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#### Assessment Report on the Tabor - Santa Maria Project Drone Magnetics Survey Tabor Lake Area, Northwestern Ontario, Canada

#### **Kenora Mining Division**

NTS Map Sheet 52F08/09

**Project Location** Latitude 49°31'04" North and Longitude 92°23'39" 543,845m East and 5,485,195m North (UTM NAD83 Zone 15N)

ASHLEY GOLD CORP

#### ASHLEY GOLD CORP.

(Owner / Operator) 707 7<sup>th</sup> Avenue SW. (Suite 1150) Calgary, Alberta Canada, T2P-3H6

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#### 1 SUMMARY

From March 17<sup>th</sup> to April 1<sup>st</sup>, 2023, Pioneer Exploration Consultants Ltd. (Pioneer) completed a 480.96 line-km combination 50m and High-Resolution 25m line spaced Unmanned Aerial Vehicle (UAV) Drone Magnetics Survey over the Tabor - Santa Maria Project approximately 40 km (as the crow flies) southeast of Dryden, Ontario. The survey was carried out at the request of Ashley Gold Corp. Logistics and instrumentation reports are included as appendices to this report.

The aim of the Drone Magnetics survey was to acquire high-resolution magnetics data capable of being interpreted by a geophysicist and/or structural specialist for new target generation and to better understand current structurally controlled deposit styles and their potential offsets on the Project.

The raw, levelled magnetics data will be handed over to a geophysics consultancy for 3D inversion with block model and isoshell output products to assist in 3D digital interpretation and near-future drill planning.

The Tabor - Santa Maria Project is situated in the Melgund, Tabor Lake Area, and Kawashegamuk Lake Area townships within NTS map sheets 52F08/09 in the Kenora Mining Division. The Tabor – Santa Maria Project is comprised of 76 mineral claims and one "Mining Rights Only" Lease totaling approximately 19.3km<sup>2</sup>. The total work requirement for the claims is \$33,600 annually. Ashley Gold Corp. holds 100% ownership of the mining claims.

The Tabor - Santa Maria Project lies within the Eagle-Wabigoon-Manitou Lakes Greenstone Belt (EWMGB) which forms part of the Wabigoon Subprovince in Northwestern Ontario. The belt hosts many granitic batholiths which are thought to be derived from the same magmas as the belt volcanics. The largest batholith in the property area is the Revell Lake Granite batholith which lies roughly 5 km to the east of the Project.

#### 2 PROPERTY DESCRIPTION AND LOCATION

#### 2.1 Property Description

The Tabor – Santa Maria Project (the Project or the Property) is comprised of 76 mineral claims (74 single cell and 2 multi-cell (2 and 8 cells)) for a total of 84 mineral cells or approximately 19.3km<sup>2</sup> (Figure 1). The overall Project also encompasses the "Mining Rights Only" Lease (LEA-108876) covering the historic Tabor Mine. The total work requirement for the claims is \$33,600

annually. The Project is 100% held by Ashley Gold Corp with a 1.5% NSR on the Tabor Lease and a 1.75% NSR on all other mineral claims known as the Santa Maria block. Table 1 provides a description of the current mining claims covered by this Assessment Report.



Figure 1. The Tabor - Santa Maria Project Claims Location Map

Due to crew access problems all project claims listed in Table 1 were directly surveyed during this work program except: 652886, 652887, 652888, 652889, 652890, 652891, 652892, 652893, 652894, 652895, 731677, and 731678.

Claim ID	Туре	Due Date	Holder	Township	Work Required
744615	Single Cell Mining Claim	2024-09-03	024-09-03 (100) Ashley Gold Corp. Tabor Lake Area		\$400
744614	Single Cell Mining Claim	2024-09-03	(100) Ashley Gold Corp.	Tabor Lake Area	\$400
744613	Single Cell Mining Claim	2024-09-03	(100) Ashley Gold Corp.	Tabor Lake Area	\$400
744612	Single Cell Mining Claim	2024-09-03	(100) Ashley Gold Corp.	Tabor Lake Area	\$400
744611	Single Cell Mining Claim	2024-09-03	(100) Ashley Gold Corp.	Tabor Lake Area	\$400
744610	Single Cell Mining Claim	2024-09-03	(100) Ashley Gold Corp.	Tabor Lake Area	\$400
743792	Single Cell Mining Claim	2024-08-27	(100) Ashley Gold Corp.	Tabor Lake Area	\$400
743791	Single Cell Mining Claim	2024-08-27	(100) Ashley Gold Corp.	Tabor Lake Area	\$400
732007	Single Cell Mining Claim	2024-06-13	(100) Ashley Gold Corp.	Tabor Lake Area / Melgund	\$400
731678	Single Cell Mining Claim	2024-06-11	(100) Ashley Gold Corp.	Tabor Lake Area	\$400
731677	Single Cell Mining Claim	2024-06-11	(100) Ashley Gold Corp.	Tabor Lake Area	\$400
731666	Single Cell Mining Claim	2024-06-11	(100) Ashley Gold Corp.	Melgund	\$400
731665	Single Cell Mining Claim	2024-06-11	(100) Ashley Gold Corp.	Melgund	\$400
731664	Single Cell Mining Claim	2024-06-11	(100) Ashley Gold Corp.	Melgund	\$400
731663	Single Cell Mining Claim	2024-06-11	(100) Ashley Gold Corp.	Melgund	\$400
731662	Single Cell Mining Claim	2024-06-11	(100) Ashley Gold Corp.	Melgund	\$400
731661	Single Cell Mining Claim	2024-06-11	(100) Ashley Gold Corp.	Melgund	\$400
731660	Single Cell Mining Claim	2024-06-11	(100) Ashley Gold Corp.	Tabor Lake Area	\$400
731659	Single Cell Mining Claim	2024-06-11	(100) Ashley Gold Corp.	Tabor Lake Area	\$400
731658	Single Cell Mining Claim	2024-06-11	(100) Ashley Gold Corp.	Tabor Lake Area	\$400
731657	Single Cell Mining Claim	2024-06-11	(100) Ashley Gold Corp.	Tabor Lake Area / Melgund	\$400
731656	Single Cell Mining Claim	2024-06-11	(100) Ashley Gold Corp.	Tabor Lake Area / Melgund	\$400
731655	Single Cell Mining Claim	2024-06-11	(100) Ashley Gold Corp.	Tabor Lake Area / Melgund	\$400
731654	Single Cell Mining Claim	2024-06-11	(100) Ashley Gold Corp.	Tabor Lake Area	\$400
731653	Single Cell Mining Claim	2024-06-11	(100) Ashley Gold Corp.	Tabor Lake Area	\$400
731652	Single Cell Mining Claim	2024-06-11	(100) Ashley Gold Corp.	Tabor Lake Area	\$400
729050	Multi-Cell Mining Claim	2024-05-28	(100) Ashley Gold Corp.	Tabor Lake Area	\$800
725298	Multi-Cell Mining Claim	2024-05-13	(100) Ashley Gold Corp.	Tabor Lake Area / Melgund	\$3,200
653210	Single Cell Mining Claim	2023-04-26	(100) Ashley Gold Corp.	Tabor Lake Area	\$400

Table 1. Tabor - Santa Maria Project Active Claims Status.

Claim ID	Туре	Due Date	Holder	Township	Work Required	
653209	Single Cell Mining Claim	2023-04-26	(100) Ashley Gold Corp.	Tabor Lake Area	\$400	
653208	Single Cell Mining Claim	2023-04-26	(100) Ashley Gold Corp.	Kawashegamuk Lake Area	Area \$400	
653207	Single Cell Mining Claim	2023-04-26	(100) Ashley Gold Corp.	Kawashegamuk Lake Area	\$400	
652895	Single Cell Mining Claim	2024-04-22	(100) Ashley Gold Corp.	Tabor Lake Area	\$400	
652894	Single Cell Mining Claim	2024-04-22	(100) Ashley Gold Corp.	Tabor Lake Area	\$400	
652893	Single Cell Mining Claim	2024-04-22	(100) Ashley Gold Corp.	Tabor Lake Area	\$400	
652892	Single Cell Mining Claim	2024-04-22	(100) Ashley Gold Corp.	Tabor Lake Area	\$400	
652891	Single Cell Mining Claim	2023-04-22	(100) Ashley Gold Corp.	Kawashegamuk Lake Area	\$400	
652890	Single Cell Mining Claim	2023-04-22	(100) Ashley Gold Corp.	Kawashegamuk Lake Area	\$400	
652889	Single Cell Mining Claim	2024-04-22	(100) Ashley Gold Corp.	Kawashegamuk Lake Area	\$400	
652888	Single Cell Mining Claim	2024-04-22	(100) Ashley Gold Corp.	Tabor Lake Area	\$400	
652887	Single Cell Mining Claim	2024-04-22	(100) Ashley Gold Corp.	Tabor Lake Area	\$400	
652886	Single Cell Mining Claim	2024-04-22	(100) Ashley Gold Corp.	Tabor Lake Area	\$400	
597174	Single Cell Mining Claim	2023-07-02	(100) Ashley Gold Corp.	Tabor Lake Area	\$400	
597173	Single Cell Mining Claim	2023-07-02	(100) Ashley Gold Corp.	Tabor Lake Area	\$400	
597172	Single Cell Mining Claim	2023-07-02	(100) Ashley Gold Corp.	Tabor Lake Area	\$400	
590468	Single Cell Mining Claim	2023-05-19	(100) Ashley Gold Corp.	Kawashegamuk Lake Area	\$400	
590467	Single Cell Mining Claim	2023-05-19	(100) Ashley Gold Corp.	Tabor Lake Area	\$400	
590466	Single Cell Mining Claim	2023-05-19	(100) Ashley Gold Corp.	Tabor Lake Area	\$400	
590465	Single Cell Mining Claim	2023-05-19	(100) Ashley Gold Corp.	Tabor Lake Area	\$400	
590464	Single Cell Mining Claim	2023-05-19	(100) Ashley Gold Corp.	Tabor Lake Area	\$400	
590463	Single Cell Mining Claim	2023-05-19	(100) Ashley Gold Corp.	Tabor Lake Area	\$400	
590462	Single Cell Mining Claim	2023-05-19	(100) Ashley Gold Corp.	Tabor Lake Area	\$400	
590461	Single Cell Mining Claim	2023-05-19	(100) Ashley Gold Corp.	Tabor Lake Area	\$400	
590460	Single Cell Mining Claim	2023-05-19	(100) Ashley Gold Corp.	Tabor Lake Area	\$400	
590459	Single Cell Mining Claim	2023-05-19	(100) Ashley Gold Corp.	Tabor Lake Area	\$400	
590458	Single Cell Mining Claim	2023-05-19	(100) Ashley Gold Corp.	Tabor Lake Area	\$400	
590457	Single Cell Mining Claim	2023-05-19	(100) Ashley Gold Corp.	Tabor Lake Area	\$400	
590456	Single Cell Mining Claim	2023-05-19	(100) Ashley Gold Corp.	Kawashegamuk Lake Area	\$400	
590455	Single Cell Mining Claim	2023-05-19	(100) Ashley Gold Corp.	Kawashegamuk Lake Area	\$400	
590454	Single Cell Mining Claim	2023-05-19	(100) Ashley Gold Corp.	Kawashegamuk Lake Area	\$400	
590453	Single Cell Mining Claim	2023-05-19	(100) Ashley Gold Corp.	Kawashegamuk Lake Area	a \$400	
590452	Single Cell Mining Claim	2023-05-19	(100) Ashley Gold Corp.	Kawashegamuk Lake Area	\$400	
590451	Single Cell Mining Claim	2023-05-19	(100) Ashley Gold Corp.	Kawashegamuk Lake Area	\$400	
590450	Single Cell Mining Claim	2023-05-19	(100) Ashley Gold Corp.	Kawashegamuk Lake Area	\$400	

Claim ID	Туре	Due Date	e Holder Township		Work Required
590449	Single Cell Mining Claim	2023-05-19	(100) Ashley Gold Corp.	Kawashegamuk Lake Area	\$400
590448	Single Cell Mining Claim	2023-05-19	(100) Ashley Gold Corp.	Kawashegamuk Lake Area	\$400
590447	Single Cell Mining Claim	2023-05-19	(100) Ashley Gold Corp.	Kawashegamuk Lake Area	\$400
590025	Single Cell Mining Claim	2023-05-17	(100) Ashley Gold Corp.	Kawashegamuk Lake Area	\$400
589322	Single Cell Mining Claim	2023-05-17	(100) Ashley Gold Corp.	Kawashegamuk Lake Area	\$400
588606	Single Cell Mining Claim	2023-05-15	(100) Ashley Gold Corp.	Tabor Lake Area	\$400
588605	Single Cell Mining Claim	2023-05-15	(100) Ashley Gold Corp.	Tabor Lake Area	\$400
588604	Single Cell Mining Claim	2023-05-15	(100) Ashley Gold Corp.	Kawashegamuk Lake Area	\$400
588603	Single Cell Mining Claim	2023-05-15	(100) Ashley Gold Corp.	Kawashegamuk Lake Area	\$400
588602	Single Cell Mining Claim	2023-05-15	(100) Ashley Gold Corp.	Kawashegamuk Lake Area	\$400
588601	Single Cell Mining Claim	2023-05-15	(100) Ashley Gold Corp.	Kawashegamuk Lake Area	\$400
588305	Single Cell Mining Claim	2023-05-14	(100) Ashley Gold Corp.	Kawashegamuk Lake Area	\$400
LEA- 108876	Mining Lease	2032-10-31	(100) Ashley Gold Corp.	Tabor Lake Area	N/A

#### 2.2 Property Location



Figure 2. The Tabor - Santa Maria Project Location Map Within Northwestern Ontario

The Project is located in northwestern Ontario (Figure 2) approximately 40km southeast of Dryden and 55km west-northwest (as the crow flies) of Ignace, Ontario within the Kenora Mining Division, within Eagle-Wabigoon-Manitou Lakes Greenstone Belt (EWMGB) which forms part of the Wabigoon Subprovince. The approximate centroid of the Project is 49°31'04"N and 92°23'39"W (UTM coordinates 543845mE and 5485195mN, NAD 83, Zone 15). The Project lies in the townships of Melgund, Tabor Lake Area, and Kawashegamuk Lake Area townships within topographic maps National Topography System (NTS) map sheets 52F/08 and 52F/09.

## **3** ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

#### 3.1 Accessibility

Access to the Tabor - Santa Maria Project can be easily achieved via Trans-Canada Highway 1 either from Dryden or Thunder Bay, Ontario. The Project is located approximately 260 km northwest "as-the -crow-flies" of Thunder Bay, Ontario, 40 km southeast of the town of Dryden and 56 km west of Ignace. Dryden and Ignace can be accessed from Thunder Bay by land via Trans- Canada Highway (Highway # 17) that leads northwest. The Project can be accessed by heading south on Sandy Point Road from Highway 17 near Borups Corner, southeast of Dryden. Access to the northeast portion of the Project as well as the Tabor Mine area can be achieved by following Sandy Point Road south for approximately 5.25 km then heading west along Sandy Point Road #2 for approximately 0.5 km to the NE Project boundary. Tabor Mine is an additional 4.5 km west along this old logging road network. Access to the southern portion of the Project can be achieved by following Sandy Point Road and additional 10 km south along the eastern outskirts of the Project and then turning northwest onto Camp 33 Road and following it approximately 4.25 km before reaching the southeast boundary of the Project, however, an ATV or tracked Argo is required to access the old logging road. Alternatively, continuing on Sandy Point Road for an additional 1.5 km will get you to Sandy Point Camp, a group of fishing/hunting lodges which gives water access to the southern Project portions as well.

#### 3.2 Local Resources

Dryden, Ontario, a small growing community of 7,750 people can be utilized for lodging, fuel, core logging, and food supplies, and Thunder Bay, an established city of 110,175 with a university, hospitals, airports, lodging, and food is resource based and home to numerous mining contractors and businesses. Dryden being the first point of contact for numerous other exploration and mining operations in the area.

Qualified personnel can be found easily throughout the region as they have rich histories of forestry, mineral exploration, and mining production.

#### 3.3 Infrastructure

High tension power is available just on the north side of Highway 17 located approximately 7 kilometers northeast at it's closest point to the Project and approximately 10km from the past producing Tabor Mine and could easily be extended to the Tabor – Santa Maria Project if warranted. The project is situated near sources of water that could be utilized for future exploration and development. A mill and processing plant is planned for the nearby Goliath Gold Complex.

A nearby, multi-cabin hunting and fishing lodge named Sandy Point Camp can be rented and utilized for accommodation of drillers and workers during the months of May to October.

There are old mine workings located at the Tabor Mine site, however it has been sealed and decommissioned, therefore, no usable infrastructure currently exists within the Project boundaries, nor is planned for the Project's current stage. The author is not qualified to assess on-site suitability for infrastructure development, however, there potentially exists sufficient surface area within the current claims to utilize in potential future tailings, waste disposal, or heap leach pad areas etc.

#### 3.4 Physiography and Climate

The Tabor - Santa Maria Project is within a typical boreal forest environment in the west-central portion of the Boreal Shield Ecozone that has been burned by forest fires and logged repeatedly. Topography, for the most part, is low relief with generally poor bedrock exposure in low-lying outcrops and isolated ridges, and gently rolling sand plains related to past glacial activity. Elevations range from 375m to 435m above mean sea level. Limited bedrock exposures have been trenched in the past, but most of the property is covered with a sandy to gravelly boulder till. Overburden depths are generally less than 10m as judged from past drilling. The thin cover supports growths of pine and birch vegetation, with lesser spruce, fir and poplar depending on the soil type and drainage. Low-lying areas of the Project are characterized by cedar and cedar-alder swamps, with variations of alder, cedar, and cattail swamps along the Long Lake River system at the western fringes of the claims. The climate is northern temperate with warm summers and cold winters. Temperatures range from +30 degrees Celsius in the summer to -40 degrees Celsius in the winter. The ground is usually covered with snow between mid- to late-November and mid-April making it inaccessible for general geological ground work. However, thanks to the abundance of continually maintained roads and trails and proximity to large water sources, the Project has a year-round operating season for activities such as drilling and ground geophysics.

#### 4 HISTORIC EXPLORATION

Some historic regional exploration work (e.g. geophysical and geochemical surveys) have more recently been carried out on large portions of the Project, however, the majority of the advanced historical work such as drilling and underground development has taken place within the vicinity of the Tabor Mine and a few showings in the south with test pits and shallow shafts. Each company carried out site-specific prospecting and/or exploration work on isolated claim groups or survey blocks within the Project area based on the "patchwork" and ever-changing ownerships without an amalgamated regional view and approach for systematic exploration.

Exploration History Summarized from Newton & Wellstead, 2013

Various individuals and companies have acquired or examined portions of the claim group commencing around 1900. The property size and shape has changed over its 100-year period and some of the summarized history below details work done on portions of the Project that are no longer part of the Santa Maria property.

The following are summaries of historic works conducted by previous operators:

#### 1900–1901

Long Lake Gold Mining Company completed 2 shafts, 28 feet (8.5 m) and 20 feet (6.1 m) and planned a test stamp mill on the zone referred to as the Santa Maria Shaft Zone.

#### 1935-1938

Clark Gold Mines Limited carried out underground development of the Tabor Lake Mine including an old inclined (75°) shaft was slashed to vertical and timbered to a depth of 280 feet, and levels were established at 68, 125, and 250 feet deep. Drifting amounted to 32 feet on the first (68-foot) level, and 134 feet of drifting and 134 feet of crosscutting on the second (125-foot) level. In 1935, 37 tons of ore was milled for the production of 35 ounces of gold, valued at \$1,243.00 at the time. Diamond-drill exploration in 1936 amounted to 540 feet, in 1937 to 15 holes totalling 4,500 feet, and in 1933 to 6 holes totalling 2,315 feet. In 1937, a surface cut of 77 tons was shipped for refining and returned values of approximately 0.5 oz/t Au.

#### 1939

Sylvanite Gold Mines Limited completed a brief assessment of the property; one sample collected from Santa Maria Shaft area assayed 6.1 g/t Au.

#### 1958

Tabor Lake Gold Mines Limited used the Tabor Lake Mine as a qualifying property for their prospectus and conducted a two-day site visit examining what was left of the historic core and any surface exposures visible at the time.

#### 1964

Resident Geologists Report of a "high grade" quartz vein found by N. McKinnon in the early 1900s. This occurrence is referred to as the Lee Lake occurrence although it is on Long Lake (Kawashegamuk Lake).

#### 1964

W. L. Olsen is reported to have held claims but no relevant assessment work has been located.

#### 1980

Sulpetro completed a geological mapping program on the Tabor Lake Mine Property.

#### 1981

Falconbridge Copper Limited completed magnetometer and VLF-EM surveys over the western part of the Santa Maria Property.

#### 1982

Sulpetro Mineral Limited carried out geophysical surveys, geological mapping, diamond drilling and dewatering of the underground workings and chip sampling of the vein systems.

#### 1984

Labrador Exploration Limited completed a ground magnetometer (Fluxgate) survey over a 33claim property that included the Santa Maria Shaft Zone; they are also reported to have completed 1 diamond drill hole in the area of Shaft #1 of the Santa Maria Zone, but neither drill logs nor assays were located.

#### 1988-1989

Glatz, A., completed prospecting and sampling as well as bulldozer stripping in the winter in the area of the Santa Maria Shafts Zone.

#### 1990

Kozowy, A., completed blasting and sampling on the Lee Lake (Matson) occurrence, grab samples as high as 26.7 g/t Au.

#### 2009

As part of data verification in the preparation of a NI 43-101 Technical Report for United Reef Limited, Seymour Sears of Sears, Barry and Associates Ltd visited the property for the purpose of confirming the presence of gold mineralization and to determine the potential for hosting economic gold mineralization. Six rock samples were collected near the Santa Maria Shaft Zone.

#### 2012

Black Widow Resources conducted an airborne EM and magnetometer survey over the Santa Maria property. The magnetic data show strong NW-trending striations corresponding to the subvertical metavolcano-sedimentary units of the Eagle-Wabigoon-Manitou belt. An outstanding high in the magnetic derivative data is located in the vicinity of the two Santa Maria shafts within approximately 100 m to the northwest of Shaft 2.

An initial site visit to the Santa Maria property was made by Black Widow and Brian Newton, PGeo. in August 2012. The Santa Maria shaft was visited, and eight samples were taken from both shaft areas plus an old trench that lies close to Shaft #2.

There were some samples with elevated Au values (293, 199 pbb). The sampling did not generate favourable values comparable to those produced historically with earlier purported results.

#### 2022

Clark Exploration and Consulting personnel carried out a prospecting program for Ashley Gold Corp. on the southern portion of the Santa Maria Project located on the north end of Kawashegamuk (Long) Lake around Santa Maria Shafts #1 and #2. The program consisted of four field days collecting a total of 30 grab samples which were sent for gold and multi-element analysis.

Most of the work performed focused around historic occurrences on the southern end of the Project, such as the Lee Lake South occurrence (claim 590025) and the Shaft #2 occurrence (claim 588305). The highest gold values obtained were 14.3 g/t Au in grab sample E6096208 and 11.1 g/t Au in sample E6096222.

#### 5 GEOLOGICAL SETTINGS AND MINERALIZATION

#### 5.1 Regional Geology

Regional Geology has mainly been extracted and compiled from Newton & Wellstead (2013) and Fitchett (2022).

The Tabor – Santa Maria Project is located within the Eagle-Wabigoon-Manitou Lakes Greenstone Belt (EWMGB) which forms part of the Wabigoon Subprovince in Northwestern Ontario (Figures 3 and 4). The belt is peppered with granitic batholiths which are thought to be derived from the same magmas as the belt volcanics. The largest batholith in the property area is the Revell Lake Granite batholith which lies roughly 5 km to the east of the Project.

The greenstone belts are primarily volcanic (ultramafic to felsic) with minor clastic and chemical sediment. All units have been metamorphosed, deformed and intruded locally by syntectonic and post tectonic plutons and intrusions of ultramafic to felsic geochemistry.

The Superior Province is variably composed of Paleo- to Neoarchean (3500-2600 Ma) crustal fragments that amalgamated during a progressive Neoarchean accretionary event (Hoffman, 1988; Percival, 2007; Percival et al., 2012). In the southern Superior Province, crustal fragments are commonly bounded to the north and south by roughly east trending deformation zones that accommodated significant strain during terrane accretion (Percival, 2007; Stott et al., 2010; Percival et al., 2012). The Superior Province is well known for being composed of Archean greenstone belts that host diverse precious-metal and base- metal deposits. Deposit styles range from fault-hosted gold-bearing vein systems (Dube et al., 2007), intrusion-related deposits (Helt et al., 2014) and volcanogenic massive sulfide deposits (Dube et al., 2007).

The western Wabigoon Subprovince is a broad anastomosed belt of metavolcanic and metasedimentary rocks interspersed with oval to irregular felsic plutons extending from Minnesota northeastward through Sioux Lookout to Savant Lake. The Subprovince is bounded to the north by the >3100 Ma Winnipeg River Subprovince (Tomlinson, 2004), and to the south by the 3000-2800 Ma Marmion terrane (Backeberg et al., 2014) and 2710-2700 Ma Quetico Subprovince (Davis et al., 1990). The Wabigoon Subprovince is subdivided based on age and spatial relationships into two distinct domains. The eastern Wabigoon Subprovince contains Meso- to Neoarchean rocks (3000-2660 Ma) while the western Wabigoon Subprovince only contains Neoarchean rocks (2775-2680 Ma, Stott et al., 2002; Tomlinson et al., 2004; Percival et al., 2004). Greenstone sequences of the western Wabigoon Subprovince are interpreted to have developed about 2745 to 2712 Ma and to have been tectonically emplaced onto the Winnipeg River and Marmion terranes at 2703 to 2695 Ma (Sanborn-Barrie and Skulski 2006).

Several crustal-scale deformation zones, including the east trending Wabigoon and Mosher Bay-Washeibemaga deformation zones, and the northeast trending Manitou-Dinorwic deformation zone crosscuts the western Wabigoon Subprovince.



Figure 3. Regional Bedrock geological map of the Wabigoon-Stormy Lakes area

\*(modified from Montsion, R.M., Perrouty, S., Frieman, B.M., 2021)



Figure 4. Schematic structural synthesis of the western Wabigoon Subprovince.

\*Displays major episodes of volcanism, sedimentation, deformation, and hydrothermal events (Zammit, 2020).

The Dryden area is underlain by the western Wabigoon Subprovince, which is mostly composed of 2745- 2710 Ma mafic to felsic volcanic rocks that are interpreted to represent Neoarchean oceanic crust (Ayer and Davis, 1997; Wyman et al., 2000; Percival et al., 2004). Belts of 2710-2695 Ma turbiditic, volcaniclastic, alluvial, and chemical sedimentary rocks unconformably overlie the volcanic successions, and are interpreted to represent shallow- to deep-marine synvolcanic to alluvial-fluvial syn-orogenic sedimentary basins (Percival et al., 2004). The supracrustal successions are intruded by synvolcanic, 2740-2710 Ma gabbros, tonalites, and granodiorites (Tomlinson et al., 2004, Percival et al., 2004), syn-deformational, 2700-2640 Ma

monzodiorites and granites (Percival et al., 2012), and are metamorphosed to greenschist or amphibolite facies. The region is also crosscut by diabase dikes of the ~1890 Ma northwest trending Wabigoon swarm (Buchan and Ernst, 2004) and a ~1140 Ma north trending swarm (Heaman et al., 2007; Stone, 2010) (Figures 3 and 4).

#### 5.2 Property Geology

Local and Property Geology summarized from Sears (2009).

The Eagle-Wabigoon-Manitou Greenstone Belt (EWMGB) is aligned roughly north-south and is approximately 80 km long by 40 km wide. It is bounded by the Atikwa Batholith on the west, the Basket Lake and Revel Batholiths on the east and the Irene-Eltrut Lakes Batholith on the south. The northern boundary contacts the Winnipeg River Sub province.

The EWMGB is made from several lower sequences of tholeiitic to calc-alkaline ultramafic, mafic and felsic volcanic rocks which form the Lower Wabigoon, Pincher Lake and Kawashegamuk Lake Groups, and overlying sequences of mainly tholeiitic mafic volcanic rocks referred to as upper Wabigoon, Eagle Lake, and Boyer Lake Groups. The mainly mafic Wapageisi Group occupies the southern part of the greenstone belt separated from the remainder by the east-west trending Stormy Lake/Manitou Lakes Group of sedimentary and calc-alkaline felsic to intermediate volcanic rocks.

Several large regional faults cut the belt including the northeast trending Manitou Straits Fault Zone, the east-west trending Mosher Bay-Washeibemaga Lake Fault Zone, the east west trending Wabigoon Fault and the northwest trending Kawashegamuk Lake Fault Zone. The latter passes along the edge of the Tabor - Santa Maria Project.

The Revell Batholith, which forms the eastern boundary of the Kawashegamuk group volcanic rocks in this area, is located approximately 5 km east of the Project.

Most of the Tabor - Santa Maria Project is underlain by calc-alkaline metavolcanics of the Archean aged Kawashegamuk Lake Group (Figures 3 and 5) which form a lower mafic sequence and an upper intermediate-felsic sequence. These units have been intruded by dykes and small bodies of hypabyssal felsic rocks. The volcanics and the intrusives have been elongated and folded along an east-west axis (the Tabor Lake anticline) which strikes directly past the Tabor Lake Mine.



Figure 5. Tabor - Santa Maria Project Local Geology and Minfile Occurrences.

A very strong northwest trending fault/shear structure passes along the southwest boundary of the Project. The axis of this structure follows Kawashegamuk Lake (also referred to as Long Lake) where several gabbroic intrusive bodies are located along or proximal to the Kawashegamuk Lake structure. This shear hosts a zone of intense carbonate alteration that affects the mafic intrusive and volcanic rocks as well as the younger quartz and quartz feldspar porphyry bodies in the area. Outcrops of porphyry exist along the strike of this zone and trend throughout the Project, especially at the Tabor Lake Mine, as well as in a wide swath on the northeast corner of the Project area.

#### 5.3 Mineralization

Gold mineralization occurs in several gold-bearing quartz-carbonate veins mainly associated with syn-deformational felsic Quartz-Feldspar Porphyry (QFP) dykes and intrusions situated at varying localities and orientations throughout the Project (Figure 5).

Developed prospects within the Dryden area include:

- Goldlund deposit (past production of ~18 Koz Au from 1982 to 1985, measured and indicated resource of ~809 Koz Au, inferred of ~877 Koz Au; McCracken, 2019),
- Kenwest prospect (past production of ~15 Koz Au from 1902 to 1943, inferred resource of ~307 Koz Au; Maunula, 2010), and
- Van Horne prospect (past production of ~0.6 Koz Au from 1900 to 1943; Chiang 2012). Another notable gold deposit in the region is the Goliath gold deposit (measured and indicated resource of ~1,230 Koz Au, inferred resource of ~227 Koz Au; Puritch et al., 2019). The genetic nature of the Goliath deposit is uncertain but is proposed to represent a remobilized gold-rich volcanogenic (VMS) system overprinted by orogenic gold mineralization (Puritch et al., 2019).

#### 5.3.1 Tabor Mine (MDI52F09SW00034)

1897: Property staked by J. Tabor and J. Stevenson. 1897-99: Tabor and Stevenson leased the ground to the Eastern Townships Mining and Development Company. Shaft sunk approximately 70 feet, inclined 800 and some surface stripping. Work by Eastern Township and Development Co. 1934-38: property was acquired by the Clark Syndicate and in October 1934, Clark Gold Mines, Limited, was incorporated to take over the property development. E.M. Mclean Limited was also involved in this reactivation. Original shaft slashed to vertical and continued to 280 feet with levels at 68, 125 and 250 feet. Drifting totaled 276 feet and crosscutting 263 feet (Figure 6). Surface diamond drilling exceeded 21 holes totaling 7,355 feet. Work by Clark Gold Mines Ltd. In 1937, a 1,700 pound bulk sample was tested in Ottawa and assayed 0.36 oz./ton Au, while later a 3,788-pound bulk sample tested at the Temiskaming Laboratories assayed \$47.44 per ton gold. 1957-61: Six surface holes totaling 2,214 feet. 185 feet of drifting and 185 feet of crosscutting. 15-ton mill installed. Work by Pantan Mines Ltd. Prior to 1961 a 15-ton mill was installed but work

was suspended pending new financing as shareholders appealed for an injunction to block the merger between Tabor Lake Gold Mines Limited and Pantan Mines Limited. In April 1964 Pantan became Medallion Mines Limited through amalgamation and assigned their lease to the new company. Medallion could not obtain financial backing and in 1966 the prospect reverted back to Tabor Lake Gold Mines. Medallion was dissolved in 1968 but Tabor Lake continued to maintain the claims. In 1976 the Ontario charter of Tabor Lake was also cancelled, but Tabor may have released the property prior to this date. In 1978 this property was re-staked by R.V. Ekstrom who did magnetometer and EM surveys the following year.



Figure 6. Tabor Mine Historical Workings and Highlight Gold Intercepts

Mafic metavolcanics have been intruded by quartz porphyry. An irregularly shaped porphyry body, about 200 feet thick, which strikes east and dips 47° south, is cut by gold-bearing quartz veins. The main Tabor Lake vein appears to extend from surface to about 400 feet with a gold-bearing zone at least 45 feet long. The vein thickness varies from a few inches up to two feet. The average grade across four feet is 0.34 oz/ton Au. After compiling all of the drill data, there appears to be the potential for four similar veins within 300 feet of the shaft. The potential tonnage of these four veins would be at least 50,000 tons.

A total of twelve veins were sampled, the results are presented in report of September 1980 by W. Ng-See-Quan. The most significant of the surface veins samples include V-3 surface trench on line 36E 0+30N which returned values of 1.18 oz/ton Au across a 25 cm chip sample and the V-5 on line 2E at about 8+OOS which returned 0.05 oz/ton Au in a grab sample.

Between 1935 and 1938, Clark Gold Mines Limited carried out underground development of the Tabor Lake Mine including slashing out of an old inclined (75°) shaft to vertical and timbered to a depth of 280 feet, and levels were established at 68, 125, and 250 feet deep. Drifting amounted to 32 feet on the first (68-foot) level, and 134 feet of drifting and 134 feet of crosscutting on the second (125-foot) level. In 1935, 37 tons of ore was milled for the production of 35 ounces of gold, valued at \$1,243.00 at the time. Diamond-drill exploration in 1936 amounted to 540 feet, in 1937 to 15 holes totalling 4,500 feet, and in 1933 to 6 holes totalling 2,315 feet. In 1937, a surface cut of 77 tons was shipped for refining and returned values of approximately 0.5 oz/t Au.

#### 6 DEPOSIT TYPES

Despite being explored and locally mined, the overall Tabor – Santa Maria Project is still considered to be an early-stage project in need of systematic exploration using modern techniques. Considering the regional geological settings in conjunction with associated structures, there exists high potential for discovery of syenite-hosted (Felsic QFP Dykes) and Archean lode gold deposits on the Project.

#### 6.1 Syenite-Hosted (Quartz-Feldspar Porphyry) Gold Deposits

The syenite-hosted and quartz-feldspar porphyry-hosted gold deposits commonly associated with quartz-monzonite to syenite stocks and dikes are well represented throughout the Greenstone Belts of Ontario, particularly within the Porcupine and Kirkland Lake districts of northern Ontario and the Eagle-Wabigoon district of northwestern Ontario.

According to Robert (2004), the syenite-hosted gold deposits occur mainly along major fault zones (Figure 7), in association with preserved alluvial-fluvial, Timiskaming-type, sedimentary rocks.

Robert (2004) describes the gold mineralization in these deposits as being represented by disseminated sulfide replacement zones, with variably developed stockworks of quartz-carbonate-K-feldspar veinlets within zones of carbonate, albite, K-feldspar, and sericite alteration. Syenitic (felsic) intrusions are broadly contemporaneous with deposition of clastic sedimentary basinal rocks and together with disseminated gold mineralization; they have been overprinted by subsequent regional folding and related penetrative cleavage.



Figure 7. Formation Setting of Archean Lode and Syenite-hosted Gold Deposits.

Disseminated gold mineralization occurs within the composite felsic stocks or along their margins, along satellite dikes and sills, and along faults and lithologic contacts away from intrusions. It has been interpreted that the mineralized bodies are proximal to distal components of large magmatic-hydrothermal systems centered on, and possibly genetically related to, the composite felsic syenitic stocks (Robert, 2004).

The Young-Davidson deposit, located in the Abitibi Greenstone Belt, just west of Matachewan, Ontario can be classified as an Archean, syenite-hosted gold deposit. The gold mineralization is primarily related to quartz veinlet stockworks and disseminated pyrite mineralization, mostly enclosed within the syenite intrusion boundaries, or very close to the contacts with the enclosing rocks and is frequently associated with broader zones of potassic alteration (Volk, 2017). This type of mineralization is similar to the Yilgarn block (Kalgoorlie, Western Australia). However, in the Yilgarn block, the gold mineralization is related to the granitic host rock contacts (Evans, 2007).

#### 6.2 Archean Orogenic "Lode" Gold Systems

Gold deposits along both the east and northeast trending branches of the Wabigoon sub-province are generally referred to as Archean lode gold deposits. Gold in these deposits is typically hosted in quartz and/or carbonate veins within structures that are related to regional scale deformation and alteration, and several are considered to be world-class deposits, especially withing other greenstone belts of Ontario such as the Abitibi. The zones of deformation and alteration represent long-lived structures that have controlled the development of the volcano-sedimentary terrain and its associated intrusives. The primary event responsible for the vast majority of gold in the deposits is typically related to post-peak alteration and deformation. Regionally, each area is characterized by multi-stage volcanic, sedimentary, and intrusive development with multiple phases of alteration and deformation. Individual gold deposits within a particular region often display common associations and controls (Colvine et al., 1984).

Recent research completed by Zammit (2020) has documented that the majority of known orogenic gold occurrences in the Dryden area largely occur within 5-10 km of the major east and northeast-trending deformation zones (Wabigoon deformation zone, Mosher Bay – Washeibemaga deformation zone, Manitou – Dinorwic deformation zone). Based on this research, gold mineralization at the Goldlund deposit and Kenwest prospect are temporally associated with syn-D2 sinistral transpression along the Manitou – Dinorwic deformation zone (D2, <2695 Ma, likely 2680-2580 Ma) (Figure 9). A later phase of hydrothermal activity, dated at ~2590-2580 Ma, could represent a second period of widespread hydrothermal activity, and possibly gold remobilization.

Gold deposits of the Larder Lake-Cadillac Deformation Zone within the Abitibi Greenstone Belt of Ontario include the Kirkland Lake, Macassa, Kerr-Addison, Upper Beaver, Chesterville, McBean, Anoki, Cheminis, and Omega gold mines. The deposits are considered to be the result of a regional-scale hydrothermal system that corresponds to an approximately 20km long segment of the deformation zone (Ayer et al., 2005). Most of the gold mined was extracted from sulfide rich replacement ores in tholeiitic mafic metavolcanics that are referred to as "flow ore". The second most common host rock is native gold-bearing quartz stockwork in carbonate-fuchsite altered meta-ultramafic rocks that are referred to as "green carbonate ore". The majority of the gold in these deposits is considered related to the D2 or D3 structures.

Some of the gold occurrences on the Project and surrounding area can be considered as belonging to this style of gold mineralization referred to as orogenic. The orogenic gold deposit model (Groves et al., 1998) characterizes structurally controlled gold occurrences formed during

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orogenesis by relatively homogeneous hydrothermal fluid flows of variable origin (Fig. 10). The origins of the fluids are theorized to include metamorphic devolatilization, felsic plutonism and mantle fluids (Hagemann and Cassidy, 2000).

A simplified schematic of the structural characteristics of Archean lode-gold deposits is presented in Figure 8. The schematic illustrates the relationship of the veining and the stages of mineralization within the structures produced during deformation. Of key importance is the formation of shallow dipping extensional veins projecting outward from the primary vein. Some of the gold-bearing quartz veins in the area are shallow dipping veins and may represent extensional veins connected to a much larger gold-bearing structure. Shallow dipping veins are more likely to outcrop than vertical veins, especially in areas with moderate topographic relief.



Figure 8. Illustration of Gold-Bearing Veins Related to Host Rock Deformation

\*(Dube and Gosselin, 2009).

These deposits are thought to have first-order tectonic controls and are associated with crustalscale faults, which tap sub-crustal source regions, although individual deposits are commonly situated in second order and third-order structures (Groves et al., 2016). Any rock type within a greenstone belt, including supracrustal rocks, dykes, or intrusions within or bounding such belts may host an orogenic gold deposit. There is strong structural control of mineralization at a variety of scales, but the favoured host is typically the locally most reactive and/or most competent lithological unit.

Orogenic gold deposits exhibit strong hydrothermal alteration with lateral zoning composed of mineral assemblage's indicative of proximal to distal alteration. These alteration mineral assemblages, composed generally of carbonates (ankerite, dolomite, or calcite) and sulfides (mainly pyrite, pyrrhotite, or arsenopyrite), vary with the type of host rock and crustal depth. The assemblages are typically enriched in As, Au, CO<sub>2</sub>, K, Rb, S, Sb, Te, and W; in some cases, Ag, B, Bi, Co, Cu, and Se are also enriched.



Figure 9. Schematic of mineralized-fluid source models for orogenic gold deposits

\*(Groves et. Al, 2020).

The mineralized deposits typically form shoots. A mineralized deposit can be 0.5 - 50 m wide, 100's of metres long, and consists typically of a vein network, an en-echelon vein swarm, or just of one single large vein. The depth extent of a mineralized deposit may well be much larger than its extent along strike.

#### 7 EXPLORATION RESULTS

In late March 2023, Pioneer Exploration Consultants Ltd. (Pioneer) completed an 480.96 line-km High Resolution UAV Drone Magnetics (25-50 meter line spacing) survey over the majority of the Tabor - Santa Maria Project located approximately 40km (as the crow flies) southeast of Dryden, Ontario.

Data collection for this survey area was conducted at 50 m spaced lines with 500 m spaced tie lines, with a higher resolution area completed at 25 m spaced lines with 250 m spaced tie lines. The nominal magnetic sensor altitude above ground level (AGL) was set to 40 m. Elevation from the terrain may vary depending on the treeline and obstacles on the flight route. A 5 m resolution DSM was acquired from Apollo Mapping. This was used to assist the UAV terrain following procedure and to minimize the possible topographic effects on the magnetic data. The nominal production groundspeed is 9 m/s for flat topography with no wind. The survey speed may vary depending on the terrain and environmental conditions.

The ground crews performed daily safety meetings and pre-flight checks prior to the start of drone flight operations. The Pilot in Command (PIC) is responsible for the safety of the crew and equipment during the survey operations. Each survey flight is pre-planned using ground control software, then the flight plans are uploaded to the UAV prior to takeoff. The UAV system flies the pre-defined waypoint-based flight plans while the ground crew maintains visual line of sight with the craft and the flight telemetry information. Flights are terminated and the UAV returns for landing when the battery voltage reaches a certain limit, or when the flight plan is complete. The survey flights can be manually terminated and taken over with full manual pilot control at anytime. Upon landing, the flight batteries are exchanged, and the sensor is downloaded for data QAQC. The average distance covered by each flight is approximately 6-10-line kms of data acquisition.

The survey was carried out at the request of Ashley Gold Corp. Final magnetic data (TMI, 1VD, and ASIG) can be found in Figures 10, 11, and 12, respectively, while the logistics report, instrumentation report, and large-scale maps are included in this report as APPENDIX C.

The aim of the Drone Magnetics survey was to acquire high-resolution magnetic data capable of being interpreted by a geologist and/or structural specialist in conjunction with freely available government data sets for new target generation and to better understand current structurally controlled deposit style and any potential offsets, especially around the historic Tabor Mine. The secondary focus of the survey was to accurately locate any "hidden" highly magnetic QFP dykes similar to the known mineralized dykes for future trenching or drill testing.



Figure 10. Tabor - Santa Maria Drone Magnetics (Total Magnetic Intensity)



Figure 11. Tabor - Santa Maria Drone Magnetics (First Vertical Derivative)



Figure 12. Tabor - Santa Maria Drone Magnetics (Analytic Signal)

#### 8 DATA VERIFICATION

For data verification and quality control procedures refer to the survey operator's logistics and instrumentation reports in APPENDIX C.

#### 9 INTERPRETATION AND CONCLUSIONS

Despite being sporadically worked on for the last 100 years, most of the Tabor - Santa Maria Project is still at a relatively early stage of exploration. Given the geology and presence of high-strain fault and shear systems encountered historically, there exists potential for both syenite-(QFP) hosted and Archean lode-gold deposits on the Project. The presence of a multitude of intrusive dikes of varying phases and composition suggests that extensional structures and associated hydrothermal activity is relatively widespread on the Project. Historic diamond drilling captured a significant amount of information and insight into the geology and localized deformational zones on the Project and can be used as a base to expand upon.

The Tabor - Santa Maria Project's strong gold potential is supported by exploration, drilling, and historic bulk sampling. Drill intersections suggest a potential exists for expansion on known intercepts along strike and down-dip and that there are multiple gold intercepts within most historic holes suggesting a "stacked" en-echelon or sheeted vein system. 3D inversion of the drone magnetics, detailed structural interpretation, 3DIP, follow-up drilling, and 3D modelling should shed further light on this theory.

#### **10 RECOMMENDATIONS**

As a next step, additional exploration work is recommended to gain a better overall understanding of the Project, including a Ultra-High Resolution LiDAR survey with interpretation by a structural specialist including "ground-truthing" anomalies and trenches discovered, 3DIP surveying, review and modelling of historic data, and further structural/geological interpretation of the vein systems in preparation for exploration drilling. The operator should also digitize and compile all existing data into a Project-scale 3D geological interpretation model to generate new targets and understand existing ones better.

Understanding the structural geology is critical to the success of the Project. 3D Inversion of the drone magnetics and interpretation of the proposed ultra-high-resolution LiDAR survey is recommended to better distinguish the near-surface shear patterns and outline potential unknown structures and better constrain the width, extent, and characteristics of the mineralized structures.

After all detailed review is finalized, outcrop stripping/washing/mapping and trenching/sampling should be completed over "high-priority" targets followed up by exploration drilling to test continuity between known mineralized zones in terms of lateral and down-plunge extensions, to potentially discover new occurrences and "feeder zones", and to expand the current mineralization and alteration footprint at the Project scale.

The historic diamond drilling programs on the Project have served, in apart, to outline areas that merit further drill testing. Specifically, further diamond drilling should focus on stepping out and deeper from the Tabor Mine veins to target potential "feeder zones", as well as testing the Santa Maria Shaft target area. Additional recommended exploration could include ground 3DIP and EM geophysics surveys, to further define pertinent magnetic lineaments and to outline zones of silicification especially under areas of glacial till cover. After the ground geophysical surveys, high priority targets outlined could be tested with diamond drilling.

The author has prepared a cost estimate for the "next-phase" recommended work program to serve as a guideline for the Project. The estimated exploration budget (Table 2) of Phase 1 is **C\$250,000** and a Phase 2 contingent on Phase 1 results an additional **C\$500,000** (incl. 10% for contingencies).

The author believes that the recommended work program and proposed expenditures are appropriate and well thought out for the next stage of exploration.

Work Program	Cost Estimate
PHASE 1	
Project-Wide LiDAR Survey (~25km <sup>2</sup> )	\$25,000
In-Depth Structural Analysis and Modeling by Specialist	\$20,000
Outcrop Vein Stripping/Washing/Channel Sampling/Prospecting	\$65,000
Ground Geophysics (EM, IP, CSAMT etc.)	\$100,000
Digitization and GIS Compilation of all Available Data into a 3D Model	\$25,000
PHASE 1 - Exploration Subtotal	\$250,000
PHASE 2	
Drilling of New Targets (3,000m - All-in)	\$450,000
PHASE 2 - Exploration Subtotal	\$450,000
Contingency (10%)	\$50,000
EXPLORATION TOTAL	\$750,000

Table 2. Estimated Phase 1 & 2 Exploration Budget for the Tabor - Santa Maria Project

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#### **APPENDIX B: CERTIFICATE OF AUTHOR**

I, Shannon Baird, P.Geo., M.Sc., (PGO No. 1953, EGBC No. 35744), do hereby certify that:

- 1. I am President and Principal Geologist at PrometheX Ltd., located at 116 Fourth Avenue, Sudbury, Ontario, Canada, P3B-3R8
- 2. This certificate applies to the report entitled "Assessment Report on the Tabor Santa Maria Project Drone Magnetics Survey, Dryden Area, Northwestern Ontario, Canada" dated May 13, 2023. The Assessment Report was prepared for Ashley Gold Corp. to apply work credit.
- 3. I am a member in good standing of the Association of Professional Geoscientists of Ontario (PGO license No. 1953), and the Association of Professional Engineers and Geoscientists of British Columbia (EGBC license No. 35744). I obtained a Bachelor of Science (Geology) degree and a Master of Science (Applied Economic Geology) degree from Laurentian University (Sudbury, Ontario) in 2007 and 2011, respectively.
- 4. I have practiced my profession continuously as a geologist for a total of seventeen (17) years since 2005. I acquired my expertise in mineral exploration with Inco Ltd. (VALE) and Wallbridge Mining in Ontario, and as Exploration Manager of Carube Copper Corp (C3 Metals) from 2010 to 2020 in Jamaica, Peru, United States, British Columbia, Nova Scotia, Ontario, and Quebec and numerous project and company evaluations across the globe. I have been President and Principal Geologist of PrometheX Ltd. since October 2020.
- 5. I have read the definition of a qualified person ("QP") set out in Regulation 43-101/National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a QP for the purposes of this report.
- 6. I am the author of this Assessment Report and managed the exploration program.
- 7. I personally planned and commissioned the exploration survey for this report.

Signed this 22<sup>nd</sup> day of June 2023 in Sudbury, Ontario, Canada.

(Original signed and sealed)

Shannon Baird, P.Geo., M.Sc. Shannon.Baird@PrometheX.com



#### **APPENDIX C: STATEMENT OF EXPENDITURES**

Work Performed	Description of Work	From (date)	To (date)	# Units of Work	Cost Per Unit	Actual Costs	Comments
Exploration planning, Data Review, and Reporting	Project survey logistics planning, data management, survey data review, map making and rendering, and assessment report writing	1-Mar-23	13-May-23	6 man- days	\$800	\$4,800	Shannon Baird (Exploration Manager - Geologist)
Drone-MAG Survey	480.96 line-km of High- Resolution (25-50m line spacing) UAV Drone Magnetics Surveying	15-Mar-23	1-Apr-23	480.96 line-km	\$62.75 / line-km	\$31,680	Pioneer Exploration Consultants Ltd.
		TOTAL EXPENDITU	JRES	•		\$36,480	

#### APPENDIX D: DRONE MAGNETICS SURVEY LOGISTICS REPORT AND LARGE-SCALE MAPS





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## UAV Aeromagnetic Survey Logistics Report







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#### Introduction

From March 18<sup>th</sup> to April 1<sup>st</sup>, 2023, Pioneer Exploration Consultants Ltd. (Pioneer) completed an airborne magnetic survey using an Unmanned Aerial Vehicle (UAV) in northwestern Ontario. The survey was flown at the request of Ashley Gold Corp.

This report covers data acquisition, instrument descriptions, data processing and presentations. The digital data delivery is described later in this report. This report does not include any geological interpretations of the geophysical dataset. Key survey personnel are listed in Table 1.

#### Table 1: Personnel involved with the project.

Pilot in Command	Liam Connor
Ground Crew	Justin Dyck
	Kiyavash Parvar (M.A.Sc. Geophysics), Andrew Gagnon-Nandram (M.A.Sc.
Data Processing and QA/QC	Geophysics)

#### **Location**

The Tabor Santa Maria survey area is located in northwestern Ontario, approximately 42 km southeast of Dryden, ON. The survey was staged by 4 x 4 truck along the existing access roads, and by snowmobile where necessary. The location and completed survey lines for the Tabor Santa Maria survey are illustrated in Figure 1.





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Figure 1: The Tabor Santa Maria survey area is outlined in red, with the high resolution 25 m spacing area highlighted in yellow. The completed survey lines are overlain in blue. Inset, the project location can be observed 42 km southeast of Dryden, Ontario.

#### **Survey Specifications and Procedures**

Data collection for this survey area was conducted at 50 m spaced lines with 500 m spaced tie lines, with a higher resolution area completed at 25 m spaced lines with 250 m spaced tie lines. The nominal magnetic sensor altitude above ground level (AGL) was set to 40 m. Elevation from the terrain may vary depending on the treeline and obstacles on the flight route. A 5 m resolution DSM was acquired from Apollo Mapping. This was used to assist the UAV terrain following procedure and to minimize the possible topographic effects on the magnetic data. The nominal production groundspeed is 9 m/s for flat topography with no wind. The survey speed may vary depending on the terrain and environmental conditions.

The ground crews performed daily safety meetings and pre-flight checks prior to the start of drone flight operations. The Pilot in Command (PIC) is responsible for the safety of the crew and equipment during the survey operations. Each survey flight is pre-planned using ground control software, then the flight plans are uploaded to the UAV prior to takeoff. The UAV system flies the pre-defined waypoint-based flight plans while the ground crew maintains visual line of sight with the craft and the flight telemetry





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information. Flights are terminated and the UAV returns for landing when the battery voltage reaches a certain limit, or when the flight plan is complete. The survey flights can be manually terminated and taken over with full manual pilot control at anytime. Upon landing, the flight batteries are exchanged and the sensor is downloaded for data QAQC. The average distance covered by each flight is approximately 6-10-line kms of data acquisition.

Addition details on the completed survey can be found in Table 2.

#### Table 2: Survey details.

Project	Line	Line	Tie Line	Total Line
	Spacin	Direction	Spacing	Kilometres
	g (m)	(deg)	(m)	(km)
Tabor Santa Maria	50 / 25	022.5	500 / 250	480.96

#### **Instrumentation and Software**

The principal airborne sensor used was a Gem Systems Canada GSMP-35U potassium vapor sensor mounted on a UAV platform. Ancillary equipment included a laser altimeter with range of 130m, Global Positioning Satellite (GPS) system antenna and Inertial Measurement Unit (IMU). A stationary GSM-19 Overhauser magnetometer was used as a base station. Raw aerial magnetometer data was collected at a rate of 20 Hz while base station data was collected at a rate of 0.16 Hz. Total field and GPS UTC time were recorded with each data point, enabling diurnal correction to be applied during final data processing.

#### Magnetic Base Station

A GSM-19 Overhauser Magnetometer base station was placed in a location of low magnetic gradient, away from electrical transmission lines and moving metallic objects, such as motor vehicles and aircraft. The data collected from this base station was used to diurnally correct the aeromagnetic data. The GSM-19 Overhauser Magnetometer is supplied by GEM systems of Markham, Ontario. General specifications of the magnetometer are included in Appendix 1: Instrument Specification.

#### Unmanned Aerial Vehicle – Matrice 300 RTK

Pioneer used the Matrice M300 RTK UAV to complete this survey. The Matrice 300 (M300) is DJI's platform designed for professional and industrial applications. It incorporates a number of DJI technologies in order to increase flight efficiency and safety. These include the 6 directional sensing optical sensors, RTK positioning system, built in FPV camera and advanced flight controller system with built in digital display. As stated by the manufacturer, some of the advantages to using this type of multirotor systems are:





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<u>Total Integration</u>: The modular design makes the M300 easy to set up and ready to use in just minutes. The mechanical design, along with quick-release landing gears and mounted folding arms, makes it easy to transport, store, and prepare for flight. The built in FPV camera and compatibility with a suite of DJI gimbals and sensors makes this a versatile system that can suit a number of projects.

*Extended Flight Time:* The M300 features an advanced power module with dual smart batteries that enhance flight safety and ensure a safe power supply to the aircraft. This allows for a maximum flight time of up to 55 minutes (with no payload).

<u>DJI Smart Controller</u>: The M300 Smart Controller comes complete with an integrated HD display, featuring an Android system with multiple connectivity functions such as Bluetooth, Wi-Fi and HDMI. The transmission system supports 2.4 GHz and 5.8 GHz channels under AES-256 ecryption, with HD video transmission range of up to 15 km.

<u>Smart Flight Safety</u>: The M300 has multiple built in safety features, including 6 directional optical sensors for obstacle avoidance and vision positioning. The integrated Air-Sense system alerts the user to nearby aircraft in the surrounding airspace to ensure safety. The system is also has an ingress protection factor of IP45, providing significant protection from moisture to the internal electronics.

<u>RTK Positioning</u>: The aircraft has a built-in RTK module, which provides more accurate heading data for positioning. Positioning data down to cm level precision can be achieved when using a GNSS base station.

#### UAV Aeromagnetic Configuration

GEM System's UAV GSMP-35U is a potassium magnetometer providing unmatched sensitivity in addition to a low heading error effect. The GSMP-35U operates similarly to other alkali vapor magnetometers while benefiting from the unique spectral properties of potassium. Each GSMP-35U system has 0.0002 nT sensitivity combined with +/- 0.1 nT absolute accuracy over its full operating range. More details on the instrument can be found in Appendix 1: Instrument Specification. The UAV aeromagnetic setup consists of a towed bird configuration with a sensor-aircraft separation distance of either 3 or 5m. The sensor is flown along the survey lines with a fixed heading to maximize the signal amplitude and provide the best sensor orientation for the local conditions. This action minimizes heading errors. The data is both stored on board during acquisition and transmitted in real-time back to the ground control station to monitor the collection during flight and ground clearance of the sensor from the laser altimeter data.





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#### **Data Deliverables and Channel Descriptions**

All data is typically delivered in either Geosoft Database (GDB) or simple formats such as .txt or csv. The data deliverables are client specific to best suit their needs and software requirements. Regardless of software, a database is supplied to the client with channel descriptions as described in Table 3.

Table 3: Database channel descriptions	Table	3: Dat	abase	channel	descriptions
--	-------	--------	-------	---------	--------------

Parameter	Explanation	Units/Format
Date	Flight Date	Yyyy/mm/dd
Time	GNSS time stamp	hhmmss.ss
lat	Latitude (WGS84)	Decimal degrees
lon	Longitude (WGS84)	Decimal degrees
alt	GPS altitude above the average sea level	metres
utmE	UTM easting (WGS84)	metres
utmN	UTM northing (WGS84)	metres
sat	Number of locked satellites	metres
zone	UTM zone	-
yaw	IMU yaw reading	Degrees
pitch	IMU pitch reading	Degrees
roll	IMU roll reading	Degrees
nT	Magnetic field readings (Raw)	Nanotesla
nT2	Diurnal correction has been applied on the nT channel (Diurnal datum: 55600 nT)	Nanotesla
Final	Final Total Magnetic Intensity	Nanotesla
Levelled	Levelled data based on tie line intersections	Nanotesla
VD1	1 <sup>st</sup> Vertical derivative	nT/m
AS	Analytic Signal	nT/m





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#### **Magnetic Maps and Derived Data Products**

The final magnetic data has been presented in the form of several different magnetic maps (Appendix 2: Final Maps). Each of these different data presentations is a useful tool for identifying geological structures and other features.

#### **Total Magnetic Intensity**

Based on the flight lines covered by the drone, the total magnetic field map grid was created by interpolating the filtered magnetic data. The purpose of this data presentation is to highlight geological structures that may be visible in the survey area by their magnetic signature or their magnetic contrast to their surroundings.

#### First Vertical Derivative

The first order vertical derivative quantifies the rate of change of the magnetic field as a function of elevation. It is an approximation of the vertical magnetic gradient, which could be directly measured with separate magnetometers vertically spaced apart. The purpose of this type of filter is to eliminate the long wavelength signatures and make sharp features more detectable, such as the edges of magnetic bodies. The vertical derivative is used to delineate the contacts between large-scale magnetic domains because its value is zero over vertical contacts.

#### 3D Analytic Signal

The analytic signal is the square root of the sum of the squares of the derivatives in the x, y, and z directions:

Analytical Signal = 
$$\sqrt{dx * dx + dy * dy + dz * dz}$$

The analytic signal is useful in locating the edges of magnetic source bodies, particularly where remanent magnetic signals and/or low magnetic latitude complicates interpretation.





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#### **Data Processing**

All general magnetic QA/QC and data processing techniques have been applied to the data. All post-field data processing was carried out using Geosoft Oasis Montaj, Python and Microsoft Excel software/ programming languages. Presentation of final maps used ESRI ArcMap and/or Geosoft Oasis Montaj. Results were gridded using minimum curvature method and a grid cell size of approximately 1/3 of flight line spacing.

The geophysical images accompanying this report are positioned using the WGS 1984 datum. The survey geodetic GPS positions have been map-projected using the Universal Transverse Mercator (UTM) projection. A summary of the map datum and projection specifications are as follows:

- Datum: WGS 1984 UTM Zone 15N
- Scale Factor: 1: 15000
- Linear Unit: Metre (1)

The magnetic data was first quality checked in the field and any points lacking sufficient georeferenced data or which were excessively noisy were removed. The resulting data was processed as mosaics throughout the survey area as data was collected daily. The final result is a combination of all collected data, including lines that were re-flown due to weak or insufficient magnetic signal.

The base station readings were initially processed and filtered to remove high frequency noise. The filtered base station dataset was then used to perform a diurnal correction on the magnetic survey data. The diurnally corrected profile data were interpolated into a grid using the bi-directional line gridding algorithm with a grid size of approximately 1/3 of flight line spacing. All final maps have a normalized color interval. The gaps in the data from the no-fly zones were interpolated through using minimum curvature method.

After finishing interpolation, initial processing subjected the data to a non-linear filter with a wavelength limit of 3-4 fiducials and tolerance of 0.001. This filter removes high frequency noise which mostly occur because the sensor is in the dead zone due to sudden changes in sensor orientation, effect of ferrometallic objects, or the influence of weather conditions on the sensor. This filter smooths out noise and high frequency features.

After leveling the data using the tie lines, the data was micro-levelled. This step is performed to mitigate the corrugation effect associated with gaps between the data lines and is completed by applying a highpass butterworth filter with the threshold of 100 metres (line spacing x 4) followed by a directional cosine filter perpendicular to the line direction. The resulted noise channel was then subtracted from the leveled values to microlevel the data. The final result of the leveling and micro-leveling processes was then put in "Final" Channel of the database.



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The following corrections were applied to the airborne magnetic data:

- Correction for diurnal variation using the digitally recorded ground base station magnetic values as described above
- Lag was measured by a lag test prior to the operation. Only a minor lag correction is applied to final data (0.2s)
- Heading biases were applied based on clover leaf data collected
- Micro-leveling
- Analytic Signal calculation
- First Vertical Derivative calculation

The final maps are included in Appendix 2: Final Maps.





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#### **Data Comments**

Pioneer's UAV aeromagnetic surveys result in a high quality, high resolution data product. The increased flight line density and lower flight elevation possible with the use of a UAV platform results in superior resolution data products when compared to conventional airborne magnetic data. Using an auto-controlled UAV platform also allows for minimal deviation from pre-planned flight lines, and greatly reduces the impact of human errors during data acquisition.

Logistics remains a major challenge of UAV surveying. In order to operate legally within the guidelines set by Transport Canada, line of sight must be maintained to the UAV and surrounding airspace at all times. This often results in the necessity of several staging locations for covering the survey area, and sometimes requires the employment of additional equipment such as an aerial platform or scissor lift to achieve unobstructed line of sight beyond surrounding buildings or vegetation. The smaller flight sorties are typical in UAV-based surveys and require greater attention in post processing.

Pioneer makes every effort to identify potential sources of noise in order to mitigate their impact on our collected survey data. The magnetic noise envelope of our UAVs has been mapped in 3D prior to use. Our flight lines are planned with a minimum of 50 m overlap past the survey boundaries so that the magnetic sensor has time to stabilize itself after the UAV has completed its turns. Additionally, weather is carefully monitored and when excessive data inconsistency is noted due to weather conditions, flights are suspended until conditions improve.

Pioneer is very pleased with the results from this survey and confirms that the level of error and noise in the dataset falls below our threshold, which is set based on the Geological Survey of Canada guidelines for airborne magnetometer survey data.

Respectfully submitted,

Kiyavash Parvar, M.A.Sc. UAV Geophysics Vice President of Geophysics Pioneer Exploration Consultants Ltd. Ottawa, Ontario







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### **Appendix 1: Instrument Specification**

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#### **GSM-19** Overhauser Magnetometer

#### Performance

Sensitivity: Standard GSM-19 0.022 nT @ 1 Hz GSM-19PRO 0.015 nT @ 1 Hz Resolution: 0.01 nT Absolute Accuracy: 0.1 nT Dynamic Range: 20,000 to 120,000 nT Gradient Tolerance: up to 10,000 nT/m Samples at: 60+, 5, 3, 2, 1, 0.5, 0.2 sec Operating Temperature: -40°C to +50°C

#### **Operating Modes**

Manual: Coordinates, time, date and reading stored automatically at up to 0.2 sec. Base Station: Time, date and reading stored at 1 to 60 second intervals. Remote Control: Optional remote control using RS-232 interface. Input / Output: Input/Output: RS-232 using 6-pin weatherproof connector with USB adapter.

#### Memory - (# of Readings in millions)

Mobile: 1.4M, Base Station: 5.3M, Gradiometer: 1.2M, Walking Mag: 2.6M

#### Dimensions

Console: 223mm x 69mm x 240 mm(8.7x2.7x9.5in) Sensor: 175mm x 75mm diameter cylinder (6.8in long by 3 in diameter)

#### Weights

Console with Belt: 2.1 kg Sensor and Staff Assembly: 1.0 kg





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#### Matrice 300 RTK

#### Structure

Diagonal Wheelbase	895 mm
Aircraft Dimensions	430 mm x 420 mm x 430 mm (Onfolded, propellers excluded) 430 mm x 420 mm x 430 mm (Folded, propellers included)
Intelligent Flight Battery Quantity	2
Weight	3.6 kg (no batteries)
	6.3 kg (two TB60 batteries)
Max Takeoff Weight	9 kg
Performance	
Hovering Accuracy (P-mode with	Vertical:
GPS)	± 0.1 m (Vision System enabled)
	± 0.5 m (GPS enabled)
	± 0.1 m (RTK enabled)
	Horizontal:
	± 0.3 m (Vision System Enabled)
	± 1.5 m (GPS enabled)
	± 0.1 m (RTK enabled)
Max Angular Velocity	Pitch: 300°/s
	Yaw: 100°/s
Max Pitch Angle	30° (P-mode, Forward Vision System enabled: 25°)
Max Speed of Ascent	S Mode: 6 m/s
	P Mode: 5 m/s
Max Speed of Descent	S Mode: 5 m/s
	P Mode: 4 m/s
Max Speed	S Mode: 23 m/s
	P Mode: 17 m/s
Max Wind Resistance	15 m/s (12 m/s when taking off or landing)
Service Ceiling Above Sea Level	5000 m (with 2110 propellers, takeoff weight $\leq$ 7 kg) / 7000 m (with 2195 propellers, takeoff weight $\leq$ 7 kg)
Max Flight Time	55 min
Ingress Protection Rating	IP45
GNSS	GPS + GLONASS + BeiDou + Galileo
Operating Temperature	-20°C to 50°C (-4°F to 122° F)

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#### **Remote Controller**

Operating Frequency	2.4000-2.4835 GHz
	5.725-5.850 GHz
Max Transmitting Distance	NCC/FCC: 15 km
(unobstructed, free of	CE/MIC: 8 km
interference)	SRRC: 8 km
EIRP	2.4000-2.4835 GHz:
	29.5 dBm (FCC) 18.5dBm (CE)
	18.5 dBm (SRRC); 18.5dBm (MIC)
	5.725-5.850 GHz:
	28.5 dBm (FCC); 12.5dBm (CE)
	20.5 dBm (SRRC)
Battery Life	Built-in battery: Approx. 2.5h
	Built-in battery+External battery: Approx. 4.5h
USB Power Supply	5 V / 1.5 A
Operating Temperature	-20°C to 40°C (-4 °F to 104 °F)
Vision System	
Obstacle Sensing Range	Forward/Backward/Left/Right: 0.7-40m
	Upward/Downward: 0.6-30m
FOV	Forward/Backward/Downward: 65° (H), 50° (V)
	Left/Right/Upward: 75°(H), 60°(V)
Operating Environment	Surfaces with clear patterns and adequate lighting (> 15 lux)

#### Intelligent Flight Battery

Name Capacity Voltage Battery Type Energy Net Weight Operating Temperature Ideal storage temperature Charging Temperature Charging time TB60 5935 mAh 52.8 V LiPo 12S 274 Wh Approx. 1.35 kg -4°F to 122°F (-20°C to 50°C) 71.6°F to 86°F (22°C to 30°C) -4°F to 104°F (-20°C to 40°C) Using BS60 Intelligent Battery Station: 220V input: 60 minutes (fully charging two TB60 batteries), 30 minutes (charging two TB60 batteries from 20% to 90%) 110V input: 70 minutes (fully charging two TB60 batteries), 40 minutes (charging two TB60 batteries from 20% to 90%)





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#### GEM GSMP-35UA: Ultra Light-Weight Potassium Magnetometer

#### **Magnetometer Specifications**

Sensitivity	0.0002 nT @ 1 Hz
Resolution	0.0001 nT
Absolute Accuracy	+/- 0.1 nT
Heading Error	+/- 0.05 nT
Dynamic Range	15 000 to 120 000 nT
Gradient Tolerance	50 000 nT/m
Sampling Intervals	1, 2, 5, 10, 20 Hz
Operating Temperature	-40°C to +55°C

#### Orientation

Sensor Angle: optimum angle 35° between sensor head axis & field vector. Proper Orientation: 10° to 80° & 100° to 170 Heading Error: +/- 0.05 nT between 10° to 80° and 360° full rotation about axis.

#### Environmental

Operating Temperature: -40°C to +55°C Storage Temperature: -70°C to +55°C Humidity: 0 to 100%, splashproof

#### **Dimensions & Weight**

Sensor	161 mm x 64 mm (external diameter) with 2m cabling; 0.43 kg
Electronics Box	236 mm x 56 mm x 39 mm; 0.46 kg
Option 1 cabling	0.125 kg
Option 3 light weight battery	0.250 kg

#### Power

Power Supply: 18 to 32 V DC Power Requirements: approx. 50 W at start up, dropping to 12 W after warm-up Power Consumption: 12 W typical at 20°C Warm-up Time: <15 minutes at -40°C

#### Outputs

20 Hz RS-232 output with comprehensive Windows Personal Computer (PC) software for data acquisition and display.





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Outputs UTC time, magnetic field, lock indication, heater, field reversal, GPS position (latitude, longitude altitude, number of satellites)

#### Components

Sensor, pre-amplifier box, 2m sensor /pre-amplifier cable (optional cable 3-5m), manual & shipping case





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### **Appendix 2: Final Maps**



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56259	
56229	
56211	
56198	
56188	
56180	
56174	
56169	
56165	
56161	
56156	
56152	
56148	
56144	
56140	
56136	
56132	
56127	
56121	
56120	
5611/	
56101	
56007	
56026	
56075	
56066	
56057	
56051	
56015	
56040	
56021	
56025	
56010	
00904	
	RT



Flight Parameters:

Flight line spacing: 25-50 m Flight line azimuth: 022.5°N Tie-line spacing: 250 m Tie-line direction: 112.5°N Nominal sensor elevation above ground: 40m

# Instrumentation:

Unmanned aerial vehicle: DJI Matrice 300 RTK UAV In-flight magnetometer: GEM Systems GSMP-35UA (Potassium vapor) In-flight sampling lime: 10 Hz (0.1 s) Ground magnetometers (base station): GEM GSM-19 (Overhauser proton) Base station sampling rate: 0.16 Hz (6.0 s)

Coordinate system:

Datum: WGS84 Projection: Universal Transverse Mercator Central meridian: (Zone 15N)

Hill shade inclination:045°N Hill shade declination:045°N (NE-SW)

Contour Legend:













		1	V	
).	4	7	5	
).	3	6	1	
).	2	9	8	
).	2	5	7	
).	2	2	4	
).	1	9	8	
).	1	7	6	
).	1	5	7	
).	1	4	0	
).	1	2	5	
).	1	1	2	
).	0	9	9	
)	0	8	7	
)	0	7	6	
). )	0	6	5	
). )	0	5	1	
ך. כ	0	Δ	4	
ן. כ	0	2	3	
ן. ר	0	ו כ	2	
ม. า	0	1	1	
ม. า	0		1	
ป. ว	0	2 1	2	
J.	0	ა ი	0	
J.	0	5	1	
).	0	6	9	
).	0	8	9	
).	1	1	3	
).	1	4	3	
).	1	8	2	
).	2	4	5	
).	3	4	4	
).	5	2	2	
).	9	1	1	

TI.



Flight Parameters:

Flight line spacing: 25-50 m Flight line azimuth: 022.5°N Tie-line spacing: 250 m Tie-line direction: 112.5°N Nominal sensor elevation above ground: 40m

# Instrumentation:

Unmanned aerial vehicle: DJI Matrice 300 RTK UAV In-flight magnetometer: GEM Systems GSMP-35UA (Potassium vapor) In-flight sampling lime: 10 Hz (0.1 s) Ground magnetometers (base station): GEM GSM-19 (Overhauser proton) Base station sampling rate: 0.16 Hz (6.0 s)

Coordinate system:

Datum: WGS84 Projection: Universal Transverse Mercator Central meridian: (Zone 15N)

Hill shade inclination:045°N Hill shade declination:045°N (NE-SW)

Contour Legend:







# PIONEER EXPLORATION



![](_page_58_Figure_3.jpeg)

.421	
.049	
835	
688	
580	
515	
158	
.400	
270	
217	
.347	
.310	
.294	
275	
.257	
.240	
.226	
.213	
.202	
.191	
.181	
.171	
.161	
.152	
.143	
.134	
.125	
.116	
.107	
.098	
.088	
.079	
.068	
.056	
.041	

![](_page_58_Picture_5.jpeg)

Flight Parameters:

Flight line spacing: 25-50 m Flight line azimuth: 022.5°N Tie-line spacing: 250 m Tie-line direction: 112.5°N Nominal sensor elevation above ground: 40m

## Instrumentation:

Unmanned aerial vehicle: DJI Matrice 300 RTK UAV In-flight magnetometer: GEM Systems GSMP-35UA (Potassium vapor) In-flight sampling lime: 10 Hz (0.1 s) Ground magnetometers (base station): GEM GSM-19 (Overhauser proton) Base station sampling rate: 0.16 Hz (6.0 s)

Coordinate system:

Datum: WGS84 Projection: Universal Transverse Mercator Central meridian: (Zone 15N)

Hill shade inclination:045°N Hill shade declination:045°N (NE-SW)

Contour Legend:

![](_page_58_Picture_14.jpeg)

![](_page_58_Figure_15.jpeg)

![](_page_58_Picture_16.jpeg)