

# GM 72061

Ground gravity survey, Schefferville north block property

Documents complémentaires

*Additional Files*



Licence



*License*

Cette première page a été ajoutée  
au document et ne fait pas partie du  
rapport tel que soumis par les auteurs.

Énergie et Ressources  
naturelles

Québec 



# **Tata Steel Minerals Canada LTD**

**Ground Gravity survey**

**Schefferville North Block Property**

**Northwest of Schefferville**

**Québec and Newfoundland & Labrador**

**NTS: 23O/03, 23O/04 and 23O/06**

## **Work Report**

**Project 311.05**

**June 28, 2021**



**Pierre Simoneau, P. geol. MSc  
(OGQ) # 178**



**Simon Tshimbalanga, P. Eng.  
OIQ 37579**

## CONTENTS

1. INTRODUCTION .....	2
2. PROPERTY LOCATION AND ACCESS .....	2
3. CLAIMS .....	6
4. LOCAL GEOLOGY .....	7
5. PREVIOUS WORK .....	8
6. PERSONNEL AND INSTRUMENTATION .....	9
7. GRAVITY SURVEY AND PROCEDURES .....	10
7.1. Reductions of Gravity Data .....	19
7.2. Determination of the Bouguer Gb .....	19
7.3. Presentation of the results .....	20
8. CONCLUSION .....	22

## FIGURE

Figure 1. Location map of the Property, Northwest of Schefferville -Map source: PDF file MTQ.	3
Figure 2. Location map of the survey area and access – (Source: TSMC document).....	3
Figure 3. Location map of the North Block survey area and access – (Source: TSMC) .....	4
Figure 4. Claim map of the North Block survey area.....	6
Figure 5. Survey lines covered, North Block Property.....	13
Figure 5. Bouguer Anomaly Map North Block .....	21
Figure 6. Complete Bouguer Anomaly Map South Block .....	22

## PICTURE

Picture 1. Rocky high ground with almost no trees.....	5
Picture 2. Forest area, rarely bad but sometimes with bad zones of alders near creeks .....	5
Picture 3. Goodwood-camp Gravity base station .....	14
Picture 4. GPS base station, North-Block Property .....	16
Picture 5. GPS base station, North-Block Property .....	16
Picture 6. GPS base station, North-Block Property .....	17
Picture 7. GPS base station, North-Block Property .....	17
Picture 8. Rocky high ground, North-Block Property .....	18
Picture 9. On top of a hill on open ground, moss and rocks.....	18

## ANNEXE:

LIST OF MAPS  
CERTIFICATE of QUALIFICATIONS  
MAPS  
DVD

## 1. INTRODUCTION

At the request of Dr. Arindam Sarkar, Ph.D., geologist for *Tata Steel Minerals Canada Ltd.* (TSMC), a ground gravity survey was carried out on their property, northwest of Schefferville between August 27th and September 24th, 2019. The geophysical survey was carried out by GÉOSIG Inc., a consulting firm in geophysics. The survey covered twenty-one (21) lines located approximately 60 km northwest of Schefferville, Québec. The coordinates and altitude measurements of nine hundred and thirty (930) gravity stations were collected.

The area has a very good potential for iron ore since it has few past and present producing iron mines and significant iron deposits are expected. The purpose of the present survey was to identify the geophysical signature as well as the extension of new potential economic iron ore bodies, named DSO (Direct Shipping Ore). Previous exploration programs in the area included aeromagnetic and gravity airborne surveys as well as ground gravity survey.

This report is a logistics report of all acquisition and processing activities. It presents the results and describes only the ground geophysical survey on the Schefferville North Block Property.

## 2. PROPERTY LOCATION AND ACCESS

The property, northwest of Schefferville (North Block) is located in the Labrador Trough approximately 45 km northwest of Schefferville, Québec, and the survey area extends approximately 60 km northwest of Schefferville. The property overlaps the border between Quebec and Newfoundland-Labrador. The survey lines and grids extend northeast of Lac Gillepsie (Qc) and northwest of Lac Partington (Rivière Koksoak) (Qc). Survey area is within UTM coordinates East 593 350, North 6 116 100 and East 601 900, North 6 126 660, NAD 83 zone 19U and in between NTS 23O/03 23O/04 and 23O/06.

The grids are accessible by driving with a truck to a certain point but mostly with ATVs on very bad gravel roads that access New Millennium Iron Corp. (“**New Millennium**”) and Labrador Iron Mines Limited (“**LIM**”) properties, and by snowmobile in winter. There is no road access to Schefferville from the population centres of Québec or Labrador. There is daily scheduled air service between Schefferville and Québec City, Wabush or Sept-Îles, Montréal and beyond. There is twice-a-week round-trip train service for passengers and freight between Schefferville and Sept-Îles, which also provides service to Labrador West.

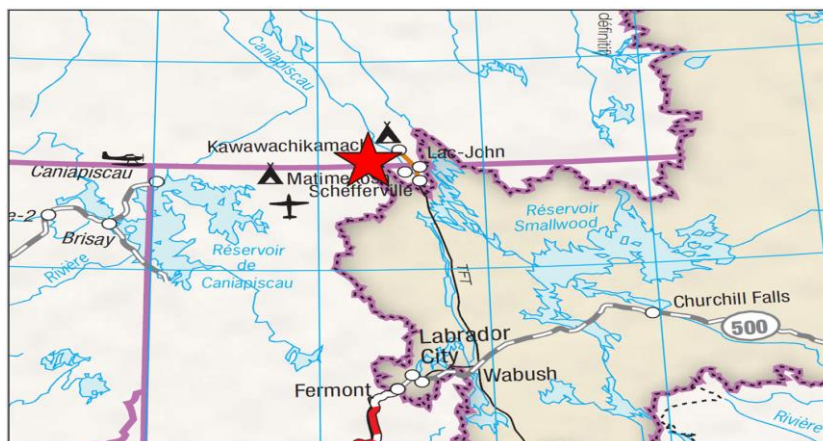


Figure 1. Location map of the Property, Northwest of Schefferville -Map source: PDF file MTQ

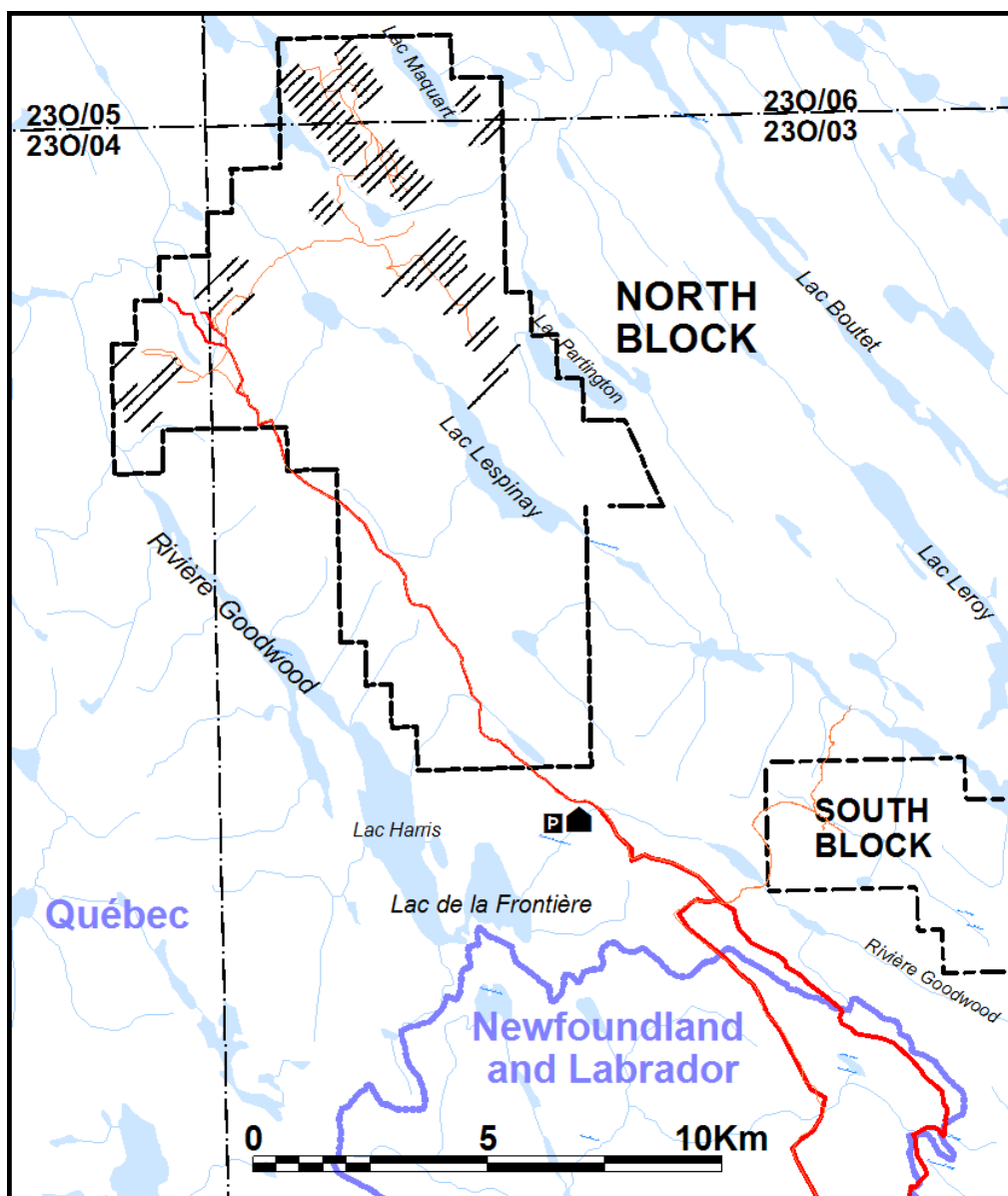


Figure 2. Location map of the survey area and access – (Source: TSMC document)



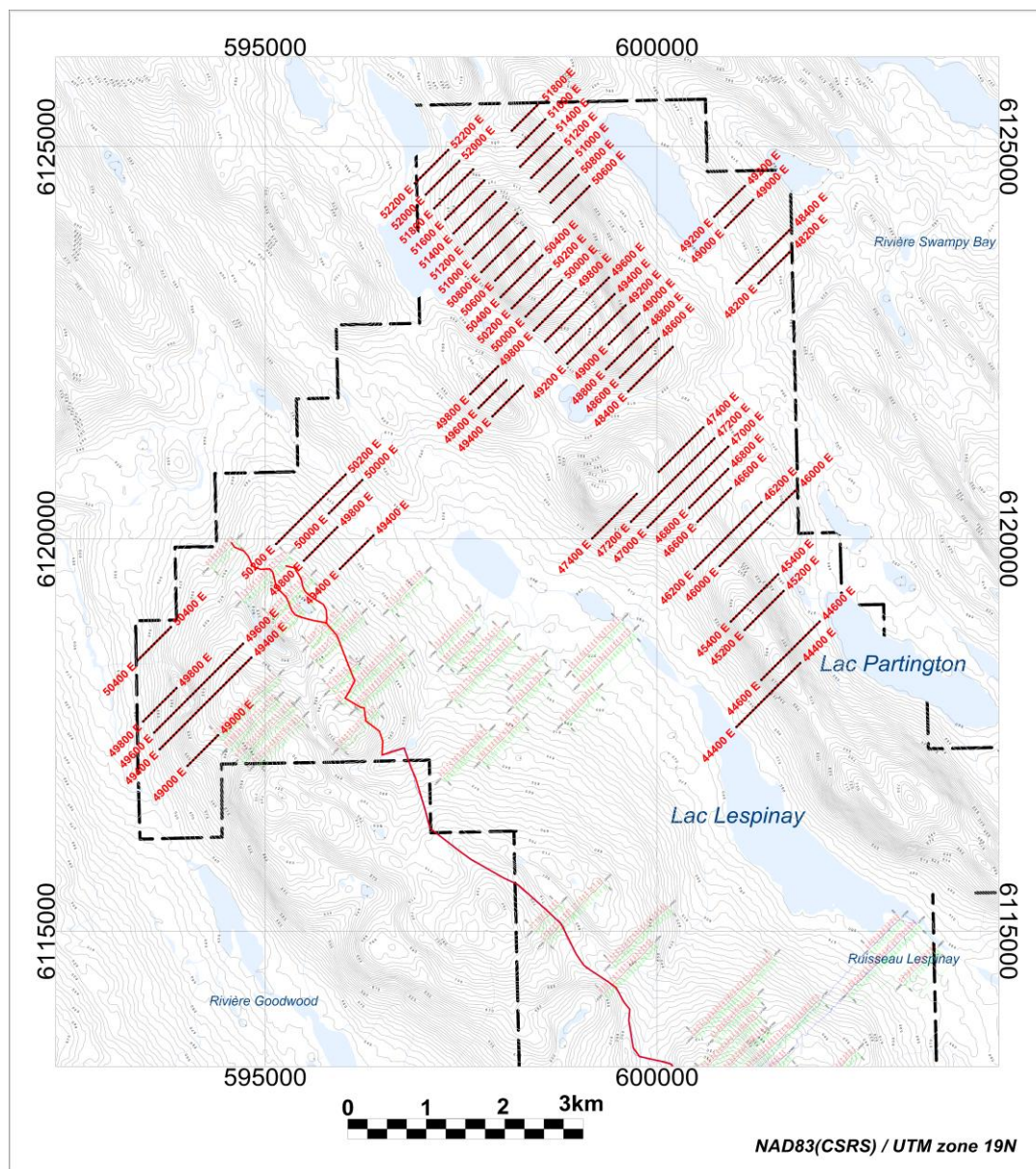


Figure 3. Location map of the North Block survey area and access – (Source: TSMC document)

The property consists of a series of high hills and ridges, which is typical of Schefferville iron formations area. The Schefferville grids are essentially covered in high ground of moss and rocks (picture 1) with a scarce spruce forest in low land (picture 2).





**Picture 1. Rocky high ground with almost no trees.**



**Picture 2. Forest area, rarely bad but sometimes with bad zones of alders near creeks.**

### 3. CLAIMS

Tata Steel Minerals Canada Ltd. is the owner of the property that is larger than the surveyed area. The geophysical survey covered the 55 claims listed below:

#### North Block (55 claims)

2092022	2179945	2253012	2253033	2253048
2092023	2179958	2253013	2253034	2253049
2092094	2179959	2253014	2253035	2253050
2092098	2179960	2253015	2253036	2253053
2092099	2179962	2253020	2253040	2253054
2092100	2179968	2253021	2253041	2254266
2092102	2179970	2253024	2253042	2254267
2092103	2179971	2253025	2253043	2254269
2092104	2179972	2253026	2253044	2254270
2092110	2253005	2253031	2253046	2254271
2179944	2253011	2253032	2253047	2254272

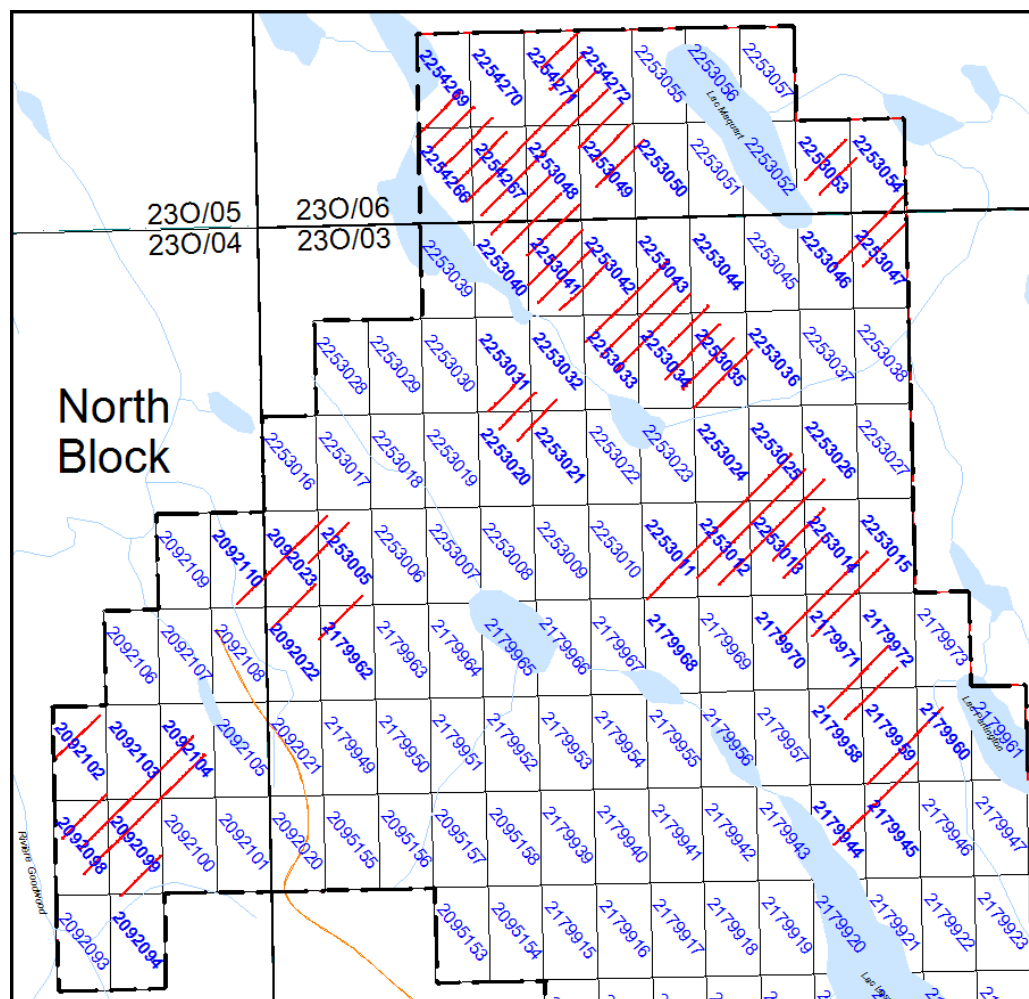


Figure 4. Claim map of the North Block survey area



#### 4. LOCAL GEOLOGY

The property is located in the Knob Lake area that is in the western margin of the Labrador Trough in the Churchill Province adjacent to Archean basement gneisses. The Labrador Trough extends for more than 1,100 km along the eastern margin of the Superior Craton from Ungava Bay to Lake Pletipi, Quebec. The western half of the Labrador Trough consisting of a thick sedimentary sequence can be divided into three sections based on changes in lithology and metamorphism (North, Central and South).

The trough comprises a sequence of Proterozoic sedimentary rocks, including iron formation, volcanic rocks and mafic intrusions. The southern part of the trough is crossed by the Grenville Front. Trough rocks in the Grenville Province are highly metamorphosed and complexly folded. The high-grade metamorphism of the Grenville Province is responsible for re-crystallization of both iron oxides and silica in primary iron formation, producing coarse-grained sugary quartz, magnetite, and specular hematite schists (metataconites) like in the Lac Jeannine, Fire Lake, Mont-Wright, Mont-Reed, and Bloom Lake in the Manicouagan-Fermont area and the Luce, Humphrey and Scully deposits in the Wabush-Labrador City area.

The Central part or Knob Lake Range section comprises the Sokoman Formation, the principal iron formation, part of the Knob Lake Group. It is located north of the Grenville Front where the Trough rocks have subject to subgreenschist to greenschist grade metamorphism. The Sokoman Formation forms a continuous stratigraphic unit that thickens and thins from sub-basins to sub-basins throughout the fold belt. The surveyed area is mostly occupied by sedimentary units and Superior-type Iron Formations. Hematite-magnetite iron oxide ore deposits occur in deformed segments of iron formation, and the ore content of single deposits varies from one million to more than 50 million tonnes.

The property is located between 25 and 65 km northwest of Schefferville, Quebec, the hub of a major DSO iron-ore mining camp that produced 150 million tonnes of DSO with an average grade of approximately 55% iron from 1954 to 1983. The search is for more concentrated layers called DSO (Direct Shipment Ore). It is a placer or sedimentary concentrated layer of iron ore that can be over 70% of Iron and concentrated enough for direct shipping without any other treatment. It is heavier than the surrounding rocks containing around 30% of Iron which is why a gravity survey is conducted. A substantial deposit of magnetite/hematite taconite exists on the Tata-Cap-Ex joint Venture Property.

Two zones of mineralization have been defined on the Property and both are located in the northern part of the Property. Drilling has only been done on the northern part of the Property. The two zones of mineralization are the Greenbush Zone located near Greenbush Lake and the Northwest Zone named such because of its location along the northwest margin of the Property.

The Greenbush Zone is defined as a portion of the Sokoman sequence in the north part of the Property, adjacent to Greenbush Lake. As currently defined, the Greenbush Zone is approximately 10 km long NW-SE and 5 km wide SW-NE. The Sokoman and associated

formations show a similar stratigraphic pattern as seen to the west and described, with some local variations, in Klein and Fink (1976), but multiple thrust faults (more than 12 have been interpreted by Cap-Ex within the drilled volume) have stacked Sokoman members to build a volume in excess of 500 vertical metres, compared with the normal ~125 m thickness of the Sokoman Formation.

## 5. PREVIOUS WORK

- 1930s Labrador Mining and Exploration company Limited (“**LM&E**”) acquired large mineral concessions to explore for base and precious metals (Neal, 2001).
- 1945 Hollinger Gold Mines bought control of LM&E and formed Hollinger North Shore Exploration Company Limited (“**Hollinger**”). M.A. Hanna Company of Cleveland joined Hollinger and Hanna was joined by other steel companies forming the Iron Ore Company of Canada (“**IOCC**”).
- 1950 The Property area was mapped initially by Perrault in 1950 for IOCC and additional work was done by LM&E. A geological mapping program that covered parts of the present claim block and identified the various lithologies present.
- 1954 The mining and shipping of iron ore in the Schefferville area commenced in 1954 under the management of the IOCC.
- 1970s - Early 1980s, IOCC and Labrador Mining and Exploration (“**LM&E**”) conducted airborne geophysical surveys covering portions of the property.
- 1978 IOCC completed a ground magnetic and geological survey on the property area.
- 1980 LM&E and IOCC, completed a helicopter magnetic, electromagnetic and radiometric survey over a portion of the property.
- 1977 – 1981 The area has also been the subject of several research papers by Klein and Fink in 1976 and 1977. Wardle (1981) recompiled the geology of the area using a number of sources including IOCC and LM&E. Wardle’s work resulted in Map 85-2: “*Geology of the South-Central Labrador Trough*” and Report 79-1 “*Geology of the Westernmost part of the Labrador Trough*”.
- 1982 The exploration and mining of the Direct Shipping Ore (“**DSO**”) deposits at Schefferville ceased in 1982 after production of approximately 250 million tons of ore. IOCC’s focus was the DSO deposits but some exploration of taconite mineralization in the Howells River area was also undertaken. After the cessation of production, the mineral concessions reverted to the crown. In recent years with the increase in demand for iron and steel worldwide, iron ore prices have increased and exploration and development activity in the Schefferville area has also been steadily on the rise.

- 2008 Bedford acquired license 014603M to cover an airborne magnetic anomaly. Subsequently, the property was optioned to Adriana and became known as the Bedford Iron Prospect.
- 2008 Adriana map staked a total of 82 additional claims in two licenses, 014855M and 014856M, contiguous with the original Bedford property. It subsequently contracted MPX Geophysics Ltd. (“**MPX Geophysics**”) to conduct an airborne geophysical survey of the property. The airborne survey identified a number of linear magnetic trends that correspond to previously mapped magnetite iron formation.
- 2010 - 2011 the property was offered to Cap-Ex. Cap-Ex contracted Paterson, Grant and Watson Ltd. (“**PGW**”) to review MPX’s survey results. PGW completed a reprocessing of the survey data. PGW’s report, dated February 19, 2011, was titled: “*Interpretation of Airborne Magnetic Data for Iron Ore Deposits, Bedford 103 Block, Northwest Labrador*”. In January 2011, Cap-Ex entered into an agreement to acquire the property from Mandu, Bedford and 743589 Ontario Inc.
- 2012 Reconnaissance geological mapping in 2011 and 2012 on scattered outcrops (the northwestern part of the Property and the area west of Howell’s River has very few outcrops), diamond drilling and airborne geophysical surveys. Diamond drilling provided the densest data and allowed the use of the Fink stratigraphic column in some detail. All of the 2011 and 2012 drilling was done in the north part of the Property.

## 6. PERSONNEL AND INSTRUMENTATION

The positional and levelling survey were carried out with RTKDGPS by André Côté and Mike Tremblay, technicians. The gravity survey was carried out by Brian Hall, technicians, and Pierre Simoneau, geologist-geophysicist. Simon Tshimbalanga, P. Eng. was responsible for daily data processing. Pierre Simoneau and Simon Tshimbalanga wrote the final report. The following instruments were used for the gravity survey:

### Gravity meters

- Scintrex CG-5 AutoGravity meter                      s/n 130141033
- Scintrex CG-5 AutoGravity meter                      s/n 41476

### RTDGPS

RECEIVER	BRAND	MODEL
GPS-RTK	Trimble	R10 GNSS S/N 5833F00174
GPS-RTK	Trimble	R10 GNSS S/N 5833F00558
GPS-RTK	Trimble	R10 GNSS



		S/N 50909F00348
Controller TSC3	Trimble	S/N RS2NC55705
Controller TSC3	Trimble	S/N RS4WC85847
Radio	TDL450 35W	S/N 5849504675

## 7. GRAVITY SURVEY AND PROCEDURES

When the wind was too strong, the lines in the valley were done. When the weather was calm, the lines on the hills were done. As mentioned, the ground gravity survey was carried out on twenty-one (21) lines oriented northeast-southwest and often discontinuous.

Coordinates of the 2019 exploration gravity survey (UTM NAD83 Zone 19)

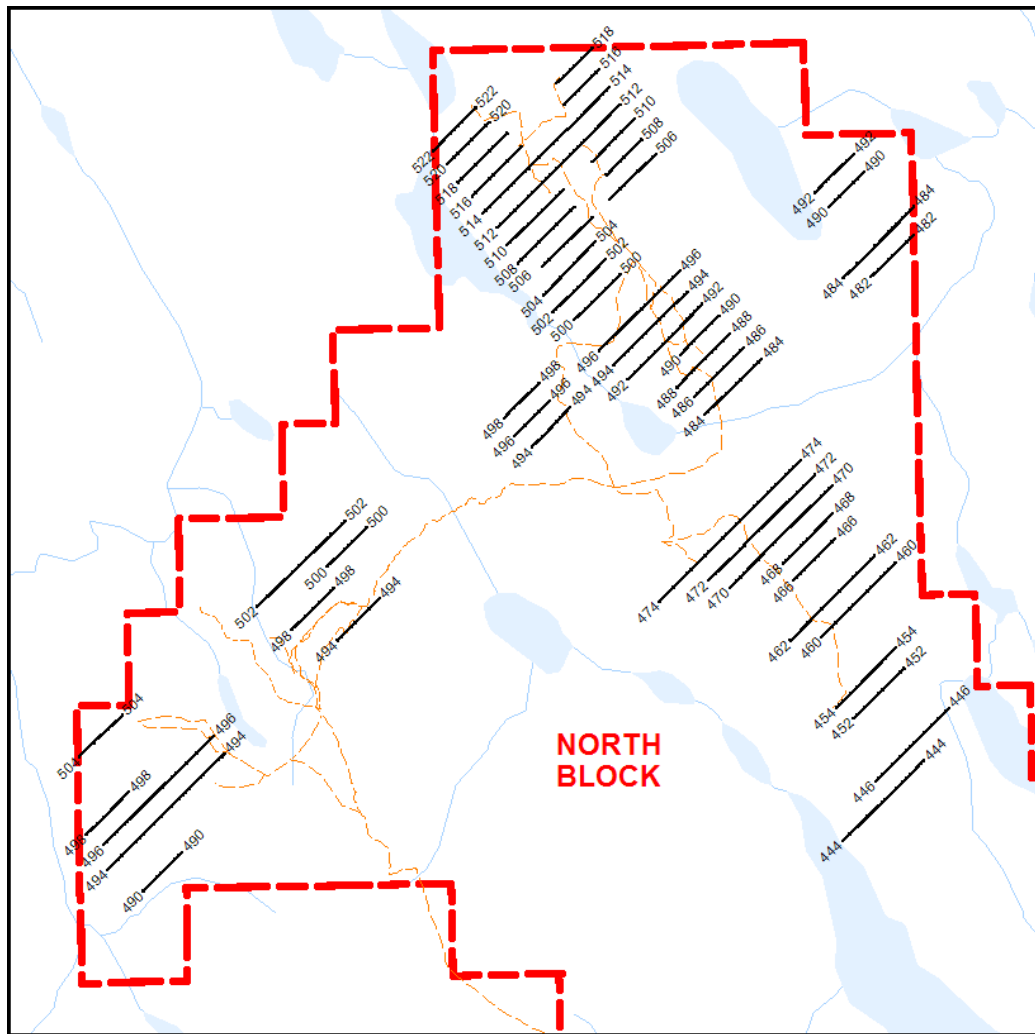
EAST From / to	NORTH From / to	STATION From / to	LINE Ligne	LENGTH (m)
601010.88	6117601.964	10050	44400	
601824.05	6118415.137	11200	44400	1150
601329.08	6118203.005	10700	44600	
602071.54	6118945.467	11750	44600	1050
601116.95	6118839.401	11000	45200	
601611.92	6119334.376	11700	45200	700
600940.17	6118945.467	10950	45400	
601541.21	6119546.508	11800	45400	850
600798.75	6119652.574	11350	46000	
601788.7	6120642.523	12750	46000	1400
600480.55	6119617.219	11100	46200	
601329.08	6120465.747	12300	46200	1200
600515.91	6120218.259	11550	46600	
600940.17	6120642.523	12150	46600	600
600409.84	6120395.036	11600	46800	
600904.82	6120890.011	12300	46800	700
599879.51	6120147.549	11050	47000	
600904.82	6121172.853	12500	47000	1450
599667.38	6120218.259	10950	47200	
600728.04	6121278.919	12450	47200	1500
599172.4	6120006.127	10450	47400	
600586.62	6121420.341	12450	47400	2000
601293.72	6123258.818	14250	48200	
601717.99	6123683.083	14850	48200	600
599632.02	6121879.960	12100	48400	
600197.71	6122445.646	12900	48400	800
601010.88	6123258.818	14050	48400	

601717.99	6123965.925	15050	48400	1000
599525.96	6122056.737	12150	48600	
600020.93	6122551.712	12850	48600	700
599349.18	6122162.803	12100	48800	
599879.51	6122693.133	12850	48800	750
594010.52	6117106.989	4750	49000	
594399.43	6117495.898	5300	49000	550
599384.54	6122481.001	12350	49000	
599773.45	6122869.910	12900	49000	550
600869.46	6123965.925	14450	49000	
601223.01	6124319.479	14950	49000	500
598854.21	6122233.514	11800	49200	
599596.67	6122975.976	12850	49200	1050
600728.04	6124107.347	14450	49200	
601116.95	6124496.255	15000	49200	550
593656.97	6117319.122	4650	49400	
594823.7	6118485.848	6300	49400	1650
595955.07	6119617.219	7900	49400	
596379.33	6120041.483	8500	49400	600
597899.61	6121561.762	10650	49400	
598288.52	6121950.671	11200	49400	550
598712.79	6122374.935	11800	49400	
599455.25	6123117.397	12850	49400	1050
593586.26	6117531.254	4750	49600	
594717.63	6118662.624	6350	49600	1600
597722.84	6121667.828	10600	49600	
598076.39	6122021.382	11100	49600	500
598571.36	6122516.356	11800	49600	
599384.54	6123329.529	12950	49600	1150
593444.84	6117672.675	4750	49800	
593869.1	6118096.939	5350	49800	600
595495.45	6119723.285	7650	49800	
595919.71	6120147.549	8250	49800	600
597616.77	6121844.605	10650	49800	
597970.32	6122198.158	11150	49800	500
598429.94	6122657.778	11800	49800	
598960.27	6123188.108	12550	49800	750
595813.65	6120324.325	8300	50000	
596237.91	6120748.589	8900	50000	600
598323.88	6122834.554	11850	50000	
598783.5	6123294.174	12500	50000	650
595141.9	6119935.417	7550	50200	
596025.78	6120819.300	8800	50200	1250
598147.1	6122940.620	11800	50200	

598642.07	6123435.595	12500	50200	700
593374.13	6118450.492	5250	50400	
593798.39	6118874.756	5850	50400	600
598005.68	6123082.042	11800	50400	
598536.01	6123612.372	12550	50400	750
597934.97	6123294.174	11900	50600	
598429.94	6123789.149	12600	50600	700
598677.43	6124036.636	12950	50600	
599137.05	6124496.255	13600	50600	650
597758.19	6123400.240	11850	50800	
598323.88	6123965.925	12650	50800	800
598642.07	6124284.123	13100	50800	
598995.63	6124637.677	13600	50800	500
597652.12	6123577.017	11900	51000	
598217.81	6124142.702	12700	51000	800
598500.65	6124425.545	13100	51000	
598924.92	6124849.809	13700	51000	600
597546.06	6123753.793	11950	51200	
598076.39	6124284.123	12700	51200	750
598394.59	6124602.321	13150	51200	
598783.5	6124991.230	13700	51200	550
597404.64	6123895.214	11950	51400	
597934.97	6124425.545	12700	51400	750
598253.17	6124743.743	13150	51400	
598677.43	6125168.007	13750	51400	600
597298.57	6124071.991	12000	51600	
597793.55	6124566.966	12700	51600	700
598217.81	6124991.230	13300	51600	
598571.36	6125344.783	13800	51600	500
597157.15	6124213.412	12000	51800	
597652.13	6124708.387	12700	51800	700
598147.1	6125203.362	13400	51800	
598500.65	6125556.915	13900	51800	500
597051.08	6124390.189	12050	52000	
597475.35	6124814.453	12650	52000	600
596909.66	6124531.610	12050	52200	
597333.93	6124955.874	12650	52200	600
TOTAL				44050

The exploration survey covered 21 uncut lines, totalling approximately 930 stations, with length varying from 500 to 2000 m, and stations every 50 metres. Lines were chosen as exploration lines across the different deposits.





**Figure 5.** Survey lines covered, Block North Property

The gravity surveying and concurrent collection of high-resolution RTKDGPS positional data were carried out along uncut lines with gravity stations and positional data collected at a 50-metre interval. Twenty-one (21) lines were covered. The lines were selected over airborne survey anomalies where possible gravimetric anomalies could occur and be caused by concentrated iron ores.

Nine hundred and thirty (930) gravity stations were surveyed on the property, northwest of Schefferville (North Block). All gravity stations measurements were linked up to two (2) gravity base stations. One was established near the camp at approximately 50 km northwest of Schefferville and the second was established years ago in front of a house in Schefferville. The Goodwood-camp gravity base station was linked up with the base station in Schefferville which was linked up some years ago with the federal government base station canvas at the airport. Take note that the gravity base station at the airport was destroyed when they did renovations around 2 years ago.

#### IDENTIFICATION OF STATION (IGSN71)

**NUMÉRO:** 9160-1968

**NOM:** SCHEFFERVILLE  
**DESCRIPTION:** AIRPORT TERMINAL, ENTRANCE STAIRS  
**PROVINCE:** QUE

**STATION COORDINATES (GENERIC)**

**LATITUDE:** N 54° 48' 7"  $\pm$  20.0 m  
**LONGITUDE:** O 66° 48' 31"  $\pm$  20.0 m  
**ÉLÉVATION:** 520.9000  $\pm$  1.00 m  
**PESANTEUR (GRAVITÉ):** 981316.7700  $\pm$  .0000 mGals  
**DERNIÈRE INSPECTION:** 09/2001

Schefferville Project Gravity base station: UTM NAD 83, 19 North.

Located in front of 115 Labrador Street:

North: 6 074 877.746 m

East: 640 017.423 m

Elevation: 516.631 m

Absolute gravity: 981316.048

Second Schefferville Project Goodwood-camp Gravity base station: UTM NAD 83, 19 North, located near the camp at approximately 50 km northwest of Schefferville :

North: 6 109 140.05 m

East: 603 452.908 m

Elevation: 630.795 m

Absolute gravity: 981313.8393



**Picture 3.** Goodwood-camp Gravity base station

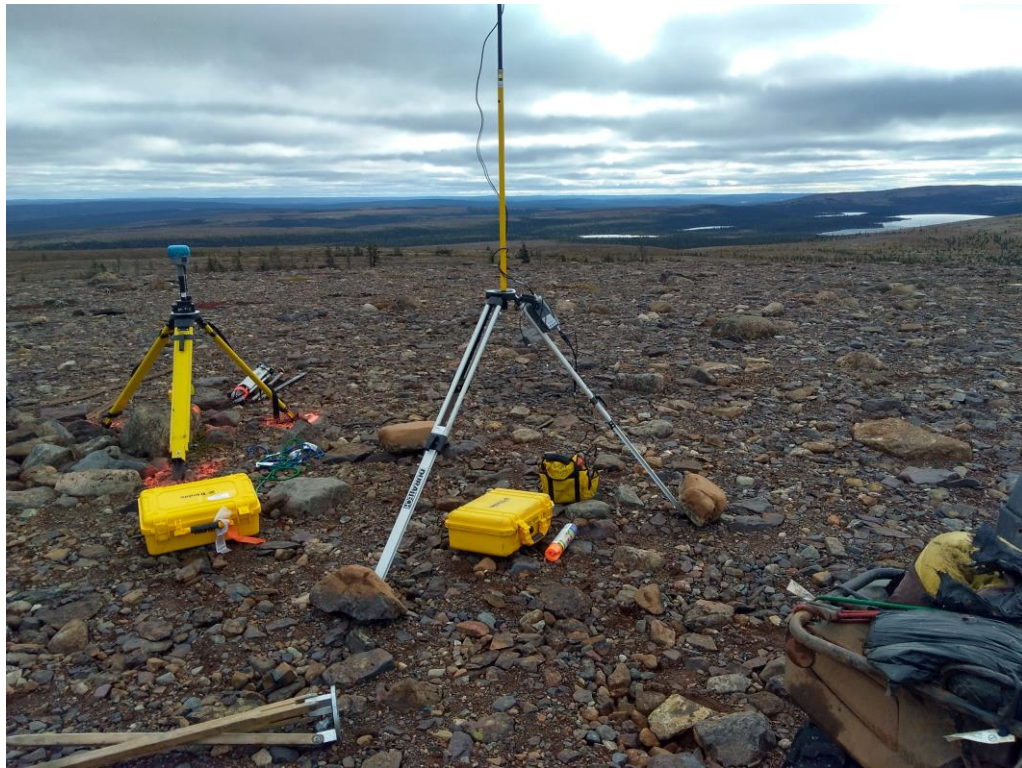
The altitude and coordinates of the GPS base station were obtained by the NRCan's PPP (Precise Point Positioning), the free online post-processing service that allows GPS users in Canada to compute better-accuracy positions from their GPS raw observation data. The procedure was to collect at least two successive 6-hours of static raw GPS data at 30-second data rate.

For this property, four (4) GPS base stations were established on the site with the PPP system since the topography was too hilly and some lines are a very long distance apart. Most of the time high hills were used in order to cover large areas. Following are the coordinates of the GPS base stations: PPP- Property, northwest of Schefferville (North Block) GPS Station: UTM NAD83-SCRS, 19 North.

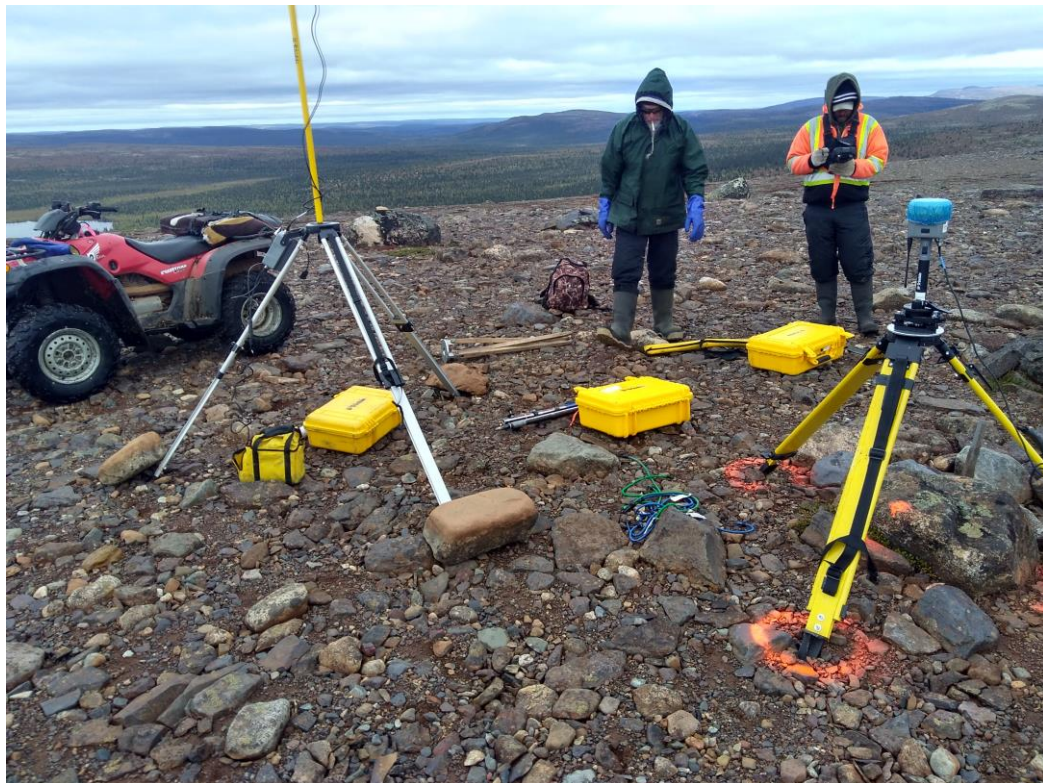
**PPP- Property, northwest of Schefferville (North Block) GPS base stations:  
UTM NAD83-SCRS, 19 North**

NAD 83-SCRS	Orthometric Height CGVD2013 (HTv2.0) UTM Zone 19					
		Geographic	Coordinates	UTM	Coordinates	
GPS BASE NO.	BLOCK	Latitude (+n)	Longitude (+e)	North	East	Elevation
Goodwood-1	North	55 11 56.09	067 29 27.97	6117965.265	596040.004	703.147
Goodwood-2	North	55 13 19.06	067 26 24.03	6120601.146	599234.543	739.479
Goodwood-3	North	55 14 52.78	067 26 37.39	6123492.495	598933.837	740.559
Goodwood-4	North	55 14 58.02	067 24 37.27	6123702.598	601050.957	589.136



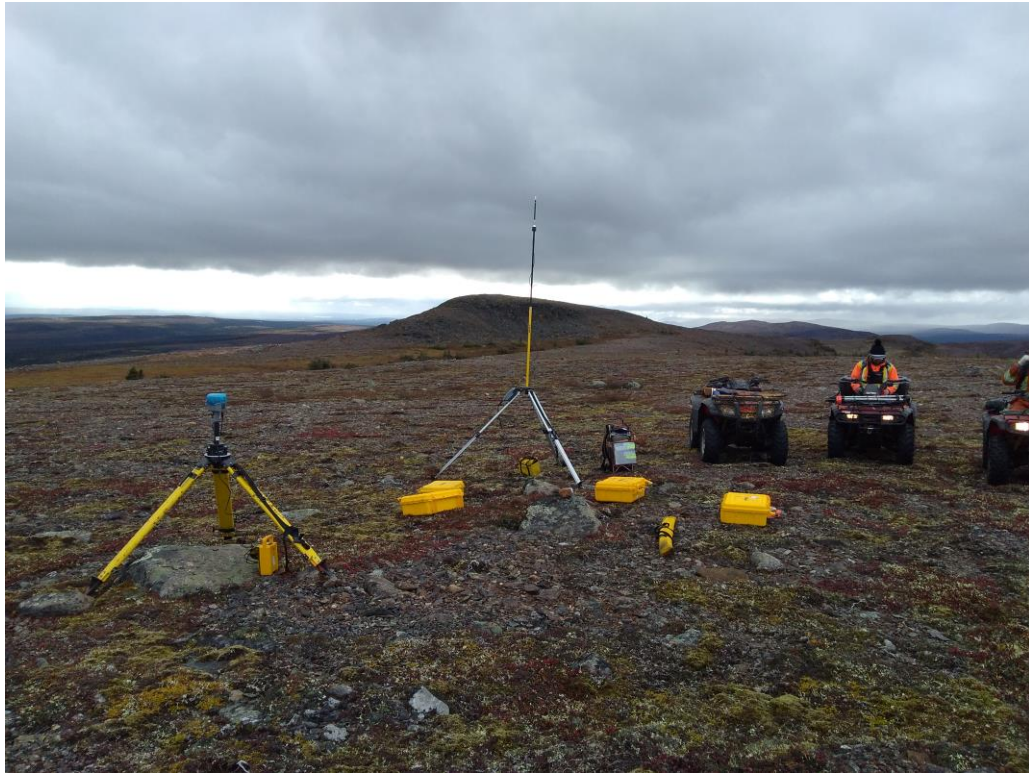


**Picture 4. GPS base station, North-Block Property**

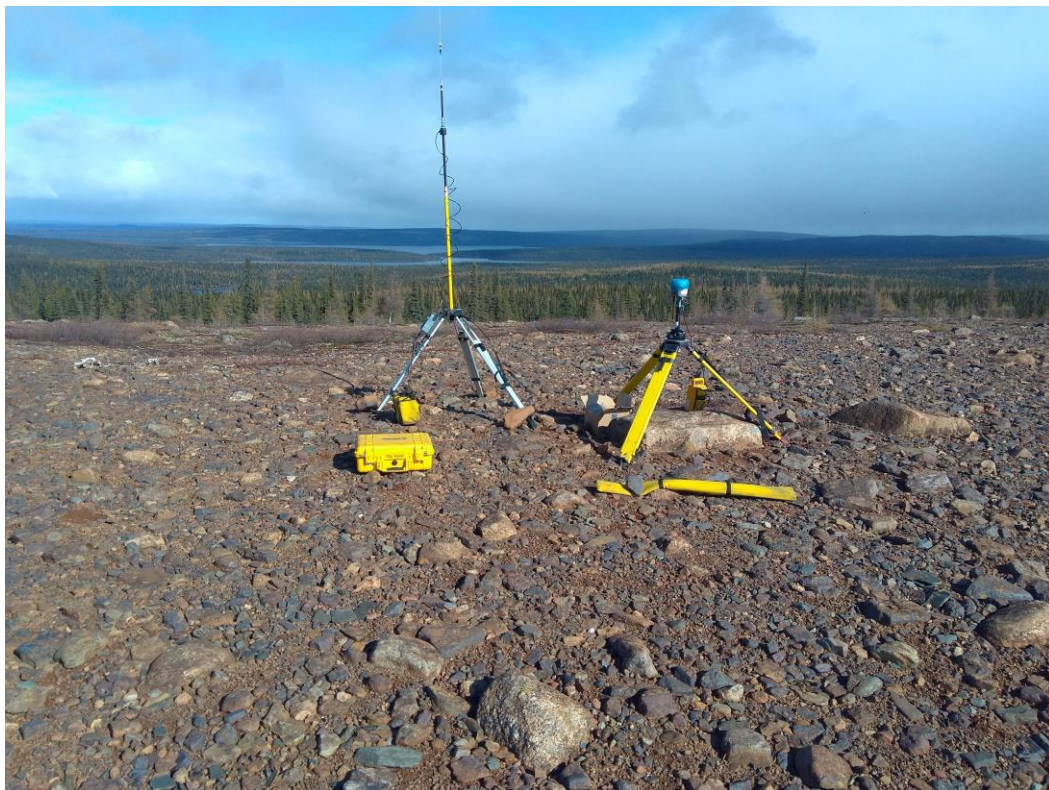


**Picture 5. GPS base station, North-Block Property**



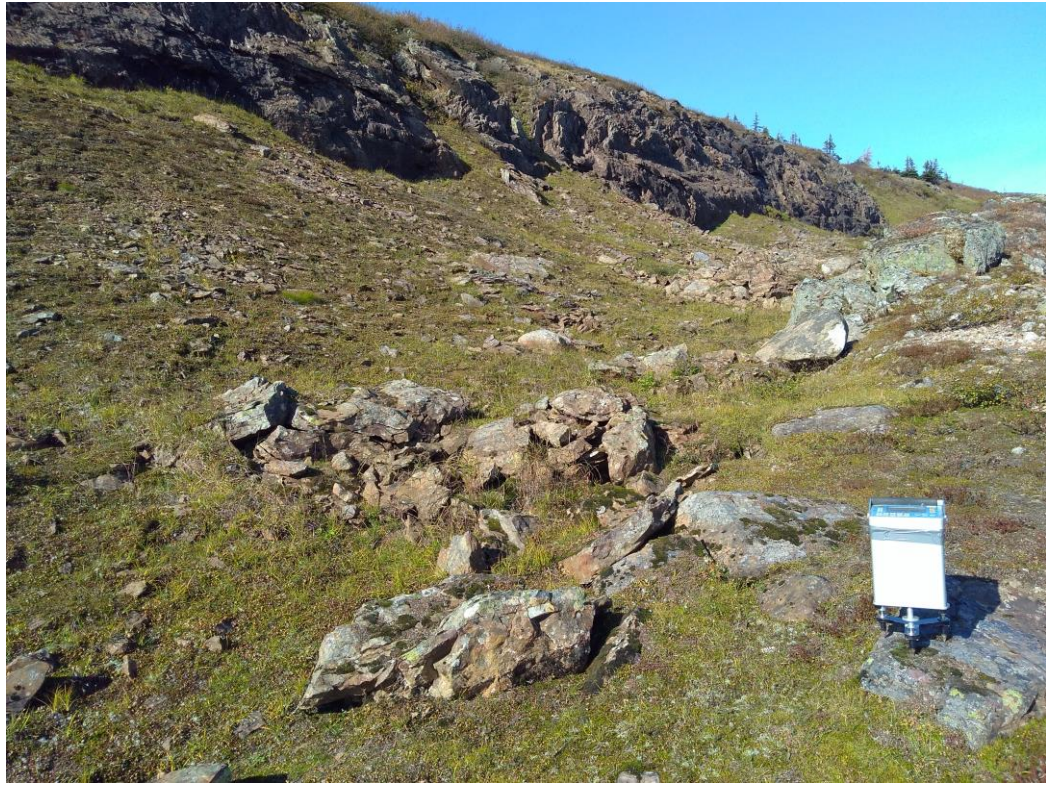


**Picture 6. GPS base station, North-Block Property**



**Picture 7. GPS base station, North-Block Property**





**Picture 8. Rocky high ground, North-Block Property**



**Picture 9. On top of a hill on open ground, moss and rocks.**

## 7.1. Reductions of Gravity Data

The following corrections were applied to the gravity data. All corrections were processed through PcGrav.

- Free-Air Correction

$$C_{\text{free air}} = 0.3086 \text{ Dh}$$

Where Dh corresponds to the difference of elevation between the station and the base station.

- Bouguer Correction

This correction takes into account the density of the material, present or absent, between the station and the base station. A density of 2.67 g/cc was used for this survey.

$$C_{\text{Bouguer}} = 0.04191 \text{ Dh}$$

where Dh is the elevation difference between the station and the base station.

- Earth Tides Corrections

The software in the CG-5 AutoGravity meter did automatically calculate and applied the earth-tide corrections to the gravity measurements.

- Ice, Water and Snow Corrections

These corrections were not applied. They allow the reduction of the effect of the density of ice, water and snow on the gravity measurements.

- Terrain Corrections

The terrain correction was applied. This correction is usually applied to compensate for the shortage due to downward as well as upward pulls created by valleys hills and mountains in the vicinity of gravity stations. The principle here is that as the surface of the Earth has very irregular topography, this correction aims to replace the gravimetric reading at which it would be if the Earth's topography was flat level. The principle is to fill depressions and eliminate hills. The elevation values for the ground correction were taken from a digital topographic map. These values were obtained over a radius of two kilometres with a denser sampling and on a radius of 20 km with a less tight sampling. For areas closest to gravimetric stations, angles in zone B and C of the terrain correction zone chart designed by Hammer were measured at 5 metres and 25 metres distances. The terrain correction values calculated with Hammer's chart and table were applied.

## 7.2. Determination of the Bouguer Gb

Data was processed using the Pcgrav software.

Gravimetric determination was calculated according to the following steps:

$$G_b = (L-L_1)K - D(T-T_1) + (CM-CM_1) + (H-H_1) * 0,3086 - (H-h)-(H_1-h_1) * 0,04191 * d+G$$

where  $G_b$  = Bouguer gravity (milligals)

$$D = ((L_1-L_2) * K + CM_1 - CM_2) / (T_2-T_1) \text{ instrumental drift (milligals/hr);}$$



L = Gravity station reading (milligals);  
 L1 = First reading on the gravimeter at the base station;  
 L2 = Second reading on the gravimeter at the base station;  
 K = Gravimetric constant (milligals/unit), CG-5 (0.999999);  
 T = Time of station reading;  
 T1 = Time of the first reading on the gravimeter at the base station;  
 T2 = Time of the second reading on the gravimeter at the base station;  
 CM = Earth tides correction at the time of the reading (milligals);  
 CM1 = Earth tides correction at the time of the base station's first reading (milligals);  
 CM2 = Earth tides correction at the time of the base station's second reading (milligals);  
 H = Instrument elevation at the considered station (metres);  
 H1 = Instrument elevation at the base station (metres);  
 h = Instrument elevation above the ground at the considered station (metres);  
 h1 = Instrument elevation above the ground at the base station (metres);  
 d = Estimated density for sector 2.67 g/cc;  
 G = Gb value for the airport base station;

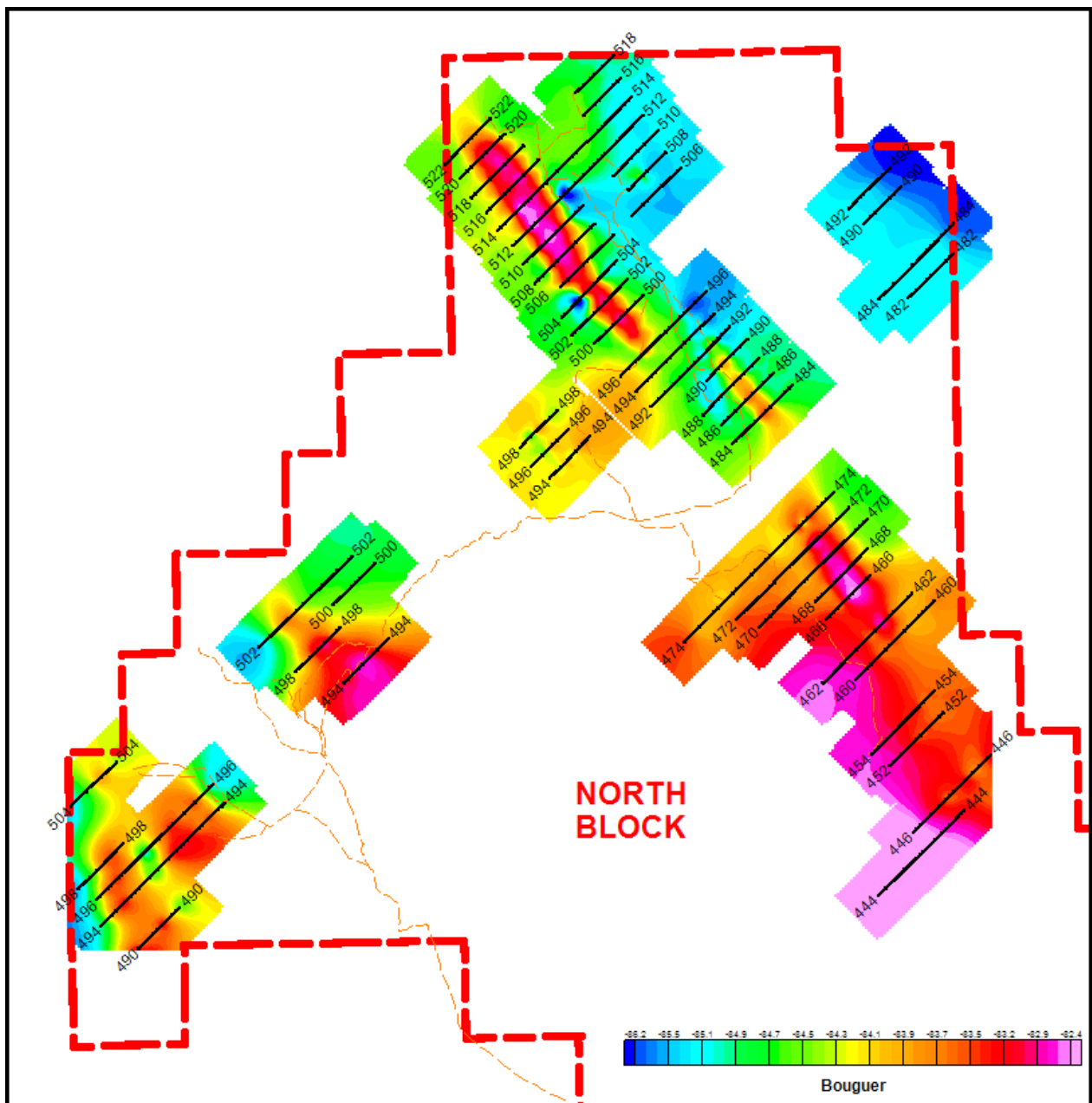
The absolute gravity at the two gravity base stations are given at the end of paragraph 7.

The formulas above were used to correct instrumental drift, earth tides, elevation differences, free air and latitude.

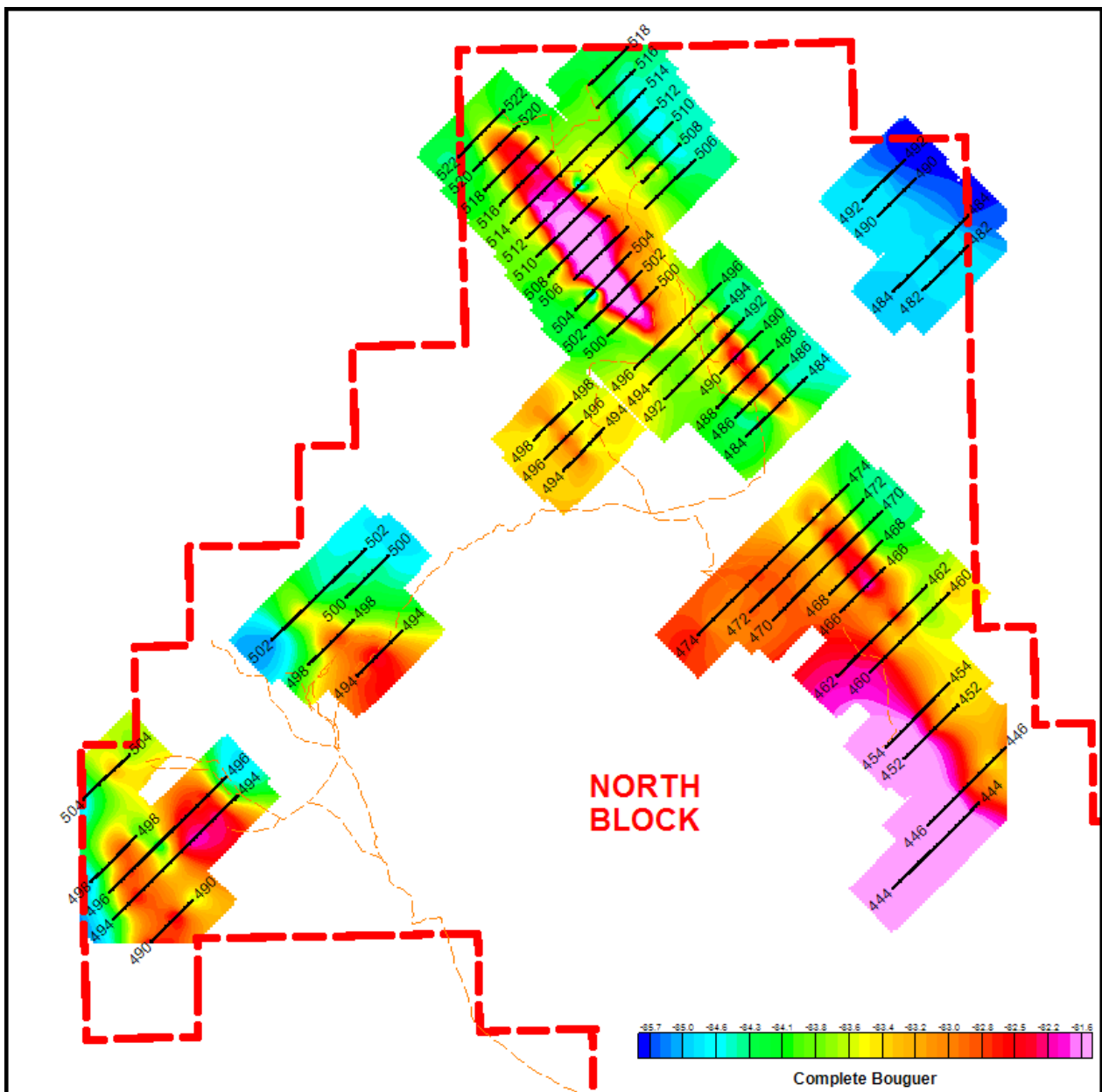
### 7.3. Presentation of the results

Results are presented at a 1:20 000 scale on three (3) sets of maps: one set of maps (#10164) represents the profiles and posting of the Bouguer Anomaly as well as the profiles of the topography. The vertical scale for the Bouguer Anomaly is 4 mGals/cm and the vertical scale for the topography is 80 m/cm. The second set of maps (#10165) represents the contours in milligals of the Bouguer Anomaly on a colour background. The third set of maps (#10166) represents the contours in milligals of the Complete Bouguer Anomaly on a colour background.

Results are also presented as daily instrument dump files, from GPS and gravity meter, edited for mistypes and errors. These files present both, the data in their raw state with no processing and the corrected data. Digital data are also provided on CD.



**Figure 6.** Bouguer Anomaly Map North Block



**Figure 73.** Complete Bouguer Anomaly Map North Block

## 8. CONCLUSION

The gravity survey carried out at TSMC's North Block Property, northwest of Schefferville was very successful since it led to the detection of good gravity anomalies that suggest the presence of buried masses of iron with densities exceeding 2.67 g/cc. The ground gravity survey has confirmed almost all the selected airborne gravity anomalies expected from large tonnage iron deposits. Gravity anomalies on the ground gravity survey are much stronger and more obvious, leaving no doubt about their existence. They are scattered throughout the property and could lead to the detection of good targets of iron ore deposits.

The gravity survey carried out on the Property, northwest of Schefferville on Block North was very successful since there was no specific difficulty or major obstacle impeding Géosig Inc. to take accurate measurements with the exception of a few very windy days.

Several gravity anomalies show a possibility of extension at least on one side. Therefore, it is strongly recommended to extend the ground gravity survey over the property northwest of Schefferville to determine whether these anomalies have an extension over the limits of survey lines.

Geological verification in the field and stripping and drilling are highly recommended.



## **LIST OF MAPS**

**Scale: 1: 20 000**

<b>Map #</b>	<b>Title</b>
10164	North Block MAP Bouguer Anomaly Profiles and Posting
10165	North Block MAP Bouguer Anomaly Contours
10166	North Block MAP Complete Bouguer Anomaly Contours

## **CERTIFICATE of QUALIFICATIONS**

I, Pierre Simoneau of 571 chemin de Ste-Béatrix, Ste-Béatrix, Qc. J0K 1Y0, hereby certify:

1. I am a graduate of University of Quebec at Chicoutimi (1987) with a Master degree in Earth Sciences M.Sc.
2. I have been employed as an exploration geologist and geophysicist on a full-time basis since 1987, prior to that as a geological assistant for four field seasons.
3. I am presently employed as a project geophysicist and geologist with GÉOSIG Inc. of 860 Chaudiere Blvd., Quebec, Quebec.
4. I own no direct, indirect or expect to receive any contingent interests in the subject property or shares or securities Tata Steel Minerals Canada.
5. The information contained in this report was obtained from geophysical survey conducted on Property, southwest of Schefferville carried out by Géosig Inc. and information obtained from the Assessment files.
6. I am a member of the Order of Geologists of Québec (OGQ) # 178, a member of the (AEMQ) Association de l'Exploration Minière du Québec, a member of the Association of professional Geoscientists of Ontario (APGO #1785), a member of the (NWOPA) Northwestern Ontario Prospector Association and a member of the CIM.
7. I have disclosed in this report all relevant material which, to the best of my knowledge, might have a bearing on the viability of the project and the recommendations presented.
8. I consent to the use of this report by Tata Steel Minerals Canada for any Filing Statement, Statement of Material Facts, Prospectus, filing of assessment work of for any other reason deemed necessary by the company.



(electronic signature)

Pierre Simoneau, M.Sc. Geol.  
Géosig Inc.

Dated at Quebec. Quebec, this 28th day of June, 2021