YMEP22-048

Final Report

on

SULPHUR CREEK PLACER PROPERTY

By

Mikhaela Meznaric
Yukon Alpine Heliski Ltd.

With contributions from
William LeBarge, Geoplacer Exploration Ltd.

Location of centre of property: 63°42'46"N; 138°48'18"W
NTS map sheet: 115O/10
Mining District: Dawson
Date: February 8, 2023

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Executive Summary

The following is the final report on exploration work conducted under YMEP grant YMEP22-048 on the Sulphur Creek placer property, for Yukon Alpine Heliski Ltd. A summary of all mining and exploration on the property is also included. The property is located approximately 8 km upstream of the confluence of Sulphur Creek with the Indian River. Access to the property can be gained by summer road from Dawson City via Hunker Creek and Sulphur Creek, a total distance from Dawson City of approximately 72 kilometres.

Sulphur Creek has been mined since the beginning of the Klondike Gold Rush in 1898, first by hand methods, and then by dredging. Gold production from many documented sources and Yukon Government royalty records shows a total of over 355,000 ounces produced from Sulphur Creek between 1940 and 2019. Significant placer gold remains to be mined in many areas.

YCGC conducted placer drilling programs in the claim area on Sulphur Creek between 1936 and 1940. The results of these programs showed drill holes with modern grades of up to $326/yd^3, and many more drill holes with modern grades over $20/yd^3. However, there was a large discrepancy between these 1936-1940 drill results and the lower actual gold values obtained during dredging by YCGC Dredge #8 from 1938-1942. This was apparently due to many factors including frozen bedrock, excessive sand and mud from the dredge stacker, and clay-bedrock which was difficult to wash. Since 2020, exploration efforts have been directed at determining if under-dredge-tailings targets exist.

An exploration program consisting of drone surveys, resistivity geophysical surveys, and R/C drilling was conducted in 2022. The results of a 2021 sonic drill program were also tabulated and analyzed in 2022.

The resistivity geophysical survey was successful in showing the depths to bedrock as well as various layers in the subsurface. Some unusual resistivity anomalies were detected, including one which may correspond with the estimated location of historic YCGC shaft #2, which was reported by YCGC to be the locale of abundant undredged placer gold. This location should be investigated by excavator test-pitting early in the 2023 season.

The 2021 sonic drilling program and the 2022 R/C drilling program were successful in defining the depths to bedrock and the thicknesses of remaining gravel in several locations throughout the property. Placer gold recovery in the drill samples was variable, but most of the drill holes recovered placer gold.

Future exploration programs should include a methodical grid of drill holes throughout the claim package, similar in spacing to the historic YCGC drilling (250 ft by 250 ft). Sonic drilling using at least 6 inch diameter holes would be preferred, although a cased reverse circulation drill of similar size and power may return acceptable results. The drill program would be significantly aided by concurrent resistivity surveys which would help identify potential gutters (paleochannels) in the bedrock and anomalously resistive zones which may be buried virgin gravels. In areas where depths are shallow enough, excavator test-pitting should be conducted on targets identified by either resistivity geophysics or drilling results. Test pit bulk samples should be increased in size and expanded into full scale mining pits if found to be economic.

Introduction

The following is the final report on exploration work conducted under YMEP grant YMEP22-048 on the Sulphur Creek placer property, for Yukon Alpine Heliski Ltd.

Placer Tenure

Table 1 shows a summary of the current status for the placer claims owned and under option on Sulphur Creek by Yukon Alpine Heliski Ltd.

Table 1 - Claim Status, Placer Claim Option Package, Sulphur Creek.

Grant Number	Status	Claim Name	Owner Name	Staking Date	Recorded Date	Expiry Date
P 01338	Active	Lil 5	Gatenby Enterprises Ltd. - 100%	1976-05-25	1976-05-25	2023-05-25
P 01339	Active	Lil 7	Gatenby Enterprises Ltd. - 100%	1976-05-25	1976-05-25	2023-05-25
P 01340	Active	Lil 6	Gatenby Enterprises Ltd. - 100%	1976-05-25	1976-05-25	2023-05-25
P 04170	Active	Lil 8	Gatenby Enterprises Ltd. - 100%	1977-05-14	1977-05-25	2023-05-25
P 07998	Active	Lil 12	Gatenby Enterprises Ltd. - 100%	1979-09-13	1979-09-17	2023-05-25
P 45077	Active	Tamie 2	Schmidt Mining Corp. - 100%	2001-09-08	2001-09-10	2025-01-01
P 49364	Active	Karen	Yukon Alpine Heliski Ltd - 100%	2009-05-28	2009-05-29	2023-05-29
P 49365	Active	Mary	Yukon Alpine Heliski Ltd - 100%	2009-05-28	2009-05-29	2023-05-29

Yukon Alpine Heliski Ltd. (YAH) sought to purchase and lease this particular claim block after learning of its history of poor dredge recovery and limited modern mining. More details about this history are provided in the History of Mining section of this report.

Location and Access

Sulphur Creek is a right limit tributary of the Indian River, located in central Yukon approximately 60 km by air south of Dawson City, Yukon (Figure 1). The Sulphur Creek Placer Property is located in the main valley of Sulphur Creek, approximately 8 km upstream of its confluence with the Indian River.

The centre of the property is 63°42'46"N and 138°48'18"W, on NTS map sheet 115O/10, in the Dawson Mining District (Figure 2).

Access to the property can be gained by summer road from Dawson City. The usual route runs from Dawson City along the Klondike Highway, then along Hunker Creek to King Solomon Dome, and down Sulphur Creek, a distance of approximately 72 kilometres.

Permitting

Water license PM13-001 and Class 4 Placer land use permit LP00883 are held by Ivan Zgela on the Mary and Karen claims. The permits were issued on June 17, 2014 and are valid until June 4, 2024.

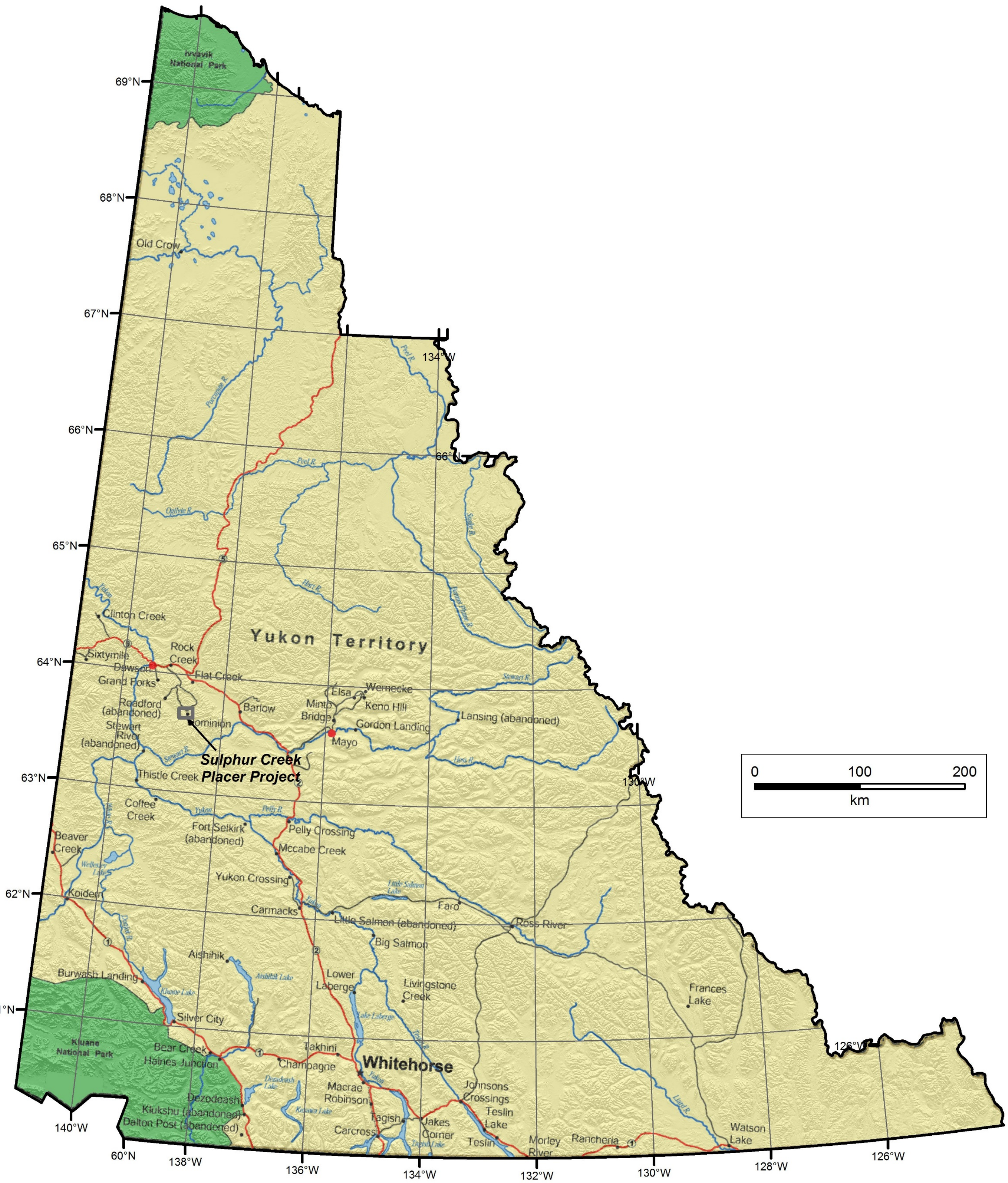

Figure 1 - Location of Sulphur Creek Placer Project, Sulphur Creek, Yukon.

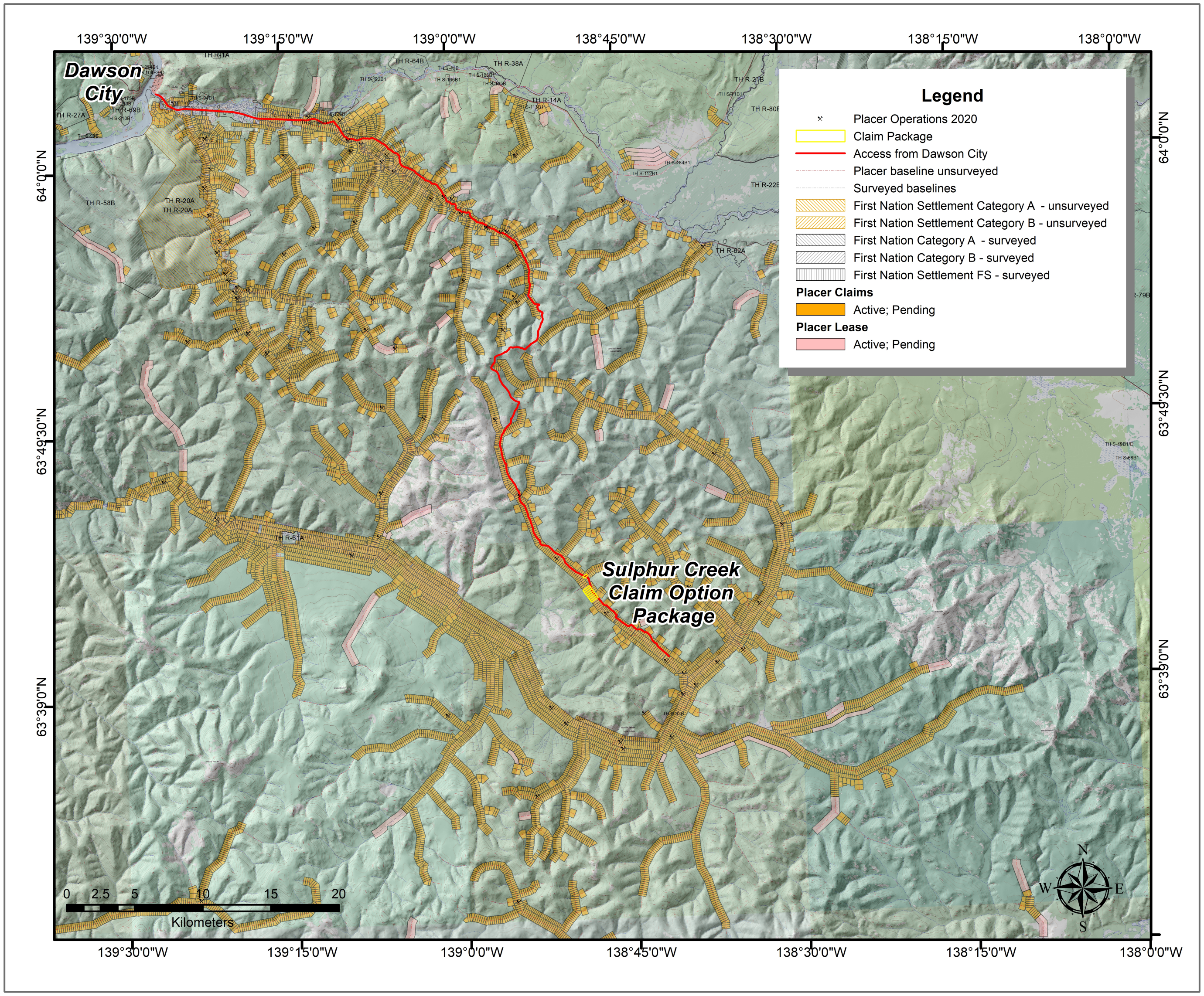

Figure 2 – Location of Sulphur Creek placer claims under option on Sulphur Creek, and nearby Dawson region placer tenures.

History of Mining – Sulphur Creek

Sulphur Creek has been mined since the beginning of the Klondike Gold Rush in 1898, first by hand methods, and then by dredging. Green (1977) notes that three dredges mined on Sulphur Creek beginning in 1936. YCGC (Yukon Consolidated Gold Corporation) Dredge #6 mined 148,000 ounces between 1936 and 1966; YCGC Dredge #8 mined 212,000 ounces between 1937 and 1966 and YCGC Dredge #9 mined 113,000 ounces between 1938 and 1966.

This particular 8-claim block (hereafter referred to as "the project area") was worked by YCGC Dredge #8 in the downstream direction from 1938-1942. Dredge #8's production in this project area was infamously lower than expected. During three of the five seasons during which dredging occurred in this project area, less than 55% of expected gold was recovered. The rational for this is further explored in the *Exploration of Historic Records by Yukon Consolidated Gold Corporation (YCGC)* section of this report. The dredge continued working downstream of the project area until the 1960's when it returned to this claim block, dredging a final, narrow strip along the right limit. Dredge #8 was then decommissioned at the top of this claim block, where it still sits today.

Mechanical mining replaced the dredges after 1966 and dozens of operations have mined on Sulphur Creek from then up to the present day. Much of the activity is documented in LeBarge (2007) with more recent mining documented in LeBarge and Welsh (2007), LeBarge and Nordling (2011), van Loon and Bond (2014) and van Loon and Bond (2021). Gold production from these sources and Yukon Government royalty records shows a total of over 355,000 ounces produced from Sulphur Creek between 1940 and 2019. This does not include the hand mining from the 40+ years previous.

This particular 8-claim block (the project area) did not see significant mining activity after dredging. Instead, mining operations upstream of this block used this area as a massive settling pond. This settling pond extended approximately from the location of the decommissioned Dredge #8 to the boundary between the Tamie and Karen claims. The berm forming the downstream edge of the pond can be seen in aerial photographs taken before 2021 (see Figure 8).

Though modern mining in the project area is limited, just *downstream* of the project area lies the property formerly owned by Mr. Henry Kruger, which is outlined in Figure 3. Both the left and right limits of this package have been mined in a targeted manner since the 70's. Figure 3 shows the approximate locations of mining on the Kruger package.

- The Kruger placer mining operation was active beginning in the mid 1970's and mined extensively on the right limit using a wash plant that processed 50 loose cubic yards (38 m^3) of gravel per hour.
- In 2010, Coulee Resources leased some of the property and mined a cut on the left limit.
- In 2014, Tusk Exploration Ltd. under the management of Gary Crawford, established an agreement with Mr. Kruger (Bond and van Loon, 2018) to mine on the property. A pit was mined on the left limit in 2017. A custom-built trommel processed material at a rate of 80 loose yd3 (61 m3)/hr.
- In 2018, Tusk Exploration Ltd., in JV partnership with Yukon Alpine Heliski Ltd, mined a pit on the left limit of placer claims Claim 3 (P 00501) and Claim 4 (P 00502).
- In 2019, most of the claims which were part of the original Kruger property were transferred to Grim Estates Ltd. Under the management of Yukon Alpine Heliski Ltd., two cuts were mined: one on the left limit on Claim 5 (P 00503) and Claim 6 (P 00504) just downstream of the Tamie 2 claim, and one on the right limit upstream of Tusk Exploration Ltd.'s 2017 pit.
- In 2020, Grim Estates Ltd. under the management of Yukon Alpine Heliski Ltd. extended the downstream right limit mining cut.

The first modern mining on the 8-claim block project area was in 2021 and 2022 with two small test pits, which are detailed in the modern exploration portion of this report.

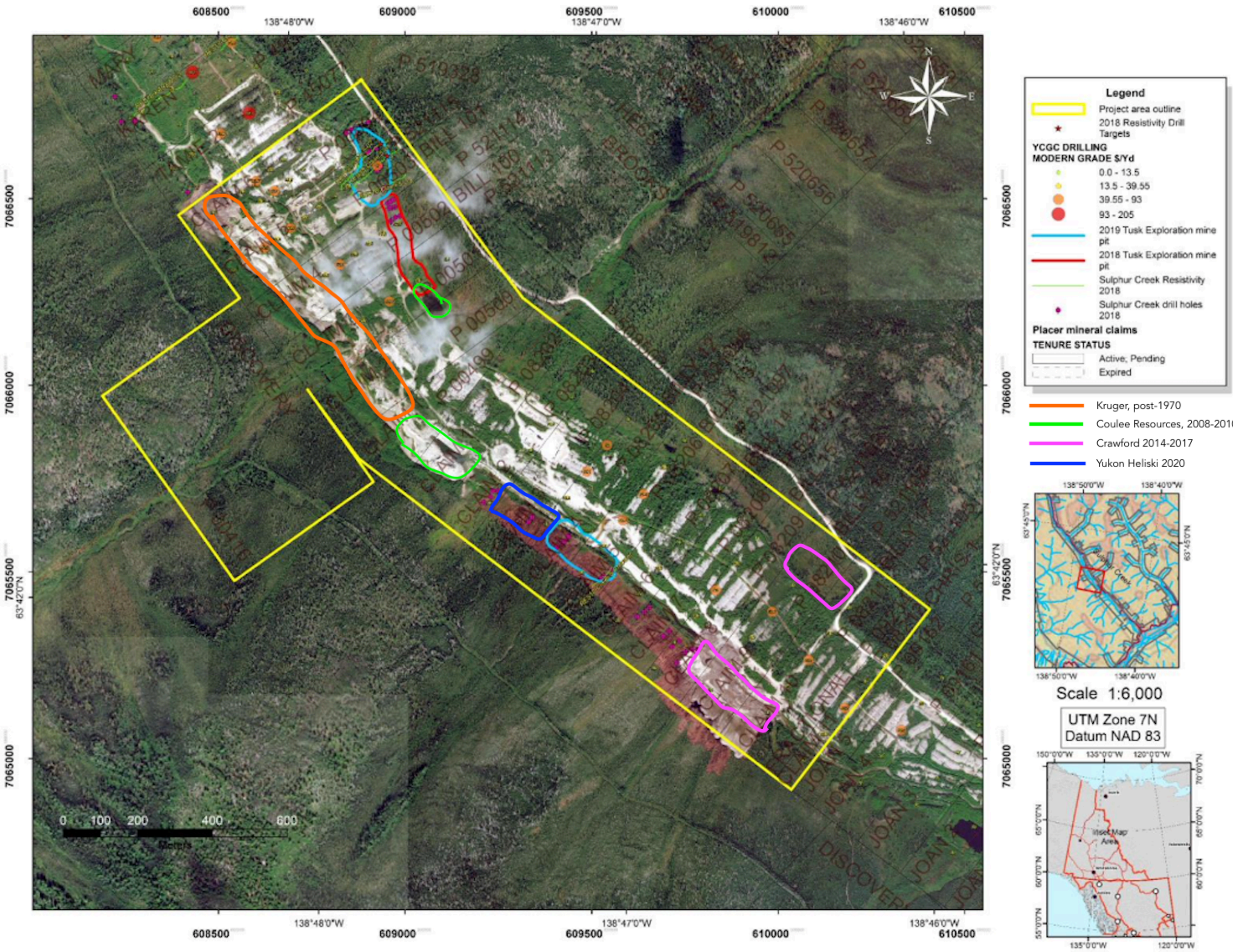

Figure 3 - Satellite map of the Kruger claims (downstream of project area), showing approximate location of post-dredge mining pits.

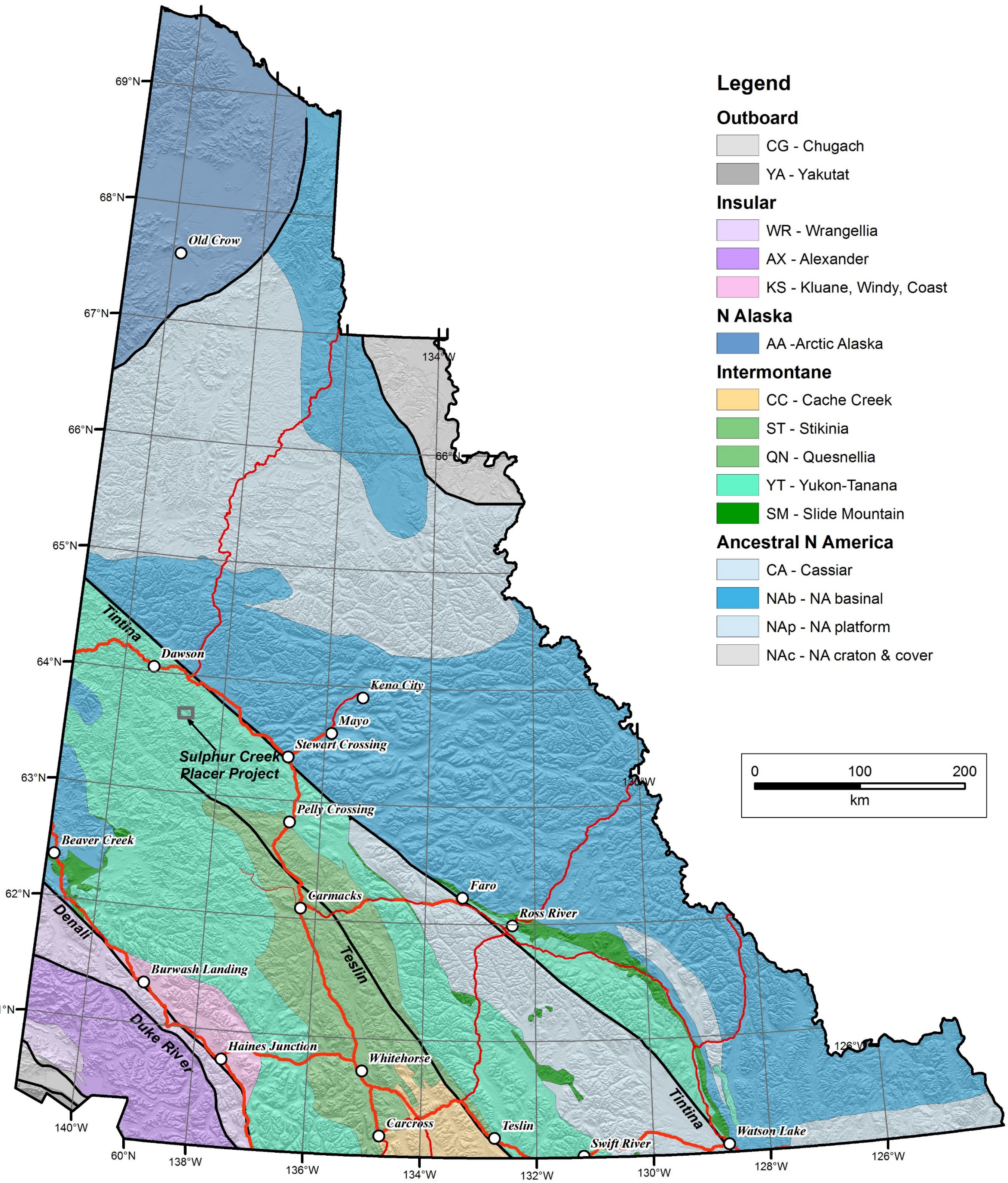

Figure 4 - Terrane map of Yukon, showing location of the Sulphur Creek option package on Sulphur Creek. After Yukon Geological Survey (2023).

Geology

Regional Bedrock Geology

The project area is situated within the Yukon-Tanana terrane (Figure 4), an accreted pericratonic sequence that covers a large part of the northern Cordillera from northern British Columbia to east-central Alaska (Gordey and Ryan, 2005; Colpron and Nelson, 2006). The Yukon Tanana Terrane consists of Paleozoic schist and gneiss that were deformed and metamorphosed in the late Paleozoic, and intruded by several suites of Mesozoic intrusions that range in age from Jurassic to Eocene (Colpron and Nelson, 2006). The Paleozoic rocks are pervasively foliated with at least two overprinting fabrics (MacKenzie and Craw, 2010; MacKenzie et al, 2008). During Late Permian to Early Jurassic time these rocks were tectonically-stacked along thrust faults which were parallel to regional foliation. Later tensional-extensional tectonics occurred during the mid-Cretaceous, and this resulted in brittle fracture of the Paleozoic rocks, which is likely responsible for structurally-controlled gold mineralization in the south Klondike area including the White Gold exploration camp (MacKenzie et al, 2008; MacKenzie and Craw, 2010; MacKenzie and Craw, 2012).

Major units in the Klondike area include: the Snowcap (Nasina) Assemblage, the Klondike Series, the Slide Mountain (Moosehide) Assemblage, upper Cretaceous Carmacks Group volcanics/volcanoclastics, and Eocene intrusives (Figure 3). The basement unit is the Snowcap (Nasina) Series, consisting of metamorphosed schist and quartzite. It is overlain by the Klondike Series, a dominantly quartzofeldspathic schist of Early Permian (280 m.y.) age. Mid-Permian Sulphur Creek orthogneiss cuts the Klondike Schist extensively along Sulphur Creek. In the south and west Klondike, the Klondike Series is in contact with Late Devonian to Mississippian Simpson Range orthogneiss. Structurally overlying the Klondike and Nasina Series are greenstone and altered ultramafic of the Slide Mountain (Moosehide) Assemblage. In the east and south Klondike, upper Cretaceous andesitic volcanics and clastic sediments occur. These units are intruded by Eocene age rhyolite and diorite dykes and sills. Significant lode gold has been found throughout the Klondike and south Dawson areas (Chapman et. al., 2011 and others). The precise relationship between lode gold sources and local placer gold deposits is enigmatic and has been the subject of many scientific studies.

Local Bedrock Geology and Mineral Occurrences

Figure 5 shows the bedrock underlying the property and throughout most of lower Sulphur Creek as Sulphur Creek orthogneiss (map unit PqS). Immediately to the east and west of this central unit, the bedrock consists of Klondike Schist (map units PK1 and PK2). Farther to the east lies Snowcap (Nasina) assemblage quartzite and schist (map unit PDS1).

There are two known mineral occurrences near the placer claims on Sulphur Creek. The first is Minfile #115O 132 (DEVINE), which is a 2.4 m wide quartz vein (also known as the Kentucky Lode) which was first discovered in 1901 (YGS, 2018). It is hosted in Snowcap (Nasina) assemblage quartzite and schist. Historical values of 7.9 g/t gold with traces of silver and copper have been reported. Minfile #115O 133 (SULPHUR) lies downstream and is hosted in the same bedrock. Little is known about this occurrence although the area was drilled extensively in the mid 1980's.

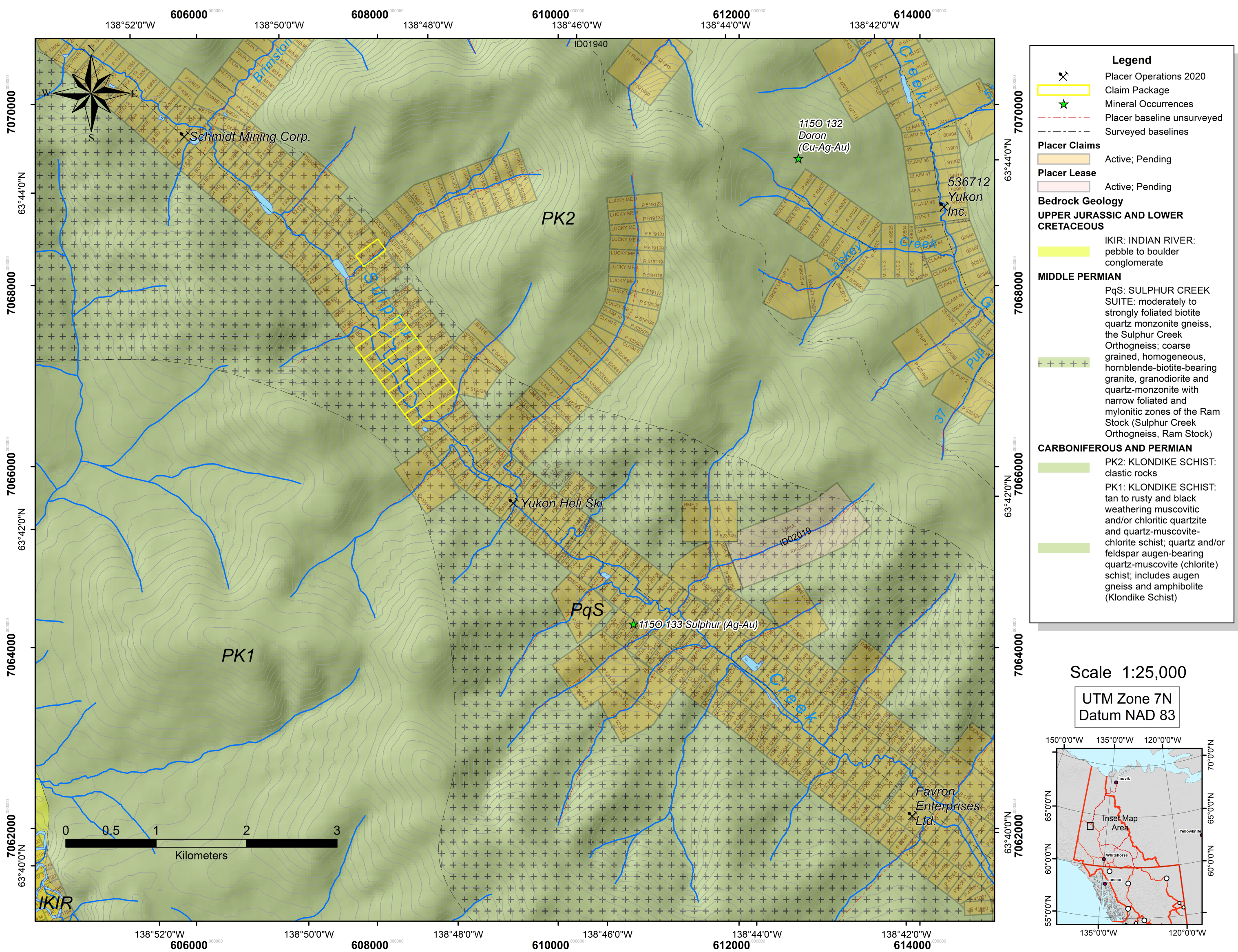

Figure 5 - Bedrock Geology of lower Sulphur Creek, after Yukon Geological Survey (2023).

Quaternary History

Most of the Klondike region has not been glaciated (Duk-Rodkin, 1999; Jackson et al., 2001). However, the marginal effects of a pre-Reid glaciation deposited glaciofluvial gravel along Australia Creek and Indian River. These were sourced from meltwater channels which breached the divide in the headwaters to the east. There is no evidence that glacial ice advanced into the drainage, although the pre-Reid glaciofluvial terraces covered pre-existing Tertiary White Channel gravels. These are especially evident in downstream reaches above Indian River (Froese and Jackson, 2005). The Sulphur Creek drainage, upstream of Indian River, escaped glaciation altogether. However, climatic influences and base level changes brought on by regional glaciations would have had significant effects on the weathering and erosion of local bedrock, as well as the deposition of the alluvial and colluvial materials into the local valleys.

Surficial Geology

The surficial geology of the project area was mapped by Froese and Jackson (2005). Along Sulphur Creek lie surficial units of several ages and types, shown in Figure 6. These include: CEaP/AtT (Pleistocene colluvial-aeolian sediments overlying Tertiary alluvial terrace sediments), CEaP (Pleistocene colluvial-aeolian sediments), AtP (Pleistocene alluvial terrace), ACxP (Pleistocene alluvial/colluvial complex), Ax (alluvial complex), Cx (colluvial complex), Cl (landslide) and Cb-v (colluvial blanket-veneer). In general, the AtT (Tertiary alluvial terrace) units are more prevalent downstream, whereas upstream reaches are dominated by ACxP (Pleistocene alluvial/colluvial complex) and Cx (colluvial complex). The main placer claim area is mapped as M (made land - mined) and Ax (Alluvial Complex) in the valley centre, flanked by Cx (colluvial complex).

Placer Geology

Placer gravels in Dominion Creek and its tributaries (Gold Run and Sulphur) can be characterized by 5 types of deposits: Pliocene White Channel gravel; Pleistocene terraces; early Pleistocene incised-valley gravel (Ross gravel); Pleistocene Dominion Creek gravel; and creek and gulch deposits (Froese et al., 2001).

Bond and van Loon (2018) describe the stratigraphy on a downstream right limit cut in 2017 as consisting of four units. Unit 1 is a decomposed quartz-feldspar gneiss, which becomes more competent after a depth of 1.0 m (3.3 ft). Unit 2 is a continuous mixing zone between the weathered gneiss bedrock and the upper gravel unit. The mixing zone undulates and has a thickness ranging between 0.3 and 0.6 m (1.0 & 2.0 ft). The unit consists of medium sand that contains subrounded to rounded pebble and cobble-sized clasts. Overlying the mixing zone is unit 3, a pebble-cobble gravel from 0.6 to 2.4 m (2.0-7.9 ft) thick that contains 60% pebbles and 40% cobbles. It is a light grey gravel known as “Ross gravel” and is matrix-supported with medium sand and minor silt, is fairly loose, and has rare boulders up to 0.3 m (1.0 ft) in length. Ross gravel is an incised-valley gravel and despite its similarity to White Channel gravel, is significantly younger (Froese et al., 2001). Unit 4, from 2.4 to 8.0 m (7.9-26.2 ft), consists of interbedded fine-grained sand and silt, and loess. Up to 1.5 m (5 ft) of gravel and 0.6 m (2 ft) of bedrock was sluiced.

Van Loon and Bond (2021) describe a 2020 right-limit cut just downstream of the Yukon Alpine Heliski camp as a mixing zone pay unit overlain by early Pleistocene incised-valley gravel locally known as the Ross gravel, and interbedded sand and silt. Stratigraphic units were similar in lithology and thickness to the 2017 mining cut described above.

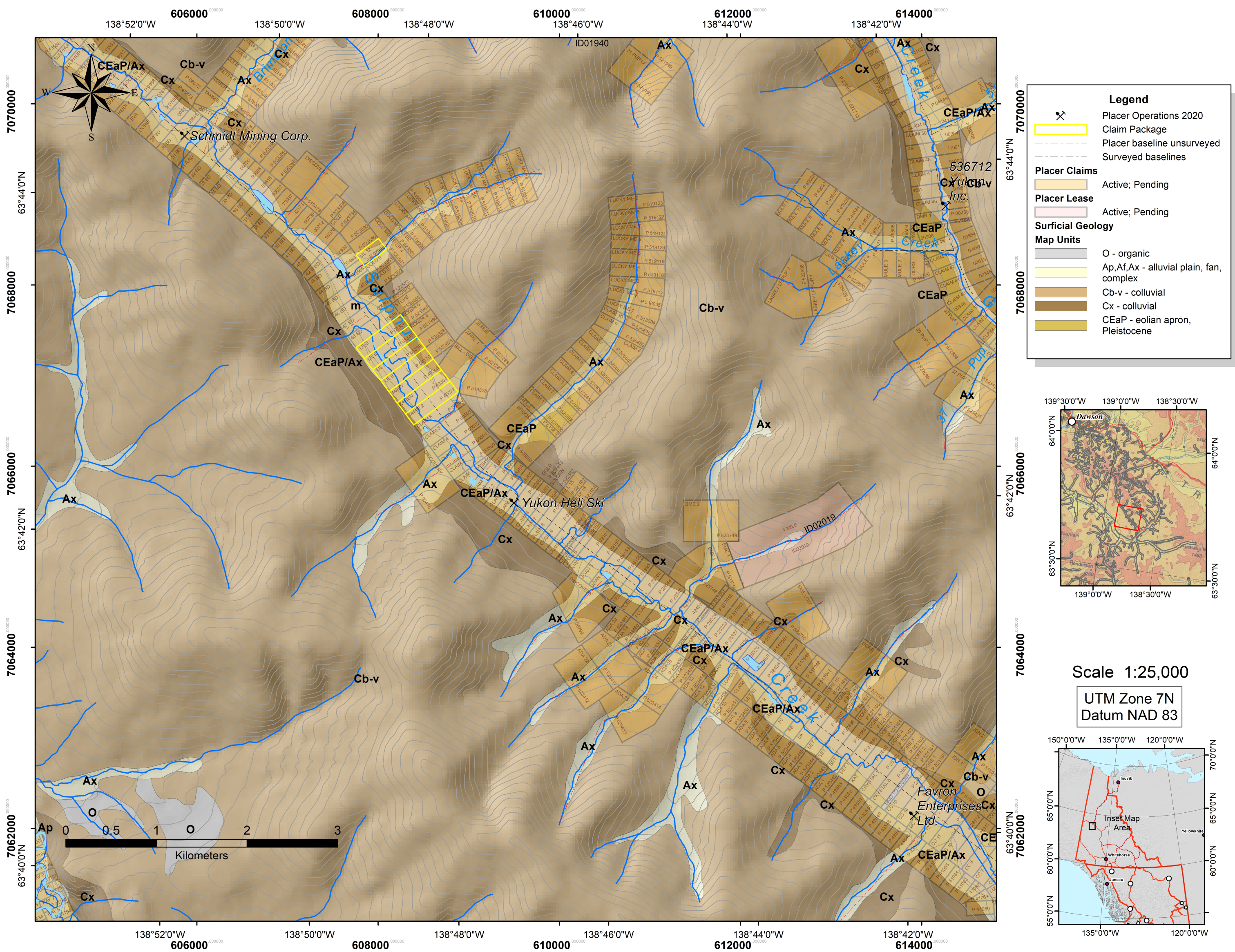

Figure 6 - Surficial Geology of the claim option package, lower Sulphur Creek, after Froese and Jackson (2005).

Exploration of Historic Records by Yukon Consolidated Gold Corporation (YCGC)

As outlined in the *History of Mining – Sulphur Ck* section of this report, Dredge #8's production in this project area was infamously lower than expected. During three of the five seasons during which dredging occurred in this project area, less than 55% of expected gold was recovered. This was unusual for YCGC whose drilling was generally taken as a reliable guide for production. Yukon Alpine Heliski Ltd. sought out YCGC historic records to better understand the discrepancy between the 1936-1940 drill results and the lower actual gold values obtained during dredging.

YCGC Drilling: 1936-1940

Table 2 below details the historic YCGC drilling (Keystone churn drilling) which was done in the 1930's and 1940's prior to dredge mining within the placer claim package (van Loon, 2017; YGS 2021.) Historic grade is assumed to be @US$20.67 oz. Modern grade was calculated using CDN$2470/oz.

Table 2 – YCGC drill results on Keystone drill holes located on the claim package. Source: YCGC Textural and Map Files, available from Yukon Geological Survey.

DRILL HOLE NAME	OVERBURDEN THICKNESS (m)	DREDGE SECTION (m)	HISTORIC GRADE (cents/yd3)	MODERN GRADE ($/yd3)	GRADE (oz yd3)	Latitude (updated 2021)	Longitude (updated 2021)
3	0	5.568	0.9	1.08	0.000435	63.714202	-138.807645
15	6.264	5.916	1.2	1.43	0.000581	63.717211	-138.817203
12	10.44	4.872	2.4	2.87	0.001161	63.71567	-138.805038
5	0	8.7	3	3.58	0.001451	63.712886	-138.806307
6	9.744	3.132	3	3.58	0.001451	63.717652	-138.809965
15	5.22	4.872	4	4.78	0.001935	63.710263	-138.806356
15	7.5168	1.392	4	4.78	0.001935	63.712675	-138.810157
5	0	7.308	4.1	4.90	0.001984	63.715138	-138.809838
7	0	7.308	4.8	5.74	0.002322	63.713851	-138.80862
13	6.612	2.436	4.8	5.74	0.002322	63.713858	-138.810855
15	8.7	2.436	5.1	6.09	0.002467	63.714949	-138.813319
6	3.132	5.916	6.9	8.25	0.003338	63.711911	-138.8011
13	8.004	1.392	7.1	8.48	0.003435	63.716109	-138.814993
8	16.008	4.524	8.7	10.40	0.004209	63.712139	-138.8003
8	12.18	2.784	9.6	11.47	0.004644	63.716763	-138.807492
2	5.22	4.872	11.2	13.38	0.005418	63.711187	-138.80164
7	6.264	2.088	13.5	16.13	0.006531	63.716701	-138.813036
1	2.784	6.96	13.7	16.37	0.006628	63.711428	-138.802586
19	5.22	2.784	15.1	18.04	0.007305	63.711304	-138.808348
9	6.96	4.872	15.4	18.40	0.007450	63.715337	-138.812033
8	8.7	6.612	15.8	18.88	0.007644	63.719107	-138.811094
2	6.96	10.44	17.2	20.55	0.008321	63.711663	-138.801814
9	2.784	5.22	23.7	28.32	0.011466	63.710257	-138.804666
2	5.568	4.524	24.1	28.80	0.011659	63.71863	-138.812614
3	6.612	5.22	27	32.26	0.013062	63.711198	-138.803344
9	5.22	4.872	27.8	33.22	0.013449	63.71072	-138.804857
1	6.264	2.436	32.2	38.48	0.015578	63.717178	-138.811483

DRILL HOLE NAME	OVERBURDEN THICKNESS (m)	DREDGE SECTION (m)	HISTORIC GRADE (cents/yd3)	MODERN GRADE ($/yd3)	GRADE (oz yd3)	Latitude (updated 2021)	Longitude (updated 2021)
9	5.568	2.784	33.6	40.15	0.016255	63.713139	-138.808619
13	6.264	2.436	34.7	41.47	0.016788	63.711608	-138.807335
8	12.528	1.74	39.5	47.20	0.019110	63.713015	-138.802828
3	3.48	5.22	42.7	51.03	0.020658	63.710955	-138.802393
7	2.784	6.264	46.8	55.92	0.022642	63.710483	-138.803902
2	8.004	3.48	48.8	58.31	0.023609	63.716281	-138.809005
1	3.132	5.916	58.1	69.43	0.028108	63.714814	-138.807818
7	2.436	7.308	63	75.28	0.030479	63.710965	-138.804089
3	6.612	3.48	68.8	82.21	0.033285	63.715754	-138.810724
3	6.96	3.48	71.2	85.08	0.034446	63.718162	-138.814167
7	6.96	4.176	77.8	92.97	0.037639	63.712091	-138.80585
5	2.784	6.612	81.3	97.15	0.039332	63.710724	-138.803138
7	6.612	3.48	88	105.16	0.042574	63.714337	-138.809374
9	6.612	3.48	97.5	116.51	0.047170	63.717693	-138.815676
2	6.612	3.828	110.4	131.92	0.053411	63.714081	-138.805573
3	4.872	5.568	163.4	195.26	0.079052	63.713468	-138.80754
1	5.916	6.264	272.9	326.11	0.132027	63.712556	-138.804336

These drill holes are plotted on Figure 8 according to their updated (2021) georeferenced locations, along with their modern grades with the gold price @CDN$2470/oz.

YCGC Mining: 1938-1942, 1966

The area of the project claims was mined by YCGC Dredge #8 from 1938 to 1942, and it includes the area from the historic claims 49B/D to 56B/D. Figure 7 shows the areas mined by year in this time period and the modern equivalents of the historical claim names/boundaries (YCGC map dated Oct 20, 1943).

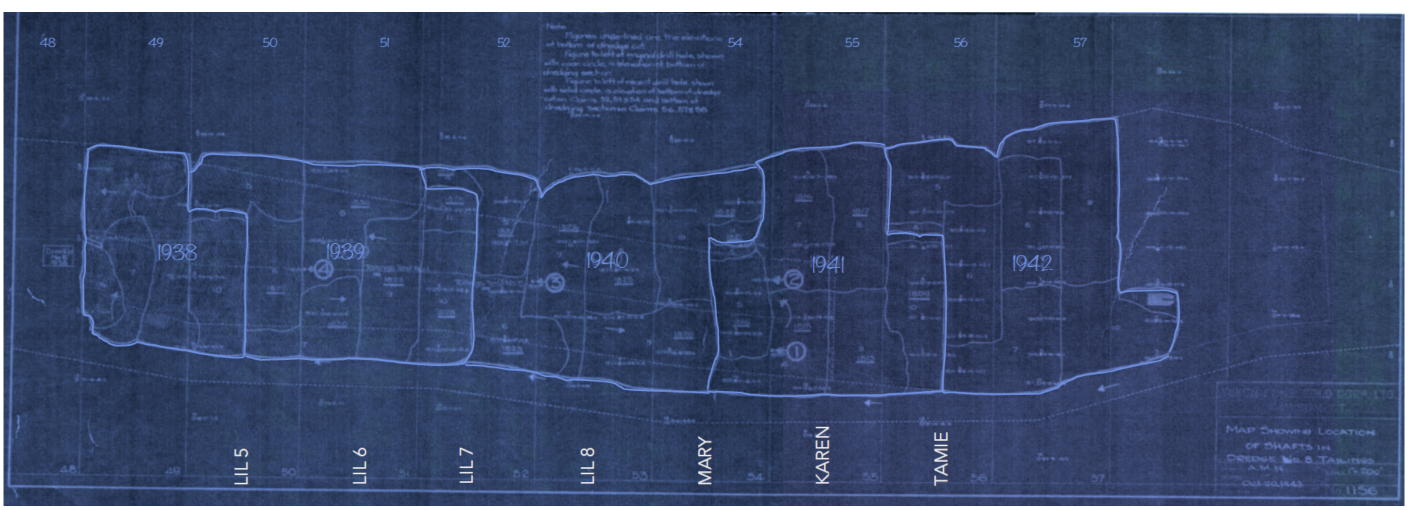

Figure 7 - YCGC Map dated Oct 20, 1943, showing areas mined by Dredge #8 from 1938-1942 in project area.

YCGC records show that 37,900 fine ounces of placer gold were recovered from this area by Dredge #8 between 1938 and 1942. Approximately 3000 additional fine ounces were recovered through this area in 1966, when Dredge #8 mined back upstream along the virgin right limit to where it currently rests, near its starting point in 1938.

YCGC Shafting: 1942

The mining by Dredge #8 in the area did not go as planned by YCGC – the amount of reserves indicated by the drill program were much higher than what was actually mined. Therefore, in an effort to explain this discrepancy, four shafts were dug in the area by YCGC in the spring of 1942.

Table 3 summarizes the stratigraphy and sampling results in the four shafts. The YCGC report concluded that all shafts encountered sections of undredged and virgin ground. This was for two reasons: 1) the dredge having skipped ahead due to frozen ground; and 2) excessive amounts of mud and sand (presumably deposited as tailings during mining by the dredge itself). A longer tailings stacker was used in later years which mostly solved the second problem.

It was also noted that considerable "yellow" clay with the gravel on bedrock was encountered by the dredge in this area. This was not washed well and subsequently was deposited in tailings, especially near Shaft #2. This clay in tailings was tested and found to have significant fine gold values (described as "35 to 60 very fine colours per pan").

Table 3 - Stratigraphy and overall sampling results, YCGC Shafts 1-4. YCGC Textural Records, Yukon Geological Survey.

Stratigraphy and Sampling Results	Shaft 1	Shaft 2	Shaft 3	Shaft 4
Top Muck (ft)	5.5	4.0	4.0	4.0
Dredge Sand (ft)	13.0	11.5	16.5	17.5
Virgin Gravel (ft)	-	5.5	-	2.5
Virgin Bedrock (ft)	3.5	2.0	2.5	1.0
Total Depth (ft)	22.0	23.0	23.0	25.0
Total Dirt Removed (yd^3)	13.3	13.6	12.6	14.7
Muck (yd^3)	4.5	3.3	3.3	3.3
Dredged and virgin material (yd^3)	9.8	10.3	9.3	11.4
Dirt sluiced (including muck) (yd^3)	8.0	10.5	5.0	10.0
Weight of gold recovered (mg)	470	5725	405	653
Value in cents with Au at CDN$38.50	46.3	561.1	39.7	64.0
Value cents per yd^3 dredged and virgin	4.74	54.47	4.27	5.62
Value cents per yd^3 dirt sluiced	5.79	53.43	7.94	6.40
Value cents per square foot	2.90	39.15	3.02	4.37

Shafts #1 and #2 are located on the southernmost edge of the Mary claim. Shaft #3 is located on the boundary between claims LIL 7 and LIL 8, and Shaft #4 is located at the boundary between claims LIL 5 and LIL 6. Table 4 shows the calculated grades of the "virgin undredged section" of the shaft areas, according to calculations by YCGC engineers. Modern grades @CDN$2470/oz are also shown. All shafts are plotted (Figure 8) according to their apparent location on recently re-georeferenced YCGC map scans, and their geographic coordinates are also given in Table 4.

Table 4 - Calculated grades of virgin undredged sections of YCGC shafts 1-4, Sulphur Creek.

Shaft No.	Value of gold recovered	Area ft^2	Depth ft	Value per ft^2	Value cents per yd^3 (@CDN$38.50)	Value $ per yd^3 (@CDN$2470)	Latitude DD	Longitude DD
1	41.7	10.52	3.5	3.96	30.6	$36.57	63.712168	-138.807014
2	505.0	12.37	7.5	40.8	146.9	$175.54	63.712677	-138.805537
3	35.7	10.52	2.5	3.39	36.6	$43.74	63.714915	-138.809208
4	57.6	10.52	3.5	5.47	42.2	$50.43	63.717173	-138.812432

Estimated vs. Mined Gold Comparison

Table 5 is derived from a YCGC memo dated 25 November 1943. This table compares the estimated placer gold vs the recovered placer gold per mining cut in the project area from 1938 to 1942. The amount of fine gold ounces which were not recovered (but were expected) in this area is calculated from the dollar values shown using a historic gold price of CDN$38.50/oz. While there is some variability by individual mining cut and year, calculations show that a total of 22,402 fine ounces may have been left behind by YCGC Dredge #8 in this area, according to these historical, non-verified YCGC figures.

Figure 8 is a compilation map which shows the project claims, the 1936-1940 Keystone drill results, the outlines of the 1938-1942 mining cuts and the percentage of drill-indicated placer gold recovered in each mining cut. This map has been used to estimate high-potential mining zones (hereafter referred to as "red zones") within the claim block.

Table 5 - YCGC comparison of placer gold recoveries in project area, drill indicated vs mined, Sulphur Creek, from YCGC memo, 25 November 1943.

Period	Expected Gold Recovery ($)	Actual Gold Recovery ($)	Recovered gold as % of expected gold	Value of missing gold ($)	Calculated fine ounces of missing gold @$38.50/oz
1938					
May-July	100,920.00	25,512.00	25%		
Aug-Sept	122,308.00	50,196.00	41%		
Oct-Nov	47,621.00	33,018.00	69%		
SEASON	270,849.00	108,726.00	40%	$162,123	4,210.99
1939					
May-June	44,350.00	41,743.00	94%		
July-Aug	52,579.00	68,729.00	131%		
Sept-Nov	84,478.00	96,527.00	114%		
SEASON	181,407.00	206,999.00	114%		
1940					
May-June	88,514.00	52,092.00	59%		
July-Aug	223,832.00	126,659.00	57%		
Sept-Nov	350,956.00	125,644.00	36%		
SEASON	663,302.00	304,395.00	46%	$358,907	9,322.26
1941					
May-June	240,515.00	114,379.00	48%		
July-Aug	366,574.00	137,470.00	38%		
Sept-Nov	135,166.00	148,961.00	110%		
SEASON	742,255.00	400,810.00	54%	$341,445	8,868.70
1942					
May-June	104,725.00	118,404.00	113%		
July-Aug	119,066.00	152,207.00	128%		
Sept-Nov	159,194.00	167,612.00	105%		
SEASON	382,985.00	438,223.00	114%		
OVERALL	2,240,798.00	1,459,153.00	65%		22,402

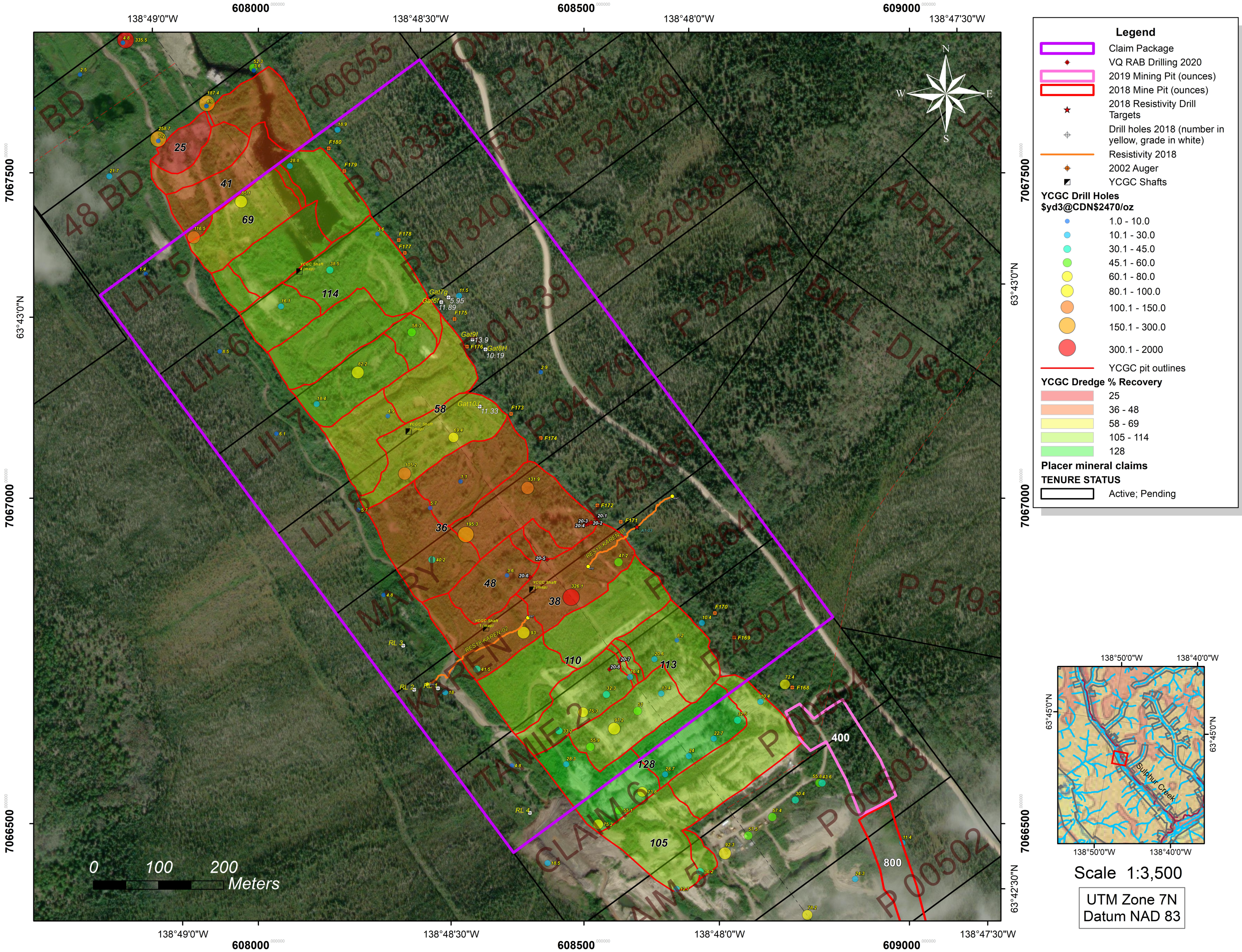

Figure 8 - Compilation map showing claim option package, YCGC drilling and mining cuts, and 2002 to 2020 exploration and mining activity.

Modern Exploration

Modern exploration focused initially on the left bench of the claim package, and in more recent years (since 2020, after analysis of the YCGC historic records and the low percentage of drill-indicated placer gold recovered), focus has shifted to exploration of mining targets below the dredge tailings.

2002 Auger Drilling (Left Bench)

In 2002, Henry Reinecke drilled 13 auger drill holes on the left limit of the claim package (Reinecke, 2002). The results are summarized in Table 6 below, along with coordinates of the drill holes estimated from maps hand drawn by the driller. The drill holes are plotted on Figure 8.

Table 6 - Summarized results of auger drilling in 2002 by Henry Reinecke.

Drillhole	Claim Location	Feet from dredge limit	Au mg	Overburden thickness (ft)	Thickness of gravel (ft)	Latitude DD	Longitude DD
F168	P 00504	35	0	28	0	63.711207	-138.797566
F169	P 45077	0	19	28	0	63.711923	-138.799317
F170	P 45077	0	52	26	0	63.712269	-138.799886
F171	P 49365	10	13	25	2	63.713571	-138.802713
F172	P 49365	45	26	28	1	63.71381	-138.803424
F173	P 04170	10	26	27	2	63.71511	-138.806006
F174	P 04170	40	26	33	0	63.714764	-138.805109
F175	P 01339	35	19	33	0	63.716445	-138.807665
F176	P 01339	5	52	30	5	63.716057	-138.807303
F177	P 01340	10	0	30	3	63.717379	-138.809137
F178	P 01340	30	0	30	2	63.717558	-138.809311
F179	P 01338	10	0	32	2	63.718536	-138.810931
F180	P 01338	0	0	34	2	63.718856	-138.811388

Several of the drill holes showed promising amounts of gold, including F 170 (52 mg) on the TAMIE 2 claim and F 176 (52 mg) on the LIL 7 claim.

2018 Exploration (Left Bench)

Auger drilling

Between May and October 2018, 9 six-inch diameter auger drill holes were drilled in the project area. The drill unit was mounted on a Nodwell tracked vehicle. Table 7 lists the coordinates, total depths and sampling results of the 2018 drill holes. The drill holes are plotted on Figure 8.

Table 7 – 2018 Auger Drill Hole Locations, Depths and Gold Grade Results, Sulphur Creek. Grade calculated @CDN$2470 oz gold

Drill Hole Name	Claim Name Location	Grant Number	Depth_ft	Depth_m	Mg Au in hole	Grade $/yd^3	Latitude	Longitude
RL 1	KAREN	P 49364	17	5.18	< 1	$0.00	63.711363	-138.808568
RL 2	KAREN	P 49364	27	8.23	< 1	$0.00	63.711354	-138.80931
RL 3	MARY	P 49365	25	7.62	< 1	$0.00	63.711967	-138.809606
RL 4	TAMIE 2	P 45077	24	7.32	< 1	$0.00	63.709603	-138.805845
Gat6f	LIL 7	P 01339	38	11.58	14	$18.88	63.716683	-138.808057
Gat7g	LIL 7	P 01339	42	12.80	7	$9.44	63.716745	-138.807824
Gat8H	LIL 7	P 01339	32	9.754	12	$16.18	63.716012	-138.806733
Gat9I	LIL 7	P 01339	32	9.754	18	$22.07	63.716153	-138.807123
Gat10J	LIL 8	P 04170	42	12.80	8	$18.00	63.715226	-138.806972

Some encouraging auger drill hole results were obtained, including grades of $9.44 to $22.07/yd^3 in drill holes GAT6F to GAT10J. Bedrock depths in drill holes varied from 17 ft. to 42 ft. from surface.

Resistivity Surveys

Introduction

Two resistivity lines totalling 391 metres were conducted and interpreted for Yukon Alpine Heliski Ltd. by Selena Magel and William LeBarge of Geoplacer Exploration Ltd. The surveys were conducted in May, 2018.

Methodology

The Lippmann 4-Point Light Resistivity System was used to conduct the surveys. The resistivity technique injects an electrical current into the subsurface through stainless steel spikes and then measures the remaining voltage at various distances away from the injection point. Ground materials have different resistances to the current, and give data points in a cross section of the subsurface. With the data points, a tomogram or pseudo section can be created representing changes of resistivity in the ground. Data was collected using Geotest software, while the inversion and data filtering was completed with RES2DINV software. Data points with poor contact resistance were exterminated and noisy data was filtered statistically with root mean squared data trimming. Two-dimensional tomograms were produced using least squares damped inversion parameters to display the resistivity properties and to display potential contacts.

The two-dimensional images are used for preliminary interpretations of bedrock structure. The images were interpreted by William LeBarge and Selena Magel.

General principles and assumptions of electrical resistivity are:

1. Low resistivity can indicate thawed and water saturated areas, as well as fine-grained material.
2. Very high resistivity values can be due to ice rich material and frozen or highly disturbed ground.
3. Dry gravels, cobbles and boulders generally have high resistivity values.
4. The contrasts between values is more important in determining contacts than the absolute values found with resistivity data.

Limitations and Disclaimer

The interpreted sections provide an estimate of the conditions beneath the surface to the depths conducted and are within the accuracy of the system and methods. The data becomes more uncertain with depth and are more accurate toward the surface and is further complicated if there is permafrost present in the region. The materials are interpreted based upon local geology observed, as well as geologic knowledge of the area. Certain materials may be similar in composition and result in uncertain results. The accuracy of the information presented is not guaranteed and all mine development is the client’s responsibility. William LeBarge and Selena Magel of Geoplacer Exploration Ltd. accept no liability for any use or application of these data by any and all authorized or unauthorized parties.

Results

The presence of permafrost throughout the survey areas increased the uncertainty of the interpreted results. Permafrost was continuous on north and east-facing slopes, and discontinuous on portions of south and west-facing slopes. Parts of the valleys which had been mined or disturbed were usually thawed and associated with high water saturation. In these areas, contrasts between low and high resistivity values were likely partially or wholly a reflection of varying groundwater and permafrost conditions, rather than strictly lithological boundaries.

The geographic coordinates of the endpoints of the surveyed lines are shown in Table 8, and the lines are plotted on Figure 8. The interpreted profiles are shown as Figures 9 and 10.

Table 8 – 2018 resistivity survey lengths, grant number locations and endpoint geographic coordinates, Sulphur Creek.

Survey Name	Grant Number	Start Point		End Point		Length (m)
		Latitude	Longitude	Latitude	Longitude	
RES18-KAREN-01	P 49364	63.7138979	-138.801084	63.7129698	-138.80377	188
RES18-KAREN-02	P 49364	63.7122923	-138.805704	63.7114244	-138.80889	203

Resistivity line RES18-KAREN-01 was partially surveyed over the left limit bench outside of the dredge limits. In this area, one potential drill target was identified at a potential depth of 14 m (46 ft.). The coordinates and projected depth of this drill target is shown in Table 9 and the location is plotted on Figure 8.

Table 9 – Coordinates and depth of drill target identified from resistivity surveys on Karen claim, Sulphur Creek.

Name	Resistivity Line	Latitude	Longitude	Target Depth (ft)	Target Depth (m)
A1-03	RES18-KAREN-01	63.713493	-138.802216	46	14

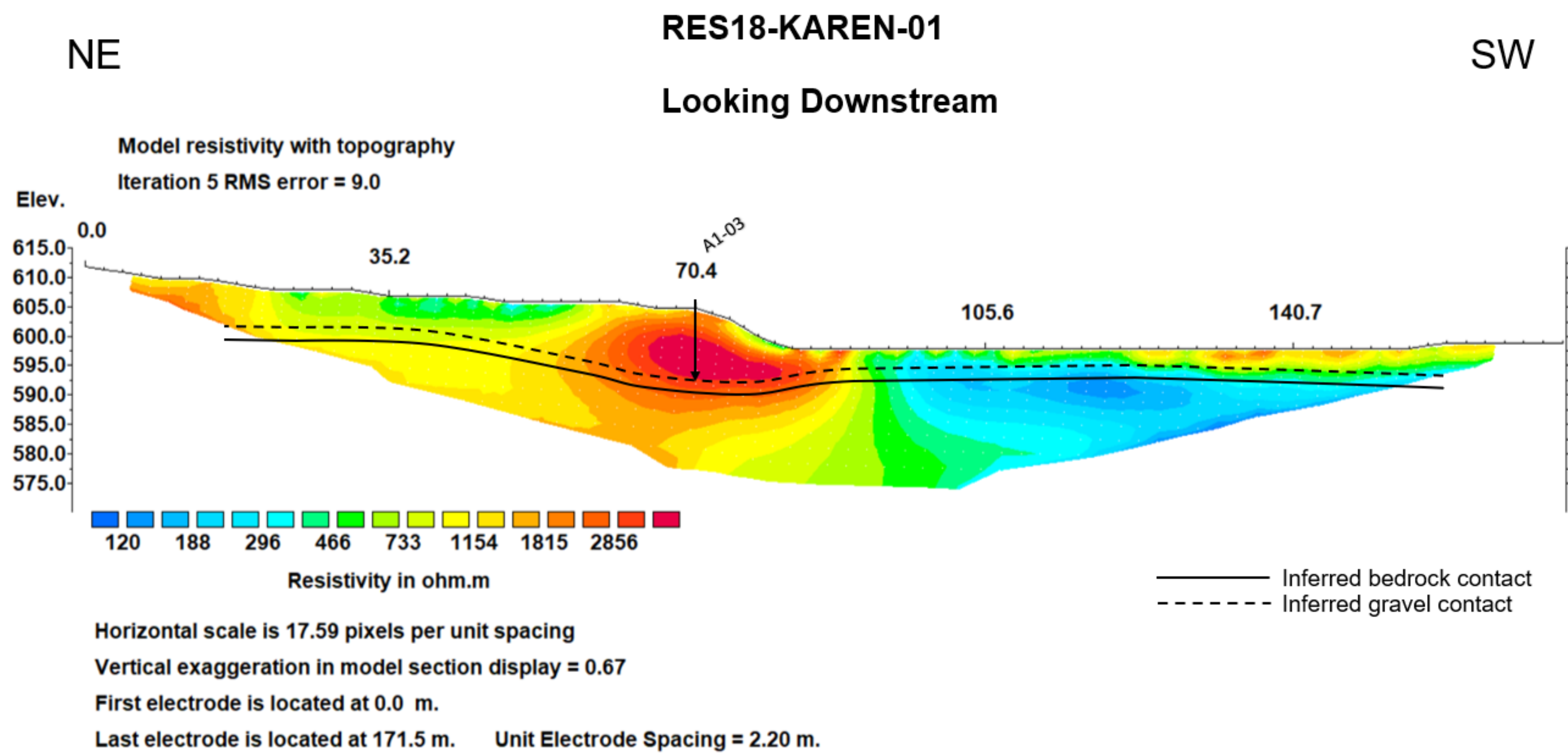

Figure 9 - RES18-KAREN-01 was surveyed on the left limit. The bedrock and gravel contacts are interpreted as gently undulating and following topography. One potential drill target at a depth of 14 m (46 ft.) is shown at the 70-metre mark.

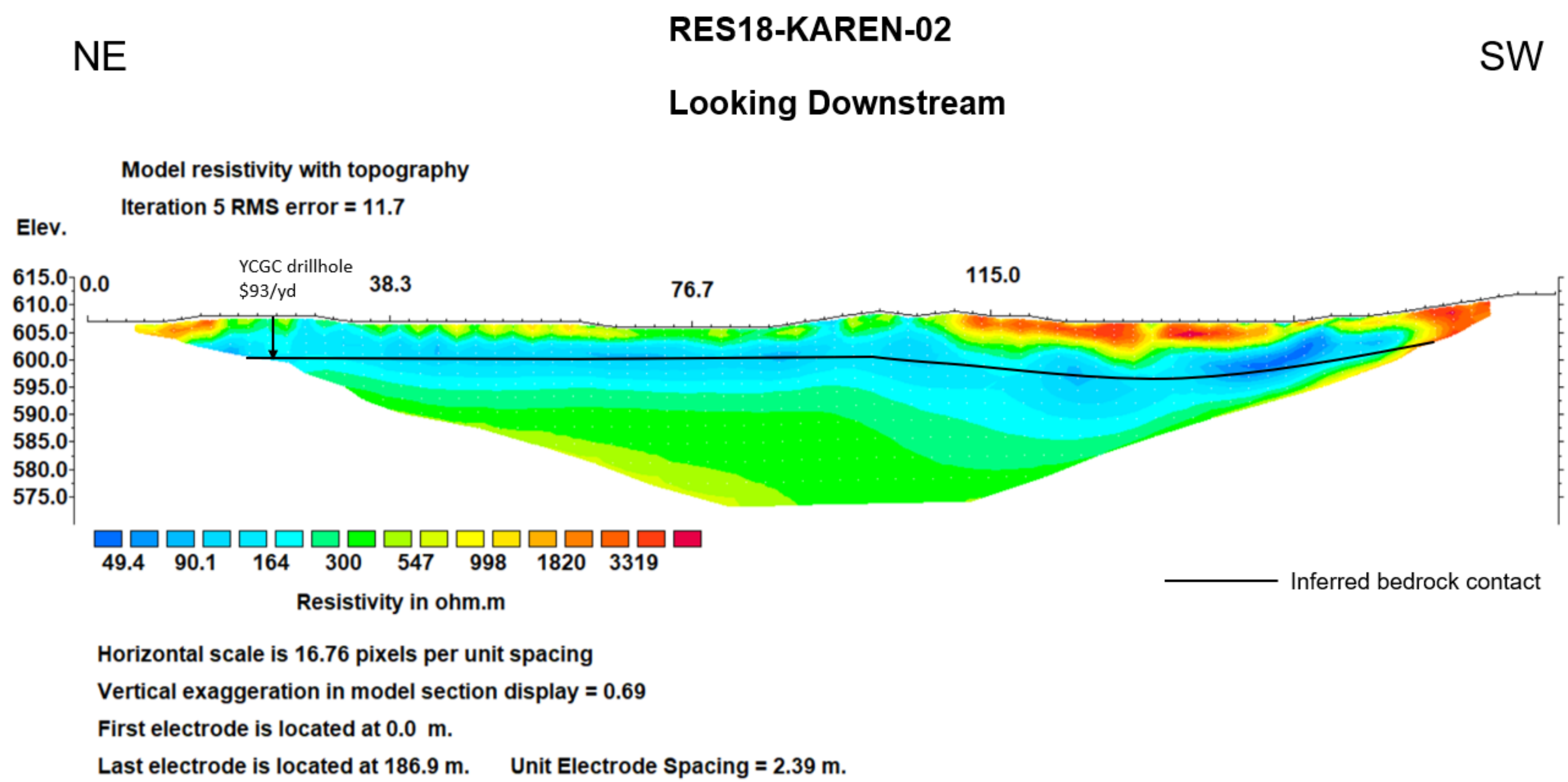

Figure 10- RES18-KAREN2-02 was surveyed in the flat valley bottom and crosses over a historic YCGC drill hole with a modern value of $93/yd^3. The bedrock is interpreted as relatively flat with small undulations. No obvious drill targets were identified.

2020 RAB Drilling (under dredge tails)

In October 2020, the first drilling on this property targeting under-tailings mining targets took place. Eight RAB drill holes were drilled by Vision Quest Exploration Ltd.; their locations are shown on Figure 8. Unfortunately, the RAB drilling was not very successful – the drill plugged on two occasions and was unable to collect any sample on 4 occasions. The results are summarized in Table 10 below.

Table 10 – Summarized results from 2020 RAB drilling program, Sulphur Creek claims.

Drill hole #	Depth to Bedrock (ft)	Drill info	Depth of sample (ft)	Volume (L)	Material Description	Gold and Concentrate Description	UTM E	UTM N
20-1	25	Sample from 15-25	15-25	40	schisty sand with small pebbles, probably dredge sand tailings	3 Fine colours, 5 very fine colours. Magnetite, pyrite	7066969	608519
20-2	18	maybe boulder, no sample					7066963	608511
20-3	23	no sample					7066961	608507
20-4	23	no sample					7066960	608504
20-5	23	sample from 20-25	20-23	10	light grey silt with bedrock chips (klondike schist)	black sand	7066906	608443
			23-25	5	light grey silt with bedrock chips (klondike schist)	magnetite, little pyrite		
20-6	-	plugged drill no sample					7066879	608417
20-7	35	25-27 gravel tailings, 27-30 frozen silt, 30-35 sand gravel	16-27	45	dredge sand	magnetite, pyrite	7066749	608555
			27-30	10	silt	magnetite, pyrite		
			30-35	50	some silt, gravel with sand and bedrock	2 Coarse colours, 2 medium colours, 1 very fine colour, garnet and black sand		

Drill hole #	Depth to Bedrock (ft)	Drill info	Depth of sample (ft)	Volume (L)	Material Description	Gold and Concentrate Description	UTM E	UTM N
			35-45	85	bedrock chips (Klondike schist)	1 fine colour		
20-8	32	27-30: silt, 30-32: sand and gravel, 32-35: soft bedrock	27-32	35	Muddy silty sand	1 fine angular colour	7066737	608539
			32-35	25	gravely sand and bedrock	1 very fine, magnetite		

2021 Test Mining

In 2021, based on some high value YCGC drill holes (up to CDN$326/yd^3@$2470/oz, see Table 2) in YGS georeferenced drill data (van Loon, 2017), a test pit was stripped and partially mined on the Tamie 2 claim (Figure 11, Figure 13). It was believed this test pit was in a "red zone" (see Figure 8).

However, late in the 2021 season it was discovered that the initial georeferencing by YGS was incorrect, due to several factors including the discovery of more accurate YCGC maps in Ottawa over the previous winter season. Updated georeferencing showed that the earlier YCGC drill hole geolocations were up to 500 feet too far downstream, and the targeted area was not near the high-grade drill holes shown on previous maps. Table 2, Figure 8, and Figure 13 show the updated coordinates of the YCGC drill holes.

The majority of the 2021 pit was void of pay gravels, however, the upstream end of the test pit exposed up to 5 feet of virgin gravels that the dredge left on bedrock. Upon discovering significant pay gravels, particularly in the left-limit, upstream corner of the intended 2021 pit, the 2021 pit was expanded to include an extra section, as shown by the "jog" in the 2021 pit outline shown in Figure 13.

Although the full test pit was unknowingly located in an area where the dredge recovered 110-113% of the drill-indicated gold, seventy ounces of placer gold were still recovered, primarily from the upstream end, favoring the left limit side of the pit. This shows that even in efficiently mined areas, there remains significant placer gold in place.

Accordingly, the true target area lies upstream of the 2021 test pit, where late-2021 mining shows there are remaining gravel layers, and further upstream where there are several high-grade YCGC drill holes and recovery by the dredge was only 36 to 38% of the gold indicated by drilling.

Figure 11 – Upstream left-limit exposure of test pit on Tamie 2 claim, showing 4-5 feet of virgin gravel on bedrock.

2021 Sonic Drilling

In the late fall of 2021, the opportunity arose for an impromptu sonic drilling program in partnership with Northern Sonic Drilling and a potential mining partner.

A total of 55 holes were drilled with a 6" casing by a drill team led by Kyle Jacobs. The drill grid focused primarily on upcoming mining targets just downstream of 2021 mining pit (holes 1 to 34). An additional 21 holes were drilled along the baseline, starting at the upstream end of the claim block, and proceeding downstream at approximately 80ft spacing.

Drill samples were processed on site with a long-tom and hand panned to recover gold content.

The results of the drilling program were digitized and analyzed as a part of the 2022 exploration program. The locations, depths of the drill holes, and results of drill sampling are shown in Table 11 and plotted on Figure 13.

Table 11 – Locations, depths, gold recovery for 2021 Sonic Drilling, Sulphur Creek Claims; the holes drilled in "red zones" (inferred from YCGC historic data) are outlined in red; the most gold-rich samples are highlighted in green

Hole	Gravel Depth (ft)	Gravel Thickness (ft)	Bedrock Depth (ft)	Total Depth (ft)	depths washed	Au	x-coord	y-coord
SS21-1	25	0	25	35	24-35	2	-138.803608	63.71358251
SS21-2	22	0	22	26	18-26	5	-138.8039298	63.7134199
SS21-3	22	0	22	26	19-26	7	-138.8043714	63.71327711
SS21-4	20	0	20	26	19.5-26	5	-138.8049384	63.71307859
SS21-5	24	0	24	26	20-26	0.5	-138.8054526	63.71289758
SS21-6	22	0.5	22.5	26	22-26	5	-138.8058745	63.71275744
SS21-7	24	6	30	40	24-39	1	-138.80656	63.71251804
SS21-8	26	0	26	30	24-30	3	-138.8070611	63.71236038
SS21-9	25	0	25	30	22-30	0.5	-138.8076016	63.71222608
SS21-10	31	0	31	35	27-35	0.5	-138.801664	63.712401
SS21-11	31	3.5	34.5	36	27-36	76	-138.802147	63.712243
SS21-12	29	1.5	30.5	34	28-33	6	-138.802753	63.712041
SS21-13	28.5	0.5	29	30.5	28.5-30.5	36	-138.804007	63.711663
SS21-14	28	0.5	28.5	32	27.5-32	4	-138.804657	63.711479
SS21-15	24	0	24	27	23-27	0.5	-138.805234	63.711272
SS21-16	24	0	24	27	19-27	0.5	-138.805994	63.711077
SS21-17	24.5	0	24.5	27	22.5-27	0.5	-138.801843	63.712839
SS21-18	27.5	1	28.5	32	26-32	5	-138.802414	63.712693
SS21-19	27.5	0.5	28	33	29-33	15	-138.802810	63.712600
SS21-20	29	0	29	31	28.5-31	0.5	-138.805452	63.711606

Hole	Gravel Depth (ft)	Gravel Thickness (ft)	Bedrock Depth (ft)	Total Depth (ft)	depths washed	Au	x-coord	y-coord
SS21-21	29	0	29	31	28 - 31	3	-138.805761	63.711510
SS21-22	28	0	28	30	26-30	0.5	-138.802604	63.713208
SS21-23	23.5	0	23.5	27	21-27	0.5	-138.803046	63.713064
SS21-24	24	0	24	26	22-26	0.5	-138.803380	63.712986
SS21-25	24	0	24	26	22-26	0	-138.803856	63.712857
SS21-26	26	0	26	30	23-30	3	-138.804351	63.712709
SS21-27	28	0	28	30	26-30	0.5	-138.804934	63.712554
SS21-28	28	0	28	31	27-31	3	-138.805473	63.712367
SS21-29	28	0	28	31	26-31	3	-138.806026	63.712199
SS21-30	29	0	29	37	27-37	11	-138.806588	63.712028
SS21-31	24.5	0	24.5	26	23-26	0.5	-138.807032	63.711879
SS21-32	23	0	23	26	21.5-26	37	-138.807526	63.711735
SS21-33	23	0	23	25	20 - 25	0.5	-138.811629	63.714821
SS21-34	30	0	30	35	13-15 & 28-35	3.5	MISSING	MISSING
SS21-35	30	0	30	33	12-16 & 29-33	2	-138.814129	63.719398
SS21-36	29.5	2	31.5	35	26-31.5 & 31.5-35	22	-138.813926	63.719183
SS21-37	30.5	1.5	32	35	10-14 & 30-35	3.5	-138.813853	63.718924
SS21-38	32.5	0	32.5	36	11-15 & 31.5-36	6.5	-138.813772	63.718658
SS21-39	34.5	0	34.5	40	33-40	43	-138.813488	63.718461
SS21-40	33.5	0	33.5	36	12-18 & 32-26	1	-138.813147	63.718252
SS21-41	33	0	33	36	14-18 & 31-36	0.5	-138.812855	63.718019
SS21-42	31.5	1	32.5	36	12-19 & 29.5-36	10.5	-138.812555	63.717814
SS21-43	31.5	1	32.5	36	14-18 & 31-36	2.5	-138.812222	63.717616
SS21-44	36	0	36	38	34-38	24	-138.811882	63.717372
SS21-45	44	0	44	46	10-20 & 44-46	3	-138.811598	63.717174
SS21-46	26	1	27	33	25-33	23	-138.810932	63.716797
SS21-47	25.5	0	25.5	30	24-30	3	-138.810624	63.716628
SS21-48	27.5	0	27.5	30	26-30	0.5	-138.810340	63.716431
SS21-49	19	3	22	26	14-26	70	-138.810007	63.716215

Hole	Gravel Depth (ft)	Gravel Thickness (ft)	Bedrock Depth (ft)	Total Depth (ft)	depths washed	Au	x-coord	y-coord
SS21-50	26	0	26	31	10-18 & 18-31	0	-138.809707	63.716032
SS21-51	22.5	0	22.5	25	8-25	3	-138.809391	63.715791
SS21-52	23	0	23	26	8-26	13	-138.809099	63.715572
SS21-53	19.5	0	19.5	23	18.5-23	4	-138.808742	63.715371
SS21-54	14	2	16	21	10-21	69	-138.808377	63.715159
SS21-55	20	0	20	22	12-22	0.5	-138.808060	63.714961

Several of the drill holes showed promising amounts of gold, including holes 11, 13, 32, 39, 49 and 54.

During analysis, the results of this 2021 sonic drilling program were overlain on the colorized map of YCGC recovery estimates vs. actual (Figure 13). Interestingly, there was not a strong correlation between the YCGC historic records and the findings of the sonic drilling program. The promising holes did not occur in the “red zones” that were defined based on YCGC historic drilling and recovery reports.

- The two richest holes (SS-49, SS-10) were both in zones where YCGC achieved 100% of expected recovery
- The third richest hole (SS-54) was in an area with less than 70% recovery but close to an area with less than 50% recovery.
- Of the 25 SS holes drilled in “red zones” (SS1-9, SS22-32, SS35-39), only 4 showed clear virgin gravels (SS6,7,36,37)
- Of the 25 SS holes drilled in “red zones” (SS1-9, SS22-32, SS35-39), there was only 1 “top 5 richest” hole

Interestingly, the sonic drill program also showed that gold-rich holes were generally correlated with clear virgin gravels, but not always

- The three richest holes clearly also showed at least 2ft of virgin gravels in the drill cores, but the next two richest holes (SS39, SS32) did not clearly show any virgin gravel.

2022 Placer Exploration Program

Rationale for 2022 Placer Exploration Program

The previous sections of this report detail the extensive exploration history and rich mining activity of Sulphur Creek, and demonstrate that although the creek has been a major gold producer for over 100 years, significant placer gold still remains to be mined in many areas.

Of particular note is the fact that large amounts of placer gold may have been left behind by YCGC Dredge #8, due to many factors including frozen bedrock, excessive sand and mud from the dredge stacker, and clay-bedrock which was difficult to wash.

The test pit that was partially sluiced in 2021 recovered 70 ounces of gold, and it was situated where the dredge mined 113% of the placer gold indicated by the Keystone drill program. This shows that even in heavily dredged ground, significant placer gold remains, which can be extracted by modern mining methods.

Upstream of the 2021 test pit, YCGC Dredge #8 recovered only 36 to 40% of the placer gold estimated by drilling. As documented in the YCGC records described in detail earlier, over 20,000 ounces of drill-indicated placer gold may have been left in the ground in this area after dredging, according to YCGC mining engineers. This calculation has not been independently verified using modern exploration methods or NI43-101 standards, but these figures are nonetheless a strong indication of a potentially highly valuable placer gold target.

Subsequent modern mining, test pitting and auger drilling has also shown that mineable placer gold is present outside of the original dredge limits, in areas which were considered too low-grade at the time or had too much overburden for the dredge to mine efficiently. Just downstream of the project area, two pits were mined on the left limit in 2018 and 2019 on placer claims Claim 4 (P 00502), Claim 5 (P 00503), and Claim 6 (P 00504), (see Figure 8). These pits produced a total of 1200 ounces of gold.

The 2022 Exploration program was designed to further investigate the presence of under-tailings pay gravels and placer gold, left behind by YCGC dredges. is detailed in the section following.

2022 Placer Exploration Program Results

Overview

The 2022 exploration program consisted of resistivity geophysics, reverse-circulation (R/C) drilling, drone surveys and bulk testing. The results of a 2021 sonic drill program were also tabulated and analyzed in 2022. Figure 13 plots the locations of the exploration work.

Resistivity Surveys

Introduction

One resistivity line totalling 188 metres was conducted and interpreted for Yukon Alpine Heliski Ltd. by William LeBarge of Geoplacer Exploration Ltd. The resistivity line placement sought to coincide with YCGC shafts 1 and 2, in an effort to confirm that the spatial positioning of old YCGC maps is accurate. The survey was conducted on October 7, 2022.

Methodology

The Lippmann 4-Point Light Resistivity System was used to conduct the survey. The resistivity technique injects an electrical current into the subsurface through stainless steel spikes and then measures the remaining voltage at various distances away from the injection point. Ground materials have different resistances to the current, and give data points in a cross section of the subsurface. With the data points, a tomogram or pseudo section can be created representing changes of resistivity in the ground. Data was collected using Geotest software, while the inversion and data filtering was completed with RES2DINV software. Data points with poor contact resistance were exterminated and noisy data was filtered statistically with root mean squared data trimming. Two-dimensional tomograms were produced using least squares damped inversion parameters to display the resistivity properties and to display potential contacts. The two-dimensional images are used for preliminary interpretations of bedrock structure. The images were interpreted by William LeBarge.

General principles and assumptions of electrical resistivity are:

1. Low resistivity can indicate thawed and water saturated areas, as well as fine-grained material.
2. Very high resistivity values can be due to ice rich material and frozen or highly disturbed ground.
3. Dry gravels, cobbles and boulders generally have high resistivity values.
4. The contrasts between values is more important in determining contacts than the absolute values found with resistivity data.

Limitations and Disclaimer

The interpreted sections provide an estimate of the conditions beneath the surface to the depths conducted and are within the accuracy of the system and methods. The data becomes more uncertain with depth and are more accurate toward the surface and is further complicated if there is permafrost present in the region. The materials are interpreted based upon local geology observed, as well as geologic knowledge of the area. Certain materials may be similar in composition and result in uncertain results. The accuracy of the information presented is not guaranteed and all mine development is the client's responsibility. William LeBarge of Geoplacer Exploration Ltd. accept no liability for any use or application of these data by any and all authorized or unauthorized parties.

Results

Parts of the valleys which had been mined or disturbed were usually thawed and associated with high water saturation. In these areas, contrasts between low and high resistivity values were likely partially or wholly a reflection of varying groundwater and permafrost conditions, rather than strictly lithological boundaries.

Resistivity line RES22-MARY-01 was surveyed in the centre-right limit of the valley within the dredge limits. The geographic coordinates of the endpoints of the surveyed line is shown in Table 12.   The line is plotted on Figure 13.

Table 12 – 2022 resistivity survey length, grant number and endpoint geographic coordinates, Sulphur Creek.

Survey Name	Grant Number	Start Point		End Point		Length (m)
		Latitude	Longitude	Latitude	Longitude	
RES22-MARY-01	P 49365	63.71221	-138.807814	63.713002	-138.804539	188

The interpreted profile is shown as Figure 12. Since sonic drilling was done along this line in 2021, this information was used to corroborate the interpretation of the profile. In general, the profile shows high conductivity layers at the surface, which correspond to wet, clay and silt rich sediments. Some potential gravel layers appear to occur at depth and at intervals near the surface. An unusual resistivity anomaly occurs at approximately 70 metres, which is also the location of drill hole SS21-07. This drill hole encountered an intact 6 ft layer of gravel on bedrock. An additional anomalous zone occurs at 115 metres, which corresponds to the estimated location of YCGC shaft #2 (see earlier discussion on YCGC shafting 1942).   One new drill target was identified at a depth of 8 m (26 ft.).   The coordinates and projected depth of this drill target is shown in Table 13 and the location is plotted on Figure 13.

Table 13 – Coordinates and depth of drill target identified from resistivity survey on Mary claim, Sulphur Creek.

Name	Resistivity Line	Latitude	Longitude	Target Depth (ft)	Target Depth (m)
T22-01	RES22-MARY-01	63.712927	-138.804959	26	8

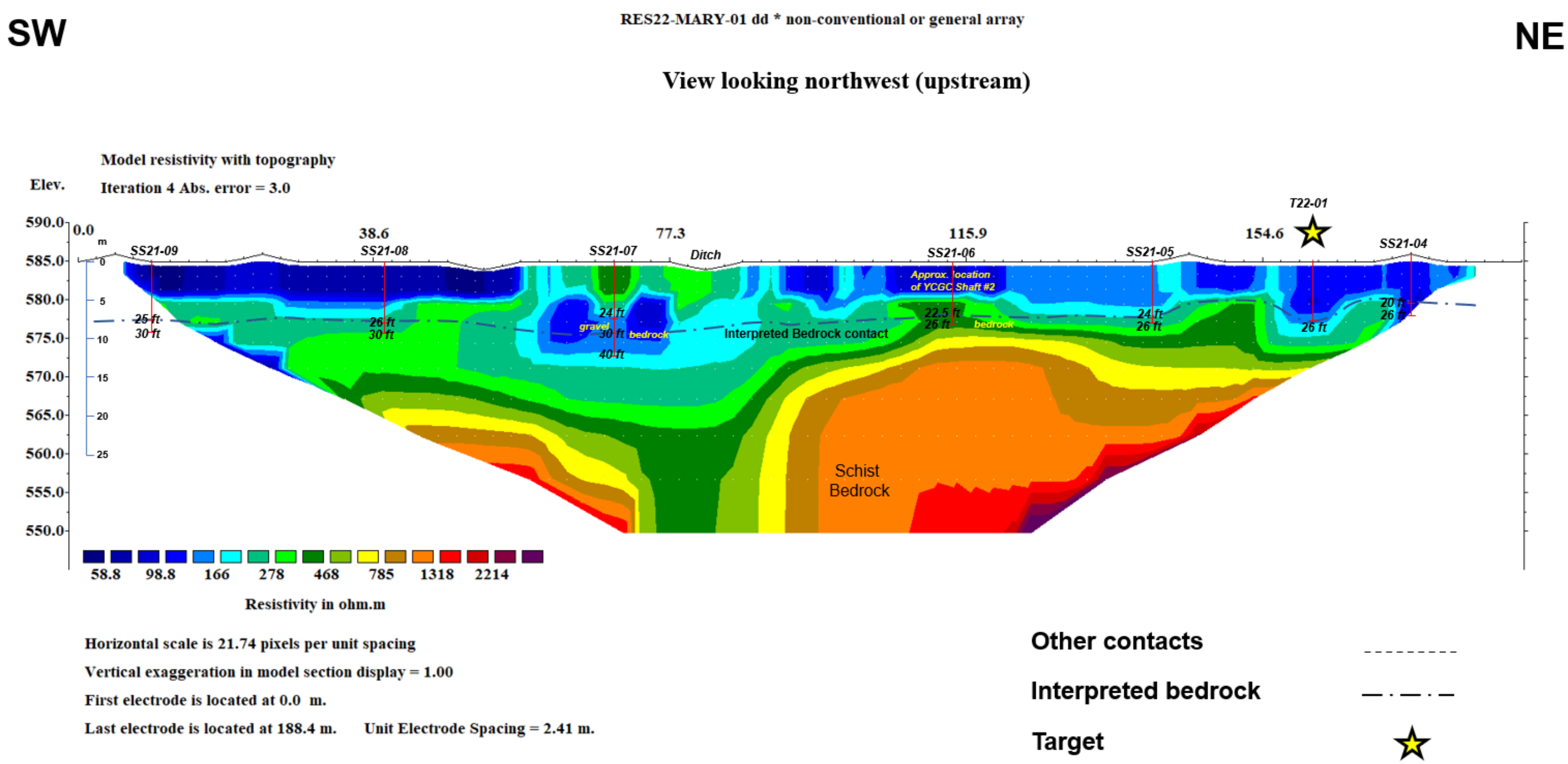

Figure 12 – Resistivity line RES22-MARY-01 was surveyed in the centre-right limit of the valley within the dredge limits. Bedrock was interpreted at a depth of 22 to 26 feet, and correlated well with sonic drill holes that were drilled in 2021. One potential new drill target at a depth of 8 m (26 ft.) is shown.

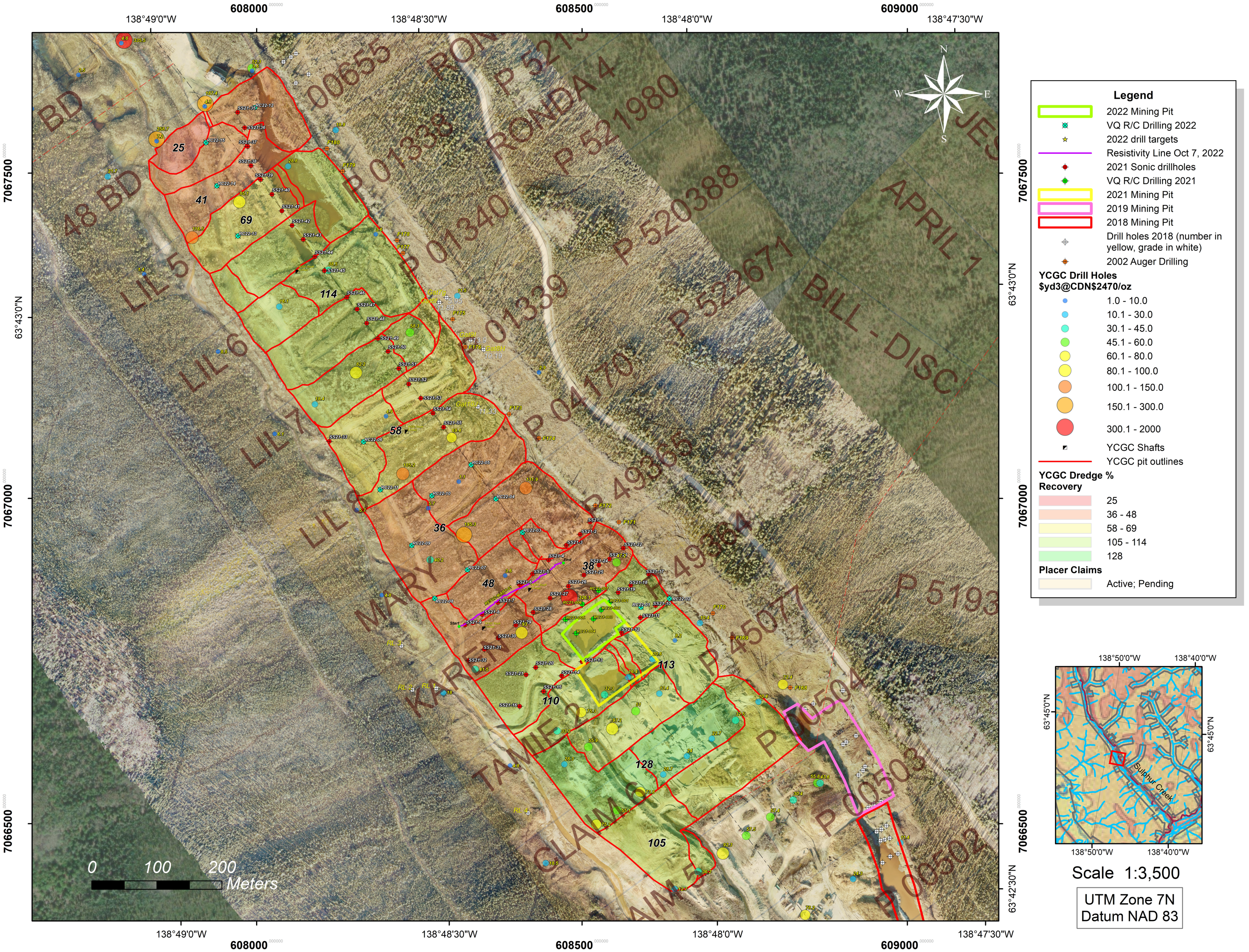

Figure 13 - Compilation map showing claims, YCGC drill holes and shafts and locations of 2022 geophysical surveys, R/C drill holes and bulk test pits. The October 7, 2022 drone survey image was used as a base.

Drone Survey

On October 7, 2022, an aerial imaging survey was flown on the Sulphur Creek claims. The survey was planned, conducted, and processed by William LeBarge of Geoplacer Exploration Ltd.

The type of drone used was a DJI Mavic 2 Pro, which has a high-resolution Hasselblad camera with a 1 inch photo sensor. Flight planning was done with the Pix4D capture program, and at least 80% overlap of photos was planned between photos within a flight line and between flight lines. Initial processing of the aerial survey was done in the field to check for integrity and data quality. Final processing of air photos began with image editing software to normalize any extreme contrasts or unusual color balancing needed within the photo sets. A georeferenced orthophoto mosaic was then generated using Pix4D software. The full drone image is included in Appendix A.

R/C Drilling

Vision Quest Exploration Ltd. was contracted to drill 14 R/C drill holes on the property. The locations and depths of the drill holes are shown in Table 14 and plotted on Figure 13.

Table 14 - Locations and depths, 2022 R/C Drilling, Sulphur Creek Claims

Drill Hole	Gravel Depth (ft)	Gravel Thickness (ft)	Bedrock Depth (ft)	Total Depth (ft)	Grant Number	Latitude	Longitude
RC22-01	30	1	31	35	P 49364	63.712389	-138.802147
RC22-02	30	4	34	38	P 49364	63.712492	-138.801248
RC22-03	23	6	29	31	P 49365	63.713474	-138.805746
RC22-04	20	0	20	22	P 49365	63.71395	-138.806537
RC22-05	15	5	20	22	P 04170	63.714432	-138.807272
RC22-06	23	0	23	25	P 01339	63.714799	-138.810588
RC22-07	17	6	23	25	P 49365	63.712986	-138.807497
RC22-08	23	1	24	30	P 49365	63.712607	-138.808545
RC22-09	23	0	23	25	P 04170	63.713348	-138.809204
RC22-10	28	0	28	30	P 04170	63.714025	-138.808525
RC22-11	29	0	29	31	P 04170	63.714132	-138.810123
RC22-12	27	0	27	30	P 0655	63.719458	-138.813614
RC22-13	Not drilled (n/a)	Not drilled (n/a)	Not drilled (n/a)	Not drilled (n/a)	P 01338	63.717698	-138.814275
RC22-14	30	3	33	50	P 0655	63.718398	-138.814876
RC22-15	36.5	0.5	37	40	P 0655	63.719	-138.815168

Drill samples were processed on site with a vertex sluice and long-tom in series, and hand panned to recover gold content. Results of the drill sampling are shown in Table 15.

Table 15 - Results of R/C drill sampling, October 2022.

Sampling Results, Sulphur Creek R/C Drilling, October 2022		
Drill hole #	**Interval washed (ft)**	**Gold and Concentrate Description**
RC22-01	15-30	No gold
RC22-01	30-35	1 fine colour
RC22-02	5-20	1 medium colour, 5 fine colours
RC22-02	20-38	1 small nugget, a few fine colours
RC22-03	20-31	5 medium colours, abundant fine colours
RC22-04	15-22	1 fine colour, abundant pyrite
RC22-05	5-22	Abundant pyrite
RC22-06	0-15	4 fine colours
RC22-06	15-25	8 fine colours
RC22-07	15-25	3 coarse colours, 3 small colours, several fine colours
RC22-08	10-30	3 fine colours
RC22-09	10-25	1 medium colour
RC22-10	20-30	10+ very fine colours
RC22-11	20-31	No gold
RC22-12	20-30	1 fine colour, pyrite, magnetite
RC22-14	30-35	6 medium colours, 12 fine colours (~10-12 mg)
RC22-15	30-40	Abundant pyrite

The 2022 RC Drill program (which was designed to target "red zones" from the YCGC report)

- Confirmed that RC drilling is not the preferred drilling method, as clay and moisture-rich ground often clog the casing and make it difficult to clearly discern the strata of the ground
- Again confirmed presence of virgin gravels below dredge tailings in at least 50% of the drill holes (highlighted in green in Table 14)
- Showed presence of gold in most samples (though amounts were relatively small)
- Again, the presence of virgin gravels and gold was somewhat sporadic, despite most holes being in YCGC "red zones"
- Holes 1 and 2 (intentionally drilled on the left bench) showed presence virgin gravels and gold, which is a promising indication for the potential of the left bench

2022 Test Mining

Overview

In 2022, the 2021 mining pit was continued in the upstream direction. The following photos and notes summarize the findings from both the 2021 and the 2022 test pits.

2021 – The bulk of the 2021 test pit was void of pay gravels – almost all of the valuable material was found on the very upstream end of the pit, and primarily in the "jog" into the 2022 pit zone.

Figure 14 - Up to 6ft of pay gravels were found on the upstream end of the 2021 pit on the left-limit side (see photo above of operator, Darwin Van Bibber, standing on bedrock and pointing to pay layer)

Figure 15 - There were clear virgin gravels ranging from 1-6ft at the upstream end of the 2021 pit and throughout the 2022 pit (see photo above of 2021 pit upstream wall)

Figure 16 – The outline of the old dredge bucket's deepest penetration (well above bedrock) was found on the upstream end of the 2021 pit (see outline of dredge bucket to the left of the excavator bucket in the photo above)

Figure 17 – The total value extracted from the 2022 test pit (if including material from the "jog" on the upstream, left corner of the 2021 pit) was 396 ounces. Throughout the bulk of the 2022 pit, 1-6ft of pay gravels were present. The 2022 full pit is shown in the photo above, looking towards left limit wall.

Note: all subsequent photos are taken in front of left limit wall, at downstream end below (where excavator and rock truck are in 2022 pit photo, on Figure 17)

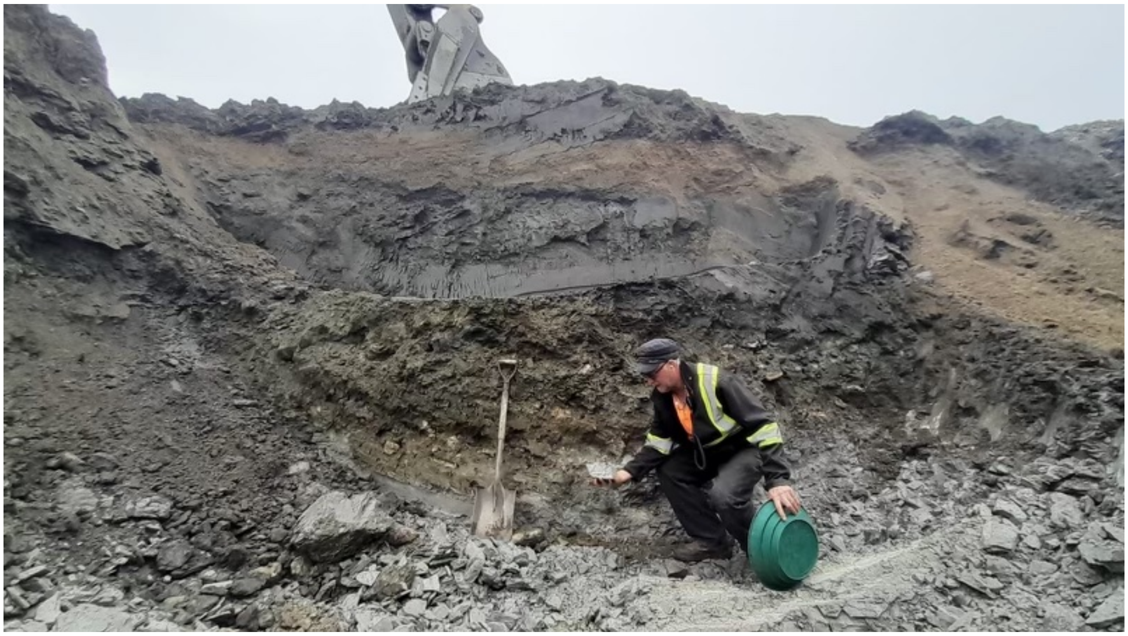

Figure 18 - The left limit area of the 2022 pit contained competent bedrock, unlike many other areas of the claim package (see photo of Pete standing on competent bedrock (holding angular piece); 5ft pay gravels above.

Figure 19 - Coarse gold from the pit area pictured in Figure 18, above.

Figure 20 - The 2022 pit made evident the presence of undulating bedrock (see photo of YGS geologist, Syd, in front of undulating bedrock; bedrock came way up here; at shallowest part, shows approx. 1 ft of virgin pay gravels, 1.5 ft of slicking's.

Figure 21 - 2022 pit showed slicking's as well as gravel – both produced when panned. Note, just behind Pete's shadow the pay gravel depth goes to 5ft because bedrock descends.

Figure 22 - The 2022 pit contained a significant amount classic Klondike blue pay, frozen solid (frozen state explains why dredge wouldn't have been able to extract; had to use 245ME w tiger teeth used to break this out).

Discussion

In 2022, despite being in an area where the dredge recovered 110-113% of the drill-indicated gold, an additional 320 ounces of placer gold were mined from the test mining pit. Pay gravels were well frozen in-place, which provides rationale for not being recovered by the dredge. Again, this shows that even in apparently efficiently mined areas, there remains significant placer gold in place.

The next mining target is upstream of the 2022 pit, and will include YCGC shaft #2 which (as discussed in the text) was reported by YCGC to be the locale of abundant undredged placer gold. Both the findings of the 2022 pit, and the records regarding shaft 2 are promising indications for the 2023 pit.

Conclusions and Recommendations

The resistivity geophysical survey (RES22-MARY-01) was successful in showing the depths to bedrock as well as the silt, gravel and bedrock layers in the subsurface. The interpretation was aided by adjacent 2021 sonic drilling, but hindered by the presence of groundwater and discontinuous permafrost. Some unusual resistivity anomalies were detected, including one which may correspond with the estimated location of historic YCGC shaft #2. This location should be investigated by excavator test-pitting early in the 2023 season.

The 2021 sonic drilling program and the 2022 R/C drilling program was successful in defining the depths to bedrock and the thicknesses of remaining gravel in several locations throughout the property. Placer gold recovery in the drill samples was variable, and like many drill programs conducted in the Klondike in disturbed and discontinuously thawed ground, may not be representative of the true gold values present. Nonetheless, most of the drill holes recovered placer gold.

Hole RC22-14, collared near the farthest upstream extent of the property, recovered approximately 12 mg of gold. Hole RC22-07 was drilled on the downstream part of the claims, and this hole recovered several coarse gold colours as well as some fine colours. Hole RC22-02 was drilled on the left bench of the property and recovered a small nugget.

The 2021-2022 bulk test (mine pit) provided very promising results with nearly 400 ounces of gold recovered, and several areas of virgin gravel ranging from 1-6ft discovered.

In general, the following conclusions can be drawn from under-tailings exploration to date

- All sets of data (YCGC recovery report, modern drill holes, test pit results) show that there is a not insignificant amount of missed virgin gravel below the tailings within this claim block, though the distribution appears somewhat sporadic
- The difficulties in correlating the three sets of data (YCGC recovery report, modern drill holes, test pit results) indicate that a mine-through approach is probably best (rather than relying on the “red zones” discerned from the YCGC report);
- The most upstream portion of the claim block seems to be the most consistent in providing gravel and gold-rich samples

Future exploration programs should include a methodical grid of drill holes throughout the claim package, similar in spacing to the historic YCGC drilling (250 ft by 250 ft). This grid spacing could be decreased or adjusted in areas of increased potential which may be identified early in the drill program.

Due to the presence of highly disturbed and discontinuously thawed ground, sonic drilling using at least 6 inch diameter holes would be preferred, although a cased reverse circulation drill of similar size and power may return acceptable results. The drill program would be significantly aided by concurrent resistivity surveys which would help identify potential gutters (paleochannels) in the bedrock and anomalously resistive zones which may be buried virgin gravels.

In areas where depths are shallow enough, excavator test-pitting should be conducted on targets identified by either resistivity geophysics or drilling results. Test pit bulk samples should be increased in size and expanded into full scale mining pits if found to be economic.

Statements of Qualifications

Mikhaela Meznaric

I, Mikhaela Meznaric, of 605-37881 Cleveland Ave, Squamish, BC, Canada, DO HEREBY CERTIFY THAT:

1. I am a graduate of the Queen's University (B.Sc., 2013, Civil Engineering) and a student of the University of British Columbia (M.Sc., Mining Engineering)
2. I am a registered Engineer in Training with the Association of Professional Engineers and Geoscientists of British Columbia (APEGBC).
3. I was contracted as the exploration program manager for the 2022 exploration program.
4. I have worked in project and program management since 2016.
5. I am a Sole Proprietor operating as MMz Consulting,, a BC Registered Company.

Dated the 9th day of February, 2023

William LeBarge

I, William LeBarge, of 13 Tigereye Crescent, Whitehorse, Yukon, Canada, DO HEREBY CERTIFY THAT:

6. I am a Consulting Geologist with current address at 13 Tigereye Crescent, Whitehorse, Yukon, Canada, Y1A 6G6.
7. I am a graduate of the University of Alberta (B.Sc., 1985, Geology) and the University of Calgary (M.Sc., 1993, Geology – Sedimentology)
8. I am a Practicing Member in Good Standing (#37932) of the Association of Professional Engineers and Geoscientists of British Columbia (APEGBC).
9. I have practiced my Profession as a Geologist continuously since 1985.
10. I am President and sole shareholder of Geoplacer Exploration Ltd., a Yukon Registered Company.

Dated this 31st day of January, 2023

William LeBarge, P. Geo.

William LeBarge

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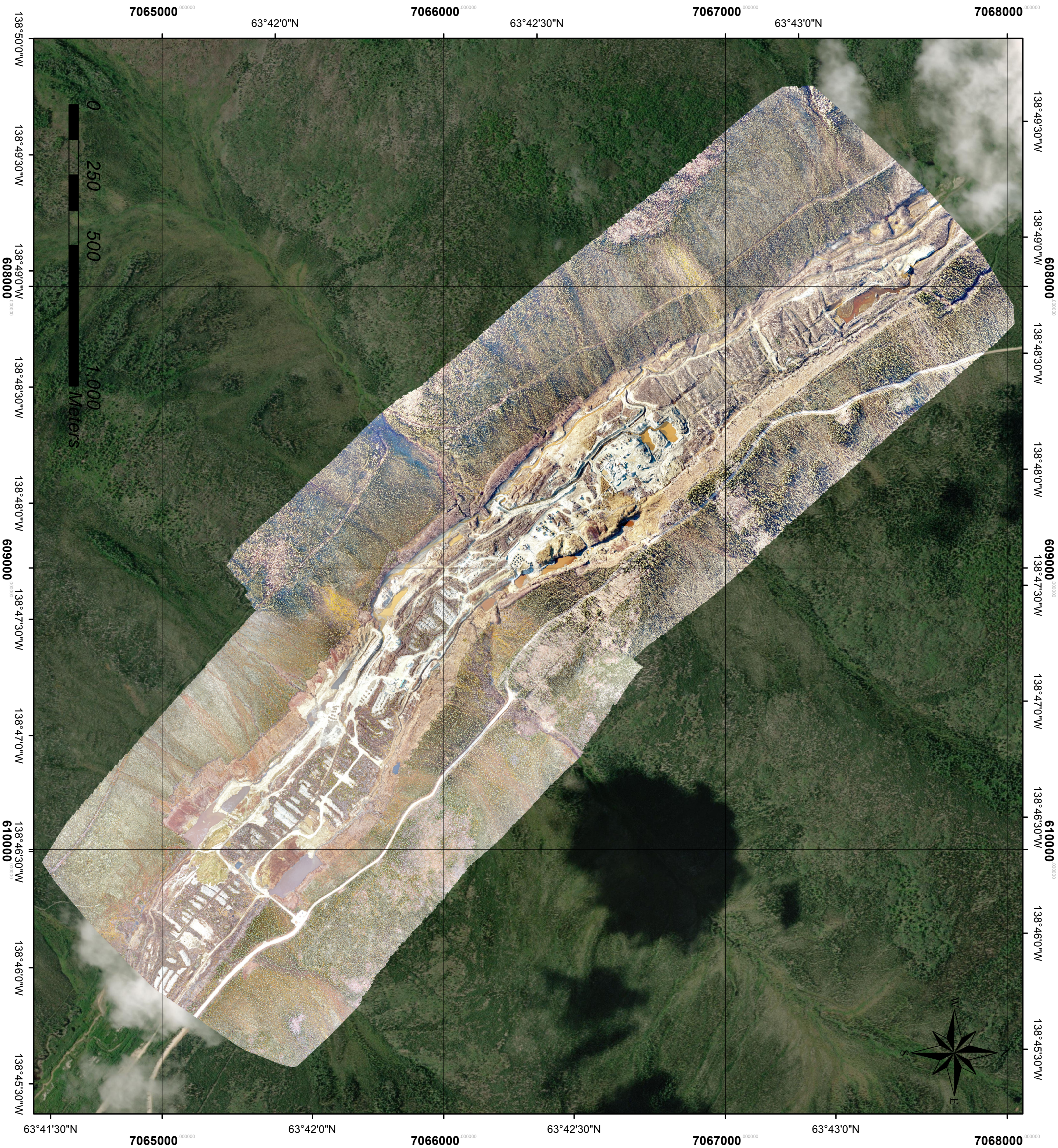
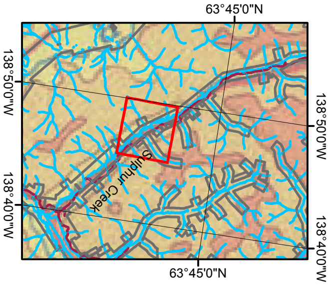
YCGC Textural and Map Files, available from Yukon Geological Survey, http://data.geology.yk.ca

Appendix A – Drone Survey Image





Scale 1:9,000

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