



ASSESSMENT REPORT

GEOLOGICAL MAPPING AND GEOCHEMICAL SAMPLING
MH 1-7 CLAIMS (YA86833-86839)

Whitehorse Mining District

NTS 105-D-6

091831

June 1 to June 3, 1986

Latitude: 60°21' N
Longitude: 135°14' W

for
HAVILAH GOLD MINES LTD.

by
T. GARAGAN
AURUM GEOLOGICAL CONSULTANTS INC.
1614-675 West Hastings Street,
Vancouver, B.C.
V6B 4W3

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This report has been examined by
the Geological Evaluation Unit
under Section 53 (4) Yukon Quartz
Mineral Act and is allowed as
representation work in the amount
of \$ 2600.00.

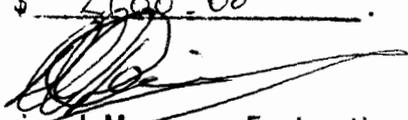

Regional Manager, Exploration and
Geological Services for Commissioner
of Yukon Territory.

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1. INTRODUCTION

This report describes the exploration for assessment purposes carried out by Aurum Geological Consultants on the MH 1-7 claims from June 1-3, 1986. The exploration was carried out at the request of L. Bratvold of Havilah Gold Mines Ltd. and consisted of stream sediment and heavy mineral concentrate sampling, prospecting and geological mapping. No mineralization or anomalies were located on the property.

2. CLAIM OWNERSHIP

The MH 1-7 claims (YA86833-86839) consist of seven contiguous quartz claims located within Claim Sheet 105-D-6 of the Whitehorse Mining District. The claims were staked and are owned by Mr. Glen Harris of Whitehorse. An option agreement is presently being arranged between Glen Harris and Havilah Gold Mines Ltd.

3. LOCATION, ACCESS AND PHYSIOGRAPHY

The MH claims are located in the Whitehorse Mining District (Claim Sheet 105-D-6: latitude 60°21'N and longitude 135°14'W) approximately 42 km southwest of Whitehorse (Figure 1). The property is bordered by the Watson River to the northwest, by Mule Hill to the northeast and by Mineral Hill to the southwest (Figure 2).

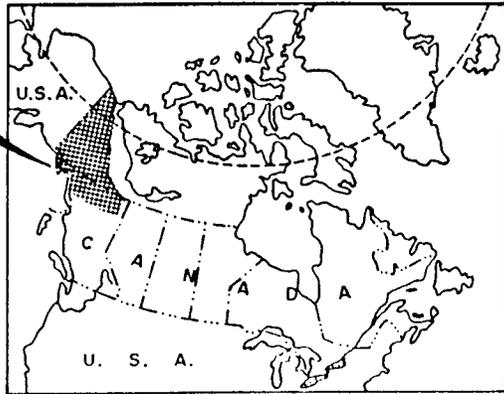
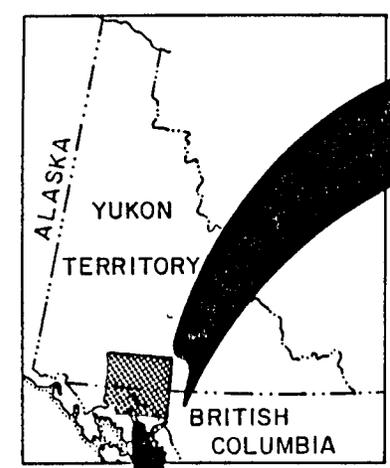
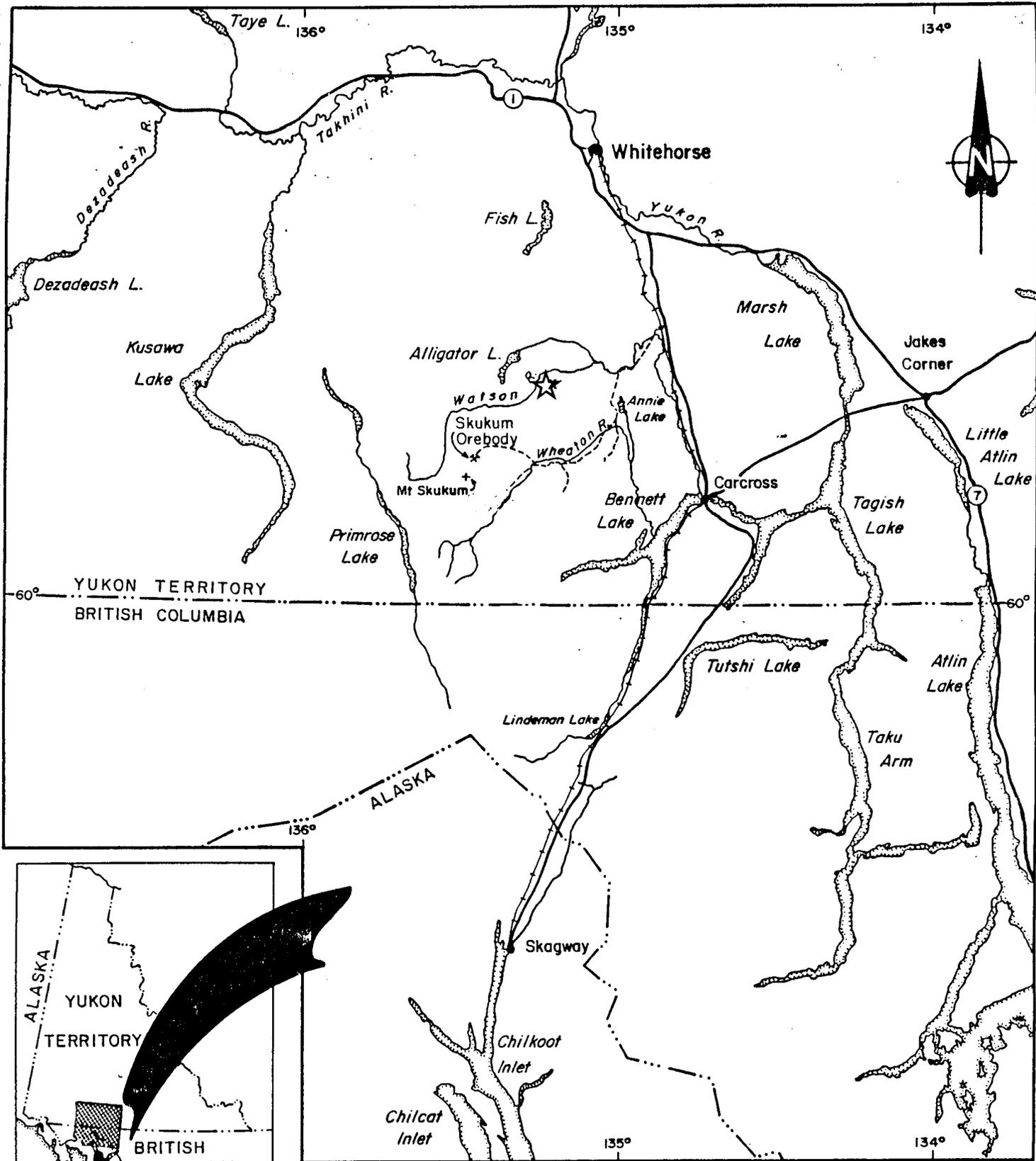
Access to the property is by helicopter from Whitehorse to the northeast or from a seasonal base (Frontier Helicopters) located at the Wheaton River strip, 12 km to the south. A dirt road leads from the Annie Lake road (at a point 12 km from the Whitehorse-Carcross-Skagway highway) up Thompson and Morrison Creeks to the east end of Mineral Hill at a point approximately 1 km south of the claims.

The terrain in the area is mountainous, with rounded mountain tops cut by steep gullies. The altitude on the property varies from 885 m in the Watson River Valley to 1645 m on Mule Hill. Most of the claims are on a steep talus and vegetation covered slope facing the Watson River to the northwest. The remainder of the property is located on a terrace between Mule Hill and Mineral Hill.

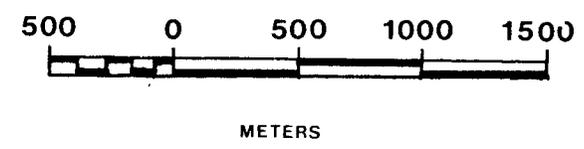
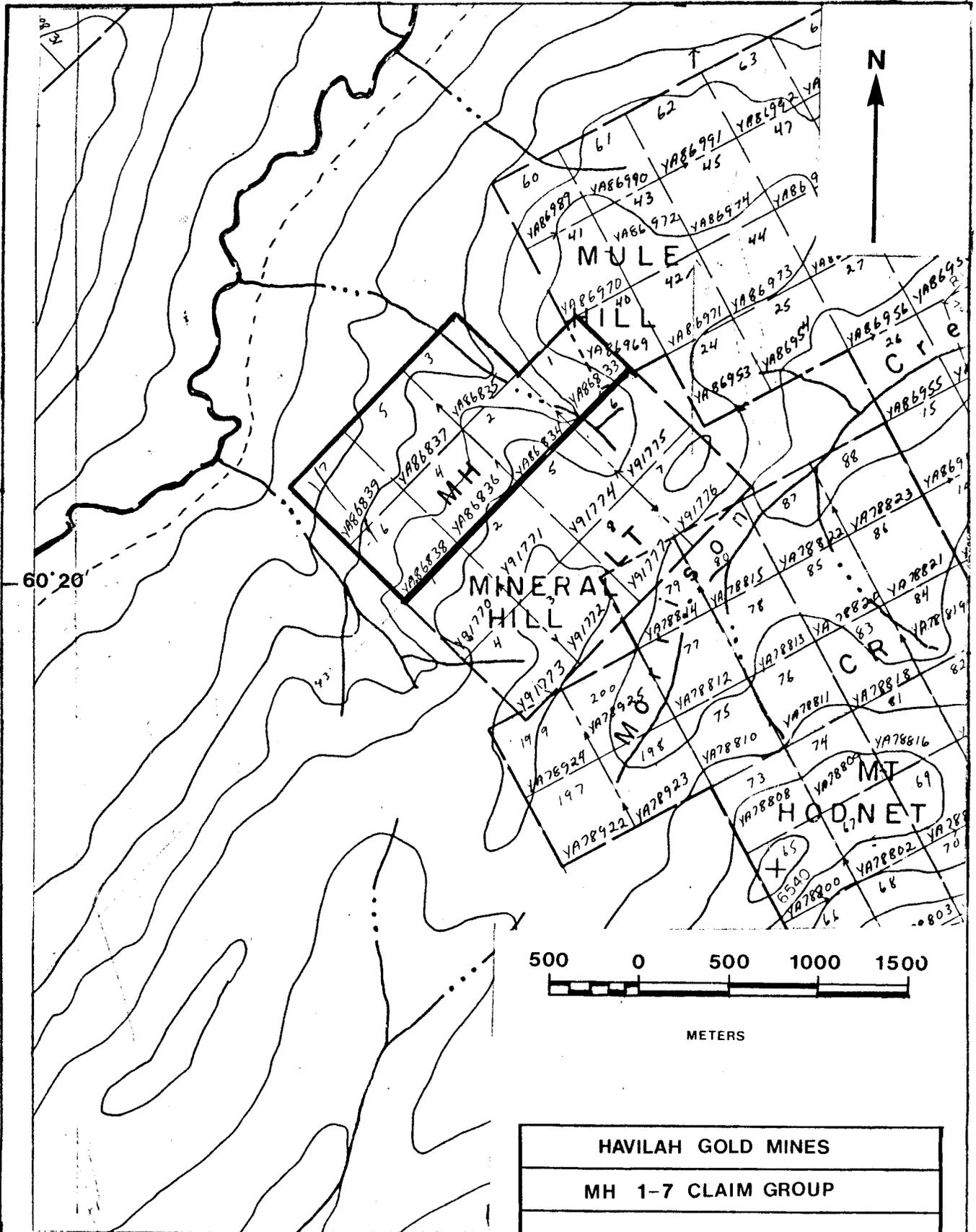


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HAVILAH GOLD MINES LTD.	
MH 1-7 Claims	
LOCATION	
<i>Aurum Geological Consultants Inc.</i>	January, 1986



HAVILAH GOLD MINES	
MH 1-7 CLAIM GROUP	
CLAIM MAP	
AURUM GEOLOGICAL CONS. INC.	JUNE, 1986
NTS105D/6	Drawn by D.D. Scale 1:31680
	FIGURE 2

135° 15'

4. HISTORY

Exploration in the Watson and Wheaton River areas commenced during the early 1900's with the discovery of gold and telluride bearing quartz veins on Gold Hill (Cairnes, 1906). The Legal Tender vein was staked in 1906 by Mr. J. Perkins and a 100' adit was driven into the vein in 1909. The area was restaked several times between 1925 and 1974.

Activity in the Wheaton River area increased dramatically with the discovery of the Mt. Skukum gold deposit (164,000 tons at .73 oz/ton Au and .63 oz/ton Ag: Total Erickson 1985 Annual Report) in 1981-1983. Numerous claims were staked in the surrounding area during the ensuing field seasons. The MH 1-7 claims were staked by Mr. G. Harris in June 1985 to cover an area believed to include the Legal Tender vein and adit.

5. REGIONAL GEOLOGY

The MH claims are situated near the eastern margin of the Coast Plutonic Complex. The regional geology is described by Wheeler (1961) and Lambert (1974).

The Coast Plutonic Complex consists of foliated and non-foliated granitoid rocks which intrude and underlie (roof pendant) low-grade metamorphic sediments and volcanics of the mesozoic Whitehorse-Nechako Trough and quartzites, schists and gneisses of the early Paleozoic Yukon Group.

Subaerial rhyolites and andesite flows and pyroclastics of the Tertiary Skukum Group conformably overlie the above units. Late stage rhyolite and basaltic andesite dykes and plugs related to Skukum volcanics cut the Skukum Group volcanics and underlying rocks.

The deposition of the Quaternary Miles Canyon flood basalts followed by glaciation and present-day erosion are the last geological events occurring in the region.

The structural trend in the Wheaton area is northwest, with the exception of probably Tertiary northeast trending faulting.

6. PROPERTY GEOLOGY

The MH claims are underlain by quartz diorite of the Coast Plutonic Complex which intrudes Lewis River Group chlorite schists and basaltic volcanics of probable Mesozoic age. A rhyolite dyke swarm cuts the Lewis River Group volcanics and the Coast Plutonic diorite in the southern end of the property (Figure 3).

The Lewis River Group outcrops on the west side of the gully near the east end of the property. The rocks are comprised of chlorite schist and feldspar-chlorite schists with a foliation trend of 035°/70°E. Slickensides are well developed on the east side of one outcrop found near the creek.

Outcrops of resistant weathering, cliff forming basaltic and andesitic flows with interbedded pyroclastics are present at the east end of the property. The flows are usually massive but may contain up to 20% feldspar and augite phenocrysts in places. The age of the rocks is unknown but presumed to be Mesozoic.

The volcanic rocks are underlain (volcanics occur as roof pendants) and intruded by medium-grained equigranular biotite hornblende quartz diorite of the Coast Plutonic complex. The mafic minerals occupy 15% of the rock and are usually altered to chlorite. Epidote-calcite veinlets are common throughout the unit.

A northeast trending zone at least 450 m wide consisting of several rhyolite dykes cutting the quartz diorite and the Lewis River Group is located along the southern margin of the property. The dykes vary between at least 1 m wide to up to 30 m wide and trend approximately 045° to 070°. The dykes are very fine-grained with rare quartz eyes and are locally flow banded. The dyke rocks are not seen cutting the Mesozoic volcanics east of the creek along the trend of the swarm. The presence of slickensides in outcrop in the creek and the sudden discontinuity of the rhyolite dykes suggests the presence of a major fault within the creek at the contact between the Lewis River Group and the Mesozoic volcanics.

7. MINERALIZATION

No mineralization was found on the property and the Legal Tender adit was not located on the property. A quartz vein with an adit, matching the description of the Legal Tender vein and adit (Cairnes, 1906), was located near the head of the major gully located immediately southwest of the claim. The bull quartz vein contained up to 10% galena with minor chalcopyrite in places.

8. EXPLORATION

Exploration on the MH 1-7 claims consisted of stream sediment and heavy mineral concentrate sampling and prospecting. At least one stream sediment sample was taken in all but one of the creeks draining the property.

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The samples were collected in paper soil sample bags and were sent for Au, Ag, Pb, As and Sb analyses. Two heavy mineral concentrate samples were collected in the major gully at the east of the claims. A 3-5 kg sample was collected in the field and panned down in camp to 50-100 grams. The concentrate was sent for Au and Ag analyses. The geochemical results are all low, with the best value being 30 ppb gold in a stream sediment sample, and no following work is required.

The sample locations are plotted in Figure 3 and the sample numbers are listed in Appendix A.

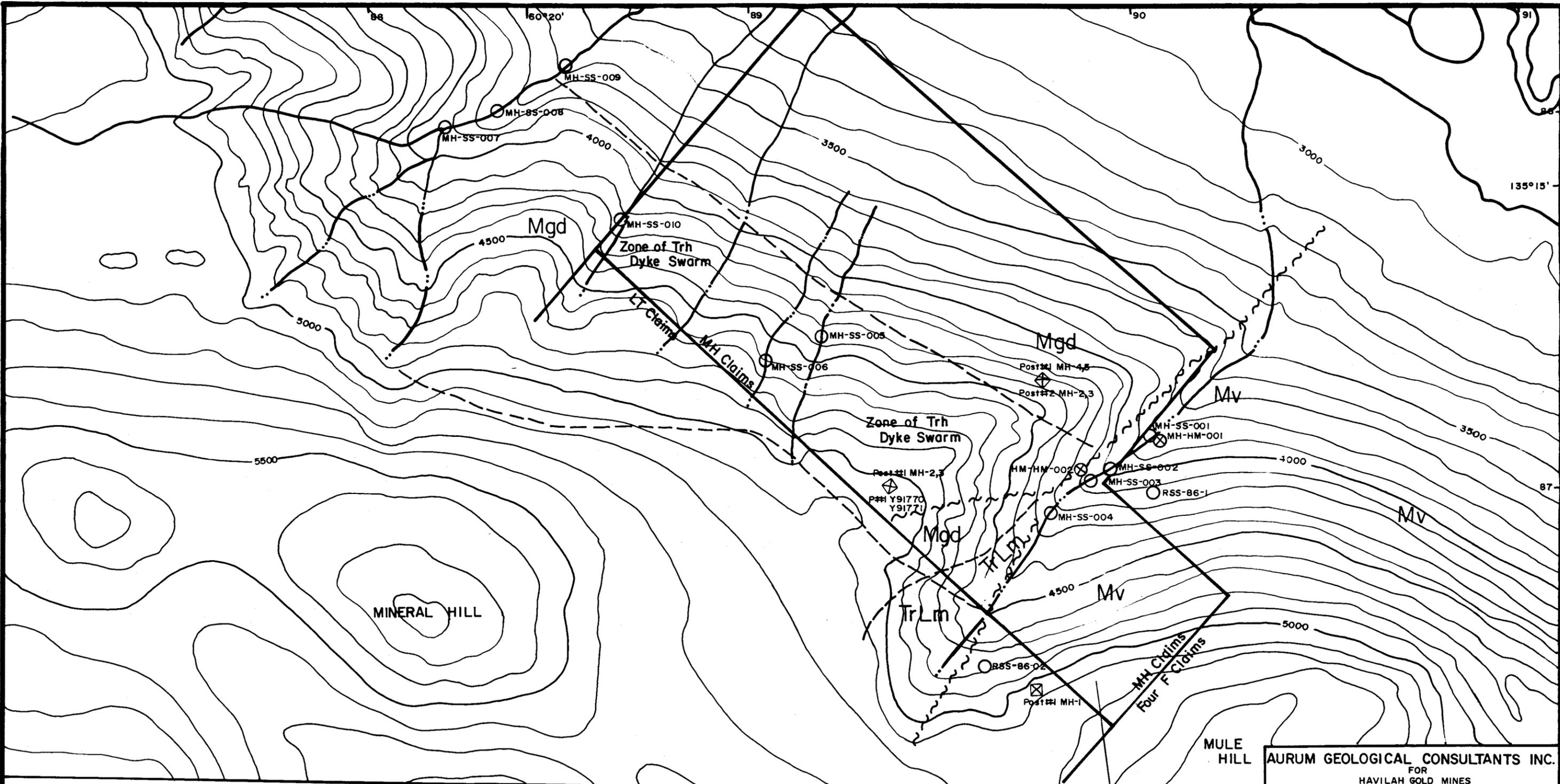
9. DISCUSSION

The MH claims are underlain by a sequence of rhyolite dykes which cut the granodiorite and the Lewis River Group volcanics. All significant precious metal mineralization found to date within the Wheaton River area appears to be associated with felsic dyking; therefore, the zone of dyking within the MH claims should be a good exploration target. The geochemical results from the silt and heavy mineral concentrate sampling are all low; therefore the MH claims appear to have limited economic potential. Further exploration on the property depends largely on exploration being carried out around the Legal Tender adit on the adjacent FAL claims (also owned by Havilah Gold Mines).

10. REFERENCES

- (1) Cairnes, D. D., 1906: Explorations in a portion of the Yukon, south of Whitehorse. In Bostok, H. S., 1957: Yukon Territory: Selected field reports of the Geological Survey of Canada 1898 to 1933. G.S.C. Memoir 284.
- (2) Lambert, M. B., 1974: The Bennett Lake Cauldron Subsidence Complex, British Columbia and Yukon Territory. G.S.C. Bulletin 227.
- (3) Total Erickson Resources Ltd. Annual Report, 1985.

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LEGEND

- | | | |
|-----------------------------------|---|--|
| Tertiary | Trh Rhyolite dyke and dyke swarms (occasionally porphyritic) | — Geological Contact (approximate) |
| Mesozoic to Late Tertiary? | Mgd Biotite hornblende Quartz diorite | ~ Fault (approximate) |
| | Mv Unknown age Basalt Andesite flows and Breccias | ○ Stream sediment sample location
MH-SS-001 |
| Triassic | TrLm LEWES RIVER GROUP
Metamorphosed volcanic rocks (chlorite schist) | ⊗ Heavy mineral concentrate sample location
MH-HM-001 |
| | | □ Claim post location
Post #1 MH-1 |
| | | — Claim boundary (approximate; according to DIAND claim sheet 10506) |



AURUM GEOLOGICAL CONSULTANTS INC.
FOR
HAVILAH GOLD MINES

GEOLOGY AND GEOCHEMISTRY
MH 1-7 CLAIMS

N.T.S. No: 105 D-6
Mining District: Whitehorse
Scale: 1:10,000

Drawn by H.D.P. Date 86/6/14 Figure 3

APPENDIX A
ANALYTICAL RESULTS AND METHODS

Aurum Geological Consultant Inc.

Property: MH Claims

<u>Sample Type</u>	<u>Sample No.</u>	<u>Chemical Analysis</u>				
		<u>Au</u>	<u>Ag</u>	<u>Pb</u>	<u>As</u>	<u>Sb</u>
Stream sed.	MHSS-1	10	0.3	20	4	<2
Stream sed.	MHSS-2	<5	0.3	15	2	<2
Stream sed.	MHSS-3	<5	0.5	20	3	<2
Stream sed.	MHSS-4	<5	0.6	18	5	<2
Stream sed.	MHSS-5	<5	0.5	20	<2	<2
Stream sed.	MHSS-6	5	0.7	35	2	<2
Stream sed.	MHSS-7	10	0.2	14	3	<2
Stream sed.	MHSS-8	30	0.3	13	2	<2
Stream sed.	MHSS-9	5	0.2	30	<2	<2
Stream sed.	MHSS-10	<5	0.4	6	5	<2
Heavy mineral	MHHM-1	<5	0.3			
Heavy mineral	MHHM-2	<5	0.4			
Stream seds.	RSS-86-01	<5	0.4	14	<2	<2
Stream seds.	RSS-86-02	<5	0.5	25	<2	<2

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Stream sediment samples are dried and sieved to minus 80 mesh. A split is analyzed. Heavy mineral concentrate samples are pulverized and a split of the minus 200 mesh is analyzed.

Silver and lead analysis: the sample is dissolved in hot aqua regia and analyzed by atomic absorption spectrophotometry. Silver analyses require a correction for background.

Arsenic analyses are by perchloric-nitric acid digestion and colourimetric determination.

Antimony analyses are by x-ray diffraction using a pressed pellet of pulverized rock.

Gold analyses are by fire assay techniques, but after the head is prepared it is dissolved in acid and the gold content is determined by atomic absorption spectrophotometry.

APPENDIX B

AURUM PERSONNEL: 1614-675 West Hastings Street, Vancouver

T. Garagan, B.Sc.	Director Geologist	Project supervision, mapping, prospecting, map and report preparation
H. Keyser, B.Sc.	Director Geologist	Mapping, prospecting
P. Garagan, B.Sc.	Geologist	Mapping, prospecting, geochemical sampling, map preparation
D. David	Geology Student	Prospecting, geochemical sampling

APPENDIX C
STATEMENT OF COSTS - SURFACE WORK MH 1-7 CLAIMS

1. Analytical Costs

Analyses by Bondar-Clegg and Co. Ltd., Whitehorse and Vancouver:

12 stream sediment samples @ 19.65 each (Au, Ag, Pb, As, Sb)	\$235.80	
2 heavy mineral concentrate samples @ 10.75 each (Au, Ag)	<u>21.50</u>	\$257.30

2. Helicopter Costs

June 1/2, 1986: Hughes 500D on casual charter from Frontier Helicopters, Wheaton River strip:

1.2 hours @ \$440/hour	\$528.00	
Fuel: 144 litres @ 80¢/litre	<u>115.20</u>	643.20

3. Labour Costs

T. Garagan: mapping, prospecting, report writing: 2 days @ \$200/day	\$400.00	
H. Keyser: mapping, prospecting: 1 day @ \$160/day	160.00	
P. Garagan: mapping, prospecting, geochemical sampling, data compilation: 3 days @ \$150/day	450.00	
D. David: prospecting, geochemical sampling: 2 days @ \$105/day	<u>210.00</u>	1,010.10

4. Camp Costs

Camp and cook supplied by MBW Surveys of Whitehorse at a rate of \$40/day: 8 man days @ \$40/day		320.00
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5. Mobilization

Fixed mobilization charge of \$200 each for T. Garagan and H. Keyser (Aurum invoice 86-62)	\$400.00	
One-way air ticket: P. Garagan (Calgary/Whitehorse)	334.30	
Ditto - D. David (Vancouver/Whitehorse)	294.80	
	<u>\$1,029.10</u>	

The costs for assessment are divided between the MH 1-7, FOUR F 1-64, 67-109, PCG 1-12 and NEW 1-39 claims (total: 165 claims); therefore, total mobilization costs for the MH 1-7 claims = \$1,029.10 x 7/165 43.66

(Balance - carry overleaf)		<u>\$2,274.26</u>
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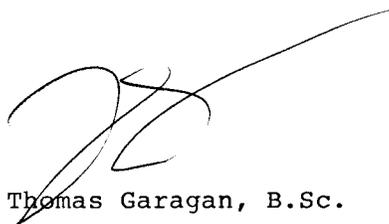
Balance - brought forward		\$2,274.26
6. <u>Truck Rentals</u>		
Nissan 4x4 pickup supplied by Aurum Geological Consultants at a rate of \$50/day: 1 day @ \$50/day		50.00
7. <u>Supplies and Map Reproductions</u>		
Gas, maps, field equipment on Aurum invoice # 86-62 to Havilah Gold Mines	\$343.60	
Bondar-Clegg sample bags and Hcl	<u>117.75</u>	
	<u>\$461.35</u>	
Costs divided between previously-mentioned 4 claim groups: 7/165 x 461.35		19.57
TOTAL COSTS OF SURFACE WORK FOR ASSESSMENT PURPOSES		<u><u>\$2,343.83</u></u>

APPENDIX D

STATEMENT OF QUALIFICATIONS

I, THOMAS GARAGAN, hereby certify that:

1. I am a geologist with AURUM GEOLOGICAL CONSULTANTS INC. of 1614-675 West Hastings Street, Vancouver, B.C., and I caused to be performed the work described in this report.
2. I obtained a Bachelor of Science degree with Honours in Geology from the University of Ottawa, Ontario, in 1980.
3. I have been engaged in mineral exploration and geological survey mapping on a full and part time basis for 8½ years, of which 5½ years have been on mineral exploration programs in the Yukon Territory.
4. I am an associate member of the Geological Association of Canada and the Mineralogical Association of Canada.
5. I have no interest in the claims or securities of Havilah Gold Mines Ltd. nor do I expect to obtain any.



Thomas Garagan, B.Sc.

Whitehorse, Y.T:
June 11, 1986.