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REPORT OF GEOLOGICAL, GEOPHYSICAL AND GEOCHEMICAL SURVEYS

MAX #1, #89, #93, #121 AND #125 GROUPS

SKEENA MINING DIVISION

By: G. W. H. Norman, P. Eng.

For: Granduc Mines Limited (N.P.L.)

June - November, 1960

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INTRODUCTION

This report presents the results of geological, geophysical and some geochemical work carried out on the five Max groups of claims during the summer of 1960 after the claims were staked in May. The initial staking was done to cover scattered small magnetic anomalies located during an airborne magnetic survey along Unuk River. The initial work on the claim groups consisted in running a series of flagged and picketed base lines totalling 82,800 feet to control ground magnetic surveys. 107,700 feet of cross lines were run at right angles to the base lines at intervals of 400 to 1,000 feet. Cost of about 40,000 feet of base lines and 5,000 feet of cross lines are not included as assessment work, as they extended beyond the claim groups described in this report.

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Magnetometer surveys were carried on from time to time during the summer. Geological surveys were carried out by three two-man parties on the claim groups. One two-man party worked on the group during the entire season with considerable help from two other two-man parties and with incidental help from two others.

Geochemical surveys were carried out on a small scale to test the applicability of the Rubenic acid method described by Drs. Delavault and Warren of the University of British Columbia.

Drilling was done on the Max #106 mineral claim during the summer. The claims around Max #106 are grouped as the Max #9 Group, as indicated on Figure 1. The assessment work on the Max #9 Group consists of drilling five diamond drill holes and is reported separately.

LOCATION

The Max #1, #89, #93, #121 and #125 groups of claims lie on the northwest side of the north end of McQuillan Ridge. The ridge lies directly south of Unuk River, between the U.S.A.-Canadian border and South Unuk River. By direct line the distance to Stewart at the head of Portland Canal from the claims is about 40 miles in a south-south-east direction. Figure 1 gives the relative positions of the five claim groups and the location of the claims in relation to Unuk River and the mouth of Harrymel Creek. Harrymel Creek enters Unuk River from the north two miles west of South Unuk-Unuk River junction.

WORK PERFORMED

General Statement: The personnel employed on the work on the Max #1, Max #88, Max #93, Max #121 and Max #125 groups were as follows:

D. R. S. Doal	Graduate, Haileybury School of Mines. (Several years field experience Magnetic and E.M. Surveys)		Geophysicist
G. C. Gutrath	B. Sc.	U. B. C.	Geologist
R. Hrkac	4th year student	"	"
R. Kirkham	B. Sc.	"	"
E. A. Ostensoe	B. Sc.	"	"
A. D. Stanley	M. Sc.	"	"
L. E. Iverson			Camp Foreman & Assistant
R. W. Hunt	Student	U. B. C.	Surveyor
J. Brache	"	"	Assistant
W. Gauthier			"
D. Genn	Student	U. B. C.	Surveyor & Assistant
F. Hasselberg			Assistant
L. Meindl			"
R. Nehass			"
G. Prud'homme			"
V. Preto	Student	U. B. C.	"
A. L. Skiber	"	"	Geochemical Technician
B. R. Ward			Assistant
T. Wilkinson			"

under the supervision of G. W. H. Norman, P. Eng., Chief Geologist and K. G. Sanders, Assistant Chief Geologist.

The work consisted of line cutting, flagging and picketing, partly along heavily wooded steep side hills and to a lesser extent near timber line, where scrub is short and thickly intergrown. Lines had to be well flagged and were picketed at 100 foot intervals on base lines and 50 foot intervals on cross lines.

Geological mapping was carried out in the field on a scale of 200 feet to 1 inch where picketed lines were available. A picketed transit stadia line was run between

the south end of the base line on Max #128 mineral claim to connect with the base line ending on Max #160 mineral claim. This line started on Max #125 Group and extended across 145, 146, 147 and 148 claims of the Max #121 Group. The line gave control for tape compass traverse lines that were run to map geology between the two base lines.

The northern ends of the two base lines in the northeastern section of the Max claims were connected by tape and compass traverses along streams flowing down across claims 115, 117, 119, 201, 202 and 203 of the Max #93 Group. Steep gradients, cascades and waterfalls made such work slow and laborious.

Magnetic surveys were carried out only along the picketed base and cross lines.

Geochemical work was carried out as a test on picketed lines in the Max #121 and Max #125 claim groups.

Max #1 Group: Work in the field on this group started June 17th and ended September 7th. During this period nineteen man-days line cutting were completed by the surveyor (9 days) and assistants (10 days). Six man-days of geophysics were completed by the geophysicist (3 days) and helper (3 days). 40 man-days of geology were completed by geologists (20 days) and helpers (20 days). Five days of supervision by the Chief Geologist and five days by the Assistant Chief Geologist were required for the work.

Max #89 Group: Work in the field on this group commenced June 8th and ended September 8th. During this period ten man-days of line cutting were completed by the surveyor and assistants. Four man-days of geophysics were completed by the geophysicist (2 days) and helper (2 days). Thirty-four days on geology were completed by geologists (17 days) and assistants (17 days). Five days of supervision by the Chief Geologist and five days by the Assistant Chief Geologist were required.

Max #93 Group: Work in the field on the Max #93 Group commenced June 10th and ended August 24th. During this period twelve man-days of line cutting were performed. Four man-days of geophysics were completed by the geophysicist (2 days) and helper (2 days). Forty days geological work were completed by geologists (19 days) and assistants (21 days). Five days supervision by the Chief Geologist and five days by the Assistant Chief Geologist were required on the group.

Max #121 Group: Work in the field on the Max #121 Group commenced July 17th and ended September 27th. During this period thirteen man-days of line cutting and picketing were performed. Six man-days of geophysics were done by the geophysicist (3 days) and helper (3 days). Twenty-two man-days of geological work were done by geologists and an equal number of man days (22) was done by their assistants. One day was spent on geochemistry. Five days supervision by the Chief Geologist and five days by the Assistant Chief Geologist were required to carry on work on this group.

Max #125 Group: Work commenced on Max #125 Group on August 8th and ended September 27th. During this period ten days of line cutting and picketing were performed. Six man-days of geophysics were completed by the geophysicist (3 days) and his helper (3 days). Four days of geochemistry were done by the geochemical technician. Twenty man-days of geological work were done by geologists and twenty-four man-days were done by geological assistants. Five days of supervision by the Chief Geologist and five days supervision by the Assistant Chief Geologist were required on work on this group.

GEOLOGICAL SURVEY

General Statement: The outcrop geology of the Max #1, Max #89, Max #93, Max #121 and Max #125 claim groups is shown on Figure 1. The geology of claim group Max #9, which is surrounded by these claim groups, is shown, but assessment work on Max #9 Group is reported elsewhere. The surface of the claim groups slopes steeply northwest from the crest of McQuillan Ridge, about 5,000 feet above sea level, to the floor of Unuk River valley, at 500 feet above sea level. The 4,500 foot difference in elevation occurs in 12,000 feet and averages 375 feet per 1,000 feet. Timber line is between 3,500 and 4,000 feet. Near timber line slopes are as a rule more gentle. The streams which flow down across the claims are mostly small and have cut shallow rocky canyons, in which cascades and small waterfalls are common.

One large stream in the centre of the claim groups drains a glacier on McQuillan Ridge and has cut a steep sided deep gulch. The upper part of this gulch is wide and is floored by gravels. The lower part of the gulch above Unuk Valley has a narrow rock chute and is difficult to ascend.

Rock Units: The following rock units were recognized in geological mapping:-

Surficial Rocks: (Relative age not known)

Andesite agglomerate

Limestone

Tuff, tuffaceous sediments, argillite, some interbedded andesite.

Greenstone, recrystallized green rock, probably altered volcanic rocks.

Sericitic schist.

Intrusive Rocks:

Diorite

Syenite

Diabase

The stratigraphic succession of the rocks underlying the five Max groups of claims cannot be resolved until more detailed mapping has clarified the structure. The agglomerate apparently overlies the limestone and tuffaceous rocks and may be the youngest. Faulting or overturning may account for the relative positions.

*Lower beds a
symmetrical.*

The agglomerate belongs to the general porphyritic andesite group formerly called augite porphyrite. The fragments range to moderately large sizes and tend to be subangular.

The limestones range from fine grained carbonaceous to white crystalline types. They average about ten feet thick.

The bedded rocks grouped together as tuffs, tuffaceous sediments and argillite, probably include rocks of different ages. The argillaceous phases are dark, well bedded rocks and include some layers of siltstone. Some of the lighter phases are well banded and may be strongly silicified. Their original primary characteristics may have been changed by silicification. Some of the members of this group are green and chloritic and it is believed that some andesite is probably included in the areas mapped as tuffs.

The areas mapped as greenstone may include rocks that have been completely recrystallized along the contact with diorite. They may be partly dioritized tuffs or andesite.

The sericite schists are fissile fine grained rocks with some chlorite. They may be derived from bedded rocks or lavas by intense shearing.

The older intrusive rocks are small bodies and dikes of a pink dense rock which was given the field designation of syenite and one sill like body of medium grained diabase. The diabase and syenite may be related petrologically. Both are more altered in appearance than the diorite, but crosscutting relationships were not established.

The diorite ranges from a dark hornblende rich phase to a normal medium grained leucocratic rock with a small percentage of quartz. The hornblende rich phase may include completely digested and recrystallized wall rocks and this phase may have ill defined contacts with intruded rocks.

Mineralization: Rocks near the diorite contact are mineralized in a few places with magnetite, pyrite, pyrrhotite and traces of chalcopyrite. All bodies so far found are small and non-commercial.

stream?
11 M. ton small?

GEOPHYSICAL SURVEY

Statement: The geophysical work on the Max #1, Max #89, Max #93, Max #121 and Max #125 groups consisted of magnetic surveys with a Torsion type Askania magnetometer with a rated sensitivity of 266 gammas per degree. The results of these surveys are indicated on Figures 2, 3, 4, 5 and 6.

Figures 2 and 3 give the work done on Max #1 Group. Figure 4 gives the work done on the Max #89 and Max #93 Groups. Figures 5 and 6 give work done on Max #121 and Max #125 Groups.

The readings given on the figures are in gammas, except on Figure 2, where direct readings in degrees are plotted as profiles. They have been derived by multiplying the instrument readings in degrees by 266 (the sensitivity of the instrument in gammas per degree) and subtracting 2,123, which is an assumed datum level and value assigned to a base station at camp. The figures give the relative variation in magnetic intensities measured and are not absolute readings.

Interpretation: The highest anomalies indicated on the Max #1 Group, Max #89 Group and Max #125 Group range from about 4,000 to nearly 7,000 gammas. The anomaly on the Max #1 Group is due to 5 to 10% disseminated magnetite in weakly silicified tuffs. The slightly stronger anomalies on the Max #89 and #125 groups are due to a greater concentration of magnetite. For massive magnetite at the surface anomalies at least six times greater than the highest recorded on these claims would be expected.

GEOCHEMICAL SURVEY

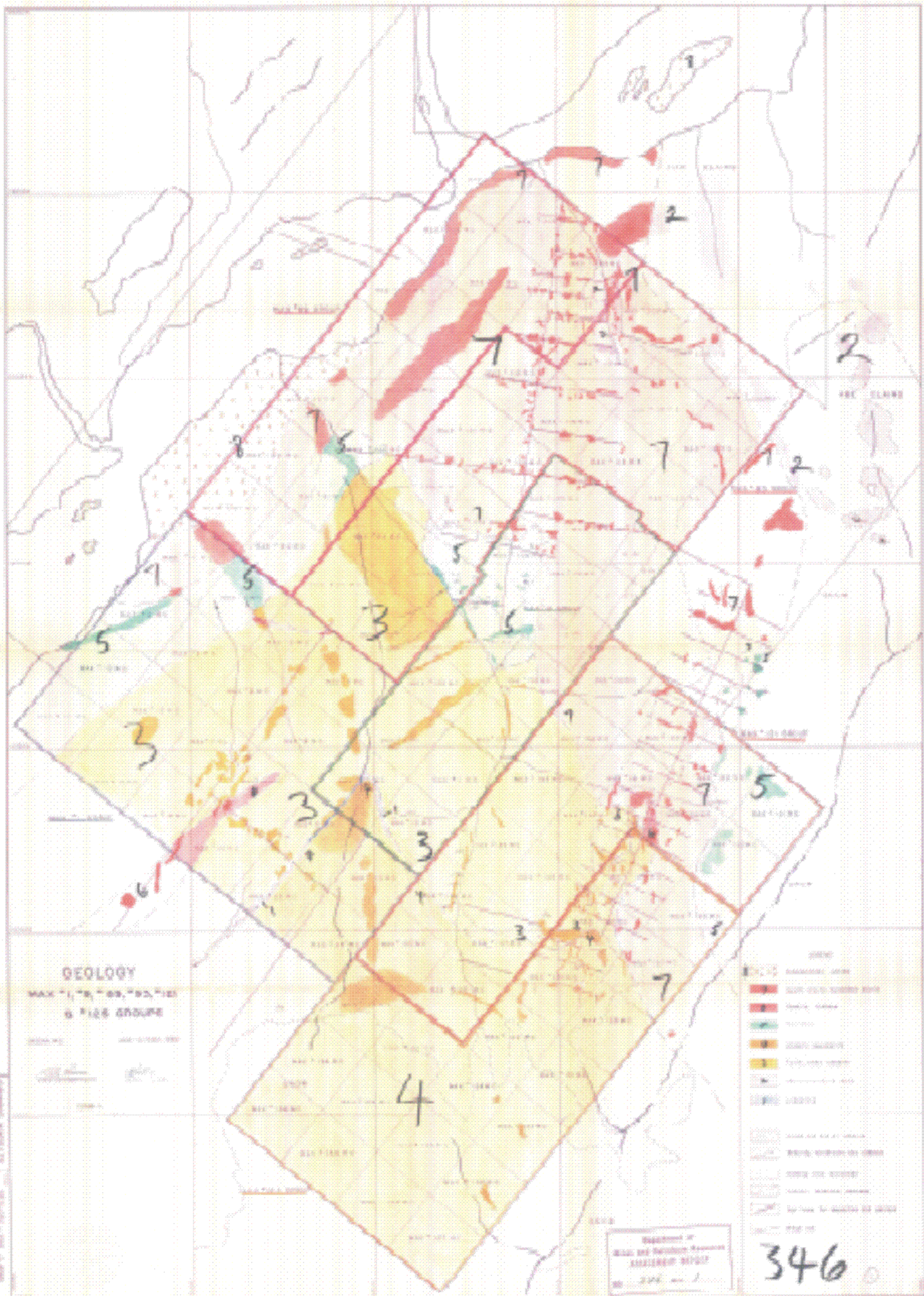
Soil samples for geochemical tests were collected on the Max #126 Mineral Claim of the Max #125 Group and on Max #124, #141 and #143 Mineral Claims of the Max #121 Group.

The samples were tested by the Rubenic acid method for copper developed by Drs. Delavault and Warren of the University of British Columbia. The results are given on Figure 7, but are not considered to be very conclusive.

The Rubenic acid method will give good results where the copper has been oxidized. The work illustrated on Figure 7 was carried out near timber line in a glaciated area. The probability of complete oxidation of the copper is very low and much of the material sampled was rocky and had been moved from its original location by ice. The method employed, though very quick, was probably not the best, but other methods may not be too practical either, because of the nature of the ground.

3-28-61

... *G. W. H. Norman* ... April 6/61
G. W. H. Norman, P. Eng.



MAX "1" GROUP

SECTION NO. 1

DATE - OCTOBER 1960

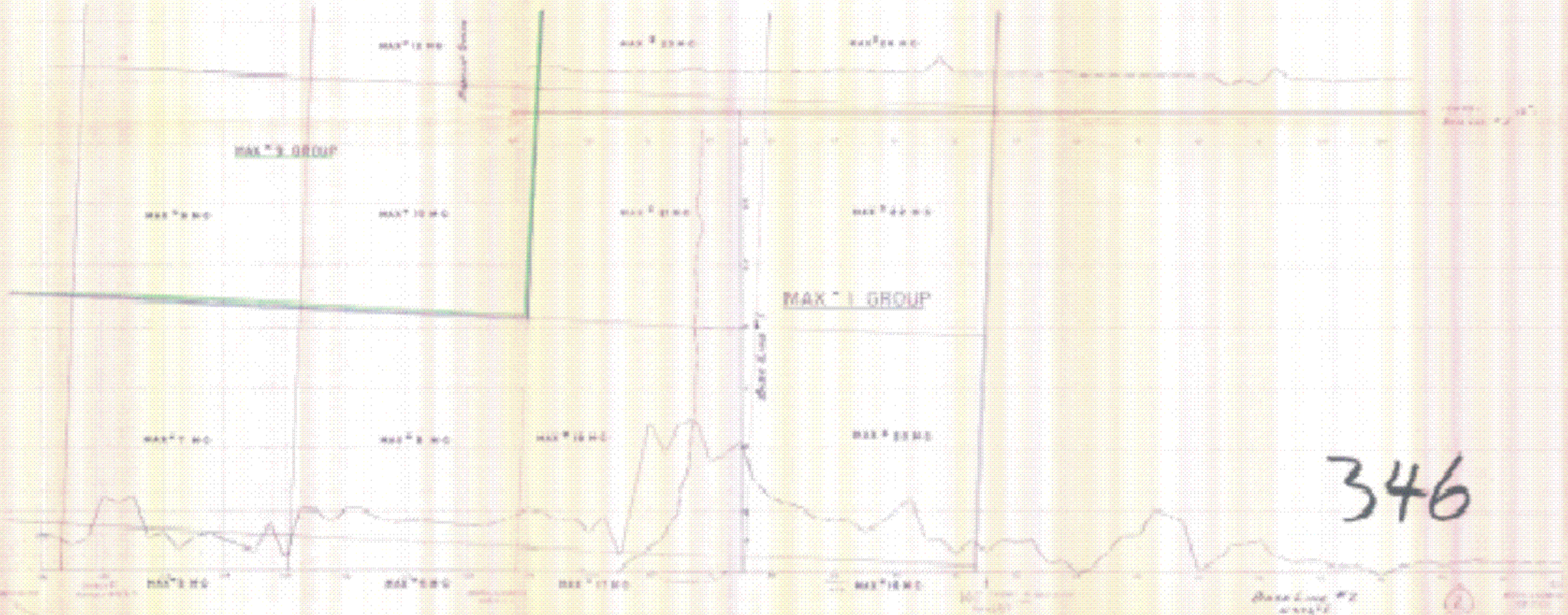
[Signature]
G. W. WARRICK, JR. ENG.

[Signature]
MAX "1" GROUP

Department of
Mines and Petroleum Resources
LABORATORY REPORT
No. 346

FIGURE 1

MAXIMUM PERCENTAGE OF ...



MAX * 8 M.C.

MAX * 19 M.C.

MAX * 20 M.C.

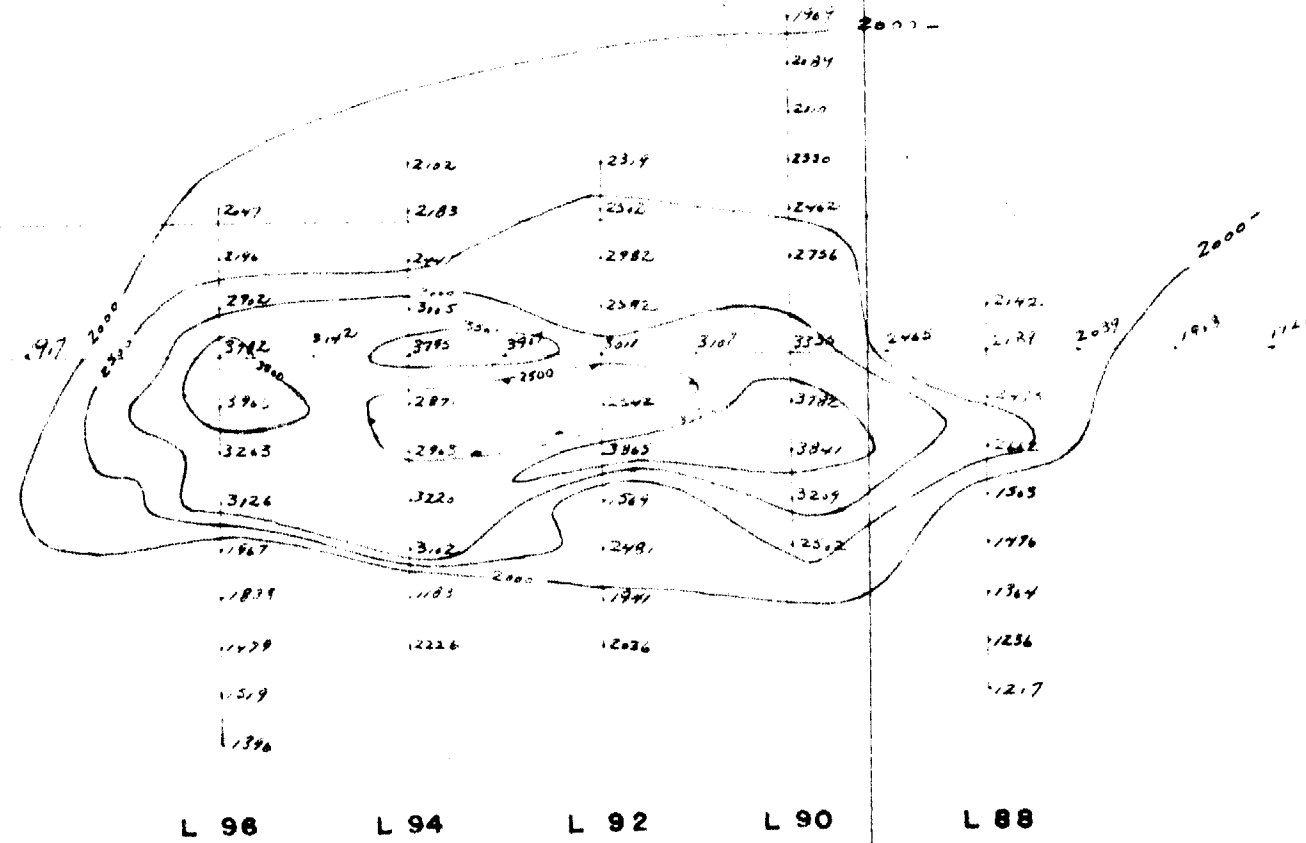
Department of
 Mines and Petroleum Resources
ASSESSMENT REPORT
 NO. 346 MAP 3

BASE LINE #2
 N - 37.5°E

MAX * 6 M.C.

MAX * 17 M.C.

MAX * 18 M.C.



MAX #1 GROUP

SKEENA M.D.

June - October, 1960

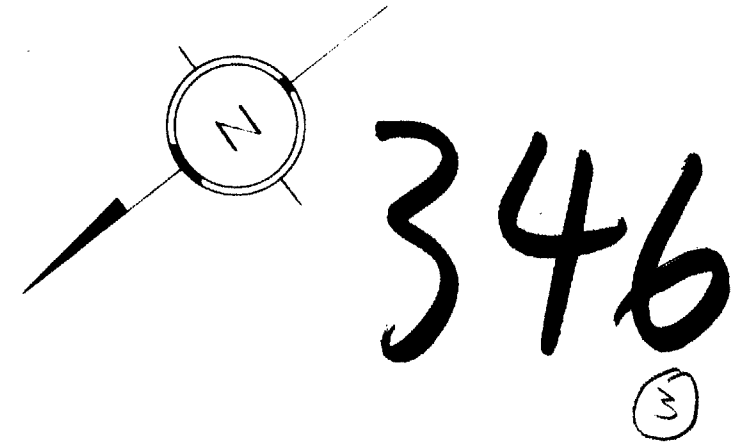
G.W.H. Norman
 G.W.H. NORMAN, P.Eng.

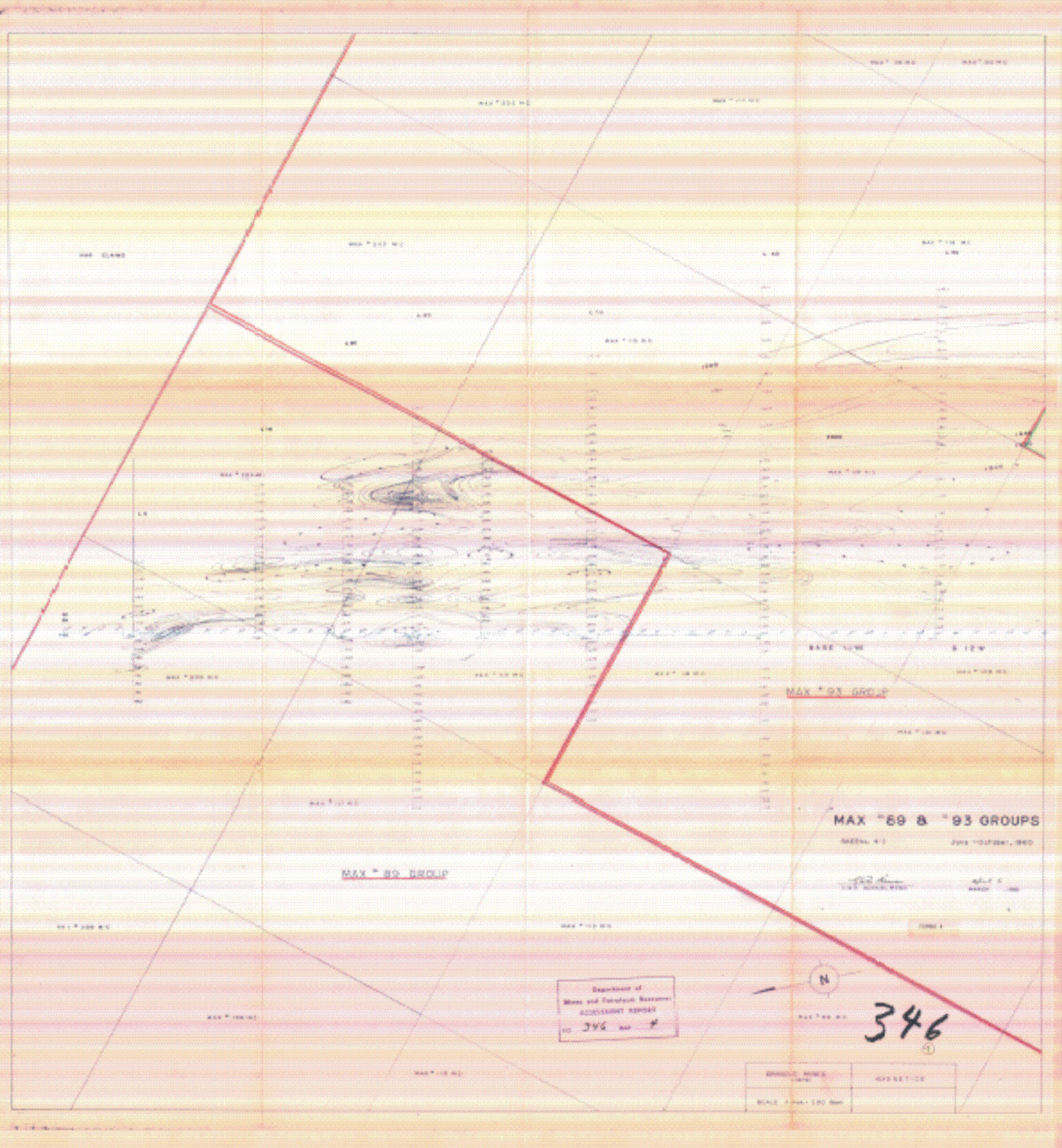
April 6
 MARCH, 1961.

FIGURE 3

GRANDUC MINES LTD.	TITLE MIDDLE MAX LINES 88-96 INCL.
SCALE 1 INCH - 200 FEET	MAGNETOMETER SURVEY

ab. 1





MAX 04 MC

MAX 05 MC

MAX 06 MC

MAX 07 MC

MAX 08 MC

MAX 09 MC

MAX 10 MC

MAX 11 MC

MAX 12 MC

MAX 13 MC

MAX 14 MC

MAX 15 MC

MAX 16 MC

MAX 17 MC

MAX 18 MC

MAX 19 MC

MAX 20 MC

MAX 21 MC

MAX 22 MC

MAX 23 MC

MAX 24 MC

MAX 25 MC

MAX 26 GROUP

MAX 27 MC

MAX 28 MC

MAX 29 & 30 GROUPS

GREEN 4-1

2013 - OCTOBER, 2013

MAX 30 GROUP

John A. ...
S.W. ...

John A. ...
MARCH ...

FORM 1

MAX 31 MC

MAX 32 MC

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REGISTRATION REPORT
NO 396 REG 2



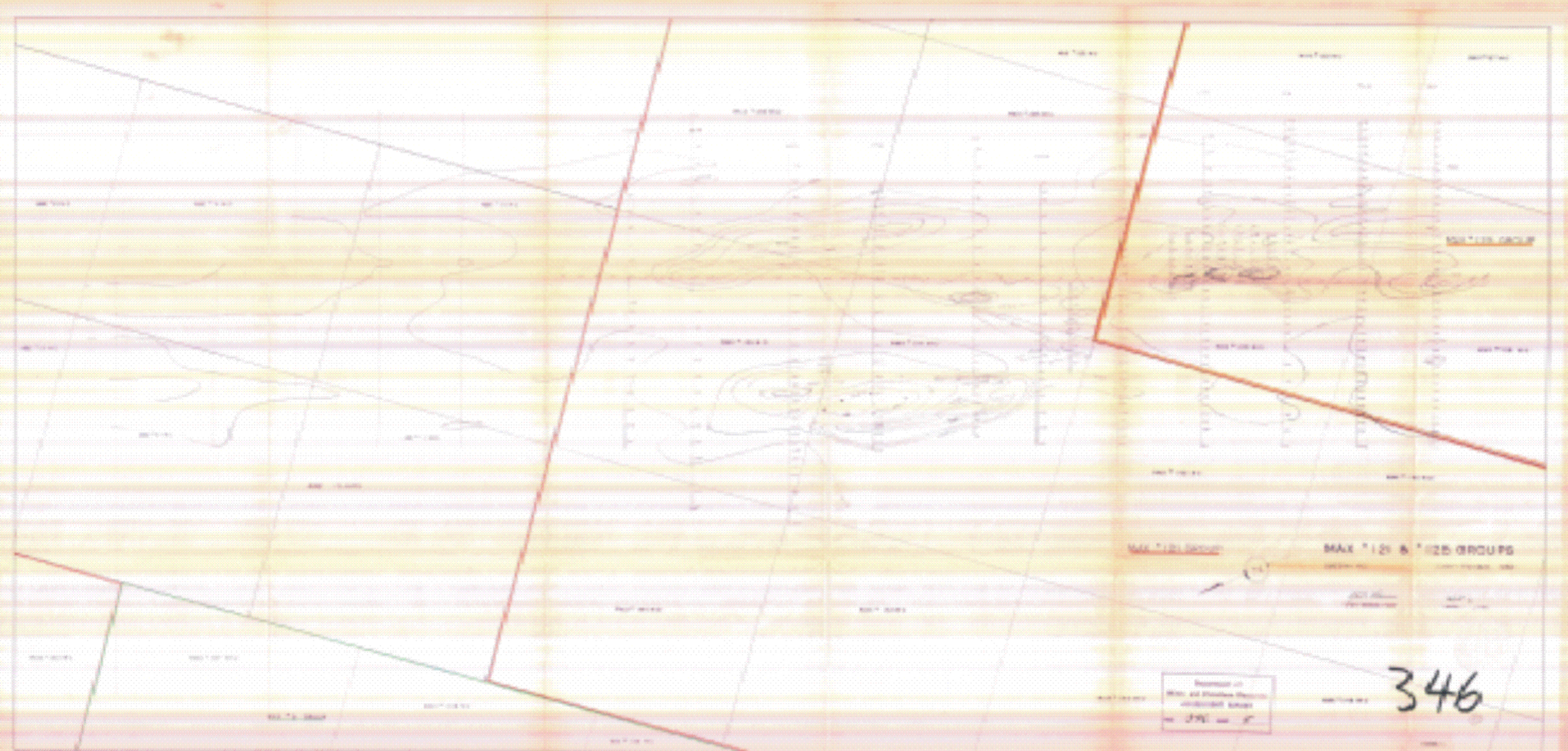
346

MAX 33 MC

MAX 34 MC

MAX 35 MC

GRAPHIC SCALE (mm)	GPS SET-UP
SCALE 1:100,000	



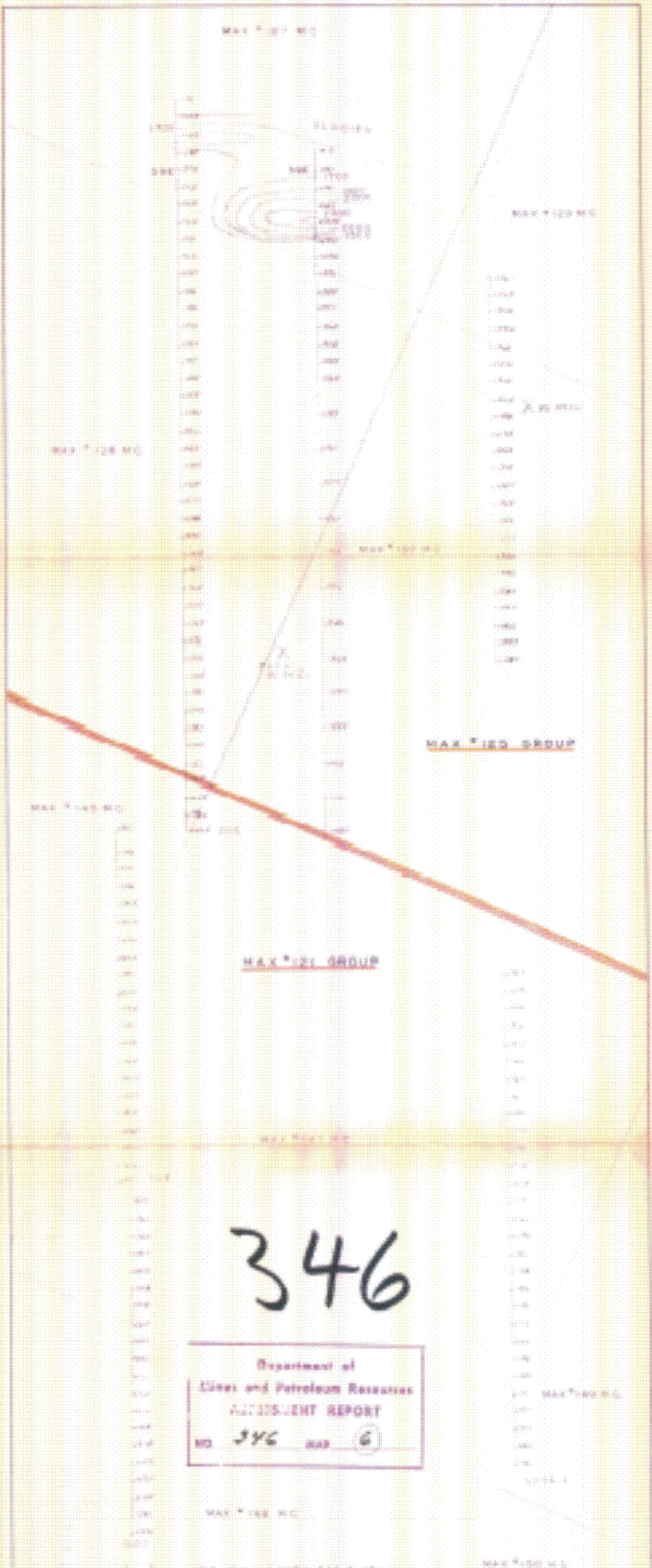
MAX 125 GROUP

MAX 125 & 125 GROUPS

DRAWN BY
 DATE
 CHECKED BY
 DATE

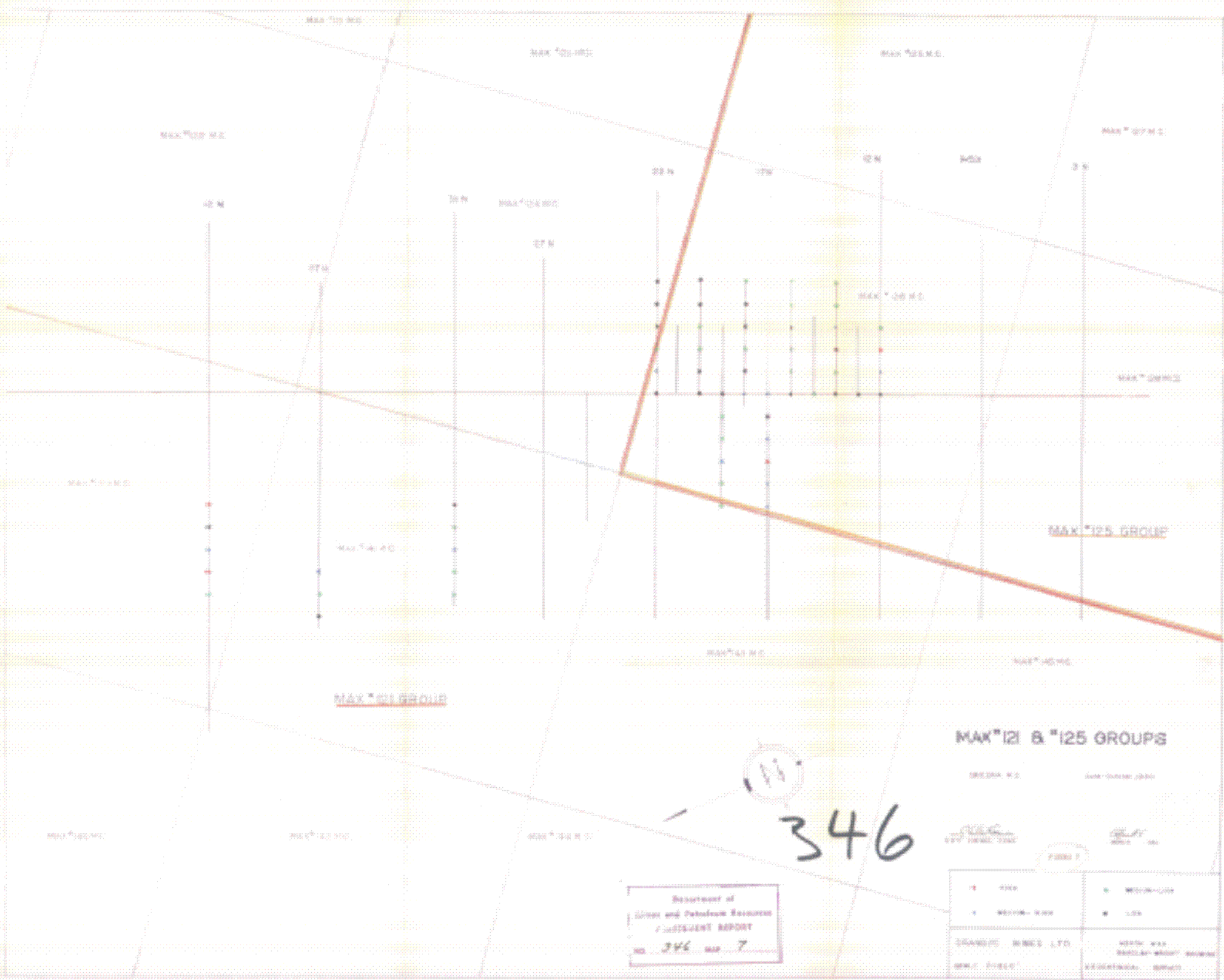
346

DATE	BY
DATE	BY



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LICENSING REPORT
NO. 346 MAP 6



MAX *121 & *125 GROUPS

SECTION NO. 346 (circled) DATE: 1960

SCALE: 1" = 100' (circled)
 1" = 100' (circled)
 1" = 100' (circled)

Department of
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 CONSULTANT REPORT
 NO. 346 MAP 7

1 - SAND	6 - MEDIUM-LIME
2 - MEDIUM-SAND	7 - LIME
3 - SANDY-SILT	8 - SILTY-SAND
4 - SILT	9 - SILTY-SILT
5 - SILTY-SAND	10 - SILTY-SILT