# GEOLOGICAL REPORT

on the

# PORPHYRY PEARL PROPERTY

Toodoggone River Area
Omineca Mining Division
British Columbia

Latitude: 57°26.5' – 54°36.0' North
Longitude: 127°05.0' – 127°17.5' West
NTS Map-Areas 94E/06,11

Prepared for

GOLDEN DAWN MINERALS INC.

By

N.C. CARTER, Ph.D. P.Eng.
February 22, 2005

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## SUMMARY

Golden Dawn Minerals Inc. holds the right to earn a 100% interest in the Porphyry Pearl property pursuant to an option agreement entered into in late 2004. The property, which is situated in the Toodoggone mining district in northern British Columbia, consists of 12 contiguous legacy mineral claims and four cell mineral claims oovering an area of 5550 between 6 and 14 kilometres north of Toodoggone River some 300 kilometres north of Smithers. Access is by aircraft from Smithers to an airstrip 30 kilometres south of property and from there by helicopter or by way of a secondary road linking the airstrip with Mackenzie which is northwest of Prince George.

This report, prepared at the request of Golden Dawn Minerals Inc., is based in part on a number of personal examinations of the subject property and environs undertaken between 1982 and 1995 and on records of previous exploratory work undertaken between 1971 and 1991 which are readily available in the public domain. The information base includes a 1985 technical report prepared by the writer on part of the current property.

Initial mineral claims covering the area of the current Porphyry Pearl property were located in 1971. Exploratory work over the subsequent 20 years included geological mapping, prospecting, geochemical and geophysical surveys and 3026 metres of diamond drilling.

The Porphyry Pearl property, situated in Stikine terrane of the northern Intermontane tectonic belt, is underlain principally by Toodoggone Formation volcanic rocks of the Early Jurassic Hazelton Group. These are intruded by small, subvolcanic porphyry intrusions and by larger granitic intrusions, both of which are coeval with the Early Jurassic volcanic rocks.

Previous exploratory work identified two distinct styles of precious and base metals mineralization. The Porphyry Pearl zone in the southern property area has received the most attention to date. Porphyry copper-gold mineralization in this zone is occurs as sulphide disseminations and fracture fillings within an intensely altered, buried granitic intrusion which has dimensions of at least 1100 x 800 metres. While previous diamond drilling yielded generally low copper and gold values, it is significant that several holes contained average gold values of 0.28 gram/tonne gold and 0.02% copper over their entire lengths of 200 metres. These holes include intervals of 28 to 57 metree averaging +0.5 gram/tonne gold.

Epithermal vein and disseminated precious and base metal mineralization has been recognized at several localities within the large property area. The Moose silver-base metals zone in the central property area includes discrete quartz-sulphide veins and breccia zones within a north-northwest-striking, moderately southeast-dipping zone which is some 300 metres long and up to 30 metres thick. Previous diamond drilling returned silver values of +100 grams/tonne over limited hole lengths. Other epithermal prospects in the central property area include the Marmot gold-silver zone and an area of anomalous gold and silver in soils northeast of the Moose zone, Both have been only partially investigated by past work. Epithermal gold-silver mineralization, exposed in several localities in the eastern property area, associated with fault zones of regional extent, also merits further investigation.

The Porphyry Pearl property, particularly the Porphyry Pearl zone, warrants additional exploratory work. A first phase program is recommended to include a 3D Induced Polarization survey and geological mapping, prospecting and sampling at an estimated cost of $$392,920.00. A second phase of diamond drilling, estimated to oost $553,150.00, would be contingent on the results obtained from first phase work.

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Consulting Geologist

## INTRODUCTION and TERMS OF REFERENCE

Golden Dawn Minerals Inc. has an option to acquire a 100% interest in the Porphyry Pearl property in the Toodoggone mining district of northern British Columbia. Previous work in various parts of the current property has disclosed the presence of several precious and base metals zones in at least two distinct geological environments.

Golden Dawn Minerals Inc. entered into an option agreement with the underlying vendor of the Porphyry Pearl property in late 2004. The author of this report has been retained by Golden Dawn Minerals to review and comment on the results of previous exploratory work on the subject property, to prepare preliminary comments regarding the potential of the property and to provide recommendations regarding the nature and scope of further exploratory work programs. This technical report has been prepared in compliance with the requirements of National Instrument 43-101 and Form 43-101F1 and is intended to be used as supporting documentation to be filed with the British Columbia Securities Commission and the TSX Venture Exchange.

Information used in the preparation of this report includes a number of technical reports detailing work on parts of the subject property since 1971. These reports, filed in support of assessment work requirements, are readily available in the BC Ministry of Energy and Mines public files. Published reports and maps also provided useful background information and citations for these and the various assessment reports are contained in the Reference section of this report.

Several personal examination of parts of the current Porphyry Pearl property have been carried out since the early 1980s, with the most recent being in mid-1995 when the writer served as an independent consultant to AGC Americas Gold Corp. who were exploring the adjacent JD gold property at that time. The writer's most recent visit to the Toodoggone River area was September 14, 2002 when the William's gold property was examined on behalf of Stikine Gold Corporation. The writer, the "qualified person" for purposes of this report, has a good working knowledge of the geological settings and styles of mineralization in the Toodoggone mining district derived by way of numerous mineral property examinations, geological mapping programs and supervision of exploration programs over the past 34 years.

Units of measure in this report are metric; monetary amounts referred to are in Canadian dollars.

## PROPERTY DESCRIPTION and LOCATION

The Porphyry Pearl property consists of two 2-post, ten four-post and four "cell" mineral claims situated in the Omineca Mining Division of northern British Columbia 300 kilometres north of Smithers (Figure 1). The 2-post and 4-post mineral claims comprise 198 mineral claim units while the four "cell" claims include 47 "cells". The mineral claims collectively cover an area of approximately 5550 hectares between latitudes 57$^0$26.5' and 57$^0$36.0' North and longitudes 127$^0$05.0' and 127$^0$17.5' West in NTS map-areas 94E/06 and 11. (UTM coordinates (NAD 83-Zone 9) 6368000 – 6375800 North, 602400 – 614868 East).

The configuration of the various mineral claims is illustrated on Figure 2. Note that the ten 4-post mineral claims are contiguous and one of these, Pearl 3, includes the PP1 and PP2 2-post mineral claims. The 2-post and 4-post mineral claims were located in the field or in the traditional manner while the more recent "cell" claims were acquired under the new British Columbia online system which came into effect January 12, 2005. Note that these mineral claims, which include "cells" defined by latitude and longitude, immediately adjoin but are not precisely contiguous with

the pre-existing, recorded claims. Pursuant to definitions of British Columbia revised Mineral Tenure Act regulations such claims are now referred to as legacy mineral claims. Details of all claims are as listed in Table 1.

Table 1

Legacy Mineral Claims

| Claim Name | Record No. | Units | Record Date | Expiry Date | Recorded Owner |
|---|---|---|---|---|---|
| Pearl 1 | 406021 | 20 | October 11,2003 | October 11, 2005 | A.O. Birkeland |
| Pearl 2 | 406022 | 20 | October 12,2003 | October 12,2005 | A.O. Birkeland |
| Pearl 3 | 406023 | 20 | October 12,2003 | October 12,2005 | A.O. Birkeland |
| Pearl 4 | 406024 | 16 | October 12,2003 | October 12,2005 | A.O. Birkeland |
| Pearl 5 | 409181 | 20 | March 23,2004 | March 23,2006 | A.O. Birkeland |
| Pearl 6 | 409182 | 20 | March 23,2004 | March 23,2006 | A.O. Birkeland |
| Pearl 7 | 409183 | 20 | March 23,2004 | March 23,2006 | A.O. Birkeland |
| Pearl 8 | 409184 | 20 | March 23,2004 | March 23,2006 | A.O. Birkeland |
| Pearl 9 | 409185 | 20 | March 23,2004 | March 23,2006 | A.O. Birkeland |
| Pearl 10 | 409186 | 20 | March 23,2004 | March 23,2006 | A.O. Birkeland |
| PP1 | 414658 | 1 | Sept. 29,2004 | Sept. 29,2006 | A.O. Birkeland |
| PP2 | 414659 | 1 | Sept. 29,2004 | Sept. 29,2006 | A.O. Birkeland |

"Cell" Mineral Claims

| Claim Name | Record No. | Cells | Record Date | Expiry Date | Recorded Owner |
|---|---|---|---|---|---|
| Pearl East 1 | 502951 | 20 | January 13,2005 | January 13,2006 | A.O. Birkeland |
| Pearl East 2 | 502954 | 10 | January 13,2005 | January 13,2006 | A.O. Birkeland |
| Pearl East 3 | 502957 | 12 | January 13,2005 | January 13,2006 | A.O. Birkeland |
| Pearl East 4 | 502961 | 5 | January 13,2005 | January 13,2006 | A.O. Birkeland |

All of the foregoing mineral claims are subject to an option agreement between A.O. Birkeland and Golden Dawn Minerals Inc. This agreement, executed December 23, 2004, grants Golden Dawn Minerals the right to earn a 100% interest in the property by making escalated cash payments totaling $530,000 over a three year period, by issuing a total of 1,375,000 shares (275,000 shares annually) over a four year period and by incurring a total of $4.75 million in exploration expenditures on the mineral property over a five year period. The vendor (Birkeland) retains a 3% net smelter royalty interest in any commercial production from the subject mineral claims. Half of this net smelter royalty may be purchased for $3 million.

The PP1 and PP2 mineral claims, which are part of the Birkeland-Golden Dawn agreement, are subject to a previous purchase and sale agreement between A.O. Birkeland and J. Mirko. This agreement specifies that Mirko (the vendor) is to receive cash payments of $2,500 semi-annually amounting to $25,000 and retains a 2.5% net smelter royalty on any commercial production from the two subject mineral claims.

The Golden Dawn – Birkeland agreement also specifies that Arnex Resources Ltd., of which A.O. Birkeland is a principal, shall be the exploration program operator in connection with the first $2.25 million worth of exploration expenditures incurred by Golden Dawn on the Porphyry Pearl property.

The legacy mineral claims comprising the Porphyry Pearl property are thought to have been located pursuant to procedures specified by previous regulations of the Mineral Tenure Act of the Province of British Columbia. No claim posts or lines have been inspected by the writer. These mineral claims have not been surveyed. The boundaries of the "cell" mineral claims acquired by the recently initiated online system in British Columbia are precisely defined by UTM coordinates.

The Pearl 1-10 and PP1 and PP2 mineral claims cover the former Moose property which includes previously identified porphyry copper-gold and epithermal silver-base metals mineralized zones; the Pearl East 1-4 mineral claims were acquired to cover known parts of the former Oxide Peak and Amethyst Valley claims which are known to include epithermal precious metals showings and areas of geological interest.

Legacy mineral claims in British Columbia may be kept in good standing by incurring assessment work or by paying cash-in-lieu of assessment work in the amount of $100 per mineral claim unit per year during the first three years following the location of the mineral claim. This amount increases to $200 per mineral claim unit in the fourth and succeeding years. Cell claims, which are of varying size depending on their position within the province, require annual expenditures (or cash-in-lieu payments) of $4 per hectare per annum for the first three years of tenure and $8 per hectare annually thereafter.

The writer is not aware of any specific environmental liabilities to which the various mineral claims are subject. The claims are immediately east of the recently expanded boundaries of the Spatsizi Plateau Wilderness Park (Figure 3) but to the extent known, there are no apparent problems in terms of access or in carrying out mineral exploration and developrnent. The Porphyry Pearl property is within the Toodoggone district where mining-related activities have been underway for more than 75 years.

Exploration work on mineral properties in British Columbia requires the filing of A Notice of Work and Reclamation with the Ministry of Energy and Mines. The issuance of a permit facilitating such work may involve the posting of a reclamation bond.

## ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE and PHYSIOGRAPHY

The Porphyry Pearl property is situated between 6 and 14 kilometres north of Toodoggone River and is centred on two of the larger south-flowing tributaries, Moosehorn and McClair Creeks (Figure 3). The communities of Smithers and Prince George, both several hundred kilometres south of the property (Figure 1), offer the best range of supplies and services which can be trucked by way of a secondary road linking Kemess mine with Mackenzie (Figure 1). This road extends 35 kilometres further northwest to Sturdee airstrip (Figure 3) which is capable of handling large aircraft, thus providing an alternate means of access into the general area.

Figure 3 shows a number of current and former roads in the general area of the property. Most of these have been decommissioned with the exception of the road linking the airstrip with Baker mine and the former Cheni Resources Lawyers mine. Access to the Porphyry Pearl property from either Sturdee airstrip or Lawyers mine for both supplies and personnel is currently restricted to helicopter.

Other than water, which is abundant, there is no infrastrueture in the immediate area of the property. Kemess mine, 55 km south, is connected to the provincial power grid.

The Porphyry Pearl property is situated immediately east of the boundary between the Spatsizi Plateau to the west and the Stikine Ranges of the southern Cassiar Mountains to the east. The immediate area features wide, drift-filled valleys of Toodoggone River, Moosehorn Creek and the lower reaches of McClair Creek, the gently rolling upland surface of the Spatsizi Plateau to the west and steep-sided, maturely dissected mountains throughout the central and eastern property areas. Central to the current claims is a prominent ridge which rises from the

broad valley floors occupied by Moosehorn Creek on the west and McClair Creek on the east (Figure 2). Scattered buckbrush and locally dense alpine spruce, balsam and fir is present in valley areas up to elevations of 1600 metres above sea level above which is typical alpine terrain featuring short grasses and lichen. Bedrock is reasonably well exposed in the areas above tree line and along drainages. Abundant felsenmeer on some slopes is believed to be very close to bedrock.

Much of the Porphyry Pearl property is in alpine terrain featuring locally rugged topography particularly on north and east facing slopes. Elevations range from 1330 metres above sea level along Moosehorn Creek near the southern boundary of the Pearl 4 claim to more than 2000 metres at some of the highest points in the central and eastern claims (Figure 2).

The climate is typical of the northern regions of British Columbia with cold temperatures and abundant snow cover during the winter months which extend from mid-October through early May. Field work is best carried out between mid-June and late September when daytime temperatures average 10 to 15 degrees Celsius.

## HISTORY

As previously noted, the Porphyry Peal property is in the Toodoggone mining district. Earliest mining-related work in this area was directed to placer gold occurrences along McClair Creek, near its confluence with Toodoggone River, between 1925 and 1935. This operation, one of the first in Canada to be entirely air-supported, recovered only modest amounts of gold (3270 grams = 115 ounces).

Consolidated Mining and Smelting Company discovered base metals mineralization in several areas in the southern part of the district in the early 1930s and reportedly carried out some limited drilling on Oxide Peak immediately east and south of the current Porphyry Pearl property. Other than sporadic investigations of the McClair Creek placer occurrences, the area was virtually dormant until the 1960s when a number of companies, including Canadian Superior Exploration, Cominco, Cordilleran Engineering and Kennco Explorations, conducted regional exploration programs in the search for porphyry copper mineralization. Work by Kennco Explorations lead to the recognition of significant gold-silver mineralization at what were to become the Baker mine (Chappelle) and Lawyers (Cheni mine) deposits south of Toodoggone River (Figure 4).This company also discovered porphyry-style copper-gold mineralization at several sites north and south of Finlay River including the currently producing Kemess mine.

Continued exploration between the early 1970s and the 1990s resulted in the discovery of a number of additional gold-silver deposits and occurrences throughout the area. The more significant of these are shown on Figure 4.

Production from the Toodoggone district began with the Baker mine operation in 1981 and continues with the current South Kemess mine of Northgate Minerals Corporation. District production through 2004 amounts to more than 1.6 million ounces gold which has been derived from three past producers and one current producer. As indicated on Table 2, more than 80% of this production has been from the South Kemess mine.

Table 2

| Deposit Name | Tonnes Milled | Recovered Grades Au (kg) | Ag (kg) | Cu (t) | Au (g/t) | Ag (g/t) | Cu (%) |
|---|---|---|---|---|---|---|---|
| McClair Creek Placer (1935) | | 3.3 | | | | | |
| Baker Mine (1981-83, 1996-97) | 81878 | 1284 | 23813 | 13.1 | 15.68 | 290.84 | 0.02 |
| Lawyers (Cheni) (1989-1992) | 619869 | 5402 | 113184 | N/A | 8.71 | 182.59 | N/A |
| Shas (1989-91, 2000) | 113113 | 603 | 33019 | N/A | 5.33 | 291.91 | N/A |
| South Kemess (1998-present) | 78471586<br>79286446 | 44968<br>52260 | 4781*<br>173797 | 165609<br>165622 | 0.57 | 4.13* | 0.21 |
| | | (1,680,200 oz. Au; 6,130,498 oz. Ag) | | | | | |
| | | * Ag recovered in 2000 only | | | | | |

The earliest record of work within the area of the present property dates back to 1971 when Sumac Mines Ltd. (an exploration entity of Sumitomo Metal Mining Company) located claims east of Moosehorn Creek to cover anomalous base and precious metals values indicated by a reconnaissance stream sediment geochemical survey. Work on what was known as the Moose property through 1974 included grid construction, the preparation of orthophoto base maps, soil geochemistry, Induced Polarization and magnetic surveys and 493.5 metres of diamond drilling in four holes.

Sumac's claims lapsed in 1977 and were re-staked in 1978 by T.C. Scott and Petra-Gem Exploration Ltd. Energex Minerals Ltd. acquired the property by way of an option agreement and carried out some hand trenching and bedrock and drill core sampling in 1979. Texasgulf Canada Ltd. (latterly Kidd Creek Mines Ltd.) entered into an option agreement with Energex in early 1980 and over the subsequent three field seasons had completed soil and rock geochemical surveys geological mapping, limited geophysical surveys and 494.5 metres of diamond drilling in two holes on the then Moose property.

Energex Minerals Ltd. entered into a joint venture agreement with New Ridge Resources Ltd. in early 1985 for the purpose of carrying out additional exploratory work on the Moose property. A comprehensive program completed that year included soil and rock geochemistry, prospecting, geological mapping and the testing of two mineralized zones by way of 914.6 metres of diamond drilling in eighteen holes.

The most recent exploratory work on the previous Moose property (now the Pearl 1-10 mineral claims) was in 1991 when Golden Rule Resources Ltd. and partner Manson Creek Resources Ltd. were party to an option agreement with Energex Minerals Ltd. 1123.7 metres of diamond drilling was completed in seven vertical holes.

Exploration programs within and adjacent to the current Pearl East 1 and 2 mineral claims were undertaken in 1980 and 1981 by Serem Ltd. and included the collection of stream sediment samples, contour soil and rock sampling, prospecting and geological mapping on Oxide Peak and the southern part of the area now covered by the current claims. Additional work by Newmont of Canada Exploration in 1984 included rock sampling within the area of the Pearl East 2 claim. While the property area also included Oxide Peak during this time frame, much of the geological mapping and bedrock sampling completed by Geostar Mining Corp. in 1985 was directed to the area of the current Pearl East 1 and 2 mineral claims as were subsequent geochemical and geophysical surveys carried out by Shayna Resources Ltd. in 1987. Clipper Minerals Ltd. held property now covered by the Pearl East 1 and 2 claims between 1990 and 1994 and reportedly carried out prospecting and hand trenching in addition to a limited induced

Polarization survey.

Total exploration expenditures within the area of the current mineral claims, as documented by assessment reports, total $785,000 or approximately $1.8 million in 2004 dollars. More than 90% of this amount was spent on the former Moose property, now covered by the Pearl 1-10 claims.

The Moose claims lapsed in the mid-1990s as did a number of other claims throughout the Toodoggone district. The PP1 and PP2 claims were located in 2001 and the Pearl 1-10 claims in 2003 and 2004. The Pearl East 1-4 claims were acquired early in 2005.

## GEOLOGICAL SETTING

### Regional Setting

The Porphyry Pearl property, situated in the northeastern part of the Intermontane tectonic belt of the Canadian Cordillera, is west of a fault contact between Quesnel terrane of the Omineca crystalline belt on the east and Stikine terrane on the west (Figure 4). Stikine terrane includes Devonian to Jurassic volcanic and sedimentary rocks which are intruded by coeval and younger plutonic rocks and are locally overlain by younger volcanic and sedimentary units.

Oldest rocks in the area illustrated by Figure 4 are intensely deformed late Carboniferous to Permian Asitka Group volcanic and sedimentary rocks. These have their greatest distribution north of Stikine River where they consist of mafic to felsic volcanic rocks which are mainly converted to chlorite and sericite schists, phyllites derived from clastic sedimentary rocks and younger rhyolites, cherts and carbonate sediments. Remnants of Asitka Group carbonates and cherts, too small to be shown on Figure 4, are present in the vicinity of Baker Mine and north and south of Finlay River and, as noted in the subsequent section of this report, may be present in the eastern part of the subject property.

Volcanic rocks of the late Triassic, Takla (Stuhini) Group, which form mountainous terrain south of both Chukachida and Finlay Rivers, are comprised mainly of augite phyric basalt, andesitic flows, tuffs and breccias and subordinate interflow clastic sedimentary rocks and some limestone. Smaller areas underlain by Takla Group rocks include remnants marginal to a granitic stocks in the southern part of the area and east of the Porphyry Pearl property. The volcanic rocks marginal to such plutons feature limonite-rich alteration zones.

Previous geological interpretations, shown on Figure 4, suggested that early Jurassic andesite and dacite flows and volcaniclastic rocks of the Hazelton Group underlie the eastern part of the area between Chuckchida and Finlay Rivers (Figure 4). Recent geological mapping by Diakow et al (2004,2005) indicates that the Hazelton Group in this part of Stikine terrane is comprised entirely of Toodoggone Formation volcanic rocks featuring distinctive lithologies and contained in a northwest-trending, 90 by 20-25 km belt centred on Toodoggone River. These subaerial volcanic rocks unconformably overlie, or are in fault contact with older rocks and consist principally of high potassium, calcalkaline latites and dacites (Diakow et al,1993). Two eruptive cycles have been recognized and Jurassic plutons, numerous throughout the district, are comagmatic with the earlier volcanic cycle.

Cretaceous clastic sedimentary rocks, part of the Sustut Group, unconformably overlie older rocks and form the western boundary of the area illustrated on Figure 4.

The numerous gold-silver deposits of the district are related to the early Jurassic,

Hazelton Group (Toodoggone Formation) magmatic event which took place between 190 and 200 million years ago. Extensional tectonics, in the form of regional northwest faults, provided channelways for the circulation of precious metals-rich hydrothermal fluids.

Several styles of mineralization are present in the Toodoggone district including volcanic-hosted epithermal gold-silver deposits, porphyry copper-gold deposits and some precious metals-bearing skarns. Epithermal deposits and occurrences are typical of the district and include two principal types of which the low sulphidation, adularia-sericite type is the best known. The Baker Mine, Lawyers and Shas deposits, plus numerous other prospects, are examples of this type and all feature quertz veine emplaced along faults and fracture zones in volcanic host rocks which feature adularia-sericite alteration marginal to the precious metals-bearing veins. Host rocks are Toodoggone Formation latite flows and dacite tuffs with the exception of Baker mine where veins are developed in older, Takla Group volcanic rocks.

The second type of epithermal mineralization is represented by high sulphidation, acid sulphate gold-silver deposits which feature alunite and barite alteration zones formed near surface or above the alunite-sericite types. Examples include the BV (Al) north of Toodoggone River (Figure 4) and the Silver Pond prospect adjacent to the Lawyers deposit.

Porphyry copper-gold mineralization, within and marginal to early Jurassic granitic plutons, has been recognized at a number of localities in the southern part of the district. The best example of this style of mineralization is the currently producing South Kemess mine where chalcopyrite, pyrite, magnetite and minor molybdenite occur as disseminations and in quartz stockwork veinlets both within a gently-dipping, tabular monzonite sill and bordering Takla Group volcanic rocks. This deposit features a 25 metres thick supergene zone containing enhanced copper and gold values. Production of gold and copper through to the end of 2004 are reported in the preceding section; remaining proven reserves are reported by Northgate Minerals Corporation as being 91.72 million tonnes grading 0.23% copper and 0.70 gram/tonne gold.

The adjacent Kemess North deposit, currently the subject of a feasibility study, features pyrite, chalcopyrite and minor molybdenite in quartz-K-feldspar stockwork veinlets and as disseminations related to quartz monzonite dykes which cut Takla Group volcanic rocks. A Northgate Minerals Corporation fact sheet, dated November, 2004, reported proven and probable reserves for Kemess North of 414 million tonnes grading of 0.16% copper and 0.31 gram/tonne gold. These reserve estimates were prepared by a qualified person and are in accordance with Section 1.3 of National Instrument 43-101.

**Property Geology**

The geological setting of the Porphyry Pearl property is illustrated on Figure 5. As indicated, most of the bedrock exposure is restricted to higher areas bordering the broad, alluvium filled valleys occupied by Moosehorn, McClair and Belle Creeks. Much of the property area is underlain by Toodoggone Formation volcanic rocks which are part of the lower volcanic cycle (Diakow et al,1993). These unconformably overlie and/or are in fault contact with older lithologic units and all units are intruded by early Jurassic granitic rocks.

The oldest lithologic units present within the current property area include a fault-bounded wedge of Late Triassic, Takla Group volcanic rocks and intercalated sediments which are exposed in the eastern part of the Current Pearl East 1 claim (Figure 5) . As described by Lyman (1988), these include plagioclase phyric andesite flows, intravolcanic siltstones and 1 to 6 metres thick limestone lenses. The latter may be part of the older Asitka Group but are more likely part of the Takla Group, comparable to similar limestones noted within Takla Group volcanics elsewhere by Diakow et al (2004).

Toodoggone Formation volcanic rocks within the property area represent a homoclinal succession which strikes northwesterly and dips gently northeast. Three members of the lower volcanic cycle are present including the Adoogacho Member, the oldest stratigraphic division of the Toodoggone Formation recognized north of Toodoggone River. This member, which was observed disconformably overlying Takla Group volcanic rocks 15 kilometres northwest of the Porphyry Pearl property (Diakow et al, 1993), is exposed in the western part of the property (Pearl 10 claim – Figure 5) and consists mainly of reddish to purple welded ash-flows and lapilli tuffs.

The Metsantan Member, which unconformably overlies the Adoogacho Member north of Tuff Peak (Figure 5), is comprised of green and purple, porphyritic latite flows and intercalated epiclastic and pyroclastic rocks. This member is overlain by the McClair Member in the central and eastern parts of the property. The McClair Member consists of grey to green, homogeneous, porphyritic andesitic flows which locally exhibit good trachytic flow textures.

Undivided Hazelton Group volcanic rocks, immediately east of the fault-bounced wedge of Takla Group volcanics on the Pearl East 1 and 2 mineral claims (Figure 5), are currently thought (Diakow et al,2005) to be upper units of the Toodoggone Formation.

Layered rocks of the Toodoggone Formation, principally the McClair Member, are intruded by a number of dykes and irregular bodies of quartz-hornblende-feldspar porphyry in the northern and eastern property areas (unit D – Figure 5). These are subvolcanic intrusions coeval with the enclosing volcanic rocks. Toodoggone Formation volcanic rocks are also intruded by equigranular granodiorites and quartz monzonites south and east of the current property and a buried intrusion of similar composition has been intersected by previous drilling adjacent to Moosehorn Creek on the PP2 claim. These intrusions are also considered to be comagmatic with the volcanic rocks. Late basalt dykes, generally less than 1 metre wide, occupy faults and represent the youngest intrusive event.

Faults of regional extent trend north to north-northwest; examples include those faults east of Moosehorn Creek and along the Belle Creek valley (Figure 5). Subsidiary faults strike both northeast and northwest.

**MINERALIZATION**

Exploratory work to date indicates that the Porphyry Pearl property hosts two principal styles of alteration and precious metals mineralization. These include epithermal silver-gold-base metals-bearing veins and disseminations at the Moose and Marmot prospects and the Mist and East Ridge showings in the central and eastern property areas respectively. Intrusive-related, porphyry copper-gold mineralization occurs at the Porphyry Pearl prospect which is centred on the PP mineral claims in southern property area (Figure 6).

The Moose silver-base metals zone in the central property area is coincident with a zone of fracturing and shearing associated with the northwesterly-trending regional fault east of Moosehorn Creek (Figure 5). This zone was first investigated by Sumac Mines Ltd. in the early 1980s while following up anomalous values obtained from soil sampling. Surface sampling of isolated bedrock exposures several years later by Texasgulf-Kidd Creek Mines showed the zone to consist of disseminated and vein-type occurrences of sphalerite, galena, pyrite and lesser chalcopyrite. As noted by Peatfield (1981), quartz-carbonate-sulphide veins are central to disseminated mineralization which in turn is enveloped by widespread, disseminated pyrite. Trench sampling returned values of up to 2.8% lead and zinc, 0.27% copper and 19.54 g/t silver, One float sample from within the zone assayed 7% lead, 1.95% zinc, 0.02% copper and 313.72 g/t silver (Peatfield,1981).

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Further investigation of the zone (Howell and Sivertz,1985) further refined the alteration patterns which were seen to include a central banded, brecciated and silicified zone containing varying amounts of barite, chlorite, hematite, sphalerite, pyrite, galena and chalcopyrite enveloped by intense sericite-chlorite-carbonate-pyrite of the volcanic wallrocks and gradational outward to propylitically altered volcanic rocks. The central silicified zones, which have sharp contacts with altered wallrocks, were noted as consisting mainly of silicified volcanic and quartz vein fragments set in a quartz-carbonate-sulphide matrix. These silicified breccias occupy northwest-trending, southwest-dipping fractures, are lens-like in plan, measure 5 x 1 metres and are best developed within a northwest-trending, 600 metres long by 100-200 metres wide zone (Figure 7).

Sulphide contents of the breccia lenses range up to 30% by volume. Higher silver values are not always coincident with enhanced lead values but rather show some correlation with barite. Highest silver values obtained from grab samplee included 2450 and 5340 grams/tonne; gold values were generally low, the best being 2.5 grams/tonne (Howell and Sivertz,1985).

The Marmot zone, 2.5 kilometres east of the Moose zone (Figure 6), was initially reflected by a broad gold in soil anomaly. Sphalerite-galena mineralization is contained in narrow (5-15 centimetres) quartz veins and gold and silver values obtained from surface sampling ranged from 40 to 7000 ppb (parts per billion) gold and 8.5 to 1841 ppm (parts per million) silver (Howell and Sivertz,1985).

The Porphyry Pearl zone, adjacent to Moosehorn Creek in the southern property area (Figure 6), features porphyry style copper-gold mineralization related to an unexposed granodiorite-quartz monzonite intrusion. This zone is discussed in detail in the Drilling section of this report. The periphery of the Porphyry Pearl zone is characterized in part by sericite-pyrite altered rocks in limited exposures along Moosehorn Creek. At one locality, these altered rocks host narrow, east-west striking, moderately to steeply north-dipping quartz-carbonate veins containing sphalerite, galena and chalcopyrite. Chip sampling over exposed lengths of 0.50 to 0.80 metres returned values of between 30 and 1020 ppb gold and 0.9 to 7.3 ppm silver plus lead. zinc and copper values (Howell and Sivertz,1985).

Other known epithermal mineralization within the current property includes the Mist and East Ridge occurrences in the eastern property area (Figure 6). Initial interest in this area was generated by Serem Ltd. in the early 1980s (Crawford,1982) following the receipt of anomalous gold values in stream sediment samples. Follow-up work located a quartz breccia zone with low gold and silver values within a prominent gossan in the southeastern part of the current Pearl East 2 claim.

Subsequent work led to the discovery of the East Ridge prospect which is a large silicified zone developed along the north-northwest-trending fault separating Takla volcanic rocks on the east from those of the Toodoggone Formation (Figures 5 and 6). Reported dimensions of this zone (Yeager and Ikona,1986) were 300 metres in length and up to 100 metres wide and better mineralization was seen to be hosted by north-northeast, vertically dipping cross-fractures containing chalcedonic quartz, barite and galena and sphalerite. Limited bedrock sampling returned values of up to 14.2 grams/tonne silver, 0.34 gram/tonne gold and 1% lead and zinc. A second silicified and pyritized zone along this same fault structure was identified in the northern part of the Pearl East 1 claim by Lyman (1988). The zone, which is up to 50 metres thick, includes narrow quartz veins containing galena and sphalerite. Detailed bedrock sampling returned low gold and silver values of between 5 and 25 ppb and 0.2 to 5.0 ppm respectively.

A north-northeast fault zone, extending through the Pearl East 1 claim, hosts the Mist occurrence which is 1.5 kilometres west-northwest of the East Ridge zone and 0.6 kilometre east of the tarn lake in the western part of the Pearl East 1 claim (Figure 6). As described by Lyman

(1988) and Mark (1994) this occurrence consists of lenses of silicified material with disseminated pyrite plus bands of galena, sphalerite and chalcopyrite within a moderately west-dipping zone which has an exposed strike length of 190 metres. The hangingwall of the structure is marked by a 20 to 50 metres thick zone of intense clay-sericite alteration. Hand trenching and sampling of this occurrence was apparently undertaken in 1990 but no results are available.

## EXPLORATION

This section includes a discussion of results of previous surface geochemical and geophysical surveys conducted within the boundaries of the current Porphyry Pearl property for the purpose of providing background information considered to be useful in assessing the merits of the property and in planning future work.

As previously noted, anomalous precious and base metals values in stream sediment samples collected by Sumac Mines Ltd. in the early 1970s led to the staking of the original claims in the area of the current property. Initial exploration work included the collection of soil samples from an initial 19 kilometres of grid consisting of 122 metres spaced northeast-southwest cross lines. Samples were collected from 'B' horizon material from depths of between 15 and 30 cm at 60 metres intervals along the grid lines. This work identified a 1500 x 300 metres northwesterly trending anomalous zone with values of between 4.0 and 26.0 ppm silver, 500 to 1000 ppm zinc, 260 to 3900 ppm lead and plus 100 ppm copper (Scott,1972). Spot high gold values of between 320 and 1700 ppb were also identified. Additional sampling of an expanded area the following year (Rodgers,1972) established threshold values for the various elements which were reported as being 110 ppm copper, 600 ppm lead, 870 ppm zinc and 8.7 ppm silver.

Texasgulf undertook further soil sampling in 1980 (Peatfield,1981) along compass lines between the original Sumac grid lines. Results obtained further refined and expanded the previously defined anomalous area. Anomalous values for the various elements within a 2000 x 600 metres zone as reported by Texasgulf were 2.4-25.5 ppm silver, 200-2750 ppm lead, 400-4000 ppm zinc and 50-200 ppm copper. This survey also disclosed the presence anomalous gold and silver values (30-1155 ppb gold; 2.5- 45 ppm silver) in poorly developed soils over an area of 1000 x 500 metres at higher elevations northeast of the original anomalous area. The possible source of these values was thought to be numerous quartz veinlets exposed near the ridge crest (Sutherland,1981).

Previous geophysical work included two Induced Polarization (IP) and fluxgate magnetometer surveys over the grid area established by Sumac Mines Ltd. A limited pole-dipole IP survey completed in 1972 (Yokoyama and Morita,1972) identified high apparent resistivities in the central grid area while percent frequency effects (chargeability) were low. A pulse, time domain IP survey conducted over an expanded area the following year (Yoshida and Kawasaki,1973) delineated the four chargeability anomalies shown on Figure 6. No meaningful results were obtained from the magnetic surveys.

Limited IP and magnetometer surveys, undertaken by Kidd Creek Mines in 1982, were directed to the area of the Porphyry Pearl prospect along Moosehorn Creek (Figure 6) and essentially confirmed the previously identified Sumac IP chargeability anomaly.

Worth noting in this section is a helicopter-borne, high resolution gamma-ray spectrometric and magnetic survey which was completed in the Toodoggone area in 2003 and jointly funded by federal and provincial government agencies and industry partners (Shives et al,2004). Results of this survey provide new gamma ray data and higher resolution aeromagnetic data for the entire region, including the area of the Porphyry Pearl property. The principal

objective of the survey was to provide a consistent geophysical and geochemical (by way of determination of radioactive elements; potassium, uranium thorium) framework to complement both regional geological mapping and property-scale exploration. Hydrothermal alteration minerals associated with porphyry and epithermal mineralization in the Toodoggone area are known to respond well to these airborne techniques. These geophysical data are readily available both in hard copy and digital format and should be useful in the planning and inception of further work on the Porphyry Pearl property.

## DRILLING

Initial drilling in the area of the current property, undertaken by Sumac Mines Ltd. in 1974 (Rodgers,1974) consisted 493.5 metres in four holes designed to test the four IP chargeability anomalies identified by previous surveys. Three of these holes were inclined, one was vertical and BQ-size core was recovered. Locations of these holes (MM-1,-2,-3,-6) are shown on Figure 6. The three widely spaced inclined holes intersected volcanic rocks containing up to 6% disseminated pyrite providing a partial explanation for the chargeability anomalies. No analytical results were provided by Sumac Mines but subsequent re-sampling of these holes by Kidd Creek Mines (Sutherland,1982) disclosed the presence of elevated gold values (270-1500 ppb) between hole depths of 110.6 and 119.4 metres in hole MM-1. A 3.8 metres section within this interval returned 2795 ppb gold and 0.6 ppm silver.

The Moose silver-base metals zone was tested by 806.7 metres of BQ diamond drilling in 16 inclined holes completed by New Ridge Resources Ltd. in 1985 (Howell and Sivertz,1985). Locations of these hole are shown on Figure 7 and the more significant results are listed in Table 2.

Table 3 – Moose Silver Base Metals Zone Drilling

| DRILL HOLE | INCL., AZ. | DEPTH(m) | INTERVAL(m) | LENGTH(m) | Ag(g/t) | Pb(%) | Zn(%) | Au(ppb) |
|---|---|---|---|---|---|---|---|---|
| 85M-1 | -45 @ 035 | 78.33 | 0.00-1.60 | 1.60 | 23.80 | | | |
| | | Incl. | 0.00-0.50 | 0.50 | 50.00 | | | |
| | | | 26.60-28.70 | 2.10 | 15.10 | | | |
| | | Incl. | 28.30-28.70 | 0.40 | 24.00 | 1.19 | 4.52 | |
| 85M-2 | -85 @ 035 | 45.11 | 13.44-18.60 | 5.16 | 109.30 | | | |
| | | Incl. | 17.20-18.60 | 1.40 | 367.10 | | | |
| | | Incl. | 17.20-18.07 | 0.87 | 583.00 | 0.95 | 1.45 | |
| | | | 33.00-35.50 | 2.50 | 7.30 | | | |
| 85M-3 | -60 @ 035 | 73.76 | 1.83-6.20 | 4.37 | 54.30 | | | |
| | | Incl. | 1.83-6.00 | 4.17 | 56.20 | | | |
| | | Incl. | 4.00-6.00 | 2.00 | 76.00 | | | |
| 85M-4 | -85 @ 035 | 37.49 | 2.90-7.10 | 4.20 | 35.80 | | | |
| | | Incl. | 4.26-7.10 | 2.84 | 46.70 | | | |
| | | Incl. | 5.64-7.10 | 1.45 | 71.00 | 0.62 | 1. 96 | |
| | | | 23.70-27.13 | 3.43 | 50.50 | | | |
| | | Incl. | 23.70-26.64 | 2.94 | 58.20 | | | |
| | | Incl. | 25.91-27.13 | 1.22 | 125.00 | | | |
| 85M-5 | -45 @ 035 | 50.90 | 6.10-9.75 | 3.65 | 26.70 | | | |
| | | Incl. | 6.10-8.72 | 2.62 | 34.60 | | | |
| | | Incl. | 6.80-9.75 | 2.95 | 30.90 | | | |
| | | | 12.93-16.40 | 3.48 | 68.50 | | | |
| | | Incl. | 14.33-16.40 | 2.07 | 100. 50 | | | |
| | | Incl. | 15.51-16.40 | 0.90 | 227.00 | 0.51 | 1.09 | 150 |
| | | | 24.36-25.50 | 1.14 | 13.50 | | | |
| | | Incl. | 24.84-25.50 | 0.66 | 23.60 | | | |
| | | Incl. | 24.36-24.96 | 0.60 | 23.00 | | | |

| DRILL HOLE | INCL., AZ. | DEPTH(m) | INTERVAL(m) | LENGTH(m) | Ag(g/t) | Pb(%) | Zn(%) | Au(ppb) |
|---|---|---|---|---|---|---|---|---|
| 85M-6 | -85 @ 035 | 42.06 | 1.94-3.16 | 1.22 | 70.80 . | | | |
| | | Incl. | 2.51-3.16 | 0.65 | 131. 70 | | | |
| | | Incl. | 2.51-2.59 | 0.08 | 885.00 | 0.33 | 2.48 | 25 |
| | | | 20.39-25.60 | 5.21 | 185.80 | | | |
| | | Incl. | 20.39-23.77 | 3.38 | 276.90 | | | |
| | | Incl. | 21.79-23.76 | 1.97 | 462.60 | | | |
| | | Incl. | 21.79-22.10 | 0.31 | 2610.00 | 4.60 | 13.58 | 1950 |
| | | Incl. | 20.39-22.10 | 1.71 | 484.60 | 1.24 | 3.43 | 476 |
| 85M-7 | -45 @ 035 | 69.19 | 7.92-13.43 | 5.51 | 20.40 | | | |
| | | Incl. | 9.54-13.43 | 3.89 | 28.10 | | | |
| | | Incl. | 9.54-11.46 | 1.92 | 47.50 | 1.06 | 4.50 | |
| | | Incl. | 9.54-10.15 | 0.61 | 128.00 | 3.12 | 12.98 | 600 |
| 85M-8 | -85 @ 035 | 22.25 | 11.58-13.69 | 2.11 | 25.40 | | | |
| | | Incl. | 13.20-13.69 | 0.49 | 93.00 | 4.66 | 13.52 | 250 |
| 85M-9 | -45 @ 035 | 46.33 | 11.03-14.97 | 3.94 | 85.80 | 0.46 | 1.22 | |
| | | Incl. | 12.31-14.97 | 2.66 | 121.90 | 0.65 | 1.75 | |
| 85M-I 0 | -85 @ 035 | 23.47 | 11.80-14.36 | 2.56 | 77.90 | | | |
| | | Incl. | 12.80-14.36 | 1.56 | 125.00 | 1.26 | 3.44 | |
| | | | 21.55-23.47 | 1.92 | 133.20 | | | |
| | | Incl. | 21.55-22.22 | 0.67 | 275.00 | | | |
| | | Incl. | 21.55-21. 95 | 0.40 | 435.00 | 1.44 | 2.76 | |
| 85M-11 | -45 @ 035 | 58.52 | 8.08-9.60 | 1.52 | 4.00 | 0.15 | 0.50 | |
| | | | 33.53-34.75 | 1.22 | 2.00 | 0.24 | 0.88 | 100 |
| | | | 43.68-44.20 | 0.52 | 3.00 | 0.23 | 1.17 | 100 |
| | | | 46.33-46.76 | 0.43 | 4.0 | 0.29 | 1.43 | 100 |
| 85M-12 | -45 @ 035 | 78.33 | 48.37-49.23 | 0.86 | 7.00 | 0.10 | 0.32 | |
| | | | 57.79-60.05 | 2.26 | 3.00 | 0.12 | 0.36 | 200 |
| | | | 65.75-68.12 | 2.37 | 4.10 | 0.28 | 0.76 | |
| 85M-13 | -45 @ 035 | 53.95 | 28.99-32.40 | 3.41 | 20.90 | | | |
| | | Incl. | 30.14-32.40 | 2.26 | 24.50 | | | |
| | | Incl. | 30.14-30.48 | 0.34 | 64.00 | 5.46 | 11.28 | 6000 |
| | | | 31.85-32.40 | 0.55 | 48.50 | 0.74 | 2.54 | |
| 85M-14 | -45 @ 035 | 40.23 | No significant intercepts | | | | | |
| 85M-15 | -45 @ 035 | 46.33 | No significant intercepts | | | | | |
| 85M-16 | -45 @ 035 | 40.23 | 29.32-31.76 | 2.44 | 6.00 | 0.50 | 1.38 | |

The first 6 holes were drilled to test high-grade silver-lead-zinc showings exposed over a 200 metres interval in the western part of the zone illustrated on Figure 7. Zinc and lead values were present in all drill holes and silver values greater than 100 grams/tonne were encountered in four holes over hole lengths of between 1.22 and 5.21 metres, Highest grades incuded 2,610 grams/tonne silver and 1.95 grams/tonne gold over a hole length of 0.31 metres in hole 85M-6. . Holes M85-7 and -8, which tested a quartz-barite-sulphide showing approxlmately 95 meters southeast of holes M85-3 and -4, returned low silver values compared with those obtained from surface sampling. Drill holes M85-9 and -10, drilled to test strong strongly anomalous lead, zinc, silver values in soils returned some good silver values over limited intervals.

Hole M85-11 intersected breccia-hosted zinc-lead mineralization visually similar to that seen in the first ten holes but silver values were very low. Holes M85-l2 and -13 were drilled beneath holes M85-3,-4 and M85-7,-8, respectively, to test the zone at greater depths. Both holes intersected short sections of zinc-lead mineralization with low to moderate silver values.
The northwestern part of the silver-base metal zone was tested by drill holes M85-14 and -15 which returned no significant values.

The foregoing results suggest that the exposed quartz-sulphide veins and breccia zones in the central and western parts of the zone, while discontinuous, are contained within a west-dipping, north-northwest trending zone some 30 meters thick and featuring quartz-pyrite alteration, silicification and locally high grade silver, lead and zinc values This zone has been traced by drilling over a strike length of 300 metres and may be open along strike and possibly to depth.

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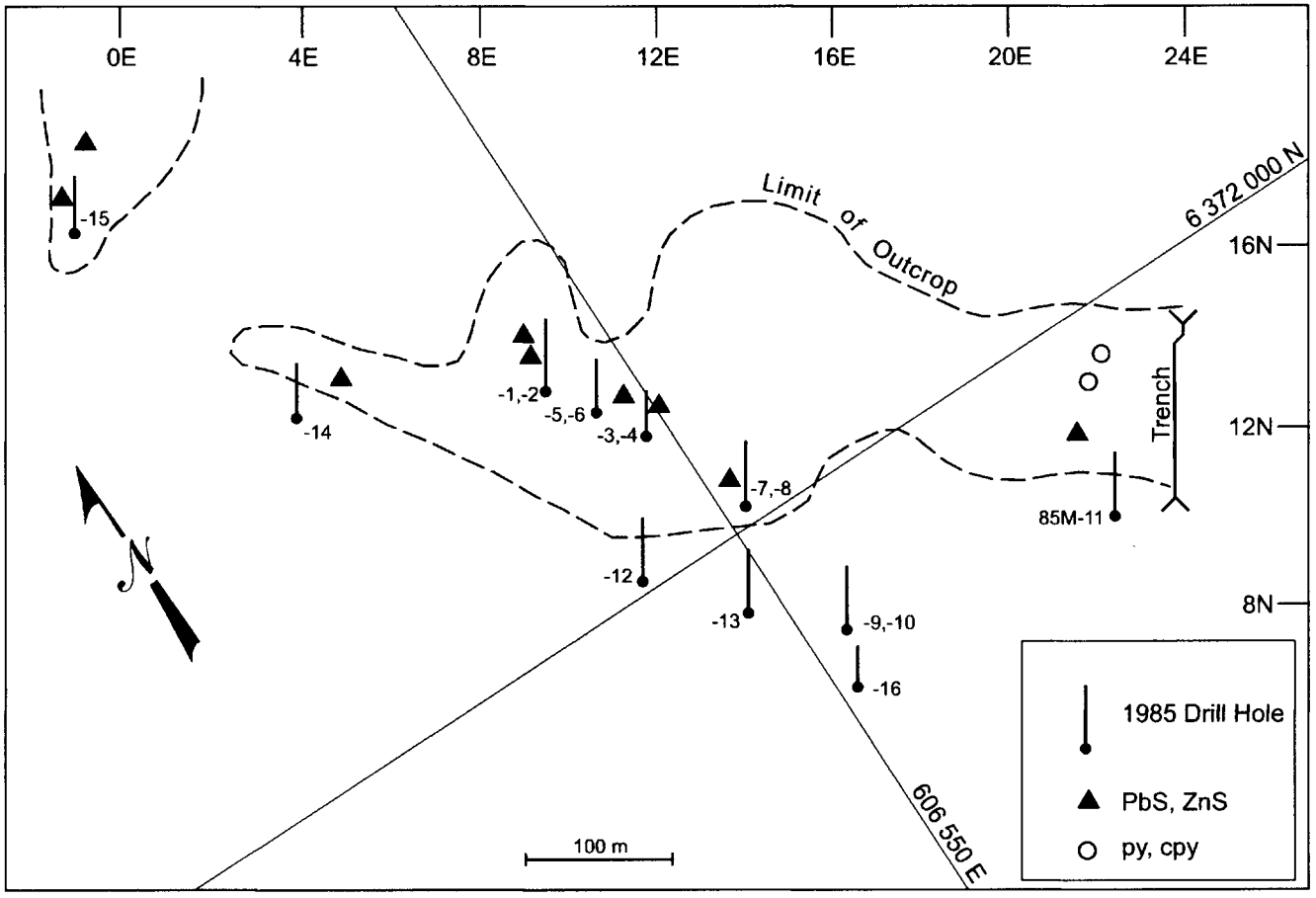


Figure 7: Porphyry Pearl Property - Moose Silver-Base Metal Zone, (after Howell & Sivertz, 1985).

### *Porphyry Pearl Zone*

Porphyry copper-gold mineralization within the Porphyry Pearl zone was first recognized by Sumac Mines Ltd. in the early 1970s while conducting surface investigation of one of four IP chargeability anomalies. A small exposure of intensely altered rock containing abundant pyrite and base metal sulphides was found in Moosehorn Creek near the western margin of the IP anomaly and samples collected from this exposure returned values of up to 3.4 grams/tonne gold, 20.9 grams/tonne silver, 1.04% zinc, 2.96% lead and 0.06% copper. A 122.5 metres vertical drill hole (MM-2), 180 metres east of this exposure (Figure 6) intersected pink to grey intrusive rock with numerous quartz veinlets containing up to 6% pyrite, some magnetite and traces of sphalerite and chalcopyrite. No analytical data accompanied the drill logs filed by Sumac (Rodgers,1974) but subsequent re-sampling of this hole by Kidd Creek Mines (Sutherland,1982) returned values of 600-1800 ppm zinc, 700 ppm lead, 800-2100 ppm copper and 200-4930 ppb gold between hole depths of 53.2 and 107.5 metres.

The Porphyry Pearl zone was subsequently tested by more than 1700 metres of drilling in 11 holes between 1982 and 1991. All but two of these holes recovered NQ-size drill core. Significant results of all holes drilled are listed in Table 3 and drill hole locations are shown on Figure 8 which also shows the outlines of 1974 IP chargeability anomalies.

Table 4 – Porphyry Pearl Zone Drilling

| DRILL HOLE | INCLINATION, AZIMUTH | | DEPTH | INTERVAL(metres) | LENGTH(metres) | Au (g/t) | Cu (%) |
|---|---|---|---|---|---|---|---|
| (1991) | | | | | | | |
| PP-91-1 | -90 | | 154.5m | 18.3-154.5 | 136.2 | 0.007 | 0.002 |
| PP-91-2 | | | 163.7m | 21.3-164.7 | 143.4 | 0.192 | 0.003 |
| | | | Incl. | 97.0-115.0 | 18.0 | 0.446 | |
| | | | Incl. | 154.0-164.7 | 10.7 | | 0.018 |
| PP-91-3 | | | 185.0m | 27.4-185.0 | 157.6 | 0.306 | 0.019 |
| | | | Incl | 124.0-180.05 | 6.0 | 0.463 | 0.034 |
| | | | Incl. | 124.0-152.0 | 28.0 | 0.723 | 0.058 |
| PP-91-4 | | | 126.5m | 7.3-125.0 | 117.7 | 0.010 | 0.002 |
| PP-91-5 | | | 185.0m | 62.2-185.0 | 122.8 | 0.274 | 0.018 |
| | | | Incl. | 117.0-185.0 | 68.0 | 0.415 | |
| | | | Incl. | 130.0-185.0 | 55.0 | 0.442 | 0.033 |
| PP-91-6 | | | 154.5m | 30.5-154.5 | 124.0 | 0.350 | 0.036 |
| | | | Incl. | 98.0-154.5 | 56.5 | 0.538 | 0.043 |
| | | | Incl. | 98.0-126.0 | 28.0 | 0.545 | 0.055 |
| PP-91-7 | | | 154.5m | 58.0-154.5 | 96.5 | 0.014 | 0.001 |
| (1985) | | | | | | | |
| 85M-17 | -45 @ 000 | 61.6m | | 3.05-61.57 | 58.52 | 256 | 320 |
| | | | Incl. | 36.45-36.85 | 0.40 | 13.30g/t | 1100 |
| 85M-18 | -45 @ 180 | 46.3m | | 3.66-46.33 | 42.67 | 285 | 624 |
| | | | Incl. | 10.61-11. 35 | 0.74 | 790 | 775 |
| | | | Incl. | 31.79- 34.41 | 2.62 | 750 | 695 |
| (1982) | | | | | | | |
| 82-1 | -80 @ 008 | 239.3m | | 85.65-90.70 | 5.05 | 903 | 1095 |
| | | | | 136.70-140.20 | 3.50 | 615 | 543 |
| | | | | 146.00-147.60 | 1.60 | 1403 | 1315 |
| | | | | 151.60-152.30 | 0.70 | 1900 | 950 |
| | | | | 156.50-158.50 | 2.00 | 1490 | 710 |
| | | | | 186.90-187.70 | 0.80 | 1750 | 320 |
| | | | | 191.90-192.90 | 1.00 | 2900 | 220 |
| | | | | 209.40-210.35 | 0.95 | 1050 | 900 |
| | | | | 219.80-221.80 | 2.00 | 1278 | 5580 |

| DRILL HOLE | INCLINATION, AZIMUTH | DEPTH | INTERVAL(metres) | LENGTH(metres) | Au (ppb) | Cu (ppm) |
|---|---|---|---|---|---|---|
| 82-2 | -80 @ 008 | 255.2m | 33.00-34.00 | 1.00 | 4500 | 191 |
| | | | 78.00-81.90 | 3.90 | 4053 | 707 |
| | | (Assay | 78.00-81.90 | 3.90 | 2.52 g/t | 0.07%) |
| | | | 87.40-89.10 | 1.70 | 1674 | 708 |
| | | | 94.90-96.00 | 1.10 | 3700 | 511 |
| | | | 108.00-110.00 | 2.00 | 1700 | 815 |
| | | | 128.00-129.00 | 1.00 | 1250 | 480 |
| | | | 171.70-171.95 | 0.25 | 2720 | 8100 |
| | | | 195.00-196.00 | 1.00 | 1300 | 540 |
| | | | 214.00-215.00 | 1.00 | 1200 | 304 |
| | | | 238.00-239.00 | 1.00 | 1100 | 321 |
| | | | 241.00-242.00 | 1.00 | 1200 | 450 |
| | | | 254.00-255.20 | 1.20 | 1800 | 420 |
| (1974) | | | | | | |
| MM-2 | -90 | 122.5m | 53.2-55.2 | 2.00 | 1235 | 1110 |
| | | | 59.6-70.6 | 11.00 | 1393 | 1537 |
| | | | 90.10-107.5 | 17.40 | 2188 | 998 |
| | | Incl. | 102.30-106.50 | 4.20 | 2936 | 1320 |

Kidd Creek Mines drilled two steeply inclined holes (82-1,-2) a short distance north and west of the previous Sumac hole (Figure 8). Both holes intersected what was described (Sutherland,1983) as porphyritic quartz monzonite below 40 metres of overlying volcanic rocks. Numerous quartz veinlets with magnetite-hematite, pyrite, and lesser sphalerite, galena and chalcopyrite were noted in the altered intrusive rocks as were multiphase intrusive breccias below hole depths of 160 metres. As indicated in Table 3, a number of +1000 ppb gold grades, generally over hole lengths of 1 metre or less, were intersected in both holes. With a few exceptions, copper grades were found to be between 50% and 80% less than those encountered in Sumac hole MM-2.

The two short, inclined holes (85M-17,-18) completed by New Ridge Resources Ltd. in 1985 were designed to test auriferous quartz-carbonate sulphide veins exposed in altered rocks along Moosehorn Creek. Both holes intersected low gold values (256 and 285 ppb) over entire hole lengths and some narrow intervals of less than 1 metre returned multigram gold values. Copper values were low.

The most comprehensive drilling program conducted on the Porphyry Pearl Zone was the 1991 program completed by Golden Rule Resources Ltd. This program involved 1123.7 metres of diamond drilling in seven vertical holes at spacings of approximately 500 metres (Figure 8).

Altered quartz monzonite – granodiorite was intersected in four of the holes and the apparent size of this northwest elongate, buried intrusion measures 1100 x 800 metres and is open both to the northwest and southeast. The length of casing required in holes PP-91-2,-3,-5,-6 and -7 ranged from 21 to 62 metres and is indicative of both significant overburden cover and extensively weathered bedrock below the valley floor marginal to Moosehorn Creek.

As noted, four of the holes completed (PP-91-2,-3, -5 and -6) intersected intensely altered grey-green intrusive rocks of apparent quartz monzonite – granodiorite composition. Observed alteration included abundant feldspar which is completely altered to sericite and locally, alunite (Fraser,1991) and original mafic minerals are in the form of chlorite-sericite. Grey quartz phenocrysts remain intact. The intensity of alteration in the upper parts of holes PP-91-2, -3 and -5 resulted in core recoveries of only 15% to 50% to depths of between 90 and 110 metres (Fraser,1991).

Locally intense fracturing, both perpendicular and oblique to core axes, was also noted in the intensely altered intrusive rocks. These fractures are occupied by quartz veinlets, quartz stockworks and discrete veins sometimes accompanied by K-feldspar, alunite and barite.

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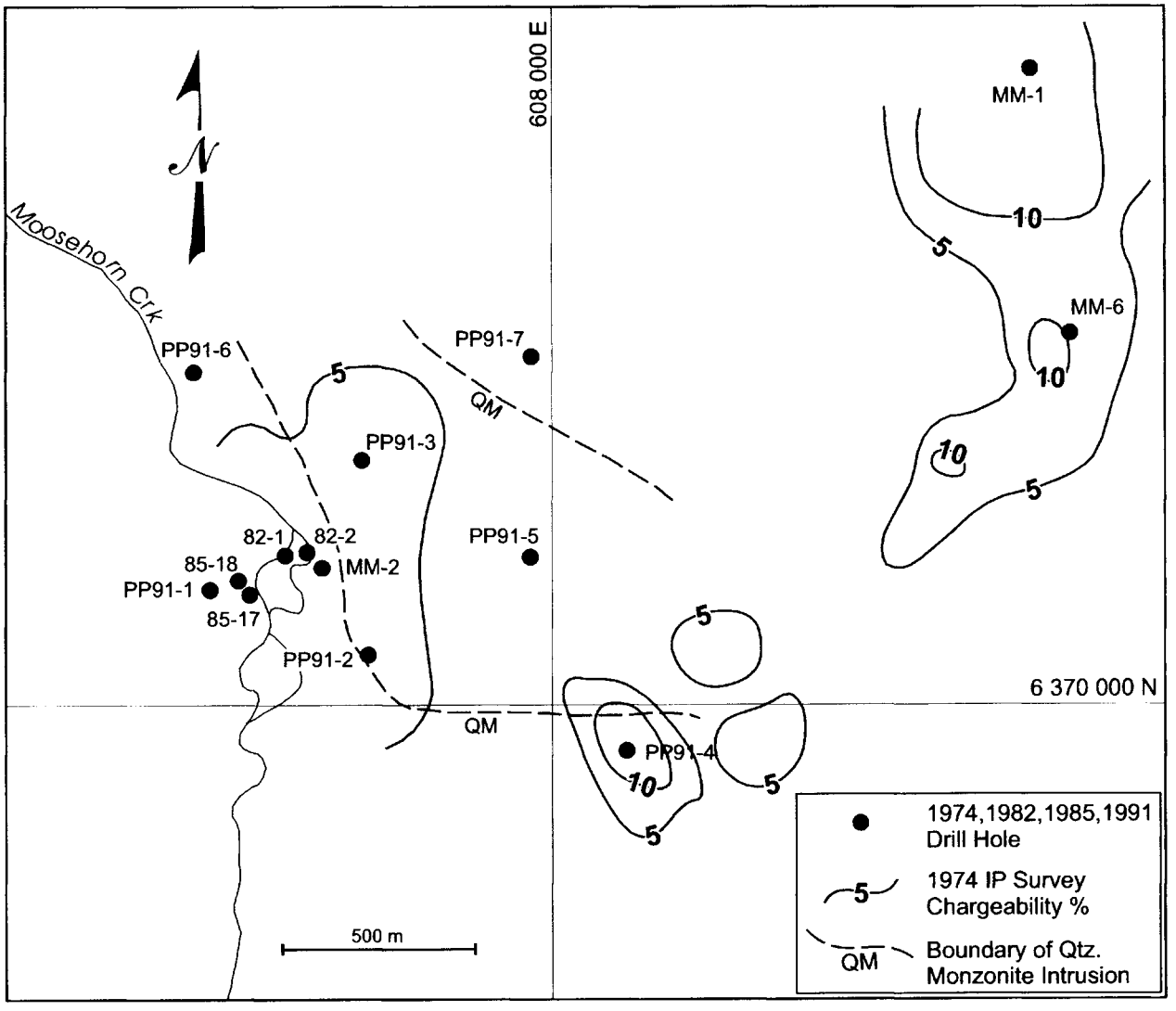


Figure 8: Porphyry Pearl Property - Porphyry Pearl Zone (after Fraser, 1992).

Pervasive, disseminated and stringer pyrite within the intrusive rocks averages between 7% and 10% by volume and locally may be up to 15%. Chalcopyrite content averages 1% while galena and sphalerite locally amount to between 1% and 3%.

Enhanced gold and copper values (+0.50 grams/tonne and +0.035% respectively) were found at hole depths of more than 100 metres or beidw the zone of intensely altered and weathered intrusive rocks.

Holes PP-91-1, -4, and -7 intersected volcanic rocks described as lapilli and crystal tuffs containing 3% to 5% disseminated pyrite and minor sphalerite and magnetite. Hole P-91-4, drilled to test a Sumac IP chargeability anomaly, intersected porphyritic andesite containing 3% pyrite.

**SAMPLING METHODS AND ANALYSES**

Previous exploratory work within the boundaries of the current Porphyry Pearl property was carried out by a number of companies between 1971 and 1991. Records of sampling procedures and analytical methods employed by these companies are reasonably complete and are considered by the writer to have been in accordance with standard industry practices of the day.

Soil samples collected by Sumac Mines Ltd. between 1971 and 1974 were analyzed by Chemex Labs Ltd. of North Vancouver, B.C. utilizing perchloric-nitric acid digestion and subsequent atomic absorption spectrophotometry to determine trace amounts of silver and base metals. Trace gold was also determined by atomic absorption methods following an aqua regia digestion. Rock samples were analyzed by the same procedures following crushing and pulverizing.

Bondar Clegg and Company Ltd. and Min-En Laboratories Ltd., both of North Vancouver, B.C., were used by Kidd Creek Mines Ltd. for analyses for soil, rock and drill core samples between 1980 and 1982. Bondar Clegg used aqua regia sample digestion and subsequent atomic absorption for the determination of silver and base metals; gold contents were determined by fire assay. Min-En used perchloric-nitric acid for sample digestion plus atomic absorption for silver and base metals; gold was determined following a hot aqua regia digestion.

New Ridge Resources Ltd. made use of CDN Resource Laboratories Ltd. of Delta, B.C. during the 1985 exploration program. Atomic absorption procedures were used for determination of trace base and precious metals contents following a nitric acid digestions; gold and silver assays were performed by fire assay with gravimetric finish.

Acme Analytical Laboratories of Vancouver, B.C. was used by Golden Rule for analyses of drill cores recovered in 1991. Pulverized samples were digested by aqua regia for subsequent determination of 30 trace and major elements by ICP methods; gold was determined for 10 gram samples by way of atomic absorption procedures. Drill cores were sampled at 1 metre intervals, split and stored on the property.

The writer is of the opinion that sampling methods and analytical procedures employed between 1971 and 1991 were in accordance with industry standards.

## DATA VERIFICATION

Virtually all of the information used in the preparation of this report is on public record in the form of assessment reports filed with the BC Ministry of Energy and Mines. The writer has no reason to doubt the quality or veracity of these data. All of the exploration work and subsequent reporting was performed by competent, qualified persons.

The writer has not collected samples for analyses from the Porphyry Pearl property.

## INTERPRETATION AND CONCLUSIONS

The Porphyry Pearl property includes at least two styles of gold-base metals mineralization.

The Porphyry Pearl zone in the southern property area, which has received the most attention to date, includes copper-gold mineralization in a porphyry environment consisting of disseminated and fracture-filling sulphide minerals within, and possibly adjacent to, a potentially large, intensely altered, buried granitic intrusion. While values obtained from previous diamond drilling are generally low, it is significant that entire hole lengths of four 1991 drill holes average 0.28 gram/tonne gold and 0.02% copper. Two of the holes include intervals of 28 and 57 metres averaging 0.723 and 0.538 gram/tonne gold and 0.06% and 0.04% copper. Enhanced gold and copper values within the system are found at hole depths in excess of 100 metres. Only two previous holes have tested the zone to depths of 200 metres.

Gold grades obtained from previous drilling are similar to those reported for the North Kemess deposit in the southern part of the Toodoggone district.

The second style of mirreralization known on the Porphyry Pearl property includes a number of epithermal precious and base metals prospects. The Moose silver-base metals zone in the central property area is the most thoroughly investigated of these. Previous closely spaced drilling suggests that the central part of this zone consists of a number of discrete lenses of limited size. Other prospects in the central property area, including the Marmot gold-silver zone and an area of anomalous gold-silver in soils have been only partially investigated.

Epithermal gold-silver mineralization, exposed in several places on the Pearl East claims is associated with northwest and northeast fault zones of regional extent. Only limited exploratory work has been done in this part of the property.

## RECOMMENDATIONS

The writer is of the opinion that the Porphyry Pearl property is of sufficient merit to warrant further exploratory work. It is recommended that this additional work be conducted in two phases in order to gain a better understanding of the property. The undertaking of second phase is necessarily contingent on results obtained from the initial work program.

The Porphyry Pearl zone should receive the highest priority for recommended first phase work. Records of previous exploratory work within and marginal to this zone are extensive and in order to prioritize areas for additional work, it is recommended that these data be compiled into a digital, GIS database prior to the undertaking of field work.

N.C. Carter, Ph.D. P.Eng.
Consulting Geologist

A 3D Induced Polarization survey is recommended for the area of the Porphyry Pearl Zone. This system involves a modification of a traditional pole-dipole IP survey but data collected are inverted using 3D inversion computer software to permit a more definitive interpretation. This success of this type of survey depends on the determination of precise station locations and elevations within a surveyed grid. Some 40 kilometres of grid, centred on the currently known limits of the zone, will be required in the Moosehorn Creek valley.

As previously noted, depths of overburden in the area of the Porphyry Pearl zone are in the order of 30 to 50 metres which inhibits conventional geochemical techniques. The writer recommends that an orientation soil geochemical survey utilize partial leach methods prior to analyses.

Surface prospecting and geological mapping in areas of known epithermal mineralization is also recommended as part of first phase work.

A second phase of exploratory work, contingent on the results obtained from phase one work, is recommended to include diamond drilling of targets within and adjacent to the Porphyry Pearl zone as identified by geophysical and geochemical surveys.

**COST ESTIMATE**

| | |
|---|---|
| **Phase I** | |
| GIS data compilation | $25,000.00 |
| 3D Induced Polarization survey – 40 line km (includes grid establishment) | $150,000.00 |
| Geological mapping, prospecting, surface sampling – 50 mandays | $25,000.00 |
| Analytical costs, 500 samples @ $25/sample | $12,500.00 |
| Air support – fixed wing and rotary | $70,000.00 |
| Camp costs – 270 mandays @ $100/day | $29,700.00 |
| Supervision, reporting | $25,000.00 |
| Miscellaneous travel costs | $20,000.00 |
| Contingencies @ 10% | $35,720.00 |
| **Total, Phase I** | **$392,920.00** |
| **Phase II** | |
| Diamond drilling – 3000 metres @ $100/metre | $300,000.00 |
| Analytical costs 1000 samples @ $28/sample | $28,000.00 |
| Air support- fixed wing and rotary | $80,000.00 |
| Supervision, reporting | $40,000.00 |
| Camp costs - 300 man days @ $110/day | $33,000.00 |
| Contingencies @ 15% | $72,150.00 |
| **Total, Phase II** | **$553,150.00** |

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Fax 250-477-0429
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## CERTIFICATE of AUTHOR

I, NICHOLAS C. CARTER, Ph.D., P.Eng., do hereby certify that:

1. I am a Consulting Geologist, with residence and business address at 1410 Wende Road, Victoria, British Columbia.

2. I graduated with a B.Sc. degree in geology from the University of New Brunswick in 1960. In addition, I obtained a M.S. degree in geology from Michigan Technological University in 1962 and a Ph.D. degree in geology from the University of British Columbia in 1974.

3. I have been registered with the Association of Professional Engineers and Geoscientists of British Columbia since 1966. I am a Fellow of both the Canadian Institute of Mining, Metallurgy and Petroleum and the Geological Association of Canada and am a past director of The Prospectors and Developers Association of Canada and a past president of the British Columbia and Yukon Chamber of Mines.

4. I have practiced my profession as a geologist, both within government and the private sector, in eastern and western Canada and in parts of the United States, Mexico and Latin America for more than 40 years. Work has included detailed geological investigations of mineral districts, examination and reporting on a broad spectrum of mineral prospects and producing mines, supervision of mineral exploration projects and comprehensive mineral property evaluations.

5. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirement to be a "qualified person" for the purposes of NI 43-101.

6. I am responsible for the preparation of all sections of the technical report titled Geological Report on the Porphyry Pearl Property, Toodoggone River Area, Omineca Mining Division, British Columbia, dated February 22, 2005.

7. I have not had prior involvement with the property that is the subject of the Technical Report.

8. I am not aware of any material fact or material change with respect to the subject matter of the Technical Report that is not reflected in the Technical Report, the omission to disclose which makes the Technical Report misleading.

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Consulting Geologist

9. I am independent of the issuer applying all of the tests in Section 1.5 of National Instrument 43-101.

10. I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.

11. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated this 22nd day of February, 2005

N.C. Carter, Ph.D. P.Eng.

N.C. Carter, Ph.D. P.Eng.
Consulting Geologist

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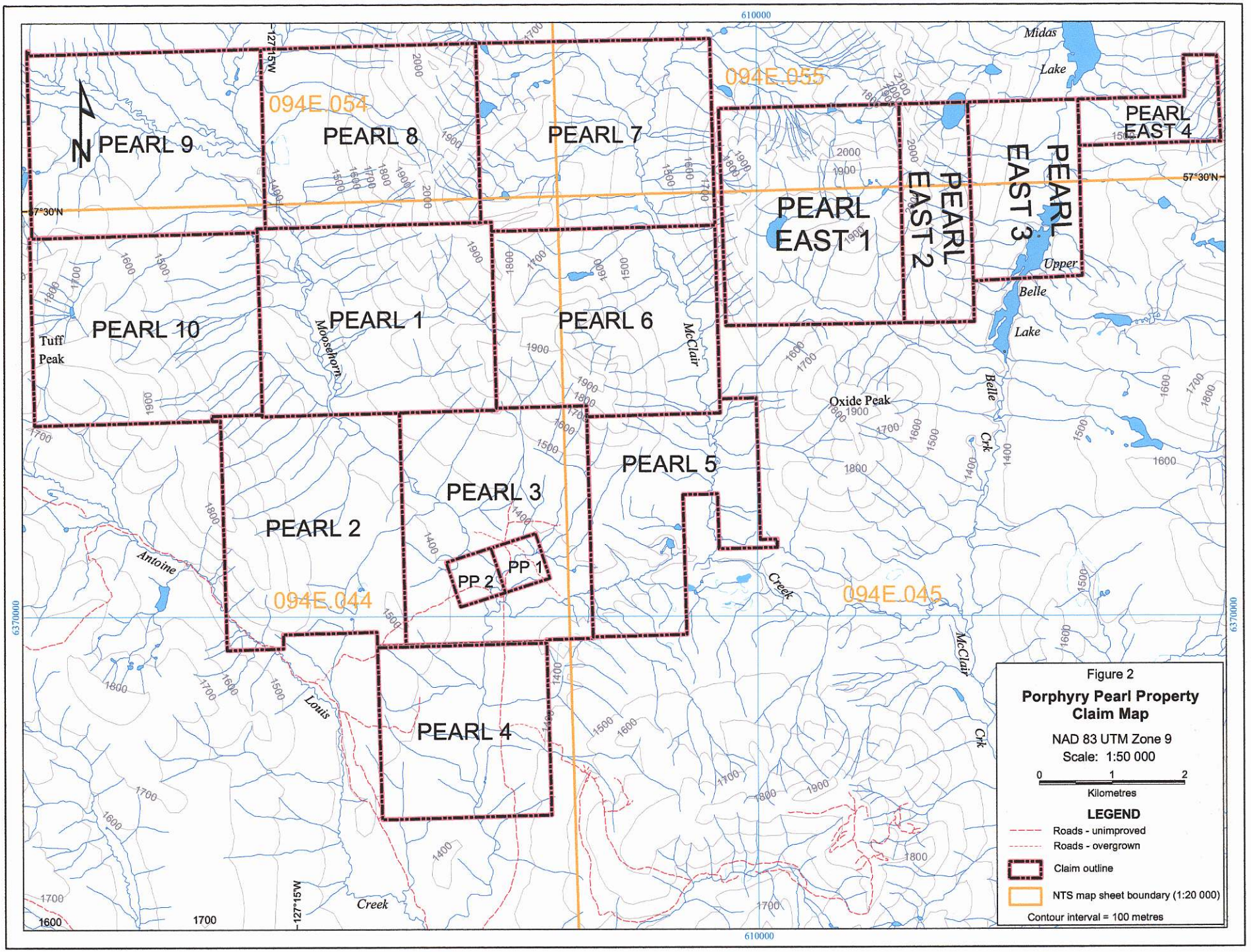
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094E 055
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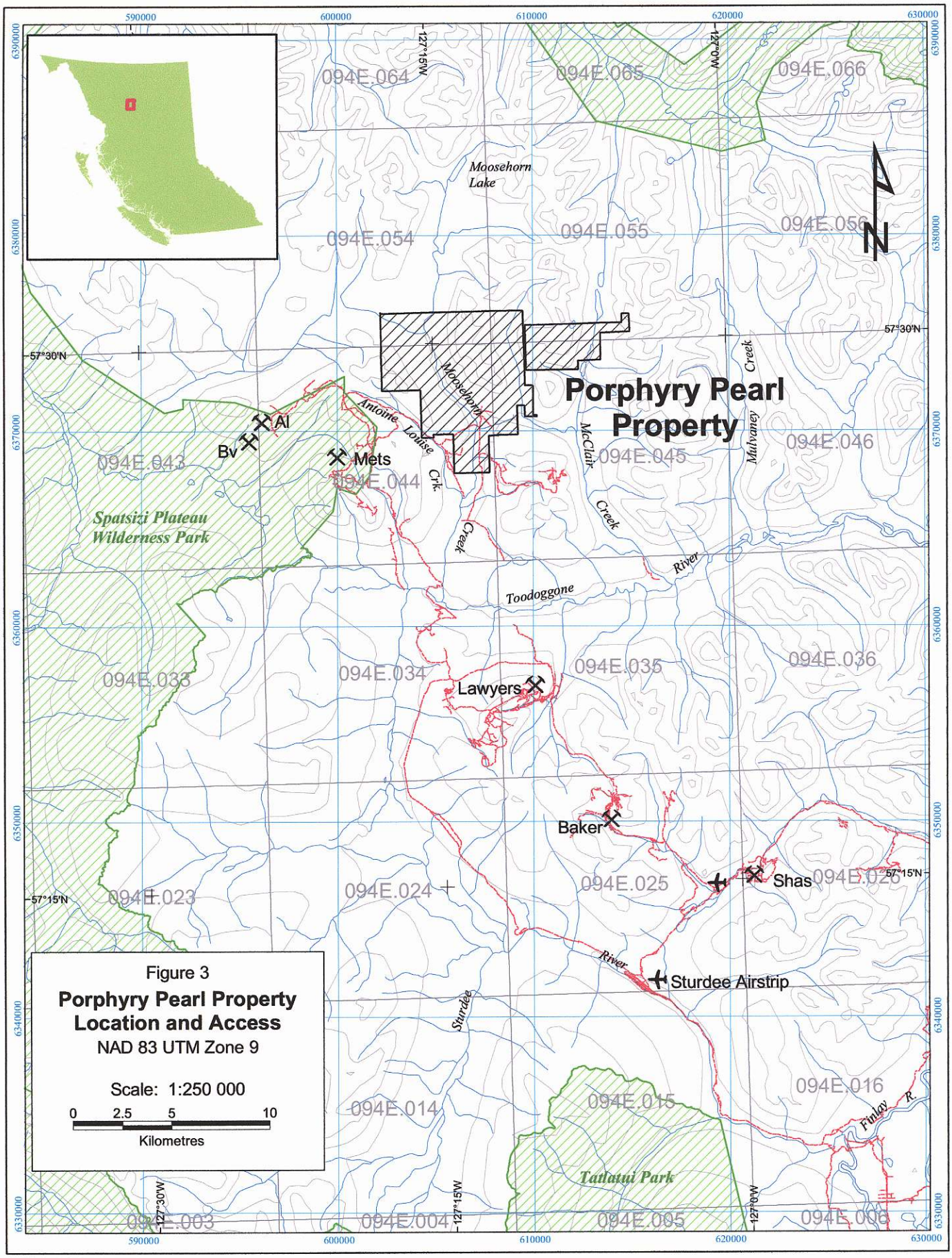
PEARL 7
PEARL EAST 1
PEARL EAST 2
PEARL EAST 3
PEARL EAST 4
57°30'N
PEARL 10
PEARL 1
PEARL 6
PEARL 5
PEARL 3
PEARL 2
PEARL 4
PP 1
PP 2
094E 044
094E 045
Midas
Lake
Upper
Belle
Lake
Tuff
Peak
Moosehorn
McClair
Oxide Peak
Belle
Crk
Antoine
Creek
Louis
Creek
McClair
Crk
6370000
610000
Figure 2
Porphyry Pearl Property
Claim Map
NAD 83 UTM Zone 9
Scale: 1:50 000
0 1 2
Kilometres
LEGEND
Roads - unimproved
Roads - overgrown
Claim outline
NTS map sheet boundary (1:20 000)
Contour interval = 100 metres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57°30'N
57°15'N
094E.064
094E.065
094E.066
094E.054
094E.055
094E.056
094E.043
094E.044
094E.045
094E.046
094E.033
094E.034
094E.035
094E.036
094E.023
094E.024
094E.025
094E.026
094E.014
094E.015
094E.016
094E.003
094E.004
094E.005
094E.006
Moosehorn Lake
Porphyry Pearl Property
Moosehorn Creek
Antoine Louise Crk.
McClair Creek
Mulvaney Creek
Toodoggone River
Spatsizi Plateau Wilderness Park
Tatlatui Park
Sturdee River
Finlay R.
Al
Bv
Mets
Lawyers
Baker
Shas
Sturdee Airstrip
N
Figure 3
Porphyry Pearl Property
Location and Access
NAD 83 UTM Zone 9
Scale: 1:250 000
0 2.5 5 10
Kilometres

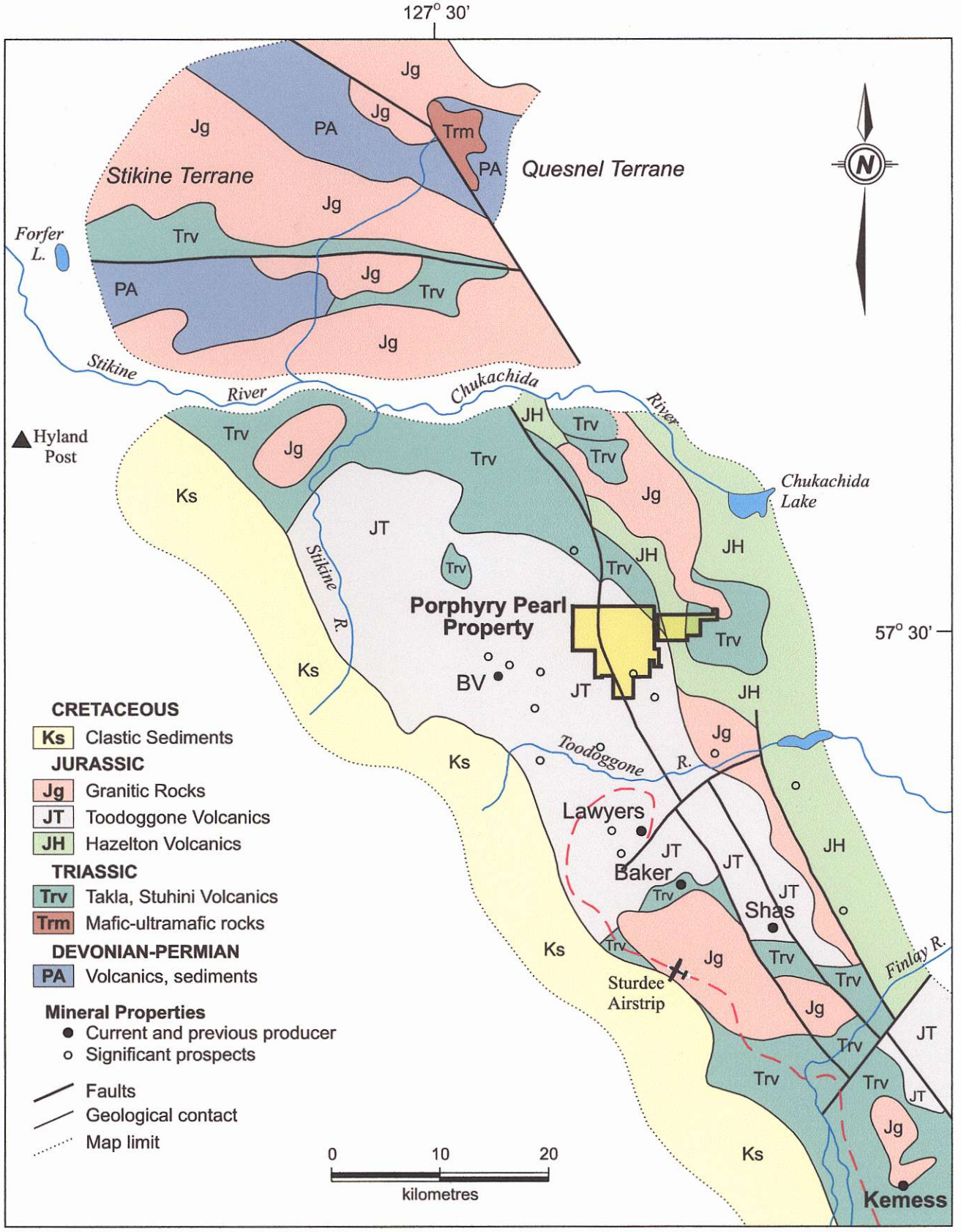
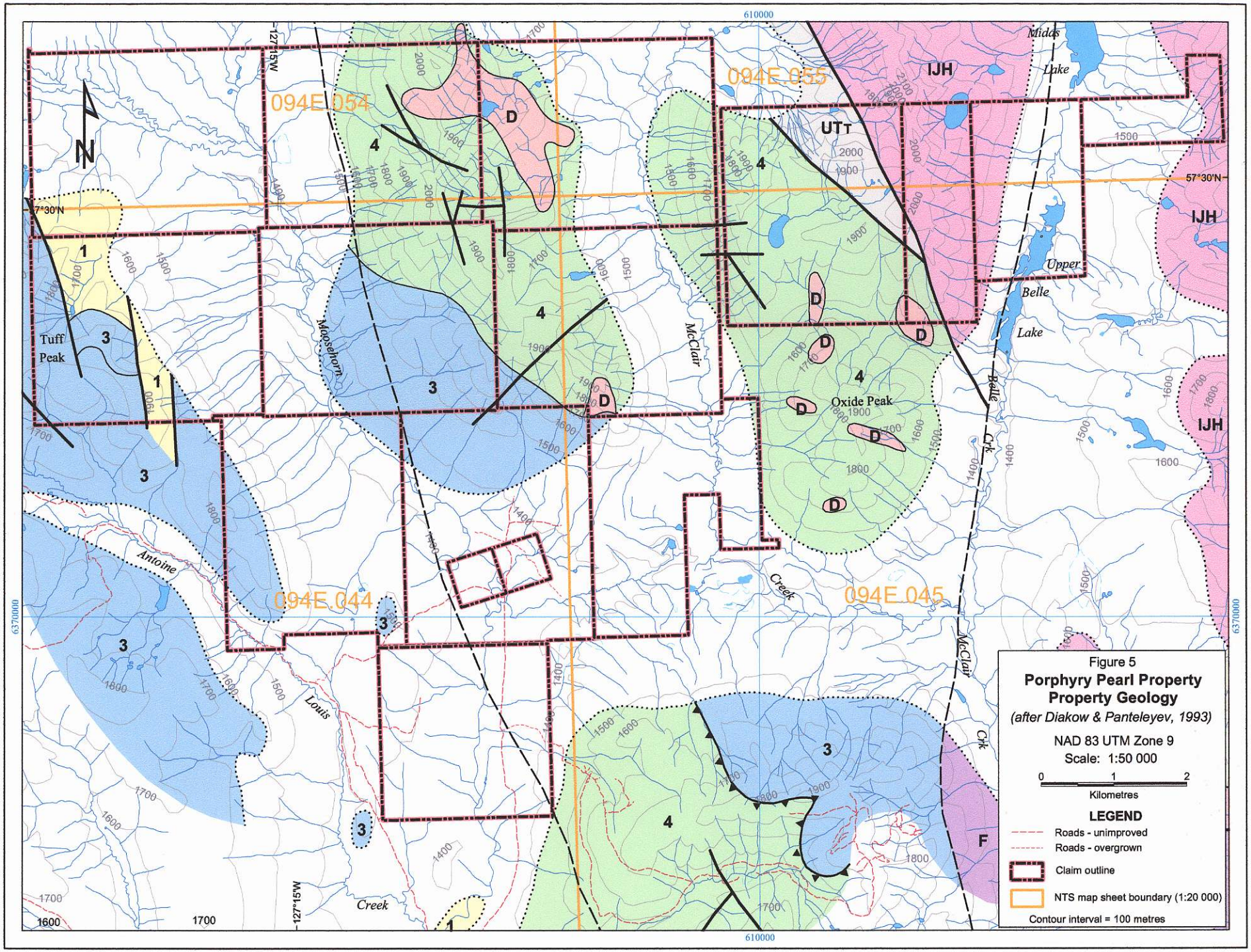



Figure 4: Porphyry Pearl Property - Regional Geological Setting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094E 054
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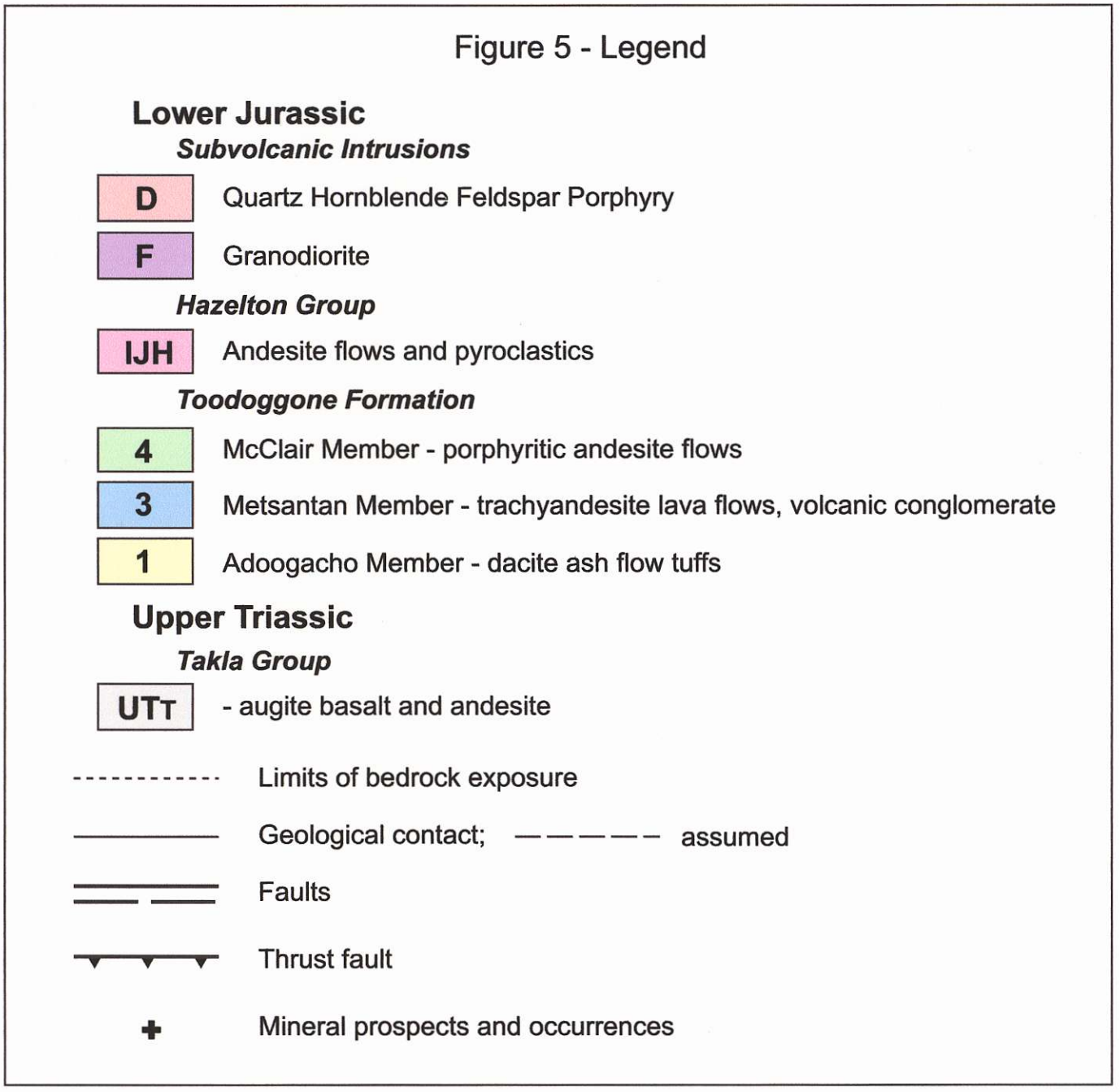
094E 044
094E 045
127°15'W
57°30'N
IJH
UTT
Middy
Lake
Upper
Belle
Lake
Belle
Crk
McClair
Moosehorn
Creek
Tuff
Peak
Oxide Peak
Antoine
Creek
Louis
Creek
McClair
Crk
6370000
Figure 5
Porphyry Pearl Property
Property Geology
(after Diakow & Panteleyev, 1993)
NAD 83 UTM Zone 9
Scale: 1:50 000
0 1 2
Kilometres
LEGEND
Roads - unimproved
Roads - overgrown
Claim outline
NTS map sheet boundary (1:20 000)
Contour interval = 100 metres

Figure 5 - Legend



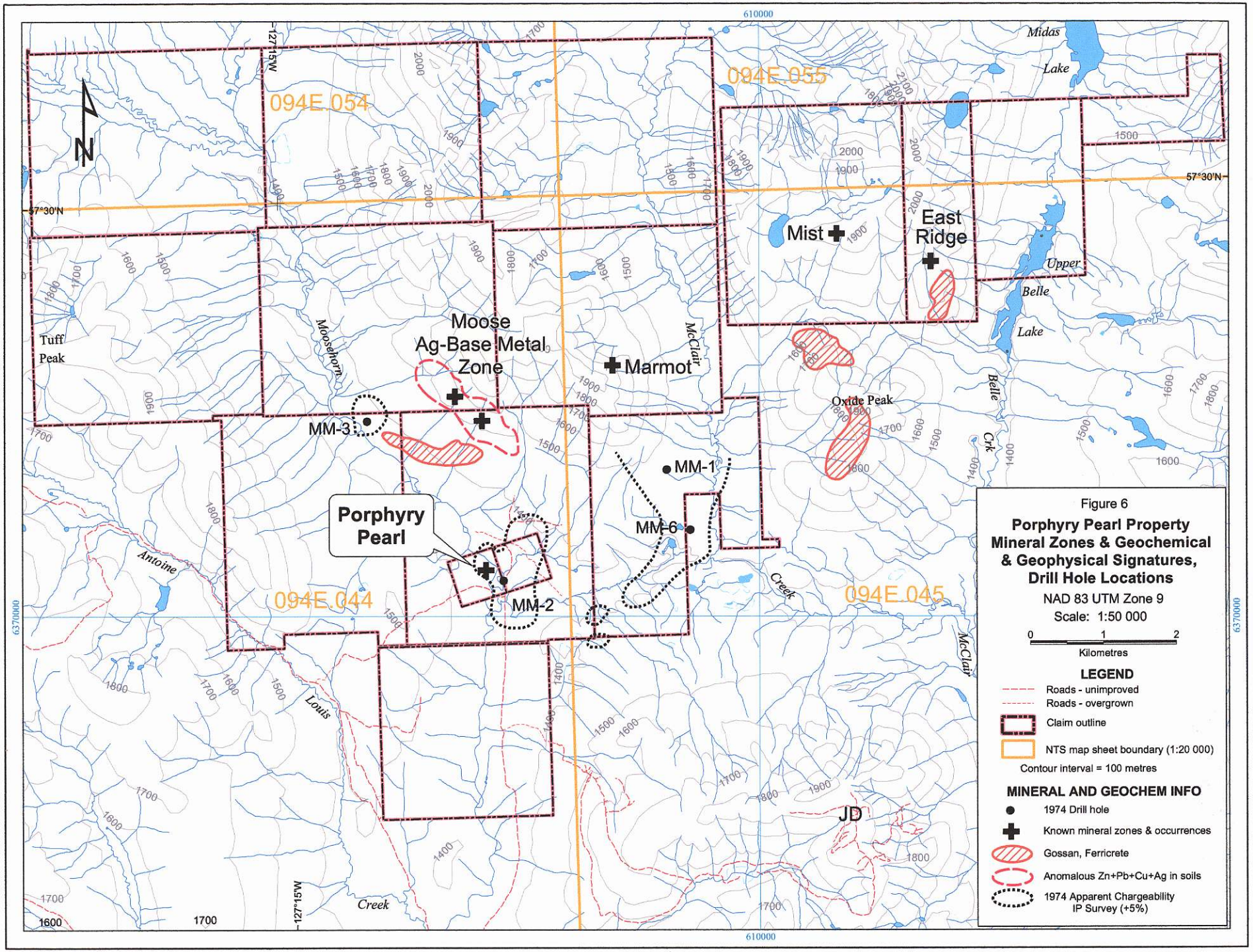
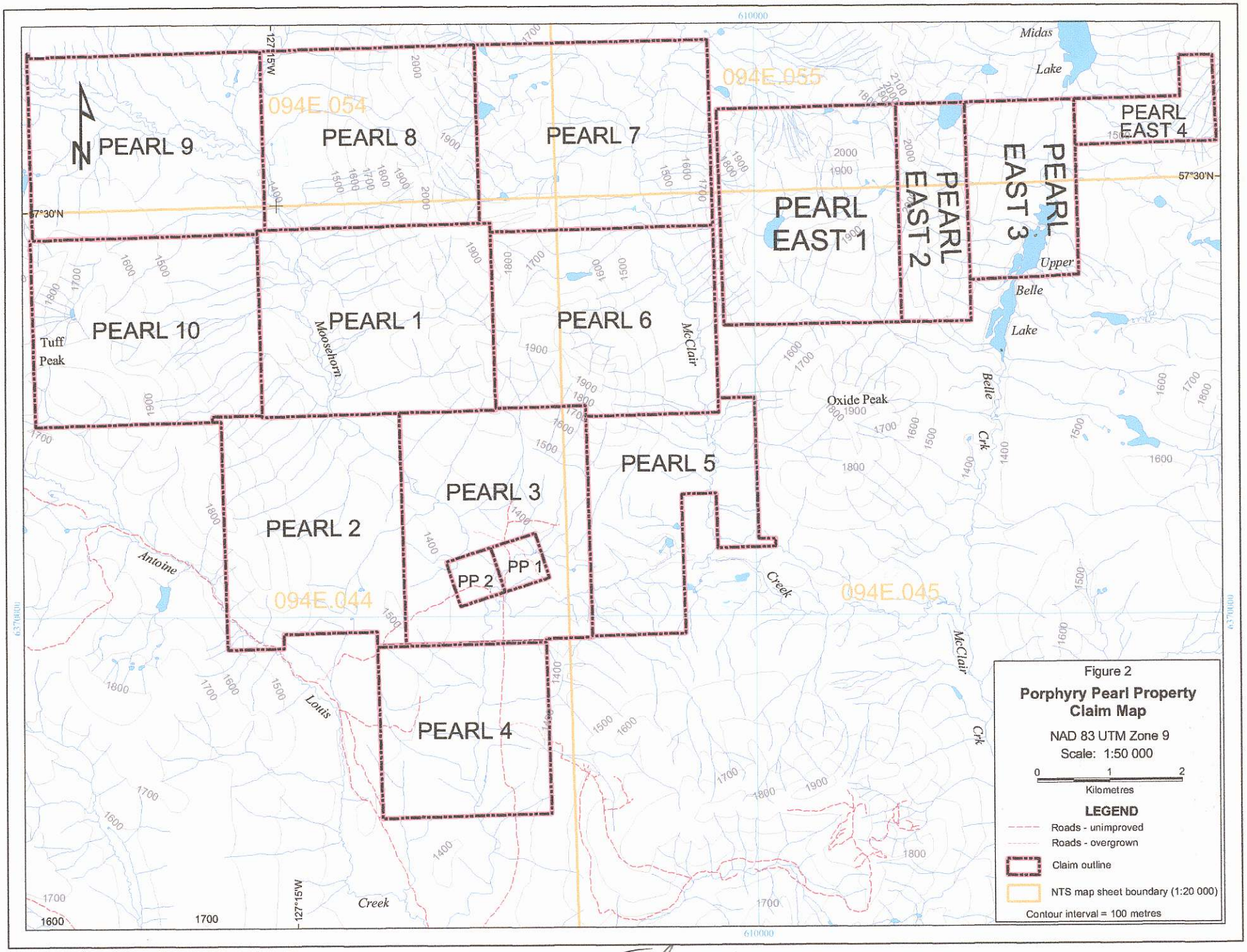

610000
094E.054
094E.055
094E.044
094E.045
57°30'N
127°15'W
6370000
Midas
Lake
Mist
East
Ridge
Upper
Belle
Lake
Tuff
Peak
Moose
Ag-Base Metal
Zone
Marmot
Moosehorn
McClair
Oxide Peak
Belle
Crk
MM-3
MM-1
MM-6
MM-2
Porphyry
Pearl
Antoine
Creek
Louis
JD
Figure 6
Porphyry Pearl Property
Mineral Zones & Geochemical
& Geophysical Signatures,
Drill Hole Locations
NAD 83 UTM Zone 9
Scale: 1:50 000
0 1 2
Kilometres
LEGEND
Roads - unimproved
Roads - overgrown
Claim outline
NTS map sheet boundary (1:20 000)
Contour interval = 100 metres
MINERAL AND GEOCHEM INFO
1974 Drill hole
Known mineral zones & occurrences
Gossan, Ferricrete
Anomalous Zn+Pb+Cu+Ag in soils
1974 Apparent Chargeability
IP Survey (+5%)


Figure 1: Location


PEARL 9
PEARL 8
PEARL 7
PEARL EAST 1
PEARL EAST 2
PEARL EAST 3
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PEARL 10
PEARL 1
PEARL 6
PEARL 5
PEARL 3
PEARL 2
PP 1
PP 2
PEARL 4
094E 054
094E 055
094E 044
094E 045
Midas Lake
Upper Belle Lake
Tuff Peak
Mooseshorn
McClair
Oxide Peak
Belle Crk
Antoine Creek
Louis Creek
McClair Crk
57°30'N
127°15'W
610000
6370000
Figure 2
Porphyry Pearl Property Claim Map
NAD 83 UTM Zone 9
Scale: 1:50 000
0 1 2
Kilometres
LEGEND
Roads - unimproved
Roads - overgrown
Claim outline
NTS map sheet boundary (1:20 000)
Contour interval = 100 metres

Pule 14

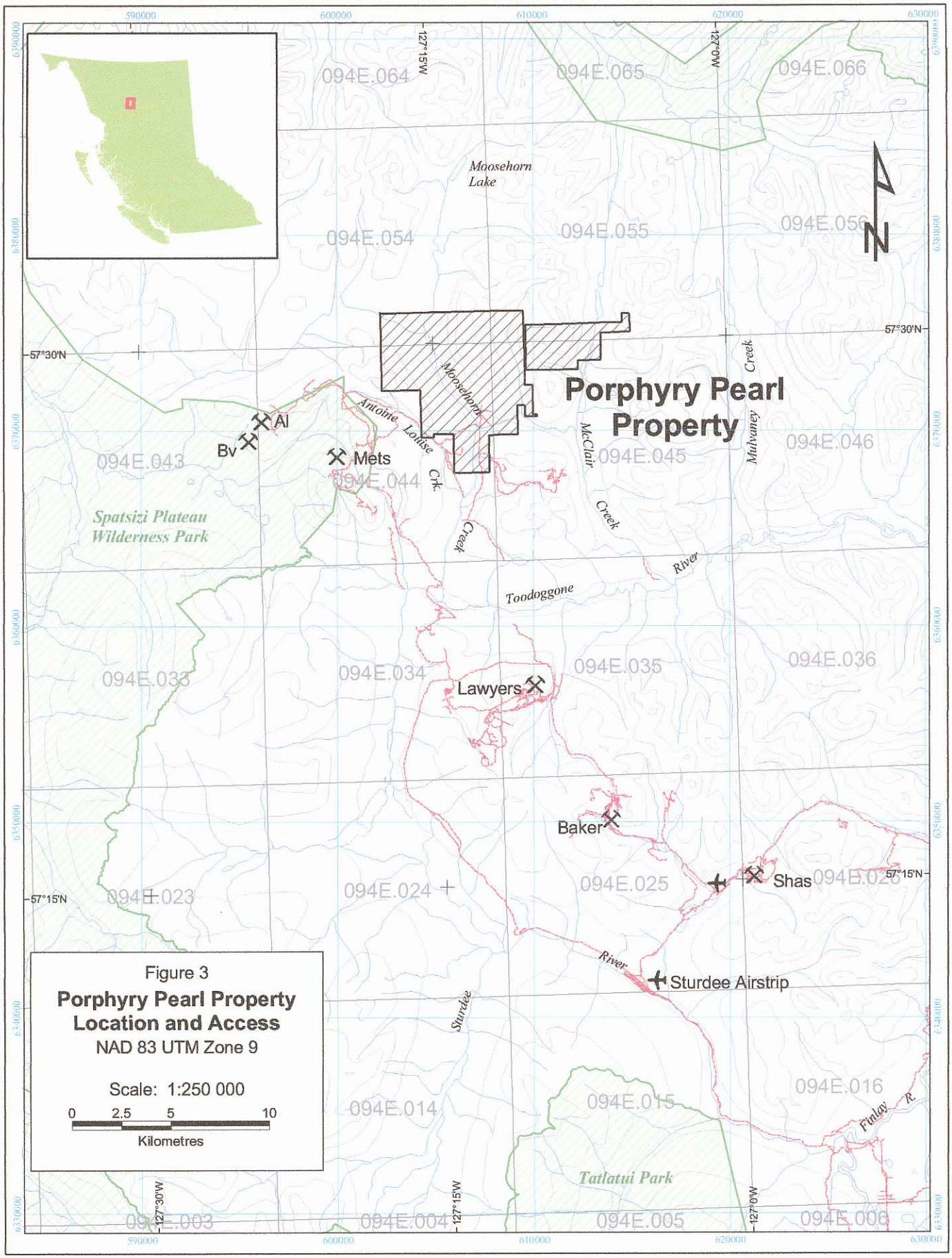



Figure 3

**Porphyry Pearl Property Location and Access**

NAD 83 UTM Zone 9

Scale: 1:250 000

0 2.5 5 10

Kilometres

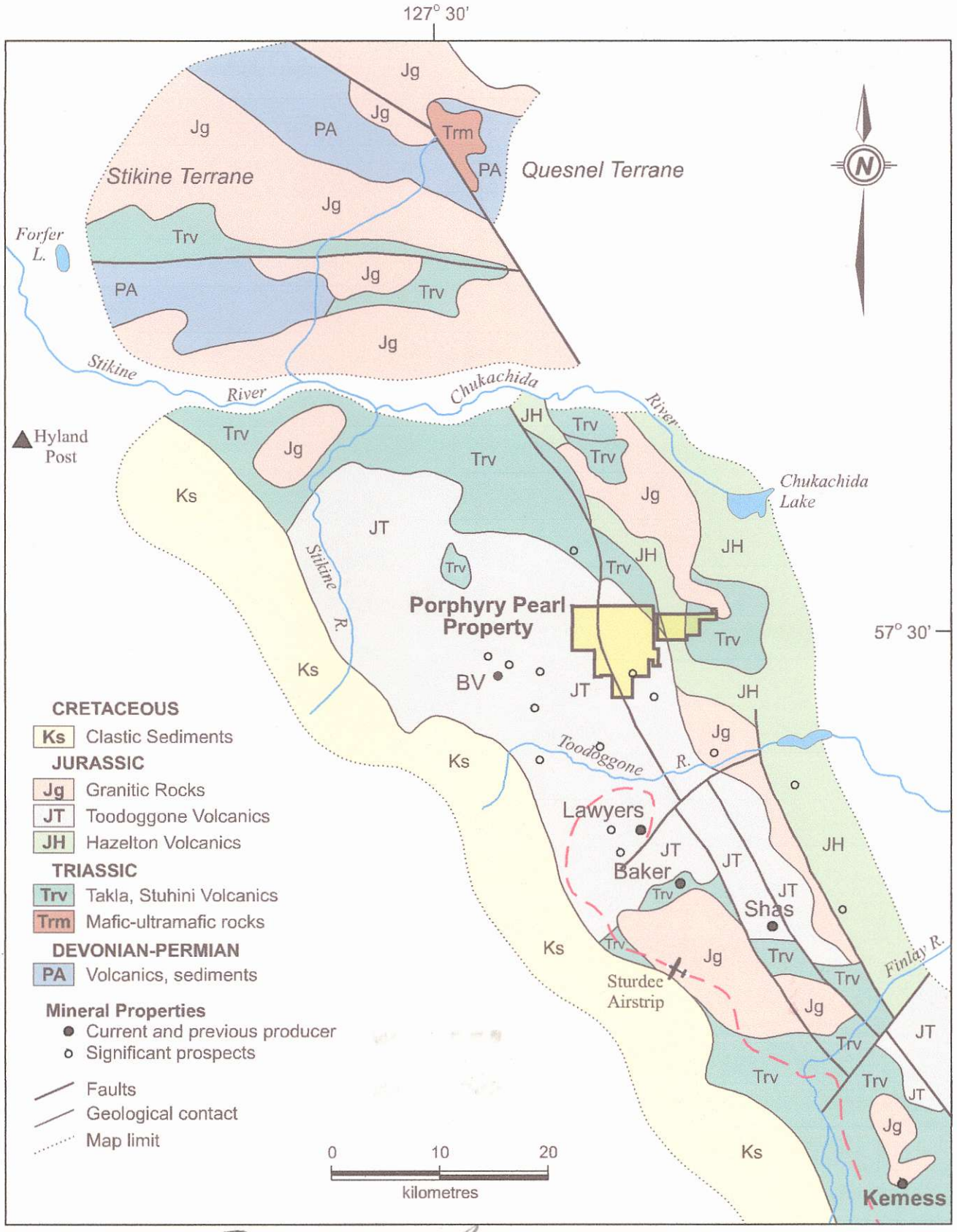



Fig 4 - Property Reg Geol Setting

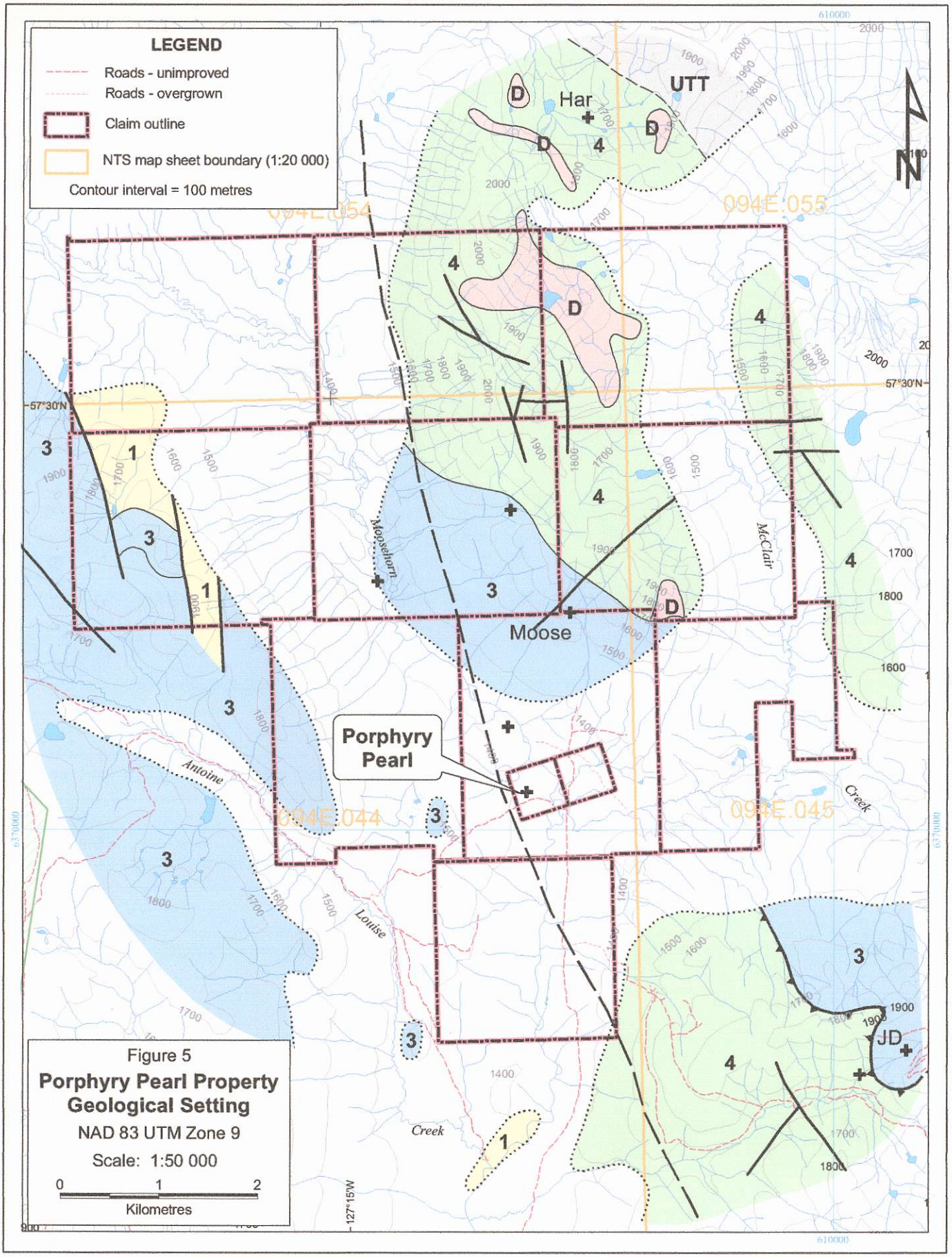



Figure 5

**Porphyry Pearl Property Geological Setting**

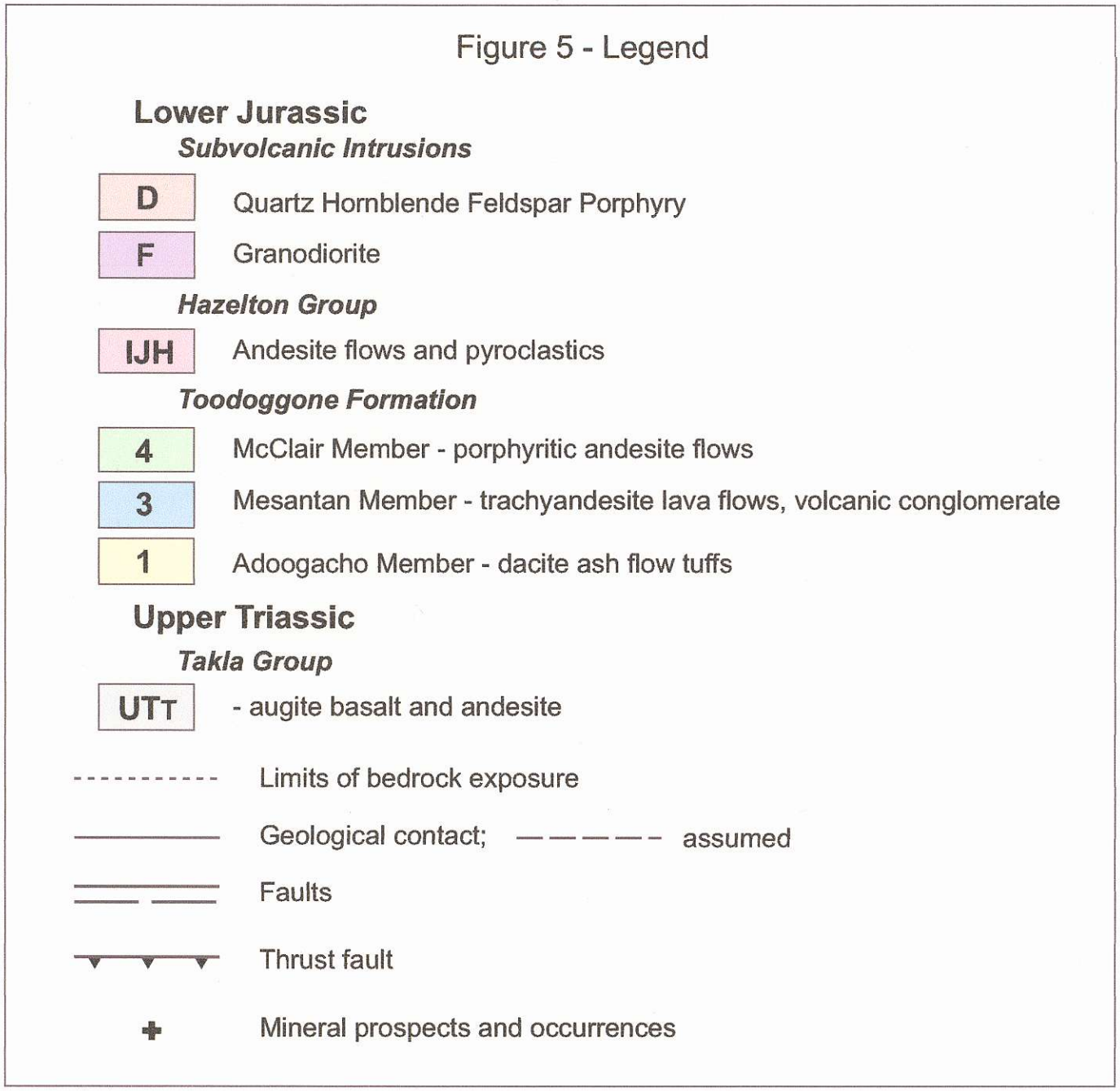
NAD 83 UTM Zone 9

Scale: 1:50 000

0 1 2

Kilometres

Figure 5 - Legend



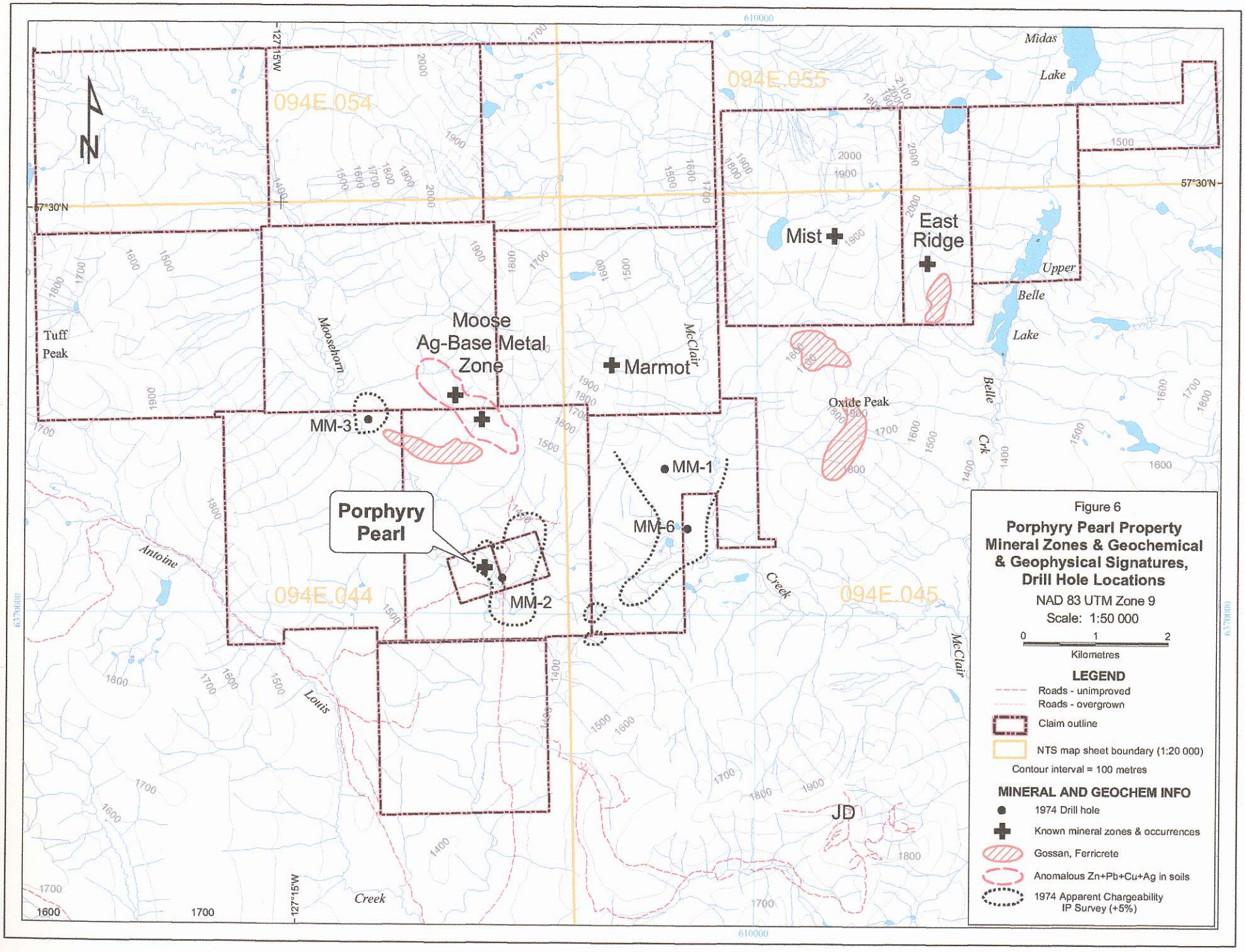



Figure 6

**Porphyry Pearl Property Mineral Zones & Geochemical & Geophysical Signatures, Drill Hole Locations**

NAD 83 UTM Zone 9

Scale: 1:50 000

0 1 2

Kilometres

**LEGEND**

- Roads - unimproved
- Roads - overgrown
- Claim outline
- NTS map sheet boundary (1:20 000)

Contour interval = 100 metres

**MINERAL AND GEOCHEM INFO**

- 1974 Drill hole
- Known mineral zones & occurrences
- Gossan, Ferricrete
- Anomalous Zn+Pb+Cu+Ag in soils
- 1974 Apparent Chargeability IP Survey (+5%)

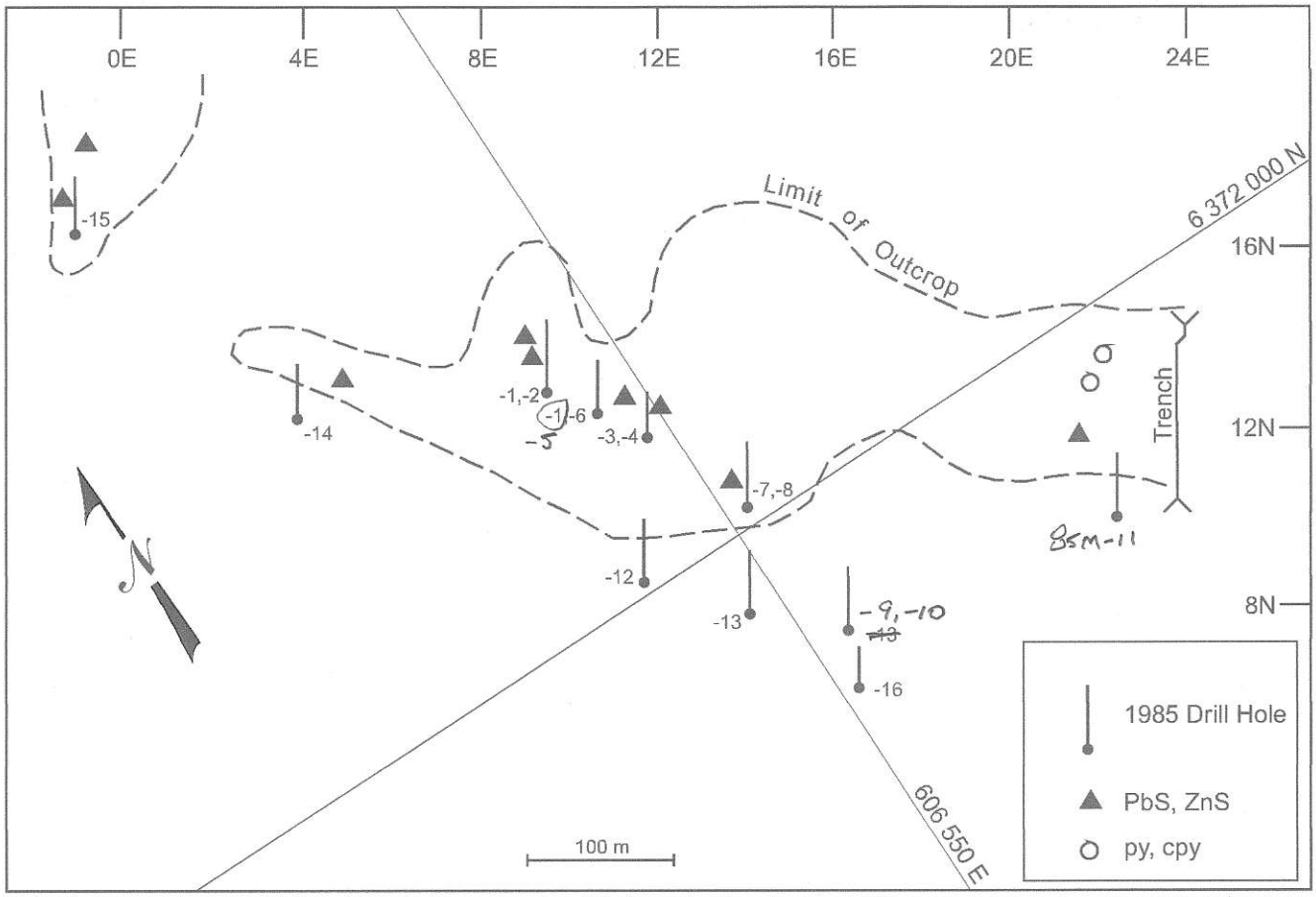



Figure 7: Porphyry Pearl Property - Moose Silver-Base Metal Zone, (after Howell & Sivertz, 1985).

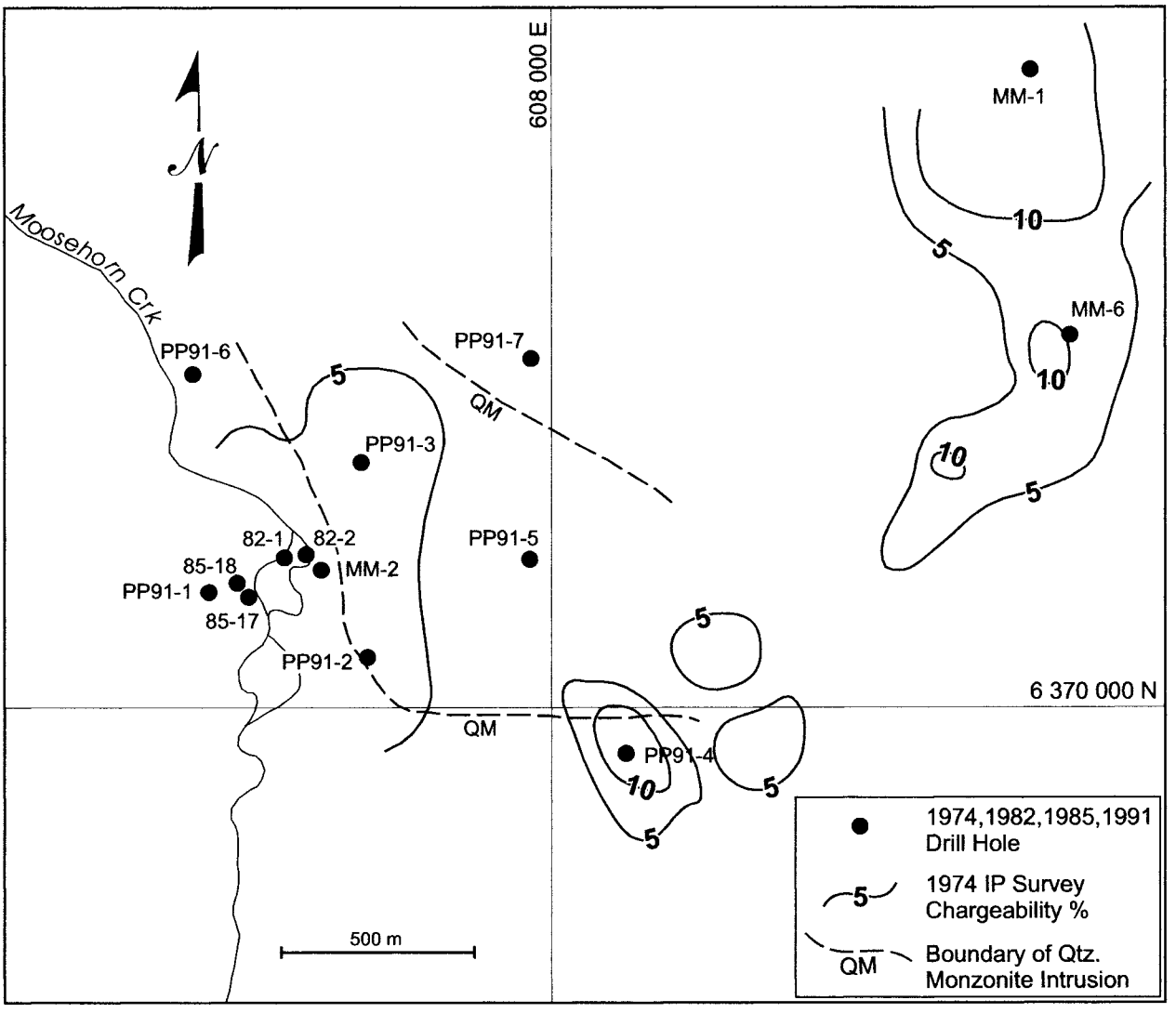



Figure 8: Porphyry Pearl Property - Porphyry Pearl Zone (after Fraser, 1992).