GEOPHYSICAL REPORT

WONDERFUL PROPERTY
Sandon, British Columbia

MAGNETOMETER SURVEY

on

WONDERFUL
WONDERFUL FR.
EARLY BIRD
COLUMBUS
LOOKOUT No. 2
MILLER CREEK FR.
SAMPSON
SANDON CHIEF
DOZER FR.

Slocan Mining Division
NTS 82F14
(49°58.7'N 117°15.6'W)

CAZADOR EXPLORATIONS LIMITED 237890
Vancouver, British Columbia
(owner/operator)

by

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INTRODUCTION

Summary of Work Done

During 24-30 September, 1993, a program of magnetometer surveying and some incidental geological work was carried out on CAZADOR's (CAZADOR Explorations Limited) Wonderful Property, near Sandon, B.C. The claims cover a network of old adits and a several old stopes on this formerly productive Ag-Pb-Zn property.

Magnetic readings were taken at more than 350 stations at 20 metre intervals along the network of switchback roads on the property. Total length of traverse is thus greater than 7 km. Some readings were discarded because of effects from nearby rail, pipe, culvert, etc. To enable corrections for dirurnal variations, check readings at base stations were taken at approximate 2 hour intervals.

The primary purpose of the work was to determine the effectiveness of magnetometer work for outlining geological structures in this area of complexly deformed but economically significant sedimentary rocks. The purpose was also to satisfy requirements of the provincial government's assessment work regulations.

The field and office work was done by C.A.R. LAMMLE, PEng. Instrument readings were recorded in a standard fieldbook. These were later corrected for diurnal variation, contoured via SURFER/-AutoCAD, and incorporated into the company's three-dimensional AutoCAD drawing. This drawing had been made earlier from numerous maps, papers, reports, etc., of various vintages, accuracies and states of repair.

The scale of the property index map accompanying this report is 1:4000. It is part of the above mentioned AutoCAD drawing. Results of the magnetometer work are shown on the same map. Topographic details making up this drawing - roads, contours, culture, etc., were tablet-digitized three-dimensionally from a 1:2000 map (blown up from a 1:5000 McElhanney stereophotogrammetric map prepared 12 or 13 years ago). Underground workings, including stopes, were likewise three-dimensionally digitized, but from a wide assortment of old maps. Claim outlines were drafted exactly from copies of original field notes from the Surveyor Generals' office. Old workings and topographic details were tied to the BCLS surveys by brunton and hip chain from Levels 4 and 3 portals to BCLS stations at the south corner of Early Bird C.G. (These stations had been reestablished and brasscapped by another party during BCLS 373/1987.)

The three-dimensional work has led to new geological interpretations. These are described.

Location, Access, Geography, Physiography, History

The Wonderful Property is located in the south-eastern part of the province, about 1.5 km west of the museum at the former town of Sandon. Alternatively, the location is on the steep mountain side 0.5 km of Treminco's (Treminco Resources Ltd.) concentrator. All of this is in the drainage of Carpenter Creek, 10 km east of New Denver.

Access is via paved and improved roads from New Denver to the Sandon museum, then via the backroad to Idaho Lookout, maintained by the forest service. Portions of the Idaho Lookout road between kilometre posts 1 and 2 are on the property. Two wheel drive vehicles are adequate unless it is intended to open very old roads by cutting wind- and rot-felled trees, etc., in which case 4x4 vehicles would be better.

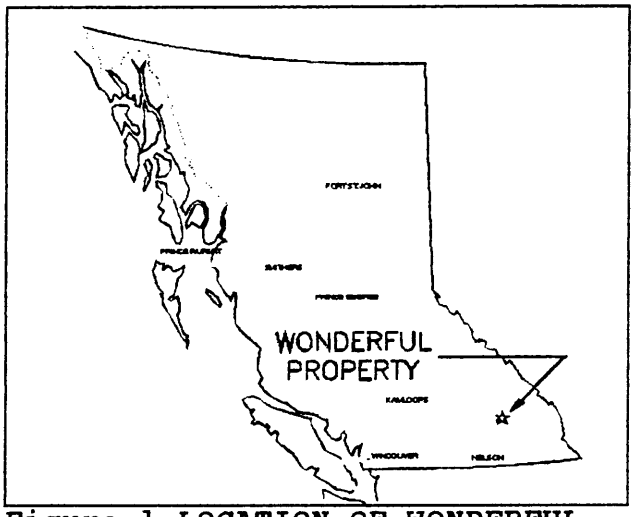


Figure 1 LOCATION OF WONDERFUL PROPERTY, SOUTHEAST B.C.

Physiographically, this area is in south-central Selkirk Mountains. Mountain sides are steep and forested thickly with cedar and fir. Creeks are turbulent. Elevations on the property range from 1000 m to 1800 m; slopes are typically 30° to 35°. Summers are warm. Winters are mild; snowfall heavy.

The Wonderful claim, staked in 1891, was one of the central and earliest staked in the Sandon mining area, and the general area went on to become one of the province's historic and productive Ag-Pb-Zn mining camps. Mining started during the mid 1890's when some 400 tons of very rich Ag-Pb boulder-ore was recovered from surface by sluicing. Later, the source for some of the surface ore was found by prospecting, crosscutting and drifting. Production ensued, peaking in the early 1920's, ceasing in 1929. Work resumed briefly for a couple of years in the mid 1930's. During the late 1940's and early 1950's some of the old workings were re-opened and additional underground workings were driven. More recently, in the early 1980's, some conventional geological, geochemical and geophysical work was done along with some underground rehabilitation.

Production from the Wonderful is believed to total:

31,189 short tons @ 13.44 oz/t Ag, 5.7% Pb and 4.3% Zn.

Property

The property consists of the following nine claims:

CLAIM	TYPE	RECORD	HECTARE
Lookout No. 2	RCG	255443	17.93
Sandon Chief	"	255444	7.44
Wonderful	"	255445	13.96
Early Bird	"	255446	9.17
Sampson	"	255447	9.95
Columbus	"	255489	20.90
Miller Creek Fr.	"	255490	15.42
Wonderful Fr.	"	255491	17.38
Dozer Fr.	staked	255910	--

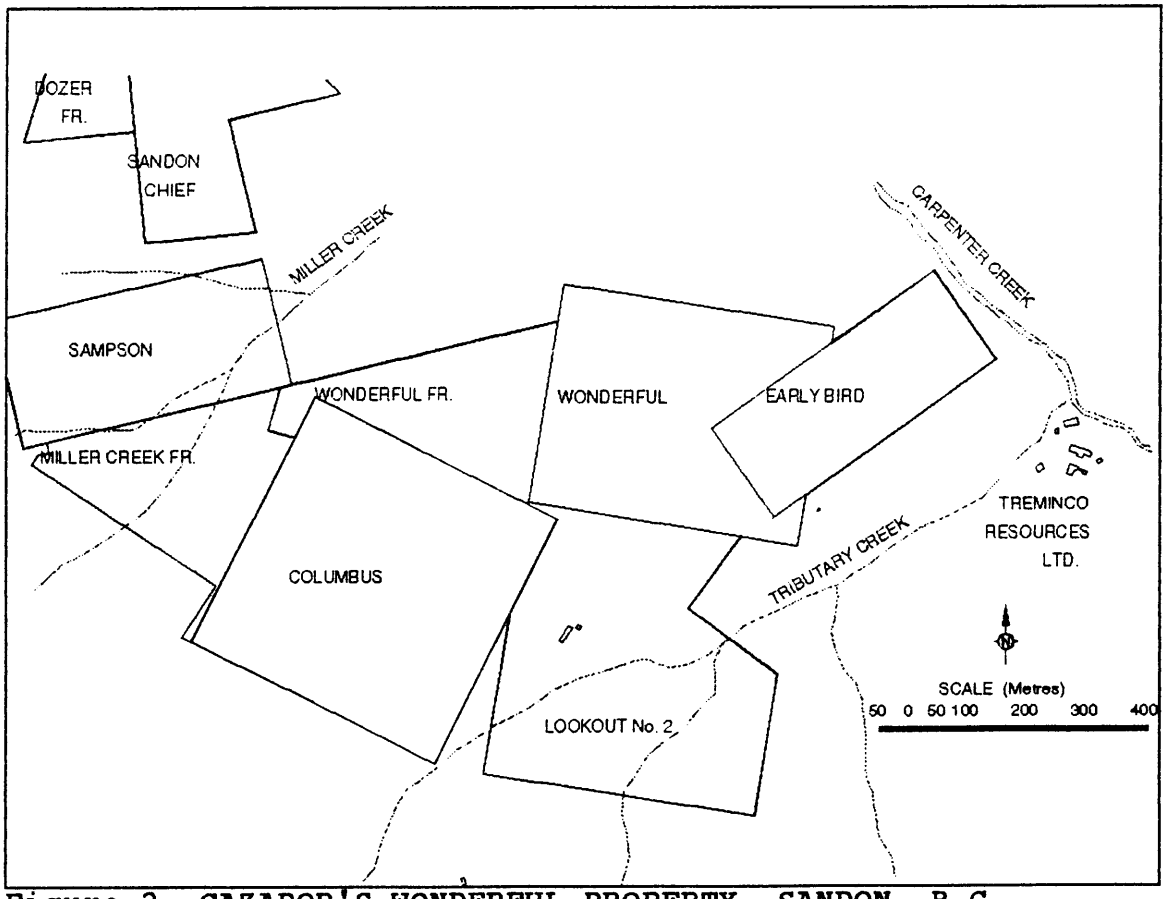


Figure 2 CAZADOR'S WONDERFUL PROPERTY, SANDON, B.C., plotted from copies of original BCLS field notes. Underground workings tied to brass caps (BCLS 273/1987) at south end of Early Bird. Note proximity of Treminco's Ag-Pb-Zn concentrator.

Original crown grant corner posts were searched for but not found. Bearing trees, however, are still present. Also as mentioned, BCLS

survey 373/1987 reestablished the perimeter of Treminco's mining lease, adjoining, and two of those corners at the south corner of Early Bird, now marked by brass caps, were tied in during this work. This allowed adjustment of the drafted positions of topography and workings relative to the claims.

GEOLOGY

Bedrock in the general area consists of sediments of the Triassic Slocan Group. On the property the predominant rock type is black fissile argillite, at least at first glance. On looking again one might say, mixed argillite and quartzite. And to be safer and more fastidious it could be said that the rocks consist of some gradation between argillite and quartzitic argillite. At any rate, the rocks are black, they are argillaceous, they are finely bedded and, expectedly, they are recessive weathering.

Dykes of diorite and porphyry are said to be present, but none were seen. These would probably be related to the Upper Jurassic or Cretaceous Nelson Batholith.

The rock types on the property are similar in age and lithology to some of the sediments in the Nicola Group, and to the sediments of the Anarchist Group. The latter is now interpreted as being Quesnellia basement, obducted onto the craton during plate convergence. It is possible, and likely, that the Slocan rocks have been similarly scraped off the ocean floor by the leading edge of the continental plate, now represented by Shuswap Terrane.

To be permissive of the above scenario, geological structure in the area would undoubtedly be complex, and it is. Indeed, the style of folding and faulting supports the concept of obduction. The structure is believed to be nappe-like with overturned recumbent folds open to the south-west. Low angle thrust faults with strikes more or less parallel to bedding would be expected, and are present; and of course the ever present steep dipping transverse faults would likewise be expected, and they are also present.

Judging form the alignment of underground workings and old stopes, as shown on the old maps, Wonderful ore trended east-northeast and dipped steeply to the southeast. High angle northwest trending faults displaced the mineralized structure right laterally. Presumably, low angle thrust fault cutting the ore would displace it in an easterly direction along with the upper-plate.
Such a low angle fault - the Big Flat Fault - appears on some of the early maps of the underground workings, and interestingly, in a number of places along this thrust, drag ore is reported to occur within it. It also appears that, in places, the old time miners drifted appreciable distances along this structure in search of ore.

EXPLORATION POTENTIAL

Several interesting observations reflect interesting exploration potential.

"E" Level was driven northerly, nearly perpendicular to the direction of the lode system. Why? As the miners of the day explored by drifting, it is believed that this level was a drift following drag ore on Big Flat Fault. The miners would have stopped drifting when no further drag ore was found.

An interesting point regarding the origin of the ore recovered by ground sluicing becomes apparent when viewing the workings, faults and topographic contours in three dimensions, variously from a number of directions. The two areas of sluicing can be seen to lie along a subtle NNE-trending swale in the mountainside. This origin of this faint irregularity in the surface contours becomes immediately apparent - it is the trace along the topography of the intersection of two planar surfaces: the first being that of the Big Flat Fault; the second is the ground. The swale has been formed by differential erosion along this line of less-competent, broken ground. Indeed, one of the old maps describes a large outcrop area immediately to the east of this line as being highly brecciated; in this area the two surfaces are coincident.

It follows then, that the ore boulders recovered by sluicing was drag-ore from the plane of the Big Flat Fault, liberated from the brecciated fault plane by post-glacial erosion.

If this is correct, it leads to other interpretations regarding the relative position of mineralization. For example, consider the effects easterly translation related to thrust faulting might have had on ore horizons in this mining camp. One interpretation regarding the effects of the Big Flat Fault on the Wonderful lode follows.

It is quite apparent that Big Flat Fault was a post-ore thrust, and that, more than likely, the upper plate moved easterly relative to the lower plate. Since this fault occurs in the mine workings, it undoubtedly cuts and displaces the ore structure, and most likely the ore! How much, then; and how far? It appears that Big Flat Fault displaces the upper part of the Wonderful lode 450 m easterly.

This interpretation requires that the mineralization found in levels 1, 2, 3 and 4 is in the upper plate, and is the offset upper portion of the ore in the main lode. If this is the case, then the upper plate mineralization would bottom-out on Big Flat Fault, and there would be little justification in exploring beneath it. By the same token, lower plate ore in levels A, B, C, D, etc. would top-out on Big Flat Fault, and there would be, likewise, little point in exploring above it. Accordingly, the best remaining

exploration potential on the property is down rake from the old stopes in the main zone.

In hind sight then, Level 4, if being driven today, would be directed to intersect this down-rake area where there clearly is exploration possibilities at that depth.

GEOPHYSICAL SURVEY RESULTS

General

The instrument used during this work was the Geometrics G 816 Proton Precession total field magnetometer. Stations were established by hip chaining 20 metre intervals along pre-mapped roads and trails. Readings at approximately 350 different stations were taken on the property, this translating to 7 km of traverse. These were plotted on the AutoCAD drawing, and this enabled reading the easting and northing for each reading.

Control for diurnal corrections was obtained by reading the instrument at a base station at intervals of 2 hours or less. The location of the readings are shown relative to the claims, roads and topography on DWG.1, attached.

A number of readings were discarded because of spuriously low readings obtained near exposed rail, pipe, steel culvert, etc. In these instances, readings were usually low by 100 to 150nT. Buried steel objects of the same kind may account for some of the small localized magnetic lows shown on DWG.2.

A columnar spreadsheet file was made of the data in the form of easting, northing and magnetometer reading. The spreadsheet file was then converted to an ASCII file for processing by SURFER. The SURFER procedure initially interpolates a nT value for the earth's magnetic field at regular orthogonal grid by weighting the randomly distributed readings on the basis of the inverse of the square of the distance between the traverse station and the grid point. The interpolated values on this grid are then contoured. The resulting video image is then saved as a .DXF file and imported into AutoCAD.

In this case the size of the grid was 179 easterly by 174 northerly, or in other words there were 31,146 cells in the grid, and the same number of interpolated magnetic readings for contouring.

Interpretation

The results of the magnetometer survey are shown relative to the claims and roads on DWG.2, and relative to the underground workings on DWG.3.

Magnetic relief on the 3 eastern claims of the property is moderate (550 nT) and erratic. On the remaining claims, relief is low (100nT) and uniform. The low relief reflects a general absence of magnetic minerals in the argillaceous sediments; the moderate erratic relief probably reflects variations in the magnetic mineral content of rocks present in the eastern three claims.

The older underground workings, ie., those designated by alphabetical characters, are in the area of low magnetic relief. The more recent underground workings, ie., those designated by number, are in the area of higher relief. The significance of this, if any, is not known.

The results of the magnetometer survey do not define any trend that may be attributed to diorite or quartz diorite dykes that are said to be present on the claims. This is surprising and disappointing, as most intrusive dykes and certainly dioritic ones, have distinctive magnetic mineral contents relative to sea floor sediments.

One of the strong faults exposed in underground workings and which offsets ore on north-central Columbus, does coincide in location and trend with a subtle magnetic low. However, other known faults do not appear to be reflected.

Magnetometer surveying is not likely to outline the surface traces of flat faults. The upper and lower plates of such faults feather out at the surface trace, and along the trace the instrument would be affected by rocks from both layers. In this case, the area of erratic high relief appears to be confined to the area east of the surface trace of the Big Flat Fault. Accordingly, it appears that the area containing the higher readings is in the upper plate. It is conceivable that rocks in this plate may contain more dyke material, or a greater content of dispersed blocks of rock such as volcanics or other igneous rocks, that have a higher magnetic susceptibility. However, this observation is too vague and too nebulous to be useable as a magnetic prospecting technique.

The Ag-Pb-Zn mineralization does not contain magnetic minerals, and it is not outlined by the magnetic work.

CONCLUSION

On the property, Slocan Group argillite has little variation in magnetic mineral content. Consequently, magnetic surveying has limited usefulness for outlining structural features on the Wonderful Property. Individual magnetic features, such as dykes or blocks of volcanic rock, might be traced by detailed work over small areas, if justified by some reason.

The relatively high carbon content of the argillite renders problematical electrical methods such as electromagnetics, induced polarization and self potential.

Significant gravity anomalies in steep mountainous terrain can be masked by corrections.

Geochemical methods are direct and effective, care being given to recognition of contamination from former mining and ground sluicing activities.

Detailed geological maps of the property are not available. Perhaps the best way to define new untested exploration targets is to develop excellent geological knowledge of the property and surrounding areas. Accordingly, detailed geological mapping of the property is recommended, and this work should be compiled and integrated with similar information from the surrounding areas.

STATEMENT OF EXPENDITURES INCURRED

Professional Services C.A.R. LAMMLE 24-30Sept1993	3 days @ $314.00/day	$ 942.00
Meals		70.89
Accommodation Valhalla Inn, New Denver		236.20
Supplies		123.08
Transportation 4x4	6 days @ $75.00/day	450.00
	gasoline, tolls	177.83
Total Expenditures claimed		$ 2000.00

C R Lammle

REFERENCES

1. S. Pedley, 1959, 1"=50' Plan & phone conversation

2. S. Pedley, 30Dec1991, Exploration Proposal, Wonderful Property, Sandon, British Columbia.

3. Anon., 1"=50' Plan (believed to be M. Hedley's Map)

4. J.R. Kenney, 31Dec1952, Report on the Property of The Silver Ridge Mining Company Limited, N.P.L.

5. M. Lloyd, Pencilled and Inked Drawings, and phone discussion

6. W. Smitheringale, 22Oct1981, Progress Report to 15Oct81 - 1981 Exploration Program.

7. McElhanney's Stereophotogrammetry

8. File data: other old maps and sketches

9. B.C. Legal Surveys, Crown Grant Survey Notes

SANDON CHIEF

SAMPSON

WONDERFUL FR.

WONDERFUL

EARLY BIRD

CARPENTER CREEK

COLUMBUS

MILLER CREEK FR.

MILLER CREEK

TRIBUTARY CREEK

LOOKOUT NO. 2

1250 1200 1150 1100 1050 1300 1350 1400 1450 1500 1550 1600 1650

CAZADOR EXPLORATIONS LIMITED

VANCOUVER, BRITISH COLUMBIA

WONDERFUL PROPERTY

SANDON, B.C., SLOCAN M.D., NTS 82F/14

STATIONS FOR MAGNETOMETER READINGS

SCALE (Metres)

50 0 50 100 200 300 400

SANDON CHIEF

SAMPSON

MILLER CREEK FR.

COLUMBUS

WONDERFUL FR.

WONDERFUL

EARLY BIRD

LOOKOUT NO. 2

DWG. 2

CAZADOR EXPLORATIONS LIMITED

VANCOUVER, BRITISH COLUMBIA

WONDERFUL PROPERTY

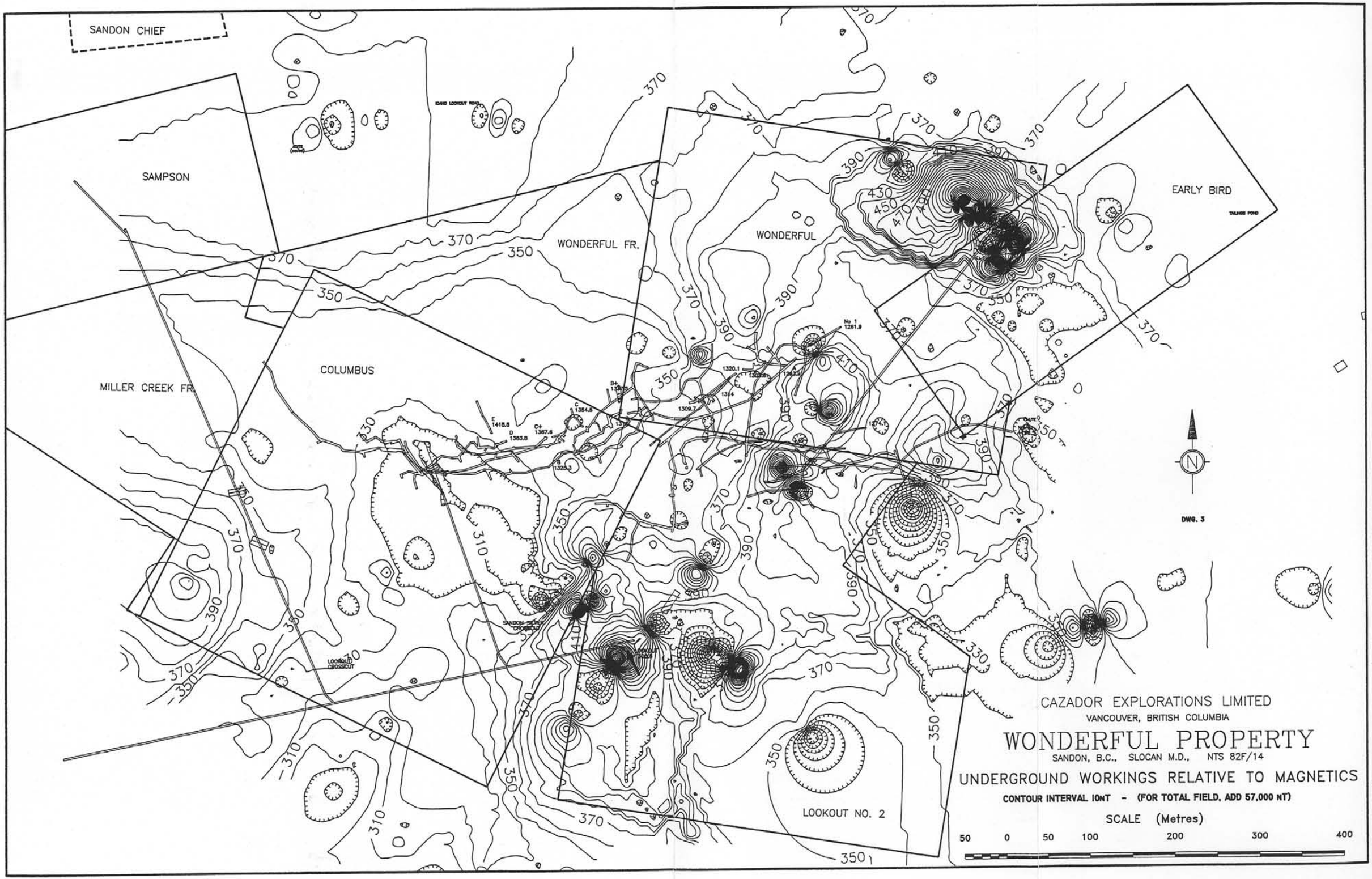
SANDON, B.C., SLOCAN M.D., NTS 82F/14

PROTON PRECESSION TOTAL FIELD MAGNETICS

CONTOUR INTERVAL 10nT - (FOR TOTAL FIELD, ADD 57,000 nT)

SCALE (Metres)

50 0 50 100 200 300 400


SANDON CHIEF
SAMPSON
MILLER CREEK FR.
COLUMBUS
WONDERFUL FR.
WONDERFUL
EARLY BIRD
LOOKOUT NO. 2
370
350
390
410
430
450
470
330
310
N
DWG. 3
CAZADOR EXPLORATIONS LIMITED
VANCOUVER, BRITISH COLUMBIA
WONDERFUL PROPERTY
SANDON, B.C., SLOCAN M.D., NTS 82F/14
UNDERGROUND WORKINGS RELATIVE TO MAGNETICS
CONTOUR INTERVAL 10nT - (FOR TOTAL FIELD, ADD 57,000 nT)
SCALE (Metres)
50 0 50 100 200 300 400