

**Diamond Drilling Report on the Thomas Lake Claims of the
Manitouwadge Graphite Project, Ollie, Ramsay Lake and
Thomas Lake Area, Ontario, Canada.**

NTS: 42 F05

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February 5, 2016

Table of Contents

	Page
1.0 Introduction.....	1
2.0 Previous Work.....	5
3.0 Regional Geology.....	7
4.0 Diamond Drilling.....	9
5.0 Conclusions and Recommendations.....	12
References.....	13
Certificate of Qualifications.....	15

LIST OF TABLES

1. Thomas Lake Claims with current status.....	5
2. Diamond Drill Holes.....	9

LIST OF FIGURES

1. General Location Map.....	2
2. Property Location Map.....	3
3. Claims Map.....	4
4. Regional Geology Map.....	8

LIST OF APPENDICES

- Appendix 1: Diamond Drill Logs
- Appendix 2: Assay Certificates
- Appendix 3: Drill Hole Plan
- Appendix 4: Drill Hole Sections

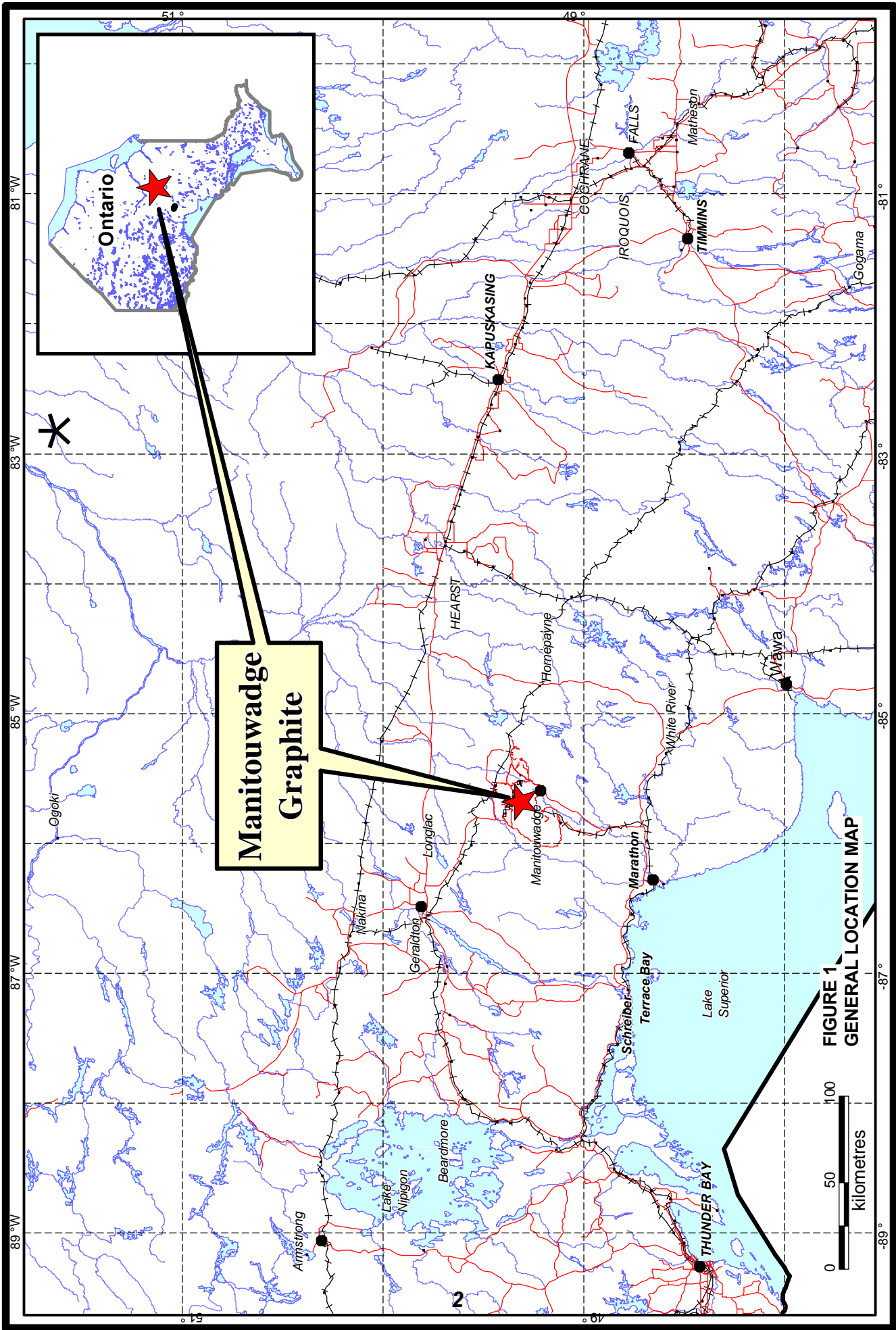
1.0 Introduction

Location, Access and Physiography

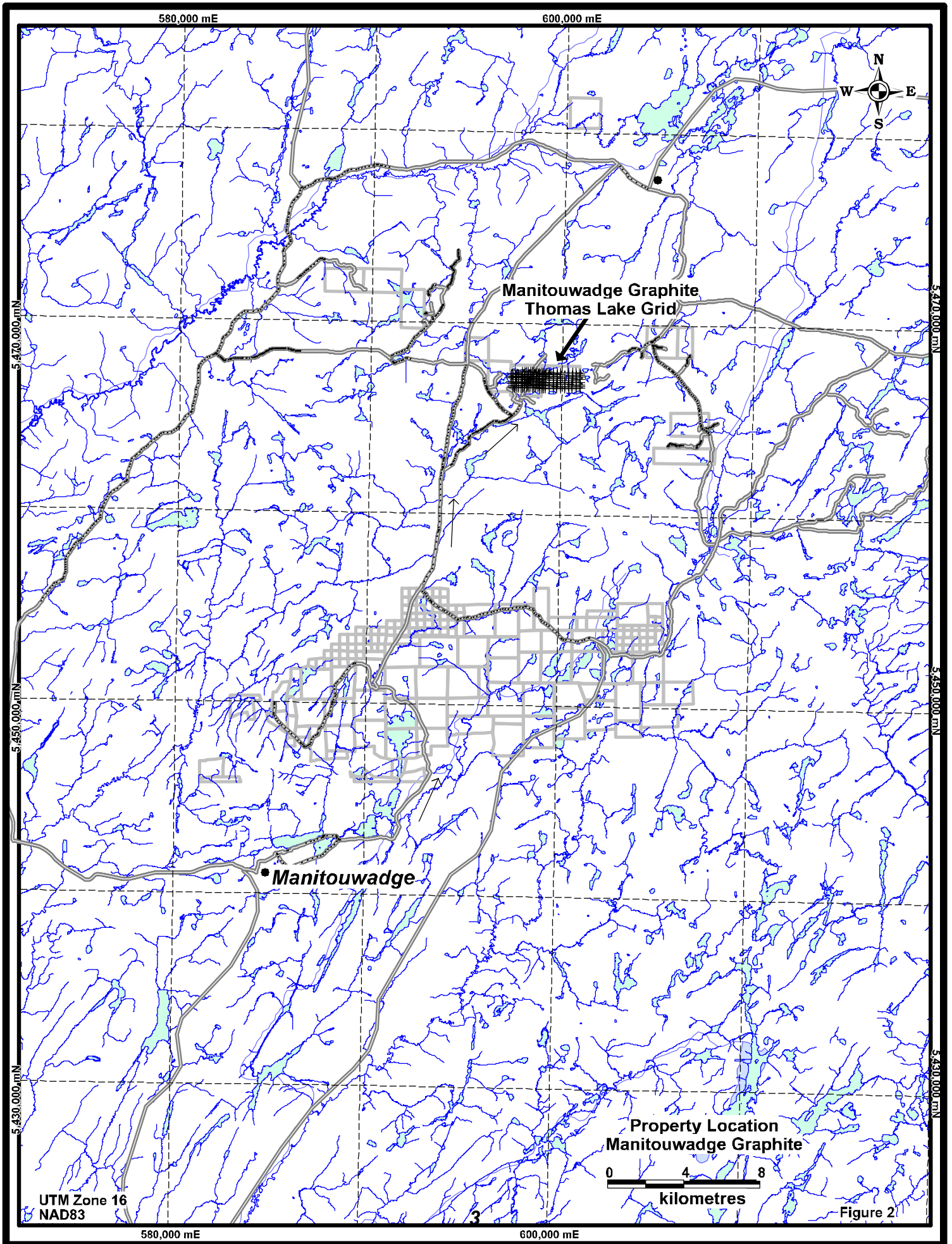
The Thomas Lake Claims part of the Manitouwadge Graphite Project are located in the Ramsay Lake, Thomas Lake, and Olie Lake areas within the Thunder Bay Mining Division, Ontario. The claims are located approximately 30 to 40 kilometers northeast of the town of Manitouwadge, Ontario, centered at approximately 85°36'53.8"W Longitude and 49°21'1.97"N Latitude within National Topographic System ("NTS") map sheet 42F05. The town of Manitouwadge is situated at 85°50'W Longitude and 49°08'N Latitude, at the north end of Highway 614, 331 kilometres (206 mi) east of Thunder Bay and 378 kilometres (235 mi) west of Sault Ste. Marie, north-western Ontario. The general location of the property is shown in Figure 1. Access to the western part of the property is obtained by a series of logging roads leading north and east approximately 45 kilometers from Manitouwadge (Figure 2). The Thomas Lake road bisects the western sector of the property approximately 10 km. southwest of Hillsport. Except for a few creeks, the waters of the area drain north. The main waterways in the area, Foch River, Flanders River, and White Otter River, and Osawin River, trend almost north-south. The strongest topographic features over much of the area are of glacial origin. The most marked of these are the eskers, which in some cases rise to over 15 meters above the general level. These eskers generally trend northeast and frequently form traps enclosing elongated lakes. Rounded hills up to 30 meters or more in height are found in the southern and south-western parts of the region. Much of the Manitouwadge Graphite Project claims have been cut or burned over so that thick tree cover now consists of older hardwood, mostly trembling aspen and white birch, mixed with a dense younger growth of softwoods, predominantly black spruce and balsam with some jackpine in granitic and in sandy areas to the north, particularly around Hillsport. Scattered areas of cedar and tamarack occur around lakeshores and in the swamps. Scrub alder grows in many swamp areas and is very abundant along creek banks.

Property Summary and Claim Status

The Thomas Lake property is comprised of 11 contiguous claims totaling 153 unpatented claim units encompassing 24.8 square kilometers or 2477 ha centered about the Thomas Lake Road Graphite Occurrence. The unpatented claims, listed in Table 1, are all in good standing until the early winter of 2016 at which time work expenditures of \$400 per claim unit are due, as required by the Mining Act of Ontario. The property was originally staked by Rare Earth Metals Inc. (REM) in 2012 and subsequently sold to Ardiden Ltd. in early 2015. The claims are now 100% owned by Ardiden. The Company issued letters of notification with local aboriginal communities, engaged in on going consultation and employed two individuals from the communities during the duration of the drill program. Claim data are summarized in Table 1 and illustrated on Figure 3.



**FIGURE 1
GENERAL LOCATION MAP**



580,000 mE

600,000 mE



Manitouwadge Graphite
Thomas Lake Grid

Manitouwadge

Property Location
Manitouwadge Graphite

0 4 8
kilometres

UTM Zone 16
NAD83

Figure 2

580,000 mE

600,000 mE

5,470,000 mN

5,466,000 mN

600,000 mE

596,000 mE

592,000 mE

588,000 mE

592,000 mE

596,000 mE

592,000 mE

588,000 mE

5,470,000 mN

5,466,000 mN

600,000 mE

596,000 mE

592,000 mE

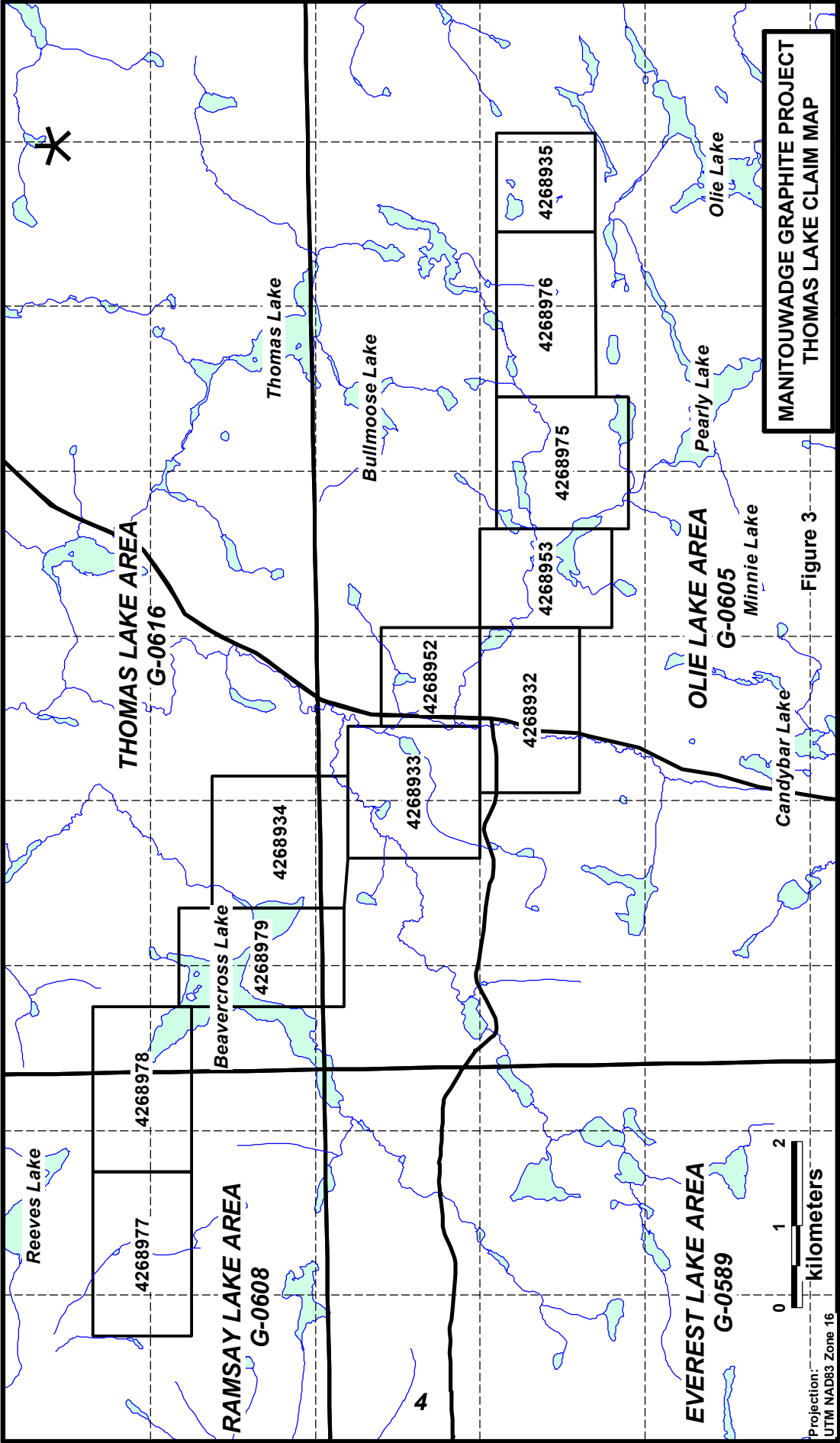
588,000 mE

592,000 mE

596,000 mE

592,000 mE

588,000 mE



**MANITOUWADGE GRAPHITE PROJECT
THOMAS LAKE CLAIM MAP**

Figure 3



Projection:
UTM NAD83 Zone 16

4

Table 1: Thomas Lake Claims with current status

Township/Area	Claim Number	Recording Date	Claim Due Date	Work Required	Total Applied	Total Reserve
OLIE LAKE AREA	4268952	22. Feb. 2012	22. Feb. 2016	\$3,600.00	\$7,200.00	\$0.00
OLIE LAKE AREA	4268953	22. Feb. 2012	22. Feb. 2016	\$4,800.00	\$9,600.00	\$0.00
RAMSAY LAKE AREA	4268977	22. Feb. 2012	22. Feb. 2016	\$6,000.00	\$12,000.00	\$0.00
THOMAS LAKE AREA	4268978	22. Feb. 2012	22. Feb. 2016	\$6,000.00	\$12,000.00	\$0.00
THOMAS LAKE AREA	4268979	22. Feb. 2012	22. Feb. 2016	\$6,000.00	\$12,000.00	\$0.00
OLIE LAKE AREA	4268932	23. Apr. 2012	23. Apr. 2016	\$6,000.00	\$12,000.00	\$0.00
OLIE LAKE AREA	4268933	9. May. 2012	9. May. 2016	\$6,400.00	\$12,800.00	\$0.00
OLIE LAKE AREA	4268935	9. May. 2012	9. May. 2016	\$3,600.00	\$7,200.00	\$0.00
THOMAS LAKE AREA	4268934	9. May. 2012	9. May. 2016	\$6,400.00	\$12,800.00	\$0.00
OLIE LAKE AREA	4268975	22. Feb. 2012	22. Feb. 2017	\$6,400.00	\$19,200.00	\$4,799.00
OLIE LAKE AREA	4268976	22. Feb. 2012	22. Feb. 2017	\$6,000.00	\$18,000.00	\$10,215.00

2.0 Previous Work

Previous exploration carried out in Manitouwadge Graphite project area has been for base metals, precious metals and graphite. Work has been carried out by Brinklow, Gionet and the Rare Earth Metals Inc.. A summary (chronology) of historical geological mapping, geochemical and geophysical surveys and exploration programs is presented below:

1960: A reconnaissance geological survey of the Flanders Lake area (eastern region of the Manitouwadge Graphite project area) was carried out during the summer of 1960 by V.G.Milne for Ontario Department of Mines. The Flanders Lake area lies 20 miles northeast of Manitouwadge and straddles the boundary between the current mining divisions of Porcupine and Thunder Bay. Interest in the area was stimulated by the discovery, in the Manitouwadge area, of the Geco and Willroy orebodies. No sulphide deposits of any significance were encountered in the area and it was concluded that the rather monotonous nature of the sedimentary rocks in the Flanders Lake area, and the absence of fracturing or fold features capable of localizing ore, suggest that base metal ore bodies such as those of the Willroy or Geco mines in the Manitouwadge region are unlikely to be present in the Flanders Lake area.

1965: Examined and mapped by M.E. Coates for Ontario Department of Mines

1974-1979: Regional lake sediment and water geochemical survey was conducted in the area by the Geological Survey of Canada and the Ministry of Natural Resources.

1980: Staked by R. Koivisto and transferred to the Hudson Bay Exploration and Development Company.

1989: Examined and mapped by H. Williams and F. Breaks for the Ontario Geology Survey.

1989: Geophysical survey completed by Digheem Surveys for Noranda Exploration Services was conducted over the area. A number of airborne electromagnetic (AEM) anomalies were identified in the Manitouwadge Graphite property area; one AEM anomaly trend is 4 km long coincident with a magnetic low.

1991-1993: Staked in the name of R. Vaudrin.

1992: a new graphite occurrence (Thomas Lake Road Graphite) was located by L. Brinklow and P. Nivens. Claims were staked and stripping and trenching conducted. Samples were sent out by the prospectors to evaluate the potential for base metal mineralization. Results were not encouraging. Phantom Exploration Services Ltd. of Thunder Bay, Ontario were contracted to establish a 10 km. grid, and to conduct magnetic (Scintrex Omni IV) and VLF (Geonics EM-16) and HLEM (Apex Parametrics MaxMin II) electromagnetic surveys on their Thomas Lake property. Phantom Exploration Services reported that the best VLF anomalous trend extends for 1.4 km. from line 5+00 E at 3+00N to 9+00W near the baseline and exhibits good conductivity. A short two line response located on lines 3+00E and 4+00E at 6+50N also exhibits conductivity. Subsequent checking with the MaxMin II unit showed the main conductive trend to be a good bed rock conductor. Phantom also stated that the lack of associated magnetic features with most of the main conductive trend suggests that this anomaly is due mainly to graphite. (Stripping and trenching totaling 3525 square meters on lines 3+00W and 4+00W on this conductive trend by Brinklow showed this analysis to be correct.) It was recommended that some consideration should be given to the possible exploitation of the graphite itself and that typical representative samples should be sent for evaluation.

1992 -1993: Examined by Ontario Geology Survey (Hinz, Lucas). The Thomas Lake Road Graphite occurrence is hosted within a 4 m wide shear zone within Quetico paragneiss. On the south side of shear a pegmatite dike is observed. Flake graphite is present within the shear zone as a graphitic schist. Graphite comprises 5% (locally up to 20%) of the rock with trace chalcopyrite, pyrite, magnetite, pyrrhotite; abundance of biotite within the schist. Sample taken by P. Hinz returned a value of 4.5% graphitic carbon from a field visit 92/06/16. A polished thin section of a small sample taken by Hinz revealed flake graphite. Another 40 kilogram high grade sample of graphitic schist was sent to Lakefield Research for a flotation test. A report on the results of the flotation test provided by Lakefield (1993) states that graphite can be readily recovered by conventional flotation techniques from this ore. However, because of intimate mineral associations between graphite and biotite, this does not seem to be a good ore to produce high grade +49 mesh graphite flake. It was also commented in the Ontario Geology Survey Report Open File Report 5889 by P. Hinz and R.M. Landry in 1994 that this occurrence is of interest as it is the third and largest such occurrence, north of Manitouwadge.

1995 -1998: Area south of Beavercross Lake in the Thomas Lake area was targeted by Gionet for exploration (48 miles of beep-matting, prospecting, 19 days of trenching, 1200

feet of drilling) when grab samples returned assays showing significant amounts of copper, nickel, zinc and gold; 3 claims (totaling 10 claim units) were staked. Gionet recently (April 2012) re-staked 1 claim totaling 4 claim units and is tied on to REM's property. Since discovery of the Brinklow-Thomas Lake Road graphite showing and associated ground geophysics and trenching and stripping of the Thomas Lake Road and North Central 1 occurrences in 1992, and the beep-matting, prospecting, trenching, and drilling of the Gionet-Beavercross Lake sulphide showing in 1995- 1998, there has been no record of additional mineral exploration activity within the Manitouwadge Graphite property area until REM acquired the property in 2012.

2012: Rare Earth Metals staked several claims encompassing a number of airborne electromagnetic (AEM) anomalies which were identified from a 1989 geophysical survey completed by Dighem Surveys for Noranda Exploration Services and re-released in 2002 by the Ontario Geological Survey. This was followed by a due diligence prospecting program and values ranging up to 6.17% C-graphite were obtained from samples of three new graphite occurrences along a minimum 900 meter trend coincident with three parallel conductive zones located within an intense magnetic low. This was followed by a more detailed prospecting and geologic mapping program, a ground horizontal loop electromagnetic (HLEM) geophysical survey, a trenching/chip sampling program, and a preliminary mineralogy/particle size analysis. Results included 3.92% C-Graphite over 8.0 meters (m) from the North Zone, 2.96% C-Graphite over 12m from the Central Zone, and 4.18% C-Graphite over 6.5 m from the South Zone (Thomas Lake Road Occurrence). A particle size analysis was completed on a crushed portion of a sample from the North Zone which analyzed 9.27% C-Graphite. An average flake size of 310 microns was determined which is considered coarse flake graphite.

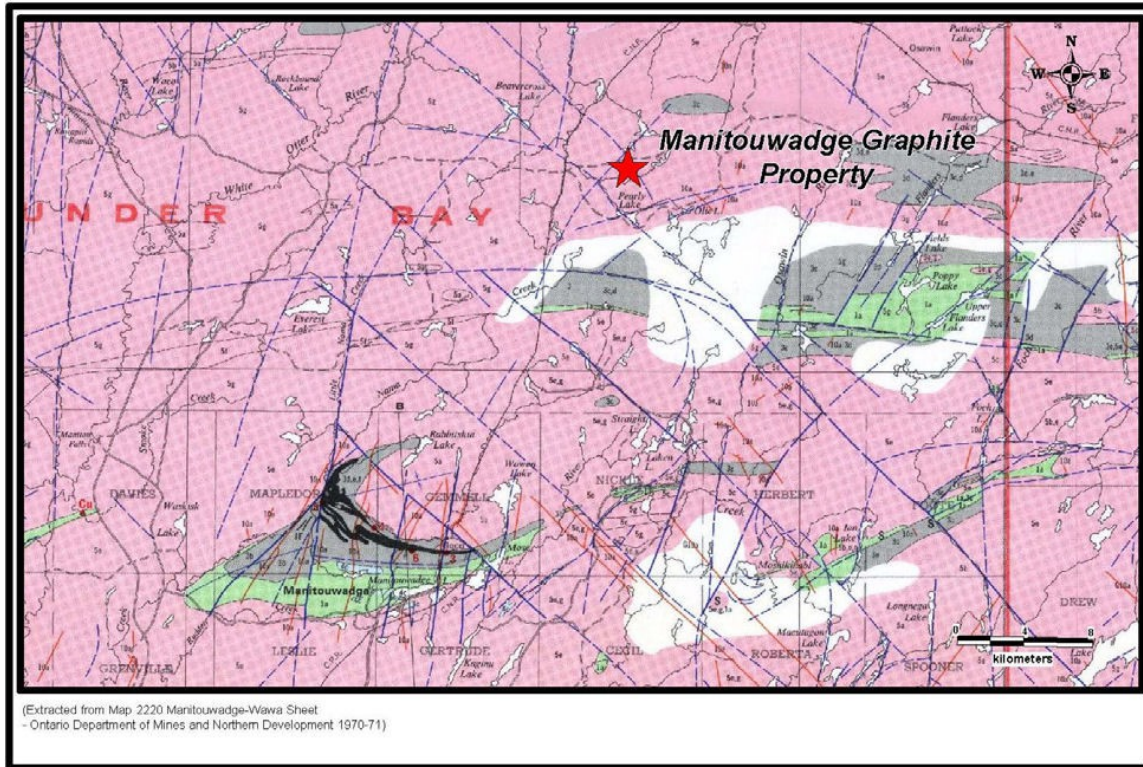
To get an early understanding of how well the flake graphite could be concentrated metallurgical test work involving grinding, flotation and gravity separation techniques determined that successful graphite beneficiation was achieved and product grades were consistently in the range of 80-93% graphite.

3.0 Regional Geology

The Manitouwadge Graphite property is located within the Quetico Metasedimentary Suprovince of the Archean Superior Province of the Canadian Shield (Figure 4). Previous regional mapping in the area was carried out at various scales by Pye (1960), Milne (1964), Coates (1968), Giguere (1972), and Williams and Breaks (1989, 1990). A description of the Quetico Subprovince is summarized from Williams (Geological Survey of Canada, Open File 3138 - Beakhouse, Blackburn, Breaks, Ayer, Stone, Scott, 94 pp, 1991):

The Quetico subprovince is a linear belt, 15 -60 kilometers wide and at least 800 kilometers long. To the west it extends a further unknown distance beneath poorly exposed areas and Paleozoic cover. Variously migmatized metasedimentary rocks, originally consisting of wacke and siltstone, predominate. Minor ironstone and conglomerate are also components of this supracrustal assemblage. Primary sedimentary structures, including even, continuous metre to decimetre thick bedding,

Figure 4- Regional Geology



graded bedding, scour and rarer ripple marks, cross-stratification and dewatering structures, are preserved in many areas, particularly those characterized by lower grades of metamorphism and less pervasive migmatization. The compositions and sedimentary structures have been interpreted to indicate that the supracrustal assemblage represents deposition of immature detritus from turbidity flows in a submarine basin of great lateral extent. Granitoid rocks include late, massive to foliated granodiorite to granite and minor, earlier, foliated to gneissic tonalite. The earliest tectonic deformation consists of layer-parallel shearing and associated folding which is related to regional scale fabric formation. This fabric, as well as migmatitic layering, is subsequently deformed in a second phase of more upright folding. Later structures include small-scale shear zones as well as major faults. The major faults include those which are oriented parallel to, and lie near, the subprovince boundary (Quetico, Seine River) as well as others which transect the subprovince (Gravel River, Kapuskasing Structural Zone). Regional metamorphism occurred synchronously with the waning stages of deformation and was accompanied by partial melting in higher grade portions of the subprovince. In general, there is a progression from lower grades near the margins to higher grades in the central portions of the subprovince.

The Property area is underlain by “steeply dipping, approximately east-west-striking, gneissic and migmatitic metasedimentary rocks of the Quetico Metasedimentary Subprovince. The country rock generally is composed of primarily granulite facies paragneiss and biotite migmatite. Williams and Breaks (1990) located an orthopyroxene

isograd in which the Thomas Lake Road graphite occurrence is located. The occurrences of the isograd would confirm the level of metamorphism as being granulite. Migmatites, consisting of lit-par-lit quartzofeldspathic neosome and biotitic and graphitic paleosome, are complexly folded, isolated outcrops on non-foliated, equigranular diorite occur to the east. The migmatites and diorites are intruded by irregular, buff to pink, graphic textured, quartz-feldspar pegmatite dykes. These dykes are locally garnetiferous and may contain cordierite. They bear remarkable similarity to those that occur at the former Willroy and Geco mines at Manitouwadge. Subhedral to euhedral porphyroblasts may attain lengths of over 15 cm in the pegmatitic. A Paleoproterozoic diabase dyke that intrudes the aforementioned country rocks in the vicinity of the occurrences strikes 160°, parallel to other prominent dykes (i.e. the Hearst swarm; Osmani 1991) in the area."

The above paragraph has been extracted from a report on the Gionet sulphide occurrence compiled by Bernie Schnieders and Mark Smyk from the Ontario Geological Survey-Open File Report 5958, reference as follows: Newsome, J.W. and Laderoute, D. (Editors) 1997. Report of activities 1996, Resident Geologists; Ontario Geological Survey, Open File Report 5958, 465p.

4.0 Diamond Drilling

Rugged Aviation Inc. was contracted to carry out diamond drilling on the property between February 27, 2015 and March 19, 2015. The program was designed to test for flake graphite by following up on ground and airborne electromagnetic conductive zones with significant strike length and high conductivity. Ten holes totaling 833metres were drill using BQ-TK wireline equipment with a core diameter of 40.7mm or 1.6 inches and is summarized in Table 2.

Table 2-Diamond Drill Holes

Hole	Final_Easting	Final_Northing	Azimuth	Inclination	Depth	Elevation
M G-01	598129	5466917	177	-45	108	358
M G-02	597716	5466950	180	-45	87	359
M G-03	597395	5467158	0	-45	117	362
M G-04	597377	5467377	180	-45	142	355
M G-07	597526	5467233	180	-45	79	360
M G-09	597622	5467258	180	-45	69	347
M G-16	598923	5467294	180	-45	93	336
M G-18	599068	5467465	180	-45	82	341
M G-18A	599504	5467389	180	-45	33	341
M ET-01	597380	5467237	180	-85	23	352

In all cases of this drill program quartz feldspar gneiss with varying amounts of hornblende, garnets and biotite hosts the graphite bearing schists. In some cases pegmatitic dykes crosscut both the gneisses and graphite bearing schists. Samples of drill core were analysed for carbon content (C%) at Actlabs in Thunder Bay using the IR method (Appendix 2). The procedure is described by Actlabs as follows "A 0.5 g sample is subjected to a multistage furnace treatment to remove all forms of carbon with the exception of graphitic carbon. Either a resistance or induction furnace is used for

analysis. The inductive elements of the sample and accelerator couple with the high frequency field of the induction furnace. The pure oxygen environment and the heat generated by this coupling cause the sample to combust. During combustion, carbon-bearing elements are reduced, releasing the carbon, which immediately binds with the oxygen to form CO and CO₂, the majority being CO₂. Carbon is measured as carbon dioxide in the IR cell as gases flow through the IR cells. Carbon dioxide absorbs IR energy at a precise wavelength within the IR spectrum. Energy from the IR source is absorbed as the gas passes through the cell, preventing it from reaching the IR detector. All other IR energy is prevented from reaching the IR detector by a narrow bandpass filter. Because of the filter, the absorption of IR energy can be attributed only to carbon dioxide (CO₂). The concentration of CO₂ is detected as a reduction in the level of energy at the detector. “

Detailed logs of each hole are provided in Appendix 1. Cross sections of each hole were plotted at a scale of 1:500 (Appendix 3) and a surface map at a scale of 1:5000 shows the locations of the drill holes (Appendix 4).

A brief description of each hole is summarized as follows:

MG-01

This hole targeted mineralization underneath the known Thomas Lake Road Zone. Three zones of mineralized graphitic schist were intersected. The best zone was intersected from 102.00m to 105.95m with a weighted average assay of 2.05% C over 3.95m.

MG-02

This hole targeted mineralization along the western extension of the Thomas Lake Road Zone. Two zones of significant mineralized graphitic schist were intersected. The best zone was intersected from 34.70m to 39.40m with a weighted average assay of 4.06% C over 4.70m. The second zone from 42.40m to 44.40 assayed 2.15% C over 2.15m.

MG-03

This hole targeted mineralization along the West Extension of North Central Zone 2 which was uncovered in trench excavation carried out by REM. Mineralization was intersected in intermixed graphitic gneisses and schists from 93.4m to 113.6m. The most significant part of this zone intersected graphitic schist from 102.7m to 105.7m yielding a weighted average assay of 1.79% C over 3 m.

MG-04

This hole also targeted mineralization along the West Extension of the North Central Zone 2. This hole was drilled south to ascertain the extent and geometry of the zone. Mineralization was intersected from 97.75m to 142.00m intermixed graphitic gneiss and schist. The zone is cut by a massive quartz porphyry dike from 99.75m to 108.50m. The

highest composite assay was intersected in graphitic schist from 115.65m to 121.75m for a weighted average assay of 1.73% C over 6.1m.

MG-07

This hole targeted the eastern strike extension of the North Central Zone 2. The target is coincident with a HLEM anomaly and high grade mineralization exposed in a trench excavated by REM in 2012 immediately west of the hole. The hole intersected four narrow 1.55 to 3m zones of graphitic schist assaying in excess of 1% C and one larger zone from 29m to 35.65m with a weighted average grade of 2.41% C over 6.65m.

MG-09

This hole targeted a HLEM conductor 100m east of hole MG-07. The hole intersected two closely spaced mineralized graphitic schist zones with a narrow seam of strongly foliated paragneiss in between. The upper portion from 24.2m to 29.4m yielded a weighted average of 1.99% C over 5.2m. The lower portion of the mineralized zone from 32.4m to 36.4m yielded a weighted average grade of 2.00% C over 4.0m.

MG-16

This hole targeted an approximately 400m long HLEM conductor about 550m east of the Thomas Lake logging road. The hole intersected primarily paragneisses with a narrow 0.55m seam of graphitic schist at 58.9m that assayed 2.42% C.

MG-18A

This hole was designed to target a 1500m long HLEM conductor 1200m east of the Thomas Lake logging road. The hole was abandoned in overburden at 33m due to technical difficulties and failed to penetrate outcrop.

MG-18

This hole was designed to target the western portion of a 1500m long HLEM conductor 600m east of the Thomas Lake logging road. The hole intersected paragneiss and numerous pegmatite and magmatic dykes and failed to intersect graphitic zones that would potentially explain the conductor.

MET-01

This hole was drilled at a steep angle of 85 degrees to intersect high grade graphite mineralization exposed on surface in a trench excavated by REM at the North Central Zone 2. The primary purpose of this hole was to collect mineralized graphitic core that could be used for further metallurgical and beneficiation studies. The hole intersected four narrow 0.42-1.50m bands of graphitic schist with grades ranging from 1.31-3.69% C.

5.0 CONCLUSIONS and RECOMMENDATIONS

Early drilling on the property has established that the property hosts a number of AEM and HLEM conductors and that there is a relationship between the conductive zones and the presence of flake graphite horizons.

The property is underlain by a geological environment consisting of recrystallized meta-sediments which is a common host to most flake graphite deposits.

It is recommended that further drilling to be done to delineate the eastern extent of the North Central Zone and the western extent of the Thomas Lake Road Zone. A number of AEM conductors on the property remain untested and should be ground truthed by local HLEM surveys and drill tested to determine the source of the conductors if there is no surface expression.

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Certificate of Qualifications

I, Paul E. Nielsen am a graduate of Lakehead University with a HBSc in Geology 1974.

1. I am a member in good standing of the Association of Professional Geoscientists of Ontario since 2004 (Member #1130)
2. I am a member of the Northwestern Ontario Prospectors Association (NWOPA) and the Ontario Prospectors Association (OPA).
3. I have been engaged in mineral exploration for junior and major mining companies throughout Canada for the past 40 years. Active projects were located in Northern Ontario, New Brunswick, Manitoba, Saskatchewan, British Columbia and the Northwest Territories.
4. I have worked intermittently on the Manitouwadge Graphite property since March of 2012 as an independent consultant.



Paul E. Nielsen, P.Geol.

February 5, 2016

Appendix 1

Diamond Drill Logs

**MG-01, MG-02, MG-03, MG-04, MG-07, MG-09, MG-16, MG-18,
MG-18A, MET-01**

Ardiden Limited

Company / Owner / Optionee: Ardiden Limited

Property: Manitouwadge Graphite

Project Number: _____

Claim Number(s): _____

Target: Steep cut of high-grade surface zone

Hole Number: **MET-01**

Length: 23m

Core Size: BQTK

Grid East: _____

Grid North: _____

UTM Easting: 597380

UTM Northing: 5467237

Datum and UTM Zone: UTM Zone 16 (Nad 83)

Elevation: 352m

Planned Collar Orientation: 180°

Surveyed Collar Orientation: _____

Magnetic Declination: 7° W

Date Started: March 6th, 2015

Date Completed: March 7th, 2015

Drilling Company: Rugged Aviation

Date Logged: Mar 7th, 2015

Logged By: J.Myllyaho

Downhole Surveys				
Instrument:				
Depth	Dip	Azimuth	Mag	Comment
5	-84.5	225.6	59450	
17	-84.4	216.0	53970	

Core Storage: northwest of Thomas Lake Showing near road intersection

Comments: • Near vertical hole designed for larger section of high-grade zone for metallurgical testing
• collar location survey with Garmin CSx 76 GPS using waypoint averaging (100 measurements)

Drillhole: MET-01															
Major		Code				Samples				C-Graph IR	Au	Pt	Pd	Cu	Ni
From	To		From	To		Number	From	To	Length	%	ppm	ppb	ppb	ppm	ppm
0.00	1.70	OB			Overburden										
1.70	2.82	GNEISS			Paragneiss: Unit is possibly sub-crop or large boulders along overburden/bedrock interface; qtz-feldspar-biotite bands with a slight salt and pepper, medium grain size locally; rubble and abrupt change in lithology at the 2.82m mark; nil visible graphite or sulphide throughout										
2.82	9.70	GNEISS			Paragneiss: Unit is a garnet-biotite-quartz-feldspar intersection of relatively competent paragneiss; foliation appears to range from a mostly shallow angle (20-25 degrees tca) up to 50 degrees locally; core is competent showing minor natural fracturing; core has a longer, carbonate-rich, very low angle fracture running sub-parallel tca; garnet content ranges from nil to 5% and is sporadically disseminated throughout unit as mm-scale, sub rounded pink/light purple grains; trace fine-grained flake graphite is local with visible sulphide consisting of very rare blebs; thin intervals of increased graphite and sulphide are broken out below	1390479	2.82	3.82	1.00	0.4					
						1390480	3.82	4.82	1.00	1.35					
						1390481	4.82	5.82	1.00	0.34					
				3.50	1.5m section displaying local concentrations of fine to medium-grained flake graphite; sub-interval has approximately 2-3% overall	1390482	5.82	6.82	1.00	0.05					
						1390483	6.82	7.82	1.00	0.05					
				4.60	20cm interval of weakly blebby pyrrhotite with lesser pyrite up to 3%; appear to be locally intergrown with graphite flakes as well as on their own	1390484	7.82	8.82	1.00	0.05					
						1390485	8.82	9.70	0.88	0.05					
			7.00	8.45	sub-parallel tca fracture having increased carb content; possibly very thin fault gouge seam but appears to be weathered material filling fracture due to close proximity to surface; no associated sulphide or graphite content	1390486	9.70	10.70	1.00	0.05					
						1390487	10.70	11.70	1.00	0.05					
9.70	12.25	PEG			Pegmatite: Unit is a quartz and feldspar-rich pegmatite dike; core displays moderate epidote/chlorite/sericite alteration of feldspar giving rock a light green/yellow colour; alteration decreases downhole; quartz is dominantly smokey grey; amphibole content varies at 3-7% and increases downhole; uct sharp at 60 degrees tca with a very low angle and sub-parallel tca lct; minor driller induced grinding at the downhole contact of the pegmatite; barren of graphite or sulphide mineralization	1390488	11.70	12.25	0.55	0.05					
						1390489	12.25	12.80	0.55	0.05					
						1390490	12.80	13.80	1.00	0.05					
12.25	14.80	GNEISS			Paragneiss: Unit is a garnet-biotite-quartz-feldspar paragneiss similar to gneissic core at the top of the hole at the 2.82m mark; garnets are relatively evenly distributed throughout at 5.0%; low core angle at 20 degrees tca; trace to locally 0.5% very finely disseminated pyrrhotite and pyrite; very fine-grained flecks of visible graphite are present at >1.0% of unit; graphite content appears to increase downhole where sporadic thin intervals are noted towards the lct; gradational lct with adjacent unit; very competent with little fracturing	1390491	13.80	14.80	1.00	0.05					
						1390492	14.80	15.34	0.54	3.69					
						1390493	15.34	16.34	1.00	0.08					
14.80	15.34	GRP SCHIST			Graphitic Schist:	1390494	16.34	17.34	1.00	0.05					

Drillhole: MET-01															
Major		Code				Samples				C-Graph IR	Au	Pt	Pd	Cu	Ni
From	To		From	To		Number	From	To	Length	%	ppm	ppb	ppb	ppm	ppm
					Unit is a strongly foliated interval of graphitic-bearing schist; flakes of graphite are medium to coarse grained and has an anhedral, net-textured appearance; one side of core length shows up to 30-35% graphite; true width of interval appears thin as contacts and foliation oriented at 20-25 degrees tca; biotite content appears to be only 5% throughout as core has an increased fine-grained quartz and feldspar content; lct is gradational very competent with no fractures throughout	1390495	17.34	18.12	0.78	0.06					
15.34	18.12	GNEISS			Paragneiss:										
					Unit is a garnet-biotite-quartz-feldspar paragneiss similar to gneissic core uphole of the adjacent graphitic schist; garnets are relatively evenly distributed throughout at 5.0%; foliation at 20-45 degrees tca but dominantly low angles; trace to locally 0.5% very finely disseminated pyrrhotite and pyrite; graphite content is ~0.5% as very fine local disseminations; less graphite within this interval than above units; little natural fracturing throughout competent unit										
18.12	18.55	PEG			Pegmatite:	1390496	18.12	18.55	0.43	0.05					
					Unit is a qtz-feldspar rich pegmatite dike; irregular and low angle contacts (<30 degrees tca); barren of sulphide and graphite; similar in appearance and lithology to uphole pegmatite dike	1390497	18.55	18.97	0.42	2.13					
						1390498	18.97	20.00	1.03	0.12					
18.55	18.97	GRP SCHIST			Graphitic Schist:	1390499	20.00	21.50	1.50	1.31					
					Unit is a strongly foliated interval of graphitic-bearing schist; foliation is oriented 50 degrees tca; thin interval consists 20% medium to coarse flakes of graphite with local, intergrown pyrrhotite/pyrite throughout; contacts both bounded by pegmatite, as a dike uphole and a small sweat/vein downhole; lct hard to determine due to discontinuous nature of pegmatite sweat; competent showing no natural fractures	1390500	21.50	23.00	1.50	0.75					
18.97	23.00	GNEISS			Paragneiss:										
					Unit is a garnet-biotite-quartz-feldspar paragneiss similar to gneissic core towards the top of the unit from 12.25-14.8m; garnets are relatively evenly distributed throughout at 5.0%; foliation of core is at 70-90 degrees tca throughout; trace to locally 0.5% very finely disseminated pyrrhotite and pyrite; graphite content is trace throughout with thin sections of increased concentrations broken out below; little natural fracturing throughout competent unit with driller induced grinding at the end of the last run (23m mark)										
			20.32	20.59	small graphitic schist; strongly foliated at 60 degrees tca; 5-7% finer-medium to medium-grained flakes of graphite; 3% disseminated sulphide as pyrrhotite/pyrite at an approximate ratio of 1:1; gradational uct of sub-unit and sharp lct bounded by pegmatite at 45 degrees tca										
			20.59	20.82	pegmatite dike; greenish colouration throughout; trace very fine-grained sulphide as pyrite; irregular and somewhat brecciated lct over a 10cm core length										
			21.25	21.75	small graphitic schist; foliation appears to be perpendicular tca; 3-5% finer-medium to medium-grained flakes of graphite; 1-2% disseminated sulphide as pyrrhotite/pyrite at an approximate ratio of 1:1; gradational upper and lower contacts of sub-unit gradational and subjective based on the graphite content; garnet content absent from graphitic unit with higher garnet concentrations above and below units										
					EOH										

Ardiden Limited

Company / Owner / Optionee: Ardiden Limited
 Property: Manitouwadge Graphite
 Project Number: _____
 Claim Number(s): _____
 Target: _____

 Hole Number: **MG-02**
 Length: 87m
 Core Size: BQTK
 Grid East: _____
 Grid North: _____
 UTM Easting: 597716
 UTM Northing: 5466950
 Datum and UTM Zone: UTM Zone 16 (Nad 83)
 Elevation: 359m
 Planned Collar Orientation: 180°
 Surveyed Collar Orientation: _____
 Magnetic Declination: 7° W

 Date Started: March 1st, 2015
 Date Completed: March 2nd, 2015
 Drilling Company: Rugged Aviation

 Date Logged: Mar 2 - Mar 3
 Logged By: J.Myllyaho

Downhole Surveys				
Instrument:				
Depth	Dip	Azimuth	Mag	Comment
18	-45.3	187.1	55530	
48	-43.7	190.3	55000	
78	-41.9	195.9	54350	

Core Storage: northwest of Thomas Lake Showing near road intersection

Comments: • drilling same conductor as Thomas Lake Occurance
• collar location survey with Garmin CSx 76 GPS using
waypoint averaging (100 measurements)

Drillhole: MG-02															
Major		Code				Samples				C-Graph IR	Au	Pt	Pd	Cu	Ni
From	To		From			Number	From	To	Length	%	ppm	ppb	ppb	ppm	ppm
0.00	9.00	OB			Overburden:										
					recovered intervals of core present from approximately 6.8m to the 9m mark;										
					weathered and carb altered rock throughout this section;										
					badly broken and blocky with no core lengths greater than 15cm long;										
					rock appears to be be paragneiss similar to downhole unit as well as intervals of granitic composition pegmatite dikes;										
					rubble and gouge-like core over a 10cm interval at the 9.0m mark										
9.00	34.70	GNEISS			Paragneiss:	1390019	20.00	21.00	1.00	0.05					
					Unit is a banded interval of quartz-feldspar rich and biotite-hornblende-garnet bands from the mm-scale up to 1-2m in width; core is moderately to strongly foliated at 45-55 degrees tca; fairly competent with little natural fracturing; finely disseminated light purple coloured garnets are visible throughout and mainly associated with mafic banding; local, lighter pink and larger garnet is present and can range in size up to 1cm; trace, very fine disseminations of pyrite are visible throughout with most of the rock being barren of sulphide	1390021	21.00	22.00	1.00	0.05					
						1390022	22.00	23.00	1.00	0.53					
				9.10	37cm interval of kspar altered pegmatite; psuedo-rounded feldspar grains within a smokey grey quartz rich groundmass; uct broken with lct sharp at 40 degrees tca; barren of sulphide	1390023	23.00	24.00	1.00	0.05					
						1390024	24.00	25.00	1.00	0.45					
			21.00	35.60	more biotite-rich section of gneiss; local and patchy garnet content throughout as small disseminations; far less qtz/feld banding compared to uphole unit above the 21m mark; local intervals of increased flake graphite broken out below; typical foliation at 55-65 degrees tca	1390025	25.00	26.00	1.00	0.2					
						1390026	26.00	27.00	1.00	0.49					
			21.00	27.00	graphitic interval; local and patchy disseminations of very fine grained flakes of graphite; v.fgr pyrite locally disseminated throughout as well; graphite appears to grade in and out of the 6m 'sub-unit'; graphitic sections show approximately 1.0% graphite	1390027	27.00	28.00	1.00	0.15					
						1390028	28.00	30.00	2.00	0.05					
			27.00	34.70	garnet-biotite to biotite paragneiss; dominant foliation at 45 degrees tca; alternating 10-25cm qtz/feldspar-rich intervals containing a 40-60 to 50-50 ratio of felsics to mafics (which are dominated by what appears to be pitted hornblende); trace v.fgr sulphide throughout;	1390029	30.00	32.00	2.00	0.05					
						1390030	32.00	33.00	1.00	0.05					
34.70	39.40	GRPH SCH			Graphitic Schist:	1390031	33.00	33.70	0.70	0.05					
					Unit is a strongly foliated (45 degrees tca) graphitic schist; graphite content more pervasive downhole; upper 2m of unit displays approximately 2% disseminated to blebby to interstitial, irregular and discontinuous wisps; intergrown pyrite/graphite is common with sulphide content approx 2% as well; lower 2.5-3m of interval contains increased graphite in the form of wisps, stringers and semi-massive sections; a gradational semi-massive graphite section exists from 38.7 - 39.3m with up to 30% graphite; core is very soft and easily scratched due to graphitic content and amphibole; biotite content is roughly 10% of unit; sulphide grades out downhole to trace over the lower meter of unit; uct gradational with a fairly distinct lower contact at 45 degrees tca; graphite bleeds into adjacent downhole gneissic interval	1390032	33.70	34.70	1.00	0.05					
						1390033	34.70	35.40	0.70	1.92					
39.40	45.20	GRPH GNEISS			Graphitic Biotite Paragneiss:	1390034	35.40	36.40	1.00	3.2					

Drillhole: MG-02															
Major		Code				Samples				C-Graph IR	Au	Pt	Pd	Cu	Ni
From	To		From			Number	From	To	Length	%	ppm	ppb	ppb	ppm	ppm
					Unit is a graphite-bearing interval of biotite-rich paragneiss; moderately to strongly foliated at 55-60 degrees tca; mafic-rich with diffuse qtz-feldspar bands throughout at only 25% of interval; graphite content sporadic and usually as concentrated disseminations and blebby wisps or discontinuous stringers; significant graphite content from 39.4 - 40.0m and 42.5 - 44.0m; gradationally less graphite content and a subjective lower contact	1390035	36.40	37.40	1.00	3.64					
						1390036	37.40	38.40	1.00	3.09					
45.20	76.33	BIO GNEISS			Biotite Gneiss:	1390037	38.40	39.40	1.00	7.81					
					Unit is a relatively homogeneous interval of finer to finer-medium grained interval displaying a moderate to strong gneissic foliation at 45 degrees tca; quartz/feldspar veins/sweats/wisps (mostly cm-scale) are usually discontinuous and seem to be either 45 degrees tca with local 50 degree orientations; core is very competent throughout with very little natural fracturing; minor driller induced grinding over cm-scale lengths; felsic intervals are broken out below; nil to trace sulphide overall with a 25-30cm section of weakly semi-massive/stringer type pyrrhotite with lesser pyrite and chalcopyrite visible (described below)	1390038	39.40	40.40	1.00	0.05					
						1390039	40.40	41.40	1.00	0.05					
				72.70	30cm interval of qtz/feldspar rich material; black tourmaline common throughout as mm to cm sized grains; 80% felsic material and diffuse contacts	1390041	41.40	42.40	1.00	0.05					
						1390042	42.40	43.40	1.00	3.13					
				76.09	76.33	weakly semi-massive stringer of pyrrhotite with lesser chalcopyrite and pyrite; Po:cp ratio roughly 7:1; bounded downhole by a pegmatite dike	1390043	43.40	44.40	1.00	1.17				
						1390044	44.40	45.20	0.80	0.05					
76.33	77.90	PEG			Pegmatite:	1390045	45.20	46.20	1.00	0.05					
					Unit is a coarse to very coarse grained interval of pegmatite containing dominantly quartz and feldspar (up to 85% of unit) with coarse black tourmaline and 'pitted' hornblende; kspar is common giving core a light pink colour throughout its mainly grey/white/black appearance; rock is competent throughout with few natural breaks or fractures; the odd, very trace fine disseminated speck of pyrite visible throughout the unit; lct irregular but appears to be at 45 degrees with the uct sharp at 45 degrees tca	1390046	46.20	47.20	1.00	0.05					
						1390047	47.20	48.20	1.00	0.05					
77.90	87.00	GNEISS			Paragneiss	1390413	73.33	74.33	1.00	0.05					
					Unit is a garnet and biotite-rich interval of strongly foliated paragneiss; thin, 0.5 to 1.0cm randomly alternating bands of feldspar and quartz-rich material; garnet is consistently finer grained, anhedral and pseudo-rounded pinkish/purple grains; foliation varies from 40-45 degrees tca; competent rock with minor fracturing at 60 degrees tca; trace sulphide over local small intervals but mostly barren throughout	1390414	74.33	75.33	1.00	0.05					
						1390415	75.33	76.33	1.00	0.05					
				80.45	25cm pegmatite dike; similar to above dike at 76.33m mark; irregular upper and lower contacts at 55 degrees tca	1390416	76.33	77.90	1.57	0.05					
						1390417	77.90	78.90	1.00	0.05					
				84.90	86.18	pegmatite dike; quartz-rich with a greyish, smokey colouration to the quartz; 1-2% fine specks of pyrite within the quartz over the lower 30cm before the lct									
					EOH										

Ardiden Limited

Company / Owner / Optionee: Ardiden Limited
 Property: Manitouwadge Graphite
 Project Number: _____
 Claim Number(s): _____
 Target: Southern HLEM conductor and high-grade zone from 2012 trenching
 Hole Number: **MG-03**
 Length: 117m
 Core Size: BQTK
 Grid East: _____
 Grid North: _____
 UTM Easting: 597395
 UTM Northing: 5467158
 Datum and UTM Zone: UTM Zone 16 (Nad 83)
 Elevation: 362m
 Planned Collar Orientation: 0°
 Surveyed Collar Orientation: _____
 Magnetic Declination: 7° W

 Date Started: March 3rd, 2015
 Date Completed: March 6th, 2015
 Drilling Company: Rugged Aviation

 Date Logged: Mar 4-6
 Logged By: J.Myllyaho

Downhole Surveys				
Instrument:				
Depth	Dip	Azimuth	Mag	Comment
9	-44.4	5.2	56080	
39	-43.2	6.0	56090	
69	-41.1	6.0	55780	
99	-40.0	4.0	55650	
114	-38.6	11.0	39100	

Core Storage: northwest of Thomas Lake Showing near road intersection

Comments:
 • Rods jammed at 117m causing hole to terminate
 • All material eventually recovered from hole
 • collar location survey with Garmin CSx 76 GPS using waypoint averaging (100 measurements)

Drillhole: MG-03															
Major		Code				Samples				C-Graph IR	Au	Pt	Pd	Cu	Ni
From	To		From			Number	From	To	Length	%	ppm	ppb	ppb	ppm	ppm
0.00	2.65	OB			Overburden										
2.65	4.20	QFP DK			Quartz-Feldspar Porphyry Dike:										
					Unit is relatively homogeneous, medium grained porphyry dike; local medium-coarser grained, subhedral quartz/feldspar phenocrysts throughout; moderately to strongly fractured most likely due to close proximity to the surface; sharp 65 degree tca lct; kspar and biotite-rich displaying a pink and black colour; barren of mineralization										
4.20	40.05	GNEISS			Paragneiss:										
					Quartz and feldspar-rich interval of paragneiss; mixture of local anhedral to subhedral black to very dark grey and altered hornblende and biotite; non-magnetic; competent and hard core due to largely qtz/feldspar mineralogy with fracturing decreasing downhole; fractured intervals do exist, are broken out below and are contained to the upper 21m of the hole; randomly oriented fracture angles near surface ranging from 25 degrees to 80 degrees tca; common fractures downhole are 45-60 degrees tca; barren of sulphide throughout as well as any visible garnet; local pegmatite dikes are hosted within the unit and are broken out below;										
			10.46	12.50	Pegmatite:										
					interval is a very coarse-grained, bleached white and light pink and yellow coloured pegmatite; relatively blocky with broken core common towards the uct; large, up to 3cm tourmaline grains at 3-5% of felsic interval; irregular upper contact at approximately 60 degrees tca with a subjective and somewhat gradational lct over a 5-10cm interval; barren of sulphide										
				11.20	80cm massive and homogeneous, biotite/hornblende-rich qfp dike within pegmatite; weak anhedral porphyroblasts of qtz/feld throughout which differ from the more uniform finer-medium grain size; 65 degree upper and lower contacts; competent and barren										
			16.25	18.35	fault zone; badly broken and blocky core; pervasive kspar alteration throughout longer (up to 8cm) intervals; altered and broken upper and lower contacts; no associated sulphide										
			28.00	40.05	increased carbonate, epidote, chlorite? and potassic alteration along fracture faces; alteration bleeding into gneissic rocks from 1cm up to 4cm; rusty appearance with possible very fine sulphide associated; bleached and slightly coarser grained feldspathic stringers also associated with the fractures and alteration										
				36.20	3cm fault seam; chloritic and very soft gouge present; broken core but appears contacts are 45 degrees tca; vuggy appearance within fault; no associated mineralization										
40.05	54.40	FLT ZN			Fault Zone:										

Drillhole: MG-03															
Major		Code				Samples				C-Graph IR	Au	Pt	Pd	Cu	Ni
From	To		From			Number	From	To	Length	%	ppm	ppb	ppb	ppm	ppm
					Unit is a badly broken and blocky interval of medium to coarser grained biotite paragneiss and very coarse-grained granitic pegmatite; gneissic material is biotite-rich, dark grey to black coloured and strongly foliated at 45 to 55 degrees tca throughout; dominantly mafic material with 20-25% qtz/feldspar banding from mm-scale up to 2-3cm locally; nil visible sulphide throughout the majority of the unit with the very rare fine grained speck of pyrite present; very minor gouge present with most fractures in the gneissic material displaying a dark chlorite altered face; fairly distinct upper and lower contacts exhibiting broken core; contacts appear to be perpendicular tca but hard to distinguish; bad ground seems to be gradational at the upper and lower contacts over a few meters										
			40.05	41.40	altered and broken interval of the above quartz-feldspar rich gneissic unit uphole; bleached with diffuse kspar and sericite alteration 'smeared' throughout the mostly anhedral feldspar grains; becomes more broken and blocky downhole										
			41.40	42.75	kspar-rich pegmatite dike; strong pinkish orange colouration with anhedral and psuedo-rounded bull white, interstitial quartz phenocrysts throughout; minor black biotite and larger tourmaline? grains associated with the more blocky ground										
			42.75	44.75	more competent and less fractured biotite-rich gneiss; strong foliation at 45 degrees tca; relatively homogeneous with nil visible sulphide or graphite mineralization										
			44.75	45.95	kspar-rich pegmatite dike; similar to dike at 41.4m mark; slightly more mafic content up to 15%; moderately competent with common fracturing and minor grinding										
			45.95	48.08	badly broken and blocky biotite-rich gneiss; foliation at 55 degrees tca; low-angle (10-15 degree tca) fractures common intensifying the blockiness of the rock; trace pyrite on local fracture faces; dark to medium green chloritic alteration over the lower 0.5m of core										
			48.08	51.00	kspar-rich pegmatite dike; similar in appearance and composition to diking at 44.75m mark; qtz appears blue to smokey grey on colour; badly broken and blocky throughout with only one core length over 10cm in size; nil associated sulphide										
				49.10	30cm intensely altered and brecciated interval; light green epidote and kspar common; badly broken and blocky; minor gouge visible as very soft, mm-scale seams along fracture faces; nil sulphide										
			51.00	54.40	altered and broken interval of quartz-feldspar rich gneissic unit similar to the beginning of fault zone; bleached with diffuse kspar and sericite alteration 'smeared' throughout the mostly anhedral feldspar grains; becomes more broken and blocky downhole										
54.40	93.40	GNEISS			Paragneiss:	1390418	54.50	55.50	1.00	0.06					

Drillhole: MG-03															
Major		Code				Samples				C-Graph IR	Au	Pt	Pd	Cu	Ni
From	To		From	To		Number	From	To	Length	%	ppm	ppb	ppb	ppm	ppm
					Unit is a more biotite-rich paragneiss than present at the top of the unit; quartz and feldspar sections are thin but can occur over 1-2m intervals; mixture of local anhedral to subhedral black to very dark grey and altered hornblende and biotite displaying a pitted appearance; non-magnetic; competent and hard core with little fracturing throughout; relatively low fracture angles ranging from locally 25 to 45 degrees uphole to 60 degrees tca downhole; garnet is absent from this section of core; sulphide is present throughout as local and sporadic, fine disseminations of pyrite with very local concentrations of pyrrhotite also occurring and noted below; local pegmatite dikes are hosted within the unit and are broken out below	1390419	55.50	56.50	1.00	0.05					
						1390421	56.50	57.50	1.00	0.05					
			55.50		30cm interval of sub-parallel tca, net-textured pyrrhotite (+/- pyrite); strongly magnetic sulphide which appears on only one side of core; mineralization is hosted within a mafic-rich portion of the biotite paragneiss; Po:Pyr ratio is approximately 6:1	1390048	89.40	90.40	1.00	0.05					
						1390049	90.40	91.40	1.00	0.05					
			66.00		40cm interval of badly broken and blocky core	1390050	91.40	92.40	1.00	0.05					
						1390051	92.40	93.40	1.00	0.11					
			67.55	68.10	kspar-rich pegmatite dike; uct at 45 degrees tca with a perpendicular tca lct; 15-20% coarse black tourmaline and finer biotite/hornblende throughout; barren of visible sulphide	1390052	93.40	93.90	0.50	1.5					
						1390053	93.90	94.90	1.00	0.05					
			68.10	73.84	more coarser grained and qtz-feldspar rich interval of the gneiss; whitish/grey colouration with a weak salt and pepper appearance; nil sulphide; gradational lct; no distinct foliation;	1390054	94.90	95.90	1.00	0.05					
						1390055	95.90	96.90	1.00	0.36					
			86.50	87.55	finely disseminated pyrite throughout this sub-interval; mineralization up to 2.0%; 60 degree foliation of unit; bleb/stringer of semi-massive pyrrhotite and pyrite at the 87.5m mark; biotite-rich; non-magnetic other than the pyrrhotite stringer	1390056	96.90	97.90	1.00	0.56					
						1390057	97.90	98.90	1.00	0.05					
93.40	93.90	GRP SCHIST			Graphitic Schist:	1390058	98.90	99.90	1.00	0.05					
					small interval of dark black, aphanitic graphitic schist; discontinuous and slightly boudinaged qtz-feldspar bands occur ranging up to 0.5cm wide; strong foliation at 60 degrees tca; gradational and subjective contacts as graphite-rich and disseminated sporadically throughout; schist appears to be the same lithology as the above and downhole units (biotite-rich paragneiss); graphite is approximately 1-2% throughout as fine disseminations concentrated over a 10cm wide area starting at 93.6m; trace to 0.5% very fine pyrite is also present within small unit; biotite content is roughly 10-15%	1390059	99.90	100.90	1.00	0.37					
						1390061	100.90	101.90	1.00	0.15					
93.90	102.70	GRP GNEISS			Graphitic Paragneiss:	1390062	101.90	102.70	0.80	0.09					
					Unit is a biotite-rich section of the paragneiss with sporadic concentrations of flake graphite; core displays a dark grey to black colouration; strong foliation at 45 degrees tca throughout; local coarse qtz-feldspar sweats weakly resembling pegmatite dike material consisting of only 10% of the unit and concentrated around the 98-99m marks; very competent core with little natural fracturing; varying amounts of biotite/amphibole from 3% up to 20% over 1m core lengths; trace to locally 1.0% very fine-grained pyrite/pyrrhotite present; rock is non-magnetic with the exception of weak magnetism associated with slightly more concentrated sulphide	1390063	102.70	103.70	1.00	2.52					
						1390064	103.70	104.70	1.00	1.3					
102.70	107.00	GRP SCHIST			Graphitic Schist:	1390065	104.70	105.70	1.00	1.55					

Drillhole: MG-03															
Major		Code				Samples				C-Graph IR	Au	Pt	Pd	Cu	Ni
From	To		From			Number	From	To	Length	%	ppm	ppb	ppb	ppm	ppm
					Unit is a dark black coloured, fine-grained graphitic schist; very minor qtz-feldspar content throughout as local 1-3cm sweats or discontinuous bands occur throughout; strong foliation at a shallower angle than most of the hole at 25-45 degrees tca; diffuse uct bounded by an chlorite altered, 3cm qtz-feldspar band with a very irregular and subjective lct as the below pegmatite appears brecciated most likely due to the shallow core angle; graphite is approximately 5-7% throughout as finely disseminated flakes up to 5mm in size; more concentrated disseminations to weakly net-textured graphite flakes appear at the 103.0-103.7, 104.6-104.8 and 105.0-105.5m marks; trace to 1.0% fine-grained, subhedral pyrite and pyrrhotite is present at an approximate 1:1 ratio; fine-grained biotite content is roughly 20-25% of core	1390066	105.70	107.00	1.30	0.34					
						1390067	107.00	107.80	0.80	0.05					
107.00	108.60	PEG			Pegmatite:	1390068	107.80	108.60	0.80	0.05					
					Unit is a pink/orange coloured pegmatite dike; well marbled white/blue/grey quartz and potassic altered feldspar throughout as very course subhedral to euhedral grains; minor epidote/sericite and cordierite? giving core a light green and yellow colour; local and rare amphibole throughout; nil visible sulphide	1390069	108.60	109.60	1.00	0.05					
						1390070	109.60	110.60	1.00	0.31					
108.60	114.40	GRP GNEISS			Graphitic Paragneiss:	1390071	110.60	111.60	1.00	0.23					
					Unit is a biotite-rich section of the paragneiss with sporadic concentrations of flake graphite; similar to graphite-bearing gneiss from 93.9-102.7m; graphite consists of fine flakes at no more than 1.0% of unit; thin (0.3m) intervals display up to 3% graphite content; core displays a dark grey to black colouration; strong foliation ranging from 35-45 degrees tca; local coarse qtz-feldspar sweats/bands which are locally coarse-grained pegmatite dike material; coarser-grained sweats make up 20% of the unit and are randomly distributed throughout unit; moderately competent core with common natural fracturing; dominant fracture orientation at 45 degrees tca; varying amounts of amphibole averaging 10% overall; trace to locally 1.0% very fine-grained pyrite/pyrrhotite present; rock is non-magnetic with the exception of weak magnetism associated with slightly more concentrated sulphide	1390072	111.60	112.60	1.00	0.39					
						1390073	112.60	113.60	1.00	0.35					
114.40	117.00	PEG			Pegmatite:	1390074	113.60	114.40	0.80	0.05					
					Unit is a pink/orange coloured pegmatite dike, similar to pegmatite at 107m mark; white/blue/grey quartz and potassic altered feldspar throughout as very course subhedral to euhedral grains; stronger epidote content than uphole dike giving core a light green appearance; local and rare amphibole at <3% of unit; nil visible sulphide; blocky and badly broken after the 116.3m mark to 117m; rods jammed and hole terminated	1390075	114.40	115.50	1.10	0.05					
						1390076	115.50	117.00	1.50	0.05					
				115.20	30cm biotite-rich paragneiss xenolith; homogeneous with discontinuous and boudinaging, mm-scale, white coloured qtz-feldspar bands; amphibole rich at 50% of unit; strongly foliated at 60 degrees tca; nil to very local trace specks of fine-grained pyrite 30 degree uct; 45 degree lct										
				115.50	3mm fault gouge seam within biotite-rich section of core; along fracture plane oriented at 45 degrees tca; nil associated mineralization										
					EOH										

Ardiden Limited

Company / Owner / Optionee: Ardiden Limited

Property: Manitouwadge Graphite

Project Number: _____

Claim Number(s): _____

Target: Buried HLEM anomaly to the north of and a deeper cut of the high grade area of trench

Hole Number: **MG-04**

Length: 142m

Core Size: BQTK

Grid East: _____

Grid North: _____

UTM Easting: 597377

UTM Northing: 5467309

Datum and UTM Zone: UTM Zone 16 (Nad 83)

Elevation: 355m

Planned Collar Orientation: 180°

Surveyed Collar Orientation: _____

Magnetic Declination: 7° W

Date Started: March 10th, 2015

Date Completed: March 12th, 2015

Drilling Company: Rugged Aviation

Date Logged: Mar 10 - Mar 12

Logged By: J.Myllyaho

Downhole Surveys				
Instrument:				
Depth	Dip	Azimuth	Mag	Comment
16	-45.3	189.1	55830	
90	-40.5	185.7	48890	
142	-37.7	192.7	56316	

Core Storage: northwest of Thomas Lake Showing near road intersection

Comments: • collar location survey with Garmin CSx 76 GPS using waypoint averaging (100 measurements)

Drillhole: MG-04																
Major		Code				Samples				C-Graph IR	Au	Pt	Pd	Cu	Ni	
From	To		From			Number	From	To	Length	%	ppm	ppb	ppb	ppm	ppm	
0.00	8.40	OB			Overburden											
8.40	25.85	GNEISS			Paragneiss:											
					Unit is an intersection of grey, black and white coloured, fine to coarse-grained gneiss; dominantly felsic minerals throughout consisting of feldspar and quartz layered with mafic-rich bands from <1cm up to 0.75m in drilled width; unit is extremely competent for being so close to the bedrock/overburden interface with little natural fracturing; mostly barren of visible sulphide with very patchy and local traces of fine specks of pyrite within both mafic and felsic-rich portions of core; moderately foliated ranging from 60-70 degrees tca; rock hosts sporadic and variable amounts of fine garnet and is absent of any magnetism	1390138	24.85	25.85	1.00	0.05						
						1390139	25.85	26.80	0.95	0.52						
			11.70	14.80	qtz-feldspar rich section of core; sub-interval contains 15% mafic, amphibole-rich banding; local coarse-grained, chlorite? altered subhedral phenocrysts; phenocrysts appear to be some form of silicate; barren of sulphide throughout	1390141	26.80	27.80	1.00	0.14						
						1390142	27.80	28.80	1.00	0.05						
				14.73	11cm fault zone; v.fgr and amphibole rich section; pervasive soft and rubby gouge; uct perpendicular tca with a lct broken at 65 degrees tca; nil associated sulphide/graphite mineralization											
				17.90	10cm fault zone; minor gouge and variable fracture angles; within chlorite? altered, felsic section of gneiss											
25.85	26.80	GRP SCHIST			Graphite Schist:											
					weak graphitic schist as graphite content is very low overall at >0.5% consisting of fine to very fine flakes concentrated more towards the uct; contacts are somewhat gradational and subjective as gneissic units above and below grade into the finer grained, more mafic schistose interval; very finely disseminated pyrrhotite and pyrite is present throughout the core causing weak to locally strong magnetism; a thin sub-interval of stringer to weakly semi-massive sulphide is located at 26.4-26.65 and is described below											
				26.40	25cm section of increased sulphide content; sulphide consists of stringer to blebby to disseminated pyrite/pyrrhotite at a 1:1 ratio; stringers (weakly semi-massive) section from 26.4-26.5 displaying 2-3cm wide stringer sulphide; blebby and mostly disseminated sulphide after 26.5m mark											
26.80	69.76	GNEISS			Paragneiss:											
					Garnet-biotite-qtz-feldspar paragneiss; interval is significantly more mafic than uphole paragneiss as only mm to 2-3cm bands of qtz-feldspar are present; foliation oriented 70-75 degrees tca throughout; relatively abundant garnet content with smaller, sections showing only trace, fine-grained garnet with other meter long interval containing up to 20% fine pink/light purple coloured garnet; 10-20% qtz-feldspar weakly pegmatitic sweets with either gradational or very irregular contacts which give the appearance of layering within the gneiss opposed to pegmatitic diking; significant sections broken out below; rock hosts only trace, finely disseminated pyrite/pyrrhotite over very small widths uphole to being absent of visible sulphide downhole; nil graphite content within this section of gneiss; non-magnetic and very competent showing little natural fracturing; relatively homogeneous appearance compared to other paragneiss throughout the property											

Drillhole: MG-04															
Major		Code				Samples				C-Graph IR	Au	Pt	Pd	Cu	Ni
From	To		From			Number	From	To	Length	%	ppm	ppb	ppb	ppm	ppm
				28.38	21cm section of pegmatite; contacts irregular but appear to be oriented at 70 degrees tca; orange colour due to pervasive kspars alteration; barren of sulphide/graphite										
				29.36	30cm interval of pegmatite; same as above pegmatite 'diking' with contacts irregular at 70 degrees tca										
				39.40	10cm pegmatitic sweat; kspars/epidote altered with minor tourmaline?; gradational contacts and appears associated with a weak increase in qtz-feldspar layers; barren										
				45.90	10cm bull white to slightly smokey quartz vein; 65 degree uct; 80 degree lct; barren of mineralization										
				48.90	25cm pegmatite 'dike'; irregular contacts consisting of quartz/feldspar rich stringers; epidote/kspars alteration throughout giving a light green to pink colouration; moderately fractured; very hard; no visible sulphide/graphite										
				50.56	18-20cm pegmatite dike; same as above pegmatitic interval at 48.9m mark; pervasive kspars throughout										
				51.95	40cm pegmatite dike; same as pegmatitic interval at 48.9m mark; thin stringers along contacts but appear to be oriented along foliation at 70 degrees tca										
				55.75	70cm interval of quartz-feldspar rich material; more massive appearance; weak to moderate epidote/kspars altered giving weak grey/green/orange tinge to core; 15-20% mafic layering within sub-interval with bands no greater than 8cm in width; no associated sulphide of graphite mineralization										
				58.40	10cm fractured interval; possible small fault zone; minor gouge and bull white quartz as a fracture filling feature; orientation difficult to determine										
				59.20	20cm fractured interval; possible fault zone; local gouge content along fracture faces; core angles above and below become shallow to almost parallel tca; minor white/grey qtz throughout as thin stringers; strong chloritic alteration giving a greenish halo to surrounding rock; no associated sulphide/mineralization										
				59.70	5-10cm wide fractured interval; possible fault zone; badly broken and blocky core with multiple fracture orientations; no visible gouge or mineralization associated										
			61.15	62.08	very coarse grained pegmatite dike; strong orange and light green colouration from epidote/kspars alteration of feldspar; relatively sharp uct at 70 degrees tca with an irregular and very shallow angle lct from 10 to 15 degrees tca; bull white qtz common throughout this interval; moderately competent with local fracturing towards the upper contact; nil visible sulphide or flake graphite										
				62.60	35cm pegmatite dike; same as diking at 61.15m; slightly more irregular contacts which show weak stringer felsic material										
				64.00	35cm pegmatite dike; same as diking at 61.15m; slightly more irregular contacts which show weak stringer felsic material										

Drillhole: MG-04															
Major		Code				Samples				C-Graph IR	Au	Pt	Pd	Cu	Ni
From	To		From			Number	From	To	Length	%	ppm	ppb	ppb	ppm	ppm
				64.85	35cm pegmatite dike; same as diking at 61.15m; badly broken and blocky section over 15cm within unit; gradational contacts; strong kspar alteration; barren of mineralization										
				67.23	ground core due to reaming of hole due to smaller fault zones uphole causing material to tighten on rods										
69.76	77.40	FLT ZN			Fault Zone:										
					Unit is a badly broken and blocky fault zone; extremely fractured rock over long (>1m) intervals; recovered core intervals show the same garnet-bearing gneissic rocks from the uphole unit; finer-grained and mafic-rich with thin (< 1-5cm) qtz-feldspar layers throughout; multiple low angle (10 degrees tca) fractures exist at the lower contact and appears associated with dark black chlorite along fracture-faces; core is locally ground with recoveries poor; no associated sulphide or graphite content visible										
				75.90	50cm (drilled width) quartz-feldspar porphyry dike; very shallow contacts tca at 20 degrees; broken and blocky with a medium grain size; very similar to adjacent downhole qfp described below; no associated mineralization; pink/orange potassic alteration of feldspar grains										
77.40	85.00	QFP			Quartz-Feldspar Porphyry:	1390143	84.00	85.00	1.00	0.05					
					Unit is a massive and homogeneous interval of finer medium to medium grained quartz-feldspar porphyry; rock is extremely competent showing very minimal natural fracturing; very weak kspar and epidote/chlorite alteration giving rock a slight orange and pink colour; fine black coloured amphibole grains speckled throughout unit at approximately 10-20%; qtz-feldspar phenocrysts occur as sub-hedral and pseudo-rounded grains throughout and rarely vary in size; barren of visible sulphide and/or flake graphite; uct fractured but appears to be oriented at 35 degrees tca; lct at 25 degrees tca	1390144	85.00	86.00	1.00	0.05					
						1390145	86.00	87.00	1.00	0.05					
				83.00	18cm qtz-rich vein; minor kspar at irregular and diffuse uct; broken lct; bull white to smokey grey quartz;	1390146	87.00	88.00	1.00	0.05					
						1390147	88.00	89.00	1.00	0.05					
85.00	91.40	GNEISS			Paragneiss:	1390148	89.00	90.00	1.00	0.05					
					Interval is a fine to coarse-grained paragneiss exhibiting dark grey/black, mafic rich layers with white coloured, quartz-feldspar rich felsic layers; felsic bands are quartz dominant having a bull white appearance; qtz-feldspar layers consist of <20% of the unit; strongly altered amphibole up to 15% of unit; altered amphibole displays a 'pitted' appearance; strong foliation throughout from a shallow (25-30 degree tca) angle near the uct to a more perpendicular tca (70-85 degree) foliation toward the lower contact; fine to medium-grained blebs and disseminated grains of pyrite dominate with lesser pyrrhotite sporadically intergrown with pyrite throughout; local, 1-3cm wide, massive/semi-massive to discontinuous stringer sulphide present with more significant intervals broken out below; sulphide more common after the 88m mark; no garnet is visible throughout unit with the exception of a 1m interval at the 89.2m mark	1390149	90.00	91.40	1.40	0.05					
				89.20	medium to coarse-grained deep purple/red garnet content over 1m interval;										
				88.18	7cm interval of massive/semi-massive stringers of pyrite/pyrrhotite; Pyr:Po ratio approx 4:1; locally magnetic due to pyrrhotite content; stringers oriented 65 degrees tca										

Drillhole: MG-04															
Major		Code				Samples				C-Graph IR	Au	Pt	Pd	Cu	Ni
From	To		From	To		Number	From	To	Length	%	ppm	ppb	ppb	ppm	ppm
				89.10	1-2cm, slightly discontinuous stringer of massive pyrite; within 5-7cm interval with more concentrated disseminations of pyrite throughout;										
91.40	97.75	QFP			Quartz-Feldspar Porphyry: similar in appearance and lithology to uphole qfp; finer grained amphibole-rich groundmass with subhedral, medium grained qtz-feldspar phenocrysts displaying potassic alteration to the feldspar grains towards the lct; irregular and shallow (parallel tca to 45 degrees) uct with an 85 degree tca lct; barren of mineralization	1390150	91.40	92.75	1.35	0.05					
						1390151	92.75	94.75	2.00	0.05					
						1390152	94.75	96.75	2.00	0.05					
97.75	98.75	GRP SCHIST			Graphitic Schist:	1390153	96.75	97.75	1.00	0.05					
					sulphide and graphite bearing section of graphite schist bounded by massive qfp diking; approximately 7-10% net-textured pyrrhotite and pyrite at an approx. 1:1 ratio; finer-grained sulphide magnetic with rare blebby grains (no greater than 2-3mm in size); graphite content is 1-2% throughout as fine to finer-medium grained flakes commonly intergrown of interstitially along sulphide grain boundaries; core is fine to very fine-grained and biotite-rich at roughly 20%; lct at 50 degrees tca with a near perpendicular tca uct at 85 degrees	1390154	97.75	98.75	1.00	1.33					
						1390155	98.75	99.75	1.00	0.05					
98.75	109.50	QFP			Feldspar Porphyry:	1390156	108.50	109.50	1.00	0.05					
					Unit is a massive and relatively homogeneous interval of black and white coloured qfp; finer medium to medium grain size with local, 1cm, anhedral feldspar phenocrysts; very local quartz eyes present; core is quartz-rich and very hard and competent; little fracturing throughout; very fine-grained amphibole appears to show a weak foliation from parallel tca up to 45 degrees; the foliation is very hard to determine due to the erratic nature of the very fine-grained blades; large and massive quartz veins appear towards the lct where the rock becomes much more altered than the unaltered uphole portion; barren of any visible mineralization										
			106.30	109.50	more altered section of the qfp; most likely due to the contact and close proximity of the adjacent downhole unit; ksp/epidote and sericite dominate; no increase of visible mineralization										
				106.30	20cm massive qtz (with lesser feldspar) vein; bull white quartz with local ksp and epidote altered halo of feldspar at both irregular upper and lower contacts; barren of sulphide										
				107.60	30cm massive qtz vein; bull white quartz throughout; alteration halo at both contacts; shallow (25 degree tca) contacts; barren of sulphide										
109.50	115.65	GNEISS			Paragneiss:	1390157	109.50	110.65	1.15	0.05					
					Unit is a fine to coarse-grained paragneiss; rock is strongly foliated at 50 degrees tca throughout; uct is broken but a 50 degree tca contact appears visible; lct is subjective and gradational into the below graphitic unit; qtz-feldspar layers appear more as 1mm to 10cm veins or discontinuous stringers throughout; felsic content is approximately 20% consisting of mostly white coloured, unaltered feldspar as well as bull white qtz; local and thin pegmatitic sections occur and are described below; core is moderately fractured and broken due to sporadic low-angle breaks; dominant fracture angles at 30 degrees tca; local, patchy, finely disseminated pyrite and pyrrhotite occur over 30-60cm intervals with most of unit appearing absent of visible sulphide/graphite; trace to 0.5% local fine-grained flakes of graphite are present throughout which are associated with more sulphide-rich intervals	1390158	110.65	111.65	1.00	0.05					
						1390159	111.65	112.65	1.00	0.7					

Drillhole: MG-04															
Major		Code				Samples				C-Graph IR	Au	Pt	Pd	Cu	Ni
From	To		From			Number	From	To	Length	%	ppm	ppb	ppb	ppm	ppm
				113.50	20cm weakly pegmatitic section of qtz-feldspar rich material; irregular and diffuse contacts; strong epidote/kspar alteration; barren of mineralization	1390162	112.65	114.65	2.00	0.05					
						1390163	114.65	115.65	1.00	0.05					
				113.70	25cm pegmatite interval; 30 degree tca upper and lower contacts; pervasive kspar/epidote content throughout feldspar-rich unit; nil visible mineralization										
115.65	121.75	GRP SCHIST			Graphitic Schist:	1390164	115.65	116.65	1.00	2.42					
					Unit is a aphanitic to medium-grained graphitic schist; core is extremely altered and pitted; soft and very easily scratched; weak porphyritic appearance due to thin and discontinuous qtz-feldspar layers; due to pervasive alteration of mafic minerals, foliation is difficult to determine but appears to be at 70 degrees tca; core shows moderate fracturing with most core lengths over 15cm in size; minor pegmatitic dikes cross-cut the unit and are broken out below; graphite content ranges but is approximately 2% overall; graphite consists of fine to finer-medium grained flakes with local thin (<10cm) intervals showing flakes up to 3mm in size; trace to locally 1.0% sulphide throughout which is concentrated near the upper and lower contacts;	1390165	116.65	117.65	1.00	0.37					
						1390166	117.65	118.65	1.00	2.37					
				119.45	25cm kspar-rich pegmatitic dike; 65 degree sharp uct; broken blocky pieces of core consisting of the lct; 5% quartz as bull white phenocrysts within a kspar 'groundmass'; deep orange colour throughout; barren of graphite or sulphide	1390167	118.65	119.65	1.00	1.44					
						1390168	119.65	120.65	1.00	2.9					
				120.64	46cm interval of pegmatite; quartz and feldspar rich; very coarse grained; moderate kspar alteration giving rock a pink/light orange hue; trace interstitial anhedral pyrite throughout associated with the 5% mafic content; mafic content appears to be biotite/hornblende interstitially along coarser quartz and feldspar grain boundaries;	1390169	120.65	121.75	1.10	0.96					
						1390170	121.75	122.93	1.18	0.05					
			121.00	121.75	aphanitic section of graphitic interval bounded by pegmatite dikes; increased sulphide content with a decrease in visible graphite; weak local blebs of pyrite and pyrrhotite throughout mostly fine to very fine disseminations; irregular upper and lower contacts at 70 degrees and 90 degrees tca respectively										
121.75	122.93	PEG			Pegmatite:										
					Quartz and feldspar rich very coarse grained pegmatite; moderate to strong kspar alteration giving rock a pink/orange colouration; <5% mafic content as hornblende and tourmaline? crystals; no visible sulphide										
122.93	142.00	GNEISS			Paragneiss:	1390171	122.93	124.00	1.07	0.62					
					Unit is a fine to coarse grained interval of paragneiss; finer-grained and more mafic intervals layered with coarser grained white quartz and feldspar intervals; mafic, finer-grained intervals host increased sulphide and minor flake graphite; these intervals are commonly 20-40cm in drilled width and contain 1-5% finely disseminated pyrite and pyrrhotite; visible graphite will be noted below; felsic-rich intervals are barren of visible sulphide or graphite mineralization; very coarse-grained pegmatite dikes are present throughout unit and broken out and described below; foliation is moderate to strong at 70-80 degrees tca	1390172	124.00	126.00	2.00	0.59					
						1390173	126.00	128.00	2.00	0.66					
			123.60	124.25	pegmatite dike; same as interval from 121.75-122.93m; pervasive kspar alteration resulting in strong pink/orange colouration; gradational and diffuse contacts consisting of 70 degree tca oriented thin stringers of qtz-feld; barren	1390174	128.00	130.00	2.00	0.05					
						1390175	130.00	131.00	1.00	0.05					

Drillhole: MG-04															
Major		Code				Samples				C-Graph IR	Au	Pt	Pd	Cu	Ni
From	To		From	To		Number	From	To	Length	%	ppm	ppb	ppb	ppm	ppm
			124.35		25cm interval of increased flake graphite and sulphide; 5% overall graphite with 1-2% very fine-grained pyrite and pyrrhotite within a mafic rich portion of the gneiss	1390176	131.00	132.00	1.00	0.57					
						1390177	132.00	133.00	1.00	0.73					
		124.80	125.80		grey white and black coloured pegmatite dike; very weak alteration of feldspar giving core a very weak pinkish/green colour; interstitial fibrous amphibole makes up 5-7% of interval; somewhat gradational upper and lower contacts consisting of thin stringers over 5 and 10cm respectively; no visible mineralization	1390178	133.00	134.00	1.00	1.63					
						1390179	134.00	134.70	0.70	0.08					
			127.60		15cm interval of increased sulphide; blebby pyrite and pyrrhotite up to 0.5cm in size; gradational finely disseminated sulphide ~10cm above and below; trace very fine flakes of graphite	1390161	112.65	113.65	1.00	0.28					
						1390181	134.40	135.40	1.00	0.83					
		129.30	131.00		grey white and black coloured pegmatite dike; very weak alteration of feldspar with a local light green colouration from sporadic epidote; interstitial fibrous amphibole makes up 5-7% of interval; somewhat gradational upper and lower contacts consisting of sweats and thin stringers >5cm lengths; no visible mineralization	1390182	135.40	136.40	1.00	0.05					
						1390183	136.40	138.00	1.60	0.05					
		131.80	135.20		increased sulphide/graphite intersection; very finely disseminated pyrite and pyrrhotite at a 1:1 ratio at 2-3% throughout; local and rare blebs of pyrite (+/- pyrrhotite) up to 3mm in size occur; felsic (qtz-feldspar layers and sweats occur throughout the unit and appear associated with subhedral weak blebs of pyrite towards the lct; graphite is fine to medium grained somewhat fibrous flakes; sporadic smaller concentrations of graphite occur as well as more local intergrowths with sulphide grains; dominantly fine flakes disseminated throughout at 1-2% of unit; sub-interval of gneiss contains increased mafic minerals and have an aphanitic/fine grain size to locally medium coarse where felsic material is more pervasive; biotite is approx 5-10% of sub-unit; rock is soft but very competent with little natural fracturing	1390184	138.00	139.00	1.00	0.05					
						1390185	139.00	140.50	1.50	0.61					
		135.40	139.00		very coarse grained pegmatite dike; pseudo-rounded up to 4cm sized feldspar grains display a light green saussuritization with local and lesser kspalteration; very shallow irregular and diffuse uct at 25 degrees; lct slightly sharper at 45 degrees tca; quartz content is dominantly dark smokey grey in colour but local bull white; finer-grains do occur; local and patchy zenoliths of gneissic material within diking described below; qtz-feldspar rich pegmatite material displays no visible sulphide or graphite mineralization	1390186	140.50	142.00	1.50	0.33					
			137.50		20cm interval of pegmatite and mafic-rich gneissic material; local anhedral fine grains to weak and small blebs of pyrite associated with biotite-rich material; 40 degree? foliation tca										
			139.70		15cm interval of very fine-grained biotite-rich gneissic material containing increased flake graphite material; elongated, 2-3mm long flakes of graphite trace very fine-grained sulphide as pyrite/pyrrhotite										
			141.36		1cm seam of slightly concentrated flakes of graphite; appears associated with a 1-2cm wide quartz vein which is adjacent to and downhole of the visible graphite; flakes are finer-grained and 1-2mm in size at the largest; within finer-medium grained portion of the gneiss										
			142.00		EOH										

Ardiden Limited

Company / Owner / Optionee: Ardiden Limited

Property: Manitouwadge Graphite

Project Number: _____

Claim Number(s): _____

Target: Eastern strike extension of high-grade zone and coincident HLEM anomaly from trench

Hole Number: **MG-07**

Length: 79m

Core Size: BQTK

Grid East: _____

Grid North: _____

UTM Easting: 597526

UTM Northing: 5467233

Datum and UTM Zone: UTM Zone 16 (Nad 83)

Elevation: 360m

Planned Collar Orientation: 180°

Surveyed Collar Orientation: _____

Magnetic Declination: 7° W

Date Started: March 7th, 2015

Date Completed: March 9th, 2015

Drilling Company: Rugged Aviation

Date Logged: Mar 8-9, 2015

Logged By: J.Myllyaho

Downhole Surveys				
Instrument:				
Depth	Dip	Azimuth	Mag	Comment
17	-44.8	201.0	61700	
47	-43.2	193.9	55260	
77	-41.0	195.0	55500	

Core Storage: northwest of Thomas Lake Showing near road intersection

Comments: • collar location survey with Garmin CSx 76 GPS using waypoint averaging (100 measurements)

Drillhole: MG-07															
Major		Code				Samples				C-Graph IR	Au	Pt	Pd	Cu	Ni
From	To		From			Number	From	To	Length	%	ppm	ppb	ppb	ppm	ppm
0.00	1.70	OB			Overburden:										
					biotite-rich paragneiss boulders; ground and rounded from drill bit										
1.70	5.53	GNEISS			Paragneiss:										
					Unit is a garnet-biotite-qtz-feldspar rich paragneiss; foliation is moderate at 60-80 degrees tca throughout; relatively competent with local fracturing; patchy qtz-feldspar bands up to 1-2cm in width occur; many qtz-feldspar rich areas consist of sweats or discontinuous veinlets; weak salt and pepper appearance; nil to locally very trace, vf.gr sulphide as anhedral pyrite/pyrrhotite specks; visual graphite is non-existent; lct consists of a 20cm qtz-feldspar rich pod which has multiple fractures and broken rock	1390077	2.53	3.53	1.00	0.19					
						1390078	3.53	4.53	1.00	0.2					
5.53	9.10	GRP SCHIST			Graphitic Schist:	1390079	4.53	5.53	1.00	0.16					
					Unit is a dark black and finer-grained schistose interval of the paragneiss; garnet content is absent from rock with foliation strong at 75-80 degrees tca; minor fracturing throughout as core is strongly competent and hard to scratch; minor diffuse, smokey grey qtz-feldspar bands and stringers up to 0.5cm in width throughout; sulphide is approximately 2-3% throughout as fine to medium-grained disseminations or slightly coarser subhedral blebs of pyrrhotite and pyrite at a 1:1 ratio; sulphide is occasionally intergrown with larger graphite flakes; graphite content is slightly more variable making up 2-5% of the interval; sporadically, more concentrated graphite is present at 6.5-7m and 8-8.5m; lower contact irregular and moderately gradational over a 10cm interval into more altered and fractured feldspar-rich interval downhole;	1390081	5.53	6.53	1.00	0.48					
						1390082	6.53	7.53	1.00	1.17					
9.10	26.00	GNEISS			Paragneiss:	1390083	7.53	8.53	1.00	1.24					
					Unit is a coarser-grained, altered and more qtz-feldspar rich portion of the paragneiss; pervasive garnet content up to 15% throughout; strongly altered amphibole giving core a weak pitted appearance; light green/white coloured feldspar dominant sweats grading to 5-10cm bands downhole; non-magnetic and moderately hard to scratch; broken lower contact over a 5-10cm interval; garnet content grades out from the 13.1m mark to the 14.1m mark, and becomes pervasive again below the small graphitic section from 13.9-14.1m; low angle fractures throughout interval causing minor blocky sections; graphite is present over a small interval from 13.9-14.1m; strong foliation throughout at 55 degrees tca; after the 17m mark, the rock becomes slightly finer grained, less altered and has an increased mafic content; strong garnet content still exists; lower contact gradational over a 30cm interval where qtz-feldspar and garnet content fade out to adjacent finer-grained graphitic unit downhole	1390084	8.53	9.10	0.57	1.62					
						1390085	9.10	10.10	1.00	0.18					
			13.90	14.10	graphitic finer-grained paragneiss; garnet absent from dark grey/black section of gneiss; graphite difficult to observe on core surface and is visible along broken and fresh faces; graphite consists of very fine to fine euhedral/subhedral flakes at 2%	1390086	10.10	11.10	1.00	0.05					
						1390087	11.10	12.10	1.00	0.05					
			14.10	16.00	Pegmatite:	1390088	12.10	13.10	1.00	0.08					
					altered pegmatite dike; very coarse-grained having a rough 50:50 quartz-feldspar ratio; quartz is off white to smokey grey in colour; feldspar is epidote and potassium altered giving core a green/yellow/orange colouration; pyrite present as trace amounts along annealed fracture faces sporadically throughout the unit; rock is competent showing little natural fracturing; lct irregular at 70 degrees tca	1390089	13.10	14.10	1.00	0.79					
						1390090	14.10	15.10	1.00	0.05					

Drillhole: MG-07															
Major		Code				Samples				C-Graph IR	Au	Pt	Pd	Cu	Ni
From	To		From			Number	From	To	Length	%	ppm	ppb	ppb	ppm	ppm
			19.00	19.20	graphitic finer-grained paragneiss; garnet absent from dark grey/black section of gneiss; graphite difficult to observe on core surface and is visible along broken and fresh faces; graphite consists of very fine to fine euhedral/subhedral flakes at 2%	1390091	15.10	16.00	0.90	0.05					
						1390092	16.00	17.00	1.00	0.05					
			21.00	23.00	graphitic-bearing paragneiss; fine to coarse flakes of graphite up to 0.5cm in size; decreased garnet content but still present at 1-2% as fine-grained, subhedral, pink coloured grains; graphite content is gradational and sporadically distributed throughout; more significant graphitic intervals broken out below	1390093	17.00	18.00	1.00	0.05					
						1390094	18.00	19.00	1.00	0.07					
				21.00	60cm interval of graphitic schist; dominantly coarse-grained graphite flakes up to 0.5cm in size; pegmatite sweats/irregular diking commonly associated with the graphitic zone and appear to be orientated parallel tca; graphitic portion is only on one half of core due to the diking; graphite flakes within schist roughly 10%; 0.5% very fine grained pyrite/pyrrhotite throughout graphitic section	1390095	19.00	20.00	1.00	0.94					
						1390096	20.00	21.00	1.00	0.07					
			21.10	22.15	increased, chlorite/epidote/kspar altered pegmatitic sweats; pegmatite material oriented sub-parallel tca appearing over a longer core length than its true width; local up to 3cm grains of feldspar; large black tourmaline? grains also present at 5%; very irregular contacts	1390097	21.00	22.00	1.00	0.92					
						1390098	22.00	23.00	1.00	1.16					
26.00	35.65	GRP SCHIST			Graphitic Schist:	1390099	23.00	24.00	1.00	0.23					
					Unit is a schistose interval of paragneiss hosting abundant flake graphite mineralization; core is finer-grained and dark grey to black in colour; biotite is present throughout but appears slightly less compared to other graphitic schists throughout holes 01-03; core is very competent; moderately hard to scratch and has sporadic, cm-sized quartz/feldspar bands throughout; foliation strong at 55-60 degrees tca; sulphide is present throughout the interval at 1-2% fine to very fine-grained disseminations; graphite mineralization is 5-15% overall and consists of wispy blebs and anhedral flakes up to 0.75cm in size; mineralization is relatively uniform throughout with local concentrations (over 1m intervals) up to 15% graphite	1390101	24.00	25.00	1.00	0.06					
						1390102	25.00	26.00	1.00	0.05					
				29.60	25cm pegmatite dike; irregular and weakly diffuse contacts at 70 degrees tca; strong pink/light orange kspar alteration; trace sulphide and no visible graphite; local coarse-grained white quartz grains	1390103	26.00	27.00	1.00	0.05					
						1390104	27.00	28.00	1.00	0.54					
35.65	37.80	GNEISS			Paragneiss:	1390105	28.00	29.00	1.00	0.86					
					Unit is a garnet-biotite-quartz-feldspar interval of fine to coarse grained paragneiss; garnet content sporadic as fine disseminations throughout; biotite content stronger towards upper and lower contacts with the remaining section of core displaying a stronger white to smokey grey quartz and chloritic altered feldspar as medium-coarse grains; sulphide is trace and very locally visible as very fine disseminations or pyrrhotite and pyrite; nil visible graphite throughout the lower 2m of interval; very fine, trace graphite flakes present towards upper contact	1390106	29.00	30.00	1.00	1.54					
						1390107	30.00	31.00	1.00	2.43					
37.80	40.45	PEG			Pegmatite:	1390108	31.00	32.00	1.00	2.91					
					Unit is a coarse to very coarse-grained section of strongly chlorite/epidote altered, quartz-feldspar rich pegmatite dike; uct sharp at 55 degrees tca with a diffuse and gradational lct into biotite-rich paragneiss below; core is relatively uniform and homogeneous and very competent showing little natural fracturing; very hard and difficult to scratch; trace sulphide visible locally throughout as anhedral 'blades' of pyrite with lesser fine disseminations of pyrrhotite	1390109	32.00	33.00	1.00	2.72					

Drillhole: MG-07															
Major		Code				Samples				C-Graph IR	Au	Pt	Pd	Cu	Ni
From	To		From	To		Number	From	To	Length	%	ppm	ppb	ppb	ppm	ppm
40.45	55.45	GNEISS			Paragneiss:	1390110	33.00	34.00	1.00	3.55					
					Unit is a biotite-rich section of the regional paragneiss; garnet is absent from unit with core showing a finer-grain size and decreased quartz-feldspar content from above garnet bearing gneissic rocks; mm to cm-scale bands of qtz-feld material; unit is variable in grain size, lithology, mineralization and overall visible appearance; various sub-intervals broken out below	1390111	34.00	35.00	1.00	1.92					
						1390112	35.00	35.65	0.65	1.44					
						1390113	35.65	36.65	1.00	0.05					
				40.45	10cm interval with 2.0% medium-grained flake graphite; mixed with minor pegmatite sweats from above diking; trace fine pyrite/pyrrhotite throughout	1390114	36.65	37.80	1.15	0.05					
						1390115	37.80	38.45	0.65	0.05					
			43.35	45.30	65-70% of sub-interval is pegmatite sweats/diking up to 30cm in width; qtz-feldspar rich with smokey grey coloured qtz and white to light green feldspar due to alteration; coarse grained intervals; large (1-2cm) pink/purple garnets present at the 44.1m mark associated with a low angle qtz-feldspar vein 4cm in width with contacts at 25 degrees tca	1390116	38.45	39.45	1.00	0.05					
						1390117	39.45	40.45	1.00	0.05					
			49.25	52.30	finer grained interval of graphite-bearing biotite paragneiss; strong foliation at 25 degrees tca uphole changing to 60 degrees tca around the 51-52m mark; graphite is sporadic and consists of up to 3% over smaller 30cm intervals; sulphide occurs throughout and is commonly associated with the increased graphite content as fine disseminations of pyrrhotite +/- pyrite; sulphide is magnetic with the rock showing no magnetism throughout; more significant graphitic interval from 51.5-52.3m	1390118	40.45	41.45	1.00	0.06					
						1390119	41.45	43.45	2.00	0.21					
			52.30	53.45	pegmatite dike; coarse-grained and kspar altered to a weak orange colour; rock has a dull grey appearance overall and displays completely altered and pitted, fine amphibole; uct somewhat diffuse oriented at 80 degrees tca with a sharper lower contact at 45 degrees tca; barren of visible sulphide or graphite mineralization	1390121	43.45	45.45	2.00	0.05					
						1390122	45.45	47.45	2.00	0.05					
55.45	60.45	PEG			Pegmatite:	1390123	47.45	48.45	1.00	0.08					
					Unit is a pink/light green coloured pegmatite dike; irregular uct at 55 degrees tca; very coarse-grained with a 5-10% biotite/hornblende/tourmaline content, usually as interstitial growths or randomly oriented, very thin wisps; kspar and epidote dominate the unit as altered feldspar appears more pervasive than the lesser smokey grey quartz; feldspar to qtz ratio approx 4:1; very competent interval with little natural fracturing; non-magnetic and visible sulphide/graphite absent from unit	1390124	48.45	49.25	0.80	0.12					
						1390125	49.25	50.25	1.00	0.19					
60.45	73.10	GNEISS			Paragneiss:	1390126	50.25	51.25	1.00	1					
					Unit is a biotite-rich section of the regional paragneiss; garnet is absent from unit with core showing a finer-grain size and decreased quartz-feldspar content from the typical garnet bearing gneissic rocks; foliated at 60 degrees tca; mm to cm-scale bands of qtz-feld material; unit is variable in grain size, lithology, mineralization and overall visible appearance; rock is very competent showing only minor natural fracturing; core is similar in appearance to above biotite gneiss from 40.45-55.45m; sub-intervals broken out below	1390127	51.25	52.30	1.05	1.93					
						1390128	52.30	53.45	1.15	0.05					

Drillhole: MG-07															
Major		Code				Samples				C-Graph IR	Au	Pt	Pd	Cu	Ni
From	To		From			Number	From	To	Length	%	ppm	ppb	ppb	ppm	ppm
			60.45	62.00	graphitic section of biotite-rich paragneiss; fine-grained; local qtz/feldspar sweats towards 62m mark showing increased kspar alteration; graphite is more concentrated over the upper 50cm and lower 30cm of interval; graphite is typically finer-grained disseminated flakes to locally medium grained blebs at the 61m mark; biotite content throughout sub-interval 10-15%; competent with minor, 70-90 degree fractures throughout	1390129	53.45	54.45	1.00	0.24					
						1390130	54.45	55.45	1.00	0.42					
				63.10	85cm interval of very coarse grained pegmatite; grey to weak green in colour; irregular and somewhat gradational contacts possibly at 70 degrees tca?; quartz-feldspar-rich comprising >80% of dike; barren of visible sulphide or graphite mineralization	1390131	55.45	57.45	2.00	0.05					
						1390132	57.45	59.45	2.00	0.05					
			65.70		5cm band of fine to finer-medium grained pink/purple garnets	1390133	59.45	60.45	1.00	0.05					
						1390134	60.45	61.20	0.75	1					
				66.00	75cm interval of increased sulphide as subhedral, fine-grained pyrite grains; very minor intergrown graphite flakes with coarser grained pyrite at the 66.2m mark; minimal graphite mineralization contained within a 2-3cm core length; 5% pyrite over a 10cm interval is present at the 66.5m mark; small blebs and disseminations within 10cm interval	1390135	61.20	62.00	0.80	1.51					
						1390136	62.00	63.00	1.00	0.35					
			68.60	69.30	pegmatite very similar to interval at the 63.1m mark; grey/green colour and very coarse grained; barren of sulphide or graphite	1390137	63.00	64.00	1.00	0.05					
				69.90	10cm aphanitic graphitic schist; foliated 70 degrees tca; 5% fine to medium grained flakes of graphite; small seam within barren gneissic rocks above and below										
				70.50	20cm interval of pegmatite; same as diking at 68.6m mark; irregular and somewhat gradational contacts; barren of mineralization										
			71.60	72.05	45cm interval of pegmatite; same as diking at 68.6m and 70.5m marks; irregular and somewhat gradational contacts; barren of mineralization										
73.10	78.70	GNEISS			Paragneiss										
					Quartz and feldspar-rich interval of paragneiss; mixture of local anhedral to subhedral black to very dark grey and altered amphibole throughout; non-magnetic; competent and very hard core due to pervasive qtz/feldspar mineralogy; very competent with little natural fracturing; white to light green in colour from weak chlorite/epidote alteration of feldspar crystals; barren of sulphide throughout as well as any visible garnet; very weak foliation visible from mafic minerals is at 45 degrees tca										
					EOH										

Ardiden Limited

Company / Owner / Optionee: Ardiden Limited

Property: Manitouwadge Graphite

Project Number: _____

Claim Number(s): _____

Target: HLEM conductor 100m east of hole MG-07

Hole Number: **MG-09**

Length: 69m

Core Size: BQTK

Grid East: _____

Grid North: _____

UTM Easting: 597622

UTM Northing: 5467258

Datum and UTM Zone: UTM Zone 16 (Nad 83)

Elevation: 347m

Planned Collar Orientation: 180°

Surveyed Collar Orientation: _____

Magnetic Declination: 7° W

Date Started: March 13th, 2015

Date Completed: March 13th, 2015

Drilling Company: Rugged Aviation

Date Logged: Mar 13-14, 2015

Logged By: J.Myllyaho

Downhole Surveys				
Instrument:				
Depth	Dip	Azimuth	Mag	Comment
9	-43.3	184.5	55620	
69	-39.9	189.0	55480	

Core Storage: northwest of Thomas Lake Showing near road intersection

Comments: • collar location survey with Garmin CSx 76 GPS using
waypoint averaging (100 measurements)

Drillhole: MG-09															
Major		Code				Samples				C-Graph IR	Au	Pt	Pd	Cu	Ni
From	To		From			Number	From	To	Length	%	ppm	ppb	ppb	ppm	ppm
0.00	5.60	OB			Overburden										
5.60	24.20	GNEISS			Paragneiss:										
					Unit is a fine to coarse grained, layered interval of garnet-bearing paragneiss; core shows a 50:50 ratio of quartz/feldspar layers to mafic, biotite/amphibole-rich layers; this banding displays a strong foliation at 70-75 degrees tca throughout; qtz-feldspar layers are usually <1cm in width but larger 'sweats' or weak pegmatitic diking present up to 50cm; garnet content pervasive with fine crystals disseminated throughout entire unit; local pink/light purple garnets range up to 0.5cm but larger grains are uncommon; unit is barren of visible sulphide or graphite mineralization; rock is very competent throughout and has a gradational lct into adjacent downhole graphitic unit	1390187	21.40	22.40	1.00	0.05					
						1390188	22.40	23.40	1.00	0.05					
			9.50	10.30	pegmatite dike; epidote altered, green towards the uct abruptly changing to kspar altered, orange coloured core at the 9.9m mark; very coarse grained with smokey grey quartz throughout at 25%; nil sulphide/graphite	1390189	23.40	24.20	0.80	0.05					
						1390190	24.20	25.40	1.20	1.53					
24.20	29.40	GRP SCHIST			Graphite Schist:	1390191	25.40	26.40	1.00	2.72					
					Unit is a fine to very fine-grained graphitic and sulphide bearing schist; thin (<3cm) mostly discontinuous qtz veins/sweats occur throughout at approximately 5% of interval; core displays 3-4% finely disseminated to very weakly blebby pyrite and pyrrhotite; Pyr:Po ratio 1:1; sulphide has a weak net-textured appearance; foliation of minerals is 65 degrees tca towards the uct grading to 75 degrees tca downhole; graphite is present throughout the unit up to 3-4% overall; flakes are fine-grained commonly appear intergrown with sulphide grains; independent graphite flakes dominate and locally range in size up to 3mm; core is very competent showing little natural fracturing	1390192	26.40	27.40	1.00	1.18					
						1390193	27.40	28.40	1.00	2.98					
29.40	32.40	GNEISS			Paragneiss:	1390194	28.40	29.40	1.00	1.61					
					Unit is a strongly foliated paragneiss separating the two graphitic horizons; local and thin pegmatite diking occurs and is broken out below; core is very similar in appearance to the uphole garnet bearing paragneiss with the exception of lesser garnets throughout this unit; garnets still occur but are not nearly as pervasive as the uphole interval; trace v.f.gr sulphide over patchy and thin intervals; competent rock showing little fracturing; gradational contacts which are distinguished due to grain size and graphite/sulphide mineralization	1390195	29.40	30.40	1.00	0.05					
						1390196	30.40	31.40	1.00	0.05					
				29.95	25cm interval of pegmatite; appears to be a larger sweat within the gneissic unit; moderate to strong kspar/epidote alteration; barren and irregular and subjective contacts	1390197	31.40	32.40	1.00	0.24					
				31.30	30cm interval of pegmatite; same as pegmatite at 29.95m										
32.40	36.40	GRP SCHIST			Graphite Schist:	1390198	32.40	33.40	1.00	1.02					
					Unit is a fine to very fine-grained graphitic and sulphide bearing schist; very similar and most likely the same unit as the uphole graphitic schist; thin (<3cm) mostly discontinuous qtz veins/sweats occur throughout at approximately 5% of interval; core displays 3-4% finely disseminated to very weakly blebby pyrite and pyrrhotite; Pyr:Po ratio 1:1; sulphide has a local, weak net-textured appearance; foliation of minerals is 75-90 degrees tca; graphite is present throughout the unit up to 3-4% overall and occur as more sporadically distributed concentrations throughout unit; graphite flakes/concentrated disseminations/blebs range in size up to 3mm; thin, more significant graphitic intervals broken out below; core is very competent showing little natural fracturing	1390199	33.40	34.40	1.00	1.64					

Drillhole: MG-09															
Major		Code				Samples				C-Graph IR	Au	Pt	Pd	Cu	Ni
From	To		From			Number	From	To	Length	%	ppm	ppb	ppb	ppm	ppm
36.40	68.90	GNEISS			Paragneiss:	1390201	34.40	35.40	1.00	1.76					
						1390202	35.40	36.40	1.00	3.56					
					Unit is a garnet-biotite-qtz-feldspar interval of paragneiss; fairly homogeneous in appearance as 0.5-2cm bands of quartz/feldspar occur at approx 40-50% of unit; rock is moderately hard and very competent as local 3m runs display zero natural fractures; garnet is fairly uniform overall as 1mm to very local 3mm rounded pink/purple grains; garnet content is 3-10%; strong foliation at 55 degrees tca throughout becoming shallower at 45 degrees over smaller patchy intervals downhole; rock is barren of visible sulphide and/or graphite mineralization with the exception of a 1-2mm discontinuous stringer/wisp of chalcopyrite at the 62.73m mark associated with a 55 degree tca fracture in the core	1390203	36.40	37.40	1.00	0.24					
						1390204	37.40	38.40	1.00	0.05					
				51.25	30cm pegmatite dike; white and qtz-rich; weak kspar alteration of feldspar grains; barren of visible sulphide	1390205	38.40	39.40	1.00	0.05					
			51.30	52.40	weakly fractured interval; core appears broken and blocky due to a parallel tca break as well as some local 20 degree fracture orientations; slight increase in quartz-feldspar content as larger (5-10cm) bands are present; nil associated mineralization										
				54.60	30cm pegmatite dike; feldspar-rich with moderate to strong kspar/sericite and epidote alteration of feldspar grains; barren of visible sulphide; contacts gradational consisting of multiple thin stringers of qtz-feldspar rich material										
					EOH										

Ardiden Limited

Company / Owner / Optionee: Ardiden Limited

Property: Manitouwadge Graphite

Project Number: _____

Claim Number(s): _____

Target: ~400m long HLEM conductor off of logging roads east of the Thomas Lake Road

Hole Number: **MG-16**

Length: 93m

Core Size: BQTK

Grid East: _____

Grid North: _____

UTM Easting: 598923

UTM Northing: 5467294

Datum and UTM Zone: UTM Zone 16 (Nad 83)

Elevation: 336m

Planned Collar Orientation: 180°

Surveyed Collar Orientation: _____

Magnetic Declination: 7° W

Date Started: March 16th, 2015

Date Completed: March 18th, 2015

Drilling Company: Rugged Aviation

Date Logged: Mar 17-18

Logged By: D.Heerema

Downhole Surveys				
Instrument:				
Depth	Dip	Azimuth	Mag	Comment
9	-46.8	189.3	55830	
50	-44.6	194.2	56190	
93	-43.1	196.0	55630	

Core Storage: northwest of Thomas Lake Showing near road intersection

Comments: • collar location survey with Garmin CSx 76 GPS using waypoint averaging (100 measurements)

Drillhole: MG-16															
Major		Code				Samples				C-Graph IR	Au	Pt	Pd	Cu	Ni
From	To		From	To		Number	From	To	Length	%	ppm	ppb	ppb	ppm	ppm
0.00	5.38	OB			Overburden										
5.38	10.22	PEG			Pegmatite										
					Coarse to very coarse-grained assemblage of 35% semi-transparent quartz, 25% plag and 20% orange k-spar with approximately 20% irregular books of black biotite. Orange k-spar and soft green epidote alteration throughout at varying amounts but all in all a fairly homogeneous unit. Mottled unit with a marbled appearance and well cleaved feldspars. Unit moderately fractured with a moderately sharp lower contact.										
10.22	12.72	METASEDS			Metasediments										
					The unit is fine to medium-grained and fairly massive with a weak to moderate local fabric at approx 70 degrees tca (no gneissic banding). Comprising the unit is orthopyroxene, biotite, tremolite, fine plag and quartz. Some of the plag has a blue luster when rotated and may be labradorite. The unit is dark in colour and appears to be well metamorphosed wacke; however has an intrusive texture. The unit is non-magnetic and been intruded by few late semi-transparent to smokey quartz veinlets up to 1cm in width. Mineralization in the form of interstitial to weakly net-textured pyrrhotite is present and associated with green chlorite/tremolite alteration. 3-4% Po found from 10.50 to 10.65m at approx 45 degrees to ca for a true width of 10cm. Po is magnetic										
12.72	14.43	PEG			Pegmatite										
					Very coarse-grained pegmatite dike as above. Stronger green epidotization near the contacts.										
14.43	26.34	METASEDS			Metasediments	1390206	17.40	18.40	1.00	0.05					
					Similar to uphole, this unit is a dark assemblage of remnant orthopyroxene, tremolite, biotite and remnant plag with a blue sheen to it when rotated (labradorite). The unit has a fairly massive with intrusive texture as a result of recrystallized wackes. The biotite is often found associated with fractures and late quartz structures. The orthopyroxenes have basically all been altered to tremolite resulting in pitted and rounded lustrous grey/green grains. Sulphide mineralization is present locally, associated with coarser and more tremolite altered portions of the unit. The mineralization is in the form of interstitial subhedral to euhedral blebs of pyrrhotite with a weak net-texturing locally. Sulphide content reaches 10% over a 60cm interval from 19.40 to 20.00m. Associated with some mineralization are fine deep red garnets. Late quartz/chlorite stringers and veinlets cross the unit ranging from mm to 15cm in width and post-date the mineralization.	1390207	18.40	19.40	1.00	0.05					
						1390208	19.40	20.10	0.70	0.05					
			19.40	20.10	sulphide zone	1390209	20.10	21.10	1.00	0.05					
					10% po over interval with a weak fabric and cut by quartz black to smokey quartz stringers at 70 degrees tca, possibly coarse blebs of graphite	1390210	21.10	22.10	1.00	0.05					
						1390211	22.10	23.30	1.20	0.05					
			20.38	21.18	pegmatite dike	1390212	23.30	24.62	1.32	0.05					
					narrow (5cm) and irregular pegmatite diking oriented sub-parallel to ca. White-green in colour with very coarse biotite within and fine biotite along margins	1390213	24.62	25.08	0.46	0.05					
						1390214	25.08	26.34	1.26	0.05					
			24.62	25.08	pegmatite dike	1390215	26.34	27.29	0.95	0.05					
					White to green in colour with partially assimilated xenoliths of country rock; phlogopite rich	1390216	27.29	28.00	0.71	0.05					
						1390217	28.00	29.00	1.00	0.05					
26.34	27.29	PEG			Pegmatite	1390218	29.00	30.00	1.00	0.05					

Drillhole: MG-16															
Major		Code				Samples				C-Graph IR	Au	Pt	Pd	Cu	Ni
From	To		From	To		Number	From	To	Length	%	ppm	ppb	ppb	ppm	ppm
					Very coarse-grained quartz-felds-epidote rich dike containing 15% large black biotite booklets; upper 15cm contains k-spar staining. Upper contact is a fracture/fault with blocky and gravel type material over 8cm	1390219	30.00	31.00	1.00	0.05					
						1390221	31.00	32.00	1.00	0.05					
27.29	57.97	METASED			Metasediment (possibly containing graphite)	1390222	32.00	33.00	1.00	0.05					
					Similar to above, the unit is fairly massive with a weak localized fabric at approx 80 degrees tca and homogeneous. The rock is dark, hard and non-magnetic and could represent a meta-wacke but local areas have an intrusive texture and may be a cooked up mafic/ultramafic intrusion. Fine-grained, the unit consists of biotite, opx, tremolite and re-crystallized feldspars with quartz causing a gritty appearance and texture. Fairly competent unit with few fractures. Intruded occasionally by thin 1-5mm secondary quartz veinlets or pegmatite dikes. Very rare narrow patches of red garnets present. Disseminations of what appear as po + py present and may be graphite. The mineralization is present as fine 1-3mm pinheads to elongate grains up to 6-7% locally but averaging 0.5% over the unit. Significant sulphide bearing locations noted below.	1390223	33.00	34.00	1.00	0.05					
			28.97	29.22	sulphide zone	1390224	34.00	35.00	1.00	0.05					
					Very similar to the sulphide zone above; sub to euhedral po + py growths that appear as interstitial sulphides with a weak net-textured appearance. Associated with the mineralization is garnet growth and late transparent quartz veinlets. Overall sulphide content of approx 6-7%.	1390226	36.00	37.00	1.00	0.05					
						1390227	37.00	38.00	1.00	0.05					
			31.38	31.62	Massive biotite seam	1390228	38.00	39.00	1.00	0.05					
					Oriented at 50 degrees tca, this section contains 80-90% biotite with a sharp upper and more gradational lower contact. Few associated quartz and feldspar porphyroblasts found within	1390229	39.00	40.00	1.00	0.05					
			33.69	34.16	aplite dike	1390230	40.00	41.00	1.00	0.05					
					finer-grained and much more felsic than the other dikes above; this dike is essentially 65% feldspar with 30% quartz and 5% altered and rounded xenoliths of country rock	1390231	41.00	42.00	1.00	0.05					
						1390232	42.00	43.00	1.00	0.05					
			42.67	42.80	disseminated po as 1-2mm blebs averaging 1-1.5%, po is magnetic	1390233	43.00	44.00	1.00	0.05					
						1390234	44.00	45.00	1.00	0.05					
						1390235	45.00	46.00	1.00	0.05					
			47.10	47.29	fine bleby to net-textured po + py averaging 2%	1390236	46.00	47.00	1.00	0.05					
						1390237	47.00	48.00	1.00	0.05					
			50.02	50.03	1cm seam of net-textured pyrrhotite at 75 degrees tca of 40% po	1390238	48.00	49.00	1.00	0.05					
						1390239	49.00	50.00	1.00	0.05					
			50.82	50.89	quartz flooding with associated fine blebs (1-3mm) of pyrrhotite with trace chalcopyrite at 4:1 respectively, overall sulphide over this interval of 0.5%.	1390241	50.00	51.00	1.00	0.05					
						1390242	51.00	52.00	1.00	0.05					
57.97	59.45	GRP SCHIST			Graphite Schist	1390243	52.00	53.00	1.00	0.05					
					Upper section of the interval to 58.47m is extremely siliceous as this section has been flooded by quartz and minor feldspar. The quartz is grey/white and hosts approximately 3-4% po +py is 1-3mm blebs that have a favorable orientation of 70 degrees tca. Minor silver graphite present in trace to 0.25% quantity. From 58.47 to 58.90m is a brittle and rubbly fault that now carries 0.5 to 3cm size ground pieces of quartz-rich material as well as graphite-bearing material. The remainder of the unit (58.90 to 59.45m) is a finer-grained section hosting 2-3% po + py as well as graphite locally to 5%. Graphitic fracture faces with slickensides evident. Unit is oriented at 70 degrees tca.	1390244	53.00	54.00	1.00	0.05					
						1390245	54.00	55.00	1.00	0.05					
			58.47	58.90	fault	1390246	55.00	56.00	1.00	0.05					

Drillhole: MG-16															
Major		Code				Samples				C-Graph IR	Au	Pt	Pd	Cu	Ni
From	To		From	To		Number	From	To	Length	%	ppm	ppb	ppb	ppm	ppm
59.45	60.25	METASED			Metasediments	1390247	56.00	57.00	1.00	0.05					
					Similar to uphole, the unit is fine-grained, dark, massive, hard and non-magnetic; hosting finely disseminated po as 1-2mm blebs averaging <0.5%.	1390248	57.00	57.97	0.97	0.05					
						1390249	57.97	58.90	0.93	0.2					
60.25	60.58	INT DIKE			Intermediate Dike	1390250	58.90	59.45	0.55	2.42					
					Aphanitic to fine-grained dike at 42 degrees tca. This dike is dark with a purplish/grey colour. Lower 5cm is finest grained representing a chill margin with moderate magnetism. Interior of the dike has wispy epidotization and albitization? Of the felsic material that is associated with minor pyrite mineralization.	1390251	59.45	60.45	1.00	0.05					
						1390252	60.45	61.45	1.00	0.05					
60.58	74.70	METASED			Metasediments	1390253	61.45	62.45	1.00	0.05					
					Same as above from 59.55 to 60.25m. Dark fine-grained massive unit hosting fine po mineralization as 1-4mm blebs up to 2-3% over 20cm intervals. Disseminated mineralization present on and off to 71.80m. Lower contact of the unit is subjective and based upon the gradational start of gneissic banding at 74.70m										
74.70	82.85	GNEISS			Paragneiss										
					This unit is only weakly banded consisting of fine quartz, feldspar and biotite. The banding is at 70 degrees tca mainly as mafic and felsic segregations. Trace pyrite mineralization evident. Hard, non-magnetic and competent.										
82.85	93.40	GNEISS			Paragneiss (garnet bearing)										
					This gneiss consists of feldspar, quartz, biotite and varying quantities of deep red garnets. The banding is much more pronounced now as mafic bands and felsic bands. Widths of bands are generally 0.5 to 5cm in width and oriented at 75-80 degrees tca. Grain size differs from band to band as does the mafic content and garnet content. The garnets are 1-2mm in diameter, rounded (anhedral), pink to deep red in colouration and associated with mafic bands or occasional quartz stringer. Trace disseminated pyrite present. Competent unit with increased fracturing over the last meter of hole.										
					EOH										

Ardiden Limited

Company / Owner / Optionee: Ardiden Limited
 Property: Manitouwadge Graphite
 Project Number: _____
 Claim Number(s): _____
 Target: eastern end of long HLEM conductor east

 Hole Number: **MG-18**
 Length: 82m
 Core Size: BQTK
 Grid East: _____
 Grid North: _____
 UTM Easting: 599068
 UTM Northing: 5467465
 Datum and UTM Zone: UTM Zone 16 (Nad 83)
 Elevation: 341m
 Planned Collar Orientation: 180°
 Surveyed Collar Orientation: _____
 Magnetic Declination: 7° W

 Date Started: March 18th, 2015
 Date Completed: March 19th, 2015
 Drilling Company: Rugged Aviation

 Date Logged: Mar 18-19
 Logged By: D.Heerema

Downhole Surveys				
Instrument:				
Depth	Dip	Azimuth	Mag	Comment
19	-46.9	315.6	73080	
52	-46.7	179.5	58270	
82	-45.5	183.0	55600	

Core Storage: northwest of Thomas Lake Showing near road intersection

 Comments: • collar location survey with Garmin CSx 76 GPS using
waypoint averaging (100 measurements)

Drillhole: MG-18																
Major		Code				Samples				C-Graph IR	Au	Pt	Pd	Cu	Ni	
From	To		From			Number	From	To	Length	%	ppm	ppb	ppb	ppm	ppm	
0.00	14.56	OB			Overburden											
14.56	39.08	CLAY			Semi-consolidated clay											
					This is a unit of grey/brown clay/silt and sand that is so well compact that core recovery of the drill is 100%. The unit consists of 88% clay to sand, 10% pebbles and 2% cobbles. The groundmass is mainly clay to silt at 75% with 25% fine sand. Although the assemblage holds together well, it is soft and can easily be gouged by a finger-nail. Within the fine groundmass material is approximately 10% pebbles consisting mainly of limestone with less felsic intrusive and ultramafic pebbles. The pebbles and cobbles are generally well rounded with the occasional angular piece. The less abundant cobbles reach as large as 36cm but generally average 5-6cm in diameter. Like the pebbles, limestone is the predominant lithology followed by granites. Lower contact extremely sharp at 45 degrees tca											
39.08	44.70	GNEISS			Paragneiss											
					A banded assemblage of quartz/feldspar/biotite and garnet that form segregated bands of more mafic and felsic material. Bands range from 0.5 to 10cm in width with an orientation of approx 80 degrees tca. Garnet content varies from trace to 20% locally and occur as 2-3mm rounded pink/deep red growths. Fracturing abundant from 42.90 to 44.70m.											
44.70	48.66	PEG			Pegmatite											
					Hence the name, the unit is extremely coarse-grained and consists of 50% orange k-spar, 35% grey/blue quartz, 15% rounded 3mm to 2cm amphibolite clots and occasional mica booklet. Local green epidote alteration as clots also. The quartz appears to be grown interstitially amongst the feldspars but also has a weak ladder-veining appearance in places. Late hairline fractures show very thin bleached halos. Extremely fractured and blocky, with a general fracture set at 45 and 25 degrees tca with the former the dominant. Occasional pyrite smears on fracture faces.											
48.66	51.41	GNEISS			Paragneiss											
					Similar to uphole. Quartz/feldspar/biotite/garnets comprise this unit. A soft greenish hue is evident as possible sausseritization of plag. Extremely fractured and blocky over upper 1 meter of unit. Minor pyrite as smears on local fracture faces and fine disseminated pyrite located between 51.15 and 51.32m.											
51.41	52.15	M.DIKE			Mafic Dike											
					This is a very fine-grained, black and textureless dike with strong pervasive magnetism. Upper and lower contacts sharp at 80 and 75 degrees tca resp.											
52.15	52.57	GNEISS			Paragneiss											
					Like above but has been cross-cut by hairline to 5mm serpentine stringers. These serpentine structures are very soft, waxy and green/blue (aqua) in colour and cross-cut the gneissic banding.											
52.57	59.70	PEG			Pegmatite											

Drillhole: MG-18															
Major		Code				Samples				C-Graph IR	Au	Pt	Pd	Cu	Ni
From	To		From	To		Number	From	To	Length	%	ppm	ppb	ppb	ppm	ppm
					Similar to the pegmatite above, but less fractured and less homogeneous. This unit has areas of more epidotization that overprints the orange k-spar. Also to note in that the last 95cm in the dike contains no mafic minerals and consists only on feldspar, quartz and variable epidote. Upper and lower contacts relatively sharp at 85 and 90 degrees tca respectively.										
59.70	72.08	GNEISS			Paragneiss										
					Typical gneiss with quartz/feldspar/biotite and garnet that is schistose and banded at 55-60 degrees tca. The bands are generally felsic segregations of 2mm to 2cm in width. Brown to black mica along with the garnets give a gritty and weak speckled appearance. The garnets are generally small not exceeding 2mm in diameter often rounded and not well formed. Rock has moderate competency.										
			71.06	71.32	pegmatite dike										
					as described above; sharp irregular contacts										
72.08	76.52	PEG			Pegmatite										
					Somewhat similar to the dikes above except this unit has only trace epidote and coarse elongate biotite booklets reaching 3.5cm. The rock is a soft orange colour marbled with semi-transparent quartz and variable mafics ranging from 2-35% biotite + amphiboles. The center of the dike from 74.02 to 76.25m is a massive homogeneous fine to medium-grained granite with moderate contacts. Competent unit.										
76.52	83.10	GNEISS			Paragneiss										
					Similar to above with soft green saussuritization of feldspars. Unit is intruded heavily by pegmatite diking and extremely fractured and blocky averaging 12 breaks per meter. Occasional late quartz veinlet from 1-2cm. Minor pyrite smeared along fractures										
			78.50	79.29	pegmatite										
					sharp contacts at 30 degrees tca										
			81.70	82.00	pegmatite										
					narrow dike that has been drilled sub-parallel tca										
			82.33	82.67	pegmatite										
					irregular upper contact but lower contact extremely sharp at 45 degrees tca										
					EOH										

Ardiden Limited

Company / Owner / Optionee: Ardiden Limited

Property: Manitouwadge Graphite

Project Number: _____

Claim Number(s): _____

Target: HLEM Conductor

Hole Number: **MG-018A**

Length: 33

Core Size: BQTK

Grid East: _____

Grid North: _____

UTM Easting: 599504

UTM Northing: 5467389

Datum and UTM Zone: UTM Zone 16 (Nad 83)

Elevation: 341

Planned Collar Orientation: 180°

Surveyed Collar Orientation: _____

Magnetic Declination: 7° W

Date Started: 15-Mar-15

Date Completed: 15-Mar-15

Drilling Company: Rugged Aviation

Date Logged: _____

Logged By: D. Heerema

Downhole Surveys				
Instrument:				
Depth	Dip	Azimuth	Mag	Comment

Core Storage: _____

Comments: • Drilling 1500m+ HLEM Conductor
• collar location survey with Garmin CSx 76 GPS using
waypoint averaging (100 measurements)

Drillhole: MG-018A															
Major		Code				Samples				C-Graph IR	Au	Pt	Pd	Cu	Ni
From	To		From			Number	From	To	Length	%	ppm	ppb	ppb	ppm	ppm
0.00	33.00	OB			Overburden: Rocks clay, cemented limestone?										
					Rods stuck, hole abandoned										

Ardiden Limited

Company / Owner / Optionee: Ardiden Limited

Property: Manitouwadge Graphite

Project Number: _____

Claim Number(s): _____

Target: Steep cut of high-grade surface zone

Hole Number: **MET-01**

Length: 23m

Core Size: BQTK

Grid East: _____

Grid North: _____

UTM Easting: 597380

UTM Northing: 5467237

Datum and UTM Zone: UTM Zone 16 (Nad 83)

Elevation: 352m

Planned Collar Orientation: 180°

Surveyed Collar Orientation: _____

Magnetic Declination: 7° W

Date Started: March 6th, 2015

Date Completed: March 7th, 2015

Drilling Company: Rugged Aviation

Date Logged: Mar 7th, 2015

Logged By: J.Myllyaho

Downhole Surveys				
Instrument:				
Depth	Dip	Azimuth	Mag	Comment
5	-84.5	225.6	59450	
17	-84.4	216.0	53970	

Core Storage: northwest of Thomas Lake Showing near road intersection

Comments: • Near vertical hole designed for larger section of high-grade zone for metallurgical testing
• collar location survey with Garmin CSx 76 GPS using waypoint averaging (100 measurements)

Drillhole: MET-01															
Major		Code				Samples				C-Graph IR	Au	Pt	Pd	Cu	Ni
From	To		From	To		Number	From	To	Length	%	ppm	ppb	ppb	ppm	ppm
0.00	1.70	OB			Overburden										
1.70	2.82	GNEISS			Paragneiss: Unit is possibly sub-crop or large boulders along overburden/bedrock interface; qtz-feldspar-biotite bands with a slight salt and pepper, medium grain size locally; rubble and abrupt change in lithology at the 2.82m mark; nil visible graphite or sulphide throughout										
2.82	9.70	GNEISS			Paragneiss: Unit is a garnet-biotite-quartz-feldspar intersection of relatively competent paragneiss; foliation appears to range from a mostly shallow angle (20-25 degrees tca) up to 50 degrees locally; core is competent showing minor natural fracturing; core has a longer, carbonate-rich, very low angle fracture running sub-parallel tca; garnet content ranges from nil to 5% and is sporadically disseminated throughout unit as mm-scale, sub rounded pink/light purple grains; trace fine-grained flake graphite is local with visible sulphide consisting of very rare blebs; thin intervals of increased graphite and sulphide are broken out below	1390479	2.82	3.82	1.00	0.4					
						1390480	3.82	4.82	1.00	1.35					
						1390481	4.82	5.82	1.00	0.34					
				3.50	1.5m section displaying local concentrations of fine to medium-grained flake graphite; sub-interval has approximately 2-3% overall	1390482	5.82	6.82	1.00	0.05					
						1390483	6.82	7.82	1.00	0.05					
				4.60	20cm interval of weakly blebby pyrrhotite with lesser pyrite up to 3%; appear to be locally intergrown with graphite flakes as well as on their own	1390484	7.82	8.82	1.00	0.05					
						1390485	8.82	9.70	0.88	0.05					
			7.00	8.45	sub-parallel tca fracture having increased carb content; possibly very thin fault gouge seam but appears to be weathered material filling fracture due to close proximity to surface; no associated sulphide or graphite content	1390486	9.70	10.70	1.00	0.05					
						1390487	10.70	11.70	1.00	0.05					
9.70	12.25	PEG			Pegmatite: Unit is a quartz and feldspar-rich pegmatite dike; core displays moderate epidote/chlorite/sericite alteration of feldspar giving rock a light green/yellow colour; alteration decreases downhole; quartz is dominantly smokey grey; amphibole content varies at 3-7% and increases downhole; uct sharp at 60 degrees tca with a very low angle and sub-parallel tca lct; minor driller induced grinding at the downhole contact of the pegmatite; barren of graphite or sulphide mineralization	1390488	11.70	12.25	0.55	0.05					
						1390489	12.25	12.80	0.55	0.05					
						1390490	12.80	13.80	1.00	0.05					
12.25	14.80	GNEISS			Paragneiss: Unit is a garnet-biotite-quartz-feldspar paragneiss similar to gneissic core at the top of the hole at the 2.82m mark; garnets are relatively evenly distributed throughout at 5.0%; low core angle at 20 degrees tca; trace to locally 0.5% very finely disseminated pyrrhotite and pyrite; very fine-grained flecks of visible graphite are present at >1.0% of unit; graphite content appears to increase downhole where sporadic thin intervals are noted towards the lct; gradational lct with adjacent unit; very competent with little fracturing	1390491	13.80	14.80	1.00	0.05					
						1390492	14.80	15.34	0.54	3.69					
						1390493	15.34	16.34	1.00	0.08					
14.80	15.34	GRP SCHIST			Graphitic Schist:	1390494	16.34	17.34	1.00	0.05					

Drillhole: MET-01															
Major		Code				Samples				C-Graph IR	Au	Pt	Pd	Cu	Ni
From	To		From	To		Number	From	To	Length	%	ppm	ppb	ppb	ppm	ppm
					Unit is a strongly foliated interval of graphitic-bearing schist; flakes of graphite are medium to coarse grained and has an anhedral, net-textured appearance; one side of core length shows up to 30-35% graphite; true width of interval appears thin as contacts and foliation oriented at 20-25 degrees tca; biotite content appears to be only 5% throughout as core has an increased fine-grained quartz and feldspar content; lct is gradational very competent with no fractures throughout	1390495	17.34	18.12	0.78	0.06					
15.34	18.12	GNEISS			Paragneiss:										
					Unit is a garnet-biotite-quartz-feldspar paragneiss similar to gneissic core uphole of the adjacent graphitic schist; garnets are relatively evenly distributed throughout at 5.0%; foliation at 20-45 degrees tca but dominantly low angles; trace to locally 0.5% very finely disseminated pyrrhotite and pyrite; graphite content is ~0.5% as very fine local disseminations; less graphite within this interval than above units; little natural fracturing throughout competent unit										
18.12	18.55	PEG			Pegmatite:	1390496	18.12	18.55	0.43	0.05					
					Unit is a qtz-feldspar rich pegmatite dike; irregular and low angle contacts (<30 degrees tca); barren of sulphide and graphite; similar in appearance and lithology to uphole pegmatite dike	1390497	18.55	18.97	0.42	2.13					
						1390498	18.97	20.00	1.03	0.12					
18.55	18.97	GRP SCHIST			Graphitic Schist:	1390499	20.00	21.50	1.50	1.31					
					Unit is a strongly foliated interval of graphitic-bearing schist; foliation is oriented 50 degrees tca; thin interval consists 20% medium to coarse flakes of graphite with local, intergrown pyrrhotite/pyrite throughout; contacts both bounded by pegmatite, as a dike uphole and a small sweat/vein downhole; lct hard to determine due to discontinuous nature of pegmatite sweat; competent showing no natural fractures	1390500	21.50	23.00	1.50	0.75					
18.97	23.00	GNEISS			Paragneiss:										
					Unit is a garnet-biotite-quartz-feldspar paragneiss similar to gneissic core towards the top of the unit from 12.25-14.8m; garnets are relatively evenly distributed throughout at 5.0%; foliation of core is at 70-90 degrees tca throughout; trace to locally 0.5% very finely disseminated pyrrhotite and pyrite; graphite content is trace throughout with thin sections of increased concentrations broken out below; little natural fracturing throughout competent unit with driller induced grinding at the end of the last run (23m mark)										
			20.32	20.59	small graphitic schist; strongly foliated at 60 degrees tca; 5-7% finer-medium to medium-grained flakes of graphite; 3% disseminated sulphide as pyrrhotite/pyrite at an approximate ratio of 1:1; gradational uct of sub-unit and sharp lct bounded by pegmatite at 45 degrees tca										
			20.59	20.82	pegmatite dike; greenish colouration throughout; trace very fine-grained sulphide as pyrite; irregular and somewhat brecciated lct over a 10cm core length										
			21.25	21.75	small graphitic schist; foliation appears to be perpendicular tca; 3-5% finer-medium to medium-grained flakes of graphite; 1-2% disseminated sulphide as pyrrhotite/pyrite at an approximate ratio of 1:1; gradational upper and lower contacts of sub-unit gradational and subjective based on the graphite content; garnet content absent from graphitic unit with higher garnet concentrations above and below units										
					EOH										

Appendix 2
Assay Certificates (Actlabs)



Date Submitted: 18-Mar-15
Invoice No.: A15-01765 (i)
Invoice Date: 08-Apr-15
Your Reference: Manitouwadge Graphite

Ardiden Ltd.
CSA Global
Suite 610, 1155 West Pender St.,
Vancouver B.C. V6E2P4
Canada

ATTN: Dennis Arne

CERTIFICATE OF ANALYSIS

257 Rock samples were submitted for analysis.

The following analytical package was requested:

REPORT **A15-01765 (i)**

Code 1A2 Au - Fire Assay AA
Code 1E Aqua Regia ICP(AQUAGEO)
Code 4F-C-Graphitic Infrared
Code Weight Report (kg)-Internal Received Weights

This report may be reproduced without our consent. If only selected portions of the report are reproduced, permission must be obtained. If no instructions were given at time of sample submittal regarding excess material, it will be discarded within 90 days of this report. Our liability is limited solely to the analytical cost of these analyses. Test results are representative only of material submitted for analysis.

Notes:

If value exceeds upper limit we recommend reassay by fire assay gravimetric-Code 1A3
Values which exceed the upper limit should be assayed for accurate numbers.

CERTIFIED BY:

A handwritten signature in black ink, appearing to read "Emmanuel Esemé".

Emmanuel Esemé , Ph.D.
Quality Control



Results

Analyte Symbol	C-Graph	Au	Hg	Ag	Cd	Cu	Mn	Mo	Ni	Pb	Zn	S
Unit Symbol	%	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
Lower Limit	0.05	5	1	0.2	0.5	1	2	2	1	2	1	0.001
Method Code	IR	FA-AA	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP
1390001	< 0.05											
1390002	< 0.05											
1390003	< 0.05											
1390004	1.40											
1390005	< 0.05											
1390006	< 0.05											
1390007	< 0.05											
1390008	< 0.05											
1390009	2.61											
1390010	1.92											
1390011	< 0.05											
1390012	< 0.05											
1390013	1.93											
1390014	2.23											
1390015	2.66											
1390016	1.34											
1390017	< 0.05											
1390018	< 0.05											
1390019	< 0.05											
1390020	2.39											
1390021	< 0.05											
1390022	0.53											
1390023	< 0.05											
1390024	0.45											
1390025	0.20											
1390025-2	0.20											
1390026	0.49											
1390027	0.15											
1390028	< 0.05											
1390029	< 0.05											
1390030	< 0.05											
1390031	< 0.05											
1390032	0.05											
1390033	1.92											
1390034	3.20											
1390035	3.64											
1390036	3.09											
1390037	7.81											
1390038	0.05											
1390039	< 0.05											
1390040	2.39											
1390041	< 0.05											
1390042	3.13											
1390043	1.17											
1390044	< 0.05											
1390045	< 0.05											
1390046	< 0.05											
1390047	< 0.05											
1390048	< 0.05											

Analyte Symbol	C-Graph	Au	Hg	Ag	Cd	Cu	Mn	Mo	Ni	Pb	Zn	S
Unit Symbol	%	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
Lower Limit	0.05	5	1	0.2	0.5	1	2	2	1	2	1	0.001
Method Code	IR	FA-AA	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP
1390049	< 0.05											
1390050	< 0.05											
1390050-2	< 0.05											
1390051	0.11											
1390052	1.50											
1390053	< 0.05											
1390054	< 0.05											
1390055	0.36											
1390056	0.56											
1390057	< 0.05											
1390058	< 0.05											
1390059	0.37											
1390060	2.37											
1390061	0.15											
1390062	0.09											
1390063	2.52											
1390064	1.30											
1390065	1.55											
1390066	0.34											
1390067	< 0.05											
1390068	< 0.05											
1390069	< 0.05											
1390070	0.31											
1390071	0.23											
1390072	0.39											
1390073	0.35											
1390074	0.05											
1390075	< 0.05											
1390075-2	< 0.05											
1390076	< 0.05											
1390077	0.19											
1390078	0.20											
1390079	0.16											
1390080	2.39											
1390081	0.48											
1390082	1.17											
1390083	1.24											
1390084	1.62											
1390085	0.18											
1390086	< 0.05											
1390087	< 0.05											
1390088	0.08											
1390089	0.79											
1390090	< 0.05											
1390091	< 0.05											
1390092	< 0.05											
1390093	< 0.05											
1390094	0.07											
1390095	0.94											
1390096	0.07											

Analyte Symbol	C-Graph	Au	Hg	Ag	Cd	Cu	Mn	Mo	Ni	Pb	Zn	S
Unit Symbol	%	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
Lower Limit	0.05	5	1	0.2	0.5	1	2	2	1	2	1	0.001
Method Code	IR	FA-AA	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP
1390097	0.92											
1390098	1.16											
1390099	0.23											
1390100	2.38											
1390101-2	0.06											
1390101	0.06											
1390102	< 0.05											
1390103	< 0.05											
1390104	0.54											
1390105	0.86											
1390106	1.54											
1390107	2.43											
1390108	2.91											
1390109	2.72											
1390110	3.55											
1390111	1.92											
1390112	1.44											
1390113	< 0.05											
1390114	< 0.05											
1390115	< 0.05											
1390116	< 0.05											
1390117	< 0.05											
1390118	0.06											
1390119	0.21											
1390120	2.40											
1390121	< 0.05											
1390122	< 0.05											
1390123	0.08											
1390124	0.12											
1390125	0.19											
1390125-2	0.18											
1390126	1.00											
1390127	1.93											
1390128	< 0.05											
1390129	0.24											
1390130	0.42											
1390131	< 0.05											
1390132	< 0.05											
1390133	< 0.05											
1390134	1.00											
1390135	1.51											
1390136	0.35											
1390137	< 0.05											
1390138	< 0.05											
1390139	0.52											
1390140	2.39											
1390141	0.14											
1390142	< 0.05											
1390143	< 0.05											
1390144	< 0.05											

Analyte Symbol	C-Graph	Au	Hg	Ag	Cd	Cu	Mn	Mo	Ni	Pb	Zn	S
Unit Symbol	%	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
Lower Limit	0.05	5	1	0.2	0.5	1	2	2	1	2	1	0.001
Method Code	IR	FA-AA	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP
1390145	< 0.05											
1390146	< 0.05											
1390147	< 0.05											
1390148	< 0.05											
1390149	< 0.05											
1390150	< 0.05											
1390150-2	< 0.05											
1390151	< 0.05											
1390152	< 0.05											
1390153	< 0.05											
1390154	1.33											
1390155	< 0.05											
1390156	< 0.05											
1390157	< 0.05											
1390158	< 0.05											
1390159	0.70											
1390160	2.36											
1390161	0.28											
1390162	< 0.05											
1390163	< 0.05											
1390164	2.42											
1390165	0.37											
1390166	2.37											
1390167	1.44											
1390168	2.90											
1390169	0.96											
1390170	< 0.05											
1390171	0.62											
1390172	0.59											
1390173	0.66											
1390174	< 0.05											
1390175	< 0.05											
1390175-2	< 0.05											
1390176	0.57											
1390177	0.73											
1390178	1.63											
1390179	0.08											
1390180	2.39											
1390181	0.83											
1390182	< 0.05											
1390183	< 0.05											
1390184	< 0.05											
1390185	0.61											
1390186	0.33											
1390187	< 0.05											
1390188	< 0.05											
1390189	< 0.05											
1390190	1.53											
1390191	2.72											
1390192	1.18											

Analyte Symbol	C-Graph	Au	Hg	Ag	Cd	Cu	Mn	Mo	Ni	Pb	Zn	S
Unit Symbol	%	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
Lower Limit	0.05	5	1	0.2	0.5	1	2	2	1	2	1	0.001
Method Code	IR	FA-AA	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP
1390193	2.98											
1390194	1.61											
1390195	0.05											
1390196	< 0.05											
1390197	0.24											
1390198	1.02											
1390199	1.64											
1390200	2.40											
1390201-2	1.72											
1390201	1.76											
1390202	3.56											
1390203	0.24											
1390204	< 0.05											
1390205	< 0.05											
1390479	0.40											
1390480	1.35											
1390481	0.34											
1390482	< 0.05											
1390483	< 0.05											
1390484	< 0.05											
1390485	< 0.05											
1390486	< 0.05											
1390487	< 0.05											
1390488	< 0.05											
1390489	< 0.05											
1390490	< 0.05											
1390491	< 0.05											
1390492	3.69											
1390493	0.08											
1390494	< 0.05											
1390495	0.06											
1390496	< 0.05											
1390497	2.13											
1390497-2	2.12											
1390498	0.12											
1390499	1.31											
1390500	0.75											
1390401	< 0.05	< 5	< 1	< 0.2	< 0.5	91	511	2	74	< 2	40	0.360
1390402	< 0.05	< 5	< 1	< 0.2	< 0.5	36	359	< 2	41	< 2	29	0.188
1390403	< 0.05	< 5	< 1	< 0.2	< 0.5	88	434	< 2	72	< 2	45	0.647
1390404	< 0.05	9	< 1	1.7	< 0.5	771	303	18	556	< 2	44	15.65
1390405	< 0.05	5	< 1	0.3	< 0.5	263	581	3	147	< 2	77	2.235
1390406	< 0.05	< 5	< 1	< 0.2	< 0.5	101	424	< 2	93	2	57	1.109
1390407	< 0.05	< 5	< 1	< 0.2	< 0.5	130	396	< 2	108	3	69	1.517
1390408	< 0.05	< 5	< 1	< 0.2	< 0.5	104	459	< 2	93	< 2	70	1.360
1390409	< 0.05	8	< 1	0.3	< 0.5	264	543	< 2	129	2	134	2.565
1390410	< 0.05	< 5	< 1	0.3	< 0.5	274	491	2	85	3	92	2.509
1390411	< 0.05	< 5	< 1	0.2	< 0.5	197	626	< 2	66	3	98	2.015
1390412	< 0.05	< 5	< 1	0.3	< 0.5	213	519	< 2	72	6	79	1.517
1390413	< 0.05	< 5	< 1	< 0.2	< 0.5	54	464	< 2	66	2	43	0.324

Analyte Symbol	C-Graph	Au	Hg	Ag	Cd	Cu	Mn	Mo	Ni	Pb	Zn	S
Unit Symbol	%	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
Lower Limit	0.05	5	1	0.2	0.5	1	2	2	1	2	1	0.001
Method Code	IR	FA-AA	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP
1390414	< 0.05	< 5	< 1	< 0.2	< 0.5	89	523	< 2	89	< 2	43	0.540
1390415	< 0.05	< 5	< 1	0.4	< 0.5	460	564	29	140	3	61	3.896
1390416	< 0.05	< 5	< 1	< 0.2	< 0.5	21	129	345	11	5	16	0.131
1390417	< 0.05	9	< 1	< 0.2	< 0.5	51	621	33	70	5	164	0.407
1390418	0.06	< 5	< 1	0.2	< 0.5	50	329	4	71	17	62	0.793
1390419	< 0.05	< 5	< 1	< 0.2	< 0.5	140	212	8	66	3	47	1.041
1390420	< 0.05	288	< 1	0.7	< 0.5	1350	427	< 2	1320	6	34	0.390
1390421	< 0.05	< 5	< 1	< 0.2	< 0.5	34	262	2	60	2	48	0.242

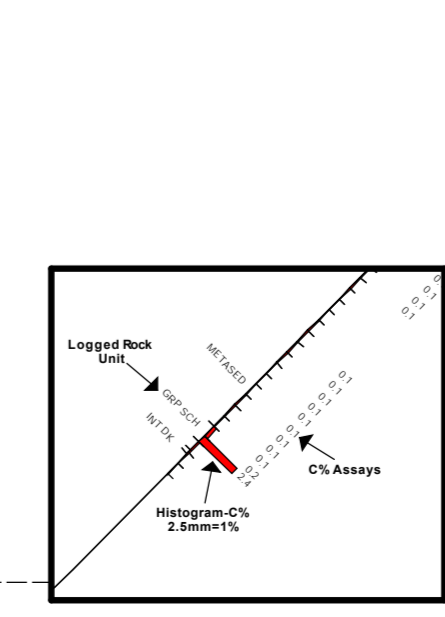
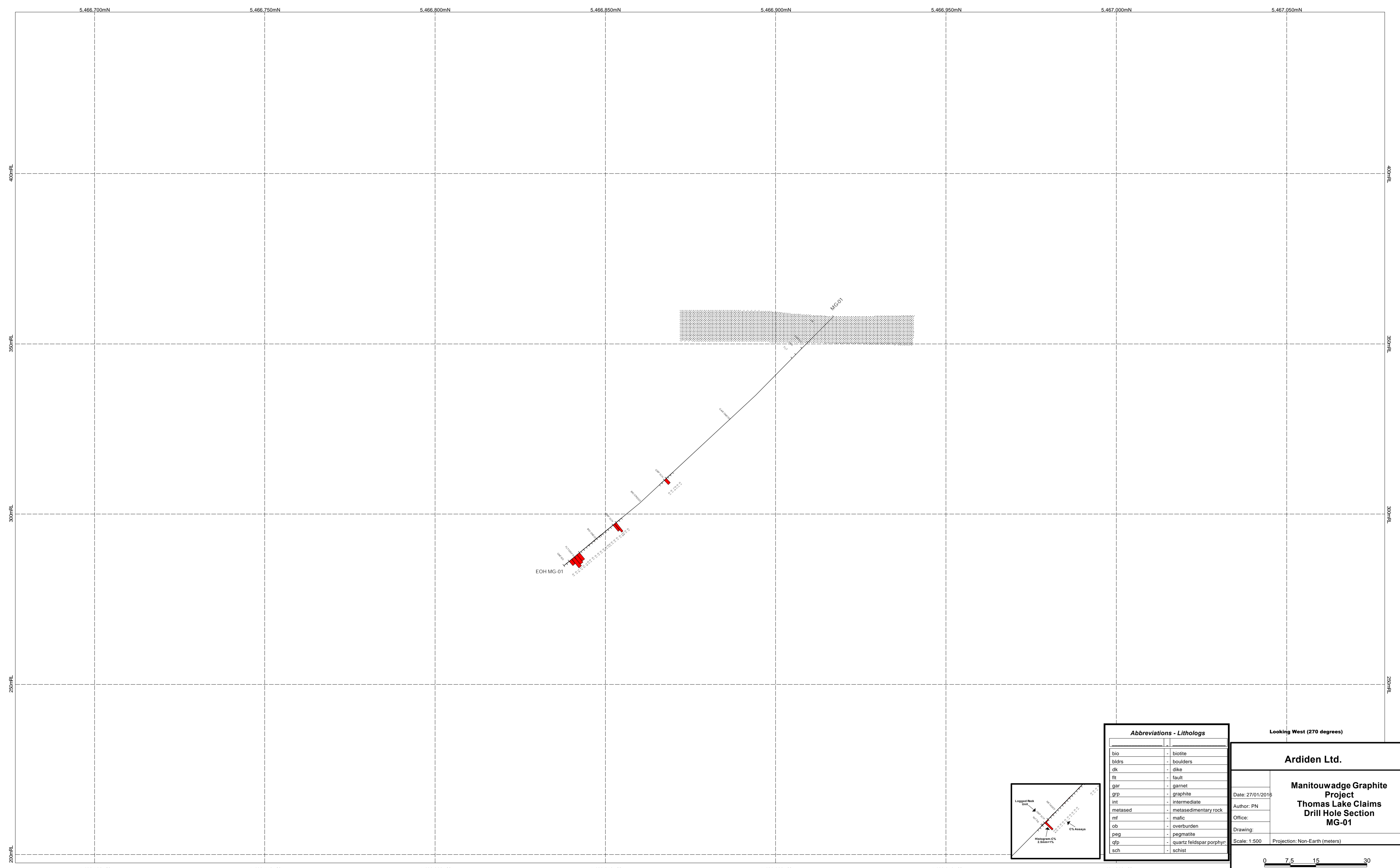
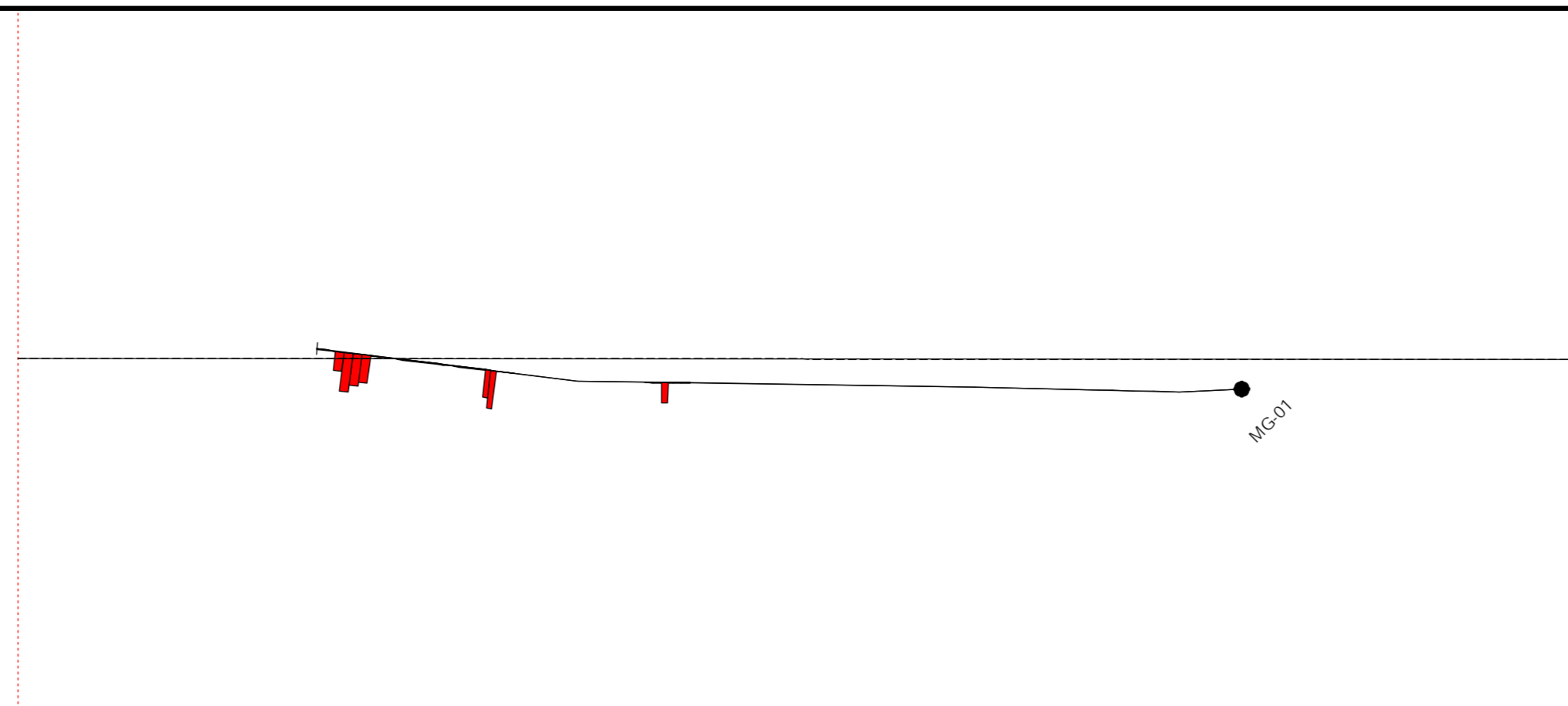
QC

Analyte Symbol	C-Graph	Au	Hg	Ag	Cd	Cu	Mn	Mo	Ni	Pb	Zn	S
Unit Symbol	%	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
Lower Limit	0.05	5	1	0.2	0.5	1	2	2	1	2	1	0.001
Method Code	IR	FA-AA	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP
GXR-1 Meas			2	29.8	2.0	1210	870	15	31	633	704	0.203
GXR-1 Cert			3.90	31.0	3.30	1110	852	18.0	41.0	730	760	0.257
GXR-4 Meas			< 1	3.6	< 0.5	6690	157	325	37	41	71	1.758
GXR-4 Cert			0.110	4.0	0.860	6520	155	310	42.0	52.0	73.0	1.77
GXR-6 Meas			< 1	0.3	< 0.5	70	1160	< 2	22	93	129	0.016
GXR-6 Cert			0.0680	1.30	1.00	66.0	1010	2.40	27.0	101	118	0.0160
SAR-M (U.S.G.S.) Meas				3.5	5.2	331	5010	13	39	983	980	
SAR-M (U.S.G.S.) Cert				3.64	5.27	331.0000	5220	13.1	41.5	982	930.0	
OxD108 Meas		428										
OxD108 Cert		414.000										
CDN-GS-1M Meas		1070										
CDN-GS-1M Cert		1070.000										
Graphite 4A Meas	4.27											
Graphite 4A Cert	4.18											
Graphite 4A Meas	4.18											
Graphite 4A Cert	4.18											
Graphite 4A Meas	4.18											
Graphite 4A Cert	4.18											
Graphite 4A Meas	4.18											
Graphite 4A Cert	4.18											
Graphite 14 Meas	14.4											
Graphite 14 Cert	14.55											
Graphite 14 Meas	14.5											
Graphite 14 Cert	14.55											
Graphite 14 Meas	14.4											
Graphite 14 Cert	14.55											
Graphite 14 Meas	14.5											
Graphite 14 Cert	14.55											
1390010 Orig	1.92											
1390010 Dup	1.92											
1390020 Orig	2.40											
1390020 Dup	2.38											
1390029 Orig	< 0.05											
1390029 Dup	< 0.05											
1390039 Orig	< 0.05											
1390039 Dup	< 0.05											
1390049 Orig	< 0.05											
1390049 Dup	< 0.05											
1390058 Orig	< 0.05											
1390058 Dup	< 0.05											
1390068 Orig	< 0.05											
1390068 Dup	< 0.05											
1390077 Orig	0.19											
1390077 Dup	0.19											
1390087 Orig	0.05											
1390087 Dup	< 0.05											

Analyte Symbol	C-Graph	Au	Hg	Ag	Cd	Cu	Mn	Mo	Ni	Pb	Zn	S
Unit Symbol	%	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
Lower Limit	0.05	5	1	0.2	0.5	1	2	2	1	2	1	0.001
Method Code	IR	FA-AA	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP
1390097 Orig	0.92											
1390097 Dup	0.91											
1390106 Orig	1.54											
1390106 Dup	1.53											
1390116 Orig	< 0.05											
1390116 Dup	< 0.05											
1390125-2 Orig	0.17											
1390125-2 Dup	0.18											
1390135 Orig	1.51											
1390135 Dup	1.51											
1390145 Orig	< 0.05											
1390145 Dup	< 0.05											
1390154 Orig	1.32											
1390154 Dup	1.34											
1390164 Orig	2.40											
1390164 Dup	2.43											
1390174 Orig	< 0.05											
1390174 Dup	< 0.05											
1390492 Orig	3.70											
1390492 Dup	3.69											
1390497-2 Orig	2.12											
1390497-2 Dup	2.11											
1390404 Orig	< 0.05	9	< 1	1.7	< 0.5	771	303	18	556	< 2	44	15.65
1390404 Split	< 0.05	12	< 1	1.7	< 0.5	792	295	18	562	< 2	45	12.59
1390410 Orig		< 5										
1390410 Dup		5										
1390411 Orig	< 0.05											
1390411 Dup	< 0.05											
1390413 Orig			< 1	< 0.2	< 0.5	54	461	< 2	65	3	43	0.324
1390413 Dup			< 1	< 0.2	< 0.5	54	467	< 2	66	2	43	0.323
1390414 Orig	< 0.05	< 5	< 1	< 0.2	< 0.5	89	523	< 2	89	< 2	43	0.540
1390414 Split	< 0.05	< 5	< 1	< 0.2	< 0.5	89	514	< 2	84	2	43	0.533
1390421 Orig		< 5										
1390421 Dup		5										
Method Blank	< 0.05											
Method Blank	< 0.05											
Method Blank	< 0.05											
Method Blank	< 0.05											
Method Blank	< 0.05											
Method Blank	< 0.05											
Method Blank	< 0.05											
Method Blank	< 0.05											
Method Blank	< 0.05											
Method Blank	< 0.05											
Method Blank	< 0.05											
Method Blank	< 0.05											
Method Blank	< 0.05											
Method Blank			< 1	< 0.2	< 0.5	< 1	< 2	< 2	< 1	< 2	< 1	< 0.001
Method Blank			< 1	< 0.2	< 0.5	< 1	< 2	< 2	< 1	< 2	< 1	< 0.001
Method Blank		< 5										

Analyte Symbol	C-Graph	Au	Hg	Ag	Cd	Cu	Mn	Mo	Ni	Pb	Zn	S
Unit Symbol	%	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
Lower Limit	0.05	5	1	0.2	0.5	1	2	2	1	2	1	0.001
Method Code	IR	FA-AA	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP
Method Blank		< 5										
Method Blank	< 0.05											

Appendix 3
Diamond Drill Sections



Abbreviations - Lithologs

bio	- biotite
bidr	- boulders
dk	- dike
ft	- fault
gar	- garnet
gfp	- graphite
int	- intermediate
metased	- metasedimentary rock
mf	- mafic
ob	- overburden
peg	- pegmatite
qfp	- quartz feldspar porphyry
sch	- schist

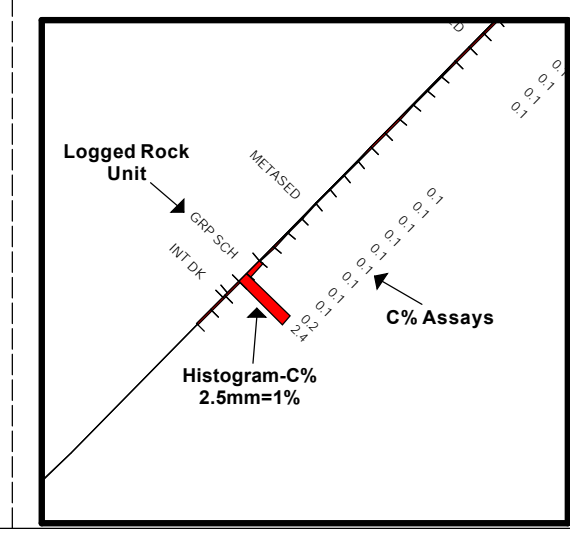
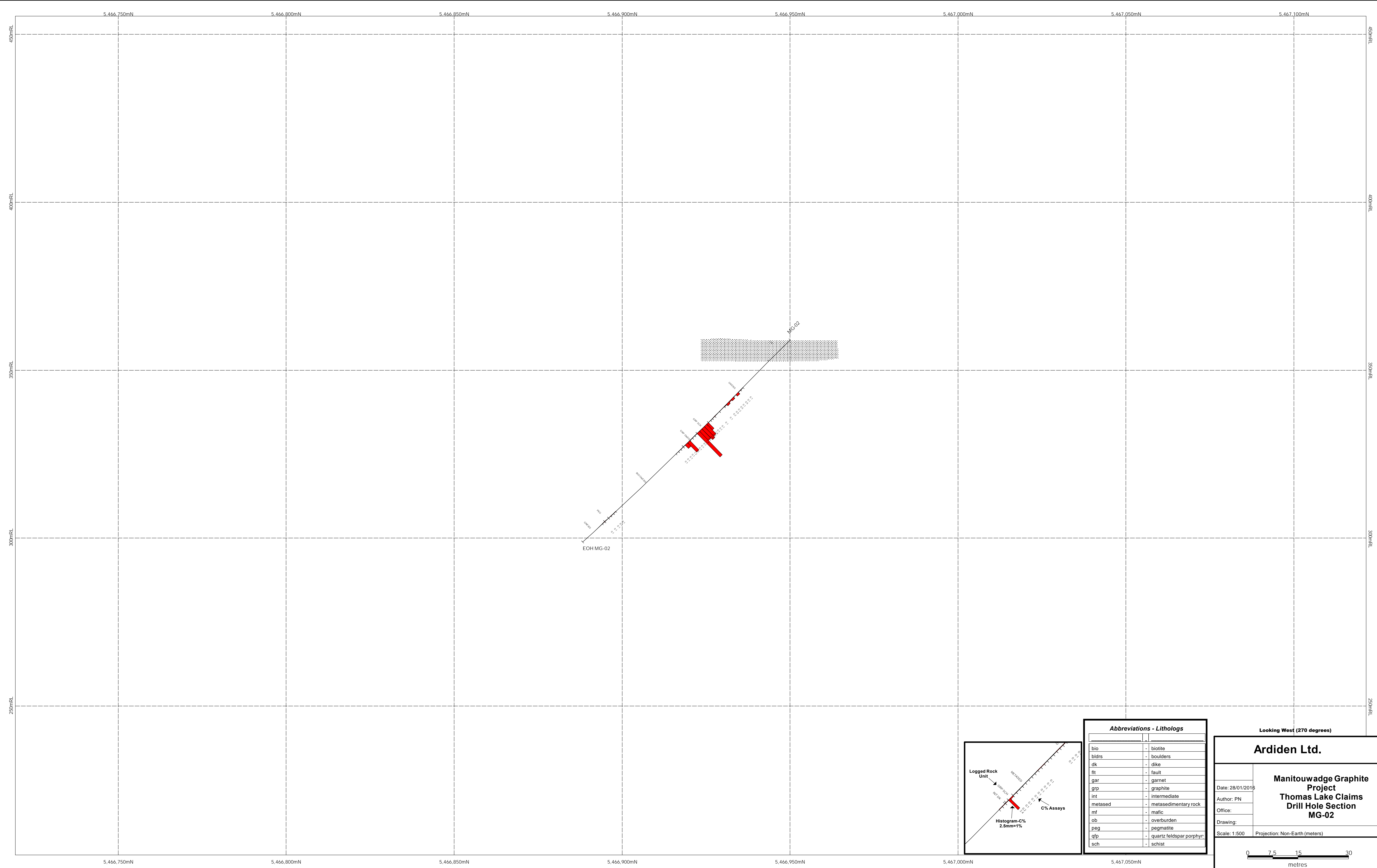
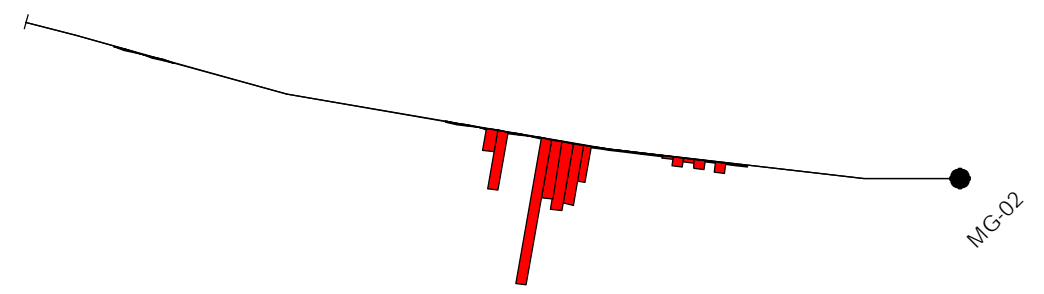
Looking West (270 degrees)

Ardiden Ltd.

Manitouwadge Graphite Project
Thomas Lake Claims
Drill Hole Section
MG-01

Date: 27/01/2016
Author: PN
Office:
Drawing:
Scale: 1:500
Projection: Non-Earth (meters)

0 7.5 15 30
metres



Abbreviations - Lithologs	
bio	- biotite
bldrs	- boulders
dk	- dike
ft	- fault
gar	- garnet
grp	- graphite
int	- intermediate
metased	- metasedimentary rock
mf	- mafic
ob	- overburden
peg	- pegmatite
qfp	- quartz feldspar porphyry
sch	- schist

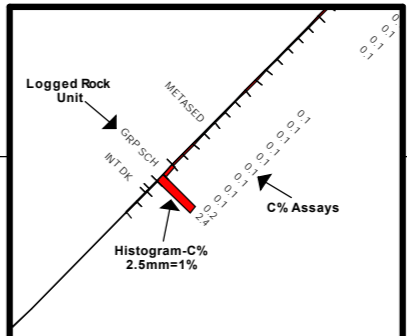
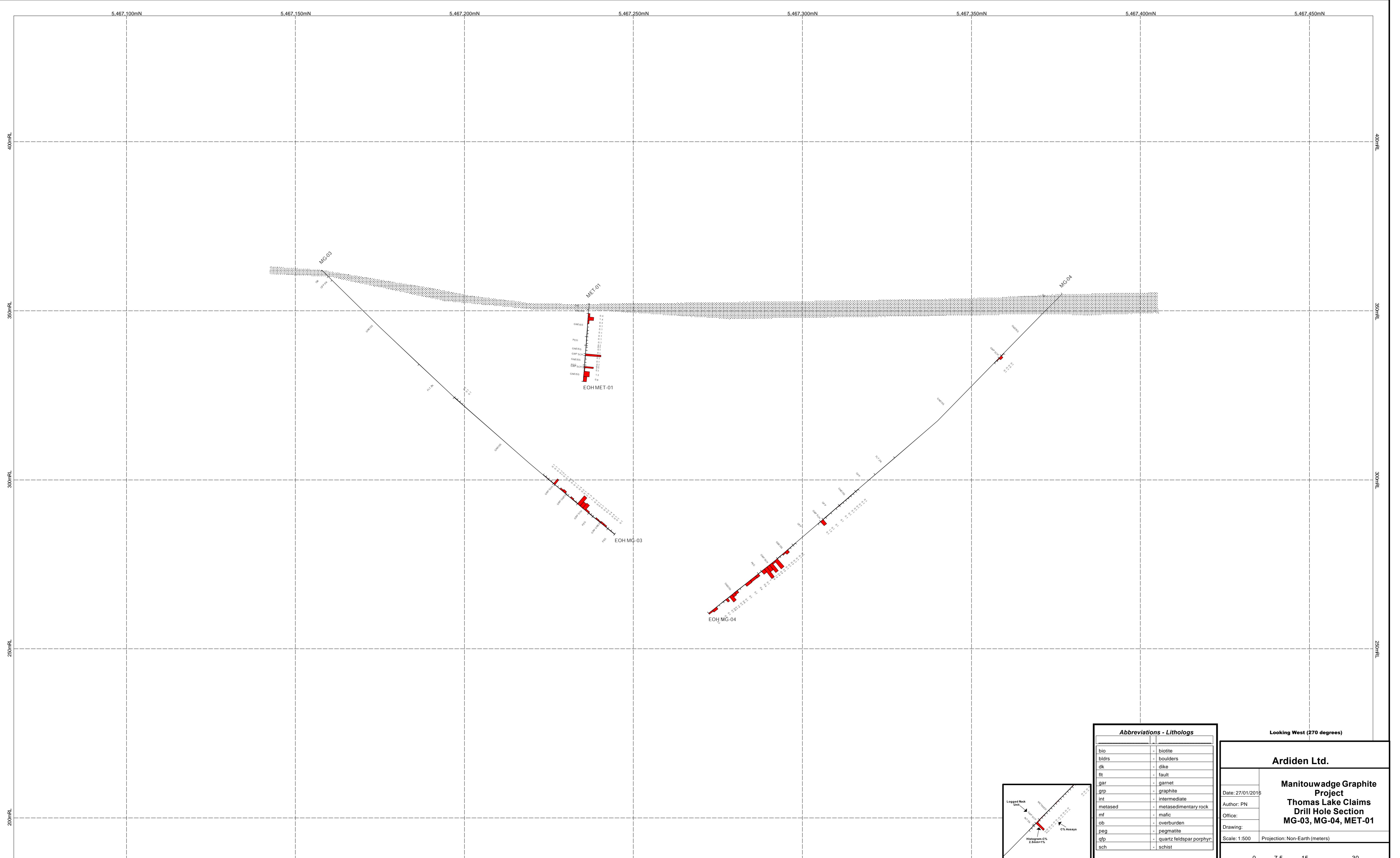
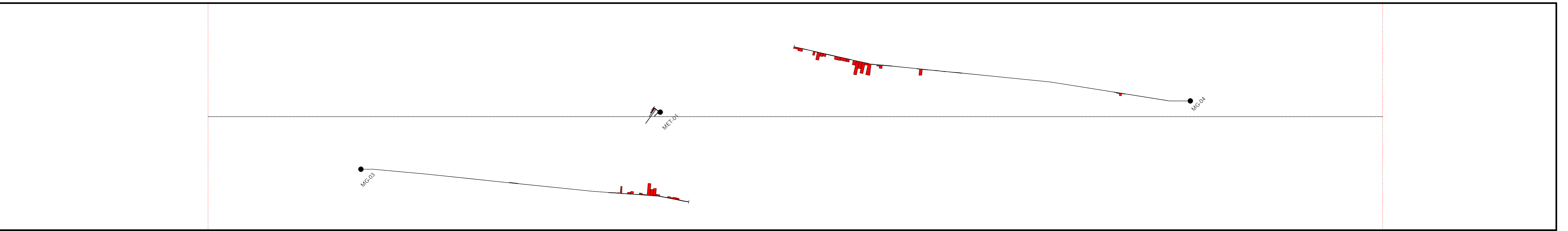
Looking West (270 degrees)

Ardiden Ltd.

**Manitouwadge Graphite Project
Thomas Lake Claims
Drill Hole Section
MG-02**

Date: 28/01/2016
 Author: PN
 Office:
 Drawing:
 Scale: 1:500 Projection: Non-Earth (meters)

0 7.5 15 30
metres



Abbreviations - Lithologs	
bio	- biotite
blids	- boulders
dk	- dike
ft	- fault
gar	- garnet
gfp	- graphite
int	- intermediate
metased	- metasedimentary rock
mf	- mafic
ob	- overburden
peg	- pegmatite
qfp	- quartz feldspar porphyry
sch	- schist

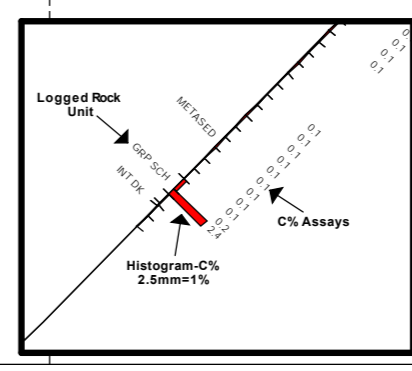
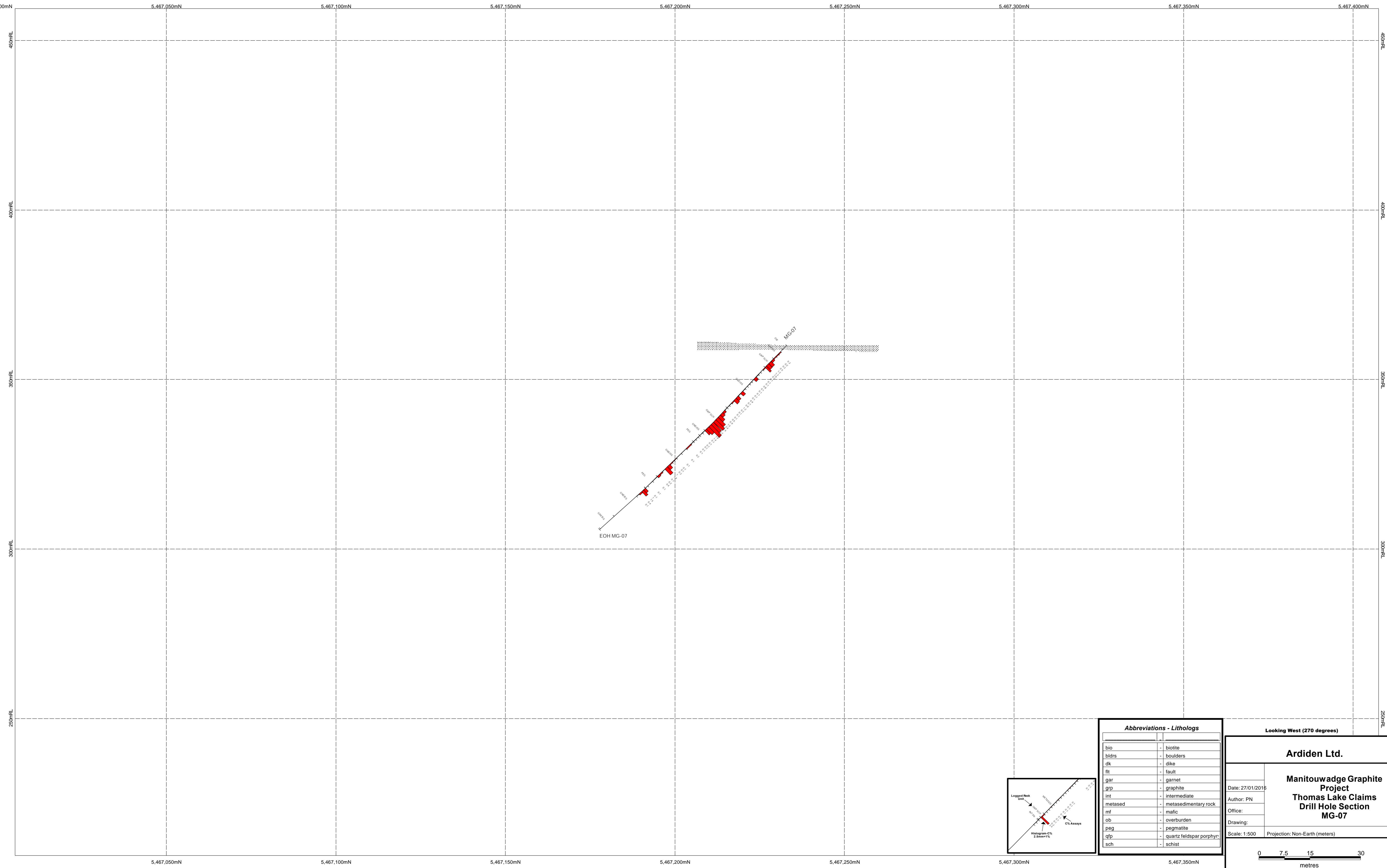
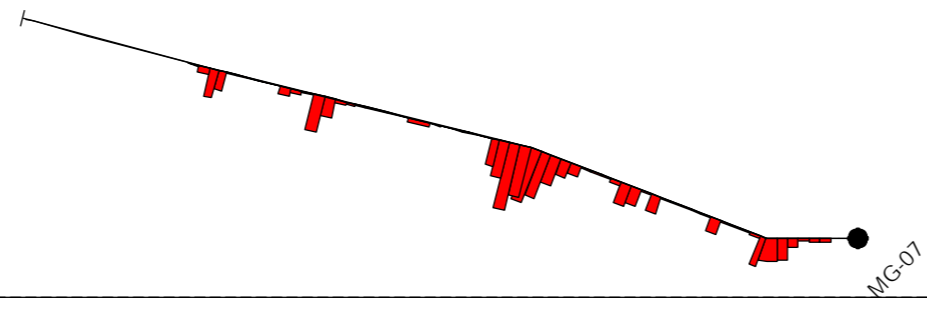
Looking West (270 degrees)

Ardiden Ltd.

Manitouwadge Graphite Project
Thomas Lake Claims
MG-03, MG-04, MET-01

Date: 27/01/2019
 Author: PN
 Office:
 Drawing:
 Scale: 1:500 Projection: Non-Earth (meters)

0 7.5 15 30
metres



Abbreviations - Lithologies	
bio	- biotite
bldrs	- boulders
dk	- dike
ft	- fault
gar	- garnet
gfp	- graphite
int	- intermediate
metased	- metasedimentary rock
mf	- mafic
ob	- overburden
peg	- pegmatite
qfp	- quartz feldspar porphyry
sch	- schist

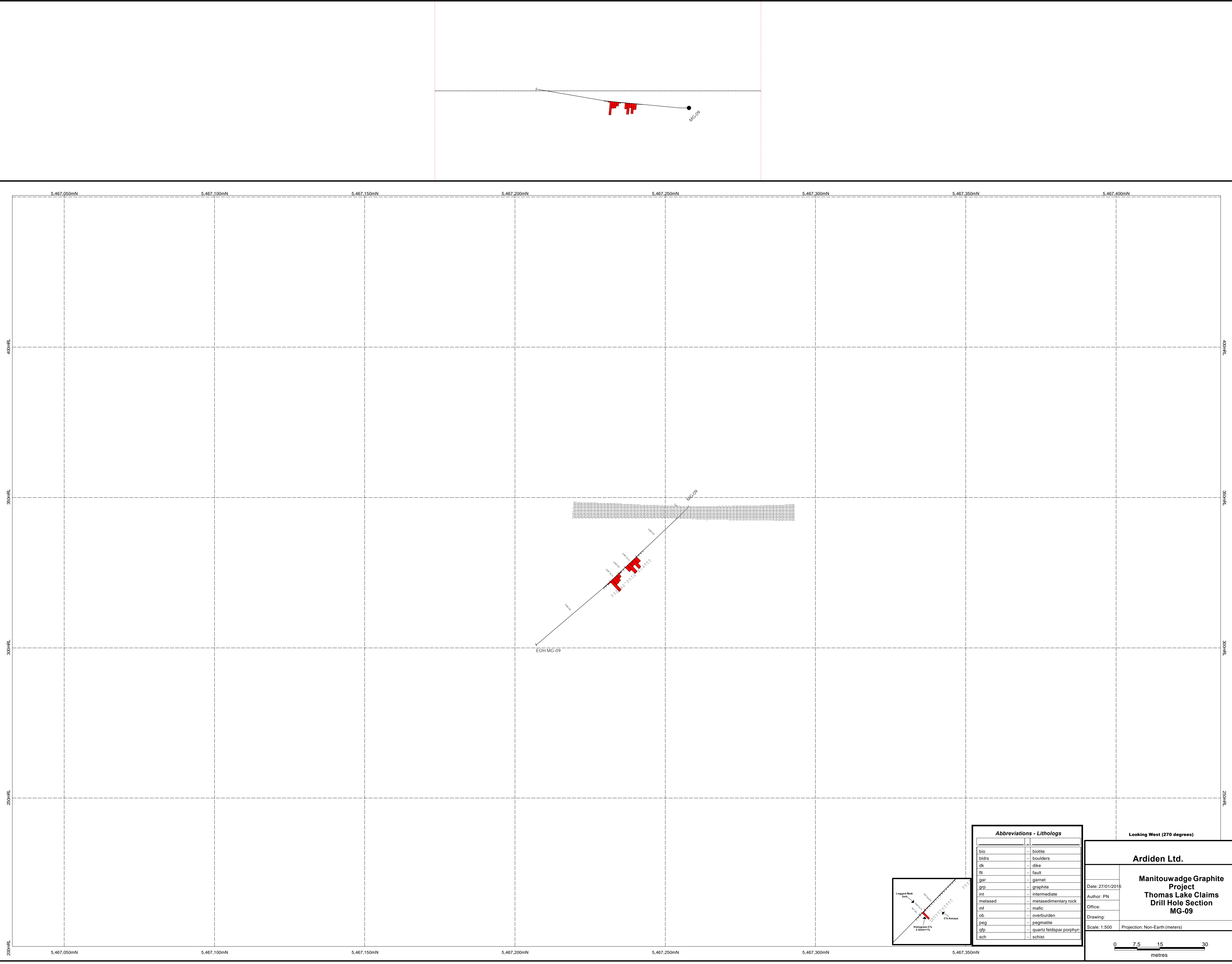
Looking West (270 degrees)

Ardiden Ltd.

Manitouwadge Graphite Project
Thomas Lake Claims
Drill Hole Section
MG-07

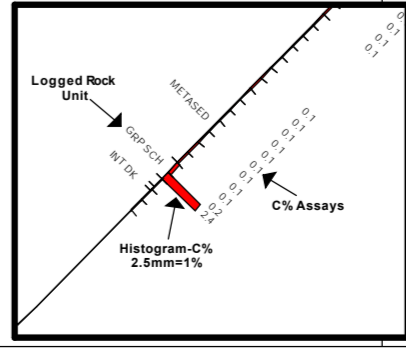
Date: 27/01/2018
Author: PN
Office:
Drawing:
Scale: 1:500
Projection: Non-Earth (meters)

0 7.5 15 30
metres



Abbreviations - Lithologs

bio	- biotite
bldr	- boulders
dk	- dike
fit	- fault
gar	- garnet
grp	- graphite
int	- intermediate
metased	- metasedimentary rock
mf	- mafic
ob	- overburden
peg	- pegmatite
qfp	- quartz feldspar porphyry
sch	- schist



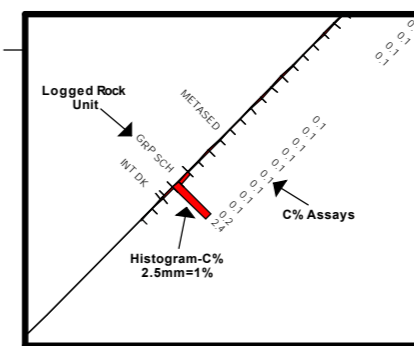
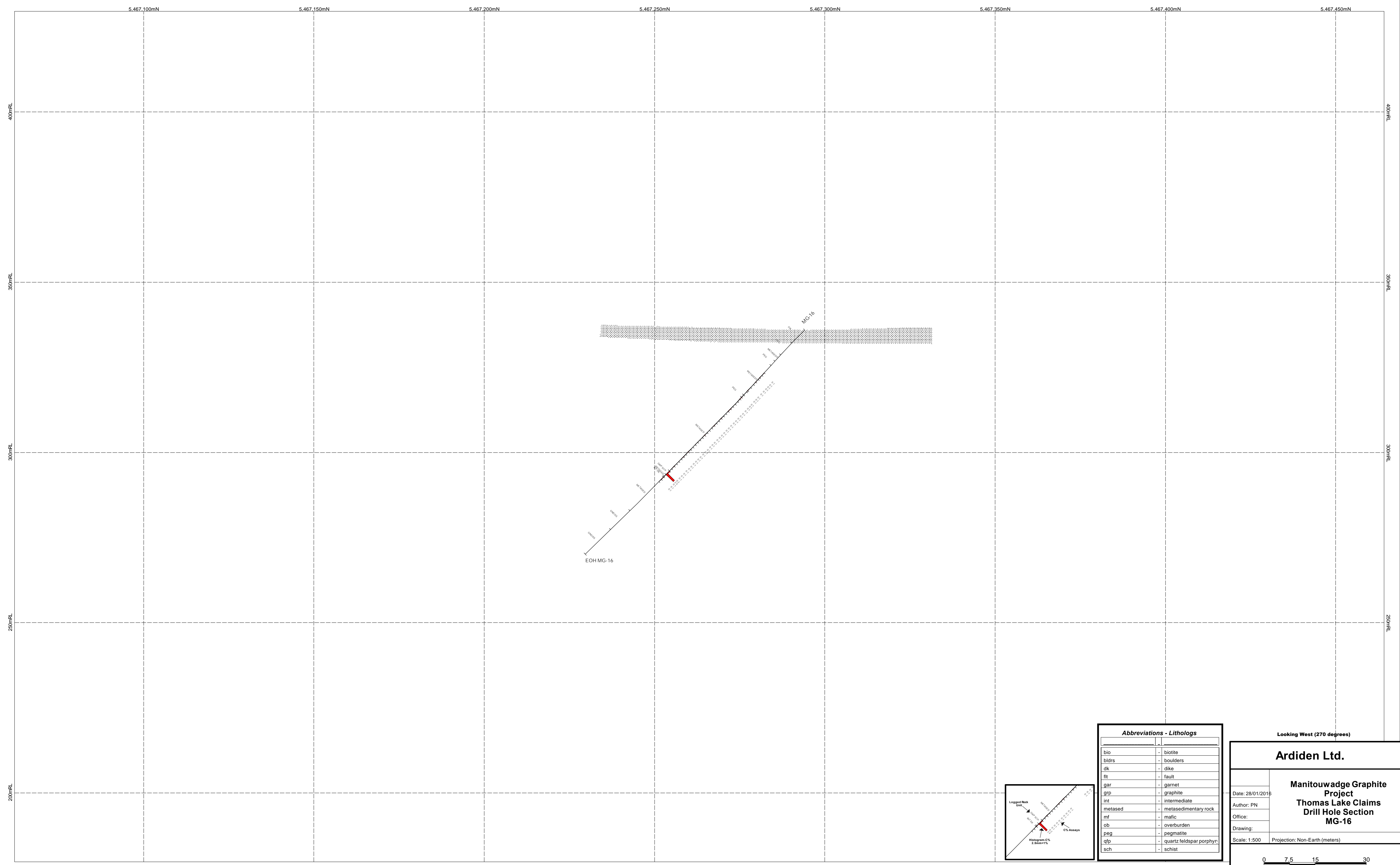
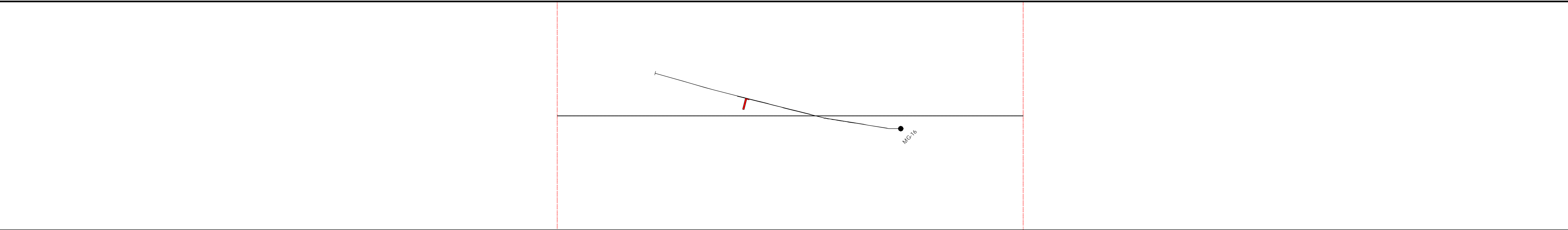
Looking West (270 degrees)

Ardiden Ltd.

Manitouwadge Graphite Project
Thomas Lake Claims
Drill Hole Section
MG-09

Date: 27/01/2016
 Author: PN
 Office:
 Drawing:
 Scale: 1:500 Projection: Non-Earth (meters)

0 7.5 15 30
 metres



Abbreviations - Lithologs

bio	- biotite
bidrs	- boulders
dk	- dike
ft	- fault
gar	- garnet
grp	- graphite
int	- intermediate
metased	- metasedimentary rock
mf	- mafic
ob	- overburden
peg	- pegmatite
qfp	- quartz feldspar porphyry
sch	- schist

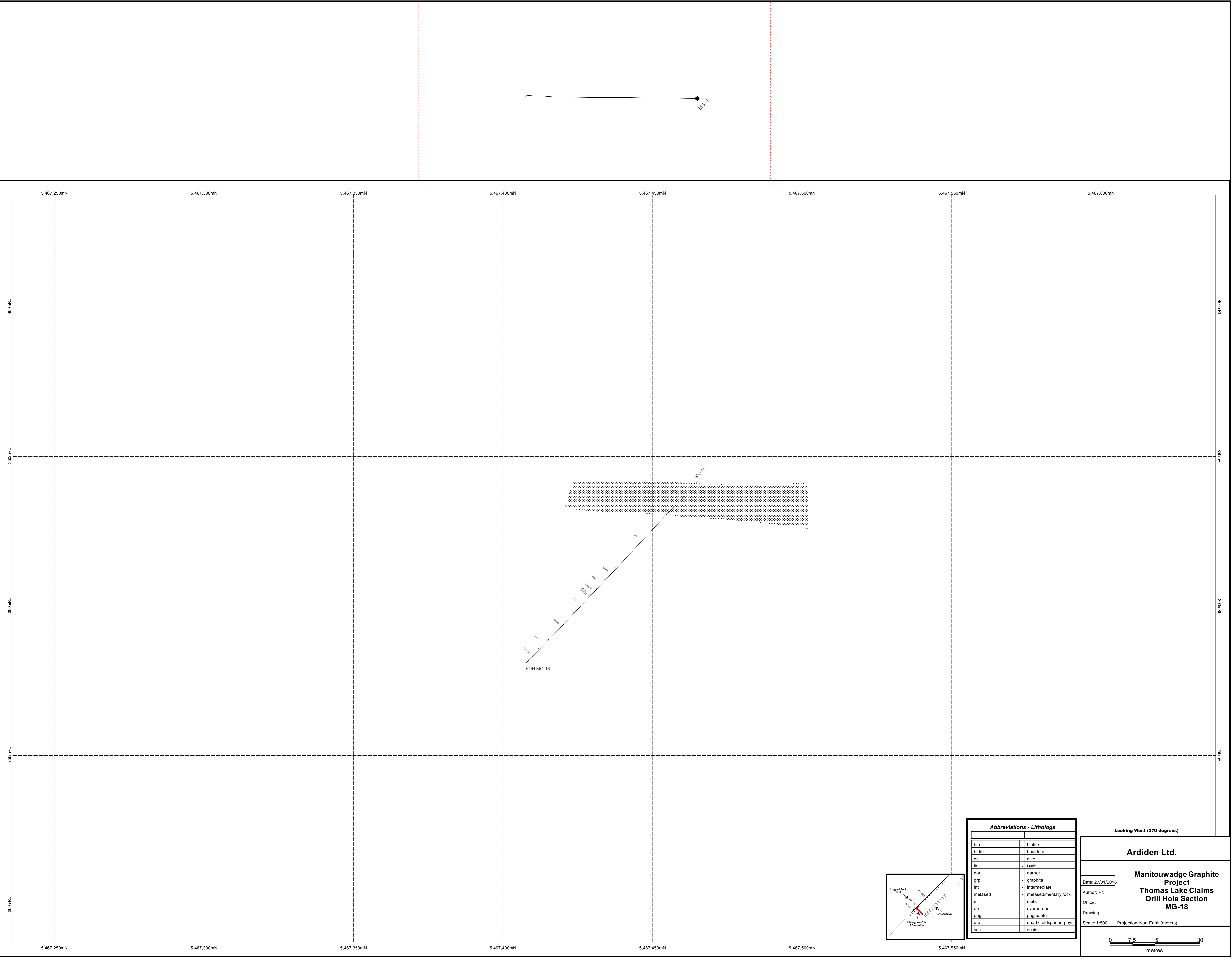
Looking West (270 degrees)

Ardiden Ltd.

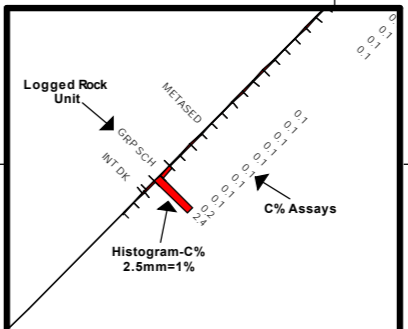
Manitowadge Graphite Project
Thomas Lake Claims
Drill Hole Section
MG-16

Date: 28/01/2016
Author: PN
Office:
Drawing:
Scale: 1:500
Projection: Non-Earth (meters)

0 7.5 15 30
metres



Abbreviations - Lithologs	
bio	- biotite
bidrs	- boulders
dk	- dike
ft	- fault
gar	- garnet
grp	- graphite
int	- intermediate
metased	- metasedimentary rock
mf	- mafic
ob	- overburden
peg	- pegmatite
qfp	- quartz feldspar porphyry
sch	- schist



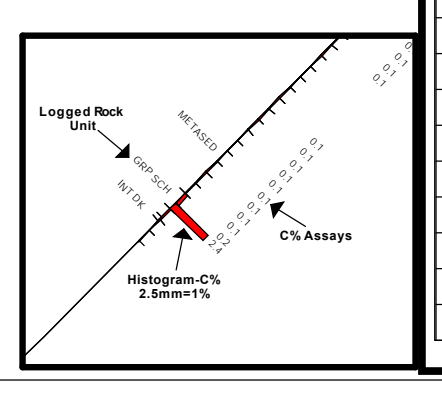
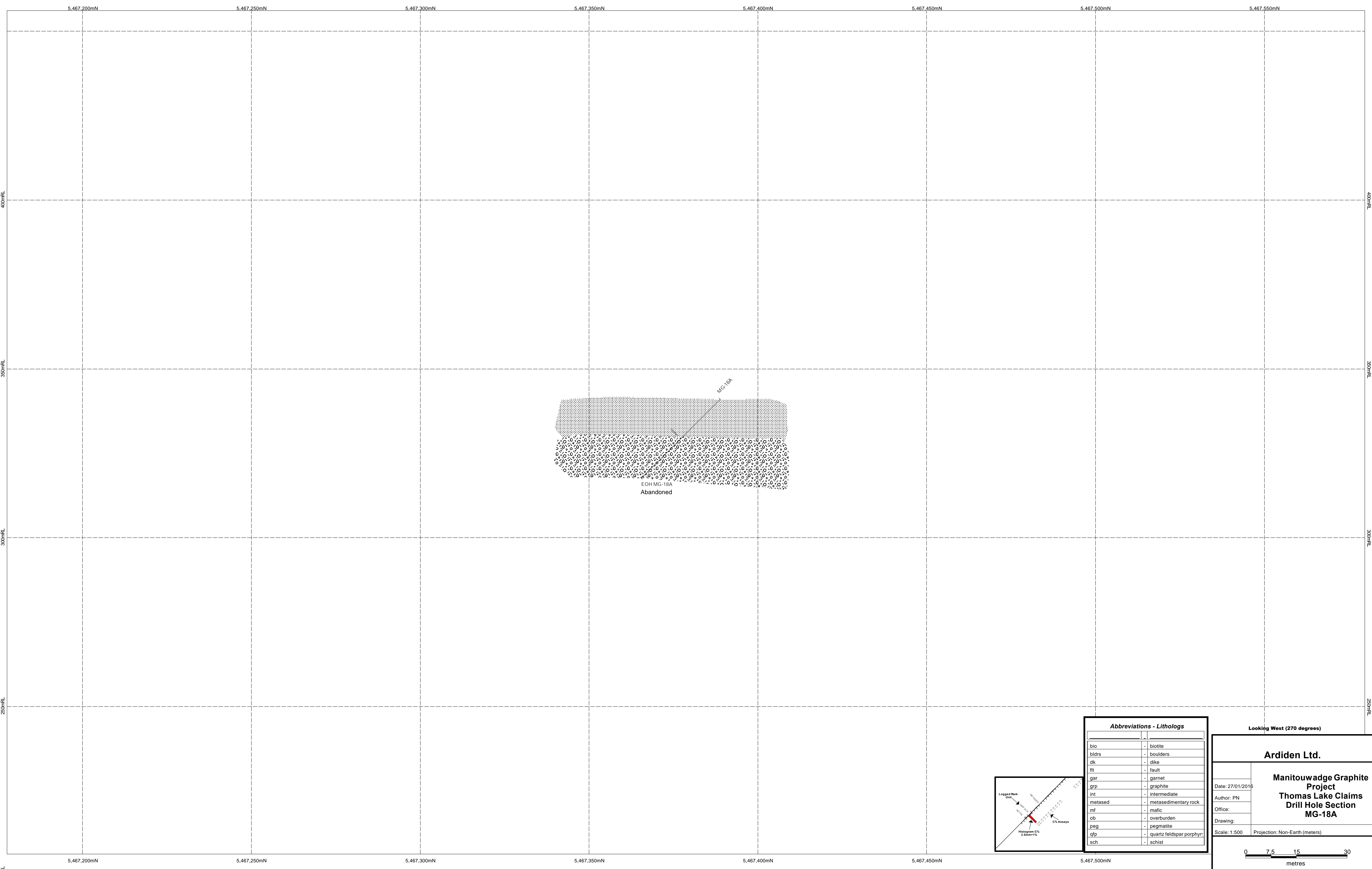
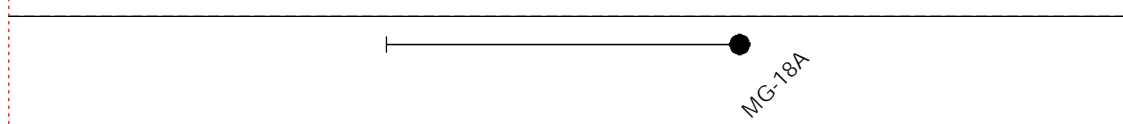
Looking West (270 degrees)

Ardiden Ltd.

Manitowadge Graphite Project
Thomas Lake Claims
Drill Hole Section
MG-18

Date: 27/01/2018
Author: PN
Office:
Drawing:
Scale: 1:500
Projection: Non-Earth (meters)

0 7.5 15 30
metres



Abbreviations - Lithologies	
bio	biotite
bidrs	boulders
dk	dike
flt	fault
gar	garnet
grp	graphite
int	intermediate
metased	metasedimentary rock
mf	mafic
ob	overburden
peg	pegmatite
qfp	quartz feldspar porphyry
sch	schist

Looking West (270 degrees)

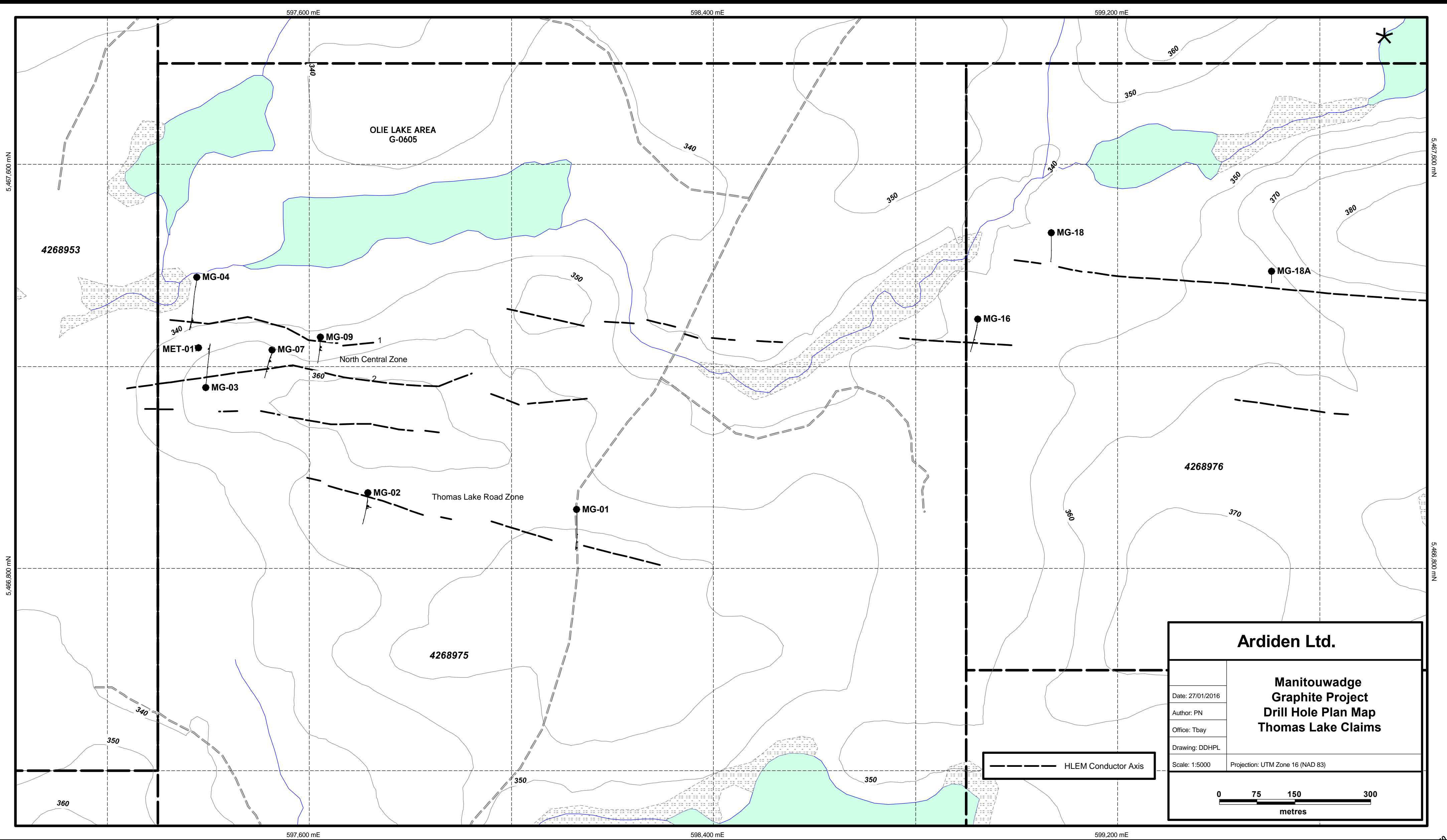
Ardiden Ltd.

Manitouwadge Graphite Project
Thomas Lake Claims
Drill Hole Section
MG-18A

Date: 27/01/2019
 Author: PN
 Office:
 Drawing:
 Scale: 1:500 Projection: Non-Earth (meters)

0 7.5 15 30
metres

Appendix 4
Diamond Drill Hole Plan
Scale 1:5000

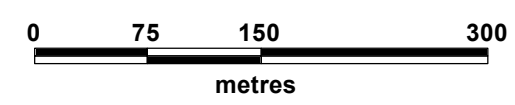


Ardiden Ltd.

**Manitouwadge
Graphite Project
Drill Hole Plan Map
Thomas Lake Claims**

Date: 27/01/2016
 Author: PN
 Office: Tbay
 Drawing: DDHPL
 Scale: 1:5000

Projection: UTM Zone 16 (NAD 83)



--- HLEM Conductor Axis