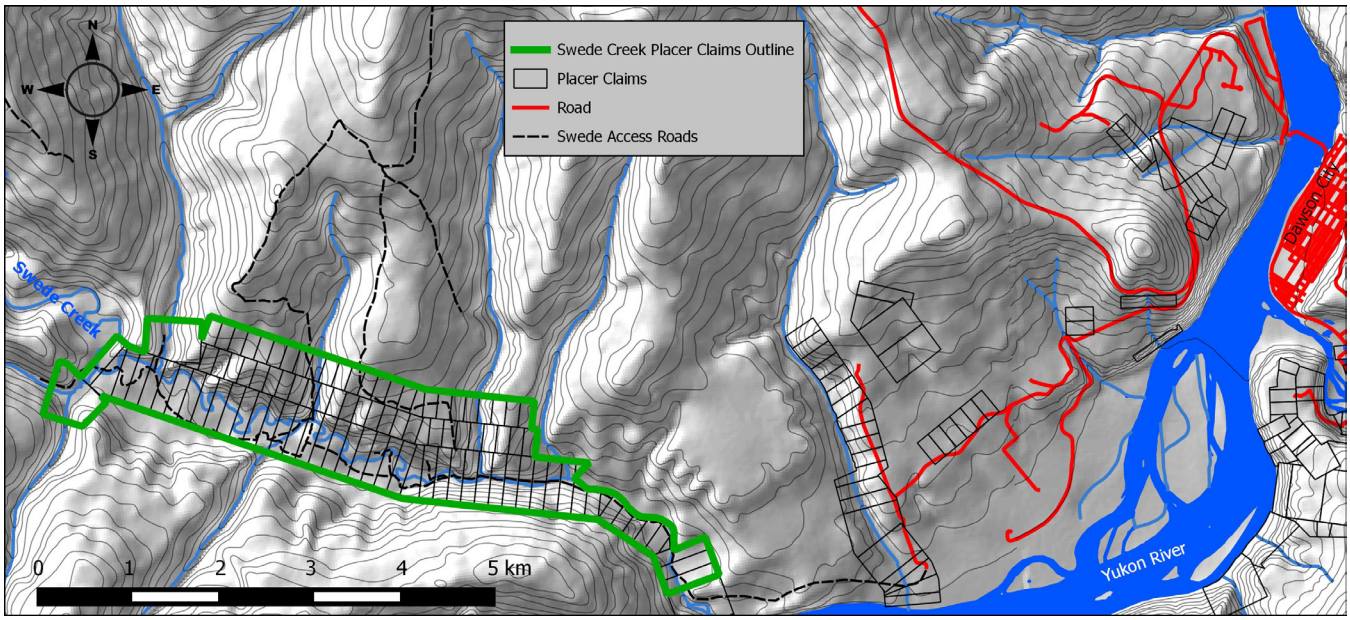

REPORT ON THE 2015 EXPLORATION OF SWEDE CREEK AND ITS' HIGH-LEVEL TERRACES FOR PLACER GOLD

Claim Staking, Drilling, Ground Penetrating Radar, High-res imaging.

May – October, 2015

Mapsheet 116B04

UTM Zone 7 W

566900 Easting, 7102200 Northing

Author: Morgan Fraughton

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INTRODUCTION – WITH SPECIFIC OBJECTIVES OF THE SURVEY

Swede Creek (SC) is the largest undeveloped drainage in the Klondike plateau west of Dawson City, Yukon. SC is bound on all sides by well-known gold districts that have been producing placer gold for over 100 years. Creeks such as Eldorado, Bonanza, Dominion, Sulphur, Quartz, Hunker lie to the east. This Klondike district has produced over 20 million ounces of placer gold since gold mining started in the late 1800's. The Sixtymile river gold district lie to the southwest, and the famous 40mile placer district to lies to the northwest. Much of SC valley and its' ancient (3.6-5.3ma), high-level, fluvial gravel deposits overprint the gold rich Klondike Schist (KS) bedrock. Results from past (2013, 2014) grassroots-style investigations in to the placer gold potential of SC were positive and demanded more intensive exploration. This report details the placer gold exploration program on Swede Creek during in 2015.

The specific objectives for the Swede Creek (SC) exploration project of 2015 were to:

1. understand the composition of overburden, depth to bedrock, and placer gold content in SC valley bottom and its ancient high-level fluvial terraces
2. determine the single most prospective area within the SC creek and terrace claims for a bulk-sample(>100m^3) testing in the summer of 2016

To achieve these objectives three different methods of exploration were used:

1. Unmanned Aerial Vehicle (UAV) high resolution imaging of the SC property
2. Ground Penetrating Radar (GPR) to understand the depth to bedrock from surface for a large area
3. Drilling to verify GPR results and determine overburden composition and gold content in specific locations

To facilitate these explorations there were two complimentary work programs that were required:

1. Line flagging and trail clearing were required to facilitate the GPR and drilling programs\
2. Staking two prospecting leases on terraces above Swede then, after enough assessment work had been done, convert the prospecting leases in to placer claims

LIST OF CLAIMS WITH GRANT NUMBERS, NAME OF REGISTERED CLAIM HOLDER AND THE OPERATOR WHO PAID FOR THE WORK

2016 Spere Exploration Inc. owns 100% of all the claims in this report. Swede 1-48, discovery claims (Empire Creek) and Imp (Walker's Fork), as well as Swede Bench 1-53. Currently Swede Bench 29-53 are registered under the name Morgan Fraughton on the terraces; these claims will be transferred to SpereX in the near future and a new grouping will be made to include all of these claims. Please see the folder included on USB stick to view the full claims sheet. Swede 1-48, Hound, and Imp are currently grouped under grouping number GD01109. The Swede Bench claims are not grouped.

Claim Name/Number	Grant Number	Claim Owner
Hound	P 516065	Spere Exploration Inc. - 100%
IMP	P 516066	Spere Exploration Inc. - 100%
Swede 1-48	P 516473 - 516520	Spere Exploration Inc. - 100%
Swede Bench 1 - 28	P 517186 - 517238	Spere Exploration Inc. - 100%
Swede Bench 29 - 53	P 517186 - 517238	Morgan Fraughton. - 100%

Figure 1 - List of claims

This exploration program was undertaken by Spere Exploration Inc. (SpereX) of Dawson City, Yukon during the summer and fall months of 2015. Funding for the program came from privately raised monies by SpereX and a contribution from the Yukon Mineral Exploration Program (YMEP) (YMEP# 15-078) under the target evaluation model for placer exploration.

All claims on Swede Creek are considered areas of Special consideration under the Yukon Creeks Classification system. This means that a 30-meter setback from the creek for any major work must be maintained at all times and discharge of any sediment in to the creek is not allowed. Since, gold has been discovered well outside this 30-meter setback this is not seen as an issue. All exploration work has been done by respecting this 30-meter setback. Also, it is believed by SpereX that special permissions from DFO can be applied for to get around this 30—meter setback in the future. As for the zero tolerance of releasing extra sediment in to the water this can be achieved with proper settling ponds.

Swede Creek Claims

Figure 2 - Swede Creek Claims Overview map

563000 564000 565000 566000 567000 568000 569000 570000

7104000 7103000 7102000 7101000 7100000

N W E S

Swede Creek
Empire Creek
20 Pup
Discovery Pup
Becker Pup
South Walkers Fork
Remetry Pup
Swede Creek
Yukon River

Swede Bench 53 P 517238
Swede Bench 52 P 517237
Swede Bench 51 P 517236
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Swede 10 P 516542
Swede 9 P 516543
Swede 8 P 516544
Swede 7 P 516545
Swede 6 P 516546
Swede 5 P 516547
Swede 4 P 516548
Swede 3 P 516549
Swede 2 P 516550
Swede 1 P 516551
Hound 0 P 516065
Blackjack 0 P 516166
Bear 0 P 516167

Legend

- Swede Creek Placer Claims Outline
- Placer Claim
- Swede Creek ATV Road
- Contours (ft)

Mapsheet 116B04

Created By: Morgan Fraughton

Date Created: 2016-01-26T21:25:48

1:16,000

CRS: NAD83(CSRS) / UTM zone 7N (EPSG: 3154)

0 1 2 3 4 5 km

LOCATION AND ACCESS

LOCATION

SC is located on NTS map sheet 116B04 within the Dawson mining district of Yukon, Canada. The approximate central coordinates of the property are in UTM Zone 7 W with approximate central coordinates of 566900 Easting, 7102200 Northing.

The mouth of SC is less than 10km (as the bird flies) from Dawson City, Yukon. Claims Swede 1-48 in this report start from approximately 300 meters from the mouth of SC and go continuously to approx. 7.2 kilometers from the first post to the last post up the baseline of SC then two discovery claims (Hound and Imp) on the tributaries (Empire creek and Walker's Fork) that enter SC. In addition, 53 bench claims were added to the terraces above SC to the north..

The Swede Creek watershed covers an area of more than 100 km^2. From the headwaters at Swede Dome to the mouth where it enters the Yukon river, Swede creek has 5 major tributaries that also have potential to host placer gold in a volume that could support placer mines

ACCESS

Swede Creek (SC) is accessed in multiple ways. The most used and best route for exploration work carried out in summer of 2015 will be discussed here.

Accessing the SC claims from Dawson City (DC), one must cross the Yukon River via short ferry ride, then go 15 km up the Top of the World Highway (TWH). At km 15 on the TWH there is a large pull off area equipped with false buildings and rest stop facilities for travelers of the highway. Behind this pull off, an old road which had been overgrown with alders has been cleared enough by SpereX in 2014 drive an ATV down the road to SC. This road is 8 km from the TWH to SC and winds along the ridges and spurs that descend in to SC valley where it intersects SC at the mouth of 20pup. Total travel time is approx. 45 mins from DC to SC. This travel time includes a ferry ride across the Yukon river and driving to the TWH pull-off with trucks and then using ATV's to descend in to the creek. A quick scraping of the road with a bulldozer blade would reduce travel time from DC to SC to less than 30 mins and make SC truck accessible.

From the mouth of 20pup the trail connects with many old overgrown trail systems that web through the hills and creeks the surround SC valley. One section goes to the mouth of SC and connects to 2-wheel drive roads of the community of Sunnydale. The entire trail has been overgrown and crosses SC multiple times. This trail system was initially put in under commission of the Government of Canada by a local named James R. Farr in 1909. Farr was operating an experimental farm for the Canadian Agricultural Association near the mouth of Swede Creek. The road was put in and built as an access route to the Sixtymile gold district. The road/trail runs up SC for about 25 miles and then goes up a right limit tributary of Swede where it goes over a pass then drops in to Fysh creek, then California creek and into many other areas of Sixtymile River. A paper could be written on the access and history of

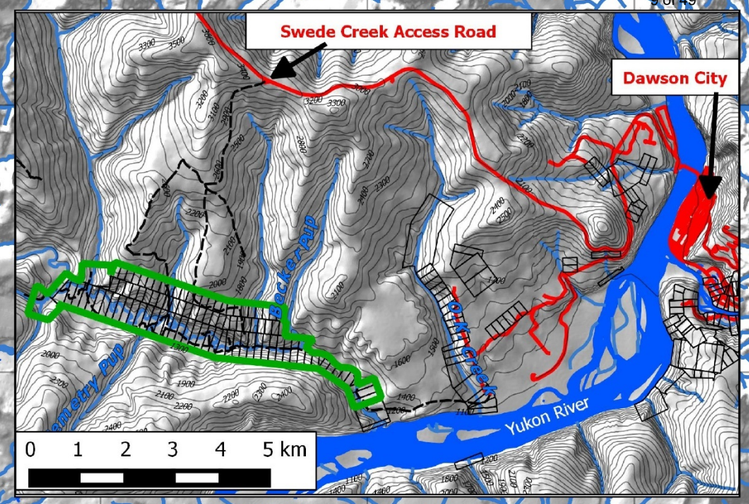
SC in this case but it is beyond the scope of this report. Many other overgrown roads wind through SC valley and the hills between SC and Sixtymile River.

Other access that can be used are the roads that go through Sunnydale to the mouth of SC then connect with the trail system that goes up SC valley. Use of this access is discouraged and any use of it should be avoided because the road runs through private properties and the community of Sunnydale. The road which descends from the TWH at km 15 to SC should be the only access route used as all of it runs over hard rock claims or placer claims owned solely by SpereX and there is no private property, aboriginal lands, or other obstacles, to contend with.

In addition to these two road access points, helicopter access is relatively cheap because of helicopter bases in such close proximity to SC. Trans North Helicopter base is less than 10 km away from SC. This close proximity makes helicopter fairly cost effective if absolutely needed. Helicopters were easily contracted for short amounts of time to assist with heavy moves, moving guys, etc. during this exploration program.

Swede Creek Claims Location and Access Overview

Figure 3 - Swede creek claims location and access map



YUKON RIVER

Fortymile Gold District

Top of the World Highway

Top of the World Highway

Swede Creek

Dawson City

Sixtymile Gold District

YUKON RIVER

Bonanza Creek

Hunker Creek

Klondike Gold District

Eldorado Creek

N

W

E

S

Legend

- Swede Creek Placer Claims Outline
- Placer Claims/Leases
- Yukon Roads
- Swede Creek ATV Road

Mapsheet 116B04

Created By: Morgan Fraughton

Date Created: 2016-01-26T20:13:11

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0 5 10 15 20 km

520000 530000 540000 550000 560000 570000 580000 590000 600000

7140000 7130000 7120000 7110000 7100000 7090000

SUMMARY OF PREVIOUS INVESTIGATIONS (HISTORY)

PREVIOUS INVESTIGATIONS BY SPEREX

Investigations of the placer gold potential ofSC by SpereX were first conducted in the fall of 2013 when a couple days were spent traversing the creek and panning along the creek-side gravel bars for gold. Since gold was frequently panned out of the gravels virtually everywhere at the rate of 2-12 pieces of gold per pan, it was deemed a good idea to stake a prospecting lease and then look to the 2014 summer season to perform more in depth exploration to determine the extent of placer gold there.

Figure 4 - Some of the gold panned from the Swede Creek's gravel bars in 2013

On June 5th, 2014 a 5-mile lease to prospect was staked by SpereX on SC. Also, on June 6 2014 SpereX staked two discovery claims; one on the mouth of Walkers Fork (Imp) and one on the mouth of Empire creek (Hound). During the summer of 2014 a small <9-ton excavator was walked in from the Top of the World Highway (TWH) in to dig some pits and trenches to test the gravels deeper than surface, and hopefully expose bedrock/gold grades at the bedrock/gravel interface. This small excavator was not able to uncover bedrock because its maximum digging depth was only 10ft (at the time there was no indication of bedrock depth and it was thought to be very deep

based on the size of SC valley). When the excavator left SC bedrock had still not been exposed and the depth to bedrock remained unknown. Getting in to and out of SC at time was very difficult as the roads were not yet defined and many obstacles were encountered. The <9ton excavator also had mechanical issues (tracks falling off , drive sprocket problems, coolant blowouts etc.). The machine was only rented for 2 weeks and almost 10 days were needed to walk the machine in to the spots which I wanted to test. Many of these spots proved to be frozen solid. Finally, in a last ditch attempt at finding bedrock the excavator was walked to place that was known there would be at least less permafrost. Digging down through the ice free gravels, water was hit at ~8 feet. Digging deeper than this (10ft) was attempted but the bucket on the excavator had some holes in the bottom of it and it was thought futile as bedrock was thought to be much deeper than this and any gold would have been washed away as the gravel was disturbed.

Gravels from this digging were hand sluiced through a long tom style aluminum sluice. Gold was recovered at a rate of approximately $\$15/m^3$. Approx $3m^3$ was washed. It is now known that these gravels came from approx 0-8ft below surface. Bedrock in this area was averaging 12ft deep as was later discovered in shafting and drilling.

In February of 2015, a shaft was sunk to bedrock by Morgan Fraughton. The shaft was successful at reaching what, at the time, was thought to be either bedrock or talus at approximately 3.4 meters (12ft); drilling since has confirmed this was bedrock. There was a reasonable amount of gold at the bottom of the shaft. Panning results from the frozen gravels from three 16-inch diameter gold pans was estimated at 25mg of gold. Panning was performed all the way down the shaft. Most of the way down there was trace amounts of gold. Approx. 30cm above gravel is where the increased gold content seemed to start as well as a layer of clay (locally decomposed Klondike schist bedrock). The accumulated positive results of investigations from 2013 to the sinking of the shaft in winter 2015 were the basis for this exploration undertaken in the summer of 2015.

Figure 5 - Morgan Fraughton in the February 2015 Swede Creek shaft. The shaft was 12ft deep and hit bedrock with gold at estimated at $\$25/m^2$.

Figure 6 - Gold from three 16" pan at the bottom of the hole. Gold Estimated at approx. 25mg

In addition to placer exploration in SC, SpereX has conducted soil sampling and prospecting hard- rock exploration in the hills to the north of SC. Initially, the hard-rock exploration was meant to follow-up on old reports by Cominco (Described in MINFILE 116B072) on their explorations in the area for volcanogenic massive sulfide (VMS) type deposits of copper, lead, and zinc. Small amounts of prospecting were done on the JPL in the late season of 2013 (see *Geochemical and Work Report on the JPL Claims by Morgan Fraughton)* (2014), some of the Klondike Schists (KS) did contain high amounts of copper, lead, zinc with smaller, but elevated, amounts of gold and silver. The most interesting result obtained by SpereX in 2015 that have come from the JPL property is a quartz vein that assays almost to 1oz/ton (28973.7 PPB) gold. It is thought that veins like this, disseminated gold in Klondike schist, and reworked placer gold that is contained in the ancient high-level fluvial terraces above SC, are the sources for placer gold in SC and its terraces. For more information on the hard rock explorations of the JPL, see the 2015 hard rock report on the JPL property, submitted to YMEP and the Yukon Mining Recorders office in Feb 2016.

In 2014 during the soil sampling/prospecting traverses of the hard-rock exploration of the JPL claims (see map label *Swede Creek Claims*) in the area it was noticed by Morgan Fraughton that above the cliffs to the north of Swede Creek there are large areas of terrace gravels. These gravels were made obvious during the JPL hard-rock soil sampling program of 2014. During this soil sampling every 50m along the traverse 1.2m augers were twisted in to the soil below surface in order to get a sample for assay. This soil sampling helped to give scope to the large area of ancient fluvial gravels hidden under the surface on these terraces. Also, it was clear that the road leading down to Swede Creek valley (SCV) exposed a large area where with high-level terrace gravels sluffing in from the hill/road cut above. This section of road (~1000ft long) runs parallel with 20pup and cuts the gravel bed in a perpendicular way. Though the gravel is exposed and the area is very large the exposure is on a steep side hill that descends down in to 20pup which would have cut through the ancient terrace gravel deposit and reworked its gold content to a concentrated amount in this part of 20pup (this should be investigated in 2016).

INVESTIGATIONS BY OTHERS

OTHER OPERATORS ON SWEDE CREEK

The potential of the Swede Creek area is exciting. Since SpereX staked the lease on Swede Creek in 2014 other explorers in the area have caught on and there have staked claims on the headwaters of Swede Creek.

One company, *Yukon Exploration Green Gold Inc.*, explains their holdings at the headwaters of SC on their company website (http://yukonexploration.ca/?page_id=1934):

…Thanks to an extended exploration campaign performed along the upper section of Swede Creek by our company, the tested gravel revealed an appealing deposition of coarse gold. At this time we are applying for all the licenses and permits required to start mining during the next season (2016). Qi property is also located right along the Top of the Word Highway, just 50 km from Dawson City. The access road to the claims starts right beside the Swede Dome.

DISCOVERY CLAIMS AND RUSH ON SWEDE CREEK

Written records of activity on SC previous to SpereX (fall 2013) date back to 1898 when the creek was renamed Swede creek (from 12-mile creek) by the mining recorder of the time. The renaming by the mining recorder was in response to the man (group) who staked the discovery claim was of Swedish origin. Feb 20 1898 an article in the Chicago Tribune tells a tale of a mad rush of hundreds of newcomers up SC from Dawson City (DC) by moonlight. Many people were frozen, there were deaths and limbs lost, including one RCMP, who was also the postmaster, had to have his leg amputated due to freezing it while on a rush to stake Walker's Fork, a tributary of SC.

One surprising issue with the rush was described, the staking took place by moonlight on a Sunday and the gold commissioner refused to grant any claims that were staked on a Sunday. Some people went back to stake ground but most left it alone. Supposedly, from the article in the Chicago tribune, the Swedes were sinking a shaft in SC in secret. Once they were discovered by a moose from hunter from Dawson City they quickly took a pan of the material they had at the bottom of the shaft and left for Dawson City to record their discovery claims and encourage their friends to stake before the stamped came. The gold that the Swedish prospectors reported to have found per pan was worth 90 cents. (Miller, 1898) In 1898 when gold was worth $20.67 USD and therefor it is estimated that this was approx. 1.5g of gold in their pan, with an approximate value of $70/pan in today's currency.

After this initial discovery and subsequent stampede, information on what people later found on SC is little to nothing. Since 1898, there has been leases and claims recorded on SC but no record of what was found or even if work was done has been uncovered through research methods such as Yukon Archives, Mining Recorders, Online Searches, EMR Assessment Reports, and YGS MINFILE occurrence database, early explorers'(Ogilvie, McConnell, Campbell, Schwatka) accounts. It is hypothesized that SC was searched by early prospectors at the time and discovered gold that was not concentrated enough in the gravels to profitably hand mine. As the fickle gold rush prospector don't seem to settle for anything but a bonanza this creek may have been overlooked for the extreme hype related to other creeks in the Klondike plateau. With today's mining methods this ground is most likely profitable.

DREDGE? PROMINENT CLAIM OWNERS ON SWEDE

On page 5 of the Dawson Daily News: Discovery Day Edition, Friday, August 17, 1917 there is one account of work done on Walker Fork; 'The dredge which was engaged on Walker's Fork and later on Miller Creek has been moved to the Sixty-mile' Although, this may be referring to Walker Fork at the headwaters of the Fortymile River in Alaska; it is unclear. Also, it is possible that very large areas on SC at the mouth of Walker Fork has been disturbed by mining quite a bit a long time ago. Trees have overgrown this area now but the presence large areas of thawed fluvial gravels at surface on the south side of the drainage seems out of place.

The Klondike News, vol. 1, no. 1, Dawson, N.W.T., April 1st, 1898, reported that some very prominent Klondike names owned claims on Swede Creek. On page 11 it is stated that James 'Curly' Monroe ('The Chief of the Stampeders') 'On Swede Creek he is owner of No. 6, and besides these he has a number of bench claims'. On page

35 of the same publication it states that Mr. J.W. Sullivan owns '…No. 1 above on Swede Creek. All of the claims are in rich sections and will yield comfortable fortunes to the lucky owner.'

There may be more information contained in the National Library and Archives of Ottawa that is not digitized. One search of the National archives' catalogues shows that there is a document in the Archives that is labeled 'Dredge Swede Creek'. There are rumors that the Yukon Consolidated Gold Corporation (YCGC) did some drilling on Swede Creek with the idea of dredging the creek and that the records are held in the National Library and Archive in Ottawa. Morgan Fraughton will spend some time in the National Library and Archives at the end of February 2016.

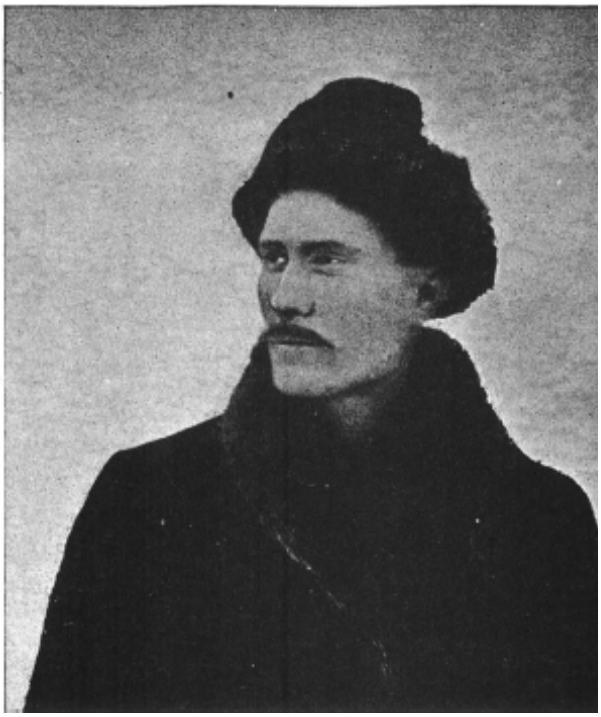


Figure 7 – Above. J. W. Sullivan. Discoverer of Coal on the Yukon, owner of many great claims in the Klondike and owner of No. 1 above on Swede Creek (Mickel & Moore, J. W. Sullivan, 1898)

Figure 8 – Right. James 'Curly' Monroe. '... his claims being located upon the creeks which have turned out to be the best'. Owned bench claims and No. 6 on Swede Creek (Mickel & Moore, James Monroe, 1898)

There are a few MINFILE occurrences in the area of SC and they all refer to exploration work that was directed at the hard-rock. (see MINFILE occurrences such as #116B072). None of the explorations were in depth. It is likely that in Cominco's case exploration may have continued past one season because there were promising results but the discovery of VMS in drill holes in the Finlayson District would have been distracting. Also Cominco never assayed for gold!

If one theme were to describe the theme of the Yukon and its goldfields since the second half of the 1800's) it is one that would see amazing discoveries and potential throughout the Yukon with development interrupted by two major world wars in the early half of the 1900's. Men who were working in the Yukon at this time were called to

their duty and fought and died and never returned. Talk about a brain drain! It seems that the great momentum of the Klondike plateau and its development in the early part of the 1900's was halted by these great wars and somewhat forgotten. That's why we still look to these old timers for answers.

REFERENCE TO AVAILABLE GEOLOGY (LOCAL AND REGIONAL)

REGIONAL GEOLOGY

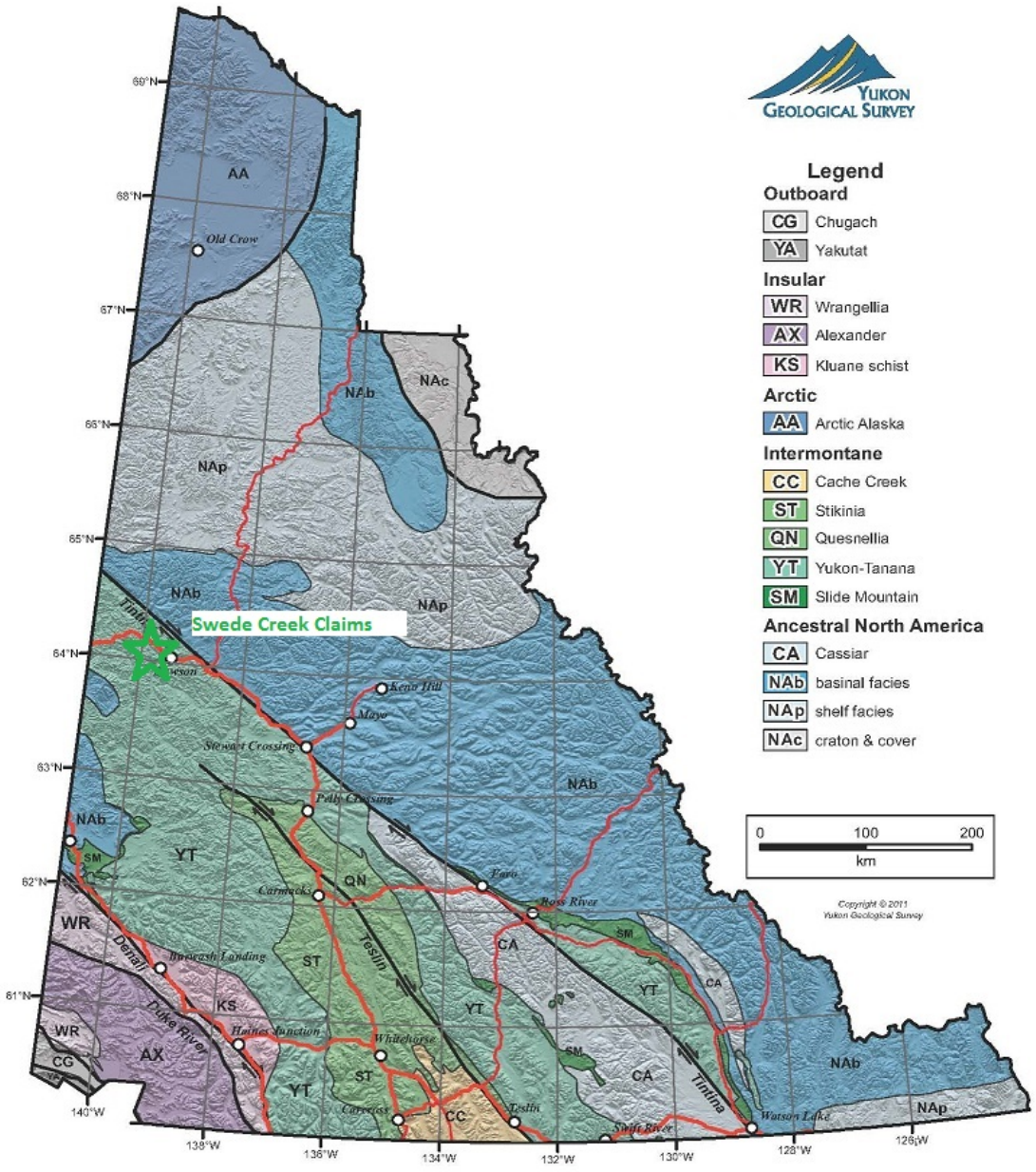


Figure 9 - Yukon geological terranes. Taken from http://www.geology.gov.yk.ca/overview_bedrock_geology.html

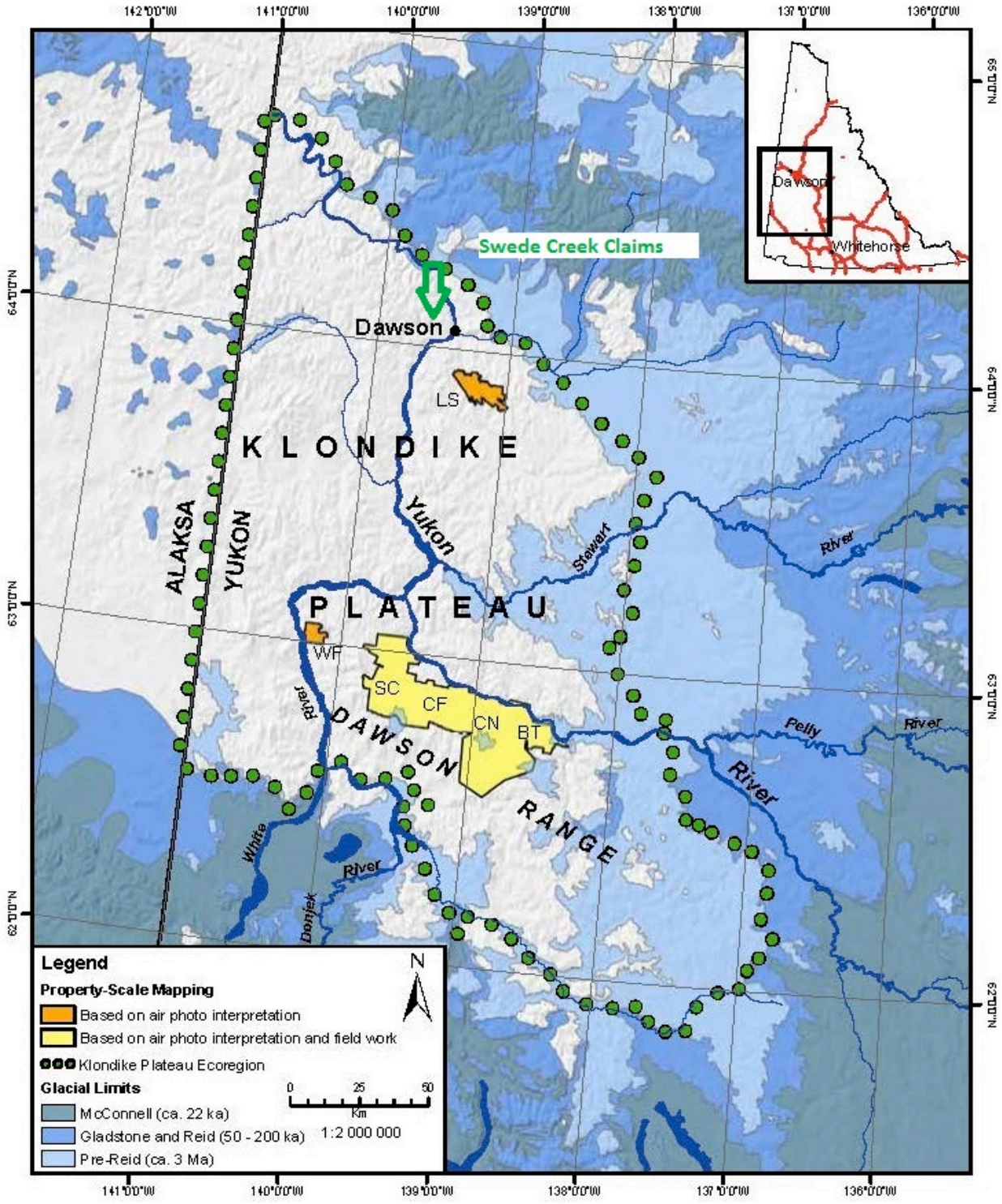


Figure 10 - Copied from ((McKillop, Turner, Johnston, & Bond, 2013). This is a great visual on the known maximum extents of the last three ice sheets to affect the SC region. The orange and yellow blocks were areas that the authors examined for their study of landform-soil type classification. And are not relevant to this report

Much of the Klondike plateau was free of significant glaciation during the last three million years. This unglaciated period has had a profound impact on the region and the SC area. This glacier free period allowed for the evolution and preservation of a well-developed landscape, with rounded summits and valley systems and their contained placer deposits. SC area was unglaciated during this time which seems to have impacted SC in a positive way with respect to placer gold. Like other areas that were not glaciated, the natural erosion and emplacement of gold within bedrock has not been scoured by glaciers therefore placer gold is fairly close to its original bedrock source. High-level fluvial terraces described in in publications by Yukon Geological Survey, (McKillop, Turner, Johnston, & Bond, 2013) and (Fuller, 1993), are very prospective for placer gold. Evidence suggests that the high-level terraces above SC fit in to this category of highly prospective benches.

Surficial materials in unglaciated regions of the Klondike plateau consist largely of weathered bedrock, colluvium, retransported loess (wind-blown silt), organic, and fluvial deposits. The Klondike plateau is in a zone of widespread discontinuous permafrost, with permafrost generally present on north and east facing slopes and thicker packages of stream beds.

Regional bedrock geology associated with the Klondike and Swede Creek area is best described by (MacKenzie, Craw, & Mortensen, 2008) (page 214)

> The main basement lithologic units of the Klondike District form part of the Yukon-Tanana terrane and include medium-grade metamorphic rocks of the Upper Permian Klondike Schist, carbonaceous schist of the Devonian-Mississippian Finlayson assemblage (Nasina fades), and little-metamorphosed Late Paleozoic greenstone and ultramafic rocks of the Slide Mountain terrane (Fig 1.; Mortensen, 1990, 1996; Mortensen et al., 2007). These units were thrust-imbricated in the Early Jurassic (Mortensen, 1996) resulting in a series of stacked thrust slices that are locally separated by lenses of ultramafic rocks. The uppermost slices are Klondike Schist and consist of complexly interleaved (1- to 100-m-scale) greenschist-fades quartzofeldspathic, chloritic, micaceous and minor carbonaceous schists. The two upper slices of Klondike Schist host significant orogenic gold and are the focus of current research into the structural controls on gold-bearing veins (MacKenzie et al., in press).
>
> The thrust stack was uplifted through the brittle-ductile transition in the Jurassic and unconformable overlain by locally derived sedimentary and volcanic rocks in the Late Cretaceous (Mortensen, 1996). Regional extension and normal faulting continued from Late Cretaceous to early Eocene with initiation of the strike-slip Tintina fault, along which rocks of the Klondike District were offset ~450 km from the rest of the Yukon-Tanana terrane (Gabrielse et al., 2006). Minor regional uplift continued in the late Tertiary when erosion produced the Pliocene White Channel Gravels and the world-famous Klondike gold placer deposits (Lowey, 2005). Exposure of basement rocks in the Klondike District is generally poor due to extensive colluvium and permafrost on the tree-covered slopes (Bond and Sanborn, 2006).

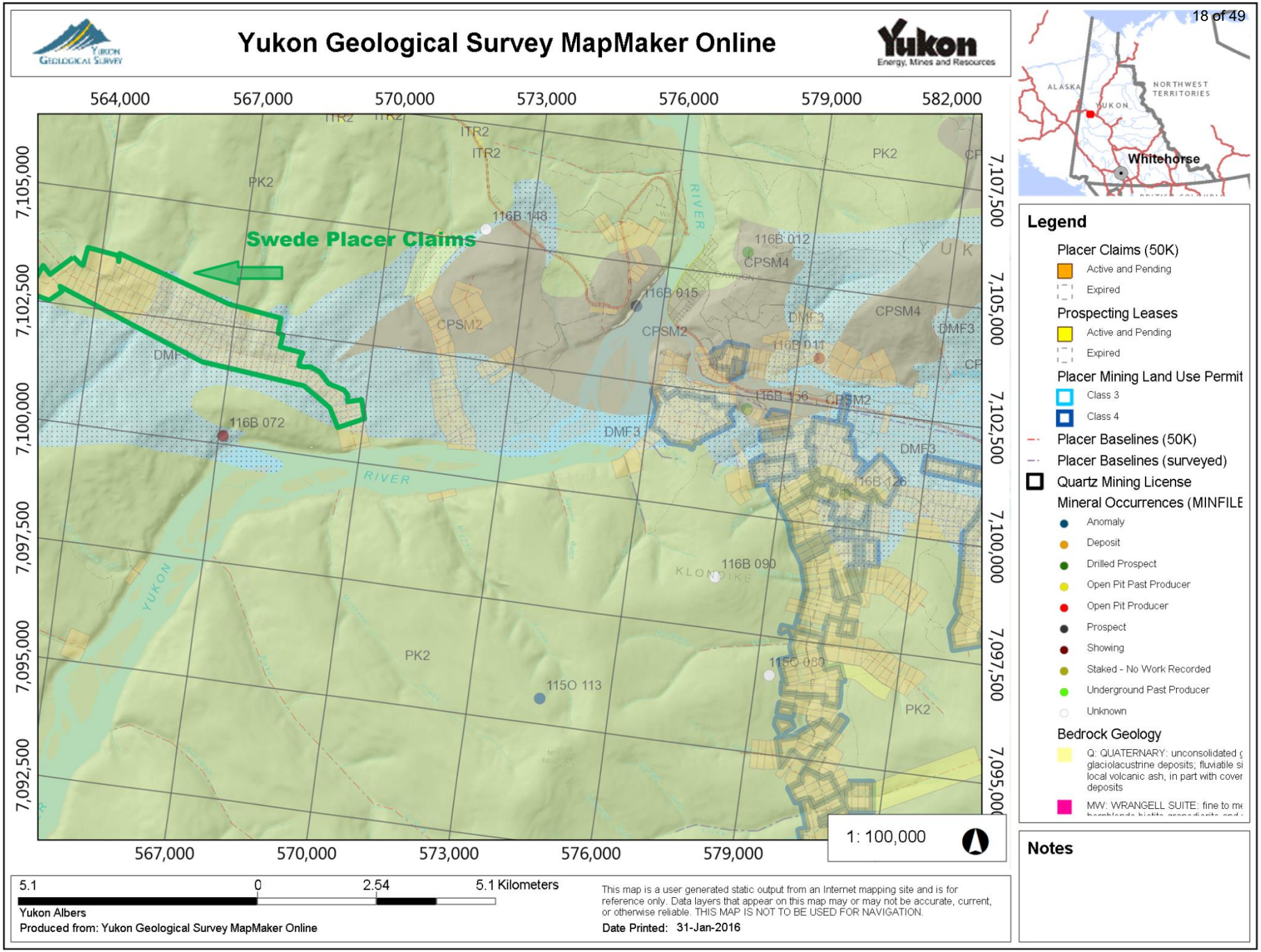


Figure 11 - Bedrock Geology around Swede Creek

AGE	reg_name	reg_desc	reg_legend
CARBONIFEROUS AND PERMIAN	Slide Mountain	dominantly oceanic assemblage of mafic volcanics (1), ultramafics (4), chert and pelite (2), limestone (3) and	CPA:Slide Mountain: dominantly oceanic assemblage of mafic volcanics (1), ultramafics (4), chert and pelite (2), limestone (3) and gabbroic rocks (5)
PERMIAN	Klondike Schist	poorly understood assemblage of metamorphosed pelitic/volcanic rocks (1) and minor marble (2), including phyllite of uncertain association (3)	PK: KLONDIKE SCHIST: poorly understood assemblage of metamorphosed pelitic/volcanic rocks (1) and minor marble (2), including phyllite of uncertain association (3)
DEVONIAN, MISSISSIPPIAN AND(?) OLDER	Finlayson	graphitic quartzite and muscovite quartz-rich schist (1), (3)-(5), and(?) (6) with interspersed marble (2) and probable correlative successions (7) - (9)	DMN: Finlayson: graphitic quartzite and muscovite quartz-rich schist (1), (3)-(5), and(?) (6) with interspersed marble (2) and probable correlative successions (7) - (9)

Figure 12 - geology legend for the map in figure 11.

LOCAL GEOLOGY AND BIOLOGY

Bedrock immediately under the Swede Creek (SC) claims consists of the upper layers of the Klondike Schist (KS) and the Finlayson graphitic schist. According to the quote above from the clipping above 'The two upper slices of Klondike Schist host significant orogenic gold and are the focus of current research into the structural controls on gold-bearing veins' (MacKenzie, Craw, & Mortensen, 2008).

Hard rock exploration work of 2015 has uncovered a quartz vein in the KS that assays at 28973.7 g/t gold (~1 ounce per ton) gold. Most likely, many more gold rich veins in the hills above and in SC will be discovered in future exploration. Through natural weathering and erosion processes over time SC has cut its way through the gold bearing bedrock in the area and redistributed its placer gold content in to the bottom of the SC valley and its terraces.

As in Bonanza and Eldorado creeks next door, gold is thought to come from the erosion of these high grade gold rich quartz veins as well as the lower grade gold disseminated Klondike schist. In addition to local gold emplacement in through natural erosion of the Klondike schist it is believed by SpereX that the high-level terraces above SC contain significant amounts of gold and some gold in the creek is due to the redistribution of the placer gold that was contained in the ancient high-level fluvial gravel terraces. One indicator for this may be that the gold found in drill holes in the creek is a mix of angular gold (locally derived bedrock gold) as well as well-travelled flattened gold (ancient fluvial terrace placer gold).

From drilling, it was observed that much of the north side of the creek valley is free of permafrost and gravel typically starts right at surface (below a thin moss layer). To the south side of the valley, permafrost increases in regularity. On the north side of the valley, large coniferous and aspen trees stand on top of thawed gravels that extend from the surface all the way down to bedrock. On the south side of the valley gravels are buried in up to in the extreme of 10 meters of frozen muck at the very southern edge of the creek. The frozen muck layer peters out to less than 1 meter by the time it reaches the middle of the valley then no muck on the northern side of the

valley. On the south side of the valley the surface is overgrown with thick sphagnum moss and stunted black spruce. The gravel layer depth is typically 4 meters deep throughout SC but lessens to the southern side of the valley to 1-2 meters in areas drilled. (see figure 14 for a valley profile)

On the high-level terraces there lies a very large body of fluvial gravel deposits buried under ~3-0m of loess and colluvium. The drill (4-inch auger) that worked on the terrace was not able to conclusively define the makeup of these terraces. The biggest indicator of the volume and size of the gravel deposit is the size of some fluvial rocks that that are observed in places that are thawed on the terraces.

Figure 13 - Some of the Gravels above Swede Creek on the Terraces

High level terrace gravels were formed sometime between 3.6 and 5.3 million years ago. These old creeks and waterways would have been wide an and meander throughout the flatlands that was the Klondike plateau before the current valleys we see today were formed. Figure 15 below shows SpereX's estimate of the location of this ancient stream bed which is now high level terraces suspended in time. From the size and shape that he terraces seem to make above SC it is hypothesized that Swede Creek has been flowing in in the same direction since it started draining water from its headwaters at Swede Dome to the mouth at Yukon river. Another possibility for the large size of gravels in the high-level terraces is a extreme and violent outflow from the breakup of the pre-Reid glacier which may have forced large amounts of fluvial gravel through the Klondike River valley, across the Yukon river valley and up in to the Swede Creek drainage?

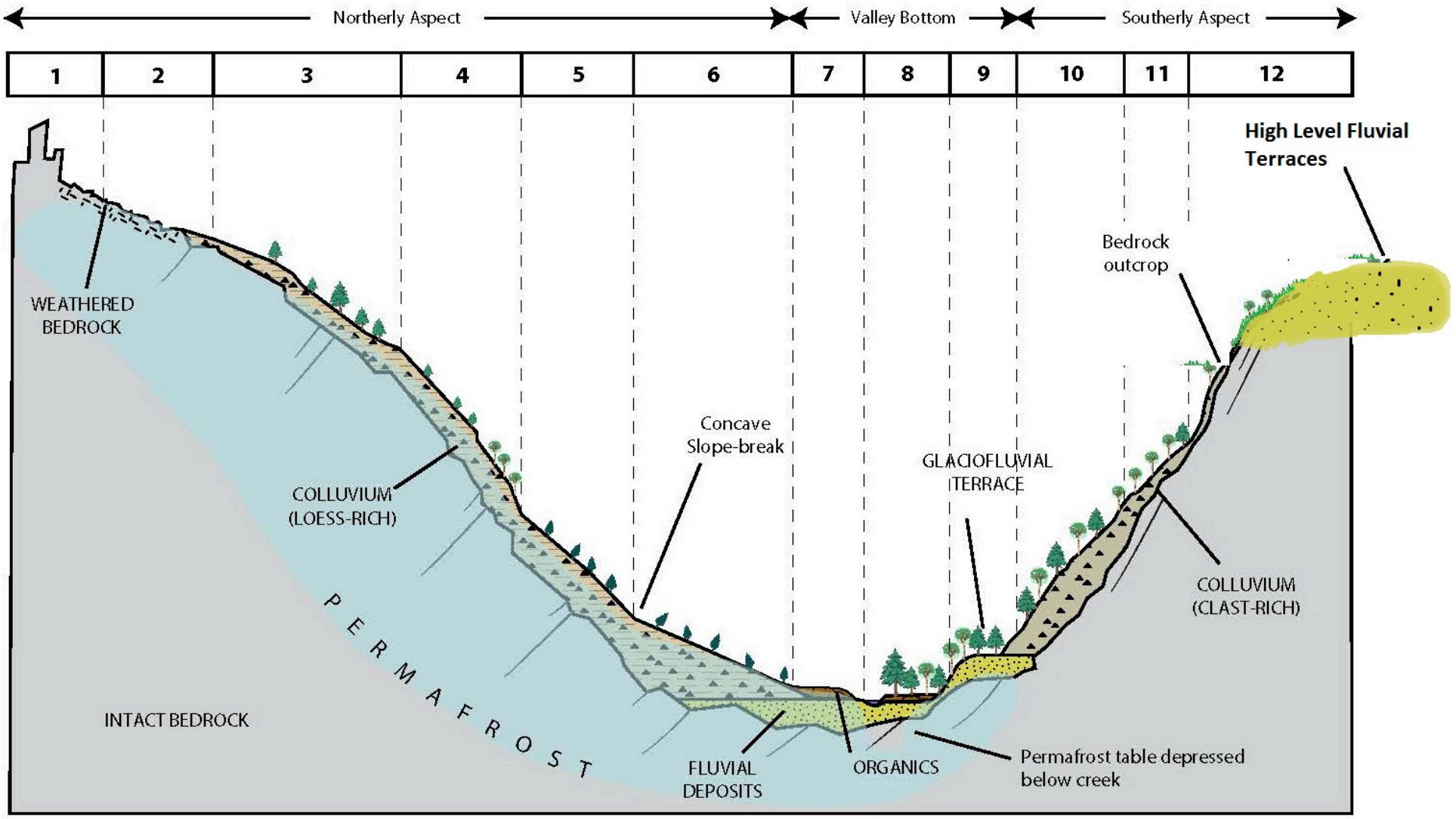


Figure 14 - Sketch that exemplifies the Swede Creek Valley. Modified from figure 12 of (McKillop, Turner, Johnston, & Bond, 2013). The numbered sections at the top are the 12 landform soil types of the same paper.

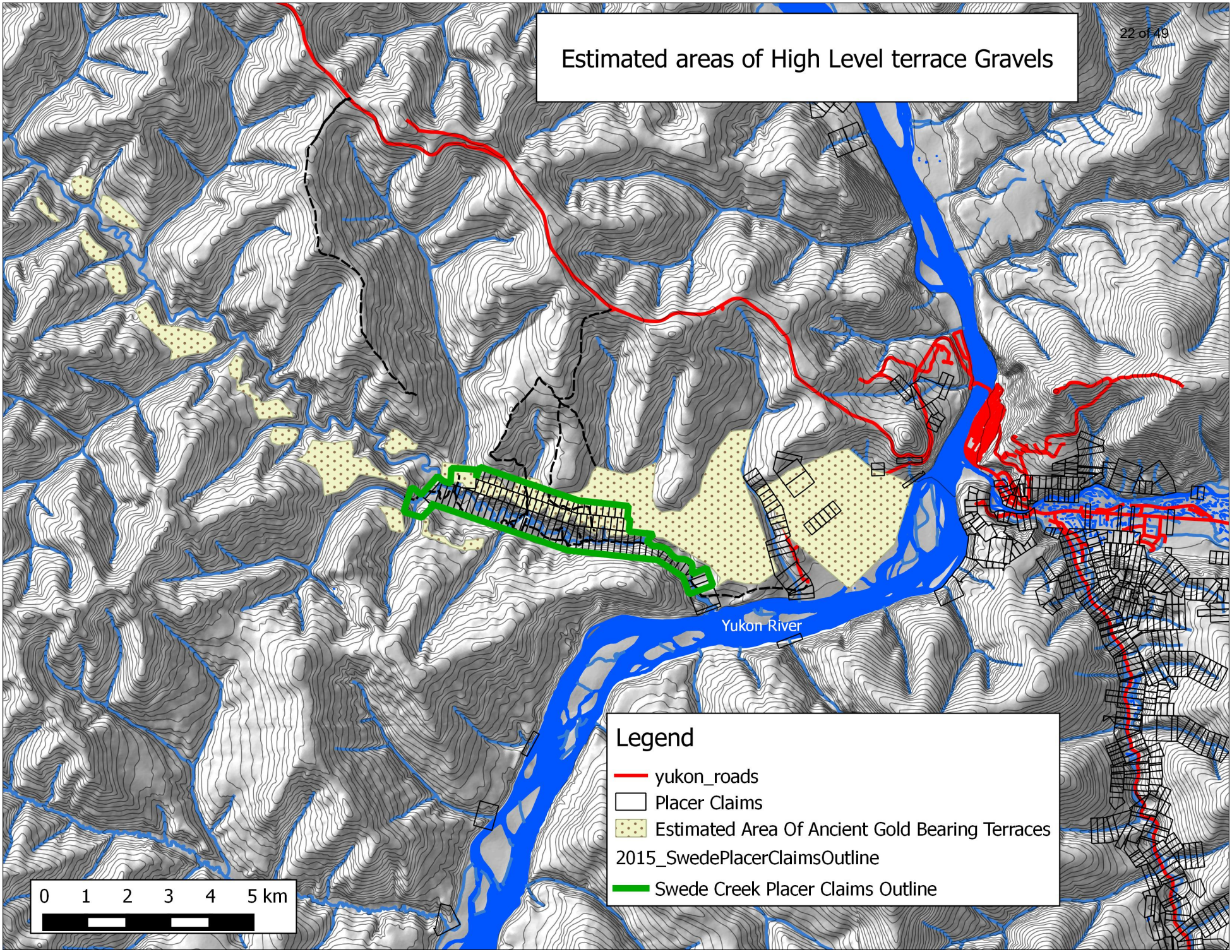


Figure 15 - estimated anchient high level gravel terraces of Swede Creek.

Swede Exploration Overview - GPR, and Drilling

Figure 16 -GPR and Drilling overview map

Mapsheet 116B04

Created By: Morgan Fraughton

Date Created: 2016-01-31T23:21:32

Legend

- Gateway Drill Holes
- Low Impact Drill Holes
- Ground Truth Drill Holes
- GPR Lines
- Usable ATV Road
- Contours (ft)

N

W E

S

565000 566000 567000

7103000 7102000

1:6,000

CRS: NAD83(CSRS) / UTM zone 7N (EPSG: 3154)

0 1 2 km

DESCRIPTION OF 2015 WORK PROGRAM

PREAMBLE

ISSUES WITH SOME OF THE EXPLORATION METHODS EMPLOYED

Since this was SpereX's first time conducting placer exploration on this scale and contracting exploration methods such as drilling, GPR, and UAV imaging it was expected that there would be some learning curves. Even though there were issues, the overall program turned out a success because it defined an area of high placer gold in drill holes that warrant a bulk-tests in 2016. Explorations also indicated that the rest of SC and it high-level terraces are very prospective for placer gold. Some of the methods used and contracted contained unforeseen and unknown issues which threatened the success of this program. SpereX has learned a lot from the 2015 exploration season and the 2016 exploration plan and future explorations will be much more informed and therefore more expansive and economical.

A 4-inch auger drill was contracted to do work on the bench leases to determine depth to bedrock from surface as well as the makeup of the high-level fluvial terrace gravel deposits and their potential to host placer gold. The auger drill was meant to quickly analyze the bench gravels and then move in to the creek to do the same. Problems with the 4-inch auger drill indicated in mid-season that it would not be able to accomplish this task.

Therefore, a 6-inch auger drill mounted on the back of a tracked 10 ton bombardier machine was employed to drill some of the targets in SC. Unfortunately, due to the nature of the gravels and the frozen ground, this auger drill did not have much ability to drill down to bedrock either.

Due to trouble with both auger drills, auger drilling became doubtful as an effective exploration tool in this area. As a last resort a rotary air blast (RAB) drill was employed to get samples in the creek and unquestionably reach bedrock. In the end, all drilling methods used successfully added to the understanding of the creek and bench areas around SC but the only method of drilling worth repeating is the RAB drill method.

It must be stated that when developing the initial exploration plans the Ground Truth Exploration's (GTE) RAB drill was not available as for hire and that is why it was decided to go with Low Impact's 4-inch auger drill. If it was a certainty that GTE's RAB drill would be commissionable the exploration plans would have been made with that RAB drill doing all of the drilling work. Since the drill was not a certainty Low Impact (4-inch auger) was contracted. After the disappointing performance of Low Impact's drill as well as the 6-inch auger drill of Gateway drilling there was a huge gap in the drilling work that was done to the drilling work that SpereX wanted to have done. Late in the season, late sept, it was confirmed with GTE that their RAB drill would be able to work on SC in October. This opportunity was taken and the drill was contracted for a few days (the remainder of the exploration budget) in October.

STAKING TWO BENCH LEASES (MAY 20, 21) THEN CONVERTING THEM TO 53 BENCH CLAIMS (OCT 23-28)

In order to explore and understand the extent of the high-level terrace gravels above SC the area had to be staked to prospecting leases. Once two 3-mile (tier 1 and 2) bench leases to prospect were staked on May 20 and 21 and then approved by the Yukon Government exploration drilling on these leases could start. Once the 4-inch auger

drill program had been completed there was enough work done on these two 3-mile leases to satisfy the mining recorders requirement of $1000/mile in order to convert the leases in to claims.

Staking these two leases started with using geographic information system (GIS) software to determine the post and line locations. Once post locations and traverse lines were determined on the GIS the point files were transferred to a handheld GPS unit. In the field, the points on the GPS were used to lay out the cut lines and fix the post positions on the ground. Each lease took one day to stake. Other tools used for staking were an axe, machete, orange flagging, pencil and metal wire. The staking lines were accessed by truck and trailer from Dawson City then ATV and hiking.

Staking the prospecting leases to claims started on October 23rd and went until October 28th, for a total of 6 days. In total, 53 placer claims were staked and recorded at the Dawson Mining Recorder; Swede Bench 1 - 53. (See Figure 1 claim map)

HIGH-RESOLUTION, UNMANNED AIRIAL VEHICHLE (UAV) IMAGING (MAY 27)

An ortho image gives an unprecedented birds eye view of the entire property and the ability to work with your image in a GIS. This imaging is seen by SpereX as crucial part of initial exploration, it should not be overlooked.

In order to assist exploration planning and eventually mine planning a high resolution ortho-image and digital elevation model for the creek valley would be very important. The high resolution image gives a real time picture of the current creek and other ground conditions. The high resolution image also assists in finding areas where historical work may have been done, such as past pits, trenches, trails, shafts. It helps to plan out with higher precision and accuracy where the mineable areas are for the 30 m creek setback and it will be helpful in interpretation of exploration results and possible mine reclamation in the distant future.

One day (May 27) was needed to obtain a high resolution aerial image of the claims Swede 1-48, Hound and Imp on Walker Fork and Empire Creek (tributaries to Swede Creek).

On May 27, 2015 SpereX contracted Ground Truth Exploration (GTE) of Dawson City to use their Ebee UAV to capture as much high resolution imagery on Swede Creek (SC) as possible in one day. It was thought that the entire creek in addition to the terrace gravels above SC could be imaged in one day. The operator who came in to the project seemed to not know how to operate the equipment expertly. He was very uneasy with the area that they picked to launch and land the UAV. Finally, after Morgan Fraughton had cut out a large landing area from the willows and other obstacles that the operator was worried about. The operator then attempted to launch the drone and test the landing before flying a full mission.

Figure 17 - The Ebee

Figure 18 - David Cox of Ground Truth Exploration Inc. performing the UAV survey on Swede

Unfortunately, things were further complicated by the fact that the operator had forgotten all but one of the battery packs back at the Ground Truth compound in Dawson City. Morgan Fraughton used his satellite texting (the GTE operator also forgot his satellite phone) to get a GTE employee to bring the batteries to kilometer 15 at the top of the world highway from the GTE compound in Dawson where Morgan could meet them and then deliver the batteries to the UAV operator. After this battery issue was sorted the operator moved forward with the program. The operator was extremely nervous and seemed to have no confidence in his ability to operate this equipment. The launch was sketchy and when the landing was attempted the operator became scared and accidently flew the drone in to trees on the hillside next to the landing area. Morgan Fraughton suggested that the launch take place on the hillside and the landing be reversed. The operator took this advice and launched a successful first imaging flight and landing. The process of image capture could continue from there. Almost all of the Swede 1-48 claims were flown and imaged except for important parts of the claims Swede 1,2 and. At this point the operator assured me that he could get the rest of the imagery from launches on the Top of the World Highway (TWH).

We ascended to the to the TWH and the operator said that he would complete all the remaining imaging on his own and I was no longer needed so I left him to it. In the end the upstream end that was left un imaged was captured but the downstream end (Swede 1,2 and 3) and the mouth of Empire creek area remained un-imagined. I consider the large area of claims Swede 1, 2 and 3 to be an important exploration target for the future and it is possible that I will attempt to image this missed area in the next summer.

GTE states in their promotional material a 10-day turnaround for the UAV image. On July 1st (35 days later) SpereX was provided image and other data captured by the UAV that covers an area approximately 8.5 km^2 in the Swede Creek valley. The image is seen in the claim map above and the digital version of the data is included in the USB stick that is attached to the hardcopy of this report. The Google Earth (GE) tiles that GTE provided, which are supposed to easily overlay in GE still did not line up properly. The operator acknowledged the issues but said he could not figure out how to correct it.

The Ebee UAV weighs approx. 0.69 kg and has a wingspan of 9.6 cm. It has a high resolution digital camera for taking pictures and uses proprietary software to turn the pictures in to a orthomosaic as well as estimate ground elevation. For more detailed information, see https://www.sensefly.com/drones/ebee.html. Also a spec sheet from the manufacturer has been included in the USB drive attached to the original copy of this report.

GROUND PENETRATING RADAR AND LINE LAYOUT (JUNE 23, 24, 25, 26, 29, 30, JULY 1, 2, 3)

Ground penetrating radar (GPR) work was contracted to Ground Truth Exploration (GTE) to determine the depth to bedrock from surface for a large area of Swede Creek. To facilitate the GPR survey itself there were lines flagged and brushed out for the GPR operator and GPR unit. SpereX did all the line flagging and brushing.

Due to the availability in Dawson City of ground penetrating radar (GPR) and its (promoted) ability to determine depth to the bedrock/gravel interface below surface it was determined that as much of possible of the SC claims should be surveyed with GPR for a few different reasons. (It must be stated here that these were goals based on the promoted ability of GTE's GPR:

1. Determine Depth to bedrock from surface for a large area from Swede Claim 20-48 and on an area of the terraces
2. GPR determine determine the deepest channels cut in the bedrock in the current fluvial plane and terraces (hopefully this would also coincide with increased pay streaks) and specifically target them with the drilling later in the season.
3. use the combined GPR and drill results to interpret depth to bedrock, types/volume of overburden, and where gold concentrations existed within the creek.

Before the GPR program could start it was important to get GPR lines flagged and lightly brushed so that the GPR operator could complete the survey with ease. The quality of the GPR readings depends on the snakelike unit (20 feet long) to be in constant contact with the ground as well as the operator being able to keep a consistent pace throughout the survey process. It was important to do everything possible ensure the highest quality of GPR readings so that the resulting data was as precise and accurate as possible.

GPR lines were spaced at 100 meters apart and went perpendicular to the baseline of the creek crossing the entire valley where possible fluvial gravel deposits existed. All proposed GPR lines were drawn up in a GIS using the acquired high res UAV imagery from the earlier property imaging. Points were created in QGIS and then transferred to GPS in order to create the lines on the ground. Lines were marked out on the ground using flagging

tape guided by the GPS points and a compass to keep as close to the bearing and as straight a line as was reasonably possible.

All lines were initially flagged with orange flagging tape, so that the GPR operator could always see the next flag along the line. When a large enough number of lines were flagged they were gone back over with brush cutter. Lines were cleared so that the snake would stay on the ground and the operator could see the next piece of flagging with ease. In cases where obstructions could not be avoided, such as waterbodies, areas with a lot of deadfall, etc. the obstruction was simply circumvented.

Line brushing and flagging for the GPR program occurred on June 23, 24, 25, 26, 29, 30, July 1, 2, 3. In total this is cutting was done over 9 days; 12 man-days. A total of 17 (2.3 line-km on the terrace above SC and 14.7-line-km in the creek) line kilometers was flagged/cleared to facilitate the GPR's unit and operator. Cut lines were all well within the limits of class 1 placer claim restrictions. After a couple years when the biodegradable flagging disappears it will be impossible to notice that there were ever lines brushed at all.

4-INCH AUGER DRILLING ON BENCH LEASES (LINE CUTTING MAY 24, 25, 26, 31, JUNE 1, 4, 10, 11, 13, 15, 16, 17,18, 20 AND DRILLING JULY 7, SEPT 5-13)

ACCESS TRAIL CLEARING,

In order to get access to the bench leases that were going to be drilled and explored it was necessary to brush out a trail through the alder overgrowth on the old road to get an ATV and trailer through. A total of 11 days, 15 man-days (11 days for 1 person and 4 days for 2 people) were spent clearing this 4 km section of trail. The work was done MAY 24, 25, 26, 31, JUNE 1, 4, 10, 11, 13, 15, 16, 17,18, 20. Trail cutting was slow and tedious work. The overgrowth on the road was extremely thick. This kept trail clearing progress to approximately 260 meters per man-day on average. Some days up to 500m could be cut but on other days as little as 100m could be cut. In addition to the extremely thick and troublesome alder the whole area has quite a fine loess dust that is on the moss and lower sections of the alder which rendered chainsaws and the large handheld brush cutters dull very quickly. Even though this method was slow it was still the best method that could be employed under the class 1 claim restrictions which were in place.

Figure 19 - The trail was extremely overgrown with alders.

Figure 20 - Trail after it had been cleared

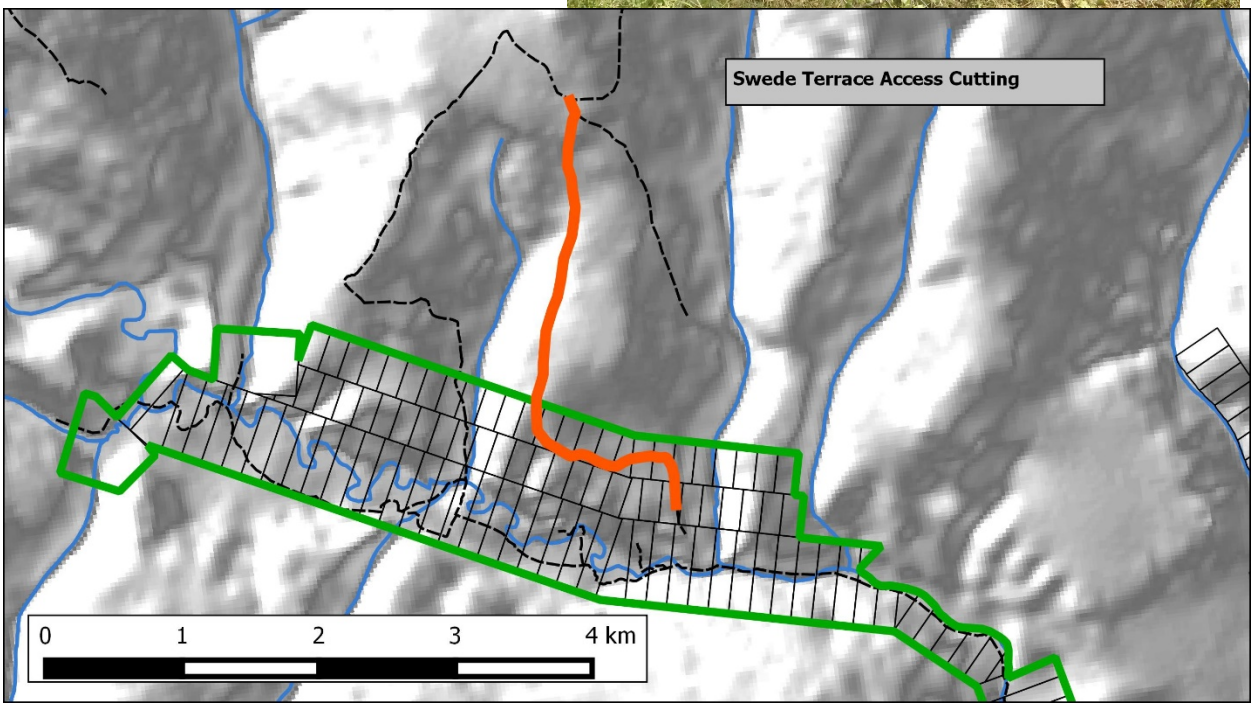


Figure 21 - Orange is the trail that was brushed to access the drill lines.

Initially, this trail needed to be cut for the auger drilling program on the bench gravels above SC but later in the season this road served as an access for the soil sampling program of the JPL hard rock property in the area. This trail access for the soil sampling as well the placer program was more expensive this season but now that a proper trail is in it will reduce future exploration costs now that an access trail is in place.

The main tool used to clear alder growth off of the trail was a Husqvarna 555FX Brush cutter; a 50cc engine that powers a high speed rotary saw blade. This piece of equipment was the heaviest piece of equipment that could be used due to class 1 restrictions but it was still slightly underpowered for the job at hand. Which contributed to increased wear and tear on the machine and slow progress. Other tools used were chainsaws, machete's, and axes.

FIRT DRILL LINE LAYOUT AND CUTTING

Once the trail in to the area of the terrace leases had been completed, one day (June 21) was spent by Morgan Fraughton and Michael Fraughton prospecting with shovels, hand augers, and mattock in order to define the total surface area of the gravel on the terrace. Once the area had been inspected the information was used to plan where the GPR and Drilling lines would be placed.

When the drill program was to be completed entirely by the ATV portable 4-inch auger drill it was thought that many lines would need to be cut in order to facilitate this drilling program. On account of the issues that were encountered with the 4-inch auger only one drill line was cut through the forest on the terrace gravels. This cut line was less than 1.5 meters in width. This line imprinted over the existing GPR line (GPR L29). The drill line was cut 440 meters long and was cut over 2 days, July 4 and 5, 2 man-days were needed as one worker (Morgan Fraughton) did all the cutting e the drill.

Figure 22 - Sean Payne (Low Impact Drilling) custom built drill. Drilling on drill hole SPD029.

Figure 23 - Low Impact Drilling on the terrace. SPD001a. This is a wider section of the old road not a cutline. This drill line here went in to the bush on the left perpendicular to tis road.

4-INCH AUGER MOBILIZATION, DRILLING AND DEMOBILIZATION

In the plan for drilling work to be done on the Swede Creek benches and Creek, Sean Payne of Low Impact Drilling was going to drill approximately 600 meters of 4-inch diameter drill holes on the terraces then move on to the creek. Since the drill was not able to perform as expected this 4-inch auger drill was confined to drilling on the bench (terrace) leases in order to explore the gravels there and complete the required assessment work on these leases in order to be able to turn them in to claims.

The 4-inch auger was mobilized in to the property on July 7 2015 to commence drilling on the first drill line that had been cut out. It took one day for 2 guys and 2 ATV's with trailers to MOB the drill in along the cut trails from the staging area at the TWH. Drilling was attempted the next but the drill ran in to operational and mechanical issues that is out of the scope of this report. The drill was a new build and there would be many issues to work out. The driller, Sean Payne, spent most of the rest of the summer making the drill work properly. Finally, once much changes and fabrication had been done part time over the course of the summer the drill was able to function properly in September. So, drilling work was done by this drill from Sept 5 to 12 and mobbed out over 1 day on the 13 of September. No charge to SpereX was made white the drill was not drilling from the MOB in date to the first day of drilling.

On the first hole the drill could not drill past 12ft and it was not clear if this was bedrock (most likely was not) or some other block such as frozen loess, frozen larger gravels. This proved to the theme for the 4-inch auger drilling program. Also, from the initial GPR results and interpretations (pre-drill) it was very unclear where bedrock may be and it was estimated in fact to be at depths of 30ft or more by the initial interpretation of the of the GPR images and data. Without conclusive evidence the true nature of the gravel on high-level terraces of Swede Creek is still unknown.

In total there was 399 feet of drilling over the course of 8 days; averaging 50ft of drilling per day. All samples were collected in clear plastic ore bags as the material came out of the drill hole. As the augers came of the hole they were all scraped cleaned and placed in to the same ore bags. All ore bags were labeled with the hole number and piled next to the hole.

All the bags for each drill hole were emptied in to the sluice box. Once all the material from the hole was placed in to and washed through the sluice box the mat was removed and cleaned in to a gold pan. The concentrate was then panned down to reveal gold content. Demobilization (Sept 13) took one day and 2 guys with 2 atvs and trailers to get the drill off of the property.

No hole had gold in any significant amount. Trace amounts were observed in many different holes from the bench. The lack of coarse or larger amounts of fine gold in the material that was drilled is not discouraging, in fact it can be seen as a sign that the bench gravels do host more gold and possible richer pay streaks inside of them. The drilling in this case was so inconclusive as to whether or not it had ever reached bedrock. From drill line 1 is showed that most of the material that was drilled on line 1 was a mostly loess or really fine colluvium that was tightly packed and frozen near surface and started to become permafrost loess as the drill got deeper. The drill frequently hit a point where it could drill not. It is unknown, but likely, if there is a coarser layer of possibly frozen gravel under this loess/colluvium. Inside the washed bits of the loess there are very small pieces of fluvial gravels. Even when larger gravels were encountered in the drill hole, mostly on the second drill line, there would be sand intermixed with them and it was never conclusive whether bedrock was met with.

On SPD018 the drill went down to 74 ft. This was thought to be odd because the previous deepest hole was only 25ft deep. It is possible that the bedrock could be that deep but more likely the drill was riding along the angled

slope that would have been created as Discovery pup cut through this old fluvial terrace. The gravel would have slipped in to Discovery pup. Gold in this hole was very fine like all the other holes and for the volume of material that was washed was not significant. Also, it is very doubtful that any material near the bottom of the hole made it up to the surface. See the attached USB stick on the hardcopy of this report for the full drill log.

6-INCH DIAMETER AUGER DRILLING IN THE CREEK (AUG 4-7)

In response to the disappointing performance of the 4-inch auger drill a new drill was sought to test some of the targets in SC valley. It was difficult to find a drill available in the middle of the busy placer season but eventually one was found. Gateway Drilling was contracted to perform drilling work on the SC placer property in the creek valley. Gateway drilling provided a larger 10-ton bombardier tracked vehicle with a 6-inch auger drill mounted on the back.

On August 3 Gateway Drilling (owner Clint Tracy) came down to SC with Morgan Fraughton to assess the ground on Swede and ensure that the Gateway drill would be able to perform and that the conditions were right in order to get the most out of the drilling program. After viewing the property Clint though that the drill could come down to the creek and be successful. Although, it was noted that some of the boulders, because of their size, may be an obstacle to the drilling but it was decided that overall the drilling may be difficult but doable.

On august 4th Gateway drilling mobed their drill from Dawson City to KM 15 on the top of the world highway then via tractor trailer. Then the drill was offloaded and walked down to the first drill lines in SC in the area of GPR L18

On august 5th and 6th the drill was drilling targets in the valley. On the first hole the drill went down to 23ft and hit a point where it could not drill any further. It was quite clear that this was most likely not bedrock as the drill had just broken through a layer of black muck in to a frozen gravel where, possibly, the frozen gravels proved impenetrable to the drill. Hoping this would be an isolated case the drill was moved about 20 meters down the drill line and another attempt at bedrock was made. Again disappointment came at 18ft below surface where the same muck to frozen gravel interface was met and the drill could not make any progress past this impenetrable (for this drill) obstacle.[1]

In response to the drill not getting through the frozen gravels it was moved some distance to a less prospective area where the ground was known to be thawed and it was thought that the drill could at least reveal where the bedrock interface is. Fortunately, the drill was able to confirm bedrock under the thawed gravels at approximately 20ft. This was important because it was able to test the bedrock/overburden interface for gold content, and it provides important data as to the depth of the bedrock in the area which could then be checked against the GPR data. Four holes (GWD003-006) were drilled along a line heading south perpendicular to the creek baseline, holes were spaced approximately 20-30 meters apart. The depth to bedrock seemed to decrease further to the south as the creek was approached. Indicating a deeper channel near the north side of the valley under the standing water at the base of the north cliff? Or it was just that bedrock was more consolidated here rather than soft and decaying. That completed the first day of drilling with the 6-inch auger drill.

One interesting thing this drill was able to prove was that there is a contact somewhere between GWD005 and GWD006 between black graphitic Finlayson schist and the more felsic, bluish quartz eye, Klondike Schist? (ortho-

[1] Later drilling in these same spots with the RAB drill showed that this auger drill was stopped in all cases when the muck-gravel layer was encountered. The RAB drill also proved that the gravel layer here was ~10feet (3m) thick from the bottom of the muck to the top of bedrock.

gneiss?) which was very clayey. GWD005 bedrock was this yellowish rusty color and GWD006 was a jet black color. In addition, these holes, in varying degrees, with the first hole being the most prevalent, there were extremely high amounts of free-floating cubic pyrite within the gravels. The volume of pyrite was alarming. After washing one gold pan of gravel as much as 1/5 of the pan would be full of pure pyrite cubes. At the Filayson/KS[2] contact there must be a large amount of pyrite in bedrock.

Figure 24 - See here the pyrite in along quartz veins in the Finlayson unit. It is difficult to see here but most of the black is actually fine weathered pyrite.[3]

In retrospect, from data from later RAB drilling, indicates this pyrite was coming out of the Finlayson graphitic schists and not the Klondike schists. Also, in all cases where lots of pyrite was found there was no gold found in the placers, which could be an important indicator as to the bedrock source of the gold and also the way that the placer gold gets laid down within this drainage.

[2] Klondike Schist (KS) may turn out to be a orthogneiss? I also describe this rock type as a quartz-augen-shist. Its hard to tell exactly what this rock type is.
[3] This rock was assayed and it did not return very high numbers in economic mineralizatoin. Silver was elevated though. Also, this was a creek rock taken from the shaft in Feb 2015. Mineralization may have been affected by extended fluvial weathering?

After the last hole, GWD006, the drill was moved much further downstream to the area of the Feb 2015 shaft and 2014 trenches to further test the area because it was known that this area would be thawed to bedrock and bedrock was not that deep.

On August 6th drilling started on GWD007 which was located less than 3 meters from the original shaft which Morgan Fraughton dug in February 2015. It was thought it would be a good idea to compare what the results of this drill against an area where gold and bedrock were found. The drill was able to drill down to a total of 16ft. The gravel layer ended at 12ft where clayey broken, weathered bedrock was encountered. When the material from this hole was panned, the gold was in a great enough quantity to give a value of $70 per cubic meter. After this hole there were three more holes drilled along a line going perpendicular to the baseline of the creek towards the north side of the creek at intervals of approximately 20m.

Once the farthest point to the north of the valley along this second drill line was drilled there was no areas left which were known to be thawed close by and therefore no areas that could be drilled with confidence. It was decided to go further to the south of GWD007 along the same line and attempt to make a hole to bedrock in an area of known permafrost. The attempt came to naught and the drill hit a frozen gravel layer at 7ft and the drill could go no further. Another attempt was made along the same line 10m further toward the creek. Again, at 6ft the drill could not pass the frozen gravels that were encountered. In disappointment and desperation one final hole was attempted on the other side of the creek. This attempt, GWD013, was again stopped short due to frozen gravels. At this point the drill was packed up and made ready to demobilize back to The Top of the World Highway on the following day.

On August 7th the 6-inch auger drill was walked from the creek back to the TWH and then driven back to Dawson city no a tractor trailer.

All material from the drill holes was collected in rice bags as it came out of the hole and packaged for washing by Gateway Drilling. Once a drill hole was completed the bags were put through a long tom style sluice box. The heavies from each hole were then taken from the long tom and put in to a pan where they were panned down and checked for gold. For each hole all material was put through the long tom at once. This would make it difficult to tell where your gold came from in the hole but it would be any gold in the hole was positive and could later be followed up on. See the USB stick attached to the hardcopy of this report for the full drill summary.

Results from this 6-inch auger drill confirmed the shafting results and also showed that paying gold most likely exists from GWD007 to the north side (GWD009) of SC. See results in figure 24 below.

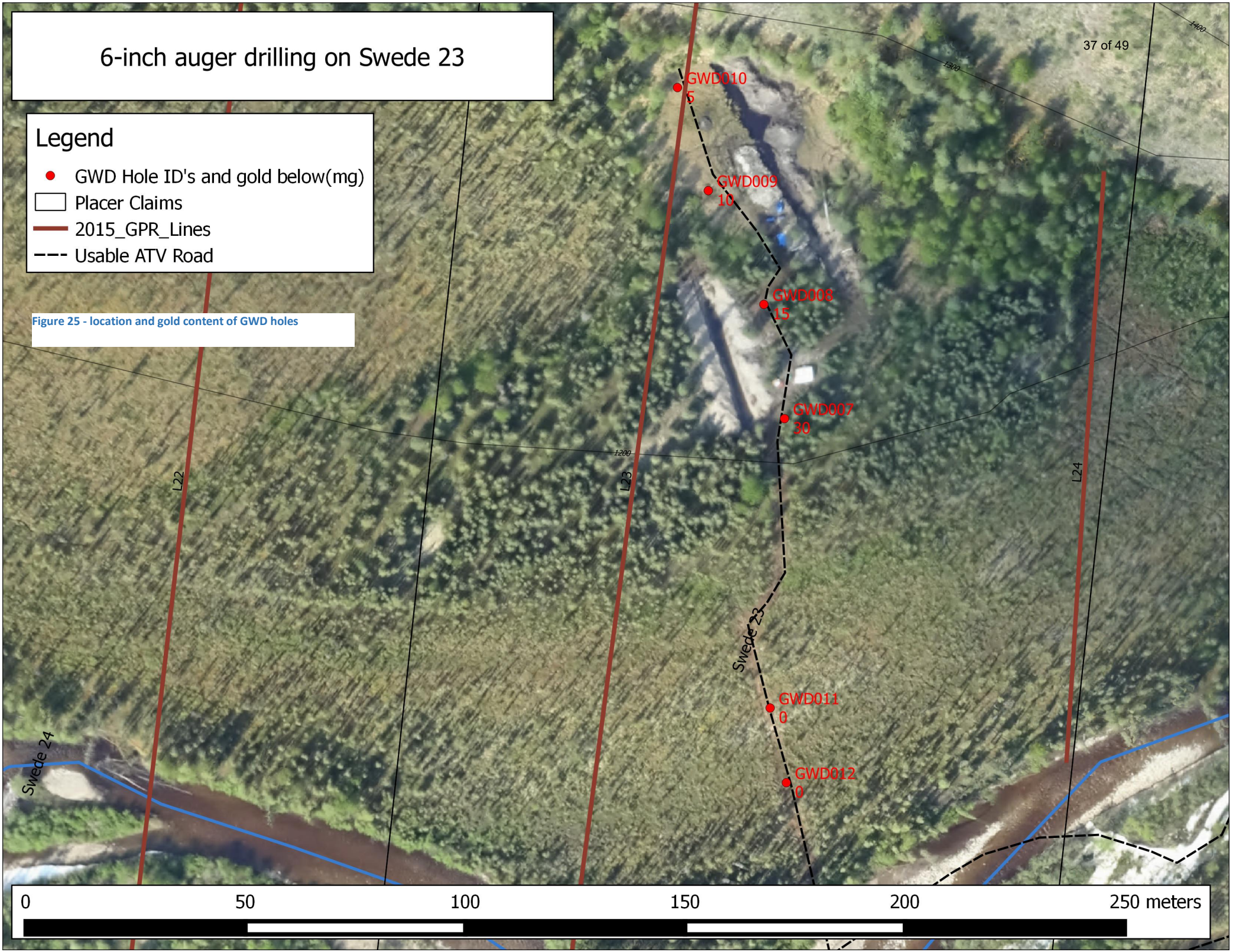


Figure 25 - location and gold content of GWD holes

4-INCH DIAMETER AIR PERCUSSION DRILLING AND DETAILED SAMPLE WASHING (OCT 3-9, 12-16)

Due to the inconclusive nature and inabilities of auger drills of both previous drilling programs, it was thought that the only means capable of conclusively reaching bedrock (and drilling through it for that matter) was exclusively through rotary air blast (RAB) drilling. Finally, late in the season, Ground Truth Exploration (GTE) confirmed that they would have available their RAB in early October. Desperate for conclusive drilling results, this opportunity was taken and the drill was to come to SC in early October.

To reduce mobilization costs, on October 2 and 3. SpereX gathered materials and drilling equipment from GTE and spent these two days moving equipment from GTE's yard in the Callison (industrial subdivision of Dawson City) to the first drill site on SC SpereX used a Terra-Track (traxter) in order to move the large quantity and heavy gear from the Top of the World highway down the SC road to the first drill site in the creek on Swede 23. SpereX also mobilized and provided a wall tent camp with all the amenities for GTE drillers to stay in while on the property drilling; hence the charge of $100/day for their field expenses.

On October 4th the GTE drill crew (Dan Murray, and Heidi Bradley) moved in to the property along with their drill. The air compressor (1800lbs) was long lined in from Trans North's helicopter base in Dawson and then 2 full astar loads (drill and net load of gear) from staging at the TWH to the fist drill site next to camp on Swede 23. The camp was setup next to the first drill hole and GTD001 and GTD002 were drilled before the work day (4th) was done.

On October 5th drilling on the first drill line was completed, GTD001-GTD005. The drill and all equipment were moved from line one to line two (GTD006-GTD011). All equipment was moved with traxter, ATV's, and ATV trailers. The drill is able to walk itself along. The 1800 lbs. compressor needed to be moved with an Astar and longline as it was deemed easier to do this than struggle with moving along the precarious ATV trails.

DRILL DETAILS

GTE's RAB drill weighs approximately 3400lbs (2 Astar loads). The drill is powered hydraulically by a 60hp diesel engine. The air compressor produces 300CFM @ 200PSI of air and is powered by a large diesel engine. The drill string with casing. is just over 4" in diameter and the hole is cased the entire way down. The drill is mounted on a set of hydraulically powered rubber tracks. Sample material is blown up through the casing to the cyclone at the top the hole and then directed in to a clear plastic ore bag for storage and transport. Generally, for every 0.75 (2.5ft) meters the drill cuttings would be bagged so that the material could be sluiced for each (2.5ft) interval down the hole.

Drill cuttings are blown away from the drill bit with high pressure and air volume up through the drill casing, in to a 'cyclone' which reduces the drill cuttings velocity and then collects it as it drops out of the cyclone in to a sample bag at the bottom of the cyclone. Here is one of many the advantages of the RAB drilling system over a conventional auger system; the cuttings obtained are very confidently from the material currently being broken up and taken in at the bit coming from the exact interval underground that the drill passes through with very little chance of cross contamination of larger gold particles. The drill has a 1.5-meter-long stroke but each time that the drill went 0.75 meters the sample bag was removed and replaced with a new one. The rational here is that if you let the bag fill with all the material from the 1.5-meter-long casing then the sample bag would be too full and heavy to easily move around and transport individually. On average, (varying with the type of material being drilled) each 0.75-meter section produced 7-10 liters of material for sluicing. When in more consolidated material like bedrock the drill returns~20 liters of material per 0.75-meter section.

As drilling was occurring Morgan Fraughton was making notes on the material intervals such as muck, organics, gravels, gravel bedrock interface and dealing with the samples as they came out of the cyclone. Morgan Fraughton acted as the 3rd man on the drill and spent each day with the drill doing the sampling work and assisting with the moves.

Once each 0.75-meter section was drilled the sample bag was taken from underneath the cyclone and replaced with a fresh bag. Each sample bag had the hole number and hole interval written on it. When the 0.75meter section was drilled the sample bag was zip tied shut and put aside. Once the hole had been completed all sample bags from that hole were transported to the area where the sluice setup was going to be.

SAMPLING METHOD

Due to the RAB drills accuracy (within 0.75 meters) with the location interval of the material coming out of the hole. It was thought that this should be taken advantage of and rather than sluice the entire hole at once it may be beneficial to wash each 0.75m section on their own and this may reveal layers or sections in the gravel layers from surface to bedrock and some way in to bedrock.

A system to sluice each 0.75m section was devised and followed through with.

Sample interval sluicing method for RAB drill cuttings:

1. Sample bag (0.75m interval) was opened and placed in to a 20-liter pail, one large scoop of the material was taken from the bag and placed on a sample bag where a sample tag was placed next to it.
    a. Only sections of gravel and the first meter of bedrock were packaged for sending to the lab. If there was a lot of organics/muck on the top of the hole, then all of the material was taken out of these bags and placed in a large tub where dish soap was added and then vigorously stirred with a paint mixing tool on the end of a cordless drill. This action was incorporated to remove as much of the hammer oil from the sample as possible as well as break up clays of other stuck together material that may inhibit the free floating of gold. Then this material was panned to ensure no gold was lost.
    b. The sample volume is estimated by the amount of space it takes up in the bucket and recorded in liters in the notebook.
2. Once the sample was agitated 20L bucket the water was added and a few drops of dish soap, then vigorously agitated by a paint mixing attachment on a power drill. This was to get rid of the hammer oil in the material that was added while drilling in order to lubricate the downhole hammer. It was noticed on the first hole sluiced that the gold that was left in the pan was easily being floated by the oil in the sample. After noticing this some dish soap was added to each sample and this problem went away.
3. Once the sample was mixed with soap and clays or clumping had been completely broken up the material in the bucket was rinsed a couple times in order to remove clays and fines as well as the oil caught up in the soap.
4. Once the sample was clean and separated in the bucket then it was slowly washed through the drop riffle vortex (no mat) sluice system.
5. Once all of the material from the bucket had been washed through the sluice the material that washed over the sluice riffles and off the end of the sluice was taken and placed next to the previously placed, unwashed sample on the ore bag next to the sample tag
6. All material that was caught in the sluice's riffles were washed out in to a tub and then taken from the tub and put in a pan

7. When the material is in the pan (just the heavies left) then it is panned down. If there is any gold (more than trace amounts) then it is placed in to a vile that is labeled with the hole number and hole interval.
8. Notes are taken on, sample material, as well as the gold and other heavies in that interval then a picture is taken of the unwashed sample, washed sample, gold vial and sample tag.
9. Then the unwashed portion of the sample is placed in the ore bag along with the sample tag. The sample bag is secured shut with a tie and a sample tag is attached to the outside of the bag as well. Lab sample bag is placed in pile in order to be transported to the lab later, then the next sample interval bag is opened and the process continues

Note: all sample pictures that were taken in this sampling program were on a phone that ended up being water damaged and ceased to work. The phone has been sent to a professional in Whitehorse in order to get the data back from the phone. At the time of this writing (Jan. 31, 2016) the data if recoverable should be released soon. Once, SpereX receives the picture data (hopefully early February) we will send it along to Derek Torgerson immediately.

RESULTS

Results from the RAB drilling were very positive. On the first drill line (GTD001-005) hit good gold in 3 of the 5 holes. On the second drill line (GTD006-011) none of the drill holes hit a paystreak although trace gold was encountered in nearly all samples. Also, on the second drill hole the bedrock and overburden materials profile can now be accurately estimated. The bedrock in this area has poven to be much shallower in the middle of the valley than expected. All holes on the second line were spaced very far apart therefore may have missed good paystreaks. Since this program was out of funding the drilling had to be stopped at hole GTD011. It would have been nice to continue line 2 further towards the creek where it expected that the gold would increase in size and quantity. This will have to be tested in 2016. For now, SpereX is excited to have the results that we did on the first drill line which will be the target of bulk sampling in 2016. See Results in the figure 25 Map below.

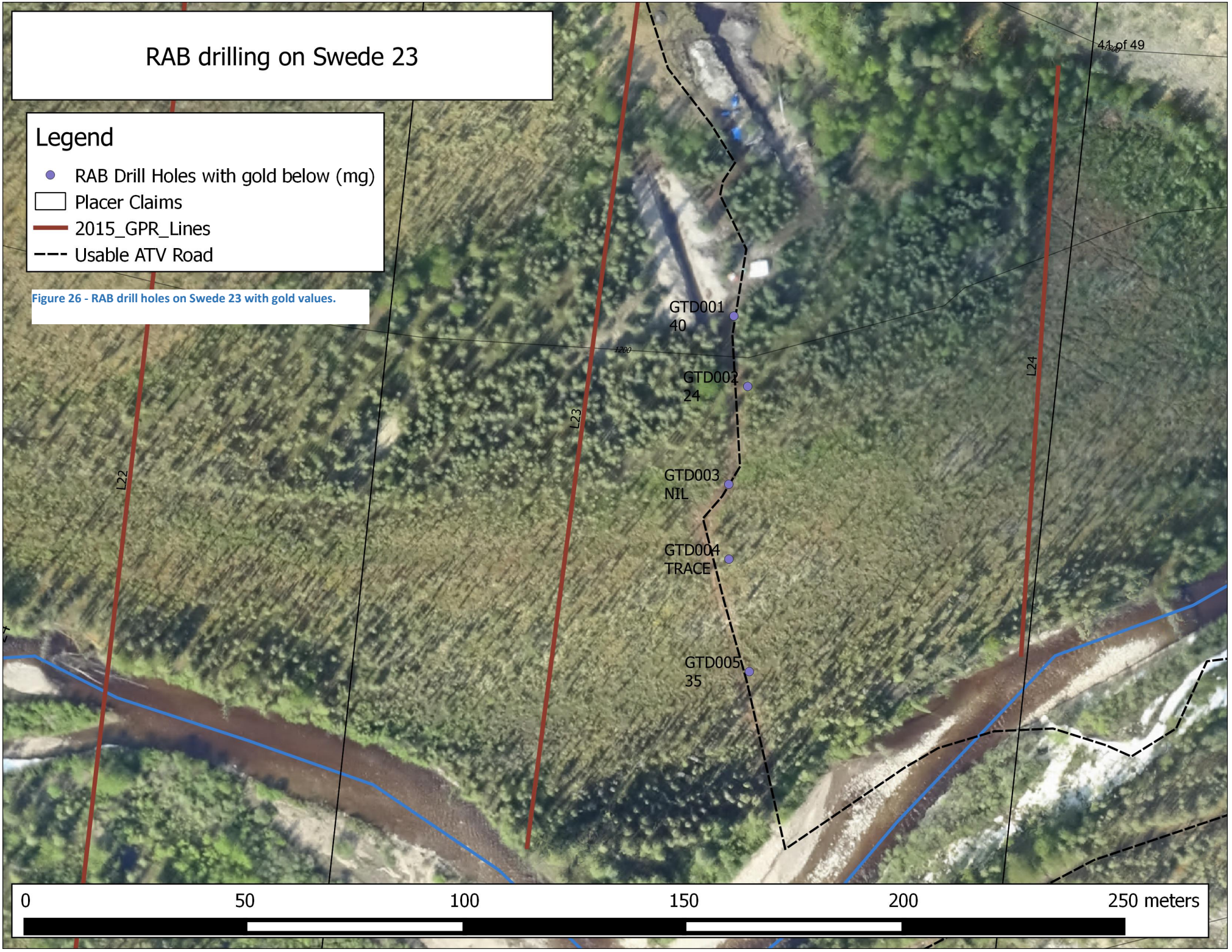


Figure 26 - RAB drill holes on Swede 23 with gold values.

DISCUSSIONS

SPEREX EXPLORATION MOTTO

It must be stated that this was the first attempt by SpereX for system of placer exploration which can explore large areas of a creek with little or no mining/exploration history and locate the most prospective areas for bulk sampling (~100m^3. Ultimately, the goal of this type of exploration is built upon positive exploration results in a step by step fashion. It is SpereX's goal that at upon successful exploration on SC this method could be expanded to many other placer prospects throughout the Yukon. Only bulk-sampling can prove that gold grades in a creek will be high enough to mine profitably. It could be said that this is a 5 step exploration system:

1. Research historical and current information of the Yukon and come up with prospective areas
2. boots on the ground prospecting in the best prospects with pans, shovels and shafting
3. the type of reconnaissance exploration outlined in this paper (drilling, geophysics, high-res property imaging)
4. Bulk sampling – sluicing at least100m^3 of the most prospective sections of a creek.
5. Obtain class 4 Mining and water licensee for and start mining.

Each step of this system depends on the success of the previous step. It is possible that many exploration targets will fail at one stage of the first four steps before the mining stage is reached. While failure is to be expected, on the flipside there will be success, and success in this case can outweigh many failures. It is SpereX's intention to be driving force from step 1 to step 4 of this 5 step system. At the point of step 4 it is hoped that SpereX can lease/sell properties to miners. It is not SpereX's goal to be a gold miner but only to provide well proven ground to competent miners. Methods and costs associated with this exploration system will continue to improve.

GPR DISCUSSION

Interpreting the GPR data received from ground truth has proven to be extremely difficult and frustrating. From the data they have provided thus far, it is seemingly impossible to see any value in the GPR with respect to being able to clearly see where the gravel-bedrock interface is. They simply did not provide interpretations even though repeatedly they were asked for repeatedly.

It was thought that this tool could be used to not only determine depth to bedrock but also be able to pick out deeper channels that the creek may have cut in the bedrock and target those for drilling. This proved to be fantasy. Not only did the figures from GTE not show the bedrock gravel interface with any confidence, their GPS's that they used have poor accuracy with respect to elevation. There was no confidence in the elevation readings and at times they were clearly off by orders of meters.

In two interpretations that GTE did provide for the lines that were drilled, GPR L18 and L23, they used elevations for the drone which was also inaccurate because the UAV took the elevation of treetops in any place where thicker vegetation was on the creek.

Since SpereX does not have the expertise nor the proprietary software that it takes to work with the raw data we are not able to reinterpret in anyway the GPR data in a way that could make sense.

At this time SpereX is working with GTE to improve the quality of the GPR interp and data but their response time is slow. If any progress is made it will be included in a report at the end of next exploration season to the YMEP.

It is possible that the GPR was seeing weathered-unweathered bedrock at very deep depths ~30 meters. This is indicated by the change in larger, wavy areas on top and tighter wavy areas on the bottom. Also, it may have picked up areas where there was standing liquid water saturation in the ground below.

On GPR L18, where the second RAB drill line overprinted, we have the be best ability to compare the known drill results with the GPR figures. One thing that is clear from the GPR data is an organic/loess/fine-colluviul apron (LST6) describe in (McKillop, Turner, Johnston, & Bond, 2013). From the RAB drilling results it was shown that this LST6 was nearly all rotting organics intermixed with some layers of sand, scattered small fluvial/angular rock bits. With the RAB drill it is difficult to determine rock size below the ground because it breaks the rocks up small enough (<3 cm) to fit through the holes at the drill bit.

Since the data received from GTE does not include figures that can be viewed outside of the Oasis Montage viewer (free) it is not included as graphics in this report. All the data that was received from GTE pertaining to GPR is included in the USB stick that is attached to this report.

DRILLING AND SAMPLING PROGRAMS DISCUSSION

Due to the fact that the 4 results were so inconclusive on the terrace gravels as to where bedrock was or not the trace amounts of gold that were found in the `gravels` (mostly loess) was indicative of what could possibly be an undefined large body of ancient fluvial stream channel gravel. Since there was some trace gold found in almost every hole the very top layers (loess and fine colluvium) of this old fluvial terrace gravel channel I think if the bottom layer of these terraces could contain coarser gold. Another factor that indicates the potential for decent amounts of placer gold in these terraces is the proximity of the of terrace gravel shoreline to the quartz vein that is showing to have up to 28973.7g/ton gold in lab assays. Surely this this lode gold in the form of quartz veins and possibly disseminated within the Klondike Schist itself has been eroded and broken in to placer gold now lying in these bench gravels, Swede Creek's tributaries and Swede Creek itself.

Evidence supports there being a large body of ancient fluvial terrace gravels under the loess/colluvium layer. The limits of these high-level terrace gravels seem to be somewhere just under 600 (1900ft) meters above sea level. Every terrace in the area that is below 600m will most likely prove to host large amounts of terrace gravels. Some rocks discovered (see figure 10) that would have been associated with this creek bed suggests that it would have been a fairly large stream with rounded rock over 50 cm in diameter. The rocks that are in these ancient bench gravels seem to be identical to that of the current creek rocks below. A mixture of various stages of Klondike schist and graphitic schists of the Finlayson unit, intermixed with rocks of quartz and intrusive quartz-feldspar-porphyry units that exist in the area.

After completing this method of sampling for the RAB drill I think that it's basically a good method in that each interval can be sampled separately and this info may be crucial to tracking down paying gravels or layers within a drill hole. The sampling method must be improved upon and made quicker, more informative, and less expensive.

Suggestions to achieve this:

Take most of the sampling process and do it while drilling. Certain parts of the sampling method described above need to be done immediately after the sample comes out of the hole. This will improve the reporting accuracy of the material coming out of the hole and make the collection more efficient.

- When the sample interval is finished being drilled the full sample bag needs to be taken off the cyclone and then replaced with a fresh bag
- As the drill continues to drill the sampler needs to quickly take enough material from the bag to send to the lab (if the material is gravel not muck) as well as take a small amount of material and wash it in a sieve so that to see what the rock material looks like washed. This washed material must then be put in a chip tray labeled with the hole number and hole interval.
- The sample taken from the main bag as well as the chips are to be placed on an ore bag next to a barcoded sample tag and photographed. Then the washed chips are put in a chip tray and the lab sample is bagged and tagged for shipment to the lab.
- The chip tray of washed and unwashed material should be retained for easy viewing and the photos are retained for easy future reference.
- If possible, do the sluicing right there at the drill
- The sluice that is used needs to be improved. Getting something with a bit of a shaker box and possibly a bit wider. It is nice that the drill material is always uniform and only contains material that can fit through the drill bit holes and up the casing. The sluice could be made wider and easier to clean for each interval. Or maybe have mats that can be rotated?
- Replace pan with gold wheel

It should be studied whether lab sampling can replace sluicing when using the RAB drill. This would reduce sampling time and could possibly reduce the costs of sampling. Sluicing all the material is time consuming and therefore expensive. As stated above, SpereX did package all samples for the lab. One way to test if it is possible to forego the sluicing would be to send these samples to the lab and have them assayed. Results should then be compared to the sluicing results as well as future mining results. If the assays prove to give the same indications as to gold concentrations from sluicing the samples and from results of future mining, then it may be a good idea to switch totally away from sluicing the sample at all and simply send all samples to the lab for testing. It just seems that there is something nice about seeing actual gold.

One issue I can see with lab sampling is that cross contamination from interval to interval may be so great that it would give false results. When lab assays pick up such small amounts of gold it may be impossible to guarantee that no cross contamination happened from interval to interval or hole to hole with this drill. One could speculate forever. The samples will be sent to the lab soon and the results will paint a better picture.

CONCLUSIONS

The UAV aerial image capture proved to be a very useful tool for exploration planning as well as results interpretation. I can imagine that the high resolution image will also assist with mine planning when the time comes. High-res aerial imaging should and will be used again by SpereX when exploring new areas and properties in the future. It would be a good idea to look at other options for capturing this imagery though. Because GTE's drone cannot give a great point cloud for a high resolution digital elevation models. GTE's UAV cannot peer through the leaf and brush cover above the ground and therefore give false elevations. While this is to be expected with this type of drone it would be interesting to compare the cost of LiDar + orthoimage. There are other options for high-res imagery such as Great River air that will be considered when planning for future explorations.

GPR data and interpretations received from GTE are inconclusive and impossible to interpret with any confidence. This type of GPR should never be used again for this type of exploration. Maybe using a GPR unit with a higher resolution would improve the interpretation for this type of application? Resistivity surveys may be used in the future to do what was hoped could be done with the GPR; that is estimate with confidence where the bedrock/gravel interface is below the surface.

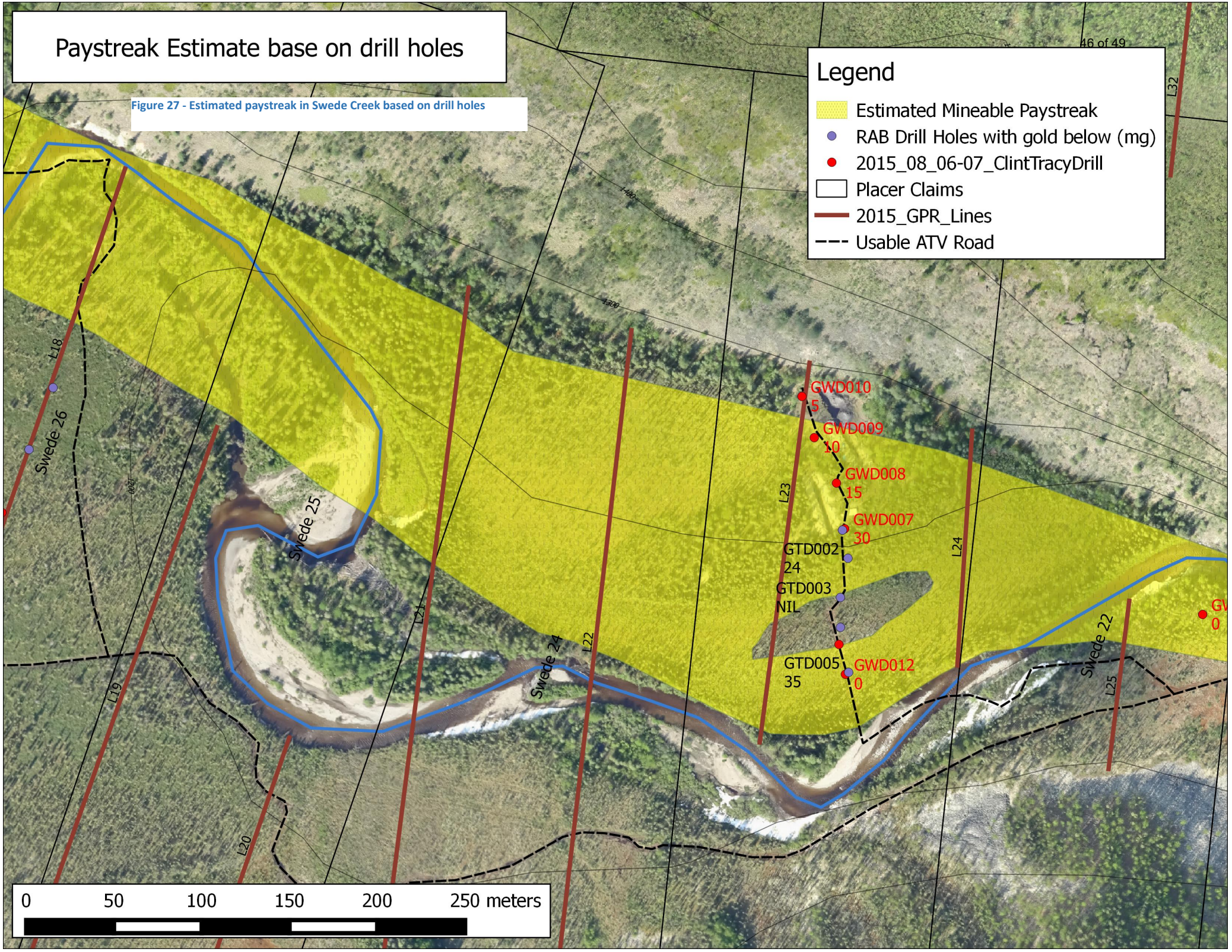
If future drilling is planned for exploration on Swede Creek, or any other creek for that matter, the 4-inch auger and 6-inch augers that were used to explore in the summer of 2015 should not be used again. They proved that they did not work for confidently drilling to bedrock. Maybe a larger drill and auger setup could be more effective?

The RAB drill proved to be an excellent tool for placer exploration drilling. It can drill through anything, including up to 100 meters of bedrock! Its unstoppable. The RAB drill's only setback is that it costs more than twice as much to hire than the auger drills. This really isn't a problem when you consider that it works very well and the others hardly work at all. Reading some of the newest *Yukon Geology and Exploration 2015* (MacFarlane & Nordling, 2015) publication it was noted some exploration projects in the Yukon were using a Boart-Longyear tracked sonic drill and it seemed that they were happy with the results from this drill. In 2016 SpereX will look in to the possibility of using this type of drill and its benefits compared to the RAB drill.

Drilling has outlined a target for bulk sampling in 2016. Good drill results, in both the 6-inch auger and the RAB drill, proved that there is nice looking gold (up to 30mg flakes in drill holes) in decent quantity on claim 23 and probably claims 22,24, and 25 which are on the same "island". See figure 26 below.

Paystreak Estimate base on drill holes

Figure 27 - Estimated paystreak in Swede Creek based on drill holes



All placer gold derived from Swede Creek is hypothesized to come from locally eroded gold enriched quartz veins that exist in the Klondike Schist unit, such as the quartz vein discovered to have 28973.7 g/t gold in it. In addition to local gold emplacement in the creek from eroding bedrock it appears that gold is being sourced from the rewashing of the high level-terrace gravels. Evidence for the two types of gold in swede creek come from the fact that coarse angular gold has been found as well as very well-travelled flattened gold flakes. This appears to be very similar to what is happening in the other part of the Klondike gold fields to the east such as Bonanza, Hunker, Eldorado creeks, etc.

There is still over 20km (15 miles) from SpereX's claims to the new leases that have been staked on Swede's headwaters. This section should be covered by new prospecting leases and explored over the course of the next few years. The opportunity to the rights to this entire creek is upon us and could prove to be the Yukon's newest gold producing drainage. Another reason Swede is so prospective is the ease of access. It is very close to the services of Dawson City, and in most cases the creek could be accessed from Dawson city within a 30min drive. This reduces major costs that can be associated with operating in more remote regions, such as camp, transportation, repairs, fuel delivery, the list goes on and on.

In conclusion, the accumulated results from exploration in 2015 on Swede Creek have:

1. defined an exciting area for a bulk testing in 2016
2. shown the depth to bedrock is shallow (approx. 15ft)
3. the composition of overburden in the creek is very favorable and there is not much to remove in areas of pay
4. Indicated that the rest of Swede creek and the high-level terraces are highly prospective for placer gold
5. Spurred the application for water and class 4 mining license on the current claims.

It is recommended that:

1. RAB drilling be done on the terraces above Swede creek in order to conclusively understand the situation up there.
2. Shafts or excavator pits should be used to expose bedrock in creeks like 20pup that have cross cut the ancient terrace gravels and rewashed them in to a very narrow valley which may have concentrated any gold that was in the terrace gravels
3. Resistivity surveys may be a better tool for understanding the depth to bedrock in areas of creeks/terraces that are unknown and it should be tested
4. More shafts should be attempted downstream on Swede creek near claims Swede 1-3.
5. Leases should be staked (and explored) from the current Swede Claims in the creek all the way to the other leases in the creek near its headwater. (15miles
6. 2016 bulk sampling should be performed on Swede claims 22-25, in the area north of the creek starting in the areas where the most gold in drill holes was found.

APPENDIX I: SIGNED STATEMENT OF EXPENDITURES

Staking Program	$4,528.00
GPR Program	$11,539.00
4-Inch Auger Program	$23,836.00
UAV Program	$2,461.00
6-Inch Auger Program	$11,201.50
RAB Drill Program	$25,371.50
Fuel for all programs	$2,513.31
Report Writing	$5,000.00
Total	$86,450.31

** For a more complete breakdown of expenditures thee the spreadsheet in the USB attached to the original copy of this report

APPENDIX II: STATEMENT OF QUALIFICATIONS

Morgan Fraughton

Box 1381 Dawson City, Yukon, Y0B1G0

1. I have worked in the exploration industry for 10 years (9 years in the Yukon): diamond/RC drilling (2years), oil sands drilling (1year), project manager (many jobs) for Ground Truth Exploration (5years), prospecting for myself (2years).
2. I am a resident of my home town Dawson City, and have lived all my life in Yukon
3. I compiled and wrote all sections of this report based on information from my explorations and research on Swede Creek.
4. I did all of the research, organizing and most of the work on all apsects of this exploration program as well as past explorations on Swede Creek.

Signed January 31, 2016

Morgan Fraugton

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District	GrantNumber	ClaimName	ClaimNbr	Claim Owner
Dawson	P 516065	Hound	1	Spere Exploration Inc. - 100%
Dawson	P 516066	IMP	1	Spere Exploration Inc. - 100%
Dawson	P 516473	Swede	1	Spere Exploration Inc. - 100%
Dawson	P 516474	Swede	2	Spere Exploration Inc. - 100%
Dawson	P 516475	Swede	3	Spere Exploration Inc. - 100%
Dawson	P 516476	Swede	4	Spere Exploration Inc. - 100%
Dawson	P 516477	Swede	5	Spere Exploration Inc. - 100%
Dawson	P 516478	Swede	6	Spere Exploration Inc. - 100%
Dawson	P 516479	Swede	7	Spere Exploration Inc. - 100%
Dawson	P 516480	Swede	8	Spere Exploration Inc. - 100%
Dawson	P 516481	Swede	9	Spere Exploration Inc. - 100%
Dawson	P 516482	Swede	10	Spere Exploration Inc. - 100%
Dawson	P 516483	Swede	11	Spere Exploration Inc. - 100%
Dawson	P 516484	Swede	12	Spere Exploration Inc. - 100%
Dawson	P 516485	Swede	13	Spere Exploration Inc. - 100%
Dawson	P 516486	Swede	14	Spere Exploration Inc. - 100%
Dawson	P 516487	Swede	15	Spere Exploration Inc. - 100%
Dawson	P 516488	Swede	16	Spere Exploration Inc. - 100%
Dawson	P 516489	Swede	17	Spere Exploration Inc. - 100%
Dawson	P 516490	Swede	18	Spere Exploration Inc. - 100%
Dawson	P 516491	Swede	19	Spere Exploration Inc. - 100%
Dawson	P 516492	Swede	20	Spere Exploration Inc. - 100%
Dawson	P 516493	Swede	21	Spere Exploration Inc. - 100%
Dawson	P 516494	Swede	22	Spere Exploration Inc. - 100%
Dawson	P 516495	Swede	23	Spere Exploration Inc. - 100%
Dawson	P 516496	Swede	24	Spere Exploration Inc. - 100%
Dawson	P 516497	Swede	25	Spere Exploration Inc. - 100%
Dawson	P 516498	Swede	26	Spere Exploration Inc. - 100%
Dawson	P 516499	Swede	27	Spere Exploration Inc. - 100%
Dawson	P 516500	Swede	28	Spere Exploration Inc. - 100%
Dawson	P 516501	Swede	29	Spere Exploration Inc. - 100%
Dawson	P 516502	Swede	30	Spere Exploration Inc. - 100%
Dawson	P 516503	Swede	31	Spere Exploration Inc. - 100%
Dawson	P 516504	Swede	32	Spere Exploration Inc. - 100%
Dawson	P 516505	Swede	33	Spere Exploration Inc. - 100%
Dawson	P 516506	Swede	34	Spere Exploration Inc. - 100%
Dawson	P 516507	Swede	35	Spere Exploration Inc. - 100%
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Dawson	P 516512	Swede	40	Spere Exploration Inc. - 100%
Dawson	P 516513	Swede	41	Spere Exploration Inc. - 100%
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Dawson	P 516516	Swede	44	Spere Exploration Inc. - 100%

Dawson	P 516517	Swede	45	Spere Exploration Inc. - 100%
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Dawson	P 516519	Swede	47	Spere Exploration Inc. - 100%
Dawson	P 516520	Swede	48	Spere Exploration Inc. - 100%
Dawson	P 517186	Swede Bench	1	Spere Exploration Inc. - 100%
Dawson	P 517187	Swede Bench	2	Spere Exploration Inc. - 100%
Dawson	P 517188	Swede Bench	3	Spere Exploration Inc. - 100%
Dawson	P 517189	Swede Bench	4	Spere Exploration Inc. - 100%
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Dawson	P 517192	Swede Bench	7	Spere Exploration Inc. - 100%
Dawson	P 517193	Swede Bench	8	Spere Exploration Inc. - 100%
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Dawson	P 517195	Swede Bench	10	Spere Exploration Inc. - 100%
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Dawson	P 517197	Swede Bench	12	Spere Exploration Inc. - 100%
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Dawson	P 517202	Swede Bench	17	Spere Exploration Inc. - 100%
Dawson	P 517203	Swede Bench	18	Spere Exploration Inc. - 100%
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Dawson	P 517214	Swede Bench	29	Morgan Fraughton - 100%
Dawson	P 517215	Swede Bench	30	Morgan Fraughton - 100%
Dawson	P 517216	Swede Bench	31	Morgan Fraughton - 100%
Dawson	P 517217	Swede Bench	32	Morgan Fraughton - 100%
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Dawson	P 517232	Swede Bench	47	Morgan Fraughton - 100%
Dawson	P 517233	Swede Bench	48	Morgan Fraughton - 100%
Dawson	P 517234	Swede Bench	49	Morgan Fraughton - 100%
Dawson	P 517235	Swede Bench	50	Morgan Fraughton - 100%
Dawson	P 517236	Swede Bench	51	Morgan Fraughton - 100%
Dawson	P 517237	Swede Bench	52	Morgan Fraughton - 100%
Dawson	P 517238	Swede Bench	53	Morgan Fraughton - 100%

OperationRecordingDate	StakingDate	ClaimExpiryDate	Status	FromLease
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6/6/2014	6/5/2014	12/6/2016	Active	
12/22/2014	12/12/2014	12/22/2016	Active	ID01187
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12/22/2014	12/16/2014	12/22/2016	Active	ID01187
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12/22/2014	12/17/2014	12/22/2016	Active	ID01187
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11/2/2015	10/28/2015	11/2/2016	Application Pending	ID01281

TotalExcessCredit	NTS MapNumber	NonStdSize
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2	116B04	Placer discovery
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RAB Drilling and Sluicing Program (October 3-9, 12-16, 2015)
Wages:
MOB/DEMOB and Drill Assitance (Morgan Fraughton - Oct 3 - 9)
Placer Sample Testing + demob (Morgan Fraughton Oct 12-16)
Placer Sample Testing + demob (Mattias Odonnell Oct 12-16)
Field Expenses (per day)
Morgan Fraughton - Oct 3 - 9, 12-16
Matthias Odonnel - Oct 12-16
Dan Murray (SpereX Provided Full Camp and all necessities) (Oct 4-7)
Heidi Bradley (SpereX Provided Full camp and all necessiteis) (Oct 4-7)
EQUIPTMENT RENTAL (per day)
ATV 1 (Heidi Bradley - Oct 4-7) (Morgan Fraughton Oct 12-16)
ATV 2 (Dan Murray - Oct 4-7) (Mattias Odonnell Oct 12-16)
Range Runner (Morgan Fraughton Oct 3 - 9)
Truck (Oct 3-9, 12-16)
Truck Trailer (Oct 3-9, 12-16)
ATV Tub Trailer 1 (Oct 3-9, 12-16)
ATV Tub Trailer 2 (Aug 5-8)
Sluicing setup (Oct 12 - 15)
Commercial Invoices:
Ground Truth Exploration
Trans North Helicopters

RAB drill Program Costs

	rate	units	total
per manday	$350.00	8	$2,800.00
per manday	$350.00	5	$1,750.00
per manday	$350.00	5	$1,750.00
per manday	$100.00	12	$1,200.00
per manday	$100.00	5	$500.00
per manday	$100.00	4	$400.00
per manday	$100.00	4	$400.00
per day	$40.00	9	$360.00
per day	$40.00	9	$360.00
per day	$150.00	7	$1,050.00
per day	$50.00	12	$600.00
per day	$16.00	12	$192.00
per day	$10.00	12	$120.00
per day	$10.00	4	$40.00
per day	$100.00	4	$400.00
			$10,547.00
			$2,902.50

$25,371.50


BDG

No. 1 Post

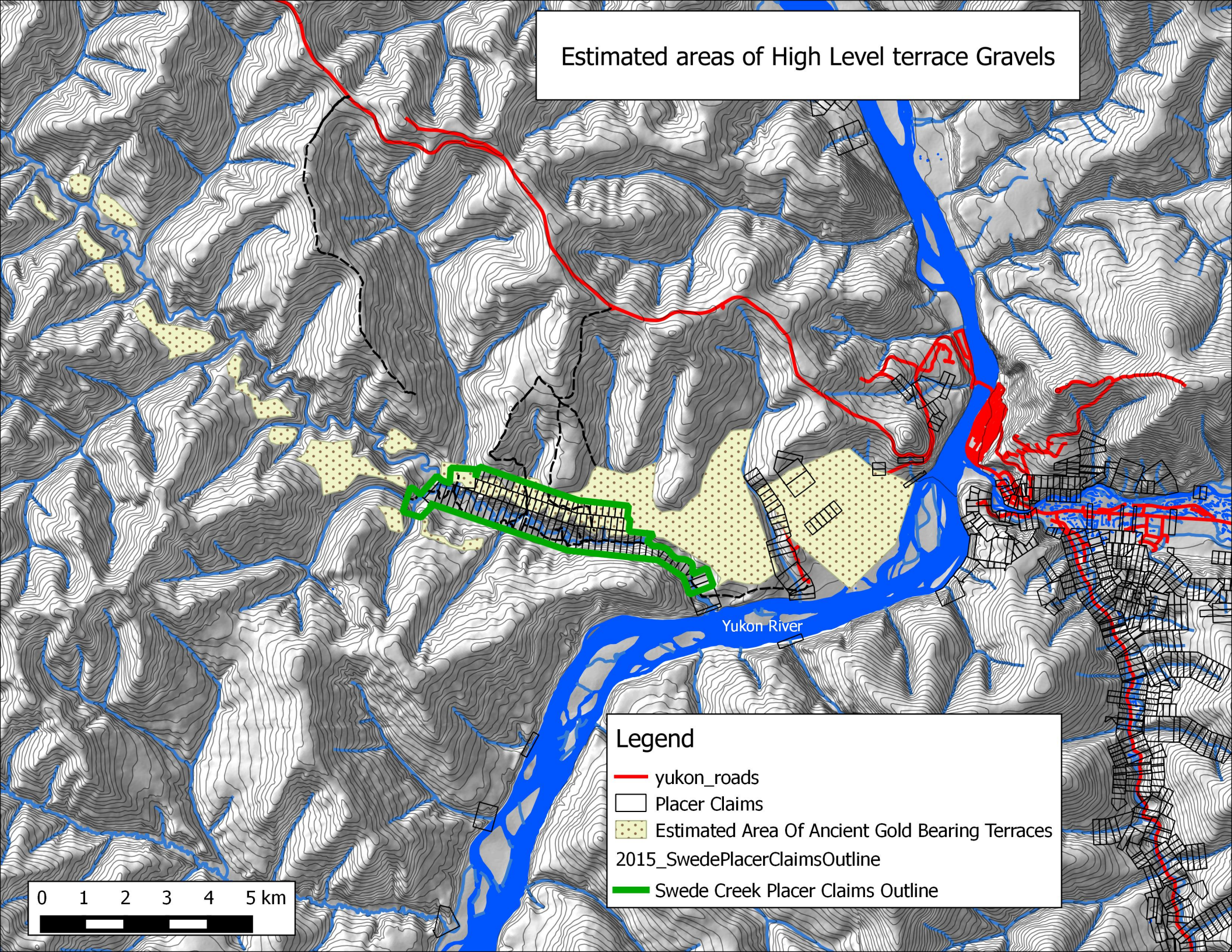
3mi 1st teir
bench lease
to prospect

May 20
2015

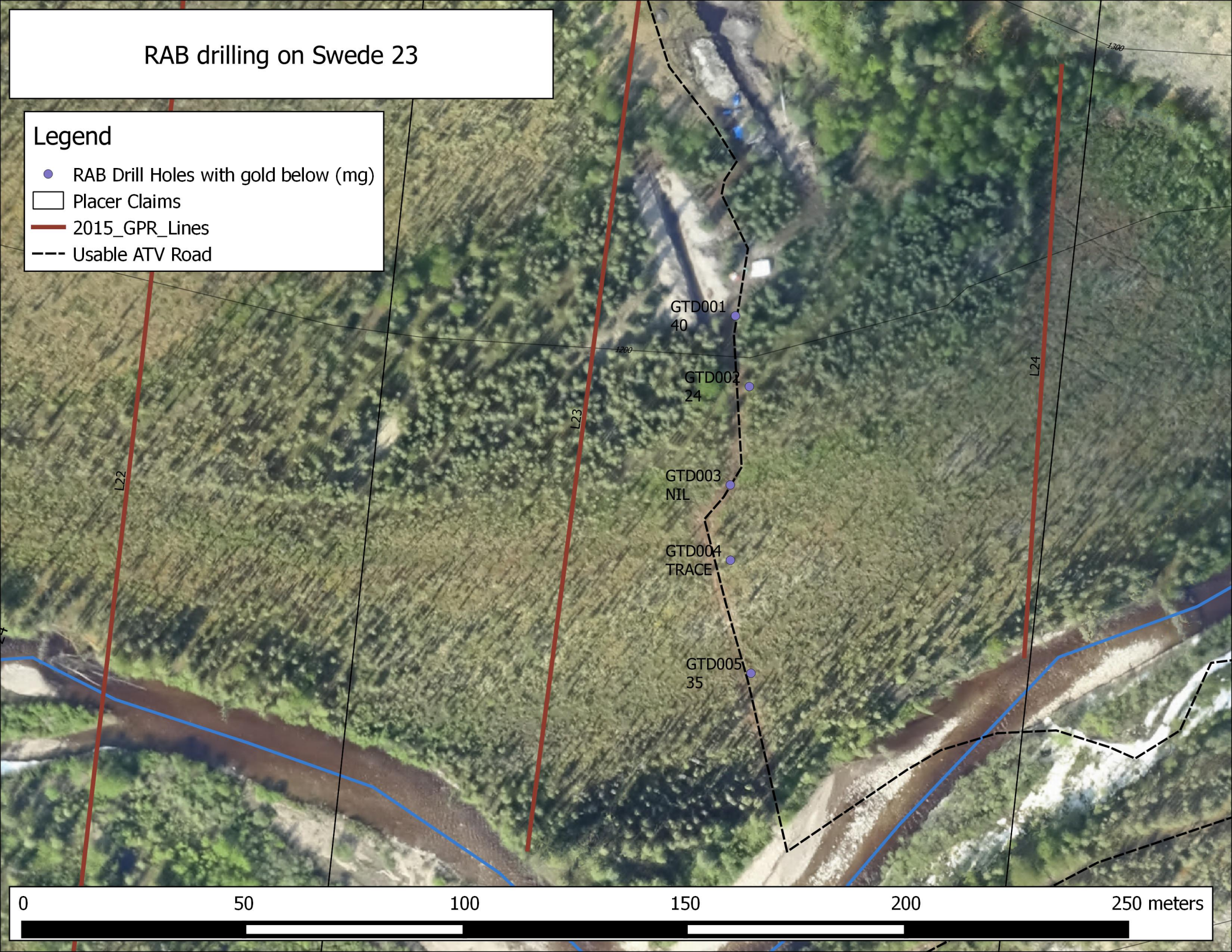
Morgan
Fraughton
Agent for Sperry
Explcration
Inc.


HONDA
WARNING

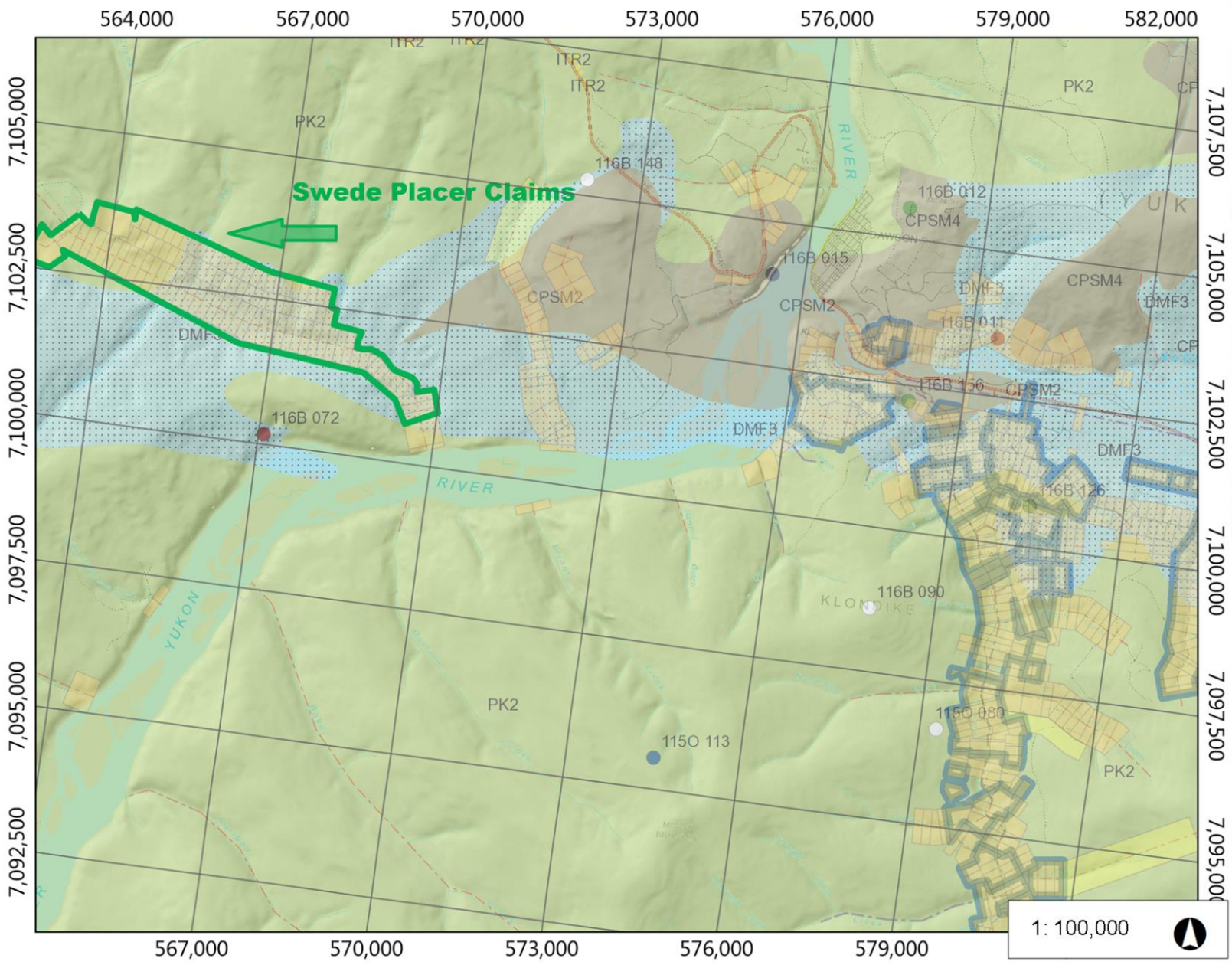

TREX
VERSATILE OFF-ROAD TRAILERS


Estimated areas of High Level terrace Gravels
Yukon River
Legend
yukon_roads
Placer Claims
Estimated Area Of Ancient Gold Bearing Terraces
2015_SwedePlacerClaimsOutline
Swede Creek Placer Claims Outline
0 1 2 3 4 5 km


6-inch auger drilling on Swede 23
Legend
GWD Hole ID's and gold below(mg)
Placer Claims
2015_GPR_Lines
Usable ATV Road
GWD010
5
GWD009
10
GWD008
15
GWD007
30
GWD011
0
GWD012
0
L22
L23
L24
Swede 23
Swede 24
1200
1300
1400
0
50
100
150
200
250 meters


RAB drilling on Swede 23
Legend
RAB Drill Holes with gold below (mg)
Placer Claims
2015_GPR_Lines
Usable ATV Road
GTD001
40
GTD002
24
GTD003
NIL
GTD004
TRACE
GTD005
35
L22
L23
L24
1200
1300
0
50
100
150
200
250 meters

Yukon Geological Survey MapMaker Online



Legend

- Placer Claims (50K)
  - Active and Pending
  - Expired
- Prospecting Leases
  - Active and Pending
  - Expired
- Placer Mining Land Use Permit
  - Class 3
  - Class 4
- Placer Baselines (50K)
- Placer Baselines (surveyed)
- Quartz Mining License
- Mineral Occurrences (MINFILE
  - Anomaly
  - Deposit
  - Drilled Prospect
  - Open Pit Past Producer
  - Open Pit Producer
  - Prospect
  - Showing
  - Staked - No Work Recorded
  - Underground Past Producer
  - Unknown
- Bedrock Geology
  - Q: QUATERNARY: unconsolidated g glaciolacustrine deposits; fluviatile si local volcanic ash, in part with cover deposits
  - MW: WRANGELL SUITE: fine to me

Notes

1: 100,000

5.1 0 2.54 5.1 Kilometers

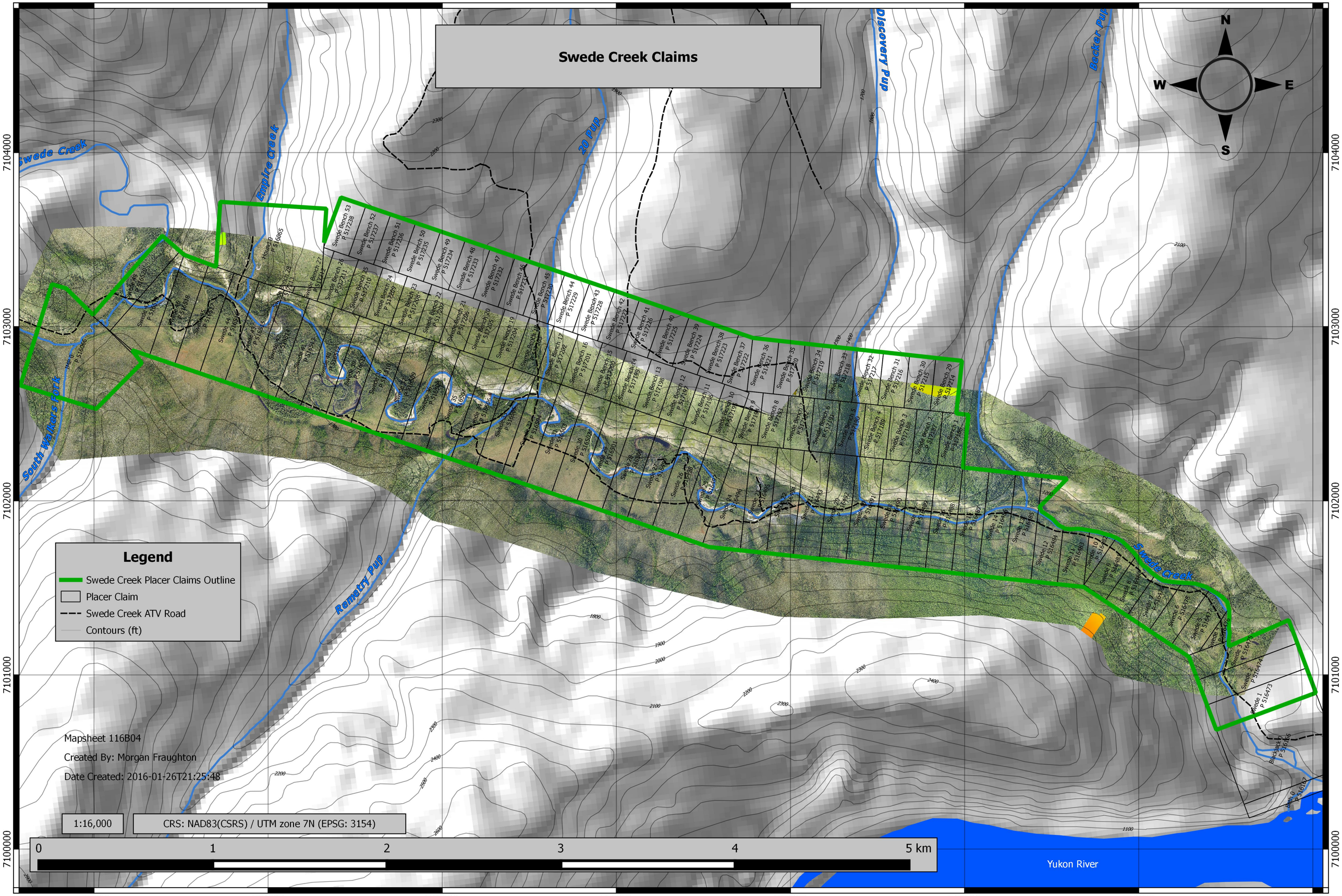
Yukon Albers

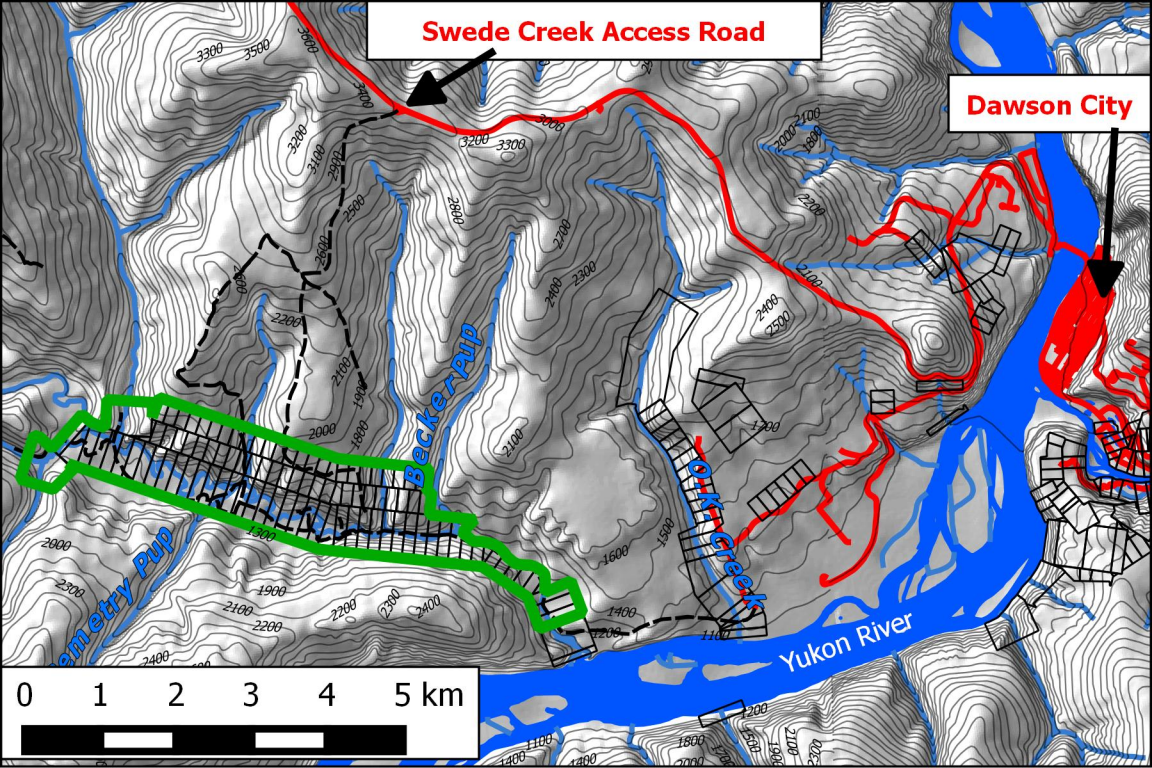
Produced from: Yukon Geological Survey MapMaker Online

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.

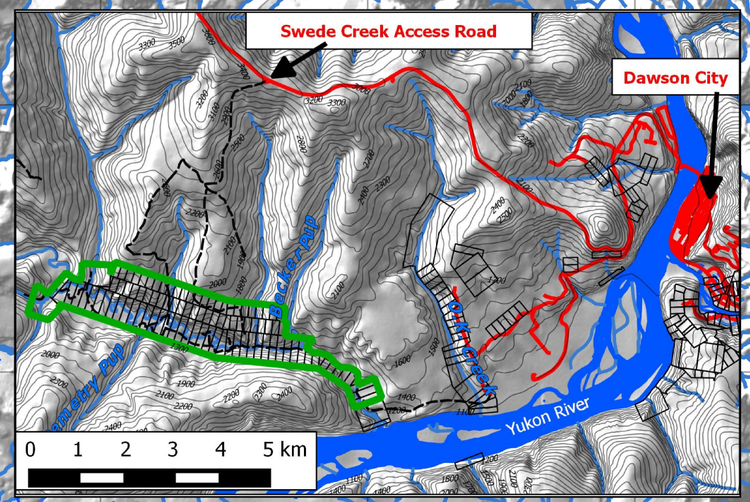
Date Printed: 31-Jan-2016

Swede Creek Claims




Swede Creek Access Road
Dawson City
Becker Pup
Hunker Creek
Yukon River
0 1 2 3 4 5 km

Swede Creek Claims Location and Access Overview



YUKON RIVER

Fortymile Gold District

Top of the World Highway

Top of the World Highway

Swede Creek

Dawson City

Sixtymile Gold District

YUKON RIVER

Bonanza Creek

Hunker Creek

Klondike Gold District

Eldorado Creek

Legend

- Swede Creek Placer Claims Outline
- Placer Claims/Leases
- Yukon Roads
- Swede Creek ATV Road

N

W E

S

Mapsheet 116B04

Created By: Morgan Fraughton

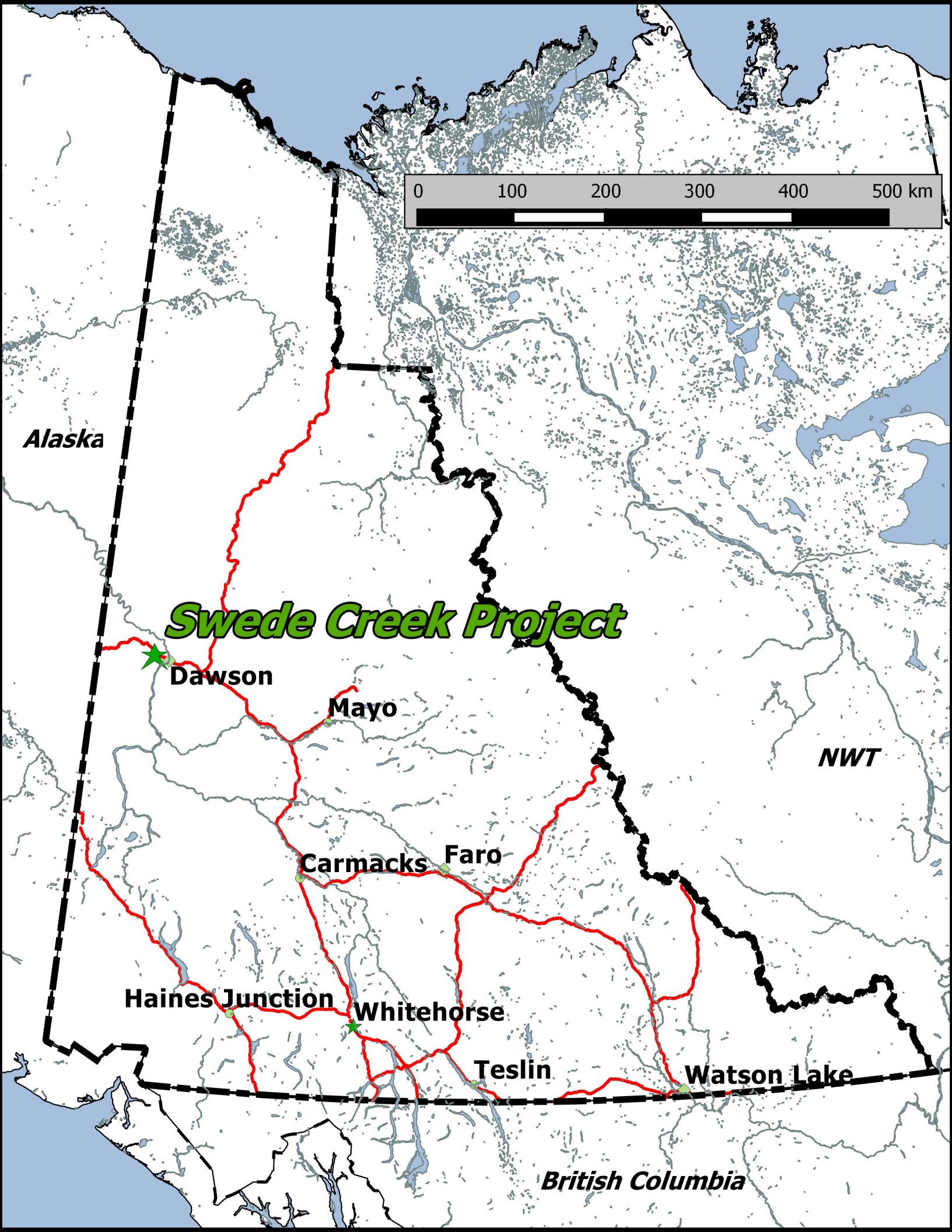
Date Created: 2016-01-26T20:13:11

1:200,000 | CRS: NAD83(CSRS) / UTM zone 7N (EPSG: 3154)

0 5 10 15 20 km

520000 530000 540000 550000 560000 570000 580000 590000 600000

7140000 7130000 7120000 7110000 7100000 7090000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200
300
400
500 km
Alaska
Swede Creek Project
Dawson
Mayo
NWT
Carmacks
Faro
Haines Junction
Whitehorse
Teslin
Watson Lake
British Columbia

Swede Exploration Overview - GPR, and Drilling

Mapsheet 116B04

Created By: Morgan Fraughton

Date Created: 2016-02-03T11:48:27

Legend

- Gateway Drill Holes
- Low Impact Drill Holes
- Ground Truth Drill Holes
- GPR Lines
- Usable ATV Road
- Contours (ft)

N W E S

565000 566000 567000

7103000 7102000

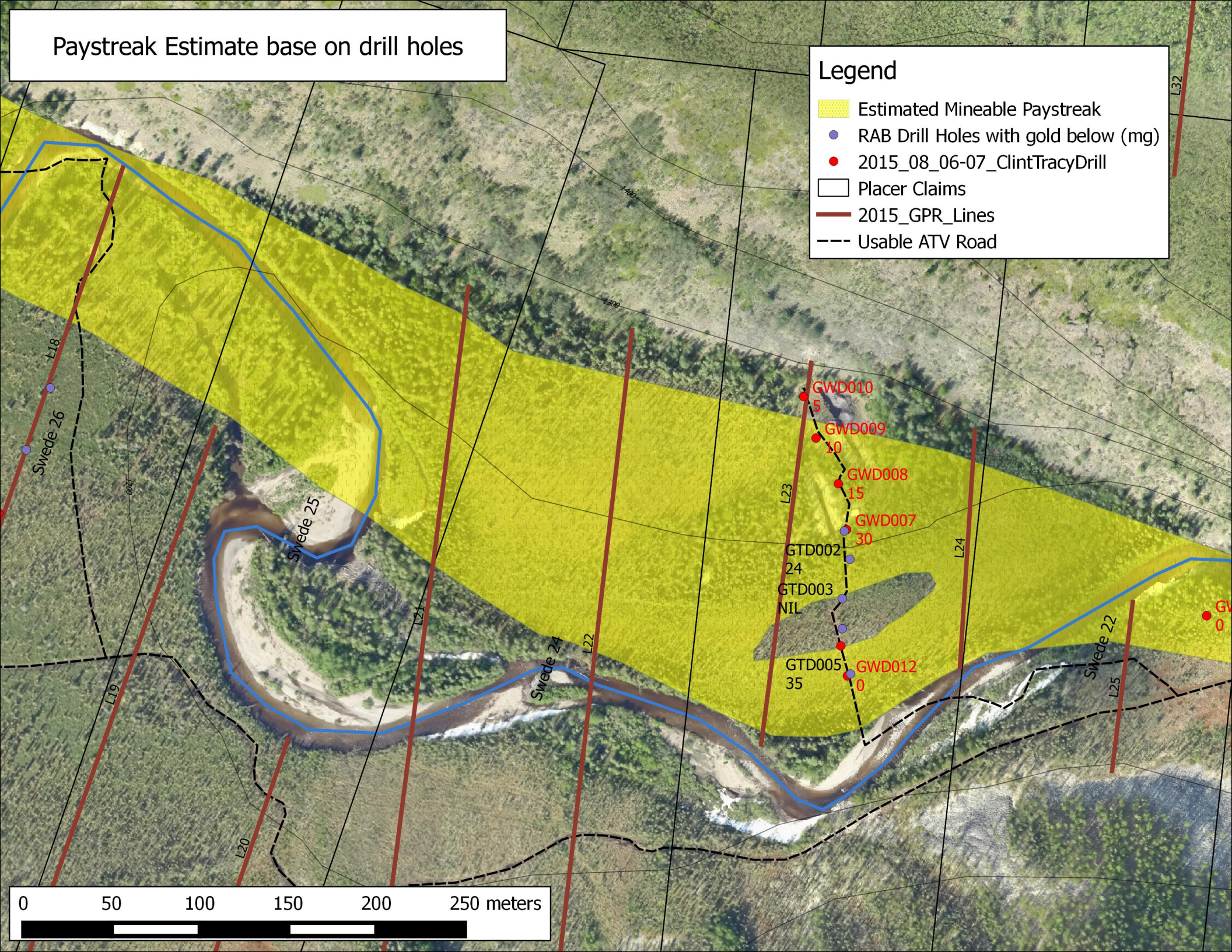
Dawson City

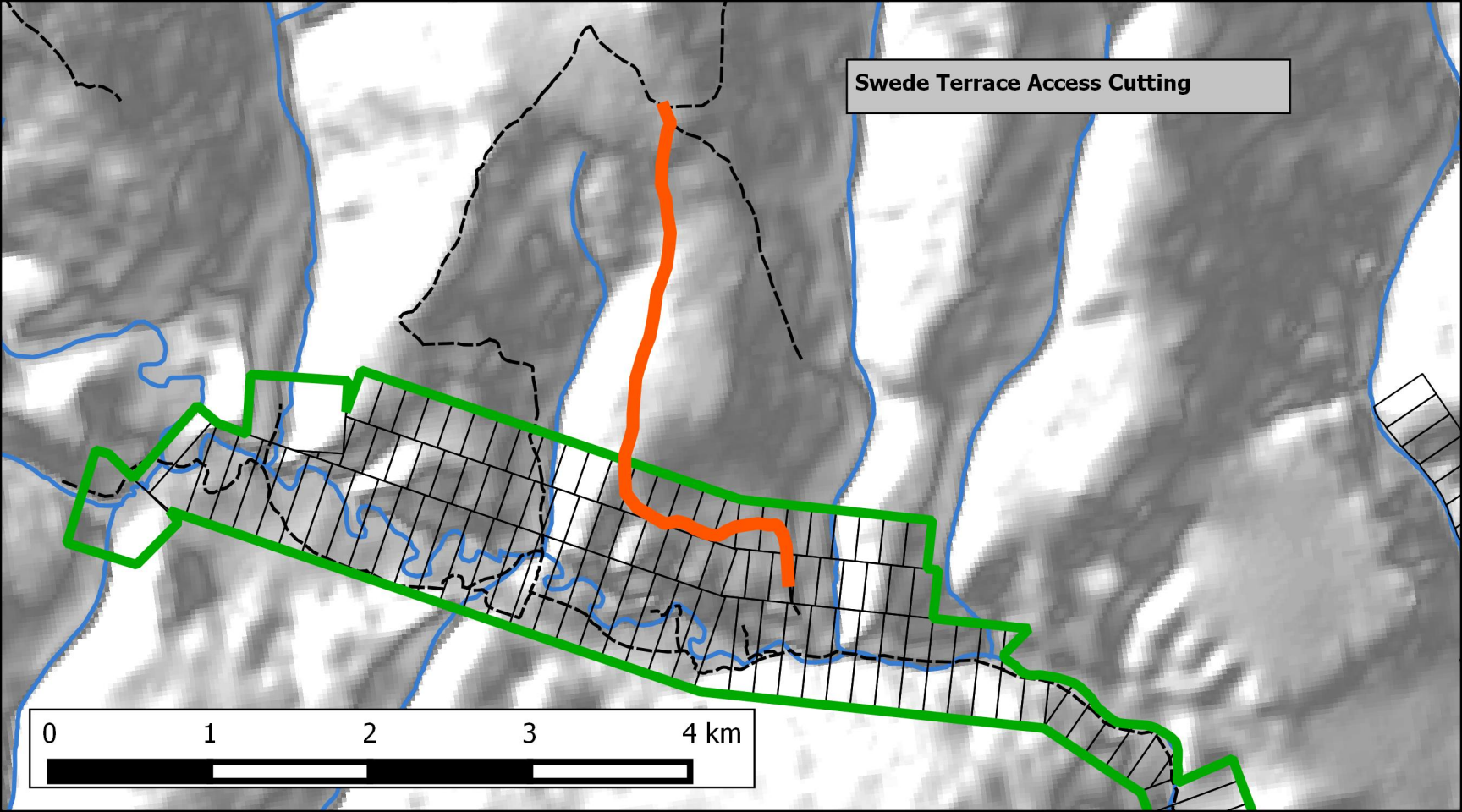
Yukon River

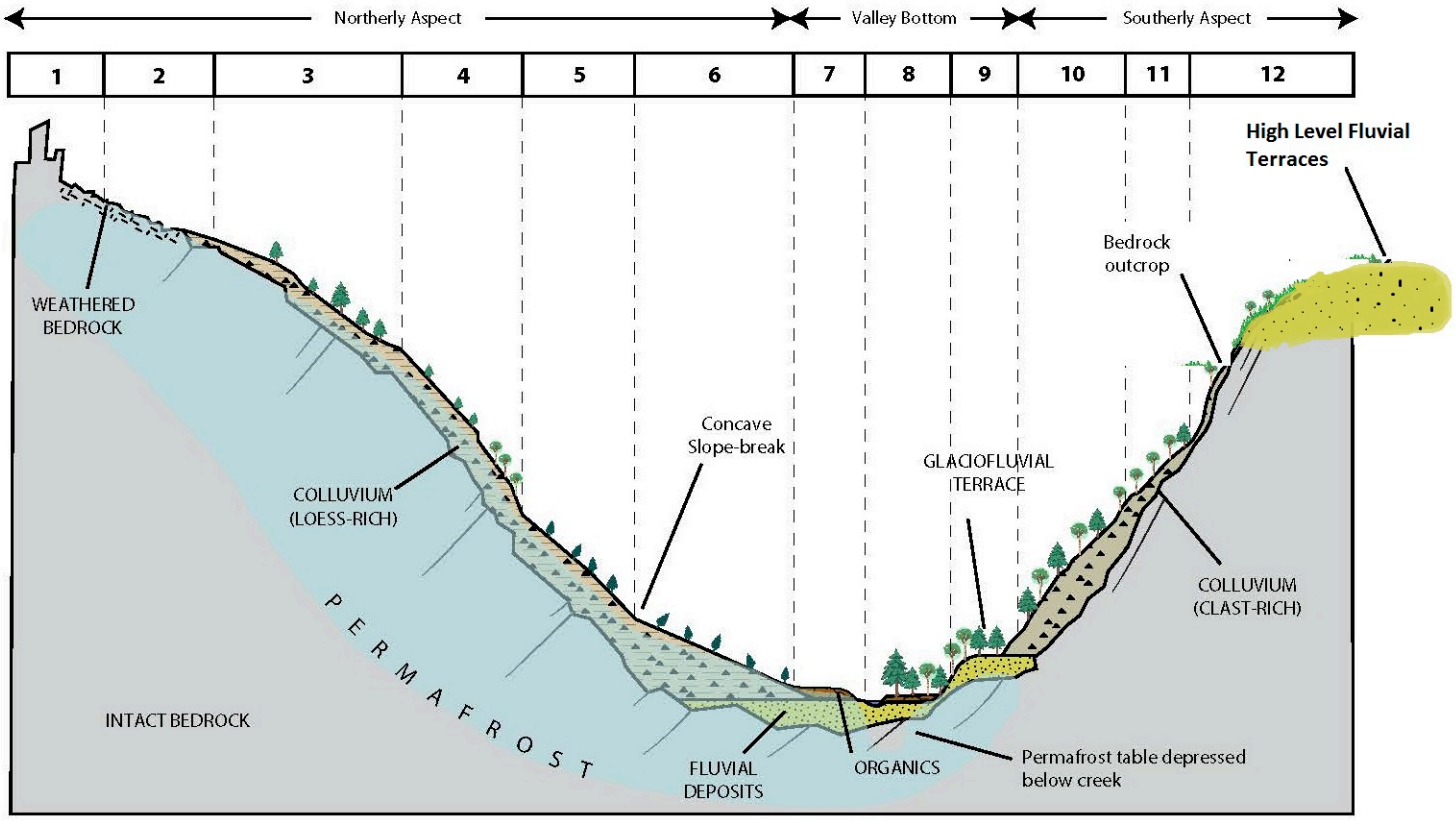
1:6,000

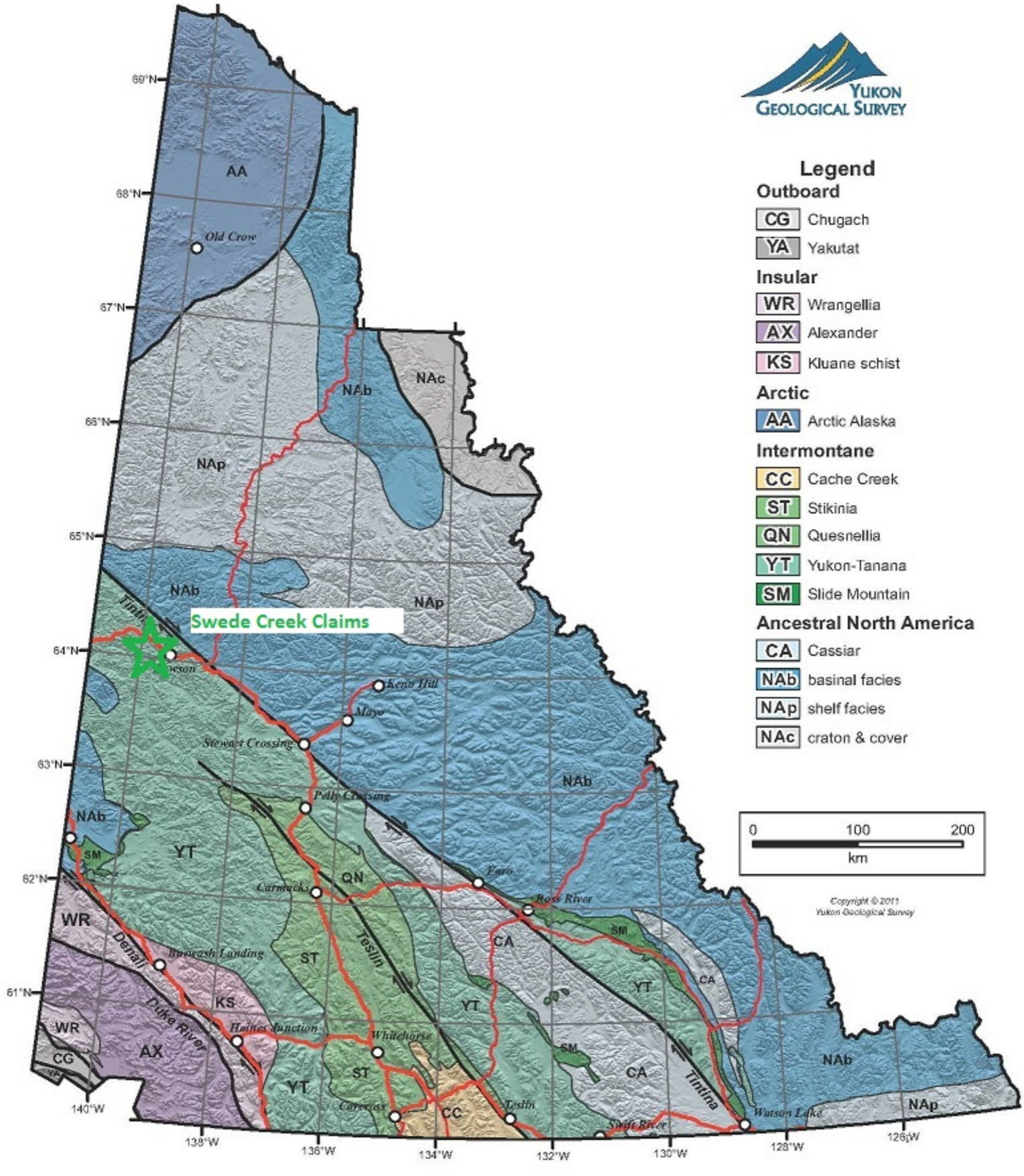
CRS: NAD83(CSRS) / UTM zone 7N (EPSG: 3154)

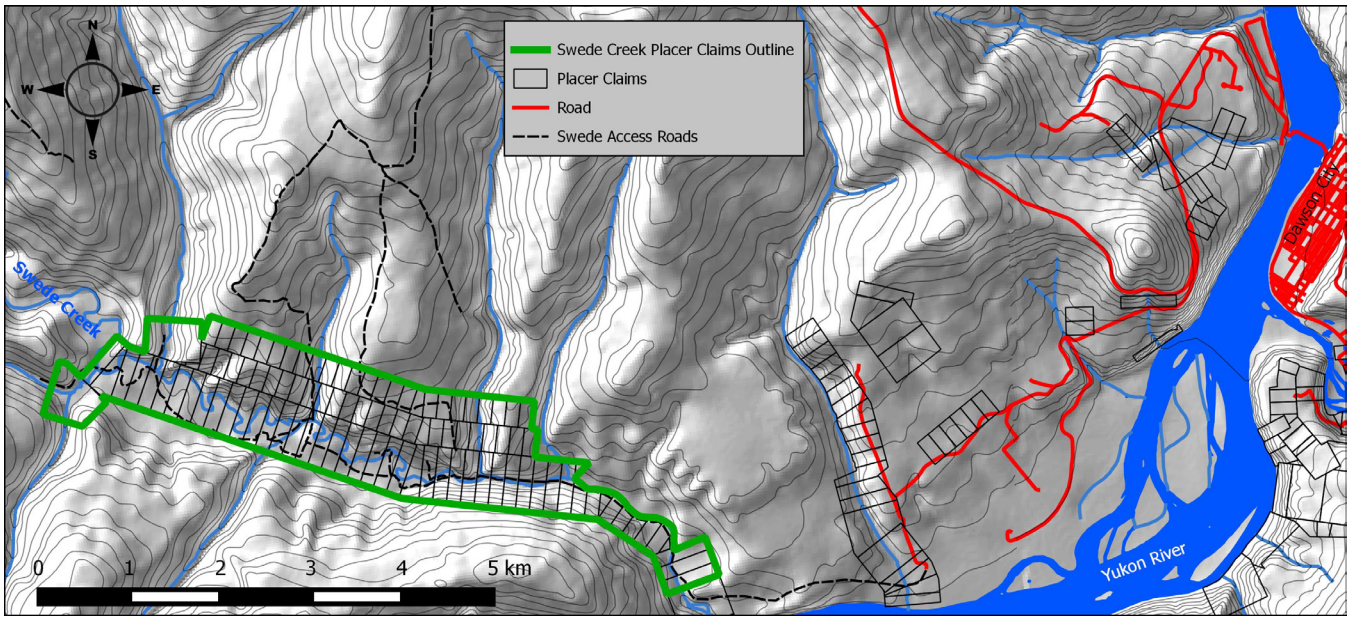
0 1 2 km


Paystreak Estimate base on drill holes
Legend
Estimated Mineable Paystreak
RAB Drill Holes with gold below (mg)
2015_08_06-07_ClintTracyDrill
Placer Claims
2015_GPR_Lines
Usable ATV Road
GWD010
5
GWD009
10
GWD008
15
GWD007
30
GTD002
24
GTD003
NIL
GTD005
35
GWD012
0
Swede 26
Swede 25
Swede 24
Swede 22
L18
L19
L20
L21
L22
L23
L24
L25
L32
0
50
100
150
200
250 meters


Swede Terrace Access Cutting
0
1
2
3
4 km


Northerly Aspect
Valley Bottom
Southerly Aspect
1
2
3
4
5
6
7
8
9
10
11
12
High Level Fluvial Terraces
Bedrock outcrop
WEATHERED BEDROCK
COLLUVIUM (LOESS-RICH)
Concave Slope-break
GLACIOFLUVIAL TERRACE
COLLUVIUM (CLAST-RICH)
PERMAFROST
INTACT BEDROCK
FLUVIAL DEPOSITS
ORGANICS
Permafrost table depressed below creek


Yukon Geological Survey
Legend
Outboard
CG Chugach
YA Yakutat
Insular
WR Wrangellia
AX Alexander
KS Kluane schist
Arctic
AA Arctic Alaska
Intermontane
CC Cache Creek
ST Stikinia
QN Quesnellia
YT Yukon-Tanana
SM Slide Mountain
Ancestral North America
CA Cassiar
NAb basinal facies
NAp shelf facies
NAc craton & cover
Swede Creek Claims
0 100 200
km
Copyright © 2011
Yukon Geological Survey
69°N
68°N
67°N
66°N
65°N
64°N
63°N
62°N
61°N
140°W
138°W
136°W
134°W
132°W
130°W
128°W
126°W
Old Crow
Keno Hill
Mayo
Stewart Crossing
Pelly Crossing
Carmacks
Faro
Ross River
Burwash Landing
Haines Junction
Whitehorse
Carcross
Teslin
Watson Lake
Swift River
Denali
Duke River
Teslin
Tintina



REPORT ON THE 2015 EXPLORATION OF SWEDE CREEK AND ITS' HIGH-LEVEL TERRACES FOR PLACER GOLD

Claim Staking, Drilling, Ground Penetrating Radar, High-res imaging.

May – October, 2015

Mapsheet 116B04

UTM Zone 7 W

566900 Easting, 7102200 Northing

Author: Morgan Fraughton

TABLE OF CONTENTS

INTRODUCTION – WITH SPECIFIC OBJECTIVES OF THE SURVEY

Swede Creek (SC) is the largest undeveloped drainage in the Klondike plateau west of Dawson City, Yukon. SC is bound on all sides by well-known gold districts that have been producing placer gold for over 100 years. Creeks such as Eldorado, Bonanza, Dominion, Sulphur, Quartz, Hunker lie to the east. This Klondike district has produced over 20 million ounces of placer gold since gold mining started in the late 1800's. The Sixtymile river gold district lie to the southwest, and the famous 40mile placer district to lies to the northwest. Much of SC valley and its' ancient (3.6-5.3ma), high-level, fluvial gravel deposits overprint the gold rich Klondike Schist (KS) bedrock. Results from past (2013, 2014) grassroots-style investigations in to the placer gold potential of SC were positive and demanded more intensive exploration. This report details the placer gold exploration program on Swede Creek during in 2015.

The specific objectives for the Swede Creek (SC) exploration project of 2015 were to:

1. understand the composition of overburden, depth to bedrock, and placer gold content in SC valley bottom and its ancient high-level fluvial terraces
2. determine the single most prospective area within the SC creek and terrace claims for a bulk-sample(>100m^3) testing in the summer of 2016

To achieve these objectives three different methods of exploration were used:

1. Unmanned Aerial Vehicle (UAV) high resolution imaging of the SC property
2. Ground Penetrating Radar (GPR) to understand the depth to bedrock from surface for a large area
3. Drilling to verify GPR results and determine overburden composition and gold content in specific locations

To facilitate these explorations there were two complimentary work programs that were required:

1. Line flagging and trail clearing were required to facilitate the GPR and drilling programs\
2. Staking two prospecting leases on terraces above Swede then, after enough assessment work had been done, convert the prospecting leases in to placer claims

LIST OF CLAIMS WITH GRANT NUMBERS, NAME OF REGISTERED CLAIM HOLDER AND THE OPERATOR WHO PAID FOR THE WORK

2016 Spere Exploration Inc. owns 100% of all the claims in this report. Swede 1-48, discovery claims (Empire Creek) and Imp (Walker's Fork), as well as Swede Bench 1-53. Currently Swede Bench 29-53 are registered under the name Morgan Fraughton on the terraces; these claims will be transferred to SpereX in the near future and a new grouping will be made to include all of these claims. Please see the folder included on USB stick to view the full claims sheet. Swede 1-48, Hound, and Imp are currently grouped under grouping number GD01109. The Swede Bench claims are not grouped.

Claim Name/Number	Grant Number	Claim Owner
Hound	P 516065	Spere Exploration Inc. - 100%
IMP	P 516066	Spere Exploration Inc. - 100%
Swede 1-48	P 516473 - 516520	Spere Exploration Inc. - 100%
Swede Bench 1 - 28	P 517186 - 517238	Spere Exploration Inc. - 100%
Swede Bench 29 - 53	P 517186 - 517238	Morgan Fraughton. - 100%

Figure 1 - List of claims

This exploration program was undertaken by Spere Exploration Inc. (SpereX) of Dawson City, Yukon during the summer and fall months of 2015. Funding for the program came from privately raised monies by SpereX and a contribution from the Yukon Mineral Exploration Program (YMEP) (YMEP# 15-078) under the target evaluation model for placer exploration.

All claims on Swede Creek are considered areas of Special consideration under the Yukon Creeks Classification system. This means that a 30-meter setback from the creek for any major work must be maintained at all times and discharge of any sediment in to the creek is not allowed. Since, gold has been discovered well outside this 30-meter setback this is not seen as an issue. All exploration work has been done by respecting this 30-meter setback. Also, it is believed by SpereX that special permissions from DFO can be applied for to get around this 30—meter setback in the future. As for the zero tolerance of releasing extra sediment in to the water this can be achieved with proper settling ponds.

Swede Creek Claims

Figure 2 - Swede Creek Claims Overview map

563000 564000 565000 566000 567000 568000 569000 570000

7104000 7103000 7102000 7101000 7100000

N W E S

Swede Creek
Empire Creek
20 Pup
Discovery Pup
Becker Pup
South Walkers Fork
Remetry Pup
Swede Creek
Yukon River

Swede Bench 53 P 517238
Swede Bench 52 P 517237
Swede Bench 51 P 517236
Swede Bench 50 P 517235
Swede Bench 49 P 517234
Swede Bench 48 P 517233
Swede Bench 47 P 517232
Swede Bench 46 P 517231
Swede Bench 45 P 517230
Swede Bench 44 P 517229
Swede Bench 43 P 517228
Swede Bench 42 P 517227
Swede Bench 41 P 517226
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Swede Bench 38 P 517223
Swede Bench 37 P 517222
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Swede Bench 35 P 517220
Swede Bench 34 P 517219
Swede Bench 33 P 517218
Swede Bench 32 P 517217
Swede Bench 31 P 517216
Swede Bench 30 P 517215
Swede Bench 29 P 517214
Swede Bench 28 P 517213
Swede Bench 27 P 517212
Swede Bench 26 P 517211
Swede Bench 25 P 517210
Swede Bench 24 P 517209
Swede Bench 23 P 517208
Swede Bench 22 P 517207
Swede Bench 21 P 517206
Swede Bench 20 P 517205
Swede Bench 19 P 517204
Swede Bench 18 P 517203
Swede Bench 17 P 517202
Swede Bench 16 P 517201
Swede Bench 15 P 517200
Swede Bench 14 P 517199
Swede Bench 13 P 517198
Swede Bench 12 P 517197
Swede Bench 11 P 517196
Swede Bench 10 P 517195
Swede Bench 9 P 517194
Swede Bench 8 P 517193
Swede Bench 7 P 517192
Swede Bench 6 P 517191
Swede Bench 5 P 517190
Swede Bench 4 P 517189
Swede Bench 3 P 517188
Swede Bench 2 P 517187
Swede Bench 1 P 517186

Swede 45 P 516507
Swede 44 P 516508
Swede 43 P 516509
Swede 42 P 516510
Swede 41 P 516511
Swede 40 P 516512
Swede 39 P 516513
Swede 38 P 516514
Swede 37 P 516515
Swede 36 P 516516
Swede 35 P 516517
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Swede 12 P 516540
Swede 11 P 516541
Swede 10 P 516542
Swede 9 P 516543
Swede 8 P 516544
Swede 7 P 516545
Swede 6 P 516546
Swede 5 P 516547
Swede 4 P 516548
Swede 3 P 516549
Swede 2 P 516550
Swede 1 P 516551
Hound 0 P 516065
Blackjack 0 P 516166
Bear 0 P 516167

Legend

- Swede Creek Placer Claims Outline
- Placer Claim
- Swede Creek ATV Road
- Contours (ft)

Mapsheet 116B04

Created By: Morgan Fraughton

Date Created: 2016-01-26T21:25:48

1:16,000

CRS: NAD83(CSRS) / UTM zone 7N (EPSG: 3154)

0 1 2 3 4 5 km

LOCATION AND ACCESS

LOCATION

SC is located on NTS map sheet 116B04 within the Dawson mining district of Yukon, Canada. The approximate central coordinates of the property are in UTM Zone 7 W with approximate central coordinates of 566900 Easting, 7102200 Northing.

The mouth of SC is less than 10km (as the bird flies) from Dawson City, Yukon. Claims Swede 1-48 in this report start from approximately 300 meters from the mouth of SC and go continuously to approx. 7.2 kilometers from the first post to the last post up the baseline of SC then two discovery claims (Hound and Imp) on the tributaries (Empire creek and Walker's Fork) that enter SC. In addition, 53 bench claims were added to the terraces above SC to the north..

The Swede Creek watershed covers an area of more than 100 km^2. From the headwaters at Swede Dome to the mouth where it enters the Yukon river, Swede creek has 5 major tributaries that also have potential to host placer gold in a volume that could support placer mines

ACCESS

Swede Creek (SC) is accessed in multiple ways. The most used and best route for exploration work carried out in summer of 2015 will be discussed here.

Accessing the SC claims from Dawson City (DC), one must cross the Yukon River via short ferry ride, then go 15 km up the Top of the World Highway (TWH). At km 15 on the TWH there is a large pull off area equipped with false buildings and rest stop facilities for travelers of the highway. Behind this pull off, an old road which had been overgrown with alders has been cleared enough by SpereX in 2014 drive an ATV down the road to SC. This road is 8 km from the TWH to SC and winds along the ridges and spurs that descend in to SC valley where it intersects SC at the mouth of 20pup. Total travel time is approx. 45 mins from DC to SC. This travel time includes a ferry ride across the Yukon river and driving to the TWH pull-off with trucks and then using ATV's to descend in to the creek. A quick scraping of the road with a bulldozer blade would reduce travel time from DC to SC to less than 30 mins and make SC truck accessible.

From the mouth of 20pup the trail connects with many old overgrown trail systems that web through the hills and creeks the surround SC valley. One section goes to the mouth of SC and connects to 2-wheel drive roads of the community of Sunnydale. The entire trail has been overgrown and crosses SC multiple times. This trail system was initially put in under commission of the Government of Canada by a local named James R. Farr in 1909. Farr was operating an experimental farm for the Canadian Agricultural Association near the mouth of Swede Creek. The road was put in and built as an access route to the Sixtymile gold district. The road/trail runs up SC for about 25 miles and then goes up a right limit tributary of Swede where it goes over a pass then drops in to Fysh creek, then California creek and into many other areas of Sixtymile River. A paper could be written on the access and history of

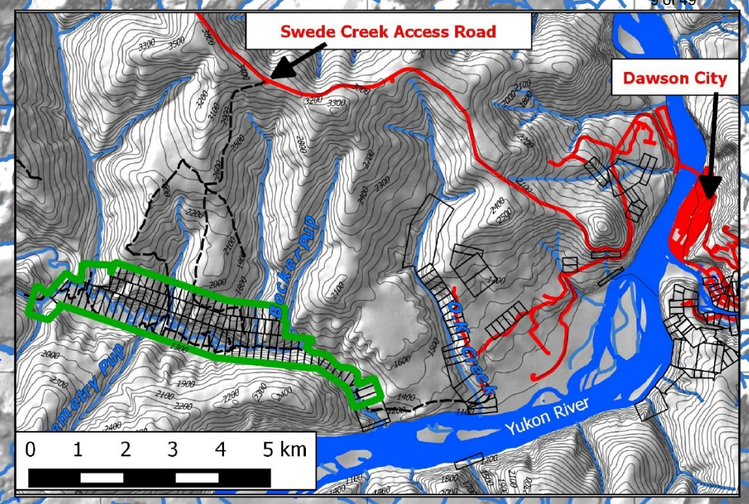
SC in this case but it is beyond the scope of this report. Many other overgrown roads wind through SC valley and the hills between SC and Sixtymile River.

Other access that can be used are the roads that go through Sunnydale to the mouth of SC then connect with the trail system that goes up SC valley. Use of this access is discouraged and any use of it should be avoided because the road runs through private properties and the community of Sunnydale. The road which descends from the TWH at km 15 to SC should be the only access route used as all of it runs over hard rock claims or placer claims owned solely by SpereX and there is no private property, aboriginal lands, or other obstacles, to contend with.

In addition to these two road access points, helicopter access is relatively cheap because of helicopter bases in such close proximity to SC. Trans North Helicopter base is less than 10 km away from SC. This close proximity makes helicopter fairly cost effective if absolutely needed. Helicopters were easily contracted for short amounts of time to assist with heavy moves, moving guys, etc. during this exploration program.

Swede Creek Claims Location and Access Overview

Figure 3 - Swede creek claims location and access map



YUKON RIVER

Fortymile Gold District

Top of the World Highway

Top of the World Highway

Swede Creek

Dawson City

Sixtymile Gold District

YUKON RIVER

Bonanza Creek

Hunker Creek

Klondike Gold District

Eldorado Creek

N

W

E

S

Legend

- Swede Creek Placer Claims Outline
- Placer Claims/Leases
- Yukon Roads
- Swede Creek ATV Road

Mapsheet 116B04

Created By: Morgan Fraughton

Date Created: 2016-01-26T20:13:11

1:200,000 | CRS: NAD83(CSRS) / UTM zone 7N (EPSG: 3154)

0 5 10 15 20 km

520000 530000 540000 550000 560000 570000 580000 590000 600000

7140000 7130000 7120000 7110000 7100000 7090000

SUMMARY OF PREVIOUS INVESTIGATIONS (HISTORY)

PREVIOUS INVESTIGATIONS BY SPEREX

Investigations of the placer gold potential ofSC by SpereX were first conducted in the fall of 2013 when a couple days were spent traversing the creek and panning along the creek-side gravel bars for gold. Since gold was frequently panned out of the gravels virtually everywhere at the rate of 2-12 pieces of gold per pan, it was deemed a good idea to stake a prospecting lease and then look to the 2014 summer season to perform more in depth exploration to determine the extent of placer gold there.

Figure 4 - Some of the gold panned from the Swede Creek's gravel bars in 2013

On June 5th, 2014 a 5-mile lease to prospect was staked by SpereX on SC. Also, on June 6 2014 SpereX staked two discovery claims; one on the mouth of Walkers Fork (Imp) and one on the mouth of Empire creek (Hound). During the summer of 2014 a small <9-ton excavator was walked in from the Top of the World Highway (TWH) in to dig some pits and trenches to test the gravels deeper than surface, and hopefully expose bedrock/gold grades at the bedrock/gravel interface. This small excavator was not able to uncover bedrock because its maximum digging depth was only 10ft (at the time there was no indication of bedrock depth and it was thought to be very deep

based on the size of SC valley). When the excavator left SC bedrock had still not been exposed and the depth to bedrock remained unknown. Getting in to and out of SC at time was very difficult as the roads were not yet defined and many obstacles were encountered. The <9ton excavator also had mechanical issues (tracks falling off , drive sprocket problems, coolant blowouts etc.). The machine was only rented for 2 weeks and almost 10 days were needed to walk the machine in to the spots which I wanted to test. Many of these spots proved to be frozen solid. Finally, in a last ditch attempt at finding bedrock the excavator was walked to place that was known there would be at least less permafrost. Digging down through the ice free gravels, water was hit at ~8 feet. Digging deeper than this (10ft) was attempted but the bucket on the excavator had some holes in the bottom of it and it was thought futile as bedrock was thought to be much deeper than this and any gold would have been washed away as the gravel was disturbed.

Gravels from this digging were hand sluiced through a long tom style aluminum sluice. Gold was recovered at a rate of approximately $\$15/m^3$. Approx $3m^3$ was washed. It is now known that these gravels came from approx 0-8ft below surface. Bedrock in this area was averaging 12ft deep as was later discovered in shafting and drilling.

In February of 2015, a shaft was sunk to bedrock by Morgan Fraughton. The shaft was successful at reaching what, at the time, was thought to be either bedrock or talus at approximately 3.4 meters (12ft); drilling since has confirmed this was bedrock. There was a reasonable amount of gold at the bottom of the shaft. Panning results from the frozen gravels from three 16-inch diameter gold pans was estimated at 25mg of gold. Panning was performed all the way down the shaft. Most of the way down there was trace amounts of gold. Approx. 30cm above gravel is where the increased gold content seemed to start as well as a layer of clay (locally decomposed Klondike schist bedrock). The accumulated positive results of investigations from 2013 to the sinking of the shaft in winter 2015 were the basis for this exploration undertaken in the summer of 2015.

Figure 5 - Morgan Fraughton in the February 2015 Swede Creek shaft. The shaft was 12ft deep and hit bedrock with gold at estimated at $\$25/m^2$.

Figure 6 - Gold from three 16" pan at the bottom of the hole. Gold Estimated at approx. 25mg

In addition to placer exploration in SC, SpereX has conducted soil sampling and prospecting hard- rock exploration in the hills to the north of SC. Initially, the hard-rock exploration was meant to follow-up on old reports by Cominco (Described in MINFILE 116B072) on their explorations in the area for volcanogenic massive sulfide (VMS) type deposits of copper, lead, and zinc. Small amounts of prospecting were done on the JPL in the late season of 2013 (see *Geochemical and Work Report on the JPL Claims by Morgan Fraughton)* (2014), some of the Klondike Schists (KS) did contain high amounts of copper, lead, zinc with smaller, but elevated, amounts of gold and silver. The most interesting result obtained by SpereX in 2015 that have come from the JPL property is a quartz vein that assays almost to 1oz/ton (28973.7 PPB) gold. It is thought that veins like this, disseminated gold in Klondike schist, and reworked placer gold that is contained in the ancient high-level fluvial terraces above SC, are the sources for placer gold in SC and its terraces. For more information on the hard rock explorations of the JPL, see the 2015 hard rock report on the JPL property, submitted to YMEP and the Yukon Mining Recorders office in Feb 2016.

In 2014 during the soil sampling/prospecting traverses of the hard-rock exploration of the JPL claims (see map label *Swede Creek Claims*) in the area it was noticed by Morgan Fraughton that above the cliffs to the north of Swede Creek there are large areas of terrace gravels. These gravels were made obvious during the JPL hard-rock soil sampling program of 2014. During this soil sampling every 50m along the traverse 1.2m augers were twisted in to the soil below surface in order to get a sample for assay. This soil sampling helped to give scope to the large area of ancient fluvial gravels hidden under the surface on these terraces. Also, it was clear that the road leading down to Swede Creek valley (SCV) exposed a large area where with high-level terrace gravels sluffing in from the hill/road cut above. This section of road (~1000ft long) runs parallel with 20pup and cuts the gravel bed in a perpendicular way. Though the gravel is exposed and the area is very large the exposure is on a steep side hill that descends down in to 20pup which would have cut through the ancient terrace gravel deposit and reworked its gold content to a concentrated amount in this part of 20pup (this should be investigated in 2016).

INVESTIGATIONS BY OTHERS

OTHER OPERATORS ON SWEDE CREEK

The potential of the Swede Creek area is exciting. Since SpereX staked the lease on Swede Creek in 2014 other explorers in the area have caught on and there have staked claims on the headwaters of Swede Creek.

One company, *Yukon Exploration Green Gold Inc.*, explains their holdings at the headwaters of SC on their company website (http://yukonexploration.ca/?page_id=1934):

…Thanks to an extended exploration campaign performed along the upper section of Swede Creek by our company, the tested gravel revealed an appealing deposition of coarse gold. At this time we are applying for all the licenses and permits required to start mining during the next season (2016). Qi property is also located right along the Top of the Word Highway, just 50 km from Dawson City. The access road to the claims starts right beside the Swede Dome.

DISCOVERY CLAIMS AND RUSH ON SWEDE CREEK

Written records of activity on SC previous to SpereX (fall 2013) date back to 1898 when the creek was renamed Swede creek (from 12-mile creek) by the mining recorder of the time. The renaming by the mining recorder was in response to the man (group) who staked the discovery claim was of Swedish origin. Feb 20 1898 an article in the Chicago Tribune tells a tale of a mad rush of hundreds of newcomers up SC from Dawson City (DC) by moonlight. Many people were frozen, there were deaths and limbs lost, including one RCMP, who was also the postmaster, had to have his leg amputated due to freezing it while on a rush to stake Walker's Fork, a tributary of SC.

One surprising issue with the rush was described, the staking took place by moonlight on a Sunday and the gold commissioner refused to grant any claims that were staked on a Sunday. Some people went back to stake ground but most left it alone. Supposedly, from the article in the Chicago tribune, the Swedes were sinking a shaft in SC in secret. Once they were discovered by a moose from hunter from Dawson City they quickly took a pan of the material they had at the bottom of the shaft and left for Dawson City to record their discovery claims and encourage their friends to stake before the stamped came. The gold that the Swedish prospectors reported to have found per pan was worth 90 cents. (Miller, 1898) In 1898 when gold was worth $20.67 USD and therefor it is estimated that this was approx. 1.5g of gold in their pan, with an approximate value of $70/pan in today's currency.

After this initial discovery and subsequent stampede, information on what people later found on SC is little to nothing. Since 1898, there has been leases and claims recorded on SC but no record of what was found or even if work was done has been uncovered through research methods such as Yukon Archives, Mining Recorders, Online Searches, EMR Assessment Reports, and YGS MINFILE occurrence database, early explorers'(Ogilvie, McConnell, Campbell, Schwatka) accounts. It is hypothesized that SC was searched by early prospectors at the time and discovered gold that was not concentrated enough in the gravels to profitably hand mine. As the fickle gold rush prospector don't seem to settle for anything but a bonanza this creek may have been overlooked for the extreme hype related to other creeks in the Klondike plateau. With today's mining methods this ground is most likely profitable.

DREDGE? PROMINENT CLAIM OWNERS ON SWEDE

On page 5 of the Dawson Daily News: Discovery Day Edition, Friday, August 17, 1917 there is one account of work done on Walker Fork; 'The dredge which was engaged on Walker's Fork and later on Miller Creek has been moved to the Sixty-mile' Although, this may be referring to Walker Fork at the headwaters of the Fortymile River in Alaska; it is unclear. Also, it is possible that very large areas on SC at the mouth of Walker Fork has been disturbed by mining quite a bit a long time ago. Trees have overgrown this area now but the presence large areas of thawed fluvial gravels at surface on the south side of the drainage seems out of place.

The Klondike News, vol. 1, no. 1, Dawson, N.W.T., April 1st, 1898, reported that some very prominent Klondike names owned claims on Swede Creek. On page 11 it is stated that James 'Curly' Monroe ('The Chief of the Stampeders') 'On Swede Creek he is owner of No. 6, and besides these he has a number of bench claims'. On page

35 of the same publication it states that Mr. J.W. Sullivan owns '…No. 1 above on Swede Creek. All of the claims are in rich sections and will yield comfortable fortunes to the lucky owner.'

There may be more information contained in the National Library and Archives of Ottawa that is not digitized. One search of the National archives' catalogues shows that there is a document in the Archives that is labeled 'Dredge Swede Creek'. There are rumors that the Yukon Consolidated Gold Corporation (YCGC) did some drilling on Swede Creek with the idea of dredging the creek and that the records are held in the National Library and Archive in Ottawa. Morgan Fraughton will spend some time in the National Library and Archives at the end of February 2016.

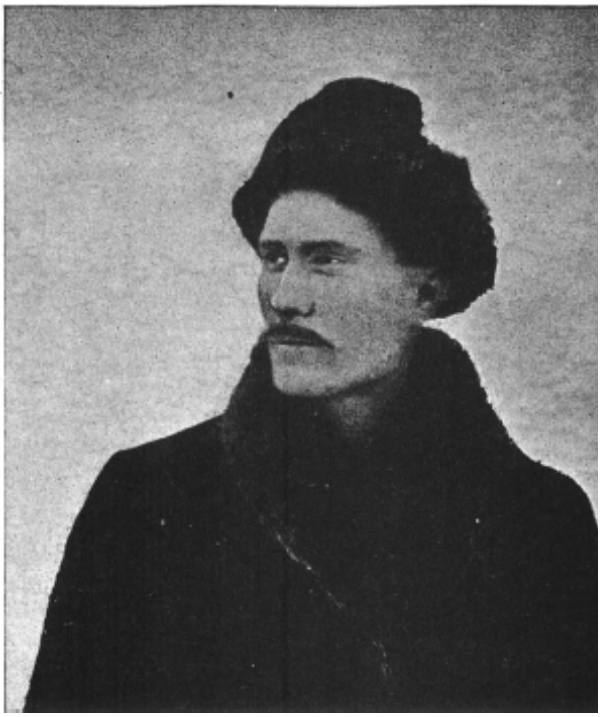


Figure 7 – Above. J. W. Sullivan. Discoverer of Coal on the Yukon, owner of many great claims in the Klondike and owner of No. 1 above on Swede Creek (Mickel & Moore, J. W. Sullivan, 1898)

Figure 8 – Right. James 'Curly' Monroe. '... his claims being located upon the creeks which have turned out to be the best'. Owned bench claims and No. 6 on Swede Creek (Mickel & Moore, James Monroe, 1898)

There are a few MINFILE occurrences in the area of SC and they all refer to exploration work that was directed at the hard-rock. (see MINFILE occurrences such as #116B072). None of the explorations were in depth. It is likely that in Cominco's case exploration may have continued past one season because there were promising results but the discovery of VMS in drill holes in the Finlayson District would have been distracting. Also Cominco never assayed for gold!

If one theme were to describe the theme of the Yukon and its goldfields since the second half of the 1800's) it is one that would see amazing discoveries and potential throughout the Yukon with development interrupted by two major world wars in the early half of the 1900's. Men who were working in the Yukon at this time were called to

their duty and fought and died and never returned. Talk about a brain drain! It seems that the great momentum of the Klondike plateau and its development in the early part of the 1900's was halted by these great wars and somewhat forgotten. That's why we still look to these old timers for answers.

REFERENCE TO AVAILABLE GEOLOGY (LOCAL AND REGIONAL)

REGIONAL GEOLOGY

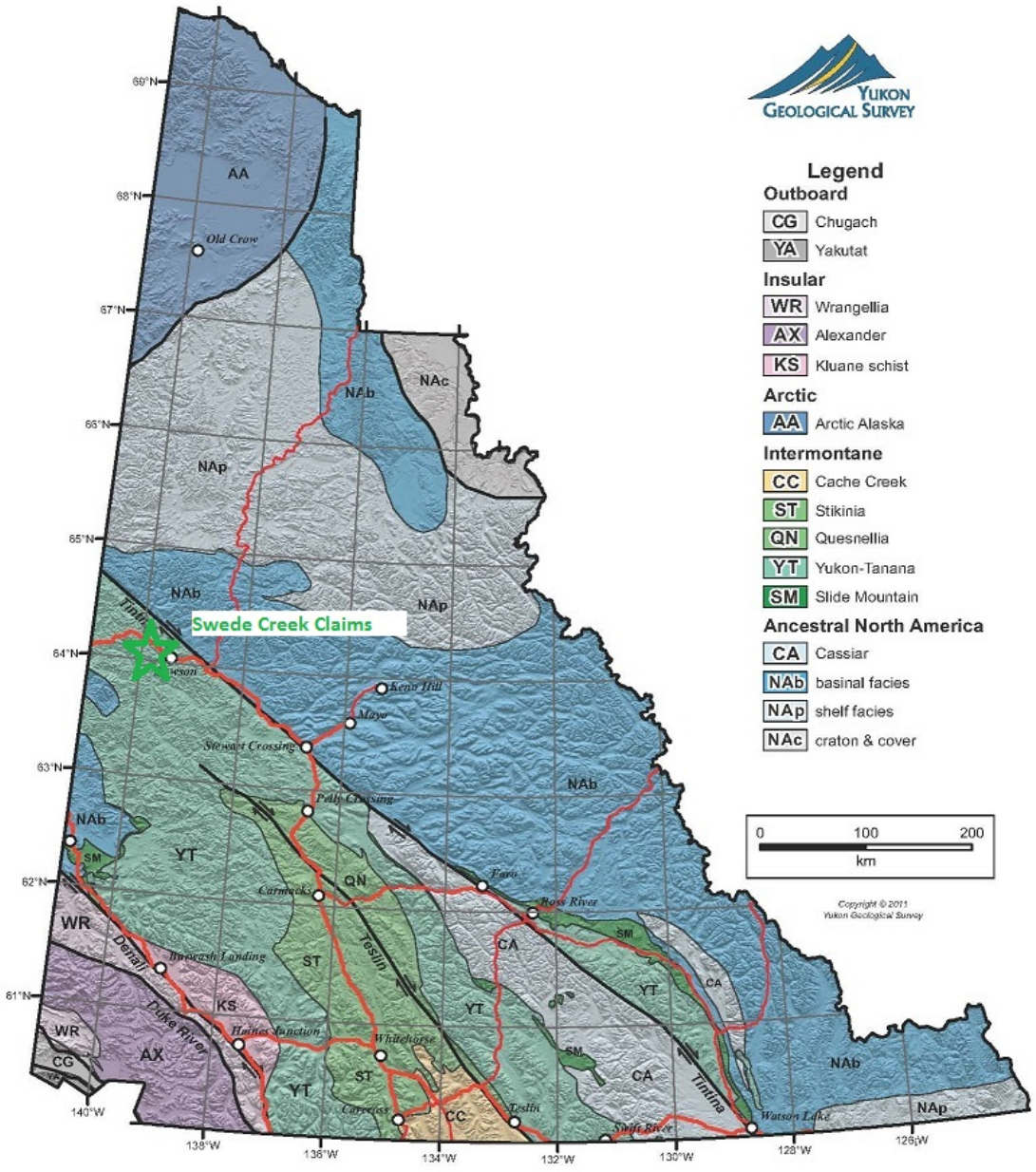


Figure 9 - Yukon geological terranes. Taken from http://www.geology.gov.yk.ca/overview_bedrock_geology.html

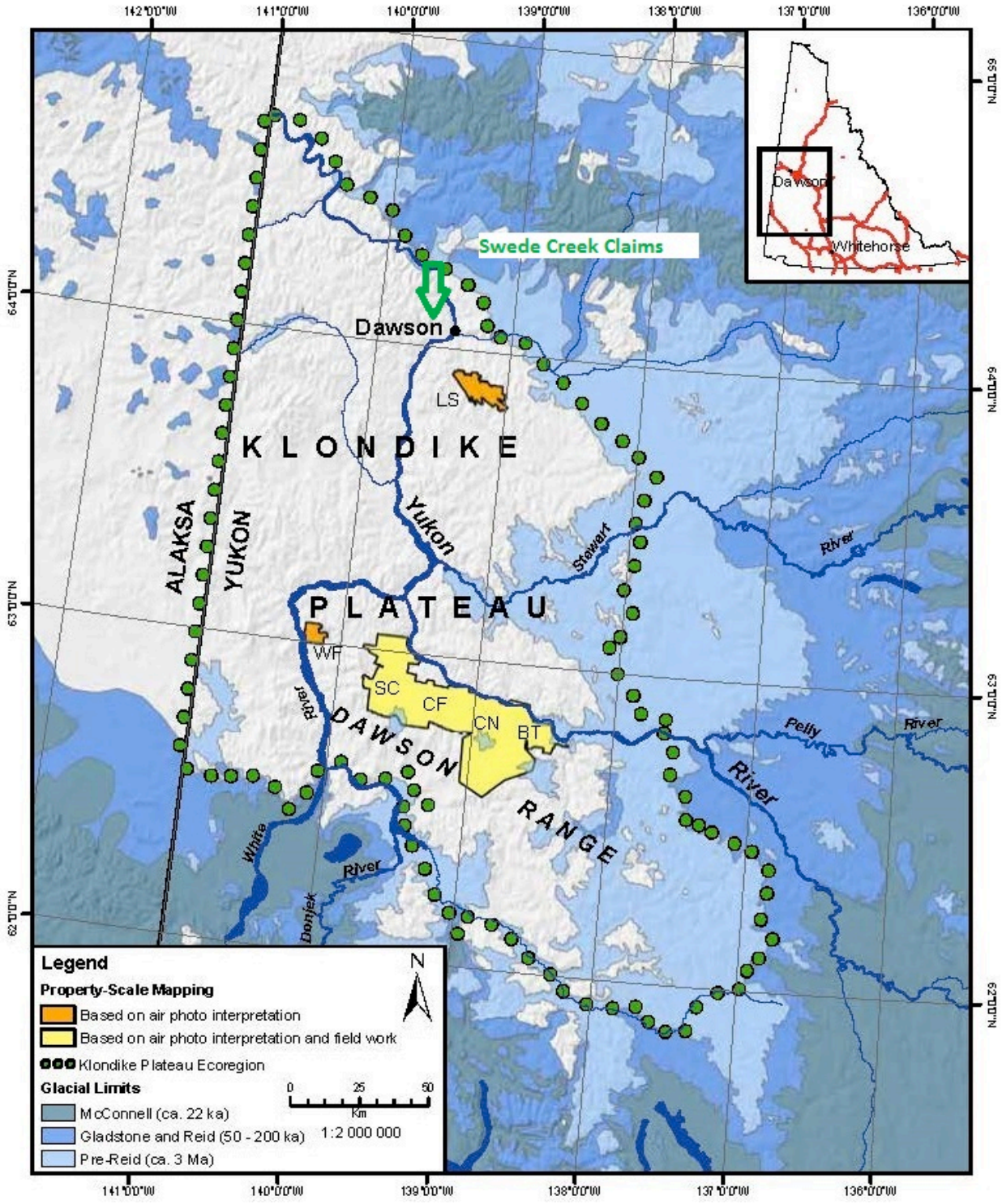


Figure 10 - Copied from ((McKillop, Turner, Johnston, & Bond, 2013). This is a great visual on the known maximum extents of the last three ice sheets to affect the SC region. The orange and yellow blocks were areas that the authors examined for their study of landform-soil type classification. And are not relevant to this report

Much of the Klondike plateau was free of significant glaciation during the last three million years. This unglaciated period has had a profound impact on the region and the SC area. This glacier free period allowed for the evolution and preservation of a well-developed landscape, with rounded summits and valley systems and their contained placer deposits. SC area was unglaciated during this time which seems to have impacted SC in a positive way with respect to placer gold. Like other areas that were not glaciated, the natural erosion and emplacement of gold within bedrock has not been scoured by glaciers therefore placer gold is fairly close to its original bedrock source. High-level fluvial terraces described in in publications by Yukon Geological Survey, (McKillop, Turner, Johnston, & Bond, 2013) and (Fuller, 1993), are very prospective for placer gold. Evidence suggests that the high-level terraces above SC fit in to this category of highly prospective benches.

Surficial materials in unglaciated regions of the Klondike plateau consist largely of weathered bedrock, colluvium, retransported loess (wind-blown silt), organic, and fluvial deposits. The Klondike plateau is in a zone of widespread discontinuous permafrost, with permafrost generally present on north and east facing slopes and thicker packages of stream beds.

Regional bedrock geology associated with the Klondike and Swede Creek area is best described by (MacKenzie, Craw, & Mortensen, 2008) (page 214)

> The main basement lithologic units of the Klondike District form part of the Yukon-Tanana terrane and include medium-grade metamorphic rocks of the Upper Permian Klondike Schist, carbonaceous schist of the Devonian-Mississippian Finlayson assemblage (Nasina fades), and little-metamorphosed Late Paleozoic greenstone and ultramafic rocks of the Slide Mountain terrane (Fig 1.; Mortensen, 1990, 1996; Mortensen et al., 2007). These units were thrust-imbricated in the Early Jurassic (Mortensen, 1996) resulting in a series of stacked thrust slices that are locally separated by lenses of ultramafic rocks. The uppermost slices are Klondike Schist and consist of complexly interleaved (1- to 100-m-scale) greenschist-fades quartzofeldspathic, chloritic, micaceous and minor carbonaceous schists. The two upper slices of Klondike Schist host significant orogenic gold and are the focus of current research into the structural controls on gold-bearing veins (MacKenzie et al., in press).
>
> The thrust stack was uplifted through the brittle-ductile transition in the Jurassic and unconformable overlain by locally derived sedimentary and volcanic rocks in the Late Cretaceous (Mortensen, 1996). Regional extension and normal faulting continued from Late Cretaceous to early Eocene with initiation of the strike-slip Tintina fault, along which rocks of the Klondike District were offset ~450 km from the rest of the Yukon-Tanana terrane (Gabrielse et al., 2006). Minor regional uplift continued in the late Tertiary when erosion produced the Pliocene White Channel Gravels and the world-famous Klondike gold placer deposits (Lowey, 2005). Exposure of basement rocks in the Klondike District is generally poor due to extensive colluvium and permafrost on the tree-covered slopes (Bond and Sanborn, 2006).

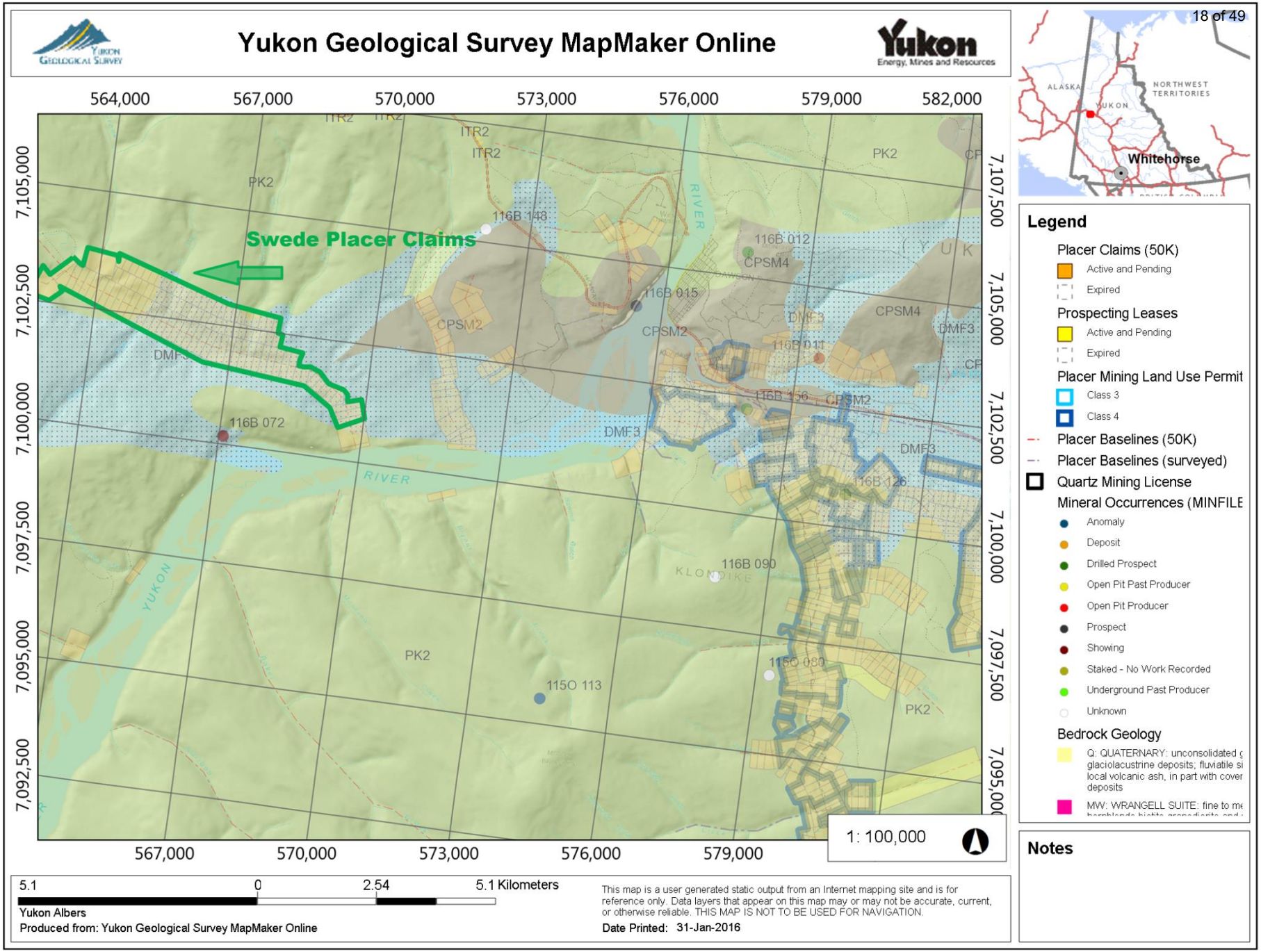


Figure 11 - Bedrock Geology around Swede Creek

AGE	reg_name	reg_desc	reg_legend
CARBONIFEROUS AND PERMIAN	Slide Mountain	dominantly oceanic assemblage of mafic volcanics (1), ultramafics (4), chert and pelite (2), limestone (3) and	CPA:Slide Mountain: dominantly oceanic assemblage of mafic volcanics (1), ultramafics (4), chert and pelite (2), limestone (3) and gabbroic rocks (5)
PERMIAN	Klondike Schist	poorly understood assemblage of metamorphosed pelitic/volcanic rocks (1) and minor marble (2), including phyllite of uncertain association (3)	PK: KLONDIKE SCHIST: poorly understood assemblage of metamorphosed pelitic/volcanic rocks (1) and minor marble (2), including phyllite of uncertain association (3)
DEVONIAN, MISSISSIPPIAN AND(?) OLDER	Finlayson	graphitic quartzite and muscovite quartz-rich schist (1), (3)-(5), and(?) (6) with interspersed marble (2) and probable correlative successions (7) - (9)	DMN: Finlayson: graphitic quartzite and muscovite quartz-rich schist (1), (3)-(5), and(?) (6) with interspersed marble (2) and probable correlative successions (7) - (9)

Figure 12 - geology legend for the map in figure 11.

LOCAL GEOLOGY AND BIOLOGY

Bedrock immediately under the Swede Creek (SC) claims consists of the upper layers of the Klondike Schist (KS) and the Finlayson graphitic schist. According to the quote above from the clipping above 'The two upper slices of Klondike Schist host significant orogenic gold and are the focus of current research into the structural controls on gold-bearing veins' (MacKenzie, Craw, & Mortensen, 2008).

Hard rock exploration work of 2015 has uncovered a quartz vein in the KS that assays at 28973.7 g/t gold (~1 ounce per ton) gold. Most likely, many more gold rich veins in the hills above and in SC will be discovered in future exploration. Through natural weathering and erosion processes over time SC has cut its way through the gold bearing bedrock in the area and redistributed its placer gold content in to the bottom of the SC valley and its terraces.

As in Bonanza and Eldorado creeks next door, gold is thought to come from the erosion of these high grade gold rich quartz veins as well as the lower grade gold disseminated Klondike schist. In addition to local gold emplacement in through natural erosion of the Klondike schist it is believed by SpereX that the high-level terraces above SC contain significant amounts of gold and some gold in the creek is due to the redistribution of the placer gold that was contained in the ancient high-level fluvial gravel terraces. One indicator for this may be that the gold found in drill holes in the creek is a mix of angular gold (locally derived bedrock gold) as well as well-travelled flattened gold (ancient fluvial terrace placer gold).

From drilling, it was observed that much of the north side of the creek valley is free of permafrost and gravel typically starts right at surface (below a thin moss layer). To the south side of the valley, permafrost increases in regularity. On the north side of the valley, large coniferous and aspen trees stand on top of thawed gravels that extend from the surface all the way down to bedrock. On the south side of the valley gravels are buried in up to in the extreme of 10 meters of frozen muck at the very southern edge of the creek. The frozen muck layer peters out to less than 1 meter by the time it reaches the middle of the valley then no muck on the northern side of the

valley. On the south side of the valley the surface is overgrown with thick sphagnum moss and stunted black spruce. The gravel layer depth is typically 4 meters deep throughout SC but lessens to the southern side of the valley to 1-2 meters in areas drilled. (see figure 14 for a valley profile)

On the high-level terraces there lies a very large body of fluvial gravel deposits buried under ~3-0m of loess and colluvium. The drill (4-inch auger) that worked on the terrace was not able to conclusively define the makeup of these terraces. The biggest indicator of the volume and size of the gravel deposit is the size of some fluvial rocks that that are observed in places that are thawed on the terraces.

Figure 13 - Some of the Gravels above Swede Creek on the Terraces

High level terrace gravels were formed sometime between 3.6 and 5.3 million years ago. These old creeks and waterways would have been wide an and meander throughout the flatlands that was the Klondike plateau before the current valleys we see today were formed. Figure 15 below shows SpereX's estimate of the location of this ancient stream bed which is now high level terraces suspended in time. From the size and shape that he terraces seem to make above SC it is hypothesized that Swede Creek has been flowing in in the same direction since it started draining water from its headwaters at Swede Dome to the mouth at Yukon river. Another possibility for the large size of gravels in the high-level terraces is a extreme and violent outflow from the breakup of the pre-Reid glacier which may have forced large amounts of fluvial gravel through the Klondike River valley, across the Yukon river valley and up in to the Swede Creek drainage?

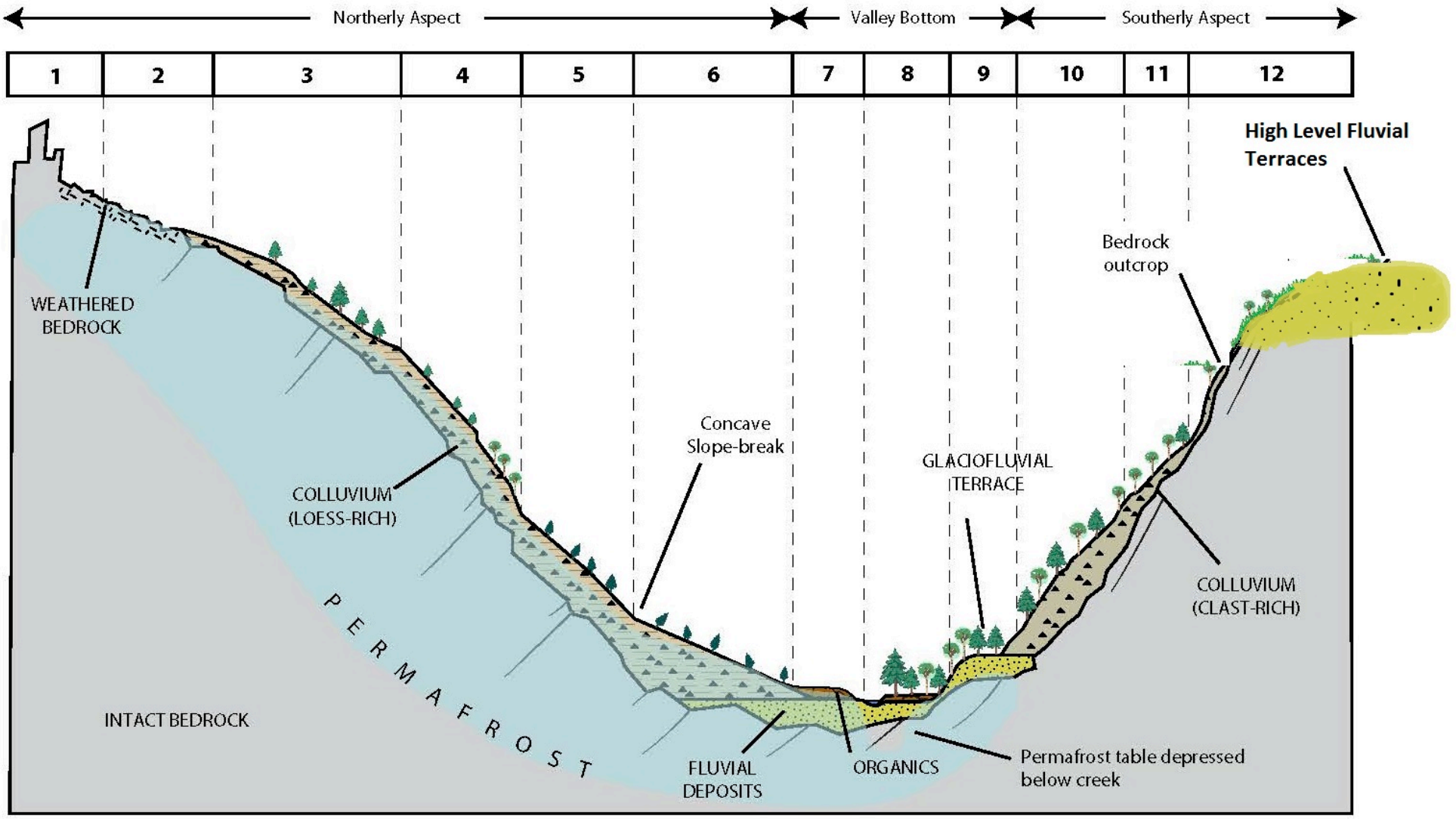


Figure 14 - Sketch that exemplifies the Swede Creek Valley. Modified from figure 12 of (McKillop, Turner, Johnston, & Bond, 2013). The numbered sections at the top are the 12 landform soil types of the same paper.

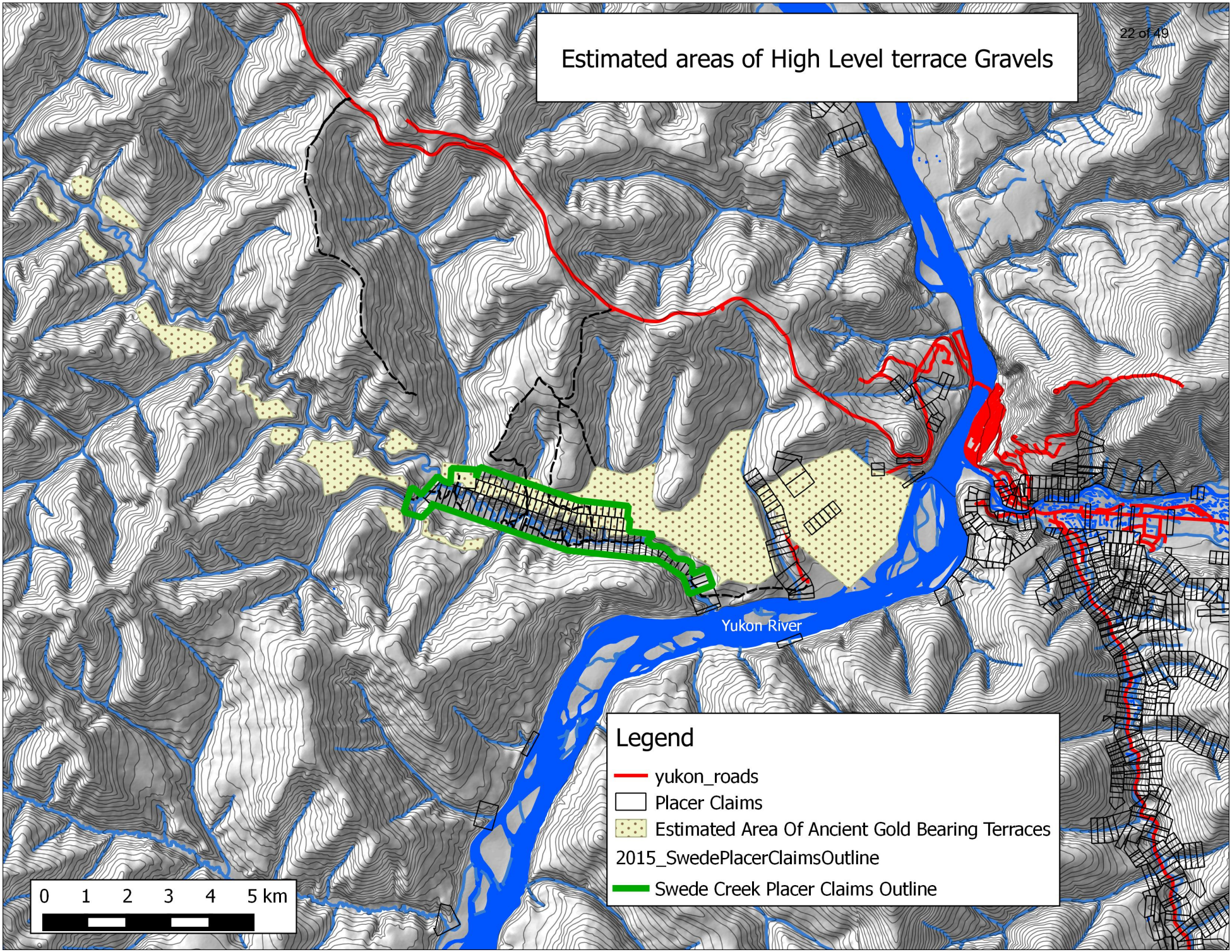


Figure 15 - estimated anchient high level gravel terraces of Swede Creek.

Swede Exploration Overview - GPR, and Drilling

Figure 16 -GPR and Drilling overview map

Mapsheet 116B04

Created By: Morgan Fraughton

Date Created: 2016-01-31T23:21:32

Legend

- Gateway Drill Holes
- Low Impact Drill Holes
- Ground Truth Drill Holes
- GPR Lines
- Usable ATV Road
- Contours (ft)

N

W E

S

565000 566000 567000

7103000 7102000

1:6,000

CRS: NAD83(CSRS) / UTM zone 7N (EPSG: 3154)

0 1 2 km

DESCRIPTION OF 2015 WORK PROGRAM

PREAMBLE

ISSUES WITH SOME OF THE EXPLORATION METHODS EMPLOYED

Since this was SpereX's first time conducting placer exploration on this scale and contracting exploration methods such as drilling, GPR, and UAV imaging it was expected that there would be some learning curves. Even though there were issues, the overall program turned out a success because it defined an area of high placer gold in drill holes that warrant a bulk-tests in 2016. Explorations also indicated that the rest of SC and it high-level terraces are very prospective for placer gold. Some of the methods used and contracted contained unforeseen and unknown issues which threatened the success of this program. SpereX has learned a lot from the 2015 exploration season and the 2016 exploration plan and future explorations will be much more informed and therefore more expansive and economical.

A 4-inch auger drill was contracted to do work on the bench leases to determine depth to bedrock from surface as well as the makeup of the high-level fluvial terrace gravel deposits and their potential to host placer gold. The auger drill was meant to quickly analyze the bench gravels and then move in to the creek to do the same. Problems with the 4-inch auger drill indicated in mid-season that it would not be able to accomplish this task.

Therefore, a 6-inch auger drill mounted on the back of a tracked 10 ton bombardier machine was employed to drill some of the targets in SC. Unfortunately, due to the nature of the gravels and the frozen ground, this auger drill did not have much ability to drill down to bedrock either.

Due to trouble with both auger drills, auger drilling became doubtful as an effective exploration tool in this area. As a last resort a rotary air blast (RAB) drill was employed to get samples in the creek and unquestionably reach bedrock. In the end, all drilling methods used successfully added to the understanding of the creek and bench areas around SC but the only method of drilling worth repeating is the RAB drill method.

It must be stated that when developing the initial exploration plans the Ground Truth Exploration's (GTE) RAB drill was not available as for hire and that is why it was decided to go with Low Impact's 4-inch auger drill. If it was a certainty that GTE's RAB drill would be commissionable the exploration plans would have been made with that RAB drill doing all of the drilling work. Since the drill was not a certainty Low Impact (4-inch auger) was contracted. After the disappointing performance of Low Impact's drill as well as the 6-inch auger drill of Gateway drilling there was a huge gap in the drilling work that was done to the drilling work that SpereX wanted to have done. Late in the season, late sept, it was confirmed with GTE that their RAB drill would be able to work on SC in October. This opportunity was taken and the drill was contracted for a few days (the remainder of the exploration budget) in October.

STAKING TWO BENCH LEASES (MAY 20, 21) THEN CONVERTING THEM TO 53 BENCH CLAIMS (OCT 23-28)

In order to explore and understand the extent of the high-level terrace gravels above SC the area had to be staked to prospecting leases. Once two 3-mile (tier 1 and 2) bench leases to prospect were staked on May 20 and 21 and then approved by the Yukon Government exploration drilling on these leases could start. Once the 4-inch auger

drill program had been completed there was enough work done on these two 3-mile leases to satisfy the mining recorders requirement of $1000/mile in order to convert the leases in to claims.

Staking these two leases started with using geographic information system (GIS) software to determine the post and line locations. Once post locations and traverse lines were determined on the GIS the point files were transferred to a handheld GPS unit. In the field, the points on the GPS were used to lay out the cut lines and fix the post positions on the ground. Each lease took one day to stake. Other tools used for staking were an axe, machete, orange flagging, pencil and metal wire. The staking lines were accessed by truck and trailer from Dawson City then ATV and hiking.

Staking the prospecting leases to claims started on October 23rd and went until October 28th, for a total of 6 days. In total, 53 placer claims were staked and recorded at the Dawson Mining Recorder; Swede Bench 1 - 53. (See Figure 1 claim map)

HIGH-RESOLUTION, UNMANNED AIRIAL VEHICHLE (UAV) IMAGING (MAY 27)

An ortho image gives an unprecedented birds eye view of the entire property and the ability to work with your image in a GIS. This imaging is seen by SpereX as crucial part of initial exploration, it should not be overlooked.

In order to assist exploration planning and eventually mine planning a high resolution ortho-image and digital elevation model for the creek valley would be very important. The high resolution image gives a real time picture of the current creek and other ground conditions. The high resolution image also assists in finding areas where historical work may have been done, such as past pits, trenches, trails, shafts. It helps to plan out with higher precision and accuracy where the mineable areas are for the 30 m creek setback and it will be helpful in interpretation of exploration results and possible mine reclamation in the distant future.

One day (May 27) was needed to obtain a high resolution aerial image of the claims Swede 1-48, Hound and Imp on Walker Fork and Empire Creek (tributaries to Swede Creek).

On May 27, 2015 SpereX contracted Ground Truth Exploration (GTE) of Dawson City to use their Ebee UAV to capture as much high resolution imagery on Swede Creek (SC) as possible in one day. It was thought that the entire creek in addition to the terrace gravels above SC could be imaged in one day. The operator who came in to the project seemed to not know how to operate the equipment expertly. He was very uneasy with the area that they picked to launch and land the UAV. Finally, after Morgan Fraughton had cut out a large landing area from the willows and other obstacles that the operator was worried about. The operator then attempted to launch the drone and test the landing before flying a full mission.

Figure 17 - The Ebee

Figure 18 - David Cox of Ground Truth Exploration Inc. performing the UAV survey on Swede

Unfortunately, things were further complicated by the fact that the operator had forgotten all but one of the battery packs back at the Ground Truth compound in Dawson City. Morgan Fraughton used his satellite texting (the GTE operator also forgot his satellite phone) to get a GTE employee to bring the batteries to kilometer 15 at the top of the world highway from the GTE compound in Dawson where Morgan could meet them and then deliver the batteries to the UAV operator. After this battery issue was sorted the operator moved forward with the program. The operator was extremely nervous and seemed to have no confidence in his ability to operate this equipment. The launch was sketchy and when the landing was attempted the operator became scared and accidently flew the drone in to trees on the hillside next to the landing area. Morgan Fraughton suggested that the launch take place on the hillside and the landing be reversed. The operator took this advice and launched a successful first imaging flight and landing. The process of image capture could continue from there. Almost all of the Swede 1-48 claims were flown and imaged except for important parts of the claims Swede 1,2 and. At this point the operator assured me that he could get the rest of the imagery from launches on the Top of the World Highway (TWH).

We ascended to the to the TWH and the operator said that he would complete all the remaining imaging on his own and I was no longer needed so I left him to it. In the end the upstream end that was left un imaged was captured but the downstream end (Swede 1,2 and 3) and the mouth of Empire creek area remained un-imagined. I consider the large area of claims Swede 1, 2 and 3 to be an important exploration target for the future and it is possible that I will attempt to image this missed area in the next summer.

GTE states in their promotional material a 10-day turnaround for the UAV image. On July 1st (35 days later) SpereX was provided image and other data captured by the UAV that covers an area approximately 8.5 km^2 in the Swede Creek valley. The image is seen in the claim map above and the digital version of the data is included in the USB stick that is attached to the hardcopy of this report. The Google Earth (GE) tiles that GTE provided, which are supposed to easily overlay in GE still did not line up properly. The operator acknowledged the issues but said he could not figure out how to correct it.

The Ebee UAV weighs approx. 0.69 kg and has a wingspan of 9.6 cm. It has a high resolution digital camera for taking pictures and uses proprietary software to turn the pictures in to a orthomosaic as well as estimate ground elevation. For more detailed information, see https://www.sensefly.com/drones/ebee.html. Also a spec sheet from the manufacturer has been included in the USB drive attached to the original copy of this report.

GROUND PENETRATING RADAR AND LINE LAYOUT (JUNE 23, 24, 25, 26, 29, 30, JULY 1, 2, 3)

Ground penetrating radar (GPR) work was contracted to Ground Truth Exploration (GTE) to determine the depth to bedrock from surface for a large area of Swede Creek. To facilitate the GPR survey itself there were lines flagged and brushed out for the GPR operator and GPR unit. SpereX did all the line flagging and brushing.

Due to the availability in Dawson City of ground penetrating radar (GPR) and its (promoted) ability to determine depth to the bedrock/gravel interface below surface it was determined that as much of possible of the SC claims should be surveyed with GPR for a few different reasons. (It must be stated here that these were goals based on the promoted ability of GTE's GPR:

1. Determine Depth to bedrock from surface for a large area from Swede Claim 20-48 and on an area of the terraces
2. GPR determine determine the deepest channels cut in the bedrock in the current fluvial plane and terraces (hopefully this would also coincide with increased pay streaks) and specifically target them with the drilling later in the season.
3. use the combined GPR and drill results to interpret depth to bedrock, types/volume of overburden, and where gold concentrations existed within the creek.

Before the GPR program could start it was important to get GPR lines flagged and lightly brushed so that the GPR operator could complete the survey with ease. The quality of the GPR readings depends on the snakelike unit (20 feet long) to be in constant contact with the ground as well as the operator being able to keep a consistent pace throughout the survey process. It was important to do everything possible ensure the highest quality of GPR readings so that the resulting data was as precise and accurate as possible.

GPR lines were spaced at 100 meters apart and went perpendicular to the baseline of the creek crossing the entire valley where possible fluvial gravel deposits existed. All proposed GPR lines were drawn up in a GIS using the acquired high res UAV imagery from the earlier property imaging. Points were created in QGIS and then transferred to GPS in order to create the lines on the ground. Lines were marked out on the ground using flagging

tape guided by the GPS points and a compass to keep as close to the bearing and as straight a line as was reasonably possible.

All lines were initially flagged with orange flagging tape, so that the GPR operator could always see the next flag along the line. When a large enough number of lines were flagged they were gone back over with brush cutter. Lines were cleared so that the snake would stay on the ground and the operator could see the next piece of flagging with ease. In cases where obstructions could not be avoided, such as waterbodies, areas with a lot of deadfall, etc. the obstruction was simply circumvented.

Line brushing and flagging for the GPR program occurred on June 23, 24, 25, 26, 29, 30, July 1, 2, 3. In total this is cutting was done over 9 days; 12 man-days. A total of 17 (2.3 line-km on the terrace above SC and 14.7-line-km in the creek) line kilometers was flagged/cleared to facilitate the GPR's unit and operator. Cut lines were all well within the limits of class 1 placer claim restrictions. After a couple years when the biodegradable flagging disappears it will be impossible to notice that there were ever lines brushed at all.

4-INCH AUGER DRILLING ON BENCH LEASES (LINE CUTTING MAY 24, 25, 26, 31, JUNE 1, 4, 10, 11, 13, 15, 16, 17,18, 20 AND DRILLING JULY 7, SEPT 5-13)

ACCESS TRAIL CLEARING,

In order to get access to the bench leases that were going to be drilled and explored it was necessary to brush out a trail through the alder overgrowth on the old road to get an ATV and trailer through. A total of 11 days, 15 man-days (11 days for 1 person and 4 days for 2 people) were spent clearing this 4 km section of trail. The work was done MAY 24, 25, 26, 31, JUNE 1, 4, 10, 11, 13, 15, 16, 17,18, 20. Trail cutting was slow and tedious work. The overgrowth on the road was extremely thick. This kept trail clearing progress to approximately 260 meters per man-day on average. Some days up to 500m could be cut but on other days as little as 100m could be cut. In addition to the extremely thick and troublesome alder the whole area has quite a fine loess dust that is on the moss and lower sections of the alder which rendered chainsaws and the large handheld brush cutters dull very quickly. Even though this method was slow it was still the best method that could be employed under the class 1 claim restrictions which were in place.

Figure 19 - The trail was extremely overgrown with alders.

Figure 20 - Trail after it had been cleared

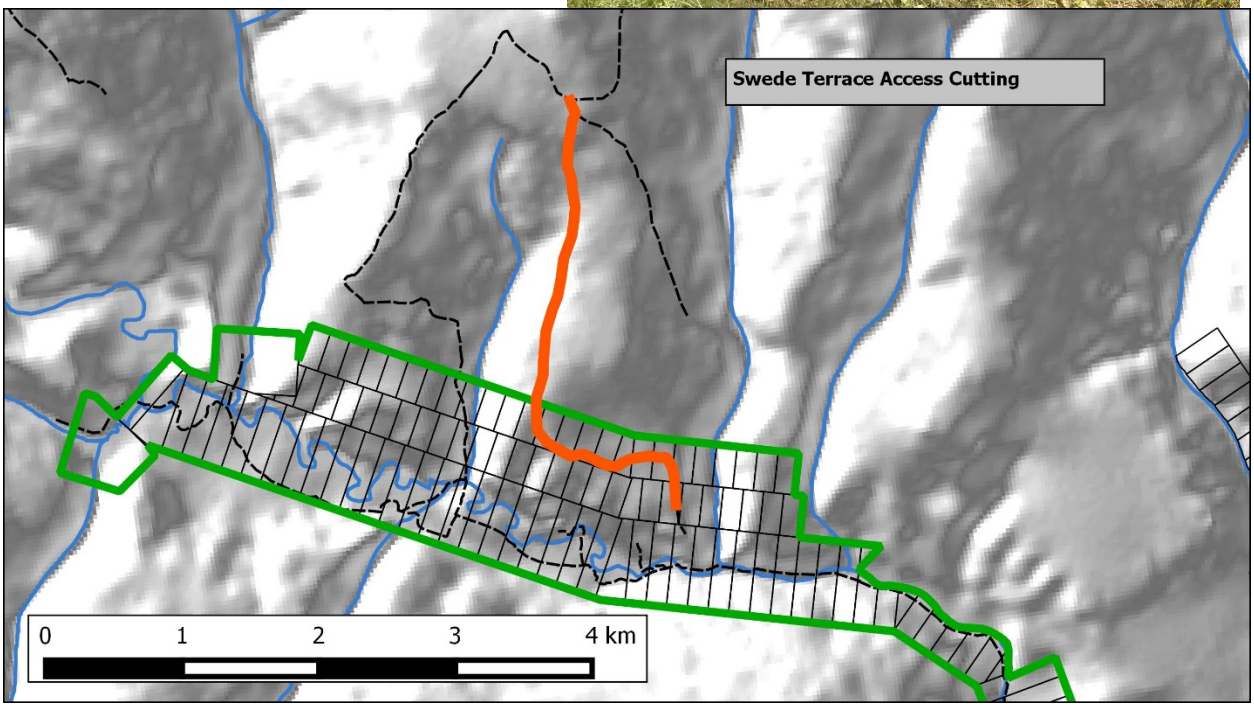


Figure 21 - Orange is the trail that was brushed to access the drill lines.

Initially, this trail needed to be cut for the auger drilling program on the bench gravels above SC but later in the season this road served as an access for the soil sampling program of the JPL hard rock property in the area. This trail access for the soil sampling as well the placer program was more expensive this season but now that a proper trail is in it will reduce future exploration costs now that an access trail is in place.

The main tool used to clear alder growth off of the trail was a Husqvarna 555FX Brush cutter; a 50cc engine that powers a high speed rotary saw blade. This piece of equipment was the heaviest piece of equipment that could be used due to class 1 restrictions but it was still slightly underpowered for the job at hand. Which contributed to increased wear and tear on the machine and slow progress. Other tools used were chainsaws, machete's, and axes.

FIRT DRILL LINE LAYOUT AND CUTTING

Once the trail in to the area of the terrace leases had been completed, one day (June 21) was spent by Morgan Fraughton and Michael Fraughton prospecting with shovels, hand augers, and mattock in order to define the total surface area of the gravel on the terrace. Once the area had been inspected the information was used to plan where the GPR and Drilling lines would be placed.

When the drill program was to be completed entirely by the ATV portable 4-inch auger drill it was thought that many lines would need to be cut in order to facilitate this drilling program. On account of the issues that were encountered with the 4-inch auger only one drill line was cut through the forest on the terrace gravels. This cut line was less than 1.5 meters in width. This line imprinted over the existing GPR line (GPR L29). The drill line was cut 440 meters long and was cut over 2 days, July 4 and 5, 2 man-days were needed as one worker (Morgan Fraughton) did all the cutting e the drill.

Figure 22 - Sean Payne (Low Impact Drilling) custom built drill. Drilling on drill hole SPD029.

Figure 23 - Low Impact Drilling on the terrace. SPD001a. This is a wider section of the old road not a cutline. This drill line here went in to the bush on the left perpendicular to tis road.

4-INCH AUGER MOBILIZATION, DRILLING AND DEMOBILIZATION

In the plan for drilling work to be done on the Swede Creek benches and Creek, Sean Payne of Low Impact Drilling was going to drill approximately 600 meters of 4-inch diameter drill holes on the terraces then move on to the creek. Since the drill was not able to perform as expected this 4-inch auger drill was confined to drilling on the bench (terrace) leases in order to explore the gravels there and complete the required assessment work on these leases in order to be able to turn them in to claims.

The 4-inch auger was mobilized in to the property on July 7 2015 to commence drilling on the first drill line that had been cut out. It took one day for 2 guys and 2 ATV's with trailers to MOB the drill in along the cut trails from the staging area at the TWH. Drilling was attempted the next but the drill ran in to operational and mechanical issues that is out of the scope of this report. The drill was a new build and there would be many issues to work out. The driller, Sean Payne, spent most of the rest of the summer making the drill work properly. Finally, once much changes and fabrication had been done part time over the course of the summer the drill was able to function properly in September. So, drilling work was done by this drill from Sept 5 to 12 and mobbed out over 1 day on the 13 of September. No charge to SpereX was made white the drill was not drilling from the MOB in date to the first day of drilling.

On the first hole the drill could not drill past 12ft and it was not clear if this was bedrock (most likely was not) or some other block such as frozen loess, frozen larger gravels. This proved to the theme for the 4-inch auger drilling program. Also, from the initial GPR results and interpretations (pre-drill) it was very unclear where bedrock may be and it was estimated in fact to be at depths of 30ft or more by the initial interpretation of the of the GPR images and data. Without conclusive evidence the true nature of the gravel on high-level terraces of Swede Creek is still unknown.

In total there was 399 feet of drilling over the course of 8 days; averaging 50ft of drilling per day. All samples were collected in clear plastic ore bags as the material came out of the drill hole. As the augers came of the hole they were all scraped cleaned and placed in to the same ore bags. All ore bags were labeled with the hole number and piled next to the hole.

All the bags for each drill hole were emptied in to the sluice box. Once all the material from the hole was placed in to and washed through the sluice box the mat was removed and cleaned in to a gold pan. The concentrate was then panned down to reveal gold content. Demobilization (Sept 13) took one day and 2 guys with 2 atvs and trailers to get the drill off of the property.

No hole had gold in any significant amount. Trace amounts were observed in many different holes from the bench. The lack of coarse or larger amounts of fine gold in the material that was drilled is not discouraging, in fact it can be seen as a sign that the bench gravels do host more gold and possible richer pay streaks inside of them. The drilling in this case was so inconclusive as to whether or not it had ever reached bedrock. From drill line 1 is showed that most of the material that was drilled on line 1 was a mostly loess or really fine colluvium that was tightly packed and frozen near surface and started to become permafrost loess as the drill got deeper. The drill frequently hit a point where it could drill not. It is unknown, but likely, if there is a coarser layer of possibly frozen gravel under this loess/colluvium. Inside the washed bits of the loess there are very small pieces of fluvial gravels. Even when larger gravels were encountered in the drill hole, mostly on the second drill line, there would be sand intermixed with them and it was never conclusive whether bedrock was met with.

On SPD018 the drill went down to 74 ft. This was thought to be odd because the previous deepest hole was only 25ft deep. It is possible that the bedrock could be that deep but more likely the drill was riding along the angled

slope that would have been created as Discovery pup cut through this old fluvial terrace. The gravel would have slipped in to Discovery pup. Gold in this hole was very fine like all the other holes and for the volume of material that was washed was not significant. Also, it is very doubtful that any material near the bottom of the hole made it up to the surface. See the attached USB stick on the hardcopy of this report for the full drill log.

6-INCH DIAMETER AUGER DRILLING IN THE CREEK (AUG 4-7)

In response to the disappointing performance of the 4-inch auger drill a new drill was sought to test some of the targets in SC valley. It was difficult to find a drill available in the middle of the busy placer season but eventually one was found. Gateway Drilling was contracted to perform drilling work on the SC placer property in the creek valley. Gateway drilling provided a larger 10-ton bombardier tracked vehicle with a 6-inch auger drill mounted on the back.

On August 3 Gateway Drilling (owner Clint Tracy) came down to SC with Morgan Fraughton to assess the ground on Swede and ensure that the Gateway drill would be able to perform and that the conditions were right in order to get the most out of the drilling program. After viewing the property Clint though that the drill could come down to the creek and be successful. Although, it was noted that some of the boulders, because of their size, may be an obstacle to the drilling but it was decided that overall the drilling may be difficult but doable.

On august 4th Gateway drilling mobed their drill from Dawson City to KM 15 on the top of the world highway then via tractor trailer. Then the drill was offloaded and walked down to the first drill lines in SC in the area of GPR L18

On august 5th and 6th the drill was drilling targets in the valley. On the first hole the drill went down to 23ft and hit a point where it could not drill any further. It was quite clear that this was most likely not bedrock as the drill had just broken through a layer of black muck in to a frozen gravel where, possibly, the frozen gravels proved impenetrable to the drill. Hoping this would be an isolated case the drill was moved about 20 meters down the drill line and another attempt at bedrock was made. Again disappointment came at 18ft below surface where the same muck to frozen gravel interface was met and the drill could not make any progress past this impenetrable (for this drill) obstacle.[1]

In response to the drill not getting through the frozen gravels it was moved some distance to a less prospective area where the ground was known to be thawed and it was thought that the drill could at least reveal where the bedrock interface is. Fortunately, the drill was able to confirm bedrock under the thawed gravels at approximately 20ft. This was important because it was able to test the bedrock/overburden interface for gold content, and it provides important data as to the depth of the bedrock in the area which could then be checked against the GPR data. Four holes (GWD003-006) were drilled along a line heading south perpendicular to the creek baseline, holes were spaced approximately 20-30 meters apart. The depth to bedrock seemed to decrease further to the south as the creek was approached. Indicating a deeper channel near the north side of the valley under the standing water at the base of the north cliff? Or it was just that bedrock was more consolidated here rather than soft and decaying. That completed the first day of drilling with the 6-inch auger drill.

One interesting thing this drill was able to prove was that there is a contact somewhere between GWD005 and GWD006 between black graphitic Finlayson schist and the more felsic, bluish quartz eye, Klondike Schist? (ortho-

[1] Later drilling in these same spots with the RAB drill showed that this auger drill was stopped in all cases when the muck-gravel layer was encountered. The RAB drill also proved that the gravel layer here was ~10feet (3m) thick from the bottom of the muck to the top of bedrock.

gneiss?) which was very clayey. GWD005 bedrock was this yellowish rusty color and GWD006 was a jet black color. In addition, these holes, in varying degrees, with the first hole being the most prevalent, there were extremely high amounts of free-floating cubic pyrite within the gravels. The volume of pyrite was alarming. After washing one gold pan of gravel as much as 1/5 of the pan would be full of pure pyrite cubes. At the Filayson/KS[2] contact there must be a large amount of pyrite in bedrock.

Figure 24 - See here the pyrite in along quartz veins in the Finlayson unit. It is difficult to see here but most of the black is actually fine weathered pyrite.[3]

In retrospect, from data from later RAB drilling, indicates this pyrite was coming out of the Finlayson graphitic schists and not the Klondike schists. Also, in all cases where lots of pyrite was found there was no gold found in the placers, which could be an important indicator as to the bedrock source of the gold and also the way that the placer gold gets laid down within this drainage.

[2] Klondike Schist (KS) may turn out to be a orthogneiss? I also describe this rock type as a quartz-augen-shist. Its hard to tell exactly what this rock type is.
[3] This rock was assayed and it did not return very high numbers in economic mineralizatoin. Silver was elevated though. Also, this was a creek rock taken from the shaft in Feb 2015. Mineralization may have been affected by extended fluvial weathering?

After the last hole, GWD006, the drill was moved much further downstream to the area of the Feb 2015 shaft and 2014 trenches to further test the area because it was known that this area would be thawed to bedrock and bedrock was not that deep.

On August 6th drilling started on GWD007 which was located less than 3 meters from the original shaft which Morgan Fraughton dug in February 2015. It was thought it would be a good idea to compare what the results of this drill against an area where gold and bedrock were found. The drill was able to drill down to a total of 16ft. The gravel layer ended at 12ft where clayey broken, weathered bedrock was encountered. When the material from this hole was panned, the gold was in a great enough quantity to give a value of $70 per cubic meter. After this hole there were three more holes drilled along a line going perpendicular to the baseline of the creek towards the north side of the creek at intervals of approximately 20m.

Once the farthest point to the north of the valley along this second drill line was drilled there was no areas left which were known to be thawed close by and therefore no areas that could be drilled with confidence. It was decided to go further to the south of GWD007 along the same line and attempt to make a hole to bedrock in an area of known permafrost. The attempt came to naught and the drill hit a frozen gravel layer at 7ft and the drill could go no further. Another attempt was made along the same line 10m further toward the creek. Again, at 6ft the drill could not pass the frozen gravels that were encountered. In disappointment and desperation one final hole was attempted on the other side of the creek. This attempt, GWD013, was again stopped short due to frozen gravels. At this point the drill was packed up and made ready to demobilize back to The Top of the World Highway on the following day.

On August 7th the 6-inch auger drill was walked from the creek back to the TWH and then driven back to Dawson city no a tractor trailer.

All material from the drill holes was collected in rice bags as it came out of the hole and packaged for washing by Gateway Drilling. Once a drill hole was completed the bags were put through a long tom style sluice box. The heavies from each hole were then taken from the long tom and put in to a pan where they were panned down and checked for gold. For each hole all material was put through the long tom at once. This would make it difficult to tell where your gold came from in the hole but it would be any gold in the hole was positive and could later be followed up on. See the USB stick attached to the hardcopy of this report for the full drill summary.

Results from this 6-inch auger drill confirmed the shafting results and also showed that paying gold most likely exists from GWD007 to the north side (GWD009) of SC. See results in figure 24 below.

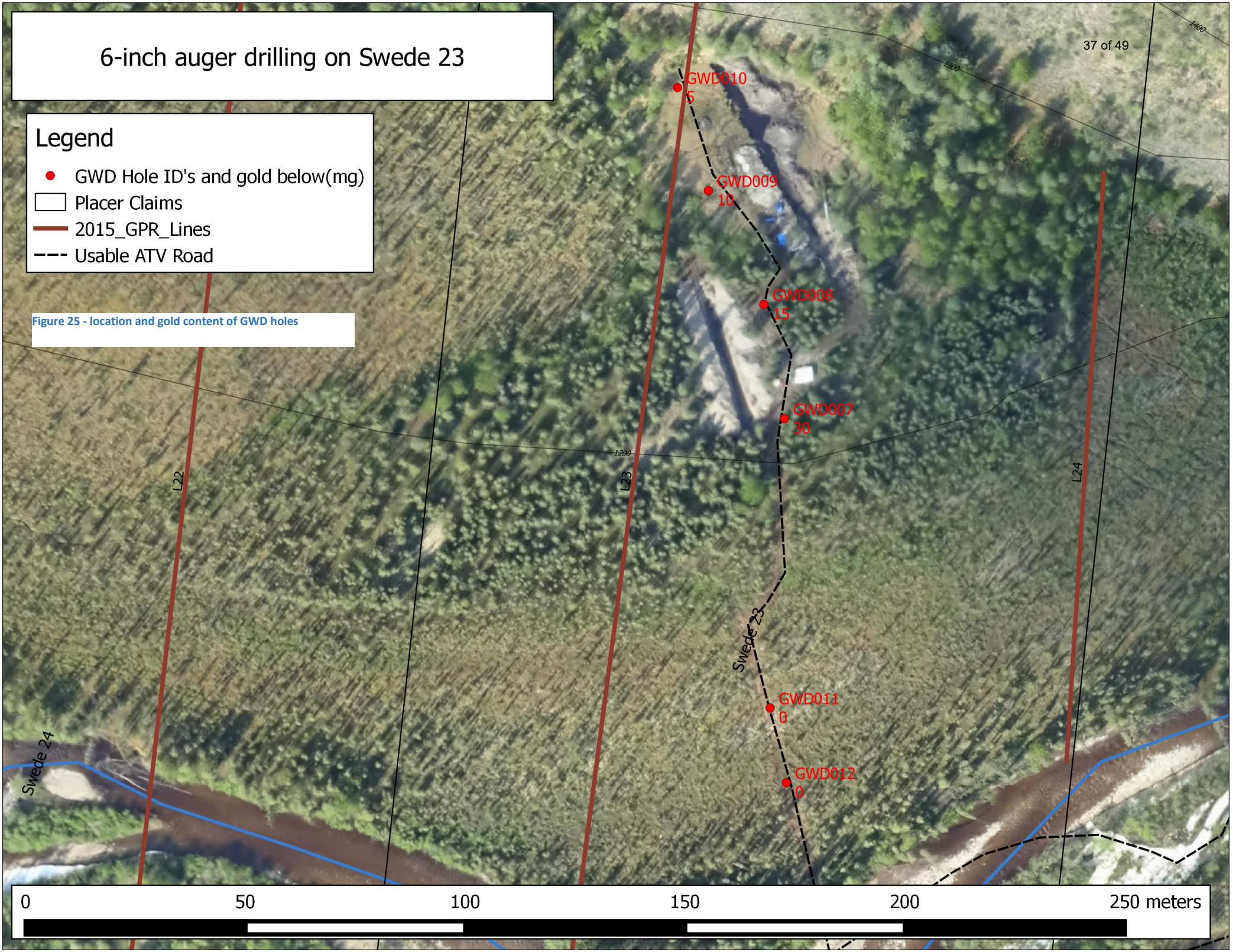


Figure 25 - location and gold content of GWD holes

4-INCH DIAMETER AIR PERCUSSION DRILLING AND DETAILED SAMPLE WASHING (OCT 3-9, 12-16)

Due to the inconclusive nature and inabilities of auger drills of both previous drilling programs, it was thought that the only means capable of conclusively reaching bedrock (and drilling through it for that matter) was exclusively through rotary air blast (RAB) drilling. Finally, late in the season, Ground Truth Exploration (GTE) confirmed that they would have available their RAB in early October. Desperate for conclusive drilling results, this opportunity was taken and the drill was to come to SC in early October.

To reduce mobilization costs, on October 2 and 3. SpereX gathered materials and drilling equipment from GTE and spent these two days moving equipment from GTE's yard in the Callison (industrial subdivision of Dawson City) to the first drill site on SC SpereX used a Terra-Track (traxter) in order to move the large quantity and heavy gear from the Top of the World highway down the SC road to the first drill site in the creek on Swede 23. SpereX also mobilized and provided a wall tent camp with all the amenities for GTE drillers to stay in while on the property drilling; hence the charge of $100/day for their field expenses.

On October 4th the GTE drill crew (Dan Murray, and Heidi Bradley) moved in to the property along with their drill. The air compressor (1800lbs) was long lined in from Trans North's helicopter base in Dawson and then 2 full astar loads (drill and net load of gear) from staging at the TWH to the fist drill site next to camp on Swede 23. The camp was setup next to the first drill hole and GTD001 and GTD002 were drilled before the work day (4th) was done.

On October 5th drilling on the first drill line was completed, GTD001-GTD005. The drill and all equipment were moved from line one to line two (GTD006-GTD011). All equipment was moved with traxter, ATV's, and ATV trailers. The drill is able to walk itself along. The 1800 lbs. compressor needed to be moved with an Astar and longline as it was deemed easier to do this than struggle with moving along the precarious ATV trails.

DRILL DETAILS

GTE's RAB drill weighs approximately 3400lbs (2 Astar loads). The drill is powered hydraulically by a 60hp diesel engine. The air compressor produces 300CFM @ 200PSI of air and is powered by a large diesel engine. The drill string with casing. is just over 4" in diameter and the hole is cased the entire way down. The drill is mounted on a set of hydraulically powered rubber tracks. Sample material is blown up through the casing to the cyclone at the top the hole and then directed in to a clear plastic ore bag for storage and transport. Generally, for every 0.75 (2.5ft) meters the drill cuttings would be bagged so that the material could be sluiced for each (2.5ft) interval down the hole.

Drill cuttings are blown away from the drill bit with high pressure and air volume up through the drill casing, in to a 'cyclone' which reduces the drill cuttings velocity and then collects it as it drops out of the cyclone in to a sample bag at the bottom of the cyclone. Here is one of many the advantages of the RAB drilling system over a conventional auger system; the cuttings obtained are very confidently from the material currently being broken up and taken in at the bit coming from the exact interval underground that the drill passes through with very little chance of cross contamination of larger gold particles. The drill has a 1.5-meter-long stroke but each time that the drill went 0.75 meters the sample bag was removed and replaced with a new one. The rational here is that if you let the bag fill with all the material from the 1.5-meter-long casing then the sample bag would be too full and heavy to easily move around and transport individually. On average, (varying with the type of material being drilled) each 0.75-meter section produced 7-10 liters of material for sluicing. When in more consolidated material like bedrock the drill returns~20 liters of material per 0.75-meter section.

As drilling was occurring Morgan Fraughton was making notes on the material intervals such as muck, organics, gravels, gravel bedrock interface and dealing with the samples as they came out of the cyclone. Morgan Fraughton acted as the 3rd man on the drill and spent each day with the drill doing the sampling work and assisting with the moves.

Once each 0.75-meter section was drilled the sample bag was taken from underneath the cyclone and replaced with a fresh bag. Each sample bag had the hole number and hole interval written on it. When the 0.75meter section was drilled the sample bag was zip tied shut and put aside. Once the hole had been completed all sample bags from that hole were transported to the area where the sluice setup was going to be.

SAMPLING METHOD

Due to the RAB drills accuracy (within 0.75 meters) with the location interval of the material coming out of the hole. It was thought that this should be taken advantage of and rather than sluice the entire hole at once it may be beneficial to wash each 0.75m section on their own and this may reveal layers or sections in the gravel layers from surface to bedrock and some way in to bedrock.

A system to sluice each 0.75m section was devised and followed through with.

Sample interval sluicing method for RAB drill cuttings:

1. Sample bag (0.75m interval) was opened and placed in to a 20-liter pail, one large scoop of the material was taken from the bag and placed on a sample bag where a sample tag was placed next to it.
    a. Only sections of gravel and the first meter of bedrock were packaged for sending to the lab. If there was a lot of organics/muck on the top of the hole, then all of the material was taken out of these bags and placed in a large tub where dish soap was added and then vigorously stirred with a paint mixing tool on the end of a cordless drill. This action was incorporated to remove as much of the hammer oil from the sample as possible as well as break up clays of other stuck together material that may inhibit the free floating of gold. Then this material was panned to ensure no gold was lost.
    b. The sample volume is estimated by the amount of space it takes up in the bucket and recorded in liters in the notebook.
2. Once the sample was agitated 20L bucket the water was added and a few drops of dish soap, then vigorously agitated by a paint mixing attachment on a power drill. This was to get rid of the hammer oil in the material that was added while drilling in order to lubricate the downhole hammer. It was noticed on the first hole sluiced that the gold that was left in the pan was easily being floated by the oil in the sample. After noticing this some dish soap was added to each sample and this problem went away.
3. Once the sample was mixed with soap and clays or clumping had been completely broken up the material in the bucket was rinsed a couple times in order to remove clays and fines as well as the oil caught up in the soap.
4. Once the sample was clean and separated in the bucket then it was slowly washed through the drop riffle vortex (no mat) sluice system.
5. Once all of the material from the bucket had been washed through the sluice the material that washed over the sluice riffles and off the end of the sluice was taken and placed next to the previously placed, unwashed sample on the ore bag next to the sample tag
6. All material that was caught in the sluice's riffles were washed out in to a tub and then taken from the tub and put in a pan

7. When the material is in the pan (just the heavies left) then it is panned down. If there is any gold (more than trace amounts) then it is placed in to a vile that is labeled with the hole number and hole interval.
8. Notes are taken on, sample material, as well as the gold and other heavies in that interval then a picture is taken of the unwashed sample, washed sample, gold vial and sample tag.
9. Then the unwashed portion of the sample is placed in the ore bag along with the sample tag. The sample bag is secured shut with a tie and a sample tag is attached to the outside of the bag as well. Lab sample bag is placed in pile in order to be transported to the lab later, then the next sample interval bag is opened and the process continues

Note: all sample pictures that were taken in this sampling program were on a phone that ended up being water damaged and ceased to work. The phone has been sent to a professional in Whitehorse in order to get the data back from the phone. At the time of this writing (Jan. 31, 2016) the data if recoverable should be released soon. Once, SpereX receives the picture data (hopefully early February) we will send it along to Derek Torgerson immediately.

RESULTS

Results from the RAB drilling were very positive. On the first drill line (GTD001-005) hit good gold in 3 of the 5 holes. On the second drill line (GTD006-011) none of the drill holes hit a paystreak although trace gold was encountered in nearly all samples. Also, on the second drill hole the bedrock and overburden materials profile can now be accurately estimated. The bedrock in this area has poven to be much shallower in the middle of the valley than expected. All holes on the second line were spaced very far apart therefore may have missed good paystreaks. Since this program was out of funding the drilling had to be stopped at hole GTD011. It would have been nice to continue line 2 further towards the creek where it expected that the gold would increase in size and quantity. This will have to be tested in 2016. For now, SpereX is excited to have the results that we did on the first drill line which will be the target of bulk sampling in 2016. See Results in the figure 25 Map below.

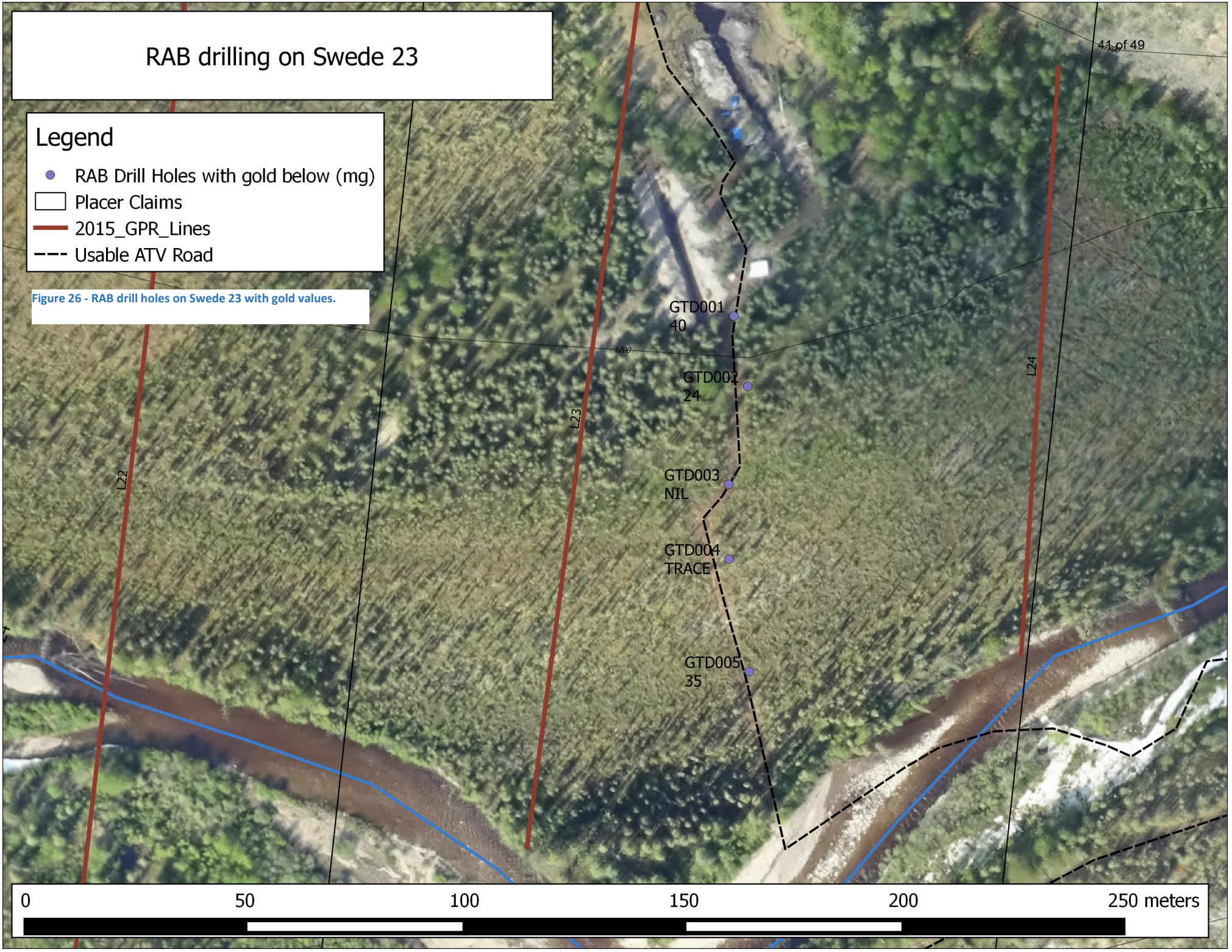


Figure 26 - RAB drill holes on Swede 23 with gold values.

DISCUSSIONS

SPEREX EXPLORATION MOTTO

It must be stated that this was the first attempt by SpereX for system of placer exploration which can explore large areas of a creek with little or no mining/exploration history and locate the most prospective areas for bulk sampling (~100m^3. Ultimately, the goal of this type of exploration is built upon positive exploration results in a step by step fashion. It is SpereX's goal that at upon successful exploration on SC this method could be expanded to many other placer prospects throughout the Yukon. Only bulk-sampling can prove that gold grades in a creek will be high enough to mine profitably. It could be said that this is a 5 step exploration system:

1. Research historical and current information of the Yukon and come up with prospective areas
2. boots on the ground prospecting in the best prospects with pans, shovels and shafting
3. the type of reconnaissance exploration outlined in this paper (drilling, geophysics, high-res property imaging)
4. Bulk sampling – sluicing at least100m^3 of the most prospective sections of a creek.
5. Obtain class 4 Mining and water licensee for and start mining.

Each step of this system depends on the success of the previous step. It is possible that many exploration targets will fail at one stage of the first four steps before the mining stage is reached. While failure is to be expected, on the flipside there will be success, and success in this case can outweigh many failures. It is SpereX's intention to be driving force from step 1 to step 4 of this 5 step system. At the point of step 4 it is hoped that SpereX can lease/sell properties to miners. It is not SpereX's goal to be a gold miner but only to provide well proven ground to competent miners. Methods and costs associated with this exploration system will continue to improve.

GPR DISCUSSION

Interpreting the GPR data received from ground truth has proven to be extremely difficult and frustrating. From the data they have provided thus far, it is seemingly impossible to see any value in the GPR with respect to being able to clearly see where the gravel-bedrock interface is. They simply did not provide interpretations even though repeatedly they were asked for repeatedly.

It was thought that this tool could be used to not only determine depth to bedrock but also be able to pick out deeper channels that the creek may have cut in the bedrock and target those for drilling. This proved to be fantasy. Not only did the figures from GTE not show the bedrock gravel interface with any confidence, their GPS's that they used have poor accuracy with respect to elevation. There was no confidence in the elevation readings and at times they were clearly off by orders of meters.

In two interpretations that GTE did provide for the lines that were drilled, GPR L18 and L23, they used elevations for the drone which was also inaccurate because the UAV took the elevation of treetops in any place where thicker vegetation was on the creek.

Since SpereX does not have the expertise nor the proprietary software that it takes to work with the raw data we are not able to reinterpret in anyway the GPR data in a way that could make sense.

At this time SpereX is working with GTE to improve the quality of the GPR interp and data but their response time is slow. If any progress is made it will be included in a report at the end of next exploration season to the YMEP.

It is possible that the GPR was seeing weathered-unweathered bedrock at very deep depths ~30 meters. This is indicated by the change in larger, wavy areas on top and tighter wavy areas on the bottom. Also, it may have picked up areas where there was standing liquid water saturation in the ground below.

On GPR L18, where the second RAB drill line overprinted, we have the be best ability to compare the known drill results with the GPR figures. One thing that is clear from the GPR data is an organic/loess/fine-colluviul apron (LST6) describe in (McKillop, Turner, Johnston, & Bond, 2013). From the RAB drilling results it was shown that this LST6 was nearly all rotting organics intermixed with some layers of sand, scattered small fluvial/angular rock bits. With the RAB drill it is difficult to determine rock size below the ground because it breaks the rocks up small enough (<3 cm) to fit through the holes at the drill bit.

Since the data received from GTE does not include figures that can be viewed outside of the Oasis Montage viewer (free) it is not included as graphics in this report. All the data that was received from GTE pertaining to GPR is included in the USB stick that is attached to this report.

DRILLING AND SAMPLING PROGRAMS DISCUSSION

Due to the fact that the 4 results were so inconclusive on the terrace gravels as to where bedrock was or not the trace amounts of gold that were found in the `gravels` (mostly loess) was indicative of what could possibly be an undefined large body of ancient fluvial stream channel gravel. Since there was some trace gold found in almost every hole the very top layers (loess and fine colluvium) of this old fluvial terrace gravel channel I think if the bottom layer of these terraces could contain coarser gold. Another factor that indicates the potential for decent amounts of placer gold in these terraces is the proximity of the of terrace gravel shoreline to the quartz vein that is showing to have up to 28973.7g/ton gold in lab assays. Surely this this lode gold in the form of quartz veins and possibly disseminated within the Klondike Schist itself has been eroded and broken in to placer gold now lying in these bench gravels, Swede Creek's tributaries and Swede Creek itself.

Evidence supports there being a large body of ancient fluvial terrace gravels under the loess/colluvium layer. The limits of these high-level terrace gravels seem to be somewhere just under 600 (1900ft) meters above sea level. Every terrace in the area that is below 600m will most likely prove to host large amounts of terrace gravels. Some rocks discovered (see figure 10) that would have been associated with this creek bed suggests that it would have been a fairly large stream with rounded rock over 50 cm in diameter. The rocks that are in these ancient bench gravels seem to be identical to that of the current creek rocks below. A mixture of various stages of Klondike schist and graphitic schists of the Finlayson unit, intermixed with rocks of quartz and intrusive quartz-feldspar-porphyry units that exist in the area.

After completing this method of sampling for the RAB drill I think that it's basically a good method in that each interval can be sampled separately and this info may be crucial to tracking down paying gravels or layers within a drill hole. The sampling method must be improved upon and made quicker, more informative, and less expensive.

Suggestions to achieve this:

Take most of the sampling process and do it while drilling. Certain parts of the sampling method described above need to be done immediately after the sample comes out of the hole. This will improve the reporting accuracy of the material coming out of the hole and make the collection more efficient.

- When the sample interval is finished being drilled the full sample bag needs to be taken off the cyclone and then replaced with a fresh bag
- As the drill continues to drill the sampler needs to quickly take enough material from the bag to send to the lab (if the material is gravel not muck) as well as take a small amount of material and wash it in a sieve so that to see what the rock material looks like washed. This washed material must then be put in a chip tray labeled with the hole number and hole interval.
- The sample taken from the main bag as well as the chips are to be placed on an ore bag next to a barcoded sample tag and photographed. Then the washed chips are put in a chip tray and the lab sample is bagged and tagged for shipment to the lab.
- The chip tray of washed and unwashed material should be retained for easy viewing and the photos are retained for easy future reference.
- If possible, do the sluicing right there at the drill
- The sluice that is used needs to be improved. Getting something with a bit of a shaker box and possibly a bit wider. It is nice that the drill material is always uniform and only contains material that can fit through the drill bit holes and up the casing. The sluice could be made wider and easier to clean for each interval. Or maybe have mats that can be rotated?
- Replace pan with gold wheel

It should be studied whether lab sampling can replace sluicing when using the RAB drill. This would reduce sampling time and could possibly reduce the costs of sampling. Sluicing all the material is time consuming and therefore expensive. As stated above, SpereX did package all samples for the lab. One way to test if it is possible to forego the sluicing would be to send these samples to the lab and have them assayed. Results should then be compared to the sluicing results as well as future mining results. If the assays prove to give the same indications as to gold concentrations from sluicing the samples and from results of future mining, then it may be a good idea to switch totally away from sluicing the sample at all and simply send all samples to the lab for testing. It just seems that there is something nice about seeing actual gold.

One issue I can see with lab sampling is that cross contamination from interval to interval may be so great that it would give false results. When lab assays pick up such small amounts of gold it may be impossible to guarantee that no cross contamination happened from interval to interval or hole to hole with this drill. One could speculate forever. The samples will be sent to the lab soon and the results will paint a better picture.

CONCLUSIONS

The UAV aerial image capture proved to be a very useful tool for exploration planning as well as results interpretation. I can imagine that the high resolution image will also assist with mine planning when the time comes. High-res aerial imaging should and will be used again by SpereX when exploring new areas and properties in the future. It would be a good idea to look at other options for capturing this imagery though. Because GTE's drone cannot give a great point cloud for a high resolution digital elevation models. GTE's UAV cannot peer through the leaf and brush cover above the ground and therefore give false elevations. While this is to be expected with this type of drone it would be interesting to compare the cost of LiDar + orthoimage. There are other options for high-res imagery such as Great River air that will be considered when planning for future explorations.

GPR data and interpretations received from GTE are inconclusive and impossible to interpret with any confidence. This type of GPR should never be used again for this type of exploration. Maybe using a GPR unit with a higher resolution would improve the interpretation for this type of application? Resistivity surveys may be used in the future to do what was hoped could be done with the GPR; that is estimate with confidence where the bedrock/gravel interface is below the surface.

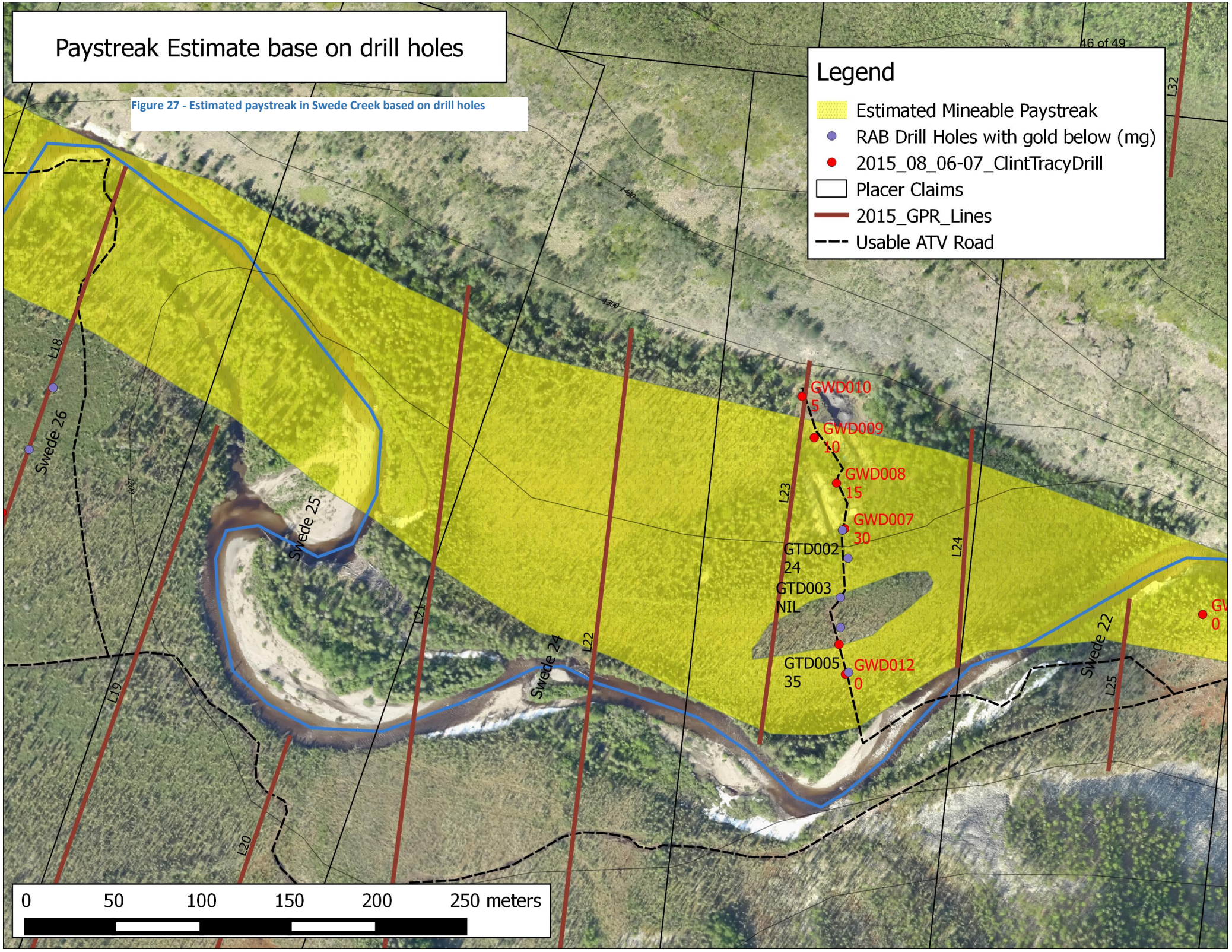
If future drilling is planned for exploration on Swede Creek, or any other creek for that matter, the 4-inch auger and 6-inch augers that were used to explore in the summer of 2015 should not be used again. They proved that they did not work for confidently drilling to bedrock. Maybe a larger drill and auger setup could be more effective?

The RAB drill proved to be an excellent tool for placer exploration drilling. It can drill through anything, including up to 100 meters of bedrock! Its unstoppable. The RAB drill's only setback is that it costs more than twice as much to hire than the auger drills. This really isn't a problem when you consider that it works very well and the others hardly work at all. Reading some of the newest *Yukon Geology and Exploration 2015* (MacFarlane & Nordling, 2015) publication it was noted some exploration projects in the Yukon were using a Boart-Longyear tracked sonic drill and it seemed that they were happy with the results from this drill. In 2016 SpereX will look in to the possibility of using this type of drill and its benefits compared to the RAB drill.

Drilling has outlined a target for bulk sampling in 2016. Good drill results, in both the 6-inch auger and the RAB drill, proved that there is nice looking gold (up to 30mg flakes in drill holes) in decent quantity on claim 23 and probably claims 22,24, and 25 which are on the same "island". See figure 26 below.

Paystreak Estimate base on drill holes

Figure 27 - Estimated paystreak in Swede Creek based on drill holes



All placer gold derived from Swede Creek is hypothesized to come from locally eroded gold enriched quartz veins that exist in the Klondike Schist unit, such as the quartz vein discovered to have 28973.7 g/t gold in it. In addition to local gold emplacement in the creek from eroding bedrock it appears that gold is being sourced from the rewashing of the high level-terrace gravels. Evidence for the two types of gold in swede creek come from the fact that coarse angular gold has been found as well as very well-travelled flattened gold flakes. This appears to be very similar to what is happening in the other part of the Klondike gold fields to the east such as Bonanza, Hunker, Eldorado creeks, etc.

There is still over 20km (15 miles) from SpereX's claims to the new leases that have been staked on Swede's headwaters. This section should be covered by new prospecting leases and explored over the course of the next few years. The opportunity to the rights to this entire creek is upon us and could prove to be the Yukon's newest gold producing drainage. Another reason Swede is so prospective is the ease of access. It is very close to the services of Dawson City, and in most cases the creek could be accessed from Dawson city within a 30min drive. This reduces major costs that can be associated with operating in more remote regions, such as camp, transportation, repairs, fuel delivery, the list goes on and on.

In conclusion, the accumulated results from exploration in 2015 on Swede Creek have:

1. defined an exciting area for a bulk testing in 2016
2. shown the depth to bedrock is shallow (approx. 15ft)
3. the composition of overburden in the creek is very favorable and there is not much to remove in areas of pay
4. Indicated that the rest of Swede creek and the high-level terraces are highly prospective for placer gold
5. Spurred the application for water and class 4 mining license on the current claims.

It is recommended that:

1. RAB drilling be done on the terraces above Swede creek in order to conclusively understand the situation up there.
2. Shafts or excavator pits should be used to expose bedrock in creeks like 20pup that have cross cut the ancient terrace gravels and rewashed them in to a very narrow valley which may have concentrated any gold that was in the terrace gravels
3. Resistivity surveys may be a better tool for understanding the depth to bedrock in areas of creeks/terraces that are unknown and it should be tested
4. More shafts should be attempted downstream on Swede creek near claims Swede 1-3.
5. Leases should be staked (and explored) from the current Swede Claims in the creek all the way to the other leases in the creek near its headwater. (15miles
6. 2016 bulk sampling should be performed on Swede claims 22-25, in the area north of the creek starting in the areas where the most gold in drill holes was found.

APPENDIX I: SIGNED STATEMENT OF EXPENDITURES

Staking Program	$4,528.00
GPR Program	$11,539.00
4-Inch Auger Program	$23,836.00
UAV Program	$2,461.00
6-Inch Auger Program	$11,201.50
RAB Drill Program	$25,371.50
Fuel for all programs	$2,513.31
Report Writing	$5,000.00
Total	$86,450.31

** For a more complete breakdown of expenditures thee the spreadsheet in the USB attached to the original copy of this report

APPENDIX II: STATEMENT OF QUALIFICATIONS

Morgan Fraughton

Box 1381 Dawson City, Yukon, Y0B1G0

1. I have worked in the exploration industry for 10 years (9 years in the Yukon): diamond/RC drilling (2years), oil sands drilling (1year), project manager (many jobs) for Ground Truth Exploration (5years), prospecting for myself (2years).
2. I am a resident of my home town Dawson City, and have lived all my life in Yukon
3. I compiled and wrote all sections of this report based on information from my explorations and research on Swede Creek.
4. I did all of the research, organizing and most of the work on all apsects of this exploration program as well as past explorations on Swede Creek.

Signed January 31, 2016

Morgan Fraugton

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Fuller, E. A. (1993). High Level Terraces Along Lower Stewart River amd Parts of Yukon River. *Yukon Exploration & Geology 1993, Part C: Geological Fieldwork*, pp. 15-28.

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McKillop, R., Turner, D., Johnston, K., & Bond, J. (2013). Property-scale classification of surficial geology for soil geochemical sampling in the unglaciated Klondike Plateau, west-central Yukon. *Yukon Geological Survey, Open File 2013-15*, 85 p., including appendices.

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UAV Drone Survey

GroundTruth Exploration

Soil Sampling | Drone Survey | DC Resistivity & IP | | GT Probe | GT RAB Drill

Commitment to Responsible Discovery

ULTRA HIGH-RESOLUTION IMAGERY

Our aerial drone surveys provide current project scale imagery at a resolution and cost that was previously unobtainable.

GroundTruth Exploration was an early adopter of this technology, with some of the most experienced drone operators in the North.

Our surveys produce **Ultra High Resolution Imagery** and **Digital Elevation Models** which are invaluable tools for exploration planning, data analysis and presentation. Acquiring high resolution imagery and DEMs at an early stage of your project results in an effective and

SenseFly eBee

Applications

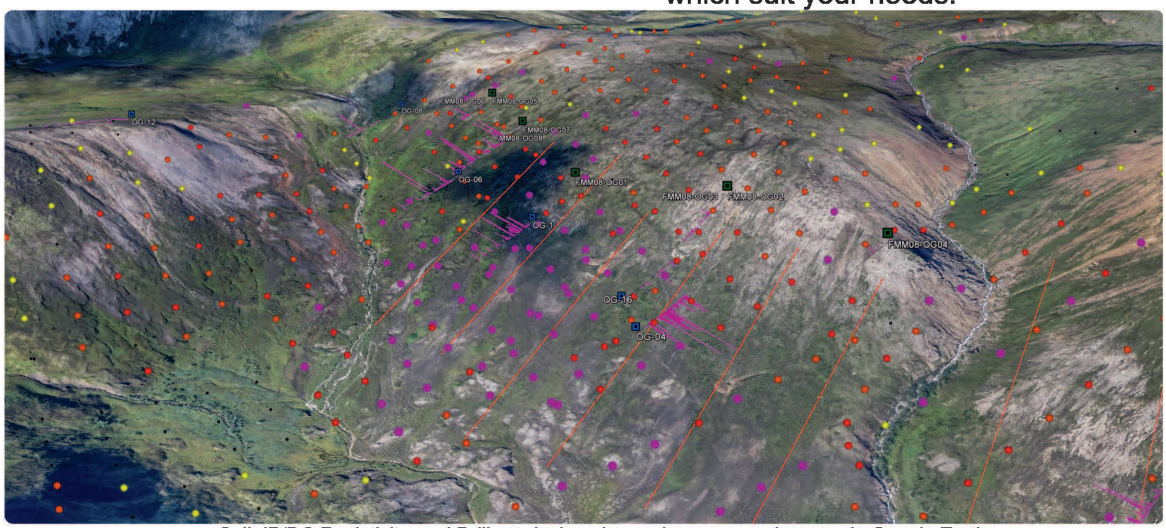
- Assess geomorphology and ground cover
- Survey planning and access
- Outcrop location
- Detection of subtle topographic features
- Detailed slope assessment
- 3D volumetric calculations
- Up to date imagery: trenches, drill-pads & cut-lines can be included in imagery

Deployment Advantages

- Lightweight: 600g, 80cm wingspan
- Portable: Easily transported to site
- Quick setup: ready to fly in 5 minutes
- Robust: tolerates moderate wind/rain
- Autonomous flight monitored from base
- Up to 10 flights daily can be recorded

Production

- High-res Imagery:
  Up to 4cm Ground Resolution
- Quick Turn-around:
  Results available within 10 days.
- Georeferenced:
  Imagery accurate to 5 cm
- Custom Tailored:
  Results delivered in the file formats which suit your needs.



Soil, IP/DC Resistivity, and Drill results layed over drone survey imagery in Google Earth

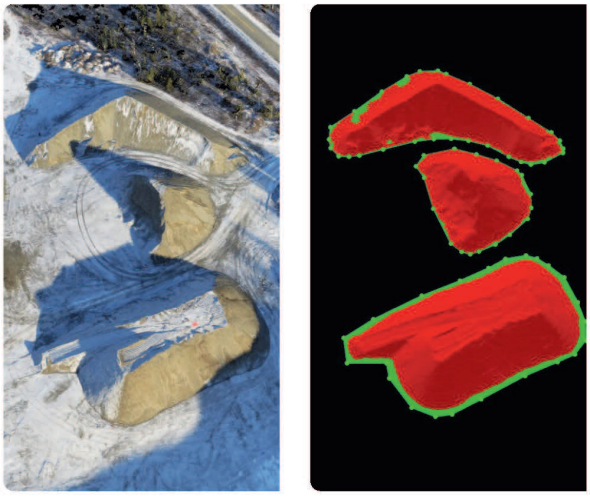
UAV Drone Survey

FULLY INTEGRATED PROJECT PLANNING

Data collected from our aerial drone surveys integrates perfectly with the results from all of our survey programs, giving you detailed and valuable insight into your project. Map results from soil, drill, or geophysical surveys directly over the 3D imagery produced by our aerial surveys.

EFFICIENT & ACCURATE MEASUREMENTS

Our imagery allows for highly accurate distance, area, and volume calculations. In a comparative study of gravel stockpiles, our drone survey produced, in less time and at a fraction of the cost, results with an average variation of 1.5% when compared to traditional stockpile survey methods.



Highly accurate distance, area, and volume calculations.

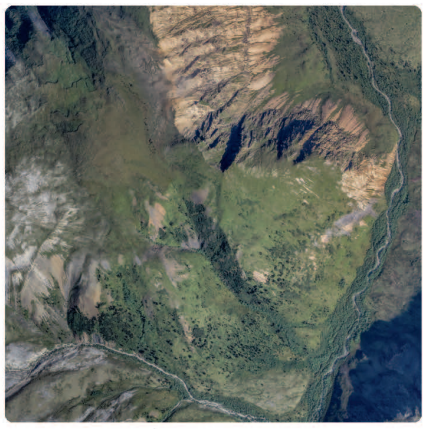
3D Pointcloud of a placer operation

Deliverables to Suit Your Needs

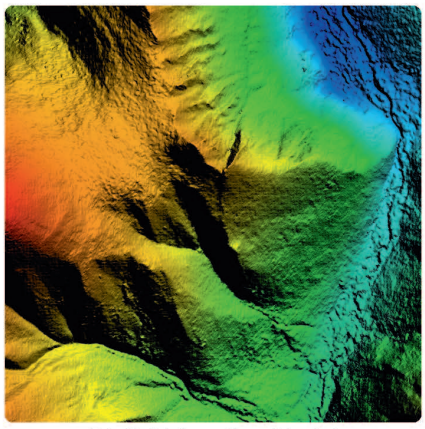
With a huge array of file formats available, we tailor your results to suit your individual needs.

All survey result packages include:

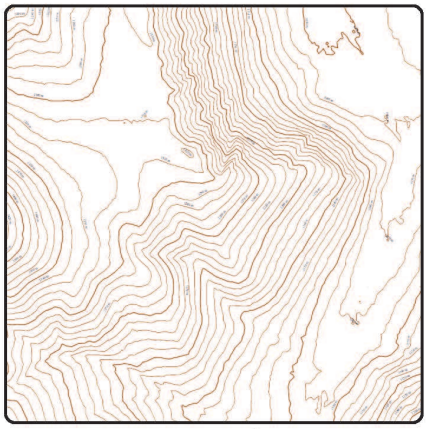
- Ortho Aerial Image
- Digital Elevation Model
- Topographic Contours
- Google Earth Tiles
- 3D Point Cloud
- Video Fly-through
- Quality Report



Orthomosaic



Digital Elevation Model



Topographical Contours

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GroundTruth Exploration

GroundTruth

GT RAB DRILL

GroundTruth Exploration

Soil Sampling | Drone Survey | DC Resistivity & IP | | GT Probe | GT RAB Drill

Commitment to Responsible Discovery

HIGH POWER, HIGH PRODUCTION, HIGHLY MOBILE

TACTICAL DRILLING
Ground Truth's RAB Drill is a Rotary Air Blast, down the hole hammer drill. It is mobile on rubber tracks.

HIGH PRODUCTION
Up to 100m in a 12 hour shift

ANGLED HOLES
-45° to -90°

FAST SETUP
No pad required, No water required

LIVE DATA
Onsite XRF available to guide drilling program

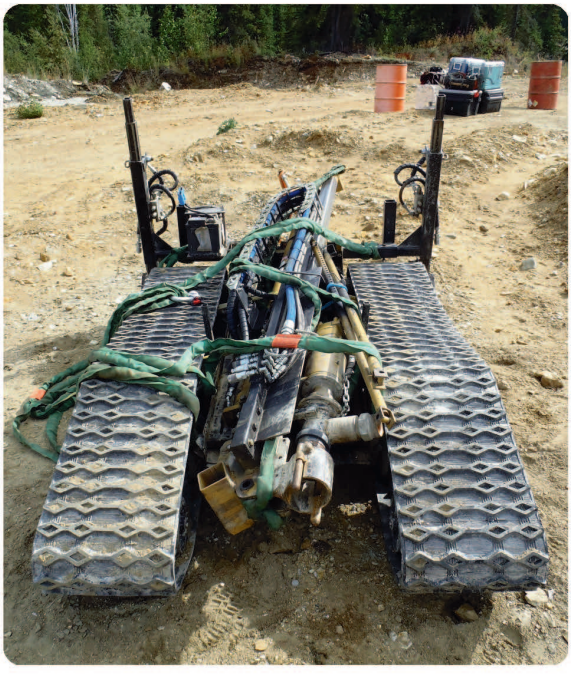
The GT RAB Drill is a remotely controlled tracked platform with an onboard air compressor, tilting mast and rotary drill head. The RAB Drill has 10645 cm² (1650 inches²) of track coverage with less than 2.1 psi ground pressure allowing it to be extremely versatile and low impact in the field. The entire unit is powered by a 44hp Turbo charged Kubota diesel engine and is completely air/hydraulically operated.

GT RAB Technical Specifications

- Length: 2.5m (96")
- Width: 1.25m (50")
- Height: 1.20m (48")
- Weight: 1540 kg (3400 lbs)
- Pull Back Force: 7350 kg (16,200 lbs)
- Onboard Air Compressor: 150cfm @ 175psi
- Working Angle: -45° to -90°
- 2.1 psi ground pressure
- 60hp Turbo Charged Kubota
- Wireless Remote Driving Capability
- 2 sling loads with Astar Helicopter

Tooling

- Diameter of bit: 90mm
- Drill rod length: 1.5m
- 50m capacity in rod basket
- 1 sling load with Astar Helicopter



GT RAB Drill

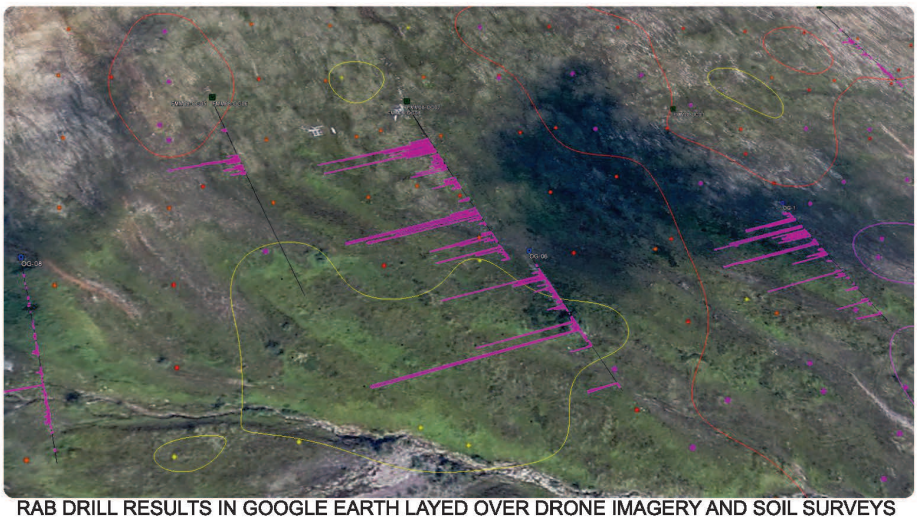
The track mounted GT RAB Drill with onboard air compressor is designed to drill a cased hole into bedrock with depths up to 30m with varying angles ranging from -65° to -90° degrees. Structurally defined targets can be quickly identified using this method.

When deeper holes are required, a larger stationary air compressor is brought onsite providing the capability of drilling up to 100m in depth with varying angles ranging from -45° to -90° degrees. The larger air compressor is attached to the GT RAB Drill using lengths of air hose allowing for a 500m radius to be drilled around the compressor eliminating the need of

TWO OPERATING MODES

1. LIGHT RAB
Using onboard VMAC compressor
Multiple short holes per day
Up to 30m depth in multiple close proximity holes

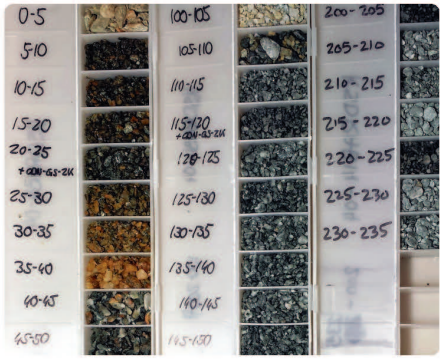
2. DEEP RAB
With additional 300/200 compressor
One hole per day
Up to 100m depth



RAB DRILL RESULTS IN GOOGLE EARTH LAYED OVER DRONE IMAGERY AND SOIL SURVEYS

Each drill hole is cased from surface into bedrock. The average sample weight is 8000gr/m after splitting. Rock chip sample size is 6.35mm – 9.5mm and is analyzed by our onsite XRF technician.

Each sample location is surveyed by DGPS. Daily data collected is sent nightly via satellite internet to our main headquarters and then available for the client the following day.



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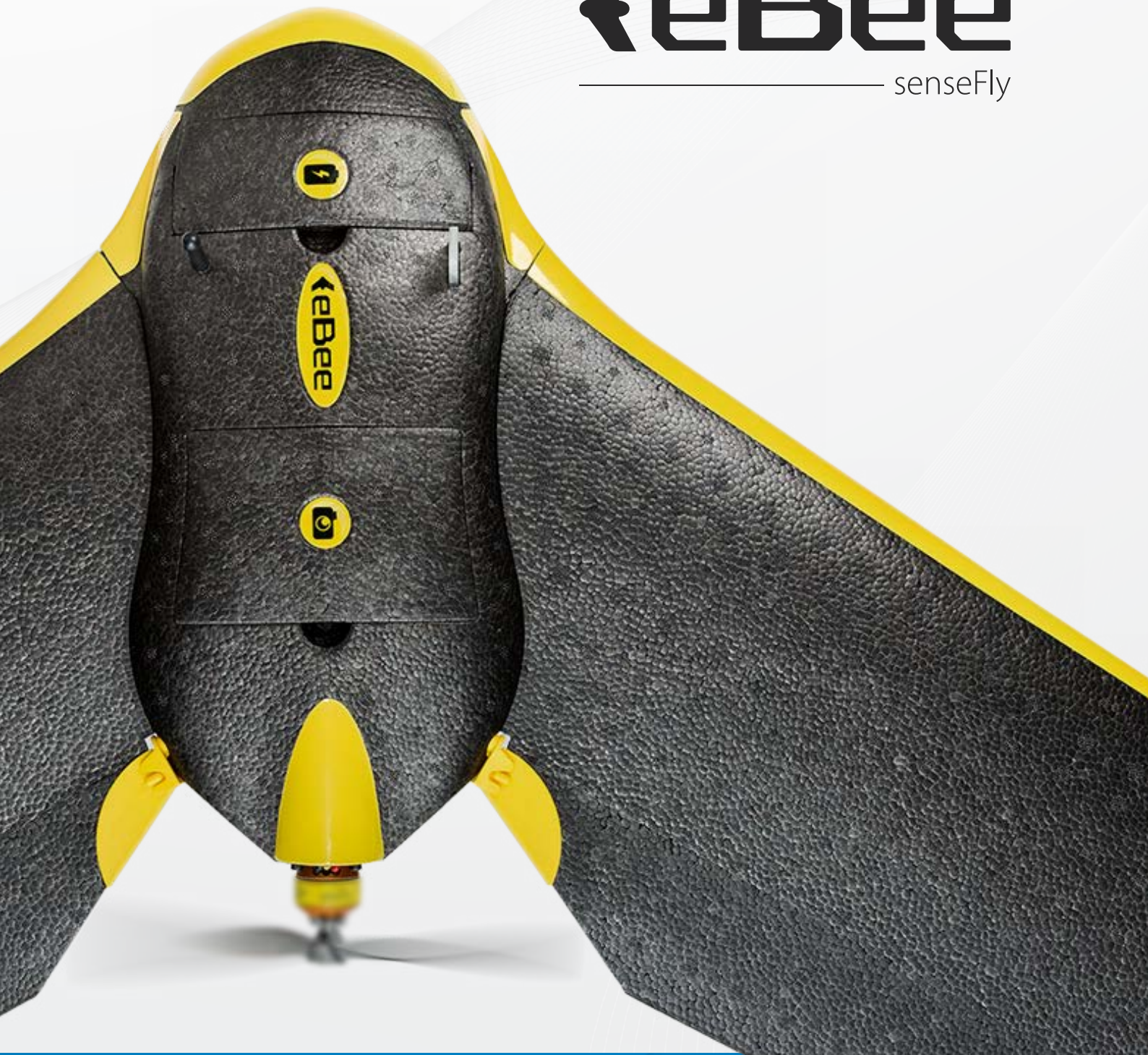
www.groundtruthexploration.com

GroundTruth Exploration

Technical specifications

eBee

senseFly



The **professional mapping** drone

Technical specifications

Hardware

Weight (inc. supplied camera)	Approx. 0.69 kg (1.52 lbs)
Wingspan	96 cm (38 in)
Material	EPP foam, carbon structure & composite parts
Propulsion	Electric pusher propeller, 160 W brushless DC motor
Battery	11.1 V, 2150 mAh
Camera (supplied)	WX (18.2 MP)
Cameras (optional)	S110 RGB, thermoMAP
Carry case dimensions	55 x 45 x 25 cm (21.6 x 17.7 x 9.8 in)

Operation

Maximum flight time	50 minutes
Nominal cruise speed	40-90 km/h (11-25 m/s or 25-56 mph)
Radio link range	Up to 3 km (1.86 miles)
Maximum coverage (single flight)	12 km^2 / 4.6 mi^2 (at 974 m / 3,195 ft altitude AGL)
Wind resistance	Up to 45 km/h (12m/s or 28 mph)
Ground Sampling Distance (GSD)	Down to 1.5 cm (0.6 in) per pixel
Relative orthomosaic/3D model accuracy	1-3x GSD
Absolute horizontal/vertical accuracy (w/GCPs)	Down to 3 cm (1.2 in) / 5 cm (2 in)
Absolute horizontal/vertical accuracy (no GCPs)	1-5 m (3.3-16.4 ft)
Multi-drone operation	Yes (inc. mid-air collision avoidance)
Automatic 3D flight planning	Yes
Linear landing accuracy	Approx. 5 m (16.4 ft)

Package contents

- eBee foam body (inc. all electronics & built-in autopilot)
- Pair of detachable wings
- WX still camera (inc. 16 GB SD card, battery, USB cable & charger)
- 2.4 GHz USB radio modem for data link (inc. USB cable)
- Two Lithium-Polymer battery packs & charger
- Spare propeller
- Carry case with foam protection
- Remote control & accessories (for safety pilots)
- User manual
- Software included: eMotion (flight planning & control) & Postflight Terra 3D (professional photogrammetry)