GEOLOGICAL INTERPRETATION OF MAGNETOMETER RESULTS in GUIBORD TOWNSHIP, ONTARIO.

INTRODUCTION:

A geological interpretation was made of the magnetic information from a detailed survey, performed in Concessions V and VI, Guibord Township, Ontario.

The survey was made by measuring the vertical component of the earth's magnetic field at 100' intervals along 300' lines, using a Watt's magnetometer.

The scale constant is 23.6 gammas per scale division. The survey is tied to the O.D.M. base station at Matheson with an accuracy of ± 25 gammas.

The basis for the interpretation is a detailed map on a scale of 200' to 1 inch, showing surface features, picket lines, base line, stations, magnetic readings and contours indicating magnetic intensity.

Geological data was derived from O.D.M. map No. 1951-6 by Y.K.Frost, from O.D.M. maps and reports on Munro Township and Michaud Township by J. Satterly, and from diamond drilling by Canadian Johns-Manville Co. Ltd. on claim S6551.

GENERAL GEOLOGY:

The bedrock of the region is of Precambrian age, and is overlain by Pleistocene and recent deposits of peat, sand and gravel. The claim area is almost entirely covered by overburden, visible as muskeg and sand dunes. Small areas of rock outcrop occur as follows:

basic volcanics on the central and southwest section of claim 59250.

basic volcanics with peridotite sills and younger diabase on the north sections of claims 56553 and 56552.

several small outcrops of syenite porphyry on the east boundary of claim 59262.

The volcanics strike east - west and dip steeply north, with tops facing north. Narrow irregular sills of ultrabasic rocks intrude the volcanics, and both are cut by dykes of syenite prophyry. North striking diabase dykes intrude all the other rocks, and are believed to be the youngest rock type in the area.

Faulting is prevelant; cross faults with a general north to northwest trend are conspicuous, whereas strike faults and shears, although numerous, are more difficult to detect.

GEOLOGICAL INTERPRETATION OF THE MAGNETIC DATA:

Since the claim group is almost completely covered with overburden, interpretation is based on the inferred magnetic characteristics of the various rock types, and extrapolation of data from nearby areas of known geology. The table of formation, modified from Prest, is as follows:

Cenozoic:

Recent and Pliestocene
peat, sand and gravel.

Precambrian:

Diabase Dykes.
Acidic Intrusives - Quarts-feldspar porphyry, syenite porphyry.

Ultrabasic Intrusives
altered pyroxene-rich peridotite.

Intermediate to basic volcanics
diorite and gabbroic lavas.

Clastic Sediments
greywacke, arkose, argillite, etc.

Broad-scale definition of the major rock types underlying the claim group can be made with a reasonable degree of accuracy. Detailed delineation is difficult due to (a) local alteration by acidic intrusives, (b) masking effect of ultrabasic intrusives, (c) the complex structural pattern, and (d) varying depths of overburden.

Sediments:

Sedimentary rocks underlie the western third of the claim group, and are conspicuous magnetically by reason of the relatively low, uniform readings. Individual readings range from 1550 to 2000 gammas, with an average of approximately 1750 gammas. The readings are highest in the northwest area of sediments, near the regional contact with the volcanics to the north, and are lowest in southeast section of the sedimentary belt. This gradation may be caused, in part, by increasing depth of overburden to the southeast.

Structural trends within the sediments are inconclusive; a generalized east - west strike is indicated.

Considerable contact metamorphism is suggested in parts of claims 59256, 52 and 57, where the sediments occupy an embayment between the parent acid intrusive and an offshoot body.

Volcanics:

Volcanic rocks are believed to adjoin the sediments on the northeast section of claim 59273 where a well-defined contact with a southeast trend is developed.

The readings in the volcanics range from 2200 to 3000 gammas. The bedrock contains significantly greater amounts of magnetite than the sediments. The cause of the localized anomalous "high" in the central section of 59274, is unknown. It is shown as a small body of acid intrusive; other possible interpretations are (a) shallow overburden over the volcanic bedrock (b) localized concentration of magnetite in a volcanic flow (c) a small basic or ultrabasic intrusive.

Volcanic rocks outcrop on claims 56551 - 53, in the north-east part of the claim group. A distinct contact zone, with an east-southeast strike near the south border of the above claims, marks the boundary between the volcanics to the north, and the acidic intrusive to the south.

Ultrabasic Intrusives:

Ultrabasic and basic (?) intrusives have been mapped within the volcanic assemblage noted above, and were also intersected in a drill hole. The pyroxene-rich peridotite forms conspicuous, sharp anomalies, due to a magnetic content of 7 - 10% (estimated from microscopic studies) and the shallow depth of overburden. Magnetic readings range from 3500 to 6500 gammas.

Acid Intrusives:

A large acid intrusive, granitic to syenitic in composition, and with a porphyritic texture, occupies most of the south-central and southeastern section of the claim group.

Interpretation is based on the relatively uniform magnetic readings, and the occurrences of trendless minor anomalies. The mass shows a typical magnetic "Texture" common to many acid intrusives. A further factor of significance is the presence of three small isolated outcrops of syenite porphyry within the interpreted area. Values in the acid intrusive range from 2000 to 3000 gammas. Readings tend to be lower in the southeast section of the intrusive, possibly due to an increasing depth of overburden.

A number of satellitic dykes and masses of quartz feldspar porphyry are present outside the main intrusive. These include a 50 ft. core section of feldspar porphyry intruding the ultrabasics on claim 56551, and a moderate sized, irregular plug, interpreted as intrusive into the sediments on claims 59253 and 59256.

Diabase Dykes:

North trending diabase dykes are numerous in the area. Two dykes crosscut the sediments in the western third of the map sheet, and range from 1700 to 2200 gammas; 100 to 400 gammas higher than the sediments. Two dykes are interpreted within the acidic intrusive with values from 2200 to 2500 gammas - slightly lower than the enclosing rock. The southward extensions of the small diabase dykes, mapped on surface in the northeast part of the claim group, are not apparent from available magnetic data.

Structure:

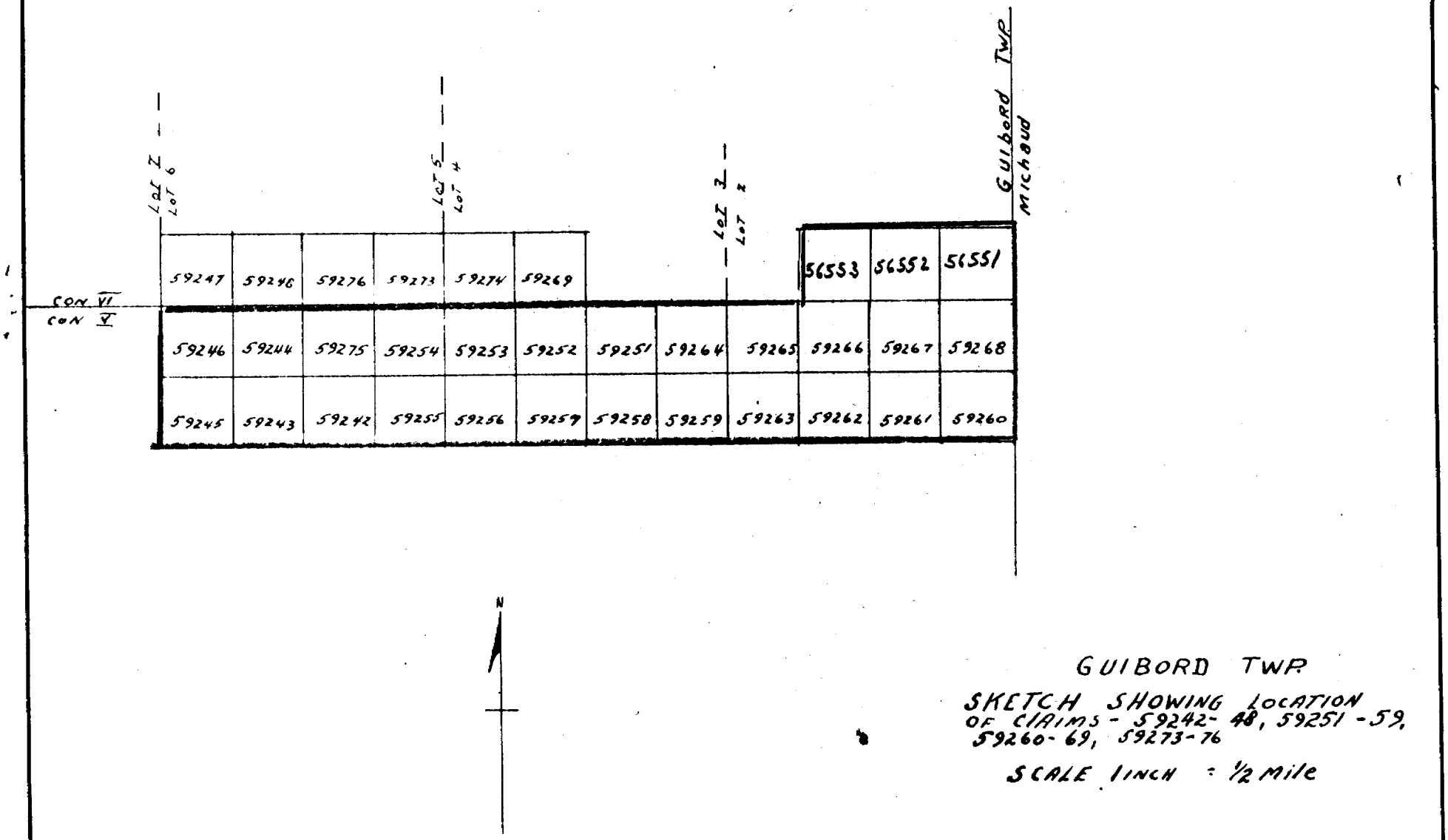
Recent drilling indicates that the regional fault contact between the sediments to the south and the volcanics to the north as mapped by Satterly in Munro Township enters this area just north of claim 59248. The location and extent of other strike faults is unknown. Numerous cross faults have been interpreted within the map area. Some of the faults are based on extrapolation of data to the north of the area, coupled with distinctive offset of contacts on termination of anomalies; others are shown to indicate a structural discontinuity in a sequence of interpreted

geological events. A major fault is believed to cause the abrupt lineal termination of the west side of the syenite porphyry, and may be an extension of the regional northeast trending fault, postulated by Prest in southwestern Guibord Township.

CONCLUSIONS:

A geological interpretation of the ground magnetic survey, carried out on this claim group, has provided a reasonably accurate, generalized outline of the bedrock geology.

A re-interpretation of the relevant data should be performed when further geological information has become available.



GUIBORD TWP.

SKETCH SHOWING LOCATION OF CLAIMS - 59242-48, 59251-59, 59260-69, 59273-76

SCALE 1 INCH = ½ Mile

MAGNETOMETER SURVEY

CANADIAN JOHNS-MANVILLE CO. LTD.

GUIBORD TOWNSHIP

ONTARIO

Scale 1 in = 200 ft.

LEGEND

MAGNETIC VALUES IN GAMMAS ALONG PICKET LINES

MAGNETIC CONTOURS, 100 and 200 GAMMA INTERVAL.

DEPRESSION CONTOURS

TO OBTAIN ABSOLUTE MAGNETIC VALUES, ADD 56,060 GAMMAS TO THE VALUES ON THE MAP.

OUTLINE OF OUTCROPS FROM MAP No. 1951-6, GUIBORD TOWNSHIP.

INTERPRETATION BY H. K. CONN

MARCH 1953 - MAY 1953

K. G. HONEYMAN

LEGEND

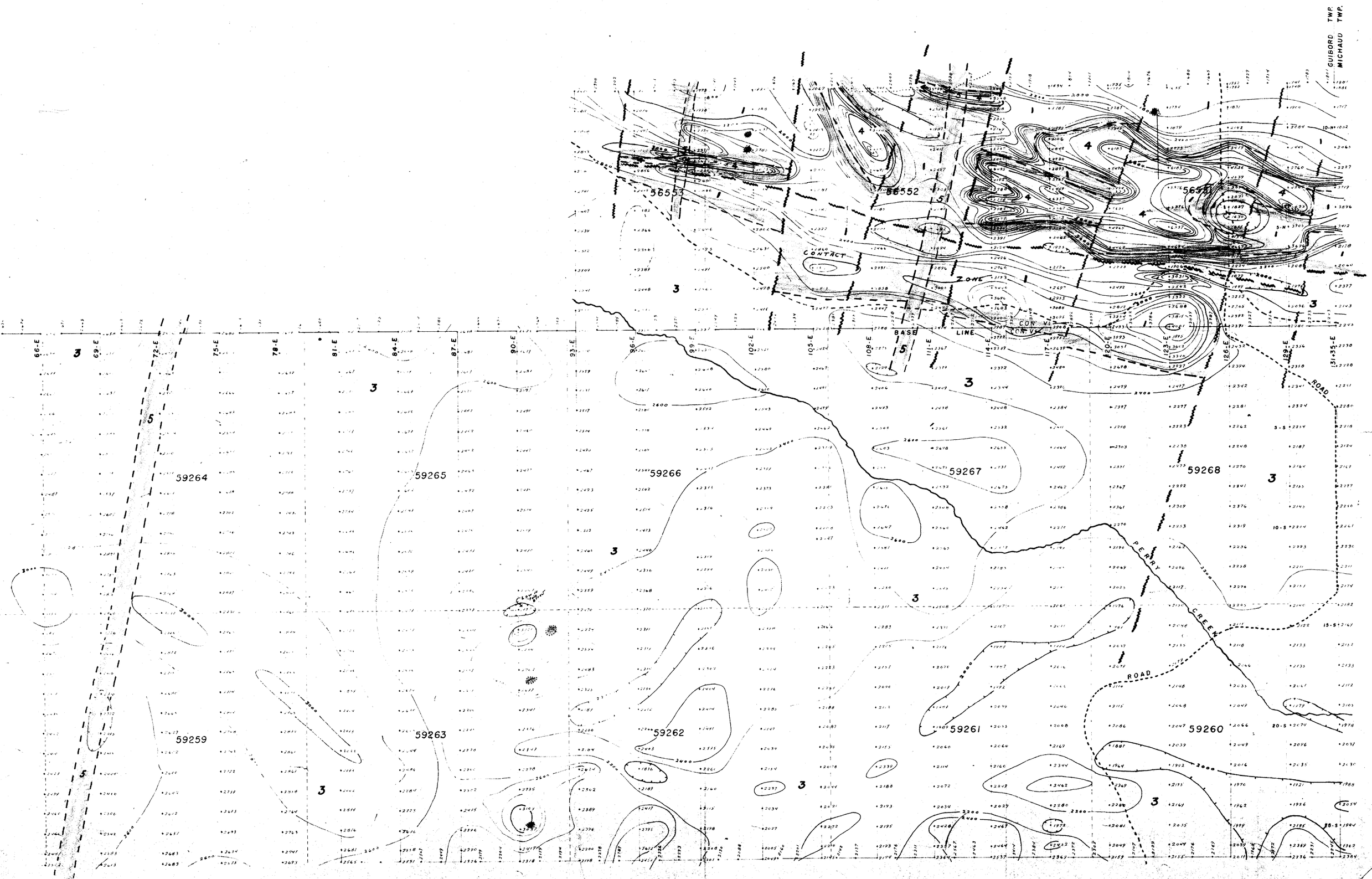
DIABASE DYKES

PERIDOTITE

GRANITE

SEDIMENTS

VOLCANICS



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59273
59274
59269
59244
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59253
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59242
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59256
59257
59250
CON VI.
CON. V.
BASE LINE
LINE O
12-W
9-W
6-W
3-W
3-E
6-E
9-E
12-E
15-E
18-E
21-E
24-E
27-E
30-E
33-E
36-E
39-E
42-E
45-E
48-E
51-E
54-E
57-E
RIVER
CONTACT
CONTACT METAMORPHISM OF SEDIMENTS
PERRY
CREEK