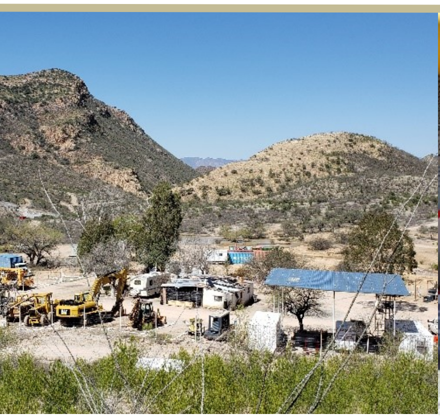
# Technical Report and Preliminary Economic Assessment for the Las Chispas Property, Sonora, Mexico




PRESENTED TO

**SilverCrest Metals Inc.**

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# ACRONYMS & ABBREVIATIONS

| Acronyms/Abbreviations | Definition |
|---|---|
| AAS | atomic absorption spectroscopy |
| AES | atomic emission spectroscopy |
| Ag | silver |
| AgEq | silver equivalent |
| ANFO | ammonium nitrate and fuel oil |
| Au | gold |
| BD | bulk density |
| BLEG | bulk leach extractable gold |
| CaO | lime |
| CCD | counter current decantation |
| CCTV | closed-captioned television |
| CDN Lab | CDN Resource Laboratories Ltd. |
| CEDES | Comisión de Ecología y Desarrollo Sustentable del Estado de Sonora (Commission of Ecology and Sustainable Development of the State of Sonora) |
| CIM | Canadian Institute of Mining, Metallurgy and Petroleum |
| CNCF | cumulative net cash flow |
| CONAGUA | National Water Commission (Comisión Nacional del Agua) |
| CRE | Comisíon Reguladora de Energía (Energy Regulatory Commission) |
| CRM | certified reference material |
| $CuSO_4$ | copper sulphate |
| DSC | distributed control system |
| DSTF | dry stack tailings facility |
| EPCM | Engineering, procurement and construction management |
| EPMA | electron probe micro-analysis |
| ETJ | Technical Justification Study (Estudio Técnico-Justificativo |
| FC | free carrier |
| First Majestic | First Majestic Silver Corp. |
| FOB | free board marine |
| FW | footwall |
| G&A | general and administrative |
| GIS | geographic information system |
| GPS | global positioning system |

| Acronyms/Abbreviations | Definition |
|---|---|
| GRG | gravity recoverable gold |
| HGC | high-grade composite |
| HVAC | heating, ventilation, and air conditioning |
| HW | hanging wall |
| ICP | inductively coupled plasma |
| $ID^2$ | Inverse Distance Weighted to the second power |
| $ID^3$ | Inverse Distance Weighted to the third power |
| INAH | National Institute of Anthropology and History (Instituto Nacional de Antropología e Historia) |
| INEGI | National Institute of Statistics, Geography and Information Technology (Instituto Nacional de Estadística, Geografía e Informática |
| IRR | internal rate of return |
| LAN | local area network |
| Las Chispas or the Property | the Las Chispas Property |
| LAU | comprehensive environmental license (Licencia Ambiental Única) |
| LGC | low-grade composite |
| LGDSF | General Law of Sustainable Forestry Development (Ley General de Desarrollo Forestal Sustentable |
| LGEEPA | General Law of Ecological Equilibrium and Environmental Protection *(*Ley General Del Equilibrio Ecológico y la Protección al Ambiente) |
| LGPGIR | General Law for the Prevention and Integrated Waste Management (Ley General para la Prevención y Gestión Integral de los Residuos |
| LiDAR | Light Detection and Ranging |
| LLA | Compañia Minera La Llamarada S.A. de C.V. |
| LOM | life-of-mine |
| MCC | motor control centre |
| MDRU | Mineral Deposits Research Unit |
| MGC | medium-grade composite |
| MIA | Manifestación de Impacto Ambiental/environmental impact statement |
| Minas Pedrazzini | Minas Pedrazzini Gold and Silver Mining Company |
| Minefinders | Minefinders Corporation Ltd. |
| MS | mass spectrometry |
| MSO | Mineable Shape Optimizer |
| NaCN | sodium cyanide |
| NCF | net cash flows |

| Acronyms/Abbreviations | Definition |
|---|---|
| NI 43-101 | National Instrument 43-101 |
| NOM | Official Mexican Standards (Norma Oficial Mexicana) |
| NPV | net present value |
| NSR | net smelter return |
| OIS | operator interface station |
| OK | Ordinary Kriging |
| PAX | potassium amyl xanthate |
| $Pb(NO_3)_2$ | lead nitrate |
| PEA | Preliminary Economic Assessment |
| PMA | particle mineral analysis |
| PPA | Accident Prevention Plan (Prevención de Accidentes) |
| Premier Gold Mines | Premier Gold Mines Limited |
| PROFEPA | Procuraduría Federal de Protección al Ambiente (Federal Attorney for Environmental Protection |
| PwC | PricewaterhouseCoopers LLC |
| QA | quality assurance |
| QC | quality control |
| QEMSCAN™ | Quantitative Evaluation of Minerals by Scanning Electron Microscopy |
| QP | Qualified Person |
| Q-Q | quantile-quantile |
| RC | reverse circulation |
| RDCLF | rhyodacitic crystal tuff |
| ROM | run-of-mine |
| RPD | relative percent difference |
| RQD | rock quality designation |
| SACTS | silicic andesite units |
| SD | standard deviation |
| SDS Durango | SGS de Mexico S.A. de C.V. |
| SEM | scanning electron microscope |
| SEMARNAT | Secretaría de Medio Ambiente y Recursos Naturales/ Secretariat of Environment and Natural Resources |
| SENER | Secretaría de Energía (Secretary of Energy) |
| SG | specific gravity |
| SGS Lakefield | SGS Canada Inc. |

| Acronyms/Abbreviations | Definition |
|---|---|
| SilverCrest | SilverCrest Metals Inc. |
| SMBS | sodium metabisulfite |
| SMS | specific mineral search |
| $SO_2$ | sulphur dioxide |
| Tetra Tech | Tetra Tech Canada Inc. |
| UTM | Universal Transverse Mercator |
| VHF | very high frequency |
| VoIP | voice over internet protocol |
| WAD | weak acid dissociable |
| WBS | work breakdown structure |
| WCM | waste composite master |
| WGS | World Geodetic System |
| XRD | x-ray diffraction |
| XRF | x-ray fluorescence |

# 1.0 SUMMARY

## 1.1 Introduction

SilverCrest Metals Inc. (SilverCrest) retained Tetra Tech Canada Inc. (Tetra Tech) to prepare a National Instrument 43-101 (NI 43-101) Technical Report and Preliminary Economic Assessment (PEA) for the Las Chispas Property (Las Chispas or the Property), located in the State of Sonora, Mexico. The effective date of this PEA is May 15, 2019 and the effective date of the Mineral Resource Estimate is February 8, 2019.

## 1.2 Property Description, Ownership and History

Las Chispas is the site of historical production of silver (Ag) and gold (Au) from narrow high-grade veins in numerous underground mines dating back to approximately 1640. The bulk of historical mining occurred between 1880 and 1930 by Minas Pedrazzini Gold and Silver Mining Company (Minas Pedrazzini). Minimal mining activity is believed to have been conducted on the Property since this time. In 1910, annual production for three years trailing ranged between 3,064 and 3,540 t with average grades of 1.29 ounces per tonne of gold and 173 ounces per tonne of silver over the period. High grades in the mine are a result of the concentration and formation of numerous primary and secondary silver sulphides; mainly argentite, acanthite, stephanite, polybasite, and pyrargyrite. Numerous world-class mineral specimens from the mine were donated to museums and educational institutions.

Historical mining was conducted along three main structures that are identified by SilverCrest as the Las Chispas Vein, the William Tell Vein, and the Babicanora Vein. Each of these structures has various extents of underground development and many of the workings are restricted to small-scale development on one or two working levels. The most extensive development appears to be along the Las Chispas Vein; historical mining has occurred over a strike length of approximately 1,250 m to a maximum depth of approximately 350 m. Mining at Las Chispas targeted high-grade mineralization through a series of interconnected stopes. An adit was driven into the Babicanora Vein in the 1860's. Mining was conducted in the hanging wall of the vein at various historic periods. Small-scale mining was also conducted from three, 30 m tunnels at the La Victoria Prospect, located on the southwest portion of the Property.

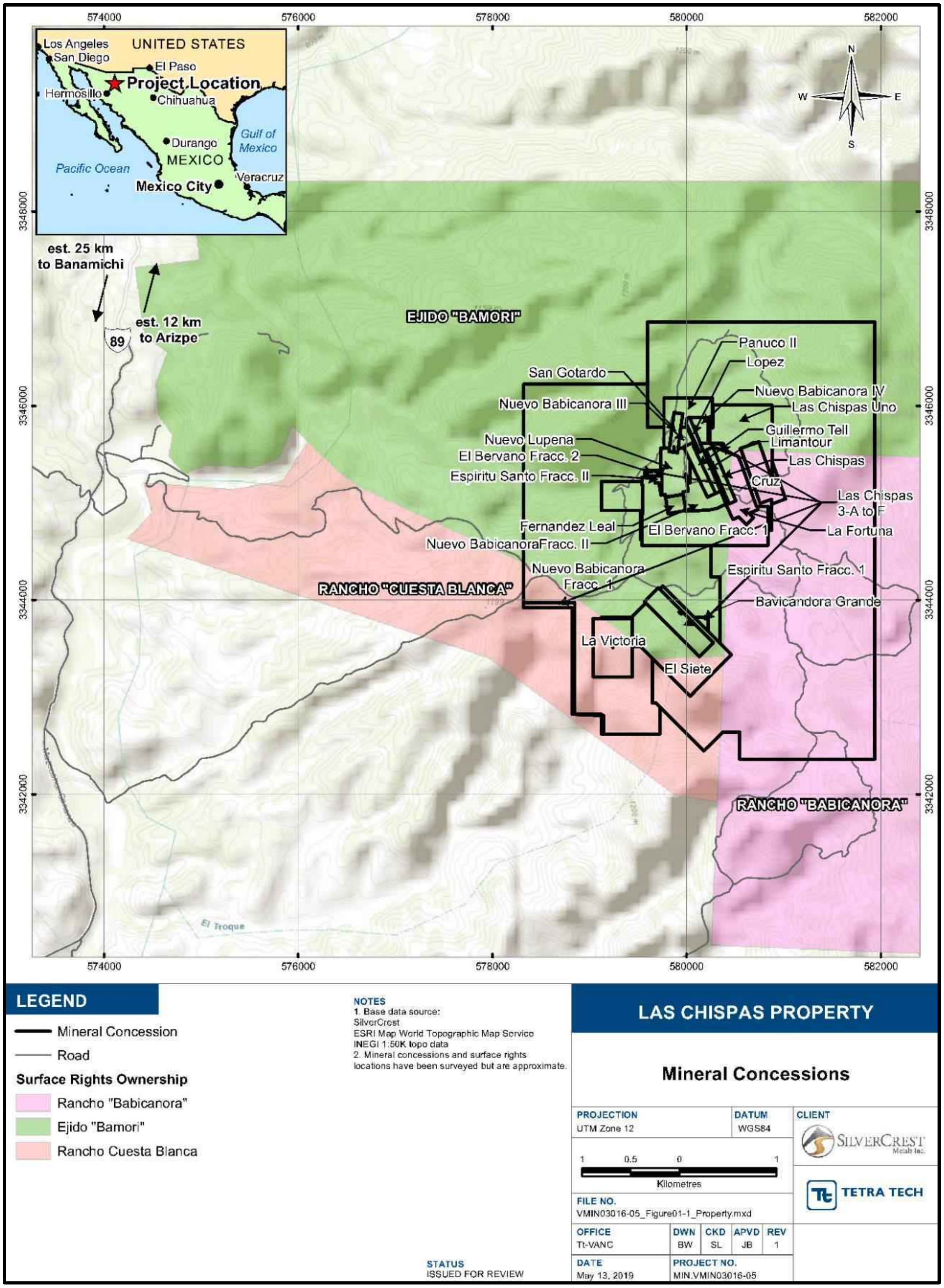
SilverCrest has gained access to many of the historical workings through extensive mine rehabilitation of approximately 11 km of a known 11.5 km of underground development. Rehabilitation is now complete with access to nine levels (approximately 900 vertical feet) on the Las Chispas Vein.

Access to the Property is good. An upgraded 10 km dirt road connects to the paved Highway 89. Highway 89 connects to Hermosillo, approximately 220 km to the southwest; to Cananea, 150 km to the north; or to Tucson, Arizona, approximately 350 km to the northwest. Nearby communities include Banamichi, located 25 km to the south, which is the service community for the nearby Santa Elena Mine operated by First Majestic Silver Corp. (First Majestic) and Arizpe, located 12 km to the north of the main property gate. The Mercedes Mine operated by Premier Gold Mines Limited (Premier Gold), is located 33 km northwest of Las Chispas.

The Property comprises 28 mineral concessions totaling 1,400.96 ha. Compañia Minera La Llamarada S.A. de C.V. (LLA), a Mexican wholly-owned subsidiary of SilverCrest, has acquired title to, or entered into option agreements to purchase with five concession holders. SilverCrest owns approximately two thirds of the surface rights covering its optioned mining concessions. A 20-year lease agreement for land access and exploration activities for the remaining one third of the surface rights on the mineral concessions is in place with the local Ejido (Ejido Bamori).

All current Mineral Resources are on SilverCrest controlled surface and mining concessions. The map shown in Figure 1-1 shows the Property layout including mineral concessions and surface rights ownership.

**Figure 1-1: Las Chispas Property and Mineral Concessions Map**



## 1.3 Deposit Type

The mineral deposits are classified as low to intermediate sulphidation epithermal veins, stockwork, and breccia zones, where silver mineralization is present as primary minerals argentite/acanthite and secondary minerals stephanite, polybasite, and pyrargyrite/proustite. Gold concentration is related to silver mineralization and may occur in trace quantities within the silver-sulphosalts, in addition to an electrum phase. Historical records document the irregular ore shoots of extreme high-grade mineralization that often occur in contact with, and likely in relation to, zones of leached and barren quartz and calcite filled fractures. Dufourcq (1910) describes these zones as commonly occurring horizontally and are a result of leaching, concentrating, and redistributing the primary silver sulphides.

The deposits have been emplaced through a felsic to more mafic volcaniclastic sequence associated with volcanism of the upper portion of the Lower Volcanic Series, a dominant member of the Sierra Madre Occidental terrane which hosts similar deposits in northeastern portions of the state of Sonora and northwestern portions of the state of Chihuahua.

## 1.4 Exploration and Drilling

Minefinders Corporation Ltd. (Minefinders) conducted previous exploration work on the Property between 2008 and 2011; however, this exploration work was limited by mineral concession rights. Regional activities consisted of geologic mapping and a geochemical sampling program totaling 143 stream sediment and bulk leach extractable gold (BLEG) samples; 213 underground rock chip samples; and 1,352 surface rock chip samples. The work was successful in identifying three gold targets along the 3 km long structural zone. The most prospective of these targets was interpreted to be an area between the Las Chispas Vein and the Babicanora Vein. Minefinders focused on the furthest western extension of the Babicanora Vein called El Muerto, which is the only part of the trend that was acquired by concession and accessible for exploration work. Minefinders drilled seven reverse circulation (RC) holes, totaling 1,842.5 m from the road to the west and off the main mineralized trends. The program returned negative results and Minefinders dropped the Property in 2012.

SilverCrest Mines Inc. (now a subsidiary of First Majestic), through its subsidiary Nusantara de Mexico S.A. de C.V., executed option agreements to acquire rights to 17 mineral concessions in September 2015. On October 1, 2015, these mineral concessions were transferred to SilverCrest Metals subsidiary LLA further to an arrangement agreement among SilverCrest Metals Inc., SilverCrest Mines Inc., and First Majestic. After October 2015, LLA obtained the rights to 11 additional mineral concessions.

Before SilverCrest acquired the Las Chispas Property in October 2015, no drilling had been completed on the northwest to southeast mineralized trend that contains the Las Chispas and Babicanora areas.

SilverCrest began exploration work on the Property in February 2016 with a primary focus on the Las Chispas, William Tell, and Babicanora veins. From February to October 2016, the Phase I exploration program consisted of initial core drilling in the Las Chispas area, surface and underground mapping and sampling, and rehabilitating an estimated 6 km of underground workings. From November 2016 to February 2018, the Phase II exploration program consisted of additional drilling, surface and underground mapping and sampling, further rehabilitation of 4 km of underground workings, plus auger and trenching of surface historic waste dumps. The Phase III exploration program commenced in February 2018 and is currently ongoing as of the effective date of this PEA. The Phase III exploration program has so far consisted of drilling, additional surface and underground mapping and sampling, and rehabilitation of 1 km of underground workings to complete the underground rehabilitation program of 11 km. The extensive mapping and sampling program being undertaken by SilverCrest has identified that many of the mineralized showings are narrow and high-grade, low to intermediate sulphidation epithermal deposits hosted in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volcaniclastic rocks. Up to February 8, 2019, the completed Phase I, Phase II, and partial Phase III surface and underground drill programs total approximately 117,057.65 m in 439 core holes.

The Phase I core drilling of 22 holes totaling 6,392.6 m and 4,227 samples targeted near surface mineralization and lateral extensions of previously mined areas in the Las Chispas Vein, in addition to the William Tell Vein and the La Victoria Prospect. The Phase II core drilling of 161 drill holes totaling 39,354.60 m and 22,899 samples targeted unmined portions of the Las Chispas Vein, delineation of the Giovanni, Giovanni Mini, La Blanquita, and other unnamed veins, in addition to exploration of the La Varela Vein, all within the Las Chispas Area. Drilling of the Babicanora Vein focused on delineating the down plunge and vertical extents of the Babicanora Vein, in addition to exploratory drilling on the Amethyst Vein and the Granaditas Target, all within the Babicanora Area. The Phase III core drilling of 256 drill holes totaling 71,310.45 m and 33,551 samples targeted the Babicanora, Babicanora Norte, Babicanora Sur, Luigi, and Granaditas veins as well as continuing to delineate the down plunge and vertical extents of the Babicanora Hanging Wall (HW) Vein and Footwall (FW) Vein.

Drilling on the Babicanora Vein has identified significant silver and gold mineralization along a regional plunging trend that has been named the Area 51, based on anchor mineral intersection in hole BA17-51. The Area 51 Zone measures approximately 800 m along strike, 300 m vertically, and remains open down plunge. The top of Area 51 is located at approximately the same elevation as the valley bottom, or 200 vertical metres from the ridge crest. Within the Area 51 Zone, a high-grade shoot named Shoot 51, has been delineated by drilling to be approximately 300 by 250 m and represents a high-grade core of mineralization with silver equivalent (AgEq) grades greater than 1,000 gpt on a vein composite basis and minimum true thickness of 1.5 m.

Table 1-1 shows select highlights of the Phase III drilling results. The locations of SilverCrest's drilling in the Las Chispas Area is shown in Figure 1-2 and in the Babicanora Area in Figure 1-3. Surface collar locations were initially surveyed using a handheld global positioning system (GPS) unit and then by a professional surveyor using a differential Trimble GPS. All drill hole inclinations were surveyed utilizing single-shot measurements with a Flex-it® tool. Underground collar locations were surveyed relative to the underground survey network, which has been tied in by a professional survey contractor.

**Table 1-1: Las Chispas Most Significant Drill Hole Results for Recent Phase III (September 2018 to February 2019)(3,4,5,6)**

| Vein | Hole No. | From (m) | To (m) | Drilled Width (m) | Est. True Width (m) | Au (gpt) | Ag (gpt) | AgEq* (gpt) |
|---|---|---|---|---|---|---|---|---|
| Babicanora | BA18-93 | 300.5 | 304.6 | 4.1 | 3.8 | 6.78 | 1,091 | 1,599 |
| Babicanora | incl. | 302.4 | 304.6 | 2.2 | 2.0 | 8.97 | 1,505 | 2,177 |
| Babicanora | BA18-94 | 307.4 | 312.0 | 4.6 | 3.5 | 33.06 | 2,092 | 4,570 |
| Babicanora | incl. | 310.2 | 311.3 | 1.1 | 0.8 | 80.65 | 6,573 | 12,622 |
| Babicanora | BA18-95 | 294.0 | 308.2 | 14.2 | 11.1 | 3.99 | 580 | 879 |
| Babicanora | incl. | 296.0 | 298.7 | 2.7 | 2.1 | 8.01 | 1,250 | 1,850 |
| Babicanora | incl. | 303.1 | 304.2 | 1.1 | 0.9 | 25.5 | 2,381 | 4,293 |
| Babicanora | BA18-96 | 200.2 | 214.4 | 14.1 | 9.9 | 14.40 | 2,132 | 3,212 |
| Babicanora | incl. | 204.1 | 210.5 | 6.4 | 4.5 | 30.28 | 4,498 | 6,769 |
| Babicanora | incl. | 208.5 | 209.5 | 1.0 | 0.7 | 102.15 | 12,757 | 20,418 |

*table continues…*

| Vein | Hole No. | From (m) | To (m) | Drilled Width (m) | Est. True Width (m) | Au (gpt) | Ag (gpt) | AgEq* (gpt) |
|---|---|---|---|---|---|---|---|---|
| Babicanora | BA18-97 | 294.0 | 296.0 | 2.0 | 1.5 | 2.52 | 454 | 643 |
| Babicanora | incl. | 294.0 | 295.0 | 1.0 | 0.7 | 4.57 | 821 | 1,164 |
| Babicanora | BA18-110 | 370.0 | 373.6 | 3.7 | 3.3 | 3.72 | 451 | 730 |
| Babicanora | incl. | 373.1 | 373.6 | 0.6 | 0.5 | 14.55 | 1,640 | 2,731 |
| Babicanora | BA18-112 | 205.9 | 206.6 | 0.7 | 0.6 | 0.65 | 174 | 223 |
| Babicanora | BA18-113 | 137.2 | 140.4 | 3.3 | 2.9 | 1.08 | 365 | 445 |
| Babicanora | BA18-114 | 289.0 | 293.2 | 4.2 | 3.0 | 5.37 | 998 | 1,401 |
| Babicanora | incl. | 291.1 | 292.2 | 1.1 | 0.8 | 11.95 | 1,860 | 2,756 |
| Babicanora | incl. | 309.1 | 311.2 | 2.1 | 1.5 | 2.49 | 226 | 413 |
| Babicanora | BA18-115 | 172.7 | 177.4 | 4.7 | 4.3 | 0.73 | 149 | 204 |
| Babicanora | BA18-116 | 318.9 | 321.6 | 2.8 | 2.4 | 4.30 | 1,572 | 1,894 |
| Babicanora | incl. | 320.0 | 320.8 | 0.8 | 0.7 | 6.38 | 4,160 | 4,639 |
| Babicanora | BA18-118 | 219.6 | 226.1 | 6.5 | 4.0 | 0.50 | 211 | 249 |
| Babicanora | BA18-119 | 351.8 | 352.3 | 0.5 | 0.4 | 0.78 | 106 | 164 |
| Babicanora | incl. | 362.6 | 364.1 | 1.5 | 1.2 | 5.44 | 774 | 1,182 |
| Babicanora | BA18-120 | 185.8 | 195.0 | 9.2 | 8.6 | 0.98 | 409 | 483 |
| Babicanora | BA18-122 | 194.3 | 207.5 | 13.2 | 9.3 | 39.66 | 3,361 | 6,336 |
| Babicanora | incl. | 194.3 | 194.8 | 0.5 | 0.4 | 252 | 9,740 | 28,640 |
| Babicanora | incl. | 198.9 | 200.2 | 1.3 | 0.9 | 92.7 | 7,570 | 14,522 |
| Babicanora | incl. | 205.4 | 206 | 0.6 | 0.4 | 47.3 | 7,760 | 11,307 |
| Babicanora | incl. | 224.8 | 226.8 | 1.9 | 1.4 | 6.01 | 722 | 1,173 |
| Babicanora | BA18-123 | 260.8 | 264.6 | 3.9 | 3.1 | 12.58 | 326 | 1,269 |
| Babicanora | incl. | 262.5 | 263.1 | 0.6 | 0.5 | 81.80 | 540 | 6,675 |
| Babicanora | BA18-124A | 240.6 | 241.4 | 0.8 | 0.7 | 1.38 | 151 | 254 |
| Babicanora | BA18-125 | 207.2 | 208.7 | 1.5 | 1.2 | 1.81 | 34 | 170 |
| Babicanora | BA18-126 | 428.0 | 429.5 | 1.5 | 1.2 | 11.29 | 1,037 | 1,885 |
| Babicanora | incl. | 428.0 | 428.5 | 0.5 | 0.4 | 30.70 | 2,760 | 5,062 |
| Babicanora | BA18-128 | 334.2 | 337.4 | 3.2 | 2.6 | 3.33 | 357 | 607 |
| Babicanora | incl. | 334.2 | 335.8 | 1.7 | 1.4 | 5.10 | 951 | 959 |
| Babicanora | BA18-131 | 277.5 | 284.0 | 6.5 | 4.2 | 9.99 | 837 | 1,586 |
| Babicanora | incl. | 280.3 | 281.7 | 1.4 | 0.9 | 35.70 | 2,670 | 5,347 |
| Babicanora | BA18-132 | 205.7 | 210.8 | 5.1 | 3.3 | 11.47 | 1,314 | 2,174 |
| Babicanora | incl. | 207.2 | 208.9 | 1.7 | 1.1 | 14.96 | 1,666 | 2,788 |

*table continues…*


TETRA TECH

| Vein | Hole No. | From (m) | To (m) | Drilled Width (m) | Est. True Width (m) | Au (gpt) | Ag (gpt) | AgEq* (gpt) |
|---|---|---|---|---|---|---|---|---|
| Babicanora | incl. | 210.3 | 210.8 | 0.5 | 0.3 | 36.90 | 4,100 | 6,867 |
| Babicanora | BA18-133 | 227.8 | 229.2 | 1.4 | 1.0 | 64.25 | 11,020 | 15,839 |
| Babicanora | incl. | 228.3 | 229.2 | 0.9 | 0.6 | 96.30 | 16,721 | 23,943 |
| Babicanora | BA18-134 | 179.8 | 181.4 | 1.6 | 1.6 | 0.06 | 175 | 179 |
| Babicanora | BA19-139 | 262.5 | 264.2 | 1.7 | 1.5 | 0.05 | 296 | 300 |
| Babicanora | BA19-142 | 431.4 | 432.9 | 1.5 | 1.3 | 15.57 | 1,526 | 2,694 |
| Babicanora | incl. | 431.9 | 432.4 | 0.5 | 0.4 | 31.30 | 3,100 | 5,448 |
| Babicanora Central | UB18-14 | 92.2 | 99.1 | 6.9 | 5.1 | 4.16 | 197 | 510 |
| Babicanora Central | incl. | 96.0 | 96.5 | 0.5 | 0.4 | 10.80 | 458 | 1,268 |
| Babicanora Central | UB18-15 | 64.5 | 66.9 | 2.4 | 1.8 | 0.10 | 192 | 197 |
| Babicanora Central | UB18-16 | 21.1 | 21.6 | 0.5 | 0.4 | 2.05 | 5 | 159 |
| Babicanora Central | UB18-17 | 66.6 | 75.5 | 8.9 | 6.3 | 0.21 | 330 | 346 |
| Babicanora Central | UB18-18 | 70.8 | 73.7 | 2.9 | 2.6 | 9.84 | 236 | 974 |
| Babicanora Central | UB18-20 | 91.5 | 93.0 | 1.5 | 1.0 | 2.73 | 40 | 245 |
| Babicanora Central | UB18-21 | 39.8 | 48.0 | 8.3 | 7.8 | 0.95 | 408 | 479 |
| Babicanora Central | incl. | 46.5 | 48.0 | 1.5 | 1.4 | 0.14 | 1,917 | 1,928 |
| Babicanora Central | UB18-22 | 48.0 | 57.0 | 9.0 | 9.0 | 2.09 | 353 | 509 |
| Babicanora Central | incl. | 49.5 | 51.0 | 1.5 | 1.5 | 1.90 | 933 | 1,076 |
| Babicanora Central | UB18-23 | 37.1 | 51.0 | 13.9 | 13.9 | 1.42 | 208 | 314 |
| Babicanora Central | incl. | 50.0 | 51.0 | 1.0 | 1.0 | 16.40 | 349 | 1,579 |
| Babicanora FW | BA18-115 | 208.7 | 209.2 | 0.5 | 0.5 | 9.81 | 935 | 1,671 |
| Babicanora FW | BA18-120 | 225.5 | 226.0 | 0.5 | 0.5 | 0.98 | 409 | 483 |
| Babicanora FW | BA18-122 | 224.8 | 225.4 | 0.7 | 0.6 | 17.6 | 2,110 | 3,430 |
| Babicanora FW | BA18-128 | 342.7 | 343.7 | 1.0 | 0.8 | 5.13 | 543 | 927 |
| Babicanora FW | incl. | 343.2 | 343.7 | 0.5 | 0.4 | 9.57 | 997 | 1,714 |
| Babicanora FW | BA18-134 | 192.5 | 194.5 | 2.0 | 2.0 | 1.18 | 149 | 238 |
| Babicanora FW | BA19-142 | 435.6 | 436.1 | 0.5 | 0.4 | 2.55 | 268 | 459 |
| Babicanora FW | UB18-14 | 34.0 | 36.0 | 2.0 | 1.0 | 1.21 | 143 | 234 |
| Babicanora FW | UB18-18 | 5.1 | 6.2 | 1.1 | 1.0 | 1.59 | 128 | 247 |
| Babicanora FW | UB18-19 | 3.5 | 6.0 | 2.5 | 2.3 | 1.26 | 52 | 146 |
| Babicanora FW | UB18-20 | 10.3 | 11.4 | 1.1 | 0.7 | 0.79 | 90 | 149 |
| Babicanora FW | UB18-21 | 9.5 | 10.0 | 0.5 | 0.5 | 25.90 | 2,010 | 3,952 |
| Babicanora FW | UB18-22 | 13.3 | 16.1 | 2.8 | 2.8 | 1.61 | 35 | 156 |

*table continues…*



TETRA TECH

| Vein | Hole No. | From (m) | To (m) | Drilled Width (m) | Est. True Width (m) | Au (gpt) | Ag (gpt) | AgEq* (gpt) |
|---|---|---|---|---|---|---|---|---|
| Babicanora HW | BA18-110 | 342.4 | 342.9 | 0.5 | 0.4 | 2.88 | 270 | 486 |
| Babicanora HW | BA18-116 | 300.8 | 301.4 | 0.6 | 0.5 | 1.72 | 152 | 281 |
| Babicanora HW | BA18-123 | 240.4 | 244.0 | 3.6 | 2.9 | 0.05 | 328 | 332 |
| Babicanora HW | BA18-124A | 237.8 | 238.4 | 0.6 | 0.6 | 0.66 | 113 | 163 |
| Babicanora HW | BA18-130 | 146.9 | 147.4 | 0.5 | 0.5 | 5.73 | 195 | 625 |
| Babicanora HW | BA18-134 | 156.0 | 156.5 | 0.5 | 0.5 | 1.47 | 199 | 309 |
| Babicanora HW | BA19-142 | 423.3 | 424.6 | 1.3 | 1.2 | 2.18 | 268 | 432 |
| Babicanora HW | UB18-23 | 79.3 | 80.6 | 1.3 | 1.3 | 0.05 | 167 | 171 |
| Babicanora Norte | BAN18-43 | 119.4 | 120.4 | 1.0 | 0.6 | 2.79 | 295 | 504 |
| Babicanora Norte | BAN18-50 | 366.0 | 367.8 | 1.8 | 1.3 | 2.10 | 2 | 159 |
| Babicanora Norte | BAN18-51 | 58.5 | 59.0 | 0.5 | 0.5 | 0.81 | 93 | 154 |
| Babicanora Norte | BAN18-54 | 161.4 | 161.9 | 0.5 | 0.5 | 5.57 | 32 | 450 |
| Babicanora Norte | BAN18-56 | 150.3 | 151.0 | 0.7 | 0.6 | 4.66 | 409 | 759 |
| Babicanora Vista | UBN18-03 | 163.1 | 163.7 | 0.6 | 0.6 | 3.26 | 530 | 775 |
| Babicanora Vista | BAN18-53 | 269.9 | 271.0 | 1.1 | 1.0 | 2.72 | 176 | 380 |
| Babicanora Sur | BAS18-07 | 147.6 | 149.9 | 2.2 | 2.2 | 4.63 | 209 | 556 |
| Babicanora Sur | incl. | 149.0 | 149.9 | 0.9 | 0.9 | 8.44 | 376 | 1,009 |
| Babicanora Sur | BAS18-09 | 139.4 | 140.1 | 0.6 | 0.6 | 5.47 | 123 | 533 |
| Babicanora Sur | BAS18-10 | 98.6 | 99.8 | 1.3 | 1.2 | 6.56 | 4 | 496 |
| Babicanora Sur | BAS18-14 | 158.6 | 159.6 | 1.1 | 1.1 | 2.30 | 166 | 338 |
| Babicanora Sur | BAS18-16 | 183.5 | 184.7 | 1.2 | 1.1 | 1.14 | 94 | 180 |
| Babicanora Sur | BAS18-19 | 234.5 | 235.5 | 1.0 | 0.8 | 3.29 | 286 | 533 |
| Babicanora Sur | incl. | 234.5 | 235.0 | 0.5 | 0.4 | 6.51 | 571 | 1,059 |
| Babicanora Sur | BAS18-24 | 77.6 | 78.2 | 0.6 | 0.5 | 1.76 | 117 | 249 |
| Babicanora Sur | BAS18-26 | 227.0 | 228.1 | 1.1 | 0.9 | 1.53 | 117 | 232 |
| Babicanora Sur | BAS18-27 | 124.4 | 125.4 | 1.0 | 0.6 | 9.33 | 66 | 766 |
| Babicanora Sur | BAS18-29 | 193.0 | 194.0 | 1.0 | 1.0 | 1.04 | 80 | 158 |
| Babicanora Sur | BAS18-31 | 230.6 | 232.8 | 2.2 | 2.2 | 18.78 | 2,147 | 3,556 |
| Babicanora Sur | incl. | 231.7 | 232.8 | 1.1 | 1.1 | 33.85 | 3,905 | 6,444 |
| Babicanora Sur | BAS18-33 | 148.6 | 150.0 | 1.4 | 0.9 | 5.01 | 197 | 573 |
| Babicanora Sur | incl. | 148.6 | 149.3 | 0.7 | 0.5 | 6.86 | 301 | 816 |
| Babicanora Sur | BAS19-37 | 111.0 | 112.6 | 1.6 | 1.2 | 2.66 | 16 | 215 |
| Babicanora Sur | BAS19-39 | 248.0 | 250.1 | 2.1 | 1.7 | 2.73 | 204 | 409 |

*table continues…*



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| Vein | Hole No. | From (m) | To (m) | Drilled Width (m) | Est. True Width (m) | Au (gpt) | Ag (gpt) | AgEq* (gpt) |
|---|---|---|---|---|---|---|---|---|
| Babicanora Sur | incl. | 248.7 | 249.4 | 0.7 | 0.6 | 4.24 | 327 | 645 |
| Babicanora Sur HW | BAS18-11 | 76.3 | 78.0 | 1.8 | 1.7 | 2.01 | 4 | 155 |
| Babicanora Sur HW | BAS18-23 | 206.8 | 207.5 | 0.7 | 0.6 | 1.52 | 128 | 242 |
| Babicanora Sur HW | BAS18-27 | 13.7 | 15.1 | 1.5 | 0.8 | 7.63 | 34 | 606 |
| Babicanora Sur HW | BAS19-35 | 36.0 | 36.5 | 0.5 | 0.3 | 10.25 | 7 | 775 |
| Babicanora Sur HW | BAS18-08 | 70.3 | 70.8 | 0.6 | 0.6 | 2.60 | 5 | 200 |
| Babicanora Sur HW | BAS18-11 | 76.3 | 78.0 | 1.8 | 1.7 | 2.01 | 4 | 155 |
| Babicanora Sur HW | BAS18-19 | 190.5 | 191.6 | 1.0 | 0.8 | 5.57 | 183 | 601 |
| Babicanora Sur HW | BAS18-23 | 195.0 | 197.0 | 2.0 | 1.2 | 1.19 | 106 | 195 |

Note: (1)AgEq is based on silver to gold ratio of 75:1. This was calculated using long-term silver and gold prices of US$17/oz silver and US$1,225/oz gold with approximate average metallurgical recoveries of 90% silver and 95% gold.
(2)True width is 80 to 100% of drilled width.
(3)Based on a cut-off grade of 150 gpt AgEq with a 0.5 m minimum width.
(4)U signifies an underground core hole; BA signifies a surface core hole.
(5)The Babicanora FW Vein intercept in hole BA18-122 was noted as part of Babicanora Vein. Babicanora Vista Vein intercepts in BAN18-14, BAN18-30, BAN18-33, and UBN18-03 were previously reported in various news releases as unknown veins.

**Figure 1-2: Las Chispas Area Drilling Overview Map**

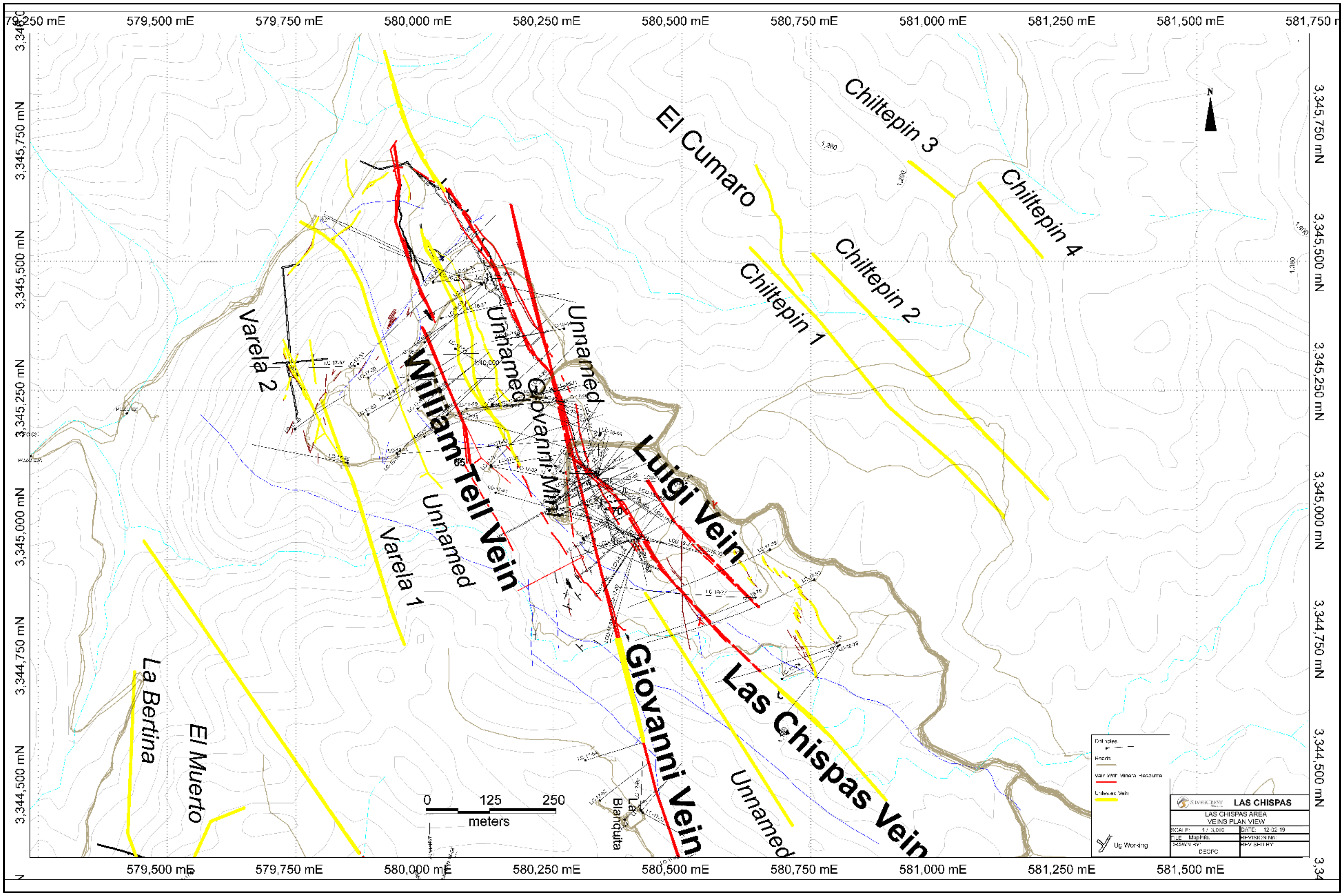




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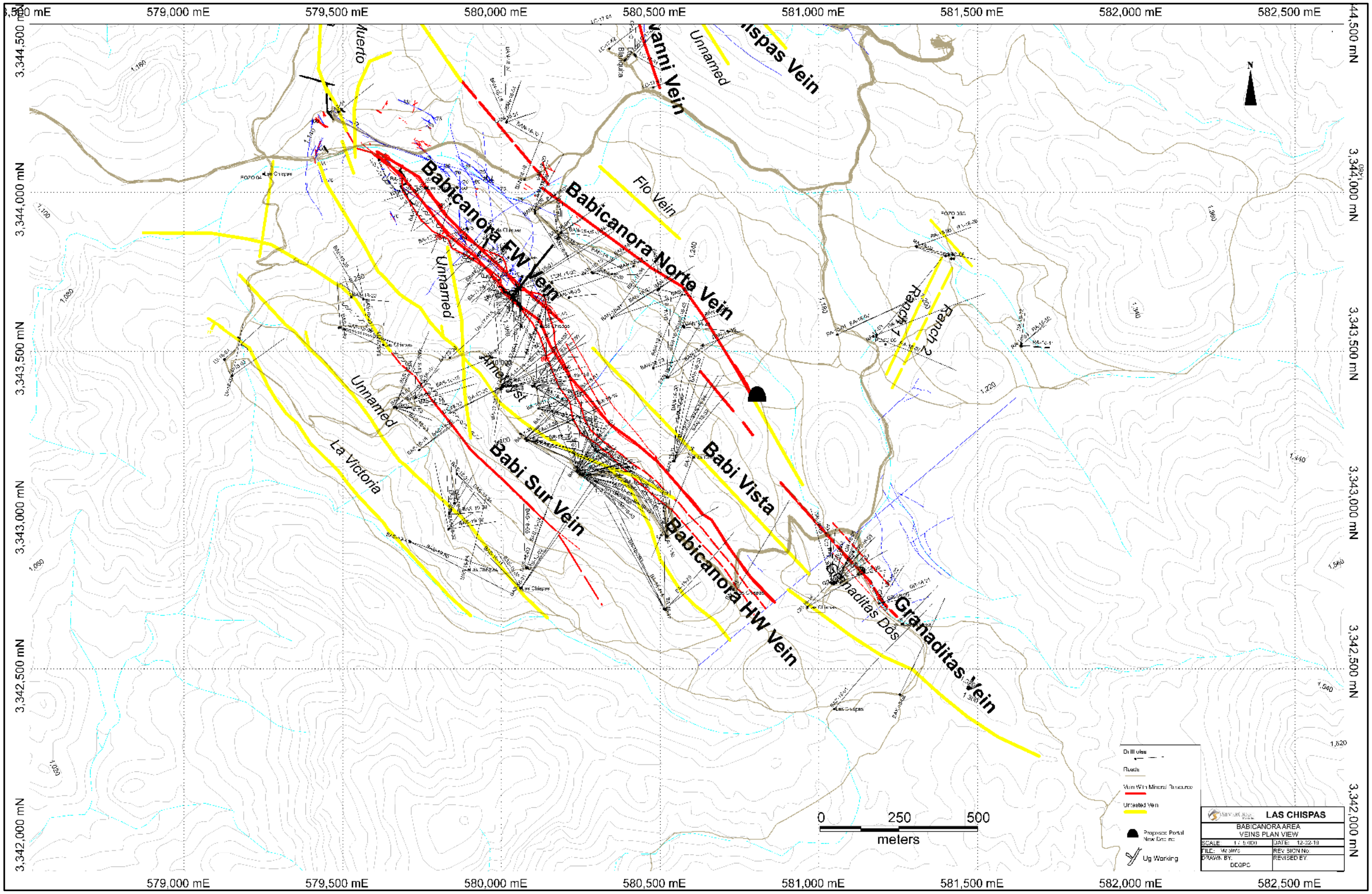
**Figure 1-3: Babicanora Area (including Granaditas Area) Drilling Overview Map**



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## 1.5 Mineral Processing and Metallurgical Testing

SGS de Mexico S.A. de C.V. in Durango, Mexico (SGS Durango) conducted two metallurgical test programs for the Las Chispas Project to assess gold and silver recovery. The initial metallurgical test work completed in 2017 focused on using a direct leaching method on oxide, mixed, and sulphide composite samples and was preliminary in terms of extent and complexity.

Further metallurgical test work was conducted in 2018/2019 on three composite samples representing future mill feed materials and one waste composite sample. The 2018/2019 test work included direct leaching confirmation, tests on the combined gravity concentration treatment methods, cyanide leaching on gravity tailings, as well as optimization tests on the varied combined treatment methods. A mineralogical analysis was performed at the Advanced Mineralogy Facility at SGS Canada Inc., located in Lakefield, Ontario (SGS Lakefield), on the gravity concentrate samples as well as the gravity tailings leach residue to determine bulk mineral compositions and deportment of gold and silver.

The 2018/2019 test work results and observations can be summarized as follows:

- Gravity concentration tests and head assays confirm that significant amounts of gold and silver in the mineralization occur in nugget gold and silver forms.
- The mineral samples tested respond well to the combined treatment consisting of gravity concentration and cyanidation. On average, approximately higher than 98% of the gold and 95% of the silver were extracted from the head samples, including the gold and silver recoveries reporting to the gravity concentrate.
- The impact of feed grind sizes tested on overall metal recoveries are insignificant; however, it appears that gold and silver extractions from the gravity concentrates using intensive cyanidation is sensitive to grinding particle size.
- Lead nitrate is required for cyanide leaching to improve silver recovery.
- Intensive leaching can extract over 99% of metal recoveries from the gravity concentrates tested.
- The mineralization also responds well to the combined method consisting of gravity concentration, flotation, and cyanidation. However, further confirmation testing on the gold and silver extraction from the flotation concentrate should be conducted to investigate whether the combined flowsheet can improve overall gold and silver recoveries and reduce reagent consumptions.

Based on the test results, a combined recovery method of gravity concentration and intensive leaching followed by cyanide leaching was recommended for the PEA. Further test work should be conducted to better understand the metallurgical performances of the mineralization and optimize the various parameters for process design and economical assessment. The further test work should include the investigation of metallurgical performances of various variability samples to the optimized process flowsheet. For the economic analysis of the Las Chispas Project in this PEA, a recovery of 89.9% for silver and 94.4% for gold was applied.

## 1.6 Mineral Resource Estimate

The February 2018 maiden Mineral Resource Estimate (Barr 2018) encompassed vein-hosted material at the Babicanora, Las Chispas, William Tell, and Giovanni veins and surface stockpiled material remaining from historical operations such as waste dumps, waste tailings deposits, and recovered underground muck material. This model was updated in September 2018 (Fier 2018). The Mineral Resource Estimate (Barr and Huang 2019) encompasses vein material from the Babicanora, Babicanora FW, Babicanora HW, Babicanora Norte, Babicanora Sur, Granaditas, Las Chispas, William Tell, Giovanni, and Luigi veins and previously reported surface stockpiled material.

Drilling since September 2018 has focused on the Babicanora Area, which has enabled SilverCrest to update the Mineral Resources for these veins. Mineral Resources for the Las Chispas Area and the Granaditas Area have not been updated from Fier (2018). Table 1-2 compares the September 2018 maiden Mineral Resource Estimate (Barr 2018) to the February 2019 Mineral Resource Estimate (Barr and Huang 2019).

### Table 1-2: Maiden vs. Updated Mineral Resource Comparison(3,4)

| Resource Category(1) | Tonnes (Mt) | Au (gpt) | Ag (gpt) | AgEq(2) (gpt) | Contained Au Ounces | Contained Ag Ounces | Contained AgEq(2) Ounces |
|---|---|---|---|---|---|---|---|
| **September 2018 Resource** | | | | | | | |
| Indicated | - | - | - | - | - | - | - |
| Inferred | 4.3 | 3.68 | 347 | 623 | 511,500 | 48,298,700 | 86,701,200 |
| *Including Area 51* | | | | | | | |
| *Indicated* | - | - | - | - | - | - | - |
| *Inferred* | *1.1* | *7.13* | *613.8* | *1,148* | *256,000* | *22,040,000* | *41,238,100* |
| **February 2019 Resource** | | | | | | | |
| Indicated | 1.0 | 6.98 | 711 | 1,234 | 224,900 | 22,894,800 | 39,763,600 |
| Inferred | 3.6 | 3.32 | 333 | 582 | 388,300 | 38,906,000 | 68,069,800 |
| *Including Area 51* | | | | | | | |
| *Indicated* | 0.47 | 7.90 | 801 | 1,393 | 118,500 | 12,011,600 | 20,898,100 |
| *Inferred* | 0.39 | 6.06 | 715 | 1,170 | 76,500 | 9,032,700 | 14,767,600 |

Notes: (1)Conforms to NI 43-101 and the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards on Mineral Resources and Mineral Reserves. Inferred Mineral Resources have been estimated from geological evidence and limited sampling and must be treated with a lower level of confidence than Measured and Indicated Resources.
(2)AgEq is based on a silver to gold ratio of 75:1. This was calculated using long-term silver and gold prices of US$17/oz silver and US$1,225/oz gold with approximate average metallurgical recoveries of 90% silver and 95% gold.
(3)There are no known legal, political, environmental, or other risks that could materially affect the potential development of the Mineral Resources.
(4)All numbers are rounded. Overall numbers may not be exact due to rounding.

For all Mineral Resources estimated up to February 8, 2019, SilverCrest constructed vein models using Seequent Limited Leapfrog® Geo v.4.4 and the Tetra Tech Geology Qualified Person (QP) reviewed the vein models. Veins in the Las Chispas and Granaditas areas were constrained to a minimum thickness of 1.5 m true width, and veins in the Babicanora Area were constrained to a minimum thickness of 0.5 m true width. Assay data was composted to 1.0 m lengths in the Las Chispas and Granaditas areas and to 0.5 m lengths in the Babicanora Area. Block models were constructed using GEOVIA GEMS™ v.6.8 and Mineral Resource Estimates, were calculated from surface and underground diamond drilling information A total of 2,647 composite drill core data points were used as the basis for the Mineral Resource Estimate.

One block model was developed for the February 2019 Mineral Resource Estimate. The model was developed for the Babicanora Area, which includes the Babicanora, Babicanora FW, Babicanora HW, Babicanora Norte, and Babicanora Sur veins. The block model was established on 2 m by 2 m by 2 m blocks using the percent model methods in GEOVIA GEMS™ v.6.8. Average estimated overall true vein thickness ranged from 0.84 m at

Babicanora Norte to 3.05 m at Babicanora. Refer to previous Technical Reports for modelling methodology used in the Las Chispas, Granaditas Areas and historic dumps.

Input parameters for block model interpolation included silver and gold grades. Metal grades were interpolated using Ordinary Kriging (OK) and Inverse Distance Weighted to the second power ($ID^2$) methods. Where sufficient data existed, search parameters were based on variographic assessment. Where input grades were used from underground and drill hole sampling, multiple interpolation passes were used to first isolate the underground sample in short range searches, followed by larger searches which included both underground and drill hole sampling. Where only drill hole sampling was available, single interpolation passes were used.

A fixed bulk density value of 2.55 g/cm$^3$ was applied to all materials within the block models. Bulk density was measured in 72 independent laboratory wax coated bulk density tests on mineralized and non-mineralized rock samples resulting in a mean density of 2.69 g/cm$^3$ and in 641 specific gravity measurements collected and analyzed on-site by SilverCrest resulting in a mean density of 2.52 g/cm$^3$.

Table 1-3 summarizes the Mineral Resource Estimates which are effective as of February 8, 2019. Table 1-4 includes a detailed breakdown of the vein estimates and Table 1-5 details the stockpile estimate. Figure 1-4 shows a perspective view of the block models filtered to greater than 150 gpt AgEq. These Mineral Resource Estimates adhere to guidelines set forth in NI 43-101 and the CIM Best Practices.

**Table 1-3: Summary of Mineral Resource Estimates for Vein Material and Surface Stockpile Material at the Las Chispas Property, Effective February 8, 2019[3,5,6,7,8]**

| Type | Cut-off Grade[4] (gpt AgEq[2]) | Classification[1] | Tonnes | Au (gpt) | Ag (gpt) | AgEq[2] (gpt) | Contained Au Ounces | Contained Ag Ounces | Contained AgEq[2] Ounces |
|---|---|---|---|---|---|---|---|---|---|
| Vein | 150 | Indicated | 1,002,200 | 6.98 | 711 | 1,234 | 224,900 | 22,894,800 | 39,763,600 |
| Vein | 150 | Inferred | 3,464,700 | 3.42 | 343 | 600 | 380,700 | 38,241,400 | 66,823,700 |
| Stockpile | 100 | Inferred | 174,500 | 1.38 | 119 | 222 | 7,600 | 664,600 | 1,246,100 |
| **Overall** | **-** | **Indicated** | **1,002,200** | **6.98** | **711** | **1,234** | **224,900** | **22,894,800** | **39,763,600** |
| **Overall** | **-** | **Inferred** | **3,639,000** | **3.32** | **333** | **582** | **388,300** | **38,906,000** | **68,069,800** |

Notes: [1]Conforms to NI 43-101 and the CIM Definition Standards on Mineral Resources and Mineral Reserves. Inferred Mineral Resources have been estimated from geological evidence and limited sampling and must be treated with a lower level of confidence than Measured and Indicated Mineral Resources.
[2]AgEq is based on a silver to gold ratio of 75:1. This was calculated using long-term silver and gold prices of US$17/oz silver and US$1,225/oz gold, with approximate average metallurgical recoveries of 90% silver and 95% gold.
[3]Bulk density of 2.55 t/m$^3$ has been applied to all materials.
[4]Vein resource is reported using a 150 gpt AgEq cut-off grade and minimum 0.5 m true width; the Babicanora Norte, Babicanora Sur and Babicanora Sur HW, Babicanora FW, and Babicanora HW Veins have been modelled to a minimum undiluted thickness of 0.5 m; Babicanora Main Vein has been modelled to a minimum undiluted thickness of 1.5 m.
[5]The Babicanora resource includes the Babicanora Vein with the Shoot 51 zone. The Giovanni resource includes the Giovanni, Giovanni Mini and the La Blanquita Veins.
[6]Mineral Resource Estimates for the Las Chispas and William Tell Veins and the surface stockpiles are unchanged from the February 2018 Maiden Resource Estimate (Barr 2018).
[7]There are no known legal, political, environmental, or other risks that could materially affect the potential development of the Mineral Resources.
[8]All numbers are rounded. Overall numbers may not be exact due to rounding.



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## Table 1-4: Mineral Resource Estimate for Vein Material at the Las Chispas Property, Effective February 8, 2019(4,5,6,7,8)

| Vein(6) | Classification(1) | Tonnes | Au (gpt) | Ag (gpt) | AgEq(2) (gpt) | Contained Au Ounces | Contained Ag Ounces | Contained AgEq(2) Ounces |
|---|---|---|---|---|---|---|---|---|
| Babicanora | Indicated | 646,800 | 6.57 | 683 | 1,175 | 136,500 | 14,198,000 | 24,438,600 |
| | Inferred | 670,300 | 4.46 | 500 | 842 | 98,300 | 10,775,800 | 18,145,100 |
| *includes Area 51* | *Indicated* | *466,600* | *7.90* | *801* | *1,393* | *118,500* | *12,011,600* | *20,898,100* |
| | *Inferred* | *392,700* | *6.06* | *715* | *1,170* | *76,500* | *9,032,700* | *14,767,600* |
| *includes Shoot 51* | *Indicated* | *280,100* | *10.09* | *1,060* | *1,816* | *90,900* | *9,543,200* | *16,360,700* |
| | *Inferred* | *92,00* | *8.54* | *984* | *1,625* | *25,300* | *2,912,100* | *4,809,600* |
| Babicanora FW | Indicated | 157,100 | 7.49 | 676 | 1,237 | 37,800 | 3,411,200 | 6,248,500 |
| | Inferred | 207,400 | 7.62 | 465 | 1,037 | 50,800 | 3,103,800 | 6,913,400 |
| Babicanora HW | Indicated | 67,800 | 0.93 | 154 | 223 | 2,000 | 334,800 | 486,200 |
| | Inferred | 31,500 | 0.80 | 145 | 205 | 800 | 147,100 | 207,500 |
| Babicanora Norte | Indicated | 130,500 | 11.57 | 1,180 | 2,047 | 48,500 | 4,950,900 | 8,590,300 |
| | Inferred | 277,700 | 8.21 | 780 | 1,395 | 73,300 | 6,960,000 | 12,458,000 |
| Babicanora Sur | Indicated | - | - | - | - | - | - | - |
| | Inferred | 543,900 | 4.10 | 268 | 575 | 71,600 | 4,687,800 | 10,058,700 |
| Las Chispas | Indicated | - | - | - | - | - | - | - |
| | Inferred | 171,000 | 2.39 | 340 | 520 | 13,000 | 1,869,500 | 2,861,000 |
| Giovanni | Indicated | - | - | - | - | - | - | - |
| | Inferred | 686,600 | 1.47 | 239 | 349 | 32,500 | 5,269,000 | 7,699,800 |
| William Tell | Indicated | - | - | - | - | - | - | - |
| | Inferred | 595,000 | 1.32 | 185 | 284 | 25,000 | 3,543,000 | 5,438,000 |
| Luigi | Indicated | - | - | - | - | - | - | - |
| | Inferred | 186,200 | 1.32 | 202 | 301 | 7,900 | 1,210,200 | 1,803,000 |
| Granaditas | Indicated | - | - | - | - | - | - | - |
| | Inferred | 95,100 | 2.46 | 221 | 405 | 7,500 | 675,100 | 1,239,200 |
| **All Veins** | **Indicated** | **1,002,200** | **6.98** | **711** | **1,234** | **224,900** | **22,894,800** | **39,763,600** |
| | **Inferred** | **3,639,200** | **3.32** | **333** | **582** | **388,300** | **38,906,000** | **68,069,800** |

Notes: (1)Conforms to NI 43-101 and the CIM Definition Standards on Mineral Resources and Mineral Reserves. Inferred Mineral Resources have been estimated from geological evidence and limited sampling and must be treated with a lower level of confidence than Measured and Indicated Mineral Resources.
(2)AgEq is based on a silver to gold ratio of 75:1. This was calculated using long-term silver and gold prices of US$17/oz silver and US$1,225/oz gold, with approximate average metallurgical recoveries of 90% silver and 95% gold.
(3)Bulk density of 2.55 t/m$^3$ has been applied to all materials.
(4)Vein resource is reported using a 150 gpt AgEq cut-off grade and minimum 0.5 m true width; the Babicanora Norte, Babicanora Sur and Babicanora Sur HW, Babicanora FW, and Babicanora HW Veins have been modelled to a minimum undiluted thickness of 0.5 m; the Babicanora Main has been modelled to a minimum undiluted thickness of 1.5 m.
(5)The Babicanora resource includes the Babicanora Vein with the Shoot 51 Zone. The Giovanni resource includes the Giovanni, Giovanni Mini and the La Blanquita Veins.
(6)Mineral Resource Estimates for the Las Chispas and William Tell veins and the surface stockpiles are unchanged from the

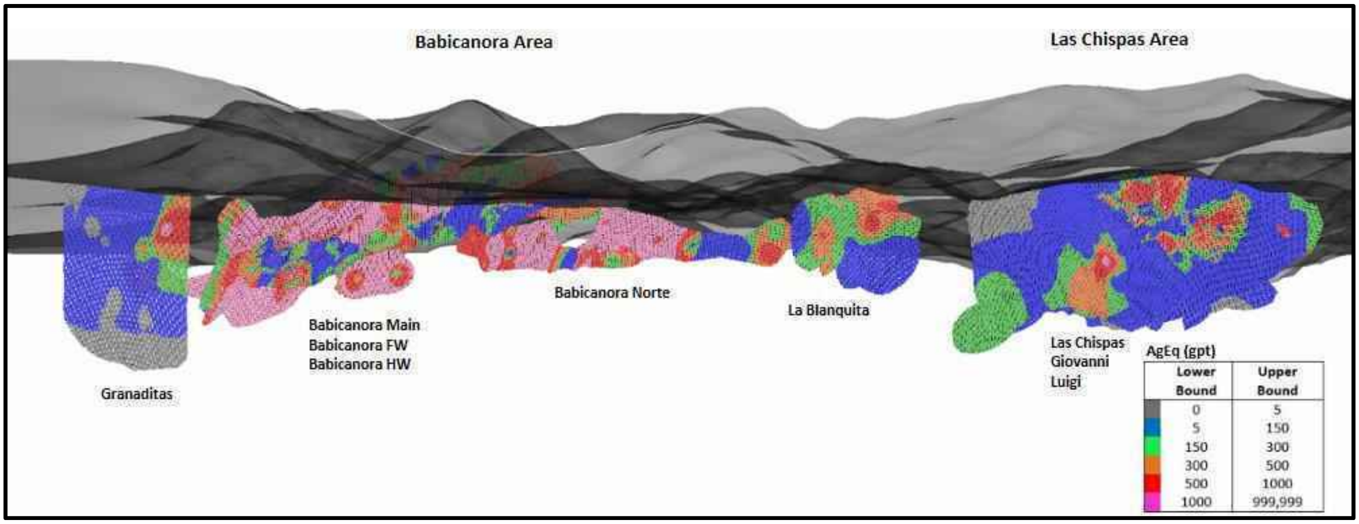
February 2018 Maiden Resource Estimate (Barr 2018).
(7)There are no known legal, political, environmental, or other risks that could materially affect the potential development of the Mineral Resources.
(8)All numbers are rounded. Overall numbers may not be exact due to rounding.

### Table 1-5: Mineral Resource Estimate for Surface Stockpile Material at the Las Chispas Property, Effective September 13, 2018

| Stockpile Name | Tonnes | Au (gpt) | Ag (gpt) | AgEq(2) (gpt) | Contained Gold Ounces | Contained Silver Ounces | Contained AgEq(2) Ounces |
|---|---|---|---|---|---|---|---|
| North Chispas 1 | 1,200 | 0.54 | 71 | 111 | 20 | 2,700 | 4,200 |
| La Capilla | 14,200 | 4.92 | 137 | 506 | 2,300 | 62,700 | 231,600 |
| San Gotardo | 79,500 | 0.79 | 121 | 180 | 2,000 | 308,100 | 459,600 |
| Lupena | 17,500 | 1.38 | 79 | 182 | 800 | 44,300 | 102,700 |
| Las Chispas 1 (LCH) | 24,200 | 0.78 | 125 | 183 | 600 | 97,000 | 142,500 |
| Las Chispas 2 | 1,100 | 1.23 | 236 | 329 | 40 | 8,100 | 11,300 |
| Las Chispas 3 (San Judas) | 1,000 | 2.05 | 703 | 857 | 100 | 22,400 | 27,300 |
| La Central | 3,800 | 0.75 | 116 | 172 | 100 | 14,300 | 21,200 |
| Chiltepines 1 | 200 | 0.87 | 175 | 240 | 0 | 800 | 1,200 |
| Espiritu Santo | 1,700 | 0.52 | 94 | 133 | 30 | 5,000 | 7,100 |
| La Blanquita 2 | 4,600 | 0.53 | 118 | 158 | 100 | 17,500 | 23,400 |
| El Muerto | 5,800 | 2.52 | 79 | 268 | 500 | 14,900 | 50,200 |
| Sementales | 800 | 4.38 | 47 | 376 | 100 | 1,200 | 9,700 |
| Buena Vista | 400 | 4.62 | 57 | 403 | 100 | 700 | 5,100 |
| Babicanora | 10,300 | 1.81 | 56 | 192 | 600 | 18,500 | 63,300 |
| Babicanora 2 | 1,000 | 2.63 | 276 | 473 | 100 | 8,900 | 15,300 |
| El Cruce & 2,3 | 100 | 0.75 | 39 | 96 | 3 | 200 | 400 |
| Babi Stockpiled Fill | 800 | 1.80 | 120 | 255 | 50 | 3,100 | 6,600 |
| LC Stockpiled Fill | 300 | 2.50 | 243 | 431 | 20 | 2,300 | 4,200 |
| Las Chispas Underground Backfill | 2,000 | 2.10 | 243 | 431 | 100 | 16,500 | 26,600 |
| Babicanora Underground Backfill | 4,000 | 1.80 | 120 | 255 | 200 | 15,500 | 32,800 |
| **Total** | **174,500** | **1.38** | **119** | **222** | **7,600** | **664,600** | **1,246,100** |

Notes: (1)Conforms to NI 43-101 and the CIM Definition Standards for Mineral Resources and Mineral Reserves. Inferred Resources have been estimated from geological evidence and limited sampling and must be treated with a lower level of confidence than Measured and Indicated Resources.
(2)AgEq is based on a silver to gold ratio of 75:1. This was calculated using long-term silver and gold prices of US$17/oz silver and US$1,225/oz gold with approximate average metallurgical recoveries of 90% silver and 95% gold.
(3)Resource is reported using a 100 gpt AgEq cut-off grade.
(4)Resource estimations for the historical dumps are unchanged from the February 2018 Maiden Resource Estimate.
(5)There are no known legal, political, environmental, or other risks that could materially affect the potential development of the Mineral Resources.
(6)All numbers are rounded. Overall numbers may not be exact due to rounding.

**Figure 1-4: Vein Block Models Perspective (Looking West)**




## 1.7 Mining Methods

The Tetra Tech Mining QP completed a mine plan for the Las Chispas property based on Indicated and Inferred Mineral Resources. The Mining QP notes the following regarding potential mining conditions at the Las Chispas Property:

- Vein widths are generally narrow (Mineral Resources were modelled to a minimum of 1.5 m with the exception of the Babicanora Norte, Babicanora Sur and Babicanora Sur HW, Babicanora FW, and Babicanora HW Veins which were modelled to a minimum undiluted thickness of 0.5 m. True widths may be narrower.
- The dip of the veins are generally steep, ranging from 55° to vertical.
- In some areas, multiple veins run near parallel or intersect.

Based on this analysis, mechanized cut-and-fill mining, with and without resuing, was selected as the mining method for the PEA. The Mining QP recognizes that additional mining methods have potential for further evaluation for Las Chispas. A geotechnical assessment was not conducted for the PEA; however, site visits and limited desktop work showed relatively good ground conditions.

Based on an assessment of mining equipment, a minimum mining width of 2 m was selected. This minimum mining width was used as a basis for stope shape development using Datamine's Mineable Shape Optimizer (MSO) software. The Mining QP prepared a preliminary cost estimate based on mining at various widths and this work was used to derive a cut-off grade strategy to proceed with mine planning.

A total of 2.8 Mt, 503,000 oz gold, and 51 Moz silver (88.9 Moz AgEq) were advanced to the mine plan. To the Mineral Resources mined, 130 kt of low-grade dilution, 675 kt of barren rock, and 180 kt of backfill dilution were added to material to be mined for processing. Mineralized material is lost to stope shapes estimated to be in excess of 3% of the mineable tonnage, with additional operating loss of 3% of the mineable tonnage deducted from this total. Table 1-6 shows a summary of resources, dilution, and losses from the mine plan.

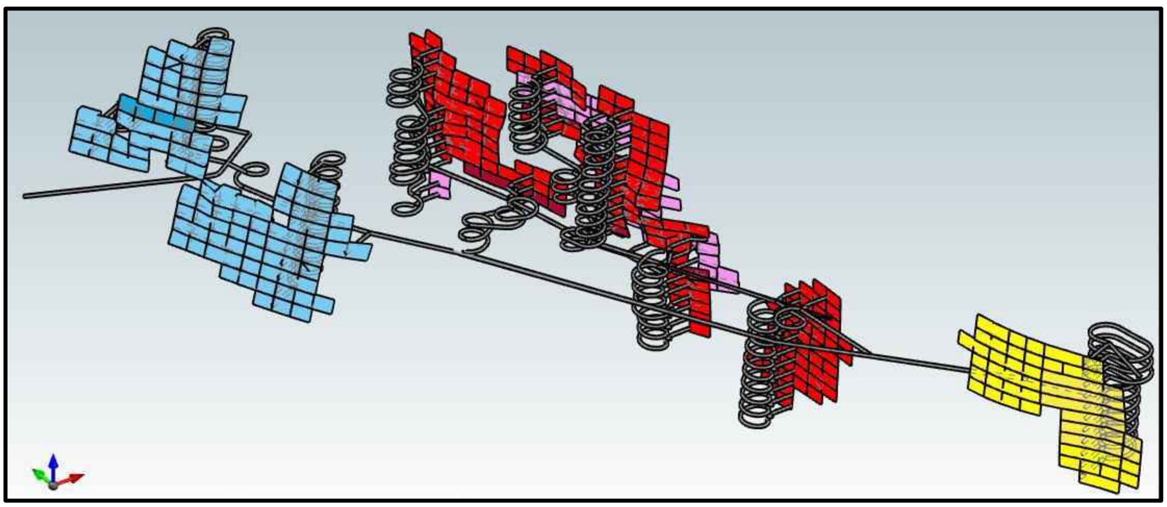
### Table 1-6: Summary of Mine Plan Resources, Dilution, and Losses

| | Tonnes | Gold (oz) | Silver (oz) | AgEq (oz) |
|---|---|---|---|---|
| Total Underground Resources Included in Mine Plan | 2,777,865 | 503,140 | 51,120,397 | 88,855,902 |
| Low-grade Dilution | 129,683 | 1,363 | 243,305 | 345,497 |
| Zero-grade Waste Dilution | 674,760 | - | - | - |
| Backfill Dilution | 179,115 | - | - | - |
| Operating Losses (Excluding Losses from Stope Shapes)(1) | (75,228) | (10,090) | (1,027,274) | (1,784,028) |
| Total Underground Mill Feed Included in the PEA | 3,686,195 | 494,413 | 50,336,428 | 87,417,371 |
| Surface Stockpiles | 174,500 | 7,742 | 667,626 | 1,248,293 |
| Total Mill Feed | 3,860,695 | 502,155 | 51,004,054 | 88,665,664 |

Note: (1)Additional material is lost to the stope shapes which is not included in this table.

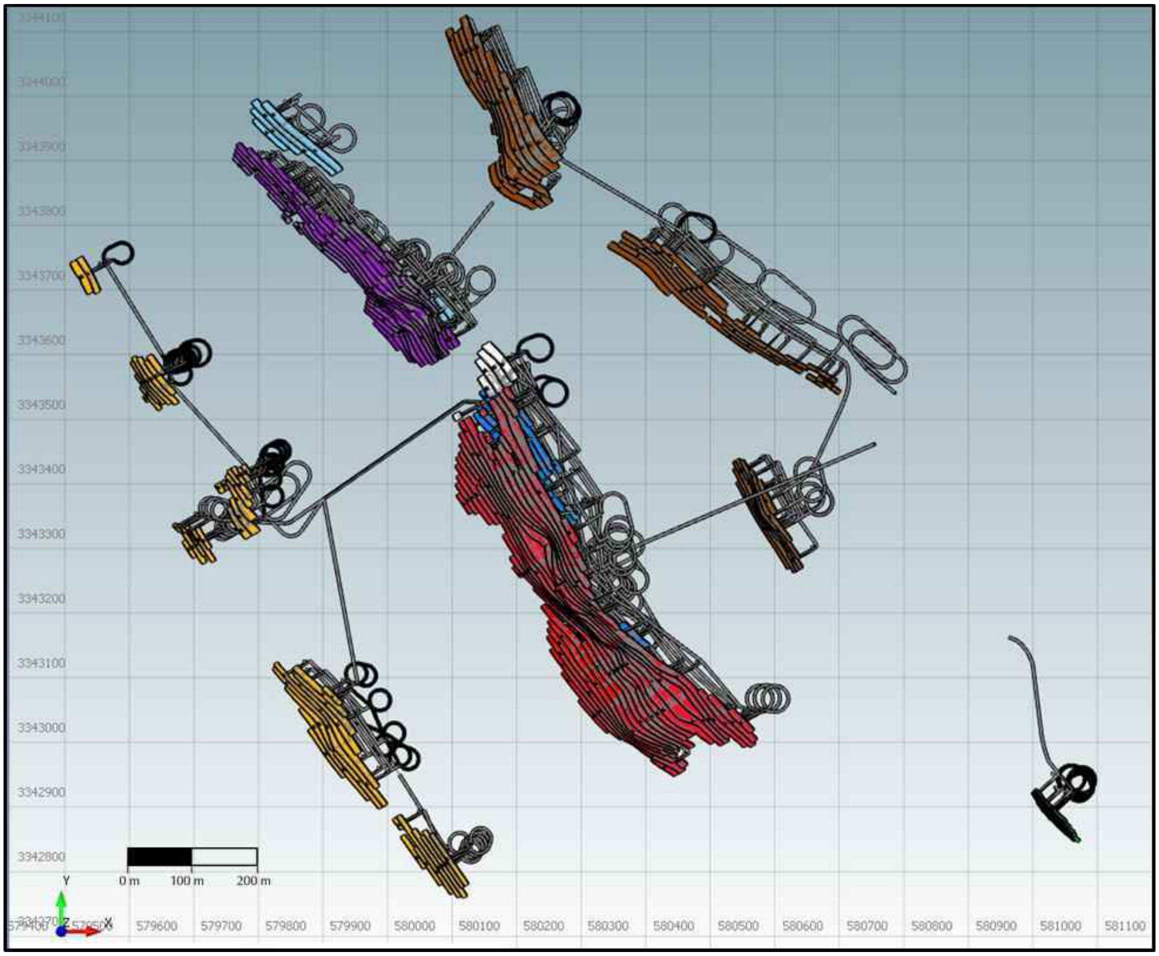
The resulting stope shapes were included in a mine plan along with development. Figure 1-5 and Figure 1-6 show the mine plans completed for Las Chispas that were advanced to the financial model.

### Figure 1-5: Las Chispas Area Stopes and Development – Oblique View(Looking Northeast)



Notes: yellow – La Blanquita; red – Giovanni; pink – Las Chispas; light blue – William Tell

**Figure 1-6: Babicanora Area Stopes and Development (Plan View)**




Notes: red – Babicanora Main; blue – Babicanora HW; white – Silica Rib; purple – Babicanora Central; light blue – Babicanora FW; yellow – Babicanora Sur; brown – Babicanora Norte; green – Granaditas

Mine scheduling was based on stope and development productivity rates and operations starting in 2022, after construction on the mill and commissioning. The mill operation will ramp up using 100 kt of historic stockpiled material, with feed from the underground mine starting in 2022. High-grade areas of the Babicanora Main Vein will be mined in the early part of the mine schedule, with lower-grade areas of the Las Chispas Area mined at the end of the mine schedule. Table 1-7 shows the mine schedule summary for Las Chispas.

The Mining QP developed a cost model to evaluate mining costs over the life-of-mine (LOM). For the PEA, SilverCrest and the Mining QP agreed to use contractor mining costs for development and to consider contractor mining through adding profit margin to mining costs for underground production.

**Table 1-7: LOM Schedule Summary**

| | Unit | LOM | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Mill Feed | t | 3,860,695 | 100,000 | 442,570 | 455,684 | 456,980 | 455,773 | 455,793 | 455,753 | 457,018 | 455,782 | 125,341 |
| Gold Grade | gpt | 4.05 | 1.38 | 7.57 | 5.28 | 6.08 | 4.90 | 4.39 | 2.95 | 1.37 | 1.37 | 0.94 |
| Silver Grade | gpt | 411 | 119 | 656 | 556 | 612 | 497 | 388 | 302 | 219 | 196 | 168 |
| AgEq Grade | gpt | 714 | 223 | 1,224 | 952 | 1,068 | 864 | 717 | 523 | 321 | 299 | 239 |

Note: all numbers are rounded

## 1.8 Recovery Methods

A conventional process plant using gravity concentration, cyanidation, and Merrill Crowne processes has been designed to recover gold and silver for Las Chispas Project. The plant will operate at a nominal throughput of 1,250 t/d or 456,250 t/a. As shown in the simplified flowsheet in Figure 1-7, the process plant will consist of the following process circuits:

- Three-stage closed-circuit crushing system
- Ball mill grinding circuit, integrated with coarse gold and silver recovery circuits:
  - Two parallel centrifugal gravity concentration circuits
  - One intensive leaching circuit
  - One electrowinning circuit
- Gold and silver recovery circuits on the gravity concentration tailings:
  - Cyanide leaching circuit
  - Counter current decantation (CCD) wash circuit
  - Merrill-Crowe precipitation circuit
- Gold and silver refinery
- Cyanide destruction
- Tailings dewatering

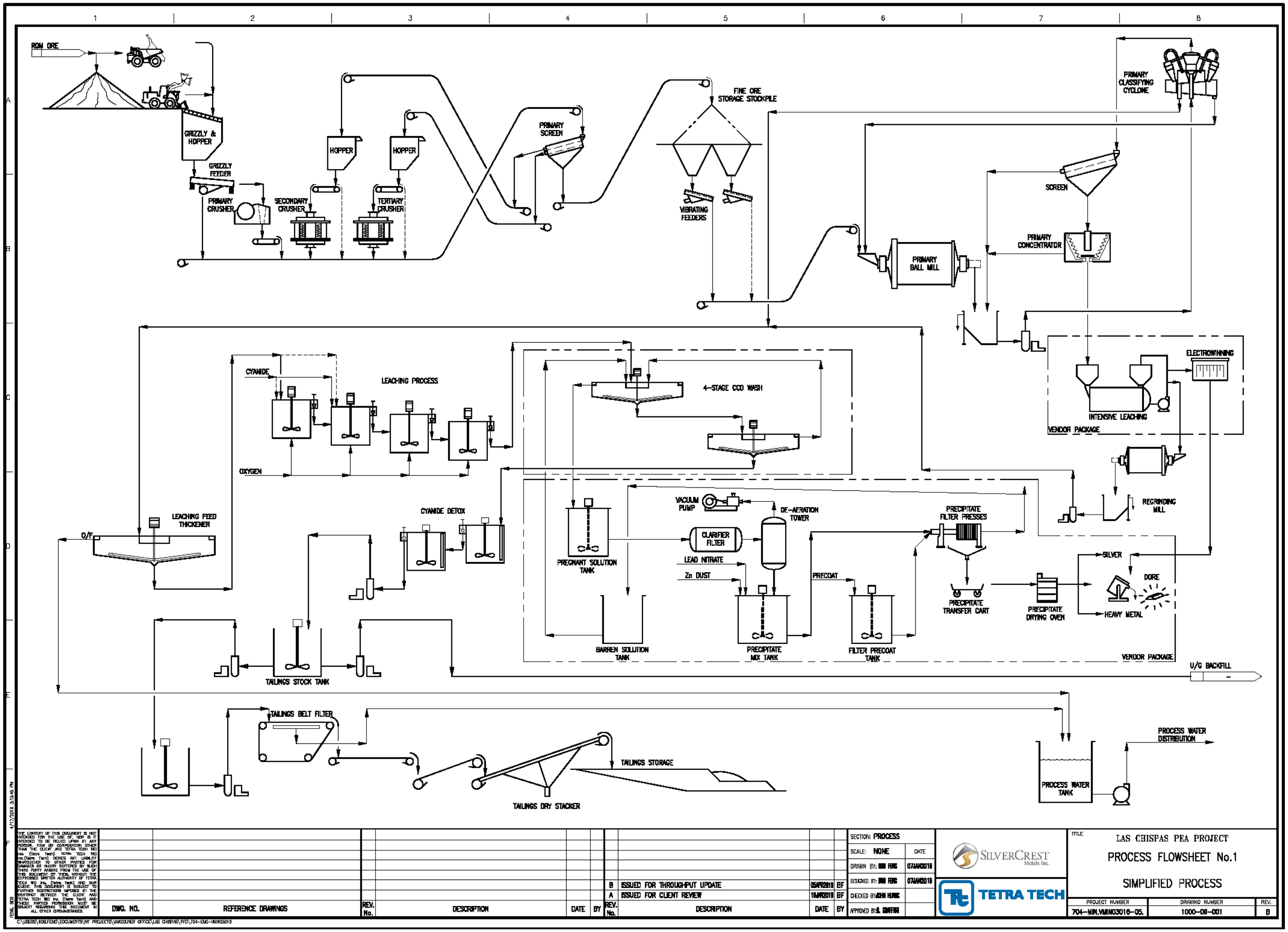
The plant feed material will be crushed in a conventional closed crushing circuit consisting of three stages of crushing. The crushed materials will be conveyed to a 2,500 t live capacity stockpile. Reclaimed from the stockpile, the crushed materials will be fed the one-stage closed grinding circuit with hydro-cyclones. Two parallel centrifugal concentrators will be intergraded into the grinding circuit to recover coarse gold and silver contained in cyclone underflow. The gravity concentrate will be further treated by the intensive cyanide leaching and electrowinning processes to recover cyanide dissolved gold and silver.

The cyclone overflow, with a particle size of 80% passing 100 µm from the grinding circuit, will be thickened prior to being leached in a conventional cyanide leaching circuit. The cyanide leaching will be conducted in seven 11,000 mm diameter by 11,000 mm high leach tanks purged with oxygen for approximately 90 hours. The leach residue will be washed in four stages of a CCD circuit to separate gold and silver bearing pregnant solution from the barren leach residue. The gold and silver in the pregnant solution will be recovered using a Merrill-Crowe recovery process. The precipitates from the Merrill-Crowe circuit and the electrowinning sludge from the intensive leach circuit will be smelted on-site to produce gold-silver doré bars.

The leach residue will be treated by the sulfur dioxide-air process to reduce weak acid dissociable (WAD) cyanide content to less than 10 mg/L. The detoxicated leach residue will be dewatered by two vacuum belt filters to reduce water content to approximately 20 to 25% or less prior to be conveyed to residue storage facility for dry stacking.

The overall metal recovery was projected as 94.4% for gold and 89.9% for silver based on metallurgical test results and the current mine plan. During the proposed LOM, the process plant is expected to produce 474,000 oz gold and 45,834,000 oz silver contained in the gold-silver doré. Table 1-8 provides LOM doré production projections.

**Figure 1-7: Simplified Process Flowsheet**



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## Table 1-8: LOM Doré Production Projection

| | Units | Total/ Average | Production Year | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | -1 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Mill Feed | kt | 3,860,695 | 100,000 | 442,570 | 455,684 | 456,980 | 455,773 | 455,793 | 455,753 | 457,018 | 455,782 | 125,341 |
| Mil Feed Grade | gpt Au | 4.05 | 1.4 | 7.6 | 5.3 | 6.1 | 4.9 | 4.4 | 2.9 | 1.4 | 1.4 | 0.9 |
| | gpt Ag | 411 | 119.0 | 656.5 | 555.8 | 612.1 | 496.6 | 387.6 | 302.0 | 218.7 | 196.1 | 167.8 |
| Recovery | % Au | 94 | 89.4 | 94.4 | 94.4 | 94.4 | 94.4 | 94.4 | 94.4 | 94.4 | 94.4 | 94.4 |
| | % Ag | 90 | 84.9 | 89.9 | 89.9 | 89.9 | 89.9 | 89.9 | 89.9 | 89.9 | 89.9 | 89.9 |
| Gold and Silver Production in Doré | oz Au | 473,812 | 3,967 | 101,703 | 73,057 | 84,302 | 67,816 | 60,735 | 40,750 | 18,988 | 18,903 | 3,592 |
| | oz Ag | 45,833,515 | 324,822 | 8,397,549 | 7,319,748 | 8,084,643 | 6,541,819 | 5,105,671 | 3,978,327 | 2,889,498 | 2,583,451 | 607,985 |
| | oz AgEq[(1)] | 81,369,437 | 622,310 | 16,025,246 | 12,798,989 | 14,407,317 | 11,628,015 | 9,660,785 | 7,034,608 | 4,313,606 | 4,001,139 | 877,422 |

Notes: [(1)] AgEq is based on silver to gold ratio of 75:1. This was calculated using long-term silver and gold prices of US$17/oz silver and US$1,225/oz gold with approximate average metallurgical recoveries of 90% silver and 95% gold.
All numbers are rounded.


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## 1.9 Project Infrastructure

The Las Chispas Property can be accessed via the 10 km existing access road from Highway 89, which is a two-lane, paved all-weather highway. Access road upgrades will be required to facilitate transport of equipment and materials during construction and operation. Figure 1-8 illustrates the overall Las Chispas Project site layout.

The process plant will consist of the crushing, screening, stockpile, grinding, gravity separation, intensive leaching, CCD wash, leaching, reagents, cyanide detoxification, tailings dewatering areas and the gold room. Most of the process plant footprint will be open and roofed only where necessary. The reagent storage and gold room will be enclosed buildings. The gold room will be constructed with thick concrete floors and walls, complete with a heavy-duty building enclosure, closed-captioned televisions (CCTVs), motion sensors and alarms to prevent unauthorized entry.

A fibre-optic backbone will be included throughout the plant to provide an ethernet-type system for voice, data, and control systems bandwidth requirements.

The administration building will be a single-storey, air-conditioned modular building completed with mine dry, lockers, shower facilities, first aid, and office areas for the administrative, engineering, and geology staff.

The maintenance shop will house a wash bay; repair bays; parts storage areas; welding area; machines shop; electrical room; mechanical room; compressor room; and lube storage room, supported by the adjacent storage warehouse, which will be a pre-engineered building with offices and mine dry.

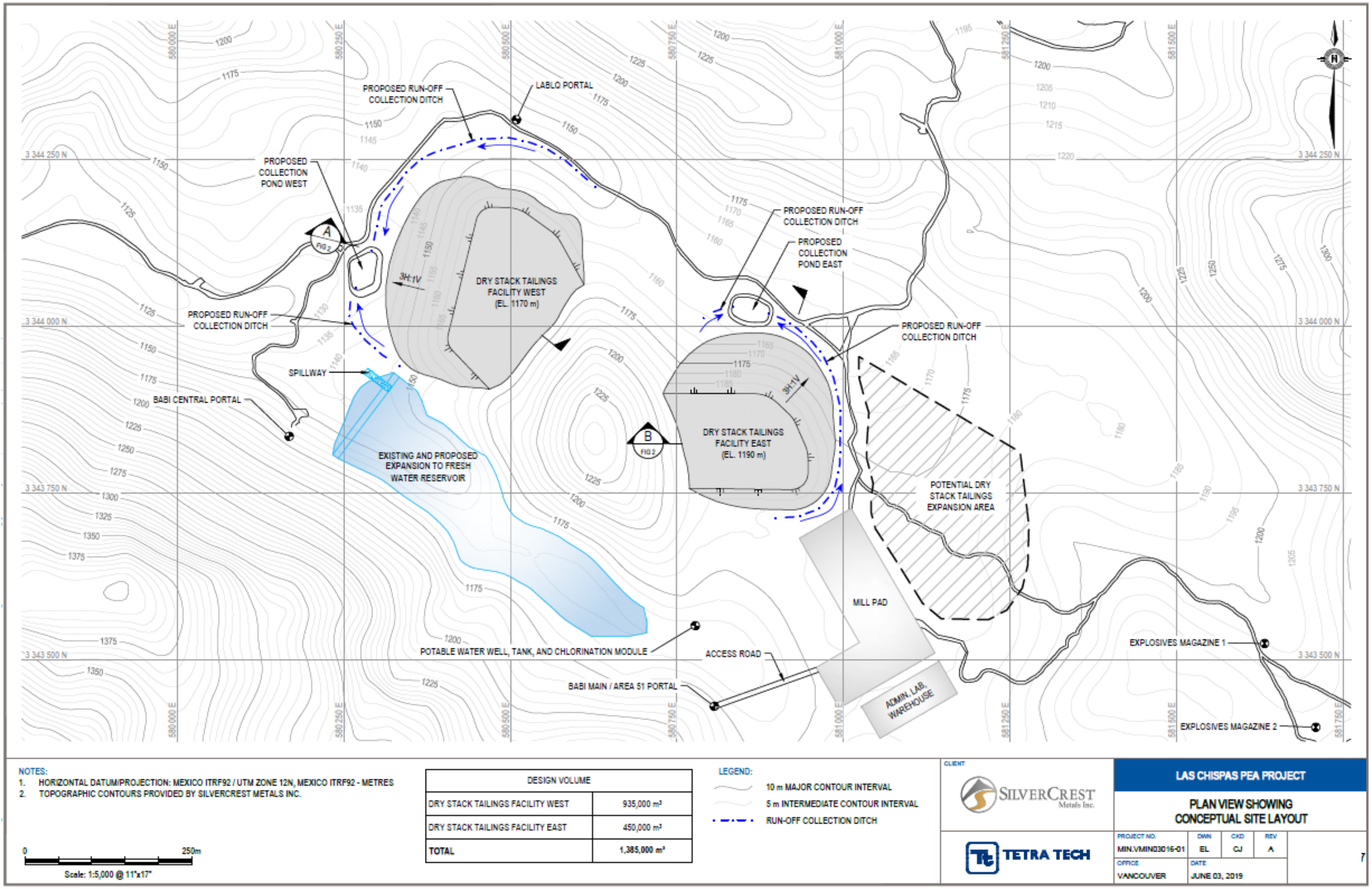
The assay laboratory will be a single-story modular building complete with the required laboratory equipment for grade assaying and control. The laboratory will be equipped with all the required heating, ventilation, and air conditioning (HVAC) systems and chemical disposal equipment.

The power plant will consist of four 1.2 MW diesel generator sets, three operating and one standby. The diesel generators will be located as close as possible to the grinding/mill loads, as these are the largest loads.

Fuel storage requirements for mining equipment, process equipment, and ancillary facilities will be supplied from above-ground diesel fuel tanks located near the portal.

Two “dry stack” type tailings facilities (DSTFs) will be constructed to store tailings at surface that are not used for underground backfill. The surface tailings will be thickened and filtered at the plant and conveyed to the DSTF. The DSTFs will be sited to the north and west of the proposed process plant at a location that does not conflict with drainage and access roads that are located in the adjacent valley bottom. The foundation soils will be compacted to mitigate seepage and a contact water collection ditch will be constructed downstream to intercept runoff and seepage. The contact water collection ditches will drain to storage ponds where the contact water may be treated, if required, and released or pumped back to the process plant for re-use. Surface water diversion ditches will divert surface water from the small catchment area upslope of the DSTFs. The DSTF slope design geometry is 3H:1V to suit typical stability and closure requirements. The east and west DSTFs will be constructed sequentially over the mine life, and ultimately reach approximately 30 m and 38 m high, respectively. Area for potential tailings storage is being permitted.

## Figure 1-8: Overall Las Chispas Project Site Layout



## 1.10 Environmental Studies, Permitting, and Social or Community Impact

Under the framework of Mexican Regulation, several environmental permits are required prior to construction and to advance large mining projects such as Las Chispas Project into production. SilverCrest has received four exploration permits which independently authorize surface drilling activities at various locations on the Property with allowance for development of 461 drill pads and require exploration roads.

There are three Secretariat of Environment and Natural Resources (Secretaría de Medio Ambiente y Recursos Naturales or SEMARNAT) permits that are required prior to construction: an environmental impact statement (Manifestación de Impacto Ambiental [MIA]), a risk study (Estudio de Riesgo or [ER]), and an application for a change in forestry land use (Cambio de Uso de Suelo en Terrenos Forestales or [CUSTF]). SilverCrest initiated environmental baseline surveys that have been used for the MIA application and authorization for underground drilling, underground bulk sampling up to 100,000 t for processing off-site and site access road improvements. An MIA permit application was submitted in May 2018 and is pending authorization for the siting of the process plant that is estimated to be received in the second half of 2019. As of the effective date of this PEA, limited baseline work has been conducted on groundwater and surface water systems. This work is expected to start in May 2019 and will be required prior to mine production for authorization of Water Use Concessions and the Water Discharge Permit. As of the effective date of this PEA, SilverCrest owns 300,000 $m^3$ of water rights. This volume is estimated to be sufficient to cover the needs of a 2,000 Mt/d operation. Pursuant to the completion of the baseline studies, SilverCrest will seek application to SEMARNAT for required approvals under the environmental impact assessment process.

SilverCrest has submitted application for a “General Explosives Permit” to the Secretariat of National Defense (Secretaría de la Defensa Nacional or SEDENA) to authorize storage of explosives on-site. Prior to submitting this request, SilverCrest had to complete the construction of two magazines required during the operation. This permit for explosives storage is in the application process through SEDENA. Currently, SilverCrest holds a temporary permit for use of explosives with provision that require transportation and off-site storage managed by SEDENA. The temporary explosives permit will expire on June 28, 2019 and will require the General Explosives Permit, which is anticipated in July 2019 to continue with underground development.

SilverCrest maintains positive relations with various local stakeholder groups including the municipalities of Banamichi and Arizpe, local Ejidos and Land Owners. A social impact study (Trámite Evaluación de Impacto Social or EVIS) should be completed to provide a socio-economic baseline later in the Las Chispas Project's permit management program.

Work completed to date as part of the MIA applications indicated that the Las Chispas Project has potential for low to moderate impact to local water, air, landscape and potential for moderate to high impact on the local soils, flora, and socio-economic conditions. No known environmental liabilities exist on the Property from historical mining and process operations. Soil and tailings testing were conducted as part of the overall sampling that has been ongoing on-site.

A formal Reclamation and Closure Plan has not been developed for the project and thus reclamation bonds have not yet been established.

## 1.11 Capital and Operating Costs

### 1.11.1 Capital Costs

The total estimated initial capital cost for the design, construction, installation, and commissioning of the Las Chispas Project is US$100.5 million. A summary breakdown of the initial capital cost is provided in Table 1-9. This total includes all direct costs, indirect costs, SilverCrest's costs, and contingency. All costs are shown in US dollars unless otherwise specified.

**Table 1-9: Capital Cost Summary**

| Area | | Capital Cost Estimate (US$ million) |
|---|---|---|
| 10 | Site Preparation and Access Roads | 1.1 |
| 25 | Underground Mining | 19.3 |
| 30 | Process | 27.5 |
| 40 | Tailings | 4.4 |
| 50 | Overall Site | 2.3 |
| 70 | On-site Infrastructure | 6.7 |
| **Direct Cost Subtotal** | | **61.3** |
| X | Project Indirect Costs | 16.3 |
| Y | SilverCrest's Costs | 8.1 |
| Z | Contingency | 14.8 |
| **Indirect Cost Subtotal** | | **39.2** |
| **Total Initial Capital Cost** | | **100.5** |

The accuracy range of the estimate is ±35%. The base currency of the estimate is US dollars (US$).

Table 1-10 shows the foreign currency exchange rates for the US dollar to the Canadian dollar (CAD$), and for US dollar to Mexican peso (MXN$) which were applied as required.

**Table 1-10: Foreign Exchange Rates**

| Base Currency (US$) | Currency |
|---|---|
| 1.00 | CAD$0.75 |
| 1.00 | MXN$20.00 |

### 1.11.2 Operating Costs

The average LOM operating cost, at a design mill feed rate of 1,250 t/d, was estimated at US$98.66/t of material processed. The operating cost is defined as the total direct operating costs including mining, processing, and general and administrative (G&A) costs. Table 1-11 shows the summary breakdown of the operating costs.

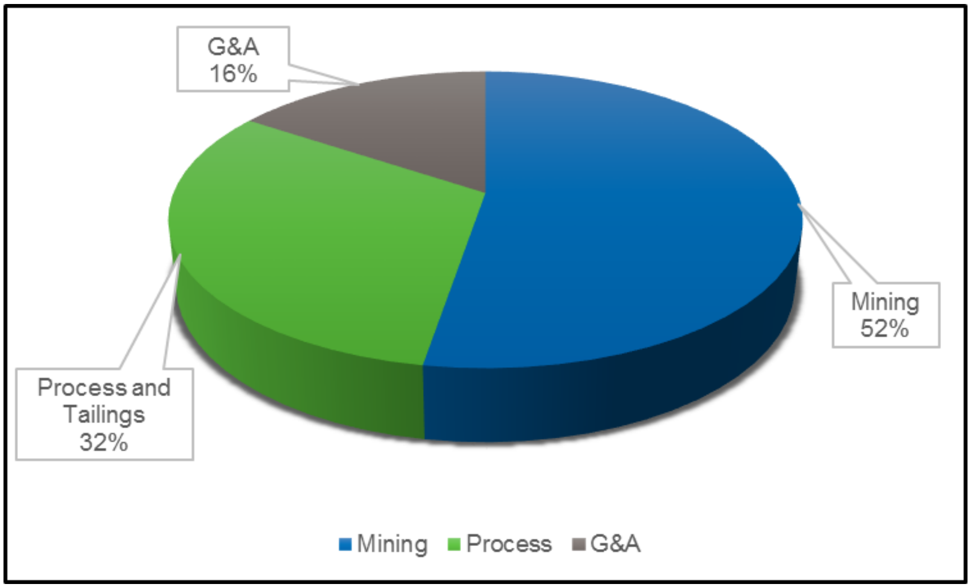
### Table 1-11: Operating Cost Summary

| Area | LOM Average Operating Cost (US$/t processed) |
|---|---|
| Mining | 50.91* |
| Process and tailings management | 32.61 |
| G&A | 15.14 |
| **Total LOM Operating Cost** | **98.66** |

Notes: *Includes stope development but excludes capitalised underground development.

Figure 1-9 shows the operating cost distribution by area.

### Figure 1-9: Operating Cost Distribution by Area




## 1.12 Economic Analysis

**A PEA should not be considered a Prefeasibility or Feasibility study, as the economics and technical viability of the project have not been demonstrated at this time. The PEA is preliminary in nature and includes Inferred Mineral Resources that are considered too speculative geologically to have economic considerations applied to them that would enable them to be categorized as Mineral Reserves. Furthermore, there is no certainty that the conclusions or results reported in the PEA will be realized. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.**

The Tetra Tech Financial Model QP prepared an economic evaluation of the Las Chispas Property based on a discounted cash flow model for the 8.5-year LOM, with project development starting in 2020.

The base case forecast for the Las Chispas Property LOM shows an after-tax net present value (NPV) of US$407 million at a 5% discount rate. The after-tax internal rate of return (IRR) is forecast to be 78%, with an after-tax payback period of 0.74 years.

Table 1-12 shows a summary of the economic analysis results and Table 1-13 provides a summary of the projected cashflows for the Las Chispas Project. Figure 1-10 shows the annual after-tax net cash flows (NCFs) and cumulative net cash flows (CNCFs).

### Table 1-12: Economic Analysis Results Summary (including Discounted After-tax NPV)

| | Unit | Value |
|---|---|---|
| Throughput | t/d | 1,250 |
| Mine Life | years | 8.5 |
| Diluted Resource | t | 3,861,000 |
| Average Diluted Silver Grade | gpt | 411 |
| Average Diluted Gold Grade | gpt | 4.05 |
| Average Diluted AgEq(1) Grade | gpt | 714 |
| Contained Silver(3) | oz | 51,004,000 |
| Contained Gold(3) | oz | 502,200 |
| Contained AgEq(1)(3) | oz | 88,666,000 |
| Silver Recovery | % | 89.9 |
| Gold Recovery | % | 94.4 |
| Payable Silver (LOM) | oz | 45,765,000 |
| Payable Gold (LOM) | oz | 473,100 |
| Total AgEq(1) | oz | 81,247,000 |
| **Average Annual Production (LOM)** | | |
| Silver | oz | 5,384,000 |
| Gold | oz | 55,700 |
| AgEq(1) | oz | 9,559,000 |
| **Average Annual Production (Years 1-4)** | | |
| Silver | oz | 7,575,000 |
| Gold | oz | 81,600 |
| AgEq(1) | oz | 13,694,000 |
| Project Revenue | US$ million | 1,345 |
| Operating Costs | US$ million | 381 |
| Government Royalties(4) | US$ million | 79.1 |
| Mining Cost(2) | US$/t | 50.91 |
| Processing Cost (US$/t) | US$/t | 32.61 |
| G&A Cost | US$/t | 15.14 |
| Total Operating Cost | US$/t | 98.66 |
| Initial Capital Cost | US$ million | 100.5 |
| LOM Sustaining Capital Cost | US$ million | 50.3 |

*Table continues*



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| | Unit | Value |
|---|---|---|
| LOM AISC | US$/oz AgEq(1) | 7.52 |
| Years 1-4 AISC | US$/oz AgEq(1) | 4.89 |
| After-tax IRR | % | 78 |
| NPV (5%) | US$ million | 406.9 |
| Undiscounted LOM Net Free Cash Flow | US$ million | 522.5 |
| Payback Period | months | 9 |

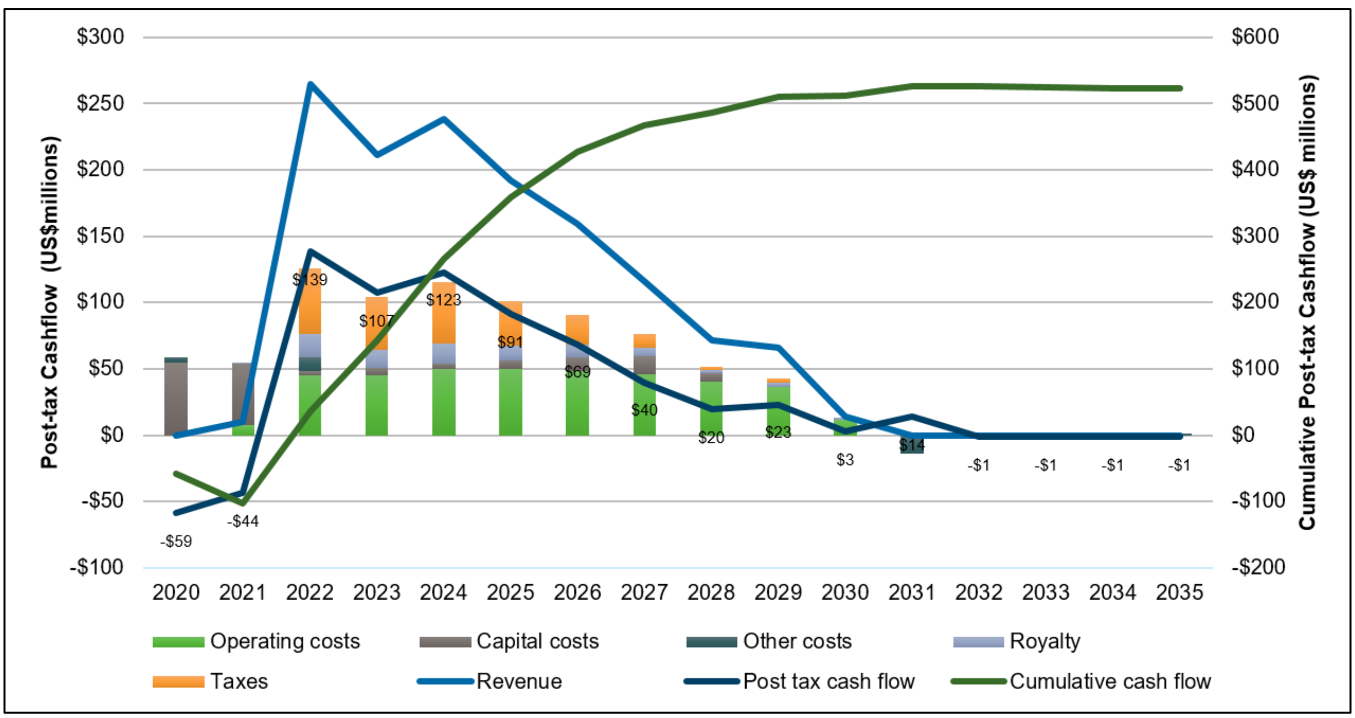
Notes: (1)AgEq is based on a silver to gold ratio of 75:1. This was calculated using long-term silver and gold prices of US$17/oz silver and US$1,225/oz gold with approximate average metallurgical recoveries of 90% silver and 95% gold.
(2)Includes expensed lateral development, but excludes capitalized ramp and vertical development.
(3)Contained ounces for gold and silver are estimated to include 29% Indicated Resources and 71% Inferred Resources.
(4)Royalties include Mexico Government mining royalty of 7.5% from the income on the sale of minerals extracted minus authorized deductions, and an extraordinary governmental royalty of 0.5% of the income for the sale of gold, silver and platinum by mining concession holders for environmental purposes. There are no other royalties on resources other than those imposed by law.

The Las Chispas economic model is based on the following assumptions:

- Gold price of US$1,269/oz; and
- Silver price of US$16.68/oz.

Metal prices selected for the PEA are based on three-year trailing average prices up to January 2019, spot prices for January 2019, and data from financial institutions on long-term forecasted gold and silver prices.

**Figure 1-10: After-tax Cash Flow**



### Table 1-13: Summary of Cash Flows Generated over the LOM

| | Units | LOM Total | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Development Metres | m | 69,342 | 5,427 | 4,904 | 8,075 | 7,927 | 7,860 | 8,699 | 10,517 | 10,833 | 5,100 | - | - | - | - | - | - | - |
| Tonnes Mined Underground | t | 3,686,195 | - | - | 368,070 | 455,684 | 456,980 | 455,773 | 455,793 | 455,753 | 457,018 | 455,782 | 125,341 | - | - | - | - | - |
| Tonnes from Stockpile | t | 174,500 | - | 100,000 | 74,500 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Tonnes Milled | t | 3,860,695 | - | 100,000 | 442,570 | 455,684 | 456,980 | 455,773 | 455,793 | 455,753 | 457,018 | 455,782 | 125,341 | - | - | - | - | - |
| Au Grade | g/t | 4.05 | | 1.38 | 7.57 | 5.28 | 6.08 | 4.90 | 4.39 | 2.95 | 1.37 | 1.37 | 0.94 | - | - | - | - | - |
| Ag Grade | g/t | 411 | - | 119 | 656 | 556 | 612 | 497 | 388 | 302 | 219 | 196 | 168 | - | - | - | - | - |
| Au Ounces Recovered | oz | 473,812 | - | 3,967 | 101,703 | 73,057 | 84,302 | 67,816 | 60,735 | 40,750 | 18,988 | 18,903 | 3,592 | - | - | - | - | - |
| Ag Ounces Recovered | oz | 45,833,515 | - | 324,822 | 8,397,549 | 7,319,748 | 8,084,643 | 6,541,819 | 5,105,671 | 3,978,327 | 2,889,498 | 2,583,451 | 607,985 | - | - | - | - | - |
| Net Revenue from Sales | $million | 1,345 | - | 10 | 265 | 211 | 238 | 192 | 160 | 116 | 71 | 66 | 14 | - | - | - | - | - |
| Mining Costs | $million | (197) | - | (0.4) | (24.7) | (23.9) | (28.4) | (28.5) | (27.1) | (24.8) | (18.6) | (14.7) | (5.5) | - | - | - | - | - |
| Processing Costs | $million | (126) | - | (4.0) | (14.3) | (14.8) | (14.8) | (14.8) | (14.8) | (14.8) | (14.8) | (14.8) | (4.1) | - | - | - | - | - |
| G&A Costs | $million | (58) | - | (3.4) | (6.6) | (6.6) | (6.7) | (6.7) | (6.7) | (6.7) | (6.7) | (6.7) | (1.8) | - | - | - | - | - |
| Total Operating Costs | $million | (381) | - | (7.8) | (45.6) | (45.3) | (49.8) | (50.0) | (48.5) | (46.2) | (40.1) | (36.1) | (11.4) | - | - | - | - | - |
| Government Royalties | $million | (79) | - | (0) | (18) | (14) | (15) | (12) | (9) | (6) | (3) | (3) | (0) | - | - | - | - | - |
| Initial Capital Costs | $million | (100.5) | - | (54.6) | (45.8) | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Sustaining Capital Costs | $million | (50.3) | - | - | - | (2.9) | (5.8) | (3.9) | (6.3) | (10.3) | (13.7) | (6.8) | (0.6) | - | - | - | - | - |
| Working capital | $million | (0) | | - | (10.0) | - | - | - | - | - | - | - | - | 10.0 | | | | |
| Reclamation (bond and expenses) | $million | (4.0) | (4.0) | | | | | | | | | | | 4.0 | (1.0) | (1.0) | (1.0) | (1.0) |
| Pre-tax Cash Flow | $million | 731.9 | (58.6) | (43.6) | 188.6 | 146.8 | 169.1 | 124.2 | 91.8 | 50.5 | 21.6 | 26.8 | 2.8 | 14.0 | (1.0) | (1.0) | (1.0) | (1.0) |
| Taxable Income | $million | 691.3 | - | - | 166.3 | 131.7 | 154.0 | 109.1 | 76.7 | 35.4 | 6.5 | 11.7 | - | - | - | - | - | - |
| Taxes Payable | $million | (207.4) | - | - | (49.9) | (39.5) | (46.2) | (32.7) | (23.0) | (10.6) | (1.9) | (3.5) | - | - | - | - | - | - |
| Net After-tax Cash Flow | $million | 524.5 | (58.6) | (43.6) | 138.8 | 107.3 | 122.9 | 91.5 | 68.8 | 39.9 | 19.6 | 23.3 | 2.8 | 14.0 | (1.0) | (1.0) | (1.0) | (1.0) |
| NPV 5% | $million | 406.9 | | | | | | | | | | | | | | | | |
| IRR | % | 78 | | | | | | | | | | | | | | | | |
| Payback Period | years | 0.74 | | | | | | | | | | | | | | | | |



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## 1.13 Opportunities

The Las Chispas PEA is the first economic assessment of a potential underground mining operation and has taken in to account the combined geological, mining, metallurgical, processing and permitting considerations into a financial assessment. The work is based largely on exploration work completed by SilverCrest and is an early-stage snap shot of a conceptual mining operation which lacks the detailed investigations and engineering required to advance the project towards production. Conclusions drawn from this work provide an estimate for the time and work needed to move the Las Chispas Project from the current PEA level to a pre-feasibility study and/or a feasibility study level.

There are many opportunities that potentially could improve upon the economics of the PEA which have not been included in this PEA are considered in the next phases of work. Alone or combined, these opportunities could change the approach to development, timelines, capital requirements and operating costs described within the PEA with potential to change the scale, economics and/or the value of the property. Even if not completely understood at this time, it is important to identify and acknowledge the follow opportunities so that the next phase of work takes them into consideration when defining the project design:

- Exploration potential to increase resource by exploring 20 of the 30 known veins that are not in the current resource.
- Additional resources could potentially become additional reserves for expansion of the plant capacity and subsequent decrease in operating costs.
- In-filling of current isolated resources with additional resources and subsequent reserves to reduce development costs per ounce.
- Discovery of another high-grade vein to further smooth the decline in production for LOM.
- Better definition of exclude resource in this report by in-filling and potentially combining isolated zones to justify costs for development.
- Consider less costly mining methods in advanced studies.
- Complete detailed metallurgy for potential increase in precious metal recoveries.
- Design, permit and construct a power-line to the nation grid currently at $0.09/KWH for reduced operating costs from using diesel power at $0.28/KWH.
- Utilize stockpiled mineralized development tonnes mined during pre-production along with a portion of the 174,500 tonnes grading 1.38 gpt Au and 119 gpt Ag, or222 gpt AgEq, already on surface in historic dumps.

## 1.14 Recommendations

It is recommended that SilverCrest advance to the feasibility level to completely assess the viability of the Las Chispas Project. Prior to completion of a Feasibility Study, several investigations and laboratory test work programs are required to be completed and combined with trade-off studies. Table 1-14 shows a list of the recommended investigations and trade-off studies with a summarized cost estimate to proceed to the next level of study. Recommendations are further detailed in Section 26.0.

### Table 1-14: Cost Estimate for Recommended Work

| Item | Units | Cost Estimate (US$000) |
|---|---|---|
| Dedicated Sampling and Metallurgical Test Work on Most Significant Veins | 200 samples, composites and test work | 150 |
| Expansion and Infill Drilling Along Multiple Veins | 55,000 m (surface and underground) | 9,000 |
| Area 51 Decline and Exploration | 1,500 m | 3,000 |
| Environmental Baseline Work and Permitting | Decline, explosives, added drilling | 445 |
| Water Exploration, Permitting and Concessions Purchase | All rights for water use | 200 |
| Update Mineral Resources and Technical Report | Q4 2019 Technical Report | 100 |
| Rock Mechanics Studies | Desktop study | 150 |
| Cavity Monitoring Surveys | Site visit and underground study | 20 |
| Mining Method Trade-off | Desktop study | 150 |
| Drifting Along the Vein | Contract mining | 1,000 |
| Mining Software Valuation | Desktop work | 25 |
| Backfill Study | Laboratory test work and desk top study | 25 |
| Ventilation and Escape Way Planning | Desktop study | 25 |
| Metallurgical Test Work | Laboratory test work | 200 |
| Project Infrastructure and Surface Geotechnical | 1,000 m geotechnical drilling, construction scheduling | 350 |
| Dry Stack Tailings | Geotechnical, geochemistry, and test work | 150 |
| Financial and Feasibility Study | H2 2019 and H1 2020 FS | 2,000 |
| Mexico Administration and Labour | G&A | 1,500 |
| Corporate Support | Corporate G&A | 500 |
| **Total** | **-** | **20,590** |

# 2.0 INTRODUCTION

SilverCrest retained Tetra Tech to prepare a NI 43-101 Technical Report and PEA for the Las Chispas Property, located in the State of Sonora, Mexico. The effective date of this PEA is May 15, 2019 and the effective date of the Mineral Resource Estimate is February 8, 2019. Las Chispas is being explored for vein-hosted gold and silver mineralization and is being evaluated for underground mining potential. To date, 30 veins have been identified on site; Mineral Resources have been prepared for 10 of the veins.

Since February 2016, SilverCrest has conducted mapping, sampling, and drilling as part of their early exploration efforts to identify the extent of historical development and to delineate targets for further exploration. Over 11 km of historical underground development has been made accessible by an extensive underground rehabilitation program. As of February 8, 2019, core drilling has been completed on 439 holes for a total of 117,057.65 m and 60,677 core samples.

Las Chispas is the site of historical production of silver and gold from narrow high-grade veins in numerous underground mines. SilverCrest obtained some records from the most recent operations which occurred between 1880 and 1930. There was reprocessing of approximately 75,000 t of tailings material from 1974-1984.

## 2.1 Qualified Persons

In accordance with NI 43-101, the QPs for this PEA are listed in Table 2-1.

### Table 2-1: Qualified Person Responsibilities

| Report Section | Company | QP |
|---|---|---|
| 1.0 Summary | Tetra Tech | All QPs |
| 2.0 Introduction | Tetra Tech | James Barr, P.Geo. |
| 3.0 Reliance on Other Experts | Tetra Tech | James Barr, P.Geo.<br>Mark Horan, P.Eng. |
| 4.0 Property Description and Location | Tetra Tech | James Barr, P.Geo. |
| 5.0 Accessibility, Climate, Local Resources, Infrastructure and Physiography | Tetra Tech | James Barr, P.Geo. |
| 6.0 History | Tetra Tech | James Barr, P.Geo. |
| 7.0 Geological Setting and Mineralization | Tetra Tech | James Barr, P.Geo. |
| 8.0 Deposit Types | Tetra Tech | James Barr, P.Geo. |
| 9.0 Exploration | Tetra Tech | James Barr, P.Geo. |
| 10.0 Drilling | Tetra Tech | James Barr, P.Geo. |
| 11.0 Sample Preparation, Analyses and Security | Tetra Tech | James Barr, P.Geo. |
| 12.0 Data Verification | Tetra Tech | James Barr, P.Geo. |
| 13.0 Mineral Processing and Metallurgical Testing | Tetra Tech | Hassan Ghaffari, P.Eng. |
| 14.0 Mineral Resource Estimates | Tetra Tech | James Barr, P.Geo. |
| 15.0 Mineral Reserve Estimates | Tetra Tech | Mark Horan, P.Eng. |
| 16.0 Mining Methods | Tetra Tech | Mark Horan, P.Eng. |

| | | | |
|---|---|---|---|
| 17.0 | Recovery Methods | Tetra Tech | Hassan Ghaffari, P.Eng. |
| 18.0 | Project Infrastructure | Tetra Tech | Hassan Ghaffari, P.Eng. |
| 19.0 | Market Studies and Contracts | Tetra Tech | Mark Horan, P.Eng. |
| 20.0 | Environmental Studies, Permitting and Social or Community Impact | Tetra Tech | James Barr, P.Geo. |
| 21.0 | Capital and Operating Cost Estimates | Tetra Tech | Hassan Ghaffari, P.Eng.<br>Mark Horan, P.Eng. |
| 22.0 | Economic Analysis | Tetra Tech | Mark Horan, P.Eng. |
| 23.0 | Adjacent Properties | Tetra Tech | James Barr, P.Geo. |
| 24.0 | Other Relevant Data | Tetra Tech | All QPs |
| 25.0 | Interpretations and Conclusions | Tetra Tech | All QPs |
| 26.0 | Recommendations | Tetra Tech | All QPs |
| 27.0 | References | Tetra Tech | All QPs |

Throughout the PEA, the following terms are used to describe the responsible QPs:

- Geology QP: James Barr, P.Geo.
- Environmental QP: James Barr, P.Geo.
- Mining QP: Mark Horan, P.Eng.
- Financial Model QP: Mark Horan, P.Eng.
- Metallurgy QP: Hassan Ghaffari, P.Eng.
- Process QP: Hassan Ghaffari, P.Eng.
- Infrastructure QP: Hassan Ghaffari, P.Eng.

For the preparation of this work, the QPs have relied upon information provided by SilverCrest including drill hole data, laboratory analytical certificates, and cost estimates; from other source such as publicly available databases, research and academic literature; observations made during site visits; and, from archived information held by Tetra Tech.

## 2.2 Site Visits

Site visits have been completed by the QPs Mr. James Barr, P.Geo., Mr. Mark Horan, P.Eng., and Mr. Hassan Ghaffari, P.Eng.

Mr. Horan and Mr. Ghaffari visited the property on October 14, 2018, at which time the property layout and the historical underground workings at Babicanora and Las Chispas were observed, drill core intersections were reviewed, and meetings with technical site personnel were conducted. No samples were collected nor investigations conducted during this site visit.

Mr. James Barr completed five site visits between 2016 and 2019: from August 30 to September 1, 2016; January 15 to 19, 2017; November 21 to 22, 2017; October 14, 2018; and February 10 to 11, 2019. During the site visits, Mr. Barr reviewed the property layout, surface property ownership, mineral tenure, property geology, drill operations, sample collection methods, quality assurance protocols, analytical methods, and collected independent verification samples. Conversations with on-site SilverCrest technical personnel included:

- Stephany (Rosy) Fier, Vice President of Exploration and Technical Services
- Maria Lopez, Regional Manager
- Nathan Fier, Mining Engineer
- Ruben Molina, Project Geologist
- Pasqual Martinez, Senior Geologist
- N. Eric Fier, CPG, P.Eng., Chief Executive Officer.

## 2.3 Effective Date

The effective date of May 15, 2019 applied to this PEA reflects the cut-off date by which all scientific and technical information was received and used for the preparation of the PEA.

The effective date of February 8, 2019 applied to the Mineral Resource Estimate reflects the cut-off date by which all scientific and technical information was received and used for the preparation of the Mineral Resource Estimate. For drilling, the last holes to receive assay data for inclusion to the Mineral Resource Estimate are as follows:

- Drill holes at the Las Chispas Area, up to and including:
  - surface hole LC18-77; and
  - underground hole LCU18-38.
- Drill holes at the Babicanora Area, up to and including:
  - surface hole BA19-142;
  - underground hole UB18-24;
  - surface hole BAN18-58;
  - underground hole UBN18-3;
  - surface hole BAS18-39; and
  - surface hole GR18-23.

## 2.4 Terms of Reference

Terms of reference for Las Chispas throughout this PEA include the following:

- The Las Chispas Property: this encompasses all mineral occurrences and land underlying the mineral concessions under option to SilverCrest or 100% owned by SilverCrest.

- The Las Chispas District: this is a general term used in historical context for the various mines which operated in the area prior to the 1930s. The District has an approximate footprint of 4 km north to south, 3 km east to west, and consists of the Las Chispas Area and Babicanora Area which are approximately 1.5 km apart.
- The Las Chispas Area: this consists of the Las Chispas Vein and Historic Mine, Giovanni Vein including La Blanquita Vein, William Tell Vein, Luigi Vein, Giovanni Mini Vein, Varela Veins, Chiltepin 1 to 4, El Cumaro, and various other unnamed veins.
- The Babicanora Area: this consists of the Babicanora Vein, Babicanora FW Vein, Babicanora HW Vein, Babicanora Norte Vein, Babicanora Sur Vein, Babicanora Sur HW Vein Amethyst Vein, La Victoria Vein, Granaditas Vein, Granaditas Dos Vein, Babi Vista Vein, Ranch Veins and various other unnamed veins.
- The Las Chispas Mine: this refers to a historical shaft and series of underground developments believed to be sunk under the original discovery outcrop that was located in the 1640s.
- Area 51 Zone (Area 51): the southeast extension of the Babicanora Vein discovered by high-grade hole BA17-51 at 3.1 m true width grading 40.45 gpt gold, 5,375.2 gpt silver, or 8,409 gpt AgEq.
- Shoot 51: the high-grade mineralized area or zone of the Babicanora Vein defined by SilverCrest as having average Inferred Mineral Resource grades of greater than 1,700 gpt AgEq.
- Vein: this is a current term used by SilverCrest consisting of semi-continuous structures, quartz veins, stockwork, and breccia.

## 2.5 Reporting of Grades by Silver Equivalent

Throughout the PEA reference is made to silver equivalent grade to aid in assessment of the polymetallic nature of the mineralization.

For the purposes of this PEA, the silver equivalent calculation uses long-term silver and gold prices of US$17/oz silver and US$1,225/oz gold. From the metallurgical test work detailed in Section 13.0, the average metal recoveries are approximated as 90% silver and 95% gold. Assuming these stated metal prices and recoveries, the silver equivalent calculation equates to a silver to gold ratio of 75:1. Based on preliminary metallurgical testing and at this stage of the Las Chispas Project, the conceptual process for metal recoveries would be a gravity process followed by cyanidation. No smelter charge reduction and no metal losses are assumed in the equivalent calculation.

# 3.0 RELIANCE ON OTHER EXPERTS

The PEA relies information from legal, accounting, and technical experts who are not QPs as defined by NI 43-101. The QPs responsible for the preparation of this report have reviewed the information provided and they have concluded that they are acceptable for use in the PEA.

## 3.1 Mineral Tenure and Ownership

With respect to information regarding mineral tenure and ownership of surface rights described in Section 4.0, the Geology QP relied on information in title opinions dated December 7, 2018 from independent Mexican legal counsel, Urias Romero y Associados, S.C., as updated as of the effective date of this PEA. The Geology QP has relied on this document and has no reason to believe the title opinions are not true or are not accurate as of the effective date of this PEA.

## 3.2 Environmental

For the review of permitting and environmental baseline work in Section 20.0, the Environmental QP relied on documentation including MIA permit applications, documents generated by SilverCrest's local environmental consultant Trinidad Quintero Ruiz, and information provided by SilverCrest's in-country manager, Gabriel Maldonado.

## 3.3 Economic Analysis

In the preparation of the after-tax analysis in Section 22.0, the Financial Model QP relied on PricewaterhouseCoopers LLP (PwC). The information comes from the letter titled *Assistance with review of the Mexican income tax and Mexican Special Mining Duty portions of the economic analysis prepared by Tetra Tech WEI Inc. ("Tetra Tech") in connection with the Preliminary Economic Assessment Report (the "Report") On SilverCrest Metals Inc. ("SilverCrest")'s mining project ("the Project")* and dated May 13, 2019.

# 4.0 PROPERTY DESCRIPTION AND LOCATION

The Property is located in the State of Sonora, Mexico, at approximate 30.233902°N latitude and 110.163396°W longitude (Universal Transverse Mercator [UTM] World Geodetic System [WGS]84: 580,500E, 3,344,500N) within the Arizpe Mining District. The city of Hermosillo is approximately 220 km, or a three-hour drive, to the southwest; Tucson, Arizona, is approximately 350 km via Cananea, or a five-hour drive, to the northwest; and the community and mine in Cananea is located approximately 150 km, or a two-and-a-half-hour drive, to the north along Highway 89. Photo 4-1 shows view of the general topography of the area surrounding Las Chispas and Figure 4-1 provides a location map for the Property.

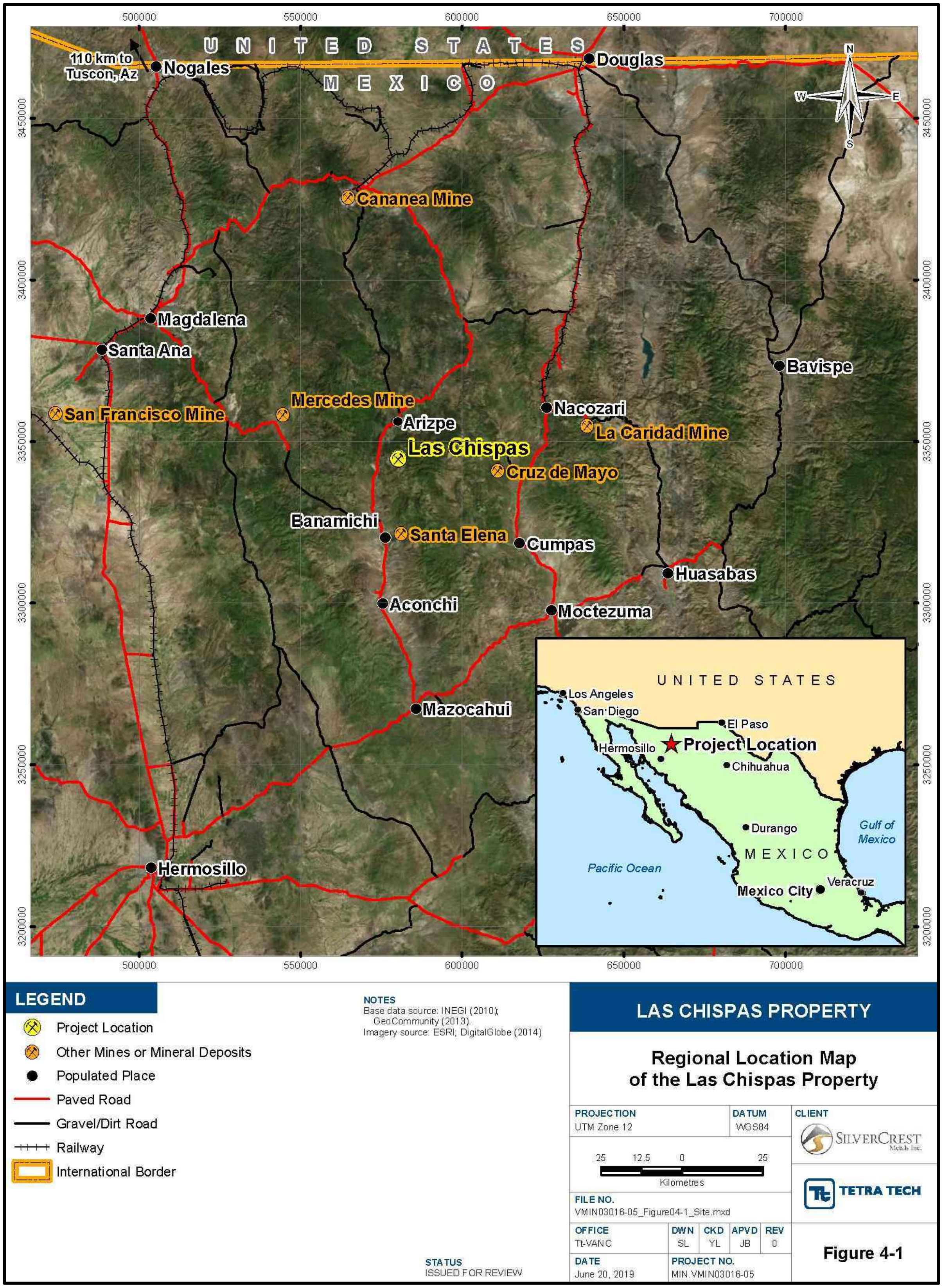
Other nearby communities include Banamichi, which is located 25 linear km to the southwest and Arizpe, which is located approximately 12 linear km to the northeast. The area is covered by the 1:50,000 topographic map sheet “Banamichi” H12-B83.

Few surface remnants exist on the Property which show the active mining history and community development that once existed in this district. There are numerous historic mine portals and shafts that are partially overgrown with vegetation, which have been flagged and/or fenced.

SilverCrest hold title to the mineral concessions for Las Chispas and has ownership or negotiated agreements with land holders in the area. No known environmental liabilities exist. Permit requirements for continued work on the Property are listed in Section 20.0. There are no other known factors or risks known to the Geology QP that may affect the access, title, or the right for SilverCrest to perform work on the Las Chispas Property.

**Photo 4-1: Las Chispas Property Looking East**

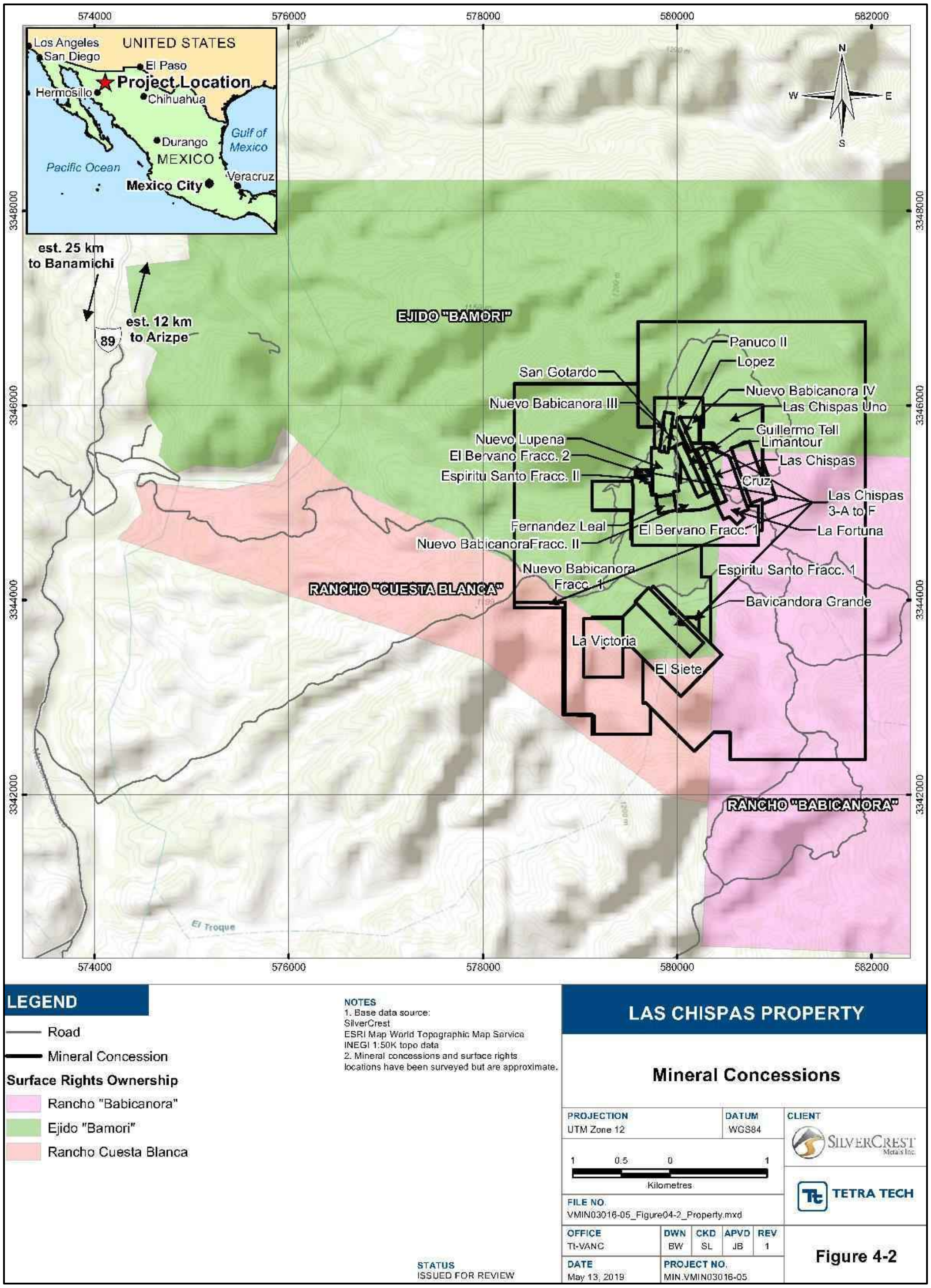
**Figure 4-1: Regional Location Map of the Las Chispas Property**



## 4.1 Mineral Tenure

Las Chispas comprises 28 mineral concessions, totaling 1,400.96 ha, as shown in Figure 4-2. SilverCrest's Mexican wholly-owned subsidiary, Compañia Minera La Llamarada S.A. de C.V. (LLA), has acquired title to or has entered into option agreements to purchase the concessions listed in Table 4-1.

**Figure 4-2: Mineral Concession Map for the Las Chispas Property**



### Table 4-1: Mineral Concessions held by SilverCrest for the Las Chispas Property

| Concession Name | Title Number | Registration Date | End Date | Surface Area (ha) | Concession Holder |
|---|---|---|---|---|---|
| El Bervano Fraccion 1 | 212027 | 8/25/2000 | 8/24/2050 | 53.4183 | (3) LLA |
| El Bervano Fraccion 2 | 212028 | 8/25/2000 | 8/24/2050 | 0.9966 | (3) LLA |
| Las Chispas Uno | 188661 | 11/29/1990 | 11/28/2040 | 33.7110 | (3) LLA |
| El Siete | 184913 | 12/6/1989 | 12/5/2039 | 43.2390 | (3) LLA |
| Babicanora Grande | 159377 | 10/29/1973 | 10/28/2023 | 16.0000 | (3) LLA |
| Fernandez Leal | 190472 | 4/29/1991 | 4/28/2041 | 3.1292 | (3) LLA |
| Guillermo Tell | 191051 | 4/29/1991 | 4/28/2041 | 5.6521 | (3) LLA |
| Limantour | 191060 | 4/29/1991 | 4/28/2041 | 4.5537 | (3) LLA |
| San Gotardo | 210776 | 11/26/1999 | 11/25/2049 | 3.6171 | (3) LLA |
| Las Chispas | 156924 | 5/12/1972 | 5/11/2022 | 4.4700 | (3) LLA |
| La Fortuna | (1) | Pending | Pending | 15.2800 | (6) Pending |
| Espiritu Santo Fracc. I | 217589 | 8/6/2002 | 8/5/2052 | 733.3232 | (3) LLA |
| Espiritu Santo Fracc. II | 217590 | 8/6/2002 | 8/5/2052 | 0.8770 | (3) LLA |
| La Cruz | 223784 | 2/15/2005 | 2/14/2055 | 14.4360 | (3) LLA |
| Lopez | 190855 | 4/29/1991 | 4/28/2041 | 1.7173 | (4) Lopez Mejia – Espina- Cruz |
| Nuevo Babicanora Fracc. I | 235366 | 11/18/2009 | 11/17/2059 | 392.5760 | (2) Cirett-LLA |
| Nuevo Babicanora Fracc. II | 235367 | 11/18/2009 | 11/17/2059 | 9.8115 | (2) Cirett-LLA |
| Nuevo Babicanora Fracc. III | 235368 | 11/18/2009 | 11/17/2059 | 2.2777 | (2) Cirett-LLA |
| Nuevo Babicanora Fracc. IV | 235369 | 11/18/2009 | 11/17/2059 | 3.6764 | (2) Cirett-LLA |
| Nuevo Lupena | 212971 | 2/20/2001 | 2/19/2051 | 13.0830 | (1) LLA |
| Panuco II | 193297 | Cancelled (legal recourse pending) | Cancelled (legal recourse pending) | 12.9300 | (1) Pending |
| La Victoria | 216994 | 6/5/2002 | 6/4/2052 | 24.0000 | (5) Morales-Fregoso |
| Las Chispas 3-A | 245423 | 01/24/2017 | 01/23/2067 | 1.0809 | LLA |
| Las Chispas 3-B | 245424 | 01/24/2017 | 01/23/2067 | 0.3879 | LLA |
| Las Chispas 3-C | 245425 | 01/24/2017 | 01/23/2067 | 0.3413 | LLA |
| Las Chispas 3-D | 245426 | 01/24/2017 | 01/23/2067 | 0.3359 | LLA |
| Las Chispas 3-E | 245427 | 01/24/2017 | 01/23/2067 | 0.4241 | LLA |
| Las Chispas 3-F | 245428 | 01/24/2017 | 01/23/2067 | 5.6112 | LLA |
| **Total (28)** | - | - | - | **1,400.9600** | - |

Note: (1) Non-titled applications No.082/39410 and 082/38731

Mining duties are based on the surface area and date of issue of each concession and are due in January and July of each year at a total annual cost of approximately US$20,000 (adjusted scale). All mining duties have been paid to date by LLA.

### 4.1.1 Mineral Concession Payment Terms

Payment terms under each option agreement is included in the following subsections. All dollar figures are in US dollars (US$), unless stated otherwise.

#### 4.1.1.1 Concession Holder 1: LLA Previously; Adelaido Gutierrez Arce (34%), Luis Francisco Perez Agosttini (33%) and Graciela Ramírez Santos (33%)

LLA agreed to four payments totaling $150,000 with Adelaido Gutierrez Arce, Luis Francisco Perez Agosttini, and Graciela Ramírez Santos (Gutierrez-Perez-Ramirez). As of December 2018, all payments have been completed with LLA holding 100% ownership of the concession.

Panuco II was cancelled in 1999; public notice of open ground has not been published and a legal recourse for reinstatement of concessions was filed. This process is ongoing as of this effective date. At the time of cancellation, the registered owner was Gutierrez who transferred the mining concession to LLA subject to its reinstatement. The Nuevo Lupena agreement has an area of influence that covers the Panuco II concession; therefore, the terms of this agreement apply to Panuco II.

#### 4.1.1.2 Concession Holder 2: Jorge Ernesto Cirett Galán (80%) and María Lourdes Cruz Ochoa (20%)

LLA agreed to the following payment terms with Jorge Ernesto Cirett Galán and María Lourdes Cruz Ochoa (Cirett-Cruz):

- Five payments totaling $575,000:
  - first payment of $30,000 due on May 20, 2016 (paid)
  - second payment of $35,000 due May 20, 2017 (paid)
  - third payment of $60,000 due May 20, 2018 (paid)
  - fourth payment of $100,000 due May 20, 2019 (paid)
  - fifth payment of $350,000 due May 20, 2020.

On June 29, 2018, Jorge Ernesto Cirett Galán and María Lourdes Cruz Ochoa agreed to amend the fourth and fifth payments whereby LLA could exercise its option and earn a 20% interest in the concessions. On June 29, 2018, LLA made an agreed discount payment (4%) of $86,400 and earned a 20% interest in the concessions.

#### 4.1.1.3 Concession Holder 3: Local Mexican Company now 100% owned by LLA

LLA agreed to the cash payments totaling $2,450,000 over a three-year period from December 2015 to 2018. All payments have been completed and LLA owns 100% of the concessions.

LLA also agreed to issue SilverCrest shares equal to $250,000 on each of the June 3, 2018 (issued) and December 3, 2018 (issued) payments. On August 7, 2018, the Local Mexican company assigned and transferred to LLA 100% title to these concessions, subject to the reservation of legal ownership to be released on the final payment of $1,012,500 in cash and $250,000 in SilverCrest shares by December 3, 2018 (paid and reservation of legal ownership by Local Mexican company is cancelled).

#### 4.1.1.4 Concession Holder 4: Jose Cruz Lopez Mejia (34%); Eliseo Espina Guillen (33%); and Jesus Cruz Lopez (33%)

LLA entered into an arrangement agreement in order to acquire 67% of the Lopez concession, but under Mexican law the owner of the remaining 33% is required to consent to such transfer to LLA. Such consent has not been obtained as of this date. As of the effective date of the PEA, none of the Mineral Resources are located on this concession.

#### 4.1.1.5 Concession Holder 5: Felizardo Morales Baldenegro (70%) and Martha Silvia Fregoso (30%)

LLA agreed to the following payment terms with Felizardo Morales Baldenegro and Martha Silvia Fregoso (Morales-Fregoso):

- Three payments totaling $150,000:
  - first payment of $30,000 due on June 15, 2016 (paid);
  - second payment of $20,000 due June 15, 2017 (paid); and
  - third payment of $100,000 due June 15, 2019 (paid $5,000).

#### 4.1.1.6 Concession Holder 6: Minerales de Tarachi S. de R.L. de C.V.

On February 21, 2018 LLA acquired from Minerales Tarachi, S. de R.L. de C.V. an option to purchase the rights to the La Fortuna mining concession applications No. 082/39410 and 082/38731, which cover the Panuco II and Carmen Dos Fracción II mineral lots on payment of $500,000 Mexican Pesos (MXN$) (paid) and $150,000 payable on acquisition of title by LLA. Title transfer of concessions are pending until the applications are issued as mining concessions.

## 4.2 Land Access and Ownership Agreements

The surface rights overlying the Las Chispas mineral concessions and road access are either owned by LLA or held by LLA under a negotiated 20-year lease agreement.

### 4.2.1 Ejido Bamori

On November 18, 2015 (as amended June 3, 2018), LLA signed a 20-year lease agreement with the Ejido Bamori for surface access and use of facilities. Compensation for exploration activities will be paid at a rate of MXN$700/ha, up to a total of 360.60 ha. After exploration and announcement of mine construction/production, compensation will be paid on a scaled timeframe at a rate of MXN$2,000/ha in construction and production Years 1 to 4 and MXN$4,000/ha on the fifth year and beyond.

### 4.2.2 Cuesta Blanca Ranch

In February 2018, LLA purchased the Cuesta Blanca Ranch covering 671.9 ha of land situated in the municipality of Arizpe, Sonora.

### 4.2.3 Babicanora Ranch

In April 2017, LLA purchased from Maprejex Distributions Mexico, S.A. de C.V. the Babicanora Ranch covering 2,500 ha of land situated in the municipality of Arizpe, Sonora.

### 4.2.4 Tetuachi Ranch

In November 2017, LLA signed a lease agreement for a term of 20 years with Maria Dolores Pesqueira Serrano for the lease of the Tetuachi Ranch covering 32.3 ha of land situated in Arizpe, Sonora, for payment of an annual rental fee of US$2,000 during exploration phase and US$7,000 during exploitation phase.

## 4.3 Royalties

A 2% net smelter return (NSR) royalty is payable to the current concession holder, Gutierrez-Perez-Ramirez, of the Nuevo Lupena and Panuco II (pending registry) concessions for material that has processed grades of equal to or greater than 40 oz per tonne of silver and 0.5 oz per tonne of gold, combined.

# 5.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE, AND PHYSIOGRAPHY

## 5.1 Climate

The climate is typical for the Sonoran Desert, with a dry season from October to May. Seasonal temperatures vary from 0 to 40°C. Average rainfall is estimated at 300 mm/a. There are two wet seasons, one in the summer (July to September) and another in the winter (December). The summer rains are short with heavy thunderstorms, whereas the winter rains are longer and lighter. Summer afternoon thunderstorms are common and can temporarily impact the local electrical service. The climate supports year-round operations.

## 5.2 Physiography

The Property is located on the western edge of the north trending Sierra Madre Occidental mountain range geographically adjacent to the Sonora River Valley. The Property surface elevation ranges from 950 masl to approximately 1,250 masl; the San Gotardo portal to the Las Chispas and William Tell Veins is located at 980 masl. Hillsides are often characterized with steep colluvium slopes or subvertical scarps resulting from fractures through local volcaniclastic bedrock units.

Drainage valleys generally flow north to south, and east to west towards the Rio Sonora. Flash flooding is common in the area.

Vegetation is scarce during the dry season, limited primarily to juvenile and mature mesquite trees and cactus plants. During the wet season, various blooming cactus, trees, and grasses are abundant in drainage areas and on hillsides.

## 5.3 Property Access

From Banamichi, the paved Highway 89 follows for approximately 25 km. The Property is accessed via secondary gravel roads, as shown in Figure 4-2, approximately 10 km off the paved highway. Crossing the Rio Sonora river bed is required.  The water levels in the river are typically low and easily passed, but can raise to temporary unpassable levels following major rain events. The remainder of the road has been upgraded by dozer/grader. Net elevation gain to the Property from the highway is approximately 400 vertical metres.

## 5.4 Local Resources

### 5.4.1 Water Supply

Current water requirements during exploration are minimal; diamond drilling requires the greatest capacity. Some wells have been established to supply local ranches. Preliminary hydrogeological testing has been conducted to determine depth to water table. Twelve pilot water wells have been completed on the Property, and initial preliminary results show that most prospective potential area is located nearby the river. A geophysical investigation is on-going for the ultimate location of the operation wells nearby the river. This PEA assumes that the make-up water will be pumped from a well in the valley via a 10 km short-diameter pipeline that would connect to the nearby power line; similarly, to the guard house which is currently in place.

Historical underground workings have been noted to be dry down to the 900 (feet from surface) level where the water table has been defined underground and in pilot wells.

### 5.4.2 Power

Low-voltage power lines and generators exist on the Property to supply local ranches. This amount of power is sufficient for exploration requirements. Provision of grid power to a potential operation may be possible in the future, but would require permitting and a significant capital expenditure. It is assumed that diesel generators will be used for future production similar to the nearby Santa Elena Mine.

### 5.4.3 Infrastructure

No surface infrastructure from the historical mining industry remains on the Property except for roads and a few eroding rock foundations. Several ranch buildings, corrals, and fencing were acquired from the purchase of ranches.

It is assumed that material mined from the Las Chispas Property will be processed on site. Conceptual locations for the tailings storage areas, potential waste disposal areas, and the process plant site are presented in Section 18.0.

### 5.4.4 Community Services

Mining supplies and services are readily available from Cananea, north of Las Chispas, Hermosillo, to the southwest, and Tucson, Arizona, to the northwest.

Labour and skilled workforces exist in the nearby communities including Banamichi and Arizpe for which housing and transportation routes to support a mining operation could be established.

# 6.0 HISTORY

Historical records indicated mining around the Las Chispas Property started as early as the 1640s. There are incomplete records and history available on mining activities which took place in the 1800s and 1900s. There is also a gap in mining activity records for Las Chispas between the mid-1930s through to 1974. In 2008, exploration activities resumed on Las Chispas with modern techniques.

A summary of Las Chispas' history has been extracted from the limited documentation available to SilverCrest in the public domain and private libraries. Numbers and mine descriptions extracted from these documents are historical in nature, cannot be relied upon, and should only be used in context of the rich mining history of the Las Chispas district.

## 6.1 1800s and Early 1900s

Mining interest on the Property is believed to have begun in 1640 when outcrop of the Las Chispas Vein was discovered by a Spanish General named Pedro de Perra (Wallace 2008), which led to the development of the Las Chispas Mine. Through to 1880, small-scale mining was intermittently conducted along this trend with significant interference from local Apache resistance. The company operating the mine at this time was called the Santa Maria Mining Company (Russell 1908).

The Las Chispas Mine operated intermittently from the 1880s to the 1920s by John (Giovanni) Pedrazzini (Photo 6-1), as President, or the family who maintained control of the development along the Las Chispas Vein and the William Tell Vein through the company Minas Pedrazzini (established February 1907). Giovanni Pedrazzini was reportedly a former cook and accountant of the Santa Maria Mining Company, and he received the Las Chispas Mine as compensation for unpaid back wages. Antonio Pedrazzini (Photo 6-2), nephew of Giovanni, maintained an active role in the operation and management of the mine into the 1920s. In 1904, Edward Dufourcq, a well-known mining engineer, was appointed as general manager of the mine. Minas Pedrazzini was the first operator to drive an adit into the Las Chispas Vein known as the San Gotardo Tunnel, or 600 level, an estimated length of 1,250 m. Referenced historical levels (i.e., 600 level) are marked as the depth in feet from the Las Chispas shaft collar (Figure 6-1).

**Photo 6-1: Giovanni Pedrazzini and Family at Las Chispas, Circa Early 1880s**



TETRA TECH

**Photo 6-2: Antonio Pedrazzini and Family at Las Chispas, Circa Early 1900s**

Pedrazzini's company was one of three working in the area at this time. At least two other companies focused efforts on the El Carmen, located approximately 5 km southeast of the Las Chispas Mine, and the Babicanora Area, approximately 1.5 km south of the Las Chispas Mine. Little is known about the historical production and operations of these companies; however, it is understood that small mills were installed at Babicanora and El Carmen to process ores of the Babicanora, El Carmen, and Granaditas veins in a similar manner to the San Gotardo (Las Chispas) Mill (Russell 1907). The district had a mix of at least six operating flotation and cyanidation mills from the late 1880s to 1984.

The San Gotardo Mill, operated by Minas Pedrazzini, was located at the northern portal to the 600 level of the Las Chispas and William Tell veins, and consisted of rock breakers, five gravity stamps, two Wilfley tables, and three amalgamation pans, with reported recovery of 70 to 75% (Russell 1907). The mill developed up to 20 operating stamps and four pans in 1910, when total recovery was noted then to be between 71 and 84%. An estimate of approximately 26,000 t were treated in the mill, and over 12,000 t of tailings were estimated to have been deposited as tails into ponds below the mill. In 1910, a 24-inch gauge tramway was built from the San Gotardo portal to the new mill, anticipating daily production to increase to 60 t/d. Wallace (2008) reports that in the 1970s the mill was salvaged and hauled away with old mine buildings and much of the tailings for reprocessing.

In 1910, the decision was made to install a cyanide plant at the Las Chispas Mine in an effort to reduce overall processing costs, enable reprocessing of the earlier deposited tailings, and attempt higher metal recoveries with a throughput of 30 to 40 t/d. Construction of the plant occurred during and was delayed by the occurrence of the Mexican Revolution (Dufourcq 1912). Mulchay (1935) indicates that this plant was used for less than six months due to interference from sulphides in the ore with cyanidation. A small flotation plant was installed prior to 1926 (Mulchay 1935).

Water for the operations was supplied via a 5 km long pipe line from the Rio Sonora and power reportedly from a small power line running from a diesel generator at Nacozari. In 1918, the pumping station along the Rio Sonora was destroyed by a flood; the mine resorted to pumping from within the mine to supply the mill with water (Wallace 2008). Dufourcq (1910) indicates that water was originally intersected below the 900 level of the mine.

In 1917, it is reported that the mine was confiscated by the local government who operated and extracted "rich ore" before eventually returning the mine back to Pedrazzini (Montijo Jr. 1920).

Two versions exist regarding how the mine was taken over and eventually closed. Mulchay (1935) suggests that in 1935 Minas Pedrazzini was taken over under option by Douglas-Williams associated with the Phelps-Dodge Corporation. The mine was managed by Henry Bollweg at this time. Whereas, Wallace (2008) reports the mine was acquired by a French corporate subsidiary Corporación Miñera de Mexico, S.A. in 1921. This company was reported to have remodelled the power plant and continued mining until its eventual closure in 1930.

A French company under the name Camou Brothers are reported to have re-developed the Babicanora Mine around 1865 (SilverCrest 2015). The Babicanora area was most recently mined by Chinese immigrants who originally settled in Baja, relocated to the State of Sinaloa in the late 1800s for agriculture, and were eventually pushed inland by competition. Here they found occupation in the mines. The portal construction and dimensions of underground development in Babicanora is notably different than that of the Las Chispas and William Tell workings. The main access is a 4 m by 4 m drift and approximately 230 m in length to intersect the Babicanora Vein.

From 1900 to 1926, production from the Las Chispas and William Tell veins is reported to have been interrupted several times due to numerous interventions, including theft of high-grade ore, the Mexican revolution from 1910 to 1920, the Mexican National Catholic Church revolution in 1925, mill flooding/fire, and the government take over of the mine with no economic plan (Montijo 1920).

The limited information available on metal production suggests approximately 100 Moz of silver and 200,000 oz of gold were recovered from mines within the loosely defined Las Chispas District, including approximately 20 to 40 Moz of silver estimated to have been recovered from the Las Chispas and William Tell veins. Wallace (2008) estimates that in the period between 1907 and 1911, annual production at the Las Chispas Mine achieved approximately 3,000 to 12,000 t (estimated projected budget for 1911), producing 1.5 Moz of silver and 10,000 oz of gold per year with an estimated average grade of 1.1 ounces per tonne of gold and 146.8 ounces per tonne of silver (Table 6-1). Reports indicate that gold and silver were produced from both quartz/amethyst veinlets less than 5 cm thick and local high-grade shoots up to 4 m thick.

### Table 6-1: Las Chispas Mine Production, 1908 to 1911

| | 1908 | 1909 | 1910 | 1911[1] | Total |
|---|---|---|---|---|---|
| Tonnes | 3,286 | 3,064 | 3,540 | 12,000 | 21,890 |
| Gold ounces per tonne | 1.5 | 1.4 | 1.0 | 1.0 | 1.1 |
| Silver ounces per tonne | 199.9 | 187.2 | 136.9 | 125.0 | 146.8 |
| Gold ounces | 4,876 | 4,189 | 3,615 | 12,000 | 24,680 |
| Silver ounces | 656,882 | 573,448 | 484,746 | 1,500,000 | 3,215,076 |

Notes: [1]Estimated projected budget for 1911.
Source: Dufourcq (1910)

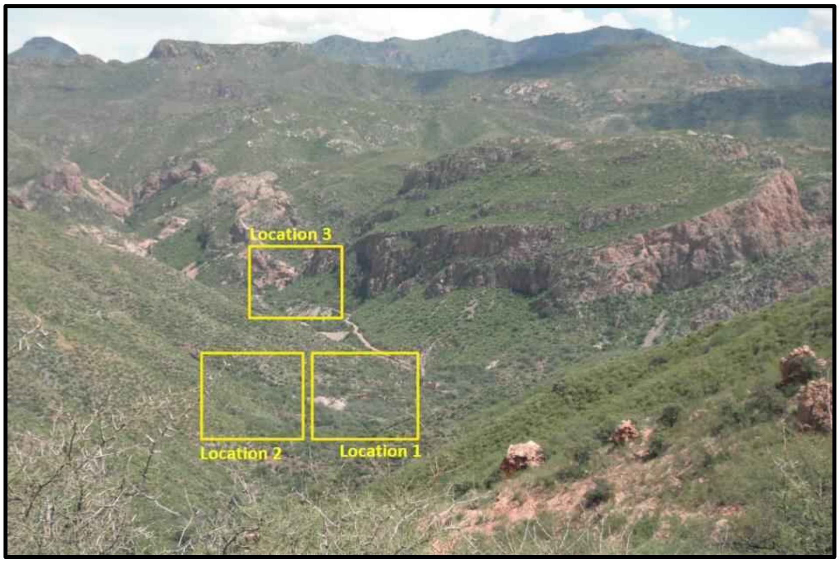
Some records suggest that small-scale mining at Espiritu Santo and operation of a small mill at Babicanora occurred in 1935 (Mulchay 1935). Espiritu Santo workings consisted of a small inclined shaft approximately 80 cm wide, which declined below a small drainage to two short ore drifts where grades up to 500 ounces per tonne of silver were noted. Approximately 13.2 t of ore were reported to have been shipped from this small mine in 1934 and ranged in grade from 0.17 to 1.36 ounces per tonne of gold and 79.2 to 490 ounces per tonne of silver.

Another small mining operation at La Victoria was estimated around 1940. The workings consisted of three short ore drives on separate levels approximately 30 m in length, with gold grades up to 6 ounces per tonne over one metre (Mulchay 1941).

**Photo 6-3 provides an overview of the Las Chispas Valley and highlights the locations where the community of Las Chispas once stood, in addition to the original San Gotardo mill and the later developed rail-connected mill near the community. Historical Photo 6-3 through**

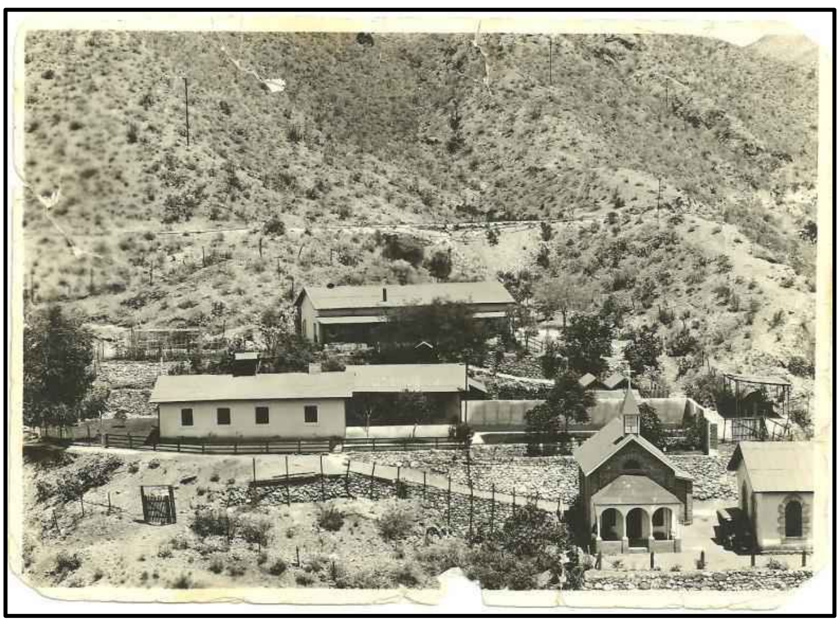
Photo 6-7 are from various locations around the historical operation. Photo 6-8 is a rendering of the current view to the Upper Babicanora portal. Photo 6-9 is a long section of the historical Las Chispas underground development.

**Photo 6-3: View Looking North Down to the Main Valley Where the Las Chispas Community and Processing Plants Were Located**



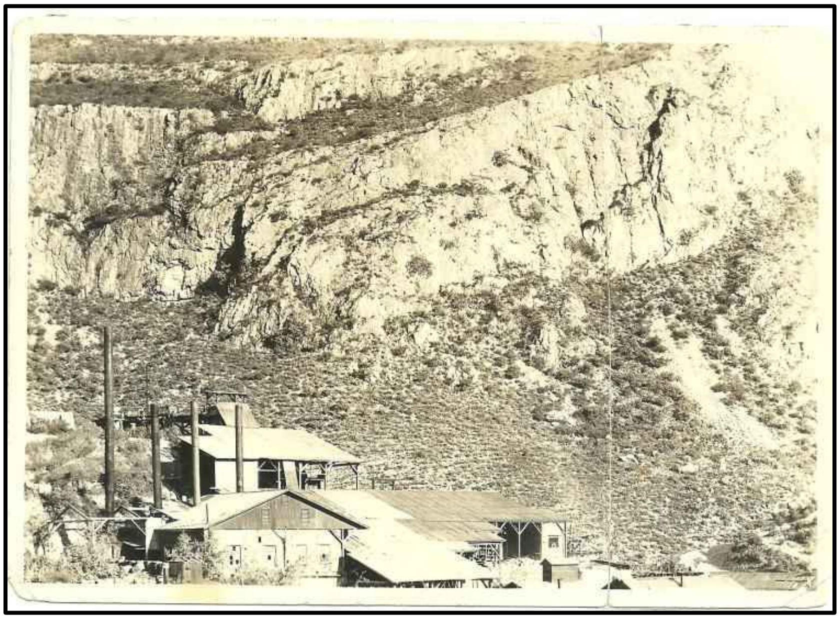

Note: Photo taken September 2015

**Photo 6-4: Historical Photo of Former Las Chispas Community**



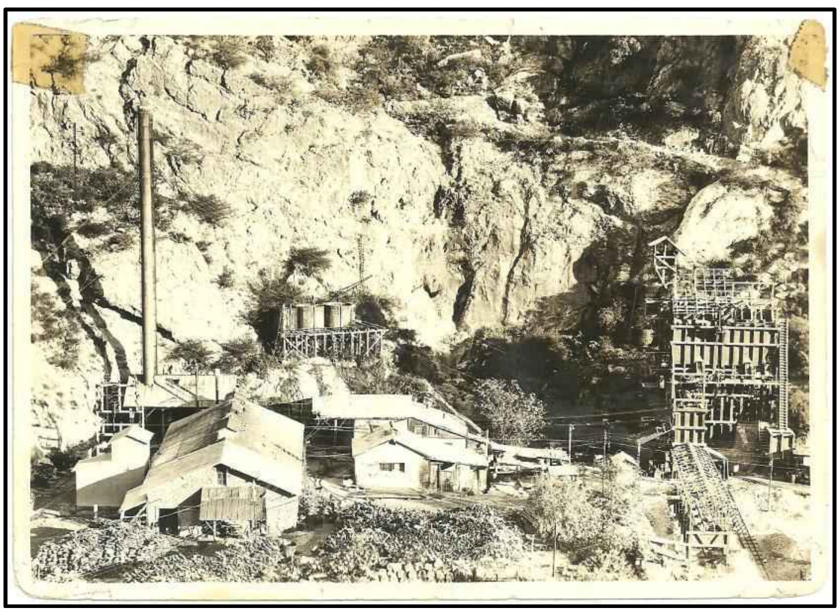
Note: Identified as Location 1 in Photo 6-2
Photo taken circa mid to late 1920s

**Photo 6-5: Historic Photo of a Processing Facility at Northwest of Community**



Note: Identified as Location 2 in Photo 6-2
Photo taken circa mid to late 1920s

**Photo 6-6: Historic Photo of San Gotardo Mill**



Note: Identified as Location 3 in Photo 6-2, near San Gotardo portal
Photo taken circa early 1910s

**Photo 6-7: Photo of Historical Processing Facility at Babicanora, Established in 1921**

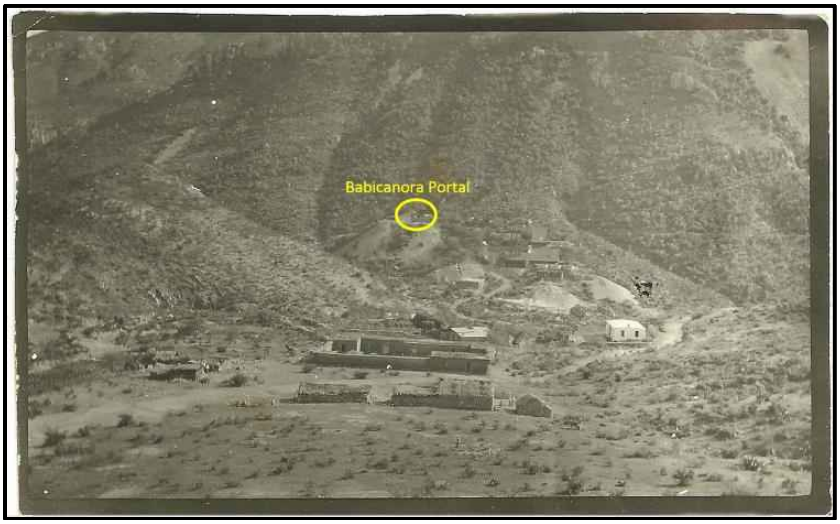
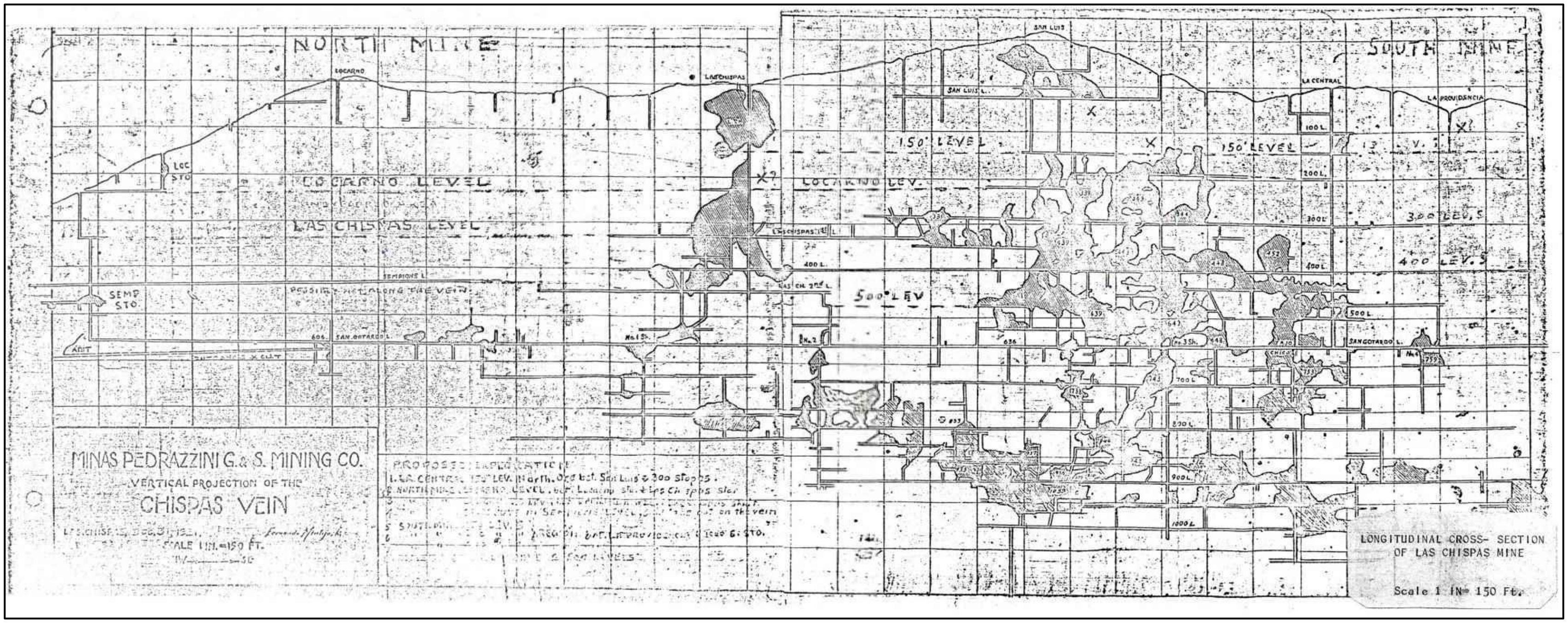



**Photo 6-8: Current View of Babicanora Portal and Site of Historical Processing Facility, November 2017**

**Photo 6-9: Long Section of the Historical Las Chispas Underground Development (circa 1921), Looking Northeast**



## 6.2 Mid to Late 1900s to Early 2000s

No written documented information is available for the Property during this period. Verbal discussions with Luis Perez, a local operator, indicate that from 1974 to 1984 a small cyanide leach mill was constructed near the highway entrance to the Property. During this period, approximately 75,000 t of historic waste was processed with doré poured on site. No production estimation is available.

It is assumed that sometime between the mid-1930s and 2008, the historic and 1974 processing plants were dismantled and transported from the area and that both concession and surface Property ownership likely changed hands at least once from the mining companies to their current owners. As seen in Section 4.0, Table 4-1, the current mineral concessions (excluding the Nuevo Babicanora concessions) were registered, or reregistered under new mining regulation, from 1972 to as recently as 2002.

## 6.3 Minefinders Corporation Ltd. (2008 – 2011)

In 2008, Minefinders operating under their Mexican affiliate, Miñera Minefinders, acquired the Cirett concessions under option Nuevo Babicanora I to IV (Section 4.0, Table 4-1 and Figure 4-2) but were unable to negotiate with the main district concession owners. Subsequently, Minefinders completed initial exploration work on the district which they referred to as collectively the Babicanora Project. They drilled seven RC holes off the main mineralized trends with negative results and then dropped the Property option in 2012.

Minefinders conducted a systematic exploration program across these concessions between 2008 and 2011. Regional activities consisted of geologic mapping and a geochemical sampling program totaling 143 stream sediment and (BLEG samples, 213 underground rock chip samples, and 1,352 surface rock chips). The work was successful in identifying three gold targets along the 3 km long structural zone. The most prospective of these targets was interpreted to be an area between the Las Chispas Vein and the Babicanora Vein. Minefinders focused on the furthest western extension of the Babicanora Vein called El Muerto, which is the only part of the trend that was acquired by concession and accessible for exploration work.

Targeted exploration conducted solely within the Babicanora Project area included the collection of 24 stream sediment and BLEG samples, 184 select surface rock chip samples, 474 grid rock chip samples, and drilling of seven RC drill holes for a total of 1,842.5 m. The drill hole locations are provided in Figure 6-1 and Figure 6-2.

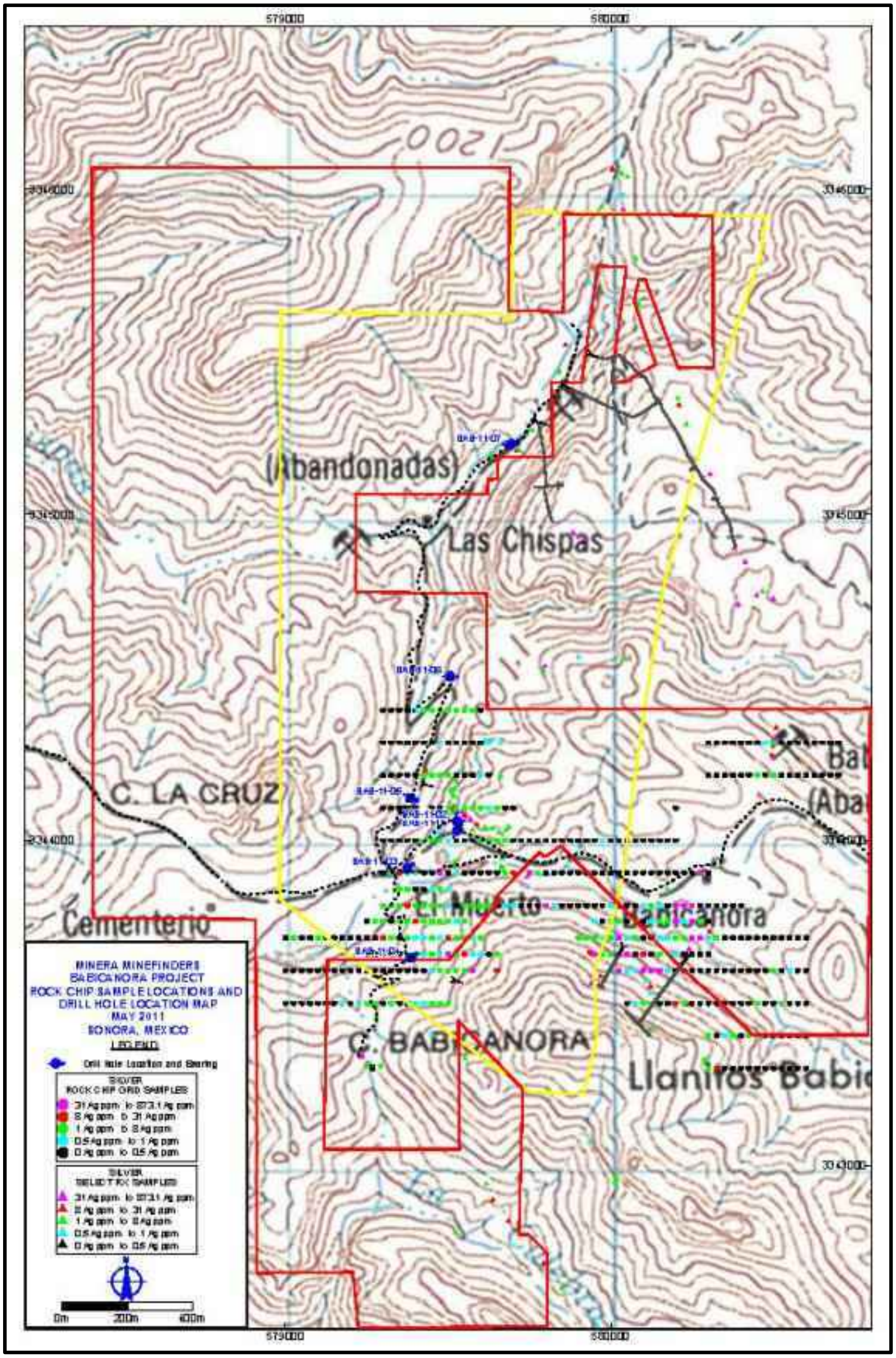
### 6.3.1 Minefinders Surface Sampling

Turner (2011) describes the work by Minefinders on the Babicanora Project in detail. Outcrop in the area is variable and the sampling was adjusted based on terrain limitations. Minefinders determined that high-grade gold and silver occurrences (1 to 2 gpt of gold and 30 to 60 gpt of silver) noted in mine workings and outcrops occurred mainly as discontinuous and narrow quartz stockwork zones. Notable exceptions were a 5 m zone of 1.53 gpt of gold and narrow veins up to 13 gpt of gold with 439 gpt of silver from El Muerto north of the Babicanora Mine workings.

Twenty-four stream sediment samples were collected from drainages in the Las Chispas Area as part of a regional sampling program. The large samples were analyzed as both 2 kg BLEG samples and via a more conventional analysis of a -80 mesh sieved product. The material utilized for the -80 mesh analysis was obtained after splitting the initial 2 kg used for BLEG analysis. Anomalous zones defined by the regional stream sediment program were later confirmed by a follow-up rock chip grid sampling program.

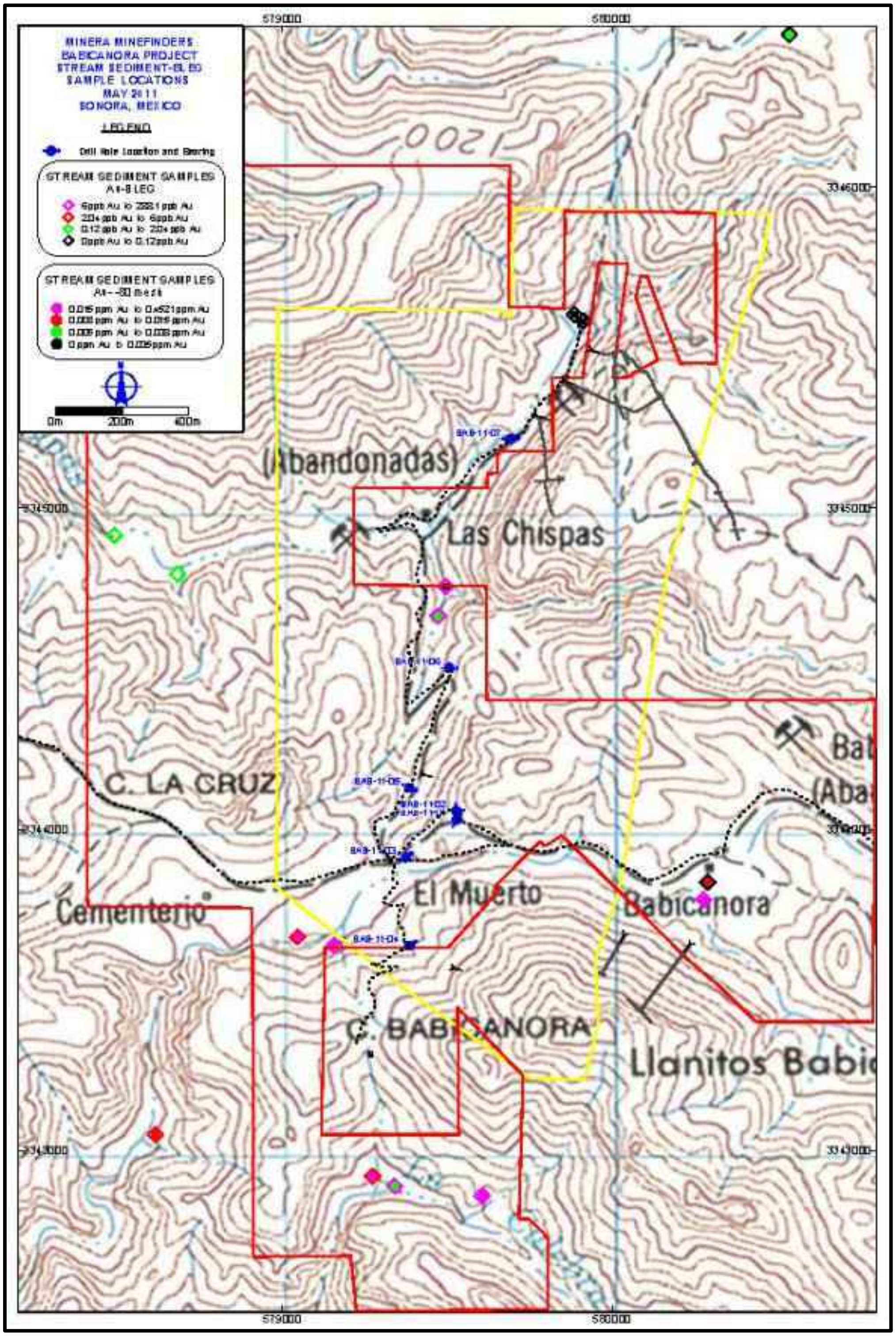
All surface rock chip and stream sediment samples were collected by the staff of Minefinders and submitted to ALS Chemex in Hermosillo. Sampling coverage and results are illustrated in Figure 6-1 and Figure 6-2.

**Figure 6-1: Minefinders Rock Chip Sample Locations and Gold Results**




Source: Turner (2011)

**Figure 6-2: Minefinders Stream Sediment Sample Gold Results - BLEG and -80 Mesh**




Source: Turner (2011)

### 6.3.2 Minefinders Drilling, 2011

Minefinders carried out a seven-hole RC drill program in 2011. The purpose of the program was to test a porous volcanic agglomerate (i.e., lithic tuff) unit located along a 1.5 km structural zone located adjacent to the Babicanora and Las Chispas historical workings.

Minefinders contracted Drift Drilling to drill seven holes utilizing a MPD-1000 RC drill rig. The drilling was conducted from existing roads with drill pads enlarged to allow for safe and effective operations. Environmental permitting with SEMARNAT was prepared by Bufete Miñera y Servicios de Ingenieria S.A. de C.V. and completed on March 23, 2011. All assay work was conducted by Inspectorate Laboratories of Hermosillo, Mexico and Reno, Nevada.

The drill program was conducted between April 7, 2011 through May 3, 2011, with a total of 1,842.5 m drilled. The drill holes were oriented to intercept a range of host rocks in areas of anomalous precious metals or adjacent to mine workings. The hope was that bulk tonnage targets might exist within more porous or chemically reactive rocks. Table 6-2 shows a summary of the drilling.

**Table 6-2: Summary of Minefinders 2011 RC Drill Program**

| Hole ID | Easting | Northing | Elevation (m) | Dip (°) | Azimuth (°) | Depth (m) | Depth (ft) |
|---|---|---|---|---|---|---|---|
| BAB11-01 | 579527 | 3344033 | 1,135 | -60 | 30 | 304.80 | 1,000 |
| BAB11-02 | 579526 | 3344060 | 1,130 | -90 | 0 | 324.60 | 1,065 |
| BAB11-03 | 579372 | 3343914 | 1,091 | -60 | 50 | 242.30 | 795 |
| BAB11-04 | 579382 | 3343638 | 1,132 | -55 | 60 | 350.50 | 1,150 |
| BAB11-05 | 579386 | 3344130 | 1,053 | -45 | 115 | 198.12 | 650 |
| BAB11-06 | 579507 | 3344503 | 1,009 | -70 | 90 | 182.90 | 600 |
| BAB11-07 | 579693 | 3345216 | 977 | -70 | 90 | 239.30 | 785 |
| **Total** | | | | | | **1,842.52** | **6,045** |

The drill results were disappointing in that none of the holes are interpreted to have intersected the mineralized structure beneath the historic workings. Only narrow zones of gold mineralization at scattered depths were encountered and only one hole, BAB11-02, intercepted significant mineralization in four narrow intervals of greater than 900 ppb of gold. The most significant of these intercepts was 4.6 m of 1.1 gpt of gold and 2 gpt silver including a 1.5 m interval of 2.9 gpt gold at a depth of 292.6 m. This mineralized interval occurs within basal volcaniclastic sandstones and rhyodacitic tuffs cut by propylitic altered dacite dykes.

Results of the drilling indicate that several phases of quartz veining, accompanied by broad zones of argillic and propylitic alteration, are present in the 1.5 km long target zone. Mineralization was determined to occur as low sulphidation gold-silver epithermal quartz and calcite veins and stockwork within an Oligocene volcanic sequence consisting of volcaniclastic sediments interbedded with rhyolitic tuff and andesitic dykes/flow cut by dacitic dykes.

In 2012, Minefinders dropped their interest in the Nuevo Babicanora I to IV mineral concessions, which returned to Cirett as having controlling interest.

## 6.4 SilverCrest, 2013 to Start of Phase I Drilling in 2016

Following Minefinders' retreat, SilverCrest Mines Inc. (now a subsidiary of First Majestic) through its subsidiary Nusantara de Mexico S.A. de C.V. initiated their interest in Las Chispas in 2013. Legal issues in the main Las Chispas District were settled and SilverCrest Mines Inc. could negotiate option agreements with all the concession holders through their Mexican subsidiary Nusantara de Mexico S.A. de C.V. By the end of September 2015, SilverCrest Mines Inc. executed options agreements to acquire rights to 17 concessions.

On October 1, 2015, pursuant to an arrangement agreement, SilverCrest Mines Inc. was acquired by First Majestic and these mineral concessions were transferred to a new spun out company, SilverCrest Metals Inc. and its subsidiary LLA, which was listed on the TSX Venture Exchange on October 9, 2015 and has subsequently obtained rights to 11 additional mineral concessions for a total of 28 concessions.

# 7.0 GEOLOGICAL SETTING AND MINERALIZATION

## 7.1 Regional Geology

The Las Chispas Property is located in northwestern Mexico where much of the exposed geology can be attributed to the subduction and related magmatic arc volcanism of the Farallon Plate beneath the North American Plate. The east-directed subduction of the Farallon Plate began in early Jurassic (approximately 200 Ma) with the tectonic rifting of the supercontinent Pangea (Rogers 2004). The resulting northwest-southeast trending Sierra Madre Occidental extends over 1.200 km from the US-Mexican border to Guadalajara in the southeast.

Delgado-Granados et al. (2000) proposed that subduction of the Farallon Plate occurred at a relatively shallow angle, resulting in continental uplift across northern Mexico with accretionary terranes developing along the western fringes of the pre-existing Jurassic continental and marine sediments and crystalline Cambrian basement rocks.

Volcanism is related to fractional crystallization of mantle sourced basalts during subduction (Johnson 1991; Wark 1991). The widespread volcanic deposits and intrusive stock development from emplacement of the regional batholith typify the upper Cretaceous record in the area, which was followed by dramatic accumulation of volcanic flows, pyroclastics, and volcano-sedimentary rocks during the Upper Cretaceous through to the Eocene.

Continental arc volcanism culminated with the Laramide orogeny in the early to late Eocene (Alaniz-Alvarez et al. 2007). The waning of compression coincides with east-west directed extension between late Eocene to the early Oligocene (Wark et al. 1990; Aguirre-Diaz and McDowell 1991; 1993) along the eastern Sierra Madre Occidental flank and is considered to be the first formation stage of the Basin and Range province.

By early to mid-Miocene, extension migrated west into Northern Sonora and along the western flank of the Sierra Madre Occidental resulting in north-northwest to south-southeast trending, west dipping, and normal faults. This extensional regime caused major deformation across the Sierra Madre Occidental resulting in localized exhumation of pre-Cambrian basement rocks within horst structures, especially in the Northern Sierra Madre Occidental (Ferrari et. al. 2007). Bimodal volcanic flows capped the volcano-sedimentary deposit of the late Eocene. Migration of later hydrothermal fluids along the pre-existing structures are related to the cooling of the orogenic system.

The Pliocene-Pleistocene is characterized by a general subsidence of volcanic activity, with deposition of some basalt flows, and accumulation of conglomerate, locally known as the Baucarit Formation.

Ferrari et al. (2007) summarizes five main igneous deposits of the Sierra Madre Occidental:

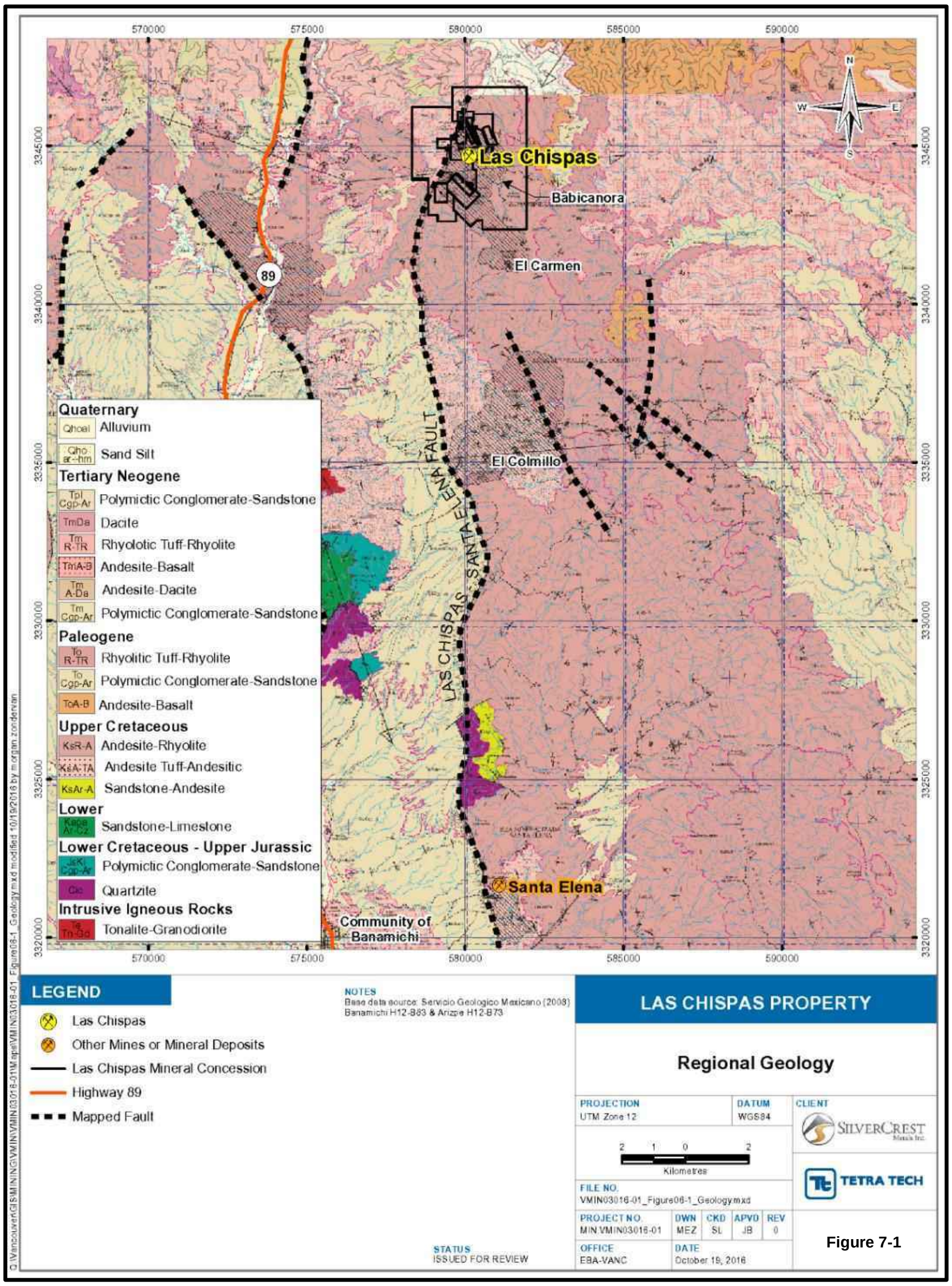
- Plutonic/volcanic rocks: Late Cretaceous –Paleocene.
- Andesite and lesser Dacite-Rhyolite: Eocene (Lower Volcanic Complex).
- Felsic dominant and silicic ignimbrites: Early Oligocene and Miocene (Upper Volcanic Complex).
- Basaltic-andesitic flows: late stage of and after ignimbrite pulses.
- Alkaline basalts and ignimbrites: Late Miocene-Pleistocene (Post-subduction volcanism).

Mineralizing fluids are likely sourced from mid-Cenozoic intrusions. The structural separation along the faults formed conduits for mineral bearing solutions. The heat source for the mineralizing fluids was likely from the plutonic rocks that commonly outcrop in Sonora.

Many significant porphyry deposits of the Sierra Madre Occidental occur in the Lower Volcanics and are correlated with the various Middle Jurassic through to Tertiary aged intrusions. These deposits include Cananea, Nacozari and La Caridad (Ferrari et. al. 2007). In Sonora, emplacement of these systems is considered to be influenced by east-west and east-northeast to west-southwest directed extension. Early Eocene tectonic activity, which resulted in northwest-trending shear and fault zones, appears to be an important control on mineralization in the Sonora region.

Figure 7-1 provides a regional view of the major geological features that exist near the Las Chispas Property.

**Figure 7-1: Regional Geology Showing Major Graben of the Rio Sonora and Continuous Normal Fault between Santa Elena and Las Chispas**



## 7.2 Local Geology

The western and southwestern portion of the Las Chispas Property is overlain by a series of young Oligocene aged reddish dark brown vesicular dacitic-andesitic to basaltic lava flows (Upper Volcanic Complex) with subordinate pyroclastic to lapilli tuff interbeds (Gonzalez-Becuar et al. 2017). The exposed thickness of these units on-site is 150 m (approximately 500 ft). Underlying this package (Lower Volcanic Complex) and exposed in the eastern portion of the land package is a thick sequence (greater than 500 m) of Early Tertiary rhyodacitic to andesitic lapilli (lithic) to variably welded ash tuffs (Colombo 2017). Both sequences are intruded by two phases of intermediate intrusive rocks. The volcanic rocks are variably altered, brecciated, mineralized, and display a range of intensities of brittle deformation. Outcrop exposure is moderate to poor on slopes, with most areas covered by a mantle of colluvium at the lower elevations and along the valley bottoms. Exceptions are intensely silicified rocks which often form resistant ridges, ledges and ribs.

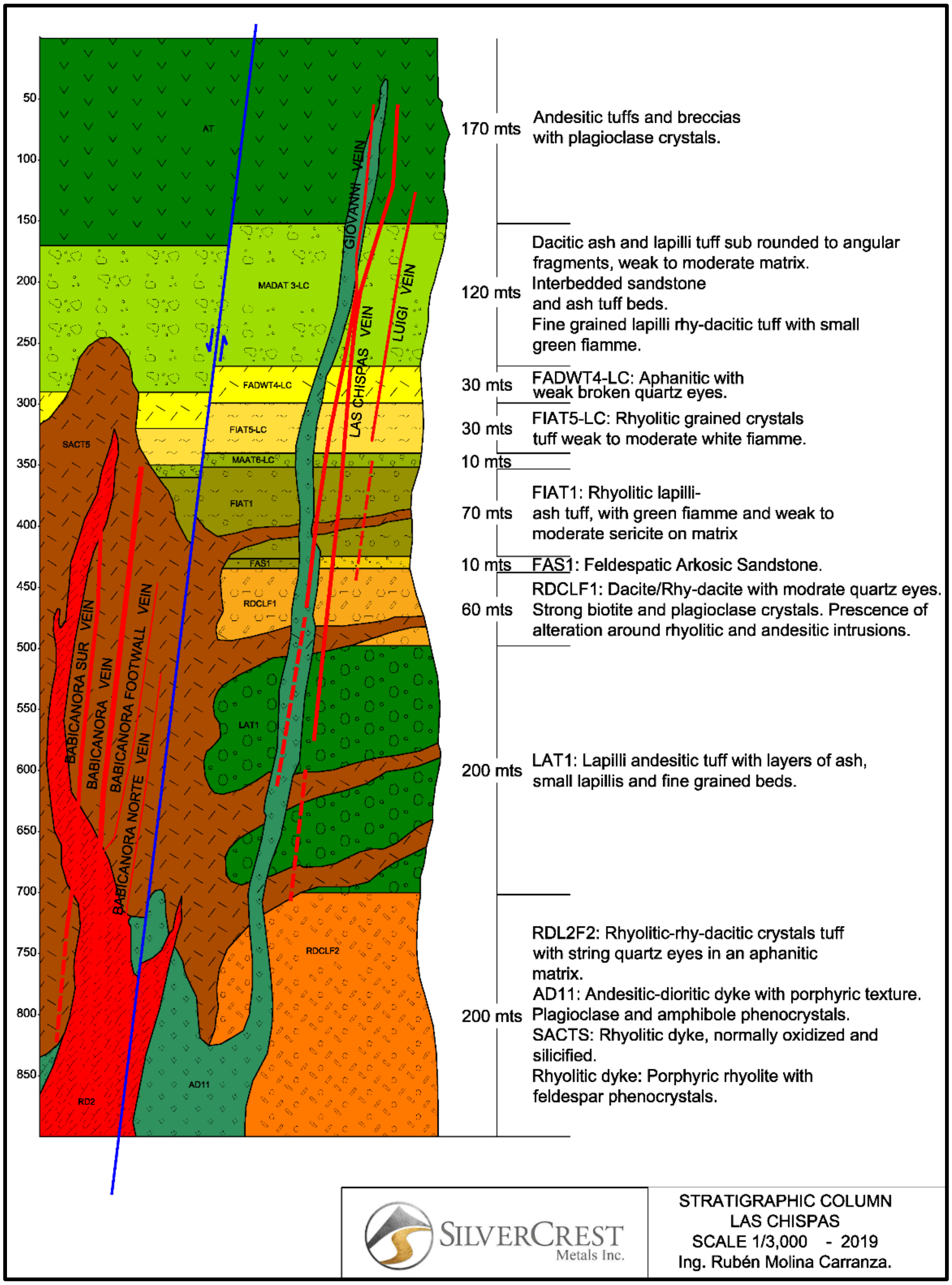
The Upper Volcanic Complex including felsic volcanics and ignimbrites are primarily composed of lava flows, with lesser lapilli tuffs and volcanic breccias. These rocks are widespread at higher elevations and cap the surrounding mountains in the western and southwestern portion of the Property. This upper volcanic unit conformably overlay the lower Early Tertiary rhyodacitic to andesitic volcanics. The lava flows consist of strongly erosion resistant, reddish brown crystal-rich dacites with intercalated, dark brown, fine grained crystal-poor dark brown to black andesitic to basalt flows. Individual flows vary in thickness from 0.5 m to tens of metres with easily identified flow tops consisting of increasing vesicles or angular broken rubbly breccia. Beds of lapilli ash also outcrop on bluffs and are observed in the typically recessive cliffs. The lapilli ash and airfall tuffs are poorly sorted, angular, and theorised to be basal surge or pyroclastic flows. These members typically have an upper ash layer, reverse grading of pumice and lapilli clasts (rare blocks) with a lower basal ash layer, with evidence of welding observed in the ash unit. Laterally, these sub-intervals show continuity throughout the Property and region (Gonzalez-Becuar et al. 2017).

The upper part of the Lower Volcanic Complex hosts the presently identified mineralization on the Property. These units are comprised of rhyodacitic to andesitic flows and volcanic rocks that vary widely in texture and genesis, from course pyroclastic, air fall breccias to finely laminated ash, and from welded tuff through reworked volcano-lithic greywackes. There are also interbedded flows of a similar composition to the volcaniclastics that infill distinct local basins based on the local paleo topography during the eruption, adding complexity in identifying these restricted sub-intervals. The source of the clastic, and flow lithologies infilling the basin is local, within 5 km. The thin section study undertaken by SilverCrest demonstrates that most quartz fragments are angular throughout all the clastic units. This indicates that there has been little transport in the high-energy environment of pyroclastic flows and air fall tuffs. Most mineralization is located within the lapilli tuff units that have a cumulative thickness of approximately 400 m.

Intrusive rocks are noted throughout the Property as coarse to fine grained dacitic, andesitic and rhyolitic interbedded volcaniclastics, flows and pyroclastics. These units are cross-cut by several late, fine-to-medium grained, and steeply dipping andesitic and rhyodacitic dykes. Often the intrusive dykes and plugs exploit the same faults used by the mineralizing fluids (Figure 7-2); however, early dykes appear to be related to mineralization influencing ground preparation (fracturing) of host rocks. Both styles of intrusives vary from mafic, andesitic-dacitic to rhyolitic and are very fine grained to aphanitic. In the coarser grained samples, the mineral assemblage is dominated by white laths of plagioclase with rare trigonal K-feldspar, quartz grains, and elongate hornblende. Typically, intrusives seen on the Property are weakly to strongly magnetic unless strongly clay altered.

To summarize, host rocks in the Las Chispas District are generally pyroclastic, tuffs, and rhyolitic flows which are interpreted as members of the Lower Volcanic Complex. Locally, volcanic pyroclastic units mapped within the underground workings include rhyolite, welded rhyodacite tuff, lapilli (lithic) tuff, and volcanic agglomerate. Figure 7-2 provides a schematic summary of the regional and local stratigraphy.

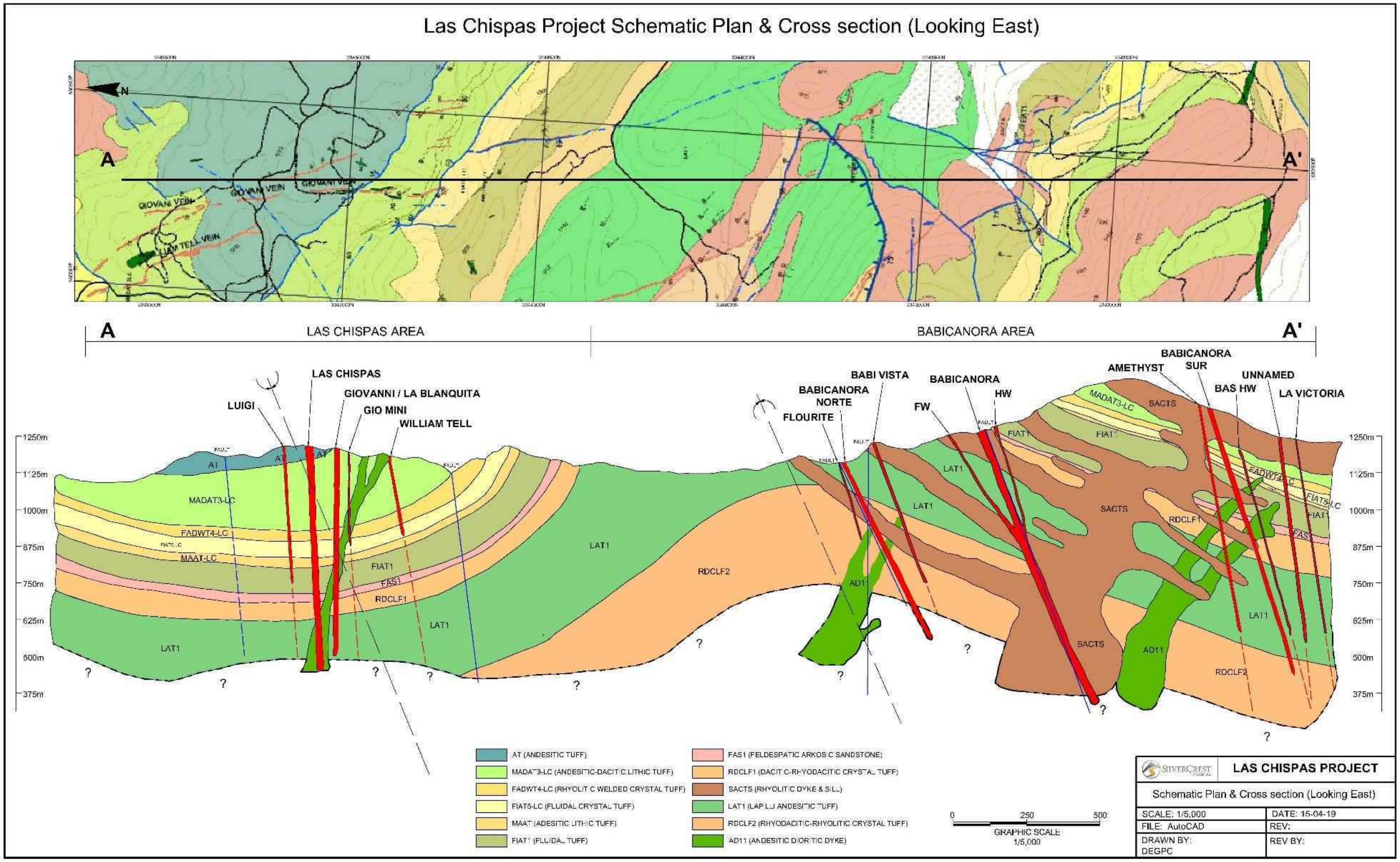
**Figure 7-2: Stratigraphic Column for Las Chispas Property**




The volcanic units form a gentle syncline and anticline complex across the Property, which is cross cut nearly perpendicular to the folds axis by the dominant vein trend (Mulchay 1935). Figure 7-3 show the district geology and a typical section looking towards the east through the Las Chispas Property.

Numerous mineral occurrences around the Las Chispas Mine were identified by previous operators on the Property with historic reports of up to 14 nearly parallel veins (Russell 1908). Many of these veins fall along, or are parallel to, the Las Chispas and William Tell veins. Veins in the Babicanora area also have similar orientation to those at the Las Chispas Mine. Each structural zone occurs along a consistent orientation and may be comprised of pinch and swell veins, stockwork, parallel sheet veins, or breccia. Varying degrees of mining has occurred within these structures; however, based on historical records for both Las Chispas and Babicanora areas, the mining appears to have been selective based on grade cut-offs of greater than 1,000 gpt silver. Mineralization grading below these cut-offs may have been considered sub-economic to previous operators and remain intact today. These remaining deposits along with high-grade vein splays and fault-displaced unmined veins are the main targets of SilverCrest exploration.

**Figure 7-3: Las Chispas District Cross-Section**




Note: Major mineralized lithologic units for this geology plan map are defined as; LAT1; Lithic andesitic tuff and the most significant host for vein-related silver-gold mineralization, RDCLF 1 and 2; Rhyodacitic flows which restrict mineralization but can be mineralized, SACTS; Silicic andesitic to rhyolitic fragmentals which occur in sill and dyke form with dykes associated with mineralization.

### 7.2.1 Geochemistry

Thin section and TerraSpec studies show that the mineralizing fluids on the Las Chispas Property are dominantly neutral with separate acidic fluid pulses overprinting alteration and mineralization. Relative metal abundance and correlation coefficients have been calculated to characterize the geochemistry of the Las Chispas deposits and showings.

Both the thin section report and TerraSpec work indicates that the alteration generated during the mineralization events are dominantly multi-pulse neutral and consistent with low-sulphidation mineralization. The typical alteration assemblage is montmorillonite-illite ± kaolinite ± MgFe chlorite ± pyrite. However, more acidic species of minerals and clays are also present, such as alunite, dickite and ammonium. In conjunction with the more acidic alteration, magmatically derived orthoclase is noted in thin sections as fine grained interlobated aggregates that occupy the interstices between the course grained quartz. This indicates that the quartz-rich mineralizing fluids and the orthoclase are syngenetic. Thus, both the orthoclase and quartz are part of the same event (Colombo 2017). To produce these near neutral clays and minerals in conjunction with the more highly acidic species, two or more distinct fluid pulses are plausible.

A review of the core database was undertaken in January 2018, comprised of 46,925 samples from all known deposits within the Las Chispas Property. The review centered on the correlation coefficient (Table 7-1) and modal abundance (Table 7-2) of the anomalous and expected elements typically associated with low- to intermediate-sulphidation deposits. The correlation complex was used to determine the relationship between elements and the modal abundances of those relationships.

Gold and silver have a strong positive correlation coefficient. Emplacement of both silver and gold seems to be strongly related, although there is thin section evidence of a quartz+gold only event at Babicanora. The core low- to intermediate-sulphidation elements (gold, silver, copper, lead, zinc, and antimony) all have a strong affinity for one another. Mercury does not have a conclusive positive or a negative correlation and has negligible values. Lead and zinc have a very high correlation coefficient 0.870. However, base metals and accessory minerals have low abundance within all the targets. There is a slight increase in base metal content in the targets located deeper in the eastern portion of the Property. This may indicate an evolution of the fluids as they ascend or separate base metal rich pulses, the mode of which emplacement is unclear. Sulphur has a moderate correlation with zinc and lead, likely due to sulphur in their respective sulphides. The gold and silver mineralization in the uppermost portion of the targets has been oxidized and the sulphides have been weathered to sulphate and mobilized, resulting in a lower total sulphur signature.

**Table 7-1: Correlation Coefficient Table, Anomalous Values Highlighted, >0.25 and <-0.25 (January 2018)**

| | Au | Ag | Cu | Pb | Zn | As | Ba | Cd | Co | Fe | Hg | Mn | Mo | S | Sb |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Au | 1.00 | 0.87 | 0.33 | 0.20 | 0.17 | 0.04 | 0.00 | 0.23 | -0.01 | 0.00 | 0.11 | 0.00 | 0.01 | 0.01 | 0.52 |
| Ag | 0.87 | 1.00 | 0.31 | 0.18 | 0.16 | 0.03 | 0.00 | 0.20 | -0.01 | 0.00 | 0.09 | 0.00 | 0.02 | 0.01 | 0.41 |
| Cu | 0.33 | 0.31 | 1.00 | 0.14 | 0.14 | 0.06 | 0.01 | 0.19 | 0.09 | 0.05 | 0.08 | 0.01 | 0.14 | 0.04 | 0.33 |
| Pb | 0.20 | 0.18 | 0.14 | 1.00 | 0.39 | 0.21 | 0.00 | 0.43 | 0.00 | -0.03 | 0.08 | 0.01 | 0.09 | 0.07 | 0.17 |
| Zn | 0.17 | 0.16 | 0.14 | 0.39 | 1.00 | 0.20 | 0.00 | 0.93 | 0.10 | 0.07 | 0.12 | 0.06 | 0.03 | 0.17 | 0.16 |
| As | 0.04 | 0.03 | 0.06 | 0.21 | 0.20 | 1.00 | 0.00 | 0.20 | 0.07 | 0.07 | 0.11 | 0.08 | 0.06 | 0.18 | 0.12 |
| Ba | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | -0.01 | -0.01 | 0.04 | 0.39 | 0.02 | -0.07 | 0.21 |
| Cd[1] | 0.23 | 0.20 | 0.19 | 0.43 | 0.93 | 0.20 | 0.00 | 1.00 | 0.03 | -0.04 | 0.13 | 0.04 | 0.05 | 0.12 | 0.21 |
| Co | -0.01 | -0.01 | 0.09 | 0.00 | 0.10 | 0.07 | -0.01 | 0.03 | 1.00 | 0.74 | 0.03 | 0.21 | 0.02 | 0.10 | 0.05 |
| Fe | 0.00 | 0.00 | 0.05 | -0.03 | 0.07 | 0.07 | -0.01 | -0.04 | 0.74 | 1.00 | -0.03 | 0.15 | -0.02 | -0.25 | 0.04 |
| Hg[1] | 0.11 | 0.09 | 0.08 | 0.08 | 0.12 | 0.11 | 0.04 | 0.13 | 0.03 | -0.03 | 1.00 | 0.02 | 0.03 | 0.05 | 0.14 |
| Mn | 0.00 | 0.00 | 0.01 | 0.01 | 0.06 | 0.08 | 0.39 | 0.04 | 0.21 | 0.15 | 0.02 | 1.00 | -0.02 | -0.03 | 0.31 |
| Mo[1] | 0.01 | 0.02 | 0.14 | 0.09 | 0.03 | 0.06 | 0.02 | 0.05 | 0.02 | -0.02 | 0.03 | -0.02 | 1.00 | 0.02 | 0.17 |
| S | 0.01 | 0.01 | 0.04 | 0.07 | 0.17 | 0.18 | -0.07 | 0.12 | 0.10 | -0.25 | 0.05 | -0.03 | 0.02 | 1.00 | 0.00 |
| Sb[1] | 0.52 | 0.41 | 0.33 | 0.17 | 0.16 | 0.12 | 0.21 | 0.21 | 0.05 | 0.04 | 0.14 | 0.31 | 0.17 | 0.00 | 1.00 |

Note: [1]Low statistical population

**Table 7-2: Basic Statistics for Trace Elements (January 2018)**

| Parameter | Count | Minimum | Maximum | Mean | Total | Variance | Standard Deviation | Coefficient of Variation | Skewness | Kurtosis |
|---|---|---|---|---|---|---|---|---|---|---|
| Weight (kg) | 45,944 | 0.22 | 12.94 | 3.899 | 179,149 | 3.77 | 1.942 | 0.5 | 0.81 | -0.23 |
| Length (m) | 46,925 | 0.1 | 7.5 | 1.113 | 52,249 | 0.28 | 0.527 | 0.47 | 0.83 | 0.94 |
| Au (ppm) | 45,934 | 0.001 | 305 | 0.122 | 5,611 | 5.7 | 2.387 | 19.54 | 77.06 | 7,654 |
| Ag (ppm) | 45,934 | 0.2 | 21,858 | 11.068 | 508,393 | 34,356 | 185.353 | 16.75 | 68.64 | 6,237 |
| Cu (ppm) | 29,184 | 1 | 10,250 | 10 | 290,069 | 5,810 | 76 | 7.67 | 91.07 | 11,398 |
| Pb (ppm) | 29,184 | 2 | 8,150 | 37 | 1,089,937 | 36,473 | 191 | 5.11 | 19.58 | 526.5 |
| Zn (ppm) | 29,060 | 2 | 17,700 | 58 | 1,699,437 | 45,639 | 214 | 3.65 | 38.92 | 2477 |
| Ba (ppm) | 29,091 | 1 | 10,000 | 151 | 4,386,336 | 78,966 | 281 | 1.86 | 9.57 | 207.5 |
| Ca (pct) | 28,933 | 0.01 | 25 | 1.086 | 31,420 | 1.87 | 1.366 | 1.26 | 5.69 | 64.74 |
| Cd (ppm) | 3,740 | 0.5 | 130 | 2.023 | 7,568 | 25.96 | 5.095 | 2.52 | 13.74 | 248 |
| Co (ppm) | 24,678 | 1 | 176 | 4 | 101,027 | 31.29 | 6 | 1.37 | 3.45 | 41.09 |
| Hg (ppm) | 4,311 | 0 | 41 | 1 | 4,692 | 1.03 | 1 | 0.93 | 22.57 | 705.3 |
| Mn (ppm) | 29,064 | 1 | 50,000 | 564 | 16,399,438 | 991,598 | 996 | 1.76 | 26.17 | 1,063 |
| Mo (ppm) | 11,304 | 0 | 1,670 | 4 | 43,432 | 623.7 | 25 | 6.5 | 44.69 | 2,531 |
| S (pct) | 24,815 | 0.01 | 34 | 0.388 | 9,636 | 0.9 | 0.947 | 2.44 | 16.65 | 381.9 |
| Sb (ppm) | 13,910 | 1 | 1,045 | 5 | 75,476 | 316.2 | 18 | 3.28 | 36 | 1,717 |

### 7.2.2 Alteration

All rock types on Las Chispas show signs of extensive hydrothermal alteration. Thin section and TerraSpec spectral analysis were completed on drill core samples from DDH BA17-9A, which cuts all the major lithologies on the Babicanora target and the alteration is generally consistent with the all the showings on the Property. The TerraSpec work was completed using the Mineral Deposits Research Unit (MDRU) TerraSpec 4 at the University of British Columbia. Both studies identified alteration consistent with argillic and advanced argillic alteration. The alteration minerals identified throughout the Las Chispas Property include smectite, illite, kaolinite, chlorite, carbonate, iron oxy/hydroxides, probable ammonium, gypsum/anhydrite, silica, and patch trace alunite.

The dominant alteration mineralogy throughout the drill hole is montmorillonite-illite ± kaolinite ± MgFe chlorite. This is consistent with argillic and possibly advanced argillic alteration. Most the alteration shows a progression of alteration minerals consistent with lower hydrothermal fluid temperatures. These low temperature clays and minerals indicate a near neutral pH with decreasing depth and distance from the conduit of flow.

White clay composition is predominantly low aluminum (phengitic) but there are several interbedded narrow intervals of typical alumina bearing muscovitic illite zones at the top and base of sampling. This variation may be due to lithological variations of the parent rock. Sericitic alteration occurs as widespread fine-grained aggregates that form anhedral grains. These grains replace the fine-grained matrix and feldspar phenocrysts. White clay crystallinity ranges from poor to moderate, indicating lower temperatures of emplacement.

Chlorite is relatively common, and two phases have been identified, Mg>Fe, with minor intervals of Fe>Mg chlorite. These differences may be related to parent lithologies or relative iron-magnesium. Localized, coarse clots of chlorite can replace small clasts, although fine grained pervasive chlorite is more common.

Pyrite is consistently observed throughout the target, overprinting the host rock and associated with the silicification adjacent to, and within, the mineralized zones. Forms include cubic disseminations, aggregates and veins. Pyrite is often weathered to iron oxides to depths of greater than 200 m from surface within the mineralized zones.

Silicification ranges from white to pale massive chalcedonic and saccharoidal to coarse crystalline comb quartz. Despite the visual identification of silicification in the core, little silica was noted in spectra. Silica is not infrared active but is suggested by the presence of strong groundwater features in the spectra. The groundwater features were largely absent, but their absence may be due to destructive reheating of the silica due to multiple pulses of fluids and/or syngenetic reactivation of fault structures causing damage to the previously emplaced quartz veins. Reactivation of faulting is noted within the mineralization and the generation of cataclastic breccias which are, in turn, recemented with later pulses of coarse to microcrystalline silica.

Calcite with trace anhydrite ± gypsum is abundant throughout the Property. It is emplaced during and after the mineralizing events. In thin section, coarse-grained equigranular aggregates of quartz hosts rare interstitial crystals of calcite (up to 3 mm) in the mineralized zone. Late fine- to coarse-grained calcite veins and veinlets cross-cut the mineralization. The northwest part of the Babicanora Vein shows late stage, coarse-grained white and black banded (+manganese) calcite infills open spaces and cross-cuts mineralization (Photo 7-1).

**Photo 7-1: Coarse-grained White and Black Banded (+Manganese) Calcite Vein**

Near neutral pH and reduced fluids form low-sulphidation state sulphide minerals and alteration mineralogy (Barton and Skinner 1979). However, within the Babicanora samples there is sporadic localized potassic alunite, dickite and ammonium identified at approximately 90 m in depth indicating a more acidic environment. This change in pH may be due to the incorporation of higher volumes of magmatic fluids or changes in the volumes of the meteoric fluids content. Thin section work notes a change in the chemical environment within this zone, "Euhedral to subhedral phenocrysts of orthoclase are immersed within a heterogeneous groundmass. The heterogeneity of the groundmass suggests that a strong alteration event altered the groundmass. K-feldspar-K-bearing clays comprise the groundmass. The clays are weak to moderate after the plagioclase, strong after biotite with weak quartz within the groundmass" (Colombo 2017).

Generally, the host rocks are above the existing water table. Oxidation of sulphides is noted from near surface to depths greater than 300 m and the presence of secondary minerals are noted from the Las Chispas underground workings approximately 60 to 275 m depth from surface. Hematite mineralization occurs as halos around small veins due to percolated meteoric water along small faults and fractures from oxidized iron sulphides. Strong and pervasive near surface oxidation is noted to occur in the Babicanora Area where host rocks have experienced faulting and advanced weathering to limonite, hematite, and clays.

### 7.2.3 Mineralization

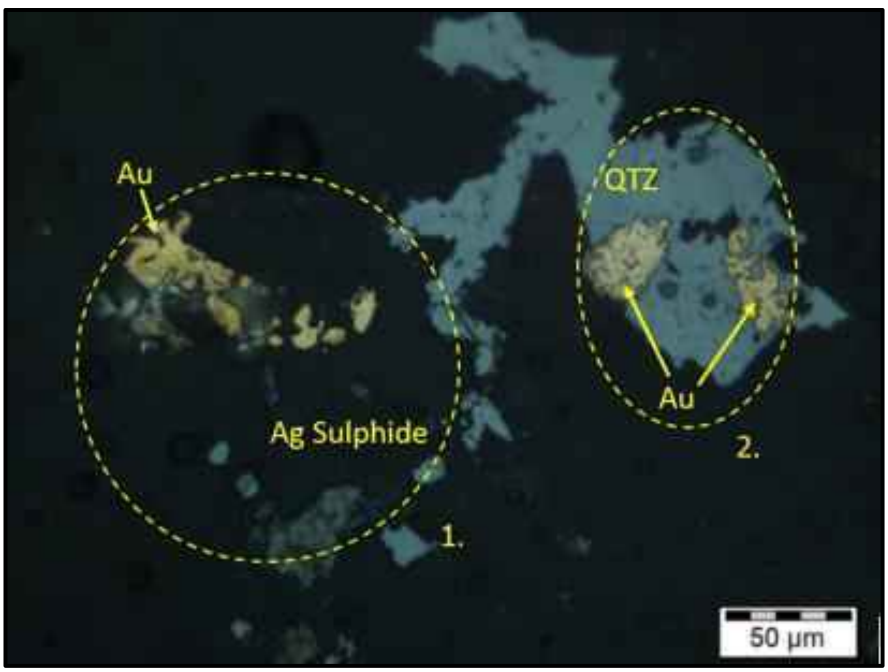
Mineralization at the Las Chispas Property is characterized as a deeply emplaced, low- to intermediate-sulphidation system, with mineralization hosted in hydrothermal veins, stockwork, and breccia. Emplacement of the mineralization is influenced by fractures and low-pressure conduits formed within the rocks during tectonic movements. Mineralization can be controlled lithologically along regional structures, local tension cracks, and faulted bedding planes. Brecciated mineralization forms in two ways: in zones of low pressure as hydrothermal brecciation and mechanical breccias. Both are interpreted to occur most often at the intersection of two or more regional structural trends. Historic reports and work conducted by SilverCrest have further investigated the gold, silver, base metals, and gangue minerals associated with the mineralization.

The width of mineralization is 0.10 to 9.3 m in true width that typically encompasses a central quartz ±calcite mineralized corridor with narrow veinlets within the adjacent fault damage zone. Stockwork and breccia zones are centered on structurally controlled hydrothermal conduits.

Historical reporting has identified economic mineralization in the form of silver sulphides and sulfosalts as the primary silver mineral species, and in association with pyrite. Secondary silver enrichment is indicated by the gradation from chlorargyrite near the surface to pyrargyrite at depth. Dufourcq (1910) noted the variability of the mineralization within the Las Chispas Vein and attributed the variation to changing elevations of water tables, late-stage hydrothermal pulses, and supergene remobilization. Current thin section work and observations during SilverCrest's ongoing field work support Dufourcq's historic observations.

Silver mineralization is dominant throughout the Las Chispas Property. Typical ratios of silver to gold are: Babicanora Vein at 64:1, Babicanora Zone (Area 51) at 63:1, Las Chispas Vein at 142:1, Giovanni Vein at 172:1, and William Tell Vein at 140:1. Overall, a 100:1 silver to gold ratio is considered for the Las Chispas Property. Stronger gold mineralization is noted within the Babicanora Area than within the Las Chispas Area. The modes of gold mineralization currently identified are: gold associated with pyrite and chalcopyrite, gold emplacement with silver sulphides (typically argentite), and native gold flakes in quartz (Photo 7-2).

**Photo 7-2: Thin Section of Gold and Silver Emplacement at Las Chispas**



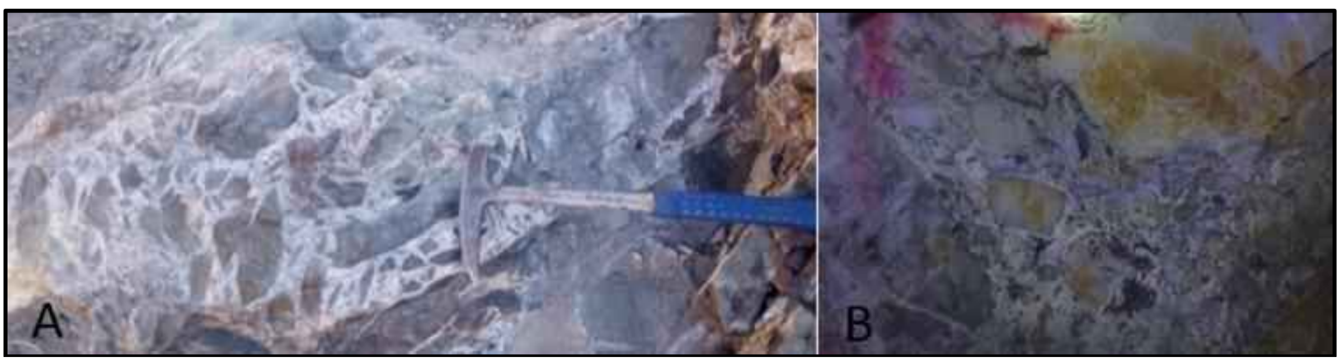

Other sulphide species identified at the Las Chispas Property include minor chalcopyrite, sphalerite, and galena. The Las Chispas Veins are conspicuously low in base metal mineralization, except for the Granaditas Vein located in the southeastern part of the district. Historic documents show that base metal abundances are significantly higher in the El Carmen Area, a historic mine to the south of the Property. In addition to the petrographic findings in Babicanora samples of an early sphalerite phase followed by a later galena phase of mineralization (see Section 6.2.3.1), visual inspection of the base metal mineralization also shows galena and sphalerite emplaced at the same time within the same discrete vein. This observation indicates that there are multiple pulses of base metal-rich fluids of variable composition that comprise the mineralization at the Las Chispas Property. Furthermore, there seems to be an increasing base metal content to the southeast and to depth. Government geophysical maps note a large magnetic anomaly to the east of the Property, which could be a buried intrusive and potentially the main source of the district's mineralization.

The veins and stockwork within the Las Chispas Vein consist of fine- to medium-grained, subhedral to euhedral interlocking quartz with minor cavities lined by comb quartz (typically crystals are 5 to 10 mm in length). SilverCrest geologists have not noted any quartz-pseudomorphed blades after platy carbonate or other textures that would indicate a shallow environment. Vein emplacement and form are structurally and lithologic controlled. The rheology of the host rock plays an important role in structural preparation and emplacement of the mineralization. Within the fine-grained welded tuff, veining is narrow and chaotic. Veins and breccia emplacement in the more competent, medium-grained lapilli tuffs are wider and focused along the main structure with denser veining in the adjacent fault damage zone.

The two types of breccias associated with mineralization at Las Chispas, hydrothermal breccia and recemented mechanical breccia, are hosted differently. In the hydrothermal breccia, mineralization is hosted in a siliceous matrix of hydrothermal quartz ±calcite, and previously formed vein clasts that have been brecciated and recemented (Photo 7-3 A and B). Clasts are typically homolithic, angular, and show minimal signs of milling and rounding by hydrothermal processes. Although heterolithic breccias are present, they tend to be at the intersection points of the cross-cutting faults (striking 360°) to the main trend and at depth. The gold values increase with increasing visible pyrite and chalcopyrite within the quartz matrix.

Recemented mechanical breccia generated by the reactivation of the fault hosting the mineralization are also present. These breccias are comprised of fault gouge and have a cataclasite texture and are recemented with quartz and calcite. This mechanism also produces open space filling ores including narrow stockwork quartz ± calcite ± adularia veins. Other textures include banding, crustiform, comb, and chalcedonic silica-calcite veins. Often the matrix has fine disseminated to course banded sulphides associated with the cement.

**Photo 7-3: Breccias at Las Chispas**




Notes: (A) Hydrothermal angular homolithic breccia, siliceous matrix with calcite and fine-grained sulphides weathering red.
(B) Heterolithic breccia with minor rounding of clasts and open space filling. Fine grained black sulphides and manganese hosted in the crystalline quartz matrix.

Argentite is the principle silver mineral in association with galena, pyrite ± marcasite and chalcopyrite. Silver and gold values have a strong correlation with one another and are likely precipitated together during the crystallization of quartz. Base metals are low in veins. Minor zinc and lead are principally found in black sphalerite and galena as blebs and veinlets. Arsenic and mercury are noticeably absent from the geochemistry. Minor antimony is present. Minor secondary copper minerals as chrysocolla and malachite are noted in the underground in association with oxidized chalcopyrite.

Styles of mineralization present on the Property include laminated veins (Photo 7-4), stockwork and quartz-calcite filled hydro-brecciated structures (Photo 7-5). The presence of epithermal textures, such as bladed calcite (replaced by quartz), miarolitic cavities, and chalcedony/crustiform banding mapped underground, suggest multiple phases of fluid pulses have contributed to the mineral deposits.

Generally, it appears that epithermal mineralization is higher in the system (closer to the paleo-surface) on the west side (i.e. La Victoria Vein and historic mine) of the district versus the east side (Granaditas Vein and historic mine) where there is a noted increase in base metals. Government geophysical maps note a large magnetic anomaly to the east of the Property which could be a buried intrusive and potentially the main influence of district mineralization.

**Photo 7-4: Laminated (Banded) Vein Style Mineralization Along Las Chispas Vein, Tip of Rock Hammer Shown on Upper Left (Near SilverCrest Sample 227908, 1.04 gpt Au and 197 gpt Ag over 1.33 m)**

**Photo 7-5: Breccia Style Mineralization Along Las Chispas Vein (Base of Las Chispas Gallery Near SilverCrest Sample 617179, 2.34 gpt Au and 343.5 gpt Ag, or 519 AgEq over 1.46 m)**

#### 7.2.3.1 Petrographic Analysis

Thin section work on the Babicanora Vein indicates that there are discrete base metal pulses within the fluids, and consequently within the quartz veining. Thin sections show that clusters of anhedral sphalerite are associated with subordinate fine grained blebs of galena and lesser chalcopyrite. The microstructure shown by sphalerite and galena indicates that galena post-dated the crystallization of the sphalerite, which was fractured then partially replaced by the galena. This indicates that there was an early phase of sphalerite with a later galena pulse of mineralization (Colombo 2017).

Gangue minerals, from visual inspection of core and underground workings include calcite, pyrite, goethite, adularia, chlorite, sericite, epidote (dykes only), barite, manganese oxides (e.g., pyrolusite), and rhodonite. Adularia and manganese oxides are noted to occur within quartz veining and cavities. Amethyst and fluorite are present at Babicanora, William Tell and the Las Chispas veins. Abundant limonite ± jarosite is commonly in association with goethite and pyritic alteration in proximity to, and within the mineralized faults and dykes, of all the targets to depths of +175 m below surface.

#### 7.2.3.2 Fluid Inclusion Study

The fluid inclusion study for the Las Chispas Property found depths of emplacement of mineralization ranging from approximately 100 m to greater than 2 km. The shallow depth of emplacement readings is outside the main mineralized zones. Depth of emplacement in the main mineralized zone is well below 1,000 m with a maximum depth of greater than 2 km (Pérez 2017). These deeper depths of emplacement are complicated by possible caldera collapse with a change in the paleo-surface.

Overprinting of low- and high-sulphidation mineralization and alteration with conflicting depths of formation are noted in the fluid inclusion, TerraSpec, and thin section studies that point towards caldera collapse as a mechanism of emplacement.

### 7.2.4 Structural Geology

Mapping and interpretation of the structural controls on mineralization and post-mineral displacement is ongoing by SilverCrest (Figure 7-4, Figure 7-5, and Figure 7-6). Regionally, the Las Chispas Property is situated in an extension basin related to a Late Oligocene half graben of the Sonora River basin. Multiple stages of normal faulting affect the basin. The main structures are steep, west dipping (80°) and sub-parallel to the Granaditas normal fault located along the western margin of the Property, striking approximately 030°. The basin is further cross-cut by younger northwest-southeast normal faults dipping to the southwest, creating both regional and local graben structures (Carlos et al. 2010).

Three local grabens have been identified on the Property, referred to as the Las Chispas, Babicanora and El Carmen grabens. All three grabens are bounded by:

- Steeply dipping (80 to 90°) oblique strike-slip sinistral faults trending northeast and south-southwest.
- Oblique strike-slip dextral faults trending southeast dipping (60 to 80°) to the northeast.

Locally, graben structures are complicated by probable caldera collapse. Circular structures noted in the lineament analysis in conjunction with locally derived immature volcanic fill containing sharp primary quartz clasts indicate local volcanism (Colombo 2018). Within a collapsed caldera, telescoping, juxtaposing or overprinting deep mineralization, is common. Paleo-surfaces may be easily lowered by 1.0 km, leading to vertical compression of contained ore deposits (Sillitoe 1994).

Current understanding suggests that mineralized structures are oriented along a northwest-southeast trend. Three structural controls, excluding bedding contacts, are considered to influence alteration and mineralization:

- 150° to 170° and are inclined at approximately 65° to 75° to the southwest.
- 340° to 360° and are inclined 75° west to 75° east.
- 210° to 230° and are inclined 70° to 85° to the northwest.

Russell (1908) states that a total of 14 veins were mapped by Pedrazzini concordant to this trend near the Las Chispas Mine. SilverCrest has defined 30 epithermal veins on the Property (Las Chispas and Babicanora areas) to date.

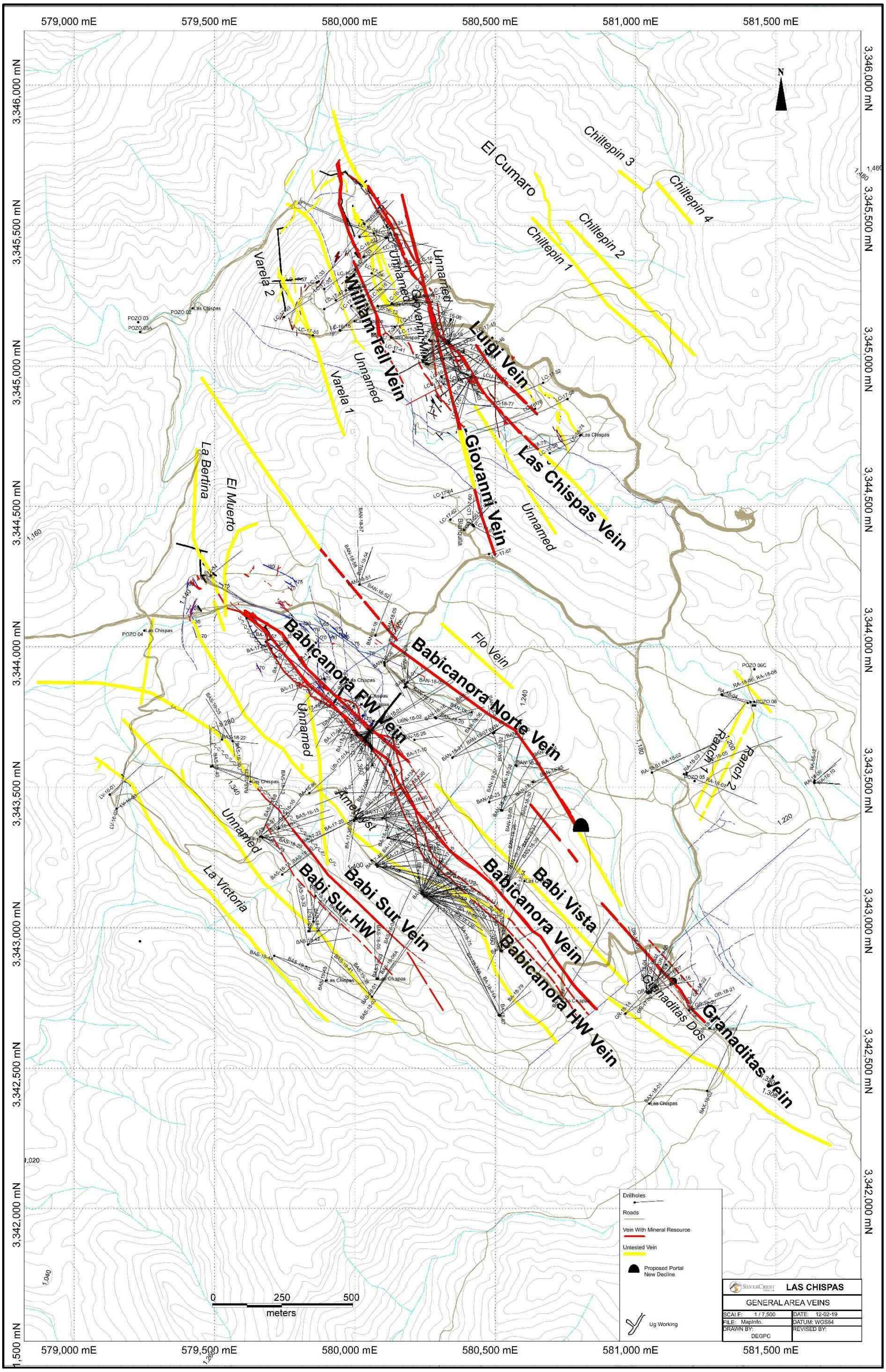
Vein and stockwork mineralization are influenced by fractures and low-pressure conduits formed within the rocks during tectonic movements. These can be controlled along regional structures, local tension cracks, and along broken or sheared bedding planes. Brecciated mineralization forms in zones of low pressure and is interpreted to occur at the intersection of two or more regional structural trends.

Regionally, the mineralized structures are terminated against the northeast trending regional fault (Las Chispas-Santa Elena Fault) which is a normal fault that has down dropped to the west. Absolute direction and magnitude of movement along the fault in this area is not known. At the nearby Santa Elena mine, this post mineralization normal fault is down dropped on the west side by approximately 400 m (drill tested). This normal fault is also considered a major controlling feature for important regional aquifers.

### 7.2.5 Deposits and Mineral Occurrences

The Las Chispas District with subsequent mineral deposit is split into the Las Chispas Area and the Babicanora Area and currently consists of 30 epithermal veins (Figure 7-4). Of the 30 veins, SilverCrest has partially drilled 21 and has intercepted high-grade (greater than 150 gpt AgEq) mineralization in all. The updated resource presented in this PEA is based on 10 of the 30 veins.

**Figure 7-4: Plan Overview of the Las Chispas and Babicanora Areas**



#### 7.2.5.1 Babicanora, Babicanora FW and Babicanora HW Veins

The Babicanora Vein is located in the southern portion of the Las Chispas Property. Historically, the Babicanora Vein and surrounding area was considered the largest mineralized system in the Las Chispas District. Mineralization is hosted in structurally controlled veins with associated stockwork and breccias. A majority of high-grade mineralization is located within medium to coarse-grained lithic tuff (LAT1). The strike length of the surface exposures of mineralization and old workings is approximately 3.2 km. The historic workings are in the hanging wall of the vein and are reported to be as much as 450 ft deep (Dahlgren 1883).

Underground workings along the Babicanora Vein are located to the northwest portion of the vein and is currently accessed by several adits including a 4 m by 4 m adit (Photo 7-6) which continues as a 230 m horizonal decline. Mineralization is characterized as quartz veins, stockwork, and breccias. The mineralized structural zone is oriented along strike between 140° to 150° with inclination of approximately 60 to 70° to the southwest. Several 200 to 220° striking faults and dense fractures intersect the Babicanora Vein. These intersections appear to influence mineralization by developing high-grade shoots that typically plunge to the northwest. From observations underground at the nearby Las Chispas Vein, these cross-cutting faults or dense fractures can be mineralized along an approximate 220° strike for up to 20 metres.

The Babicanora Mine had hanging wall stoping from the main adit level (1,152 masl) to the surface, approximately 150 m. Depth of historic underground workings is approximately 25 m below the main adit level. SilverCrest removed and stockpiled approximately 800 tonnes of material for underground drill access in 2017 (Photo 7-7). The Babicanora Vein is in the footwall of the historic stoping along a fault with no known mining in the footwall where SilverCrest has discovered high-grade mineralization. Geological mapping in the Babicanora Area is shown in Figure 7-5 and a typical cross-section is shown in Figure 7-6.

**Photo 7-6: Main Portal at Babicanora, 4 m by 4 m, Built in the 1860s**

**Photo 7-7: Babicanora Stockpile Removed from Babicanora Adit, Estimated Grade of 400 gpt AgEq**

**Figure 7-5: Plan View of Geological Mapping at the Babicanora Area**

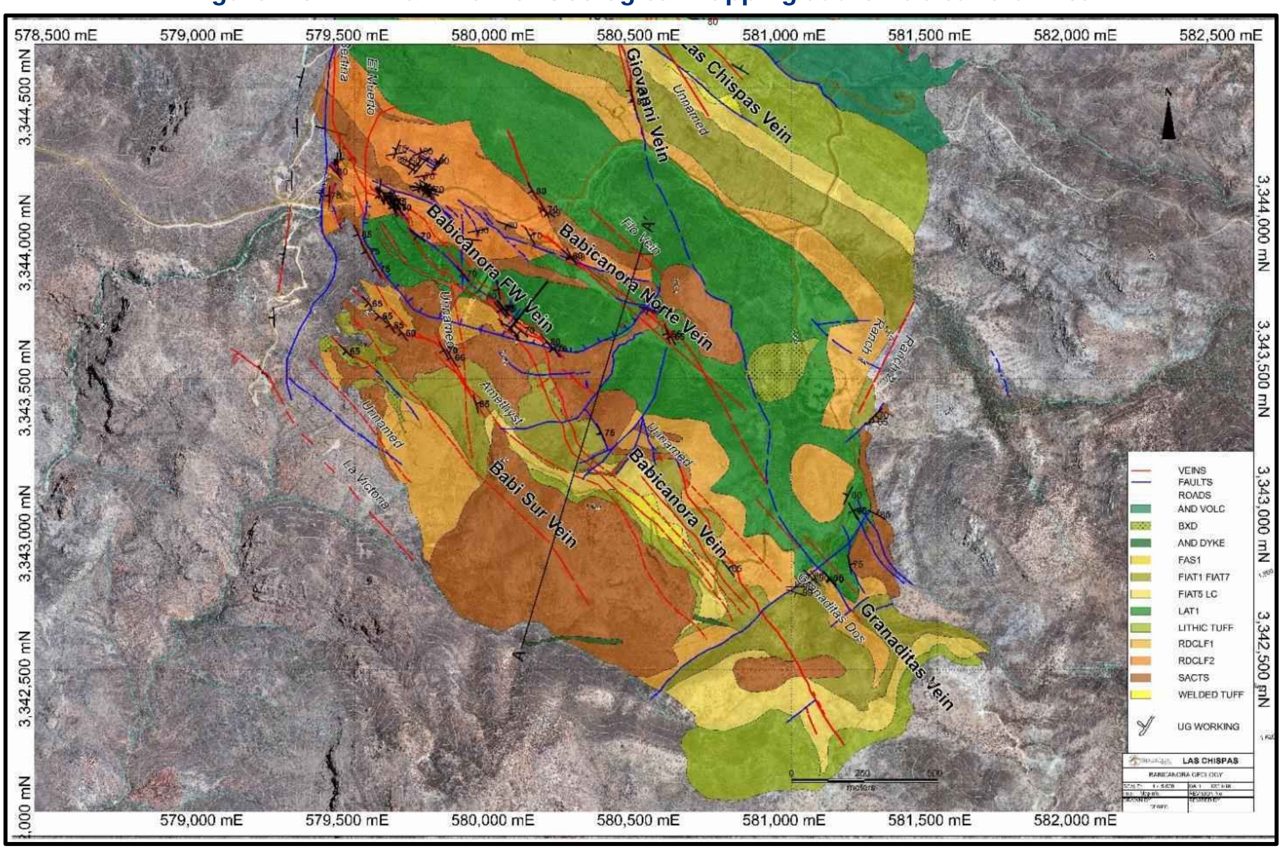
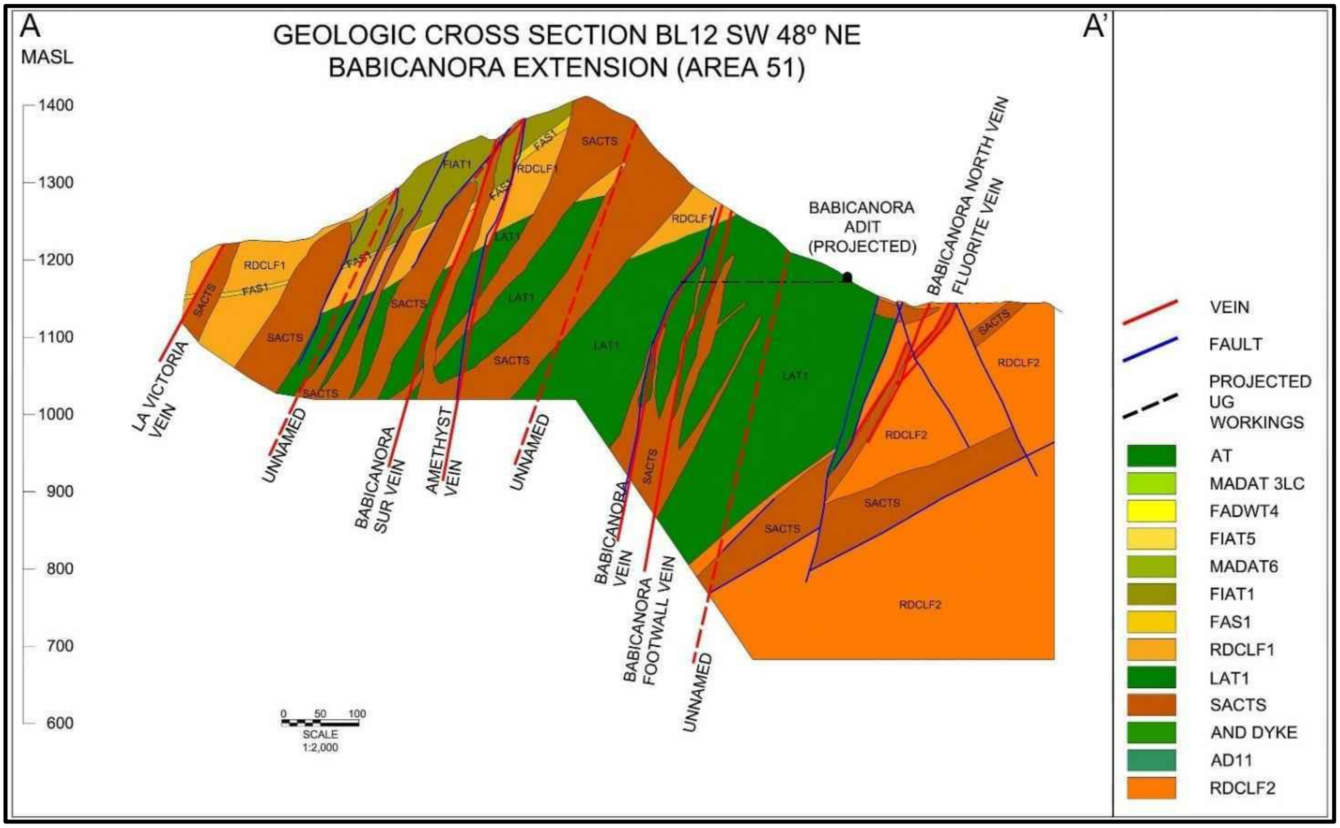


**Figure 7-6: Vertical Cross Section through Babicanora, Line 1+300N, Looking to the Northwest**




Major mineralized lithologic units are defined as; LAT1; Lithic andesitic tuff and the most significant host for vein-related silver-gold mineralization, RDCLF 1 and 2; Rhyodacitic Flows which restrict mineralization with narrow high-grade mineralized veining, SACTS; Silicic andesitic tuff or ignimbrite which can be in sill and dyke form. Dykes are associated with mineralization.

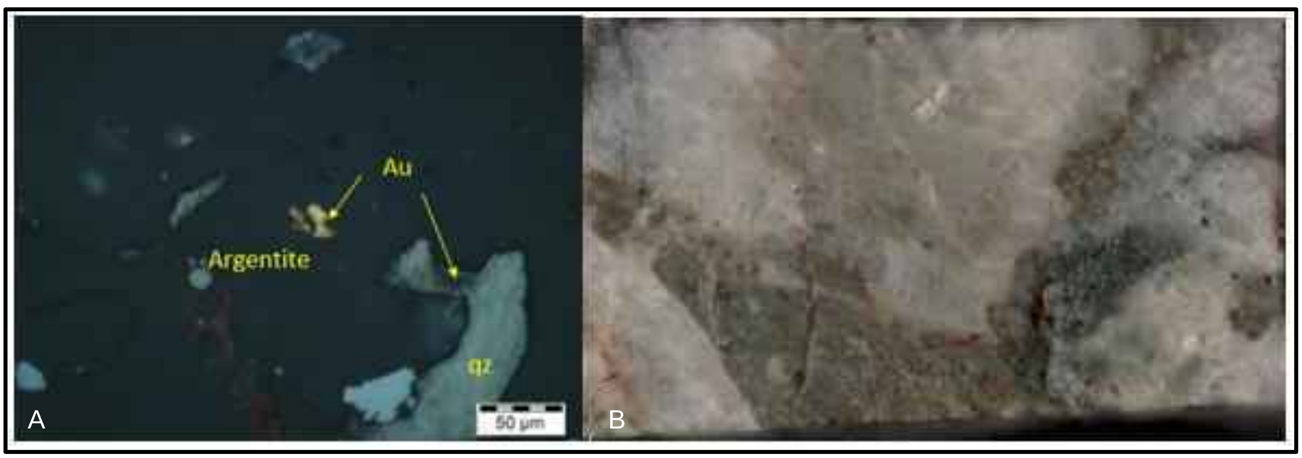
General lithologies are andesitic to dacitic with rhyolitic interbeds. These units are cross-cut by andesitic dykes to the southeast strike of the Babicanora Vein and rhyodacitic dykes to the northwest. Strong to intense silicification caps the ridges in the area with a 300 m by 400 m horizontal zone interpreted as possibly sinter (Photo 7-8, A) covering the slopes in the southwestern portion of the Property.

Mineralization of the Babicanora Vein is characterized as a low to intermediate sulphidation system. SilverCrest has identified numerous sulphidation features including; possibly sinter capping on the ridges which indicate the silica saturated fluids have reached the surface and cooled, generating hard siliceous terraces. Quartz after calcite, bladed textures (Photo 7-8, B), were found at high elevations on the western side of the Property. This texture and composition are comprised of intersecting blades where each blade consists of a series of parallel seams. This texture indicates boiling. It is typically caused when an ascending fluid undergoes rapid expansion, and the vapour pressure exceeds hydrostatic pressure causing boiling and a dramatic decrease in metal solubility. Massive chalcedonic textured silica (Photo 7-8, C) were also identified on the western portion of the Property, indicating low temperatures before and after deposition (Morrison et al. 1990). These high-level features and textures point to the preservation of the mineralized system below and at depth.

**Photo 7-8: A. Sinter lamina, B. Quartz Replacement of Bladed Calcite with Minor Amethyst, C. Massive Chalcedonic Quartz**


The mineralization at Babicanora has a strong magmatic component. The potassic alteration observed in thin section is crystalline, orthoclase and is magmatically derived. Adularia is also present but in limited zones. Argentite is the principle silver mineral, native silver is present, gold occurs as native flakes and as in association with pyrite and chalcopyrite (Photo 7-9). Silver and gold values have a strong correlation with one another and are likely precipitated together during the crystallization of quartz, thus belonging to the infill paragenesis (Heiberline 2018).

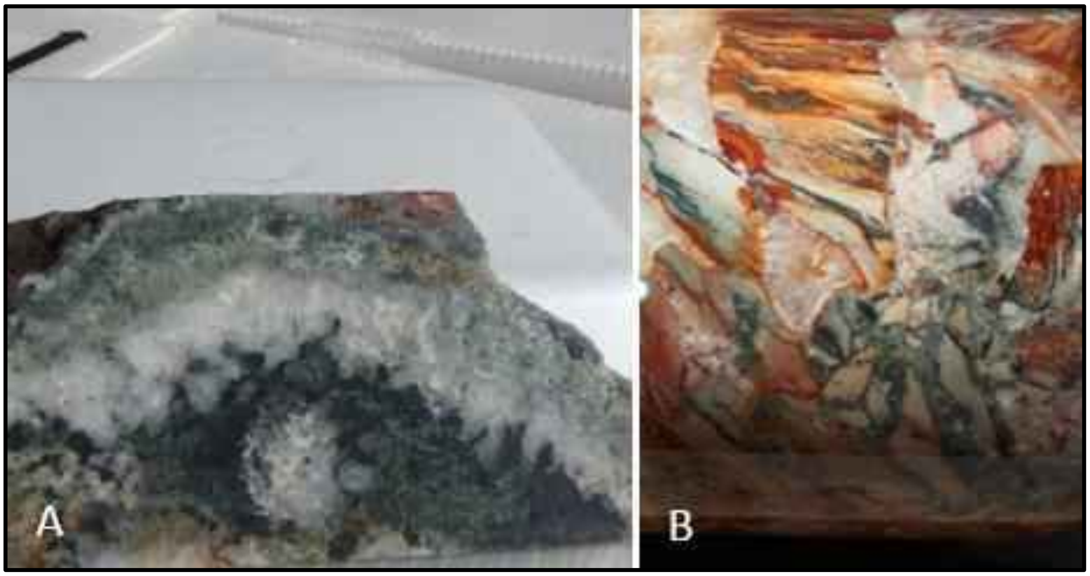
**Photo 7-9: Babicanora Thin Section with Gold and Argentite**




Notes: (A) Thin section. A very fine particle of gold is dispersed within the quartz, and it is spatially associated with the argentite. Plane-polarized reflected light.
(B) Core, taupe, brecciated fine grained quartz brecciated and recemented with course white quarts, fine grained disseminated pyrite throughout.

Base metals are low in Babicanora. Zinc and lead are principally found in black sphalerite and galena. Early stages of galena are noted in the thin section study. With clusters of anhedral sphalerite (up to 1 mm long) are associated with subordinate fine-grained blebs of galena and lesser chalcopyrite (up to 0.2 mm). Microstructures shown in the sphalerite and in the galena indicate that the galena post-dates the crystallization of the sphalerite which is partly replaced by the galena. Indicating galena only pulses of mineralization. Arsenic and mercury are noticeably absent from the geochemistry. Silver and gold mineralization can be characterized with three end-member types; breccia hosted, vein hosted, and vuggy quartz hosted (Photo 7-10).

**Photo 7-10: A. Multiphase Vein Hosted Crustiform with Sulphides BA17-51; from 267.45 to 268.75 m, Grading 96.3 gpt Au and 12,773.5 gpt Ag, or 19,996 gpt AgEq; B. Breccia-hosted Mineralization BA17-04; 2.21 gpt Au and 437 gpt Ag, 603 gpt AgEq Over 3.1 m**




Area 51, named after hole BA17-51, is the southeast extension of the Babicanora Vein. This high-grade zone is located 200 to 300 m from surface and is over 800 m long by 200 m high by 3.25 m in average true width (Photo 7-11).

**Photo 7-11: Area 51 Mineralization, Babicanora Hole BA17-51 (Discovery Hole); from 265.9 to 269.2 m, 3.3 m (3.1 m True Width) Grading 40.45 gpt Au and 5,375.2 gpt Ag, or 8,409 gpt AgEq, with Hematite Breccias, Coarse Banded Argentite, Native Silver, Electrum, and Native Gold**

The Babicanora FW Vein is sub-parallel to the Babicanora Vein. This vein is approximately 30 m north of the Babicanora Vein in the northwestern part of the area. The vein appears to intersect the Babicanora Vein near Area 51. The Babicanora HW Vein is a minor hangingwall splay sub-parallel to the Babicanora Vein.

### 7.2.5.2 Babicanora Norte Vein

The mineralization of the Babicanora Norte Vein is similar to components found at the adjacent Babicanora Vein. A majority of the high-grade mineralization is located within the RDCLF1 (rhyodacitic flow) near intersections of cross-cutting 220° striking faults and dense fracturing. Argentite is the principle silver mineral, gold occurs as native flakes and in association with pyrite and chalcopyrite. This vein is dissimilar then other veins in the Babicanora Area with a high component of pyrargyrite and/or proustite visually identified in cavities within core samples (Photo 7-12).

**Photo 7-12: BAN18-10, From 93.0 to 95.5 m Grading 61.36 gpt Au, 2,833.5 gpt Ag or 7,436 gpt AgEq with Visible Argentite, Pyrargyrite, Electrum, Native Silver, and Native Gold**

Base metals in Babicanora Norte are similar in nature to the Babicanora Vein but higher in content (up to 0.5%). Zinc and lead are principally found in black sphalerite and galena. A chalky white mineral is immediately adjacent to high-grade silver and may be a silver halide. Arsenic and mercury are noticeably absent from the geochemistry. Silver and gold mineralization can be characterized with three end-member types; breccia hosted, vein hosted, and vuggy quartz hosted.

### 7.2.5.3 Babicanora Sur Vein

The Babicanora Sur Vein is located approximately 300 m southwest of the Babicanora Vein and is parallel to the vein. The structural zone is oriented along strike between 140° to 150° with inclination of approximately 55 to 65° to the southwest. It is cross-cut by several 220° trending faults and dense fractures. Mineralization at Babicanora Sur is hosted in lapilli tuff and breccia with moderate to strong alteration overprinting (Photo 7-13).

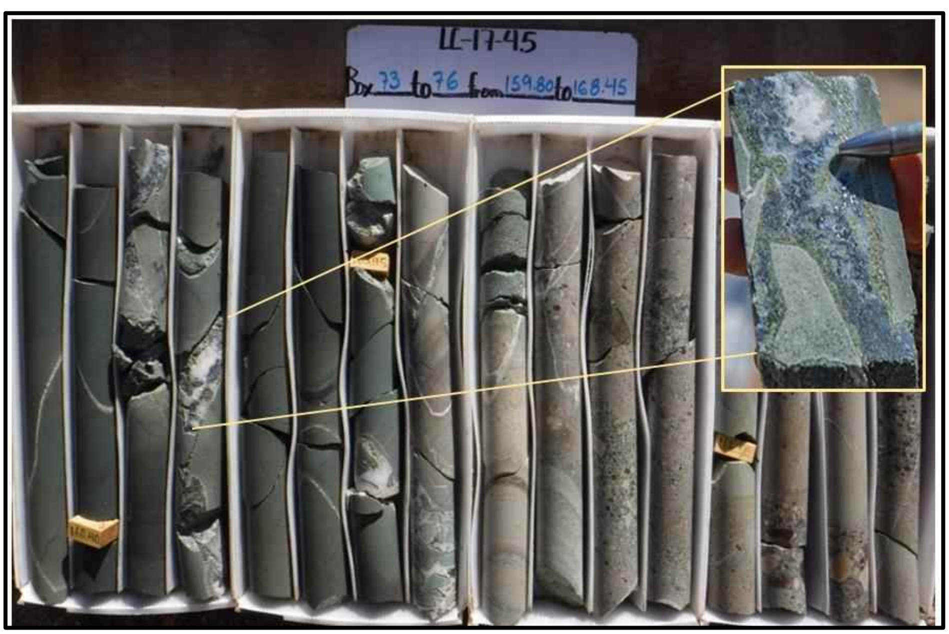
**Photo 7-13: Hole BAS18-31; from 230.6 to 232.8 m at 2.2 m (2.2 m True Width) Grading 18.78 gpt Au and 2,147.3 gpt Ag, or 3,556 gpt AgEq**

#### 7.2.5.4 Las Chispas Vein

The Las Chispas Vein is located in the northern portion of the Las Chispas Property and is the most extensively mined vein in the district (Figure 7-7). Mining along the Las Chispas Vein is well documented in the historical longitudinal section documented by Pedrazzini, circa December 31, 1921 (Photo 6-9 and Figure 9-1).

SilverCrest's exploration work has focused on defining the lithology, structure, alteration, mineralization and channel sampling in unmined pillars and surrounding intact vein. Vein mineralization is described as an undulating and dilating quartz stockwork and breccia zone, as defined in underground mapping and in drill core, of 0.10 to 7.9 m in true width which typically encompass narrow veins of quartz, visible sulphides, and calcite (Photo 7-14).

**Photo 7-14: Hole LC17-45; from 159.6 to 161.9 m at 2.3 m (1.9 m True Width) Grading 50.56 gpt Au and 5,018.8 gpt Ag, or 8,810 gpt AgEq**



The Las Chispas Vein strikes 150° and inclined at approximately 75° to the southwest. Cross-cutting the Las Chispas Vein are normal secondary faults trending 220° and dipping 65°. These secondary faults seem to play an important role in generating zones of dilatation for the emplacement of high-grade shoots and breccia zones. Flat to steeply inclined bedding parallel to faults are also noted to offset the late stage andesitic dykes by 10 to 20 m and are a common feature of drag folds (Schlische 1995). A majority of high-grade mineralization is within the lithic tuff units. Geological mapping in the Las Chispas Area is shown in Figure 7-7 and a typical cross-section is shown in Figure 7-8.

Alteration is similar to the other veins on the Property. Silicification is extensive in mineralized zones with multiple generations of quartz and chalcedony commonly accompanied by calcite with minor adularia. Pervasive silicification in vein envelopes is flanked by sericite and clay alteration of the host rock. Intermediate argillic alteration (likely kaolinite-illite-smectite) forms adjacent to some veins. Advanced argillic alteration (kaolinite-alunite) is suspected within the Las Chispas Vein, but formal studies of the alteration mineralogy have not been completed to confirm their presence. Propylitic alteration dominates at depth and peripherally to the mineralization with abundant fine-grained chlorite and pyrite proximal to the mineralization. Fe-oxyhydroxides, manganese after pyrite and other fine-grained sulphides are closely associated with the mineralization. Reactivation of the central fault hosting the mineralization provided a conduit for deep weathering of the sulphides and possible supergene enrichment of the silver mineralization. The andesitic dykes are weakly to moderately clay altered with weak epidote along their narrow chill margins.

Recent mapping by SilverCrest, confirms the location and extent of mining indicated on the historical longitudinal section (Figure 5-1) as being representative and accurate. At the date of the most recent Geology QP site visit, access, and mine rehabilitation had been completed from the 50 level to the 900 level covering most of the historic workings. Mapping and sampling on all levels is near completion.

**Figure 7-7: Plan View of Geological Mapping at the Las Chispas Area**

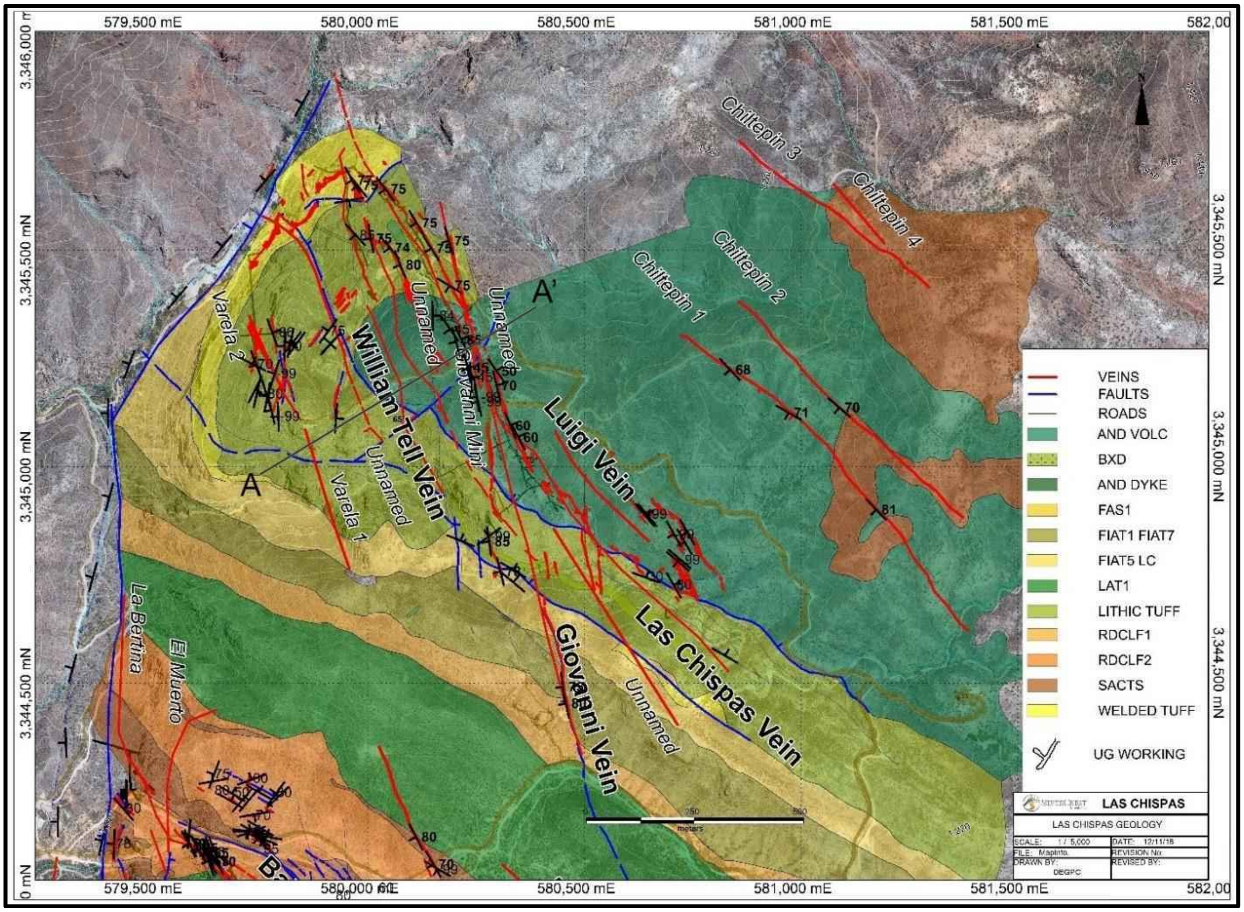
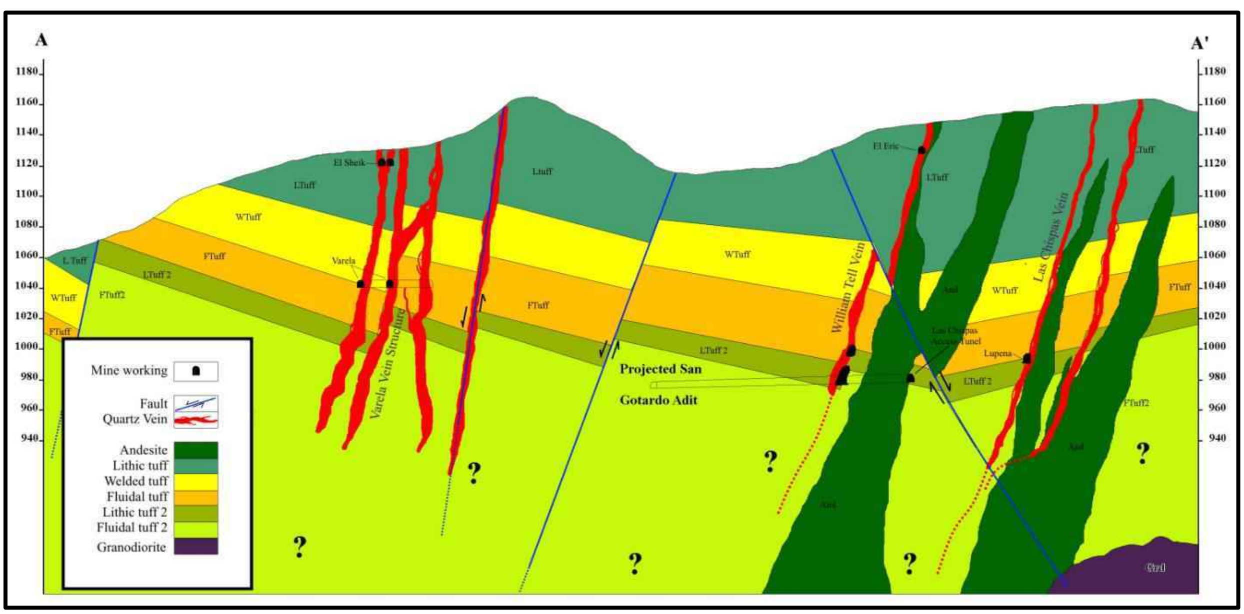



**Figure 7-8: Typical Geological Cross Section through the Las Chispas Property, Looking to the Northwest**



#### 7.2.5.5 William Tell Vein

The William Tell Vein is located 115 m to the west and is oriented roughly sub-parallel to the Las Chispas Vein.

The mineralization is characterized as a quartz stockwork zone in the footwall of a continuous northeast-southwest fault striking 140° and dipping 65°. Underground mapping by SilverCrest indicates that mining from the main San Gotardo adit terminated against a cross-cutting fault (220°/70°), which SilverCrest interprets to have approximately 10 m of left lateral displacement based on drilling results.

The William Tell Vein is hosted in the same sequence of course- to fine-grained volcaniclastic, flows, and pyroclastics that are detailed in the Las Chispas Vein description. Alteration is comprised of white clays, sericite, and, fine-grained chlorite with strong silicification. Within the mineralized structure and central vein, fine pyrite, limonite, and iron oxides are present.

Historic mining of the structure is contemporaneous to mining within the Las Chispas Vein, although there is limited historic documentation available. The northern portion of the historical workings can be accessed from the same adit that connects with the San Gotardo level within the Las Chispas Vein. The extents of mapped workings total approximately 3 km horizontally over three levels and approximately 60 m vertical (450 level to 650 level). A shaft or a small stope exists from the lower working level. The vertical extent of this shaft/stope cannot be confirmed but based on the historical long section and drilling in the area it is not believed to be significant.

Mining activity along this structure south of the projected fault cannot be confirmed; however, no voids were intersected by SilverCrest drilling where the structure was interpreted to be, and no surface workings are noted.

In 2016, underground channel sampling by SilverCrest was completed with high-grade mineralization defined in pillars and intact exposures (Photo 7-15, Photo 7-16).

**Photo 7-15: William Tell Underground Channel Sample No. 144840 Grading 13.4 gpt Au and 1,560 gpt Ag, or 2,565 gpt AgEq**

**Photo 7-16: William Tell Vein, Drill Hole LC16-03; from 172 to 176 m, 4 m (1.5 m True Width) Grading 2.03 gpt Au and 683.0 gpt Ag, or 835 gpt AgEq**

#### 7.2.5.6 Giovanni and La Blanquita

SilverCrest discovered the Giovanni and La Blanquita Veins in 2016 while drill testing the Las Chispas Vein from surface. The La Blanquita Vein may be the southern extension of the Giovanni Vein with similar orientation.

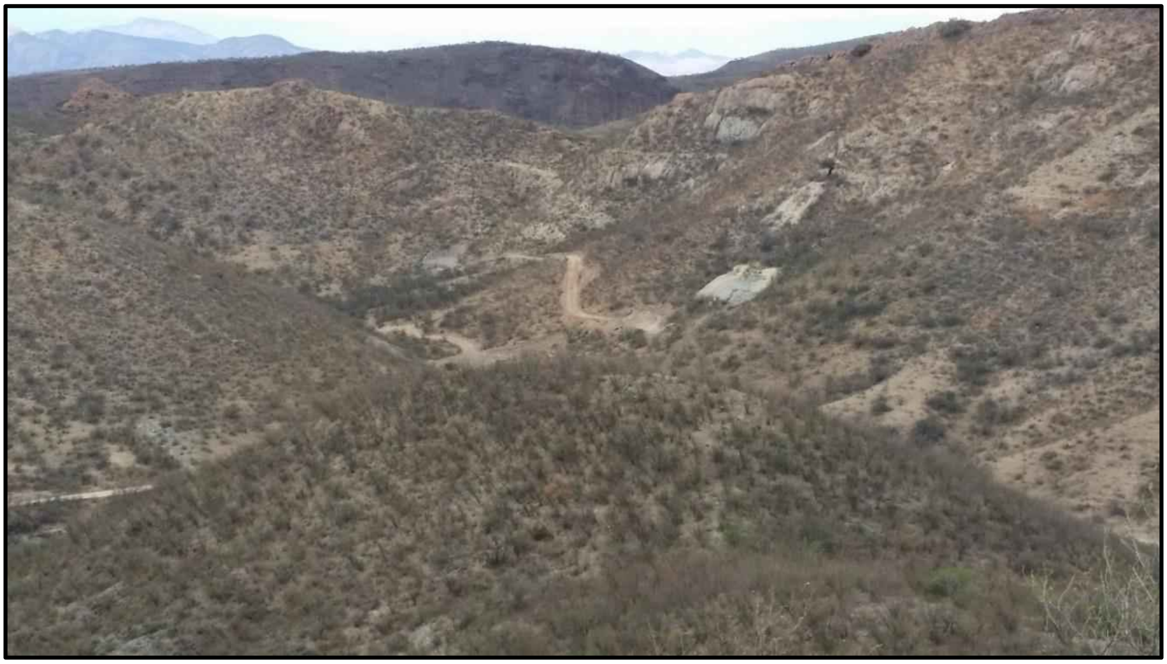
The mineralization is hosted in a quartz stockwork zone striking 340 to 10°, near vertical dipping, and cross-cutting the same volcanic units as the Las Chispas Vein. The best lithologic host appears to be a lapilli (lithic) tuff approximately 200 m in thickness. The zone is near-parallel to an andesite dyke.

The Giovanni Vein is exposed in several historic cross-cuts in the Las Chispas Vein historic workings but was never historically mined. Photo 7-17 shows a photo of the vein intersection in drill hole LC17-69.

**Photo 7-17: Drill Hole LC17-69; from 168.2 to 169.75 m, includes 1.6 m True Width, Grading 1.95 gpt Au and 252.0 gpt Ag, or 398 gpt AgEq**

The La Blanquita Vein is located 250 m southwest of the projected extension of the Giovanni Vein on the southwestern flank of a south-east trending ridge. Historical information on the target is limited, although there are historical trenches, pits, and waste dumps (Photo 7-18).

**Photo 7-18: La Blanquita Historical Dumps in Distance to Right, Looking Northwest**



At surface, the host rocks are strongly clay altered with moderate to strong sericite. Fine-grained chlorite is also noted but is confined to a fine-grained crystal crowded rhyodacitic ash. Chalcedonic and saccharoidal silicification and veining is noted along the surface trace of the mineralized zone, infilling joints and fractures (Photo 7-19).

**Photo 7-19: Drill Core, LC17-61 at La Blanquita, 116.0 to 116.55 m, 6.65 gpt Au and 1,445 gpt Ag, or 1,943 gpt AgEq in a Saccharoidal-Comb Quartz Vein**

### 7.2.5.7 Granaditas Vein

The Granaditas Vein is located to the southeast of Babicanora in the eastern portion of the Property. The Spaniards discovered the Granaditas Mine in 1845 (Dahlgren 1883) with subsequent mining. Little information is available on this historic mine. Mining appears to have been to a depth of 90 ft with about US$300,000 (historic dollars) in ore extracted. After a local rancher provided an 1882 district map, SilverCrest was able to locate several adits, shafts, and dumps in the area.

The showing is located within 75 m of the confluence of two major lineaments interpreted as faults. The first trends 220°, has a strike length of 3.5 km, and is interpreted to be the eastern bounding structure to the Las Chispas graben. The second is mineralized, strikes 145°, and parallels the Babicanora trend. The interpreted mineralized strike length is over 500 m. Several drill holes have intersected fractured zones and encountered mafic andesitic dykes at depth.

Alteration at the target is consistent with the intermediate sulphidation model with strong silicification in patches and strong clay alteration with zones of pervasive sericite and chlorite.

During the Phase II exploration program, two diamond drill holes were completed on the target. The highest assay was from GR17-02, which returned values of 8.15 gpt gold and 387 gpt silver, or 998 gpt AgEq, with highly anomalous lead (600 ppm), copper (10,250 ppm), and zinc (595 ppm) over 0.7 m (Photo 7-20). Copper and base metals are elevated over 20 to 40 m with grades of 0.5% lead and 0.3% zinc.

During the Phase III exploration program, 19 diamond drill holes were completed on the target. The highest assay was from GR17-04, which returned values of 47.5 gpt gold and 5,620 gpt silver, or 9,183 gpt AgEq, with highly anomalous lead (2,610 ppm), copper (1,010 ppm), and zinc (3,130 ppm) over 0.5 m (Photo 7-21).

These elevated base metals in core suggest that base metals increase to the southeast and may indicate deeper depths of emplacement of the mineralization.

**Photo 7-20: Drill Hole GR17-02; from 139.85 to 140.55 m, 0.7 m Grading 8.15 gpt Au and 387 gpt Ag, or 998 gpt AgEq and 1.02% Cu**

**Photo 7-21: Drill Hole GR17-04; from 133.8 to 134.3 m, 0.5 m Grading 47.5 gpt Au and 5,620 gpt Ag, or 9,182 gpt AgEq**

#### 7.2.5.8 Other Structures or Mineral Occurrences of Significance

### Amethyst Vein

The Amethyst (Amatista) Vein is located 200 m southeast of, and parallel to, the Babicanora Vein. Historic information is limited, but there are numerous historic workings pits and trenches along the 1 km strike length of the surface lineament.

The Amethyst Vein is steeply dipping and strikes 140°. It is cross-cut by several 200 to 220° trending faults and dense fractures that intersect the vein with high-grade near these intersections. The mineralization is hosted in sequence of 10 to 15° striking, northeast dipping lithic tuffs (LAT1). The individual units and lithology details are detailed Section 6.2.5.1. Drill hole BA17-20 drill-intercepted high-grade mineralization from 75.7 to 78.2 m grading 3.05 gpt gold and 77.8 gpt silver, or 306 gpt AgEq (Photo 7-22).

**Photo 7-22: Drill Hole BA17-20, from 75.7 to 78.2 m Grading 3.05 gpt Au and, 77.8 gpt Ag, or 306 gpt AgEq**




TETRA TECH

### La Victoria Vein

This area is defined by small workings near surface on the southwest portion of the Property. The workings consist of three short and vertically off-set tunnels, each approximately 30 m in length. The vein trends 140° with an inclination of approximately 70° to the northeast. In 2016, SilverCrest rehabilitated the access underground due to the highly oxidized and soft nature of the host rock, comprised of strongly clay altered breccia. SilverCrest sampling of old underground workings suggests this structure to be gold-dominated with assays up to 100 gpt gold.

Historical sampling from three levels of the La Victoria Mine by Ronald Mulchay in 1941 assayed as high as 6.5 ounces per tonne of gold (approximately 220 gpt gold) with minor silver, with a gold to silver ratio of 1:1 for high-grade mineralization.

In June 2016, SilverCrest drilled three drill holes down-dip of the workings. Significant mineralization was not intersected by the drill holes, suggesting a possible offset in the mineral continuity at depth or epithermal zonation. Significant alteration was encountered in the drill holes along with multiple stages of intrusive activity. The nature of the mineralization and alteration at La Victoria is currently not well understood. SilverCrest proposes additional work in the future.

### Espiritu Santo Vein

The Espiritu Santo workings are developed to the southeast of the Las Chispas Vein and William Tell Vein. Two historic adits and a shaft are accessible and have been mapped and sampled.

Two structural trends appear to have been mined in the workings. The first, on an upper level, strikes 150° with a dip of 60°. The second, on the lower level, strikes 290° with a dip of 48°. The latter mineralization is as stockwork within the footwall and parallel to the volcanic bedding contact. At surface, the andesitic volcanics that are exposed are strongly silicified with moderate to strong clay alteration focused along the above noted structures. Historic selective underground sampling shows grades at Espiritu Santo as high as 500 ounces per tonne of silver (Mulchay 1941). Historic dump samples returned seven samples greater than 111 gpt gold and 100 to 892 gpt silver (Mulchay 1941). Three drill holes were completed at the target with negligible results.

### La Varela Veins

The La Varela workings are located approximately 300 m to the west of the William Tell Vein. Two veins are oriented along a strike of 170° and are near vertical with an average vein width of 1 m. Higher grade precious metal mineralization is dominant in the southern part of the two noted veins. SilverCrest has rehabilitated the existing underground workings (an estimated 400 m) with mapping and sampling. Three drill holes have been completed in this area with the most significant intercept from drill hole LC17-55 with a length of 0.8 m grading 2.67 gpt gold and 272 gpt silver, or 472 gpt AgEq.

# 8.0 DEPOSIT TYPES

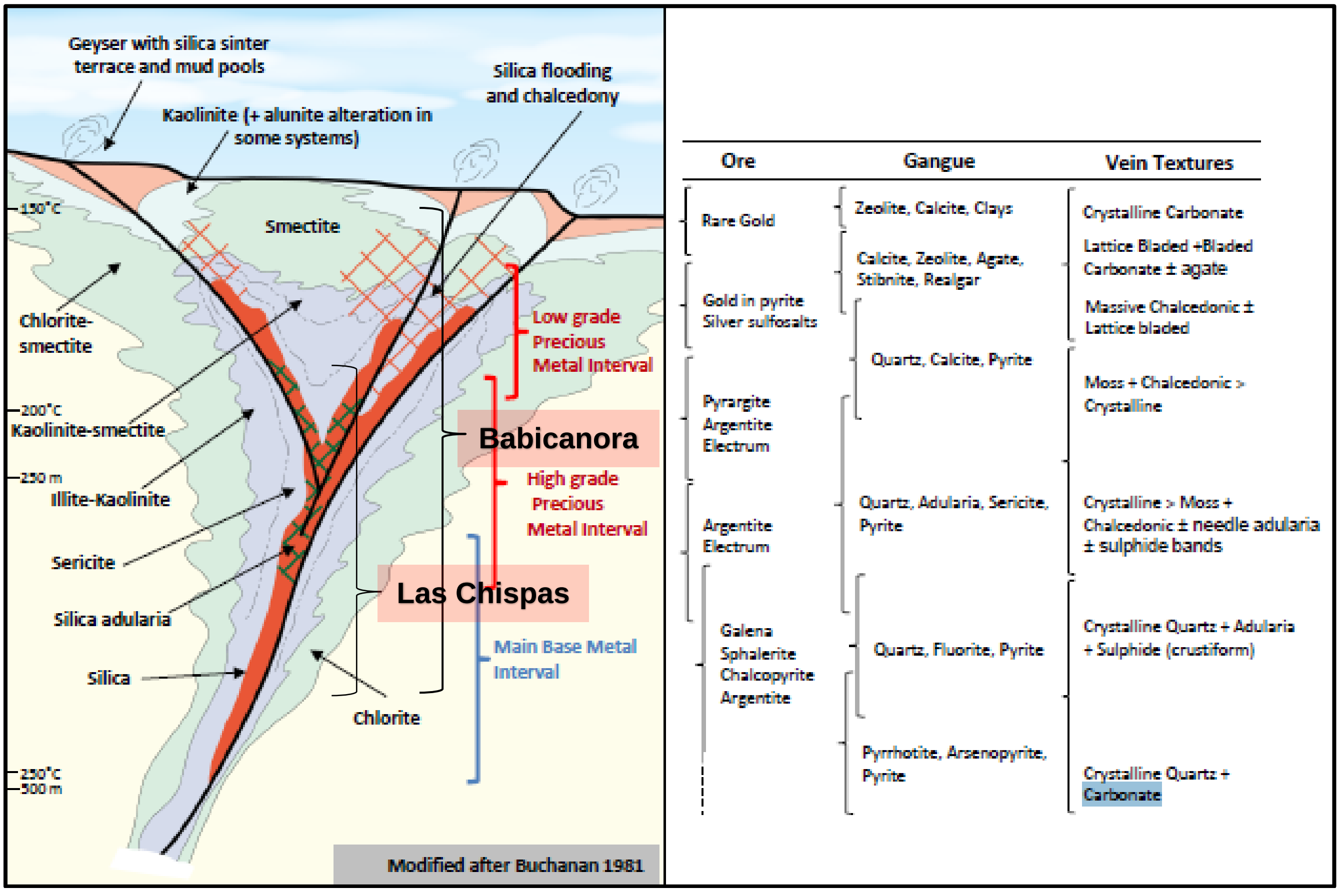
Mineral deposits in the Las Chispas district are classified as silver and gold, low to intermediate sulphidation epithermal systems, typical of many local deposits in northeastern Sonora, including the nearby Santa Elena Mine (First Majestic) and the Mercedes Mine (Premier Gold). Elsewhere in the Sierra Madre, other examples include the Dolores Mine (Pan American Silver) in the state of Chihuahua and Piños Altos Mine (Agnico Eagle) also in Chihuahua.

## 8.1 Low Sulphidation

The terms low and intermediate sulphidation are based on the sulphidation state of the sulphide assemblages. In low sulphidation epithermal deposits are formed at shallow depths from hydrothermal systems related to volcanic activity (Figure 8-1). Low-sulphidation deposits typically display all or most of the following characteristics (e.g., Sillitoe 1991; White and Hedenquist 1990):

- Hosted in volcanic rocks ranging from andesite to rhyolite in composition.
- Hydrothermal fluids are characterized to be lower temperatures, have circumneutral pH and are reduced.
- Alteration consists of quartz, sericite, illite, adularia and silica. Barite and fluorite may also be present.
- Mineralization hosted in quartz and quartz-carbonate veins and silicified zones.
- Silica types range from opal through chalcedony to massive quartz. Textures include crustiform and colloform banding, drusy, massive and saccharoidal varieties. Calcite may form coarse blades and is frequently replaced by quartz.
- Deposits of this type may be overlain by barren zones of opaline silica.
- Sulphides typically comprise less than 5% by volume.
- Sulphides average up to several per cent and comprise very fine-grained pyrite, with lesser sphalerite, galena, tetrahedrite and chalcopyrite sometimes present.
- Gold may be present as discreet, very fine grains or may be silica or sulphide refractory.
- Gold and silver grades are typically low but may form extremely high-grade ore shoots.
- Common associated elements include mercury, arsenic, antimony, tellurium, selenium, and molybdenum.

**Figure 8-1: Detailed Low-sulphidation Deposit with Ore, Gangue and Vein Textures with Estimated Location of Las Chispas Epithermal Mineralization**




Source: Buchanan (1981)

Low sulphidation gold-silver epithermal systems commonly precipitate gold from hydrothermal fluids in near surface hot spring environments. The mechanism most commonly evoked for gold precipitation is boiling. As pressure decreases in fluid rising to the surface, boiling occurs. The physical and chemical changes that accompany boiling cause breakdown of the gold-bearing chemical complexes and result in gold precipitation. Because pressure from the overlying fluid column or rock column constrains the level at which boiling occurs, the location of the boiling zone commonly lies within a particular vertical range. However, this depth can change significantly with changes in the water table, sealing of the system, burial of the system through deposition of volcanic rocks, or emergence due to tectonic uplift. The boiling zone is typically within 500 m and rarely more than 1 km of the surface at the time of mineralization.

## 8.2 Intermediate Sulphidation

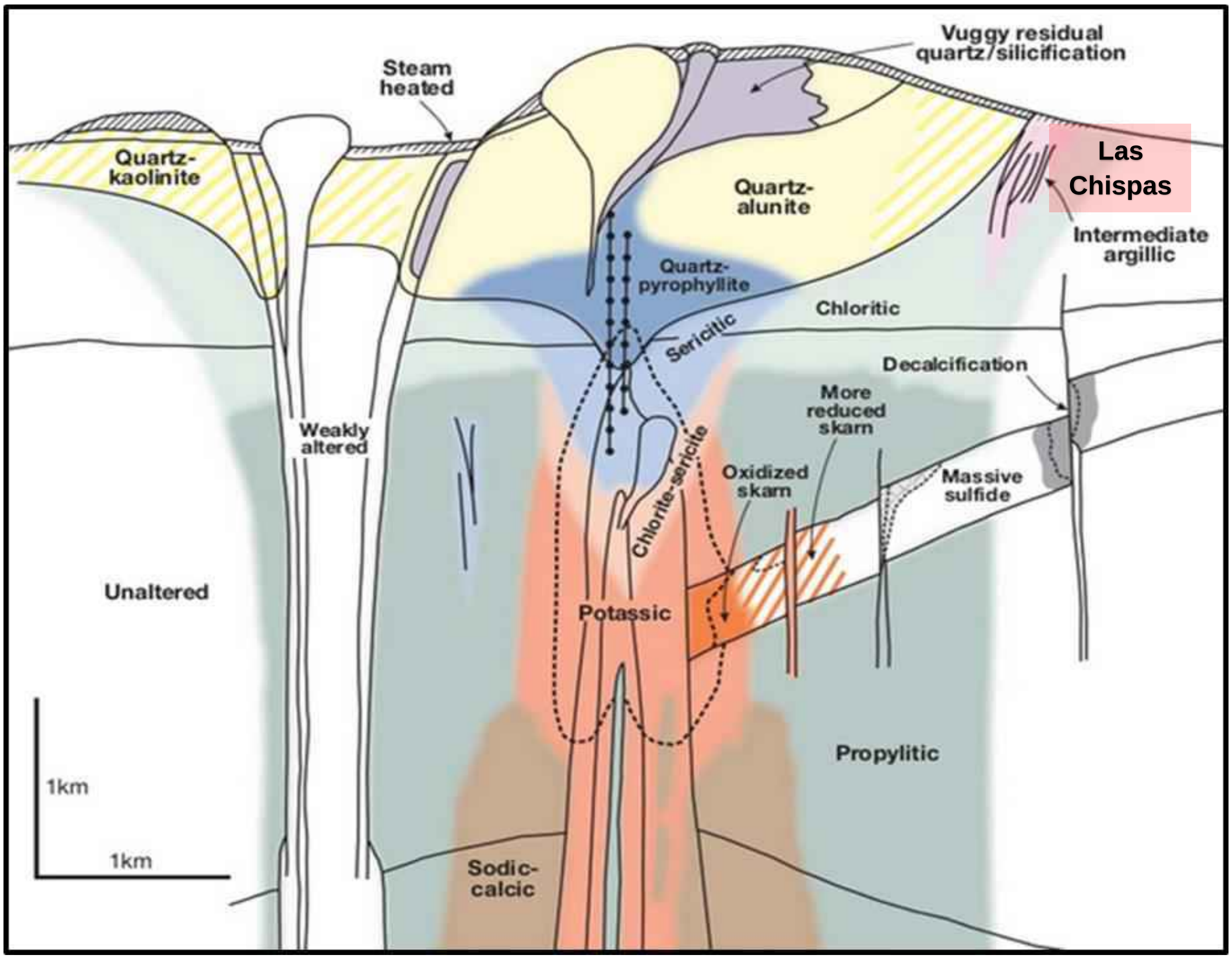
Intermediate sulphidation epithermal systems are less common but share some characteristics of both the high and the low types. Like the high-sulphidation types, they also occur in mainly in volcanic sequences of andesite to dacite composition within volcanic arcs.

Like the low-sulphidation systems, the mineralization normally occurs in veins, stockworks and breccias. The veins can be rich in quartz, with manganiferous carbonates like manganese-rich calcite or rhodochrosite plus adularia, which typically hosts the gold mineralization. Gold is present as the native metal but is also found as tellurides and in a variety of gold-rich base metal sulphides and sulfosalts. Low iron sphalerite, tetrahedrite-tennantite and galena often are the dominant sulphide minerals. The overall sulphide content of the deposits is in the range of 5 to 20 percent by volume.

Alteration consists of a mixture of high- and low-sulphidation assemblages that may overprint one another depending on the evolution of the fluids. Silica (vuggy), advance argillic (alunite, pyrophyllite, diaspore, dickite, and sericite), argillic (kaolinite), anhydrite, barite, sericite, illite, and adularia may be present or absent within the system (Figure 8-2).

Permeable host rocks within the deposit may allow the mineral fluids to form a large tonnage of low-grade, bulk-minable stockwork mineralization (Ralf 2017).

**Figure 8-2: Illustration of Intermediate Sulphidation Hydrothermal Systems**




Source: Sillitoe (2010)

# 9.0 EXPLORATION

Prior to SilverCrest acquiring the Las Chispas Property in 2015, no drilling had been completed on the northwest to southeast mineralized trend which contains the Las Chispas and Babicanora Areas. This trend is approximately 2.5 km long and 3.5 km wide.

SilverCrest exploration began work on the Property in February 2016 with a primary focus on the Las Chispas, William Tell, and Babicanora Veins. From February to November 2016, the Phase I exploration program consisted of initial drilling, surface and underground mapping and sampling, and rehabilitating an estimated 6 km of underground workings. Drilling of 22 holes during Phase I is described in the following subsections.

From November 2016 to February 2018, the Phase II exploration program consisted of drilling, additional surface and underground mapping and sampling, further rehabilitation of 4 km of underground workings, plus auger and trenching of approximately 174,500 tonnes in 42 surface historic waste dumps. Drilling of 161 additional holes during Phase II is described in the following subsections.

Phase III exploration program commenced in February 2018 and is currently ongoing as of the effective date of this PEA. From February 2018 to February 2019, the Phase III exploration program consisted of drilling, additional surface and underground mapping and sampling, and finalizing approximately 11 km of underground rehabilitation, a majority of which is located on the Las Chispas Vein and historic mine. Drilling of 256 additional holes during Phase III is described in the following subsections.

## 9.1 Underground Exploration

Initial access to the underground historical workings, the majority located in the Las Chispas (Historic Vein) Mine, commenced with an underground rehabilitation program in February 2016. Rehabilitation included removal of backfill, construction of a network of bridges and ladders across open stopes, installation of safety cables, removal of obstructions and unsafe overhead supports, construction of new overhead supports, rough rock scaling, and development of a control survey (Photo 9-1). As of the effective date of this PEA, SilverCrest estimates that approximately 11.0 km of underground workings has been rehabilitated with work nearly complete (Figure 9-1).

As part of the rehabilitation program, an underground mapping and sampling program began in February 2016. Collection of a series of select chip samples was followed by a systematic and continuous saw cut channel sampling program along the rehabilitated underground workings. Samples were collected perpendicular to mineralization as transverse samples and as longitudinal samples along footwall or hanging wall contacts through stopes. More than 8,984 chip and channel samples have been collected as of the effective date of this PEA. Of these, 1,094 sample results graded above a cut-off of 150 gpt AgEq with averages of 4.05 gpt Au and 504.4 gpt Ag, or 807 gpt AgEq. There were an additional 140 underground channel samples taken between February 2018 and February 2019 in the Las Chispas area; these samples have not been reviewed by a QP and have not been incorporated into this PEA.

A total of 94 samples have been collected from historical underground and backfill muck at Las Chispas, grading in average 2.1 gpt Au and 256 gpt Ag, or 414 gpt AgEq.

Table 9-1 shows summary statistics of underground chip and channel sampling for the Las Chispas workings, Table 9-2 shows other workings in the Las Chispas Area, and Table 9-3 shows workings in the northwest portion of the Babicanora Area.

### Table 9-1: Las Chispas Vein – Significant Channel Sampling Results

| Las Chispas | Mean Au | Mean Ag | Mean AgEq(1) |
|---|---|---|---|
| 200L | 0.050 | 7.4 | 11.1 |
| 300L | 1.008 | 141.0 | 216.6 |
| 350L | 2.329 | 333.2 | 507.9 |
| 400L | 1.688 | 266.2 | 392.8 |
| 450L | 3.237 | 439.9 | 682.6 |
| 500L | 2.549 | 336.6 | 527.8 |
| 550L | 1.784 | 256.1 | 389.9 |
| 600L | 0.410 | 57.6 | 88.3 |
| 700L | 0.121 | 15.5 | 24.5 |
| 743L | 0.615 | 118.2 | 164.3 |
| Average | 0.903 | 131.4 | 199.17 |
| Number of Samples | 3,923 | 3,923 | 3,923 |
| Maximum Value | 136 | 10,000 | 20,200 |
| Minimum Value | 0.002 | 0.2 | 0.575 |
| Standard Deviation | 3.713 | 444.5 | 704.0 |
| Number of Samples >150 AgEq | - | - | 805.0 |

Note: (1)AgEq is based on a silver to gold ratio of 75:1, calculated using long-term silver and gold prices of US$17/oz silver and US$1,225/oz gold, with average metallurgical recoveries of 90% silver and 95% gold.

### Table 9-2: Las Chispas Area, Other Vein Targets – Significant Channel Sampling Results

| Las Chispas | Mean Au | Mean Ag | Mean AgEq* |
|---|---|---|---|
| El Erick | 1.85 | 117.8 | 256.4 |
| El Sheik | 1.16 | 75.8 | 162.8 |
| Espiritu Santo | 0.02 | 11.2 | 12.4 |
| Lupena | 0.45 | 39.4 | 73.0 |
| Varela | 0.22 | 26.5 | 43.1 |
| WT500L | 1.05 | 62.8 | 141.4 |
| WT600L | 1.29 | 145.8 | 242.4 |
| Average | 0.91 | 73.9 | 142.0 |
| Number of Samples | 1,292 | 1,292 | 1,292 |
| Maximum Value | 52.2 | 3,220 | 5,455 |
| Minimum Value | 0.01 | 0.2 | 0.0 |
| Standard Deviation | 3.44 | 221.4 | 431.1 |
| Number of Samples >150 AgEq | - | - | 237 |

Note: (1)AgEq is based on a silver to gold ratio of 75:1, calculated using long-term silver and gold prices of US$17/oz silver and US$1,225/oz gold, with average metallurgical recoveries of 90% silver and 95% gold.

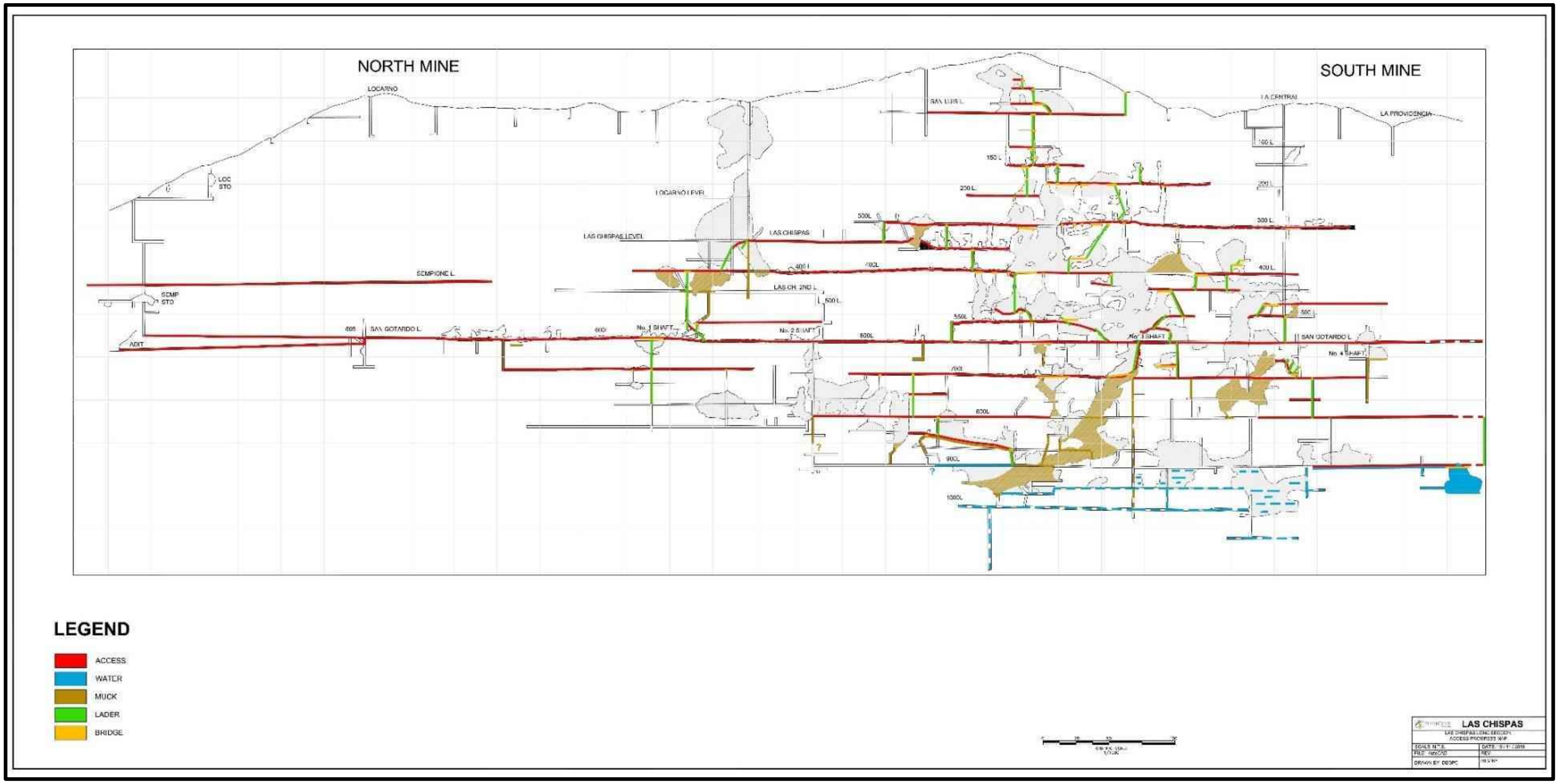
### Table 9-3: Babicanora Area, Other Vein Targets – Significant Channel Sampling Results

| Las Chispas | Mean Au | Mean Ag | Mean AgEq(1) |
|---|---|---|---|
| Babicanora | 0.41 | 26.1 | 56.6 |
| Babicanora de abajo | 0.07 | 7.7 | 12.6 |
| Bertina | 0.08 | 4.6 | 10.9 |
| Buena Vista | 0.03 | 7.1 | 9.1 |
| El Muerto | 0.62 | 33.4 | 80.1 |
| Jabali | 0.15 | 10.3 | 21.9 |
| Sementales | 0.49 | 18.7 | 55.0 |
| Average | 0.31 | 16 | 39 |
| Number of Samples | 756 | 756 | 756 |
| Maximum Value | 20.80 | 821.0 | 2,381 |
| Minimum Value | 0.01 | 0.2 | 1.0 |
| Standard Deviation | 1.22 | 51.9 | 135.8 |
| Number of Samples >150 AgEq | - | - | 52 |

Note: (1)AgEq is based on a silver to gold ratio of 75:1, calculated using long-term silver and gold prices of US$17/oz silver and US$1,225/oz gold, with average metallurgical recoveries of 90% silver and 95% gold.

### Photo 9-1: Photos of Las Chispas Underground Rehabilitation Activities

**Figure 9-1: Las Chispas Vein Long Section with 2018 Underground Infrastructure (Looking Northeast)**




Note: Based on schematic from Pedrazzini circa 1921 (Photo 6-9).



TETRA TECH

### 9.1.1 Underground Surveying

A network of control points was first established by a SilverCrest surveying crew once accesses to workings had been rehabilitated and secured. Control points were established at approximately 15 m intervals using portable drills, survey chains, distance lasers, and a handheld Brunton compass. The control network was then re-surveyed by Precision GPS, with professional surveying crew using a Trimble VX Total Station on level 600 to level 150. The center line of each drift was collected, this included a data set of 178 points. The purpose of this survey was to adjust the tape and Brunton survey completed by the SilverCrest staff. This underground control network is the base reference for all underground sampling and drilling activities.

## 9.2 Surface Exploration

Surface exploration has focused on geological mapping and delineation of the numerous historical shafts and portals present across the Property. As of the effective date, a total of 8.0 km$^2$ have been mapped by SilverCrest geologists.

Surface dump augering, trenching, and sampling has been completed. Analytical results received as of the effective date of this PEA total 1,340 surface dump samples, averaging 1.12 gpt Au and 106.6 gpt Ag, or 185 AgEq. Select grades from the dump sampling range up to 4,548 gpt AgEq. The mapping data is georeferenced and being used to develop a geographic information system (GIS) database for Las Chispas.

In 2017, historical waste dumps were sampled by a trenching and auger program to collect data, identify dump volumes, and calculate precious metal grades. Data was collected from field measurements using a GPS and trenching rock and sediment material in the dumps. The dumps were later surveyed between December 14, 2017 and January 26, 2018 using a Trimble Spectra Total Station Model TS-415. Samples were sent to ALS Chemex in Hermosillo, Mexico for preparation and then sent to its Northern Vancouver lab for analysis of gold and silver.

In total, 41 dumps at 20 locations within the Las Chispas Property were sampled by an auger or trenching process between July 2017 and January 2018. Table 9-4 summarizes the dump names are Figure 9-2 shows the locations.

**Table 9-4: List of Surface Stockpiles (Dumps, Muck and Tailing) Mapped on the Las Chispas Property**

| Dump Name | Sample Style |
|---|---|
| North Chispas 1, 2 | Trench |
| La Capilla (LCA), tailings | Auger |
| San Gotardo (LCD) | Trench |
| Lupena (LUP) | Trench |
| El Eric | Trench |
| Locarno 1, 2, 3, 4 | Trench |
| Las Chispas 1, 2, 3 (LCH) | Trench |
| La Central | Trench |
| Maria | Trench |
| Chiltepines 1, 2, 3 | Trench |
| | *table continues…* |

| | |
|---|---|
| La Providenca 1, 2, 3 | Trench |
| Espiritu Santo 1, 2 | Trench |
| La Blanquita 1, 2 | Trench |
| La Curva 1, 2 | Trench |
| La Bertina 1, 2 | Trench |
| El Muerto 1, 2 | Trench |
| Sementales 1, 2 | Trench |
| Buena Vista 1. 2, 3 | Trench |
| Babicanora 1, 2 | Trench |
| El Cruce 1, 2, 3 | Trench |
| **Total** | **41** |

To initially determine the feasibility of evaluating historical dumps, an auger program was tested in July 2017. Auger drilling was only found to be useful for one dump (La Capilla tailings), due to problems occurring with large rocks and low recovery. A standard mechanical gas-powered auger was used to complete the auger program.

The auger program began by setting up the base grid lines with a north-south direction near the center of a dump. First, a compass, a GPS, and tape were used to mark a hole, then flag and tag it with 10 m between each flag. Depending on the site's size, a specific number of gridlines were placed running parallel east-west, 10 m away from the base gridline. Second, a tripod was situated over the surface of a flagged hole and a pulley attached at the top. Next, the standard penetration test equipment was aligned at the tripod's center and the initial hole within 1 m proximity to the flagging. Two personnel manned the sampler with one on the capstan, to drive the sampler into the soil surface and down until either the sampler hits a fixed depth of 1 m or it until it cannot gain depth. If a rock prevents downward movement of the auger, it must either drill down by uplifting it or pushing it into the wall, or the piercer can be used to pulverize the rock. Once a fixed depth or bedrock reached, the sampler is pulled up to the surface placing the contents on a tarp to spread and homogenize the mixture. Each interval was bagged with the hole ID and interval. The process of three personnel manning the sampler and capstan was repeated at 1 m interval depths.

In 2016 and early 2017, initial testing of waste dump material was completed by hand cut trenches for sample collection. Trenches were hand excavated to approximately 0.5 m in the face of dumps with collection of samples every 1 m down strike. This program identified that most dump had significant precious metals that warranted further evaluation.

From mid-2017 to January 2018, mechanical trenching was completed on all accessible historic dumps. A backhoe was used to dig trenches approximately 1.5 m deep and pile materials next to the trench for sampling and description. Samples were collected with and approximate weight of 3 to 5 kg. Samples were labelled with an interval ID, GPS coordinate, and depth recorded. The backhoe continued to work on an interval until either the soil was reached, or the walls collapsed into the trench. The removal process repeats until the backhoe reached the marked end of the trench. Additionally, a supervisor analyzed the piles for quartz percentage, historical trash, and describing the grain size and rock type.

## 9.3 Phase III Surface Geological Mapping and Lithology Model

SilverCrest initiated a comprehensive surface mapping and drill core relogging program in November 2018 to support development of a detailed stratigraphic section and three-dimensional lithological model across the Babicanora and Las Chispas Areas. The work resulted in improved understanding of the regional structure and local structures, location of various intrusive phases, and understanding of the relationship between host rock lithology with mineralization styles observed in drill core. The three-dimensional model is being used to drive exploration targeting in areas not previously considered:

- Deep targets under Las Chispas and Babicarona area related to specific lithology host rocks and cross structures.
- Chiltepin Area, northeast of the Las Chispas Area.
- La Victoria Vein mineralization within respect to host lithologies.
- Babicanora Sur southeast high-grade extension with respect to host lithologies.
- Mineralization along the Babicanora Ring structure and rhyolite/andesite dikes.

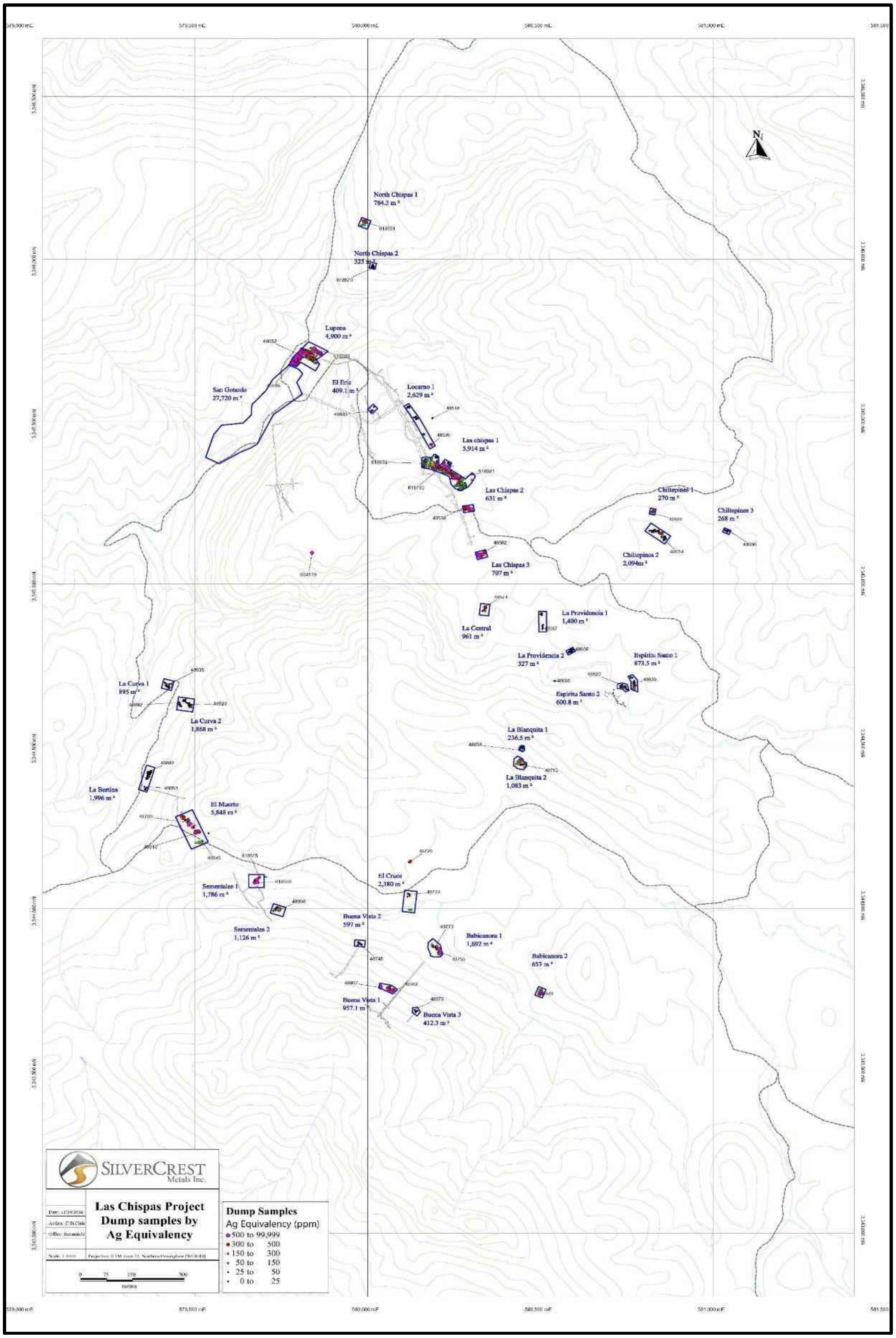
## 9.4 Exploration Decline in the Babicanora Vein

SilverCrest has permitted and is in the process of developing a 600 m exploration decline into Shoot 51 of the Babicanora Vein in Area 51 to enable access to the vein for bulk sampling and to conduct underground infill drilling. With the first blast on February 27, 2019, SilverCrest commenced development of the exploration decline. As of the effective date of this PEA, SilverCrest has advanced approximately 450 m.

## 9.5 Aerial Drone Topographic Survey

On February 7th, 2019, an aerial drone survey was initiated to collect a Light Detection and Ranging (LiDar) survey for the Las Chispas Property using a MD4-1000 drone with a LiDar module. The work was being completed by Precision GPS from Hermosillo, Mexico and is ongoing as of the effective date of this PEA.

**Figure 9-2: Location of Surface Stockpiles and Historic Waste Dumps Mapped and Sampled by SilverCrest**



# 10.0 DRILLING

## 10.1 Program Overview

SilverCrest completed their Phase I and Phase II drilling programs in February of 2018. The Phase III exploration and delineation program is ongoing. Since March 2016, drilling completed from surface and underground totals 117,057.65 m in 439 drill holes.

The Phase I drill program targeted near surface mineralization, lateral extensions of previously mined areas, and potential deep extensional mineralization proximal to the historical workings. The Phase II drill program focused on extensive surface drilling at Las Chispas, Babicanora, William Tell, and Giovanni veins and on underground drilling at Las Chispas and Babicanora veins. The Phase III drill program has focused on extensive surface drilling at Babicanora, Babicanora FW, Babicanora HW, Babicanora Norte, Babicanora Sur, Granaditas, Luigi, and Giovanni veins and underground drilling at Las Chispas veins. Table 10-1 summarizes the drilling programs.

### Table 10-1: Summary of Sampling Completed by SilverCrest (Inception to February 8, 2019)

| | Drill Location | Number of Drill holes | Length Drilled (m) | Number of Samples | Length of Samples (m) |
|---|---|---|---|---|---|
| **Phase I** | | | | | |
| Las Chispas(1) | Surface | 19 | 5,461.40 | 3,516 | 5,243.10 |
| La Victoria | Surface | 3 | 931.20 | 711 | 924.00 |
| **Subtotal** | | **22** | **6,392.60** | **4,227** | **6,167.10** |
| **Phase II** | | | | | |
| Las Chispas(1) | Surface | 54 | 14,123.95 | 10,395 | 11,233.30 |
| | Underground | 21 | 1,992.90 | 1,782 | 1,780.20 |
| Babicanora(2) | Surface | 70 | 21,137.60 | 8,876 | 9,781.60 |
| | Underground | 14 | 1,446.70 | 1,252 | 1,415.40 |
| Granaditas | Surface | 2 | 653.45 | 594 | 653.50 |
| **Subtotal** | | **161** | **39,354.60** | **22,899** | **24,864.00** |
| **Phase III (up to September 2018)** | | | | | |
| Las Chispas(1) | Surface | 4 | 1,176.90 | 831 | 907.30 |
| | Underground | 7 | 622.80 | 526 | 562.40 |
| Babicanora | Surface | 22 | 9,508.75 | 1,815 | 1,930.60 |
| Granaditas | Surface | 23 | 7,144.80 | 5,978 | 6,037.20 |
| Babicanora Norte | Surface | 40 | 11,810.70 | 7,233 | 7,767.90 |
| Babicanora Sur | Surface | 7 | 3,069.30 | 967 | 995.30 |

*table continues…*

| | Drill Location | Number of Drill holes | Length Drilled (m) | Number of Samples | Length of Samples (m) |
|---|---|---|---|---|---|
| Ranch | Surface | 10 | 3,305.80 | 1,856 | 2,105.30 |
| Well | Surface | 12 | 1,103.00 | 623 | 952.90 |
| **Subtotal** | | **125** | **37,742.05** | **19,829** | **21,259.00** |
| **Phase III (from September 2018 to February 2019)** | | | | | |
| Las Chispas[1] | Underground | 12 | 1,576.80 | 960 | 1,008.60 |
| Babicanora[2] | Surface | 52 | 17,075.40 | 5,328 | 5,676.10 |
| | Underground | 10 | 1,078.50 | 770 | 879.60 |
| Babicanora Norte | Surface | 18 | 3,884.10 | 1,853 | 2,241.80 |
| | Underground | 3 | 1,147.20 | 702 | 783.80 |
| Babicanora Sur | Surface | 32 | 8,160.40 | 3,749 | 4,382.90 |
| Ranch | Surface | 4 | 646.00 | 360 | 393.40 |
| **Subtotal** | | **131** | **33,568.40** | **13,722** | **15,366.00** |
| **Total** | | **439** | **117,057.65** | **60,677** | **67,656.00** |

Notes: [1]Las Chispas Area totals include some re-drilled holes and holes drilled at Las Chispas, William Tell, Giovanni, Giovanni Mini, La Blanquita, La Varela, Luigi, and other unnamed veins in the Las Chispas Area.
[2]Babicanora Area totals include holes drilled at Babicanora, Babicanora FW, Babicanora HW, Amethyst Vein, and other unnamed veins in the Babicanora Area.

The Phase I drilling program commenced in March 2016 and was completed in October 2016. This phase included the completion of 22 surface drill holes totaling 6,392.6 m. This drilling program targeted 19 holes on the Las Chispas and William Tell areas near to and along strike of the historical workings extension (drill holes up to LC16-19), and 3 holes on the La Victoria showing located to the south of Babicanora (drill holes LV16-01 to -03).

The Phase II drilling program commenced in November 2016 and was completed in February of 2018. The program included the completion of 161 drill holes totaling 39,354.60 m; 126 drill holes totaling 35,915.0 m of surface drilling and 35 drill holes totaling 3,439.6 m of underground drilling. This drilling program focused on testing unmined portions of the Las Chispas Vein, delineation of the Giovanni; Giovanni Mini, La Blanquita, and other unnamed veins, in addition to exploration of the La Varela veins, all within the Las Chispas Area (drill holes ending LC18-73 and LCU18-20). Drilling at Babicanora focused on delineating the down plunge and vertical extents of the Babicanora Vein, in addition to exploratory drilling on the Amethyst Vein and the Granaditas Target, all within the Babicanora Area (drill holes ending BA18-69 and UB17-13).

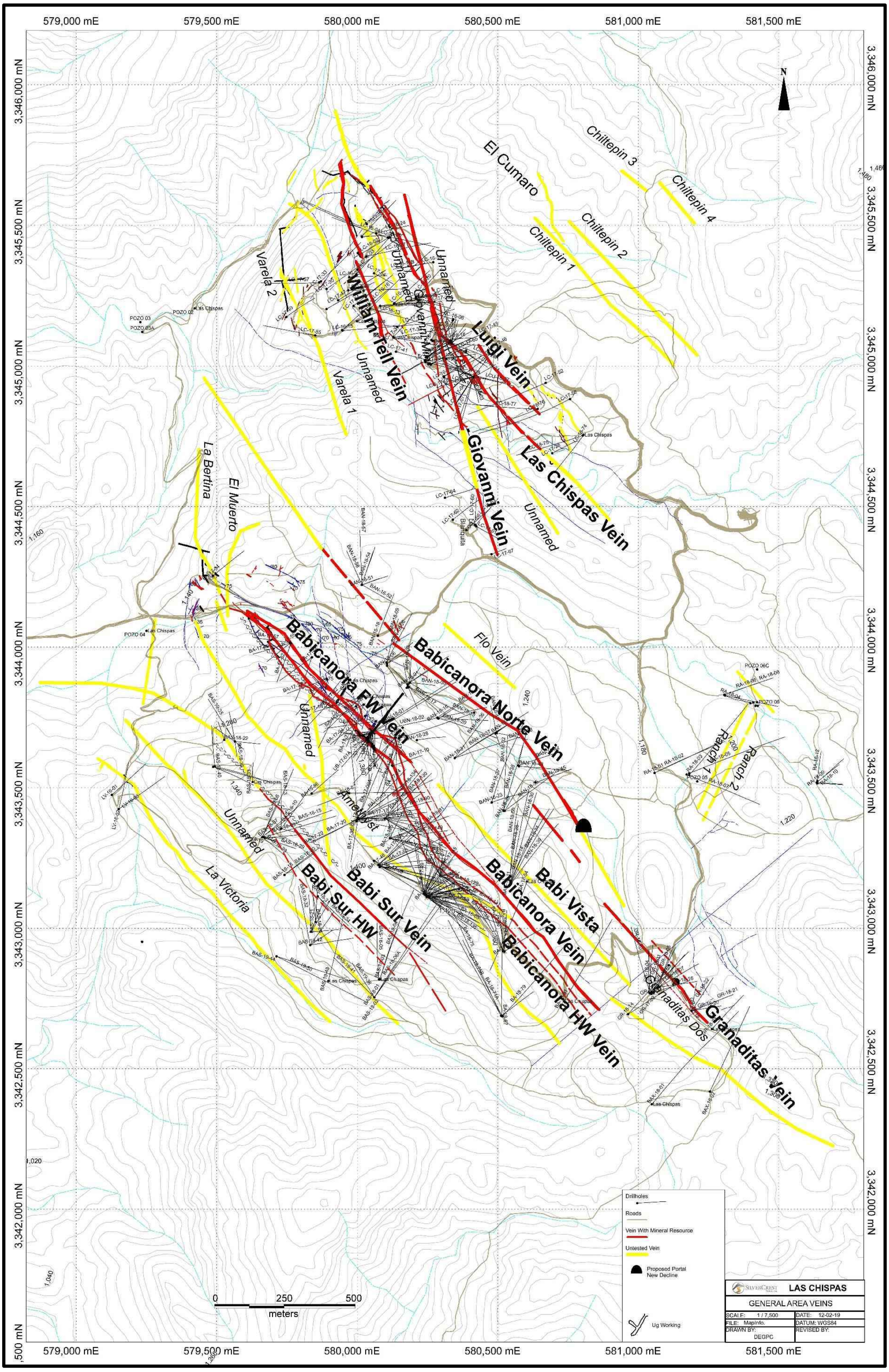
The Phase III drilling program commenced in February 2018 and was ongoing and included in the previous Technical Report (Fier 2018). This included 125 drill holes totaling 37,742.01 m; 118 drill holes totaling 37,119.21 m of surface drilling and 7 drill holes totaling 622.8 m of underground drilling. These holes focused on the Babicanora Area to delineate the up and down mineralized plunge to the southeast and vertical extents of the Babicanora, Babicanora HW, and Babicanora FW veins (up to drill holes BA18-91, BAN18-40) and exploratory drilling on the Babicanora Norte Vein (up to drill hole BAN18-40) and Babicanora Sur vein (up to drill hole BAS18-07). Additional infill drilling was completed in the Las Chispas Area on the Giovanni veins and Luigi Vein (up to drill holes LC18-77 and LCU18-29). Exploratory drilling was conducted at Granaditas (up to drill hole GR18-19) and the Ranch area (up to drill hole GR18-09), in addition to 12 groundwater test holes.

Drilling in the Phase III program has continued since September 2018 and was ongoing as of the effective date of this PEA. Drilling completed from September 2018 to February 2019 included 131drill holes totaling 33,568.25 m; 106 drill holes totaling 29,765.8 m from surface and 25 drill holes totaling 3,802.5 m from underground. Infill, delineation, and expansion drilling was prioritized in the Babicanora, Babicanora HW and Babicanora FW in the Shoot 51 area, Babicanora Norte, and Babicanora Sur veins. Some additional exploration drilling near the Ranch and Luigi veins was also conducted.

Table 10-1 and Figure 10-1 provide a summary of drilling. Surface collar locations were initially surveyed using a handheld GPS unit, then professionally surveyed by local contractor. The most recent surface survey was done by external consultant David Chavez Valenzuela in October of 2018. This survey was done using a GNSS Acnovo GX9 UHF. The purpose of this survey was to survey surface drill hole collars, additional roads, and more detail on the Property boundaries.

Underground collars were surveyed using the underground control points established for each of the workings, which were professionally surveyed. All holes were surveyed as single shot measurements with a Flex-it® tool starting at 15 m with measurements at every 50 m to determine deviation. The survey measurements were monitoring for significant magnetic interference from the drill rods that would prevent accurate readings.

**Figure 10-1: Map of Drilling Completed by SilverCrest on the Property**



## 10.2 Drilling Results

### 10.2.1 Phase I

During the Phase 1 program, 4,227 core samples totaling 6,167.1 m were collected and assayed. The program targeted the historical Las Chispas Vein to verify location of the vein and existence of mineralization along trend of mapped historical workings. All drill holes intercepted quartz stockwork veinlets, veining and/or breccia, along with variable amounts of gold and silver mineralization. The results confirmed the historic mineralized structure and suggested that relatively unexplored and unmined areas exist proximal to the historic workings. Hole LC16-05 intercepted 4.6 m (true width) at 4.56 gpt gold and 622 gpt silver, or 963 gpt AgEq, in a breccia. The intersection is near the location of an underground channel sampling grading 1,163 gpt AgEq over 8 m in vein strike length and 1 m true width.

Additional drilling targeted the William Tell Vein, which intercepted the mineralized structure in four of seven holes with grades greater than 400 gpt AgEq over estimated true widths of 0.8 to 1.5 m.

The 2016 program also included three holes (LV16-01, LV16-02, and LV16-03) in the La Victoria Area, located 800 m southwest of the Babicanora Vein. These holes intersected only low-grade mineralization.

Significant results for this drilling were reported in the Qualifying Report for Las Chispas (Barr 2016), with effective date September 15, 2016, prepared by James Barr, P. Geo, independent QP, and Senior Geologist and Team Lead with Tetra Tech.

### 10.2.2 Phase II

During the Phase II program, 22,899 core samples totaling 24,864.0 m were collected and assayed. The program targeted delineation and expansion of known vein targets at Las Chispas, William Tell, and Babicanora and tested new targets, such as La Varela, La Blanquita, Granaditas, and Amethyst veins. Table 10-2 presents significant drill hole intercepts for these areas.

Significant results for this drilling were reported in Barr (2018).

### 10.2.3 Phase III

To date, 33,551 core samples totaling 36,625.1 m have been collected and assayed during the Phase III program, to the period ending February 8, 2019. The program has targeted delineation and expansion of known vein targets in the Babicanora Area including Area 51, Babicanora HW, Babicanora FW, Babicanora Norte, and Babicanora Sur veins in addition to the Giovanni vein. Newly tested targets for the Phase III program include the Babicanora Norte, Babicanora Sur, Granaditas, Luigi, Amethyst and Ranch veins.

Table 10-2 presents the significant intercepts for the Phase III program.

#### 10.2.3.1 Babicanora

Expansion and delineation of Babicanora during Phase III focused in the Babicanora Vein surface drilling in the southeast portion of the vein, mainly to delineate Shoot 51, a high-grade subarea of Area 51. This drilling was accessed via a high-elevation road from the ridge crest permitting drill access to the vein from the hanging wall side. Numerous high-grade intercepts were made in this area previously defined as Area 51 including BA18-122 with an estimated true thickness of 9.3 m grading at 39.66 gpt gold and 3,361 gpt silver, or 6,336 gpt AgEq (Table 10-2). Figure 10-2 shows the Babicanora long section with distribution of drill hole pierce points, high-grade footprint (Precious Metal Zone), and location of the Shoot 51. Figure 10-3 shows a plan view of Level 1,130 (masl) with the Babicanora, Babicanora FW, and Babicanora HW veins shape as modelled for Mineral Resource Estimation along with drill hole traces on this level and select mineralized intercepts.

Drilling has established good lithological control on the upper portion of the Shoot 51 Zone where welded dacitic-rhyodacitic crystal tuff (RDCLF) overlies a more permeable lapilli tuff, which is host to the highest-grade mineralization. Mineralization transects the contact; however, it is reduced in both thickness and grade due to permeability contrasts between the lapilli and welded tuff unit. The orientation of this lithological contact appears to be a controlling feature on the southeast directed plunge of mineralization within the Babicanora Vein. A lower boundary is less defined and the target of ongoing drilling in this area.

#### 10.2.3.2 Babicanora Foot Wall Vein

The Babicanora FW Vein is immediately adjacent to the Babicanora Vein and was discovered at the same time in late 2017. This vein was drill tested at the same time as the Babicanora Vein. This vein can be observed underground in the Babicanora adit and on surface in select locations. Hole BA18-122 intercepted 0.7 m with an estimated true thickness of 0.5 m grading 17.6 gpt gold, 2110 gpt silver, and 3,430 gpt AgEq.

#### 10.2.3.3 Babicanora Norte

Surface drilling commenced on the Babicanora Norte Vein in March 2018 and was discovered on the second drill hole, BAN18-02. The vein is located near the portal of the Babicanora adit and projects under historical waste dumps. Initial drilling was directed 50 m below a shallow shaft where the high-grade vein was intercepted. After discovery, the Babicanora Norte Vein was systematically drilled to the northwest and southeast along vein strike. Numerous high-grade intercepts were made from step-out drilling, including the most significant in hole BAN18-10 with an estimated true thickness of 2.2 m grading at 61.36 gpt gold and 2,833.5 gpt silver, or 7,436 gpt AgEq.

In contrast to the Babicanora Vein, the Babicanora Norte Vein is hosted in welded RDCLF as a discordant extensional vein of consistent width and sharp contacts with host rock. Current interpretation of drilling results has identified a flexure in the Babicanora Norte Vein with change in orientation from 160º degrees azimuth in the northwestern portion to 125° azimuth in the central. This flexure may represent an intersection of regional structural trends and is a target for further drill testing in the area.

#### 10.2.3.4 Babicanora Sur

The Babicanora Sur Vein is located approximately 300 m southwest and is oriented roughly parallel to the Babicanora Vein. Drilling commenced on Babicanora Sur in the southeast portion of the Property based on availability and access of surface drill rigs on roads constructed in the Babicanora Area. Progress of delineating the vein will continue throughout the Phase III program as surface access is constructed to the northwest. Drill sampling highlights in the area include drill hole BAS18-31 with an estimated true thickness of approximately 2.2 m grading 18.78 gpt gold and 2,147 gpt silver, or 3,556 gpt AgEq.

To date, interpretation of drilling results indicates that mineralization in the vein is comprised of three subvertical shoots; however, insufficient infill drilling has been conducted along the full strike of the vein to confirm this.

#### 10.2.3.5 Granaditas

The Granaditas Vein is parallel to the Babicanora and Babicanora Norte veins and consists of southeastward plunging high-grade mineralization similar to the adjacent Babicanora and Babicanora Norte veins. Drilling during Phase III has focused on delineating the high-grade footprint that included drill hole GR18-04 with an estimated true thickness of 1.8 m grading at 12.14 gpt gold and 1,440.3 gpt silver, or 2,350 gpt AgEq.

#### 10.2.3.6 Luigi

The Luigi Vein was discovered in the footwall of the Las Chispas Vein in mid-2017, but it remained unnamed until there was enough drilling to delineate an actual mineral vein. The Phase III program has focused on delineating the vein through underground drilling on the 550 and 600 Level of the historic Las Chispas workings.

#### 10.2.3.7 Ranch Area

Surface drilling commenced in the Babicanora Ranch area during Phase III with thirteen holes to accomplish condemnation drilling in the surrounding area for potential processing facilities.

#### 10.2.3.8 Espiritu Santo

The Espiritu Santo workings are located to the southeast of the Las Chispas Vein and William Tell Vein. Drilling during phase III targeted the two adits and a shaft in this area with a total of three holes completed.

**Figure 10-2: Babicanora Vein Long Section Looking Southwest**

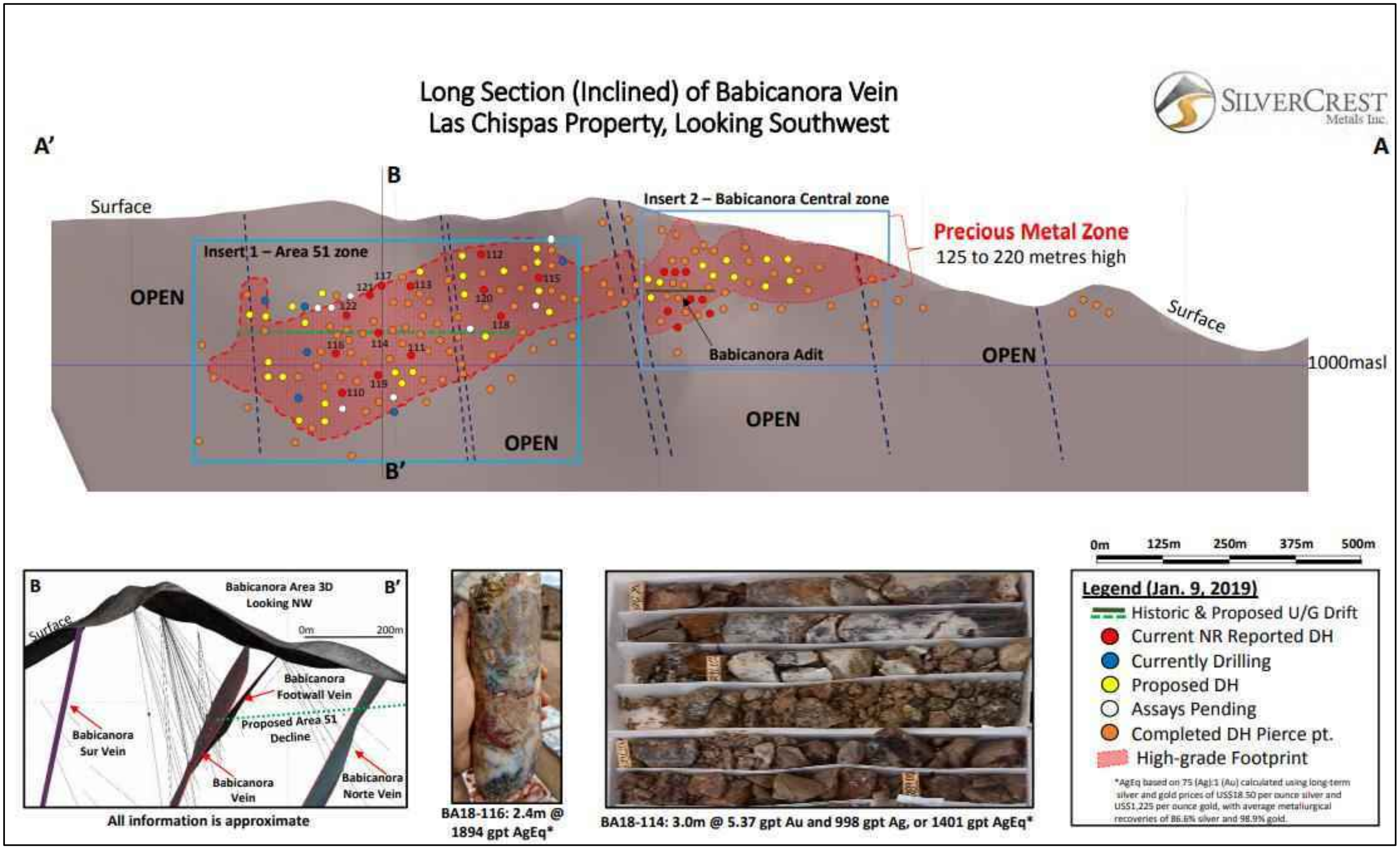


**Figure 10-3: Babicanora Vein Plan View on 1,130 m Level circa September 2018**

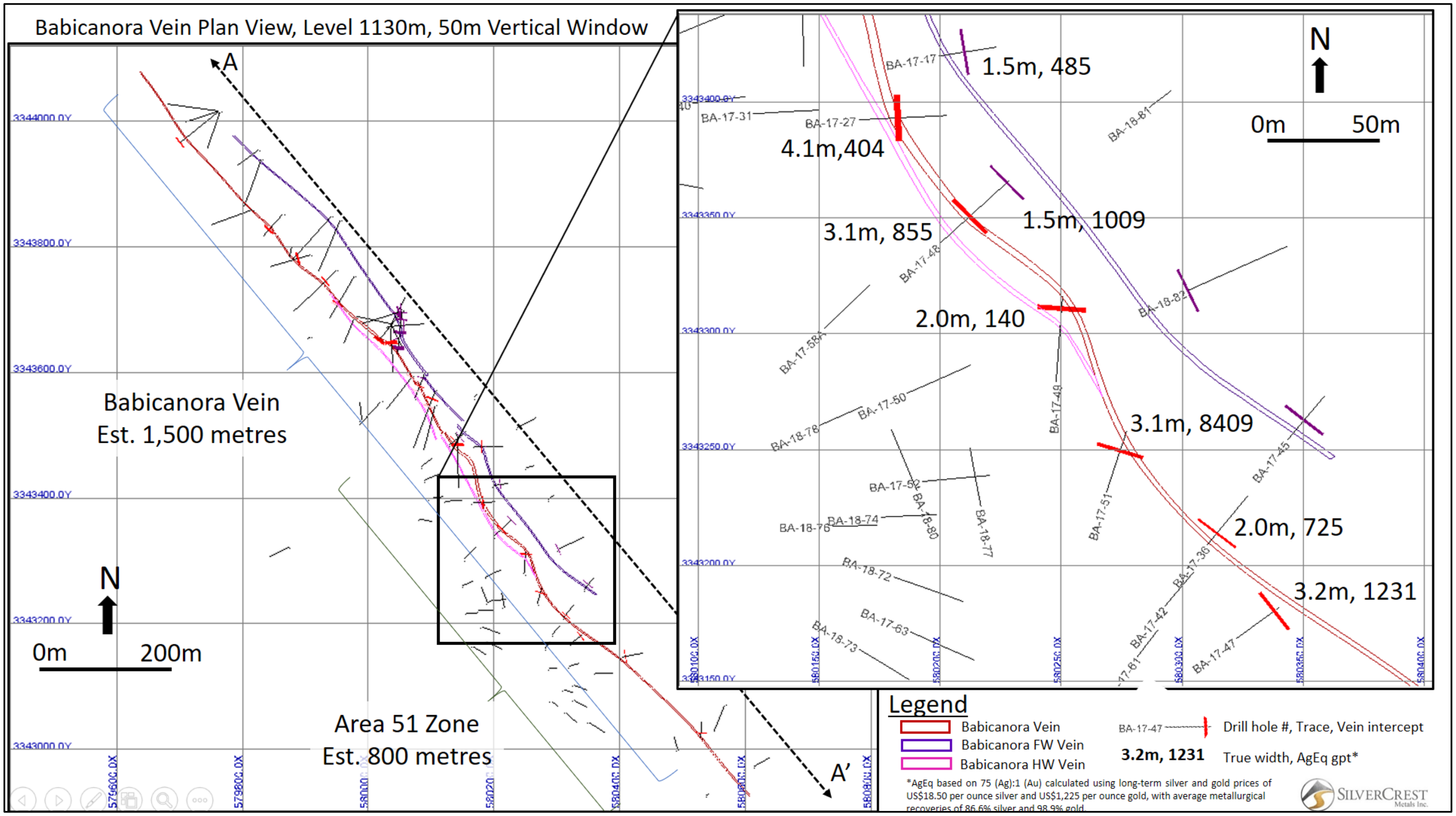


**Table 10-2: Las Chispas Most Significant Drill Hole Results for Recent Phase III (September 2018 to February 2019[3,4,5]**

| Vein | Hole No. | From (m) | To (m) | Drilled Width (m) | Est. True Width[2] (m) | Au (gpt) | Ag (gpt) | AgEq[1] (gpt) |
|---|---|---|---|---|---|---|---|---|
| Babicanora | BA18-93 | 300.5 | 304.6 | 4.1 | 3.8 | 6.78 | 1,091 | 1,599 |
| Babicanora | incl. | 302.4 | 304.6 | 2.2 | 2.0 | 8.97 | 1,505 | 2,177 |
| Babicanora | BA18-94 | 307.4 | 312.0 | 4.6 | 3.5 | 33.06 | 2,092 | 4,570 |
| Babicanora | incl. | 310.2 | 311.3 | 1.1 | 0.8 | 80.65 | 6,573 | 12,622 |
| Babicanora | BA18-95 | 294.0 | 308.2 | 14.2 | 11.1 | 3.99 | 580 | 879 |
| Babicanora | incl. | 296.0 | 298.7 | 2.7 | 2.1 | 8.01 | 1,250 | 1,850 |
| Babicanora | incl. | 303.1 | 304.2 | 1.1 | 0.9 | 25.50 | 2,381 | 4,293 |
| Babicanora | BA18-96 | 200.2 | 214.4 | 14.1 | 9.9 | 14.40 | 2,132 | 3,212 |
| Babicanora | incl. | 204.1 | 210.5 | 6.4 | 4.5 | 30.28 | 4,498 | 6,769 |
| Babicanora | incl. | 208.5 | 209.5 | 1.0 | 0.7 | 102.15 | 12,757 | 20,418 |
| Babicanora | BA18-97 | 294.0 | 296.0 | 2.0 | 1.5 | 2.52 | 454 | 643 |
| Babicanora | incl. | 294.0 | 295.0 | 1.0 | 0.7 | 4.57 | 821 | 1,164 |
| Babicanora | BA18-110 | 370.0 | 373.6 | 3.7 | 3.3 | 3.72 | 451 | 730 |
| Babicanora | incl. | 373.1 | 373.6 | 0.6 | 0.5 | 14.55 | 1,640 | 2,731 |
| Babicanora | BA18-112 | 205.9 | 206.6 | 0.7 | 0.6 | 0.65 | 174 | 223 |
| Babicanora | BA18-113 | 137.2 | 140.4 | 3.3 | 2.9 | 1.08 | 365 | 445 |
| Babicanora | BA18-114 | 289.0 | 293.2 | 4.2 | 3.0 | 5.37 | 998 | 1,401 |
| Babicanora | incl. | 291.1 | 292.2 | 1.1 | 0.8 | 11.95 | 1,860 | 2,756 |
| Babicanora | incl. | 309.1 | 311.2 | 2.1 | 1.5 | 2.49 | 226 | 413 |
| Babicanora | BA18-115 | 172.7 | 177.4 | 4.7 | 4.3 | 0.73 | 149 | 204 |
| Babicanora | BA18-116 | 318.9 | 321.6 | 2.8 | 2.4 | 4.30 | 1,572 | 1,894 |
| Babicanora | incl. | 320.0 | 320.8 | 0.8 | 0.7 | 6.38 | 4,160 | 4,639 |
| Babicanora | BA18-118 | 219.6 | 226.1 | 6.5 | 4.0 | 0.50 | 211 | 249 |
| Babicanora | BA18-119 | 351.8 | 352.3 | 0.5 | 0.4 | 0.78 | 106 | 164 |
| Babicanora | incl. | 362.6 | 364.1 | 1.5 | 1.2 | 5.44 | 774 | 1,182 |
| Babicanora | BA18-120 | 185.8 | 195.0 | 9.2 | 8.6 | 0.98 | 409 | 483 |
| Babicanora | BA18-122 | 194.3 | 207.5 | 13.2 | 9.3 | 39.66 | 3,361 | 6,336 |
| Babicanora | incl. | 194.3 | 194.8 | 0.5 | 0.4 | 252.00 | 9,740 | 28,640 |
| Babicanora | incl. | 198.9 | 200.2 | 1.3 | 0.9 | 92.70 | 7,570 | 14,522 |
| Babicanora | incl. | 205.4 | 206.0 | 0.6 | 0.4 | 47.30 | 7,760 | 11,307 |
| Babicanora | incl. | 224.8 | 226.8 | 1.9 | 1.4 | 6.01 | 722 | 1,173 |

*table continues…*



TETRA TECH

| Vein | Hole No. | From (m) | To (m) | Drilled Width (m) | Est. True Width[(2)] (m) | Au (gpt) | Ag (gpt) | AgEq[(1)] (gpt) |
|---|---|---|---|---|---|---|---|---|
| Babicanora | BA18-123 | 260.8 | 264.6 | 3.9 | 3.1 | 12.58 | 326 | 1,269 |
| Babicanora | incl. | 262.5 | 263.1 | 0.6 | 0.5 | 81.80 | 540 | 6,675 |
| Babicanora | BA18-124A | 240.6 | 241.4 | 0.8 | 0.7 | 1.38 | 151 | 254 |
| Babicanora | BA18-125 | 207.2 | 208.7 | 1.5 | 1.2 | 1.81 | 34 | 170 |
| Babicanora | BA18-126 | 428.0 | 429.5 | 1.5 | 1.2 | 11.29 | 1,037 | 1,885 |
| Babicanora | incl. | 428.0 | 428.5 | 0.5 | 0.4 | 30.70 | 2,760 | 5,062 |
| Babicanora | BA18-128 | 334.2 | 337.4 | 3.2 | 2.6 | 3.33 | 357 | 607 |
| Babicanora | incl. | 334.2 | 335.8 | 1.7 | 1.4 | 5.10 | 951 | 959 |
| Babicanora | BA18-131 | 277.5 | 284.0 | 6.5 | 4.2 | 9.99 | 837 | 1,586 |
| Babicanora | incl. | 280.3 | 281.7 | 1.4 | 0.9 | 35.70 | 2,670 | 5,347 |
| Babicanora | BA18-132 | 205.7 | 210.8 | 5.1 | 3.3 | 11.47 | 1,314 | 2,174 |
| Babicanora | incl. | 207.2 | 208.9 | 1.7 | 1.1 | 14.96 | 1,666 | 2,788 |
| Babicanora | incl. | 210.3 | 210.8 | 0.5 | 0.3 | 36.90 | 4,100 | 6,867 |
| Babicanora | BA18-133 | 227.8 | 229.2 | 1.4 | 1.0 | 64.25 | 11,020 | 15,839 |
| Babicanora | incl. | 228.3 | 229.2 | 0.9 | 0.6 | 96.30 | 16,721 | 23,943 |
| Babicanora | BA18-134 | 179.8 | 181.4 | 1.6 | 1.6 | 0.06 | 175 | 179 |
| Babicanora | BA19-139 | 262.5 | 264.2 | 1.7 | 1.5 | 0.05 | 296 | 300 |
| Babicanora | BA19-142 | 431.4 | 432.9 | 1.5 | 1.3 | 15.57 | 1,526 | 2,694 |
| Babicanora | incl. | 431.9 | 432.4 | 0.5 | 0.4 | 31.30 | 3,100 | 5,448 |
| Babicanora Central | UB18-14 | 92.2 | 99.1 | 6.9 | 5.1 | 4.16 | 197 | 510 |
| Babicanora Central | incl. | 96.0 | 96.5 | 0.5 | 0.4 | 10.80 | 458 | 1,268 |
| Babicanora Central | UB18-15 | 64.5 | 66.9 | 2.4 | 1.8 | 0.10 | 192 | 197 |
| Babicanora Central | UB18-16 | 21.1 | 21.6 | 0.5 | 0.4 | 2.05 | 5 | 159 |
| Babicanora Central | UB18-17 | 66.6 | 75.5 | 8.9 | 6.3 | 0.21 | 330 | 346 |
| Babicanora Central | UB18-18 | 70.8 | 73.7 | 2.9 | 2.6 | 9.84 | 236 | 974 |
| Babicanora Central | UB18-20 | 91.5 | 93.0 | 1.5 | 1.0 | 2.73 | 40 | 245 |
| Babicanora Central | UB18-21 | 39.8 | 48.0 | 8.3 | 7.8 | 0.95 | 408 | 479 |
| Babicanora Central | incl. | 46.5 | 48.0 | 1.5 | 1.4 | 0.14 | 1,917 | 1,928 |
| Babicanora Central | UB18-22 | 48.0 | 57.0 | 9.0 | 9.0 | 2.09 | 353 | 509 |
| Babicanora Central | incl. | 49.5 | 51.0 | 1.5 | 1.5 | 1.90 | 933 | 1,076 |
| Babicanora Central | UB18-23 | 37.1 | 51.0 | 13.9 | 13.9 | 1.42 | 208 | 314 |
| Babicanora Central | incl. | 50.0 | 51.0 | 1.0 | 1.0 | 16.40 | 349 | 1,579 |
| Babicanora FW | BA18-115 | 208.7 | 209.2 | 0.5 | 0.5 | 9.81 | 935 | 1,671 |

*table continues…*



TETRA TECH

| Vein | Hole No. | From (m) | To (m) | Drilled Width (m) | Est. True Width[(2)] (m) | Au (gpt) | Ag (gpt) | AgEq[(1)] (gpt) |
|---|---|---|---|---|---|---|---|---|
| Babicanora FW | BA18-120 | 225.5 | 226.0 | 0.5 | 0.5 | 0.98 | 409 | 483 |
| Babicanora FW | BA18-122 | 224.8 | 225.4 | 0.7 | 0.6 | 17.60 | 2,110 | 3,430 |
| Babicanora FW | BA18-128 | 342.7 | 343.7 | 1.0 | 0.8 | 5.13 | 543 | 927 |
| Babicanora FW | incl. | 343.2 | 343.7 | 0.5 | 0.4 | 9.57 | 997 | 1,714 |
| Babicanora FW | BA18-134 | 192.5 | 194.5 | 2.0 | 2.0 | 1.18 | 149 | 238 |
| Babicanora FW | BA19-142 | 435.6 | 436.1 | 0.5 | 0.4 | 2.55 | 268 | 459 |
| Babicanora FW | UB18-14 | 34.0 | 36.0 | 2.0 | 1.0 | 1.21 | 143 | 234 |
| Babicanora FW | UB18-18 | 5.1 | 6.2 | 1.1 | 1.0 | 1.59 | 128 | 247 |
| Babicanora FW | UB18-19 | 3.5 | 6.0 | 2.5 | 2.3 | 1.26 | 52 | 146 |
| Babicanora FW | UB18-20 | 10.3 | 11.4 | 1.1 | 0.7 | 0.79 | 90 | 149 |
| Babicanora FW | UB18-21 | 9.5 | 10.0 | 0.5 | 0.5 | 25.90 | 2,010 | 3,952 |
| Babicanora FW | UB18-22 | 13.3 | 16.1 | 2.8 | 2.8 | 1.61 | 35 | 156 |
| Babicanora HW | BA18-110 | 342.4 | 342.9 | 0.5 | 0.4 | 2.88 | 270 | 486 |
| Babicanora HW | BA18-116 | 300.8 | 301.4 | 0.6 | 0.5 | 1.72 | 152 | 281 |
| Babicanora HW | BA18-123 | 240.4 | 244.0 | 3.6 | 2.9 | 0.05 | 328 | 332 |
| Babicanora HW | BA18-124A | 237.8 | 238.4 | 0.6 | 0.6 | 0.66 | 113 | 163 |
| Babicanora HW | BA18-130 | 146.9 | 147.4 | 0.5 | 0.5 | 5.73 | 195 | 625 |
| Babicanora HW | BA18-134 | 156.0 | 156.5 | 0.5 | 0.5 | 1.47 | 199 | 309 |
| Babicanora HW | BA19-142 | 423.3 | 424.6 | 1.3 | 1.2 | 2.18 | 268 | 432 |
| Babicanora HW | UB18-23 | 79.3 | 80.6 | 1.3 | 1.3 | 0.05 | 167 | 171 |
| Babicanora Norte | BAN18-43 | 119.4 | 120.4 | 1.0 | 0.6 | 2.79 | 295 | 504 |
| Babicanora Norte | BAN18-50 | 366.0 | 367.8 | 1.8 | 1.3 | 2.10 | 2 | 159 |
| Babicanora Norte | BAN18-51 | 58.5 | 59.0 | 0.5 | 0.5 | 0.81 | 93 | 154 |
| Babicanora Norte | BAN18-54 | 161.4 | 161.9 | 0.5 | 0.5 | 5.57 | 32 | 450 |
| Babicanora Norte | BAN18-56 | 150.3 | 151.0 | 0.7 | 0.6 | 4.66 | 409 | 759 |
| Babicanora Vista | UBN18-03 | 163.1 | 163.7 | 0.6 | 0.6 | 3.26 | 530 | 775 |
| Babicanora Vista | BAN18-53 | 269.9 | 271.0 | 1.1 | 1.0 | 2.72 | 176 | 380 |
| Babicanora Sur | BAS18-07 | 147.6 | 149.9 | 2.2 | 2.2 | 4.63 | 209 | 556 |
| Babicanora Sur | incl. | 149.0 | 149.9 | 0.9 | 0.9 | 8.44 | 376 | 1,009 |
| Babicanora Sur | BAS18-09 | 139.4 | 140.1 | 0.6 | 0.6 | 5.47 | 123 | 533 |
| Babicanora Sur | BAS18-10 | 98.6 | 99.8 | 1.3 | 1.2 | 6.56 | 4 | 496 |
| Babicanora Sur | BAS18-14 | 158.6 | 159.6 | 1.1 | 1.1 | 2.30 | 166 | 338 |
| Babicanora Sur | BAS18-16 | 183.5 | 184.7 | 1.2 | 1.1 | 1.14 | 94 | 180 |

*table continues…*



TETRA TECH

| Vein | Hole No. | From (m) | To (m) | Drilled Width (m) | Est. True Width[(2)] (m) | Au (gpt) | Ag (gpt) | AgEq[(1)] (gpt) |
|---|---|---|---|---|---|---|---|---|
| Babicanora Sur | BAS18-19 | 234.5 | 235.5 | 1.0 | 0.8 | 3.29 | 286 | 533 |
| Babicanora Sur | incl. | 234.5 | 235.0 | 0.5 | 0.4 | 6.51 | 571 | 1,059 |
| Babicanora Sur | BAS18-24 | 77.6 | 78.2 | 0.6 | 0.5 | 1.76 | 117 | 249 |
| Babicanora Sur | BAS18-26 | 227.0 | 228.1 | 1.1 | 0.9 | 1.53 | 117 | 232 |
| Babicanora Sur | BAS18-27 | 124.4 | 125.4 | 1.0 | 0.6 | 9.33 | 66 | 766 |
| Babicanora Sur | BAS18-29 | 193.0 | 194.0 | 1.0 | 1.0 | 1.04 | 80 | 158 |
| Babicanora Sur | BAS18-31 | 230.6 | 232.8 | 2.2 | 2.2 | 18.78 | 2,147 | 3,556 |
| Babicanora Sur | incl. | 231.7 | 232.8 | 1.1 | 1.1 | 33.85 | 3,905 | 6,444 |
| Babicanora Sur | BAS18-33 | 148.6 | 150.0 | 1.4 | 0.9 | 5.01 | 197 | 573 |
| Babicanora Sur | incl. | 148.6 | 149.3 | 0.7 | 0.5 | 6.86 | 301 | 816 |
| Babicanora Sur | BAS19-37 | 111.0 | 112.6 | 1.6 | 1.2 | 2.66 | 16 | 215 |
| Babicanora Sur | BAS19-39 | 248.0 | 250.1 | 2.1 | 1.7 | 2.73 | 204 | 409 |
| Babicanora Sur | incl. | 248.7 | 249.4 | 0.7 | 0.6 | 4.24 | 327 | 645 |
| Babicanora Sur HW | BAS18-11 | 76.3 | 78.0 | 1.8 | 1.7 | 2.01 | 4 | 155 |
| Babicanora Sur HW | BAS18-23 | 206.8 | 207.5 | 0.7 | 0.6 | 1.52 | 128 | 242 |
| Babicanora Sur HW | BAS18-27 | 13.7 | 15.1 | 1.5 | 0.8 | 7.63 | 34 | 606 |
| Babicanora Sur HW | BAS19-35 | 36.0 | 36.5 | 0.5 | 0.3 | 10.25 | 7 | 775 |
| Babicanora Sur HW | BAS18-08 | 70.3 | 70.8 | 0.6 | 0.6 | 2.60 | 5 | 200 |
| Babicanora Sur HW | BAS18-11 | 76.3 | 78.0 | 1.8 | 1.7 | 2.01 | 4 | 155 |
| Babicanora Sur HW | BAS18-19 | 190.5 | 191.6 | 1.0 | 0.8 | 5.57 | 183 | 601 |
| Babicanora Sur HW | BAS18-23 | 195.0 | 197.0 | 2.0 | 1.2 | 1.19 | 106 | 195 |

Note: (1)AgEq is based on a silver to gold ratio of 75:1. This was calculated using long-term silver and gold prices of US$17/oz silver and US$1,225/oz gold with approximate average metallurgical recoveries of 90% silver and 95% gold.
(2)True width is 80 to 100% of drilled width.
(3)Based on a cut-off grade of 150 gpt AgEq with a 0.5 m minimum width.
(4)U signifies an underground core hole; BA signified a surface core hole.
(5)The Babicanora FW Vein intercept in hole BA18-122 was noted as part of Babicanora Vein. Babicanora Vista Vein intercepts BAN18-14, BAN18-30, BAN18-33, and UBN18-03 were previously reported in various news releases as unknown veins.

# 11.0 SAMPLE PREPARATION, ANALYSES AND SECURITY

To date, four types of sample collection programs have been conducted on the Property:

- Underground and surface sampling as chip samples and/or channel samples.
- Stockpile/backfill sampling as intact historical muck from draw points and/or placed or remobilized muck within underground development.
- Drill core sampling as hand split core or wet saw cut core.
- Surface dump trenching and sampling.

The sample collection approaches being conducted by SilverCrest are described in the following subsections. SilverCrest has established a sample processing facility on the Property where core samples are logged, specific gravity measurements collected, photographed, sampled, bagged and tagged, and stored on site prior to being transported to the laboratory by SilverCrest staff. Underground chip samples are bagged and tagged at the point of collection and are also stored at the sample processing facility. All coarse reject materials, pulps, and blank materials are stored in a covered building.

## 11.1 Underground Chip Sample Collection Approach

This subsection describes SilverCrest's approach to underground rock sample collection.

- Underground continuous chip samples were marked by a geologist, per lithology or mineralization contacts, using spray paint prior to sample collection.
- The chip samples were collected using a small sledge hammer, a hand maul/chisel, and a small tarp on the floor to collect the chips.
- The chip samples were then collected and placed into clear plastic sample bags with a sample tab, secured with a zip tie, labelled, and stored in the semi-secure core storage facility at Las Chispas prior to being transported to the ALS Chemex preparation facility located in Hermosillo.
- The chips were collected along development ribs as longitudinal samples, along backs and overhead stope pillars as transverse samples, and along some cross cuts as transverse samples. The SilverCrest collection program was eventually modified to allow identification of each sample type in the geological database.
- SilverCrest initiated a follow-up program to collect duplicate and new samples using a power saw to cut a channel along the initial chip path; saw cut samples were collected at approximately every five to eight samples, depending on access.
- Each sample path was labelled with a sample number written on a piece of flagging and anchored to the development wall.
- SilverCrest's senior geologist and exploration manager conducted a follow-up review of the sampling program to ensure that all development tunnels near the mineralized zone were sampled, that transverse samples were properly collected across veins, and that the samples were clearly and properly labelled.

## 11.2 Underground Muck/Stockpile Sample Collection Approach

This subsection describes SilverCrest's approach to underground muck and/or stockpile sample collection (refer to Figure 9-2 for muck locations).

- Samples were collected at random within the existing historical muck and material stockpiles in the Las Chispas, William Tell, and Babicanora workings.
- The average mass of the samples collected was approximately 4 kg.
- Sample spacing along continuous muck piles was approximately 10 m, suggesting that each sample could represent approximately 20 to 40 t of material, depending on the size of the pile.
- Sample collection was completed by hand or shovel, from near surface material, as non-selective collection to represent both the fine and coarse fragment portions of the muck piles.
- The muck samples were then collected and placed into clear plastic sample bags with a sample tab, secured with a zip tie, labelled, and stored in the semi-secure core storage facility at Las Chispas prior to being transported to the ALS Chemex preparation facility located in Hermosillo.
- SilverCrest's senior geologist and vice president of exploration and technical services conducted a follow-up review of the sampling program to ensure that all appropriate muck piles were sampled, and that the samples were clearly and properly labelled.

## 11.3 Drill Core Sample Collection Approach

This subsection describes SilverCrest's approach to drill core sample collection.

- Project geologists logged the drill holes, and the senior geologist reviewed the logs.
- Sample intervals were laid out for mineralization, veining, and structure. Approximately 10 m before and after each mineralized zone was included in the sampling intervals. A minimum of 0.5 m sample lengths of mineralized material was taken up to a maximum of 3 m in non-mineralized rock.
- Each sample interval was either split using a hand splitter or cut by wet core saw perpendicular to veining, where possible, to leave representative core in the box and to reduce bias in mineral submitted with the sample.
- Half of the core was placed into clear plastic sample bags with a sample tab, secured with a zip tie, labelled, and stored in the semi-secure core storage facility at Las Chispas before being transported to the ALS Chemex preparation facility located in Hermosillo.
- SilverCrest's senior geologist and vice president of exploration and technical services conducted a follow-up review of the core sampling program to ensure that each core sample was properly split/cut, that the sample intervals were clearly marked, that representative core samples remain in the core box, and that sample tags were stapled to the core boxes in sequential order.

## 11.4 Sample Analytical Methods

SilverCrest personnel delivered all of the samples collected from the Las Chispas site to the ALS Chemex preparation facility in Hermosillo, Sonora. The standard analytical procedures are as follows:

- All samples were received, registered, and dried.

- All samples were crushed to 75% less than 2 mm, then mixed and split with a riffle splitter.
- A split from all samples were then pulverized to 80% less than 75 µm.
- All pulverized splits were submitted for multi-element aqua regia digestion with inductively coupled plasma (ICP)-mass spectrometry (MS) detection (ME ICP41).
- All pulverized splits were submitted for gold fire assay fusion with atomic absorption spectroscopy (AAS) detection (30 g, Au AA25).
- Silver analyses were conducted per the following criteria:
  - Samples returning grades above the upper detection limit of greater than 100 gpt silver from ICP analysis were then re-run using aqua regia digestion and ICP-atomic emission spectroscopy (AES) detection, (Ag OG46) and diluted to account for ore grade detection limits (less than 1,500 gpt).
  - Grade analysis returning silver grades greater than 1,500 gpt silver was then re-run using fire assay fusion with gravimetric detection (Ag GRA-21).
- Gold analyses were conducted per the following criteria by ALS Minerals in North Vancouver, Canada:
  - During Phase I (March 2016 to October 2016) all samples were analyzed for gold by 30 g fire assay with AAS detection (FA-AA23).
  - During Phase II (November 2016 to February 2018) samples were analyzed by ICP-MS. Where gold measured greater than 1 gpt gold, the samples were re-run using fire assay fusion with gravimetric detection (Au GRA-21), and where gold measured greater than 10 gpt gold, the samples were re-run using 30 g fire assay with AAS detection (FA-AA25).
  - During Phase III (March 2018 to present) silver and gold are analyzed by 30 g fire assay with gravimetric finish (ME-GRAV21) by ALS Minerals in North Vancouver.
  - During Phase III, selective metallic screen analysis was completed at SGS Durango (see Section 12.5.2.4).
- Samples returning grades of greater than 10,000 ppm of zinc, lead, or copper from ICP-MS analysis were then re-run using aqua regia digestion with ICP-AES finish (Pb/Zn/Cu OG46).

## 11.5 SilverCrest Internal QA/QC Approach

At the exploration stage, SilverCrest has implemented a program of certified reference material (CRM), blank sample insertions for all sample types being collected, and duplicate samples for some underground chip samples.

A summary of the quality assurance (QA)/quality control (QC) program for the Phase I and Phase II programs can be referenced in the Barr (2018). The program being implemented for Phase III is described in the following subsections.

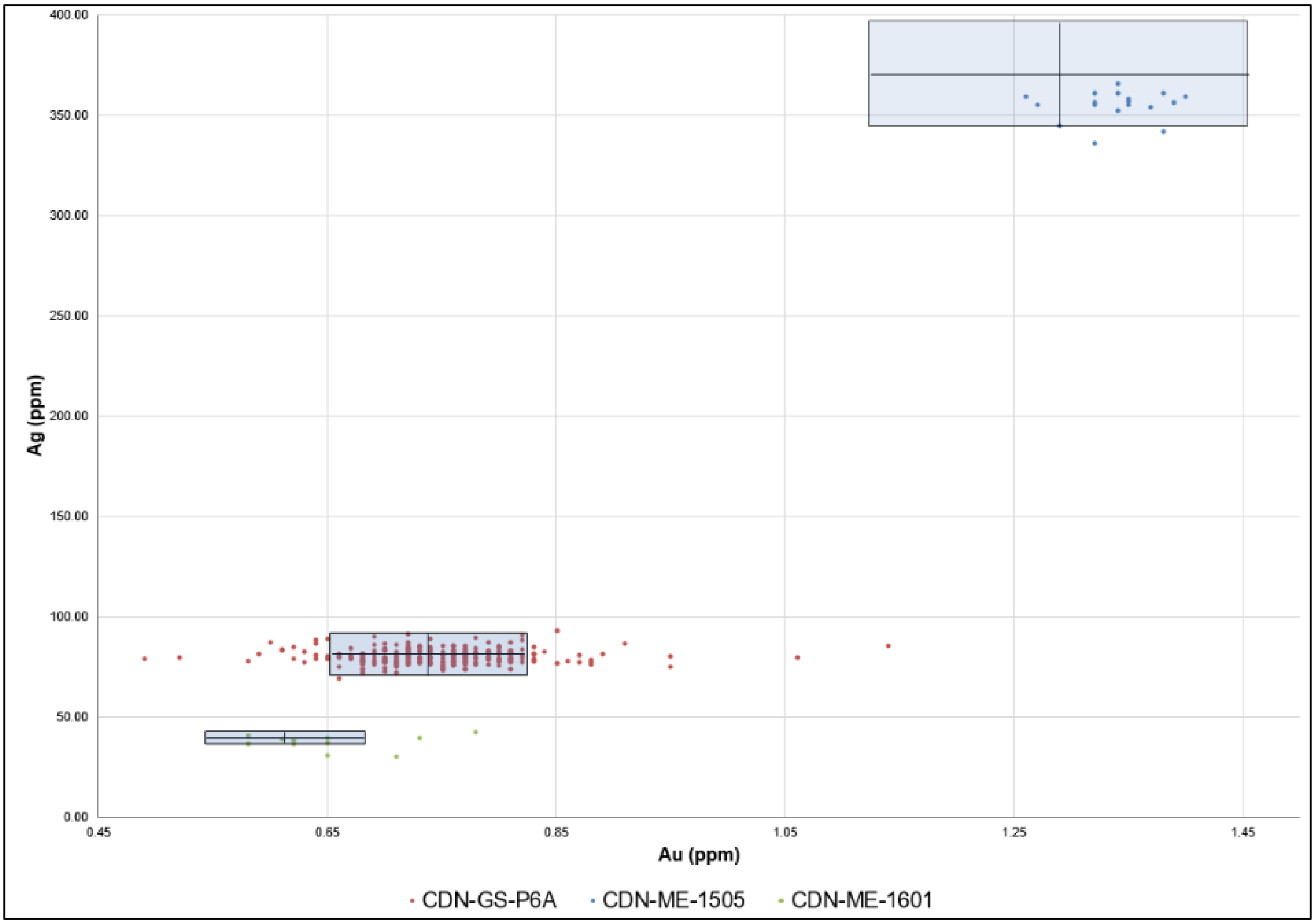
### 11.5.1 Phase III QA/QC Program

#### 11.5.1.1 Certified Reference Standards

Commercial standards in 1 kg plastic bottles were sourced from CDN Resource Laboratories Ltd. (CDN Labs). The CRM was selected to contain silver/gold grades, a matrix consistent with the grades of the known mineralization, and a similar host rock lithology to the host rocks. At the Property's core logging facility, approximately 100 g of reference material is weighed, placed in a paper envelope, and added to the sample stream as directed by the field geologists. These samples are used to test the precision and accuracy of both gold and silver assays and to monitor the consistency of the laboratory's performance. Insertion frequency of the standards is approximately one to every 50 samples (2.9%).

A total of 389 standards were inserted into the sample stream during this phase of drilling. Each standard and corresponding sample number was recorded in a QA/QC sample tracking spreadsheet. Figure 11-1 shows a shotgun plot illustrating the analytical results for the CRM in relation to their referenced failure threshold of three standard deviations (SDs). Standard results greater than two SD and less than three SD are flagged as cautionary for review.

**Figure 11-1: Scatter Plot of CRM Results, Showing Three Distinct CRM Populations**




A CRM failure is defined by receipt of analytical results for a standard which is greater than three standard deviations above or below the expected value in either silver or gold. The protocol for re-assaying the standard failures is to re-analyse the pulps within a range of 10 samples above and 10 samples below the failed standard. In cases where the standard failures occurred in a batch of samples comprised of "non-mineralized" rock (generally in zones returning less than 0.1 gpt gold or less than 5 ppm silver), no action is taken. Table 11-1 shows the standard's expected values and failure rates. Figure 11-2 through Figure 11-7 chart the results of the CRM performance analysis for sampling conducted during the Phase 3 program since September 2018.

### Table 11-1: Standards Expected Ag and Au Values and the Failure Rates for the Drill Program

| Standards | Expected Ag Values, ± 3SD (gpt) | Expected Au Values, ± 3SD (gpt) | Sent | Au Failures (%) | Ag Failures (%) |
|---|---|---|---|---|---|
| CDN-ME-1601 | 39.6, ±2.70 | 0.613, ±0.069 | 12 | 25.0 | 33.3 |
| CDN-ME-1505 | 360, ±18 | 1.29, ±0.165 | 19 | 0.0 | 11.1 |
| CDN-GS-P6A | 81, ±10.50 | 0.738, ±0.084 | 358 | 14.2 | 1.1 |

### Figure 11-2: CRM CDN-ME-1601 Analysis, Silver

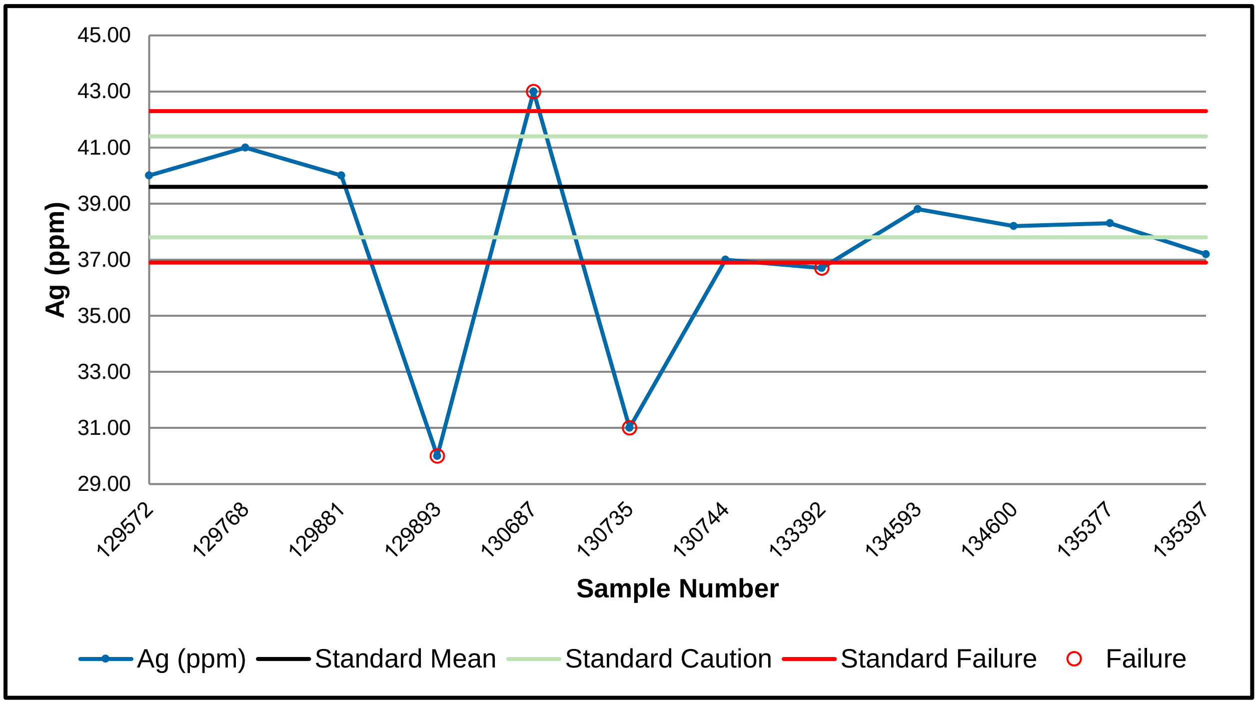


**Figure 11-3: CRM CDN-ME-1601 Analysis, Gold**

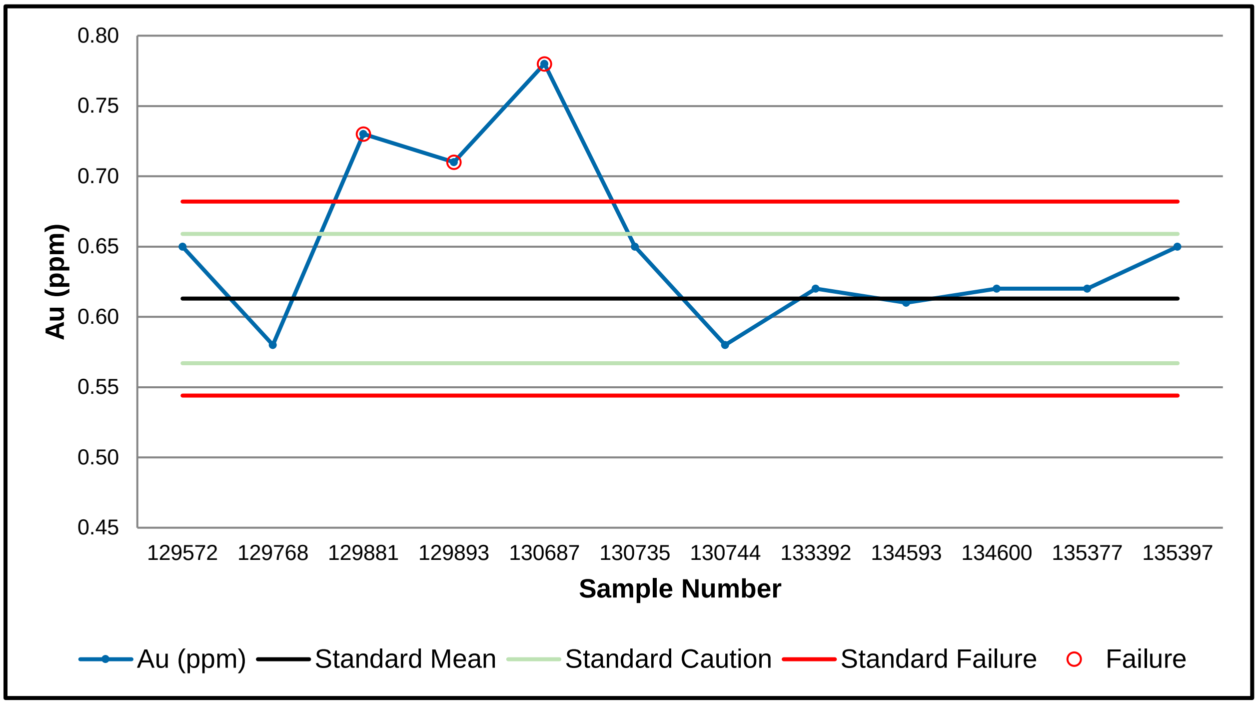
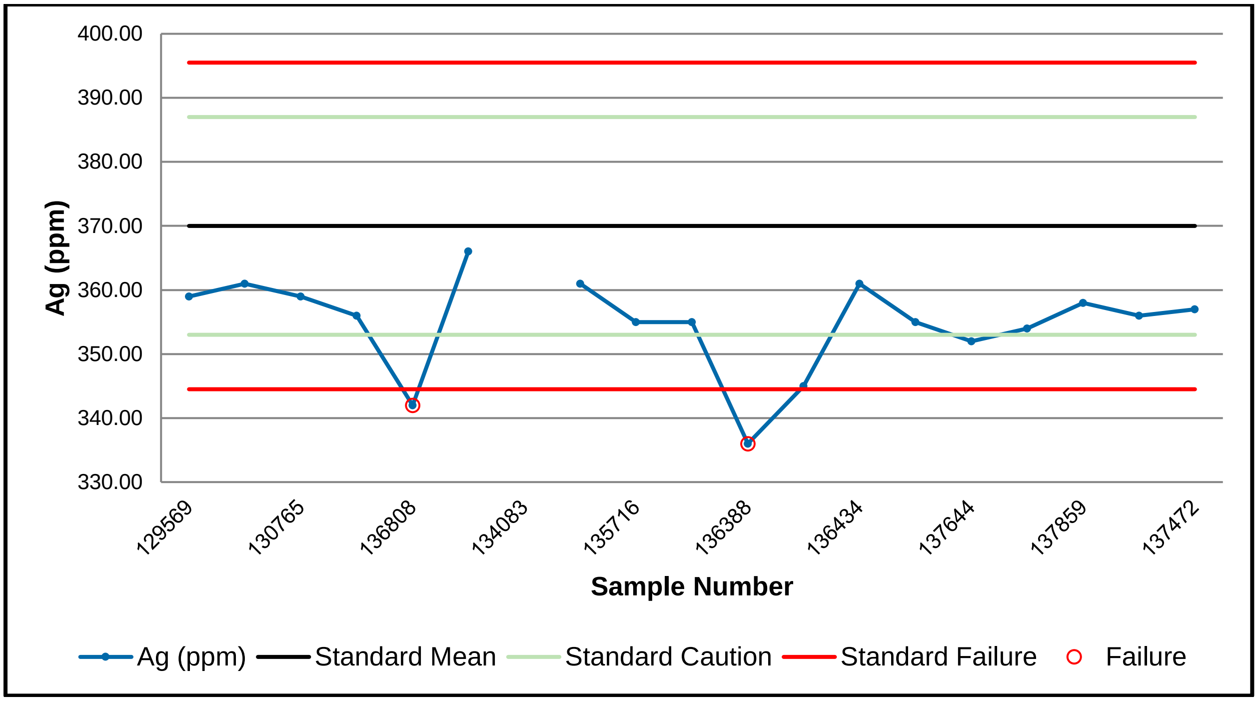



**Figure 11-4: CRM CDN-ME-1505 Analysis, Silver**




Note: Sample 134083 was not analyzed for an overlimit silver value, and so the value is removed from the chart.

**Figure 11-5: CRM CDN-ME-1505 Analysis, Gold**

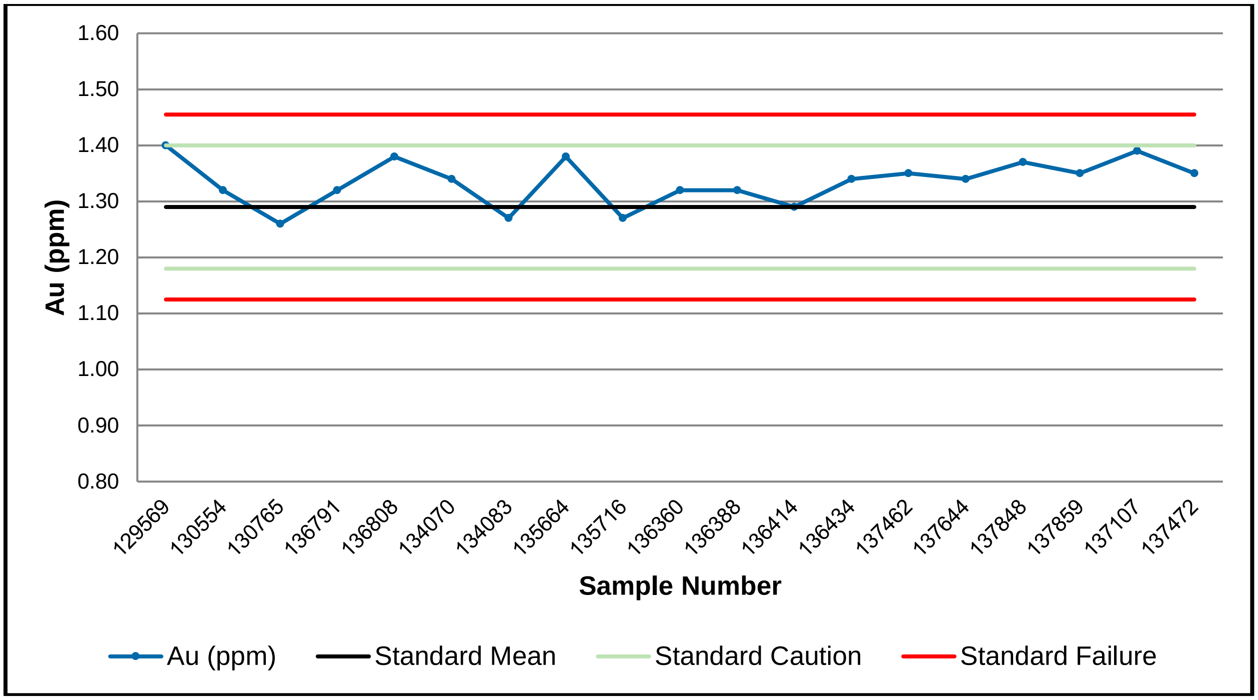



**Figure 11-6: CRM CDN-GS-P6A Analysis, Silver**

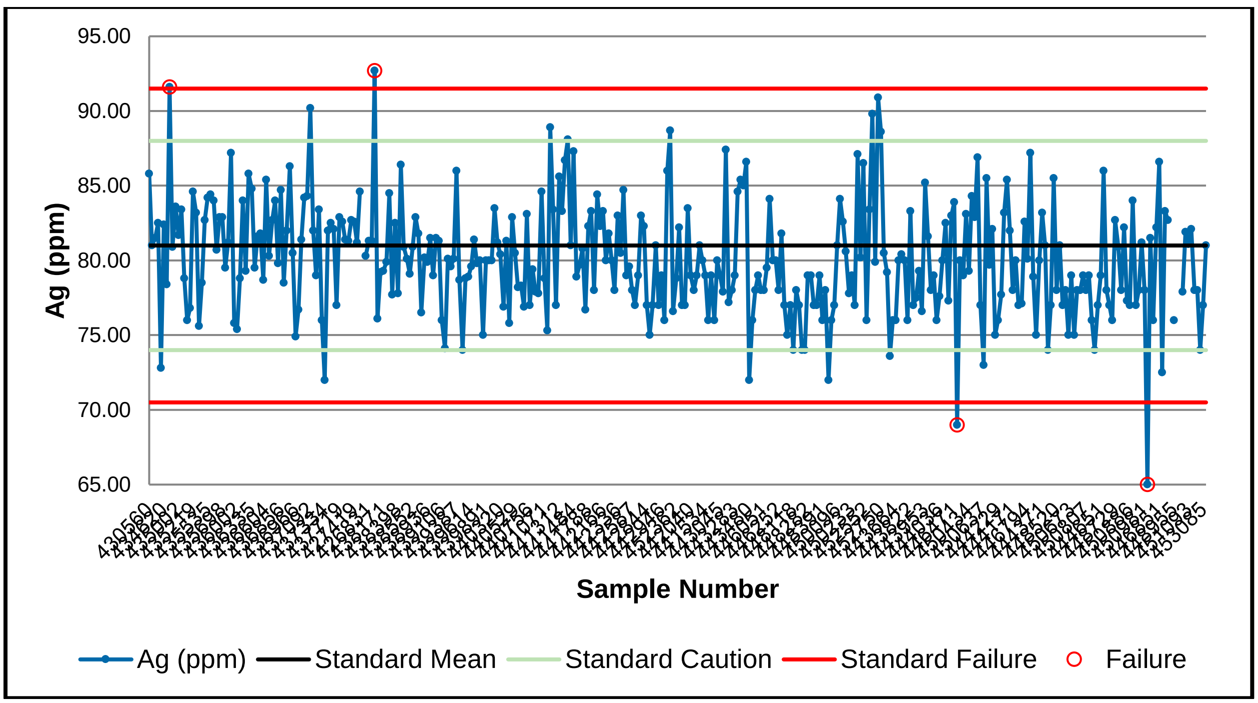
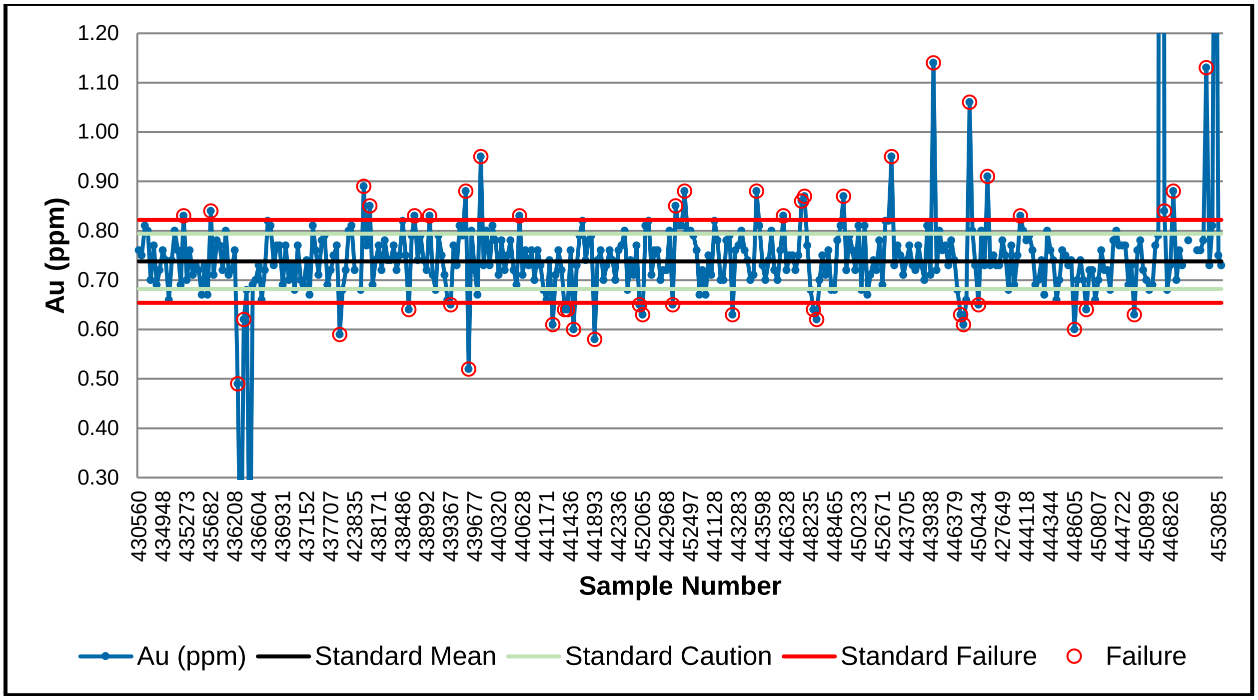


**Figure 11-7: CRM STD CDN-GS-P6A Analysis, Gold**




Assessment of the CRM performance concluded that CDN-ME-1601 had a significant number of failures (33.3% in silver and 25% in gold, respectively) whereas CDN-ME-1505 was better (11.1% for silver, 0% for gold). Both standards were used infrequently (combined only 31 samples, or 8% of standard insertions); however, provided insufficient data to properly validate overall standard performance. Use of the CRM CDN-ME-1601 was discontinued.

Standard CDN-GS-P4A was the primary standard used during the Phase III drill program. This standard had a failure rate of 1.1% for silver and 14.2% for gold. This is a high failure rate for gold that should be investigated further.

SilverCrest purchases its standards in 1 kg plastic bottles and individual standard packages are prepared on site. This leads to a variety of potential issues with standard performance, including contamination of the standard from dust in the air, contamination from a scoop that is not properly cleaned between samples, and a loss of homogeneity from sample settling within the bottle (especially with regard to gold). Purchasing pre-packaged 100 g standards from the standard laboratory would help resolve all of these issues.

Also of note, the gold value of CDN-GS-P4A is 0.738 gpt, which is much lower than the average grade of mineralized material at Las Chispas. Using multiple standards covering a range of gold values, including overlimit values, would provide a more robust QA/QC database.

### 11.5.1.2 Blanks

To monitor for contamination or contamination of sample crushing, grinding, and sorting equipment, SilverCrest inserted a benign rock sample at an interval of one for every 20 samples. The material used for blanks was collected from a nearby silica cap. Figure 11-8 to Figure 11-9 show the analytical results for the blank samples. A total of 644 blank insertions were noted in the database reviewed by the Geology QP.

The failure threshold for the blanks is five times the detection limits of the analytical equipment: 25 gpt silver and 0.25 gpt gold for the fire assay (gravimetric) method and 1 gpt silver for the aqua regia (ICP) method. Table 11-2 tabulates the performance of the blank sample insertions. No contamination was identified in the fire assay stream, for high-grade analysis (one gold sample returned a value of 0.23 ppm; however, the previous sample was below the detection limit, therefore contamination was not a factor).

**Figure 11-8: Analytical Results for Gold Grades from QA/QC Blank Sample Insertions**

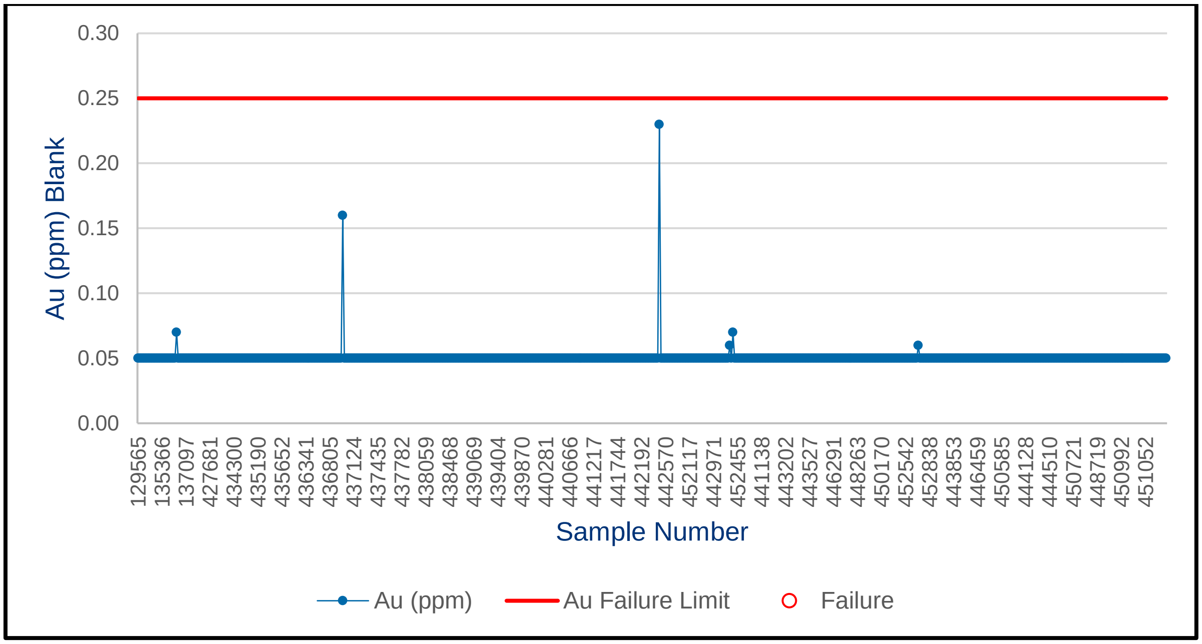



**Figure 11-9: Analytical Results for ICP Silver Grades from QA/QC Blank Sample Insertions**

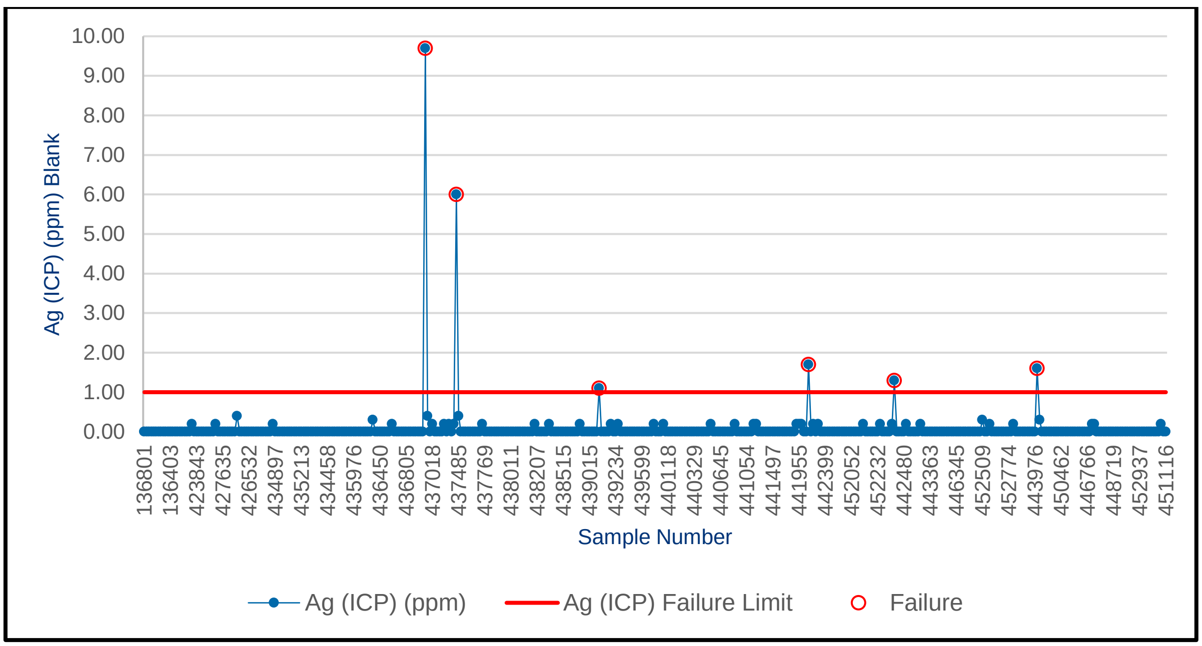
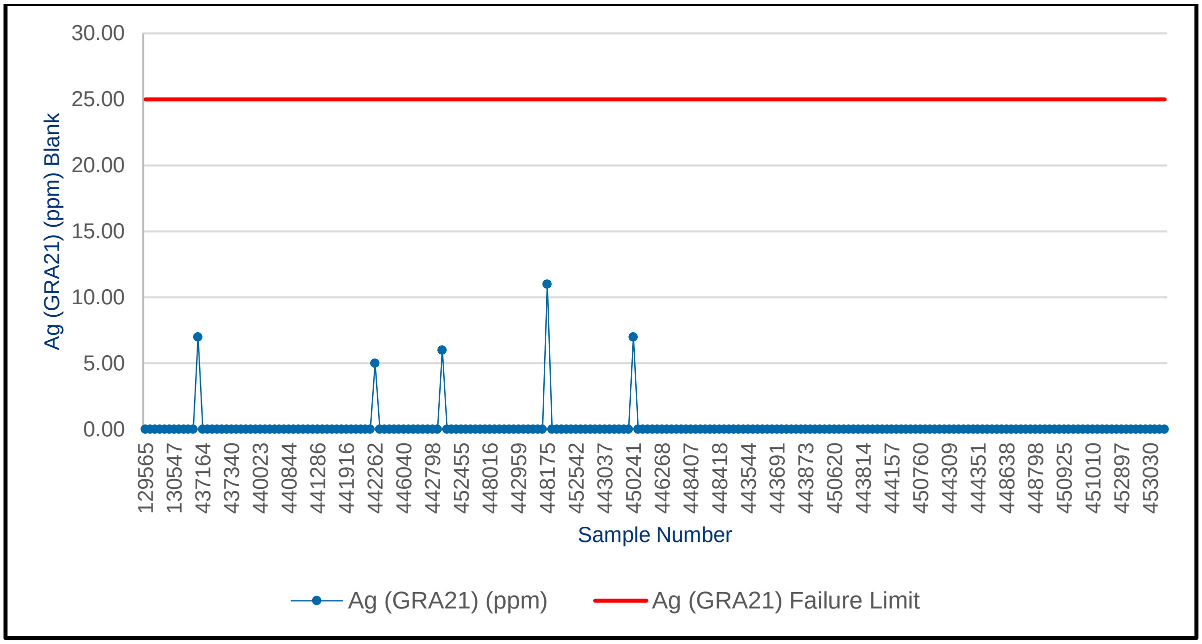


**Figure 11-9: Analytical Results for GRA21 Silver Grades from QA/QC Blank Sample Insertions**




Minor contamination could have been observed in the ICP silver analytical stream, where five of the six failing blanks followed high-grade silver samples; however, the overall failure rate of 1.4% is not considered to indicate any systematic contamination issues.

**Table 11-2: Summary of Blank Sample Insertion Performance for the Phase III Exploration Campaign (September 2018 to February 2019)**

| Element | Method | Number of Samples | DL (ppm) | No. of Samples >DL | No. of Samples >5x DL | Failure Rate (%) |
|---|---|---|---|---|---|---|
| Au | FA, Gravity | 644 | 0.05 | 6 | 0 | 0.0 |
| Ag | | 214 | 5.00 | 4 | 0 | 0.0 |
| Ag | Aqua Regia, ICP | 430 | 0.20 | 12 | 6 | 1.4 |

### 11.5.1.3 Duplicate Program

A routine duplicate sampling program has not been conducted as part of the Phase III program. The Geology QP completed an independent duplicate data study, which is fully described in Section 12.5 of this PEA.

## 11.6 QP Opinion on Sample Preparation, Analysis and Security

The sample preparation, analysis, and security program implemented by SilverCrest was designed with the intent to support collection of a large volume of data. Sample collection and handling routines were well documented. The laboratory analytical methods, detection limits, and ore grade assay limits are suited to the style and grade of mineralization.

The QA/QC methods implemented by SilverCrest enabled assessment of sample security, assay accuracy, assay precision, and potential for contamination. The results of the QA/QC program identified the use of CRM CDN-ME-1601 and SN97 as improperly prepared samples and were discontinued. The geological sampling QA/QC program should be modified to include certified reference standards for high-grade gold and silver ranges to evaluate the fire assay results.  There were no other significant concerns related to the integrity of sample collection and analysis.

The Geology QP has reviewed sample collection and handling procedures, laboratory analytical methods, QA/QC methods, and QA/QC program results and believes these methods are adequate for Mineral Resource Estimation, as used in this PEA.

# 12.0 DATA VERIFICATION

## 12.1 Phase I Independent Geology QP Site Visit – August 30 to September 1, 2016

The Geology QP visited the Las Chispas Property from August 30, 2016 to September 1, 2016. The three-day site visit included the review of underground chip samples, core samples, underground stockpile samples, grain size and metal distribution test work, bulk density test work, and laboratory analysis.

### 12.1.1 Underground Chip Samples

Two verification samples were collected from the underground workings as duplicates to the existing chip sample records. At the time of the visit, neither of these samples had been channel cut. Due to the large number of underground samples, the Geology QP did not attempt to collect a representative proportion of samples for verification. The purpose of these samples was to evaluate reproducibility of chip samples; however, due to the inherent sampling bias naturally introduced with chip samples, it was not anticipated that the duplicate sample grades will be equal. The results indicate poor reproducibility of the chip sample grades, with no apparent bias indicated.

The Geology QP collected the samples along the existing chip sampling path using a geological rock hammer. The chips were collected in a plastic bag with a sample tag, sealed, and submitted to ALS Chemex by the Geology QP for analysis. Table 12-1 lists the two samples with comparison between the analytical results reported by SilverCrest and the results of the Geology QP's independent sample analysis.

**Table 12-1: List of Verification Samples Collected by the Geology QP from Underground Chip Samples**

| Location | Source | Sample ID | Description | Au (gpt) | Ag (gpt) | Cu (ppm) | Pb (ppm) | Zn (ppm) |
|---|---|---|---|---|---|---|---|---|
| Las Chispas | SilverCrest | 144712 | Silicified lithic tuff, quartz veining, FeOx | 7.99 | 867 | 56 | 201 | 401 |
| | Tetra Tech | 500458 | | 0.10 | 6 | 7 | 31 | 78 |
| | % Difference | - | | >100% | >100% | >100% | >100% | >100% |
| William Tell | SilverCrest | 144843 | Lithic tuff, propylitic alt with Py cubes, qtz-calcite veining with MnOx, weak malachite precip on walls | 0.07 | 237 | 115 | 71 | 49 |
| | Tetra Tech | 500459 | | 1.86 | 248 | 384 | 197 | 125 |
| | % Difference | - | | <-100% | -4% | <-100% | <-100% | <-100% |

### 12.1.2 Core Samples

Numerous holes and core intersections were inspected during the Geology QP site visit. The intervals were selected to provide good coverage of hanging wall, mineralized zone, and footwall intersections. The intervals were retrieved from storage and laid out in core boxes.

Seven verification samples from drill core were selected from the available core. Table 12-2 lists the verification samples with comparison between the analytical results reported by SilverCrest and the results of the Geology QPs sample analysis. Each interval was marked with orange flagging, photographed and quarter-cut by diamond blade. Sample tickets were stapled to the core boxes for record of sampling.

### Table 12-2: List of Verification Samples Collected by the QP from Surface Diamond Drill Core Samples

| Hole ID | From (m) | To (m) | Sample ID | Source | Au (gpt) | Ag (gpt) | Cu (ppm) | Pb (ppm) | Zn (ppm) |
|---|---|---|---|---|---|---|---|---|---|
| LC16-05 | 169 | 170 | 604951 | SilverCrest | 2.28 | 354 | 31 | 98 | 142 |
| | | | 500460 | Tetra Tech | 0.49 | 64 | 17 | 25 | 48 |
| | | | - | % Difference | >100% | >100% | 82% | >100% | >100% |
| LC16-05 | 170 | 171 | 604952 | SilverCrest | 0.67 | 71 | 7 | 30 | 40 |
| | | | 500461 | Tetra Tech | 1.70 | 198 | 20 | 73 | 71 |
| | | | - | % Difference | -61% | -64% | -65% | -59% | -44% |
| LC16-05 | 171 | 172 | 604953 | SilverCrest | 18.55 | 2,460 | 190 | 881 | 2150 |
| | | | 500462 | Tetra Tech | 23.00 | 3,340 | 234 | 886 | 2670 |
| | | | - | % Difference | -19% | -26% | -19% | -1% | -19% |
| LC16-06 | 66 | 67 | 612229 | SilverCrest | 14.90 | 1,815 | 44 | 105 | 146 |
| | | | 500463 | Tetra Tech | 0.04 | 537 | 62 | 108 | 150 |
| | | | - | % Difference | >100% | >100% | -29% | -3% | -3% |
| LC16-06 | 67 | 68 | 612230 | SilverCrest | 0.02 | 5 | 8 | 17 | 40 |
| | | | 500464 | Tetra Tech | 0.01 | 6 | 9 | 15 | 47 |
| | | | - | % Difference | 100% | -11% | -11% | 13% | -15% |
| LC16-13 | 168 | 169 | 920833 | SilverCrest | 3.58 | 249 | 18 | 46 | 102 |
| | | | 500465 | Tetra Tech | 5.74 | 269 | 21 | 53 | 109 |
| | | | - | % Difference | -38% | -7% | -14% | -13% | -6% |
| LC16-13 | 169 | 170 | 920834 | SilverCrest | 0.47 | 62 | 17 | 36 | 101 |
| | | | 500466 | Tetra Tech | 0.10 | 14 | 9 | 36 | 93 |
| | | | - | % Difference | >100% | >100% | 89% | 0% | 9% |

**Photo 12-1: Photo of Mineralized Zone in Hole LC16-05; Includes the Geology QP Verification Samples 500460-500462 (SilverCrest Samples 604951 to 604953, 169 to 172 m)**


### 12.1.3 Underground Stockpile Samples

Historical muck, that has been stockpiled by SilverCrest in the Babicanora Adit, was sampled to verify reported grades. The samples were collected at two locations. The first sample location was at a draw point where coarse rock material in fist size grab sample was collected. This sample underrepresents bulk grade as the fine fragment portion was selectively omitted from the sample.

The second location was from the muck pile that was created by SilverCrest using material from the draw points. Here, two samples were collected: one to represent to coarse fragment portion (fist size fragments) and a second sample represents the smaller fragment portion (gravels through to clays).

Table 12-3 lists the sample descriptions and comparison between the analytical results reported by SilverCrest and the results of the Geology QPs independent sample analysis. The results for the Geology QP check samples 500468 and 500469 have been averaged per proportional mass and compared to the composite sample collected by SilverCrest. It is acknowledged that the proportion of “coarse fraction” collected in sample 500468, in relation to the “fine fraction” collected in sample 500469, is not representative of the actual fragment/grain size distributions with the muck. A further analysis of this was conducted and is presented in Section 12.1.4.

**Table 12-3: List of Verification Samples Collected by the Geology QP from Underground Stockpiles in the Babicanora Workings**

| Location | Source | Sample ID | Comment | Au (gpt) | Ag (gpt) | Cu (ppm) | Pb (ppm) | Zn (ppm) |
|---|---|---|---|---|---|---|---|---|
| Babicanora Draw Point | SilverCrest | 612656 | Composite sample collected by SilverCrest | 1.29 | 122 | 32 | 81 | 123 |
| | Tetra Tech | 500467 | Mixed, coarse and fine, quartz ±silicified tuff fragments, stockwork-breccia | 2.40 | 58 | 37 | 51 | 118 |
| | % Difference | - | - | -46% | >100% | -14% | 59% | 4% |
| Babicanora Stockpile in Adit | SilverCrest | 16507 | Composite sample collected by SilverCrest | 3.44 | 213 | 39 | 39 | 64 |
| | Tetra Tech | 500468 | Coarse fraction, green silicified tuff, prominent quartz, visible silver-sulphides | 30.00 | 689 | 113 | 186 | 340 |
| | Tetra Tech | 500469 | Finer fraction, soft brown clayey-sand, with 10% quartz pebbles | 5.97 | 372 | 74 | 115 | 182 |
| | Tetra Tech | Average (by %mass) | - | 20.53 | 564 | 98 | 158 | 278 |
| | % Difference | - | - | -83% | -62% | -60% | -75% | -77% |

### 12.1.4 Grain Size and Metal Distribution Test Work

For the purposes of verification and to develop insight into metal distribution in the various fragment/grain size fractions, the Geology QP requested that a grain size gradation test fine fragment sample collected in Babicanora (Tetra Tech sample number 500459). Screen sizes were set up to roughly separate cobbles, from sand from fines using a 12.5 mm screen and a 0.15 mm screen. The three size fractions were then submitted for metals analysis. Table 12-4 summarizes the results of this test work.

**Table 12-4: Assay Results by Grain Size Distribution for Sample 500459**

| Size Fraction | Mass (g) | Percentage (%) | Au (gpt) | Ag (gpt) | Zn (ppm) | Pb (ppm) | Cu (ppm) | Al (pct) | Fe (pct) | Mn |
|---|---|---|---|---|---|---|---|---|---|---|
| +12.5 mm | 896 | 25 | 4.65 | 286 | 173 | 89 | 99 | 0.93 | 1.46 | 363 |
| -12.5 mm, +150 µm | 2,275 | 64 | 6.40 | 398 | 184 | 124 | 64 | 1.70 | 1.73 | 706 |
| -150 µm | 45 | 1 | 10.85 | 807 | 238 | 179 | 103 | 2.67 | 2.42 | 985 |
| Sum Weights | 3,216 | 90 | 5.97 | 372 | 182 | 115 | 74 | 1.50 | 1.66 | 614 |
| Moisture Content | 344 | 10 | - | - | - | - | - | - | - | - |
| Total Sample Weight | 3,560 | 100 | - | - | - | - | - | - | - | - |

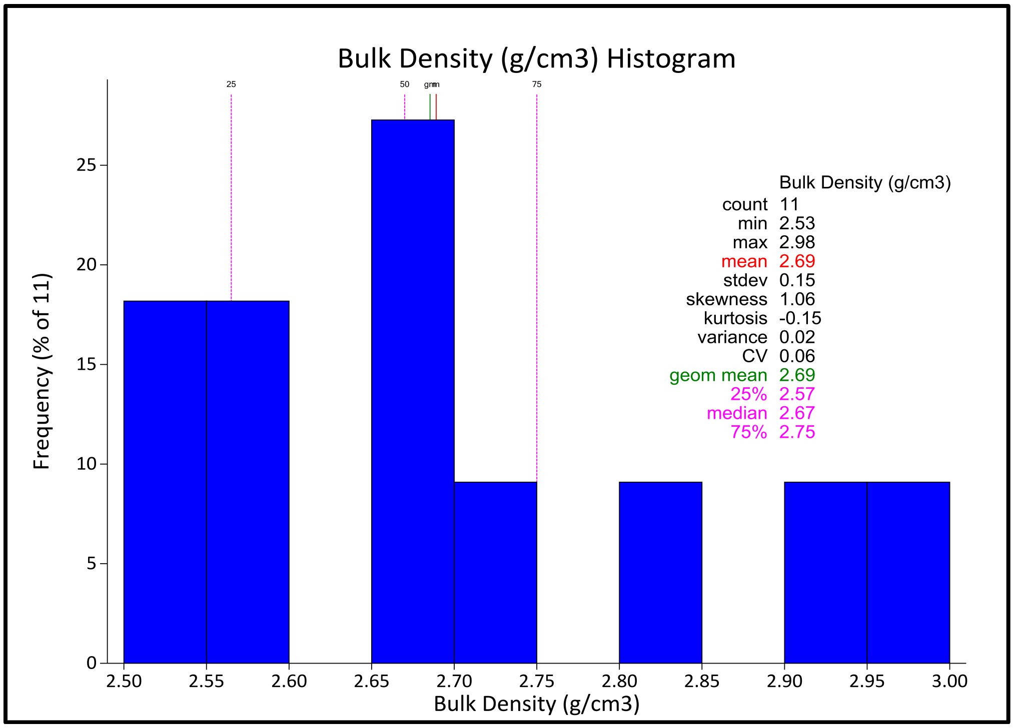
### 12.1.5 Bulk Density Test Work

The Geology QP requested that bulk density measurements for Phase III to be completed using wax coating (OA-GRA09a) be performed on all samples except 500459. Table 12-5 shows the results of the measurements and a mean value of 2.69 g/cm$^3$. Figure 12-1 shows a histogram as a visual display of the distribution.

**Table 12-5: Results of Bulk Density Measurements**

| Sample ID | Sample Weight (kg) | Bulk Density (g/cm$^3$) |
|---|---|---|
| 500458 | 0.22 | 2.98 |
| 500459 | 0.21 | 2.67 |
| 500460 | 0.16 | 2.80 |
| 500461 | 0.16 | 2.54 |
| 500462 | 0.17 | 2.57 |
| 500463 | 0.16 | 2.91 |
| 500464 | 0.15 | 2.56 |
| 500465 | 0.14 | 2.53 |
| 500466 | 0.17 | 2.67 |
| 500467 | 0.41 | 2.70 |
| 500468 | 0.36 | 2.65 |
| Mean | - | 2.69 |

**Figure 12-1: Histogram Plot of Bulk Density Measurements**




The measurements were compared with grade and there does not appear to be an obvious relationship between bulk density and metal grade; however, this is not conclusive as the sample population is small.

Estimated resources use 2.55 g/cm3 based on an overall average bulk density (see Section 14.3.2.5).

### 12.1.6 Independent Geology QP Verification Samples, Laboratory Analysis

All of the Geology QPs independent samples collected from the Las Chispas site were delivered to the ALS Chemex preparation facility in Hermosillo, Sonora, by the Geology QP. To be consistent with current SilverCrest analytical procedures, the same procedures were requested for the verification samples. The standard analytical procedures are as follows:

- All samples were received, registered, and dried.
- All samples were crushed to 70% less than 2 mm, then mixed and split with a riffle splitter.
- A split from all samples were then pulverized to 85% less than 75 µm.
- All pulverized splits were submitted for multi-element aqua regia digestion with ICP-MS detection (ME ICP41).
- All pulverized splits were submitted for gold fire assay fusion with AAS detection (30 g, Au AA25).
- Grade analysis is conducted on samples which return results at ICP-MS upper detection limits, per the following criteria by ALS Minerals in North Vancouver, Canada:
  - Samples returning grades of greater than 100 gpt silver from ICP-MS analysis were then re-run using aqua regia digestion and ICP-AES detection, (Ag OG46) and diluted to account for grade detection limits.
  - Sample returning grades of greater than 10 gpt gold from ICP-MS were then re-run using fire assay fusion with gravimetric detection (Au GRA-21).

  - Samples returning grades of greater than 10,000 ppm zinc, lead, or copper from ICP-MS analysis were then re-run using aqua regia digestion with ICP-AES finish (Pb/Zn/Cu OG46).

- Grade analyses returning silver grades of greater than 1,500 gpt silver was then re-run again fire assay fusion with gravimetric detection (Ag GRA-21).

## 12.2 Phase II Independent Geology QP Site Visit – January 15 to 19, 2017

The Geology QP completed a second site visit from January 15 to 19, 2017. The four-day site visit allowed for discussions with project geologists, a more thorough inspection of drill core to understand local stratigraphy, and more thorough inspection of the underground workings to understand various structural controls on mineralization across the Property. The inspections were not conducted as a strict verification of SilverCrest assay results.

A total of 33 samples were collected: 22 from underground workings and 11 from drill core. The samples were collected by the Geology QP, bagged, and delivered directly to the ALS Chemex preparation lab located in Hermosillo where the samples were weighted, crushed, and pulverized prior to being shipped for analysis to ALS Minerals located in North Vancouver, British Columbia. The samples were submitted for 35 element trace geochemistry (aqua regia, ICP-AES), whole rock (fusion, x-ray fluorescence [XRF]) and analysis of gold and silver by fire assay and gravimetric finish. Representative hand specimens of the samples were packaged in buckets and shipped to Tetra Tech’s laboratory in Kelowna, British Columbia, for further inspection and preservation.

## 12.3 Phase II Independent Geology QP Site Visit – November 21 to 22, 2017

The Geology QP completed a third site visit from November 21 to 22, 2017. The two-day site visit included review of recent Phase II drill core and related assay results, review of on-site core handling and processing methods, and to view newly accessible portions of the underground workings at Las Chispas.

Three composite samples were collected from three drill holes and marked as “TTLC” to verify reported assay grades. Composites were prepared from consecutive samples which occurred within demarcated mineralized zones. Composite samples reduce the amount of local variability which can be observed in individual samples.

The samples were collected by the Geology QP, bagged, and delivered directly to the ALS Chemex preparation lab located in Hermosillo where the samples were weighted, crushed, and pulverized prior to being shipped for analysis to ALS Minerals located in North Vancouver, British Columbia. The samples were submitted for 35 element trace geochemistry (aqua regia, ICP-AES), whole rock (fusion, XRF), analysis of gold by fire assay (AAS finish), silver (aqua regia, ICP-AES), silver by fire assay (gravimetric finish), and bulk density.

The results of the verification sampling were compared using relative percent difference which showed good to excellent reproduction. Sample TTLC-02 did not reproduce the same concentration of gold as the SilverCrest sample; however, the magnitude of gold returned in the verification sample of 20.1 gpt gold was indicative of the high-grade gold reported by SilverCrest assays with value of 41.27 gpt gold. Table 12-6 shows a comparison of the verification samples.

**Table 12-6: Summary of Independent Geology QP Verification Samples Collected November 2017**

| Sample No. | Hole ID | Sample | From (m) | To (m) | Length (m) | Au (ppm) | Ag (ppm) |
|---|---|---|---|---|---|---|---|
| SilverCrest | BA17-42 | 125673 | 279.3 | 279.8 | 0.5 | 0.03 | 3 |
| | BA17-42 | 125675 | 279.8 | 280.45 | 0.65 | 8.03 | 787 |
| | BA17-42 | 125676 | 280.45 | 280.95 | 0.5 | 1.58 | 37 |
| | Length Weighted Average | - | - | - | - | 5.84 | 500 |
| QP - Field Duplicate | Composite | TTLC11-01 | - | - | - | 5.34 | 478 |
| RPD (%) | - | - | - | - | - | 8.9 | 4.5 |
| SilverCrest | LC17-72 | 125846 | 115 | 115.8 | 0.8 | 74.08 | 2,312 |
| | LC17-72 | 125847 | 115.8 | 116.8 | 1 | 0.20 | 416 |
| | Length Weighted Average | - | - | - | - | 41.27 | 1516 |
| QP - Field Duplicate | Composite | TTLC11-02 | - | - | - | 21.10 | 1620 |
| RPD (%) | - | - | - | - | - | 64.67 | 6.6 |
| SilverCrest | BA17-17 | 19171 | 274 | 275 | 1 | 14.75 | 182 |
| | BA17-17 | 19172 | 275 | 276 | 1 | 0.05 | 285 |
| | Length Weighted Average | - | - | - | - | 7.40 | 234 |
| QP - Field Duplicate | Composite | TTLC11-03 | - | - | - | 3.31 | 546 |
| RPD (%) | - | - | - | - | - | 76.4 | 0.01 |
| Standard CRM | n/a | CDN-ME-19 | n/a | n/a | n/a | 0.62 ±0.062 | 103 ±7 |
| QP - Field Duplicate | - | TTLC11-04 | - | - | - | 0.66 | 104 |
| RPD (%) | - | - | - | - | - | 6.25 | 1.0 |

Note: RPD – relative percent difference

### 12.3.1 Bulk Density Test Work

Using the samples collected during the November 2017 site visit, coated bulk density tests were conducted at ALS Minerals prior to sample preparation and analysis. The results of the measurements are shown in Table 12-7 and show a mean value of 2.56 g/cm$^3$.

**Table 12-7: Results of Bulk Density Measurements, November 2017**

| Sample ID | Sample Weight (kg) | Bulk Density (g/cm3) |
|---|---|---|
| TTLC-01 | 2.74 | 2.59 |
| TTLC-02 | 2.48 | 2.57 |
| TTLC-03 | 1.50 | 2.52 |
| Mean | - | 2.56 |

## 12.4 Phase III Independent Geology QP Site Visit – January 10 to 11, 2019

The Geology QP conducted a fourth site visit between January 10 and 11, 2019 to review drill core and the drill hole database completed since September 2018. The review focused on core logging and collection of duplicate check samples from the Babicanora Area. Table 12-8 lists the drill holes that were reviewed.

### Table 12-8: List of Drill Holes Reviewed During Site Visit

| Hole ID | Area | Hole ID | Area |
|---|---|---|---|
| BA18-83 | Babicanora | BA19-147 | Babicanora |
| BA19-94 | Babicanora | BA19-148 | Babicanora |
| BA18-96A | Babicanora | BA18-100 | Babicanora |
| BA18-120 | Babicanora | BA19-152 | Babicanora |
| BA18-122 | Babicanora | BA19-153 | Babicanora |
| BA18-123 | Babicanora | BAS18-06 | Babicanora Sur |
| BA18-124 | Babicanora | BAS19-45 | Babicanora Sur |
| BA18-125 | Babicanora | BAS19-40 | Babicanora Sur |
| BA18-126 | Babicanora | BAS19-38 | Babicanora Sur |
| BA18-127 | Babicanora | BAS19-37 | Babicanora Sur |
| BA18-128 | Babicanora | BAS19-36 | Babicanora Sur |
| BA18-129 | Babicanora | BAS19-34 | Babicanora Sur |
| BA18-130 | Babicanora | BAS19-33 | Babicanora Sur |
| BA18-131 | Babicanora | BAS19-26 | Babicanora Sur |
| BA18-132 | Babicanora | BAS18-19 | Babicanora Sur |
| BA18-133 | Babicanora | BAS18-16 | Babicanora Sur |
| BA18-134 | Babicanora | BAS19-15 | Babicanora Sur |
| BA18-135 | Babicanora | BAS19-14 | Babicanora Sur |
| BA18-138 | Babicanora | BAS19-31 | Babicanora Sur |
| BA18-139 | Babicanora | BAS19-39 | Babicanora Sur |
| BA18-142 | Babicanora | BAS19-43 | Babicanora Sur |
| BA18-72 | Babicanora | BAN19-10 | Babicanora Norte |
| BA17-63 | Babicanora | BAN19-26 | Babicanora Norte |
| BA18-136 | Babicanora | BAN18-31 | Babicanora Norte |
| BA19-140 | Babicanora | BAN18-40 | Babicanora Norte |
| BA19-145 | Babicanora | BAN18-33 | Babicanora Norte |
| BA19-146 | Babicanora | - | - |

The Geology QP conducted a field duplicate program using 28 samples collected from drill core to evaluate variability in analytical test results from the field collection, laboratory preparation, and laboratory analytical sampling stages. A total of 28 quarter core field samples were collected to replicate sample intervals marked by SilverCrest. Additionally, coarse rejects were recovered for 20 of these sample intervals (8 were not found) and 28 pulps. All samples were given new identification numbers and were submitted to SGS Durango for analytical work. The samples were prepared to a grind size of 90% less than 2 mm, pulverized to 90% less than 75 µm, and then submitted for 500 g screen metallics with fire assay analysis for gold and silver (FAS50K), 50 g fire assay with gravimetric finish for gold and silver (FAG505 and FAG515), and ICP-AES analysis which included silver (ICP14B). Additionally, the samples were submitted for measurement of carbon and sulphur concentration by LECO furnace to act as proxy for carbonate and sulphide concentration.

The laboratory test program was designed to:

- Quality control test the ALS Chemex sample preparation grain sizing of the coarse reject and pulps, as received at SGS Durango.
- Evaluate variability of sample grades through sample preparation and crushing stages.
- Confirm grades reported by SilverCrest.
- Evaluate nugget effect with screen metallic testing in comparison to other analytical methods.

Screen metallic analyses were requested for gold and silver on all field sample duplicates; however, due to an error in the laboratory, only gold was measured and reported from the screen metallics. The majority of the samples were entirely consumed for the gold screen metallics analysis and insufficient sample mass remained to re-run the test to measure silver grades. Sufficient material remained to complete the silver work on only nine of the 28 submitted samples.

Table 12-8 includes duplicate results; analysis of the results is included in Section 12.5.1.

### 12.4.1 Quality Control Test on ALS Chemex Sample Preparation Grain Sizing

Quality control testing was requested from SGS Durango to verify that the samples were prepared at ALS Chemx met particle size gradation criteria of 80% passing 2 mm and 90% passing 75 µm grain sizes, respectfully.

Of the 20 coarse reject samples screened, 16 samples had 80% of material or more passing 2 mm. Of the 24 pulp reject samples screened, 23 samples had 90% of material or more passing 75 µm. These results are considered acceptable and provide confidence with the sample crushing and grinding procedures being implemented on routine analyses at ALS Minerals.

### 12.4.2 Duplicate Sampling Program Results

The duplicate testing program was undertaken to evaluate variation of grade between the stages of sample preparation and subsampling performed by the primary analytical laboratory ALS Chemex, to confirm grades reported by SilverCrest using fire assay with gravimetric methods, and to compare reported grades by various analytical methods. The results of the independent duplicate analytical program are summarized in Table 12-9.

## Table 12-9: Summary of Phase III Duplicate Sample Analytical Results by Independent Lab

| | | | Original | Au Results (gpt) | | | | Ag Results (gpt) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hole ID | From (m) | To (m) | Sample | Au (orig) | Au (dup) | Au (met) | RPD (%) | Ag (orig) | Ag (dup) | Ag (met) | RPD (%) |
| **1/4 Core Duplicates** | | | | | | | | | | | |
| BA18-123 | 260.75 | 261.55 | 443520 | 0.1 | 0.0 | 0.00 | -200.0 | 400 | 213 | | -61.0 |
| | 261.55 | 262.05 | 443521 | 0.2 | 0.0 | 0.00 | -200.0 | 158 | 135 | | -16.0 |
| | 262.05 | 262.55 | 443522 | 0.2 | 0.0 | 0.00 | -200.0 | 167 | 181 | | 8.0 |
| | 262.55 | 263.1 | 443523 | 81.8 | 71.6 | 75.00 | -13.0 | 540 | 563 | | 4.0 |
| | 263.1 | 263.6 | 443524 | 2.0 | 4.4 | 4.00 | 76.0 | 245 | 222 | | -10.0 |
| | 263.6 | 264.1 | 443525 | 2.1 | 0.6 | 0.00 | -116.0 | 419 | 307 | | -31.0 |
| | 264.1 | 264.6 | 443526 | 2.4 | 2.3 | 2.00 | -8.0 | 285 | 473 | | 50.0 |
| BA18-132 | 205.7 | 206.3 | 446532 | 1.1 | 0.9 | 0.00 | -16.0 | 150 | 181 | | 19.0 |
| | 206.3 | 207.2 | 446534 | 5.5 | 4.4 | 5.00 | -23.0 | 948 | 584 | | -48.0 |
| | 207.2 | 207.8 | 446535 | 23.4 | 16.9 | 16.00 | -33.0 | 2,260 | 1,919 | | -16.0 |
| | 207.8 | 208.3 | 446536 | 4.9 | 4.5 | 4.00 | -9.0 | 762 | 750 | | -2.0 |
| | 208.3 | 208.9 | 446537 | 14.9 | 18.7 | 17.00 | 23.0 | 1,825 | 2,143 | | 16.0 |
| | 208.9 | 209.65 | 446538 | 6.7 | 7.9 | 8.00 | 17.0 | 695 | 978 | 968 | 34.0 |
| | 209.65 | 210.3 | 446539 | 6.2 | 7.5 | 8.00 | 18.0 | 545 | 690 | 708 | 23.0 |
| | 210.3 | 210.8 | 446540 | 36.9 | 25.1 | 24.00 | -38.0 | 4,100 | 2,839 | | -36.0 |
| BAN18-31 | 208.82 | 210.2 | 429253 | 0.1 | 0.0 | 0.00 | -200.0 | 73 | 63 | 58 | -15.0 |
| | 210.2 | 210.7 | 429254 | 56.7 | 48.8 | 51.00 | -15.0 | 6,260 | 5,708 | | -9.0 |
| | 210.7 | 211.45 | 429255 | 0.1 | 0.0 | 0.00 | -200.0 | 6 | 4 | | -43.0 |
| BAS18-06 | 168.55 | 169.45 | 423862 | 1.2 | 0.6 | 0.00 | -68.0 | 116 | 63 | | -60.0 |
| | 169.45 | 171.15 | 423863 | 0.1 | 0.0 | 0.00 | -200.0 | 6 | 6 | 0 | -2.0 |
| | 171.15 | 171.7 | 423864 | 4.3 | 2.9 | 3.00 | -38.0 | 151 | 109 | | -32.0 |
| BAS19-19 | 233.9 | 234.49 | 452368 | 0.1 | 0.0 | 0.00 | -200.0 | 17 | 24 | 24 | 35.0 |
| | 234.49 | 234.99 | 452369 | 6.5 | 6.0 | 6.00 | -7.0 | 571 | 559 | | -2.0 |
| | 234.99 | 235.5 | 452370 | 0.1 | 0.0 | 0.00 | -200.0 | 7 | 5 | | -25.0 |
| BAS19-39 | 247.05 | 247.95 | 452956 | 0.2 | 0.9 | 0.00 | 121.0 | 90 | 105 | 106 | 15.0 |
| | 247.95 | 248.7 | 452957 | 2.4 | 3.9 | 4.00 | 47.0 | 153 | 326 | 330 | 72.0 |
| | 248.7 | 249.42 | 452958 | 4.2 | 2.5 | 2.00 | -53.0 | 327 | 223 | 232 | -38.0 |
| | 249.42 | 250.05 | 452959 | 1.4 | 1.4 | 1.00 | 1.0 | 125 | 152 | 156 | 19.0 |
| Overall Average | | | | 9.5 | 8.3 | 8.21 | -61.9 | 764 | 697 | 287 | -5.4 |
| Average of: >5 gpt Au or >500 gpt Ag | | | | 26.5 | 25.3 | 23.33 | -7.9 | 1,851 | 1,673 | | -3.6 |

*table continues…*

| Hole ID | From (m) | To (m) | Original Sample | Au Results (gpt) | | | | Ag Results (gpt) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Au (orig) | Au (dup) | Au (met) | RPD (%) | Ag (orig) | Ag (dup) | Ag (met) | RPD (%) |
| **Coarse Reject Duplicates** | | | | | | | | | | | |
| BA18-123 | 260.75 | 261.55 | 443520 | 0.1 | 0.0 | | -200.0 | 400 | 412 | | 3.0 |
| | 261.55 | 262.05 | 443521 | 0.2 | 0.0 | | -200.0 | 158 | 150 | | -5.0 |
| | 262.05 | 262.55 | 443522 | 0.2 | 0.0 | | -200.0 | 167 | 163 | | -2.0 |
| | 262.55 | 263.1 | 443523 | 81.8 | 80.9 | | -1.0 | 540 | 448 | | -19.0 |
| | 263.1 | 263.6 | 443524 | 2.0 | 2.0 | | 1.0 | 245 | 234 | | -5.0 |
| | 263.6 | 264.1 | 443525 | 2.1 | 1.4 | | -39.0 | 419 | 361 | | -15.0 |
| | 264.1 | 264.6 | 443526 | 2.4 | 1.6 | | -41.0 | 285 | 290 | | 2.0 |
| BA18-132 | 205.7 | 206.3 | 446532 | 1.1 | 0.7 | | -39.0 | 150 | 141 | | -6.0 |
| | 206.3 | 207.2 | 446534 | 5.5 | 5.0 | | -10.0 | 948 | 925 | | -2.0 |
| | 207.2 | 207.8 | 446535 | 23.4 | 22.0 | | -6.0 | 2,260 | 2,110 | | -7.0 |
| | 207.8 | 208.3 | 446536 | 4.9 | 4.3 | | -14.0 | 762 | 709 | | -7.0 |
| | 208.3 | 208.9 | 446537 | 14.9 | 17.6 | | 16.0 | 1,825 | 2,078 | | 13.0 |
| | 208.9 | 209.65 | 446538 | 6.7 | 6.6 | | -1.0 | 695 | 696 | | 0.0 |
| | 209.65 | 210.3 | 446539 | 6.2 | 5.3 | | -15.0 | 545 | 520 | | -5.0 |
| | 210.3 | 210.8 | 446540 | 36.9 | 26.3 | | -34.0 | 4,100 | 2,995 | | -31.0 |
| BAN18-31 | 210.7 | 211.45 | 429255 | 0.1 | 0.0 | | -200.0 | 6 | 3 | | -48.0 |
| BAS19-39 | 247.05 | 247.95 | 452956 | 0.2 | 0.0 | | -200.0 | 90 | 82 | | -10.0 |
| | 247.95 | 248.7 | 452957 | 2.4 | 2.1 | | -14.0 | 153 | 137 | | -11.0 |
| | 248.7 | 249.42 | 452958 | 4.2 | 3.9 | | -7.0 | 327 | 322 | | -2.0 |
| | 249.42 | 250.05 | 452959 | 1.4 | 1.3 | | -4.0 | 125 | 113 | | -10.0 |
| Overall Average | | | | 9.8 | 9.0 | | -60.4 | 710 | 644 | | -4.9 |
| Average of: >5 gpt Au or >500 gpt Ag | | | | 25.1 | 26.4 | | -7.3 | 1,459 | 1,433 | | -7.3 |
| **Pulp Duplicates** | | | | | | | | | | | |
| BA18-123 | 260.75 | 261.55 | 443520 | 0.1 | 0.0 | | -200.0 | 400 | 389 | | -3.0 |
| | 261.55 | 262.05 | 443521 | 0.2 | 0.0 | | -200.0 | 158 | 153 | | -3.0 |
| | 262.05 | 262.55 | 443522 | 0.2 | 0.0 | | -200.0 | 167 | 161 | | -4.0 |
| | 262.55 | 263.1 | 443523 | 81.8 | 82.3 | | 1.0 | 540 | 530 | | -2.0 |
| | 263.1 | 263.6 | 443524 | 2.0 | 1.9 | | -7.0 | 245 | 241 | | -2.0 |
| | 263.6 | 264.1 | 443525 | 2.1 | 1.8 | | -16.0 | 419 | 402 | | -4.0 |
| | 264.1 | 264.6 | 443526 | 2.4 | 2.6 | | 6.0 | 285 | 278 | | -2.0 |

*table continues…*



TETRA TECH

| | | | Original | Au Results (gpt) | | | | Ag Results (gpt) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hole ID | From (m) | To (m) | Sample | Au (orig) | Au (dup) | Au (met) | RPD (%) | Ag (orig) | Ag (dup) | Ag (met) | RPD (%) |
| BA18-132 | 205.7 | 206.3 | 446532 | 1.1 | 0.8 | | -33.0 | 150 | 142 | | -5.0 |
| | 206.3 | 207.2 | 446534 | 5.5 | 5.3 | | -4.0 | 948 | 931 | | -2.0 |
| | 207.2 | 207.8 | 446535 | 23.4 | 22.7 | | -3.0 | 2,260 | 2,209 | | -2.0 |
| | 207.8 | 208.3 | 446536 | 4.9 | 4.6 | | -7.0 | 762 | 767 | | 1.0 |
| | 208.3 | 208.9 | 446537 | 14.9 | 14.3 | | -4.0 | 1,825 | 1,782 | | -2.0 |
| | 208.9 | 209.65 | 446538 | 6.7 | 6.3 | | -6.0 | 695 | 649 | | -7.0 |
| | 209.65 | 210.3 | 446539 | 6.2 | 5.7 | | -8.0 | 545 | 537 | | -1.0 |
| | 210.3 | 210.8 | 446540 | 36.9 | 33.9 | | -8.0 | 4,100 | 4,008 | | -2.0 |
| BAN18-31 | 208.82 | 210.2 | 429253 | 0.1 | 0.0 | | -200.0 | 73 | 64 | | -14.0 |
| | 210.2 | 210.7 | 429254 | 56.7 | 58.9 | | 4.0 | 6,260 | 6,137 | | -2.0 |
| | 210.7 | 211.45 | 429255 | 0.1 | 0.0 | | -200.0 | 6 | 5 | | -17.0 |
| BAS18-06 | 169.45 | 171.15 | 423863 | 0.1 | 0.0 | | -200.0 | 6 | 0 | | -200.0 |
| BAS19-19 | 233.9 | 234.49 | 452368 | 0.1 | 0.0 | | -200.0 | 17 | 17 | | 1.0 |
| | 234.49 | 234.99 | 452369 | 6.5 | 5.7 | | -14.0 | 571 | 582 | | 2.0 |
| | 234.99 | 235.5 | 452370 | 0.1 | 0.0 | | -200.0 | 7 | 9 | | 24.0 |
| BAS19-39 | 247.05 | 247.95 | 452956 | 0.2 | 0.0 | | -200.0 | 90 | 86 | | -5.0 |
| | 247.95 | 248.7 | 452957 | 2.4 | 2.1 | | -14.0 | 153 | 145 | | -5.0 |
| | 248.7 | 249.42 | 452958 | 4.2 | 4.2 | | -1.0 | 327 | 326 | | 0.0 |
| | 249.42 | 250.05 | 452959 | 1.4 | 1.3 | | -5.0 | 125 | 126 | | 1.0 |
| Overall Average | | | | 10.0 | 9.8 | | -73.8 | 813 | 795 | | -9.8 |
| Average of: >5 gpt Au or >500 gpt Ag | | | | 26.5 | 26.1 | | -4.7 | 1,851 | 1,813 | | -1.7 |

Note: “orig” is the original ½ core sample reported by SilverCrest; “dup” is a duplicate of the original collected as independent sample; “met” is the screen metallic duplicate of the original (from ¼ core) collected as independent sample; RPD is the relative percent difference between original and duplicate samples divided by their average.

### 12.4.2.1 Core Duplicate Results

Core duplicate results are shown for silver and gold in Figure 12-2 and Figure 12-3, respectively. Using a ±30% threshold for duplicate results to pass or fail, the failure rate for silver is 36% and for gold is 57%. Results are as expected from core duplicate samples in a nuggety silver and gold environment—the overall trend is close to 1:1 and results are for the most part comparable; however, a material nugget effect is identified for both silver and gold mineralization related to heterogeneity in mineralization at the drill core scale. Larger drill core and larger sample size could help mitigate this potential sampling error.

**Figure 12-2: Core Duplicate Analytical Results for Silver Fire Assay**

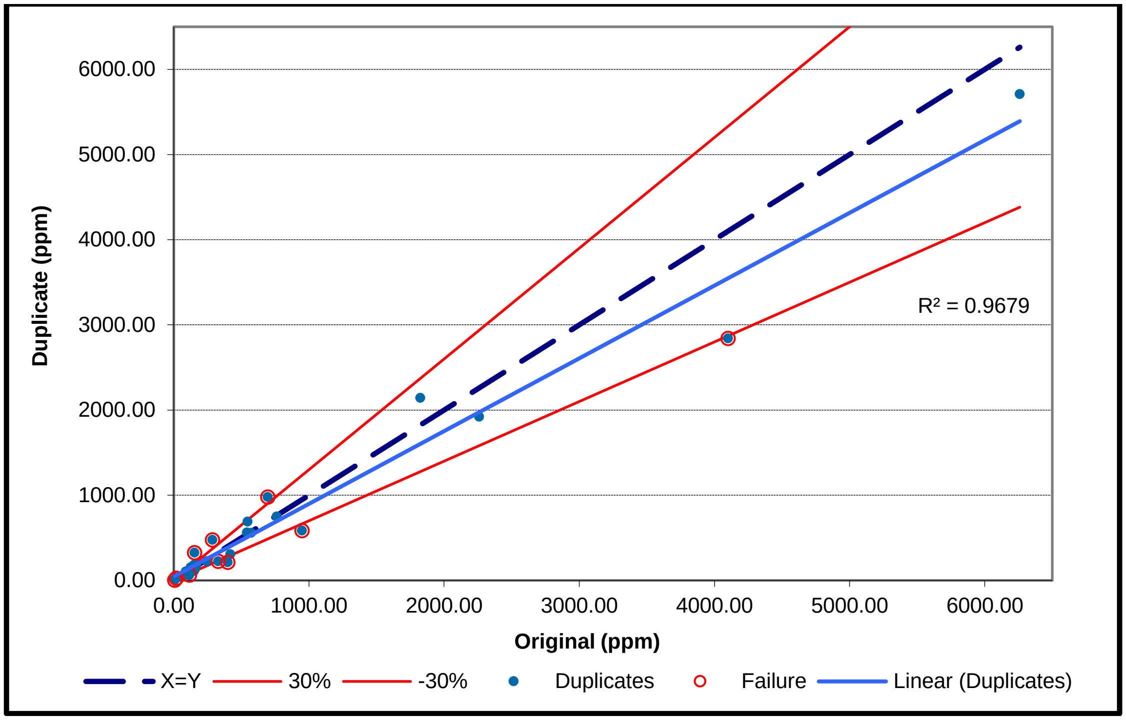
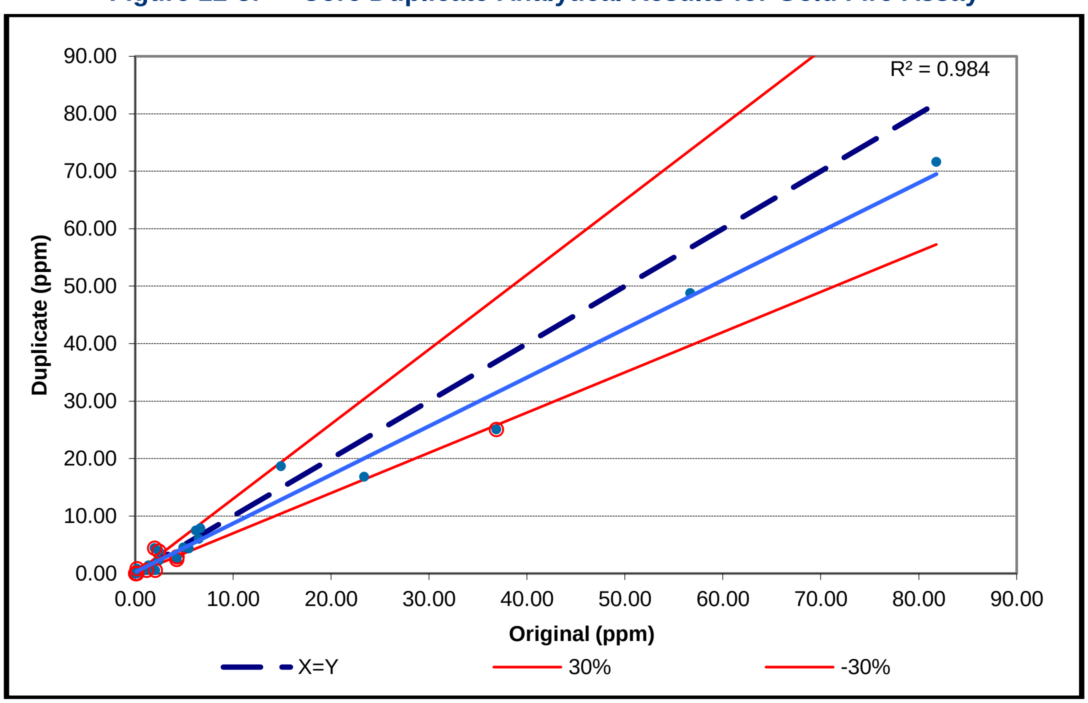



**Figure 12-3: Core Duplicate Analytical Results for Gold Fire Assay**



#### 12.4.2.2 Coarse Reject Duplicate Results

Coarse reject duplicate results are shown for silver and gold in Figure 12-4 and Figure 12-5, respectively. Results are overall very good for coarse reject duplicates.

**Figure 12-4: Coarse Reject Duplicate Analytical Results for Silver Fire Assay**

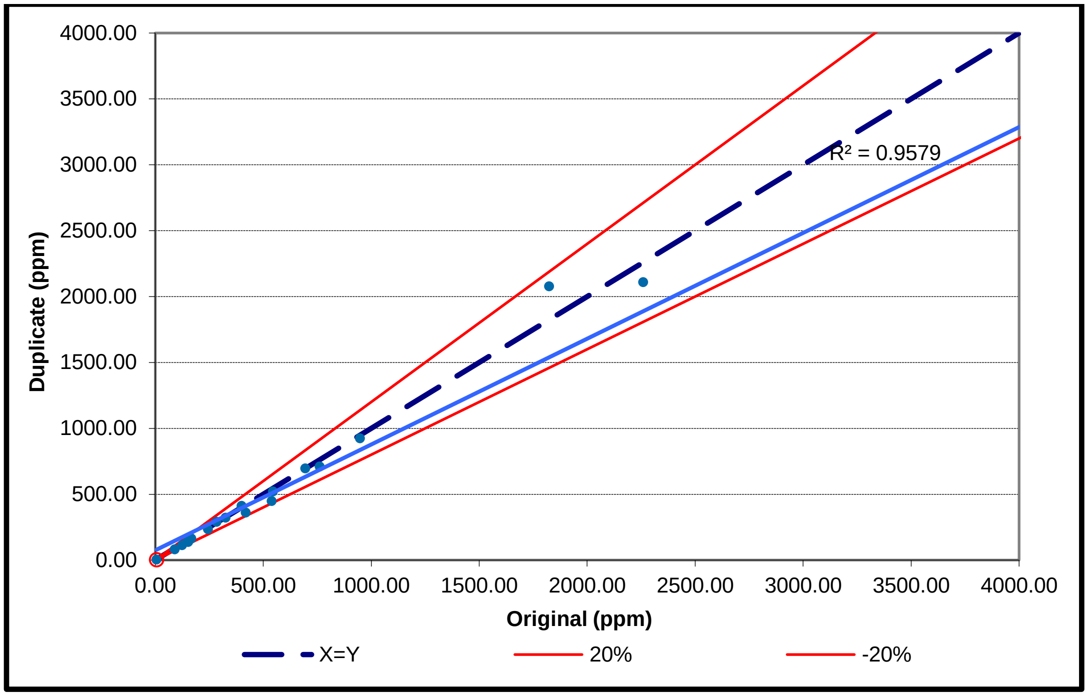
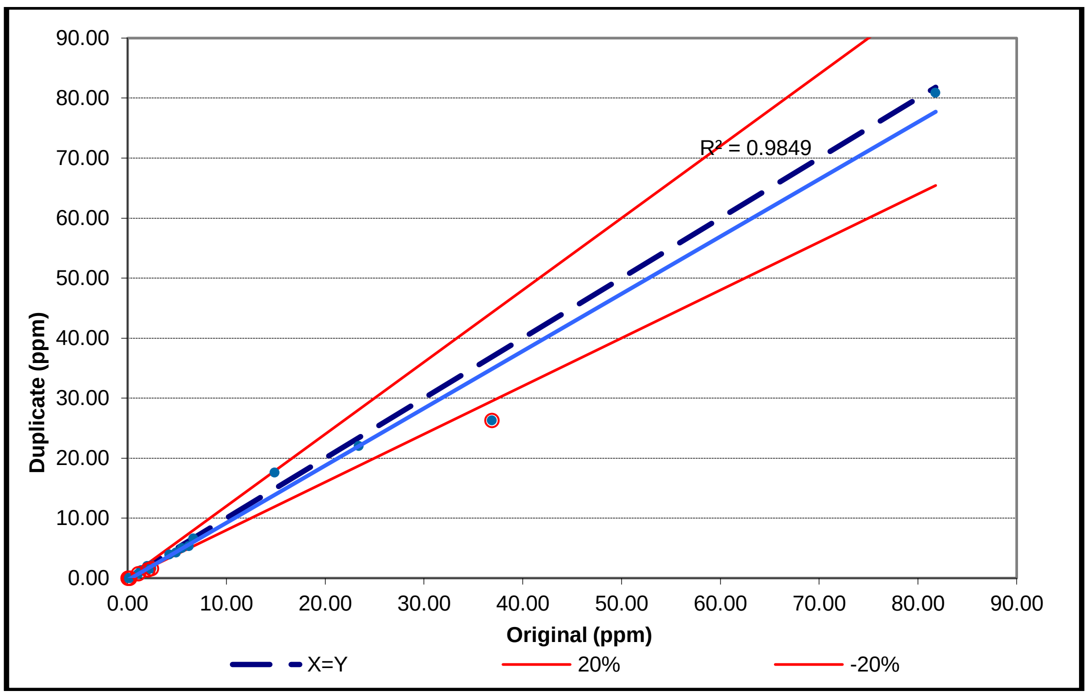



**Figure 12-5: Coarse Reject Duplicate Analytical Results for Gold Fire Assay**



### 12.4.2.3 Pulp Duplicate Results

Pulp duplicate results are shown for silver and gold in Figure 12-6 and Figure 12-7, respectively. Results are overall very good for pulp duplicates.

**Figure 12-6: Pulp Duplicate Analytical Results for Silver Fire Assay**

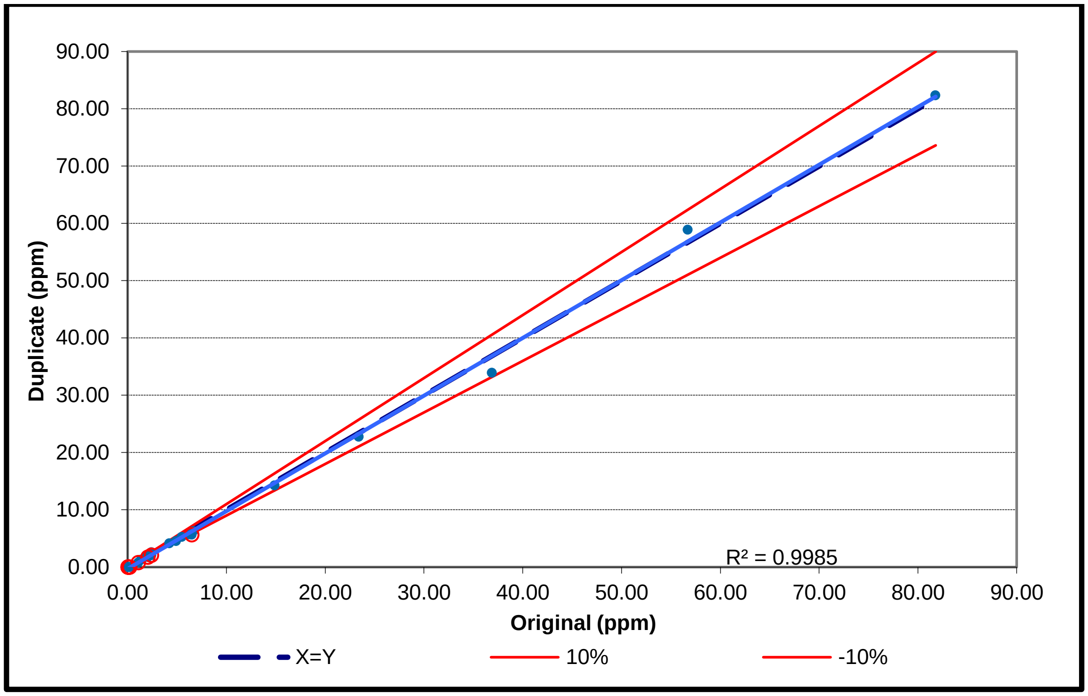
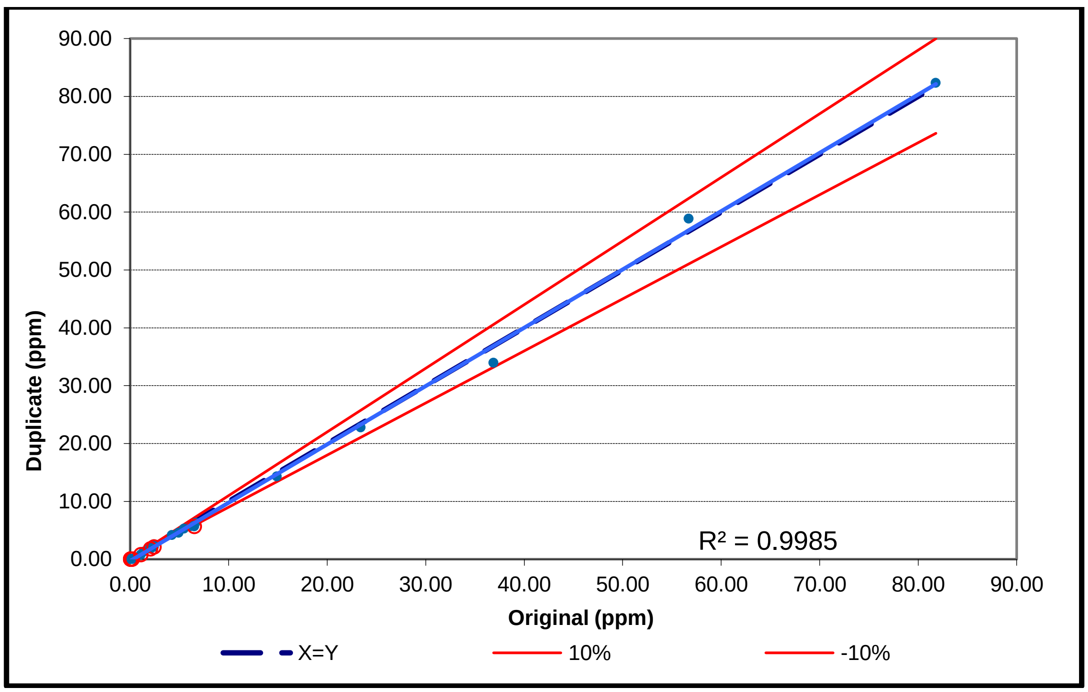



**Figure 12-7: Pulp Duplicate Analytical Results for Gold Fire Assay**



#### 12.4.2.4 Screen Metallic Results

Screen metallic duplicates were completed on 28 core duplicate samples for gold and on 9 core duplicate samples for silver. Table 12-10 shows the results. The screen metallic analysis was requested for gold and silver on 500 g samples using a 75 µm mesh, which was completed for gold but not for silver. Enough material remained to later complete the silver work on nine of 28 samples.

The overall gold average is lower in the screen metallics than fire assay, 8.21 gpt compared to 9.48 gpt, respectively. The overall silver average is higher in the screen metallics than fire assay, 287 gpt compared to 226 gpt, respectively.

The screen metallic results indicate that approximately 17% of total gold grade by mass and 13% of total silver grade by mass is contained in the coarse +200 mesh fraction. These results confirm the presence of coarse-grained gold and silver in the system. Overall comparison of gold and silver grades between the screen metallics fire assay and the 50 g fire assay with gravimetric finish indicates an average RPD value of 0%. This result indicates that variability exists in RPD for grades reported by each method, however, no significant positive nor negative bias was observed overall between the two analytical methods.

**Table 12-10: Screen Metallic Results for Gold (gpt) and Silver (gpt)**

| Hole | Duplicate Sample Number | Au (gpt) Original | Screen Metallic Au (gpt) | RPD (%) | % Au in +200 | Ag (gpt) Original | Screen Metallic Ag (gpt) | RPD (%) | % Ag in +200 |
|---|---|---|---|---|---|---|---|---|---|
| BA18-123 | 445240 | 0.1 | <1 | - | 9 | - | - | - | - |
| | 445241 | 0.2 | <1 | - | 10 | - | - | - | - |
| | 445242 | 0.2 | <1 | - | 15 | - | - | - | - |
| | 445243 | 81.8 | 74.8 | -9 | 13 | - | - | - | - |
| | 445244 | 2.0 | 4.4 | 67 | 15 | - | - | - | - |
| | 445245 | 2.1 | <1 | -200 | 10 | - | - | - | - |
| | 445246 | 2.4 | 2.1 | -19 | 8 | - | - | - | - |
| BA18-132 | 445252 | 1.1 | <1 | -200 | 6 | - | - | - | - |
| | 445253 | 5.5 | 4.6 | -9 | 10 | - | - | - | - |
| | 445254 | 23.4 | 16.0 | -38 | 12 | - | - | - | - |
| | 445255 | 4.9 | 4.5 | -21 | 12 | - | - | - | - |
| | 445256 | 14.9 | 17.0 | 13 | 4 | - | - | - | - |
| | 445257 | 6.7 | 8.3 | 18 | 14 | 695 | 968 | 33 | 14 |
| | 445258 | 6.2 | 7.7 | 25 | 16 | 545 | 708 | 26 | 11 |
| | 445259 | 36.9 | 24.5 | -42 | 14 | 73 | 58 | -22 | 6 |
| BAN18-31 | 445269 | 0.1 | <1 | - | 5 | - | - | - | - |
| | 445270 | 56.7 | 50.6 | -11 | 4 | - | - | - | - |
| | 445272 | 0.1 | <1 | - | 11 | - | - | - | - |

*table continues…*

| Hole | Duplicate Sample Number | Au (gpt) Original | Screen Metallic Au (gpt) | RPD (%) | % Au in +200 | Ag (gpt) Original | Screen Metallic Ag (gpt) | RPD (%) | % Ag in +200 |
|---|---|---|---|---|---|---|---|---|---|
| BAS18-06 | 445265 | 1.2 | <1 | -200 | 3 | - | - | - | - |
| | 445266 | 0.1 | <1 | - | 15 | 6 | 0 | -200 | 8 |
| | 445267 | 4.3 | 2.7 | -35 | 10 | - | - | - | - |
| BAS19-19 | 445261 | 0.1 | <1 | - | 13 | 17 | 24 | 34 | 13 |
| | 445262 | 6.5 | 6.3 | -8 | 12 | - | - | - | - |
| | 445264 | 0.1 | <1 | - | 14 | - | - | - | - |
| BAS19-39 | 445247 | 0.2 | <1 | - | 9 | 90 | 106 | 16 | 16 |
| | 445248 | 2.4 | 4.1 | 49 | 10 | 153 | 330 | 73 | 12 |
| | 445249 | 4.2 | 2.4 | -72 | 10 | 327 | 232 | -34 | 20 |
| | 445251 | 1.4 | 1.4 | -32 | 16 | 125 | 156 | 22 | 9 |
| Overall Average | | 9.5 | 14.5 | -4 | 11 | 226 | 287 | -6 | 12 |
| Average of: >5 gpt Au, >500 gpt Ag | | 26.5 | 23.3 | -7 | 11 | 620 | 838 | 30 | 13 |

## 12.5 QP Opinion on Data Verification

An extensive dataset has been developed by SilverCrest for the Las Chispas Property which is saved and managed using a Geospark database. The Geology QP has reviewed the data compilation and management procedures and has audited the Geospark database.

It is recommended that all fire assay analyses use a minimum of 50 g nominal sample weights. Additionally, it is recommended that a routine duplicate program is implemented for samples in high grade ranges which would incorporate use of screen metallic analyses to evaluate the local grade variation due to physical nugget effects. This data will assist in development of grade control program planning.

Based on the Geology QPs review of data compilation, management procedures, the results of the data audit and independent verification samples of drill core, underground channel samples and underground muck sample, the Geology QP believes the data verification methods are adequate to support for Mineral Resource Estimation, as used in this PEA.

# 13.0 MINERAL PROCESSING AND METALLURGICAL TESTING

SGS Durango completed two metallurgical test work programs on the Las Chispas Property mineralization to assess gold and silver recovery.

The first metallurgical test work program, conducted in 2017, focused on direct leaching for gold and silver recovery on three mineralogical samples: oxide, mixed, and sulphide composites. Standard cyanide bottle roll leach tests were also conducted on these samples. This test work was preliminary in terms of extent and complexity.

The second metallurgical test work program, conducted during 2018 and 2019, included confirmation and optimization tests on three different grade composite samples and one waste composite sample. The three composite samples represented feed materials expected from proposed operations. For the confirmation test stage, direct cyanide leaching tests were performed on varied samples to confirm the 2017 test work results. This was followed by a combined treatment test of gravity concentration and cyanide leach on gravity concentration tailings. A mineralogical analysis was performed on the gravity concentrate samples and the gravity tailings leach residue to determine the bulk mineral compositions and silver and gold occurrences in the samples. Preliminary optimization tests were carried out to investigate the effects of primary grind size and leach reagent dosage on the metallurgical performance of the samples. Preliminary sulphide flotation was also tested to maximize gold and silver recovery through a combined treatment of gravity concentration, flotation, and cyanidation.

## 13.1 Sample Preparation and Description

### 13.1.1 2017 Sample Preparation and Description

Nineteen drill core samples from the Las Chispas and Babicanora areas were combined into three representative bulk composites for metallurgical testing:

- Composite 1 – Sample from the Babicanora Vein near the defined top of the precious metal zone, approximately 50 m from surface. The sample included partly oxidized quartz veining, stockwork, and breccia.
- Composite 2 – Sample from the Babicanora Vein near the defined bottom of the precious metal zone, approximately 220 m from the surface. The sample included partly oxidized quartz veining, stockwork, breccia, and visible sulphides.
- Composite 3 – Samples from the Las Chispas and Giovanni veins near the center of the known high-grade mineralization, approximately 175 m from surface and near the historic underground workings. The sample included quartz veining and stockwork with visible argentite (silver sulphide).

Location and analytical results for the core used in composites are presented in Table 13-1.

**Table 13-1: 2017 Gold and Silver Assay Sample Preparation**

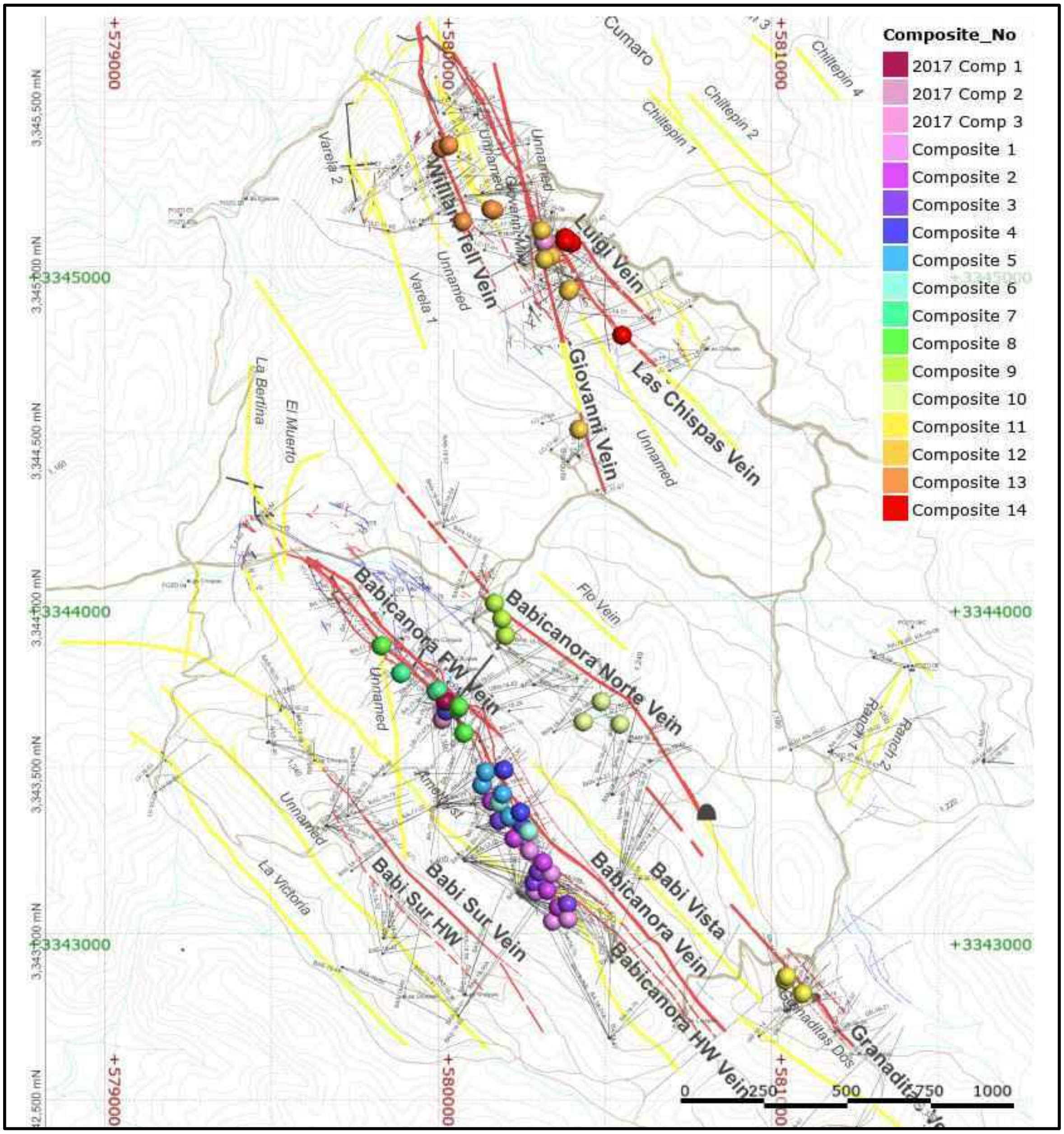
| Composite Sample ID | Location | Hole ID | Sample ID | From (m) | To (m) | Interval (m) | Au (gpt) | Ag (gpt) |
|---|---|---|---|---|---|---|---|---|
| 1 | Babicanora | UB17-09 | 46897 | 70.2 | 71.7 | 1.5 | 0.05 | 218.0 |
| | Babicanora | UB17-09 | 46898 | 71.7 | 73.5 | 1.8 | 0.09 | 321.0 |
| | Babicanora | UB17-09 | 46899 | 73.5 | 75.6 | 2.0 | 3.11 | 87.0 |
| | Babicanora | UB17-09 | 46900 | 75.6 | 77.8 | 2.3 | 10.80 | 181.0 |
| 2 | Babicanora | UB17-11 | 13137 | 89.3 | 89.8 | 0.6 | 0.10 | 221.0 |
| | Babicanora | UB17-11 | 13138 | 89.8 | 90.3 | 0.6 | 12.55 | 853.0 |
| | Babicanora | UB17-11 | 13139 | 90.3 | 90.9 | 0.6 | 12.60 | 1,590.0 |
| | Babicanora | UB17-11 | 13140 | 90.9 | 91.9 | 1.0 | 4.33 | 279.0 |
| 3 | Las Chispas | LC16-08 | 905684 | 171.0 | 172.0 | 1.0 | 2.39 | 271.0 |
| | Las Chispas | LC16-08 | 905685 | 172.0 | 173.0 | 1.0 | 0.88 | 137.0 |
| | Las Chispas | LC16-08 | 905686 | 173.0 | 174.0 | 1.0 | 0.05 | 6.6 |
| | Las Chispas | LC16-08 | 905687 | 174.0 | 175.0 | 1.0 | 2.29 | 323.0 |
| | Las Chispas | LC16-08 | 905688 | 175.0 | 176.0 | 1.0 | 5.62 | 644.0 |
| | Las Chispas | LC16-08 | 905689 | 176.0 | 177.0 | 1.0 | 0.01 | 1.5 |
| | Las Chispas | LC16-08 | 905690 | 177.0 | 178.0 | 1.0 | 0.01 | 1.0 |
| | Las Chispas | LC16-08 | 905691 | 178.0 | 179.0 | 1.0 | 0.37 | 60.9 |
| | Las Chispas | LC16-08 | 905692 | 179.0 | 180.0 | 1.0 | 0.36 | 53.1 |
| | Las Chispas | LC16-08 | 905693 | 180.0 | 181.0 | 1.0 | 0.17 | 28.4 |
| | Las Chispas | LC16-08 | 905694 | 181.0 | 182.0 | 1.0 | 14.40 | 1,900.0 |

Source: Fier (2018)

### 13.1.2 2018/2019 Sample Preparation and Description

In 2018,451.76 kg of drill core samples was collected from 51 geological exploration drillholes and 9 underground workings to compile 15 individual samples based on geo-metallurgical domains. Samples were selected from seven veins labeled as shown in Figure 13-1. A 294 kg portion of the 15 geo-metallurgical samples was blended into three master composites to represent low-grade (LGC), medium-grade (MGC) and high-grade (HGC) mill feed material expected from the proposed operations. An additional sample labeled as Waste Composite Master (WCM) was also collected and constructed (sample number 16). All three master composite samples and the WCM sample were used for the 2018/2019 metallurgical test work. The 150 kg balance of the collected head samples have been reserved for future metallurgical testing, mainly for variability test work when the conditions and flow sheet are determined.

**Figure 13-1: Locations of Geo-Metallurgical Samples**




* Composite 15 was constructed from the samples collected from existing working.

Table 13-2 shows the assay results for the 15 geo-metallurgical samples including duplicate assay results and composition information for the three master composites. The calculated change percentage between the original assay and the duplicate results are also listed in Table 13-2. Some significant variations (greater than 20%) between the original and duplicate assays were observed, which suggest a nugget gold and silver effect due to free gold and silver occurrences in the samples.

**Table 13-2: 2018/2019 Sample Assay and Preparation**

| Individual Sample ID | Location | Individual Sample Assay | | | | | | Composition Information | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Au | | | Ag | | | Low Grade (kg) | Medium Grade (kg) | High Grade (kg) |
| | | (gpt) | Dup(1) (gpt) | Diff.(2) (%) | (gpt) | Dup(1) (gpt) | Diff.(2) (%) | | | |
| 1 | Babicanora Sulphide >1 kg/t Ag Eq | 16 | 16 | 0.0 | 1,679 | 1,850 | 10.2 | 0.0 | 10.0 | 20.0 |
| 2 | Babicanora Sulphide <1 kg/t Ag Eq | 4 | 4 | 0.0 | 360 | 409 | 13.6 | 1.0 | 24.0 | 10.0 |
| 3 | Babicanora Sulphide <300 g/t Ag Eq | 1 | 1 | 0.0 | 165 | 173 | 4.8 | 18.0 | 1.5 | 1.5 |
| 4 | Babicanora Mix >1 kg/t Ag Eq | 21 | 24 | 14.3 | 2,178 | 2,754 | 26.4 | 1.0 | 1.0 | 15.0 |
| 5 | Babicanora Mix <1 kg/t Ag Eq | 4 | 4 | 0.0 | 321 | 336 | 4.7 | 4.0 | 12.0 | 4.0 |
| 6 | Babicanora Mix <300 g/t Ag Eq | <1 | <1 | n/a | 165 | 168 | 1.8 | 6.0 | 0.5 | 0..0 |
| 7 | Babicanora Oxide High Grade | 1 | 1 | 0.0 | 278 | 271 | -2.5 | 20.0 | 8.0 | 5.0 |
| 8 | Babicanora Oxide Low Grade | 2 | 1 | -50.0 | 125 | 116 | -7.2 | 0.7 | 0.0 | 0.0 |
| 9 | Babicanora Norte | 18 | 22 | 22.2 | 1,725 | 1,803 | 4.5 | 0 | 1.0 | 4.0 |
| 10 | Babicanora Norte | 5 | 5 | 0.0 | 868 | 872 | 0.5 | 0.2 | 0.0 | 0.0 |
| 11 | Granaditas | 6 | 5 | -16.7 | 633 | 629 | -0.6 | 1.0 | 0.5 | 3.0 |
| 12 | Giovanny | 2 | 3 | 50.0 | 301 | 339 | 12.6 | 15.0 | 5.0 | 2.0 |
| 13 | William Tell | 2 | 2 | 0.0 | 222 | 228 | 2.7 | 4.0 | 3.0 | 2.0 |
| 14 | Luigi | 2 | 4 | 100.0 | 377 | 470 | 24.7 | 9.0 | 5.0 | 3.0 |
| 15 | Las Chispas | 3 | 3 | 0.0 | 378 | 443 | 17.2 | 3.0 | 10.0 | 12.0 |
| | **Total** | | | | | | | **82.9** | **81.5** | **81.5** |

Notes: (1) Duplicate assay results.
(2) Difference in assay results.
Source: SGS (2019)

Multi-element analysis using inductively coupled plasma (ICP) was also conducted on the 15 geo-metallurgical samples. The total carbon and sulphur contents were low: from 0.02 to 0.48% for carbon and from less than 0.01 to 1.36% for sulphur. The arsenic content was from 12 to 51 ppm and the copper level ranged from 37 to 2,060 ppm.

## 13.2 Head Sample Characteristics

### 13.2.1 Head Sample Assays

Table 13-3 and Table 13-4 show gold and silver fire assay results for samples from the 2017 and 2018/2019 test programs, respectively. The Process QP noted that the WCM sample grade was higher than the low-grade composite sample (Table 13-4). According to the SGS Durango report (SGS 2019), this was caused by the mixing of a small amount of mineralized vein material into what was meant to be a waste sample; consequently, SilverCrest's metallurgical team elected to maintain the designation of Waste Composite Master or WCM.

**Table 13-3: 2017 Head Assay Results**

| Sample ID | Au (gpt) | Ag (gpt) | AgEq(1) (gpt) |
|---|---|---|---|
| Composite 1 (Oxide) | 3.61 | 180 | 450.75 |
| Composite 2 (Mixed) | 6.19 | 500 | 964.25 |
| Composite 3 (Sulfide) | 2.95 | 274 | 495.25 |

Notes: (1) AgEq = Au Grade * 75 + Ag Grade
Source: SGS (2019)

**Table 13-4: 2018/2019 Head Assay Results**

| Composite Sample | Head Grade (gpt) | | |
|---|---|---|---|
| | Au | Ag | Ag Eq(1) |
| WCM | 3.22 | 357 | 598 |
| Low-grade Composite | 2.50 | 341 | 528 |
| Medium-grade Composite | 5.27 | 583 | 978 |
| High-grade Composite | 11.70 | 1,259 | 2,136 |

Notes: (1) AgEq = Au Grade * 75 + Ag Grade
Source: SGS (2019)

### 13.2.2 Grindability Test Results

Standard Bond ball work index ($BW_i$) was determined for all composite samples in the 2018/2019 test program. As shown in Table 13-5, the test results indicated that the mineralized material is relatively hard to ball mill grinding. A Bond abrasion index ($A_i$) was also determined for a composite sample and the test results shows an abrasion index of 0.580 g, indicating the material is abrasive to conventional crushing and grinding.

**Table 13-5: Bond Ball Mill Work Index**

| Composite Sample | BWi (kWh/t) |
|---|---|
| WCM | 18.3 |
| Low-grade Composite | 18.0 |
| Medium-grade Composite | 17.6 |
| High-grade Composite | 16.0 |

Source: SGS (2019)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## 13.3 Mineralogy Analysis

The Advanced Mineralogy Facility at SGS Lakefield, conducted a mineralogy analysis on the gravity concentrates and the leach residues (gravity tailings) generated during the 2018/2019 metallurgical test work program. The purpose of the analysis was to determine the bulk mineralogy of each sample and silver deportment.

### 13.3.1 Gravity Concentrate Samples

Four individual gravity concentrate samples were assayed for gold and silver, multi-element, and total sulphur contents. The samples were then combined into one composite sample, labelled as MCC, for mineralogical analysis. Mineral composition, size, liberation, and exposure were determined using Quantitative Evaluation of Minerals by Scanning Electron Microscopy (QEMSCAN™), specifically with particle mineral analysis (PMA) and specific mineral search (SMS) modes. X-ray diffraction (XRD) analysis was also conducted for the QEMSCAN™ setup and for quality control purposes. Silver distribution within sulphide minerals was further examined using electron probe micro-analysis (EPMA). Gold mineral size and association were determined using scanning electron microscope (SEM) technology.

#### 13.3.1.1 Gravity Concentrate Sample – Assay Results

Table 13-6 shows the gold and silver assay results of the tested samples. The concentrate samples contained 42 to 149 gpt gold and 3,925 to 15,980 gpt silver. There was a strong linear correlation between silver and gold grades.

**Table 13-6: Gravity Concentrate Assay Results**

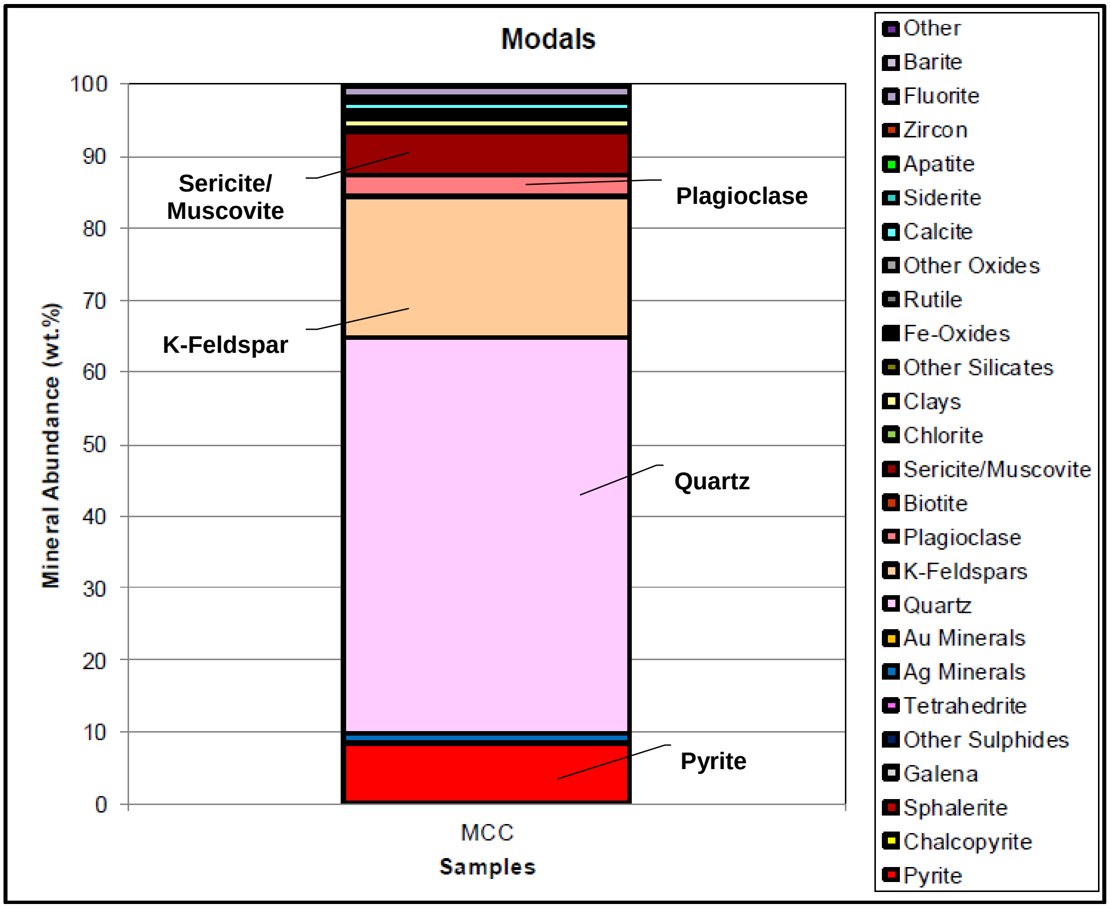
| Composite Sample | Gravity Concentrate Grade (gpt) | | |
|---|---|---|---|
| | Au | Ag | Ag Eq(1) |
| WCM | 49.7 | 3,973 | 7,700 |
| Low-grade Composite | 42.3 | 3,925 | 7,097 |
| Medium-grade Composite | 67.1 | 6,448 | 11,480 |
| High-grade Composite | 149.0 | 15,980 | 27,155 |

Notes: (1) AgEq = Au Grade * 75 + Ag Grade
Source: SGS (2019)

#### 13.3.1.2 Gravity Concentrate Sample – Mineral Composition

Figure 13-2 illustrates the minerals identified in the combined gravity concentrate sample (MCC). The sample contained approximately 1% silver minerals. Gold particles were observed but could not properly be quantified. Sulphide minerals were mainly composed of pyrite (8%) and trace amount of chalcopyrite, sphalerite, and galena. The major gangue minerals found in the sample were quartz (55%), K-feldspar (20%), sericite/muscovite (6%), plagioclase (3%), clay minerals (1.5%), calcite (1.2%), and fluorite (1.5%).

**Figure 13-2: Mineral Mass Distribution of Gravity Concentrate Sample**




Source: SGS (2019)

### 13.3.1.3 Gravity Concentrate Sample – Silver Mineral Occurrences

Based on the EPMA and QEMSCAN™ test results, the occurrence of silver minerals in the tested sample, including mineralogy; liberation/exposure; and grain size information, is summarized as follows:

- Silver mainly occurred within argentite in the gravity concentrate sample, accounting for 82.5% of the silver. Silver in pyrite and other sulphide minerals were below the detection limit.
- The majority of silver minerals (95%) were free or liberated, while the remaining silver minerals were found associated with pyrite and quartz/feldspar. Over 99% silver minerals had an exposure area over 20%, indicating their amenability to flotation or leaching processes.
- In general, silver minerals in the tested sample were considered coarse grained, as 70% of liberated silver minerals were coarser than 75 µm. The observed silver mineral sizes ranged from 10 to 250 µm.

### 13.3.1.4 Gravity Concentrate Sample – Gold Mineral Occurrences

The SEM test results for the gravity concentrate sample indicated that gold occurred as native gold—electrum, and possibly kustelite —with a grain size ranging from 1 to 78 µm. Most gold grains were associated in silver sulphide minerals and quartz (88%), while only 12% of the gold occurred as exposed.

### 13.3.2 Leach Residue Samples (Gravity Concentration Tailings)

Due to the lack of reproducibility on the first leaching tests in the 2018/2019 test program (Section 13.4.2), it was decided to do a mineralogy analysis on the leach residue samples. Two individual gravity tailings leach residue samples (MGC Residue and HGC Residue). They were examined using the PMA QEMSCAN™ method and were assayed for gold and silver, multi-element, and total sulphur content. The two samples were subject to heavy liquid separation to generate a sink and a float product. QEMSCAN™ PMA and SMS analyses were conducted on each of the sink and float products. Silver and total sulphur were assayed for float products. XRD analysis was also conducted on gravity concentrate samples for determining mineral composition.

#### 13.3.2.1 Leach Residue Samples – Assay Results

Table 13-7 shows the silver and gold assay results for the sink and float products. The silver grades for the MGC Residue sample and the HGC Residue sample were 247 gpt and 372 gpt, respectively. The gold assay results of less than 0.5 gpt gold were similar for both samples. After heavy liquid separation, approximately 58% silver from the MGC Residue sample and 55% silver from the HGC Residue sample reported to the heavy liquid sink fraction. The sink products were high in silver, grading at 12,088 gpt silver for the MGC Residue sample and 13,092 gpt silver for the HGC Residue sample.

**Table 13-7: Gravity Tailings Leach Residue Assay Results**

| Samples | Weight Distribution (%) | Ag (gpt) | Au (gpt) | Ag Distribution (%) |
|---|---|---|---|---|
| MGC Residue | 100.0 | 247.0 | 0.31 | 100 |
| MGC Residue Sink | 1.2 | 12,088.0 | n/a | 58 |
| MGC Residue Float | 98.8 | 105.0 | n/a | 42 |
| HGC Residue | 100.0 | 372.0 | 0.48 | 100 |
| HGC Residue Sink | 1.5 | 13,092.0 | n/a | 55 |
| HGC Residue Float | 98.5 | 98.5 | n/a | 45 |

Source: SGS (2019)

#### 13.3.2.2 Leach Residue Samples – Mineralization Composition

Figure 13-3 illustrates the mineral compositions of the as received leach residue samples and the respective sink and float products. In general, the mineral compositions of each category were very similar between both samples, with varied mineral compositions between head sample, sink, and float samples.

- Both residue samples contained low silver minerals (less than 1%). Pyrite is the main sulphide mineral. Similar to the gravity concentrate sample, major gangue minerals include quartz, K-feldspar, sericite/muscovite plagioclase, clay minerals, and calcite.
- Sink products obtained from the MGC Residue and HGC Residue samples were mainly composed of:
  - silver minerals of 2.3% for MGC Residue and 2.6% HGC Residue.
  - pyrite of 30% for MCG Residue and 15% HGC Residue.
  - other heavy silicates and oxides.
- Float products contained most of the gangue minerals with low silver and pyrite content.


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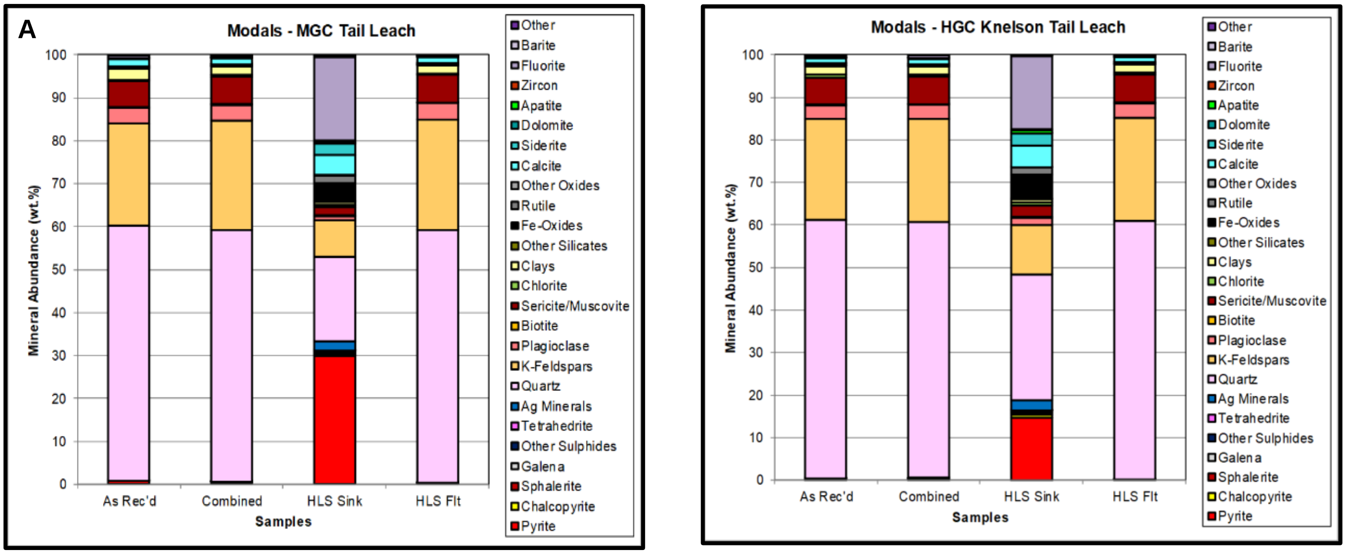
**Figure 13-3: Mineral Mass Distribution (A) MGC Residue; (B) HGC Residue**




Source: SGS (2019)

### 13.3.2.3 Leach Residue Samples – Silver Mineral Occurrence

Residue sample silver mineral occurrences are summarized as follows:

- Argentite is the major silver mineral for both MGC and HGC residue samples.
- Free and liberated silver minerals were low for both MGC Residue and HGC Residue samples (21% and 33%, respectively), and the remaining silver minerals were presented as complex (43% and 51%, respectively), middlings with quartz/feldspar (33% and 14%, respectively), and micas/clays (2% and 2%, respectively).
- The silver in the sink products for both residue samples mainly occurred as free and liberated silver minerals and the silver in the float products mostly occurred as complex and middlings with gangues. A certain amount of free and liberated silver minerals was spotted in the float products (26% for MGC Residue Float and 48% for HGC Residue Float, respectively).
- The silver minerals were distributed relatively evenly in different particle sizes for the sink products, while the silver minerals in the float fraction were mainly concentrated in fine size fractions: 20 to 30 µm for the MGC Residue Float and 10 to 40 µm for the HGC Residue Float. Additionally, silver minerals in the 90 to 100 µm size fraction were also spotted in the HGC Residue Float, which may indicate the gravity separation can be further optimized to maximize the free silver recovery.

## 13.4 Preliminary Direct Cyanide Leaching Test Work

### 13.4.1 2017 Test Results – Preliminary Cyanide Leaching Tests

Initial cyanide bottle roll leach tests were performed on the three composite samples using the following test parameters:

- Primary grind size: 85% passing 150 mesh (105 µm)
- pH: 11.0 to 11.5

- Solids density: 48% w/w
- Leach retention time: 55 hours

Table 13-8 summarizes the cyanidation test results, which show that the gold extraction responded well to the test procedure; however, the silver performance to the extraction treatment seems to be poor at the tested conditions.

**Table 13-8: Initial Cyanide Bottle Roll Test Results – 2017 Test Work**

| Sample ID | Calculated Head Grade (gpt) | | | Recovery (%) | | |
|---|---|---|---|---|---|---|
| | Au | Ag | Ag Eq(1) | Au | Ag | Ag Eq(1) |
| Composite 1 (Oxide) | 3.49 | 189.8 | 451 | 93.3 | 66.3 | 81.9 |
| Composite 2 (Mixed) | 5.61 | 527.7 | 948 | 96.8 | 59.3 | 75.9 |
| Composite 3 (Sulphide) | 2.11 | 271.3 | 429 | 97.6 | 82.7 | 88.3 |

Notes: (1) AgEq = Au Grade * 75 + Ag Grade
Source: SGS (2017)

Further cyanide bottle roll tests were conducted on the three composite samples by increasing the oxygen concentration and adding lead nitrate ($Pb(NO_3)_2$) to improve the silver recovery. The test parameters used included:

- Primary grind size: 85% passing 150 mesh (105 µm)
- pH: 11.0 to 11.5
- Lead nitrate dosage: 100 gpt
- Dissolved oxygen level: 20 to 30 mg/L
- Solids density: 48% w/w
- Leach retention time: 55 hours

Table 13-9 shows the test results after introducing lead nitrate. Significant improvements in gold and silver recoveries, particularly silver, were observed; however, the silver extractions for Composite 1 and Composite 2 were still low. The consumption rate of sodium cyanide (NaCN) and lime (CaO) were similar at approximately 1.5 kg/t on average.

**Table 13-9: 2017 Cyanide Bottle Roll Test Results with Lead Nitrate Addition**

| Sample ID | Head Calculated (Au gpt) | Head Calculated (Ag gpt) | Head Calculated (Ag Eq gpt) | Gold Recovery (%) | Silver Recovery (%) | AgEq(1) Recovery (%) |
|---|---|---|---|---|---|---|
| Composite 1 (Oxide) | 3.66 | 203.4 | 478 | 99.2 | 77.8 | 90.1 |
| Composite 2 (Mixed) | 5.63 | 552.7 | 975 | 98.6 | 85.9 | 91.4 |
| Composite 3 (Sulphide) | 2.15 | 295.0 | 456 | 99.1 | 96.2 | 97.3 |

Notes: (1) AgEq = Au Grade * 75 + Ag Grade
Source: SGS (2017)

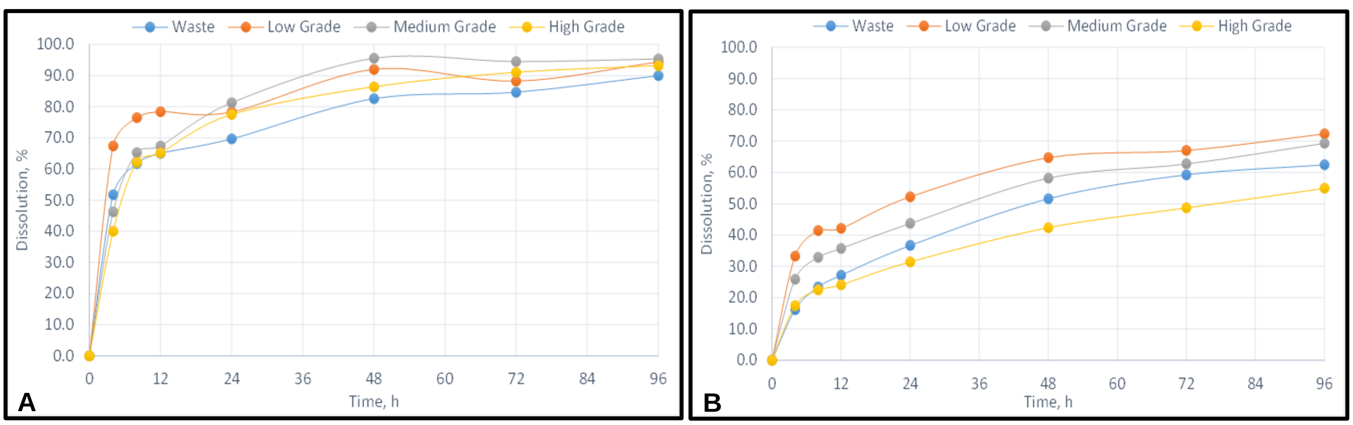
## 13.4.2 Cyanide Leaching Tests – 2018/2019 Test Work

Bottle roll cyanide leach tests were conducted for 96 hours on the head samples constructed for the 2018/2019 composite samples to confirm the metal recoveries achieved from the 2017 test program. In addition, gold and silver extraction kinetics were studied. The leaching tests were carried out at below test conditions :

- Primary grind: size 85% passing 100 µm
- pH: 10.5 to 11.0
- Lead nitrate dosage: 100 and 300 gpt
- Dissolved oxygen level: 20 to 30 mg/L
- Solids density: 48% w/w
- Sodium cyanide dosage: 2,500 gpt
- Leach retention time: 96 hours

Figure 13-4 graphically shows the measured gold and silver extraction rates. For all the tested samples, gold leaching kinetics were rapid in the initial extraction stage and reached the approximate maximum extraction within 96 hours; silver leaching kinetics were slow. The gold leaching recovery ranged from 91.5 to 97.6%, similar to the recovery observed in the 2017 test work. Silver recovery, however, ranged from 57.5 to 84.8%, lower than the 2017 test work results. The lowest silver recovery was obtained from the sample with highest silver grade. As discussed in the mineralogical analysis on the leach residue samples produced from the gravity separation tailings (Section 13.3.2), non-liberated silver minerals were observed in these leach residue samples. This suggests that finer primary grinding may be required.

**Figure 13-4: Direct Cyanide Leaching Results: (A) Au Dissolution Rates and (B) Ag Dissolution Rates**

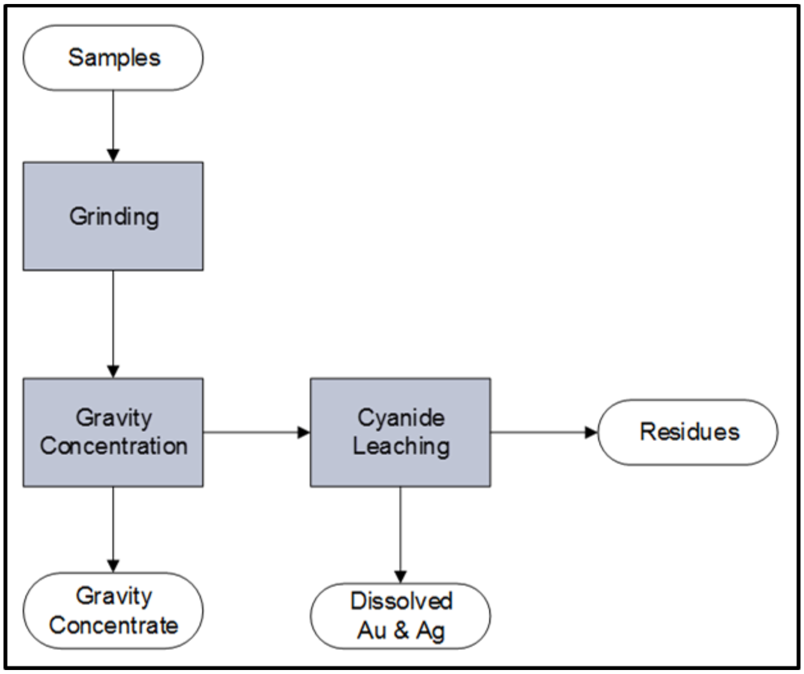



Source: SGS (2019)

## 13.5 Preliminary Gravity Concentration and Cyanide Leaching Test Work

A combined processing method of gravity concentration (centrifugal concentration) and cyanide leaching on the gravity tailings was tested during the 2018/2019 test work program to improve silver recovery. Figure 13-5 shows the preliminary test work process flowsheet and Table 13-10 shows the test results.

**Figure 13-5: Preliminary Test Work Flowsheet**




Source: SGS (2019)

In general, the overall silver recovery improved for all the tested samples using the combined gravity and leaching treatment. The produced gravity concentrate was high in silver and ranged from 20,274 to 93,894 gpt, which indicated a large amount of nugget silver occurred in the samples. To verify the previous tests results, duplicate tests were conducted and showed that the WCM and high-grade composite samples generated higher overall silver recoveries by approximately 25%. The gold and silver assays were conducted on different size fractions of the leaching residue generated from the duplicate tests. Figure 13 6 and Figure 13 7 show that significant gold and silver were found in the coarser than 106 µm size fractions and the finest fraction (-38 µm). A finer primary grind may benefit the overall gold and silver recovery.

**Table 13-10: Preliminary Gravity Concentration + Cyanide Leaching on Gravity Tailings Test Results**

| Composite | Calculated Head (gpt) | | Mass Pull | Gravity Concentrate Grade (gpt) | | Recovery to Gravity Concentrate (%) | | Leaching Circuit Recovery (%) | | Recovery to Leach (%) | | Overall Recovery (%) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Au | Ag | % | Au | Ag | Au | Ag | Au | Ag | Au | Ag | Au | Ag |
| **Original Sample** | | | | | | | | | | | | | |
| WCM | 2.40 | 288 | 0.27 | 317 | 23,144 | 27.0 | 17.8 | 90.0 | 62.4 | 65.7 | 51.29 | 92.7 | 69.1 |
| Low-grade Composite | 1.43 | 253 | 0.28 | 298 | 20,274 | 33.2 | 16.5 | 94.4 | 72.3 | 63.1 | 60.37 | 96.2 | 76.9 |
| Medium-grade Composite | 3.45 | 433 | 0.40 | 428 | 35,823 | 32.7 | 24.8 | 95.4 | 69.3 | 64.2 | 52.11 | 96.9 | 76.9 |
| High-grade Composite | 6.49 | 825 | 0.40 | 1030 | 93,894 | 35.4 | 30.0 | 93.2 | 54.9 | 60.2 | 38.43 | 95.6 | 68.5 |
| **Duplicate Sample** | | | | | | | | | | | | | |
| WCM | 2.07 | 264 | 0.36 | 291 | 23,798 | 32.3 | 23.9 | 95.2 | 93.2 | 64.5 | 70.93 | 96.7 | 94.8 |
| Low-grade Composite | 1.56 | 241 | 0.45 | 204 | 18,628 | 36.4 | 24.4 | 94.9 | 76.4 | 60.4 | 57.76 | 96.7 | 82.1 |
| Medium-grade Composite | 3.92 | 440 | 0.43 | 487 | 31,889 | 40.1 | 23.8 | 95.2 | 68.4 | 57.0 | 52.12 | 97.1 | 75.9 |
| High-grade Composite | 6.86 | 813 | 0.67 | 653 | 62,853 | 37.5 | 33.5 | 97.8 | 93.8 | 61.1 | 62.38 | 98.6 | 95.9 |

Source: SGS (2019)



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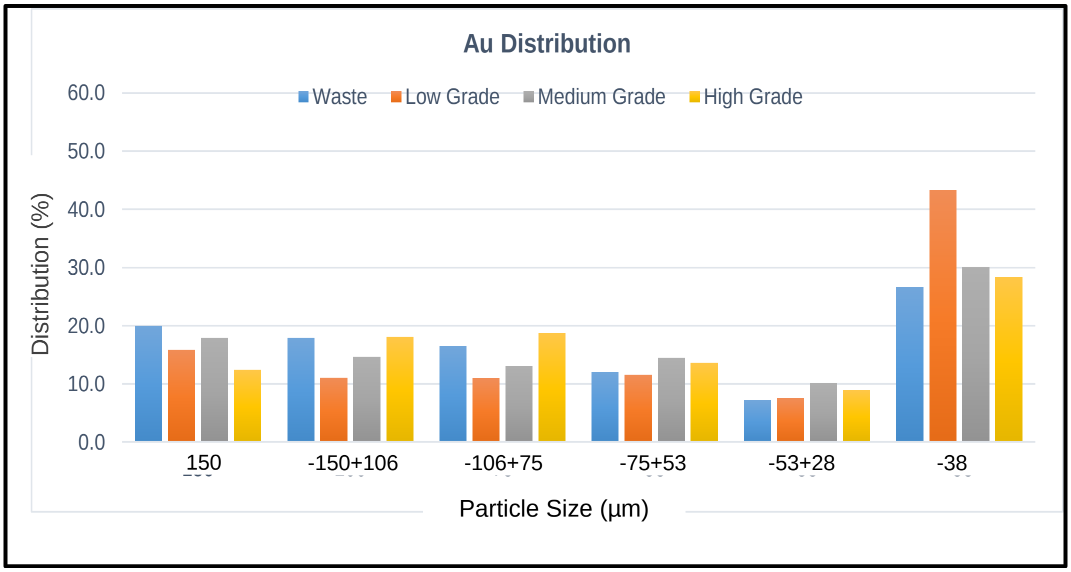
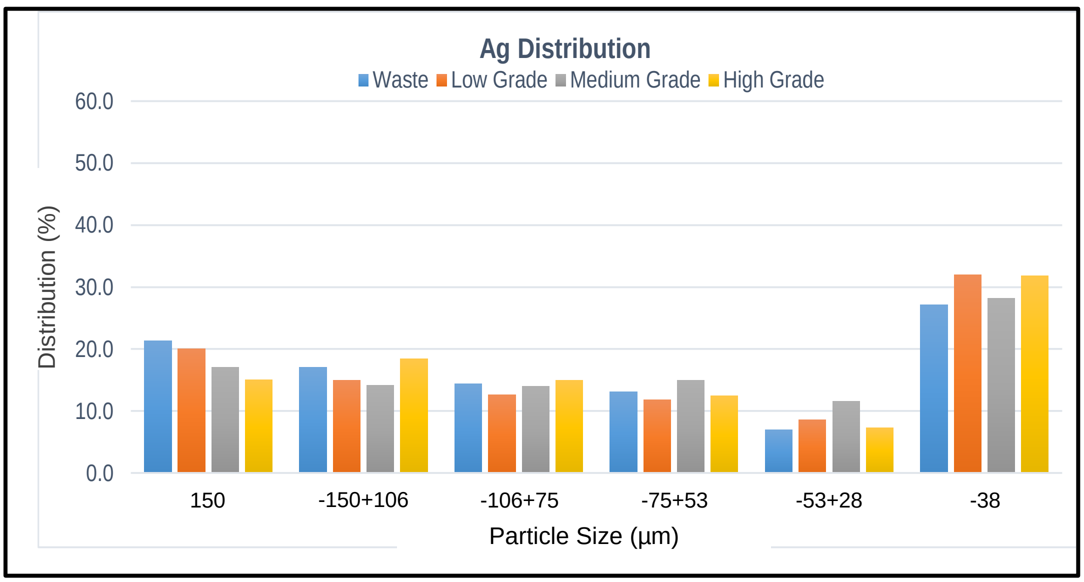
**Figure 13-6: Gold Assay Results on a Size-by-Size Basis**




Source: SGS (2019)

**Figure 13-7: Silver Assay Results on a Size-by-Size Basis**

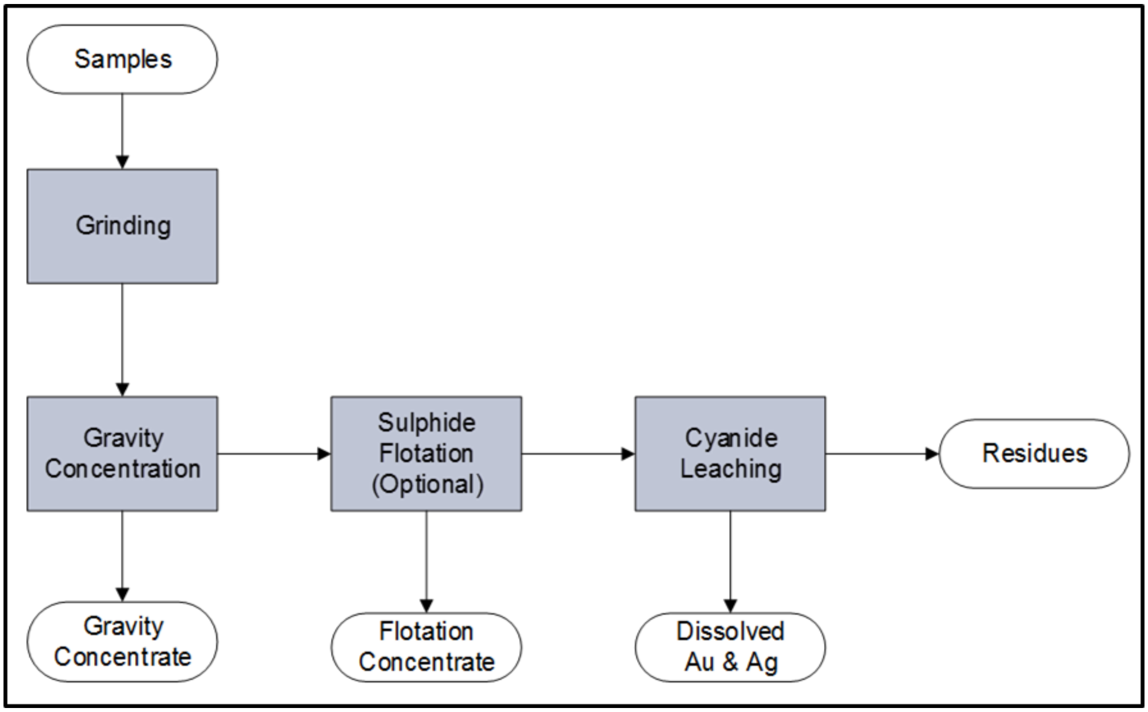



Source: SGS (2019)

## 13.6 Gravity, Flotation and Cyanide Leaching Optimization Test Work

During the 2018/2019 test program, further metallurgical tests, including gravity concentration and cyanide leaching, were conducted to improve silver recovery. The gravity concentration tests were conducted with a higher mass pull than the previous tests. Different primary grind sizes and reagent dosage levels of cyanide and lead nitrate were tested. In addition, flotation concentration on gravity tailings was also investigated on each of the three master composite samples. Figure 13-8 shows the process flowsheet used for the gravity and optimized leaching test work.

**Figure 13-8: Flowsheet for Gravity, Flotation, and Optimized Leaching Test Work**




Source: SGS (2019)

Table 13-11 outlines the cyanide leaching optimization test conditions.

**Table 13-11: Cyanide Leaching Optimization Test Conditions**

| Leach Feed | Particle Size P80 (µm) | NaCN (gpt) | $Pb(NO_3)_2$ (gpt) |
|---|---|---|---|
| Gravity Tailings | 60 | 2,000 | 100 |
| | 100 | 3,000, 5,000(1) | 300 |
| Flotation Tailings | 100 | 2,000 | 300 |

Note: (1) for high-grade composite tailings leaching
Source: SGS (2019)

Table 13-12 shows the overall gold and silver recoveries obtained from the optimization tests for each sample. The leach extraction ranged from 94.9 to 99.0% for silver and over 99% for gold. With flotation (flotation concentrate was not leached), the overall metal recovery can be slightly increased. Significantly less reagent consumptions for the flotation tailings leaching were noticed. The further evaluations into the process flowsheet optimization should be conducted.

**Table 13-12: Overall Metal Recoveries from Gravity and Leaching Optimization Tests**

| Feed Sample | Recovery to Gravity Concentrate (%) | | Recovery to Flotation Concentrate (%) | | Leaching Extraction (%) | | Overall Recovery (%) | | Reagent Consumption (kg/t) | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Au | Ag | Au | Ag | Au | Ag | Au | Ag | NaCN | CaO |
| Low-grade Composite(1) | 47.0 | 32.6 | - | - | 52.1 | 62.3 | 99.1 | 94.9 | 1.44 | 0.64 |
| Low-grade Composite(2) | 55.7 | 41.6 | 32.5 | 44.0 | 11.1 | 10.8 | 99.3 | 96.4 | 0.49 | 0.28 |
| Medium-grade Composite(1) | 40.8 | 34.0 | - | - | 58.2 | 61.2 | 99.0 | 95.2 | 1.17 | 0.22 |
| Medium-grade Composite(2) | 43.8 | 38.4 | 43.5 | 49.6 | 12.0 | 9.8 | 99.3 | 97.8 | 0.68 | 0.09 |
| High-grade Composite(1) | 45.1 | 37.0 | - | - | 54.1 | 60.0 | 99.2 | 97.0 | 1.49 | 0.11 |
| High-grade Composite(2) | 52.7 | 44.2 | 38.0 | 48.0 | 9.1 | 6.8 | 99.8 | 99.0 | 0.65 | 0.11 |

Notes: (1) Gravity + Leaching Highest Overall Metal Recoveries
(2) Gravity + Flotation + Leaching
Source: SGS (2019)

## 13.6.1 Gravity Separation

Preliminary test work was conducted to assess the gravity separation concentrate generated using a laboratory-scale Knelson centrifugal concentrator to intensive cyanidation. Compared to preliminary gravity concentration test results to generate the leach test samples (see note (1)) and flotation test samples (see note (2)) presented in Table 13-10, gold and silver recoveries improved from approximately 40 to 47% for gold and from 32 to 37% for silver. The improved recoveries are mainly due to the increase in the gravity concentrate mass recovery from approximately 1.2 to 1.6%. The gravity concentrate grade decreased. (Table 13-13).

**Table 13-13: Test Results of Gravity Concentration Prior to Leaching and Flotation Testing**

| Feed Sample | Calculated Head Grade (gpt) | | Mass Pull % | Gravity Concentrate Grade (gpt) | | Recovery to Gravity Concentrate (%) | |
|---|---|---|---|---|---|---|---|
| | Au | Ag | | Au | Ag | Au | Ag |
| Low-grade Composite(1) | 2.5 | 341 | 1.5 | 75.0 | 7,007 | 47.0 | 32.6 |
| Low-grade Composite(2) | 2.2 | 305 | 3.9 | 32.0 | 3,246 | 55.7 | 41.6 |
| Medium-grade Composite(1) | 5.3 | 611 | 1.2 | 176.0 | 16,550 | 40.8 | 34.0 |
| Medium-grade Composite(2) | 4.8 | 590 | 3.5 | 61.3 | 6,535 | 43.8 | 38.4 |
| High-grade Composite(1) | 11.4 | 1,246 | 1.6 | 317.0 | 29,487 | 45.1 | 37.0 |
| High-grade Composite(2) | 11.5 | 1,249 | 3.8 | 159.9 | 14,593 | 52.7 | 44.2 |

Notes: (1) Gravity Tailings to Leaching
(2) Gravity Tailings to Flotation
Source: SGS (2019)

### 13.6.2 Intensive leaching on Gravity Concentrate

Preliminary intensive leach tests were performed on gravity concentrate samples (Table 13 14). A cyanide concentration of 30 g/L was maintained for the 96-hour leaching test. The use of an accelerating leaching agent, GOLDI-LOX was tested and lead nitrate additions as well. The test results showed that over 99.5% of gold and silver can be extracted through intensive cyanide leaching after 96 hours. Figure 13 9 and Figure 13-10 show the dissolution results for gold and silver, respectively. The initial leaching rates for both gold and silver are relatively high, and greater than 90% recoveries were seen within the first 12 hours, except for silver extraction in Test CN-1 which had a different particle size, 80% passing 171 µm. Consequently, regrinding of the gravimetric concentrate should have a positive effect and must be further studied.

**Table 13-14: Intensive Leach Test Results of Gravity Concentrate**

| Test ID | Calculated Head (gpt) | | | Extraction (%) | | | Consumption (kg/t) | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Au | Ag | Ag Eq | Au | Ag | Ag Eq | NaCN | CaO | Goldi-LOX | $Pb(NO_3)_2$ |
| CN-1 | 76.4 | 7,542 | 13,272 | 99.7 | 99.5 | 99.6 | 12.7 | 0 | 24 | 0.0 |
| CN-2 | 74.5 | 7,150 | 12,738 | 99.8 | 99.6 | 99.7 | 11.8 | 0 | 24 | 0.0 |
| CN-3 | 74.2 | 7,128 | 12,693 | 99.8 | 99.6 | 99.7 | 12.5 | 0 | 24 | 0.5 |

Notes: (1) AgEq = Au Grade * 75 + Ag Grade
Source: SGS (2019)

**Figure 13-9: Silver Extraction Kinetics**

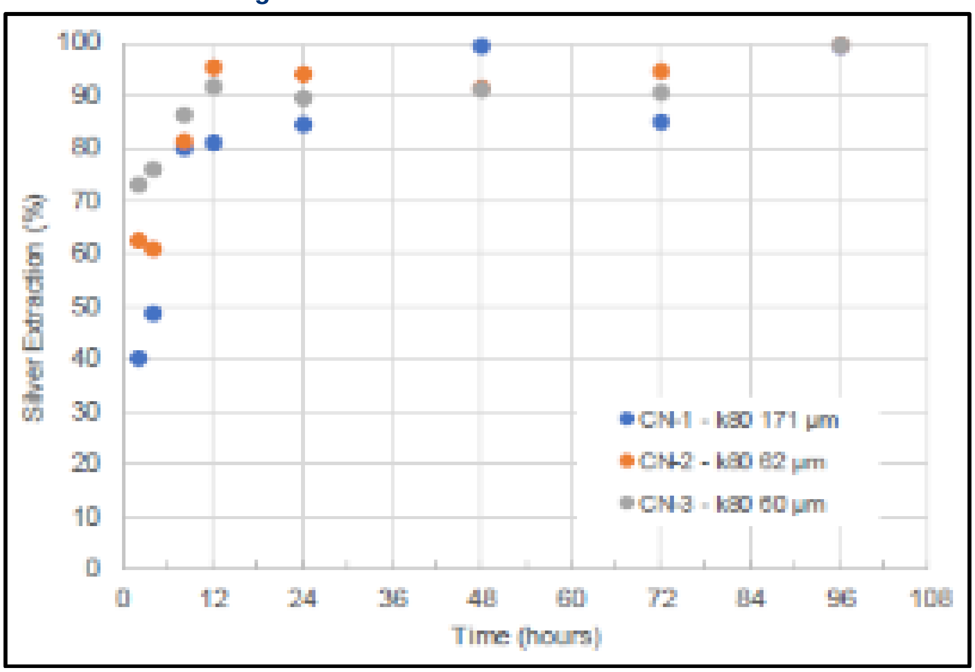





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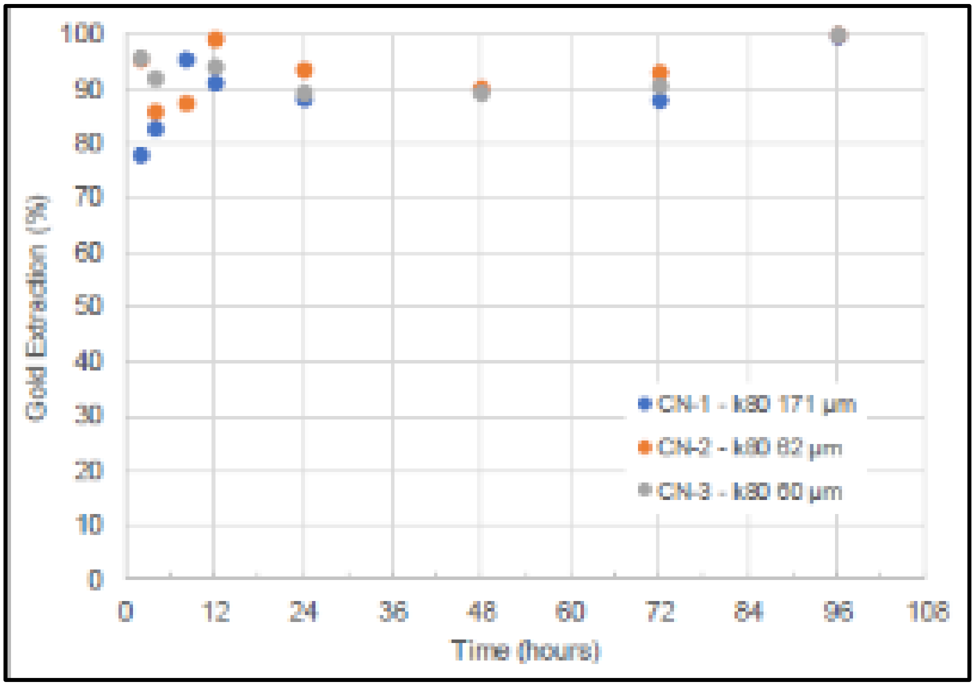
**Figure 13-10: Gold Extraction Kinetics**




Note: Intermediate silver and gold extraction rates were estimated by solution assay results only.

### 13.6.3 Flotation Separation

Gravity tailings were subjected to batch rougher flotation at a solid density of 30% by weight. The test utilized conventional reagents, including potassium amyl xanthate (PAX), X-350, A-31 and P404 as collectors and copper sulphate ($CuSO_4$) as an activation reagent. Table 13-15 shows the flotation test results.

**Table 13-15: Test Results of Flotation Separation for Leaching Optimizations**

| Gravity Tailings | Flotation Concentrate Grade (gpt) | | | Recovery to Circuit (%) | | | Recovery to Overall (%) | | |
|---|---|---|---|---|---|---|---|---|---|
| | Au | Ag | Ag Eq[1] | Au | Ag | Ag Eq | Au | Ag | Ag Eq[1] |
| Low-grade Composite | 10.8 | 1,920 | 2,728 | 73.3 | 75.4 | 74.7 | 32.5 | 44.0 | 39.9 |
| Medium-grade Composite | 25.7 | 3,559 | 5,489 | 77.5 | 80.5 | 79.4 | 43.5 | 49.6 | 47.3 |
| High-grade Composite | 70.4 | 9,931 | 15,211 | 80.2 | 86.0 | 83.9 | 38.0 | 48.0 | 43.9 |

Notes: [1] AgEq = Au Grade * 75 + Ag Grade
Source: SGS (2019)

### 13.6.4 Leaching Optimization Testing

Cyanide leach tests were conducted on the gravity concentration tailings and flotation tailings. Table 13-16 summarizes the cyanidation test results obtained using a 96-hour leach retention time under varied test conditions. In general, good gold and silver metallurgical responses were observed for all the tested samples. The highest metal recoveries obtained from the testing are similar, as highlighted in Table 13-16. A finer grind size appeared to have no obvious benefit to improve metal extraction. Higher dosages of lead nitrite and cyanide seemed critical to improve silver recovery.

### Table 13-16: Optimized Cyanide Leaching on Gravity Tailings Test Results

| Sample | Leaching Feed | P80 (µm) | NaCN (gpt) | $Pb(NO_3)_2$ (gpt) | Recovery to Leaching Circuit (%) | | | Recovery to Overall (%) | | | Consumption (kg/t) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Au | Ag | Ag Eq[1] | Au | Ag | Ag Eq[1] | NaCN | CaO |
| Low Grade | Gravity Tailings | 60 | 2000 | 100 | 97.7 | 88.9 | 91.6 | 51.7 | 59.9 | 57.0 | 1.03 | 0.74 |
| | | | | 300 | 97.7 | 91.3 | 93.3 | 51.8 | 61.5 | 58.1 | 1.00 | 0.76 |
| | | | 3000 | 100 | 97.7 | 90.7 | 92.9 | 51.7 | 61.2 | 57.8 | 1.47 | 0.64 |
| | | | | **300** | **98.4** | **92.4** | **94.3** | **52.1** | **62.3** | **58.7** | **1.44** | **0.64** |
| | | 100 | 2000 | 100 | 96.5 | 84.0 | 88.0 | 51.1 | 56.6 | 54.8 | 0.84 | 0.14 |
| | | | | 300 | 97.2 | 87.4 | 90.5 | 51.5 | 58.9 | 56.4 | 0.87 | 0.08 |
| | | | 3000 | 100 | 95.7 | 85.5 | 88.7 | 50.7 | 57.6 | 55.2 | 1.11 | 0.12 |
| | | | | 300 | 97.9 | 89.8 | 92.4 | 51.8 | 60.5 | 57.5 | 1.06 | 0.10 |
| | Flotation Tailings | 100 | 2000 | 300 | 94.0 | 74.9 | 80.5 | 11.1 | 10.8 | 10.9 | 0.49 | 0.28 |
| Medium Grade | Gravity Tailings | 60 | 2000 | 100 | 96.2 | 73.7 | 82.4 | 57.0 | 48.6 | 52.1 | 1.00 | 0.66 |
| | | | | 300 | 97.3 | 82.5 | 88.2 | 57.6 | 54.5 | 55.8 | 1.17 | 0.55 |
| | | | 3000 | 100 | 91.9 | 79.1 | 84.1 | 54.5 | 52.2 | 53.2 | 1.60 | 0.44 |
| | | | | 300 | 97.5 | 86.8 | 90.8 | 57.8 | 57.3 | 57.5 | 1.47 | 0.44 |
| | | 100 | 2000 | 100 | 97.6 | 83.9 | 89.3 | 57.8 | 55.3 | 56.5 | 1.00 | 0.55 |
| | | | | 300 | 98.4 | 92.4 | 94.7 | 58.2 | 60.9 | 59.9 | 1.03 | 0.55 |
| | | | 3000 | 100 | 96.7 | 78.0 | 85.4 | 57.3 | 51.4 | 54.0 | 1.17 | 0.22 |
| | | | | **300** | **98.3** | **92.7** | **94.9** | **58.2** | **61.2** | **60.0** | **1.17** | **0.22** |
| | Flotation Tailings | 100 | 2000 | 300 | 95.2 | 81.7 | 87.2 | 12.0 | 9.8 | 10.7 | 0.68 | 0.09 |
| High-Grade | Gravity Tailings | 60 | 2000 | 100 | 98.5 | 94.1 | 95.9 | 54.1 | 59.3 | 57.3 | 1.38 | 0.13 |
| | | | | 300 | 98.7 | 95.7 | 96.9 | 54.2 | 60.3 | 57.9 | 1.44 | 0.08 |
| | | | 3000[2] | 100 | 98.5 | 94.4 | 96.0 | 54.1 | 59.5 | 57.4 | 2.14 | 0.07 |
| | | | | 300 | 97.9 | 94.4 | 95.7 | 53.7 | 59.5 | 57.2 | 2.50 | 0.09 |
| | | 100 | 2000 | 100 | 97.6 | 92.3 | 94.3 | 53.6 | 58.2 | 56.3 | 1.44 | 0.11 |
| | | | | **300** | **98.5** | **95.1** | **96.4** | **54.1** | **60.0** | **57.7** | **1.49** | **0.11** |
| | | | 3000[2] | 100 | 98.2 | 94.4 | 95.9 | 53.9 | 59.5 | 57.3 | 2.06 | 0.09 |
| | | | | 300 | 98.1 | 95.0 | 96.2 | 53.8 | 59.9 | 57.5 | 2.01 | 0.07 |
| | Flotation Tailings | 100 | 2000 | 300 | 96.5 | 87.5 | 91.6 | 9.1 | 6.8 | 7.7 | 0.65 | 0.11 |

Notes: [1] AgEq = Au Grade * 75 + Ag Grade
(2)5,000 ppm cyanide dosage on high-grade samples
Source: SGS (2019)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## 13.7 Process Recovery Projection

The recovery results from the low-grade composite and the medium-grade composite were used for the metal recovery estimates. The average gold and silver grades of the two composite samples at 769 gpt AgEq is comparable to the weighted average resource grade of 729 gpt AgEq. Additionally, the intensive leaching recovery is limited to 90% (compared to 99% achieved by the preliminary test work) until further optimization work is completed. PEA estimated recoveries average 94.4% for gold and 89.9% for silver. The metallurgical performance projections are shown in Table 13-17.

**Table 13-17: Process Recovery Projection**

| Method | Low Grade Composite (529 gpt Ag Eq) | | | Medium Grade Composite (1,009 gpt Ag Eq) | | | Average Composite (769 gpt (Ag Eq) | | |
|---|---|---|---|---|---|---|---|---|---|
| | Au % | Ag % | Ag Eq[(1)] | Au % | Ag % | Ag Eq[(1)] | Au % | Ag % | Ag Eq[(1)] |
| Gravity Concentrate Recovery | 47.0 | 32.6 | 37.8 | 40.8 | 34.0 | 36.7 | 43.9 | 33.3 | 37.2 |
| Intensive Leach Recovery (Applied) | 90.0 | 90.0 | 90.0 | 90.0 | 90.0 | 90.0 | 90.0 | 90.0 | 90.0 |
| Est. Gravity/Leach Recovery | 42.3 | 29.3 | 34.0 | 36.7 | 30.6 | 33.1 | 39.5 | 30.0 | 33.5 |
| Conventional Leach Recovery | 51.5 | 58.9 | 56.4 | 58.2 | 60.9 | 59.9 | 54.9 | 59.9 | 58.1 |
| **Estimated Recovery** | **93.8** | **88.2** | **90.3** | **94.9** | **91.6** | **93.0** | **94.4** | **89.9** | **91.6** |

Notes: [(1)] AgEq = Au Grade * 75 + Ag Grade

# 14.0 MINERAL RESOURCE ESTIMATES

The statement of Mineral Resources presented in this PEA includes new and existing information available up to and including the effective date for February 8, 2019. This statement is provided as an update to, and supersedes, the previous statement disclosed in the report titled *Technical Report and Updated Mineral Resource Estimate for the Las Chispas Property, Sonora Mexico*, effective September 13, 2018 (Fier 2018). New drilling has focused on the Babicanora Area, which has enabled SilverCrest to update the Mineral Resources for these veins. Mineral Resources for the Las Chispas Area and the Granaditas Area have not been updated from Fier (2018).

The Mineral Resource statement includes estimates for 10 veins, and 41 historical surface stockpiles.

## 14.1 Basis of Current Mineral Resource Estimate

Mineral Resource Estimates have been prepared for intact vein-hosted material as potential underground narrow vein mining targets at the Babicanora Area, including the Babicanora Main; Babicanora FW; Babicanora HW; Babicanora Norte; Granaditas Vein, Babicanora Sur and Babicanora Sur HW veins, and at the Las Chispas Area, including the Las Chispas, William Tell, Luigi, Giovanni (including La Blanquita) and Giovanni Mini veins;. Vein models were constructed by SilverCrest using Seequent Limited Leapfrog® Geo v.4.4 and reviewed by the Geology QP. Las Chispas Area veins and the Granaditas Vein were previously constrained (Fier 2018) to a minimum thickness of 1.5 m true width, and veins in the Babicanora Area were constrained to a minimum thickness of 0.5 to 1.0 m true width. Block models were constructed using GEOVIA GEMS™ v.6.8 and Mineral Resource Estimates were calculated from surface and underground diamond drilling information and recent Las Chispas Area underground chip sampling information. Further details on block model development and vein resources are included in Section 14.3.

Mineral Resource Estimates have also been prepared for surface stockpiled material remaining from historical operations as waste dumps, waste tailings deposits, and as accessible underground muck backfill material. A total of 41 material stockpiles were mapped, surveyed, and sampled by SilverCrest between July 2017 and January 2018. The stockpiles are easily accessible by site roads. These Mineral Resources were disclosed in the February 12, 2018, and amended May 9, 2018, report titled *Technical Report and Mineral Resource Estimate for the Las Chispas Property, Sonora, Mexico* (Barr, 2018) and remain current. Further details on development of the stockpile resources are included in Section 14.4.

## 14.2 Previous Mineral Resource Estimates

There is no historical Mineral Resource Estimate for the Las Chispas Property. To SilverCrest's knowledge, they are the first company to have drilled the district-wide mineralized trend.

Previous Mineral Resource Estimates prepared for the Las Chispas Area, including the Las Chispas Vein, the Giovanni Vein (with Giovanni Mini and La Blanquita), the William Tell Vein, and the Luigi Vein, are unchanged from the previous Mineral Resource Estimate stated with effective date of September 12, 2018 (Fier 2018). Previous Mineral Resource Estimates prepared for the Granaditas Vein remain unchanged from the previous estimate stated with effective date of September 12, 2018 (Fier 2018). The Geology QP has reviewed and accepted these previous Mineral Resource Estimates and they are included in the current Mineral Resource Estimate.

Previous estimates prepared for the Babicanora Area (Fier 2018), including the Babicanora Vein (with Area 51), the Babicanora FW Vein, the Babicanora HW Vein, the Babicanora Norte Vein, and the Babicanora Sur Vein have been updated and are superseded by the current Mineral Resource Estimate with an effective date of February 8, 2019. Changes to the modelling approach used for these veins in the current Mineral Resource Estimate include modelling veins with a minimum 0.5 m true thickness, use of 0.5 m rather than 1.0 m composites, and stringent clipping to the vein models to constrain mineralized zones. A subzone of Area 51 has been defined as Shoot 51, which comprises a continuous zone of high-grade mineralization. Additional drilling has increased the sampling density and has improved confidence in the model to enable portions of the Mineral Resources in the Babicanora, Babicanora FW, and Babicanora Norte veins to be classified as Indicated from Inferred.

Table 14-1 shows a comparison of the September 12, 2018 Mineral Resource Estimate (Fier 2018) to the current February 8, 2019 updated Mineral Resource Estimate.

**Table 14-1: Comparison of Previous vs. Current Mineral Resource Estimates[3,4]**

| Resource Category[1] | Tonnes (Mt) | Au (gpt) | Ag (gpt) | AgEq[2] (gpt) | Contained Au Ounces | Contained Ag Ounces | Contained AgEq[2] Ounces |
|---|---|---|---|---|---|---|---|
| **September 2018 Resource** | | | | | | | |
| Indicated | - | - | - | - | - | - | - |
| Inferred | 4.3 | 3.68 | 347 | 623 | 511,500 | 48,298,700 | 86,701,200 |
| *Including Area 51* | | | | | | | |
| *Indicated* | - | - | - | - | - | - | - |
| *Inferred* | *1.1* | *7.13* | *613.8* | *1,148* | *256,000* | *22,040,000* | *41,238,100* |
| **February 2019 Resource** | | | | | | | |
| Indicated | 1.0 | 6.98 | 711 | 1,234 | 224,900 | 22,894,800 | 39,763,600 |
| Inferred | 3.6 | 3.32 | 333 | 582 | 388,300 | 38,906,000 | 68,069,800 |
| *Including Area 51* | | | | | | | |
| *Indicated* | 0.47 | 7.90 | 801 | 1,393 | 118,500 | 12,011,600 | 20,898,100 |
| *Inferred* | 0.39 | 6.06 | 715 | 1,170 | 76,500 | 9,032,700 | 14,767,600 |

Notes: [1]Conforms to NI 43-101 and the CIM Definition Standards on Mineral Resources and Mineral Reserves. Inferred Mineral Resources have been estimated from geological evidence and limited sampling and must be treated with a lower level of confidence than Measured and Indicated Resources.
[2]AgEq is based on a silver to gold ratio of 75:1. This was calculated using long-term silver and gold prices of US$17/oz silver and US$1,225/oz gold with approximate average metallurgical recoveries of 90% silver and 95% gold.
[3]All numbers are rounded. Overall numbers may not be exact due to rounding.
[4]There are no known legal, political, environmental, or other risks that could materially affect the potential development of the Mineral Resources.

## 14.3 Vein Models

### 14.3.1 Geological Interpretation for Model

Each of the Las Chispas and Babicanora areas are understood to be part of the same regional mineralizing system; however, each are characterized by local variation in structural controls and host rock lithology resulting in variation to style of mineralization and overall dimensions. A brief description for each area is provided in Section 7.2.5 and summarized in the following subsections.

A lithological model for the Babicanora Area was developed by SilverCrest using drilling information and surface mapping. The model depicts broad folding of the volcanic host rocks, identifies significant contacts between lapilli tuff and RDCLF, and includes intrusive dikes and sills such as the silicic andesite units (SACTS) which appear to be syngenetic to mineralization. Host lithology is interpreted to impart a strong influence in the location and style of mineralization observed with the veins.

Vein models were developed for each vein using the core field logs and assays. The vein models represent the continuous zone of structurally hosted silver and gold mineralization and the structural extensions of the veins. The models provide orientations for further development of both geological and resource modelling and are used to support exploration drill targeting. The average true thickness for each vein model in the Babicanora area are listed in Table 14-2.

At the Babicanora Area, the vein models were manually clipped to include mineralization areas with a composite vein thickness grade of approximately 150 gpt AgEq or greater, out to a maximum distance of 50 m beyond mineralized intercepts where no other drilling information was available. This was not strictly applied where mineral continuity could be interpreted between drill hole intercepts along strike and/or dip, which resulted in the inclusion of some intercepts with less than 150 gpt AgEq. Additionally, the veins were clipped to at least 10 m below surface along the dip of the vein. The clipped veins were used to constrain the Mineral Resource Estimate.

**Table 14-2: Estimated True Thickness of Babicanora Area Vein Models**

| Vein | Average Downhole Thickness (m) | Estimated Average True Thickness (m) |
|---|---|---|
| Babicanora Main | 3.59 | 3.05 |
| Babicanora Shoot 51 | 3.8 | 3.25 |
| Babicanora FW | 1.1 | 0.94 |
| Babicanora HW | 1.1 | 0.86 |
| Babicanora Norte, Northwest | 0.93 | 0.74 |
| Babicanora Norte, Southeast | 1.16 | 0.93 |
| Babicanora Sur | 1.2 | 0.95 |

### 14.3.1.1 Babicanora

The Babicanora Vein includes the Babicanora Main Vein, Babicanora FW Vein and the Babicanora HW Vein. The veins cross cut host lithology and are controlled within a broad structure that is oriented between 140 to 150° azimuth, with inclination of approximately 65° to the southwest.

The Babicanora Vein is transected by several cross-cutting, 220° azimuth directed faults and dikes, two of which are interpreted to divide the vein into three zones of mineralization that include, from northwest to southeast, the Babicanora Central, the Silica Rib, and the Area 51 Zone (Figure 14-1). The Babicanora Vein has been intersected by drilling over a strike length of approximately 1.5 km and to a depth extent of approximately 250 m from the valley bottom (approximately 1,100 masl), or an estimated 450 m from the outcrop along the ridge slope (approximately 1,350 masl). The deepest drill holes in the area show strong quartz veining and stockwork with less precious metal mineralization in unfavorable host rock. This vein was modelled using only drilling intercepts with elevated silver and gold grades with a minimum true width of 0.5 m. The estimated average true width of the vein is 3.05 m.

The Babicanora FW Vein is sub-parallel to the Babicanora Main Vein and is interpreted as a narrow splay from the Babicanora Main Vein with maximum separation distance of approximately 30 m. The vein was intercepted by drill testing over a strike length of 1,200 m and down to approximately 250 m below valley bottom (Figure 14-2).

The Babicanora HW Vein, also interpreted as a splay, was identified by drilling over a strike length of 900 m and down to 100 m below the valley bottom (Figure 14-3).

Historical workings were mapped by SilverCrest and are located in the northwest portion of the Babicanora Vein and Babicanora FW Vein in the Babicanora Central area. These excavations are in the hanging wall of the Babicanora Vein, small in proportion to the vein model, and have been excluded from the vein model based on void intercepts logged from surface drilling and positioning of underground drilling.

**Figure 14-1: Inclined Long Section of the Babicanora Vein Illustrating Four Zones of Modelled Mineralization with Associated Rock Codes, Looking Southwest**

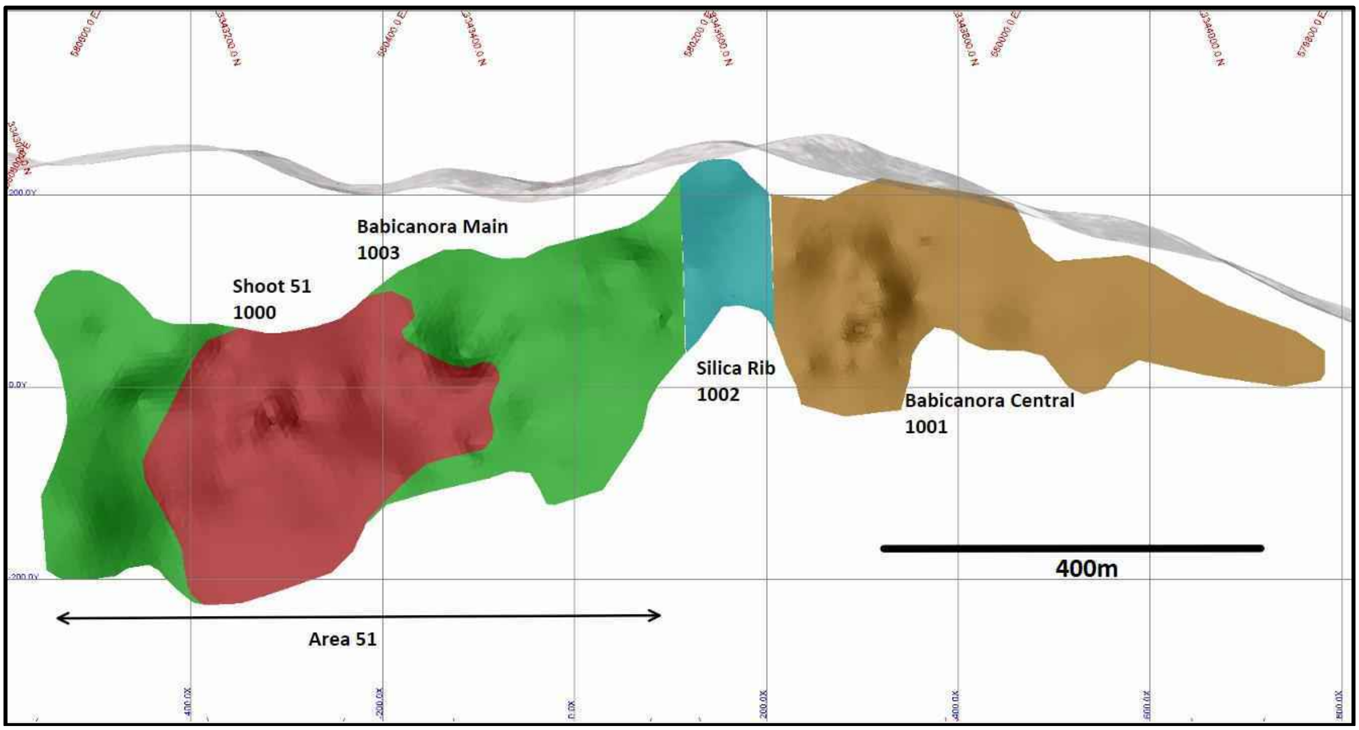


**Figure 14-2: Inclined Long Section of Babicanora FW Vein Illustrating Three Zones of Modelled Mineralization with Associated Rock Codes, Looking Southwest**

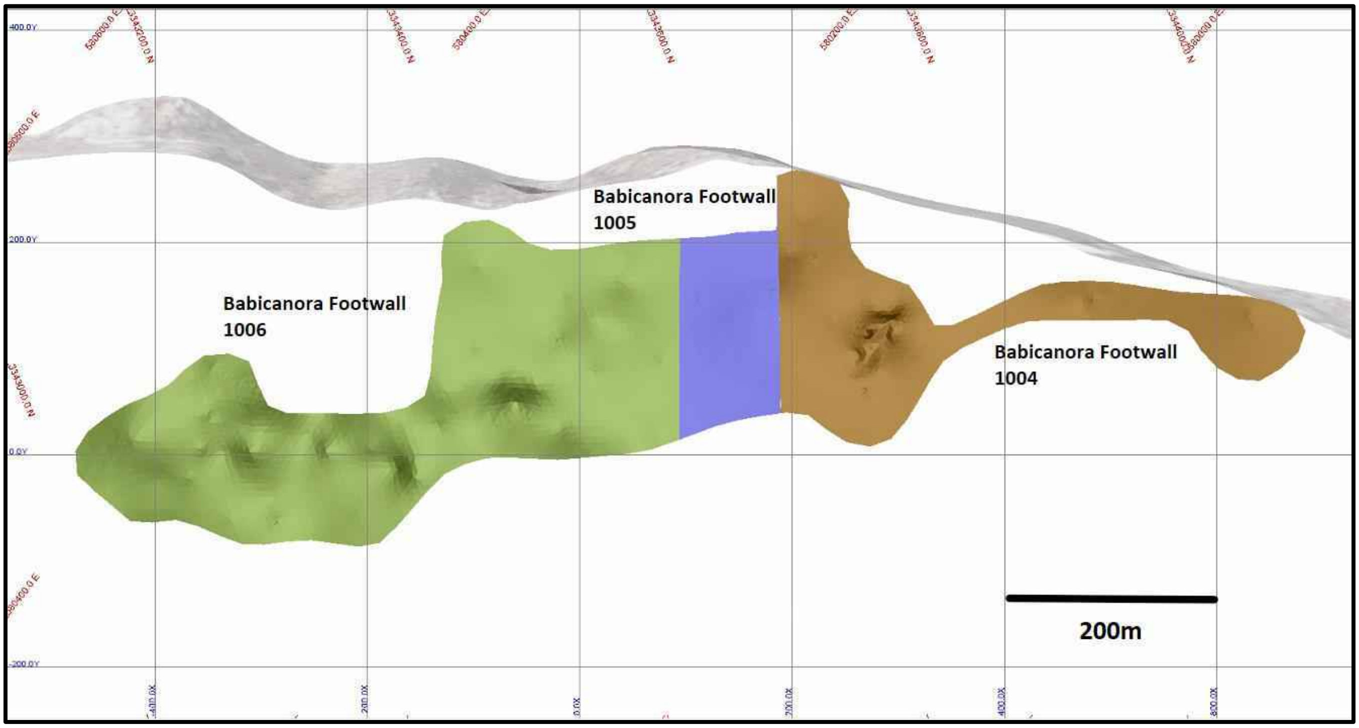
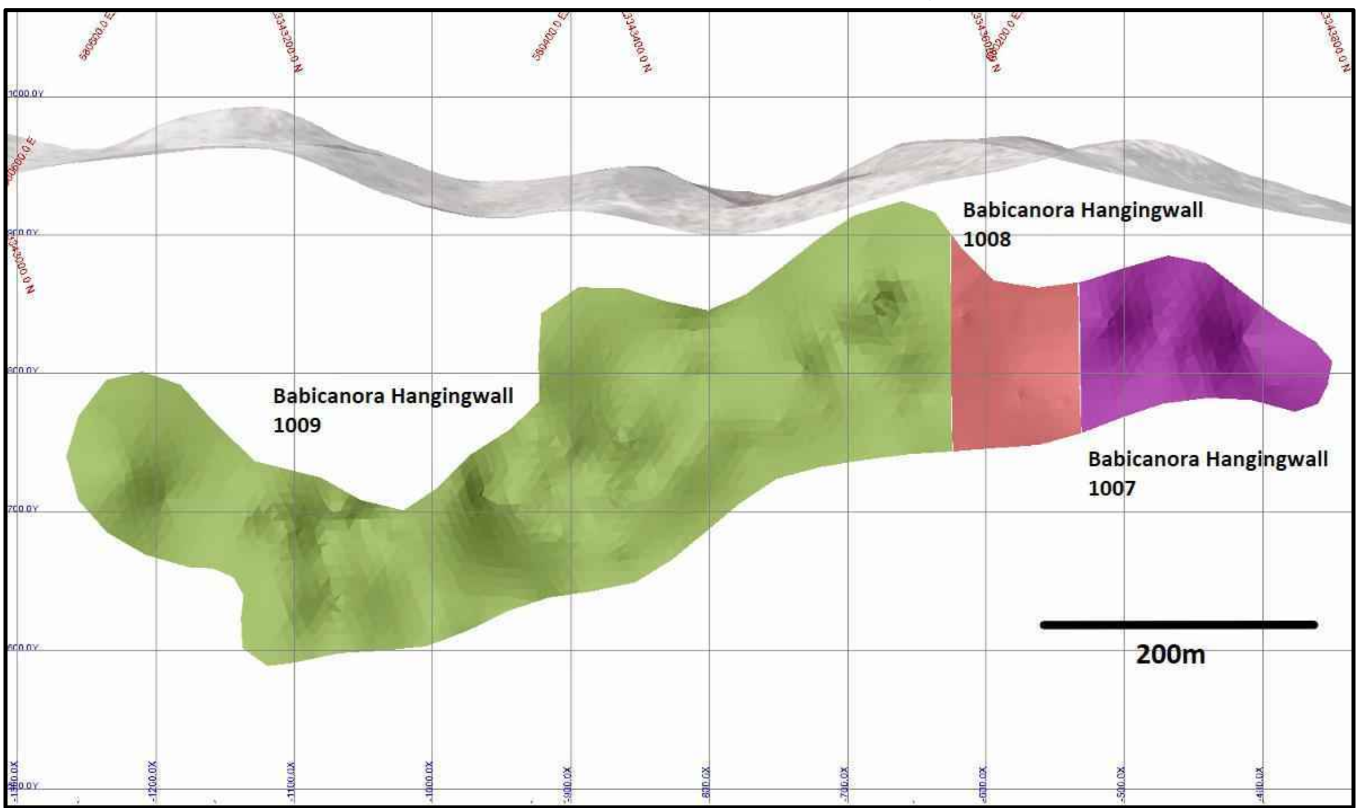



**Figure 14-3: Inclined Long Section of Babicanora HW Vein Illustrating Three Zones of Modelled Mineralization with Associated Rock Codes, Looking Southwest**

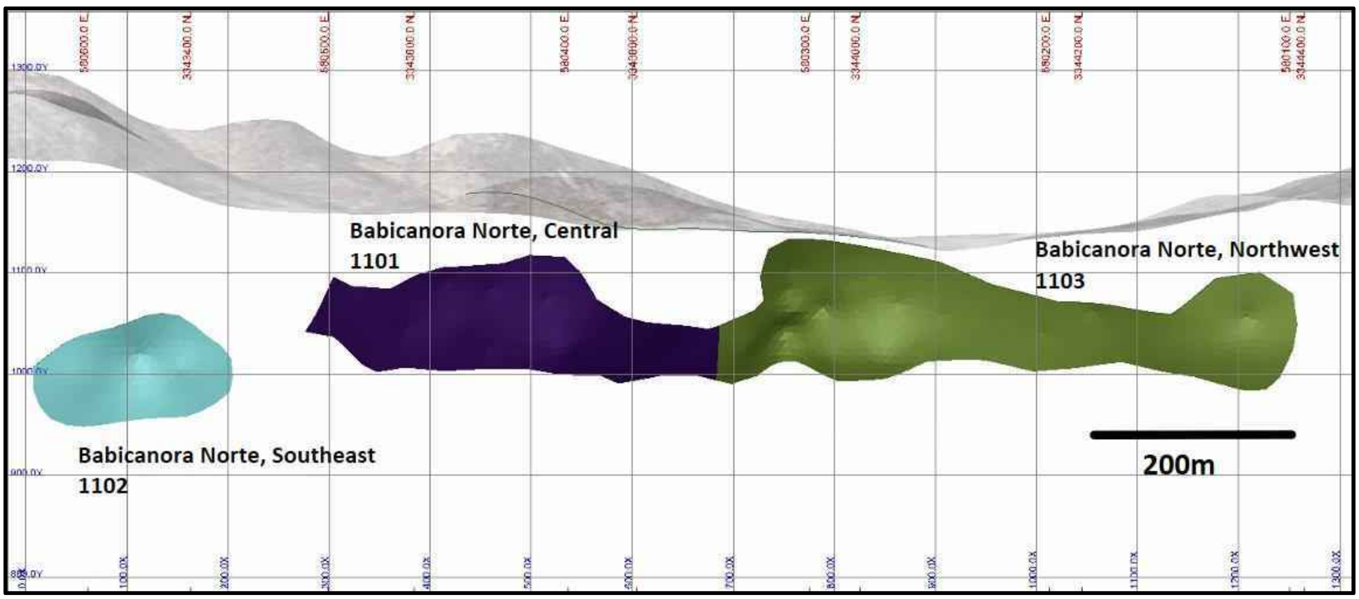


### 14.3.1.2 Babicanora Norte

The Babicanora Norte Vein model includes three zones. They are, from northwest to southeast, the northwest, central, and southeast portions of the vein. The Babicanora Norte Vein is transected by cross-cutting 220° faults, which divides the vein into three zones (Figure 14-4).

The vein model is hosted within a structural zone with variable orientation. In the northwest portion, the vein is oriented at 160° azimuth and in the central portion at 125° azimuth. These portions of the vein may represent an intersection between two regional structures. The southeast portion is isolated from the northwest and central portions and has a strike of approximately 150° azimuth, with an inclination of approximately 60 to 70° to the southwest. The Babicanora Norte Vein was intersected by drilling over a strike length of approximately 900 m and to a depth of approximately 250 m from the valley bottom (approximately 1,100 masl). The vein is visible at surface within shallow historical shafts and follows approximately a lineament of a small dry stream bed. This vein was modelled using only drilling intercepts with elevated silver and gold grades with a minimum downhole width of 0.5 m, which resulted in an estimated average true width of 0.74 m in the Babicanora Norte NW and Central, and of 0.93 m in the Babicanora Norte SE.

**Figure 14-4: Vertical Long Section of Babicanora Norte Vein Illustrating Three Zones of Modelled Mineralization with Associated Rock Codes, Looking Southwest**




### 14.3.1.3 Granaditas

The Granaditas Vein is hosted within a structural zone oriented at a 130° azimuth and with a near vertical inclination, and a small splay with azimuth of approximately 115°. The Granaditas Vein was intersected by drilling over a strike length of approximately 350 m and to a depth of approximately 200 m from the valley bottom (approximately 1,210 masl) where the vein was observed in small historical shafts near surface. This vein was modelled using only drilling intercepts with elevated silver and gold grades with a minimum downhole width of 1.5 m, which resulted in an estimated average true width of 1.5 m (Figure 14-5).


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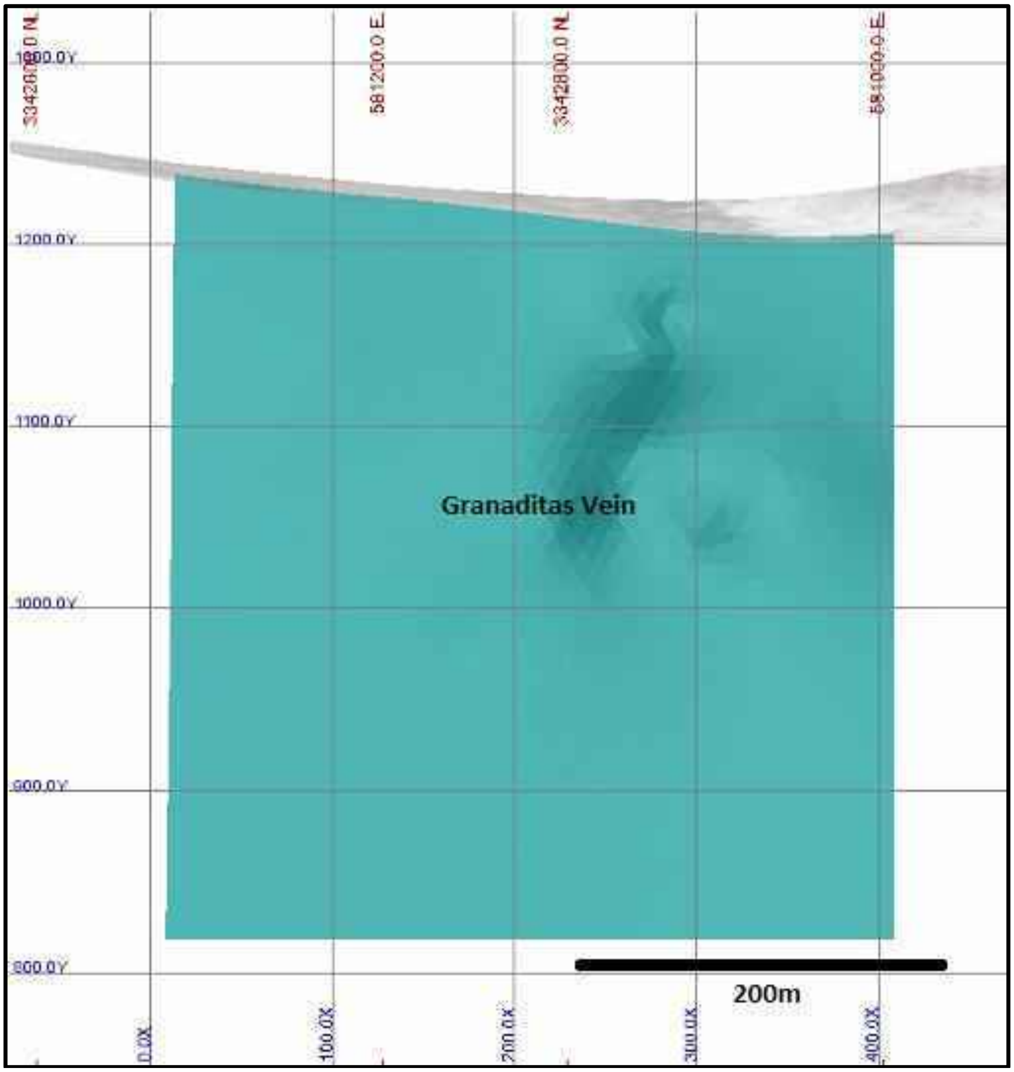
**Figure 14-5: Inclined Long Section of Granaditas Modelled Mineralization with Associated Rock Code, Looking Southwest**




### 14.3.1.4 Las Chispas Area

The following Las Chispas Area veins were not modeled for this PEA. Please refer to Fier (2018) for detailed information.

### 14.3.1.5 Las Chispas

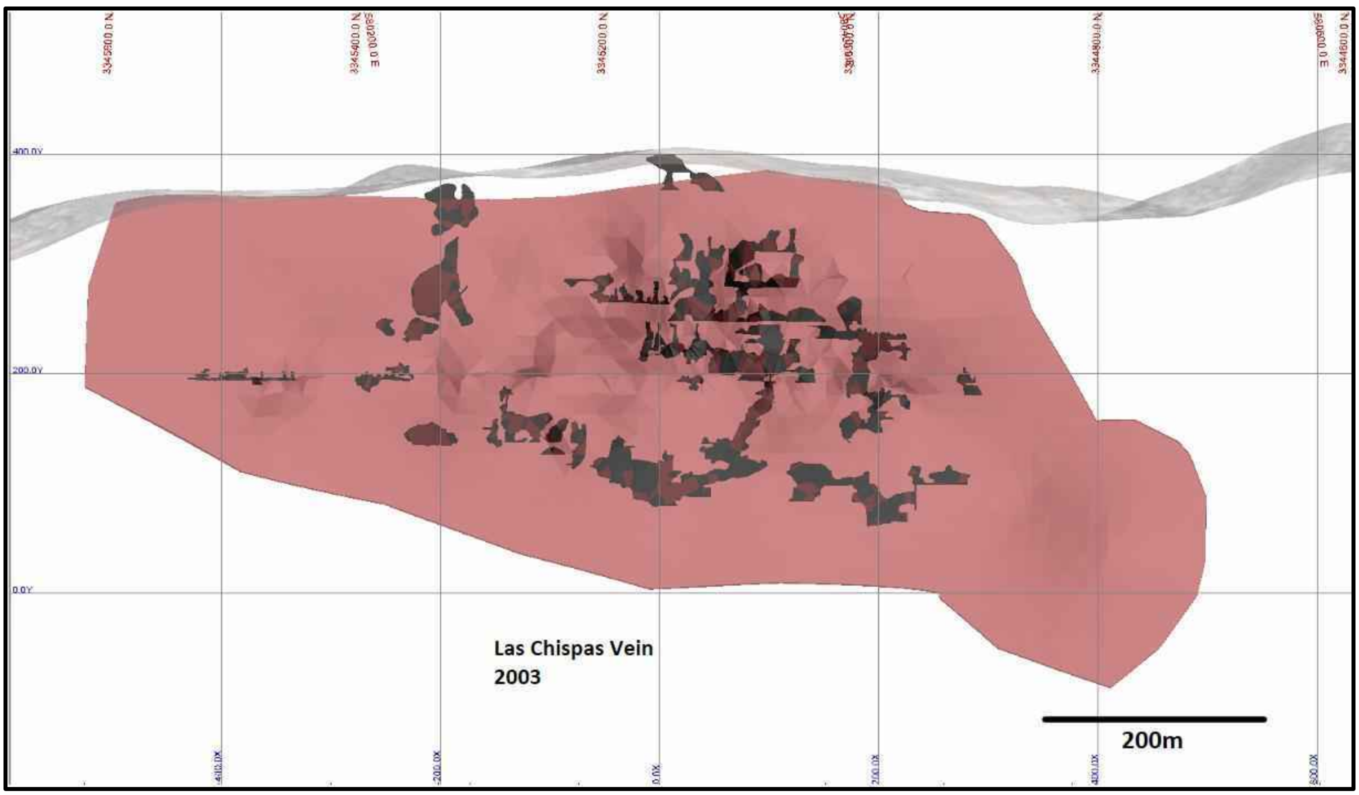
Extensive underground rehabilitation has enabled SilverCrest access to the historical workings for mapping and sampling over a 1.3 km strike length and over 300 m of vertical elevation. Drilling intersected the vein down to an elevation of approximately 850 masl, or a depth of 350 m from outcrop along the ridge crest (approximately 1,200 masl). The vein was modelled using drilling intercepts with elevated silver and gold grades and underground sampling and mapping to have a minimum downhole width of 1.5 m, which resulted in an average estimated true width of 1.5 m (Figure 14-6).

The Las Chispas Vein is hosted within a structural zone with orientations between 140 to 150° azimuth, with inclination of approximately 80° to the southwest, and is cross cut by 220° faults that appear to control high-grade mineralization. The Las Chispas Vein has been mapped with various splays and anastomosing structures. The vein has been modelled as a single continuous vein solid respecting drill hole intersections and underground sampling, where possible, which is the basis for Mineral Resource estimation.

Some manual adjustments were required to reconcile vein contacts interpreted from underground sampling with the vein contacts delineated by drilling due to a slight shift identified in the underground surveying. The resulting vein model will require correction to the underground surveying before the vein is ready for detailed mine planning; however, the vein model is believed to be suitable for initial Mineral Resource estimation.

A preliminary void model was developed for portions of the Las Chispas Vein with known historical workings based on SilverCrest mapping and the historical long section; the model is not based on detailed cavity survey scanning and is an approximate representation of the underground excavations which includes excluding drifts, cross cuts, and stopes. The void model represents 62,923 $m^3$ of material which was applied as “air” material in the block model to exclude tonnage and grade from reporting in the Mineral Resource Estimate.

**Figure 14-6: Inclined Long Section of Las Chispas Modelled Mineralization (red) and Void Model (grey) with Associated Rock Code, Looking Northeast**

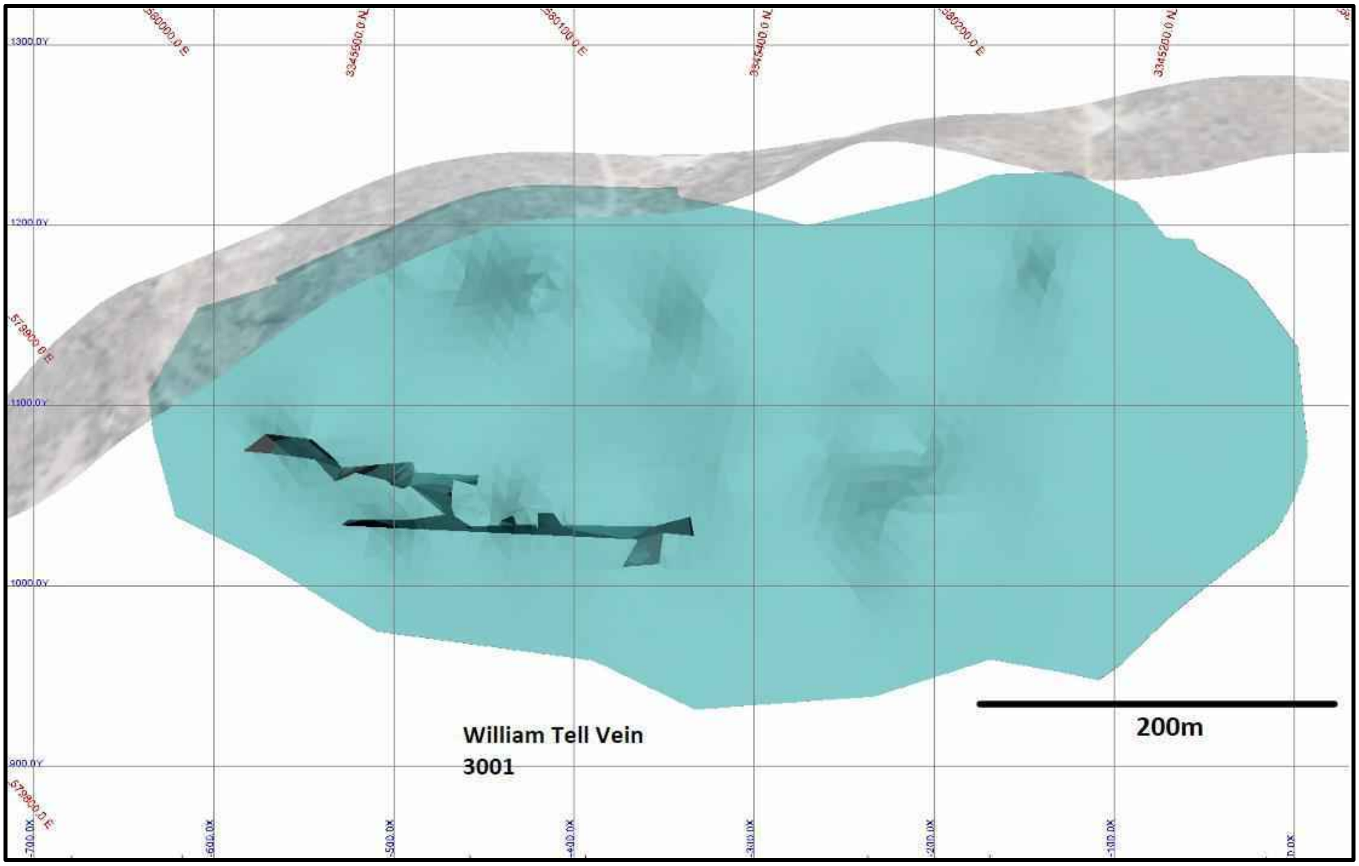



### 14.3.1.6 William Tell

The William Tell Vein is located 115 m to the west and is oriented sub-parallel to the Las Chispas Vein. The William Tell Vein has been modelled as a single continuous vein solid approximately 600 m along strike and to depth of approximately 100 m below valley bottom (approximately 990 masl), or 300 m below outcrop along the ridge crest at approximately 1,200 masl (Figure 14-7).

This vein was modelled using drill hole intersections with elevated silver and gold grades and limited underground mapping and sampling data to have a minimum and an estimated average width of 1.2 m. Historical workings exist within the northwestern portion of the vein, where chip sampling locally mapped vein widths up to 10 m. Portions of the vein with known historical workings were removed from Mineral Resource Estimate following grade interpolation.

**Figure 14-7: Inclined Long Section of William Tell Modelled Mineralization (teal) and Void Model (grey) with Associated Rock Code, Looking Northeast**




### 14.3.1.7 Giovanni, La Blanquita, and Gio Mini

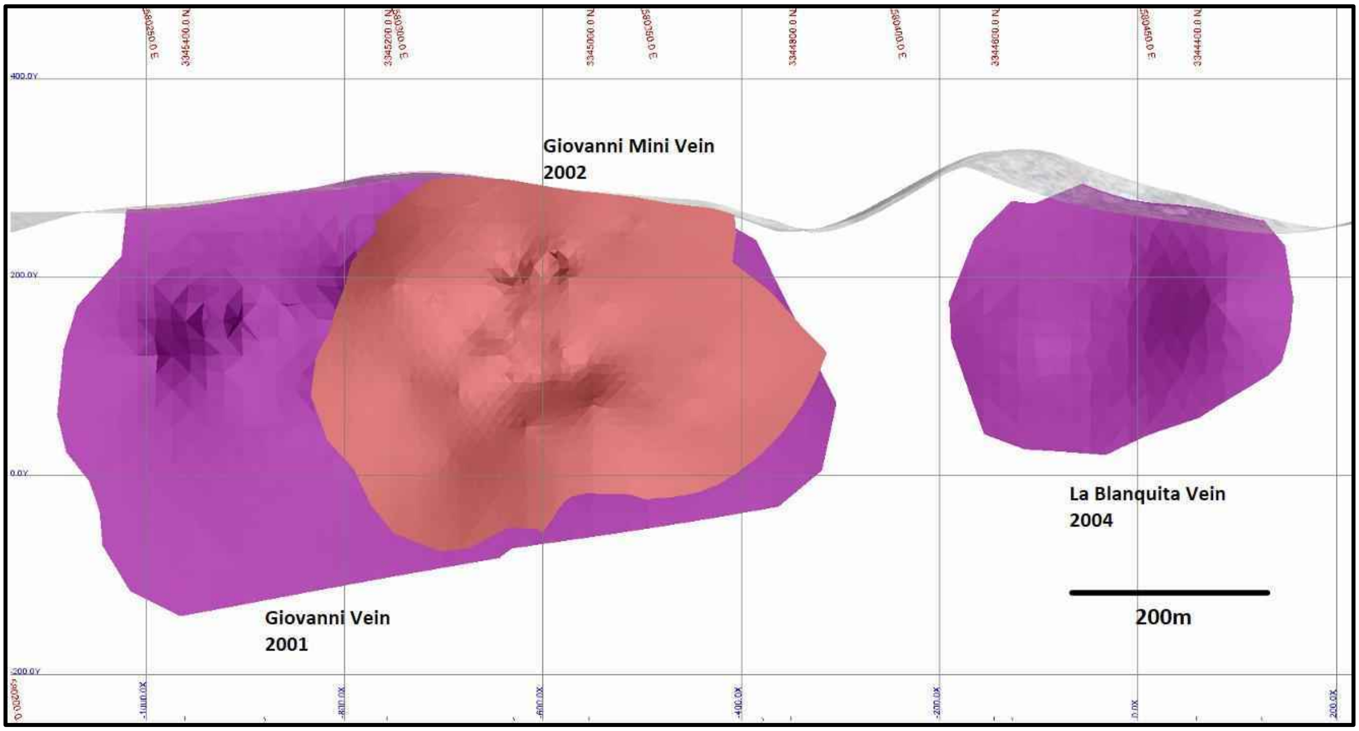
The Giovanni Vein includes the Giovanni, Giovanni Mini, and La Blanquita veins. The Giovanni Mini Vein is located in the hanging wall and is parallel to the Giovanni Vein (Figure 14-8) and in the hanging wall to the Las Chispas Vein.

The Giovanni Vein has been modelled using drill hole intersections and limited underground mapping and sampling data to have a minimum downhole width of 1.5 m, which resulted in an estimated average true width of 1.8 m, strike length of approximately 700 m, and depth of 100 m below valley bottom (approximately 990 masl), or a depth of 300 m from outcrop along the ridge crest (approximately 1,200 masl). The vein strikes at approximately 120° degrees azimuth and has a sub-vertical to slight incline with an east facing dip of 85°. Shallow historical workings exist within the northwestern portion of the vein and are outside the modelled mineralization. These volumes were removed following grade interpolation.

The Giovanni Mini Vein was modelled using drill hole intersections with elevated silver and gold grades with an estimated average true width of 1.2 m, a strike length of approximately 530 m, and a depth of 100 m below valley bottom (approximately 990 masl), or a depth of 300 m from outcrop along the ridge crest (approximately 1,200 masl). The vein is approximately parallel to the Giovanni Vein.

The La Blanquita Vein is located approximately 300 m to the south of the Giovanni Vein with a strike of approximately 130° azimuth and a slight inclination of 85° to the west. The vein may represent the continued trend of the Giovanni Vein; however, more work is required to support geological continuity between these mineralized areas. The La Blanquita Vein was modelled using only drill hole intersections with elevated silver and gold grades to have a minimum downhole width of 1.5 m and an estimated average true thickness of 1.6 m. The vein model strikes for approximately 300 m.

**Figure 14-8: Long Section of Giovanni, La Blanquita, and Giovanni Mini Illustrating Zones of Modelled Mineralization with Associated Rock Codes, Looking Northeast**

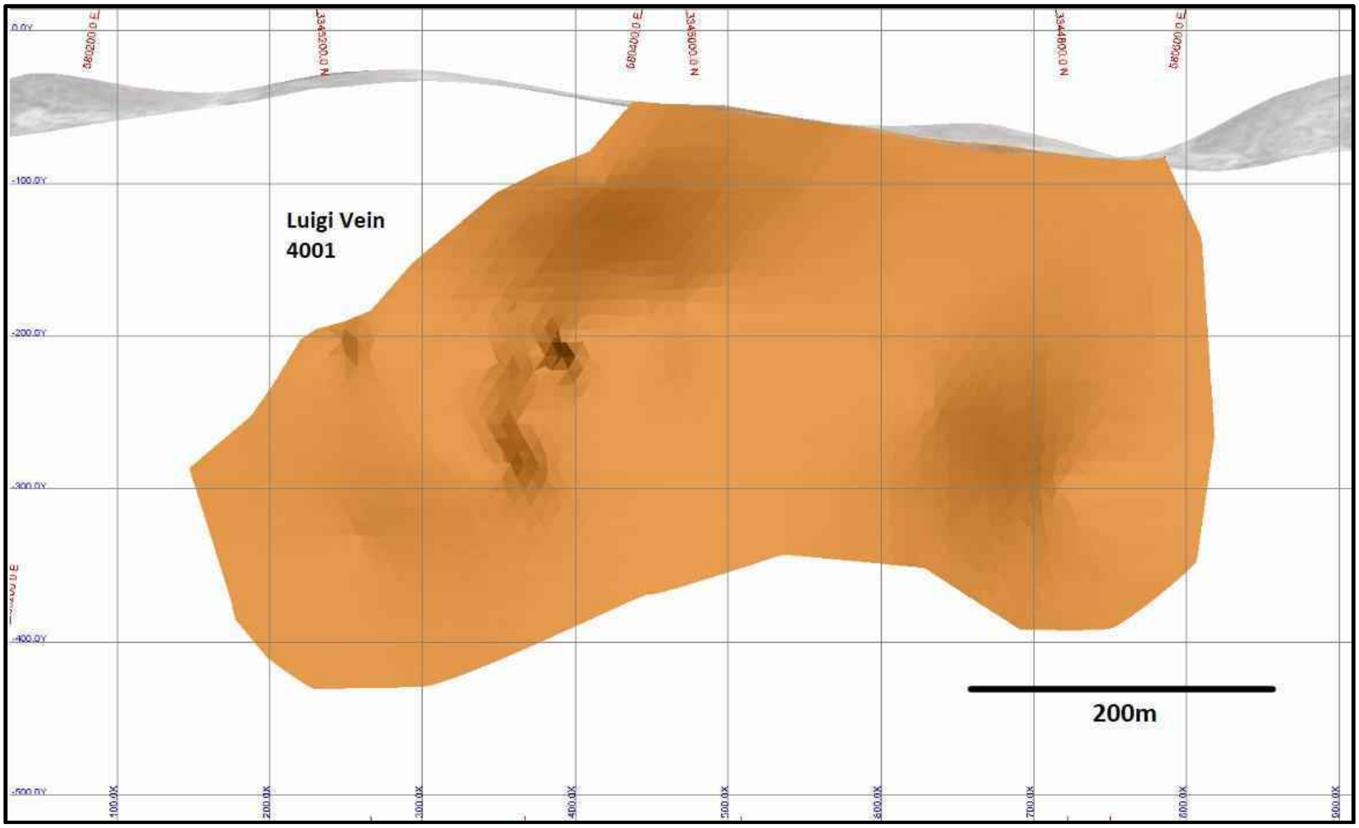



### 14.3.1.8 Luigi

The Luigi Vein is located 45 m to the east and sub-parallel to the Las Chispas Vein. The Luigi Vein has been modelled as a single continuous solid approximately 650 m along strike and to a depth of 100 m below the valley bottom (approximately 990 masl), or a depth of 400 m from outcrop along the ridge crest at approximately 1,200 masl (Figure 14-9).

This Luigi Vein was modelled using only drilling intercepts with elevated silver and gold grades with a minimum downhole width of 1.5 m, which resulted in an average true thickness of 1.7 m. There have been no historical workings found to date on the Luigi Vein.

**Figure 14-9: Long Section of Luigi Vein Illustrating Modelled Mineralization with Associated Rock Code, Looking Northeast**




## 14.3.2 Input Data and Analysis

### 14.3.2.1 Database

Data is managed by SilverCrest using Geospark Core, a relational database designed for collection of exploration information, drill logs, assay and QA/QC results. The database can be accessed by multiple users; however, it is generally administered by one user.

The current Mineral Resource Estimate is based on information collected from surface and underground geological mapping; 2,647 samples taken from drill holes; 2,652 underground exploration channel samples; and 1,340 surface stockpile samples collected by SilverCrest since project inception in March 2016. All sampling data received by SilverCrest, up to and including the effective date of February 8, 2019, was used in the development of the Mineral Resource Estimate. The locations of the block models are shown in Figure 14-10.

Table 14-3 shows summarized descriptive geostatistics for each of the input files used for grade interpolation into the block model, where underground and drilling data exists.

**Figure 14-10: Plan Map Showing Location of Block Models and Veins Modelled for Mineral Resource Estimation**

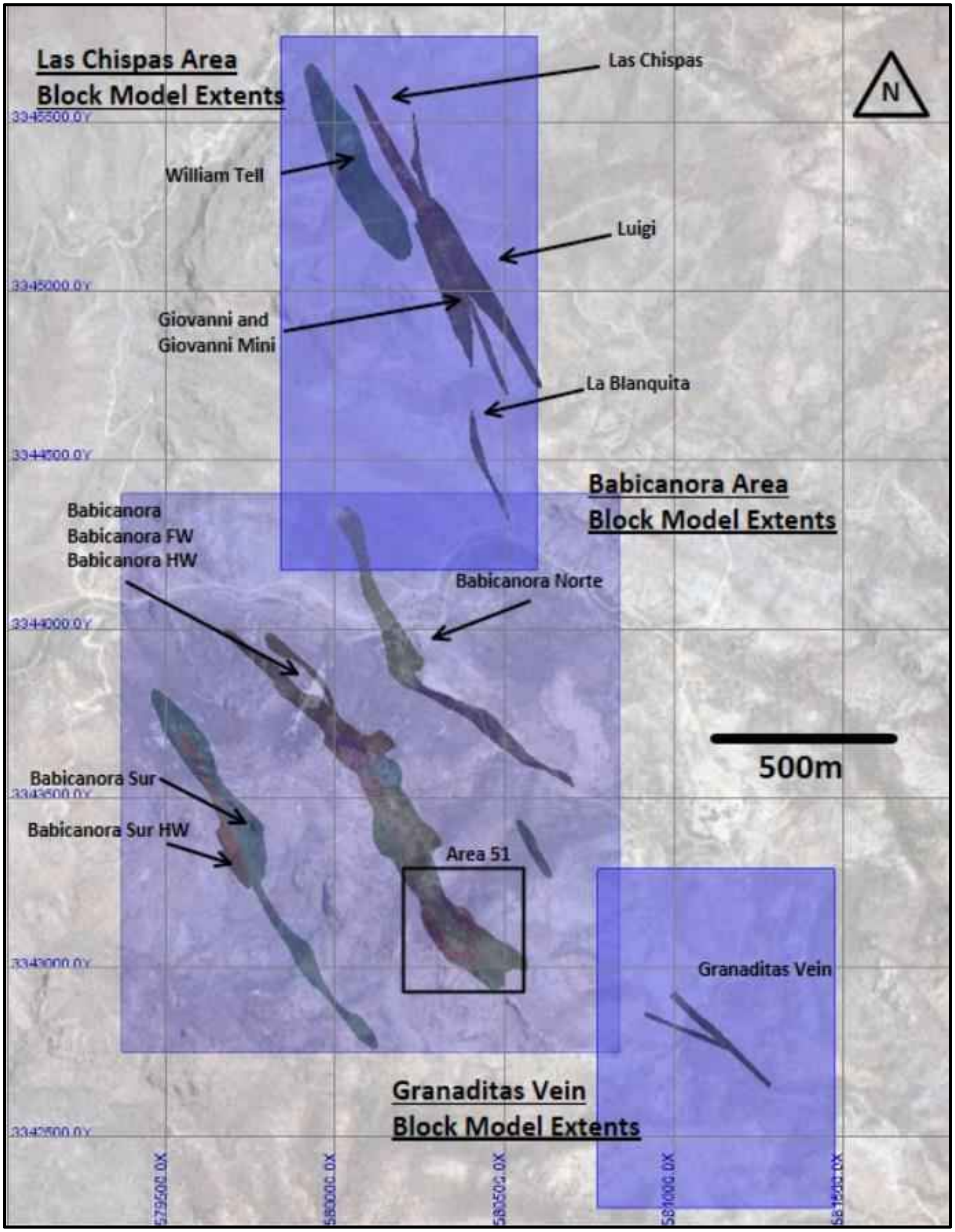


**Table 14-3: Summary of Basic Statistics for Input Composite Data Used for Block Model Interpolation**

| Area | n | Gold | | | | Silver | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Variance | Standard Deviation | Coefficient of Variation | Mean | Variance | Standard Deviation | Coefficient of Variation |
| Babicanora, DH | 805 | 8.0 | 429 | 20.7 | 2.59 | 759 | 2,523,712 | 1,589 | 2.1 |
| Babicanora FW, DH | 190 | 4.2 | 308.9 | 17.6 | 4.21 | 401 | 3,235,321 | 1,799 | 4.5 |
| Babicanora HW, DH | 150 | 0.5 | 1.3 | 1.1 | 2.18 | 82 | 15,184 | 123 | 1.5 |
| Granaditas, DH | 64 | 0.77 | 4.9 | 2.20 | 2.86 | 53 | 41,968 | 205 | 3.8 |
| Babicanora Norte NE, DH | 52 | 11.7 | 1,891 | 43.5 | 3.72 | 874 | 5,110,000 | 2,261 | 2.6 |
| Babicanora Norte SW, DH | 8 | 20.5 | 2,418 | 49.2 | 2.4 | 1,091 | 5,897,291 | 2,422 | 2.2 |
| Babicanora Sur, DH | 64 | 3.9 | 47.9 | 6.9 | 1.77 | 268 | 578,963 | 761 | 2.8 |
| Babicanora Sur HW, DH | 54 | 1.2 | 5.65 | 2.4 | 2.05 | 17.6 | 1,860 | 43 | 2.5 |
| Giovanni, DH | 152 | 1.28 | 19.6 | 4.42 | 3.44 | 156 | 129,354 | 360 | 2.3 |
| Giovanni, UG | 434 | 0.83 | 3.0 | 1.70 | 2.10 | 135 | 73,706 | 271 | 2.0 |
| Giovanni, All | 586 | 0.95 | 7.3 | 2.71 | 2.85 | 141 | 88,223 | 297 | 2.1 |
| Giovanni Mini, DH | 97 | 0.37 | 0.6 | 0.78 | 2.10 | 45 | 7,449 | 86 | 1.9 |
| La Blanquita, DH | 15 | 0.74 | 1.7 | 1.30 | 1.70 | 152 | 80,911 | 284 | 1.9 |
| GIO, GIOmini, La Blanq. All | 698 | 0.86 | 6.3 | 2.51 | 2.91 | 128 | 77,952 | 279 | 2.2 |
| Luigi, DH | 61 | 0.69 | 3.7 | 1.91 | 2.76 | 87 | 58,373 | 242 | 2.8 |
| Las Chispas, DH | 174 | 1.79 | 143.0 | 11.98 | 6.70 | 201 | 1,422,142 | 1,193 | 5.9 |
| Las Chispas, UG | 1887 | 1.45 | 15.0 | 3.93 | 2.70 | 212 | 261,712 | 512 | 2.4 |
| Las Chispas, All | 2050 | 1.42 | 18.0 | 4.19 | 3.00 | 205 | 275,960 | 525 | 2.6 |
| William Tell, DH | 63 | 0.45 | 1.0 | 1.00 | 2.20 | 98 | 47,659 | 218 | 2.2 |
| William Tell, UG | 331 | 1.77 | 16.0 | 4.04 | 2.30 | 165 | 113,793 | 337 | 2.1 |
| William Tell, All | 394 | 1.56 | 14.0 | 3.75 | 2.40 | 154 | 103,821 | 322 | 2.1 |

Note: DH – drill hole; UG – underground

A total of 20 drill holes were omitted from the Mineral Resource Estimate. Table 14-4 lists these holes with a description for why they were omitted.

**Table 14-4: Drill Holes Omitted from the Mineral Resource Estimation Database**

| Hole Omitted | Reason |
|---|---|
| BA17-09 | Hole lost before reaching the vein. Twinned the hole as BA17-09A |
| BA17-21 | Issues with hole survey |
| BA17-34 | On unnamed vein not used in resource |
| BA17-38 | On unnamed vein not used in resource |
| BA17-54 | Drilled into the foot wall, did not intercept vein |
| BA17-59 | Hole was re-entered and used in the resource as BA17-59A |
| BA18-124 | Hole lost before reaching the vein. Twinned the hole as BA18-124A |
| BA18-127 | No recovery through mineralized intervals |
| BA18-135 | No recovery through mineralized intervals |
| BA18-69 | Not drilled deep enough to hit the vein target |
| BA18-75 | Hole was re-entered and used in the resource as BA17-75B |
| LC17-29 | Hole was re-entered and used in the resource as LC17-29A |
| LC17-67 | Not Sampled |
| LCU17-07 | Hole was re-entered and used in the resource as LCU17-07A |
| LCU17-10 | Hole lost before reaching target due to void |
| UB17-02 | Not included due to deviation, did not intercept main vein |
| UB17-12 | Not included due to deviation, did not intercept main vein |
| UB17-19 | No recovery through mineralized intervals |
| UB17-01A | Displacement and survey issue. Hole UB16-01 used in resource. |
| LC16-14 | Hole was re-entered and used in resource as LC16-14B |

#### 14.3.2.2 Compositing

Samples were collected from drill core at various interval lengths ranging from 0.05 to 9.6 m, with the average length approximately 1 m (Figure 14-11); this includes those samples collected in surrounding waste rock. Sample intervals were selected by SilverCrest geologists to respect lithological and mineralization contacts.

Based on statistical analysis, the raw assay data for the Las Chispas Area and the Granaditas Vein were composited to 1 m samples lengths within the vein model boundaries starting from the up-hole contact.

At the Babicanora Area, samples within the vein model were isolated and determined to have mode length of 0.5 m, which was used as the composite length (Figure 14-12). This length corresponds well for narrow vein models down to 0.50 m true width and with the small 2 m by 2 m by 2 m blocks used for the Mineral Resource Estimate. Residual intervals at the downhole contact less than 0.1 m were ignored. This resulted in an increase from 906 raw samples to 1,323 composite samples. The mean values and overall sample distribution were not significantly impacted by the compositing process. Quantile-quantile (Q-Q) plots in Figure 14-13 show a slight and insignificant positive bias is introduced by composited data that is filtered to greater than 0.25 gpt silver and greater than 0.25 gpt gold. A bias to the raw sample grades is observed with increasing grade filtering.

**Figure 14-11: Length Histogram Showing Predominant 1 m Drill Core Sample Length**

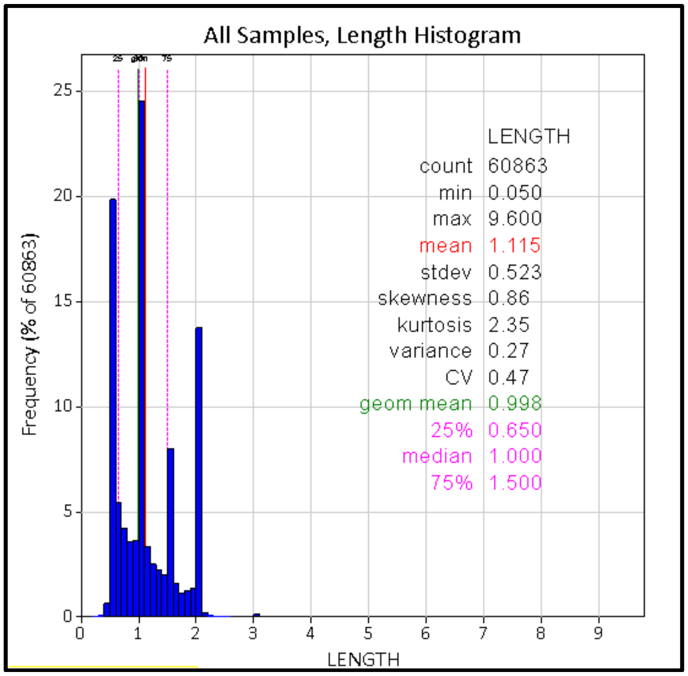



**Figure 14-12: Length Histogram of Drill Samples in Babicanora Vein Models**

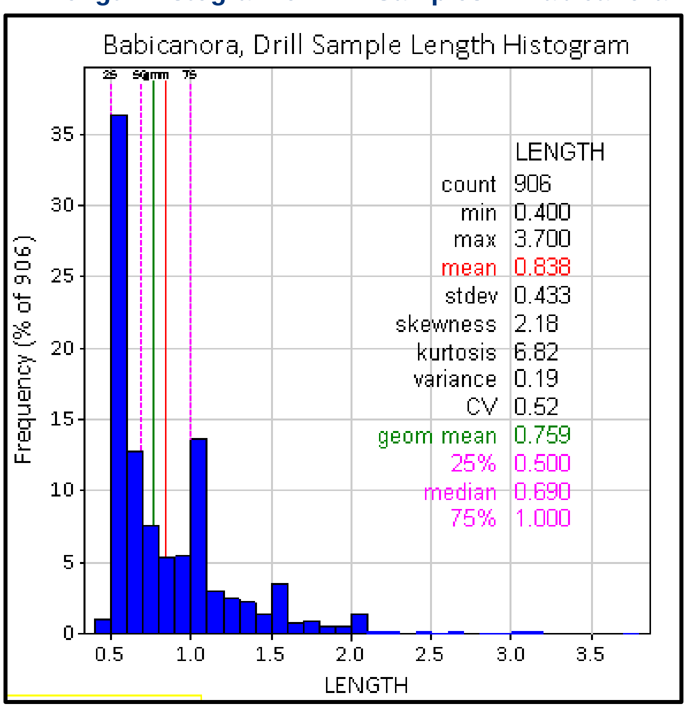
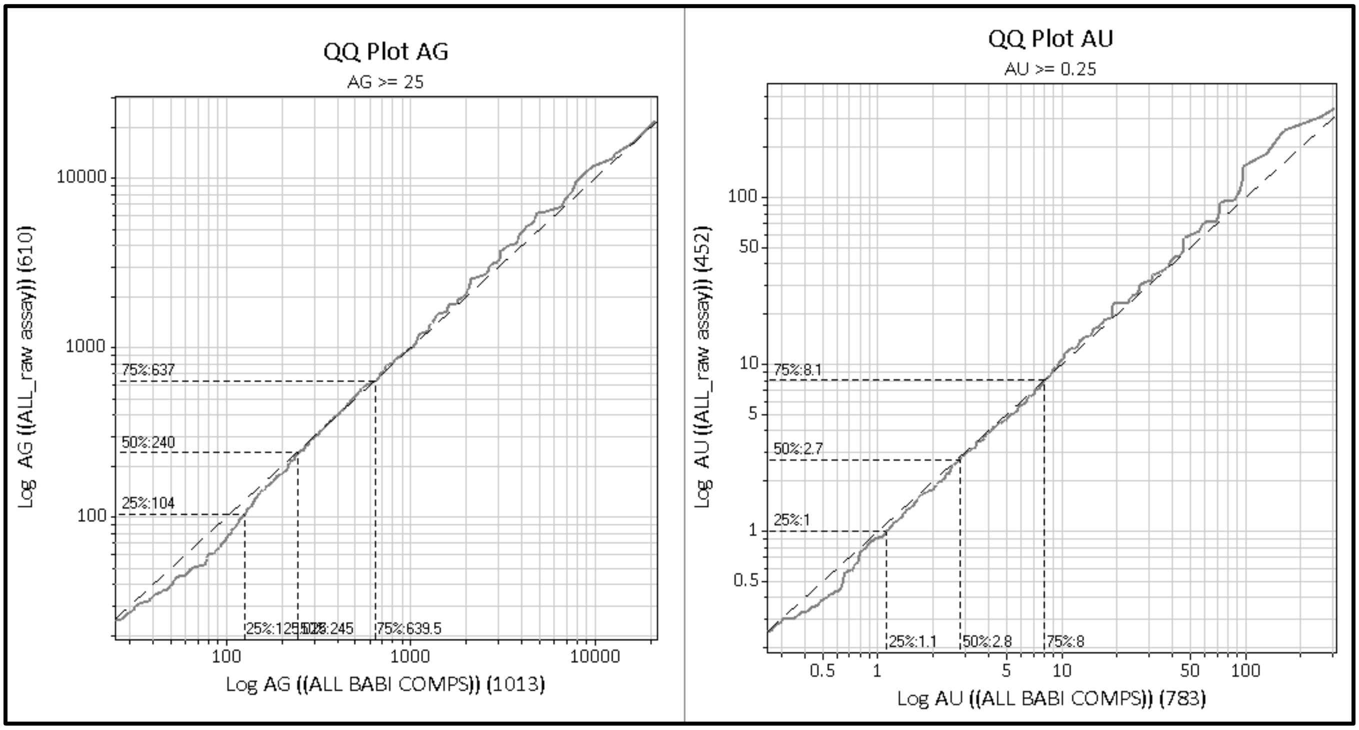


**Figure 14-13: Q-Q Plots Comparing Raw and Composite Sample Distributions at Babicanora; Filtered >25gpt Ag and >0.25gpt Au**




### 14.3.2.3 Capping Analysis

A grade capping assessment was completed separately for each vein and individual caps were applied, where deemed appropriate to do so, for both drill hole and underground drilling data. Data were capped based on a statistical analysis, which included examination of probability plots and decile analysis to remove potential outlier sample grades. A capping analysis was performed on the composited sample grades for both silver and gold. Table 14-5 shows a summary of the capping values applied to the data.

### Table 14-5: Summary of Grade Capping Applied to Drilling for Babicanora Area

| Dataset | Au Capping | | | | Ag Capping | | | |
|---|---|---|---|---|---|---|---|---|
| | Au Uncapped Max | Au Cap | Percentile | No of Samples Capped | Ag Uncapped Max | Ag Cap | Percentile | No. of Samples Capped |
| Babicanora Main (includes Area 51, Central, Silica Rib), DH | 271.800 | 102.20 | 99.62 | 3 | 16,721.0 | 9,740 | 99.37 | 5 |
| Babicanora FW Vein, DH | 178.300 | 95.50 | 99.47 | 1 | 21,233.8 | 6,750 | 98.95 | 2 |
| Babicanora HW Vein, DH | 5.980 | 5.85 | 99.33 | 1 | 617.5 | 547 | 99.33 | 1 |
| Babicanora Norte Central, DH | 305.000 | 71.80 | 98.07 | 1 | 13,889.5 | 6,230 | 98.07 | 1 |
| Babicanora Norte South, DH | 141.998 | 71.80 | 93.37 | 1 | 6,953.2 | 6,230 | 98.35 | 1 |
| Babicanora Sur, DH | 37.300 | 35.10 | 98.44 | 1 | 3,870.0 | 3,143 | 96.88 | 2 |
| Babicanora Sur HW, DH | 10.250 | 10.25 | 100.00 | 0 | 183 | 183 | 100.0 | 0 |

Note: DH – drill hole;

#### 14.3.2.4 Block Model Dimensions

Three block models were developed for Mineral Resource estimation. One block model was developed for the veins in the Las Chispas Area, which includes the Las Chispas, William Tell, Giovanni (including La Blanquita), Giovanni Mini, and Luigi veins; and one block model was developed for the Babicanora Area, which includes the Babicanora, Babicanora FW, Babicanora HW, Babicanora Norte, Babicanora Sur and Babicanora Sur HW veins; one model was developed for the Granaditas Vein. Refer to previous report (Fier 2018) for details. The block models were established using the percent model methods in GEOVIA GEMS™ v.6.8 software.

All block models were built using 2 m by 2 m by 2 m blocks to reflect the narrow vein nature of the mineralization. Table 14-6 lists the block dimensions. The models are referenced in zone 12R of the UTM grid with WGS 84 as reference datum.

**Table 14-6: Babicanora and Las Chispas Block Model Dimensions (ref. UTM WGS84 z12R)**

| | Origin X | Origin Y | Origin Z | Rotation (°) | Columns | Rows | Levels | Block Size (m) |
|---|---|---|---|---|---|---|---|---|
| Babicanora | 579,370 | 3,342,750 | 1,410 | 0 | 735 | 825 | 325 | 2 |
| Granaditas | 580,775 | 3,342,290 | 1,300 | 0 | 350 | 501 | 300 | 2 |
| Las Chispas | 579,840 | 3,344,174 | 1,240 | 0 | 377 | 788 | 250 | 2 |

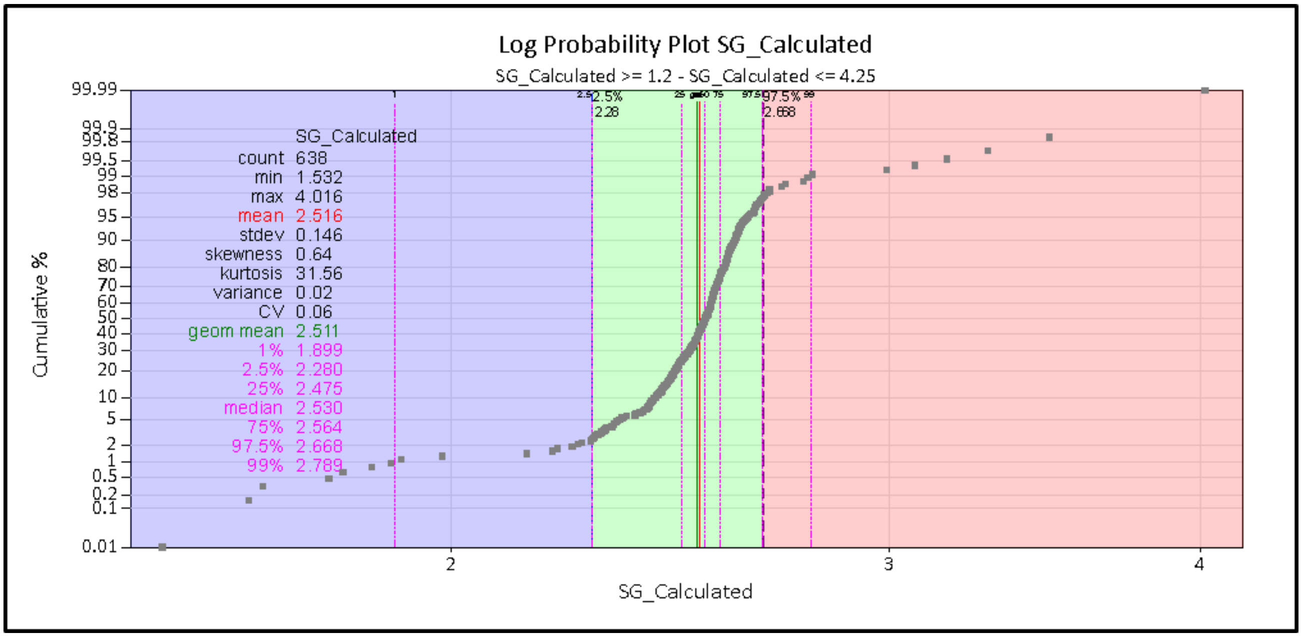
#### 14.3.2.5 Bulk Density Estimation

A total of 641 specific gravity (SG) measurements were collected at SilverCrest's core processing facility using measurement apparatus made of a water bucket and a scale. Core fragments greater than 5 cm in length were dried and weighed prior to being suspended and submerged from a scale in a bucket of water using a wire basket. The mass of the submerged core sample was recorded. The scale was reset and tared between each measurement.

The measurements tested various mineralized and unmineralized material types at approximately 20 m downhole intervals. Where rock material was highly fragmented or strongly clay altered, in situ SG measurements were not collected.

When plotted, the measurements form a log-normal distribution with a mean value of 2.516, a standard deviation of 0.146, and a geometric mean of 2.511 (Figure 14-14). Three outliers were removed from the sample data in Figure 14-16 (n = 638).

**Figure 14-14: Log Probability Plot of Field SG Measurements, Data Cut Above 1.2 and Below 4.25 (n=638, m = 2.516)**




Seventy-two samples were shipped to ALS Chemex in Hermosillo, Mexico, for wax coated bulk density (BD) testing to validate the in situ measurements. The samples were collected from non-mineralized HW and FW materials, and mineralized material free of clay alteration. Table 14-7 shows the results of the bulk density tests.

**Table 14-7: Summary of Bulk Density Measurements on Babicanora and Las Chispas**

| Las Chispas | | Babicanora | | Combined Las Chispas and Babicanora | |
|---|---|---|---|---|---|
| Number of Samples | 27 | Number of Samples | 45 | Number of Samples | 72 |
| Mean (g/cm$^3$) | 2.50 | Mean (g/cm$^3$) | 2.49 | Mean (g/cm$^3$) | 2.50 |
| SD | 0.06 | SD | 0.10 | SD | 0.08 |
| Minimum (g/cm$^3$) | 2.36 | Minimum (g/cm$^3$) | 2.18 | Minimum (g/cm$^3$) | 2.18 |
| Maximum (g/cm$^3$) | 2.65 | Maximum (g/cm$^3$) | 2.59 | Maximum (g/cm$^3$) | 2.65 |

In November 2018, two samples were collected and sent by SilverCrest to Geotecnia del Noroeste S.A. de C.V. based in Hermosillo, Sonora, for wax coated dry bulk density testing. Each sample was split into two subsamples. The measured values ranged from 2.48 t/m$^3$ to 2.60 t/m$^3$, with an average dry bulk density of 2.56 t/m$^3$.

A mean bulk density of 2.55 t/m$^3$ was applied to all rock types in the Mineral Resource Estimate based on the results of the bulk density test work completed by SilverCrest and previous bulk density test work completed by the Geology QP.

#### 14.3.2.6 Variography Assessment

Experimental variogram modelling was undertaken on drill core results for the Babicanora and the Las Chispas veins where sample spacing and sample density were considered sufficient. Nugget, sill, range, and structures were estimated purely from spherical experimental semi-variogram plots of composited data contained within the vein models. Table 14-8 and Table 14-9 list the experimental variogram parameter values for Babicanora and Las Chispas, respectively.

**Table 14-8: Experimental Variogram Parameters for Babicanora**

| Element | Rotation Z | Rotation X | Rotation Z | Nugget | Structure 1 Range X | Y | Z | S1 Gamma | Total Range X | Y | Z | Total Sill |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Babicanora FW** | | | | | | | | | | | | |
| Au | 130 | -60 | 165 | 0.4 | 107 | 96 | 3 | 0.78 | 485 | 236 | 5 | 1.0 |
| Ag | 130 | -60 | 145 | 0.4 | 103 | 96 | 3 | 0.72 | 377 | 236 | 5 | 1.0 |
| **Babicanora HW** | | | | | | | | | | | | |
| Au | 130 | -70 | 145 | 0.16 | 36 | 96 | 3 | 0.66 | 168 | 132 | 5 | 1.0 |
| Ag | 130 | -70 | 145 | 0.17 | 232 | 128 | 3 | 0.98 | 233 | 152 | 5 | 1.0 |
| **Babicanora Main** | | | | | | | | | | | | |
| Au | 120 | -80 | 160 | 0.18 | 53 | 32 | 3 | 0.78 | 155 | 35 | 5 | 1.0 |
| Ag | 120 | -60 | 160 | 0.19 | 121 | 39 | 3 | 0.75 | 275 | 170 | 5 | 1.0 |

**Table 14-9: Experimental Variogram Parameters for Las Chispas**

| Element | Rotation (Az) | Rotation (Dip) | Rotation (Az) | Nugget | Structure 1 Range X | Y | Z | S1 Gamma | Total Range X | Y | Z | Total Sill |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Las Chispas (Underground Samples)** | | | | | | | | | | | | |
| Au | 344 | 23 | 132 | 0.33 | - | - | - | - | 12 | 8 | 4 | 1.0 |
| Ag | 344 | 24 | 132 | 0.72 | 7 | 2 | 2 | 0.83 | 112 | 35 | 24 | 1.0 |
| **Las Chispas (Underground Samples and Drill Samples)** | | | | | | | | | | | | |
| Au | 344 | 23 | 132 | 0.33 | - | - | - | - | 120 | 60 | 40 | 1.0 |
| Ag | 343 | 21 | 132 | 0.47 | 12 | 5 | 2 | 0.79 | 121 | 54 | 18 | 1.0 |

For the Las Chispas Vein, silver and gold grades were transformed into log10 values prior to experimental variogram analysis and back-transformed following the analysis. Anisotropic search parameters were based on factored ranges extracted from the experimental variogram model.

For the Babicanora Main, Babicanora FW, and Babicanora HW veins, silver and gold grades were transformed to normal scores prior to experimental variogram analysis and back-transformed following the analysis.

Variogram assessment was not undertaken for the Luigi, Giovanni, Giovanni Mini, La Blanquita, William Tell, Babicanora Norte, Babicanora Sur, and Granaditas veins due to insufficient sample density.

### 14.3.2.7 Interpolation Parameters

Grade interpolations for the Luigi, Giovanni, Giovanni Mini, La Blanquita, William Tell, Babicanora Norte, Babicanora Sur, and Granaditas veins were performed using $ID^2$. Grade interpolation by OK was performed for the Las Chispas, Babicanora Main, Babicanora FW, and Babicanora HW veins.

Interpolation search ellipse anisotropies and orientations were defined for each vein and based on variography where the information was available. Where variography was not available, search ellipses were made to match vein orientation and to visually estimate dominant mineralization plunge directions using average drill spacing and known geologic constraints. All searches were performed with major and intermediate axes orientation parallel to the average plane of the vein.

Where underground sampling data was available in the Las Chispas Area, multiple interpolation passes were used to first isolate underground sampling from drill hole data in the short range, followed by longer-range searches using combined underground and surface drilling data.

Details of the interpolation search anisotropy and orientation are listed in Table 14-10 to Table 14-14 for Babicanora Area veins (Table 14-10), Granaditas (Table 14-11), Las Chispas (Table 14-12), William Tell (Table 14-13), and Giovanni, Giovanni Mini, and La Blanquita (Table 14-14).

**Table 14-10: Interpolation Search Anisotropy and Orientation for Babicanora Area Veins**

| Element | Ellipse | Min Comp | Max Comp | Max Comp per Hole | Rotation Z | Rotation X | Rotation Z | Major (m) | Semi-major (m) | Minor (m) |
|---|---|---|---|---|---|---|---|---|---|---|
| **Babicanora Area 51** | | | | | | | | | | |
| Ag | PASS 1 | 3 | 12 | 4 | 125 | -70 | 155 | 200 | 150 | 50 |
| Au | PASS 1 | 3 | 12 | 4 | 120 | -65 | 135 | 200 | 150 | 50 |
| **Babicanora Central** | | | | | | | | | | |
| Ag | PASS 1 | 4 | 16 | 4 | 135 | -70 | 175 | 200 | 150 | 50 |
| Au | PASS 1 | 4 | 16 | 4 | 135 | -70 | 175 | 200 | 150 | 50 |
| **Babicanora FW** | | | | | | | | | | |
| Ag | PASS 1 | 2 | 8 | 3 | 120 | -55 | 160 | 150 | 125 | 50 |
| Au | PASS 1 | 2 | 8 | 3 | 120 | -55 | 160 | 150 | 125 | 50 |
| **Babicanora HW** | | | | | | | | | | |
| Ag | PASS 1 | 2 | 8 | 3 | 130 | -70 | 145 | 200 | 125 | 50 |
| Au | PASS 1 | 2 | 8 | 3 | 130 | -70 | 145 | 200 | 125 | 50 |

*table continues…*

| Element | Ellipse | Min Comp | Max Comp | Max Comp per Hole | Rotation Z | Rotation X | Rotation Z | Major (m) | Semi-major (m) | Minor (m) |
|---|---|---|---|---|---|---|---|---|---|---|
| **Babicanora Norte** | | | | | | | | | | |
| *NW Zone* | | | | | | | | | | |
| Ag | PASS 1 | 2 | 8 | 3 | 100 | -65 | -150 | 200 | 125 | 50 |
| Au | PASS 1 | 2 | 8 | 3 | 100 | -65 | -150 | 200 | 125 | 50 |
| *SE Zone* | | | | | | | | | | |
| Ag | PASS 1 | 2 | 8 | 3 | 145 | -65 | -175 | 200 | 125 | 50 |
| Au | PASS 1 | 2 | 8 | 3 | 145 | -65 | -175 | 200 | 125 | 50 |
| *BAN_2* | | | | | | | | | | |
| Ag | PASS 1 | 2 | 8 | 3 | 120 | -60 | 175 | 200 | 125 | 50 |
| Au | PASS 1 | 2 | 8 | 3 | 120 | -60 | 175 | 200 | 125 | 50 |
| **Babicanora Sur** | | | | | | | | | | |
| *Main* | | | | | | | | | | |
| Ag | PASS 1 | 1 | 8 | 3 | 125 | -60 | 135 | 200 | 125 | 50 |
| Au | PASS 1 | 1 | 8 | 3 | 125 | -60 | 130 | 200 | 125 | 50 |
| **HW** | | | | | | | | | | |
| Ag | PASS 1 | 1 | 8 | 3 | 115 | -55 | 155 | 200 | 135 | 50 |
| Au | PASS 1 | 1 | 8 | 3 | 115 | -65 | 155 | 200 | 135 | 50 |

## Table 14-11: Interpolation Search Anisotropy and Orientation for Granaditas

| Ellipse | Min Comp | Max Comp | Max Comp per Hole | Rotation (Az) | Rotation (Dip) | Rotation (Az) | Major (m) | Semi-major (m) | Minor (m) |
|---|---|---|---|---|---|---|---|---|---|
| PASS 1 | 3 | 12 | 3 | 216 | -63 | 137.6 | 200 | 175 | 75 |

Source: Fier (2018)

## Table 14-12: Interpolation Search Anisotropy and Orientation for Las Chispas

| Ellipse | Min Comp | Max Comp | Max Comp Per Hole | P.Azi | P.Dip | Int. Azi | Major (m) | Semi-Major (m) | Minor (m) | Comment |
|---|---|---|---|---|---|---|---|---|---|---|
| PASS 1 | 2 | 4 | 3 | 344 | 23 | 132 | 25 | 15 | 10 | UG samples only |
| PASS 2 | 3 | 9 | 3 | 344 | 23 | 132 | 50 | 35 | 20 | UG and DH samples |
| PASS 3 | 2 | 12 | 3 | 344 | 23 | 132 | 100 | 60 | 30 | UG and DH samples |

Source: Barr (2018)

**Table 14-13: Interpolation Search Anisotropy and Orientation for William Tell**

| Ellipse | Min Comp | Max Comp | Max Comp Per Hole | P.Azi | P.Dip | Int. Azi | Major (m) | Semi-Major (m) | Minor (m) | Comment |
|---|---|---|---|---|---|---|---|---|---|---|
| PASS 1 | 2 | 4 | 3 | 340 | 20 | 105 | 20 | 20 | 15 | UG samples only |
| PASS 2 | 3 | 15 | 3 | 340 | 20 | 105 | 125 | 100 | 50 | UG and DH samples |

Source: Barr (2018)

**Table 14-14: Interpolation Search Anisotropy and Orientation for Giovanni, Giovanni Mini, and La Blanquita**

| Ellipse | Min Comp | Max Comp | Max Comp Per Hole | P.Azi | P.Dip | Int. Azi | Major (m) | Semi-major (m) | Minor (m) | Comment |
|---|---|---|---|---|---|---|---|---|---|---|
| PASS 1 | 2 | 4 | 3 | 338 | -22 | 159 | 20 | 20 | 15 | UG samples only |
| PASS 2 | 3 | 15 | 3 | (rot_Z) 280 | (rot_X) -89 | (rot_Z) 15 | 125 | 100 | 50 | UG and DH samples |

Source: Barr (2018)

## 14.4 Surface Stockpile Material Models

### 14.4.1 Calculation of Estimated Tonnage and Grade

Stockpiles that were trenched with subsequent assay results were initially estimated for tonnage by calculating length x width x height x rock density. Following a visual estimation, a surveyor was hired to provide a more accurate estimation of the perimeter and surface area measurements. The survey was completed between December 14, 2017 and January 26, 2018 using a Trimble Spectra Total Station Model TS-415.

Based on the average profile depths of the trenches, the stockpiles were estimated to have an average depth of 2.0 m, except for La Capilla (2.5 m) and San Gotardo (3.0 m). The stockpiles were estimated to have an average density of 1.7 g/cm$^3$, including the tailings material at La Capilla. Thus, the estimated tonnage of each stockpile was calculated using the average depths, estimated density, and measured surface area of each dump.

Average grades were estimated for each stockpile area based on the samples collected for each stockpile. The tonnage and average grades for stockpiles with average AgEq >100 AgEq were then tabulated for the Mineral Resource Estimate. The Mineral Resource Estimate was first disclosed in the Barr (2018) Technical Report with an effective date of February 12, 2018. The estimate remains unchanged.

### 14.4.2 Potential Error and Inaccuracy

Potential sources of error during the trenching program include the high degree of inaccuracy of GPS measurements for profile elevations and cross sections. Additionally, samples may not completely be random and representative enough of the entire dump, and human error is a factor. The intervals used in the trenching process were not measured with a set length but estimated by the length of the backhoe bucket.

The following assumptions were incorporated into the stockpile estimates:

- The estimated density is the same across all stockpiles.

- The estimated depth is 2.0 m across all stockpiles, except for La Capilla and San Gotardo.
- The perimeter measurements used to calculate surface areas were performed by a surveyor and may not be accurate.
- The stockpiles not on a horizontal plane are more open to visual estimation for depth and area.
- The gold and silver grades measured from assay results are averaged for each stockpile, even though there can be a significant standard deviation and difference between the minimum and maximum result. Grade capping was not applied.

## 14.5 Mineral Resource Estimate

Table 14-15 summarized the Mineral Resource Estimates for the Las Chispas Property. These estimates are effective as of February 8, 2019 and adhere to guidelines set forth by NI 43-101 and the CIM Best Practices and Definition Standards.

**Table 14-15: Summary of Mineral Resource Estimates for Vein Material and Surface Stockpile Material at the Las Chispas Property, Effective February 8, 2019(3,5,6,7,8)**

| Type | Cut-off Grade(4) (gpt AgEq(2)) | Classification(1) | Tonnes | Au (gpt) | Ag (gpt) | AgEq(2) (gpt) | Contained Au Ounces | Contained Ag Ounces | Contained AgEq(2) Ounces |
|---|---|---|---|---|---|---|---|---|---|
| Vein | 150 | Indicated | 1,002,200 | 6.98 | 711 | 1,234 | 224,900 | 22,894,800 | 39,763,600 |
| Vein | 150 | Inferred | 3,464,700 | 3.42 | 343 | 600 | 380,700 | 38,241,400 | 66,823,700 |
| Stockpile | 100 | Inferred | 174,500 | 1.38 | 119 | 222 | 7,600 | 664,600 | 1,246,100 |
| **Overall** | **-** | **Indicated** | **1,002,200** | **6.98** | **711** | **1,234** | **224,900** | **22,894,800** | **39,763,600** |
| **Overall** | **-** | **Inferred** | **3,639,000** | **3.32** | **333** | **582** | **388,300** | **38,906,000** | **68,069,800** |

Notes: (1)Conforms to NI 43-101 and the CIM Definition Standards on Mineral Resources and Mineral Reserves. Inferred Mineral Resources have been estimated from geological evidence and limited sampling and must be treated with a lower level of confidence than Measured and Indicated Mineral Resources.
(2)AgEq is based on a silver to gold ratio of 75:1. This was calculated using long-term silver and gold prices of US$17/oz silver and US$1,225/oz gold, with approximate average metallurgical recoveries of 90% silver and 95% gold.
(3)Bulk density has been applied to all materials as 2.55 t/m$^3$.
(4)Vein resource is reported using a 150 gpt AgEq cut-off grade and minimum 0.5 m true width; the Babicanora Norte, Babicanora Sur, Babicanora FW, and Babicanora HW Veins have been modelled to a minimum undiluted thickness of 0.5 m; Babicanora Main Vein has been modelled to a minimum undiluted thickness of 1.5 m.
(5)The Babicanora resource includes the Babicanora Vein with the Area 51 zone and Shoot 51. The Giovanni resource includes the Giovanni, Giovanni Mini and the La Blanquita Veins.
(6)Mineral Resource estimations for the Las Chispas and William Tell Veins and the surface stockpiles are unchanged from the February 2018 Maiden Resource Estimate (Barr 2018).
(7)There are no known legal, political, environmental, or other risks that could materially affect the potential development of the mineral resources.
(8)All numbers are rounded. Overall numbers may not be exact due to rounding.

### 14.5.1 Cut-off Grade

The Las Chispas Property is being contemplated as a potential underground narrow vein mining operation using standard cut-and-fill and/or long-hole mining or equivalent methods and metal recovery using a standard cyanide extraction method. Mining, process engineering, and economic studies had not been completed for the Las Chispas Property at the Effective Date of the Mineral Resources Estimates of February 8, 2019 when the cut-off grade was established for the vein Mineral Resource Estimate. The cut-off grade applied to the vein Mineral Resource

Estimate is 150 gpt AgEq based on long-term silver and gold prices of US$17/oz silver and US$1,225/oz gold, approximate metallurgical recoveries of 95% gold and 90% silver, and a possible operating cost of $100/t. The surface stockpile estimates are reported using a 100 gpt AgEq cut-off grade since surface mining costs are assumed to be significantly lower than underground mining costs.

Based on similar host geology, deposit types, and metal grades, the nearby underground gold-silver vein mining projects at the Santa Elena Mine (operated by First Majestic) and Los Mercedes Mine (operated by Premier Gold) are considered analogous projects to verify reasonableness of the selected cut-off grade for in situ vein material. The Santa Elena Mine has reported underground Mineral Resources at cut-off grade of 110 gpt AgEq for extraction by long-hole and cut-and-fill mining in the main vein, and 120 gpt AgEq for extraction by cut-and-fill mining in narrow veins (First Majestic AIF 2018). The Los Mercedes Mine has reported underground Mineral Resources at 2.0 gpt gold (Premier Gold AIF 2018), or 150 gpt AgEq in terms of the Las Chispas AgEq calculation. Although the mining, processing and operating methods used at these mines may not be considered as a direct comparison, the Geology QP is satisfied that the cut-off grade assumptions are reasonable for the style and size of the mineral deposits on the Las Chispas Property.

### 14.5.2 Vein Mineral Resource Estimate

The Mineral Resource Estimate for intact vein material was calculated using GEOVIA GEMS™ v.6.8 applying vein models developed with Seequent Leapfrog® Geo v.4.4 and sample data collected from underground mapping, underground drilling, and surface drilling. Silver and gold assay grades were interpolated into a block model. Block volumes were reduced based on the proportion of each block bisected by the vein solid. A fixed bulk density value of 2.55 t/m$^3$ was applied to the volumes. The Mineral Resource Estimate is constrained to interpreted vein solids and reports average silver and gold grades on block volume weighted basis.

Table 14-16 shows the Mineral Resource Estimate effective as of February 8, 2019. This Mineral Resource Estimate adheres to guidelines set forth by NI 43-101 and the CIM Best Practices and Definition Standards.

**Table 14-16: Mineral Resource Estimate for Vein Material at the Las Chispas Property, Effective February 8, 2019[(4,5,6,7,8)]**

| Vein[(6)] | Classification[(1)] | Tonnes | Au (gpt) | Ag (gpt) | AgEq[(2)] (gpt) | Contained Au Ounces | Contained Ag Ounces | Contained AgEq[(2)] Ounces |
|---|---|---|---|---|---|---|---|---|
| Babicanora | Indicated | 646,800 | 6.57 | 683 | 1,175 | 136,500 | 14,198,000 | 24,438,600 |
| | Inferred | 670,300 | 4.46 | 500 | 842 | 98,300 | 10,775,800 | 18,145,100 |
| *includes Area 51* | *Indicated* | *466,600* | *7.90* | *801* | *1,393* | *118,500* | *12,011,600* | *20,898,100* |
| | *Inferred* | *392,700* | *6.06* | *715* | *1,170* | *76,500* | *9,032,700* | *14,767,600* |
| *includes Shoot 51* | *Indicated* | *280,100* | *10.09* | *1,060* | *1,816* | *90,900* | *9,543,200* | *16,360,700* |
| | *Inferred* | *92,00* | *8.54* | *984* | *1,625* | *25,300* | *2,912,100* | *4,809,600* |
| Babicanora FW | Indicated | 157,100 | 7.49 | 676 | 1,237 | 37,800 | 3,411,200 | 6,248,500 |
| | Inferred | 207,400 | 7.62 | 465 | 1,037 | 50,800 | 3,103,800 | 6,913,400 |
| Babicanora HW | Indicated | 67,800 | 0.93 | 154 | 223 | 2,000 | 334,800 | 486,200 |
| | Inferred | 31,500 | 0.80 | 145 | 205 | 800 | 147,100 | 207,500 |

*table continues…*



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| Vein[6] | Classification[1] | Tonnes | Au (gpt) | Ag (gpt) | AgEq[2] (gpt) | Contained Au Ounces | Contained Ag Ounces | Contained AgEq[2] Ounces |
|---|---|---|---|---|---|---|---|---|
| Babicanora Norte | Indicated | 130,500 | 11.57 | 1,180 | 2,047 | 48,500 | 4,950,900 | 8,590,300 |
| | Inferred | 277,700 | 8.21 | 780 | 1,395 | 73,300 | 6,960,000 | 12,458,000 |
| Babicanora Sur | Indicated | - | - | - | - | - | - | - |
| | Inferred | 543,900 | 4.10 | 268 | 575 | 71,600 | 4,687,800 | 10,058,700 |
| Las Chispas | Indicated | - | - | - | - | - | - | - |
| | Inferred | 171,000 | 2.39 | 340 | 520 | 13,000 | 1,869,500 | 2,861,000 |
| Giovanni | Indicated | - | - | - | - | - | - | - |
| | Inferred | 686,600 | 1.47 | 239 | 349 | 32,500 | 5,269,000 | 7,699,800 |
| William Tell | Indicated | - | - | - | - | - | - | - |
| | Inferred | 595,000 | 1.32 | 185 | 284 | 25,000 | 3,543,000 | 5,438,000 |
| Luigi | Indicated | - | - | - | - | - | - | - |
| | Inferred | 186,200 | 1.32 | 202 | 301 | 7,900 | 1,210,200 | 1,803,000 |
| Granaditas | Indicated | - | - | - | - | - | - | - |
| | Inferred | 95,100 | 2.46 | 221 | 405 | 7,500 | 675,100 | 1,239,200 |
| **All Veins** | **Indicated** | **1,002,200** | **6.98** | **711** | **1,234** | **224,900** | **22,894,800** | **39,763,600** |
| | **Inferred** | **3,639,200** | **3.32** | **333** | **582** | **388,300** | **38,906,000** | **68,069,800** |

Notes: [1]Conforms to NI 43-101 and the CIM Definition Standards on Mineral Resources and Mineral Reserves. Inferred Mineral Resources have been estimated from geological evidence and limited sampling and must be treated with a lower level of confidence than Measured and Indicated Mineral Resources.
[2]AgEq is based on a silver to gold ratio of 75:1. This was calculated using long-term silver and gold prices of US$17/oz silver and US$1,225/oz gold, with approximate average metallurgical recoveries of 90% silver and 95% gold.
[3]Bulk density has been applied to all materials as 2.55 t/m$^3$.
[4]Vein resource is reported using a 150 gpt AgEq cut-off grade and minimum 0.5 m true width; the Babicanora Norte, Babicanora Sur, Babicanora FW, and Babicanora HW Veins have been modelled to a minimum undiluted thickness of 0.5 m; the Babicanora Main Vein has been modelled to a minimum undiluted thickness of 1.5 m.
[5]The Babicanora resource includes the Babicanora Vein with Area 51 Zone and Shoot 51. The Giovanni resource includes the Giovanni, Giovanni Mini and the La Blanquita Veins.
[6]Mineral Resource estimations for the Las Chispas and William Tell Veins and the surface stockpiles are unchanged from the February 2018 Maiden Resource Estimate (Barr 2018).
[7]There are no known legal, political, environmental, or other risks that could materially affect the potential development of the mineral resources.
[8]All numbers are rounded. Overall numbers may not be exact due to rounding.

Figure 14-15 shows a perspective view of the block models filtered to greater than 150 gpt AgEq. Figure sets showing the AgEq block model, the resource classification, and an AgEq x Thickness contour are shown for the Babicanora Vein in Figure 14-16, Figure 14-17 and Figure 14-18; for the Babicanora Norte Vein in Figure 14-19, Figure 14-20, and Figure 14-21; for the Babicanora Sur Vein in Figure 14-22, Figure 14-23, and Figure 14-24; and for the Babicanora FW Vein in Figure 14-25, Figure 14-26, and Figure 14-27.

**Figure 14-15: Vein Block Models Perspective (Looking West)**

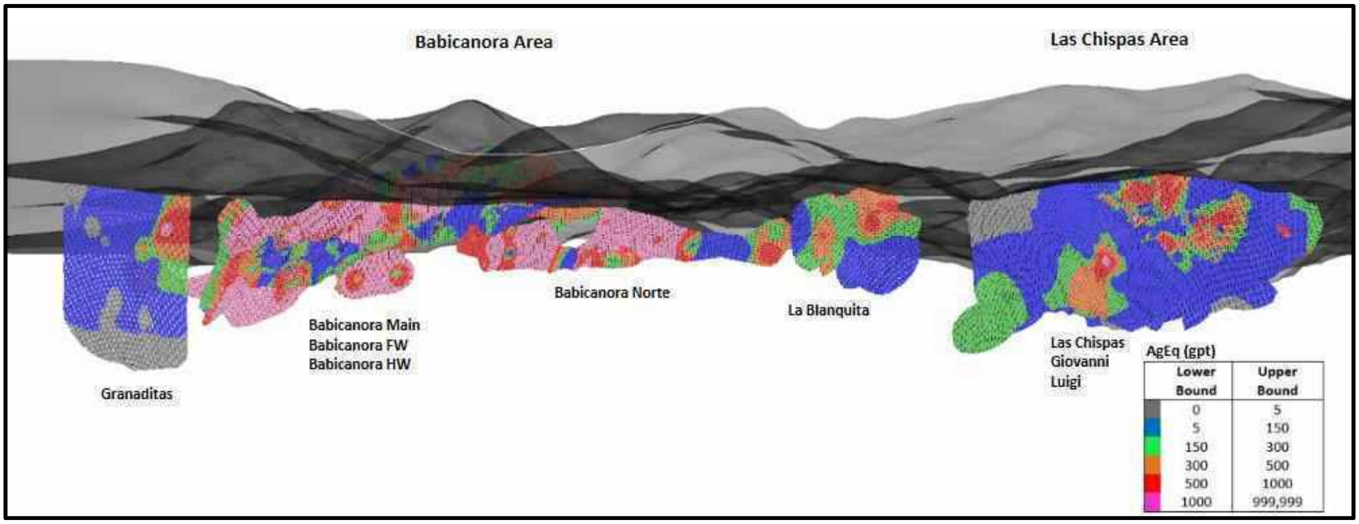


**Figure 14-16: Babicanora Vein, Inclined Long Section Showing AgEq Block Model (Looking Southwest)**

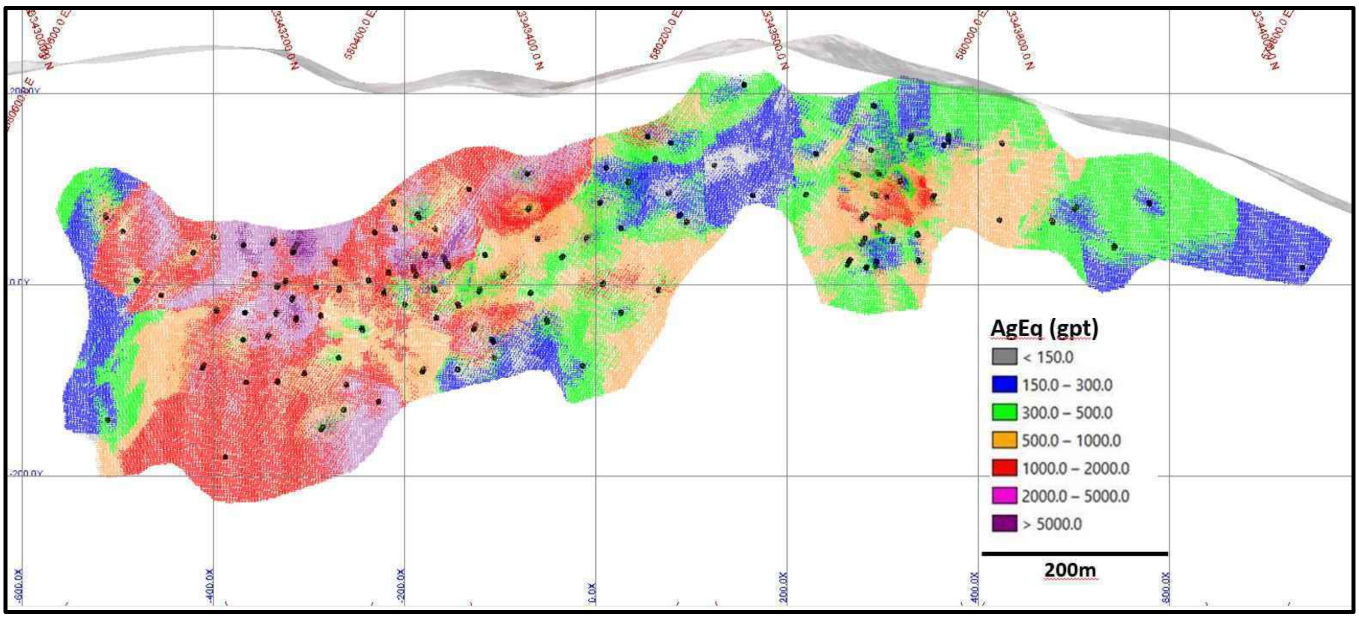

**Figure 14-17: Babicanora Vein, Inclined Long Section Showing Resource Category (Looking Southwest)**

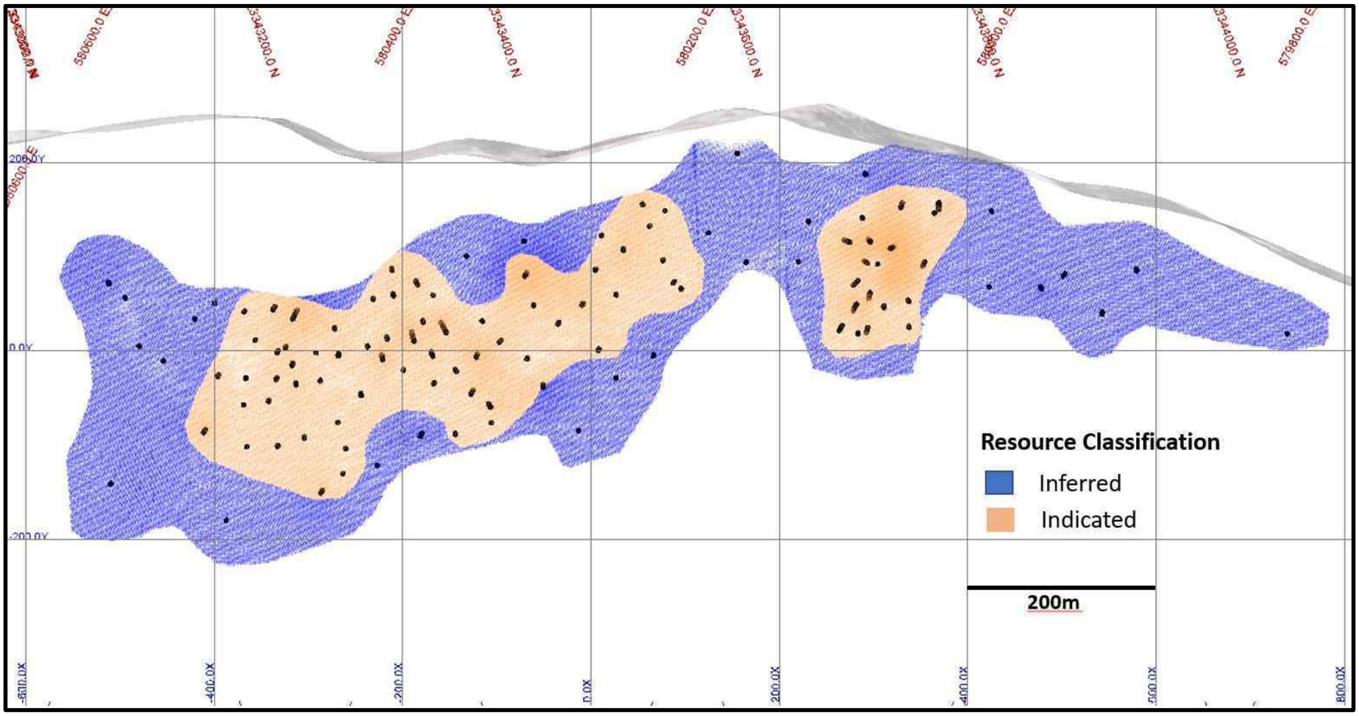


**Figure 14-18: Babicanora Vein, Inclined Long Section Showing AgEq Grade x Thickness Contours (Looking Southwest)**

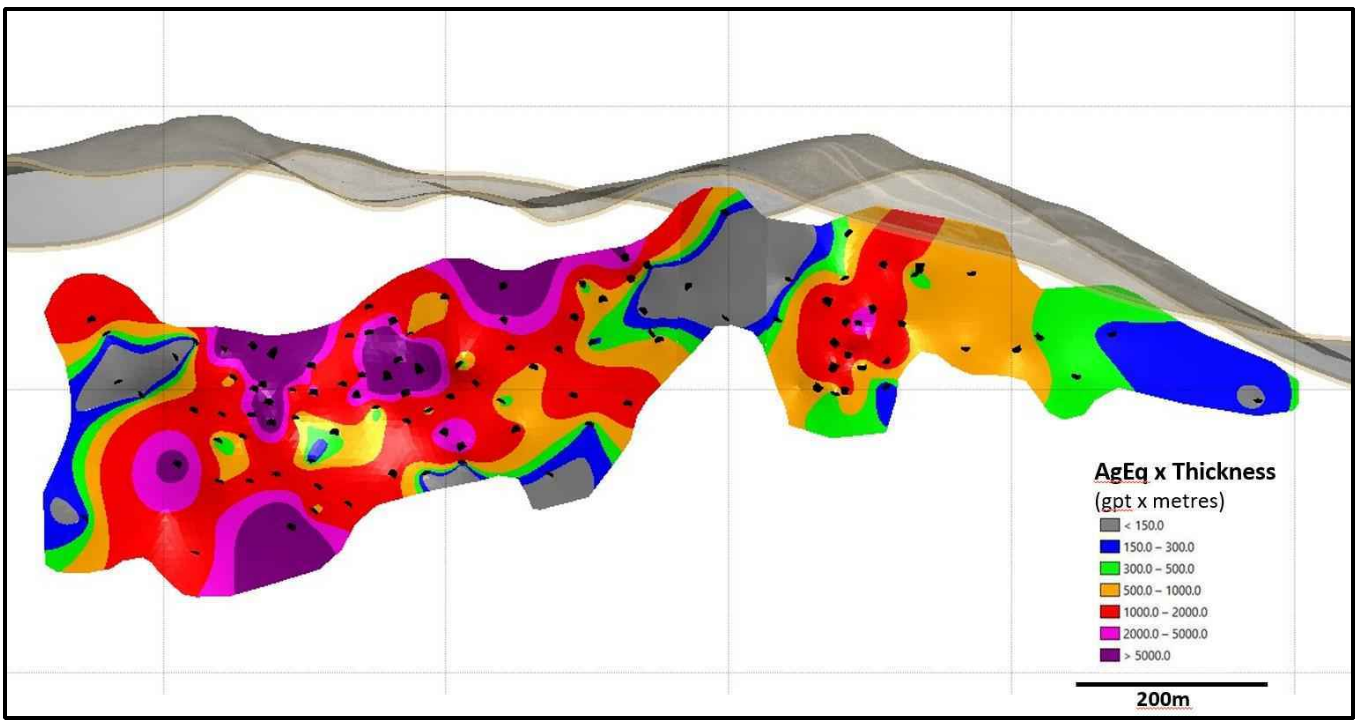

**Figure 14-19: Babicanora Norte Vein, Vertical Long Section Showing AgEq Block Model (Looking Southwest)**

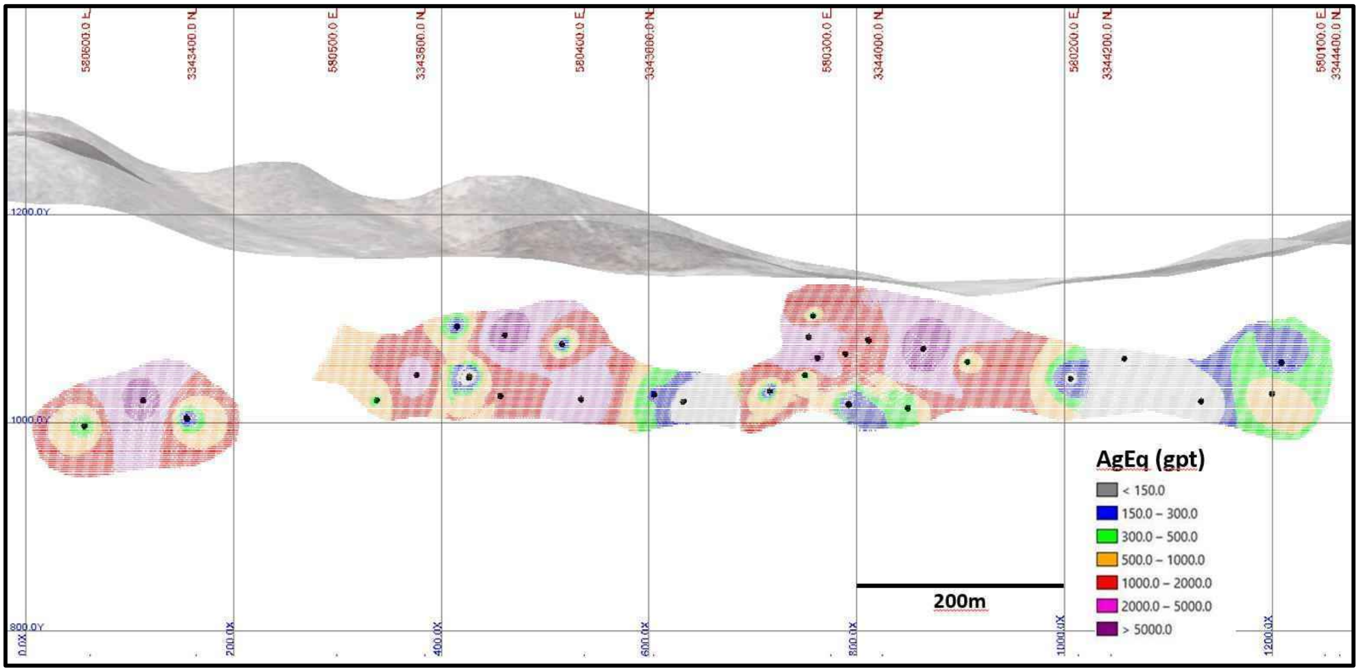


**Figure 14-20: Babicanora Norte Vein, Vertical Long Section Showing Resource Category (Looking Southwest)**

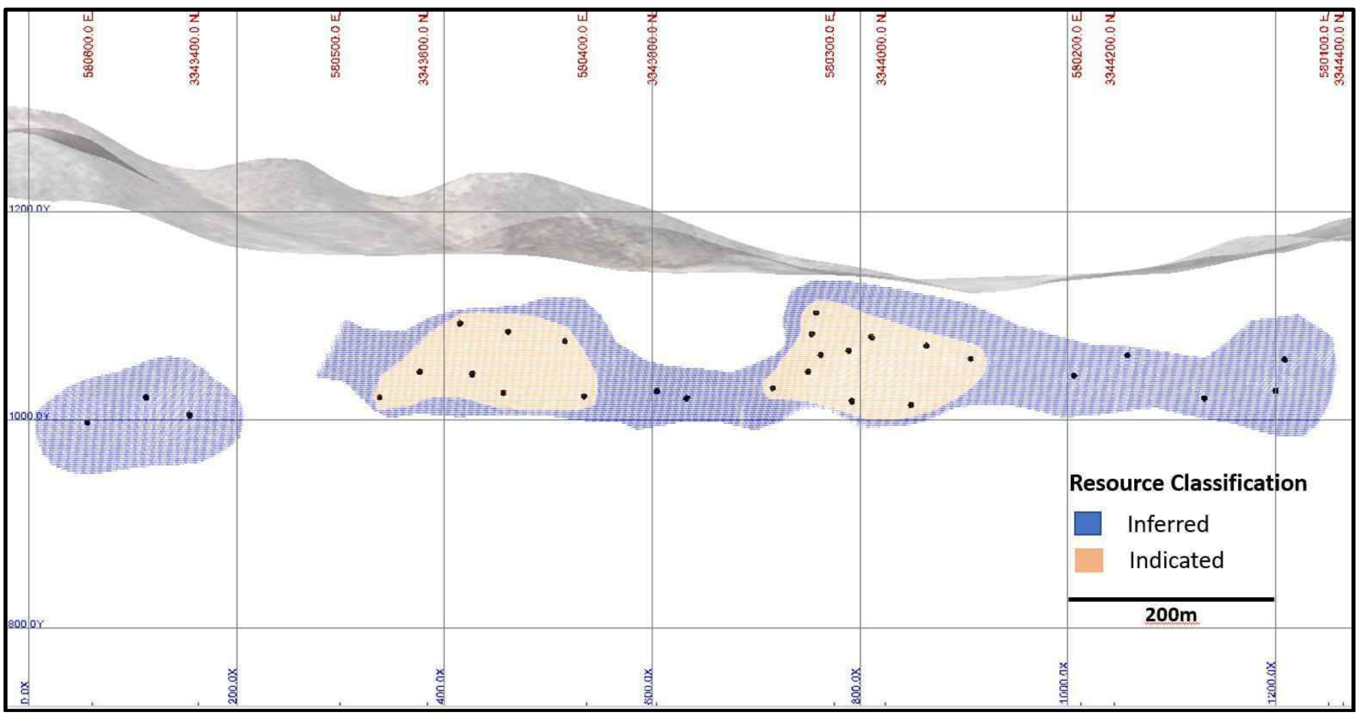

**Figure 14-21: Babicanora Norte Vein, Vertical Long Section Showing AgEq Grade x Thickness Contours (Looking Southwest)**

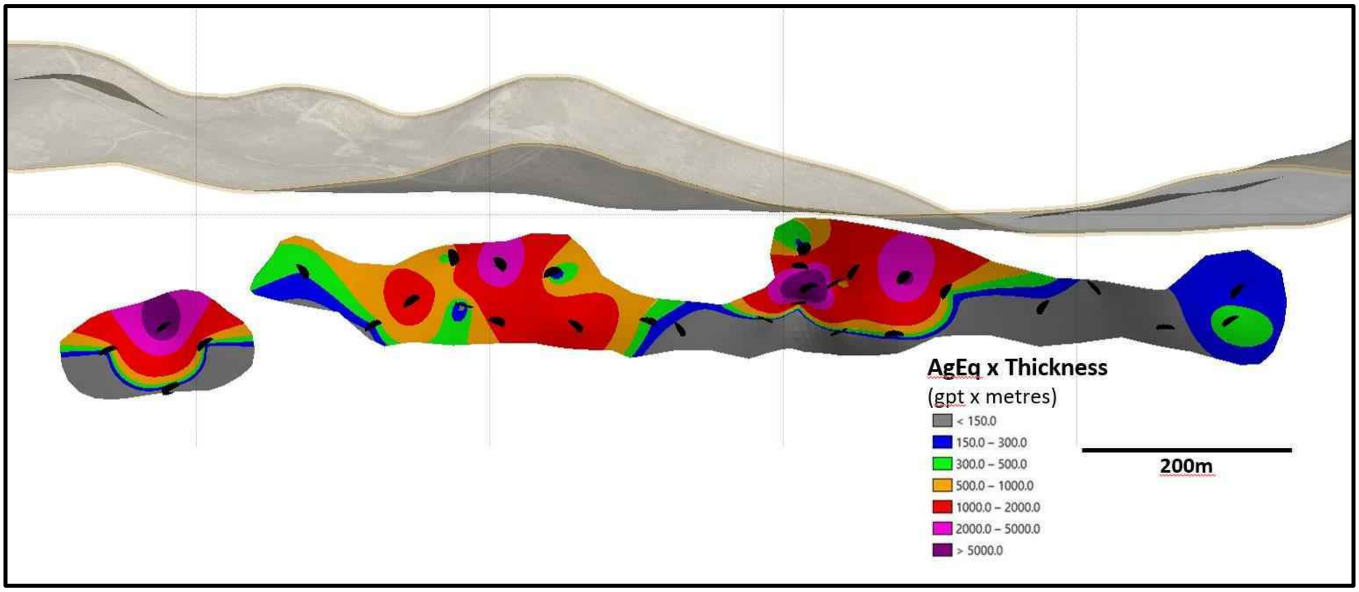


**Figure 14-22: Babicanora Sur Vein, Inclined Long Section Showing AgEq Block Model (Looking Southwest)**

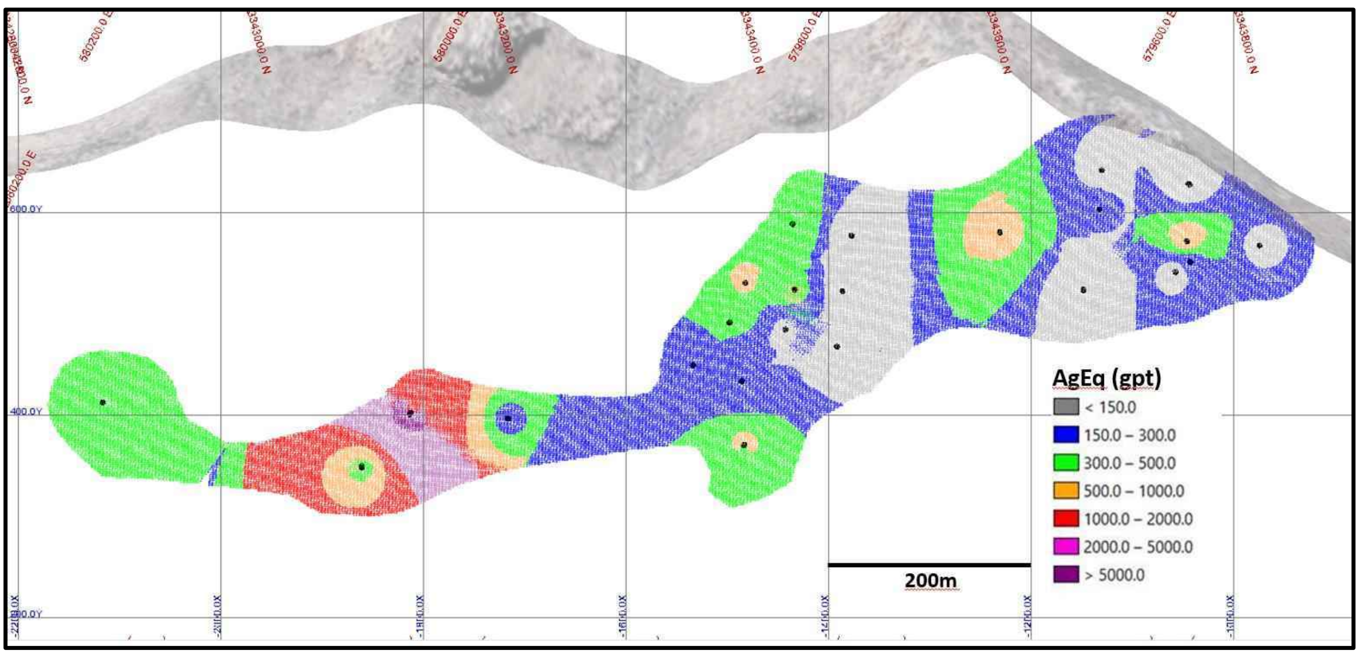

**Figure 14-23: Babicanora Sur Vein, Inclined Long Section Showing Resource Category (Looking Southwest)**

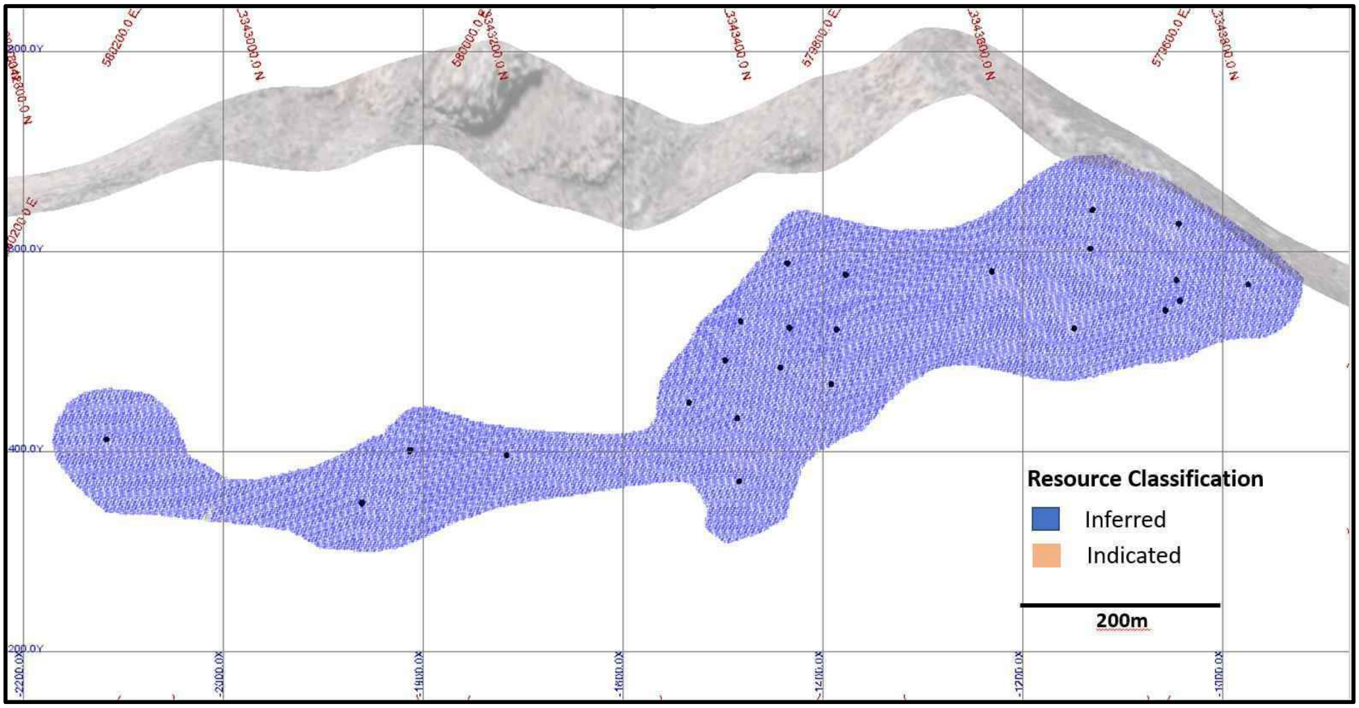


**Figure 14-24: Babicanora Sur Vein, Inclined Long Section Showing AgEq Grade x Thickness Contours, (Looking Southwest)**

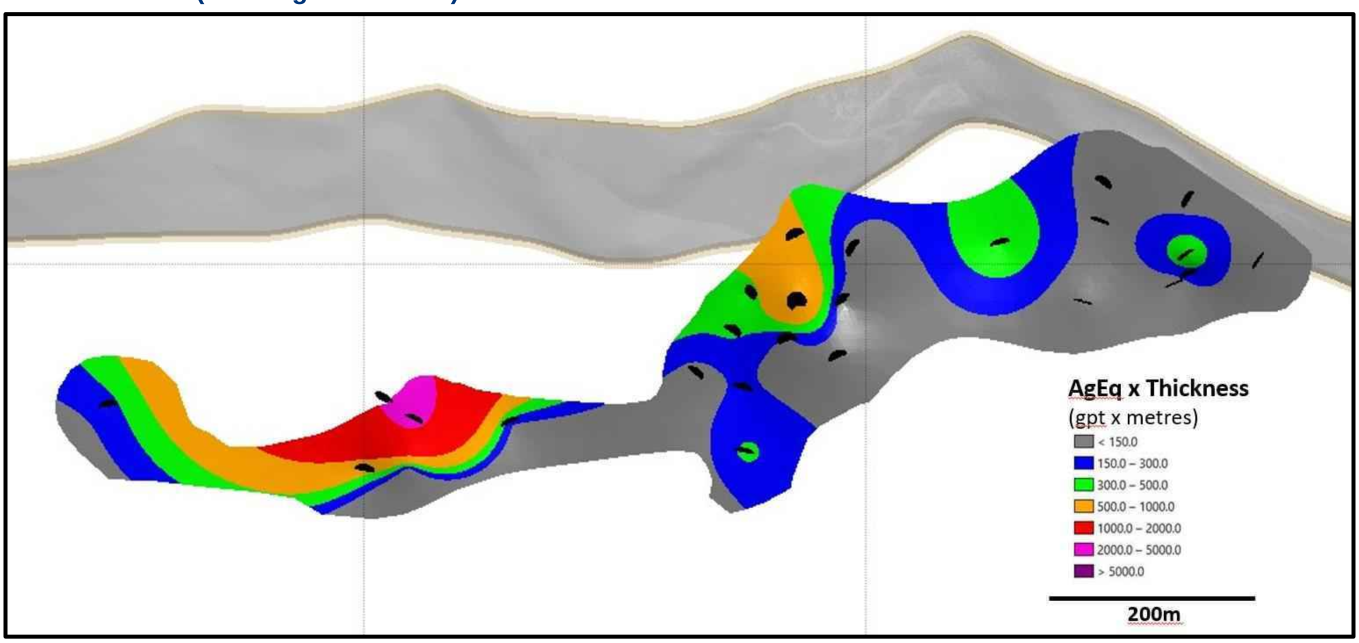




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**Figure 14-25: Babicanora FW Vein, Inclined Long Section Showing AgEq Block Model (Looking Southwest)**

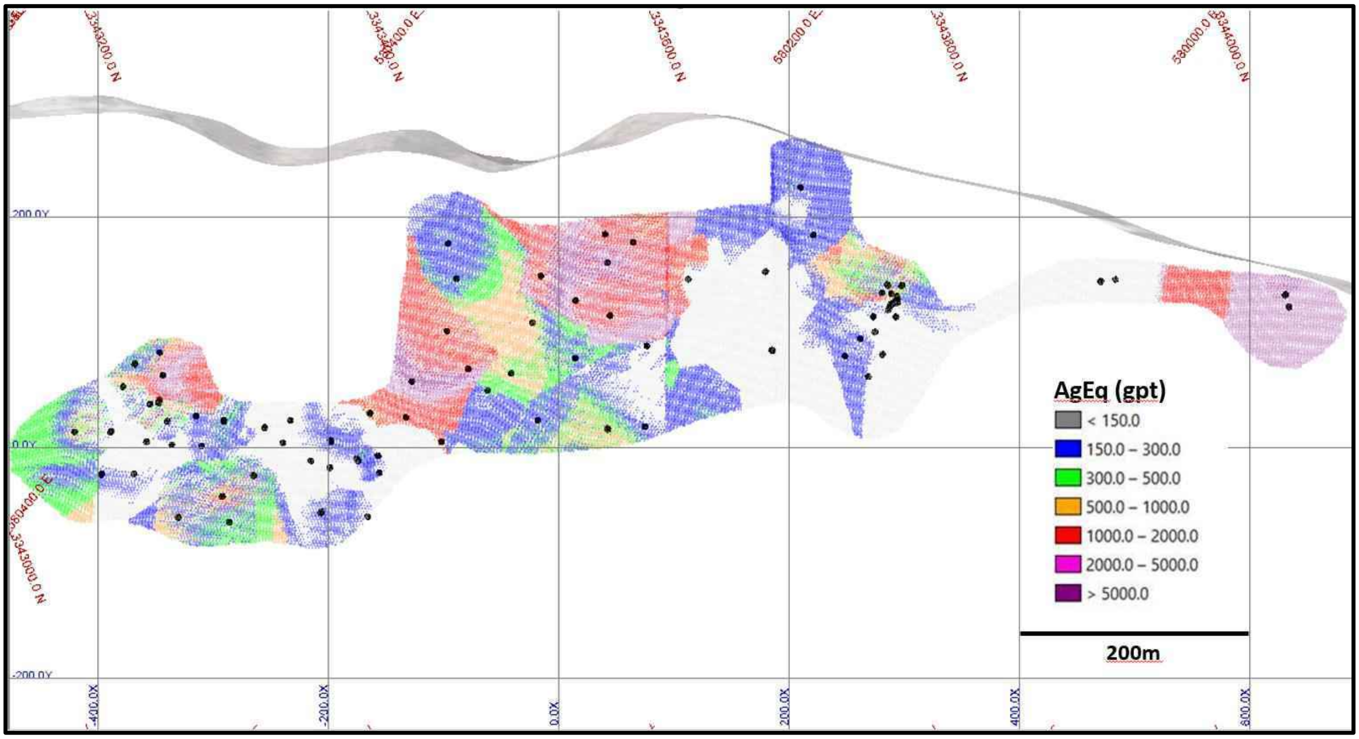


**Figure 14-26: Babicanora FW Vein, Inclined Long Section Showing Resource Classification (Looking Southwest)**

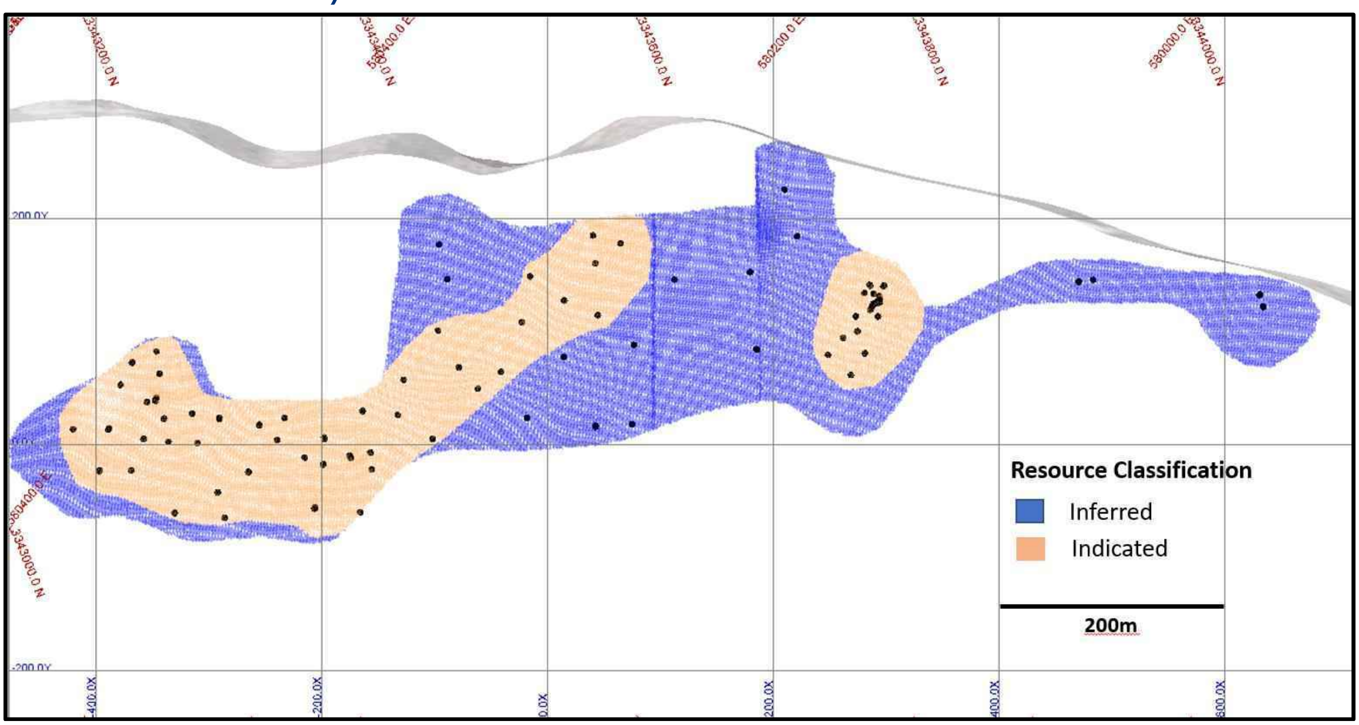




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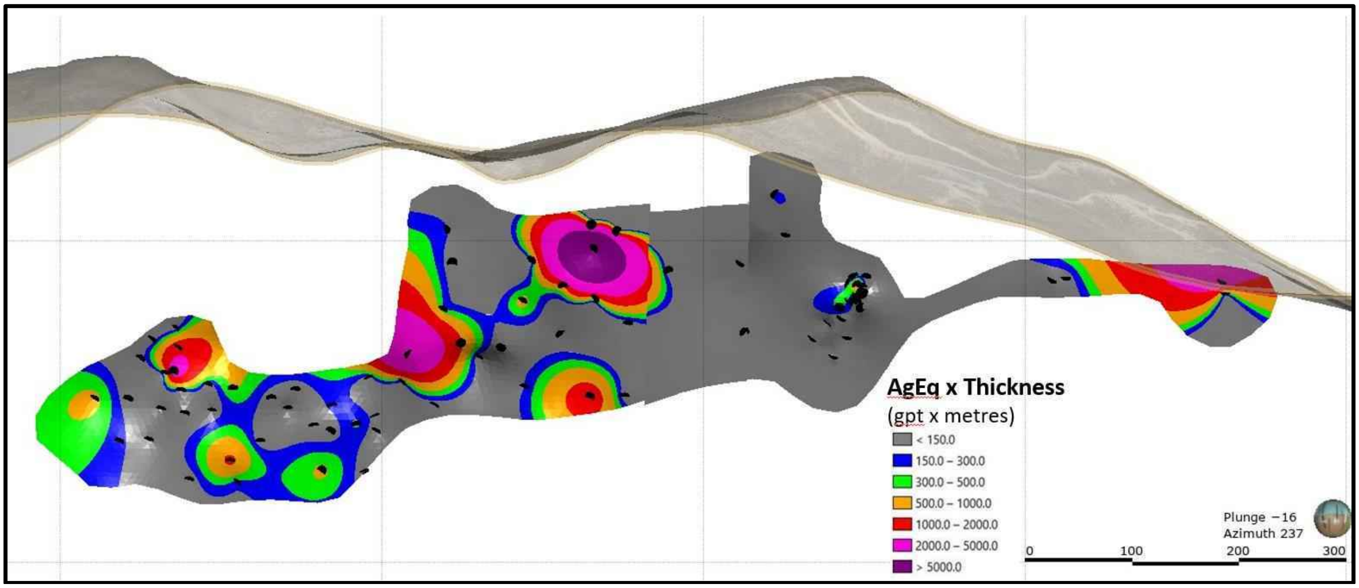
**Figure 14-27: Babicanora FW Vein, Inclined Long Section Showing AgEq Grade x Thickness Contours (Looking Southwest)**




## 14.5.3 Surface Stockpile Mineral Resource Estimate

A total of 21 surface dumps, stockpiles, and back fills are estimated to have an AgEq value of greater than 100 gpt, out of the total 42 sampled by auger and trenching. The 21 surface dumps, stockpiles and back fills are estimated to total 172,491 t and have an average grade of 1.37 gpt gold (containing 7,618 oz gold) and 116.85 gpt silver (containing 648,108 oz silver), or 219 gpt AgEq (containing 1,219,426 oz AgEq). The Mineral Resource Estimate was first disclosed in the Barr (2018) Technical Report with an effective date of February 12, 2018. The Mineral Resource Estimate remains unchanged and is summarized in Table 14-17. This Mineral Resource Estimate adheres to guidelines set forth by NI 43-101 and the CIM Best Practices and Definition Standards.

**Table 14-17: Mineral Resource Estimate for Surface Stockpile Material at the Las Chispas Property, Effective September 13, 2018(1,3,4,5)**

| Stockpile Name | Tonnes | Au (gpt) | Ag (gpt) | AgEq(2) (gpt) | Contained Gold Ounces | Contained Silver Ounces | Contained AgEq(2) Ounces |
|---|---|---|---|---|---|---|---|
| North Chispas 1 | 1,200 | 0.54 | 71 | 111 | 20 | 2,700 | 4,200 |
| La Capilla | 14,200 | 4.92 | 137 | 506 | 2,300 | 62,700 | 231,600 |
| San Gotardo | 79,500 | 0.79 | 121 | 180 | 2,000 | 308,100 | 459,600 |
| Lupena | 17,500 | 1.38 | 79 | 182 | 800 | 44,300 | 102,700 |
| Las Chispas 1 (LCH) | 24,200 | 0.78 | 125 | 183 | 600 | 97,000 | 142,500 |
| Las Chispas 2 | 1,100 | 1.23 | 236 | 329 | 40 | 8,100 | 11,300 |
| Las Chispas 3 (San Judas) | 1,000 | 2.05 | 703 | 857 | 100 | 22,400 | 27,300 |
| La Central | 3,800 | 0.75 | 116 | 172 | 100 | 14,300 | 21,200 |
| Chiltepines 1 | 200 | 0.87 | 175 | 240 | 0 | 800 | 1,200 |

*table continues…*



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| Stockpile Name | Tonnes | Au (gpt) | Ag (gpt) | AgEq(2) (gpt) | Contained Gold Ounces | Contained Silver Ounces | Contained AgEq(2) Ounces |
|---|---|---|---|---|---|---|---|
| Espiritu Santo | 1,700 | 0.52 | 94 | 133 | 30 | 5,000 | 7,100 |
| La Blanquita 2 | 4,600 | 0.53 | 118 | 158 | 100 | 17,500 | 23,400 |
| El Muerto | 5,800 | 2.52 | 79 | 268 | 500 | 14,900 | 50,200 |
| Sementales | 800 | 4.38 | 47 | 376 | 100 | 1,200 | 9,700 |
| Buena Vista | 400 | 4.62 | 57 | 403 | 100 | 700 | 5,100 |
| Babicanora | 10,300 | 1.81 | 56 | 192 | 600 | 18,500 | 63,300 |
| Babicanora 2 | 1,000 | 2.63 | 276 | 473 | 100 | 8,900 | 15,300 |
| El Cruce & 2, 3 | 100 | 0.75 | 39 | 96 | 3 | 200 | 400 |
| Babi Stockpiled Fill | 800 | 1.80 | 120 | 255 | 50 | 3,100 | 6,600 |
| Las Chispas Stockpiled Fill | 300 | 2.50 | 243 | 431 | 20 | 2,300 | 4,200 |
| Las Chispas Underground Backfill | 2,000 | 2.10 | 243 | 431 | 100 | 16,500 | 26,600 |
| Babicanora Underground Backfill | 4,000 | 1.80 | 120 | 255 | 200 | 15,500 | 32,800 |
| **Total** | **174,500** | **1.38** | **119** | **222** | **7,600** | **664,600** | **1,246,100** |

Notes: (1)All Stockpile Mineral Resource Estimates are classified as Inferred. This conforms to NI 43-101 and the CIM Definition Standards on Mineral Resources and Mineral Reserves. Inferred Resources have been estimated from geological evidence and limited sampling and must be treated with a lower level of confidence than Measured and Indicated Resources.
(2)AgEq is based on a silver to gold ratio of 75:1. This was calculated using long-term silver and gold prices of US$17/oz silver and US$1,225/oz gold with approximate average metallurgical recoveries of 90% silver and 95% gold.
(3)Resource is reported using a 100 gpt AgEq cut-off grade.
(4)There are no known legal, political, environmental, or other risks that could materially affect the potential development of the mineral resources.
(5)Resource estimations for the historical dumps are unchanged from the February 2018 Maiden Resource Estimate.

### 14.5.4 Classification

Work undertaken and ongoing by SilverCrest has set a solid foundation in support of a geological model and demonstrated grade continuity from drilling and underground mapping activities. The block model has been classified with both Inferred and Indicated Mineral Resource categories.

The classification of Indicated blocks is based on the following:

- Being constrained within a Mineral Resource vein model with sufficient drilling and sample density to support interpretation of vein continuity.
- Having at least three drill holes informing the block grade.
- Having an average distance of 40 m or less to the reporting composites.
- Having a slope of regression (block variance to kriging variance) of 0.65 or more, based on assessment of variation.

The classification of Inferred blocks is based on the following:

- Being constrained within a Mineral Resource vein model with sufficient drilling and sample density to support interpretation of vein continuity.



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- Having nearby drilling and sample spacing sufficient to corelate vein intersections, but is too broad to identify the various short-range complexities mapped within the veins such as splays, faults offsets, and pinch and swell structures.
- Having search ellipses used in the interpolation with long ranges resulting in smearing of grades along the fringes of some veins. Although geological continuity is believed to exist in these areas, the presence and concentration of silver and gold mineralization has not been confirmed.
- In some areas, use of extensive underground mapping and channel sampling has helped delineate areas of mineralization not extracted from previous mining operations. Currently at Las Chispas and Giovanni, the number of underground samples far outweigh the number of drill hole samples used to define the geological structure and metal concentration. The mineralization should continue to be drill tested to confirm grade continuity outward into wall from best underground sample targets.
- Some uncertainty exists in the underground survey reconciliation with drilling intercepts.

Inferred Mineral Resources have a lower level of confidence than that applying to Indicated and Measured Mineral Resources and may not be converted to Mineral Reserves. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.

### 14.5.5 Validation

Model validation is undertaken to demonstrate that the input data has been fairly and accurately represented in outputs of the block modelling process. Substantial deviations to the data distribution or mean tendency, or inflations to high-grade ranges, can lead to misrepresentation or overstatement of the Mineral Resource Estimate.

Methods used to validate the models include visual spatial comparison of input data (i.e., drill hole and underground sampling) on cross sections with block model output and swath plot analysis. Additionally, the results of the OK models developed for Babicanora and Las Chispas were also compared to the results of Inverse Distance Weighted to power of three ($ID^3$) interpolation model. These methods provide qualitative comparison of the results. Quantitative comparison of results can be more challenging to achieve, particularly in widely spaced data, as the results of the model and the input composite data have vastly different sample density to volume relationships (i.e., sample support) due to the large search parameters that are required to support grade continuity.

Visual comparison of the input data with the output block model resulted in decent correlation. The modelled grade trends in certain areas did not appear to follow consistent trends; however, this can be improved in future modelling by incorporating additional geological and structural controls.

In general, the ID methods resulted in slightly higher than average grades with lower tonnages and sharper contrasts (i.e., steeper gradients) between high- and low-grade samples compared to the OK model. The effect of kriging the mineral grades is that higher grades can be slightly reduced and lower grades are slightly increased resulting in an overall smoother correlation between the input data.

Swath plots provide a qualitative method to observe preservation of the grade trends on a spatial basis. The data is plotted with average values along discrete intervals along the Cartesian X, Y, and Z axes (i.e., easting, northing, and elevation). Sample data used for these swath plots is composited and capped, resulting in a slightly smoother trend than raw data. However, the sample data can be clustered and may misrepresent areas of high-grade mineralization that has been oversampled. The block data is based on the composited and capped data but is non-clustered. Both datasets have been constrained to the vein models. Figure 14-28 to Figure 14-32 shows the swath plots for Babicanora; Figure 14-33 shows the swath plot for Las Chispas; Figure 14-34 shows the swath plots for Giovanni, Giovanni Mini, and La Blanquita; and Figure 14-35 shows the swath plot for William Tel.

The model validation indicates that the input data has been reasonably represented in the model, at a confidence suitable for Mineral Resource estimation.

**Figure 14-28: Babicanora Norte, Swath Plots for Au and Ag Comparing Composite and Block Model Data**

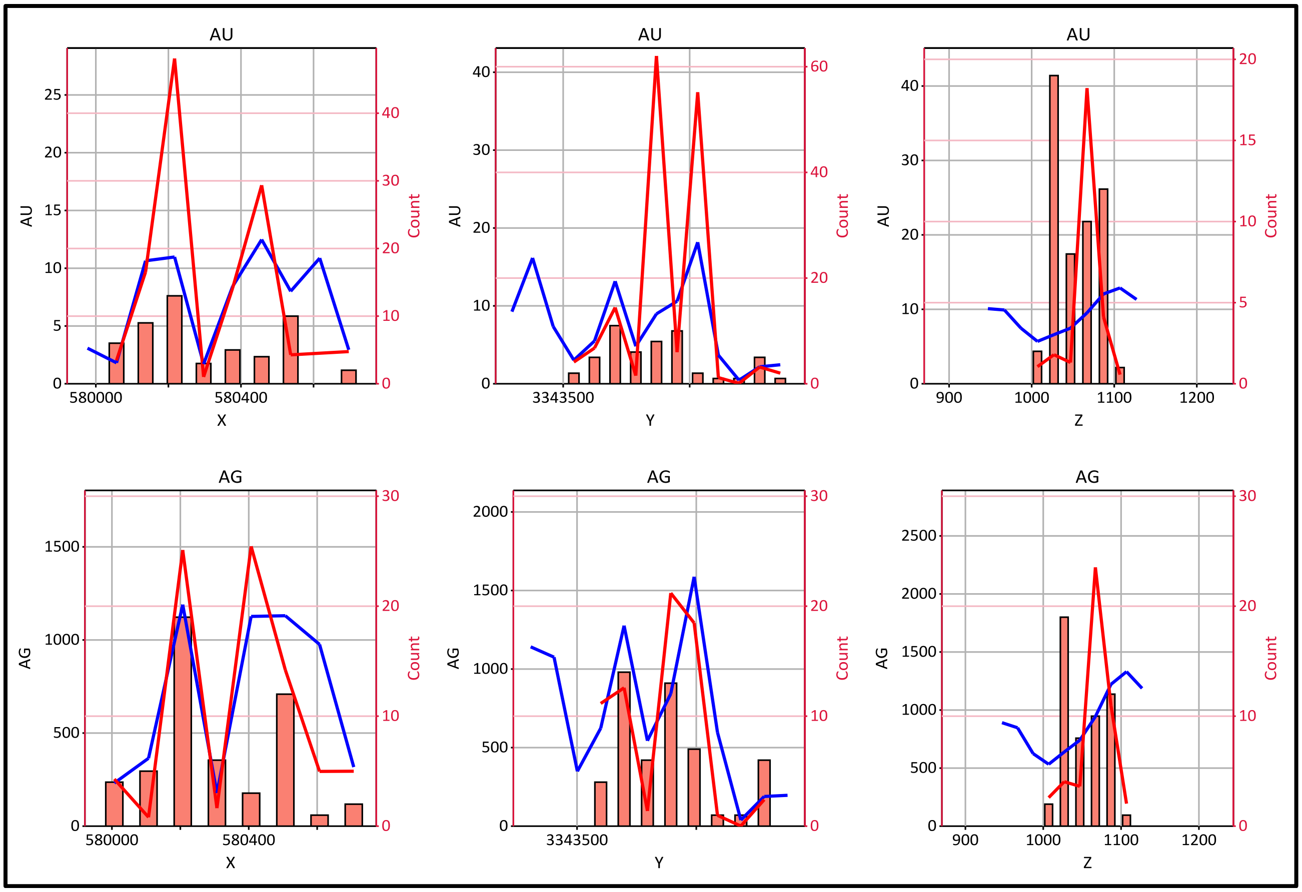


**Figure 14-29: Babicanora Main, Swath Plots for Au and Ag Comparing Composite and Block Model Data**

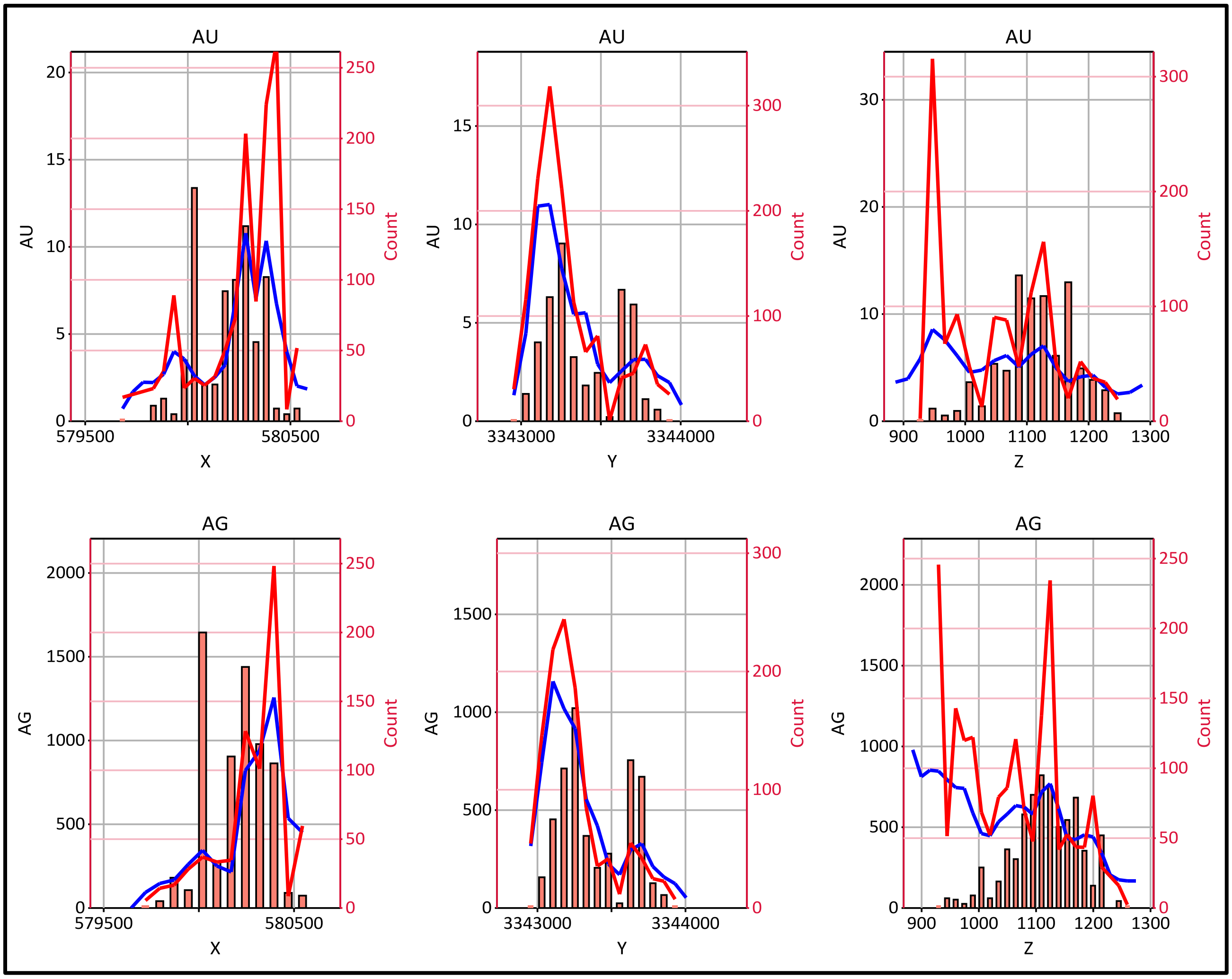


**Figure 14-30: Babicanora Sur, Swath Plots for Au and Ag Comparing Composite and Block Model Data**

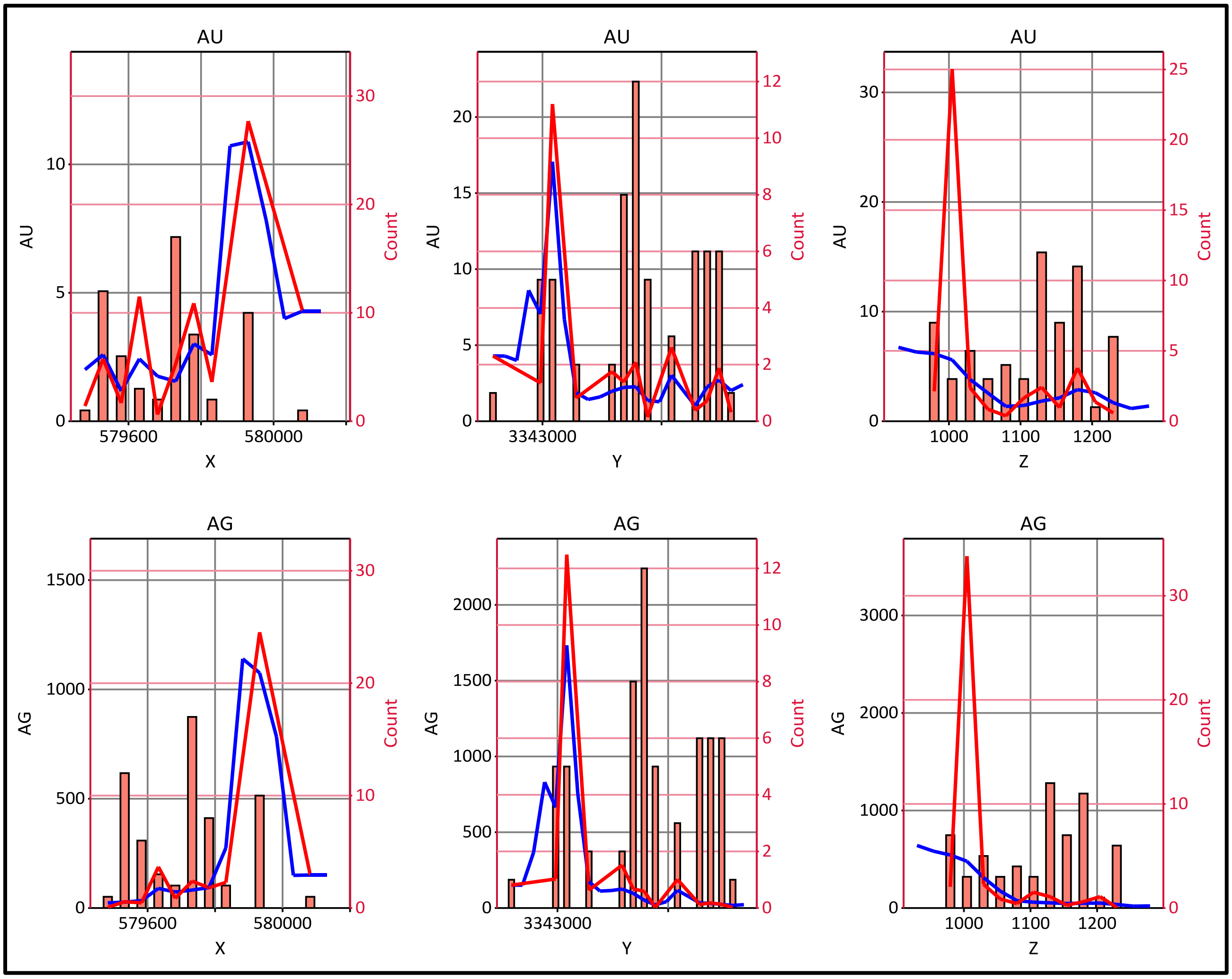


**Figure 14-31: Babicanora FW, Swath Plots for Au and Ag Comparing Composite and Block Model Data**

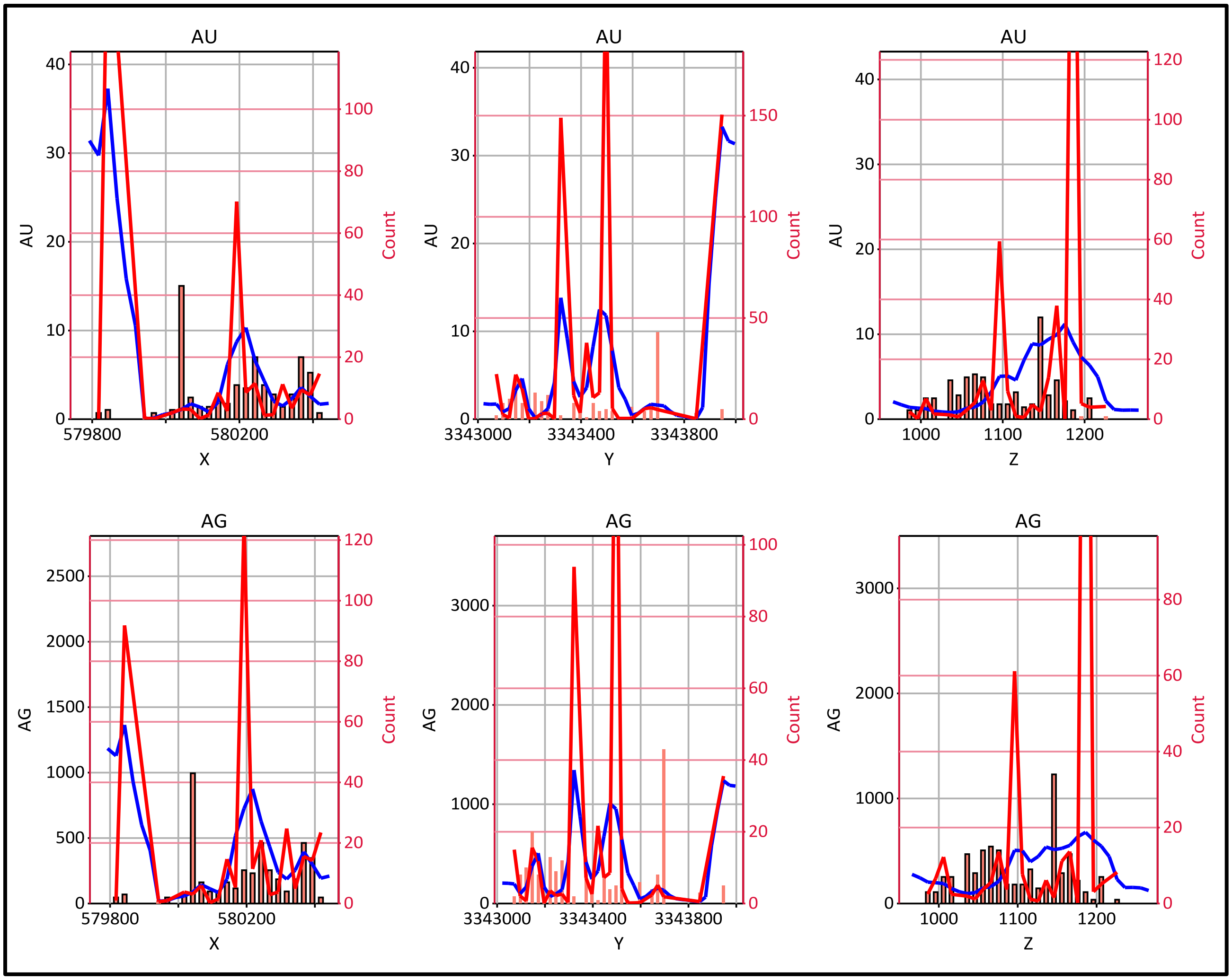


**Figure 14-32: Babicanora HW, Swath Plots for Au and Ag Comparing Composite and Block Model Data**

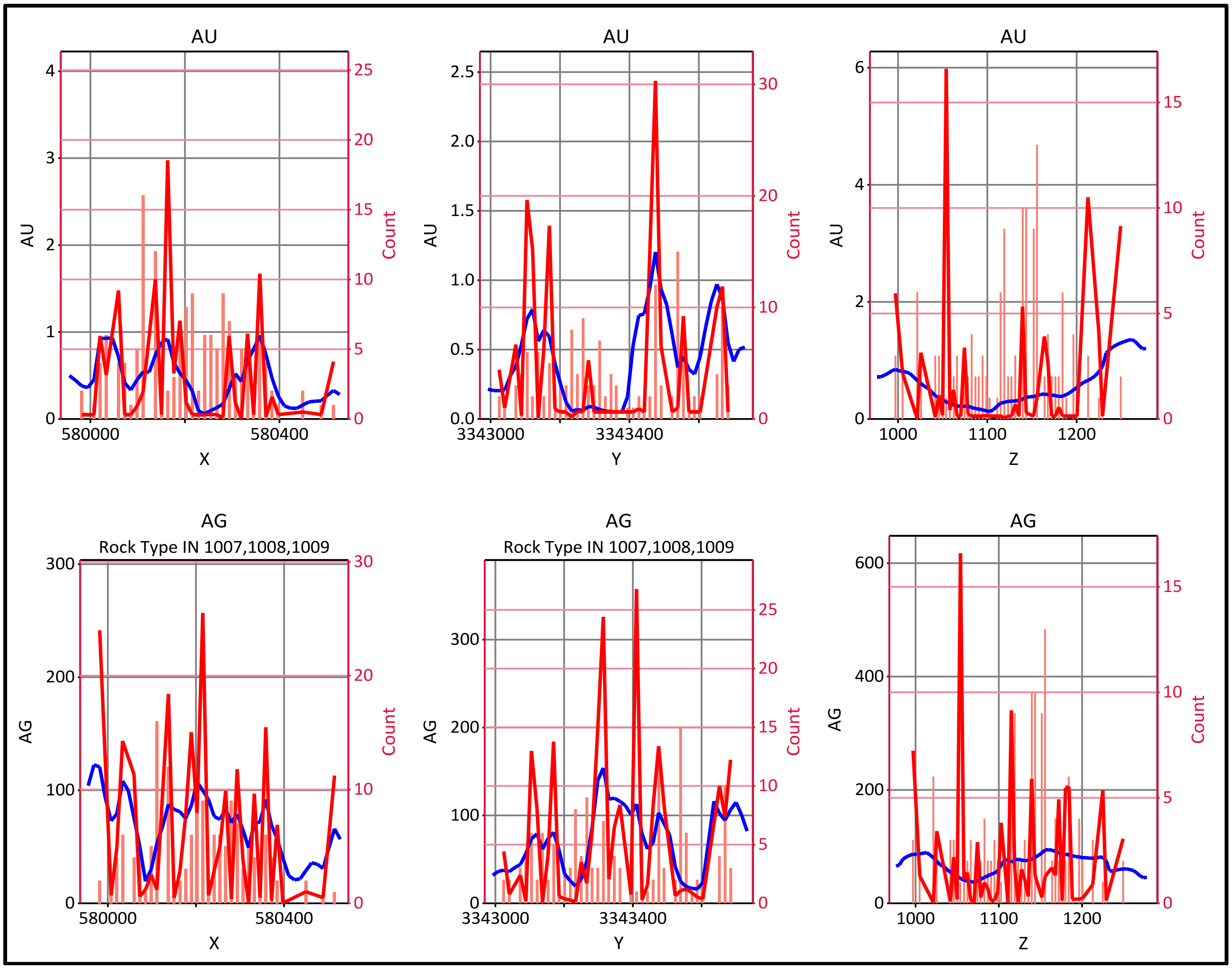


**Figure 14-33: Las Chispas, Swath Plots for Au and Ag Comparing Composite and Block Model Data**

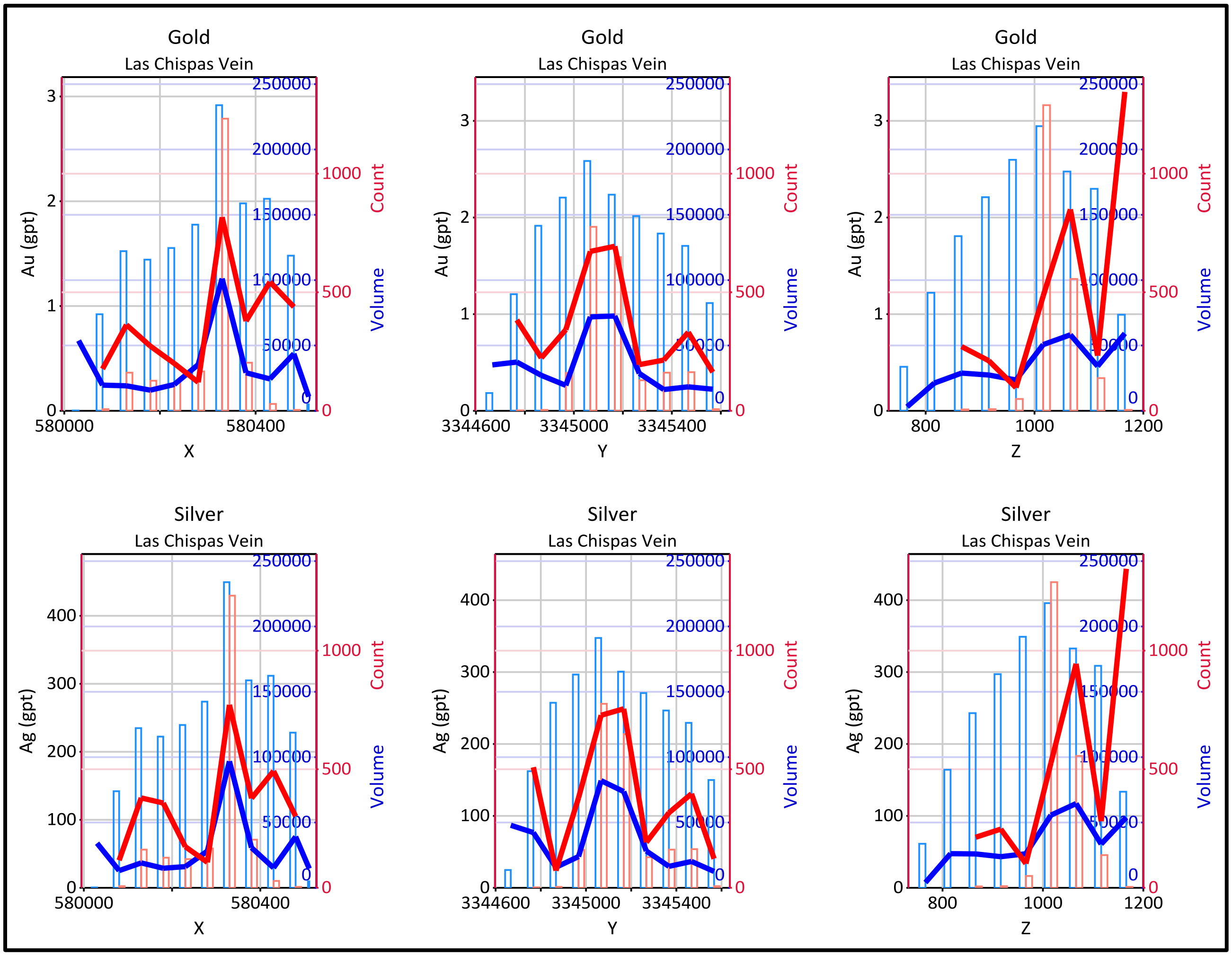


**Figure 14-34: Giovanni, Giovanni Mini and La Blanquita, Swath Plots for Au and Ag Comparing Composite and Block Model Data**

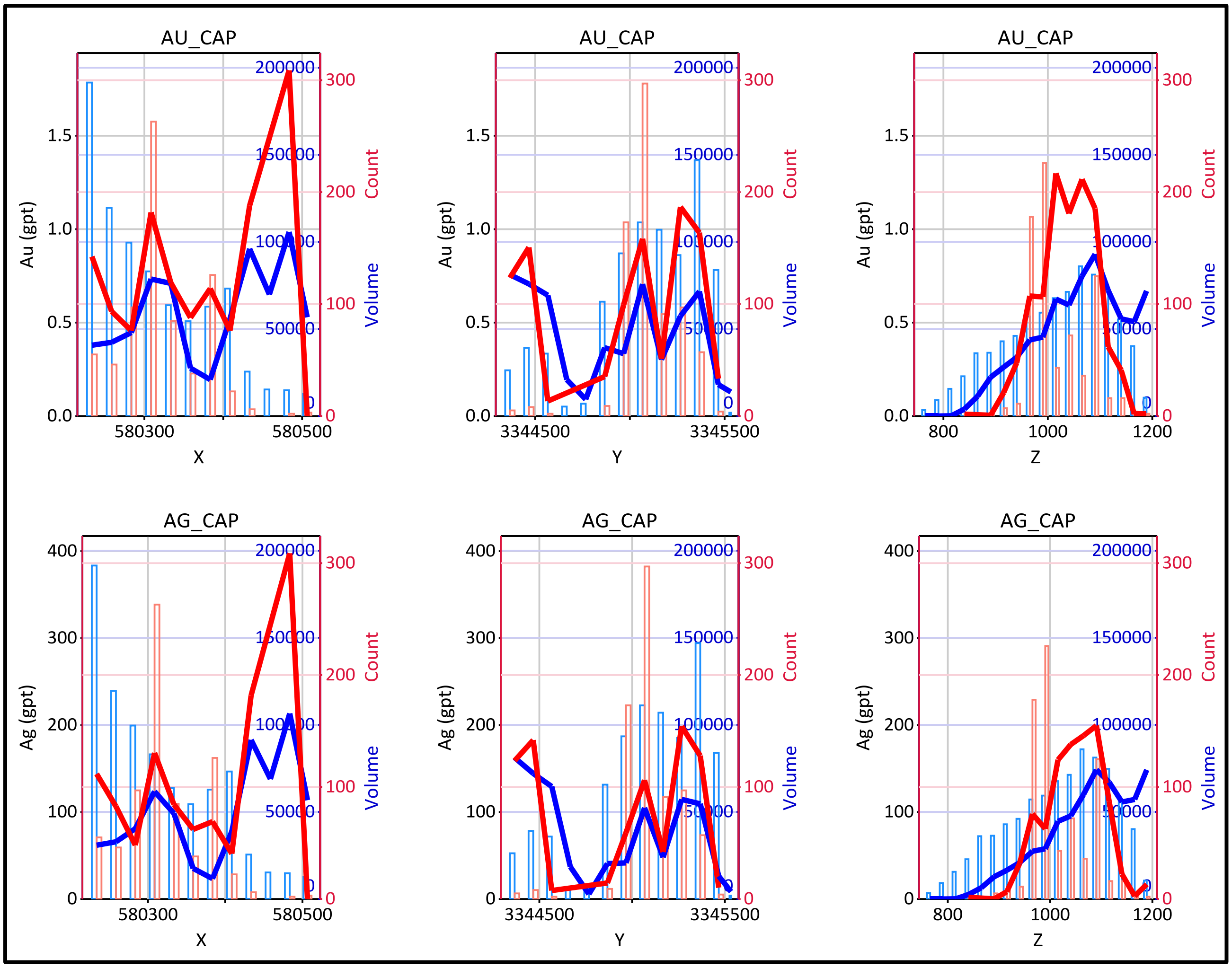
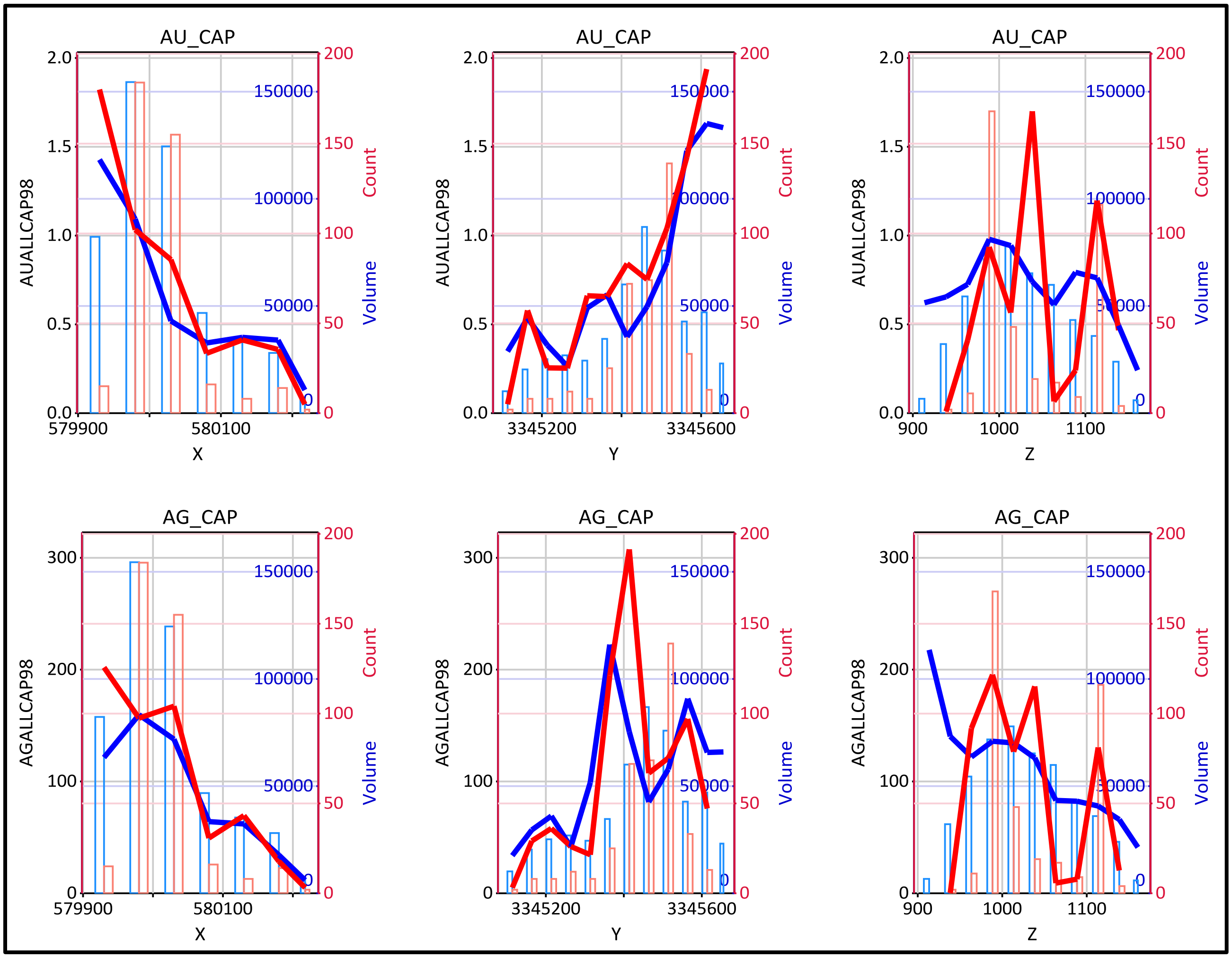


**Figure 14-35: William Tell, Swath Plots for AgEq Comparing Composite and Block Model Data**




## 14.5.6 Grade-Tonnage Curves

Grade-tonnage curves provide an indication of average grade and tonnage sensitivity to various cut-off grades based on the existing block model and constraining parameters. True increase or reduction of the cut-off grades could alter the limits of the vein model, which would have an influence on the volume and tonnage of material available to the model resulting in different grade-tonnage plots than those shown in the following figures.

Grade-tonnage plots are included in Figure 14-36 to Figure 14-42 for the Babicanora Main Vein, Shoot 51 in isolation, Babicanora Norte, Babicanora Sur, Babicanora FW, Babicanora HW, and for the entire Las Chispas Area block model, including Las Chispas, William Tell, Giovanni, Giovanni Mini, La Blanquita and Luigi

**Figure 14-36: Grade-tonnage Plot for the Babicanora Main Vein**

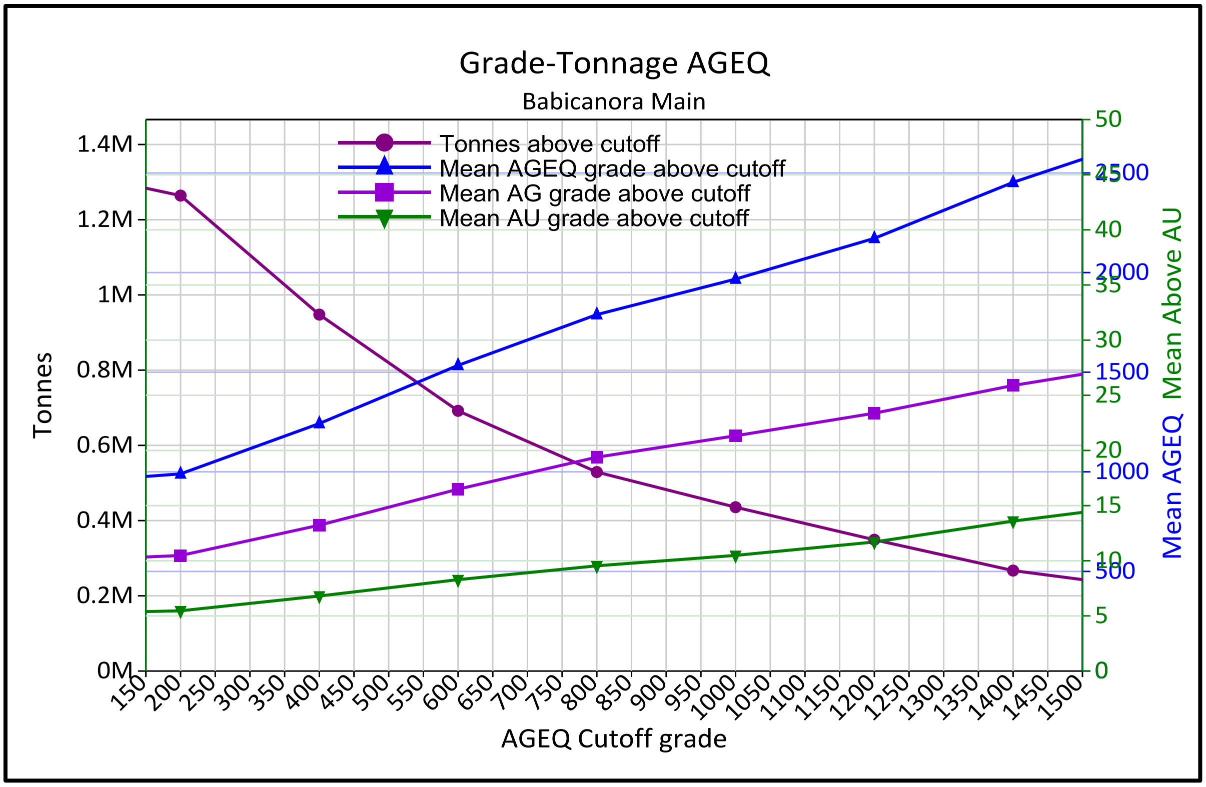



**Figure 14-37: Grade-tonnage Plot for Shoot 51 within the Babicanora Vein**

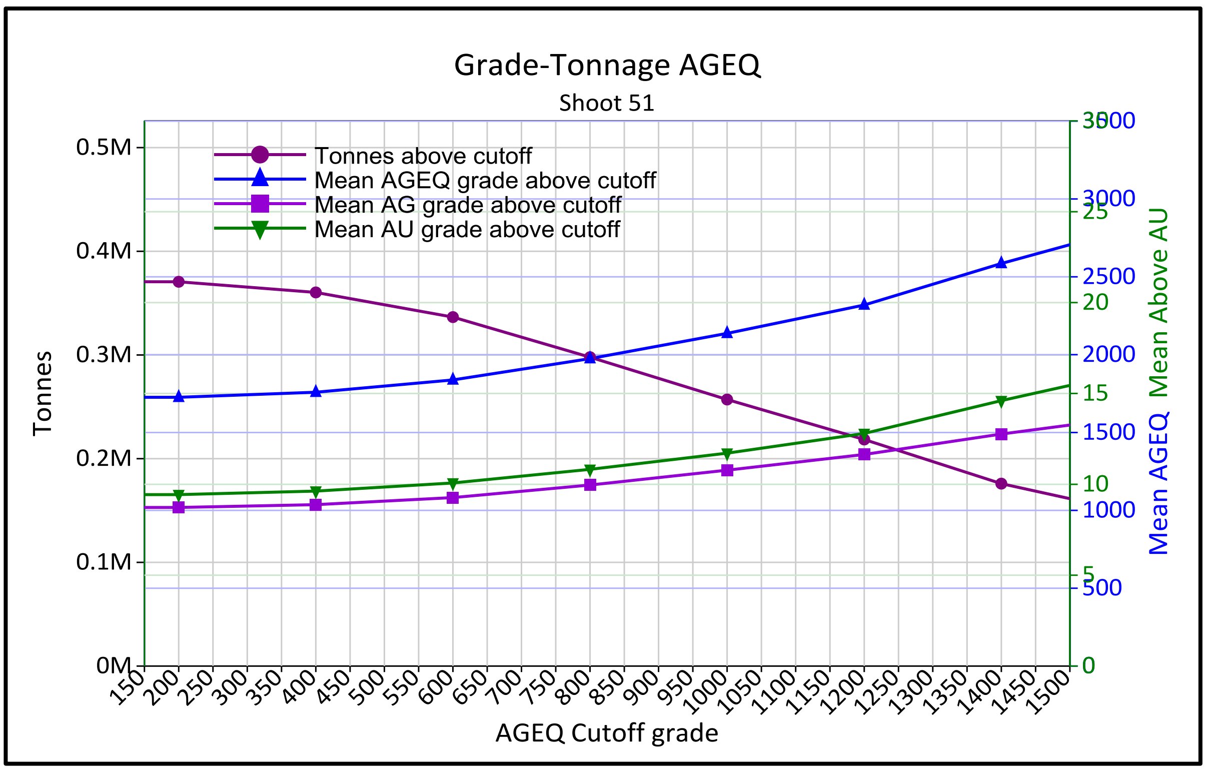


**Figure 14-38: Grade-tonnage Plot for Babicanora Norte**

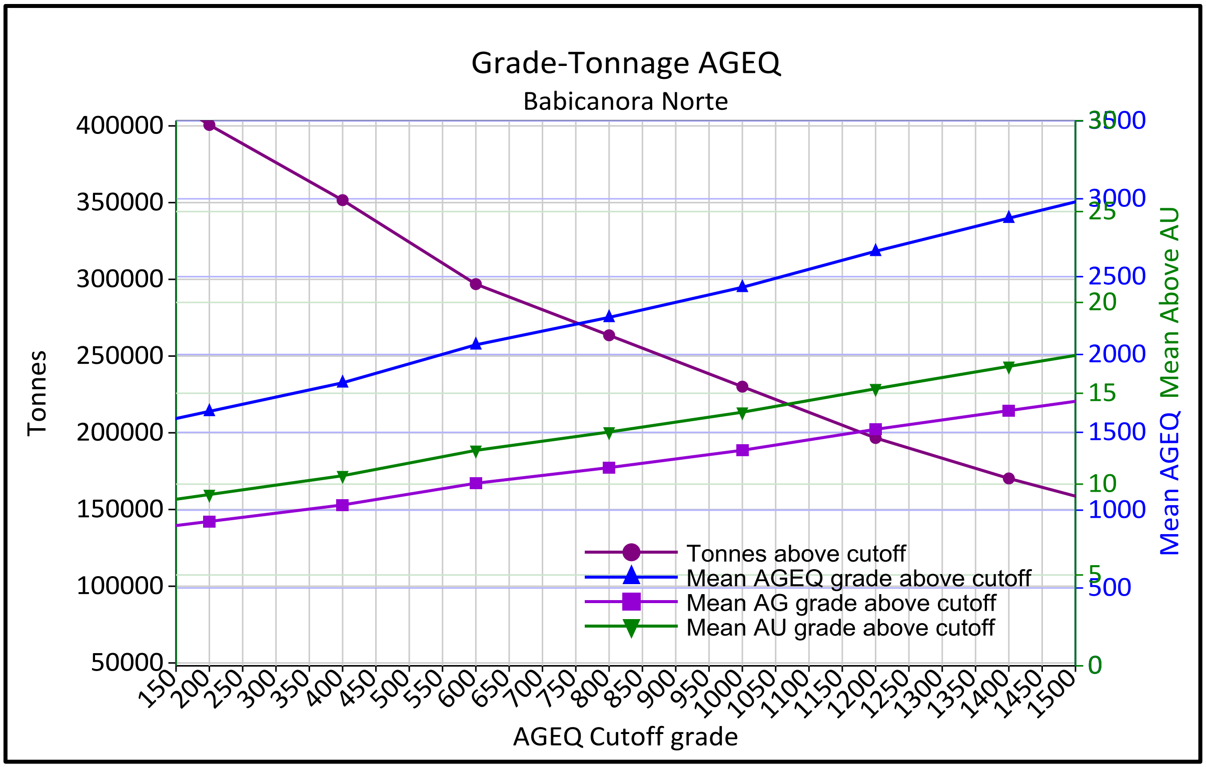



**Figure 14-39: Grade-tonnage Plot for Babicanora Sur**

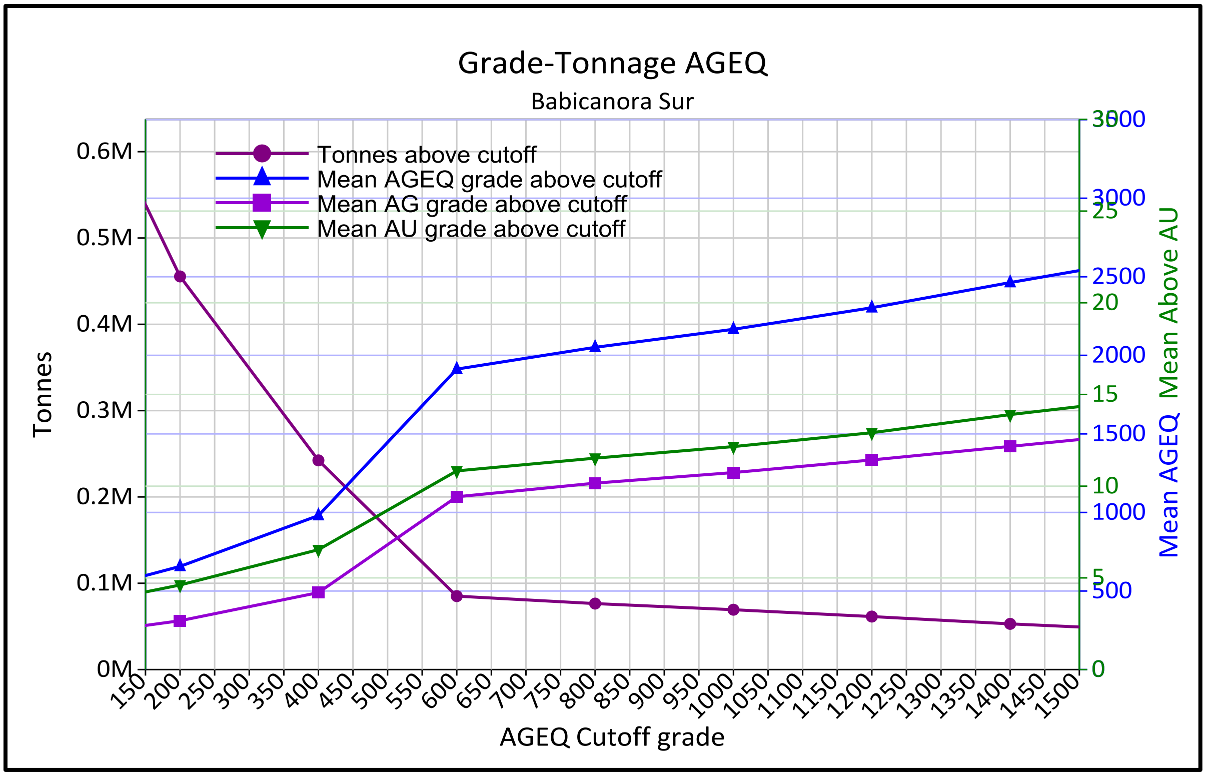


**Figure 14-40: Grade-tonnage Plot for Babicanora Foot wall Vein**

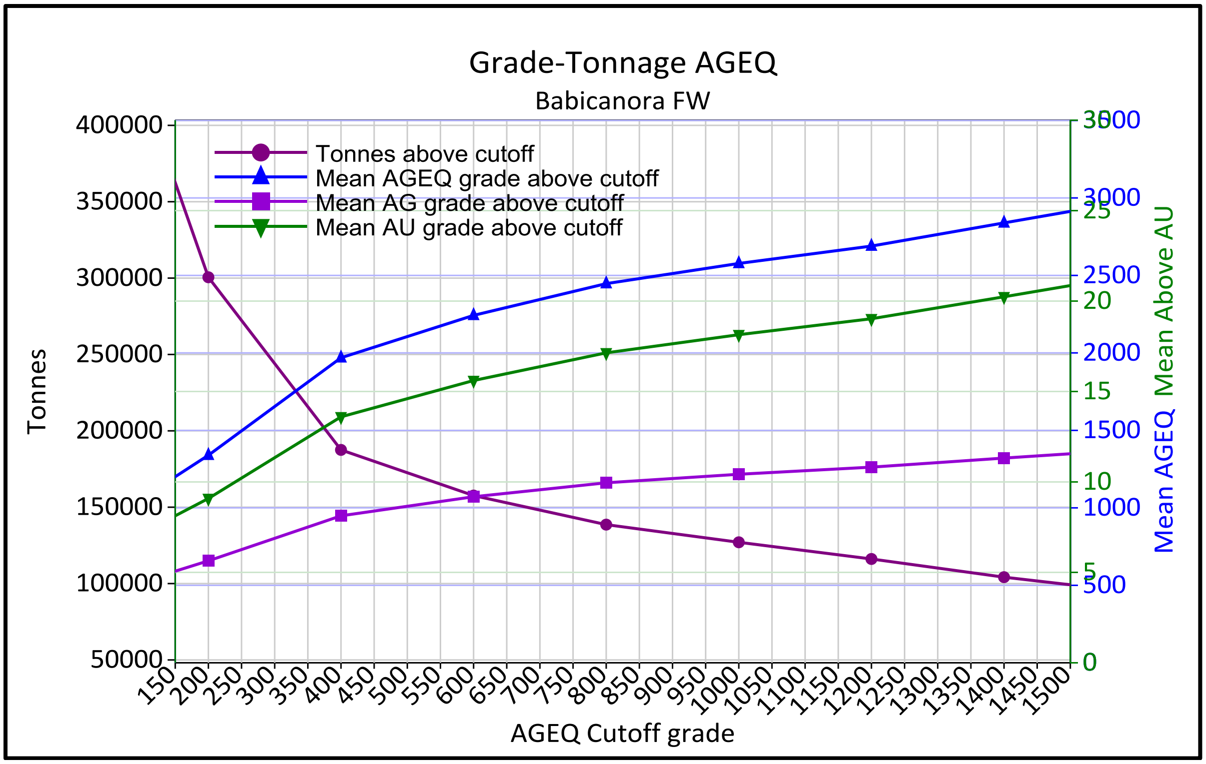



**Figure 14-41: Grade-tonnage Plot for Babicanora HW Vein**

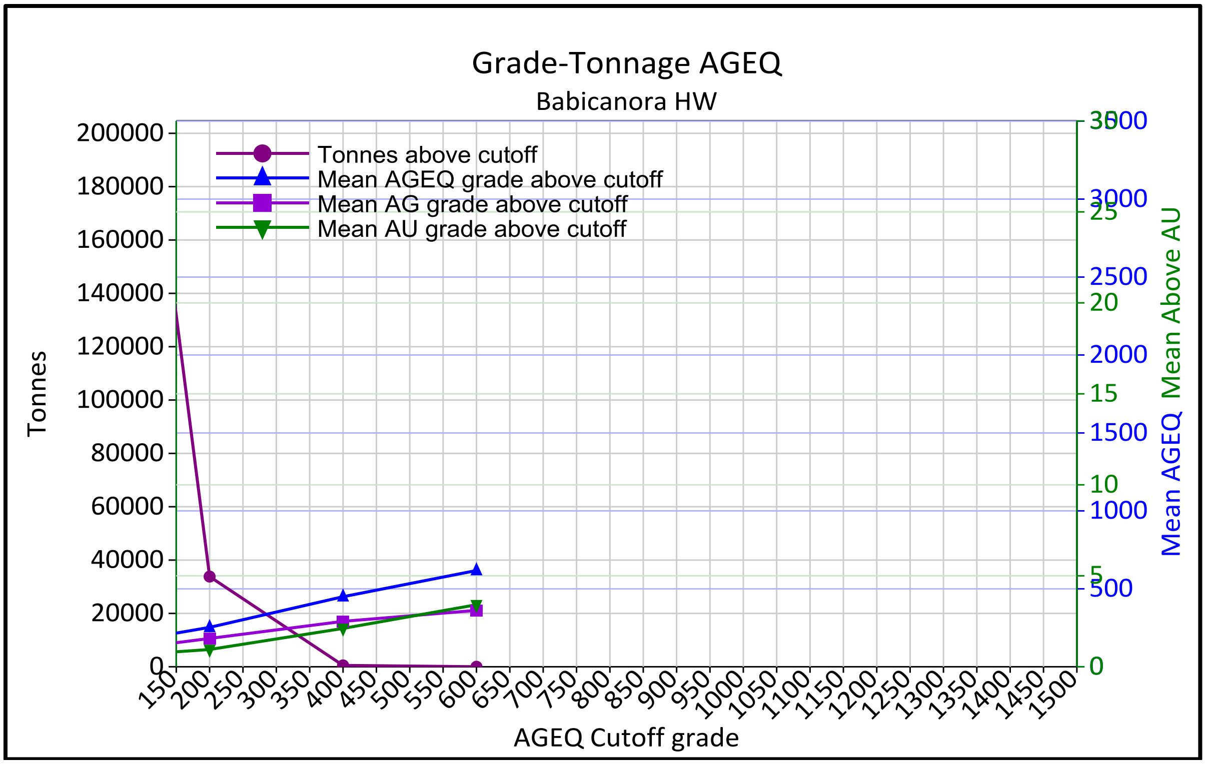
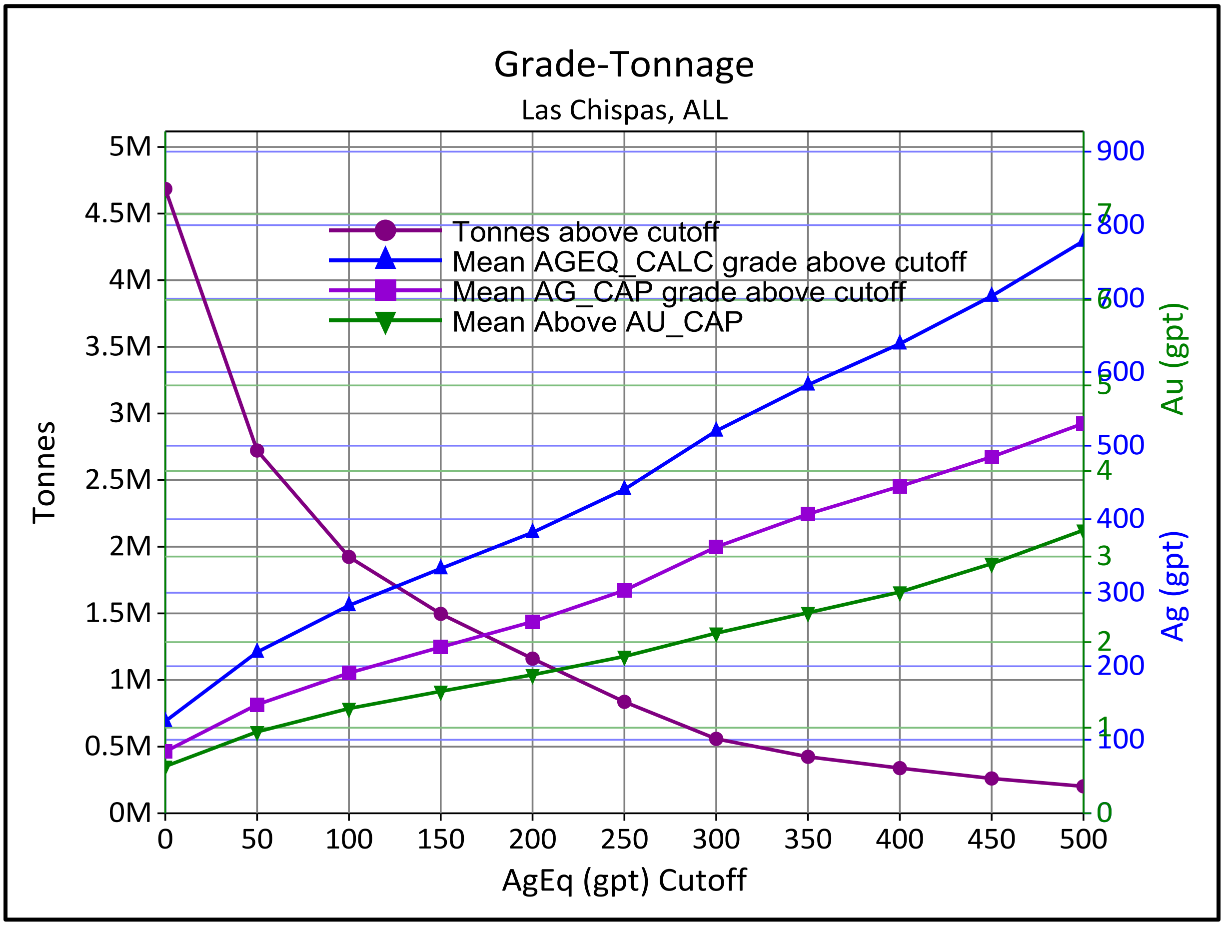


**Figure 14-42: Grade-tonnage Plots for the Las Chispas Area (Las Chispas, William Tell, Luigi, Giovanni, Giovanni Mini, La Blanquita)**



# 15.0 MINERAL RESERVE ESTIMATES

No Mineral Reserves have been calculated for the Las Chispas Project.

# 16.0 MINING METHODS

The Mining QP completed a mine plan for the Las Chispas Property based on Indicated and Inferred Mineral Resources. The Mineral Resource model on which the mine plan is summarized was originally filed on the 14th of May 2019 (Section 14.0). The Mineral Resource model was provided to the Mining QP in the form of a block model and was the basis on which the mine plan was completed. The block model was merged to create three distinct areas that were evaluated: the Babicanora Area, the Las Chispas Area, and the Granaditas Vein.

The Babicanora Area consists of the Babicanora Vein (including Area 51), the Babicanora Norte Vein, the Babicanora FW Vein, the Babicanora HW Veins, the Babicanora Central Vein, and the Babicanora Sur Vein.

The Las Chispas Area includes the Las Chispas Vein, the La Blanquita Vein, the Giovanni Vein, the Giovanni Mini Vein, the Luigi Vein, and the William Tell Vein.

The block models for these areas are constrained by “vein” wireframes. Material within the vein wireframes contains silver and gold and is considered Mineral Resource if above 150 gpt AgEq. Material within the wireframes with grade below 150 gpt AgEq is considered low-grade dilution. Material outside the vein is considered waste and is assumed to have a grade of zero for the purposes of completing the PEA.

## 16.1 Mining Method Selection

After a review of vein shapes and widths, as well as a visual assessment of rock conditions during a site visit to Las Chispas, the Mining QP concluded the following regarding potential mining conditions at the Las Chispas Property:

- Vein widths at Las Chispas are generally narrow (Mineral Resources were modelled to a minimum of 1.5 m with the exception of Babicanora Norte, which was modelled to a minimum of 0.5 m). True widths may be narrower.
- The rock quality is generally competent. Large unsupported areas, roughly 11 km of underground workings (spans of at least 30 m), from historic mining remain open with little evidence of instability.
- The dip of the veins are generally steep ranging from 55° to vertical.
- In some areas, multiple veins run sub-parallel or intersect.

### 16.1.1 Minimum Mining Width

The Las Chispas Property consists of narrow vein deposits. Emphasis was placed on selecting a mining method that could deliver minimal dilution and maximum recovery under narrow mining conditions. Table 16-1 shows the average vein widths encountered in the Babicanora Area.

Similarly, the Las Chispas Area vein network shows a similar trend with narrow veins, on average (Table 16-2).

The Granaditas Vein has an average thickness of 1.5 m.

### Table 16-1: Babicanora Area Vein Widths

| Vein | Average Vein Width (m) |
|---|---|
| Babicanora Main | 3.05 |
| Babicanora Shoot 51 | 3.25 |
| Babicanora FW | 1.74 |
| Babicanora HW | 0.86 |
| Babicanora Norte (BAN) | 0.74 |
| Babicanora Norte 2 (BAN2) | 0.93 |
| Babicanora Sur (BAS) | 1.47 |

### Table 16-2: Las Chispas Area Vein Widths

| Vein | Average Vein Width (m) |
|---|---|
| La Blanquita | 1.60 |
| Las Chispas | 2.10 |
| Giovanni | 1.96 |
| Giovanni Mini | 3.60 |
| William Tell | 3.40 |
| Granaditas | 1.50 |

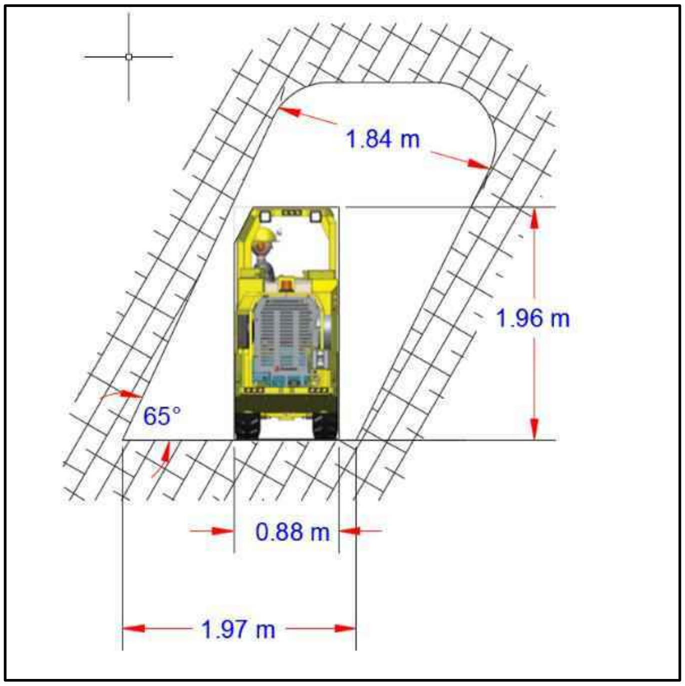
Assuming the use of mechanized cut and fill mining, the Mining QP evaluated the minimum mining widths for mechanized entry of stopes, using the narrowest mining equipment selected for the PEA, which is the ARAMINE LI10E loader with a width of 0.88 m. The minimum mining width for Las Chispas was determined to be 2 m, after applying a dip of 65°. As the dip steepens, the minimum mining width can be reduced; however, for the purposes of the PEA, no mining widths less than 2 m were considered (Figure 16-1).

Based on the nature of the mineralization, four different mining methods were reviewed for mining operations:

- Sublevel stoping;
- Bench mining;
- Mechanized cut-and-fill mining; and
- Cut-and-fill with resue mining.

The four mining methods are described in the following subsections. After analysis and review, mechanized cut-and-fill, and resue mining were selected for Las Chispas PEA.

**Figure 16-1: Minimum Mining Width Using ARAMINE LI10E Loader (at a 65° Vein Dip)**




### 16.1.2 Narrow Vein Sublevel Stoping

The Mining QP considered sublevel stoping with 15 m sublevel spacings. The sublevel could be accessed from a ramp system or from access raises as shown in the Mining QP's proposed concept for sublevel stoping in Figure 16-2. The concept includes leaving rib pillars on 30 m centers and sill pillars on 45 m centers and ring drilling 12 to 15 m long holes. Mucking will be done at the base of the stope using remote controlled mechanized equipment.

The Mining QP proposed the use of sublevel stoping at Las Chispas; however, SilverCrest and the Mining QP later agreed that in the absence of further rock mechanics work and the expectation of mostly narrow veins, only mechanized cut-and-fill (with and without resuing) should be considered for the PEA. Sublevel stoping has the potential to mine wider areas with competent hanging wall and footwall rock at Las Chispas.

Various configurations should be considered as better rock mechanics information is generated.

### 16.1.3 Bench Mining

The Mining QP conducted a brief review of using bench mining at Las Chispas and found that it has the potential to both reduce costs and increase productivity from narrow areas. A sketch of the bench mining method is shown in Figure 16-3.

This method includes the use of backfill and long holes (4 m). Drives will be driven along the mineralization at 7 m vertical slices. Sub-vertical holes will be drilled between the sublevels, blasting out a 4 m bench in retreat. Subsequently, the mined-out space will be backfilled to create a floor to mine out the next 7 m lift above in a similar fashion.

This method was not selected for the PEA since insufficient geotechnical work has been completed to understand stable stope spans. This method will potentially have higher unsupported spans during mining than cut-and-fill. Various configurations will be considered when geomechanics are better understood.

### 16.1.4 Mechanized Cut-and-fill Mining

Mechanized cut-and-fill mining considered for the PEA is shown in Figure 16-4.

Stopes will be mined, using levels spaced vertically every 15 m and backfilled in lifts as mining progresses. The base of the stope will be accessed via a pivot ramp. The first cut at the base of the stope will be developed by breasting out to the stope limits and subsequent cuts will be completed using drilling and blasting uppers in 2 m lifts. After each 2 m lift is complete the stope will be backfilled to provide access to the next 2 m lift.

Backfill could include waste rock or conventional tailings. For the PEA, it was assumed that a combination of waste rock and tailings will be used. Cement will be added to the waste rock or tailings backfill, depending on the mining sequence, which could include:

- Mining adjacent to the backfilled material (binder required);
- Undercutting backfilled areas (binder required, high strength);
- Bottom up filling (no binder required); and
- Capping of backfill to create a working surface (binder required).

As needed, the backfill will be capped with a layer containing higher cement content to allow for improved trafficability and to reduce re-mucking of backfill with subsequent mucking of lifts. In practice, mucking above placed backfill typically results in some over-excavation of backfilled material, mixed with mineralized material. As such the Mining QP has added 5% dilution from backfill material.

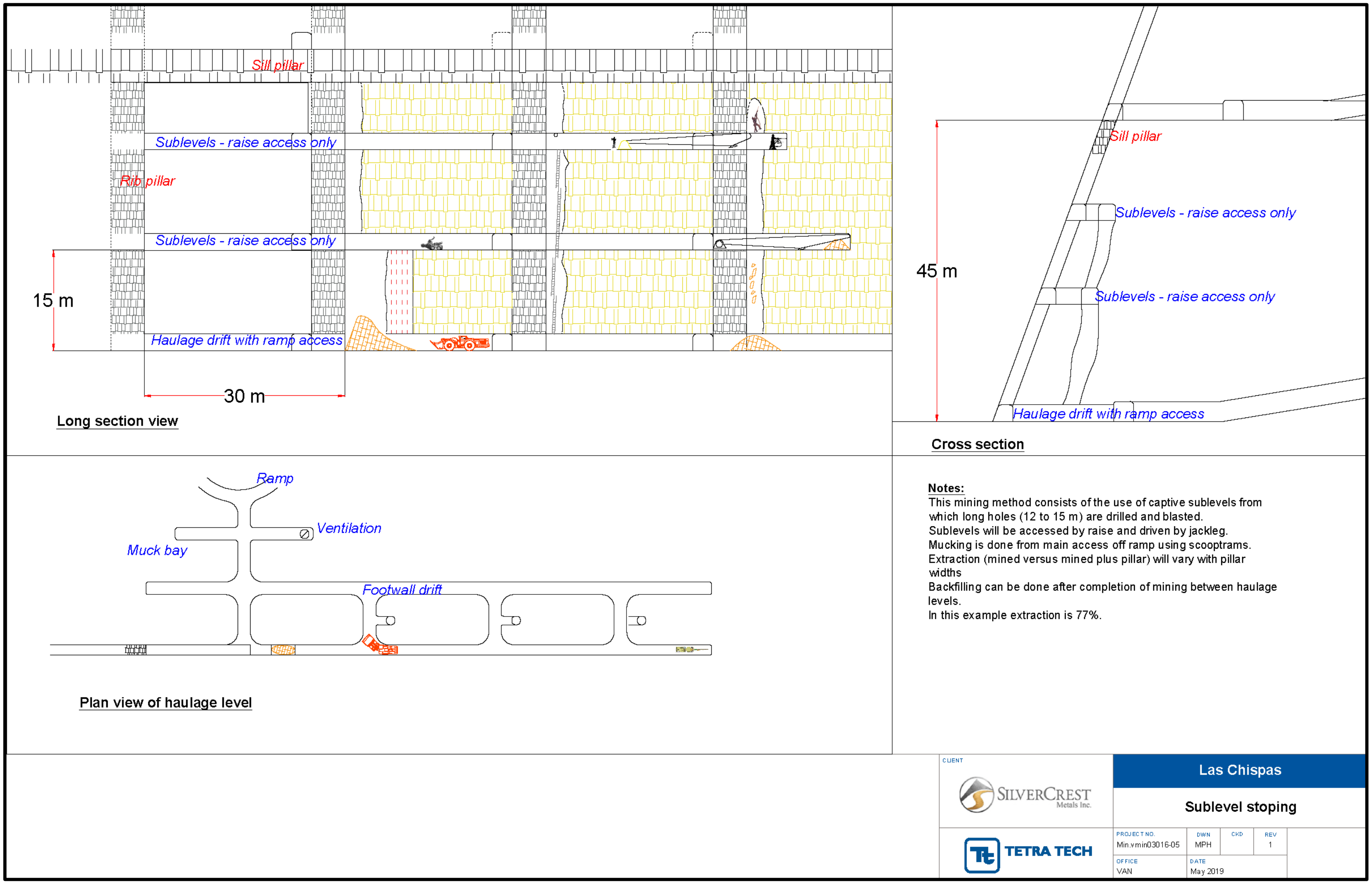
### 16.1.5 Cut-and-fill Mining with Resue

Cut-and-fill with resue mining is included in the PEA for narrow vein areas where mining at a minimum mining width of 2 m will result in excessive dilution (Figure 16-5). The layout of stopes and access will be the same as mechanized cut-and-fill; the difference will primarily be the use of split blasting with the intent of separately blasting waste rock required to create an adequate working width for mining. In the case of Las Chispas, it is estimated that mining could be as narrow as 0.8 m. Waste rock blasted from the hanging wall or footwall to widen the stope for mechanized entry (as far as is practical) will be left in the stope to provide fill material for the subsequent lift. Figure 16-5 shows the use of narrow vein equipment selected for the PEA. Manual methods using jackleg or stoper drills are also possible. Mucking will be carried out using narrow vein equipment with an equipment width of 1 m or less, operating in a minimum 2 m wide area.

Similar mining methods have been used at the following operations:

- Yamana Gold, El Penon Mine, Antofagasta, Chile;
- Great Panther Silver, Topia Mine, Durango State, Mexico;
- Endeavour Silver, El Cubo Mine, Guanajuato State, Mexico;
- Ouray Silver Mines, Oray Silver Mine Project, Colorado, USA; and
- Karebe Gold Mining, KGML Mines, Kenya.

**Figure 16-2: Proposed Narrow Vein Sublevel Stoping Method**



## Figure 16-3: Proposed Bench Mining Method

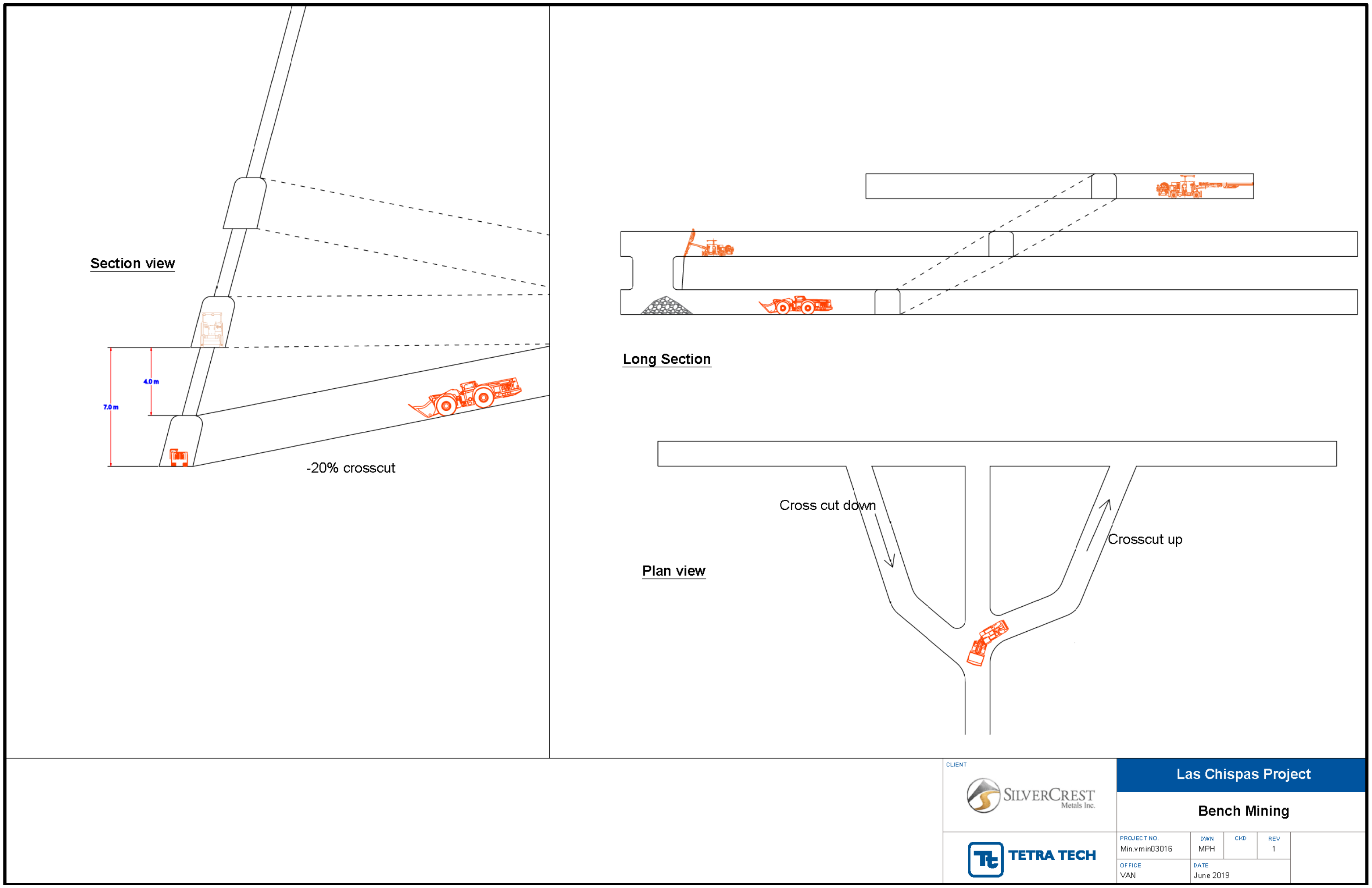


**Figure 16-4: Mechanized Cut-and-fill Mining Method**

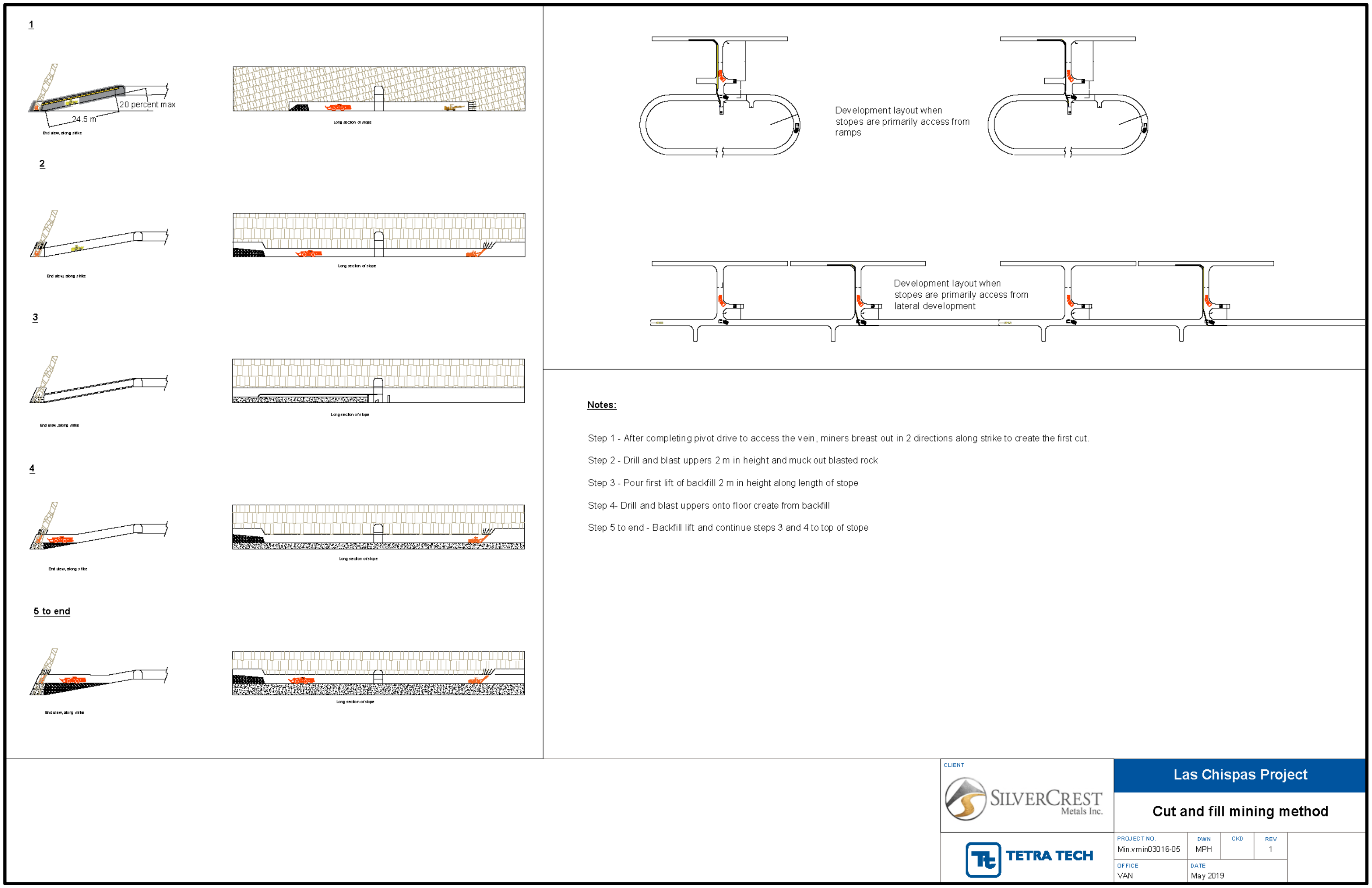
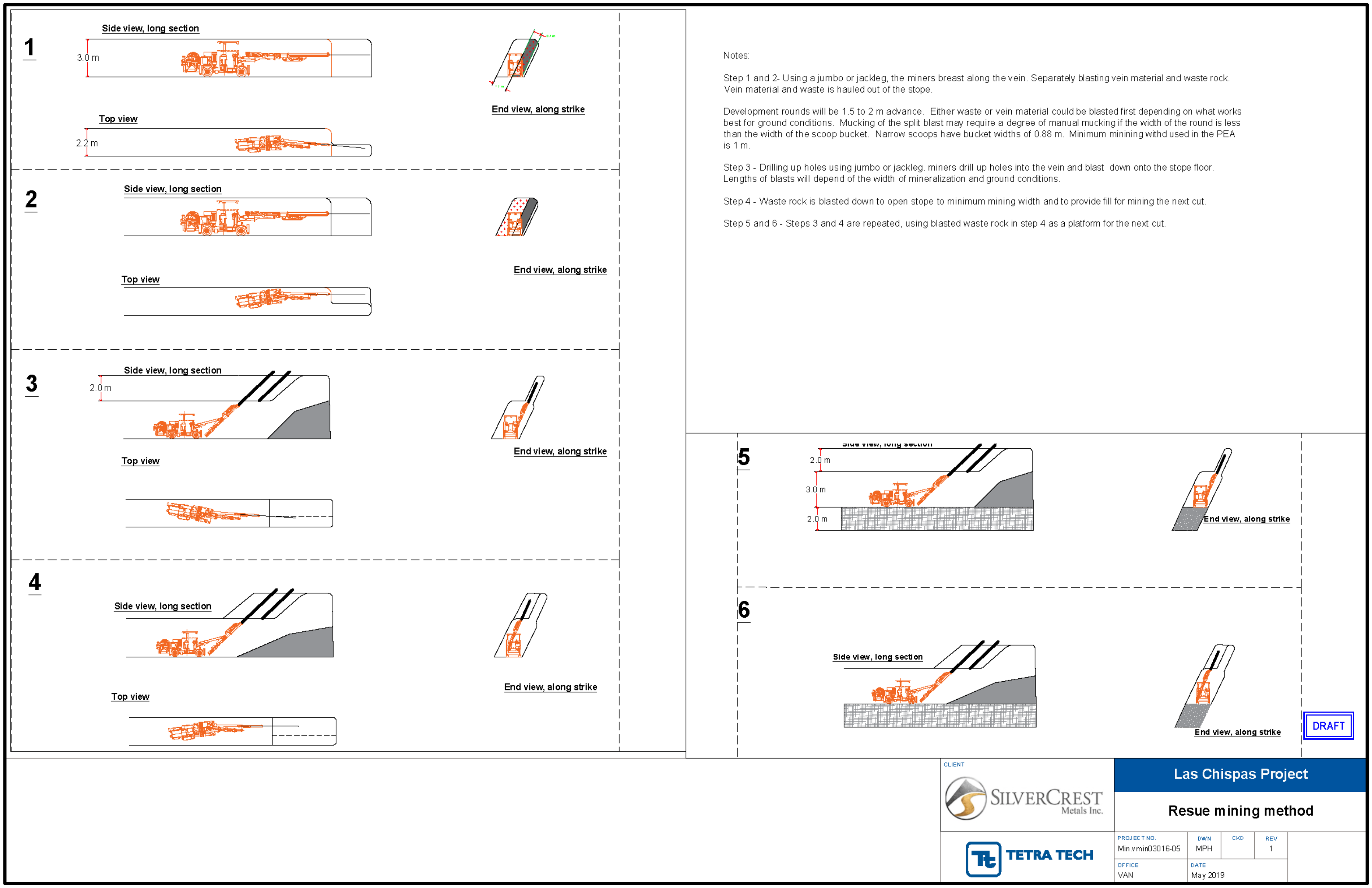


**Figure 16-5: Cut-and-fill With Resue Mining Method**



## 16.2 Geotechnical

A comprehensive geotechnical study has not yet been completed for underground mining at Las Chispas. The Mining QP did a cursory review of rock conditions during a site visit and also reviewed information on historic mining at Las Chispas.

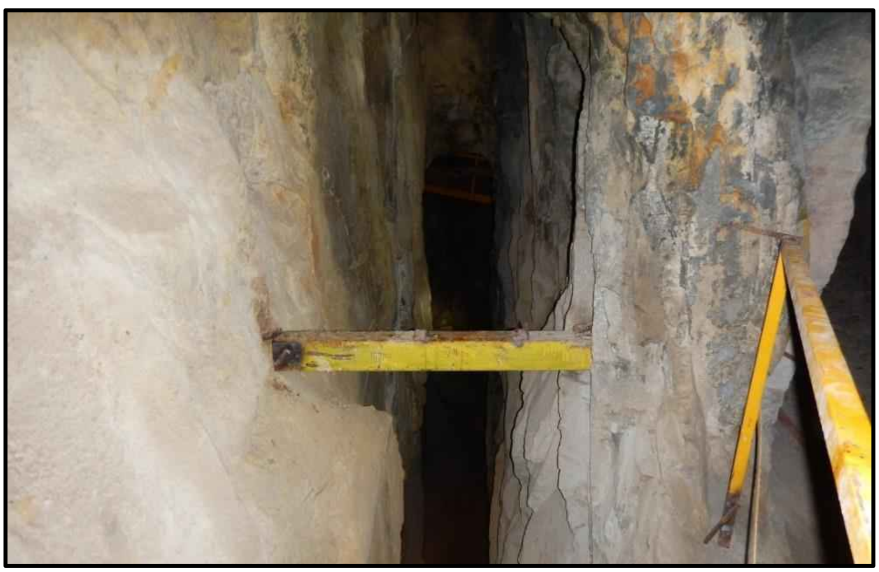
### 16.2.1 Las Chispas Underground Site Visit

During the site visit, the Mining QP made a number of observations regarding rock conditions in the Las Chispas historic workings:

- Large historical (opened for over 100 years) underground voids at Las Chispas appeared to be stable as there was a little to no evidence of instability or rock falls in the areas visited;
- Rock support in the form of rock anchors were not present in any of the areas visited;
- Some localized instability resulted in a rock fall in the Babicanora Central adit;
- Rock conditions appeared largely favorable to mining; and
- Mineralized zones tended to be associated with increased joint frequency.

Photo 16-1 shows a typical mined-out area in the Las Chispas Vein that shows little to no evidence of deterioration since historic mining took pace.

**Photo 16-1: Historic Mined-out Area Showing Stable Ground Conditions**



### 16.2.2 Exploration Core and Rock Quality Designation Review

The Mining QP visually reviewed exploration core during the site visit and noted that the host rock is generally competent with rock quality designations (RQDs) ranging from 60 to 90. The mineralized zones were observed to be weaker in some places, with areas of poor core recovery and low RQDs (Photo 16-2).

**Photo 16-2: Core Box Showing Good Host Rock with Less Competent Rock Within the Mineralized Zone**

### 16.2.3 Historic Mining Shapes Review

The Mining QP also reviewed historic mining shapes to understand the hydraulic radii of existing underground voids at Las Chispas. This review showed that existing excavations had hydraulic radii between 4.07 and 10.79. This provides some indication that hydraulic radii of 8 m provide a reasonable baseline for the purposes of the PEA (Table 16-3).

**Table 16-3: Hydraulic Radii**

| Historic Mining Shapes | Hydraulic Radii (m) |
|---|---|
| Stope1 | 10.79 |
| Stope2 | 9.93 |
| Stope3 | 7.05 |
| Stope4 | 4.07 |
| Stope5 | 9.53 |
| Stope6 | 6.83 |
| Stope7 | 7.82 |

## 16.3 Stope Design

The Mining QP utilized both Datamine's MSO and Deswik.SO (Stope Optimizer) software to generate potential mining stopes for the Las Chispas, Granaditas, and Babicanora areas.

A summary of the conversion of resources to the mine plan is included in Table 16-4. In summary, 2.8 Mt of Indicated and Inferred Mineral Resources were advanced to the mine plan. To this, low-grade dilution, waste dilution, and backfill dilution were added. Mine planning losses were applied two ways: some material was excluded from stope shapes due to the regularity of stopes shapes and further losses were applied as mine operating losses. This resulted in a total of 3.7 Mt of mill feed included in the mine schedule and financial model from underground mining with an additional 174,500 t of material included from existing surface stockpiles.

**Table 16-4: Summary of Current Resources Advanced to the Mine Plan, and Summary of Dilution and Mining Losses**

| | Current Inferred Resources | | | Current Indicated Resources | | | Total Resources | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Tonnes | Au oz | Ag oz | Tonnes | Au oz | Ag oz | Tonnes | Au oz | Ag oz | Ag Eq oz |
| Babicanora Central | 219,617 | 44,272 | 2,391,527 | 179,834 | 18,433 | 2,196,345 | 399,451 | 62,705 | 4,587,871 | 9,290,783 |
| Babicanora FW | 53,854 | 14,391 | 1,250,551 | 85,659 | 33,503 | 2,938,254 | 139,514 | 47,894 | 4,188,805 | 7,780,869 |
| Babicanora Main | 328,754 | 70,270 | 8,340,247 | 442,409 | 115,623 | 11,707,585 | 771,164 | 185,893 | 20,047,833 | 33,989,782 |
| Babicanora Norte | 170,410 | 60,233 | 5,712,316 | 108,598 | 46,254 | 4,754,571 | 279,008 | 106,487 | 10,466,887 | 18,453,396 |
| Babicanora Sur | 214,245 | 46,142 | 3,539,491 | - | - | - | 214,245 | 46,142 | 3,539,491 | 7,000,168 |
| Granaditas | 34,078 | 3,933 | 408,844 | - | - | - | 34,078 | 3,933 | 408,844 | 703,822 |
| Giovanni | 390,074 | 21,858 | 3,379,907 | - | - | - | 390,074 | 21,858 | 3,379,907 | 5,019,283 |
| Las Chispas | 74,347 | 8,383 | 1,129,582 | - | - | - | 74,347 | 8,383 | 1,129,582 | 1,758,301 |
| La Blanquita | 83,965 | 3,175 | 685,534 | - | - | - | 83,965 | 3,175 | 685,534 | 923,639 |
| William Tell | 392,019 | 16,670 | 2,685,642 | - | - | - | 392,019 | 16,670 | 2,685,642 | 3,935,859 |
| Total Underground Current Resources Included in Mine Plan | 1,961,364 | 289,327 | 29,523,641 | 816,501 | 213,814 | 21,596,755 | 2,777,865 | 503,140 | 51,120,397 | 88,855,902 |
| Low-grade Dilution | | | | | | | 129,683 | 1,363 | 243,305 | 345,497 |
| Zero-grade Waste Dilution | | | | | | | 674,760 | - | - | - |
| Backfill Dilution | | | | | | | 179,115 | - | - | - |
| Operating Losses (Excluding Losses from Stope Shapes) | | | | | | | (75,228) | (10,090) | (1,027,274) | (1,784,028) |
| Total Underground Mill Feed Included in the PEA | | | | | | | 3,686,195 | 494,413 | 50,336,428 | 87,417,371 |
| Surface Stockpiles | | | | | | | 174,500 | 7,742 | 667,626 | 1,248,293 |
| Total Mill Feed | | | | | | | 3,860,695 | 502,155 | 51,004,054 | 88,665,664 |



TETRA TECH

### 16.3.1 Las Chispas Area

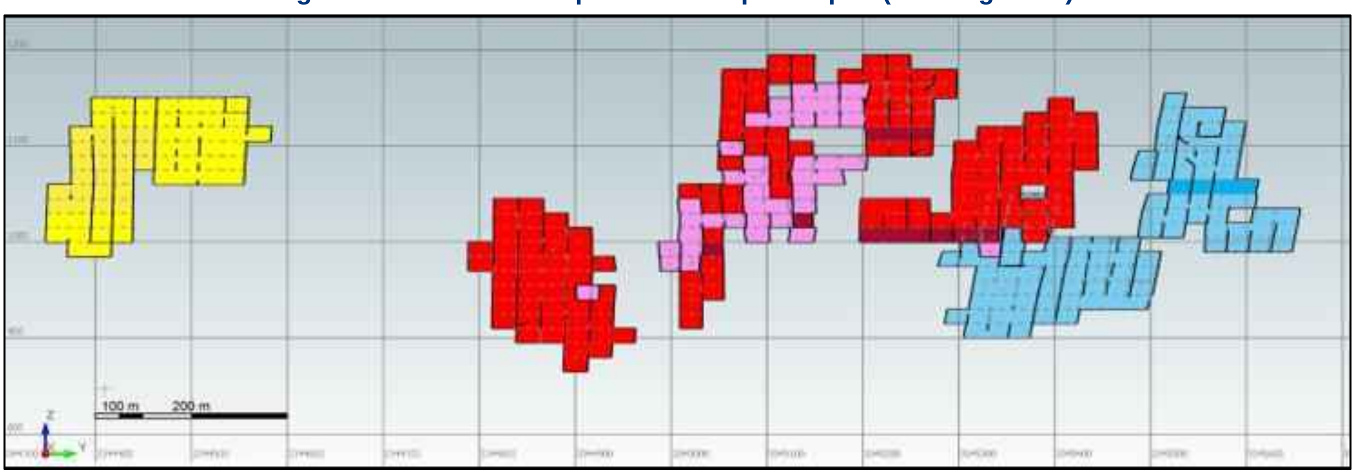
The initial design process involved using Datamine's MSO software to generate 5 m stope blocks along strike and 15 m high. These 5 m stope blocks were then combined into 25-meter long stopes to minimize the number of stopes generated. The mining method and first principles for operating costs were estimated envisioning cut and fill stopes that were 100 m in length along strike. As such, the 25 m stopes were joined together to create final 100 m long stopes. This exercise was completed by importing the 25 m stopes generated by MSO into GEOVIA GEMS™. The stopes were then relabeled with a naming convention that included the vein name, stope elevation, and sequence number.

Table 16-5 shows the MSO software stoping input parameters and Figure 16-6 shows the final stope shapes for the Las Chispas Area.

**Table 16-5: MSO Software Stoping Parameters**

| Stoping Parameter | Value for Veins >1.5 m Wide (m) | Value for Veins <1.5 m Wide (m) |
|---|---|---|
| Minimum Mining Width (Including Dilution from HW and FW) | 2.00 | 0.80 |
| Vertical Level Interval | 15.00 | 15.00 |
| Section Length | 5.00 | 5.00 |
| HW Dilution | 0.25 | 0.15 |
| FW Dilution | 0.25 | 0.15 |
| Pillar Between Parallel Veins | 3.00 | 3.00 |

**Figure 16-6: Las Chispas Final Stope Shapes (Looking West)**

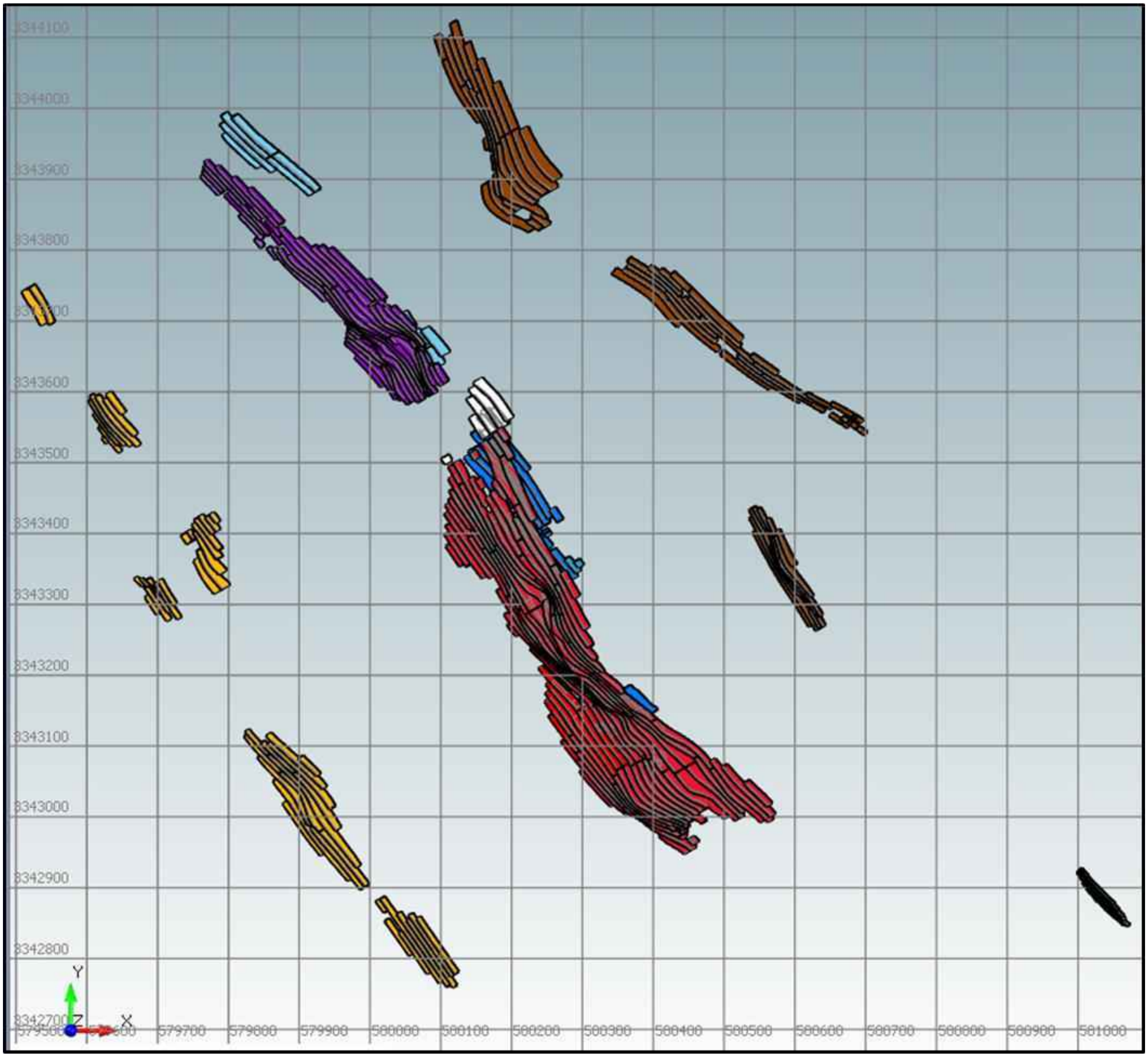



Notes: yellow - La Blanquita; red – Giovanni; pink – Las Chispas; light blue – William Tell

### 16.3.2 Babicanora Area and Granaditas Vein

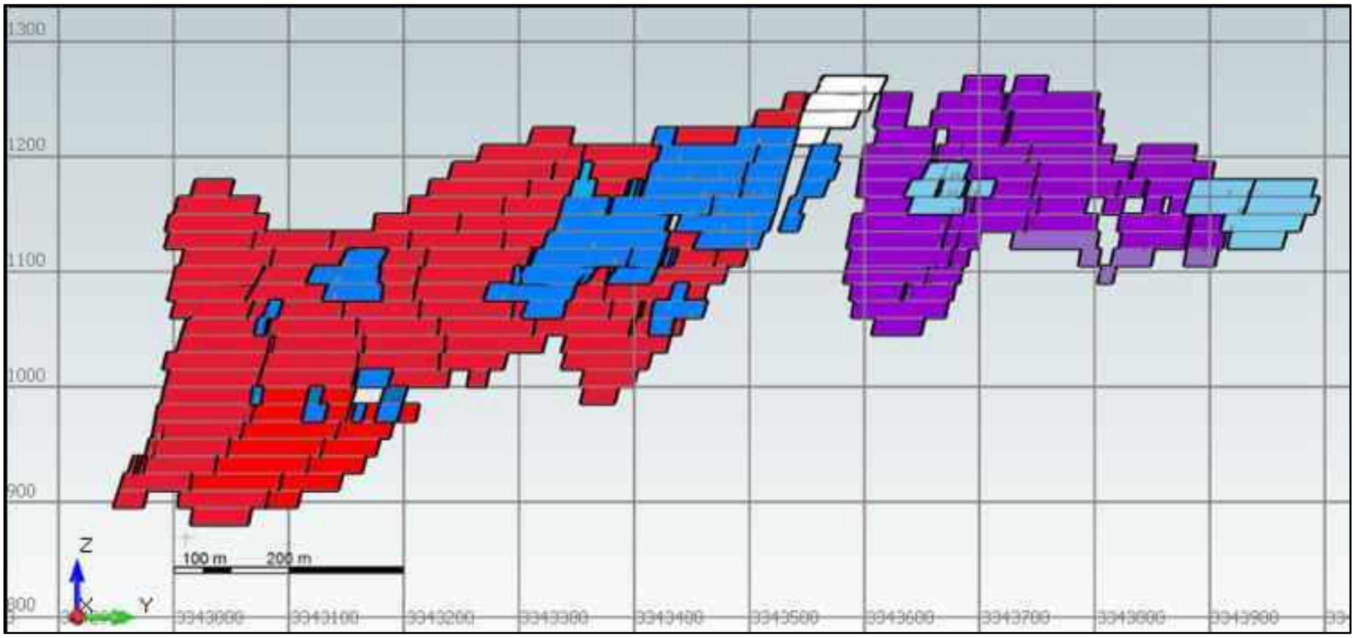
The design process for Babicanora and Granaditas involved using Deswik.SO software to generate 5-meter-long and 15-meter high stope blocks. These 5-meter stope blocks were then combined into 100-meter stopes in length along strike. This exercise was completed within the Deswik software and no post processing was required after importing into Geovia GEMS$^{TM}$. See Figure 16-7, Figure 16-8, Figure 16-9, and Figure 16-10 for final stope shapes for Babicanora and Granaditas finalized stope shapes.

**Figure 16-7: Babicanora Final Stopes (Plan View)**



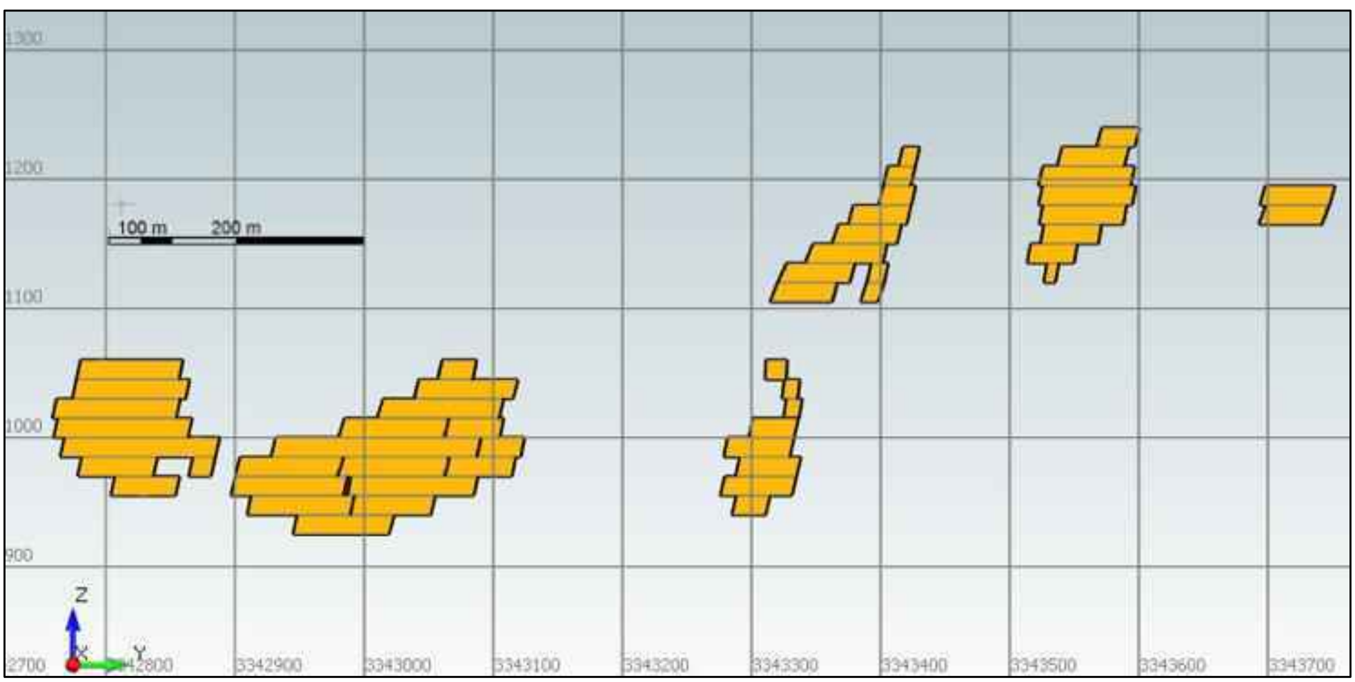

Notes: Red – Babicanora Main (inclusive of Area 51); white – silica rib; purple – Babicanora Central; light/dark blue – Babicanora FW (Babicanora Central side); yellow – Babicanora Sur; brown – Babicanora Norte; green – Granaditas (bottom right of image)

**Figure 16-8: Babicanora Main (including Area 51), Babicanora FW, Silica Rib, Babicanora Central Final Stopes (Long Section View) (Looking Southwest)**



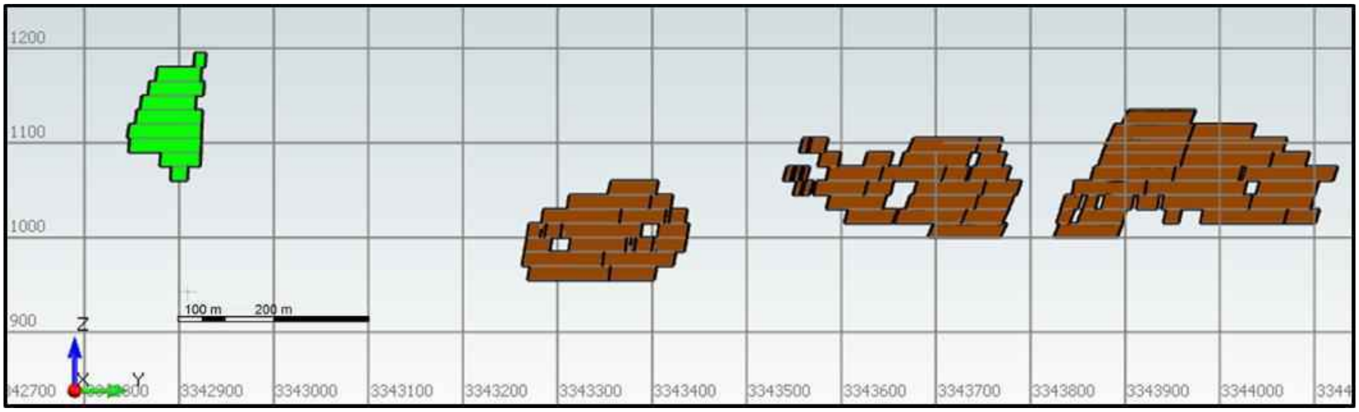

Notes: Red – Babicanora Main (inclusive of Area 51); white – silica rib; purple – Babicanora Central; light/dark blue – Babicanora FW (Babicanora Central side)

**Figure 16-9: Babicanora Sur Final Stopes (Long Section View) (Looking Southwest)**




Notes: Yellow – Babicanora Sur

**Figure 16-10: Granaditas and Babicanora Norte Final Stopes (Long Section View) (Looking Southwest)**




Notes: Brown – Babicanora Norte; green – Granaditas (top left of image)

### 16.3.3 Cut-off Grade Estimation

The Mining QP developed a detailed cost spreadsheet to understand the cut-off grades at varying vein widths. Due to the complexity of the Las Chispas Project (multiple veins with varying widths), a single project-wide cut-off grade could not be used. Substantial productivity differences by vein resulted in different mining costs and, as a result, the cut-off grades. This was significant enough to warrant the use of different cut-off grades for each vein based on vein widths.

The Mining QP developed a cost model based on various mining widths. This took into consideration resue mining for veins that were 1.25 m or narrower and a conventional mechanized cut-and-fill method for all veins above this 1.25 m threshold. The costs were developed using increments of 0.25 m for vein width (Table 16-6).

For stope delineation, the marginal cut-off grade was applied. This approach considered that the average grade for each mining area should pay for all costs associated with mining that area. Once those costs are paid, “sunk” costs are removed from the cut-off grade estimate. The costs removed are ramp and lateral development, which are not necessarily specific to a single stope, but are typically required to develop a series of stopes. The remaining costs establish the marginal cut-off grade for each stope mined to add positive cashflow to the mine plan.

The method used to generate the mine plan was to first estimate overall operating costs (including stope development costs), as well as estimating only costs that are applied to incremental material. The selection of material for the mine plan was this contingent on two factors:

- The overall revenue from each vein or isolated mining area must exceed all costs for mining the vein or isolated area.
- The grade of individual stopes must provide enough revenue to exceed the costs of mining each individual stope.

**Table 16-6: Operating Cost and Cut-off grades Estimated by Vein and Mining Width**

| Area | Units | Vein Width (m) | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0.50 | 0.75 | 1.00 | 1.25 | 1.50 | 1.75 | 2.00 | 2.25 | 2.50 | 2.75 | 3.00 | 3.25 | 3.50 | 3.75 | 4.00 | 4.25 | 4.50 | 4.75 | 5.00 |
| Mining Width | m | 2.20[(1)] | 2.20[(1)] | 2.20[(1)] | 2.20[(1)] | 2.20 | 2.25 | 2.50 | 2.75 | 3.00 | 3.25 | 3.50 | 3.75 | 4.00 | 4.25 | 4.50 | 4.75 | 5.00 | 5.25 | 5.50 |
| Dilution | % | 47 | 38 | 32 | 27 | 35 | 25 | 23 | 21 | 20 | 18 | 17 | 16 | 16 | 15 | 14 | 14 | 13 | 13 | 12 |
| Stope Development Cost | US$/t mill feed | 180 | 120 | 90 | 72 | 60 | 51 | 45 | 40 | 36 | 33 | 30 | 28 | 26 | 24 | 23 | 21 | 20 | 19 | 18 |
| Pivot Drift | US$/t mill feed | 8 | 6 | 5 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Total Development Cost | US$/t mill feed | 188 | 127 | 95 | 77 | 63 | 55 | 48 | 43 | 39 | 36 | 33 | 31 | 29 | 27 | 26 | 25 | 23 | 22 | 21 |
| Stoping | US$/t mill feed | 48 | 39 | 34 | 30 | 24 | 24 | 23 | 20 | 20 | 19 | 19 | 18 | 18 | 18 | 17 | 17 | 17 | 16 | 16 |
| Fixed Mining Cost | US$/t mill feed | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 |
| Contingency | US$/t mill feed | 13 | 9 | 7 | 6 | 5 | 5 | 4 | 4 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Total Mining Cost (excluding development) | US$/t mill feed | 75 | 63 | 56 | 51 | 43 | 43 | 42 | 38 | 38 | 37 | 36 | 36 | 35 | 35 | 34 | 34 | 34 | 33 | 33 |
| Total Mining Cost (including development) | US$/t mill feed | 263 | 189 | 151 | 127 | 107 | 98 | 90 | 82 | 77 | 73 | 70 | 67 | 64 | 62 | 60 | 58 | 57 | 56 | 54 |
| Process Cos | US$/t mill feed | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 |
| G&A Cost | US$/t mill feed | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Site Services Cost | US$/t mill feed | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 |
| Margin | US$/t mill feed | 31 | 12 | 10 | 9 | 8 | 7 | 7 | 6 | 6 | 6 | 6 | 6 | 6 | 5 | 5 | 5 | 5 | 5 | 5 |
| Total Operating Cost | US$/t mill feed | 340 | 247 | 207 | 182 | 161 | 151 | 143 | 134 | 130 | 125 | 122 | 119 | 116 | 114 | 112 | 110 | 108 | 107 | 106 |
| AgEq Grade to Break Even (COG) | gpt | 772 | 561 | 470 | 413 | 365 | 343 | 325 | 305 | 294 | 284 | 277 | 270 | 263 | 258 | 254 | 249 | 246 | 243 | 240 |
| Operating Cost (excluding development) | US$/t mill feed | 160 | 127 | 117 | 110 | 101 | 100 | 98 | 94 | 94 | 93 | 92 | 91 | 90 | 90 | 89 | 89 | 88 | 88 | 88 |
| AgEq Grade for Marginal COG | gpt | 363 | 289 | 266 | 250 | 229 | 226 | 223 | 214 | 212 | 210 | 208 | 207 | 205 | 204 | 203 | 201 | 200 | 200 | 199 |

Note: [(1)]Resue mining was considered at these vein widths. The minimum mining width applied to the cost estimate was 2.2 m. However, resue mining includes the separate blasting of mineralized material from waste.

As such, the steps in the cut-off grade estimation and ultimately the selection of mineralized material to advance to the mine plan include the following steps (as shown in Figure 16-11).

1. Development of a cost model based on various vein widths – a first principles cost model was developed, including estimation of production cycle times, to best understand the mining costs in relation to vein and mining widths.
2. Determining break-even and marginal cut-off grades – the Mining QP used the cost model to understand both a break-even cut-off grade and a marginal cut-off grade. Break-even cut-off grades were used to understand the average grades of material selected for processing to enable revenues to exceed costs. Marginal cut-off grades were used to outline stopes using MSO software.
3. Creation of stope shapes – the stopes were outlined by applying the marginal cut-off grade. This enabled the inclusion of marginal stopes that will generate sufficient revenues to pay for mining and stoping but will rely on higher-grade stopes to pay for development costs. These stopes will be mined if they exist on fringes of high-grade areas or are surrounded by higher-grade stopes.
4. Development design and check on cash flows – Development design applied to the stope shapes allowed for a further step in evaluating the economic potential of stoping areas. The Mining QP re-evaluated the stoping areas to ensure that, in particular, isolated areas included in the mine plan generate positive cash flow. Areas that have stopes above cut-off grade, but having excessive development were eliminated from the mine plan if the overall cash flow from the area was negative. The results of the cash flow check undertaken on the Las Chispas area is shown Table 16-7. Based on this exercise the Luigi and Giovanni Mini veins were removed from the mine plan.
5. Cut-off grade optimization – The Mining QP also ran simplified economic models to evaluate the economic performance at various cut-off grades. his work was only done for the Las Chispas Area (Giovanni, Las Chispas, La Blanquita, Luigi, William Tell, and Giovanni Mini veins) and was completed prior to and after exclusion of areas with excessive development generating negative cash flows previously discussed. The model was set-up so that stopes below NSR cut-off grades could be excluded from the mine plan and the influence on economics evaluated. In the case of the Las Chispas Area, much of the development is fixed and is not a function of cut-off grade. As such, lower cut-off grades provide better economics since more revenue is generated against the fixed cost of development. Figure 16-12 shows the results of this work. The optimum cut-off grade was found to be US$80/t or an AgEq grade of 170 gpt. This work indicates that only marginal improvements were possible within a range of cut-off grades and that low cut-off grades were more favourable in the case of Las Chispas.

**Table 16-7: Results of Cash Flow to Evaluate the Inclusion of Resource Areas into the Mine Plan**

| | Tonnes | Au (gpt) | Ag (gpt) | NSR/tonne (US$/t) | Revenue (US$ million) | Development Cost (US$ million) | Operating Costs (US$ million) | Cash Flow (US$ million) |
|---|---|---|---|---|---|---|---|---|
| Giovanni | 530,677 | 1.30 | 202 | 138 | 73 | 19 | 45 | 9 |
| Giovanni Mini | 13,258 | 1.10 | 124 | 96 | 1 | 2 | 1 | -2 |
| Las Chispas Vein | 142,825 | 1.92 | 262 | 187 | 27 | 4 | 12 | 11 |
| La Blanquita | 131,031 | 0.81 | 176 | 108 | 14 | 2 | 11 | 1 |
| Luigi | 122,986 | 1.49 | 178 | 134 | 16 | 8 | 10 | -2 |
| William Tell | 490,518 | 1.11 | 180 | 120 | 59 | 12 | 42 | 6 |

**Figure 16-11: Cut-off Grade and Stope Selection Work Flow**

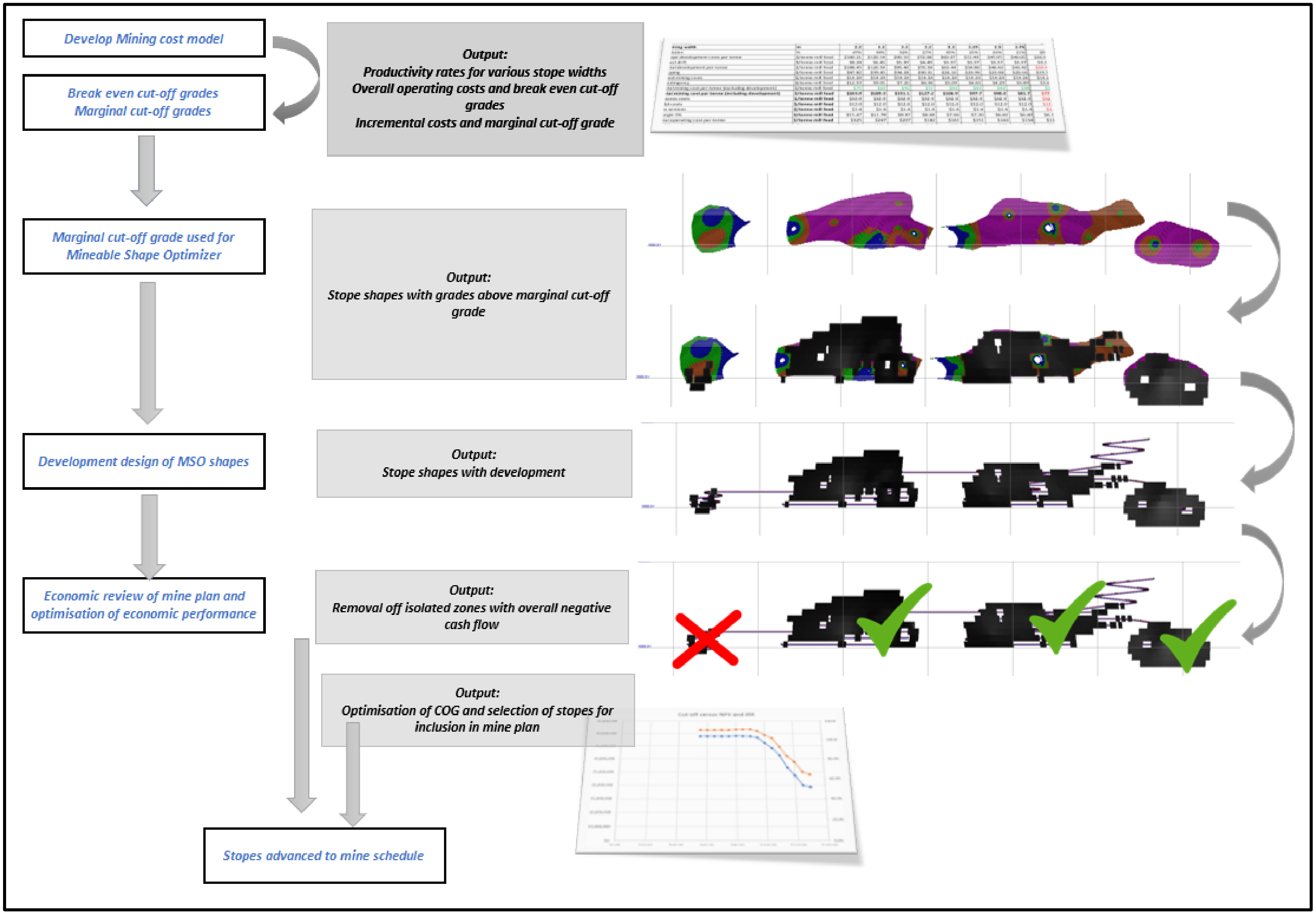





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**Figure 16-12: Las Chispas Area Cut-off Grade Optimization Results**

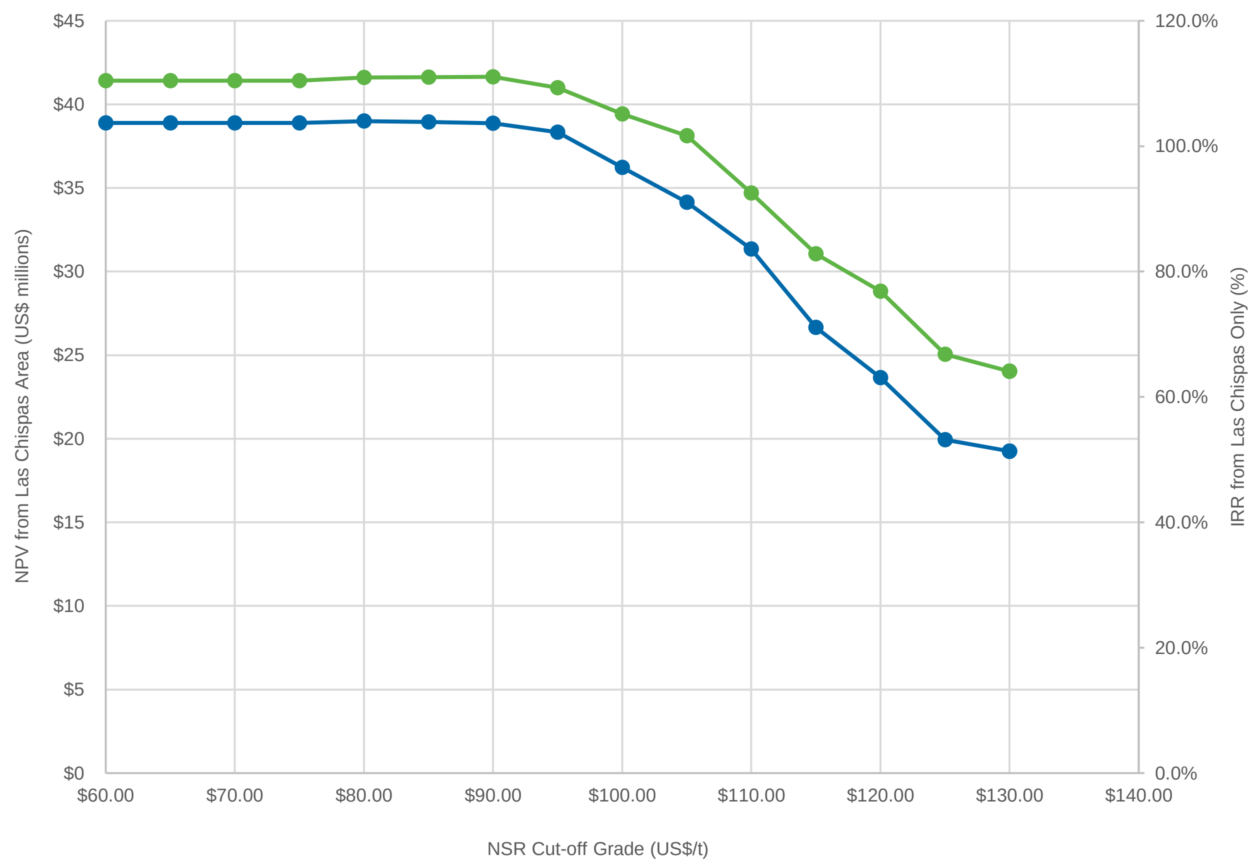


Table 16-8 indicates a marginal cut-off grade which excludes development.

## Table 16-8: Marginal Cut-off Grade by Vein Width

| Vein Width (m) | Mining Width (m) | Marginal Operating Cost ($/t) | Marginal AqEq Cut-off Grade (gpt) |
|---|---|---|---|
| 0.50 | 2.20 | 160.11 | 363 |
| 0.75 | 2.20 | 127.28 | 289 |
| 1.00 | 2.20 | 117.23 | 266 |
| 1.25 | 2.20 | 110.12 | 250 |
| 1.50 | 2.20 | 100.81 | 229 |
| 1.75 | 2.25 | 99.77 | 226 |
| 2.00 | 2.50 | 98.15 | 223 |
| 2.25 | 2.75 | 94.41 | 214 |
| 2.50 | 3.00 | 93.53 | 212 |

*table continues…*

| | | | |
|---|---|---|---|
| 2.75 | 3.25 | 92.51 | 210 |
| 3.00 | 3.50 | 91.94 | 208 |
| 3.25 | 3.75 | 91.14 | 207 |
| 3.50 | 4.00 | 90.34 | 205 |
| 3.75 | 4.25 | 89.89 | 204 |
| 4.00 | 4.50 | 89.37 | 203 |
| 4.25 | 4.75 | 88.82 | 201 |
| 4.50 | 5.00 | 88.40 | 200 |
| 4.75 | 5.25 | 88.06 | 200 |
| 5.00 | 5.50 | 87.80 | 199 |

When the cut-off grades were applied, as previously discussed, lower-grade resources were eliminated in several areas (veins) in Las Chispas.

In the mine plan, the Las Chispas Area is mined in a later, lower-grade phase of the operation, after payback of capital costs from mining the high-grade Babicanora Area. Further work should be carried out on the Las Chispas Area after the Mineral Resources are upgraded from Inferred to Indicated or Measured.

Table 16-9 highlights the marginal cut-off grades used in the stope optimization software for each of the veins included in the mine plan. The average widths for each vein were matched to the corresponding marginal cut-off grade as shown in Table 16-8.

### Table 16-9: Marginal Cut-off Grades used for Optimization by Vein

| Vein | Average Vein Thickness (m) | AqEq Cut-off Grade Applied (gpt) |
|---|---|---|
| Babicanora Main (inclusive of Area 51) | 3.05 | 208 |
| Babicanora FW | 0.94 | 289 |
| Babicanora HW | 0.86 | 289 |
| Babicanora Sur | 0.95 | 289 |
| Babicanora Sur HW | 0.95 | 289 |
| Babicanora Norte | 0.74 | 363 |
| Babicanora Norte (BAN2) | 0.93 | 289 |
| Granaditas | 1.50 | 229 |
| Giovanni | 3.60 | 150 |
| Giovanni Mini | 3.60 | 150 |
| La Blanquita | 1.60 | 150 |
| Las Chispas | 2.10 | 150 |
| William Tell | 3.40 | 150 |


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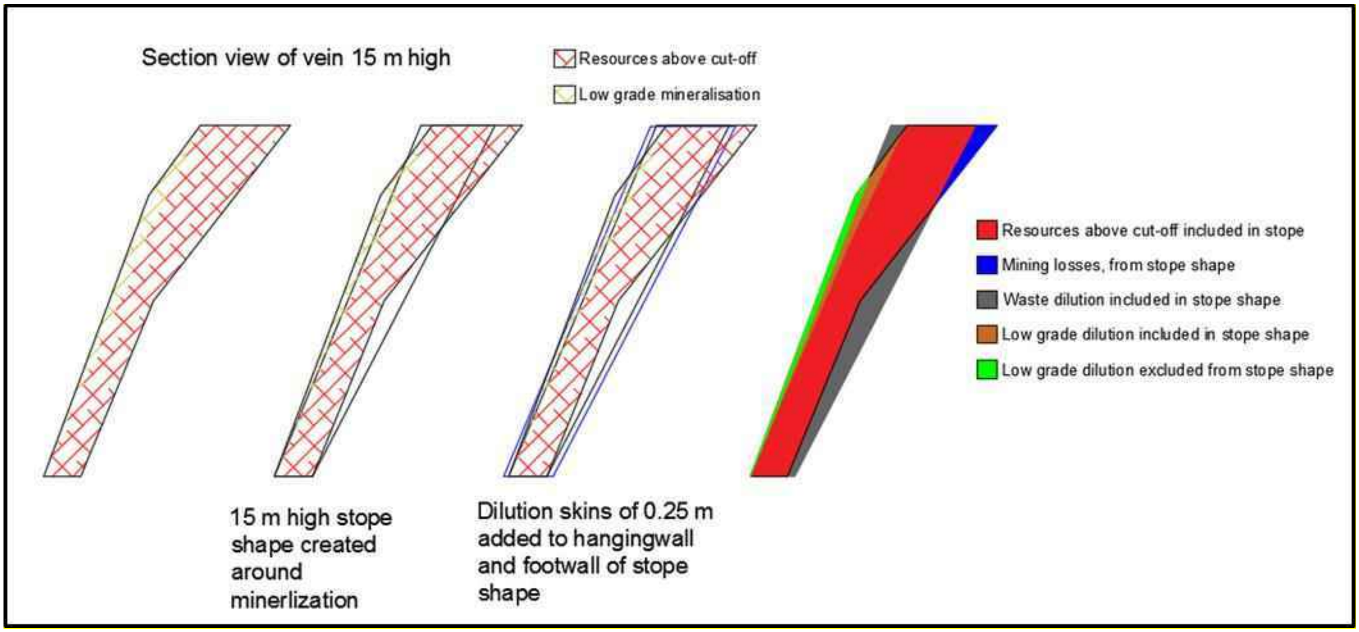
## 16.4 Dilution and Recovery

The Mining QP applied dilution and mining losses (recovery) to the Mineral Resources using stope shapes created through the MSO software (Figure 16-13). The MSO software creates a shape that surrounds high-grade mineralization to exceed the cut-off grade based on block modeling, minimum width criteria, and stope dip criteria. A dilution skin (hangingwall and footwall dilution shapes) is then added to the stope shape to create a mineable stope shape. For the PEA, dilution skins were added as 0.25 m on either side of the stope shape for veins modelled to be wider than 1.5 m and 0.15 m on either side for veins modeled as narrow veins (Babicanora Norte).

**Figure 16-13: Dilution illustration**




### 16.4.1 Dilution Adjustments

Based on a review of mining shapes, dilution, and consideration of cut-and-fill mining, which allows for a high degree of selective mining, the Mining QP reviewed dilution stope by stope and applied adjustments to dilution where zero-grade dilution appeared either excessive or insufficient and estimated the amount of waste dilution that will result from dilution skins. Dilution in excess of +25% or -15% of expected dilution for cut-and-fill mining was then capped.

Mill feed ore grade was further diluted by the addition of over excavated backfill material by 5% of the tonnage, assumed to contain zero grade.

Mining losses arise from the creation of relatively large rigid stope shapes as generated by the MSO software. Upon review, the Mining QP estimated these losses to be excessive with an estimated 2.5%. As a result, the initial mining losses from mining execution that was to be applied at 5% was reduced to 3%. This loss was applied to the diluted tonnage to provide the resulting mill feed tonnage and grades.

Equation 16-1 shows the formula used to calculate dilution for the PEA.

**Equation 16-1: Dilution formula used in the PEA**

$$Dilution\ (\%) = (W + LG) \div R\ \times 100$$

Where

Dilution = Dilution in percent
R = Resource tonnes above 150 gpt AgEq
LG = Non-resource Low grade mineralisation within wireframes (below 150 gpt)
W = Barren material included in stope shape or stope tonnage advanced to mine plan

Table 16-10 shows the dilution and mining losses, including low grade, zero grade, backfill dilution, and additional applied mining losses.

**Table 16-10: Dilution and Mining Losses**

| | Delineated Resources Within Stope Shapes (t) | Low-grade Dilution (t) | Zero-grade Dilution (t) | Backfill Dilution (t) | Additional Applied Mining Losses (t) | Diluted Mill Feed (t) | Dilution (%) |
|---|---|---|---|---|---|---|---|
| Babicanora Norte | 279,008 | 276 | 117,692 | 19,849 | 8,336 | 408,488 | 49 |
| Babicanora FW | 139,514 | 3,111 | 38,786 | 9,071 | 3,810 | 186,672 | 38 |
| Babicanora Central | 399,451 | 2,023 | 89,533 | 24,550 | 10,311 | 505,246 | 29 |
| Babicanora Sur | 214,245 | 126 | 61,829 | 13,810 | 5,800 | 284,210 | 35 |
| Babicanora Main | 771,164 | 4,420 | 173,560 | 47,457 | 19,932 | 976,669 | 29 |
| Giovanni | 390,074 | 35,198 | 75,310 | 25,029 | 10,512 | 515,099 | 35 |
| William Tell | 392,019 | 51,616 | 57,032 | 25,033 | 10,514 | 515,186 | 34 |
| Las Chispas | 74,347 | 22,035 | 22,234 | 5,931 | 2,491 | 122,056 | 68 |
| La Blanquita | 83,965 | 9,572 | 27,765 | 6,065 | 2,547 | 124,820 | 52 |
| Granaditas | 34,078 | 1,306 | 11,020 | 2,320 | 974 | 47,750 | 43 |
| Total | 2,777,865 | 129,683 | 674,760 | 179,115 | 75,228 | 3,686,195 | 35 |

Note: Stope shapes include ore development tonnes.

## 16.5 Pillars

The PEA does not include a layout for sill and rib pillars. The nature of cut and fill mining minimizes the use of pillars. The PEA includes costs for the use of cemented backfill which will allow for mining out of sill pillars beneath cemented backfill.

The approach will be to commence mining at the base of high-grade areas, mining upward through the area, backfilling as mining progresses, including leaving of a high strength backfill as a pillar at the base. The high-strength backfill pillar will be placed above ground that will be mined later in the mine schedule. Mining below the high strength pillar will be done using retreat mining with drilling and blasting of up holes and use of remote mucking equipment.

In high-grade areas, small rib pillars will be left between adjacent stopes, if geotechnical conditions or backfill sequencing requires leaving a pillar. The stope layout allows for some low-grade areas to be left as pillars.

## 16.6 Grade Control

The Mining QP included salaries for a grade control oversight team. This team will visit active mining areas and collect samples from mining faces, ribs, and backs. These will then be sent to the assay laboratory for analysis. These assay results will be evaluated by SilverCrest's geology department to conduct reconciliation and to provide mining plans for mine operations with the intent of reducing dilution and maximizing recovery of mineralization.

To conduct geology modeling, grade control, and reconciliation, 23 people were assigned to the SilverCrest's mining oversight team. This includes geology staff and underground assaying personnel.

## 16.7 Development Design

### 16.7.1 Development Design Parameters

Overall, the main decline and main haulage ramps were designed to 4.0 m high and 4.5 m wide, while the lateral development and pivot drives were estimated to dimensions of 3.0 m high and 3.5 m wide (Figure 16-14 and Figure 16-15). The rock passes were designed to 1.5 m in diameter. The pivot drives include a level straight section for mucking 12 m in length with a 5 m muck bay perpendicular to the pivot drive. From the end of the 12 m level segment, the pivot drive accesses the bottom lift of the stope with a sloping grade of minus 18%.

**Figure 16-14: Decline/Main Ramp Profile**

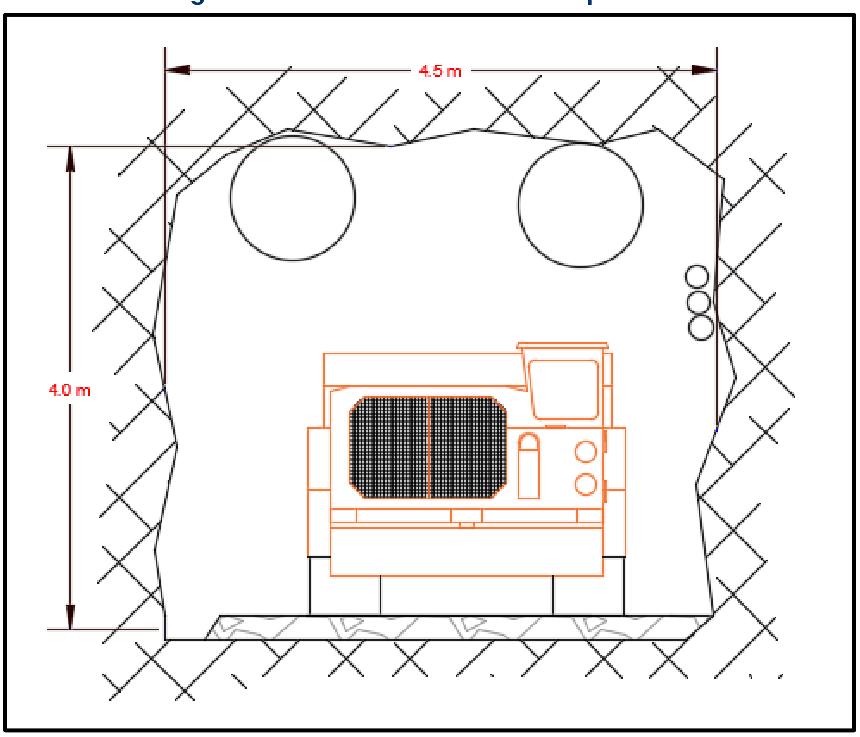
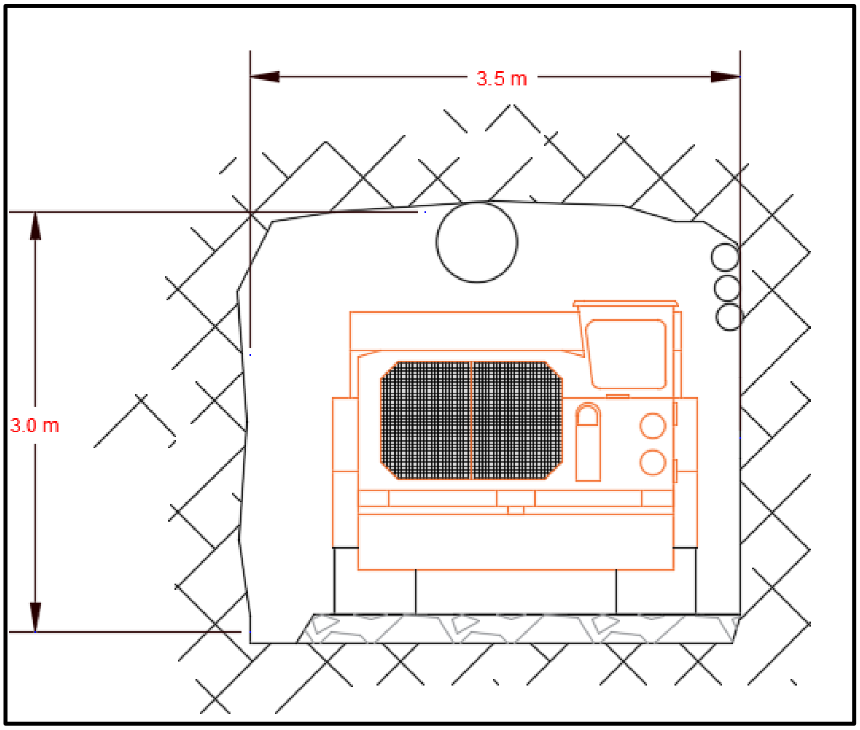


**Figure 16-15: Lateral Development Profile**




### 16.7.2 Las Chispas Area Development

The final design incorporates a decline heading northeast from the south side of the La Blanquita vein and tying into a spiral ramp heading along strike of La Blanquita towards Las Chispas, Giovanni, and William Tell veins. There is an existing development that heads southeast from the north side of William Tell which intercepts the William Tell vein and then continues towards the Las Chispas Vein. This existing development has been utilized to provide a secondary access point. The existing dimensions do not meet the requirements for the mechanized cut-and-fill mining method and will have to be slashed out to the required dimensions for mechanized mining. This secondary access allows some flexibility in opening up more mining areas as opposed to having the single decline at La Blanquita. See Figure 16-16, Figure 16-17 and Figure 16-18 for the development design completed for the Las Chispas Area.

**Figure 16-16: Las Chispas Development – Plan View**

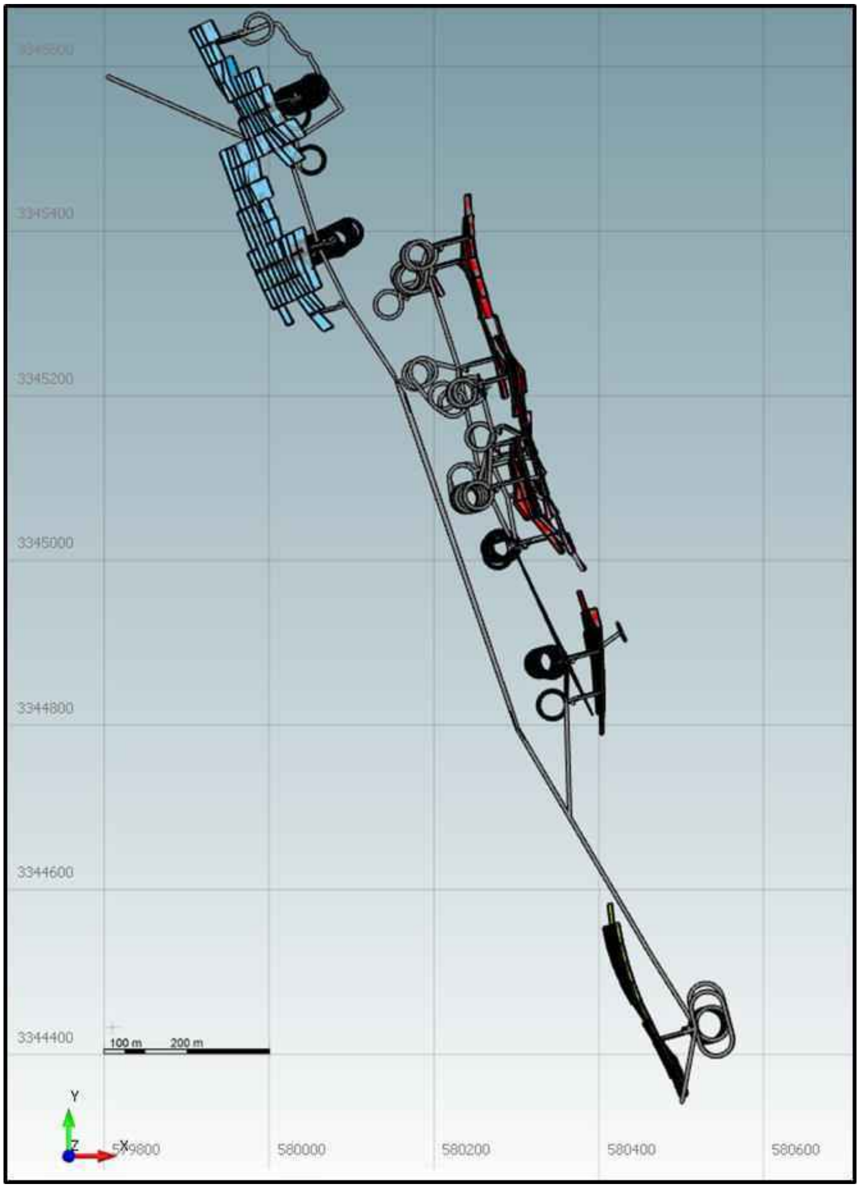
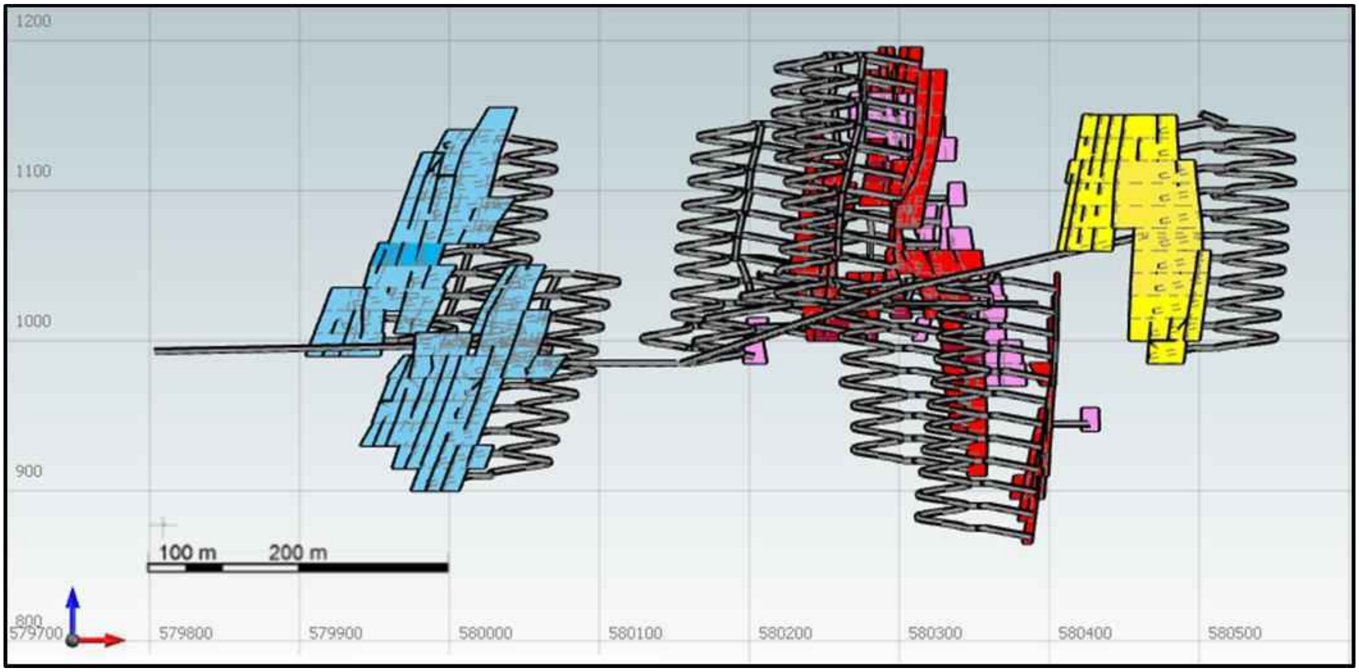
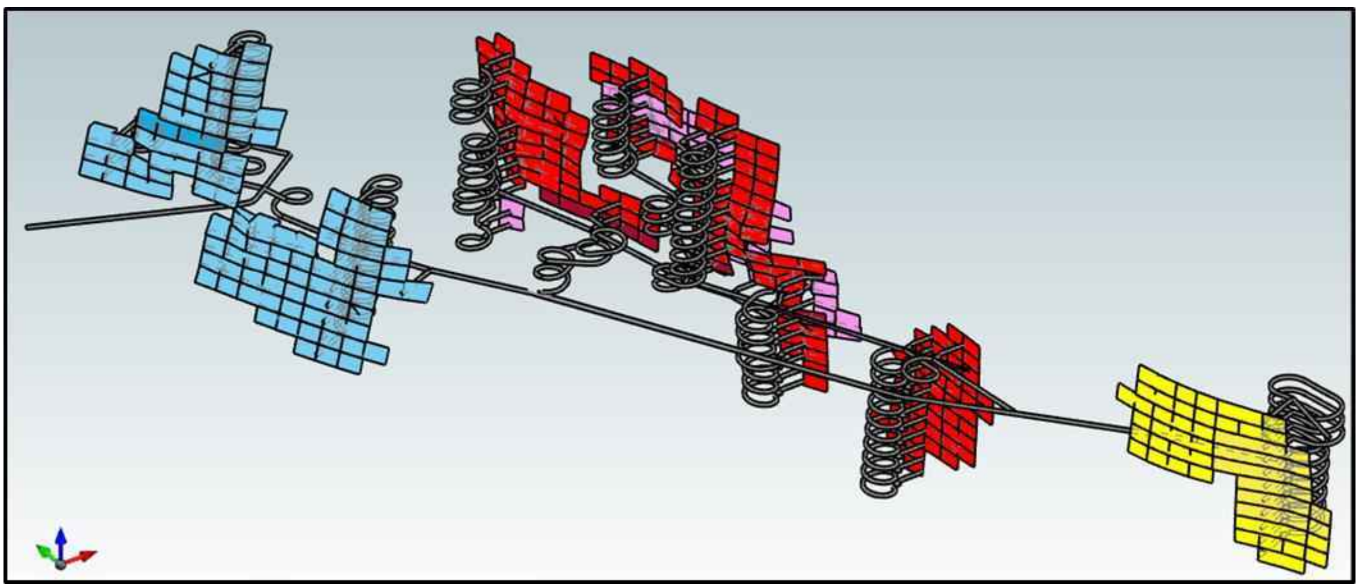


**Figure 16-17: Las Chispas Development – Section View (Looking South)**




Source: yellow – La Blanquita; red – Giovanni; pink – Las Chispas; light blue – William Tell

**Figure 16-18: Las Chispas Development – Oblique View, Looking Northeast**



Source: yellow – La Blanquita; red – Giovanni; pink – Las Chispas; light blue – William Tell

Due to the lay-out of the stopes, the pivot drives have been located and designed in a manner that allows for vertical spiral ramps to connect these pivot drives.

The decline portion of the development has been designed to a minus 12% sloping grade, while the spiral ramps have been reduced to a minimum radius of 15 m and the grade increased to minus 15% to reduce development.

### 16.7.3 Babicanora Overall Area Development

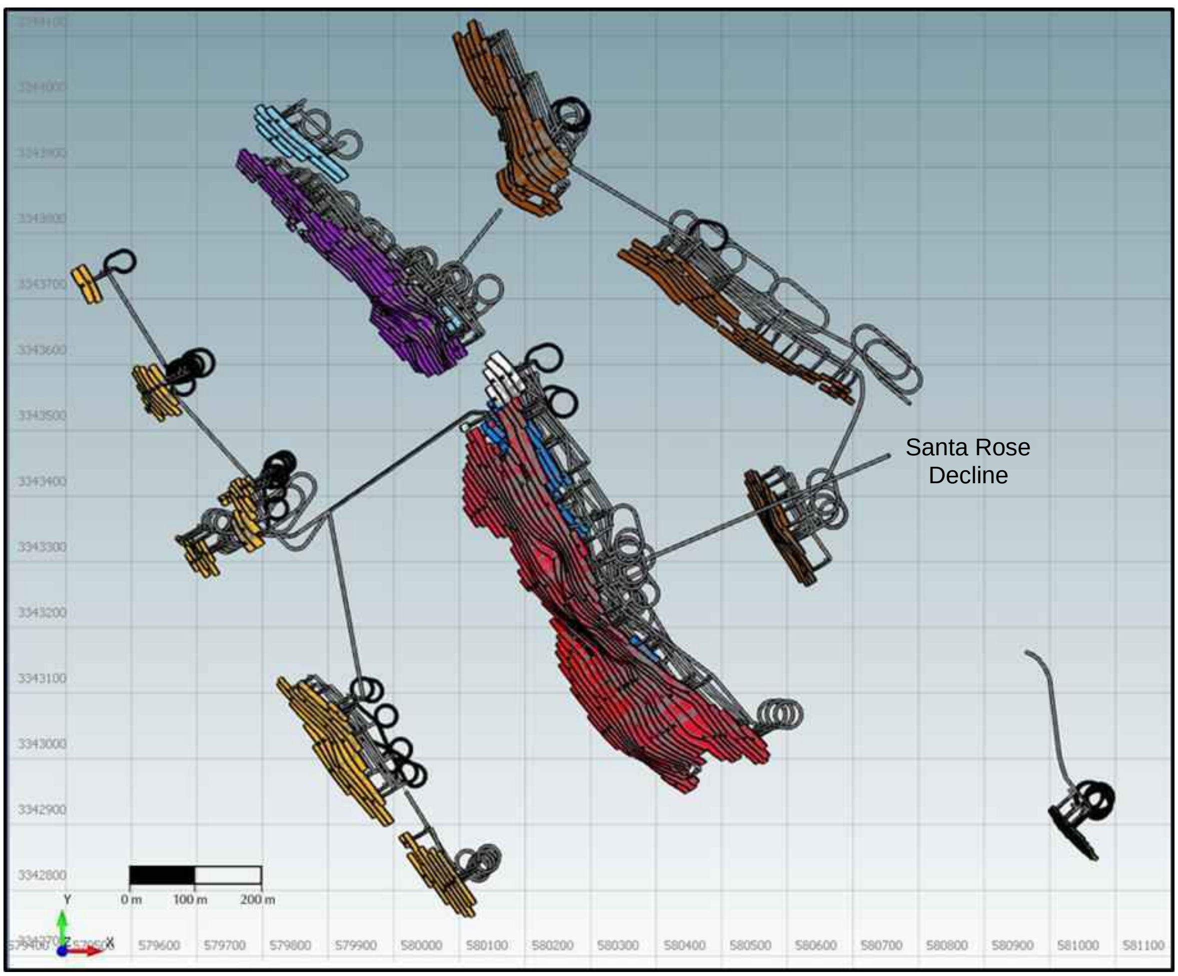
The PEA assumed that  Babicanora Area will be developed from multiple locations including:

- The Santa Rosa Decline that is currently being developed;
- The existing Babicanora Central adit (Babicanora Central);
- An adit for Babicanora Norte (Babicanora Norte);
- An adit for Granaditas (Granaditas); and
- Three small accesses for Babicanora FW, where the vein is in close proximity to the surface (Babicanora FW).

It should be noted that after completion of the development plan for the PEA, SIL have commenced development of Babicanora Norte off the main Santa Rosa decline.

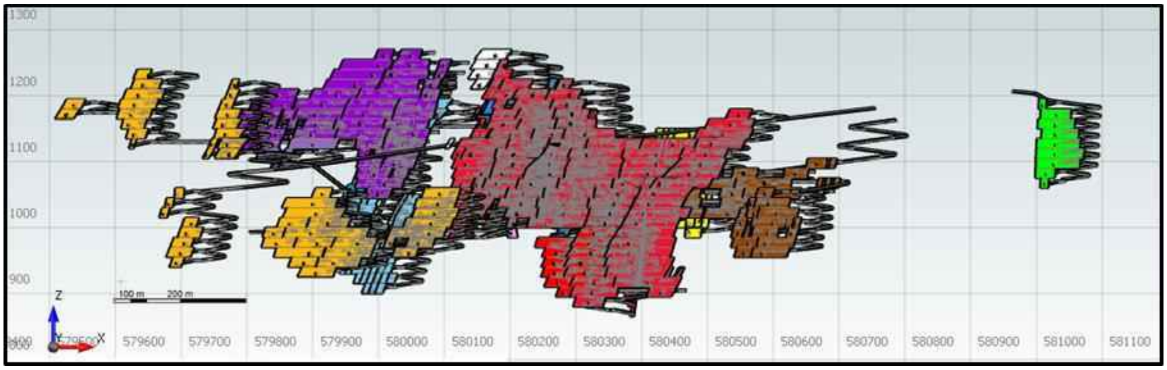
Babicanora Sur veins will be accessed by extending Babicanora Main Vein development to the southwest. All Babicanora development will require at least five ventilation raises. See Figure 16-19, Figure 16-20, Figure 16-21, and Figure 16-22.

**Figure 16-19: Babicanora Area Stopes and Development – Plan View**



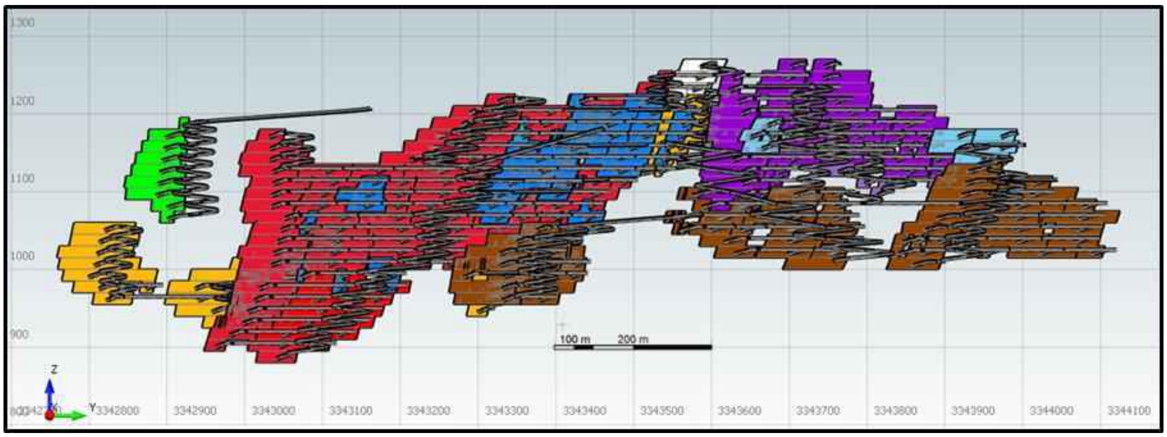

Notes: Red – Babicanora Main; white – Silica Rib; purple – Babicanora Central; light/dark blue – Babicanora FW; yellow – Babicanora Sur; brown – Babicanora Norte; green – Granaditas

**Figure 16-20: Babicanora Development – Section View (Looking West)**



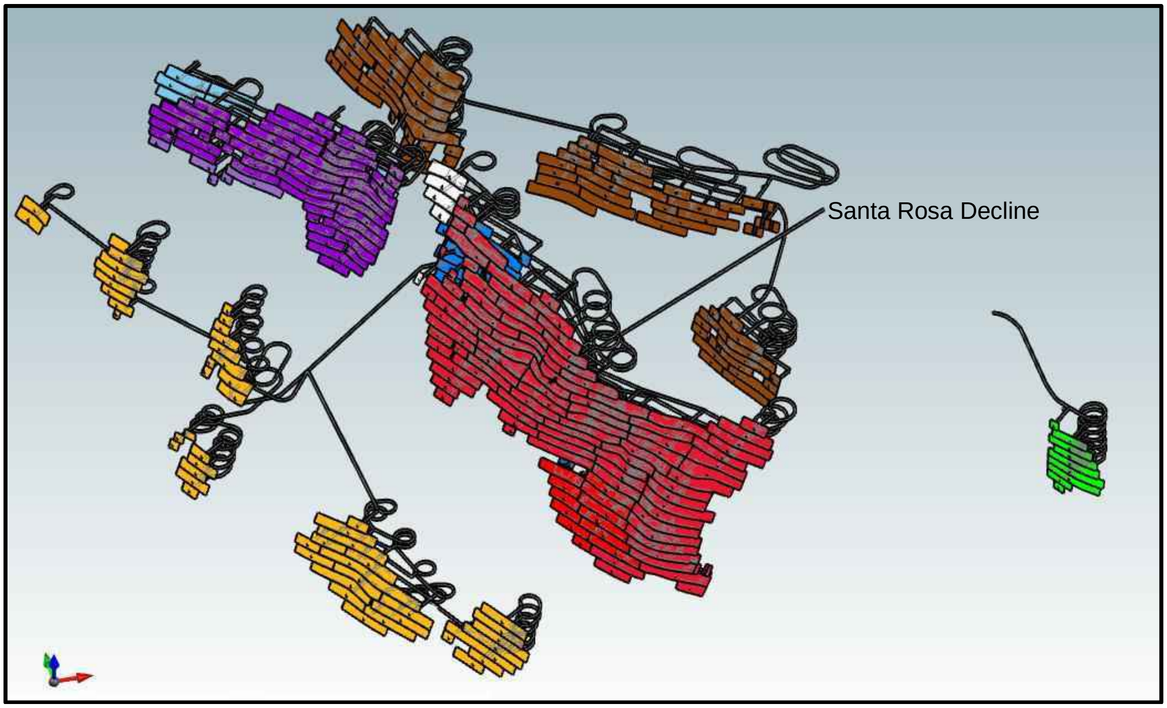

Notes: Red – Babicanora Main; white – Silica Rib; purple – Babicanora Central; light/dark blue – Babicanora FW; yellow – Babicanora Sur; brown – Babicanora Norte; green – Granaditas

**Figure 16-21: Babicanora Development – Long Section View (Looking Northwest)**




Notes: Red – Babicanora Main; white – Silica Rib; purple – Babicanora Central; light/dark blue – Babicanora FW; yellow – Babicanora Sur; brown – Babicanora Norte; green – Granaditas

**Figure 16-22: Babicanora Development – Oblique View (Looking Northwest)**



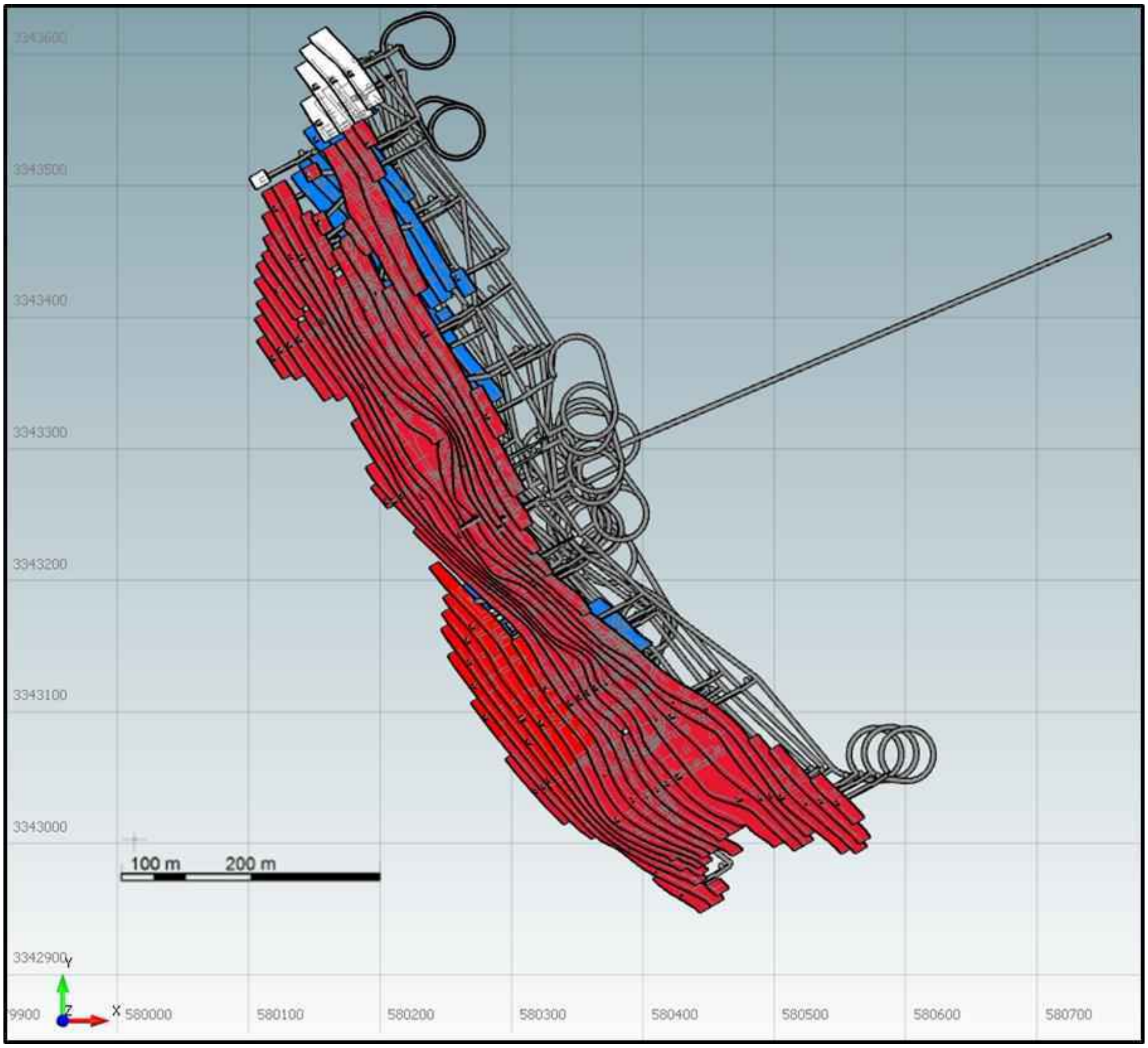

Notes: Red – Babicanora Main; white – Silica Rib; purple – Babicanora Central; light/dark blue – Babicanora FW; yellow – Babicanora Sur; brown – Babicanora Norte; green – Granaditas

### 16.7.4 Babicanora Main (Area 51 Inclusive) Development

Babicanora Main will be the first and highest-grade area mined at the Las Chispas Property. SilverCrest is currently driving a decline towards a high-grade zone within Area 51. The Mining QP has utilized the alignment of the currently (as of the date of the PEA) completed portion of the decline and has advanced the conceptual design from this point onwards. The decline terminates at an approximate elevation of 1098.5 m after it has intersected the Babicanora Vein. Thereafter, a ramp was designed to access stopes above the 1098.5 m elevation, along with a ramp that winds down towards the lower extents of the vein. Offshoots from the spiral ramps provide access to each level. Lateral development is designed at each level providing access to all the pivot drives located on that respective level.

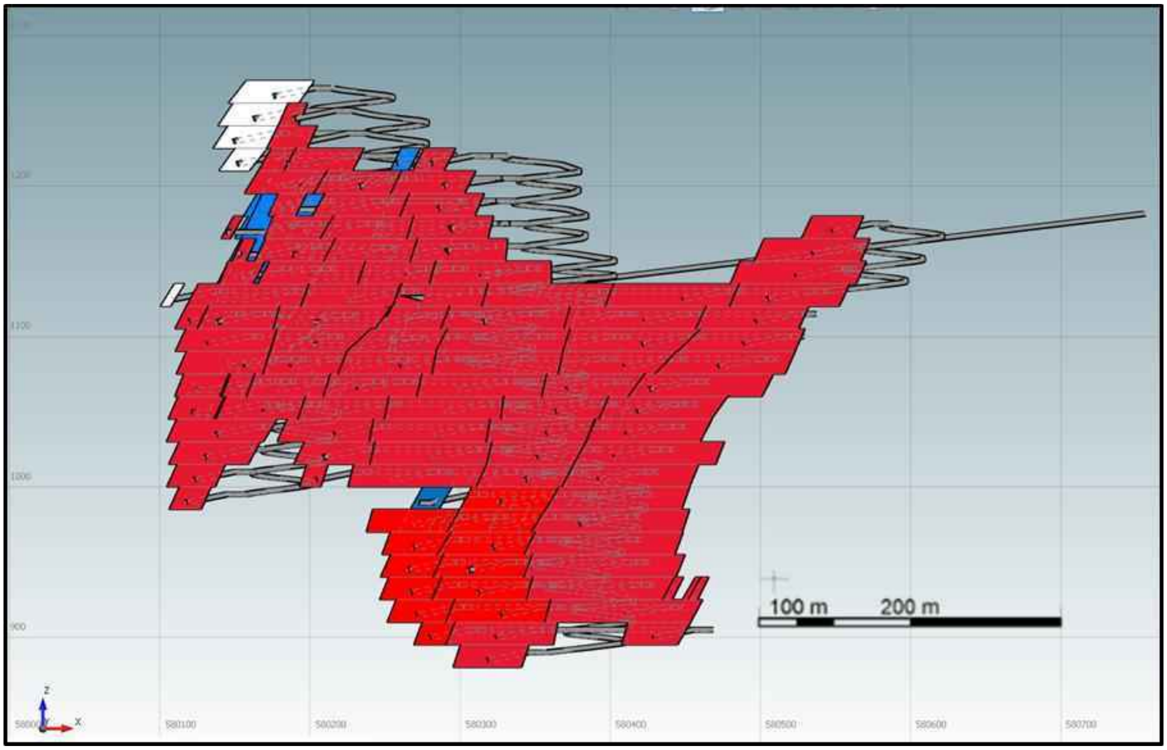
A footwall vein runs parallel to the Babicanora Main Vein. The mine design utilizes one pivot drive to drive through the footwall and access the main vein along with the footwall vein. See Figure 16-23, Figure 16-24, Figure 16-25, and Figure 16-26 for the development design completed for Babicanora Main.

**Figure 16-23: Babicanora Main (Area 51 Inclusive) Development – Plan View**



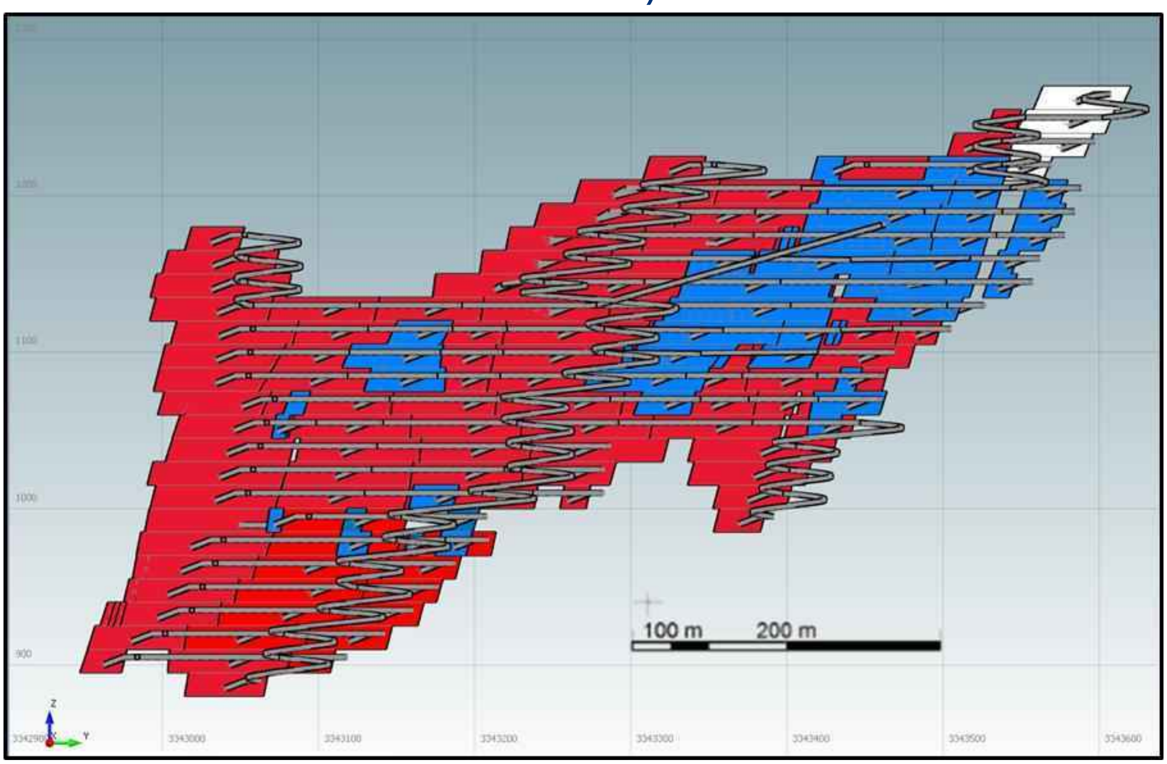

Note: Red – Babicanora Main; blue – Babicanora FW; white – Silica Rib

**Figure 16-24: Babicanora Main (Area 51 Inclusive) Development – Section View (Looking Northwest)**



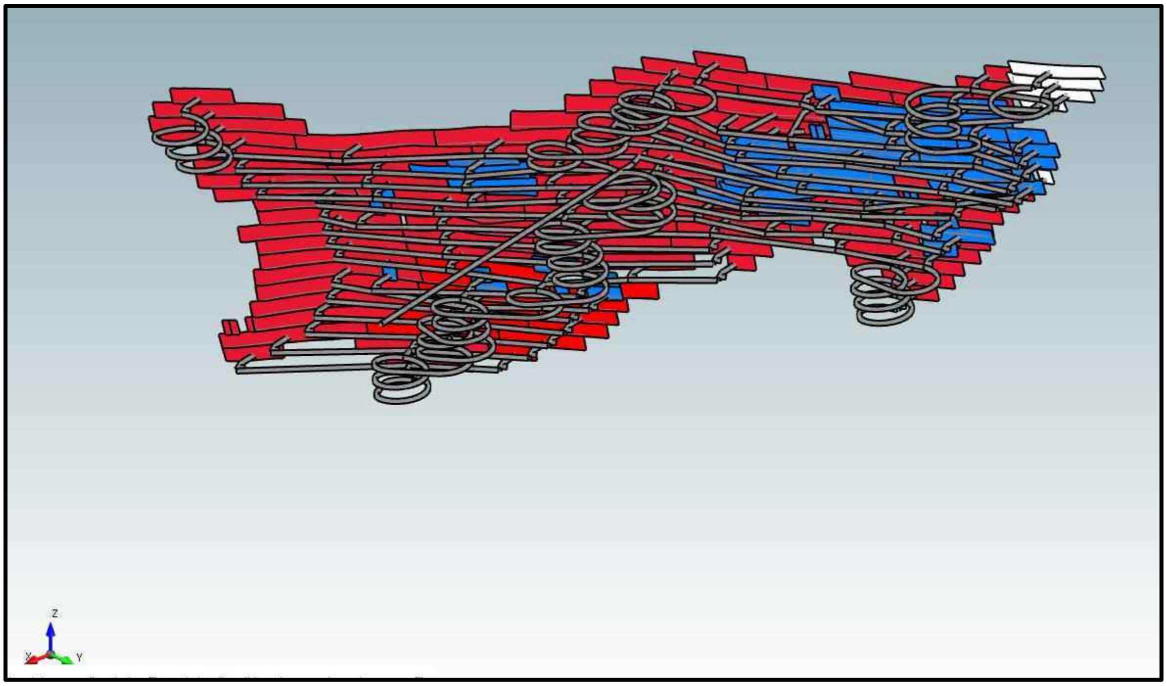

Note: Red – Babicanora Main; blue – Babicanora FW; white – Silica Rib

**Figure 16-25: Babicanora Main (Area 51 Inclusive) Development – Long Section View (Looking Southwest)**




Note: Red – Babicanora Main; blue – Babicanora FW; white – Silica Rib

**Figure 16-26: Babicanora Main (Area 51 Inclusive) Development – Oblique View (Looking South)**



Note: Red – Babicanora Main; blue – Babicanora FW; white – Silica Rib

## 16.7.5 Babicanora Central Development

Babicanora Central has an existing, historical adit that provides access to the vein. SilverCrest provided the alignment of this existing decline and the Mining QP has incorporated this into the current Babicanora Central development design.

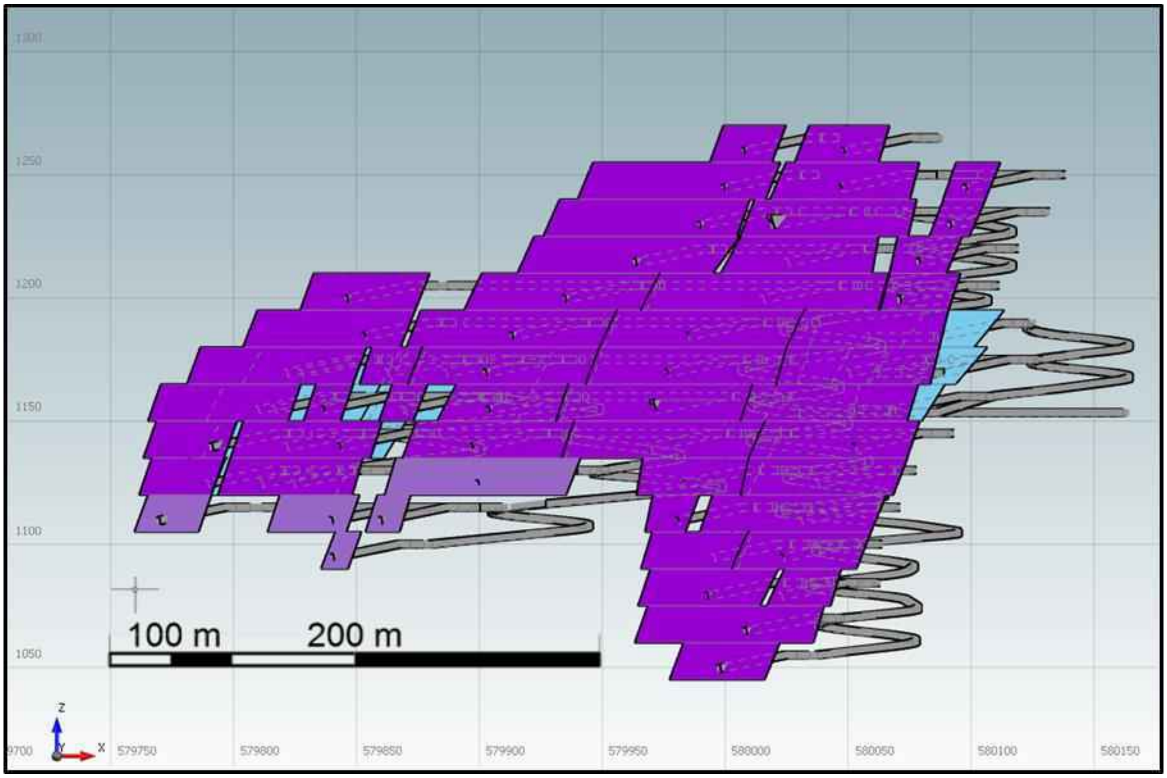
This decline provides access to the Babicanora Main vein at an elevation of 1,150 m. From here a main ramp splits off providing access to levels above and below. These ramps are linked to lateral development on each level, with the lateral development linking pivot drives and providing access to the stopes.

In addition to the main ramp, other ramps have been introduced to link the vein to the footwall (FW) vein that runs sub-parallel to the main vein. Several stopes, as delineated from stope optimization, are at or near surface. These stopes are mined by driving in directly from surface, utilizing existing roads constructed for exploration drilling. See Figure 16-27, Figure 16-28, Figure 16-29, and Figure 16-30 for the development design completed for Babicanora Central.

**Figure 16-27: Babicanora Central Development – Plan View**

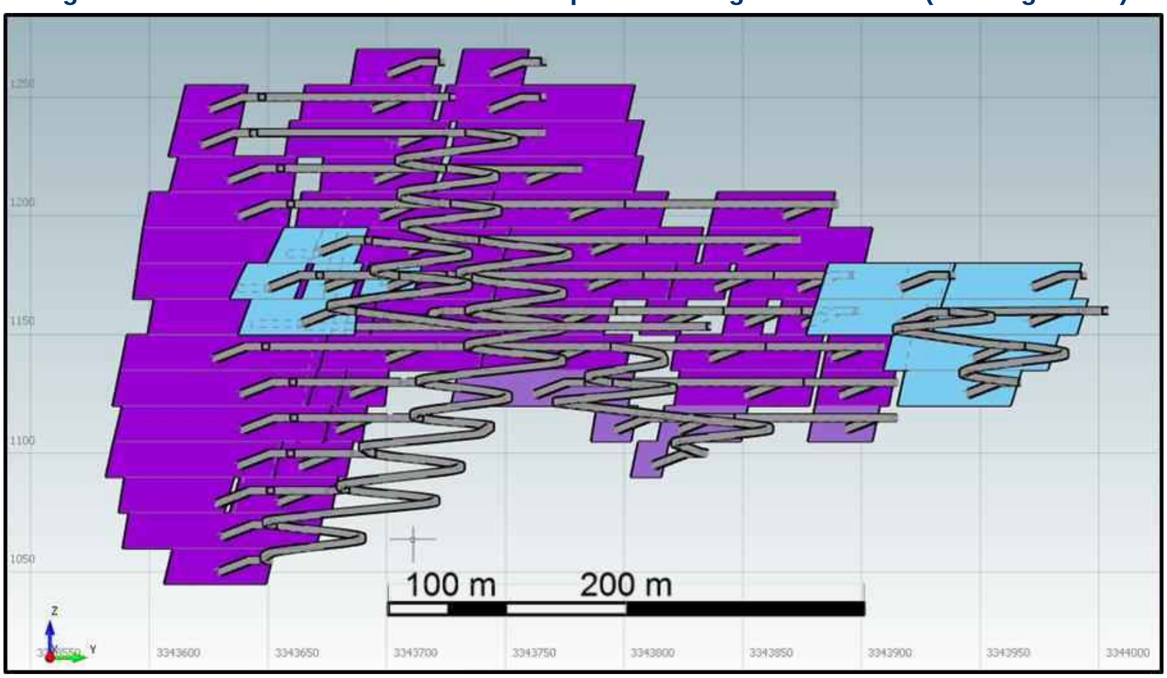

Note: Purple – Babicanora Central; light blue – Babicanora FW

**Figure 16-28: Babicanora Central Development – Long Section View (Looking North)**



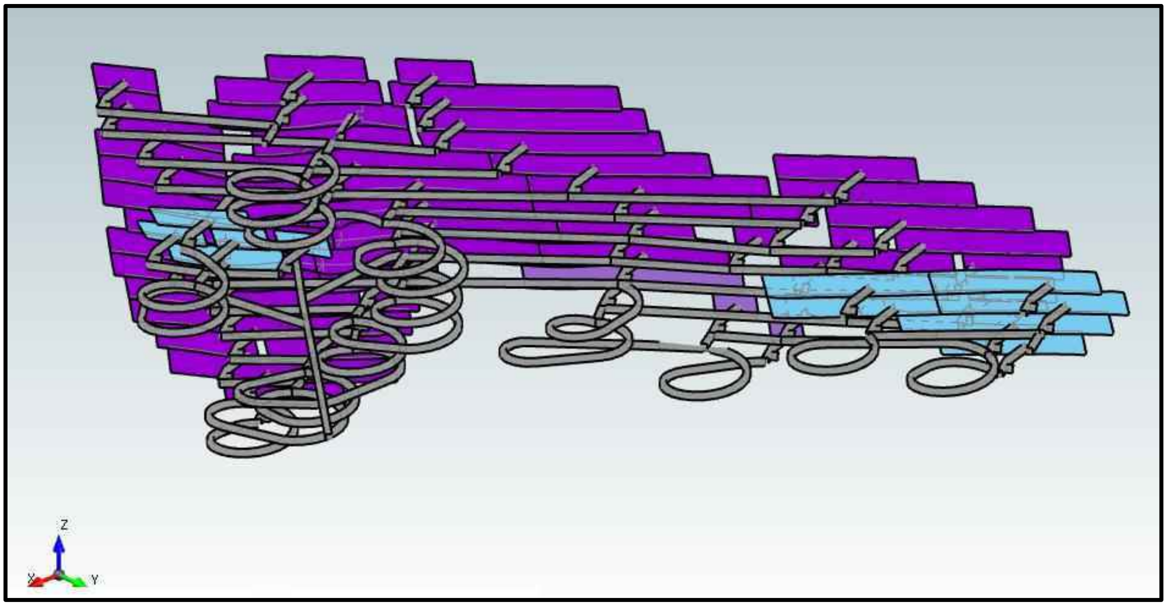

Note: Purple – Babicanora Central; light blue – Babicanora FW

**Figure 16-29: Babicanora Central Development – Long Section View (Looking South)**




Note: Purple – Babicanora Central; light blue – Babicanora FW

**Figure 16-30: Babicanora Central Development – Oblique View (Looking South)**




Note: Purple – Babicanora Central; light blue – Babicanora FW

### 16.7.6 Babicanora Sur and Babicanora Sur HW Development

Babicanora Sur and Babicanora Sur HW access are an extension of the Babicanora Main development. A decline drives towards Babicanora Sur from the furthest extent of the lateral development to the north on level 1,125 m.

Babicanora Sur development is similar to the Las Chispas Area development because it also has limited lateral development. This is due to isolated groups of stopes in this area. Babicanora Sur has limited drilling to date and as the area is infill drilled, it is expected that the isolated stope pods could converge. Given the limited drilling, it is currently more efficient to connect the levels via individual ramp systems for each of the isolated stope pods. The main ramps at Babicanora Sur have been developed at a 15% slop grade with a 15 m radius.

See Figure 16-31, Figure 16-32, Figure 16-33, and Figure 16-34 for the development design completed for Babicanora Sur.

**Figure 16-31: Babicanora Sur and Babicanora Sur HW Development – Plan View**

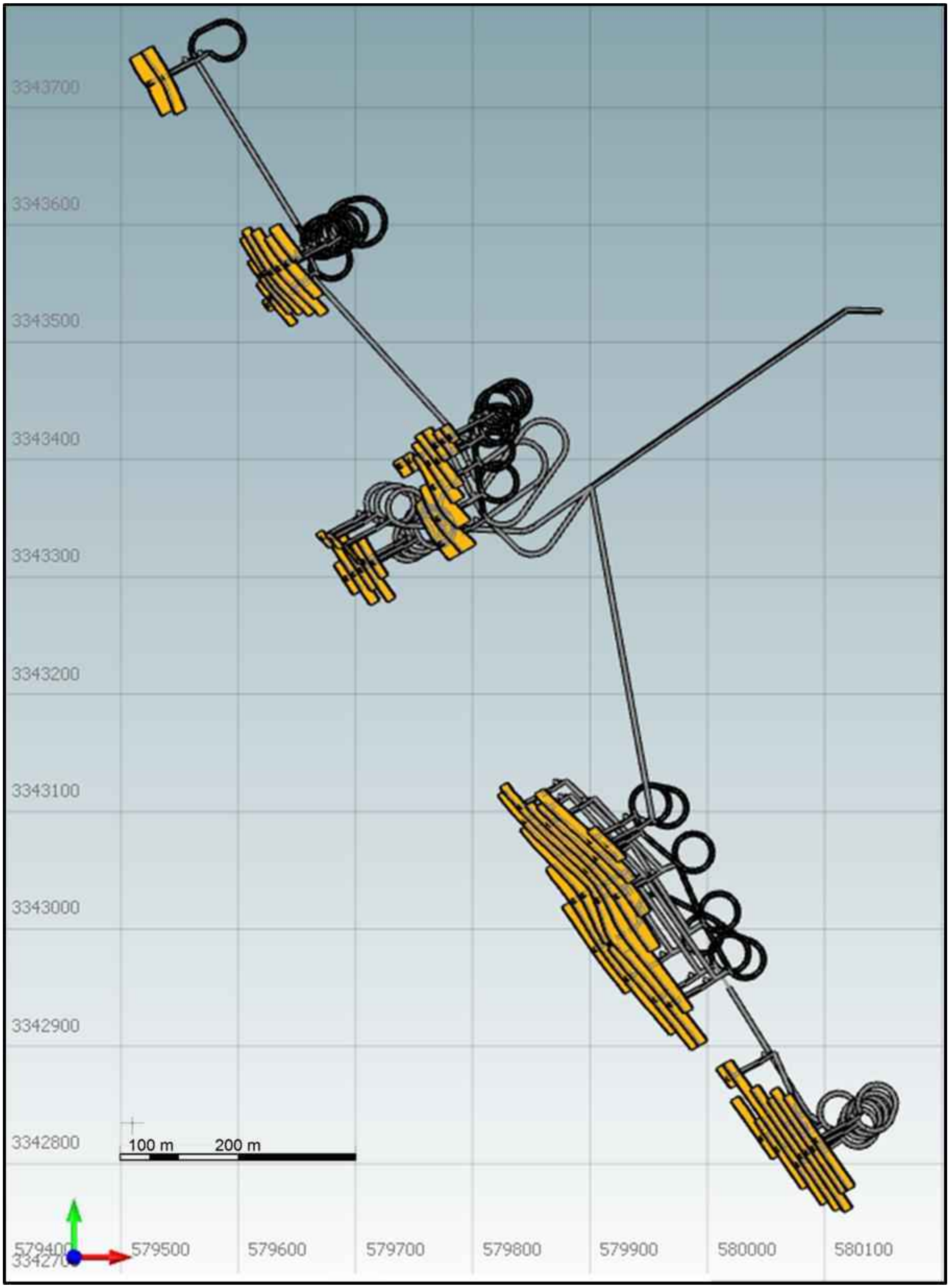


**Figure 16-32: Babicanora Sur and Babicanora Sur HW Development – Section View (Looking North)**

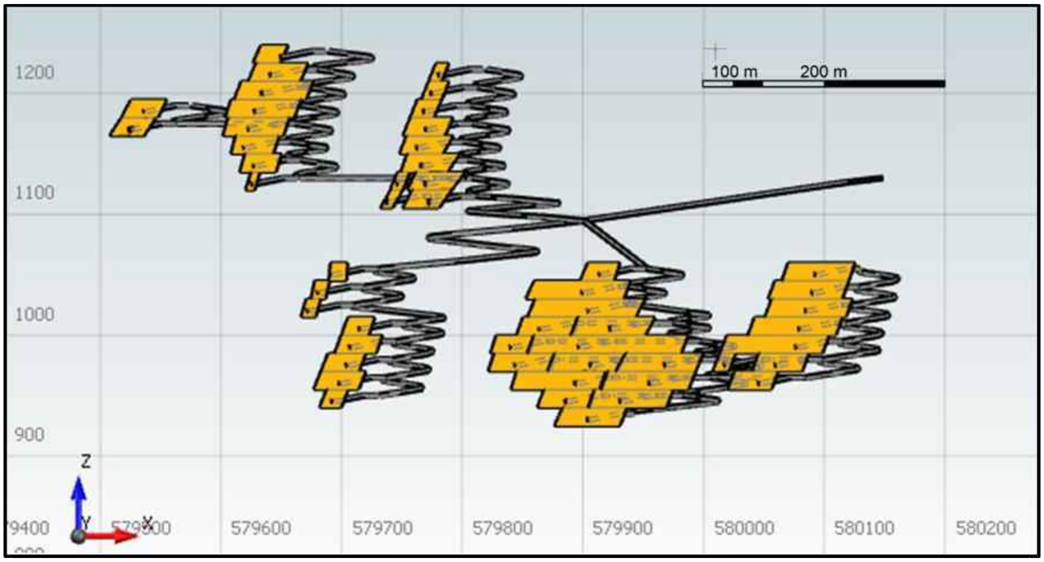



**Figure 16-33: Babicanora Sur and Babicanora Sur HW Development – Long Section View (Looking South)**

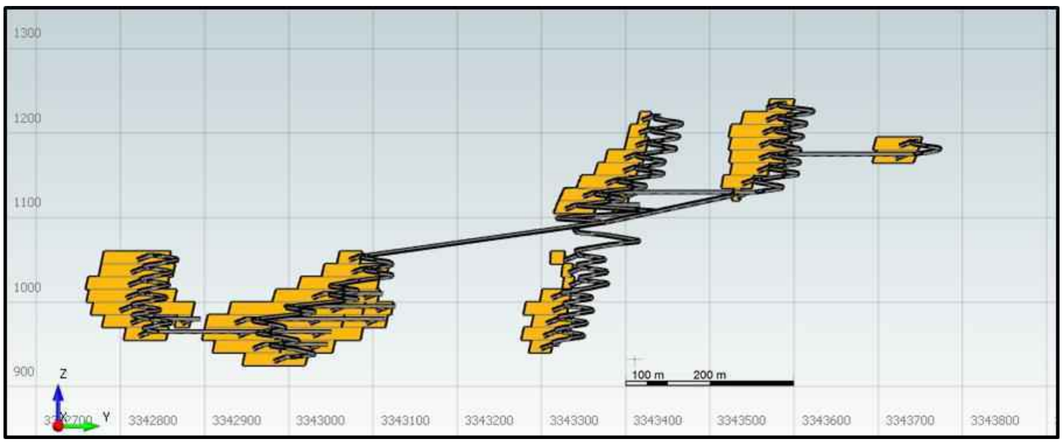
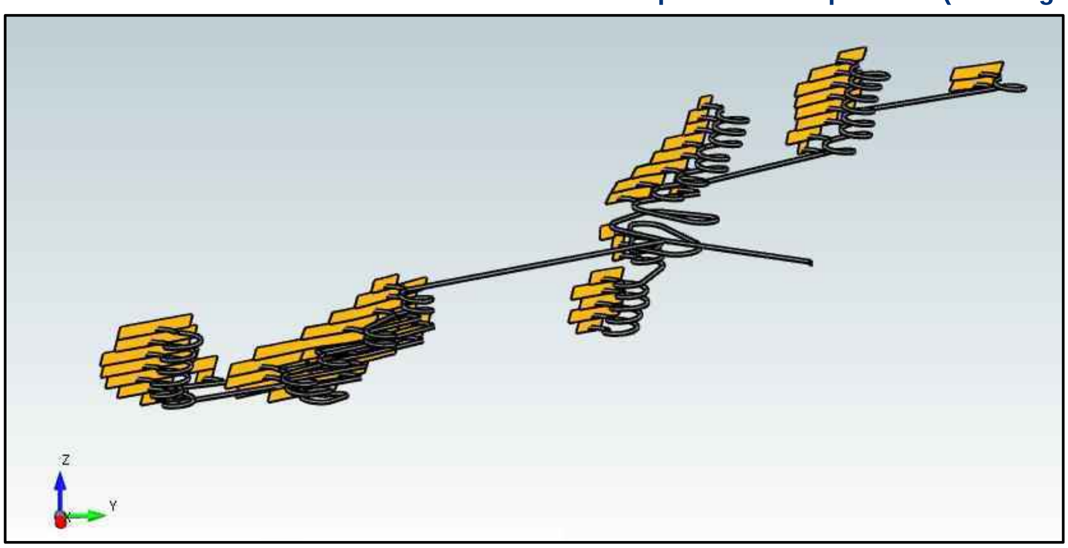



**Figure 16-34: Babicanora Sur and Babicanora Sur HW Development – Oblique View (Looking Southwest)**



### 16.7.7 Babicanora Norte Development

The Mining QP conducted a brief trade-off study for development in this area, looking at different options for the access points to Babicanora Norte. The decline that is currently under construction (Santa Rosa Decline) is targeting the Babicanora Main Vein. This decline was initially viewed by SilverCrest and the Mining QP as a potential portal for Babicanora Norte. Access will be the Santa Rosa decline where a new decline branch will offshoot perpendicular to the original decline towards the northwest approximately 100 m from the Santa Rosa portal. This decline will extend at 12% grade northwest and travel parallel to Babicanora Norte along the HW side. However, a quick design and review of options proved that this option does not reduce development but that it had some advantages for infill drilling of Babicanora Norte and also that it simplified the permitting requirements.

For the purpose of the PEA, the Mining QP sited a new portal location near the proposed mill site on the opposite side of the creek from the Santa Rosa portal. This portal will provide direct access to Babicanora Norte with a ramp spiraling down with a trend to the northwest.

Babicanora Norte has three distinct stope groupings (pods). Each is connected via lateral development on one level from where individual ramps provide access to the different working levels.

See Figure 16-35, Figure 16-36, Figure 16-37, and Figure 16-38 for the development design completed for Babicanora Norte.

**Figure 16-35: Babicanora Norte Development – Plan View**

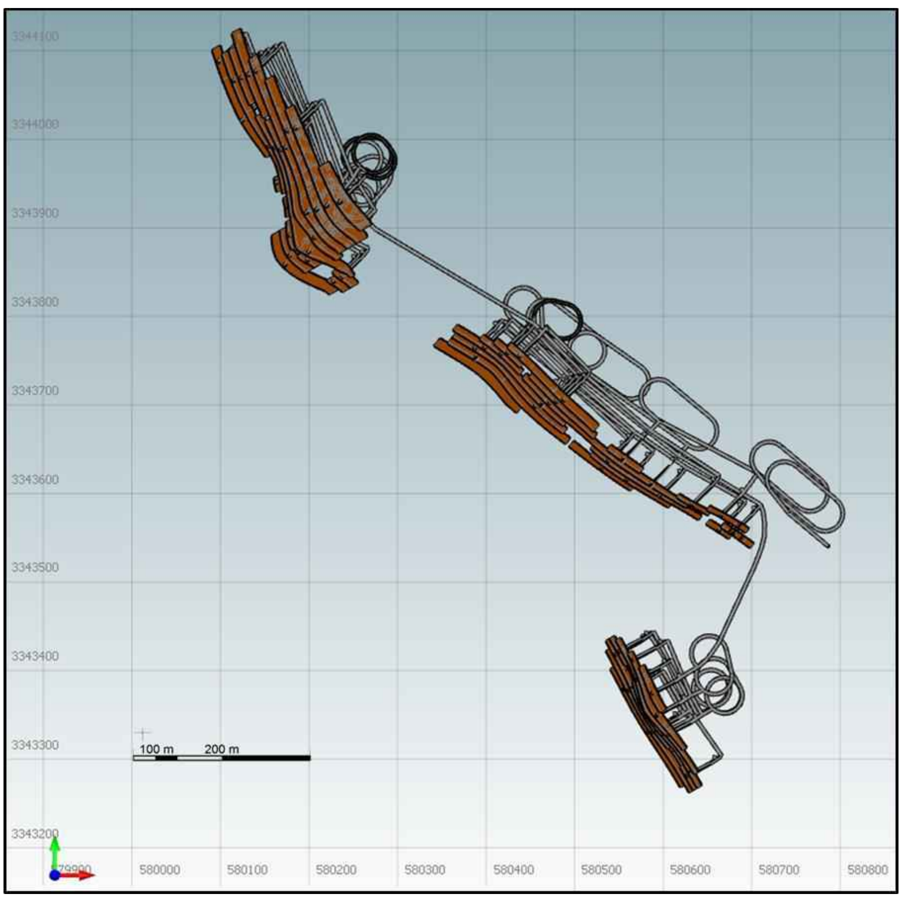





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**Figure 16-36: Babicanora Norte Development – Section View (Looking North)**

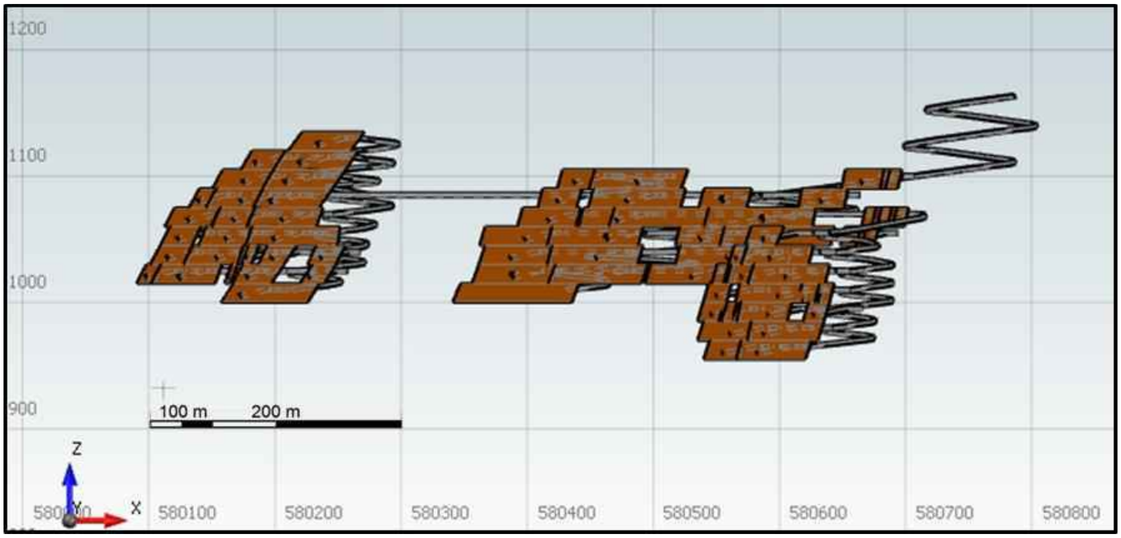



**Figure 16-37: Babicanora Norte Development – Long Section View (Looking South)**

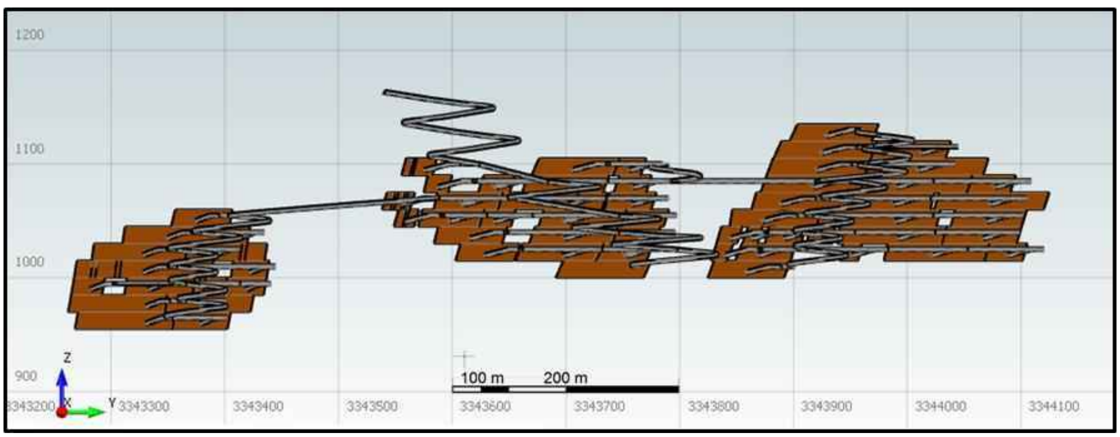
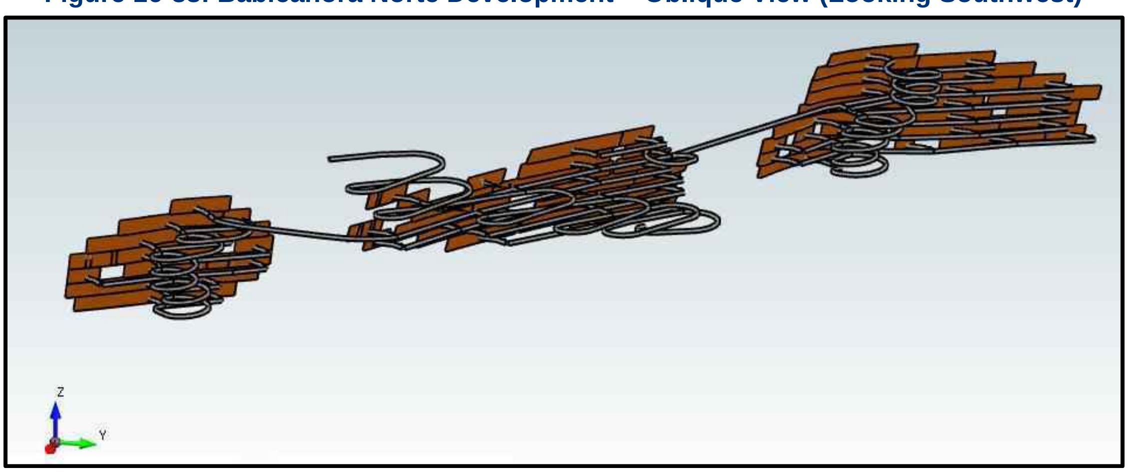



**Figure 16-38: Babicanora Norte Development – Oblique View (Looking Southwest)**



### 16.7.8 Granaditas Vein Development

Granaditas development consists of a simple conceptual design with a stand-alone portal sited in a hillside to the south of Babicanora Main portal to provide enough crown pillar thickness above the decline for stability.

Similar to Babicanora Sur, further infill drilling in the future could significantly change the existing Granaditas resource and potentially add more stope pods and allow for much more efficient development on a meter developed per tonne of ore mined basis. See Figure 16-39, Figure 16-40, Figure 16-41 and Figure 16-42 for the development design completed for Granaditas.

**Figure 16-39: Granaditas Development – Plan View**

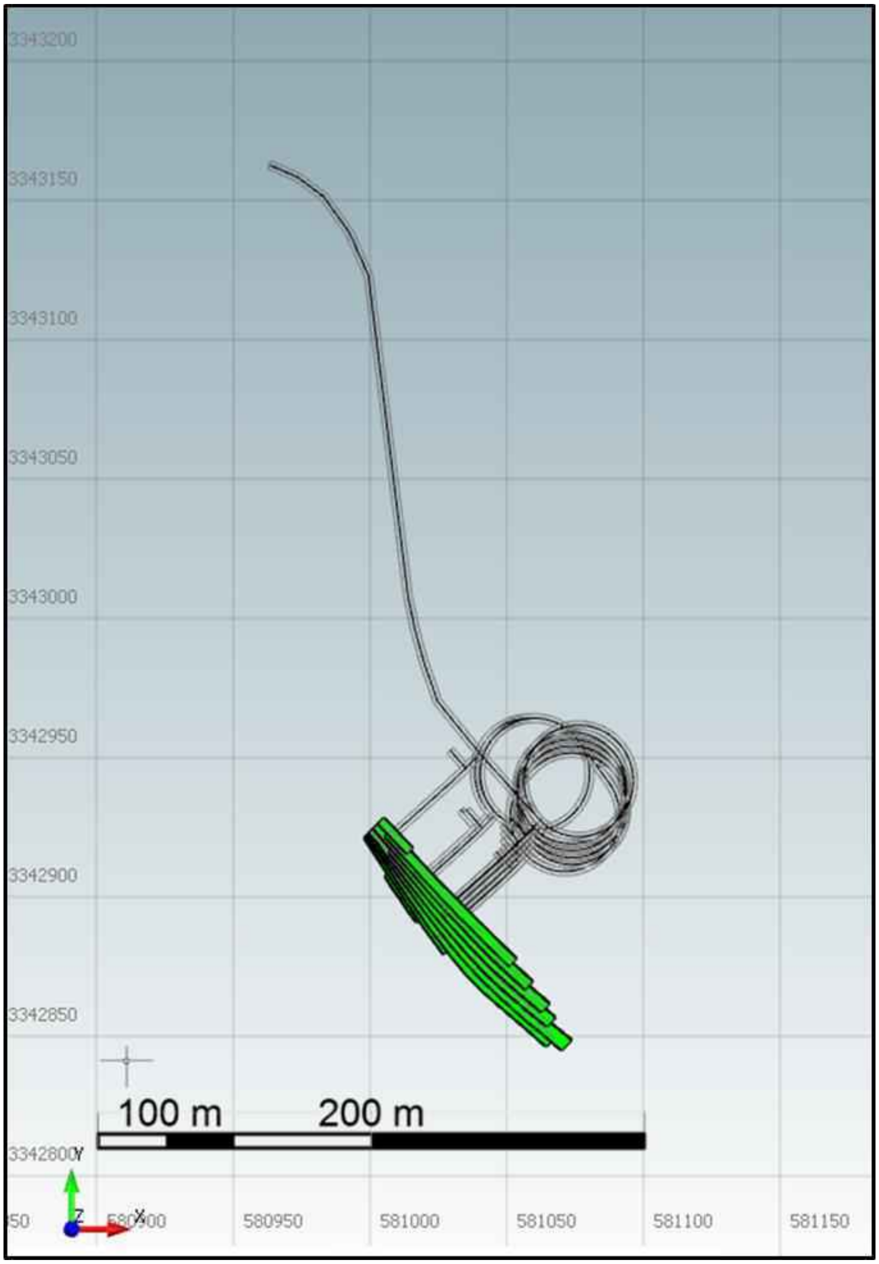


**Figure 16-40: Granaditas Development – Section View (Looking Northeast)**

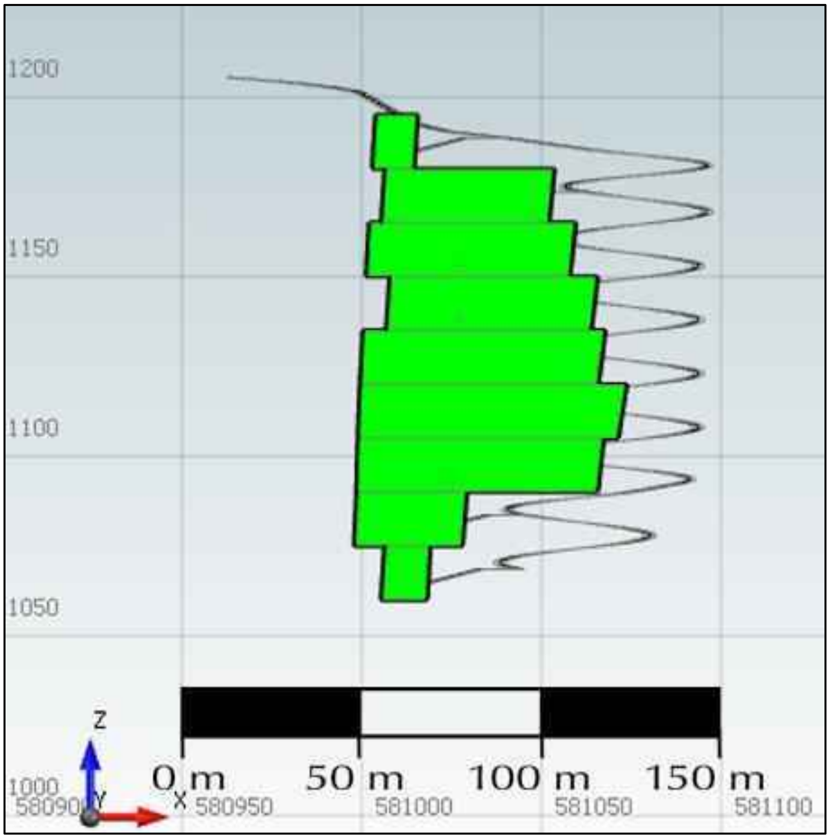



**Figure 16-41: Granaditas Development – Long Section View (Looking Northwest)**

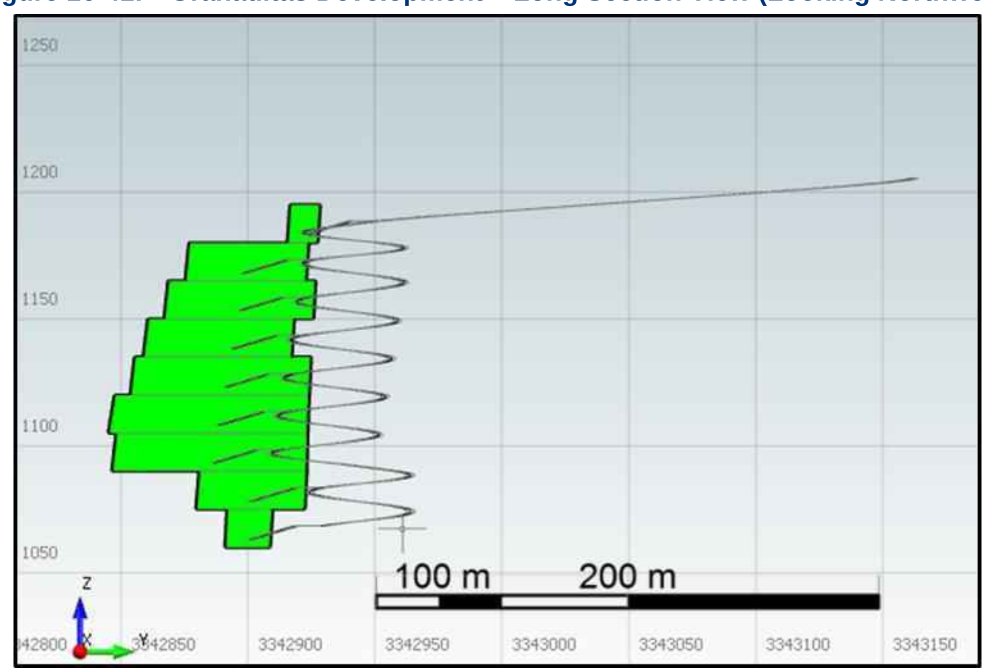
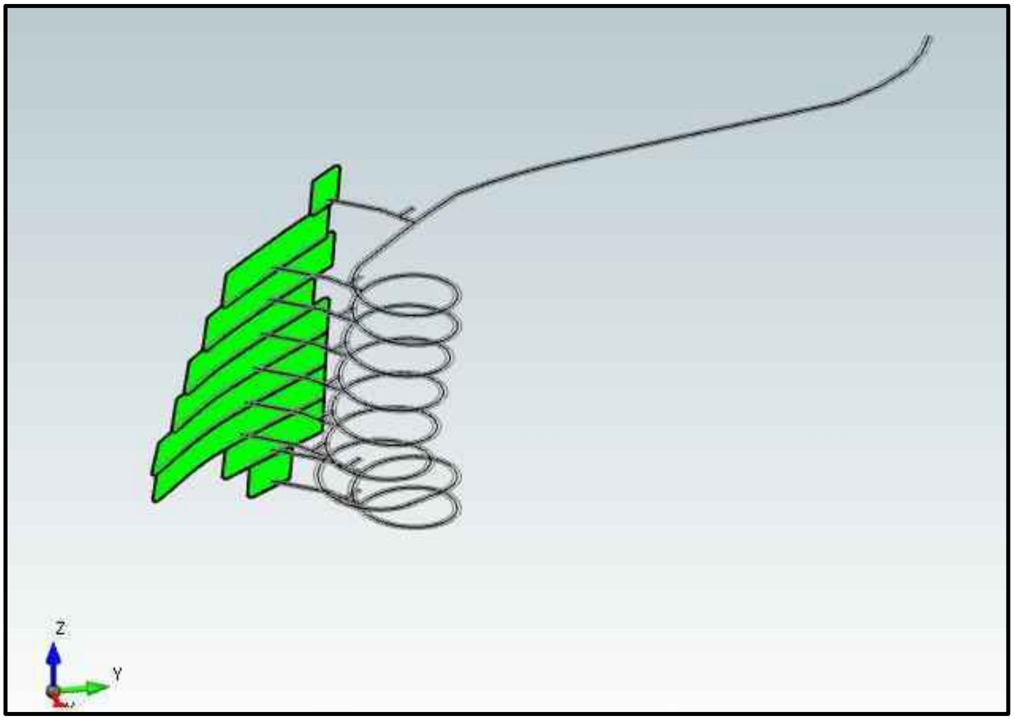


**Figure 16-42: Granaditas Development – Oblique View (Looking West)**




## 16.8 Stope development (development along the mineralization)

The mine plan completed for the PEA considers development along the mineralization (vein) as part of the stoping activity. This is due to the fact that this development is the first cut of the cut and fill mining, and the costs for completing this are included in the cut-off grade for stoping. Furthermore, the PEA does not include design of the development along the vein.

It is expected that some underground development along the veins will be completed prior to commercial production, which will provide mill feed ahead of commercial production. Of the mill feed tonnes included in the mine schedule an estimated 740 thousand tonnes will be derived from development of stopes from 37 km of stope development. This can be done well ahead of the mining of each stope, which can mitigate risks of production challenges from underground mining.

## 16.9 Equipment Selection

Mining widths, number of stopes, and number of active mining areas in operation were the basis of, the Mining QP's mining equipment selection (Table 16-11).

This PEA assumes that selected underground equipment will be provided by a mining contractor, as per contractual agreements with SilverCrest. The Mining QP completed stoping cost estimates and as such was able to estimate equipment quantities for stoping. No equipment has been estimated for underground development to access the mineralization, including stope cross cuts and pivot drives, as this was already included in the quotes provided by the Mexican contractor currently developing the Santa Rosa Decline.

**Table 16-11: Equipment Selected for Stoping Only**

| Equipment | Purpose | Initial Required | Maximum Installed Units | LOM Required |
|---|---|---|---|---|
| Resemin Muki | Blast hole drilling: Narrow width drifting and stoping | 2 | 10 | 10 |
| Epiroc T1/S1 | Blast hole drilling: Wider areas | 3 | 8 | 8 |
| Aramine Loader (L110E/L130D) | Mucking of narrow mining areas | 2 | 5 | 8 |
| J & S LHX125 | Mucking of stope at midrange | 1 | 1 | 1 |
| Epiroc ST2D | Mucking in wider zones and loading trucks underground | 1 | 3 | 3 |
| 15 t Truck | Hauling rock from underground to surface | 3 | 5 | 7 |
| Jackleg | Drilling support, drilling and blasting | 2 | 5 | 8 |
| Face Pump | Pumping of water from stopes to main sumps | 6 | 8 | 12 |
| Scissor Lift | Support work | 1 | 3 | 3 |
| ANFO Charger | Loading blast holes with ANFO in stopes | 5 | 6 | 8 |
| Personnel Vehicles | Transport of personnel to underground locations | 2 | 3 | 4 |
| Maintenance Vehicles | Supporting maintenance underground | 1 | 1 | 1 |
| Telehandler | Handling of heavy equipment underground (for maintenance) | 1 | 1 | 1 |
| Fuel Lube Truck | Fueling and lube service of equipment that does not come to surface | 1 | 1 | 1 |
| Explosive Transport | Approved vehicles for transporting explosives from surface to stoping areas | 1 | 1 | 1 |
| Main Ventilation Fan | Surface installed fans for mine wide air | 3 | 5 | 5 |
| Auxiliary Fans 22 kw | Driving air through ducting to stoping faces | 12 | 16 | 24 |
| Auxiliary Fans 75 kw | Boosting underground flow or driving air along longer underground access | 4 | 4 | 6 |
| Compressor | Provide air for underground activities including drilling and cleaning | 2 | 3 | 3 |
| Service Water Pumps | Main water service underground | 1 | 1 | 1 |
| Dewatering Pumps | Main dewatering pumps returning water to surface | 2 | 3 | 4 |

Note: ANFO – ammonium nitrate and fuel oil

## 16.10 Production Productivity Assumptions

Rather than using overall stoping productivities based on benchmarking studies, the Mining QP developed a first principal estimate. This allowed for a more detailed and accurate figure given the variability in vein widths. Productivity numbers were calculated for all vein widths from 0.5 to 5.0 m, using 0.25 m intervals.

An equipment list was then developed and equipment productivity was based from the Mining QP's database developed from other underground mining projects and equipment manufacturer specifications. These equipment productivity rates drove the overall stoping productivity.

Below is a list of activities considered in the overall productivity estimate:

- Jumbo drilling advance rate for the breasting component of the first lift in the cut-and-fill cycle;
- Charging of blast holes and time required for re-entry;
- Mucking capacity and cycle times from stope to the muck bay estimated by using an average travel distance;
- Drilling uppers via a small up hole machine/jackleg/stopers and their drilling penetration rates;
- Time for installing support;
- Time for slashing the pivot drives to access the next lift up;
- Preparation time required for laying out a backfill drainage system;
- Backfill pour time required to backfill each lift; and
- Backfill cure time required before a subsequent lift could be mined and easily trafficked.

Table 16-12 lists the productivities for all veins included in the mine plan.

### Table 16-12: Productivity by Vein

| Vein | Stope Productivity (t/d) |
|---|---|
| Babicanora Main (inclusive of Area 51) | 142 |
| Babicanora FW | 89 |
| Babicanora Sur | 87 |
| Babicanora Sur HW | 87 |
| Babicanora Norte | 87 |
| Babicanora Norte (BAN2) | 40 |
| Granaditas | 87 |
| Giovanni | 172 |
| La Blanquita | 87 |
| Las Chispas | 154 |
| William Tell | 195 |

## 16.11 Development Productivity Assumptions

The Mining QP had access to actual productivity rates for development. SilverCrest has provided these rates from the current ongoing construction of the Santa Rosa decline. This data provided confidence in the development rates used for the decline and main ramp and also provided a benchmark for the slightly smaller profile of the lateral development.

After the pre-production period, a maximum of 28 m/d of development and 7 m/d for any given heading were used for scheduling with the following additional limitations and assumptions:

- No more than 4 m/d for any given pivot drive heading; and
- No more than 2 m/d for raises (excluding main ventilation raises).

## 16.12 Underground Infrastructure and Services

### 16.12.1 Backfill Design

Due to the selection of cut-and-fill mining, backfilling is required for the Las Chispas operation. SilverCrest and the Mining QP discussed options for backfilling and excluded the use of paste filling for the PEA, largely due to the expected high cost and power requirements. It is expected that most of the backfill required at the operation will be mainly to fill voids and a strong structural fill is not required due to narrow veins and competent wall rock in most veins. Therefore, it is assumed that unclassified, tailings can also be used. Backfill will be pumped from one stream of the underflow of the last thickener, with the remaining underflow reporting to the dry stack filters. It is estimated that approximately 50% of plant tailings will be required for use in backfilling. The remaining tailings balance will be directed to the DSTF.

Backfill pumped underground will be poured into cut and fill stopes behind bulkheads. These bulkheads can be constructed from timber, waste rock, cement blocks, or shotcrete fences. The cut-and-fill mining method considers lift heights of 2 m.

Depending on mining requirements adjacent to backfill, cement will be added as required to the backfill. The rates of cement addition will depend on whether the backfill will be subjected to adjacent mining or undercutting. Undercutting will require the highest cement content. Much of the mining will be possible from the bottom up, requiring low cement contents.

Water pumped with the backfill will be returned via sump pumps to surface and returned to the mill.

The Mining QP has included costs for backfilling based on piping, labour, materials, and cement added to backfill.

### 16.12.2 Ventilation

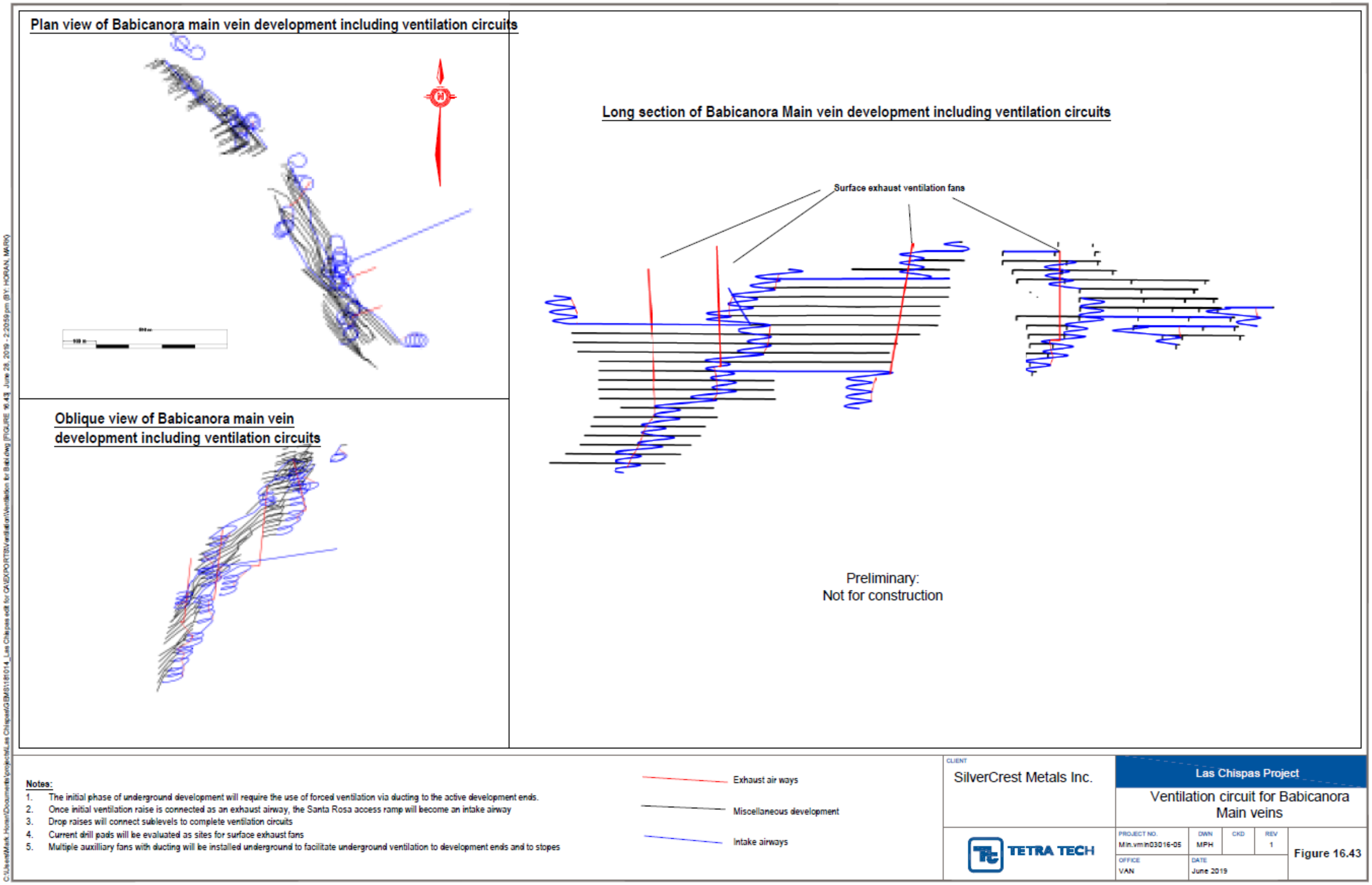
The Mining QP has not completed detailed modelling of ventilation for the Las Chispas Property. However, ventilation raises, infrastructure, fans, and ducting are included in the mining capital and operating costs. The topography and shallow nature of the mining indicates that relatively short (100 to 250 m) ventilation raises could be bored using raise bore equipment. The Mining QP has allowed for raise boring as well as drop raising to create ventilation circuits underground. Ventilation fans will be set-up at surface on exhaust airways. The main portals and ramp will provide fresh air to the underground workings. There is potential for linking the Babicanora Main, Central and FW ventilation circuits to reduce raise boring requirements.

Figure 16-43 shows a preliminary concept for ventilation circuits for the Babicanora main vein. Up to 4 raised bored ventilation raises are expected, through internal connections and smaller raises underground, air will be circulated to the development and stoping areas.

Auxiliary fans will push air through ducting to dead ends, general development, and into stopes. The Mining QP has also made provision for some larger fans to boost air flow underground.

In the case of the Las Chispas Area, the Mining QP has assumed that the old workings which currently provide natural ventilation will be tied into a newer ventilation system, which will reduce the number of new raises required.

**Figure 16-43: Babicanora Conceptual Ventilation Layout**



### 16.12.3 Underground Dewatering

The PEA assumes that the Las Chispas operation will be a dry mine. As such mine dewatering will largely be required for backfill return water and service water used in the mining operation. The PEA assumes that several underground sumps will be established from which water will be pumped back to the mill. Depending on the nature of the tailings and quality of water underground, some settling sumps may be required underground to settle suspended solids prior to pumping water back to the mill.

### 16.12.4 Underground Power

The Mining QP used a cost of USD$0.275/kWh for power. Provision has been made in the capital and operating costs for electrical distribution systems. Power cables will run along main ramps but, the main high-voltage cable will run through raises where possible.

### 16.12.5 Underground Communications

The Mining QP made provision for an underground communication system in the capital costs. For this PEA it was assumed that a leaky feeder system with vehicle and hand-held radios will be used underground for communication.

Provision was also been made for underground lighting. Lighting systems will be used for ramp traffic management underground.

### 16.12.6 Underground Refuge and Escape Ways

The Mining QP included costs for refuge bays in the capital costs as well as vertical raises which will be equipped with ladder ways to provide secondary escape ways.

It was assumed that a combination of permanent and mobile refuge bays would be used.

## 16.13 Mining Costs

SilverCrest and the Mining QP agreed to consider contractor mining only for Las Chispas. Cost were derived on first principles basis, including estimated labour required, consumables, equipment requirements, support equipment, power requirements and mining administration costs. The Mining QP applied a contractor markup of 20% to production costs such as equipment maintenance, blasting, labour, fuel and power costs. Costs such as owner management and contingency did not have a markup applied. Development costs are based on current contractor rates paid in driving the Santa Rosa decline.

Mining costs are summarized in Section 21.0.

## 16.14 SilverCrest Mining Oversight

The Mining QP included a team of personnel to oversee mining in the mining operating cost. The list of personnel included in the management oversight team is shown in Table 16-13.

### Table 16-13: SilverCrest Team for Underground Mining

| Role | Number |
|---|---|
| Mining Manager | 1 |
| Chief Mining Engineer | 1 |
| Mine Planner | 4 |
| Geotechnical Engineer | 1 |
| Ventilation Engineer | 2 |
| Chief Mine Geologist | 1 |
| Production Geologist | 5 |
| Geology Technicians | 5 |
| Chief Surveyor | 1 |
| Mine Surveyors | 12 |
| Underground Assaying | 12 |
| Safety Underground | 3 |
| Maintenance Superintendent | 1 |
| Maintenance General Foreman | 1 |
| Electrician | 2 |
| Maintenance Planner | 2 |
| Blacksmiths/Welders | 2 |
| Mining Administration | 3 |
| **Total SilverCrest Team** | **59** |

## 16.15 Underground Labour

The Mining QP estimated underground labour as part of estimating operating costs for the PEA. For the PEA is has been assumed that for each production position, the individual employed will work for 175 shifts per year (after deducting time for vacation leave, sick leave and training).  This equates to four people for each position to assure 24/7 coverage, with additional shifts required to maintain full production.

Labour is based on number of stopes active, equipment hours, manual labour requirements, maintenance requirements, backfilling requirements, and supervision. Table 16-14 provides a summary of manpower for the LOM.

### Table 16-14: Summary of Labour Estimated for the Las Chispas PEA

| | Year | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 |
| Mine Captain | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 |
| Shift Bosses | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 4 | 2 |
| Blaster/Miners | 16 | 16 | 17 | 19 | 21 | 19 | 16 | 13 | 6 |
| Operators | 35 | 52 | 66 | 60 | 54 | 47 | 40 | 39 | 12 |
| General Labour | 48 | 48 | 49 | 54 | 63 | 55 | 46 | 37 | 17 |
| Backfill Supervisor | 6 | 6 | 6 | 7 | 8 | 7 | 6 | 5 | 3 |
| Backfill Crew | 17 | 17 | 17 | 19 | 22 | 19 | 16 | 13 | 7 |
| Construction Supervisor | 6 | 6 | 6 | 7 | 8 | 7 | 6 | 5 | 3 |
| Construction Crew | 17 | 17 | 17 | 19 | 22 | 19 | 16 | 13 | 7 |
| Machine Maintenance | 14 | 21 | 27 | 24 | 22 | 19 | 16 | 16 | 5 |
| **Total Underground Labour** | **164** | **188** | **210** | **214** | **225** | **197** | **167** | **145** | **62** |

## 16.16 Life-of-Mine Production

The Mining QP used GEOVIA™ MineSched software to develop the mine schedule. Based on productivity assessments for stoping and development the Mining QP linked stoping to development in a logical sequence to generate a stope schedule providing 1,250 t/d.

Prior to the commencement of underground stoping, the Mining QP has considered the use of existing surface stockpiles for ramping up the mill to fill production and addressing gaps in production from underground.

This enabled the generation of a development and a stoping schedule. The development and stoping schedule are shown in Table 16-15, Table 16-16, and Figure 16-44.

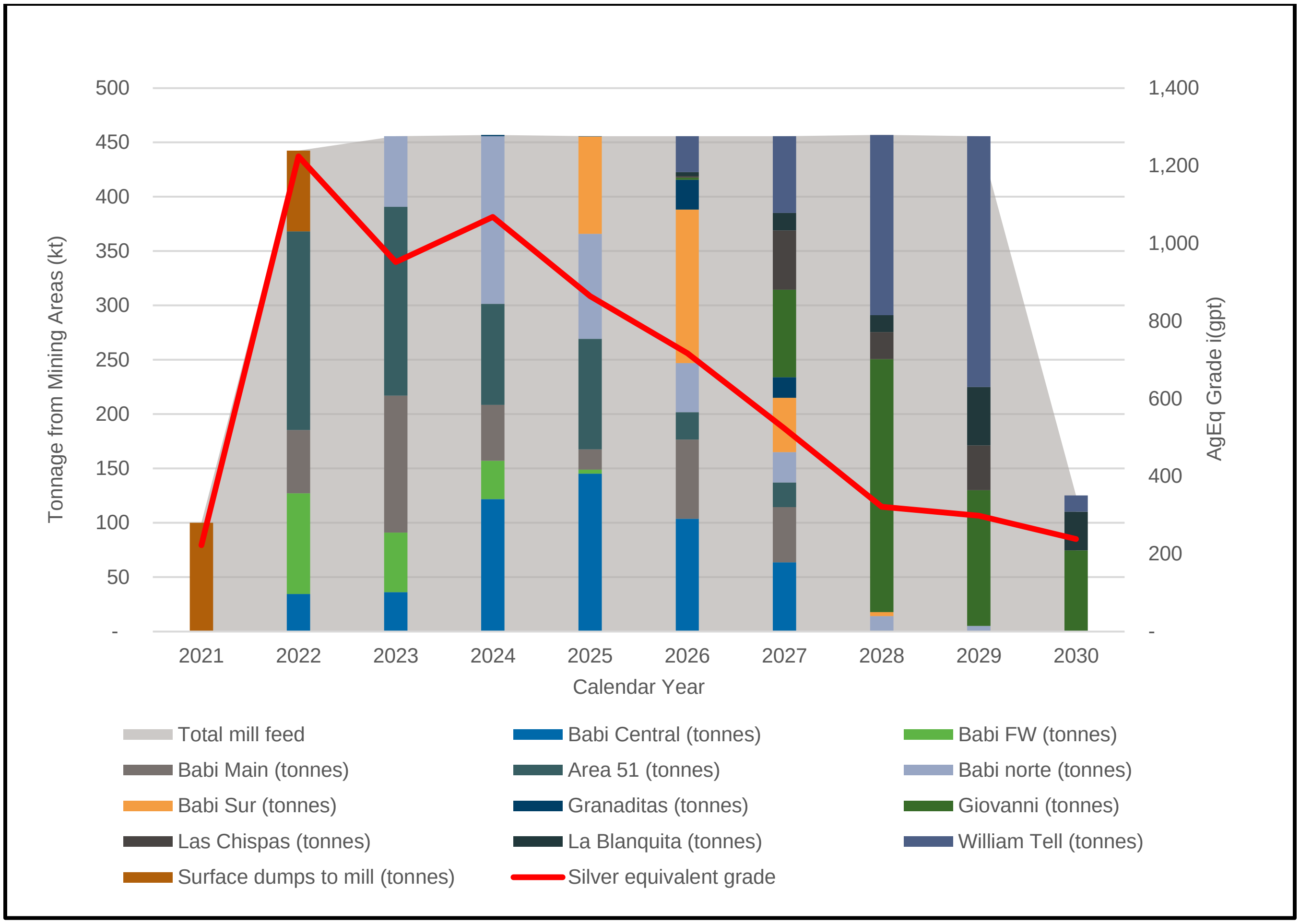
### Table 16-15: Development Schedule

| | | Year | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Unit | LOM | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Ramp Development | m | 24,983 | 1,690 | 1,585 | 602 | 2,624 | 1,735 | 2,402 | 4,883 | 6,400 | 3,061 |
| Lateral Development | m | 19,661 | 3,068 | 1,993 | 1,571 | 2,974 | 3,619 | 3,622 | 2,273 | 542 | - |
| Muck Bays | m | 5,743 | - | 42 | 403 | 154 | 171 | 245 | 637 | 2,819 | 1,272 |
| Pivot Drives | m | 14,647 | - | 1,124 | 5,090 | 1,913 | 2,160 | 2,041 | 2,033 | 201 | 85 |
| Rock Passes | m | 640 | - | - | - | - | - | - | 32 | 231 | 376 |
| Ventilation Raises | m | 1,170 | 500 | - | 350 | - | - | 150 | 170 | - | - |
| Drop Raises | m | 2,498 | 169 | 159 | 60 | 262 | 174 | 240 | 488 | 640 | 306 |
| **Total Development** | **m** | **69,342** | **5,427** | **4,904** | **8,075** | **7,927** | **7,860** | **8,699** | **10,517** | **10,833** | **5,100** |

## Table 16-16: Stoping Schedule

| | Units | Year | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | LOM | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 |
| Babicanora Central | t | 505,246 | - | 34,474 | 36,210 | 121,777 | 145,456 | 103,701 | 63,628 | - | - | - |
| Babicanora FW | t | 186,672 | - | 92,769 | 54,976 | 35,409 | 3,519 | - | - | - | - | - |
| Babicanora Main | t | 378,130 | - | 58,225 | 125,935 | 51,395 | 18,775 | 72,895 | 50,906 | - | - | - |
| Area 51 | t | 598,539 | - | 182,602 | 173,667 | 93,027 | 101,559 | 25,224 | 22,459 | - | - | - |
| Babicanora Norte | t | 408,488 | - | - | 64,896 | 154,212 | 96,706 | 45,224 | 28,006 | 14,248 | 5,196 | - |
| Babicanora Sur | t | 284,210 | - | - | - | - | 89,373 | 141,111 | 50,199 | 3,526 | - | - |
| Granaditas | t | 47,750 | - | - | - | 1,161 | 385 | 27,396 | 18,807 | - | - | - |
| Giovanni | t | 515,099 | - | - | - | - | - | 2,198 | 80,568 | 232,880 | 124,869 | 74,584 |
| Las Chispas | t | 122,056 | - | - | - | - | - | 1,274 | 54,589 | 24,992 | 41,201 | - |
| La Blanquita | t | 124,820 | - | - | - | - | - | 3,763 | 15,996 | 15,377 | 53,837 | 35,846 |
| William Tell | t | 515,186 | - | - | - | - | - | 33,006 | 70,596 | 165,994 | 230,680 | 14,910 |
| Surface Dumps to Mill | t | 174,500 | 100,000 | 74,500 | - | - | - | - | - | - | - | - |
| Total mill feed | t | 3,860,695 | 100,000 | 442,570 | 455,684 | 456,980 | 455,773 | 455,793 | 455,753 | 457,018 | 455,782 | 125,341 |
| Gold Grade | gpt | 4.05 | 1.38 | 7.57 | 5.28 | 6.08 | 4.90 | 4.39 | 2.95 | 1.37 | 1.37 | 0.94 |
| Silver Grade | gpt | 411 | 119 | 656 | 556 | 612 | 497 | 388 | 302 | 219 | 196 | 168 |
| AgEq Grade | gpt | 714 | 223 | 1,224 | 952 | 1,068 | 864 | 717 | 523 | 321 | 299 | 239 |

**Figure 16-44: Las Chispas Mine Schedule**



# 17.0 RECOVERY METHODS

SilverCrest plans to recover silver and gold from the Las Chispas mineral deposit. Silver mineralization at the Las Chispas Property is present as primary minerals, including argentite/acanthite, and secondary minerals, including stephanite; polybasite; and pyrargyrite/proustite. The majority of gold mineralization has been identified as native gold associated with pyrite, chalcopyrite, and silver sulphides that are typically argentite.

Based on the metallurgical testing results discussed in Section 13.0, Tetra Tech's industrial experience and experience with local operations with similar mineralized material, a conventional processing plant was designed to recover gold and silver from the mineralization at Las Chispas. The process includes gravity concentration, intensive leaching of the gravity concentrate, and cyanide leaching at a nominal throughput of 1,250 t/d or 456,250 t/a. The process plant will be located at the mine site and receive blended feed material from different veins according to the mine plan.

## 17.1 Process Design Criteria

The design criteria for the process plant is based on a nominal processing rate of 1,250 t/d. The mill complex will process feed materials at an 85% availability for the crushing plant based on one 12-hour shift per day and a 92% availability for the grinding circuit, cyanide leaching circuit, Merrill Crowe plant, and filtration units. The feed to the mill will be crushed and ground to a target grind size of 80% passing 100 µm prior to being fed to the gold and silver concentration via gravity and cyanide leaching circuits. The overall recovery is anticipated to be 94% for gold and 90% for silver, which were estimated according to the metallurgical test results as discussed in Section 13.0, the average feed grade from the current mine plan, and industrial experience. Table 17-1 shows the key process design criteria.

### Table 17-1: Process Design Criteria

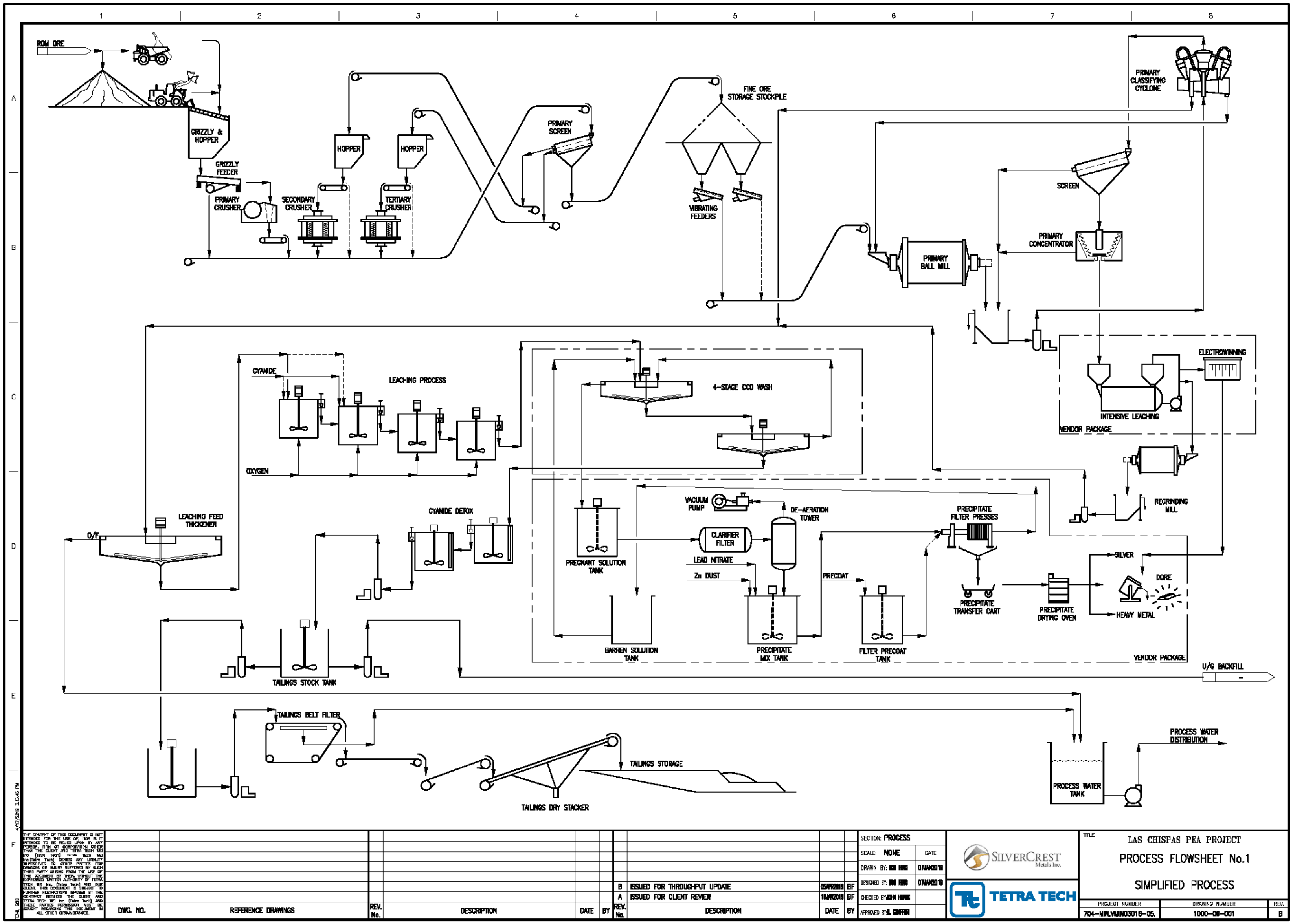
| Descriptions | Unit | Values |
|---|---|---|
| Daily Processing Rate | t/d | 1,250 |
| **Operating Schedule** | | |
| Annual Operating Days | d/a | 365 |
| Crushing Plant | - | 1 shift per day (12 hours per shift) |
| Grinding/Leaching/Gold Plant | - | 2 shifts per day (12 hours per shift) |
| Crushing Availability | % | 85 |
| Grinding/Leaching/Gold Plant Availability | % | 92 |
| Tailings Filtration Availability | % | 92 |
| **Feed Characteristics** | | |
| LOM Average Silver Grade | gpt | 411 |
| LOM Average Gold Grade | gpt | 4.05 |
| Bond Ball Mill Work Index | kWh/t | 17.5 |
| **Grinding** | | |
| Feed Particle Size $P_{80}$ | µm | 10,000 |

| Descriptions | Unit | Values |
|---|---|---|
| Product Particle Size $P_{80}$ | µm | 100 |
| **Recovery** | | |
| Total Gold Recovery | % | 94 |
| Total Silver Recovery | % | 90 |
| Tailings Management | - | hydraulic backfill and dry stacking |

## 17.2 Process Flowsheet Development

Figure 17-1 shows a simplified process flowsheet. The process plant will use a conventional comminution circuit to reduce the feed material size to the target level. The circuit will include a three-stage crushing circuit and a one-stage ball milling circuit. In the ball mill grinding stage, part of the cyclone underflow will be treated in a centrifugal concentrator to recover coarse free gold and silver. The gravity concentrate will be then leached with a high strength cyanide solution. The high-grade gold and silver solution will be sent to an electrowinning circuit to recover the dissolved gold and silver, while the intensive leaching residues will be reground and transferred to a conventional cyanide leaching circuit. The ball mill grinding product cyclone overflow will be thickened and then treated in a conventional cyanide leaching circuit to recover gold and silver. The leach residue will be washed in four-stages through a CCD circuit. The resulting pregnant solution will be processed using a Merrill-Crowe treatment by adding zinc powder to precipitate gold and silver. The precious metals precipitate and the electrowinning sludges from the intensive leach circuit will be combined and smelted on site to produce gold-silver doré bars.

## Figure 17-1: Simplified Process Flowsheet




Source: Tetra Tech

## 17.3 Unit Process Description

### 17.3.1 Crushing Circuit and Crushed Material Stockpile

A conventional three-stage closed-circuit crushing system was selected to reduce the feed material particle size to 80% passing approximately 10 mm. The nominal feed throughput of the crushing circuit will be approximately 92 t/h, based on one 12-hour shift per day operating at an availability of 85%.

The crushing circuit major equipment includes:

- Stationary grizzly;
- Jaw crusher (90 kW) for primary crushing;
- Standard head cone crusher (150 kW) for secondary crushing;
- Short head cone crusher (150 kW) for tertiary crushing;
- Double decked screen (22 kW) to control the crushed product particle size; and
- Associated material handling and storage systems (surge bins, feeders, conveyors, compressor, and air receiver).

The run-of-mine (ROM) material will be trucked from the underground mine to the mill feed stockpile facilities. The mill feed will be reclaimed from the stockpiles using front-end loaders, according to the mine plan. The jaw crusher will crush the ROM material from -450 mm to 80% passing 100 to 120 mm. The primary crusher product, joining with the secondary and tertiary crusher discharges, will be conveyed to a double deck vibrating screen to size the materials into three particle size fractions: +25 mm by the top deck, -25/+12 mm fraction, and -12 mm by the bottom deck. The oversize products from both sizing screen decks will feed the secondary and tertiary cone crushers, respectively. The undersize from the bottom deck of the sizing screen will be the final crushed product, with a particle size of 80% passing 10 mm or finer.

The crushed material will be conveyed to a mill feed stockpile with 2,500 t live capacity. Crushed mill feed will be reclaimed via draw down pockets located beneath the stockpile and will be conveyed to a primary grinding circuit.

### 17.3.2 Grinding Circuit

A conventional closed-circuit ball mill grinding process was selected to reduce the grinding circuit feed particle size to 80% passing 100 µm. The nominal feed throughput of the grinding circuit will be approximately 57 t/h, based on the operation schedule of two 12-hour shifts per day at an availability of 92%.

The grinding circuit will include:

- One ball mill, 3,960 mm in diameter by 5,180 mm in length, powered by a 1,200 kW fixed speed drive motor;
- Two 110 kW slurry pumps to pump ball mill discharge to hydro-cyclones with one in operation and one standby;
- Six 300 mm hydro-cyclones; and
- Associated material handling and storage systems (sump pumps, pump boxes, bins).

Crushed materials will be reclaimed from the stockpile onto the ball mill feed conveyor belt and discharged into the feed chute of the ball mill. The ball mill will be an overflow discharge type mill, 3,960 mm in diameter and 5,180 mm in length. The installed power of the ball mill is estimated to be approximately 1,200 kW. The ball mill discharge will report to a cyclone feed pumpbox; gravity separator tailings will also report to this pumpbox. The combined streams are estimated to have a nominal flow rate of 306 t/h and approximately 79 t/h of material will report to the gravity circuit to recover coarse free precious metals, while the remnant materials, approximately 227 t/h, will be fed into hydro-cyclones to separate the coarse and fine materials with a target size 80% passing 100 µm. The cyclone underflow will return to the ball mill feed. The grinding circuit circulation load will be approximately 300%. The cyclone overflow materials with a particle size of 80% passing 100 µm will report to the leaching circuit at a nominal rate of 57 t/h.

### 17.3.3 Coarse Gold and Silver Recovery

Coarse gold and silver will be recovered through gravity concentration, intensive leaching, and electrowinning systems. The loaded cathodes will be transferred to the common gold room with gold-silver precipitates from the Merrill-Crowe circuit for doré bar production.

#### 17.3.3.1 Gravity Concentration Circuit

The gravity circuit will recover coarse free precious metals and associated heavy minerals. The circuit will be located in a secure enclosed area with CCTV cameras and restricted access. The nominal feed throughput of the gravity circuit will be approximately 79 t/h, based on a 24-hour-per-day operation (two 12-hour shifts) at an availability of 92%.

The gravity concentration circuit will include:

- One gravity concentrator feed screen;
- Two centrifugal concentrators; and
- Associated material handling and storage systems (pumps, pump boxes, concentrate surge bin).

The cyclone feed pumps will pump part of the ball mill discharge to the gravity concentrator screen for steel scats and coarse feed materials removal. The screen undersize will be split into two lines feeding the two centrifugal concentrators. Together with the screen oversize, tailings from the gravity circuit will flow by gravity to the cyclone feed pumpbox. The gravity concentrate will be discharged automatically at a predetermined cycle time to an intensive leaching system feed surge bin.

#### 17.3.3.2 Intensive Leaching Circuit

The intensive leaching circuit will leach the precious metals from the high-grade gravity concentrate in a batch mode. A cyanide level of approximately 3% has been proposed for Las Chispas. The circuit will be located in a secure enclosed area with CCTV cameras and restricted access.

The intensive leaching circuit will include:

- One intensive leaching reactor; and
- Associated material handling and storage systems (pumps, sump pumps, reagent dosing units, and reagent and solution storage tanks).

The intensive leaching circuit will operate in batch, 24 hours per batch. The high-grade gravity concentrate will be reclaimed from its storage bin and fed into the intensive leaching reactor. Leaching reagents, including cyanide and leaching aids, will be added to improve gold and silver extractions. During leaching, leaching solution will be continuously recycled back to the reactor to maintain cyanide and oxygen levels. At the completion of the leaching cycle, pregnant solution will be pumped to the electrowinning circuit. The residues will be reground and pumped to the conventional cyanide leaching circuit.

#### 17.3.3.3 Electrowinning Circuit

The electrowinning circuit will recover gold and silver from the pregnant solution in the intensive leaching reactor. The circuit will be located in a secure enclosed area with CCTV cameras and restricted access.

The pregnant solution from the intensive leaching reactor will be pumped to an electrowinning cell feed head tank and then reclaimed at a controlled rate and fed to electrowinning cell. The precious metals will be deposited on the cathodes and transferred to the gold room for smelting. The loaded cathodes will be removed from the electrowinning cell at the end of the electrowinning to remove the deposited gold and silver. The barren solution from the electrowinning system will be re-used in the intensive leaching circuit or the Merrill-Crowe circuit. The overall gold and silver recoveries from the intensive leaching and electrowinning systems are expected to be higher than 90%.

### 17.3.4 Gold and Silver Recovery from Gravity Separation Tailings

The gold and silver from the cyclone overflow will be recovered through cyanide leaching and zinc precipitation treatments.

#### 17.3.4.1 Cyanide Leaching

The cyclone overflow will be thickened and then leached in an agitation leaching circuit. The nominal feed throughput of the cyanide leaching circuit will be approximately 57 t/h, based on a 24-hour-per-day operation (two 12-hour shifts per day) at an availability of 92%.

The cyanide leaching circuit will include:

- One 12,000 mm diameter leaching feed high rate thickener;
- Seven 11,000 mm diameter x 11,000 mm high leaching tanks; and
- Associated material handling and storage systems (pumps, sump pumps, pump boxes).

The cyclone overflow will be fed to the cyanide leaching feed thickener to increase the solids density to approximately 53% w/w. The thickened feed materials will be pumped to the head tank of a bank of agitated leaching tanks for gold and silver dissolution, where the reground intensive leach residue will also report. The leaching will be carried out at a pH level between 11.0 and 11.5 with an initial cyanide concentration of 2 g/L sodium cyanide. Liquified oxygen will be introduced into the circuit to maintain the desired oxygen level during the leaching process. An approximate 90-hour leach retention time has been designed for this process. The discharge from the last leaching tank, the leached slurries, will be washed using a CCD washing system and the pregnant solution will be treated using a Merrill-Crowe process.

#### 17.3.4.2 CCD Thickener Washing Circuit

A CCD thickener washing circuit will be used to recover soluble precious metals from the leached slurries. A four-stage CCD thickener washing circuit was selected for this process. The nominal feed throughput of the circuit will be approximately 57 t/h, based on a 24-hour-per-day operation (two 12-hour shifts per day) at an availability of 92%.

The CCD thickener washing circuit will include:

- Four 12,000 mm diameter high rate thickeners;
- One 10,000 mm diameter by 10,500 mm high pregnant solution tank; and
- Associated material handling and storage systems (pumps, sump pumps, pump boxes).

The leached slurries will be pumped to the first CCD thickener and the underflow will be fed to the next CCD thickener. The process will repeat until the solids flow reports to the last CCD thickener. The underflow of the last CCD thickener will be pumped to a cyanide destruction circuit prior to disposal. The overflow from the last CCD thickener will flow in a counter current mode to the preceding thickener. The barren solution from the Merrill-Crowe circuit and fresh water will be used as a washing solution. The overflow from the first CCD thickener will be collected in the pregnant solution tank and sent to the Merrill-Crowe process. The pregnant solution tank was sized to store the pregnant solution for approximately three hours.

The washing ratio, washing solution tonnage to feed solids tonnage, is 3:1 for Las Chispas in order to achieve an overall CCD washing performance efficiency of higher than 99%.

#### 17.3.4.3 Merrill-Crowe Precipitation Circuit (Vendor Package)

The pregnant solution from the CCD washing circuit will be treated using the Merrill-Crowe process to recover the contained precious metals by zinc-dust cementation. The barren solution will then be re-used in the CCD washing circuit as a washing solution and makeup water in cyanide leaching circuit and grinding circuit. The nominal solution feed rate to the Merrill-Crowe precipitation circuit will be approximately 184 $m^3$/h, based on a 24-hour-per-day operation at an availability of 92%.

The Merrill-Crowe precipitation circuit will be provided as a vendor package, which typically includes:

- Vertical leaf clarification filter(s);
- One de-aeration tower;
- One precipitation mixing tank;
- Precipitation filter press unit(s); and
- Associated material handling and storage systems (pumps, sump pumps, pump boxes, feed conveyors).

The pregnant solution from the first CCD thickener will be discharged to the pregnant solution tank. The pregnant solution will then be pumped to a leaf clarifier filter precoated by a diatomaceous earth filter aid to remove suspended solids. The clarified solution will be pumped to the de-aeration tower where the solution will be de-oxygenated. The discharge from the de-aeration tower will be mixed with a slurry of zinc dust, lead nitrate, and cyanide in the precipitate mixing tank where the precipitation reactions occur. The slurry with the gold and silver precipitates will be pumped through a pre-coated filter press where the gold and silver precipitates, together with other solids, will be removed. The barren solution will be re-used as the washing water for the CCD washing circuit and as make-up water for cyanide leaching circuit and grinding circuit.

The precipitation efficiency is estimated to be higher than 99% for both the metals. A filter aid will be required for both the leaf clarification filter and the precipitate filter press. A small amount of lead nitrate will be also added to improve the precipitation efficiency.

### 17.3.5 Refining Circuit (Vendor Package)

Gold and silver sludges from the intensive leaching circuit and the gold and silver precipitates from the Merrill-Crowe circuit will be further treated by smelting into gold-silver doré for sale. The refining process will be performed in a batch mode. The circuit will be in a secure enclosed area with CCTV cameras and restricted access.

The refining circuit will be a vendor package, which typically includes:

- Calcination furnace(s);
- One 30 kW electric arc smelting furnace;
- One flux mixer;
- One gold-silver doré safe; and
- Associated material handling and other systems (molds, dryers, dust collection system).

The precipitate filter cakes from the Merrill-Crowe circuit and the gold-silver sludge from the intensive leach circuit will be dried and calcified at approximately 730°C. Fluxing agents will be mixed with the calcined materials prior to the smelting process, which will be conducted in an electric furnace at a temperature of approximately 1,250°C. The liquid metals will be poured into molds to form gold-silver doré bars. The slags generated from the refining treatment will be retreated separately to recover residual gold and silver or be sold for the precious metal recovery.

Sufficient ventilation and off-gas handling will be provided in the gold room for a healthy work environment. Fume and dust exposure for the melting furnace and material handling will be controlled through a ventilation system installed in the gold room, including hoods, enclosures and wall fans to follow the local regulations/guidelines.

Gold-silver doré products will be stored in a dedicated safe in the gold room. Doré products will be shipped by contractors by armored transport. An inventory record book will be maintained in the gold room for recording all the movements of doré products into and out of the safe.

### 17.3.6 Cyanide Destruction

The washed leach residue slurry from the CCD washing circuit will be treated using a sulphur dioxide ($SO_2$)-air process to reduce the WAD cyanide to less than 10 ppm before being discharged to the on-site residue storage facilities. The nominal feed throughput of the circuit will be approximately 57 t/h, based on a 24-hour-per-day operation (two 12-hour shifts per day) at an availability of 92%.

The cyanide destruction circuit will include:

- Two cyanide destruction reaction tanks of 4,000 mm in diameter by 4,500 mm high; and
- Associated material handling systems (pumps, pump boxes, sump pumps).

The last CCD thickener underflow, with a solid density of approximately 50%, will be pumped to the cyanide destruction tanks where sodium metabisulfite (SMBS), copper sulphate, and lime slurry reagents will be added to reduce the WAD cyanide content to the target level. This process is expected to reduce the WAD cyanide in the tailings to less than 10 ppm. The treated tailings will be pumped underground for storage or to a filtration dewatering circuit prior to being stored in the designated dry stacking area.

### 17.3.7 Final Tailings Dewatering

The detoxified tailings will be pumped into one 12,000 mm diameter by 12,000 mm high tailings surge tank prior to being pumped to the underground mine for storage or to a filtration plant for further dewatering prior to dry stacking in the designated leach residue storage facility, located adjacent to the process plant. Two vacuum belt filters, each with a filtration area of 70 $m^2$, were selected for this purpose to increase the solid density of the tailings from approximately 50% w/w to approximately 75 to 80% w/w. The nominal rate of the final tailings will be approximately 57 t/h based on a 24-hour-per-day operation at an availability of 92%.

### 17.3.8 Reagent Handling and Storage

The covered and curbed reagent storage and preparation area will be located adjacent to the leaching area. A forklift with a drum handler will be used for reagent handling. Electric hoists servicing in the reagent area will lift the reagents to the respective reagent mixing area located above the mixed reagent storage area. The reagent handling system will include unloading and storage facilities, mixing tanks, stock tanks, transfer pumps, and feeding equipment. Table 17-2 shows the reagents proposed for the process plant. Anti-scaling chemicals may be required to minimize scale built-up in the process water supply lines. This reagent will be delivered in liquid form and pumped directly into the reclaim water tank at a controlled rate.

**Table 17-2: Summary of Reagents**

| Reagent | Preparation Method | Use |
|---|---|---|
| Flocculant | Received as powder in 25 kg bags; mixed to 0.2% storing strength; transferred to a storage tank and dosed directly to the cyanide leach feed thickener and CCD washing thickeners with dilution as required. | Flocculation of cyanide leach feed thickener and CCD washing thickeners |
| Sodium Cyanide | Received in bulk bags; mixed to 20% strength; transferred to a storage tank and dosed to the intensive leaching and cyanide leaching circuits. | Leaching agent |
| Lime | Received as powder in 1 t bags, mixed to 20% strength; transferred to a storage tank and dosed to the intensive leaching, cyanide leaching and cyanide destruction circuits. | pH control added as required |
| Liquified Oxygen | Received as liquid; gasified and sent to the cyanide leaching circuit | Cyanidation reagent |
| Diatomaceous Earth | Received as powder in 25 kg bags; transferred to a storage tank and dosed to the Merrill-Crowe circuit. | Precoat in the Merrill-Crowe process |
| Lead Nitrate | Received as powder in bulk bags, mixed to 20% strength; transferred to | Catalyst in cyanidation and a co-precipitation regent in Merrill-Crowe |

| | | |
|---|---|---|
| | a storage tank and dosed directly to the intensive and cyanide leaching circuits, as well as Merrill-Crowe circuit. | |
| Zinc Powder | Received as powder in 25 kg bags and dosed to Merrill-Crowe circuit. | Precipitation regent |
| Sodium Metabisulfite | Received as powder in 1 t bags; mixed to 20% strength; transferred to a storage tank and dosed to the cyanide destruction circuit. | Reactant in the cyanide destruction Process |
| Copper Sulphate | Received as powder in 25 kg bags; mixed to 10% strength; transferred to a storage tank. Dosed to the cyanide destruction circuit. | Catalyst in the cyanide destruction process |
| Flux | Received as powder in bulk; mixed with calcined charges for smelting. | Fusion agent |

## 17.4 Plant Services

### 17.4.1 Water Supply and Distribution

Fresh water and process water will be required to operate the process plant. Fresh water will be provided to a fresh water storage tank, where it will be further pumped for various application points, including reagent preparation, gland seal, gravity concentration, and general mill make-up water supply. Process water will be made up of reclaimed water from the cyanide leach feed thickener overflow and final tailings filtrate, as well as make-up fresh water. Process water will be stored in a process water tank and pumped to the grinding circuit, gravity concentration circuit, and cyanide destruction circuit. The barren solution from the electrowinning circuit will be mainly recycled in the intensive leach circuit and the barren solution from the Merrill-Crowe circuit will be mainly re-used in the CCD washing circuit as washing water. The remnant barren solution will be pumped to the cyanide leaching circuit and grinding circuit.

### 17.4.2 Air Supply and Distribution

Air service systems will be provided at the mine site for the following applications:

- Crushing: high-pressure air will be provided for the crushing facility.
- Filtration: high-pressure air for filter pressing and drying of tailings and loaded zinc precipitates, which will be provided by dedicated air compressors.
- Plant air: high-pressure air will be provided for the process plant for various maintenances.
- Instrumentation: dried and oil-free instrument air will come from the plant air compressors and stored in a dedicated air receiver.

### 17.4.3 Instrumentation and Process Control

A distributed control system (DCS) will be designed and installed in the process plant. The process control system will consist of individual locally mounted control panels located near the equipment and a PC-based operator interface station (OIS) located in a centralized control room. The local control panels will act as a local point for monitoring and control of the nearby equipment and instrumentation. They will also act as the distribution point of power for instrumentation. Major process performances, including process rates, mill power draw, and motor variable speeds, will be displayed in the centralized control room. Alarm annunciation will be local to the major equipment or located on the local control panel. The DCS and OIS will perform process control and data management through equipment and processing interlocking, control, alarming, trending, event logging, and report generation. In this manner, the process plant will be monitored and operated automatically from operator workstations in conjunction with control systems.

### 17.4.4 Quality Control

A metallurgical and assay laboratory will be provided to conduct daily assays for quality control and optimize process performance. The assay laboratory will be equipped with the necessary analytical instruments to provide all the routine assays for mine samples, geological samples, process plant samples, and samples taken for environmental monitoring. The metallurgical laboratory will undertake all basic test work to monitor metallurgical performance and to improve the process flowsheet and efficiencies.

## 17.5 Annual Production Estimate

The process plant will generate gold-silver doré during the proposed nine-year LOM. The annual metal production rate has been projected based on the mine plan and metallurgical performance projections. The process plant is estimated to produce 473,812 oz of gold and 45,833,515 oz of silver contained in gold-silver doré. Table 17-3 provides the overall doré production projections.

## Table 17-3: LOM Doré Production Projection*

| | Units | Total/ Average | Production Year | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | -1 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Mill Feed | kt | 3,860,695 | 100,000 | 442,570 | 455,684 | 456,980 | 455,773 | 455,793 | 455,753 | 457,018 | 455,782 | 125,341 |
| Mil Feed Grade | gpt Au | 4.05 | 1.4 | 7.6 | 5.3 | 6.1 | 4.9 | 4.4 | 2.9 | 1.4 | 1.4 | 0.9 |
| | gpt Ag | 411 | 119.0 | 656.5 | 555.8 | 612.1 | 496.6 | 387.6 | 302.0 | 218.7 | 196.1 | 167.8 |
| Recovery | % Au | 94 | 89.4 | 94.4 | 94.4 | 94.4 | 94.4 | 94.4 | 94.4 | 94.4 | 94.4 | 94.4 |
| | % Ag | 90 | 84.9 | 89.9 | 89.9 | 89.9 | 89.9 | 89.9 | 89.9 | 89.9 | 89.9 | 89.9 |
| Gold and Silver Production in Doré | oz Au | 473,812 | 3,967 | 101,703 | 73,057 | 84,302 | 67,816 | 60,735 | 40,750 | 18,988 | 18,903 | 3,592 |
| | oz Ag | 45,833,515 | 324,822 | 8,397,549 | 7,319,748 | 8,084,643 | 6,541,819 | 5,105,671 | 3,978,327 | 2,889,498 | 2,583,451 | 607,985 |
| | oz AgEq(1) | 81,369,437 | 622,310 | 16,025,246 | 12,798,989 | 14,407,317 | 11,628,015 | 9,660,785 | 7,034,608 | 4,313,606 | 4,001,139 | 877,422 |

Note: Mill feed tonnage and doré production are rounded to the nearest integers.
(1) AgEq is based on silver to gold ratio of 75:1. This was calculated using long-term silver and gold prices of US$17/oz silver and US$1,225/oz gold with approximate average metallurgical recoveries of 90% silver and 95% gold.

# 18.0 PROJECT INFRASTRUCTURE

## 18.1 Access Roads

The Las Chispas Property can be accessed from Highway 89 (Photo 18-1) via the 10 km existing access road (Photo 18-2). The net elevation gain along the main access road is approximately 440 m (from Rio Sonora crossing to Santa Rosa Porta), towards the Property. Main access road upgrades will be required to facilitate transportation of equipment and materials during construction and operations. The upgrades will include a concrete ford or bridge crossing over the Rio Sonora, located approximately 250 m east of Highway 89.

Additions and upgrades to existing access roads will be required to access mine infrastructure including mine portals, process plant, explosive magazines, potable water well, DSTF, seepage ponds, and all other, ancillary infrastructure.

**Photo 18-1: Highway 89 Near Site Access Road Junction**

**Photo 18-2: Existing Access Road at Site**

## 18.2 Plant Site Buildings and Facilities

The principal buildings at the plant site will include a process plant, a truck shop, an administration building, a warehouse, a gold room, a reagent storage facility, and an assay laboratory. Where practicable, building will be modular type construction reduce construction costs. The truck shop and most of the process plant will be semi-open with low walls and only roofed where necessary. The gold room will be equipped with thick concrete floors and walls; a heavy-duty building enclosure to prevent unauthorized entry; and secured entry and exit points. The generator sets and principal electrical gear, including MCC's, will be modularized and packed in standard shipping containers for more efficient transport and installation.

Figure 18-1 illustrates the overall site layout and Figure 18-2 illustrates the general arrangement of the process plant and ancillary facilities.

**Figure 18-1: Overall Las Chispas Project Site Layout**

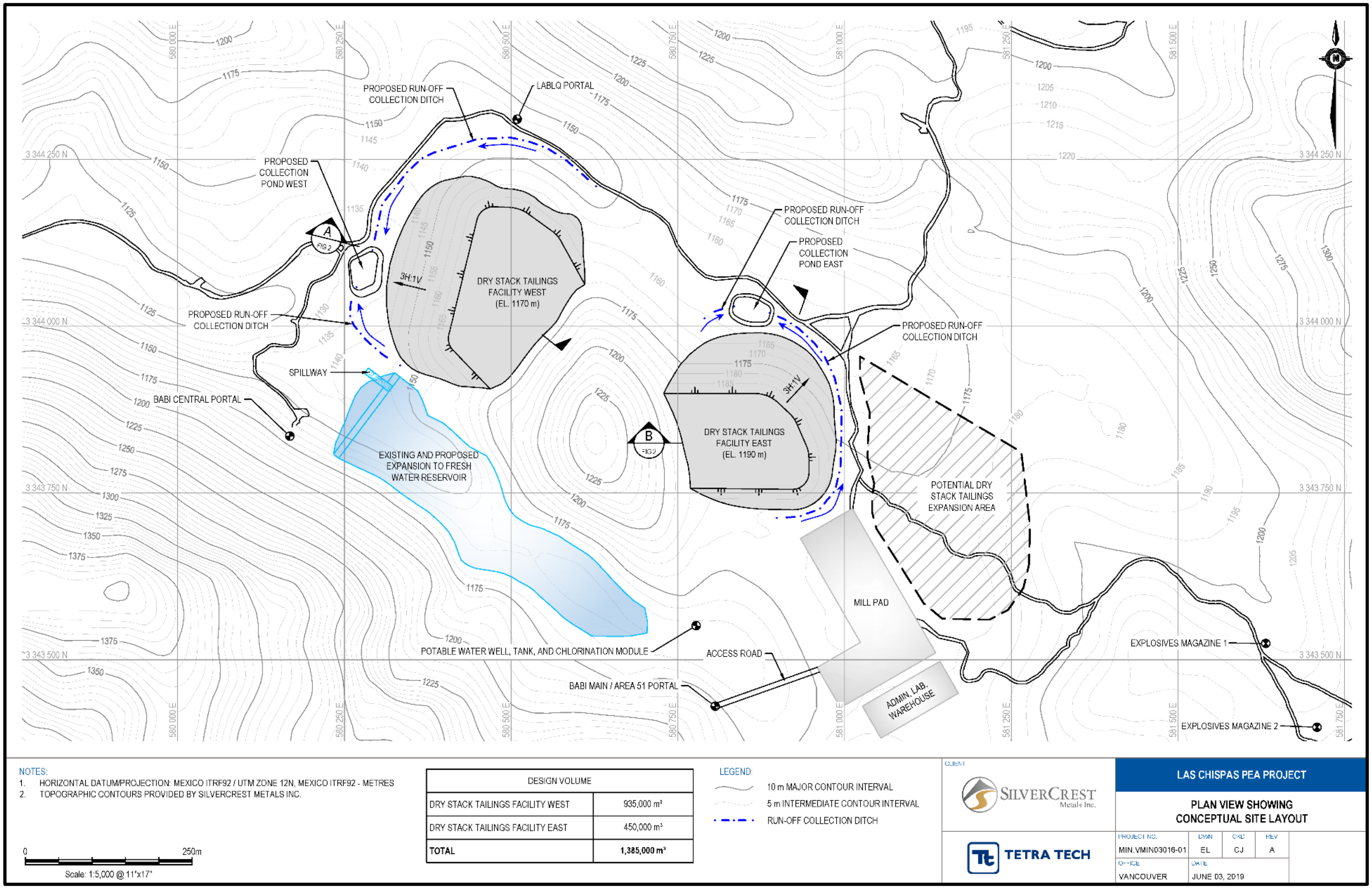
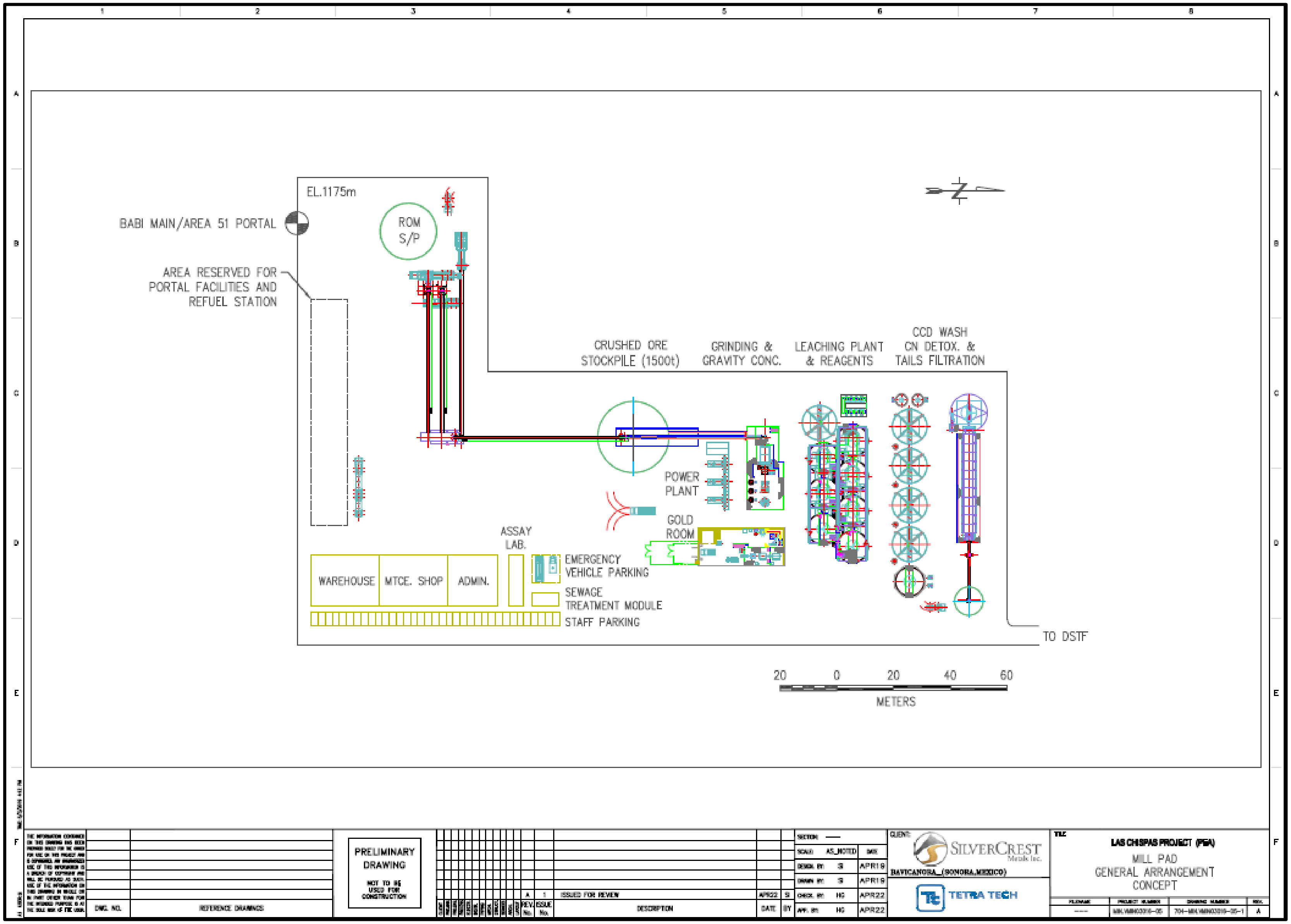


**Figure 18-2: Process Plant and Ancillary Facility General Arrangement**






TETRA TECH

### 18.2.1 Process Plant

Most of the process plant area will not be fully roofed and principal construction will be concrete foundations, steel structures for supporting process equipment, platforms, and walkways. Where required, there will be some areas of the process plant that will be roofed. Process plant cranage will be provided by a mobile crane for most areas. An overhead bridge crane will be installed over the grinding area for ongoing operations and maintenance. The process plant will have elevated steel platforms in the grinding area and over the leach tanks and other large tanks for maintenance access. The process plant foundation will consist of concrete spread footings and containment bunds along the building perimeters and a slab-on-grade floor. The floor surfaces will have localized areas that are sloped toward sumps for clean-up operations.

The ball mill feed stockpile will be on top of a reclaim tunnel that will allow for a controlled feed of crushed mineralized material to the ball mill circuit. The stockpile will have a live capacity of 2,500 t. Crushed mineralized material will be conveyed to the stockpile and then be reclaimed by belt feeders onto the ball mill feed conveyor, which will transport the crushed mineralized material to the ball mill.

The grinding area will consist of a pre-engineered steel structure with a 25/5 t overhead bridge crane and its supporting rails and columns. Interior steel platforms on multiple levels will be provided for ongoing operation and maintenance needs. Several means of egress and staircases will also be provided. Gravity concentration and intensive leaching will be in a secured area.

Major process equipment will be supported on heavy concrete mat foundations with reinforced concrete piers. Smaller process equipment will be supported on independent steel platforms, complete with steel grating and handrails.

Reagent storage, control room, offices, and electrical room will be housed inside modular buildings, equipped with HVAC equipment where necessary.

Merrill Crowe facility will be housed in a pre-engineering building. The gold electrowinning and refining areas will be provided with sufficient ventilation to mitigate the potential impact of off-gas produced from the melting furnace and dust generated from flux mixing. The gold room will be constructed with thick concrete floors and walls complete with a heavy-duty building enclosure, entry gates, CCTVs, motion sensors, and alarms. The facility will be monitored 24 hours per day by the security personnel. Access to the gold room will be restricted to authorized personnel only. There will be a fenced area for controlled entry and exit of the armour transport vehicle to prevent unauthorized entries into the gold room, while the armoured vehicle is entering or exiting the facility.

Gold-silver doré products will be stored in the dedicated safe in the gold room. Doré products transportation will be made by contractors in armoured trucks.

There will be two 70 $m^2$ vacuum belt filters located on the east end of the mill pad, which are designed to reduce the water content in the tailings from approximately 50% w/w to approximately 80% w/w. There will be a conveyor system set up between the mill pad and DSTF. The conveyors will move the filtered tailings from the process plant to DSTF.

An optical fibre backbone is included throughout the process plant to provide a path for the data requirements for voice, data, and control system communications. A fibre backbone for a site ethernet-type system will be included and will provide data and voice bandwidth.

### 18.2.2 Conveying

Conveyors will be vendor supplied, including all structural support frames, trusses, bents, and take-up structures. Elevated conveyors will be supported with vendor supplied steel trusses and bents on concrete foundations.

### 18.2.3 Administration Building

The administration building will be a single-story, air-conditioned modular building near other ancillary buildings. The building will be supported on concrete footings or screw piles along its perimeter. This facility will house mine dry, lockers, shower facilities, first aid, and office areas for the administrative, engineering, and geology staff.

### 18.2.4 Maintenance Shop

The maintenance shop facility will be a pre-engineered steel structure with a roof and low walls and limited interior support steel structures. The building will be supported on concrete spread footings and concrete grade walls along its perimeters. Sumps and trenches will be constructed to collect wastewater in the maintenance bays. Floor hardener will be applied to concrete surfaces in high-traffic areas.

The facility will house a wash bay complete with repair bays, parts storage area, welding area, machine shop, electrical room, mechanical room, air compressor, and lube storage. The facility is designed to service and maintain both the mining fleet and the process plant/site services fleet.

### 18.2.5 Warehouse

The storage warehouse will be an enclosed, pre-engineered building with a concrete floor and storage racks, and office area to support warehousing personnel.

### 18.2.6 Assay Laboratory

The assay laboratory will be a single-storey modular building. The building foundation will consist of concrete spread footings. The facility will house the assay and metallurgical laboratory equipment required for necessary grade control assays and metallurgical tests. It will be equipped with all appropriate HVAC and chemical disposal equipment as needed. The facility floor will be reinforced as needed to accommodate specialized equipment.

### 18.2.7 Fuel Storage

Diesel fuel requirements for the mining equipment and the process and ancillary facilities will be supplied from above-ground diesel fuel storage tanks located near the Babicanora Main/Area 51 portal. The diesel fuel storage tank will have a capacity sufficient for approximately five days of operation. Diesel storage will consist of above-ground tanks and a containment pad, complete with loading and dispensing equipment conforming to all applicable regulations. The diesel storage tanks will be of modular type, with dimensions similar to standard 20 ft cargo shipping containers. The tanks can be relocated to optimize the mining fleet cycling distances during the LOM, given the multi-portal nature of the Las Chispas Project.

### 18.2.8 Air Conditioning and Ventilation

All offices and enclosed working spaces will be air conditioned to a to provide comfortable working conditions. Smaller electric air conditioning units (min-splits) will be installed where required.

Mechanical rooms, electrical rooms, and storage will be ventilated using filtered outdoor air.

Washrooms, change rooms, and janitorial rooms will be mechanically exhausted to atmosphere. Make-up air will either be transferred from adjacent areas or supplied as filtered outdoor air.

### 18.2.9 Plumbing

All plumbing fixtures will be hard-piped by gravity to the sewage treatment module.

All sinks and showers will be hard-piped with both potable hot and potable cold water.

Water will be heated in hot water storage tanks near the end users. Electrical heating will be used.

All fixtures connected to the sanitary system will be vented.

All cold-water piping will be insulated to prevent condensation, and all hot-water piping will be insulated for heat conservation.

Oil separators will be provided in truck shops and truck washes.

### 18.2.10 Fire Protection

A complete fire water/chemical storage, distribution and dispensing system will be constructed and installed as per applicable regulations. Fire detectors, alarms, and extinguishers will be installed where required.

Sprinkler systems will be provided in lube rooms, air compressor rooms, blower rooms, warehouse, laboratory, and the administration building.

### 18.2.11 Communication

On-site communication systems will include a voice over internet protocol (VoIP) telephone system, a local area network (LAN) with wired and wireless access points, hand-held very high frequency (VHF) radios, and a leaky feeder network for the underground mine.

Off-site communications will utilize a satellite-based, cellular-based, or landline-based system. The economics between these options depend on the proximity of the nearest available fibre-optic or cellular network in the region.

### 18.2.12 Power Generation and Distribution

The peak power demand at Las Chispas is estimated 3.6 MW.

The power will be supplied by four, 1.2 MW diesel generators. Three of the four units are expected to operate full time; the fourth generator will be available as a stand-by unit. The site electrical distribution system will run on 4,160 V, which is the same voltage as the power generation system. Motor control centres (MCCs) and power distribution centres at each facility will manage and control power requirements.

The diesel generators will be located as close as possible to the grinding/mill loads as these are the largest loads.

## 18.3 Water Management

The key facilities for the water management plan are:

- Underground mine dewatering, predominantly from backfilling operations;

- Mill (including fresh and process water tanks);
- DSTF;
- Surface water diversion and water management structures;
- Fresh water supply system, including pumps and piping; and
- Sediment and erosion control measures for the facilities.

The water management strategy utilizes water within the Las Chispas Project area to the maximum practical extent. The plan involves collecting and managing site runoff from disturbed areas and maximizing the recycle of process water. The water supply sources for the Las Chispas Project are as follows:

- Precipitation runoff from the mine site facilities;
- Water recycled from the tailings dewatering system;
- Water withdrawn from the Rio Sonora for fresh water supply and potable water; and
- Treated black and grey water, in small quantities, from the buildings.

A detailed site water balance assessment will be carried out to determine the water management strategy and process make-up water requirements during the next phase of the Project.

Potable water drawn from the Rio Sonora will be pumped and distributed to various facilities on site.

### 18.3.1 Reclaim Water System

Reclaim water for use in the mill processes will be pumped from the tailings filtrate water tank to the process water storage tank. The process water storage tank will store a 24-hour supply of mill process water, which will be gravity fed to the plant site. Additional process water will be obtained from other sources described in Section 18.3.

### 18.3.2 Sewage Treatment Module

Sewage collected from the ancillary buildings will be pumped to the sewage treatment module for proper treatment prior to being discharged. The sewage treatment module will be of the rotating-biological-contactor type. Treated effluent will be pumped to the designated discharge point for release.

### 18.3.3 Additional Water Management Facilities

Additional facilities have been identified for water management. The conceptual level design of these facilities has not yet been completed at this stage of development. However, an allowance for these items (including an allowance for cost) are included as they will need to be evaluated and incorporated into subsequent design studies.

## 18.4 Dry Stack Tailings Facility

The DSTF was designed to accommodate 2 Mt of tailings to be stored in a surface facility over the nine-year LOM. The design mill throughput rate will be a nominal 450 kt/a, with approximately 50% of the produced tailings used for underground mine backfill and the remainder requiring surface storage.

A DSTF concept was adopted based on the mine plan, the limited available construction materials, and to avoid risks associated with storage of conventional slurried tailings behind a dam. The tailings to be stored on surface will be thickened, filtered, and delivered by conveyor to the DSTF. Over the LOM, two facilities will be constructed to store filtered tailings. The final geometry and key features of the proposed West and East DSTF are shown in the site layout Figure 18-1 and in typical cross sections in Figure 18-3. Surface water will be diverted by a diversion berm at the perimeter of each storage area. Contact water within the DSTF will drain to a collection basin situated down slope of each storage pond. The DSTFs will be sited to the north and west of the proposed process plant at a location that does not conflict with drainage and access roads that are located in the adjacent valley bottom.

The design will permit storage of approximately 1.4 $Mm^3$ of tailings at an assumed average tailings dry density of 1.5 $t/m^3$. The tailings geochemistry has not been assessed and seepage containment and contact water collection measures will be incorporated into the design.

## Figure 18-3: Dry Stack Tailings Facility Typical Cross Sections

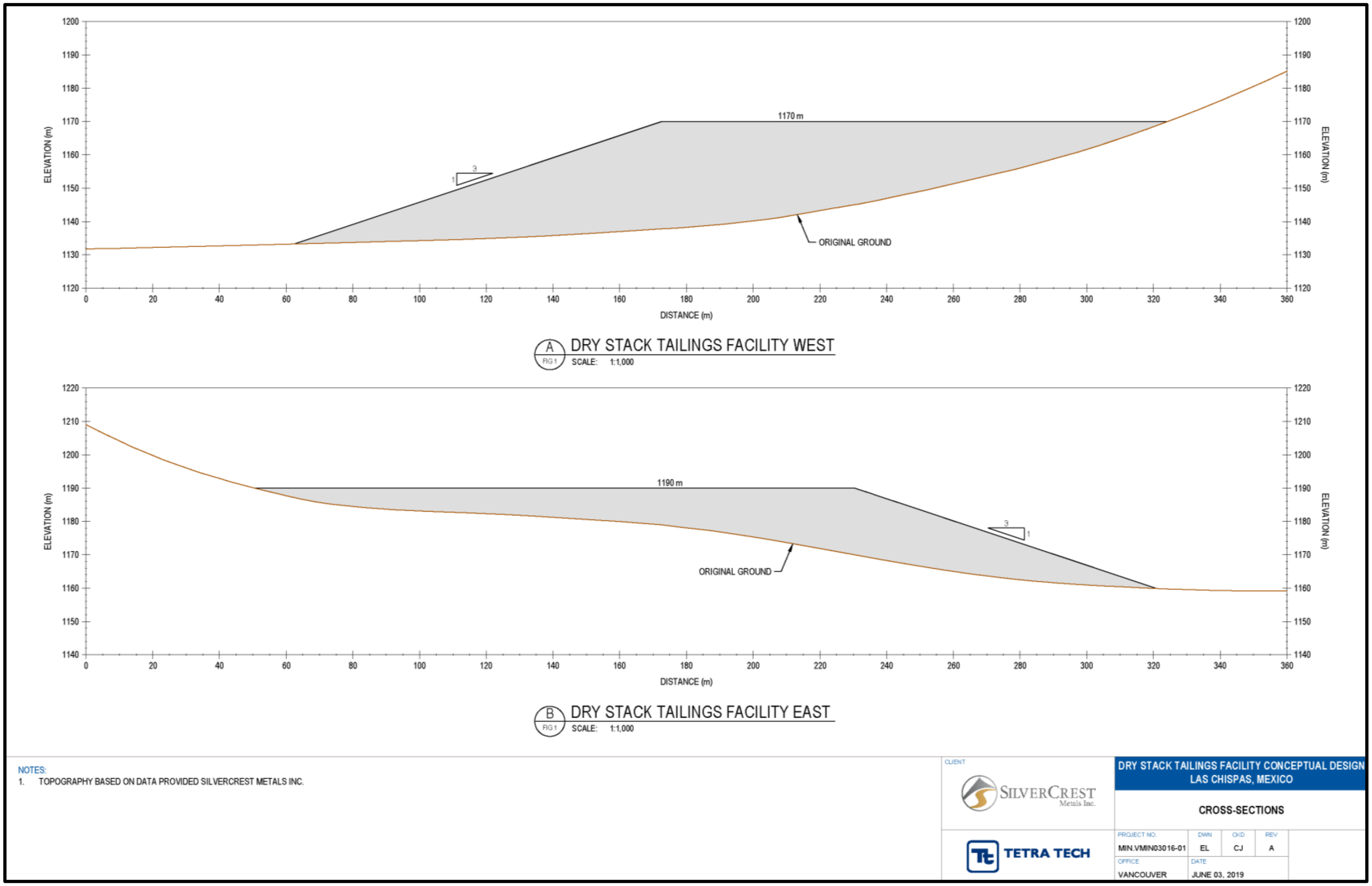


Table 18-1 provides a summary of the DSTF design requirements and characteristics.

**Table 18-1: DSTF Requirements and Characteristics**

| DSTF Feature/Requirement | Units | Value |
|---|---|---|
| Required Tailings Storage Capacity | Mt | 2 |
| | kt/a | 220 (nine years) |
| East DSTF Storage Volume | $m^3$ | 935,000 |
| West DSTF Storage Volume | $m^3$ | 450,000 |

### 18.4.1 DSTF Construction and Operation

Two “sidehill” type filtered DSTFs will be constructed. The foundation will be stripped of any unsuitable material and topsoil stockpiled for future reclamation. Some modest cuts-and-fills of the post-excavation surface are expected to facilitate drainage and smooth out local topographic variations. Any unsuitable materials within the foundation, if encountered, will be removed. Unsuitable materials may include historic fill, organic topsoil, soft saturated zones, and other potentially deleterious materials.

The foundation soils will be compacted to mitigate seepage and a contact water collection ditch will be constructed downstream to intercept runoff and seepage. The contact water collection ditches will drain to storage ponds where the contact water may be treated, if required, and released or pumped back to the process plant for re-use. Surface water diversion ditches will be constructed to divert surface water from the small catchment area upslope of the DSTF.

Construction quality control and assurance will include field and laboratory monitoring and testing of soil and compaction characteristics.

Tailings will be conveyed to the DSTF and pushed out in lifts by a bulldozer. A nominal 40 m wide zone at the tailings stockpile downstream perimeter will be moisture conditioned and compacted to a nominal 95% standard maximum dry density to create a perimeter structural zone. This approach will optimize tailings storage capacity while reducing the risks associated with tailings stockpile stability and erosion.

The adopted filtered tailings stack slope design geometry is 3H:1V to suit typical stability and closure requirements. The East and West DSTFs will ultimately reach approximately 30 m and 38 m high, respectively. The East DSTF will be constructed first because it is closer to the plant and thus will have a lower tailings transport cost. Area for potential tailings expansion is being permitted.

### 18.4.2 DSTF Monitoring and Closure

The DSTF monitoring program will include the DSTF stability, tailings storage management, and groundwater quality.

Embankment stability will be monitored by routine visual inspections and periodic measurements of survey monuments installed on the stockpile.

Tailings management will be monitored by routine visual inspection by operations and management staff as well as periodic audits by geotechnical specialists.

Standpipe piezometers will be installed to permit monitoring of groundwater flow and quality.

The conceptual closure plan involves covering the surface and slopes of the DSTF with geochemically benign waste rock and overburden and revegetating. The nominal 1 m thick cover will be progressively placed to further mitigate risk of wind and water erosion. The revegetation technique that is adopted will be based on site-specific trials and experience.

# 19.0 MARKET STUDIES AND CONTRACTS

Detailed market studies on the potential sale of silver and gold doré from the Las Chispas Project have not been completed. However, SilverCrest reviewed payment terms and refining costs proposed by the Financial Model QP. These payment terms and refining costs were included in the economic analysis (Table 19-1).

Numerous mining operations sell silver and gold doré in Mexico and elsewhere. Prior to production, SilverCrest will engage with gold and silver buyers and make the necessary arrangements to safely transport, refine, and sell the doré.

**Table 19-1: Gold and Silver Doré Terms used in the Las Chispas Project PEA Financial Model**

| Smelter Terms (Doré) | Unit | Value Used |
|---|---|---|
| Gold Payable | % | 99.85 |
| Silver Payable | % | 99.85 |
| Transport and Insurance | US$/AgEq oz doré | 0.014 |
| Treatment/Refining | US$/AgEq oz doré | 0.22 |

## 19.1 Metal Pricing

Metal pricing used for the PEA was agreed upon based on various metal price sources. These include price forecasts from banks and financial institutions, three-year trailing average of spot prices, as well as spot prices.

Based a review of forecast and current pricing, the metal pricing for the PEA applied is:

- Gold price of US$1,269/troy oz payable; and
- Silver price of US$16.68/troy oz payable.

# 20.0 ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT

## 20.1 Mexican Permitting Framework

Environmental permitting of the mining industry in Mexico is mainly administered by the SEMARNAT, the federal government regulatory agency that establishes minimum standards for environmental compliance.

Guidance for the federal environmental requirements is largely held within the General Law of Ecological Equilibrium and Environmental Protection *(*Ley General Del Equilibrio Ecológico y la Protección al Ambiente or LGEEPA). The LGEEPA contains articles for soil protection, water quality, flora and fauna, noise emissions, air quality, and hazardous waste management. Article 28 of the LGEEPA specifies that SEMARNAT must issue prior approval to parties intending to conduct exploration, exploitation and beneficiation of mineral resources including development of a mine and mineral processing plant. Article 5 Section X of the LGEEPA authorizes SEMARNAT to provide the approvals for the works specified in Article 28.

An environmental impact statement by Mexican regulations called a MIA must be filed with SEMARNAT for evaluation purposes. In some cases, mining projects must also include a risk study (ER) and must include an Accident Prevention Plan (Prevención de Accidentes or PPA) with the MIA. If applicable and dependent on risks and size, further approval by SEMARNAT is authorized through the issuance of an environmental impact assessment (EIA). The EIA specifies approval conditions where works or activities have the potential to cause ecological imbalance or have adverse effects on the environment.

Further requirements for compliance with Mexican environmental laws and regulations are supported by Article 27 Section IV of the Mining Law (Ley Minera) and Articles 23 and 57 of the Regulation of the Mining Law (Reglamento de la Ley Minera).

Water resources are regulated under the National Water Law (Ley de Aguas Nacionales) which provides authority to the National Water Commission (Comisión Nacional del Agua or CONAGUA), an agency within SEMARNAT, to issue water extraction concessions and specifies certain requirements to be met by applicants.

Another important piece of environmental legislation is the General Law of Sustainable Forestry Development (Ley General de Desarrollo Forestal Sustentable or LGDFS). Article 117 of the LGDFS indicates that authorizations must be granted by SEMARNAT for land use changes to industrial purposes. An application for change in forestry land use (CUSTF) must be accompanied by a Technical Justification Study (Estudio Técnico-Justificativo or ETJ).

The General Law for the Prevention and Integrated Waste Management (Ley General para la Prevención y Gestión Integral de los Residuos or LGPGIR) also regulates the generation and handling of mining waste materials. Guidance for the environmental legislation is provided in a series of Official Mexican Standards (Norma Oficial Mexicana or NOMs). These regulations provide specific procedures, limits, and guidelines and carry the force of law.

### 20.1.1 Exploration Permitting

Las Chispas will require ongoing exploration permits to continue with drilling and exploration activities. To-date the project has four active exploration permits. These permits were issued by SEMARNAT. SilverCrest currently holds Resolution of the NOM-120 exploration permit that allows for 461 drill holes (or drill pads) and required exploration roads. The last permit was issued November 14, 2018 and is valid for 36 months. Another exploration permit is in preparation as of the date of publication of this PEA.

### 20.1.2 Project Construction Permitting Requirements

Under the framework of Mexican Regulations described above, there are many environmental permits required prior to construction and to advance mining projects such as Las Chispas Project into production. There are three main SEMARNAT permits that are required prior to construction: MIA, ER, and CUSTF, which are further described in the section.

Most of the mining regulations are at a federal level through SEMARNAT, but there are also other regulations that are approved at the state and at the local level. Amongst others, a construction permit is required from the local municipality and an anthropological release letter is required from the National Institute of Anthropology and History (Instituto Nacional de Antropología e Historia or INAH).

### 20.1.3 Environmental Impact Statement (MIA)

Regulations within Mexico require that a MIA be prepared by a third-party contractor for submission to SEMARNAT. The MIA must include a detailed analysis of climate, air quality, water, soil, vegetation, wildlife, cultural resources and socio-economic impacts.

Under the MIA process, public consultation is solicited by the publication of a summary of the MIA to the public through newspapers or any electronic media. The entire MIA is evaluated by the environmental authorities (federal, state, and municipal), which includes consideration of public comments and opinions regarding the project. The MIA may either be rejected if it does not meet minimum requirements, or federal, state and municipal authorities may require the proponent to make corrections to the MIA. Proof of local community support for a project is required to get a final MIA approved.

SEMARNAT or the project proponent may arrange public meetings. Any person can request a public meeting within 10 days of the publication of the MIA summary. Once SEMARNAT receives the request, it has five days to respond. The project proponent has another five days to publish a response to public concern. After that, the public has 10 days to file a request for a copy of the entire MIA from SEMARNAT. Once the entire MIA is available to the public, anyone can propose, in writing, changes to the MIA, including changes to designs and mitigations.

#### MIA Application Status

SilverCrest has submitted three different MIAs for the Las Chispas Project. The first one (referred to as MIA-Exploration) was submitted to SEMARNAT along with an application for an underground drilling permit. The permit was authorized on September 19, 2016 for a 10-year period and authorizes a proposed program to extract an underground bulk sample up to 100,000 t for off-site test work. Amendments to MIA-Exploration have been filed since then and other amendments might be required in the future to conduct exploration activities beyond the historical mining areas and prior to the construction of any building facilities on site. The most recent authorized amendment of the MIA-Exploration permits SilverCrest to construct an exploration decline.

Two additional MIAs (for clarity, referred in the text, as MIA-Road and MIA-Operation) were also submitted to SEMARNAT. MIA-Road (Camino de accesso a Mina Las Chispas) has been submitted to cover the modification required on the access road and the Rio Sonora crossing. MIA-Operation (Expansion Mina Las Chispas) has been submitted to cover the general operation area including the processing plant and infrastructure such as offices, shops and tailing facilities. MIA-Operation therefore represents the main permit for the operation and is needed in several cases to apply for sectoral permits.

MIA-Road was submitted to SEMARNAT and had not yet been approved on the effective date of this report. The resolution has been received by SilverCrest. The next step before construction requires the CUSTF approval; which is now progressing within SEMARNAT.

MIA-Operation was submitted in May 2019 and it is now under evaluation by SEMARNAT. The public consultation period has expired, and the process is in progress within SEMARNAT. If successful, MIA-Operation would need to be followed by the CUSTF approval, similarly to the process being progressed for MIA-Road.

### 20.1.4 Risk Study (ER)

Typically, a permit is obtained through the submission of an ER. This study identifies potential environmental releases of hazardous substances and evaluates the risks to establish methods to prevent, respond to, and control environmental emergencies.

#### ER Application Status

In the case of the Las Chispas Project, the initial review completed by its local consultant (Trinidad Quintero Ruiz) concluded that the project would not trigger an ER; and consequently, the MIA-Operation was submitted without it. However, if the authority concludes otherwise, then the resolution will request the study to be completed.

### 20.1.5 Land Use Change

In Mexico all land has a designated use. The CUSTF is a formal instrument for changing the designation to allow mining on defined parcels of land. The CUSTF study is based on the Forestry Law and its regulations. It requires that an evaluation be made of the existing conditions of the land, including a plant and wildlife study, an evaluation of the current and proposed use of the land, impacts on natural resources, and an evaluation of the reclamation and revegetation plans. The establishment of agreements with all affected surface landowners is also required. The MIA process and the associated CUSTF are progressing in parallel but the MIA process must be started first and upon reception of a resolution referencing the MIA, the Land Use Change procedure (CUSTF) can start. To this end, if successful, the MIA is obtained first followed by the CUSTF.

#### CUSTF Application Status

The Las Chispas Project needs to be approved by SEMARNAT prior to carrying out the Land Use Change in the works authorized in the MIA, and the means to obtain said authorization is through the evaluation of an ETJ for the CUSTF.

The MIA-Road and MIA-Operation proposals were first submitted to SEMARNAT through the MIA process. MIA-Road was pending on the effective date of this report., the authorization from SEMARNAT, while MIA-Operation's evaluation process is still progressing within SEMARNAT. The permitting timeline with SEMARNAT is linked to strict timelines, and while the process has been predictable so far for the Las Chispas Project, SilverCrest broadly assumes that MIA-Operation would be delivered before the end of 2019.

### 20.1.6 Project Operations Registrations and Permits (sectoral permits)

A project-specific comprehensive environmental license (Licencia Ambiental Única or LAU) will be needed to operate the Las Chispas Project. The LAU will state the operational conditions to be met and will be issued by SEMARNAT when the agency has approved the project for operations. Pre-requisites for provision of the LAU involve completion of other necessary permits and registrations listed in Table 20-1. Table 20-1 is not exhaustive; it represents a list of permits that are expected to be required. Some of the permits listed in the table might be needed while some others will not be. The LAU process would be obtained after the plant and other infrastructure has been built. The LAU process will consider current status but also some requirements already provided such as: environmental impact authorization, water use permit, water discharge permit, and registration of hazardous wastes.

### Table 20-1: Typical Permits and Requirements Prior to Operation

| Permit | Current Status | Agency |
|---|---|---|
| Environmental Impact Statement – MIA | Acquired. Amendments in process | SEMARNAT |
| Land Use Change (CUSTF) | In process | SEMARNAT |
| Risk Study (ER) | Not started | SEMARNAT |
| Construction Permit | Not started | Local Municipality |
| Water Discharge Permit | Not started | CONAGUA |
| Accident Prevention Plan (requirement of ER) | Not started | SEMARNAT |
| Hazardous Waste Generator | Declared | SEMARNAT |
| Electric Power Generation Permit for Self-Supply | Not started | CRE |
| Social Impact Assessment (EVIS) | Not started | SENER |
| Explosive and Storage Permits | In Process | SEDENA |
| Anthropological Release | Not started | INAH |
| Water Use Concession (requirement of COANAGUA) | In Process | CONAGUA |
| Hazardous Waste Management Plan | Not started | SEMARNAT |
| Execution, Rescue, Relocation and Maintenance of Flora | Not started | SEMARNAT |
| Sampling for Determination of Metals in Sediments (requirement of EIA) | Programmed | PROFEPA/SEMARNAT |
| Perimeter Noise Study (annual) | Not started | PROFEPA/SEMARNAT |
| Selection of Area and Construction of Temporary Storage of Hazardous Waste (requirement of general law for the prevention and integral management of waste)) | Not started | ATRP (temporary storage of Hazardous waste) |
| Sampling of Underground Water and Surface Water Quality (requirement of the EIA) | Programmed | PROFEPA/SEMARNAT |
| Selection of Area and Construction of Temporary Storage of Special Handling Waste | Not started | ATRME (temporary storage of special handling waste) |
| Registration as a Generator of Waste of Special Handling Before the State | In development | CEDES |
| Application for Approval by the City of Arizpe for the Disposal of Solid Waste in the Municipal Garbage Dump (for review) | In Process | Local Municipality |
| Environmental License (LAU) | Not started | SEMARNAT |

Notes: SENER – Secretaría de Energía (Secretary of Energy); CRE – Comisíon Reguladora de Energía (Energy Regulatory Commission); PROFEPA - Procuraduría Federal de Protección al Ambiente (Federal Attorney for Environmental Protection); CEDES – Comisión de Ecología y Desarrollo Sustentable del Estado de Sonora (Commission of Ecology and Sustainable Development of the State of Sonora)

Some of the most critical permits are described further in this section.

A permanent explosives permit is required from the SEDENA before construction begins.

SilverCrest has submitted application for a "General Explosives Permit" to the Secretariat of National Defense (Secretaría de la Defensa Nacional or SEDENA) to authorize storage of explosives on site. Prior to submitting this request, SilverCrest had to complete the construction of two magazines required during the operation. This permit for explosives storage is progressing through SEDENA. It will be required to progress the exploration decline on June 28, 2019, the temporary explosives permit will expire and will require the General Explosives Permit, which is anticipated in July 2019 to continue with underground development. Currently, SilverCrest holds a temporary permit for use of explosives with provision that require transportation and off-site storage managed by SEDENA.

Water discharge and usage must be granted by CONAGUA prior to commencement of operations. At the effective date of this PEA, SilverCrest owns 300,000 $m^3$ of water rights. This volume is estimated to be sufficient to cover the needs of a 2,000 Mt/d operation.

The Las Chispas Project considers the realization of an EVIS, which evaluates the effects caused by the establishment of the mining project in the communities that are located around the mine. This document must be prepared and presented to SENER.

## 20.2 Environmental Baseline

Environmental surveys and studies for the Las Chispas Project have been completed under the supervision of environmental consultant Trinidad Quintero Ruiz. These studies were incorporated for use in the MIA, ER and CUSTF permit applications. The main findings for these baseline environmental surveys are summarized in the following subsections.

### 20.2.1 Climate

The Las Chispas Project area is classified as temperate dry type (BS1kw (x ')) which is semi-arid and temperate with an average annual temperature between 12 and 18°C. In the coldest months the temperature can drop as low as -3°C and in the warmest months the average is not usually higher than 22°C. Maximum daily temperatures in the summer months are commonly well above 30°C. There are rainy seasons in the summer and winter.

The closest monitoring station is Sinoquipe located 8.9 km southwest of the project, followed by the Arizpe station 12.4 km to the north. For the years 1980-2010, the average annual precipitation at Sinoquipe was 556.5 mm, according to climatological data provided from the National Meteorological Service.

### 20.2.2 Surface Water

Surface water quality sampling both upstream and downstream of the project has been initiated in May 2019. The parameters to be monitored will be determined by the Physical-Chemical, Metals and Microbiology of NOM-127-SSA1-SEMARNAT-1994. Sampling will occur during the dry season with an additional sampling during the month of August after the rainy season.

### 20.2.3 Groundwater

Sampling from two groundwater monitoring wells was initiated in May 2019. The_parameters to be monitored will follow the Physical-Chemical, Metals and Microbiology of NOM-127-SSA1-SEMARNAT-1994. Sampling will occur during the dry season with an additional sampling during the month of August after the rainy season.

### 20.2.4 Vegetation

Vegetation studies were carried out in December 2018 during the characterization of the site for the elaboration of the Environmental Impact Manifestation and the ETJ for the CUSTF. A forestry expert carried out the studies and the Micro Hydrological Forest basin, to which the Las Chispas Project's location belongs, was considered as the study area.

According to the Guide for the Interpretation of Land Use and Vegetation Cartography. Series III and V of the National Institute of Statistics, Geography and Information Technology (Instituto Nacional de Estadística, Geografía e Informática or INEGI), the vegetation type is subtropical scrub MST (MST is the nomenclature used in the INEGI to describe the vegetation type "Subtropical Scrub"). The Las Chispas Project is characterized by an inventory of 21 perennial terrestrial vascular plant species, which include four species of arboreal, 15 shrub, and 2 herbaceous.

According to the Official Mexican Standard NOM-059-SEMARNAT-2001 none of the flora species identified at the project are in a special protection category that would require specific protective action.

### 20.2.5 Wildlife

The fieldwork for faunal characterization of the project consisted of carrying out 30 wildlife sampling sites equivalent to the flora samplings. For the characterization of wild fauna 1:250,000 scale topographic charts of the INEGI (1985) were used, using a Global Positioning System to locate and register the reviewed sites within the premises. In general, for the description of the fauna within the area of influence of the project, the groups of terrestrial vertebrates (mastofauna, avifauna, and herpetofauna) were considered exclusively.

Of the inventoried wildlife species for the Las Chispas Project, none were found in the list of the NOM-059-SEMARNAT-2010, which determines the species and subspecies of endangered and threatened aquatic flora and fauna, those that are rare, and those subjects to special protection.

### 20.2.6 Socio-Economics

The total population of the Arizpe Municipality is 2,959 people, of which 1,523 are male and 1,436 females, which according to the 2010 INEGI Census represents 0.1% of the state's population. The average household size in the municipality is 3.3 members, while in the state the average size is 3.7. The population of Arizpe is divided into 971 minors and 1,988 adults, of which 523 are over 60 years old.

The potable water service benefits 2,752 inhabitants representing 93% coverage; the distribution network is formed by well-type wells, equipped with electric motors, located on the banks of the Sonora and Bacanuchi rivers.

In socio-economic terms, the study area has a certain degree of isolation, since there are very few neighbors, and because the area is not a crossroads that connects different communities in the region. Access roads to the area are scarce. In addition, given the rugged topography, the project area cannot be observed from the communities in the area or the roads that link them.

The impact of a developed project in the region would be positive and significant from a socio-economic point of view, as the hiring of personnel would create both direct and indirect jobs.

An EVIS will be completed to provide a socio-economic baseline later in the Las Chispas Project's permit management program.

## 20.3 Summary of Potential Environmental Impacts

A summary of potential environmental and socio-economic impacts identified by the current Las Chispas Project MIA is presented in Table 20-2.

**Table 20-2: Summary of Environmental Impacts by Resource**

| Resource | Degree of Potential Impact | Description |
|---|---|---|
| Surface and Groundwater | Low Impact | Quality, Availability, drainage pattern |
| Soils | High Impact | Soil properties, erosion, current use, soil quality, soil stability, |
| Air | Low Impact | Generation of dust, noise, fumes and odors, air quality |
| Flora | High Impact | Vegetal cover, habitat, floristic attributes, current condition, species of special interest |
| Landscape (Visual) | Moderate Impact | Aesthetic qualities, fragility of the ecosystem, visual arrangement |
| Socio-economic or Community Impacts | High Impact | Demography and migration, quality of life, services and infrastructure, roads and access, employment and labor, regional economy |

## 20.4 Environmental Liabilities

No known environmental liabilities exist on the Property from historical mining and processing operations. Soil and tailings testing were conducted as part of the overall sampling that has been ongoing on site. To date there are no known contaminants in the soils. Water quality testing is currently ongoing for a baseline environmental study that is being done on site.

## 20.5 Reclamation and Closure

A formal Reclamation and Closure Plan has not been developed. Reclamation and closure plans are only developed and appropriate for advanced stage properties. As the Las Chispas Project progresses through the feasibility and mine planning process, a conceptual reclamation and closure plan will be developed. By Mexican law, mining may be initiated under a conceptual closure plan with detailed closure plans being developed later in the project.

# 21.0 CAPITAL AND OPERATING COST ESTIMATES

## 21.1 Capital Cost Estimate

The Mining QP and the Process QP developed and prepared the Las Chispas capital cost estimate with input from SilverCrest.

The capital cost estimate was established the capital cost estimate using a hierarchical work breakdown structure (WBS). The accuracy range of the estimate is ±35%. The base currency of the estimate is US dollars (US$).

The total estimated initial capital cost for the design, construction, installation, and commissioning of the Las Chispas Project is US$100.5 million. Table 21-1 shows a summary breakdown of the initial capital cost.

**Table 21-1: Initial Capital Cost Summary**

| Area | | Initial Capital (US$ million) |
|---|---|---|
| 10 | Site Preparation and Access Roads | 1.1 |
| 25 | Underground Mining | 19.3 |
| 30 | Process | 27.5 |
| 40 | Tailings | 4.4 |
| 50 | Overall Site | 2.3 |
| 70 | On-site Infrastructure | 6.7 |
| **Direct Cost Subtotal** | | **61.3** |
| X | Project Indirect Costs | 16.3 |
| Y | Owner's Costs | 8.1 |
| Z | Contingency | 14.8 |
| **Indirect Cost Subtotal** | | **39.2** |
| **Total Initial Capital Cost** | | **100.5** |

### 21.1.1 Basis of Capital Cost Estimate

#### 21.1.1.1 Estimate Base Date and Validity Period

The capital cost estimate was prepared with a based date of Q2 2019. No escalation beyond Q2 2019 was applied to the estimate.

#### 21.1.1.2 Class of Estimate and Accuracy

This is a Class 5 estimate prepared in accordance with AACE International's Cost Estimate Classification System. The accuracy range of the capital cost estimate is +/- 35%.

#### 21.1.1.3 Foreign Exchange

The base currency of the estimate is US dollars (US$). Table 21-2 shows the foreign exchange rates for the US dollar to the Canadian dollar (CAD$), and for US dollar to Mexican peso (MXN$) which were applied as required.

**Table 21-2: Foreign Exchange Rates**

| Base Currency (US$) | Currency |
|---|---|
| 1.00 | CAD$ 0.75 |
| 1.00 | MXN$ 20.00 |

#### 21.1.1.4 Exclusions

The following items are excluded from the capital cost estimate:

- Financing costs;
- Refundable taxes and duties;
- Land acquisition;
- Currency fluctuations;
- Lost time due to force majeure;
- Additional costs for accelerated or decelerated deliveries of equipment, materials, or services resultant from a change in project schedule;
- Warehouse inventories, other than those supplied in initial fills;
- Any project sunk costs (studies, exploration programs, initial exploration decline, etc.); and
- Escalation costs.

### 21.1.2 Mining Capital Cost Estimate

The Mining QP prepared capital costs based on the scenario of contractor underground development and owner mining of mineralized material. The capital was based on extraction of equipment purchases from the operating and capital cost model. SilverCrest elected to consider contractor mining for both underground development and underground mining of stopes and veins. As such the Mining QP applied a contractor profit to underground mining costs and removed equipment purchase costs from the capital cost, as under the assumption of contractor mining the contractor would own the equipment. Underground equipment and infrastructure items were retained as part of the capital costs.

Pre-production underground development capital costs, including infrastructure development, is supported by a Contractor Estimate by a mining contractor currently developing the Santa Rosa portal and exploration decline.

A total of US$19.3 million, or US$21.4 million including mining contingency, was estimated for initial underground mining capital. Table 21-3 shows a summary of mining capital costs, as included in the financial model, excluding indirect costs.

### Table 21-3: Initial Mining Capital Cost Summary

| Area | Initial Capital (US $million) |
|---|---|
| Pre-production Development | 17.96 |
| Underground Equipment | 0.22 |
| Underground Infrastructure | 0.62 |
| Underground Ancillaries | 0.46 |
| **Total Initial Direct Mining Capital Cost** | **19.3** |

Note: Total may not add due to rounding.

### 21.1.3 Processing and Overall Site Infrastructure Capital Cost Estimate

Major mechanical costs were prepared based on quotations from qualified vendors. All equipment and material costs are included as free carrier (FCA) or free board marine (FOB) manufacturer plants and are exclusive of spare parts, taxes, duties, freight, and packaging. These costs, if appropriate, are covered in the indirect cost section of the estimate.

Where appropriate, material quantities were developed from general arrangement drawings, process design criteria, process flow diagrams, and equipment lists. Electrical, platework, instrumentation and piping were based on historical information from similar projects.

A blended labour rate of US$20.00/h was used throughout the estimate. The labour rate was developed based on feedback from SilverCrest and wage information published by the Government of Mexico (www.gob.mx). A productivity factor of 2.10 was applied to the labour portion of the estimate to allow for the availability of skilled labour, inefficiency of long work hours, climatic conditions, and due to the three-week-in, one-week-out rotation.

Cost for the maintenance shop was based on pre-engineered steel framed open-air structure. The administration/warehouse building, and assay laboratory costs were based on modular building.

Project indirect costs, including construction indirects, initial fills, spare parts, and freight and logistics, were calculated on a percentage basis based on Tetra Tech's work experience. The allowance for initial fills is provided for grinding media, reagents, lubricants and fuel. Engineering, procurement and construction management (EPCM), commissioning and start-up, and vendor assistance allowances were also calculated on a percentage basis based on Tetra Tech's in-house experience. Owner's costs were calculated by SilverCrest and provided to the Process QP.

Table 21-4 shows the estimated initial direct capital cost for process plant.

**Table 21-4: Initial Direct Process Plant Capital Cost Summary**

| Area | Initial Capital (US$ million) |
|---|---|
| Crushing | 5.3 |
| Grinding/Gravity Concentration | 9.7 |
| Cyanide Leaching | 6.8 |
| Merrill-Crowe Circuit | 3.2 |
| Process Related Services, including Metallurgical Laboratory | 1.9 |
| Reagent Handling | 0.6 |
| **Total Initial Direct Process Plant Capital Cost** | **27.5** |

### 21.1.4 Initial Dry Stack Tailings Facility Capital Cost Estimate

Initial capital costs for the DSTF include earthworks unit rates and installation of drainage system labour cost based on Mexican contractors. The material take-off for earthworks and mechanical equipment was developed by the Infrastructure QP.

The capital cost for the DSTF is US$4.5 million as shown in Table 21-5.

**Table 21-5: Dry Stack Tailings Facility Capital Cost Summary**

| Area | Initial Capital (US$ million) |
|---|---|
| Tailings Thickening | 0.9 |
| Tailings Filtration | 1.6 |
| Dry Stacking | 0.9 |
| Tailings Storage Facilities | 1.1 |
| **Total Direct DSTF Capital Cost** | **4.5** |

### 21.1.5 Indirect Capital Cost Estimate

Both project indirect and Owner’s costs are included in the initial capital cost estimate.

#### 21.1.5.1 Project Indirect Costs

Project indirect costs, including construction indirects, spare parts, and freight and logistics, were calculated on a percentage basis based on Tetra Tech work experience. Allowances for initial fills were provided for grinding media, reagents, lubricants and fuel. An EPCM allowance was calculated on a percentage basis based on Tetra Tech in-house experience. Commissioning and start-up and vendor assistance allowances were also calculated based on Tetra Tech in-house experience. Estimated Indirect Costs totalled US$16.3M.

#### 21.1.5.2 Owner's Costs

The Owner's Costs required at Las Chispas was prepared with input from SilverCrest. The estimate was calculated from first principles and was mainly based on the expected manpower required to operate the project. The manpower ramp-up is assumed to start in Q1 2020 with 89 employees and contractors. The manpower peaks at 460 employees and contractors in 2025. An allowance of US$8.1 million was included for Owner's costs (US$8.5 million including contingency), which includes management, information technology, human resource overheads, health, safety, environment, security, laboratory and site service costs during the construction and pre-production phase of the Project.

### 21.1.6 Contingency

The estimated contingencies are allowances for undefined items of work which is incurred within the defined scope of work covered by the estimate. Each discipline was allocated different contingency factors due to the varied risk level. The average contingency for the Las Chispas Project is 24.2% resulting in total of US$14.8 million of the total direct costs.

### 21.1.7 Sustaining Capital Cost Estimate

The sustaining capital costs are the direct costs of mine development and DSTF development from the start of operations to the end of the mine life (Table 21-6).

Excluded from the sustaining capital costs are all costs incurred by SilverCrest that are related to the cost of operating and maintaining the mine and plant.

**Table 21-6: Sustaining Capital Cost Summary (US$000)**

| Calendar Year | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Year** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | |
| **Production Year** | **-2** | **-1** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **LOM** |
| Underground Development | - | - | 2,374 | 4,922 | 3,308 | 5,054 | 9,747 | 12,737 | 6,273 | 0 | 44,415 |
| Underground Infrastructure | - | - | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 400 |
| Processing | - | - | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 2,400 |
| Site infrastructure | - | - | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 1,600 |
| Tailings | - | - | - | 369 | - | 369 | - | 369 | - | - | 1,108 |
| Site Pick-up Trucks | - | - | - | - | - | 375 | - | - | - | - | 375 |
| **Total Sustaining Capital Costs** | **-** | **-** | **2,924** | **5,842** | **3,858** | **6,348** | **10,297** | **13,657** | **6,823** | **550** | **50,299** |

Note: Totals may not add due to rounding.

#### 21.1.7.1 Mining Sustaining Capital

Costs included in mining sustaining costs include underground development that is not included in operating costs. Items that are not "expensed" include ramp development, raise boring, and drop raising to create ventilation linkages and escape ways.

The remaining underground development includes lateral development, driving of crosscuts and pivots drifts, and muck bays. This cost is included in the mining operating costs in the financial model, totaling an estimated US$13.6/t milled over the LOM (Table 21-7).

**Table 21-7: Sustaining Mining Capital Cost Summary ($000)**

| Area | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | LOM |
|---|---|---|---|---|---|---|---|---|
| Capitalized Development | 2,374 | 4,922 | 3,308 | 5,054 | 9,747 | 12,737 | 6,273 | 44,416 |
| Development Included in Operating Costs | 9,963 | 7,758 | 9,352 | 9,386 | 7,539 | 6,061 | 2,291 | 52,350 |
| **Total Sustaining Mining Capital Cost** | **12,337** | **12,680** | **12,660** | **14,440** | **17,287** | **18,799** | **8,564** | **96,766** |

Note: Totals may not add due to rounding.

### 21.1.8 Reclamation and Closure Capital Cost Estimate

Reclamation and closure costs were estimated at US$4 million, expensed over four years at the end of mine life. A reclamation fund is assumed to be placed at the start of operations, which is reclaimed at the close of mining operations.

## 21.2 Operating Cost Estimate

The average LOM operating cost, at a design mill feed rate of 1,250 t/d, was estimated at US$98.66/t of material processed. The operating cost is defined as the total direct operating costs including mining, processing, and G&A costs. Table 21-8 shows the summary breakdown of the operating costs.

**Table 21-8: Operating Cost Summary**

| Area | LOM Average Operating Cost (US$/t milled) |
|---|---|
| Mining | 50.91* |
| Process and tailings management | 32.61 |
| G&A | 15.14 |
| **Total LOM Operating Cost** | **98.66** |

Notes: *Includes stope development but excludes capitalized underground development.

Figure 21-1 shows the operating cost distribution by area.

It is assumed that operation personnel will reside, or be available, in nearby towns or villages. There will be no accommodation provided at site; catering will be provided to management and non-contract personnel. Personnel will be transported to site by the Owner.

The operating costs exclude doré shipping and refining charges; these costs are included in financial analysis.



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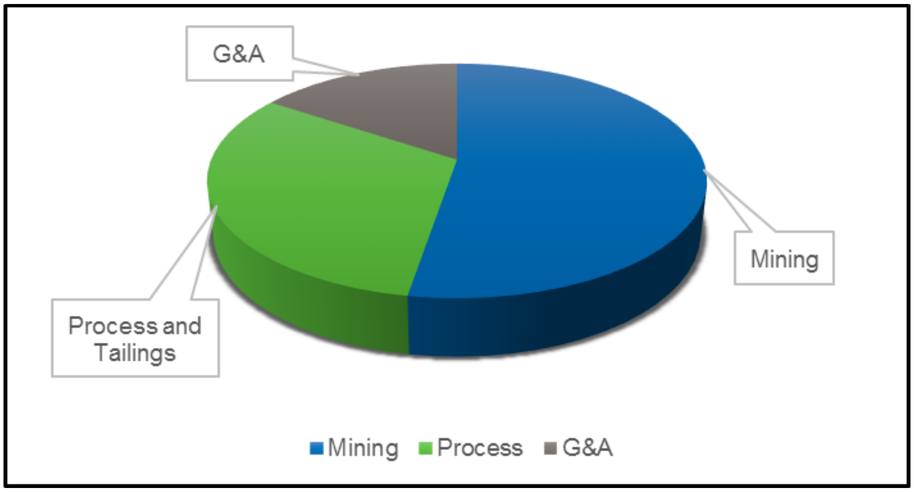
**Figure 21-1: Operating Cost Distribution by Area**




## 21.2.1 Basis of Operating Cost Estimate

### 21.2.1.1 Estimate Base Date and Validity Period

The operating cost estimates are based on the consumable prices and labour salaries/wages from Q1 2019 (supplied by SilverCrest) or information from Tetra Tech's in-house database.

The overall effort on the operating cost estimate was beyond the accuracy normally applied to a PEA with first principle calculation generated for all G&A and most of the mine and plant operating cost estimates.

### 21.2.1.2 Foreign Exchange

All the costs have been estimated in US dollars, unless specified. The foreign exchange rates used for the capital cost estimate as shown in Table 21-2 were also used for the operating cost estimate.

## 21.2.2 Mining Operating Cost Estimate

The Mining QP estimated mining costs for each period of the mine life. Table 21-9 summarizes the mining costs over the LOM. An average cost of US$50.91/t milled was estimated. Costs vary for each year based on the scheduled throughput for each year and on haul distances from the stopes to the mill. Average annual mining unit costs between US$32/t and US$63/t of mill feed are largely dependant on the amount of underground development completed. Labour numbers average 165 production employees, peaking at 249 persons in Year 5, with 59 personnel in management and technical services.

### Table 21-9: Mining Operating Cost Summary

| Mining Cost Area | Total LOM Cost (US$000) | Unit Cost (US$/t milled) |
|---|---|---|
| Ore Development | 52,350 | 13.56 |
| Equipment | 11,764 | 3.05 |
| Blasting | 12,549 | 3.25 |
| Ground Support | 6,297 | 1.63 |
| Miscellaneous Supplies | 700 | 0.18 |
| Backfill | 16,600 | 4.30 |
| Non-development contract | 8,552 | 2.22 |
| Labour | 32,953 | 8.54 |
| Support Equipment | 24,611 | 6.37 |
| Mining G&A | 16,426 | 4.25 |
| Contingency | 13,045 | 3.38 |
| Stockpile Reclaim | 698 | 0.18(1) |
| **Total Mining Operating Cost** | **196,544** | **50.91** |

Note: (1)Per tonne total LOM. Existing stockpile reclaim was included as US$4.00/t stockpile reclaimed.
Total may not add due to rounding.

#### 21.2.2.1 Mining Model

The mining operating cost was developed from first principles through development of a production cycle and costing model for various stope widths. The model was based on stopes spaced 100 m along strike and 15 m vertical. The model includes:

- Allocation of development to each stope including allocation of a pivot drive, muck bay, footwall drive, ore pass, and ventilation/escape way to each stop;
- Production cycle to drill, blast, and muck a sill drive at the base of each stope, mining a 3 m high sill drive at the base of each stope;
- Production cycle to drill, blast, and muck 2 m high lifts to complete the stope, requiring six lifts to complete the stope;
- Slashing the pivot drive to gain access to each lift as the stope is mined from the base upwards; and
- Backfilling of each lift in 2m high lifts, filling the stope and providing a base on which the subsequent lift is mined.

This model provided both an estimate of material quantities, labour and equipment usage to mine a standardized stope size.

Costs were applied to the quantities to generate a cost per tonne, as shown in Table 21-10.

**Table 21-10: Operating Cost and Cut-off Grades Estimated by Vein and Mining Width**

| Area | Units | Vein Width (m) | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0.50 | 0.75 | 1.00 | 1.25 | 1.50 | 1.75 | 2.00 | 2.25 | 2.50 | 2.75 | 3.00 | 3.25 | 3.50 | 3.75 | 4.00 | 4.25 | 4.50 | 4.75 | 5.00 |
| Mining Width | m | 2.20(1) | 2.20(1) | 2.20(1) | 2.20(1) | 2.20 | 2.25 | 2.50 | 2.75 | 3.00 | 3.25 | 3.50 | 3.75 | 4.00 | 4.25 | 4.50 | 4.75 | 5.00 | 5.25 | 5.50 |
| Dilution | % | 47 | 38 | 32 | 27 | 35 | 25 | 23 | 21 | 20 | 18 | 17 | 16 | 16 | 15 | 14 | 14 | 13 | 13 | 12 |
| Stope Development Cost | US$/t mill feed | 180 | 120 | 90 | 72 | 60 | 51 | 45 | 40 | 36 | 33 | 30 | 28 | 26 | 24 | 23 | 21 | 20 | 19 | 18 |
| Pivot Drift | US$/t mill feed | 8 | 6 | 5 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Total Development Cost | US$/t mill feed | 188 | 127 | 95 | 77 | 63 | 55 | 48 | 43 | 39 | 36 | 33 | 31 | 29 | 27 | 26 | 25 | 23 | 22 | 21 |
| Stoping | US$/t mill feed | 48 | 39 | 34 | 30 | 24 | 24 | 23 | 20 | 20 | 19 | 19 | 18 | 18 | 18 | 17 | 17 | 17 | 16 | 16 |
| Fixed Mining Cost | US$/t mill feed | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 |
| Contingency | US$/t mill feed | 13 | 9 | 7 | 6 | 5 | 5 | 4 | 4 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Total Mining Cost (excluding development) | US$/t mill feed | 75 | 63 | 56 | 51 | 43 | 43 | 42 | 38 | 38 | 37 | 36 | 36 | 35 | 35 | 34 | 34 | 34 | 33 | 33 |
| Total Mining Cost (including development) | US$/t mill feed | 263 | 189 | 151 | 127 | 107 | 98 | 90 | 82 | 77 | 73 | 70 | 67 | 64 | 62 | 60 | 58 | 57 | 56 | 54 |
| Process Cos | US$/t mill feed | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 |
| G&A Cost | US$/t mill feed | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Site Services Cost | US$/t mill feed | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 |
| Margin | US$/t mill feed | 31 | 12 | 10 | 9 | 8 | 7 | 7 | 6 | 6 | 6 | 6 | 6 | 6 | 5 | 5 | 5 | 5 | 5 | 5 |
| Total Operating Cost | US$/t mill feed | 340 | 247 | 207 | 182 | 161 | 151 | 143 | 134 | 130 | 125 | 122 | 119 | 116 | 114 | 112 | 110 | 108 | 107 | 106 |
| AgEq Grade to Break Even (COG) | gpt | 772 | 561 | 470 | 413 | 365 | 343 | 325 | 305 | 294 | 284 | 277 | 270 | 263 | 258 | 254 | 249 | 246 | 243 | 240 |
| Operating Cost (excluding development) | US$/t mill feed | 160 | 127 | 117 | 110 | 101 | 100 | 98 | 94 | 94 | 93 | 92 | 91 | 90 | 90 | 89 | 89 | 88 | 88 | 88 |
| AgEq Grade for Marginal COG | gpt | 363 | 289 | 266 | 250 | 229 | 226 | 223 | 214 | 212 | 210 | 208 | 207 | 205 | 204 | 203 | 201 | 200 | 200 | 199 |

Note: (1)Resue mining was considered at these vein widths. The minimum mining width applied to the cost estimate was 2.2 m. However, resue mining includes the separate blasting of mineralized material from waste.

#### 21.2.2.2 Adjustment of Mining Model Results to the Mining Schedule

The mining model assisted in facilitating the identification of cut-off grades, development of mining inventory and for establishing the productivities to apply to stoping for mine scheduling. Based on the mineable inventory and the development layout (as discussed in Section 16.0), the Mining QP developed a mining schedule. The mining schedule was developed on a monthly basis and enabled costs to be driven by scheduled mining requirements.

The key assumptions used in the estimate of the mining costs include:

- Contract mining;
- Power costs of US$0.275/kWh;
- Fuel cost of US$1/L;
- Explosive cost of US$0.75/kg for ANFO and US$1.83 for emulsion or cartridge explosives;
- Cement cost of $100/t for backfill; and
- Mining labour rates range from US$4.20/h to US$65.50/h (in pocket), or from US$1,030/mo to US$16,228/mo.

The quantities estimated in the mining model were subsequently applied to the mining schedule such that costs could be estimated for each mining period. This was done by assigning a typical mining width to each vein being mined and an associated schedule of quantities per tonne or mill feed mined from the model.

Adjustments were made to labour, consumables, and material quantities that are related to either the number of stopes, duration, or reusability over the LOM. This included but not limited to:

- Equipment hours were adjusted to add time where multiple stopes were active, to account for time required to move equipment within the operation.
- Pumping hours and explosive charging equipment (for stope dewatering) were adjusted to number of active stopes.
- Support consumables were adjusted to 50% of the model, to account for good ground conditions as observed in Section 16.0.
- Ventilation ducts, dewatering pipe, power cable and compressed air hose quantities were adjusted to account for re-use within the operation.
- Costs for drill bits and steel were added.
- Pivot drive slashing costs were applied as contractor rate adjusted to the output from the mining schedule.
- Labour numbers were adjusted to the number stopes active, rounded up and averaged per quarter of mine life.
- Equipment hours were estimated based on number of stopes active and support equipment was added based on production requirements. This included main ventilation fans which were adjusted to the number of areas active.
- Contractor rates from a mining contractor, were applied to underground development.
- Mining owner oversight costs (mining G&A costs) were as a fixed cost for each month in which mining is active in the mining schedule.

These costs were totalled for each year of operations, for inclusion in the financial model. The cost model also provided the equipment requirements over the LOM.

#### 21.2.2.3 Application of Contractor Rates to Mining Costs

For the PEA, all underground development will be completed by contractor. Contractor rates are based on the current contractor, who is driving the Santa Rosa Decline towards the Babicanora Main Vein. Rates for a variety of development profiles were requested and provided to the Mining QP (Table 21-11). Note that the contingency is not applied to the preproduction costs, since the contingency is included separately in the initial capital cost estimate. The contingency is applied to sustaining capital development.

**Table 21-11: Mining Contractor Development Rates**

| Contractor Quote - April 10, 2019 | Unit Price (US$/m) | Explosives (US$/m) | Ground Support (US$/m) | Contingency at 5% (US$) | Total Cost (US$/m) |
|---|---|---|---|---|---|
| 4.5 x 4 m ramp, -12% grade, up to 1.5 km haul | 1,615 | 121 | 121 | 81 | 1,938 |
| 3.5 x 3 m ramp, -12% grade, up to 1.5 km haul | 1,498 | 112 | 112 | 75 | 1,797 |
| 2.4 x 2.4 m spirals and laterals, up to -20% grade, up to 1.5 km haul | 1,350 | 101 | 101 | 68 | 1,620 |
| 4 x 4 m lateral, up to 1 km haul | 1,506 | 113 | 113 | 75 | 1,808 |
| 3 x 3 m lateral, up to 1 km haul | 1,414 | 106 | 106 | 71 | 1,697 |
| 5 x 6 m muck bays | 1,430 | 107 | 107 | 72 | 1,716 |

#### 21.2.2.4 Stoping Costs

Under the contract mining scenario considered for the PEA, equipment purchases are excluded from capital costs and have been added to applicable operating costs with a 20% margin applied. The Mining QP completed a first principles estimate of operating costs to which the contractor margin was added. The 20% contractor markup was added to equipment, blasting, ground support, supplies, backfill, labour costs, and support equipment costs over the LOM. Markup was not applied to pivot drive slashing (as this is already estimated considering contractor mining), mining G&A, or contingency. Mining G&A includes Owner oversight personnel, which will remain an Owner function.

A 10% contingency has been applied to stoping costs, based on the first principles estimate. Contingency is estimated to be 7% of the stoping costs after applying a 20% markup to selected underground mining costs.

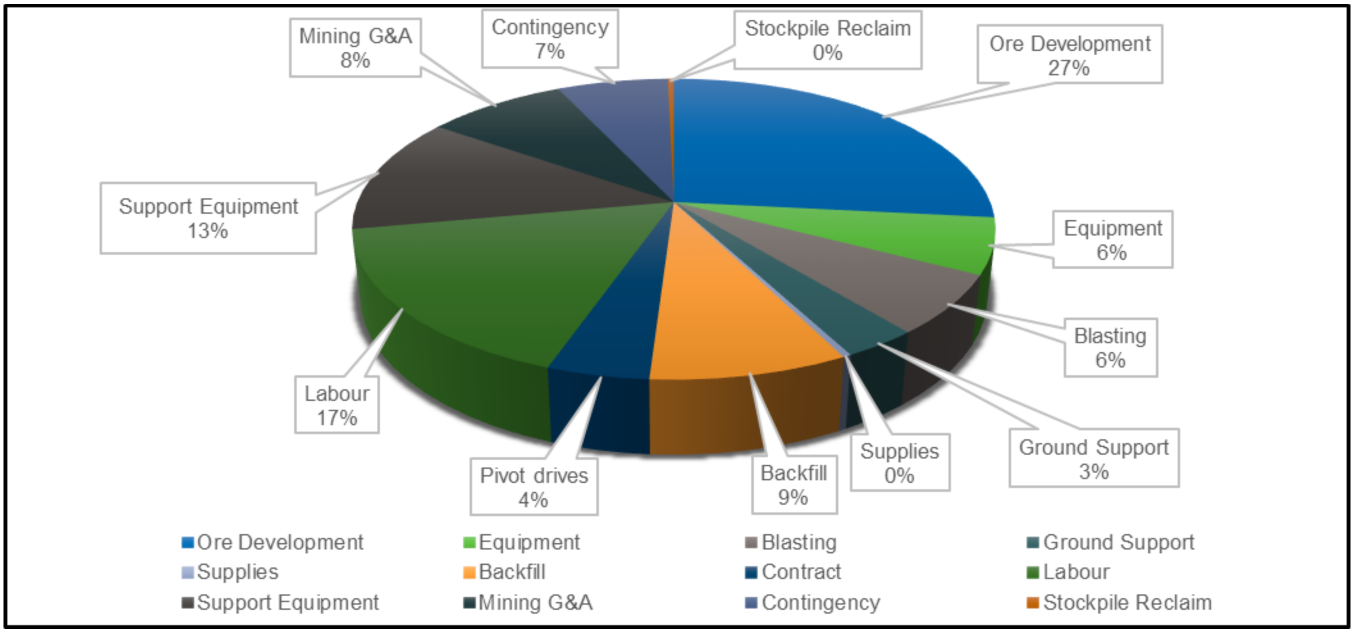
Table 21-12 shows the mining costs distributed over the LOM. Mining costs increase during periods when narrower veins are mined, such as the Babicanora Norte Vein.

Figure 21-2 shows the distribution of mining costs across the different mining areas.

### Table 21-12: Mining Operating Costs Estimated per Year of Operations

| Area | Unit | Year | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | LOM | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 |
| Expensed Development | US$000 | 52,350 | 0 | 9,963 | 7,758 | 9,352 | 9,386 | 7,539 | 6,061 | 2,291 | 0 | 0 |
| Equipment Maintenance and Fuel | US$000 | 11,764 | 0 | 1,012 | 1,477 | 1,807 | 1,630 | 1,487 | 1,407 | 1,300 | 1,278 | 366 |
| Explosives | US$000 | 12,549 | 0 | 1,045 | 1,630 | 2,115 | 1,825 | 1,562 | 1,438 | 1,322 | 1,260 | 352 |
| Ground Support | US$000 | 6,297 | 0 | 572 | 854 | 1,066 | 952 | 836 | 717 | 570 | 558 | 171 |
| Supplies | US$000 | 700 | 0 | 43 | 62 | 74 | 81 | 86 | 90 | 92 | 103 | 70 |
| Backfill | US$000 | 16,600 | 0 | 1,876 | 2,092 | 1,799 | 2,033 | 2,216 | 2,110 | 1,918 | 1,965 | 590 |
| Pivot Drive Slashing (contract) | US$000 | 8,552 | 0 | 775 | 1,085 | 1,259 | 1,146 | 1,047 | 1,014 | 990 | 970 | 264 |
| Labour | US$000 | 32,953 | 0 | 3,386 | 3,846 | 4,545 | 4,540 | 4,687 | 4,095 | 3,466 | 3,111 | 1,277 |
| Support Equipment | US$000 | 24,611 | 0 | 2,448 | 1,740 | 2,696 | 3,249 | 3,903 | 4,210 | 3,220 | 2,202 | 943 |
| Owner Oversight of Mining (Mining G&A) | US$000 | 16,426 | 0 | 1,932 | 1,932 | 1,932 | 1,932 | 1,932 | 1,932 | 1,932 | 1,932 | 966 |
| Contingency | US$000 | 13,045 | 0 | 1,309 | 1,472 | 1,729 | 1,739 | 1,776 | 1,701 | 1,481 | 1,338 | 500 |
| Stockpile Reclaim | US$000 | 698 | 400 | 298 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total Mining Operating Costs** | **US$000** | **196,544** | **400** | **24,661** | **23,948** | **28,374** | **28,513** | **27,070** | **24,778** | **18,584** | **14,717** | **5,499** |
| **Total Mining Operating Unit Costs** | **US$/t** | **50.91** | **4.00** | **55.72** | **52.55** | **62.09** | **62.56** | **59.39** | **54.37** | **40.66** | **32.29** | **43.87** |

**Figure 21-2: Distribution of Mining Operating Costs**




## 21.2.3 Process Operating Cost Estimate

The unit process operating cost was estimated to be US$31.01/t milled during the LOM at a nominal processing rate of 1,250 t/d, or 456,250 t/a, which includes cost for manpower, operation and maintenance consumables/supplies, power, and a 5% contingency for other operating costs. The operating cost in commissioning stage was included in the financial model.

The breakdown for the estimated process operating cost is summarized in Table 21-13.

**Table 21-13: Process Operating Cost Summary**

| Area | Unit Cost (US$/t milled)* |
|---|---|
| Manpower (79 persons) | 3.99 |
| Metal/Liner Consumables | 2.72 |
| Reagent Consumables | 9.57 |
| Maintenance Supplies | 2.51 |
| Operating Supplies | 0.33 |
| Power Supply | 10.42 |
| Others (Contingency) | 1.48 |
| **Total Process Operating Cost** | **31.01** |

Note: Total may not add due to rounding.

The process operating cost estimate includes:

- Personnel requirements, including supervision, operation and maintenance; and salary/wages, including benefit requirements, based on the Q1 2019 labour rates and benefits estimated by SilverCrest according to the collected local labour rates.
- Ball mill liner and grinding media consumption, estimated from the Bond ball mill work index and abrasion index equations and Tetra Tech's experience; ball mill liner and grinding media (steel balls) prices based on the quotation from local marketing or/and similar local operations.
- Maintenance supplies based on approximately 8% of major equipment capital costs or estimated based on the information from similar projects recently completed by Tetra Tech or by industry operation experience.
- Reagent consumptions based on test results and the Tetra Tech's database/experience; reagent prices based on the quotations from local marketing or/and similar local operations, or from the Tetra Tech's database.
- Other operation consumables, excluding laboratory and service vehicles consumables which are included in the site G&A and service cost estimate.
- Power consumption for the processing plant based on the preliminary plant equipment load estimates and a power unit cost of US$0.275/kWh which is estimated based on the on-site power generation.

All operating cost estimates exclude taxes unless otherwise specified.

### 21.2.3.1 Personnel

The estimated average personnel cost, at a nominal processing rate of 1,250 t/d, is US$3.99/t milled. The projected process personnel requirement is 79 persons, including:

- 9 staff for management and technical supports including personnel at laboratories for quality control and process optimization, but excluding personnel for sample assaying which is included in G&A cost estimates.
- 46 operators servicing for overall operations from crushing to doré production and leach residue detoxification
- 24 personnel for equipment maintenance, including maintenance management team.

The salaries and wages, including burdens, are based on Q1 2019 labour rates estimated by SilverCrest according to the local labour rates collected.

The labours required for the tailings and reclaimed water management are excluded in this estimate but are included in the tailings and reclaimed water management cost estimate.

### 21.2.3.2 Consumables and Maintenance/Operation Supplies

The operating costs for major consumables and maintenance/operation supplies were estimated at US$15.13/t milled, excluding the costs associated with off-site doré shipment. The costs for major consumables, which include metal and reagent consumables, were estimated to be US$12.29/t milled. The unit prices of consumables were based on the quotations from local marketing or/and similar local operations, and from Tetra Tech's database or industry experience.

The cost for maintenance/operation supplies was estimated at US$2.84/t milled. Maintenance supplies were estimated based on approximately 8% of major equipment capital costs and/or based on the information from the

Tetra Tech's database/experience. The maintenance supply component was also validated with similar size plants in Mexico.

#### 21.2.3.3 Power

The total process power cost was estimated to be US$10.42/t milled. Electricity is planned to be generated on site from a diesel genset power system. The estimated power unit cost was approximately US$0.275/kWh.

The power consumption was estimated from the preliminary power loads estimated from process equipment load list. The average annual power consumption was estimated to be approximately 17 GWh or approximately 37.9 kWh/t milled.

### 21.2.4 Dry Stack Tailings Facility Operating Cost Estimate

The tailings are estimated to cost US$1.40/t milled. These include operating costs for:

- Conveyor;
- Earthmoving machinery; and
- Supervision and labor.

All construction costs are included under capital costs.

### 21.2.5 General and Administrative Operating Cost Estimate

G&A costs are estimated for total average annual employment of 81 people which includes, but is not limited to, the following services:

- Personnel – General manager and staffing in accounting, purchasing, environmental, security, site maintenances and other G&A departments. Personnel working at the Las Chispas Project site and at SilverCrest's Hermosillo office are included.
- The salaries and wages are based on the Q1 2019 labour rates in Mexico. This includes base salary or wage and related burdens, covering retirement savings plans, various life and accident insurances, extended medical benefits, unemployment insurance, tool allowance, and other benefits.
- General Expenses – General administration, contractor services, insurance, security, medical services, legal services, human resources, travel, communication services/supports, on site and external assay/testing, overall site maintenance, electricity and fuel supplies, engineering consulting, and sustainability, including an environment and community liaison.

The G&A services and staffing required at Las Chispas was prepared with input from SilverCrest.

Using salaries and costs provided by SilverCrest as well as benchmarking versus other operations in Mexico, the total annual G&A cost was estimated to be approximately US$6.6 million during production which equates to an average LOM G&A cost of US$15.14/t milled.

# 22.0 ECONOMIC ANALYSIS

**A PEA should not be considered a Prefeasibility or Feasibility study, as the economics and technical viability of the project have not been demonstrated at this time. The PEA is preliminary in nature and includes Inferred Mineral Resources that are considered too speculative geologically to have economic considerations applied to them that would enable them to be categorized as Mineral Reserves. Furthermore, there is no certainty that the conclusions or results reported in the PEA will be realized. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.**

The Financial Model QP prepared an economic evaluation of the Las Chispas Property based on a discounted cash flow model for the eight-year LOM, with project development starting in 2020. Production, forecast to begin in the second half of 2021, will feed material from existing surface stockpiles from historic mining to the process plant. Underground development will be ongoing throughout the project development timeframe. Mill feed from underground mining is forecast to commence in 2022.

The base case forecast for the Las Chispas Property LOM shows an after-tax NPV of US$407 million at a 5% discount rate. The after-tax IRR is forecast to be 78%, with an after-tax payback period of 0.74 years.

Table 22-1 shows a summary of the economic analysis results.

The Las Chispas economic model is based on the following assumptions:

- Gold price of US$1,269/oz; and
- Silver price of US$16.68/oz.

Metal prices selected for the PEA are based on three-year trailing average prices up to January 2019, spot prices for January 2019, and data from financial institutions on long-term forecasted gold and silver prices.

### Table 22-1: Cash Flow Results Summary (including Discounted After-tax NPV)

| | Unit | Amount |
|---|---|---|
| Tonnes Mined and Processed | kt | 3,860,695 |
| Gold Head Grade | gpt | 4.05 |
| Silver Head Grade | gpt | 411 |
| Silver Equivalent Head Grade | gpt | 714 |
| **Doré Production (Recovered)** | | |
| Gold Ounces Produced | oz | 473,102 |
| Silver Ounces Produced | oz | 45,764,765 |
| Silver Equivalent Ounces produced | oz | 81,247,382 |
| Total Project Revenue (Net) | US$ million | 1,345 |
| Operating Costs | US$ million | 381 |
| Royalties paid to the Mexican Government * | US$ million | 79.1 |
| Initial Capital Cost | US$ million | 100.5 |
| | | *table continues…* |

| | Unit | Amount |
|---|---|---|
| Sustaining Capital Cost | US$ million | 50.3 |
| Other Expenses (Reclamation) | US$ million | 4 |
| Pre-tax Cash Flow | US$ million | 730 |
| Taxable Income | US$ million | 673 |
| Taxes Payable | US$ million | 207 |
| After-tax Cash Flow | US$ million | 523 |
| After-tax NPV (5% Discount Rate) | US$ million | 407 |

Note: Royalties include Mexico Government mining royalty of 7.5% from the income on the sale of minerals extracted minus authorized deductions, and an extraordinary governmental royalty of 0.5% of the income for the sale of gold, silver and platinum by mining concession holders for environmental purposes. There are no other royalties on resources other than those imposed by law.

## 22.1 Pre-tax Economic Analysis

The production schedule was incorporated into the pre-tax financial model to develop the annual recovered metal production. The annual at-mine revenue contribution of each metal was determined by deducting the applicable treatment, refining, and transportation charges (from mine site to market) from gross revenue.

Initial capital expenditures include required construction and development beginning in 2020 until commercial production in 2022; this includes underground development expenses. Current ongoing exploration expenses, including expenses for exploration ramp development in 2019, are not included in the financial model as these are considered sunk at the point of a production decision expected in early 2020.

Sustaining capital costs were incorporated on a year-by-year basis over the LOM, and operating costs were deducted from gross revenue to estimate annual mine operating earnings.

The financial model includes a mine closure and reclamation cost of US$4 million, which is deposited into a reclamation bond prior to production.

The model includes US$10 million in working capital that will be recovered at the end of the LOM.

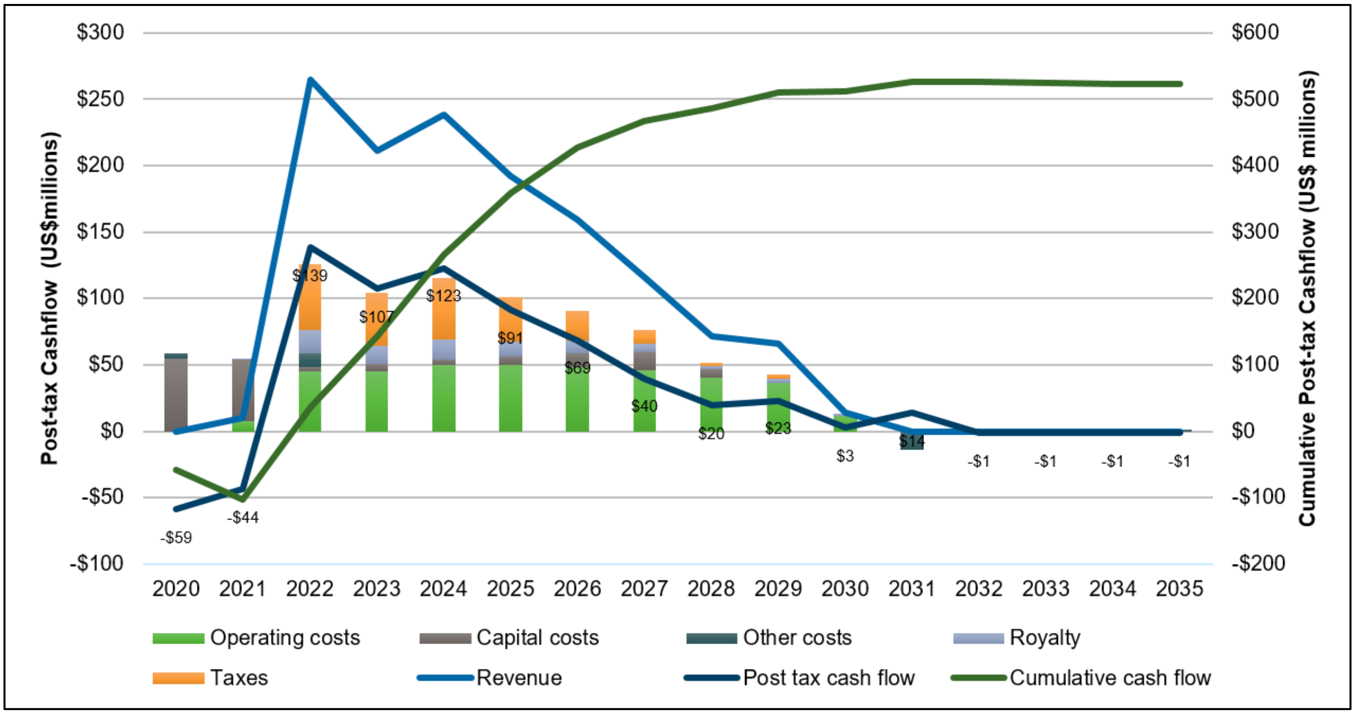
Table 22-2 shows the metal production quantities and Figure 22-1 shows the annual after-tax net cash flows (NCFs) and cumulative net cash flows (CNCFs).

### Table 22-2: Metal Production Quantities

| Metal Production | Units | First Four Years(1) | Remaining LOM |
|---|---|---|---|
| Gold | oz | 346,268 | 155,886 |
| Silver | oz | 33,752,792 | 17,251,262 |
| AgEq | oz | 59,722,926 | 28,942,738 |
| **Grades** | | | |
| Gold Grade | gpt | 5.95 | 2.37 |
| Silver Grade | gpt | 580 | 262 |
| AgEq Grade | gpt | 1,026 | 439 |

Note: (1)Excludes payable production of 3,961 oz of gold and 324,355 oz of silver related to processing surface stockpiles in 2021.

**Figure 22-1: After-tax Cash Flow**




## 22.2 Metal Price Scenarios

Table 22-3 tabulates the economic results at different metal price scenarios.

**Table 22-3: Economic Results Summary for Different Metal Price Scenarios**

| Price Case | Gold Price (US$/oz) | Silver Price (US$/oz) | NPV 5% (US$) | IRR (%) |
|---|---|---|---|---|
| Base Case | 1,269 | 16.68 | 406,907 | 78 |
| Consensus Economics | 1,340 | 17.50 | 443,860 | 83 |
| Three-year Trailing Average | 1,270 | 16.60 | 405,260 | 78 |
| Spot Prices at May 1, 2019 | 1,280 | 14.90 | 367,480 | 73 |

## 22.3 Smelter Terms

Table 22-4 shows the payment, smelting, and refining terms that have been applied in the economic analysis.

**Table 22-4: Payment, Smelting and Refining Terms**

| Term | Unit | Amount |
|---|---|---|
| Gold Payable | % | 99.85 |
| Silver Payable | % | 99.85 |
| Transport | US$/oz AgEq | 0.01 |
| Treatment and Refining | US$/oz AgEq | 0.22 |
| Insurance | US$/oz AgEq | 0.004 |

## 22.4 After-tax Economic Analysis

### 22.4.1 Taxes

SilverCrest completed an estimate of taxes payable from the cash flow generated for Las Chispas. This assessment was reviewed by PwC as noted in Section 3.0.

Allowable deductions were applied to cash flows based on estimated capital costs and expenses that SilverCrest has incurred to date, which include:

- Fixed development capital depreciated at 12%;
- Non-fixed development capital depreciated at 10%;
- Sustaining capital expenses, depreciated in the year expensed;
- Carrying value of US$45 million (existing value of the SilverCrest asset); and
- Tax loss carry-forward of US$17 million.

The resulting taxable income is estimated at US$673 million. Removing periods of negative cash flow this results in US$694 million. SilverCrest applied a tax rate of 30% to this amount over the LOM for an estimated tax amount of US$207 million over the LOM.

### 22.4.2 Royalties and Fees

The royalties and fees applied to the PEA cash flow include the following:

- Government royalty of 7.5% of income less authorized deductions, applicable to mining companies;
- Extraordinary government royalty of 0.5% of net revenue (NSR), applicable to gold and silver operations; and
- Concession fees (included in G&A operating costs).

The government royalty totals US$72 million over the LOM, with the extraordinary government royalty totaling US$6.8 million over the LOM.

In total, the PEA cash flow includes US$287 million in revenue for the Mexican government from the potential operations at Las Chispas. This excludes payroll taxes, fees, and sales taxes.

A 2% net smelter return (NSR) royalty is payable to the current concession holder of the Nuevo Lupena and Panuco II (pending registry) concessions for material that has processed grades of equal to or greater than 40 oz per tonne of silver and 0.5 oz per tonne of gold, combined. Given that none of the resources factored into the mine plan of this PEA are hosted within the Nuevo Lupena or Panuco II concessions, this royalty is not applicable to the current economics of the project and has been excluded from this economic analysis.

## 22.5 Cash Flow

The project cash flow, based on the mining schedule, is shown in Table 22-5. The cash flow is based on 81 million payable ounces of silver equivalent or 1.08 million ounces of gold equivalent (based on gold to silver conversion ratio of 75 silver to 1 gold).

The project operating costs average US$99/t milled. All in sustaining costs average US$7.52 per silver equivalent ounce payable or US$564 per gold equivalent ounce payable, including initial capital. Excluding initial capital, all in sustaining capital costs are estimated at US$6.28 per silver-equivalent ounce payable or US$471 per gold equivalent ounce payable.

**Table 22-5: Las Chispas PEA Project Cash Flow**

| | Units | LOM Total | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Development Metres | m | 69,342 | 5,427 | 4,904 | 8,075 | 7,927 | 7,860 | 8,699 | 10,517 | 10,833 | 5,100 | - | - | - | - | - | - | - |
| Tonnes Mined Underground | t | 3,686,195 | - | - | 368,070 | 455,684 | 456,980 | 455,773 | 455,793 | 455,753 | 457,018 | 455,782 | 125,341 | - | - | - | - | - |
| Tonnes from Stockpile | t | 174,500 | - | 100,000 | 74,500 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Tonnes Milled | t | 3,860,695 | - | 100,000 | 442,570 | 455,684 | 456,980 | 455,773 | 455,793 | 455,753 | 457,018 | 455,782 | 125,341 | - | - | - | - | - |
| Au Grade | g/t | 4.05 | | 1.38 | 7.57 | 5.28 | 6.08 | 4.90 | 4.39 | 2.95 | 1.37 | 1.37 | 0.94 | - | - | - | - | - |
| Ag Grade | g/t | 411 | - | 119 | 656 | 556 | 612 | 497 | 388 | 302 | 219 | 196 | 168 | - | - | - | - | - |
| AgEq Grade | g/t | 714 | - | 223 | 1,224 | 952 | 1,068 | 864 | 717 | 523 | 321 | 299 | 239 | - | - | - | - | - |
| Au Ounces Mined | oz | 502,155 | - | 4,437 | 107,736 | 77,390 | 89,303 | 71,839 | 64,338 | 43,168 | 20,115 | 20,024 | 3,806 | - | - | - | - | - |
| Ag Ounces Mined | oz | 51,004,054 | - | 382,594 | 9,340,989 | 8,142,100 | 8,992,929 | 7,276,774 | 5,679,278 | 4,425,281 | 3,214,125 | 2,873,694 | 676,290 | - | - | - | - | - |
| Au Ounces Recovered | oz | 473,812 | - | 3,967 | 101,703 | 73,057 | 84,302 | 67,816 | 60,735 | 40,750 | 18,988 | 18,903 | 3,592 | - | - | - | - | - |
| Ag Ounces Recovered | oz | 45,833,515 | - | 324,822 | 8,397,549 | 7,319,748 | 8,084,643 | 6,541,819 | 5,105,671 | 3,978,327 | 2,889,498 | 2,583,451 | 607,985 | - | - | - | - | - |
| Project Gross Revenue | $million | 1,364 | - | 10.4 | 268.7 | 214.5 | 241.5 | 194.9 | 162.0 | 117.9 | 72.2 | 67.0 | 14.7 | - | - | - | - | - |
| Selling Costs | $million | (19) | - | (0.1) | (3.7) | (3.0) | (3.4) | (2.7) | (2.3) | (1.6) | (1.0) | (0.9) | (0.2) | - | - | - | - | - |
| Net Revenue from Sales | $million | 1,345 | - | 10 | 265 | 211 | 238 | 192 | 160 | 116 | 71 | 66 | 14 | - | - | - | - | - |
| Mining Costs | $million | (197) | - | (0.4) | (24.7) | (23.9) | (28.4) | (28.5) | (27.1) | (24.8) | (18.6) | (14.7) | (5.5) | - | - | - | - | - |
| Processing Costs | $million | (126) | - | (4.0) | (14.3) | (14.8) | (14.8) | (14.8) | (14.8) | (14.8) | (14.8) | (14.8) | (4.1) | - | - | - | - | - |
| G&A Costs | $million | (58) | - | (3.4) | (6.6) | (6.6) | (6.7) | (6.7) | (6.7) | (6.7) | (6.7) | (6.7) | (1.8) | - | - | - | - | - |
| Total Operating Costs | $million | (381) | - | (7.8) | (45.6) | (45.3) | (49.8) | (50.0) | (48.5) | (46.2) | (40.1) | (36.1) | (11.4) | - | - | - | - | - |
| Government Royalties | $million | (79) | - | (0) | (18) | (14) | (15) | (12) | (9) | (6) | (3) | (3) | (0) | - | - | - | - | - |
| Initial Capital Costs | $million | (100.5) | - | (54.6) | (45.8) | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Sustaining Capital Costs | $million | (50.3) | - | - | - | (2.9) | (5.8) | (3.9) | (6.3) | (10.3) | (13.7) | (6.8) | (0.6) | - | - | - | - | - |
| Working capital | $million | (0) | | - | (10.0) | - | - | - | - | - | - | - | - | 10.0 | | | | |
| Reclamation (bond and expenses) | $million | (4.0) | (4.0) | | | | | | | | | | | 4.0 | (1.0) | (1.0) | (1.0) | (1.0) |
| Pre-tax Cash Flow | $million | 731.9 | (58.6) | (43.6) | 188.6 | 146.8 | 169.1 | 124.2 | 91.8 | 50.5 | 21.6 | 26.8 | 2.8 | 14.0 | (1.0) | (1.0) | (1.0) | (1.0) |
| Taxable Income | $million | 691.3 | - | - | 166.3 | 131.7 | 154.0 | 109.1 | 76.7 | 35.4 | 6.5 | 11.7 | - | - | - | - | - | - |
| Taxes Payable | $million | (207.4) | - | - | (49.9) | (39.5) | (46.2) | (32.7) | (23.0) | (10.6) | (1.9) | (3.5) | - | - | - | - | - | - |
| Net After-tax Cash Flow | $million | 524.5 | (58.6) | (43.6) | 138.8 | 107.3 | 122.9 | 91.5 | 68.8 | 39.9 | 19.6 | 23.3 | 2.8 | 14.0 | (1.0) | (1.0) | (1.0) | (1.0) |
| NPV 5% | $million | 406.9 | | | | | | | | | | | | | | | | |
| IRR | % | 78 | | | | | | | | | | | | | | | | |
| Payback Period | years | 0.74 | | | | | | | | | | | | | | | | |

## 22.6 Sensitivity Analysis

The Financial Model QP evaluated financial sensitivities to key financial inputs for the Las Chispas Project. Key financial inputs include metal price, capital cost, and operating cost.

As expected, the Las Chispas Project is most sensitive to metal price fluctuations. The NPV is least sensitive to capital cost changes, while the IRR is least sensitive to operating cost changes. Figure 22-2 and Figure 22-3 show the after-tax sensitivities for NPV and IRR, respectively.

The Financial Model QP evaluated metal pricing and costs to see which changes result in an NPV (at 5% discount rate) of zero.

- Metal prices of 45% of the PEA pricing, or a gold price of US$571/oz and a silver price of US$7.50/oz render an NPV of zero.
- Operating costs of 2.9 times the estimated PEA costs will render an NPV of zero.
- Capital costs of 4.6 times the estimated PEA costs render an NPV of zero.

**Figure 22-2: After-tax NPV Sensitivities**

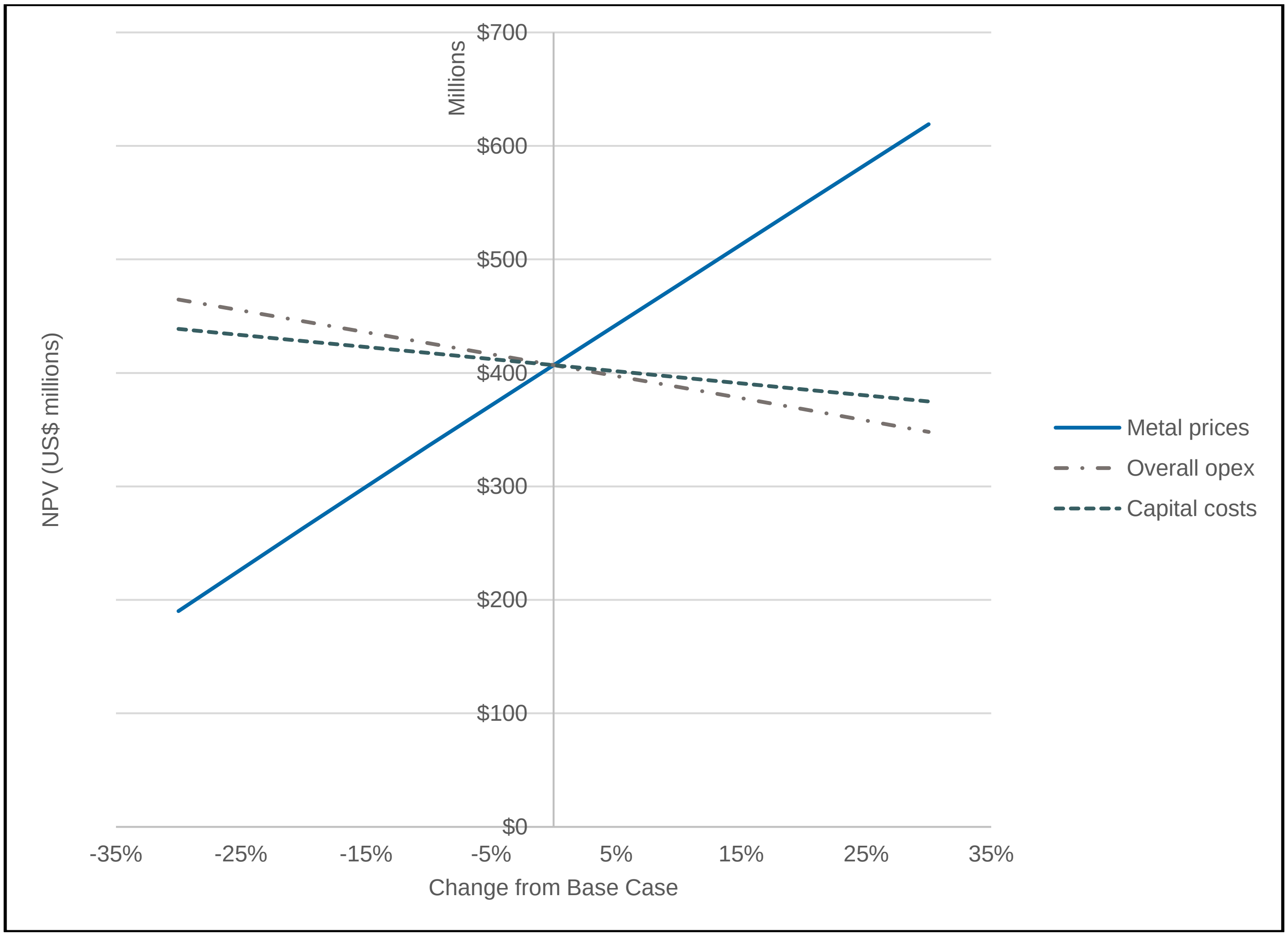
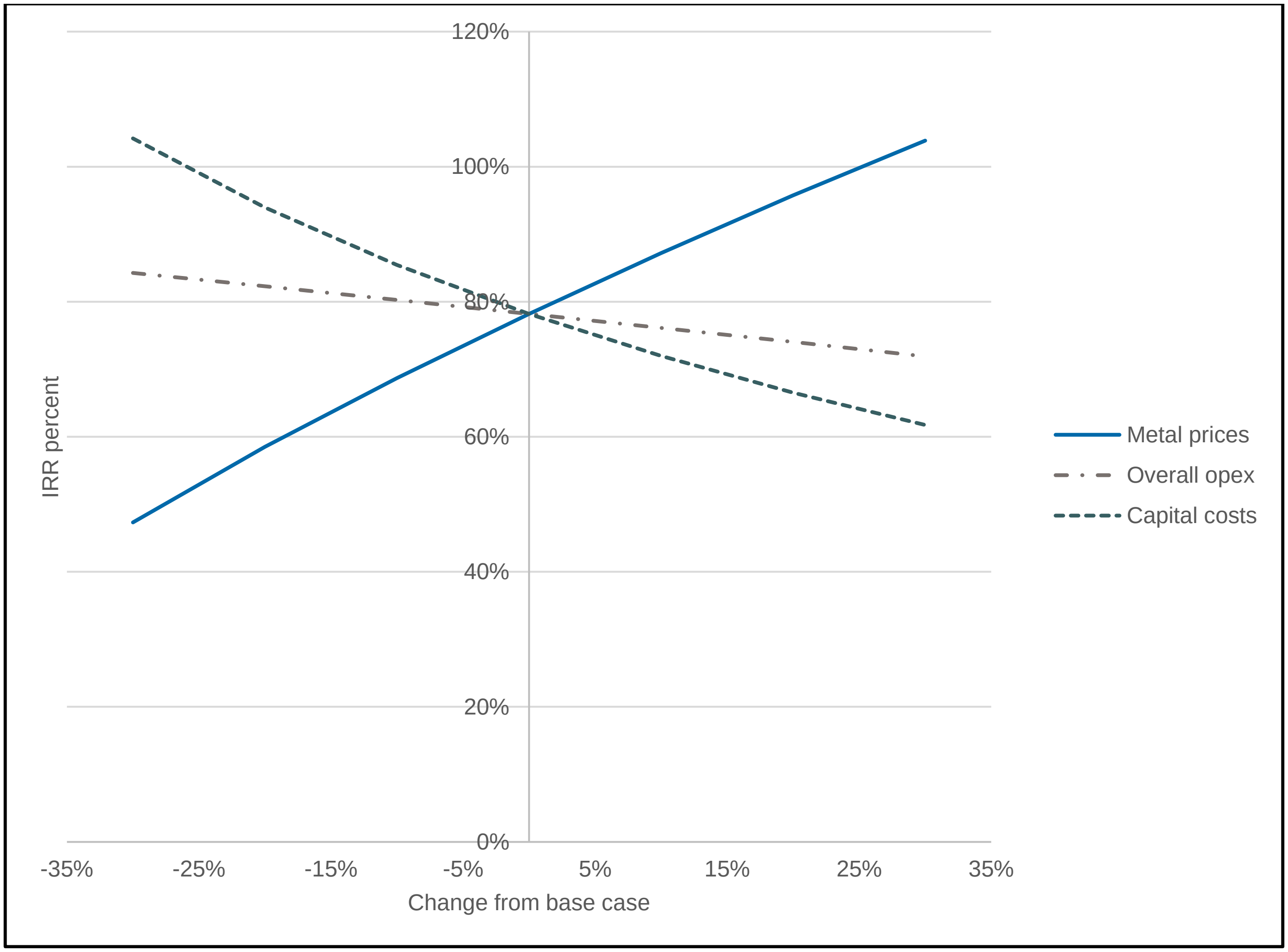


**Figure 22-3: After-tax IRR Sensitivities**



# 23.0 ADJACENT PROPERTIES

No advanced exploration or operating properties are known to exist immediately adjacent, or contiguous to, the Las Chispas Property that have relevance to this PEA.

## 23.1 Nearby Operating Mines

Numerous operating mines exist along the Rio Sonora valley in proximity to the Las Chispas Property. These include the nearby Santa Elena Mine, operated by First Majestic, and the Mercedes Mine, operated by Premier Gold. The Santa Elena Mine is a gold-silver underground mine, processing approximately 3,000 t/d and is located approximately 22 km south-southwest of Las Chispas (First Majestic 2018). The Mercedes Mine is also a gold-silver underground mine, processing approximately 2,000 t/d and is located approximately 33 km to the northwest of Las Chispas (Premier 2018).

The mineral deposits being exploited at these mines are low to intermediate sulphidation epithermal veins with associated breccia and stockwork over varying widths of less than 1 m to greater than 10 m. The deposits are hosted in volcaniclastic host rock lithologies with similar age of precious metal emplacement of late Cretaceous to Tertiary compared to Las Chispas. The gold-silver endowment and mineralization found on these properties are similar to Las Chispas in lithology, structural controls, alteration, and geochemistry with some variations. These mine operations may differ from a potential future operation at Las Chispas.

The Geology QP has visited the Santa Elena Mine on numerous occasions prior to 2016 while it was operated by SilverCrest Mines Inc. The Geology QP has not visited the Mercedes Mine; the description of the mine operation and geology are based on disclosure by Premier Gold (Premier Gold 2019).

# 24.0 OTHER RELEVANT DATA AND INFORMATION

## 24.1 Opportunities

The Las Chispas PEA is the first economic assessment of a potential underground mining operation and has taken in to account the combined geological, mining, metallurgical, processing and permitting considerations into a financial assessment. The work is based largely on exploration work completed by SilverCrest and is an early-stage snap shot of a conceptual mining operation which lacks the detailed investigations and engineering required to advance the project towards production. Conclusions drawn from this work provide an estimate for the time and work needed to move the Las Chispas Project from the current PEA level to a pre-feasibility study and/or a feasibility study level.

During advanced studies, extensive work will be required to infill the deposit to support re-categorizing the current mineral resource classification to reserves. Mineral resources included in the PEA mine plan are based on 71% of the inferred resources, which cannot be included in a mineral reserve estimate until they are converted to Measured or Indicated category. In addition to recategorizing resources, engineering and economic work will be required on several fronts including geotechnical, rock mechanics, mining, hydrogeology, water management, environmental, civil, mechanical, electrical, metallurgical, processing, cost estimation, project execution, etc. These efforts will need to be coupled with risk identification, mitigation of risk and opportunities for positive impact at Las Chispas.

While the extensive work described above to advance the economic analysis to a higher level is acknowledged, the following section is meant to summarize opportunities that potentially could improve upon the economics of the PEA which have not been included in this PEA are considered in the next phases of work. Alone or combined, these opportunities could change the approach to development, timelines, capital requirements and operating costs described within the PEA with potential to change the scale, economics and/or the value of the property. Even if not completely understood at this time, it is important to identify and acknowledge these opportunities so that the next phase of work takes them into consideration when defining the project design.

### 24.1.1 Exploration

The most significant potential impact to the economics of the Las Chispas Project is related to the potential for additional discoveries that lead to mineral resources in the Las Chispas district. While the Property had historical operations, there was no previous drilling done on trend prior to SilverCrest's acquisition of the Property in 2015. Advanced exploration work only began in April 2016 when only three precious metal epithermal veins were known on the Property (Las Chispas, William Tell, and Babicanora) based on historical workings and production records. Since 2016, 30 veins have been identified up to February 8, 2019, 10 of those veins have had sufficient drilling to outline at least an Inferred Mineral Resource estimate. The exploration potential of the Las Chispas Property, therefore, remains significant. The 20 veins that currently have not been drilled with sufficient density to host demonstrated resources represent an opportunity for expansion, however, it is uncertain if further drilling will intercept mineralization or result in any portions of the veins being classified as a mineral resource. Surface exploration and drill-testing has identified over 10 km of potential strike to test. The Precious Metal Zone (see Figure 8-1) along each vein can be up to 300 metres in height and open to depth; however, this will require verification by drilling. In addition to these identified veins, there remains significant potential to identify additional veins on surface and blind veins, with no outcrop, through the drilling program and/or the current progress of the exploration decline.

To date, the focus on the drill program has been on the near surface veins and known host lithologies in the district. Future drilling should not only be focused on expanding the current resource within the known mineralized zones, but also testing deeper host lithologies, parallel veins and newly identified areas that had limited historical workings.

The 2019 drill program has focused on both infill drilling the current resources to improve confidence and recategorize Inferred resources into the Measured and Indicated categories, and has tested new targets which are described in the following sections.

#### 24.1.1.1 Babicanora Vein and Babicanora FW Vein

The Babicanora Vein is the widest intact vein (averaging 3.2 m in true width) on the property identified to date and the largest host of the current mineral resource estimate (40%, on total AgEq ounce basis). While the main focus of the Phase III drilling program on the Babicanora Vein has been to infill and improve confidence in the resource in preparation for reserve conversion, the southeastern portion of the vein in Area 51 zone appears to be open to expansion with potential for mineralization to extend down plunge further to the southeast. Drilling is currently testing for mineralization along this trend beyond the limits of the defined high-grade footprint (see Figure 10-1). The Babicanora FW Vein has been re-interpreted within this PEA where now, the interpretation suggests that it is a separate vein. The Babicanora FW Vein appears to remain open to expansion along its strike length. While there are likely to be windows of discontinuity within the Babicanora FW Vein, the resource that is currently outlined is largely a reflection of drilling that was targeting the Babicanora Main Vein, not the Babicanora FW Vein. There remains potential to connect some of the discontinuous resources outlined at Babicanora FW Vein with a more focused drill program and like Babicanora Main Vein.

The development of the new Santa Rosa Decline (Area 51 zone) will be very useful to further delineate the Babicanora Vein, Babicanora FW Vein, the Babicanora HW Vein, and the least tested Babicanora Vista Vein, as it will provide direct short range underground access to the vein for planned development and underground drilling for both expansion and infill.

#### 24.1.1.2 Babicanora Sur

As described in this PEA, the Babicanora Sur Vein as it is currently interpreted has four distinct mineralized zones which each require separate development as outlined in the PEA mine plan. There remains potential to connect some of these zones with additional drilling, which could result in less development requirements. In addition, Babicanora Sur Vein remains under-drilled and appears open to expansion along strike and to depth. Increased mineralized tonnage would potentially allow the spread of development costs over a larger resource, which could reduce the all-in sustaining capital cost per ounce of production for this area. The Babicanora Sur HW Vein is currently interpreted to be narrow with marginal grades; however, it has potential for expansion with continued exploration along the Babicanora Vein, as was discovered with the Babicanora FW and Babicanora HW veins.

#### 24.1.1.3 Babicanora Norte

The Babicanora Norte Vein is currently the highest-grade vein hosted on the Property on a volume weighted basis. This vein is the only known vein to be hosted within the welded tuff lithological unit which has resulted in confining the vein to a narrow and well-defined vein. The Babicanora Norte vein appears to be open along strike. Similarly, to the Babicanora Sur Vein, the Babicanora Norte Vein is interpreted to have three distinct pods, which host mineralization. While the Babicanora Norte is high grade, it remains narrow and requires significant capital and development to access the mineral resources. Expansion of the vein resources could help to reduce the initially high cost to develop this area.


TETRA TECH

#### 24.1.1.4 Las Chispas Deeps (or South)

The Las Chispas Deeps or South target was developed following a re-interpretation of the geological model, specifically, the understanding of certain lithologic host rocks (see Figure 7-2, stratigraphic column). Upon review of the model, the SilverCrest geology team formulated the hypothesis that the fine to coarse-grained lithic tuff unit (LAT1) hosting mineralization within the Babicanora Vein system could be the same unit as a third lower lithic tuff horizon intercepted by drilling approximately 250 m below the existing Las Chispas Resource area. Furthermore, historic workings also trend along plunge to the southeast along lithology. While the current Mineral Resource estimate for the Las Chispas veins (Giovanni, Las Chispas, William Tell, and Luigi) are lower grade than what has been defined in the Babicanora area, historical records of production from the Las Chispas and William Tell veins described in Section 6.1 estimate approximately 20-40 million ounces of silver were extracted from the mine until it was shut down in the 1930s. Records indicate that the historical production was from material grading 1,700 gpt silver and 15 gpt gold at an assumed cutoff grade of 1,000 g/t silver. The reader is cautioned that historical production numbers have not be verified and can not be relied upon, however, based on the location of underground workings in the Las Chispas Area this historic production was sourced from mineralization generally hosted within the upper lithic tuff units (LAT and FIAT). Should the lower lithic tuff unit (LAT1) in the Las Chispas area prove to be a favourable host, there exists potential for an entirely new deep-seated vein system located below the historic Las Chispas Mine Drilling has not yet been conducted in this area, and it remains an ongoing exploration target for SilverCrest. It is uncertain if further exploration will intercept mineralization or result in the target being classified as a mineral resource.

#### 24.1.1.5 Los Chiltepin Area

The Los Chiltepin vein system was recently identified based on historical workings and surface mapping. Los Chiltepin includes five parallel veins that were identified from historic surface workings and outcrop. Early indications suggest that while there has been some historical access, all of these workings were developed in a less favourable unit known as the andesite tuff (ADT). Limited historic production occurred given that the grade of the near surface workings is significantly below the historical cut-off grade of 1,000 gpt silver. While the historic workings and outcrop are in a less favourable unit, the same 220° cross-cutting structures that are known to be in association with high-grade mineralization in the Las Chispas and Babicanora areas appear to run through the Los Chiltepin area.

Furthermore, based on the current lithological model, the same package of favourable lithic tuft units that host the Las Chispas and Babicanora veins are projected at depth in the Los Chiltepin Area. While there was significant historical mining in the Las Chispas and Babicanora Areas, the Los Chiltepin area remains largely intact, representing a new area for potential resource expansion.

### 24.1.2 Resources Conversion

Several factors contributed to a reduction of the vein mineral resources from approximately 1.0 million tonnes containing 39.7 Moz AgEq of Indicated (0.22 Moz Au and 22.9 Moz Ag) and 3.6 million tonnes containing 68.1 Moz AgEq of Inferred (0.39 Moz Au and 38.9 Moz Ag) resources down to approximately 816 thousand tonnes containing 37.6 Moz AgEq of Indicated (0.21 Moz Au and 21.6 Moz Ag) and 1.96 million tonnes containing 51.2 Moz AgEq (0.29 Moz Au and 29.5 Moz Ag) of Inferred resources estimated in the LOM plan in the PEA:

- This PEA assumes implementation of the cut-and-fill mining method throughout which is known to be well adapted for high mining recovery but also require significant development and higher operating costs which adds to the overall cost and therefore increases the cut-off grade contributing to non-use of some resource. Alternate mining methods which allow for an increase in sublevel spacing could be applied to some areas where development costs were excessive. These methods could include narrow vein sublevel stoping, shrinkage, bench mining or manual cut and fill methods.

- Some mineralized zones did not have sufficient tonnage (even if the grade was above the cut-off-grade) to support the initial development capital and these mineral resource blocks were therefore not considered economic and rejected from the mine plan. This is the case of the Luigi vein, as an example, which could not support the standalone development cost to access the material.
- The methodology employed to outline the cut-and-fill stopes in the PEA was ultimately simplified to limit the number of stopes to an amount that could be managed and to be commensurate with this level of study. The simplification process implied that the stope shapes were sometimes rudimentary and could not always follow the sinuous morphology of the veins. These factors together contributed to the non-use of mineral resource blocks based on the cut-off grade at times but also in the perimeter of the vein system in other cases.

All these factors should be reviewed during the next phase of work.

### 24.1.3 Mining Method

For this PEA, the mining method employed at Las Chispas is assumed to be 100% cut and fill. This decision was based on:

- The general strategy of the PEA, which was to take a prudent approach (limit the risks) for the design;
- A limited amount of geotechnical information to support a different mining method; and
- A desire to simplify the mining schedule in this PEA.

All these factors while being valid for the PEA are expected to change in the next phase of work where other mining methods will be contemplated for specific areas of the deposit. As an example, sub-level stoping could be used in the central part of Babicanora Vein, sub-level spacing could be widened where the veins are more continuous and/or wider. These other methods were discussed during the PEA process, but ultimately decided to be deferred for review as part of a future study when more information should be available to properly assess the optimal mining method.

### 24.1.4 Metallurgical Recoveries

The metallurgical recoveries used to support the PEA are presented in Table -1.

**Table -1: Las Chispas Gold, Silver and Silver Equivalent Recoveries for the PEA**

| | LGC (529 gpt AgEq) | | | MGC (1,009 gpt AgEq) | | | Average Composite (769 gpt AgEq) | | |
|---|---|---|---|---|---|---|---|---|---|
| | Au (%) | Ag (%) | AgEq (%) | Au (%) | Ag (%) | AgEq (%) | Au (%) | Ag (%) | AgEq (%) |
| Gravity Concentrate Recovery | 47.0 | 32.6 | 37.8 | 40.8 | 34.0 | 36.7 | 43.9 | 33.3 | 37.2 |
| Intensive Leach Recovery (applied) | 90.0 | 90.0 | 90.0 | 90.0 | 90.0 | 90.0 | 90.0 | 90.0 | 90.0 |
| Estimated Gravity/Leach Recovery | 42.3 | 29.3 | 34.0 | 36.7 | 30.6 | 33.1 | 39.5 | 30.0 | 33.5 |
| Conventional Leach Recovery | 51.5 | 58.9 | 56.4 | 58.2 | 60.9 | 59.9 | 54.9 | 59.9 | 58.1 |
| Estimated Recovery | 93.8 | 88.2 | 90.3 | 94.9 | 91.6 | 93.0 | 94.4 | 89.9 | 91.6 |

The recovery applied to the intensive leach recovery was limited to 90% despite the fact that all tests completed on the concentrate yielded recovery superior to 99%. The applied reduction translated in an overall recovery reduction of approximately 4% for both silver and gold when applied in the PEA.

This decision was based on the following rational:

- The general strategy of the PEA was to take a prudent approach (limit the risks) for the design;
- The geo-metallurgical confirmatory test work was not yet completed; and
- Given the very small mass-pull when generating the concentrate, the resulting concentrate could not be matched directly with the three composites, which is sub-optimal.

During the next phase of work, SilverCrest will review the applied reduction in metallurgical recovery and possibly eliminate it for the next economic analysis. Gains in recovery can be significant not only for revenue on the current Mineral Resources contemplated in the PEA, but could also contribute to the expansion of the resources included in the mine plan as a result of potential reduction in the cut-off grade calculation.

### 24.1.5 Mine and Plant Expandability

During the PEA, the design team was mandated to take a “risk adverse” approach on design. When in doubt, the team elected to choose a smaller throughput design rather than push for a larger design, which would come with a higher risk. In the case of the design for the plant, this strategy translated into a lower daily tonnage (1,250 t/d) which “relaxed” the intensive mining development needs of a 100% cut-and-fill operation.

During the next phase of work, it is expected that the nameplate capacity will be reviewed and could possibly be upgraded to 1,500 t/d, should the resource and economics support it. Even if the start-up nominal plant capacity remained at 1,250 tpd in the next study, the plant will be design to accommodate expansion based on the exploration upside potential and the economies of scale associated with a larger throughput operation.

### 24.1.6 Grid Connection

The PEA assumes an operation with electrical power generated from diesel powered gensets. Grid power is available with a substation roughly 50 km from the proposed Las Chispas plant area. The timing of the start-up essentially dictates this decision to start using higher cost genset power. The study assumes a unit cost of US$0.275/kWh, while the grid unit cost is estimated between US$0.08 and US$0.10/kWh.

During the next phase of the study, it is expected that trade-off-studies will be completed to validate the connection of the Las Chispas Project to the national grid and outline permitting and capital requirements.

# 25.0 INTERPRETATIONS AND CONCLUSIONS

## 25.1 Geology

As of the effective date of Mineral Resource Estimate, SilverCrest has drilled from both surface and underground a total of 117,057.65 m in 439 core holes since drilling began in March 2016. Additionally, exploration work has included an extensive surface mapping program which included sampling of surface outcrop, historical dumps and tailings. In addition, SilverCrest has completed rehabilitation of approximately 11 km of underground workings which has included mapping and sampling.

Drilling on the Babicanora Vein has discovered significant silver and gold mineralization along a regional plunging trend, which has been named Area 51 Zone, based on anchor mineral intersection in hole BA17-51 (3.1 m grading at 40.45 gpt gold and 5,375.2 gpt silver, or 8,409 gpt AgEq). The area measures approximately 800 metres along strike and 500 m vertically. Delineation drilling in the Area 51 Zone has identified a high-grade core comprised of composite vein intercepts grading 1,000 gpt AgEq or greater, which has been named Shoot 51, and has dimensions of approximately 300 m long by 125 m high. The top of Shoot 51 is located at approximately the same elevation as the valley bottom or 200 vertical m from the ridge crest.

Drilling along the Babicanora Norte Vein has discovered significant silver and gold mineralization hosted within a narrow well-defined quartz vein which has been observed in historical shafts/workings to continue to surface. Hole BAN18-26 intercepted approximately 1.4 m estimated true width grading 51.43 gpt gold and 2,838.0 gpt silver, or 6,695 gpt AgEq.

Drilling along the Babicanora Sur Vein has discovered an addition mineralized zone in parallel to the Babicanora Vein and within an approximate distance of 350 m, which has a strike length of approximately 2,300 m and height ranging from 80 to 175 m along dip. Highlights from this area include hole BAS18-31 which intercepted 2.2 m of 18.78 gpt gold and 2,147 gpt silver, or 3,556 gpt AgEq.

SilverCrest, through an extensive mapping and sampling program, has identified that many of the mineralized showings comprise narrow and high-grade mineralized veins corresponding with low to intermediate sulphidation epithermal deposit models, which are hosted in volcanic and volcaniclastic rocks.

The vein models currently assume that all mineralization is hosted in competent and semi-homogenous material. Zones of strong clay alteration or brecciation have been observed to exist at vein contacts and internal to vein structures. Veins have been modelled to a minimum true width of 1.5 m in the Las Chispas Area and to a minimum true width of 0.5 m in the Babicanora Area.

The Geology QP reviewed the geological database integrity and conducted an independent verification sampling program during a site investigation. The Geology QP is comfortable that the data is adequate for Mineral Resource Estimation. Mineral Resources have been updated in this Technical Report and have been classified in accordance with NI 43-101 and the CIM Definition Standards on Mineral Resources and Mineral Reserves as Inferred in the Las Chispas and Granaditas areas and as both Inferred and Indicated in the Babicanora Area based on sampling density and confidence in vein models. There are no known legal, political, environmental, or other risks that could materially affect the potential development of the Mineral Resources.

## 25.2 Mineral Processing and Recoveries

SGS Durango conducted two metallurgical test programs for Las Chispas to assess gold and silver recovery. The initial metallurgical test work completed in 2017 was preliminary in terms of extent and complexity. Further metallurgical test work was conducted in 2018/2019 on three composite samples representing future mill feed materials and one waste composite sample.

The results indicate that significant amounts of gold and silver in the mineralization occur in nugget gold and silver forms. The tested samples respond well to the combined treatment of gravity concentration and cyanidation. On average, approximately higher than 98% of the gold and 95% of the silver were extracted from the head samples, including the gold and silver recoveries reporting to the gravity concentrate. Despite these results, the PEA uses lower recoveries (94.4% Au and 89.9% Ag) to account for two main facts:

- The sample used were composite samples and variability test work (geo-metallurgy) was limited; and
- The test work completed involved a gravity concentrate mass-pull of 1.5%, which is much higher than the mass recoveries observed from typical gravity concentration circuits.

Adding flotation to separate gold and silver bearing minerals and leach the flotation tailings and concentrate separately may slightly improve overall metal recovery and reduce cyanide consumption, however, this will need to be verified by further testing.

A combined recovery method of gravity concentration and intensive leaching followed by cyanide leaching on the gravity separation tailings was recommended for the PEA. Further test work should be conducted to optimize the various parameters for process design and economical assessment.

## 25.3 Mining Methods

### 25.3.1 Mining Conditions

During the site visit, the Mining QP conducted a visual inspection of mining conditions in the historic workings at Las Chispas. The most important factor in the mining of Las Chispas is that the veins are typically narrow. The implication of narrow vein mining is that mining needs to be done with small equipment with selective techniques to manage dilution; however, this will reduce potential productivity. As such, mining is considered the constraint to throughput for the potential Las Chispas operation. In addition, mining multiple veins creates complexity to the mining operation.

The challenges presented by narrow vein mining require further work to understand the risks and to assist SilverCrest in formulating an optimum mining execution plan.

### 25.3.2 Mining Methods

The Mining QP, through discussions with SilverCrest, selected mechanized cut-and-fill mining for the Las Chispas Property. Mechanized cut-and-fill mining is a relatively high-cost, low-productivity method. The primary benefit of the mining method is high recovery of mineralization and low dilution.

The results of applying this mining method include:

- High cut-off grades and mining costs resulting in the inclusion of only 2.8 Mt from the Mineral Resources (undiluted) into the mine plan;

- Roughly 70 km of development required for the LOM; and
- An estimated dilution of 35% on average expected over the LOM.

Despite the above challenges, the Las Chispas Property shows robust economic potential. As such, further work on optimizing the mining method and the mine development plan is justified.

The Mining QP briefly evaluated the inclusion of sublevel stoping as well as bench mining methods at Las Chispas. Both these methods have been applied to narrow vein mining methods at other mining operations and have the potential to improve productivity. Better understanding of ground conditions will assist in understanding the impact of these mining methods on ground stability as well as dilution.

### 25.3.3 Babicanora Area

The high grades in the Babicanora Area and accessibility from the plant make this area less sensitive to mine planning alternatives. The challenges presented by the Babicanora Area relate to development planning, including the concurrent development of multiple vein areas to enable flexibility in the mine plan.

SilverCrest has commenced development towards the high grade at Babicanora (Area 51). In addition, development towards Babicanora Norte is planned to commence prior to the end of 2019. The Mining QP conducted some brief assessments of the development options for Babicanora Norte. Further work on these options, with the inclusion of rock mechanics work, could provide cost saving options. Further work on optimizing ventilation circuits as well as providing for escapeways, is needed to provide for a safe mining operation.

### 25.3.4 Las Chispas Area

Through conducting mine planning for the Las Chispas Area, the Mining QP found that this area is sensitive to development options. Furthermore, the presence of existing development needs to be taken into consideration in mine planning work.

The option chosen for the Las Chispas Area is to develop the area via the La Blanquita Vein, allowing for stoping from this area while development proceeds towards the Giovanni, Las Chispas, and William Tell veins from where the largest proportion of tonnes are expected to come.

Through the process of designing stopes and development for the PEA, a number of mining challenges were revealed:

- Grades in the Las Chispas Area are lower than the Babicanora Area;
- The high-grade trends generally occur in vertically oriented shoots, which result in the need for either multiple ramps or lateral development through waste to link high-grade areas for production; and
- High-grade areas often do not support long strike length stopes, limiting the tonnage developed per metre of ramp or lateral development.

While challenges exist, multiple opportunities could be evaluated to improve economics of the Las Chispas Area:

- Potential to drive access ramps to Las Chispas and Giovanni where the veins are near surface, thus eliminating the need to drive a lengthy decline from La Blanquita to this area;
- Potential to utilize the existing development including the San Gortardo adit, which could be done by slashing these existing drives to allow larger equipment;

- Potential to use existing voids as ore passes or to access mineralization; and
- Potential to use alternate mining methods to reduce stoping costs and to increase sublevel spacing, saving development costs.

## 25.4 Project Infrastructure

The Las Chispas Property is accessible using the existing access road; however, road upgrades will be required to facilitate transport of equipment and materials during construction and operation. In addition to the plant and underground mine building, the Las Chispas Project will require a number of infrastructure items, including:

- Process plant, including reagent storage and gold room;
- Communications system for voice, data and control systems;
- Administration building, including mine dry, lockers, shower facilities, first aid, and office areas;
- Maintenance shop housing a wash bay, repair bays, parts storage areas, machine shop, electrical room, mechanical room; compressor room, and lube storage room;
- Warehouse with offices and mine dry;
- Assay laboratory;
- Diesel power plant;
- Fuel storage area; and
- DSTF.

The filtered tailings storage design concept was adopted based on the mine plan, the limited available construction materials, and the need to avoid risks associated with storage of conventional slurried tailings behind a dam. The design allows for storage of the 2 Mt of tailings produced over the LOM that will not be used for underground backfill. Design parameters were adopted and features incorporated based on the mine setting, project requirements, and typical elements needed to meet regulatory and operational requirements.

## 25.5 Environmental

Under the framework of Mexican Regulation, several environmental permits are required prior to construction and to advance large mining projects such as Las Chispas Project into production. SilverCrest has received four exploration permits which independently authorize surface drilling activities at various locations on the property with allowance for development of 461 drill pads and require exploration roads.

There are three SEMARNAT permits that are required prior to construction: MIA, ER, and CUSTF. SilverCrest initiated environmental baseline surveys that have been used for MIA application and authorization for underground drilling, underground bulk sampling up to 100,000 t for processing off-site and site access road improvements. An MIA permit application was submitted in May 2018 and is pending authorization for the siting of the processing plant and is estimated to be received in the second half of 2019. As of the effective date of this PEA, limited baseline work has been conducted on groundwater and surface water systems which is expected to start in May 2019 and will be required prior to mine production for authorization of Water Use Concessions and the Water Discharge Permit. As of the effective date of this PEA, SilverCrest owns 300,000 $m^3$ of water rights. This volume is estimated to be sufficient to cover the needs of a 2,000 Mt/d operation. Pursuant to the completion of the baseline studies, SilverCrest should seek application to SEMARNAT for required approvals under the environmental impact assessment process.

SilverCrest has submitted application for a "General Explosives Permit" to SEDENA to authorize storage of explosives on site. Prior to submitting this request, SilverCrest had to complete the construction of two magazines required during the operation. This permit for explosives storage is in the application process through SEDENA. Currently, SilverCrest holds a temporary permit for use of explosives with provision that require transportation and off-site storage managed by SEDENA. The temporary explosives permit will expire on June 28, 2019 and will require the General Explosives Permit, which is anticipated in July 2019 to continue with underground development.

SilverCrest maintains positive relations with various local stakeholder groups including the municipalities of Banamichi and Arizpe, local Ejidos and Land Owners. An EVIS should be completed to provide a socio-economic baseline later in the project's permit management program.

Work completed to date as part of the MIA applications indicated that the project has potential for low to moderate impact to local water, air, landscape and potential for moderate to high impact on the local soils, flora, and socio-economic conditions.

A formal Reclamation and Closure Plan has not been developed for the project and thus reclamation bonds has been estimated at US$4.0 million.

## 25.6 Capital and Operating Costs

The total estimated initial capital cost for the design, construction, installation, and commissioning of the CMP is US$100.5 million. A summary breakdown of the initial capital cost is provided in Table 25-1. This total includes all direct costs, indirect costs, Owner's costs, and contingency. All costs are shown in US dollars unless otherwise specified.

### Table 25-1: Capital Cost Summary

| Area | | Capital Cost Estimate (US$ million) |
|---|---|---|
| 10 | Site Preparation and Access Roads | 1.1 |
| 25 | Underground Mining | 19.3 |
| 30 | Process | 27.5 |
| 40 | Tailings | 4.4 |
| 50 | Overall Site | 2.3 |
| 70 | On-site Infrastructure | 6.7 |
| **Direct Cost Subtotal** | | **61.3** |
| X | Project Indirect Costs | 16.3 |
| Y | Owner's Costs | 8.1 |
| Z | Contingency | 14.8 |
| **Indirect Cost Subtotal** | | **39.2** |
| **Total Initial Capital Cost** | | **100.5** |

### 25.6.1 Operating Costs

The average LOM operating cost, at a design mill feed rate of 1,250 t/d, was estimated at US$98.66/t of material processed. The operating cost is defined as the total direct operating costs including mining, processing, and G&A costs. Table 25-2 shows the summary breakdown of the operating costs.

**Table 25-2: Operating Cost Summary**

| Area | LOM Average Operating Cost (US$/t processed) |
|---|---|
| Mining | 50.91* |
| Process and tailings management | 32.61 |
| G&A | 15.14 |
| **Total LOM Operating Cost** | **98.66** |

Notes: *Includes stope development but excludes capitalised underground development.

## 25.7 Economic Analysis

**A PEA should not be considered a Prefeasibility or Feasibility study, as the economics and technical viability of the project have not been demonstrated at this time. The PEA is preliminary in nature and includes Inferred Mineral Resources that are considered too speculative geologically to have economic considerations applied to them that would enable them to be categorized as Mineral Reserves. Furthermore, there is no certainty that the conclusions or results reported in the PEA will be realized. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.**

The PEA shows that the Las Chispas Project has robust economic potential with an NPV (5% discount rate) of US$407 million and an IRR of 78%. The project economics remain robust even at downside commodity price scenarios. The economics projected in the PEA do rely on Inferred Resources. Roughly 42% of the revenue estimated in the PEA (just under US$600 million) is based on Indicated Resources, which is sourced from 30% of the tonnage in the mine plan. As such, the conversion rate of Inferred to Indicated and Measured Resources is key to the confirming the Las Chispas Project's economic potential.

# 26.0 RECOMMENDATIONS

## 26.1 Geology

Based on the results of exploration work completed to date, the Las Chispas Property comprises an extensive mineralizing system with numerous veins, or portions of veins, that remain intact and potentially undiscovered. The Las Chispas Project merits further work to continue to characterize the internal variability and extents of the 10 veins included in the resource estimation and to explore the additional 20 veins currently known in the district and not yet fully tested by drilling.

The Phase III program was estimated to cost approximately US$15 million, which was originally recommended in the Barr (2018) report; this program continues to be executed. This exploration program, which commenced in February 2018, and is currently ongoing as of the effective date of this PEA, includes additional underground channel sampling, dedicated metallurgical test work on significant veins, expansion and infill drilling along multiple veins, exploration decline at the Area 51 Zone, baseline work, and permitting.

Phase III drilling has focused mainly on the Babicanora Area and has been successful in the discovery of new veins, and with increasing the understanding in the known veins. The confidence in the Mineral Resource Estimates in the area have improved. The Geology QP recommends continued infill drilling on veins in the Babicanora Area to further upgrading confidence in the model to enable portions of the Mineral Resources in the veins to be classified as Indicated from Inferred.

Currently, a portion of the Mineral Resource Estimate is within the Las Chispas Area, where widely spaced exploration drilling maintains a lower confidence for Mineral Resource classification at an Inferred level. Based on results to date, infill drilling along the Giovanni Vein should be undertaken to confirm the interpreted continuation of the vein to the south into the La Blanquita area. Additionally, the Las Chispas, William Tell, and Luigi veins should continue to be tested with infill drilling to identify additional resources and upgrade confidence in the existing Mineral Resources to an Indicated level for future mine planning evaluation at a prefeasibility or feasibility level.

Infill drilling should be combined with a geotechnical drilling program for collection of rock mass rating information, detailed structural geological data, and material property determination using a suitably designed laboratory test work program. The geotechnical drilling should be augmented with underground scanline mapping in historical workings and face mapping in a new development. This work will be used in the development of ground support requirements and stope design in advanced studies.

Underground surveying including cavity (void) scanning in the Las Chispas area is recommended to further delineate remaining in situ resources in the hanging wall and footwall of the historical workings, which are not currently included in the Mineral Resource statement. This survey should be reconciled with surface and underground drilling to provide a high confidence vein and mineralization model.

The Phase III program has successfully implemented drilling using triple tube to improve core recovery in altered rock in the Babicanora Area. A review of drilling recovery with reported assay is recommended to identify areas where assay grade may be over, or under, reporting due to material loss at the drill bit.

## 26.2 Mining Methods

The narrow vein nature of mining indicates that mining is the likely constraint to throughput at Las Chispas. Narrow mining typically drives higher costs and dilution. In the case of Las Chispas, the high grades drive economics. Further work on mining methods and underground development is expected to find opportunities to reduce costs and potential improved underground productivity.

Since 42% of the revenue is derived from Indicated Resources, the Mining QP recommends that SilverCrest focus on exploration to increase confidence in the Mineral Resources. Sufficient confidence in Mineral Resources will justify more detailed work on mine planning. Tetra Tech recommends that SilverCrest complete the follow-up studies to advance and optimize the mine plan.

- **Rock Mechanics Studies**
  - A rock mechanics program is key to understanding the mining method options. This program could include geotechnical drilling and underground mapping of historic and current workings. The Mining QP recommends that geotechnical drilling is done using oriented core with holes drilled at various inclinations and azimuths.
  - A rock mechanics study coupled with underground mapping, desktop work, and reporting is expected to cost up to US$150,000.
- **Cavity (Void) Monitoring Surveys**
  - To enable optimization of the mine plan for the Las Chispas Area, the Mining QP recommends that SilverCrest conduct cavity monitoring surveys to improve understanding of the extents of the historical workings. This will assist in understanding how development planning will interact with historic workings, as well as identify opportunities to use historic workings for access, ventilation, or infrastructure placement. Some dewatering of flooded workings may need to be completed to enable this work to be done.
  - This work is expected to cost up to US$20,000.
- **Mining Method Trade-off**
  - In the absence of geotechnical information, the Mining QP and SilverCrest elected to consider only mechanized cut-and-fill with and without resuing for the PEA. In the course of completing the PEA, a number of opportunities to review the mining method were identified. This justified by the presence of wider mineralization, the observation of good rock conditions, and the opportunity to use alternate mining methods for narrow vein areas.
  - The Mining QP recommends that SilverCrest conduct a trade-off study on mining methods and conducting site visits to narrow vein operations with similar ground conditions.
  - This work is expected to cost up to US$150,000.
- **Drifting Along Veins off the Santa Rosa Decline**
  - The Mining QP proposes that during the development of the Santa Rosa Decline, as mine development is completed, that SilverCrest drift along the veins.  This will provide valuable information on grade continuity, vein widths, ground conditions, metallurgical recoveries, and processing requirements. It may be possible to conduct trial stoping to validate stoping methods.
  - This could cost up to $1,000,000.

- **Mining Software**
  - SilverCrest should evaluate the benefit of use of MSO software for design of cut and fill stopes. While this tool is useful for rapid creation of stopes for completion of the PEA, the value of cut-and-fill mining, in that high selectivity and low dilution is not captured in the stope design. Alternate methods could include creation of grade shells around material above cut-off grade and regularizing the shape of these shells matching the selectivity of cut and fill mining.
  - This work is expected to cost up to $25,000.
- **Mine Development Trade-off**
  - The Mining QP reviewed various approaches to mine development in completing the PEA. While the economics of Babicanora are not as sensitive to the mine plan, the Las Chispas Area could benefit from additional work reviewing alternate approaches to development. In particular, use of historic workings and alternate access to the Giovanni and Las Chispas veins could yield reduced development cost for the area.
  - Further work on development strategy for the Luigi Vein could reduce development cost allowing for the inclusion of Luigi in the mine plan.
  - Reviewing development options for Babicanora Norte could also yield cost saving opportunities.
  - This work is expected to cost up to US$25,000.
- **Backfill Study**
  - The Mining QP recommends that SilverCrest evaluate the geomechanical properties of the tailings to improve understanding of backfill strength from tailings. The type of tailings system to be used for Las Chispas should be reviewed, including the use of paste fill for underground.
  - The cost of this work is expected to cost up to US$25,000.
- **Ventilation and Escape Way Planning**
  - Detailed ventilation modelling has not been completed for the PEA. On the basis of a mine plan around Indicated and Measured Resources, the Mining QP recommends that SilverCrest conduct ventilation and escape way planning. This study should include review of the mine layout at various nodes in the mine life for ventilation circuits and placement of escape ways. This study will assist in improving the underground layout through optimizing the use of ventilation and escape way raises.
  - This study could be conducted in conjunction with development planning and is expected to cost up to US$25,000.

## 26.3 Mineral Processing and Recoveries

The 2018/2019 metallurgical test work program has preliminarily assessed the metallurgical responses of the mineral samples to various process separations, including gravity concentration and cyanidation and flotation, to support the PEA study. Further circuit optimization testing, including variability tests, will need to be conducted to confirm and optimize the selected processing methods. Other tests, including hardness tests on variables samples, static/dynamic settling tests of concentrates samples, and cyanide destruction tests, should also be carried out to select process equipment and estimate reagent dosage.

The following test work is suggested for the Las Chispas Project to confirm and optimize the process recovery method:

- Gravity-recoverable-gold (GRG) tests on variable samples are recommended based on mineralogy and the future mine plan to confirm and optimize gravity concentration circuit design. The mass pull of the gravity concentrate should be investigated and verified. The estimated budget for the GRG tests is US$10,000.
- Flotation tests on variable samples are recommended based on mineralogy and the future mine plan to further investigate metal recovery by flotation and cyanidation and reagent consumption. A trade-off study should be conducted to compare the combined gravity + flotation + cyanidation flowsheet with the gravity + cyanidation flowsheet. The estimated budgets are US$50,000 for gravity/flotation/cyanidation tests and US$30,000 for the trade-off study.
- Variability tests should be conducted on the various samples based on the future mine plan to investigate the effect of various mineralogical characteristics, feed grades, and spatial locations on metallurgical performances to the optimized process flowsheet. The estimated budget for variability tests is US$30,000.
- Settling and filtration tests on leach residues are recommended at an estimated cost of US$15,000.
- Cyanide detoxification tests are recommended at an estimated cost of US$10,000.
- Geochemical tests on residue samples are recommended at an estimated cost of US$5,000.
- General sample preparation, assay, and mineralogical studies are recommended and estimated to cost US$50,000.

The above estimates exclude the sample collection and shipping costs.

## 26.4 Project Infrastructure

Geotechnical drilling investigation for infrastructure foundation studies are recommended for the proposed locations of the mineral processing facilities and ancillary buildings.

The opportunity to optimize the cash flow by expediting the construction schedule and adapting modularization of the process plant, which should be evaluated further as part of the next phase of study.

There also exists an opportunity to evaluate the economics of building a power transmission line to the property and utilizing power from the local power supply network, instead of generating power on site using diesel generators.

A geotechnical drilling investigation program is estimated to cost US$300,000 and construction schedule optimization and equipment modularization is estimated to cost US$50,000.

### 26.4.1 Dry Stack Tailings Facility

The following tasks are recommended to advance the DSTF design concept:

- A trade-off study of alternate tailings storage methods should be undertaken that includes consideration of conventional (thickened) tailings storage approach.
- A subsurface geotechnical investigation including materials characterisation via field and laboratory testing should be performed to assess foundation conditions. Geotechnical characterisation of tailings samples should be undertaken, and geotechnical stability analyses completed.
- Geochemical assessment of tailings, mine waste, and potential construction materials.

- The design of containment features should be developed based on seepage and stability assessments that consider material properties, site conditions, and regulatory requirements. Contaminant fate and transport modelling should be undertaken to support determination of containment requirements.
- Design of water management features, including diversion size and alignment, that incorporates seasonal climate and mine site water balance considerations. The potential requirement to armour or otherwise protect the DSTF toe from flooding should be assessed.
- A geotechnical and environmental monitoring plan should be developed that includes consideration of monitoring instrument type and position, and the location of groundwater monitoring wells.
- The Reclamation and Plan should be developed in accordance with Mexican and international design guidelines and regulatory requirements.

## 26.5 Environmental

SilverCrest has initiated environmental baseline surveys which have been used for MIA application and amendments in support of change of soil use and construction of the Las Chispas Project. The baseline work on groundwater and surface water systems is expected to be initiated shortly after the effective date of this PEA. This work will be required prior to mine production for authorization of Water Use Concessions and the Water Discharge Permit. An EVIS should be completed to provide a socio-economic baseline later in the Las Chispas Project's permit management program. Pursuant to the completion of the baseline studies, and the EVIS, SilverCrest should seek application to SEMARNAT for required approvals under the environmental impact assessment process.

## 26.6 Recommended Working Budget

It is recommended that SilverCrest advance to the feasibility level to completely assess the viability of the Las Chispas Project. Prior to completion of a Feasibility Study, several investigations and laboratory test work programs are required to be completed and combined with trade-off studies. Table 26-1 shows a list of these various recommended investigations and trade-off studies with a summarized cost estimate to proceed to the next level of study.

**Table 26-1: Cost Estimate for Feasibility Study and Engineering Trade-off Work**

| Item | Units | Cost Estimate (US$000) |
|---|---|---|
| Dedicated Sampling and Metallurgical Test Work on Most Significant Veins | 200 samples, composites and test work | 250 |
| Expansion and Infill Drilling Along Multiple Veins | 55,000 m (surface and underground) | 9,000 |
| Area 51 Decline, Babicanora Norte Decline and Exploration | 2,300 m | 4,500 |
| Environmental Baseline Work and Permitting | Decline, explosives, added drilling | 445 |
| Water Exploration, Permitting and Concessions Purchase | All rights for water use | 200 |
| Update Mineral Resources and Technical Report | Q4 2019 Technical Report | 100 |
| Rock Mechanics Studies | Desktop study | 150 |
| Cavity Monitoring Surveys | Site visit and underground study | 20 |

*table continues…*



TETRA TECH

| Item | Units | Cost Estimate (US$000) |
|---|---|---|
| Mining Method Trade-off | Desktop study | 150 |
| Drifting Along the Vein | Contract mining | 1,000 |
| Mining Software Evaluation | Desktop work | 25 |
| Backfill Study | Laboratory test work and desk top study | 25 |
| Ventilation and Escape Way Planning | Desktop study | 25 |
| Metallurgical Test Work | Laboratory test work | 200 |
| Project Infrastructure and Surface Geotechnical | 1,000 m geotechnical drilling, construction scheduling | 350 |
| Dry Stack Tailings | geotechnical, geochemisty, and test work | 150 |
| Financial and Feasibility Study | H2 2019 and H1 2020 FS | 2,000 |
| Mexico Administration and Labour | G&A | 1,500 |
| Corporate Support | Corporate G&A | 500 |
| **Total** | **-** | **20,590** |

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