

Twelve holes totaling 3231 m have been drilled on the zone to a maximum vertical depth of 290 m; eleven of the holes intersected hydrothermal breccia, its associated fault, and hangingwall and footwall stockwork mineralization. Several holes drilled within 200 m of the former Lawyers-Silver Pond claim boundary produced interesting results including Hole SP-88-129 that returned a hangingwall stockwork zone grading 4.46 g/t Au and 10.30 g/t Ag over 2.0 m and two intervals of hydrothermal breccia grading 0.778 g/t Au and 6.08 g/t Ag over 5.0 m and 0.460 g/t Au and 8.64 g/t Ag over 15.0 m. The Amethyst Zone may add significantly to the strike length of the Cliff Creek Zone. It and any untested ground between it and the Cliff Creek South subzone warrant further investigation.

#### **Silver Pond South (094E 161)**

The South Zone is located southwest of the Cliff Creek South subzone and occurs on a structure subparallel to the Cliff Creek fault. The zone was identified by a northwest-trending magnetic low, a coincident VLF conductor and an 850 m long gold soil geochemical anomaly (Kennedy and Vogt, 1987). The area was trenched in 1984 with only one trench reaching bedrock. Chip sampling of it returned two 1.0 m-long gold intervals, the first grading 2.40 g/t Au and the second grading 1.37 g/t Au (Kennedy and Weston, 1986). A total of 10 holes with an aggregate length of 2139 m were drilled in 1985 and 1987. They determined that gold mineralization is confined to mm to cm-scale silica veins. The veins were commonly subparallel to the core axis; intersections were typically < 1 m in length and carried grades of 1 to 5 g/t Au. A re-evaluation of the zone is warranted.

#### **Heavy Mineral Zone**

The Heavy Mineral Zone is located south of the West Zone at the headwaters of Cloud (Silver) Creek where heavy mineral stream sediment geochemical sampling returned a number of high gold values. A resistivity high anomaly is present in the target area which is underlain by weakly altered to unaltered volcanics of the Metsantan Member. Topographically, the area is characterized by a relatively flat plateau.

Two 1987 drill holes which tested the resistivity high anomaly encountered no significant silicification and only narrow zones containing weakly anomalous gold values, including a 0.57 m interval in Hole SP87-55 grading 0.62 g/t Au. A satisfactory explanation of the geochemical anomalies and the resistivity high anomaly has not been determined from the historic drill results.

### **7.2.4.3 Other MINFILE Occurrences, Lawyers Project**

#### *Ridge Zone (094E 162)*

The Ridge Zone is located 800 m southwest of the Silver Creek Zone. The zone was identified by prospecting where sampling of mineralized float returned encouraging gold values. It is characterized by a linear resistivity high, the occurrence of gold-mineralized float and a partially coincident gold soil anomaly. These surveys were carried out to follow-up prospecting that discovered siliceous float assaying 5.28 g/t Au and 5.34 g/t Au (Kennedy et al., 1984). Mineralized float collected 125 m along strike returned 2.40 g/t Ag and 3.40 g/t Au (Kennedy and Weston, 1986). The zone as currently outlined is 220 m long by 20 m wide and consists of mm to cm scale quartz veinlets, and a stockwork of quartz stringers. Three drill holes tested the zone in 1987. The highest grades encountered were 1.29 g/t Au over a true

width of 0.71 m in Hole SP-87-57 and 3.96 g/t Au over 0.34 m in Hole SP-87-59 (Kennedy and Vogt, 1987).

Kodah (094E 068)

The Kodah gold-silver prospect is located about 6 km northwest of the Cliff Creek North deposit area. It is underlain by Toodoggone Formation volcanic rocks assigned to the Metsantan Member.

Intermittent past work during the period 1971 to 2006 by various operators identified a coincident, northwest-trending gold-silver soil anomaly within which three rock grab samples collected in 1982 returned significant values of 27.73 g/t Au and 2134.3 g/t Ag, 19.72 g/t Au and 1241.1 g/t Ag, and 1.78 g/t Au and 1426.3 g/t Ag. These specimens reportedly contained re-brecciated grey chalcedony, in contrast to the white quartz veinlets and "bleached" pyritic and altered pale-green tuffs in the area which yielded only low precious metals values.

A trenching program completed in 1990 partially exposed bedrock over a distance of about 250 m along a fault zone, in a north-northwesterly direction coincident with the gold-silver soil anomaly. The highest assay from trench samples was 2.22 g/t Au and 4.6 g/t Ag over a 1.0 m-long chip sample taken from grey, pyritic quartz vein material within fault gouge.

Only one shallow drill hole is reported to have been completed in the Kodah prospect area. It was drilled by Kennco in 1973 and tested a massive white quartz vein 0.5 m thick. Results of this drill hole are not known.

Round Mountain East (094E 158) and West (094E 159)

The Round Mountain East and West prospects are located about 4.5 km northwest of the Cliff Creek North deposit area, on the east and west slopes of a locally-named topographic high, Round Mountain. They are underlain by Toodoggone Formation volcanic rocks assigned to the Metsantan Member. Host rocks are cut by the assumed projection of, or splays off of, the Cliff Creek fault, along which the showings areas lie.

At Round Mountain East, an area of advanced argillic alteration with minor quartz veining strikes north-northwesterly and is exposed over a length of about 200 m and a width of about 150 m. Within the alteration zone, one to two metre-long chip samples, collected in 1987, returned generally low gold and silver values. One sample taken within an area of quartz veining returned values of 2.59 g/t Au and 2.0 g/t Ag. Also in 1987, approximately 10 km of IP surveys were completed in the prospect area. The survey identified several zones of high resistivity 100-200 m in length; it was concluded that all resistivity anomalies warranted further investigation. To the authors' knowledge, no drilling has been carried out in the Round Mountain East area.

At Round Mountain West, the showing consists of a northerly-trending zone of quartz-chalcedony veins, stockworks and replacement masses exposed intermittently over a 500 m length and over irregular widths, from a few to 50 metres. The zone of silicification follows a possible splay off of the assumed projection of the Cliff Creek fault which passes through the nearby Round Mountain East showings area a few hundred metres to the east. Several rock samples taken from this zone in 1986 yielded mostly

background or weakly anomalous gold and silver values. One sample taken from the northern end of the silicified zone returned values of 0.80 g/t Au and 6.8 g/t Ag.

#### Dream (094E 191)

The Dream silver prospect is located about 4 km southwest of the Cliff Creek North deposit area. It is underlain by Toodoggone Formation volcanic rocks assigned to the Metsantan Member. An outlier of Sustut Group sedimentary rocks crops out less than one kilometre to the east of the prospect area.

At Dream, a northwest-trending zone of intense pervasive silicification +/- quartz veining is enveloped by a zone of kaolinite alteration outwards from which propylitic (carbonate-epidote) alteration is present. The silicified zone is 150 m long and a few centimetres to about one metre wide.

A total of eight rock samples were taken from this showing in 1983; all consisted of quartz-veined and/or intensely silicified country rocks. Assay results from these samples were weakly to moderately anomalous in silver. Two samples taken about 75 m apart along the strike of the silicified zone returned values of 8.1 g/t Ag and 0.03 g/t Au and 8.9 g/t Ag and 0.30 g/t Au.

#### Marmot Lake (094E 073)

The Marmot Lake gold-silver prospect is located about 4 km southeast of the Cliff Creek North deposit area. It is underlain by Toodoggone Formation volcanic and interbedded epiclastic rocks assigned to both the Attycelley and Metsantan Members. An outlier of Sustut Group sedimentary rocks crops out less than one kilometre to the southwest of the prospect area.

Several major structures disrupt the moderately-dipping volcanic strata which underlie the occurrence. These structures are thought to be the southeastward extensions of major faults related to epithermal gold-silver mineralization in the Silver Pond and Cliff Creek Zones.

In 2007, Christopher James Gold Corp. carried out a prospecting and rock geochemical sampling program in and around the Marmot Lake showings area, which had been hand trenched and drilled by earlier operators in the 1960's to early 1970's. A series of east-southeast oriented trenches were excavated at an oblique angle to a zone of narrow, en echelon mineralized structures containing quartz stringers and silicified andesite breccia over a northerly distance of about 200 m. The altered and mineralized structures contain minor amounts of pyrite, tetrahedrite, chalcocite, chalcopyrite and malachite.

A Christopher James' sample location plan of the showings area (Assessment Report 29529) shows 5 historic drill hole collars immediately to the west of the trenched area. It's likely that the historic drill holes were inclined easterly to test the mineralized structures at depth. No results from the historic drilling are available.

Four of Christopher James' 2007 rock samples returned significant gold and silver values from samples collected in the northern half of the historically trenched area. These samples were taken from variably altered (silica +/- clay +/- carbonate) and brecciated rhyodacite; they returned values ranging from 2.87 to 50.6 ppm Au and 24.8 to 1020 ppm Ag. The 50.6 ppm Au value, accompanied by a value of 24.8 ppm Ag, was from a 1.0 m x 1.0 m panel-chip sample of brecciated rhyodacite exhibiting intense argillic alteration. The 1020 ppm Ag value, accompanied by a value of 8.88 ppm Au, was from a 1.0 m chip

sample of brecciated rhyodacite containing argillically-altered fragments. Tetrahedrite rims the fragments and is also present as disseminations.

#### **7.2.4.4 Petrographic Studies**

##### **Historic Petrographic Studies**

Limited, available data from two historic petrographic studies is presented in the paragraphs that follow. This data incorporates studies of 13 M-Grid rock samples, included as Appendix 2 in Assessment Report 27633 (Blann, 2005), and a representative suite of 7 higher grade samples collected from the Cliff Creek portal site, included as Appendix B in Assessment Report 32055 (Lane, 2011).

##### *M-Grid Zone*

Alteration and mineralization of the low sulphidation gold-silver bearing zones exposed in 2004 surface trenches in the M-Grid area are described in Section 7.2.4.1 of the Report.

A suite of 13 rock samples was submitted to PetraScience Consultants Inc. of Vancouver B.C. who were tasked with defining the characteristics of the alteration and mineralization in the M-Grid trench area. The samples were prepared as polished thin sections for petrographic analysis. The work included basic transmitted and reflected light observations, covering descriptions of lithologies (where possible), alteration and mineralization, as well as a study of vein quartz textures.

Most samples are breccias with altered wallrock fragments in-filled or cut by vein quartz. Primary wallrock lithologies are partly obscured by selective, pervasive alteration. However, compositions appear to favor feldspar porphyry and, in two samples, an aphanitic rhyolite. Feldspar porphyry fragments typically contain plagioclase and/or K-feldspar and locally quartz phenocrysts in a fine-grained quartz and K-feldspar dominated matrix. In one of the rhyolite samples, its aphanitic groundmass incorporates fragments of feldspar porphyry and vein quartz which indicates that it may be younger than the feldspar porphyry and quartz veining.

The alteration appears typical of low-sulphidation epithermal environments and is dominated by K-feldspar and sericite. K-feldspar occurs as very fine-grained, brown cloudy aggregates or as rhombic adularia both of which can occur in respective samples as pervasive replacement of wallrock fragment groundmass or as selective replacement of plagioclase phenocrysts. Vein quartz with traces of adularia was observed in two samples. A weak progression from this orthoclase alteration to a more sericitic alteration, including calcite, was observed. Tourmaline occurs with adularia replacement in two samples. A late phase of weathering affects most of the samples, leading to formation of clay, goethite and hematite.

Sulphide mineralization is weak, consisting mostly of pyrite. In most of the samples, pyrite is rimmed to completely replaced by Fe-oxides; numerous anhedral vugs and cavities suggest complete leaching of the original pyrite. Trace chalcopyrite is observed in some samples. Trace galena(?), sphalerite and possibly acanthite were noted in one sample; trace gold was observed in another.



### Cliff Creek Portal Area

In 2010, the Cliff Creek portal, which had been back-filled with muck when the site was reclaimed in the mid-1990's, was cleared of rock and debris using a large excavator. As part of the work program, 7 higher grade samples collected from the floor of the adit near the portal and the dump were submitted to Vancouver Petrographics Ltd. of Langley, B.C. Petrographic studies were carried out in order to determine metallic mineralogy and confirm phases of alteration.

The samples represent a range of textures, styles of alteration and mineralization that are consistent with a low-sulphidation epithermal environment. The sample suite displays quartz-adularia alteration with over-printing argillic and propylitic alteration. The protolith is a suite of volcanic rocks ranging from K-feldspar phyric andesites or dacites to volcanoclastics or volcanic breccias. Gold, silver and sulphide minerals are related to silicification and development of quartz veins, stockwork zones and breccias. The breccias exhibit multiple episodes of fracturing, silicification, mineralization and healing. Silica veins are cut by later calcite veins that are commonly barren of sulphides and gold.

Pyrite occurs in all samples in at least trace amounts, and where gold and silver grades increase, it is sometimes accompanied by lesser amounts of sphalerite, chalcopyrite, galena, bornite and covellite. Native gold was identified in five samples, native silver was identified in one sample and acanthite ( $\text{Ag}_2\text{S}$ ) was identified in four samples. The common occurrence of gold and silver minerals in the samples explains the high grade assay results.

### **2015 PPM Petrographic Studies**

One drill core sample, collected from the extremely high grade P2 Vein intersected in the hangingwall of the main Cliff Creek North Zone (for details, refer to Section 10.3 of the Report), was submitted to Dr. Fabrizio Colombo, PhD., of Vancouver, B.C. for a petrographic study.

The vein sample is a gold-bearing, sphalerite-pyrite-K-feldspar-galena alteration / mineralization assemblage in which irregular fragments of K-feldspar-rich aggregates are immersed within a xenomorphic aggregate of sphalerite, pyrite and galena. Very rare gold has precipitated within the interstices between pyrite and galena. The modal concentrations vary from moderate to strong for sphalerite, moderate for pyrite, K-feldspar and galena, and weak for chalcopyrite.

Sphalerite forms xenomorphic crystals (up to  $8 \times 8$  mm), which in most cases are finely intergrown with granular amoeboid crystals (up to 0.6 mm) of galena.

Pyrite forms xenomorphic and fractured crystals (up to  $4 \times 8$  mm) immersed within the sphalerite. In some cases the fractures are filled in by sphalerite, galena and chalcopyrite, thus indicating that the pyrite pre-dated the precipitation of the other sulphides.

K-feldspar forms irregularly-shaped to angular replacement aggregate fragments which are overprinted and crosscut by sulphide-rich (mostly chalcopyrite) aggregates. Subordinate quartz and probable clay(?) are associated with the K-feldspar.

Chalcopyrite is heterogeneously dispersed and forms amoeboid to interstitial crystals which are spatially associated with pyrite. Chalcopyrite has filled in the fractures of some of the K-feldspar-rich fragments;

these microstructures indicate that chalcopyrite deposition post-dated the K-feldspar alteration. Very rare covellite is dispersed within the chalcopyrite.

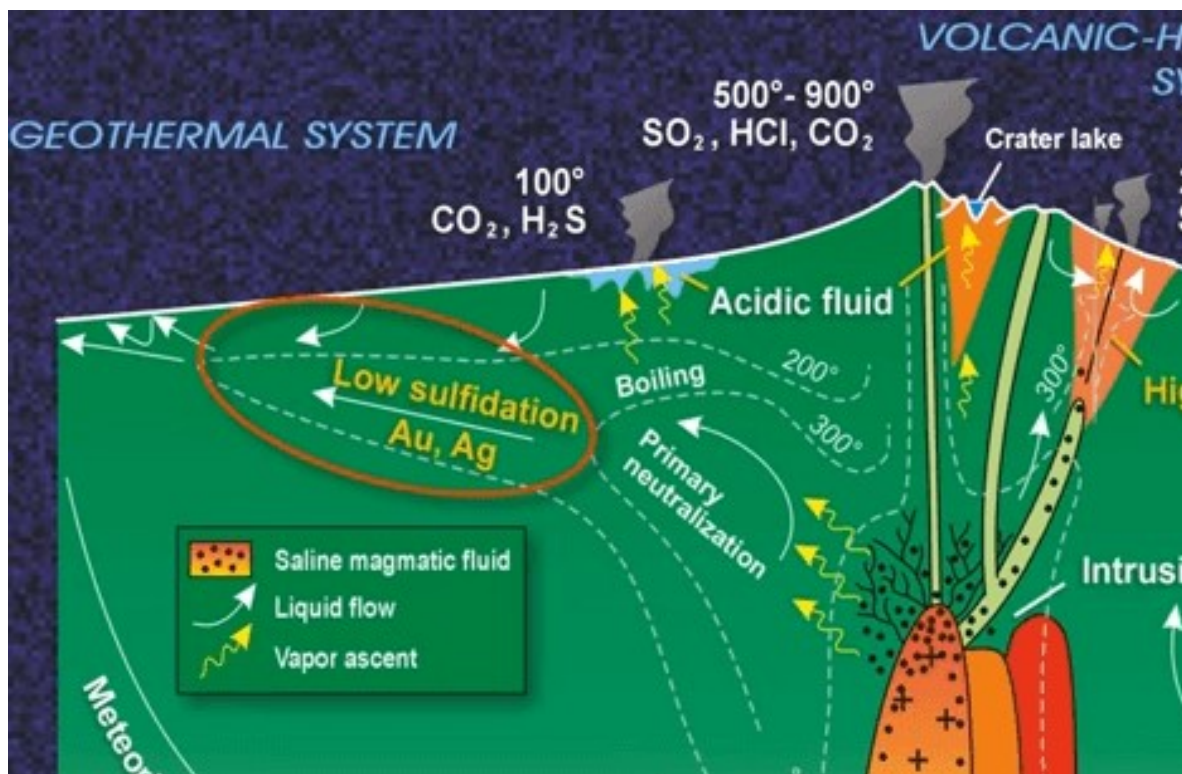
## **8 DEPOSIT TYPES**

A synthesis of mineral deposit types in the Toodoggone region is well-described by Bowen (2014), Duuring et al. (2009), Diakow et al. (1993) and Diakow et al. (1991).

### **8.1 DEPOSIT TYPE DESCRIPTIONS**

The descriptions of deposit types in this section are based, in large measure, on Deposit Types presented by Paul Hawkins in Sections 3.1.0 to 3.3.0 of his June 2003 "Technical Report Covering the Lawyers and AL (Ranch) Properties". His comments are supplemented by observations made by Bowen during his onsite core logging and supervision of diamond drilling programs on the Lawyers Project in July 2006 and the Ranch Project in September 2006 and during portions of May, June and September 2007, and by Lane during his onsite core logging and supervision of a diamond drilling program on the Lawyers Project in August and September 2015. Also referenced in this section is the B.C. Geological Survey's Bulletin 86, titled "Geology of the Early Jurassic Toodoggone Formation and Gold-Silver Deposits in the Toodoggone River Map Area, Northern British Columbia" (Diakow et al., 1993).

The Toodoggone region is host to a number of mineral deposits and prospects, several of which are described in Sections 7.1.1 and 7.2.4 of this Report. Deposit types include both high- and low-sulphidation epithermal gold-silver mineralization and porphyry copper-gold mineralization. All are genetically related to Early Jurassic volcanic and intrusive activity in an extensional setting (Diakow et al, 1993). A schematic cross-section of the deposit types and their zonal relationships is shown in Figure 8.1.



**Figure 8-1: Lawyers Project - Schematic Model for Low Sulphidation and High Sulphidation Epithermal Mineralization Relative to Shallow, Sub-Volcanic Intrusions**

### 8.1.1 Low Sulphidation Epithermal Deposits

Low sulphidation epithermal gold-silver deposits are also called adularia-sericite or quartz-adularia types which form in high-level (epizonal) to near-surface environments. They consist of quartz veins, stockworks and breccias commonly exhibiting open-space filling textures and are associated with volcanic-related hydrothermal or geothermal systems. The deposits occur within volcanic island and continent-margin magmatic arcs and/or continental volcanic fields in an extensional structural setting.

The depth of formation of these high-level deposits is from surface (in hot springs systems) to about 1 km below surface along regional-scale fracture zones related to grabens, resurgent calderas, flow-dome complexes and rarely, maar diatremes. Settings also include extensional structures (normal and splay faults, ladder veins and cymoid loops, etc.) in volcanic fields; locally graben or caldera-fill clastic rocks are present. High-level, subvolcanic stocks and/or dykes and pebble breccia diatremes occur in some areas. Locally resurgent or domal structures are present and are related to underlying intrusive bodies.

The age of this type of epithermal mineralization varies. Tertiary deposits are most abundant world-wide but in B.C. Jurassic deposits are important. Mineralization appears closely related in time to the host volcanic rocks but invariably it is slightly younger in age.

Mineralized zones are typically localized in fault or fracture systems, but also may occur in permeable lithologies. Upward-flaring mineralized zones centered on structurally controlled hydrothermal conduits are typical. Large (>1 m wide and hundreds of meters in strike length) to small veins and stockworks are

common with lesser disseminations and replacements. Vein systems can be laterally extensive but shoots have relatively restricted vertical extents. Significant zones of mineralization may form where dilational openings and cymoid loops develop, typically where the strike or dip of veins change. Hangingwall fractures adjacent to mineralized structures are particularly favourable for the development of high-grade shoots.

Textural features associated with mineralization include open-space filling, symmetrical layering, crustification, comb structures, colloform banding and multi-phase breccias. Metallic minerals present include pyrite, electrum, gold, silver, acanthite (argentite) and lesser amounts of chalcopyrite, sphalerite, galena, tetrahedrite, silver sulphosalts and/or selenide minerals. Gangue minerals include quartz, amethyst, chalcedony, quartz pseudomorphs after calcite, with lesser amounts of adularia, sericite, barite, fluorite, Ca-Mg-Mn-Fe carbonate minerals (such as rhodochrosite), hematite and chlorite. Epithermal silver deposits generally have higher base metals contents than do gold or gold-silver types.

Deposits can be strongly zoned horizontally and vertically. Downward vertical zonation occurs over a 250 to 350 m interval, from a base metals poor, gold and silver-rich top to a relatively silver-rich base metals intermediate zone, to an underlying base metals-rich zone grading at depth into a sparse base metals-bearing pyritic zone. At depth, deposits can be postulated to occur above or peripheral to porphyry and possibly skarn-type mineralization.

Silicification of host rocks is extensive, occurring as multiple generations of quartz and chalcedony commonly accompanied by adularia and calcite. Pervasive silicification in vein envelopes is flanked by sericite-illite-kaolinite assemblages. Intermediate argillic alteration (kaolinite-illite-montmorillonite [smectite]) forms adjacent to some veins and advanced argillic alteration (kaolinite-alunite) may form at the tops of mineralized zones. Propylitic alteration dominates at depth and peripherally. Weathered outcrops are often characterized by resistant quartz +/- alunite 'ledges' flanked by extensive bleached, clay-altered zones with supergene alunite, jarosite and limonite.

### **8.1.2 High Sulphidation Epithermal Deposits**

High sulphidation epithermal deposits are also called acid-sulphate, quartz-alunite, alunite-kaolinite-pyrophyllite or advanced argillic types. They occur as veins, vuggy breccias and sulphide-silica replacement pods to massive lenses within volcanic host rocks associated with high level hydrothermal systems marked by acid-leached, advanced argillic and silicic alteration. Their setting is usually within extensional and trans-tensional environments, commonly in volcano-plutonic continent-margin and oceanic arc and back-arc settings. They occur in zones with high-level magmatic emplacements where strato-volcanoes and other volcanic edifices are constructed above plutons.

Deposits are commonly irregular in shape, controlled in part by host rock permeability and the geometry of controlling structures. Multiple, cross-cutting composite veins are common; texturally the mineralization is characterized by vuggy, porous silica derived as a residual product of acid leaching. Hydrothermal breccias and massive wallrock replacements associated with fine-grained quartz are also common features associated with high sulphidation deposits.

Mineralization consists of pyrite, enargite/luzonite, chalcocite, covellite, bornite, gold, electrum, and less commonly chalcopyrite, sphalerite, tetrahedrite/tennantite, galena, marcasite, arsenopyrite, silver sulphosalts and tellurides including goldfieldite. Two types of mineralization are commonly present: (i) massive enargite-pyrite and/or (ii) quartz-alunite-gold. Gangue mineralogy consists principally of quartz-pyrite or quartz-barite; carbonate minerals are absent.

Alteration minerals consist principally of: quartz, kaolinite/dickite, alunite, barite, hematite, sericite/illite, amorphous clays, pyrophyllite, andalusite, diaspore, corundum, tourmaline and native sulphur with subordinate amounts of dumortierite, topaz, zunyite and jarosite. Advanced argillic alteration is a common alteration type and can be aerially extensive and visually prominent. Quartz occurs as fine-grained replacements and as vuggy, residual silica in acid-leached rocks. Weathered rocks may contain abundant limonite, jarosite, goethite and/or hematite, generally in a groundmass of kaolinite and quartz. Fine-grained supergene alunite veins and nodules are common.

Structural controls in volcanic edifices are commonly caldera ring and radial fractures, (particularly at their intersections), fracture sets in resurgent domes and flow-dome complexes, and hydrothermal breccia pipes and diatremes. Faults and breccias in and around intrusive centers appear to be important controls. Permeable lithologies can also be favourable host rocks, capped in some deposits by less permeable, hydrothermally altered silica, clay and alunite-bearing 'lithocaps'. The deposits can occur over considerable depths, ranging from high-temperature solfataras (sulfurous fumaroles) at the paleosurface down into cupolas of intrusive bodies at depth.

Recent research into the high sulphidation genetic model, mainly in the southwest Pacific and in the Andes of South America, has shown that these deposits are commonly genetically related to high-level intrusions and at several locales, they tend to overlie and flank porphyry copper-gold deposits. Multiple stages of mineralization are common, presumably related to periodic tectonism with associated intrusive activity and magmatic hydrothermal fluid generation.

The high sulphidation deposit type has become a focus for exploration throughout the circum-Pacific region because of the economically important gold and copper grades in some deposits.

### **8.1.3 Porphyry Deposits**

The porphyry deposit type consists of bulk tonnage-style copper-molybdenum-gold mineralization commonly related to feldspar porphyritic intrusions. Core areas consist of intrusive-hosted, disseminated copper sulphides, largely chalcopyrite and bornite, commonly with accessory molybdenum and gold. Mineralization is spatially associated with the core intrusion, but not necessarily confined to it. Stocks are typified by concentric zones of potassic, phyllic (sericitic) and propylitic alteration, commonly with argillic (clay) alteration and overlying zones of advanced argillic alteration. Some secondary (supergene) mineralization commonly occurs near-surface, marked by oxidation of sulphide minerals and enrichment of economic minerals. Deposit boundaries are determined by economic factors that outline higher-grade zones within larger areas of low-grade, concentrically zoned mineralization.

The Kemess South and North copper-gold deposits belong to the calc-alkaline variety of the porphyry deposit type. Both are described in Section 7.1.1 of this Report. Pyrite, chalcopyrite and magnetite are

associated with well-developed quartz stockwork veins and veinlets within potassically-altered zones hosted by porphyritic quartz monzonite intrusions and adjacent wall rocks. The Jurassic age mineralization is spatially, temporally and genetically associated with the intrusions. Alkaline porphyry copper-gold deposits are associated with syenitic and other alkalic rocks and are considered to be a distinct deposit type.

Porphyry deposits occur in orogenic belts at convergent plate boundaries and are commonly linked to subduction-related magmatism. They also occur in association with the emplacement of high-level stocks during extensional tectonism related to strike-slip faulting and back-arc spreading following continent margin accretion. The geological setting of these deposits is a high-level (epizonal) stock emplacement in volcano-plutonic arcs. Virtually any type of country rock can host mineralization, but commonly the high-level stocks and related dykes intrude their coeval volcanic piles.

Pyrite is the predominant sulphide mineral in porphyry deposits. Magnetite and rarely hematite are abundant in some deposits. Metallic minerals include chalcopyrite, molybdenite, lesser bornite and rare (primary) chalcocite. Subordinate minerals are tetrahedrite/tennantite, enargite and minor gold, electrum and arsenopyrite. In many deposits late veins commonly contain galena and sphalerite in a gangue of quartz, calcite and barite. Gangue minerals in mineralized veins are mainly quartz with lesser biotite, sericite, K-feldspar, magnetite, chlorite, calcite, epidote, anhydrite and tourmaline. Many of these minerals are also pervasive alteration products of primary igneous mineral grains.

Alteration mineralogy consists of quartz, sericite, biotite, K-feldspar, albite, anhydrite/gypsum, magnetite, actinolite, chlorite, epidote, calcite, clay minerals and tourmaline. Early formed alteration can be overprinted by younger assemblages. Central and early formed potassic zones (K-feldspar and biotite) commonly coincide with higher-grade mineralization. This alteration can be flanked in volcanic host rocks by biotite-rich rocks (biotite 'hornfels') that grade outward into propylitically-altered rocks. The older alteration assemblages in copper-bearing zones can be partially to completely overprinted by later potassic, phyllic and less commonly argillic alteration assemblages. Rarely, in the uppermost parts of some porphyry deposits, advanced argillic (kaolinite-pyrophyllite) alteration is present.

Weathering results in secondary (supergene) zones carrying chalcocite, covellite and other Cu<sub>2</sub>S minerals (digenite, djurleite, etc.), chrysocolla, native copper and copper oxides, carbonates and sulphate minerals. Oxidized and leached zones at surface are marked by ferruginous 'cappings' with supergene clay minerals, limonite, goethite, hematite, jarosite and residual quartz.

Mineralized zones, particularly those with higher gold content, can be associated with magnetite-rich rocks and thus are indicated by magnetic highs in magnetic surveys. Alternatively, the more intensely hydrothermally altered rocks, particularly those with quartz-sericite-pyrite (phyllic) alteration produce magnetic and resistivity lows. Pyritic haloes surrounding copper zones respond well to induced polarization (IP) surveys but in sulphide-poor systems the copper zone itself provides the only significant IP response.

## **8.2 EXPLORATION MODEL**

The primary exploration target on the Lawyers Project is a structurally-controlled vein, stockwork or breccia-style low sulphidation epithermal gold-silver deposit similar to those of the Lawyers Group of

prospects that have seen past production, or high sulphidation epithermal gold+/-silver silica replacement or breccia bodies similar to the tabular zones present at the Silver Pond West developed prospect.

A secondary, but no less important target type is a bulk-tonnage style of mineralization as exemplified by the long mineralized intercepts in both historic and 2015 drill holes in the central and deeper parts of the Cliff Creek North Zone, where structural thickening appears to have occurred along the Cliff Creek fault. In the Silver Creek North prospect area, low grade gold-bearing quartz stockwork mineralization has been encountered in surface trenches and in diamond drill holes over intercept lengths of several tens of metres. This too represents a bulk-tonnage style of mineralization that potentially could offer economies of scale in any possible future mining scenario.

A suitable, descriptive geological model, from Hedenquist and Lowenstern (1994), has been provided above in Figure 8.1. In it, one could place the Lawyers Group of prospects in the upper left hand side of the figure, where the highlighted text "Low sulfidation Au, Ag" is circled in orange. The Silver Pond Group of prospects could be placed in the upper right side of the figure where the highlighted text "High sulfidation Au, Cu" is shown. It's known that at the Silver Pond Group of prospects, gold+/-silver mineralization is present; however, in the historic data base, there is a paucity of copper analyses, thus preventing one from stating with any certainty whether or not a gold-copper metallic assemblage is present at any location within the Silver Pond trend.

Worth mentioning is the fact that along the Silver Pond trend, notably at the West and North prospects, there is often a close spatial relationship between rhyolite dykes and gold mineralization. In Figure 8.1, the area of "High sulfidation Au, Cu" mineralization is placed vertically above a cluster of high-level, subvolcanic intrusions which are thought to represent the 'heat engine' driving the metalliferous hydrothermal systems depicted in the figure. The rhyolite dykes within the Silver Pond trend may be emanating from such a cluster of intrusions.

The depth potential of the Silver Pond trend remains under-tested; its large surface alteration footprint, particularly at the North prospect, and its high-sulphidation epithermal style of mineralization warrant further studies and follow-up work, especially in light of the deep drilling successes at Kemess Underground and Kemess East and also in light of the fact that world-wide, many high sulphidation epithermal districts have associated with them porphyry-style mineralization.

## **9 EXPLORATION**

### **9.1 HISTORICAL EXPLORATION**

Historical exploration on the Lawyers Project, together with key results of past work, have been described in Section 6 of this Report.

In April 2018, Apex Geoscience Ltd., on behalf of Crystal as part of its due diligence on the Lawyers Project, carried out a project-wide compilation showing historical anomalous rock, soil and silt values for gold. The distribution of anomalous rock samples (defined as 1.00-2.50 ppm Au, 2.50-5.00 ppm Au, 5.00-10.00 ppm Au and >10.00 ppm Au) is shown in Figure 9-1, and the distribution of anomalous soil

samples (defined as 0.1-1.0 ppm Au and >1.0 ppm Au) and anomalous silt samples (defined as >0.1 ppm Au) is shown in Figure 9.2. The reader is advised that systematic (grid-based) soil sampling has not taken place over the entire Project area and therefore any trends observed may only be apparent. Additionally, much of the historical surface geochemical data in the vicinity of the AGB, Cliff Creek, Duke's Ridge and Phoenix Zones has been lost or is missing, further biasing the interpretation of observed trends.

Historical, anomalous samples tend to cluster or align along known or inferred faults or lineaments, structures believed to be important in localizing gold-silver mineralization. Anomalous rock and soil samples are widespread throughout the Project area, with stronger clustering present in the Kodah-Round Mountain showings area in the northwest part of the Project, and in the Marmot Lake showing area in its southeastern part. Anomalous samples also occur in the central part of the Project area, where some coincide with known prospects or mined areas, such as the anomalous rock samples proximal to the AGB zone. In the northern part of the Project area, where no mineralized showings or prospects are known to exist, there are many anomalous soil sample locations.

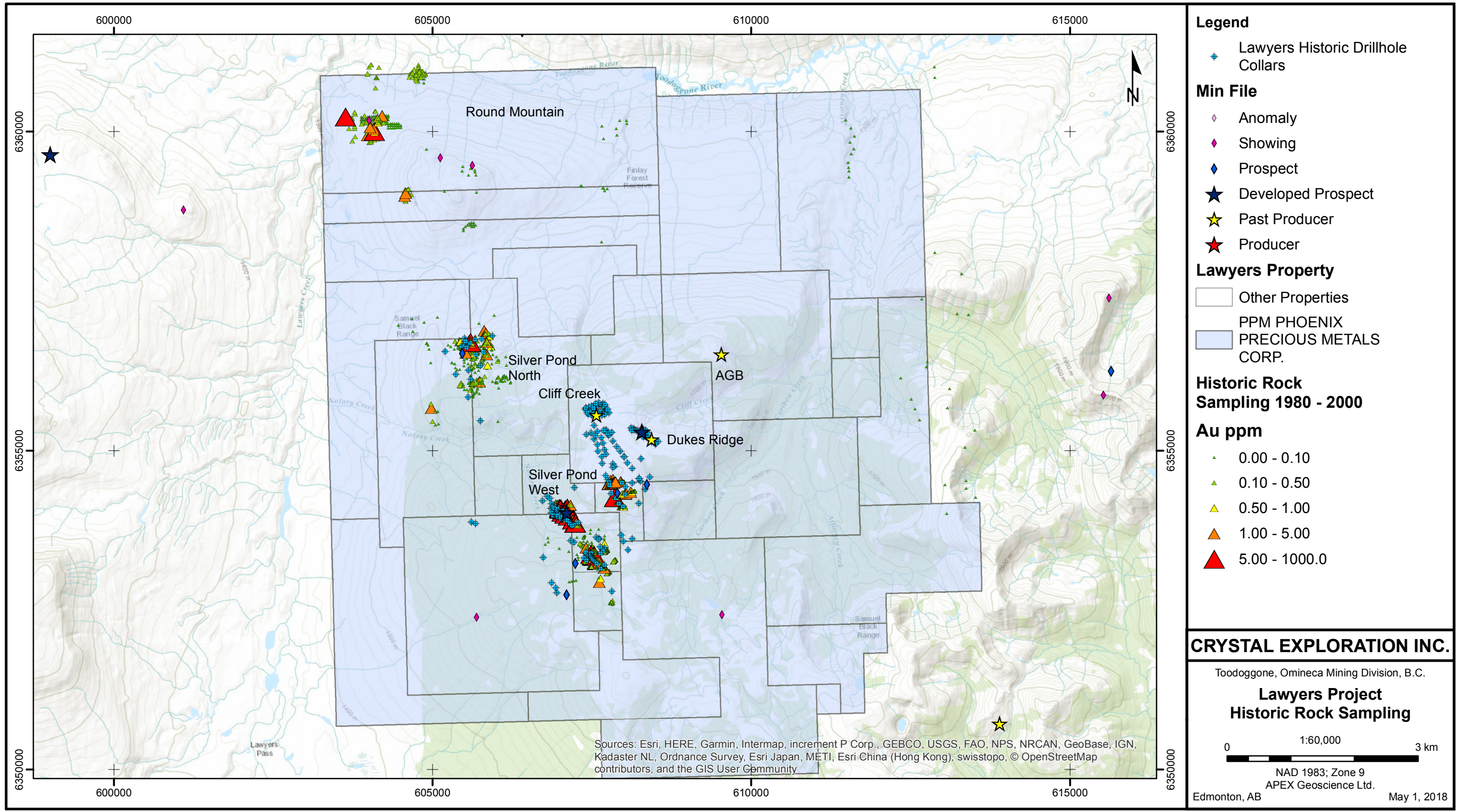
The distribution of historical surface exploration holes drilled in the past-producing Cliff Creek and Duke's Ridge Zones and in the Silver Pond prospects area is shown in Figure 9-3, with selected drill intersections highlighted. The distribution of holes over these parts of the Project area is suggestive of the likely fault-controlled, northwest linearity to the Cliff Creek, Duke's Ridge and Silver Pond zones; the distribution of drill holes at the Silver Pond (North) prospect does not appear to suggest any pronounced structural control. This may be due in part to Silver Pond North's large alteration/mineralization footprint which is more suggestive of a porphyry-style, precious +/- base metals deposit setting.

## **9.2 RECENT EXPLORATION**

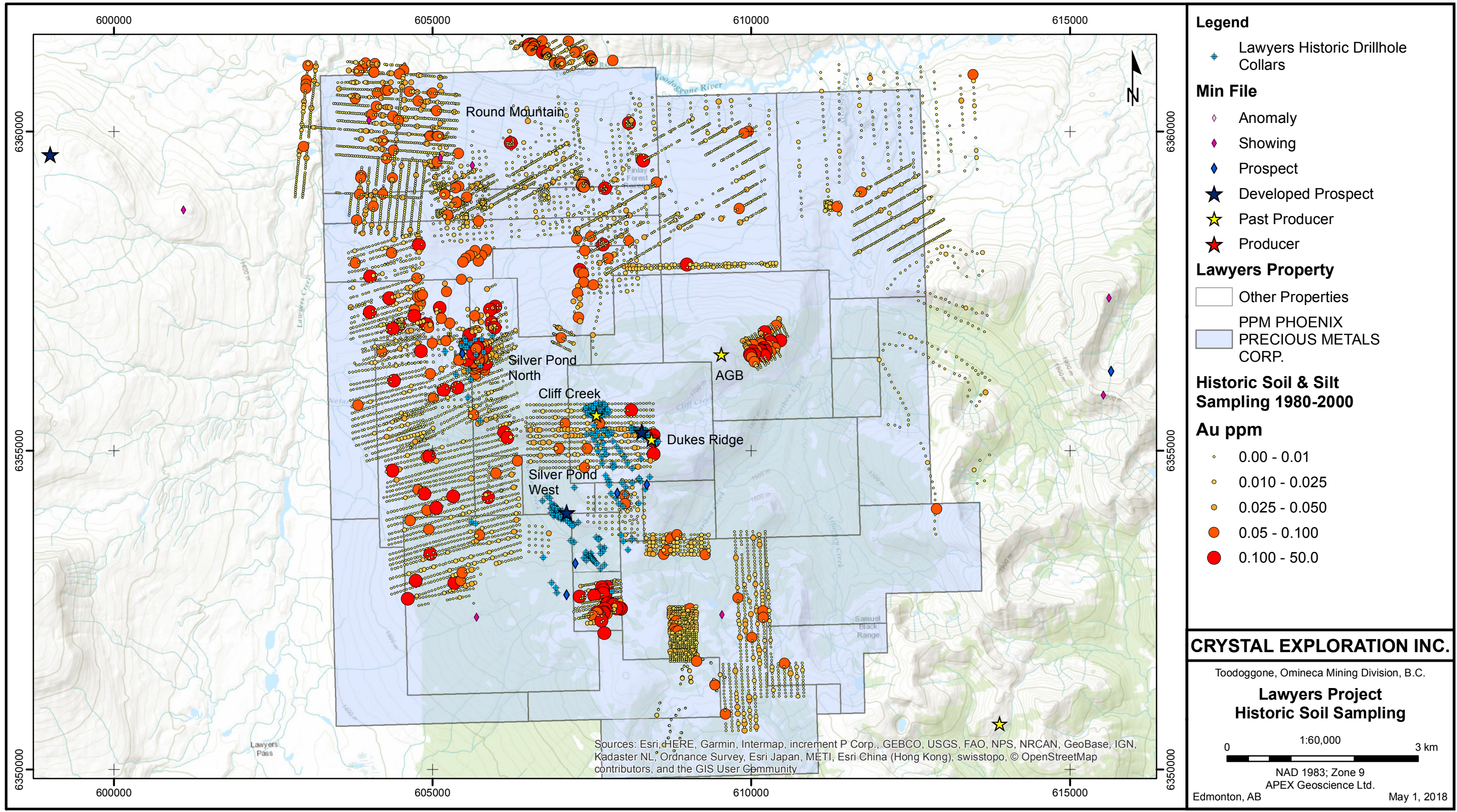
Recent exploration conducted by PPM consists of the 2015 diamond drilling program completed on the Cliff Creek North and Duke's Ridge Zones. This work is detailed in Sections 10.2 to 10.5 of this Report.

Prior to 2015, the company's only other activity consisted of an attempt in 2011 to dewater the Cliff Creek portal. As mentioned earlier in Section 6.3, the dewatering program was unsuccessful primarily because of permit restrictions and equipment limitations.









**Legend**

Lawyers Historic Drillhole Collars

**Min File**

- Anomaly
- Showing
- Prospect
- Developed Prospect
- Past Producer
- Producer

**Lawyers Property**

- Other Properties
- PPM PHOENIX
- PRECIOUS METALS CORP.

**Historic Soil & Silt Sampling 1980-2000**

**Au ppm**

- 0.00 - 0.01
- 0.010 - 0.025
- 0.025 - 0.050
- 0.05 - 0.100
- 0.100 - 50.0

**CRYSTAL EXPLORATION INC.**

Toodoggone, Omineca Mining Division, B.C.

**Lawyers Project  
Historic Soil Sampling**

0 1:60,000 3 km

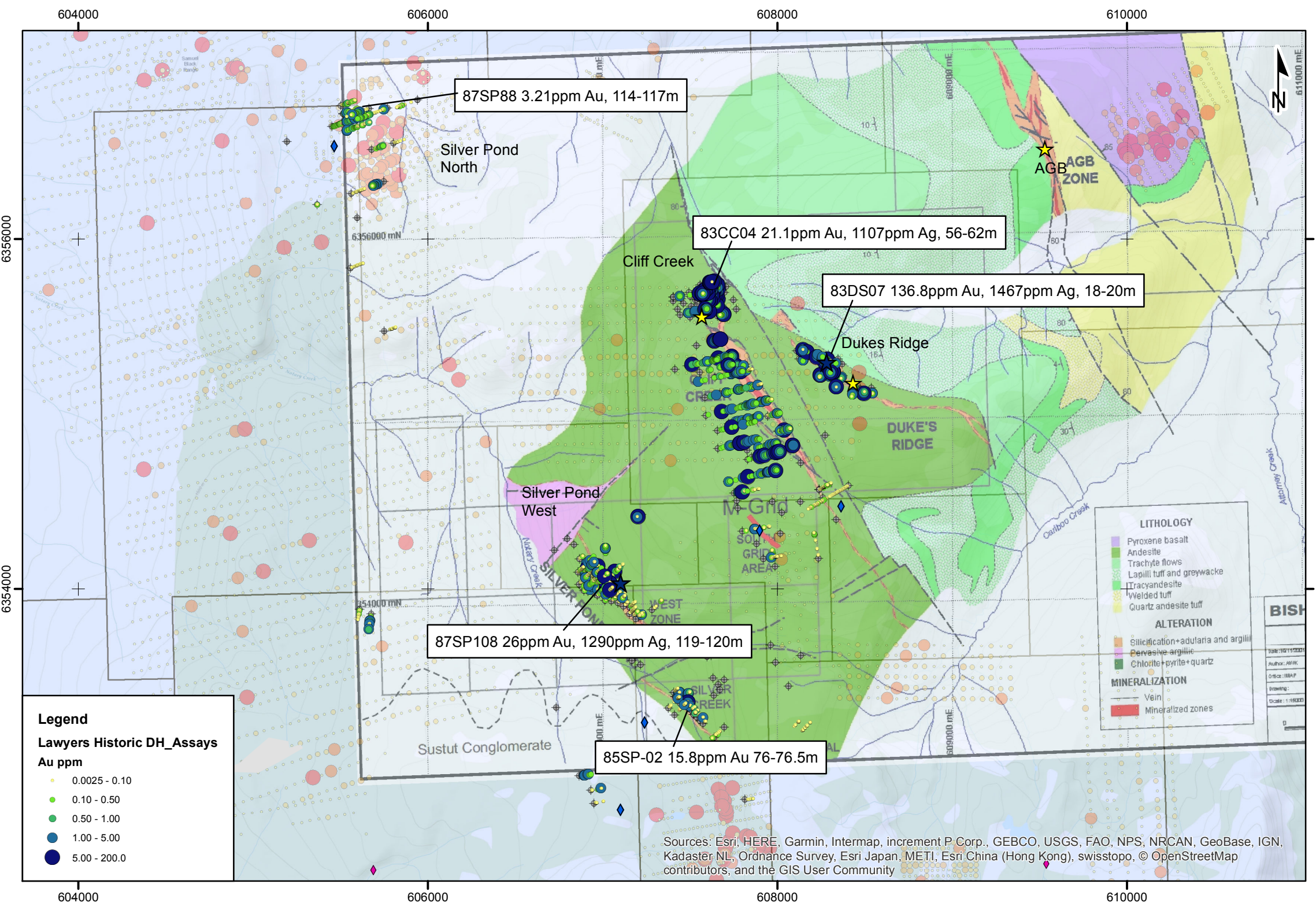
NAD 1983; Zone 9  
APEX Geoscience Ltd.

Edmonton, AB

May 1, 2018

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community





**Legend**

- Lawyers Historic Drillhole Collars

**Min File**

- Anomaly
- Showing
- Prospect
- Developed Prospect
- Past Producer
- Producer

**Lawyers Property**

- Other Properties
- PPM PHOENIX
- PRECIOUS METALS CORP.

**Historic Soil & Silt Sampling 1980-2000**

**Au ppm**

- 0.00 - 0.01
- 0.010 - 0.025
- 0.025 - 0.050
- 0.05 - 0.100
- 0.100 - 50.0

**CRYSTAL EXPLORATION INC.**

Toodoggone, Omineca Mining Division, B.C.

**Lawyers Project**

**Historic DH Assays Gold**

Km0

1:25,000

Km1.5

NAD 1983; Zone 9

APEX Geoscience Ltd.

Edmonton, AB

May 1, 2018

## 10 DRILLING

### 10.1 HISTORIC DRILLING

The historic drilling information presented in this section was gathered from several sources including: (i) descriptions for all minfile occurrences which fall within the current claims boundary of the Project; (ii) selected B.C. Ministry of Energy and Mines assessment reports; (iii) available information sheets for B.C. Mineral Exploration Annual Reviews; (iv) Hawkins' 2003 Technical Report; and (v) a 2015 compilation of past drilling, prepared by PPM, in a Gemcom software data base. **The total number of drill holes and the total metres given below are approximate estimates only**, based upon the various historic drill data that the authors were able to compile. They are presented in this section of the Report so that the reader can appreciate the overall scope of historic surface and underground diamond drilling on the past-producing Lawyers mine.

Historic drilling on the Lawyers Project is briefly summarized in bullet form as follows:

- During the period 1973-2006, over 68,000 m of surface diamond drilling in more than 340 drill holes was completed on the Project, including drilling completed in the Silver Pond West and other Silver Pond prospect areas.
- The surface diamond drilling sub-totals for the Project, excluding Silver Pond West and other Silver Pond prospect areas are: (i) over 15,000 m in an unknown number of holes in the AGB Zone; (ii) over 26,000 m in approximately 130 drill holes in the Cliff Creek Zone; (iii) well over 2400 m in 46 holes in the Duke's Ridge Zone; (iv) 950 m in 20 holes in the Phoenix Zone; and (v) well over 800 m in at least 12 holes on other prospect areas.
- During the period 1984-88, surface diamond drilling in the Silver Pond West developed prospect area totaled approximately 9000 m in more than 55 holes; in the same time period, that completed in other Silver Pond prospect areas totaled over 13,000 m in more than 77 drill holes.
- Underground drilling carried out in the past is not well documented. In the AGB Zone, at least 3000 m (likely considerably more) was completed in an unknown number of drill holes. In the Cliff Creek Zone, 2500 m in 44 holes was reportedly completed in 1990 but no reliable data on additional underground drilling completed in this zone was available to the authors. In addition, 19 underground drill holes were reportedly completed in the Phoenix Zone in 1992.

PPM's Gemcom compilation of the historic drilling in the Cliff Creek Zone includes 'header' and gold-silver assay data for 65 holes; the authors' review of drilling in this zone suggests that approximately 130 holes were drilled. The Gemcom deficiency is mainly accounted for in the drilling completed in 1987. In that year, it is reported that 49 holes totaling 10,432m were drilled in the Cliff Creek Zone. In PPM's Gemcom data base for this zone, only two holes totaling 517m are compiled. Additionally, for the year 1990, it is reported that 32 holes totaling 8921m were drilled in the Cliff Creek Zone. In Gemcom's data base for this zone, only 16 holes totaling 5505m are compiled.

PPM's Gemcom compilation of the historic drilling in the Duke's Ridge Zone includes 'header' and gold-silver assay data for 30 holes. An unknown number of metres in 16 holes was drilled in 1990 in this zone; partial results, but not collar information was reported in Lennan and Frostad (1990). This information is not included in PPM's Gemcom data base.

The degree to which the missing historic drill hole and accompanying assay data for both the Cliff Creek Zone (more specifically, the Cliff Creek North Zone) and the Duke's Ridge Zone might impact upon the current mineral resource estimates completed by Giroux (2016) is discussed in Section 14.2 of the Report. Similarly, the impact that these information deficiencies might have upon the authors' Interpretation and Conclusions and their Recommendations are discussed later in Sections 25 and 26 respectively of the Report.

A historical, hard-copy long-section for the Cliff Creek North Zone shows a number of 1987 and 1990 mineralized drill intersections for which supporting data has not otherwise been recovered. Nevertheless, this partially-documented drill information may provide some additional guidance during future exploration planning.

## **10.2 2015 DRILLING**

During the period August 25 to September 30, 2015, PPM completed 26 HQ diamond drill holes totaling 4,001.62 m on the Lawyers Project (Plate 10.1). Diamond drilling was performed by Radius Drilling Corporation, a private company based in Prince George, B.C. The drill provided for the job was a proprietary R5000, a powerful skid-mounted exploration diamond coring machine capable of drilling HQ core to a depth of 3000 feet. The drill and sloop were unloaded at the nearby Baker mine, currently on care-and-maintenance, and skidded to the Lawyers Project along pre-existing mine access roads.

The drilling focused on two closely-spaced zones: (i) the Cliff Creek North Zone where previous work included substantial trenching and surface diamond drilling, underground development and limited mining; and (ii) the Duke's Ridge Zone where previous work included trenching and surface diamond drilling. The earlier work on the two zones took place primarily between 1982 and 1990.

The purpose of the 2015 drilling program was to: (i) verify the location of historic drill holes and trenches, if possible; (ii) validate the historic data; and (iii) conduct verification and infill diamond drilling within the two zones in order to provide sufficient new data to support the calculation of a NI 43-101 mineral resource estimate for each zone.

To assist in the planning of the 2015 drill program, a digital database was compiled of all available historic trench and drill hole data. The compiled data was used to construct a simple 'solids' geological model for the Cliff Creek North and Duke's Ridge Zones.

Drill hole collar locations and elevations were later constrained in the field by a differential GPS survey completed by McElhanney Consulting Services Ltd. of Vancouver, B.C. on August 31, 2015. The survey included all previously located historic drill hole collars (44 at the Cliff Creek North and Central Zones, and 5 at the Duke's Ridge Zone), 4 completed 2015 drill hole collars (in the Cliff Creek North Zone) and most of the remaining proposed 2015 drill hole collar locations in both zones. Importantly, the survey also confirmed an approximate 2 m horizontal accuracy of the handheld Garmin MAP 64s GPS that was being used for survey control on a daily basis. Following the differential GPS survey, an additional 5 drill hole collars were positively located at the Cliff Creek Central Zone and 20 drill hole collars were positively located at Duke's Ridge and the surrounding area.



The drilling areas are underlain by a pyroclastic volcanic sequence of the Metsantan Member. It consists of andesite feldspar porphyry (trachyandesite latite) flows, ash and lapilli tuff, tuff breccia and pyroclastic breccia mapped locally and regionally by Vulimiri (Vulimiri et al, 1986), Diakow (Diakow et al, 1993) and others.

The 2015 drilling encountered quartz+/-chalcedony+/-amethyst stringers, veins, stockwork zones and hydrothermal breccias with locally well-developed banded, comb and crustiform textures. One semi-massive sulphide-precious metals vein and associated stockwork zone was also intersected. Narrow hematitic, chloritic or pyritic clay gouge zones were very common as internal and footwall features to mineralization. Putty-coloured chalcedony and white sparry calcite veinlets commonly fill late fractures. Mineralized intervals covered core lengths from less than 1 m to approximately 52 m.

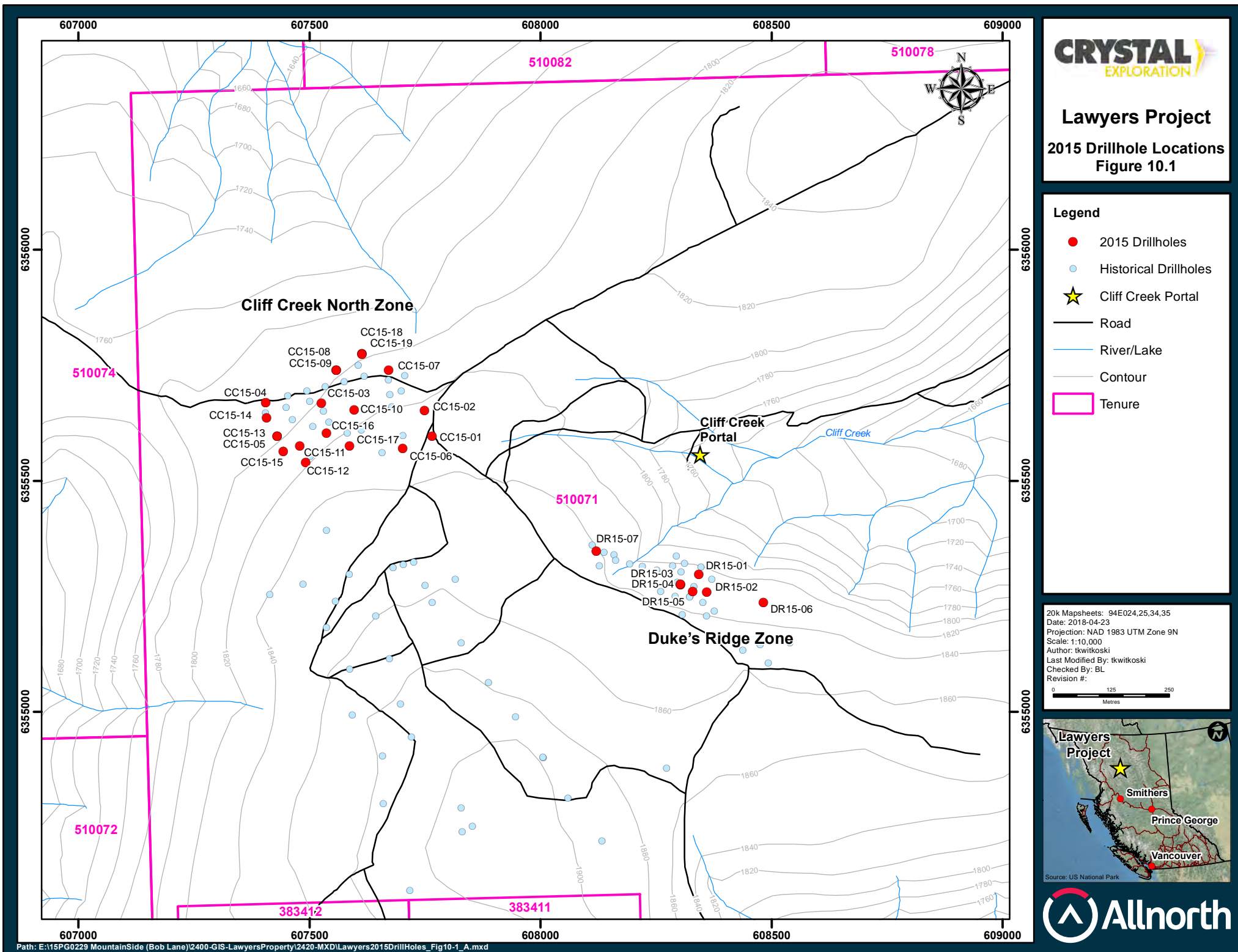


**Plate 10-1: Diamond Drilling on the Cliff Creek North Zone, 2015**

The locations of all drill holes for which collar information is known are shown in Figure 10.1. Down-hole surveys were completed on all 2015 drill holes using a Reflex EZ-Shot instrument.

The 2015 drill hole coordinates, collar orientations and total depths are listed in Table 10.1. Locations of 2015 Cliff Creek North drill holes are shown on Figure 10.2, selected Cliff Creek North Zone cross-sections are shown in Figures 10.3, 10.4 and 10.5, and a long-section for the Cliff Creek North Zone is shown in Figure 10.6. Locations for 2015 Duke's Ridge drill holes are shown on Figure 10.7, and a cross-section through the central part of the zone is shown in Figure 10.8.

Select 2015 diamond drilling results are presented in Table 10.2.



**Table 10-1: Collar Information for 2015 Drill Holes, Lawyers Project**

<b>Drill Hole ID</b>	<b>Easting</b>	<b>Northing</b>	<b>Elev(m)</b>	<b>Start(m)</b>	<b>TD(m)</b>	<b>Dip</b>	<b>Azimuth</b>
<b>CC15-01</b>	607765	6355597	1831	0	61.87	-50	257
<b>CC15-02</b>	607749	6355652	1823	0	78.64	-49	260
<b>CC15-03</b>	607526	6355668	1808	0	164.94	-60	75
<b>CC15-04</b>	607406	6355669	1798	0	395.73	-60	75
<b>CC15-05</b>	607430	6355597	1802	0	279.88	-50	74
<b>CC15-06</b>	607702	6355571	1831	0	60.37	-50	260
<b>CC15-07</b>	607671	6355739	1806	0	60.20	-50	260
<b>CC15-08</b>	607558	6355739	1802	0	124.36	-50	70
<b>CC15-09</b>	607558	6355739	1802	0	126.80	-69	75
<b>CC15-10</b>	607597	6355653	1817	0	118.26	-65	75
<b>CC15-11</b>	607479	6355576	1811	0	224.33	-50	75
<b>CC15-12</b>	607492	6355539	1816	0	225.61	-50	75
<b>CC15-13</b>	607430	6355597	1802	0	322.56	-58	75
<b>CC15-14</b>	607407	6355637	1797	0	316.38	-58	75
<b>CC15-15</b>	607444	6355563	1809	0	327.05	-61	75
<b>CC15-16</b>	607537	6355604	1817	0	146.91	-50	70
<b>CC15-17</b>	607587	6355576	1819	0	118.26	-50	75
<b>CC15-18</b>	607614	6355775	1792	0	60.35	-50	77
<b>CC15-19</b>	607614	6355774	1792	0	69.49	-65	81
<b>DR15-01</b>	608343	6355298	1821	0	134.72	-51	210
<b>DR15-02</b>	608360	6355259	1822	0	112.17	-50	200
<b>DR15-03</b>	608303	6355275	1829	0	127.41	-50	200
<b>DR15-04</b>	608303	6355276	1829	0	63.40	-65	200
<b>DR15-05</b>	608329	6355261	1835	0	69.49	-50	200
<b>DR15-06</b>	608482	6355237	1825	0	158.19	-50	225
<b>DR15-07</b>	608121	6355348	1842	0	54.25	-50	20

### 10.3 RESULTS - CLIFF CREEK NORTH ZONE

A total of 19 diamond drill holes with an aggregate length of 3281.99m was completed on the Cliff Creek North Zone. The holes tested the north-northwest trending zone over a strike length of 225m and over a vertical range of 380m. Most holes were drilled from the hangingwall (southwest) side of the moderately to steeply west-dipping vein system; these ranged in azimuth from 070° to 081° with inclinations at the collar ranging from -50° to -69°. The four longest holes, (CC15-04, 13, 14 and 15), with total depths ranging from about 316 m to 396 m, were designed to test the main Cliff Creek North Zone beneath the

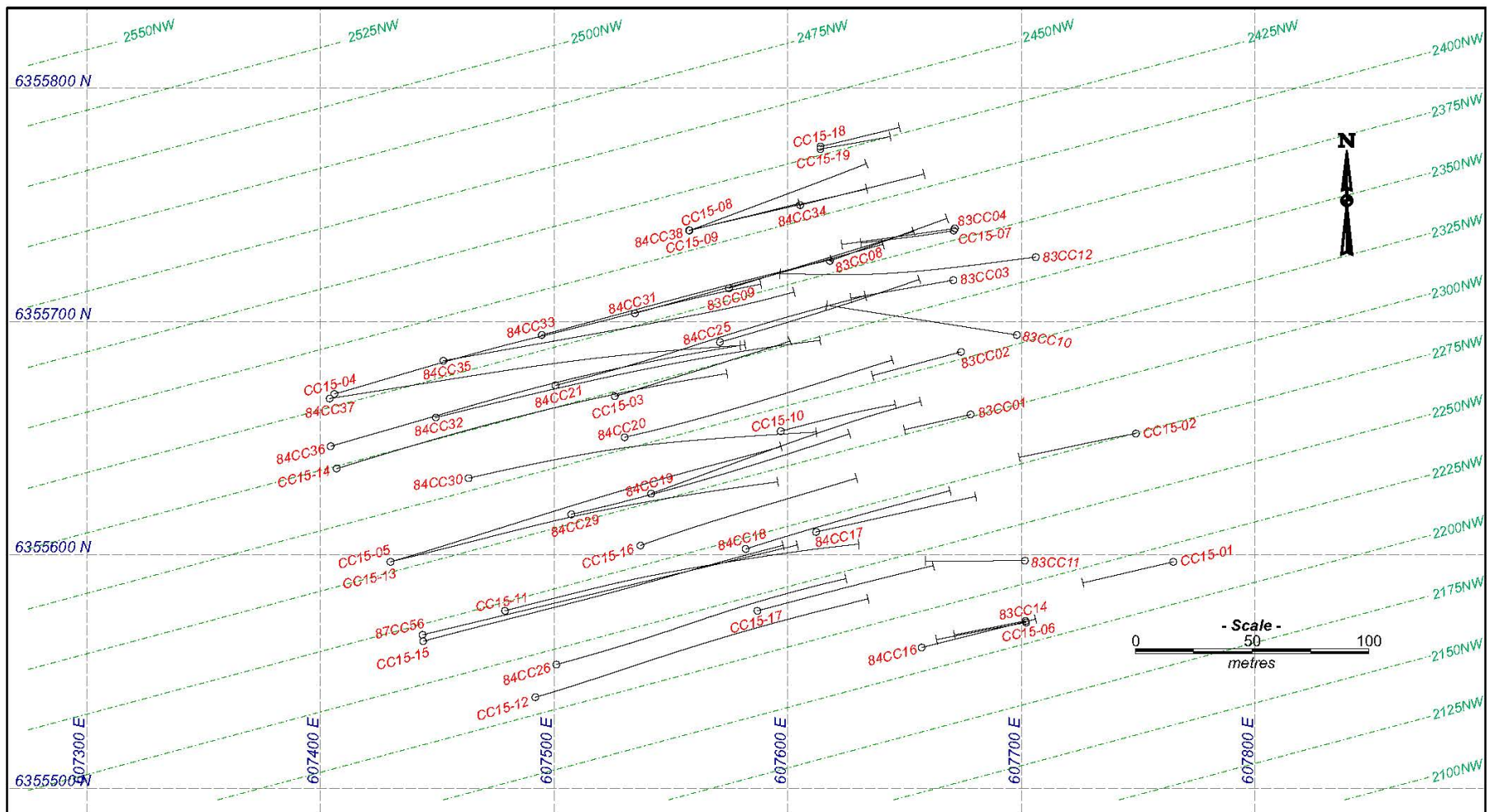


lowest levels of underground workings and previous drilling. Four relatively shallow holes were drilled from the footwall (northeast) side of the vein system. Their azimuths and collar inclinations ranged from 257° to 260° and -49° to -50° respectively.

Six of the shallow to medium depth holes (CC15-03, 05, 07, 09, 10 and 16) encountered generally narrow voids (less than 3m down-hole lengths) consistent with openings (drifts, raises and stopes) that form part of the historic underground workings. In most cases where this occurred, drill crews were able to 'traverse' the intersected void and continue coring on the opposite side of the opening. Downhole surveys provided some control on changes to azimuth and dip from one side of the void to the other. In some cases after drilling through a void, the rod string would begin to bind, resulting in the hole being shut down.

Better grades of mineralization within the main Cliff Creek North Zone typically consist of banded quartz-chalcedony+/-amethyst veins, stockworks and breccias, accompanied by very fine-grained pyrite, minor chalcopryite and galena, argentite and rare electrum. The mineralized zones occur within narrow to broad zones of argillically to phyllically-altered and locally silicified feldspar porphyritic andesite with common narrow zones of ground rock and clay gouge. A narrow, precious metals-rich semi-massive sulphide vein was intersected in Hole CC15-15; it occurs well up in the hangingwall of the main Cliff Creek North Zone and represents a new target which warrants follow-up.

A brief description of each 2015 drill hole is provided below. The order in which they are described is not by consecutive hole number but rather by the cross-section reference lines to which the holes project, starting at Section 2200NW and progressing north-northwesterly to Section 2425NW. Along each cross-section, the shallower holes (those to the northeast) are discussed first and the progressively deeper holes (those to the southwest) are discussed last. The prefix 'historic' has been excluded from the text below with the understanding that any pre-2015 drill hole is considered historic.



**Figure 10-2: 2015 Drill Hole Locations, Cliff Creek North Zone**

**Table 10-2: Select Results from 2015 Drilling, Lawyers Project**

<b>Drillhole ID</b>	<b>From (m)</b>	<b>To (m)</b>	<b>Length (m)</b>	<b>Au (g/t)</b>	<b>Ag (g/t)</b>	<b>Zone: Section</b>
<b>CC15-01</b>	- no significant results					Cliff Creek North: 2225NW
<b>CC15-02</b>	- no significant results					Cliff Creek North: 2275NW
<b>CC15-03</b>	- no significant results					Cliff Creek North: 2350NW
<b>CC15-04</b>	244.07	299.00	54.93	1.00	27.8	Cliff Creek North: 2375NW
including	244.07	250.00	5.93	3.35	21.4	
including	283.00	287.00	4.00	3.76	316.0	
<b>CC15-05</b>	2.50	23.00	20.50	0.65	72.6	Cliff Creek North: 2300NW
including	9.50	19.30	9.80	1.10	137.1	
and	215.00	223.00	8.00	2.87	19.5	
and	258.00	271.00	13.00	2.34	44.2	
including	261.60	265.00	3.40	5.63	89.5	
<b>CC15-06</b>	10.37	19.00	8.63	9.64	307.0	Cliff Creek North: 2200NW
including	10.37	14.55	4.18	17.75	557.0	
<b>CC15-07</b>	59.44	60.20	0.76	15.70	622.0	Cliff Creek North: 2375NW
<b>CC15-08</b>	89.00	109.65	20.65	1.81	62.8	Cliff Creek North: 2400NW
including	89.00	93.50	4.50	5.23	164.5	
<b>CC15-09</b>	111.00	126.80	15.80	1.01	24.6	Cliff Creek North: 2400NW
including	115.00	117.00	2.00	4.49	49.8	
<b>CC15-10</b>	83.00	98.45	15.45	2.95	110.9	Cliff Creek North: 2325NW
including	93.60	98.45	5.45	5.29	231.9	
including	94.71	98.45	0.74	12.80	654.0	
and	101.80	103.12	1.32	10.40	272.0	
and	109.00	110.00	1.00	6.21	58.8	
<b>CC15-11</b>	31.60	32.50	0.90	1.12	332.0	Cliff Creek North: 2275NW
<b>CC15-12</b>	70.00	75.86	5.86	5.12	252.3	Cliff Creek North: 2225NW
including	71.00	75.86	4.86	7.74	355.1	
and	198.90	203.00	4.10	5.98	246.3	
including	200.00	202.00	2.00	10.83	445.8	
<b>CC15-13</b>	133.54	140.80	5.65	2.60	21.2	Cliff Creek North: 2300NW
and	246.01	298.00	51.99	1.71	42.3	
including	246.01	248.00	1.99	6.08	49.6	
including	262.50	265.10	2.60	5.50	164.1	
including	280.79	282.93	2.14	6.86	154.9	
<b>CC15-14</b>	264.00	302.60	38.60	1.20	59.9	Cliff Creek North: 2350NW
including	266.20	269.20	3.00	3.45	136.1	
including	300.00	302.60	2.60	5.96	182.4	
<b>CC15-15</b>	87.00	89.00	2.00	6.63	191.0	Cliff Creek North: 2275NW
and	125.20	126.20	1.00	2.76	173.4	
and	141.15	142.65	1.50	2.31	424.0	

Drillhole ID	From (m)	To (m)	Length (m)	Au (g/t)	Ag (g/t)	Zone: Section
and	169.80	172.20	2.40	87.04	2,407	
including	171.50	172.20	0.70	293.40	7,622	
and	218.40	296.50	78.10	0.68	18.2	
including	238.00	242.00	4.00	2.60	116.9	
including	287.00	289.00	2.00	6.08	25.3	
<b>CC15-16</b>	- anomalous, but sub-economic gold and silver grades					Cliff Creek North: 2275NW
<b>CC15-17</b>	- anomalous, but sub-economic gold and silver grades					Cliff Creek North: 2275NW
<b>CC15-18</b>	38.49	45.20	6.71	2.73	152.7	Cliff Creek North: 2425NW
<b>CC15-19</b>	14.38	15.28	0.90	20.00	229.0	Cliff Creek North: 2425NW
and	49.70	54.25	4.55	3.84	166.2	
<b>DR15-01</b>	98.45	104.35	5.86	1.56	57.7	Duke's Ridge: 5625NW
<b>DR15-02</b>	72.70	85.05	12.35	0.63	24.0	Duke's Ridge: 5575NW
including	72.70	74.98	2.28	1.51	49.7	
including	84.73	85.05	0.32	9.15	278.0	
and	97.47	98.76	1.29	1.76	119.1	
<b>DR15-03</b>	1.21	23.50	22.29	0.72	24.8	Duke's Ridge: 5625NW
including	19.00	21.00	2.00	3.09	34.4	
and	119.52	119.77	0.25	2.37	103.7	
<b>DR15-04</b>	2.10	38.00	35.90	2.09	51.2	Duke's Ridge: 5625NW
including	24.00	36.00	12.00	5.30	112.7	
including	27.00	31.00	4.00	8.54	171.8	
<b>DR15-05</b>	1.25	52.00	50.75	1.41	42.3	Duke's Ridge: 5600NW
including	7.00	8.53	1.53	8.22	11.2	
including	33.50	42.06	8.56	3.85	106.5	
including	37.75	39.25	1.50	6.14	127.3	
<b>DR15-06</b>	70.58	72.48	1.90	2.10	17.7	Duke's Ridge: 5500NW
<b>DR15-07</b>	24.77	25.27	0.50	7.59	33.0	Duke's Ridge: 5825NW
and	34.02	39.10	5.08	1.24	21.9	

### Section 2200NW

**Hole CC15-06** (Azimuth 260°; Dip -50°; TD 60.37m) was drilled to twin and verify the strong gold-silver interval of Hole 84CC14 located at the currently known southeast limit of the Cliff Creek North Zone. Hole CC15-06 intersected a shallow, earthy hematite-stained zone grading 17.75 g/t Au and 557.0 g/t Ag over 4.18m within a broader mineralized interval that correlates well with historic results. The zone remains open to the south-southeast towards the Cliff Creek Central Zone.

### Section 2225NW

**Hole CC15-01** (Azimuth 257°; Dip -50°; TD 61.87m) was originally intended to twin Hole 83CC01. However, because the collar location for the latter hole could not be confirmed, the location used for the 'twin' hole was estimated. Subsequently (following completion of Hole CC15-01 and of McElhanney's

differential GPS survey) it was realized that the estimated 2015 collar location was positioned too far east of the historic collar and therefore the new data collected could not be used to verify the historic drill hole data. In addition, because the hole was drilled to a depth consistent with the historic hole that it was meant to twin, it was stopped short of the targeted vein system. Hole CC15-01 intersected only sparsely distributed, poorly mineralized quartz stringers with weakly anomalous gold and silver values in the footwall of the main vein system.

**Hole CC15-12** (Azimuth 075°; Dip -50°; TD 225.61m) was collared approximately 10m southwest of Hole 84CC26. It encountered two zones of strong gold-silver mineralization separated by more than 100m of weakly mineralized rock in the hangingwall of the main Cliff Creek North Zone. The upper zone, from 71.00-75.86m, graded 7.75 g/t Au and 355.1 g/t Ag over 4.86m; it remains open down-dip and to the south-southeast (Plate 10.2). The lower zone, from 198.90-203.00m, graded 5.98 g/t Au and 246.3 g/t Ag over 4.10m (Plate 10.3). It appears to correlate with a nearby, 8m-long intercept in Hole 84CC26 which graded 4.25 g/t Au and 119.1 g/t Ag (see Cross-Section 2225NW, Figure 10.4). The lower mineralized zone cut in these two holes remains open down-dip and to the south-southeast. Additionally, Hole 84CC26 cut a 5m-long interval, in the immediate hangingwall of the lower zone, which graded 6.82 g/t Au and 313.1 g/t Ag. It would appear to represent a parallel mineralized zone which remains open down-dip and to the south-southeast.

#### Section 2250NW

**Hole CC15-17** (Azimuth 075°; Dip -50°; TD 118.26m) was drilled 30m south of Hole 84CC18 to test for a possible southern extension of the shallower mineralization approximately 30m below Hole 84CC17. CC15-17 intersected a zone of anomalous gold-silver values from 98.78 – 111.00m (with a highest assay of 0.688 g/t Au and 16.5 g/t Ag over 1.25m) .



**Plate 10-2: Core from an upper mineralized intersection in hole CC15-12 showing typical fracture fillings, stockwork veins and breccias with silicic and potassic alteration**

Section 2275NW

**Hole CC15-02** (Azimuth 260°; Dip -49°; TD 78.64m) was originally intended to twin Hole 83CC03. Similar to Hole CC15-01, it too was positioned too far east of the historic hole it was meant to twin and the new data collected could not be used to verify the historic drill hole data. Hole CC15-02, like Hole CC15-01, intersected only sparsely distributed, poorly mineralized quartz stringers with weakly anomalous gold and silver values in the footwall of the main vein system.

**Hole CC15-16** (Azimuth 070°; Dip -50°; TD 146.91m) was drilled to test the area between Holes 84CC18 and 84CC19 at a deeper level. The hole intersected a 15.91m interval of anomalous gold-silver mineralization (with a highest assay of 0.910 g/t Au and 16.6 g/t Ag over 2.00m) approximately 44m below a similar low-grade zone intersected in 84CC18. At a down-hole depth of 146.91m, it entered a void which resulted in termination of the hole.

**Hole CC15-11** (Azimuth 075°; Dip -50°; TD 224.23m) was an infill hole drilled approximately 40m east of and on section with Hole 84CC56. It intersected a shallow silver-rich zone grading 1.12 g/t Au and 332.0 g/t Ag over 0.90m, from 31.60-32.50m, and a deeper, 25.4m-long zone of anomalous gold and silver values consisting of quartz stringers, stockworks and breccias that corresponds with the main Cliff Creek



North Zone. The lower intercept is about 54m up-dip from a 17.0m-long intercept in Hole 84CC56 which assayed 1.94 g/t Au and 60.12 g/t Ag.



**Plate 10-3: Core from a lower intersection in hole CC15-12 showing typical fracture fillings, stockwork veins and breccias with argillic alteration**

**Hole CC15-15** (Azimuth 075°; Dip -61°; TD 327.05m), one of four holes designed to test the Cliff Creek North Zone beneath levels tested by historic drilling, was collared approximately at, and drilled beneath, Hole 87CC56. It intersected a number of narrow, discrete veins and stockwork zones from a depth of 87.00 m to 298.00m. Of particular note was a massive sulphide, precious metals-bearing vein and stockwork zone (Plate 10.4) located well up in the hangingwall of the main Cliff Creek North Zone. It yielded spectacular grades of 293.4 g/t Au and 7,622 g/t Ag over 0.7m, from 171.50-172.20m, and is reminiscent of the vein mined at the nearby Phoenix Zone. The new so-called 'P2' vein remains open down-dip and along strike to the south-southeast. A deeper, lower grade zone correlates well with the main Cliff Creek North Zone intercept in Hole 84CC56 and other main zone intercepts encountered in deep holes CC15-13 and CC15-14 drilled further to the northwest. In the footwall of the main zone, from 287.00-289.00m, a 2m-long zone of higher grade gold mineralization (6.08 g/t) accompanied by lower grade silver (25.3 g/t) was encountered.

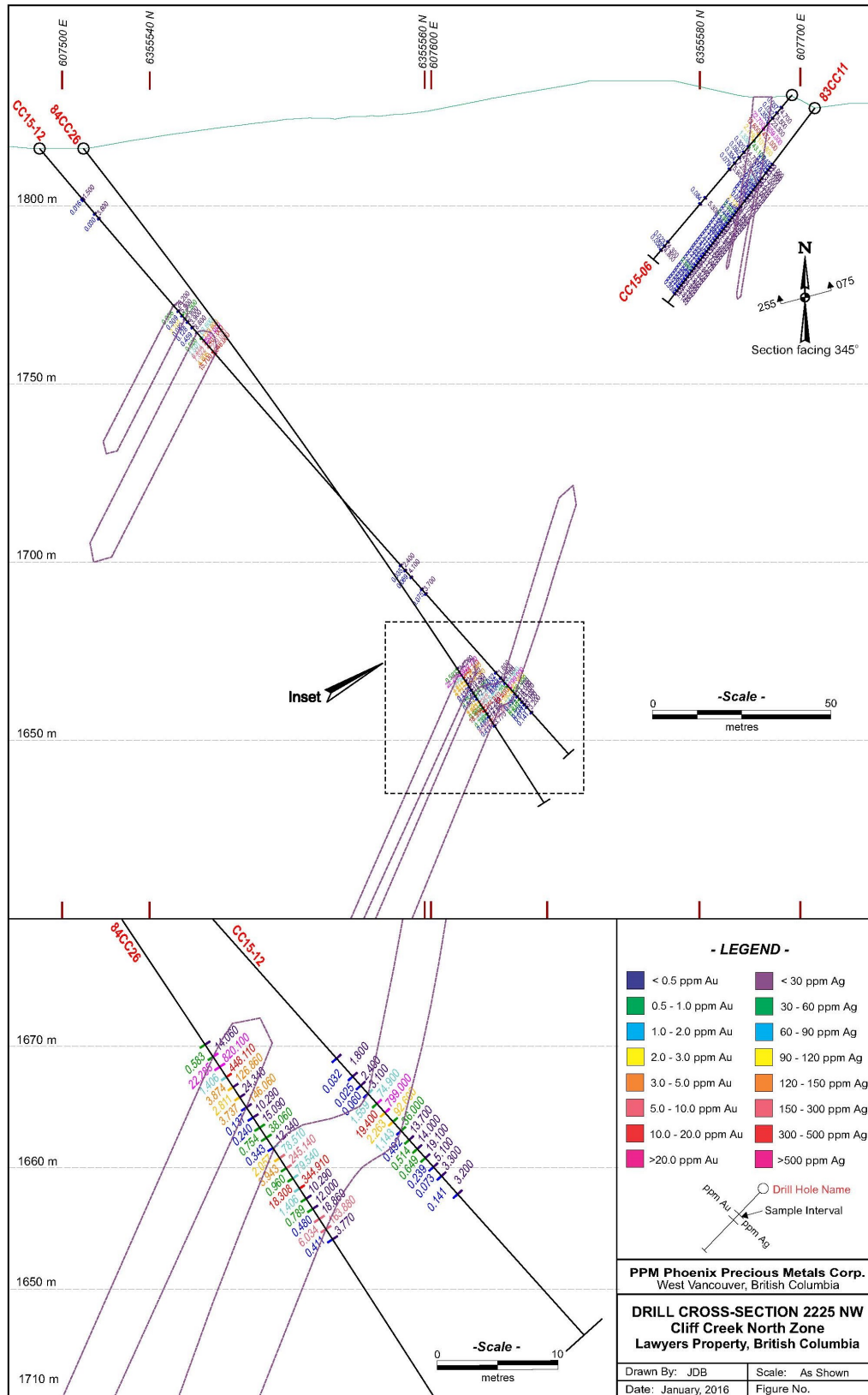


Figure 10-3: Cross-section 2225NW





**Plate 10-4: P2 Vein and Stockwork Zone, Hole CC15-15**

Section 2300NW

**Hole CC15-05** (Azimuth 074°; Dip -50°; TD 279.88m) was drilled beneath Holes 84CC19, 84CC29 and 84CC30 (see Cross-Section 2300NW, Figure 10.4). The hole intersected one near-surface interval grading 1.10 g/t Au and 137.1 g/t Ag over 9.80 m, from 9.50-19.30m, and two deeper intervals of low-grade gold-silver mineralization (2.87 g/t Au and 19.5 g/t Ag over 8.00 m, from 215.00-223.00m, and 2.34 g/t Au and 44.2 g/t Ag over 13.00m from 258.00-271.00 m). The hole successfully traced the projection of the main Cliff Creek North Zone a modest 14 m down-dip from the main zone intersection in the lower portion of Hole 84CC30.

**Hole CC15-13** (Azimuth 075°; Dip -58°; TD 322.56m), another of the four holes designed to test the Cliff Creek North Zone beneath levels of historic drilling, was drilled from the same collar location as Hole CC15-05. It intersected an upper, hangingwall zone of low gold-silver grades (2.18 g/t Au and 23.0 g/t Ag over 5.54m), from 135.26-140.80m, and a wide, lower zone that coincides with the main Cliff Creek North Zone. The lower intercept grades 1.71 g/t Au and 41.5 g/t Ag over 51.99m from 246.01-298.00m. The lower zone includes three narrow, higher grade intervals including 1.99m @ 6.08 g/t Au and 49.6 g/t Ag, 2.60m @ 5.50 g/t Au and 164.1 g/t Ag and 2.14m @ 6.86 g/t Au & 154.9 g/t Ag. It remains open down-dip.

Section 2325NW

**Hole CC15-10** (Azimuth 075°; Dip -65°; TD 118.26m) was drilled in the central part of the Cliff Creek North Zone from the location of, and at the same azimuth but at a 15° steeper dip than Hole 90CC110 (for which partial data exists). CC15-10 intersected an upper zone of low to moderate grade gold-silver mineralization grading 2.95 g/t Au and 110.9 g/t Ag over 15.45m from 83.00-98.45m. This zone correlates with the projection of the main Cliff Creek North Zone intersected in Hole CC90-110 (6.4 m from 78.5-84.9m that graded 8.39 g/t Au and 244.5 g/t Ag), and includes a higher grade footwall interval grading 5.29 g/t Au and 231.9 g/t Ag over 5.45m immediately above a 2.13m-long void. Mineralization continues below the void and includes two narrow intervals of 1.32m grading 10.4 g/t Au and 272.0 g/t Ag and 1.00m grading 6.21 g /t Au and 58.8 g/t Ag within an 11.42m intersection averaging 0.48 g/t Au and 14.1 g/t Ag from 100.58-112.00m.

Section 2350NW

**Hole CC15-03** (Azimuth 075°; Dip -60°; TD 164.94m) was collared between Holes 84CC20 and 84CC21 and was drilled easterly from the hangingwall side of the main vein system. It encountered weakly anomalous gold values throughout its length and spotty, weakly anomalous silver grades. Upon approaching its target depth, the hole successfully penetrated three narrow voids before being terminated prematurely. The core recovered adjacent to the voids consisted of quartz stockwork in argillically-altered feldspar porphyritic andesite. Gold and silver grades increase slightly with depth, with the highest values in the hole being 0.93 g/t Au and 24.4 g/t Ag across 0.92m, immediately below the last void encountered.

**Hole CC15-14** (Azimuth 075°; Dip -58°; TD 316.38m), one of four holes designed to test the Cliff Creek North Zone beneath the levels of historic drilling, was collared approximately 50m north of CC15-13 and near the collar location for Hole 84CC36. It encountered three deep intervals of low to moderate gold-silver grades. The two lower intersections of 7.00m grading 1.65 g/t Au and 157.3 g/t Ag from 279.00-286.00m and 2.60m grading 5.96 g/t Au and 182.4 g/t Ag from 300.00-302.00m coincide with the projection of the main Cliff Creek North Zone, whereas the upper 3.00m-long intersection grading 3.45 g/t Au and 136.1 g/t Ag from 266.20-269.20m is in its hangingwall. The two lower intersections in Hole CC15-14 are narrower and lower in grade than the long intercepts encountered in historic Holes 84CC-36 and 84CC32 which lie approximately 21m and 70m respectively up-dip from Hole CC15-14.

Section 2375NW

**Hole CC15-07** (Azimuth 260°; Dip -50°; TD 60.20m), collared in the footwall of the main Cliff Creek North Zone, was drilled to twin and verify the excellent gold-silver grades encountered in Hole 84CC04. A void (a suspected raise that correlates with the location of high-grade mineralization) was encountered between 54.86-59.44m. A short 0.76m-long section of core recovered beyond the void, prior to the hole being shut down, assayed 15.70 g/t Au and 622.0 g/t Ag. These gold-silver grades fall within the range of the high assay values in the approximate corresponding depth interval of Hole 83CC04, thus validating the historic assay data. Higher up in Hole 83CC04, from 20.0-22.0m, a 2.00m interval assayed 11.66 g/t Au and 1.05 g/t Ag. The corresponding interval in Hole CC15-07 assayed 0.042 g/t Au and 5.4 g/t Ag. The large variance in gold values between the two holes for this interval remains unexplained.

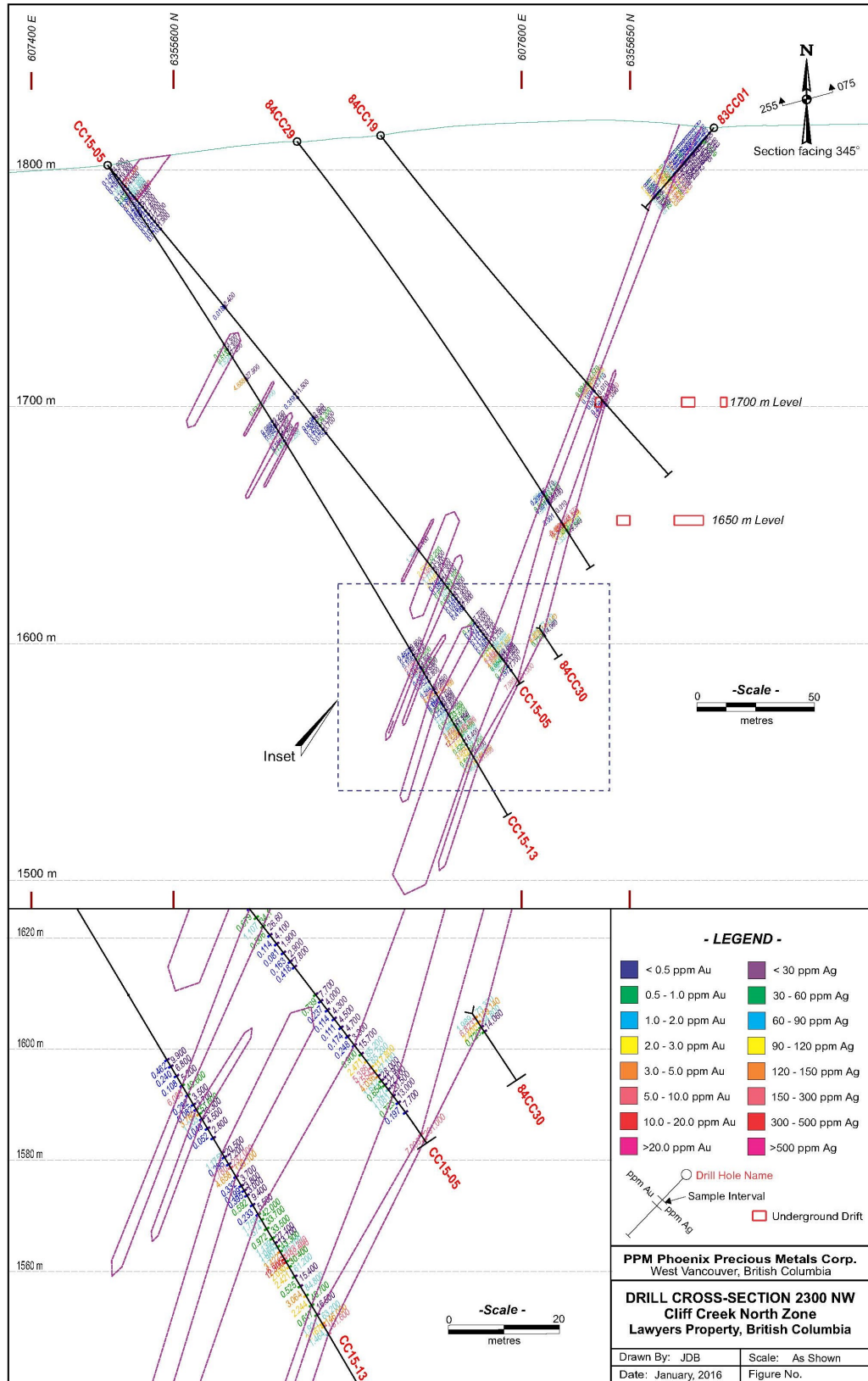


Figure 10-4: Cliff Creek North Cross-section 2300NW

**Hole CC15-04** (Azimuth 075°; Dip -60°; TD 395.73m), the first of four holes designed to test the Cliff Creek North Zone beneath the levels of historic drilling, is located at the collar of historic Hole 84CC37 and was drilled beneath Hole 84CC35 to intersect the main zone down-dip from 84CC35. Hole CC15-04 intersected a broad zone of alteration and mineralization which averaged 1.00 g/t Au and 27.8 g/t Ag over 54.93m. It includes two intervals of low to moderate grade gold-silver mineralization: an upper hangingwall intercept which assayed 3.35 g/t Au and 21.4 g/t Ag over 5.93m, from 244.07-250.00m; and a lower 4m-long intercept, from 283.00-287.00m, which assayed 3.76 g/t Au and 228.9 g/t Ag. The lower main zone intercept is located approximately 95m down-dip from an intercept in Hole 84CC35 which assayed 6.13 g/t Au and 391.26 g/t Ag over 13.00m.

#### Section 2400NW

**Hole CC15-08** (Azimuth 070°; Dip -50°; TD 124.36m) was drilled from the same location as Hole 84CC38 and was designed to twin and verify the results of the historic hole. Results included a 20.65m interval, from 89.00-109.65m, averaging 1.81 g/t Au and 62.8 g/t Ag that roughly coincides spatially with a 15.0m interval of higher grades (4.71 g/t Au and 217.4 g/t Ag) in the twinned hole. In plan view, Hole CC15-08 is shown to deviate to the north. It encountered several intervals of (post-mineral and dilutive?) fault breccia and gouge which may explain the lower grades in the hole relative to those in Hole 84CC38.

**Hole CC15-09** (Azimuth 075°; Dip -69°; TD 126.80m) was drilled at a steeper angle to intersect the Cliff Creek North Zone approximately 40 m down-dip from the intercepts in CC15-08 and 84CC38 (see Cross-Section 2400NW, Figure 10.5). It intersected a 15.80m zone of mineralization from 111.00m to the bottom of the hole at 126.80m that included a 2.00m interval from 115.00-117.00 m which assayed 4.49 g/t Au and 49.8 g/t Ag followed by a 1.83m void from 117.96-119.79m. Below the void, from 119.79-126.80m, a 7.01m interval returned lower grades averaging 0.742 g/t Au and 35.4 g/t Ag.

#### Section 2425NW

**Holes CC15-18** (Azimuth 077°; Dip -50°; TD 60.35m) and **CC15-19** (Azimuth 081°; Dip -65°; TD 69.49m) are step-out holes drilled 25 m northwest of Section 2400NW. The holes were designed to test the northwest projection of the main Cliff Creek North Zone beneath a stripped area that exposes quartz stringers, stockwork zones and discrete veins within silicified to argillically-altered andesite feldspar porphyry. Each hole intersected modest gold-silver grades at shallow depths within the projection of the Cliff Creek North Zone. Hole CC15-18 intersected 6.71m grading 2.73 g/t Au & 152.7 g/t Ag from 38.49-45.20m and Hole CC15-19 intersected 4.55m grading 3.84 g/t Au and 166.2 g/t Ag from 49.70-54.25m. These intersections demonstrate that the main Cliff Creek North Zone remains open to the northwest. Hole CC15-19 also intersected a narrow, high-grade gold-silver hangingwall zone which assayed 20.00 g/t Au and 229.0 g/t Ag over 0.90m from 14.38-15.28m.

#### Inclined Long Section

A long section for the Cliff Creek North Zone is shown in Figure 10.6. In it, for both historic and 2015 drill holes, the weighted average gold and silver grades per mineralized intercept, each multiplied by the estimated true width of the intercept, are shown as separate data entries at the intercepts' pierce points with the long section. Also shown at 10 unit intervals are contour lines which represent the interpolated

ppm Au x estimated true width values (in metres) throughout the long section, where drilling information is available.

Several pertinent observations can be made from a review of the long section, including:

- There is no obvious principal mineralized shoot for which an overall plunge orientation can be defined. Rather, there appears to be several discreet 'plums' of higher grade and/or thicker mineralized portions of the Cliff Creek North Zone.
- The 'plums', at  $\geq 50$  ppm-m Au, include: Holes 83CC04 and 84CC38 in the northern part of the zone (at shallower depths); Hole 84CC20 in the central part of the zone (at shallower depths); Holes 84CC32 and 84CC35 in the central part of the zone (at greater depths); and 84CC26 in the southern part of the zone (at moderate depths).
- Infill or step-out drilling within or adjacent to some of these plums would likely give a greater contained gold and silver ounces return (or increase) per unit volume and per metre drilled.
- Holes 84CC14 and its twin CC15-06, located at the south-southeast end of the Cliff Creek North Zone, are not shown on the long section. If they had been, they would likely show another 'plum' (not necessarily  $\geq 50$  ppm-m Au), indicating the need for step-out drilling initially targeting shallow depth projections of the zone to the south-southeast of these two holes.
- In the northern part of the zone, Hole CC15-08 and its low ppm-m Au value may be an outlier (relative to Holes 83CC04 and 84CC38) due to several (post-mineral and dilutive?) fault breccia and gouge zones intercepted in the hole. If so, there is a reasonable expectation that deeper drilling below Holes CC15-18 and 19 may yield favourable results.



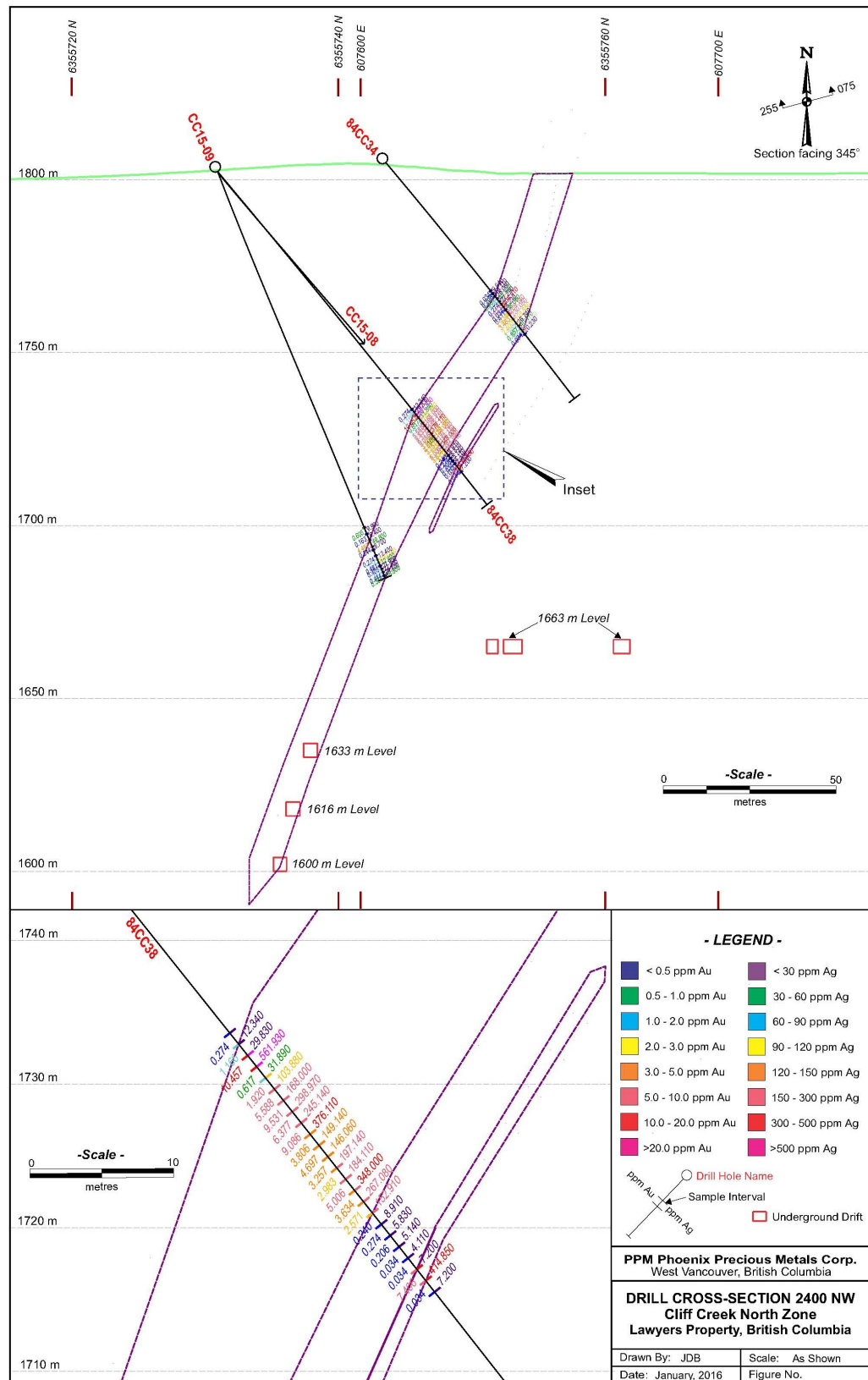


Figure 10-5: Cliff Creek North Cross-section 2400NW

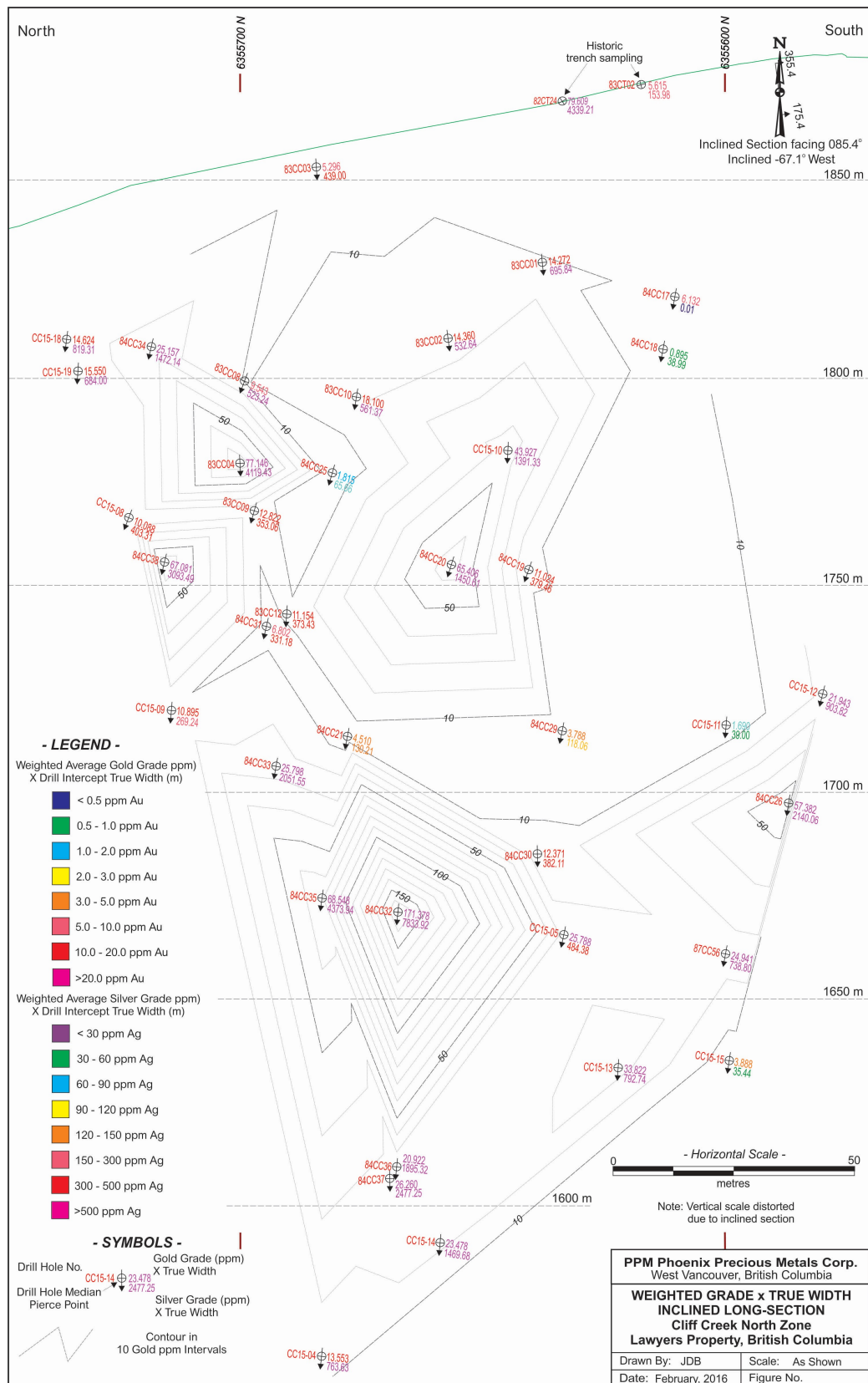


Figure 10-6: Long-section, Cliff Creek North Zone

## 10.4 RESULTS – DUKE’S RIDGE ZONE

A total of seven diamond drill holes with an aggregate length of 719.63m were completed on the Duke’s Ridge Zone (Figure 10.7). The holes tested the sinuous, locally complex, northwest-trending zone over a strike length of about 380m and to generally shallow depths. Six holes were drilled from the northeast side of the steeply southwest to northeast-dipping vein system; these ranged in azimuth from 200° to 225° with dips that ranged from 50° to 65°. The final hole of the program was drilled from the southwest side of the vein system at an azimuth of 020° and a dip of -50°. Most of the holes targeted the central part of the zone where previous work had identified strong gold-silver values within quartz-chalcedony-amethyst veins, stockworks and breccias with locally well-developed comb, crustiform and colloform textures (Plate 10.5).



**Plate 10-5: Example of Mineralization Characteristic of the Duke’s Ridge Zone**

The intent of the Duke’s Ridge drilling was to validate the historical data base by drilling a series of new holes within the set of closely-spaced historic holes, and use the new data to compare with and verify the historic results.

A brief description of each 2015 drill hole is provided below. Similar to the discussion of drilling results for the Cliff Creek North Zone in Section 10.3, the order in which they are described is not by consecutive hole number but rather by the cross-section reference lines to which the holes project, starting at Section 5450NW and progressing northwesterly to Section 5825NW. Along each cross-section, the shallower



holes (those to the northeast) are discussed first and the progressively deeper holes (those to the southwest) are discussed last. The prefix 'historic' has been excluded from the text below with the understanding that any pre-2015 drill hole is considered historic.

#### Section 5450NW

**Hole DR15-06** (Azimuth 225°; Dip -50°; TD 158.19m) was drilled near the southeast end of the Duke's Ridge Zone where little data exists. It was drilled 25° off-section to test beneath Trenches 82DT50 and 82DT51. The drill hole encountered only localized zones of weak quartz-chalcedony veining and was sampled intermittently between 53.94-147.49m where these altered zones occur. All of the samples taken returned anomalous to low-grade gold-silver values; the highest value is 2.10 g/t Au and 17.7 g/t Ag over 1.90m from 70.58-72.48m. The low gold-silver values in Hole DR15-06 compare with the generally low grades in Trench 82DT50 in which the highest 1.0m sample assayed 3.737 g/t Au and 11.0 g/t Ag. This trench occurs approximately 70m above the mineralization intersected in the drill hole. No data exists for Trench 82DT51.

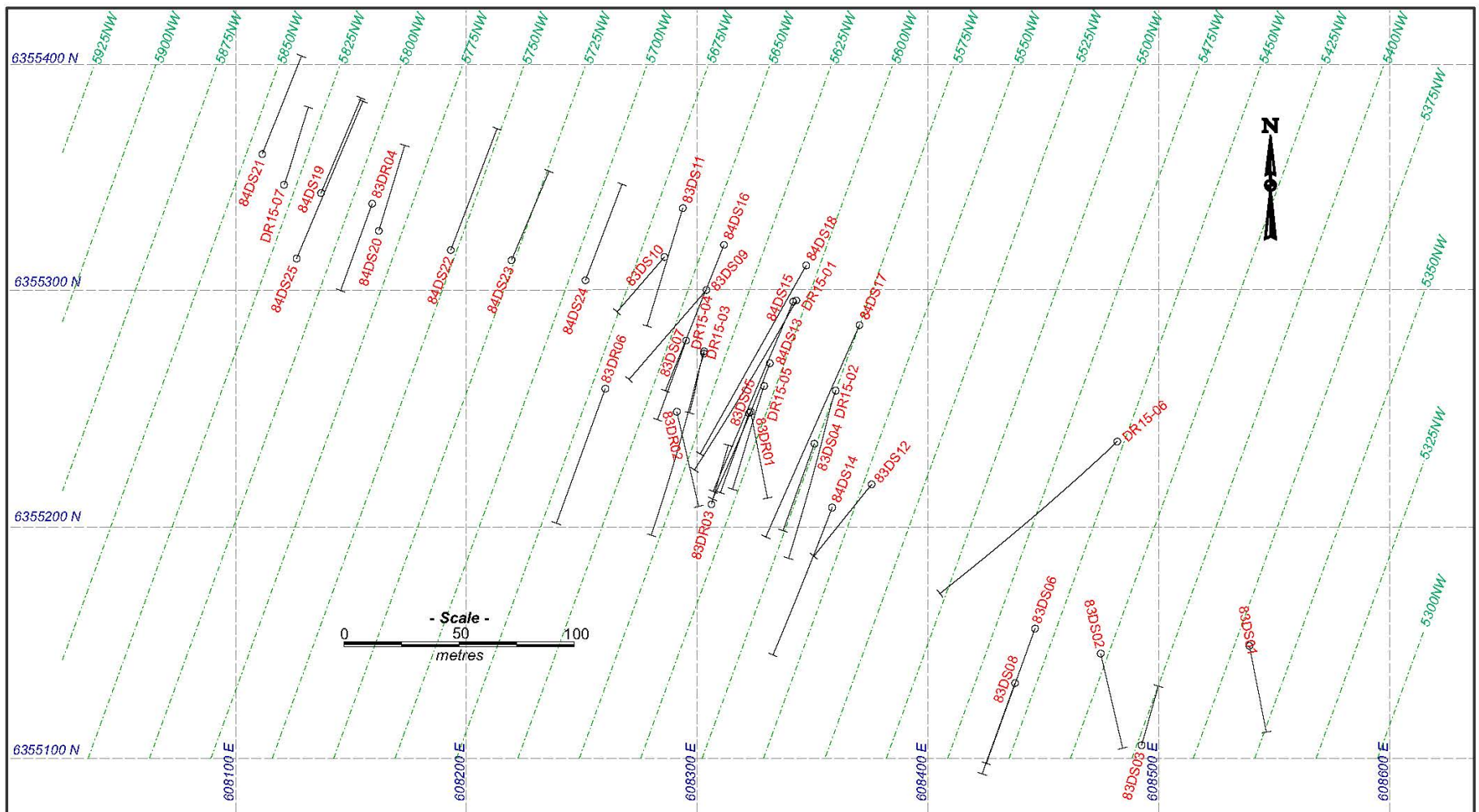
#### Section 5575NW

**Hole DR15-02** (Azimuth 200°; Dip -50°; TD 112.17m) was collared approximately 30m south-southwest of 84DS17 and was designed to test an area between Holes 83DS04 and 84DS14. It intersected a 12.35m interval averaging 0.63 g/t Au and 24.0 g/t Ag from 72.70-85.05m, including a 0.32 m-long high-grade interval which assayed 9.15 g/t Au and 278.0 g/t Ag. The high grade interval may correlate with the projection of a mineralized interval in Hole 83DS04 which assayed 2.16 g/t Au and 278.6 g/t Ag over 3.00m. Hole DR15-02 appears not to have been drilled deep enough to traverse the down-dip projection of a high-grade intersection in Hole 84DS14 which assayed 22.66 g/t Au and 2,249.79 g/t Ag over 1.00m. No data exists for Hole 84DS17 which undercuts Hole DR15-02.

#### Section 5600NW

**Hole DR15-01** (Azimuth 210°; Dip -51°; TD 134.72m) was initially intended to twin Hole 84DS18, however the old collar location was deemed unsafe because of its proximity to the top of a rocky, precipitous slope. DR15-01 was instead drilled from a position upslope near the collar of Hole 84DS-15; it was steepened somewhat to intersect the projection of a zone of mineralization cut in Holes 84DS15 and 84DS18 (see Cross-Section 5600NW, Figure 10.8). The new hole intersected a 5.86m-long zone grading 1.56 g/t Au and 57.7 g/t Ag from 98.49-104.35m that correlates spatially with the projected zone, but is of a lower tenor than the intersections reported for the historic holes (10.69 g/t Au and 73.6 g/t Ag over 5.00m in Hole 84DS15 and 4.67 g/t Au and 268.4 g/t Ag over 5.00m in Hole 84DS18).

**Hole DR15-05** (Azimuth 200°; Dip -50°; TD 69.49m) was collared about 40m south-southwest of DR15-01 on-section and between Holes 84DS13 and 83DS05, and on-section with Holes 83DS03, 84DS15 and DR15-01 (see Figure 10.7). The new hole was drilled to verify the mineralized intervals encountered in the adjacent historic holes. DR15-05 encountered a 50.75m interval from surface to 52.00m averaging 1.41 g/t Au and 42.3 g/t Ag that included an 8.56 m intersection grading 3.85 g/t Au and 106.5 g/t Ag from 33.50-42.06m. The latter intersection correlates well with the position and tenor of a likely correlative interval in 83DS05 (12.0m grading 4.37 g/t Au and 218.5 g/t Ag from 13.00-25.00m).



**Figure 10-7: 2015 Drill Hole Locations, Duke's Ridge Zone**

Section 5625NW

**Hole DR15-03** (Azimuth 200°; Dip -50°; TD 127.41m) was collared approximately 10m southeast of 83DS07 to verify the high-grade intersections encountered in the historic hole, and to test the depth potential in the central part of the Duke's Ridge Zone. Although not an exact 'twin' of 83DS07, DR15-03 did intersect a 22.29m mineralized interval from 1.21-23.50 m grading 0.72 g/t Au and 24.8 g/t Ag, including a 2.00m interval from 19.00-21.00m grading 3.09 g/t Au and 34.4 g/t Ag. The longer interval in Hole DR15-03 correlates well with a 19.0m near-surface intersection encountered in Hole 83DS07. However, the new hole did not replicate the high-grade gold-silver values (23.73, 206.91 and 66.69 g/t Au, and 672.0, 2040.0 and 894.8 g/t Ag) in three 1.00m samples taken between 15.00-20.00 m in the old hole. Near the bottom of Hole DR15-03, a narrow, 0.25m-long interval from 119.52-119.77m grades 2.37 g/t Au and 103.7 g/t Ag.

**Hole DR15-04** (Azimuth 200°; Dip -65°; TD 63.40m) was drilled beneath DR15-03 and intersected anomalous gold-silver values from 2.10-24.00m followed by a much stronger mineralized interval from 24.00-38.00m grading 5.30 g/t Au and 112.7 g/t Ag. This higher grade interval may be the down-dip extension of the high grade mineralization intersected from 15.00-20.00m in hole 83DS07 and the lower grade mineralization intersected from 19.00-21.00m in Hole DR15-03.

Section 5825NW

**Hole DR15-07** (Azimuth 020°; Dip -50°; TD 54.25m) was drilled in the northwestern part of the Duke's Ridge Zone between Holes 84DS19 and 84DS21. It was designed to confirm the mineralized intervals intersected in Hole 84DS19 (no data exists for Hole 84DS21). DR15-07 intersected two mineralized intervals: an upper 0.50 m interval from 24.77-25.27m grading 7.59 g/t Au and 33.0 g/t Ag; and a lower 5.08m interval from 34.02-39.10m grading 1.24 g/t Au and 21.9 g/t Ag. The latter intersection is in reasonable agreement with the location and tenor of an intersection cut in 84DS19 (8.0m grading 3.34 g/t Au and 113.0 g/t Ag from 37.00-45.00m) and also an intersection cut at a deeper level in nearby Hole 84DS25 (6.0m grading 2.40 g/t Au and 30.7 g/t Ag from 78.00-84.00m).

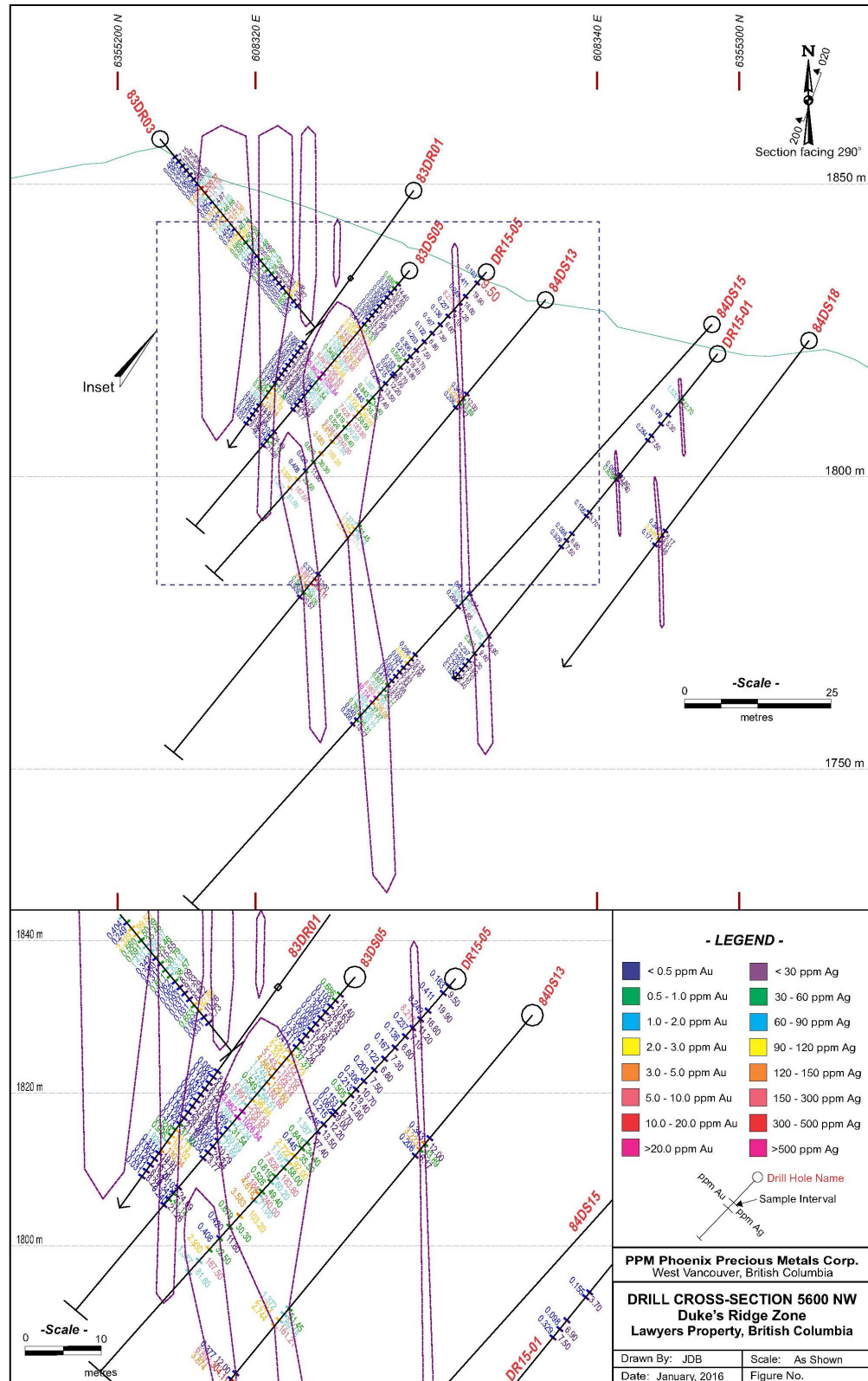


Figure 10-8: Cross-section 5600NW, Duke's Ridge Zone

## **10.5 DRILLING SUMMARY AND INTERPRETATION**

### **10.5.1 Introduction**

Overall, the 2015 diamond drilling program, completed on portions of the Cliff Creek North and Duke's Ridge Zones, validated and verified the historic results generated by earlier operators.

The 2015 diamond drilling program employed twinning of selected historic drill holes and drilling of targeted infill, step-down and step-out holes. The program produced a modern data set that was compared with, and used to verify, the historic results. In addition, the 2015 program made an important new discovery, the 'P2' Vein, in the hangingwall of the main Cliff Creek North Zone. It is one of several priority targets identified for follow-up exploration and diamond drilling. Recommendations for future work on the Project are summarized in Section 26.

The 'nugget effect' commonly observed in epithermal gold-silver vein deposits, where high-grade mineralization is erratically distributed within mineralized shoots, can make it challenging to reproduce high gold-silver grades. Consequently, even drill holes designed to 'twin' high-grade intersections in historic holes may produce varying results, as was the case at both the Cliff Creek North and Duke's Ridge Zones. Nevertheless, this does not diminish the significance of the consistent success of PPM's 2015 drilling program in intersecting mineralization about where expected in the two zones.

### **10.5.2 Cliff Creek North Zone**

The Cliff Creek North Zone was tested with a total of 19 drill holes, 17 of which successfully penetrated the north-northwest trending, moderately to steeply southwest-dipping vein system. The drilling showed that the main zone has a minimum strike length of 225 m and remains open along strike to the northwest (beyond Holes CC15-18 and 19) and to the southeast (beyond Holes CC15-06 and 12), and at depth on some sections below the deepest levels of drilling and mine workings. The intersection of underground workings by a number of the 2015 drill holes confirmed that parts of the deposit have been subjected to mining. Analysis of core recovered from the immediate hangingwall and footwall of some of the voids shows that good grades of gold-silver mineralization remain and suggests that past underground development was likely limited to narrow stoping.

The narrow precious metals-enriched, semi-massive sulphide vein and associated stockwork zone (the 'P2' Vein) intersected in Hole CC15-15 occurs approximately 70 m into the hangingwall of the main Cliff Creek North Zone. It is an important new exploration target that merits follow-up close-spaced diamond drilling. Hangingwall mineralization of note was also encountered in several other 2015 and earlier drill holes.

The 52.0m-long intersection of low grade mineralization in Hole CC15-13 (on Section 2300NW) and the 39.0m and 36.0m-long intersections of higher grade mineralization in Holes 84CS32 and 84CS36 respectively (on Section 2350NW) suggest that locally, in the central and deeper parts of the Cliff

Creek North Zone, there may be zones of structural thickening which offer the potential of a bulk tonnage target.

### **10.5.3 Duke's Ridge Zone**

The Duke's Ridge Zone was tested with a total of 7 drill holes, all of which intersected the sinuous northwest-trending sub-vertical vein and stockwork system. The majority of holes targeted the central, higher grade part of the deposit. Although this drilling did not reproduce some of the highest assay values encountered in historic drill holes, it did confirm a near-surface zone of mineralization with low to moderate gold-silver grades. Intercepts in Holes DR15-04 and 05 returned some of the better gold and silver grades encountered in the 2015 drilling program at Duke's Ridge. The mineralized vein system in the central part of the zone remains open at depth.

Holes DR15-06 and 07 evaluated the southeastern and northwestern parts of the deposit, respectively, and encountered narrow, low-grade intercepts within broader weakly anomalous zones. These two holes determined that the Duke's Ridge Zone has a minimum strike length of 380m.

## **11 SAMPLE PREPARATION, ANALYSES AND SECURITY**

All 2015 drill core was transported from the drill site by one of the drillers or by a representative of PPM and securely stacked outside of the core logging facility until being brought inside for logging. Onsite core sample security was not a concern because of the remote location of the project.

### **11.1 DRILL CORE HANDLING PROCEDURES**

Drill core handling procedures from drill to laboratory consisted of the following:

- HQ core was transferred from the core tube to four foot long wooden core boxes by a member of the drill crew;
- The drillers labelled the core boxes with drill hole number and box number, and placed a wooden block marked with the depth in feet at the end of each run of core;
- At the end of each drill shift, filled core boxes were transported to the core logging facility;
- At the core logging facility, core boxes were laid out in order to ensure all boxes were present and to ensure markers were correctly located and labelled;
- A PPM technician or geologist then converted block measurements from feet to metres and core recovery measurements were determined and recorded for each run;
- Core was geologically logged using hard copy forms designed for the Project; data was later entered into an electronic database;
- The geologist determined the core to be sampled by marking it with bright coloured wax crayons to indicate the start and end of each sample interval. Each sample interval was tagged with a unique identification number, and the data was recorded on a Sample Record form. Each sample interval was also marked with a centre-line;
- The geologist marked samples for density measurements approximately every 10 metres; measurements were taken onsite and recorded; and