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DIGITAL TOPOGRAPHIC MAPPING  
(DTM) PROJECT, on the MANSON CREEK PROJECT

QCM 1, through 5 MINERAL CLAIMS

OMINECA MINING DIVISION  
BRITISH COLUMBIA  
NTS 93N/10E

January, 1991

for

GOLDEN RULE RESOURCES LTD.

by

Bruce T. Evans, P.Geol.

20,854

GEOLOGICAL BRANCH  
ASSESSMENT REPORT

DIGITAL TOPOGRAPHIC MAPPING (DTM) PROGRAM

MANSON CREEK PROJECT

QCM 1, through 5 MINERAL CLAIMS

LAT 55 deg. 41'N, LONG. 124 deg. 35'W

N.T.S. 93N/10E

OMINECA MINING DIVISION

BRITISH COLUMBIA

for

GOLDEN RULE RESOURCES LTD.

Calgary, Alberta

January, 1991

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SUMMARY

The Manson Creek project area is located in north-central British Columbia on NTS map sheet 93N/10E. During 1990 Digital Topographic Mapping (DTM) at scale 1:10,000 was completed for the project area. The 1:10,000 DTM provides accurate survey control for the compilation of historical exploration data and survey control for ongoing exploration work.

## TABLE OF CONTENTS

		<u>page #</u>
	SUMMARY	i
1.0	LOCATION AND ACCESS	1
2.0	PROPERTY DESCRIPTION	1
3.0	PHYSIOGRAPHY AND GLACIATION	1
4.0	REGIONAL GEOLOGY	4
5.0	PROPERTY GEOLOGY	4
5.1	Sedimentary Rocks	5
5.2	Volcanic and Volcaniclastic Rocks	5
5.3	Ultramafic Rocks	5
5.4	Carbonate Alteration Zones	6
5.5	Structure	6
6.0	ECONOMIC GEOLOGY	7
6.1	Farrell	8
6.2	Fairview	8
6.3	Flag	8
6.4	Blackhawk	9
7.0	1990 DIGITAL TOPOGRAPHIC MAPPING (DTM) PROGRAM	9
8.0	SUMMARY OF EXPENDITURES	11
9.0	LIST OF REFERENCES	12
10.0	STATEMENT OF QUALIFICATIONS	13

## LIST OF FIGURES

1	PROPERTY LOCATION MAP	2
2	CLAIM LOCATION SKETCH	3

## LIST OF TABLES

1	PROPERTY CLAIM DESCRIPTIONS	1
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## APPENDICES

(contained in map pocket)

Map 1	1:10,000	TOPOGRAPHIC CONTOUR MAP
Map 2	1:10,000	ORTHO MOSAIC WITH CONTOURS
Map 3	1:10,000	ORTHO MOSAIC

## 1.0 LOCATION AND ACCESS

The Manson Creek/Germansen Landing area is located in north-central British Columbia (Figure 1). The area is accessible by gravel road from Fort St. James (226 km to the south), or via well maintained logging roads from MacKenzie (160 km to the southeast). A network of little used roads and trails provide local access to the claims. Fuel, groceries, and lodging are available in the villages of Manson Creek and Germansen Landing.

## 2.0 PROPERTY DESCRIPTION

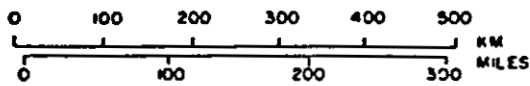
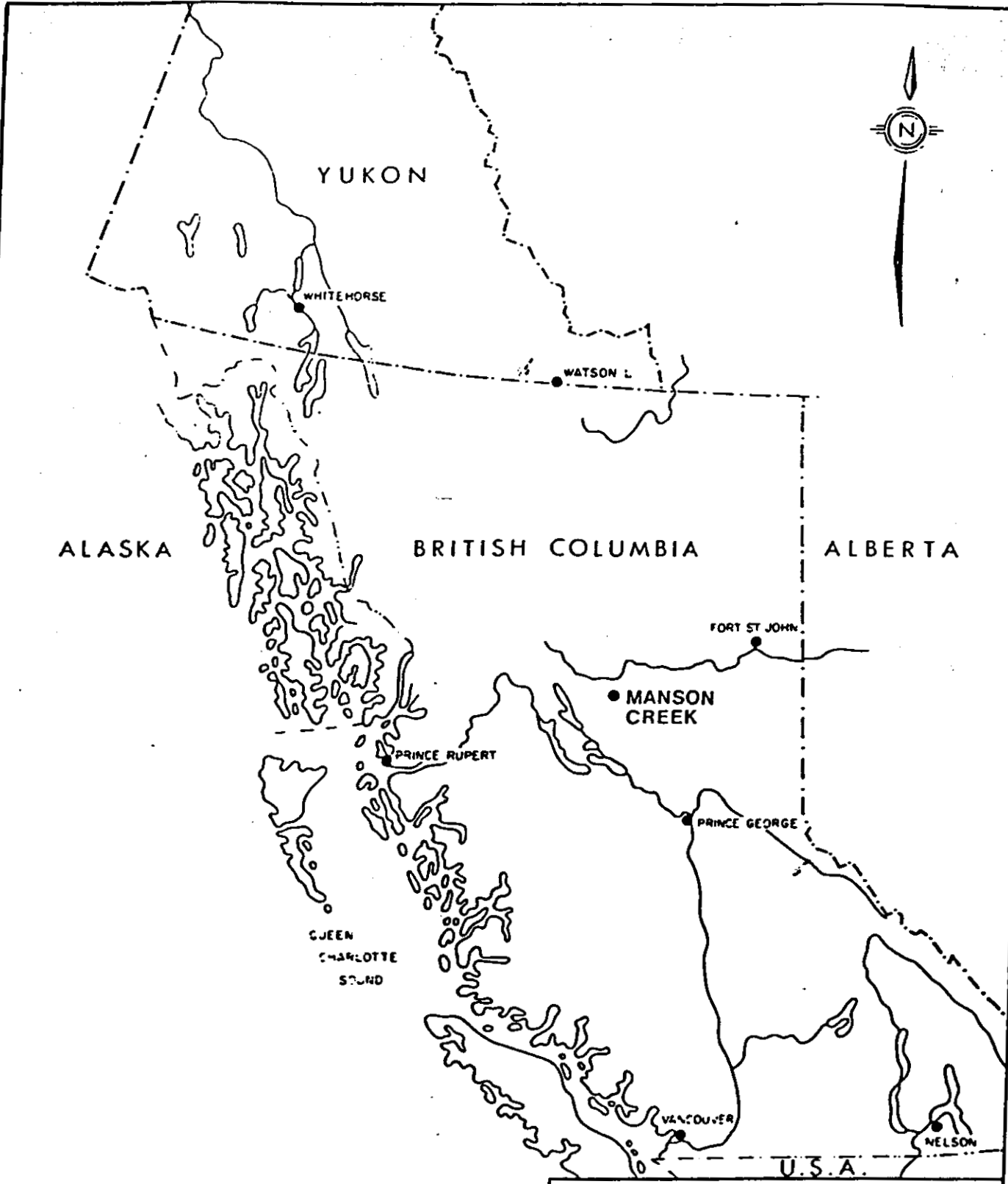
The property consists of five (5) modified four-post mineral claims. The property lies within the Omineca Mining Division of British Columbia and on NTS map sheet 93N/10E. The property covers a surface area of 2200 hectares (5436 acres) or 88 units. The claims are currently held 100% by Golden Rule Resources Ltd. "in trust" for Manson Creek Resources Ltd.

TABLE 1

<u>CLAIM</u>	<u>NO. OF UNITS</u>	<u>RECORD NUMBER</u>	<u>ANNIVERSARY DATE</u>
QCM 1	20	3435	December 4, 1991
QCM 2	20	11932	May 14, 1992
QCM 3	20	3437	December 4, 1991
QCM 4	20	3438	December 4, 1991
QCM 5	8	3439	December 4, 1991
TOTAL:	88 Units		

## 3.0 PHYSIOGRAPHY AND GLACIATION

The claims lie within the Omineca Mountain subdivision of the Interior Plateau. Topographic relief varies from 925 to 1,500 meters ASL on the property. The mountains in the area are characteristically rounded with gentle slopes and heavily wooded flanks, interrupted by the occasional rugged ridge crest. The topography was modified by eastward and southeastward moving ice sheets during Pleistocene glaciation. Limited glacial erosion has modified the uplands, and glacial deposition has infilled the lowland with both till and glacio-fluvial deposits ranging up to 40 m in thickness. Deglaciation and post-glacial erosion have incised Germansen River through both drift and Tertiary gravels to bedrock in the area.



**MANSON CK. PROJECT  
LOCATION MAP**

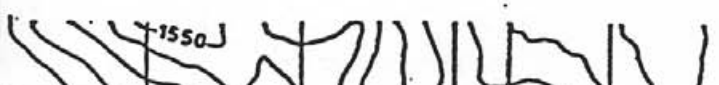
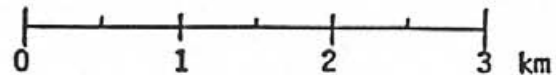
Figure 1

55°35' 99 124°35' 400 01 02 55°05' 04 405000m. E. 06 407...



FIGURE 2  
 LOCATION SKETCH  
 QCM CLAIMS

OMINECA MINING DIVISION  
 N.T.S. MAP AREA 93 N/10 E  
 SCALE 1:50,000



#### 4.0 REGIONAL GEOLOGY

The Germansen River gold-producing belt occurs within an assemblage of ultramafic rocks (dunite, peridotite, and serpentinitized equivalents); mafic to intermediate volcanics metamorphosed to greenstones; and metamorphosed fine-grained clastic and chemical sediments (including argillite, slate, chert, and limestone). The sedimentary rocks indicate a deep marine depositional environment, and recently completed whole-rock analyses of the volcanic rocks suggest compositions similar to those of oceanic basalts.

This assemblage of rocks is compositionally similar to the Cache Creek Group rocks with which they were initially correlated when the area was first mapped regionally. Fundamental differences in age and stratigraphy have been elucidated by more recent work, and this assemblage is now referred to as the Nina Creek Group.

In the Germansen River area, Nina Creek Group rocks are cut by major faults that strike transversely and subparallel to the belt and the steeply dipping rocks within it. From place to place, these "faults are marked by zones of intense carbonate alteration, sometimes several hundred meters in width. Alteration zone assemblages include ankerite, chlorite, calcite, quartz, pyrite, and mariposite. Major zones of carbonate alteration assemblages transect the Manson Creek property. In several areas in the belt, the alteration zones exhibit an apparent concordant relationship with the enclosing sedimentary, ultramafic, and volcanic rocks.

Major lithologies and alteration types of the Nina Creek Group rocks are very similar to those of the Sylvester Group in the McDame Creek area to the north, with which they are currently considered to be correlative.

#### 5.0 PROPERTY GEOLOGY

Geological mapping was carried out over a grid on the property using 1:5000 scale topographic bases. Bedrock exposures are scarce; outcrops occur mainly along stream drainages. Although average overburden depths are probably not great, a relatively thin evenly distributed mantle of glacial material effectively conceals bedrock in topographically subdued areas of the claims. Brief descriptions of mappable units are included below (no relative ages are implied by the order of descriptions).



### 5.1 Sedimentary Rocks

Sedimentary rock units in the Manson Creek area consist of carbonaceous to calcareous fissile shale or shaly limestone and argillaceous siltstone of Pennsylvanian to Permian age. Where unmetamorphosed, these units are well laminated and slightly pyritic. These rocks grade laterally into argillite and siliceous chloritic schists containing variable amounts of graphite and sericite.

### 5.2 Volcanic and Volcaniclastic Rocks

A number of mafic to intermediate volcanic rock units and volcaniclastic rocks overlie the sedimentary rock units in the Manson Creek area. The volcanic rocks consist of both basaltic and andesitic flows of late Paleozoic age.

The basaltic flows are green to greenish-grey, massive to locally pillowed rocks. Primary volcanic features such as hyaloclastite, flow-top features, and vesicles are well preserved. The basaltic rocks are characterized by mafic phenocrysts, probably originally pyroxenes now replaced by tremolite, chlorite, sericite, quartz, and carbonate. These basaltic rocks have been metamorphosed, producing a mineral assemblage characteristic of oxidation and hydration reactions during sea floor alteration processes.

The andesitic flows are similarly metamorphosed, producing a greenish-grey to grey weakly to strongly schistose rock. The flows are distinguished by twinned andesine phenocrysts in a fine grained groundmass of plagioclase microlites.

Volcanic rocks in the area are overlain by a package of clastic rocks derived from erosion of a volcanic pile. These epiclastic rocks range from fine grained siltstone and shale to sandstone and conglomerate with the volcanic sandstones being the most abundant lithology. The package has an overall fining-upward trend.

Sedimentary structures, such as crude banding of sandstone and siltstone layers and graded bedding, are present. These indicate general southwesterly dips of the unit. Thin interbeds of siltstone commonly show soft sediment deformation structures such as slumps, flames, rip-ups, and disrupted bedding, as well as graded bedding.

### 5.3 Ultramafic Rocks

This map unit includes dunite, peridotite, and serpentinitized and steatized equivalents. Magnetite occurs as an accessory mineral in the dunite, and in some outcrops constitutes 2% to 3% of the rock. For the most part, outcrops are too sporadic to delineate the extent of the various ultramafic rock types, and they have arbitrarily been mapped as a single unit.

Ultramafic rocks in the area occur as discontinuous lenses tectonically emplaced along or near major faults which cut the volcano-sedimentary sequences. Although intensely hydrothermally altered, remnant primary minerals (such as olivine and brown aluminum rich chromian spinel) and tectonic fabrics suggest that ultramafic rocks in the area are, in part at least, of upper mantle derivation. Weakly carbonatized varieties are generally dark green, magnetite rich serpentinite or serpentinitized peridotite which may contain subordinate talc and carbonate. Highly carbonatized varieties are rusty-brown rocks composed of magnetite, ankerite, quartz, and subordinate and variable amounts of emerald-green mica (mariposite). Highly carbonatized ultramafics are generally weakly magnetic, hematite-bearing, and may contain pyrite.

### 5.4 Carbonate Alteration Zones

Carbonate alteration zones mapped in the area consist of assemblages of quartz, ankerite, mariposite, and pyrite in varying percentages. Some zones are bright green in colour and contain up to 20% mariposite. In other areas, mariposite and/or pyrite is absent, and quartz and ankeritic carbonate constitute variable percentages of the rock. Everywhere that they were observed, the alteration zones constitute a highly distinctive, easily mappable unit. Due to the sporadic distribution of bedrock exposures, however, these zones could not be successfully subdivided on the basis of mineralogical and textural variations across or along strike. On the property, the alteration zones mostly occur in close proximity to ultramafic rocks and probably represent altered assemblages of the basic to ultramafic rocks. Lenses of alteration zones also occur completely enclosed by graphitic schists and argillites.

### 5.5 Structure

The sedimentary rocks in the Germansen River area exhibit a regional strike varying from 100 to 120 deg. azimuth. Dips are more variable, ranging from 45 deg. to vertical. Magnetic

patterns and outcrop distribution of ultramafic and mafic igneous rocks imply a regional concordance with the sediments. A number of northerly trending faults have also been inferred from magnetic patterns and apparent offsets of the mapped units. The carbonate veins in the shales and argillites parallel the inferred strike direction of these faults. To date, mapping has not defined any obvious folds although the existence of tight isoclinal folding is considered highly probable. The distribution of rock types is also controlled by systems of northerly striking block faults. Detailed analysis of small-scale structures might yield further evidence of folding.

## 6.0 ECONOMIC GEOLOGY

Placer gold was discovered on Germansen River in 1870 and on Manson River and its tributaries the following year. Since then, production has been almost continuous from Germansen River (some 24,138 ounces of gold had been produced up to 1949). In the early decades of this century, a number of companies invested considerable sums of money on ditches, roads, and flumes in attempts to conduct large scale placer mining. These efforts met with varying degrees of success. In 1929, the Consolidated Mining and Smelting Co. of Canada Ltd. (Cominco) acquired a number of leases along Slate Creek (a tributary of Manson River) and carried out testing and placer mining until 1943. Total recorded production from Slate Creek is 4,776 ounces of gold. The alluvial deposits along Manson River and several other tributary streams were also worked intermittently. Total recorded production from these streams is 8,039 ounces of placer gold. Thus, up to 1949, the total dollar value at today's prices of placer gold production was approximately \$20,000,000. Several small placer operations currently exist along Germansen River and Manson River.

Intensive prospecting of the Manson Creek gold belt eventually led to the discovery of a number of lode gold/silver occurrences. Quartz veins, stringers, and stockworks occur at many locations along the Manson fault zone and subsidiary related structures. Some zones are mineralized with free gold and sulphides, and contain values in gold, silver, lead, and zinc. Random samples from massive carbonate alteration zones along the Manson fault have assayed from a trace to 0.01 oz/ton Au; 0.03 to 0.69 oz/ton Ag. The various vein occurrences may be classified into; 1) deposits containing tetrahedrite; 2) deposits containing sphalerite and galena; and 3) deposits containing galena and pyrite. Tetrahedrite type deposits contain tetrahedrite, chalcopyrite, pyrite, malachite, azurite, and free gold; the major known occurrences of this type include the Farrell, Fairview, and Flag prospects; the latter deposit occurs on the QCM claims and is described below.

### 6.1 Farrell

The Farrell prospect is located on the eastern side of Germansen River, some 5 km above its mouth. Three northwesterly striking quartz veins occur in shear zones in silicified and carbonatized basic volcanic rocks of the Nina Creek Group. The veins vary in width from 2 to 5 feet and are mineralized with tetrahedrite, chalcopyrite, malachite, azurite, and free gold. Various assays of samples collected by Lay (1939) and Armstrong (1949) are quoted below:

<u>Sample Width</u>	<u>Au (oz/ton)</u>	<u>Ag (oz/ton)</u>
2' (?)	0.345	0.66
2'	0.8	1.6
2' (?)	0.32	15.2
2'-5'	0.30	0.1

### 6.2 Fairview

The Fairview prospect is located on the eastern side of Slate Creek, approximately 1.5 km above its mouth. Three quartz veins and a number of stringers occur in a highly carbonatized shear zone in basic volcanics of the Nina Creek Group. Alteration extends across a zone 50 - 150 feet in width and grades into serpentine on the southwest and into basic lavas on the northeast.

The best developed vein varies from 1 1/2 - 6 feet in width along a strike length of 200 feet, and is mineralized with chalcopyrite, tetrahedrite, malachite, and pyrite. Samples from various zones on the vein were reported to assay as follows:

<u>Sample Width</u>	<u>Au (oz/ton)</u>	<u>Ag (oz/ton)</u>
"selected material"	0.28	22.3
"grab"	0.02	0.96
carbonatized wallrock	tr	0.03 - 0.10

### 6.3 Flag

This prospect is located on the QCM claims and straddles Germansen River approximately 2 km upstream from a point where the river changes course from a northeasterly to a northwesterly direction.

Auriferous quartz veins occur in carbonate alteration zones in argillite interbeds in basic volcanic rocks. The argillite has been silicified, carbonatized, and pyritized, and massive zones of quartz-carbonate-mariposite alteration occur in the vicinity of the showings. The veins strike N35 degrees E, transversely to the trend of the Manson fault which is exposed about 1 km northeast of the veins. The veins are 2" to 5' in width and have a maximum length of 35'. A pit on the property exposes a stockwork of veins some 35' x 100' in dimension from which a selected sample assayed up to 0.19 oz/ton Au and 37.1 oz/ton Ag. The veins consist of about 2% tetrahedrite by volume.

#### 6.4 Blackhawk

The Blackhawk prospect is located on the eastern side of Manson River on the northwestern spur of Blackjack Mountain.

Nine veins, 15" to 5' in width, are known to occur in a belt 650' wide of sheared, silicified, and pyritized basic volcanics. The veins occupy at least two sets of fracture zones that strike northeasterly or northwesterly. A short 18' adit has been driven on one of the veins with one 18" (?) sample reported to assay 0.02 oz/ton Au and 43.6 oz/ton Ag; mineralization consists of pyrrhotite, pyrite, and sphalerite. Another zone, located 90' SSW from the adit was reported to assay tr Au; 40.8 oz/ton Ag; 3% Pb; 3% Zn over 5'; and tr Au; 4.0 oz/ton Ag over 3 1/2'; mineralization consists of pyrrhotite, pyrite, galena, and sphalerite.

#### 7.0 1990 DIGITAL TOPOGRAPHIC MAPPING (DTM) PROGRAM

As a result of resurgent interest in the Quesnellia Terrane and Manson Creek area by industry as a whole, the entire Terrane is undergoing re-examination and evaluation. The Manson Creek project area, being a property with known mineralization and good geological potential to host economic precious and base metal mineralization, was selected as an exploration target.

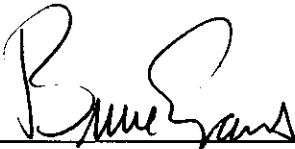
To facilitate compilation of all historical exploration and to provide survey control for all subsequent exploration activity, a Digital Topographic Mapping (DTM) Program was initiated. Digital Topographic points were created from Stereo-Pairs of High Level BC Government 1:50,000 black and white airphotographs. A Wild AC-1 Digital Mapping System was utilized to complete digitization of topographic data and then the subsequent contour mapping of the project area. The mapping of the Manson Creek project area was complicated by the fact that the bulk of the project area fell exactly between two

photographic flight lines. The location of the property relative to the flight lines required the creation of two (2) DTM models and the "Bridging" of the two (2) models to complete mapping over the entire property. Map generation is at scale 1:10,000 with 5 m contour intervals. Survey control for northing, easting and elevation levelling was provided by BC Government TRIM Program co-ordinates. Mapping accuracy is to +/- 0.5 m in all 3 dimensions.

Three map formats were created for the project area:

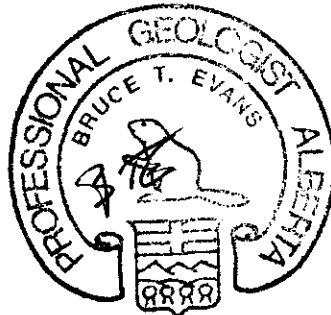
- 1) 1:10,000 Topographic Contour Map
- 2) 1:10,000 Ortho Mosaic with Contours
- 3) 1:10,000 Ortho Mosaic

Respectfully submitted,



Bruce T. Evans, P.Geol.

January, 1991



8.0            SUMMARY OF EXPENDITURESProgram Supervision and Report  
Preparation

B.Evans 3.0 days @ \$375/day	\$ 1,125
Digital Topographic Mapping	3,300
Material and Survey Data	325
Drafting and Reproduction	292
Secretarial 2 days @ \$125/day	<u>250</u>
TOTAL:	\$ 5,292 =====

9.0 LIST OF REFERENCES

- Davis, J.W. (Oct./83):  
 Geological, geochemical, and geophysical report, Flume Group and NIPT Group, Omineca Mining Division; for Manson Creek Resources Ltd.
- (Feb./84):  
 Manson Creek project, road building and drilling report, Flume Group and NIPT Group, Omineca Mining Division, British Columbia; for Manson Creek Resources Ltd.
- Fox, M. (Feb./81):  
 Geological, geochemical, and geophysical report, Flume 1-5 Mineral Claims, Omineca Mining Division; for Golden Rule Resources Ltd.
- (Feb./81):  
 Geological, geochemical, and geophysical report, Opec 1-10 Mineral Claims, Omineca Mining Division; for Golden Rule Resources Ltd.
- (Nov./81):  
 Geological, geochemical, and geophysical report, QCM 1-5 Mineral Claims, Omineca Mining Division, British Columbia; for Golden Rule Resources Ltd.
- Geological Survey of Canada:  
 Airborne magnetic survey, July 1967: Map 7228G Manson River.
- Lang, A.H.; Armstrong, J.E.; and Thurber, J.B. (1940,1941,1944)  
 Geological map of Manson Creek, Cassiar District, British Columbia; G.S.C. Map 876A.
- Riccio, L. (Dec./82):  
 Final report on the Manson Creek project, 1982 exploration activities on Golden Rule QCM and Opec Claims; for Anaconda Canada Exploration Ltd.
- (Dec./83):  
 Reverse circulation drilling program on the QCM 1-5 Mineral Claims, Manson Creek project, Omineca Mining Division; for Anaconda Canada Exploration Ltd.



10.0 STATEMENT OF QUALIFICATIONS

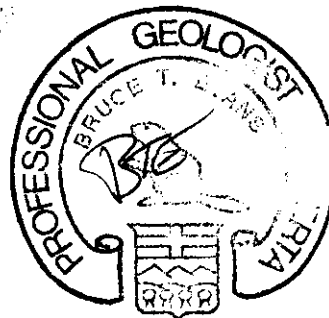
I Bruce Thomas Evans with residence at 120 Strathdale Close, S.W. in the city of Calgary, Province of Alberta, do hereby state:

1. I hold the position of Senior Exploration Geologist with the firm of Golden Rule Resources Ltd. with offices at #410, 1122 - 4th Street S.W., Calgary, Alberta, T2R 1M1.
2. I am a graduate of Queen's University at Kingston with a B.Sc. (Hons.) degree in Geological Science (1982), and I have practiced my profession continuously since graduation.
3. I am a member in good standing of the Association of Professional Engineers, Geologists, and Geophysicists of Alberta.
4. Work contained in this report was completed either by myself or under my supervision.
5. I do not own and do not expect to receive any interest, either direct, indirect or contingent in the property described herein.

Dated at Calgary, Alberta this 11 day of January, 1990.



Bruce T. Evans, P.Geol.



124° 37' 00"

124° 35' 00"

124° 33' 00"

N6175000

N6174000

N6173000

N6172000



QCM 1  
3435(12)

QCM 2  
11932

QCM 3  
3437(12)

QCM 4  
3438(12)

QCM 5  
3439(12)

LCP

LCP

E398000

E399000

E400000

E401000

E402000

E403000

- LEGEND**
- Road
  - Truck Trail
  - Trail
  - River
  - Stream
  - Lake
  - Intermittent Lake
  - Trees
  - Contours
  - Index
  - intermediate

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

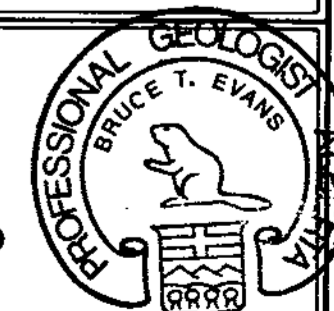
**20,854**

Date of photography: Sept 7/87  
Control taken from B.C. Government Trim Project  
North American Datum 1983  
Compiled by THE ORTHOSHOP  
w/163249

**GOLDEN RULE RESOURCES LTD.**

QCM CLAIMS

DIGITAL BASE MAP



Date: DECEMBER 1990	N.T.S.:
Revised:	Figure: 1
Scale: 1:10,000	0 500 1000m

124° 37' 00"

124° 35' 00"

124° 33' 00"

N6175000

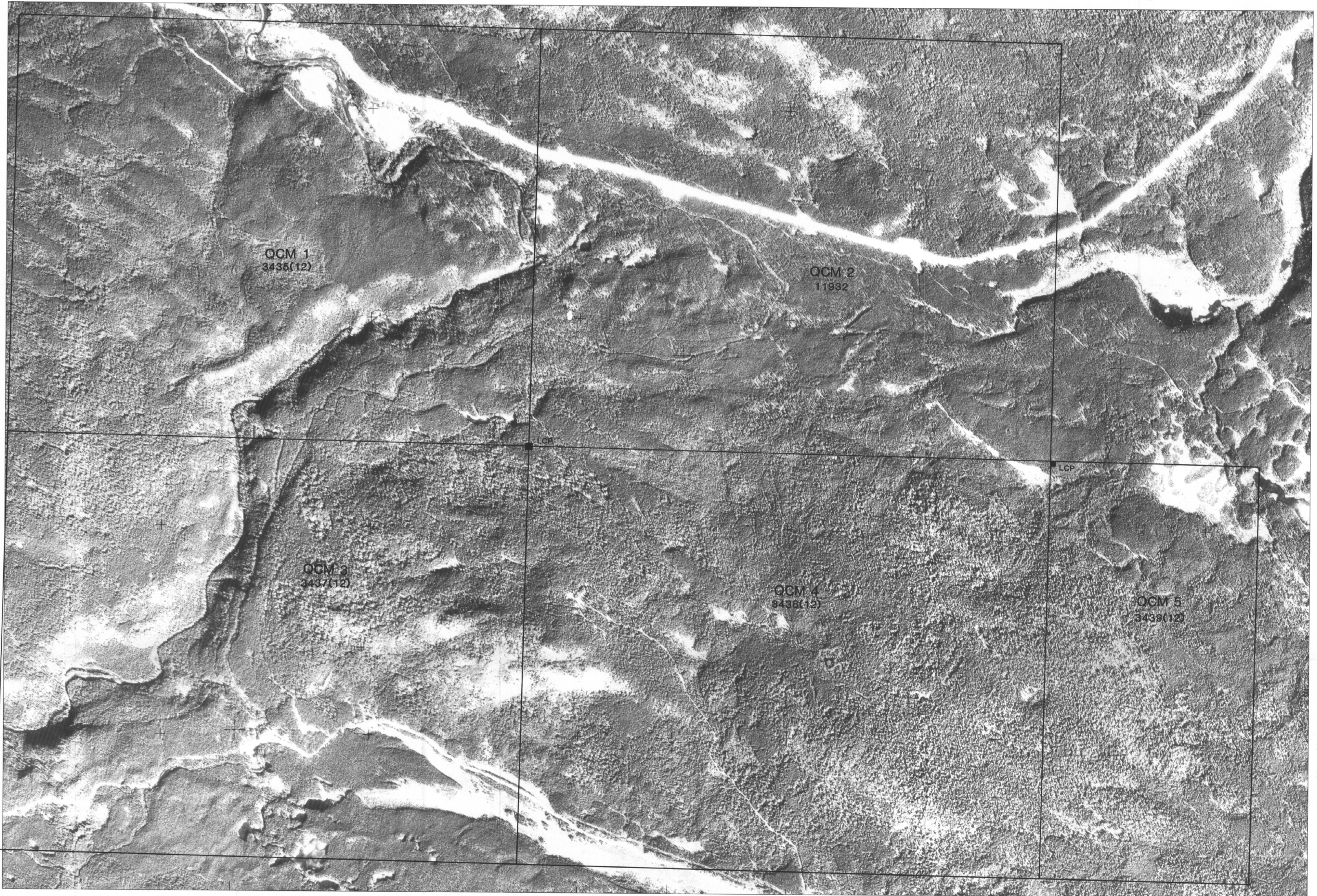
N6174000

N6173000

N6172000

55° 42' 00"

55° 41' 00"



E398000

E399000

E400000

E401000

E402000

E403000



Date of photography: Sept 7/87  
 Control taken from B.C. Government Trim Project  
 North American Datum 1983  
 Compiled by THE ORTHOSHOP  
 wo#3249

GEOLOGICAL BRANCH  
 ASSESSMENT REPORT

20,854

**GOLDEN RULE RESOURCES LTD.**

QCM CLAIMS

ORTHOPHOTO MAP



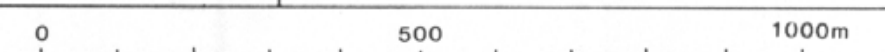
Date: DECEMBER 1990

N.T.S.: 93N/10E

Revised:

Figure: 2

Scale: 1:10,000



124° 37' 00"

124° 35' 00"

124° 33' 00"

N6175000

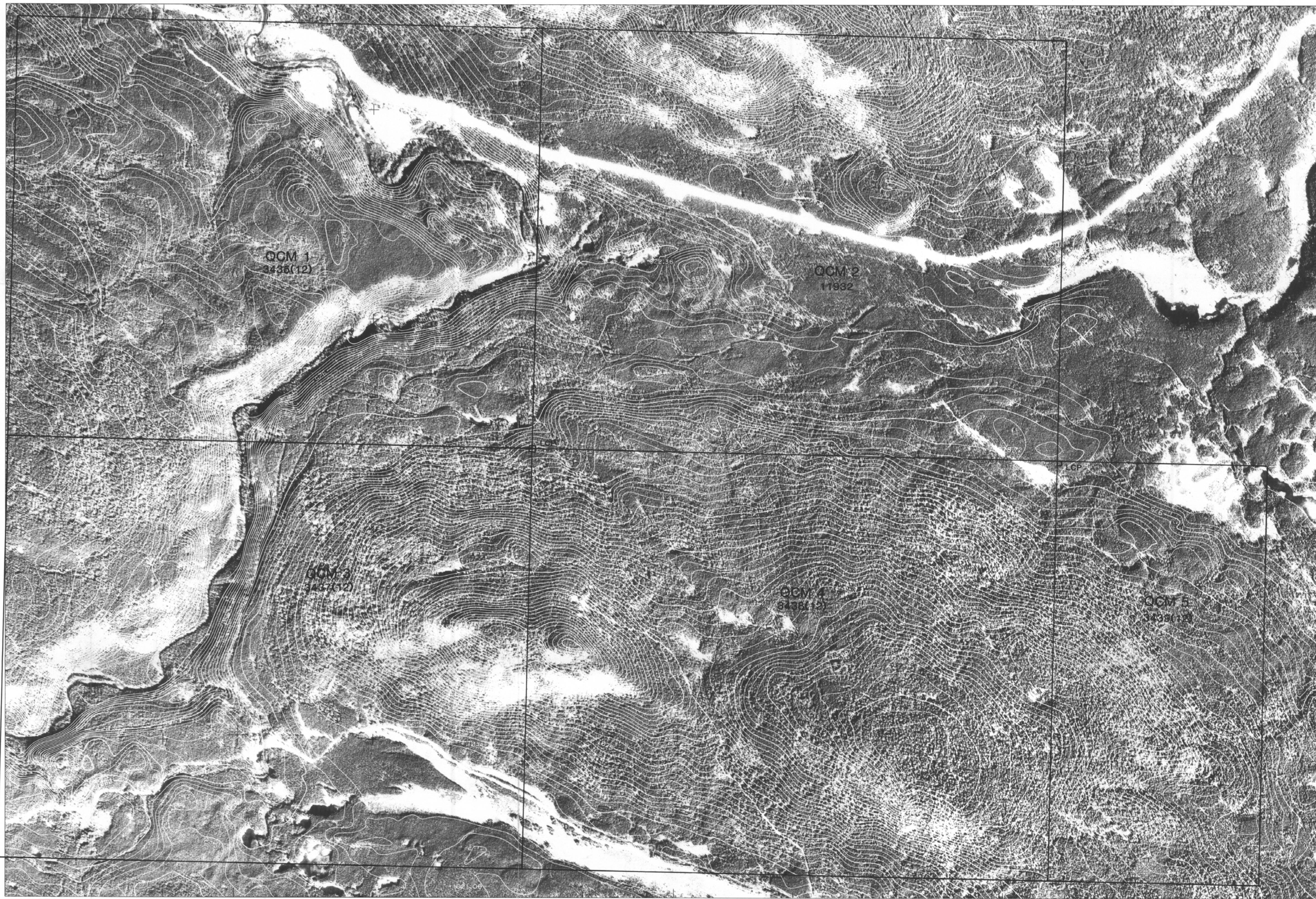
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N6173000

N6172000

55° 42' 00"

55° 41' 00"



E398000

E399000

E400000

E401000

E402000

E403000



Date of photography: Sept 7/87  
 Control taken from B.C. Government Trim Project  
 North American Datum 1983  
 Compiled by THE ORTHOSHOP  
 wo#3249

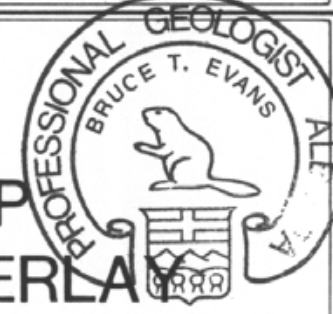
GEOLOGICAL BRANCH  
 ASSESSMENT REPORT

20,854

**GOLDEN RULE RESOURCES LTD.**

QCM CLAIMS

ORTHOPHOTO MAP  
 WITH DIGITAL TOPO OVERLAY



Date: DECEMBER 1990	N.T.S.: 93N/10E
Revised:	Figure: 3
Scale: 1:10,000	

