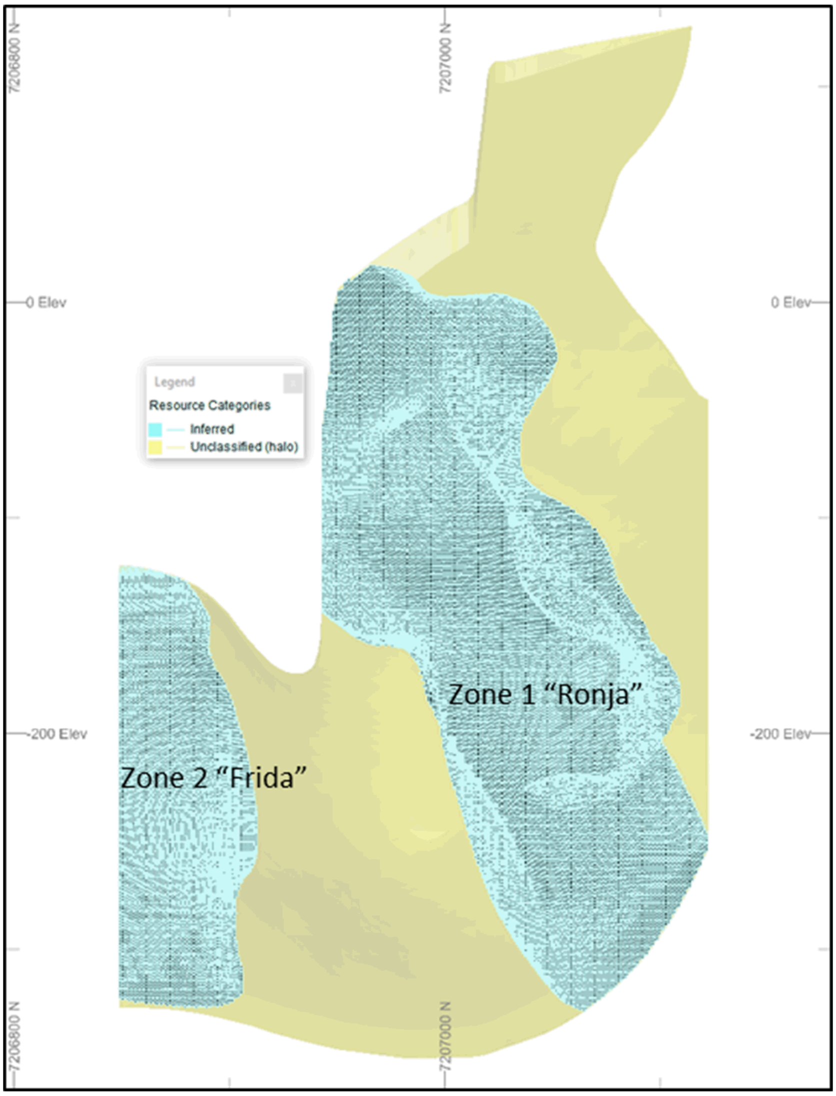
Boliden Summary Report

Mineral Resources and Mineral Reserves | 2021

Strömfors



Prepared by
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1 SUMMARY

The Strömfors mineralization is a massive sulphide deposit discovered in November 2019, approximately 4 km north east the Boliden concentrator. A Mineral Resource Estimate has been performed on the drill hole database as of February 15, 2021. The Estimation was complete as of March 3, 2021.

Table 1.1. Mineral Resources in Strömfors 2021-03-03.

	2021					
Classification	**kt**	**Au (g/t)**	**Ag (g/t)**	**Cu (%)**	**Zn (%)**	**Pb (%)**
Mineral Resources						
Inferred	**2 590 000**	**2.95**	**81**	**0.16**	**4.44**	**0.75**

Notes on Mineral Resource and Mineral Reserve statement.

- *Reasonable Prospects for Eventual Economic Extraction (RPEEE) of the Inferred Mineral Resource is defined by the interpolation of assumed Net Smelter Return Values over the conceptual mining cut-off of 650 sek/t*
- *Within this interpolation there are blocks with values both over, and under cut-off, that is, dilution is included in Mineral Resource*
- *All figures are rounded to reflect the relative accuracy of the estimate*
- *An Inferred Resource is a Mineral Resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling*

1.1 Competence

This report is a summary of several internal reports on Strömfors. Contributors and responsible Competent Persons are listed in Table 1.2.

Table 1.2. Contributors and responsible competent persons for this report.

Description	Contributors	Responsible CP
Compilation of this report	Ian McGimpsey	Hans Årebäck
Geology and exploration	Mac Fjellerad Persson	Peter Svensson
Resource estimations	Ian McGimpsey	Ian McGimpsey

Hans Årebäck works for Boliden as Manager of Business Development and is a member FAMMP[1]. Hans Årebäck has over 20 years of experience in the Exploration and Mining industry.

Peter Svensson works for Boliden as the Manager for Field and International Exploration and is a member of Australian Institute of Geoscientists (MAIG). Peter Svensson has over 15 years of experience in the Exploration and Mining industry.

Ian McGimpsey works for Boliden as a Senior Resource Geologist at Ore Reserves and Project Evaluation and is a member of FAMMP. Ian McGimpsey has over 10 years of experience in the Exploration and Mining industry.

[1] Fennoscandian Association for Metals and Mining Professionals

2 GENERAL INTRODUCTION

This report is issued annually to inform the public (shareholders and potential investors) of the mineral assets in Strömfors held by Boliden. The report is a summary of internal / Competent Persons' Reports for Strömfors. Boliden method of reporting Mineral Resources and Mineral Reserves intends to comply with the Pan-European Reserves and Resources Reporting Committee (PERC) "PERC Reporting Standard 2017".

The PERC Reporting Standard is an international reporting standard that has been adopted by the mining associations in Sweden (SveMin), Finland (FinnMin) and Norway (Norsk Bergindustri), to be used for exploration and mining companies within the Nordic countries.

Boliden is reporting Mineral Resources exclusive of Mineral Reserves.

2.1 Pan-European Standard for Reporting of Exploration Results, Mineral Resources and Mineral Reserves – The PERC Reporting Standard

PERC is the organisation responsible for setting standards for public reporting of Exploration Results, Mineral Resources and Mineral Reserves by companies listed on markets in Europe. PERC is a member of CRIRSCO, the Committee for Mineral Reserves International Reporting Standards, and the PERC Reporting Standard is fully aligned with the CRIRSCO Reporting Template.

The PERC standard sets out minimum standards, recommendations and guidelines for Public Reporting of Exploration Results, Mineral Resources and Mineral Reserves in Europe.

2.2 Definitions

Public Reports on Exploration Results, Mineral Resources and/or Mineral Reserves must only use terms set out in the PERC standard.

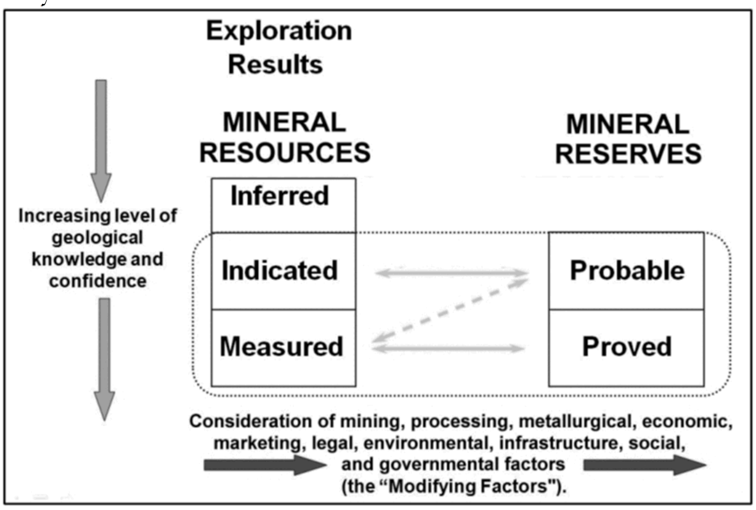

Figure 2.1. General relationship between Exploration Results, Mineral Resources and Mineral Reserves (PERC 2017).

2.2.1 Mineral Resource

A Mineral Resource is a concentration or occurrence of solid material of economic interest in or on the Earth's crust in such form, grade or quality and quantity that there are reasonable prospects for eventual economic extraction.

The location, quantity, grade or quality, continuity and other geological characteristics of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge, including sampling.

2.2.2 Mineral Reserve

A Mineral Reserve is the economically mineable part of a Measured and/or Indicated Mineral Resource.

It includes diluting materials and allowances for losses, which may occur when the material is mined or extracted and is defined by studies at Pre-Feasibility or Feasibility level as appropriate that include application of Modifying Factors. Such studies demonstrate that, at the time of reporting, extraction could reasonably be justified.

3 STRÖMFORS

3.1 Project Outline

Strömfors is an early stage exploration project in northern Sweden. The mineralization is polymetallic with gold, silver, zinc, lead, and copper as the economic metals. Exploration is ongoing.

Currently only Inferred Resources have been defined, indicating a low level of confidence in the exact tonnage and grade of the mineralization. It cannot be assumed, but would normally be expected, that a major part of an Inferred Resource could be upgraded to and Indicated or Measured Resource through continued exploration.

3.1.1 Technical studies

Boliden has completed a Scoping Study on the Strömfors project during 2021, and initiated a second Scoping Study which is ongoing. In both cases the aim has been to aid expedite the resource development process by identifying key project drivers and risks at an early stage.

3.2 Location

The Strömfors Mineralisation is located in Skellefte mining district (Figure 3.1) about 4 km NE of the Old Boliden Mine and the Boliden Village, and approximately 1km NE of Strömfors Village.

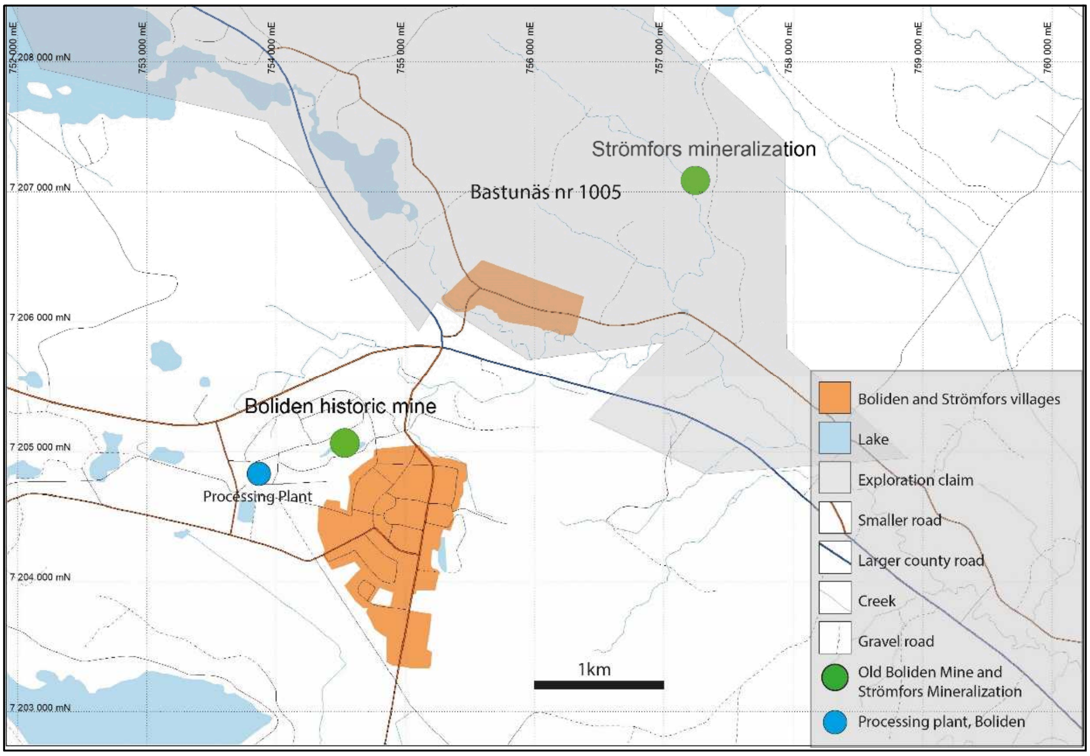

Figure 3.1 Location of the Strömfors mineralisation.

3.3 History

The Boliden area consists of the historic VMS (Volcanic Massive Sulphide) mines Långdal, Långsele and Boliden. Exploration in the area has been active since 1920's. All though explored extensively throughout the last century, the Boliden Area remains underexplored with great potential for future discoveries of blind polymetallic VMS deposits and various gold style deposits (Jonsson & Sandström 2017). The last of the historic polymetallic mines Långsele and Långdal were closed in the 1990's, and exploration has since then been scattered and short termed with insights into local geology, and drilling primarily based on geophysical anomalies. With this in mind the Boliden Area Project began in late 2017 with a focus on looking at the area with regional scale view and linking the localized well-known pockets of geology into a comprehensive regional stratigraphy. The Strömfors mineralisation was discovered in November 2019 as a high grade gold-silver-zinc rich VMS deposit just 4km east of Boliden. The discovery hole STROM12 was the third drill hole in the area and intersected 48.3m of massive and semi massive sulphide 275m below.

Figure 3.2 shows 53 of the exploration drill holes that have been completed in which 42 have been used to for the resource statement. A total of 79 diamond drill holes amounting to a sum of 53022.4m with an average depth of 680m has been drilled since the start of the project in 2019.

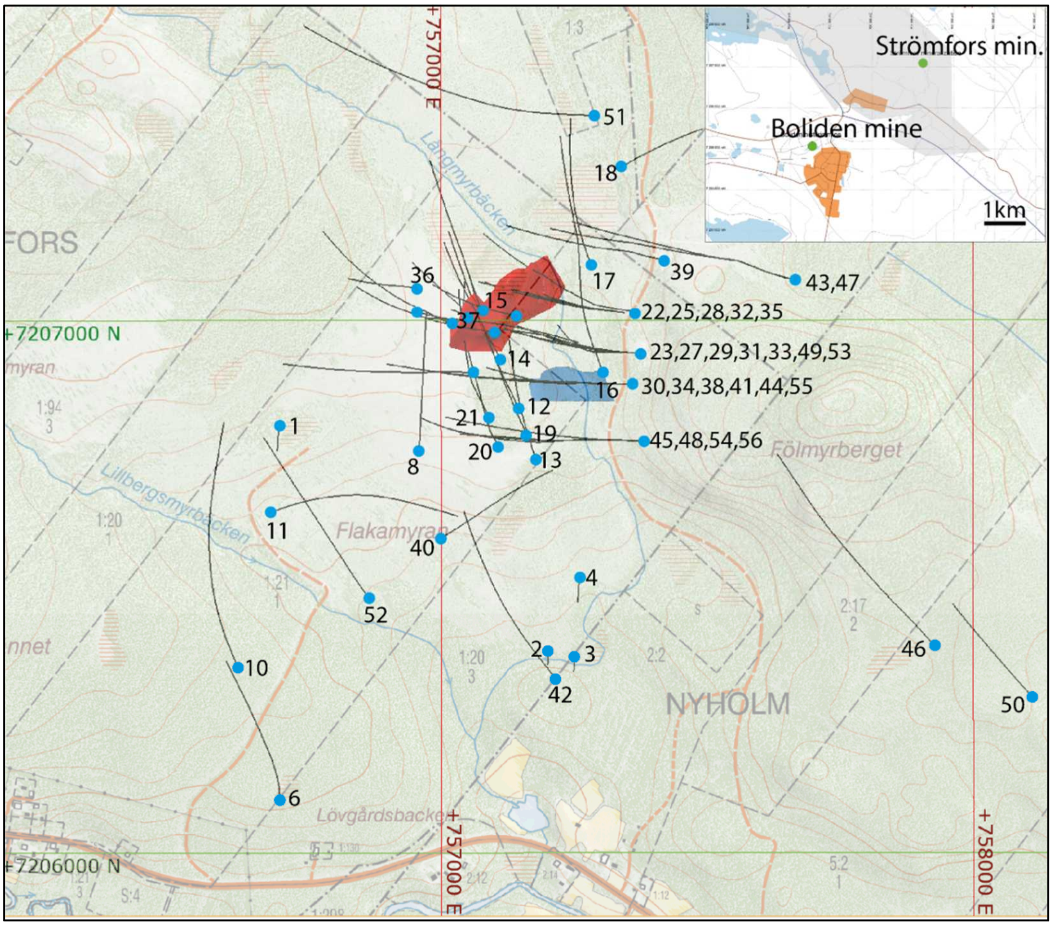

Figure 3.2 Strömfors area with completed drill holes till the end of May 2021.

3.4 Ownership and Royalties

In Sweden, 0.2% of the annual value of metal recovered after mineral processing. Calculation and other details of this royalty is governed by the Swedish Mineral Law (Minerallag (1991:45)). According to this law the royalty payment is to be distributed at a rate of ¾ to the surface owner and ¼ to the Swedish state.

3.5 Permits

The Strömfors mineralisation is located within the Bastunäs no. 1005 (Table 3.1) exploration permit, valid until 2023-08-25, 100% owned by Boliden Mineral AB. At this time no mining concessions or environmental permits have been applied for.

Table 3.1 Exploration permit in Strömfors.

Name	Active from	Expires	Minerals
Bastunäs no. 1001	2016-08-25	2023-08-25	Gold, Zinc and Copper

3.6 Geology

3.6.1 Regional

The Strömfors deposit is located in the easternmost part of the Skellefte district close to the boundary between the dominantly volcanic Skellefte group and the overlying dominantly sedimentary Vargfors group (Figure 3.3). Comprehensive summaries of the geology of the Skellefte district are found in Allen et al. (1996) and Kathol & Weihed (2005).

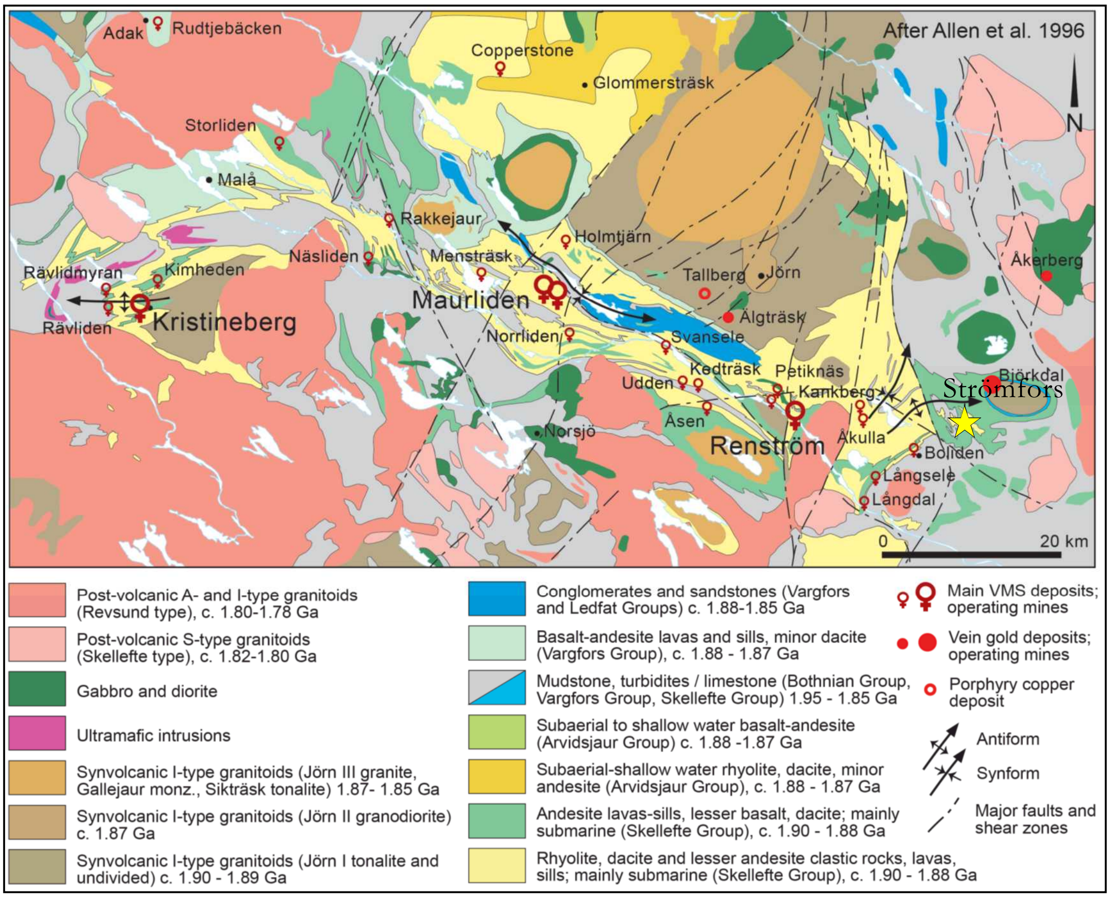

Figure 3.3 Regional geological map of the Skellefte district. Modified after Allen et al. (1996).

3.6.2 Local

In detail the Strömfors Ore Horizon sits at the contact between felsic volcanics and shale/siltstone of the Vargfors Group, overlain by localized mafic extrusive packages.

The Strömfors mineralisation is hosted at a complex junction of structures where deeper basinal N-S and E-W faults meet. Some faults are likely re-activated syn-volcanic faults that acted as a conduit for hydrothermal fluids in the formation of the mineralisation. Bedding is overall seemingly dragged from the original E-W strike and 50° dip to the south interpretation into a steeper and more N to NW striking stratigraphy going north and surrounding mineralised lenses. The mineralisation at Strömfors can currently be separated into two zones (Ronja and Frida) which are at present being drilled and developed.

3.6.3 Mineralization

The mineralisation is both massive, semi massive and stringer type with Sphalerite, Arsenopyrite and sulphosalts as main ore minerals, other associated sulphides are Pyrite, Pyrrhotite and Chalcopyrite (Figure 3.4). It is believed that part of the system is true Zn-As exhalative, bedded mineralisation (Ronja Lens). However, the majority of the mineralisation is semi-massive to stringer Zn-As, pyrite and Pyrrhotite stringers. There are minor occurrences of Chalcopyrite stringers but thus far a Copper rich part of the mineralising system is not found.

Coarser grained, massive to semi-massive Pyrrhotite with Arsenic and Sphalerite are intersected in the Frida Lens. This part of the mineralisation is interpreted to be remobilized, but the thick in-situ base metal stringer below and the bedded sediments above in a few holes testify a short distance of remobilization. Ronja lens is apparently dipping 60° then steepening to almost vertical compared to 50° dip of Frida lens. The deepest intersection of Frida lens is 75° in dip.

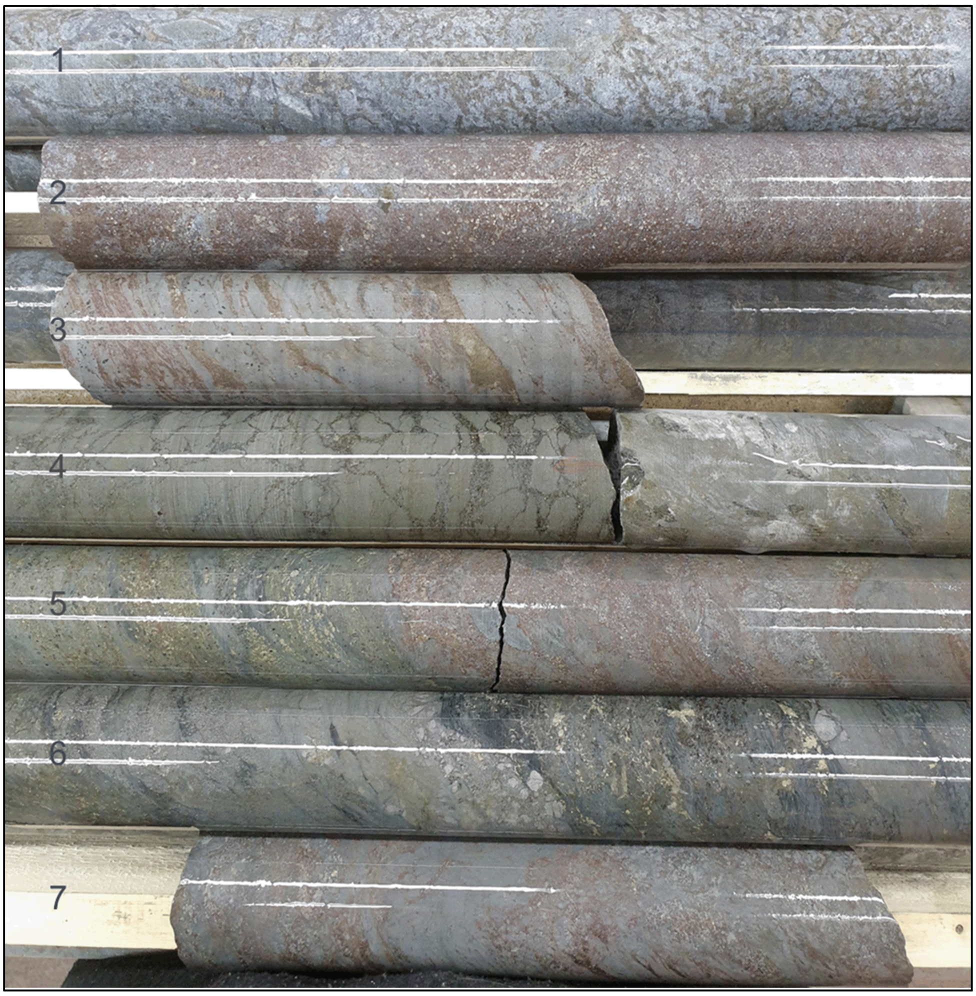

Figure 3.4 STROM23 mineralisation styles compilation. From top to bottom: 1: Tremolite skarn, pyrite-pyrrhotite stringer, sulphosalt bearing, Ag-Au mineralized. 2: Massive Sphalerite with subordinate Arsenopyrite, Pyrite, Pyrrhotite, Galena and sulphosalts mineral.

3.7 Drilling procedures and data

3.7.1 Drilling techniques

Diamond drilling assay data is used for the mineral resource estimation. NQ2 (50mm Ø) diameter drilling is performed by drilling contractor Protek or ADC supervised by Boliden personnel.

3.7.2 Downhole surveying

All drill holes from STROM15 have been aligned using Reflex´s gyrocompass (TN14). The TN14 is a north seeking gyro compass used for rig alignment when using continuous gyros for deviation measurements. All the drill holes have subsequently been surveyed using either Devico´s DeviGyro or Reflex´s REFLEX GYRO. The DeviGyro is a so-called express gyro, which collects data while being either lowered or pulled out of the hole. The REFLEX GYRO needs to stand still while collecting data. A data point is collected at each 3 or 6m intervals both in and out of the drill hole. All survey data collected have been QA/QC´ed using either the REFLEX GYRO software program or the DeviCloud software. From the beginning (STROM12) only the REFLEX GYRO was used until drill hole STROM25 where we gradually started to test the DeviGyro. From STROM29 the DeviGyro have been the main instrument since it is much faster and very reliable. Comparison between the two instruments in several holes showed reasonable comparison between the data (Figure 3.5).

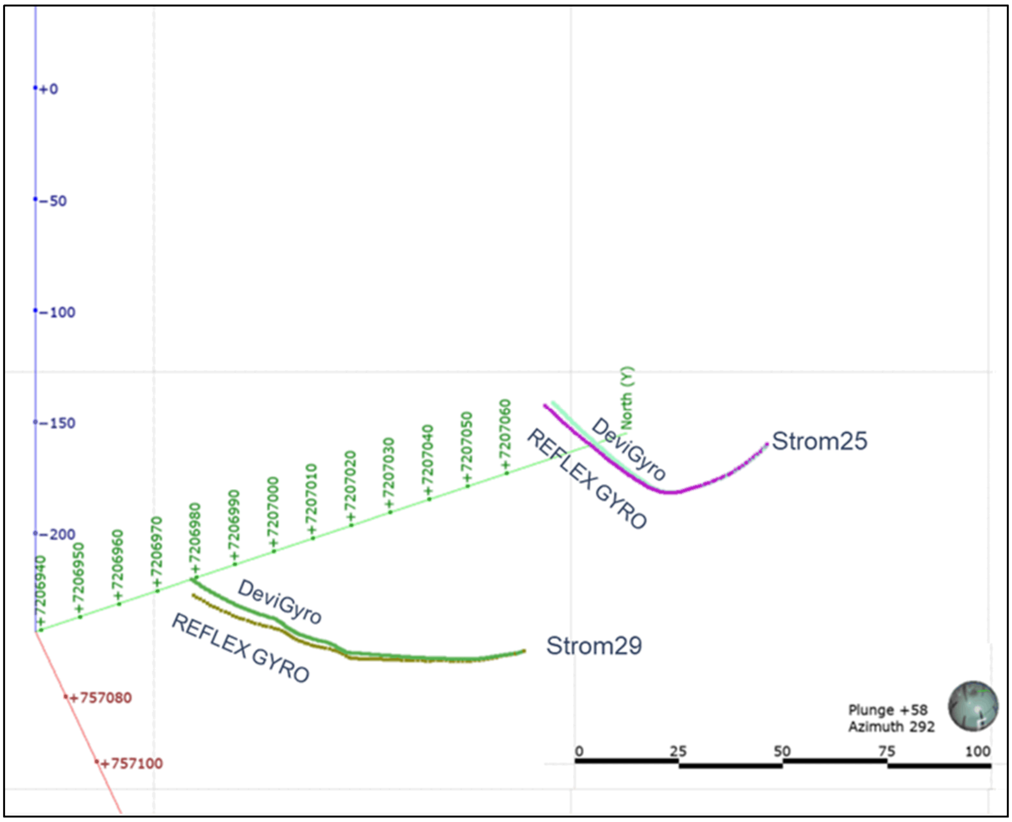

Figure 3.5 Drill hole traces plotted as interval points on two drill holes (Strom 25 and 29) that was tested with both gyro methods. The deviation difference in lower most part of the measurements in Strom 25 showed a deviation of 2.5m between the two systems.

3.7.3 Sampling

Core loss has been minimal and limited to the breccia zone well above the mineralization.

3.7.4 Logging

The drill core is logged by Boliden geologists and sampled by the core technicians at the core shed in Boliden.

3.7.5 Density

Density data has been collected from multipycnometer measurements on sample pulps from within the zones of mineralization. The S.G. pulp values have been estimated into the block model as density. It should be noted that the pyncometer test does not account for porosity of in-situ bedrock material. All such porosity is destroyed in the sample preparation production process. A pyncometer specific gravity value should thus be considered as the upper limit of specific gravity of a bedrock sample. In most cases an "in-situ porosity correction factor" (typically 1-2 %) should thus be applied to pyncometer results in order get a true sense of the actual in-situ specific gravity of a rock mass.

No correction factor has been used in the Strömfors estimation. The Strömfors drill core does not visually show high degrees of porosity, however it is recommended to compliment current density measurements with bulk density specific gravity measurements, and to apply a correction factor to S.G. pulp values in future estimations.

Table 3.2 Statistics of S.G. pulp values in drill hole composites used to inform estimation of density in the block model*.

Density	Zone	#samples	Min	Max	MEAN	St.Dev
SG_PULP	1	276	2.7	4.92	3.23	0.40
SG_PULP	2	28	2.7	4.16	3.25	0.52
SG_PULP	99	255	2.7	4.47	3.13	0.33

* Zone 1 = Ronja, zone 2 = Frida, zone 99 = mineralised horizon outside of 1 + 2 only

3.7.6 Analysis and QAQC

A routine QA/QC program has been implemented for assay data from the beginning of the project. This entails the use of blanks, pulp duplicates and certified in-house standards. As per current policy, all Strömfors analysis dispatches must include between 5 and 10% of QAQC samples (blanks, pulp duplicates and certified in-house standards). The samples are transported in batches by truck to the ALS preparation laboratory in Piteå. The samples here are prepared with "PREP-22". In this preparation method the sample is dried and pulverized to better than 85% passing a 75µm screen. The pulps are then sent to ALS`s laboratories in either Ireland or Canada for assaying. The assay methods used are Au-ICP22, ME-ICPORE, Te-ICP61 including gravity OA-GRA08c.

The overall quality of the analytical data collected in the current drilling phases for Strömfors during 2020-2021 is good. Even considering the scarce instances where assay results should have been rejected, these incidents altogether have not the frequency or extent to have significantly affected the overall quality of the dataset.

3.8 Exploration activities and infill drilling

During 2021 a total of 23 drill holes have been drilled totaling 22962 meters. Focus has mainly been on extension drilling and drilling for new lenses in the vicinity of the known lenses. A total of seven infill drill holes on the Ronja and Frida lenses have also been completed.

3.9 Mining methods, mineral processing and infrastructure

Mining methods, mineral processing, and evaluation of existing or needed infrastructure have been informed by the Strömfors Scoping Study. These assumptions are conceptual in nature, however, they are well informed by experience mining similar mineralisations in the district.

3.9.1 Mining methods

Eventual mining of the Strömfors deposit would likely be by cut and fill mining, long hole stoping, or rill stoping, or likely a combination of these mining methods. Similar deposits have been mined and are currently being mined by Boliden in the Skellefte District using these methods. At this stage a ramp or decline would be the most likely method to access the deposit. Rock stability has not been thoroughly evaluated at this time, but there are no indications that mechanical properties pose a risk to extraction. Costs assumptions for eventual mining range from 350 to 600 sek/t depending on mining method, based on studies of other projects in the district and actual mining costs from Boliden mines.

3.9.2 Mineral processing

Boliden operates a concentrator just 4 km form the Strömfors deposit which treats ore from two VMS base metal mines and a gold mine. Metallurgical testing of samples from the Strömfors deposit is ongoing.

3.9.3 Infrastructure

The Boliden Area concentrator and tailings facility is located 4km away from the Strömfors deposit. Approximately 1.9 Mt of complex ore is processed here annually from the Kristineberg, Rentström, and Kankberg mines (Figure 3.6).
The deposit is close to a major highway (95) and electrical power lines. In general, the accessibility of existing infrastructure is very good.

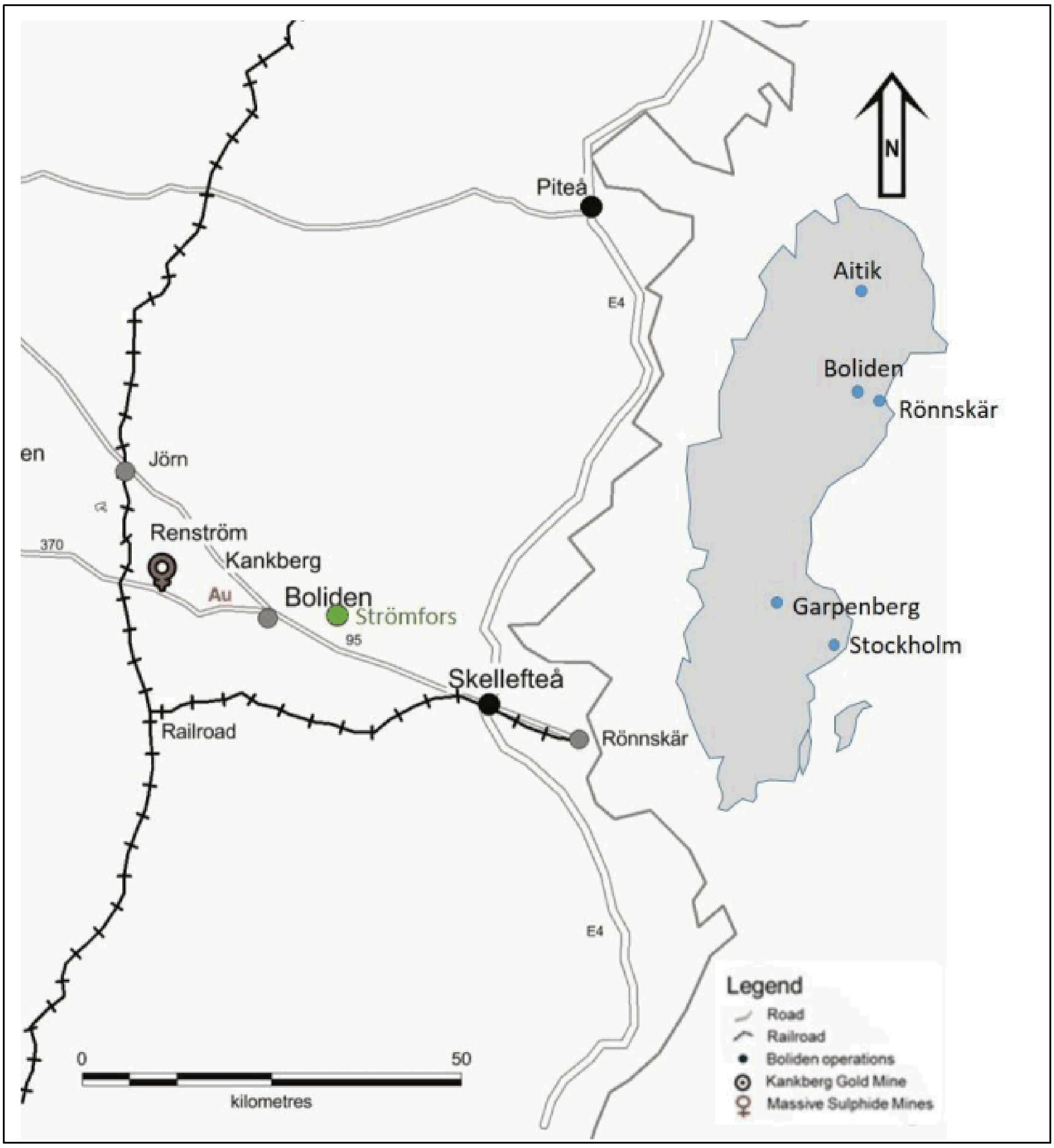

Figure 3.6 Location of the Strömfors mineralization in the eastern part of the Skellefte mining district, Västerbotten Sweden. Indicated are also producing mines operated by Boliden in the area, i.e., the Kankberg gold mine and the Renström polymetallic mine.

3.10 Prices, terms and costs

High grade domains were interpreted using a cut-off value of 650 sek/t based on conceptual Net Smelter Return (NSR) values. Note that 650 sek/t should be considered a “best case” scenario for a marginal cut-off. Net Smelter Return values are based on recent tests done on Petiknäs Norra, which is a somewhat similar mineralisation style, and assume similar recovery.

Planning prices used at the time of the Strömfors Mineral Resource Estimation are from 2020, and are the same as Boliden’s current 2021 planning prices, except copper which has increased to $6,800/tonne.

Table 3.3. Boliden planning prices, 2020.

	Planning prices, 2020
Copper	USD 6,600/tonne
Zinc	USD 2,400/tonne
Lead	USD 2,100/tonne
Gold	USD 1,300/tr.oz
Silver	USD 17/tr.oz
USD/SEK	8.0

Table 3.4 Conceptual mining costs.

	Costs (sek/t)
Mining	350
Milling	250
Administrative	50

Table 3.5 Net Smelter Return (NSR) factors.

	NSR Factor** (sek/t)
Gold	270
Silver	3
Copper*	270
Zinc	100
Lead*	0

* at this stage eventual produced concentrates are theoretical and subject to change. It is entirely possible that no copper concentrate will be produced and instead lead will have a payable value.
** NSR Factor is assuming best-case recoveries

3.11 Mineral Resources

The estimation was performed in Datamine Studio RM v.1.7.39.0. Shapes of mineralisations used for domaining were created in Leapfrog Geo v.5.1.1. Statistical analysis was performed in Snowden Supervisor v.8.13. Interpretation of the mineralisation was guided by a 3D geological model, as well as five 2D geological section interpretations and drill core logs.

3.11.1 Estimation domains

The mineralisation horizon was explicitly modelled based on drill core logging, metal grades, and the geological model. Within the horizon, economic intersections were selected using Leapfrog Geo's economic composite tool. Indicator interpolants were created implicitly from the economic composites, constrained by the mineralisation horizon. The result was two domains considered economic, "Ronja" and "Frida", enveloped by a third domain, the mineralised horizon (Figure 3.7).

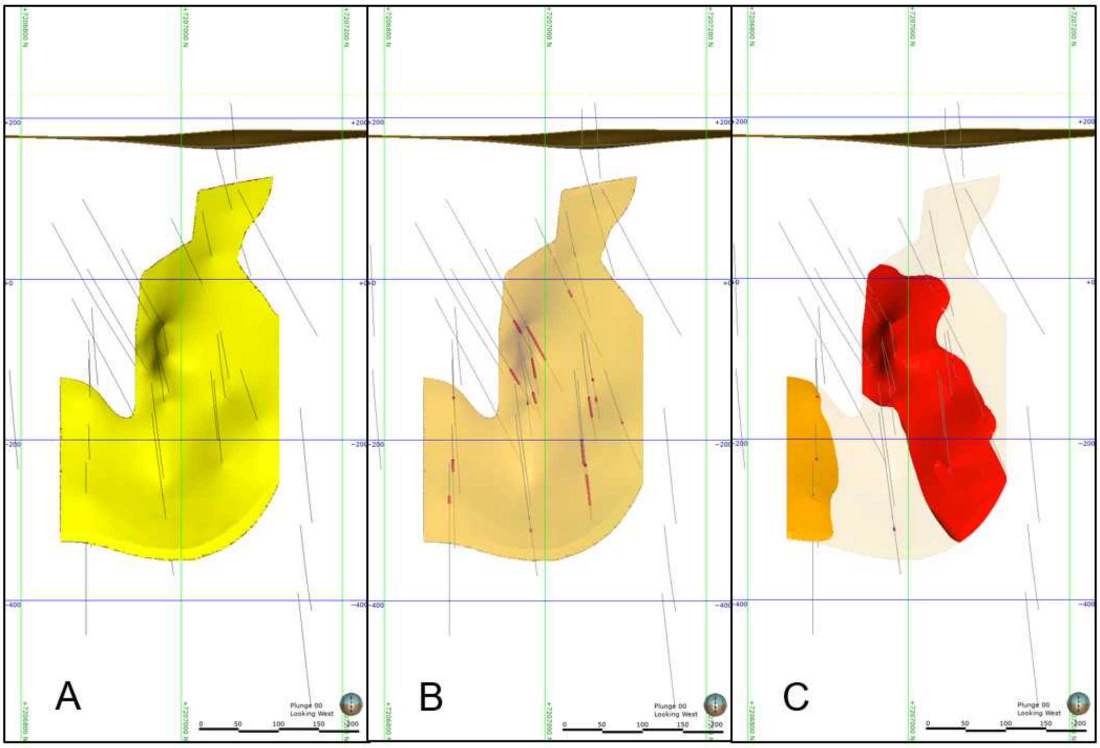

Figure 3.7 Mineralisation and domaining. A) Mineralisation horizon, B) Selection of economic composites, C) implicitly modelled economic domains, Frida (orange) and Ronja (red).

3.11.2 Compositing

Sample lengths were studied for all three domains (the mineralized horizon and the two high grade domains). In this case the mineralised horizon refers to the entire drill hole intersection of the wireframe, including intersections of the high grade domains. All histograms indicated one meter as the most common sample length and very few samples over two meters. One meter composites were chosen, with a minimum composite length of 0.85m.

3.11.3 Evaluation of outliers

An evaluation of outlier grades was performed for all estimated elements, for each domain separately, and for all domains together. Grade capping decisions were based on statistical analysis of the Ronja domain, after compositing to 1 m, as the Ronja domain is the bulk of the mineral resource. Outlier evaluation was performed in Snowden Supervisor by comparing histograms, log probability plots, mean and variance plots, and cumulative metal plots. Cap values were chosen for each analysis and an average, or close to the average, was used as the final cap value (

Table 3.6).

Table 3.6 Grade capping and percentage of metal cut.

	Cap	Metal cut
Au	33 g/t	0.8%
Ag	700 g/t	2.8%
Pb	9%	4.2%

3.11.4 Block model framework

The block model prototype is created in Datamine Studio RM using the auto-fit method set to the mineralised horizon wireframe. Block size is 4*4*4 with sub-blocking to 2*2*2 and variable height allowed in the vertical direction.

3.11.5 Grade estimation parameters

All elements are estimated using the Inverse Power of Distance squared method, and utilized the same search volume parameters. The search volume was 50m*50m*5m (XYZ), and the volume was orientated to the mineralisation trend through dynamic anisotropy. Then minimum number of informing samples allowed was 4, and the maximum 12, with a maximum of 4 samples allowed from one drill hole. If these requirements were not fulfilled than the search volume was doubled and the minimum sample requirement lowered to 2. If the second search volume requirements were not fulfilled, a third search volume, three times the size of the first, was used with the same requirements as the second volume. The majority of blocks were estimated in the first volume.

3.11.6 Mineral Resource classification

The high grade lenses "Ronja" and "Frida" have been classified as an Inferred Resource. Estimated blocks within the mineralised horizon, outside the high grade lenses, have been left unclassified. To classify the block model, the key indicators used were, degree of geological complexity, the quality and quantity of informing data, and confidence in the block estimates. No potential impediments to mining such as land access, environmental or legal permitting are known or expected.

The geology is structurally complex and has proven difficult to interpret. Continued drilling has improved the understanding and structural measurements from orientated drill core have been used to increase confidence in the interpretation. More drilling is necessary to confirm the structural model, and in the case of the "Frida" lens, to confirm the orientation and that the right drill hole intersects are being included.

The drill hole database has been checked and a QAQC program has been followed for all sampling. All drilling has been 50.7 mm diameter (NQ2), which is a fairly large core and beneficial for gold assaying. Core loss has been minimal and limited to the breccia zone well above the mineralization. Specific gravity measurements from pulp used to estimate density have not been corrected for porosity, but the effects should be minimal.

Statistical comparison of block grades to composite grades is good, as is a visual comparison. The blocks were estimated using Inverse Power of Distance, which is generally considered inferior to Ordinary Kriging, but acceptable for an early stage Inferred Mineral Resource. The classified block model is shown below in Figure 3.8.

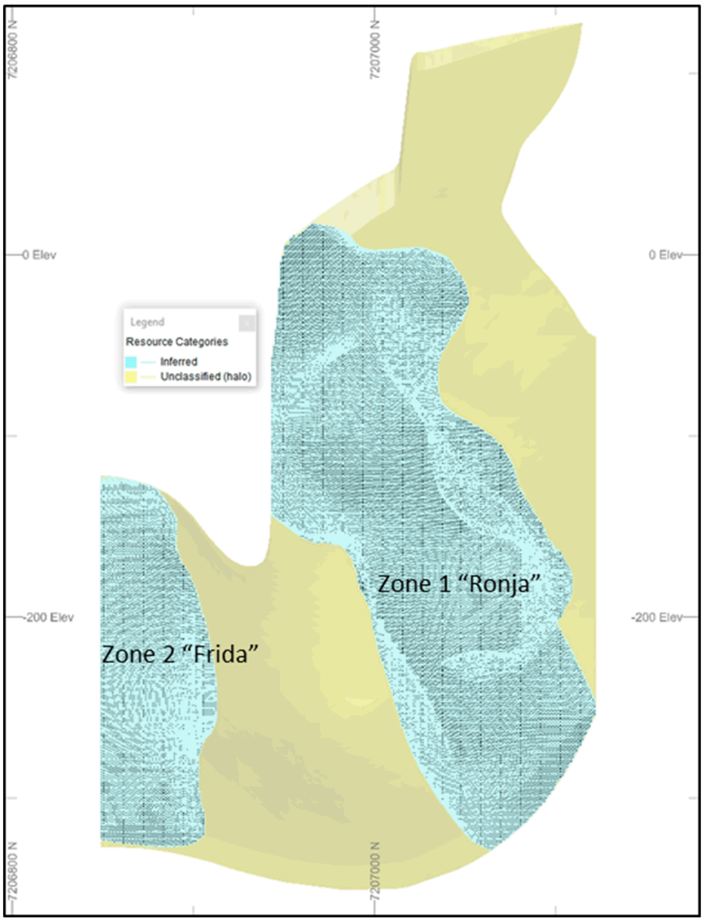

Figure 3.8 Strömfors classified Inferred Mineral Resource.

3.11.7 Mineral Resource Statement

All blocks within the high grade wireframes, Ronja and Frida, are reported in the mineral resource statement. These wireframes have been modelled using 650 sek/t NSR values as a cut-off. The mineral resource includes significant amounts of blocks under cut-off, and as such no additional dilution has been added.

Table 3.7. Mineral Resources and Mineral Reserves Strömfors 2021-03-03.

			2021			
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Mineral Resources						
Inferred	**2 590 000**	**2.95**	**81**	**0.16**	**4.44**	**0.75**

*Reasonable Prospects for Eventual Economic Extraction (RPEEE) of the Inferred Mineral Resource is defined by the interpolation of assumed Net Smelter Return Values over the conceptual mining cut-off of 650 sek/t. Within this interpolation there are blocks with values both over, and under cut-off. All figures are rounded to reflect the relative accuracy of the estimate. All composites have been capped where appropriate.

The reported Inferred mineral resource is based on a high-quality drill hole database and informed by well understood mining and milling cost and recovery assumptions. As the project is still at an early stage, potential changes to the geological model as deposit knowledge increases, could impact the validity of this resource estimate. The Frida lens in particular is less supported through drilling than the Ronja lens at this time (note Frida only contributes 0.31 Mt to the total 2.59 Mt Inferred mineral resource). Current mining cost assumptions and milling recovery assumptions are optimistic, however, the resource is not overly sensitive to changes in cut-off, and should withstand any minor negative changes in this area.

4 REFERENCES

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