

ARCHER, CATHRO

& ASSOCIATES LIMITED

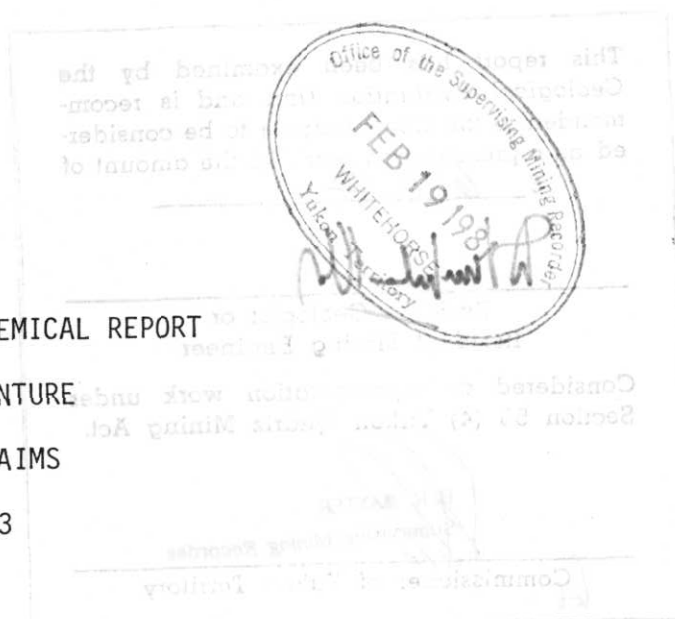
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GEOLOGICAL AND GEOCHEMICAL REPORT

NAT JOINT VENTURE

NORML 1-8 CLAIMS

NTS 105D/3

Latitude 60°11' north, Longitude 135°22' west

Data compiled during September - December, 1980

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January, 1981

090738



This report has been examined by the Geological Evaluation Unit and is recommended to the Commissioner to be considered as representation work in the amount of

\$ 100.00

Resident Geologist or
Resident Mining Engineer

Considered as representation work under
Section 53 (4) Yukon Quartz Mining Act.

E. R. BAXTER
Supervising Mining Recorder

Commissioner of Yukon Territory

000738

TABLE OF CONTENTS

	<u>PAGE</u>
INTRODUCTION -----	1
PROPERTY, LOCATION AND ACCESS -----	1
PREVIOUS WORK -----	2
PHYSIOGRAPHY AND GLACIATION -----	3
GEOLOGY AND MINERALIZATION -----	4
GEOCHEMISTRY -----	6
DISCUSSION AND RECOMMENDATIONS -----	6

LIST OF ILLUSTRATIONS

In Text

Figure MS-1 Suggested Caldera Complexes following page 4

In Pocket

Figure N10A Mt. Skukum Area: Geochemistry; scale 1:10,000

Figure N10B Mt. Skukum Area: Geology, scale 1:10,000

INTRODUCTION

NAT Joint Venture was formed by equal partners Chevron Canada Limited and Armco Mineral Exploration Ltd. to explore selected areas of Yukon for precious metals. The field crew was comprised of geological engineer E. Onasick and field assistants P. Moreton and A. Tolvanen; senior supervision was provided by A.R. Archer.

Reanalysis of 460 splits from samples previously collected 10 km east of Mt. Skukum outlined a strong anomaly in gold, silver, arsenic and lead, already partly staked (eight claims). Available adjacent ground was staked on 11 July 1980 by NAT as the Norml 1 to 8 claims. During the following week (11 to 19 July) this property and other targets in the Wheaton River area were explored.

Results of geochemical sampling in the region are illustrated at 1:10,000 scale in the vicinity of the claims as Figure N10A. Geology around the claims is shown as Figure N10B. Report preparation was carried out in Vancouver during the period September to December, 1980.

PROPERTY, LOCATION AND ACCESS

The Norml property consists of eight contiguous claims, recorded in the Whitehorse Mining District as follows:

<u>Claim Name</u>	<u>Record Numbers</u>	<u>Expiry Date</u>
Norml 1-8	YA50920-927	15 July, 1981

The claims are located at the mouth of Skukum Creek at a latitude of 60°11' north and longitude 135°22' west on NTS claim sheet 105D/3. The property lies about 65 kilometers southwest of Whitehorse. The Norml claims are accessible by

20 kilometers of bulldozer trail which extends west along the Wheaton River valley from the south end of Annie Lake Road. Access in 1980 was by Hughes 500C helicopter (supplied by Trans North Turbo Air Ltd. of Whitehorse), from a roadside camp on the Wheaton River 23 kilometers east.

PREVIOUS WORK

The Wheaton River district is well-known for vein occurrences of precious metals, sulphosalts and semi-metals (Sb, As, Bi). Four mineral occurrences described in the Archer, Cathro Northern Cordillera Mineral Inventory (NCMI) lie within the Mt. Skukum area of interest, and are plotted on Figure N10B.

The Charleston adit (NCMI 20) explored about 60 metres of a quartz vein containing pyrite, minor galena and malachite, and averaged 11.7 g/MT (0.34 oz/ton) Au across one metre. The property was discovered prior to 1907, and was explored by adits and trenches until 1954, when it was taken to lease. Yukon Antimony Corp. Ltd. tied the Bud claims on to the south in 1964, which were allowed to lapse.

Mineral occurrence NCMI 22, currently staked as the WH 1 to 8 claims, was originally staked prior to 1922 as Polar Chief, etc. claims. A 12 metre adit was driven in 1923, and trenching continued until 1929. A road was built in 1930-31 and another adit (35 metres) was driven in 1937. There has been little further work, but Yukon Antimony Corp. Ltd. built a bulldozer trail to the showing in 1965, and after staking in 1973 by El Paso Mining and Milling, the property reverted to prospector W. Kuhn. It has been optioned to E. Bergvinson of Vancouver in 1980. Two veins 30 m to 100 m apart cut granodiorite and an andesite roof pendant, and mineralization consists of galena, sphalerite, pyrite, stibnite and arsenopyrite in quartz, with the best samples assaying 13.0 g/MT (0.38 oz/ton) Au, 1249 g/MT (36.4 oz/ton) Ag and 1.02% Sb across 1.5 m.

New fringe staking to the west of the WH claims appeared in 1980 as the Mike 1 to 8 and Jon 1 to 6 groups, apparently to cover a Yukon Group roof pendant on andesite. NCMi occurrence 21 underlies these claims marking where the GSC reported stibnite prior to 1940. Canadian Superior Exploration Limited staked this ground in 1975, and explored with sampling and mapping before allowing the claims to lapse.

The fourth occurrence (NCMI 23) is a group of four Raca claims covering copper-silver mineralization associated with granitic breccia at the contact between granodiorite and volcanics.

PHYSIOGRAPHY AND GLACIATION

Topography near Mt. Skukum is typified by high relief, deeply incised, youthful, glacially-scoured valleys, and rugged glacially-sculpted alpine terrain. Elevations rise to 2000 m, with an average of 1200 m relief. South-facing slopes are smooth and moderately steep, terminating in sharp ridges whereas north slopes are characterized by closely-spaced cirques, some of which are occupied by glaciers.

Pléistocene glaciation reached elevations of some 2000 m in this region, covering all but the highest peaks. Deglaciation is recorded by U-shaped valleys, often filled with thick glacial deposits and lateral moraines, and by alpine moraines and terraces.

Soil development ranges from poor to almost non-existent. Post-glacial drainage has incised deep cuts into the plateau and these cuts and the valley walls provide an excellent outcropping cross-section of geology. Most hillsides are covered in talus or felsenmeer however, making observations of outcrop difficult

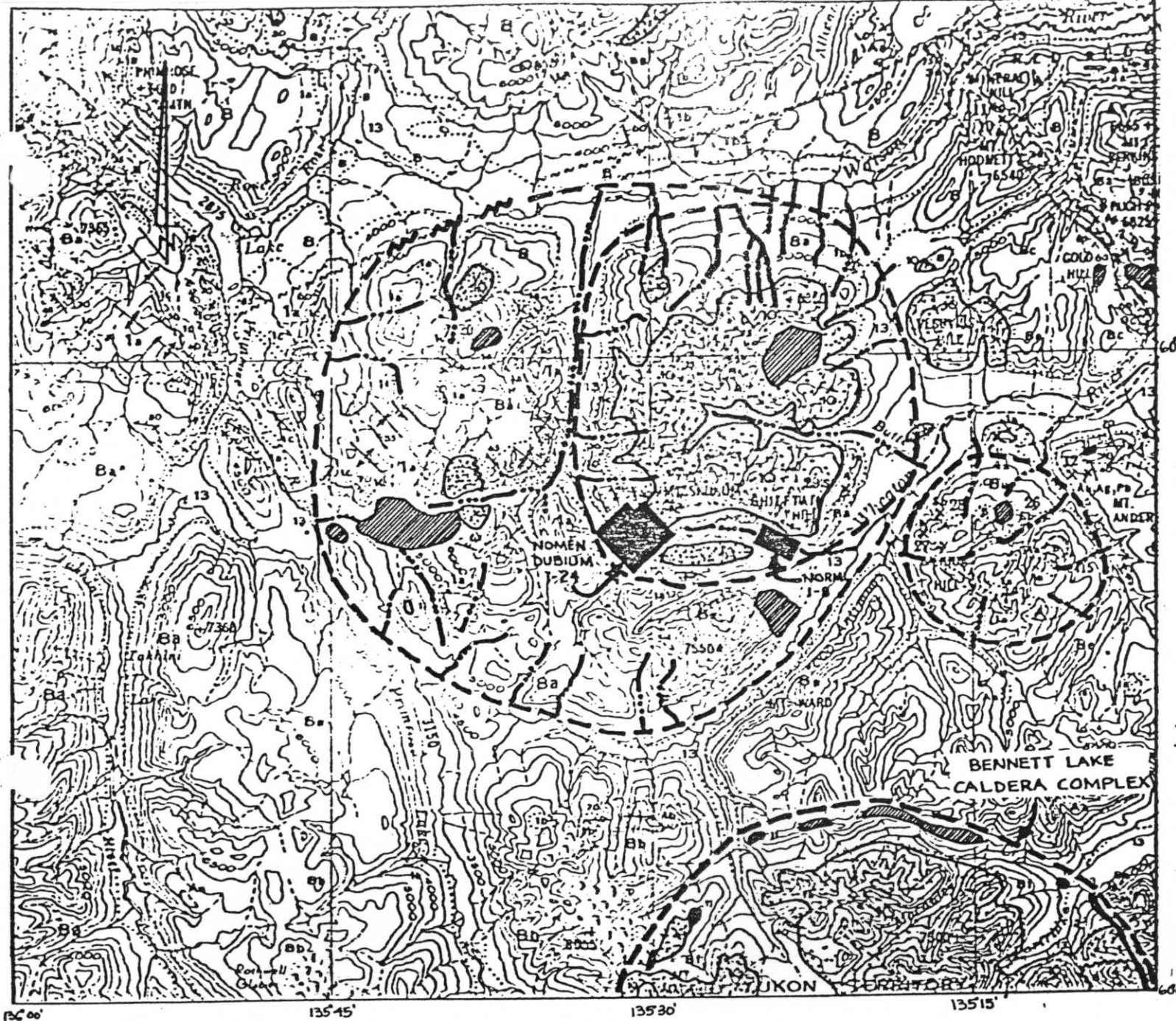
or impossible. Solifluction is rapid through a combination of frost action and fast spring run-off produced by a heavy snowfall. Snow conditions preclude exploration until about late June. Much of the area is unvegetated.

GEOLOGY AND MINERALIZATION

The Mt. Skukum area lies within the Coast Plutonic Complex, which is mainly comprised of mid-Cretaceous to Tertiary crystalline rocks. These cut and contain remnants of metamorphic rocks of the Yukon Group. Lower Tertiary pyroclastic and flow rocks of the Skukum Group unconformably overlie the Yukon Group and granitic rocks, and Tertiary rhyolite porphyry forms a ring dyke and other isolated bodies. The Skukum Group outcrops in two main areas. The more southerly area comprises the Eocene Bennett Lake Cauldron Complex (see GSC Bulletin 227), and the northerly group lies within the Mt. Skukum area of interest and may itself be a result of caldera formation.

Calderas are suggested by: the presence of Skukum Group rocks; the occurrence of rhyolite porphyry peripheral to them; roughly circular patterns suggested by drainage and topography, along with perpendicular drainages that could represent radial fracturing; and the proximity to the Bennett Lake complex. These features are illustrated on Figure MS1 (see following page).

The Yukon Group rocks (EPsbq and associated carbonate EPtc) are the oldest in the region, probably of early Paleozoic age, and are predominantly quartzites and quartz-feldspar-mica schists and gneisses, distributed in a northwesterly-trending belt. Quartzites are light to dark grey, fine grained rocks that are laminated to thick bedded. Schists are dark to light silvery grey (rusty brown weathering)



SCALE = 1:253,440
 NTS 105D
 FROM GSC MAP 1093A
 WHITEHORSE GEOLOGY

LEGEND





-  RHYOLITE PORPHYRY (Trp)
-  SKUKUM GROUP (eTva, eTvb)
-  Creeks that may occupy radial fractures
-  Suggested caldera complexes

Figure M51

quartz and muscovite rocks with minor chlorite, feldspar, magnetite, hematite and zircon; gneisses are generally light to dark grey, fine to medium grained quartz-feldspar-biotite rocks with accessory apatite, sphene, zircon and epidote. Internal structure and composition of the metamorphic rocks suggest that they were derived from quartz-rich sediments.

The Yukon Group is intruded by mid-Cretaceous(?) coarse grained equigranular biotite-hornblende granodiorite to quartz monzonite (Kgdm). A stock of Tertiary granodiorite or quartz monzonite (Tgd) occurs in the southwest corner of the Mt. Skukum area, and several smaller bodies occur northeast of Mt. Skukum. This rock differs from the Cretaceous granodiorite in its texture and content of inclusions.

Overlying these rocks with angular unconformity, the Skukum Group consists of two phases, including rhyolite and trachyte breccias, flows and tuffs (eTva) and andesite to basalt tuffs, flows and breccias (eTvb), although boundaries between the two are often difficult to distinguish. These volcanics are often cut by stocks, plugs and dykes of rusty-weathering quartz and feldspar porphyry (Trp) with an aphanitic rhyolite (rarely andesite) matrix, which forms the prominent ring dyke around the Bennett Lake Caldera. Lambert's bulletin (GSC:B227) describes all of these rocks in considerable detail.

Several gossans occur in the Mt. Skukum area. The most prominent derived from the normal weathering of the Trp unit, but others are pyritiferous. Gossanous-looking quartz-carbonate alteration was noted in one location. Breccia with fragments to 10cm occurs in isolated patches.

Mineralization other than pyrite was not seen in the Mt. Skukum area by NAT during the 1980 season. The crew did not visit known quartz veins or mineralized showings.

GEOCHEMISTRY

Geochemical samples were collected in kraft sample bags at 400 m spacing, and at creeks and outcrops. These were dried and shipped to Chemex Labs in North Vancouver, where they were screened to -35 mesh, pulverized, re-screened to -80 mesh, and analyzed for gold ("combo", fire assay followed by AA or neutron activation analysis), silver (nitric-perchloric extraction followed by AA) and arsenic (hydride vapour technique).

Regional results of pre-season reanalyses of former sampling are depicted as Figure N10A, which includes new sampling by the NAT crew. A total of 194 samples were collected in the Mt. Skukum area in 1980, out of which 19 were collected on the Norml claims.

On the claims, five soil samples collected over an area of about one claim have returned gold assays in excess of 80 ppb Au to a maximum of 660 ppb Au, with associated arsenic values all in excess of 100 ppm As. No rock specimens were collected that returned anomalous gold or arsenic values. The silver response parallels that of gold but is more widespread. Eight soils over a two-claim area returned values in excess of 2 ppm Ag, five of which are in excess of 10 ppm Ag to a maximum in excess of 100 ppm Ag. Lead response, although not shown on Figure N10A, closely follows silver with anomalous values up to 6800 ppm.

DISCUSSION AND RECOMMENDATIONS

There is no obvious correlation between lithology and geochemical anomalies. The strongest anomalies are in soil, not rock, and the presence of felsenmeer and talus obscures their sources. Gossanous outcroppings of feldspar porphyry are not themselves anomalous, but their presence may be related to rock dilation that

allowed the introduction of mineralized fluids. Limy sections of the Yukon Group may have contributed to the precipitation of precious metals.

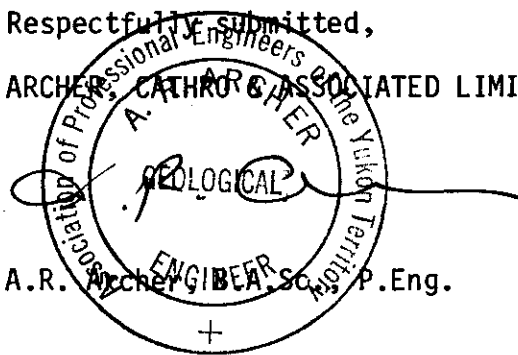
The source of the metals may have originated in the quartz-rich precursor of the Yukon Group, or the Skukum Group volcanics. Remobilization of mineralization may have occurred during either the Cretaceous or Eocene orogenies and may have been associated with one or more calderas postulated at Mt. Skukum.

Precious metals are known to be associated with quartz veins on the WH claims, and geochemical anomalies on the Norml group probably originates from a similar source. Work on the Norml claims should be directed to prospecting for further occurrences of quartz veining. Unless sufficient quantities of mineralized quartz are found, the potential for larger tonnage, low grade gold or silver deposits is limited and a low tonnage, high grade model may be more appropriate. Further work would be necessary only if good rock assays are obtained.

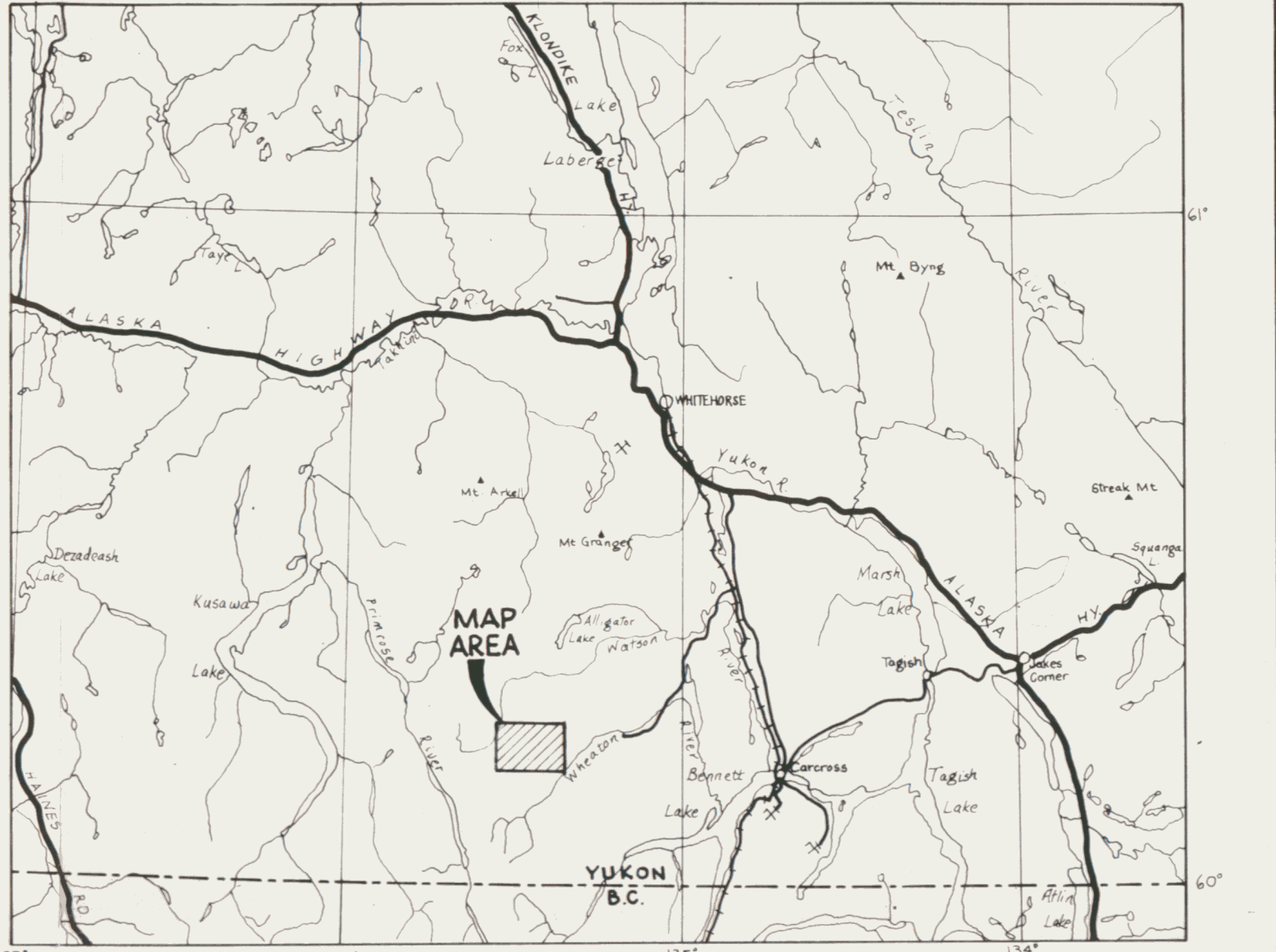
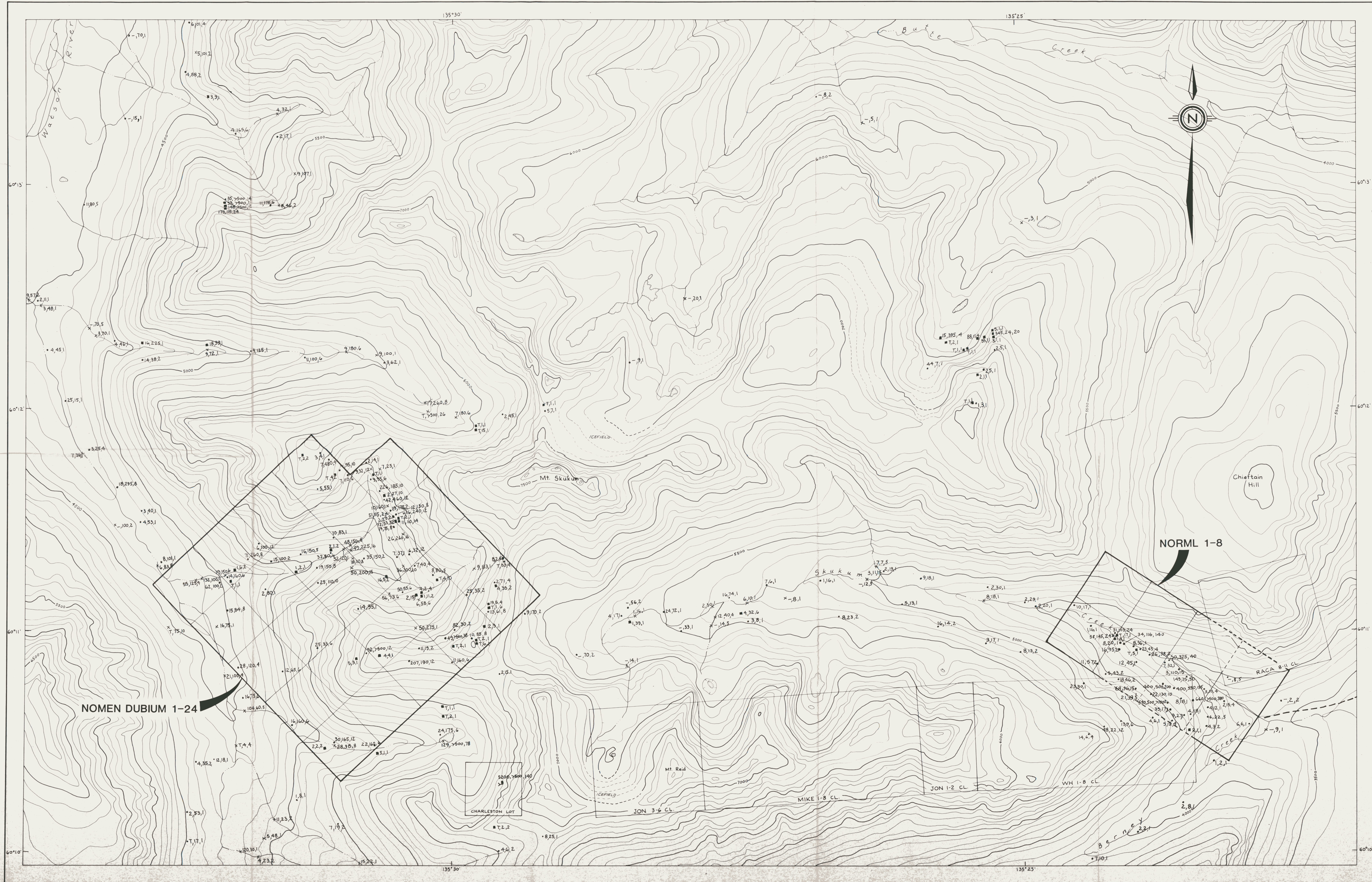


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Respectfully submitted,
ARCHER, CATHRO & ASSOCIATED LIMITED



A.R. Archer, B.A.Sc., P.Eng.

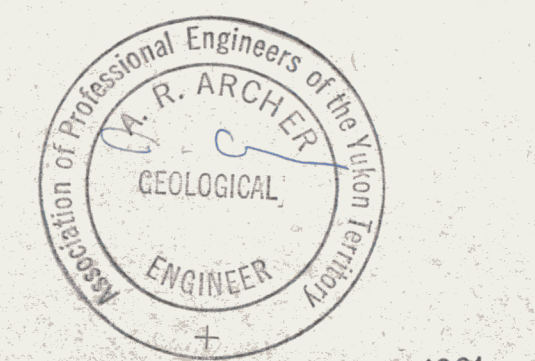


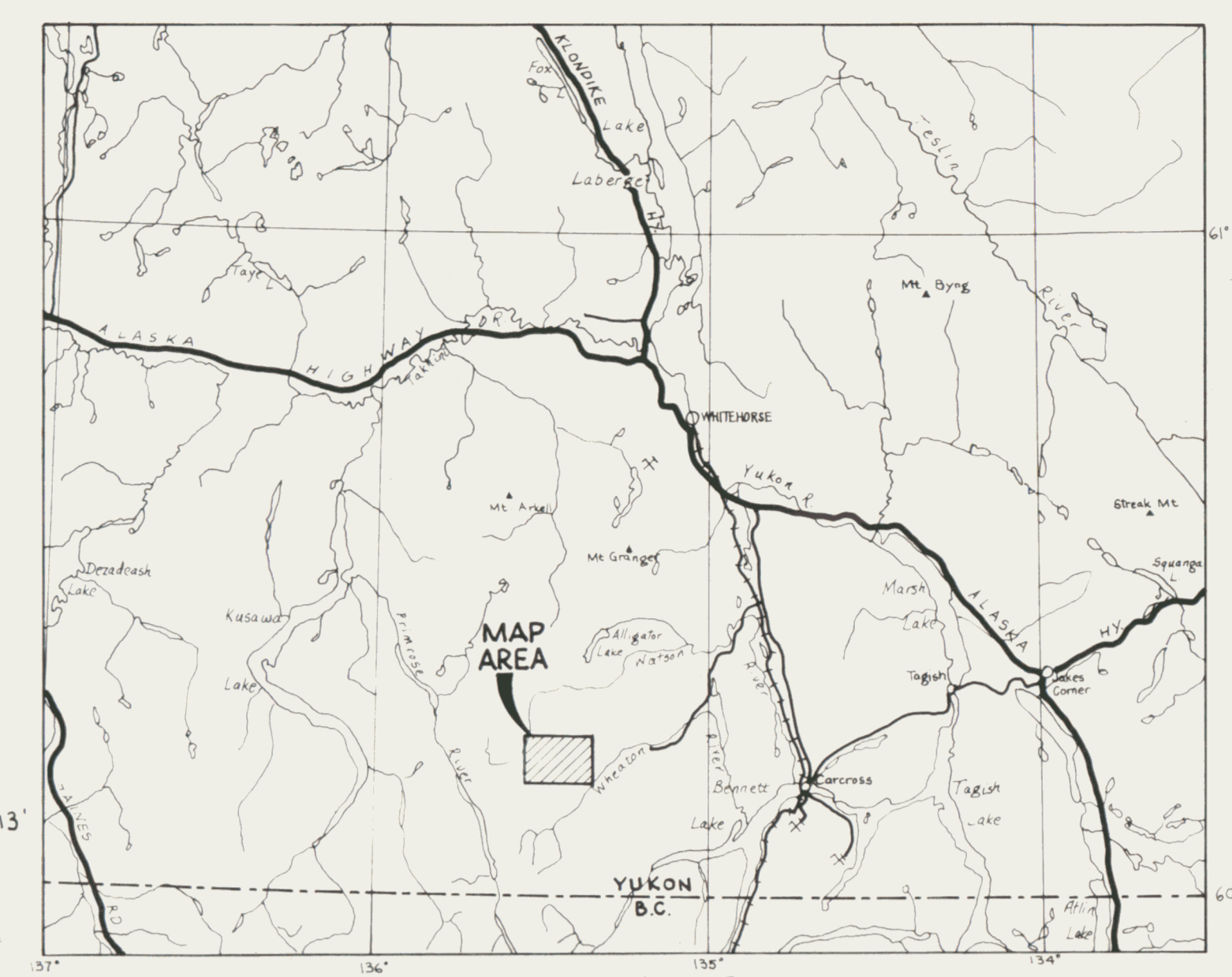
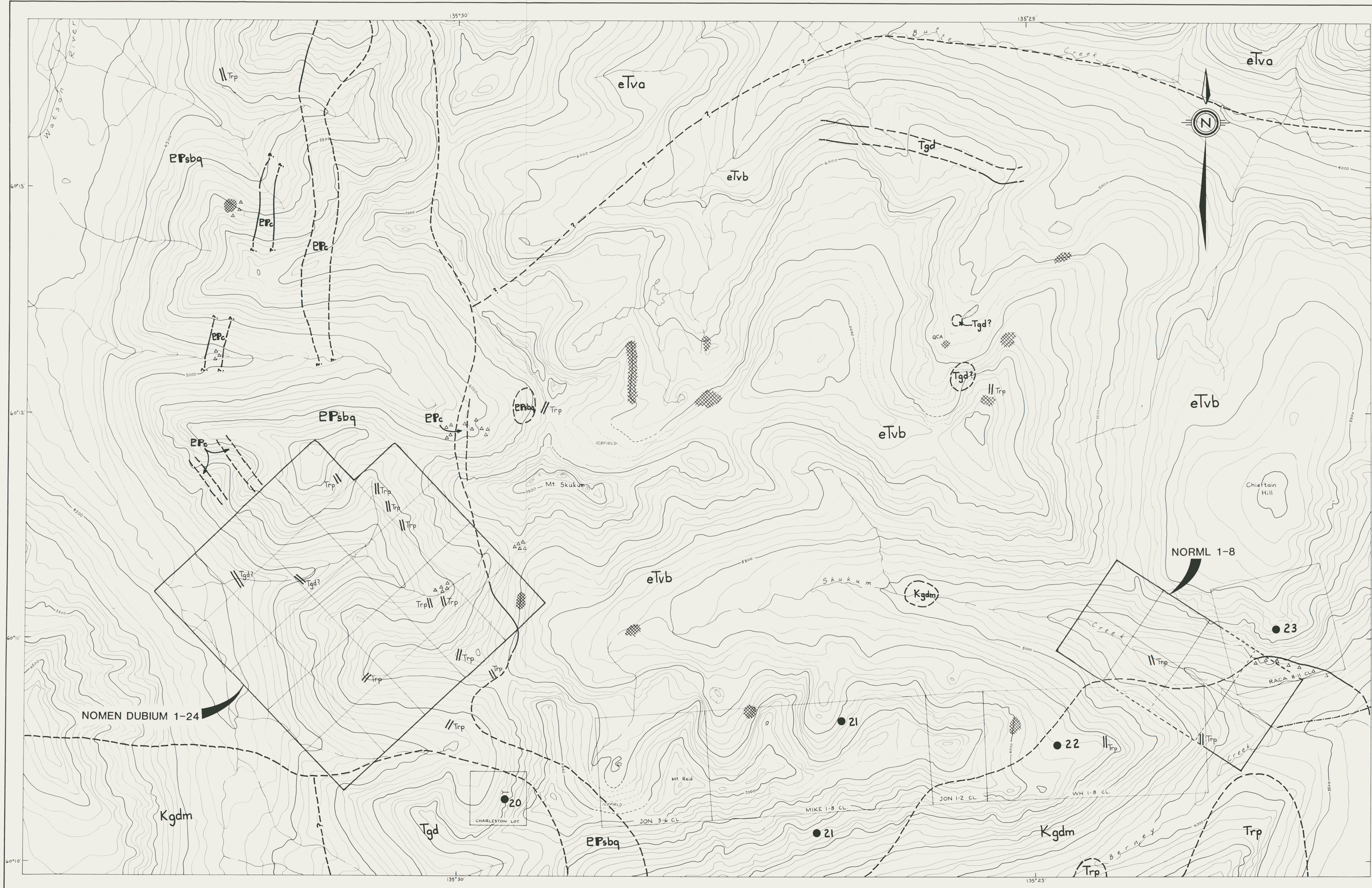
LEGEND

- NAT CLAIM BOUNDARY
 - WH, RACA, ETC CLAIM BOUNDARY
 - TOPOGRAPHIC CONTOURS (100 FT INTERVAL)
 - TRAIL
 - CREEK, LAKE
 - ADIT
 - SOIL
 - SILT
 - ROCK
 - TRACE
 - NOT AVAILABLE
- 25, 110, 10 GOLD (ppb), ARSENIC (ppm), SILVER x10 (ppm)

FIGURE N10-A
 ARCHER, CATRO & ASSOCIATES LTD
GEOCHEMISTRY
 MT. SKUKUM AREA
 NAT JOINT VENTURE

SCALE 1:10,000
 0 100 200 300 400 500 600 700 800 900 1000 Feet
 0 1 2 3 4 5 Miles





LOCATION MAP
SCALE 1:100,000

- LEGEND**
- NAT CLAIM BOUNDARY
 - WH, RACA, ETC. CLAIM BOUNDARY
 - TOPOGRAPHIC CONTOURS (100 FT INTERVAL)
 - TRAIL
 - CREEK, LAKE
 - ADIT
 - 21 YUKON MINERAL INVENTORY OCCURRENCE

- GEOLOGICAL LEGEND**
- TERTIARY**
- Trp stocks, plugs and dykes quartz and feldspar porphyry with aphanitic rhyolite matrix; some granite porphyry and intermediate plugs and dikes
 - Tgd inhomogeneous, locally gneissic, porphyritic hornblende granodiorite and quartz monzonite; abundant dioritic and metasedimentary inclusions
 - eTva SKUKUM GROUP: pale grey, green, and white rhyolite and trachyte breccia, tuffs and flows; some felsic plugs and dykes (Trp)
 - eTvb SKUKUM GROUP: purple, green, and white andesite and basalt breccia, tuffs and flows; minor greywacke at base
- CRETACEOUS (?)**
- Kgdm RUBY RANGE BATHOLITH: coarse-grained, equigranular biotite-hornblende granodiorite and quartz monzonite
- PROTEROZOIC and/or PALEOZOIC**
- EPc YUKON GROUP: marble, crystalline limestone; minor graphitic limestone and skarn
 - EPsbq YUKON GROUP: quartz-mica, quartz-chlorite schist and quartzite; minor amphibolite, feldspathic gneiss
- dyke or narrow intrusion (orientation not necessarily representative)
 - gossan, usually pyritiferous
 - breccia
 - RACA quartz-carbonate alteration
 - geological contact (observed, assumed)

FIGURE N10B
ARCHER, CATROD & ASSOCIATES LTD
GEOLOGY
MT. SKUKUM AREA
NAT JOINT VENTURE
SCALE 1:10,000