9-2. Regional total field magnetic intensity from the 2004 AeroTEM survey which covered the Bannockburn Property.



#### 9.2.4 Petrographic Study

Eighteen core samples from the B-Zone were submitted for petrographic examination, whole rock geochemical analyses, and electron microprobe analyses (Sproule, 2004). In addition to the 13 core samples listed in Table 9-3, core intervals were also provided from drill holes MBC04-29, MBC04-30, MBC04-32, MBD04-01, and MBD04-04. The study aimed to confirm rock sample nomenclature, define the various rock textures, interpret the mineralogical and geochemical analyses, and compare these results with the Mt. Keith geological model of large tonnage, low grade nickel mineralization hosted by serpentinized dunite.

Rock types included andesite, pyroxenite, serpentinite, quartz gabbro, wehrlite, olivine gabbro, gabbro-norite, and komatiite. Pervasive alteration was noted in all rock types.

Geochemical analyses were completed at the Ontario Geoscience Laboratories, with major elements determined by wavelength-dispersive X-ray fluorescence spectrometry ("WD-XRFS") on fused glass disks and Ni, Cu, Co and Cr determined by WD-XRFS using pressed powder pellets. In serpentinite, nickel contents ranged from 0.24% to 1.21% Ni and sulphur ranged from below detection to 0.60% S, averaging 0.12% S.

Table 9-3. B-Zone core samples used in 2004 petrographic and analytical study.

Drill Hole	Sample	From (m)	To (m)	Ni (ppm)	Section Examined (m)
MBB04-02	48125	48.00	49.50	2166	48.00-48.35
MBB04-02	48126	49.50	51.00	5500	50.45-50.90
MBB04-03	48806	135.50	137.00	5100	136.20-136.50
MBB04-04	29068	182.00	183.50	4400	182.30-182.75
MBB04-05	48370	203.00	204.50	5000	203.00-203.30
MBB04-05	48371	204.50	206.00	7280	205.00-205.25
MBB04-05	48372	206.00	207.50	2042	206.35-206.70
MBB04-06	29378	102.50	104.00	8340	102.95-103.40
MBB04-06	29407	146.00	147.50	9020	146.50-146.90
MBB04-07	29724	276.50	278.00	2704	277.40-277.70
MBB04-07	29725	278.00	279.50	9180	278.95-279.20
MBB04-07	29726	279.50	281.00	8120	280.00-280.25
MBB04-07	29727	281.00	282.50	2696	281.15-281.45

The only identified sulphide was heazlewoodite ( $\text{Ni}_3\text{S}_2$ ), which is a nickel species containing >70% Ni and usually found in serpentinite and under sulphide-poor conditions. In the B-Zone core samples studied, heazlewoodite occurs as discrete <20  $\mu\text{m}$  grains or as larger grains (up to 100  $\mu\text{m}$  but usually <40  $\mu\text{m}$ ) intergrown with magnetite.

Rarely, metallic nickel ( $\text{Ni}(\text{Fe})(\text{Co})$  alloy) was found intergrown with heazlewoodite, usually within serpentinite and resulting from low temperature hydrothermal activity (Sproule, 2004). Serpentinite contains variable amounts of  $\text{NiO}$ , from 0.09 to 0.2 wt%  $\text{NiO}$ .

## **9.3 2010**

### **9.3.1 Acid Base Accounting**

In March 2010, SGS Lakefield was commissioned to complete a modified acid base accounting analysis ("ABA") on one sample submitted from the B-Zone. The ABA analysis indicated that the serpentinized dunite had a high neutralizing potential and is interpreted as not posing a risk of acid generation.

## 10.0 DRILLING

Surface diamond drilling programs were completed by Mustang Minerals at the Bannockburn Property in 2003 and 2004. A total of 84 diamond drill holes were completed on the Property for a total of 18,031 m of drilling (Table 10-1). Drilling was completed in six separate zones, testing for komatiitic hosted Ni-Cu-Co-(PGE) mineralization (Table 10-1; Figures 10-1 and 10-2). Selective drill hole cross-sections and plan maps are provided in Appendix 2.

Table 10-1. Summary of diamond drilling completed by Mustang Minerals (2003-2004).

Area / Zone	No of DDH	Metres
B-Zone	10	2,794.00
C-Zone / C-Zone Offset	53	12,095.00
D-Zone	6	1,140.00
F-Zone	9	1,090.00
G-Zone	3	233.00
H-Zone	3	1,016.00
<b>Totals:</b>	<b>84</b>	<b>18,031.00</b>

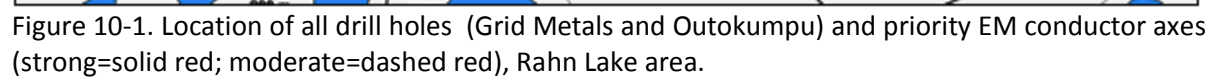
### 9.4 B-Zone

A total of ten holes for a total of 2,794 m was completed on the B-Zone Area (see Figure 10-1; Table 10-2). The focus of the drilling program was to test specific geological and geophysical target areas associated with the serpentinized dunite along trend of the previously identified nickel mineralization by Outokumpu exploring for zones of high tonnage, low grade nickel mineralization (Table 10-3). Sampling completed by Outokumpu were limited to sections where sulphide mineralization was observed in drill core and the first and last samples in the holes often returned nickel values that did not close off the mineralized interval.

Table 10-2. Summary of diamond drill holes completed at the B-Zone.

BHID	UTM_mE	UTM_mN	Elev (m)	Az	Dip	Length (m)
MBB4-01	506854	5313367	361	250	-45	200.00
MBB4-02	506854	5313367	361	250	-55	248.60
MBB4-03	506796	5313453	363	250	-51	266.00
MBB4-04	506796	5313453	363	252	-59	340.00
MBB4-05	506927	5313393	362	252	-45	341.00
MBB4-06	506757	5313546	363	244	-44	275.00
MBB4-07	506851	5313581	364	249	-47	380.00
MBB4-08	506851	5313581	364	250	-61	218.00
MBB4-09	506755	5313701	364	240	-46	266.00
MBB4-10	506674	5313842	363	249	-46	259.70
<b>NAD27 Zone 17N</b>					<b>Total:</b>	<b>2,794.30</b>





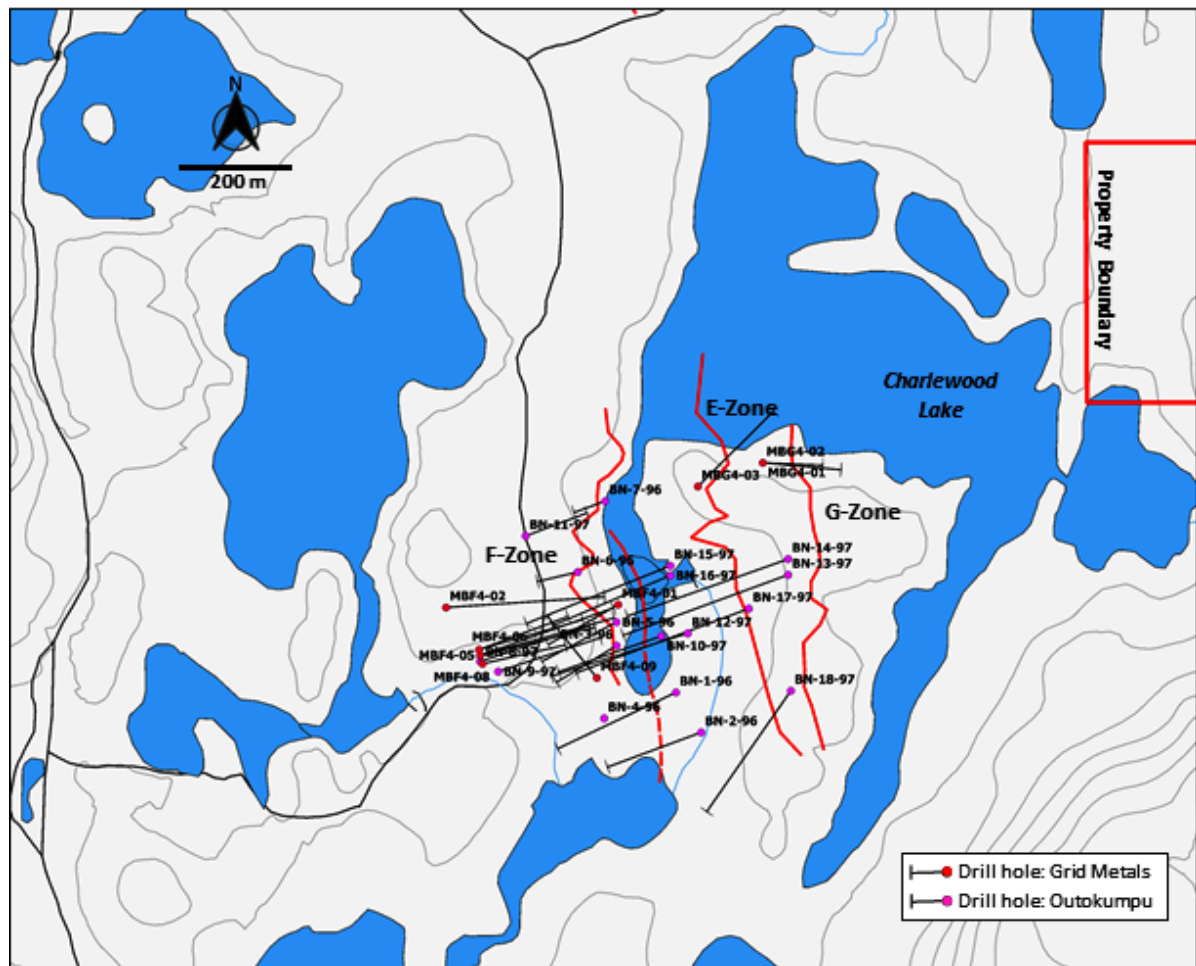


Figure 10-2. Location of all drill holes (Grid Metals and Outokumpu) and priority EM conductor axes (strong=solid red; moderate=dashed red), Charlewood Lake area.

Table 10-3. Summary of significant drill core intercepts for the B-Zone.

BHID	From (m)	To (m)	Interval (m)	Ni (%)	Comment
MBB4-01	53.70	167.50	113.80	0.177	
incl.	53.70	62.50	8.80	0.276	
MBB4-02	48.00	143.50	95.50	0.187	
MBB4-03	102.00	138.50	36.50	0.340	
incl.	50.80	243.50	192.70	0.198	
MBB4-04	47.30	277.30	227.00	0.224	
incl.	96.50	203.00	103.50	0.263	
MBB4-05	52.80	233.00	180.20	0.194	
incl.	195.50	218.00	22.50	0.269	
MBB4-06	65.20	247.50	182.30	0.255	
incl.	65.20	147.50	82.30	0.350	
MBB4-07	54.30	380.00	325.70	0.224	
incl.	200.00	294.50	94.50	0.277	
MBB4-08	41.80	218.00	176.20	0.188	
MBB4-09	63.50	266.00	202.50	0.327	
MBB4-10	65.00	259.70	193.20	0.253	
incl.	65.00	132.50	67.50	0.323	
BN-19-98	103.25	128.50	25.25	0.479	open up and down hole
BN-25-98	179.00	203.29	24.29	0.370	open up and down hole
BN-26-98	80.00	86.00	6.00	0.263	open up and down hole
and	92.00	98.00	6.00	0.250	open up and down hole
and	107.00	113.00	6.00	0.265	open up and down hole
and	119.00	125.00	6.00	0.265	open up and down hole
and	149.00	155.00	6.00	0.253	open up and down hole
and	176.00	179.00	3.00	0.270	open up and down hole
and	221.00	227.00	6.00	0.285	open up and down hole
and	272.00	275.00	3.00	0.280	open up and down hole
and	287.00	290.00	3.00	0.265	open up and down hole
BN-28-99	101.00	107.00	6.00	0.280	open up and down hole
and	110.10	125.00	14.90	0.282	open up and down hole
and	143.00	155.00	12.00	0.283	open up and down hole
and	209.00	254.00	45.00	0.257	open up and down hole

Note: core intervals are not true widths; Grid Metals has insufficient information to determine the true width for the host rocks or the mineralized zones and true widths will be less than the core intervals by a number of factors.

## 10.1 C-Zone and C-Zone Offset

A total of 53 holes for a total of 8,373.83 m of drilling was completed on the C-Zone and C-Zone Offset in 2003 and 2004 (Table 10-4; Figure 10-3).

Table 10-4. Summary of diamond drill holes completed at the C-Zone and C-Zone Offset.

BHID	UTM_mE	UTM_mN	Elev (masl)	Az	Dip	Length (m)	Year
MBC3-01	507125	5313684	384	158	-44	50.00	2003
MBC3-02	507127	5313678	384	157	-45	25.00	2003
MBC3-03	507122	5313678	384	240	-45	50.00	2003
MBC3-04	507154	5313691	384	170	-45	38.00	2003
MBC3-05	507186	5313694	383	175	-44	27.00	2003
MBC3-06	507223	5313733	365	170	-45	53.00	2003
MBC3-07	507223	5313734	365	169	-63	37.00	2003
MBC3-08	507117	5313676	383	170	-55	32.50	2003
MBC3-09	507118	5313673	383	157	-45	20.00	2003
MBC4-10	507110	5313670	381	164	-45	47.00	2004
MBC4-11	507208	5313731	367	180	-45	62.00	2004
MBC4-12	507208	5313732	367	164	-61	83.00	2004
MBC4-13	507261	5313719	364	313	-44	49.50	2004
MBC4-14	507261	5313719	364	286	-45	70.00	2004
MBC4-15	507203	5313747	363	171	-54	101.00	2004
MBC4-16	507201	5313745	362	170	-66	218.00	2004
MBC4-17	507192	5313728	368	164	-43	110.00	2004
MBC4-18	507193	5313729	368	160	-57	127.50	2004
MBC4-19	507189	5313738	363	166	-49	122.00	2004
MBC4-20	507187	5313747	363	165	-53	127.00	2004
MBC4-21	507187	5313748	363	168	-58	131.00	2004
MBC4-22	507178	5313727	368	161	-44	114.30	2004
MBC4-23	507178	5313728	368	164	-55	125.00	2004
MBC4-24	507341	5313699	357	162	-45	156.50	2004
MBC4-25	507341	5313699	357	164	-60	314.00	2004
MBC4-26	507341	5313699	357	157	-64	314.00	2004
MBC4-27	507173	5313743	364	163	-50	149.00	2004
MBC4-28	507173	5313743	364	163	-56	188.00	2004
MBC4-29	507287	5313702	365	156	-45	281.00	2004
MBC4-30	507287	5313702	365	154	-56	296.00	2004
MBC4-31	507287	5313702	365	155	-64	242.00	2004
MBC4-32	507287	5313703	364	162	-74	219.00	2004
MBC4-33	507387	5313556	384	333	-56	290.00	2004
MBC4-34	507387	5313556	384	318	-71	254.40	2004
MBC4-35	507387	5313556	384	324	-59	284.33	2004
MBC4-36	507387	5313556	384	321	-65	257.00	2004
MBC4-37	507422	5313564	381	314	-54	230.00	2004
MBC4-38	507422	5313564	381	301	-57	209.50	2004
MBC4-39	507157	5313605	413	306	-43	146.00	2004
MBC4-40	507158	5313604	413	312	-51	172.00	2004
MBC4-41	507157	5313605	413	329	-44	191.00	2004
MBC4-42	507441	5313593	364	318	-51	167.00	2004
MBC4-43	507146	5313625	409	331	-42	95.00	2004
MBC4-44	507441	5313593	364	322	-56	189.20	2004
MBC4-45	507146	5313625	409	332	-49	92.00	2004
MBC4-46	507441	5313592	364	327	-71	209.00	2004
MBC4-47	507171	5313642	408	325	-64	107.00	2004
MBC4-48	507484	5313601	364	335	-59	260.00	2004
MBC4-49	50717	5313615	413	324	-73	161.00	2004
MBC4-50	507484	5313600	364	351	-66	248.00	2004
MBC4-51	507265	5313606	399	331	-59	225.10	2004
MBC4-52	507191	5313543	419	325	-62	266.00	2004
MBC4-53	507436	5313418	388	15	-54	341.00	2004
NAD27 UTM Zone 17N					Total:	8,373.83	

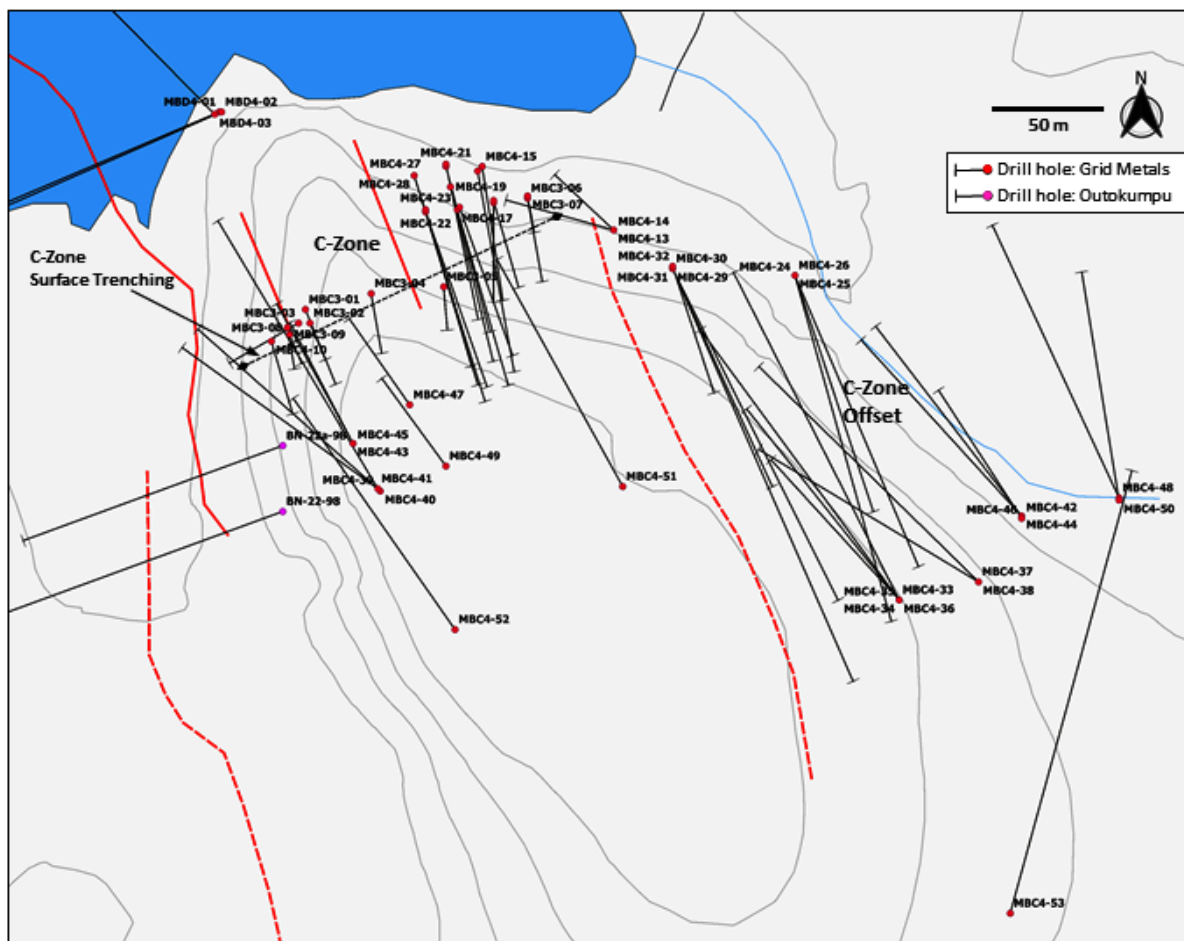


Figure 10-3. Location of all drill holes (Grid Metals and Outokumpu) in the C-Zone and C-Zone Offset areas and priority EM conductor axes (strong=solid red; moderate=dashed red), Rahn Lake area.

Drilling on the C-Zone and C-Zone Offset to date has identified nickel sulphide mineralization over approximately 150 m of strike and ranging between 0.5 to 8 m wide (estimated true thickness) to a depth of approximately 400 metres (Table 10-5). Sulphide mineralization appears to have a vertical to steep south dip and an eastward plunge and the lower boundary of the C-Zone has not been defined (Figure 10-4).

The sulphide mineralization consists of disseminated, net-textured to massive and semi-massive pyrrhotite, with lesser pentlandite and streaks of chalcopyrite. Sulphide mineralization tends to occur at, or in close proximity to, the contact of the peridotitic komatiites and the andesitic volcanics. The best mineralization to date occurs along the west end of the surface exposure where semi-massive to massive nickel sulphide mineralization is up to 2.5 m in apparent thickness.

Table 10-5. Summary of diamond drill hole intersections at the C-Zone and C-Zone Offset.

BHID	From (m)	To (m)	Interval (m)	Ni (%)
MBC3-01	26.65	27.10	0.45	1.160
MBC3-02	8.40	11.75	3.35	2.390
MBC3-04	15.10	16.70	1.60	1.504
MBC3-05	4.85	6.20	1.35	1.838
MBC3-06	9.70	12.10	2.40	1.442
incl.	9.70	11.00	1.30	2.120
MBC3-07	19.80	21.00	0.80	2.215
incl.	19.80	22.10	2.30	1.155
and	27.70	30.40	2.70	0.755
incl.	28.20	29.55	0.85	1.575
MBC3-09	7.50	10.25	2.75	2.345
MBC4-10	6.30	10.30	4.00	1.594
incl.	6.30	8.80	2.50	2.248
MBC4-11	27.10	30.10	3.00	1.419
incl.	27.10	28.25	1.15	2.623
MBC4-12	45.50	47.50	2.00	1.775
MBC4-15	73.56	75.60	2.04	2.020
MBC4-17	39.85	40.80	0.95	1.359
MBC4-18	56.30	58.00	1.70	2.088
MBC4-19	69.00	70.00	1.00	1.695
MBC4-19	69.00	73.00	4.00	0.812
MBC4-22	48.40	50.00	1.60	1.730
MBC4-23	60.90	62.00	1.10	3.258
MBC4-25	98.40	101.85	3.45	1.097
and	188.30	189.35	1.05	0.757
MBC4-26	215.30	216.50	1.20	0.919
and	223.60	227.25	3.65	1.257
and	230.50	238.55	8.05	1.352
MBC4-30	74.00	171.00	97.00	0.261
MBC4-31	147.00	151.00	4.00	2.206
MBC4-33	176.80	179.80	3.00	1.124
and	194.80	195.50	0.70	2.014
MBC4-34	214.15	215.90	1.75	1.225
MBC4-35	182.80	184.00	1.20	1.738
MBC4-36	193.20	194.47	1.27	1.291
MBC4-37	179.90	180.50	0.60	2.785
MBC4-38	189.95	190.25	0.30	2.540
MBC4-39	109.09	109.89	0.80	1.592
MBC4-43	63.97	64.90	0.93	2.853
MBC4-44	153.15	154.66	1.51	0.928
MBC4-45	71.50	72.89	1.39	2.482
MBC4-46	183.98	184.55	0.57	2.807

Note: core intervals are not true widths; Grid Metals has insufficient information to determine the true width for the host rocks or the mineralized zones and true widths will be less than the core intervals reported.

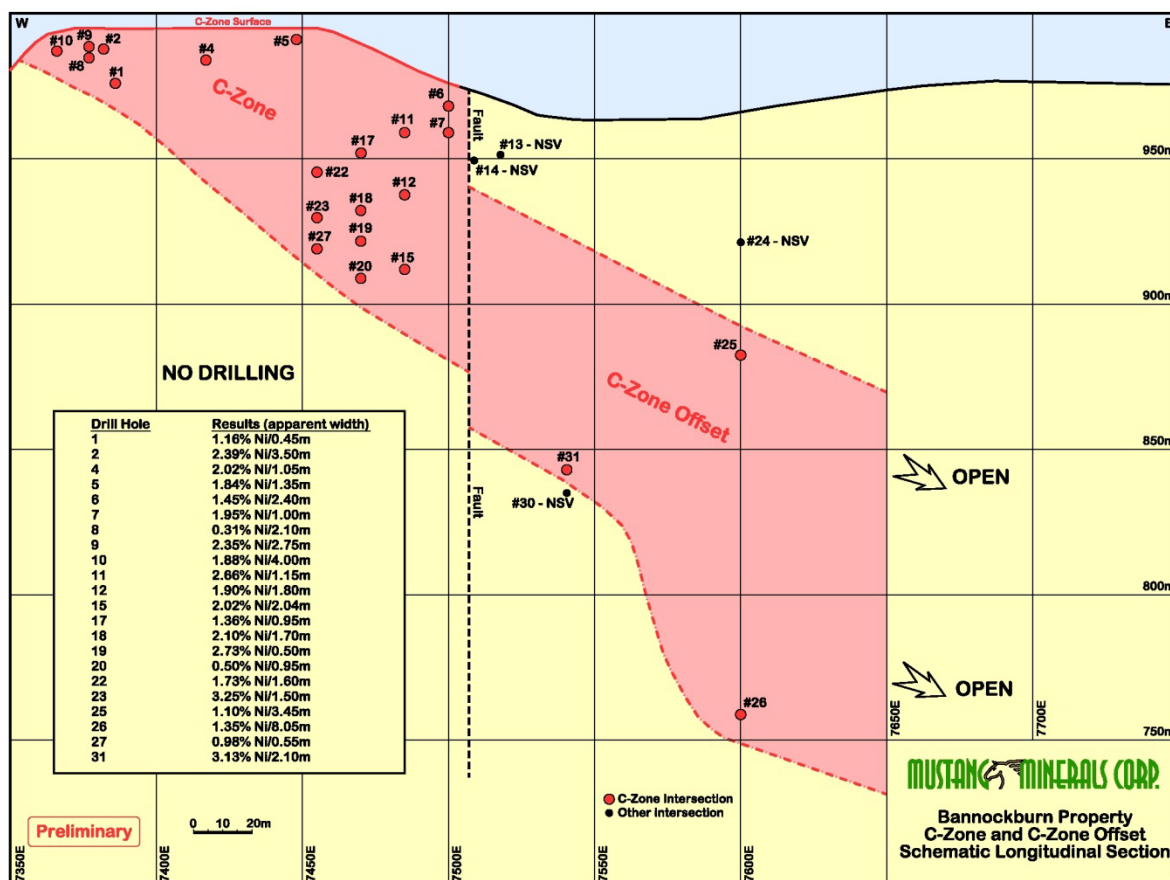


Figure 10-4. Schematic long-section (looking north) through the C-Zone and C-Zone Offset (Lapierre, 2003).

## 10.2 D-Zone

A total of six (6) holes for a total of 1,832 m was completed on the D-Zone in 2004 (Table 10-6). The focus of the drilling program was to test coincident ground TEM and AeroTEM survey anomalies that are located predominantly below Rahn Lake (see Figure 10-1).

Table 10-6. Summary of diamond drill holes completed at the D-Zone (2004).

BHID	UTM_mE	UTM_mN	Elev (masl)	Az	Dip	Length (m)	Year
MBD4-01	507087	5313771	359	247	-44	289.00	2004
MBD4-02	507088	5313771	359	246	-59	380.00	2004
MBD4-03	507085	5313770	359	315	-45	343.50	2004
MBD4-04	506828	5313779	366	76	-49	220.00	2004
MBD4-05	506798	5314064	363	129	-47	280.00	2004
MBD4-06	506797	5314064	362	127	-60	320.00	2004
NAD27 UTM Zone 17N						<b>Total:</b>	<b>1,832.00</b>

Drilling to date on the D-Zone has identified a zone of mainly disseminated nickel sulfide mineralization that is approximately 75 m wide and open along strike to the northwest. Drilling intersected low-grade nickel values ranging from 0.1% to 0.8% Ni over intervals of up to 7.9 m wide



(estimated true thickness). A northwest trending fault appears to offset or terminate the mineralization to the northwest. A narrow zone of net-textured to massive sulphides was identified at a peridotite / dacite contact from 291.8 to 292.3 m in hole MBD4-03. This zone of mineralization is dominated by pyrrhotite and contains up to 0.89% Ni. A large serpentinized dunite body was also intersected in hole MBD4-04 which has mineralogical characteristics similar to the B-Zone.

### 10.3 F-Zone (Thalweg Zone)

A total of nine (9) holes totalling 3,474 m was completed on the F-Zone, also referred to as the Thalweg Zone (Table 10-7). The focus of the drilling program was to test specific geological and geophysical target areas associated with the peridotitic komatiite along the trend of the nickel mineralization previously identified by Outokumpu in their exploration for zones of high-grade nickel mineralization (see Figure 10-2; Table 10-8).

Table 10-7. Summary of 2004 diamond drill holes completed at the F-Zone (Thalweg Zone).

BHID	UTM_mE	UTM_mN	Elev (masl)	Az	Dip	Length (m)
MBF4-01	507557	5311562	355	240	-75	572.00
MBF4-02	507250	5311557	366	86	-62	613.00
MBF4-03	507311	5311472	361	75	-54	421.00
MBF4-04	507311	5311471	361	76	-54	358.00
MBF4-05	507311	5311472	361	71	-43	347.00
MBF4-06	507309	5311482	361	74	-49	293.00
MBF4-07	507309	5311482	361	70	-58	317.00
MBF4-08	507315	5311457	360	77	-55	269.00
MBF4-09	507519	5311432	358	321	-60	284.00
<b>NAD27 UTM Zone 17N</b>					<b>Total:</b>	<b>3,474.00</b>

Table 10-8. Summary of significant drill core intercepts for the F-Zone (Thalweg Zone).

BHID	From (m)	To (m)	Interval (m)	Ni (%)
MBC4-47	78.24	81.10	2.86	2.042
MBF4-01	333.70	337.40	3.70	0.640
MBF4-02	441.25	447.50	6.25	0.874
incl.	441.25	445.00	3.75	1.155
MBF4-03	329.50	334.00	4.50	0.847
MBF4-04	221.50	224.30	2.80	2.935
BN-12-97	414.62	425.20	10.58	1.067
BN-13-97	339.13	339.95	0.82	1.060
BN-3-96	161.80	163.00	1.20	3.220
BN-5-96	263.74	265.96	2.22	1.200
BN-8-97	288.15	291.19	3.04	1.058

Note: core intervals are not true widths; Grid Metals has insufficient information to determine the true width for the host rocks or the mineralized zones and true widths will be less than the core intervals reported.



Drilling to date at the F-Zone has identified nickel sulphide mineralization over a 100 m strike length and down to a depth of 100 to 400 metres. Borehole geophysics has identified a strong conductor continuing below the known mineralization to a vertical depth of approximately 600 metres. The F-Zone remains open at depth.

Drilling identified disseminated, net-textured and massive nickel-bearing sulphides at both the komatiite / dacite contact and wholly contained within mesocumulate to adcumulate pyroxenite to peridotite flows. Significant drill results from the F-Zone ranged from 1.16% to 3.2% Ni over widths ranging from 1.0 m to 3.75 metres. The sulphide mineralization appears to be plunging vertically or steeply to the southeast. The mineralization appears to undulate down-plunge over a restricted strike length; however, borehole PEM indicates several deeper, untested, strong off-hole conductors within the area.

#### 10.4 G-Zone

A total 813 m in of three (3) holes was completed on the G-Zone (Table 10-9). The focus of the drilling program was to test a specific geological and geophysical target area. Drilling tested the interpreted peridotitic komatiite for the presence of nickel sulphide (see Figure 10-2).

Table 10-9. Summary of diamond drill holes completed at the G-Zone.

BHID	UTM_mE	UTM_mN	Elev (masl)	Az	Dip	Length (m)	Year
MBG4-01	507815	5311814	362	95	-45	198.00	2004
MBG4-02	507815	5311814	362	92	-62	228.50	2004
MBG4-03	507699	5311772	356	45	-60	386.00	2004
NAD27 UTM Zone 17N					<b>Total:</b>	<b>812.50</b>	

Drilling intersected brecciated to massive dacitic flows with an 8.6 m zone of conductive graphitic argillite and pyrite that transitioned into a massive adcumulate to orthocumulate pyroxenite under a thin cover of flat-lying Huronian greywacke and conglomerate that unconformably overlies the Archean rocks. No significant nickel mineralization was identified in the ultramafic units and the conductor is interpreted as being associated with the graphitic argillite unit.

#### 10.5 H-Zone

A total of three (3) holes for a total of 744 m was completed on the H-Zone (Table 10-10). The focus of the drilling program was to test a conductor identified by the Quantec ground TEM Survey to the north of Rahn Lake (see Figure 10-1).

Table 10-10. Summary of diamond drill holes completed at the H-Zone (2004).

BHID	UTM_mE	UTM_mN	Elev (masl)	Az	Dip	Length (m)	Year
MBH4-01	507335	5314018	364	338	-46	263	2004
MBH4-02	507335	5314018	364	340	-59	224	2004
MBH4-03	507312	5314009	363	337	-56	257	2004
NAD27 UTM Zone 17N					<b>Total:</b>	<b>744</b>	

## **11.0 SAMPLE PREPARATION, ANALYSIS AND SECURITY**

---

### **11.1 2003-2004: Surface Samples**

A total of 52 samples from the 2003 exploration stripping program were submitted for assay analysis to Expert Laboratories in Rouyn-Noranda, Quebec ("Laboratoire Expert") by Mustang Minerals. Nickel and Cu concentrations were determined using total digestion and inductively coupled plasma mass spectrometry techniques (ICP-MS) on 0.50 g samples with detection limits for Ni and Cu of 0.01%. Silver and Co values were determined using aqua regia dissolution and atomic absorption spectrometric methods (AAS) on 0.50 g samples with detection limits of 0.2 ppm for Ag and 2 ppm for Co. Gold, Pt and Pd values were determined using Fire assay-ICP-MS methods with detection limits of 2 ppb for Au, 5 ppb for Pt and 4 ppb for Pd.

### **11.2 2003-2004: Diamond Drill Core Samples**

Mustang Minerals completed the entire core logging and sampling procedures at a secure site in Matachewan, ON. Contract geologists and technicians provided core logging and sampling services under the guidance of a Mustang Minerals employee. Sample preparation was not undertaken at the core-handling facility; the assay laboratory in their secure work areas completed the sample preparation.

Drill core descriptions were entered onto a "diamond drill record" sheet of paper, and a geologist marked up sample intervals on the core. Sampling of the mineralization is based on visual observations of the style of sulphide mineralization, differentiating between massive/semi-massive and disseminated sulphide mineralization. Individual sample lengths are chosen to accommodate the different mineralization. In general, the sample length within the massive and semi-massive mineralization is 0.5 to 1.0 m and 1.0 to 1.5 m in disseminated mineralization.

Samples of barren rock were taken for assay on either side of mineralized zones to "close off" the mineralized intervals. Half cores are sawn-off from only one side of a sampling line and bagged with the first part of a three-part assay tag bearing a unique identifier number. The other half of the core was archived with the second part of the three-part assay tag bearing an identical unique identifier number fastened to the core box at the beginning of the sample interval.

Records of the sampled intervals and sample numbers were recorded in the logs, on a sampling sheet and on the third part of a three-part assay tags bearing an identical identifier number as the other two parts of the assay tag. The sampler also completed an assay requisition sheet describing the sample numbers and requested assay and preparation procedures for inclusion with each batch of 20 samples.

#### **11.2.1 Sample Preparation, Analyses and Security**

Sample preparation consisted of a coarse crushing of the drill core to 8 mesh, followed by a riffle splitting of an approximate 400-gram representative sub sample. This aliquot is pulverized to +95% minus 150 mesh. Silica sand washes are used between samples to minimize cross sample contamination.

A total of 3,613 samples from the diamond drilling program were submitted for analysis to Laboratoire Expert Inc. in Rouyn-Noranda, Quebec ("Laboratoire Expert") by Mustang Minerals. At the time of the original reporting (Harron, 2005), Laboratoire Expert was said to participate in the Proficiency Testing Program for Mineral Analysis Laboratories, a testing program conducted bi-annually by the Standards Council of Canada ("SCC"). This laboratory was a holder of a Certificate of Laboratory Proficiency and sample preparation was described to follow industry best practices and be assured by adherence to the ISO/IEC 17025 procedures. The analytical methods used were routine and thought to provide robust data associated with a high degree of analytical precision. At the time of the writing of the Report, the authors are not aware of Laboratoire Expert maintaining its SCC accreditation for testing and calibration laboratories.

Nickel determinations were primarily done using a total digestion and ICP-MS finish on 50 g samples with a detection limit of 0.01% for Ni (lab code: AAT-8). Low-grade Ni, Cu, Co, Ag, Zn and Pb determinations were performed using a partial extraction dissolution (lab code: AAT-7) with detection limits of 2 ppm for the various elements (0.2 ppm for Ag). Gold, Pt and Pd values were determined using Fire assay-ICP-MS methods with detection limits of 2 ppb for Au, 5 ppb for Pt and 4 ppb for Pd (lab code: FA-GEO).

A QA/QC program, introduced at some point during the exploration program, provided for the inclusion of one blank sample of drill core and one sample of certified reference material (a "standard") in each batch of samples. The nature of the certified reference material is not specified in the available documentation. Re-assay of the sample pulp was routinely undertaken on every 12th sample.

Security of samples prior to dispatch to the analytical laboratory was maintained by limiting access of un-authorized persons to the secure core handling facility. Detailed records of sample numbers and descriptions of the samples provided integrity of the samples. Labelled samples packed in sealed bags robust enough to survive the journey to the assay laboratory also provided sample integrity. The assay laboratory completed sample preparation operations at their relatively secure location and employed bar coding and scanning technologies that provided complete chain of custody records for every sample.

The Authors are of the opinion that the security and integrity of the samples submitted for analyses is un-compromised, given the secure core handling location, adequate record keeping, prompt expediting of samples, and the analytical laboratories' chain of custody procedures.

---

## 12.0 DATA VERIFICATION

---

The Authors have reviewed historical data and information regarding past exploration work on the Project. The Authors do not know the exact methodologies used in the data collection. Nonetheless, the Authors have no reason to doubt the adequacy of the historical sample preparation, security, and analytical procedures and have confidence in all historical information and data that was reviewed.

Mr. Paul Davis (M.Sc., P.Geo) visited the Project on November 10, 2020. The field visit was made in order to observe the general Property conditions and validate the conditions of the access roads to the Property and the separate areas of interest. Mr. Davis confirmed that no new work on the Property has been done since the most recent in 2005 by Mustang Minerals.

Having worked on the Property for both Outokumpu Mines Ltd. (the Canadian arm of Outokumpu Oy, Finland) and Mustang Minerals, Mr. Davis felt it unnecessary to re-sample the drill core or surface exposures of targeted mineralization and lithologies. Dr. Scott Jobin-Bevans has not visited the Project.

In the Authors' opinion, the procedures, policies and protocols for sampling and drilling verification are sufficient and appropriate and the core sampling, core handling and core assaying methods used at the Project are consistent with good exploration and operational practices such that the data is therefore reliable for the purpose of a future Mineral Resource estimation.

---

## 13.0 MINERAL PROCESSING AND METALLURGICAL TESTING

---

In 2005, SGS Lakefield was commissioned by Mustang Minerals to complete metallurgical testing on a single 35 kg representative sample collected from B-Zone drill core. The scope of the test work included mineralogical investigations, flotation recovery and concentrate grade (Lakefield, 2005).

The sample contained predominantly serpentines including chrysotile and low amounts of nickel and sulphur with a head sample grade of 0.33% Ni, 0.10% S, and 4.07% Fe.

Mineralogical study of the sample indicated that approximately 71% of the nickel assay grade was attributable to fine-grained heazlewoodite ( $\text{Ni}_3\text{S}_2$ ) occurring as liberated grains (generally  $<32\text{ }\mu\text{m}$ ) and often associated with magnetite and serpentine minerals as attachments or inclusions. The remaining nickel was associated with lizardite and is not recoverable through flotation.

Preliminary flotation tests indicated a recovery of 52% and associated concentrate grade of 35% nickel. Additional testing to explore heazlewoodite liberation, the application of the Mt. Keith milling procedures and modified flotation and cleaner procedures were recommended to enhance recovery and concentrate grade.

Results from mineral processing and metallurgical testwork to date offer preliminary information as to the recoverability of the main style of mineralization on the Property. Samples tested thus far are representative of the main style of mineralization in the B-Zone but further mineralogical and metallurgical testwork is required.

---

## **14.0 MINERAL RESOURCE ESTIMATES**

---

The Project has no current NI 43-101 Mineral Resources.

---

## **15.0 MINERAL RESERVE ESTIMATES**

---

This section is not relevant at this stage of the Project.

---

## **16.0 MINING METHODS**

---

This section is not relevant at this stage of the Project.

---

## **17.0 RECOVERY METHODS**

---

This section is not relevant at this stage of the Project.

---

## **18.0 PROJECT INFRASTRUCTURE**

---

This section is not relevant at this stage of the Project.

---

## **19.0 MARKET STUDIES AND CONTRACTS**

---

This section is not relevant at this stage of the Project.

---

## **20.0 ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT**

---

This section is not relevant at this stage of the Project.

---

## **21.0 CAPITAL AND OPERATING COSTS**

---

This section is not relevant at this stage of the Project.

---

## **22.0 ECONOMIC ANALYSIS**

---

This section is not relevant at this stage of the Project.

---

## **23.0 ADJACENT PROPERTIES**

---

There are no adjacent or nearby properties that have an important bearing on the potential of the Bannockburn Nickel Project.

---

## **24.0 OTHER RELEVANT DATA AND INFORMATION**

---

There is no additional information or explanation necessary to make the Report understandable and not misleading.

---

## 25.0 INTERPRETATION AND CONCLUSIONS

---

The objective of the Report was to prepare an independent NI 43-101 Technical Report capturing historical information available for the Project area, to evaluate this information with respect to the prospectivity of the Bannockburn Nickel Sulphide Project, and to present recommendations for future exploration and development on the Property.

The Project consists of 125 unpatented mining claims that cover about 2,700 hectares. The target for exploration on the Property is ultramafic extrusive Komatiite-hosted Ni-Cu-Co-(PGE) deposit type. Nickel mineralization within Archean-age komatiitic rocks occurs within the Abitibi Greenstone Belt (*e.g.* Alexo, Langmuir, Marbridge) and elsewhere in the world including Western Australia (*e.g.* Kambalda, Mt. Keith).

Virtually all deposits of this type are hosted by thick, cumulate komatiite units interpreted to represent lava channels or channelized sheet flows and most are associated with sulfur-rich country rocks. This suggests that high magma and/or lava flux, lava channelization, and sulfur-rich country rocks are the most critical features in determining the prospectivity of komatiites in the Abitibi greenstone belt and elsewhere (Sproule *et al.*, 2005).

At the Bannockburn Project, eight of the nine sulphide occurrences are interpreted as Kambalda-style, whereas the B-Zone is interpreted as Mt. Keith-style.

The most advanced Kambalda-style massive sulfide target on the Property is the C-Zone which typically averages 1 to 3 m in thickness with maximum nickel grades from drill hole MBC4-23 reporting 3.26% Ni over 1.10 metres. Additional intercepts of 2.02% Ni over 2.04 m and 2.21% Ni over 4.0 m highlight the high-grade nickel potential of this zone.

The drilling completed on the F-Zone (Thalweg) in the Charlewood Lake area intersected mineralization of further interest. A nickeliferous zone measuring approximately 100 m long to a depth of 100 to 400 m has been outlined and remains open to depth. Down-hole geophysics identified a strong conductor continuing below the zone to a vertical depth of at least 600 metres. Further drilling of this zone is warranted in order to define the dimensions and grade of this zone.

Geological observations and drilling results from the B-Zone suggest that this zone contains Mt. Keith-type sulphide mineralization. In the B-Zone, wide intercepts of low-grade nickel mineralization containing nickel-bearing heazlewoodite and native nickel are hosted in a serpentinized dunite. Two drill holes 250 m apart intersected 25.3 m grading 0.52% Ni (BN-19) and 202.0 m grading 0.33% Ni (MBB4-09). It is noted that hole MBB4-09 bottomed in mineralization and many of the holes are open up and down hole from reported intersections. While the drilling defines a strike length of +350 m, the hosting lithologic unit is estimated to be +3.5 km long, between 200 and 600 m wide, and open at depth. The potential to define a very large tonnage of low-grade nickel mineralization within the B-Zone warrants additional exploration given similarities of initial drill intersections, in terms of grade and thickness, to that reported from Canada Nickel in the Main and East zones at the Crawford Nickel Project.

The large, highly magnetic body located under the Proterozoic (South Province) Huronian sedimentary cover within the southern portion of the Property has never been explained. Previous



diamond drilling has drilled to 100 metres vertical depth in an attempt to penetrate the sedimentary cover but was abandoned prior to reaching the Archean lithologies. This area represents another untested target that may contain significant komatiite-hosted Ni-Cu-Co-(PGE) sulphide mineralization.

It is the opinion of the Authors that, after reviewing historical results and other publicly available information and data from the Bannockburn Nickel Project, the Project presents an excellent opportunity for the Issuer and is worthy of additional exploration work, targeting komatiite-hosted sulphide nickel mineralization.

## **25.1 Risks and Opportunities**

Caracle is not aware of any known environmental, permitting, legal, title, taxation, socio-economic, marketing, political or relevant issues could be expected to materially affect the reliability or confidence in the exploration information and data discussed herein or the right or ability to perform future work on the Bannockburn Nickel Sulphide Project.

External risks are, to a certain extent, beyond the control of the Project proponents and are much more difficult to anticipate and mitigate, although, in many instances, some risk reduction can be achieved. External risks are things such as the political situation in the Project's region, metal prices, exchange rates and government legislation. These external risks are generally applicable to all mining projects. Negative variance to these items from the assumptions made in the economic model would reduce the profitability of the mine and the mineral resource estimates.

As with all mineral exploration projects, there is an inherent risk associated with mineral exploration. Many of these risks are based on a lack of detailed knowledge and can be managed as more sampling, testing, design, and engineering are conducted at each of the next study stages. The mineral resources may be affected by a future conceptual study assessment of mining, processing, environmental, permitting, taxation, socio-economic, and other factors.

Excluding opportunities that are universal to all mining projects, such as improvements in grade and tonnage, higher metal prices, improved exchange rates, etc., there are several opportunities, mostly technical, that could enhance the Project.

The Bannockburn Nickel Project shows good potential for developing both low-grade, large tonnage and high-grade, low tonnage nickel (Co, Pt, Pd, Fe) resources should be investigated further. Analogues in the AGB, like the Crawford Ultramafic Complex (Ontario) and the Dumont Nickel Deposit (Quebec), share many similarities to the B-Zone at Bannockburn. Extensive exploration work by Canada Nickel Company at Crawford and Royal Nickel at Dumont, largely diamond drilling, has resulted in the delineation of large tonnage, low-grade nickel resources and at Dumont, the delivery of a positive Feasibility Study (Ausenco, 2019).

Much more work is required at Bannockburn to fully assess the nickel potential including additional diamond drilling, surface sampling, and mineralogical and metallurgical studies in order to understand better the geology, mineralization, geochemistry, and geometry of the komatiitic bodies and their potential to host nickel deposits.

The ultimate determination of whether an economic size and grade of deposit can be developed at Bannockburn, will be predicated on the success of future exploration, metallurgical test work and the price of nickel and other recoverable metals. The Bannockburn Nickel Project is still very early-stage and, in addition to moving the project forward to resource delineation drilling (especially on the B-Zone), warrants further metallurgical test work to determine if the nickel present in the main mineralized zones can be efficiently recovered into a saleable sulphide concentrate.

It is the opinion of the Authors, that at this stage of the Project, there are no reasonably foreseen contributions from risks and uncertainties identified in the Report that could affect the Project's continuance at its current stage of exploration.

## 26.0 RECOMMENDATIONS

It is the opinion of the Authors that additional exploration expenditures are warranted on the Bannockburn Nickel Project. Given the broad, low-grade nickel intercepts from previous drilling at the B-Zone (see Figure 7-6), it is recommended that this area of the Project become the principal focus for future exploration. The southern portion of a large northwest trending magnetic anomaly covers the drill-tested B-Zone with the northern extension of this magnetic high remaining untested (see Figure 7-7).

A recommended phased exploration program on the B-Zone and associated budget estimate of approximately C\$1,010,000 is outlined below and summarized in Table 26-1. The budget does not consider Company overhead related to the Project. **The proposed exploration program is phased (4 Phases), with continuance to each subsequent phase predicated on the success of the previous phase.**

Table 26-1. Proposed exploration program budget for the Bannockburn Nickel Project, Ontario.

Work Type	Description	Cost (C\$)
<b>Phase 1: Geophysical re-interpretation, modelling and targeting</b>		
Geophysics	3D Inversion Model (AeroTEM magnetics)	-
Geophysics	Review EM survey data and anomaly picks	\$25,000
<b>Phase 2: Diamond Drilling (all-in \$250/m)</b>		
Drilling	Targeted drilling B-Zone (8 holes; 2,000 m)	\$600,000
<b>Phase 3: Mineralogical Studies</b>		
QEMSCAN	Quantitative mineralogical analyses	\$50,000
<b>Phase 4: Diamond Drilling (all-in \$250/m)</b>		
Drilling	drilling of B-Zone northern extension magnetic anomaly (2 holes; 400 m)	\$100,000
Drilling	Testing of untested EM conductors (3 holes; 800 m)	\$200,000
<b>General: Mineral Resource Estimate and Reporting</b>		
Mineral Resource Estimate	Maiden NI 43-101 mineral resource estimate on B-Zone	\$25,000
Reporting	Assessment and internal reports	\$10,000
<b>Total (C\$):</b>		<b>\$1,010,000</b>

### 26.1 Phase 1

New 3D inversion model of AeroTEM magnetic data to allow 3D modeling of central, mineralized, serpentinized dunite of the B-Zone. Better establish the correlation between nickel grade and magnetic susceptibility. Review of historical EM anomalies by senior geophysical consultant with recommendations for drilling.

### 26.2 Phase 2

Additional targeted diamond drilling on B-Zone to include four (4) pairs of scissor holes (8 holes) averaging about 250 m each, to test for lateral and vertical continuity in nickel grade. The aim is to also extend the B-Zone toward the north and fill in gaps to ensure that the maximum distance between drill sections is 100 m or less.

### **26.3 Phase 3**

Quantitative mineralogical analyses (QEMSCAN or MLA) to characterize nickel sulfide mineralogy in the B-Zone. Aim is to better establish proportion of recoverable nickel, relationship between nickel grade and magnetic intensity, nickel grade and degree of serpentinization, and proportions of nickel sulfide to total nickel. Use new core samples with representative sampling from multiple pairs of holes using coarse rejects as source for mineral separates.

### **26.4 Phase 4**

Initial diamond drilling on northern magnetic anomaly (B-Zone), modelled as the northern continuation of the same dunite body that hosts the primary B-Zone (Figure 26-2). Two holes approx. 200 metres long, targeting the central axis of magnetic high.

Initial diamond drilling of priority, untested EM conductors. Two or three holes, depending on the number of untested EM targets chosen.

### **26.5 General Recommendations**

A critical outcome from the completion of the proposed drilling at the B-Zone is to have enough drill hole intercepts to calculate a maiden Mineral Resource Estimate compliant with NI 43-101. This should be taken into account when planning the drill holes to test geophysical and geological targets. Drill holes spaced at approximately 100 m collar centres on 100 m sections would provide the minimum coverage to complete a mineral resource estimate containing largely Inferred resources.

## 27.0 REFERENCES

---

### 27.1 References Cited

Arndt, N.T, Leshner, C.M. and Barnes, S.J., 2008. Komatiites: Cambridge University Press, 469p.

Ausenco, 2019. Technical Report on the Dumont Ni Project, Launay and Trecesson Townships, Quebec, Canada: Unpublished report prepared for Royal Nickel Corporation by Ausenco Solutions Canada Inc. in conjunction with SRK Consulting (Canada) Inc., Golder Associates Ltd., Wood, and WSP, 425p.

Ausenco, 2013. Technical Report on the Dumont Ni Project, Launay and Trecesson Townships, Quebec, Canada: Unpublished report prepared for Royal Nickel Corporation by Ausenco Solutions Canada Inc. in conjunction with SRK Consulting (Canada) Inc., 432p.

Ayer, J.A., Amelin, Y., Corfu, F., Kamo, S.L., Ketchum, J.W.F., Kwok, K. and Trowell, N.F., 2002a. Evolution of the southern Abitibi greenstone belt based on U-Pb geochronology: autochthonous volcanic construction followed by plutonism, regional deformation and sedimentation: Precambrian Research, v.115, pp. 63-95.

Ayer, J.A., Ketchum, J.W.F. and Trowell, N.F., 2002b. New geochronological and neodymium isotopic results from the Abitibi greenstone belt, with emphasis on the timing and the tectonic implications of Neoarchean sedimentation and volcanism; pp.5-1 to 5-16 in Summary of Field Work and Other Activities 2002, Ontario Geological Survey, Open File Report 6100, 366p.

Ayer, J.A., Thurston, P.C., Bateman, R., Dubé, B., Gibson, H.L., Hamilton, M.A., Hathway, B., Hocker, S.M., Houlié, M.G., Hudak, G., Isolatov, V.O., Lafrance, B., Leshner, C.M., MacDonald, P.J., Péloquin, A.S., Piercey, S.J., Reed, L.E. and Thompson, P.H., 2005. Overview of results from the Greenstone Architecture Project: Discover Abitibi Initiative; Ontario Geological Survey, Open File Report 6154, 175p.

Barnes, S.J., Fiorentini, M.L., Duuring, P., Grguric, B.A. and Perring, C.S., 2011, The Perseverance and Mount Keith nickel deposits of the Agnew-Wiluna Belt, Yilgarn Craton, Western Australia: Reviews in Econ. Geol., v.17, pp.51-88.

Barnes, S.J., Hill, R.E.T., Perring, C.S., and Dowling, S.E., 2004. Lithogeochemical exploration of komatiite-associated Ni-sulphide deposits: strategies and limitations: Mineralogy and Petrology, v. 82, pp.259–293. Barnes, S.J., Cruden, A.R., Arndt, N. and Saumur, B.M., 2016, The mineral system approach applied to magmatic Ni-Cu-PGE sulphide deposits: Ore Geol. Rev., v.76, pp. 296-316.

Barnes, S.J., Leshner, C.M. and Sproule, R.A., 2006. Comparative lithogeochemistry of komatiites in the Noreseman-Wiluna and Abitibi Greenstone Belts, and implications for nickel sulfide targeting: ASEG Extended Abstracts, 2006:1, pp. 1-3.

Barnes, S-J. and Lightfoot, P.C., 2005. Formation of magmatic nickel-sulfide ore deposits and processes affecting their copper and platinum-group element contents, pp. 179-213 in Hedenquist, J.W., Thompson, J.F.H., Goldfarb, R.J. and Richards, J.P. (eds.), Econ. Geol. 100th Anniversary Volume (1905-2005), 1133p.

- Beresford, S.W. and Stone, W.E., 2004. Komatiite-hosted Ni-Cu-PGE deposits of the Kambalda nickel camp – an overview: GSWA Record 2004/16, pp. 5-8.
- Berger, B.R. and Leblanc, G., 2002. Geology of Cairo Township, District of Timiskaming; pp.8-1 to 8-7 in Summary of Field Work and Other Activities 2002, Ont. Geol. Surv., Open File Report 6100, 366p.
- Berger, B. R. and Préfontaine, 2005. General geology of Powell Township, District of Timiskaming; pp.5-1 to 6-10 in Summary of Field Work and Other Activities 2005, Ont. Geol. Surv., Open File Report 6172, 314p.
- Brereton, W.E., 2003. Report on the Bannockburn nickel property, Matachewan Area, Ontario: Unpublished report for Mustang Minerals Corp. by MPH Consulting Limited, December 1, 2003, 59p.
- Burley, L.L. and Barnes, S.J., 2019. Komatiite characteristics of the Fisher East nickel sulfide prospects: Implications for nickel prospectivity in the northeastern Yilgarn Craton: Geol. Surv. Western Australia, Report 198, 20p.
- Butt, C.R.M. and Brand, N.W., 2003. Mt. Keith nickel sulphide deposit, Western Australia; in Butt, C.R.M., Cornelius, M., Scott, K.M. and Robertson, I.D.M. (eds.): A compilation of geochemical case histories and conceptual models, CRC LEME 2003, 3p.
- Burrows, A.G., 1918., The Matachewan Gold Area: Ont. Bur. Mines, Annual Report, v.27, Pt.1, pp. 215-240.
- Cooke, H.C., 1919., Geology of the Matachewan District, Northern Ontario; Geol. Surv. Canada, Memoir 115, 60p., Accompanied by Map 1793, Scale 1:63,360.
- Coulson, W., 2004. Interim Summary Interpretation report for Mustang Minerals Corp. over the Bannockburn Twp. Property. Unpublished report by Quantec Geoscience Inc. (March 2004), 8p.
- Coulson, W., Legault J. M., Martinez E., 2003. Geophysical Survey Interpretation Report regarding the Borehole and Surface Transient EM, Ground Total Field Magnetic and MAXMIN Horizontal Loop EM Surveys over the Bannockburn-Rahn Lake & Thalweg Projects, Bannockburn and Montrose Twp, Ont, on behalf of Mustang Minerals Corporation, Sudbury, On, Canada; Unpublished report by Quantec Geoscience Inc. (September 2003).
- Crins, W.J., Gray, P.A., Uhlig, P.W.C. and Wester, M.C, 2009. The ecosystems of Ontario, Part I: Ecozones and ecoregions: Ont. Min. Nat. Resources, Tech. Report SIB TER IMA TR-01, 71p.
- Davis, P., 1999. Bannockburn Nickel Project, Summary of Exploration Work, March 1999. Unpublished work report for Outokumpu Mines Inc., 35p.
- Duke, J.M., 1986. Petrology and economic geology of the Dumont Sill: an Archean intrusion of komatiitic affinity in northwestern Quebec: Geol. Surv. Canada, Economic Geology Report, v35, 56p.
- Eckstrand, O.R. and Hulbert, L.J., 2007. Magmatic nickel-copper-platinum group element deposits, pp.205-222 in Goodfellow, W.D., (ed.), Mineral Deposits of Canada: A Synthesis of Major Deposit Types, District Metallogeny, the Evolution of Geological Provinces, and Exploration Methods: Geol. Assoc. Canada, MDD Spec. Pub. No. 5, 1068p.

- Fiorentini, M.L., Beresford, S.W., Rosengren, N., Barley, M.E. and McCuaig, T.C., 2010. Contrasting komatiite belts, associated Ni-Cu-(PGE) deposit styles and assimilation histories: *Aus. Jour. Earth Sci.*, v57, No. 5, pp. 543-566.
- Gauld, C., 1999. Petrographic report, Bannockburn Nickel Property, Bannockburn Township, Ontario: Unpublished report prepared for Outokumpu Mines Inc., January 9, 1999, 12p.
- Gledhill, T.L., 1926. Grassy River Area, District of Sudbury: Ont. Dept. Mines, Annual Report, v.35, Pt.6, pp. 57-76.
- Gole, M.J., 2014. Leaching of S, Cu, and Fe from disseminated Ni-(Fe)-(Cu) sulphide ore during serpentinization of dunite host rocks at Mount Keith, Agnew-Wiluna belt, Western Australia: *Miner. Deposita*, v.49, pp. 821-842.
- Gole, M.J. and Hill, R.E.T., 1990. The refinement of extrusive models for the genesis of nickel deposits: Implications from case studies at Honeymoon Well and the Walter Williams Formation: *Min. and Energy Research Institute of Western Australia*, Report No. 68, 161p.
- Grant, J.C., 1997. Geophysical Report for Outokumpu Mines Limited, on the Bannockburn and Montrose Townships, Larder Lake Mining Division, Northeastern Ontario; Unpublished report by Exsics Exploration Limited, 7p., including 4 maps and 2 appendices. (MAG and HLEM Surveys).
- Grant, J.C., 1996. Geophysical Report for Outokumpu Mines Limited, on the Bannockburn Township, Larder Lake Mining Division, Northeastern Ontario; Unpublished report by Exsics Exploration Limited, 6p., including 3 maps and 2 appendices. (MAG and HLEM Surveys).
- Guindon, D.L., Farrow, D.G., Hall, L.A.F., Daniels, C.M., Debicki, R.L., Wilson, A.C., Bardeggia, L.A. and Sabiri, 2016. Report of activities 2015, Resident Geologist program, Kirkland Lake Regional Resident Geologist report: Kirkland Lake and Sudbury Districts: Ont. Geol. Surv., Open File Report 6318, 106p.
- Harron, G.A., 2005. Technical Report on Bannockburn nickel property, Bannockburn, Doon, Montrose, Hincks and Zavitz Townships, Ontario: Unpublished report for Mustang Minerals Corp. by MPH Consulting Limited, May 4, 2005, 39p.
- Haziza, N., 1998. The Interpretation and Comparison of 2 Geochemical Soil Techniques: MMI and Enzyme Leach, in an Area of Potential Nickel Mineralization, Unpublished B.Sc. Thesis, Queens University, 52p., including 5 appendices.
- Heath, C., Lahaye, Y., Stone, W.E. and Lambert, D.D., 2001. Origin of variations in nickel tenor along strike of the Edwards Lode nickel sulfide orebody, Kambalda, Western Australia: *Can. Min.*, v.39, pp. 655-671.
- Hewitt, D.F. and Satterly, J., 1953. Asbestos in Ontario: Ont. Dept. Mines, Industrial Mineral Circ. 1, 23p.
- Hill, R.E.T., Barnes, S.J., Gole, M.J. and Dowling, S.E., 1995. The volcanology of komatiites as deduced from field relationships in the Norseman-Wiluna greenstone belt Western Australia: *Lithos*, v.34, pp.159-188.



- Houlé, M.G. and Leshner, C.M., 2011. Komatiite-associated Ni-Cu-(PGE) deposits, Abitibi Greenstone Belt, Superior Province, Canada: *Reviews Econ. Geol.*, v.17, pp.89-121.
- Houlé, M.G., Leshner, C.M. and Davis, P.C., 2012. Thermomechanical erosion at the Alexo Mine, Abitibi Greenstone Belt, Ontario: Implications for the genesis of komatiite-associated Ni-Cu-(PGE) mineralization: *Minera. Deposita*, v.47, pp. 105-128.
- Houlé, M.G., Leshner, C.M. and Préfontaine, S., 2017. Physical volcanology of komatiites and Ni-Cu-(PGE) deposits of the Southern Abitibi Greenstone Belt: *Reviews in Econ. Geol.*, v.19, pp. 103-132.
- Houlé, M.G., Préfontaine, S. and Berger, B.R., 2005. Physical volcanology and economic potential of komatiite-associated Ni-Cu-(PGE) deposits, Bannockburn Township Area; pp.7-1 to 7-18 in *Summary of Field Work and Other Activities 2005*, Ont. Geol. Surv., Open File Report 6172, 314p.
- Jackson, S.L. and Fyon, A.J., 1991. The western Abitibi Subprovince in Ontario; pp.405-482 in Thurston, P.C., Williams, H.R., Sutcliffe, R.H. and Stott, G.M. (eds.), *Geology of Ontario*, Ont. Geol. Surv., Spec. Vol. 4, 1525p.
- Jensen, L.S., 1996a. Precambrian geology of Montrose Township: Ont. Geol. Surv., Map P3354, Scale 1:20,000.
- Jensen, L.S., 1996b. Precambrian geology of Bannockburn Township: Ont. Geol. Surv., Map P3355, Scale 1:20,000.
- Jobin-Bevans, S., Siriunas, J., and Oviedo, L. 2020. Independent Technical Report and Mineral Resource Estimate, Crawford Nickel-Cobalt Sulphide Project, Timmins-Cochrane Area, Ontario, Canada: Unpublished report prepared for Canada Nickel Company Inc. by Caracle Creek International Consulting Inc., April 9, 2020, 147p.
- Kretschmar, U. and Kretschmar, D., 1986. Talc, magnesite and asbestos deposits in the Timmins – Kirkland Lake Area, Districts of Timiskaming and Cochrane: Ont. Geol. Surv., Study 28, 100p.
- Lakefield, 2005. An Investigation into the Flotation Recovery of Nickel from the Bannockburn Property. Prepared for Mustang Minerals Corporation. Prepared by SGS Lakefield Research Limited, 12p.
- Leshner, C.M. and Groves, D.I., 1986. Controls on the formation of komatiite-associated nickel-copper sulfide deposits; pp.43-62 in Friedrich, G.H., Genkin, A.D., Naldrett, A.J., Sillitoe, R.H. and Vokes, F.M. (eds.), *Geology and Metallogeny of Copper Deposits*, Spec. Pub. No. 4 of the Soc. Geol. App. Min. Dep., Springer, Berlin, Heidelberg, 592p.
- Leshner, C.M. and Keays, R.R., 2002. Komatiite-associated Ni-Cu-PGE Deposits: Geology, mineralogy, geochemistry, and genesis; pp.579-617 in Cabri, L.J. (ed.), *The Geology, Geochemistry, Mineralogy and Mineral Beneficiation of Platinum-group elements*, CIM Spec. Vol. 54, 852p.
- Leshner, C.M., Arndt, N.T. and Groves, D.I., 1984. Genesis of komatiite-associated nickel sulphide deposits at Kambalda, Western Australia: A distal volcanic model, pp.70-80 in Buchanan, D.L. and Jones, M.J. (eds.), *Sulphide Deposits in Mafic and Ultramafic Rocks*, Institute of Mining and Metallurgy, 164p.

- Lovell, H.L., 1967. Geology of the Matachewan Area, District of Timiskaming: Ont. Dept. Mines, Geol. Report 51, 61p. Accompanied by Map 2109 (Baden and Alma Townships) and Map 2110 (Powell and Cairo Townships), Scales 1:31,680.
- MacNeil, J.D., 1997a. Logistics Report for Outokumpu Mines Limited; Unpublished Surface and Borehole PEM Surveys by Crone Geophysics and Exploration Ltd., 3p., including 2 appendices.
- MacNeil, J.D., 1997b. Pulse Electromagnetic Survey Report for Outokumpu Mines Limited, Bannockburn Project, Matachewan, Ontario; Unpublished PEM 30 Borehole Survey by Crone Geophysics and Exploration Ltd., 3p., including 2 appendices.
- MERC, 2017. 2017 Field Trip Guide, Transects: Malartic - Rouyn Noranda - Larder Lake – Swayze, 76p.
- Mercier-Langevin, P., Goutier, J. and Dubé B. (ed.), 2017. Precious- and base-metal deposits of the southern Abitibi greenstone belt, Superior Province, Ontario and Quebec: 14<sup>th</sup> Biennial Society for Geology Applied to Mineral Deposits meeting field trip guidebook; Geol. Surv. Canada, Open File 8317, 86p.
- Monecke, T., Mercier-Langevin, P., Dube, B., and Frieman, B.M., 2017. Geology of the Abitibi Greenstone Belt (Chapter 1); In Archean Base and Precious Metal deposits, Southern Abitibi Greenstone Belt, Canada, Reviews in Economic Geology, v19, pp. 7-49.
- Naldrett, A.J., 1989. Magmatic Sulfide Deposits: Clarendon Press, 186p.
- ODM, 1975. Airborne electromagnetic and total intensity magnetic survey, Bannockburn Township, District of Timiskaming: Ont. Div. Mines, Map P1021, Scale 1:15,840.
- Ontario Geological Survey, 1990b. Airborne electromagnetic and total intensity magnetic survey, Shining Tree Area: Ont. Geol. Surv., Map 81403, Scale 1:20,000.
- Ontario Geological Survey, 1990a. Airborne electromagnetic and total intensity magnetic survey, Shining Tree Area: Ont. Geol. Surv., Map 81402, Scale 1:20,000.
- Ontario Geological Survey, 2000a. Airborne magnetic and electromagnetic surveys, Kirkland Lake area: Ont. Geol. Surv., Map 82036, Scale 1:20,000.
- Ontario Geological Survey, 2000b, Airborne magnetic and electromagnetic surveys, Kirkland Lake area: Ont. Geol. Surv., Map 82037, Scale 1:20,000.
- Préfontaine, S. and Berger, B.R., 2005. Geology of Bannockburn and Montrose Townships, District of Timiskaming; pp.6-1 to 6-7 in Summary of Field Work and Other Activities 2005, Ont. Geol. Surv., Open File Report 6172, 314p.
- Pyke, D.R., Naldrett, A.J. and Eckstrand, A.P., 1973. Archean ultramafic flows in Munro Township, Ontario: Geol. Soc. Am. Bull., 84, pp.955-978.
- Rickaby, H.C., 1932. Bannockburn Gold Area: Ont. Dept. Mines, Annual Report v.41, Pt.2, pp.1-24. Accompanied by Map 41a, Scale 1:47,520.
- Rowe, J.S., 1972. Forest regions of Canada: Can. Forestry Service, Pub. 1300, 172p.

Sinclair, D.G., Tower, W.O., Bayne, A.S., Cooper, D.F., Weir, E.B. and Webster A.R., 1937. Mines of Ontario in 1936: Ont. Dept. Mines, Annual Report, v.46, Pt.1, pp. 90-238.

Sproule, R.A., 2004. Petrographic Descriptions and Initial Geochemical Report for Mustang Minerals, September 2004, 100p.

Sproule, R.A., Leshner, C.M., Ayer, J.A. and Thurston, P.A., 2003. Geochemistry and metallogenesis of komatiitic rocks in the Abitibi Greenstone Belt, Ontario: Ont. Geol. Surv., Open File Report 6073, 119p.

Sproule, R.A., Leshner, C.M., Houle, M.G., Keays, R.R., Ayer, J.A., and Thurston, P.C., 2005. Chalcophile Element Geochemistry and Metallogenesis of Komatiitic Rocks in the Abitibi Greenstone Belt, Canada: Econ. Geol. v.100, pp. 1169-1190.

Sproule, R., Leshner, C.M., Houle, M.G., Keays, R.R., Ayer, J.A. and Thurston, P.C., 2006. Ni-Cu-PGE metallogenesis of komatiitic rocks in the Abitibi Greenstone Belt, Canada: ASEG Extended Abstracts, 2006:1, pp. 1-5.

Taranovic, V., Leshner, C.M., Houle, M.G. and Bédard, J.H., 2012. Physical volcanology and genesis of komatiite-associated Ni-Cu-(PGE) mineralization in the C Zone, Bannockburn Township, Ontario: Econ. Geol., v.107, pp. 835-857.

Thurston, P.C., Ayer, J.A., Goutier, J. and Hamilton, M.A., 2008. Depositional gaps in Abitibi Greenstone Belt stratigraphy: A key to exploration for syngenetic mineralization: Econ. Geol., v.103, pp. 1097-1134.

Tolley, M., Gerrie, V. and Coulson, S., 1997. Geophysical Survey Logistical Report regarding the Borehole Transient Electromagnetic and Physical Property Surveys over the Bannockburn Property, Bannockburn Twp., ON, on behalf of Outokumpu Metals and Resources Canada; Unpublished report by Quantec Consulting Inc., 8p., including 6 appendices.

Tower, W.O., Cave, A.E., Taylor, J.B., Douglass, D.P., Hargrave, W.G., Bayne, A.S., Cooper, D.F., Weir, E.B. and Webster A.R., 1940. Mines of Ontario in 1939: Ont. Dept. Mines, Annual Report, v.49, Pt.1, pp. 72-242.

## **27.2 References (not cited)**

Coad, P.R., 1979. Nickel sulphide deposits associated with ultramafic rocks of the Abitibi Belt and economic potential of mafic-ultramafic intrusions: Ont. Geol. Surv., Study 20, 84p.

Eckstrand, O.R., 1975. The Dumont serpentinite: A model for control of nickeliferous opaque mineral assemblages by alteration reactions in ultramafic rocks: Econ. Geol., v.70, pp. 183-201.

Hudson, D.R. and Travis, G.A., 1981. A native nickel-heazlewoodite-ferroan trevorite assemblage from Mount Clifford, Western Australia: Econ. Geol., v.76, pp. 1686-1697.

Schulz, K.J., Chandler, V.W., Nicholson, S.W., Piatak, N., Seal, R.R., II, Woodruff, L.G. and Zientek, M.L., 2010. Magmatic sulfide-rich nickel-copper deposits related to picrite and (or) tholeiitic basalt dike-sill complexes: A preliminary deposit model: USGS Open File Report 2010-1179, 25p.

Schulz, K.J., Woodruff, L.G., Nicholson, S.W., Seal, R.R., II, Piatak, N.M., Chandler, V.W. and Mars, J.L., 2014. Occurrence model for magmatic sulfide-rich nickel-copper-(platinum group element) deposits related to mafic and ultramafic dike-sill complexes: USGS Scientific Investigations Report 2010-5070-1, 80p.

Tzamos, E., Filippidis, A., Michailidis, K., Koroneos, A., Rassios, A., Grieco, G., Pedrotti, M. and Stamoulis, K., 2016. Mineral chemistry and formation of awaruite and heazlewoodite in the Xerolivado chrome mine, Vourinos, Greece: Bull. Geol. Soc. Greece, v50, pp. 1-10.

Vos, M.A., 1971. Asbestos in Ontario; Ont. Dept. Mines and Northern Affairs, Industrial Mineral Report 36, 69p.

Williams, K.L., 1960. An association of awaruite with heazlewoodite: Am. Mineral., v.45, pp. 450-453.

### 27.3 Website References

Canada Nickel Company: <https://canadanickel.com/>

City Population: <https://www.citypopulation.de/en/canada/ontario/admin/>

Dumont Nickel: <https://dumontnickel.com/en/dumont-project/>

Grid Metals: <https://www.gridmetalscorp.com/>

Search Geology Ontario: <http://www.geologyontario.mndm.gov.on.ca/index.html>

[http://self.gutenberg.org/articles/eng/Kambalda type komatiitic nickel ore deposits](http://self.gutenberg.org/articles/eng/Kambalda_type_komatiitic_nickel_ore_deposits)

<https://www.mndm.gov.on.ca/en/mines-and-minerals>

[https://archive.epa.gov/esd/archive-geophysics/web/html/equipotential and mise-a-la-messe methods.html](https://archive.epa.gov/esd/archive-geophysics/web/html/equipotential_and_mise-a-la-messe_methods.html)

**APPENDIX 1 - Certificates of Authors**  
[2 pages]

## **CERTIFICATE OF AUTHOR**

**Scott Jobin-Bevans (P.Geo.)**

I, Scott Jobin-Bevans, P.Geo., do hereby certify that:

1. I am an independent consultant of Caracle Creek International Consulting Inc. (Caracle) and have an address at 1545 Maley Drive, Ste. 2018, Sudbury, Ontario, Canada, P3A 4R7.
2. I graduated from the University of Manitoba (Winnipeg, Manitoba) with a B.Sc. Geosciences (Hons) in 1995 and from the University of Western Ontario (London, Ontario) with a Ph.D. (Geology) in 2004.
3. I am a member, in good standing, of Association of Professional Geoscientists of Ontario, License Number 0183.
4. I have practiced my profession continuously for more than 25 years and have been involved in mineral exploration, mine site geology, mineral resource and reserve estimations, preliminary economic assessments, pre-feasibility studies, due diligence, valuation and evaluation reporting, and have authored or co-authored numerous NI-43-101 reports on a multitude of commodities including nickel-copper-platinum group elements, base metals, gold, silver, vanadium, and lithium projects in Canada, the United States, China, Central and South America, Europe, Africa, and Australia.
5. I have read the definition of "Qualified Person" set out in National Instrument 43-101 Standards of Disclosure for Mineral Projects ("NI 43-101") and certify that by 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.
6. I am responsible for all sections, except Section 2.3, in the technical report titled, "Independent NI 43-101 Technical Report on the Bannockburn Nickel project, Matachewan Area, Ontario, Canada" (the "Technical Report"), issued January 19, 2021 and with an Effective Date of December 31, 2020.
7. I have not visited the Bannockburn Nickel Project.
8. I am independent of Grid Metals Corp. applying all of the tests in Section 1.5 of NI 43-101.
9. I have had no prior involvement with the Project that is the subject of the Technical Report.
10. I have read NI 43-101, Form 43-101F1 and confirm the Technical Report has been prepared in compliance with that instrument and form.
11. As of the Effective Date of the Technical Report, to the best of my knowledge, information and belief, the Sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Signed at Toronto, Ontario, Canada this 19<sup>th</sup> day of January 2021.

"Signed and Sealed"

---

Scott Jobin-Bevans (Ph.D., PMP, P.Geo.)

## **CERTIFICATE OF AUTHOR**

**Paul C. Davis (P.Geo.)**

I, Paul C Davis, P.Geo., do hereby certify that:

1. I am an independent consultant and have an address at 25 Wakem Crt, Whitby, ON, L1P 1T8.
2. I graduated from the University of Western Ontario (London, Ontario) with a B.Sc. Geology (Hons) in 1988 and from the University of Alabama (Tuscaloosa, Alabama, USA) with an M.Sc. (Geology) in 1998.
3. I am a member, in good standing, of Association of Professional Geoscientists of Ontario, License Number 1109.
4. I have practiced my profession continuously for more than 30 years and have been involved in mineral exploration, mine site geology, mineral resource and reserve estimations, preliminary economic assessments, pre-feasibility studies, due diligence, valuation and evaluation reporting, and have authored or co-authored NI-43-101 reports on commodities including nickel-copper-platinum group elements and industrial minerals projects in Canada and Brazil.
5. I have read the definition of "Qualified Person" set out in National Instrument 43-101 Standards of Disclosure for Mineral Projects ("NI 43-101") and certify that by 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.
6. I am responsible for all sections in the technical report titled, "Independent NI 43-101 Technical Report on the Bannockburn Nickel project, Matachewan Area, Ontario, Canada" (the "Technical Report"), issued January 19, 2021 and with an Effective Date of December 31, 2020.
7. I have recently visited the Bannockburn Nickel Project on November 10, 2020.
8. I am independent of Grid Metals Corp. applying all of the tests in Section 1.5 of NI 43-101.
9. I have had no prior involvement with the Project that is the subject of the Technical Report.
10. I have read NI 43-101, Form 43-101F1 and confirm the Technical Report has been prepared in compliance with that instrument and form.
11. As of the Effective Date of the Technical Report, to the best of my knowledge, information and belief, the Sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Signed at Toronto, Ontario, Canada this 19<sup>th</sup> day of January 2021.

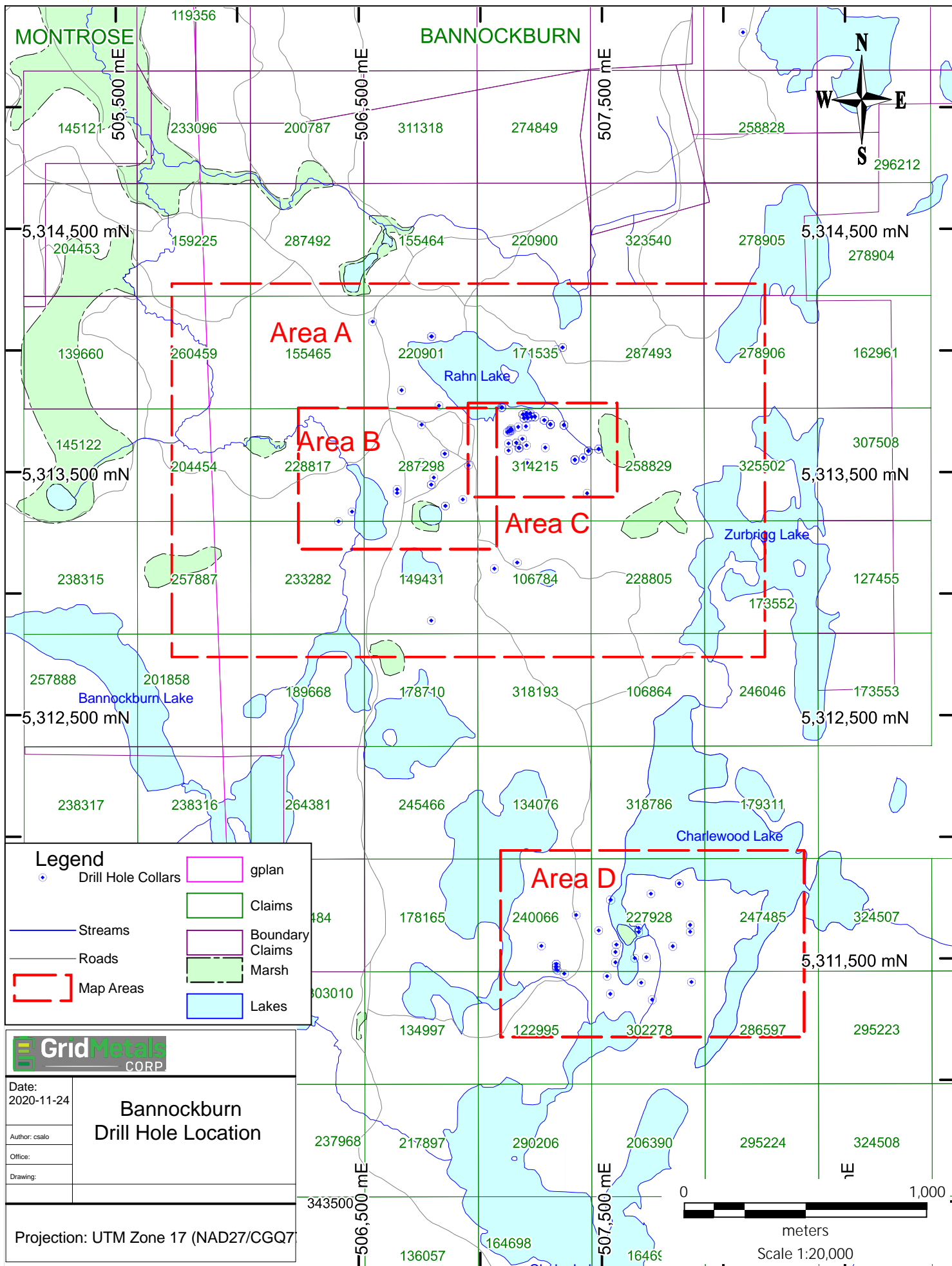
"Signed and Sealed"

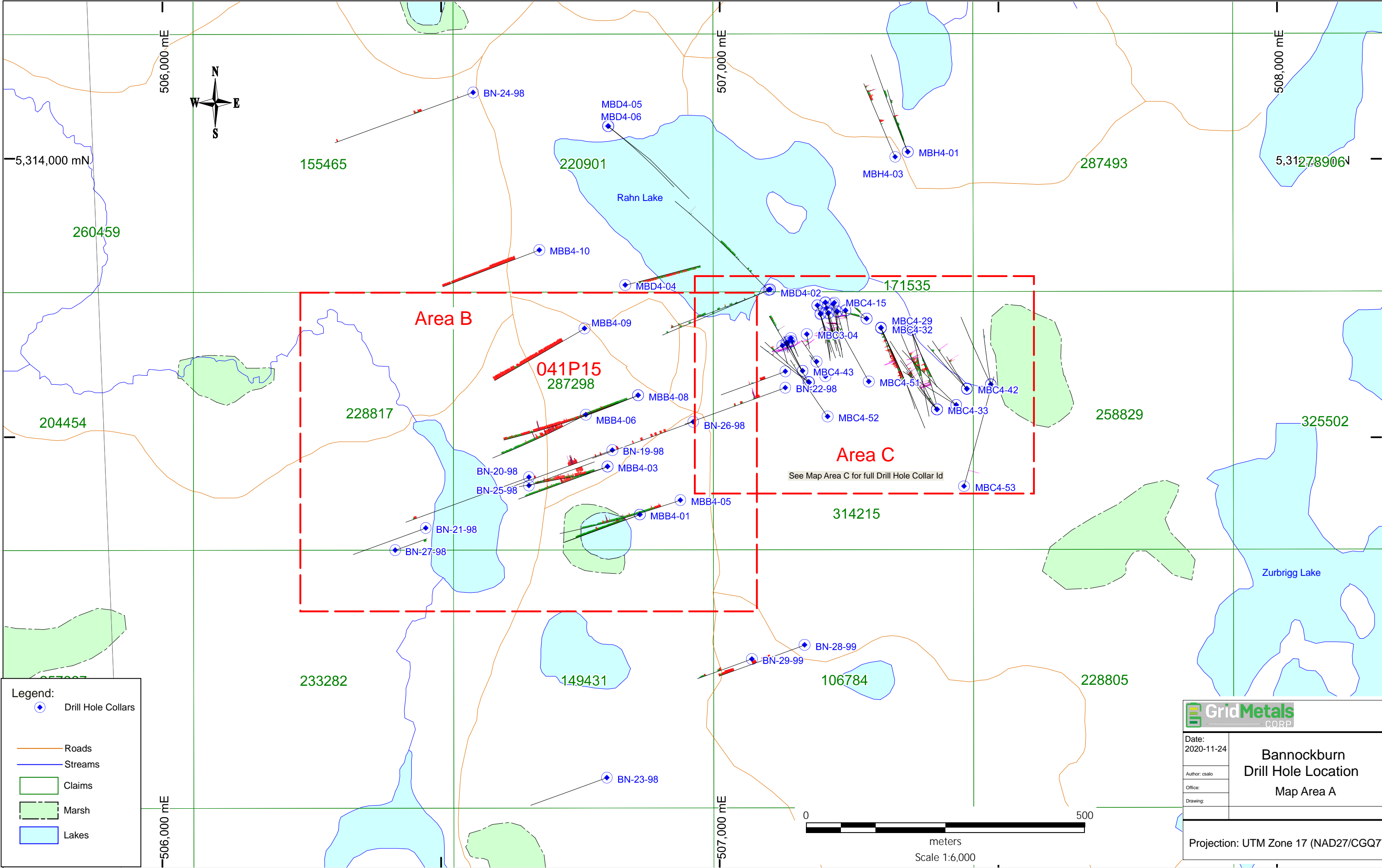
---

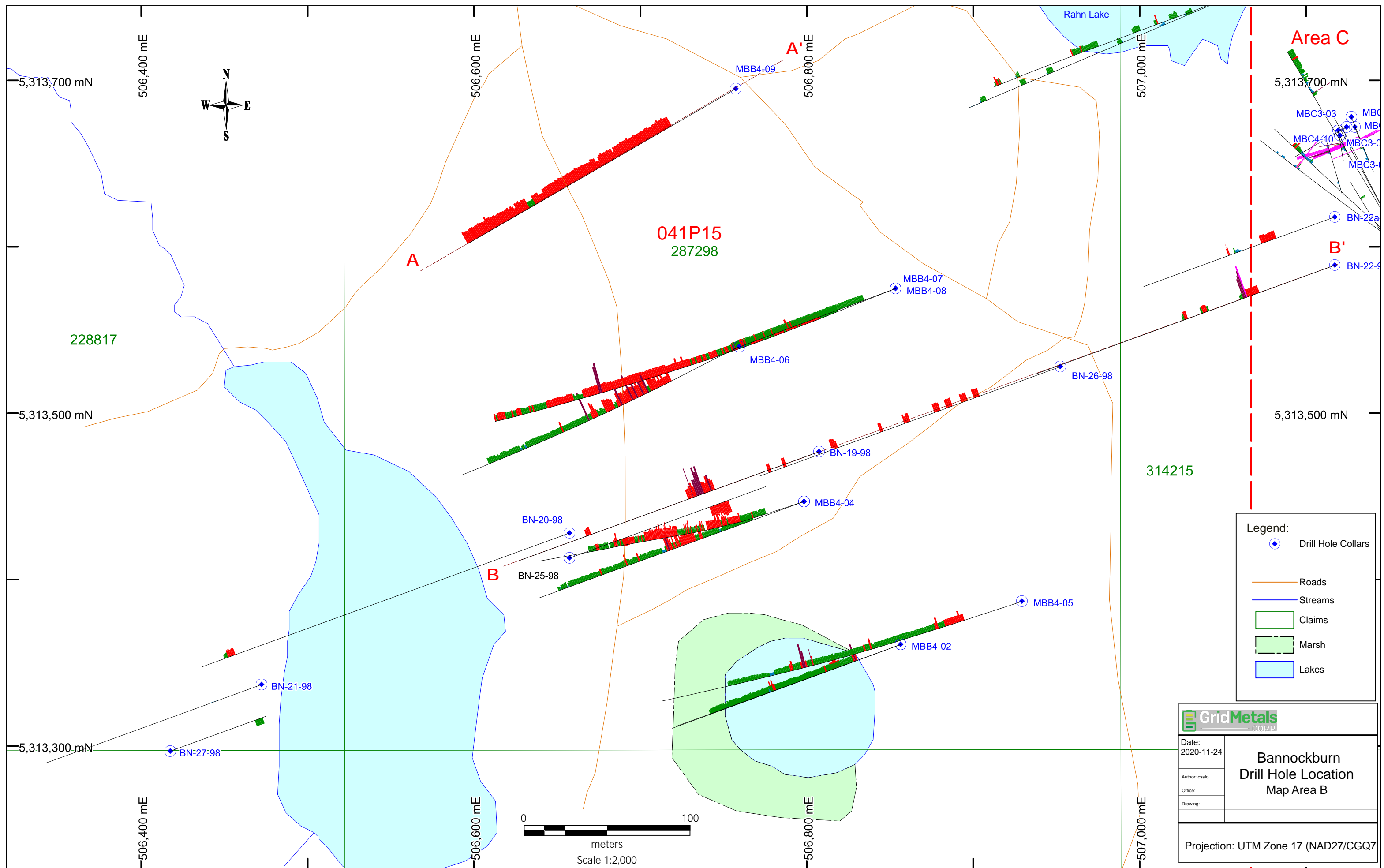
Paul C. Davis (M.Sc., P.Geo.)

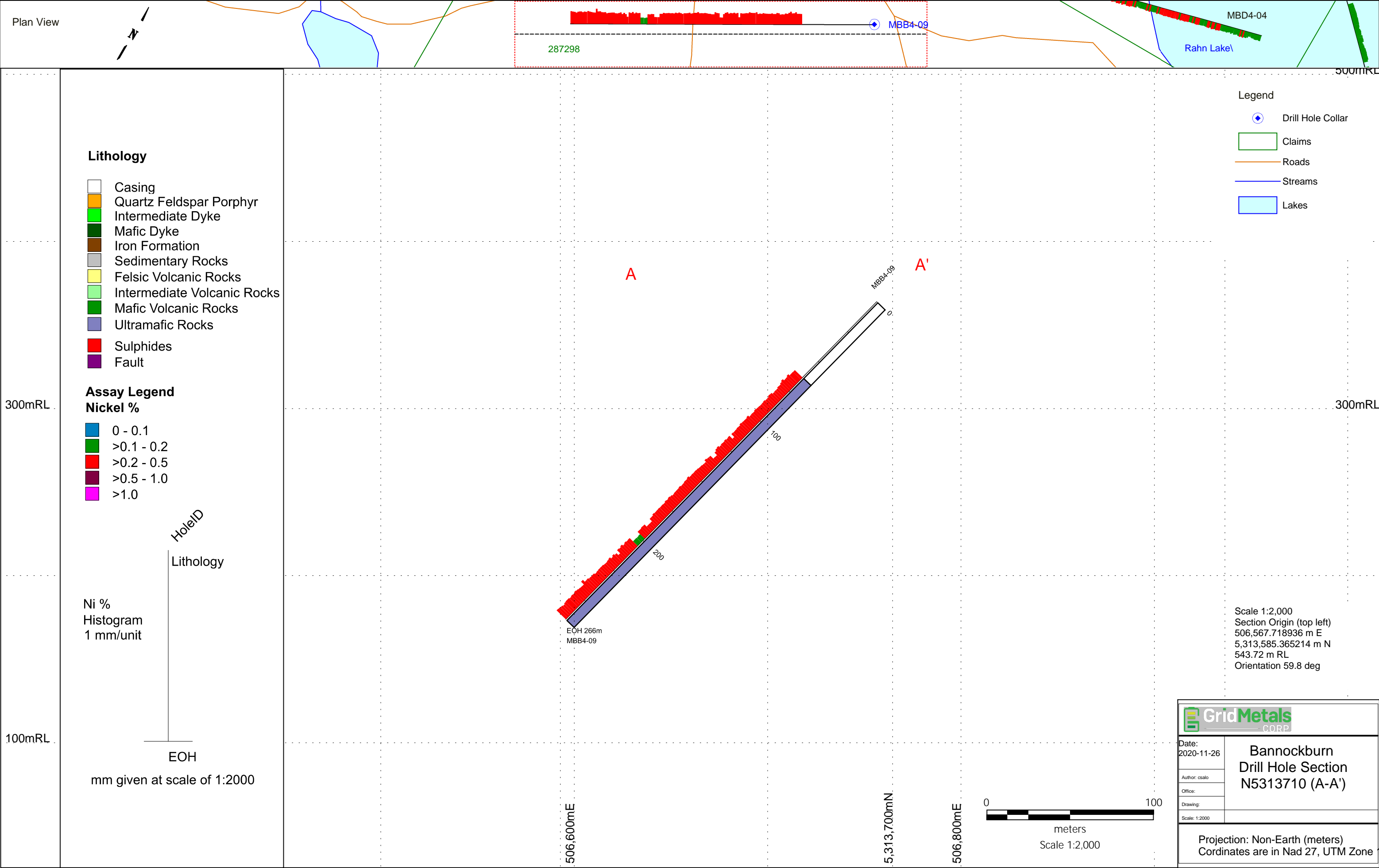


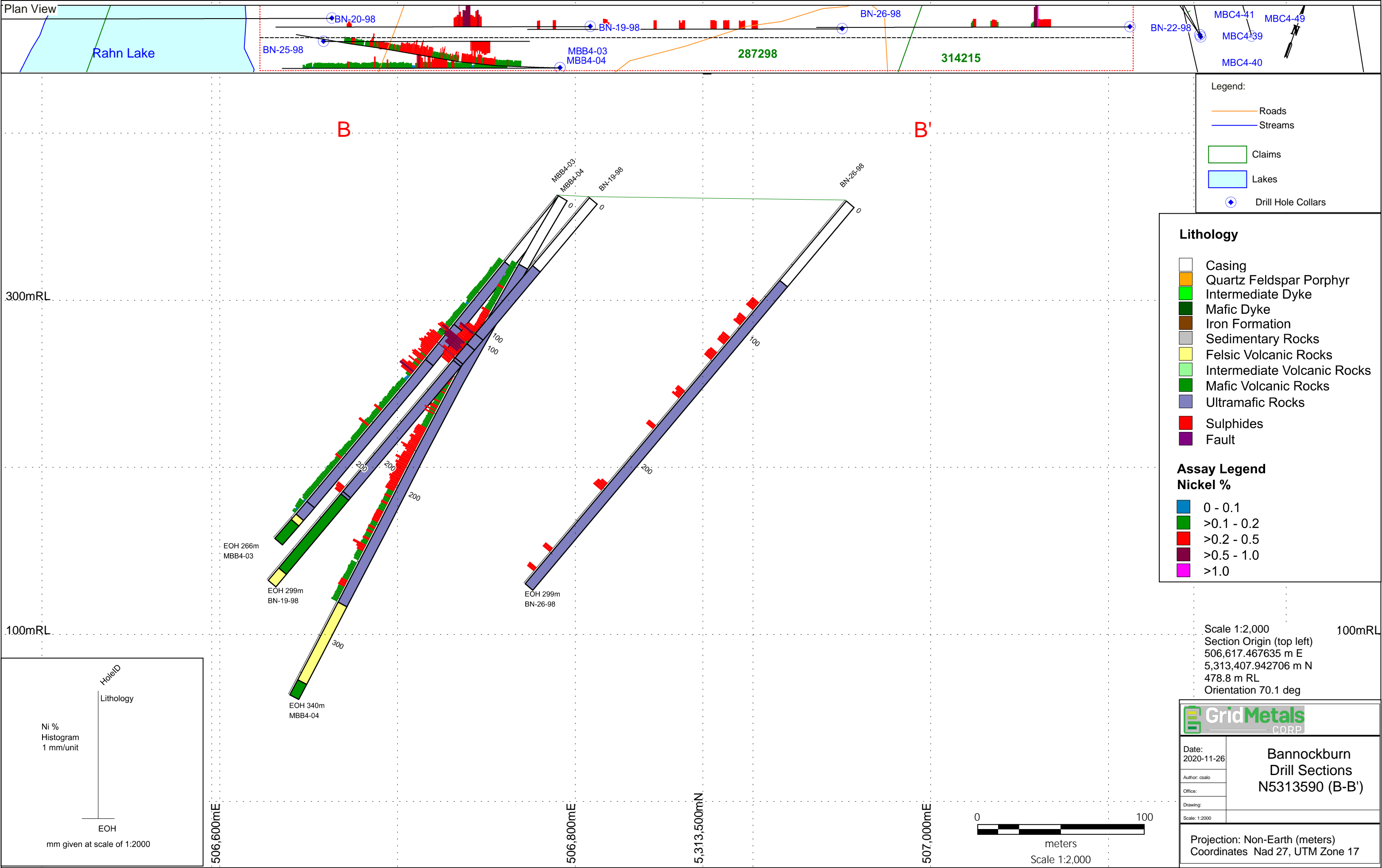
**APPENDIX 2 – Drill Hole Plans and Sections**  
[11 pages]

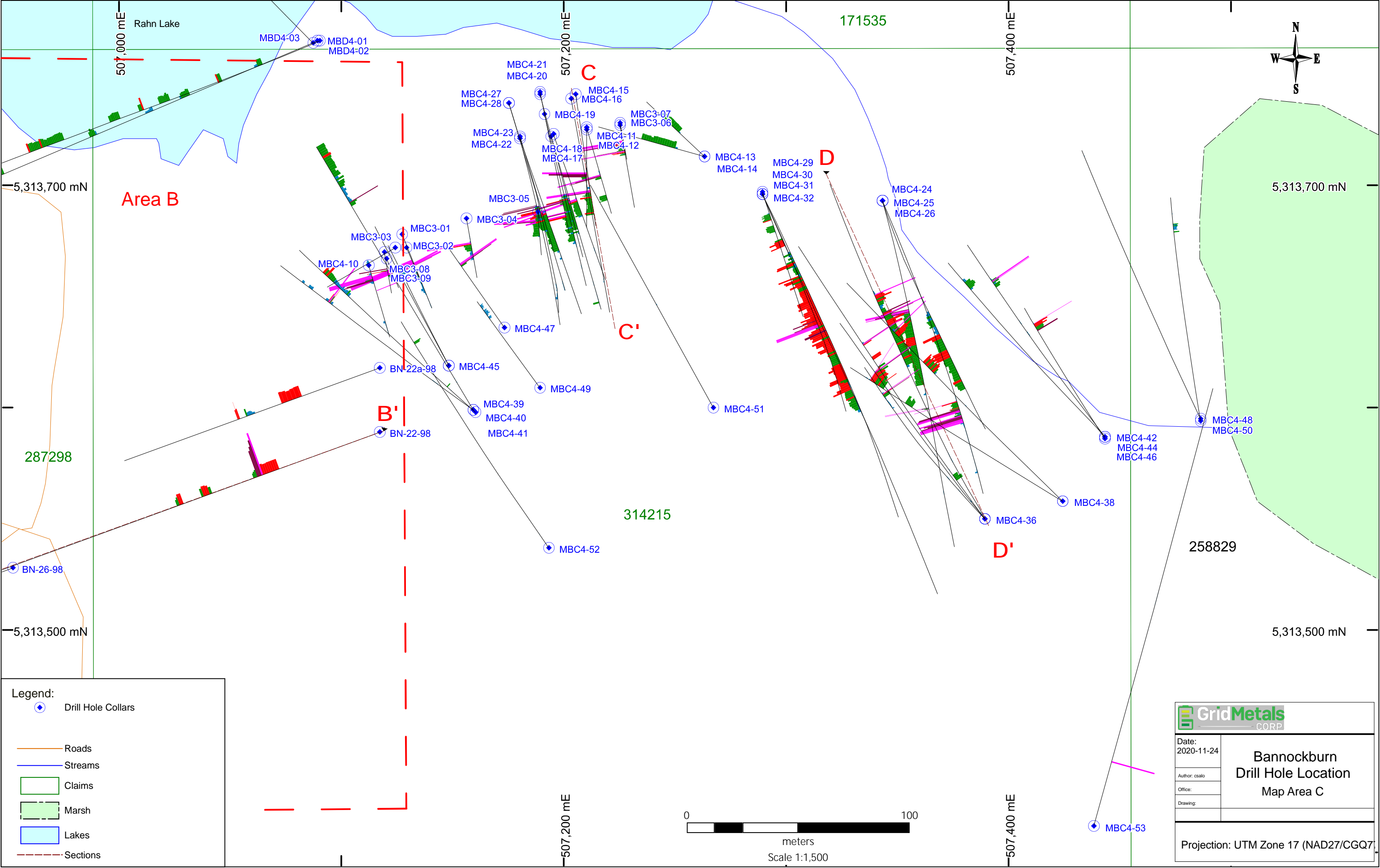




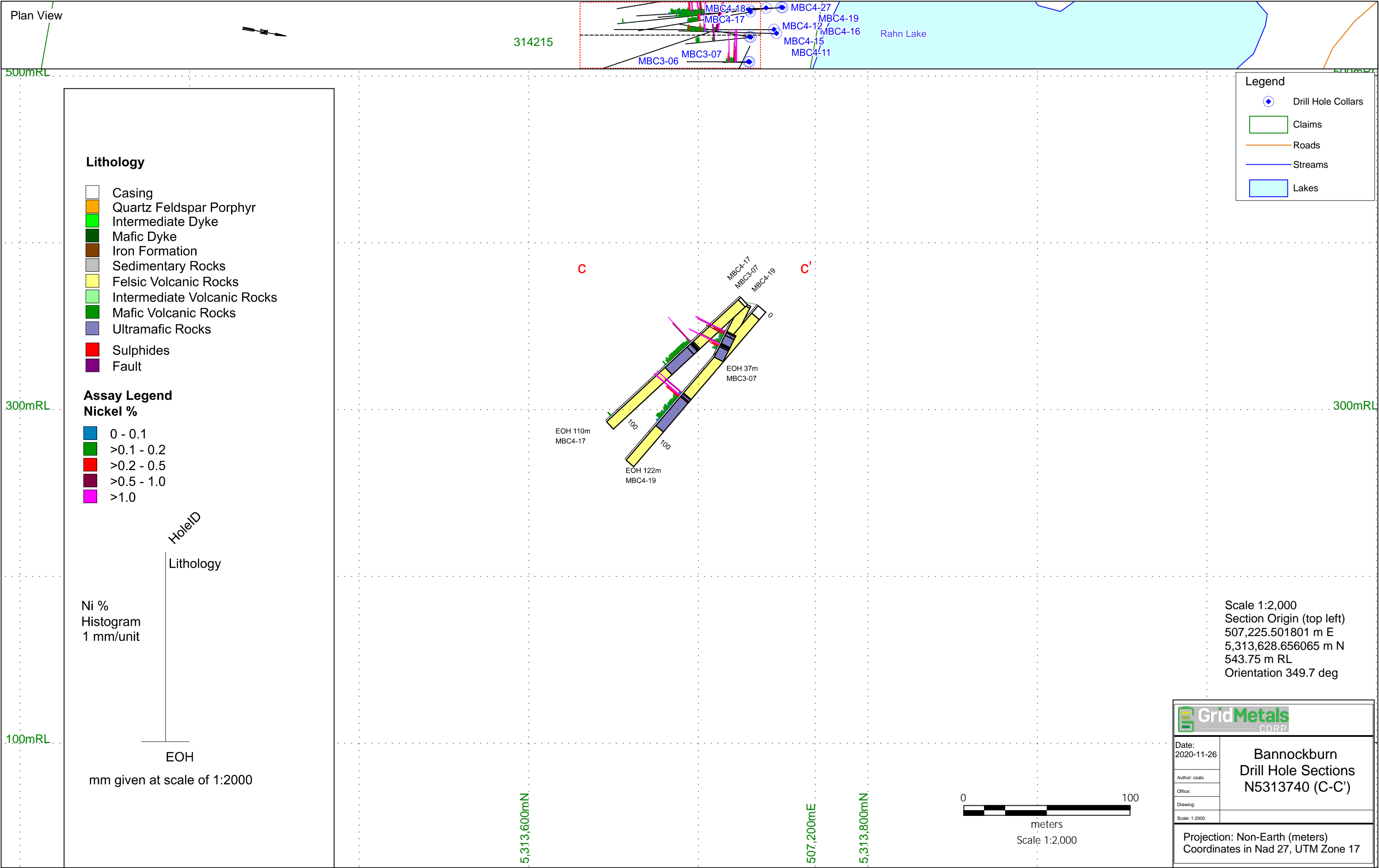




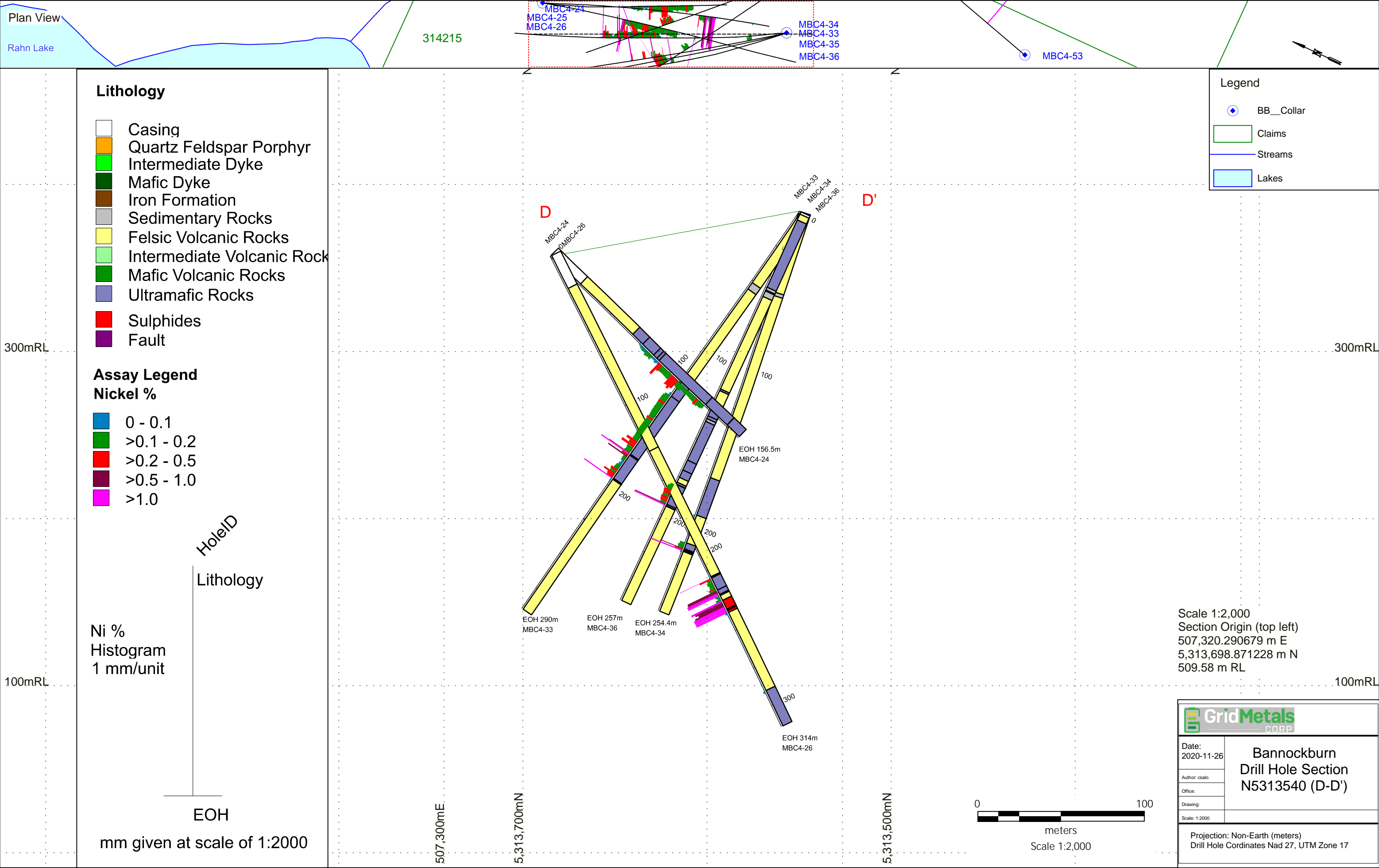


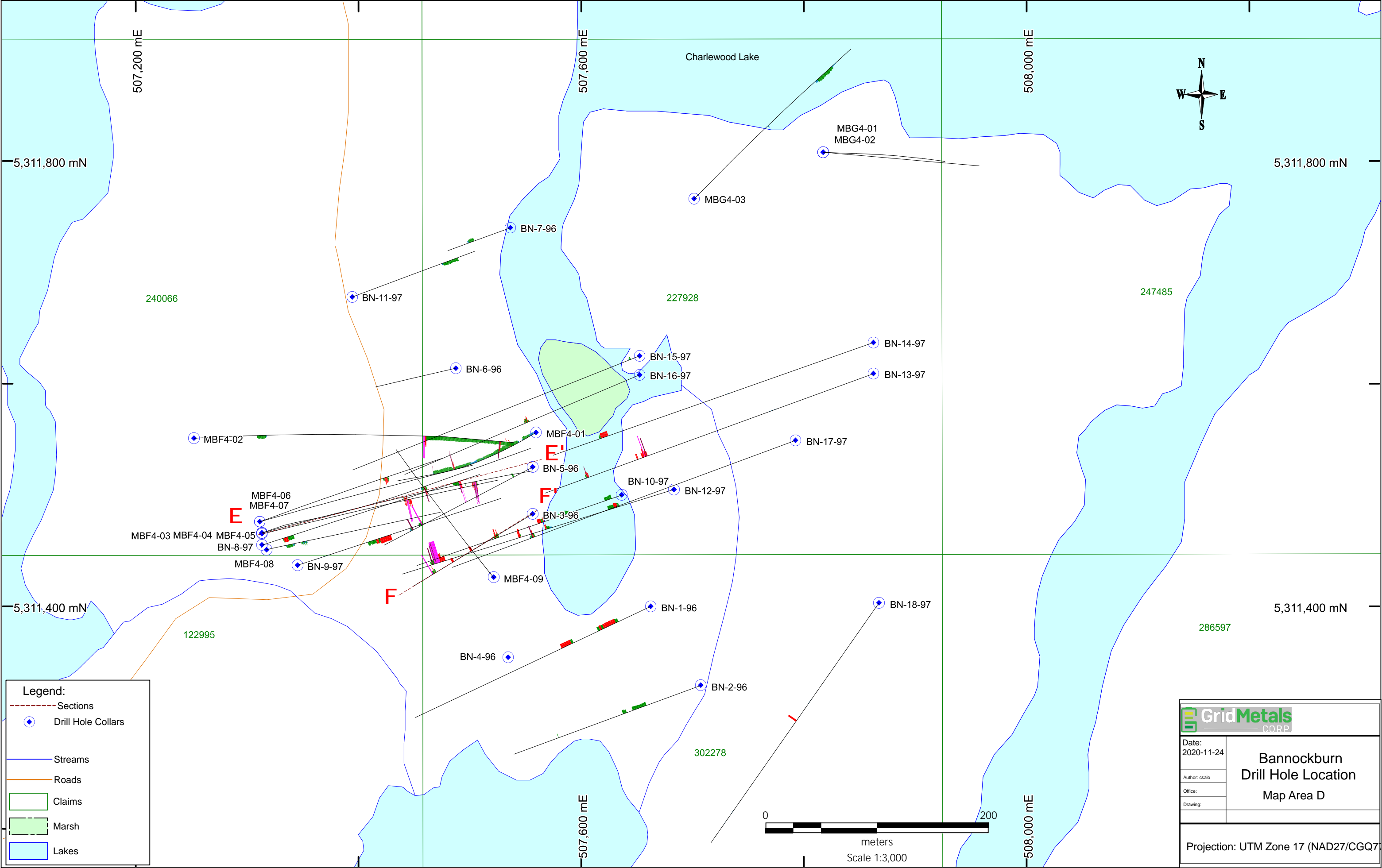


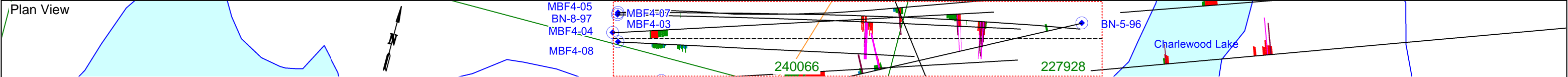








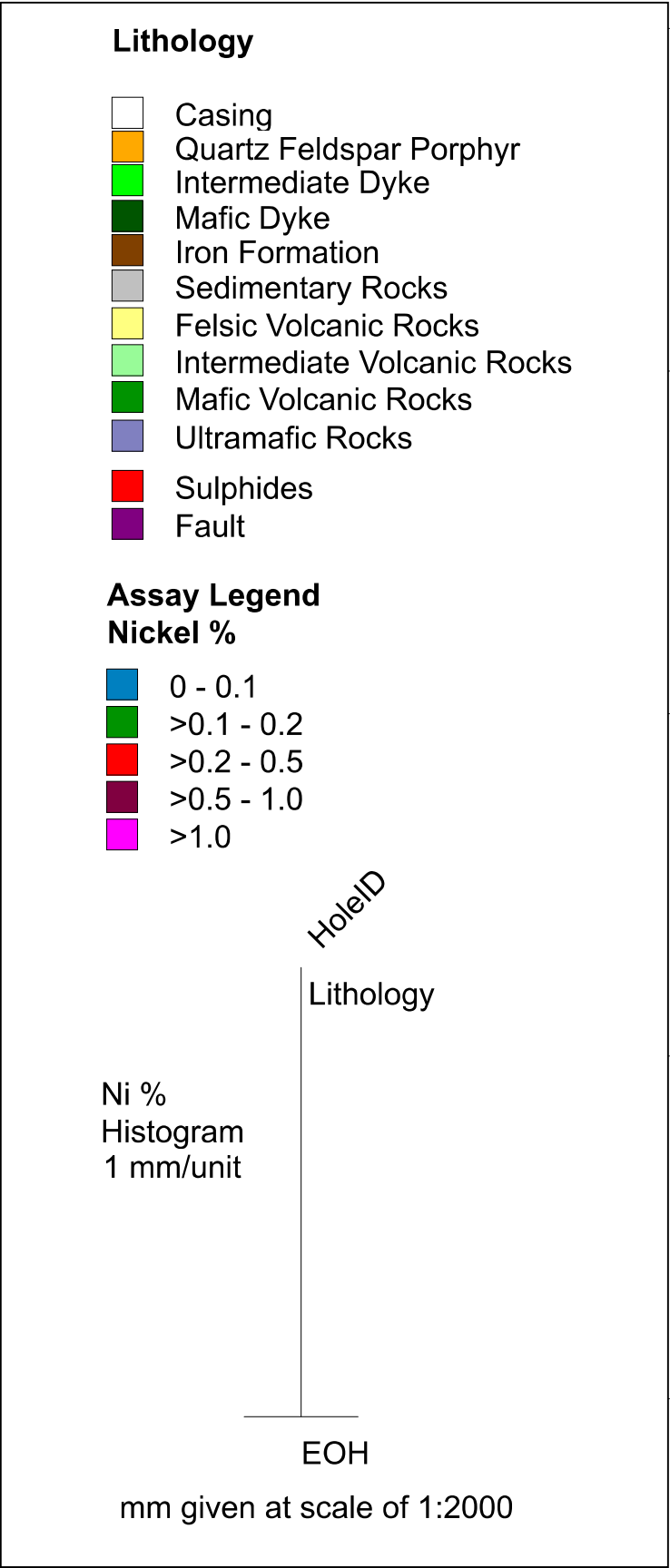




400mRL

200mRL

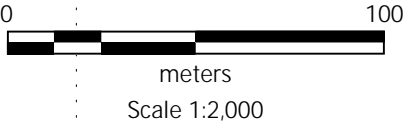
0mRL



507,300mE

5,311,500mN

507,500mE



Date: 2020-11-26	<b>Bannockburn Drill Section N5311460 (E-E')</b>
Author: csalo	
Office:	
Drawing:	
Scale: 1:2000	
Projection: Non-Earth (meters) Coordinates Nad 27, UTM Zone 17	

200mRL

Scale 1:2,000  
Section Origin (top left)  
507,312.14 m E  
5,311,458.01 m N  
466.73 m RL  
Orientation 75.1 deg

