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**REPORT ON THE**

**DRURY PROPERTY, SUDBURY**

**SUDBURY MINING DISTRICT, ONTARIO, CANADA**

**NTS45/05, 06**  
**NAD83 UTM Zone 17N 5142000mN 458000mE**

**FOR SOUTH SHORE PARTNERSHIP INC.**

**Dean MacEachern, P.Geo**  
**Kima Geological Services Limited**  
**January 24, 2023**

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Technical Report - High-Resolution Heliborne Magnetic Survey  
SW Sudbury Property, Sudbury Area  
Sudbury Mining Division, Ontario, 2022  
Prospectair Geosurveys, Dynamic Discovery Geoscience

## Summary

The Drury property is located in a zone where the North and South Ranges of the Sudbury structure meet, approximately 3 km southwest of the Sudbury Igneous Complex (“SIC”) basal contact, and 25 km west of the city of Sudbury (Figure 1). The property consists of 82, 100% South Shore Partnership Inc. (“SSPI”) owned, unpatented claims totaling 1,540 hectares in the Sudbury Mining Division.



Figure 1 – Location of Drury Project South West Sudbury

During the 2022 field program in the period of April 8 to April 23, reconnaissance traverses were carried out on the East Block and Main Block of the Drury property. The purpose of the program was to:

1. Determining Access to Historic Drill Sites and for Mobilizing Equipment
2. Grass Roots Prospecting
3. GPS Mapping
4. Locating Historic Drill Collars
5. Providing Recommendations for Advanced Exploration on the Property

A number of samples were collected and are described in Table 2.

Personnel involved in the above work was Dean MacEachern P.Geo, Prospector License No. 2000263, Client No. 10000139

All coordinates in this report are stated in NAD83 UTM Zone 17

Prospectair Geosurveys were contracted by SSPI to conduct a heliborne high-resolution magnetic (MAG) survey over the entire Drury Project. The survey was initially delayed due to pilot availability, but was completed on September 2 and 3, 2022. The results of that survey are covered in a separate report attached as Appendix A.

### **Property Description and Location**

The claims are located in Drury, Hyman, Totten, Trill and Dension Townships north of Highway 17 and the small town of Nairn Centre (Figure 2). The area is divided into East Block and Main Block (East Main and West Main). The claims are recorded, 100%, in the name of South Shore Partnership Inc. (“SSPI”) and are currently in good standing until February 21, 2023 to April 3, 2024 as shown in Table 1 and Figure 3. Thirty-eight (38) claims as also shown in Table 1 were originally due on October 21, 2022 but due to scheduling delays and pilot availability for the planned high resolution airborne magnetic survey over the project, an application for extension of time to file assessment work was made to the Ministry of Northern Development and Mines. The application was approved under order MIL 10-1 325/22 with a requirement for assessment work be filed by February 21, 2023.

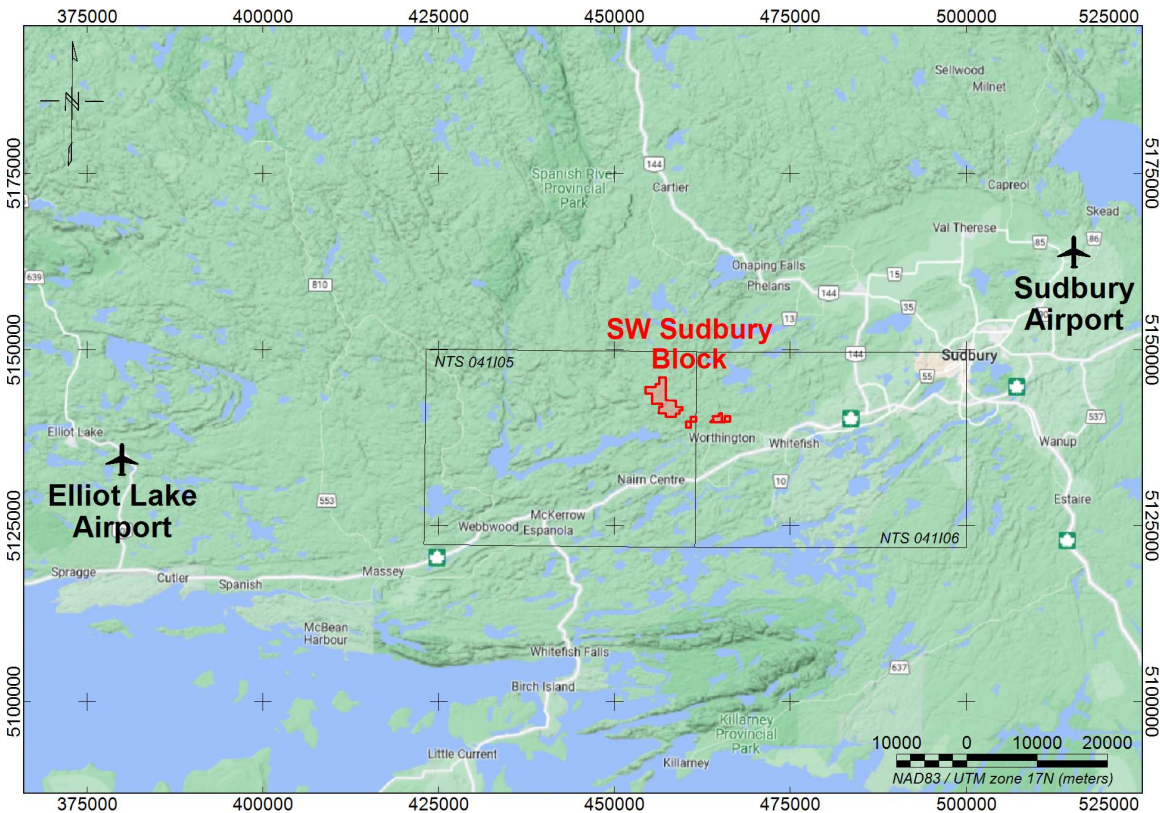


Figure 2 – Regional Infrastructure for Drury Project South West Sudbury

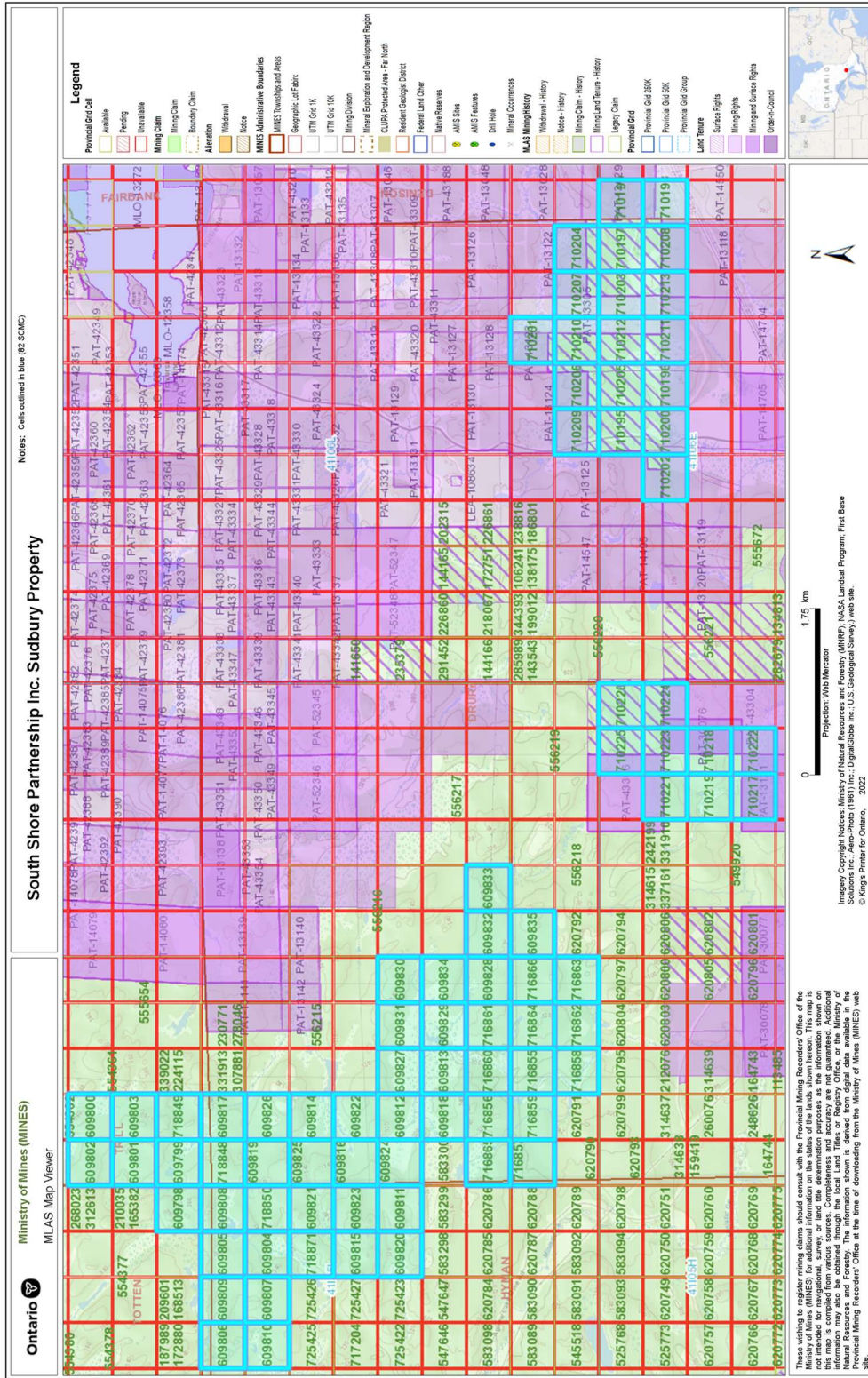


Figure 3 – Outline of South Shore Partnership Inc Mining Claim Cells - Drury Project South West Sudbury (cells are highlighted in blue)

Table 1: Claim description for Drury Project

Township / Area	Tenure ID	Cell ID(s)	Tenure Type	Anniversary Date	Extension Date
DRURY	710195	41106E006	SCMC	2024-02-17	
DRURY	710205	41106E007	SCMC	2024-02-17	
DRURY	710212	41106E008	SCMC	2024-02-17	
DRURY	710203	41106E009	SCMC	2024-02-17	
DRURY	710197	41106E010	SCMC	2024-02-17	
DENISON,DRURY	710199	41106E011	SCMC	2024-02-17	
DRURY	710202	41106E025	SCMC	2024-02-17	
DRURY	710200	41106E026	SCMC	2024-02-17	
DRURY	710196	41106E027	SCMC	2024-02-17	
DRURY	710211	41106E028	SCMC	2024-02-17	
DRURY	710213	41106E029	SCMC	2024-02-17	
DRURY	710208	41106E030	SCMC	2024-02-17	
DENISON,DRURY	710198	41106E031	SCMC	2024-02-17	
DRURY	710201	41106L368	SCMC	2024-02-17	
DRURY	710209	41106L386	SCMC	2024-02-17	
DRURY	710206	41106L387	SCMC	2024-02-17	
DRURY	710210	41106L388	SCMC	2024-02-17	
DRURY	710207	41106L389	SCMC	2024-02-17	
DRURY	710204	41106L390	SCMC	2024-02-17	
DRURY	710225	41105H019	SCMC	2024-02-17	
DRURY	710220	41105H020	SCMC	2024-02-17	
DRURY	710221	41105H038	SCMC	2024-02-17	
DRURY	710223	41105H039	SCMC	2024-02-17	
DRURY	710224	41105H040	SCMC	2024-02-17	
DRURY	710219	41105H058	SCMC	2024-02-17	
DRURY	710218	41105H059	SCMC	2024-02-17	
DRURY	710217	41105H078	SCMC	2024-02-17	
DRURY	710222	41105H079	SCMC	2024-02-17	
TRILL	609802	41105I170	SCMC	2022-08-21	2/21/2023
TRILL	609800	41105I171	SCMC	2022-08-21	2/21/2023
TRILL	609801	41105I190	SCMC	2022-08-21	2/21/2023
TRILL	609803	41105I191	SCMC	2022-08-21	2/21/2023
TOTTEN,TRILL	609798	41105I209	SCMC	2022-08-21	2/21/2023
TRILL	609799	41105I210	SCMC	2022-08-21	2/21/2023
HYMAN,TOTTEN	609806	41105I226	SCMC	2022-08-21	2/21/2023
HYMAN,TOTTEN	609809	41105I227	SCMC	2022-08-21	2/21/2023
HYMAN,TOTTEN	609805	41105I228	SCMC	2022-08-21	2/21/2023
DRURY,HYMAN, TOTTEN,TRILL	609808	41105I229	SCMC	2022-08-21	2/21/2023
DRURY,TRILL	609817	41105I231	SCMC	2022-08-21	2/21/2023
HYMAN	609810	41105I246	SCMC	2022-08-21	2/21/2023
HYMAN	609807	41105I247	SCMC	2022-08-21	2/21/2023

HYMAN	609804	411051248	SCMC	2022-08-21	2/21/2023
DRURY,HYMAN	609819	411051250	SCMC	2022-08-21	2/21/2023
DRURY	609826	411051251	SCMC	2022-08-21	2/21/2023
HYMAN	609821	411051269	SCMC	2022-08-21	2/21/2023
DRURY,HYMAN	609825	411051270	SCMC	2022-08-21	2/21/2023
DRURY	609814	411051271	SCMC	2022-08-21	2/21/2023
HYMAN	609815	411051288	SCMC	2022-08-21	2/21/2023
HYMAN	609823	411051289	SCMC	2022-08-21	2/21/2023
DRURY,HYMAN	609816	411051290	SCMC	2022-08-21	2/21/2023
DRURY	609822	411051291	SCMC	2022-08-21	2/21/2023
HYMAN	609820	411051308	SCMC	2022-08-21	2/21/2023
HYMAN	609811	411051309	SCMC	2022-08-21	2/21/2023
DRURY,HYMAN	609824	411051310	SCMC	2022-08-21	2/21/2023
DRURY	609812	411051311	SCMC	2022-08-21	2/21/2023
DRURY	609827	411051312	SCMC	2022-08-21	2/21/2023
DRURY	609831	411051313	SCMC	2022-08-21	2/21/2023
DRURY	609830	411051314	SCMC	2022-08-21	2/21/2023
DRURY	609818	411051331	SCMC	2022-08-21	2/21/2023
DRURY	609813	411051332	SCMC	2022-08-21	2/21/2023
DRURY	609829	411051333	SCMC	2022-08-21	2/21/2023
DRURY	609834	411051334	SCMC	2022-08-21	2/21/2023
DRURY	609828	411051354	SCMC	2022-08-21	2/21/2023
DRURY	609832	411051355	SCMC	2022-08-21	2/21/2023
DRURY	609833	411051356	SCMC	2022-08-21	2/21/2023
DRURY	609835	411051375	SCMC	2022-08-21	2/21/2023
DRURY,HYMAN	716865	411051350	SCMC	2024-04-03	
DRURY	716856	411051351	SCMC	2024-04-03	
DRURY	716860	411051352	SCMC	2024-04-03	
DRURY	716861	411051353	SCMC	2024-04-03	
DRURY,HYMAN	716857	411051370	SCMC	2024-04-03	
DRURY	716859	411051371	SCMC	2024-04-03	
DRURY	716855	411051372	SCMC	2024-04-03	
DRURY	716864	411051373	SCMC	2024-04-03	
DRURY	716866	411051374	SCMC	2024-04-03	
DRURY	716858	411051392	SCMC	2024-04-03	
DRURY	716862	411051393	SCMC	2024-04-03	
DRURY	716863	411051394	SCMC	2024-04-03	
TRILL	718849	411051211	SCMC	2024-04-13	
DRURY,HYMAN, TRILL	718848	411051230	SCMC	2024-04-13	
HYMAN	718850	411051249	SCMC	2024-04-13	
HYMAN	718871	411051268	SCMC	2024-04-13	

Main Block (east portion)



Main Block (west portion)  
East Block

### Accessibility and Physiography

The southern part of the Main Block can be accessed via Highway 17, travelling 31 km west from Sudbury to the Worthington Road turnoff (also known as the old Hwy 17 and Hwy 658), past the town of Whitefish, and continuing westward along Worthington Road. Travel west on this road, through Worthington, straight onto Inco High Falls Road, and then turn north onto Agnew Lake Mine Road; after approximately 7.5 km, the Agnew Lake Mine Road comes within 500m of claim 716857. A trail, following a power line that runs through the property in an east-west direction, provides ATV access into the central and southern areas of the Main Block. The northern parts of the Main Block can be reached by travelling approximately 10 km westward from the Worthington Road junction and turning north onto Fairbanks Lake Road. Turn west and follow Chicago Mine Road for about 6 km to reach an ATV trail leading westward into the northern portion of the Main Block. The East Block is crossed by the Fairbanks Lake Road on claims 710200, 710195 and 710209.

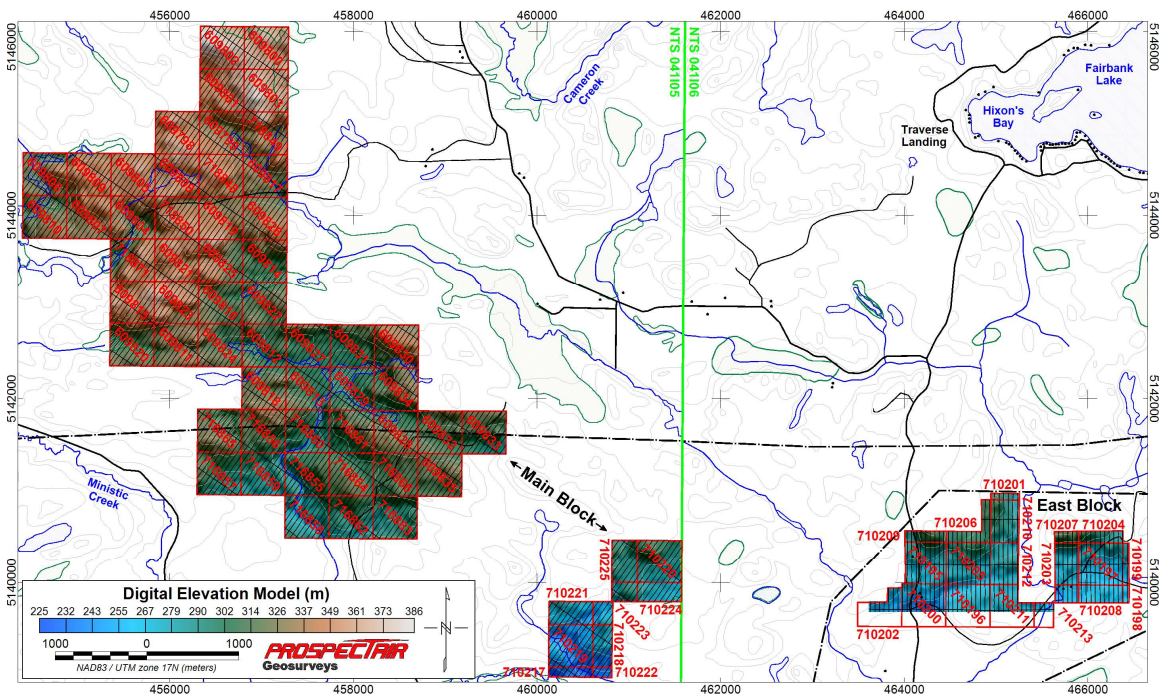


Figure 4 – Digital Elevation Model of SSPI Main and East Blocks

The topography is rugged with abundant cliffs (Figure 4). Lithology has a major influence on topography with resistant rocks such as granite, gabbro and quartzite forming high, barren ridges. The valleys and areas between the outcrop ridges are

filled with glaciofluvial and glaciolacustrine deposits. Several elongated, swampy, low-lying areas and flooded beaver ponds are situated in the middle portions of the claim group. Vegetation is sparse where there is only a thin veneer of soil on the bedrock. Scrub poplar, oak and maple grow in areas of higher elevation; second growth jack pine, maple, poplar and birch are prevalent in drift areas while spruce and alder are prominent in the swamps. In the past, the area has been burnt over and logged extensively.

## **Regional Geological Setting**

The Property is in the South Range of the SIC. Ni-Cu-PGE deposits in Sudbury occur within the Sudbury Structure that formed as a result of a major Early Proterozoic meteorite impact 1,850 million years ago (Ames and Farrow, 2007). The Sudbury Structure straddles the unconformity between Archean gneisses and plutons of the Superior Province and overlying Paleoproterozoic Huronian supra-crustal rocks of the Southern Province. It is geographically divided into the North, South, and East Ranges (Figure 5) and comprises four geologic domains:

- The SIC occurs as a 60 km x 27 km elliptical bowl-shaped body that formed from a meteorite impact melt sheet. It consists of a basal xenolithic norite breccia (contact sublayer) overlain by norite, quartz-gabbro and granophyre, and historically has been referred to as the "Nickel-Bearing Irruptive", the "Sudbury Nickel Irruptive" and the "Nickel Irruptive".
- Concentric and radial dykes of diorite, granodiorite, and quartz diorite.
- The footwall to the SIC contains a zone, up to 80 km wide, of Archean and Proterozoic rocks that are fractured, brecciated (Sudbury breccia), and locally partially melted (e.g. Late Granite Breccia) or recrystallized due to the meteorite impact and subsequent emplacement of the SIC.

The SIC is overlain by the Whitewater Group, comprising "fall-back" super-crustal breccia of the Onaping Formation and the overlying basin-fill sedimentary rocks of the Onwatin and Chelmsford Formations. The Main Mass of the South Range SIC consists of a lower unit of the Quartz-rich Norite. Stratigraphically above is the Green Norite with irregular bodies of Brown Norite followed by the Quartz Gabbro then the Granophyre layers (Lightfoot, 2016). Found at the basal contact of the Main Mass in embayment and trough structures is a magmatic breccia called Sublayer. The footwall to the SIC South Range is the Southern Province. The geology can roughly be divided into the Early Proterozoic (~2,450 Ma) Murray and Creighton Granite Plutons and Huronian Supergroup (2,250 to 2,460 Ma) mafic and felsic volcanic and sedimentary rocks. In ascending stratigraphic order, the rock formations present are:

- Elsie Mountain (mafic volcanic and some interflow sedimentary rocks),
- Stobie (mafic volcanic and sedimentary rocks),
- Copper Cliff (felsic volcanic rocks),
- McKim (argillitic and arenaceous rocks),
- Ramsey Lake (arenaceous and conglomeratic rocks),

- Pectors (argillitic and arenaceous rocks),
- and Mississagi (sub-arkose and arkosic sedimentary rocks).

The Creighton and Murray Plutons are intrusive into older Huronian volcanic and sedimentary rocks, mostly of the Elsie Mountain and Stobie Formations. The South Range of the Sudbury Igneous Complex and adjacent Huronian rocks, for the most part, dip vertically or steeply north or south. Stratigraphic tops generally face south away from the SIC and toward the Grenville Front. The South Range Shear zone and Creighton and Murray faults are the manifestation of the deformation events that have shaped the present-day South Range (Figure 5 Ames and Farrow 2007). The age of the deformation which has resulted in the current sub-vertical orientation of the Huronian rocks has not been definitively established. The metasedimentary rocks are interbedded sparingly with mafic volcanic flows of the Elsie Mountain Formation and commonly with volcanic rocks of the Stobie Formation. Many of these interflow metasedimentary rocks are sulphide-bearing. The sulphides are dominantly pyrrhotite with minor amounts of pyrite and trace chalcopyrite.

South Range footwall rocks are cut by several small diabase and gabbroic intrusions that are often difficult to distinguish in the field. These include Matachewan dykes, Nipissing intrusions, quartz diabase (trap dykes), and Olivine Diabase. Both the quartz diabase and olivine diabase dykes are younger than the SIC. The Archean and early Proterozoic basement rocks are all crosscut by Sudbury Breccia.

The Drury property is located in a zone where the North and South Ranges of the Sudbury Structure meet, approximately 3 km southwest of the SIC contact. The north half of the **Main Block** is underlain by foliated granodiorite to granite of the Cartier batholith (~ 2640 Ma), with lesser mafic plutonic rocks of the East Bull Lake Intrusive Suite (2490-2470 Ma, Krogh et al., 1984; Prevec, 1992) occurring along the southern margin of the Cartier batholith. Diabase dykes of the Matachewan swarm (2473 +16/-9 Ma and 2446 ±3 Ma; Heaman, 1997) are very common in the Main Block, cutting the felsic and mafic intrusive rocks, while dykes of the Nipissing Mafic Intrusive Suite (2210-2217 Ma, Corfu and Andrews, 1986; Noble and Lightfoot, 1992; Buchan et al., 1998) are common in the south, cutting through the metasedimentary and metavolcanic rocks of the Huronian Supergroup.

The **East Block** of the property is underlain by the same rock types found in the West Block, but there are significantly more mafic plutonic rocks of the East Bull Lake Intrusive Suite, specifically gabbro-anorthosite of the Drury Intrusion. The Drury Intrusion, one of several early Proterozoic layered gabbro-anorthosite bodies in the Sudbury-Elliot Lake area (East Bull Lake, Shakespeare-Dunlop, Agnew Lake, Wanapitei complex, Falconbridge Township and River Valley) is one of the smaller bodies. Sudbury Breccia, a pseudotachylite created from the shock wave associated with the 1850 Ma Sudbury Event, occurs as irregular veins and belts in the footwall

rocks of the SIC, is documented on the Drury Property. Sudbury Breccia has been known to host significant Ni-Cu- PGE mineralization (for example, the Frood mine). The Sudbury structure as a whole was subject to intense shearing and strain during the Penokean orogeny (2400-1700 Ma). The Drury Property is bisected by several faults, the dominant set of which is oriented northeast-southwest, includes the Cameron Creek, Fairbank Lake, Chicago Mine and Flett faults. These faults are part of an arcuate system of dextral shear zones and thrusts. Some of the faults may be splays off of the ancestral Murray Fault system. Well-developed foliations, flattening, high strain indicators, and quartz veins are common along the faults, and many of the regional sulphide occurrences are found near these faults. The Perimaki outlier, a dislocated block of norite located in the footwall just north of the property, is bound by the Cameron Creek Fault along its north margin. Contacts with other phases of the SIC have not been identified with the norite outlier. Post-Sudbury Event olivine diabase dykes of the Sudbury swarm (1238 ± 4 Ma; Krogh et al., 1987; 1235 +7/-3 Ma; Dudás et al., 1994) cross cut all the previously mentioned rock types.

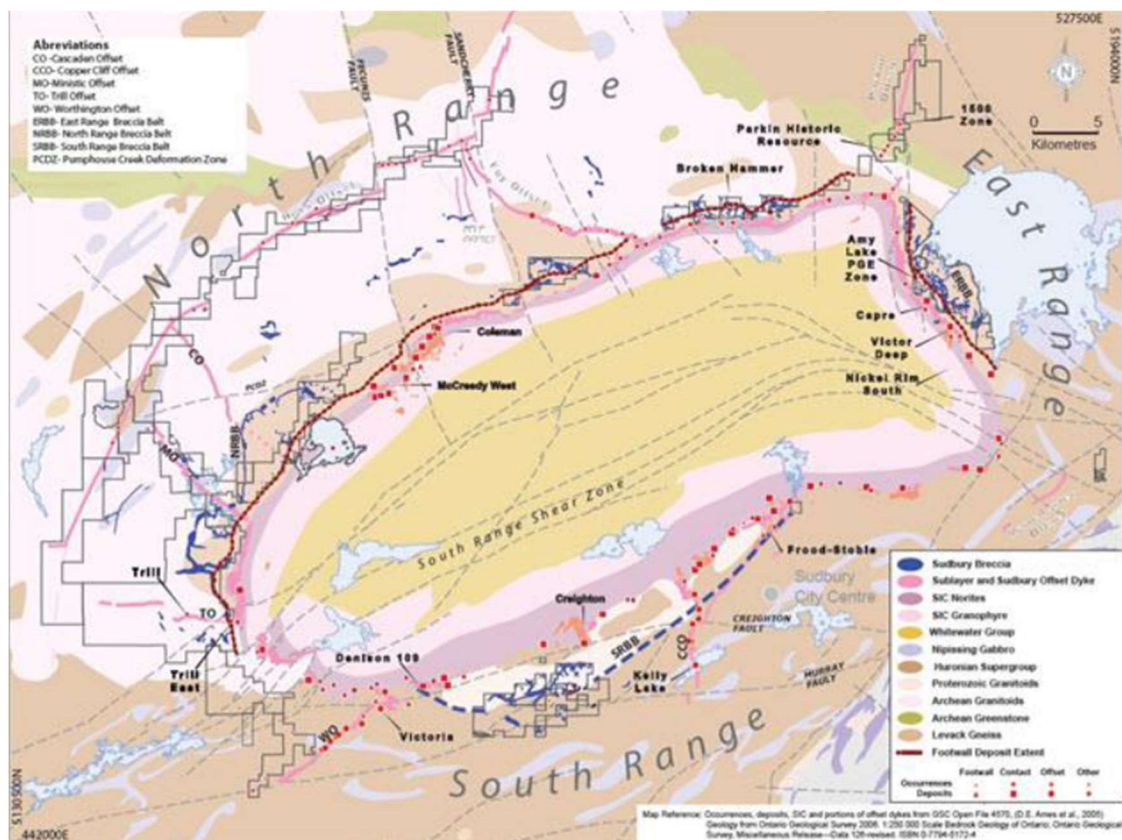


Figure 5: Simplified Regional Geology (Ames and Farrow, 2007)

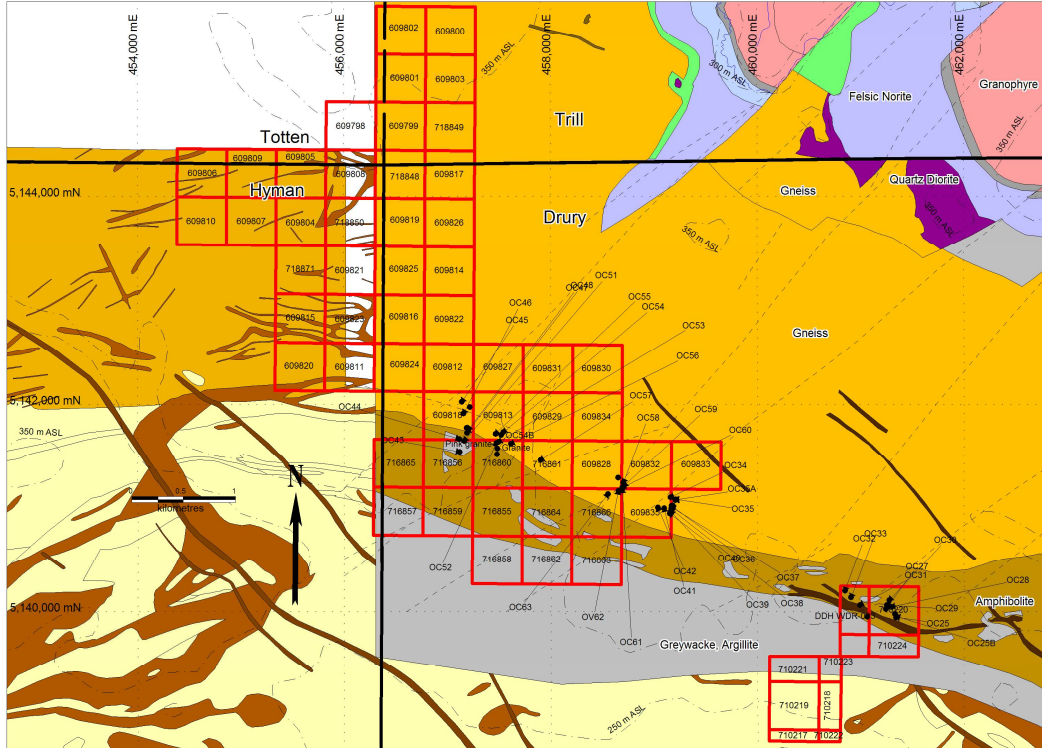


Figure 6: Geology of south west Sudbury Igneous Complex (Drury Township area)

## EXPLORATION HISTORY

Various exploration and mining companies have had the mineral rights in the southwest Sudbury Igneous Complex, Falconbridge and Inco being the most dominant. In respect to the claims currently held by South Shore Partners, work has been performed several companies as outlined in Table 2 below.

Most of the exploration work from 1953 to 1970 was directed towards uranium exploration. More recent exploration work has been directed towards Sudbury Igneous Complex associated footwall Ni-Cu deposits. Wallbridge Mining Company has filed several assessment file reports from 2009 to 2018. Details of the assessment work completed by each company can be accessed on the Ontario Ministry of Mines website (<https://www.ontario.ca/page/mining-and-minerals>).

Table 2: History of Exploration Companies and Work Type

Company	Years	Type of Exploration
Prospectors Airways Company Ltd	1953-1956	Geological Survey / Mapping, Magnetic / Magnetometer Survey/ Diamond Drilling
Inco	1954	Diamond Drilling,
Aer Nickel Corp.	1957	Diamond Drilling
Rio Tinto Can Expl/Cyril Young	1961	Prospecting, mapping
Acme Gas & Oil Co Ltd	1966-1969	scintillometer survey, pitting (52 pits and trenches); DD-2-223 ft. 1969: Acme Gas and Oil Limited - DD, resampling of trenches
Occidental Minerals Corp	1970	Assaying and Analyses, Geological Survey / Mapping
Kerr Addison Mines Ltd	1976	Geological Survey / Mapping, Radiometric
Mustang Minerals Corp	2000	Geochemical, Geological Survey / Mapping, Induced Polarization
Xstrata	2010	Diamond Drilling
Wallbridge Mining Company Ltd	1999-2018	Diamond Drilling, Geochemical, Geological Survey / Mapping, Induced Polarization, Linecutting, Other, Overburden Stripping, Prospecting By Licence Holder

## 2022 PROSPECTING and ACTIVITIES

Several outcrops were visited and described both on the Drury Property and in the vicinity of the property as outlined in Table 3 from April 8-23, 2022. Locations of areas visited are shown in Figures 7, 8 and 9.

The purpose of the program was for:

1. Determining Access to Historic Drill Sites and for Mobilizing Equipment
2. Grass Roots Prospecting
3. GPS Mapping
4. Locating Historic Drill Collars
5. Providing Recommendations for Further Exploration on the Property

No samples were submitted for geochemical analysis.

Table 3: Outcrop location and description

Date	Outcrop #	UTM mE	UTM mN	Rock Type	Description
8-Apr	OC 1	467955	5141288	NOR	North of McConnell: on road
8-Apr	OC2	467966	5141191	NOR	North of McConnell: Fine grained dark grey norite: main jointing @ 100 degrees
8-Apr	OC 3A1	467923	5141152	NOR	Near McConnell showing: isolated, small, discontinuous, shear at 070 in fine grained, green norite; shear gash is 1-4" wide and 2 ft long
8-Apr	OC 3A2	467923	5141152	NOR	Near McConnell showing: Fine grained, dark green norite: main jointing at 030 and 090
	OC 3C	467923	5141152	NOR	As above
8-Apr	OC4	467908	5141134	NOR	12 m south of McConnell: Fine grained dark green, sheared norite at 070
8-Apr	OC5 (McConnell Showing)	467920	5141176	NOR	McConnell showing (Multiple samples- see below)

8-Apr	OC5 (McConnell Showing)	467920	5141176	NOR	Scattered rusty pods in fine grained, dark green, slightly sheared norite: rusty 'zone' is 3-4 ft wide at 070/ dip 80 S: shearing and aligned py also at 070 dip/ 80S: Actual zone 30 m from given coordinates: 4 hand samples containing from 5-30% py.
8-Apr	Gossan Pit	467191	5141131	NOR	Fine grained, medium grey, sugary rock (QD?) with 2-10% cp, mior po and minor py on fractures: Multiple samples from 5 m wide pit X 2-3 m deep on edge of a beaver pond. About 30 m from original coordinates.
8-Apr	OC6	467183	5141125	NOR	Fine grained, dark green norite; trace cp in 1 sample
8-Apr	OC7, 7B	467171	5141134	NOR	Weak shear in dark green norite at 100 degrees 15 m NW of Gossan Pit
8-Apr	OC8	468605	5139929	QTZITE	Fine grained rusty quartzite on pole line road east of junction
8-Apr	OC 9A			QTZITE	Fine grained, light grey quartzite on access road (No coords_ 1-2 km east of Hwy 4)
8-Apr	OC9B			AMPH	Fine grained, dark green amphibolite on access road (No coords_ 1-2 km east of Hwy 4)
9-Apr	Sudbury Breccia (north of claim)	4650056	5140932	SDBX	3-5 m wide Sudbury breccia looking zone with minor scattered 'fragments' in a 25-30 m 'zone' of norite with slightly to moderate "shear/foliation fabric": photo of apparent norite 'fragment' and 20-25 cm quartz 'fragment'. Old sample number from Sudbury breccia "GB-084-19". Impression of possible waterline(?) in grass on outcrop that leads to a North South cut line going downhill.
9-Apr	OC10	465080	5141681	NOR	Fine grained, dark green, slightly sheared norite
9-Apr	OC 11	465043	5140615	AMPH	Fine grained, dark green AMPH with small 2 X 8 mm laths (4 samples)
9-Apr	OC12	465001	5140930	AMPH	Fine grained, dark green, slightly 'sheared' and strong jointing in norite @ 070: photo of outcrop (labelled OC 12B)
10-Apr	OC 13	464963	5140634	AMPH	Fine grained, dark green AMPH with weak foliation at 070 degrees
10-Apr	OC 14	464989	5140620	AMPH	Fine grained massive AMPH
10-Apr	OC 15	465015	5140597	AMPH	Fine grained massive AMPH (same outcrop as OC12)
10-Apr	OC16	464922	5140515	AMPH	Fine grained, dark green AMPH with variable weak foliation at 080-100 degrees (see photo)
10-Apr	OC17	464997	5140581	AMPH	Massive AMPH
14-Apr	OC 18	465560	5140318	AMPH	14-18" discolored zone and pseudo breccia at 070 degrees with a 7"X20" oblong fragment, also at 070 degrees
14-Apr	O19	465615	5140322	AMPH	4-5 ft wide 'textured' AMPH and discolored patches at 070 degrees (see photo)
14-Apr	OC20	465629	5140309	AMPH	Norite with 3 sub Round. 12-15" quartz 'fragments' aligned at 040 degrees (see photo); outcrop is 40X 50m
14-Apr	OC21	465994	5140305	AMPH	Massive AMPH
14-Apr	OC22	466066	5140310	AMPH	Massive AMPH (on road at 030 deg)
14-Apr	OC23	466096	5140355	AMPH	Massive AMPH ite (on road at 040 deg)
14-Apr	OC24	466151	5140195	AMPH	Massive AMPH (Medium grained to fine grained-10X 20 m OC
15-Apr	OC25	461349	5140171	AMPH	Medium grained AMPH (??)- flat outcrop

15-Apr	OC25B	461352	5140178	MAF	Fine grained, dark grey mafic rock with rusty patches. On road
15-Apr	OC26	461338	5140203	MAF	Fine to medium grained mafic rock with 1-4"discolored, pink bands at 105 degrees
15-Apr	OC27	461251	5140251	MAF	Fine grained mafic rock that is fine to moderately foliated at 070: contains some fine grained. Light colored aplite (quartzite?) pods. See photo
15-Apr	OC28	461304	5140269	MAF	Similar to above (see photo)
15-Apr	OC29	461262	5140289	QTZITE	Fine grained, beige, sheared quartzite at 110 degrees (dip80 N)
15-Apr	OC30	461286	5140334	QTZITE	Medium grained, dark grey gabbro
15-Apr	OC31	461000	5140287	QTZITE	Grey quartzite- beside road
15-Apr	OC32	460855	5140427	QTZITE	Grey and green quartzite ridge at 095 degrees: beside road
15-Apr	OC33	460914	5140362	QTZITE	Light grey quartzite ridge beside road
15-Apr	DDH WDR-003	461071	5140175	DDH	Diamond drill Hole dilled at 180 degrees -45 dip; beside road
21-Apr	OC34	459166	5141326	GR	Medium grained pink granite with weak foiliation at 085 in a few places; dip 80 south
21-Apr	OC35	459214	5141307	GAB	Medium grained to fine grained gabbro (50 m X 50m outcrop)
21-Apr	OC35A	459215	5141301	GAB	12 m wide discontinuous shear at 070/ 70 S
21-Apr	OC36	459176	5141247	GAB	weak to moderate 'micro shearing'/foliation/alignment/jointing at 075/ 70S:
21-Apr	OC37	459178	5141228	GAB	Gabbro knoll with 4 different hand samples (altered gabbro +/- felsic patches): 8-10 m, weak to moderate shear at 080-100 degrees (dip 80 south); photo of 3-4 cm wide 4 ft long quartzite slab or discontinuous aplite dike
21-Apr	OC38	459175	5141214	GR	Fine grained, soft, mafic pink sheared 'gneissic rock' at 100/80 north
21-Apr	OC39	459170	5141189	GR	irregular 1-2 ft aplite "patch"/ "blob' +/- Qtz in gneissic rock; see photo
21-Apr	OC40	459160	5141171	MGN	mafic Gneiss at 100 degrees
21-Apr	OC41	459106	5141223	MGN	Mafic Gneiss at 100 degrees
21-Apr	OC42	459044	5141230	MGN	Mafic Gneiss at 100 degrees
	Contact	459187	5141250	MGN	Contact
22-Apr	OC43	457127	5141765	QTZITE	Dirty white quartzite
22-Apr	OC44	457125	5141892	QTZITE	Dirty white quartzite
22-Apr	OC45	457149	5142250	GR	medium grained granite; micro shearing at 100 degrees/ dip 80S
22-Apr	OC46	457163	5142137	MGN	mafic gneiss with foliations at 110/ 85 N dip
22-Apr	OC47	457210	5141983	GAB	Fine to medium grained gabbro
	Granite Ridge	457224	5142199	GR	
	Gabbro 1	457196	5142000	GAB	
22-Apr	OC48	457197	5141953	QTZITE	Dirty quartzite feldspathic thinly bedded seds at 120 degrees/ dip 85N
22-Apr	OC51	457170	5141873	GAB	Gabbro quartzite contact at 110 degrees
23-Apr	Pink granite	457488	5141744	GR	medium grained pink granite
23-Apr	Granite	457491	5141801	GR	medium grained pink granite



23-Apr	OC52	457480	5141853	MAF	Sheared basalt or mafic gneiss at 120 degrees
23-Apr	OC53	457501	5141863	MAF	Medium to fine grained, dark green gabbro/ basalt?
23-Apr	OC54	457550	5141959	QTZITE	Fine to medium grained dirty quartzite?
23-Apr	OC54B	457529	5141931	QTZITE	Fine to medium grained dirty quartzite?
23-Apr	OC55	457476	5141943	MGN	Fine grained, slightly to moderately foliated mafic gneiss at 120 degrees/ dip 80 south
23-Apr	OC56	457623	5141849	QTZITE	Thinly bedded, dark grey dirty quartzite at 125 degrees/ dip 80 S
23-Apr	OC57	457909	5141685	QTZITE	Fine grained, black to grey, slightly to mod foliated at 115 degrees: dip 70N: under pole line
23-Apr	Granite Knoll	458660	5141515	GR	Medium grained pink granite
23-Apr	OC58	458710	5141468	GR	Fine to medium grained pink granite/aplitic rock
23-Apr	OC59	458717	5141437	ANOR	Fine to medium grained dull greenish anorthositic rock with a few X-tal faces
23-Apr	OC60	458702	5141421	ANOR	Fine to medium grained dull greenish anorthositic rock with a few X-tal faces
23-Apr	OC61	458700	5141403	GAB	Medium grained to dark dark green gabbro
23-Apr	OV62	458665	5141389	GR	Medium grained, light pink granitic rock
23-Apr	OC63	458563	5141359	GAB	Medium grained, dark green gabbro: close to road
Coords are NAD83 Zone 17N					

Locations of outcrop descriptions are shown in Figures 7, 8 and 9.

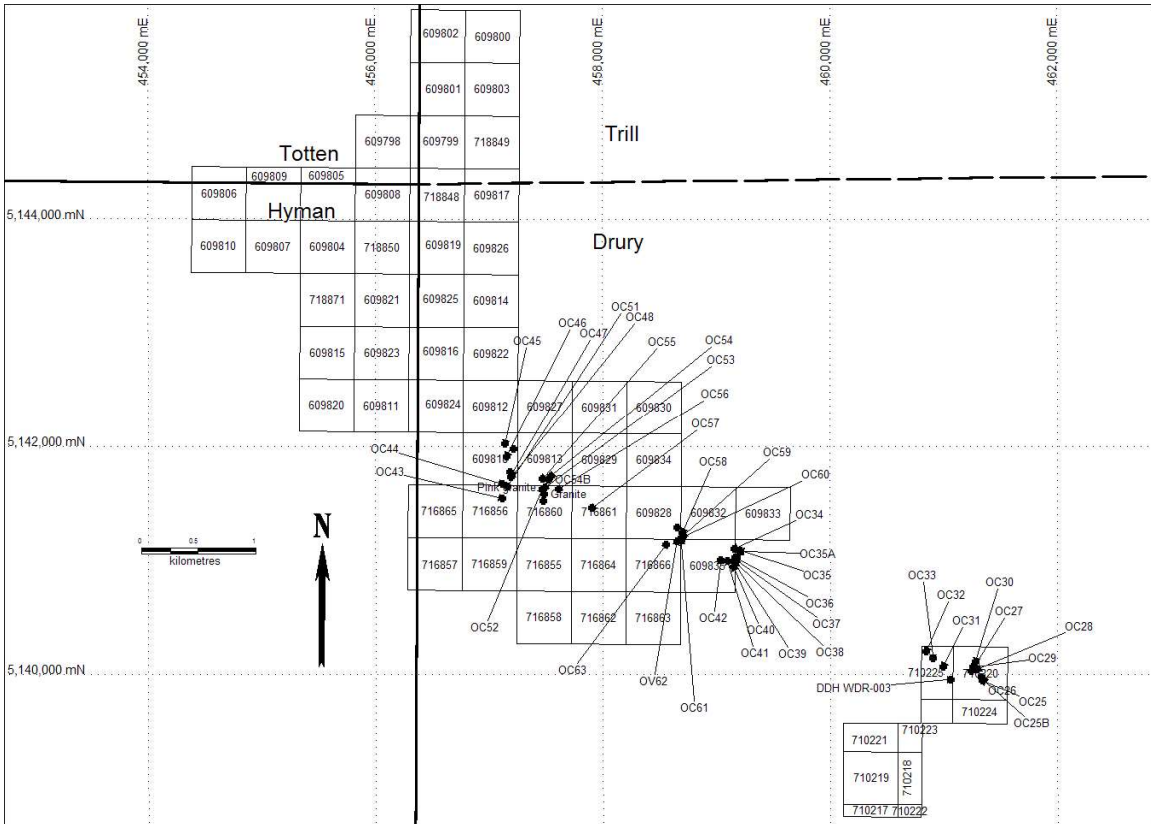


Figure 7: Outcrop locations on the Main Block Drury Project



Figure 8: Outcrop locations on the East Block Drury Project

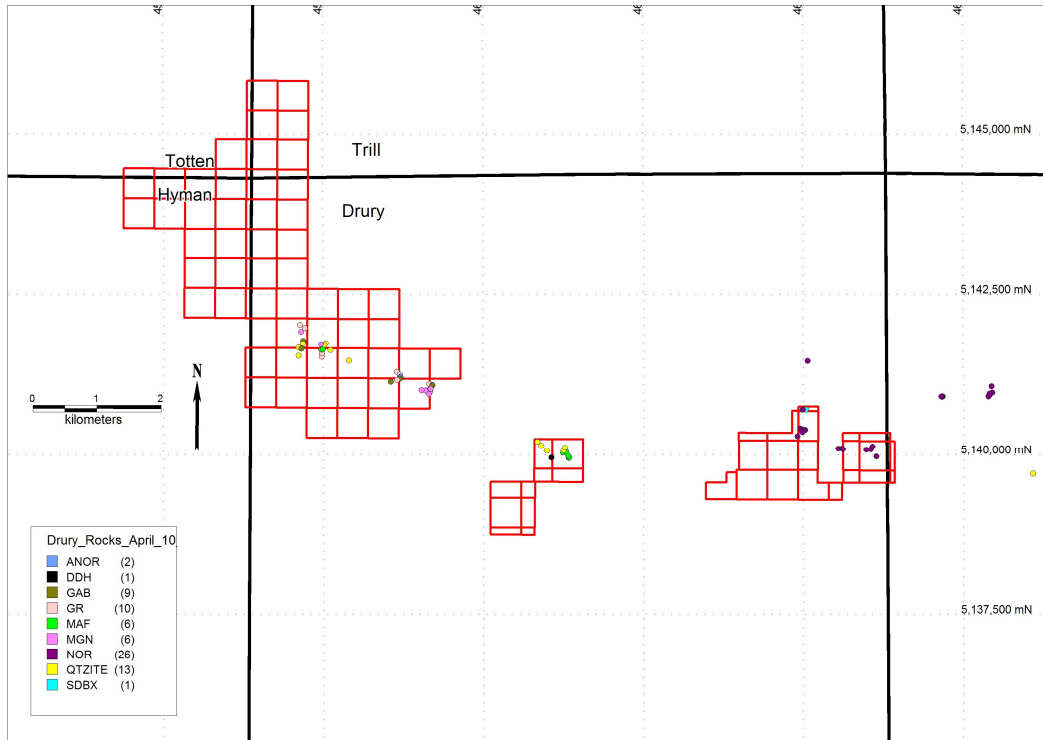


Figure 9: Outcrop locations plotted by rock type

### Drury Project Daily Logs

April 8: Visit occupant in house (Don)- just north of access road. Drive down access road to old buildings. Take ATV to McCannell showing and Gossan showing. Some old rubble near McCannell showing; also a narrow 3-4 ft wide 'zone' with patchy sulphides.

Gossan outcrop is about 150 m north of the powerline. A 5 m wide, 3 meter deep rusty pit next to a beaver pond. Huge rubble pile of pit rubble acts as a dam between the pit and pond.

April 9: Target 1 MAG HIGH AREA: Confirm and fix access trail towards Mag high. Locate Sudbury breccia en route to mag high. Breccia zone is about 4-5 m wide (possibly wider) with a 20-30 m wide zone of slightly sheared (strongly foliated) norite. Shearing and foliation usually close to 070.

Prospect and take mag readings in norite. Weakly sheared in places at 100 degrees.

April 10: Target 1 MAG HIGH AREA: Locate recent cut line at parking area on pole line (L 41+50E/ 55N). Follow "Vale Trail" to creek to determine if there is a bridge. No bridge. No trail. Probable skidoo trail. Prospect and strip outcrop ridge SE across mag high. Locate minor shearing, usually ranging from 070 to 100 degrees in places. None of the rocks are magnetic. Located well established ATV trail and tree stand near south boundary of claim and on other side of mag high. Potential access route to far eastern claim.

April 14: Target 2 NW CORNER: Revisit Ron. The neighbour who knows Gord, the land owner of target 2 claims. Leave card. Prospect NW corner of claim. Mainly norite except for some zones in the NW part of the area which had a few narrow sections of foliated outcrop and possible 'Sudbury breccia' (usually at 070 degrees) with foreign 'xenoliths' or quartzite or quartz. Mixed bush. Open areas on Google photo often large open grassy areas.

April 15: Target 3 NW CORNER of NE CLAIM: A few outcrops of gabbro- but many of the hills and outcrops were a fine to medium grained mafic rock, usually foliated at 070 degrees. Some outcrops had a few pink, felsic or quartzite 'inclusions' in them. Several outcrops of grey quartzite ridges at 095-110 degrees along road. Mainly hardwood oak, poplar and birch with some evergreens (balsam, pine, spruce). Located one drill hole on property.

April 21: Locate correct road to Target 4 and spend time 'stabilizing' and clearing access to main road for ATV past beaver dam. Checked out target 4D (target 4 sites are labelled A, B, C, D from west to east). One outcrop of granite and then encountered gabbro with some narrow 'discontinuous shears' ranging from 070 to 105 degrees. Also located mafic gneiss- with aplite patches or narrow dikes in places. Mixed tree cover with much maple in open areas.

April 22: Drive down road and then turn west along pole line until Target 4A. Traverse started in quartzite at pole line. Tree cover over the quartzite is mainly open hardwood (maple and oak). Beyond quartzite, closer to small creek and open area there are small areas with extensive blow down of dead balsam trees. Also located same gabbro close to a mafic gneiss and granite ridge at the NE area of the traverse as well as a contact with gabbro and granite.

April 23: Checked out Target 4B. Initial outcrops located are some sort of mafic gneiss with foliation or minor shearing usually at about 110-120 degrees (near vertical dip). A few outcrops resemble possible fine to medium grained basalt. Generally mixed bush except for patches of dead balsam. Also did a short traverse over Target 4C. 3 rock types- gabbro anorthosite and possible granite or felsic unit. Tree cover is open with mainly maple and some mixed forest.

## **CONCLUSIONS AND RECCOMENDATIONS**

The area remains an interesting area in terms of looking for remobilized “footwall” deposits for nickel copper and PGM related mineralization. The proximity to the SIC and the confirmed presence of impact related Sudbury Breccia zones on the property indicate that potential pathways for mineralization away from the basal contact are possible. The airborne high resolution magnetic survey suggests there could be interesting magnetic features worth exploring near claims 710203, 710207, 71210 and 710212. Additional features from the magnetic survey need to be further analyzed and interpreted. Additional mapping and prospecting is warranted.

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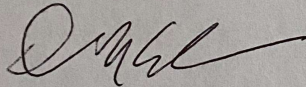
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## Statement of Qualification

I, Dean G. MacEachern, P.Ge., of 19 Gemma Street, Sudbury, Ontario, do hereby certify that as the author of the report entitled "REPORT ON THE DRURY PROPERTY, SUDBURY, SUDBURY MINING DISTRICT, ONTARIO, CANADA NTS45/05, 06" and dated January 24, 2023, I hereby make the following statements:

- I am a Consulting Geologist and President of Kima Geological Services Ltd. of 19 Gemma Street, Sudbury Ontario, P3E 6G7.
- I am a graduate of The University of Western Ontario, London, Ontario, Canada in 1989 with a B.Sc. Honours Geology degree.
- I am a Practising Member of the Association of Professional Geoscientists of Ontario (#664). I have worked as a geologist for a total of 25 years since my graduation.
- I have practiced my profession in mineral exploration continuously since graduation. I have over thirty-two years of experience in mineral exploration, production or consulting.
- I have valid Ontario Prospecting Licence (No. 2000263)

Signing Date: January 24, 2023



*"Original Document, signed and sealed by Dean G. MacEachern, P.Ge."*

Dean G. MacEachern, P.Ge.  
Kima Geological Services Ltd.  
President



*"Original Document, signed and sealed by Dean G. MacEachern, P.Ge."*

Dean G. MacEachern, P.Ge.  
Kima Geological Services Ltd.  
President

## INVOICES

Table 3: Summary of Invoices

<b>Prospectair Geosurvey Invoice</b>	<b>\$</b>	<b>58,566</b>
<b>Kima Geological Survey Inc Invoice</b>	<b>\$</b>	<b>9,040</b>
	<b>\$</b>	<b>67,606</b>



# ***Technical Report***

## ***High-Resolution Heliborne Magnetic Survey***

***SW Sudbury Property, Sudbury Area  
Sudbury Mining Division, Ontario, 2022***

***South Shore Partnership Inc.  
1516 South Shore Road  
Sudbury, ON, Canada  
P3G 1L4***



***Prospektair Geosurveys***

***Dynamic Discovery Geoscience***



Prepared by:  
*Joël Dubé, P.Eng.*

October 2022

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Survey flown by :

**PROSPECTAIR**  
**Geosurveys**

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## I. INTRODUCTION

Prospectair Geosurveys conducted a heliborne high-resolution magnetic (MAG) survey for the mineral exploration company South Shore Partnership Inc. on its SW Sudbury Property located in the Sudbury area, Sudbury Mining Division, Province of Ontario (Figure 1). The survey was flown on September 2 and 3, 2022.

Figure 1: **General Survey Location**

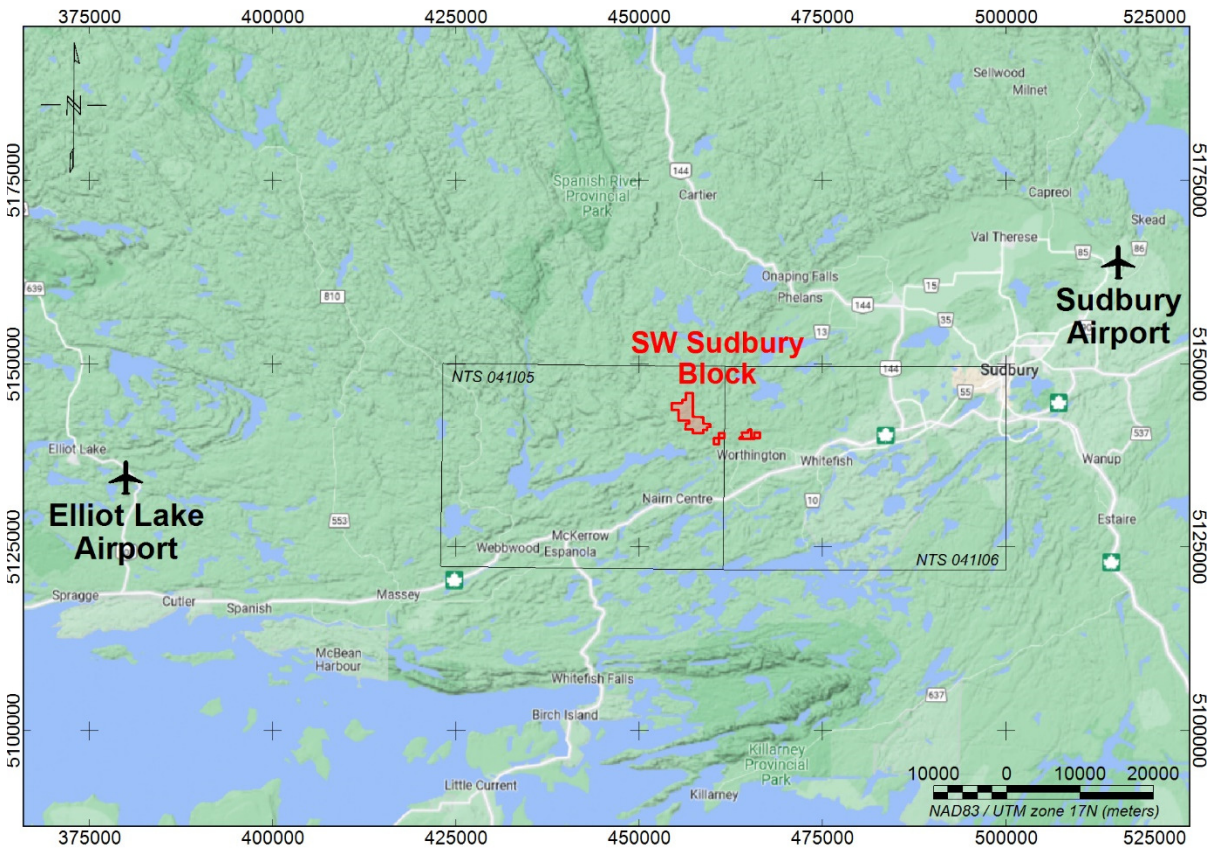


Two survey blocks were flown, referred to as Main and East, for a total of 333 l-km. Note that both blocks are each subdivided into two areas. A total of 6 production flights were performed using Prospectair’s Eurocopter EC120B, registration C-GEDI. The helicopter and survey crew operated out of the Sudbury Airport located 60 km to the northeast of the block (Figure 2).

Table 1: Survey block particulars

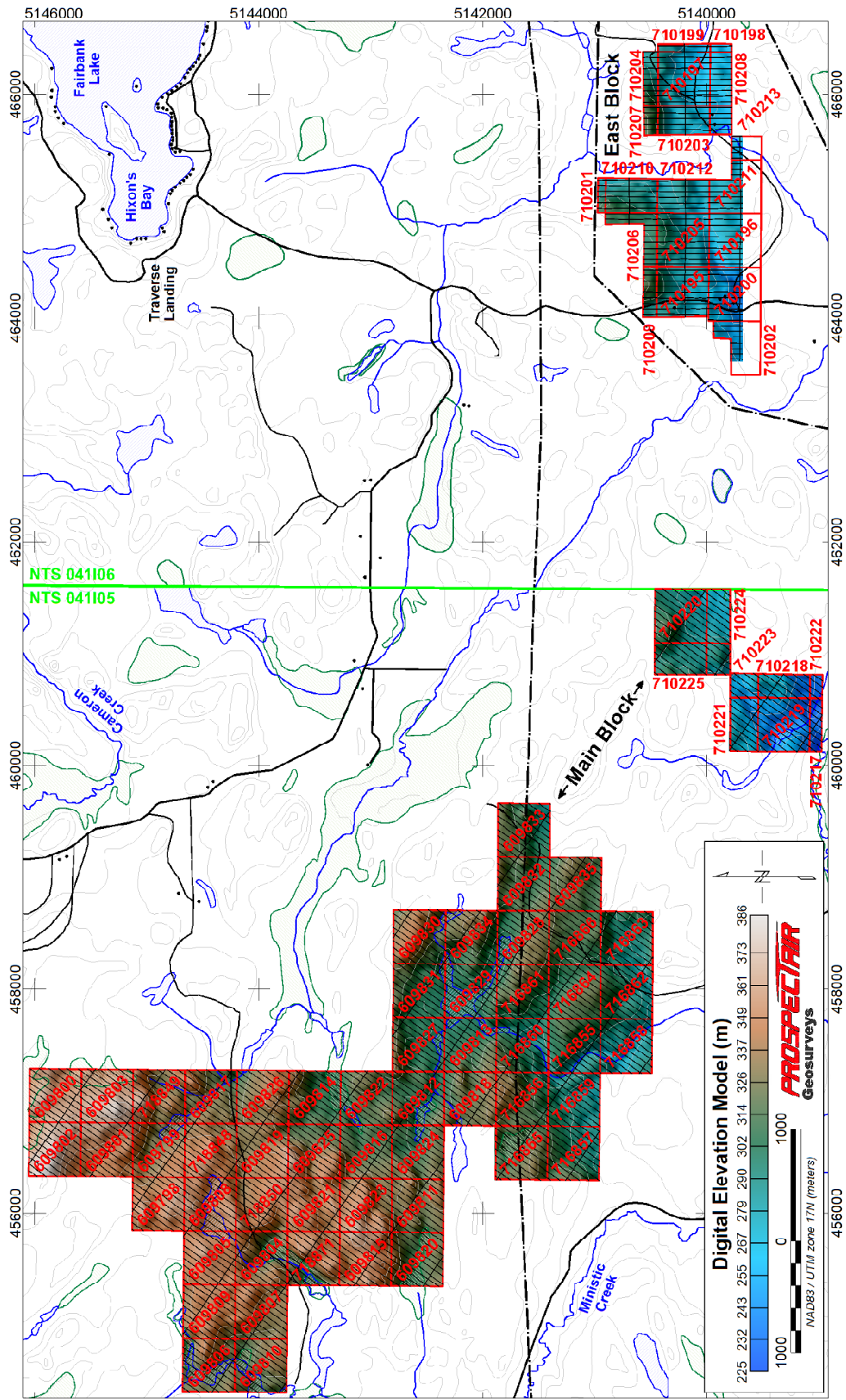
Block	NTS Mapsheet	Line-km flown	Flight numbers	Dates Flown
SW Sudbury Main	041105	289 l-km	Flt 1, 2, 3, 4, 6	Sep. 2 & 3
SW Sudbury East	041106	44 l-km	Flt 4, 5, 6	Sep. 3

Figure 2: Survey Location and base of operation



The survey blocks were flown with traverse lines at 50 m spacing and control lines spaced every 500 m. The survey lines were oriented N035 on the Main block, and N000 on the East block. In both cases control lines were oriented perpendicular to traverse lines. The average height above ground of the helicopter was 42 m and the magnetic sensor was at 23 m. The average survey flying speed was 32.3 m/s. The survey area is covered by forest, some wetlands and a few small size water bodies. The largest lake found in the area is Fairbank Lake located to the north of the East block. The topography is mostly gently undulating, with a few hills. The elevation is ranging from 225 to 386 m above mean sea level (MSL). From the ground, the Property can be easily accessed via secondary forestry roads connecting to highway 4, which links the Fairbanks/Traverse Landing community besides Fairbank Lake to the Worthington community located to the south of the East block. The active Totten Mine is located less than 4 km to the south of the East block, near Worthington. It is worth noting that a high-tension power line crosses the Main block in its central part, while another power line borders the East block near its western and eastern edges. Coordinates outlining the survey block are given in Appendix A, with respect to NAD-83 datum, UTM projection zone 17N. The location of the SW Sudbury Property claims (in red) and of the survey lines is shown on Figure 3. The Property claims numbers, as well as the approximate amount of line-km flown over each claim, are also listed in Appendix B.

Figure 3: Survey lines and SW Sudbury Property claims





## II. SURVEY EQUIPMENT

Prospectair provided the following instrumentation for this survey:

### **Airborne Magnetometer**

*Geometrics G-822A*

The heliborne system used a non-oriented (strap-down) optically-pumped Cesium split-beam sensor. These magnetometers have a sensitivity of 0.005 nT and a range of 15,000 to 100,000 nT with a sensor noise of less than 0.02 nT. The heliborne sensor was mounted in a bird made of non-magnetic material located 19 m below the helicopter when flying. Total magnetic field measurements were recorded at 10 Hz in the aircraft.

### **Real-Time Differential GPS**

*Omnistar DGPS*

Prospectair uses an OmniStar differential GPS navigation system to provide real-time guidance for the pilot and to position data to an absolute accuracy of better than 5 m. The *Omnistar* receiver provides real-time differential GPS for the Agis on-board navigation system. The differential data set was relayed to the helicopter via the Omnistar network appropriate geosynchronous satellite for the survey location. The receiver optimizes the corrections for the current location.

### **Airborne Navigation and Data Acquisition System**

*Pico-Envirotec AGIS-XP system*

The Airborne Geophysical Information System (AGIS-XP) is advanced, software driven instrument specifically designed for mobile aerial or ground geophysical survey work. The AGIS instrumentation package includes an advanced navigation system, real-time flight path information that is displayed over a map image of the area, and reliable data acquisition software. Thanks to simple interfacing, the radar and barometric altimeters and the Geometrics magnetometer are easily integrated into the system and digitally recorded. Automatic synchronization to the GPS position and time provides very close correlation between data and geographical position. The AGIS is equipped with a software suite allowing easy maintenance, upgrades, data QC, and project and survey area layout planning.

### **Magnetic Base Station**

*GEM GSM-19*

A GEM GSM-19 Overhauser magnetometer, a computer workstation and a complement of spare parts and equipment serve as the base station. Prospectair establish the base station in a secure location with low magnetic noise. The GSM-19 magnetometer has resolution of 0.01 nT, and 0.2 nT accuracy over its operating range of 20,000- to 100,000 nT. The ground system was recording magnetic data at 1 Hz.

## Altimeters

### *Free Flight Radar Altimeter*

The Free Flight radar altimeter measures height above ground to a resolution of 0.5 m and an accuracy of 5% over a range up to 2,500 ft. The radar altimeter data is recorded and sampled at 10 Hz.

### *Digital Barometric Pressure Sensor*

The barometric pressure sensor measures static pressure to an accuracy of  $\pm 4$  m and resolution of 2 m over a range up to 30,000 ft above sea level. The barometric altimeter data are sampled at 10 Hz.

## Survey helicopter

### *Eurocopter EC120B (registration C-GEDI)*

The survey was flown using Prospectair's EC120B helicopter that handles efficiently the equipment load and the required survey range. Table 2 presents the EC120B technical specifications and capacity, and the aircraft is shown in Figure 4.

Table 2: **Technical specifications of the EC120B Eurocopter helicopter**

Item	Specification
Powerplant	One 376kW (504hp) Turbomeca Arrius 2F
Rate of climb	1,150 ft/min
Cruise speed	223 km/h – 120 kts
Service ceiling	17,000 ft
Range with no reserve	710 km
Empty weight	991 kg
Maximum takeoff weight	1,715 kg

Figure 4: **C-GEDI Eurocopter EC120B**



### III. SURVEY SPECIFICATIONS

#### Data Recording

The following parameters were recorded during the course of the survey:

In the helicopter:

- GPS positional data: time, latitude, longitude, altitude, heading and accuracy (PDOP) recorded at intervals of 0.1 s;
- Total magnetic field: recorded at intervals of 0.1 s;
- Pressure as measured by the barometric altimeter at intervals of 0.1 s;
- Terrain clearance as measured by the radar altimeter at intervals of 0.1 s;

At the base and remote magnetic ground stations:

- Total magnetic field: recorded at intervals of 1 s;
- GPS time recorded every 1 s to synchronize with airborne data.

#### Technical Specifications

The data quality control was performed on a daily basis. The following technical specifications were adhered to:

- *Height* – 50m mean terrain clearance for the helicopter except in areas where Transport Canada regulations prevent flying at this height, or as deemed by the pilot to ensure safety. Traverse lines and control lines must be flown at the same altitude at points of intersection; the altitude tolerances are limited to no more than 30 m difference between traverse lines and control lines.
- *Airborne Magnetometer Data* – A 0.5 nT noise envelope not to be exceeded for more than 500 m line-length without a reflight.
- *Diurnal Specifications* – A maximum tolerance of 5.0 nT (peak to peak) deviation from a long chord of one minute at the base station.
- *Flying Speed* – The average ground speed for the survey aircraft should be 120 kph. The acceptable high limit is 180 kph over flat topography.
- *Radar Altimeter* – minimal accuracy of 5%, minimum range of 0-2500 m.
- *Barometer* – Absolute air pressure to 0.1 kPa.
- *Flight Path Following* – The line spacing not to vary by more than 30% from the ideal spacing over a distance of more than 300 m, except as required for aviation safety.

For Main Block:

Traverse lines: Azimuth N035, 50 m spacing.  
Control Lines: Azimuth N125, 500 m spacing.

For East Block:

Traverse lines: Azimuth N000, 50 m spacing.  
Control Lines: Azimuth N090, 500 m spacing.

## IV. SYSTEM TESTS

### **Magnetometer System Calibration**

The survey configuration using a bird towed 19 m below any magnetic piece of the helicopter allows the simplification of the magnetic calibration requirement. Consequently, heading error and aircraft movement noise was considered negligible and no correction was applied to the data.

### **Instrumentation Lag**

The magnetometer lag is a combination of two factors: 1) the time difference between when a reading is sensed, and when that value is recorded by the acquisition system, and 2) the time taken for the sensor to arrive at the location of the GPS antenna. The second factor is defined by the physical distance between the GPS antenna and any given sensor, and the speed of the aircraft. The average total magnetic lag value for the AGIS acquisition system has been calculated to -0.06 s for this survey.

## V. FIELD OPERATIONS

The survey operations were conducted out of the Sudbury Airport on September 2 and 3, 2022. The data acquisition required 6 flights. At the end of each production day, the data were sent to the Dynamic Discovery Geoscience office via internet. The data were then checked for Quality Control to ensure they fulfilled contractual specifications. The full dataset was inspected prior to provide authorization for the field crew to demobilize. The GSM-19 magnetic base station was set up in a magnetically quiet area close to the airport, at latitude 46.6215568°N, longitude 80.7997454°W. The survey pilot was Dominic Latour and the survey system technician was Johnathan Drolet.

Figure 5: Example of a magnetic base station setup



## VI. DIGITAL DATA COMPILATION

Data compilation including editing and filtering, quality control, and final data processing was performed by Joël Dubé, P.Eng. Processing was performed on high performance computers optimized for quick daily QC and processing tasks. Geosoft software Oasis Montaj version 2022.1 was used.

### **Magnetometer Data**

#### *General*

The airborne magnetometer data, recorded at 10 Hz, were plotted and checked for spikes and noise on a flight basis. An average of -0.06 second lag correction was applied to the data to correct for the time delay between detection and recording of the airborne data.

Ground magnetometer data were recorded at 1 sample per second and interpolated by a spline function to 10 Hz to match airborne data. Data were inspected for cultural interference and edited where necessary. Low-pass filtering was deemed necessary on the ground station magnetometer data to remove minor high frequency noise. The diurnal variations were removed by subtracting the ground magnetometer data to the airborne data and by adding back the average of the ground magnetometer value.

The levelling corrections were applied in several steps. First of all, a correction for altitude was applied by multiplying the First Vertical Derivative (FVD) of the Total Magnetic Intensity (TMI) by the difference between the actual survey altitude and the average survey altitude. Standard levelling corrections were then performed using intersection statistics from traverse and tie lines. After statistical levelling was considered satisfactory, decorrugation was applied on the data to remove any remaining subtle non-geological features oriented in the direction of the traverse lines.

Once the Total Magnetic Intensity (TMI) was gridded, its First Vertical Derivative (FVD) and Second Vertical Derivative (SVD) were calculated to enhance narrow and shallow geological features. Finally, the component of the normal Earth's magnetic field, described by the International Geomagnetic Reference Field (IGRF), has been removed from the TMI to yield the residual TMI.

#### *Tilt Angle Derivative*

In order to enhance the subtle magnetic features some more, the Tilt Angle Derivative (TILT) was also computed for this project.

It has been shown that it is possible to use the Tilt Angle Derivative to estimate both the location and depth of magnetic sources (Salem et al., 2007).

When two body of different magnetic susceptibility are in contact, the vertical and horizontal gradients along a horizontal line perpendicular to the vertical contact are governed by the following equations:

$$\delta M/\delta h = 2KFc(z_c/(h^2+z_c^2))$$

$$\delta M/\delta z = 2KFc(h/(h^2+z_c^2))$$

where

K = susceptibility contrast

F = magnetic field's strength

c =  $1 - \cos^2(\text{field Inclination})\sin^2(\text{field Declination})$

h = location along an horizontal axis perpendicular to the contact

$z_c$  = contact depth

$$\delta M/\delta h = \text{sqrt}((\delta M/\delta x)^2 + (\delta M/\delta y)^2)$$

The Tilt Angle ( $\theta$ ) is defined as

$$\theta = \tan^{-1}[(\delta M/\delta z)/(\delta M/\delta h)]$$

By substitution of the gradients we get

$$\theta = \tan^{-1}[h/z_c]$$

This has two main implications for any given anomaly:

- 1- The  $0^\circ$  angle line is located directly above the contact between a magnetic source and the surrounding rock. This allow for accurate estimation of source location.
- 2- The distance between the  $0^\circ$  and the  $+45^\circ$  contour lines as well as the distance between the  $-45^\circ$  and the  $0^\circ$  contour lines are equal to the depth of the source at the contact. This allow for a direct estimation of the depth of the source of the anomaly. The depth estimated with this method is actually the distance between the magnetic sensor and the top of the source. Knowing that the sensor was 23 m above the ground in average enables direct depth estimates.

In practice, the signal originating from multiple sources at different depth within a same area will cause juxtaposition of the Tilt Angle values, and complicate location and depth estimation. Nevertheless, the method remains an excellent tool for rapid assessment of sources characteristics, without the need for complex assumptions to be made or heavy computer requirements, as is the case with 3D Euler deconvolution or 3D data inversions.

### *Gridding*

The magnetic data were interpolated onto a regular grid using a bi-directional gridding algorithm to create a two-dimensional grid equally incremented in x and y directions. The final grids of the magnetic data are supplied with a 10 m grid cell size. Traverse lines were used in the gridding process.

### **Radar Altimeter Data**

The terrain clearance measured by the radar altimeter in metres was recorded at 10 Hz. The data were filtered to remove high frequency noise using a 1 sec low pass filter. The final data were plotted and inspected for quality.

### **Positional Data**

Real time DGPS correction provided by Omnistar was applied to the recorded GPS positional data.

Positional data were originally recorded at 10 Hz sampling rate in geographic longitude and latitude with respect to the WGS-84 datum. The delivered data locations are provided in X and Y using the UTM projection zone 17 North, with respect to the NAD-83 datum. Altitude data were initially recorded relative to the GRS-80 ellipsoid, but are delivered as orthometric heights (MSL elevation).

### **Terrain Data**

Terrain elevation data (also referred to as digital elevation model, or DEM) are computed from the altitude of the helicopter, given by DGPS recordings, and the radar altimeter data.



## VII. RESULTS AND DISCUSSION

The residual Total Magnetic Intensity (TMI) of both blocks is presented in Figure 6. The TMI data are relatively active on both blocks. On the Main block, they are varying over a range of 1,464 nT, with an average of 186 nT and a standard deviation of 215 nT, while they vary over a range of 1,493 nT on the East block, with an average of 227 nT and a standard deviation of 141 nT.

Except for the northern part of the Main block, most of the surveyed area is affected by linear magnetic features characteristic of alternating sequences of mafic volcanics with sedimentary or intermediate to felsic volcanic rocks, with possibly some intrusive stocks or dykes locally. The strongest anomaly of the survey occurs at the north end of the East block and possibly relates to mafic or ultramafic intrusive rocks. Stronger anomalies are best seen on Figure 7 which shows the residual TMI data with a linear color distribution. Remaining anomalies of lower amplitude could pertain to mafic volcanic/intrusive rocks or to meta-sedimentary horizons enriched in magnetic minerals, such as magnetite poor iron formations. Other areas with lower background values and decreased signal variability, such as is the case in the southwestern half of the Main block, are likely to be dominated by sedimentary or felsic intrusive/volcanic rocks. The area to the north of the Main block depicts relatively strong background values and magnetic textures which are interpreted as a larger size intermediate intrusion.

Magnetic lineaments are mostly generally trending from NW-SE, in the Main block, to E-W, in the East block. There are also rarer instances of lineaments rather trending ENE-WSW or NE-SW locally. The most extensive lineament observed in the area occurs in the southern half of the Main block and is striking in a general WNW-ESE manner. It could pertain to a mafic dyke, a mafic volcanic layer or to a small size iron formation with limited amounts of magnetite. A number of lineaments appear curved, either by shearing or folding structures, or possibly also at the contact zone with some possible intrusions in the area. These evidences are attesting that the area underwent strong deformation events in the past. In general terms, magnetic lineaments are related to rock formations that are enriched in magnetic minerals (magnetite and/or pyrrhotite).

In some areas, it is possible to detect structural features offsetting observed magnetic lineaments and causing abrupt interruption or changes of the magnetic response. These features are typically caused by faults, fractures and shear zones. If they are thought to be favorable structures in the exploration context of the SW Sudbury project, they should be paid particular attention and should be the object of a comprehensive structural interpretation, which is beyond the scope of this report.

Shorter wavelength anomalies are greatly enhanced on the FVD (Figure 8) and on the TILT (Figure 9) products. Since the FVD attenuates longer wavelength anomalies, and the TILT enhances very weak amplitude anomalies, they are the preferred products for structural interpretation.

Regarding cultural interference, the major high-tension powerline, crossing the Main block in its central part, is known to be a possible source of non-geological noise in the magnetic data. As a consequence, high frequency anomalies located near such infrastructure are likely to originate from cultural sources and should be treated with caution when planning ground investigations of magnetic anomalies.

In addition, when the helicopter had to steeply climb up above this infrastructure for obvious safety reasons, the magnetic response can appear somewhat blurred, with anomalies being attenuated in amplitude and increased in wavelength because of the greater sensor distance from the ground. This can also result in local stripes parallel to survey lines in the data. This effect is really local and quickly fades out on either sides of the overflowed obstacle, but must be nevertheless considered when following-up on the results.

Figure 6: Residual Total Magnetic Intensity with equal area color distribution

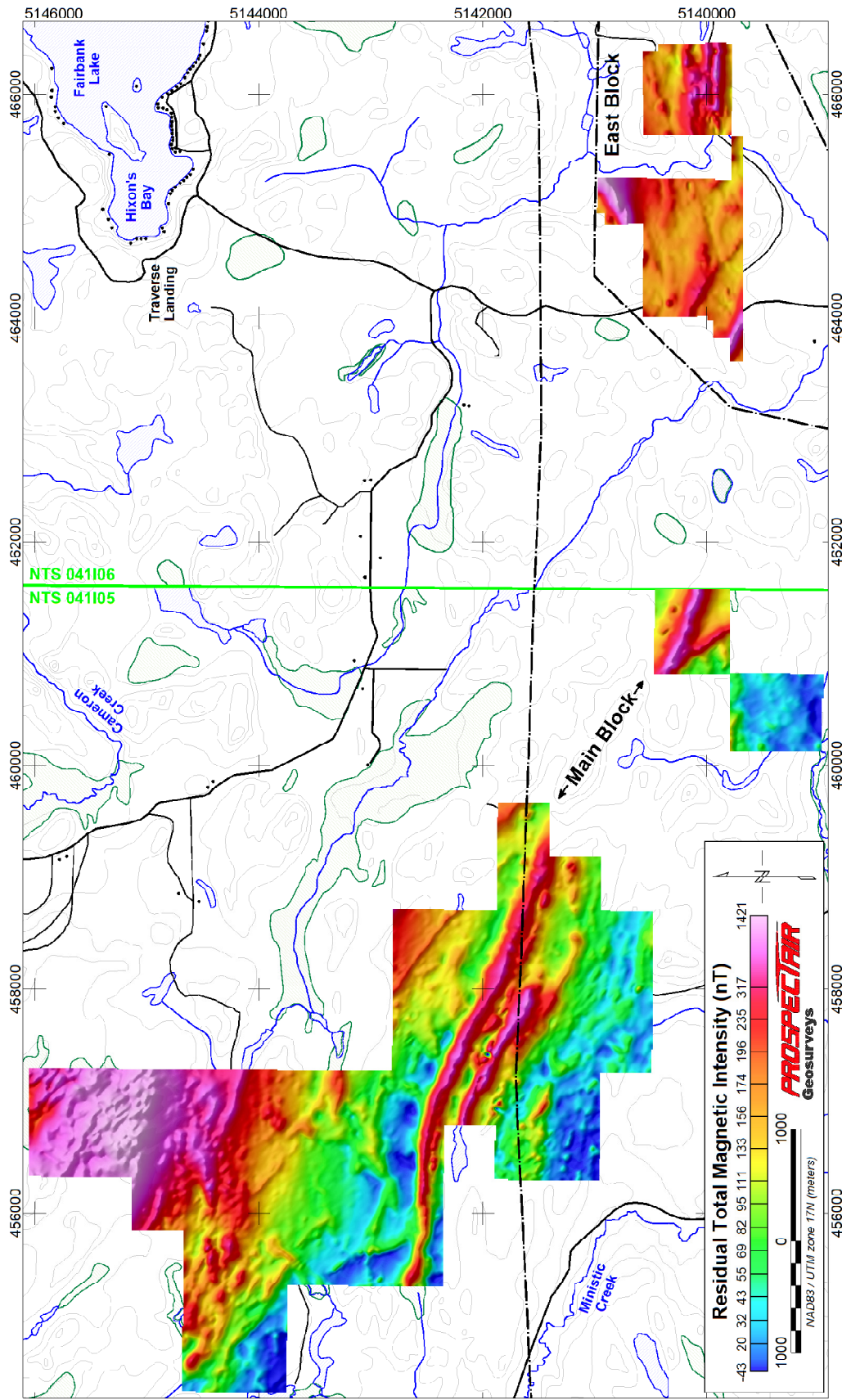


Figure 7: Residual Total Magnetic Intensity with linear color distribution

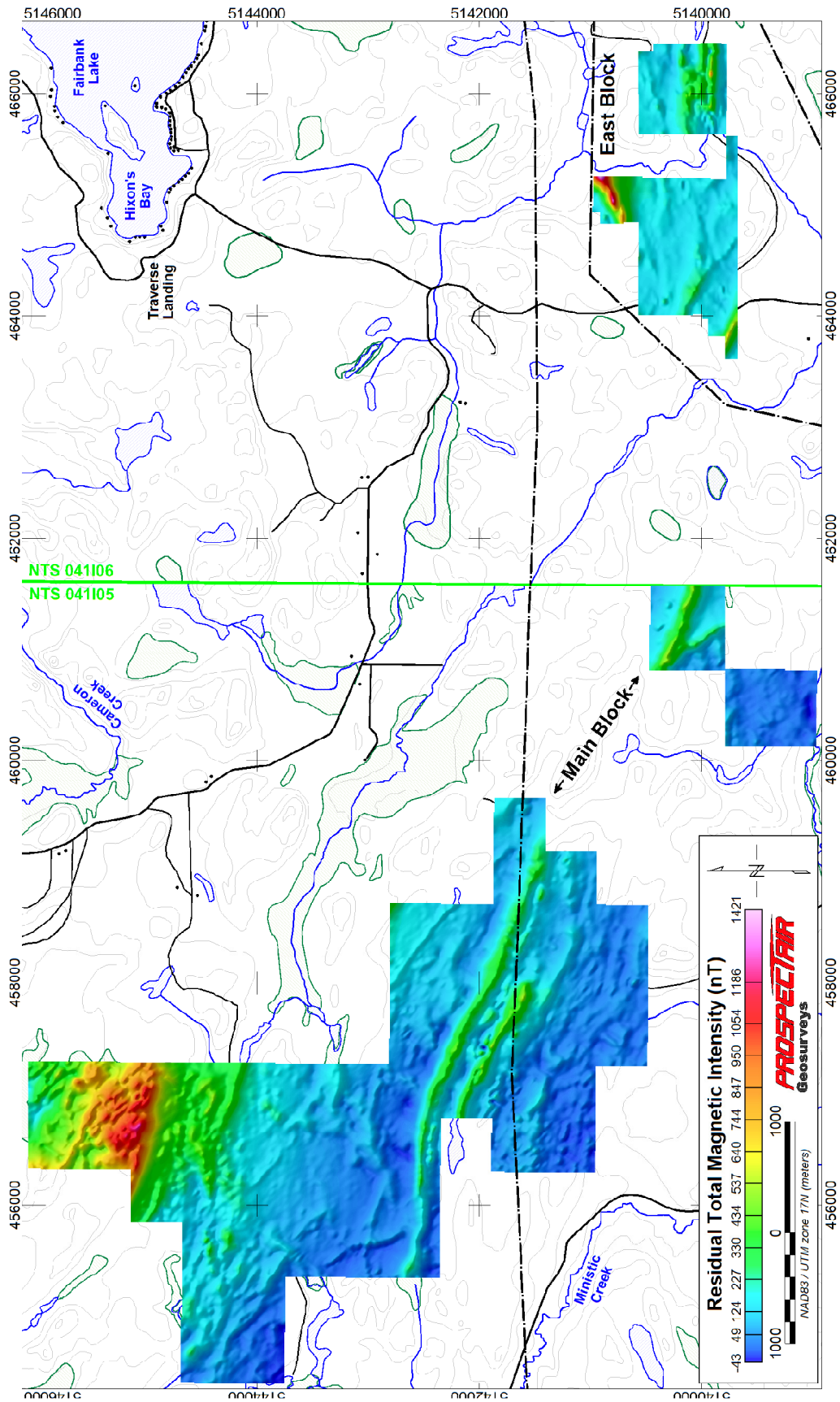


Figure 8: First Vertical Derivative of TMI

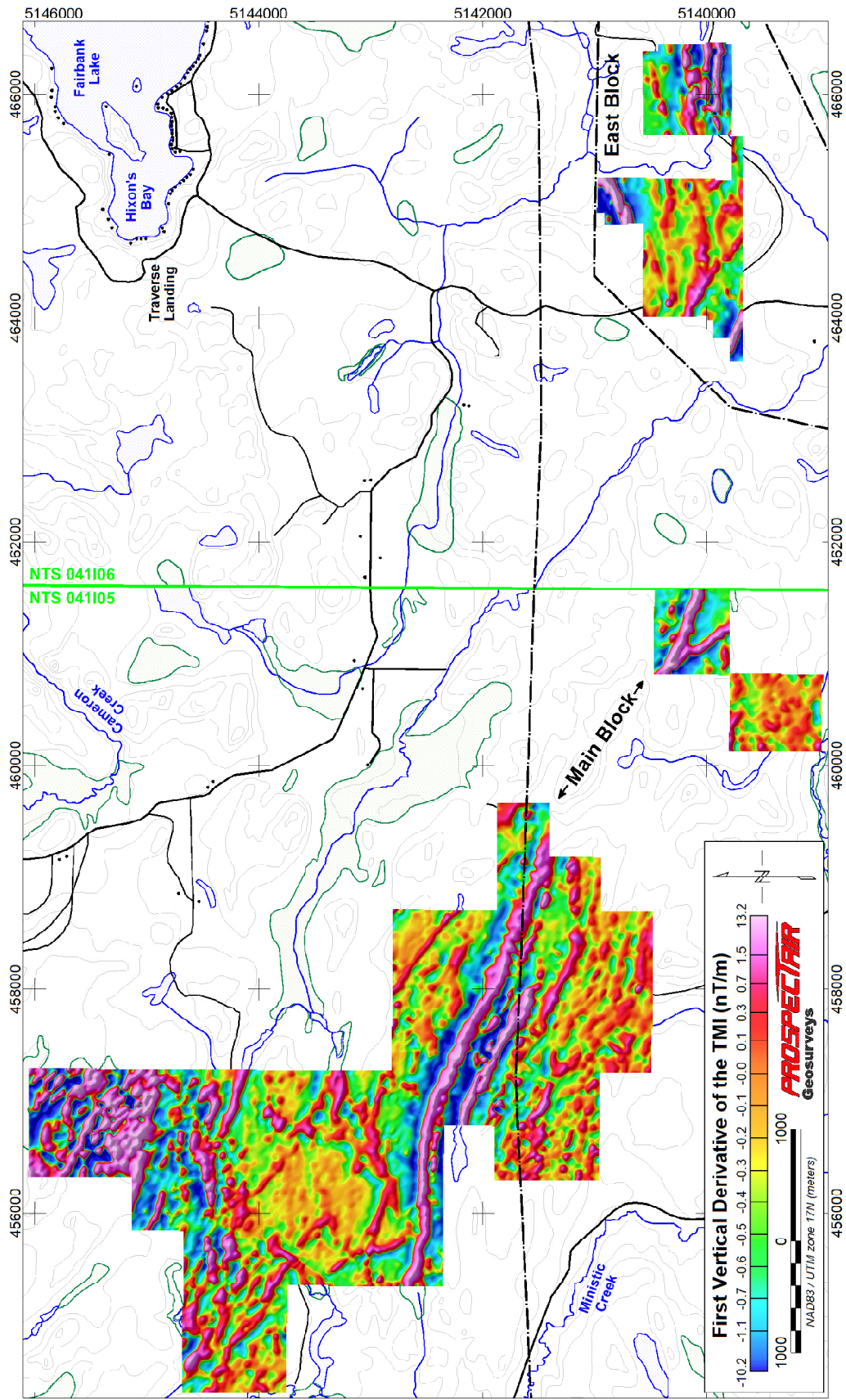
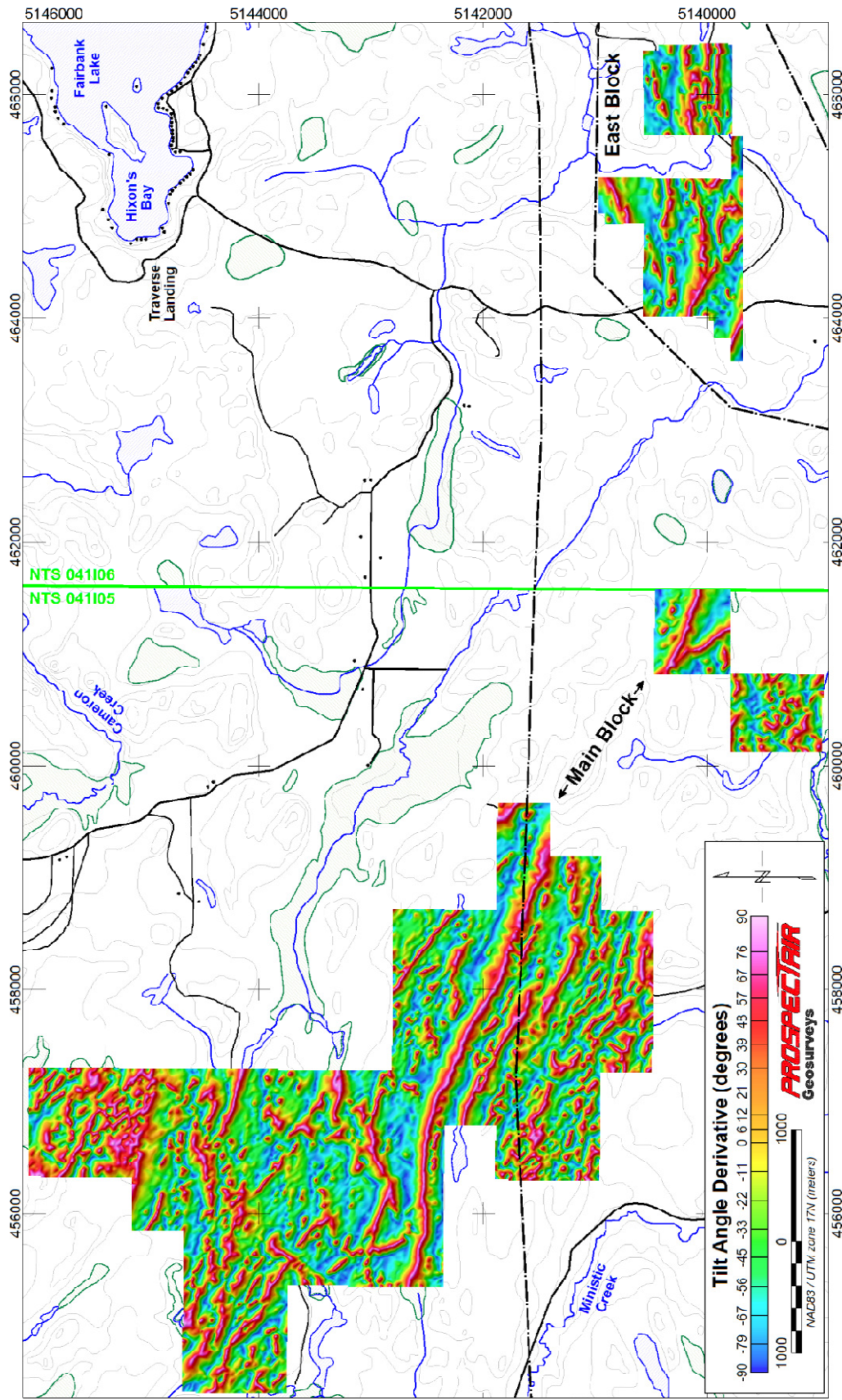


Figure 9: Tilt Angle Derivative



## VIII. FINAL PRODUCTS

### Digital Line Data

The Geosoft database is provided with the channels detailed in Table 3.

Table 3: **MAG line data channels**

No.	Name	Description	Units
1	UTM_X	UTM Easting, NAD-83, Zone 17N	m
2	UTM_Y	UTM Northing, NAD-83, Zone 17N	m
3	Lat_deg	Latitude in decimal degrees	Deg
4	Long_deg	Longitude in decimal degrees	Deg
5	Gtm_sec	Second since midnight GMT	Sec
6	Radar	Ground clearance given by the radar altimeter	m
7	Terrain	Calculated Digital Elevation Model (w.r.t. MSL)	m
8	GPS_Z	Helicopter altitude (w.r.t. MSL)	m
9	Mag_Raw	Raw magnetic data	nT
10	Mag_Lag	Lagged magnetic data	nT
11	Gnd_mag	Base station magnetic data	nT
12	Mag_Cor	Magnetic data corrected for diurnal variation	nT
13	TMI	Fully levelled Total Magnetic Intensity	nT
14	TMIres	Residual TMI (IGRF removed)	nT

### Maps

All maps are referred to NAD-83 datum in the UTM projection Zone 17 North, with coordinates in metres. Maps are at a 1:15,000 scale and are provided in PDF, PNG and Geosoft MAP formats for the products detailed in Table 4.

Table 4: **Maps delivered**

No.	Name	Description
1	DEM+FlightPath+Claims	Digital Elevation Model with flight path and property claims
2	TMI	Residual Total Magnetic Intensity
3	FVD	First Vertical Derivative of the TMI
4	TILT	Tilt Angle Derivative

### Grids

All grids are referred to NAD-83 in the UTM projection Zone 17 North, with coordinates in metres. Grids are provided in Geosoft GRD format, with a 10 m grid cell size, as well as in the Geotiff format for the products listed in Table 5.

Table 5: **Grids delivered**

No.	Name	Description	Units
1	Terrain	Calculated Digital Elevation Model	m
2	TMI	Total Magnetic Intensity	nT
3	FVD	First Vertical Derivative of TMI	nT/m
4	SVD	Second Vertical Derivative of TMI	nT/m <sup>2</sup>
5	TMIres	Residual TMI (IGRF removed)	nT
6	TILT	Tilt Angle Derivative	Degree

### Project Report

The report is submitted in PDF format.

Respectfully submitted,




Joël Dubé, P.Eng.  
October 11, 2022



## IX. STATEMENT OF QUALIFICATIONS

Joël Dubé  
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Ottawa, ON, Canada, K1C 3K3

Telephone: 819.598.8486  
E-mail: jdube@ddgeoscience.ca

I, Joël Dubé, P.Eng., do hereby certify that:

1. I am a Professional Engineer specialized in geophysics, President of Dynamic Discovery Geoscience Ltd., registered in Canada.
2. I earned a Bachelor of Engineering in Geological Engineering in 1999 from the École Polytechnique de Montréal.
3. I am an Engineer registered with the Ordre des Ingénieurs du Québec, No. 122937, and a Professional Engineer with Professional Engineers Ontario, No. 100194954 (CofA No. 100219617), with the Association of Professional Engineers and Geoscientists of New Brunswick, No. L5202 (CofA No. F1853), with the Association of Professional Engineers of Nova Scotia, No. 11915 (CofC No. 51099), with Engineers Geoscientists Manitoba, No. 43414. (CofA No. 6897), with Professional Engineers & Geoscientists Newfoundland & Labrador, No. 10012 (PtoP No. N1134) and with the Northwest Territories Association of Professional Engineers & Geoscientists, No. L4447 (PtoP No. P1414).
4. I have practised my profession for 23 years in exploration geophysics.
5. I have not received and do not expect to receive a direct or indirect interest in the properties covered by this report.

Dated this 11<sup>th</sup> day of October, 2022

Joël Dubé, P.Eng. #100194954

## X. Appendix A – Survey block outline

### SW Sudbury Main Block, northwest part

Easting	Northing
458696	5140482
457250	5140491
457253	5140954
456293	5140961
456300	5141892
456780	5141889
456783	5142347
455343	5142357
455353	5143746
454393	5143753
454400	5144684
455840	5144674
455843	5145137
456323	5145133
456330	5146059
457294	5146052
457272	5142812
458712	5142801
458706	5141876
459666	5141869
459663	5141401
459183	5141404
459180	5140941
458699	5140944

### SW Sudbury Main Block, southeast part

Easting	Northing
460814	5138968
460122	5138975
460128	5139799
460809	5139798
460813	5140473
461578	5140468
461573	5139792
460827	5139793

### SW Sudbury East Block, west part

Easting	Northing
465629	5139785
465629	5139688
463619	5139687
463618	5139790
463810	5139790
463816	5139945

Easting	Northing
463971	5139948
463972	5139990
464012	5139990
464002	5140574
464842	5140567
464837	5140911
464938	5140910
464938	5140980
465257	5140977
465238	5139786

**SW Sudbury East Block, east part**

Easting	Northing
465640	5139780
465632	5140566
466382	5140573
466381	5140439
466446	5140439
466450	5139972
466452	5139855
466448	5139778

## XI. Appendix B – Property claims covered by the survey

Tenure number	Holder	l-km within
609798	(100) SOUTH SHORE PARTNERSHIP INC.	4.795
609799	(100) SOUTH SHORE PARTNERSHIP INC.	4.795
609800	(100) SOUTH SHORE PARTNERSHIP INC.	4.795
609801	(100) SOUTH SHORE PARTNERSHIP INC.	4.797
609802	(100) SOUTH SHORE PARTNERSHIP INC.	4.795
609803	(100) SOUTH SHORE PARTNERSHIP INC.	4.797
609804	(100) SOUTH SHORE PARTNERSHIP INC.	4.797
609805	(100) SOUTH SHORE PARTNERSHIP INC.	4.797
609806	(100) SOUTH SHORE PARTNERSHIP INC.	4.797
609807	(100) SOUTH SHORE PARTNERSHIP INC.	4.797
609808	(100) SOUTH SHORE PARTNERSHIP INC.	4.797
609809	(100) SOUTH SHORE PARTNERSHIP INC.	4.797
609810	(100) SOUTH SHORE PARTNERSHIP INC.	4.797
609811	(100) SOUTH SHORE PARTNERSHIP INC.	4.799
609812	(100) SOUTH SHORE PARTNERSHIP INC.	4.799
609813	(100) SOUTH SHORE PARTNERSHIP INC.	4.797
609814	(100) SOUTH SHORE PARTNERSHIP INC.	4.797
609815	(100) SOUTH SHORE PARTNERSHIP INC.	4.797
609816	(100) SOUTH SHORE PARTNERSHIP INC.	4.797
609817	(100) SOUTH SHORE PARTNERSHIP INC.	4.797
609818	(100) SOUTH SHORE PARTNERSHIP INC.	4.797
609819	(100) SOUTH SHORE PARTNERSHIP INC.	4.797
609820	(100) SOUTH SHORE PARTNERSHIP INC.	4.799
609821	(100) SOUTH SHORE PARTNERSHIP INC.	4.797
609822	(100) SOUTH SHORE PARTNERSHIP INC.	4.797
609823	(100) SOUTH SHORE PARTNERSHIP INC.	4.797
609824	(100) SOUTH SHORE PARTNERSHIP INC.	4.799
609825	(100) SOUTH SHORE PARTNERSHIP INC.	4.797
609826	(100) SOUTH SHORE PARTNERSHIP INC.	4.797
609827	(100) SOUTH SHORE PARTNERSHIP INC.	4.799
609828	(100) SOUTH SHORE PARTNERSHIP INC.	4.799
609829	(100) SOUTH SHORE PARTNERSHIP INC.	4.797
609830	(100) SOUTH SHORE PARTNERSHIP INC.	4.799
609831	(100) SOUTH SHORE PARTNERSHIP INC.	4.799
609832	(100) SOUTH SHORE PARTNERSHIP INC.	4.799
609833	(100) SOUTH SHORE PARTNERSHIP INC.	4.799
609834	(100) SOUTH SHORE PARTNERSHIP INC.	4.797
609835	(100) SOUTH SHORE PARTNERSHIP INC.	4.799
710195	(100) SOUTH SHORE PARTNERSHIP INC.	4.453
710196	(100) SOUTH SHORE PARTNERSHIP INC.	4.801
710197	(100) SOUTH SHORE PARTNERSHIP INC.	4.799
710198	(100) SOUTH SHORE PARTNERSHIP INC.	0.302
710199	(100) SOUTH SHORE PARTNERSHIP INC.	0.684
710200	(100) SOUTH SHORE PARTNERSHIP INC.	4.801
710201	(100) SOUTH SHORE PARTNERSHIP INC.	0.468
710202	(100) SOUTH SHORE PARTNERSHIP INC.	3.247
710203	(100) SOUTH SHORE PARTNERSHIP INC.	2.585
710204	(100) SOUTH SHORE PARTNERSHIP INC.	1.349

Tenure number	Holder	l-km within
710205	(100) SOUTH SHORE PARTNERSHIP INC.	4.799
710206	(100) SOUTH SHORE PARTNERSHIP INC.	1.959
710207	(100) SOUTH SHORE PARTNERSHIP INC.	0.709
710208	(100) SOUTH SHORE PARTNERSHIP INC.	2.013
710209	(100) SOUTH SHORE PARTNERSHIP INC.	1.176
710210	(100) SOUTH SHORE PARTNERSHIP INC.	3.104
710211	(100) SOUTH SHORE PARTNERSHIP INC.	4.045
710212	(100) SOUTH SHORE PARTNERSHIP INC.	3.057
710213	(100) SOUTH SHORE PARTNERSHIP INC.	2.283
710217	(100) SOUTH SHORE PARTNERSHIP INC.	1.131
710218	(100) SOUTH SHORE PARTNERSHIP INC.	2.097
710219	(100) SOUTH SHORE PARTNERSHIP INC.	4.799
710220	(100) SOUTH SHORE PARTNERSHIP INC.	4.799
710221	(100) SOUTH SHORE PARTNERSHIP INC.	2.583
710222	(100) SOUTH SHORE PARTNERSHIP INC.	0.493
710223	(100) SOUTH SHORE PARTNERSHIP INC.	2.428
710224	(100) SOUTH SHORE PARTNERSHIP INC.	2.179
710225	(100) SOUTH SHORE PARTNERSHIP INC.	2.791
716855	(100) SOUTH SHORE PARTNERSHIP INC.	4.799
716856	(100) SOUTH SHORE PARTNERSHIP INC.	4.799
716857	(100) SOUTH SHORE PARTNERSHIP INC.	4.799
716858	(100) SOUTH SHORE PARTNERSHIP INC.	4.799
716859	(100) SOUTH SHORE PARTNERSHIP INC.	4.799
716860	(100) SOUTH SHORE PARTNERSHIP INC.	4.799
716861	(100) SOUTH SHORE PARTNERSHIP INC.	4.799
716862	(100) SOUTH SHORE PARTNERSHIP INC.	4.799
716863	(100) SOUTH SHORE PARTNERSHIP INC.	4.799
716864	(100) SOUTH SHORE PARTNERSHIP INC.	4.799
716865	(100) SOUTH SHORE PARTNERSHIP INC.	4.799
716866	(100) SOUTH SHORE PARTNERSHIP INC.	4.799
718848	(100) SOUTH SHORE PARTNERSHIP INC.	4.797
718849	(100) SOUTH SHORE PARTNERSHIP INC.	4.795
718850	(100) SOUTH SHORE PARTNERSHIP INC.	4.797
718871	(100) SOUTH SHORE PARTNERSHIP INC.	4.797