August 5 2014

Geophysical survey

Tracing the profile of the bedrock with a GPR (ground penetrating radar) across the Big Creek Valley

(Map 115P15p)

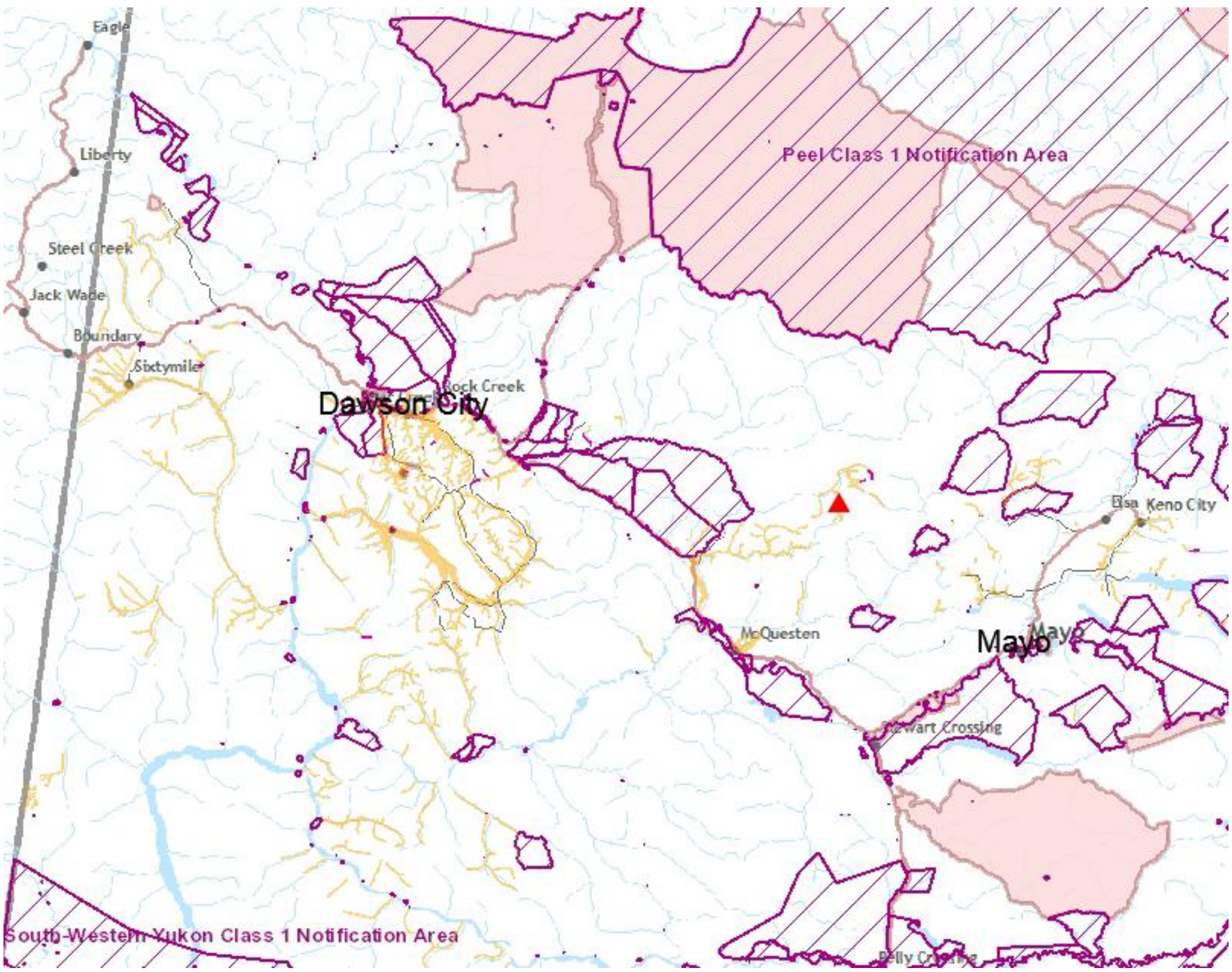
Geophysicist Boris Logutov is analyzing the GPR results with geologist Sandro Frizzi

Location of Big Creek on map

(red triangle)

Scale 1:1,500,000

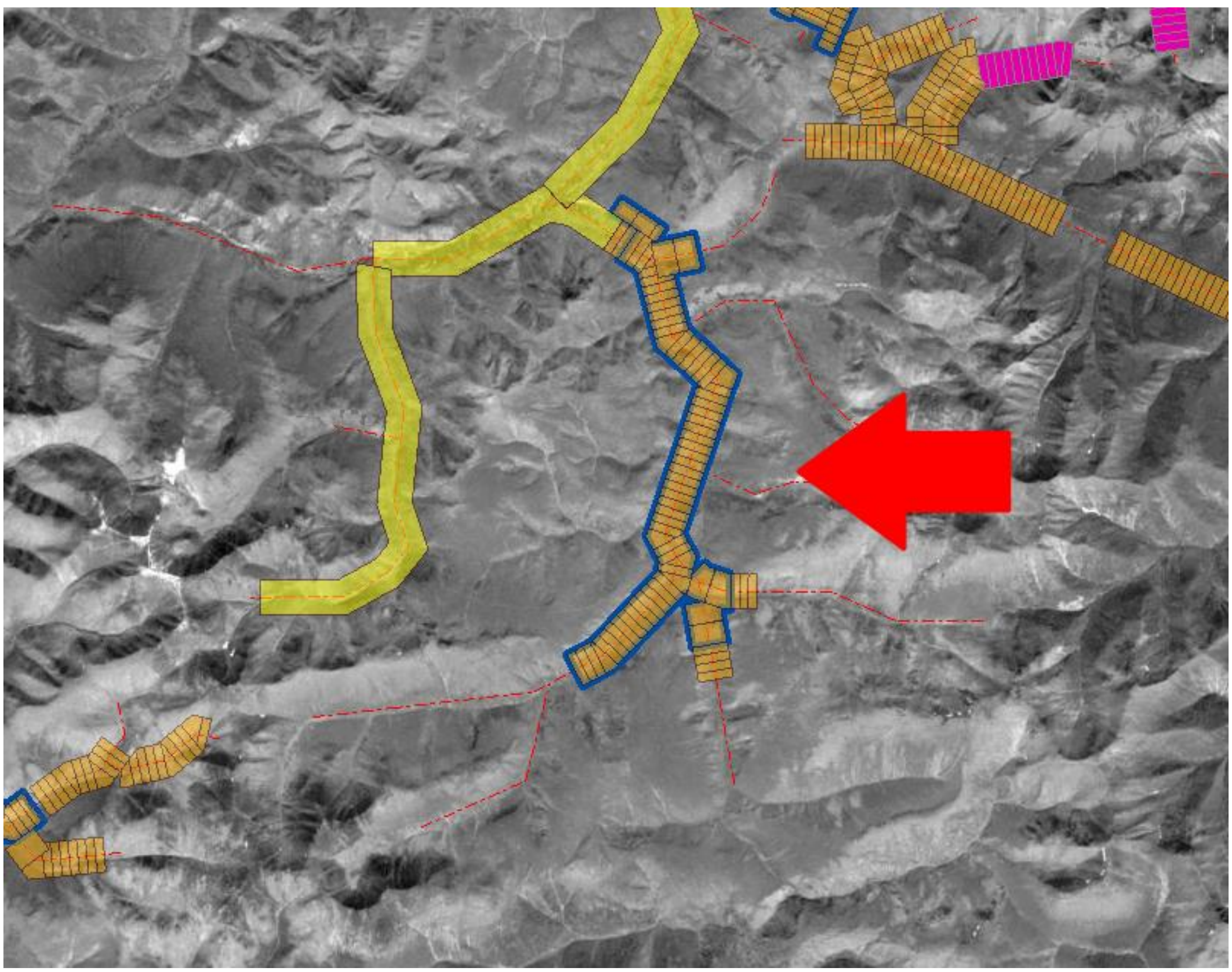
North ∆



The new "Oz" property

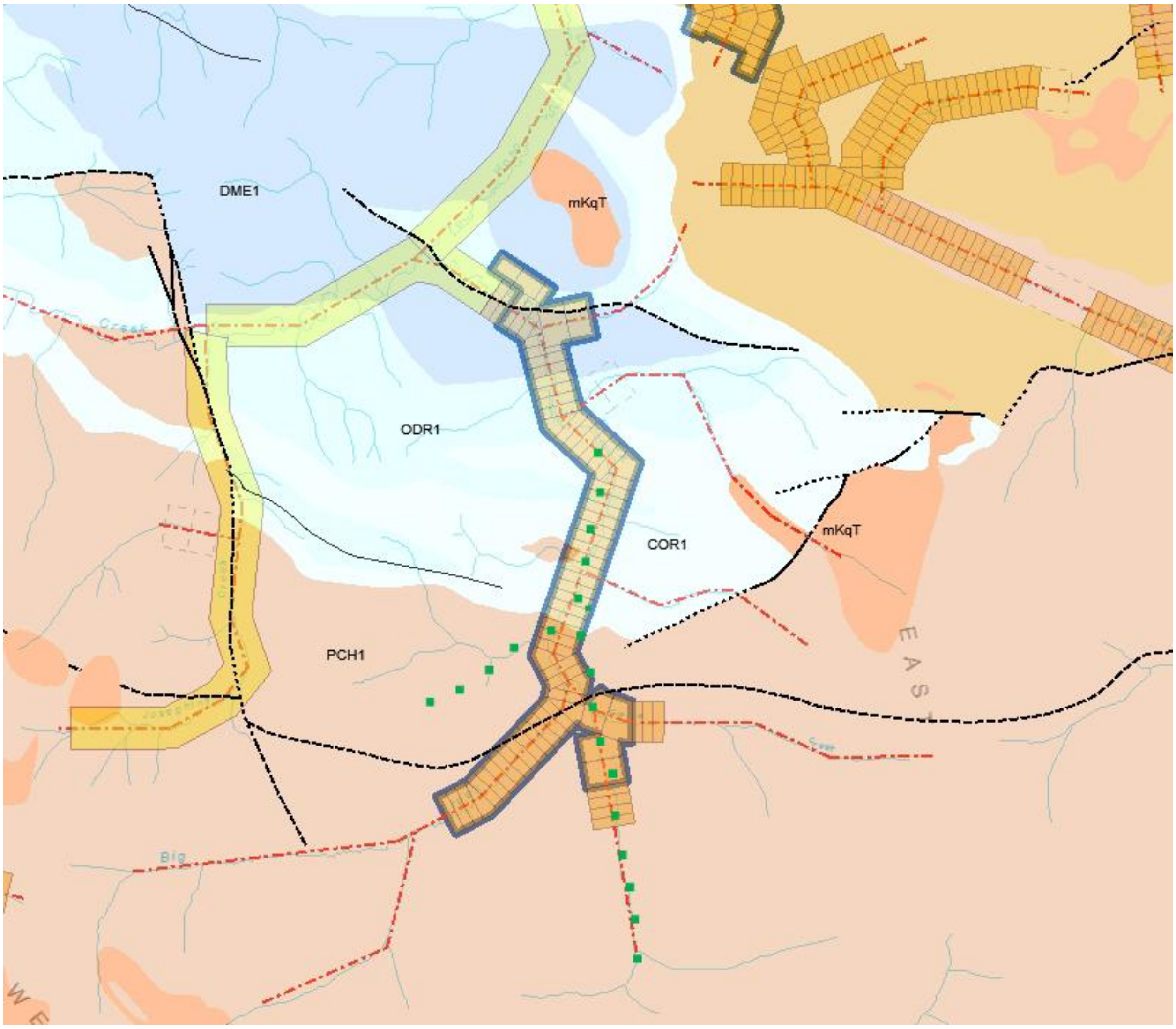
Map 115P15p

Scale 1:100,000



Geological map

scale 1:80,000



Legend:

- PCH1: Hyland group (Proterozoic to Cambrian). Coarse turbiditic clastic units. Pale green shale, quartz rich sandstone, grit, phyllite, limestone, mafic volcanic rocks.
- COR1: Rabbitkettle (upper Proterozoic to lower Cambrian). Basinal limestone. Silty limestone, grey lustrous calcareous phyllite, black slate, quartzose

Siltstone, chert.

- ODR1: Road-River group (Ordovician and lower Devonian). Black shale and chert, resistant grey weathering, thin to medium bedded, light grey to black, greenish-grey chert; minor argillaceous limestone.
- DME1: Earn group (Devonian and Mississipian). Assemblage of submarine fan and channel deposits. Thin bedded, laminate slate with interbedded chert-quartz arenite and wacke; black siliceous siltstone.
- mKqT: Tombstone suite (mid-Cretaceous). Plutonic suit of felsic composition. Coarse grained granite, quartz monzonite and granodiorite.

The green dots are indicating the N-S “No Name fault” and the SW-NE fault (downstream).

Graphitic phyllite at Pit M *Quartzite at UTM 406748-7085408* *Grit from Pit R*

Geophysical survey

(ground penetrating radar system)

During the exploration campaign of 2013 we dug a number of useless pits, where the bedrock was too deep to be reached by our excavator (at Big Creek the groundwater starts right below the surface and that particular condition prevented us from digging lower steps).
To dig a large pit is a complex operation and it usually takes an entire day of work for an operator and his helper. It's obviously expensive: the wage of the workers is added to the cost of running an excavator (which in remote areas can be double).

Last year we tried to pre-determine the depth of bedrock by using an auger drill, which is the most common way to operate. Unfortunately, the presence of shallow groundwater and the type of deposition with the presence of big rocks prevented us from obtaining good results in a desired short time.

To avoid a waste of time and energy, this year we chose to use geophysical surveying. We decided to experiment the ground penetrating radar for its easy portability, for the quick response and for the extremely low cost of this operation.

The surveying campaign has been performed by Boris Logutov, a brilliant geophysicist from the University of Perm, Russia.
Boris used a Russian made GPR, the Python-3, a piece of equipment tested with many others and declared "the best ground penetrating radar for placer exploration" by the geophysical department of Perm University.
Two different antennas have been used to prospect at Big Creek: a 25 MHz and a 50 MHz. The best results have been achieved with the 25 MHz antenna.

We established a grid of 5 lines distributed along the most interesting areas of the upper part of the property. Each line was measuring between 100 and 150 meters and cutting across the valley.

The results of the GPR have been precisely interpreted by Boris and his previsions lately confirmed by our pits, subsequently dug along the lines.

As you will notice by observing the bedrock profiles traced by the Python-3, this surveying revealed the existence of higher benches on line 2, 3 and 4 (keep in mind that in the graphics the surface appears flat, because the GPR doesn't show the profile of the valley, only the one of bedrock. The terraces are obviously located on the hillside).

These benches probably constitute the most important discovery of the summer, as we didn't expect such great extension under the coverage of rock debris (from the valley those stretches seem to be small remains).

After the geophysical survey we exposed the bench M, on line 3, and we found the best gold deposition of the entire property, in a hidden ancient alluvium.

For the future we will strongly recommend (when the depositional condition are favorable = in absence of clay) the use of a GPR for a preliminary investigation. We have been well impressed by this Python-3, a great-little device.
This technology could save to the prospectors a considerable amount of money, time and energy and, more important, it's a non invasive tool and can preserve the natural environment from unnecessary digging.

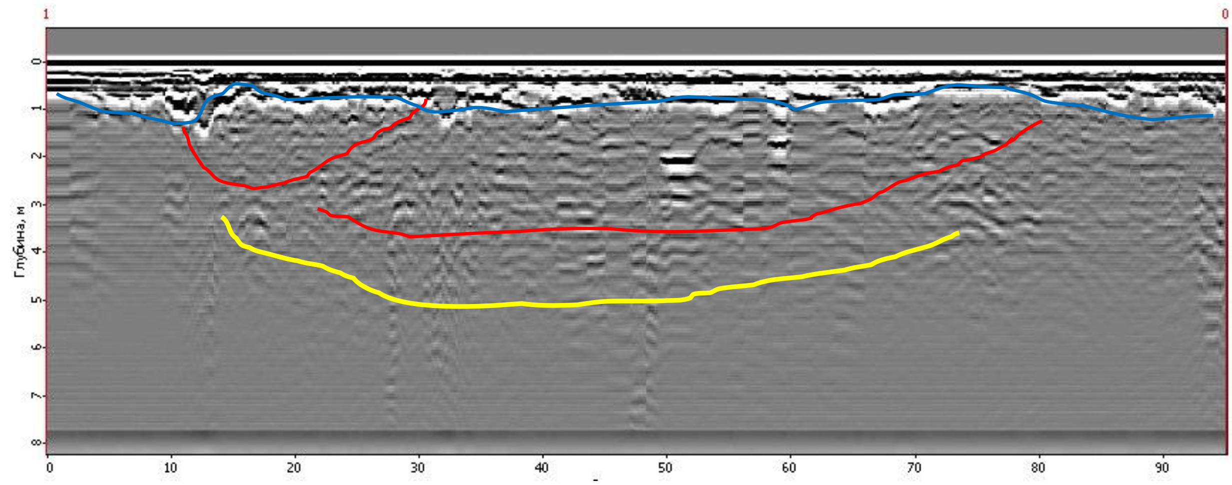
Boris Logutov with his GPR Python-3

Location of GPR lines

Bedrock profiles

PR 1 (line 1, claim 53)

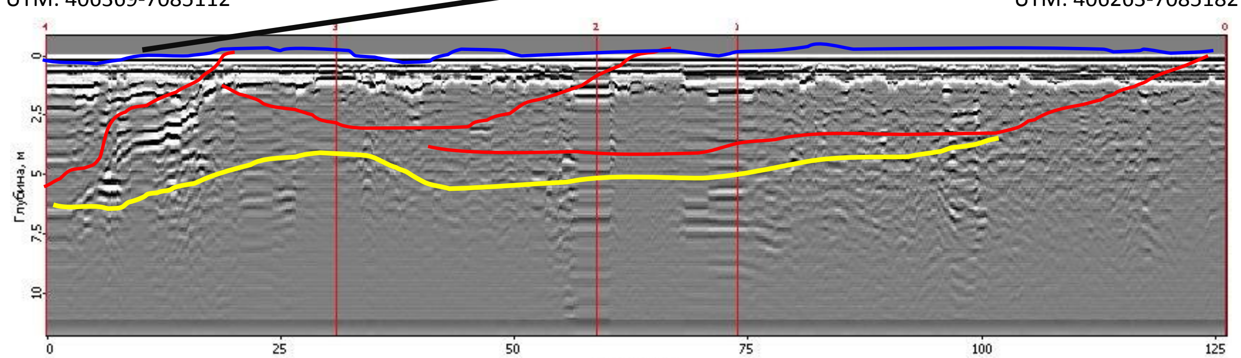
UTM: 405804-7084457 UTM: 405737-7084510



PR 2 (line 2, claim 48)

terrace

UTM: 406369-7085112 UTM: 406263-7085182

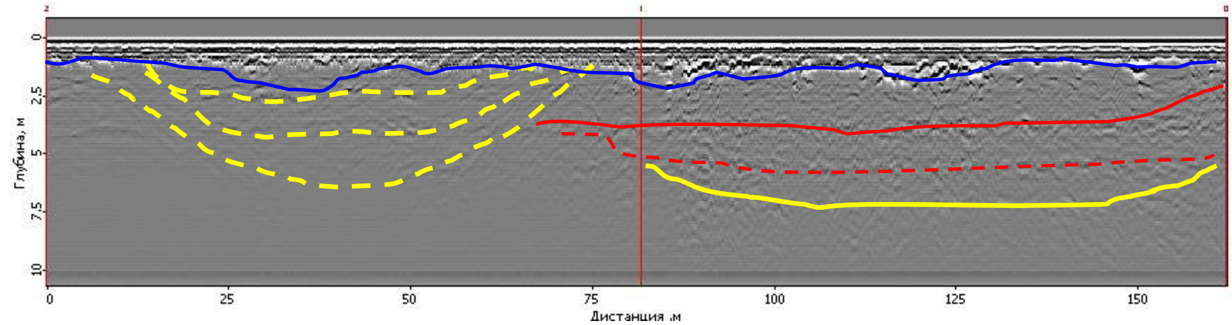


PR 3 (line 3, claim 42)

terrace

UTM: 406559-7085845

UTM: 406408-7085787

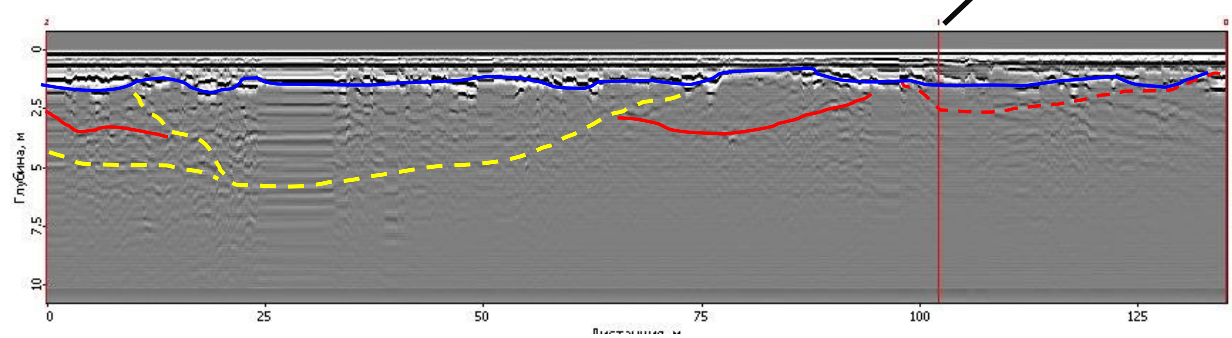


PR 4 (line 4, claim 34)

terrace

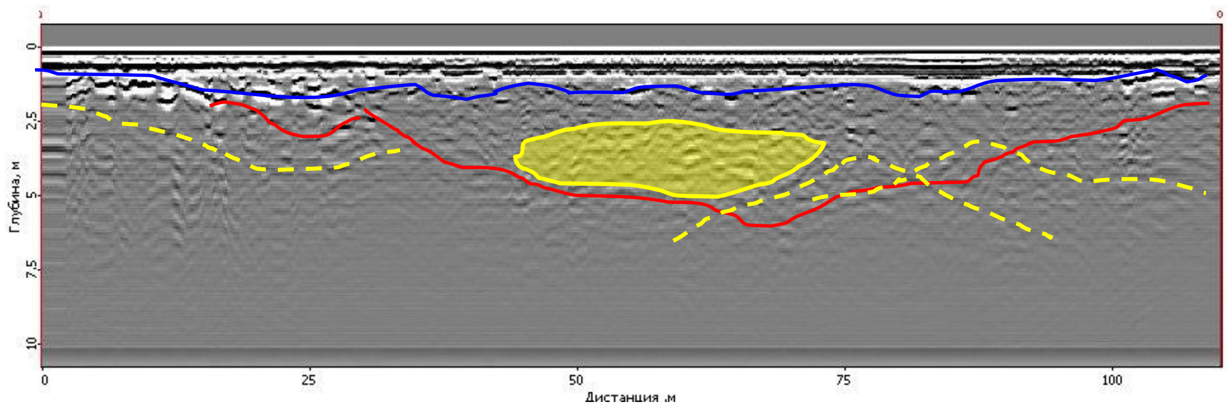
UTM: 406532-7087029

UTM: 406439-7087127



PR 5 (line 5, claim 17)

UTM: 406859-7089260 UTM: 406752-7089240



roof of sands

sole of sands

prospective sole of sands

bedrock

prospective bedrock

concentration of coarse fraction

(note: depth and distance are in meters)

By Boris Logutov and Sandro Frizzi