SAWYER CONSULTANTS

REPORT ON 1987 PHASE I EXPLORATION

on the

ST. JOE PROPERTY

Madoc Township, Hastings County

Southern Ontario Mining Division

for

HARWIN EXPLORATION & DEVELOPMENT INC.

September 21st, 1987

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INTRODUCTION

The St. Joe property, consisting of 13 mineral claims, was acquired by Harwin Exploration & Development Inc. in July 1986. The property is located in Madoc Township, Hastings County, Eastern Ontario.

The St. Joe Mine, centrally located in the claim block, is reported to have been worked during the late 19th century for gold, following the Eldorado Gold Rush of 1867.

Harwin Exploration & Development Inc. have carried out a program of exploration (for gold) during the period from May 1987 through August 1987 which consisted of linecutting, geological mapping, geochemical soil sampling and a three element geophysical survey.

This report describes the exploration programs carried out and makes recommendations for further work.

SUMMARY

The St. Joe property of 13 mineral claims, acquired by Harwin Exploration & Development Inc. in mid 1986, was covered by an exploration program consisting of linecutting for control, geochemical soil sampling, geophysical surveying and geological mapping. The linecutting, geochemical sampling and geophysical surveys were carried out by MDX GeoServices during the period from mid May 1987 to August 1987. The geological mapping was carried out by Brian R. King under contract to Sawyer Consultants Inc.

The claims making up the St. Joe property cover the old St. Joe Mine property as well as the old Bannockburn Pyrite Mine. The St. Joe Mine is reported to have been worked prior to 1898 and was most likely worked after the Eldorado Gold Rush of 1867. There are no production records for the St. Joe Mine and there are no reports of a mill being erected on or near the mine. The Bannockburn Pyrite Mine was worked for iron ore from 1898 but was worked for pyrite from 1900 to 1908 when they were shut down.

The exploration programs carried out during the period from May to August 1987 were designed to explore for precious metal deposits, i.e., gold.

HARWIN EXPLORATION and DEVELOPMENT INC.

ST. JOE PROPERTY

MADOC TOWNSHIP
SOUTHERN ONTARIO MINING DIVISION

GENERAL LOCATION MAP

SAWYER CONSULTANTS INC. (9/87)

FIGURE 1

PROPERTY AND OWNERSHIP

The St. Joe property consists of thirteen claims comprising approximately 650 acres within Lots 24 and 25 of Concessions IV, V, and VI, of Madoc Township in east-central Ontario. Table 1 below provides the details of these claims.

Table 1

List of Claims

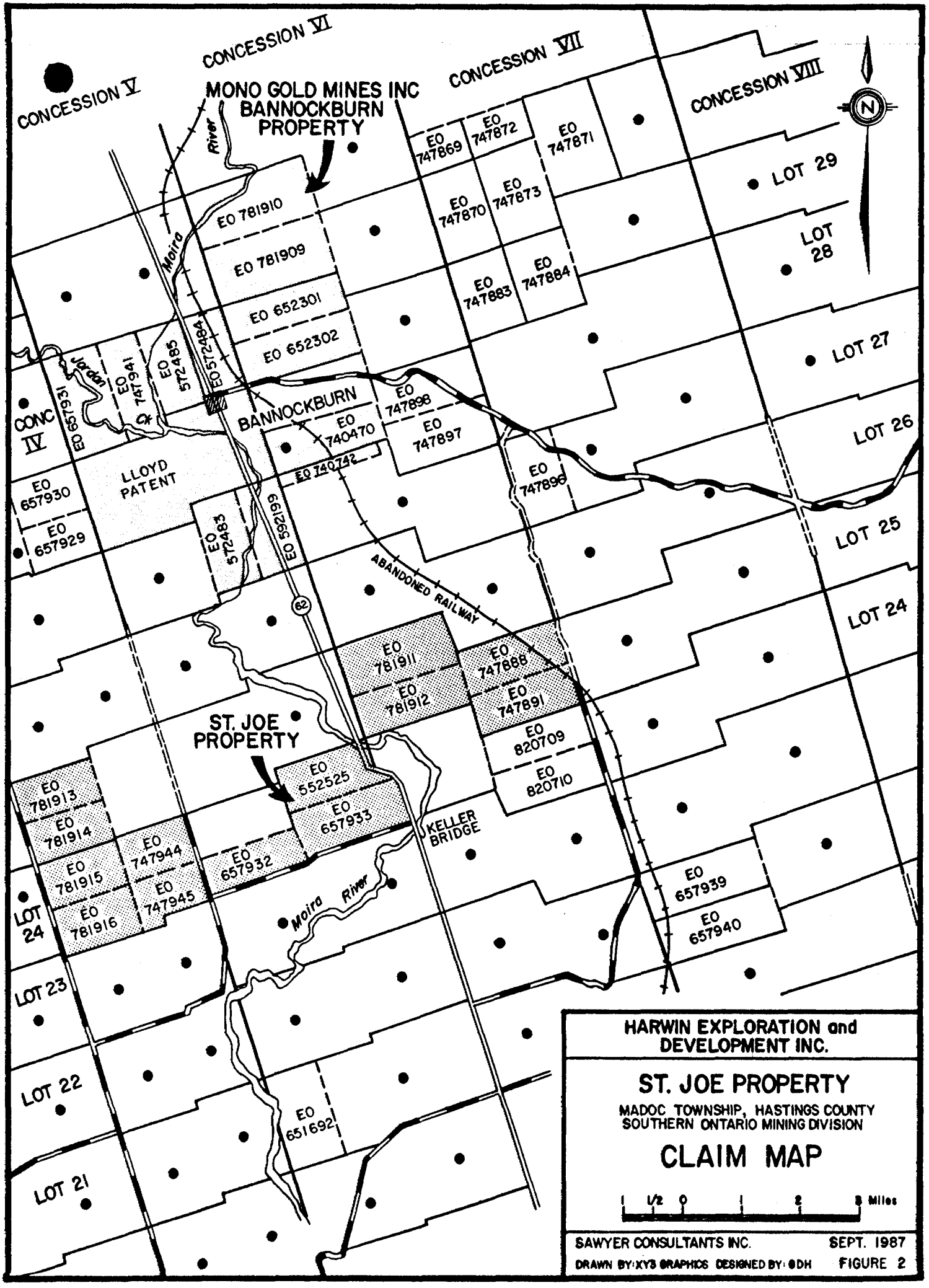
Claim No.	Concession	Lot	Recorded	Recorded Owner
EO 552525	V	24NE¼	January 23, 1980	Harwin Exploration & Development Inc.
EO 657932	V	24SW¼	April 27, 1984	"
EO 657933	V	24SE¼	April 27, 1984	"
EO 747888	VI	25NE¼	April 10, 1985	"
EO 747891	VI	25SE¼	April 10, 1985	"
EO 747944	IV	24NE¼	January 8, 1986	"
EO 747945	IV	24SE¼	January 8, 1986	"
EO 781911	VI	25NW¼	April 10, 1985	"
EO 781912	VI	25SW¼	April 10, 1985	"
EO 781913	IV	25NW¼	December 18, 1984	"
EO 781914	IV	25SW¼	December 18, 1984	"
EO 781915	IV	24NW¼	January 4, 1985	"
EO 781916	IV	24SW¼	January 4, 1985	"

These claims are shown on Ontario Ministry of Natural Resources Claim Plan #M-120, Madoc Township.

The St. Joe property is owned by Harwin Exploration & Development Inc. of Vancouver, B.C.

LOCATION AND ACCESS

The St. Joe property is centred on the small settlement of Keller Bridge, on Highway #62, eight miles north of its junction with the Trans Canada Highway (Highway #7) at Madoc.


CONCESSION V
CONCESSION VI
CONCESSION VII
CONCESSION VIII
MONO GOLD MINES INC
BANNOCKBURN
PROPERTY
River
Moira
EO 781910
EO 781909
EO 652301
EO 652302
EO 572484
EO 747941
EO 572485
EO 657931
EO 747869
EO 747872
EO 747871
EO 747870
EO 747873
EO 747883
EO 747884
LOT 29
LOT 28
LOT 27
LOT 26
LOT 25
LOT 24
LOT 23
LOT 22
LOT 21
CONC IV
BANNOCKBURN
EO 747898
EO 740470
EO 747897
EO 740742
EO 747896
LLOYD PATENT
EO 657930
EO 657929
EO 572483
EO 592199
62
ABANDONED RAILWAY
EO 781911
EO 781912
EO 747888
EO 747891
EO 820709
EO 820710
ST. JOE PROPERTY
EO 781913
EO 781914
EO 781915
EO 781916
EO 747944
EO 747945
EO 552525
EO 657933
EO 657932
KELLER BRIDGE
Moira River
EO 657939
EO 657940
EO 651692
N
HARWIN EXPLORATION and DEVELOPMENT INC.
ST. JOE PROPERTY
MADOC TOWNSHIP, HASTINGS COUNTY
SOUTHERN ONTARIO MINING DIVISION
CLAIM MAP
1
1/2
0
1
2
3 Miles
SAWYER CONSULTANTS INC.
SEPT. 1987
DRAWN BY: XYZ GRAPHICS DESIGNED BY: GDH
FIGURE 2

The Keller Bridge area is covered by NTS Map Sheet 31C/12 at a scale of 1:50,000 and by recently published maps of the Ontario Basic Mapping Program (OBM 10 18 2950 49400) at a scale of 1:10,000.

The St. Joe property is easily reached from Highway #62, linking the villages of Madoc and Bancroft, which connects with the Trans Canada Highway (Highway #7). Local access is by road and trail suitable for a small truck under most conditions.

The St. Joe property is also shown on a number of geological and mineral maps published by the Province of Ontario (see below).

PHYSIOGRAPHY

The topography in the area including the St. Joe property is characterized by a rolling terrain which is partially forested. Beaver ponds or marshes occupy low-lying areas, for example, along the Moira River.

Most of the property area is covered by grasslands and open fields approximately thirty percent of the property area being farmland under cultivation for grains or hay or used for cattle grazing. The forest cover where present is made up of mixed hardwood and softwood with maple, oak, spruce, white pine, and cedar most common; alders, hawthorne and marsh grasses characterize the marshy areas.

The overburden is composed of well developed podzolic soils in the better drained areas and more organic-rich soils in areas of poorer drainage.

HISTORY AND PREVIOUS WORK

Very little previous work has been recorded in the assessment files of the Ontario Government for these claims.

It is however clearly apparent from several old workings, usually based on quartz veins or heavy sulphide mineralization, that much work has been done on the property at various times since the first discovery of valuable minerals in the district.

Numerous small pits, trenches, and shafts have been excavated on quartz veins located on claims EO 781913 and EO 552525. The St. Joe Mine, which was active prior to 1898, is thought to be the most important of these but, unfortunately, the exact location of the pit or shaft is unknown and could be any one of several recently discovered workings. Numerous workings based mainly on sulphide-bearing horizons occur on claims EO 781911, 781912, and 747888. The most important of these is the Bannockburn Pyrite Mine, on claims EO 781911 and EO 781912, from which the first shipments of "bog iron" (limonite) from the gossan capping, were made in 1898.

This property was operated from 1900 to 1907 by the American Madoc Mining Co. Ltd. under the name Jarman Pyrite Mine. Two openings were developed:

the first, an open pit approximately 80 feet in diameter and up to 90 feet deep, was abandoned in 1901 due to wall stability problems in favour of mining via a shaft sunk at a location approximately 500 feet south of the open pit on a new pyrite lense. This shaft was sunk to a depth of about 275 feet with levels every 60 feet. The ores shipped, reported to have averaged approximately 40% sulphur, were sold to sulphuric acid producers in New York state.

A second, earlier, iron deposit referred to by the Geological Survey of Canada in the period 1866 to 1869 as a magnetic iron deposit appears to be evidenced today by a pit measuring about 10 feet deep by 40 feet long excavated into a hillslope in the southeast corner of claim EO 747888, near the abandoned Central Ontario Railway line.

CURRENT PROGRAM

The current exploration program on the St. Joe property includes geophysical, geochemical, and geological surveys carried out over a cut line grid covering the whole property.

Linecutting

The grid was established by cutting base lines oriented magnetic east-west from which grid lines were turned off at 90° at a maximum interval of 200 feet along the base line. In some areas line spacing was decreased to 100 feet in order to permit of more detailed surveying. All of the lines were cut, chained and picketed with stations marked by pickets every 100 feet along the cut lines. In areas of open or farmed land most pickets were removed once suitable control points were located along fence lines, etc., to avoid interference with cultivation and farming.

A total of 28.05 line miles of grid line were established. The grid is shown on the geological plans, Figures 3 and 4, as well as on the geophysical maps.

Geochemical (Soils) Sampling Program

The geochemical soil sampling program was designed to sample the "B" horizon of the soil profile estimated in this area to be from 6 to 8 inches below surface. Field crews using a shovel and/or hand auger collected soil samples at the appropriate depth at stations 50 feet apart along the grid lines. The 50 foot stations between chained pickets were estimated by pacing along the lines.

At each sample location the sampler recorded grid position, soil horizon sampled (i.e., "A", "B", or "C"), a coded soil description, and groundwater movement direction with slope angle where significant.

The field work for this program was carried out in the period June 27th to July 19th, 1987. In total 2,184 samples were collected and shipped.

Sample Handling

All of the soil samples were collected in standard Kraft paper envelopes identified by adhesive sample tags affixed in the field. Each sample was partially air dried before shipment to the Ottawa laboratories of Bondar-Clegg & Company Ltd.

Analytical Techniques

Drying of the samples at 50° centigrade was completed at Bondar-Clegg & Company Ltd. laboratories. Samples were then screened to provide a -80 mesh fraction which was used for analysis for gold only. Analytical procedures involved preconcentration by fire assay in Ottawa and final determination of gold by neutron activation analysis in Mississauga. The detection limit claimed for this technique is 1 ppb Au.

Geochemical Survey Results

The general location of geochemically anomalous areas defined by the sampling program are indicated by stippled areas on the geological plans, Figures 3 and 4 accompanying this report. A more detailed report, (Report on Geochemical Soil Sampling, St. Joe Property, Madoc Township, Hastings County, Southern Ontario Mining Division, dated August 1987) has been prepared by MDX GeoServices for Harwin Exploration & Development Inc. This report gives detailed plots of the individual sample values and provides the basis for the geochemically anomalous zones transposed onto the geological maps accompanying this report. The following list summarizes the location of these anomalies:

Anomaly "D" - Line 114E to 138E, 76+00N (centre)

Anomaly "F" - Line 130E, 66+00N

Anomaly "E" - Line 114E to 138E, 69+59N (centre)

Anomaly "H" - Line 29E to 44E, 66+50N

Anomaly "C" - Line 107E, 53+50N

Geophysical Surveys

Geophysical surveys carried out over the cut line grid on the St. Joe property included total field magnetics, vertical magnetic gradient, and multi-channel VLF-EM surveys. This work and results are described in detail in a separate report, "Geophysical Report on the St. Joe Property for Harwin Exploration & Development Inc." dated August 3rd, 1987 by G.M. Feeney of MDX GeoServices. The field work was carried out in the period June 24th to July 4th, 1987.

The geophysical surveys outlined general structures with considerable resolution and identified a number of anomalies of potential economic interest. The three most interesting of these are briefly described as follows:

On Lines 30E to 38E near 66+00N, a VLF conductor trending approximately grid east-west coincides closely with a vertical gradient and total field magnetics anomaly on claim EO 781913.

In the vicinity of the Bannockburn Pyrite Mine on claims EO 781911 and EO 781912, a series of VLF-EM conductors has outlined a very large, regional scale, fold whose axis trends generally grid north-south, with closure to the north. Several magnetic highs are found around this structure some possibly related to strong sulphide mineralization associated with the pyrite horizons in the area.

In the southeast part of claim EO 747888 a vertical gradient and total field magnetics (combined) "low" occurs which is possibly related to the fold structure described above.

Geological Mapping Program

Detailed geological mapping at a scale of 1" = 200' (1:2400) was carried out concurrently with the geochemical and geophysical field work using the cut line grid for control. The results of this work are shown on geological plans accompanying this report, Figures 3 and 4. The geological mapping was augmented by prospecting with emphasis on occurrences of quartz veining. Sample locations and results from this part of the work are also shown on Figures 3 and 4.

Although the final interpretation shown on the geological map utilized both geological field observations and geophysical interpretations presented in the geophysical report by Feeney (1987) field prospecting specifically in areas of geochemical and/or geophysical anomalies was not carried out since these interpretations were not available until completion of the field work.

Samples collected during the mapping program were analyzed for gold using essentially the same techniques as were used for the geochemical analyses, i.e., fire assay and final determination by neutron activation to a detection limit of 1 ppb Au. This was done in order to be able to detect anomalous gold concentrations in rocks which might be removed from ore shoots commonly found in gold deposits in this area. The objective of this work was to identify anomalous horizons or areas of vein systems rather than specifically to pinpoint high grade and possibly small scale features.

REGIONAL GEOLOGY

The geology of Madoc Township and surrounding areas is well known and has been described by Hewitt (1968). The St. Joe property is shown on Ontario Mineral Potential Map P1505 (1:250,000), on Ontario Department of Mines Map No. 1576, and Ontario Geological Survey Map 2154.

The area has a rich history of metallic and non-metallic mineral production. The area is underlain by Precambrian greenstones, of which there are good exposures in the area, metasediments, and intrusives unconformably overlain by relatively undisturbed Phanerozoic sediments. The area has a number of major structural elements.

Major Features

The oldest rocks in the region (other than possible basement metatexite) are mafic metavolcanics of the Tudor Formation. These rocks occupy the base of the Hermon Group consisting of supracrustal clastic to carbonate metasediments and greenstones. The bulk of the Tudor Formation metavolcanics are apparently tholeiitic basalt although some calc-alkaline/intermediate analyses have been reported.

A second sequence of metavolcanic rocks ("Madoc Volcanics"), presumably overlying the Tudor Formation, is exposed in southern Madoc Township. These rocks range from andesite to rhyolite and exhibit primary volcanic textures. Near Queensborough, the rhyolites and associated rocks indicate a possible volcanic centre.

Overlying, and in some cases intercalated with the volcanics are the Hermon Group metasediments. In the Madoc region, these rocks are primarily impure marbles with some semi-pelitic and psammitic schists. Other sedimentary rocks include slates, and several bands of metaconglomerate, the latter generally occurring in association with the volcano-sedimentary contact where present.

The major intrusive bodies of interest in the area are the Deloro granite and the Gawley Creek syenite. The Deloro granite is a pink, medium crystalline granitic stock which occupies several square miles of southwest Madoc Township and is associated with the Deloro gold occurrences in neighbouring Marmora Township. The Gawley Creek syenite body is located in the northwest quadrant of Madoc Township and also extends into Marmora Township. Generally, this intrusive is a medium to coarse crystalline biotite/hornblende syenite and includes a variety of granitic to dioritic differentiates. Other than at Bannockburn, the Gawley Creek syenite is not known to be associated with major economic mineralization.

At least two major folds are present in the Madoc area, the Queensborough and Madoc synforms. The Queensborough structure has a northwest trending axis whereas the Madoc synform has a northeasterly trace, similar to most Grenville structures.

Not unlike other Canadian greenstone areas, the Madoc region is characterized by numerous faults and shear zones, having a general northeast-southwest trend, paralleling major lithological and structural boundaries within the Grenville.

Age determinations indicate that these rocks were last deformed approximately 1,000 million years ago during the "Grenville Orogeny". This metamorphic event has resulted in highly deformed rocks of middle greenschist to lower amphibolite facies in the Madoc Township area. On a broad scale, metamorphic grade tends to increase from west to east with granitoid gneisses and "granulites" being present several townships east of Madoc.

PROPERTY GEOLOGY

Introduction

Minor outliers of Palaeozoic rock are present having escaped total removal by Pleistocene glacial action. The only intrusive within the property boundary is a minor pegmatite however the western property boundary is close to the large Gawley Creek syenite intrusive which undoubtedly has affected adjacent rocks.

Amphibolites

The northwestern and central portions of the St. Joe property are underlain by massive and tectonically brecciated amphibolites, thought to be metamorphosed volcanic rocks, probably of the Tudor Formation. These are generally dark green to black hornblende bearing rocks which contain no observed original textures which distinguishes them from other metavolcanics of the Tudor Formation in the general Madoc - Bannockburn area which are largely altered to greenschists often exhibiting original volcanic textures. The lack of such textures on the St. Joe property reflects the strong deformation and pro-grade/contact metamorphism which they have undergone. Determination of individual flows or specific horizons within the assemblage is not possible without intensive further study. Minor disseminated sulphides occur in quartz veins and metamorphic segregations are common.

Siliceous and Sericitic Schists

A variety of sericitic and siliceous schists occur throughout the property, principally between the amphibolites and the carbonate metasediments. This grouping is complex and difficult to segregate on the basis of local lithology at the current map scale. In general these schists, locally known as the "rusty schists", are found at or near the primary amphibolite/metasediment contact and usually carry abundant disseminated to massive sulphides.

Equally important are the coarse sericitic and chloritic schists which are similar to the "rusty schists" but carry only minor disseminated sulphides.

Several occurrences of dark grey to blue micaceous, strongly graphitic, schists are mapped, usually in association with rusty and sericitic schist. Minor occurrences of graphitic "slate" are also present most commonly in the area near the St. Joe Mine.

Numerous occurrences of more psammitic appearing rocks which range from granular units to cherty horizons, and may in fact be altered felsic tuffs or flows, are also present. Available outcrop evidence suggests these are restricted largely to the area near the Bannockburn Pyrite Mine.

These subunits are grouped together here as representing highly altered siliceous horizons of volcanic or sedimentary origin. The "rusty schists" are thought to be equivalent to sediments whose source area included the underlying Tudor volcanics. In other cases the schists appear to be felsic or siliceous units that are intensely altered due to reaction with sulphides during metamorphism.

Marble (Carbonate Metasediments)

The southern third of the St. Joe property is underlain by "carbonate metasediments". These rocks are generally uniform calcitic - impure marbles and calcareous mudstones which are often dolomitic near contacts. Structurally they behave plastically during deformation. There is little doubt that these marbles were originally chemical sediments (shelf deposits), Precambrian stromatolitic fossils having been reported in the region.

Intrusive Rocks

Although the St. Joe property is adjacent to the large Gawley Creek syenite, its proximity is indicated by the alteration of the amphibolites in the northwest part of the claim group. Two exposures of pink pegmatite were observed in the central part of claim EO 781913 which may be related to a deep seated felsic intrusive or alternatively may be structurally related to folding within the amphibolites and of only local origin.

Mafic intrusives may be indicated in the northwest part of the property by several occurrences of coarse gabbroic rock which, however, do not appear to have significant continuity. Such small scale coarse mafic zones are not uncommon in amphibolitic terrains and are thought to represent local zones of recrystallization where the original rocks were anomalously hydrous (metamorphic "sweats") and in small scale structural traps.

The regional geological map of Madoc Township does show a small gabbroic body immediately north of the central part of the St. Joe property and this may be related to the above described units. It is however more likely that this small pluton is also structurally controlled by local folding.

Structural Geology

The rocks of the St. Joe property are intensely folded into complimentary synforms and antiforms, about northeast trending axes, all plunging moderately to the northeast in a typically Grenville fashion. Defining age relationships of the stratigraphy is difficult, thus determining which structure is anticlinal and which is synclinal is subjective. Generally, the amphibolites are considered oldest, but at the St. Joe property, the amphibolites are apparently surrounded by metasediments.

The geophysical survey (total field and vertical gradient magnetics) was instrumental in determining the local structural style. Although the folding determined during mapping does not agree in detail with the geophysics, the similarities are strong. The exception to this is the possible presence of a tight fold within the amphibolites in the northwest part of the property. It is unlikely that geophysics could discern such a fold due to the lack of susceptibility contrast.

In all cases, the folds appear to have been refolded gently along more or less east-west axes, again, typical for this part of the Grenville.

ECONOMIC GEOLOGY AND DISCUSSION

The St. Joe property has been the site of several small scale mining operations since the mid 19th century. Most notable among these are the pyrite and iron deposits now found in Lot 25, Concession VI.

In the northwest part of the property, a number of small pits have been sunk on quartz veins, some associated with minor shearing which crosscut the local stratigraphy, along north-northeasterly trends. These quartz veins, although impressive, are apparently barren of significant gold mineralization. Both earlier sampling (House, 1986) and the recent geochemical program have indicated that these veins are not economic within the property boundary. Their origins are likely related to the presence of the Gawley Creek syenite, immediately west of the property. Amphibolites hosting the veins do exhibit moderate silicification and have a complex structure, both criteria suitable for vein system development.

Within the marbles that cover much of the southern portions of the property, indications of what are probably old pits have been noted. Along the southern border of claim EO 781914 a small swampy area is said by local residents to have been a pit where copper was once recovered by the early settlers in the area. At this location a few rusty boulders and red stained soil may indicate some sulphides are present but this zone is not a likely source of gold mineralization.

The marbles do however, exhibit a form of karst topography, where underground drainage, sinkholes and narrow "crevasses" are seen. These localized features are known to be important at the nearby Richardson Gold Mine at Eldorado, where open cavities and caverns in marble are mineralized by very high grade gold deposits. Unfortunately, this type of deposit would be extremely difficult to discover using surface techniques and are not probable on the St. Joe property.

In claim EO 552525, many pits have been noted recently, most of these being found in the eastern half which is thought to include the St. Joe Mine. The exact location of the mine workings is, unfortunately, not documented. An Ontario Department of Mines report from 1898 which provides perhaps the best description of the mine indicates that it was first developed by the same company responsible for the Bannockburn Gold Mine, approximately 2 miles to the north. Their new (St. Joe) property is recorded as being in Lot 25, Concession V of Madoc Township, on part of a 4000 acre optioned group of properties.

The workings are further described as being 1000 feet from the "Hastings Road" (now Highway #62) and 40 feet from the edge of a bluff, with a shaft put down to about 30 feet, "all in ore". In addition, approximately 300 feet east of the mine, a second open cut was excavated. The 1898 report also gives assays ranging from 0.10 to 3.03 oz./ton Au (assuming a value of $20.67 per oz. Au) but does not indicate where the samples were taken.

The present study found two small pits which appear to correspond to the descriptions in the 1898 report. These are located at the immediate north boundary of claim EO 552525 near Line 101E. The St. Joe pit contains two or

more sulphide bearing quartz veins which are up to 4 feet in width and dip to the north at approximately 50°. In fact, only a small portion of the veins lie within the property, as the veining dips under the adjacent lot to the north. The wall rocks are heavily mineralized with sulphides, mostly pyrrhotite and pyrite with traces of chalcopyrite. Included, is a narrow mafic sill which apparently has undergone severe silicification. The genetic relationship between the veining and the sill is unclear but it is possible that a volatile rich offshoot of a small gabbroic body to the north intruded the sediments remobilizing silica and sulphide components into the altered quartz vein zones.

The second pit, 300 feet east of the above workings was sunk on very rusty schists containing stringers of quartz. These units are common on the property and do not appear to be the same horizon as exposed to the west. The records of 1898 explain that this eastern pit was designed to intersect the footwall of the gold-bearing zone, about 70 feet north of its entry point. Current mapping indicates this to be reasonably accurate.

Unfortunately, the very small amount of this zone which is present on the property inhibits proper exploration. The geochemical sampling program did produce two anomalies in this area, one of which is open to the north. The anomalies are however weak, considering the amount of exposure and distribution of rusty soils near the old workings.

Grab samples from the St. Joe pit returned very low values, certainly not similar to reported assays from the late 19th century. In fact, samples of quartz vein and rusty wall rocks (footwall) gave only 62 and 48 ppb Au respectively. Sampling by House in 1986 also failed to show economic values at this location.

It is apparent that the vein system is anomalously enriched with gold, but probably not in economic quantities. However, the possibility that other ore shoots may be developed elsewhere on the vein system, especially to the north, must not be ruled out.

In this general area, the only remaining zone of interest coincides with a major topographical feature and lithological contact between the amphibolites (metavolcanics) and the rusty schists. Here, a strong linear valley trending nearly northeast is apparently associated with strong quartz veining. It is likely that this linear is an expression of a fault zone along or close to the plane of the folded structure as identified in Figure 4.

Unfortunately, this feature has produced only weak gold anomalies from either soil or quartz occurrence sampling and may be related to topography.

Throughout the remainder of claim EO 552525, a number of pits have been excavated principally on quartz veins. These have not yielded any significant gold values from either rock sampling or soil sampling programs.

On claims EO 747888 and EO 747891 (eastern portion of the property) there is an occurrence of very rusty and sulphide-rich rocks on the contact between sericitic schists and marble which corresponds well with a weak gold geochemical anomaly and a strong magnetic low. Mineralization consists of semi-massive sulphides (pyrite and pyrrhotite) plus, locally, massive sulphides.

In the field, this zone appears to be similar to a "skarn" type of mineralized body but there is no evidence for an intrusive. In fact, the zone occurs along an intrasediment contact. It is therefore more probable that this zone represents a type of sedimentary iron formation with both oxide and sulphide facies present. This zone may be related to one of the iron rich horizons of the Bannockburn Pyrite Mine. Should this possible iron formation (regardless of origin) be substantiated in the future, it may be a significant exploration target as it is well documented that iron formation rocks are very good hosts for gold deposits, whether through syngenetic or epigenetic processes.

Other than this occurrence of possible iron formation, one of the most promising areas for gold discoveries on the property is along the volcanic-sediment contact which straddles the southern portion of claim EO 781913. Here, part of the contact coincides with an east-west trending geochemical anomaly and a VLF conductor. A narrow band of siliceous and sericitic schists, probably 25 to 75 feet in width, is enriched in disseminated pyrrhotite and pyrite, typical of volcanic - sediment contacts in the region. To the south, this narrow band of schists is in contact with marble. The combination of favourable host rocks along a contact zone with coincident geophysical and geochemical anomalies, even though the latter are weak, makes this a suitable target for further exploration.

The strongest exploration target on the St. Joe property is related to the major fold structure within which the Bannockburn Pyrite Mine was developed.

The details of the structure have been interpreted largely on the basis of geophysical data since the amount of outcrop in the area is insufficient to permit its recognition at the current level of geological mapping. The axial plane of the fold structure trends grid northeasterly and has closure to the north. It is within this fold that the two pyrite lenses, the limonite capping lense and the underground pyrite lense, which were mined early in the century, were hosted. The detail of the current geophysical surveys is not sufficient to permit resolution of the individual horizons within the structure thus it is not known whether the two lenses are on the same or on different horizons. However, the structure as a whole does appear to contain several interesting horizons that have produced several strong geochemical anomalies with local high values greater than 300 ppb Au. Anomalies of this amplitude are significant and may indicate potentially economic mineralization. Much more detailed work on a tighter grid will be required to clarify this picture.

The lenses exploited by the pyrite mines may be interpreted as occupying horizons similar to iron formation and the large amount of quartz associated with the pyrites in the tailings, plus the apparently felsic sediments to the east of the mine, may indicate that the sequence is related to felsic volcanism, as are the pyrite deposits of the Queensborough area to the southeast of the St. Joe property. The iron rich horizons may, of course, be repeated structurally or may be parallelled by other similar layers in the sequence.

This interpretation is rather radical in light of the generally held interpretation that the deposits are hosted by a synform. The evidence provided by the occurrence of locally derived volcanic material, which is older than the overlying "shelf" deposits of marble, supports the view that this structure must be an antiform. Similarly, the interpretation based on the geophysical data, here and elsewhere on the property, supports this new interpretation.

Unfortunately, all of the most significant gold geochemical anomalies occur in areas which lack appreciable outcrop, thus we must depend upon soil sampling and geophysical methods for pin-pointing the targets. Throughout the area many quartz occurrences were noted and sampled thus it is apparent that quartz veining is an integral part of the folded structure. The general trend of the geochemical anomalies indicates this structure to be a favourable host for stratabound as well as vein type gold deposits, with or without iron formation. The possibility of felsic metavolcanic rocks or their derivatives being present in such an iron rich environment supports the view that the gold anomalies are very favourable exploration targets.

CONCLUSIONS AND RECOMMENDATIONS

On the basis of the results of the geophysical, geochemical and geological surveys which have covered the whole of the St. Joe property, three areas of interest are considered prospective and warrant further exploration.

First among these are the geochemical (gold) anomalies associated with the folded structure hosting the Bannockburn Pyrite Mine. Here, three separate horizons carry significant gold-in-soil anomalies (greater than 300 ppb Au) where geological evidence points towards the possibility of stratabound mineralization.

A second zone, in the south central part of claim EO 781913 consists of a generally east-west trending gold geochemical anomaly with coincident VLF conductor along a sulphide rich volcanic - sediment contact. Although the geochemical anomaly is comparatively weak, the combination of favourable geology and VLF conductor, with the gold-in-soil anomaly is considered sufficient to rate this as a moderate priority target for further exploration.

A third zone of interest occurs near the probable site of the St. Joe Mine. Here, one or more comparatively weak geochemical anomalies partially outlines an area of potential gold mineralization. Unfortunately, grab samples do not carry significant gold although wall rocks and quartz vein material are both anomalously enriched (less than 100 ppb Au). Geological mapping indicates that this horizon is located at the immediate northern boundary of the property, and that the zone dips to the north, onto the adjoining property.

Should this adjacent property be acquired, continued exploration of this zone would be recommended.

To follow up on the more significant zones outlined during this program, the following work program is recommended.

1. Detailed geochemical soil sampling on a 100 x 50 foot grid across the fold structure of the Bannockburn Pyrite Mine, in order to attempt better to define the known anomalies.

2. To follow this more detailed soil sampling, the areas of anomalous gold-in-soil should be prospected again, with stripping and sampling of the zones, provided depth to bedrock is not excessive.

3. Upon continued favourable results, it is recommended that a limited diamond drilling program be undertaken to test each of the resulting gold anomalies. One or more of the proposed holes should be dedicated to the anomaly in the southern part of claim EO 781913.

4. It is further recommended that exploration of the St. Joe Mine horizon be continued provided the adjacent property to the north of the mine (claim EO 552525) is acquired. This exploration should include geophysical, geochemical and geological appraisal in the same manner as the remainder of the St. Joe property.

Respectfully submitted,

SAWYER CONSULTANTS INC.

Brian R. King, hB.Sc.

GEOLOGICAL ASSOCIATION OF CANADA
GORDON D. HOUSE
FELLOW

Gordon D. House, M.S., F.G.A.C.

CERTIFICATE OF QUALIFICATION

I, Brian R. King, of Peterborough, Ontario

DO HEREBY CERTIFY THAT

1. I am a degree holding Geologist, a graduate of Brock University, St. Catharines, Ontario, with B.Sc. Honours in Geology.

2. I have practised my profession as a Geologist since 1979 in the fields of Mineral Exploration and Mining Geology in Canada.

3. I am a Member of the Canadian Institute of Mining and Metallurgy, Association of Prospectors and Developers, and the Mineral Association of Canada.

4. That the information, opinions and recommendations in this report are based on personal observations made at the St. Joe property, and on the Bannockburn property of Mono Gold Mines Inc., and on other properties in the area; and discussions with qualified persons who are familiar with the property and its history, during the period June 1987 to August 1987.

5. That I have no direct or indirect interest in any of the subject properties of this report, nor in the shares or securities of Harwin Exploration & Development Inc. or associated companies, nor do I expect to receive such interest.

Brian R. King

Brian R. King, hB.Sc.

Dated at Peterborough, Ontario this 21st day of September, 1987.

Qual.
Q. 10400

CERTIFICATE OF QUALIFICATION

I, Gordon D. House of North Vancouver, British Columbia, DO HEREBY CERTIFY:

1. That I am a Consulting Geologist and President of Sawyer Consultants Inc., with business office at #701 - 525 Seymour Street, Vancouver, British Columbia, V6B 3H7.

2. That I am a Graduate of Trinity College, Dublin, in 1961 with a B.A. in Honors Natural Science - Geology. I received a M.S. degree in Geology from the University of Alaska, Fairbanks, in 1980.

3. That I am a Member of the Institution of Mining and Metallurgy, London, since 1964, and a Registered Chartered Engineer with the Council of Engineering Institutions, London. I am a Fellow of the Geological Society, London; a Member of the Society of Mining Engineers of the American Institute of Mining, Metallurgical and Petroleum Engineers; a Member of the Canadian Institute of Mining and Metallurgy; and a Fellow of the Geological Association of Canada.

4. That I have practised my profession as a Geologist since 1962 in Ireland and West Africa; since 1965 in British Columbia, Yukon, Northwest Territories, Saskatchewan, Manitoba, Ontario, Nova Scotia, Alaska, Arizona, California, Nevada, Oregon, and Idaho. I have undertaken professional visits to Germany, Australia, New Zealand, Fiji, and South Africa.

5. That the information, opinions, and recommendations in this report are based on work carried out under my supervision during the period May 2nd, 1987 through August 31st, 1987, on my knowledge of the area from work carried out by me on the Bannockburn property of Mono Gold Mines Inc. in 1984, 1985, 1986, and 1987, and from geological reports on the area.

6. That I have no direct or indirect interest in any of the subject properties of this report, nor in the shares or securities of Harwin Exploration & Development Inc., or associated companies, nor do I expect to receive any such interest.

Gordon D. House, M.S., F.G.A.C.

Dated at Vancouver, British Columbia, this 21st day of September, 1987.

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APPENDIX I

List of Rock Samples

List of Rock Samples

Sample No.	Sample Width	Grid Location	Description	Au ppb	Bondar-Clegg Lab Report No.
A50201	Grab	122E x 74+80N	Quartz float	Ll	127-5624
A50202	Grab	128E x 68N	Quartz float and vein	1	"
A50203	Grab	130E x 78+50N	Quartz float	Ll	"
A50204	Grab	127+80E x 75+80N		Ll	"
A50205	Grab	119+90E x 71+90N	Quartz float	5	"
A50206	Grab	119+90E x 76+70N	Quartz float	Ll	"
A50207	Grab	118E x 75+35N	Quartz float	1	"
A50208	Grab	117+70E x 76+70N	Quartz vein and float	1	"
A50209	Grab	118+20E x 77+20N	Quartz float and vein	Ll	"
A50210	Grab	114E x 74+90N	Quartz float	Ll	"
A50211	Grab	119+80E x 73+20N	Quartz float	4	"
A50212	Grab	119+80E x 73+20N	Quartz float	Ll	"
A50213	Grab	114E x 72+25N	Quartz vein	2	"
A50214	Grab	114E x 76+85N	Quartz float	Ll	"
A50215	Grab	101+80E x 53N	Quartz float	Ll	"
A50216	Grab	117+90E x 67+95N	Quartz float	Ll	"
A50217	Grab	117+55E x 70+90N	Quartz float	2	"
A50218	Grab	St. Joe Pit?	Quartz vein	62	"
A50219	Grab	103E x 56N	Quartz stringers, sheared	Ll	"
A50220	Grab	100+90E x 59+05N	Quartz float	Ll	"
A50221	Grab	102+25E x 55N	Quartz from pit	Ll	"
A50222	Grab	100+95E x 50+55N	Quartz vein	Ll	"
A50223	Grab	St. Joe Pit?	Sulphide wall rocks	48	"
A50224	Grab	95E x 51N	Quartz float	Ll	"
A50225	Grab	110+90E x 46N	Quartz float	Ll	"
A50226	Grab	110+80E x 46+90N	2' quartz vein	Ll	"
A50227	Grab	94E x 50+90N	Quartz vein	Ll	"
A50228	Grab	97E x 60N	Quartz float or vein?	Ll	"
A50229	Grab	107E x 58+50N	Pit, coarse quartz	Ll	"
A50230	Grab	36+50E x 70+50N	Quartz float	Ll	"
A50231	Grab	107E x 54+50N	Quartz float	Ll	"
A50232	Grab	34+30E x 65+60N	Quartz, vein and outcrop	Ll	"
A50233	Grab	105E x 57+50N	Pit; quartz	Ll	"

List of Rock Samples

Sample No.	Sample Width	Grid Location	Description	Au ppb	Bondar-Clegg Lab Report No.
A50234	Grab	104+80E x 49+80N	Quartz float	L1	127-5624
A50235	Grab	104+75E x 53+30N	Quartz float	L1	"
A50236	Grab	107E x 52+50N	Pit; quartz	L1	"
A50237	Grab	47+15E x 53+00N	Quartz vein, in marble	3	"
A50238	Grab	40+75E x 70+10N	Quartz vein	L1	"
A50239	Grab	140E x 62+35N	Crosscutting 6" quartz vein in place	3	017-3938
A50240	Grab	142E x 66+90N	Quartz float, granular, rusty, 70' east of road	L1	"
A50241	Grab	142E x 59+80N	Quartz float, granular, rusty, white	L1	"
A50242	Grab	141+50E x 59+40N	Quartz float, coarse, rusty	L1	"
A50243	Grab	End of Line 144 at fence (south end)	Quartz float, blue tint, granular, minor rusting	L1	"
A50244	Grab	146E x 71N	Quartz float, composite of several locally	L1	"
A50245	Grab	146E x 71N	Quartz float, composite of several locally	4	"
A50246	Grab	146E x 66+10N	Quartz float, rusty, large blocks, on old fence	L1	"
A50247	Grab	150+20E x 69+15N	Quartz float, quartz-cc, blue, rusty (cherty)	2	"
A50248	Grab	150E x 65N	Quartz float in rusty schist	1	"
A50249	Grab	152+40E x 66+10N	Skarn with magnetite	21	"
A50250	Grab	152+40E x 66+10N	Rusty schist with skarn	20	"
A75401	Grab	152+40E x 66+10N	Massive magnetite + skarn?	4	"
A75402	Grab	154E x 57N	Quartz float, coarse, rusty	L1	"
A75403	Grab	154+50E x 65+50N	Quartz-cc vein, in place, granular	8	"
A75404	Grab	Road cut E. side Hwy. 62, sulphide zone #1 (north)	Rusty schist	2	"
A75405	Grab	As above, zone #2	Rusty schist	4	"
A75406	Grab	As above, zone #3	Rusty schist	6	"
A75407	Grab	As above, zone #4	Rusty schist	7	"
A75408	Grab	As above, zone #5	Rusty schist	14	"

APPENDIX II

Copies of Bondar-Clegg Geochemical Lab Reports

RECEIVED SEP 2 1 1987

Bondar-Clegg & Company Ltd.
5420 Canotek Rd.,
Ottawa, Ontario,
Canada K[redacted]
Phone: (6[redacted]-2220
Telex: 053-3233

BONDAR-CLEGG

Geochemical Lab Report

REPORT: 017-3938 (COMPLETE)

REFERENCE INFO:

CLIENT: SAWYER CONSULTANTS

PROJECT: HARWIN

SUBMITTED BY: B. KING

DATE PRINTED: 15-SEP-87

ORDER	ELEMENT		NUMBER OF ANALYSES	LOWER DETECTION LIMIT	EXTRACTION	METHOD
1	Au	Gold	20	1 PPB		Fire Assay/Neut. Act

SAMPLE TYPES	NUMBER	SIZE FRACTIONS	NUMBER	SAMPLE PREPARATIONS	NUMBER
ROCK	20	-200	20	CRUSH,PULVERIZE -200	20

REMARKS: < MEANS LESS THAN.

REPORT COPIES TO: MR. GORDON HOUSE
MR. BRIAN KING

INVOICE TO: MR. GORDON HOUSE

RECEIVED SEP 2 1 1987

Bondar-Clegg & Company Ltd.
5420 Canotek Rd.,
Ottawa, Ontario,
Canada K[illegible]5
Phone: (6[illegible]9-2220
Telex: 053-3233

BONDAR-CLEGG

Geochemical Lab Report

PROJECT: HARWIN PAGE 1

REPORT: 017-3938

SAMPLE NUMBER	ELEMENT UNITS Au PPB
50239	3
50240	<1
50241	<1
50242	<1
50243	<1
50244	<1
50245	4
50246	<1
50247	2
50248	1
50249	21
50250	20
75401	4
75402	<1
75403	8
75404	2
75405	4
75406	6
75407	7
75408	14

Bondar-Clegg & Company Ltd.
130 Pemberton Ave.
North Vancouver, B.C.
Canada V7P 2[illegible]
Phone: (604) [illegible]
Telex: 04-352[illegible]

BONDAR-CLEGG

Geochemical Lab Report

REPORT: 127-5624 (COMPLETE)

REFERENCE INFO:

CLIENT: SAWYER CONSULTANTS INC.
PROJECT: HAR

SUBMITTED BY: B KING
DATE PRINTED: 11-AUG-87

ORDER		ELEMENT	NUMBER OF ANALYSES	LOWER DETECTION LIMIT	EXTRACTION	METHOD
1	Au	Gold-Fire Assay/N.A.	38	1 PPB	FIRE-ASSAY	INST. NEUTRON ACTIV.

SAMPLE TYPES		NUMBER	SIZE FRACTIONS		NUMBER	SAMPLE PREPARATIONS	NUMBER
R	ROCK OR BED ROCK	38	2	-150	38	CRUSH,PULVERIZE -150	38

REPORT COPIES TO: SAWYER CONSULTANTS INC.
B. KING

INVOICE TO: SAWYER CONSULTANTS INC.

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BONDAR-CLEGG

Geochemical Lab Report

GRAB SAMPLES

REPORT: 127-5624 | PROJECT: HAR | PAGE 1

SAMPLE NUMBER	ELEMENT UNITS	Au PPB
R2 A50201		<1
R2 A50202		1
R2 A50203		<1
R2 A50204		<1
R2 A50205		5
R2 A50206		<1
R2 A50207		1
R2 A50208		1
R2 A50209		<1
R2 A50210		<1
R2 A50211		4
R2 A50212		<1
R2 A50213		2
R2 A50214		<1
R2 A50215		<1
R2 A50216		<1
R2 A50217		2
R2 A50218		62
R2 A50219		<1
R2 A50220		<1
R2 A50221		<1
R2 A50222		<1
R2 A50223		48
R2 A50224		<1
R2 A50225		<1
R2 A50226		<1
R2 A50227		<1
R2 A50228		<1
R2 A50229		<1
R2 A50230		<1
R2 A50231		<1
R2 A50232		<1
R2 A50233		<1
R2 A50234		<1
R2 A50235		<1
R2 A50236		<1
R2 A50237		3
R2 A50238		<1

020

REPORT ON GEOCHEMICAL SOIL SAMPLING

ST. JOE PROPERTY

MADOC TOWNSHIP, HASTINGS COUNTY
SOUTHERN ONTARIO MINING DIVISION

FOR

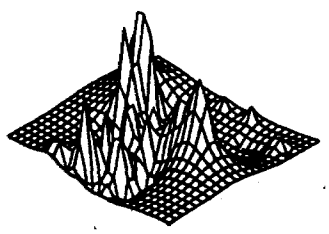
HARWIN EXPLORATION AND

DEVELOPMENT INC.

August 1987

Submitted By

MDX GeoServices



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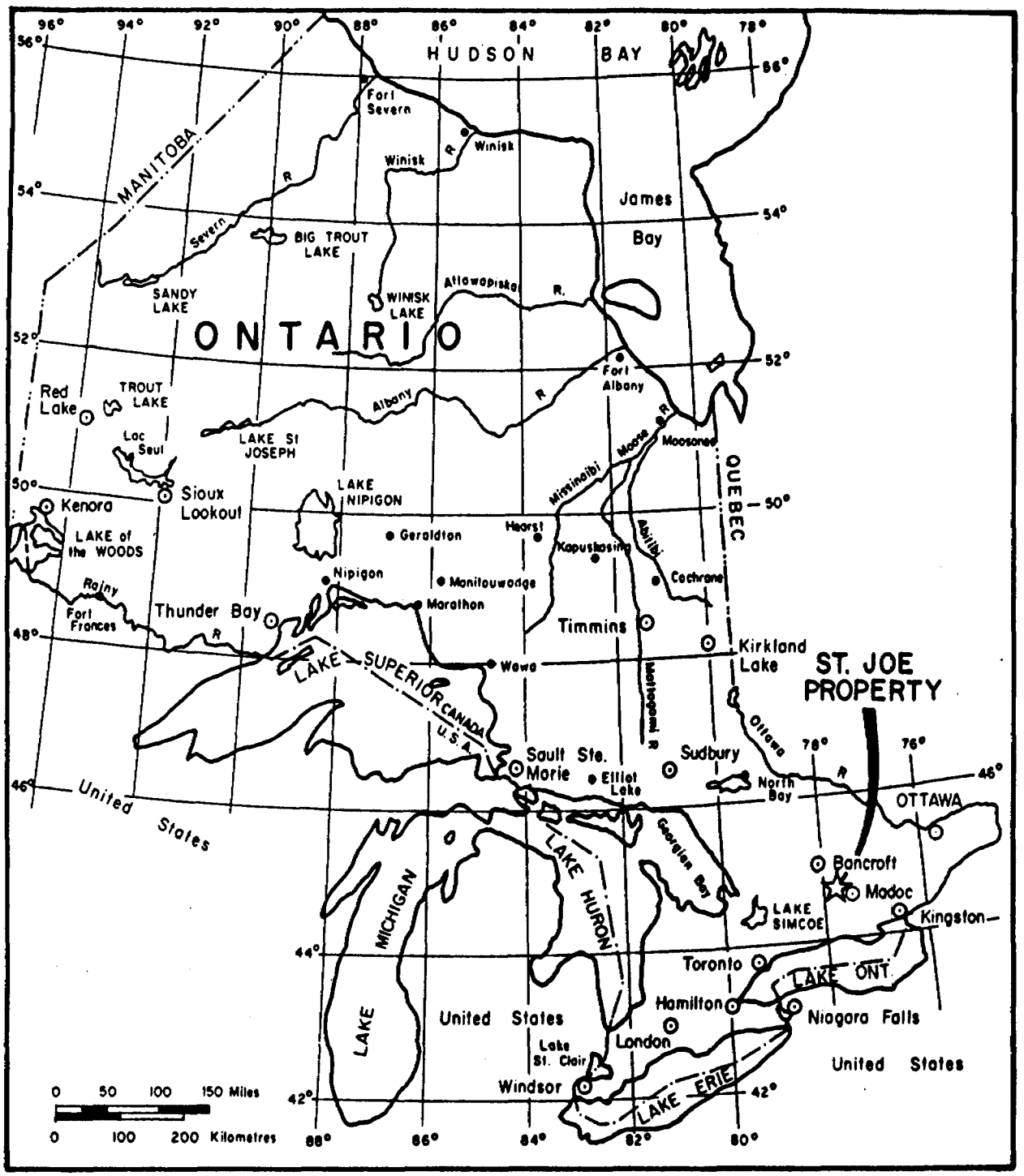
INTRODUCTION

The St Joe Property of Harwin Exploration and Development Inc. of Vancouver, B.C. is located in central Madoc Township, Hastings County, Ontario. This property is the subject of a property wide soil (Geochemical) sampling program detailed in the following report.



HARWIN EXPLORATION and DEVELOPMENT INC.

ST. JOE PROPERTY

MADOC TOWNSHIP
EASTERN ONTARIO MINING DIVISION

GENERAL LOCATION MAP

FIGURE 1

SUMMARY

A Geochemical Soil Sampling survey of the St. Joe Property, Madoc Township, Ontario was undertaken during the period June 27 to July 19, 1987 for Harwin Exploration and Development Inc., of Vancouver, B.C. The program consisted of "B" Horizon sampling with analysis by Fire Assay Preconcentration with Neutron Activation finish (1 ppb Au detection level).

Of eleven anomalies detected, five are considered favourable and warrant further work. Recommendations for follow-up on these anomalies are included.

PROPERTY AND OWNERSHIP

The Harwin Exploration and Development Inc. St. Joe property consists of approximately 650 acres within Lots 24 and 25 of Concession IV, V and VI of Madoc township in east-central Ontario. The St. Joe Property as detailed in this report consists of the 13 claims listed below:

EO 552525	EO 657932	EO 657933	EO 747888	EO 747891
EO 747944	EO 747945	EO 781911	EO 781912	EO 781913
EO 981914	EO 781915	EO 781916		

LOCATION AND ACCESS

The St Joe Property is easily accessible from Hwy #62 linking the villages of Madoc and Bancroft, and connecting to Hwy #7 (Trans Canada Hwy). Access is by road and trail suitable for small truck under most conditions. The property is approximately centred at the small settlement of Keller Bridge, 8 miles north of Madoc and Hwy #7.

National Topographic System (NTS) map 31C/12 shows the Keller Bridge area at 1:50,000 scale. Recently published maps of the Ontario Basic Mapping Program also show the Keller Bridge area at a scale of 1:10000 (OBM 10 18 2950 49400). The St. Joe property is also shown on Ontario Mineral Potential map,P 1505 at a scale of 1:250,000, Ontario Dept. of Mines map NO. 157b, and Ontario Geological Survey map 2154.

PHYSIOGRAPHY

The topography of the St. Joe property is rolling with outcrop common in the north where the land has not recently been farmed and generally has reverted to forest. Portions adjoining the Moira River and other low lying areas are covered by beaver pond or marsh.

The overburden comprises well developed podzolic soils in the better drained areas and more organic rich soils in areas of poorer drainage.

The forested areas are generally mixed hardwood and softwood with maple, oak, spruce, white pine and cedar most common. Marshy areas typically contain Alders, Hawthorne and marsh grasses. Almost the entire property is covered by grasses in open field and even in the more forested areas, probably due to early

settlers having cleared the land and attempting farming.

Approximately 30 percent of the St. Joe property is farmland under cultivation for grains, hay and/or cattle grazing.

HISTORY AND PREVIOUS WORK

Very little previous work has been recorded in the assessment files of the Ontario Government for these claims.

It is however clearly apparent that much work has been done on the property at various times since the first discovery of valuable minerals in the district. Most parts of the property contain old workings usually sunk on quartz veins or heavy sulphide mineralization.

Throughout claim EO 781913 and EO 552525, numerous small pits, trenches and shafts have been excavated on quartz veins.The most important of these is thought to be the St. Joe Mine which was active prior to 1898. Unfortunately, the exact location of the pit or shaft is unknown and could be any one of several recently discovered workings.

Similarily, claims EO 781911, 781912 & 747868 have workings on largely sulphide bearing horizons. The most important of these are the Bannockburn Pyrite Mine which had much underground development including a shaft to 275 ft. This deposit was active during the years 1898 to 1906.

REGIONAL GEOLOGY

Introduction:

Madoc township and surrounding areas are well known for their Geology, containing good exposures of Precambrian greenstones, metasediments, intrusives and unconformably overlying (relatively undisturbed) Phanerozoic sediments. Several major structures are obvious and the area has a rich history of mineral production. The Geology of Madoc township is described by Hewitt (1968).

Major Features:

The oldest rocks in the region (other than possible basement metatexite) are mafic metavolcanics of the Tudor Formation. These rocks occupy the base of the Hermon Group consisting of supracrustal clastic to carbonate metasediments and greenstones. The bulk of the Tudor Fm. metavolcanics are apparently tholeiitic basalt although some calc-alkaline/intermediate analyses have been reported.

A second sequence of metavolcanic rocks ("Madoc Volcanics") presumably overlying the Tudor Fm. is exposed in southern Madoc township. These rocks range from andesite to rhyolite and exhibit primary volcanic textures. Near Queensborough, the rhyolites and associated rocks indicate a possible volcanic centre.

Overlying, and in some cases intercalated with the volcanics are the Hermon Group metasediments. In the Madoc region, these rocks are primarily impure marbles with some semi-pelitic and psammitic schists. Other sedimentary rocks include slates, and several bands of metaconglomerate, the latter generally occurring in association with the volcano-sedimentary contact where present.

The major intrusive bodies of interest in the area are the Deloro Granite and the Gawley Creek Syenite. The Deloro Granite is a pink, medium crystalline granitic stock which occupies several square miles of southwest Madoc township and is associated with the Deloro gold occurrences in neighbouring Marmora township. The Gawley Creek Syenite body is located in the northwest quadrant of Madoc township and also extends into Marmora township. Generally, this intrusive is a medium to coarse crystalline biotite/hornblende syenite and includes a variety of granitic to dioritic differentiates. Other than at Bannockburn, the Gawley Creek Syenite is not known to be associated with major economic mineralization.

At least two major folds are present in the Madoc area. These are the Queensborough and Madoc synforms. The Queensborough structure has a northwest trending axis whereas the Madoc synform has a northeasterly trace, similar to most Grenville structures.

Not unlike other Canadian greenstone areas, the Madoc region is crossed by numerous faults and shear zones. A general NE-SW trend

for many lineaments is present, and generally parallels major lithological and structural boundaries within the Grenville.

Age determinations indicate that these rocks were last deformed approximately 1,000 million years ago during the "Grenville Orogeny". This metamorphic event has resulted in highly deformed rocks of middle greenschist to lower amphibolite facies in the Madoc township area. On a broad scale, metamorphic grade tends to increase from west to east with granitoid gneisses and "granulites" being present several townships east of Madoc.

GEOCHEMICAL (SOILS) SAMPLING PROGRAM

Sampling Grid

A cut-line grid was established on the St. Joe Property for the purposes of Geochemical, Geophysical and Geological survey as part of the current exploration program. Line spacing of 200 ft. with survey points (chained) at 100 ft. intervals are shown in Fig 2 and 3, for a total of 28.05 miles traversed.

Sampling Proceedure

Field crews using shovel and/or hand auger traversed the cut line grid taking soil samples at 50 ft. intervals estimating positions between the 100 ft. chained pickets. The survey took place during the period June 27-July 19, 1987.

The program was designed to sample the "B Horizon" of the soil profile which was estimated to be 6-8 inches below surface. At each sample location, the sampler recorded grid position, soil horizon sampled (ie. A/B/C), a coded soil description and groundwater movement direction with slope angle where significant. Appendix I lists this field data.

Sample Handling

All soil samples were placed in standard "kraft" paper envelopes in the field with adhesive sample tags affixed. Each sample was suspended and partially dried prior to shipment. All samples were packaged and shipped to Bondar-Clegg & Co. Ltd. of Ottawa for analysis. In total, 2,184 samples were collected and shipped.

Analytical Techniques

The standard preparation for soil samples of this program involves drying at 50 degrees C for 24 hrs., followed by dry sieving to -80 mesh.

The accept fraction was then analysed via preconcentration by fire assay (Ottawa) then finish by Neutron Activation (Mississauga) to yield gold analysis with 1 ppb Au detection limit.

Of the 2,184 samples collected, one sample was lost during analysis (#1367) and one sample is otherwise unaccounted for (#1651).

All sample analyses were plotted at 1" = 200 ft. scale (Fig 2 & 3). Zones considered anomalous in Au concentration were highlighted and labeled. Any continuous or semi-continuous grouping of values greater than or equal to 5 ppb Au are for this report considered anomalous.

RESULTS and DISCUSSION

The results of the current survey include 11 apparent Geochemical anomalies. These anomalies and the analytical data are shown on Fig. 2 & 3.

Important anomalies are labeled as "A", "B" & "C" etc. The following is a description of the anomalies and preliminary interpretations:

A).. Anomaly "A" is an incomplete zone on the northern property boundary, in the vicinity of what may be the St. Joe Mine workings. This zone is known to host sulphide rich, rusty rocks and quartz veins or segregations. The actual strike of this anomaly is unknown due to insufficient data.

B).. Anomaly "B" is a weak, two line anomaly centred on Line 103E, 58+50N of unknown origin. This anomaly may in fact link with anomaly "A" (above), thereby conforming to the inferred strike direction derived from recent Geophysical surveys.

C).. Anomaly "C" is a rather broad, weak anomaly trending east-northeast, and centred near line 107E, 53+50N. This anomaly is apparently related to rusty, sulphide bearing schists which are common in this area. This anomaly does correspond to a Geophysical magnetic anomaly and warrants further investigation.

D).. Anomaly "D" is a long anomaly or series of anomalies which more or less conform to the major structural feature surrounding the Bannockburn Pyrite Mine. Single values of 134 and 373 ppb Au on the east flank of the zone should be considered highly significant. In addition, this zone conforms (in part) to a Geophysical conductor and warrants further ground exploration.

E).. Anomaly "E" is a poorly defined, sinuous zone whose correlation along strike is tenuous. A single high value of 89 ppb Au should be considered moderately significant. Unfortunately, the data does not have sufficient resolution to define the zone with more confidence. This anomaly does however correspond roughly to a Geophysical magnetic "low", and warrants limited follow-up on the ground.

F).. Anomaly "F" is a well defined, wide anomaly centred near Line 130E, 66+00N. This anomaly is of unknown origin but appears to be related to the large, property-scale structure present surrounding the Bannockburn Pyrite Mine. A single value of 315 ppb Au is highly significant on a regional scale and warrants further investigation.

G).. Anomaly "G" is a small anomaly centred approximately at Line 152E, 66+25N, in the vicinity of a linear swamp and possible open cut or pit. This area is the site of old mine workings from which massive magnetite ore was removed, perhaps

during the 19th century. This horizon may be related to mineralized zones at or near the Bannockburn Pyrite Mine.

H).. Anomaly "H" is a potentially long, narrow zone at approximately 66+00 N, crossing Lines 29E to 44E. This zone, although over 100 ft. in width locally consists of relatively weak values. Preliminary observations during sampling indicate that this zone is associated with rusty exposures containing probable sulphide mineralization. A small pit was also noted near Line 38E, 66+00N apparently put down on a gossan type area. This anomaly also appears to correspond well to a Geophysical conductor and area of anomalous magnetics. This association may indicate a stratiform mineralized target. Anomaly "H" warrants further examination.

I).. Anomaly "I" is a weak, irregular shaped zone centred at or near Line 42E, 69+50 N. This zone is of unknown origin, but may be related to minor quartz float noted during the sampling. Some interference from a small bog near this location may be responsible for the anomalous values. This zone does not correspond to any known Geophysical targets.

J).. Anomaly "J" is a weak, three line anomaly trending roughly grid east-west, centred at approximately Line 30 E, 62+00N. As this zone is of limited strike length and narrow, it is not considered a favourable target. It is however important to note that anomaly "J" does parallel a Geophysical conductor of similar proportions, approximately 200 ft. to the south.

K).. Anomaly "K" is a weak, sinuous zone trending roughly grid east-west, centred at approximately Line 48E, 52+50N. Upon preliminary examination, this anomaly does not appear prospective and the correllation along strike between values is tenuous. This anomaly may in fact be a number of isolated highs which are actually unrelated. This zone does however correspond crudely to structures inferred from Geophysical data.

In addition to the above listed anomalous zones, a number of isolated "highs" occur throughout the property. These zones are not considered to represent real physical bodies which warrant further examination. In most cases these can be attributed to interference due to natural or cultural sources. Several apparently anomalous values are noted near the property margins, but these are likely the result of cultural features such as man-made stone fences and excavations. Many fences are seen to contain large pieces of quartz float, mineralized boulders and even mine tailings, any of which may have been introduced to the area by man.

Also, certain vegetation types are known to concentrate heavy metals, this is especially true in some swamp or bog areas. Similarily however, these same conditions may tend to obscure truly anomalous values in clay based marshes etc. An additional

source of false anomalies may occur adjacent to streams or waterways, especially if these are subject to seasonal flooding. This is similar to "placer" heavy metal concentration. Any samples taken within the flood plain of the Moira River (running through east-central property) may be contaminated, as this river and its tributaries drain many local gold occurrences.

CONCLUSIONS AND RECOMMENDATIONS

The Geochemical program described in this report has resulted in eleven major gold-in-soil anomalies on the basis of 2,184 samples collected. These are shown on Fig. 2 & 3.

Of the eleven anomalies indicated, 5 are considered prospective and warrant further exploration. These are:

Anomaly.... "D" ; Line 114E to 138E, 76+00N (centre)

Anomaly.... "F" ; Line 130E, 66+00N

Anomaly.... "E" ; Line 114E to 138E, 69+50N (centre)

Anomaly.... "H" ; Line 29E to 44E, 66+50N

Anomaly.... "C" ; Line 107E, 53+50N

It is recommended that these anomalies be further investigated on the ground by the following:

1).. Stripping or trenching of overburden across the local high values within the four anomalies.

2).. Following the stripping program, detailed mapping and sampling of rocks and/or soils for Au.

3).. Should anomalous values continue to be encountered, a limited program of detailed Geophysics should be undertaken to properly define the targets at depth.

4).. A limited diamond drilling program should be designed to intersect the anomalies at depth based on targets defined by Geophysics and other surface indications.

CERTIFICATE OF QUALIFICATION

I, Brian R. King, of Peterborough, Ontario

DO HEREBY CERTIFY THAT

1.....I am a degree holding Geologist, a graduate of Brock University, St. Catharines, Ontario, with B.Sc. Honours in Geology.

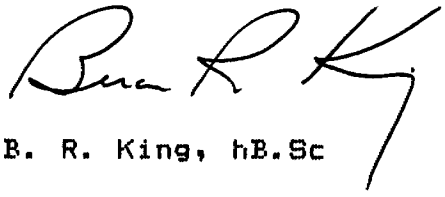
2.....I have practised my profession as a Geologist since 1979 in the fields of Mineral Exploration and Mining Geology in Canada.

3.....I am a member of the Canadian Institute of Mining and Metallurgy, Association of Prospectors and Developers, and the Mineral Association of Canada.

4.... That the information, opinions and recommendations in this report are based on personal observations made at the St. Joe property, and discussions with qualified persons who are familiar with the property and its history, during the period July 1987 to August 1987.

5.....That I have no direct or indirect interest in any of the subject properties of this report, nor in the shares or securities of Harwin Exploration and Development Inc. or associated companies, nor do I expect to receive such interest.

August 31, 1987



B. R. King, hB.Sc

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APENDIX I

Sample Log

Appendix I contains computer printout of samplers' log. From left to right, the columns are:

Sample Number, Grid Line Number, Northing, Soil Horizon Encountered, and "Soil Parameters". The latter is coded data using the following:

C=clay

H=humus

S=sand

T=trees

G=grasses

B=bushes etc.

The final column (right) gives the direction of slope and apparent groundwater movement as observed by the sampler and is divided into compass bearings. When a number follows the bearing, this indicates the estimated slope angle.

HAR SMPL#	LINE	NRTNG	SOIL PARAMETERS ETC		
529	36	6100	A	HB	NNW
530	36	6150	B	HB	SE
531	36	6200	B	HB	SSE
532	36	6250	B	HG	SSE
533	36	6300	B	HG	SW
534	36	6350	B	HG	SSW
535	36	6400		HG	SSW
536	36	6450	B	HG	SSW
537	36	6500	B	HG	SSW
538	36	6550	BC	HG	S
539	36	6600	B	HG	WNW
540	36	6650	C	HG	NW
541	36	6700	B	HGB	NNW
542	36	6750	AC	HB	N
543	36	6800	B	HB	NNW
544	36	6850	B	HB	NNW
545	36	6900	A	HB	NNE
546	36	6950	A	HB	SSE
547	36	7000	AB	HBG	SSW
548	36	7050	B	HG	SE
549	36	7100	B	HG	SE
550	36	7150	AB	HG	SSE
551	36	7200	B	HG	SE
552	36	7250	AC	HBG	WSW
553	36	7300	AB	HBG	NE
554	36	7350	B	HGB	NNE
555	36	7400	B	HGB	N
556	36	7450	B	HBG	NNW
557	38	7450		HB	NNW
558	38	7400	B	HB	N
559	38	7350	ABC	HBG	N
560	38	7300	AC	HG	S
561	38	7250	B	HG	SSW
562	38	7200	AB	HG	S
563	38	7150	AB	HG	S
564	38	7100	B	HG	S
565	38	7050	A	HGT	S
566	38	7000	A	HB	S
567	38	6950	A	HB	N
568	38	6900	C	HB	S
569	38	6850	A	HB	E
570	38	6800	B	HG	NE
571	38	6750	B	HG	NE
572	38	6700	AC	HG	E
573	38	6650	ABC	HG	NE
574	38	6630	AC	HG	E
575	38	6600	B	HG	ENE
5046	32	6500	A	HB	NS
5047	32	6550	A	B	S
5048	32	6600	A	HB	D
5049	33	6650	A	HB	D
5050	32	6700	A	B	W
5051	32	6750	AB	HB	NE
5052	32	6800	AB	HT	S
5053	32	6850	AB	HG	S
5054	32	6900	B	HTG	S
5055	32	6950	B	HG	SSE
5056	32	7000		HG	ESE
5057	32	7050	B	HG	N
5058	32	7100	B	HG	S
5059	32	7150	B	G	S
5060	32	7200	B	HG	S
5061	32	7250	B	HG	NNW
5062	32	7300	B	HG	N
5063	32	7350	B	HG	N
5064	32	7400	B	HG	N
5065	32	7423	AB	HG	N
5066	34	7430	B	HBG	N
5067	34	7400	B	HTG	SSW
5068	34	7350	B	HG	S
5069	34	7300	AB	HG	N
5070	34	7250	B	HG	S
5071	34	7200	N	HG	SSW
5072	34	7150	B	HG	S
5073	34	7100	B	HG	S
5074	34	7050	B	HG	S
5075	34	7000	B	HG	S
5076	34	6950	A	HB	S
5077	34	6900		HB	N
5078	34	6850	AC	HB	T
5079	34	6800	B	HB	S
5080	34	6750	B	HB	W
5081	34	6750	C	HB	W
5082	34	6700	AC	HB	W
5083	34	6650	AC	HB	W
5084	34	6600	A	HB	W
5085	34	6550	B	HB	WNW
5086	34	6500	AC	AB	ESE
5087	34	6450	B	HG	W
5088	34	6400	AB	HG	WNW
5089	34	6350	B	HBG	W
5090	34	6300	AC	HB	NNW
5091	34	6250	AB	HG	NW
5092	34	6200	B	HB	W
5093	34	6150	B	HB	W
5094	34	6100	B	CHB	WNW
5095	34	6050	ABC	CBH	NNW
5096	34	6000	AB	HBG	WNW
5097	34	5950	AB	HTGB	NW
5098	36	5950	B	HG	WSW
5099	36	6000	B	HG	SSW10
5100	36	6050	B	HBG	NNW5

HAR1

SMPL#	LINE	NRTNG	SOIL PARAMETERS		
1100	40	6050	AB	TG	D
1101	27	6800	A	TB	S5
1102	27	6850	AB	GHB	S5
1103	27	6900	B	B	WSW
1104	27	6950	A	B	WSW10
1105	27	7000	AB	B	WSW20
1106	27	7050	AB	B	W15
1107	27	7100	B	B	WSW15
1108	27	7150	A	B	SW20
1109	27	7200	ABC	G	S5
1110	27	7250	BC	G	T
1111	27	7300	B	G	N5
1112	27	7350	BC	G	NNW
1113	27	7375	AC	B	N25
1114	28	7385	AC	B	N5
1115	28	7350	B	BG	NW
1116	28	7300	B	G	NNW
1117	28	7250	AC	G	NW
1118	28	7200	AC	G	S5
1119	28	7150	ABC	G	S15
1120	28	7100	B	G	WSW10
1121	28	7050	ABC	G	NW
1122	28	7000	B	BG	SW5
1123	28	6950	ABC	G	SSW10
1124	28	6900	B	G	WSW
1125	28	6850	BC	BG	W
1126	28	6800	B	BG	W5
1127	28	6750	B	B	W15
1128	28	6700	A	B	WSW5
1129	28	6650	B	B	NW5
1130	28	6600	B	B	NW10
1131	28	6550	B	B	NW15
1132	28	6500	ABC	B	W10
1133	28	6450	AC	B	WNW
1134	28	6400	B	B	NW
1135	31	6750	B	BG	S
1136	31	6800	B	BG	SE
1137	31	6850	B	BG	SE
1138	31	6900	ABC	BG	E
1139	31	6950		G	SE25
1140	31	7000	B	G	ESE40
1141	31	7050	B	G	ESE45
1142	31	7100	AC	G	SSE45
1143	31	7150	AC	G	NNE20
1144	31	7200	AC	G	WNW10
1145	31	7250	AB	G	W45
1146	31	7300	B	G	NW10
1147	31	7350	AC	G	S15
1148	31	7400	B	B	N
1149	33	7425	B	B	N
1150	33	7400	AC	B	N20
1151	33	7350	BC	BG	NNW
1152	33	7300	ABC	G	N30
1153	33	7250	B	G	W5
1154	33	7200	B	G	WSW
1155	33	7150	B	G	S30
1156	33	7100	B	TG	S20
1157	33	7050	B	TG	SW
1158	33	7000	B	TG	S20
1159	33	6950	AB	BG	S
1160	33	6900	A	B	S10
1161	33	6850	A	HB	N10
1162	33	6800	A	HB	W5
1163	35	6800	B	B	NNE15
1164	35	6850	AB	HB	E
1165	35	6900	B	B	NNW
1166	35	6950	AC	B	SE5
1167	35	7000	B	BG	SSE25
1168	35	7050	B	TG	S25
1169	35	7100	B	BG	S25
1170	35	7150	AB	TG	S20
1171	35	7200	B	G	S15
1172	35	7250	B	TG	NNW20
1173	35	7300	B	G	NNW40
1174	35	7350	AB	B	N20
1175	35	7400	B	B	N
1176	35	7450	B	B	N5
1177	37	7470	B	B	N5
1178	37	7450	B	B	N5
1179	37	7400	B	B	NNW15
1180	37	7350	B	B	NNW25
1181	37	7300	B	TG	NW5
1182	37	7250			
1183	37	7200	B	G	SSE20
1184	37	7150	B	G	S10
1185	37	7050	B	B	WSW10
1186	37	7100	B	B	SW20
1187	37	7000	B	B	SE15
1188	37	6950	AC	B	S10
1189	37	6900	A	H	N5
1190	37	6850	AC	B	N10
1191	37	6800	B	G	NE5
1192	39	6800	A	B	ENE
1193	39	6850	B	B	E5
1194	39	6900	A	H	N5
1195	39	6950	B	B	S5
1196	39	7000	A	B	S
1197	39	7050	B	TG	S
1198	39	7100	B	TG	SE5
1199	39	7150	AB	TG	SW10
1200	39	7200	B	TG	SE
1201	39	7250	AC	TG	ESE10
1202	39	7300	B	G	NE
1203	39	7350	AB	B	N
1204	39	7400	B	B	N5
1205	39	7450	B	BG	N40
1206	39	7480	B	B	N45
1207	4075	7500	B	B	N15
1208	4075	7450	B	G	NNW30
1209	4075	7400	B	G	NW30
1210	4075	7350	B	G	S25
1211	4075	7300	B	G	S15
1212	4075	7250	B	G	S5
1213	4075	7200	B	G	SSW15
1214	4075	7150	B	G	S10
1215	4075	7100	B	G	SSW5
1216	4075	7050	ABC	BG	S45
1217	4075	7000	AC	B	S25
1218	4075	6800		H	
1219	4075	6750	B	B	E5
1220	41	7000	A	HB	S30
1221	41	7050	B	G	S
1222	41	7100	ABC	BG	S
1223	41	7150	ABC	G	E10

1224	41	7200	B	G	SE10
1225	41	7250			
1226	41	7300	AC	G	W15
1227	41	7350	B	G	S
1228	41	7400	B	G	S
1229	41	7450	AB	TG	W15
1230	41	7500	A	HBG	N30
1231	43	7532	B	G	
1232	43	7500	A	BG	SE10
1233	43	7450	A	BG	S
1234	43	7400	AB	BG	S5
1235	43	7350	B	TG	ESE5
1236	43	7300	B	TG	SE10
1237	43	7250	B	TG	S10
1238	43	7200	AB	BH	ENE5
1239	40	6100	A	G	S5
1240	40	6150	A	G	S
1241	40	6200	B	G	SSW
1242	40	6250	B	G	SSW15
1243	40	6300	B	G	SW20
1244	40	6350	A	TG	SW20
1245	40	6400	B	T	WSW15
1246	40	6450	B	TG	SW20
1247	40	6500	A	TG	SW20
1248	40	6550	AB	TG	ENE10
1249	40	6600	AC	TG	E45
1250	40	6650	AC	TB	NE40
1251	40	6700	A	HB	ENE45
1252	40	6750	B	B	WNW
1253	40	6800	B	B	N
1254	40	6950	A	B	S
1255	40	7100	B	G	S10
1256	40	7150	B	G	S15
1257	40	7200	B	G	S15
1258	40	7250	B	G	S40
1259	40	7300	B	TG	S10
1260	40	7350	B	G	SSW
1261	40	7400	B	G	NW10
1262	40	7450	AB	B	N
1263	40	7500	AB	BG	N45
1264	43	7150	B	TG	NE
1265	43	7100	BC	B	SSE
1266	43	7050	AB	TB	SW
1267	43	7000	A	G	S25
1268	43	6950	A	B	S45
1269	46	6250	AB	B	FLAT
1270	46	6200	A	CB	S
1271	46	6150	AB	B	S
1272	46	6100	A	HB	S5
1273	46	6025	A	BH	N5
1274	46	6000	A	B	N5
1275	46	5950	AB	B	E5
1276	46	5900	A	HB	E5
1277	46	5850	AB	B	ENE5
1278	46	5800	B	B	NE10
1279	46	5750	AB	B	ENE10
1280	46	5700	AB	B	N5
1281	46	5650	B	B	E5
1282	46	5600	A	TB	SW3
1283	46	5550	B	TB	WSW
1284	46	5500	A	B	W5
1285	46	5450	A	TB	W5
1286	46	5400	A	TB	W5
1287	46	5350	AB	TBG	W5
1288	46	5300	AB	B	NW5
1289	46	5250	A	TB	NW5
1290	46	5200	A	B	FLAT
1291	46	5150	A	B	D
1292	46	5100	A	B	D
1293	46	5050			D
1294	46	5000	B	G	E10
1295	42	5000	AB	G	W10
1296	42	5050	AB	G	W5
1297	42	5100	B	BG	N
1298	42	5150	A	B	W
1299	42	5200	A	CB	W

HARIA

SMPL#	LINE	NRTNG	SOIL PARAMETERS ETC		
1001	32	5000	A	G	W5
1002	32	5050			
1003	32	5100	A	G	NE5
1004	32	5150	A	G	NE5
1005	32	5200			
1006	32	5250	B	G	ENE5
1007	32	5300	A	G	E
1008	32	5350	A	G	E5
1009	32	5400	A	G	E5
1010	32	5450	A	G	E5
1011	32	5500	A	G	E5
1012	32	5550	AB	G	EW5
1013	32	5600	AB	G	ESE
1014	32	5650	AB	G	SE5
1015	32	5700	AB	G	SE5
1016	32	5750	AB	G	ESE
1017	32	5800	AB	G	N5
1018	32	5850	AB	G	N5
1019	32	5900	A	G	N5
1020	34	5900	B	G	ESE
1021	34	5850			
1022	34	5800	B	G	ESE
1023	34	5750	B	G	E5
1024	34	5700	AB	G	E5
1025	34	5650	B	G	E5
1026	34	5600	A	G	E
1027	34	5550	B	G	E
1028	34	5500	A	G	ENE
1029	34	5450	AB	G	WSW5
1030	34	5400	B	G	W10
1031	34	5350	B	TB	NW10
1032	34	5300	A	TB	N15
1033	34	5250	AB	G	SSE15
1034	34	5200	A	G	NW10
1035	34	5150	AB	G	NNW15
1036	34	5100	A	G	NNW5
1037	34	5050	AB	B	ENE5
1038	34	5000	B	G	N10
1039	36	5000	A	G	S20
1040	36	5050	A	G	S5
1041	36	5100	AB	G	N5
1042	36	5150	B	G	N5
1043	36	5200	AB	G	NW
1044	36	5250	B	G	NNW5
1045	36	5300	AB	G	NW5
1046	36	5350	AB	G	WNW10
1047	36	5400	B	G	N10
1048	36	5450	AB	G	N10
1049	36	5500	A	BG	N5
1050	36	5550	ABC	BG	WNW
1051	36	5600	AB	BG	WNW5
1052	36	5650	AB	G	W10

1053	36	5700	ABC	G	W5
1054	36	5750	A	G	W5
105[illegible]	36	5800	B	G	W5
1056	36	5850	B	G	WSW5
1057	36	5900	B	G	W5
1058	38	5950	A	BG	NNW5
1059	38	5900	B	G	NW
1060	38	5850	B	G	WNW
1061	38	5800	A	G	SE5
1062	38	5750	B	G	SE5
1063	38	5700	A	G	NE
1064	38	5650	A	G	NW5
1065	38	5600	A	G	NW10
1066	38	5530	B	G	NW10
1067	38	5500	A	G	W5
1068	38	5450	B	G	WNW
1069	38	5400	B	G	EW
1070	38	5350	A	G	EW
1071	38	5300	A	G	N
1072	38	5250	A	G	EW
1074	38	5200	A	G	EW
1075	38	5150	AB	G	N
1076	38	5100			
1077	38	5050	A	G	SSW10
1078	38	5000	B	G	S10
1079	40	5000	B	G	WSW
1080	40	5050	B	G	SW5
1081	40	5100	AB	G	SSW
1082	40	5150	B	G	NESW5
1083	40	5200	BC	G	SE5
1084	40	5250	AC	G	NNE5
1085	40	5300	A	G	ENE
1086	40	5350	A	G	ENE5
1087	40	5400	A	G	E5
1088	40	5450	AB	G	E
1089	40	5500	AB	G	E
1090	40	5550	A	G	D
1091	40	5600	A	G	NNE
1092	40	5650	B	G	NE
1093	40	5700	B	G	ENE
1094	40	5750	A	G	E
1095	40	5800	B	G	ENE5
1096	40	5850	AB	G	E5
1097	40	5900	A	G	ENE
1098	40	5950	ABC	G	ENE
1099	40	6000	A	G	ENE
1300	42	5250	A	CB	W
1301	42	5300	AB	B	SSW
1302	42	5350	AB	B	D
1303	42	5400	A	B	E
1304	42	5450	AB	B	N5
1305	42	5500	A	BG	S
1306	42	5550	A	TB	S
1307	42	5600	B	TB	S
1308	42	5650	AB	T	S5
1309	42	5700	AB	T	W
1310	42	5750	AC	T	N
1311	42	5800	B	T	NW
1312	42	5850	AB	T	NNW
1313	42	5900	AB	T	NE5
1314	42	5950	AB	T	NW5
1315	42	6000	AC	TG	S
1316	42	6050	ABC	BG	SSE
1317	42	6100	BC	TG	E40
1318	42	6150	AC	TG	N15
1319	42	6200	B	TG	NE5
1320	42	6250	B	TG	E
1321	42	6300	B	TG	ENE10
1322	42	6350	ABC	TG	E15
1323	42	6400	AC	TB	E15
1324	42	6450	AC	TB	N25
1325	42	6500	BC	TB	NNE25
1326	42	6550	BC	T	E
1327	42	6600	AB	B	SSE5
1328	42	6650	B	B	S5
1329	42	6700	AB	H	N30
1330	42	6750	A	B	NNE
1331	42	6950	BC	B	S30
1332	42	7000	ABC	B	S45
1333	42	7050	B	G	S30
1334	42	7100	BC	TG	N5
1335	42	7150	ABC	G	NNE
1336	42	7200	BC	TG	E10
1337	42	7250	B	TG	ESE20
1338	42	7300	BC	G	E
1339	42	7350	B	G	ESE45
1340	42	7400	A	G	SE45
1341	42	7450	AC	G	WSW5
1342	42	7500	BC	G	E45
1343	42	7530	AC	B	N45
1344	44	7450	B	TG	S5
1345	44	7400	BC	TG	S
1346	44	7350	B	TG	S5
1347	44	7300	B	BG	S
1348	44	7250	AB	HB	S
1349	44	7200	B	TBG	E5
1350	44	7150	A	HB	N
1351	44	7100	B	B	N5
1352	44	7050	BC	BG	S10
1353	44	7000	B	TGB	S40
1354	44	6950	BC	B	S40
1355	44	6900	AC	B	S
1356	44	6750		HB	N
1357	44	6700	B	B	N5
1358	44	6650	B	B	ESE10
1359	44	6600	AC	HB	SSW10
1360	44	6550	AB	HB	S5
1361	44	6500	A	HB	S
1362	44	6450	A	HB	N
1363	44	6400	A	B	N5
1364	44	6350	B	B	NE10
1365	44	6300	B	B	SE10
1366	44	6250	AC	B	ESE15
1367	44	6200	A	B	E25
1368	44	6150	AC	B	E5
1369	44	6100	A	HB	E
1370	44	6050	A	HB	NE
1371	44	6000	AC	B	N
1372	44	5950	A	T	N5
1373	44	5900	B	T	NNE5
1374	44	5850	B	T	N5
1375	44	5800	B	T	NE5
1376	44	5750	AB	B	NNE5
1377	44	5700	ABC	B	ESE5
1378	44	5650	AC	B	SSE15
1379	44	5600	B	T	SSE
1380	44	5550	A	B	D
1381	44	5500	AC	TB	N
1382	44	5450	B	T	N
1383	44	5400	B	GB	NE

1384	44	5350	B	BG	NNE
1385	44	5300	B	TB	D
1386	44	5250	AB	TB	D
1387	44	5200	B	B	E
1388	44	5150	B	TB	E
1389	44	5100	B	TB	E
1390	44	5050	AB	B	E
1391	44	5000	B	G	E
1392	48	5000	AB	G	W
1393	48	5050	B	G	W
1394	48	5100	A	G	W
1395	48	5150	A	G	W
1397	48	5250	AB	G	S
1398	48	5300	AB	G	ESE
1399	48	5350	A	G	SE
1400	48	5400	AB	G	SSE
1401	48	5450	AB	G	SW
1402	48	5500	AC	B	ENE15
1403	48	5550	B	B	E
1404	48	5600	B	B	E4
1405	48	5645			NE
1406	50	5500	A	HB	
1407	50	5450	ABC	G	NE20
1408	50	5400	AB	G	ENE5
1409	50	5350	AB	G	E
1410	50	5300	AB	G	ENE5
1411	50	5250	AB	G	S5
1412	50	5200			
1413	50	5150	AB	G	EW
1414	50	5100	AB	G	T
1415	50	5050	B	G	NW
1416	50	5000	AB	G	NNW
1417	52	5000	A	G	NNE10
1418	52	5050	A	G	N15
1419	52	5100	A	B	ENE5
1420	52	5150	AB	B	E5
1421	52	5200	A	HB	NE5
1422	52	5250	A	CB	D
1423	52	5300	A	CB	D
1424	54	5640	A	B	D
1425	54	5600			D
1426	54	5550	A	HB	D
1427	54	5500	A	B	D
1428	54	5450	A	B	S1
1429	54	5400	AB	CB	N
1430	54	5300	AB	B	NE
1431	54	5250	AB	B	NE
1432	54	5200	A	HB	N5
1433	54	5150	B	B	SSE5
1434	54	5100	A	G	NW5
1435	54	5050	AB	G	ESE1
1436	54	5000	A	G	E
1437	56	5000	AB	B	D
1438	56	5050	AB	CB	D
1439	56	5100	A	HB	D
1440	56	5150	A	HB	D
1441	56	5200	A	B	D
1442	56	5250	B	B	D
1443	56	5300	B	B	N5
1444	56	5350	A	B	N5
1445	56	5400	A	B	S5
1446	56	5450	AB	B	S5
1447	56	5500	B	B	S5
1448	56	5550	B	B	S5
1449	56	5600	AB	B	D
1450	56	5650	BC	B	S5
1451	38	4650	B	B	D
1452	38	4700	B	B	D
1453	38	4750	AB	B	D
1454	38	4800	A	B	D
1455	38	4850	A	B	D
1456	38	4900	A	BG	S
1457	38	4950	B	G	S
1458	40	4950	B	G	W5
1459	40	4900	B	G	NW5
1460	40	4850	AB	G	N5
1461	40	4800	B	G	S
1462	40	4750	B	G	S5
1463	40	4700	AB	G	SSW5
1464	40	4650	AB	G	W
1465	40	4600	AB	G	W
1466	40	4550	AB	CL	S5
1467	40	4500	AB	CB	S
1468	40	4450	A	CHBG	D
1469	40	4400	A	CG	E5
1470	40	4350	A	CBG	N5
1471	40	4300	B	G	N5
1472	40	4250	AB	G	ESE10
1473	40	4200	B	G	E10
1474	40	4150	B	SG	E15
1475	40	4100	A	G	SSE15
1476	40	3850	CB	E5	
1477	40	3800	B	B	E5
1478	40	3750	AB	B	E5
1479	40	3700	AB	CG	E
1480	40	3650	AB	G	ENE
1481	40	3600	B	BG	D
1482	40	3550	AB	BG	D
1483	40	3500	B	B	D
1484	40	3450	A	CSB	D
1485	42	4550	AB	CB	S10
1486	42	4600	B	G	S10
1487	42	4650	B	G	ESE5
1488	42	4700	AB	G	SE
1489	42	4750	B	G	SSE5
1490	42	4800	AB	G	SSE
1491	42	4850	AB	G	S
1492	42	4900	AB	G	S5
1493	42	4950	B	G	WNW10
1494	44	4950	B	G	ESE
1495	44	4900	B	B	E
1496	44	4850	B	B	ESE
1497	44	4800	B	B	ESE
1498	44	4750	AB	B	S
1499	44	4700	B	B	S
1500	44	3750	A	B	D
1501	58	5660	AB	G	SE5
1502	58	5600	AB	G	NNW5
1503	58	5550	B	G	W
1504	58	5500	B	G	SW5
1505	58	5450	A	G	SW5
1506	58	5400	A	B	D
1507	58	5350	A	B	D
1508	58	5200	A	B	N5
1509	58	5150	B	G	N
1510	58	5100	A	G	D
1511	58	5050	AB	G	D
1512	58	5000	A	G	NW
1513	57	5000	B	G	NW
1514	5650	5000	AB	G	W5

1515	5750	5000	B	G	W
1516	5550	5000	B	SB	D
1517	5500	5000	AB	SB	D
1518	5450	5000	AB	SB	D
1519	5350	5000	A	G	E5
1520	5300	5000	AB	G	E5
1521	5250	5000			
1522	5150	5000	B	G	NE5
1523	5100	5000	B	G	NE5
1524	5050	5000	A	G	ENE5
1525	4950	5000	AB	G	NW10
1526	4900	5000	AB	G	NW10
1527	4850	5000	AB	G	W5
1528	4750	5000	ABC	BG	W5
1529	4700	5000	A	CBG	W5
1530	4650	5000	A	HBG	E5
1531	4550	5000	B	BG	E10
1532	4500	5000	A	HBG	D
1533	4450	5000	AB	BG	E5
1534	4350	5000	BC	G	E
1535	4300	5000	AB	G	NW5
1536	4250	5000	AB	G	NNE5
1537	4150	5000	AB	G	W5
1538	4100	5000	A	G	N1
1539	4050	5000	A	G	WSW5
1540	3950	5000	A	G	WSW5
1541	3900	5000	AB	G	S5
1542	3850	5000	AB	G	SSE5
1543	3750	5000	AB	G	SE5
1544	3700	5000	BC	G	ESE5
1545	3650	5000	AB	G	SSE10
1546	3450	5000			
1547	3500	5000			
1548	3550	5000	AB	G	ESE20
1549	3350	5000	AB	G	NE10
1550	3300	5000	AB	G	NNE10
1551	3250	5000	A	G	NE
1552	32	4950	AB	G	W10
1553	32	4900	AB	G	WNW10
1554	32	4850	AB	G	SW10
1555	32	4800	AB	G	SW
1556	32	4750	AB	G	D
1557	32	4700	AB	G	ENE
1558	32	4650	AB	G	N
1559	32	4600	AB	G	NNW
1560	32	4550	AB	G	N
1561	32	4500	AB	B	WNW
1562	32	4450	A	B	EW
1563	32	4400	AB	CB	SSW
1564	32	4350	A	G	SSE10
1565	32	4300	A	G	ESE20
1566	32	4250	A	G	ESE
1567	32	4200	AB	G	SE25
1568	32	4150	A	G	SSE15
1569	32	4100	A	G	S
1570	32	4050	B	G	D
1571	32	4000	B	G	D
1572	34	3400	AB	BG	ESE10
1573	34	3450	AB	G	SSE25
1574	34	3500	AB	G	SSE25
1575	34	3550	AB	G	ENE
1576	34	3600	B	G	NNE
1577	34	3650	B	G	N
1578	34	3700	B	G	N
1579	34	3750	B	G	N
1580	34	3800	A	B	D
1581	34	3850	AB	G	WSW15
1582	34	3900	B	G	WNW
1583	34	3950	AB	G	NW5
1584	34	4000	B	G	WNW15
1585	34	4050	AB	G	NNW10
1586	34	4200	A	G	S
1587	34	4250	A	G	SW
1588	34	4300	A	G	WSW
1589	34	4350	A	G	S25
1590	34	4400	B	G	ESE25
1591	34	4500	A	G	ENE10
1592	34	4450			
1593	34	4540	AB	G	ESE15
1594	34	4600	AB	G	ESE15
1595	34	4650	AB	G	E
1596	34	4700	AB	G	ESE
1597	34	4750	AB	G	ESE15
1598	34	4800	A	G	SE15
1599	34	4850	A	HG	SSE20
1600	34	4900	AB	G	ESE
1601	44	3500	A	CB	D
1602	44	3550	AB	B	D
1603	46	3900	B	B	D
1604	46	4400	A	CB	
1605	46	4450	AB	B	S
1606	46	4500	B	B	S
1607	46	4550	A	B	D
1608	46	4850	B	B	ESE
1609	46	4900	B	B	S
1610	46	4950	B	G	ESE
1611	48	4950	B	G	W
1612	48	4900	AB	G	W
1613	48	4850	B	G	W
1614	48	4800	B	G	W
1615	48	4750	AB	G	W
1616	48	4700	B	B	W15
1617	48	4650	B	B	W15
1618	48	4600	BC	B	W15
1619	48	4550	AB	BG	W10
1620	48	4500	AB	BG	W10
1621	48	4450	A	G	W10
1622	48	4400	AB	BG	W10
1623	48	4350	B	BG	W10
1624	48	4300	AB	BG	W10
1625	48	4250	AB	BG	SW
1626	50	3650	AB	B	W
1627	50	3700	B	B	W
1628	50	3750	AB	B	W
1629	50	3800	B	BG	W
1630	50	3850	AB	G	WNW
1631	50	3850	B	G	NNW10
1632	50	3900	B	G	NNW
1633	50	3950	B	G	NW
1634	50	4050	B	G	N
1635	50	4100	B	G	N10
1636	50	4200	AB	SG	S10
1637	50	4250	AB	G	D
1638	50	4300	A	SG	S5
1639	50	4350	B	SG	S10
1640	50	4400	B	G	S15
1641	50	4450	AB	G	SSE15
1642	50	4500	B	G	SE10
1643	50	4550	AB	G	N
1644	50	4600	B	G	S

1645	50	4650	B	BG	NNW
1646	50	4700	B	G	D
1647	50	4750	ABC	G	WNW
1648	50	4800	B	G	NW
1649	50	4850	B	G	W
1650	50	4900	A	H	SW
1651	34	4950	AB	G	T
1652	36	4950	AB	G	ESE
1653	36	4900	AB	G	ESE
1654	36	4850	B	G	E
1655	36	4800	B	G	E
1656	36	4750	B	G	E
1657	36	4700	AB	G	E
1658	36	4650	B	G	E
1659	36	4600	B	BG	E
1660	36	4550	A	BG	ENE
1661	36	4500	AB	G	NE
1662	36	4450	AB	G	E
1663	36	4400	B	G	SSE
1664	36	4350	A	G	S
1665	36	4300	B	G	S10
1666	36	4250	A	G	S
1667	36	4200	A	G	N
1668	36	4150	B	G	N10
1669	36	4100	B	G	ENE
1670	36	4050	AB	G	SE
1671	36	4000	B	G	ENE
1672	36	3950	AB	G	N
1673	36	3900	B	G	ENE
1674	36	3850	B	G	ENE
1675	36	3800	AB		E
1676	36	3750	B	G	SE
1677	36	3700	B	G	ESE
1678	36	3650	B	G	ESE
1679	36	3600	B	G	E10
1680	36	3550	AB	G	ESE10
1681	36	3500	AB	G	S
1682	36	3450	AB	G	S
1684	36	3417	A	B	D
1685	38	3850	B	BG	SE
1686	38	3900	B	G	ESE
1687	38	3950	B	G	E
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1691	38	4150	B	G	N
1692	38	4200	B	G	NW
1693	38	4250	AB	BG	N15
1694	38	4300	AB	BG	S10
1695	38	4350	AB	G	SSE
1696	38	4400	B	G	D
1697	38	4450	A	BG	E
1698	38	4500	B	G	E
1699	38	4550	B	G	E
1700	38	4600	B	BG	D
1701	50	4950	B	G	S
1702	58	4950	B	G	D
1703	58	4900	B	G	D
1704	58	4850	B	G	D
1705	58	4800	B	G	D
1706	58	4750	B	G	D
1707	58	4700	B	G	D
1708	58	4650	B	G	D
1709	58	4600	B	G	D
1710	58	4550	B	G	D
1711	58	4500	B	G	D
1712	58	4450	B	G	D
1713	58	4400	B	G	D
1714	58	4350	AB	G	D
1715	58	4300	AB	CB	D
1716	58	4250	AB	B	D
1717	58	4200	AB	B	D
1718	58	4150	AB	SB	D
1719	58	4100	AB	SB	D
1720	58	3700	AB	SB	N
1721	58	3650	AB	G	N
1722	56	3600	AB	G	NE
1723	56	3700	B	G	NE
1724	56	3750	B	G	ENE
1725	56	3800	B	SG	NNE
1726	56	3850	B	SG	D
1727	56	3900	B	G	D
1728	56	3950	B	G	D
1729	56	4000	B	BG	D
1730	56	4050	B	BG	D
1731	56	4100	A	BG	D
1732	56	4150	AB	B	D
1733	56	4350	AB	G	D
1734	56	4400	B	G	D
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1736	56	4500	B	G	D
1737	56	4550	B	G	D
1738	56	4600	B	G	D
1739	56	4650	B	G	D
1740	56	4700	B	BG	D
1741	56	4750	B	BG	D
1742	56	4800	B	BG	D
1743	56	4850	B	BG	N
1744	56	4900	AB	BG	N
1745	56	4950	B	BG	D
1746	56	5000	B	G	NNE
1747	5900	5000			
1748	5950	5000	B	G	NNE
1749	52	4950	AB	G	N
1750	52	4900	B	G	N
1751	52	4850	A	G	D
1752	52	4800	B	G	W
1753	52	4750	AB	G	D
1754	52	4700	B	G	D
1755	52	4650	AB	G	D
1756	52	4600	B	G	E
1757	52	4550	B	G	E
1758	52	4500	B	G	SE
1759	52	4450	B	G	SSE10
1760	52	4400	B	G	S10
1761	52	4350	B	G	S
1762	52	4300	AB	G	S
1763	52	4250	B	G	N
1764	52	4200	AB	G	SSE
1765	52	4150	B	G	D
1766	52	4100	AB	G	D
1767	52	4050	B	G	D
1768	52	4000	B	G	ENE
1769	52	3950	B	G	NE15
1770	52	3900	B	G	ENE10
1771	52	3850	AB	G	N10
1772	52	3800	AB	G	SSW
1773	52	3750	B	B	S
1774	52	3700	B	B	W10
1775	52	3650	B	B	W

1776	54	3660			
1777	54	3700	B	G	NE
17[illegible]	54	3750	AB	G	NE
17[illegible]	54	3800	AB	G	NE
1780	54	3850	AB	G	NE
1781	54	3900	B	G	ENE
1782	54	3950	B	G	N
1783	54	4000	AB	G	N
1784	54	4350	B	G	D
1785	54	4400	B	G	D
1786	54	4450	B	G	D
1787	54	4500	B	G	ESE
1788	54	4550	AB	G	E
1789	54	4600	B	G	E5
1790	54	4650	B	G	E20
1791	54	4700	B	G	E15
1792	54	4750	B	G	E10
1793	54	4800	B	G	ESE10
1794	54	4850	B	G	NE10
1795	54	4900	A	G	NE
1796	54	4950	AB	G	NE5
1797	60	5000	B	G	N
1798	60	5000	B	G	N
1799	60	5000	B	G	N
1800	6150	5000	B	G	N
1801	62	5000	B	G	N
1802	6350	5000	AB	G	N
1803	63	5000	B	G	N
1804	6250	5000	B	G	N
1805	6400	5000	A	B	ENE10
1806	60	5000	B	G	SSE
1807	60	5550	B	G	NNW
1808	60	5500	B	G	WNW
1809	60	5450	AB	G	E
1810	60	5400	A	BG	E
1811	60	4950	B	G	NNE
1812	60	4900	B	G	D
1813	60	4850	B	G	D
1814	60	4800	B	G	D
1815	60	4750	B	G	D
1816	60	4700	B	G	D
1817	60	4650	B	G	D
1818	60	4600	B	G	D
1819	60	4550	B	G	D
1820	60	4500	B	G	D
1821	60	4450	B	G	D
1822	60	4400	B	G	D
1823	60	4350	AB	G	D
1824	62	4350			
1825	62	4400	B	G	D
1826	62	4450	B	G	D
1827	62	4500	B	G	D
1828	62	4550	B	G	D
1829	62	4600	AB	G	D
1830	62	4650	B	G	D
1831	62	4700	B	G	D
1832	62	4750	B	G	D
1833	62	4800	B	G	D
1834	62	4850	B	G	D
1835	62	4900	B	G	D
1836	62	4950	B	G	D
1837	64	4950	AB	G	D
1838	64	4900	A	G	E10
1839	64	4850	AB	G	D
1840	64	4800	A	G	D
1841	64	4750	AB	G	D
1842	64	4700	B	G	D
1843	64	4650	B	G	D
1844	64	4600	B	G	D
1845	64	4550	B	G	D
1846	64	4500	B	G	D
1847	64	4450	B	G	D
1848	64	4400	B	G	D
1849	158	6250	B	G	W
1850	158	6300	B	G	W
1851	158	6350	B	G	WNW
1852	158	6400	B	G	D
1853	158	6450	AB	BG	D
1854	158	6500	AB	G	W
1855	158	6550	AB	B	W
1856	158	6600	AB	B	W
1857	158	6650	AB	B	W
1858	158	6700	AB	B	W
1859	158	6750	B	B	W
1860	158	6800	A	B	D
1861	158	7100	B	B	S
1862	158	7150	B	B	S
1863	158	7200	B	B	S
1864	158	7250	B	B	D
1865	158	7300	B	B	D
1866	158	7350	ABC	B	N10
1867	158	7400	ABC	B	N20
1868	158	6200	B	G	S
1869	158	6150	AB	G	W
1870	158	6100	1BC	B	N
1871	158	6050	ABC	G	W
1872	158	6000	B	G	W
1873	158	5950	B	G	W10
1874	158	5900	B	G	W10
1875	158	5850	B	G	W40
1876	158	5800	BC	G	W50
1877	158	5750	B	G	W50
1878	158	5700	B	G	W50
1879	158	5650	B	G	W50
1880	158	5600	B	G	W30
1881	158	5550	B	G	W
1882	158	5500/	B	G	W20
1883	158	5500	B	G	D
1884	156	5560	B	G	D
1885	156	5600	AB	G	N20
1886	156	5800	AB	G	S
1887	156	5850	ABC	G	NW
1888	156	5900	B	G	W
1889	156	5950	B	G	D
1890	156	6000	B	G	W
1891	156	6050	B	G	WSW
1892	156	6100	B	G	D
1893	156	6150	AB	B	D
1894	156	6300	AB	G	E
1895	156	6350	B	G	D
1896	156	6400	B	G	E
1897	156	6450	B	G	E
1898	156	6500	AB	G	S
1899	156	6550	BC	G	D
1900	156	6600	B	B	D
1901	156	6650	B	B	N
1902	156	6700	ABC	B	N
1903	156	6850	A	B	N
1904	156	6900	AB	B	E
1905	156	6950	BC	B	NW

1906	156	7000	B	B	NNW
1907	156	7050	B	B	N
1908	156	7100	B	B	N10
1909	154	6900	B	B	N
1910	154	6850	B	CB	D
1911	154	6800	AB	B	D
1912	154	6750	B	B	S
1913	154	6700	B	B	S
1914	154	6600	BC	B	N65
1915	154	6550	BC	G	SE35
1916	154	6500	AB	G	S10
1917	154	6450	AB	G	D
1918	154	6400	AB	G	D
1919	154	6350	B	G	D
1920	154	6300	B	G	ESE
1921	154	6250	B	G	E
1922	154	6200	B	G	SE
1923	154	6150	A	G	D
1924	154	6100	AB	B	D
1925	154	6050	AB	BG	D
1926	154	6000	B	G	D
1927	154	5950	B	G	D
1928	154	5900	AB	B	D
1929	154	5850	AC	B	D
1930	154	5800	B	G	D
1931	154	5750	B	G	N
1932	154	5700	B	G	N10
1933	154	5650	B	G	D
1934	154	5600	B	B	SSW
1935	154	5550	B	B	S
1936	152	5700	B	G	D
1937	152	5750	B	G	D
1938	152	5800	B	G	D
1939	152	5850	B	BG	D
1940	152	5900	B	G	S
1941	152	5950	B	G	S
1942	152	6000	B	G	S
1943	152	6050	B	G	S
1944	152	6100	AB	G	D
1945	152	6150	B	G	D
1946	152	6200	B	G	D
1947	152	6250	B	G	D
1948	152	6300	AB	G	D
1949	152	6350	B	G	D
1950	152	6400	B	G	D
1951	152	6450	B	G	D
1952	152	6500	B	G	D
1953	152	6550	B	G	D
1954	152	6600	ABC	B	D
1955	152	6650	ABC	B	S
1956	152	6700	B	B	D
1957	152	6750	B	B	D
1958	152	6800	BC	B	N
1959	150	6950	B	B	N10
1960	150	6900	BC	B	N
1961	150	6850	B	B	S
1962	150	6800	BC	B	S10
1963	150	6750	ABC	B	SE
1964	150	6700	AB	B	N
1965	150	6650	AB	B	D
1966	150	6600	ABC	B	D
1967	150	6550	ABC	B	NE
1968	150	6500	AB	B	D
1969	150	6450	AB	B	N
1970	150	6400	AB	G	D
1971	150	6350	B	G	D
1972	150	6350	B	G	D
1973	150	6250	B	G	D
1974	150	6200	B	G	D
1975	150	6150	B	G	D
1976	150	6100	B	G	D
1977	150	6050	AB	G	D
1978	150	6000	AB	G	S
1979	150	5950	B	G	S
1980	150	5900	B	G	S
1981	150	5850	B	G	S
1982	150	5800	AB	G	S
1983	150	5750	AB	G	D
1984	150	5700	AB	G	D
1985	148	5550			
1986	148	5600	AB	G	D
1987	148	5650	AB	G	D
1988	148	5700	ABC	G	D
1989	148	5750	B	G	D
1990	148	5800	AB	G	D
1991	148	5850	B	G	D
1992	148	5900	B	G	S
1993	148	5950	B	G	S10
1994	148	5600	AC	HG	D
1995	148	5650	B	G	N
1996	148	5700	B	G	D
1997	148	6150	ABC	G	D
1998	148	6000	B	G	D
1999	148	6250	B	G	D
2001	29	6900	B	CSTG	SSW
2002	31	5000	B	SG	NW
2003	32	5300	B		ENE
2004	30	6450	B	STB	NE
2005	29	7050	AB	CSHTG	SSW
2006	29	6800	B	CST	SSE
2007	30	7100	BC	STG	SSW
2008	30	7200	B	STG	WNW
2009	29	7350	B	S	NNE
2010	30	7050	B	ST	SW
2011	29	6200	B	CSTG	F
2012	32	5250	B	CSG	NNE
2013	32	5000	B	CSG	?
2014	30	5650	AB	CSTBG	WSW
2015	32	6350	AB	ST	ESE
2016	30	5850	B	CS	F
2017	29	7200	B	STG	SWS
2018	32	6150	B	CST	S
2019	29	6300	B	CST	F
2020	32	5350	B	CSG	SE
2021	30	6600	B	ST	SE
2022	32	6200	B	CSTG	S
2023	30	7250	B	STG	S
2024	30	5800	B	SG	F
2025	30	6950	B	ST	S
2026	30	6400	B	SG	S
2027	30	5300	B	G	NW
2028	32	5260	B	CS	ENE
2029	29	6650	A	HT	NW
2030	32	5150	B	SG	NE
2031	30	7300	B	CST	NNE
2032	30	6900	B	ST	S
2033	30	6550	AB	SHT	SSE
2034	32	5400	B	SG	
2035	29	7150	B	TG	WNW
2036	29	6250	B	CST	S

2037	30	5450	B	CG	
2038	30	5450	B	CS	?
2039	29	6550	B	CSTG	SSW
2040	32	6300	A	CSHT	NE
2041	29	6350	B	CST	?
2042	30	5900	B	SG	F
2043	32	5050	B	SG	NNW
2044	30	5750	B	CSB	F
2045	32	6450	A	SHT	E
2046	30	6050	AB	SCHT	SSW
2047	29	7100	AB	SHTG	?
2048	29	7250	A	SHTG	NNW
2049	30	6850	AB	ST	S
2050	30	6300	B	ST	?
2051	30	5200	B	SG	NE
2052	29	6950	AB	STG	SE
2053	32	5960	A	HT	NWN
2054	30	6650	B	ST	N
2055	29	6750	B	CST	S
2056	3150	5000	B	CSG	WNW
2057	29	6400	B	CST	NW
2058	29	6850	B	CST	S
2059	30	7400	A	SHT	N
2060	29	6450	B	CST	?
2061	30	6700	B	ST	NNE
2062	29	7300	AB	CHT	NNE
2063	29	6500	B	CSTG	SSE
2064	32	5100	B	SG	NNW
2065	30	7150	ABC	SHTG	N
2066	30	5350	B	SG	WNW
2067	30	6570	B	ST	SSW
2068	30	6250	B	ST	S
2069	30	5500	B		
2070	30	5700	B	SB	F
2071	32	6400	A	CHT	
2072	30	5950	B	ST	F
2073	30	7000	AB	ST	S
2074	30	6000	B	ST	NNW
2075	30	7350	B	ST	N
2076	30	6200	AB	CHT	F
2077	30	6500	AB	ST	NNE
2078	30	5400	B		
2079	30	6800	AB	SHT	SSW
2080	30	5600	B	CSBG	SSW
2081	30	6100	AB	SHT	NNW
2082	30	5250	B	SG	NNW
2083	30	6750	B	STG	S
2084	29	6600	B	ST	W
2085	29	6700	B	CST	?
2086	29	7000	B	STG	SW
2087	32	6250	B	CT	SF
2088	38	6000	AB	HB	NNW
2089	38	6350	A	HG	ESE
2090	38	6100	AB	HG	SSW
2091	38	6250	A	G	ESE
2092	38	6450	A	HG	S
2093	38	6300	A	HG	E
2094	38	6200	B	HG	ENE
2095	38	6400	B	HG	S
2096	38	6500	B	HG	S
2097	38	6550	B	HG	SSE15
2098	38	6050	A	HB	W
2099	38	6150	B	HG	SSW
2100	134	8000	B	B	E15
2101	*148*	*6350*	*AB*	*G*	*D*
2102	148	6400	ABC	G	S
2103	148	6450	B	G	D
2104	148	6500	B	G	D
2105	148	6550	B	G	D
2106	148	6600	AB	G	D
2107	148	6650	B	B	D
2108	148	6700	AB	B	D
2109	148	6750	B	BG	D
2110	148	6800	ABC	B	D
2111	148	6850	B	B	D
2112	148	6900	B	G	D
2113	148	6950	B	B	N
2114	148	7000	B	B	D
2115	148	7050	B	B	NW
2116	148	7100	B	B	NNW10
2117	148	7150	B	B	N20
2118	146	7200	AB	CB	D
2119	146	7150	AB	CB	N
2120	146	7100	AB	CB	D
2121	146	7050	ABC	B	N
2122	146	7000	B	B	NW
2123	146	6950	B	B	N
2124	146	6900	B	G	D
2125	146	6850	B	G	D
2126	146	6800	B	G	D
2127	146	6750	B	G	D
2128	146	6700	B	G	D
2129	146	6650	AB	G	D
2130	146	6600	B	G	D
2131	146	6550	B	G	D
2132	146	6500	B	CG	D
2133	146	6450	AB	G	D
2134	146	6400	B	G	D
2135	146	6350	AB	G	D
2136	146	6300	AB	CG	D
2137	146	6250	AB	CG	D
2138	146	6200	AB	CG	D
2139	146	6150	AB	CG	D
2140	146	6100	B	G	D
2141	146	6050	AB	G	D
2142	146	6000	B	G	S
2143	146	5950	B	G	D
2144	146	5900	AB	G	D
2145	146	5850	AB	CG	D
2146	146	5800	A	G	D
2147	146	5750	AB	G	D
2148	146	5700	B	G	D
2149	146	5650	ABC	G	D
2150	146	5600	ABC	G	D
2151	146	5550	AB	G	D
2152	144	5550	AB	G	D
2153	144	5600	B	G	D
2154	144	5650	B	G	D
2155	144	5700	B	G	D
2156	144	5750	B	G	D
2157	144	5800	B	G	D
2158	144	5850	B	G	D
2159	144	5900	B	G	D
2160	144	5950	B	G	D
2161	144	6000	B	G	D
2162	144	6050	B	CG	D
2163	144	6100	B	G	D
2164	144	6150	B	G	D
2165	144	6200	B	G	D

2166	144	6250	B	G	D
2167	144	6300	B	G	D
2168	144	6350	AB	G	D
2169	144	6400	B	G	D
2170	144	6450	B	G	D
2171	144	6500	B	G	D
2172	144	6550	AB	G	D
2173	144	6600	ABC	G	D
2174	144	6650	B	G	D
2175	144	6700	B	B	D
2176	144	6750	B	G	D
2177	144	6800	AB	CG	D
2178	144	6850	AB	CB	NW
2179	144	6900	AB	CB	N
2180	142	7200	B	B	N30
2181	142	7150	B	B	NNW
2182	142	7100	B	B	NNW
2183	142	7050	AB	CB	D
2184	142	7000	AB	B	W
2185	142	6950	B	HB	S
2186	142	6900	ABC	B	E10
2187	142	6800	A	CB	D
2188	142	6750	BC	B	D
2189	142	6700	B	B	D
2190	142	6650	B	B	D
2191	142	6600	AB	CB	D
2192	142	6550	AB	B	D
2193	142	6450	B	B	N
2194	142	6400	B	B	D
2195	142	6350	ABC	BG	D
2196	142	6300	B	BG	D
2197	142	6250	B	BG	D
2198	142	6200	B	BG	D
2199	142	6150	B	BG	D
2200	142	6100	B	B	D
2201	142	6050			N
2202	142	6000	AB	G	W10
2203	142	5950	B	G	D
2204	142	5900	AB	G	D
2205	142	5850	AB	G	D
2206	142	5800	AB	G	D
2207	142	5750	AB	G	D
2208	142	5700	AB	G	D
2209	142	5650	B	G	D
2210	142	5600	B	G	D
2211	142	5550	AB	G	D
2212	140	5900	B	B	S
2213	140	5950	B	B	D
2214	140	6000	B	B	D
2215	140	6050	ABC	B	D
2216	140	6100	B	B	D
2217	140	6150	B	CB	D
2218	140	6200	AB	B	D
2219	140	6250	AB	B	D
2220	140	6300	AB	B	D
2221	140	6350	ABC	B	D
2222	140	6400	B	B	D
2223	140	6450	B	B	D
2224	140	6500	B	B	D
2225	140	6550	AB	CB	D
2226	140	6600	B	CB	D
2227	140	6650	AB	B	N
2228	140	6700	AB	CB	N
2229	140	6800	AB	CB	S
2230	140	6850	A	CB	D
2231	140	6900	BC	B	S
2232	140	6950	B	B	N10
2233	140	7000	B	B	N25
2234	138	6900	B	B	D
2235	138	6850	B	B	D
2236	138	6800	AB	CB	D
2237	138	6750	B	B	D
2238	138	6700	AB	B	D
2239	138	6650	AB	C	D
2240	138	6600	B	B	D
2241	138	6550	B	B	D
2242	138	6500	ABC	B	S10
2243	138	6450	AB	B	D
2244	138	6400	B	B	N
2245	138	6350	B	B	S
2246	138	6300	B	CB	S
2247	136	7100	AB	B	ESE
2248	136	7050	B	B	E
2249	136	7000	ABC	B	E10
2250	136	6950	AB	CB	E
2251	136	6900	A	CH	E
2252	136	6700	A	CB	E
2253	136	6550	AB	B	W
2254	134	7950			
2255	134	7900	B	HB	E10
2256	134	7850	B	B	E15
2257	134	7800	B	B	E15
2258	134	7750	B	B	E15
2259	134	7700	B	B	E15
2260	134	7650	B	B	D
2261	134	7600	B	B	D
2262	134	7550	B	B	E
2263	134	7500	ABC	B	E15
2264	134	7450	B	B	E10
2265	134	7400	A	CHB	E15
2266	134	7350	A	B	E15
2267	134	7300	B	B	E
2268	134	7250	ABC	B	EW
2269	134	7200	B	B	D
2270	134	7150	B	B	W20
2271	134	7100	B	B	NW
2272	134	7050	B	B	D
2273	134	7000	B	B	D
2274	134	6950	B	B	D
2275	134	6900	B	B	SW10
2276	134	6850	B	B	D
2277	134	6800	ABC	CB	D
2278	134	6750	BC	B	N
2279	134	6700	BC	B	D
2280	134	6650	B	B	D
2281	134	6600	AB	B	D
2282	134	6550	BC	B	D
2283	134	6500	B	B	D
2284	134	6450	BC	B	W15
2285	134	6400	B	CHB	D
2286	134	6350	AC	CB	D
2287	134	6300	AC	CB	D
2288	134	6250	AB	B	N15
2289	134	6200	ABC	B	S15
2290	134	6150	A	CHB	D
2291	134	6100	B	B	D
2292	134	6050	B	B	D
2293	134	6010	B	B	N
2294	132	6020	B	B	D
2295	132	6050	B	B	D

2296	132	6100	B	B	D
2297	132	6150	B	BG	D
22[illegible]	132	6200	B	BG	D
22[illegible]	132	6250	B	G	
2300	132	6300	B	G	D
2301	132	6350	B	TG	D
2302	132	6400	B	B	D
2303	132	6450	B	B	D
2304	132	6500	BC	B	E
2305	132	6550	AC	CB	D
2306	132	6600	B	B	SES
2307	132	6650	B	B	D
2308	132	6700	BC	B	E
2309	132	6750	B	B	E
2310	132	6800	B	B	N15
2311	132	7350	B	B	S10
2312	132	7400	B	B	S
2313	132	7450	AC	B	E25
2314	132	7500	B	B	SE25
2315	132	7550	B	B	T
2316	132	7600	B	B	NNW
2317	132	7650	B	G	S
2318	132	7700	B	B	S
2319	132	7750	B	BG	D
2320	132	7800	AB	B	D
2321	132	7850	B	BG	D
2322	132	7900	AB	B	D
2323	132	7950	B	B	E
2324	132	8000	B	B	NE
2325	130	8000	B	B	SSW10
2326	130	7950	B	B	WSW
2327	130	7900	AB	B	D
2328	130	7800	B	B	D
2329	130	7850	B	B	D
2330	130	7750	B	B	N
2331	130	7700	B	B	S
2332	130	7650	AB	CB	S10
2333	130	7600	B	B	S10
2334	130	7550	B	B	S10
2335	130	7500	B	B	S10
2336	130	7100	BC	B	E10
2337	130	7050	BC	B	E25
2338	130	7000	BC	B	E25
2339	130	6950	BC	B	E25
2340	130	6900	BC	B	E45
2341	130	6850	BC	B	E45
2342	130	6800	BC	B	ESE20
2343	130	6750	ABC	B	W10
2344	130	6700	B	B	S10
2345	130	6650	B	TGB	S
2346	130	6600	B	T	D
2347	130	6550	B	BG	D
2348	130	6500	B	TG	D
2349	130	6450	B	TG	D
2350	130	6400	B	TG	D
2351	130	6350	B	G	D
2352	130	6300	B	G	D
2353	130	6250	B	G	D
2354	130	6200	B	G	D
2355	130	6150	B	TG	D
2356	130	6100	B	TG	D
2357	130	6050	AB	CTGB	D
2358	128	6050	B	G	S
2359	128	6100	B	G	D
2360	128	6150	B	G	D
2361	128	6200	B	G	D
2362	128	6250	B	G	D
2363	128	6300	B	G	D
2364	128	6350	B	TBG	D
2365	128	6400	AB	T	D
2366	128	6450	B	G	D
2367	128	6500	B	G	D
2368	128	6550	B	TG	D
2369	128	6600	ABC	G	D
2370	128	6650	AB	G	D
2371	128	6700	ABC	G	D
2372	128	6750	ABC	G	D
2373	128	6800	ABC	B	NW
2374	128	6850	ABC	B	W10
2375	128	6900	AB	B	W
2376	128	6950	AB	B	W
2377	128	7000	AB	B	D
2378	128	7050	B	B	D
2379	128	7100	B	B	D
2380	128	7150	B	B	D
2381	128	7200	B	B	S10
2382	128	7250	ABC	B	SW40
2383	128	7300	ABC	B	SWNE20
2384	128	7350	B	B	E40
2385	128	7400	B	B	E65
2386	128	7450	B	B	E40
2387	128	7500	B	B	E20
2388	128	7550	B	B	D
2389	128	7600	B	B	D
2390	128	7650	B	BG	SW
2391	128	7700	B	BG	D
2392	128	7750	B	B	D
2393	128	7800	B	TB	D
2394	128	7850	B	B	E
2395	128	7900	AB	B	SE
2396	128	7950	B	G	ESE10
2397	128	8000	B	B	W
2398	128	8050	B	B	D
2399	126	8100	B	B	E
2400	126	8050	B	B	E
2401	126	8000			
2402	126	7950	B	B	E10
2403	126	7900	B	B	E
2404	126	7850	A	B	WNW25
2405	126	7800	B	B	S
2406	126	7750	B	B	SSE
2407	126	7700	B	G	S10
2408	126	7650	B	B	D
2409	126	7600	B	B	S10
2410	126	7550	B	B	D
2411	126	7500	BC	B	NNW40
2412	126	7450	B	B	NW50
2413	126	7400	B	B	N
2414	126	7350	BC	B	S10
2415	126	7300	B	G	D
2416	126	7250	BC	B	D
2417	126	7200	B	B	D
2418	126	7150	B	B	D
2419	126	7100	B	B	D
2420	126	7050	B	BTG	D
2421	126	7000	B	B	D
2422	126	6950	B	B	D
2423	126	6900	B	B	D
2424	126	6850	B	B	D
2425	126	6800	B	B	D
2426	126	6750	B	B	D

2427	126	6700	AB	B	D
2428	126	6650	AB	B	D
2429	126	6600	AB	B	D
2430	126	6550	AB	B	D
2431	126	6500	AB	B	S
2432	126	6450	AB	CB	D
2433	126	6400	AB	CB	D
2434	126	6350	AB	B	D
2435	126	6300	B	CB	D
2436	126	6250	B	CB	D
2437	126	6200	B	B	D
2438	126	6150	AB	B	D
2439	126	6100	AB	B	N
2440	126	6050	AB	G	D
2441	124	6050	B	G	D
2442	124	6100	B	G	D
2443	124	6150	B	G	D
2444	124	6200	AB	G	D
2445	124	6250	B	G	NW
2446	124	6300	B	G	NW
2447	124	6350	B	G	NNW10
2448	124	6400	AB	G	NNW
2449	124	6450	B	G	N
2450	124	6500			
2451	124	6650	B	B	D
2452	124	6700	AB	G	S
2453	124	6750	ABC	B	E
2454	124	6800	AB	G	D
2455	124	6850	AB	G	D
2456	124	6900	AB	G	W
2457	124	6950	B	G	NW
2458	124	7000	B	B	NW
2459	124	7050	B	B	NNW10
2460	124	7100	B	B	WNW10
2461	124	7150	B	B	NW
2462	124	7200	AB	B	D
2463	124	7250	B	B	D
2464	124	7300	B	B	D
2465	124	7350	AB	B	D
2466	124	7400	B	B	S
2467	124	7450	B	B	S20
2468	124	7500	BC	B	N25
2469	124	7550	B	B	NESW
2470	124	7600	AB	G	S10
2471	124	7650	B	T	S
2472	124	7700	B	TG	S
2473	124	7750	B	TG	D
2474	124	7800	B	G	N
2475	124	7850	B	G	S
2476	124	7900	B	G	S
2477	124	7950	BC	B	W10
2478	124	8000	B	G	D
2479	124	8050	B	BG	NE25
2480	124	8100	A	CHB	D
2481	122	8100	B	BG	D
2482	122	8050	B	G	D
2483	122	8000	B	G	W
2484	122	7950	B	G	W
2485	122	7900	B	B	D
2486	122	7850	B	B	D
2487	122	7800	B	B	D
2488	122	7750	BC	BG	D
2489	122	7700	B	B	N
2490	122	7650	B	B	W
2491	122	7600	B	G	SSE
2492	122	7550	B	T	S
2493	122	7500	B	G	S
2494	122	7450	B	BG	D
2495	122	7400	B	B	N
2496	122	7350	B	B	NW
2497	122	7300	B	B	NNW10
2498	122	7250	B	B	S
2499	122	7200	B	B	ESE
2500	122	7150	BC	B	WSW
2501	122	7100	B	B	ESE10
2502	122	7050	BC	B	SE
2503	122	7000	B	B	S
2504	122	6950	B	B	D
2505	122	6900	B	B	D
2506	122	6850	B	B	S
2507	122	6800	B	B	S
2508	122	6450	B	B	N10
2509	122	6400	B	G	N
2510	122	6350	B	G	NW
2511	122	6300	BC	B	S
2512	122	6250	AB	B	W
2513	122	6200	A	CB	W
2514	122	6150	B	BG	W
2515	120	6450			
2516	120	6800	A	B	S
2517	120	6850	B	B	D
2518	120	6900	AB	B	D
2519	120	6950	ABC	B	N10
2520	120	7000	AB	B	N10
2521	120	7150	BC	B	S
2522	120	7200	B	B	D
2523	120	7250	B	B	D
2524	120	7300	AB	B	SE10
2525	120	7350	AB	B	N10
2526	120	7400	B	B	S
2527	120	7450	AB	B	D
2528	120	7500	B	B	S
2529	120	7550	AB	B	N10
2530	120	7600	B	B	D
2531	120	7650	B	B	SSE
2532	120	7700	B	B	D
2533	120	7750	B	B	D
2534	120	7800	A	CB	D
2535	120	7850	B	B	SE10
2536	120	7900	AB	B	N
2537	120	7950	AB	B	NW10
2538	120	8000	A	CB	D
2539	120	8050	AB	CBG	SSE
2540	120	8100	AB	CBG	D
2541	118	6450	AB	B	S
2542	118	6500	A	B	S
2543	118	6550	B	B	D
2544	118	6600	AB	B	D
2545	118	6650	AB	B	S10
2546	118	6700	B	B	S30
2547	118	6750	AB	B	W50
2548	118	6800	BC	B	S40
2549	118	6850	ABC	B	N25
2550	118	6900	A	B	D
2551	118	6950	B	B	S10
2552	118	7000	B	B	W10
2553	118	7050	AB	B	S10
2554	118	7100	AB	B	S10
2555	118	7150	BC	B	N20
2556	118	7200	AB	B	D
2557	118	7250	AB	B	S10

2558	118	7300	AB	B	W
2559	118	7350	B	B	N
256[illegible]	118	7400	B	B	ENE
256[illegible]	118	7450	B	B	ENE
2562	118	7500	B	B	ENE
2563	118	7550	B	B	NNE
2564	118	7600	B	B	E
2565	118	7650	B	B	N
2566	118	7700	B	B	NNE
2567	118	7750	B	B	NW10
2568	118	7800	B	B	D
2569	116	7700	B	B	N
2570	116	7650	B	B	S
2571	116	7600	B	B	S
2572	116	7550	B	B	S
2573	116	7450	B	B	NW10
2574	116	7400	B	B	S
2575	116	7150	A	B	D
2576	116	7100	B	B	W
2577	116	7000	AB	B	D
2578	116	6950	BC	B	S
2579	116	6900	B	B	S
2580	116	6800	B	B	N
2581	116	6750	AB	B	N
2582	116	6700	B	G	D
2583	116	6650	AB	G	E25
2584	116	6600	B	G	S10
2585	116	6550	B	B	S15
2586	107	6000	B	B	N
2587	107	5950	B	B	N
2588	107	5900	AB	G	E
2589	107	5850	AB	B	E
2590	107	5800	B	TB	ENE10
2591	107	5750	AB	G	E15
2592	107	5700	AB	BG	E10
2593	107	5650	AB	B	S
2594	107	5600	AB	B	N10
2595	107	5550	BC	B	N25
2596	107	5500	BC	B	N
2597	107	5450	B	B	S
2598	107	5400	AB	B	ENE
2599	107	5350	B	BG	NE5
2600	107	5300	B	G	D
2601	107	5250	AB	B	W
2602	107	5200	B	B	S
2603	107	5150	A	G	SSE25
2604	107	5100	B	G	S10
2605	107	5050	B	G	E25
2606	107	5000	B	G	E25
2607	107	4950	AB	G	E25
2608	107	4900	B	B	S
2609	107	4850	B	CB	D
2610	107	4800	B	CB	D
2611	109	4900			
2612	109	4950	AB	CG	D
2613	109	5000	AB	G	D
2614	109	5100	AB	B	S
2615	109	5150	AB	B	S10
2616	109	5200	B	G	SSE25
2617	109	5250	AB	G	E25
2618	109	5300	B	G	S25
2619	109	5350	AB	G	E25
2620	109	5400	ABC	G	E20
2621	109	5450	ABC	BG	E
2622	109	5500	ABC	B	N50
2623	109	5550	ABC	TB	D
2624	109	5600	B	B	S
2625	109	5650	B	B	N15
2626	109	5700	B	BG	D
2627	109	5750	AB	G	D
2628	109	5800	AB	G	D
2629	109	5850	AB	G	D
2630	105	6000			
2631	105	5950	B	B	N
2632	105	5900	B	B	N
2633	105	5850	AB	B	E25
2634	105	5800	B	BG	E30
2635	105	5750	B	BG	ENE30
2636	105	5700			
2637	105	5650	B	B	D
2638	105	5600	B	B	S40
2639	105	5550	AB	CB	S10
2640	105	5500	B	G	E
2641	105	5450	AB	B	D
2642	105	5400	B	B	N
2643	105	5350	B	B	N25
2644	105	5300	BC	TB	N55
2645	105	5250	BC	B	N60
2646	105	5200	B	G	D
2647	105	5150	B	G	S25
2648	105	5100	B	B	S25
2649	105	5050	B	G	S25
2650	105	5000	B	G	S25
2651	105	4950	B	G	S15
2652	105	4900	B	G	S15
2653	105	4850	B	B	S
2654	105	4800	AB	CB	D
2655	105	4750	B	B	D
2656	105	4700	B	B	D
2657	103	4800	B	B	D
2658	103	4850	B	B	S10
2659	103	4900	B	B	S10
2660	103	4950	B	G	S20
2661	103	5000	B	G	S25
2662	103	5050	AB	G	S25
2663	103	5100	B	BG	S25
2664	103	5150	B	B	N10
2665	103	5200	B	B	N40
2666	103	5250	ABC	TB	N20
2667	103	5300	ABC	B	N15
2668	103	5350	AB	B	S10
2669	103	5400	BC	G	S
2670	103	5450	B	G	N
2671	103	5500	B	G	W
2672	103	5550	B	G	S20
2673	103	5600	B	TB	S40
2674	103	5650	B	TB	S50
2675	103	5700	B	BG	W20
2676	103	5750	B	B	SSE
2677	103	5800	BC	B	E
2678	103	5850	BC	BG	N20
2679	103	5900	ABC	B	N20
2680	103	5950	B	B	N35
2681	103	6000	B	B	NE35
2682	101	6090	BC	B	N55
2683	101	6050	BC	B	N55
2684	101	6000	BC	B	N55
2685	101	5950	B	B	SSW10
2686	101	5900	B	BG	W20
2687	101	5850	B	BG	W15

2688	101	5800	B	B	W
2689	101	5750	B	B	W15
2690	101	5700	B	G	W
2691	101	5650	B	G	W20
2692	101	5600	B	B	W10
2693	101	5550	B	B	SW
2694	101	5500	B	B	W
2695	101	5300	ABC	B	N15
2696	101	5250	ABC	B	N25
2697	101	5200	B	G	N25
2698	101	5150	B	B	N10
2699	101	5100	B	G	S10
2700	101	5050	B	G	S40
2701	101	5000	B	G	S40
2702	101	4950	B	B	S30
2703	101	4900	B	B	S
2704	101	4850	B	BG	D
2705	101	4800	B	B	W
2706	99	4900			
2707	99	4950	B	B	S35
2708	99	5000	ABC	G	S35
2709	99	5050	B	G	S35
2710	99	5100	B	G	N
2711	99	5150	B	G	N
2712	99	5200	B	BG	N10
2713	99	5250	B	G	N10
2714	99	5300	B	G	NE10
2715	99	5350	B	G	E10
2716	99	5400	B	G	E20
2717	99	5450	B	G	E40
2718	99	5500	B	G	SE10
2719	99	5550	B	B	S5
2720	99	5600	B	G	NNE10
2721	99	5650	B	B	NE30
2722	99	5700	ABC	B	E30
2723	99	5750	AB	B	SE
2724	99	5800	B	B	NE
2725	99	5850	B	BG	SE10
2726	99	5900	B	G	D
2727	99	5950	B	B	N10
2728	99	6000	ABC	B	N25
2729	99	6050	ABC	B	N20
2730	97	5100	B	B	S
2731	97	5150	B	B	S
2732	97	5200	B	G	S15
2733	97	5250	B	G	SE10
2734	97	5300	B	G	E10
2735	97	5350	B	G	E15
2736	97	5400	B	BG	E25
2737	97	5450	B	G	SE15
2738	97	5500	B	G	E10
2739	97	5550	B	TG	E10
2740	97	5600	B	G	N
2741	97	5650	AB	B	N15
2742	97	5700	AB	B	E10
2743	97	5750	B	G	SW25
2744	97	5800	B	BG	S30
2745	97	5850	B	G	N25
2746	97	5900	B	B	E10
2747	97	5950	B	BG	N45
2748	97	6000	B	BG	D
2749	97	6050	B	B	NE15
2750	95	6050	B	B	N
2751	95	6000			
2752	95	5950	B	BG	N
2753	95	5900	B	G	N15
2754	95	5850	B	T	SE10
2755	95	5800	B	G	E20
2756	95	5750	AB	G	NW10
2757	95	5700	AB	G	S15
2758	95	5650	B	G	E
2759	95	5600	B	G	N
2760	95	5550	ABC	BG	SW
2761	95	5500	B	G	NNW
2762	95	5450	B	BG	SSW10
2763	95	5400	B	G	SSW10
2764	95	5350	B	BG	SW15
2765	95	5300	AB	G	SW10
2766	95	5250	AB	G	N10
2767	95	5200	AB	G	SE
2768	95	5150	B	G	SE10
2769	95	5100	B	G	E50
2770	95	5050	AB	G	E35
2771	95	5000	AB	G	E15
2772	95	4950	AB	H	SE
2773	93	4900	B	B	S40
2774	93	4950	B	B	S15
2775	93	5000	B	G	NNW
2776	93	5050	B	G	W10
2777	93	5100	B	G	S70
2778	93	5150	AB	G	S10
2779	93	5200	B	TG	NE
2780	93	5250	B	TG	D
2781	93	5300	B	TG	WSW10
2782	93	5350	B	TG	NNW10
2783	93	5400	B	TG	NNW15
2784	93	5450	B	TG	NNW15
2785	93	5500	B	TG	SW20
2786	93	5550	B	G	NW20
2787	93	5600	B	G	NE15
2788	93	5650	B	G	NW15
2789	93	5700	BC	TG	S40
2790	93	5750	B	TG	W15
2791	93	5800	B	TG	NW15
2792	93	5850	ABC	B	NE20
2793	93	5900	B	BG	NNE20
2794	93	5950	ABC	B	N25
2795	93	6000	AB	B	N20
2796	93	6050	BC	B	NNE20
2797	91	6050	ABC	TG	NE15
2798	91	6000	ABC	B	N15
2799	91	5950	B	G	E
2800	91	5900	B	TG	E10
2801	91	5850	B	G	W15
2802	91	5800	B	BG	W25
2803	91	5750	B	B	W35
2804	91	5700	B	B	N10
2805	91	5650	BC	B	N
2806	91	5600	B	BG	W
2807	91	5550	B	B	N35
2808	91	5500	B	TG	E
2809	91	5450	B	B	N30
2810	91	5400	B	G	S30
2811	91	5350	B	TG	S15
2812	91	5300	B	TG	E10
2813	91	5250	B	TG	S25
2814	91	5200	AB	TG	SW10
2815	91	5150	B	TG	SSW15
2816	91	5100	B	G	S45
2817	91	5050	B	G	S45
2818	111	5300	AB	BG	SE10

2819	111	5300	AB	B	S
2820	111	5250	AB	B	D
2821	111	5200	AB	CB	D
2822	111	5650	AB	SB	D
2823	111	5600	ABC	B	N45
2824	111	5550	BC	BG	SE50
2825	112	5550	B	BG	N
2826	112	5600	ABC	BG	N35
2827	112	5650	AB	B	W50
2828	112	5675	BC	B	NW55
2829	112	5700	AB	SB	D
2830	113	5800	B	SB	D
2831	113	5750	B	SB	N60
2832	113	5700	B	B	N55
2833	113	5650	AB	TG	N
2834	113	5600	AB	BG	N10
2835	113	5550	BC	BG	N15
2836	114	5550	AB	G	N10
2837	114	5600	BC	G	N
2838	114	5650	AB	G	N
2839	114	5700	BC	B	N
2840	114	5750	BC	B	NB35
2841	114	5800	AB	S	N10
2842	66	4200	B	G	N
2843	66	4150	B	G	N
2844	66	4100	B	G	N
2845	66	4050	B	G	D
2846	66	4000	B	G	S
2847	66	3950	B	G	S
2848	66	3900	B	G	S
2849	66	3850	B	G	S
2850	66	3800	B	BG	S
2851	66	3750	B	G	D
2852	68	3750	AB	SB	S
2853	68	3800	B	SB	S
2854	68	3850	B	ST	S10
2855	68	3900	B	T	S
2856	68	3950	AB	TG	N
2857	68	4000	AB	T	S
2858	68	4050	B	G	N20
2859	68	4100	B	TG	N15
2860	68	4150	B	SG	N10
2861	70	4050	B	G	N15
2862	70	4000	B	G	N15
2863	70	3950	B	G	N15
2864	70	3900	B	G	N15
2865	70	3850	B	G	N15
2866	70	3800	B	G	S15
2867	72	3850	B	SG	E15
2868	72	3900	B	SG	NE20
2869	72	3950	B	TG	N10
2870	72	4000	B	TG	N10
2871	72	4050	B	TG	N10
2872	74	R	AB	SG	E
2873	73	R	B	SG	E10
2874	73	R+50	B	G	N15
2875	73	R+100	B	G	NW10
2876	78	R	B	G	W
2877	78	R+50	AB	G	W
2878	78	R+100	AB	G	W
2879	78	R+150	B	G	W
2880	78	R+200	B	G	WSW
2881	78	R+250	B	G	D
2882	78	R+300	B	G	D
2883	78	R+350	B	G	D
2884	78	R+400	B	G	D
2885	78	R+450	B	G	D
2886	78	R+500	B	B	D
2887	78	R+550	AB	G	D
2888	78	R+600	AB	G	SW
2889	78	R+650	B	G	SW20
2890	78	R+700	B	G	WSW30
2891	78	R+750	B	G	SW35
2892	78	R+800	B	G	SW25
2893	78	R+800	B	G	SW10
2894	78	R+850	B	G	WSW10
2895	80	R+850	B	G	N20
2896	80	R+800	B	G	N10
2901	80	750	B	G	N
2902	80	700	B	G	D
2903	80	650	B	G	WSW
2904	80	600	B	G	SW25
2905	80	550	AB	G	SW25
2906	80	500	B	G	S10
2907	80	450	B	G	S10
2908	80	4000	AB	G	S
2909	91	4050	AB	G	E5
2910	91	4100	B	G	ESE
2911	91	4150	B	G	E10
2912	91	4200	B	G	ENE10
2913	91	4250	B	G	NE
2914	91	4300	B	B	NE10
2915	91	4350	B	B	N10
2916	91	4400	B	B	NNE
2917	91	4450	B	B	N10
2918	89	4350	B	B	N10
2919	89	4300	B	B	N10
2920	89	4250	B	B	N10
2921	89	4200	B	B	N10
2922	89	4150	B	G	E15
2923	89	4100	AB	G	SE10
2924	89	4050	B	G	W10
2925	87	3950			
2926	87	4000	AB	G	S
2927	87	4050	BC	G	S35
2928	87	4100	B	G	SE10
2929	87	4150	AB	G	E10
2930	87	4200	AB	G	NE
2931	87	4250	B	G	N10
2932	87	4300	B	B	N45
2933	87	4350	B	B	N45
2934	85	4250	B	G	N45
2935	85	4200	B	G	N25
2936	85	4150	AB	G	NW10
2937	85	4100	AB	G	W10
2938	85	4050	AB	G	N45
2939	85	4000	AB	G	S45
2940	85	3950	B	G	N30
2941	85	3900	AB	G	S10
2942	85	3850	B	G	D
2943	7700	4600	AB	G	W
2944	7750	4600	AB	G	W
2945	7850	4600	AB	G	WSW
2946	7900	4600	AB	G	SW15
2947	7950	4600	AB	G	SSW20
2948	8050	4600	AB	G	S25
2949	8100	4600	AB	G	SSW
2950	8150	4600	B	G	D
2951	8200	4600	AB	G	D

2952	8250	4600	AB	G	D
2953	8300	4600	AB	G	D
2954	8350	4600	B	G	N
2[redacted]	8400	4600	B	G	NE15
2956	8450	4550			
2957	8450	4300	AB	G	NE25
2958	111	4950	B	BG	W10
2959	111	4900	AB	BG	SW
2960	111	4850	AB	BG	D
2961	111	4800	AB	BG	D
2962	111	4750	AB	BG	D
2963	111	4700	AB	BG	D
2964	111	4650	B	BG	D
2965	111	4600	B	G	D
2966	11100	6450	AB	B	S
2967	11150	6450	B	B	D
2968	11200	6450	AB	B	E
2969	11250	6450	B	G	W
2970	11300	6450	AB	G	W
2971	11350	6450	AB	BG	SE20
2972	11400	6450	AB	G	SSE
2973	11450	6450	AB	B	ESE
2974	11750	6450	AB		W
2975	11850	6450	AB	B	S
2976	11900	6450	B	B	S
2977	11950	6450	B	B	SW
2978	12050	6450	B	B	SSW
2979	12100	6450	AB	B	D
2980	12150	6450	AB	B	D
2981	12250	6450	AB	B	N
2982	12300	6450	AB	B	N
2983	12350	6450	AB	B	D
2984	12450	6450	AB	BG	N
2985	12500	6450	AB	B	E
2986	12550	6450	AB	B	D
2987	12650	6450	AB	CB	W
2988	12700	6450	BC	TB	W15
2989	12750	6450	AB	TG	W10
2990	12850	6450	BC	TG	D
2991	12900	6450	B	TG	D
2992	12950	6450	AB	TG	D
2993	13050	6450	AB	TG	D
2994	13100	6450	AB	TG	D
2995	13150	6450	AB	B	E
2996	13250	6450	AB	B	N
2997	13300	6450	B	B	D
2998	13350	6450	AB	B	W
2999	13450	6450	AB	TB	D
3000	13500	6450	A	B	D
3001	13650	6450	B	B	D
3002	13700	6450	AB	B	D
3003	13850	6450	B	B	D
3004	13950	6450	AB	B	D
3005	14050	6450	B	CB	D
3006	14100	6450	B	TB	D
3007	14150	6450	AB	B	D
3008	14250	6450	B	B	D
3009	14300	6450	AB	B	D
3010	14350	6450	AB	G	D
3011	14450	6450	B	G	D
3012	14500	6450	B	G	D
3013	14550	6450	B	G	D
3014	14650	6450	AB	G	D
3015	14700	6450	AB	G	D
3016	14750	6450	AB	G	D
3017	14850	6450	B	G	D
3018	14900	6450	AB	G	D
3019	14950	6450	AB	B	D
3020	15050	6450	B	B	NW
3021	15100	6450	B	G	D
3022	15150	6450	AB	G	D
3023	15250	6450	AB	G	D
3024	15300	6450	AB	G	D
3025	15350	6450	AB	G	D
3026	15400	6450	AB	G	D
3027	15500	6450	AB	G	D
3028	15550	6450	AB	G	D
3029	15650	6450	ABC	G	D
3030	15700	6450	A	B	D
3031	15850	6450	B	B	W10
3032	13350	7800	B	B	E
3033	13300	7800	B	B	D
3034	13250	7800	B	B	S
3035	13150	7800	B	B	D
3036	13100	7800	B	B	D
3037	13050	7800	B	B	D
3038	12950	7800	B	B	D
3039	12900	7800	B	B	D
3040	12850	7800	B	T	S10
3041	12750	7800	B	TB	SE20
3042	12700	7800	B	T	SE10
3043	12650	7800	AB	S	S10
3044	12550	7800	B	ST	S10
3045	12500	7800	B	STG	SSE
3046	12450	7800	AB	STG	ESE
3047	12350	7800	B	TG	D
3048	12300	7800	B	TG	D
3049	12250	7800	AB	TG	E10
3050	12150	7800	B	B	W15
3051	12100	7800	A	CB	D
3052	12050	7800	A	TB	D
3053	11950	7800	B	TB	S15
3054	11900	7800	AB	B	W20
3055	11850	7800	B	B	D
3056	11750	7800	A	B	D
3057	11500	7800	B	B	D
3058	11400	7800	A	CB	D
3059	11350	7800	B	B	D
3060	11300	7800	B	B	D
3061	114	7850			
3062	114	7750	AB	CB	D
3063	114	7700	B	B	D
3064	114	7650	B	B	D
3065	114	7600	B	B	NNE25
3066	114	7550	B	B	D
3067	114	7500	B	B	D
3068	114	7450	BC	B	D
3069	114	7400	BC	B	W20
3070	114	7350	B	B	SE10
3071	114	7300	B	B	ESE
3072	114	7250	B	B	S15
3073	114	7225	B	B	S
3074	114	7100	B	B	N
3075	114	7050	B	B	N10
3076	114	7000	B	G	N
3077	114	6950	AB	G	SE
3078	114	6900	B	G	E
3079	114	6850	B	G	S
3080	114	6800	AB	G	SSE
3081	114	6750	AB	B	E

3082	114	6700	B	BG	N
3083	114	6650	A	G	N
3084	114	6600	A	G	N
3085	114	6550	H	G	S
3086	114	6500	B	SATG	S10
3087	114	6400			

APENDIX II

Geochemical Lab Reports

Bondar-Clegg & Company Ltd.
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Geochemical Lab Report

REPORT: 017-3061 | PROJECT: HARWIN | PAGE 1

SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM	SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM
5046		4	10.00	5086		2	
5047		12	5.00	5087		4	
5048		7	7.00	5088		1	
5049		9	5.00	5089		<1	
5050		4	10.00	5090		<1	
5051		5	10.00	5091		<1	
5052		4	10.00	5092		2	
5053		2	10.00	5093		1	
5054		<1		5094		2	
5055		2		5095		2	
5056		3		5096		2	
5057		1		5097		6	
5058		1		5098		1	
5059		1		5099		<1	
5060		3		5100		<1	
5061		<1		0529		3	
5062		<1		0530		3	
5063		<1		0531		3	
5064		1		0532		3	
5065		1		0533		1	
5066		2		0534		2	
5067		<1		0535		<1	
5068		2		0536		1	
5069		1		0537		2	
5070		<1		0538		2	
5071		<1		0539		<1	
5072		<1		0540		2	16.00
5073		2		0541		2	
5074		3		0542		2	15.00
5075		2		0543		2	
5076		2	15.00	0544		<1	
5077		2		0545		4	17.00
5078		<4	5.00	0546		2	9.00
5079		1		0547		<1	
5080		1		0548		1	
5081		<1		0549		1	
5082		4	8.00	0550		<1	
5083		2	15.00	0551		<1	
5084		5	10.00	0552		2	
5085		3		0553		1	

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Geochemical Lab Report

REPORT: 017-3061

PROJECT: HARVIN PAGE 2

SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM
0554		1	
0555		<1	
0556		<1	
0557		<1	
0558		2	
0559		<1	
0560		<1	
0561		1	
0562		1	
0563		<1	
0564		<1	
0565		4	10.00
0566		7	10.00
0567		<1	15.00
0568		11	3.62
0569		2	10.00
0570		1	
0571		<1	
0572		<4	5.93
0573		41	15.00
0574		12	3.85
0575		2	

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Geochemical Lab Report

REPORT: 017-3105

PROJECT: HARWIN PAGE 1

SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM	SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM
1001		<1	20.00	1043		<1	20.00
1002		<2	20.00	1044		<1	20.00
1003		<1	20.00	1046		2	20.00
1004		3	20.00	1047		2	20.00
1005		<1	20.00	1048		<2	20.00
1006		<1	20.00	1049		8	20.00
1007		<2	20.00	1050		3	10.00
1008		<1	20.00	1051		3	20.00
1009		<1	20.00	1052		2	20.00
1010		<1	20.00	1053		2	20.00
1011		2	20.00	1054		5	20.00
1012		2	20.00	1055		2	20.00
1013		<1	20.00	1056		<2	20.00
1014		<1	20.00	1057		<2	20.00
1015		2	20.00	1058		2	20.00
1016		<2	20.00	1060		<2	20.00
1017		<1	20.00	1061		<2	20.00
1018		2	20.00	1062		2	20.00
1019		<1	20.00	1064		<2	20.00
1020		<1	20.00	1065		<1	20.00
1021		2	20.00	1066		<2	20.00
1022		<1	20.00	1067		3	20.00
1023		<2	20.00	1068		2	20.00
1024		2	20.00	1069		2	20.00
1025		<2	20.00	1070		<2	20.00
1026		<1	20.00	1071		2	20.00
1028		<2	20.00	1072		2	20.00
1030		<2	20.00	1074		<2	20.00
1031		4	20.00	1075		<2	18.00
1032		3	20.00	1076		<2	20.00
1033		<2	20.00	1077		<2	20.00
1034		<1	20.00	1078		2	20.00
1035		2	20.00	1079		<2	20.00
1036		<2	20.00	1080		2	20.00
1037		<1	20.00	1081		<2	20.00
1038		<1	20.00	1082		<2	20.00
1039		<1	20.00	1083		<2	20.00
1040		<1	20.00	1084		4	20.00
1041		2	20.00	1085		<2	20.00
1042		<2	20.00	1086		2	20.00

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Geochemical Lab Report

REPORT: 017-3105 | PROJECT: HARWIN | PAGE 2

SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM	SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM
1087		2	20.00	1157		2	20.00
1088		<2	20.00	1158		3	10.00
1089		2	20.00	1159		<2	20.00
1090		<2	20.00	1160		<6	5.00
1091		<2	20.00	1161		<6	5.00
1093		5	19.00	1162		<3	10.00
1094		<2	20.00	1164		<2	20.00
1095		2	20.00	1165		3	20.00
1096		<2	20.00	1166		<3	10.00
1097		<2	20.00	1167		<2	20.00
1098		2	20.00	1168		2	20.00
1099		2	20.00	1169		<2	20.00
1100		<1	20.00	1170		<2	20.00
1101		<2	20.00	1171		<2	20.00
1104		<2	20.00	1172		3	20.00
1106		2	20.00	1173		<1	20.00
1107		<2	20.00	1174		4	20.00
1110		<2	20.00	1175		<2	20.00
1112		<2	15.00	1176		2	20.00
1117		2	20.00	1177		2	20.00
1118		5	18.00	1178		<2	20.00
1119		<4	8.00	1179		2	20.00
1120		<2	20.00	1180		<1	20.00
1122		2	20.00	1181		2	20.00
1123		5	7.00	1182		<2	20.00
1126		<1	20.00	1183		<2	20.00
1127		2	20.00	1184		2	20.00
1129		<2	20.00	1185		<2	20.00
1130		2	20.00	1186		<2	20.00
1131		4	20.00	1187		<2	20.00
1135		2	20.00	1188		3	15.00
1136		2	20.00	1189		<4	7.00
1138		5	12.00	1191		<2	20.00
1140		12	20.00	1192		<2	18.00
1147		<3	10.00	1193		<2	15.00
1150		4	10.00	1194		<5	6.00
1152		2	20.00	1195		<2	17.00
1154		2	20.00	1196		<3	10.00
1155		<2	20.00	1197		2	20.00
1156		<2	20.00	1198		<2	19.00

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Geochemical Lab Report

REPORT: 017-3105 | PROJECT: HARWIN | PAGE 3

SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM	SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM
1199		<2	20.00	1262		3	15.00
1201		2	15.00	1263		2	20.00
1204		<2	20.00	1264		<2	20.00
1207		2	20.00	1265		<5	6.00
1209		<2	20.00	1266		4	12.00
1210		<2	20.00	1267		7	7.00
1211		<2	20.00	1268		9	3.50
1212		<2	20.00	1269		2	20.00
1213		<2	20.00	1270		3	10.00
1216		<2	13.00	1271		<2	15.00
1227		<2	20.00	1272		<4	7.00
1229		<1	20.00	1273		5	7.00
1230		<2	20.00	1274		<3	13.00
1231		2	20.00	1275		2	20.00
1234		<2	20.00	1276		<1	20.00
1235		2	20.00	1277		2	20.00
1236		2	20.00	1278		<1	20.00
1237		2	20.00	1279		<4	8.00
1238		<2	15.00	1280		<1	20.00
1239		3	15.00	1281		<2	20.00
1240		<2	15.00	1282		<2	20.00
1241		<2	20.00	1283		<2	20.00
1242		2	20.00	1284		<2	20.00
1244		2	18.00	1286		3	20.00
1245		<2	20.00	1287		<3	20.00
1246		2	20.00	1288		<2	20.00
1247		<2	20.00	1289		<4	20.00
1248		<2	17.00	1290		4	20.00
1250		<3	9.00	1291		<2	20.00
1251		<13	2.50	1292		4	20.00
1252		3	20.00	1293		<3	20.00
1253		<2	20.00	1294		<2	20.00
1254		<3	9.00	1295		<3	20.00
1255		<2	20.00	1296		<2	20.00
1256		<2	20.00	1297		<2	20.00
1257		<2	20.00	1299		<2	20.00
1258		3	20.00				
1259		3	20.00				
1260		2	20.00				
1261		<3	12.00				

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Geochemical
Lab Report

REPORT: 017-3106

PROJECT: [redacted]IN PAGE 1

SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM	SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM
1300		<1	20.00	1345		[redacted]	[redacted]
1301		<1	20.00	1346		[redacted]	[redacted]
1302		5	20.00	1347		[redacted]	[redacted]
1303		<1	20.00	1348		[redacted]	[redacted]
1304		2	20.00	1349		[redacted]	[redacted]
1305		1	20.00	1351		2	20.00
1306		<1	20.00	1352		5	14.00
1307		<1	20.00	1353		1	20.00
1308		2	20.00	1354		2	15.50
1309		1	20.00	1355		4	9.00
1310		2	15.50	1356		5	4.50
1313		<1	20.00	1357		1	15.00
1314		<1	20.00	1358		<1	17.50
1315		4	6.00	1360		2	20.00
1316		<2	10.00	1361		6	15.50
1317		2	17.00	1362		4	11.00
1319		<1	20.00	1363		2	16.00
1320		<1	15.00	1364		1	20.00
1321		2	20.00	1365		<1	20.00
1323		<1	20.00	1366		4	11.00
1324		1	13.50	1367			
1325		2	16.50	1368		3	12.50
1326		<2	10.00	1369		2	16.00
1327		2	20.00	1370		4	13.50
1328		<1	20.00	1371		3	18.50
1329		<2	10.50	1372		<1	20.00
1330		4	8.00	1373		11	20.00
1331		2	14.00	1374		1	20.00
1332		2	11.00	1375		3	20.00
1333		<1	20.00	1376		2	20.00
1334		3	8.00	1378		1	20.00
1335		2	20.00	1379		7	20.00
1336		<1	13.00	1380		3	15.50
1337		1	20.00	1381		2	17.50
1338		<1	17.50	1382		<1	20.00
1339		1	20.00	1383		2	20.00
1340		2	16.00	1384		1	20.00
1341		<1	18.50	1385		1	20.00
1343		2	11.50	1386		2	15.00
1344		1	20.00	1387		10	20.00

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SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM	SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM
1388		1	20.00	1429		6	20.00
1389		2	20.00	1430		2	20.00
1390		1	20.00	1431		3	20.00
1391		<1	20.00	1432		4	20.00
1392		1	20.00	1433		2	20.00
1393		2	20.00	1434		2	20.00
1394		1	20.00	1435		2	20.00
1395		4	20.00	1436		2	20.00
1397		13	20.00	1437		3	20.00
1398		5	20.00	1438		2	20.00
1399		2	20.00	1439		1	17.00
1400		1	20.00	1440		2	20.00
1401		2	20.00	1441		2	20.00
1402		3	9.50	1442		5	20.00
1403		<1	20.00	1443		3	20.00
1404		1	20.00	1444		2	20.00
1405		1	20.00	1445		1	20.00
1406		2	16.50	1446		2	20.00
1407		<1	20.00	1447		3	20.00
1408		1	20.00	1448		2	20.00
1409		2	20.00	1449		1	20.00
1410		2	20.00	1450		2	20.00
1411		2	20.00	1501		<1	20.00
1412		2	20.00	1502		2	20.00
1413		1	20.00	1503		2	20.00
1414		1	20.00	1504		<1	20.00
1415		2	20.00	1505		1	20.00
1416		1	20.00	1506		5	20.00
1417		3	20.00	1507		2	20.00
1418		3	20.00	1508		2	20.00
1419		<3	6.50	1509		2	20.00
1420		<1	20.00	1510		5	20.00
1421		2	17.50	1511		2	20.00
1422		3	20.00	1512		2	20.00
1423		1	20.00	1513		2	20.00
1424		2	19.00	1514		2	20.00
1425		3	16.00	1515		1	20.00
1426		2	20.00	1516		2	20.00
1427		3	16.00	1517		3	20.00
1428		3	20.00	1518		1	20.00

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SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM	SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM
1519		13	20.00	2008		1	20.00
1520		6	20.00	2009		4	20.00
1521		3	20.00	2010		2	20.00
1522		2	20.00	2011		2	20.00
1523		6	20.00	2012		1	20.00
1524		<1	20.00	2013		2	20.00
1525		2	20.00	2014		1	20.00
1526		2	20.00	2015		1	20.00
1527		2	20.00	2016		3	20.00
1528		2	20.00	2017		1	20.00
1529		2	20.00	2018		2	20.00
1530		1	20.00	2019		<1	20.00
1531		2	20.00	2020		1	20.00
1532		1	20.00	2021		1	20.00
1533		2	20.00	2022		1	20.00
1534		1	20.00	2023		<1	20.00
1535		2	20.00	2024		1	20.00
1536		2	20.00	2025		1	20.00
1537		1	20.00	2026		1	20.00
1538		1	20.00	2027		1	20.00
1539		1	20.00	2028		2	20.00
1540		2	20.00	2029		2	20.00
1541		<1	20.00	2030		2	20.00
1542		2	20.00	2031		7	20.00
1543		3	20.00	2032		2	20.00
1544		2	20.00	2033		11	20.00
1545		2	20.00	2034		1	20.00
1546		<1	20.00	2035		1	20.00
1547		2	20.00	2036		14	20.00
1548		2	20.00	2037		3	20.00
1549		2	20.00	2038		2	20.00
1550		4	20.00	2039		23	20.00
1551		2	20.00	2040		2	20.00
2001		1	20.00	2041		1	20.00
2002		<1	20.00	2042		2	20.00
2003		1	20.00	2043		2	20.00
2004		1	20.00	2044		1	20.00
2005		2	20.00	2045		1	20.00
2006		<1	20.00	2046		3	20.00
2007		5	20.00	2047		1	20.00

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SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM	SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM
2048		2	20.00				
2049		<1	20.00				
2050		1	20.00				
2051		2	20.00				
2052		2	20.00				
2053		4	20.00				
2054		2	20.00				
2055		1	20.00				
2056		2	20.00				
2057		2	20.00				
2058		3	20.00				
2059		3	20.00				
2060		<1	20.00				
2061		3	20.00				
2062		1	20.00				
2063		2	20.00				
2064		1	20.00				
2065		2	20.00				
2066		2	20.00				
2067		2	20.00				
2068		2	20.00				
2069		1	20.00				
2070		3	20.00				
2071		3	20.00				
2072		3	20.00				
2073		1	20.00				
2074		12	20.00				
2075		2	20.00				
2076		8	20.00				
2077		2	20.00				
2078		2	20.00				
2079		2	20.00				
2080		1	20.00				
2081		8	15.00				
2082		1	20.00				
2083		2	20.00				
2084		2	20.00				
2085		4	20.00				
2086		2	20.00				
2087		29	20.00				

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SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM	SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM
1027		1		1206		2	15.00
1029		2		1208		2	
1043		1		1214		3	
1059		2		1215		2	15.00
1063		2		1217		3	8.00
1092		1		1218		11	5.00
1102		2		1219		2	15.00
1103		<1		1220		5	5.00
1105		1		1221		<1	
1108		3	10.00	1222		4	15.00
1109		2	15.00	1223		<1	
1111		2		1224		18	15.00
1113		2		1225		1	
1114		2	10.00	1226		1	
1115		3	15.00	1228		2	
1116		1		1232		2	
1121		1		1233		<1	
1124		2		1249		2	15.00
1125		1		1285		<1	15.00
1128		1	15.00	1298		1	
1130		1		1311		2	
1133		<1	15.00	1312		<1	
1134		1		1318		<1	
1137		2		1322		2	15.00
1139		6		1342		2	
1141		1		1350		2	10.00
1142		3	15.00	1359		5	10.00
1143		1		1377		1	
1144		3	15.00	1458		<1	
1145		<1		1459		1	
1146		1		1460		2	
1148		<1		1461		3	
1149		3		1462		1	
1151		3		1463		<1	
1153		4		1464		12	
1163		<1		1465		2	
1200		2		1466		2	
1202		2		1467		2	18.00
1203		4		1468		2	
1205		1		1469		2	

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SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM	SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM
1470		2		1560		1	
1471		3		1561		3	
1472		4	15.00	1562		3	
1473		2		1563		<1	
1474		1		1564		<1	
1475		1		1565		<1	
1476		2		1566		<1	
1477		3		1567		1	
1478		2		1568		<1	
1479		2		1569		<1	
1480		1		1570		2	
1481		2		1571		<1	
1482		<1		1572		5	
1483		2		1573		1	
1484		2		1574		<1	
1485		<1		1575		2	
1486		1		1576		<1	
1487		<1		1577		<1	
1488		<1		1578		<1	
1489		2		1579		1	
1490		<1		1580		6	
1491		<1		1581		<1	
1492		1		1582		<1	
1493		<1	17.00	1583		2	
1494		1		1584		<1	
1495		19	1.11	1585		<1	
1496		<1		1586		2	
1497		1		1587		<1	
1498		1		1588		<1	
1499		<1	14.00	1589		<1	
1500		2		1590		<1	
1551		2		1591		1	
1552		1		1592		1	
1553		1		1593		<1	
1554		3		1594		<1	
1555		2		1595		<1	
1556		<1		1596		<1	
1557		<1		1597		1	
1558		1		1598		<1	
1559		<1		1599		6	

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SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM	SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM
1600		<1		1641		<1	
1601		1		1642		3	
1602		<1		1643		5	
1603		1		1644		1	
1605		3	18.00	1645		2	
1606		2		1646		2	
1607		2		1647		<1	
1608		1		1648		<1	
1609		<1		1649		<1	
1610		2		1650		<1	
1611		5		1652		<1	
1612		1		1653		<1	
1613		<1		1654		<1	
1614		1		1655		<1	
1615		<1		1656		<1	
1616		<1		1657		<1	
1617		<1		1659		<1	
1618		1	18.00	1660		<1	
1619		<1		1661		<1	
1620		1		1662		<1	
1621		2		1664		<1	
1622		1		1666		<1	
1623		<1		1667		1	
1624		1		1668		<1	
1625		1		1669		37	
1626		<1		1670		<1	18.00
1627		1		1672		<1	
1628		1		1674		3	
1629		3		1675		<1	
1630		<1		1677		<1	
1631		<1		1681		<1	
1632		1		1682		<1	
1633		1		1685		<1	
1634		<1		1686		<1	
1635		<1					
1636		1					
1637		4					
1638		<1					
1639		<1					
1640		3					

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SAMPLE NUMBER	ELEMENT UNITS	Au PPB	SAMPLE NUMBER	ELEMENT UNITS	Au PPB
1701		2	1741		7
1702		3	1742		2
1703		2	1743		1
1704		7	1744		<1
1705		2	1745		2
1706		1	1746		1
1707		3	1747		2
1708		2	1748		54
1709		2	1749		5
1710		3	1750		<1
1711		2	1751		1
1712		1	1752		<1
1713		25	1757		1
1714		27	1758		<1
1715		5	1761		2
1716		3	1762		2
1717		3	1763		2
1718		4	1764		4
1719		2	1765		1
1720		3	1766		2
1721		3	1767		2
1722		2	1768		4
1723		1	1769		1
1724		<1	1770		<1
1725		1	1771		2
1726		3	1772		2
1727		1	1773		<1
1728		<1	1774		1
1729		<1	1775		<1
1730		2	1777		2
1731		4	1778		5
1732		2	1780		<1
1733		<1	1781		<1
1734		2	1783		4
1735		<1	1784		2
1736		2	1785		1
1737		<1	1786		2
1738		1	1787		<1
1739		1	1788		2
1740		2	1789		2

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SAMPLE NUMBER	ELEMENT UNITS	Au PPB	SAMPLE NUMBER	ELEMENT UNITS	Au PPB
1790		<1	1861		<1
1791		1	1862		1
1792		<1	1863		<1
1793		1	1864		[illegible]
1794		<1	1865		1
1795		2	1866		4
1796		2	1867		<1
1797		44	1868		2
1798		2	1869		1
1799		6	1870		2
1800		3	1871		1
1801		2	1872		1
1802		3	1873		<1
1803		4	1874		<1
1804		1	1875		2
1805		3	1876		2
1837		3	1877		1
1838		4	1878		1
1839		1	1879		<1
1840		2	1880		2
1841		4	1881		21
1842		2	1882		3
1843		2	1883		2
1844		2	1884		<1
1845		2	1885		2
1846		2	1886		2
1847		3	1887		1
1848		2	1888		<1
1849		2	1889		2
1850		<1	1890		2
1851		<1	1891		2
1852		2	1892		2
1853		2	1893		2
1854		5	1894		4
1855		2	1895		1
1856		1	1896		1
1857		3	1897		2
1858		2	1898		4
1859		1	1899		2
1860		3	1900		2

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SAMPLE NUMBER	ELEMENT UNITS	Au PPB	SAMPLE NUMBER	ELEMENT UNITS	Au PPB
1901		3	1941		<1
1902		2	1942		<1
1903		2	1943		[redacted]
1904		1	1944		[redacted]
1905		2	1945		[redacted]
1906		1	1946		1
1907		1	1947		1
1908		2	1948		1
1909		3	1949		2
1910		2	1950		<1
1911		2	1951		6
1912		10	1952		2
1913		6	1953		3
1914		<1	1954		6
1915		1	1955		5
1916		3	1956		2
1917		2	1957		<1
1918		2	1958		1
1919		<1	1959		2
1920		1	1960		2
1921		4	1961		2
1922		2	1962		<1
1923		1	1963		1
1924		3	1964		<1
1925		4	1965		1
1926		3	1966		1
1927		3	1967		1
1928		4	1968		3
1929		2	1969		3
1930		2	1970		1
1931		2	2088		1
1932		1	2089		<1
1933		2	2090		3
1934		1	2091		<1
1935		<1	2092		2
1936		2	2093		1
1937		5	2094		1
1938		2	2095		2
1939		6	2096		1
1940		<1	2097		1

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SAMPLE NUMBER	ELEMENT UNITS	Au PPB	SAMPLE NUMBER	ELEMENT UNITS	Au PPB
2098		1			
2099		2			

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SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM	SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM
1243		2		1782		2	
1451		3		1806		4	
1452		2		1807		1	
1453		<1		1808		2	
1454		1		1809		3	
1455		3		1810		3	
1456		<1		1811		2	
1457		1		1812		4	
1658		1		1813		2	
1663		1		1814		1	
1665		2		1815		1	
1671		<1		1816		<1	
1673		<1		1817		1	
1676		<1		1818		<1	
1678		<1		1819		2	
1679		2		1820		<1	
1680		2		1821		<1	
1684		2		1822		<1	
1687		2		1823		1	
1688		2		1824		1	
1689		1		1825		2	
1690		2		1826		<1	
1691		2		1827		<1	
1692		2		1828		<1	
1693		<1		1829		2	
1694		1		1830		<1	
1695		1		1831		<1	
1696		<1		1832		5	
1697		1		1833		2	
1699		<1		1834		1	
1699		2		1835		2	
1700		<1		1836		3	14.00
1752		<1		1971		<1	
1754		<1		1972		1	
1755		1		1973		<1	
1756		<1		1974		<1	
1759		<1		1975		2	
1760		<1		1976		<1	
1770		1		1977		2	
1775		2		1978		<1	

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Geochemical Lab Report

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SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM	SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM
1979		1		2118		1	
1980		3		2119		2	
1981		2		2120		3	
1982		1		2121		2	
1983		2		2122		1	
1984		3		2123		<1	
1985		<1	18.00	2124		<1	
[illegible]		3		2125		<1	
1987		<1		2126		<1	
1988		<1		2127		3	
[illegible]		2		2128		<1	
[illegible]		<1		2129		<1	
[illegible]		2		2130		1	
[illegible]		5		2131		<1	
1992		3		2132		<1	
[illegible]		<1		2133		1	
[illegible]		<1		2134		<1	
1996		<1		2135		<1	
1997		3		2136		<1	
1998		<1		2137		2	
1999		<1		2138		2	
2100(A)		1		2139		<1	
2100(B)		2		2140		5	
2101		<1		2141		<1	
[illegible]		2		2142		2	
[illegible]		<1		2143		<1	
[illegible]		2		2144		<1	
[illegible]		2		2145		<1	
[illegible]		<1		2146		3	
2107		2		2147		<1	
[illegible]		<3	9.00	2148		<1	
2109		4		2149		<1	
2110		4		2150		<1	
[illegible]		3		2151		<1	
[illegible]		3		2152		<1	
[illegible]		<1		2153		<1	
2114		<1		2154		<1	
[illegible]		2		2155		<1	
2116		1		2156		1	
[illegible]		6		2157		1	

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SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM	SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM
2158		<1		2198		2	
2159		4		2199		<1	
2160		<1		2200		2	
2161		<1		2201		2	
2162		2		2202		2	
2163		2		2203		<1	
2164		2		2204		2	
2165		<1		2205		2	
2166		<1		2206		3	
2167		1		2207		2	
2168		2		2208		<1	
2169		<1		2209		<1	
2170		<1		2210		2	
2171		1		2211		3	
2172		<1		2212		<1	
2173		2		2213		<1	
2174		<1		2214		<1	
2175		3		2215		<1	
2176		<1		2216		<1	
2177		<1		2217		2	
2178		<1		2218		2	
2179		<1		2219		<1	
2180		<1		2220		2	
2181		<1		2221		<1	
2182		<1		2222		<1	
2183		<1		2223		2	
2184		2		2224		<1	
2185		<1		2225		3	
2186		<1		2226		2	
2187		3		2227		<1	
2188		<1		2228		<1	
2189		<1		2229		2	
2190		<1		2230		2	
2191		<1		2231		2	
2192		2		2232		2	
2193		<1		2233		2	
2194		<1		2234		<1	
2195		4		2235		<1	
2196		<1		2236		8	
2197		2		2237		2	

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Geochemical Lab Report

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SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM	SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM
2238		2		2278		32	
2239		<1		2279		4	17.00
2240		2		2280		<2	17.00
2241		<2		2281		<2	
2242		5		2282		2	17.00
2243		3		2283		2	
2244		2		2284		2	
2245		<2		2285		4	9.00
2246		2		2286		17	
2247		3		2287		4	
2248		3		2288		<1	
2249		39		2289		<3	10.00
2250		<2		2290		<1	
2251		<2		2291		<1	
2252		4	17.00	2292		2	
2253		2		2293		2	
2254		<2		2294		<1	
2255		<2		2295		<1	
2256		2		2296		2	
2257		<2		2297		<1	
2258		<2		2298		2	
2259		<1		2299		1	
2260		<2		2300		<1	
2261		2		2301		<1	
2262		<2		2302		<1	
2263		<2		2303		2	
2264		3		2304		8	
2265		<2		2305		10	
2266		9		2306		18	
2267		3		2307		4	17.00
2268		373		2308		<2	17.00
2269		<2		2309		6	
2270		<2		2310		3	
2271		17		2311		<2	
2272		<2		2312		<2	
2273		<1		2313		<2	15.00
2274		<1		2314		<2	
2275		2		2315		<2	
2276		2		2316		<2	
2277		6	11.00	2317		<2	

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SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM	SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM
2318		<2		2358		<1	
2319		<2		2359		<6	4.00
2320		3		2360		2	
2321		<2		2361		<1	
2322		<2		2362		<1	19.00
2323		<2		2363		<2	15.00
2324		<2		2364		<6	4.00
2325		3		2365		<2	16.00
2326		<2		2366		<2	
2327		<2		2367		25	8.00
2328		<1		2368		315	10.00
2329		<1		2369		11	13.00
2330		<1		2370		<1	16.00
2331		<1		2371		<1	10.00
2332		134		2372		2	
2333		18		2373		3	
2334		<1		2374		<1	
2335		2		2375		2	
2336		5	17.00	2376		2	
2337		6		2377		<1	
2338		1		2378		4	
2339		<1		2379		5	
2340		<1		2380		6	
2341		<1		2381		7	
2342		<1		2382		<1	19.00
2343		4		2383		1	
2344		<1		2384		15	
2345		9		2385		3	
2346		4		2386		<1	
2347		5		2387		<1	
2348		<1		2388		2	
2349		3		2389		<1	
2350		<6	4.00	2390		1	
2351		<19	1.35	2391		<1	
2352		<19	1.33	2392		<1	
2353		<3	9.00	2393		<1	
2354		<5	5.00	2394		<1	
2355		<3	9.00	2395		6	
2356		6		2396		<1	
2357		4		2397		<1	

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SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM	SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM
2398		<1		2438		1	
2399		<1		2439		2	
2400		<1		2440		<1	
2401		<1		2441		2	
2402		<1		2442		2	
2403		<1		2443		<1	
2404		<1		2444		2	
2405		<1		2445		2	
2406		1		2446		3	
2407		2		2447		<1	
2408		3		2448		<1	
2409		<1		2449		2	
2410		47		2450		3	
2411		11		2451		4	
2412		2		2452		3	
2413		2		2453		2	
2414		<1		2454		5	18.00
2415		<1		2455		3	
2416		<1		2456		8	
2417		<1		2457		1	
2418		<1		2458		3	
2419		<1		2459		<1	
2420		<1		2460		7	
2421		<1		2461		<1	
2422		2		2462		<1	
2423		<1		2463		<1	
2424		2		2464		7	13.00
2425		2		2465		7	
2426		3		2466		5	
2427		2		2467		2	
2428		2		2468		<1	
2429		2		2469		<1	
2430		2		2470		2	
2431		<1		2471		<1	
2432		3		2472		3	
2433		3		2473		2	
2434		2		2474		<1	
2435		<1		2475		<1	
2436		<1		2476		<1	
2437		<1		2477		<1	

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REPORT: 017-3388

PROJECT: HARWIN

SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM	SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM
2478		<1		2518		4	
2479		1		2519		<1	
2480		2	18.00	2520		2	
2481		1		2521		1	18.00
2482		2		2522		4	
2483		<1		2523		3	
2484		<1		2524		1	
2485		<1		2525		<1	
2486		<1		2526		1	
2487		<1		2527		1	
2488		<1		2528		2	
2489		<1		2529		<1	
2490		1		2530		<1	
2491		6		2531		<1	
2492		2		2532		<1	
2493		<1		2533		5	
2494		2		2534		14	
2495		<1		2535		2	
2496		<1		2536		<1	
2497		<1		2537		2	
2498		2		2538		2	
2499		1		2539		1	
2500		<1		2540		1	19.00
2501		<1		2541		6	
2502		2		2542		4	
2503		1		2543		2	
2504		89		2544		2	
2505		2		2545		1	
2506		1		2546		2	
2507		<1		2547		7	
2508		1		2548		1	
2509		<1		2549		<1	18.00
2510		<1		2550		<1	
2511		<3	7.50	2551		14	
2512		1		2552		<1	
2513		<1		2553		1	19.00
2514		<1		2554		10	
2515		2		2555		2	
2516		1		2556		2	
2517		2		2557		<1	

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SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM	SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM
2558		5		2598		1	17.00
2559		<1		2599		2	
2560		3		2600		1	
2561		2		2601		<1	17.00
2562		<1		2602		<1	
2563		2		2603		<1	16.00
2564		1		2604		1	
2565		1		2605		<1	
2566		5		2606		2	
2567		4		2607		<1	
2568		3		2608		1	
2569		2		2609		1	
2570		2		2610		<1	
2571		<1		2611		27	
2572		1		2612		2	
2573		2		2613		<1	
2574		1		2614		1	
2575		2		2615		4	16.00
2576		<1		2616		2	
2577		2		2617		6	
2578		7		2618		<1	
2579		7	16.00	2619		1	
2580		3		2620		<1	17.00
2581		<1		2621		1	17.00
2582		<1		2622		1	
2583		<1		2623		19	
2584		<1		2624		1	
2585		1		2625		3	
2586		<1		2626		1	
2587		3		2627		5	
2588		3		2628		1	
2589		1		2629		4	17.00
2590		<1		2630		1	
2591		1		2631		1	
2592		2		2632		5	
2593		2		2633		<1	18.00
2594		<1		2634		<1	
2595		<1	14.00	2635		2	
2596		<1		2636		<1	
2597		1		2637		1	

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SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM	SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM
2638		<1		2678		15	
2639		2		2679		11	
2640		3		2680		2	
2641		<1	16.00	2681		8	10.00
2642		6		2682		4	15.00
2643		4		2683		20	15.00
2644		30		2684		26	13.00
2645		<1		2685		1	
2646		<1		2686		2	
2647		1		2687		2	
2648		<1		2688		1	
2649		1		2689		<1	
2650		<1		2690		<1	
2651		<1		2691		3	
2652		<1		2692		<1	15.00
2653		1		2693		2	10.00
2654		3		2694		<1	
2655		1		2695		4	10.00
2656		<1		2696		1	10.00
2657		1		2697		1	
2658		1		2698		2	
2659		1		2699		<1	
2660		2		2700		2	15.00
2661		<1		2701		1	
2662		1		2702		<1	
2663		<1		2703		<1	
2664		<1		2704		<1	
2665		<1		2705		3	
2666		2		2706		1	
2667		<2	10.00	2707		1	
2668		<1		2708		3	
2669		<1		2709		1	
2670		2		2710		1	
2671		4		2711		<1	
2672		1		2712		7	
2673		3		2713		1	
2674		<1		2714		3	15.00
2675		1		2715		2	
2676		3		2716		1	
2677		12		2717		2	

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SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM	SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM
2718		<1		2758		<1	
2719		1		2759		1	
2720		<1		2760		1	
2721		2		2761		<1	
2722		1		2762		2	
2723		2	15.00	2763		1	
2724		1		2764		1	
2725		2		2765		1	
2726		<1		2766		<1	
2727		3		2767		5	18.00
2728		4		2768		<1	
2729		1		2769		1	11.50
2730		<1		2770		3	16.00
2731		<1		2771		<1	7.00
2732		<1		2772		4	
2733		1		2773		5	
2734		<1		2774		<1	
2735		1		2775		2	
2736		2		2776		<1	
2737		7		2777		<1	
2738		1		2778		1	
2739		<1		2779		2	
2740		1		2780		2	
2741		1		2781		<1	
2742		1		2782		<1	
2743		3		2783		<1	
2744		<1		2784		<1	
2745		1		2785		<1	
2746		1		2786		7	
2747		2		2787		<1	
2748		1		2788		3	
2749		<1		2789		<1	17.00
2750		2		2790		1	
2751		<1		2791		<1	
2752		2		2792		<1	
2753		<1		2793		1	
2754		1		2794		6	6.00
2755		<1		2795		<1	
2756		2		2796		2	
2757		1		2797		<1	

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SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM	SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM
2798		3	12.50	2838		<1	19.00
2799		4		2839		2	12.00
2800		1		2840		<2	10.50
2801		<1		2841		2	
2802		<1	19.00				
2803		<1	17.50				
2804		<1					
2805		<1					
2806		<1					
2807		<1					
2808		<1					
2809		<1					
2810		<1					
2811		4					
2812		1					
2813		1					
2814		<1					
2815		<1					
2816		1					
2817		<1	17.50				
2818		<1					
2819		1					
2820		<1					
2821		1					
2822		<1					
2823		6					
2824		4	11.50				
2825		1					
2826		<2	11.00				
2827		2					
2828		3	8.00				
2829		4					
2830		<1					
2831		2					
2832		<1					
2833		<1					
2834		1					
2835		2	18.50				
2836		1					
2837		2					

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SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM	SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM
1190		2	15.00	2880		<1	
1604		3		2881		21	
2842		2		2882		<1	15.50
2843		3		2883		<1	
2844		2		2884		2	
2845		2		2885		1	
2846		<1		2886		<1	
2847		<1		2887		3	
2848		<1		2888		<1	
2849		2		2889		<1	
2850		3		2890		<1	
2851		2	17.50	2891		1	
2852		1		2892		2	
2853		12		2893		<1	
2854		3		2894		<1	
2855		<1		2895		2	
2856		<1		2896		1	
2857		1		2901		<1	
2858		3		2902		<1	
2859		2		2903		<1	
2860		<1		2904		1	
2861		<1		2905		5	
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2864		<1		2908		1	
2865		<1		2909		3	
2866		4		2910		13	
2867		2		2911		<1	11.50
2868		2		2912		<1	
2869		3		2913		1	
2870		<1		2914		<1	
2871		<1		2915		1	
2872		4		2916		2	
2873		5		2917		<1	16.50
2874		<1		2918		<1	
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2876		<1		2920		<1	
2877		1		2921		2	
2878		1		2922		<1	
2879		1		2923		<1	

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Geochemical Lab Report

REPORT 017-0516

PROJECT: HARWIN PAGE 1

SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM	SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM
115[illegible]		2	15.00	2880		<1	
1[illegible]		3		2881		21	
2[illegible]		2		2882		<1	15.50
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2845		2		2885		1	
2846		<1		2886		<1	
2847		<1		2887		3	
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[illegible]		4		2910		13	
[illegible]		2		2911		<1	11.50
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2[illegible]		<1		2914		<1	
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2[illegible]		1		2923		<1	

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Geochemical Lab Report

REPORT: 017-3516

PROJECT: HARWIN PAGE 2

SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM	SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM
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2925		1		2965		<1	
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2931		<1		2971		<1	
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2933		1		2973		2	
2934		1		2974		1	
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2937		1		2977		5	
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2948		1		2988		3	
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2952		<1		2992		6	
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2957		48		2997		2	
2958		<1		2998		3	
2959		2		2999		<1	
2960		1		3000		2	
2961		2		3001		2	
2962		2		3002		1	
2963		<1		3003		<1	

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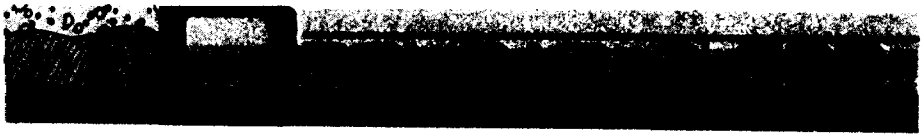

Geochemical Lab Report

REPORT: 017-3516

PROJECT: HARWIN PAGE 3

SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM	SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM
3004		9		3044		1	
3005		<1		3045		<1	
3006		11		3046		<1	
3007		1	19.00	3047		<1	
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3009		2		3049		1	
3010		4		3050		1	
3011		1		3051		<1	18.50
3012		1		3052		4	
3013		<1		3053		1	
3014		2		3054		<1	—
3015		1		3055		<1	
3016		1		3056		3	16.00
3017		3		3057		1	
3018		2		3058		1	
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3020		7		3060		1	
3021		3		3061		1	
3022		2		3062		1	
3023		4		3063		3	
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3026		5		3066		<1	
3027		1		3067		2	
3028		1		3068		<1	
3029		14		3069		1	
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3032		<1		3072		1	
3033		<1		3073		2	
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3035		<1		3075		<1	
3036		2		3076		<1	
3037		<1		3077		<1	
3038		<1		3078		14	
3039		2		3079		<1	
3040		1		3080		<1	
3041		1		3081		<1	
3042		4		3082		9	
3043		2		3083		<1	

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Geochemical Lab Report

REPORT: 017-3516

PROJECT: HARWIN PAGE 4

SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM	SAMPLE NUMBER	ELEMENT UNITS	Au PPB	TestWt GM
3004		2					
3005		1					
3006		<1					
3007		1					

GEOPHYSICAL REPORT ON THE

ST. JOE PROPERTY

FOR

HARWIN EXPLORATION AND DEVELOPEMENT INC.

August 3, 1987

Prepared by: G. M. Feeney
Geophysicist

MDX GeoServices

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I Summary

A Geophysical Survey of the St. Joe Property, Madoc Township, Ontario was undertaken during the period June 24 to July 4, 1987 for Harwin Exploration and Developement Inc., Vancouver B.C. Three different geophysical methods were employed. These are: 1) Total field magnetics, 2) Vertical gradient magnetics and, 3) VLF EM. Several magnetic anomalies and electrical conductors were identified on the property. The numerous anomalies were then culled to produce a list of the most prospective entities. Recommendations have been formulated for followup on the most prospective anomalies.

II LOCATION AND ACCESS

The St. Joe Property detailed in this report consists of the 13 claims listed below:

EO 552525	EO 657932	EO 657933	EO 747888	EO 747891
EO 747944	EO 747945	EO 781911	EO 781912	EO 781913
EO 781914	EO 781915	EO 781916		

The Property is approximately 2 1/2 miles long by an average 1/2 mile wide and lies within concessions IV, V & VI and lots 24 & 25, Madoc Township, Ontario.

The property is easily accessible from highway #62, via highway #7, eight miles north of the village of Madoc (Fig. 7). The west half of the Property is accessed via the Keller Bridge Road. As well, there is a single tower hydro corridor which cuts the west half down the middle in an east-west direction. The Base Line for this half of the Property (5000 N) runs along this corridor until it reaches the highway.

The east half of the Property can be accessed through a lot line roadway from highway 62 between lots 25 & 26. Another access route is via the Fox's Corners Sideroad, then north along the concession boundary between concessions VI & VII. A trail leads from the intersection of the concession boundary and the hydro corridor right through to the lot line road off highway 62, passing the Bannockburn Pyrite Mine in its course.

The south-east corners of the east half of the Property are cut off by a wide hydro corridor containig four sets of towers. These towers caused considerable noise on the VLF and to a lesser extent on the total field and vertical gradient magnetics within 100 feet of the wires.

National Topographic System (NTS) map 31 C/12 shows the St. Joe Property at a scale of 1:50,000.

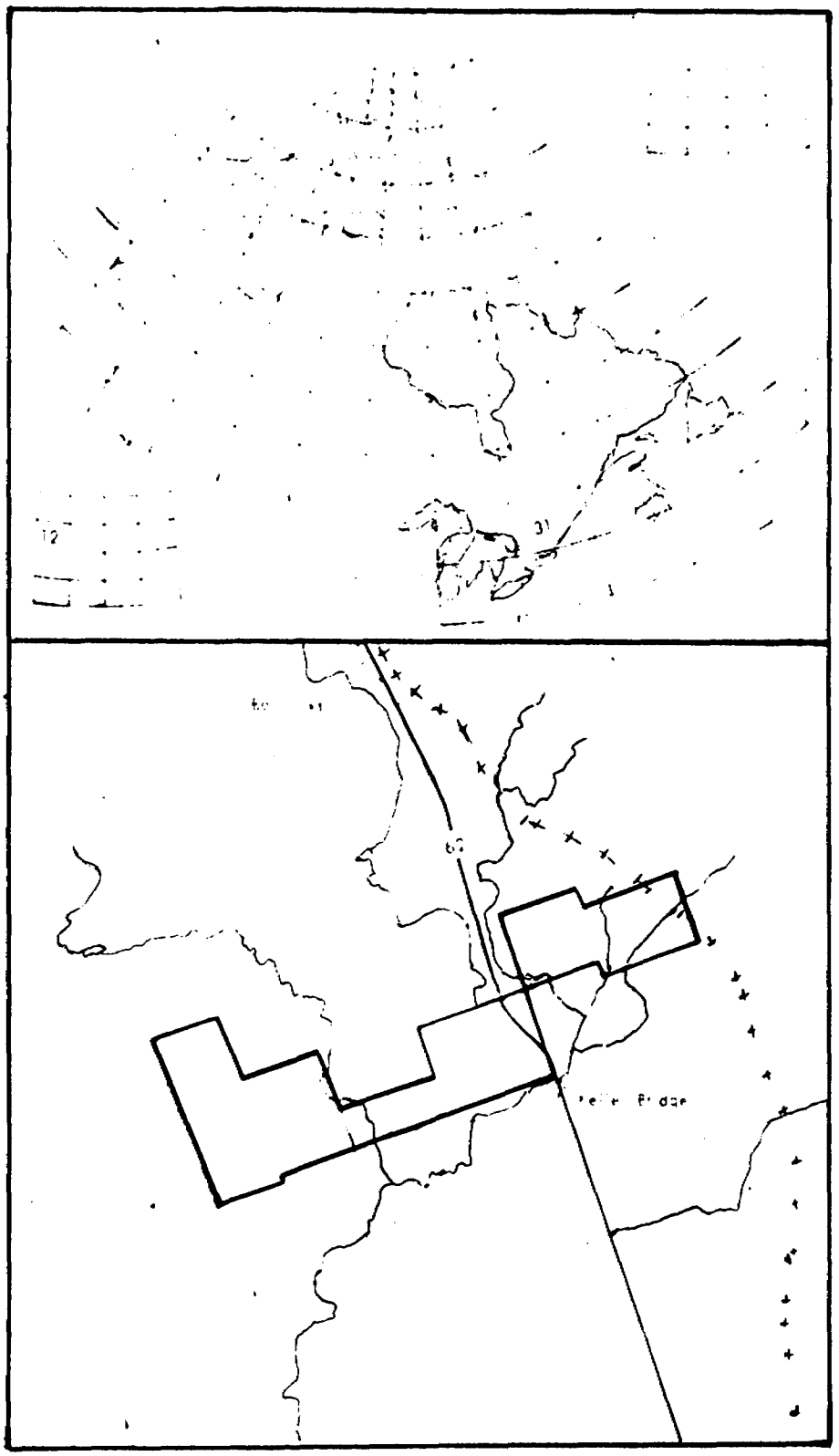


Figure 7. - St. Joe Property, General Location

III Introduction

On June 24 to July 4 1987, a Geophysical survey consisting of total field magnetics, vertical gradient magnetics and VLF EM was carried out on the St. Joe Property (Fig. 7) in Madoc Township, Ont. The property maps have been divided into two roughly equal areas: the East Half and the West Half. In the Western portion, there is mostly flat, rolling farmland, largely cleared of trees with very little outcrop exposure. Geophysical coverage on this half was complete. In places, numerous fences and posts contributed some noise to VLF readings. A single tower hydro corridor created a great deal of noise on the VLF, and some to total field and vertical gradient readings. Choppy terrain in the northwest corner caused some terrain noise. All efforts were made to minimize noise wherever possible.

The east half of the Property was a good deal wetter than the west half, with the Moira River and ponding at the Old Mine site being the major obstacles. Data was not collected under the major hydro corridor as it was too noisy. The base line on the eastern map sheet is at 6450 N, with a tie line at 7800 N. Station spacing was 50 feet throughout the survey on a line spacing of 200 feet. Except for a pond on line 99 E and a small area near the Moira River, full coverage was attained.

The following report contains the results of the survey, and associated maps, profiles and interpretations.

IV GEOPHYSICAL SURVEY

METHOD;

Magnetics

This Geophysical Survey was conducted at a station spacing of 50 feet, on lines spaced 200 feet apart.

An OMNI-PLUS combined instrument (Appendix A) was used to record total field magnetics, vertical gradient magnetics and VLF EM. Diurnals were corrected by tying back in loops along tie lines.

Daily records of the total field and vertical gradient were dumped to floppy disk, and computer mag profiles were plotted for quick quality control in the field. The Omni Plus automatically cor-

rects tie line data when it is dumped to a computer. After all the data was compiled, contour maps were generated for interpretation. These maps are included in the cover jacket (Figs. 1-6).

Finally, a list of prospective anomalies (Table I) for followup was compiled.

VLF

The OMNI-PLUS System is also a recording VLF instrument. At the beginning of each day, the instrument is initialized and the readings are stored for later reference. This is done several times to ensure consistancy. Up to three separate broadcasting VLF stations are then selected to ensure redundancy in the event that one station stops broadcasting. Cutler Maine at 24 KHz was chosen as the station offering the best coupling in terms of line direction and signal strength. Seatle, Washington was chosen as the backup station.

The three VLF parameters for both stations are recorded at each grid position automatically. At the end of each day the data is dumped along with the mag data in ASCII format to a field computer for later processing. Plots of percent in-phase and quadrature and total field can then be generated for each line. A total field map is then compiled to speed the interpretation process. X-Y plots of percent in-phase and percent quadrature are more useful for determining the nature of an anomaly.

INSTRUMENTATION

The EDA OMNI-PLUS Combined portable magnetics/VLF console is a self tuning, automatic recording, digital memory unit. The magnetics portion can be used in either of four different modes. These are: 1) portable total field magnetometer; 2) portable gradiometer (includes total field); 3) tie-line magnetometer; and, 4) automatic recording base station.

In the VLF mode, three components of the EM field can be measured. They are: 1) % in-phase; 2) % quadrature; and 3) total field. The three VLF parameters are measured "sequentially" once a magnetic reading is taken. As well, up to three VLF stations are recorded to produce redundancy in case of station shutdown. A new feature allows the determination of resistivity by planting two ground EM pickups ten meters apart.

In the gradiometer mode, both vertical gradient and total field (upper sensor) are measured simultaneously with sensor heights of 2.0 and 2.5 meters yielding a sensor separation of 0.5 meters. Then the VLF readings are recorded. The resolution of the unit is 0.1 gamma with a maximum gradient tolerance of 6000 gammas per meter.

When used as a base station, it can be programmed to take readings anywhere from 5 seconds to 60 minutes apart in 1 second increments.

After a day's recording, both the portable gradiometer and base station are interfaced with a microcomputer enabling input of corrected total field data. The automatic tie line correction method was chosen for this survey. Gradient data is essentially immune to diurnals and pulsations encountered during periods of magnetic disturbance. A datum of 57,000 gammas was chosen for the portable field unit.

VLF recording is made immediately after magnetic readings. The VLF receiver is oriented in the direction of walking. It is an omnidirectional receiver that corrects any disorientation of the unit automatically. Tilt meters are employed to make this correction possible. It is very important that the unit be kept motionless during a reading.

VLF data is dumped to disk in the same manner as the corrected magnetic data, and at the same time. The ASCII formatted data is then used to create a base map and contour map and topological plots.

Complete technical specifications of the instrument are provided in Appendix A.

RESULTS AND INTERPRETATION

The combined Geophysical Survey was conducted at station spacings of 50 feet in order to increase the north-south resolution of the data. In the west half, this should help define geological units, since strike is largely east-west in this area.

Two primary stations were employed in the VLF interpretation: Cutler, Maine and Seatle, Washington. Cutler is a relatively strong station within the survey area, and Seatle, relatively weak. However, both stations tracked each other very well. The following discussion deals with each of the three map sets - 1. Total Field Magnetics; 2. Vertical Gradient Magnetics; 3. VLF EM:

Total Field Magnetics

Total field magnetics were successfull in outlining areas of high magnetic susceptibility, usually metavolcanics and metasediments. In the west half (figure 1), the top northwest corner shows the expression of exposed metavolcanics. There is a trend to the south-east which is convoluted by a couple of small folds defined by fold axis F4 and F5. The F4 axis appears to indicate a syncline, with low magnetic carbonate rocks folded into underlying metavolcanics. Anomalies T13 and T14 are close to the fold closures and may be the result of sulphides (pyrrhotite).

Anomalies T15 and T16 reside on an east-west trend which has associated vertical gradient and VLF anomalies. This trend may wrap around axis F4 and F5 to produce anomalies T13 and T14. This horizon might also extend all the way to anomaly T12.

There are also several magnetic highs and dipoles, T17-T21 in the very north. Some of the dipoles probably are expressions of terrain, but the ones which reside on linear trends probly define identifiable units.

The east half total field magnetics (figure 2) displays gross geologic structure. Two major fold axis, F1 and F2, are clearly evident and a postulated third, F3, runs north-south at the far east end of the property. Axis F2 has several proximal magnetic dipoles: T1, T2, T3 and T5. Anomaly T5 is located quite close to the Bannockburn Pyrite Mine. Although pyrite itself is not magnetic, there may be pyrrhotite present and/or magnetite. There is also a zone of high conductivity, and a conductor on one line only (line 132 E 6550 N) near the old mine.

A sulphide horizon visible in a roadcut where highway 62 crosses line 111 E may close around fold axis F1 and be expressed in anomaly T8. T6, T7, T9, T10 & T11 may be another horizon which also sees closure about F1.

Vertical Gradient

For steeply dipping units, the vertical gradient better defines the contact between adjacent units than does the total field. On the St. Joe Property, the units are not dipping steeply everywhere and vertical gradient values of zero may only approximate the contact zone.

It can be seen from figures 3 and 4 that the gradient presents a clearer picture of stratigraphic units, and may "see" through thin overburden better than total field magnetics. For example, axis F3 has a clearer expression and can be seen to close to the south. Contacts between units can be traced considerable distances on figure 3. There is no real gradient anomaly in the vicinity of the Pyrite Mine, as might be expected, since pyrite is the main mineral occurance. The rusty horizon mentioned earlier, that crosses the highway and passes near a series of pits on line 107 E @ 5800 N, has some gradient expression.

Rock units overlain by later carbonate rocks and paleozoic rocks in the south-west corner of the west half (figure 3) appear to be striking east-west.

VLF

Several VLF conductors and areas of high conductivity have been identified throughout the Property (figures 5 & 6). The east half of the property shows a series of conductors C1 - C3 crowning a large closure about axis F2.

C1 is a semi-continuous conductor which may follow the contact between to stratigraphic units. It may coincide with a known rusty zone which extends up from the St. Joe Showings on the west side of highway 62, where a conductive zone has been identified. Anomalies C2 and C3 may be continuations of this horizon.

In the west half, an isolated anomaly C9 lies in to the east of a group of conductors C4 - C8 in the northwest corner. Conductor C7 may be the expression of a conductive horizon burried underneath the soil overburden. C8 may correspond to metavolcanics slightly exposed nearby, and trends in the same direction as axis F5.

Conductor C4 parallels a long winding swamp and may only be the result of ponded water. However, it does follow a magnetic high trend and should not be discarded without examination. Conductor C5 is quite strong and continuous. There is a clear correlation between C5 and total field/gradient anomalies. C5 and C6 should be examined on the ground to see if they are only contact/terrain anomalies and whether deeper penetrating EM techniques are warranted.

Table 1 lists all the anomalies identified in the survey with a brief desciption of each anomaly. There are many other small anomalies not listed in the table.

V PROPERTY GEOLOGY

The western half of the property consists mostly of rolling, cleared farmland in the south, and exposures of metavolcanic rocks in the northwest corner. The farmland is composed mainly of sandy, glacial tills with little or no rock outcrop, lapping up against the metavolcanic rocks to the north. Depth to bedrock is unknown in this southern part of the property. However, total field magnetics indicate that the bedrock surface dips off to the south underneath these soils and vertical gradient magnetics indicate that the bedrock units strike east-west under a veneer of carbonate and paleozoic rocks. It can be seen in some of the old workings in the northwest corner that there are few sulphides in this vicinity. The Gawley Creek syenite is exposed within a few hunderd yards of the northwest corner and some quartz veining is evident in the area.

The eastern half of the property shows mainly carbonate and metasedimentary rocks exposed. Two or three fold axis trend north across the Property. A three meter wide rusty zone can be seen in a roadcut near the intersection with line 111 E. This zone may prove to be a useful marker horizon for the purposes of geophysical interpretation. The extreme eastern edge of the property is also covered by sandy glacial tills, and has very little rock exposure.

There is no real clear indication of geologic structure from existing aeromagnetic total field and gradient information. The following list describes the rock types found in the Property area:

METAVOLCANIC ROCKS

These are the mafic to intermediate, massive greenstones of the Tudor Formation. They are moderately foliated, chloritic and exhibit several alteration types. These rocks are now well known in terms of their suceptibility and mineral content. In places, they have a high magnetite content and can be characterised as a metabasalt.

METASEDIMENTARY ROCKS

There are basically three types of metasedimentary rocks in the survey area. These are metaargillites, quartzites and rusty schists.

CARBONATE ROCKS

Carbonate units are largely covered by a sandy, till overburden in the south-west corner of the property. These marbles are fine grained, with little other mineralization. Both the magnetic and electrical response of these units are quite flat.

PALEOZOIC ROCKS

An outlier of Black River Limestone is mapped in the very south-west corner of the Property on ODM map 2154, 1966.

VI Conclusions and Recommendations

The three component Geophysical survey has delineated numerous magnetic and electrical conductors. Most VLF conductors found on the east half of the Property appear to lie conformably within the stratigraphic units of the sediments in the form of rusty horizons and contact anomalies. One such unit passes through the St. Joe showings just east of highway 62 and trends northeast across the highway possibly as far as the Bannockburn Pyrite Mine. Here there is a broad conductive zone, due mostly to pyrite and a strong conductor. The magnetic expression is a very broad high, but not very strong. This unit should be traced out on the ground and sampled geochemically by fire assay and some whole rock analysis. Should there prove to be traces of gold present more detailed and deeper penetrating electrical methods such as Horizontal Loop or Induced Polarization should be employed to determine the size and extent at depth, of this zone; especially in the vicinity of fold closures.

The northern corner of the west half of the property has several mag anomalies and conductors to be examined. The most interesting are anomalies C5 and C6. Correlation of this anomaly with any soil geochem anomaly may make it more prospective. Each of the anomalies in this northern corner will have to be examined separately, to establish their relationship with volcanic units before any additional geophysical work is recommended in this area.

TABLE I - List of Anomalies

VLF

No.	Description
C1	Contact conductor - anomaly may be a conductive horizon abutting more resistive horizons. Follows strike as delineated by vertical gradient.
C2	Similar to C1, this conductor appears shallowest near line 130 E @ 7400 N. It appears to follow the stratigraphy around the northern extent of a large fold closure.
C3	Large anomaly on line 130 E @ 7250 N coincides with the large pits near the old Pyrite Mine. A large zone of high conductivity is associated with this anomaly.
C4	Conductor which parallels a long swamp. The conductor is probably caused by the swamp itself.
C5	This conductor is closely associated with a parallel vertical gradient high with good continuity, and should be prospected carefully.
C6	This conductor coincides exactly with anomalies T16 and V17 which are total field and vertical gradient anomalies, and may be up to 1000 feet in length.
C7	Short, weak conductor with no corresponding total field or gradient anomalies. May be groundwater.
C8	Semi-continuous, weak conductor is passes through total field anomaly T13 and gradient anomaly V15, and is also sub-parallel to fold axis F5.
C9	Short conductor, crossing only one line.

Total Field

T1,T2 T3,T5 — T1 is a mag low, while T2,T3 and T5 are mag highs. All four anomalies are in close proximity to fold axis F2. T5 may be linked to exposures near the old Pyrite Mine indicating possible magnetite or pyrrhotite concentrations.

T4 — Strong low of unknown origin should be investigated further.

T6,T7 — Both highs sit on a short ridge crossing lines 105 E - 109 E. Ridge appears to follow strike and may be a magnetic stratigraphic horizon.

T8 — Strong high lying almost on the fold axis F1, should be prospected.

T9,T10 T11 — These highs reside on a generally high mag trend which is probably the other limb of the horizon defined by T6 and T7. This unit closes to the south about fold axis F1.

T12 — Broad total field high has an associated vertical gradient high, lies on the eastern extremity of a possible small fold and should be prospected.

T13, T14 — The two mag highs appear to be related to fold axis F4 and F5 and may lie on the same stratigraphic horizon as T12.

T15, T16 — Total field lineation trending east-west, corresponds to gradient anomalies V17 and V18, and conductors C5 and C6.

T17- T21 — Series of total field highs in metavolcanic rocks. Some of these anomalies will probably prove to be related to terrain, but all should be prospected.

VERTICAL GRADIENT

V1-V3 Vertical gradient highs and lows all reside on or near fold axis F2. Each should be prospected separately.

V4 Large vertical gradient low has an associated total field low and should be investigated on the ground.

V5,V6, V8 Strong vertical gradient high may correspond to a rusty sulphide horizon seen to cross highway 62 to the west, and may be traceable to the east around fold axis F2 as far as the old Pyrite Mine, and to the west through anomalies V6 and V8 which wrap around fold axis F1.

V9

V7,V10 -V13 Vertical gradient highs appear to be tied to the same stratigrapphic unit as they swing through a fold closure about fold axis F1. This unit may be continuous to the north-east, up around anomaly V2 and through the old Bannockburn Pyrite Mine.

V14 Isolated vertical gradient high at the eastern end of an area of positive vertical gradient. It has an associated total field high T12.

V15, V16 Two gradient highs riding on the limbs of fold axis F4 and F5.

V17, V18 An east-west linear trend with corresponding total field highs T15 and T16, and conductors C5 and C6.

V19 Area of metavolcanic rock outcrop with many gradient and total field highs and lows. Some of these will probably prove to be terrain related, but should confirmed on the ground.

BIBLIOGRAPHY

Kingston, P.W. Papertzain, V.C. 1982	Gold Developement Potential In Eastern Ontario; Ontario Geological Survey Open File Report # 5379
Telford, W.M. et al, 1976:	Applied Geophysics; Cambridge University Press
Thompson, W.H., Racic, L.J., 1984	Magnetic & VLF Electromagnetic surveys for Mono Gold Mines Inc., on the Bannockburn property, Madoc Township, Ontario; GeoSearch Consultants Ltd.
Feeney, G.M. 1986	High Resolution Gradiometer Survey Of The Bannockburn Gold Deposit for Mono Gold Mines Inc.; MDX GeoServices, June 20, 1986
Kenting Earth Sciences Ltd., 1984	OGS 1985: Airborne High Resolution Total Field And Gradient Survey, Kaladar and Marmora Area, Southern Ontario, Kenting Earth Sciences Ltd. for the OGS; February 1984.

CERTIFICATE OF QUALIFICATION

I, Gary M. Feeney, of Keswick, Ontario

DO HEREBY CERTIFY THAT

1) I am a degree holding Geophysicist, a graduate of Queen's University Kingston, Ontario, with a B.Sc. Honors in Engineering Geophysics.

2) I have practised my profession in the fields of Mineral and Petroleum Exploration in Canada for 5 years.

3) That the information, opinions and recommendations in this report are based on personal observations made at the site of the Survey, from data collected on the subject property and discussions with qualified persons who are familiar with the property and its history during the course of the Survey.

4) That I have no direct or indirect interest in any of the subject claims to which this report refers, nor in the shares or securities of Harwin Exploration and Developement Inc., or in associated companies, nor do I expect to receive such interests.

Dated at Keswick, Ontario

August 3, 1987

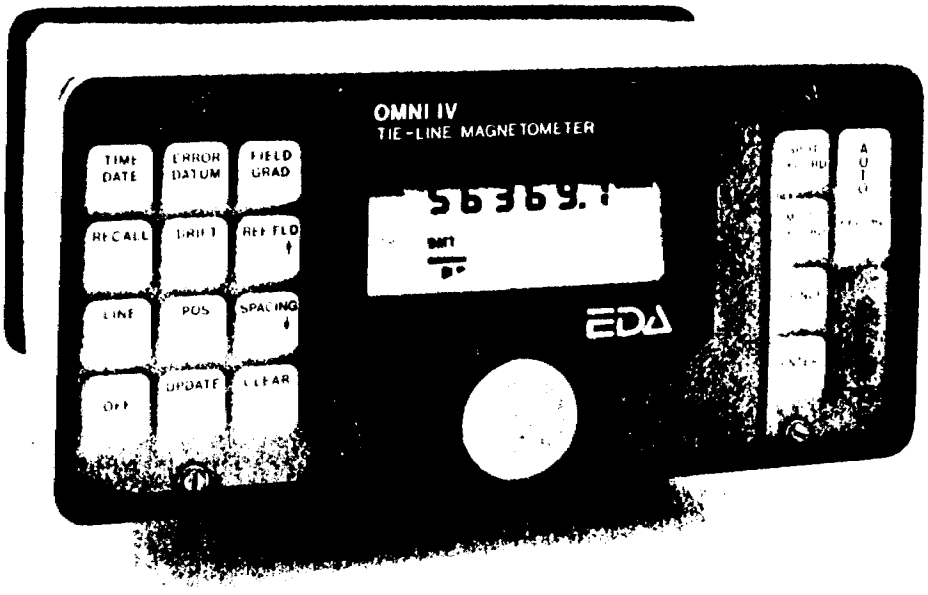
Gary M. Feeney
Geophysicist

APPENDIX A

DATA - EDA OMNI-PLUS COMBINED INSTRUMENT SPECIFICATIONS

OMNI IV "Tie-Line" Magnetometer

EDA



Four Magnetometers In One

Self Correcting for Diurnal Variations

Reduced Instrumentation Requirements

25% Weight Reduction

User Friendly Keypad Operation

Universal Computer Interface

Comprehensive Software Packages

Specifications

Dynamic Range	18,000 to 110,000 gammas. Roll-over display feature suppresses first significant digit upon exceeding 100,000 gammas.
Tuning Method	Tuning value is calculated accurately utilizing a specially developed tuning algorithm
Automatic Fine Tuning	± 15% relative to ambient field strength of last stored value
Display Resolution	0.1 gamma
Processing Sensitivity	± 0.02 gamma
Statistical Error Resolution	0.01 gamma
Absolute Accuracy	± 1 gamma at 50,000 gammas at 23°C ± 2 gamma over total temperature range
Standard Memory Capacity	
Total Field or Gradient	1,200 data blocks or sets of readings
Tie-Line Points	100 data blocks or sets of readings
Base Station	5,000 data blocks or sets of readings
Display	Custom-designed, ruggedized liquid crystal display with an operating temperature range from -40°C to +55°C. The display contains six numeric digits, decimal point, battery status monitor, signal decay rate and signal amplitude monitor and function descriptors.
RS 232 Serial I/O Interface	2400 baud, 8 data bits, 2 stop bits, no parity
Gradient Tolerance	6,000 gammas per meter (field proven)
Test Mode	A. Diagnostic testing (data and programmable memory) B. Self Test (hardware)
Sensor	Optimized miniature design. Magnetic cleanliness is consistent with the specified absolute accuracy.
Gradient Sensors	0.5 meter sensor separation (standard), normalized to gammas/meter. Optional 1.0 meter sensor separation available. Horizontal sensors optional.
Sensor Cable	Remains flexible in temperature range specified, includes strain-relief connector
Cycling Time (Base Station Mode)	Programmable from 5 seconds up to 60 minutes in 1 second increments
Operating Environmental Range	-40°C to +55°C; 0-100% relative humidity; weatherproof
Power Supply	Non-magnetic rechargeable sealed lead-acid battery cartridge or belt; rechargeable NiCad or Disposable battery cartridge or belt; or 12V DC power source option for base station operation.
Battery Cartridge/Belt Life	2,000 to 5,000 readings, for sealed lead acid power supply, depending upon ambient temperature and rate of readings
Weights and Dimensions	
Instrument Console Only	2.8 kg, 238 x 150 x 250mm
NiCad or Alkaline Battery Cartridge	1.2 kg, 235 x 105 x 90mm
NiCad or Alkaline Battery Belt	1.2 kg, 540 x 100 x 40mm
Lead-Acid Battery Cartridge	1.8 kg, 235 x 105 x 90mm
Lead-Acid Battery Belt	1.8 kg, 540 x 100 x 40mm
Sensor	1.2 kg, 56mm diameter x 200mm
Gradient Sensor (0.5 m separation - standard)	2.1 kg, 56mm diameter x 790mm
Gradient Sensor (1.0 m separation - optional)	2.2 kg, 56mm diameter x 1300mm
Standard System Complement	Instrument console; sensor; 3-meter cable, aluminum sectional sensor staff, power supply, harness assembly, operations manual.
Base Station Option	Standard system plus 30 meter cable
Gradiometer Option	Standard system plus 0.5 meter sensor

E D A Instruments Inc.
4 Thorncliffe Park Drive
Toronto, Ontario
Canada M4H 1H1
Telex: 06 23222 EDA TOR
Cable: Instruments Toronto
(416) 425 7800

In U.S.A.
E D A Instruments Inc.
5151 Ward Road
Wheat Ridge, Colorado
U.S.A. 80033
(303) 422 9112

Printed in Canada

Ontario

Ministry

GEOPHYSICAL – G
TECHNICAL

31C12NE0038 2.10400 MADOC

900

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) GEOPHYSICAL

Township or Area MADOC, EASTERN ONTARIO

Claim Holder(s) HARWIN EXPLORATION & DEVELOPMENT INC.

#709, 837 W. Hastings St., Vancouver, B.C V6C 1B6

Survey Company MDX GEOSERVICES

Author of Report GARY M. FEENEY

Address of Author 251 Royal Rd., Keswick, Ontario L4P 2T9

Covering Dates of Survey 2nd May 1987 to 3rd August 1987
(linecutting to office)

Total Miles of Line Cut 28.05 miles

SPECIAL PROVISIONS CREDITS REQUESTED		DAYS per claim
ENTER 40 days (includes line cutting) for first survey.	Geophysical	
	–Electromagnetic	
	–Magnetometer	40
	–Radiometric	
ENTER 20 days for each additional survey using same grid.	–Other	
	Geological	
	Geochemical	

AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys)

Magnetometer _____ Electromagnetic _____ Radiometric _____
(enter days per claim)

DATE: Sept. 21, 1987 SIGNATURE: _____
Author of Report or Agent

Res. Geol. _____ Qualifications This file

Previous Surveys

File No.	Type	Date	Claim Holder

RECEIVED
SEP 28 1987
MINING LANDS SECTION

MINING CLAIMS TRAVERSED
List numerically

(prefix)	(number)
EO	552525
EO	657932
EO	657933
EO	747888
EO	747891
EO	747944
EO	747945
EO	781911
EO	781912
EO	781913
EO	781914
EO	781915
EO	781916

TOTAL CLAIMS 13

If space insufficient, attach list

OFFICE USE ONLY

837 (5/79)

GEOPHYSICAL TECHNICAL DATA

GROUND SURVEYS – If more than one survey, specify data for each type of survey

Number of Stations 2194 Number of Readings 2911

Station interval 50 feet Line spacing 200 feet and 400 feet

Profile scale HOR. - 1" = 200 feet; VERT. - 1" = 500 γ

Contour interval 50 γ

MAGNETIC

Instrument EDA OMNI PLUS

Accuracy – Scale constant 0.1 γ

Diurnal correction method AUTOMATIC TIE LINE CORRECTION

Base Station check-in interval (hours) N/A

Base Station location and value N/A

ELECTROMAGNETIC

Instrument EDA OMNI PLUS (VLF)

Coil configuration N/A

Coil separation N/A

Accuracy N/A

Method: ☐ Fixed transmitter ☐ Shoot back ☐ In line ☐ Parallel line

Frequency 24.0 KHZ Cutler, Maine - Seattle, Washington as back-up
(specify V.L.F. station)

Parameters measured IN-PHASE (%), QUADRATURE (%), TOTAL FIELD, TILT ANGLE (DEG.)

GRAVITY

Instrument

Scale constant

Corrections made

Base station value and location

Elevation accuracy

INDUCED POLARIZATION RESISTIVITY

Instrument

Method ☐ Time Domain ☐ Frequency Domain

Parameters – On time Frequency

– Off time Range

– Delay time

– Integration time

Power

Electrode array

Electrode spacing

Type of electrode

SELF POTENTIAL

Instrument _____ Range _____

Survey Method _____

_____

Corrections made _____

_____

RADIOMETRIC

Instrument _____

Values measured _____

Energy windows (levels) _____

Height of instrument _____ Background Count _____

Size of detector _____

Overburden _____

(type, depth – include outcrop map)

OTHERS (SEISMIC, DRILL WELL LOGGING ETC.)

Type of survey _____

Instrument _____

Accuracy _____

Parameters measured _____

_____

Additional information (for understanding results) _____

_____

_____

AIRBORNE SURVEYS

Type of survey(s) _____

Instrument(s) _____

(specify for each type of survey)

Accuracy _____

(specify for each type of survey)

Aircraft used _____

Sensor altitude _____

Navigation and flight path recovery method _____

_____

Aircraft altitude _____ Line Spacing _____

Miles flown over total area _____ Over claims only _____

GEOCHEMICAL SURVEY – PROCEDURE RECORD

Numbers of claims from which samples taken _____

_____

_____

Total Number of Samples _____

Type of Sample _____
(Nature of Material)

Average Sample Weight _____

Method of Collection _____

_____

Soil Horizon Sampled _____

Horizon Development _____

Sample Depth _____

Terrain _____

_____

Drainage Development _____

Estimated Range of Overburden Thickness _____

_____

_____

SAMPLE PREPARATION
(Includes drying, screening, crushing, ashing)

Mesh size of fraction used for analysis _____

_____

_____

_____

General _____

_____

_____

_____

_____

_____

_____

_____

_____

_____

ANALYTICAL METHODS

Values expressed in: per cent ☐
p. p. m. ☐
p. p. b. ☐

Cu, Pb, Zn, Ni, Co, Ag, Mo, As,-(circle)

Others _____

Field Analysis (_____ tests)

Extraction Method _____

Analytical Method _____

Reagents Used _____

Field Laboratory Analysis

No. (_____ tests)

Extraction Method _____

Analytical Method _____

Reagents Used _____

Commercial Laboratory (_____ tests)

Name of Laboratory _____

Extraction Method _____

Analytical Method _____

Reagents Used _____

General _____

_____

_____

_____

_____

_____

_____

_____

_____

_____

November 19, 1987

Your File: 24
Our File: 2.10400

Mining Recorder
Ministry of Northern Development and Mines
10 Wellesley Street East
1st floor
Toronto, Ontario
M4Y 1G2

Dear Madam:

RE: Notice of Intent dated November 4, 1987
Geophysical (Electromagnetic), Geological and Geochemical
Surveys on Mining Claims EO 552525 et al in Madoc Township

The assessment work credits, as listed with the above-mentioned Notice of Intent, have been approved as of the above date.

Please inform the recorded holder of these mining claims and so indicate on your records.

Yours sincerely,

W.R. Cowan, Manager
Mining Lands Section
Mines and Minerals Division

Whitney Block, Room 6610
Queen's Park
Toronto, Ontario
M7A 1W3

Telephone: (416) 965-4888

AB:pl
Enclosure: Technical Assessment Work Credits

cc: Mr. G.H. Ferguson
Mining & Lands Commissioner
Toronto, Ontario

Resident Geologist
Tweed, Ontario

Harwin Exploration & Development Inc.
Suite #709
837 W. Hastings Street
Vancouver, B.C.
V6C 1B6

Ministry of Northern Development and Mines

Ontario

Technical Assessment Work Credits

File: 2.10400

Date: November 4, 1987

Mining Recorder's Report of Work No.: 24

Recorded Holder: Harwin Exploration & Development Inc.

Township or Area: Madoc

Type of survey and number of Assessment days credit per claim	Mining Claims Assessed
Geophysical	EO 552525 747888 747944-45 781911 to 16 inclusive
Electromagnetic 40 days	
Magnetometer ____ days	
Radiometric ____ days	
Induced polarization ____ days	
Other ____ days	
Section 77 (19) See "Mining Claims Assessed" column	
Geological ____ days	
Geochemical ____ days	
Man days ☐ Airborne ☐	
Special provision ☒ Ground ☒	
☒ Credits have been reduced because of partial coverage of claims.	
☐ Credits have been reduced because of corrections to work dates and figures of applicant.	

Special credits under section 77 (16) for the following mining claims

30 Days	10 Days
EO 657933 747891	EO 657932

No credits have been allowed for the following mining claims

☐ not sufficiently covered by the survey ☐ insufficient technical data filed

The Mining Recorder may reduce the above credits if necessary in order that the total number of approved assessment days recorded on each claim does not exceed the maximum allowed as follows: Geophysical - 80; Geologocal - 40; Geochemical - 40; Section 77(19) - 60.

Ministry of Northern Development and Mines

Ontario

Technical Assessment Work Credits

File 2.10400

Date November 4, 1987

Mining Recorder's Report of Work No. 24

Recorded Holder: Harwin Exploration & Development Inc.

Township or Area: Madoc

Type of survey and number of Assessment days credit per claim	Mining Claims Assessed
Geophysical	EO 552525 657932-33 747888 747891 747944-45 781911 to 16 inclusive
Electromagnetic _____ days	
Magnetometer _____ days	
Radiometric _____ days	
Induced polarization _____ days	
Other _____ days	
Section 77 (19) See "Mining Claims Assessed" column	
Geological 20 days	
Geochemical _____ days	
Man days ☐ Airborne ☐	
Special provision ☒ Ground ☒	
☐ Credits have been reduced because of partial coverage of claims.	
☐ Credits have been reduced because of corrections to work dates and figures of applicant.	

Special credits under section 77 (16) for the following mining claims

No credits have been allowed for the following mining claims

☐ not sufficiently covered by the survey ☐ insufficient technical data filed

The Mining Recorder may reduce the above credits if necessary in order that the total number of approved assessment days recorded on each claim does not exceed the maximum allowed as follows: Geophysical - 80; Geologocal - 40; Geochemical - 40; Section 77(19) - 60.

Ministry of Northern Development and Mines

Ontario

Technical Assessment Work Credits

File: 2.10400

Date: November 4, 1987

Mining Recorder's Report of Work No.: 24

Recorded Holder: Harwin Exploration & Development Inc.

Township or Area: Madoc

Type of survey and number of Assessment days credit per claim	Mining Claims Assessed
Geophysical	
Electromagnetic _____ days	EO 552525
Magnetometer _____ days	657933
Radiometric _____ days	747888
Induced polarization _____ days	747891
Other _____ days	747944-45
Section 77 (19) See "Mining Claims Assessed" column	781911 to 16 inclusive
Geological _____ days	
Geochemical 20 days	
Man days ☐ Airborne ☐	
Special provision ☒ Ground ☒	
☒ Credits have been reduced because of partial coverage of claims.	
☐ Credits have been reduced because of corrections to work dates and figures of applicant.	

Special credits under section 77 (16) for the following mining claims

10 Days

EO-657932

No credits have been allowed for the following mining claims

☐ not sufficiently covered by the survey ☐ insufficient technical data filed

The Mining Recorder may reduce the above credits if necessary in order that the total number of approved assessment days recorded on each claim does not exceed the maximum allowed as follows: Geophysical - 80; Geological - 40; Geochemical - 40; Section 77(19) - 60.

Resident Geologist Tweed

Ministry of Natural Resources
Ontario

Report of Work #87-24
(Geophysical, Geological, Geochemical and Expenditures)

2.10400

File # 552525

Mining Act

Instructions: – Please type or print.
– If number of mining claims traversed exceeds space on this form, attach a list.
Note: – Only days credits calculated in the "Expenditures" section may be entered in the "Expend. Days Cr." columns.
– Do not use shaded areas below.

Type of Survey(s): GEOPHYSICAL, GEOLOGICAL AND GEOCHEMICAL

Township or Area: MADOC G-1269

Claim Holder(s): HARWIN EXPLORATION & DEVELOPMENT INC.

Prospector's Licence No.: T.4690

Address: Suite #709, 837 W. Hastings St., Vancouver, B.C. V6C 1B6

Survey Company: MDX GeoServices

Date of Survey (from & to): 2 Day | 5 Mo. | 87 Yr. — 26 Day | 6 Mo. | 87 Yr.

Total Miles of line Cut:

Name and Address of Author (of Geo-Technical report): Gary Feeney, 251 Royal Road, Kewick, Ontario L4P 2T9

Credits Requested per Each Claim in Columns at right

Special Provisions		Days per Claim
For first survey: Enter 40 days. (This includes line cutting)	Geophysical - Electromagnetic	40
	Geophysical - Magnetometer	
For each additional survey: using the same grid: Enter 20 days (for each)	Geophysical - Radiometric	
	Geophysical - Other	
	Geological	20
	Geochemical	20

Man Days		Days per Claim
Complete reverse side and enter total(s) here	Geophysical - Electromagnetic	
	Geophysical - Magnetometer	
	Geophysical - Radiometric	
	Geophysical - Other	
	Geological	
	Geochemical	

Airborne Credits		Days per Claim
Note: Special provisions credits do not apply to Airborne Surveys	Electromagnetic	
	Magnetometer	
	Radiometric	

RECEIVED
JUL 17 1987
MINING LANDS SECTION

Mining Claims Traversed (List in numerical sequence)

Mining Claim Prefix	Mining Claim Number	Expend. Days Cr.
EO	552525	
	657932	
	657933	
	747888	
	747891	
	747944	
	747945	
	781911	
	781912	
	781913	
	781914	
	781915	
	781916	

Mining Claim Prefix	Mining Claim Number	Expend. Days Cr.

SOUTHERN ONTARIO MINING DIV.
RECEIVED
JUL 09 1987
AM 7 8 9 10 11 12 1 2 3 4 5 6 PM

SOUTHERN ONTARIO MINING DIV.
RECEIVED
First Rec'd
JUN 26 1987
AM 7 8 9 10 11 12 1 2 3 4 5 6 PM

Total number of mining claims covered by this report of work: 13

Expenditures (excludes power stripping)

Type of Work Performed:

Performed on Claim(s):

Calculation of Expenditure Days Credits
Total Expenditures: $ ÷ 15 = Total Days Credits

Instructions
Total Days Credits may be apportioned at the claim holder's choice. Enter number of days credits per claim selected in columns at right.

For Office Use Only

Total Days Cr. Recorded	Date Recorded	Mining Recorder
720	July 9/87	D. Lobkowicz
	Date Approved as Recorded	Branch Director

Date	Recorded Holder or Agent (Signature)
26th June 1987	Gordon D. House Agent

Certification Verifying Report of Work

See revised Statement

I hereby certify that I have a personal and intimate knowledge of the facts set forth in the Report of Work annexed hereto, having performed the work or witnessed same during and/or after its completion and the annexed report is true.

Name and Postal Address of Person Certifying
Gordon D. House, Sawyer Consultants Inc.
Suite #701, 525 Seymour St., Vancouver, B.C.

Date Certified: 26th June 1987

Certified by (Signature): Gordon D. House Agent

Ontario

Ministry of Natural Resources

File _____

GEOPHYSICAL – GEOLOGICAL – GEOCHEMICAL TECHNICAL DATA STATEMENT

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) GEOLOGICAL

Township or Area MADOC, EASTERN ONTARIO

Claim Holder(s) HARWIN EXPLORATION & DEVELOPMENT INC.

#709, 837 W. Hastings St., Vancouver, B.C. V6C 1B6

Survey Company SAWYER CONSULTANTS INC.

Author of Report BRIAN R. KING (Contract Geologist)

Address of Author 337 Euclid Ave., Peterborough, Ontario K9H 1M5

Covering Dates of Survey June 1, 1987 to Sept. 15, 1987 (linecutting to office)

Total Miles of Line Cut 28.05

SPECIAL PROVISIONS CREDITS REQUESTED

ENTER 40 days (includes line cutting) for first survey.

ENTER 20 days for each additional survey using same grid.

	DAYS per claim
Geophysical	
–Electromagnetic	
–Magnetometer	
–Radiometric	
–Other	
Geological	20
Geochemical	

AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys)

Magnetometer _____ Electromagnetic _____ Radiometric _____
(enter days per claim)

DATE: Sept. 21, 1987 SIGNATURE: _____
Author of Report or Agent

Res. Geol. _____ Qualifications 2.7356

Previous Surveys

File No.	Type	Date	Claim Holder

MINING CLAIMS TRAVERSED
List numerically

(prefix)	(number)
EO	552525
EO	657932
EO	657933
EO	747888
EO	747891
EO	747944
EO	747945
EO	781911
EO	781912
EO	781913
EO	781914
EO	781915
EO	781916

If space insufficient, attach list

TOTAL CLAIMS 13

OFFICE USE ONLY

837 (5/79)

GEOPHYSICAL TECHNICAL DATA

GROUND SURVEYS – If more than one survey, specify data for each type of survey

Number of Stations _____ Number of Readings _____

Station interval _____ Line spacing _____

Profile scale _____

Contour interval _____

MAGNETIC

Instrument _____

Accuracy – Scale constant _____

Diurnal correction method _____

Base Station check-in interval (hours) _____

Base Station location and value _____

_____

ELECTROMAGNETIC

Instrument _____

Coil configuration _____

Coil separation _____

Accuracy _____

Method: ☐ Fixed transmitter ☐ Shoot back ☐ In line ☐ Parallel line

Frequency _____
(specify V.L.F. station)

Parameters measured _____

GRAVITY

Instrument _____

Scale constant _____

Corrections made _____

_____

Base station value and location _____

_____

Elevation accuracy _____

INDUCED POLARIZATION RESISTIVITY

Instrument _____

Method ☐ Time Domain ☐ Frequency Domain

Parameters – On time _____ Frequency _____

– Off time _____ Range _____

– Delay time _____

– Integration time _____

Power _____

Electrode array _____

Electrode spacing _____

Type of electrode _____

SELF POTENTIAL

Instrument _____ Range _____

Survey Method _____

_____

Corrections made _____

_____

RADIOMETRIC

Instrument _____

Values measured _____

Energy windows (levels) _____

Height of instrument _____ Background Count _____

Size of detector _____

Overburden _____

(type, depth – include outcrop map)

OTHERS (SEISMIC, DRILL WELL LOGGING ETC.)

Type of survey _____

Instrument _____

Accuracy _____

Parameters measured _____

_____

Additional information (for understanding results) _____

_____

_____

AIRBORNE SURVEYS

Type of survey(s) _____

Instrument(s) _____

(specify for each type of survey)

Accuracy _____

(specify for each type of survey)

Aircraft used _____

Sensor altitude _____

Navigation and flight path recovery method _____

_____

Aircraft altitude _____ Line Spacing _____

Miles flown over total area _____ Over claims only _____

GEOCHEMICAL SURVEY – PROCEDURE RECORD

Numbers of claims from which samples taken _____

_____

_____

Total Number of Samples _____

Type of Sample _____
(Nature of Material)

Average Sample Weight _____

Method of Collection _____

_____

Soil Horizon Sampled _____

Horizon Development _____

Sample Depth _____

Terrain _____

_____

Drainage Development _____

Estimated Range of Overburden Thickness _____

_____

_____

SAMPLE PREPARATION
(Includes drying, screening, crushing, ashing)

Mesh size of fraction used for analysis _____

_____

_____

_____

General _____

_____

_____

_____

_____

_____

_____

_____

_____

_____

ANALYTICAL METHODS

Values expressed in: per cent ☐
p. p. m. ☐
p. p. b. ☐

Cu, Pb, Zn, Ni, Co, Ag, Mo, As,-(circle)

Others _____

Field Analysis (_____ tests)

Extraction Method _____

Analytical Method _____

Reagents Used _____

Field Laboratory Analysis

No. (_____ tests)

Extraction Method _____

Analytical Method _____

Reagents Used _____

Commercial Laboratory (_____ tests)

Name of Laboratory _____

Extraction Method _____

Analytical Method _____

Reagents Used _____

General _____

_____

_____

_____

_____

_____

_____

_____

_____

Ontario

Ministry of Natural Resources

File_____

GEOPHYSICAL – GEOLOGICAL – GEOCHEMICAL TECHNICAL DATA STATEMENT

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) GEOCHEMICAL

Township or Area MADOC, EASTERN ONTARIO

Claim Holder(s) HARWIN EXPLORATION & DEVELOPMENT INC.

#709, 837 W. Hastings St., Vancouver, B.C V6C 1B6

Survey Company MDX GEOSERVICES

Author of Report BRIAN R. KING

Address of Author 337 Euclid Ave., Peterborough, Ontario K9H 1M5

Covering Dates of Survey 2nd May 1987 to 31st Aug. 1987 (linecutting to office)

Total Miles of Line Cut 28.05

SPECIAL PROVISIONS CREDITS REQUESTED

ENTER 40 days (includes line cutting) for first survey.

ENTER 20 days for each additional survey using same grid.

	DAYS per claim
Geophysical	
–Electromagnetic	
–Magnetometer	
–Radiometric	
–Other	
Geological	
Geochemical	20

AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys)

Magnetometer_____ Electromagnetic _____ Radiometric _____
(enter days per claim)

DATE: Sept. 21, 1987 SIGNATURE: _____
Author of Report or Agent

Res. Geol._____ Qualifications this file.

Previous Surveys

File No.	Type	Date	Claim Holder

MINING CLAIMS TRAVERSED
List numerically

(prefix)	(number)
EO	552525
EO	657932
EO	657933
EO	747888
EO	747891
EO	747944
EO	747945
EO	781911
EO	781912
EO	781913
EO	781914
EO	781915
EO	781916

If space insufficient, attach list

RECEIVED
SEP 28 1987
MINING LANDS SECTION

TOTAL CLAIMS 13

OFFICE USE ONLY

837 (5/79)

GEOPHYSICAL TECHNICAL DATA

GROUND SURVEYS – If more than one survey, specify data for each type of survey

Number of Stations _____ Number of Readings _____

Station interval _____ Line spacing _____

Profile scale _____

Contour interval _____

MAGNETIC

Instrument _____

Accuracy – Scale constant _____

Diurnal correction method _____

Base Station check-in interval (hours) _____

Base Station location and value _____

_____

ELECTROMAGNETIC

Instrument _____

Coil configuration _____

Coil separation _____

Accuracy _____

Method: ☐ Fixed transmitter ☐ Shoot back ☐ In line ☐ Parallel line

Frequency _____
(specify V.L.F. station)

Parameters measured _____

GRAVITY

Instrument _____

Scale constant _____

Corrections made _____

_____

Base station value and location _____

_____

Elevation accuracy _____

INDUCED POLARIZATION RESISTIVITY

Instrument _____

Method ☐ Time Domain ☐ Frequency Domain

Parameters – On time _____ Frequency _____

– Off time _____ Range _____

– Delay time _____

– Integration time _____

Power _____

Electrode array _____

Electrode spacing _____

Type of electrode _____

SELF POTENTIAL

Instrument _____ Range _____

Survey Method _____

_____

Corrections made _____

_____

RADIOMETRIC

Instrument _____

Values measured _____

Energy windows (levels) _____

Height of instrument _____ Background Count _____

Size of detector _____

Overburden _____

(type, depth – include outcrop map)

OTHERS (SEISMIC, DRILL WELL LOGGING ETC.)

Type of survey _____

Instrument _____

Accuracy _____

Parameters measured _____

_____

Additional information (for understanding results) _____

_____

_____

AIRBORNE SURVEYS

Type of survey(s) _____

Instrument(s) _____

(specify for each type of survey)

Accuracy _____

(specify for each type of survey)

Aircraft used _____

Sensor altitude _____

Navigation and flight path recovery method _____

_____

Aircraft altitude _____ Line Spacing _____

Miles flown over total area _____ Over claims only _____

GEOCHEMICAL SURVEY – PROCEDURE RECORD

Numbers of claims from which samples taken: Thirteen

Total Number of Samples: 2184

Type of Sample: Soil
(Nature of Material)

Average Sample Weight: 225 grams

Method of Collection: 6" to 8" depth, using hand auger and/or shovel

Soil Horizon Sampled: "B"

Horizon Development: Well developed

Sample Depth: 6" to 24"

Terrain: Rolling hills

Drainage Development: Superimposed

Estimated Range of Overburden Thickness: Ranges from 0 to 30 feet thick

SAMPLE PREPARATION
(Includes drying, screening, crushing, ashing)

Mesh size of fraction used for analysis:
Drying for 24 hours at 50°C
Dry screened at 80 mesh
-80 mesh fraction used for analysis

General

ANALYTICAL METHODS

Values expressed in: per cent ☐ p. p. m. ☐ p. p. b. ☒ X

Cu, Pb, Zn, Ni, Co, Ag, Mo, As,-(circle)

Others: Au

Field Analysis (N/A tests)
Extraction Method
Analytical Method
Reagents Used

Field Laboratory Analysis
No. (N/A tests)
Extraction Method
Analytical Method
Reagents Used

Commercial Laboratory (2182 tests)
Name of Laboratory: Bondar-Clegg & Co. Ltd.
Extraction Method: Preconcentration by fire assay
Analytical Method: ~~Neutron activation~~
Reagents Used: N/A

General

Tudor Twp.

Grimsthorpe Twp.

Elzevir Twp.

Huntingdon Twp.

Hungerford Twp.

I II III IV V VI VII VIII IX X XI

32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

Jordan River

Moira River

HANNOCKBURN P.O. & STA

4 Lines

KELLER BRIDGE

RAILWAY

ABANDONED

COOPER

FOX CORNERS

ALLAN

RIMINGTON

RAILWAY

Skootamatta River

CANADIAN NATIONAL

Eldorado Lake

Hazard Lake

HAZZARD CORNERS

TELEPHONE LINE

MADOC

TELEPHONE LINE

LEGEND

- HIGHWAY AND ROUTE No.
- OTHER ROADS
- TRAILS
- SURVEYED LINES:
  - TOWNSHIPS, BASE LINES, ETC.
  - LOTS, MINING CLAIMS, PARCELS, ETC
- UNSURVEYED LINES:
  - LOT LINES
  - PARCEL BOUNDARY
  - MINING CLAIMS ETC.
- RAILWAY AND RIGHT OF WAY
- UTILITY LINES
- NON-PERENNIAL STREAM
- FLOODING OR FLOODING RIGHTS
- SUBDIVISION OR COMPOSITE PLAN
- RESERVATIONS
- ORIGINAL SHORELINE
- MARSH OR MUSKEG
- MINES
- TRAVERSE MONUMENT

DISPOSITION OF CROWN LANDS

TYPE OF DOCUMENT	SYMBOL
PATENT, SURFACE & MINING RIGHTS	
" , SURFACE RIGHTS ONLY	
" , MINING RIGHTS ONLY	
LEASE, SURFACE & MINING RIGHTS	
" , SURFACE RIGHTS ONLY	
" , MINING RIGHTS ONLY	
LICENCE OF OCCUPATION	
ORDER-IN-COUNCIL	
RESERVATION	(R)
CANCELLED	
SAND & GRAVEL	(P)

NOTE: MINING RIGHTS IN PARCELS PATENTED PRIOR TO MAY 6 1913, VESTED IN ORIGINAL PATENTEE BY THE PUBLIC LANDS ACT, R.S.O. 1970, CHAP. 380, SEC. 63, SUBSEC. 1.

SCALE: 1 INCH = 40 CHAINS

FEET 0 1000 2000 4000 6000 8000

METRES 0 500 1000 2000 (1 KM) (2 KM)

AREAS WITHDRAWN FROM DISPOSITION

M.R.O. – MINING RIGHTS ONLY
S.R.O. – SURFACE RIGHTS ONLY
M.& S. – MINING AND SURFACE RIGHTS

Description	Order No.	Date	Disposition	File
(R)	W2/76	JAN 16, 76	M.R.	58373

TOWNSHIP

MADOC

M.N.R. ADMINISTRATIVE DISTRICT

TWEED

MINING DIVISION

SOUTHERN ONTARIO

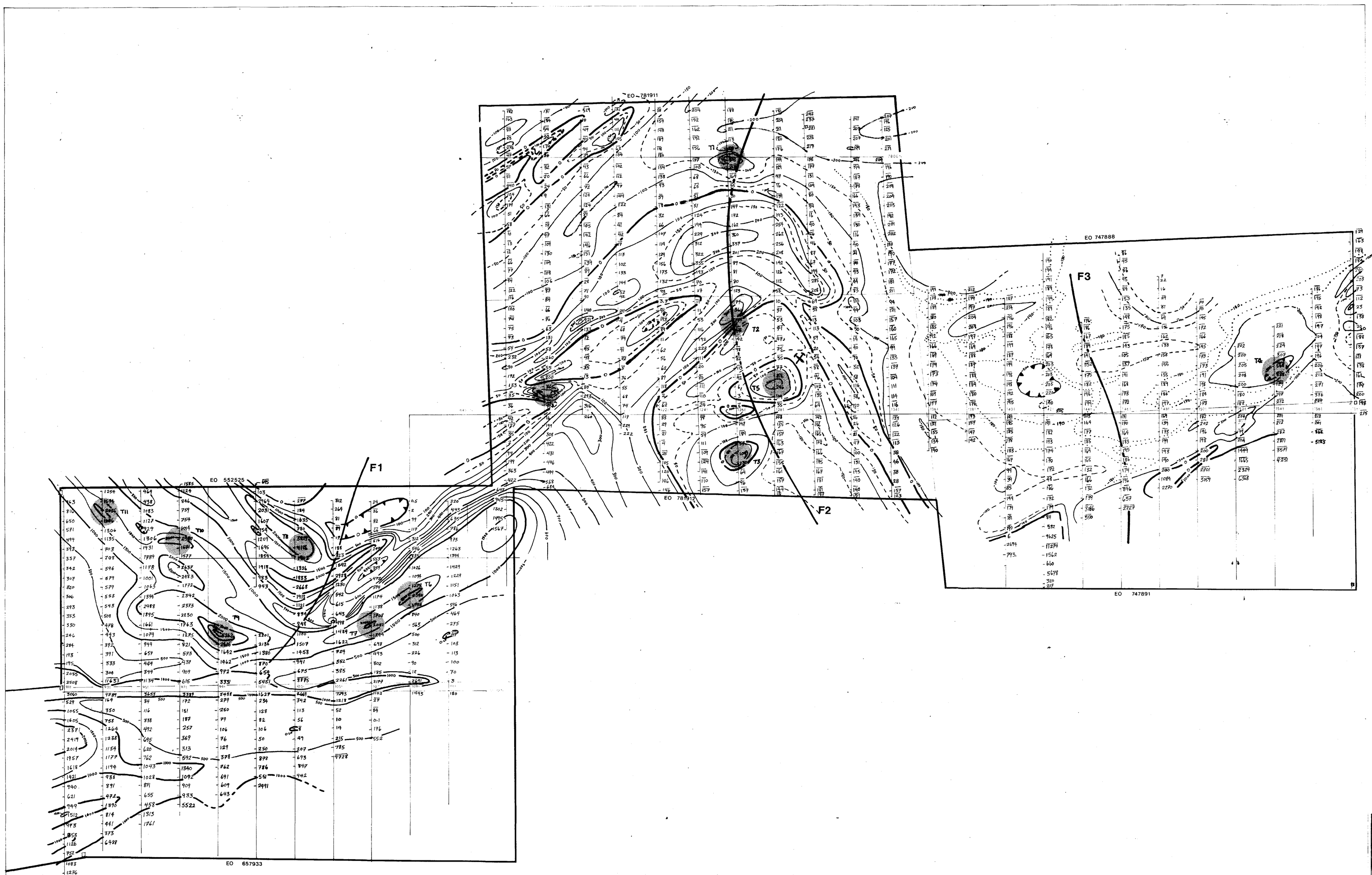
LAND TITLES / REGISTRY DIVISION

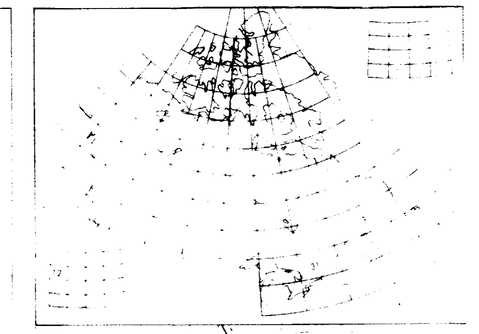
HASTINGS

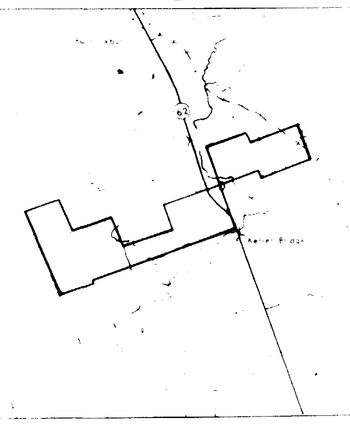
Ontario Ministry of Natural Resources | Ministry of Northern Development and Mines

Date MARCH 1987

Number G-1269







LEGEND

TOTAL FIELD CONTOURS:

1000 γ
500 γ
100 γ
50 γ
10 γ

T1 Total field anomaly

DATUM: 57,000 Gammas

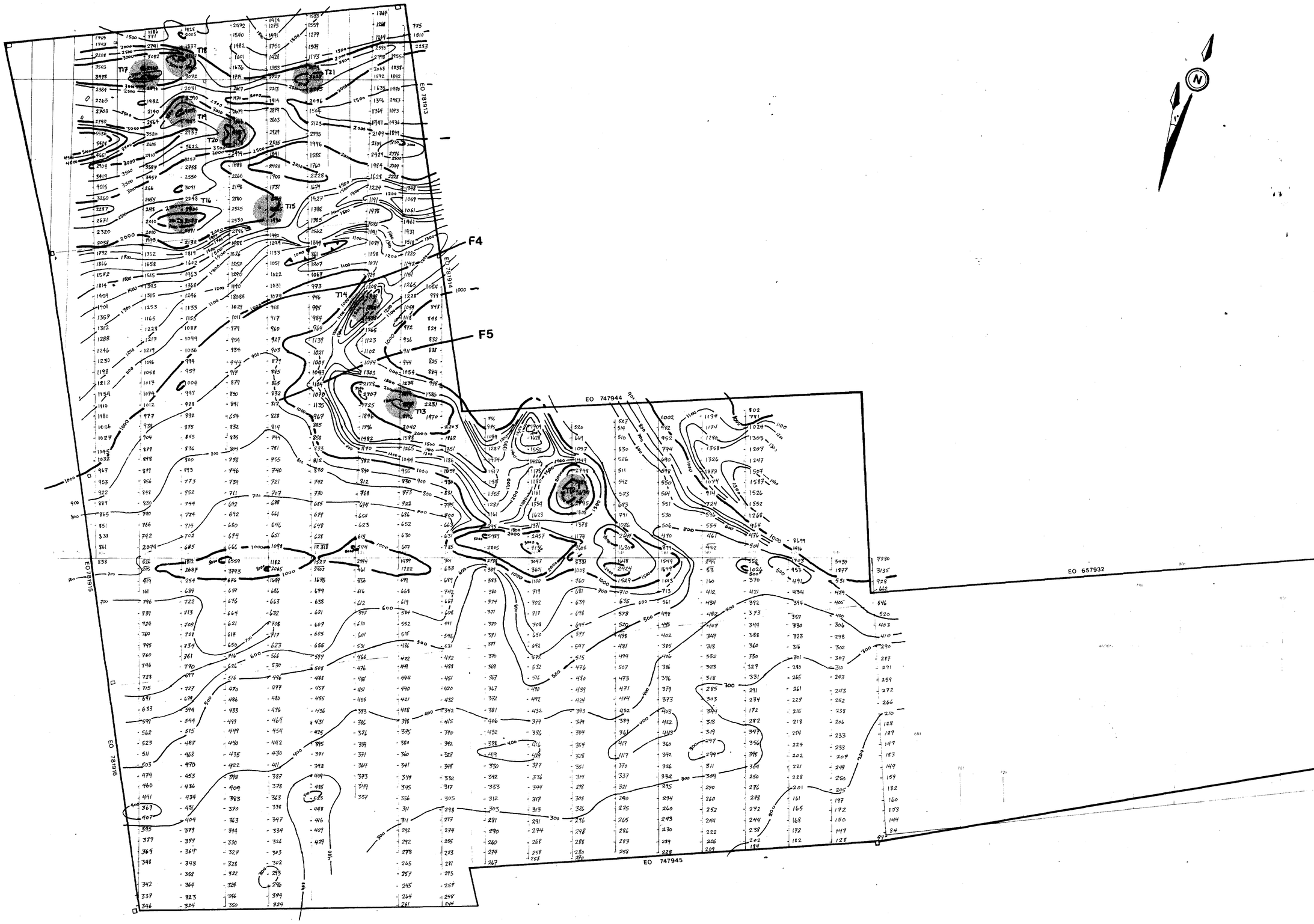
F3 Fold axis

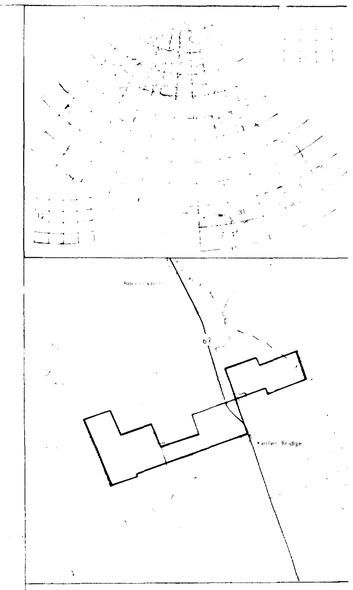
HARWIN EXPLORATION and DEVELOPMENT INC.

St Joe Property
Madoc Twp Hastings Co
Ontario

TOTAL FIELD MAGNETICS
EAST HALF 2.10400

Drawn G.M.F. | Design MDX Geoservices | Fig. 2





LEGEND

TOTAL FIELD CONTOURS:

1000 γ
500 γ
100 γ
50 γ
10 γ

T12 Total field anomaly

DATUM: 57,000 Gammas

F5 Fold axis

HARWIN EXPLORATION and DEVELOPMENT INC.

St Joe Property

Madoc Twp Hastings Co
Ontario

2.10400

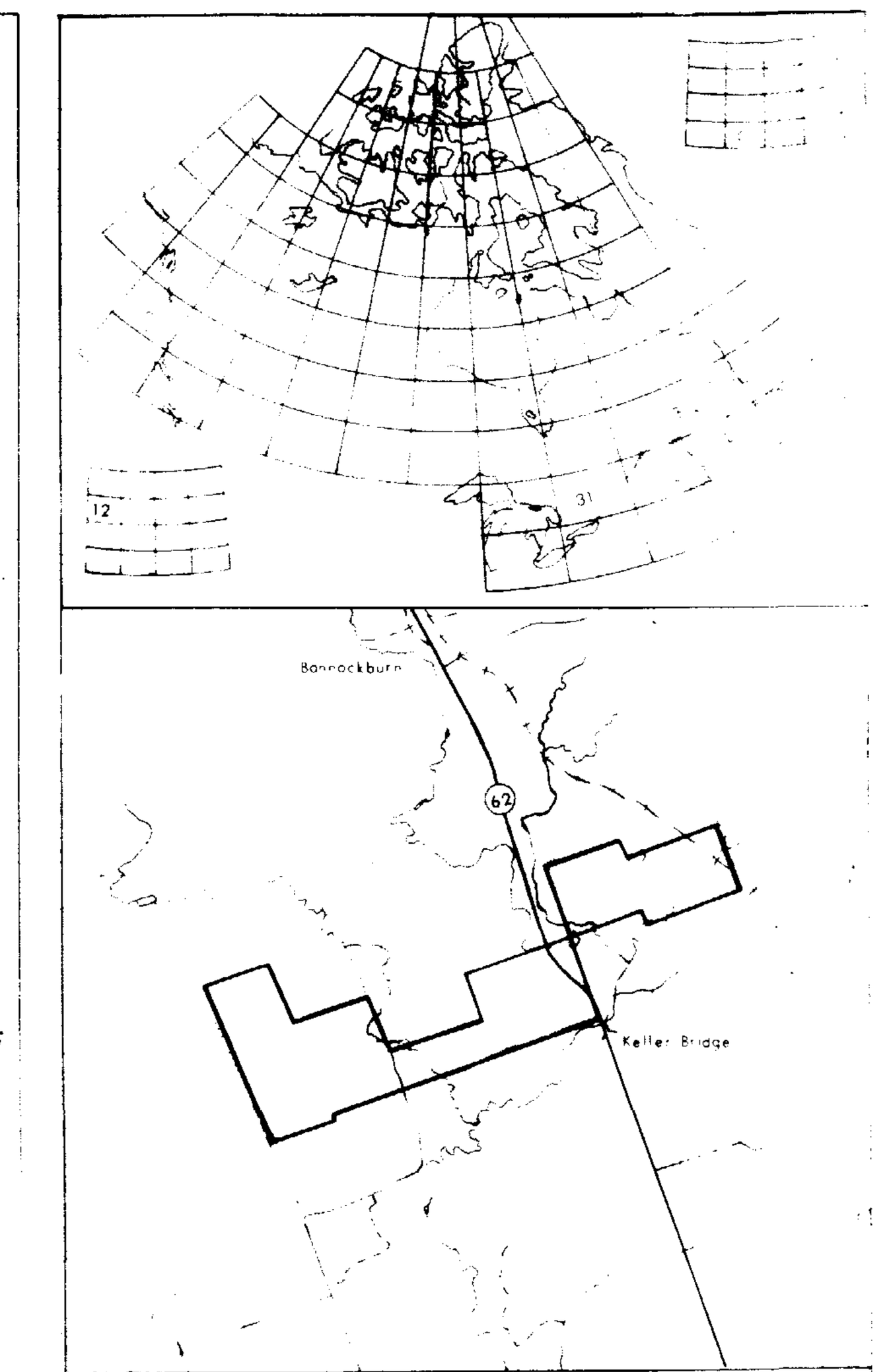
Total Field Magnetics

WEST HALF

1:5000

200 0 200 400 600

Drawn: **GMF** | Design: MDX Geoservices | Fig.



LEGEND

In-phase: Walking south

Quadrature:

Vertical Scale: 1 inch = 100%

Instrument: Omni Plus

Conductor axis C1

Conductive zone

HARWIN EXPLORATION and DEVELOPMENT INC.

St Joe Property

Madoc Twp Hastings Co. Ontario

VLF EAST HALF

NAA CUTLER MAINE 24.0 kHz

2.10400

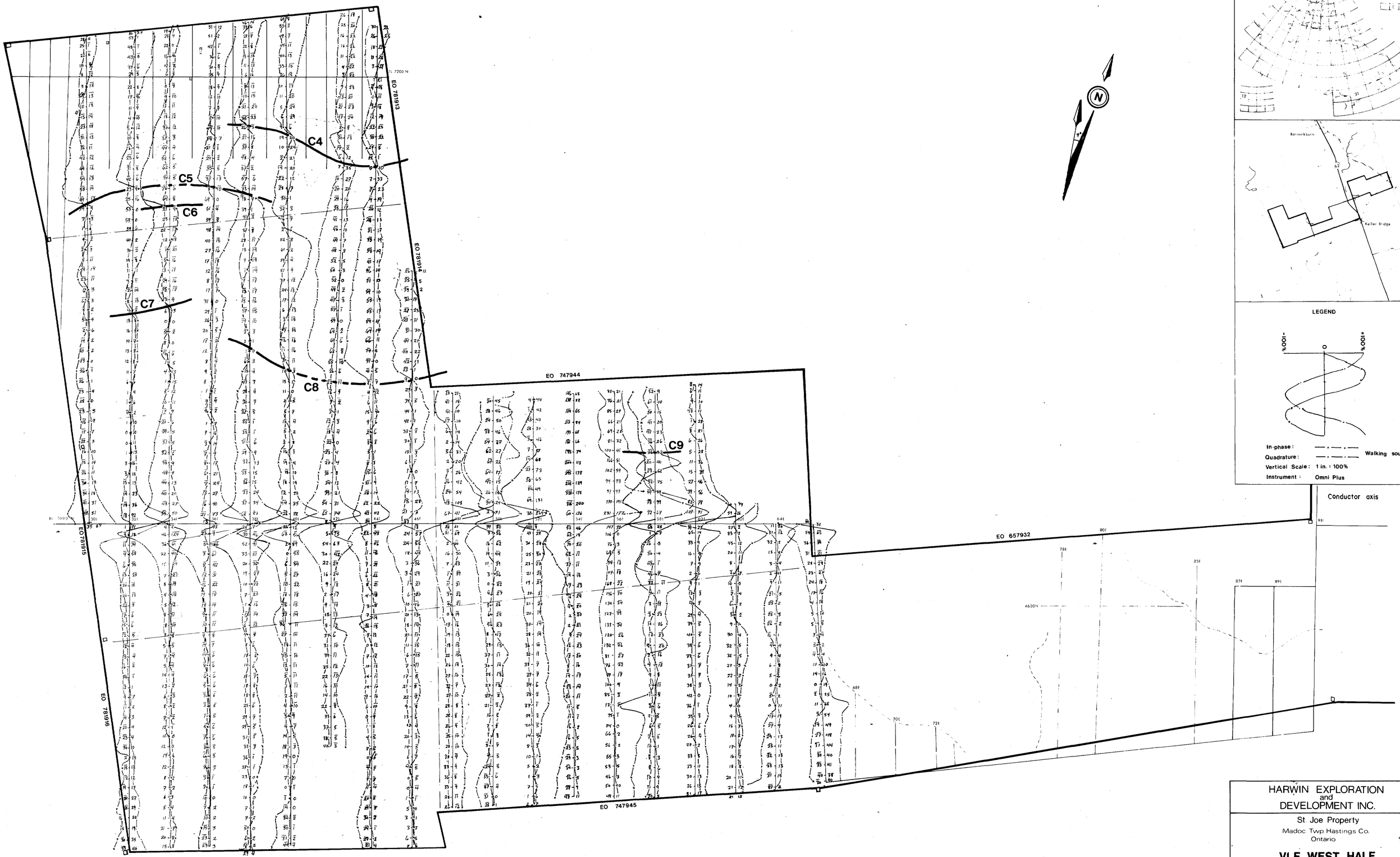
SCALE 1:200'

200 0 200 400 600 ft

[redacted]

Drawn: GMF | Design: MDX Geoservices | Fig. 6

230



LEGEND

In-phase : Walking south

Quadrature :

Vertical Scale : 1 in. = 100%

Instrument : Omni Plus

Conductor axis

HARWIN EXPLORATION and DEVELOPMENT INC.

St. Joe Property

Madoc Twp Hastings Co.
Ontario

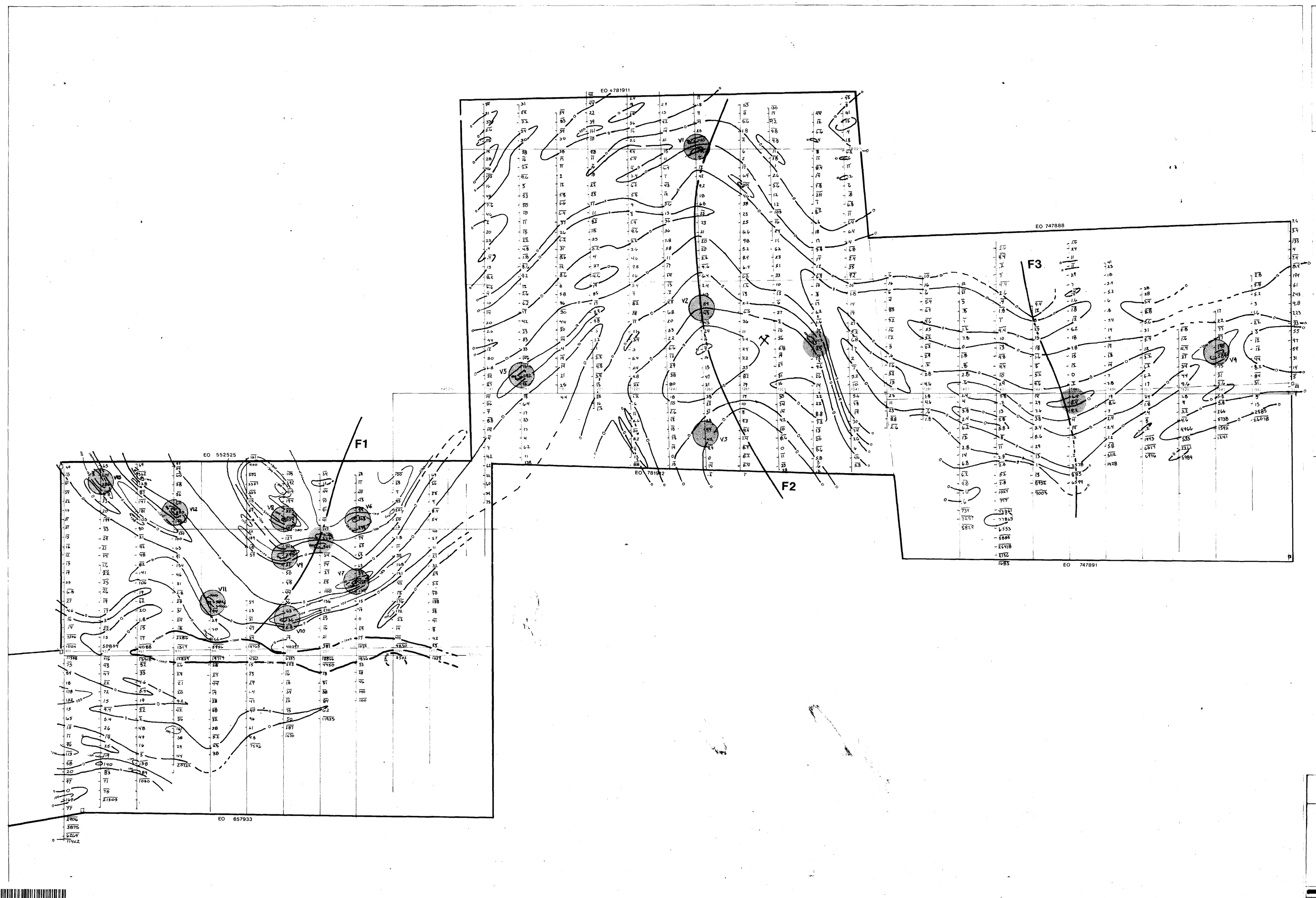
VLF WEST HALF

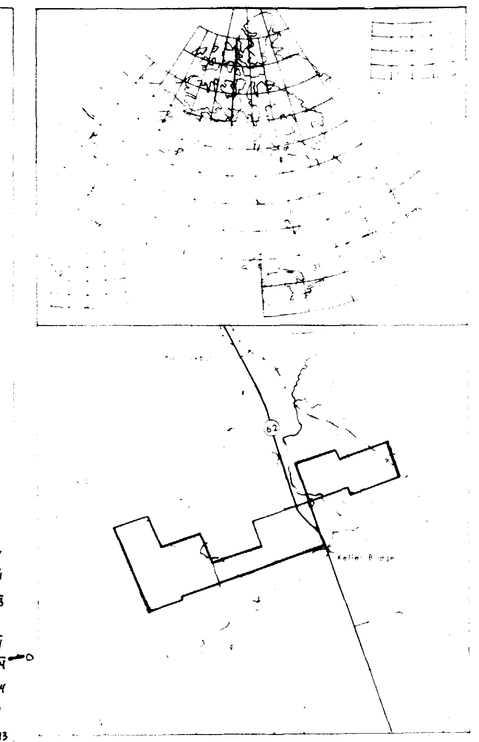
NAA CUTLER, MAINE 24.0 kHz

SCALE 1:200 2,10400

200 0 200 400 600 Ft

Drawn: | Design: MDX Geoservices | Fig. 5





LEGEND

VERTICAL GRADIENT CONTOURS

0 γ/m

100 γ/m

1000 γ/m

V1 Vertical gradient anomaly

F3 Fold axis

HARWIN EXPLORATION and DEVELOPMENT INC.

St Joe Property

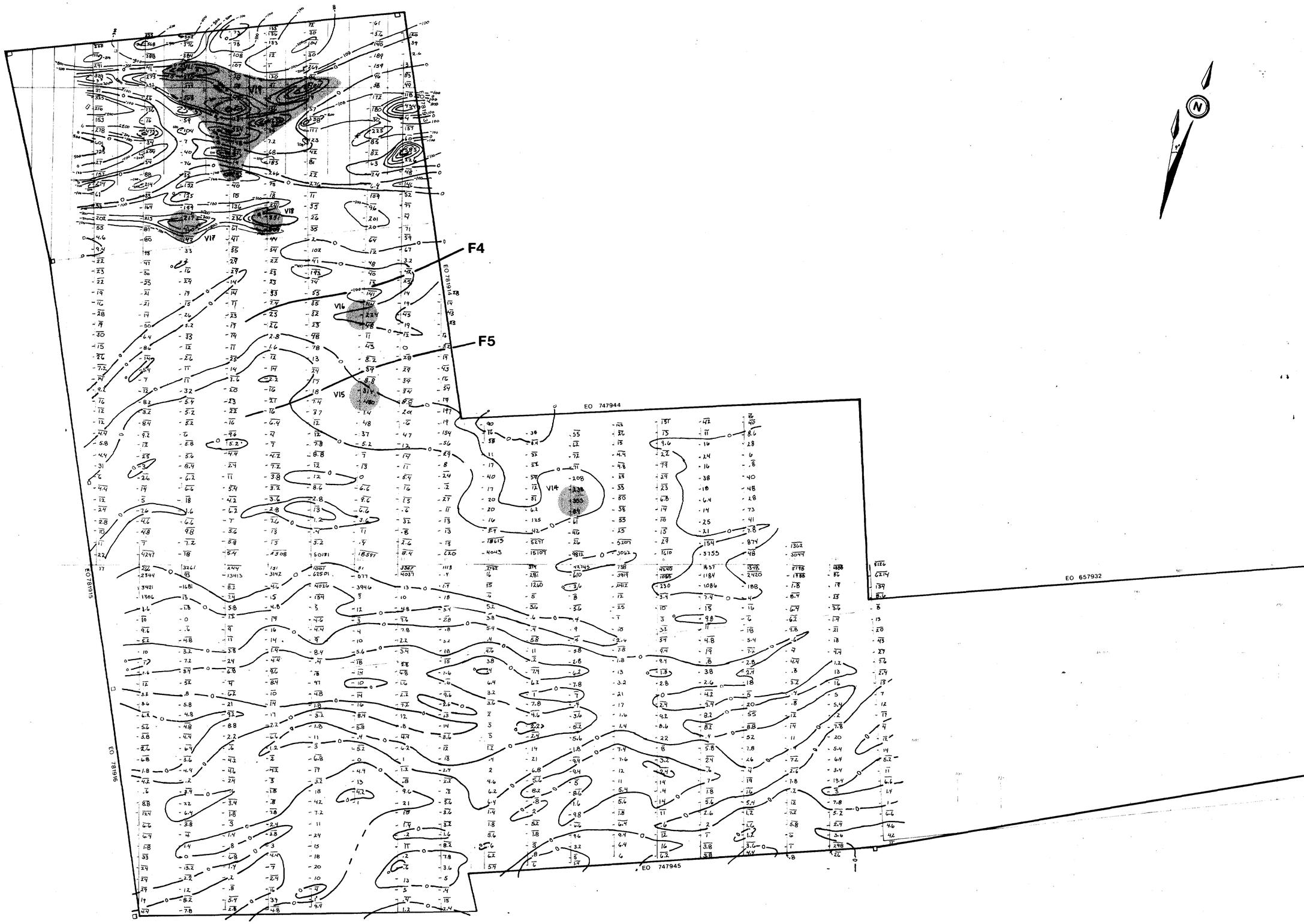
Madoc Twp Hastings Co.
Ontario.

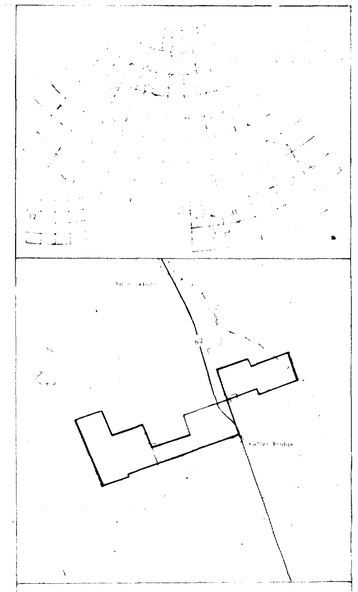
VERTICAL GRADIENT

EAST HALF

Scale 1:2000 2,104-00

Drawn. GMF | Design: MDX Geoservices | Fig. 4





LEGEND

VERTICAL GRADIENT CONTOURS

0 γ/m

100 γ/m

V14 Vertical gradient anomaly

F4 Fold axis

HARWIN EXPLORATION and DEVELOPMENT INC.

St Joe Property

Madoc Twp Hastings Co.
Ontario

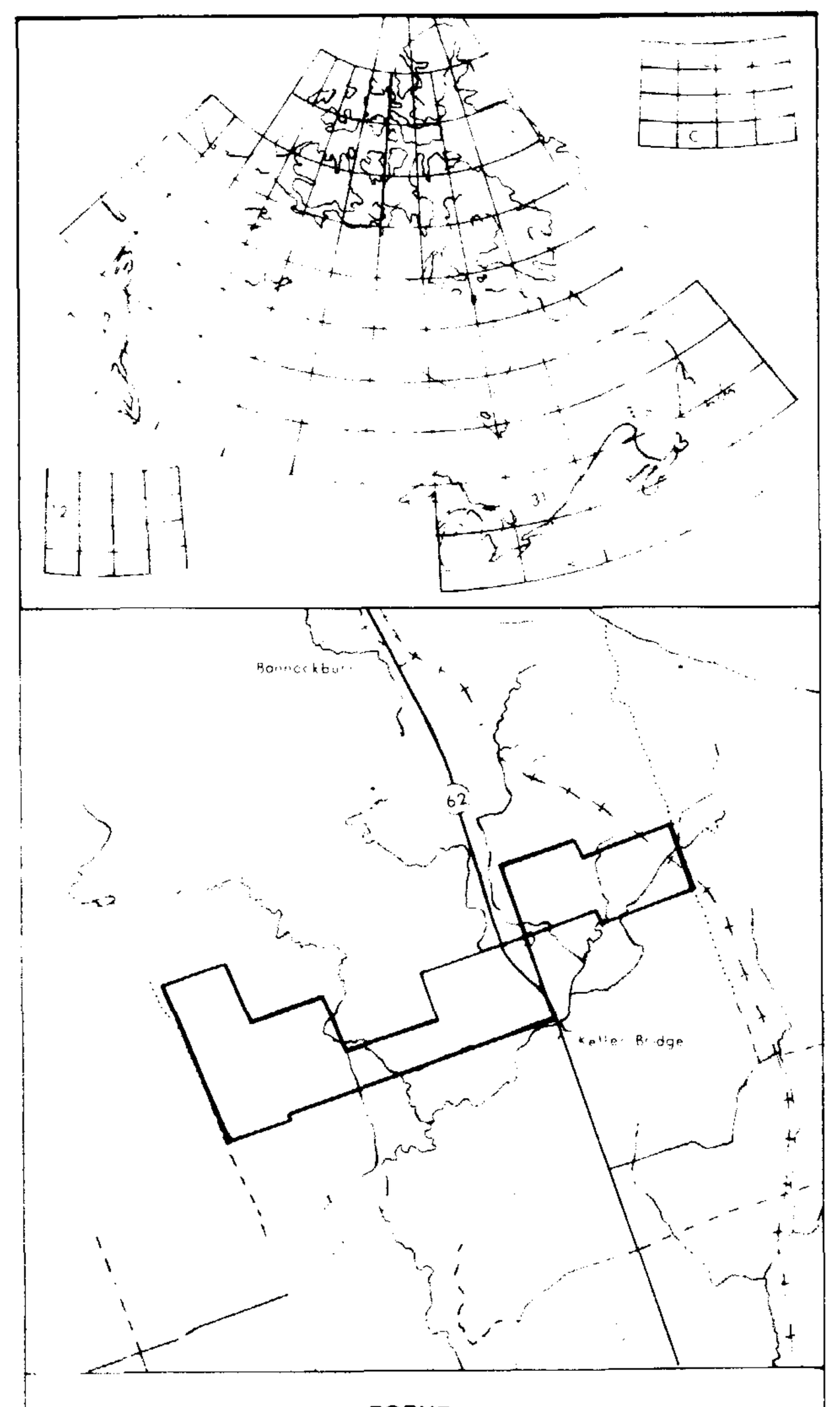
VERTICAL GRADIENT

WEST HALF

N.T.S. 1:20,000 2,10400

200 0 200 400 600 ft

Drawn: **GMF** | Design: MDX Geoservices | Fig. **3**



LEGEND

- Outcrop
- Quartz Float
- Geological Contact
- Claim Post: known, not located
- Pit, Shaft, Debris
- Foliation, Bedding, Jointing
- Quartz Vein, Fold Plunge
- Fold Axis; Syncl, Anticl
- Local Geochem (Au) Anomaly
- Shear Zone

4 Paleozoic Limestone

Unc

3 Marble

2 Siliceous & Sericitic Schists

1 Amphibolite

2,10490

HARWIN EXPLORATION and DEVELOPMENT INC.

St Joe Property

Madoc Twp Hastings Co
Ontario

Geological Plan

East Sheet

SCALE 1:1200

200 0 200 400 600

SAWYER CONSULTANTS INC.

Drawn:	Design: MDX Geoservices	Fig. 4

270

31C12NE0030 2.10490 MADOC

EO 781913

EO 781914

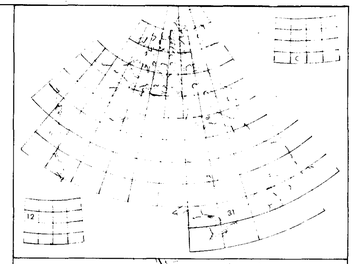
EO 747944

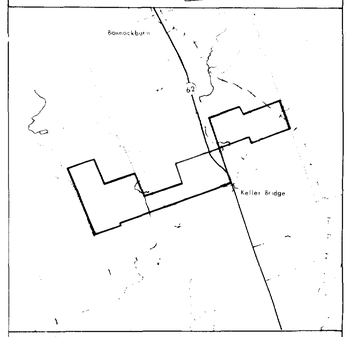
EO 781915

EO 781916

EO 657932

EO 747945





LEGEND

- Outcrop
- Quartz Float
- Geological Contact
- Claim Post: known, not located
- Pit, Shaft, Debris
- Foliation, Bedding, Jointing
- Quartz Vein, Fold Plunge
- Fold Axis, Synfl., Antifl.
- Local Geochem. Au Anomaly
- Shear Zone
- Paleozoic Limestone
- Marble
- Siliceous & Sericitic Schists
- Amphibolite

2.10400

HARWIN EXPLORATION and DEVELOPMENT INC.

St Joe Property

Madoc Twp. Hastings Co.
Ontario

Geological Plan

West Sheet

SCALE: 1"=200'

200 0 200 400 600 Ft.

SAWYER CONSULTANTS INC.

Drawn: | Design: MDX Geoservices | Fig. 3

EO 781911

EO 747888

EO 781912

EO 747891

EO 552525

EO 657933

A

B

C

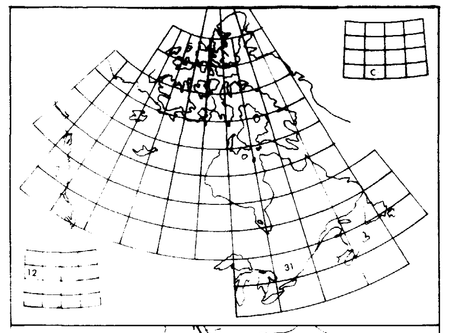
D

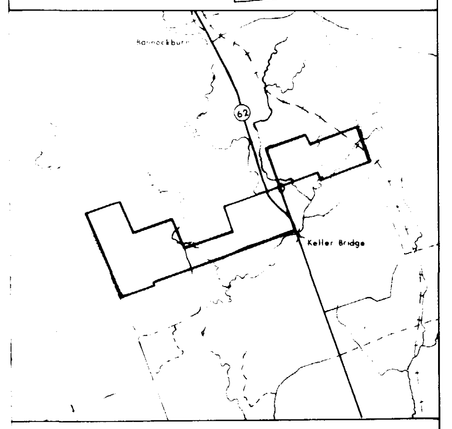
E

F

G

5700 N





LEGEND

F Anomaly, defined, inferred

Sample location, Au (ppb)

Swamp

HARWIN EXPLORATION and DEVELOPMENT INC.

St Joe Property

Madoc Twp Hastings Co.
Ontario

Geochemical Plan

East Sheet

SCALE 1:2000

200 0 200 400 600 Ft.

Drawn: | Design: MDX Geoservices | Fig. 3

2.10400

2.10400