

# Hannanmetals

1305 – 1090 West Georgia Street, Vancouver, BC, V6E 3V7  
Phone: +1 604 685 9316 / Fax: +1 604 683 1585

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NEWS RELEASE

OCTOBER 11, 2022

## HANNAN EXPLORATION UPDATE ON THE BELEN CU-AU PORPHYRY DISCOVERY IN PERU

Vancouver, Canada – **Hannan Metals Limited** (“Hannan” or the “Company”) (TSXV: HAN) (OTCPK: HANMF) is pleased to provide an update at the Belen copper-gold porphyry prospect at the 100%-owned Valiente project in central Peru.

The Belen Cu-Au porphyry is located 19 km east from the township of Tingo Maria in central Peru, within a previously unknown [Miocene-age](#) porphyry-epithermal copper-gold mineralized belt. The project is contained within a 140 km by 50 km area where Hannan’s exploration team has identified at least seven intrusion related porphyry/epithermal/skarn targets, of which Belen is the most advanced and described here in more detail (Figure 1).

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### Highlights:

- First outcrop recognition of a linked porphyry copper-gold and epithermal gold mineral system at Belen within an 8 km by 2 km trend (Figures 2-4) across three prospect areas (Ricardo Herrera, Vista Alegre and Sortilegio).
- Detailed field work has been ongoing at the Belen prospect, which represents a small proportion (4%) of Hannan’s total landholding at the Valiente project. Hannan has six geologists and support team working full time on the project. Field work has focused on detailed mapping, channel and systematic soil sampling to cover the entire 8 km intrusive trend at the Belen porphyry target (Figure 1). Soil sampling to date covers about 50% of the 8 km Belen trend on a grid spacing of 100 m x 100 m. A total of 1,630 samples have been taken.
- The Company has also completed a successful 4,880 line km aeromagnetic survey across all of its 100% owned mining concessions at Valiente. Results from this survey will be provided post processing in the coming month.

### ***Ricardo Herrera***

- Field work has identified a leached copper-gold porphyry coincident with soil anomalies, with well-developed quartz veining at upper topographic levels and evidence for an enriched chalcocite blanket sampled over 1 km within lower lying creeks at the Ricardo Herrera Copper-Gold Porphyry Target.
- Detailed 1:2,500 mapping has revealed an early hornblende feldspar porphyry of andesitic composition with phyllic alteration, intermediate argillic alteration, relics of potassic alteration with veins of early biotite (EB), M-type and A-type.
  - The alteration zone extends for 850 m x 250 m within a broad footprint of a copper anomalous and altered zone of intermineral hornblende feldspar porphyry stock of andesitic composition that extends over 1,600 m x 800 m (Figure 2).
- A detailed pole-dipole induced polarization geophysical survey over the Ricardo Herrera target is planned in the coming month and the initial stages of drill permitting are being undertaken.

### ***Vista Alegre***

- A 1.8 km long gold-bearing epithermal target area identified by large gold mineralized boulders of quartz-pyrite and iron oxides as well as strongly gold anomalous soil samples has been discovered 2.5 km NW of Ricardo Herrera, where systematic 100 m x 100 m soil sampling has identified two strong gold anomalous trends that extend for 1,800 m and 970 m respectively. Infill sampling at 25 m x 25 m has been initiated.

### ***Sortilegio***

- Earlier stage work (soil sampling and prospecting) at the Sortilegio porphyry target have indicated the presence of a second copper-gold porphyry at Belen located 7 km northwest of Ricardo Herrera.
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Michael Hudson, CEO, states: ***"We are now starting to unlock the potential of our first mover-advantage at the new Miocene-age copper-gold mineral camp within a 140 km by 50 km area at Valiente. At Belen we see extensive and systematic soil and rock geochemical anomalies over >8 km with the emergence of two copper-gold porphyry targets separated by an epithermal gold target area. What is most encouraging is that more detailed work at Ricardo Herrera has highlighted the presence of outcropping leached copper-gold porphyry mineralization with well-developed porphyry-style alteration and quartz veining at upper topographic levels with evidence of an enriched chalcocite blanket within lower lying creeks. This is the first bone fide bedrock find at the Valiente project. Additionally, the completion of the extensive airborne magnetic survey is a step change for the project. The Company is also initiating work to commence drill permitting."***

The Belen prospect, 100% owned and explored by Hannan Metals Ltd, is located 19 km east of the city of Tingo Maria, in central Peru (Figure 1). The deposit site is characterized by steep topography on the eastern flank of the Central Cordillera with elevations between 800 and 2000 m above sea level (a.s.l.). The project was discovered in 2021 during an extensive greenfields exploration program initiated by Hannan.

Peru has been a major copper and gold producer since precolonial times. Currently known gold deposits include orogenic gold, porphyry Cu-Au, porphyry Au, transitional porphyry-epithermal, epithermal, and placer gold. The Belen project may represent a transitional porphyry-epithermal style within the newly discovered Valiente metallogenic belt of the central eastern Andes. The Valiente project is located further east than most of the conventional Andean porphyry settings and shows regional similarities to deposits such as the large Bajo de Alumbra copper-gold porphyry in Argentina. It is interpreted that Valiente was formed in a tectonically favourable area associated with an arc-oblique wrench fault system, that may have aided the ascent of oceanic arc-related magmas into the transfer zone so far inboard from the magmatic arc.

### ***Ricardo Herrera Copper-Gold Porphyry Target***

A linked porphyry copper-gold and epithermal gold mineral system has been identified at Belen within an 8 km by 2 km trend (Figures 2-4). Recent detailed field work has **identified a leached copper-gold porphyry with well-developed quartz veining at upper topographic levels and evidence for an enriched chalcocite blanket sampled over 1 km within lower lying creeks** at the Ricardo Herrera Copper-Gold Porphyry Target. This coincides with a highly anomalous Cu-Au-Mo soil anomaly, initially reported [here](#), over a 1,600 m by 800 m area above a mapped and radiometrically dated Miocene-age porphyry intrusion.

The Ricardo Herrera porphyry stock was intruded in several stages, broadly termed early, intermineral, and late, all interpreted within a relatively short time interval. The early stages are hornblende feldspar porphyries of andesitic composition, whereas the late stages consist of unaltered feldspar porphyries of andesitic composition. The intrusions caused contact metamorphism and hydrothermal alteration that partially obliterated the original texture and composition of the sedimentary country rocks. Two early porphyries are identified. The first being an intermediate argillic (chlorite from secondary biotite-white micas) with relicts of potassic alteration (secondary biotite-magnetite) with "EB" type veinlets (early biotite), M-type (magnetite) veinlets and few A-type veinlets (quartz). The second early porphyry intrusion is characterized by A-type veinlets, jarosite-goethite iron oxide veinlets with phyllic alteration (quartz-white sericite), argillic alteration (kaolinite). The intermineral stock is dominated by supergene argillic alteration and propylitic alteration (chlorite, epidote).

In porphyry copper systems, the area with the highest copper grade often corresponds to the early porphyries. The focus of the detailed geological mapping has therefore been to identify this area and to sample it with systematic rock sampling. Assays from this work are pending.

At Ricardo Herrera the combined early hornblende feldspar porphyry is at least covering an area of 850 m x 250 m on the surface. But limited exposures, that are mostly constrained to creeks and rare outcrops, make it difficult to define the true area. Observed copper minerals include pyrite, chalcopyrite, chalcocite, molybdenite, neotocite and chrysocolla mineralization. The intermineral hornblende feldspar porphyry contains supergene argillic alteration and minor neotocite. Moderate to pervasive secondary biotite alteration is common throughout the host rock. Strong chloritization and pyritization is observed replacing the secondary biotite.

At this initial stage of exploration at the Ricardo Herrera porphyry target, the early porphyry occupies a surface area of 0.21 km<sup>2</sup> which is comparable to the 22.37 Moz gold La Colosa deposit in Colombia where the early diorite porphyry occupies a surface area of [0.35km<sup>2</sup>](#).

Channel sampling at Ricardo Herrera has been focused on creeks where outcrop exposures are good. In many places access is a limiting factor of what can be sampled. Most channels have to date been taken from zones peripheral to what is

interpreted to be the core of the system (Figure 3). The results are summarized in Table 1. Results from 34 individual channels include 5 m @ 0.11% Cu and 5 ppm Mo. This channel is open to either side and is from the strongly leached and weathered exposure of the early diorite porphyry. Fractures are rich in jarosite and goethite after pyrite and chalcopyrite (Figure 3). Importantly, the best and highest-grade results have been achieved from the leached early porphyry. The results are also low in manganese therefore interpreted to be representative of a leached porphyry system. Channel sampling continues.

### ***Vista Alegre Epithermal gold target***

Vista Alegre consists of a gold-bearing epithermal target identified by large gold mineralized boulders of quartz-pyrite and iron oxides. Strongly gold anomalous soil samples have been discovered 2.5 km NW of Ricardo Herrera ([initially reported here](#)). Infill sampling at 25 m x 25 m on the target has now been initiated.

[Previous work](#) has also included:

- Systematic 100 m x 100 m soil sampling program. Two strong gold anomalous trends that extend for 1,800 m and 970 m respectively have been identified. Assays have been received to date from 376 samples covering an area of 2 km x 1.7 km. Values range from <0.001 ppm to 0.094 ppm, average 0.0056 g/t in soil. The gold anomaly correlates very well with several elements including arsenic. (Figures 2 and 4).
- Soil anomalies are coincident with gold found in quartz-iron oxide boulders ([reported here](#)). To date 19 boulders >0.1 ppm Au have been sampled over a trend of 1.6 km that is parallel to the main gold anomaly. A total 43 rock samples from boulders average 0.48 g/t Au, 6 g/t Te and range from below detection limit to 2.69 g/t Au and <DL to 59 g/t Te.
- Two gold mineralized outcrops have also been located 270 m apart. The mineralization is hosted by 5 – 30 cm wide quartz veins in an intrusive host rock with magnetite and iron oxides. The mineralization is correlated with high values of copper and molybdenum. The outcrops assayed:
  - Grab sample: 1.17 g/t Au, 0.67 % Cu and 33.4 ppm Mo.
  - Channel sample: 30 cm @ 3.21 g/t Ag, 0.57 % Cu and 22 ppm Mo ([reported here](#))

### ***Sortilegio***

Recent field work, and reported here, at the Sortilegio porphyry target have indicated the presence of a second large-scale copper-gold porphyry at Belen located 7 km north west of Ricardo Herrera. Prospecting has identified a boulder with A-type vein with pervasive potassic alteration (secondary biotite) and intermediate argillic alteration (chlorite-magnetite) disseminated chalcopyrite, with traces of bornite and chalcocite. The discovery coincides with a large copper soil anomaly where scout soil ridge line sampling has been completed at a sample spacing of 200 m and an irregular line spacing of 400 – 500 m (Figure 4). The boulder assayed 0.41% Cu and 0.16 g/t Au and is interpreted to represent the core of a porphyry system.

### ***Valiente Discovery History***

In 1984 Ingemmet, the Peruvian Geological Survey, conducted mapping in the central part of the Central Cordillera in the Departments of Huanuco and Ucayali. The area was sporadically explored during the 1990's by Gitenes, Newcrest, BHP, WMC and others but records are sparse. At this time, access to the area was restricted because of unpredictable security conditions and poor infrastructure.

From 2020 to 2021, Hannan launched a greenfields exploration program for porphyry and epithermal gold deposits in the high jungle areas of the Eastern Cordillera of Peru, which included regional database compilation, target generation, and field mapping. Hannan also conducted regional stream sediment sampling (fine clay fraction). The target generation permitted definition of prospective area, one of which was the Valiente block located along the eastern flank of the Central Cordillera, Department of Ucayali.

In 2022, field work started in the Belen area which represents a small proportion (4%) of Hannan's total landholding at Valiente. In this area, several geochemical anomalies were found, with boulders of diorite porphyry containing quartz-sulfide and magnetite veinlets. Subsequent mapping, soil and rock sampling at Belen during the last two months has identified porphyry-style alteration and veinlets.

Field and social teams are actively engaged in the area, with Hannan's policy to undertake exploration activities only within areas where full support from local stakeholders exists.

## Technical Background

All samples were collected by Hannan geologists. Samples were transported to ALS in Lima via third party services using traceable parcels. At the laboratory, rock samples were prepared and analyzed by standard methods. The sample preparation involved crushing 70% to less than 2 mm, riffle split off 250g, pulverize split to better than 85% passing 75 microns. Samples were analyzed by method ME-MS61, a four acid digest performed on 0.25g of the sample to quantitatively dissolve most geological materials. Analysis is via ICP-MS. Channel samples are considered representative of the in-situ mineralization samples and sample widths quoted approximate the true width of mineralization, while grab samples are selective by nature and are unlikely to represent average grades on the property. Gold was analyzed by ALS in Lima using a standard sample preparation and 25g fire assay sample charge.

All soil samples were collected by Hannan geologists using an in-house protocol for soil sampling in jungle areas. The samples were subsequently analyzed with a portable XRF ("pXRF") deploying a protocol developed by [Hannan for the San Martin project](#). The method is designed to minimize risk of contamination and ground disturbance. In most cases the sample media is the "B-horizon" of the soil profile. Only 100g of sample material is collected from each site. From the soil sample a pellet is produced which is dried and analyzed by a pXRF. Certified reference material, blanks and field duplicates are routinely added to monitor the quality of the pXRF data and 10% of all samples are submitted to a ALS in Lima to validate the pXRF data. Gold was analyzed by ALS in Lima using a standard sample preparation and 25g fire assay sample charge.

## About Hannan Metals Limited (TSXV:HAN) (OTCPK: HANNF)



[Hannan Metals Limited](#) is a natural resources and exploration company developing sustainable resources of metal needed to meet the transition to a low carbon economy. Over the last decade, the team behind Hannan has forged a long and successful record of discovering, financing, and advancing mineral projects in Europe and Peru. Hannan is a top ten in-country explorer by area in Peru.

Mr. Michael Hudson FAusIMM, Hannan's Chairman and CEO, a Qualified Person as defined in National Instrument 43-101, has reviewed and approved the technical disclosure contained in this news release.

On behalf of the Board,

**"Michael Hudson"**

Michael Hudson, Chairman & CEO

### Further Information

[www.hannanmetals.com](http://www.hannanmetals.com)

1305 – 1090 West Georgia St., Vancouver, BC, V6E 3V7

Mariana Bermudez, Corporate Secretary,

+1 (604) 685 9316, [info@hannanmetals.com](mailto:info@hannanmetals.com)

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## THE VALIENTE COPPER GOLD PROJECT

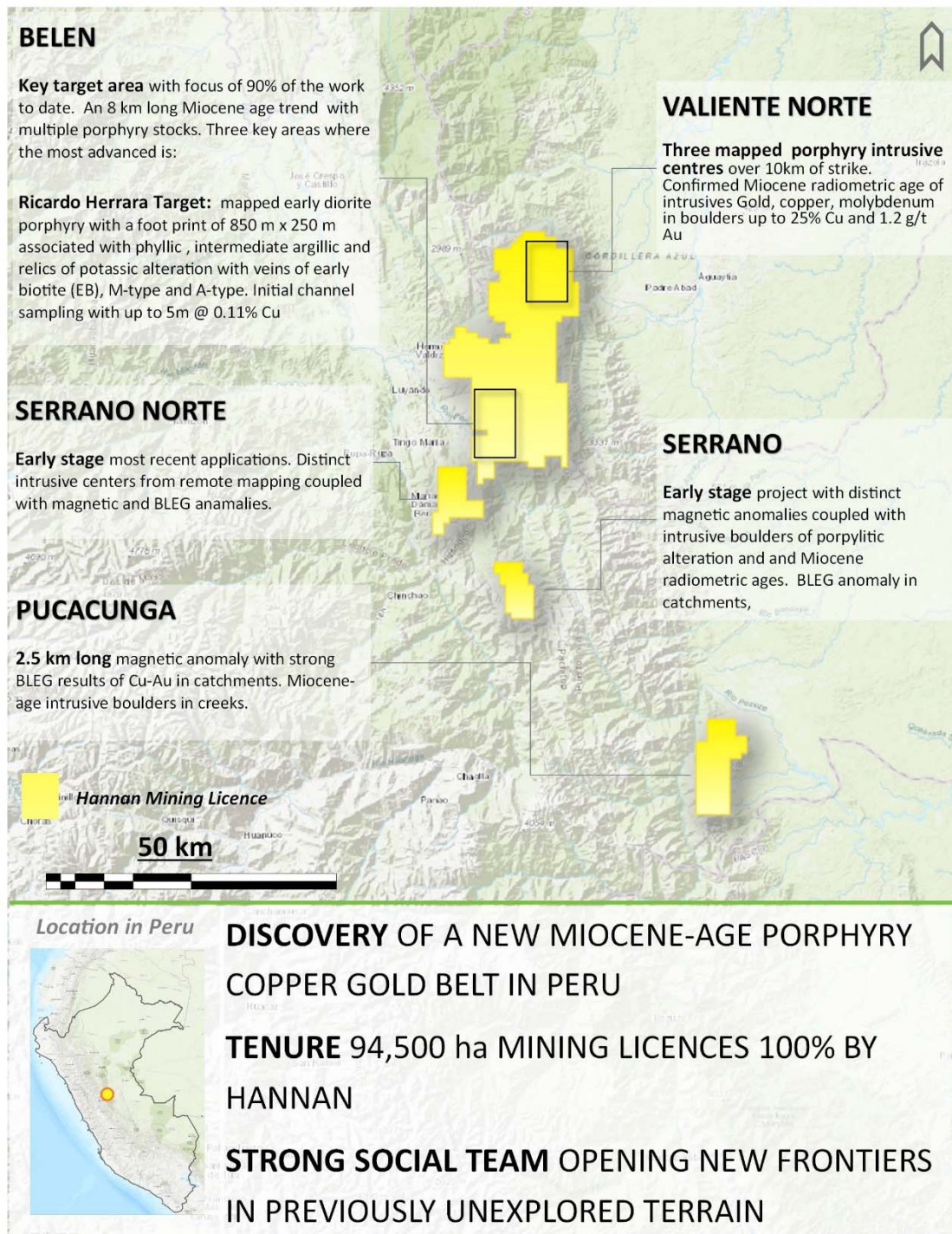


Figure 1. Overview of the Valiente project in Peru

## BELEN: RICARDO HERRERA PORPHYRY TARGET

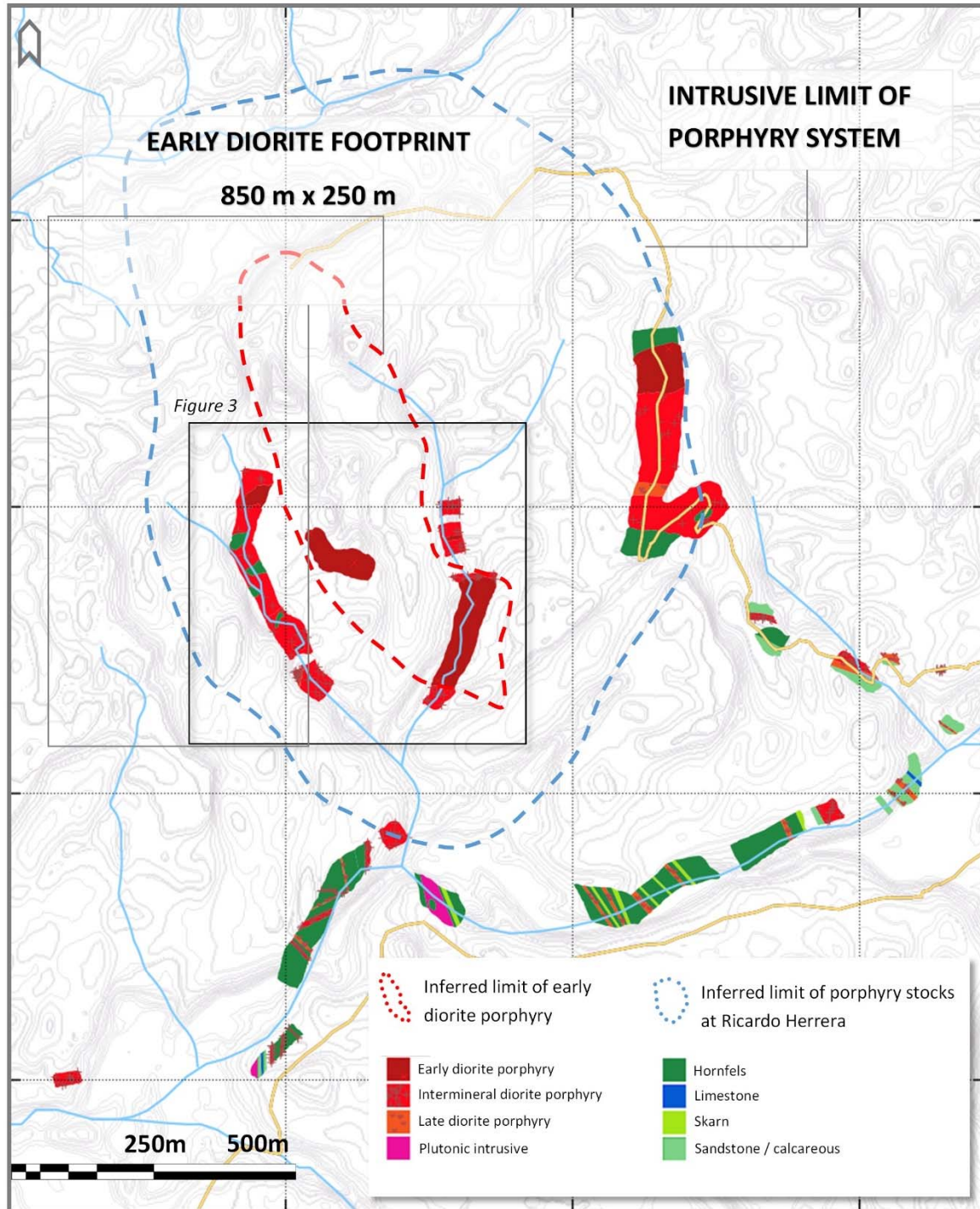


Figure 2. Results from detailed mapping at the Ricardo Herrera porphyry target at Belen has identified a 850 m x 250 m surface footprint of an early diorite porphyry.

## BELEN: RICARDO HERRERA PORPHYRY TARGET CHANNEL RESULTS

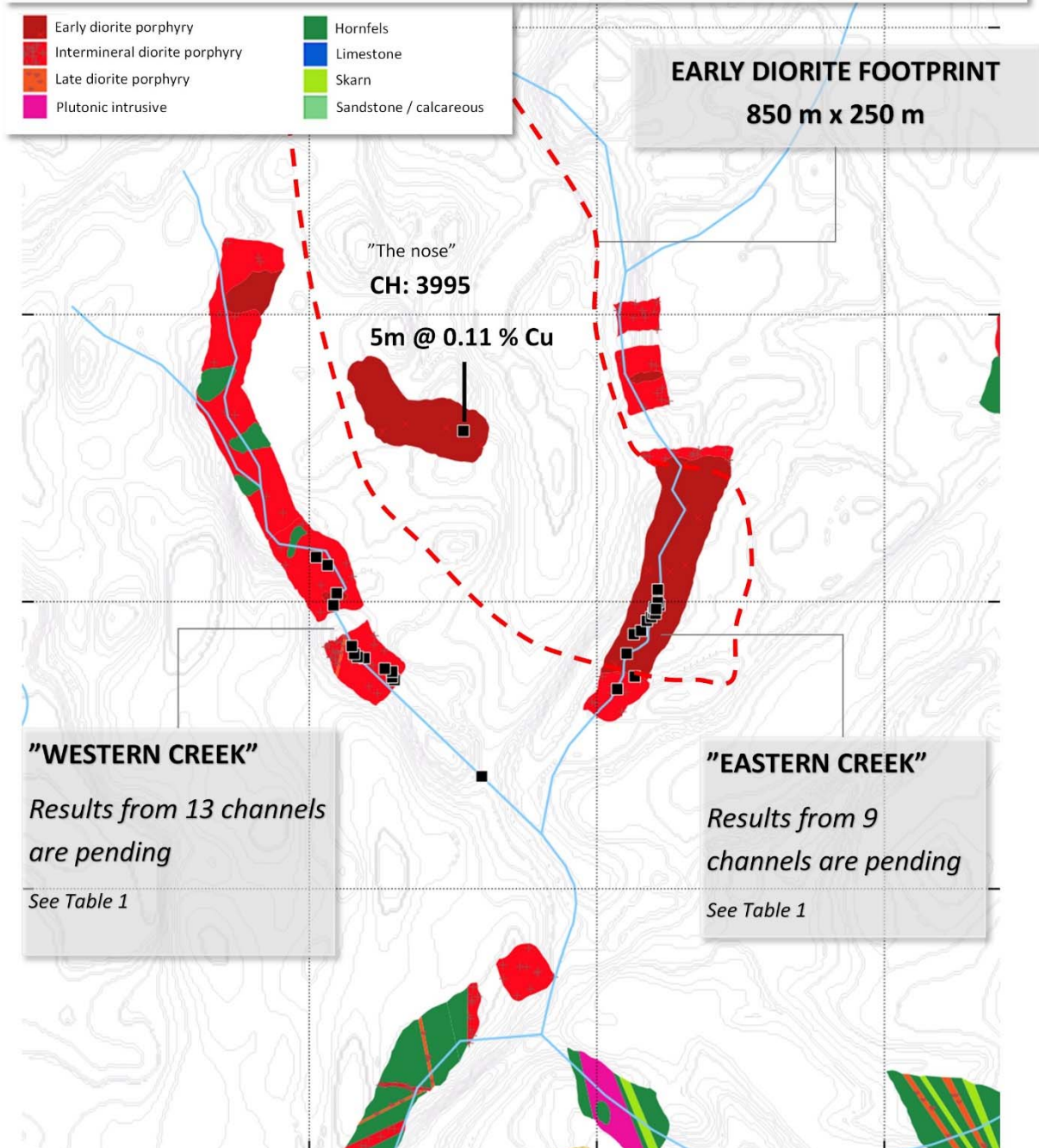
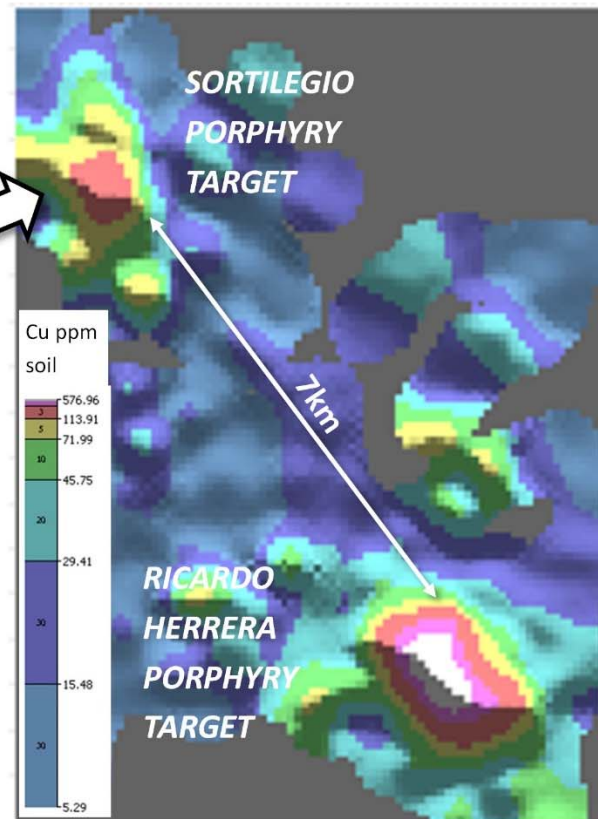


Figure 3. Results from detailed mapping at the Ricardo Herrera porphyry target at Belen has identified a 850 m x 250m surface footprint of an early diorite porphyry.

## BELEN UPDATE - SORTILEGIO PORPHYRY TARGET

**Boulder 16208:** pervasive potassic biotite alteration representative of the core of a porphyry system. Assayed 0.41% Cu and 0.16 g/t Au. Locally enriched with chalcocite.



**Boulder 16208:** detailed photo of hand sample. The boulder assayed 0.41% Cu and 0.16 g/t Au. It is interpreted to represent the core of a porphyry system and coincides with a large copper soil anomaly



Figure 4. Results initial prospecting at the Sortilegio Porphyry Target at Belen. Handsample from the the boulder 16208 sample of A type vein with pervasive potassic alteration (secondary biotite) and intermediate argillic alteration (chlorite-magneite) disseminated chalcopyrite, with traces of bornite and chalcocite.



## BELEN UPDATE - RICARDO HERRERA PORPHYRY CHANNEL RESULTS

ID	Interval_m	Zone	Host rock	Comment	Cu ppm	Au g/t	Mo ppm
CH3995	5	The nose	Early diorite porphyry	reported here	1105	0.005	5.2
CH16104	13.5	Eastern creek	Intermineral diorite porphyry	reported here	111	0.015	1.0
CH16111	18	Eastern creek	Early diorite porphyry	reported here	296	0.004	1.7
CH16120	7	Eastern creek	Early diorite porphyry	reported here	447	0.019	97.9
CH16124	10	Eastern creek	Early diorite porphyry	reported here	404	0.140	1.9
CH16129	4	Eastern creek	Intermineral diorite porphyry	reported here	296	0.004	1.7
CH16131	4.2	Eastern creek	Early diorite porphyry	reported here	206	0.009	0.8
CH16133	4	Eastern creek	Early diorite porphyry	reported here	725	0.002	1.5
CH16135	5.5	Eastern creek	Early diorite porphyry	reported here	653	0.001	0.8
CH16137	8	Eastern creek	Early diorite porphyry	reported here	561	0.007	2.8
CH16140	2.6	Eastern creek	Early diorite porphyry	reported here	1425	0.002	1.1
CH16142	2.5	Eastern creek	Early diorite porphyry	reported here	606	0.002	1.5
CH16143	10.6	Eastern creek	Early diorite porphyry	reported here	482	0.01	3.6
CH16148	2.7	Eastern creek	Early diorite porphyry	reported here	1300	0.001	1.1
CH16149	7	Eastern creek	Early diorite porphyry	reported here	555	0.003	2.5
CH16153	8	Eastern creek	Early diorite porphyry	reported here	435	0.013	1.8
CH16157	2.5	Western creek	Intermineral diorite porphyry	reported here	307	0.004	1.2
CH16158	2.5	Western creek	Intermineral diorite porphyry	reported here	211	0	1.2
CH16159	4.5	Western creek	Intermineral diorite porphyry	reported here	244	0.002	1.6
CH16161	3	Western creek	Intermineral diorite porphyry	reported here	293	0.001	2.5
CH16162	7	Western creek	Intermineral diorite porphyry	reported here	115	0.003	2.3
CH16166	5.5	Western creek	Intermineral diorite porphyry	reported here	99	0.001	1.3
CH16169	4	Western creek	Intermineral diorite porphyry	reported here	161	0	5.3
CH16171	9.3	Western creek	Intermineral diorite porphyry	Assays pending			
CH16176	4.2	Western creek	Intermineral diorite porphyry	reported here	159	0	22.6
CH16178	10.3	Western creek	Intermineral diorite porphyry	reported here	370	0	36.9
CH16183	7.1	Western creek	Intermineral diorite porphyry	reported here	263	0.001	19.4
CH16187	3.9	Western creek	Intermineral diorite porphyry	reported here	264	0.001	12.1
CH16189	5	Western creek	Intermineral diorite porphyry	reported here	222	0	12.9

Table 1 . Results from detailed channel sampling at the Ricardo Herrera porphyry target at Belen