YUKON TERRITORIAL GOVERNMENT
EXPLORATION INCENTIVES PROGRAM
PROJECT 94 - 019

PLACER EXPLORATION ON THE STEWART RIVER

MAY 24 - OCTOBER 31, 1994

PLACER CLAIMS P38393 - P38396

TRANSVERSE MERCATOR PROJECTION CO-ORDINATES
137°32' longitude - 63°36' latitude
PLACER CLAIM SHEET 115P-12

prepared by
L Chapman & W. Claxton

Box 460, Dawson City
Yukon, Y0B-1G0

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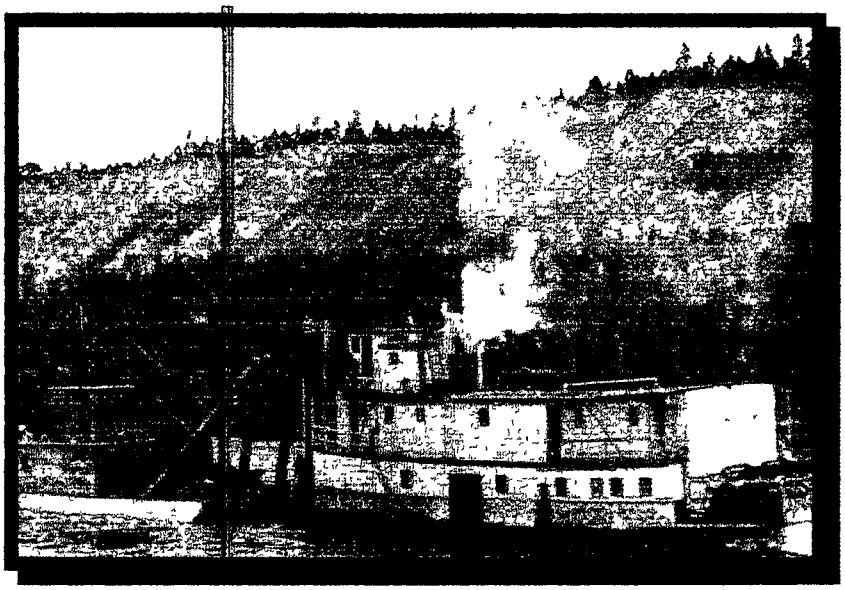
1. BACKGROUND

The placer gold property investigated consists of four placer claims, P38393 -P38396, on the Stewart River. These claims are on the right limit of the Stewart River. Partridge Creek runs through the claim block. See **Maps 1 and 2** for the property location.

Access to the property is good. The claims are located between Dawson City and Stewart Crossing just off the main Dawson-Whitehorse highway, approximately 75 road miles south of Dawson. There is a good government-maintained road from the highway to the McQuesten Airstrip. The property is about 1/2 mile east of the airstrip along a cat trail. See **Map 1** which shows the access route.

The Stewart River was the first major gold producing river in the Yukon Territory. According to William Ogilvie's book, **"Early Days on the Yukon,"** gold was being mined on the Stewart as early as 1885. R. J. McConnell said in his Geological Survey of Canada report in 1900, **"Exploration of the Tintina Valley from the Klondike to Stewart River"**, *"The Stewart River bars were found to be auriferous as early as 1885, and in that and the two succeeding years, it is estimated the yield amounted to about $100,000 dollars."* This represents over five thousand ounces of gold mined with shovels and gold rockers.

The claims are located directly across the river from the famous Steamboat bar where several thousand ounces of gold were mined using hand mining methods. As well as early-day miners, there were also several bucketline dredges which operated on the Stewart River in the early 1900's. A pile of dredge tailings can be seen on the bank across the river from the property. We couldn't find records of gold production from the dredges. It is said that they didn't work there long.



Barging a Dredge Up The Stewart River Circa 1902

There are no large-scale placer mines currently operating on the Stewart River, although there are a few small-scale operators and handminers

The Stewart River valley is broad and flat. There are intermittent patches of thawed ground, but much of the valley is permafrost. Gold can be readily panned from the bars along the Stewart River. This gold has an extremely fine grain size. The river channel shifts around yearly, abrading some bars away, and creating new ones in their place.

The Stewart River is classified as a Type 1, salmon spawning river, so no effluent discharge is permitted and a buffer strip must be left between the river and the mine area.

2. PROJECT DESCRIPTION

The focus of this project was to evaluate the four claims comprising this property for dredging potential. We examined the property for the following:

- to determine gold presence and calculate grade projections
- to establish the depth of gravel to water-table
- to determine the extent of permafrost
- to estimate the volume of gravel available for dredging

We analysed the gold recovered from gravel samples to get an idea of the size and shape of the free gold particles We determined the value, on average, of a typical colour This allowed us to project rough grade estimates from the gravel that we excavated, while in the field, without using complex analytical equipment or sending samples out for assay.

We had undertaken some preliminary evaluation on and near the property before taking an option on it, and confirmed that there was fine gold in the gravel. The property holder had done some prospecting on the ground, digging pits and sampling them. His work showed that fine colours could usually be panned from the surface layer of gravel. This work was done on the eastern portion of the claim group across Partridge Creek.

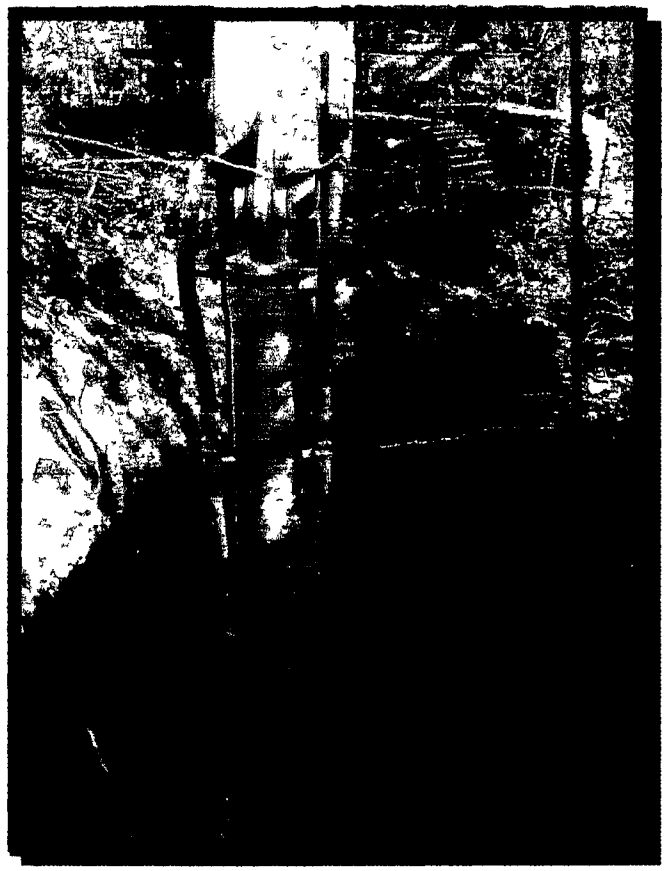
We had 14 pits excavated by hand, varying from 5 to 11 feet in depth, to infill the pattern formed by the previous work. The objective of this work was to determine the depth of overburden above the gravel, to establish whether the ground was thawed or frozen, and to make a cursory evaluation of the tenor of the ground by panning the gravel. As well, we took larger samples from some of the pits back to our main camp for more thorough analysis. See **Map 3** for work location.

Sampling a Hand-Dug Test Pit

Partridge Creek forms an access barrier to the eastern portion of the property in the early part of the mining season between mid-April and mid-June, when the water in the creek is high due to snow runoff and water has backed up the creek from the Stewart River. As well, authorization from Department of Fisheries and Oceans would have to be obtained before crossing

the creek with heavy equipment. For these reasons we decided to dig test pits with an excavator only on the western side of the creek

We brought a Bantam C-366 excavator onto the property, as authorized by land use permit YA4F737. We used the excavator to dig a series of 11 pits. The pits are approximately 8' by 12' and vary in depth from 8' up to 22'. We sampled by panning. We took larger 50 lb. samples to our camp for processing and analysis. See **Map 3**



Digging a Pit with the Excavator

We surveyed the property using a hand level to determine the depth to the water-table, because groundwater was not present in all of the pits we dug. Ground-water would form the water level for a dredge pond The survey work showed that the depth to water level varies between 4 and 25 feet, depending on the topography of the ground. These levels were taken at low water level in the fall. The watertable would be as much as 10 ft. higher at high water in spring and early summer.

3. RESULTS

We found fine gold particles in all of the excavations. Gold could usually be panned from the surface layer of gravel, 6 inches to 1 foot in depth; many of the samples taken from this gravel layer were quite impressive. Values below this depth diminished quickly.

The results of the samples that we processed are tabulated on **Tables 1, 2, and 3.** We did not calculate grade figures for the gold pan samples because the samples were not big enough to make meaningful grade projections. We calculated an average grade figure for the samples from the excavator dug pits of **89¢ Canadian per cubic bucket yard.**

The gold is generally extremely fine, although some of the gold consists of very thin flakes. Most of the colours will pass through an 80-mesh sieve screen. We weighed typical groups of a number of gold colours using a gunpowder scale capable of weighing to.01 grains. Because the colours vary in size, and because we did not have a scale capable of weighing one colour, we found it necessary to weigh representative groups of colour samples to obtain an average weight for a typical Stewart River colour See **Table 4.**

We determined that, on average, **1 colour of Stewart River gold weighs 2.3 x 10^{-3} grains**; there are **208,000 colours to the troy ounces**, on average. **One colour is worth .21¢ Canadian at US$380 gold and a .72 exchange rate.**

W e calculated that each colour found in a small sized (8 lb.) sample pan represents a grade of approximately 73.5¢ per loose cubic yard of gravel. This rule of thumb for calculating grade is based on finding a representative selection of gold particle sizes in the sample. We found that in samples with few gold colours, the gold particles tended to be fine with no flakes. Thus grade is probably lower than this method would indicate when only fine gold is found in sampling.

4. CONCLUSIONS AND RECOMMENDATIONS

There is a large volume of gravel available on the property. We estimate that there are more than 3 million bank cubic yards of dredgeable gravel in the claim block. Although there are intermittent sections of permafrost, the gravel is, for the most part, thawed. Overburden consists of sand varying in depth from 3 feet up to a maximum of 8 feet. The gravel is sandy, with few boulders and easily washed. These factors make the ground ideal for dredging. However, the most important factor, gold content of the gravel, is not so encouraging.

Gold is present in paying quantities in the surface layer of the gravel. There is some gold in the underlying gravel. It is not clear from our work whether the gold occurs in the lower gravel depths in distinct layers or is distributed in a low grade concentration through the gravel. Gold could be concentrated on bedrock, but bedrock depth in this section of the Stewart River is reported to be extremely deep, anywhere from 90 feet to 120 feet or even deeper. It would be difficult to reach bedrock with a floater dredging operation The overall grade of the ground is too low to support a viable operation. From the cursory work which we did, we estimate that the ground which we tested averages 89¢ (Canadian) per bucket yard over a 20 foot gravel depth.

Some patches of top gravel located just below the muck surface may pay to work. However the cost of removing the overburden, coupled with the extremely thin layer of pay gravel, must be considered carefully. For example, if a 6 inch layer of pay gravel is overlain with 6 feet of muck, for every cubic yard of pay gravel uncovered, nearly 12 cubic yards of muck must be removed.

The ground is thawed, the water table is not too deep, and the gravel is easily sluiced. These factors make this claim block well suited for dredging. The large volume of gravel available and easy access also make the property attractive. Overburden removal would add to production costs, but not prohibitively An increase of 25% in the price of gold would make this ground worth evaluating more thoroughly for a large scale dredging venture, because production costs would be very low.

TABLE 1
RESULTS OF PAN SAMPLES FROM HAND-DUG EXCAVATIONS

EXCAV. #	SAMPLE #	DEPTH	# OF COLOURS	COMMENT
A	A-1		6	
B	B-1		4	
C	C-1		14	
	C-2		0	
D	D-1	top gravel	16	pit has 3' of muck overlaying gravel
	D-2	top gravel	2	very fine colours, lots of black sand
	D-3	3'6"	13	6" into gravel
	D-4	4'	3	1' into gravel
	D-5	4'6"	0	1'6" into gravel
	D-6	5'	3	2' into gravel
	D-7	5'6"	0	2'6" into gravel
	D-8	spill pile	16	
	D-9	spill pile	10	
E	E-1	top gravel	27	
	E-2	6"	4	
	E-3	6"	0	
	E-4	1'	3	
	E-5	3'	18	
	E-6	4'	3	
	E-7	5'	3	
	E-8	6'	3	
	E-9	6'	0	black sand
	E-10	7'	3	

TABLE 1-continued
RESULTS OF PAN SAMPLES FROM HAND-DUG EXCAVATIONS

EXCAV. #	SAMPLE #	DEPTH	# OF COLOURS	COMMENT
E (cont.)	E-11	spill pile	1	
	E-12	spill pile	0	
F	no samples			frost at 30"
G	G-1		10	8' of silt
H	no samples			frost at 24"
I	no samples			frost at 30"
J	J-1		10	gravel at 18"
K	K-1		13	
	K-2		33	
L	L-1		12	
M	M-1		10	
	M-2		13	
	M-3		11	
N	N-1		10	
	N-2		4	
	N-3		2	
O	O-1	top gravel	59	3'6" - 4' muck over gravel
	O-2	top gravel	38	fine colours
	O-3	top gravel	30	
	O-4	4'6"	53	6" into gravel
	O-5	5'	4	1' into gravel
	O-6	5'6"	2	1'6" into gravel
	O-7	6'	0	water level in pit at 6'

TABLE 2
RESULTS OF PAN SAMPLES TAKEN FROM PITS DUG WITH EXCAVATOR

EXCAV #	SAMPLE #	DEPTH	# OF COLOURS	COMMENTS
H1	H1-1	surface	4	sample from ground surface
	H1-2	1'	1	pit is 20' deep with 4' of sand
	H1-3	2'	1	and 16' of gravel, some red
	H1-4	3'	0	stained gravel layers, some
	H1-5	4'	0	cobbles up to 8" diameter,
	H1-6	5'	0	no water in pit
H2	no samples			hit frost & gravel at 6'
H3	H3-1	5'	1	pit is 15 ' deep with 3 1/2'
	H3-2	6'	1	of sandy overburden and
	H3-3	7'	1	12' of gravel
	H3-4	8'	0	
	H3-5	9'	1	
	H3-6	10'	4	
H4	H4-1	6'	1	pit is 22' deep with no
	H4-2	7'	1	overburden, pea gravel at
	H4-3	8'	0	surface, sluffing, larger rock
	H4-4	9'	1	at depth and hole is tighter
	H4-5	10'	0	
	H4-6	11'	2	
H5	H5-1	7'	0	pit is 20' deep with 5' sandy
	H5-2	8'	1	overburden, water at 20',
	H5-3	9'	0	sand at 18'
	H5-4	10'	9	blue-gray clay

TABLE 2-continued
RESULTS OF PAN SAMPLES TAKEN FROM PITS DUG WITH EXCAVATOR

EXCAV #	SAMPLE #	DEPTH	# OF COLOURS	COMMENTS
H5 (cont.)	H5-5	11'	6	blue-gray clay
	H5-6	12'	2	
H6	H6-1	7'	2	pit is 16' deep with 2' of sandy overburden. There is red stained gravel at 10' with a black layer above the red Water level was at about 14'
	H6-2	8'	3	
	H6-3	9'	1	
	H6-4	10'	0	
	H6-5	11'	1	
	H6-6	12'	3	
H7	H7-1	8'	2	pit is 15' deep with 5 1/2' of sand overburden, coarser cobbles at 10', water encountered at 14'
	H7-2	9'	1	
	H7-3	10'	2	
	H7-4	11'	7	
	H7-5	12'	7	
	H7-6	13'	0	
H8	H8-1	surface	1	sample from top gravel
				pit is 15' deep with 14' of sand overburden, gravel and water at 14', pit is near creek
H9	H9-1	surface	2	sample from top gravel
	H9-2	1'	0	pit is 12' deep with 5' of sand overburden, water at 10', pit is near creek
	H9-3	2'	0	
	H9-4	spill pile	0	

TABLE 2-continued
RESULTS OF PAN SAMPLES TAKEN FROM PITS DUG WITH EXCAVATOR

EXCAV #	SAMPLE #	DEPTH	# OF COLOURS	COMMENTS
H10	H10-1	1'	1	sample from top gravel
	H10-2	2'	2	pit is 12' deep with 5' of
	H10-3	3'	0	sand overburden, water
	H10-4	4'	1	at 10', pit is near creek
H11	H11-1	1'	0	pit is 20' deep with 2 1/2 '
	H11-2	2'	0	to 3' of sandy overburden
	H11-3	3'	0	
	H11-4	4'	1	
	H11-5	5'	1	
	H11-6	6'	0	

TABLE 3
RESULTS OF 50 LB. SAMPLES FROM PITS DUG WITH EXCAVATOR

EXCAV #	SAMPLE #	WEIGHT IN LBS.	# OF COLOURS	COMMENTS
H1	H1-7	46	3	1 chunky piece
H3	H3-7	50	16	1 flake
H4	H4-7	45	4	1 flake
H5	H5-7	42	2	
H6	H6-7	42	0	
H7	H7-7	45	5	
H10	H10-5	44	20	1 chunk, 1 flake, colours are larger

Total weight of gravel = 314 lb.
Total colours = 50 colours
Grade calculation based upon 1 loose cubic yard weighing 2,800 lb. and 1 colour worth .21¢ **(see Table 4)**

314 lb ÷ 2800 lb/yd^3 = .112 yd^3
50 colours are worth approximately .2¢ x 50 = 10¢
∴ 10¢ ÷ .112 yd^3 = **89¢ per yd^3**

The ground tested averaged 89¢ per cubic yard.

TABLE 4
GOLD PARTICLE WEIGHT CALCULATIONS

SAMPLE	# OF COLOURS	WEIGHT OF SAMPLE IN GRAINS	AV. WEIGHT OF 1 COLOUR
1	210	0 63	3×10^{-3} grains
2	115	0.26	2.3×10^{-3} grains
3	190	0 31	1.6×10^{-3} grains
4	260	0 64	2.5×10^{-3} grains
5	90	0.19	2.1×10^{-3} grains

on average, 1 colour weighs 2.3×10^{-3} grains

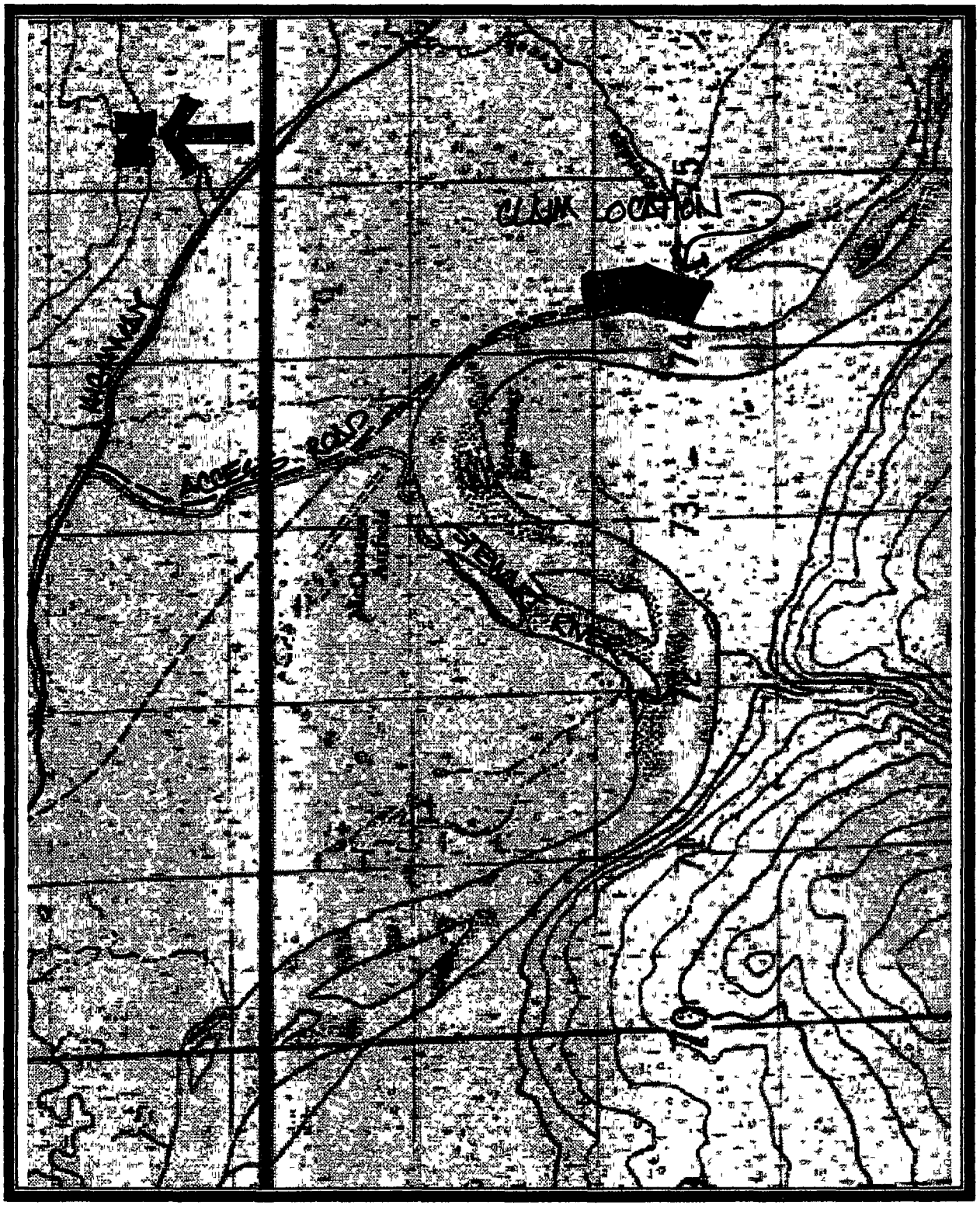
There are 486 grains in 1 troy oz.
. $486 \div 2.3 \times 10^{-3}$ **= 211,000 colours /oz of gold**

The value of 1 colour (at a given value of gold per ounce) can be determined as follows:
If the price of gold is US$380 and the exchange rate for the Canadian dollar is .72 then we can calculate as follows:
US $380 x .83 (fineness of Stewart River gold) = $315
$315 ÷ .72 (exchange rate) = $438

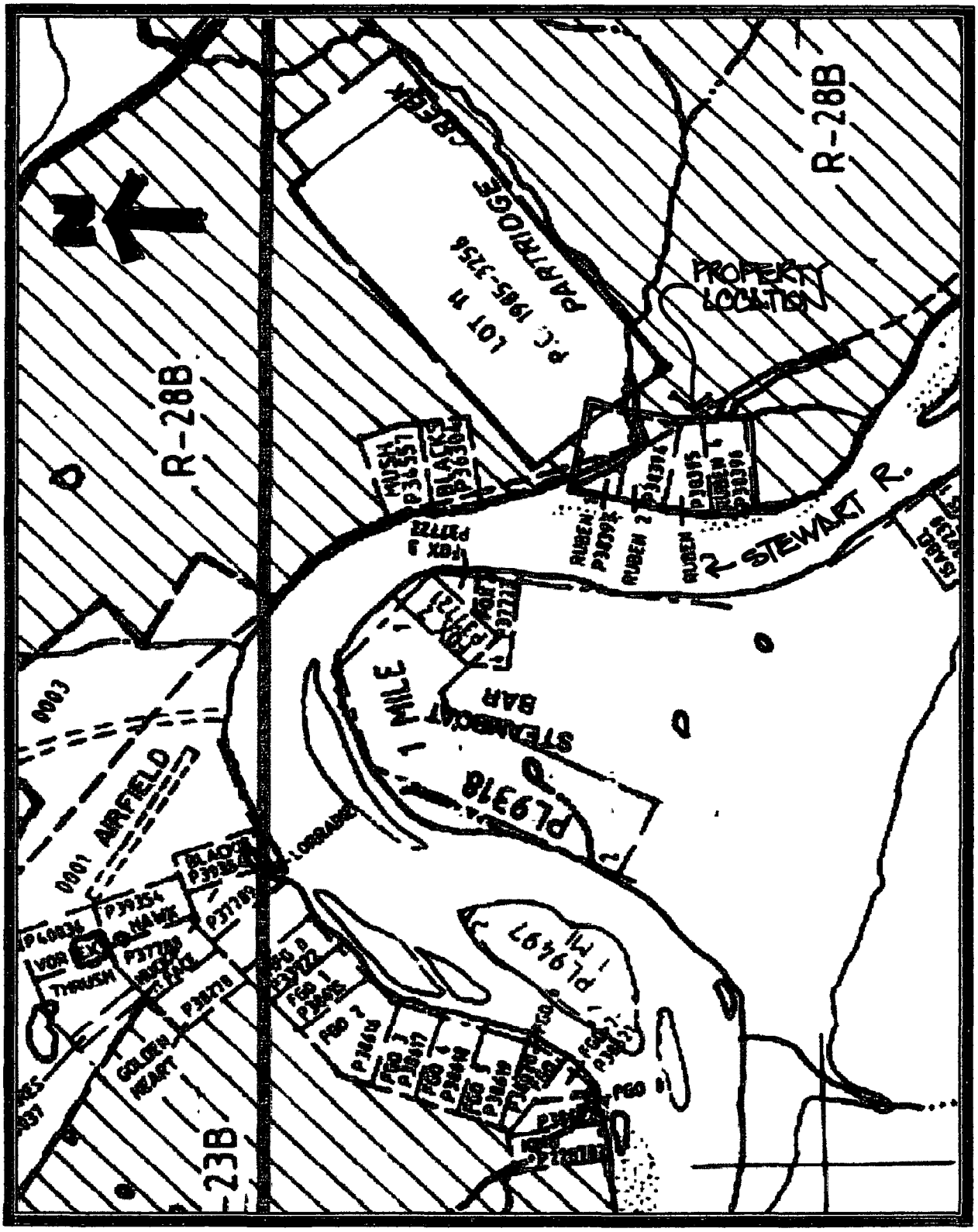
208,000 colours in 1 oz. = $438 or 43,800¢
1 colour = 43,800¢ ÷ 211,000
1 colour = .21¢ Canadian @ US$380/oz gold

Knowing the value of a colour, and the number of colours required to make an ounce of gold, we can make rough grade calculations based upon the number of colours found in a pan when sampling the excavations, as follows:.
One cubic yard of gravel weighs on average 2,800 lb., and a small sized sample pan holds 8 lb. on average
2,800 lb ÷ 8 lb/pan = 350 pans/ $yard^3$
If there is 1 colour in 1 pan, then there should be 350 colours in 1 cubic yard.
350 colours/yard x .21¢/colours = 73 5¢/yard

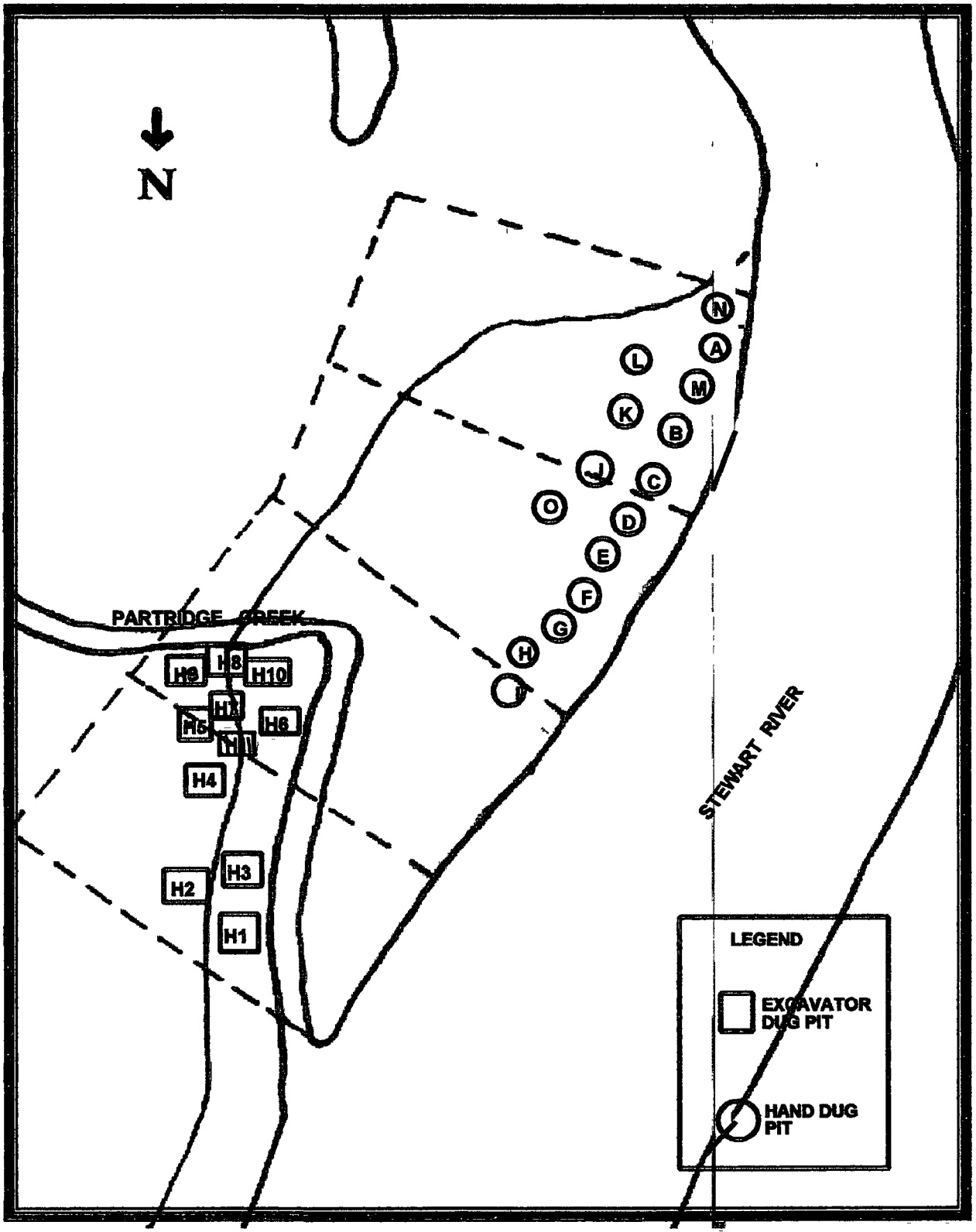
1 colour in a pan represents a grade of 73.5¢ per yard.



MAP 1 - TOPOGRAPHIC MAP OF PROJECT LOCATION
NTS MAP 115 P-12 SCALE 1" = 4,000'



MAP 2 - LOCATION OF CLAIMS
NTS MAP 115P-12 SCALE 1" = 1,700'



MAP 3 - LOCATION OF WORK PERFORMED
SCALE 1" = 400'

APPENDIX 3 - ADDITIONAL INFORMATION

PEOPLE WHO WORKED ON THE PROJECT:

Bill Claxton	Marten Creek, Fortymile River, Yukon
Leslie Chapman	Marten Creek, Fortymile River, Yukon
Ron Barrett	Stewart River, Yukon
Eugene Becker	Stewart River, Yukon

PREPARATION OF THE REPORT

The report was prepared by Leslie Chapman and Bill Claxton

PROPERTY INVESTIGATED

Placer claims P38393 - P38396

VOLUME OF EXCAVATIONS

There are 14 hand dug excavations which are an average of 3' x 5' x 8',or 4 cubic yds each.
14 x 4 = 56 yds^3
There are 11 pits dugs by excavator which are an average of 20' in diameter and 16 feet deep, or 242 cubic yards each
11 x 242 = 2,662 yds^3.