

REPORT ON THE COMBINED AIRBORNE GEOPHYSICAL SURVEY ON THE PROPERTY OF MCKINNON PROSPECTING EVELYN, GERMAN, MATHESON AND CLERQUE TOWNSHIPS, ONTARIO

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H. FERDERBER GEOPHYSICS LTD.

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MINING LANDS SECTION

L. Ahern, B.Sc. Geologist Jual 2.//208

August, 1988 Val d'Or, Quebec 010

REPORT ON THE COMBINED AIRBORNE GEOPHYSICAL SURVEY ON THE PROPERTY OF MCKINNON PROSPECTING IN EVELYN, GERMAN, MATHESON, AND CLERQUE TOWNSHIPS, ONTARIO

INTRODUCTION

On May 25th and 26th, 1988 a combined airborne geophysical survey was completed on the properties of McKinnon Prospecting in Evelyn, German, Matheson, and Clerque Townships, Ontario. Magnetic and VLF-electromagnetic data was collected by the airborne division of H. Ferderber Geophysics Ltd. The survey was flown from a base at Timmins, Ontario. A total of 75.4 miles of data was collected, along north-south flight lines and lines orientated at 18 degrees east.

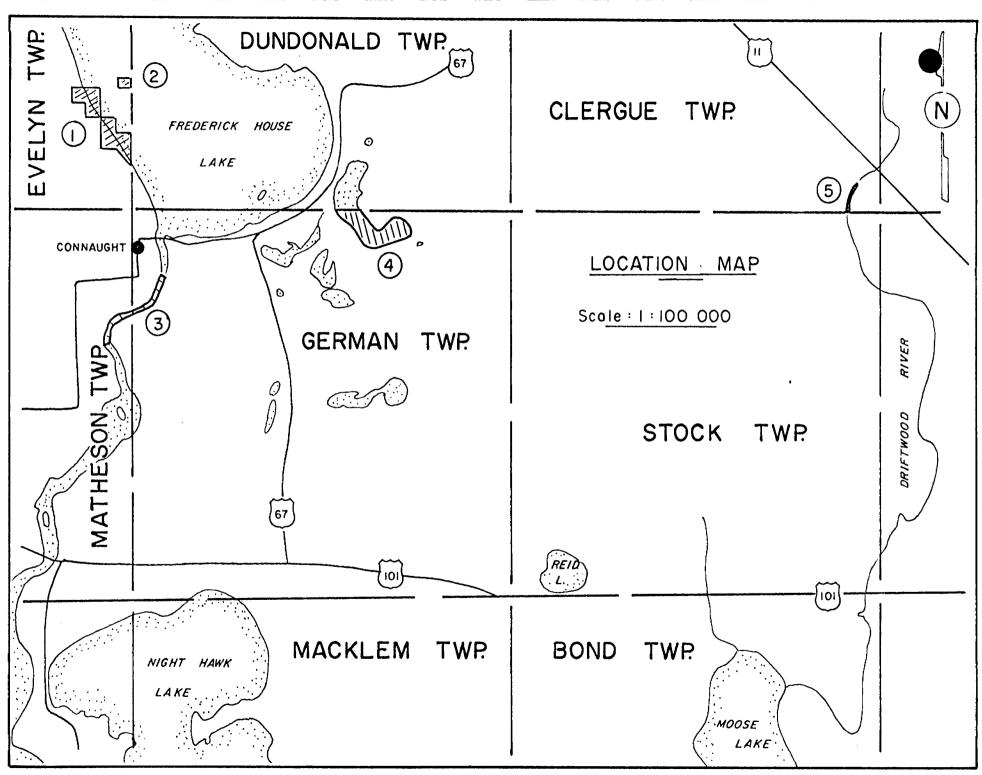
The magnetic survey provides information which helps define the underlying geological structures and identifies any potential economic concentrations which may contain variations in accessory magnetic minerals. The VLF-electromagnetic survey outlines conductive zones which may represent shear zones and/or metallic sulphide deposits containing gold mineralization. -2-

PROPERTY DESCRIPTION, LOCATION AND ACCESS

The McKinnon Prospecting property is composed of 5 blocks totalling 22 claims in Evelyn, German, Matheson, and Clerque Townships, Ontario. The claims cover approximately 352 hectares, are registered with the Office of the Mining Recorder at Timmins, Ontario, and are listed in Appendix 1. The claim blocks are numbered from 1 to 5, and their locations shown on Figure 1.

The westernmost group of claims is located along the southwestern shores of Frederick House Lake in Evelyn Township. Seven claims are located along the shore, and a single claim overlies Frederick House Lake. Access is readily obtained by boat or by a secondary road which extends northward from Highway 610 and originates at the town of Connaught.

A second block of 4 claims overlies the Frederick House River in Matheson and German Townships. This block is located less than one mile southwest of the town of Connaught. Highway 610 and the Ontario National Railway pass within one mile of the property to the northwest, and a secondary road is located along the eastern shores of Frederick House River to connect the town of Connaught with the Night Hawk Centre on Highway 101.



The third block comprises 9 claims which overlies the southeastern portion of McIntosh Lake in German Township. It is located within two miles east-northeast of the town of Barbers Bay. Highway 67 extends northwards from Highway 101, connects the town of Barbers Bay to Fielding, and allows easy access to property overlying McIntosh Lake. Kettle Lakes Provincial Park is located 3 miles due south of this claim block.

The fourth block of 1 claim covers Driftwood River in Clerque Township. This claim is located 2 miles south of the village of Monteith, and 5 miles north of the town of Shillington. Highway 11 passes within one mile of the claim to the northeast. This claim block was staked just west of a gold occurrence.

The physiography of the area group is essentially that of a low lying area, having low relief. Approximately 50% of the property is forested.

The McKinnon Prospecting claim blocks are approximately 25 miles from the city of Timmins. Supplies, services, and gualified manpower is readily available locally in the Timmins area.

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GEOLOGY

The McKinnon Prospecting property is located in the northwestern portion of the Abitibi Volcanic Belt of the Superior Province of the Canadian Shield. The Abitibi Volcanic Belt extends for nearly 350 miles in an east-west direction from Timmins to Chibougamau. It is host to a variety of precious and base metal deposits including the Timmins, Kirkland Lake, Noranda, Val d'Or, and Chibougamau mining camps.

The Abitibi Volcanic Belt is composed of a complex assemblage of interbedded volcanic and sedimentary rocks intruded by a variety of intrusives from ultrabasic to granitic in composition. The rocks are Archean in age and have been metamorphosed to the greenschist facies. Numerous late Precambrian diabase dykes cut formations of the belt. The rocks generally strike east-west, have a vertical dip and are highly folded and faulted. Geological interpretation of the Abitibi Volcanic Belt is complicated by both the wide scattering of outcrops and the complex structural relationships.

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The Ontario Department of Mines Geological Compilation Series, Timmins-Kirkland Lake Sheet, Map 2205, outlines the geology underlying the property. According to Map 2205, the McKinnon Prospecting claim blocks are underlain by Precambrian Metasediments between the Pipestone and Destor-Porcupine Fault of greywacke, siltsone, slate, argillite, and minor pebble conglomerate composition. North of the Pipestone Fault, the claim blocks are predominantly underlain by Early Precambrian mafic flows and pyroclastic rocks with some felsic metavolcanics and felsic intrusive rocks.

The northwesternmost claim block, located along the southwestern shores of Frederick House Lake, is underlain by unsubdivided felsic metavolcanics in the three northern claims, and by mafic flows and pyroclastic rocks in the four southern claims. The geological contact strikes in a west-northwesterly direction. The single claim within Frederick House Lake appears to be underlain by unsubdivided felsic metavolcanics.

The claim block overlying Frederick House River is located south of the Pipestone Fault, and 90% of the block is underlain by Early Precambrian metasediments. One small elliptical felsic intrusive of quartz prophyry, quartz-feldspar porphyry, feldspar porphyry, etc is located in the southern claim. -6-

The claim block overlying McIntosh Lake is located along and just north of the Pipestone Fault. The western part of the lake appears to be underlain by Early Precambrian metasediments characteristic of the rocks south of the Pipestone Fault. The centre of the lake is cut by a north-northwesterly striking fault. East of the fault, the property appears to be underlain metamorphosed mafic and by ultramafic metavolcanics of peridotite, dunite, pyroxenite, and serpentinite composition according to geophysical data. A northerly striking diabase dyke cuts the eastern part of the lake. Numerous nickel, chromium, asbestos and one gold occurrence are located within three miles of this claim block. One past nickel and copper producer, the Alexo Mine and Omega Gold Mines Ltd., is located northeast of the property.

The major structural features in the area are the westeast striking Pipestone Fault located within or directly south of the McKinnon Prospecting claim blocks and the Destor-Porcupine Fault located 6 to 8 miles south of the claim blocks. This major crustal dislocation has a known strike length of 300 km, from the Timmins area in the west to Destor in western Quebec. Numerous gold deposits are associated with this zone and its related structures. Foremost among these are the deposits of the Timmins-Porcupine camp (ie. McIntyre Mine, Hollinger Mine, Ross Mine and Croesus Mine). -7-

Southeast of the property in Harker and Holloway Townships, numerous gold, silver, lead, copper and zinc occurrences are associated with the Destor-Porcupine Fault. The Holt-McDermott Mine of American Barrick Resources Corp. in Harker and Holloway Townships is scheduled to go into production in mid-1988 with probable reserves of 2,587,000 tons at .196 oz/ton Au. Canamax Resources Inc. reports reserves of 576,400 tons averaging 0.215 oz Au/ton in its east and Matawasaga Zones, east of the Holt-McDermott Mine. Gold in the Teddy Bear Prospect, located in the southwest corner of Holloway Township and the southeast corner of Harker Township, is located in quartz stringers and veins up to three feet in width and is hosted by carbonatized basalts.

The Harker Prospect, discovered in 1924, is located in the southeastern part of Harker Township. The country rocks are basaltic in nature and strike north 70 degrees east and dip steeply south. This vein zone is six to twelve feet wide and 3,000 feet in length. Above the 500 foot level, 37,555 tons at 0.273 oz Au/ton has been estimated, and 10,000 tons averaging 0.25 oz Au/ton below the 500 foot level. -8-

INSTRUMENTATION AND SURVEY METHODS

The survey was completed using a 1972 Cessna 172, fixed-wing aircraft, call letters CF-EWK, owned and operated by H. Ferderber Geophysics Ltd. The pilot and navigator/operator were Y. Saucier and F. Longpre, respectively, of Val d'Or. Geophysical sensors were mounted in modified wing tips. The geophysical, navigation and data acquisition systems are described below.

Magnetometer

The magnetometer used was GEM Systems GSM-11, hiqh sensitivity airborne proton (Overhauser) magnetometer. The instrument continuously measures the Earth's magnetic field at a 0.01 gamma sensitivity for 1 reading per second or 0.05 gamma to 10 readings per second at a 0.1 gamma absolute accuracy. For this survey 4 readings per second were measured with a sensitivity of 0.04 gammas. The analog output is on 3 channels, from 1 to 10,000 gammas full scale.

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VLF-EM System

A Herz Totem 2A VLF-EM System was used to measure the changes in the total field and in the vertical quadrature field on two frequencies simultaneously, with an accuracy of 1%. The primary transmitting station of Cutler, Maine, (NAA), frequency 24.0 KHz was employed in survey.

Radar Altimeter

The ground clearance was measured with a King 10/10 A radar altimeter. The survey was flown at a mean clearance of 300 feet with the altimeter producing an accuracy of 5% (15 feet) at this altitude.

Tracking Camera and Video Centre

A RCA TC-200 colour video camera and Galaxy 200 video centre was used to record the flight path on standard VHS type video tapes. Manual fiducials were indicated on the picture -10-

frames for reference with digital printout. Flight path recovery was aided using a Panasonic Colour Video Monitor-S1300 and Video Cassette Recorder AG-2500.

Data Acquisition System

A Picodas Group Inc. PDAS 1100 data acquisition system featuring seven analog inputs with two frequency inputs and external interfacing was used. A Termiflex Corp. ST/32 Keyboard control unit and Sharp Corp. LCD display unit are connected to the data acquisition system. At present this system stores the altimeter VLF-1 inphase, VLF-1 quadrature, VLF-2 inphase, VLF-2 quadrature, magnetic field (coarse), magnetic field (fine), and the fourth difference (noise), and fiducials on 3.5 inch floppy disk drive. The data is then printed out in digital and profile form.

The survey was conducted on north-south lines in blocks 1, 2, and 5 and on lines orientated at 18 degrees east on blocks 3 and 4. The survey was flown at spacings of 440 feet at a speed of approximately 90 miles per hour. Navigation was visual using airphoto mosaics and claim maps, manual fiducials and the flight path recovery system as references. -11-

DATA PRESENTATION

Flight lines, fiducial points and geophysical responses were reproduced from the airphoto mosaics at a scale of one inch to 1320 feet (1:15,840) for blocks 1-4 and from a claim map at a scale of 1:20,000 for block 5. The outline of the claim blocks and claim map are shown on each map sheet.

The aeromagnetic data was corrected for diurnal variations by using a base line as reference. The data was then reduced to a base level of 58,000 gammas, contoured at 20 and 100 gamma intervals and presented on Map MG-1, 2, 3, 3, and 5.

The VLF-EM was transferred from the Totem 2AG memory to printed form. A base value was determined for the VLF-EM profiled data. These values were used to correct for variations in transmitter strength and the corrected changes in the total field strengths were plotted on Map EM-1, 2, 3, 4, 5. The positive values were contoured at intervals of 2%. The conductor axes were determined and labelled 1, 2, 3, etc. No priority was attached to the labelling system. -12-

SURVEY RESULTS AND INTERPRETATION

Magnetic Survey (MG-1 to MG-5)

The magnetic airborne survey was successful in confirming the underlying geology as indicated on O.D.M. Map 2205. Ninetyfive percent of the McKinnon property has a consistantly low to moderate magnetic signature with values ranging from 750 to 1000 gammas above background. This indicates that the rocks underlying these regions are relatively homogeneous in composition, and contain similar amounts of magnetite.

In the two claim blocks overlying Frederick House Lake in Evelyn Township, the magnetic susceptibility of the bedrock ranges from 900 to 980 gammas above background in the larger block, and from <1000 to <1100 gammas above background in the single claim overlying Frederick House Lake. The magnetic values increase very gradually across the area from south to north, indicating that the magnetic susceptibility of the felsic metavolcanics in the four northern claims is slightly higher than the magnetic susceptibility of the mafic flows and pyroclastic rocks in the four southern claims. -13-

The claim block overlying Frederick House River in Matheson and German Townships has a consistantly low magnetic signature with values ranging from <800 to >880 gammas above background. The underlying Precambrian Metasediments have a low magnetic susceptibility.

The claim block overlying McIntosh Lake in German Township has a magnetic signature with values ranging from <700 to >920 gammas above background. It lies in a magnetic depression between rocks with a higher magnetic susceptibility to the east and to the northwest. Magnetic values increase rapidly to the east of the property probably due to the presumed location of the unit of metamorphosed mafic and ultramafic metavolcanics. West of the northerly striking fault, the magnetic values again increase rapidly to the northwest due to the presence of mafic flows and pyroclastic rocks. The central magnetic depression appears to represent Early Precambrian metasediments having a low magnetic susceptibility.

The single claim located in Clerque Township has a magnetic signature which increases from <760 gammas in the southwest to >860 gammas in the northeast. A magnetic high appears to be situated along the northern boundary of the claim. -14-

VLF-Electromagnetic Survey (EM-1 to EM-5)

The VLF-electromagnetic survey was unsuccessful in outlining two conductors within the McKinnon Prospecting property.

Conductor 1 is a single-line, northwesterly striking conductor located in the south central part of Block 1 in Evelyn Township. It is parallel and overlies the western shore of Frederick House Lake and is probably due to lake shore effect.

Conductor 2 is a weak single-line easterly striking conductor located in the central part of the claim in Clerque Township. It parallels the easterly striking Pipestone Fault and probably represents a shear zone associated with this fault.

CONCLUSIONS AND RECOMMENDATIONS

The results of the combined airborne magnetic and VLFelectromagnetic surveys were successful in helping outline the geology and in delineating 2 conductive zones underlying the McKinnon Prospecting property in Evelyn, German, Matheson, and Clerque Townships, Ontario. -15-

The airborne magnetometer survey seems to indicate that the rocks underlying the five McKinnon Prospecting claim blocks are relatively homogeneous in composition, and contain similar amounts of magnetite.

The two conductive zones appear to be caused by conductive overburden or a change in topographic relief.

Further exploration work of ground magnetic and horizontal loop-electromagnetic surveys could be performed to better define the underlying geology and to delineate and classify the conductive zones.

Respectfully submitted,

H. FERDERBER GEOPHYSICS LTD.

Jin Alera

L.L. Ahern, B.Sc. Geologist.

APPENDIX 1 CLAIM LIST

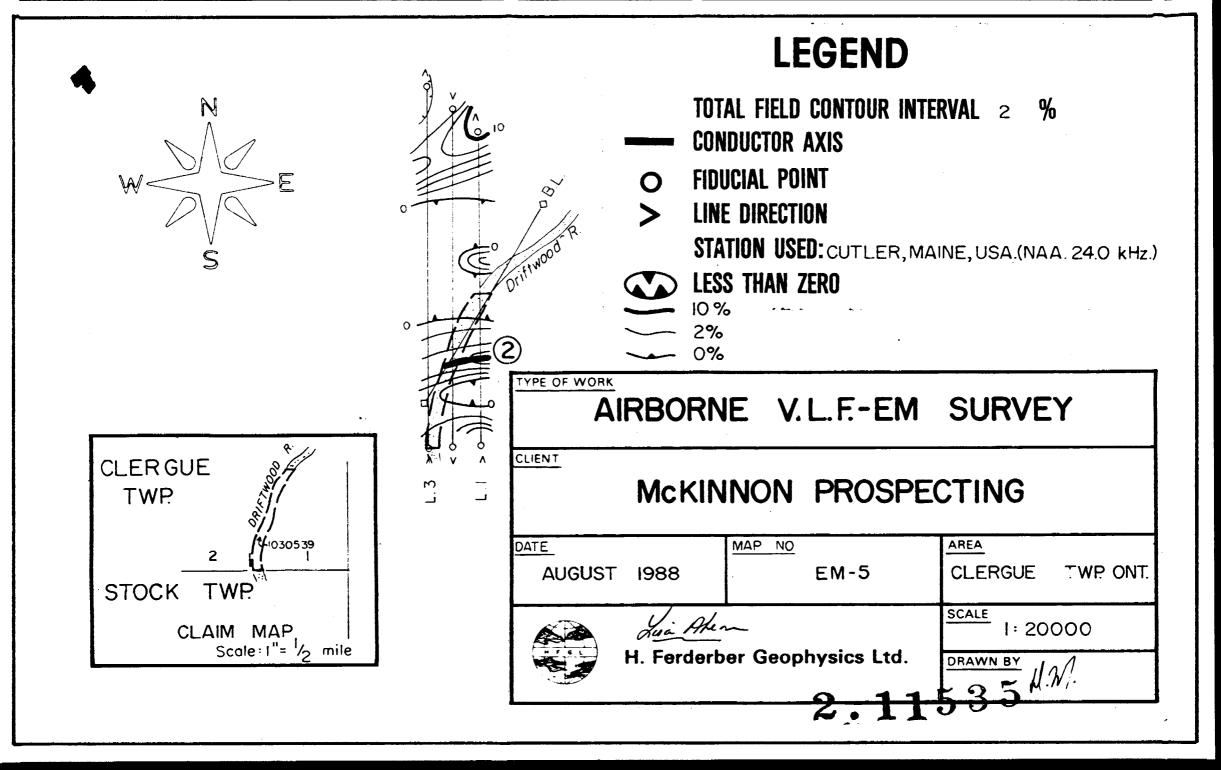
Evelyn Township

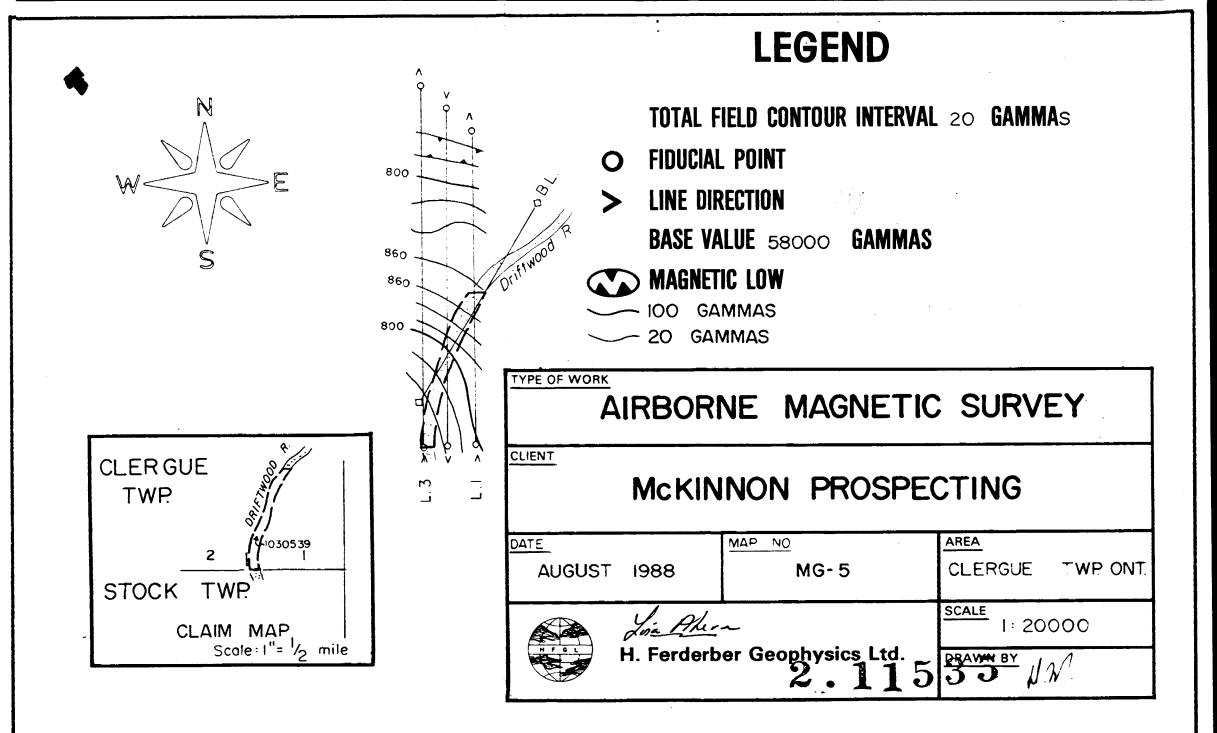
Matheson and German Township

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Ministry of Northern Development and Mines

Geophysical-Geological-Geochemical Technical Data Statement

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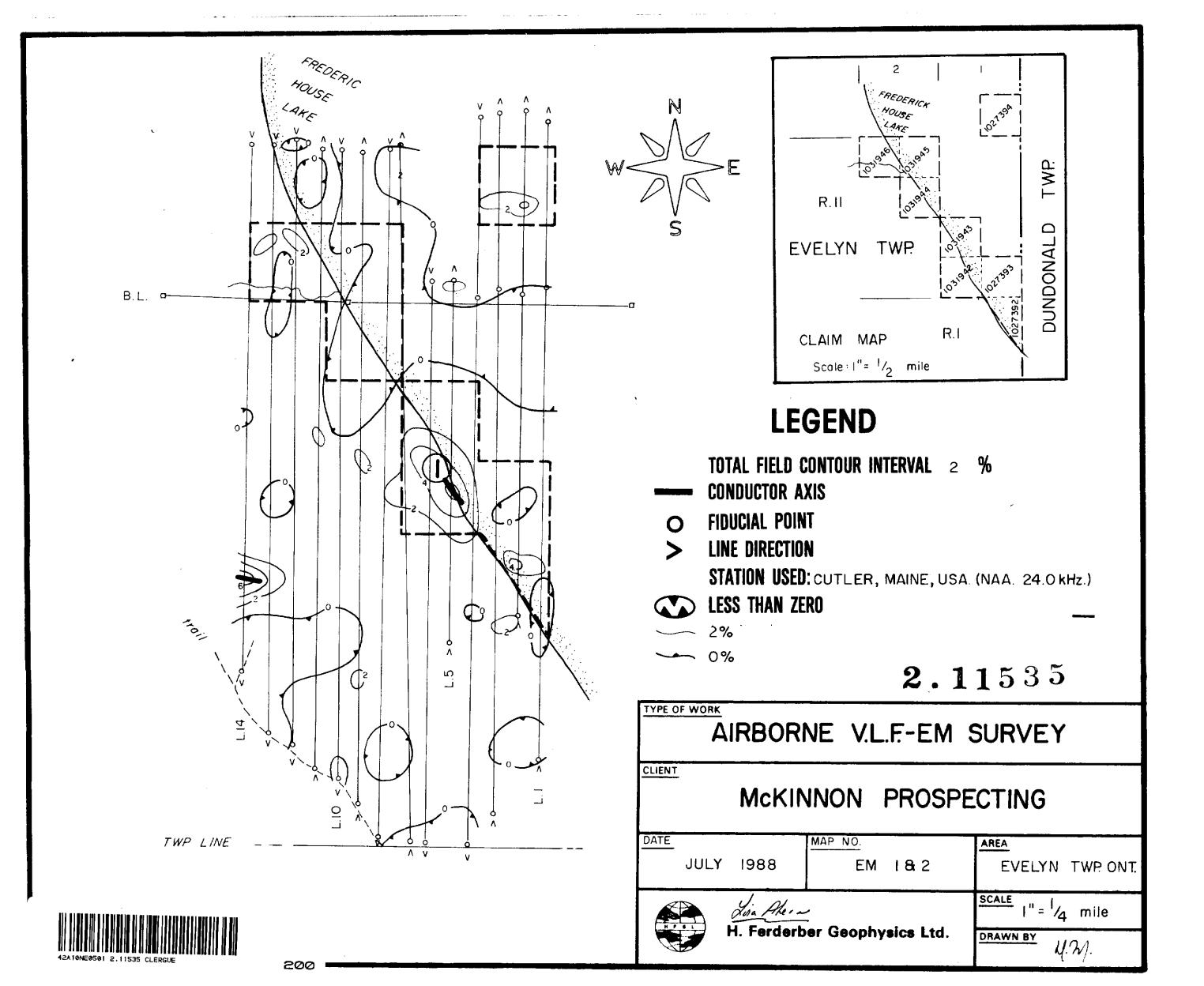
TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.

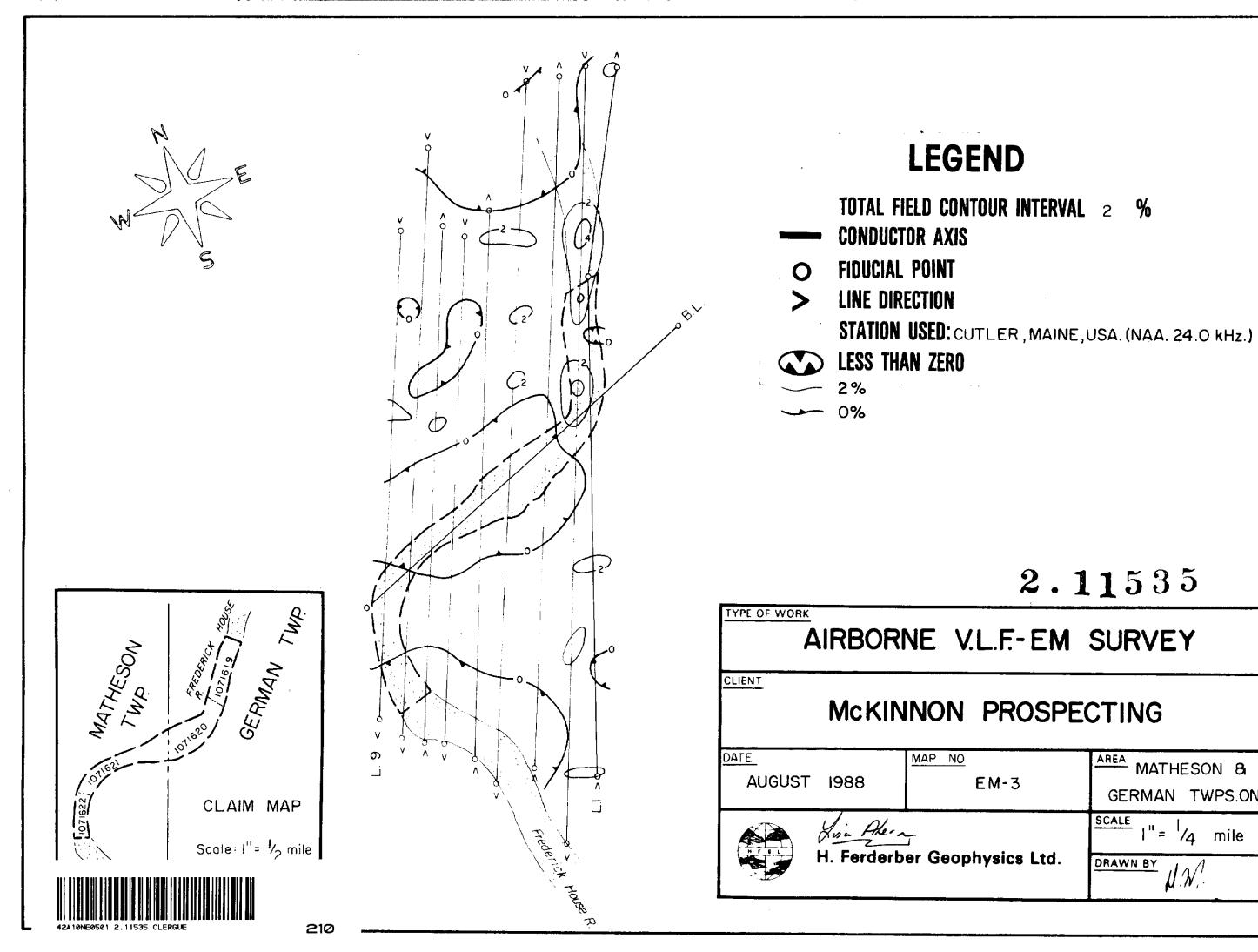
Type of Survey(s) _Airborne_	magnetic and VLF-elector	nagnetic
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Author of Report L. Ahern	<u> </u>	(prefix) (number)
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Total Miles of Line Cut <u>flown</u>	15.4	
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OFFICE USE ONLY

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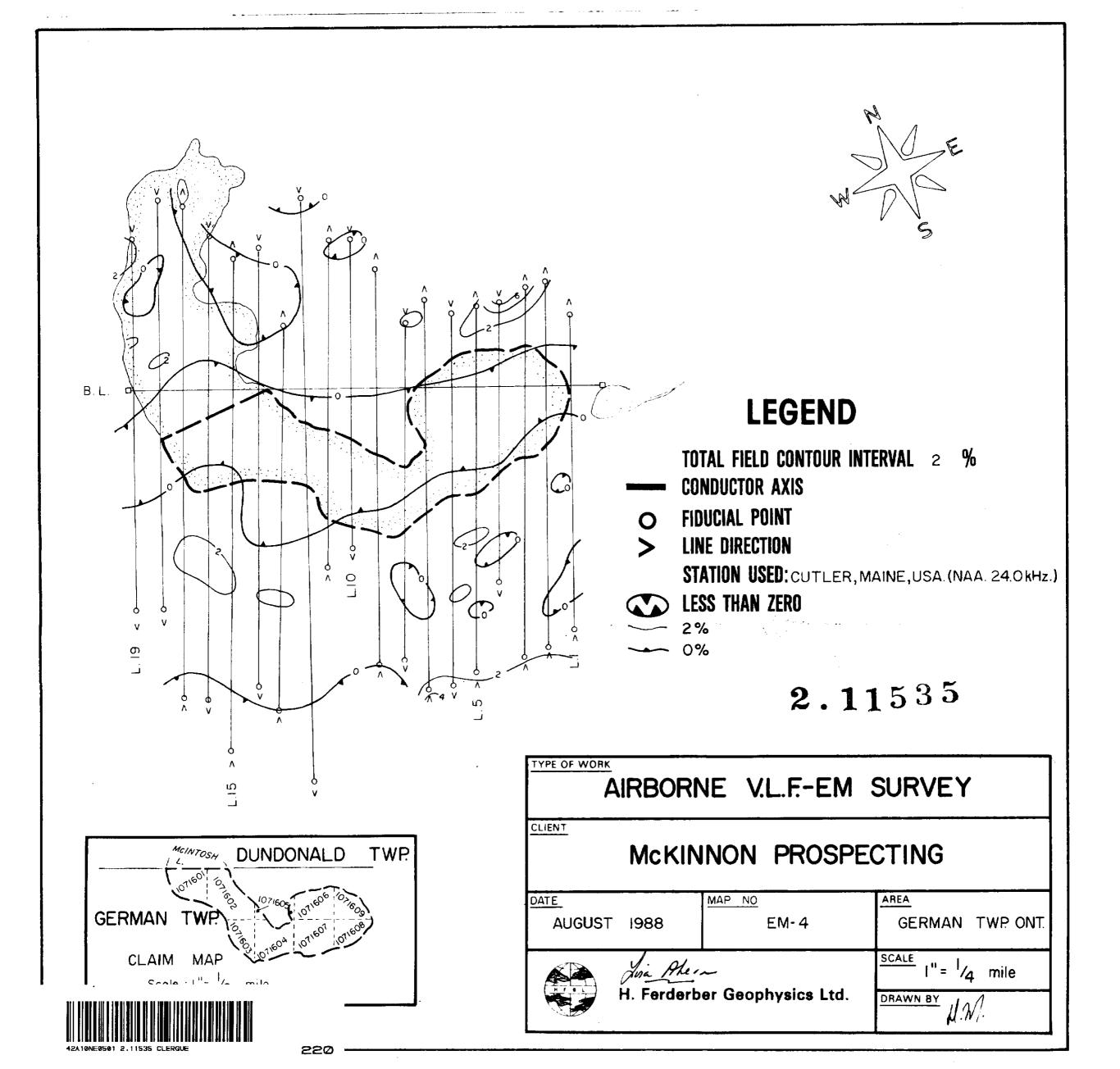
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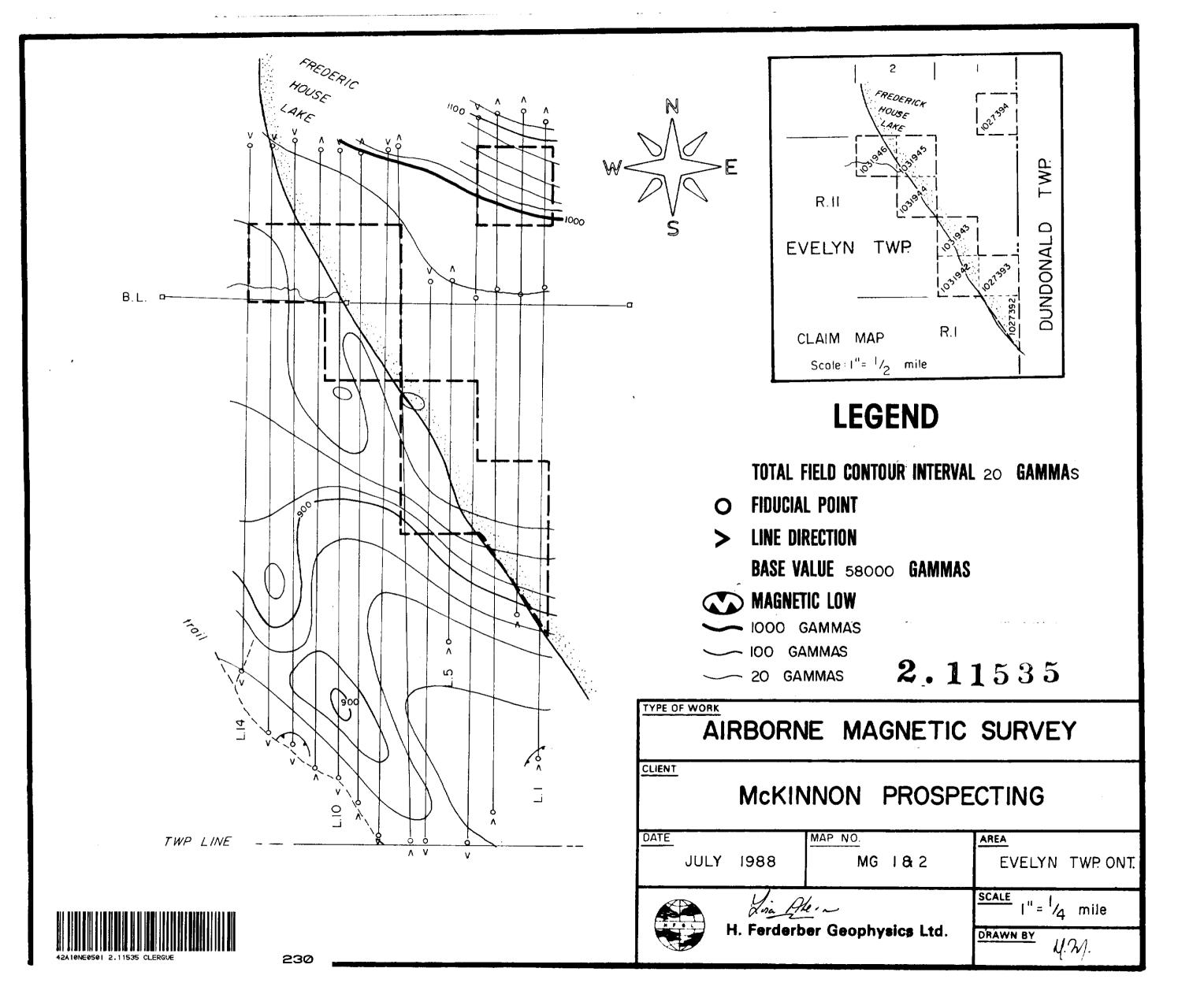


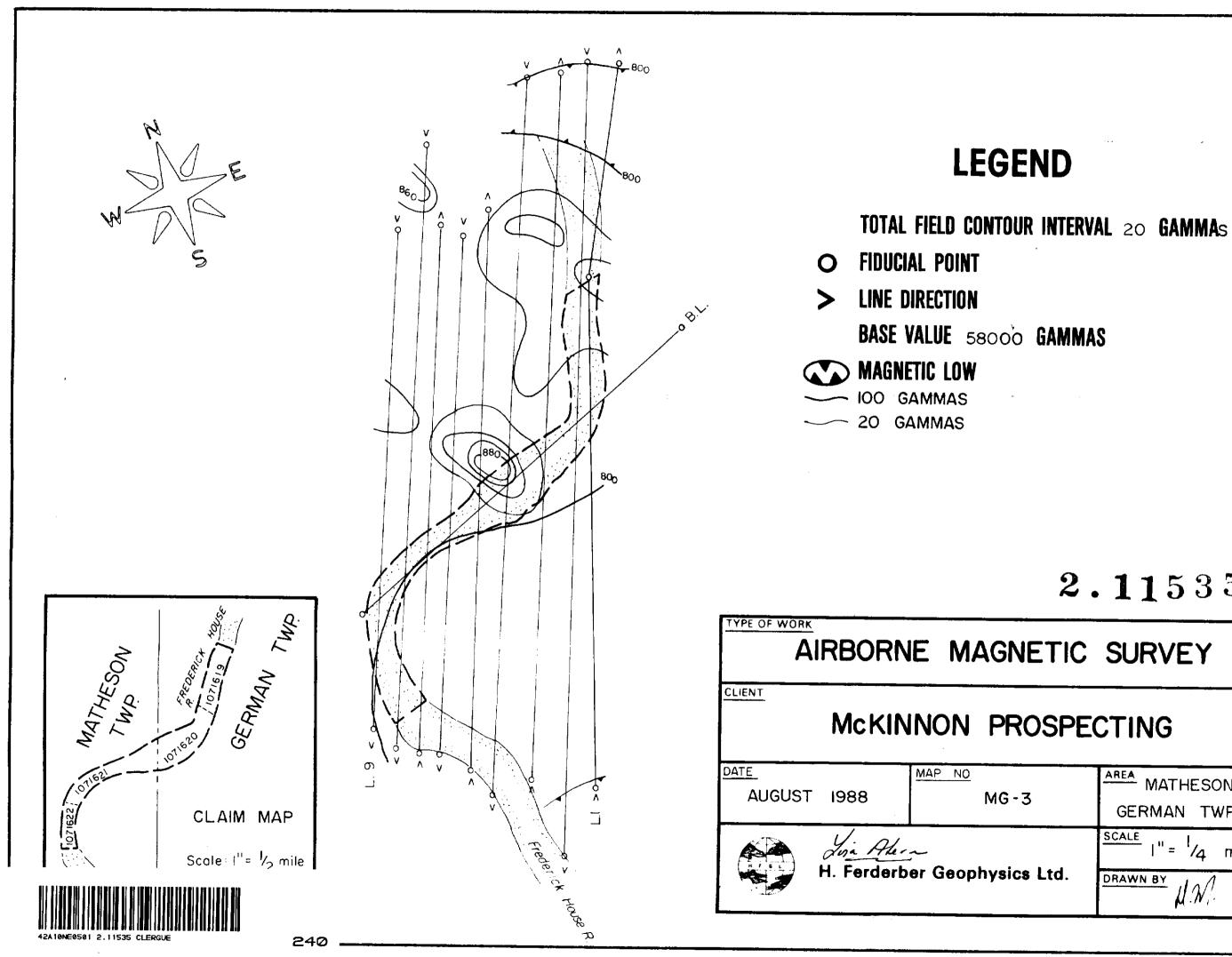


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