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**TOMMY JACK PROPERTY**

**AN OVERVIEW USING THE COMPILED DATA**

**OF**

**NORANDA EXPLORATION LTD. 1984-85**

**NORANDA/GOLD CAP J.V. 1986-87**

**NORANDA/GOLD CAP/INTERTECH MINERALS J.V. 1988-89**

**RAVEN 1995, 1996, 1999, 2001**

**GOLD CITY INDUSTRIES 2002**

**OMINECA MINING DIVISION**

Lat. 56 07 N

Long. 127 37 W

N.T.S. 94 D / 4E

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**Compiled by A. Raven**  
**May 2003**

# TOMMY JACK PROPERTY

## SUMMARY

The Tommy Jack Property is an intrusive-related project that has the potential to host: bulk tonnage sediment hosted gold/silver deposit, an intrusive hosted gold deposit and/or a series of high grade gold / silver vein deposits. Gold/silver mineralization has been found in sedimentary (sandstone/siltstone) rocks, in altered intrusive (dacite) rocks and in quartz veins and stock-works over an area ~2.5 km wide by >4.5 km long. This geological/structural environment has the potential to host a major gold/silver deposit.

**Location and Access** The Tommy Jack property is situated 95 kilometres north of Hazelton. It lies immediately to the south of the confluence of Tommy Jack Creek with the Sicintine River, which in turn flows into the Skeena River.

Access is by helicopter, about an hour's flight from Smithers. There are presently new logging roads being built into the immediate area. The closest road is about 16 kilometres to the south and is planned to pass through the immediate vicinity of the property by the fall of 2003.

**Ownership and Status** Gold City holds an option to earn 100% interest in the 48 unit claim block (~1200 ha.) subject to a 2% NSR held by the vendor. Gold City has the right to purchase 50% of the NSR and the vendor has a capped drilling and gold price bonus. The agreement is in good standing.

**Property History** Early history – 1945 and 1964 – targeted silver showings. In 1985 to 2002 the target has primarily been gold mineralization. There has been ~\$375,000 spent on the Raven ground between 1985 and 2002

**Regional Geology** The property lies on the eastern edge of the Bowser Basin, an ancestral continental shelf, which has been intensely deformed and intruded by a series of Cretaceous and Tertiary granitic units.

**Property Geology** The property is underlain by structurally deformed Jurassic clastic sediments (sandstone/siltstone), which are intruded by Cretaceous dacite. Both the sediments and the intrusives contain stock-works of mineralized quartz veins.

**Structures** There are many sub-parallel and cross cutting faults/shears traversing the property providing conduits for mineralization within the already deformed sedimentary and intrusive units. The large circular feature visible on the air-photo is postulated to be an uplift block caused by a buried intrusive. The work carried out in 2002 that located many more outcroppings of the dacite intrusive further supports this interpretation.

**Mineralization** The gold mineralization is intrusive related within structurally controlled veins, vein stock-works and vein systems hosted in altered clastic sediments and felsic intrusives.  
Gold and silver bearing minerals include pyrite, sphalerite, galena, arsenopyrite, chalcopyrite and tetrahedrite.  
Rock samples collected have grades up to 2.1 oz/t gold in float samples and up to .66 oz/t gold in outcrop samples and up to 1.02 oz/t in drill holes (Warren ground drilling). These samples represent the highest "numbers" from samples taken over an area 3 by 3.5 kilometres. There are many float samples that have excellent gold grades scattered within the overburden and in the drainages that traverse the property.

**Anomalies** Within the claims there are a series of large open-ended sub-parallel gold/multi-element soil anomalies – up to 300 metres wide by up to 2000 metres long  
The geochemical and geophysical (coincident VLF and SP) anomalies generated to date support each other but surveys have not closed off the anomalies or covered the whole property.  
The large anomalies developed by Intertech Minerals (1988-89) have not been drilled.  
The 2001 interpretation of uphill transport of the soil anomalies and high-grade floats necessitates a review of the previous drilling as it is probable that the drilling program did not best test the targets.

**Drilling Summary** The drill targets were defined primarily by soil geochemical anomalies and in one or two cases by supporting VLF. The drilling was very successful in that ~50% of the holes intersected gold/silver mineralization.

Warren ground – 86-5 has 6.6m of 4.3 g/t Au and 83 g/t Ag  
- 87-14 has 0.6 m of 31.85 g/t Au and 129 g/t Ag  
- 87-23 has 1.3 m of 14.69 g/t Au and 36 g/t Ag  
Raven ground – 87-8 has 0.9 m of 5.04 g/t Au and 37 g/t Ag  
- 87-10 has 3.5 m of 1.0 g/t Au and 27 g/t Ag  
- 87-11 has 2.5 m of 2.54 g/t Au and 158 g/t Ag  
- 87-16 has 0.4 m of 0.38 g/t Au and 1380 g/t Ag

Drill hole 87-16 has a large low grade, 17 m of 51g/t Ag that includes the high-grade section, that may indicates open pit potential.  
A reinterpretation of the soil and float transport (southerly which is uphill) indicates that the drilling program may not have properly tested the targets. Another factor is the misinterpretation of the dip of the eastern area sediments for the rocks dip east and the drilling program had all the holes dipping to the east which indicates that drilling may have been down-dip.

The **Tommy Jack** property consists of 48 units (~1200 hectares). These claims cover the majority of the areas where high-grade floats were found in the creeks and overburden as well as the soil and the geophysical anomalies generated by exploration work done by Intertech Minerals in 1988-89 and the majority of the anomalies generated by Noranda in 1986-87.

## **GEOLOGY OF THE PROPERTY**

The geology consists of sedimentary clastics; siltstone, arkosic sandstone, shale and argillite of the Bowser Group intruded by granodiorites (dacites) of the Bulkley Intrusions of Late Cretaceous Age. The intrusives encountered in the drill holes and on surface are dykes of varying widths. Both the sediments and the intrusives contain mineralized stock-works of quartz veins. The highest drill sample assay for the area came from a quartz vein within a dacite dyke (31 grams/ton gold over 0.2 metre) while the best intersection came from an interval of quartz stockwork in the sediments (6.6 metres of 4.3 g/t gold and 83.6 g/t silver). Both of these intersections are on Warren's ground but are part of the same system.

Faulting is observed on the ground, in drill holes and on air photographs. These structures trend in a NNW to NE direction. Obvious on the air-photo of the area is a prominent circular feature that is postulated to be an uplifted block related to a buried intrusive stock.

## **MINERALIZATION**

The gold/silver bearing mineralization consists of pyrite, arsenopyrite, galena, sphalerite, tetrahedrite and chalcopyrite primarily in a quartz or quartz-carbonate altered rock. The mineralization is related to dykes and/or faults, it is emplaced in veins, veinlets and/or stockworks and carries values in gold and silver.

The alteration consists of qtz-carbonate (ankerite, calcite, dolomite) sericite and chlorite (mafic minerals in the granodiorite dykes). The dykes themselves show alteration (clay minerals, carbonate and sericite) and contain stock-works of mineralized quartz. The sandstones, being more permeable, show the greatest degree of carbonate alteration with ankerite, calcite and qtz-carbonate forming veins and fracture fillings. The carbonate alteration zone mapped to date is approximately 2 km. X 3.5 km. and open to the southeast. Some of the high-grade floats (high sulphide content) found to date contain appreciable amounts of graphite that helps in locating these exposures using the SP method.

## **ROCK SAMPLES**

There have been many rock samples, primarily floats but of very local origin; that are of excellent grade found throughout the property. The grades range from .2 to 2.1 oz/ton gold and .3 to 74 oz/ton silver. These rocks are usually quartz and sulphide rich but the quartz can be sulphide poor and still carry excellent gold grades. These rocks can be found in most drainage patterns within the target areas as well as scattered within the overburden from just west of Beaver Creek to east of Unnamed Creek a distance of approximately 3 kilometres crossing the strike of the mineralizing structures.

## **ANOMALIES**

The soil geochemical surveys have outlined several large gold / multi-element (gold, silver, arsenic, lead, zinc and cadmium) anomalies. These anomalies range in size from 100 to 300 metres in width and 400 to 2000 metres in length some of which are still open to the north and the southeast. These anomalies probably represent the location of the mineralized stockwork/fault zones and/or the expression of the more mineralized sandstone units. Although these anomalies do not consist of uniformly high values when they are considered within the background values they are "real" anomalies.

The geophysical, VLF, anomalies are moderate to very strong and the strong ones generally are coincident with the soil anomalies. Five of these anomalies are in excess of 800 metres in length and open ended. Trench sample TJ-6 (.664 oz/ton gold) is located on the north end of one of these VLF anomalies. These anomalies may represent the location of the most mineralized portions the fault zones.

## **PRESENT TARGET AREAS**

The highest priority area is to the east of Beaver Creek where there are strong coincident soil/VLF/SP anomalies and the newly (2002) discovered quartz stockwork area and the area of quartz veins in the dacite.

The next priority is the area west of the lower end of Unnamed Creek to locate the down-ice source of the numerous high-grade floats found in the creek bed.

Additional target areas are: the area to the east and west of the upper end of Unnamed Creek and the bed of Unnamed Creek itself, area to the southeast of Unnamed Creek particularly to sample the swampy areas in this vicinity

Note: The probability that float and soil anomalies have been moved uphill should always be kept in mind.

## **EXPENDITURES**

Approximate total expenditures on exploration to date is \$695,000 (\$520,000 by Noranda/Goldcap, \$80,000 Intertech, \$70,000 Raven, \$25,000 Gold City)

The majority of the Noranda/Goldcap monies were spent on drilling Lorne Warren's ground immediately to the north of T.J. property. Intertech developed the additional targets to the south (now covered by Raven's ground). Raven has done additional soil surveys, geological mapping, self potential surveys and prospecting.

## POTENTIAL OF THE TOMMY JACK PROPERTY

### TARGETS

Sediment hosted bulk mine-able gold deposit similar to Carlin, Golden Bear and Brewery Creek.

This property has similarities to the above deposits such as host rocks, structure and geological setting. There are stock-works of gold bearing quartz within the sedimentary units indicating the possibility of a large tonnage deposit

Intrusive hosted, structurally controlled deposit similar to the Pogo deposit in Alaska

There are gold mineralized stock-works within the intrusive dykes themselves and the multiple sub-parallel faults probably penetrate the intrusive as indicated by the gold bearing quartz stock-works found within the dacite dykes

High-grade veins within the sediments are similar to the Silver Standard Mine but with much higher gold grades.

There are numerous massive sulphide high grade floats found throughout the area indicating the possibility of high grade veins within a larger gold bearing system

### HISTORY OF THE PROPERTY

- ◆ Canex Aerial Exploration 1964-65
- ◆ Lorne Warren 1984
- ◆ Optioned by Noranda 1984-85
- ◆ Option continued and additional ground staked Noranda/Gold Cap JV 1986-87
- ◆ Option continued Noranda/Gold Cap/Intertech JV ( new targets generated ) 1988-89
- ◆ Property idle but in good standing. Option with Warren dropped
- ◆ Raven acquired 19 units as some of the ground covered by the new targets lapses 1995
- ◆ Raven acquired 6 units as additional ground lapses 1996
- ◆ Raven acquired 24 units in July 1999, exploration programs in 1999 and 2001
- ◆ Gold City optioned property, Raven acquired 6 units in 2001

### EXPLORATION PROGRAM

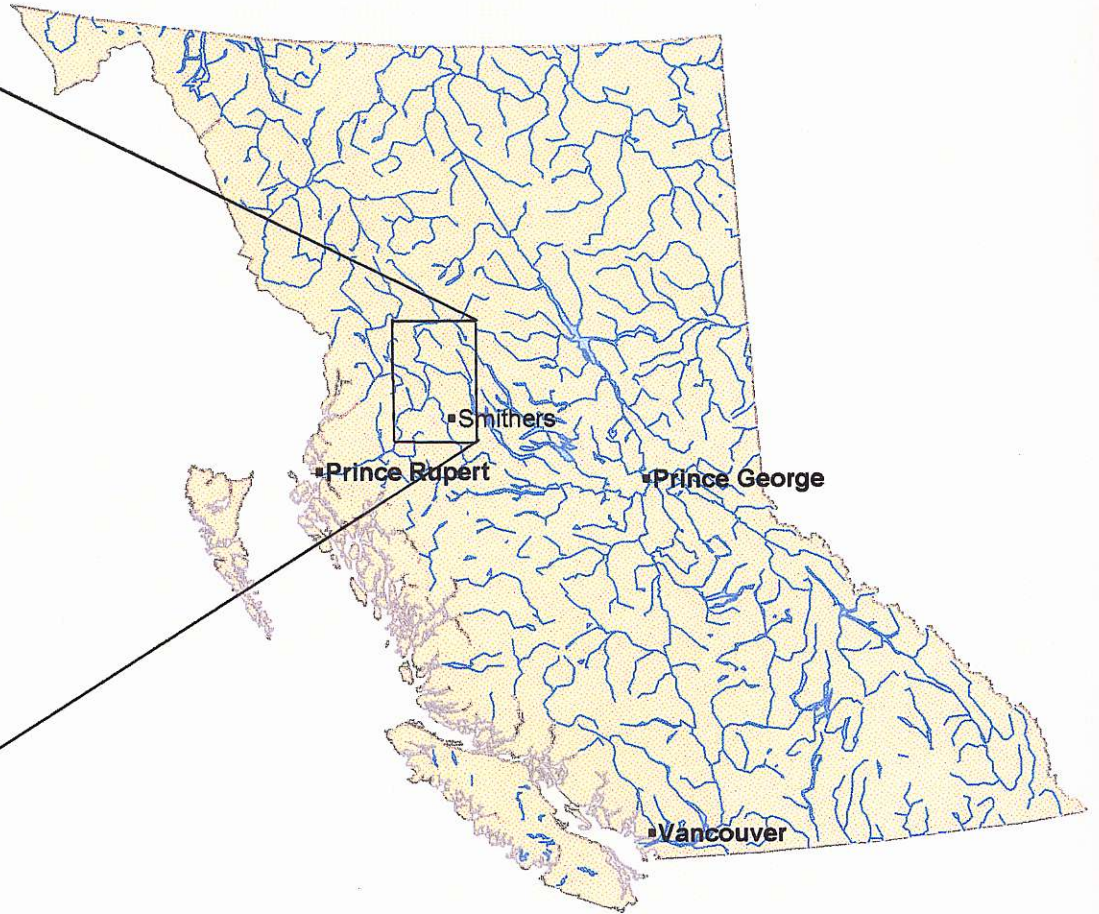
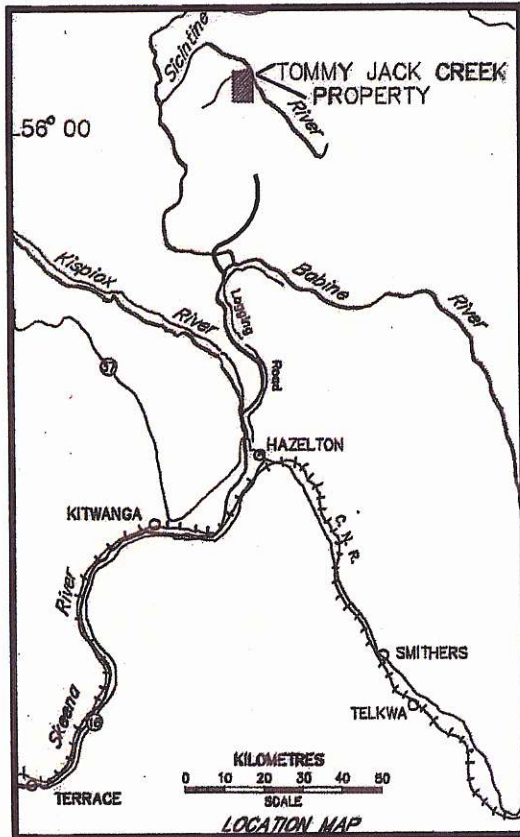
- ◆ Detailed prospecting and geological mapping between Beaver Creek and Unnamed Creek while bearing in mind the probable southerly transport of floats and soil anomalies.
- ◆ Soil surveys to define and extend the anomalies with detailed soil surveys to be carried out in targeted areas.

- ◆ S.P. over soil anomalies and VLF anomalies (high water table and high sulphide content of the veins will generate good S.P. response, this method is quick, accurate, cheap and easy to do immediate field interpretation thus quickly generating trenching targets). The results from SP work done in 1999 was very encouraging
- ◆ Hand trench (hand and explosives) any shallow targets
- ◆ Mechanical trenching if the new roads are close to the target area
- ◆ I.P. over soil/VLF/SP anomalies.
- ◆ Drill the best targets

A small crew could carry out S.P., soil geochem, hand trenching and prospecting all in the same time frame. I.P. would of course require a specialized crew but the project will require minimal line cutting. Logging road construction is now very close to the property (~16 km.) and the logging plan will bring roads within 2 kilometres of the target area.

Note: The exploration program is entirely dependent upon the objectives of the program and the allocated budget.

# Property location





# Exploration Summary

## Unnamed Creek

### Lower section

~400 metres

### Middle section

~300 metres

### Upper section

~250 metres

## Beaver Creek

### Lower section

~150 metres

### Upper section

~700 metres

## Bedrock samples

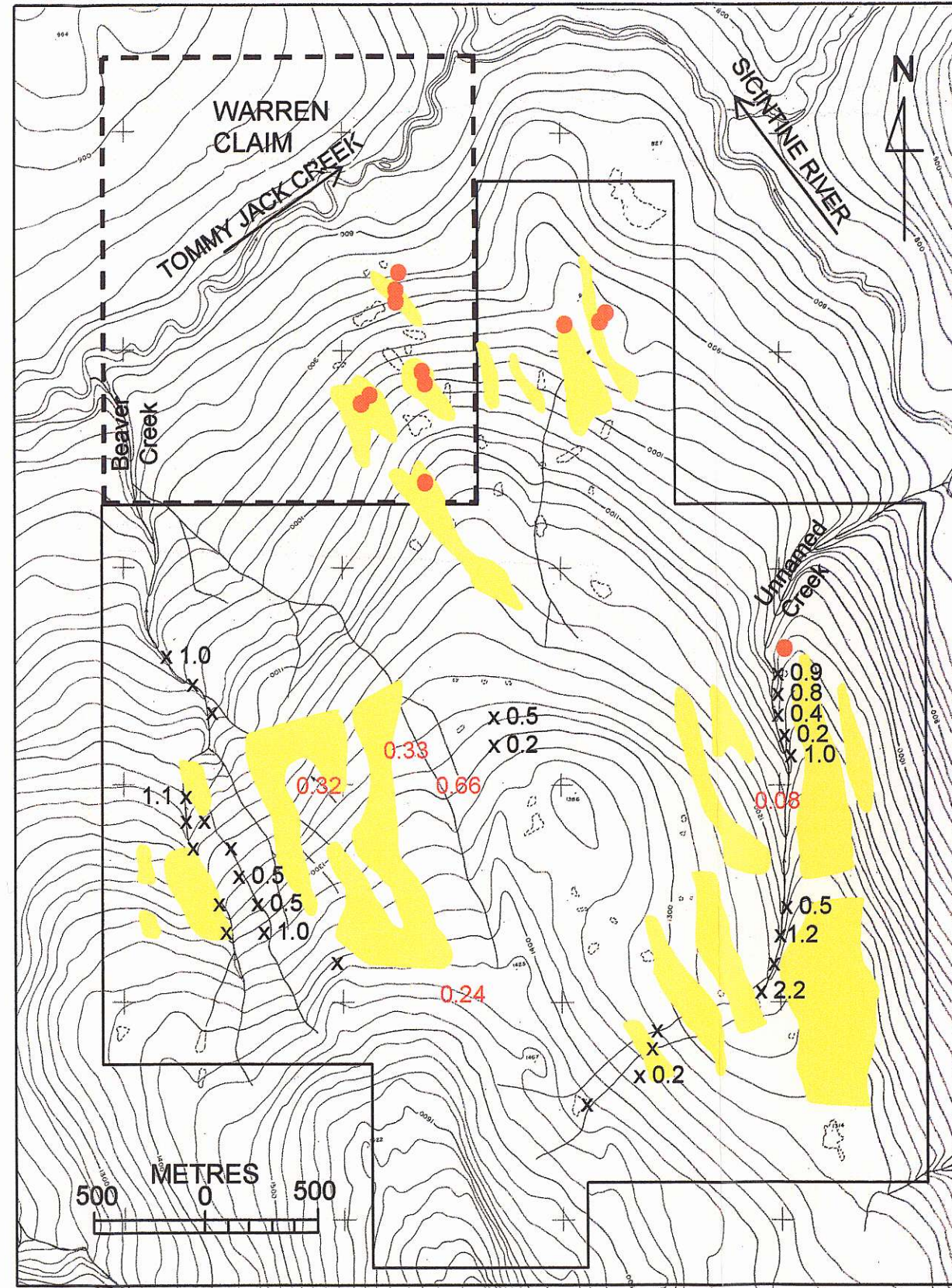
0.33 Oz/ton

## Drill intersections

● - significant gold/silver

## Float boulder samples

x 0.5 ounces/ton gold



## PROJECT SUMMARY

Gold mineralization within intensely deformed sedimentary and intrusive rocks

Multi-directional faulting that provide pathways for mineralization

Extensive and open ended gold/multi-element soil anomalies within the target area

High grade gold bearing float boulders located in the creeks and the overburden over an area 3.5 by 4 kilometres

New showings of gold mineralization in place within the soil anomalies

