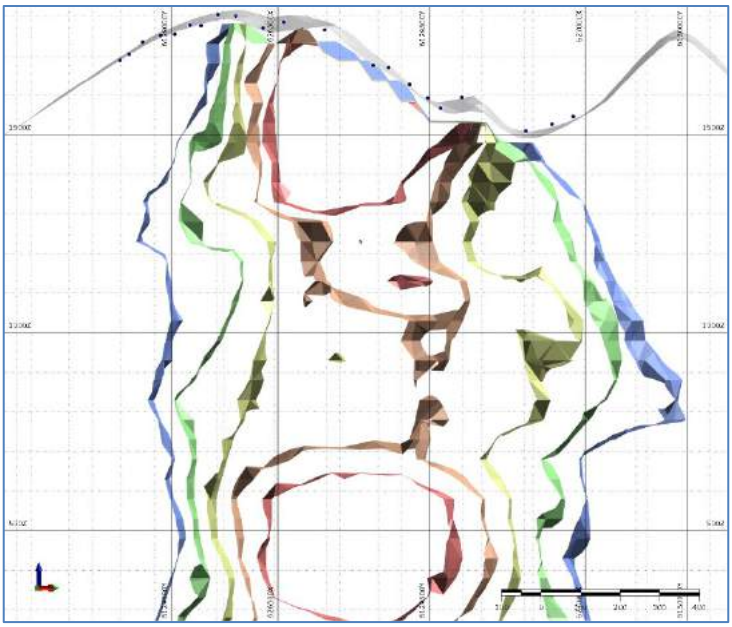
3D Porphyry Footprint Modeling, Netalzul, British Columbia Jaxon Mining Inc May 2021



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Introduction

The goal of this work is to generate 3D targets indicating possible porphyry copper mineralization in the Netalzul, British Columbia project area. The input data for the work are geochemical data for soil and rock chip samples that were provided to Fathom Geophysics by Jaxon Mining Inc with coordinates in NAD83 UTM Zone 9N. This coordinate system was used for all outputs.

Description of Data

The distribution of samples are shown in Figures 1 and 2. All samples have been analyzed for 9 of the 11 elements that we use for porphyry footprint analysis with suitable detection limits. The samples do not have analyses for Li and Sn.

The rock sample distribution is irregular with significant gaps in some areas (Figure 2). The targeting will not be effective in areas with large gaps.

Footprint Modeling Method

The porphyry footprint modeling method works by taking an idealized model of a porphyry copper system and moving it through 3D space. The core of the system is placed at every voxel in a 3D model. At every voxel, the fit between observed data and the idealized model are examined and a score is assigned with a value between 0 and 1.

A value of 1 indicates that the geochemical data perfectly match the idealized porphyry model and there is a high likelihood of a porphyry core at the pixel location. A value of 0 indicates that the data do not match a porphyry system at all and there is a low likelihood of a porphyry core at the pixel location. When looking at soil samples, we typically look for values greater than 0.2 over approximately 1km distance for a high-quality target.

The idealized model used for this work was been derived from Halley et al (2015). The geochemical model (Figure 3) is largely derived from Yerington but does include zonation information from other significant porphyry deposits.

The thresholds from the published models are not typically valid to use with soil samples due to leaching during weathering. We use the 90th percentile for each element in the soil dataset as the threshold values while preserving the geometry of the published models. The thresholds used for the models are shown in Table 1.

Footprint Modeling Results

The following footprint models were delivered:

- Halley model on soils using 90th percentile threshold unmasked (Netalzul_Soils_Halley_90th_3DTargeting)
- Halley model on soils using 90th percentile threshold masked to show only well-constrained areas (Netalzul_Soils_Halley_90th_Const_3DTargeting)
- Halley model on rocks unmasked (Netalzul_Rocks_Halley_3DTargeting)
- Halley model on rocks masked to show only well-constrained areas (Netalzul_Rocks_Halley_Const_3DTargeting)

The results of the processing are shown in Figures 4-7. Table 2 summarizes the targets derived from the results.

The scores in the soil processing are lower than those in the rock processing. This is to be expected because of the way the model thresholds are derived for the soil analysis. The scores in both the soils and rocks are high for the respective methods indicating that the area is highly prospective for porphyry mineralization.

The soil processing produces a discrete target area in the central part of the survey with a shallow and deep part (Figures 4 and 6). The X-Y position of the target is better constrained than the depth. The depth could be better constrained if samples directly over the main target area could be infilled. The depth could also be estimated more effectively if Sn had been analyzed in the samples.

The target FG-NZ-Soils-1 is the best constrained of the targets and should be followed up. Rock chip or soil sampling directly over the highest-ranking part of the target should be completed.

The rock chip results are not as well-constrained due to irregular and sparse sample distribution. The results indicate high prospectivity for porphyry mineralization, but the locations of the targets are poorly constrained. Three potential target areas have been highlighted (Figures 5 and 7). The area around FG-NZ-Rocks-1 should have further sampling conducted to determine if the current results are valid.

Any sampling should be done as close to equally spaced as possible and the samples should be representative samples of an area and not samples of individual veins.

Though the rock results are poorly constrained, the scores are some of the highest that we have seen and merit additional follow-up work.

Reference

Halley, S., Dilles, J.H., and Tosdal, R.M., 2015, Footprints: Hydrothermal alteration and geochemical dispersion around porphyry copper deposits. SEG Newsletter, no. 100, pp 1 and 12-17.

Threshold table

Table 1: Table showing the Halley model and the 90th percentile thresholds for the Netalzul soil data

Model	As	Bi	Cu	Mo	Sb	Se	Te	Tl	W
Halley model	50	1	1000	5	4	4	1	1.5	5
90th Percentile	53.6	45.36	763.2	98.4	17	1.1	2.1	0.4	49.4

Target table

Table 2: Table showing the targets highlighted by the footprint modeling processing applied to the Netalzul soil and rock data.

Target	X	Y	RL	DEM	Depth	Ranking	Comments
FG-NZ-Soils-1	626630	6129400	640	1720	1080	1	High ranking target that is reasonably well constrained but is centered under a gap in the soils.
FG-NZ-Soils-2	626870	6129310	1530	1630	100	2	Located above FG-NZ-Soils-1. The target is larger and located more to the west in the unconstrained results.
FG-NZ-Rocks-1	626300	6130000	1260	1520	260	3	Very high scoring target though both the X-Y location and depth are poorly constrained due to sample locations.
FG-NZ-Rocks-2	626310	6129270	930	1695	765	4	Poorly constrained target south of FG-NZ-Rocks-1.
FG-NZ-Rocks-3	625800	6129850	960	1525	565	5	Poorly constrained target west of FG-NZ-Rocks-1.

Location map – Soil samples

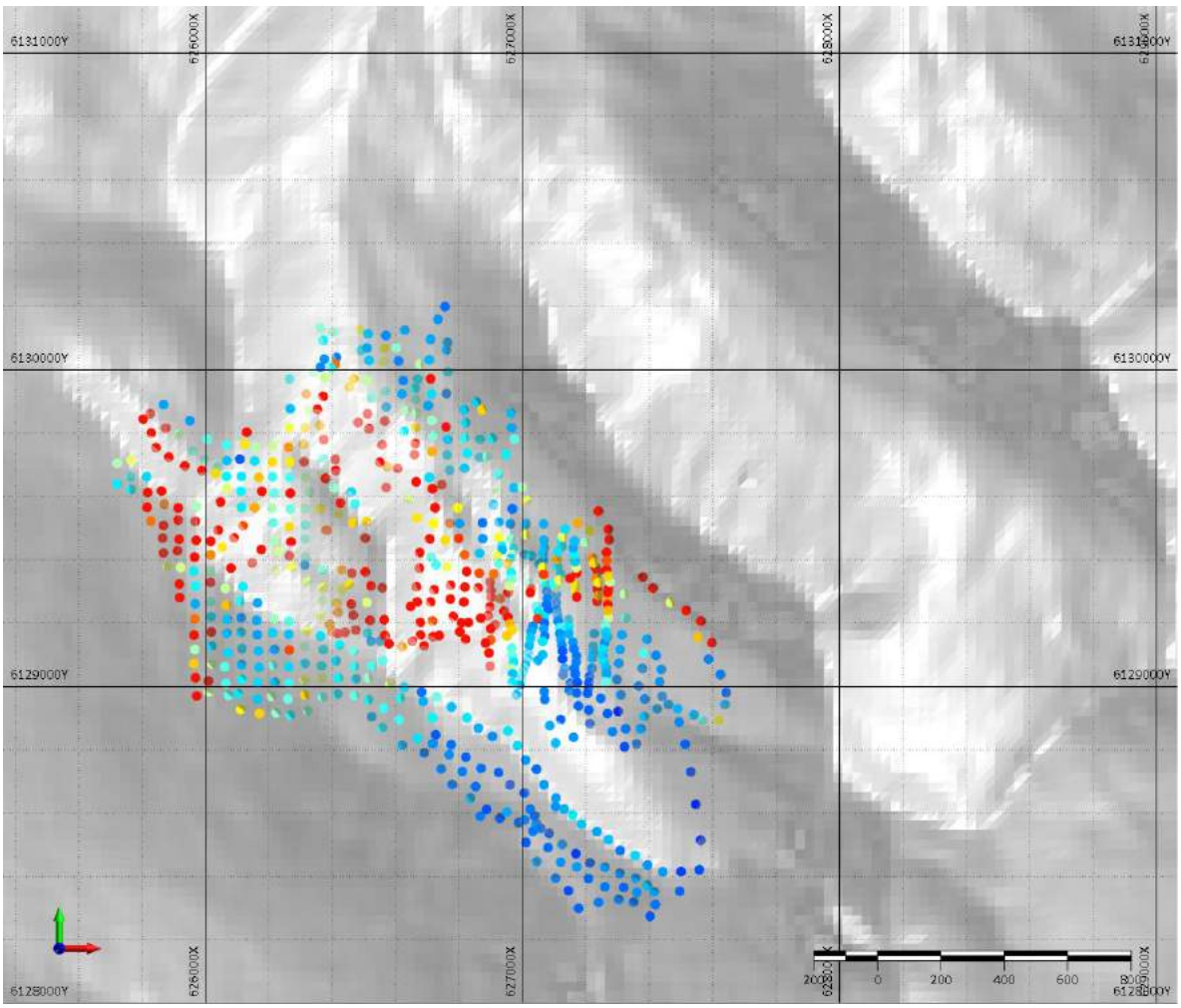


Figure 1: Soil sample locations for the Netalzul project area colored by Mo concentration. The Mo values are very high in the area.

Location map - Rock samples

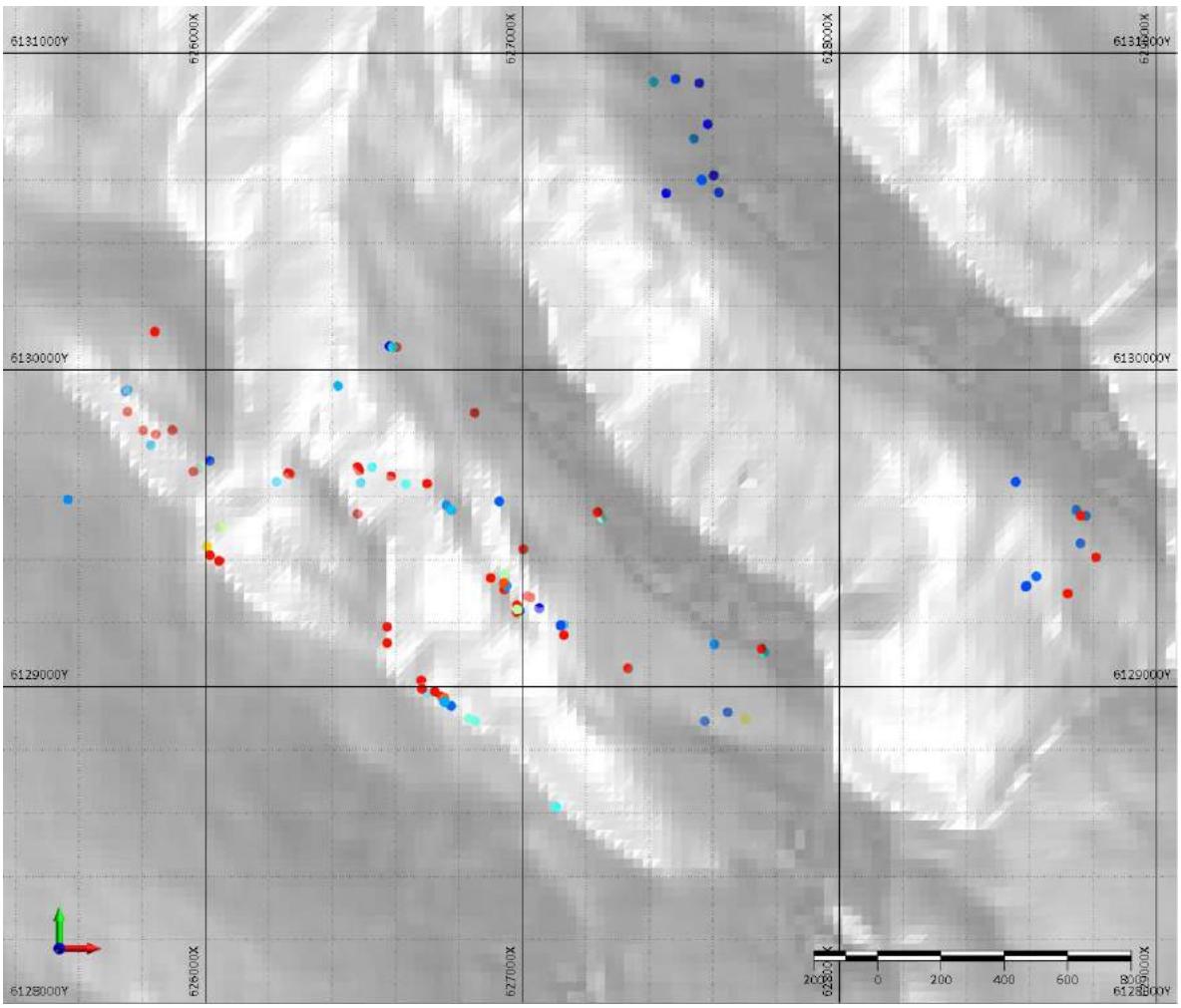


Figure 2: Rock sample locations for the Netalzul project area colored by Mo concentration. As with the soil samples, the Mo values are high throughout much of the project area.

Halley geochemical model

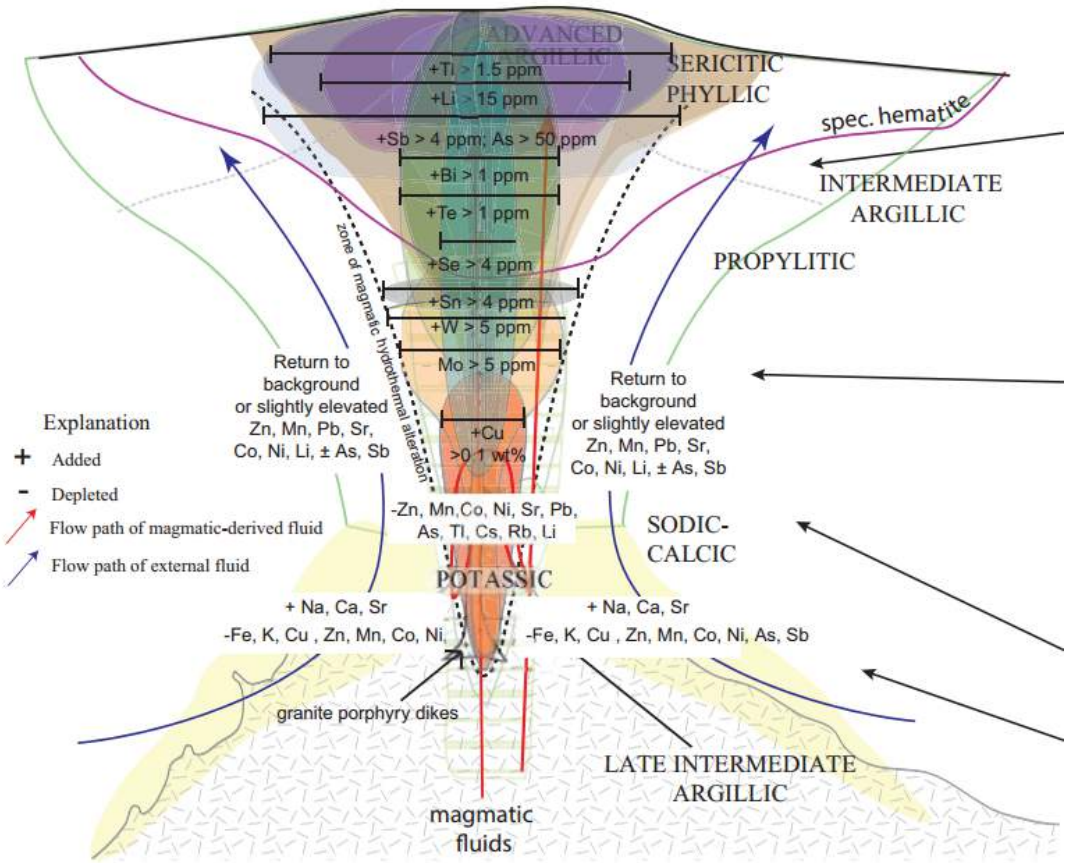
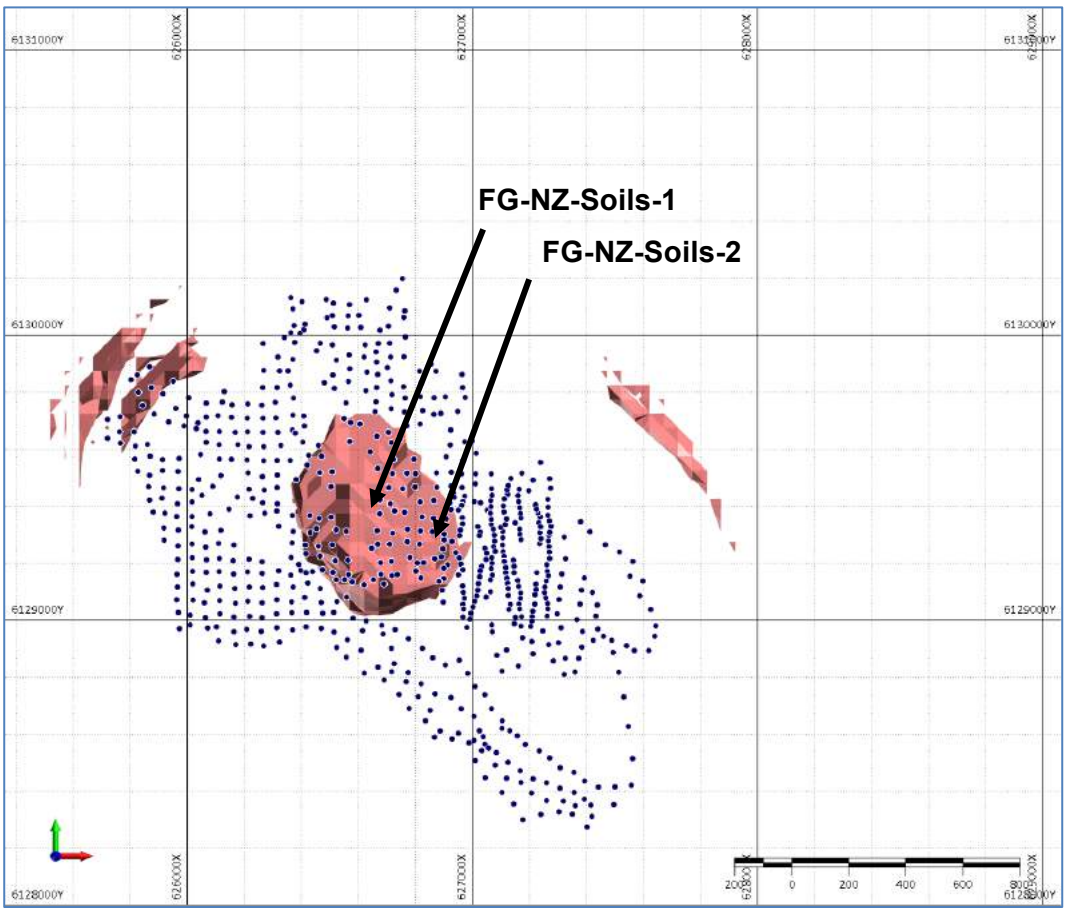


Figure 3: Image showing the interpreted geochemical zonation around porphyry copper systems based on Ann-Mason as well as other porphyry systems from Halley et al (2015).

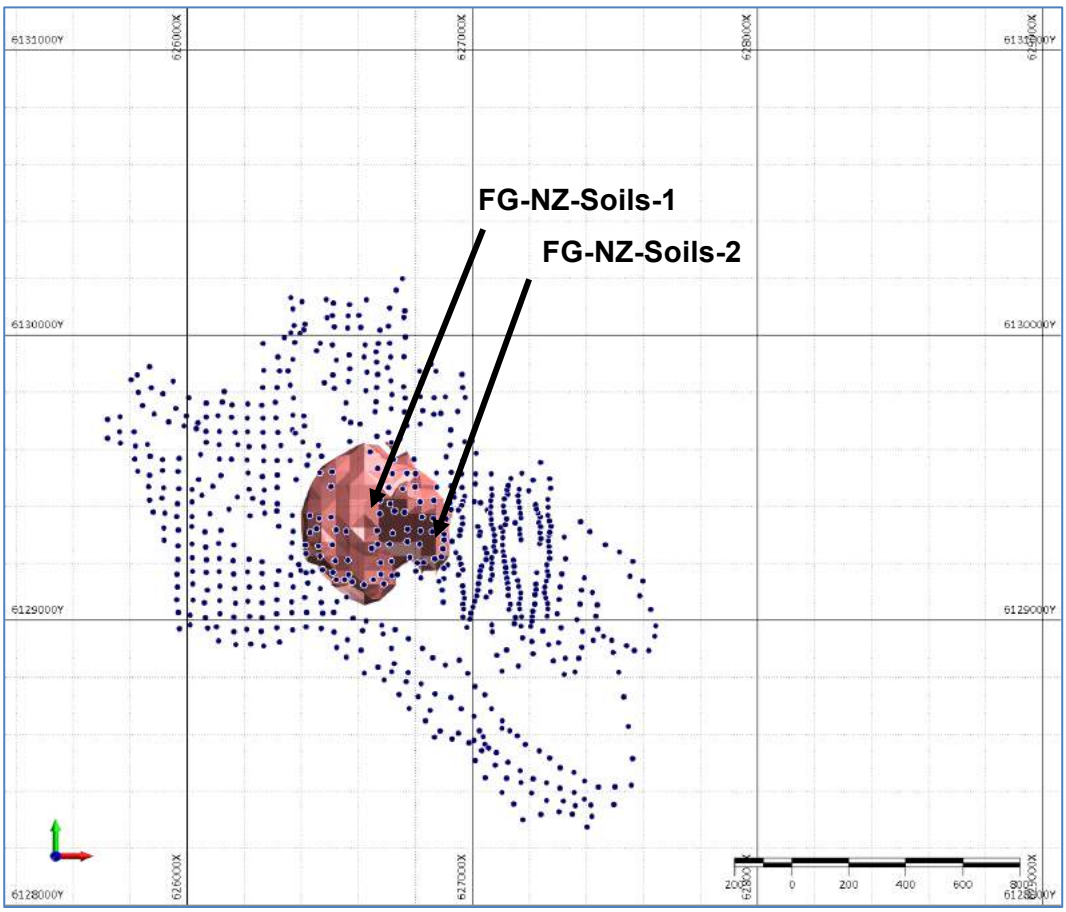
Targeting results plan view – Soils no masking



Netalzul_Soils_Halley_90th_3DTargeting_0p18.dxf

Figure 4A: The image above shows the 0.18 isosurface of the results for the soil data using a model built using the Halley model geometry with thresholds generated using the 90th percentile of the soil data. The results are not masked and include both well-constrained and poorly-constrained targets. In both the unmasked and well-constrained results, the main target has a shallow and deep part. The arrows indicate the locations of the two targets in the well-constrained results. In the unconstrained results, the two targets are roughly coincident at the location of FG-NZ-Soils-1.

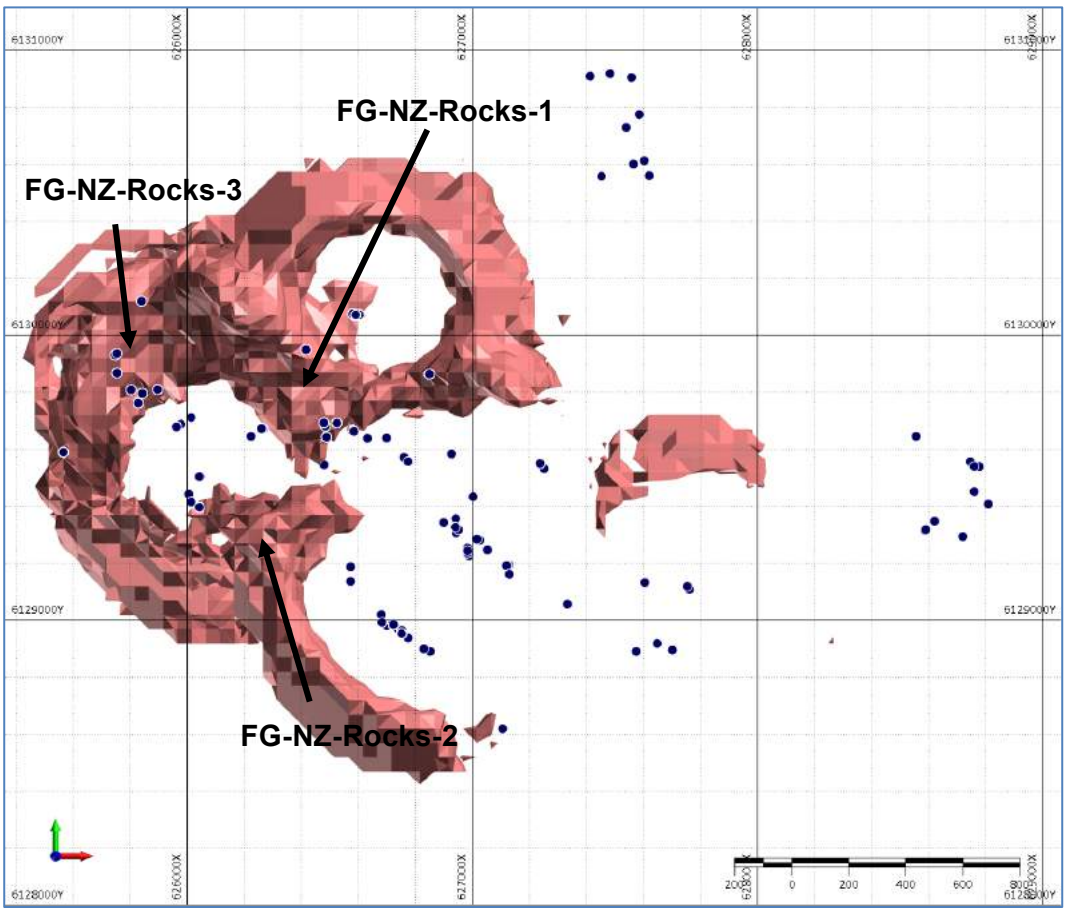
Targeting results plan view – Soils well-constrained



Netalzul_Soils_Halley_90th_3DTargeting_0p18.dxf

Figure 4B: The image above shows the 0.18 isosurface of the results for the soil data using a model built using the Halley model geometry with thresholds generated using the 90th percentile of the soil data. The results are masked to show only well-constrained targets. The central part of the survey is highlighted as a high-ranking target. The target is split into a shallow and deep part. Results could be improved if the gaps in the soil survey were filled (if possible).

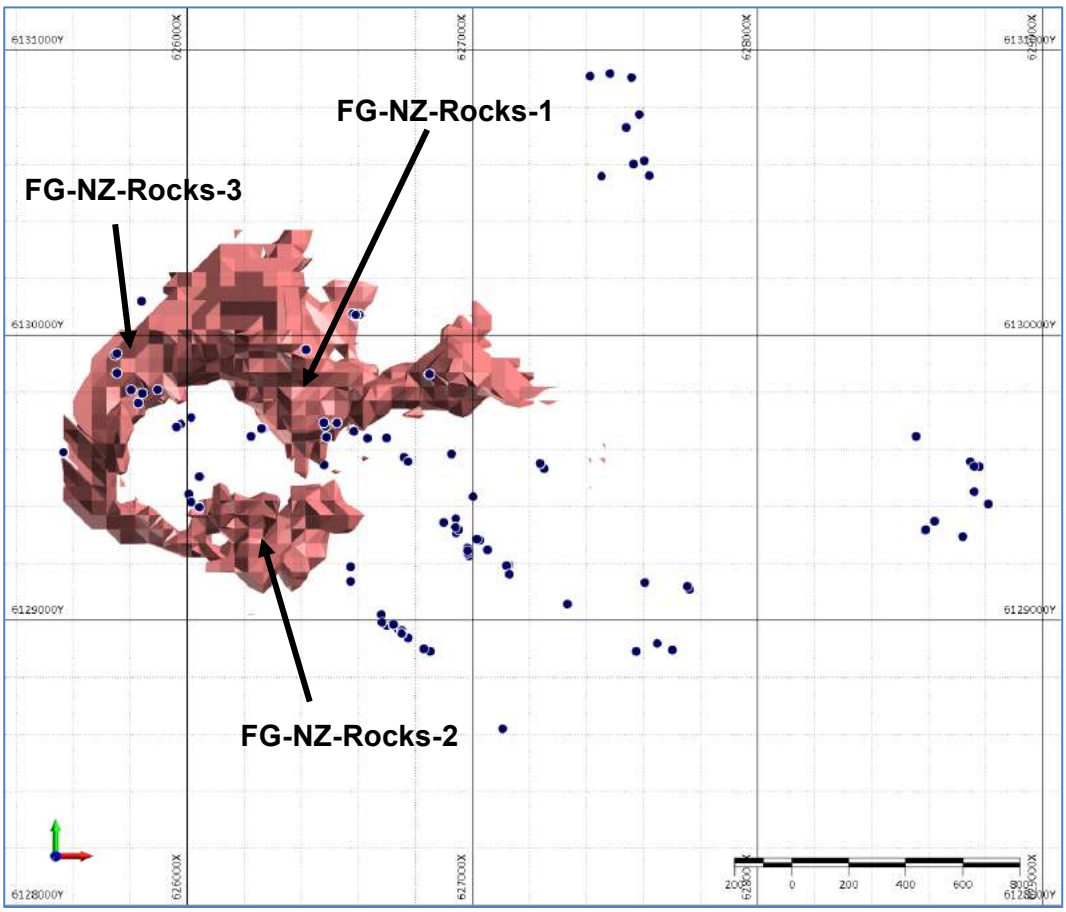
Targeting results plan view – Rocks no masking



Netalzul_Rocks_Halley_3DTargeting_0p85.dxf

Figure 5A: The image above shows the 0.85 isosurface of the results for the rock samples using the Halley model. The results are not masked and include both well-constrained and poorly-constrained targets. Even the better constrained areas are more poorly constrained than the soil results. Additional sampling should be completed if drill targets are to be generated using rock chip data.

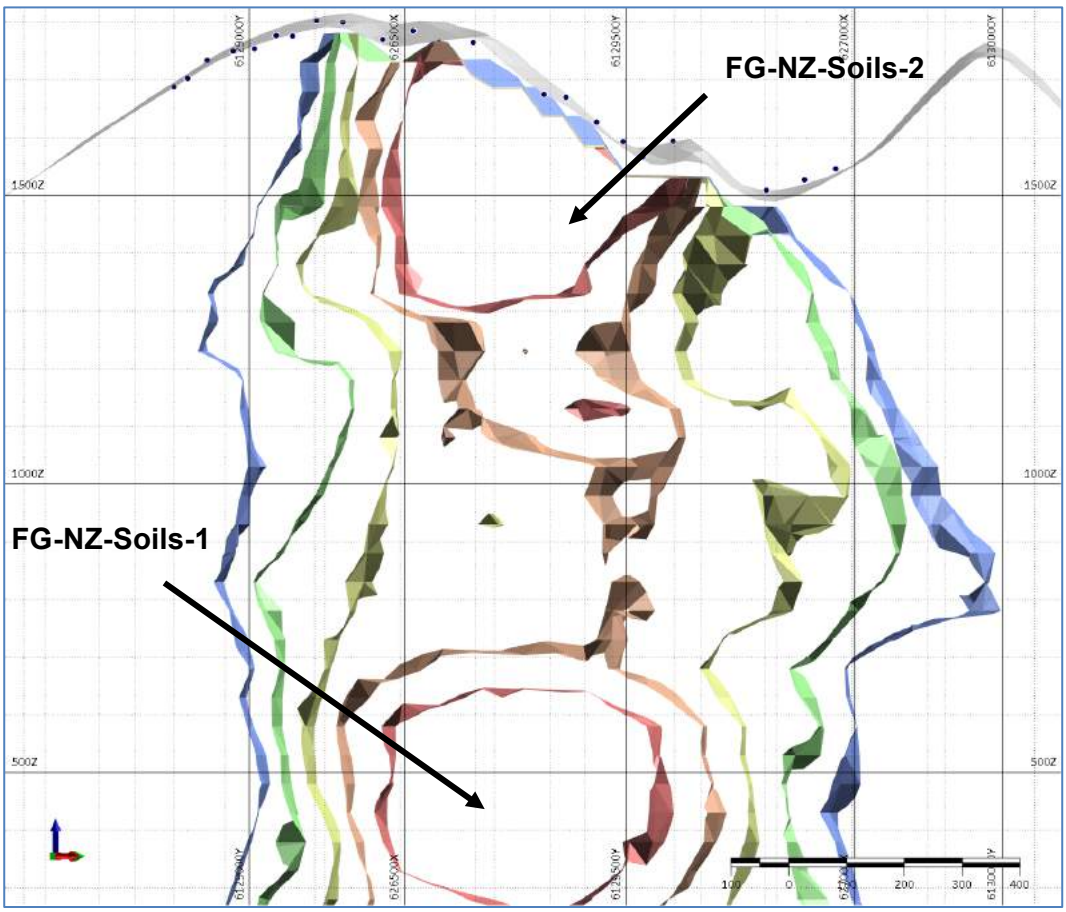
Targeting results plan view – Rocks well-constrained



Netalzul_Rocks_Halley_Const_3DTargeting_0p85.dxf

Figure 5B: The image above shows the 0.85 isosurface of the results for the rock samples using the Halley model. The results are masked to show the better constrained parts of the results. FG-NZ-Rocks-1 is a relatively vertically extensive target and scores very highly. Additional rock chip sampling would be necessary to determine if the best target location is more likely at FG-NZ-Rocks-1 or FG-NZ-Soils-1.

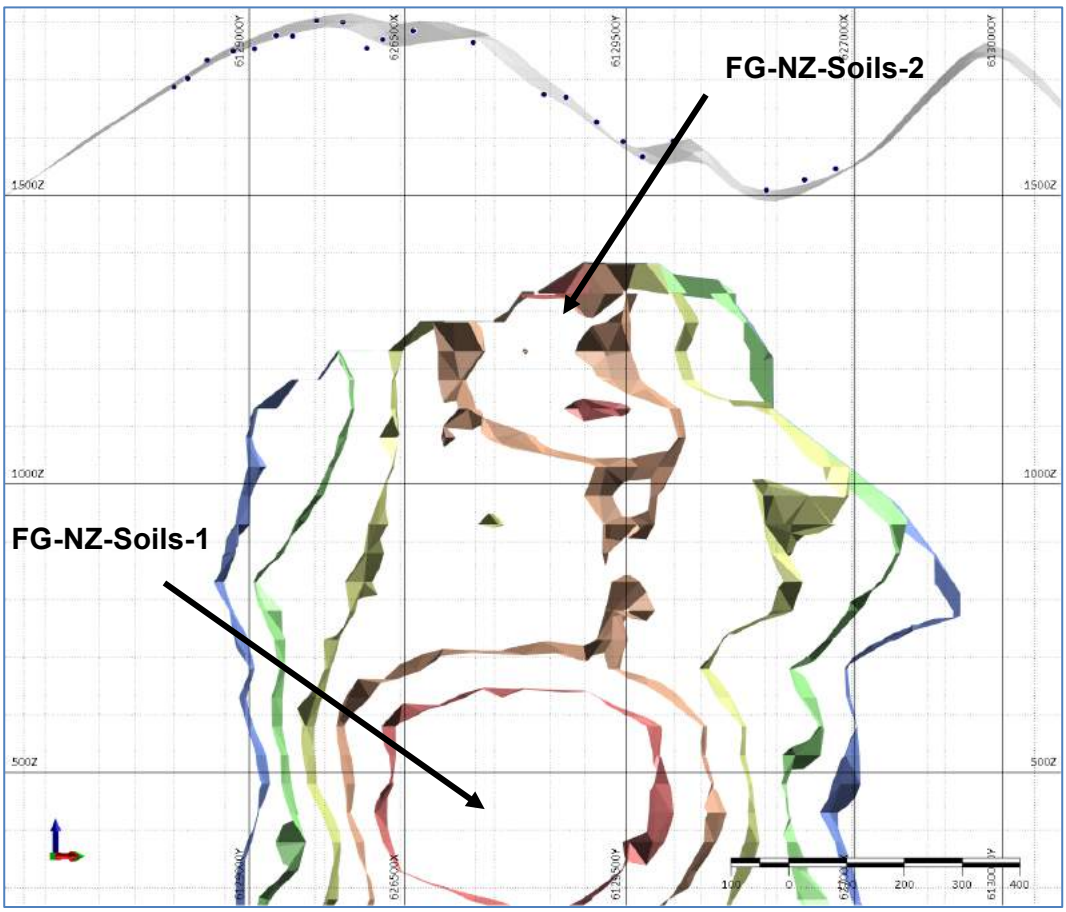
Targeting results section view – Soils no masking



Netalzul_Soils_Halley_90th_3DTargeting_0p1.dxf (blue)
Netalzul_Soils_Halley_90th_3DTargeting_0p12.dxf (green)
Netalzul_Soils_Halley_90th_3DTargeting_0p14.dxf (yellow)
Netalzul_Soils_Halley_90th_3DTargeting_0p16.dxf (orange)
Netalzul_Soils_Halley_90th_3DTargeting_0p18.dxf (red)

Figure 6A: The image above shows a cross section through the unmasked soil processing results. The section is from 626050E 6128675N on the left to 627225E 6130075N on the right. The main target area is split into shallow (FG-NZ-Soils-2) and deep (FG-NZ-Soils-1) targets.

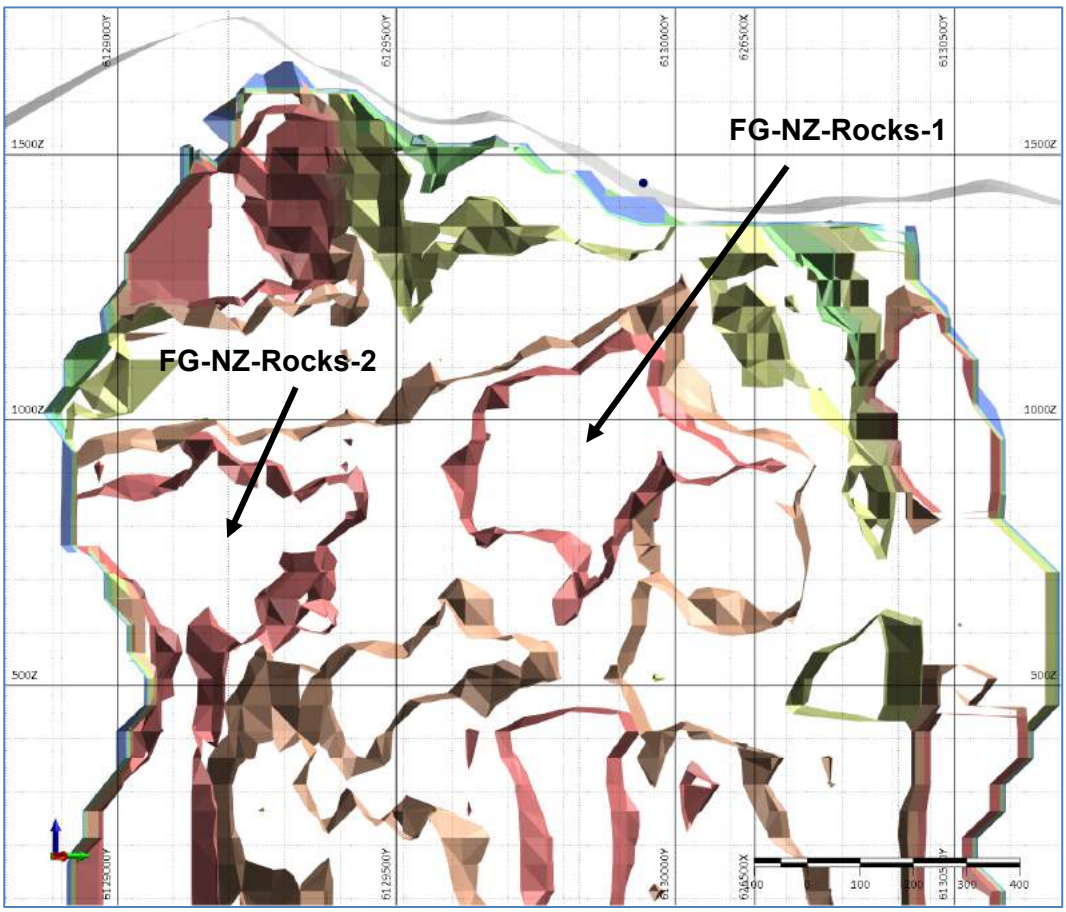
Targeting results section view – Soils well-constrained



Netalzul_Soils_Halley_90th_Const_3DTargeting_0p1.dxf (blue)
Netalzul_Soils_Halley_90th_Const _3DTargeting_0p12.dxf (green)
Netalzul_Soils_Halley_90th_Const _3DTargeting_0p14.dxf (yellow)
Netalzul_Soils_Halley_90th_Const _3DTargeting_0p16.dxf (orange)
Netalzul_Soils_Halley_90th_Const _3DTargeting_0p18.dxf (red)

Figure 6B: The image above shows a cross section through the well-constrained soil processing results. The section is from 626050E 6128675N on the left to 627225E 6130075N on the right. The near-surface part of the target area is less well-constrained because the deeper part of the model is narrower. Additional sampling would help determine whether the shallow target is value and would improve the target locations.

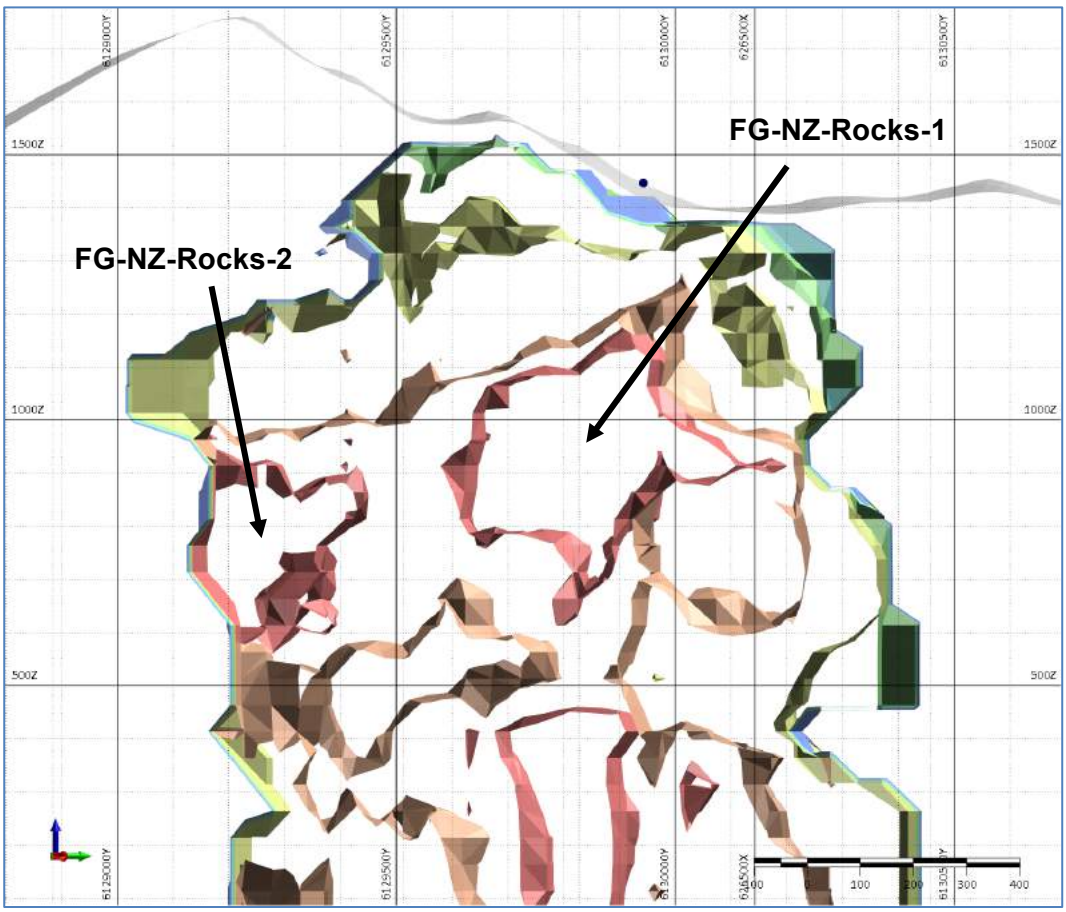
Targeting results section view – Rocks no masking



Netalzul_Rocks_Halley_3DTargeting_0p4.dxf (blue)
Netalzul_Rocks_Halley_3DTargeting_0p5.dxf (green)
Netalzul_Rocks_Halley_3DTargeting_0p6.dxf (yellow)
Netalzul_Rocks_Halley_3DTargeting_0p7.dxf (orange)
Netalzul_Rocks_Halley_3DTargeting_0p8.dxf (red)
Netalzul_Rocks_Halley_3DTargeting_0p85.dxf (red)

Figure 7A: The image above shows a cross section through the unmasked rock processing results. The section is from 626075E 6128800N on the left to 626675E 6130690N on the right. The results are noisy due to the irregular sample distribution, but there are some discrete zones that have high scores.

Targeting results section view – Rocks well-constrained



Netalzul_Rocks_Halley_Const_3DTargeting_0p4.dxf (blue)
Netalzul_Rocks_Halley_Const_3DTargeting_0p5.dxf (green)
Netalzul_Rocks_Halley_Const_3DTargeting_0p6.dxf (yellow)
Netalzul_Rocks_Halley_Const_3DTargeting_0p7.dxf (orange)
Netalzul_Rocks_Halley_Const_3DTargeting_0p8.dxf (red)
Netalzul_Rocks_Halley_Const_3DTargeting_0p85.dxf (red)

Figure 7B: The image above shows a cross section through the well-constrained rock processing results. The section is from 626075E 6128800N on the left to 626675E 6130690N on the right. Masking to the more well-constrained areas reduces some of the noise. Additional sampling would help further constrain the targets.