

# **Northfield Metals Inc.**

## **TECHNICAL REPORT on the Borel River Property PROVINCE OF QUEBEC**

NTS MAP-SHEETS 24N/05 & 24N/12  
(UTM 453800 E, 6603200 N: NAD83 Zone 19)

by

**Peter Banks, P.Geo.**

**August 30<sup>th</sup>, 2012**

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## 1.0 SUMMARY

This technical report (the "**Report**") was prepared at the request of Mr. Paul Ankcorn, President of Northfield Metals Inc. ("**Northfield**"), a Canadian-based, public company. Northfield is a reporting issuer in Ontario and Alberta; however, its common shares are not currently listed for trading on any exchange.

The author, Mr. Peter Banks (P.Ge.), of Saint John New Brunswick was retained on July 2<sup>nd</sup> 2012 by Northfield to prepare a technical report in accordance with National Instrument (NI) 43-101 on its wholly-owned Borel River Property (the "**Property**"), located within National Topographic System (NTS) Map Sheet 24-N/05 and 24-N/12, and to recommend an exploration program for iron formation underlying the Property.

Northfield acquired its 100% right, title and interest in the Borel River Property on July 5, 2012 with the payment of \$25,000 and the issuance to P.A. Bigué, of Val-d'Or, Quebec (the "**Vendor**") of 500,000 common shares of Northfield, which are subject to a standard regulatory 4-month hold period. The Vendor retains a 2% Net Smelter Return royalty; however, Northfield has the option to reduce this royalty from 2% to 1% by paying the Vendor \$1,000,000 and also has a right of first refusal on the royalty.

The purpose of the Report is to provide an independent technical report on the Borel River Property prepared in accordance with NI 43-101 to support the listing of Northfield on the TSX Venture Exchange. The Report will be filed on the System for Electronic Document Analysis and Retrieval (SEDAR), as required under applicable securities regulations.

The Borel River Property, which is in the Koksoak River (Unorganized) Territory of northern Quebec, near the western shore of Ungava Bay, comprises 108 contiguous mineral claims, and covers a surface area of approximately 4459.21 hectares (44.6 km<sup>2</sup>).

The Property is underlain by approximately 20 kilometres of a north-south trending iron formation between the Morgan Lake and Hopes Advance property holdings of Oceanic Iron Ore Corp. The iron formation in this northern-most part of the Labrador Trough, which is classified as a stratiform Lake Superior-type iron formation, comprises magnetite-specular hematite schist containing recrystallized, granular quartz with fine, platy specular hematite and bands of carbonate and grunerite. Deformation and metamorphism of the principal iron formation unit, the Sokoman Formation, has structurally thickened the iron formation locally and recrystallized the rock.

The Report, which was prepared in accordance with NI 43-101 regulations, provides details of the airborne geophysical magnetic-intensity response survey (the "**Airborne Survey**") that was completed on the Property from July 26<sup>th</sup> to 28<sup>th</sup> of 2012. The Airborne Survey outlined a strong, linear, magnetic signature, coincident with ground exposures of iron formation, over a 16-km long, north-south trending zone. Available geological data pertaining to the Borel River Property suggests that an iron formation underlies the claim block. The true grade and amount of iron mineralization and whether the Property could support a commercial mine have yet to be determined, but, based on the Airborne Survey, there is potential for a large deposit. There are no listed mineral showings on the Property, and no historical reserves have been published. Results from the Airborne Survey will be submitted to the Provincial Government for assessment-work credits.

There has been no significant previous exploration work performed on the Borel River Property, and other than the recently completed Airborne Survey, there is no exploration, development nor operations currently underway on the Property. Although

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several highly metamorphosed, magnetite-specularite iron deposits are known to exist in the vicinity of the Property, none are documented on the Property itself and no mineral resource or mineral reserve estimates have been prepared for the Property.

The data from the Airborne Survey will be analysed alongside other geological data in order to better determine the areas most favourable for further exploration by ground work and diamond-drilling.

The Author is of the opinion that the iron formation identified at the Borel River Property warrants further investigation to define its surface distribution, extent, petrology, mineralogy, metallurgical characteristics, and three dimensional (sub-surface) geometry in order to properly determine the full potential of the iron mineralization on the Property.

The following two-phase exploration programme is recommended:

#### Phase I

- a proposal to re-classify the wedge of Category I lands that overlaps the iron formation, approximately 4 km south of the Borel River, to Category II land, should be tabled with the local First Nations peoples and the Provincial Government;
- systematic field mapping and sampling of bedrock exposures, with particular emphasis on the Sokoman (iron) Formation;
- channel-cutting and sampling - perpendicular to strike - of the two prominent ridges south of Borel River to obtain baseline iron-content assays across the exposed iron formation;
- selection of representative samples from the various Sokoman Formation Members for whole-rock analysis in order determine levels of elements deleterious to iron beneficiation processes (i.e., silica, amphibole, aluminium, sulphur), and;
- a short (with respect to line-length), ground gravimetric survey north of the Borel River to determine whether the low-magnetic response of the area is coincident with a high gravity response.

#### Phase II

- a 3,500 metre diamond-drilling program, with on-strike centres spaced at approximately 600 m, to support the interpretation of the sub-surface geometry and extent, of the iron-formation, and;
- integration of the drill-hole data into a 3-D Gemcom® model in preparation for a Mineral Resource Estimate prepared in accordance with NI 43-101.

Although the cost of Phase II is largely dependent on Phase I, the overall budget (Phase I and Phase II is estimated at \$3.1 million (including 15% for contingencies). Phase I is budgeted at \$516,580. Phase II is budgeted at \$2,624,300 and is conditional on positive results from Phase I.

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## 2.0 INTRODUCTION

This Report was prepared at the request of Mr. Paul Ankcorn, President of Northfield Metals Inc. ("**Northfield**"), a Canadian-based, public company, not currently trading on any stock exchange. Northfield is a reporting issuer in Ontario and Alberta, with its corporate office at:

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The author, Mr. Peter Banks (P.Geo.) ("**Mr. Banks**" or the "**Author**"), of Saint John New Brunswick was retained on July 2<sup>nd</sup> 2012 by Northfield to prepare a technical report (the "**Report**") in accordance with National Instrument (NI) 43-101 on its wholly-owned Borel River Property (the "**Property**"), located within National Topographic System (NTS) Map Sheet 24-N/05 and 24-N/12, and to recommend an exploration program for iron mineralization hosted by Superior-type stratigraphic iron formation units underlying the Property.

The purpose of the Report is to provide an independent technical report on the Borel River Property prepared in accordance with NI 43-101 that will be used to support the listing of Northfield Metals Inc. on the TSX Venture Exchange ("**TSX-V**"). The Report will be filed on the System for Electronic Document Analysis and Retrieval (SEDAR), a mandatory document filing and retrieval system for Canadian public companies, as required under applicable securities laws.

Northfield has accepted that the qualifications, expertise, experience, competence and professional reputation of Mr. Banks are appropriate and relevant for the preparation of this Report. Northfield has also accepted that Mr. Banks is a member of a professional association that is appropriate and relevant for the preparation of this Report.

Northfield acquired the Borel River Property from an arm's length individual pursuant to a purchase agreement dated June 5<sup>th</sup>, 2012. Northfield intends to use the Borel River Property as a qualifying property to support the application for listing of Northfield's common shares on the TSX-V subject to the approval of the applicable regulatory authorities. In connection with the listing application, a technical report on the qualifying property is required by the TSX-V.

The Property is in the Koksoak River (Unorganized) Territory of northern Quebec, near the western shore of Ungava Bay (**Figure 2-1**). It is named after the Borel River (also known as the Belloy River [http://www.geodata.us/canada\\_names\\_maps](http://www.geodata.us/canada_names_maps)), which flows eastward across the middle of the Property and drains into False Bight in Ungava Bay. The Property is underlain by approximately 20 kilometres of a north-south trending iron formation between the Morgan Lake and Hopes Advance property holdings of Oceanic Iron Ore Corp. (**Figure 2-2**).

The Property comprises 108 contiguous mineral claims, and covers a surface area of 4459.21 hectares (44.6 km<sup>2</sup>). The centre of the Property is located approximately at Latitude 59°33'00" North and Longitude 69°47'15" West, having Universal Transverse Mercator (UTM) coordinates 453800 East, 6603200 North in the North American Datum (NAD) 83 Zone 19 coordinate system (**Figure 2-3**).

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The iron formation in this northern-most part of the Labrador Trough comprises magnetite-specular hematite schist containing recrystallized, granular quartz with fine, platy specular hematite and bands of carbonate and grunerite, similar to those present in the southern Labrador Trough. The iron formation on the Property is classified as a stratiform Lake Superior-type iron formation. Deformation and metamorphism of the principal iron formation unit, the Sokoman Formation, has structurally thickened the iron formation locally and recrystallized the rock.

Several highly metamorphosed, magnetite-specularite iron deposits are known to exist in the vicinity of the Borel River Property, but none are documented on the Property, which covers approximately 20 kilometres of a north-south trending iron formation between the Morgan Lake and Hopes Advance property holdings of Oceanic Iron Ore Corp.

This Report, which was prepared in accordance with NI 43-101, provides details of the airborne, magnetic-response geophysical ("aeromag") survey (the "**Airborne Survey**") that was completed on the Property from July 26<sup>th</sup> to 28<sup>th</sup> of 2012. There has been no significant previous exploration work performed on the Property, and other than the Airborne Survey, there is no exploration, development nor operations currently underway on the Property.

Mr. Banks is a Qualified Person (as defined in NI 43-101) and is independent of Northfield. Mr. Banks conducted a site visit of the Property, accompanied by Mr. John Langton of Northfield, on July 28<sup>th</sup>, 2012.

Mr. Banks is of the opinion that the conclusions and the recommended exploration and development programs and budgets recommended in this report are valid at this time, are consistent with those of other junior mineral exploration companies currently operating in the area, and are required in order to determine the full mineral potential of the Property.

All claim information and maps have been updated for this Report.

The Report is dated effective as of August 30<sup>th</sup>, 2012.

## **2.1 Sources of information**

All of the information on the Property contained in the Report is based upon publicly available assessment reports submitted by various mineral exploration companies that have carried out previous work in the area available on-line at <http://sigeom.mrnf.gouv.qc.ca/>; publications of the Geological Survey of Canada, and scientific papers from various earth science journals. A list of material reviewed and used in the preparation of this Report is included in **Section 27.0** herein.

## **2.2 Units of reference**

Unless otherwise stated, all currency amounts are reported in Canadian dollars (\$).

Grid coordinates and maps are based on the UTM NAD 83 (Zone 19) system. Units of measurement include kilometres (km) and metres (m) for distance, and hectares (ha) or square kilometres (km<sup>2</sup>) for area.

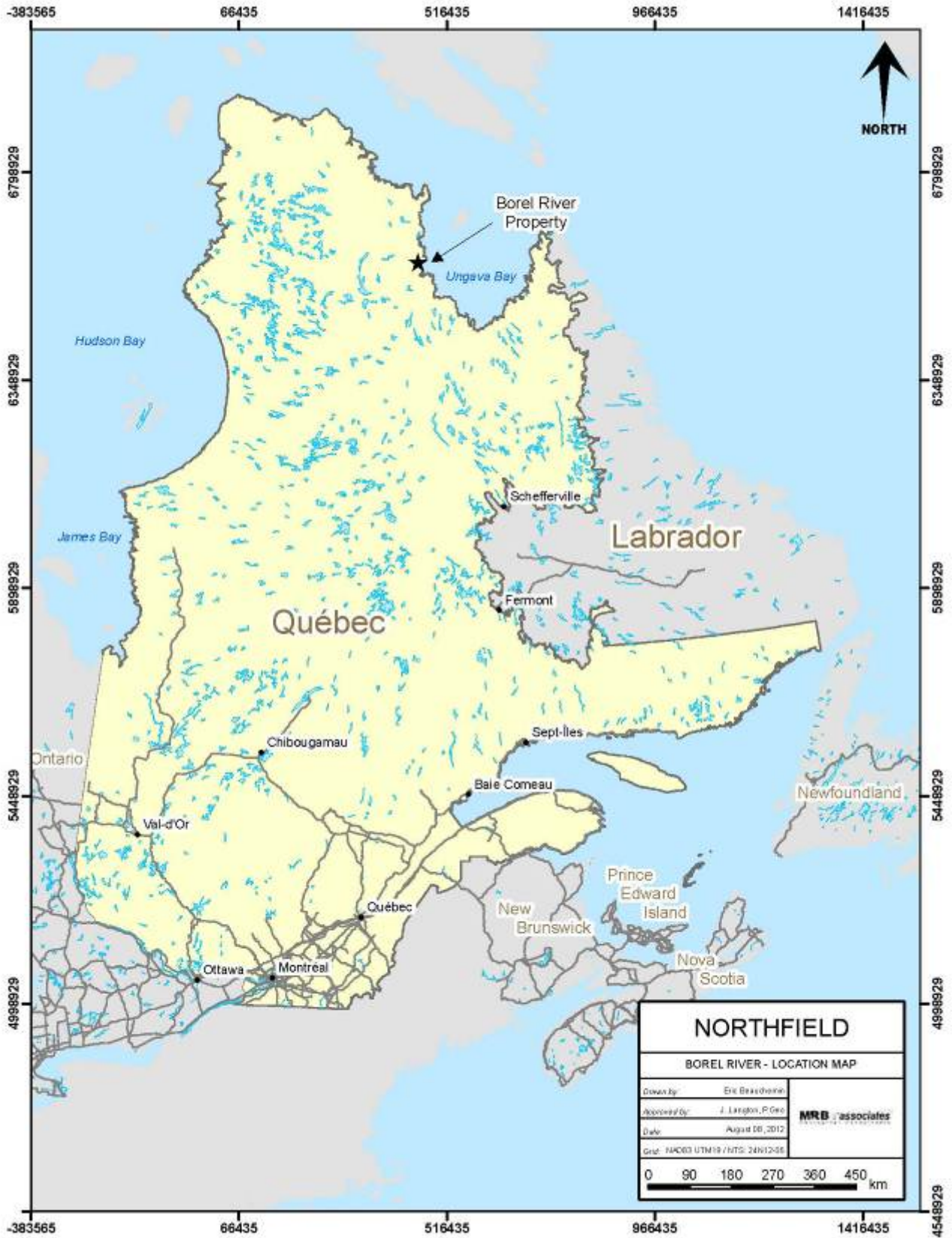


Figure 2-1: Regional Location Map of the Borel River Property in northern Quebec.



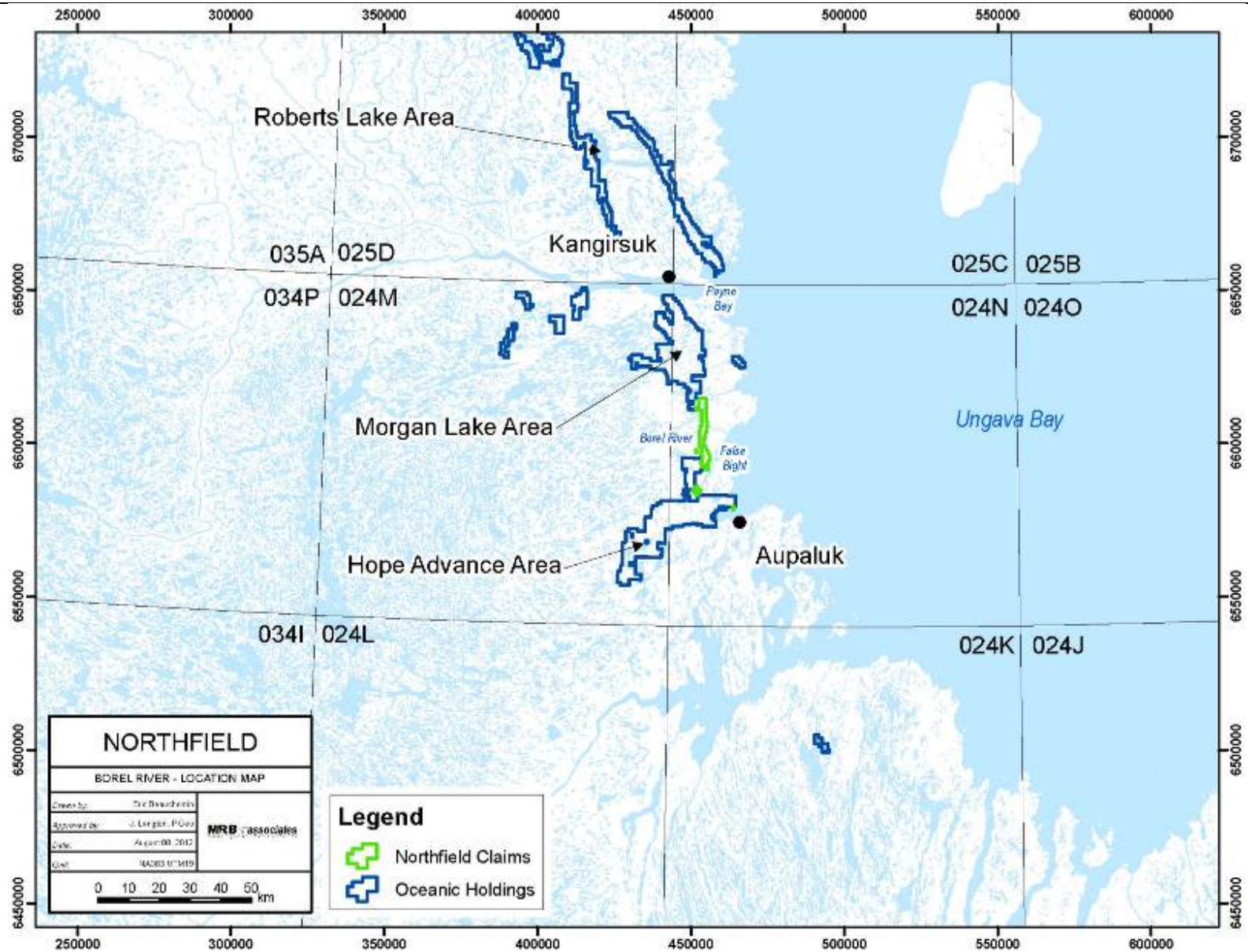


Figure 2-2: Location Map of the Borel River Property

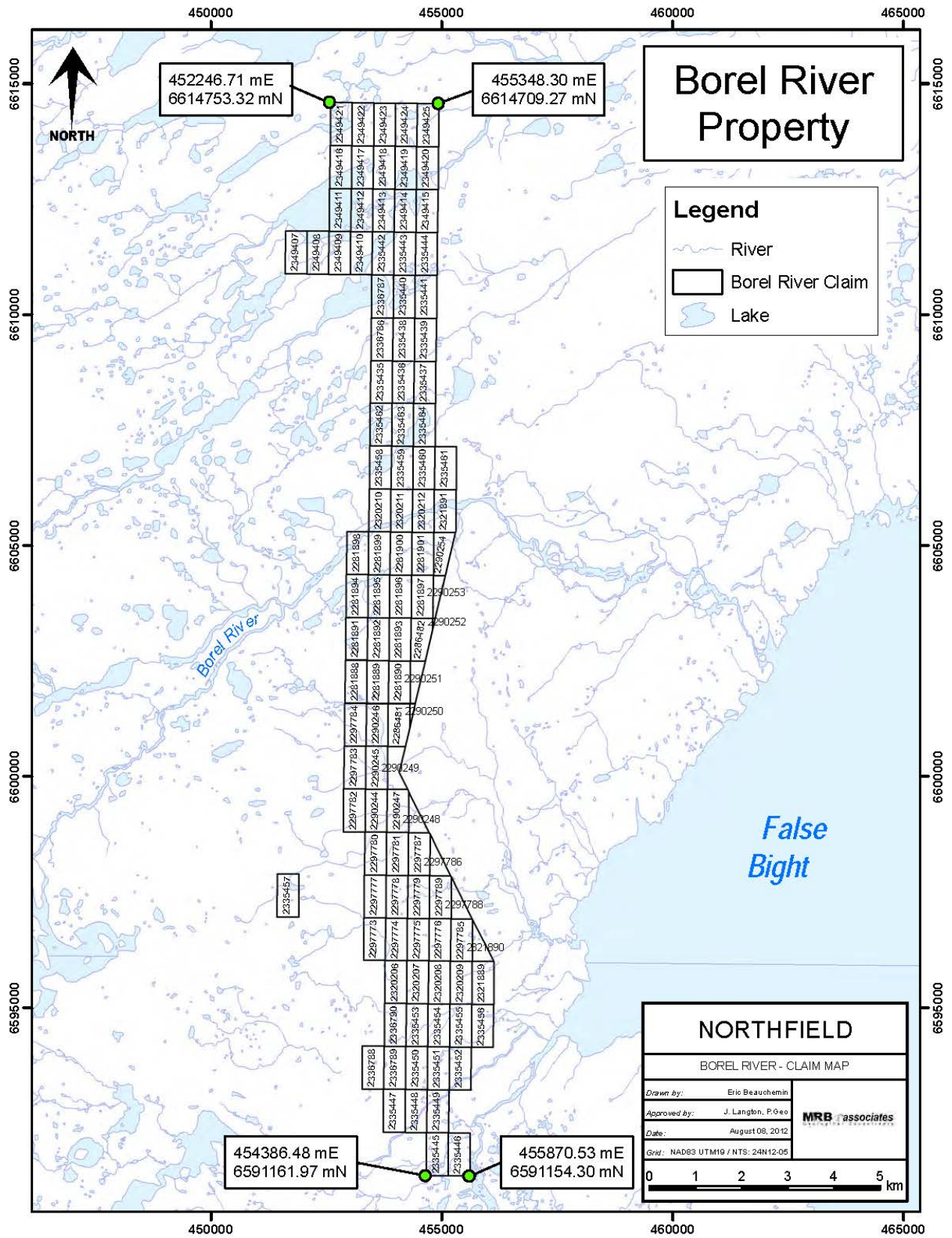


Figure 2-3: Claim Map of the Borel River Property

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

The Author has assumed, and relied on the fact, that all the information and existing technical documents listed in the References section herein (refer to **Section 27.0**) are accurate and complete in all material aspects.

Although copies of the tenure documents, operating licenses, permits, and work contracts were reviewed, an independent verification of land title and tenure was not performed. The Author has not verified the legality of any underlying agreement(s) that may exist concerning the licenses or other agreement(s) between third parties but has relied on Northfield to have conducted the proper legal due diligence.

Information on tenure and permits was obtained from MRB & Associates, a consulting firm in Val-d'Or, Québec, and Gestion SDM of Rivière Héva, Québec, the claims management company responsible for Northfield's claims.

A draft copy of this Report has been reviewed for factual errors by Northfield. Any statements and opinions expressed in this document are given in good faith and in the belief that such statements and opinions are not false and misleading at the date of this Report.

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## 4.0 PROPERTY DESCRIPTION AND LOCATION

The Borel River Property is located west of Ungava Bay in northern Quebec. The area is underlain by the remnants of an ancient, shallow, oceanic basin known as the Labrador Trough, which extends over 1100 kilometres from Ungava, through the Schefferville and Fermont Iron Ore Districts. The Property is named after the Borel River, which flows from west to east across the middle of the Property and drains into False Bight in Ungava Bay (*Figure 4-1*).

The Property comprises 108 mineral exploration claims, totalling 44.6 km<sup>2</sup> that form a long, narrow, north-south elongated block, approximately 2.5 km by 24 km (*Figure 2-3*). The centre of the Property is approximately 550 km north of the iron mining hub of Schefferville; 180 km north of the village of Kuujuaq, and; 10 km northwest of the community of Aupaluk (*Figure 2-2*). Northfield acquired the Property in June 2012.

All claims comprising the Property are in good standing as of the date of the Report. The current status of the claims comprising the Property, including renewal dates, rental fees, required minimum work and excess credits, as listed on the Province of Québec's Ministère des Ressources Naturelles et de la Faune (MRNF) on-line claim management system ([www.mrnfp.gouv.qc.ca/mines/index.jsp](http://www.mrnfp.gouv.qc.ca/mines/index.jsp)), are summarized in *Table 4-1*. Details on claims renewals, work credits, claim access rights, allowable exploration, development, mining works, and site rehabilitation are summarized in the Québec Mining Act available at [www2.publicationsduquebec.gouv.qc.ca](http://www2.publicationsduquebec.gouv.qc.ca).

The Property's yearly assessment work requirements amount to \$12,384. Yearly "rent" charges for the Property, in addition to the assessment work requirements, are \$10,016. Credits from Northfield's current exploration programme, amounting to approximately \$120,000 in the aggregate, were applied evenly across the Property's claims.

The Property has not been legally surveyed since being acquired by Northfield. The boundary of each claim block was defined using the MRNF Québec on-line claim management system at <https://gestim.mines.gouv.qc.ca/>. The corners of the Property are defined by UTM (NAD83, Zone 18) coordinates: 452246.71 E, 6614753.32 N (NW corner), 455348.30 E, 6614709.27 N (NE corner), 455870.53 E, 6591154.30 N (SE corner), and 454386.48 E, 6591161.97 N (SW corner) (*Figure 2-3*).

The Property is of interest as it overlies part of the Sokoman Formation, which hosts iron deposits throughout the Labrador Trough.

### 4.1 The Québec Mining Act and Claims

The Québec Mining Act deals with the management of mineral resources and the granting of exploration rights for mineral substances during the exploration phase. It also deals with the granting of rights pertaining to the use of these substances during the mining phase. The Québec Mining Act also establishes the rights and obligations of the holders of mining rights to ensure maximum development of Québec's mineral resources.

The mineral claim is the only valid exploration right in Quebec. The claim gives the holder an exclusive right to search for sub-surface mineral substances in the public domain. Since November 2000, exploration titles are obtained by map designation over predetermined parcels of land. This approach is quicker and simpler than the system in use prior to November 2000 and makes it more difficult to dispute claims, thereby better protecting the investments made on a claim.

**Table 4-1: Current Status of Claims Comprising the Borel River Property**

Claim	Renewal Date	Expiry Date	Area (ha)	Work Req'd/year	Rent/year	Credit	Owner
2281888	28 January 2013	30 March 2013	43.72	\$120	\$98	\$0	Northfield 100%
2281889	28 January 2013	30 March 2013	43.72	\$120	\$98	\$0	Northfield 100%
2281890	28 January 2013	30 March 2013	43.72	\$120	\$98	\$0	Northfield 100%
2281891	28 January 2013	30 March 2013	43.71	\$120	\$98	\$0	Northfield 100%
2281892	28 January 2013	30 March 2013	43.71	\$120	\$98	\$0	Northfield 100%
2281893	28 January 2013	30 March 2013	43.71	\$120	\$98	\$0	Northfield 100%
2281894	28 January 2013	30 March 2013	43.69	\$120	\$98	\$0	Northfield 100%
2281895	28 January 2013	30 March 2013	43.69	\$120	\$98	\$0	Northfield 100%
2281896	28 January 2013	30 March 2013	43.69	\$120	\$98	\$0	Northfield 100%
2281897	28 January 2013	30 March 2013	43.69	\$120	\$98	\$0	Northfield 100%
2281898	28 January 2013	30 March 2013	43.68	\$120	\$98	\$0	Northfield 100%
2281899	28 January 2013	30 March 2013	43.68	\$120	\$98	\$0	Northfield 100%
2281900	28 January 2013	30 March 2013	43.68	\$120	\$98	\$0	Northfield 100%
2281901	28 January 2013	30 March 2013	43.68	\$120	\$98	\$0	Northfield 100%
2286481	15 February 2013	17 April 2013	41.8	\$120	\$98	\$0	Northfield 100%
2286482	15 February 2013	17 April 2013	38.42	\$120	\$98	\$0	Northfield 100%
2290244	10 March 2013	10 May 2013	43.75	\$120	\$98	\$0	Northfield 100%
2290245	10 March 2013	10 May 2013	43.74	\$120	\$98	\$0	Northfield 100%
2290246	10 March 2013	10 May 2013	43.73	\$120	\$98	\$0	Northfield 100%
2290247	10 March 2013	10 May 2013	43.68	\$120	\$98	\$0	Northfield 100%
2290248	10 March 2013	10 May 2013	19.76	\$48	\$27	\$0	Northfield 100%
2290249	10 March 2013	10 May 2013	30.55	\$120	\$98	\$0	Northfield 100%
2290250	10 March 2013	10 May 2013	2.76	\$48	\$27	\$0	Northfield 100%
2290251	10 March 2013	10 May 2013	19.92	\$48	\$27	\$0	Northfield 100%
2290252	10 March 2013	10 May 2013	0.59	\$48	\$27	\$0	Northfield 100%
2290253	10 March 2013	10 May 2013	14.41	\$48	\$27	\$0	Northfield 100%
2290254	10 March 2013	10 May 2013	33.5	\$120	\$98	\$0	Northfield 100%
2297773	20 April 2013	20 June 2013	43.78	\$120	\$98	\$0	Northfield 100%
2297774	20 April 2013	20 June 2013	43.78	\$120	\$98	\$0	Northfield 100%

Claim	Renewal Date	Expiry Date	Area (ha)	Work Req'd/year	Rent/year	Credit	Owner
2297775	20 April 2013	20 June 2013	43.78	\$120	\$98	\$0	Northfield 100%
2297776	20 April 2013	20 June 2013	43.78	\$120	\$98	\$0	Northfield 100%
2297777	20 April 2013	20 June 2013	43.77	\$120	\$98	\$0	Northfield 100%
2297778	20 April 2013	20 June 2013	43.77	\$120	\$98	\$0	Northfield 100%
2297779	20 April 2013	20 June 2013	43.77	\$120	\$98	\$0	Northfield 100%
2297780	20 April 2013	20 June 2013	43.76	\$120	\$98	\$0	Northfield 100%
2297781	20 April 2013	20 June 2013	43.76	\$120	\$98	\$0	Northfield 100%
2297782	20 April 2013	20 June 2013	43.75	\$120	\$98	\$0	Northfield 100%
2297783	20 April 2013	20 June 2013	43.74	\$120	\$98	\$0	Northfield 100%
2297784	20 April 2013	20 June 2013	43.73	\$120	\$98	\$0	Northfield 100%
2297785	20 April 2013	20 June 2013	43.77	\$120	\$98	\$0	Northfield 100%
2297786	20 April 2013	20 June 2013	20.29	\$48	\$27	\$0	Northfield 100%
2297787	20 April 2013	20 June 2013	43.72	\$120	\$98	\$0	Northfield 100%
2297788	20 April 2013	20 June 2013	20.81	\$48	\$27	\$0	Northfield 100%
2297789	20 April 2013	20 June 2013	43.75	\$120	\$98	\$0	Northfield 100%
2320206	24 August 2013	24 October 2013	43.79	\$120	\$98	\$0	Northfield 100%
2320207	24 August 2013	24 October 2013	43.79	\$120	\$98	\$0	Northfield 100%
2320208	24 August 2013	24 October 2013	43.79	\$120	\$98	\$0	Northfield 100%
2320209	24 August 2013	24 October 2013	43.79	\$120	\$98	\$0	Northfield 100%
2320210	24 August 2013	24 October 2013	43.67	\$120	\$98	\$0	Northfield 100%
2320211	24 August 2013	24 October 2013	43.67	\$120	\$98	\$0	Northfield 100%
2320212	24 August 2013	24 October 2013	43.67	\$120	\$98	\$0	Northfield 100%
2321889	31 August 2013	31 October 2013	43.79	\$120	\$98	\$0	Northfield 100%
2321890	31 August 2013	31 October 2013	21.31	\$48	\$27	\$0	Northfield 100%
2321891	31 August 2013	31 October 2013	43.66	\$120	\$98	\$0	Northfield 100%
2335435	5 January 2014	7 March 2014	43.64	\$120	\$98	\$0	Northfield 100%
2335436	5 January 2014	7 March 2014	43.64	\$120	\$98	\$0	Northfield 100%
2335437	5 January 2014	7 March 2014	43.64	\$120	\$98	\$0	Northfield 100%
2335438	5 January 2014	7 March 2014	43.63	\$120	\$98	\$0	Northfield 100%
2335439	5 January 2014	7 March 2014	43.63	\$120	\$98	\$0	Northfield 100%
2335440	5 January 2014	7 March 2014	43.62	\$120	\$98	\$0	Northfield 100%

Claim	Renewal Date	Expiry Date	Area (ha)	Work Req'd/year	Rent/year	Credit	Owner
2335441	5 January 2014	7 March 2014	43.62	\$120	\$98	\$0	Northfield 100%
2335442	5 January 2014	7 March 2014	43.61	\$120	\$98	\$0	Northfield 100%
2335443	5 January 2014	7 March 2014	43.61	\$120	\$98	\$0	Northfield 100%
2335444	5 January 2014	7 March 2014	43.61	\$120	\$98	\$0	Northfield 100%
2335445	5 January 2014	7 March 2014	43.83	\$120	\$98	\$0	Northfield 100%
2335446	5 January 2014	7 March 2014	43.83	\$120	\$98	\$0	Northfield 100%
2335447	5 January 2014	7 March 2014	43.82	\$120	\$98	\$0	Northfield 100%
2335448	5 January 2014	7 March 2014	43.82	\$120	\$98	\$0	Northfield 100%
2335449	5 January 2014	7 March 2014	43.82	\$120	\$98	\$0	Northfield 100%
2335450	5 January 2014	7 March 2014	43.81	\$120	\$98	\$0	Northfield 100%
2335451	5 January 2014	7 March 2014	43.81	\$120	\$98	\$0	Northfield 100%
2335452	5 January 2014	7 March 2014	43.81	\$120	\$98	\$0	Northfield 100%
2335453	5 January 2014	7 March 2014	43.8	\$120	\$98	\$0	Northfield 100%
2335454	5 January 2014	7 March 2014	43.8	\$120	\$98	\$0	Northfield 100%
2335455	5 January 2014	7 March 2014	43.8	\$120	\$98	\$0	Northfield 100%
2335456	5 January 2014	7 March 2014	43.8	\$120	\$98	\$0	Northfield 100%
2335457	5 January 2014	7 March 2014	43.77	\$120	\$98	\$0	Northfield 100%
2335458	5 January 2014	7 March 2014	43.66	\$120	\$98	\$0	Northfield 100%
2335459	5 January 2014	7 March 2014	43.66	\$120	\$98	\$0	Northfield 100%
2335460	5 January 2014	7 March 2014	43.66	\$120	\$98	\$0	Northfield 100%
2335461	5 January 2014	7 March 2014	43.66	\$120	\$98	\$0	Northfield 100%
2335462	5 January 2014	7 March 2014	43.65	\$120	\$98	\$0	Northfield 100%
2335463	5 January 2014	7 March 2014	43.65	\$120	\$98	\$0	Northfield 100%
2335464	5 January 2014	7 March 2014	43.65	\$120	\$98	\$0	Northfield 100%
2336786	17 January 2014	19 March 2014	43.63	\$120	\$98	\$0	Northfield 100%
2336787	17 January 2014	19 March 2014	43.62	\$120	\$98	\$0	Northfield 100%
2336788	17 January 2014	19 March 2014	43.81	\$120	\$98	\$0	Northfield 100%
2336789	17 January 2014	19 March 2014	43.81	\$120	\$98	\$0	Northfield 100%
2336790	17 January 2014	19 March 2014	43.8	\$120	\$98	\$0	Northfield 100%
2349407	4 April 2014	4 June 2014	43.61	\$120	\$98	\$0	Northfield 100%
2349408	4 April 2014	4 June 2014	43.61	\$120	\$98	\$0	Northfield 100%

Claim	Renewal Date	Expiry Date	Area (ha)	Work Req'd/year	Rent/year	Credit	Owner
2349409	4 April 2014	4 June 2014	43.61	\$120	\$98	\$0	Northfield 100%
2349410	4 April 2014	4 June 2014	43.61	\$120	\$98	\$0	Northfield 100%
2349411	4 April 2014	4 June 2014	43.60	\$120	\$98	\$0	Northfield 100%
2349412	4 April 2014	4 June 2014	43.60	\$120	\$98	\$0	Northfield 100%
2349413	4 April 2014	4 June 2014	43.60	\$120	\$98	\$0	Northfield 100%
2349414	4 April 2014	4 June 2014	43.60	\$120	\$98	\$0	Northfield 100%
2349415	4 April 2014	4 June 2014	43.60	\$120	\$98	\$0	Northfield 100%
2349416	4 April 2014	4 June 2014	43.59	\$120	\$98	\$0	Northfield 100%
2349417	4 April 2014	4 June 2014	43.59	\$120	\$98	\$0	Northfield 100%
2349418	4 April 2014	4 June 2014	43.59	\$120	\$98	\$0	Northfield 100%
2349419	4 April 2014	4 June 2014	43.59	\$120	\$98	\$0	Northfield 100%
2349420	4 April 2014	4 June 2014	43.59	\$120	\$98	\$0	Northfield 100%
2349421	4 April 2014	4 June 2014	43.58	\$120	\$98	\$0	Northfield 100%
2349422	4 April 2014	4 June 2014	43.58	\$120	\$98	\$0	Northfield 100%
2349423	4 April 2014	4 June 2014	43.58	\$120	\$98	\$0	Northfield 100%
2349424	4 April 2014	4 June 2014	43.58	\$120	\$98	\$0	Northfield 100%
2349425	4 April 2014	4 June 2014	43.58	\$120	\$98	\$0	Northfield 100%
		<b>Total=</b>	<b>4459.14</b>	<b>\$12,384</b>	<b>\$10,016</b>	<b>\$0</b>	

The term of a claim is two years, from the day the claim is registered and it can be renewed indefinitely providing the holder meets all the conditions set out in the Québec Mining Act. The Québec Mining Act includes provisions to allow any amount disbursed to perform work in excess of the prescribed requirements to be applied to subsequent terms of the claim.

To satisfy government assessment requirements and thus maintain the claim(s) in good standing, minimum exploration expenditures must be incurred and filed 60 days prior to the anniversary date(s) of the claim(s). The report of work is due prior to 60 days of the anniversary date. In Québec, the amount of expenditure per claim varies according to the surface area of the claim, its location north or south of 52° latitude, and the number of terms since its issuance, which escalates according to the schedules shown in *Table 4-2* and *Table 4-3*.

**Table 4-2: South of 52° of Latitude**

Term	Surface Area of Claim		
	< 25 ha	25 – 100 ha	> 100 ha
1 to 3	\$500	\$1,200	\$1,800
4 to 6	\$750	\$1,800	\$2,700
7 or more	\$1,000	\$2,500	\$3,600



**Table 4-3: North of 52° of Latitude**

Term	Surface Area of Claim		
	< 25 ha	25 – 45 ha	> 45 ha
1	\$48	\$120	\$135
2	\$160	\$400	\$450
3	\$320	\$800	\$900
4	\$480	\$1,200	\$1,350
5	\$640	\$1,600	\$1,800
6	\$750	\$1,800	\$1,800
7 or more	\$1,000	\$2,500	\$2,500

Assessment work credits from another claim may be applied to the claim to be renewed, providing the renewed claim lies within a radius of 4.5 km from the centre of the claim with the excess work credits. The claim holder may apply amounts spent on work carried out on a mining lease or concession towards the renewal of a claim, provided that the work was performed during the term of the claim and that the amount does not exceed one quarter of the required amount for renewal. If the required work was not performed or was insufficient to cover the renewal of the claim, then the claim holder may pay a sum equivalent to the minimum cost of the work that should have been performed.

The cost of renewal of a claim depends on the surface area of the claim, its location, and the date the application is received. If the application for renewal and fees are received prior to 60 days before the anniversary of the claim(s) the following renewal fees apply for claims north of 52° latitude: less than 25 ha = \$26; 25 to 45 ha = \$96; 45 to 50 ha = \$107; over 50 ha = \$120. For claims south of 52° latitude the following renewal fees apply: less than 25 ha = \$26; 25 to 100 ha = \$52; over 100 ha = \$78. These renewal fees double if the application is received within 60 days or less of the anniversary date of the claim(s).

#### 4.2 Property Agreements

Northfield acquired its 100% right, title and interest in the Borel River Property on July 5, 2012 with the payment of \$25,000 and the issuance to P.A. Bigué (the "Vendor") of 500,000 common shares of Northfield, which are subject to a standard regulatory 4-month hold period. The Vendor retains a 2% Net Smelter Return (NSR) royalty, and Northfield has the option to reduce the royalty from 2% to 1% by paying the Vendor \$1,000,000. Northfield also has the right of first refusal on the royalty.

The Agreement further stipulates that should Northfield not complete a listing of its common shares on a Canadian stock exchange (a "**Listing**") on or before December 31, 2012, Northfield shall pay to the Vendor \$5,000 on the first day of January 2013 and a further \$5,000 on the first day of each month thereafter until a Listing is completed. At any time on or after January 1, 2013, each of the Vendor and Northfield shall have the right to give terminate the Agreement upon 30 days' notice.

#### 4.3 Environmental liabilities

The iron formation underlying the Borel River Property remains unexplored and untested along the 20 km extent of the Property. As the Property has not been previously explored,

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there are no environmental issues related to exploration programs. The Author is not aware of any existing environmental liabilities on the Property.

As of the writing of this report, the Author is not aware of encumbrances or environmental liabilities to which the Property could be subject. Northfield has assured the author that all exploration programs on the property have been and shall be conducted in an environmentally sound manner, and will follow, to the best of their abilities, the principles and guidelines outlined in the E3 Framework Document for Responsible Exploration (<http://www.pdac.ca/e3plus/index.aspx>).

#### 4.4 Surface Rights and Work permits

Each claim provides access rights to a parcel of land on which exploration work may be performed. However, the claim holder cannot access land that has been granted, alienated or leased by the Province for non-mining purposes, or land that is the subject of an exclusive lease to mine surface mineral substances, without first having obtained the permission of the current holder of these rights.

As provided for by the James Bay and Northern Quebec Agreement (JBNQA) (<http://www.gcc.ca/pdf/LEG000000006.pdf>), the Nunavik region is divided into the following land categories:

- Category I Lands: Lands surrounding villages that are set aside for exclusive use and benefit of the native populations;
- Category II Lands: Public lands owned by the Crown-in-right-of-Québec with hunting, fishing and trapping rights exclusive to the Native people, and for which forestry, mining and tourism development authority is shared;
- Category III Lands: Public lands with some rights to the Native people for hunting, fishing and trapping without a permit or limit, subject to conservation principles.

The Property is within Category II Lands. The eastern boundary of the Property borders on Category I Lands of the village of Aupaluk (*Figure 4-1*). Prior to any exploration or development on the Property, the local First Nations people (Innu) should be notified and kept apprised proposed plans.

As of the effective date of this Report, the Author is not aware of any back-in rights, payments or other agreements, encumbrances, or royalty payments to which the Borel River Project could be subject.

Although no drilling permits are required to be submitted for the recommended exploration work on the Property, Northfield intends to notify the MRNFQ and the Local First Nations representatives of any intent to drill, for each diamond-drilling exploration program.

#### 4.5 Restrictions on Work

The remoteness of the Property and the occasional harsh weather conditions of the region may prevent air access to the nearby communities and to the Property itself for prolonged periods (i.e., several days). To the author's knowledge there are no other significant factors and risks that may affect access, title, or the right or ability to perform work on the Property.

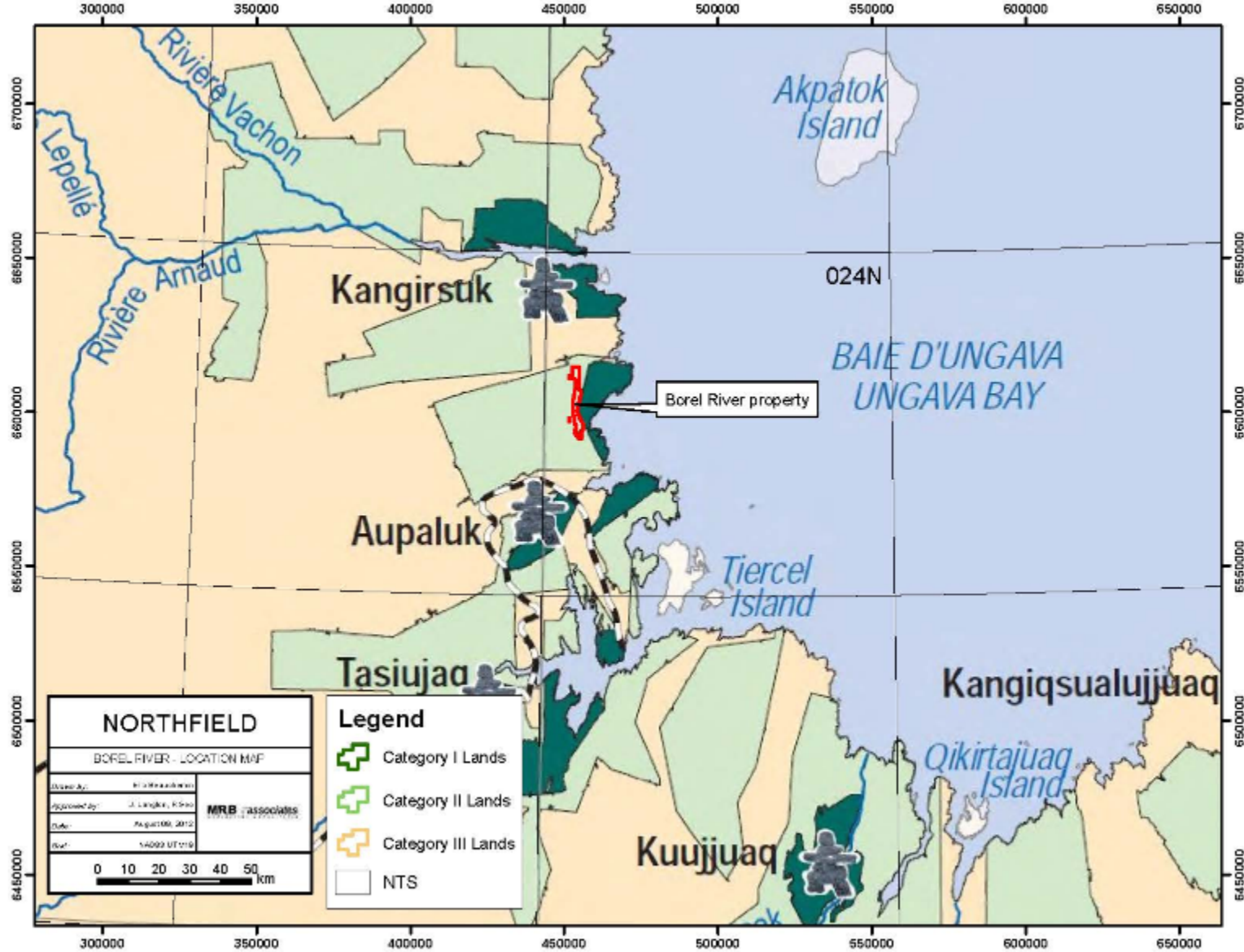


Figure 4-1: Map showing distribution of Land Categories surrounding the Property

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

### **5.1 Accessibility**

The Borel River Property is accessible from Kangirsuk or Aupaluk, Quebec, via helicopter or float plane (*Figure 5.1*). Both of those communities are serviced by regularly scheduled flights by Air Inuit. First Air operates regularly scheduled flights to Kuujjuaq, originating out of Montreal.

### **5.2 Climate**

The total annual precipitation is approximately 380 mm per year and the mean annual temperature is -6 °C. Winds are steady and sometimes reach high velocities, with an average of about 30 km per hour throughout the year. Due to the moderating influence of the sea, winter temperatures are not severe, and are comparable to northern Ontario and southern Labrador. The winters are long and the summers are short and cool. The climatic conditions are severe, though no more so than other regions of northern Canada.

Because of its relatively high latitude, extended day-light enhances the summer work-day period. Early and late winter conditions are acceptable for ground geophysical surveys and drilling operations. Mid-winter is not conducive to exploration activity due to the severe winter conditions and the remote location of the Property.

### **5.3 Local Resources**

There are limitations on qualified personnel available locally for mining exploration in the area around the Property. Experienced mining personnel would be sourced from mining centres in southern Quebec. Adequate space is likely available for potential tailings storage areas, waste disposal areas, and sites for facilities but the project is not at a stage that enables the scale of facilities or specific locations to be speculated upon.

### **5.4 Infrastructure**

The nearest road is about 10 km from the Property, near Aupaluk, meaning "Where the Earth is Red", a small community located on the shores of Hopes Advance Bay just off of Ungava Bay at approximately Latitude 59°19'01" N, Longitude 69°34'46" W. As of 2006, the population of Aupaluk was 188.

Kangirsuk, meaning "The Bay" in Inuktitut, is a small Inuit community some 55 km north of the Property on the shores of the Payne River, 15 km from Ungava Bay at approximately Latitude 60°01'05" N, Longitude 70°01'40" W. As of 2006, the population of Kangirsuk was 471.

Aupaluk and Kangirsuk are not connected to each other, nor to any other community by road. The major population centre for the region is Kuujjuaq, located about 150 km southeast of the property with a population of 2,130 (2006).

Lodging and food services are available in both Aupaluk and Kangirsuk.

No established electrical power sources are available to the project. Water sources are abundant in all areas of the Property.

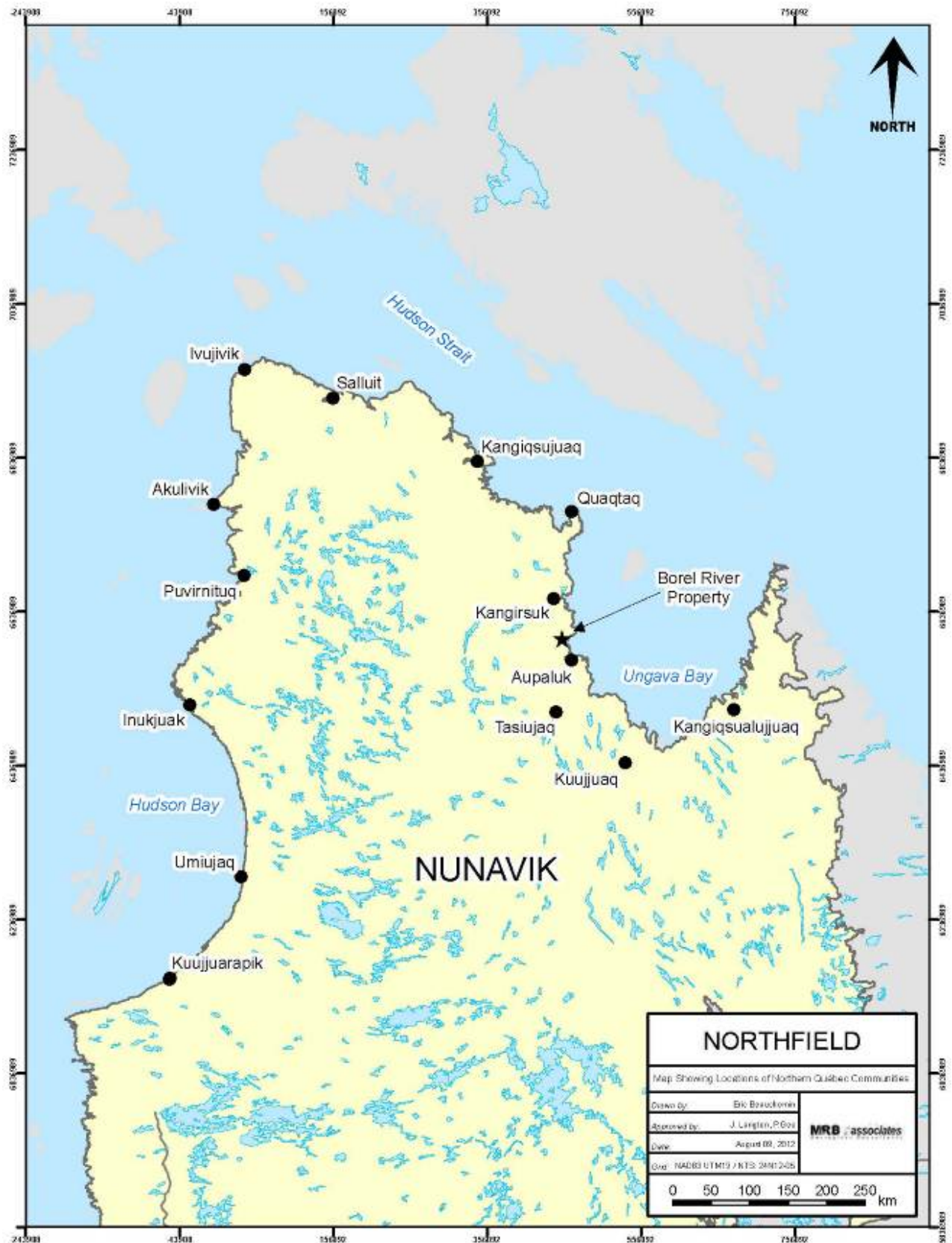


Figure 5-1 Map Showing Locations of Northern Quebec Communities

## 5.5 Physiography

The physiography of the area is characterized by typical treeless tundra of the Canadian sub-Arctic. The Property slopes gentle from north to south with average elevations of 80 m above sea level (ASL) in the north to 40 m ASL in the south. Ridges of mostly barren outcrop rise 20 m to 30 m above the surrounding terrain (*Figure 5-2*). Much of the area is flat with the local hills and ridges forming prominent features. Numerous lakes, ponds and streams are present throughout the region (*Figure 5-3*). Drainage is generally eastward, towards Ungava Bay. A veneer of glacial material covers most of the area. On the tidal plains the till has been reworked and distributed by wave action to form a boulder and mud-flat cover. Large erratic boulders are scattered throughout the area. Post-glacial uplift of the area is evidenced by numerous raised beaches and prominent terraces, near Hopes Advance Bay. Glacial striae indicate the dominant ice movement was between 030° and 045°. Less abundant striae trend 080°.



*Figure 5-2: Photograph of a prominent ridge of iron formation on the Property.*

The vegetation in the vicinity of the Property consists of sub-Arctic tundra species including various small plants, mosses, and lichens. Animal species present on the property include caribou, muskox, and small game species such as arctic hare, fox, and ptarmigan. The local river host abundant fish species including salmon and arctic char. In Ungava Bay, a small population of beluga whales is also present.



***Figure 5-3. Typical sub-Arctic Tundra of the Borel River Property***

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## 6.0 HISTORY

\*Note: The GESTIM and E-Sigeom web-sites allow on-line searching of Québec's database of Provincial Assessment Reports or "Gestimes Minières" (GM's). The data are accessible online at <https://gestim.mines.gouv.qc.ca/> and <http://sigeom.mrnf.gouv.qc.ca/>.

The history of the discovery and early exploration of iron resources within the Labrador Trough (see Figure 7.1) is described by P. E. Auger in his 1958 report for the Ungava Iron Ores Company as follows:

"The Labrador Trough is a stratigraphic and structural unit, which has been reported in northern Quebec as early as 1852, by Father Babel, an Oblate missionary. In the latter part of the 19th Century, A. P. Low of the Geologic Survey of Canada mentioned the presence of abundant iron formation and in his report published in 1895, he recommends that the area be prospected for iron. In 1929, iron ore was found in Labrador by J. E. Gill and W. F. James in the iron formation of the Trough on the present property of the Iron Ore Company of Canada and in 1936, Dr. J. A. Retty made the first discovery of iron ore in Quebec and began the systematic exploration of the Labrador Trough. His work was followed by that of numerous others, including the writer (Auger).

In the succeeding years from 1946 to date (1958) the Province of Quebec gave various companies large concessions covering most of the Labrador Trough from Knob Lake northward as far as Ungava Bay and southward as far as Mount Wright and Lake Mistassini. In 1951, a prospector, Ross Toms, staked the first claims in the Ford Lake region (Hopes Advance area). The samples collected on these claims were brought to Mr. Cyrus S. Eaton of Cleveland, Ohio USA, who foresaw the potential economic significance of ore of this type located near tidewater. Mr. Hugh Roberts, a well-known consulting geologist from Duluth, examined the samples and recognized at once the economic value of the material under consideration and recommended that some geologic studies and exploratory drilling be done on the ground which is now the property of Atlantic Iron Ores Limited

In 1952 and 1953, exploration was pushed northward along the Labrador Trough and new outcrops of iron ore were discovered with the resultant acquisition by the Cyrus Eaton interests of the mineral rights on the International Iron Ores Properties, north and south of Payne River<sup>4</sup>. In the following years Oceanic Iron Ores Company (1953) and Quebec Explorers Limited (1956) obtained mining concessions on neighbouring grounds. This completed the granting of all the iron-bearing ground comprised within the Labrador Trough in Quebec."

The most active exploration period was between 1952 through 1961. Large iron mining operations were proposed in the Roberts Lake area near Kayak Bay, in the Morgan Lake area at Payne River, and at Hopes Advance Bay in the south. The project at Hopes Advance Bay was the most advanced with a detailed scoping study and pre-feasibility study being completed (called a feasibility study at that time).

During this same time period, substantial iron resources were being developed in the Central Domain of the Labrador Trough: at Labrador City (Labrador), Wabush (Labrador), and Mount Wright (Quebec), and large-production, Taconite-iron plants were being brought into production in Minnesota and Michigan (U.S.A.). As these projects were much closer to steel producing centres in the United States and Canada, their overall production costs were much



lower than could be achieved by mining the deposits in the Ungava Bay region. As a result, the Ungava projects were all suspended or terminated by the mid-1960's.

Minor exploration work continued in the area until the early 1970's. Since that time, the only exploration work comprised an NRCan (Natural Resources Canada) airborne geophysical survey of NTS 24-N flown in 2010.

### **6.1 Historic exploration and development work**

Other than a reconnaissance mapping and sampling project carried out in 1956 by Atlantic Iron Ore Co. (GM4691A), there is no record of any systematic mineral exploration programmes having been carried out on the Borel River Property.

The areas around Morgan Lake and Castle Mountain (Hopes Advance area) have been the subject of recent exploration programmes by Oceanic Iron Ore Corp. ("**Oceanic**").

The following is quoted from Oceanic's October 29, 2010 technical report on their Ungava iron properties. The complete technical report may be obtained on SEDAR ([www.sedar.com](http://www.sedar.com)) under Oceanic's profile.

#### "Morgan Lake Area:

The Morgan Lake area iron deposits were first discovered in 1953 with active exploration commencing in 1955 and continuing through 1957.

The Morgan Lake area includes iron deposits including Payne Range, Morgan Lake, Black Payne South, Extension Southeast, Esson Lake Northeast, Slush Lake North, Harnden Range, McOuat Range, and McCracken River. Exploration work completed on the property includes exploration drilling, surface sampling, surface mapping, and metallurgical test work. Detailed site layouts were completed for a processing plant and harbour near the Payne Range iron deposits. Drilling was completed on the Payne Range (29 holes) and Morgan Lake deposits (16 holes). Exploration was also conducted in the Black Payne South, Harnden Range, Esson Lake, and McOuat Range zones. A total of 45 drill-holes, totalling 3,611 m, were completed in the Morgan Lake area.

#### Hopes Advance Area:

The Hopes Advance area iron deposits were first discovered in 1951 with active exploration from that time continuing through 1962.

The Hopes Advance area includes historically identified iron deposits including the Bay Zones A, B, C, D, E and F; Castle Mountain; Numbers 1, 2, 3, 4, 5, and 6 zones; the Northwest Corner, McDonald, and Iron Valley zones. Exploration work completed on the property includes exploration drilling, surface sampling, surface mapping, and metallurgical test work. Detailed site layouts and pit designs were completed for a processing plant along the Red Dog River and a harbour on Hopes Advance Bay.

Eight of the deposits have had some drilling including: Bay (54 holes), Castle Mountain (53), Iron Valley (16 holes), No.1 (3 holes), No.2 (22 holes), No.4 (27 holes), McDonald (7 holes), and Northwest Corner zones (3 holes). Other mineralization in the Hopes Advance area includes the No.3 and No.6 zones. A total of 185 drill-holes, totalling 12,935 m, were completed in the Hopes Advance area."

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## 7.0 GEOLOGICAL SETTING AND MINERALIZATION

### 7.1 Regional Geology

The iron formation that hosts the deposits west of Ungava Bay lies within a Paleo-Proterozoic fold and thrust belt known as the Labrador Trough, which hosts some of the most extensive iron formations in the world. The area is underlain chiefly by rocks that form the western, miogeosyncline part of the Labrador Trough in the Churchill Province of the Canadian Shield. The Labrador Trough, also known as the New Quebec Orogen and the Labrador-Quebec Fold Belt, extends for more than 1,000 km along the eastern margin of the Superior craton from Ungava Bay to the Manicouagan impact crater, Quebec. The fold and thrust belt is about 100 km wide in its central part and narrows considerably to the north and south (**Figure 7-1**). It marks the collision between the Archean Superior Province (circa 3.0 Ga to 2.5 Ga) and the Rae Province of the Hudsonian Orogeny (circa 1.82 Ga to 1.79 Ga). Rocks of the Rae Province were transported westward over the Archean Superior Province basement creating a foreland fold and thrust belt marked by a series of imbricate thrusts. The south-eastern part of the Rae Province that underlies the area east of the Labrador Trough is referred to as the eastern Churchill Province.

The Labrador Trough is divided into three geological domains. The Southern Domain is defined by the northern limit of the Grenville Orogenic Belt at approximately 53°24'00" North latitude, represented by the biotite metamorphic isograd. The Southern Domain encompasses Labrador Trough rocks that were metamorphosed during the Grenville Orogeny (circa 1.25 Ga to 0.98 Ga). High-grade metamorphism recrystallized the primary iron formations, producing coarse-grained sugary quartz, magnetite, and specular hematite schists that are amenable to concentration and beneficiation.

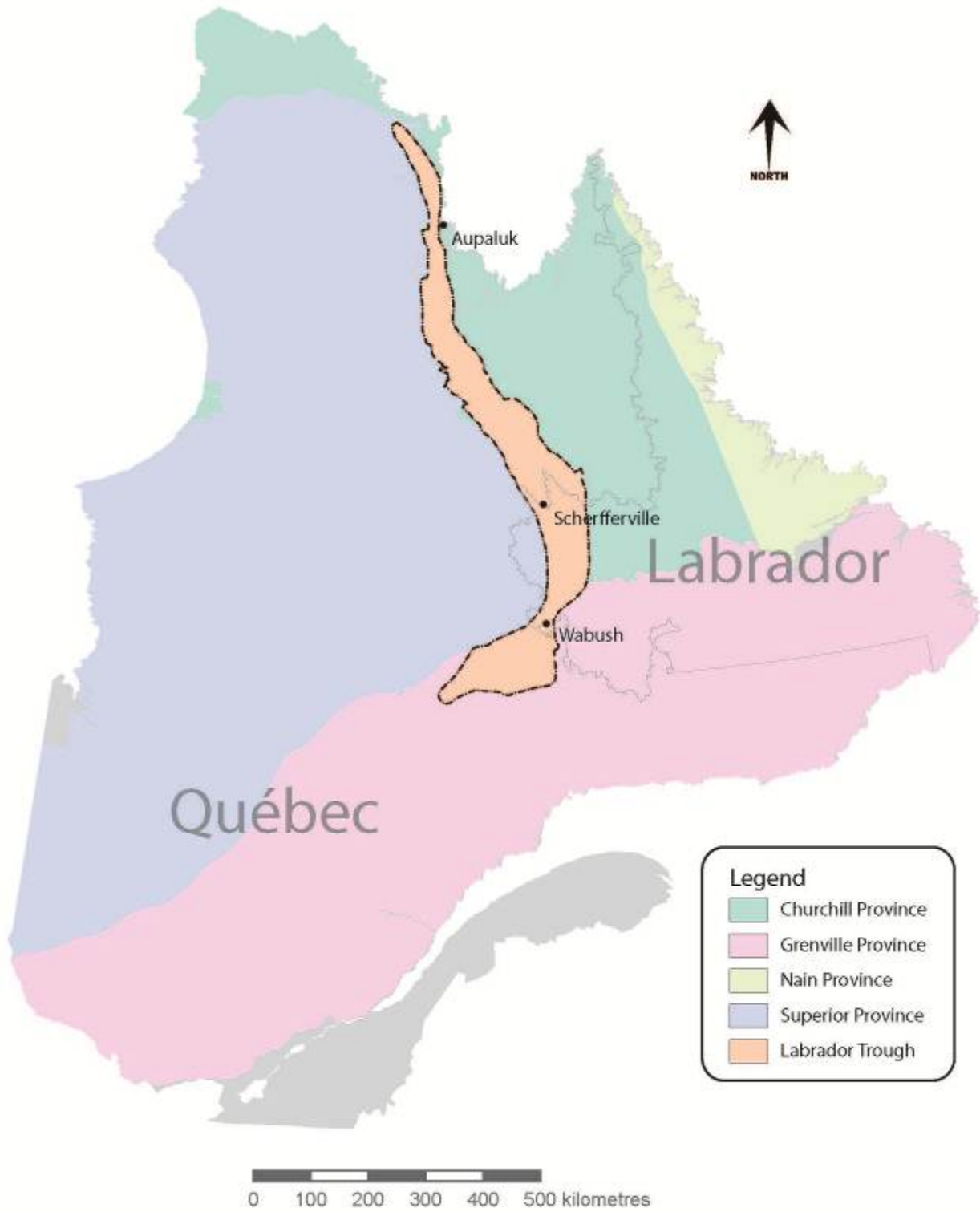
The Central Domain hosts regionally metamorphosed (greenschist metamorphic facies) iron-formation deposits comprising Achaeon, mainly sedimentary rocks, including iron formations, volcanic rocks and mafic intrusions (the Kaniapiskau Supergroup). The Kaniapiskau Supergroup is sub-divided into the Knob Lake and Doublet groups. Rocks in the Southern Domain are recognized as the metamorphosed equivalents of the Knob Lake Group.

The Northern Domain, north of the Leaf Bay area (58°30'00" North latitude), comprises regionally metamorphosed rocks (lower amphibolite facies), much like those of the Southern Domain (**Figure 7-2**).

It is believed that only one iron-formation assemblage is present throughout the region. This formation varies in thickness and appears to have underlain the greater part of the original Labrador geosyncline. The iron formation in the Labrador Trough has been dated at 1,880 Ga  $\pm$  2 Ma (Hoffman, 1988; 1990). The succession of quartzite-iron formation-argillite, and their metamorphosed equivalents, persists throughout the three Domains.

### 7.2 Local Geology

Rocks of the Northern Domain of the Labrador Trough ("NLT") rest unconformably on Archean granitic gneiss basement. Unconformably overlying the basement gneisses are the metamorphosed equivalents of the Lower Proterozoic Knob Lake Group. In the NLT these consist of the Ford Lake Formation (Wishart Formation) quartzite; Sokoman Formation (iron formation); Red Dog Formation (Menihék Formation) micaceous schist and slate, and; Leaf Bay Group (volcanic and sedimentary rocks) (**Table 7-1**). Intrusive rocks include pegmatites and aplite dykes, granodiorite plutons, amphibolites, gabbros and peridotite bodies.



**Figure 7-1** Location of the Labrador Trough with respect to the principal tectonic domains of Quebec and Labrador.

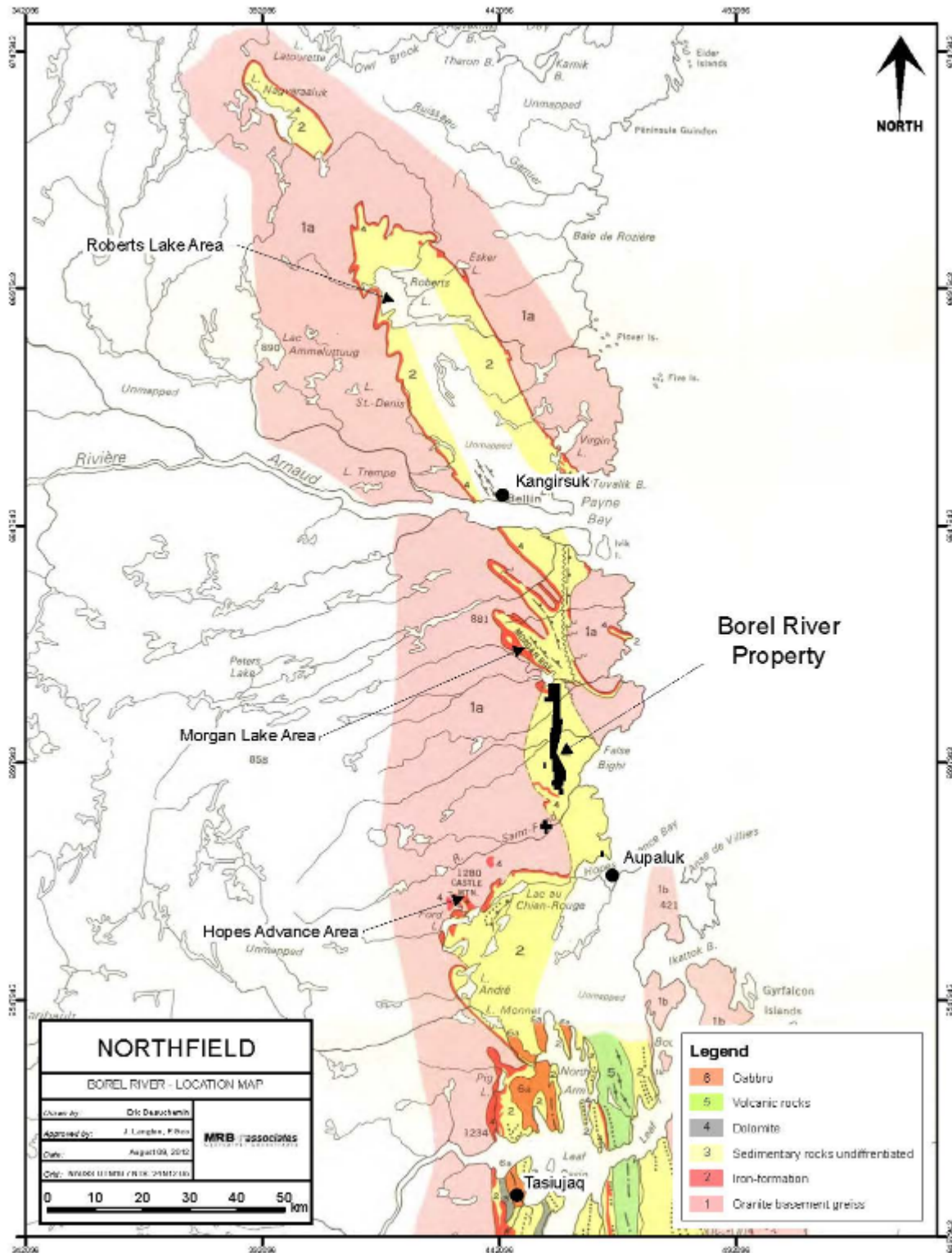


Figure 7-2: Simplified Geology of the Northern Labrador Trough, after Gross (1968).

**Table 7-1 Stratigraphic Sequence in the Hopes Advance Area**

Hopes Advance				Metres Thick
Late Precambrian	<b>Leaf Bay Group</b>	Volcanic and sedimentary rocks. Diorite and gabbro sills and amphibolitic rocks.	--	
	<b>Red Dog Formation</b>	Micaceous schist and slate with minor carbonate and quartzose beds.	--	
	<b>Sokoman Iron Formation</b>	Iron silicate-carbonate-quartz iron formation		15-30
		Grunerite-magnetite-quartz iron formation		10-15
		Hematite-magnetite-quartz iron formation		45-60
		Carbonate-iron silicate-magnetite-quartz iron formation		12-15
	<b>Ford Lake Formation</b>	Quartzite and garnet-biotite-chlorite schist		Up to 30
		Unconformity		
Early Precambrian	<b>Archean Complex</b>	Granite and granite gneiss		

### 7.3 Property Geology

Observations from the Author's site visit indicate that the stratigraphy underlying the Property strikes generally north-south and dips between 45° and 65° to the east. The geological descriptions that follow incorporate the observations of the Author recorded during the July 2012 site visit. The general geology of the Property (**Figure 7-3**) is derived from Quebec Provincial Geological Compilation Maps "24N05 – Aupaluk", and "24N12 – Baie de Bonnard" (Sigeom, 2008).

#### 7.3.1 Tectono-stratigraphy

The tectono-stratigraphic sequence on the Property youngs from west to east. Folds are typically overturned with axial-planes dipping east.

##### Basement rocks

The basement rocks comprise the Western Gneissic Complex, which underlie the western part of the Property. The dominant rock is a pink (locally grey), medium- to coarse-grained granitic (augen) gneiss, composed of ovoids of microcline in a finer-grained quartz-plagioclase-biotite matrix.

##### Ford Lake (Wishart) Formation

Quartzite generally occurs as a discontinuous basal bed a few centimetres to a few metres thick interbedded with lower schists. It may be separated from the basement gneiss by schistose rocks. The quartzite is generally blue-grey, fine-grained, compact and glassy. It is composed of sub-angular quartz grains of one to two millimetres. Impurities include magnetite garnet, iron-amphibole and chlorite.

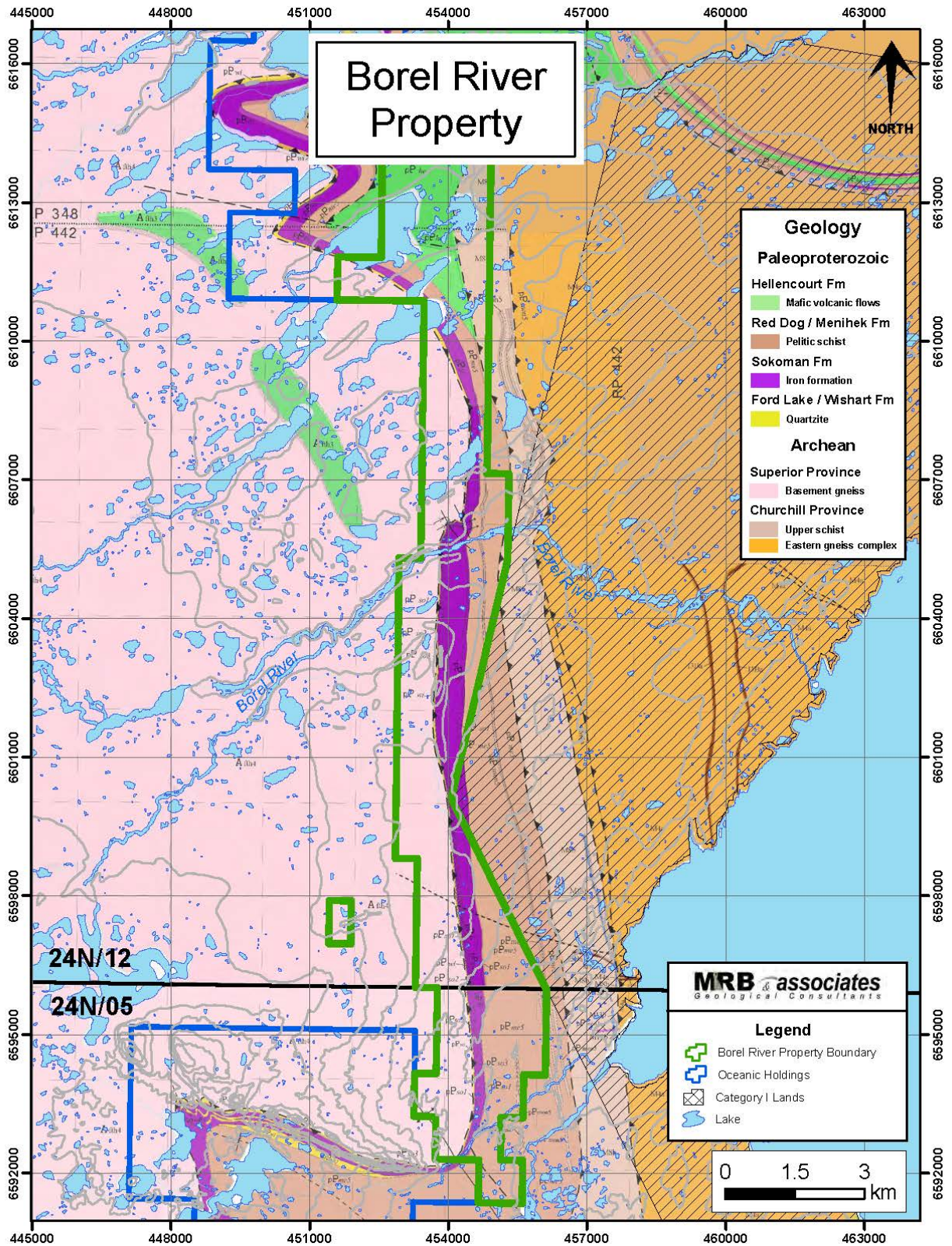


Figure 7-3: General geology of the Borel River Property area.

### Sokoman Formation

**Silicate member:** This is a schistose unit composed mainly of quartz and iron-rich silicates, with some local and thin bands of magnetite and hematite.

**Oxide member:** The oxide member consists of siliceous hematite and magnetite. This unit is divided into two sub-members, hematite and magnetite, based on which of the two oxides predominates.

**Spotted Carbonate member:** The spotted carbonate member is the youngest member of the Sokoman sequence. It consists of white sugary quartz with thin discontinuous beds of carbonate, mainly siderite. This member is more siliceous near the base and grades into a rusty orange, ferriferous, quartz rock. Near the top, the carbonate member is interlayered with the over-lying quartz mica schists.

Where it was examined on the Property, the Sokoman Formation is highly deformed and multiple-phases of meso-scale, open to tight folds were observed (**Figure 7-4**). This style of deformation is not reflected by the regional distribution of units as the strain has been particularly concentrated into the incompetent iron formation beds.



**Figure 7-4: Intensely deformed Sokoman Formation.**

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### Red Dog (Menihék) Formation

This sequence overlies the Sokoman iron-bearing rocks and comprises a succession of metamorphosed impure sandstones, siltstones and shales. The main rock type is a fine-grained, greyish-white, quartz-biotite-muscovite schist. Quartz-muscovite-biotite-plagioclase schist and quartz-muscovite schist flecked with biotite occur near the base and grade upward into slate, garnetiferous slate, black shale, and sericite schist. In the northern part of the Property this unit is overlain by a series of mafic volcanic flows of the Hellencourt Formation.

### Archean (upper) Schist

For most of the Property the Red Dog Formation has been over-thrust by a sequence of older (Archean) quartz-biotite-muscovite-plagioclase schist, quartzose schist, phyllite, and micaceous slate known as the Upper Schist. The Upper Schists is arbitrarily separated from the overlying Eastern Gneiss Complex by a high-strain thrust contact.

### Eastern Gneiss Complex

This unit consists of quartz-plagioclase-biotite paragneiss of the eastern Churchill (Rae) Province.

The prospective areas on the Property are those underlain by iron formation, especially where it has been structurally thickened and occupies the cores of synformal folds.

## **7.4 Mineralization**

Iron formations are the principal sources of iron throughout the world (Gross, 1996). In order for the sedimentary rock sequences to be classified as iron formation they must have over 15% Fe content, whereas in order to be classified as ore, the iron content must generally be over 30% Fe.

For iron formation to be mined economically, a minimum iron content is required (generally 30% Fe +/- 2%), but also the iron oxides must be amenable to concentration (beneficiation) and the concentrates produced must be low in manganese and deleterious elements such as silica, aluminium, phosphorus, sulphur and alkalis.

The Labrador Trough iron deposits are classified as stratiform, Lake Superior-type. Locally, deformation and metamorphism of the principle iron formation unit (the Sokoman Formation) has tectonically thickened the iron formation and coarsely recrystallized the rock. The coarser-grained iron is desirable as it is easier to process and more amenable to beneficiation.

Exploration conducted during the 1950's (refer to **Section 6.0**) identified several iron deposits in the Morgan Lake and Hopes Advance Bay areas, north and south of the Property, respectively.

In the Morgan Lake area, magnetite in the chert-magnetite portion of the iron formation is very fine-grained. At Hopes Advance Castle Mountain iron deposit, the iron deposits consist of a mixture of magnetite and hematite and is higher-grade and relatively coarser-grained than at the occurrences in the Morgan Lake area. No data is available about the iron mineralization on the Property, which is hosted by the same iron formation present in the Morgan Lake and Hopes Advance areas.

Observation from the Author's July, 2012 site visit, which consisted of a cursory field examination of three (3) sites in the central part of the Property only, revealed that the iron



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formation that comprises the majority of the Sokoman Formation underlying the Property is comprised mainly of a siliceous magnetite-specular hematite schist containing recrystallized, granular quartz with fine, platy specular hematite and bands of carbonate and grunerite.

#### 7.4.1 Mineralization Controls

Concentrations of iron in the Labrador Trough are the result of the:

- primary iron content of iron formation;
- geometry of structure(s): mineralization is typically thickened in synclinal "U"-shaped structures that are favourable for open pit design, or in the preserved limbs of synclines;
- degree of structural folding; intersections of two phases of folding are more favourable;
- host rock characteristics, such as grain-size;
- degree of metamorphism

Where exposed, the iron-rich strata are easily recognized visually, and are typically well outlined by airborne and ground magnetic and gravity geophysical surveys. Magnetic "highs" outline magnetite-rich iron formations, whereas magnetic "lows" that coincide with gravity "highs" tend to be hematite-rich iron formations. The taconite iron formation in the area tends to have positive relief and the iron mineralization is easily recognized visually from the air by the reddish, rust-coloured exposures of bedrock. Notably, the Inuktituk word "Aupaluk", which gives the nearby community its name, means "Where the Earth is Red".

The iron in the Sokoman Formation occurs mostly in its oxide form, mainly as magnetite ( $\text{Fe}_3\text{O}_4$ ) and to a lesser extent as specular hematite ( $\text{Fe}_2\text{O}_3$ ) – also called specularite in its coarse-grained form. Some iron is present in iron silicates such as amphiboles (grunerite) and in carbonates such as ankerite. The main gangue mineral is quartz/silica ( $\text{SiO}_2$ ), which constitutes about 50% of the iron formation - these units are called quartz-specularite schists.

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## 8.0 DEPOSIT TYPES

The iron mineralization hosted by the Sokoman Formations iron formations on the Borel River Property are classified as Lake Superior-type, which consists of a banded sedimentary unit composed principally of bands of iron oxides, magnetite and hematite within quartz (chert)-rich rock with variable amounts of silicate, carbonate and sulphide lithofacies. In order for the sedimentary rock sequences to be classified as iron formation they must have  $\geq 15\%$  Fe content, whereas in order to be classified as ore, the iron content must generally be  $\geq 30\%$  Fe.

Such iron formations have been the principal sources of iron throughout the world (Gross, 1996). **Table 8-1** after Eckstrand (1984) presents the salient characteristics of the Lake Superior-type iron deposit model.

Lake Superior-type ores have characteristics of iron ores that require concentration to produce saleable products. Lake Superior-type iron formations are deposited in shallow waters on continental shelves and in shallow sedimentary basins. This type of iron formation contains a variety of ore types that can be grouped into two main categories: 1) direct shipping, and; 2) concentrating ores.

Direct Shipping Ore (DSO) has a natural iron (Fe) content  $\geq 50\%$  and include the hard ores of northern Michigan and residual ores that have been mined in Australia, Brazil, Michigan, Minnesota and the Labrador Trough of Canada. "Hard Ore" is high-grade, massive, and composed of magnetite and hematite. So called "Residual Ore" is typically composed of hematite and martite and may contain goethite and limonite. Residual Ore has been upgraded by weathering processes that remove gangue minerals, principally quartz, from the iron formation, thereby increasing the relative concentration of iron in the residual host rock.

Concentrating Ore typically comprises magnetite/ hematite and silicate minerals at relatively low grades (20-30% Fe) that require processing (grinding) to liberate the magnetite and/or hematite from the silicate minerals. Magnetite is concentrated by magnetic methods and hematite is concentrated by gravity or flotation methods.

The value of Concentrating Ore is determined by a combination of Fe grade and ease of liberation. For example, a lower Fe-grade ore may have a higher value than a higher Fe-grade ore if it liberates at a coarser grind enabling greater throughput with lower grinding costs. The iron ore mining operations that are currently active in the Central Domain of the Labrador Trough (IOC - Iron Ore Company of Canada, QCM - Quebec Cartier Mining Company, and Wabush Mines) host iron ore deposits that are suitable for concentrating.

For iron formation to be mined economically, there will be a minimum iron content required at a given market price (generally  $\geq 30\%$  Fe), but also the iron oxides must be amenable to concentration (beneficiation) and the concentrates produced must be low in manganese and deleterious elements such as silica, aluminium, phosphorus, sulphur and alkalis. Beneficiation involves segregating the silicate and carbonate lithofacies and other rock types interbedded within the iron formation from the iron-rich oxides. Beneficiation of taconite ores has resulted in the successful production of many contemporary iron deposits.

**Table 8-1: Deposit model for Lake Superior-type iron formation (after Eckstrand, 1984)**

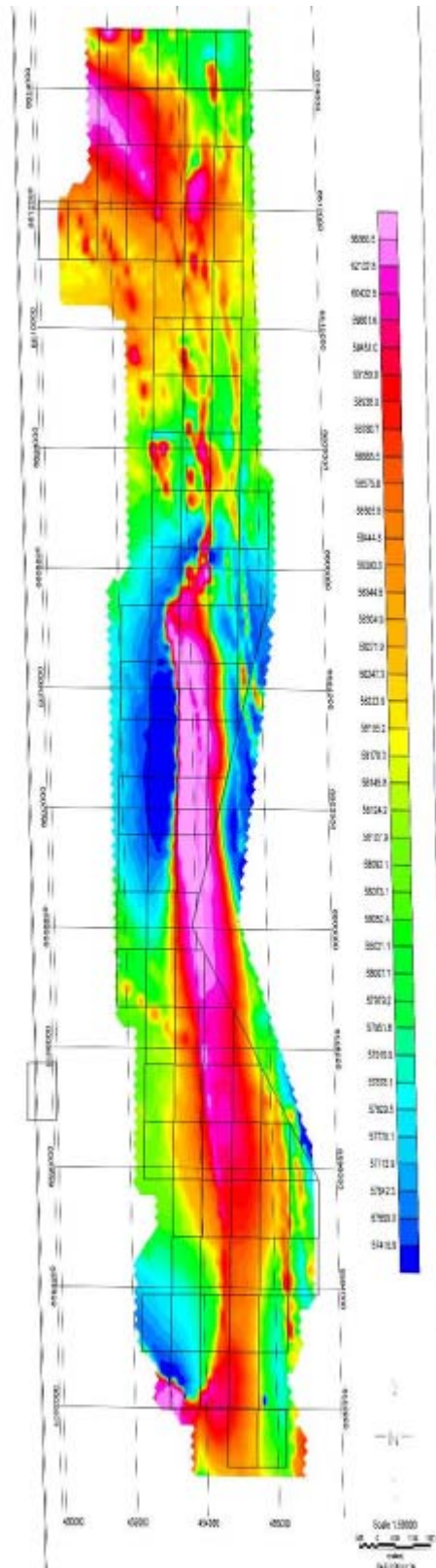
Commodities	Fe (Magnetite)
	Knob Lake, Wabush Lake and Mont-Wright areas, Quebec and Labrador, Mesabi Range, Minnesota; Marquette Range, Michigan; Minas Gerais area, Brazil.
Importance	Canada: the major source of iron. World: the major source of iron.
Typical Grade, Tonnage	Up to billions of tonnes, at grades ranging from 15 to 45% Fe, averaging 30% Fe.
Geological Setting	Continental shelves and slopes possibly contemporaneous with offshore volcanic ridges. Principal development in middle Precambrian shelf sequences marginal to Archean cratons.
Host Rocks or Mineralized Rocks	Iron formations consist mainly of iron- and silica-rich beds; common varieties are taconite, itabirite, banded hematite quartzite, and jaspilite; composed of oxide, silicate and carbonate facies and may also include sulphide facies. Commonly intercalated with other shelf sediments: black
Associated Rocks	Bedded chert and chert breccia, dolomite, stromatolitic dolomite and chert, black shale, argillite, siltstone, quartzite, conglomerate, redbeds, tuff, lava, volcanoclastic rocks; metamorphic equivalents.
Form of Deposit, Distribution of Ore Minerals	Mineable deposits are sedimentary beds with cumulative thickness typically from 30 to 150 m and strike length of several kilometres. In many deposits, repetition of beds caused by isoclinal folding or thrust faulting has produced widths that are economically mineable. Ore mineral distribution is largely determined by primary sedimentary deposition. Granular and oolitic textures common.
Principal Ore Minerals Associated Minerals	Magnetite, hematite, goethite, pyrolusite, manganite, hollandite. Finely laminated chert, quartz, Fe-silicates, Fe-carbonates and Fe-sulphides; primary or metamorphic derivatives
Age, Host Rocks	Precambrian, predominantly early Proterozoic (2.4 to 1.9 Ga).
Age, Ore	Syngentic, same age as host rocks. In Canada, major deformation during Hudsonian and, in places, Grenvillian orogenies produced mineable thicknesses of iron formation.
Genetic Model	A preferred model invokes chemical, colloidal and possibly biochemical precipitates of iron and silica in euxinic to oxidizing environments, derived from hydrothermal effusive sources related to fracture systems and offshore volcanic activity. Deposition may be distal from effusive centres and hot spring activity. Other models derive silica and iron from deeply weathered land masses, or by leaching from euxinic sediments. Sedimentary reworking of beds is common. The greater development of Lake Superior-type iron formation in early Proterozoic time has been considered by some to be related to increased atmospheric oxygen content, resulting from biological evolution.
Ore Controls, Guides to Exploration	<ol style="list-style-type: none"> <li>1. Distribution of iron formation is reasonably well known from aeromagnetic surveys.</li> <li>2. Oxide facies is the most important, economically, of the iron formation facies.</li> <li>3. Thick primary sections of iron formation are desirable.</li> <li>4. Repetition of favourable beds by folding or faulting may be an essential factor in generating widths that are mineable (30 to 150 m).</li> <li>5. Metamorphism increases grain size, improves metallurgical recovery.</li> <li>6. Metamorphic mineral assemblages reflect the mineralogy of primary sedimentary facies.</li> <li>7. Basin analysis and sedimentation modelling indicate controls for facies development, and help define location and distribution of different iron formation facies.</li> </ol>
Author	G.A. Gross

## 9.0 EXPLORATION

### 9.1 Airborne Geophysical Survey (2012)

The results from the Airborne Survey, which was an airborne magnetic-response (aeromag') survey, flown by K8aranda Geophysics of Wendake (Quebec) over Northfield's Borel River Property from July 26<sup>th</sup> to July 28<sup>th</sup>, 2012, outlined strong magnetic signatures interpreted as iron formation. The complete results of this 2012 geophysical survey will be submitted to the Quebec Provincial MRNF for Assessment credits (*Brown, C., 2012: GM #Pending*).

The Airborne Survey delineated a roughly linear trend of strong magnetic anomalies interpreted as iron formations on the Property (**Figure 9-1**). The Central Zone corresponds to a large ridge of exposed iron formation that was examined by the Author during the site visit on July 28<sup>th</sup> 2012. The ridge trends generally north-south and is approximately 3.0 km by 0.5 km.



**Figure 9-1: Total Magnetic Intensity Map showing Borel River Property boundary.**

## **10.0 DRILLING**

This section is not applicable to this Report, as no drilling, nor any other exploration work, has been carried out on the Property to date.

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

This section is not applicable to this Report, as there are no known historic or current collected samples or assay results from the Property.

## **12.0 DATA VERIFICATION**

This section is not applicable to this Report, as there are no previous data available from the Property for verification.

### **12.1 Site Visit**

Mr. Banks, who is independent of Northfield, and who is a Qualified Person (QP) under the terms of NI 43-101, conducted a site visit of the Borel River Property on July 28<sup>th</sup>, 2012 accompanied by John Langton, a director of Northfield. During the visit to the site, Mr. Banks located and examined a prominent ridge of iron formation, explored the general landscape and surface features recorded on geological maps and figures available from Provincial on-line databases.

Mr. Banks visited a number of outcrops and confirmed that the location and extent of the iron formation at these locations were consistent with the latest geological maps of the area. The maps of the area, and the descriptions in the historic work reports, appear to be accurate and reliable.

## **13.0 MINERAL PROCESSING AND METALLURGICAL TESTING**

This section is not applicable to this Report.

## **14.0 MINERAL RESOURCE AND ESTIMATES**

This section is not applicable to this Report.

## **15.0 MINERAL RESERVE ESTIMATES**

This section is not applicable to this Report.

## **16.0 MINING METHODS**

This section is not applicable to this Report.

**17.0 RECOVERY METHODS**

This section is not applicable to this Report.

**18.0 PROJECT INFRASTRUCTURE**

This section is not applicable to this Report.

**19.0 MARKET STUDIES AND CONTRACTS**

This section is not applicable to this Report.

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

This section is not applicable to this Report as Northfield has not completed a Feasibility Study.

**21.0 CAPITAL AND OPERATING COSTS**

This section is not applicable to this Report.

**22.0 ECONOMIC ANALYSIS**

This section is not applicable to this Report.

**23.0 ADJACENT PROPERTIES**

The nearest active iron mining operation to the Property is at Schefferville, approximately 600 km to the south-southeast. There are no other properties owned by Northfield in the vicinity of the Borel River Property.

**24.0 OTHER RELEVANT DATA AND INFORMATION**

As provided for by the James Bay and Northern Quebec Agreement (JBNQA) (<http://www.gcc.ca/pdf/LEG00000006.pdf>), the Nunavik region is divided into the following land categories:

- Category I Lands: Lands surrounding villages that are set aside for exclusive use and benefit of the native populations;
- Category II Lands: Public lands owned by the Crown-in-right-of-Québec with hunting, fishing and trapping rights exclusive to the Native people, and for which forestry, mining and tourism development authority is shared;
- Category III Lands: Public lands with some rights to the Native people for hunting, fishing and trapping without a permit or limit, subject to conservation principles.

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The Property is within Category II Lands; however, the eastern boundary of the Property borders on Category I Lands of the village of Aupaluk. A small area of the extreme western part of the Category I lands overlie a section of the iron formation, approximately 4 km south of the Borel River. Prior to any further exploration or development on the Property, the local First Nations people (Innu) should be notified and kept apprised.

## 25.0 INTERPRETATION AND CONCLUSIONS

Other than minor regional geological surveys carried out by exploration companies in the late 1950's the Borel River Property has received very little attention with respect to mineral exploration. A Natural Resources Canada sponsored, regional aeromag' survey in 2010 covered much of the northern Labrador Trough, including the Property. Although previous exploration companies were aware of the iron formation that underlies the area of the current Borel River Property, the remoteness of the area and the discovery of other nearby deposits made the Property a lower priority target that has remained essentially unexplored (see **Section 6.0**).

The Airborne Survey and ground observations completed by Northfield in 2012 shows that there is a large area of iron mineralization (iron formation) underlying a 16 km north-south corridor of the Property that may have potential for commercial development. This iron-rich zone is best exposed on two prominent ridges, just south of where the Borel River transects the Property. The ridges are approximately 3 km x 300 m and 2 km x 100 m and are interpreted to represent the two limbs of an overturned, east-dipping synform, cored by younger Red Dog Formation metasediments (schist).

North of the Borel River, the geology and geophysical signature show that the iron formation follows a sharp, Z-verging fold and then "disappears" to the north. The plunge of the synform may have brought it to surface at this point, or the iron formation may be more hematite rich, and hence less magnetic, north of the river. As the northern part of the Property is mainly covered by glacial deposits, further ground work will be needed to determine its potential for iron mineralization.

South of the iron ridges, geophysical results show a strong magnetic-response anomaly, of equal intensity to the iron ridges, that continues 5 km southward gradually losing intensity. Approaching the southern limit of the Property, the magnetic-response again increases.

The objective of the 2012 Airborne Seurvey was to corroborate the location and existence of iron formation on the Property and provide a preliminary evaluation for the potential of this iron formation to be defined as an iron resource.

Results of the 2012 programme, which comprised the Airborne Survey and Author's site visit, confirm that there is likely a substantial thickness and strike-length of iron formation underlying the Property containing a potential iron resource. The true grade and amount of iron deposits most amenable to mining have yet to be determined, but there exists a potential for iron deposits of economic grade and tonnage.

The Borel River Property is in close proximity to the Morgan Lake and Hopes Advance projects of Oceanic Iron Ore Corp., which are being actively investigated for their iron potential.



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## 26.0 RECOMMENDATIONS

A thorough examination of available data on the Borel River Property shows that the Sokoman (iron) Formation underlying the area constitutes a potential iron ore resource of significant proportion. The true grade of the iron formation in the areas most amenable to mining have yet to be determined but there exists the possibility of a sizeable deposit of economic grade.

The Author is of the opinion that further exploration is necessary in order to determine the full iron potential of the Property.

The iron formation identified at the Borel River Property warrants further investigation to define its surface distribution, extent, petrology, mineralogy, metallurgical characteristics, and three dimensional (sub-surface) geometry.

The following two-phase exploration programme is recommended. Note that although the cost of Phase II is largely dependent on Phase I, the overall budget (Phase I and Phase II is estimated at \$3.1 million (including 15% for contingencies). Phase I is budgeted at \$516,580. Phase II is budgeted at \$2,624,300 and is conditional on positive results from Phase I.

### Phase I

- a proposal to re-classify the wedge of Category I lands that overlaps the iron formation, approximately 4 km south of the Borel River, to Category II land, should be tabled with the local First Nations peoples and the Provincial Government;
- systematic field mapping and sampling of bedrock exposures, with particular emphasis on the Sokoman (iron) Formation;
- channel-cutting and sampling - perpendicular to strike - of the two prominent ridges south of Borel River to obtain baseline iron-content assays across the exposed iron formation;
- selection of representative samples from the various Sokoman Formation Members for whole-rock analysis in order determine levels of elements deleterious to iron beneficiation processes (i.e., silica, amphibole, aluminium, sulphur), and;
- a localized ground gravimetric survey north of the Borel River to determine whether the low-magnetic response of the area is coincident with a high gravity response.

### Phase II

- a 3,500 metre diamond-drilling program, with on-strike centres spaced at approximately 600 m, to support the interpretation of the sub-surface geometry and extent, of the iron-formation, and;
- integration of the drill-hole data into a 3-D Gemcom® model in preparation for a Mineral Resource Estimate prepared in accordance with NI 43-101.

**Table 26-1: Proposed Budget for Recommended Work**

<b>Description</b>	<b>Unit Cost</b>	<b>Units</b>	<b>Time/Unit</b>	<b>Total Cost</b>
<b><i>Phase I - Geological Mapping, Prospecting and Ground geophysics</i></b>				
Helicopter support	\$1,500	\$/hour	120	\$180,000
Helicopter mob/demob	\$1,500	\$/hour	16	\$24,000
Room and Board	\$200	\$/person/day	90	\$18,000
Mob and Demob of Crew Members	\$12,000	\$/person	3	\$36,000
Ground Gravity survey & interp'n	\$4,000	\$/km	15	\$60,000
Head-office Supervision	\$1,200	\$/day	10	\$12,000
Project Geologist	\$1,200	\$/day	30	\$36,000
1 Senior Field Geologist	\$1,000	\$/day	30	\$30,000
1 Junior Field Geologist	\$800	\$/day	30	\$24,000
1 Technician (channelling, sampling)	\$425	\$/day	24	\$10,200
Assays	\$40	\$/sample	400	\$16,000
Satellite Phones (2)	\$1,500	\$/month	2	\$3,000
<b>Sub-Total:</b>				<b>\$449,200</b>
Contingencies	15%			<b>\$67,380</b>
<b>Phase 1 Total:</b>				<b>\$516,580</b>
<b><i>Phase II - Diamond-drilling Programme</i></b>				
Diamond Drilling	\$500	\$/metre	3500	\$1,750,000
Reflex device (deviation tests)	\$2,500	\$/month	2	\$5,000
Core logging facility	\$2,000	\$/month	2	\$4,000
Helicopter support	\$1,500	\$/hour	125	\$187,500
Helicopter mob/demob	\$1,500	\$/hour	16	\$24,000
1 Senior Field Geologist	\$1,000	\$/day	75	\$75,000
1 Junior Field Geologist	\$800	\$/day	30	\$24,000
1 Technician (core splitting)	\$425	\$/day	60	\$25,500
Room and Board	\$200	\$/person/day	200	\$40,000
Mob and Demob of Crew Members	\$12,000	\$/person	4	\$48,000
Satellite Phones (2)	\$1,500	\$/month	2	\$3,000
Assays	\$40	\$/sample	2,400	\$96,000
<b>Sub-Total:</b>				<b>\$2,282,000</b>
Contingencies	15%			<b>\$342,300</b>
<b>Phase 2 Total:</b>				<b>\$2,624,300</b>
<b>Overall Total:</b>				<b>\$3,140,880</b>

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## 27.0 REFERENCES

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**28.0 DATE AND SIGNATURE PAGE**

The undersigned prepared this Technical Report entitled "Technical Report on the Borel River Property, Province of Quebec", with an effective date of August 30<sup>th</sup>, 2012, in support of the public disclosure of technical aspects of the acquisition and exploration of the Borel River Property by Northfield Metals Inc. The format and content of this Technical Report are intended to conform to Form 43 101F1 of National Instrument 43-101 of the Canadian Securities Administrators.

Signed,

A handwritten signature in black ink, appearing to read "Peter Banks", with a long horizontal flourish extending to the right.

Peter Banks, B.Sc., P.Ge  
August 30, 2012

**CERTIFICATE OF QUALIFICATION: PETER BANKS**

I, **Peter Banks, P. Geo.**, of 203 Honeysuckle Drive, Saint John, NB (E2M 7T3) do hereby certify that:

1. This Certificate applies to "*National Instrument 43-101 Technical Report, Boral River property, Quebec, NTS 24-N/05 & 24-N/12*" dated August 30, 2012;
2. I graduated from the University of New Brunswick in 1993 with a B.Sc. in Geology, and I have practised my profession continuously since that time;
3. I am currently self-employed and I am a Professional Geologist currently licensed by the Association of Professional Engineers and Geoscientists of New Brunswick (Licence M7250), and awaiting confirmation of acceptance into the *Ordre des géologues du Québec*;
4. I have worked as a field geologist for 19 years. I have knowledge and experience with regard to a number of mineral deposit types and with the procedures involved in exploring for iron-ore, including and the preparation of reports relating to them. My expertise was acquired with Noranda Exploration Ltd., International Pursuit Corp., Slam Exploration, Rockport Mining Corp., and Champion Minerals Inc;
5. I have read the definition of "qualified person" set out in the National Instrument 43-101 and declare that I fulfil the requirements to be an independent qualified person for the purposes of NI 43-101;
6. I have been retained by Northfields Metals Inc. a body corporate having a registered office at 20 Adelaide Street East Suite 301, Toronto, ON, M5C 2T6, as a contract/consulting geologist, and not as an employee;
7. I have no prior involvement with Northfields Metals Inc., nor with the Property that is the subject of this Report;
8. I have prepared and take responsibility for all sections of this Report and personally visited the site on July 28, 2012;
9. I have no personal knowledge, as of the date of this certificate, of any material fact or change, which is not reflected in this Report;
10. I am "independent" of Northfields Metals Inc. with respect to the conditions defined in Section 1.5 NI 43-101. Namely: that there is no circumstance that, in the opinion of a reasonable person aware of all relevant facts, could interfere with my judgment regarding the preparation of the Report;
11. I have read NI 43-101, Form 43-101F1 and the Report and I have prepared the Report in compliance with them and in conformity with generally accepted Canadian mining industry practice, and;
12. As of the date of the certificate, to the best of my knowledge, information and belief, this Report contains all scientific and technical information that is required to be disclosed to make this Technical Report not misleading.

DATED this 30<sup>th</sup> Day of August, 2012



**(Signed) Peter G. Banks, B.Sc., P. Geo.,**

