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ARIS Summary Report

Regional Geologist, Prince George

Date Approved: 1999.02.26

Off Confidential: 1999.09.08

ASSESSMENT REPORT: 25748

Mining Division(s): Cariboo

Property Name: Swamp

Location: NAD 27 Latitude: 53 58 00 Longitude: 120 16 00 UTM: 10 5983056 679297
NAD 83 Latitude: 53 58 00 Longitude: 120 16 05 UTM: 10 5983269 679200
NTS: 093H16W

Camp:

Claim(s): Swamp 1

Operator(s): Cardie, T.P.
Author(s): McIntyre, Ronald F.

Report Year: 1998

No. of Pages: 15 Pages

Commodities
Searched For: Building Stone

General
Work Categories: GEOL

Work Done: Geological
~~GEOL Geological~~ (500.0 ha.)

Keywords: Cambrian, Mahto Formation, Quartzites

Statement Nos.: 3123916

MINFILE Nos.:

Related Reports:

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Gold Commissioner's Office
VANCOUVER, B.C.

Report on 1998 Geological Examination and Sampling

Swamp 1 Mineral Claim

Cariboo Mining Division

NTS 93 H/16/W

Lat 53° 58' N

Long 120° 16' W

Owner and Operator: Mr. T.P. Cardle

1483 Chamberlain Drive

North Vancouver, B.C.

R.F. McIntyre, P.Geo.

GEOLOGICAL SURVEY BRANCH

November 29, 1998 ASSESSMENT REPORT

25.748

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INTRODUCTION

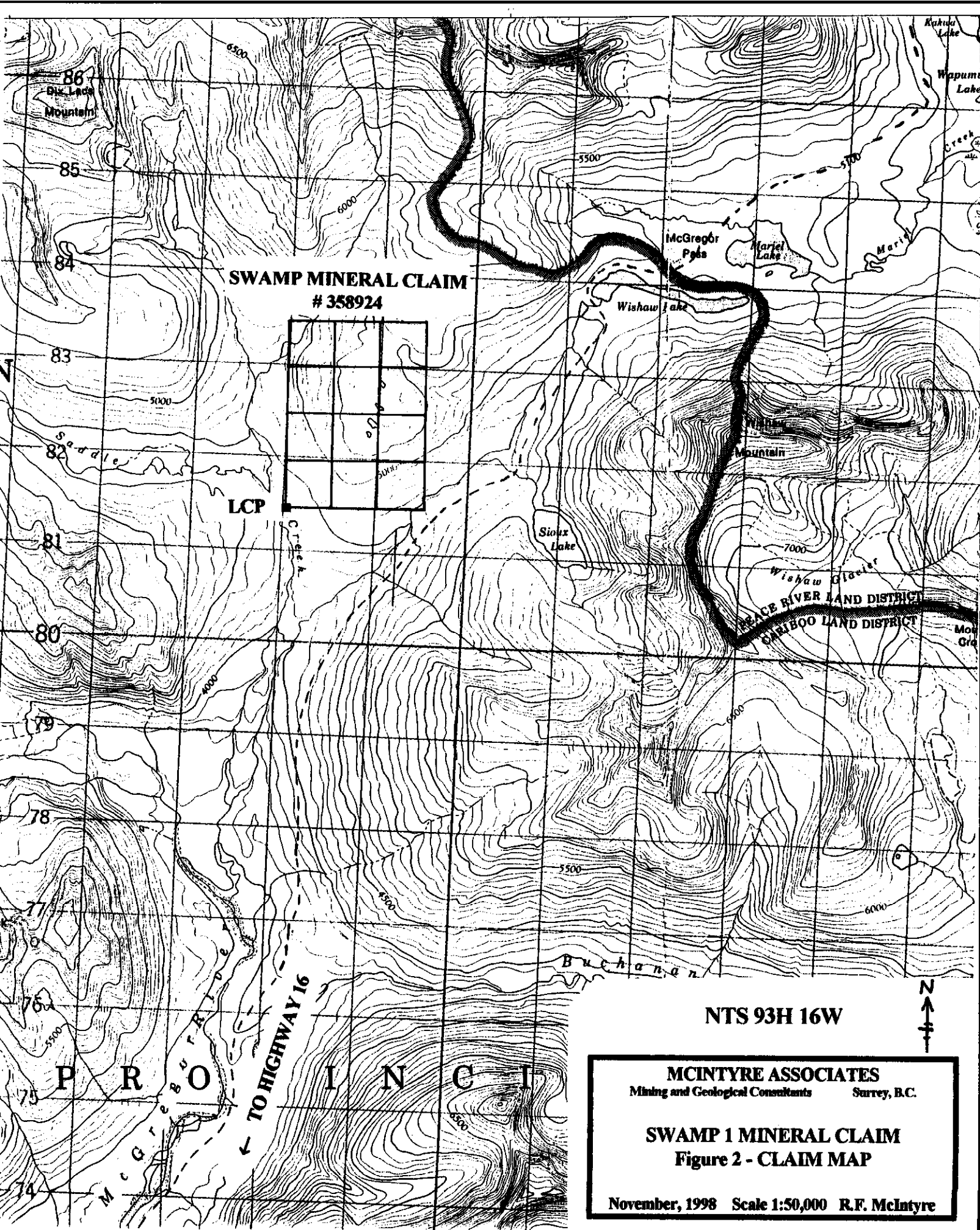
A) General

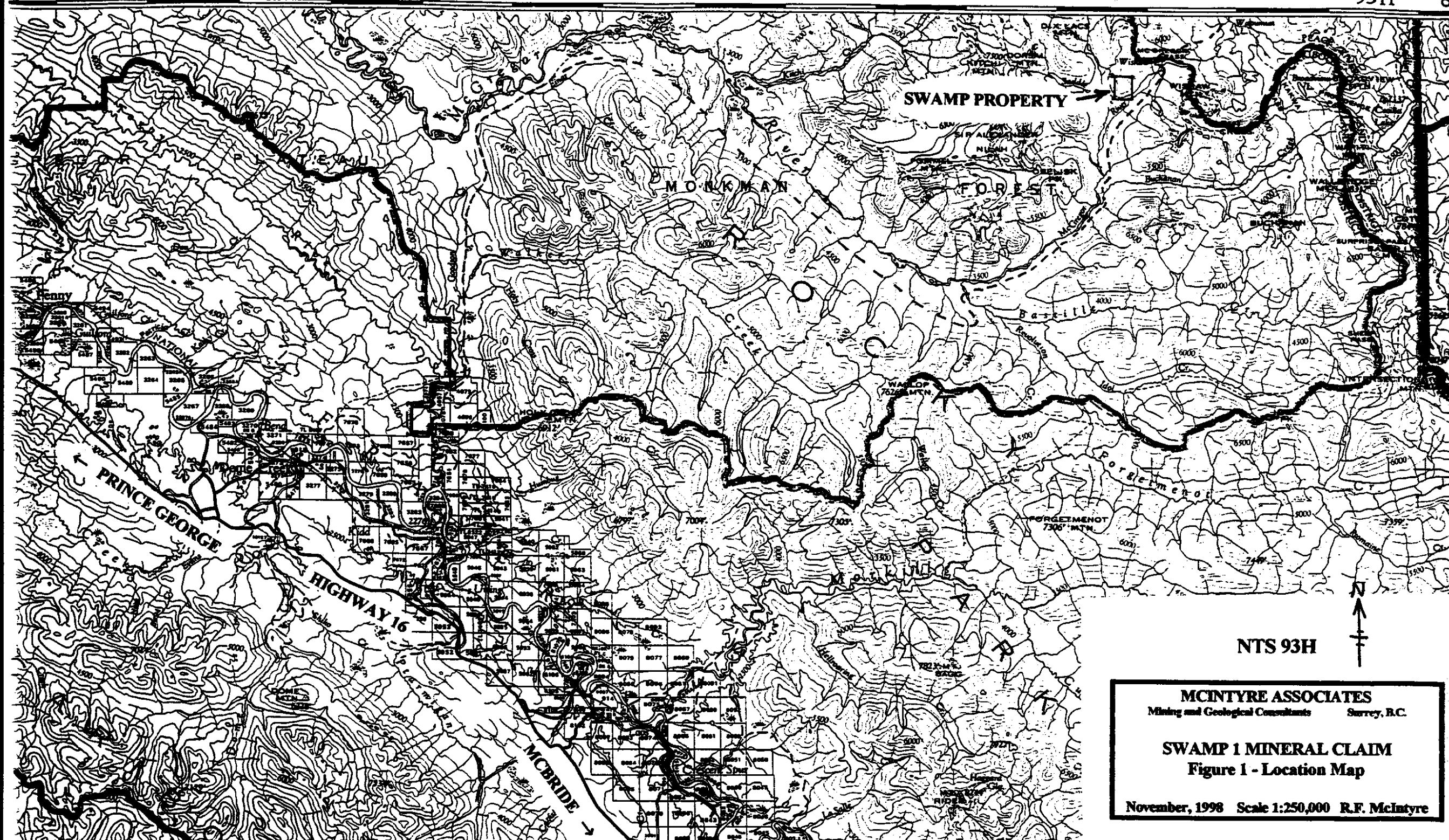
The Swamp 1 mineral claim is located in the Cariboo Mining Division approximately 75 km north of the town of McBride (Figure 1). The claims lie at the head of the MacGregor River some 3 km southwest of MacGregor Pass, just outside of the boundaries of the Kakwa Recreation Area. Access to the property is via Highway 16 and the Walker Creek Forestry Road to the Bastille Creek bridge, then via 4WD road to the site. The property lies at an elevation of approximately 1,400- 1,700m ASL on a prominent ridge whose flat top sits 100m or so above timberline. Topographic relief on the property varies from flat peat bogs and alpine meadows to steep slopes and cliffs.

B) Property

The property consists of a single twelve unit 4-post mineral claim (Figure 2) record number 358924. It is owned by Mr. Terence P. Cardle of 1483 Chamberlain Drive, North Vancouver, B.C. Mr. Cardle staked the Swamp 1 claim in September of 1997 and is the operator responsible for the 1998 exploration program.

There is no history of exploration work on the present property. The neighbouring mineral claims in the Kakwa Recreation Area have produced small quantities of quartzite ornamental stone. Their quarry is located in a zone of relatively unjointed pink massive quartzite of apparently limited areal extent. The Swamp mineral claim was staked in an effort to locate other deposits of quartzite ornamental stone. Mr. Cardle has no interest in or connection with the neighbouring quarry.





NTS 93H

MCINTYRE ASSOCIATES
Mining and Geological Consultants Surrey, B.C.

SWAMP 1 MINERAL CLAIM
Figure 1 - Location Map

November, 1998 Scale 1:250,000 R.F. McIntyre

C) 1995 Property Work

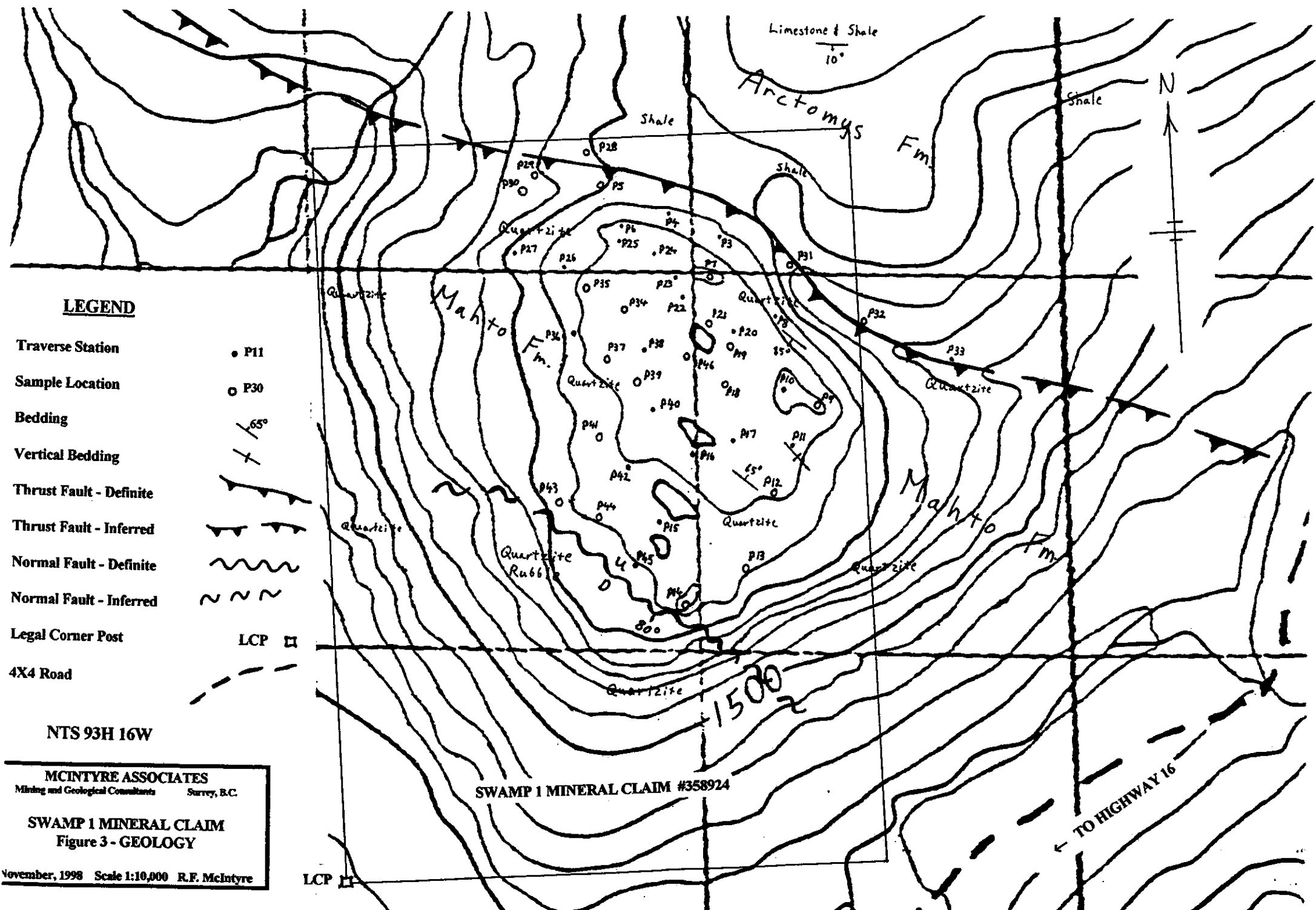
The author, accompanied by Mr. Cardle and an assistant, conducted a geological examination of the property during the period of September 1-5 1998. This was carried out under work permit #1998-1101969-9077. The goal of the work was to conduct the first detailed examination of the geology of the property with particular emphasis on the distribution of high quality ornamental quartzite. This involved traverses of most of the accessible parts of the property, examination of a large number of outcrops and collection of specimens from 23 locations.

Since the access road does not cross the property a camp was established nearby and the party hiked to the areas of interest daily. Nothing was left at the campsite or on the property. The work involved no disturbance of the surface, and no reclamation. The samples taken were small enough to be backpacked off the site and no drilling or blasting was employed. The smaller type specimens have been retained by the author and the larger samples taken by Mr. Cardle for cutting and polishing.

GEOLOGY

The Swamp property is located near the continental divide of the central Rocky Mountains, a region of folded and thrust faulted sedimentary rocks. The immediate area is underlain by a series of thrust blocks consisting of Lower Paleozoic limestones, shales and quartzites(Figure 3). The target formation is the Lower Cambrian Mahto Formation of the Gog Group, which hosts the deposit in production on the neighbouring property. The Mahto Fm. is quite widespread in the region and generally consists of grey to white medium to thin bedded quartzites with little value as ornamental stone. However, at the headwaters of the Kakwa River the formation is often vividly coloured with red, maroon and purple banding on a light background. A zone of massive pink to peach coloured quartzite occurs in MacGregor Pass. Overlying the quartzites is a thick, cliff forming succession of limestones and dolomites of the Middle Cambrian Arctomys and Upper Cambrian Lynx Formations. Beneath the colourful quartzite units lie a series of grey and white quartzites, shales and limestones of the Lower Cambrian Mural and McNaughton Formations.

The northern part of the claim is crossed by a steeply dipping thrust fault separating the shales and limestones of the Arctomys Fm. on the north from the quartzites of the Mahto Fm. on the south. Most of the claim is underlain by quartzites; indeed the author has seen no other lithologies on any part of the property south of the thrust. The quartzites display virtually no bedding or cross-bedding, making it difficult to establish the attitudes of the units. The few unambiguous textures generally show bedding to lie parallel to the most prominent joint set. These bedding plane joints strike 130-140° and dip vertically to 65° south throughout the property. It remains unclear whether the bedding is always upright or may be overturned in places.



The quartzites are commonly massive but vary in colour. The weathered surfaces of outcrops are bleached white in most cases but the underlying stone may be medium grey, rusty red or white to pale pink. The alpine ridge which forms the core of the property has numerous outcrops. They show systematic changes in the colour of the quartzite from medium grey at the northeast corner of the ridge to white/pale pink at the northwest corner, and from non-rusty to very rusty across the property from north to south. The rust may penetrate throughout the rock mass in places but some specimens from the cliff tops at the south end of the ridge are bleached white on surface, rusty for several centimeters into the rock, then white with disseminated pyrite at depth. In these specimens pyrite content was quite low, perhaps 0.1% of the rock mass.

Block faulting is not evident on the property. However, the cliff which forms the south slope of the ridge is an obvious landslide scarp. In this area published geological maps suggest the presence of limestones beneath overturned quartzites. Solution of these could have undermined the cliffs and led to the slope failure, allowing the south block to slump roughly 50 meters in elevation.

The rocks exposed in the cliffs near the northeast corner of the property show the most promise as ornamental stone. These are clean coloured, lack inclusions and often display an attractive texture of white veinlets and stockworks cutting through a pale pinkish background. Boulder talus from cliffs is quite abundant and many boulders are large enough to be sawn. This is in itself a significant resource, but the quantities remaining in place are much larger. There is not sufficient information at hand to estimate reserves; this would require not only detailed mapping

and drilling of the areas but sufficient market analysis to define the textural characteristics and the market value of a saleable stone product. However it is apparent that substantial quantities of attractive stone are present in an accessible location.

SAMPLING

A brief summary of characteristics of the specimens taken is presented below. The sample numbers correspond to the traverse stations from which they were taken; no additional samples were taken. Most were taken from hard, unfractured, smooth outcrops using an ordinary rock hammer, which limited them to small size (approx. 200-400 grams) and near surface material. A few specimens up to 20kg size were removed from the area of P.30 where high quality stone was most abundant. These have been retained by the owner to be cut and polished for marketing samples.

Table 1 - Rock Samples

<u>Sample #</u>	<u>Rock Type</u>	<u>Description</u>
P.1	Limestone	Arctomys Fm., Grey, bedded with spheroidal fossils.
✓ P.5	Quartzite	Mahto Fm., Boulder talus. Lt. grey -white, bedding indistinct, fine grained.
✓ P.7	"	Similar to P5, pale pinkish grey, sugary to med. gr., some bull quartz veins.
✓ P.9	"	Grey, weathers lighter - typical surface bleaching.
✓ P.12	"	Deceptive - Weathers v. lt. grey but rusty to ochre inside.
✓ P.13	"	Same as P.12, slightly darker.
✓ P.14	"	Bleached outside, very rusty inside.
✓ P.18	"	Lighter coloured than P.12-17, more like P.9, P.10.
✓ P.19	"	Light colour similar to P.7. Fine, hard, should polish well.
✓ P.21	"	Darker than P.19, lower quality.
✓ P.28	"	Boulder talus. Very Lt. grey, bleached white on surface.
✓ P.29	"	Boulder talus. Similar to P.28.
✓ P.30	"	Boulder talus. Pinkish colour; overall better quality than P.28, P.29.
✓ P.31	"	Talus. Light grey to white, mostly sheared and low quality.
✓ P.32	"	Talus. Similar to P.31, better colour and less sheared.
✓ P.34	"	Weathered white, inside is light grey to white with bits of rust.
✓ P.35	"	Brown interior, bleached exterior.
✓ P.37	"	Boulder. Bleached surface, red interior.
✓ P.39	"	Rusty brown, darker and coarser than P.37. Few fractures in the outcrop.
✓ P.41	"	Visible rust on surface, reddish interior.
✓ P.43	"	Similar to P.41 except center of sample is white, unoxidized with visible disseminated pyrite throughout.
✓ P.44	"	Same as P.43
✓ P.46	"	Bleached outside, pale brownish grey interior.

CONCLUSION

The 1998 field work, although brief, demonstrated the presence of good quality quartzite in substantial quantities on the northwestern portion of the Swamp property. This work was a qualitative rather than a quantitative examination so no calculations of reserves are attempted herein. The property merits additional work in the future and this should include estimation of reserves of boulder talus as well as of material in place. Variable assessments of "ornamental quality" in a subjective marketplace will have a great bearing on the definition of reserves as will more objective criteria such as fracture density and presence of inclusions.

November 29, 1998

Ronald F. McIntyre, B.Sc., P. Geo.

Certificate

I, Ronald F. McIntyre, do hereby certify that:

- 1) I hold the degree of Bachelor of Science in Geology from the University of British Columbia, 1977, and
- 2) I have practised continuously as a geologist in British Columbia, the Yukon and the western United States since that time, and
- 3) I am a member in good standing of the Association of Professional Engineers and Geoscientists of British Columbia, and
- 4) I personally conducted the work and prepared the interpretation presented herein, and
- 5) I have no direct nor indirect interest in the subject property, and
- 6) My sole remuneration for this work is the professional fee charged for it.

Ronald F. McIntyre, B.Sc., P. Geo.
November 29, 1998

McINTYRE ASSOCIATES

APPENDIX 1

Detailed Cost Statement

McINTYRE ASSOCIATES

DETAILED COST STATEMENT

WAGES

A) Geologist - Ronald F. McIntyre

Travel	Sept. 1,2,5, 1998	2 1/2 days @ \$100.00 per day	\$ 250.00
Property	Sept. 2,3,4, 1998	2 1/2 " @ \$400.00 "	1,000.00
Report	November, 1998	2 1/2 " @ \$400.00 "	<u>1,000.00</u>
Subtotal			\$2,250.00

B) Crew

Field Assistant - Greg McKee	5	days @ \$120.00 per day	\$ 600.00
Cook - Terrence Cardle	2 1/2	" @ \$150.00 "	<u>375.00</u>
Subtotal			\$ 975.0
Total Wages			\$3,225.00

EXPENSES

<u>A) Transportation</u>	4X4 Truck Rental	\$ 450.00
	Fuel	<u>143.53</u>
Subtotal		\$ 593.53

<u>B) Accommodation</u>	Motel, Sept. 1	\$ 95.45
	" Sept. 5	<u>86.25</u>
Subtotal		\$ 181.70

<u>C) Restaurant</u>	Subtotal	\$ 174.72
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<u>D) Camp</u>	Food	\$ 116.35
	Misc.	<u>4.99</u>

Total man-days in camp = 7 1/2	Subtotal	\$ 121.34
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Total Expenses		\$ 1,071.29
plus	Total Wages	3,225.00

TOTAL EXPLORATION COSTS \$4,296.29