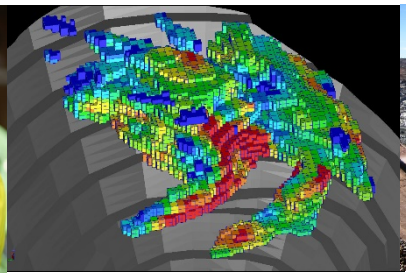
NI 43-101 Technical Report

Mineral Resource Estimate

BAM Gold Project, Junior Lake Property, Ontario, Canada

Effective Date: 31/12/2019

Prepared for: Landore Resources Canada Inc.



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Signatures

Coordinating Author	Brian Fitzpatrick B.Sc. (Geology), MAusIMM CP (Geo) Principal Geologist Cube Consulting Pty Ltd	**Signature**	
Contributing Author	Mike Millad MSc, CFSG, MAIG Principal Geostatistician Cube Consulting Pty Ltd	**Signature**	
Peer Reviewer	Rebecca Prain B.Sc. (Geology) General Manager Cube Consulting Pty Ltd	**Signature**	

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1. Summary

1.1. Executive Summary

Cube Consulting Pty Ltd (**Cube**) was engaged by Landore Resources Canada Inc. (**Landore**) to update a Mineral Resource estimate (**MRE**) and prepare an Independent Technical Report, in compliance with the requirements of the Canadian National Instruments 43-101 Standards of Disclosure for Mineral Projects (**NI 43-101**), on the BAM Gold Project, in Ontario, Canada.

The BAM Gold Project Mineral Resource, Effective Date as at 30 December 2019, is suitable for public reporting in accordance with the NI 43-101 and the CIM Definition Standards (May 2014). All drilling information, including all drilling completed up to the end of 2019 has been used in the preparation of the current MRE.

Table 1-1 is a summary of the Indicated and Inferred Mineral Resources, effective as of 30 December 2019.

Table 1-1 BAM Gold Project In-Situ Mineral Resources In-situ Mineral Resource – All Indicated and Inferred Resources (as at 30 December 2019)

Resource Category	Material Type	Au g/t cut off	Tonnes (kT)	Grade (g/t Au)	Contained Metal (Oz Au)
Measured	**ALL**	>0.3	0	0	0
Indicated	**ALL**	>0.3	21,930	1.06	747,000
Inferred	**ALL**	>0.3	9,153	0.91	268,000

Notes:

1 *Effective date of 30 December 2019.*

2 *Mineral Resources are estimated at a block cut-off grade of 0.3 g/t Au.*

3 *Mineral Resources are estimated using a long-term gold price of US$1,500 per ounce.*

4 *A minimum mining width of two metres was used.*

5 *Bulk densities for the main host rocks are 2.82 t/m^3, 2.84 t/m^3, and 2.90 t/m^3.*

6 *Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.*

7 *Figures may not add up due to rounding*

Based on the current input parameters that have been used for the 2019 pit optimization by Cube, a 0.3 g/t Au lower cut-off was deemed appropriate for the December 2019 Mineral Resource reporting.

At a cut-off grade of 0.3 g/t Au, the Mineral Resources are reported here within the pit optimization Run B open pit shell. The Run B open pit shell includes Indicated Mineral Resources and Inferred Mineral Resources. The figures reported in Table 1-2 are estimated using a long-term gold price of US$1,500 per ounce.

Table 1-2 2017 BAM Gold Project Mineral Resources Inside US $1,500 Pit Shell (as at 30 December 2019)

Resource Category	Material Type	Au g/t cut off	Tonnes (kT)	Grade (g/t Au)	Contained Metal (Oz Au)
Measured	**ALL**	>0.3	0	0	0
Indicated	**ALL**	>0.3	13,832	1.22	531,000
Inferred	**ALL**	>0.3	664	1.46	30,000

Notes:

1 *Effective date of 30 December 2019.*

2 *Mineral Resources are estimated at a block cut-off grade of 0.3 g/t Au.*

3 *Mineral Resources are estimated using a long-term gold price of US$1,500 per ounce.*

4 *A minimum mining width of two metres was used.*

5 *Bulk densities for the main host rocks are 2.82 t/m^3, 2.84 t/m^3, and 2.90 t/m^3.*

6 *Mineral Resources are constrained by a preliminary pit shell generated in Whittle software.*

7 *Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.*

8 *Figures may not add up due to rounding*

The pit optimization study resulted in two distinct areas, an east pit optimisation (BAM East Pit) and a west pit optimisation (BAM West Pit). No further work involving pit designs and open pit schedules were carried out for the December 2019 MRE work.

Figure 1-1 shows a plan view of the pit designs in relation to the block model mineral resources and based on the Run B scenario from the December 2019 pit optimization work carried out by Cube.

There are no Mineral Reserves estimated for the BAM Gold Project at this time.

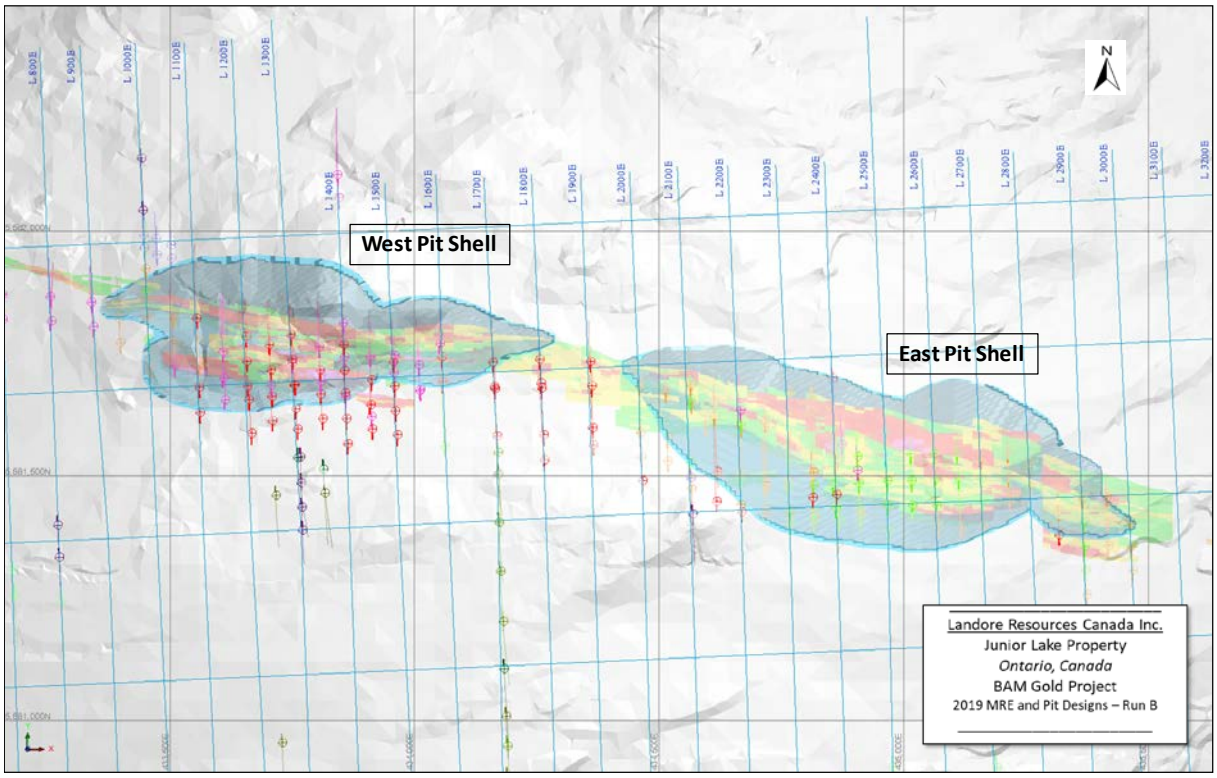


Figure 1-1: Plan View of West and East Pit Designs with Resource Blocks (December 2019 Run B Pit Design)

1.2. Property Location Access and Description

The Junior Lake property is located approximately 235 km north-northeast of Thunder Bay, Ontario, and approximately 75 km ENE of the village of Armstrong. The centre of the Project is located at 87°59'4" W longitude and 50°23'9" N latitude; the NAD83 UTM coordinates (Zone 16) are 430,000E and 5,584,000N. The BAM Gold Project is located at approximate UTM coordinate 434,910E and 5,581,555N.

Road access to the Junior Lake property from Thunder Bay is via paved provincial highways No. 17 (15 km) and No. 527 to Armstrong, with an overall distance of 255 km. From Armstrong, the Buchanan Forest Products Inc. gravel haulage road (**BHR**) is taken east to kilometre 105, where a skidder haulage road leads approximately one kilometre to the Landore Junior Lake exploration camp. The total distance from Thunder Bay to the property is approximately 360 km.

Landore mineral holdings in the Lake Nipigon area comprise the Junior Lake claim group and the immediately adjacent claim group of Lamaune Iron Inc. (**Lamaune Iron**). In November 2019 the Ontario government granted the Landore two mining leases encompassing all of the staked mining claims within the Lamaune portion of the property. The Junior Lake property now consists of six mining leases and 1,158 staked mining claims.

Landore has access to all of the mining and surface rights for those leases and patented claims over an area encompassing the BAM Gold Deposit, the Lamaune Gold Prospect, the B4-7/Alpha Zone Deposit, and the VW Deposit. The leases are granted for 21 years, renewable for further terms of 21 years.

Within the mining leases, Landore has the rights to:

- Sink shafts and carry out excavations, etc., for mining purposes
- Construct dams, reservoirs, railways etc., as needed
- Erect buildings, machinery, furnaces, etc., as required
- Treat ores

These activities may be subject to provisions of certain Acts and reservations.

1.3. Property History

Geological mapping and exploration in the vicinity of the Junior Lake property is recorded as early as 1917. In 1968, Canadian Dyno Mines Limited staked 333 claims in 15 groups to cover conductors detected by an airborne electromagnetic (**EM**) and magnetic (**MAG**) survey. Eight diamond drill holes totaling 674.8 m were drilled to test conductors in January 1969, resulting in the discovery of the B4-7 sulphide zone. The B4-7 Deposit was delineated by an additional 30 holes (6,850 m, or 22,479 ft) in 1969.

Landore optioned part of the property from North Coldstream Mines Limited in 1998 and additional claims from Brancote Canada in 2000. In 2005, the VW Nickel Deposit was discovered by Landore as a result of drill testing a promising geophysical target. The BAM Gold Deposit was discovered in the fall of 2015 as a result of drilling a geophysical target located two kilometres to the east of the B4-7 Ni-Cu-Co-PGE Deposit.

1.4. Geological Setting and Mineralisation

Geology

A highly prospective Archean greenstone belt traverses the Junior Lake Property from east to west for approximately 31 kilometres. The greenstone belt ranges from 0.5 to 1.5 kilometres wide and contains many of Landore Resources' stated mineral resources and prospects. However, the greater proportion of this belt remains unexplored. The BAM Gold Deposit is located in the south-central area of the Junior Lake property and is interpreted as an Archaean mesothermal gold deposit in which gold mineralization is hosted by sheared and altered rocks of the Grassy Pond Sill and the BAM volcano-sedimentary sequence.

Mineralization

Mineralized structures appear to strike approximately parallel to lithologies, averaging at 280° strike and steeply dipping to the south between -65° to -80°. Gold mineralization remains open along strike to the east and west, and down dip.

The gold mineralization is interpreted to reside within a series of tabular shaped zones that are oriented in a roughly en-echelon configuration and are generally parallel to the overall strike of the host rock units. The gold mineralization occurs as a fine dissemination and also is commonly observed in drill core to exist as visible gold that is hosted by very thin, foliation-parallel quartz-rich veinlets, hosted by highly fissile ultramafic sediments of the BAM Sequence, or by foliated rocks of the Grassy Pond Sill. A preliminary petrographic study carried out on a number of samples has identified the

presence of coarse native gold in association with either tourmaline, ankerite, or scheelite assemblages that occur within calcite replacement patches and veinlets.

1.5. Exploration and Project Status

Exploration activities during 2019 included the following:

- Gridding - A large grid was cut on the Junior Lake property during the summer of 2019 and used for multiple exploration surveys (Felix Lake Grid). The grid roughly spanned 5 km x 1.2 km and was used as the basis for both soil sampling programs and ground geophysics in 2019.
- Soil Geochemistry - The soil sampling program over the Felix Lake Grid and Junior Lake Grid collected a total of 1141 samples, (1,036 primary samples plus 115 reference samples). The samples were collected from the B horizon at a nominal distance of 25 m along the grid lines using a hand-held Dutch auger. The results of the soil sampling indicated a possible linking of gold anomaly trends over several hundred metres strike length.
- The soil sampling results from 2019 indicate prospectivity of the BAM gold mineralisation trend extending a further 1.5 km to the west. Further soil sampling is planned for 2020, along with drilling planned to test the potential for extensions of the BAM gold mineralisation.
- Ground Geophysics - Electromagnetic (**HLEM** & **VLF**) and Magnetic (**Mag**) ground surveys were conducted in June 2019, on the Junior Lake property. The EM-VLF and Mag surveys covered 15.85 km of lines. The HLEM-MaxMin survey covered 14.2 km of lines. The MaxMin survey was run with a 100 m cable because of the rocky hills and shallow overburden even in swamps, in order to suggest drilling targets. The results of the geophysical survey on both the Felix Lake Grid and Junior Lake Grid areas indicated a number of significant anomalies. Eight (8) MaxMin anomalies were identified and are located from less than 5 m and up to 40 m depth. Two of these anomalies coincide at least partly with high magnetic anomalies (MM-21 and MM-22). Two (2) anomalies coincide with weak magnetic anomalies (MM-24 and MM-27), one anomaly (MM-28) with low magnetism, and four anomalies have variable magnetic features. Several of the anomalies have been proposed for drilling.
- From 2015 to 2019, Landore completed several diamond drilling campaigns at the BAM Gold Project. In 2019, Landore completed a drill programme consisting of 38 HQ diamond drill holes (0419-687 to 0419-724) for 5,946 m. The aim of this programme was to extend the existing BAM Gold Resource to the west (14 HQ holes) and infill to nominal 50 mE x 25 mN spacing within the BAM pit design areas (24 HQ holes).

The summer 2019 drilling has confirmed the continuity of the gold mineralisation within the pit design areas, resulting in conversion of Mineral Resources from Inferred to Indicated, and also demonstrated the continuation of the main BAM mineralisation to the west to local grid line 400E.

The drilling has continued to show the close association between gold mineralisation and the VTEM geophysical anomaly trend. The BAM gold mineralisation trend has now been confirmed by diamond drilling over a strike length 3.9 km, extending from the local grid line 400E through to and beyond line 4000E. Drill testing has confirmed gold mineralisation within the main BAM zone extends from below the glacial till overburden (~8 m average depth) surface to a maximum vertical depth of approximately 380 m. The maximum width of the gold mineralisation envelope is approximately 50 m, down to a

minimum mining width of 2 m. The 2019 drilling results also intersected additional narrow gold mineralisation zones within the hanging wall GPS unit in the West Pit design area.

Gold mineralisation hosted within the BAM sequence remains open to the east and west and down dip. The 2019 ground geophysics and soil geochemical survey showed gold prospectivity 7 km along strike, west and north-west of the BAM Gold Deposit.

Further drill testing and other exploration activities are planned in 2020 with the aim of identifying extensions to gold mineralization along strike to the west and east, and down dip.

1.6. Quality Assurance/Quality Control and Data Verification

Landore provided Cube with data files including drilling databases, quality assurance/quality control (**QAQC**), topographic survey files, PDF files containing hand drawn cross section interpretations of the mineralized domains and geological boundaries, and surface topography in DXF file format covering the entire BAM Gold Project area.

Cube has completed a site visit to the Project and data storage facilities at the Junior Lake camp and Thunder Bay offices and carried out data verification and data validation on all the drilling data supplied for the current MRE.

Collar, survey, assay, geology and other relevant drilling data in .ASC and MS Excel file formats were provided to Cube in November 2019, following the completion of the 2018 summer drilling campaign . Validation and verification of drill hole data was assessed for all drilling within the BAM Gold Project area.

The data validation prior to resource estimation included checks for duplicate surveys, downhole survey errors, assays and geological intervals beyond drill hole total depths, overlapping intervals, and gaps between intervals. Data was validated utilizing visual review of digital and paper files, as well as computer-aided checking systems. Site visit validation included review of recent core samples and interrogation of digital and paper data, including paper plans and sections, assay records, downhole survey records, hardcopy geology logs and data storage systems of hardcopy data. Other data verification included database searches, certificate validation, and quality assurance/quality control review of assay results.

Verification of supplied electronic drill hole data with drill hole logs and assay certificates was completed. The primary returned assay result was used for reporting of all intersections in the MRE. No averaging with field duplicates or laboratory repeats was undertaken so as not to introduce volume bias

Cube considers the drilling database to be appropriate for the December 2019 MRE.

1.7. Mineral Resource Estimation

The Mineral Resources for the BAM Gold Project were estimated by Cube based on drill hole and assay data available as at 02 November 2019. The following key points summarise the modelling process and key parameters used by Cube for the estimation work:

- A total of 251 diamond drill holes for approximately 45,686 m have been completed with the BAM Gold Project area, with a total of 207 holes used in the current MRE (37,540 m).
- Geological and mineralisation interpretations by Landore were provided in cross sections, followed by 3D wireframe modelling of the geology and mineralisation using the additional 2019 drilling information. A total of 28 mineralised domains were modelled for the December 2019 MRE.
- After assessment of all grade distribution and statistical data analysis, it was decided that no grade capping would be used for any of the domains as there was either no material difference when applying suitable top cut values, or there were no significant grade outliers within the compositing data inside the estimation domains. Instead, a cut-off threshold was applied beyond a set distance from the high-grade composites (half drill hole spacing or 25 m).
- Samples were composited to 2 m within the main BAM estimation domain in order to reduce the variability inherent in raw samples, or a smaller composite length as appropriate relative to estimation resource model block dimensions. The 2 m composite length is closer to the mining SMU for a large bulk mining open pit scenario. Narrower and less continuous domains were composited to a 1 m length.
- Variogram modelling was conducted to provide parameters for OK estimation method – nugget, sill and range for three directions.
- Kriging Neighbourhood Analysis (**KNA**) was used to assist with assessing the most appropriate block sizes and other estimation parameters such as minimum and maximum samples and the discretisation to be used for the estimation.
- A parent block size of 20 m x 5 m x 5 m in the X, Y, Z directions respectively was used, which was sub-blocked to 5 m x 2.5 m x 2.5 m. This was deemed to be appropriate for block estimation and modelling selectivity for an open pit operation.
- Ordinary Kriging (**OK**) estimation method was used to estimate gold into the 3D block model using spatial data analysis parameters informed from the variogram and KNA analyses.
- Au estimated in two passes – first pass using optimum search distances for each domain (max 100 m) as determined through the KNA process, with a second pass set at longer distances in order to populate all blocks (2nd = max >200 m,).
- Blocks have been classified as Indicated Mineral Resources or Inferred Mineral Resources. The resource classification is based on the quality of information for the geological domaining, as well as the drill spacing and geostatistical measures, to provide confidence in the tonnage and grade estimates. At lower depths and along strike, with limited to no composite data, projected mean grades were applied in the interpolation search – these areas were assigned as unclassified material.

The estimation domaining, MRE parameters, classification and block model report replication have all been internally peer reviewed by qualified professionals at Cube.

1.8. Mining Methods

Given the shallow nature of the mineralization and the initial metallurgical test results, material could be extracted by means of open pit mining methods and processed using conventional milling techniques.

3DM modelling and block construction were created with the aim of preparing a suitable model for open pit mine design and pit optimisation, with a minimum mining width of 2 m. Internal dilution has been considered by re-blocking the resource block model, with a maximum downhole width of 3 m (2.5 m true width) of sub-grade material (<0.3 g/t Au).

An information effect was applied to the model and as such, the model was presented as a recoverable resource, implying that the practicalities of the mining operations are accounted for in the estimation process. As a result, Cube has not applied any further mining dilution or ore loss factors to the model.

1.9. Metallurgy

Metallurgical testing was undertaken by Landore in 2018 to investigate various fundamental processing unit operations on the extraction of gold from the BAM Gold Project (Allard, 2019). Metallurgical test work was conducted by BASE Metallurgical Laboratories Ltd (**BASE labs**), based Kamloops, B.C., Canada, under the supervision of Allard. This test work has provided the following insights:

- Significant free gold is present in the composite tested.
- High extractions of gold are achievable with grinding, gravity separation (+65%), and cyanide leaching (+95%) with overall extractions around 98%.
- Cyanide and lime consumption was low in the leaching tests.
- Liberation of gold particles is reduced in size-fractions above 300 µm.
- Flotation of the BAM composite achieved reasonable extractions of gold, albeit at low concentrate grades.
- Heap leaching with fine crushing and agglomeration can achieve acceptable extractions of gold (±84% at test conditions).
- In fine-ground material, gold occurs predominantly as coarse liberated particles and as attachments and inclusions in chlorite and cobaltite. Minor quantities of gold are associated with tellurides.
- Cyanide leach extractions of gold at sizes below 300 µm do not appear to be dependent on particle size.
- Sparging agitation leach tests with oxygen improves the extraction of gold over sparging with air.
- Reasonable variations of cyanide concentration and percent solids do not appear to influence gold extractions from agitated leach tests at typical grind sizes.
- Agitation leach pulps are amenable to Carbon in Leach/Carbon in Pulp operations.
- Silver and copper species are present in the ore but only partially dissolved by cyanide.

1.10. Environmental Studies

Landore has conducted various environmental baseline studies on the Junior Lake property since 2007. Surface water sampling of various lakes and streams has been conducted since 2007.

Beginning in 2007, Landore retained Golder Associates Ltd. (**Golder**) to implement a baseline surface water quality monitoring program for the Property. The most recent report on the surface water quality monitoring was issued on December 5, 2018. The purpose of water quality monitoring program

is to characterize local baseline surface water quality and help in identifying potential receiving water environments. This data would be required as one component to the supporting documentation for permit applications to various regulatory agencies, should the project be developed as a mining operation.

Bathymetry and fish habitat studies of Ketchikan Lake were conducted in 2007. In 2008, a bedrock surface investigation of the northern portion of Ketchikan Lake was completed.

Terrestrial and fish habitat studies were conducted by Golder over the property during 2008 and subsequently reported in an environmental baseline study in 2009. Results of the vegetation surveys, wildlife surveys, and incidental observations did not identify any listed species within the site boundary that would trigger a specialized study. The site has been highly disturbed in some locations by recent commercial forestry activity.

1.11. Social and Community Impact

Landore maintains a sound working relationship with First Nations on whose traditional lands the Junior Lake property is situated. In 2007, Landore signed a Memorandum of Understanding (MOU) with Whitesand and Animbiigoo Zaagi'igan Anishinaabek (**AZA**) First Nations. This agreement formalizes the desire and commitment to develop a positive, mutually beneficial relationship amongst all parties and establishes the process by which this is to be accomplished while Landore is conducting exploration and advanced exploration activities in the area.

The MOU was later revised to reflect significant changes in Landore's claim holdings in the Junior Lake area. Whitesand signed the revised MOU on April 30, 2012. AZA signed the revised MOU on December 6, 2013.

More recently, in December 2018, an Exploration Agreement between Landore, AZA and Aroland First Nations was signed which reaffirms this mutually beneficial relationship going forward. A separate Exploration Agreement between Landore and Whitesand First Nation was signed in February 2019.

The Project has involved a range of stakeholders. These stakeholders have included those that hold a direct interest in the development of the Project, Federal and Provincial government agencies, community and municipal organizations, First Nation representatives, and other similar groups. The range of stakeholders is expected to grow with the development of the Project, particularly within the local community.

1.12. Conclusions and Recommendations

Conclusions

The December 2019 MRE incorporates diamond drilling data over the BAM Gold Project area, completed predominantly since 2016. It is also informed by sampling and geological information from trenches, the surface expression of exposed mineralized zones as indicated by geological mapping, a dataset of bulk density measurements taken from whole core samples, topographic survey files of the project, digital photos of all relevant diamond drill core, and updated geological interpretations.

The input drill data is comprehensive in its coverage of the gold mineralization at BAM Gold Project and is representative of the mineralization. Knowledge of the geological controls on mineralization has been used to develop the overall December 2019 MRE.

In Cube's opinion, the drilling, logging, and sampling procedures at the BAM Project have been carried out to industry best practices. Following the standard validation checks, Cube believes the database for the BAM Gold Project is adequate for Mineral Resource estimation.

The density of drilling supports the classification of the Mineral Resource to be classified as Indicated and Inferred. The resource risk is considered to be low to moderate.

The pit optimization shell was comprised of two distinct areas, an east pit shell (BAM East Pit) and a west pit shell (BAM West Pit).

The recent metallurgical test work conducted has determined the following:

- The BAM composite was amenable to gravity concentration of the liberated gold with 65% or greater of the contained gold recoverable in the gravity concentrate.
- Cyanide leaching of the gravity tail increased the overall extraction of gold to ±98%.
- Cyanide consumption was low.

Recommendations

Cube concurs with the Landore opinion there is significant potential to expand the limits of the BAM Gold Project.

The 2019 drilling program was successful in confirming the gold mineralization extension to the west and east, and also confirming the correlation of an IP anomaly from geophysics conducted in 2004 with the main BAM gold mineralization trend to the west, which remains open and un-tested.

The current 3D model interpretation of the extents the BAM gold mineralization remains open along strike, both to the east and west, and future drilling should target the eastern extension of the BAM Sequence beyond approximately local grid section 4000 E. The BAM gold mineralization remains open down dip, providing additional exploration targets for future drill programs.

Future drill testing recommendations to target gold mineralisation still open along strike and down dip and further targets identified and based on the following data are listed as follows:

- Highly prospective soil geochemistry results based on sampling in 2019.
- IP anomaly targets have been identified by LND previously in 2004 and related to FW massive to disseminated sulphides zones within the main BAM Au mineralised units. In addition, there are three to four WNW trending anomalies that are possible targets for exploration drilling (northern anomalies), and step-out drilling along strike from the BAM sequence.
- Regional Prospectivity – Based on exploration work completed by Landore up to December 2019, there is significant resource potential that clearly indicates district scale follow-up exploration programs are warranted. There is potential for other gold mineralisation targets along the 31 km strike length of the Junior Lake Shear (Lamaune) and historic discovery at Toronto Lake.

Cube concurs with Landore's proposed exploration and drilling work program on the Junior Lake Project for 2020. The drilling budget is estimated at C$6.323 M.

2. Introduction

2.1. Issuer

Landore is a fully owned subsidiary of Landore Resources Ltd., which is based in Guernsey, UK, and listed on the AIM market of the London Stock Exchange. The BAM Gold Project, located within Landore's Junior Lake property, lies approximately 235 km N-NW of Thunder Bay, Ontario, and approximately 75 km E-NE of the village of Armstrong, Ontario, Canada.

This Independent Technical Report (the "**Report**") has been prepared by Cube at the request of Landore ("**the Issuer**") following the release of the December 2019 Mineral Resource estimate for the BAM Gold Project. The report focuses on Cube's MRE of the BAM Gold Project for a potential open pit mining operation. Cube is an Australian owned geological and mining engineering consulting services company, located in Perth, Western Australia.

2.2. Terms of Reference

Cube was commissioned by Landore to undertake an MRE and prepare an Independent Technical Report on its 100% owned BAM Gold Project in NW Ontario, Canada. The Report complies with the requirements of the Canadian Securities Administrators' National Instrument 43-101, "Standards of Disclosure for Mineral Projects" - (**NI 43-101**) for reports filed under Canadian jurisdiction, for the Effective Date of the Mineral Resource estimate.

The Report was prepared on behalf of the Issuer for the purpose of reporting the results of the updated MRE and open pit optimisation study, with an effective date of 30th December 2019. The report includes conclusions and recommendations to allow the Issuer to reach informed decisions regarding the potential for mining operations at the BAM Gold Project.

The scope of work included the following:

- Update of the BAM MRE based on all new drilling completed during the 2019 summer drilling campaign.
- Carry out a range of pit optimization runs and mine design work.
- High level incremental mine production and feed scheduling, preliminary infrastructure designs (haul road, run of mine (ROM) pad, stockpile designs).
- High level financial modelling with key summary inputs for capital and operating costs.
- Compile December 2019 MRE, mine design and an Independent NI 43-101 compliant Technical Report. Also compile third party information and studies into the Report.

2.3. Qualifications and Experience

This report has been prepared by Brian Fitzpatrick, B.Sc., MAusIMM CP (Geo), a Principal Geologist with Cube Consulting Pty Ltd and a Qualified Person as defined by NI 43-101. Mr Fitzpatrick is responsible for all sections of this report.

Mr Fitzpatrick has worked as a professional geologist for more than 34 years. Relevant experience has been gained from working in the gold and base metal mining and exploration industry in various

provinces throughout Australia and other countries. This includes exploration, open pit and underground mining experience in greenstone hosted gold deposits, epithermal gold deposits and Volcanogenic Massive Sulphide (**VMS**) poly-metallic deposits.

Both Cube and Mr Brian Fitzpatrick are independent from Landore. The relationship is solely one of professional association between client and independent consultant. This report is prepared in return for fees based upon agreed commercial rates and the payment of these fees is in no way contingent on the results of this report.

2.4. Site Visits and Scope of Personal Inspection

A site visit to the Junior Lake property was undertaken by Brian Fitzpatrick, a Principal Geologist with Cube Consulting Pty Ltd and a Qualified Person under NI 43-101 (Principal Author) from 23 to 28 June 2018. The main purpose of the site visit included the following:

- Ascertain the geological setting and styles of gold mineralization.
- Field inspection of geological outcrops within the Project area.
- Review core samples and core sample logging and processing facilities.
- Inspect the drilling rig operations and sampling preparation protocols carried out by Landore and the drilling contractor.
- Carry out data verification and validation checks and review the sample storage, sample security and transport protocols from site to the assay laboratory.
- Check logging of significant intervals in drill core remaining from recent and current drilling programs.
- Site visit discussions with Landore staff.

The author did not inspect any of the primary assay laboratories used by Landore.

2.5. Sources of Information

In addition to the site visit, the author has relied on several sources of information provided by Landore on the Project area, including relevant published and unpublished third-party information, and public domain information. The documentation reviewed, and other sources of information, are listed in Section 27: References.

A number of discussions and correspondence with respect to the BAM Gold Project were held with Mr. William Humphries, Chairman/President of Landore, Ms. Michele Tuomi, Director/Vice President Exploration of Landore, and Mr. Chris Cooper, Senior Geological Consultant, Landore.

3. Reliance on Other Experts

This report has been prepared by Cube for Landore. The information, key findings, recommendations and estimates contained herein are based on:

- Information available to Cube at the time of preparation of this report.
- Assumptions, conditions, and qualifications as set forth in this report.
- Data, technical reports, and other published and unpublished information supplied by Landore and other third-party sources as listed in Section 27 of this of this report.

The Qualified Person (**QP**) for the Report has not independently investigated the mineral tenure status and information of the Project or the requirements of Canadian mining and exploration legislation.

The QP has fully relied upon and disclaims responsibility for information provided by Landore pertaining to company ownership and agreements, mineral tenement status, current environmental permits, and other information relating to exploration expenditure and community relations.

Information on the mineral property locations, title conditions, encumbrances, permits, and environmental liabilities reported in Section 4 of this report was supplied by Landore and has not been independently verified by the QP.

The QP has taken reasonable care to review the information supplied by Landore and has no reason to believe that the information supplied is inaccurate.

4. Property Description and Location

4.1. Location

The Junior Lake Project is located approximately 235 km north-northeast of Thunder Bay, Ontario, and approximately 75 km east-northeast of the village of Armstrong (Figure 4-1). All coordinates in this report are defined using the NAD 83 Zone 16 UTM coordinate system and are expressed in metric units. All locations illustrated in this report are also defined in this projection and datum.

Figure 4-1 Project Location Map (Tuomi, 2018)

The centre of the property is located at 87°59'4" W longitude and 50°23'9" N latitude; the NAD 83 Zone 16 UTM coordinates of the central location of the Junior Lake property are at 430,000 E and 5,584,000 N.

The BAM Gold Project is located at approximately UTM coordinate 434,910 E and 5,581,555 N. Other deposits and prospects located within the Junior Lake property include:

- B4-7 Deposit and Alpha Zone –Nickel-Copper-Cobalt-PGE (+/- Gold) deposit located at approximate UTM coordinates 432,660 E and 5,581,310 N
- VW Deposit - Nickel-Copper deposit located at approximate UTM coordinates 435,700 E and 5,580,800 N
- Lamaune Gold Prospect - located at approximate UTM coordinates 425,000 E and 5,583,400 N
- Lamaune Iron Deposit - located at approximate UTM coordinates 423,000 E and 5,584,000 N

The project area is within the Junior Lake and Toronto Lake 1:50,000 scale topographic map sheets NTS 52I/08 NE and NTS 44L/05, respectively. The Junior Lake Project leases and claims are located on the Falcon Lake, Junior Lake, Kapikotongwa River, Summit Lake, Toronto Lake, and Willet Lake claim maps (Thunder Bay Mining Division areas NTS 52I/08NE and SE, 42L/05NW and SW).

4.2. Mineral Title Status – Land Tenure

Landore mineral holdings in the Lake Nipigon area comprise the Junior Lake claim group and the immediately adjacent claim group of Lamaune Iron Inc. (Lamaune Iron).

In October 2017, Landore acquired a 90.2% ownership of Lamaune Iron, which has become a subsidiary company of Landore.

Subsequent to this acquisition, in April 2018 Ontario's Ministry of Energy, Northern Development and Mines converted all active, unpatented mining claims from their legally defined location by claim posts on the ground or by township survey to a cell-based provincial grid for the entire province including Landore's mining claims ("legacy claims"). All Landore's legacy claims were converted to the new Ontario claim system and designated new claim numbers.

In November 2019 the Ontario government granted Landore two mining leases encompassing all staked mining claims within the Lamaune portion of the property. The Junior Lake property now consists of six mining leases and 1,158 staked mining claims.

The details of each patented claim and mineral lease are provided in Table 4-1. A tabulation of the 1,419 staked mineral claims are provided in Appendix 1.

Table 4-1 Landore Mineral Leases (100% Interest) (from Landore, 2020*)*

Township / Area	Legacy Claim ID	Mining Lease ID	G-Number [1]	Anniv Date	Exp Date	Area (ha)	Ann. Rent
JUNIOR LAKE	109819 [2]	PA39127, PA39128	n/a	2019-Jan-01	2040-Jan-01	52.97	$ 158.91
JUNIOR LAKE	108257	CLM459 [3]	G-4040218	2008-Aug-01	2029-Aug-01	1,460.80	$ 4,382.39
JUNIOR LAKE	108258	CLM461 [3]	G-4040217	2008-Aug-01	2029-Aug-01	1,527.39	$ 4,582.16
JUNIOR LAKE	108259	CLM460 [3]	G-4040319	2008-Aug-01	2029-Aug-01	687.79	$ 2,063.38
JUNIOR LAKE - LAMAUNE BLOCK	109856	CLM548 [4]	n/a	2019-Aug-01	2040-Aug-01	n/a	$ 6,169.34
JUNIOR LAKE - LAMAUNE BLOCK	109857	CLM549 [4]	n/a	2019-Aug-01	2040-Aug-01	n/a	$ 6,228.37

Notes:

1. G-number is generated when work reports are filed
2. Renewed lease 107143, given new number.
3. Wing Resources Inc. holds a 2% NSR on three claims within CLM459, one claim within CLM460 and three claims within CLM461 subject to a buy-back clause of 1%.
4. Stares Contracting Corp holds a 2% NSR on 11 claims within CLM548 and seven claims within CLM549 subject to a buy-back clause of 1%.

Figure 4-2 shows all the mining leases and claims as at January 2019, as the Ontario government has not yet updated its drafting coverages with the updated Lamaune mining leases. The only change is the active mining claims within the Lamaune block are simply rolled into the two new mining leases.

The staked mineral claims include access to the mining rights. The conditions attached to the mining leases include the mining rights to all of the leased area and surface rights to all or parts of the leased area as specified in the lease documents. Landore has access to all of the mining and surface rights for those leases and patented claims over an area encompassing the BAM Gold Deposit, the Lamaune Gold Prospect, the B4-7/Alpha Zone Deposit, and the VW Deposit. The leases are granted for 21 years, renewable for further terms of 21 years.

Within the mining leases, Landore has the right, subject to provisions of certain Acts and reservations, to:

- Sink shafts, excavations, etc., for mining purposes.
- Construct dams, reservoirs, railways, etc., as needed.
- Erect buildings, machinery, furnaces, etc., as required.
- Treat ores.

The BAM Gold Deposit lies on lease CLM 461. The B4-7 Deposit lies on lease 107421 (PA39127, PA39128), and leases 108257 (CLM 459) and 108259 (CLM460), whereas the VW Deposit lies on lease 108258 (CLM461).

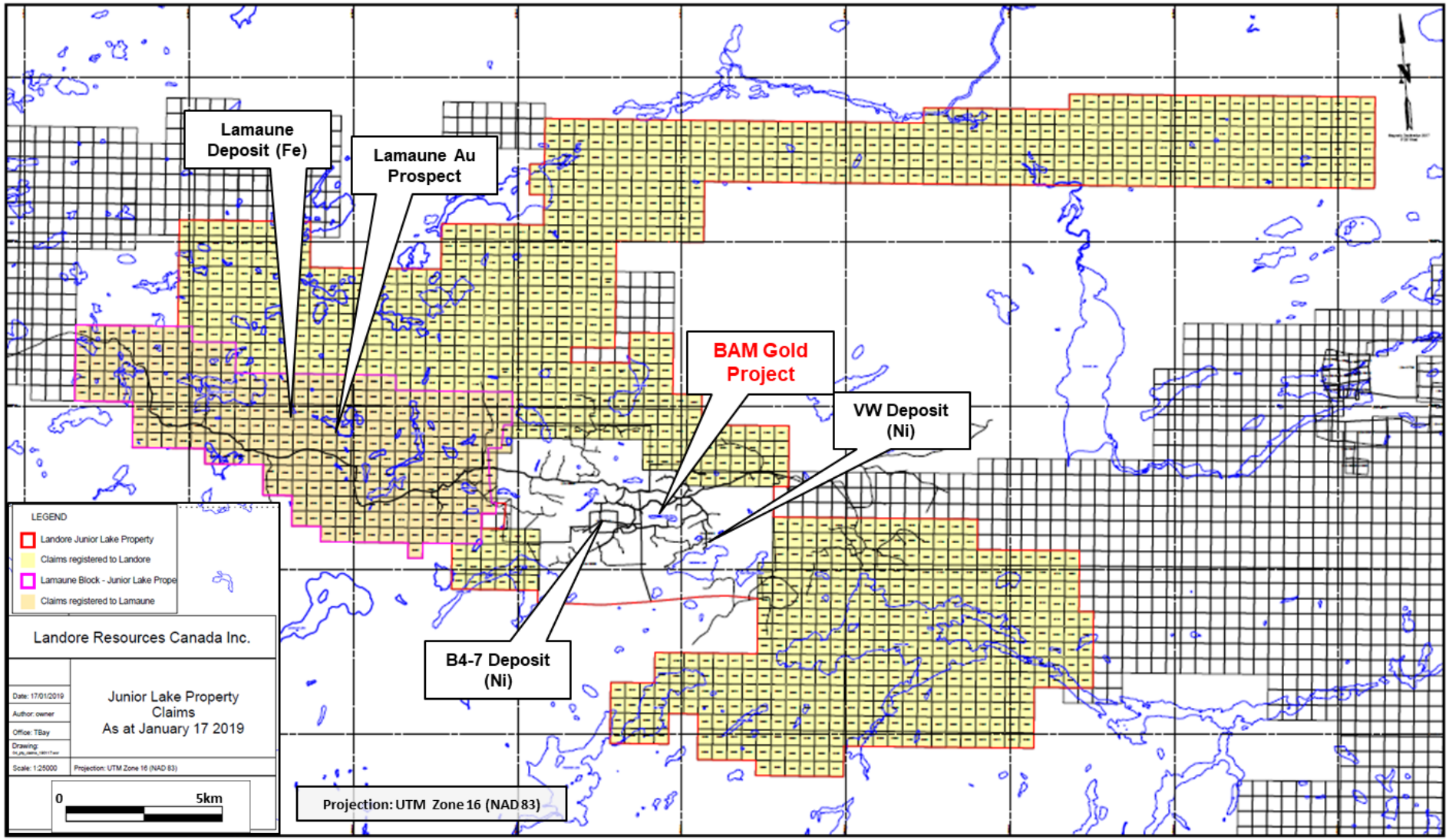


Figure 4-2 Junior Lake Project – Claims and Leases (from Landore, February 2019)

4.3. Work Program Permitting

Landore has the necessary work permits pertaining to future work programs proposed by Landore as described in Section 26 of this report.

4.4. Other Factors and Risks

The QP is not aware of any environmental liabilities associated with the Junior Lake property.

Other than seasonal weather conditions, the QP is not aware of any other significant factors and risks that may affect access, title, or the right or ability to perform the proposed work program on the property.

5. Accessibility, Climate, Local Resources, Infrastructure and Physiography

5.1. Accessibility

Road access to the Junior Lake property from Thunder Bay is via paved provincial highways No. 17 (15 km) and No. 527 to Armstrong, with an overall distance of 255 km. From Armstrong, the Buchanan Forest Products Inc. gravel haulage road is taken east to kilometre 105, where a skidder haulage road leads approximately one kilometre to the Landore camp. In all, the combined distance from Thunder Bay to the property is approximately 360 km. Skidder and drill roads provide access to various areas of the property. The BAM Gold Project is located in the south-central area of the Junior Lake property.

Alternate road access is available to the extreme east portion of the property via a gravel haulage road that terminates on the northeast side of Toronto Lake. To the southwest and south, this road connects to the Paint Lake Road (No. 801) and then highways 11 and 17 to Nipigon and Thunder Bay, respectively.

5.2. Climate

The Armstrong region and Junior Lake property experience hot summers and cold, snowy winters. Maximum and minimum temperatures range from an extreme low of –50°C in the winter months to an extreme high of 38°C in the summer months. Winter lows of –40°C are not uncommon in January and February.

Mean annual precipitation for the area is approximately 710 mm. The area is snow-covered for five and a half months per year, with monthly snowfalls ranging from 27 cm to 45 cm in winter.

Prevailing winds are from the northwest. The relative humidity ranges from 50% to 77%. The overall climate of the Project area is such that exploration activities can be carried out on a year-round basis.

5.3. Local Resources and Infrastructure

5.3.1. Local Resources

Thunder Bay is the major centre for north-western Ontario and provides most of the services required by exploration and mining operations. The Thunder Bay commercial airport has daily scheduled service to major Canadian cities, and the city offers rail facilities and a port on Lake Superior that provides Atlantic Ocean access via the Great Lakes and the St. Lawrence Seaway. Mining and skilled labour are available in Thunder Bay and elsewhere in Ontario and Québec.

Most consumables, including food, fuel, natural gas, propane, and cement, are readily available in Thunder Bay. Limited fuel and accommodations are available in Armstrong, formerly a service centre

for the CNR main cross-country line. Wiskair Helicopters maintains a small jet at a fuel depot at the Ontario Ministry of Natural Resources (**OMNR**) site in Armstrong.

5.3.2. Infrastructure

Other than a cabin camp, there is no infrastructure on the property. No electric power or rail lines exist on the property. Due to the bankruptcy of Buchanan Forest Products Inc. in May 2009, maintenance of the pulp haulage road to the Junior Lake property has been assumed by the Ontario Ministry of Transportation to within 30 km of the camp site, with the balance of the distance maintained by private interests. The CNR main single line is 13 km south of the property, passing between Junior Lake and the north shore of Lake Nipigon. Ontario Power Generation (**OPG**) plans on constructing two hydroelectric power plants (100 MW) on the Little Jackfish River with the power lines connecting the OPG grid to cross the Junior Lake property.

The size of the property is sufficient for mining exploration, development, and production activities. Many sources of water are present on the property. No grid power is currently available in the immediate vicinity of the property.

The nearest operating mine is the Lac Des Iles Mine (**LDIM**) owned by Lac Des Iles Mines Ltd., a subsidiary of North American Palladium Ltd. (**NAP**). LDIM is located 100 km north of Thunder Bay, approximately 15 km west of Highway 527, and is approximately 259 km by road from the Junior Lake property.

5.4. Physiography

North-western Ontario lies within the Superior Province of the Canadian Precambrian Shield, a boreal forest region, populated mostly by black spruce, birch, poplar, balsam fir and jack pine in the uplands and spruce, larch and alder swamps, and lakes in the low areas. Drainage is poorly integrated and water flows are generally south to Lake Superior via Lake Nipigon.

Land use in the vicinity of the Junior Lake property is primarily forestry-related, and much of the Junior Lake property has been cleared of spruce for pulpwood. Outcrop averages 2% to 3% of surface area but may be more than 20% locally. Unconsolidated overburden is primarily boulder-rich glacio-fluvial materials, with glacio-lacustrine sediments in low areas.

Being generally of low relief, the topography of the Junior Lake property is favourable for the placement of facilities normally associated with a mining operation. Elevations on the Junior Lake property range from ±290 meters above sea level (**MASL**) to 380 MASL. The BAM Gold Project lies in a cut-over, low-lying swampy area devoid of outcrop, with elevations of 338 MASL to 350 MASL.

Figure 5-1, Figure 5-2, and Figure 5-3 show recent photographs from the Cube site visit illustrating the typical vegetation, low lying swampy areas (Ladle Flats), and outcrop within the Project area.

Figure 5-1: Topography and Vegetation on Line 100 E/475 N -- View Looking North (Cube Site Visit, June 2018)

Figure 5-2: Ladle Flats – View from Drill Platform along Line 2350 E Looking West (Cube Site Visit, June 2018)

Figure 5-3: Exposed Outcrop and Vegetation on Line 3500 E/150 N - View Looking West (Cube Site Visit, June 2018)

6. History

6.1. Property History

Landore optioned part of the property from North Coldstream Mines Limited in 1998 and additional claims from Brancote Canada in 2000.

In 2008, Landore was granted three mining leases, which include mining and surface rights, over an area encompassing the BAM and BAM East Gold Deposits, B4-7, and VW Deposits. The leases cover 23 mineral claims and two patents for a total area of 3,729 ha and have been granted for 21 years renewable for further terms of 21 years.

In June 2011, the Lamaune block, comprised of 23 claims (pre-claim conversion, see section 4.2), for 4,096 ha, containing the Lamaune Iron Deposit as well as the Lamaune Gold Prospect, was transferred into a separate private company (Lamaune Iron Inc.). In October 2017, Landore acquired a 90.2% ownership of Lamaune Iron Inc., which has become a subsidiary company of Landore.

6.2. Previous Exploration

Geological mapping and exploration in the vicinity of the Junior Lake property is recorded as early as 1917. Much of the work has focused on base metal exploration. More details on the results of exploration activities carried out by Landore are summarized in Section 9.

A summary of the ownership changes and historical work that has been carried out on the property by other parties is presented in Table 6-1.

Table 6-1 Summary of Historical Exploration Activities by Other Parties in the Junior Lake Area (updated from RAP, 2018)

Company	Years	Details of Work	Significant Results
Johnson's Company Ltd	1950	Ground magnetometer and geology surveys.	Outlined peridotite.
Kennco Explorations (Canada) Ltd	1952	Airborne and ground magnetic surveys.	Outlined the mafic-ultramafic intrusion under Toronto Lake.
W. Despard and J. Zmudzinski	1958 to 1960	Discovery of iron formation by prospecting. Prospecting, trenching, ground magnetic surveying, geological mapping and one diamond drill hole (30 m) by Sogemines Development Co. Ltd.	Delineation of five magnetic anomalies.
Panther International Mining Co. Ltd	1959	Airborne magnetometer and electromagnetic surveying. 5 diamond drill holes, total 550 m.	0.19% Ni over 9.4 m including 0.96% Ni over 0.3 m in one drill hole; 0.18% Ni over 12.2 m in another hole.
Sogemines Frobisher Ltd. and Ventures Ltd.	1959	Trenching, sampling and diamond drilling totaling 525 m to follow up the discovery of a spodumene-bearing dike.	NA

Company	Years	Details of Work	Significant Results
Ontario Department of Mines	1959 to 1962	Regional geological mapping.	NA
Canadian Dyno Mines Ltd	1968	Staking of 333 claims in 15 groups to cover AEM conductors. Merged with Mogul Mines Ltd which subsequently became International Mogul Mines Ltd.	NA
International Mogul Mines (in JV with Coldstream Mines Ltd)	1969	Prospecting, mapping, ground mag and EM surveys, soil sampling and trenching. 8 diamond drill holes, total 675 m.	Drilling resulted in the discovery of the B4-7 Deposit. Deposit delineated by an additional 30 drill holes (6,850 m) in 1969. Eight additional drill holes (628 m) were completed to evaluate other conductors.
		Metallurgical testing by SGS Lakefield.	Test work performed on a 136 kg composite sample created from 71 assay rejects.
		Completion of a non-NI43-101 compliant tonnage and grade estimate.	2,070,689 tonnes averaging 0.87% Ni and 0.59% Cu (Zurowski,1970).
Musselwhite, W.H.	1969	Trenching.	Results not reported.
Noranda Exploration Company Ltd	1969 to 1970	Ground magnetic and electromagnetic surveys, 3 diamond drill holes, total 307.3 m.	Up to 0.03% Ni and 0.01% Cu over 3.65m.
Coldstream Mines Ltd	1970	Acquired 100% of the property.	Two claims taken to lease in 1976.
Rickaby Mines Ltd	1977	Ground magnetometer survey.	Outlined mafic-ultramafic intrusion under Toronto Lake.
Québec Cobalt and Exploration Ltd	1983 to 1986	Claim staking, mapping geophysics, soil and rock sampling, lithogeochemical surveys.	Lithogeochemistry indicates alkali mobilization, Na depletion, K enrichment. Highest assays associated with quartz vein on Turtle Island.
Selco Mining Corporation	1980 to 1982	Airborne and ground electromagnetic and magnetic surveys. One drill hole for 82 m.	Pyrite, pyrrhotite, graphite, tourmaline, no Au.
Kerr Addison Mines Ltd	1983	Geology, soil and lithogeochemical surveys.	Au assays in rock over 10,000 ppb, Cu assays up to 3,700 ppm, low Zn and Mo.
Placer Dome Inc.	1986 to 1987	Claim staking, ground magnetic and horizontal loop electromagnetic surveying, geological mapping, rock chip sampling, and limited hand-dug trenches.	Discovery of two consecutive one metre samples of weakly sulphidic iron formation that assayed 1.7 g/t Au and 4.1 g/t Au.
Placer Dome Inc.	1988 to 1989	Diamond drilling of 20 holes (3,317 m).	Best value was 5.48 g/t Au along a core length of 1.35 m hosted within a sulphidized iron formation.
Ontario Department of Mines	1989	Airborne magnetometer and electromagnetic surveying.	NA
Ontario Geological Survey	1992	Geological mapping, Toronto Lake area.	NA

Company	Years	Details of Work	Significant Results
Stares Brothers	1999	Discovery of Zap and Carrot Top zones by prospecting.	Best value, Zap Zone: 1.55% Cu, 1.11% Ni, 0.15% Co, 0.89 g/t Pt, 0.88 g/t Pd. Best value, Carrot Top zone: 0.34% Cu, 0.33% Ni, 0.02% Co, 0.26 g/t Pt, 1.20 g/t Pd
Norcal Resources	2000	Prospecting, line cutting, ground magnetic, VLF and HEM electromagnetic surveying, and trenching.	Best value, Zap Zone: 0.27% Cu, 0.72% Ni, 0.07% Co, 1.1 g/t Pd.
Ontario Geological Survey	2006 to 2009	Geological mapping, Caribou greenstone belt.	NA

6.3. Historical Mine Production

No historical or recent mining activity has taken place on the Junior Lake property including the BAM Gold Project area.

7. Geological Setting and Mineralisation

7.1. Regional Geology

The Junior Lake property is located within the Archean-aged Superior Province of the Precambrian Shield which hosts most major mining camps in Canada. The Superior Province is further subdivided into numerous provinces of varying aged tectonostratigraphic, plutonic, and supracrustal rock assemblages. The Junior Lake property is located within the East Wabigoon Subprovince. The property is within the roughly east-west trending Caribou (Lake)-O'Sullivan greenstone belt. This greenstone belt ranges from 3.5 km to 15 km wide and extends roughly east-west for 80 km to 100 km (MacDonald, 2006). The belt is flanked to the south by the Robinson Lake Batholith portion of the Lamaune Batholithic Complex and to the north by a major, roughly east-west trending fault zone that marks the southern boundary of the English River Subprovince. Northeast of the property, the belt is intruded by the Summit Lake Batholith which is of tonalitic to quartz dioritic composition. The western portion of the greenstone belt has been intruded by thick, undulating, flat-lying, Neoproterozoic-age Nipigon diabase sills and cross-cutting dikes. These sills are thought to represent the discontinuous, erosional remnants of thick, laterally extensive sills comprising the Nipigon Plate, which is centred on Lake Nipigon, approximately 30 km to the south.

Regional deformation is expressed as a west to west-northwest trending, sub-vertical to steeply north dipping foliation and small-scale folding in the area and on most of the property. Some occurrences of south dipping foliations are found on the northern portion of the property. Based on metamorphic mineral assemblages, Berger (1992) estimated the regional metamorphism to be of greenschist rank, increasing to amphibolite rank near the contact metamorphic aureoles of the Robinson Lake and Summit Lake batholiths.

The Junior Lake property is located within the boundaries of the geologic map of the crescent Lake area by Pye (1968) (Figure 7-1).

The property is host to the BAM Gold Project located approximately midway between the B4-7 Ni-Cu-Co-PGE deposit and the VW nickel deposit, located 3 km apart. The Lac des Iles PGE Mine is located approximately 190 km to the southwest of the Junior Lake property (Figure 7-1).

7.2. Property and Local Geology

7.2.1. Stratigraphy

The supracrustal rocks and associated mafic to ultramafic intrusions of the Caribou (Lake)- O'Sullivan greenstone belt are subdivided by Berger (1992) into the Archean-aged Toronto and Marshall Lake groups. Locally in the Junior Lake area, the package of Toronto Lake and Marshall Lake groups has been referred to recently by MacDonald (2006) as the Willet Assemblage. The two lithostratigraphic groups are similar in many respects, although the Marshall Lake Group (**MLG**) contains a higher proportion of clastic metasedimentary rocks and apparently lesser amounts of mafic intrusive rocks, with the division between the two groups lying along a poorly defined and possibly faulted margin. The Toronto Lake Group (**TLG**) represents the host of much of the Ni-Cu-PGE mineral occurrences on

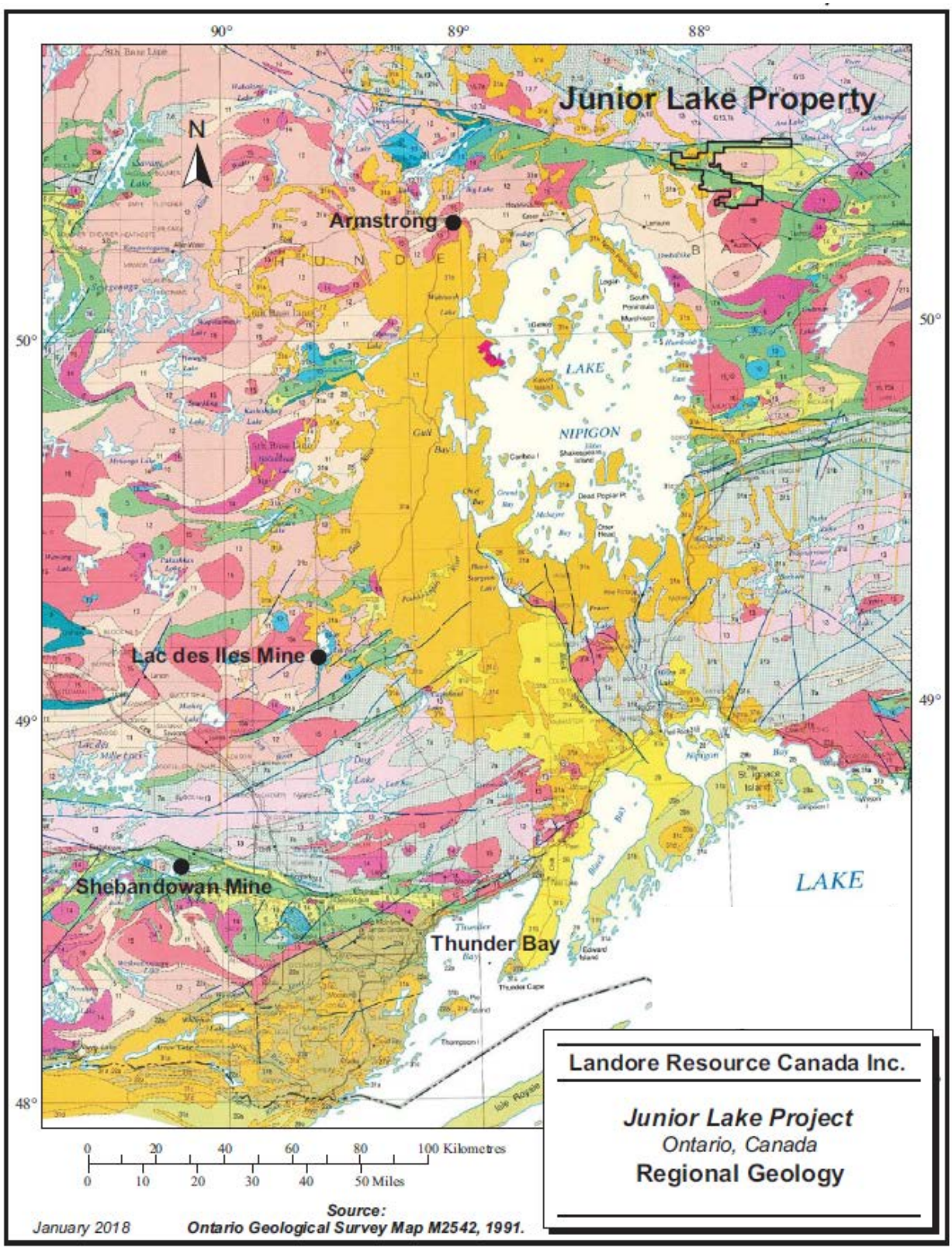
the Junior Lake property while the lower portions of the MLG host a large portion of the newly discovered gold mineralization (Figure 7-2).

In the north portions of the Junior Lake property, the MLG includes tholeiitic, amphibolitized mafic flows and calc-alkalic dacitic tuff, minor tuff breccias, and intercalated greywacke, chert, and sulphide iron formation. Thin, discontinuous intermediate to felsic metavolcanic rock units also occur in the MLG. A higher portion of metasedimentary rocks and fewer mafic intrusive rocks occur in the MLG compared to the TLG. Most of the rocks of the MLG observed on the property are finely amphibolitized, pillowed, mafic metavolcanic flows with well-defined pillow selvedges, and a greater occurrence of plagioclase phenocrysts than observed within mafic flows south of the Grassy Pond Sill (**GPS**). Some outcrops exhibit an irregular, pervasive alteration that is characterized by large, acicular actinolite porphyroblasts contained within a fine-grained matrix of chlorite, sericite, actinolite/tremolite, and epidote. This alteration is very similar to localized alteration observed within the TLG.

The TLG underlies the southern third of the Junior Lake property and the southern half of the Lamaune Iron claim group. It consists of a bimodal assemblage of tholeiitic mafic flows and calc-alkaline rhyolitic to dacitic tuff, tuff breccias, and subordinate flows. The assemblage has been intruded by numerous mafic to ultramafic sills, dikes, and small stocks. Relative ages based on superposition and tops indicate the sequences young to the north. Further detailed descriptions of the major rock types found in the area are provided in Berger, 1992.

Metasedimentary rocks on the Lamaune Iron claim group are predominantly chemical metasediments composed of oxide facies (chert-magnetite) iron formation with some associated interbands of silicate facies or sulphide facies iron formation. These iron formation units coincide with prominent persistent formational electromagnetic and magnetic anomalies as verified by field observations on outcrops and bedrock exposed by trenching. The clastic metasedimentary rocks exposed by trenching consist of graphitic pelites that show a weak and discrete electromagnetic and magnetic signature. Variably flattened thin conglomerate units, usually composed of centimetre size felsic clasts in a predominantly mafic matrix, are exposed in two locations along the northern and southern contacts of the western extension of the GPS.

Northwest and northeast striking diabase dikes and flat-lying sills (Nipigon?) crosscut or overlie all the Archean rocks on the property.


90°
89°
88°
50°
49°
48°
Junior Lake Property
N
Armstrong
Lac des Iles Mine
Shebandowan Mine
Thunder Bay
LAKE
NIPIGON
LAKE
0 20 40 60 80 100 Kilometres
0 10 20 30 40 50 Miles
Source:
Ontario Geological Survey Map M2542, 1991.
January 2018
Landore Resource Canada Inc.
Junior Lake Project
Ontario, Canada
Regional Geology

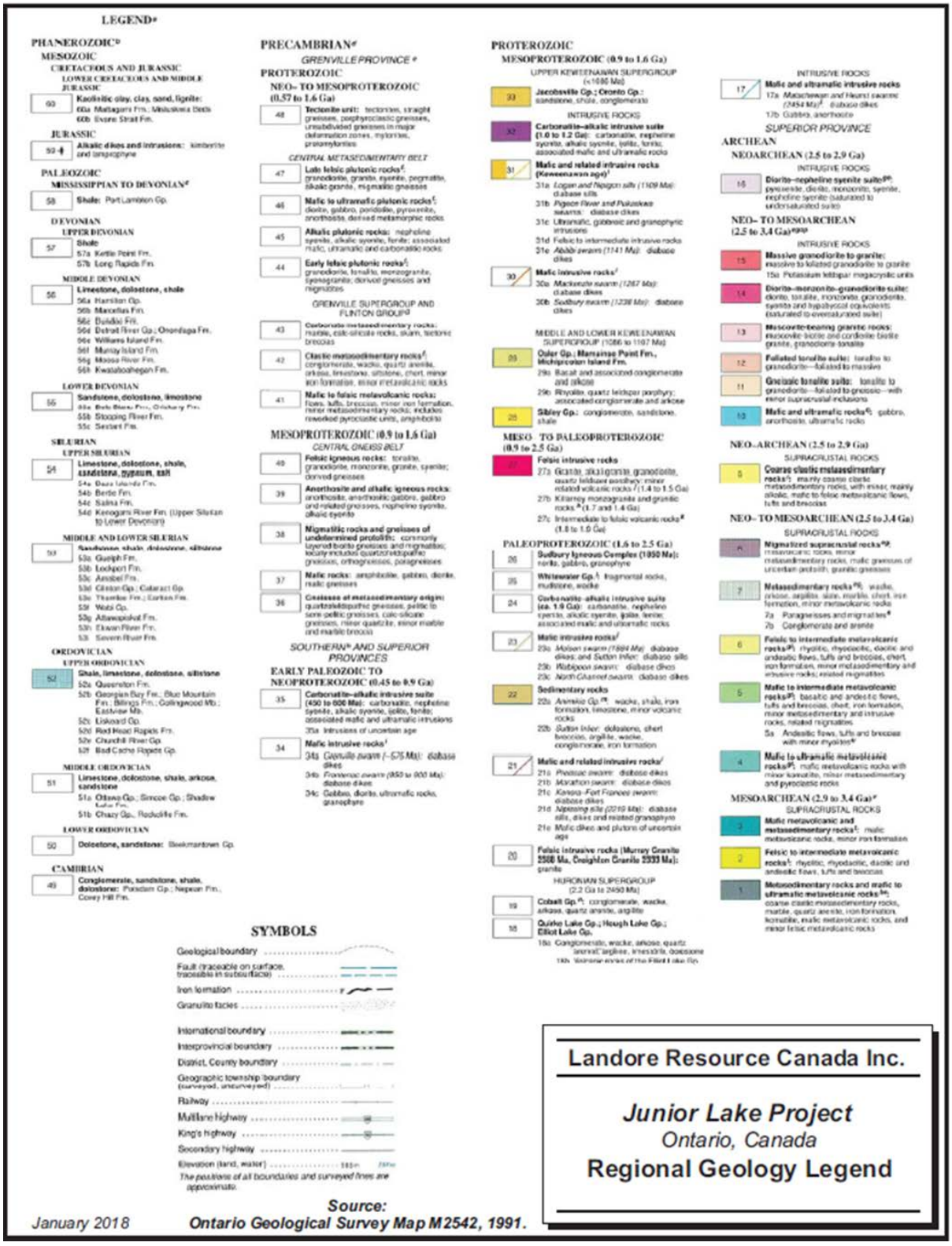


Figure 7-1: Regional Geology Map and Legend (from RPA, 2018 - from OGS Map M2542, 1991)

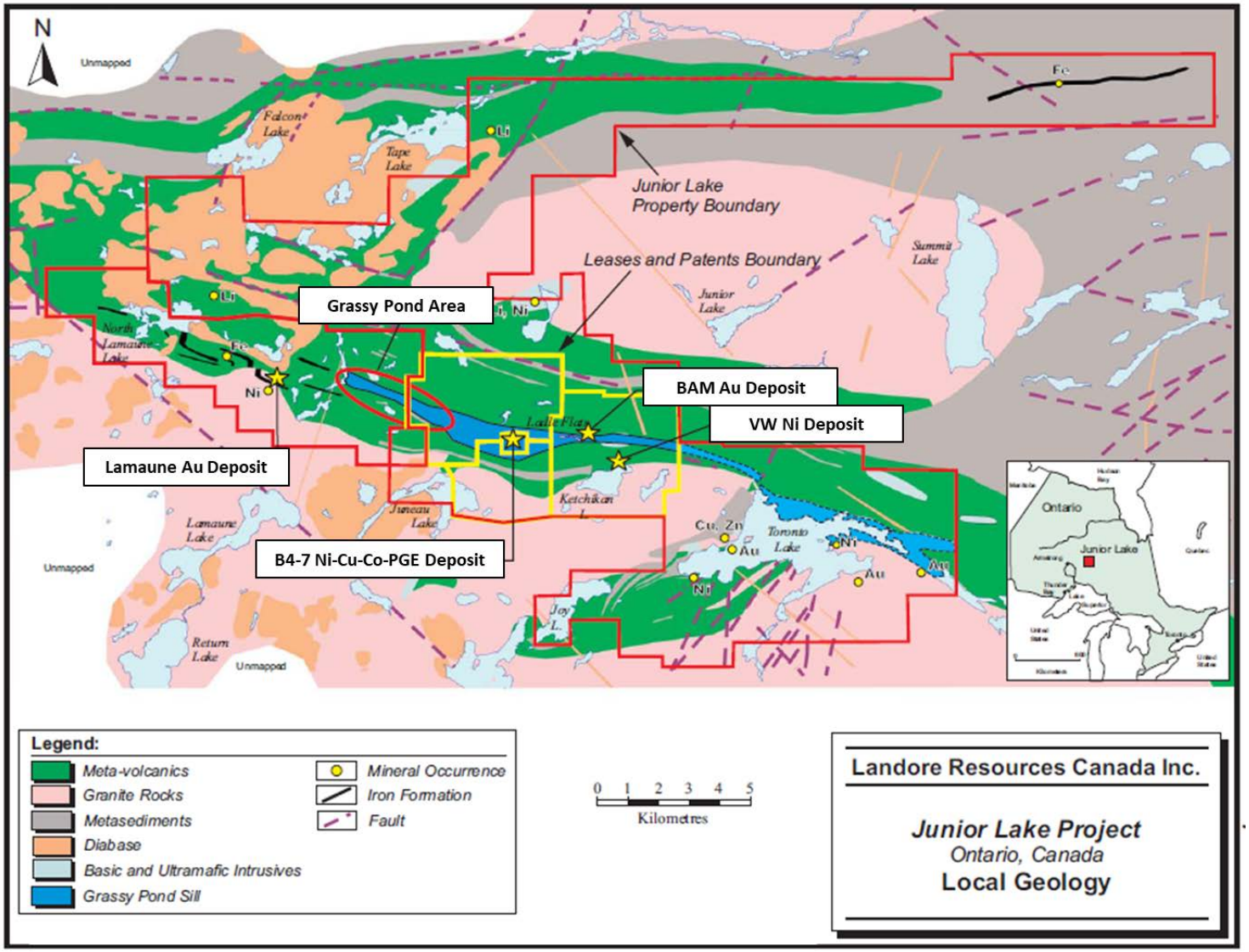


Figure 7-2: Junior Lake - Property Geology Map showing Mineral Deposits (in RPA, 2018 from Landore 2015)

The main stratigraphic sequence that is observed to host the large majority of the newly discovered gold mineralization at the BAM East Gold Deposit is referred to as the BAM Sequence. The character of this package of rocks has been determined mostly from observations in drill core and in limited exposures in trenches and outcrops in the area. In the immediate deposit area, the BAM Sequence is comprised largely of very fine grained to aphanitic material which has been recorded as clastic sedimentary unit in the drill logs (Figure 7-3). It is typically a medium to dark green-grey to black colour, contains a weakly to strongly developed foliation, and is characterized by a soapy feel to the touch locally. Characteristic sedimentary textures are generally not well developed in the immediate deposit area. Preliminary geochemical characterization suggests that the sediments have been derived from precursor rocks of ultramafic composition. Numerous small-scale dikes of mafic, intermediate and felsic composition are present in the deposit area.

At the eastern end of the BAM East Gold Deposit, the BAM Sequence is exposed in an outcrop located near to local grid 3500E/150S. At this location, the host units are comprised of a mixed assemblage of coarse cobble conglomerate, felsic lapilli tuff, and fine felsic ash tuff. A strongly developed foliation is present that strikes in a general east-south easterly direction and dips sub-vertically (Figure 7-4).

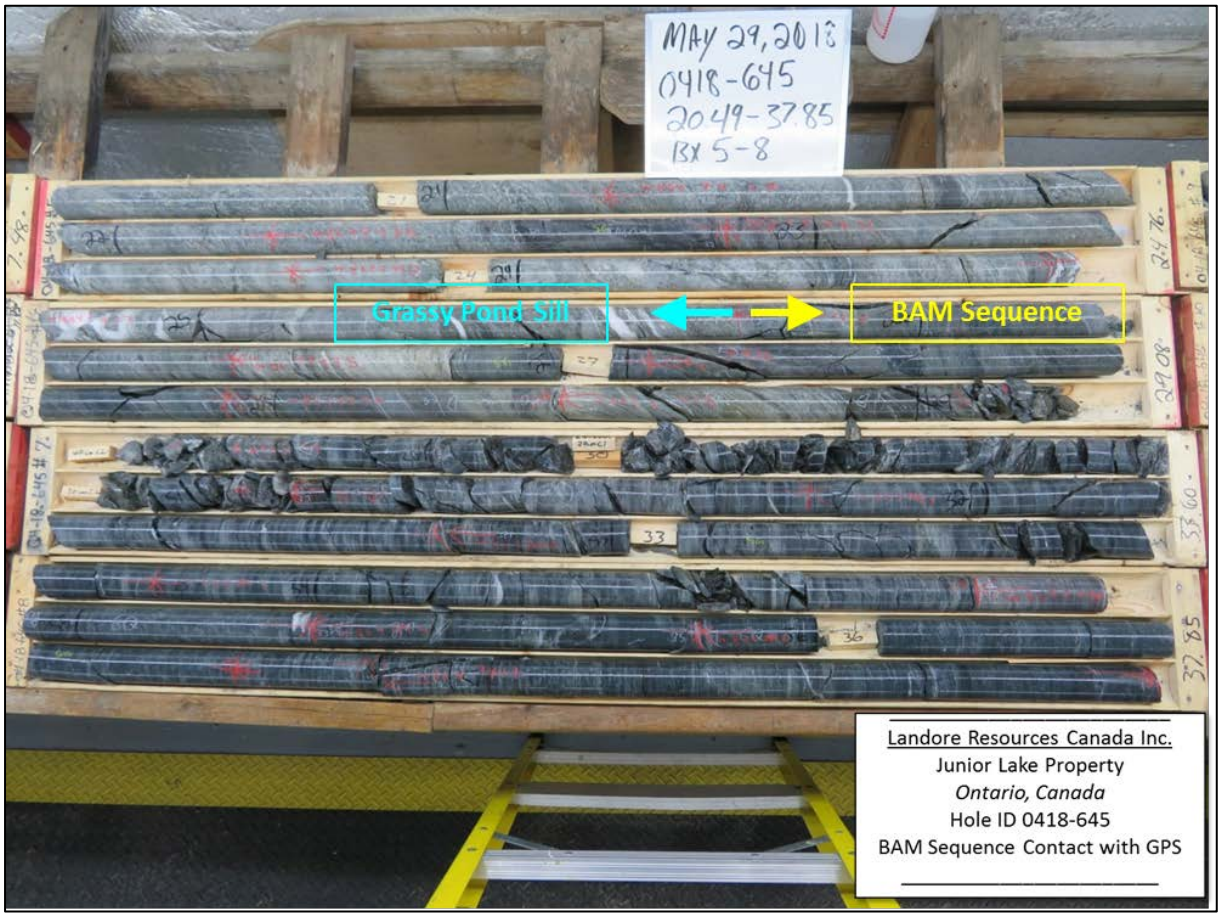


Figure 7-3: Example of BAM Sequence in Diamond Drill Core - (Hole #: 0418-645) (Landore Core Photo, 2018)

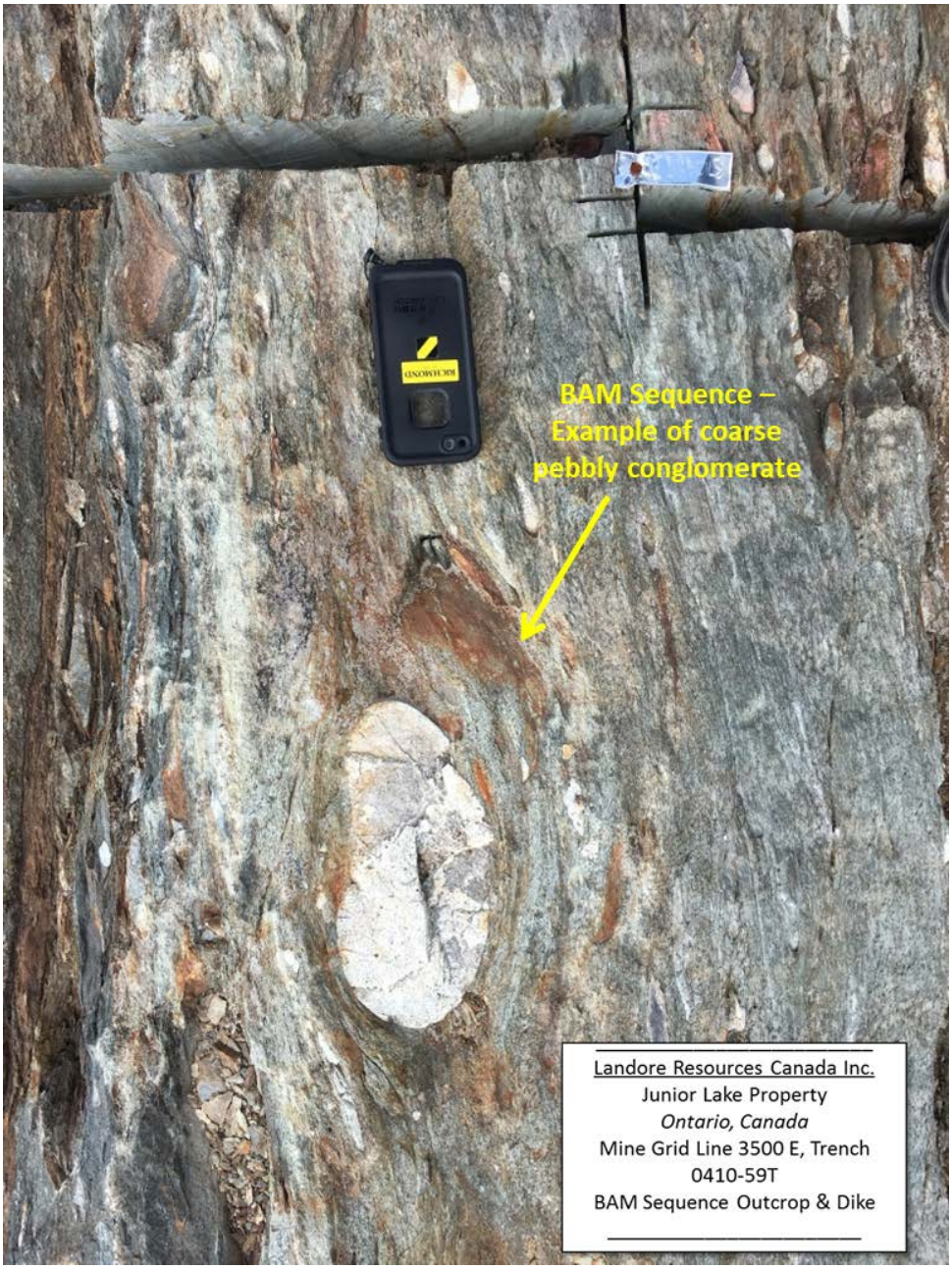


Figure 7-4: Example of BAM Sequence in Surface Outcrop – Trench 0410-59T (Cube Site Visit, June 2018)

Within the host rocks of the GPS, the alteration is characterized by both a partial or complete destruction and replacement of both the primary plagioclase phenocrysts and the interstitial material. Megascopic observations suggest that the main alteration signature is represented by a light grey-green to black colour that is believed to represent the formation of either Mg-rich chlorite or Fe-rich chlorite, respectively. Narrow zones of intensely developed foliation are present on occasion. All primary rock textures are completely destroyed within these zones and are replaced with an alteration assemblage of chlorite-silica-carbonate(?). The specific nature of the carbonate alteration (calcite/dolomite/ankerite) has not been determined. The use of the potassium ferricyanide stain to test for the presence of ankerite alteration will be of great use.

Local occurrences of massive pyrrhotite and pyrite are commonly observed in drill core, typically occurring near the northern contact of the unit. These occurrences of massive sulphides are likely

the source of the conductive source (anomaly MM-7) that has been detected by geophysical surveys (Figure 7-5.). Gold values are occasionally associated with these intervals, however, gold mineralization within the BAM Gold Deposit are not typically related to sulphide mineralization, and anomaly MM-7 has been observed to mark the northern limit of significant gold mineralization. Visual inspection of the textures of these massive sulphide occurrences suggest that they are likely of a syngenetic origin and thus may represent some type of a sulphide iron formation or small-scale sulphide exhalative deposits. More study will be required to determine the precise genetic source of these sulphide occurrences.

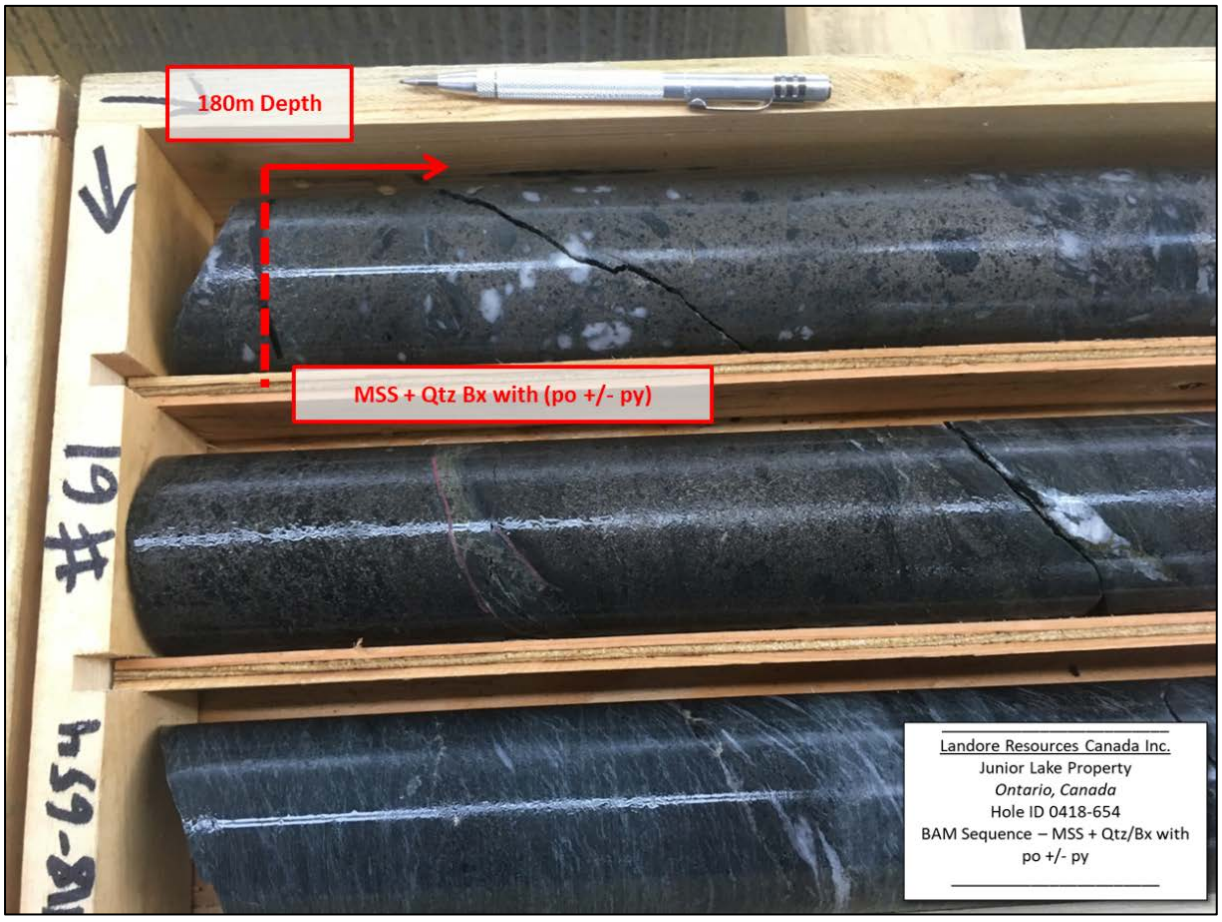


Figure 7-5: Example of Massive Sulphide in Diamond Drill Core in Hole 0418-654 (Cube Site Visit, June 2018)

The BAM Sequence is in contact with the gabbroic rocks of the GPS along its southern contact and with mafic volcanic rocks of the MLG along its northern contact. It strikes generally in an east-south east direction and dips steeply to moderately to the south. The widths of the BAM Sequence vary but are generally on the order of 50 m. Interpretations compiled by Landore from existing drilling, trenching and geological mapping information has been successful in defining this unit along a strike length of approximately 5 km (Figure 7-6). The strike limits of the BAM Sequence to the east and west and down dip have not been defined.

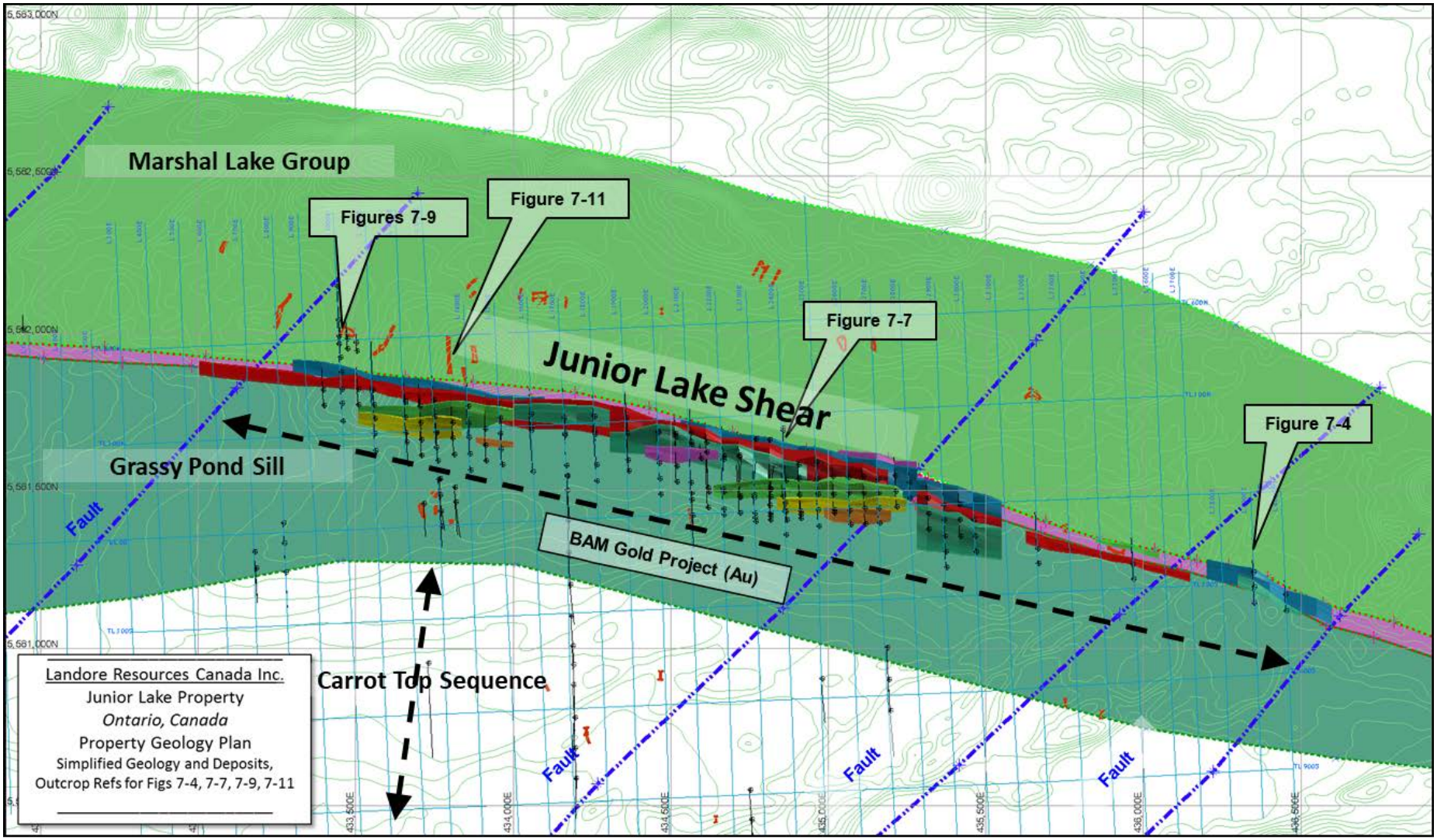


Figure 7-6: Local Geology Plan Interpretation of BAM Sequence (February 2019)

7.2.2. Structure

Two periods of deformation have affected the rocks on the property. Regional deformation rotated the supracrustal packages into near vertical orientation and developed a large west north-west trending deformation zone (local portion referred to as the Junior Lake Shear Zone) north and west of Toronto Lake. This zone is the most prominent structural feature in the area and is characterized by narrow discrete zones of intensely sheared rock separated by relatively undeformed rock packages. The deformation zone is evident as an aeromagnetic lineament which extends east and west of the Junior Lake property and appears to join the regional 450 km long Sydney Lake-Lake St. Joseph (**SL-LSJ**) Fault zone to the north, which also coincides with the boundary of the English River (**ERT**) and East Wabigoon Subprovince (**EWT**). The brittle-ductile fault zone of the SL-LSJ is steeply dipping, 1 km to 4 km wide and estimated to have accommodated approximately 30 km of right-lateral transcurrent displacement and 2.5 km of north vergent thrust movement (Percival, 2007).

Narrow, discrete zones of intense shearing form the Junior Lake Shear Zone, which sits at the contact between the TLG and MLG. The evidence for the shear zone at Junior Lake is based on known geology and textures in drill holes and from limited exposures with deformation textures found from the micro to the macro level encompassing mylonites, cataclasites, sharp thin failure planes, and pressure-solution features such as stylolites. The widespread occurrence of pseudotachylite veinlets and infill demonstrates localized melting on failure planes. Based upon information collected from the recent drilling campaigns at the BAM East Gold Deposit, the shearing is seen to focus mostly in the BAM Sequence rocks (Figure 7-7) but sheared intervals are also commonly observed in the gabbroic units of the GPS and within the basalt flows of the MLG to a lesser degree (Figure 7-8).

A second more local deformation, in the east part of the property, is confined to the supracrustal rocks around the periphery of the Robinson Lake Batholith, with deformation expressed as crenulation cleavage, northeast trending faults (Figure 7-6), and lineations which clearly post-date the regional deformation.

Pye (1968) interpreted the presence of a large-scale fold on the western portion of the Junior Lake property southeast of Lamaune Lake and east-northeast trending syncline in the vicinity of Toronto Lake to the east. The east-southeast trending, north dipping North Lamaune Lake anticline is interpreted from magnetometer surveys tracing an iron formation located southwest of the property boundary.

A simplified stratigraphic column for the Junior Lake property main deposits and prospects is presented in Figure 7-9.

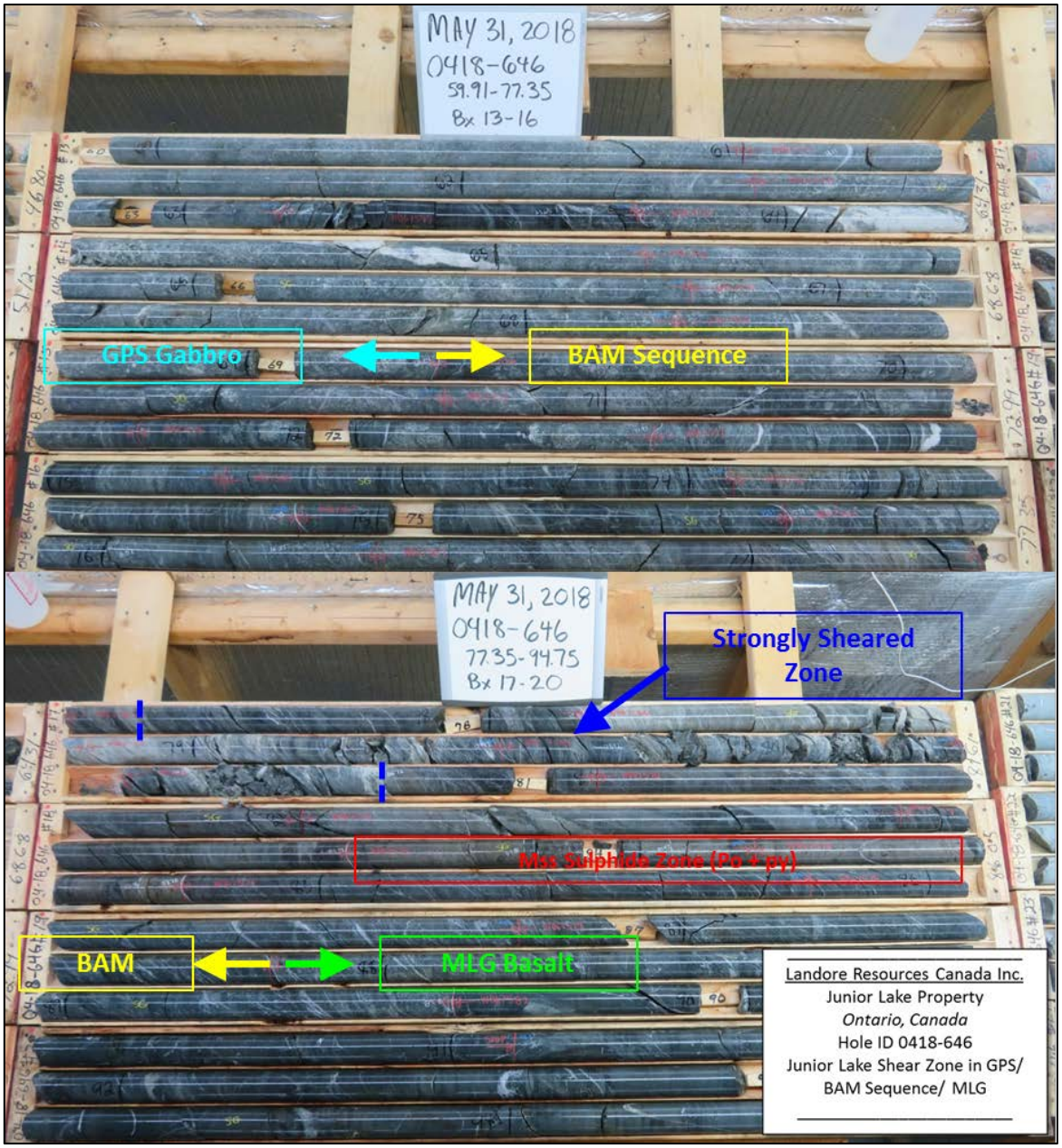


Figure 7-7: Example of Junior Lake Shear Zone within BAM Sequence – Hole: 0418-646 (Landore Core Photo, 2018)

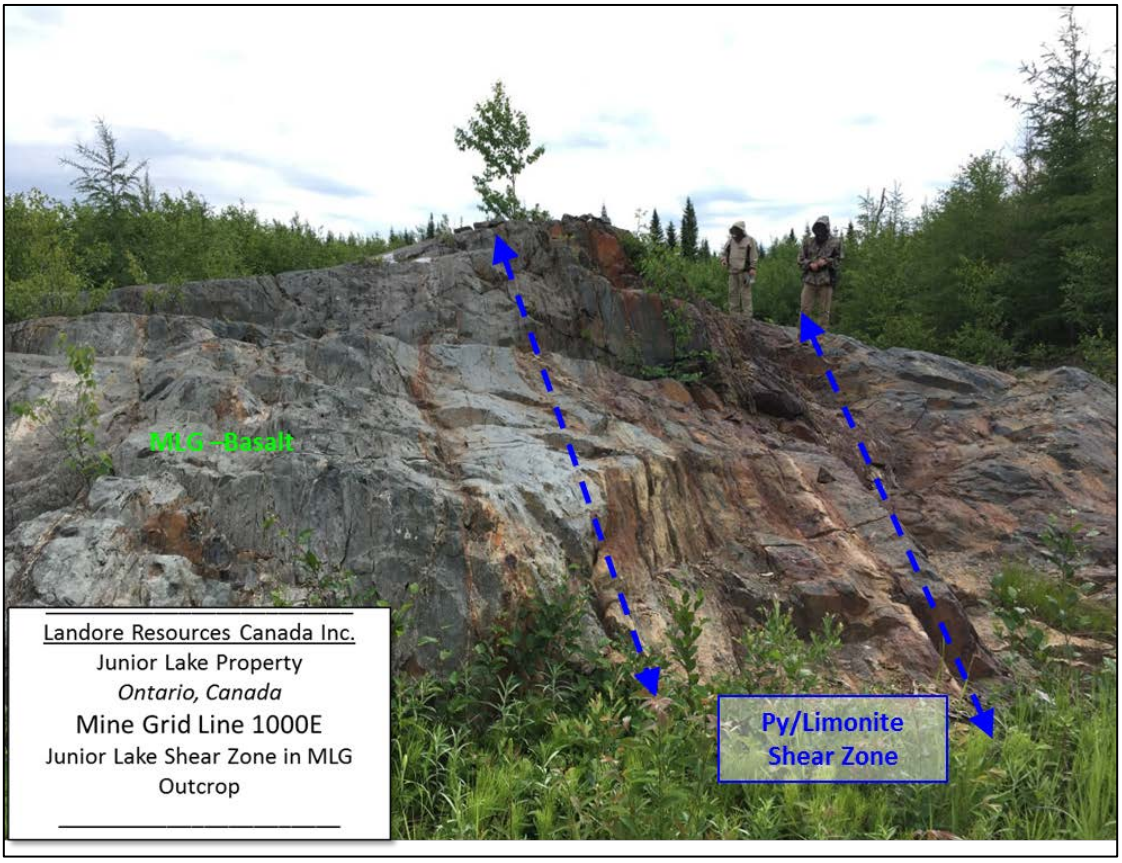


Figure 7-8: Example of Junior Lake Shear Zone within BAM Sequence – Line 1000 E (Cube Site Visit, June 2018)

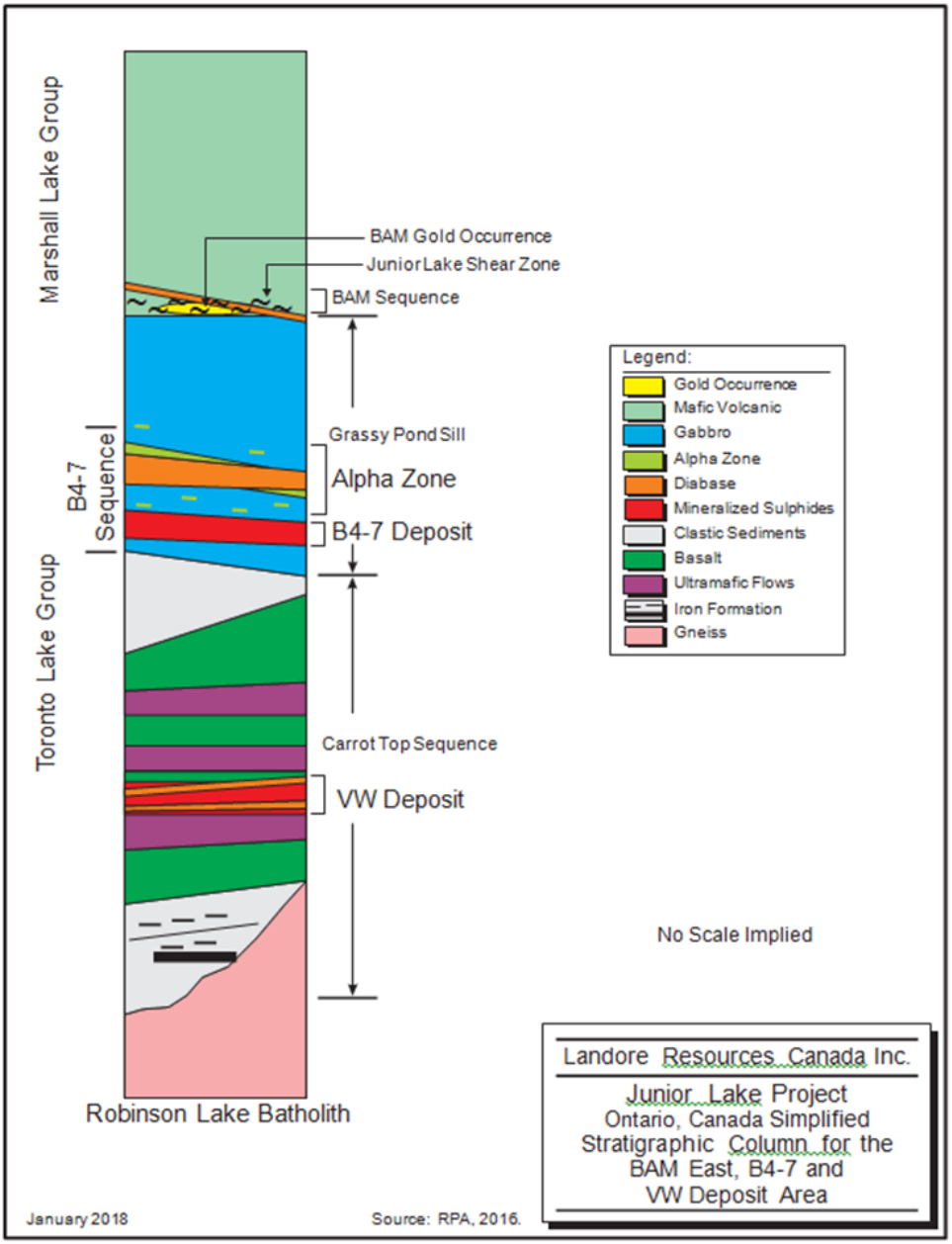


Figure 7-9: Simplified Stratigraphic Column for Junior Lake property (from RPA, 2018)

7.2.3. Intrusives

Numerous dikes of variable compositions are commonly observed in outcrop and in drill cores in the vicinity of the BAM, B4-7, and VW Deposit areas. In general, the intrusive rocks in the BAM area are observed to comprise dikes of either mafic (Figure 7-4) or intermediate (Figure 7-10) composition which range from metre-scale widths to widths up to 10 m to 20 m.

Observations made in outcrop and from the geological modelling completed using drill core information of the mafic dikes consistently suggest that the mafic dikes are generally stratiform in their orientations or crosscut the stratigraphy and foliation at a low angle. The lack of a pervasive structural fabric within these dikes suggests that they post-date the gold mineralization, and they are therefore interpreted to be related to the Nipigon diabase series that is common in the region.

The orientation of the dikes of intermediate (tonalite) composition is not well understood in detail, given their narrow widths and frequent occurrences. Preliminary interpretation based on the relationship to the regional foliation observed in outcrop suggest that they are also stratiform to shallowly cross-cutting in their orientations. The lack of a pervasive structural fabric within these dikes also suggests that they post-date the gold mineralization found at the BAM Gold Deposit.

Figure 7-10: Example of Dyke Intrusion within BAM Sequence: – Line 1400 E Outcrop (Cube Site Visit, June 2018)

7.3. Mineralisation

The BAM Gold Deposit is located in the south-central area of the Junior Lake property and is interpreted as an Archean-aged mesothermal gold deposit. The deposit consists of gold mineralization that is hosted by sheared and altered rocks of the Grassy Pond Sill and the BAM Sequence. The deposit has been traced by detailed drilling at approximately 50 m centres along a strike length of approximately 2,000 m. Reconnaissance-scale step-out drilling has also intersected gold mineralization in the same host rocks along a strike length of approximately 1,900 m. Based upon the information collected from the detailed scale diamond drill holes, the host rock units strike in an east-southeast direction (average of azimuth 105°) and dip steeply to moderately to the south at 70° to 75°. The gold mineralization is interpreted to reside within a series of tabular shaped zones that are oriented in a roughly en-echelon configuration and are generally parallel to the overall strike of the host rock units (Figure 7-11). Within the main BAM Sequence four to six mineralized zones are currently recognized, with the estimated true widths of each mineralized zones ranging from 2 m to 50 m.

The gold mineralization occurs as a fine dissemination and also is commonly observed in drill core to exist as visible gold that is hosted by very thin, foliation-parallel quartz-rich veinlets (Figure 7-12), hosted by highly fissile ultramafic sediments of the BAM Sequence, or by foliated rocks of the Grassy Pond Sill.

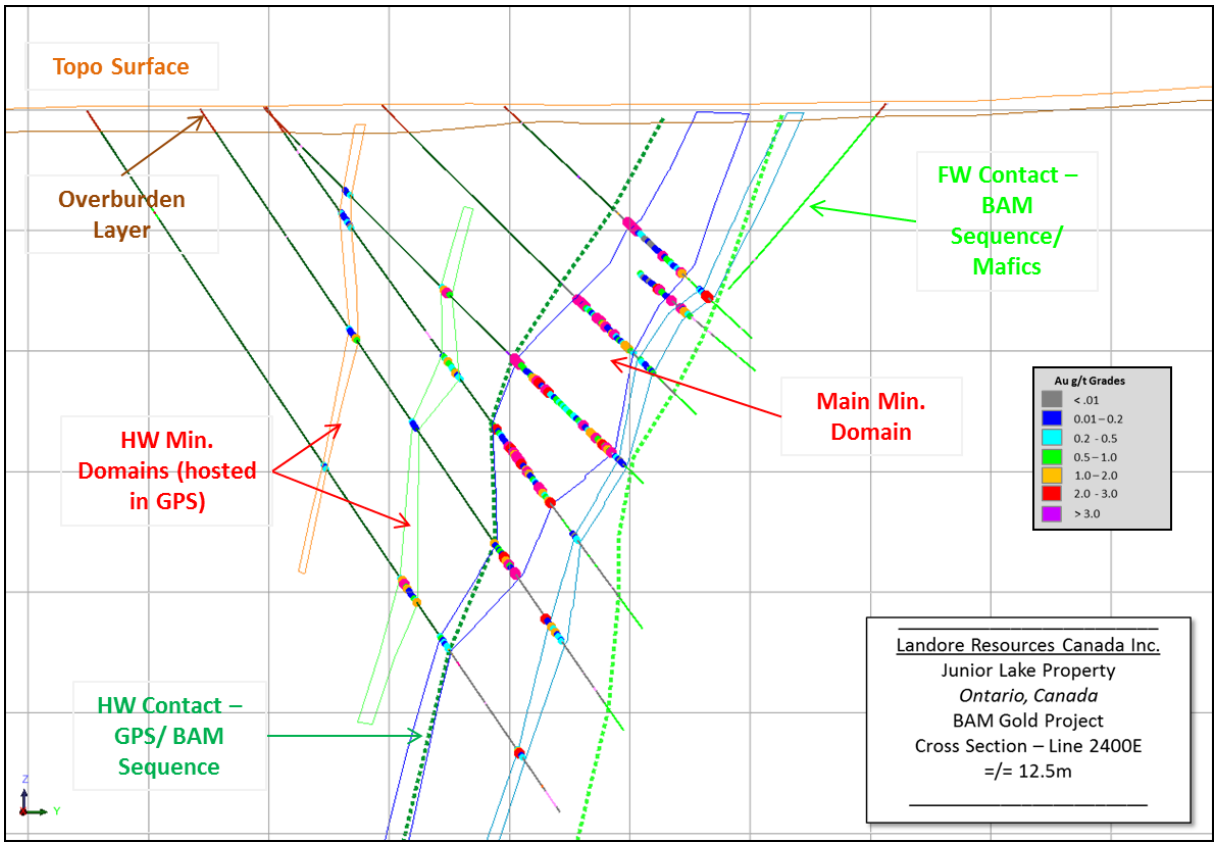


Figure 7-11: Typical Cross Section Example of BAM Sequence Mineralization – Local Grid Section Line 2500 E (December 2019)

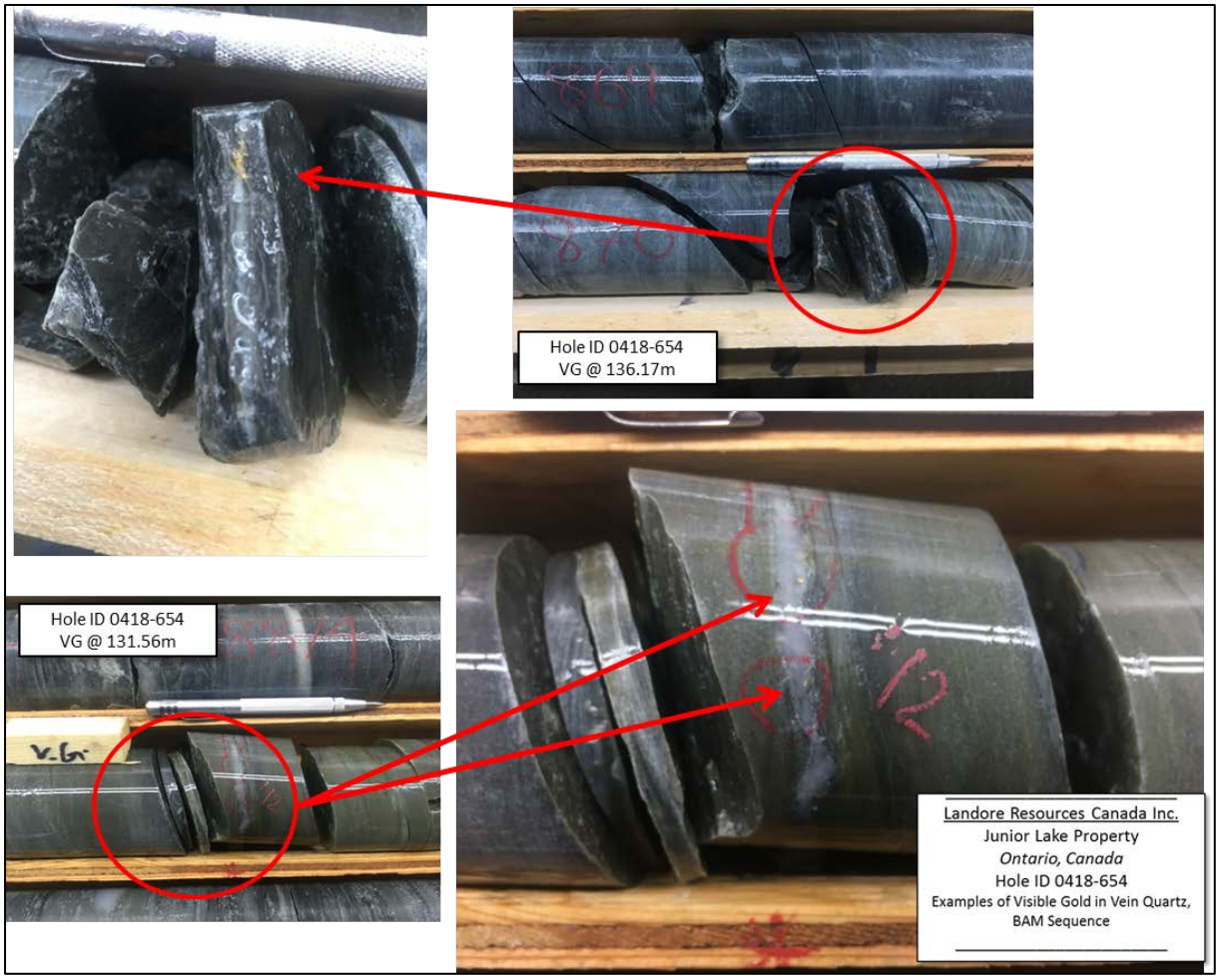


Figure 7-12: Example of Mineralization Zone within BAM Sequence in Diamond Drill Core: (Hole 0418-654) (Cube Site Visit, June 2018)

A preliminary petrographic study (Payne, 2016) carried out on a number of samples has identified the presence of coarse native gold in association with an unidentified silvery mineral that occurs within calcite replacement patches and veinlets (Figure 7-13).

Apart from the fissile nature observed in the ultramafic sediments, little traditional megascopic alteration (sericite-ankerite), hydrothermal sulphide deposition (pyrite-pyrrhotite-chalcopyrite-arsenopyrite) or large-scale quartz veining is observed associated with the mineralized rock units of the BAM Sequence. Sphalerite is observed on rare occasions. The presence of microscopic scale ankerite alteration with the gold mineralization cannot be ruled out. Sporadic development of amphibole-biotite (?) is observed within the BAM Sequence, however, the relationship of this mineral assemblage to the gold mineralization is not currently understood.

Small-scale quartz veining is observed to be present within the BAM Sequence and the Grassy Pond Sill on occasion, and the veins can be either barren or be associated with gold-bearing intervals. The observed veins typically measure up to 10 cm in width and can contain an assemblage of either tourmaline (schorl), ankerite, or scheelite (?). The veins are observed to be oriented either sub-parallel or at a high angle to the general foliation of the drill core. Textural evidence suggests that two generations of quartz veins may be present. The detailed paragenetic relationship of the quartz veining to the structure and gold veining is not clearly understood at present.

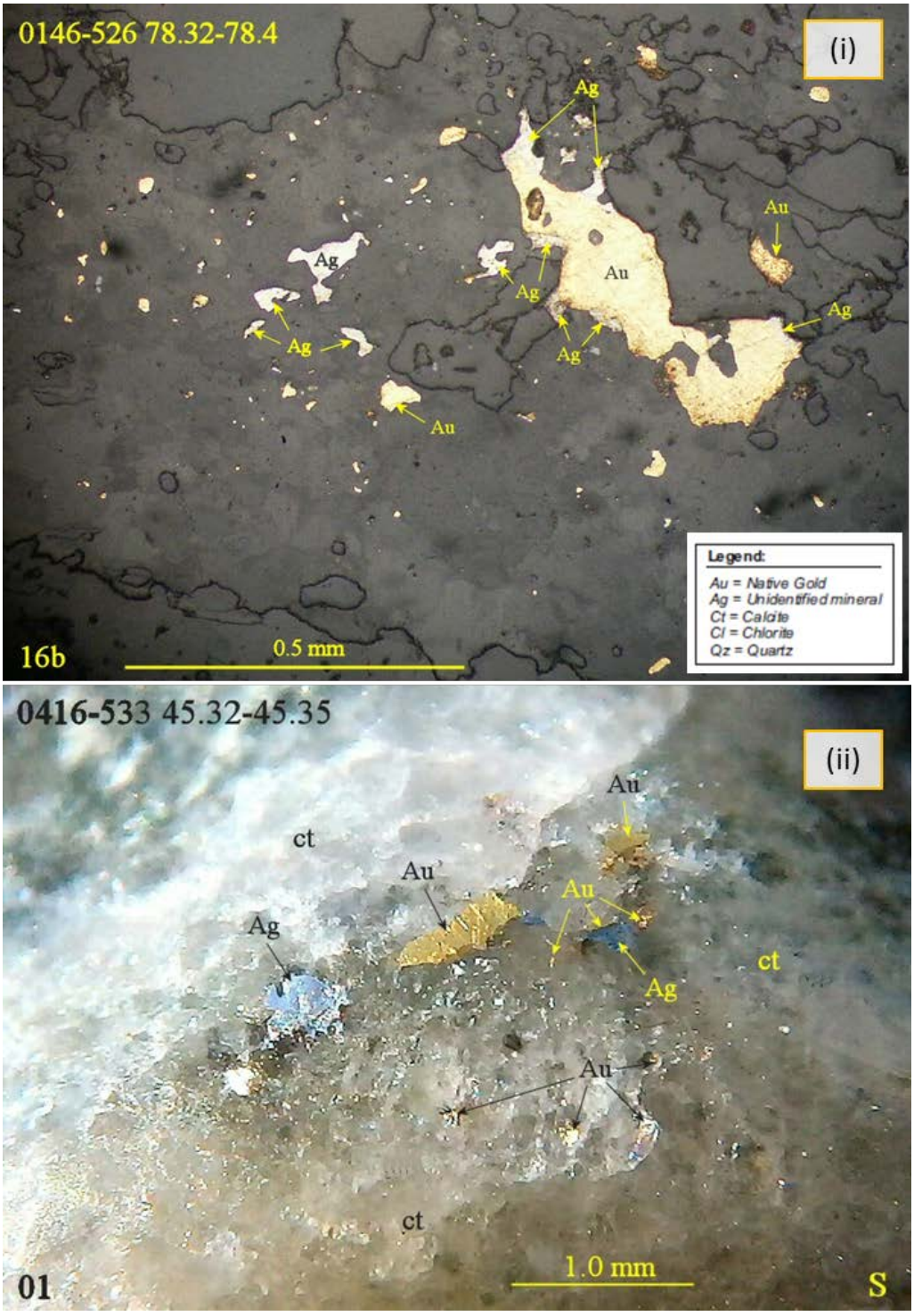


Figure 7-13: Photomicrograph of Native Gold in Specimens from Diamond Drill Core (from Payne, 2016)

Lamaune Gold Prospect Mineralization (from Brown, 2010, and Tuomi, 2010)

The Lamaune gold prospect is located in the western area of the property and comprises two sub-vertical zones of mineralization (Brown, 2010 and Tuomi, 2010).The first of these is a wide low-grade zone, generally consisting of small, millimetre to centimetre scale quartz–calcite veinlets in a silicified, garnetiferous amphibolite. The second and more discordant zone is a set of centimetre

wide quartz veins. The mineralogy of the veining is simple, with native gold occurring with quartz, calcite, and muscovite and sulphides consisting of arsenopyrite and pyrrhotite. Visible gold has been observed in several holes. Figure 7-14 illustrates the geology and style of mineralization intersected at the gold zone.

The mineralization has been traced by drilling over a strike length of 500 m and to a depth of 200 m and remains open both along strike and at depth.

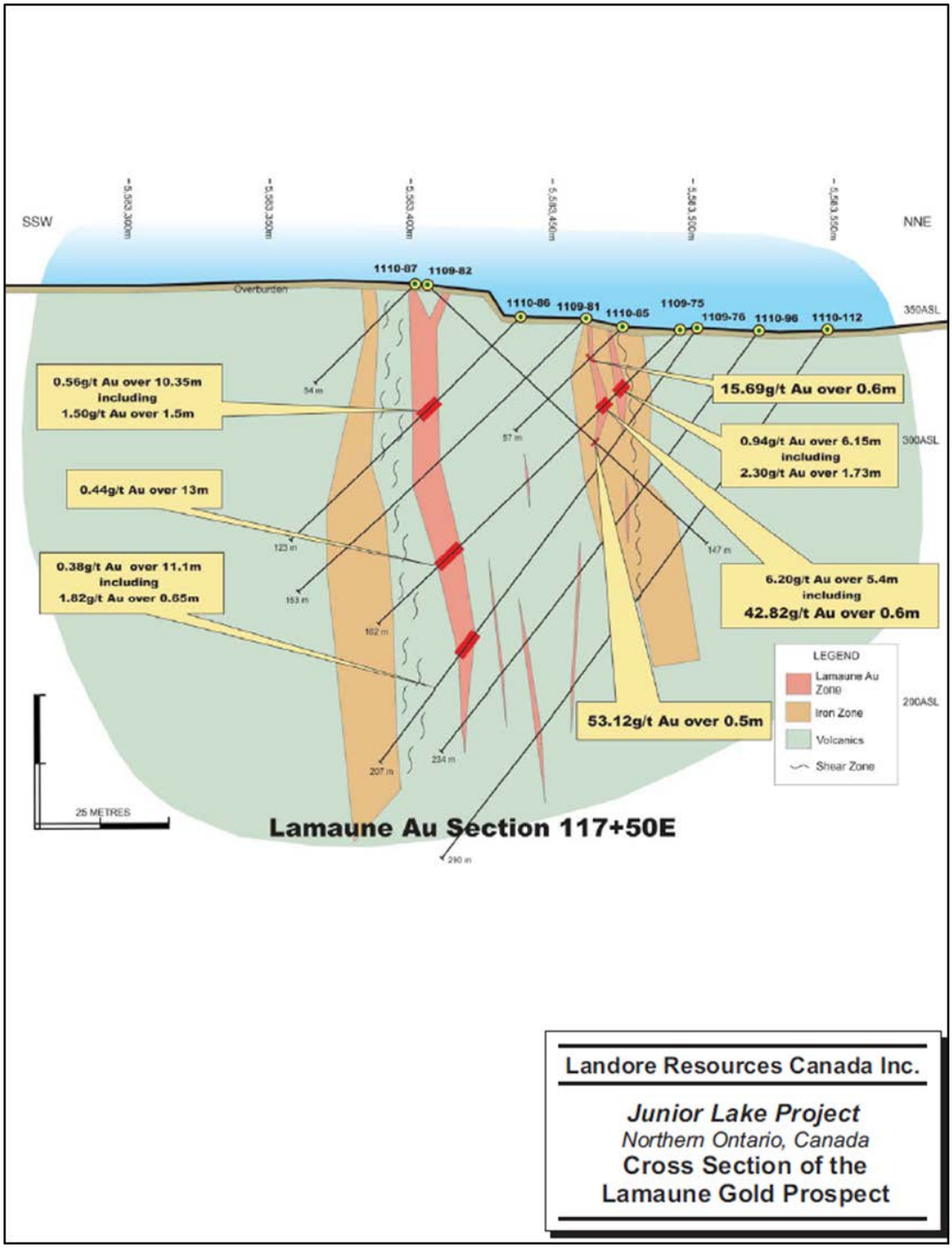


Figure 7-14: Lamaune Gold Prospect – Cross Section Showing Geology and Mineralization (in RAP, 2018, based on Landore 2011)

8. Deposit Types

The following general description of Archean-aged mesothermal gold deposits has been presented in Dubé and Gosselin (2007).

Greenstone-hosted quartz-carbonate vein deposits typically occur in deformed greenstone belts of all ages, especially those with variolitic tholeiitic basalts and ultramafic komatiitic flows intruded by intermediate to felsic porphyry intrusions, and sometimes with swarms of albitite or lamprophyre dykes (Figure 8-1). They are distributed along major compressional to trans-tensional crustal-scale fault zones in deformed greenstone terranes, commonly marking the convergent margins between major lithological boundaries, such as volcano-plutonic and sedimentary domains. The large greenstone hosted quartz-carbonate vein deposits are commonly spatially associated with fluvio-alluvial conglomerate (e.g., Timiskaming conglomerate) distributed along major crustal fault zones (e.g., Destor Porcupine Fault). This association suggests an empirical time and space relationship between large-scale deposits and regional unconformities.

These types of deposits are most abundant and significant, in terms of total gold content, in Archean terranes. However, a significant number of tier 1 deposits are also found in Proterozoic and Palaeozoic terranes. In Canada, they represent the main source of gold and are mainly located in the Archean greenstone belts of the Superior and Slave provinces. They also occur in the Palaeozoic greenstone terranes of the Appalachian Orogen and in the oceanic terranes of the Cordillera.

The greenstone-hosted quartz-carbonate vein deposits correspond to structurally controlled complex epigenetic deposits characterized by simple to complex networks of gold-bearing, laminated quartz-carbonate fault-fill veins. These veins are hosted by moderately to steeply dipping, compressional brittle-ductile shear zones and faults with locally associated shallow-dipping extensional veins and hydrothermal breccias. The deposits are hosted by greenschist to locally amphibolite-facies metamorphic rocks of dominantly mafic composition and formed at intermediate depth (5 km to 10 km). The mineralization is syn- to late-deformation and typically post-peak greenschist facies or syn-peak amphibolite facies metamorphism. They are typically associated with iron-carbonate alteration. Gold is largely confined to the quartz-carbonate vein network but may also be present in significant amounts within iron-rich sulphidized wall-rock selvages or within silicified and arsenopyrite-rich replacement zones.

There is a general consensus that the greenstone-hosted quartz-carbonate vein deposits are related to metamorphic fluids from accretionary processes and generated by prograde metamorphism and thermal re-equilibration of subducted volcano-sedimentary terranes. The deep-seated, Au-transporting metamorphic fluid has been channelled to higher crustal levels through major crustal faults or deformation zones. Along its pathway, the fluid has dissolved various components (notably gold), from the volcano-sedimentary packages, including a potential gold-rich precursor. The fluid is then precipitated as vein material or wall-rock replacement in second and third order structures at higher crustal levels through fluid-pressure cycling processes and temperature, pH and other physico-chemical variations.

Preliminary exploration work on the BAM Zone (MacTavish, 2004) identified that gold mineralization satisfies many of the characteristics typical of greenstone-hosted quartz-carbonate vein deposits:

- It occurs within a volcanic-dominant greenstone belt in close spatial association with felsic intrusive rocks and a regional-scale deformation zone (Junior Lake Shear) along the northern contact of the GPS – typical of a brittle-ductile transition regime.
- It exhibits replacement style disseminated pyrite and arsenopyrite mineralization.
- Is closely associated with carbonatization, K-alteration, and silicification.
- Gold mineralization is hosted by greenschist to locally amphibolite-facies metamorphic rocks.

MacTavish (2004) stated that the BAM Zone gold mineralization observed on surface and in the drill holes exhibits some of the characteristics common to disseminated replacement style Archean orogenic gold deposits in Canada.

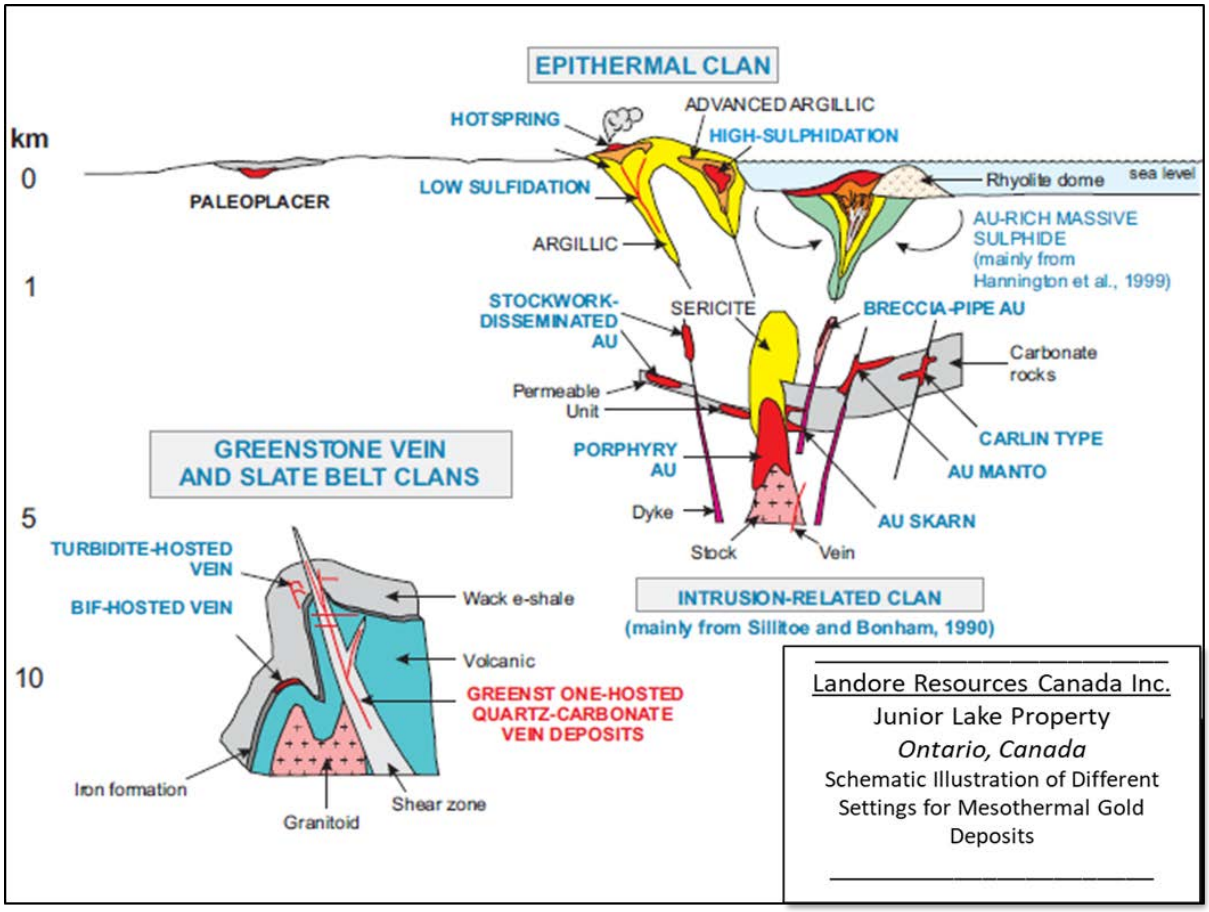


Figure 8-1: Illustration of Different Settings for Mesothermal Gold Deposits (in RPA, 2018 – modified from Dube & Gosselin, 2007)

9. Exploration

9.1. Summary

Landore optioned part of the property from North Coldstream Mines Limited in 1998 and additional claims from Brancote Canada in 2000. Since then, Landore has discovered on the Junior Lake property: two gold zones, nine Ni-Cu-PGE occurrences, one Cu-Pd zone and several Zn-Au-Ag and Zn + Co occurrences in old trenches and boulders bearing base and precious metals or arsenic mineralization.

Landore has successfully delineated several deposits and other potential areas of significant mineralization throughout the Junior Lake property including the BAM Gold Deposit/BAM Gold Prospect, the Lamaune Gold Prospect, the B4-7 Ni-Cu-Co-PGE Deposit, and VW Ni Deposit (Figure 9-1).

Initial work carried out by Landore in 2000 involved data compilation, Landsat image interpretation, prospecting, mapping, and resampling of the 1969 core, and followed up an OGS airborne EM and MAG survey flown over the area.

Ground magnetometer and MaxMin II EM surveys were completed in 2001, in addition to drilling.

In 2003, Landore conducted drilling, overburden stripping and trenching, and channel sampling. All drilling data were digitized and reinterpreted. 856 core samples from the historical drill core were assayed to fill in unsampled runs in the B4-7 Deposit, in its hanging wall mineralization known as the Alpha Zone, as well as in mineralization in the east extension of the B4-7 zone known as the Beta Zone.

A low-level helicopter AeroTEM time-domain EM and magnetometer survey was flown in 2004. Principal geophysical sensors utilized in this survey included AeroQuest's helicopter AeroTEM time domain EM system and a high sensitivity cesium vapour magnetometer. Bedrock EM anomalies were interpreted and graded according to the conductance. Also, in 2004, a ground geophysical program consisting of induced polarization (**IP**) and resistivity survey was carried out over the BAM area. This survey identified resistivity highs associated with disseminated to semi-massive sulphide mineralization.

The VW Deposit was discovered in 2005 by follow-up prospecting of an AeroTEM conductor where 0.45% Ni was returned in a surface grab sample. Landore drilled 40 NQ holes totaling 8,178 m in 2005, of which 11 holes for 3,620 m tested the newly discovered VW Deposit. The other holes explored the Whale, NO, and BAM zones, as well as other areas on the Junior Lake and Lamaune projects.

In 2006, Landore drilled the VW Deposit, B4-7 Deposit, and other exploration targets including the Junior Lake, Pichette, and Lamaune claims. The 2006 campaign at the VW Deposit included two surface trenches which were excavated and channel sampled. Metallurgical work included preliminary flotation and work indexes were carried out at SGS Minerals Services, Lakefield Site in September–October. Scott Wilson RPA (predecessor to RPA) also prepared a NI 43-101-compliant report on the B4-7 zone in 2006.

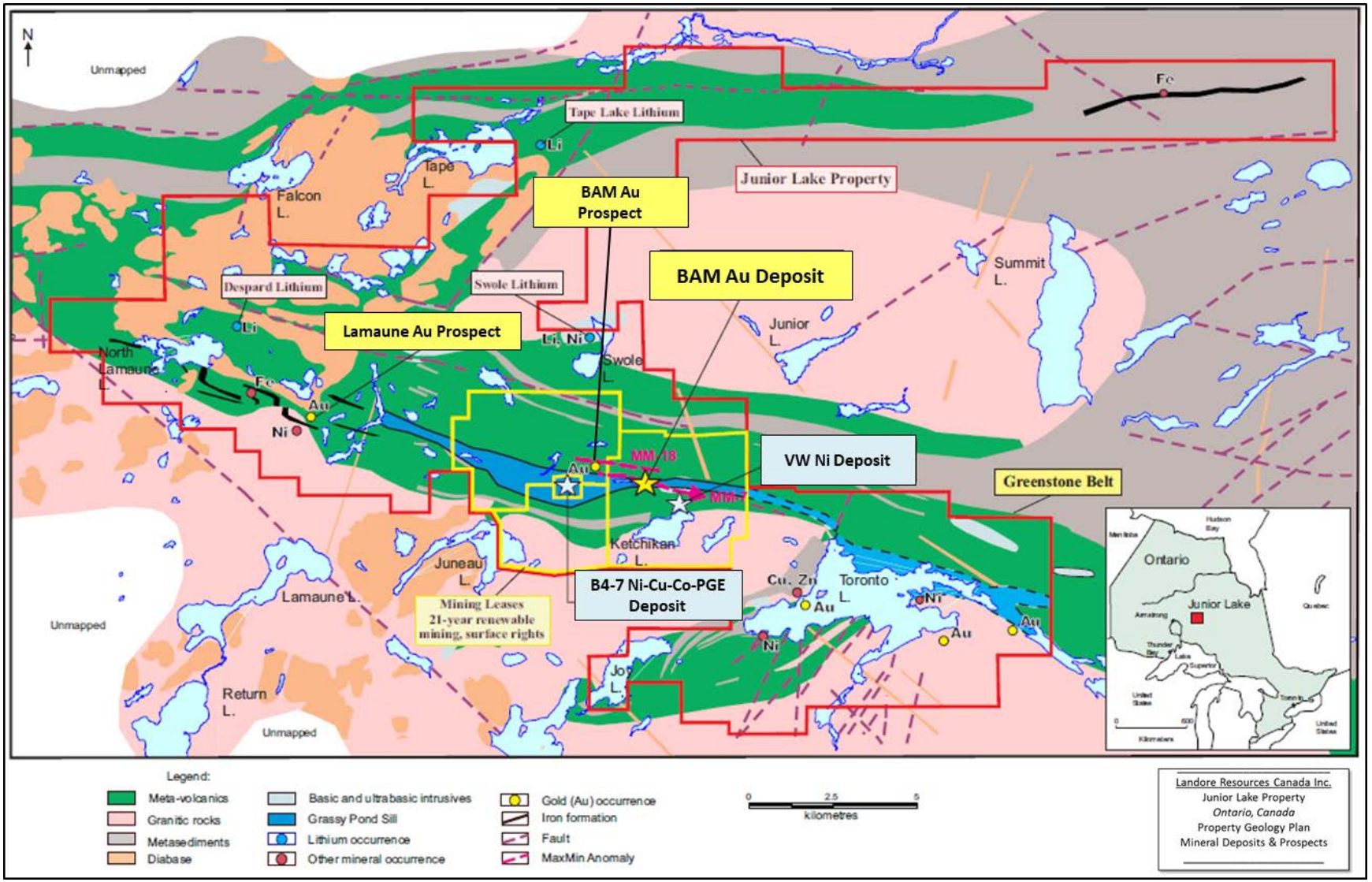


Figure 9-1: Junior Lake - Property Geology Map showing Mineral Deposits (in RPA, 2018 - from Landore 2015)

During 2007, diamond drilling of the VW and B4-7 Deposits was the main focus of exploration activity. The following work was completed on the Landore property:

- Re-logging of pre-2007 VW Deposit drill core was initiated.
- Drill collars of the VW and B4-7 Deposits and topographic control areas of the Junior Lake property were surveyed by an Ontario Land Surveyor.
- Minor line cutting was completed near Ketchikan Lake and the B4-7 Deposit area to support the drilling operations.
- Baseline environmental studies were initiated and conducted by, or under the guidance of Golder Associates Ltd (Golder), of Sudbury, Ontario:
    - These studies were started in March 2007 and include quarterly sampling and analysis of lake and stream waters.
    - Lake and stream sediment sampling was completed during the summer.
    - A benthic study, bathymetric study, and a fisheries study of Ketchikan Lake were completed.
- A weather station was installed at the Landore Junior Lake camp to record wind speed and direction, temperatures and three seasons of precipitation data.
- Sampling of the VW Deposit drill core (quarter-cut core) was completed for metallurgical purposes.
- Claim lines were rehabilitated and the claim boundary surrounding an area to be leased was cut and surveyed in advance of filing the application to the Mining Recorder to lease the claims.
- The land package was expanded to the southeast by staking an additional 24 claims totaling 5,056 ha.
- Aerial photography (stereo) was completed over the lease area by KBM Forestry Consulting in late 2007 to produce an air photo mosaic for exploration and infrastructure planning. The photographic data were processed to establish a detailed digital terrain topographic model (DTM).
- Golder commenced baseline aquatic studies in February 2007 on lakes and drainage tributaries in the vicinity of Junior Lake. These studies have been carried out on a quarterly basis through to 2015 and are on-going. Golder completed a “Fish community and Fish habitat” survey of Ketchikan Lake, immediately south of the VW Deposit, in addition to a bedrock resistivity survey on the northern side of the lake to determine depth of silt and evaluate bedrock competence.
- The camp was expanded, and core storage was improved to hold the Junior Lake drill core on site.
- Landore’s 2007 drilling program consisted of 68 diamond drill 68 holes totaling 16,839 m to infill between existing holes on the VW Deposit and extend the deposit on strike and at depth. Core from previous Landore drilling in the deposit was re-logged with a view to better understanding the controls on mineralization and identifying the disposition of mafic intrusives (dikes and sills) in the zone. In addition, 16 holes totaling 3,575 m were drilled in the B4-7 Deposit to further test underexplored disseminated mineralization in the hanging wall. Further petrographic investigation was carried out on the VW Deposit (Mungall, 2007). The drill hole collars were resurveyed to the Ontario base.

- In early 2007, a resource estimate was carried out by RPA on the VW Deposit.

In May 2008, Scott Wilson RPA prepared an updated resource estimate and NI 43-101 compliant technical report for the VW deposit. Scott Wilson RPA updated the VW deposit estimated resources to reflect 2008 to 2009 drilling and prepared an updated NI 43-101 compliant technical report (Routledge and Scott, 2009).

A non-NI 43-101 compliant mineral resource estimate was carried out by the Snowden Group (De Mark and Glacken, 2008) on the B4-7 deposit in 2008. Scott Wilson RPA prepared resource estimates for the B4-7 deposit in 2006 and 2009.

Exploration work in 2009 included drilling, mapping, and prospecting throughout the contiguous claims covering approximately ten square kilometres, with work concentrated in the Lamaune Iron, BAM, and VW areas. Additional exploration included prospecting and mapping at Swole Lake and Toronto Lake, as well as east and west of the VW Deposit. To date, the VW Deposit has been delineated and tested by 141 drill holes with 2,766 analyzed intervals over 2,838.36 m completed in the deposit subzones.

Other exploration work completed in 2007-2019, included the following:

- Detailed geologic mapping (B4-7, VW, BAM, Lamaune).
- Regional scale prospecting, regional reconnaissance and geologic mapping.
- Re-logging, resampling, and reinterpretation of geology for the BAM East, VW, B47, and BAM sites.
- 70 km of line cutting, including additional grid lines cut in 2019.
- 55 trenches over approximately 13 km (Lamaune Iron, Grassy Pond, Felix Lake, Juno Lake, BAM Zone, Toronto Lake).
- Airborne geophysical coverage (AeroTEM EM and MAG) of the Toronto Lake area (various Ni, Au, PGE potential), and Swole Lake (pegmatite lithium) prospecting were also undertaken.
- Additional geophysical work (ORION 3D 'Direct Current Induced Polarization' (DCIP) and Magnetotellurics (MT) survey over a large portion of the Junior Lake lease area, pulse EM survey, ground MAG, and reinterpretation and integration with historic magnetic data).
- Reviews of regional exploration potential.
- Surveying of drill collars and claim lines.
- Additional claim staking.
- Aerial photography with digital terrain model (DTM).
- Petrographic Study - Seven samples from the winter and summer 2016 drilling campaigns on the BAM (East) Gold Deposit central zone were submitted to an independent petrographer for petrographic studies.
- Soil geochemical sampling.
- Numerous consultant reviews and studies have been completed, including:
    - Detailed Scanning Electron Microscope (SEM) and petrography studies of the BAM East, VW and B4-7 Deposits
    - Metallurgical test work was also undertaken
    - Initiation of environmental baseline study

A summary of the main exploration activities conducted by Landore from 2000 to 2019 is listed in Table 9-1.

Table 9-1 Summary of Exploration Activities by Landore on the Junior Lake Properties (updated from RPA, 2018)

Year/ Period	Prospects	Description of Main Activities	Highlights
2000	Regional	Data compilation, Landsat image interpretation, prospecting, mapping, and resampling of the 1969 core, and followed up an OGS airborne EM and MAG survey flown over the area.	
2001	Regional; B4-7	Ground magnetometer and MaxMin II EM surveys; Exploration drilling.	
2003	B4-7; BAM	Exploration drilling; Overburden stripping; Trenching; Channel Sampling; Resampling old core (B4-7 Alpha Zone and Beta Zone). Rehabilitation & extension of B4-7 Local Grid to BAM Zone.	BAM Au Zone discovery – from Geophysical anomaly & Trench mapping & sampling
2004	Regional; BAM area; VW	IP & Resist. Survey; AeroTEM EM & Magnet. Survey.	Several EM & IP anomalies; possible sulphide mineralization.
2005	Regional; VW; BAM; Lamaune	Exploration drilling; mapping and surface sampling.	VW discovery; grab sample (0.45% Ni)
2006	Regional; B4-7; VW; Lamaune	Exploration & resource drilling; Trenching & channel sampling; Metallurgical testing (B4-7 zone).	B4-7 Zone NI 43-101 report
2007	B4-7; VW	Exploration & resource drilling; Re-logging (VW); Aerial photo and topo surveying; Baseline environment studies; Metallurgical test work (VW); Tenements expanded; Petrography (VW); DDH collar re-surveys; Grid Line cutting.	Initial MRE for VW Ni (+/-Cu-PGE-Au) deposit
2008	Regional; VW; Lamaune	Exploration & resource drilling; Misc. activities.	B4-7 Ni-Cu-PGE-Au deposit initial MRE; including updated VW Ni (+/-Cu-PGE-Au) initial MRE
2009	Regional; B4-7; VW; Lamaune Fe, BAM	Exploration & resource drilling; Mapping and prospecting regional areas.	Update MRE for VW Ni (+/-Cu-PGE-Au) deposit
2010	Regional; Lamaune	Exploration & resource drilling; Misc. activities.	Update MRE for VW Ni (+/-Cu-PGE-Au) deposit
2011	Regional; B4-7	Exploration drilling; Misc. activities.	
2012	B4-7; Scorpion	Exploration drilling; Geophysics (DCIP and MT Survey); Misc. activities.	Potential for massive sulphide mineralization at Scorpion-B4-7 at depth
2013	Scorpion, VW	Exploration drilling; Geophysics MaxMin, VLF, MAG surveys.	
2014	Regional; B4-7; B4-7 East; VW	Exploration drilling; Geophysics (DCIP and MT Survey.	
2015	BAM (East); B4-7; VW West	Exploration drilling; Geophysics MaxMin, VLF, MAG surveys.	BAM East Au discovery from NW-ESE trending MaxMin (“MM)” anomalies.
2016	BAM (East)	Exploration & resource drilling; Trenching & channel sampling.	

Year/ Period	Prospects	Description of Main Activities	Highlights
2016	BAM (East)	Petrographic Study	2 samples reported significant native gold in both the (+) 100 µm and the (-) 100-µm size. No sulphides were associated with the precious metals
2017	BAM (East)	Exploration & resource drilling; geological mapping	Initial MRE for BAM East Au Deposit
2018-2019	BAM	Exploration & resource drilling	MRE updates for BAM Au Deposit
2019	BAM, Felix	Gridding and Soil Geochemistry. Geophysics - VLF and MaxMin surveys	Soil geochemistry sampling program completely over two prospect - Au ppb anomalous results correlated with previous geophysical anomalies; HIM Anomalies highlighting drill targets with the Felix Lake area west of BAM.

More detailed exploration activity conducted by Landore on the Junior Lake property since 2012 are provided in the following sections.

9.2. Geophysics

9.2.1. 2004 IP Survey – BAM Prospect

During September 2004, a geophysical survey program consisting of induced polarization and resistivity surveys was conducted over the northwest area of the BAM Project Area, on claim numbers 1217181 and 1187560 (Figure 9-2).

Ray Meikle and Associates of North Bay, Ontario (**RMA**) carried out the geophysical surveys with interpretation and reporting of results carried out by Johnston (2004). The IP surveys were performed in order to evaluate and map the presence of disseminated to massive sulphides with respect to their location, width, and concentrations.

The geophysical program consisted of induced polarization and resistivity surveying. This survey was carried out on a grid of previously cut lines oriented at 356° spaced every 100 m and chained and marked every 25 m. Detail in-fill lines at 50 m intervals were also surveyed between grid lines 900 E and 1300 E. The IP survey was performed using a dipole-dipole electrode configuration. The dipole 'a' spacing was 25 m and increasing separations of n=1, n=2, n=3, and n=4 times the dipole spacing was measured in order to map the response at depth. A total of approximately 11 km of IP data was measured and recorded by RMA. The IP equipment used for the survey consisted of a Scintrex TSQ-3 3000 W transmitter operating in the time domain powered by a 2-kW motor generator. The chargeability (measured in mV/V) between the transmitted current and the received voltage is recorded by a Scintrex IPR-12 IP receiver, which records the chargeability and the apparent resistivity for each set of dipoles. The chargeability measured in this survey is a direct measure of the polarization of the underlying lithology.

The results of the IP survey were plotted as plan maps at a scale of 1:5,000 showing the contours of the filtered apparent resistivity and chargeability with the interpretation and location of the IP

anomalies also presented (Figure 9-3 and Figure 9-4). In addition, contoured and posted pseudo-sections of the apparent resistivity and recorded total chargeability are presented at a scale of 1:2500 (Figure 9-5 and Figure 9-6).

Emphasis was placed on identifying IP anomalies, which were thought to originate within the bedrock as opposed to cultural sources, and those IP anomalies that may be associated with bedrock relief. Four anomaly trends were identified and labelled on the plan maps (IP-1 through IP-4), as well as several other isolated IP anomalies that are not readily grouped into trends.

The majority of the interpreted IP chargeability anomalies located within the grid area are very well defined and strong with observed chargeability up to 10 times background values. Anomaly IP-1 is located within or directly adjacent to a resistivity low bedrock response for its entire strike length, indicating possibly a linear conductive horizon (stratigraphic?) is giving rise to this response. IP anomalies IP-4 and the western portion of anomaly IP-3 (between lines 600 E and 1050 E) also are adjacent or within anomalously low resistivity areas. Anomaly IP-2 is associated with anomalously higher resistivity bedrock responses, possibly indicating disseminated mineralization associated within or proximal to a more felsic lithology or silica altered area of the bedrock.

Cube has reviewed the data from the 2004 report in order to correlate the IP anomalies with more recent drilling information and the 2018 geological and mineralization interpretations for the December 2019 Mineral Resource estimation work. The 3DM draped images of the IP survey contours, georeferenced with topography, show a correlation between chargeability high trends and gold mineralization related with footwall sulphide zones within the BAM sequence, and the trends associated with resistivity lows.

As noted in the 2004 report, the main resistivity highs appear to map the bedrock ridges and sub-cropping bedrock areas. The IP anomaly contour breaks may also indicate a potential northeast-southwest trending fault structure. There is potential to extend the known mineralization further west with confidence based on the resistivity low trend.

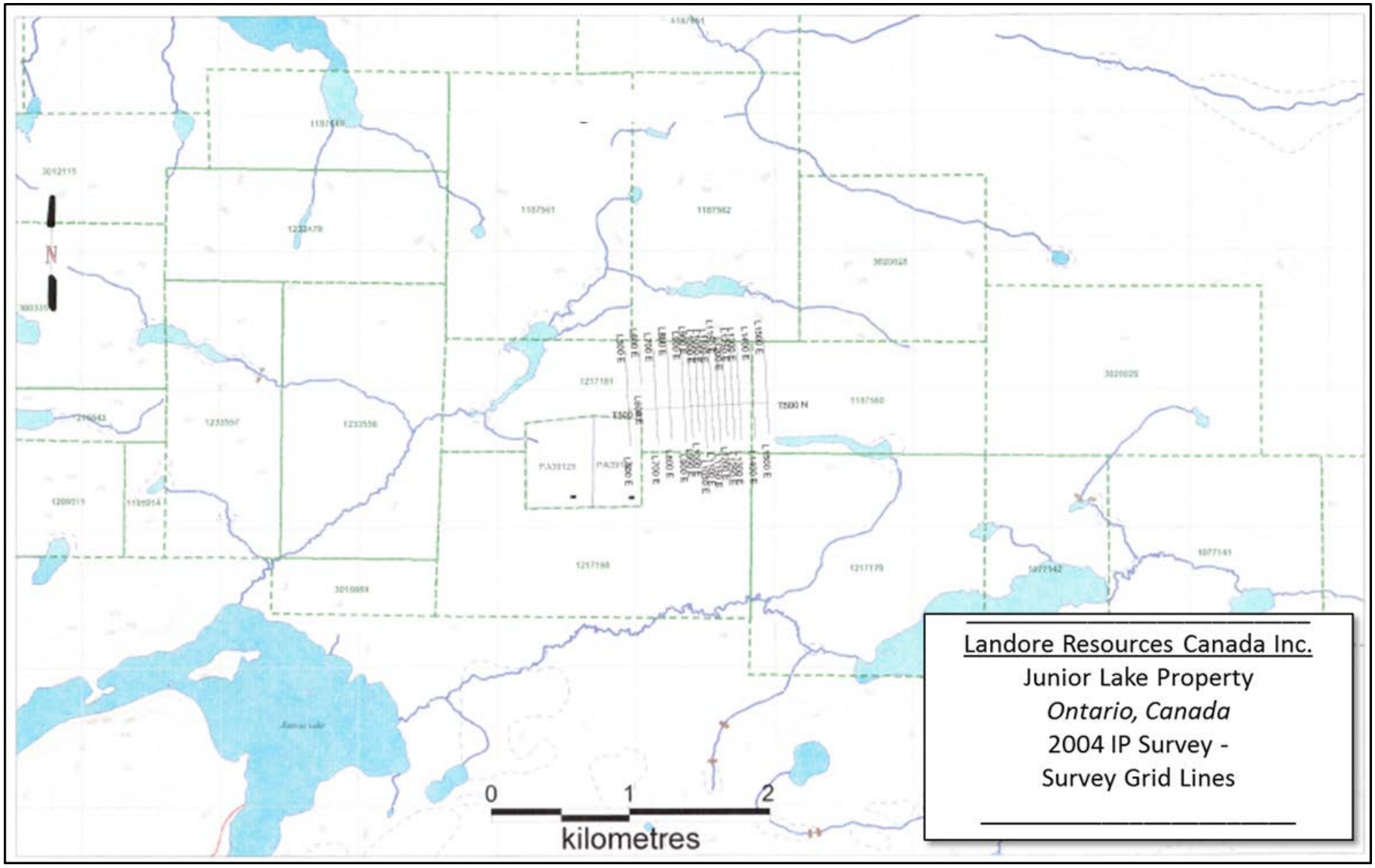


Figure 9-2: 2004 IP Survey Location of Grid Lines (Johnston, 2004)

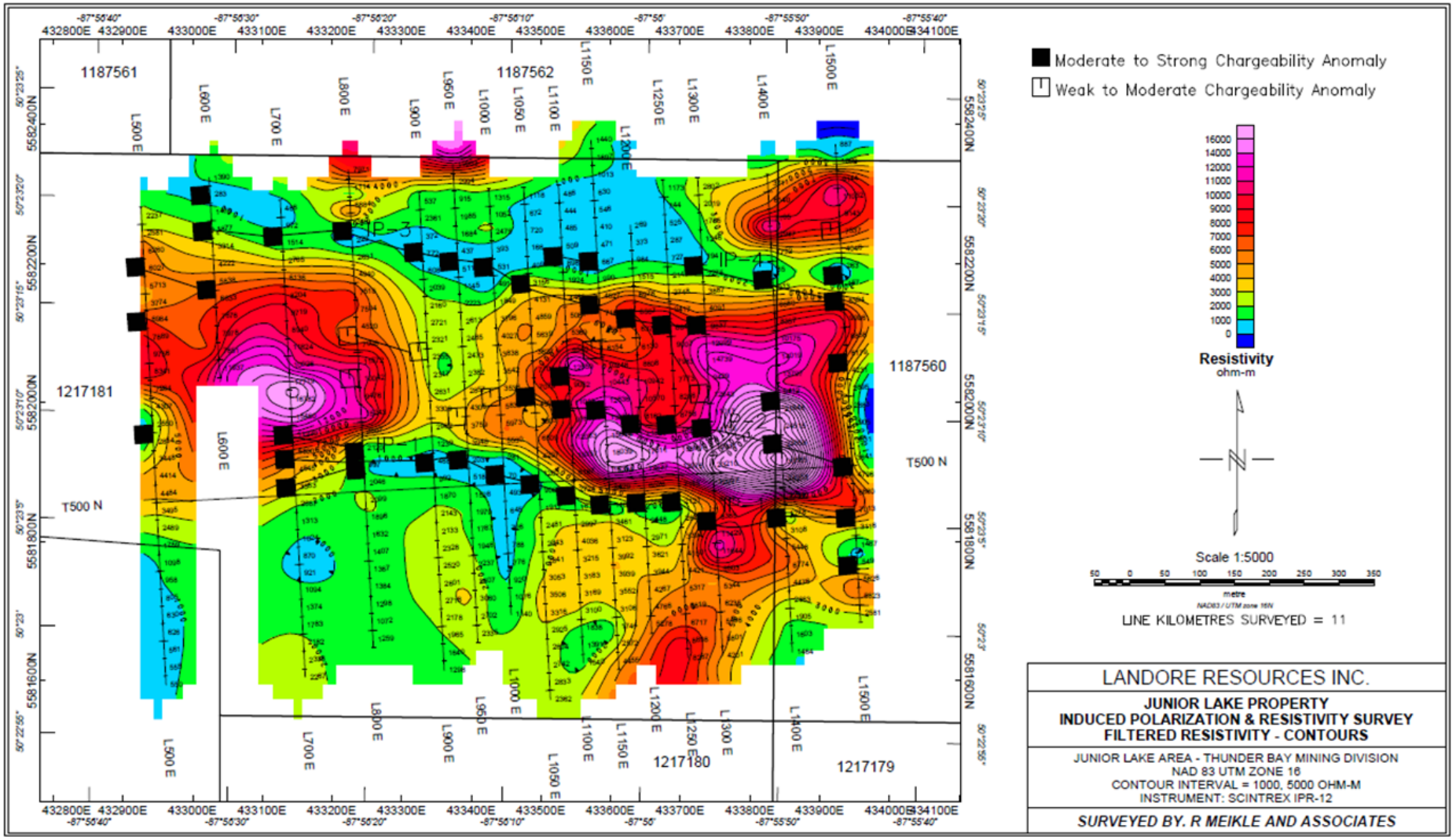


Figure 9-3: 2004 IP Survey – Filtered Resistivity Contour Plan (Johnston, 2004)

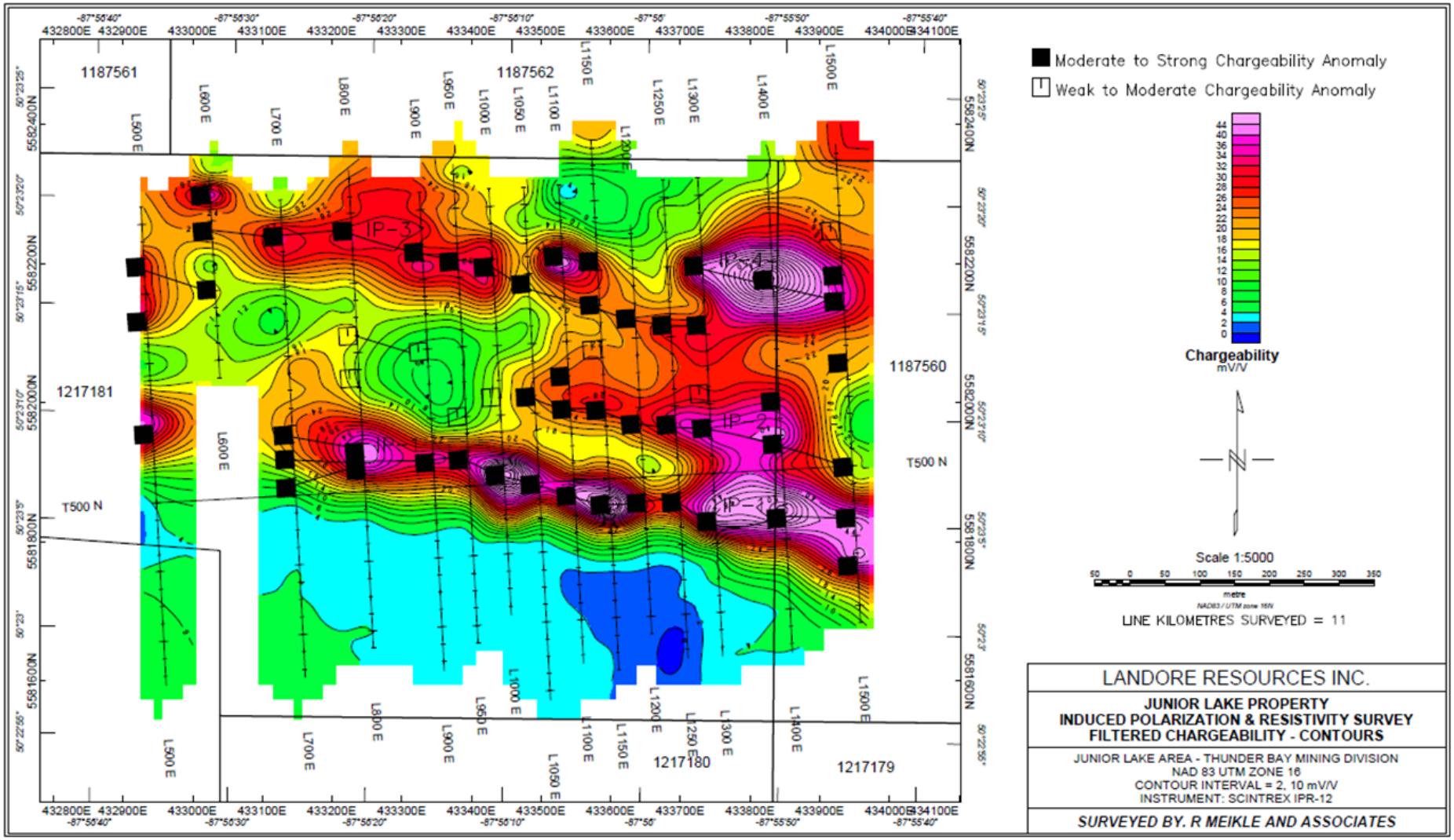


Figure 9-4: 2004 IP Survey - Filtered Chargeability Contour Plan (Johnston, 2004)

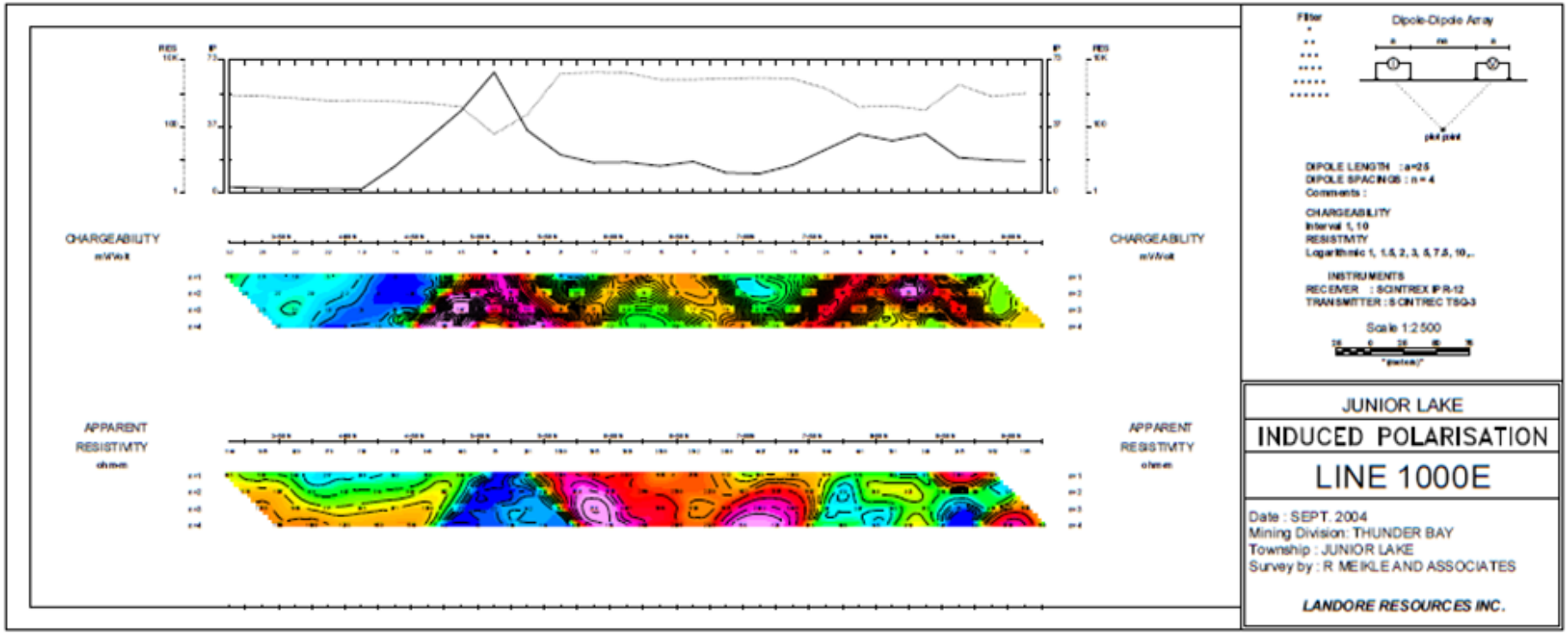


Figure 9-5: 2004 IP Survey – Cross Section at Line 1000 E: Chargeability & Resistivity Contours (Johnston, 2004)

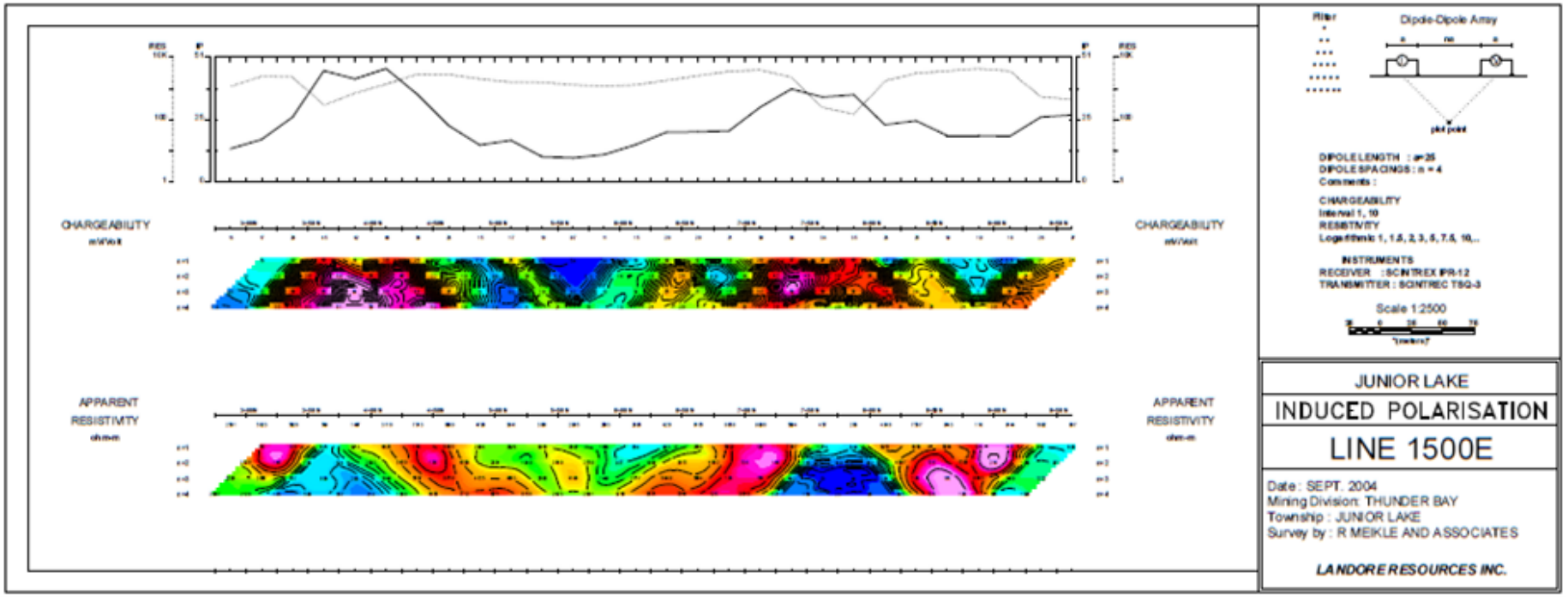


Figure 9-6: 2004 IP Survey – Cross Section at Line 1500 E: Chargeability & Resistivity Contours (Johnston, 2004)

9.2.2. 2012 to 2014 Geophysical Surveys (Tuomi, 2018)

In October 2012, a deep penetrating direct current induced polarization (**DCIP**) and magnetotelluric (**MT**) survey was performed over the Scorpion Zone of the Junior Lake property. This survey encompassed the western 1 km portion of the Scorpion Zone, from line 1300 W eastwards to line 300 E in the B4-7 Deposit. This survey acquired three sets of data in multi-directions: DC, IP, and MT, and is a true three-dimensional survey. Sophisticated digital signal processing was utilized to obtain high resolution imaging at depths up to 1,000 m below surface.

This ground geophysical survey utilized DC resistivity to identify prospective nickel mineralization and used IP chargeability to investigate potential copper and PGE targets. Results of the DC resistivity section of the survey are highly promising indicating the potential extension at depth of the B4-7 mineralization to approximately line 800W. IP chargeability and MT results further support the potential of the Scorpion Zone area for B4-7 style massive sulphide mineralization. Subsequent drilling in winter 2013 has tested the DC resistivity and IP chargeability results at various localities along the western portion of the Scorpion zone. Drilling in the Exploration Target area between lines 175 W and 300 W successfully intersected B4-7 massive sulphide mineralization as well as Alpha zone disseminated sulphide mineralization.

In December 2013, a program of geophysical surveying that included MaxMin, VLF, and MAG surveys was carried out in the VW Deposit area by Géosig Inc. of Val d'Or, Québec. The VLF and MAG surveys covered 35.71 km of grid lines, including 3.1 km of tie lines. The MaxMin survey covered 35 km of grid lines and was run with a 200 m cable (Simoneau, 2013). Results from these surveys identified multiple near-surface conductor anomalies along the VW Nickel deposit trend with similar signatures to the VW deposit conductive anomaly itself.

A second Orion 3D DC, IP, and MT survey was completed on the Junior Lake property in January to February 2014. This survey tied onto the eastern limit of the Phase I survey carried out in 2012 and covered the eastern projection of the B4-7 stratigraphy along with the VW Deposit area. The surveys covered an area of 3.5 km by 2.2 km and were successful in detecting low-resistivity (i.e., conductive) features that represent good exploration targets.

9.2.3. 2015 Geophysical Surveys (Tuomi, 2018)

In January 2015, a program of geophysical surveying that included MaxMin, VLF, and MAG surveys was carried out along the eastern projection of the B4-7 Deposit stratigraphy by Géosig Inc. of Val d'Or, Québec. The VLF and MAG surveys covered 45.51 km of grid lines, including 0.8 km of tie lines, from 100 W to 4000 E. The MaxMin survey covered 44.7 km of grid lines and was run with a 200 m cable.

Magnetometric Survey

The measurements for the magnetic total field were taken in a mobile mag mode with two seconds sampling readings and regular label readings taken each 12.5 meters.

A GSM-19WMV was used on the field with a GSM-19W base station with a 15 seconds registering readings period. The magnetic readings have been automatically corrected for diurnal variations

when the data was dumped with a datum value of 57,000 gammas. The magnetometer system measures the value of the total magnetic field with a precision of ±0.1 gammas.

The magnetic field is very active in the property and ranges from 52,947 gammas to 64,469 gammas, confirming the presence of ultramafic intrusions or Iron Formations. In the area of the northern grid, most of the linear magnetic anomalies could be made by weak Iron Formations. Some of the MaxMin anomalies coincide with magnetic anomalies and are believed to carry pyrrhotite like the main massive sulphide zone. Some other places, some of the MaxMin anomalies appear when the magnetic anomalies disappear, which could mean that the sulphides are coming from the transformation of the magnetite into sulphides.

Electromagnetic VLF Survey

The VLF-meter uses the signal from the VLF-transmitting stations operating for communications with submarines. The antenna current of these VLF-transmitting stations is vertical, creating a concentric horizontal magnetic field around them. When these magnetic fields meet conductive bodies in the ground, they create secondary fields that radiate from these bodies. The VLF-meter is simply a sensitive receiver covering the frequency band of the VLF-transmitting stations. It measures the vertical field components of these secondary fields.

A GSM-19WMV was used on the field. The readings were taken at 12.5 meters spacing and some details at 6.25 m spacing. The VLF survey was read with two main VLF-transmitting stations Cutler (NAA, 24.0 kHz) and Jim Creek-Seattle (NLK, 24.8 kHz). The In-phase and quadrature of the vertical magnetic field were measured as a percentage of horizontal primary field with a resolution of 0.1%. The VLF and Mag were simultaneously read with the same instrument.

The VLF survey detected 12 new anomalies (VLF-30 to VLF-41). Five are anomalies on their own (VLF-30, VLF-33, VLF-35, VLF-36, VLF-41). Six anomalies correspond to MaxMin anomalies and one is an extension of a known anomaly (VLF-15) identified in 2013 and extended north of Ladle Flats. It seems to follow the geological limit between the ultramafic plain (south) and a mafic, hilly area to the north.

Electromagnetic VLF Survey

A MaxMin II-5 portable unit was used in the maximum coupled mode (horizontal loop) with a 200 m reference cable. The parameters (in phase and out of phase components of the secondary field) were read and recorded for three frequencies: 444, 1,777 and 3,555 Hz. Readings were taken every 25 m on all the lines

The MaxMin survey with a 200 m cable was conducted to confirm the presence of deep bedrock conductors. Seven MaxMin anomalies were described. The seven (7) anomalies are located between 50 m and less than 10 m deep. Three of these anomalies coincide with slight magnetic anomalies (MM-17, MM-18 and MM-20), one anomaly is located at the northern edge of a magnetic anomaly (MM-7) and two of them have no magnetic feature. Results from the 2015 survey identified further drill targets north of the pre-existing geophysical surveys from 2001 and 2013, an area in which the B4-7 polymetallic trend and the BAM East gold trend intersect. The BAM (East) drill targets were subsequently drilled tested from 2016 to 2018. The MaxMin and VLF anomaly trends along the

Junior Lake grid are illustrated in Figure 9-7, with significant MaxMin anomalies for the BAM mineralisation trend highlighted.

9.2.4. 2019 Geophysical Surveys (Simoneau, 2019)

During the summer of 2019, ground geophysics surveys were completed west of the BAM Project area.

Electromagnetic (HLEM & VLF) and Magnetic (Mag) ground surveys were conducted in June 2019, covering the Felix Lake Grid. The EM-VLF and Mag surveys covered 15.85 km of line. The HLEM-MaxMin survey covered 14.2 km of lines. The MaxMin survey was run with a 100 m cable because of the rocky hills and shallow overburden, even in swamps, in order to suggest drilling targets.

The Felix Lake Grid was measured 5.0 km long and oriented west-northwest including the base line. The Mag-VLF surveys covered all the cut lines and two uncut lines (Line 1700W and Line 1300W) for a total of 15.85 km. The baseline was partly cut. The MaxMin survey was run over the cut lines for a total of 14.2 km. The main lines were spaced every 500 m to 600 m between Line 1000W and Line 6000W with some infill lines 200 m to 300 m apart.

Magnetometric Survey – Method and Results

The measurements for the magnetic total field were taken in a mobile mag mode with two (2) seconds sampling readings and regular label readings taken each 12.5 m. A GSM-19WMV was used on the field with a GSM-19W base station with a 15-seconds registering readings period. The magnetic readings have been automatically corrected for diurnal variations when the data was dumped with a datum value of 56 650 gammas. The magnetometer system measures the value of the total magnetic field with a precision of ± 0.1 gammas.

The magnetic field is very active in the property and ranges from 47 619 gammas to 70 293 gammas, confirming the presence of ultramafic intrusions or Iron Formations. In the area of the western grid, most of the linear magnetic anomalies could be made by weak Iron Formations. Some of the MaxMin anomalies coincide with magnetic anomalies and are believed to carry pyrrhotite like the main massive sulphide zone. For other areas, some of the MaxMin anomalies appear when the magnetic anomalies disappear which could mean that the sulphides are coming from the transformation of the magnetite into sulphides.

EM VLF Survey– Method and Results

A GSM-19WMV was used in the field. The readings were taken at 12.5 m spacing. The VLF survey was read with two main VLF-transmitting stations - Cutler (NAA, 24.0 kHz) and Jim Creek-Seattle (NLK, 24.8 kHz). The In-phase and quadrature of the vertical magnetic field were measured as a percentage of the horizontal primary field with a resolution of 0.l%. VLF and Mag were simultaneously read with the same instrument.

The VLF survey detected fourteen (14) new anomalies (VLF-42 to VLF-55). Five (5) are anomalies by their own (VLF-45 to VLF-47, VLF-51 and VLF-54). All other VLF anomalies correspond at least partially to MaxMin anomalies. The anomalous VLF corroboration from the two independent VLF

stations frequencies is generally good except for the eastern parts of VLF-52 on Line 1000W which is much more evident on the Cutler Station.

Interpretation of Results

The results of the geophysical survey on both the Felix Lake Grid and Junior Lake Grid areas indicated a number of significant anomalies. Eight (8) MaxMin anomalies were identified and are located between 40 m and less than 5 m depths. Two of these anomalies coincide at least partly with high magnetic anomalies (MM-21 and MM-22). Two (2) anomalies coincide with weak magnetic anomalies (MM-24 and MM-27), one anomaly (MM-28) with low magnetism, and four anomalies have variable magnetic features. Several of the anomalies have been proposed for drilling. A summary of the results from the HIM anomalies with recommended drill targets by Simoneau (2019) is provided in Table 9-2.

Table 9-2 Listing of HIM Anomaly Drilling Targets Recommended from Simoneau, 2019

Anomaly	Line	Station	Depth (m)	Width (m)	Length (m)	Association	Comments
MM - 21	5000w	475s	<5	50	>4600	High Magnetic anomaly; VLF	Massive
MM - 21	1500w	150s	<5	12	>4600	High Magnetic anomaly; VLF	Massive
MM - 22	4000w	325s	20	12	>4600	High Magnetic anomaly VLF	Massive
MM - 22	1500w	87s	20	<5	>4600	High Magnetic anomaly; VLF	Massive
MM - 23	4500w	62n	17	12	3200	VLF	Massive
MM - 23	3300w	25n	20	12	3200	Weak Mag Anomaly; VLF	Massive
MM - 23	1500w	387n	17	12	3200	Weak Mag Anomaly; VLF	Massive
MM - 24	4500w	162n	40	<5	200	Weakly Magnetic; VLF	Semi-Massive
MM - 24	3300w	62n	17	<5	800	High Magnetic anomaly; VLF	Massive
MM - 25	3000w	825n	25	<5	>200	Slightly Magnetic; VLF	Semi-Massive
MM - 26	4500w	325n	35	12	200	Slightly Magnetic; VLF	Semi-Massive
MM - 26	2800w	400n	27	12	200	Weakly Magnetic; VLF	Semi-Massive
MM - 27	1000w	737n	20	32	>500	Weakly Magnetic; VLF, open East	Semi-Massive
MM - 28	4500w	550n	13	<5	>1600	Weakly Magnetic; VLF	Massive
MM - 28	2000w	575n	15	20	1800	VLF; Low Mag	Massive

The MaxMin and VLF anomaly trends interpreted from the 2019 results along the Felix Lake grid are illustrated in Figure 9-8.

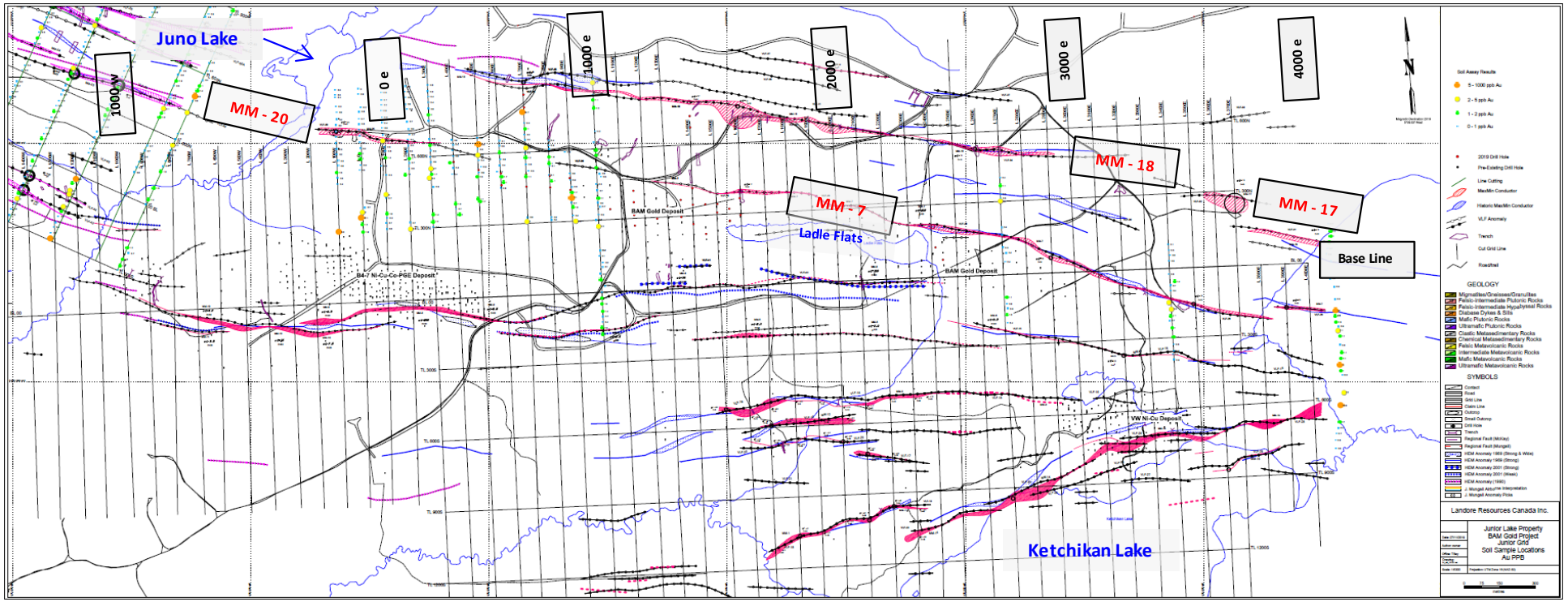


Figure 9-7: 2015 Geophysical Surveys for the Junior Lake Grid - Plan View of MaxMin and VLF Anomalies (Landore Image, 2018)

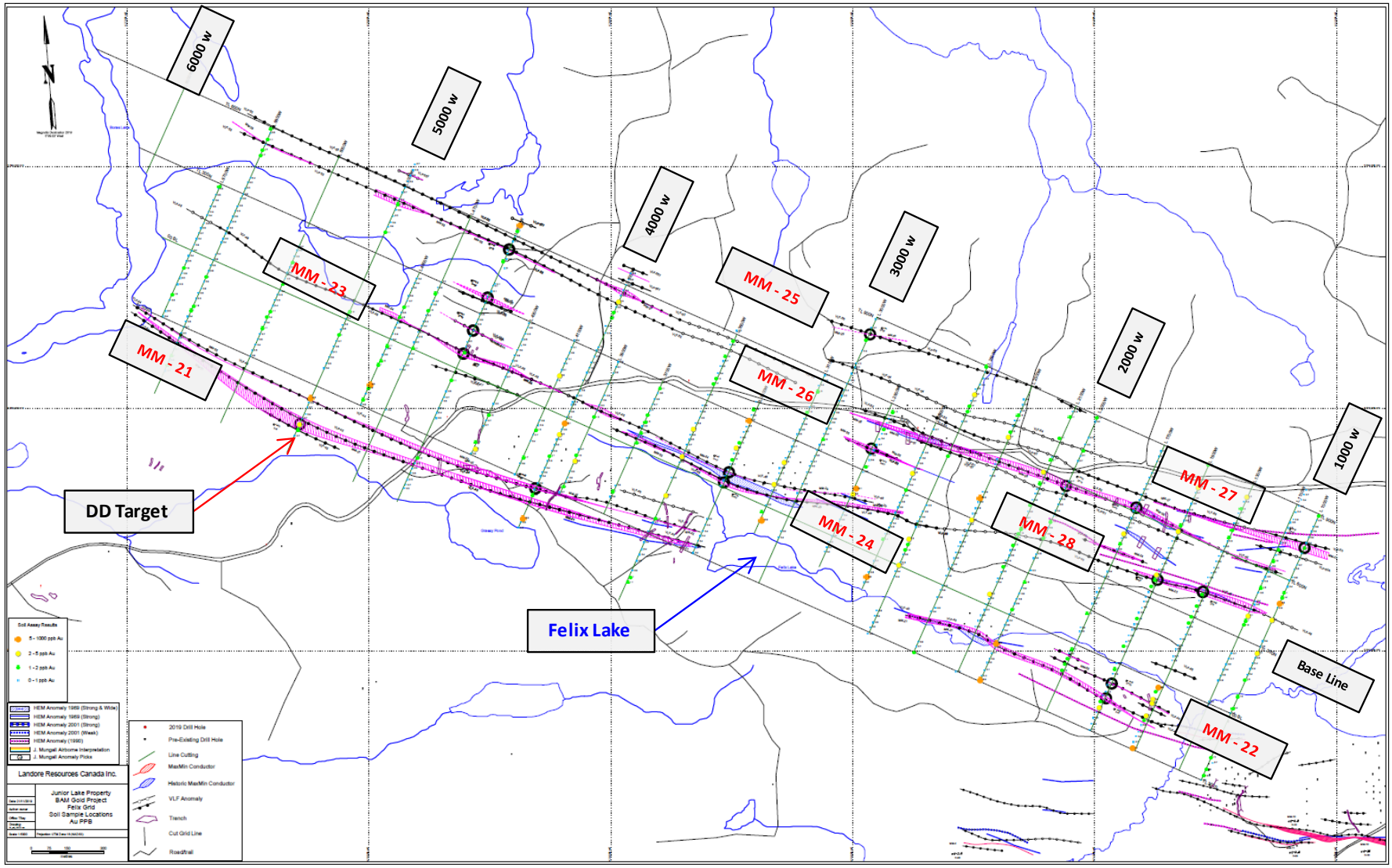


Figure 9-8: 2019 Geophysical Surveys for the Felix Lake Grid - Plan View of MaxMin and VLF Anomalies (Landore Image, 2019)

9.3. Trenching

9.3.1. 2003 BAM Zone Trenching

MacTavish (2003) noted that the surface exposure consisted of several, discrete, moderately to strongly silicified, weakly biotitic, variably carbonatized and mineralized, steeply dipping, anastomosing shear zones occurring near the northern contact of a well-foliated gabbro to meta-gabbro body.

In 2003, six BAM Zone NQ diamond core holes (0403-01 to 06) totaling 438 m, tested the zone over a 100 m strike length, to a vertical depth of 35 m, in order to better determine its strike, dip, mineralization, and associated alteration. The drill hole logging and sampling correlated well with the trenching results. The BAM Zone holes intersected several moderately to strongly sheared, altered, and mineralized zones, similar to the BAM Zone mineralization observed in Trench T15. Alteration style and intensity was variable and consisted of moderate to strong biotitization, weak to strong carbonatization, and localized moderate to strong silicification. Mineralization consisted of 1% to 8% finely disseminated pyrite and fine needles of arsenopyrite. Also, several of the holes intersected similarly sheared, altered, and mineralized intermediate dykes, of highly variable thicknesses, that occurred in close proximity to the BAM Zone intercepts.

Trenching and mapping carried out since 2003 in the BAM Gold Project area is illustrated in plan view in Figure 9-9.

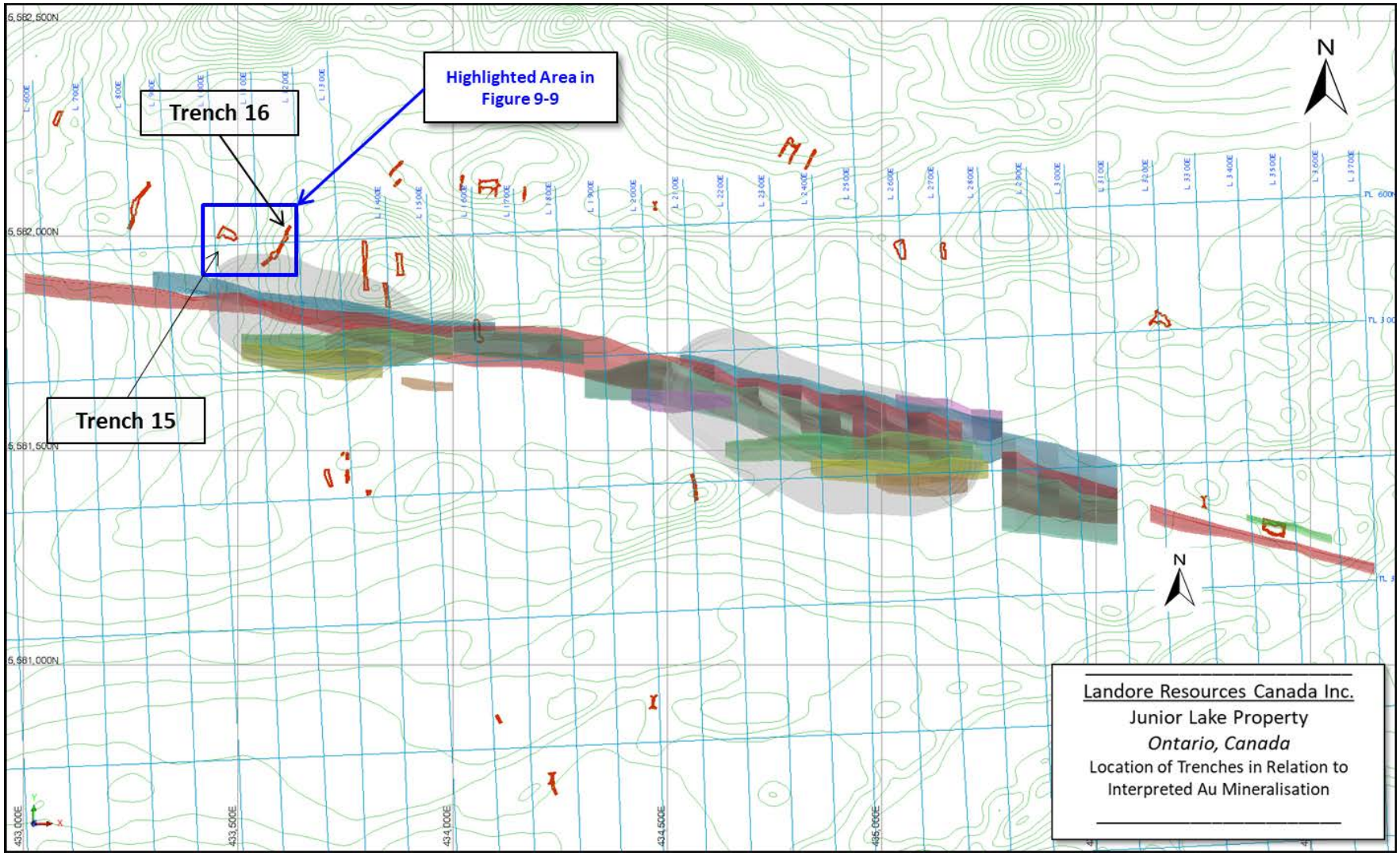


Figure 9-9: Plan View of All Trench Locations in the BAM Project Area (from Landore, February 2019)

Figure 9-10 shows mapping of two trenches by MacTavish (2003) - Trench T15 and Trench T16.

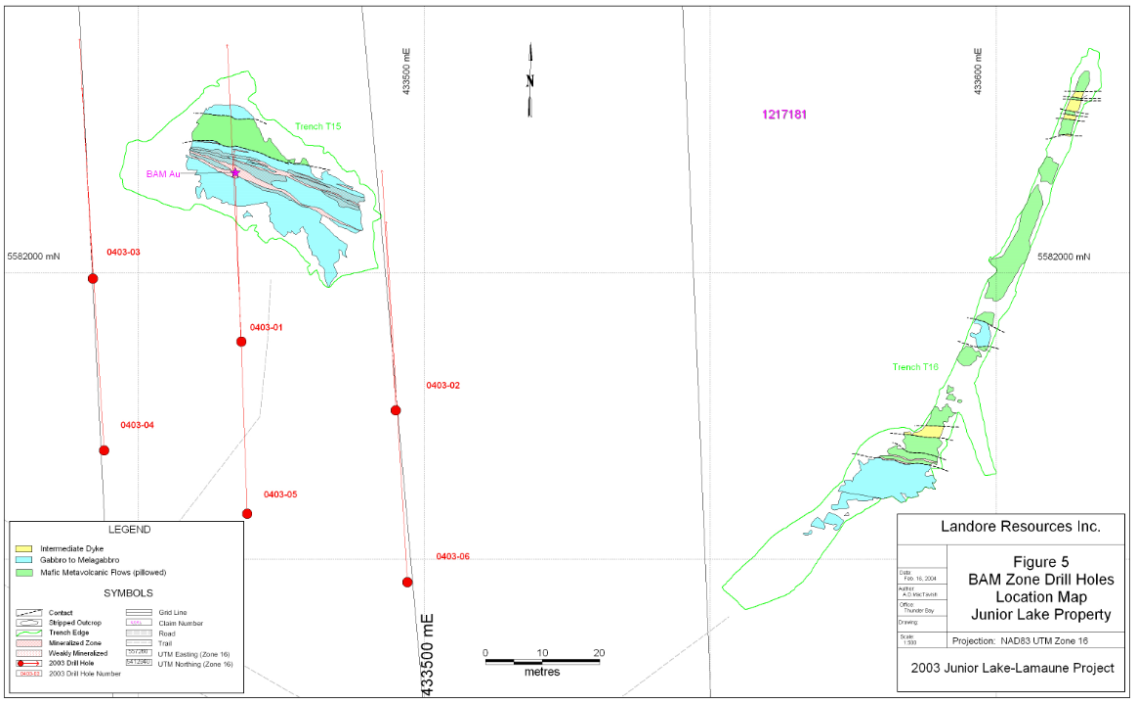


Figure 9-10: 2015 Trench Mapping for Trench 15 and 16 (MacTavish, 2003)

9.3.2. 2016 Trenching

A trenching program was carried out during summer 2016 to test for the potential for further gold mineralization both along the 2.7 km long, east-southeast to west-northwest trending MaxMin geophysical anomaly (MM-7) upon which the BAM Gold Deposit resides, and along a parallel geophysical anomaly (MM-18) located approximately 200 m to the north of MM-7. An excavator contracted by Landore cleared three trenches (0416-01T, 0416-02T and 0416-03T) on local grid lines 1600E (MM-7 target), 2600E (MM-18 target), and 2700E (MM-18 target). In addition, eight existing trenches in the area were re-examined by Landore geologists.

Channel samples from one surface trench were used to prepare the lithologic interpretations and preliminary outlines of the extent of the gold mineralization

Samples were also taken from trenches excavated on the property. Upon completion of mapping the exposed lithological units and mineralization, the trench areas were marked up for channel sampling in typically one metre increments. Channels were cut using a diamond saw, with water cooling for the blade supplied by another small pump. Channels of approximately 6 cm to 8 cm wide and 5 cm deep were cut. Each sample site was tagged with aluminium with the appropriate sample number. As with core samples described above, all channel sample bags were sealed with plastic, sequentially numbered security tags and eight to ten of these sample bags were placed in larger, labelled rice bags, also sealed with a numbered security tag. All security tag numbers were recorded prior to shipping.

Sampling of trench 0416-01T at local grid line 1600 E (located 700 m to the west and along trend to the central zone) intersected the same lithology with gold mineralization up to 0.66 g/t Au. Drill hole

0416-545, drilled approximately 60 m down dip to Trench 0416-01T intersected the same lithologic sequence along with gold mineralization of up to 1.49 g/t Au. Re-examination of existing trench 0410-59T, located on local grid line 3450 E (approximately 750 m to the east of the BAM (East) Gold Deposit central zone) identified similar lithologies as the BAM (East) Gold Deposit itself.

9.4. Soil Geochemistry Sampling (Johnson, 2019)

A soil geochemistry sampling program was completed over the BAM and Felix Prospects during the summer field season in 2019. The following information is based on a review of sampling information provided by Landore in December 2019 and reported by Johnson (2019).

9.4.1. Introduction

A large grid was cut on the Junior Lake property during the summer of 2019 and used for multiple exploration surveys (Felix Lake Grid). The grid roughly spanned 5 km x 1.2 km and was used as the basis for the soil sampling program. A limited number of samples were also collected over the already established Junior Lake grid.

The soil sampling program collected a total of 1141 samples, (1,036 primary samples plus 115 reference samples). The samples were collected from the B horizon at a nominal distance of 25 m along the grid lines using a hand-held Dutch auger.

The area was extensively tree-logged ~20 years ago. As a result, areas with obviously disturbed soil were not sampled. In addition, areas with thick organics or A horizons >2 m, the limit of the soil auger, were not sampled.

In order to help establish a geochemical signature for anomalous gold values, three lines were conducted over areas of known mineralization of the BAM Gold Deposit. From these test lines a geochemical profile of the BAM deposit was determined.

Table 9-3 summaries the main parameters related to sampling, sample spacing, and assaying methods adopted for the 2019 soil sampling program.

Table 9-3 Summary of Soil Geochemistry Conducted by Landore on the Junior Lake Properties (from Landore data, December 2019)

Description	BAM Prospects	Felix Prospect
# of samples	253	783
Sample Lines	L100 W to L1000 E	L1000 W to L5700 W
	+ L2700E, + L3400 E, L4100 E	
Sample Spacing (nominal)	100 m x 25 m	200 m x 25 m
Depth Extent Average (cm)	44.15 cm	33.5 cm
Assay Range (Au ppb)	0.05 to 44.0	0. to 40.6
ME Suite	53 Elements	53 Elements
Assay Method (ALS)	AuME_ST43	AuME_ST43

9.4.2. Soil Sampling Method

Soil sampling was conducted on two established grids. The Felix Lake grid consists of northeast-southwest orientated lines spaced 100 m to 300 m apart and was sampled in its entirety. The Junior Lake grid consists of north-south orientated lines spaced 100 m apart and was selectively sampled. Samples were collected every 25 m using a 4 cm Dutch auger and placed in clean, brown paper bags specifically designed for this type of material. Samples had their depth of collection noted as well as a general description of the sample itself. In areas of poor soil development composite samples were taken using multiple holes. Areas where a sample was not able to be taken due to either deep overburden or disturbed soil had the reason noted. Once collected, samples were dried in camp before shipment to the laboratory.

Duplicate samples were taken (4% of samples) and silica blanks were inserted (4% of samples). Replicate samples were taken on five lines. The replicate samples consisted of four samples taken on an approximately 1 m x 1 m grid at the end of a survey line.

A total of 1141 samples were submitted to ALS Laboratory of Vancouver for analysis. At ALS the samples were analyzed for low level gold in soils and sediments. The analytical package used was 'Prep-41, Au ME-ST 43' which involves drying at <60˚C and sieving to -180 µ, followed by aqua regia digestion and ICP-MS finish for analysis of gold and 52 other elements. The samples submitted consisted of 1036 individual soils, 45 duplicate soils, 15 replicate samples and 45 silica blanks.

To help identify the geochemical signature of the gold mineralization three control lines were conducted in areas of known mineralization, as proven by past drilling.

QAQC

The duplicate samples taken correspond well. The majority of elements have 70-90% within +/-20% of the duplicate values, that increases to >90% of the values when the range is expanded to +/-30%. The outliers may in part be attributed to the sample sites. Numerous locations had thin B horizons which resulted in composite samples being taken. It is likely this contributed to the variation in duplicates.

The replicate samples were taken at five separate locations and consist of four samples on an approximate 1 m x 1 m square. In three of the replicate sets taken all samples were within 20%. For two of the replicate sets, one of the four samples was >20%. This was considered within acceptable limits and the data set was used in its entirety.

9.4.3. Soil Sampling Results by Johnson (2019)

Anomalous Samples

The samples were screened based on their description to remove anomalous samples. . Samples described as organic rich, black or grey in colour or clay were considered suspect and may not be representative of the B horizon. The remaining samples were used for calculating the background value of each element. The background value is the average of the lower 25% quartile, listed in Table 9-4.

Table 9-4 Selected Elements Calculated Background Values (from Johnson, 2019)

Element	Au (ppb)	Ag (ppm)	As (ppm)	Cu (ppm)	Ni (ppm)
Background Value	0.299	0.013	1.19	4.35	6.43

Response Ratios

The response ratios (**RR**) were calculated for all elements by taking the background value and dividing it into the analytical value. This was also done for the suspect samples. RRs are rounded and values of >=5 considered anomalous.

A correlation matrix was also generated for the samples taken. Gold showed only a very weak correlation with cobalt, chromium, magnesium and sodium. As a result, it was determined that use of the correlation matrix was not helpful at this time.

An examination of the gold RR showed that there were 147 samples with anomalous values (RR>=5). Of these samples, 25 had values of 10-30, while 15 had RR >30. In order to correlate anomalies across lines, the regional fabric of the area was used. Within the area there is a general fabric that strikes 105-115°, as highlighted by the recently completed geophysics (VLF, MaxMin). The geophysics highlights formation sulphide zones within the area and is used to identify both marker horizons and to illustrate the fabric within an area. It is important to note that there are cross cutting structures within the area. These structures may play an important role in the gold mineralization, acting both as pathways and aiding in concentrating the auriferous fluids. As such, they will require additional investigation and follow-up in the future.

Control Lines

In order to help establish a signature and trend within the soil samples for the gold mineralization of the BAM deposit, three control lines (L1000E, L2700E and L3400E) through the defined BAM Gold Deposit was conducted. Examination of the control lines yielded mixed results with the combination of Au +As +Cu being considered most useful.

L1000E covers the historic BAM occurrence (located on the western limit of the defined BAM Gold deposit), values up to 11 g/t Au at surface, as well as the BAM Gold zone defined by drilling. The soil geochemistry response near the surface occurrence shows a dramatic arsenic spike (RR 11-54) as well as copper (RR 7-11) and anomalous gold (RR 5-6) and a broader silver (RR 4-5) response.

Additional Au and Au +As +Cu anomalies are located along the southern portion of the sampled line. Sparse previous drilling has been conducted for nickel in this area in the past.

L2700E covers the drilled portion of the BAM deposit with no surface exposure. Due to the disturbed nature of the soil, the area overlaying the projected gold zone could not be sampled. Samples analyzed from near the projection contained no anomalous values.

L3400E is located 100 m to the west of an established drill line. The projected gold zone correlates with anomalous gold (RR 8, 10), silver (RR 4, 5) and copper (RR 3, 5) anomalies. A 100 m silver

anomaly is located 100 m south of the projected BAM zone but does not have any other correlating signatures.

Significant Anomalies

To determine significant anomalies, several elements with RR>=5 were looked at (Au, Ag, As, Cu and Au +As +Cu). Locations with coincident Au +As +Cu, and to a lesser extent Ag, anomalies were considered to have the same characteristics as the BAM occurrence and examined in detail. Thirty-one sites were found with coincident Au +As +Cu anomalies and are listed in Table 9-5 and Table 9-6.

Table 9-5 Samples Containing Anomalous Au +As +Cu at Specific Locations - Felix Lake Grid (from Johnson, 2019)

Sample	Line	Station	Response Ratio (RR)				Notes
			Au	As	Cu	Ag	
A0058622	L5700W	S200	5	11	77	8	Location has anomalous Au in sample 100m along strike to the SE, limited strike length.
A0058707	L5000W	S360	29	12	23	10	Location along southern margin of a swamp also along edge of interpreted iron formation may represent edge of anomaly. May have additional strike length
A0058817	L4300W	S275	7	11	12	3	Anomalous Au+As values in sample 25m north. Interpreted to be part of a continuous trend <=800m in length.
A0058908	L3700W	N75	6	125	15	17	Located ~50m N of the projected metasediments of the BAM Gold deposit, within a larger Cu anomaly that extends 25m south and 125m north on L3500W. Parallel Au trend 25m north.
A0058951	L3500W	N50	7	5	28	6	
A0059060	L2800W	N200	13	6	10	4	Additional anomalous Au+As values 25m N, swamp located ~30m prevented further sampling to north. Part of 900m Au trend extending to W. Alternative trend can connect to samples A0058909 & A0058951
A0059103	L2500W	N775	8	286	41	10	Additional anomalous results 25m N (Cu), 25m S (As+Cu), 50m S (Au) and along strike 200m SE of Au and Cu.
A0059277	L1700W	N500	11	6	9	1	Located ~150m N of the interpreted BAM Gold metasedimentary sequence. Cu anomaly continues 75m S and As anomaly continues 25m S, additional Cu anomalies 200m SE along strike.
A0059316	L1500W	N400	12	11	11	2	Located ~50m N of interpreted BAM Gold metasedimentary sequence. Cu anomalies continue 25m S and 100m N. Interpreted to be part of ~1.3km long trend parallel to BAM sequence.
A0058531	L1000W	N25	5	10	13	4	Samples within swampy region with sparse

Sample	Line	Station	Response Ratio (RR)				Notes
			Au	As	Cu	Ag	
A0058530	L1000W	N75	5	7	17	4	samples. Nearest samples contain anomalous Cu (150N), As (175N) and Cu+As (50N). Due to sparse samples correlation is difficult, possible extension of sample trend A0059434.
A0059437	L100W	N550	5	8	9	1	Sample within a large N-S-E Cu anomaly. Location is ~150m south of the BAM Gold metasedimentary package.
A0059434	L100W	N300	21	29	7	2	Location north of historic drilling in area of disturbed soils. Located 100m W of A059413.

Table 9-6 Samples Containing Anomalous Au +As +Cu at Specific Locations - Junior Lake Grid (from Johnson, 2019)

Sample	Line	Station	Response Ratio				Notes
			Au	As	Cu	Ag	
A0059416	L000	N375	7	14	9	2	Locations are part of a large zone of anomalous Cu, As and Au values surrounding an E-W swampy area south of the BAM Gold trend. Samples part of 'Y' shaped trend west of BAM Gold drilling. May represent Au bearing splays from main structure.
A0059413	L000	N300	6	12	8	3	
A0059397	L100E	N450	10	18	11	1	
A0059395	L100E	N375	5	16	28	6	
A0059375	L200E	N525	5	9	7	1	
A0059356	L300E	N510	12	67	45	3	
A0059358	L300E	N550	16	7	6	4	
A0059357	L300E	N525	6	12	8	2	
A0059353	L300E	N325	5	53	9	4	
A0059354	L300E	N350	5	9	7	2	
A0059460	L400E	N400	6	24	12	3	
A0059466	L500E	N500	5	20	7	1	
A0059471	L500E	N600	9	140	96	7	Locations above and north of the BAM Gold metasedimentary sequence. Connects to anomalous As and Au to the E and to the BAM occurrence.
A0059473	L500E	N650	53	25	7	2	
A0059606	L4100E	S200	147	44	80	40	Locations are within 200m swampy area. Additional anomalous Au+Cu located at the southern swamp boundary.
A0059611	L4100E	S300	7	10	10	5	
A0059621	L4100E	S600	70	6	5	4	Samples are within the middle of a ~300m wide series of Cu, As+Cu and Au+As anomalous values.
A0059620	L4100E	S550	7	8	18	5	

9.4.4. Interpretation of Results

Gold values have been plotted on the two grids by Cube, as shown in Figure 9-11. It is possible to link together gold anomaly trends up to several hundred metres strike length. The soil data appears to show that the main BAM Gold trend is extended 1.5 km to the west. There are also additional gold anomalies continuing for 1.5km which may yet be proven to be connected after further soil sampling and drilling. Multiple additional areas of interest have also been generated and may correlate to additional gold horizons along the BAM trend and along the north-westerly trend within the Felix grid. The gold ppb trends have been interpreted by Cube using Leapfrog software with contours plotted, as illustrated in Figure 9-12. The strike trends are based on the VLF and MaxMin survey anomaly trends.

The response of nickel to the use of soil sampling was also examined by Johnson (2019). A total of 37 samples had RR >= 5 for Ni. Of these samples 90% of them correlate with anomalies from the 2019 VLF and MaxMin surveys and are interpreted to be a result of sedimentary sulphide package used as a marker horizon in the footwall of the BAM Gold deposit. In addition, the Ni anomalies are single sample responses and have limited strike. Johnson (2019) concluded that the soil sampling has limited use for generating nickel targets and more traditional ground or airborne EM should be used.

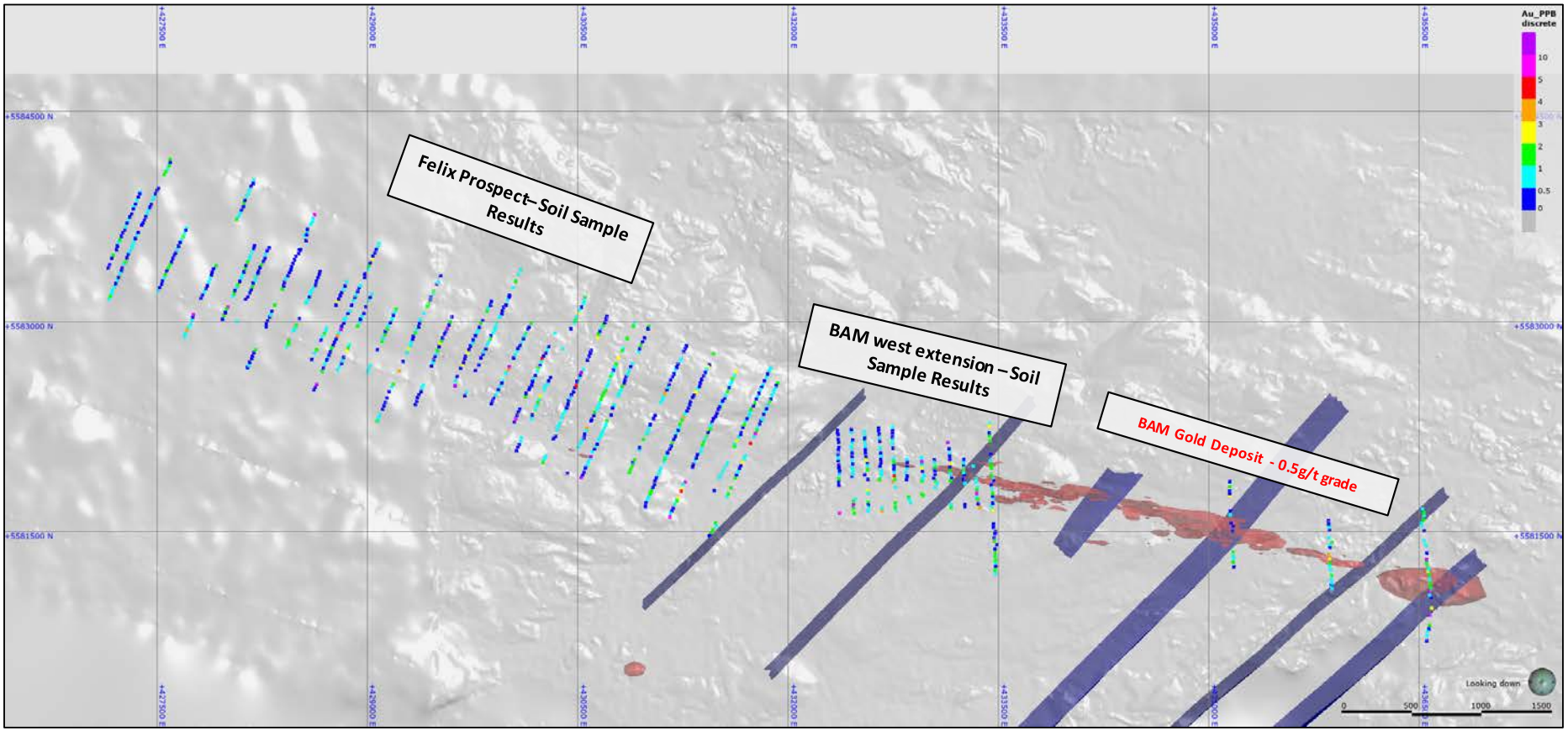


Figure 9-11: 2019 Soil Geochemistry Sampling for BAM and Felix - Plan View of Au ppb Results (Cube Leapfrog Image, 2019).

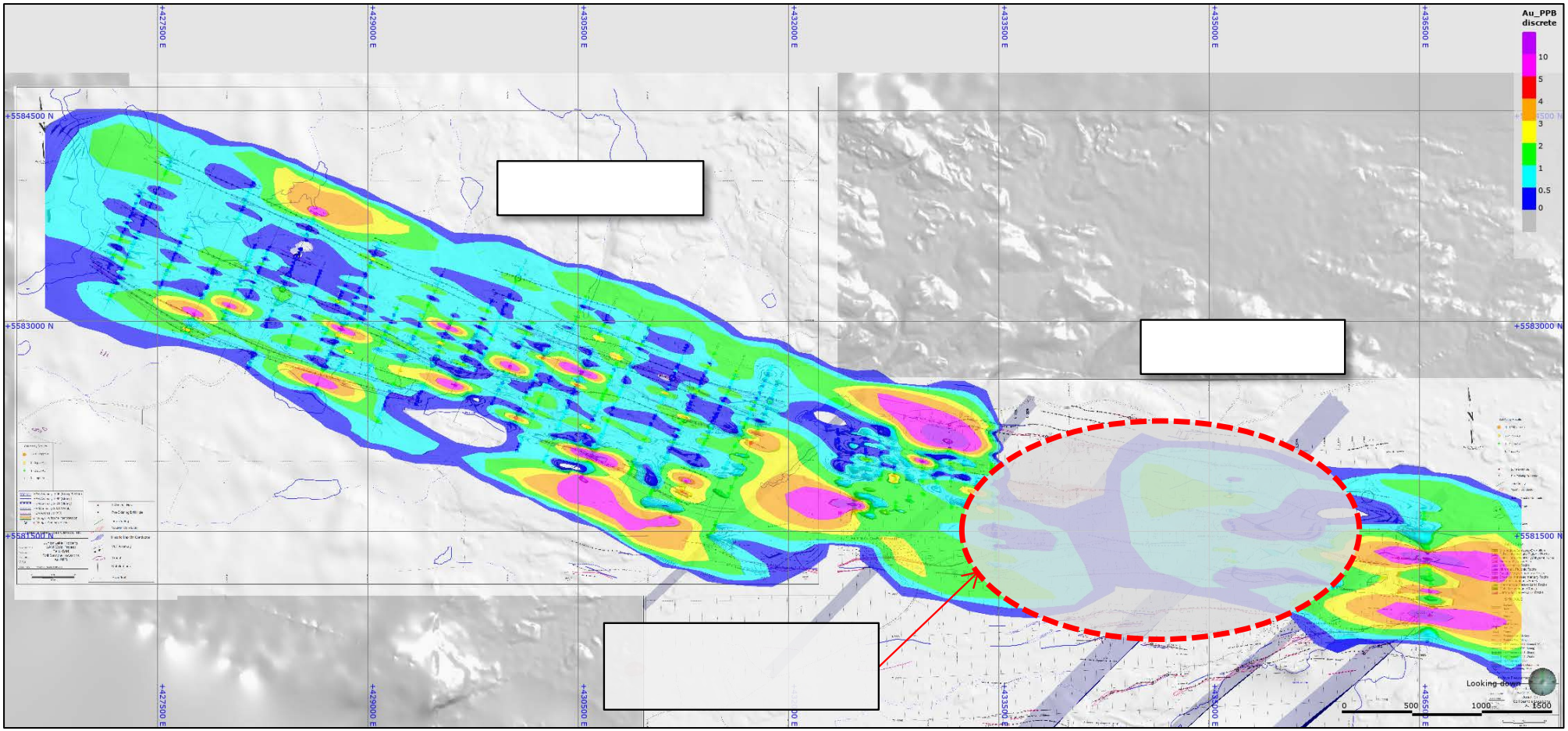


Figure 9-12: 2019 Soil Geochemistry Sampling for BAM and Felix - Plan View of Interpreted Au ppb contours (Cube Leapfrog Image, 2019).

10. Drilling

10.1. Summary

Drilling campaigns are described for the drilling programs for the BAM Gold Project conducted by Landore from December 2015 up to December 2019. Landore's Junior Lake camp, located at kilometre 105 on the East Road/Jackfish Road from Armstrong, was used as a base of operations. During dry seasons when access trail conditions permit, drill sites can be accessed by four-wheel drive truck and all-terrain vehicle.

The majority of drilling completed up to December 2019 has been drilled on a spacing of 50 m x 50 m or 100 m x 50 m on a local mine grid north-south sections (Junior Lake grid). The Junior Lake grid is 003° west off the UTM grid north. All drilling was carried out from surface.

To date, a total of 251 drill holes have been completed within the BAM Gold Project area for a total of 45,686 m. The strike and depth extents of the gold mineralization have not been closed off by diamond drilling. The BAM Gold Project gold mineralization remains open along strike to the east and west, and down dip.

A summary of the drilling statistics by year within the BAM Project area is presented in Table 10-1 for all drilling completed to December 2019.

Table 10-1 Summary of BAM Gold Project Area Drilling Statistics by Period (as at 02 November 2019)

Year Drilled	Hole Type	# of holes	Metres	Ave depth	Comments
2003	NQ	6	438.0	73.0	All used in 2019 MRE
	HQ	-	-	-	
	sub-tot	**6**	**438.0**	**73.0**	
2005	NQ	10	1,284.0	128.4	Exploration; Not used in 2019 MRE
	HQ	-	-	-	
	sub-tot	**10**	**1,284.0**	**128.4**	
2006	NQ	7	1,516.0	216.6	Exploration; Not used in 2019 MRE
	HQ	-	-	-	
	sub-tot	**7**	**1,516.0**	**216.6**	
2008	NQ	3	738.7	246.2	Exploration; Not used in 2019 MRE
	HQ	-	-	-	
	sub-tot	**3**	**738.7**	**246.2**	
2009	NQ	10	2,141.9	214.2	Exploration; Not used in 2019 MRE
	HQ	-	-	-	
	sub-tot	**10**	**2,141.9**	**214.2**	
2010	NQ	7	1,356.0	193.7	Exploration; Not used in 2019 MRE
	HQ	-	-	-	
	sub-tot	**7**	**1,356.0**	**193.7**	

Year Drilled	Hole Type	# of holes	Metres	Ave depth	Comments
2014	NQ	1	101.0	101.0	Exploration; Not used in 2019 MRE
	HQ	-	-	-	
	sub-tot	**1**	**101.0**	**101.0**	
2015	NQ	2	215.9	108.0	All used in 2019 MRE
	HQ	-	-	-	
	sub-tot	**2**	**215.9**	**108.0**	
2016	NQ	35	6,431.7	183.8	All used in 2019 MRE
	HQ	6	1,788.0	298.0	
	sub-tot	**41**	**8,219.6**	**200.5**	
2017	NQ	24	3,587.0	149.5	Most holes used in 2019 MRE
	HQ	41	7,469.3	182.2	
	sub-tot	**65**	**11,056.3**	**170.1**	
2018	NQ	23	3,730.6	162.2	Most holes used in 2019 MRE
	HQ	38	8,941.9	235.3	
	sub-tot	**61**	**12,672.5**	**207.7**	
2019	NQ	-	-	-	All holes used in 2019 MRE
	HQ	38	5,945.9	156.5	
	sub-tot	**38**	**5,945.9**	**156.5**	
ALL	**NQ**	**128**	**21,540.7**	**168.3**	
	HQ	**123**	**24,145.0**	**196.3**	
	TOTAL	**251**	**45,685.7**	**182.0**	

The drilling completed was carried out in the UTM NAD83, Zone 16 grid coordinate system. The drill holes are initially located within an old local grid system (Junior Lake grid) that was established by previous owners of the property. Landore successfully located this previous grid and refurbished it for its own use. This local grid uses a baseline azimuth of approximately 087°. The local grid system has been used as the reference lines for the drilling fences for all of the BAM drilling programs overlain on the UTM NAD83, Zone 16 grid coordinates.

Drill coverage identified by the drilling periods for the BAM Gold Project is shown in Figure 10-1.

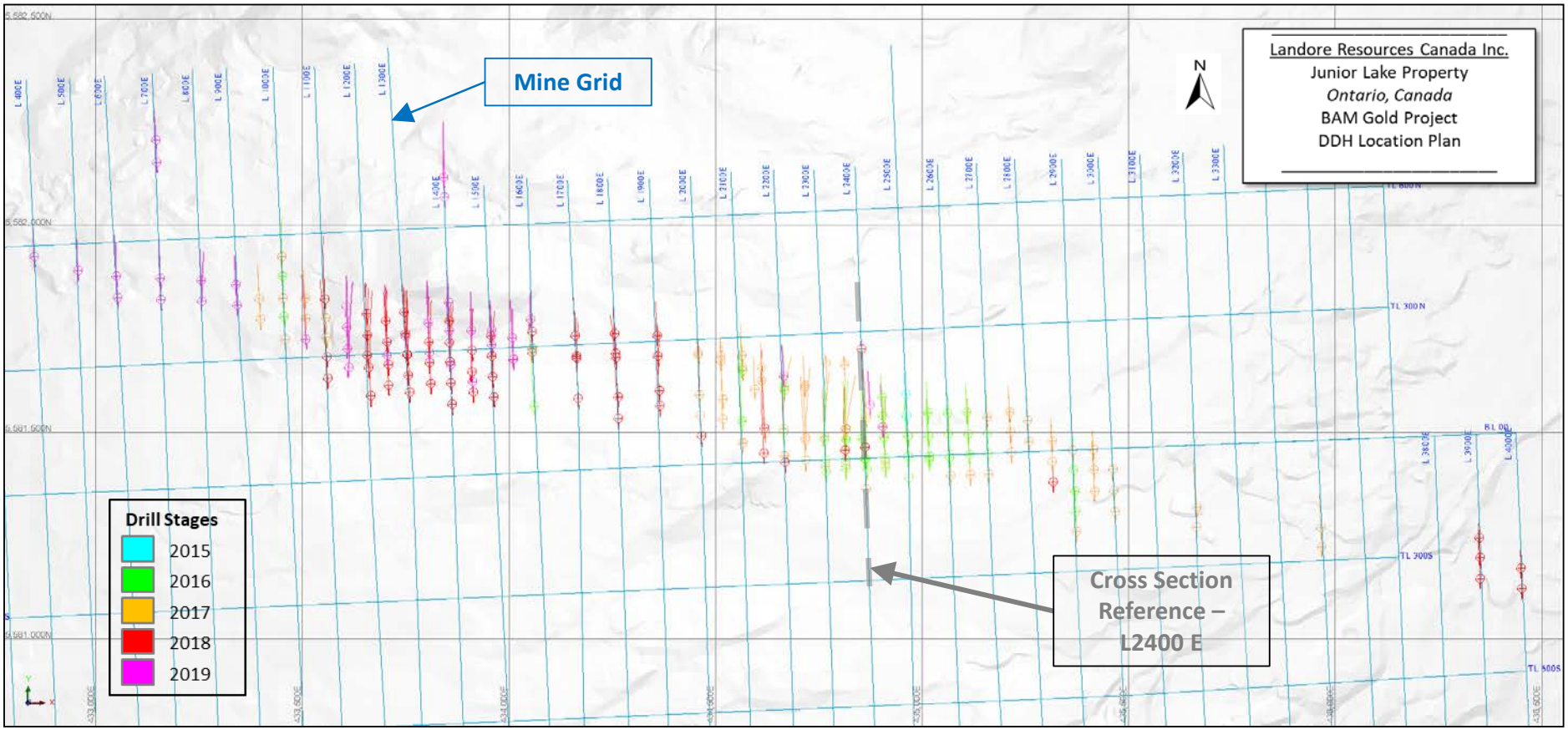


Figure 10-1: Drill hole Location Plan by Drill Stage (December 2019)

A representative drill section on the local grid line 1250E is illustrated in Figure 10-2. The cross section shows a typical example of the main gold mineralization hosted within the BAM volcano-sedimentary, with thickness typically varying from 10 m to 50 m. Other gold mineralization occurs as narrower (2 m to 5 m), less continuous zones hosted along the BAM Sequence footwall, and within the hanging wall GPS unit.

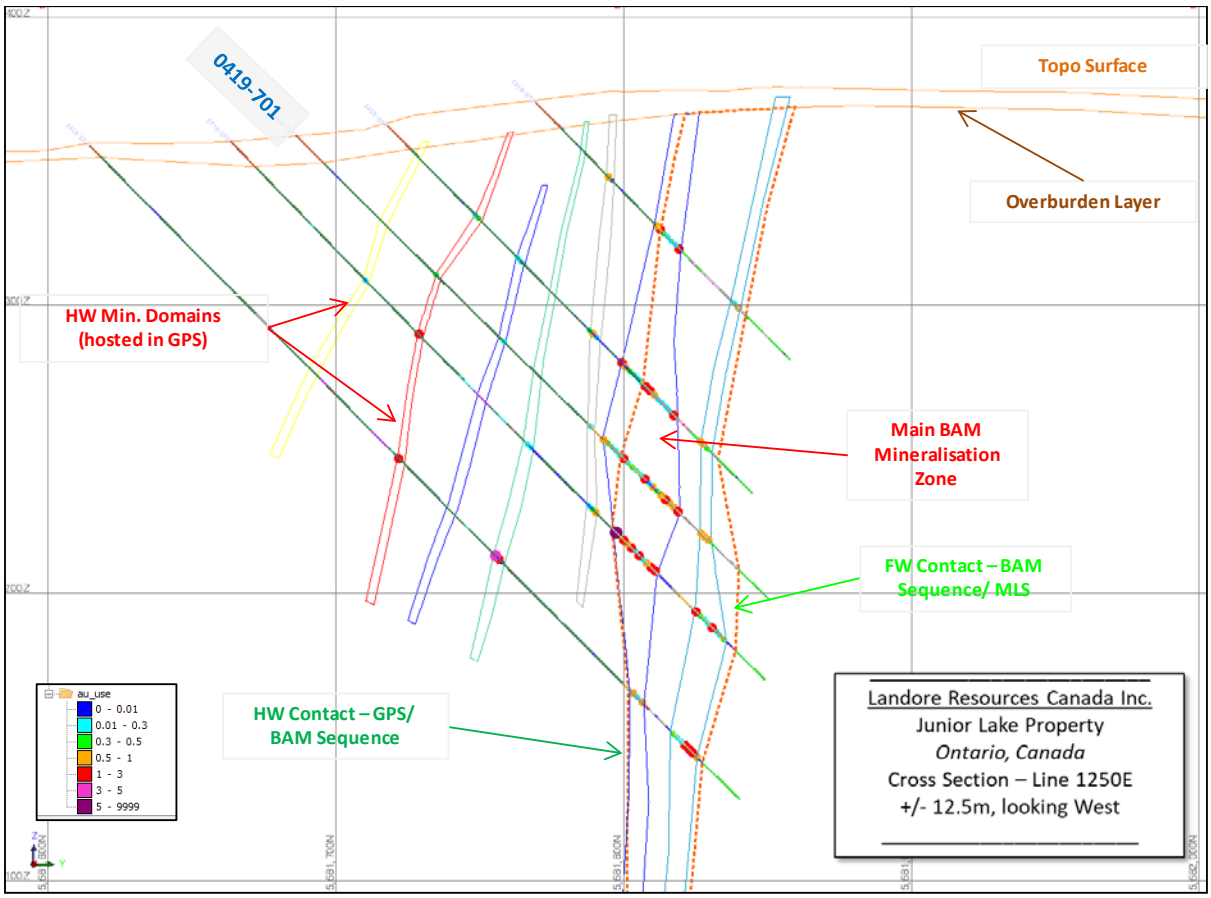


Figure 10-2: Representative Cross Section Looking West –Line 1250E (December 2019)

Drilling Dimensions

The dimensions of the drilling for the BAM Gold Project areas are tabulated in Table 10-2.

Table 10-2: Dimensions of the Drill Coverage for BAM Gold Project Areas with Average Drill Spacing (up to 02 November 2019)

Resource Areas	Strike length (m)	Max. Width (m)	Max. Vertica. Depth (m)	Typical Drill spacing (along strike x across strike)
BAM East & BAM	3,680	~300	~325	50 m E x 50 m N

Drilling Orientations

Most drilling has been designed to be orientated normal to the dip of the major mineralization zones. The drilling orientations are occasionally compromised by mud flats on the surface in the

central area of BAM East (Ladle Flats). Drill holes were mostly oriented to the old local grid north (357°), with collar angles mostly drilled at -45° dip, with average depth of approximately 187 m. Mineralized structures appear to strike at approximately 280° and are steeply dipping to the south (-65 to -80° dips). The capability of drilling with shallower angled holes (<60 degrees dip) has provided a representative sample across the mineralization.

It is concluded that drill orientation for nearly all holes has not introduced any material sampling bias.

10.2. Drilling Campaigns

10.2.1. 2015-2017 BAM Drilling

From 2015 to 2017, Landore has completed several diamond drilling campaigns over the BAM Gold Project area.

Landore carried out a drilling program in late 2015, consisting of eight diamond drill holes for a total of 2,223 m in length to support borehole transient electromagnetic (**DTEM**) surveys completed on drill holes located in the B4-7 nickel-copper-cobalt-PGE deposit area, VW West and BAM (East) areas.

During this drill program, two drill holes (0415-517 and 0415-518) were completed to test a geophysical target located two kilometres to the east of the B4-7 deposit, on what was later called the BAM (East) Gold Deposit. A wide zone of near-surface gold mineralization was intersected in drill hole 0415-517 that returned 31.29 m grading 1.12 g/t Au. Drill hole 0415-518 encountered a high-grade intersection of 3.70 m grading 4.21 g/t Au. These are the discovery holes for the BAM (East) Gold Deposit.

Landore subsequently conducted a follow up drill program on the BAM (East) Gold Deposit during December 2016. This program consisted of five NQ diamond drill-holes for a total of 564 m in length (drill holes 0416-519 to 523, inclusive) on local grid lines 2450 E, 2500 E, and 2550 E. These holes tested for the east, west and down dip extension of the newly discovered gold mineralization. This drilling was successful in confirming the presence of gold mineralization along the strike and depth extensions from the original discovery holes.

Two further drill programs were carried out in 2016. One program during summer 2016 comprised 22 NQ sized diamond drill holes (drill holes 0416-524 to 0416-545), for a total of 4,077 m in length, and one program during fall 2016 comprised 13 (6-HQ and 7-NQ) diamond drill holes (drill holes 0416-546 to 0416-558), totaling 3,385 m in length. These programs tested for the east, west and down dip extensions of the new gold zone. They were successful in extending the BAM (East) Gold Deposit to greater than 250 m down dip, and to over 700 m along strike length. The limits of the BAM (East) Gold Deposit remained undefined along the down dip and both strike directions by the drill holes completed in 2016.

In 2017, Landore completed a summer drilling campaign comprising 65 diamond drill holes (drill holes 0417-561 to 0417-625) for a total of 11,056 m in length. The program focused on the further detailed delineation of the known gold zones by in-fill drilling, on extending the defined Mineral

Resource, and targeting other targets located along on the highly prospective geophysical conductor MM-7, which is spatially associated with the BAM East Gold Deposit. The campaign successfully infilled much of the Inferred portion of the existing resource zone and has extended its potential strike length from the existing 700 m length to approximately 1,100 m in length.

In addition, drilling at the original BAM Zone, located 1,000 m along strike to the west, successfully intersected additional gold mineralization with similar lithology and grades to the BAM (East) Gold Deposit. Examples of mineralized intervals include 4.01 m grading 3.79 g/t Au in drill hole 0417-581, and 5.01 m grading 1.00 g/t Au in drill hole 0417-573.

Together, these drilling programs have been successful in demonstrating the continuity of the gold mineralization by closely spaced drill holes (approximately spaced at 50 m x 50 m pattern) along a strike length of approximately 1,100 m and from surface to a vertical depth of approximately 350 m. These drilling programs have also been successful in confirming the presence of the controlling mineralized shear zone (the Junior Lake Shear Zone) along a strike length of approximately 2,000 m by widely spaced drill holes

10.2.2. 2018 Drilling

In 2018, Landore completed a drill program consisting of 23 NQ diamond drill holes (0418-626 to 0418-648) for 3,731 m and 38 HQ diamond drill holes (0418-649 to 0418-686 and 0418-686) for 8,459 m. The aim of this program was to extend the existing BAM Gold Resource to the west. In addition, a small exploration drilling program of 5 HQ drill holes (0418-681 to 0418-685) for 483 m was completed to test the gold potential of a prospective zone from 3900 E to 4000 E (mine grid) approximately one kilometre to the east of the currently defined Mineral Resource. The 2018 drill program also included a geotechnical hole (0418-655), and two metallurgical test work holes (0418-653 and 0418-654).

The 2018 drilling has been successful in demonstrating the extension to the west of the main gold mineralization (by 50 m x 50 m and 100 m x 50 m patterns) along a strike length of approximately 2,100 m and from surface to a maximum vertical depth of approximately 380 m. The maximum width of the gold mineralization envelope being approximately 50 m, down to minimum mining width of 2 m.

Drill testing along the eastern strike extension has intersected gold mineralization hosted within the BAM sequence, previously defined to 3,000 E, but now identified at 3,900 E and 4,000 E. The BAM gold mineralization has now been intersected over a total strike length of 3000 m (from 950 E to 4,000 E) and remains open to the east and west and down dip

10.2.3. 2019 Drilling

The 2019 drilling has confirmed the continuity of the gold mineralisation within the pit design areas, resulting in the conversion of Mineral Resources from Inferred to Indicated, and also demonstrated the continuation of the main BAM mineralisation to the west to local grid line 400 E.

The drilling has continued to show the close association between gold mineralisation and the VTEM geophysical anomaly trend. The BAM gold mineralisation trend has now been confirmed by diamond

drilling over a strike length 3.9 km, extending from the local grid line 400 E through to and beyond line 4000 E. Drill testing has confirmed gold mineralisation within the main BAM zone extends from below the glacial till overburden surface (~10 m average depth) to a maximum vertical depth of approximately 380 m. The maximum width of the gold mineralisation envelope being approximately 50 m, down to a minimum mining width of 3 m.

The 2019 drilling results also intersected additional narrow, poddy gold mineralisation zones within the hanging wall GPS unit in the West Pit design area. Gold mineralisation hosted within the BAM sequence remains open to the east and west and down dip.

10.3. Drilling Methods

All drilling from 2015 to 2018 was carried out by a drilling contractor, Chibougamau Diamond Drilling, of Chibougamau, Québec. All holes were entirely drilled by surface DD core drilling, either NQ or HQ diameter, with a 3 m core barrel and standard inner tube. The drill core from this program is stored on covered core racks at Landore's Junior Lake camp.

Collar Setup and Drilling

Drill holes were positioned and oriented by chaining from previous casings along cut lines of the established grid, or by GPS and compass where there was no grid. Upon completion of each hole, the casing location was recorded by Landore staff using a Geneq Inc. SkyBlue II handheld GPS in UTM projection NAD 83 for Zone 16. This unit has a nominal horizontal accuracy on the order of one metre. The vertical accuracy is not specified in the equipment specifications. Landore carries out detailed survey pickups of the location of completed drill holes on a periodic basis using licensed surveying companies. In 2017, a program of detailed surveying of drill hole locations in the BAM Gold Deposit area was carried out with differential GPS (**DGPS**) instrumentation by J.D. Barnes Limited, a licensed surveyor located in Thunder Bay, Ontario. All casings were left in the holes and capped. The water source for drilling at the BAM Gold Deposit was a local unnamed stream near the drill area, and a pond north of the VW Deposit area.

The contractor sets the diamond drill onto the drill site and aligns it under the direction of Landore's drill geologist using front and back sights emplaced by Landore crew prior to drilling. Two sizes of diamond drill core are used on the BAM Gold Deposit: NQ and HQ. The NQ size is used primarily for exploration drilling and for some deposit drilling. The larger HQ size is used within the central zone of the BAM Gold Deposit. Figure 10-3 shows photos from the 2018 drilling program for hole 0418-654 along the grid line 2400 E.

For the 2018 drilling programs, a triple tube core barrel for some holes was utilized. In some instances, the core recovery and core quality was observed to be poor in the BAM sequence mineralized zones in some holes when drilled with the smaller diameter NQ drill size. Some units in the BAM sequence had the tendency to break into very thin discs, or there were some highly fractured intervals. The triple tube setup enabled improvement in the core recovery and core quality and allowed for the core to be carefully extracted. Figure 10-4 shows photos of triple tube NQ core extraction from the 2018 drilling program for hole 0418-654.

Figure 10-3: Drilling Rig in Operation at Location Line 2400 E (Cube Site Visit, June 2018)

Figure 10-4: Triple Tube Core Extraction for HQ Core Drilling (Cube Site Visit, June 2018)

Drill core is placed by the drillers into wooden core boxes with lids affixed to them prior to being transported by pickup truck to the core shack located at Landore's exploration camp. Once at the core shack, the boxes are loaded on to racks for examination and subsequent core logging by Landore's drill geologist.

Down Hole Surveys

All drill holes were surveyed within ten metres past the casing using a Reflex Instruments EZ-Shot (**EZ Shot**) down-hole survey instrument to ensure the departing hole orientation and inclination were correct. The drill hole was stopped if the hole deviated outside Landore's acceptable tolerance. In addition, inclination deviation was monitored as the holes progressed using an EZ-Shot survey instrument and, upon completion of each hole, a Reflex Instruments Maxibor II (**Maxibor**) instrument (optical method) was used to survey the hole to obtain reliable information on both inclination and azimuth deviation. Both instruments digitally record the down-hole survey data.

Down-hole deviation was minimized by the use of a hexagonal core barrel and long (18") reaming shell for both the NQ and HQ size drill rods.

10.4. Core Logging

Drill core was aligned, measured, and logged for geology. Core logging records major and minor rock units (grain sizes, texture structural information including core angles of geological contacts, foliation and bedding, fractures, faults, veins, joints, etc.), alteration and sulphide species, content and mode of occurrence. Logging and sampling information was recorded by hand on paper and/or in Microsoft Word and Excel software, then edited as required (Figure 10-5 (B)). Access and MapInfo GIS databases are maintained for drilling information available for the resource estimation work, and mining and metallurgical studies.

The Landore database records up to December 2019 contain 9,506 lithology entries for 31,594 m of all drilling completed on the Project that were used for the resource estimation work in December 2019. The total drill metres recorded in the collar records is 31,594 m, which shows that 100% of the drill metres within the drill hole database have been logged.

All drill core is digitally photographed for both dry and wet core trays with photos maintained on file in Landore's Thunder Bay office.

Figure 10-5 shows photos of the check logging area and enclosed core logging facilities at the Junior Lake exploration offices.

Figure 10-5: Core Logging at Junior Lake Exploration Offices (Cube Site Visit, June 2018)

Geotechnical Logging

Geotechnical measurements including core recovery, rock quality designation (**RQD**), and fracture density were also taken.

Magnetic susceptibility measurements

Magnetic susceptibility (**MS**) measurements were taken where there was visible mineralization, and at three metre intervals in select holes for background measurements. MS was measured utilizing a Kappameter, model KP-6 magnetic susceptibility meter. The measurements were entered into an MS Excel spreadsheet either directly or after they had been recorded by hand on paper.

10.5. Sampling Methods

Sampling methods are described for the drilling programs for the BAM Gold Project conducted by Landore from December 2015 up to September 2018.

Half core sample are taken from either NQ or HQ diameter diamond drill core from a surface diamond drill rig, collected from a 3 m core barrel to maximize recovery and to provide a representative sample. The larger HQ size is used within the central mineralization zone of the BAM area to obtain a larger representative sample.

Extracted core was placed in a core cradle, ensuring that the core was maintained intact and in the correct order. The core was cleaned, with segments pieced back together in order to reconstruct the in-situ position as closely as possible. The core was then placed into numbered wooden core boxes in which the regular wooden blocks were inserted with drilling depth labelled on the blocks andhad lids fixed to the top of the trays to minimize disruption of the core during transportation back to the core shack at Landore's Junior Lake exploration camp.

All drill core was geologically logged and sampled to lithological contacts or changes in the nature of mineralization to ensure a sample representation of lithological/alteration/mineralization intervals. Sample intervals are typically 1.0 m to 1.5 m in length. For sampling completed to December 2019, minimum sample length was 0.18 m, and maximum length was 2.2 m.

The sampling protocols are described as follows:

1. All drill core is aligned and measured prior to sampling:
2. Samples for assay are selected and marked for sampling based on sulphide geology/mineralogy and rock units.
3. Sample intervals avoid crossing geological contacts.
4. Samples are sawn in half with a diamond saw blade.
5. One half of the sample is placed in a standard, numbered transparent plastic bag with an identifying sample tag and the remaining half is returned to the core box with a corresponding tag placed at the beginning of the sample interval.
6. The halved drill core is retained in core racks on site.
7. No sample compositing of diamond drill core samples has been applied for the diamond drilling programs.

Diamond drill core was used to obtain representative half core samples weighing 3 kg to 5 kg, which was sufficient to be pulverized to produce a 50 g charge for fire assay.

Figure 10-6 shows photos of the core cutting facility at the Junior Lake exploration camp, and illustrations of the sample labelling and collection.

Figure 10-6: Core Cutting and Sampling at Junior Lake Exploration Offices (Cube Site Visit, June 2018)

10.6. Drill Sample Quality

10.6.1. RQD and Core Recovery

Rock-Quality Designation (**RQD**) and core recovery was determined over three metre intervals. RQD is calculated using the following formula:

RQD = (Sum of all pieces over 0.1 m/metres recovered) *100

Diamond drilling core recovery length and percentage of both the total drilled interval and for each metre interval was calculated and recorded. Core recovery is calculated using the following formula:

Core recovery = (Metres recovered/metres drilled) *100

The longest and smallest pieces of drill core in the three metre intervals were measured and recorded, as well as the fracture density. The fracture density is the visual inspection of the intensity of natural fractures in a given three metres and is a numerical value on a scale of 0 to 9 (0 being no fractures, 9 being very intensely fractured).

10.6.2. Core Recovery Results

From core recovery calculated from core logged by Landore for the BAM Gold Project area between 2015 and 2019, the basic statistics representative of all material types is summarized in Table 10-3 for 2015 to 2019 drilling, and also for the 2019 drilling.

Table 10-3: BAM Gold Project – Core Recovery Statistics for All Material for All Drilling and for 2019 Core Drilling (December 2019)

Statistic	All Drilling (2016-2019)		2019 Drilling	
	Rec (m)	Rec (%)	Rec (m)	Rec (%)
Number	12,073	12,073	1,884	1,884
Minimum	0.20	12.00	0.20	20.67
Maximum	3.94	100.00	3.92	100.00
Mean	2.98	**98.93**	2.98	**98.77**
Median	3.00	100.00	3.00	100.00
Std Dev	0.17	4.55	0.18	4.63
Variance	0.029	20.736	0.03	21.47
Std Error	-	-	-	0.002
CoV	0.057	0.046	0.060	0.047

Figure 10-7 graphically show the normal distribution of the core recovery results for all material types for the 2019 drilling.

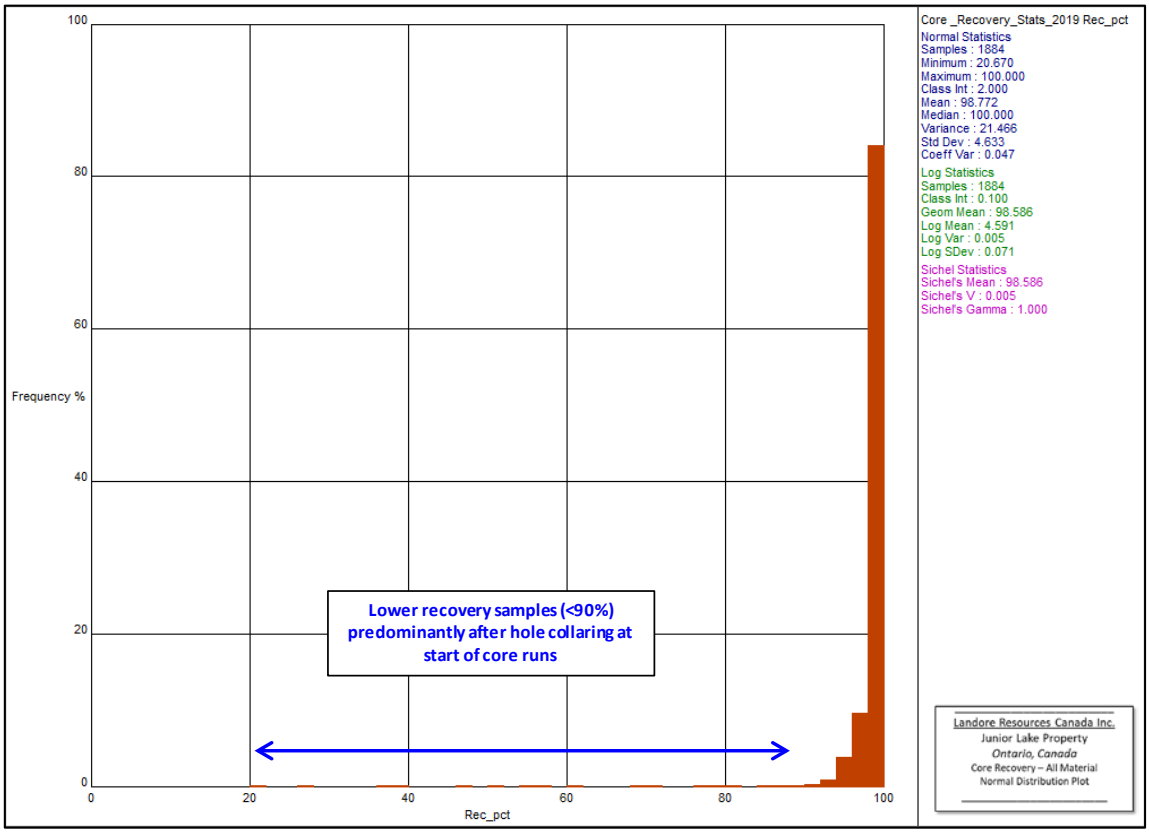


Figure 10-7: Core Recovery Statistics– Normal Distribution Plot for All Material Types in 2019 Core Drilling (December 2019)

A tabulation of the recoveries below 90% is provided in Table 10-4.

Table 10-4: BAM Gold Project – Core Recovery Logs for Samples with Core Recovery <90% in 2019 Core Drilling (December 2019)

Hole ID	Depth from	Depth to	Interval	Rec (m)	Rec (pct)	Core Diameter	Main Lith Type	Log Desc.	Assay Value (au ppm Ave)	Comments
0419-688	120.00	123.00	3.00	2.51	93.66	NQ	Mv	Mafic Volcanic - FW	tr	Overlap with adjacent core run, averages ~100% over 6m.
	123.00	126.00	3.00	3.52	117.33	NQ	Mv	Mafic Volcanic - FW	tr	
0419-689	6.00	9.00	3.00	2.44	**81.33**	NQ	Mv	Mafic Volcanic - HW	NS	Start of core run, core loss expected
0419-690	6.00	9.00	3.00	1.10	**36.67**	NQ	Mv	Mafic Volcanic - HW	NS	Start of core run, core loss expected
0419-691	9.00	12.00	3.00	2.40	**80.00**	NQ	Ma	Mafic Rock - HW	tr	Start of core run, core loss expected
0419-693	9.00	12.00	3.00	2.60	**86.67**	NQ	Ma	Mafic Rock - HW	0.01	Start of core run, core loss expected
0419-694	6.00	9.00	3.00	1.18	**39.33**	NQ	Ma	Mafic Rock - HW	NS	Start of core run, core loss expected
0419-696	6.00	9.00	3.00	2.36	**78.67**	NQ	Ma	Mafic Rock: loc. sheared	tr	Start of core run, core loss expected
	9.00	12.00	3.00	2.62	**87.33**	NQ	Ma	"	tr	
0419-698	9.00	12.00	3.00	3.73	124.33	NQ	Ma	Mafic Rock - HW	NS	Overlap with adjacent core run, averages ~100% over 6m.
	12.00	15.00	3.00	2.54	84.66	NQ	Ma	Mafic Rock - HW	NS	
0419-700	**54.00**	**57.00**	**3.00**	**2.65**	**88.33**	**NQ**	**Fv**	**Felsic volcanic (or dyke?)**	**0.03**	**Core Loss - Shear/Fault zone?**
0419-700	60.00	63.00	3.00	3.29	109.66	NQ	Su	BAM Sediment and Mafic	0.05	**Overlap with adjacent core run. Minor Core Loss Logged**
	63.00	**66.00**	**3.00**	**2.62**	87.33	**NQ**	**Su**	**BAM Sediment and Mafic**	**2.53**	
0419-700	81.00	84.00	3.00	2.56	85.33	NQ	Fd/Mv	Felsic dyke & Mafic	0.03	Overlap with adjacent core run, averages ~100% over 6m.
	84.00	87.00	3.00	3.42	114.00	NQ	Mv	Mafic Volcanic - FW	NS	
0419-701	14.04	15.00	3.00	1.17	**39.00**	NQ	Ma	Mafic Rock - HW	NS	Start of core run, core loss expected
0419-703	4.50	6.00	3.00	1.68	**56.00**	NQ	Ma	Mafic Rock - HW	NS	Start of core run, core loss expected
0419-704	9.00	12.00	3.00	2.10	**70.00**	NQ	Ma	Mafic Rock - HW	NS	Start of core run, core loss expected
0419-706	6.00	9.00	3.00	2.29	**76.33**	NQ	Ma	Mafic Rock - HW	NS	Start of core run, core loss expected
0419-707	7.50	9.00	3.00	0.83	**27.67**	NQ	Ma	Mafic Rock - HW	NS	Start of core run, core loss expected
0419-708	3.00	6.00	3.00	1.69	**56.33**	NQ	Ma	Mafic Rock - HW	NS	Start of core run, core loss expected
0419-709	6.00	9.00	3.00	2.53	**84.33**	NQ	Ma	Mafic Rock - HW	NS	Start of core run, core loss expected
0419-711	3.00	6.00	3.00	1.85	**61.67**	NQ	Ma	Mafic Rock - HW	NS	Start of core run, core loss expected
0419-712	7.50	9.00	3.00	1.56	**52.00**	NQ	Ma	Mafic Rock - HW	NS	Start of core run, core loss expected
0419-715	16.50	18.00	1.50	1.08	**72.00**	NQ	Ma	Mafic Rock - HW	NS	Start of core run, core loss expected
	18.00	21.00	3.00	2.68	**89.33**	NQ	Ma	Mafic Rock - HW	NS	
0419-717	6.00	9.00	3.00	2.64	**88.00**	NQ	SZ	Shear Zone - HW	tr	Start of core run, core loss expected
0419-718	**72.00**	**75.00**	**3.00**	**2.08**	**69.33**	**NQ**	**Ma**	**Mafic Rock - HW**	**NS**	**Core Loss - highly fractured/fault?**
0419-719	4.64	6.00	3.00	1.44	**48.00**	NQ	Ma	Mafic Rock - HW	NS	Start of core run, core loss expected
0419-722	6.00	9.00	3.00	0.62	**20.67**	NQ	Ma	Mafic Rock - HW	0.01	Start of core run, core loss expected
0419-722	**99.00**	**102.00**	**3.00**	**2.68**	**89.33**	**NQ**	**Mv**	**Mafic Volcanic - FW**	**NS**	**Core Loss - highly fractured/fault?**

10.6.3. Core Recovery Twin Hole Analysis for 2019 Drilling

During the 2019 drilling program Landore carried out twin hole drilling on two holes drilled in the 2018 program. The holes were selected where Landore noted poor core quality within potential gold mineralized zones. The two twin holes alongside the original 2018 holes are illustrated in Figure 10-8. The 2018 holes were NQ diameter holes, whereas the 2019 holes were drilled with HQ diameter core bit.

The twin hole analysis looked at any bias relating to core size, core quality and gold grade.

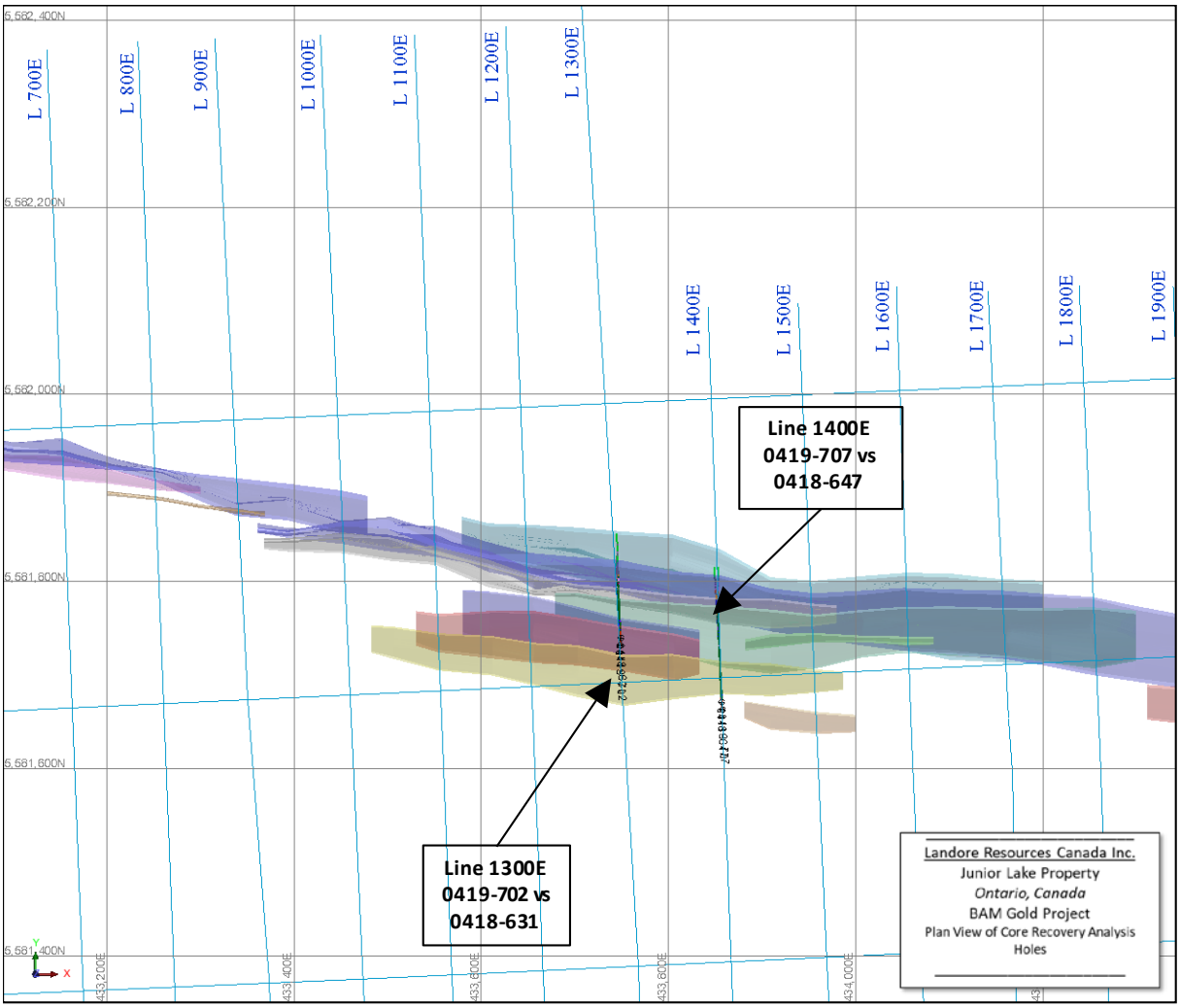


Figure 10-8: Plan View of Locations of Selected Holes for Core Recovery Analysis (December 2019)

Figure 10-9 and Figure 10-10 show cross sections of the twin hole intervals comparing the 2018 NQ holes with the 2019 HQ holes. In both examples, there is no indication of any significant sample bias related to either the core size or core quality. There is likely to be some grade variances within single sampling intervals due to very “nuggety” gold as evident from numerous core samples containing visible gold.

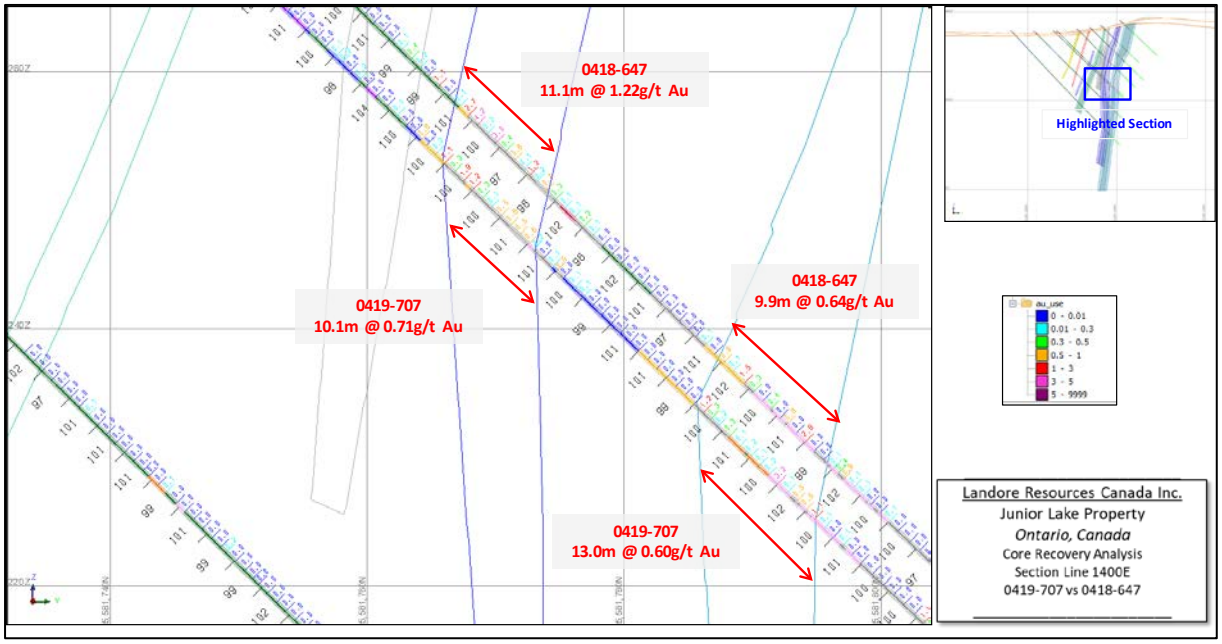


Figure 10-9: Cross Section on Mine Grid Line 1400 for Comparison of 0419-707 versus 0418-647, Showing Core Recovery versus Au Grade (December 2019)

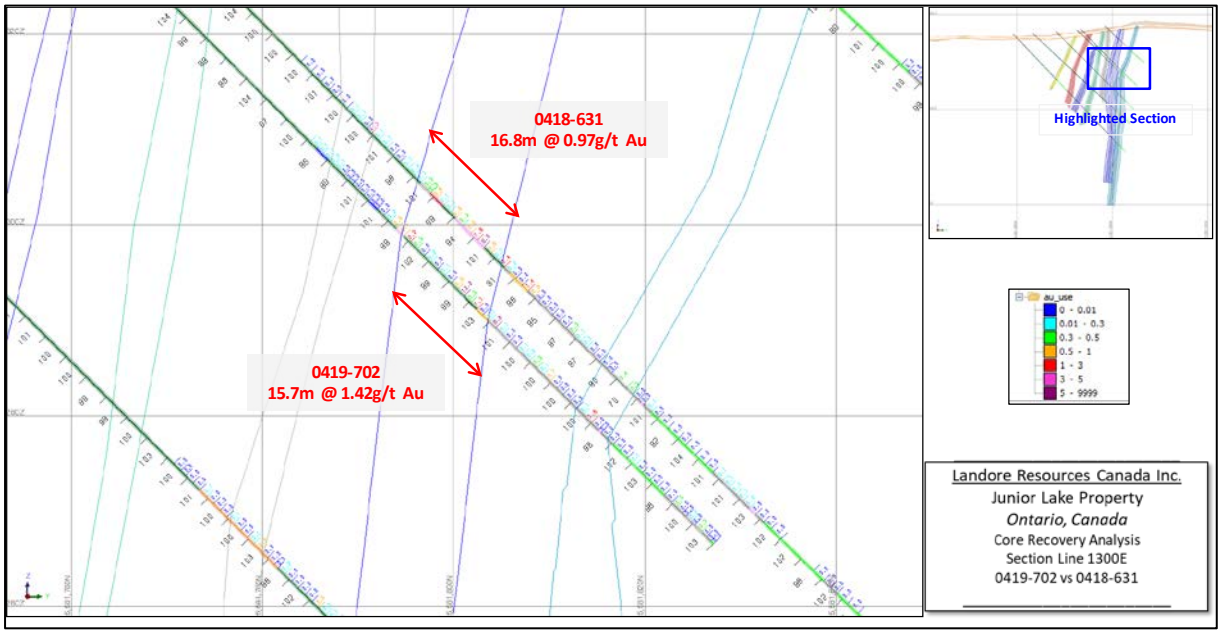


Figure 10-10: Cross Section on Mine Grid Line 1300E for Comparison of 0419-702 versus 0418-631676, Showing Core Recovery versus Au Grade (December 2019)

Overall, the core recovery is excellent for all drilling conducted since 2015 when core recovery data was available. The drilling since 2015 accounts for almost all of the information related to the current resource work.

Where recoveries are low, further analysis has been carried out from core photos and logs. The following observations were made:

- Core recovery for core measured from 2015 to 2019 averages 98.9% for adjusted measurements.
- Where core recovery is poorer (<90%), this is typically at the start of the core runs below the hole collars (151 records).
- The visual data from core photos showed small intervals within the 3 m core runs often contained sheared or highly fractured zones within the BAM sequence.
- There are often cases where core recovery measurement is greater than the core run interval (3 m). The adjacent sample is often measured as much less than the core run interval. Therefore, there may be some intervals where the core block has been misplaced within the core trays. In most cases these examples still occur where core quality is poor – highly broken up core, or highly sheared and fractured zones.
- Overall, it is considered that samples accurately reflect drilled widths sampled.

10.7. Significant Results - 2019 Drilling

A list of the significant intersections from drilling program conducted in 2019 for the BAM Gold Project is presented in Table 10-5. Significant intersections from drilling programs conducted from 2015 to 2017 for the BAM Gold Deposit were previously reported in RPA, (2018) and Cube (2019).

The following information relates to the reporting of the significant intersections:

- The coordinates for Easting, Northing and RL of the drill hole collars are recorded in UTM NAD83, Zone 16 grid coordinate system. Local grid coordinates are also listed for each drill hole.
- Dip is the inclination of the hole from the horizontal. For example, a vertically down drilled hole from the surface is -90°. Azimuth is reported in magnetic degrees as the direction toward which the hole is drilled.
- The start of the downhole intercept and the downhole length are reported.
- Downhole length of the hole is the distance from the surface to the end of the hole, as measured along the drill trace. Interception depth is the distance down the hole as measured along the drill trace. Intersection width is the downhole distance of an intersection as measured along the drill trace.
- Diamond drill core was cut to geological boundaries, so length weighting was used in the reporting of exploration results to ensure a logical mean grade is determined.
- The primary returned assay result was used for reporting of significant intersections in this report. No averaging with laboratory repeats was undertaken so as not to introduce volume bias.

No grade truncation or high-grade cutting was applied in the results reported in December 2019.

Table 10-5: Significant Results for BAM Gold Project 2018 Drilling (Cube, as at 02 November 2019)

Hole ID	utm z16_n83 easting	utm z16_n83 northing	Elevation (m)	Hole Depth (m)	Hole Size	Local grid easting	Local grid northing	Plan Azi	Plan Dip		Depth From (m)	Depth To (m)	Interval Length (m)	Grade (g/t Au)
0419-687	5,582,206.73	433,144.15	356.81	101.89	HQ	700	840	357	-43.2	NSI				
0419-688	5,582,153.33	433,146.67	357.18	126.03	HQ	700	790	357	-45.1	NSI				
0419-689	5,582,117.21	433,841.63	364.60	191.98	HQ	1400	730	357	-45.9	NSI				
0419-690	5,582,069.13	433,843.83	368.40	153.06	HQ	1400	680	357	-45	NSI				
0419-691	5,581,856.54	433,338.23	354.58	101.89	HQ	900	485	357	-45.4	NSI				
0419-692	5,581,806.71	433,341.49	355.58	150.01	HQ	900	435	357	-44.8		105.52	107.05	1.53	1.68
0419-693	5,581,866.68	433,254.31	352.01	110.89	HQ	800	500	357	-45.2	and	72.83	74.54	1.71	0.84
0419-694	5,581,817.17	433,256.48	350.97	168.10	HQ	800	450	357	-45	and	142.33	144.88	2.55	3.25
0419-695	5,581,871.88	433,155.47	351.78	138.01	HQ	700	510	357	-45.1	NSI				
0419-696	5,581,820.30	433,156.87	349.00	204.31	HQ	700	460	357	-44.1		154.07	155.10	1.03	1.13
										and	167.94	171.60	3.66	0.78
										and	182.35	184.85	2.50	0.51
0419-697	5,581,876.43	433,049.33	350.00	117.18	HQ	600	520	357	-46	NSI				
0419-698	5,581,826.51	433,051.92	348.80	210.00	HQ	600	470	357	-44.6		145.23	147.90	2.67	0.51
0419-699	5,581,890.97	432,956.07	349.40	111.07	HQ	500	540	357	-44.9	NSI				
0419-700	5,581,924.37	432,850.49	347.63	95.98	HQ	400	575	357	-44.9		64.39	66.35	1.96	3.54
0419-701	5,581,686.06	433,705.32	359.16	230.98	HQ	1250	300	357	-45.2		149.34	150.39	1.05	1.59
										and	159.50	161.06	1.56	1.51
										and	168.78	171.30	2.52	1.40
										and	174.24	187.40	13.16	1.20
										and	196.76	202.02	5.26	0.64
0419-702	5,581,731.80	433,748.36	362.08	135.01	HQ	1300	345	357	-45.1		115.85	116.99	1.14	1.80
0419-703	5,581,764.53	433,803.99	365.00	143.70	HQ	1350	375	357	-45.1		45.00	49.45	4.45	1.96
										including	**47.00**	**48.28**	**1.28**	**5.90**
										and	50.86	52.00	1.14	1.19
0419-704	5,581,693.19	433,806.86	357.70	225.21	HQ	1350	300	357	-45.4		104.75	105.73	0.98	22.90
										and	116.00	119.00	3.00	0.67
										and	126.04	131.18	5.14	2.05
										including	**130.37**	**131.18**	**0.81**	**6.14**
										and	133.88	137.36	3.48	0.89
										and	143.02	143.90	0.88	2.24
										and	151.52	158.64	7.12	1.09
										including	**158.34**	**158.64**	**0.30**	**9.57**

Hole ID	utm z16_n83 easting	utm z16_n83 northing	Elevation (m)	Hole Depth (m)	Hole Size	Local grid easting	Local grid northing	Plan Azi	Plan Dip		Depth From (m)	Depth To (m)	Interval Length (m)	Grade (g/t Au)
										and	166.00	166.71	0.71	1.68
0419-705	5,581,813.17	433,852.97	376.80	108.03	HQ	1400	425	357	-43.7	NSI				
0419-706	5,581,744.88	433,855.33	360.88	162.04	HQ	1400	350	357	-44.7		55.00	64.37	9.37	2.00
										and	69.00	70.00	1.00	1.05
0419-707	5,581,663.20	433,857.78	353.51	212.97	HQ	1400	270	357	-44.8		143.00	153.09	10.09	0.71
										and	171.00	172.76	1.76	0.86
										and	179.03	184.00	4.97	1.06
										and	194.70	195.70	1.00	1.12
0419-708	5,581,746.34	433,907.90	358.50	132.02	HQ	1450	350	357	-44.9		23.90	25.00	1.10	1.09
										and	42.00	43.00	1.00	3.09
										and	50.97	55.29	4.32	0.72
										and	94.46	95.10	0.64	1.02
0419-709	5,581,621.95	433,911.06	352.89	246.09	HQ	1450	225	357	-44.8		193.00	195.74	2.74	4.25
										including	**194.02**	**194.91**	**0.89**	**11.80**
										and	205.00	206.00	1.00	1.18
0419-710	5,581,747.33	433,957.87	358.94	102.12	HQ	1500	365	357	-45.4		35.76	44.00	8.24	0.99
										and	81.50	82.68	1.18	0.97
0419-711	5,581,711.90	433,957.00	353.72	149.79	HQ	1500	315	357	-44.5		44.03	44.40	0.37	7.52
										and	75.80	78.04	2.24	1.37
0419-712	5,581,772.24	434,051.25	356.98	102.00	HQ	1600	365	357	-45.6		22.45	25.15	2.70	0.63
										and	39.00	40.00	1.00	8.67
0419-713	5,581,701.14	434,055.35	352.11	158.94	HQ	1600	295	357	-52.9		108.00	122.00	14.00	3.24
										including	**117.00**	**118.00**	**1.00**	**29.90**
										and	126.50	127.50	1.00	1.67
0419-714	5,581,803.25	433,605.44	368.13	104.82	HQ	1150	425	357	-44.5		28.62	37.90	9.28	1.33
										including	**33.10**	**34.91**	**1.81**	**4.43**
0419-715	5,581,754.82	433,607.23	370.58	155.61	HQ	1150	375	357	-44.8		40.00	41.00	1.00	1.84
										and	109.94	114.78	4.84	2.56
										and	118.00	123.00	5.00	1.92
										including	**122.00**	**123.00**	**1.00**	**4.62**
0419-716	5,581,701.09	433,608.88	363.47	215.80	HQ	1150	325	357	-44.8		170.40	181.29	10.89	2.22
0419-717	5,581,656.61	433,612.06	354.70	288.04	HQ	1150	275	357	-44.6		130.00	131.00	1.00	1.15
										and	198.40	199.40	1.00	5.53
										and	208.00	211.00	3.00	0.94
										and	220.70	224.36	3.66	1.91

Hole ID	utm z16_n83 easting	utm z16_n83 northing	Elevation (m)	Hole Depth (m)	Hole Size	Local grid easting	Local grid northing	Plan Azi	Plan Dip		Depth From (m)	Depth To (m)	Interval Length (m)	Grade (g/t Au)
										and	240.00	241.00	1.00	1.21
										and	248.86	258.23	9.37	1.38
0419-718	5,581,725.59	433,508.36	362.03	218.83	HQ	1050	350	357	-44.8		29.50	30.50	1.00	7.89
										and	173.50	182.38	8.88	1.38
										and	180.92	181.69	0.77	7.83
										and	185.70	187.50	1.80	1.59
0419-719	5,581,727.73	434,007.75	354.48	129.20	HQ	1550	325	357	-44.7		16.00	17.70	1.70	6.23
										and	48.21	48.81	0.60	1.21
										and	55.55	56.56	1.01	1.04
										and	60.60	68.66	8.06	0.60
										and	88.93	90.52	1.59	6.12
0419-720	5,581,677.69	434,010.64	353.00	171.14	HQ	1550	275	357	-44.6		113.00	114.00	1.00	1.29
										and	124.80	126.50	1.70	2.69
										and	129.24	131.85	2.61	0.71
										and	137.24	138.32	1.08	0.94
0419-721	5,581,675.28	434,009.89	352.90	210.17	HQ	1550	273	357	-59.6		55.59	56.41	0.82	1.85
										and	130.31	131.19	0.88	0.95
										and	154.84	156.83	1.99	1.74
										and	158.75	164.15	5.40	0.64
										and	169.70	178.16	8.46	0.74
0419-722	5,581,635.74	434,664.81	353.28	105.10	HQ	2200	210	357	-45.6		19.53	29.10	9.57	1.31
										including	**25.21**	**26.08**	**0.87**	**4.67**
0419-723	5,581,565.20	434,873.19	351.52	111.05	HQ	2415	127	357	-41.4		58.30	62.20	3.90	1.97
										and	72.00	74.00	2.00	3.90
										and	79.00	83.42	4.42	0.53
0419-724	5,581,513.22	434,904.95	352.12	146.79	HQ	2450	75	357	-45.2		67.65	68.06	0.41	5.87
										and	81.53	86.00	4.47	1.13
										and	89.32	102.26	12.94	0.91
										and	104.17	109.71	5.54	0.89

10.8. Principal Authors Statement

In summary, the drilling and sampling practises used are adequate for and consistent with the Principal Author's understanding of the style of gold mineralisation targeted by Landore for the BAM Gold Project.

In relation to sample (core) quality, the core recovery analysis has shown that the core recovery is very good for the majority of the diamond drill holes where core recovery has been recorded since 2015 for the BAM Gold Project. There is not sufficient evidence to suggest the small number of poor core recovery intervals would impact significantly on the resource grade estimates.

11. Sample Preparation, Analyses, and Security

11.1. Summary of Laboratories

From 2012, Landore has utilized ALS Chemex in Vancouver (**ALS**) as its primary laboratory, and Accurassay Laboratories in Thunder Bay (**Accurassay**), and Activation Laboratories (**Actlabs**) analytical facilities located in Ancaster as the secondary laboratories.

ALS is an independent, commercial mineral laboratory accredited by the Standards Council of Canada (**SCC**) under ISO/IEC 17025 guidelines for Au, PGE, Cu, Ni, and Co analysis by AA. Each ALS laboratory has a Quality Management System (**QMS**) to ensure the production of consistently reliable data, and ensures that standard operating procedures are in place, and are being followed. The QMS is monitored by global and regional Quality Control teams. ALS participates in a number of proficiency tests, such as those managed by Geostats and CANMET.

Accurassay is an independent, commercial mineral laboratory accredited by the SCC under ISO/IEC 17025 guidelines for PGE, Ni, Cu, and Co analysis by atomic absorption spectroscopy (**AA**). The laboratory undergoes proficiency testing PTP-MAL through the SCC and participates in round robin testing through the Society of Mineral Analysts (**SMA**).

All laboratories are independent of Landore.

11.2. Sample Preparation and Analysis

11.2.1. ALS Chemex – Sample Preparation and Analysis

Sample Preparation

The sample preparation procedures used by ALS were as follows:

1. The rock samples were first entered into the ALS Local Information System (LIMS), then bar-coded and weighed.
2. The samples were dried, riffled split, and then pulverized) to better than 70% -2 mm.
3. Silica sand was used to clean out the pulverizing dishes between each sample to prevent cross contamination.
4. The homogeneous sample then received final preparation and was analysed as per the required methods. It is not recorded whether the laboratory carries out homogeneity checks (grind size checks).
5. Assay results were checked by the laboratory manager before the hard copy was sent in the mail, and/or emailed to Landore.

The nature, quality and appropriateness of the sample preparation protocols is considered appropriate for grain sizes of the material expected and is consistent with industry standard practice.

Analysis

ALS has been Landore's primary independent laboratory since 2012. The majority of drill core samples from all diamond drilling consisted of Au analyses by "ore" grade fire assay with AA finish (50 g) (ALS analysis code Au-AA26). This analytical method is accredited under ISO/IEC 17025. Samples which exceed analysis Au-AA26's limit of 100 g/t Au are re-analysed using fire assay with gravimetric finish (50 g) (ALS analysis code Au-GRA22).

Drill holes 0415-517, 0415-518, and 0415-519 to 0415-523 were analysed for Au, Pt, and Pd using fire assay with ICP-AES finish (ALS analysis code PGM-ICP23).

All drill core samples from 2015 to 2018 drilling campaigns were analysed for a multi-element (35) suite by ICP (ALS analysis code ME-ICP41). Detection limits for the principal metals are listed in Table 11-1. Analysis descriptions from ALS are recorded in Appendix 3.

Table 11-1: ALS - Detection Limits for Principal Metals (RPA, 2018)

Element	Detection Limit
Au	5 ppb
Ag	1 ppm
Co	1 ppm
Cu	1 ppm
Ni	1 ppm
Pb	1 ppm
Pd	10 ppb
Pt	15 ppb
Zn	1 ppm

11.2.2. Accurassay – Sample Preparation and Analysis

Accurassay has been utilized by Landore as a secondary laboratory since 2012. As such, Landore submits duplicates pulp repeats and pulps reject samples derived from its drilling programs for QAQC analysis to Accurassay.

For the 2015 and 2016 drill programs, pulp and reject testing at Accurassay consisted of Au analyses by ore grade fire assay with AA finish (50 g), Accurassay analysis code ALFA2. This analytical method is accredited under ISO/IEC 17025. Samples which exceed analysis ALFA2's limit of 10 g/t Au are re-analyzed using fire assay with gravimetric finish (50 g), Accurassay analysis code ALFA7.

The sample preparation and assay/analytical procedures used by Accurassay were as follows:

- Core sample numbers were entered into LIMS.
- Samples were dried, if necessary.
- Samples were jaw crushed to minus eight mesh (2.36 mm).
- A 250 g to 400 g cut was taken by riffle splitting, with the balance stored as coarse reject.
- The above split was ground to 90% passing -150 mesh (106 µm) in a TM plate pulverizer, and then matted to ensure homogeneity. Silica sand was used to clean out the pulverizing dishes between each sample to prevent cross-contamination. The homogeneous sample was then

sent to the fire assay laboratory or the wet chemistry laboratory depending on the analysis required.

- For precious metals assays for samples from the BAM East Gold Deposit, a 50 g pulp split (prior to 2015, 30 g pulp split) was mixed with a lead-based flux and fused in a muffle oven for one hour and fifteen minutes. The charge mass was adjusted, where necessary, to accommodate high sulphide content. Each sample had a silver solution added to it prior to fusion which allows it to produce a precious metal bead after cupellation. The resulting lead button was placed in a cupelling furnace where all of the lead was absorbed by the cupel, while a silver bead, which contained any gold, platinum and palladium, was left in the cupel. Once the cupel had been removed from the furnace and cooled, the silver bead was placed in a labelled small test tube and digested using a 1:3 ratio of nitric acid to hydrochloric acid. The samples were bulked up with 1.0 mL of distilled de-ionized water and 1.0 mL of 1% digested lanthanum solution for a total volume of 3.0 mL. The solution was cooled and vortexed, and then allowed to settle. Analysis for gold, platinum, and palladium was then done using AA. The AA unit was calibrated for each element using the appropriate ISO 9002 certified standards in an air-acetylene flame.
- Sample pulps for base metal (copper, nickel, cobalt, lead, zinc) and silver geochemical analysis were weighed and digested using an aqua regia (HNO3, HCl) or multi-acid (HNO3, HF, HCl) digest. The samples were bulked up with 2.0 mL of hydrochloric acid and brought to a final volume of 10.0 mL with distilled de-ionized water. The samples were vortexed (mixed) and allowed to settle and then analyzed for copper, nickel, and cobalt using AA. The AA unit was calibrated for each element using the appropriate ISO 9002 certified standards in an air-acetylene flame.
- The results for the AA analysis were checked by the technician and forwarded for data entry by electronic transfer, and a certificate was produced. The laboratory manager checked the data and validated them if they were error-free. The results were then forwarded to Landore by email, with hardcopy sent by mail.

The multi-element analysis was carried out by aqua regia digestion of a pulp split and analysis by inductively coupled plasma (**ICP**) atomic emission spectroscopy finish.

11.2.3. Actlabs – Sample Preparation and Analysis

Actlabs has been utilized by Landore as an alternate secondary laboratory for independent sampling check assaying (RPA, 2018), and for pulp duplicate sampling (2017 and 2018). As with the Accurassay laboratory, Landore submits duplicates pulp repeats and pulps reject samples derived from its drilling programs for QAQC analysis to Actlabs.

For the 2017 and 2018 drill programs, the sample pulps that were sent to Actlabs were analysed for gold using Actlabs' Code 1A3-50 Fire Assay, gravimetric finish package using a 50 g aliquot. This analytical method is accredited under ISO/IEC 17025.

The sample preparation and assay/analytical procedures used by Actlabs were as follows:

- Core sample numbers were entered into LIMS.

- Samples were dried, if necessary.
- Samples were jaw crushed to a nominal 2 mm, mechanically (riffle) split 250 g to obtain a representative sample (250 g). The balance was stored as coarse reject for 60 days from the date of the final report.
- The representative sample was then pulverized to at least 95% -105 µm. Quality of crushing and pulverization was routinely checked as part of Actlabs quality assurance program.
- Cleaner sand was used to clean out the pulverizing dishes between each sample to prevent cross-contamination.
- The homogeneous sample was then sent to the fire assay laboratory or the wet chemistry laboratory depending on the analysis required.
- For all samples, gold was analysed using Actlabs' Code 1A3-50 Fire Assay, gravimetric finish package using a 50 g aliquot (range 0.02 ppm Au to 10.0 ppm Au).
- Samples analyzed for gold, which exceed analysis Code1A3-50 limit of 10 g/t Au can be re-analyzed by Code 1C (Exploration or Research). This method involves Fire Assay and analysis by inductively coupled plasma with Mass Spectrometry (ICP-MS).

Actlabs uses the online LIMS system, allowing Landore to track samples from sample job numbers from reception through to preparation, analysis and reporting. The results were forwarded to Landore by email.

11.3. Quality Assurance and Quality Control

11.3.1. Summary of QAQC Procedures

QAQC protocol was for sample blanks and standards (or certified reference material (**CRM**)) to be inserted into the sample stream at regular intervals and sent for analysis at the primary laboratory (ALS Chemex). Systematic check analyses on pulps were completed by ALS, Accurassay or Actlabs).

Current Landore quality control procedures for gold analyses include the following:

- Tracking to avoid sample swapping or other preparation errors; the rock samples are entered into LIMS, then bar-coded.
- All samples are weighed.
- Insertion of a gold CRM following every 20th drill core sample.
- Insertion of a blank sample following each base element CRM.
- There has been no RC or other drill chip sampling completed, so there are no field duplicates. No second half or quarter core samples are known to have been taken to date.
- For the 2019 program, approximately three percent of the pulp and reject samples were check assayed at the secondary laboratory (Accurassay) or, Ontario. For Actlabs pulps, gold content was determined using Actlabs Code 1A3-50 Fire Assay, gravimetric finish package using a 50 g aliquot.
- Screen metallics gold analysis - this analytical method consists of passing the pulp sample through a (-) 100 µm screen and analyzing the resultant sample portions using fire assay with AA finish (ALS analytical code Au-AA26). Landore re-submitted a total of 596 pulp samples and pulp reject samples derived from the diamond drill core drilled from 2015 to

2018 to ALS for screen metallic gold analysis (analysis code Au-SCR24) to check reproducibility of gold assays for (ALS), and for check assaying of the primary lab results by an umpire laboratory (Accurassay). A further 120 samples were re-submitted for screen metallic gold analysis from screen entire pulps from drill hole sampling carried out 2019.

Landore has used an assortment of CRMs at various gold grades that have been purchased from WCM Minerals, Burnaby, British Columbia; Geostats Pty Ltd, Fremantle, Australia; and CANMET, Ottawa, Ontario. CRMs in 2006 and earlier were obtained from Gannet Holdings Pty Ltd of Perth, Australia (Table 11-2).

Landore used silica sand, commercially available from mineral laboratories, for blank samples.

Table 11-2: CRMs For Used by Landore – 2012 to 2019 (Landore database, 02 November 2019)

CRM ID	Company	Fire Assay		Aqua Regia Assay	
		Expected Value (Au ppm)	SD	Expected Value (Au ppm)	SD
G310-2	Geostats Pty Ltd.	0.20	0.01	0.20	0.03
G310-6	Geostats Pty Ltd.	0.64	0.03	0.61	0.04
G315-1	Geostats Pty Ltd.	5.63	0.24	5.38	0.35
G901-3	Geostats Pty Ltd.	2.87	0.14		
G905-1	Geostats Pty Ltd.	1.16	0.05	1.13	0.08
G905-6	Geostats Pty Ltd.	5.95	0.25		
G907-5	Geostats Pty Ltd.	1.34	0.06	1.30	0.09
G908-4	Geostats Pty Ltd.	0.96	0.04	0.92	0.05
G912-3	Geostats Pty Ltd.	2.09	0.08	2.09	0.11
G913-9	Geostats Pty Ltd.	4.91	0.16	4.88	0.2
G914-10	Geostats Pty Ltd.	10.25	0.38	10.16	0.55
G914-6	Geostats Pty Ltd.	3.21	0.11	3.15	0.17
G915-4	Geostats Pty Ltd.	9.16	0.35	8.99	0.36
G995-4	Geostats Pty Ltd.	8.67	0.6	8.48	0.55
G999-6	Geostats Pty Ltd.	7.18	0.31	7.17	0.39
PGMS-25	CDN Resource Lab. Ltd.	0.48	0.04		

Prior to 2008, Accurassay employed an internal quality control system that tracked CRM and in-house quality assurance standards. This practice was discontinued in 2008, after which Landore introduced its own QAQC protocols in which Landore staff selected five percent of the samples and sent rejects and pulps together with QAQC control samples to the outside laboratory for check analyses.

Landore's approach to reviewing results of CRM analyses is illustrated in Figure 11-1. Landore carries out its analysis of the results of the CRM and blank sample material by means of a comparative table using pass-fail criteria.

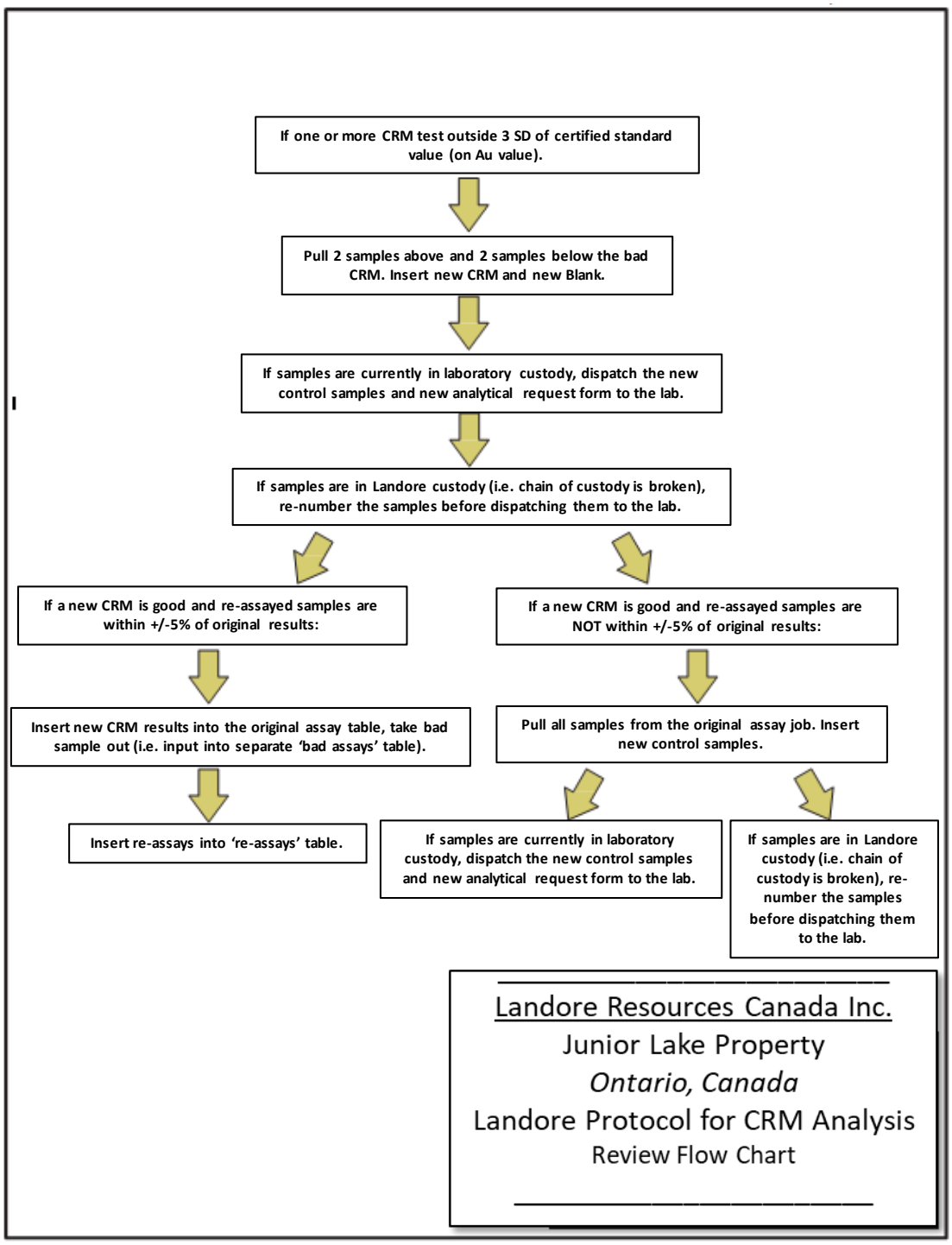


Figure 11-1 Landore CRM Analysis Review Flow Chart (modified from RPA, 2018)

11.3.2. QAQC Results – Review by Cube, 2019

Summary

For the Cube QAQC review, all gold assay values are reported in ppm units and all assay values reported below the lower analytical detection limit were set to half the detection limit for the analysis. All control samples were assessed on the basis of accuracy and precision. The precision of the sample results is the measure of how closely the results can be repeated. Precision is measured by the use of duplicate and replicate assays, whereas accuracy is measured through the use of certified reference materials.

The accuracy of sample results relates to how similar the results are to the true value.

Figure 11-2 graphically illustrates how it is possible to have good accuracy without good precision, and good precision without good accuracy. Precision is measured by the use of duplicate and replicate assays, whereas accuracy is measured through the use of reference materials.

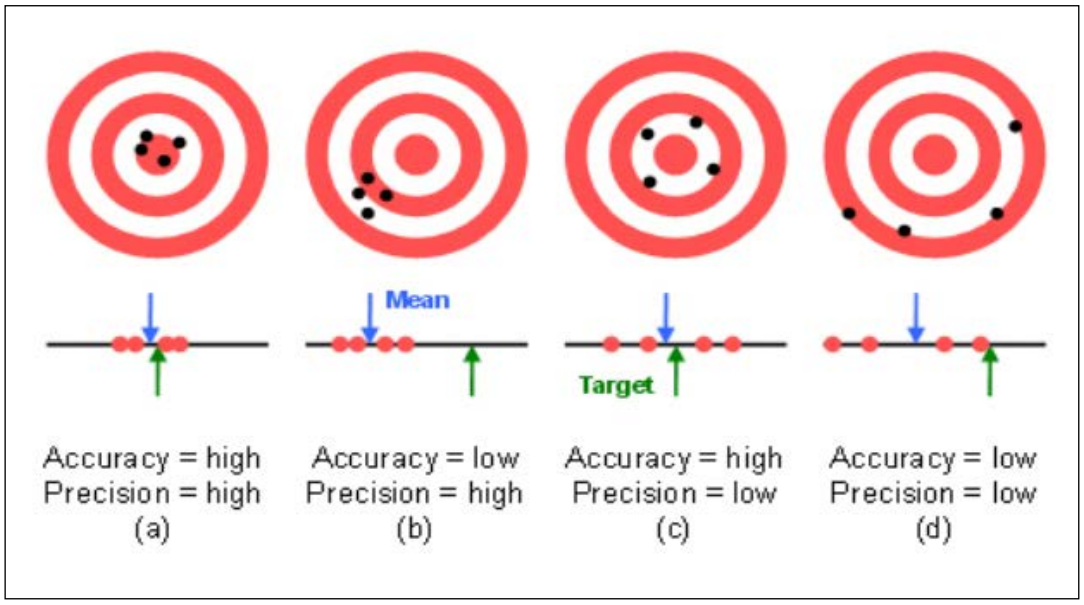


Figure 11-2 Accuracy and Precision Concept (Cube, 2018)

A description of the QAQC analysis is summarized below with some of the most significant plots for each of the control sample types. Additional plots are presented in Appendix 3.

Certified Reference Material (Standards) and Blanks

Cube has reviewed the supplied control assays for sample data for the BAM Gold Project drilling programs for the period 2016 to 2019. From a total of 98,210 samples:

- 4,768 CRMs inserted at a 5% insertion rate, or at a rate of 1 blank for every 20 samples
- 3,106 blanks inserted at a 3% insertion rate, or at a rate of 1 blank for every 32 samples.

The performances of the CRM and blanks for ALS are detailed in Table 11-3. Selected QAQC plots for specific expected grades are illustrated in Appendix 3.

Table 11-3: CRM and Blanks Performance Summary for ALS (2016 to 2019)

CRM ID	No. of Samp	Expected Value (Au ppm)	SD	Accuracy	Precision	% Passing 3SD	% Bias	Period In Use	Comments
G310-2	99	0.20	0.020	PASS	PASS	100	-3.71	2017-2019	
G310-6	90	0.65	0.040	PASS	PASS	100	-2.77	2017-2019	3 samples removed possible mislabel
G315-1	69	5.64	0.250	PASS	PASS	100	-0.77	2017-2019	2 samples removed possible mislabel
G900-5	58	3.21	0.130	PASS	PASS	98	1.1	2016-2017	1 sample removed possible mislabel
G901-13	52	1.18	0.050	PASS	PASS	100	-0.51	2016-2017	
G901-3	30	2.87	0.140	PASS	PASS	100	1.52	2016-2018	
G905-1	104	1.16	0.050	PASS	PASS	100	-1.04	2016-2019	1 sample removed possible mislabel
G905-6	39	5.95	0.250	PASS	PASS	97	-0.16	2016-2018	1 sample removed possible mislabel;1 fail observed
G905-8	19	2.55	0.130	PASS	**FAIL**	84	3.08	2016-2017	3 fails observed; not used after Jan 2017
G907-5	84	1.34	0.070	PASS	PASS	100	-1.74	2017-2019	
G908-4	86	0.96	0.050	PASS	PASS	99	-0.61	2017-2019	1 sample removed possible mislabel;1 fail observed
G912-3	87	2.09	0.080	PASS	PASS	100	-0.65	2017-2019	1 sample removed possible mislabel
G913-9	63	4.91	0.170	PASS	PASS	96	-0.08	2017-2019	2 fails observed; precise dates would allow id of specific lab event occurrence.
G914-10	41	10.26	0.380	PASS	PASS	100	0	2017-2019	1 sample removed possible mislabel
G914-6	71	3.21	0.120	PASS	PASS	96	-1.27	2017-2019	1 sample removed possible mislabel; 2 fails observed
G915-4	49	9.16	0.350	PASS	PASS	97	-0.55	2017-2019	1 fail observed
G955-4	16	8.67	0.600	PASS	PASS	100	1.41	2016-2019	
G999-6	44	7.18	0.310	PASS	PASS	100	0.43	2016-2019	
GPP-06	33	0.98	0.050	PASS	PASS	100	-0.22	2014-2017	1 sample removed possible mislabel
PGMS-25	111	0.48	0.022	PASS	PASS	100	1.75	2014-2019	
BLANK	1207	0.001	0.002	PASS	PASS	99.8	0	2016-2019	2 samples removed possible mislabel and 1 outlier check for swap;4 fails observed

Table 11-4: CRM and Blanks Misclassificaton Listing for ALS (2016 to 2019)

Sample ID	Assay Value (Au ppm)	Lab Job No.	CRM ID	Comment
R713547	0.01	TB17104264	G310-6	Mislabelled - could be BLANK?
V352737	0.19	TB17100929	G310-6	Mislabelled - could be G310-2?
Y072850	5.00	TB18193339	G310-6	Mislabelled - could be G913-9?
V927803	1.14	TB17150765	G315-1	Mislabelled - could be G905-1?
V927370	1.14	TB17150767	G315-1	Mislabelled - could be G905-1?
N532397	2.78	TB12143905	G900-5	Mislabelled - could be G901-3?
N526682	3.13	TB16110979	G905-1	Mislabelled - could be G914-6?
W864817	4.91	TB18116214	G905-6	Mislabelled - could be G913-9?
V926183	8.85	TB17142059	G914-10	Mislabelled - could be G955-4?
W865727	2.09	TB18113685	G914-6	Mislabelled - could be G912-3?
N525426	1.46	TB15031948	GPP-06	Mislabelled - could be GPP-10?
R710572	0.49	TB15193847	BLANK	Mislabelled - could be PGMS-23?
R713548	0.66	TB17104264	BLANK	Mislabelled - could be G310-7?

The treatment of outlier results is summarized in Table 11-5. Only one outlier was noted in the QAQC data from 2016 to 2019. The outlier is possibly a sample swapped by mistake within the sample sequence.

Table 11-5: CRM Outliers Removed Listing for ALS (2016 to 2019)

Sample ID	Assay Value (Au ppm)	Lab Job No.	CRM ID	Comment
N526683	0.07	TB16110979	BLANK	outlier - check for swap

Duplicates

Pulp repeats and pulp reject samples were check assayed at the ALS and also the secondary laboratories - Accurassay or Actlabs.

A summary of the duplicate types inserted into the sample stream is summarized as follows:

- There were 767 combined laboratory pulp duplicate and pulp reject samples recorded from 25,845 core samples (3% insertion rate), or at a rate of 1 in every 34 samples.
- For 2019, there were 122 combined laboratory pulp rejects samples assayed from 4,123 core samples (3% insertion rate), or at a rate of 1 in every 34 samples.

A summary of the statistics relating to the duplicate sampling performances is outlined in Table 11-6. The measurement of the relative precision error between paired duplicate sample data is based on

the average coefficient of variation (**ACV**). Approximate guidelines for assessing analytical quality allows for a maximum ACV of around 40% for field duplicates in gold deposits with very coarse-grained nuggetty gold and 30% for coarse to medium grain gold (Abzalov, 2006).

The results of the paired duplicate data analysis indicate that the duplicate data fails the Abzalov (2006) test for acceptable ACV below 30%. The control charts indicate no significant bias between the original assays and the pulp duplicates for each of the laboratory control charts. The paired duplicate control charts for the duplicate types are illustrated in Appendix 5.

Table 11-6: Duplicate Sample Performance Summary (2016 to 2019)

Dup. Type	Lab	No. Orig. Samples	Period In Use	No. Dup. Samples	Ave Pair Mean Diff	ACV	Asy 10%	Asy 20%	Asy 50%	Comments	Abzalov* score
Pulp Dup	Acc	151	2015-2016	139	-19.6	40.3	18.0	35.3	74.1	Same sample ID; Unknown Original labjob/date	Fail (10-20%)
Pulp Dup	Actlab	122	2017	102	-7.9	31.1	36.3	50.0	85.3	Same sample ID; Unknown Original labjob/date	Fail
Pulp Dup	ALS	100	2016	100	-9.2	39.8	22.0	45.0	74.0	Different sample ID (suggesting different labjob); Unknown Original labjob/date	Fail
TOTAL		**373**		**341**							
Pulp Reject	Acc	53	2015-2016	49	-23.3	46.0	10.2	22.4	61.2	Same sample ID; Unknown Original labjob/date	Fail (20-30%)
Pulp Reject	Actlab	207	2018	177	-12.3	43.9	26.6	48.0	76.3	Same sample ID; Unknown Original labjob/date	Fail
Pulp Reject	ALS	12	2018	11	11.3	49.2	18.2	27.3	72.7	Same sample ID; Unknown Original labjob/date	Fail
TOTAL		**272**		**237**							

* Reference for Abzalov (2006), ACV Fail at 30% Threshold.

11.3.3. QAQC Summary and Recommendations

The following summary and conclusions have been noted from the review.

- CRM and Blanks Performance:
  - CRM and blanks insertion rate is considered adequate coverage for the recent drilling completed during the 2016 to 2019 period.

    - CRM and blanks inserted in batches at ALS during the period 2015 to 2019 have been performing well, and notably better than previous results for the same CRM from Accurassay.
    - CRM G905-8, which failed the precision test (77% passing) for the 2016-2017 period, only had a limited number of samples and was discontinued in 2017.
    - In summary, for the ALS laboratory from 2016 to 2019 there was only one failed sample recorded and 13 mislabelled samples identified, which in total represents a 0.7% failure rate.
- Duplicate Performance:
    - Pulp duplicates have been carried out during 2016-2019 (25,845 core samples) at a lower than acceptable insertion rate of 3%.
    - For 2019, duplicate pulps contained inserted CRM and blanks.
    - All duplicate reviews from the three laboratories have an ACV which is higher than the acceptable range for duplicates of this sample type (Pulp 10-20% or Reject 20-30%).
    - There are three lab job batches which have three or more fails > 120% absolute difference between original and duplicate. There were two lab jobs at Actlabs carried out on rejects which may indicate an issue with particle size. One lab job at ALS carried out on pulp samples has been renumbered and may be a result of mismatched samples.
    - The pulp duplicate results are indicative of the "nuggety" nature of the gold mineralization at BAM, where up to 1 mm visible gold specks have been regularly logged in the diamond drill core. The erratic results observed in the Relative Paired Mean Difference (**RPMD**) plots between the assays for the three laboratories for some samples is attributed to the presence of coarse gold in the samples.

The following general recommendations are summarized below:

- Further analysis of the duplicate sampling is required, including re-analysis of duplicate sample pulps where ACVs are high. Include CRM and blanks within the duplicate sampling lab jobs.
- Conduct coarse reject duplicate sampling. Coarse reject samples are ideally suitable as a substitute for ½ core samples and could be carried out on the mineralized threshold of Au >0.10ppm including CRM and coarse blanks throughout.

11.4. Sample Security

Drilling and sampling are carried out in a remote, sparsely populated region. The project site is 255 km along a mostly un-sealed road to the east of Armstrong, so any unauthorized access is difficult.

All core sample bags are sealed with plastic sequentially numbered security tags and three to five of these sample bags are placed in larger rice bags, also sealed with a numbered security tag. All security tag numbers are recorded prior to shipping and checked upon delivery at the lab.

Half core samples are secured in the logging/sampling building at the Junior Lake exploration camp on site. The samples are then transported directly from the site to the ALS, Accurassay or Actlabs laboratories by Landore personnel. Samples were submitted in batches of 50, soon after they were collected. Chain of custody is supported by the Landore site staff sample logbook and sample reports from the laboratories.

Landore have no recorded any instances of samples being lost and the risk of sample tampering is low.

Figure 11-3: Sample Preparation at Junior Lake Exploration Offices (Cube Site Visit, June 2018)

11.5. Primary Data Storage

For geological and geotechnical logging, all analytical results and quality control reports from all drilling completed to date are stored digitally within the drilling database, controlled and maintained by Landore personnel at the Landore offices in Thunder Bay. Hard copies of the more recent drilling data, including logging, drill plods, mapping, downhole surveys and reports are kept at the Junior Lake exploration camp site office. All documentation relating to drilling and sampling is collated and validated either on site or at the Landore offices in Thunder Bay.

Diamond drill core storage facilities are adequate, with core stored in covered core racks at Landore's Junior Lake camp (Figure 11-4).

Landore logging and sampling information is recorded in Microsoft Word and Access software, respectively. Through 2007, the Word and Access files were edited and converted into .txt and .csv files for import into MapInfo GIS software for plan map and cross section generation, as well as Borsurv logging software for drill log generation and supplementary cross section plotting. Borsurv software was not used after 2007. MapInfo has been the primary drafting software utilized since 2007.

Figure 11-4: Core Storage Facility at Junior Lake Exploration Offices (Cube Site Visit, June 2018)

11.6. Principal Authors Statement

Following the author's site visit review of the chain of custody and security, laboratory sample preparation and analytical methods described by the ALS documentation, the following conclusions have been made:

- Samples are stored securely prior to transportation to the laboratory by Landore employees in the dedicated field office and lockable sample preparation facility, with minimal risk of sample tampering.
- The chain of custody is supported by the Landore site staff sample logbook and sample reports from the laboratories.
- Samples were transported from the camp office by trailer, and under supervision of Landore personnel to the laboratories and as such the risk of sample tampering is low.

- The nature, quality and appropriateness of the laboratory sample preparation protocols is considered suitable for grain sizes of the material expected and is consistent with industry standard practice.
- The appropriateness of the assaying and laboratory methods is considered a total measure of gold for the BAM Gold Project.

In summary, the sampling preparation and analytical methods used are adequate for and consistent with the Principal Author's understanding of the style of gold mineralisation targeted by Landore at the BAM Gold Project.

12. Data Verification

12.1. Overview

Data verification has included data validation of the 2019 drill data following on from a site visit conducted by Cube from 23 to 28 June 2018. The 2018 site visit included the following activities:

- The site visit included inspection of current diamond drilling and sampling activities and facilities, and inspection of the sample dispatch and security at the site sampling and storage facilities.
- Examination of diamond drill core and core logging activities on site (both geological and geotechnical) and discussions with the on-site geologists regarding the current understanding of the nature of the host rocks and controls on the gold mineralization.
- Inspection of diamond drill rig and drilling activities.
- Inspection of outcrops and the general topographic conditions in the area of the Project.
- Confirmation of the location of selected hole collars in the field, and in relation to the supplied topographic surface digital terrain model.
- The lithologies, structure, alteration, and mineralization in selected intervals of drill core were examined and compared with the descriptions presented in the drill hole logs.

For the 2019 drilling data, Cube conducted a data compilation review and validation of all drilling data prior to the 2019 MRE work.

12.2. Database Validation

Data was validated utilizing a visual review of digital and paper files, as well as computer-aided checking systems. Validation included review of core samples from drilling completed in 2019, plus previous drilling by Landore and interrogation of digital and paper data, including paper plans and sections, assay records, downhole survey records and geology logs.

Validation checks included the following work:

- Check for drill hole collar outliers for Easting, Northing, and RL.
- Any discrepancies in maximum hole depths between collar, assay, survey and geology records.
- Any discrepancies in interval lengths for the database records, including downhole surveys, assays, geology.
- Checks for duplicate numbering, missing data, and interval error checks using validation rules in MS Excel before importing records into MS Access.
- The survey table drill hole azimuths were checked and verified to be within the 0° to 360° expected range.
- The survey table was checked for any positive or near zero drill hole inclinations.
- The assay table was checked for overlaps of assay sample intervals.
- The assay table was checked for negative assays, missing assays, assays outside of expected ranges or evidence of smearing.

- Other data base tables were checked, including core recovery, density, structure.
- The significant mineralized intervals were checked for un-sampled intervals close to the mineralized margins and within the mineralized zones.
- Checking drill holes using visual inspection of the drill holes in Surpac 3D workspace to identify inconsistencies of drill hole traces (un-natural hole deviations).
- Checking in Surpac 3D workspace of drill hole collar positions to the topography.

Cube completed the data validation checks prior to exploratory data analysis for the new MRE. The drilling data was found to be very well structured and no obvious material discrepancies were detected in the collar, survey, assay or geology data.

A few queries and minor issues were noted and forwarded to Landore for review and feedback. All issues were adequately explained. All relevant database validation queries and any adjustments to data by Cube are listed in Table 12-1.

Table 12-1: Drill Hole Validation Listing (as at 02 November 2019)

DB Table	Hole ID	Validation Query	Action	Comment
Collar	0414-493	Hole drilled North to South	Ignored in BAM MRE	Potentially drilled down mineralisation
Collar	0417-617	Hole drilled North to South	Ignored in BAM MRE	Potentially drilled down mineralisation
Collar	0417-619	Hole drilled North to South	Ignored in BAM MRE	Potentially drilled down mineralisation
Collar	0418-655	Hole drilled North to South	Ignored in BAM MRE	Hole drilled for Geotechnical studies
Assay	0418-653	No Assays in Min zone	Ignored in BAM MRE	Metallurgical test work holes
Assay	0418-654	No Assays in Min zone	Ignored in BAM MRE	Metallurgical test work holes
Assay	0418-655	No Assays	Ignored in BAM MRE	Geotech Hole
Core Recovery	0419-722	Recorded as 0419-721 in data received	Amended to correct hole	
Core Recovery	0419-723	Recorded as 0419-721 in data received	Amended to correct hole	
Core Recovery	0419-724	Recorded as 0419-721 in data received	Amended to correct hole	
Core Recovery	0419-687	EOH depth > Collar Record EOH depth	Amended to collar EOH depth	
Core Recovery	0419-689	EOH depth > Collar Record EOH depth	Amended to collar EOH depth	
Core Recovery	0419-693	EOH depth > Collar Record EOH depth	Amended to collar EOH depth	
Core Recovery	0419-700	EOH depth > Collar Record EOH depth	Amended to collar EOH depth	
Core Recovery	0419-701	EOH depth > Collar Record EOH depth	Amended to collar EOH depth	
Core Recovery	0419-703	EOH depth > Collar Record EOH depth	Amended to collar EOH depth	
Core Recovery	0419-707	EOH depth > Collar Record EOH depth	Amended to collar EOH depth	
Core Recovery	0419-711	EOH depth > Collar Record EOH depth	Amended to collar EOH depth	
Core Recovery	0419-713	EOH depth > Collar Record EOH depth	Amended to collar EOH depth	
Core Recovery	0419-714	EOH depth > Collar Record EOH depth	Amended to collar EOH depth	
Core Recovery	0419-715	EOH depth > Collar Record EOH depth	Amended to collar EOH depth	
Core Recovery	0419-716	EOH depth > Collar Record EOH depth	Amended to collar EOH depth	

DB Table	Hole ID	Validation Query	Action	Comment
Core Recovery	0419-718	EOH depth > Collar Record EOH depth	Amended to collar EOH depth	
Density	0419-714	EOH depth > Collar EOH depth	Amended to collar EOH depth	
Density	0419-715	EOH depth > Collar EOH depth	Amended to collar EOH depth	
Density	0416-531	Negative BD value at 120.63	Ignored in BAM MRE	
Density	0416-543	Negative BD value at 20.23	Ignored in BAM MRE	
Density	0417-562	Negative BD value at 150	Ignored in BAM MRE	
Density	0417-583	Negative BD value at 130.23	Ignored in BAM MRE	
Density	0417-618	Negative BD value at 20.8	Ignored in BAM MRE	
Density	0418-645	Negative BD value at 81.85	Ignored in BAM MRE	
Density	0418-676	Negative BD value at 54.11	Ignored in BAM MRE	

12.3. Data Verification

Data verification carried out by Cube included the following:

- Confirmation of the location of random hole collars in the field against the original location data collected by the surveyor. No material discrepancies were noted.
- Confirmation of all hole collar survey pickups in relation to the supplied topographic surface digital terrain model.
- Checking of downhole survey information, mostly digital printouts where available, from site office logs.
- Review of original assay certificates to confirm assay data in the drilling database used for the 2019 MRE.
- Review of available drill hole geology logging using supplied electronic logging files.
- Data verification and check logging of selected holes from remaining half diamond drill core at the Junior Lake camp site core farm during the site visit in 2018.

12.3.1. Drill Hole Collar Surveys

All drilling and block model data used for the December 2019 MRE work has used the UTM NAD83, Zone 16 grid coordinate system. All of the holes have easting, northing and RL collar coordinates which have two decimal place values. This indicates all the holes are likely to have collar coordinates which were actually surveyed.

All collars were pegged prior to the commencement of the program using a differential GPS (Trimble GPS, with accuracy +/120 cm). After the drilling programs were finished, certified contract surveyors (JD Barnes & Associates of Thunder Bay) would pick up the actual collar locations using a differential GPS or total station Electronic Distance Measuring (**EDM**) survey equipment.

A topographic surface created in 2018 in DXF file format was imported into Surpac as a DTM file for use in the MRE work. The topography models are considered to be adequate for the purposes of Mineral Resource estimation, evaluation and reporting.

A review of the drilling data showed that there were no significant variations between the surveyed collar positions and the supplied topographic surface DTM (Figure 12-1 and Figure 12-2).

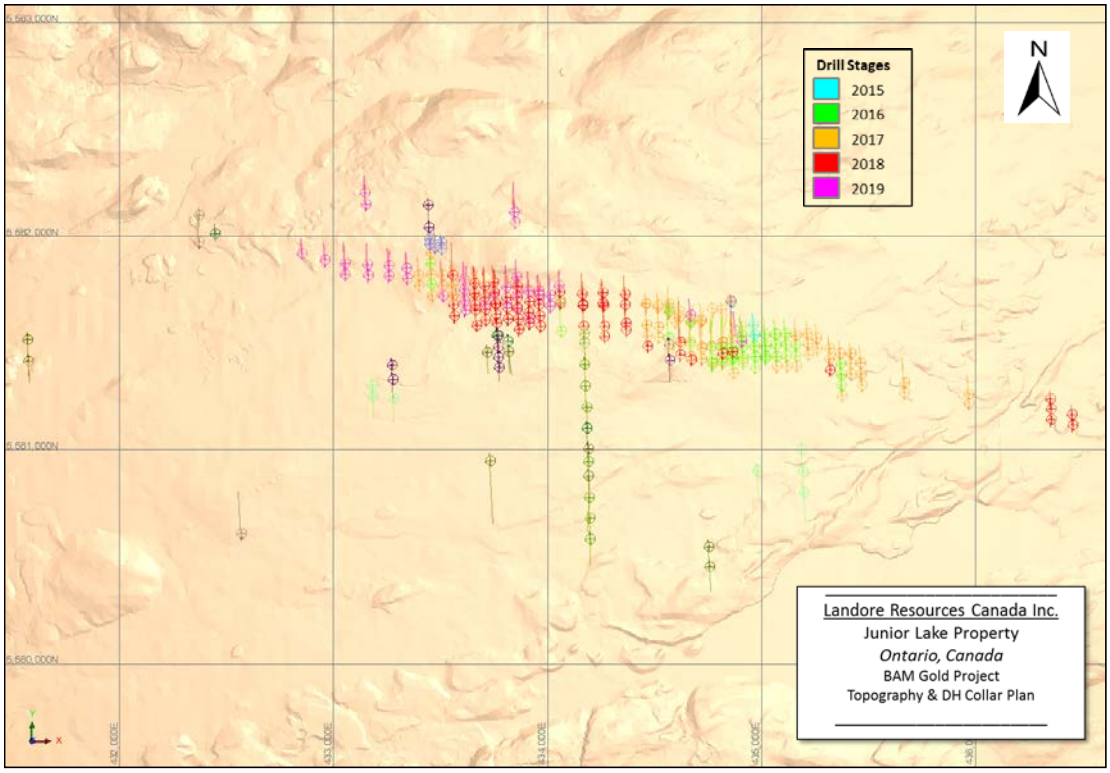


Figure 12-1: Plan View of Surface Topography Surface DTM Overlay with Drill Hole Collars (December 2019)

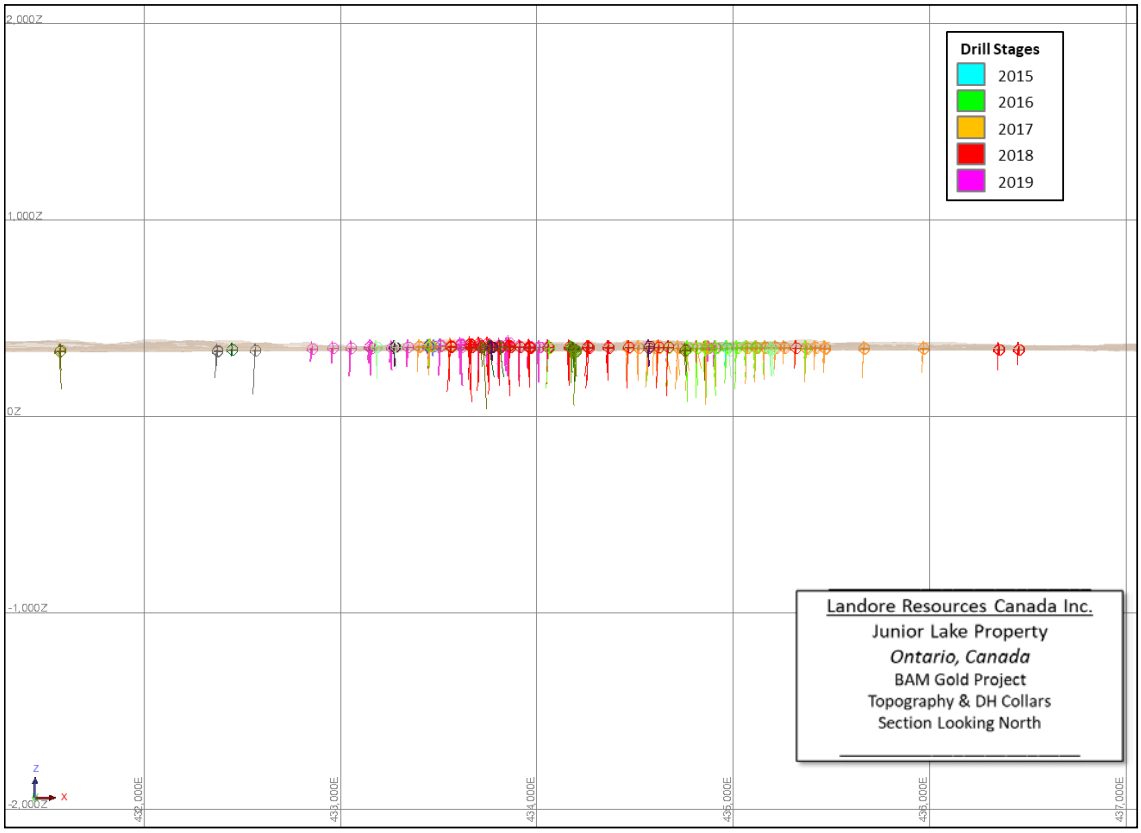


Figure 12-2: Composite Section View Looking North – Showing Surface Topography Surface DTM Overlay with Drill Hole Collars (December 2019)

During the 2018 site visit, several random holes were checked in the field by Cube against the hole collar coordinates in the BAM drilling database (Table 12-2 and Figure 12-3). Hole collars are clearly marked and preserved for later collar survey pickup and DH surveying. Hole numbers are stamped on top of the metal hole covering.

There were no variances from the original database co-ordinate records for the holes identified.

Table 12-2: Listing of Random Hole Survey Checks (24th June 2018)

Hole ID	Local Grid East	Local Grid North	RL	UTM East	UTM North	Field GPS Check	EOH Depth	Hole Size	Plan Dip	Plan Azi	DHS Method	DH Survey Check
0403-003	1000	615	358.59	5,581,993.14	433,444.84	OK	60.00	NQ	-46	357	Maxibor	OK
0403-004	1000	592	359.31	5,581,967.70	433,445.62	OK	81.00	NQ	-45	357	Maxibor	OK
0416-536	2400	50	351.91	5,581,484.40	434,854.22	OK	183.00	NQ	-46	357	Maxibor	OK
0416-541	2400	0	351.15	5,581,435.73	434,863.15	OK	222.00	NQ	-46	357	Maxibor	OK
0416-557	2397	0	351.25	5,581,436.63	434,860.10	OK	267.00	HQ	-55	357	Easy Shot	OK
0417-580	1000	550	359.95	5,581,924.95	433,449.22	OK	156.04	NQ	-45	357	Maxibor	OK
0417-621	2350	75	351.84	5,581,507.80	434,814.94	OK	173.98	HQ	-39	358	Maxibor	OK
0417-625	2350	73	351.66	5,581,506.20	434,815.06	OK	173.75	HQ	-40.2	9	Maxibor	OK

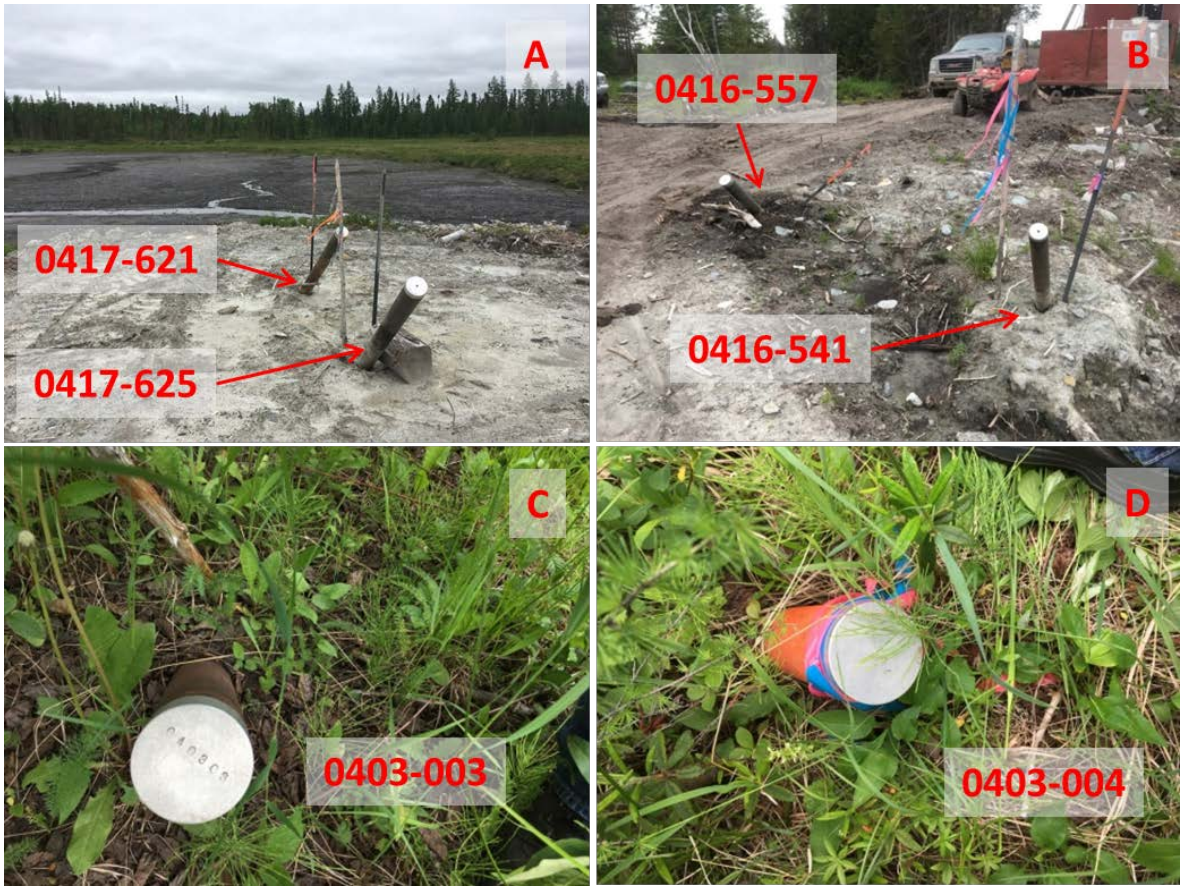


Figure 12-3: Field Location of Drill Holes used for Data Verification (Cube Site Visit, June 2018)

12.3.2. Downhole Surveys

Downhole surveys were conducted at 9 m depth after hole collaring and then at 50 m intervals using a Reflex Easy-Shot, single-shot survey tool supplied by the drilling company. On completion of each hole, downhole surveys were completed using a continuous Reflex Maxibor survey unit by third party contractors, providing a dip and azimuth reading at 3 m intervals down hole.

Downhole surveys have been checked against transcribed information on the original drill hole logs or summary sheets. As part of the validation work, Cube checked drill hole traces visually using Surpac to ensure there were no unnatural deviations.

The 3D location of the individual samples is considered by Cube to be adequate for the 3D interpretation and resource modelling work.

12.3.3. Assay Data

Cube reviewed the sample collection, submission, and data entry protocols during the 2018 site visit at the Junior Lake site office as part of the data verification process.

Cube verified supplied electronic drill hole data with drill hole logs and assay certificates for a selection of significant holes within the supplied drilling database (Figure 12-4 and Table 12-3).

Cube verified selected intercepts within the mineralized domains using downhole compositing calculations in Surpac Mining Software v6.8 (**Surpac**), checked against calculations in MS Excel using the assay records for significant intersection zones.

There were no material issues or errors noted during the assay verification between the supplied drill hole database and original laboratory data.

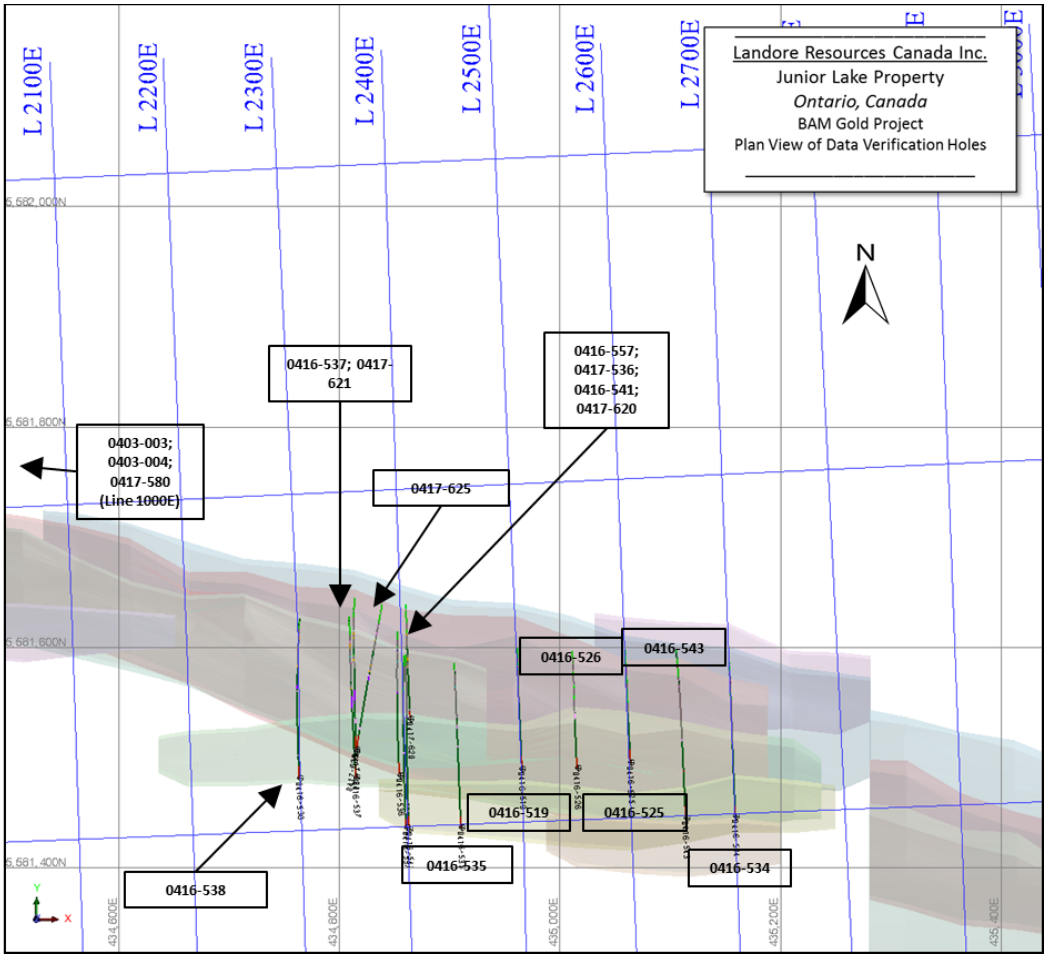


Figure 12-4 Plan View of Locations of Selected Holes for Hole Verification Analysis (December 2019)

Table 12-3: Listing of Verification Holes for Assay and Logging Checks (25 June 2018)

Hole ID	Assay Checks				Geology Logging Checks		
	Sampling	Original Lab Certificates	Landore QAQC	Significant Intervals Check in 3DM	Original Logs Check (PDF copies)	Check Logging, June 2018	Core Photos Available
0416-519	1/2 NQ Core	TB16034211, TB16142570, TB16034219, TB16034221	CRM/ Blanks	Checked	PDF Log	Checked	YES
0416-525	1/2 NQ Core	TB16120651, TB16110975, TB16110979	CRM/ Blanks	Checked	PDF Log	Checked	YES
0416-526	1/2 NQ Core	TB16110981, TB16110983,	CRM/ Blanks	Checked	PDF Log	Checked	YES
0416-534	1/2 NQ Core	TB16217399, TB16123628, TB16123629, TB16123632	CRM/ Blanks	Checked	PDF Log	Checked	YES
0416-535	1/2 NQ Core	TB16123633, TB16123634, TB16123636, TB16123637	CRM/ Blanks	Checked	PDF Log	Checked	YES
0416-537	1/2 NQ Core	TB16129989, TB16129991, TB16129993	CRM/ Blanks	Checked	PDF Log	Checked	YES

Hole ID	Assay Checks				Geology Logging Checks		
	Sampling	Original Lab Certificates	Landore QAQC	Significant Intervals Check in 3DM	Original Logs Check (PDF copies)	Check Logging, June 2018	Core Photos Available
0416-538	1/2 NQ Core	TB16129994, TB16129995, TB16129996, TB18116219	CRM/ Blanks	Checked	PDF Log	Checked	YES
0416-541	1/2 NQ Core	TB16135702, TB16135722, TB16135726, TB16135727	CRM/ Blanks	Checked	PDF Log	Checked	YES
0416-543	1/2 NQ Core	TB16138075, TB16138077, TB16138078	CRM/ Blanks	Checked	PDF Log	Checked	YES
0416-563	**1/2 HQ Core**	TB17071796, TB17077977, TB17077978, TB17077979	CRM/ Blanks	Checked	PDF Log	Checked	YES
0417-620	**1/2 HQ Core**	TB17139543, TB17139544, TB17139545	CRM/ Blanks	Checked	PDF Log	Checked	YES

12.3.4. Geological Logging

During the site visit to the diamond drill core processing facility, Cube reviewed and verified the following logging and sampling protocols used for all current Landore drilling programs:

- All diamond drill holes were geologically logged in full.
- Logging by Landore is done both qualitatively and quantitatively with description of lithologies, structural measurements and comments being done. Logging records major and minor rock units (grain sizes, texture structural information including: core angles of geological contacts, foliation and bedding, fractures, faults, veins, joints etc.), alteration and sulphide species, content and mode of occurrence.
- Geotechnical measurements including core recovery, RQD and fracture density are also taken.
- All diamond drill core is digitally photographed for both dry and wet core trays with photos maintained on file in Landore's Thunder Bay office.

Several holes were summary logged by Cube during the 2018 site visit to verify the interpreted geology and compare against the Landore geology logging and assay results supplied as part of the drilling database (Figure 12-5).

The objective was to understand the style of the mineralization, core quality and recovery, and to confirm the consistency of the logging codes for use in interpretation. This was supplemented by examination of core photography where available from the drilling.

Cube concluded that the gross stratigraphy of the deposit from the summary logging confirmed the original detailed logging in the Landore drilling logs and database.

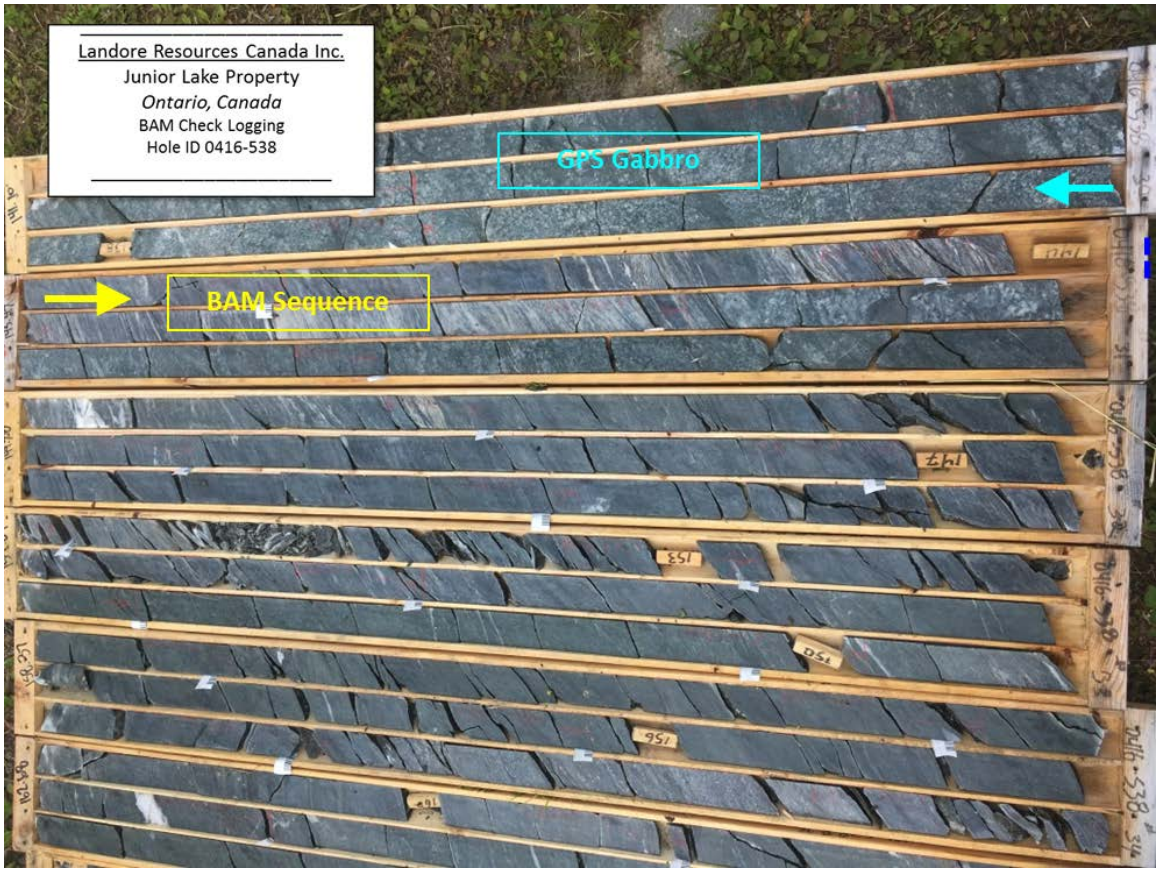


Figure 12-5: Site Photo of Check Logging of for Hole 0416-538, for Interval 135 m to 162.68 m (Cube Site Visit, June 2018)

12.4. Screen Metallics Analysis

12.4.1. Screen Metallics Results – RPA 2016

During 2016, Landore re-submitted a total of 265 pulp samples and 20 reject samples derived from the BAM Gold Deposit drill core to its primary analytical laboratory ALS Minerals of British Columbia for screen metallics gold analysis (analysis code Au-SCR24) to check reproducibility of gold assays.

Landore commissioned RPA to carry out a preliminary analysis of the results from the screen metallic analysis program in October 2016 (RPA, 2018). The analysis was carried out using the results from 216 samples from 16 drill holes on which both fire assays and screen metallic assays had been carried out. RPA updated the results with 310 screen metallic assays taken in 2017 from 32 drill holes, of which 264 had fire assay results. The updated conclusions included the following:

- Overall, the screen metallics assays correlate reasonably well with the fire assays, except that the fire assays are higher on average than the metallics assays for values greater than approximately 3 g/t Au.
- The 64 fire assays greater than 3 g/t Au average 8.54 g/t Au and the equivalent metallics assays average 7.66 g/t Au (10% lower).
- It is not known why the fire assays are lower overall than the metallics assays for higher gold values, but it may be related to the larger amount of material assayed in the latter.

- The fire assays correlate reasonably well with the screen metallic assays for values less than approximately 3 g/t Au.
- The 200 fire assays less than 3 g/t Au average 0.82 g/t Au and the equivalent metallics assays average 0.85 g/t (4% higher).
- For all 264 samples combined, the fire assays average 2.76 g/t Au and the equivalent metallics assays average 2.51 g/t Au (10% higher).
- The coarse fraction weight averages 90 g and the fine fraction averages 700 g, with some variability.
- Overall, 34% of the gold by weight is in the coarse fraction and 66% is in the fine fraction, although proportions are quite variable.
- For fire assays over 1 g/t Au, 43% of the gold by weight is in the coarse fraction on average; for assays under 1 g/t Au, 27% by weight is in the coarse fraction on average.

This data provides strong evidence to conclude that the presence of significant quantities of coarse gold in a given sample plays an impact on the reproducibility of the assay results between the Fire Assay and Screen Metallic assay methods. The data is in good agreement with the industry experience that the smaller aliquot size used to prepare a Fire Assay sample relative to a Screen Metallic sample is not always adequate when coarse gold is present in a sample.

12.4.2. Screen Metallics Analysis – 2018-2019 Results

Cube has reviewed the supplied screen metallic assays for sample data for the BAM Gold Project drilling programs for the 2018 and 2019 drilling programs.

The analysis was carried out using the results from 304 samples from 48 drill holes on which both fire assays and screen metallic assaying had been carried out. A breakdown of the sample types as recorded by Landore are:

- 12 core samples.
- 141 pulp duplicate samples.
- 166 laboratory reject pulp samples.

The samples were sent to Landore's primary analytical laboratory ALS Minerals in British Columbia for screen metallics gold analysis (analysis code: Au-SCR24) to check reproducibility of gold assays.

A summary of the statistics relating to the screen metallic sampling performances is outlined in Table 12-4.

As previously noted, the measurement of the relative precision error between paired duplicate sample data is based on the ACV. The results of the paired duplicate data analysis indicate that the screen metallic data passes the Abzalov (2006) test for acceptable ACV below 30%.

The control charts indicate no significant bias between the original assays and the screen metallic duplicates for each of the laboratory control charts (Appendix 6). The analysis indicates a slightly higher grade for the original Fire Assays above the economic grade ranges (0.2 to 1.0 g/t Au). From 1.0 to 4.0 g/t Au there is a good correlation between the assaying methods.

As observed in the drill core logging, there are frequent occurrences of coarse visible gold (1 mm average size). It is clear therefore that there will be higher variability with some individual sample comparisons in the data set.

The raw data tables for the original Fire Assay samples compared with the screen metallic total combined assays types are tabulated in Appendix 6.

Table 12-4: Screen Metallic Sample Performance Summary (2018-2019 Drilling)

# of Original Samples	# of Duplicate Samples	Ave. Pair Mean Diff. (%)	ACV (%)	Asy10%	Asy20%	Asy50%
304	304	-15.1	7.0	23.6	36.8	69.8

Note: One sample had low reject weight, no results for Screen Metallic Assay.

The updated conclusions included the following:

- Overall, the screen metallics assays correlate reasonably well with the fire assays, except that the fire assays are higher on average than the metallics assays for values above 0.1 g/t Au.
- The coarse fraction weight averages 80 g and the fine fraction averages 894 g, with some variability.
- Overall, 8% of the gold by weight is in the coarse fraction and 92% is in the fine fraction, although proportions are quite variable.

As previously noted from the 2016-2017 analysis, there was strong evidence to suggest that the presence of significant quantities of coarse gold in a given sample plays an impact on the reproducibility of the assay results between the Fire Assay and Screen Metallic assay methods. RPA concluded that the data is in good agreement with the industry experience that the smaller aliquot size used to prepare a Fire Assay sample relative to a Screen Metallic sample is not always adequate when coarse gold is present in a sample.

However, the results from the 2018 analysis are less variable and may be the result of larger HQ half core sample size for some diamond core holes used for the original Fire Assaying having improved the reproducibility of the assay results between the Fire Assay and Screen Metallic assay methods.

12.5. Bulk Density Determinations

12.5.1. Bulk Density Methodology

Bulk Density (**BD**) measurements are determined and based on samples taken by Landore staff at the Junior Lake exploration camp.

BD measurements were taken where there was visible mineralization, and at three metres intervals in select holes for background measurements. The methodology is described as follows:

- BD was measured utilizing a Denver Instrument Model PI-2002 scale, accurate to 0.01 gram. The scale was securely setup on a sturdy table and levelled.

- A plastic weighting basket was suspended beneath the scale so that it is completely submerged in a pail of water (at room temperature) and then the scale is calibrated to read zero.
- The dry sample is weighted on the scale and the dry weight (DW) recorded. The sample is then placed in the basket, completely submerged in the water and the wet weight (WW) is recorded.
- All dry and wet weights are entered into an Excel spreadsheet and the BD is calculated using the following formula: **BD=DW/DW-WW**

A total of 7,869 BD samples from 207 holes have been taken up to December 2019, representing 30% of all samples taken at BAM for analysis. The amount of BD samples is considered a good representation of all material types across the BAM Project area.

The BD methodology is considered adequate for the rock material types at the BAM Gold Project. There are no oxide/transition zones present within the sequence, and no porous or 'vuggy' zones within the rock units below the shallow overburden material.

12.5.2. Bulk Density Results

From BD determinations calculated from core samples collected by Landore for the BAM Gold Project area, the basic statistics representative of the main lithology types is summarized in Table 12-5. A total of 12 BD samples were excluded from the BD statistics, including very low and very high outlier values, or values with negative readings.

Table 12-5: BAM Gold Project - Bulk Density Statistics by Rock Type (December 2019)

Description	Material Type						
	BAM – meta-sediment	GPS - mafic HW	MLS - basalt FW	BIF and sulphide	Felsic - Dykes	Vein Quartz	Ultramafics
No. of Samples	**1,617**	**4,295**	**1,147**	**68**	**672**	**13**	**227**
Minimum (t/m3)	1.80	1.88	2.48	2.02	1.77	2.64	2.70
Maximum (t/m3)	4.66	7.75	6.20	4.71	4.38	2.77	3.23
Mean (t/m3)	**2.82**	**2.84**	**2.92**	**3.30**	**2.73**	**2.67**	**2.95**
Median (t/m3)	2.79	2.82	2.93	3.21	2.72	2.65	2.96
Std Dev	0.174	0.125	0.160	0.524	0.100	0.038	0.082
Variance	0.030	0.016	0.026	0.274	0.010	0.001	0.007
Std Error	0	0	0	0.008	0	0.003	0
CoV	0.062	0.044	0.055	0.159	0.036	0.014	0.028

Figure 12-6 to Figure 12-8 graphically show the normal distribution of the BD results for the three main material types.

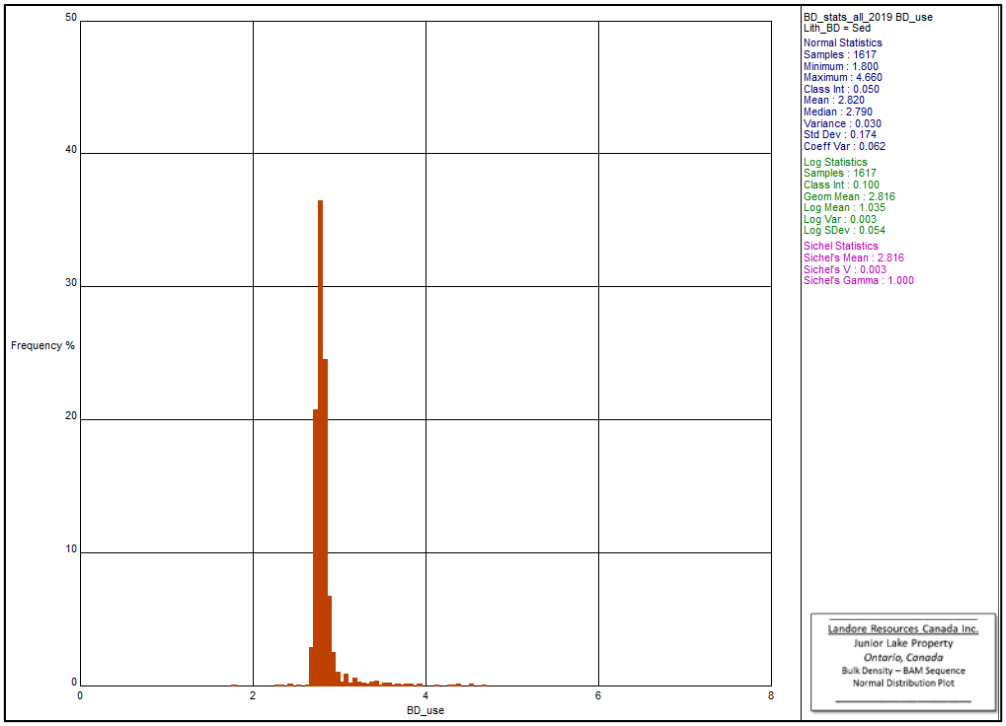


Figure 12-6: BD Statistics– Normal Distribution Plot for BAM Sequence (December 2019)

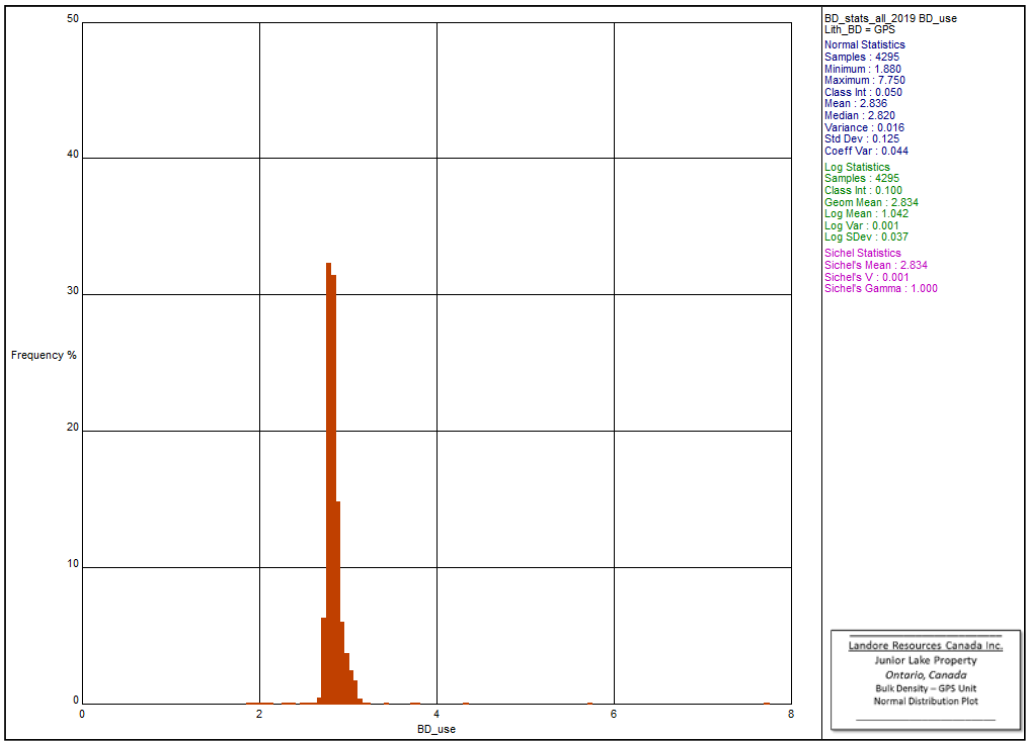


Figure 12-7: BD Statistics– Normal Distribution Plot for GPS – Hangingwall Unit (December 2019)

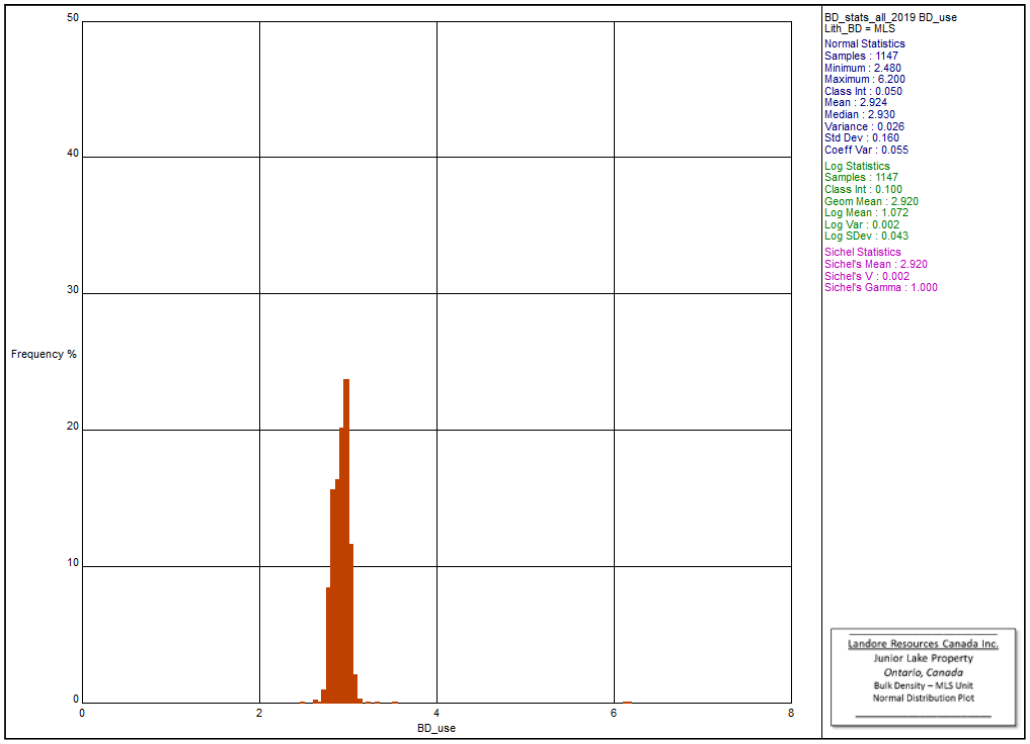


Figure 12-8: BD Statistics– Normal Distribution Plot for MLS – Footwall Basalt Unit (December 2019)

12.6. Principal Authors Statement

Following the site visit to the Junior Lake property and Landore's Thunder Bay offices from 23rd to 28th June 2018, there were no adverse material results with respect to drilling practices and Landore's sampling procedures. Also, there were no adverse material results from the data validation and data verification reviews carried out by Cube subsequent to the site visit when reviewing the 2019 data.

The site visit involved inspection of the drilling in progress and onsite sample preparation facilities. Samples delivered to the laboratory weighed in the range of 3-5kg, which is considered appropriate for the grain size of material for gold sampling.

Original laboratory assay certificates were reviewed and validated by the Cube for selected verification holes. Significant intersections were assessed against diamond drill core on site, and with drilling logs and core photos by Cube. No material discrepancies were found.

Cube did not inspect the principal assay laboratory as part of the site visit in 2018. No independent sampling has been undertaken by Cube.

In Cube's opinion, the drilling, logging, and sampling procedures at the BAM Gold Project have been carried out according to industry standards and are suitable for the preparation of geological modelling and Mineral Resource estimation.

13. Mineral Processing and Metallurgical Testing

13.1. Preliminary Test work

Two historical reports were available for review:

- "Preliminary Assessment of Two Metallurgical Composites from the BAM East Gold Deposit", KM5238, 20 December 2016, ALS Metallurgy Americas. (MR1)
- "Preliminary Assessment of Two Additional Metallurgical Composites from the BAM East Gold Deposit", KM5448, 29 September 2017, ALS Metallurgy Americas. (MR2)

These reports have been designated MR1 and MR2 for convenience.

The MR1 samples were assembled into two composites for testing: Composite 1 and 2. Each of these composites were ground and subjected to gravity concentration of the gold followed by cyanidation of the gravity tails.

Half core was received for the MR2 test program. These samples were assembled into two composites for testing: Composite 3 and 4. Each of these composites were ground and were also subjected to gravity concentration of the gold followed by cyanidation of the gravity tails. Conditions of the tests and summary results are shown in Table 13-1.

Table 13-1 BAM East Gravity/Leach Test Summary (2016 and 2017)

Rpt.	Comp.	Grind p80	Feed kg	Gravity Au Rec. %	Gravity Mass, %	Leach Extr., %	NaCN kg/t	CaO kg/t	Calc'd Head Au, gm/t	Overall Au Extr., %
MR1	1	82	11.8	57.5%	0.03%	96.9%	0.12	0.3	2.03	98.7%
MR1	2	77	45	58.8%	0.02%	94.7%	0.12	0.3	2.02	97.8%
MR2	3	73	33.8	29.7%	0.03%	96.4%	0.06	0.28	0.9	97.4%
		84	3.9	67.1%	0.15%	96.7%	0.01	0.27	0.93	98.9%
MR2	4	82	11.8	54.2%	0.06%	97.2%	0.07	0.3	1.22	98.7%
		110	12	47.4%	0.11%	95.8%	0.06	0.29	1.15	97.8%
		164	9.8	50.4%	0.11%	97.3%	0.04	0.28	1.08	98.6%

This data shows that between 29.7% and 67.1% of the gold is liberated at the sizes employed. The tails leach behaviour shows that the unliberated (or very fine) gold is not refractory to cyanide.

The source of the samples is not identified. Suitability of these samples to represent the deposit cannot be confirmed, however, the samples indicate positive response to the unit operations employed in the testing. It is apparent the gold remaining in the gravity tails is amenable to cyanide leaching. Cyanide (NaCN) and Lime (CaO) consumptions were atypically low.

Dissolution of other cyanide soluble species such as silver, copper or mercury was not monitored.

Cyanide dissolution behaviour of the gravity concentrate was not investigated due to small quantity.

13.2. Recent Test work

Landore commissioned additional metallurgical test work in 2018. This testing, identified as Phase 1, included gravity separation, flotation, and cyanide leaching using both column leaching of coarser sizes and bottle roll leaching of fine ground pulp.

Drill core from the Landore's BAM Project at the Junior Lake Concession was delivered to Base Metals Laboratory in Kamloops, BC for Phase 1 metallurgical testing. The metallurgical testing reported in this study was supervised by Geoff Allard of Allard Engineering Services LLC, Tucson, Arizona USA.

Phase 1 metallurgical work conducted by Landore is documented in a report "BAM Project – Metallurgical Report – Phase 1", 11 January 2019, Allard Engineering Services LLC (Allard, 2019). This document is referred to as the "Met. Report" in the discussions. The reader is referred to this report for more in-depth discussion of the Phase 1 Metallurgical Testing and detailed test reporting. A summary of the main findings and recommendations is outlined as follows:

Test program observations:

1. Significant free gold is present in the composite tested.
2. High extractions of gold are achievable with grinding, gravity separation (+65%), and cyanide leaching (+95%) with overall extractions around 98%.
3. Cyanide and lime consumptions were low in the leaching tests.
4. Liberation of gold particles is reduced in size-fractions above 300 µm.
5. Flotation of the BAM composite achieved reasonable extractions of gold, albeit at low concentrate grades.
6. Heap leaching with fine crushing and agglomeration can achieve acceptable extractions of gold (±84% at test conditions).
7. In fine-ground material, gold occurs predominantly as coarse liberated particles and as attachments and inclusions in chlorite and cobaltite. Minor quantities of gold are associated with tellurides.
8. Cyanide leach extractions of gold at sizes below 300 µm do not appear to be dependent on particle size.
9. Sparging agitation leach tests with oxygen improves the extraction of gold over sparging with air.
10. Reasonable variations of cyanide concentration and percent solids do not appear to influence gold extractions from agitated leach tests at typical grind sizes.
11. Agitation leach pulps are amenable to Carbon in Leach/Carbon in Pulp operations.
12. Silver and copper species are present in the ore but only partially dissolved by cyanide.

Based on the current level of testing, the following recommendations are made:

1. Eliminate flotation as a viable unit operation.
2. Develop further understanding of a milling/gravity/leach circuit. This would require investigation of the following:
    - Variability of the deposit for physical properties and amenability to the flowsheet.
    - HPGR (High Pressure Grinding Roll) crushing as a way to increase the gold liberation.
    - Rheology/filtration/thickening tests on ground and cyanided pulps.

- Gravity-recoverable gold tests to establish a baseline.
- Cyanide destruction in slurried tails.
- Gold loading tests on activated carbon from pulps.
- Cyanidation of gravity concentrate.

3. Develop additional understanding on the viability of heap leaching. This would require investigation of the following:
    - Cold temperature leach extraction rate.
    - Heap stability testing to determine agglomeration requirements and allowable heap height.
    - HPGR crushing as a way to increase gold extraction rate.
    - Effect of cyanide cure on extraction rate.
    - Effect of application rate on leach extraction.
    - Gold loading tests on activated carbon in leach solutions.

14. Mineral Resource Estimate

14.1. Summary

The BAM Gold Project Mineral Resource, Effective Date as at 30 December 2019 is suitable for public reporting in accordance with the NI 43-101 and the CIM Definition Standards (May 2014). All drilling information, including all drilling completed up to the end of 2019 has been used in the preparation of the current MRE.

14.1.1. In-situ Mineral Resources

Table 14-1 a summary of the Indicated and Inferred Mineral Resources, effective as of 30 December 2019.

Table 14-1 BAM Gold Project In-Situ Mineral Resources In-situ Mineral Resource – All Indicated and Inferred Resources (as at 30 December 2019)

Resource Category	Material Type	Au g/t cut off	Tonnes (kT)	Grade (g/t Au)	Contained Metal (Oz Au)
Measured	**ALL**	>0.3	0	0	0
Indicated	**ALL**	>0.3	21,930	1.06	747,000
Inferred	**ALL**	>0.3	9,153	0.91	268,000

Notes:

1 *Effective date of 30 December 2019.*

2 *Mineral Resources are estimated at a block cut-off grade of 0.3 g/t Au.*

3 *Mineral Resources are estimated using a long-term gold price of US$1,500 per ounce.*

4 *A minimum mining width of two metres was used.*

5 *Bulk densities for the main host rocks are 2.82 t/m^3, 2.84 t/m^3, and 2.90 t/m^3.*

6 *Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.*

7 *Figures may not add up due to rounding*

14.1.1. Mineral Resources Inside Pit Shell

Based on the current input parameters that have been used for the 2019 pit optimization by Cube, a 0.3 g/t Au lower cut-off was deemed appropriate for the December 2019 Mineral Resource reporting.

At a cut-off grade of 0.3 g/t Au, the Mineral Resources are reported here within the pit optimization Run B open pit shell. The Run B open pit shell includes Indicated Mineral Resources and Inferred

Mineral Resources. The figures reported in Table 14-2 are estimated using a long-term gold price of US$1,500 per ounce.

Table 14-2 BAM Gold Project Mineral Resources Inside US $1,500 Pit Shell (as at 30 December 2019)

Resource Category	Material Type	Au g/t cut off	Tonnes (kT)	Grade (g/t Au)	Contained Metal (Oz Au)
Measured	**ALL**	>0.3	0	0	0
Indicated	**ALL**	>0.3	13,832	1.22	531,000
Inferred	**ALL**	>0.3	664	1.46	30,000

Notes:

1 *Effective date of 30 December 2019.*

2 *Mineral Resources are estimated at a block cut-off grade of 0.3 g/t Au.*

3 *Mineral Resources are estimated using a long-term gold price of US$1,500 per ounce.*

4 *A minimum mining width of two metres was used.*

5 *Bulk densities for the main host rocks are 2.82 t/m^3, 2.84 t/m^3, and 2.90 t/m^3.*

6 *Mineral Resources are constrained by a preliminary pit shell generated in Whittle software.*

7 *Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.*

8 *Figures may not add up due to rounding*

14.2. Data Sources

The MRE for BAM Gold Project is based on the data available and validated by Cube up to 2 November 2019, and consisting of:

- Drill hole data as an ASCII file format (*.txt) and also MS Excel data files
- Topographic survey file made available as elevations in DXF format
- Geological logging sheets in PDF format
- Cross Sections showing all drilling, including 2019 holes with site interpretations (PDF format)
- Digital photos diamond drill core (JPG format)
- Surface geochemistry sampling results in MS Excel format.

All other data files relating to the 2019 MRE are original work files that have been created by Cube.

14.3. Drilling Database

Collar, survey, assay, geology and other relevant drilling data as at 2 November 2019 were validated prior to importing into a Cube standard and structured MS Access database which was then ODBC mapped to Surpac and labelled as follows:

- MS Access Database: ***BAM_MRE_DB_2019_11_01.mdb***
- Surpac database ODBC link: ***BAM_MRE_DB_2019_11_01.ddb*.**

Further validation checks in Surpac were carried out and minor corrections were made in the MS Access database, prior to wireframe interpretation and subsequent modelling and grade interpolation work.

14.3.1. Local Grid Conversion

The drill hole collar records were supplied with both NAD 83 Zone 16 UTM coordinate system and local grid co-ordinates for eastings, northings and elevation. The majority of drilling completed up to December 2018 has been drilled on a spacing of 50 m x 50 m or 100 m x 50 m on a local mine grid north-south sections. The old local grid is 003° west of the UTM grid north. All drilling was carried out from surface. All coordinates in this report are defined using the NAD 83 Zone 16 UTM coordinate system and are expressed in metric units.

An example of the local grid setup is shown in Figure 14-1.

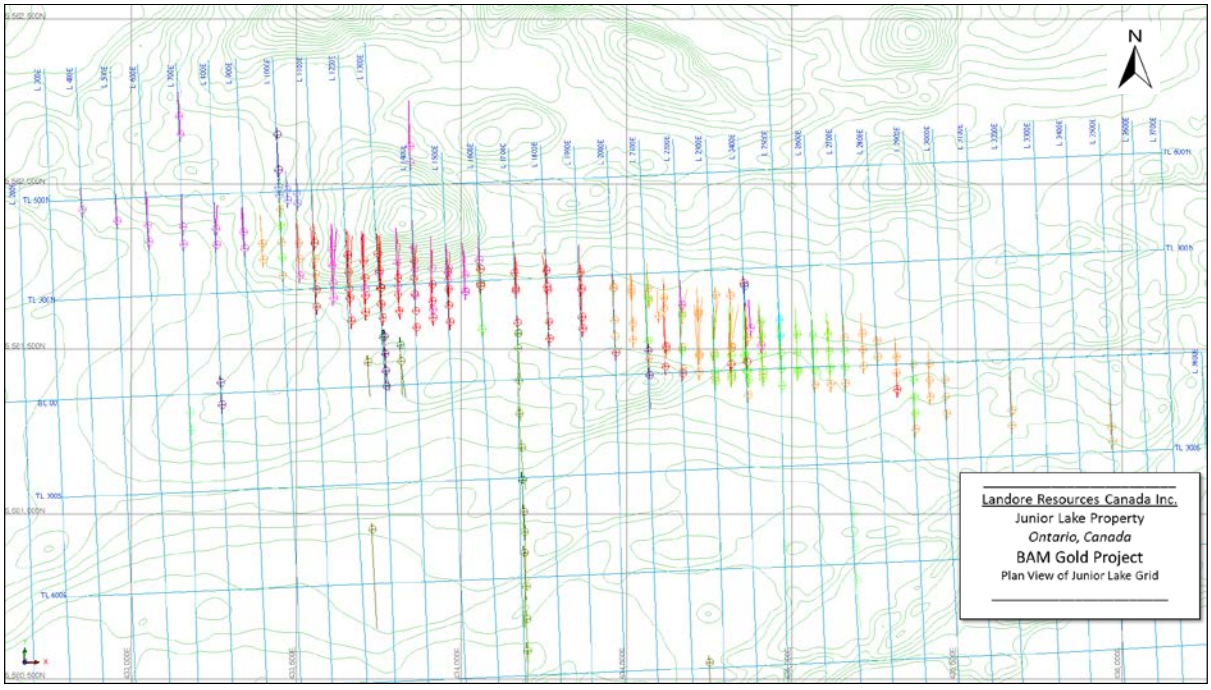


Figure 14-1: Plan of Junior Lake Grid (in blue) in Relation to the UTM Grid for the BAM Gold Project Area (as at December 2019)

14.3.2. Database Compilation

A breakdown of holes types and drill hole statistics used for the MRE work is summarized in Table 14-3. The statistics show that on average, 70% of the drill core in each hole has been sampled. The drilling statistics also show that for each drilling period summarized by year, 100% of each drill hole has been geologically logged.

Table 14-3: Summary of Samples by Hole Type used for BAM 2019 MRE (as at 02 November 2019)

Year	Prefix	# of holes	Metres Drilled (m)	Ave Hole Depth	# DH Surveys	# samples	Sample Metres (m)	Ave Sample Interval (m)	% of Holes Sampled	Logged Metres (m)	% of Holes Logged	# BD Samples
2003	0403-	6	438.00	73.00	19	234	193.58	0.83	44%	438.00	100%	-
2015	0415-	2	215.93	107.97	45	196	188.40	0.96	87%	215.93	100%	28
2016	0416-	41	8,219.62	200.48	2,475	5,995	6,581.78	1.10	80%	8,219.62	100%	1,767
2017	0417-	63	10,887.94	172.82	2,401	7,862	7,899.66	1.00	73%	10,887.94	100%	1,967
2018	0418-	57	11,832.53	207.59	3,770	7,342	7,253.28	0.99	61%	11,832.53	100%	2,691
2019	0419-	38	5,945.85	156.47	1,934	3,759	3,541.02	0.94	60%	5,945.85	100%	1,416
TOTAL		**207**	**37,539.87**	**181.35**	**10,644**	**25,388**	**25,657.72**	**1.01**	**68%**	**37,539.87**		**7,869**

14.3.3. Database Structure

All the supplied drill hole data was compiled into a Cube structured MS Access drill hole database (*BAM_MRE_DB_2019_11_01.mdb*). The MS Access database was then mapped to Surpac. A description of the database and the relevant tables and main fields are noted in Table 14-4.

Table 14-4: Cube Drill Drill hole Database Structure used for BAM 2019 MRE (as at 02 November 2019)

DB Table	DB Field	Description	DB Table	DB Field	Description
Collar (278 records)	hole_id	Hole Name	**Geology (13,982 records)**	hole_id	Hole Name
	x	Collar Easting		depth_from	Interval Depth From
	y	Collar Northing		depth_to	Interval Depth To
	z	Collar RL		interval	DH logging interval length
	max_Depth	Total Hole Depth		Lith_Plot	Adjusted Main Lithology code for Surpac
	hole_path	Downhole trace (Linear or Curved)		Lith_Plot2	Logged Secondary Lithology code
	hole_size	Core Size (e.g. NQ, HQ)		Major Unit Code	Landore Rock Code description
	Resource	Used in 2019 MRE (Y or N)	**Core Recovery (12,075 records)**	hole_id	Hole Name
	Local Grid coords	Local grid Easting and Northing		depth_from	Interval Depth From
	Program	Program description		depth_to	Interval Depth To

DB Table	DB Field	Description	DB Table	DB Field	Description
	Year Drilled	Year Drilled		interval	DH Sample interval length, calculated
	Rank	Completeness of data; design v. survey		rec_m	Core recovery measured (m)
	Collar Dip/Azi	Planned collar dip and azimuth		rec_pct	Core recovery calculated (%)
	hole_id	Hole Name		RQD_m	RQD measured metres
	depth	Downhole Depth of Survey		RQD_pct	RQD & calculated
	dip	Drill hole Inclination		core_size	diamond drill core size
Survey (13,760 records)	azimuth	Drill hole Azimuth (MGA) or Mag Azimuth		hole_id	Hole Name
	Local, Mag Azi	Local and Magnetic azimuths recorded		samp_id	Sample Id
	dhs_method	Downhole survey method		depth_from	Interval Depth From
	Resource	Used in 2019 MRE (Y or N)	**Density (7,869 records)**	depth_to	Interval Depth To
	hole_id	Hole Name		BD_use	bulk density value, errors corrected
	samp_id	Sample Id		DRY_Ma	Dry Weight - measured
	depth_from	Interval Depth From		WET_Mw	Wet Weight - measured
	depth_to	Interval Depth To		Vol_Vc	Volume - calculated
Assay (31,063 records)	interval	DH Sample interval length		BD_calc	bulk density value - calculated
	au_use	Assay used in estimate (Au ppm)		hole_id	Hole Name
	au_ppm_FA50	Fire Assay (FA50 - Au ppm)		depth_from	Interval Depth From
	au_PPB_FA50	Fire Assay (FA50 - Au ppb)	**Zonecode (679 records)**	depth_to	Interval Depth To
	Au_ppm_SFA	Screen Metallic Assay (Au ppm)		length	mineralization interval
	sample_type	Sample type (e.g. half core)		zone_code	Mineralization domain number

Note: Main database fields only listed.

For the 2019 MRE database, a validated assay field was added by Cube into the Assay table ('au_use') to convert gold values to Au ppm and also to convert any intercepts that have negative values or null values in the primary Au field ('Au_ppb FA50').

The MS Access database (*BAM_MRE_DB_2019_11_01.mdb*) has been relied upon as the source of data for the December 2019 MRE work completed by Cube.

14.3.4. Treatment of Below Detection and Null Samples

During database validation and verification by Cube, the following changes were made to the Cube MS Access database in relation to below detection limit (BDL) samples, negative values and any 'Null' values.

Unsampled intervals or interval gaps were left blank (i.e. 'null' values). There were no unsampled intervals within the mineralization domain zones for the 2019 MRE and therefore this did not affect the gold compositing routine and subsequent grade interpolation work.

All assay data within the BAM MRE area below detection limit (-1) values have been entered as a small value of 0.005ppm Au, which is half the lowest common value reported in the primary Au ppb analysis (10 ppb Au).

The other negative values recorded, (-5 and -7) were recorded for drill holes not within the BAM mineralization zones and subsequently ignored in the 2019 MRE work.

Table 14-5: Treatment of BDL Samples and Null Values used for BAM 2019 MRE (as at 02 November 2019)

Landore DB (Au_ppb Field)	Cube 'Au_use' Field (ppm)	No. of records	Comments
-1	0.005	10,644	BDL samples (ALS assaying) - assigned a low value, half detection limit (10ppb Au for ALS)
-3	na	0	Over limit samples (100 ppm Au for ALS)– No samples in MRE DB
-5	-5	61	BDL samples (2001-2003) - Samples not used in 2019 MRE, negative values ignored.
-7	-7	300	Blank samples - Samples not used in 2019 MRE, negative values ignored.
Null values	-2	1	Assumed unknown or missing; Assigned negative value and ignored in 2019 MRE.
0	NA	0	No zero values recorded in the original assay field (Au_ppb FA50).

14.4. Geology and Mineralisation Models

14.4.1. Topography and Overburden Surfaces

A topographic surface wireframe file in DXF format was supplied by Landore for the 2019 MRE and then imported into Surpac, validated and saved as a DTM surface.

An overburden surface DTM was interpreted for a 10-15 m thick glacial till, which acted as a boundary with the interpreted lithological units and mineralization domains underneath.

A description of the validated file names which were saved as DTM surfaces is outlined in Table 14-6.

Table 14-6: Topographic and Overburden DTM Surfaces -Names and Descriptions (December 2019))

Description	Landore File Name (.dxf)	Cube File Name (*.dtm/str)	Comments
Topographic surface	DTM_ATLIS_0809_Z_contours_2	bam_topo_surface_clipped_2019	Topographic surface DTM layer clipped to block model area from 2018 survey
Overburden Surface	NA	bam_ob_surface_final_oct_2019	Updated Overburden contact surface with primary lithology units.

The overburden boundary was also used to assign bulk density assignment for overburden material above the different lithological units.

14.4.2. Geological and Structural Interpretations

Data used for the creation of 3DM wireframes for the 2019 MRE were sourced from the recent hard copy cross section and plan interpretations from logging and sampling data based on a consistent drill spacing of 50 m x 50 m. The logging information has been used by Landore to interpret stratigraphic units, major structural features (major faults) and mineralization trends.

There were no definitive interpreted dyke intrusives modelled from the logging data, but surface outcrop exposures show numerous dyke intrusives (tonalite and dolerite) and minor scale faulting. These structures are likely to have an influence over morphology, volume and grade continuity at a local scale.

Geological and structural interpretations were reviewed and edited within Surpac in plan, cross section and 3D views. Plan view slices were used to check the trends of the moderate to steeply dipping lithology and potential fault offsets against recent geological interpretations by Landore.

A listing of the lithological and structural 3DM wireframe interpretations is provided in Table 14-7 and illustrated in Figure 14-2.

Table 14-7: 3DM Geological Interpretation Files Names and Descriptions (December 2019)

Description	Cube File Name (*.dtm/str)	Cube Comments
Planar DTM of Fault Interpretations	bam_geo_fz_v2_2018	Interpretations based on surface regional geology interpretations and geophysics
Lithology 3DM - BAM Sequence	bam_geo_su_final_oct_2019	Wireframe based on site geology cross section interpretations
Lithology 3DM - Grassy Pond Sill	bam_geo_gps_v1_2019	Wireframe based on site geology cross section interpretations
Lithology 3DM - Marshal Lake Group Lith Unit	bam_geo_mls_v1_2019	Wireframe based on site geology cross section interpretations

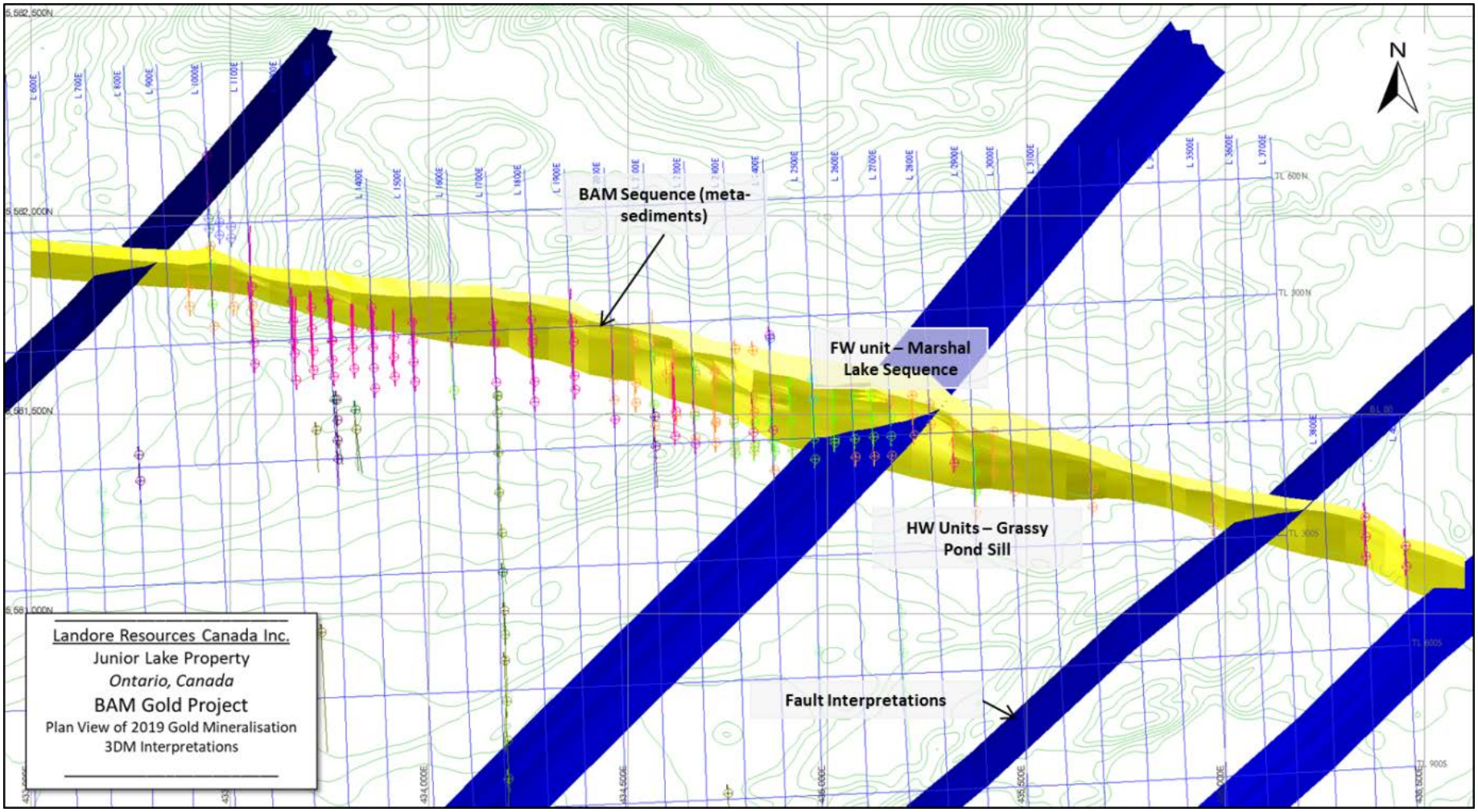


Figure 14-2: Plan of BAM Sequence 3DM Interpretation and Fault Structures with Drill Coverage (December 2019)

14.4.3. Mineralisation Interpretations

The interpretation of the gold mineralization domain boundaries was guided by the orientation of the main lithological units in 3D, observations noted from Landore hard copy sections, and observations from diamond drill core viewed on site and from core photos. Descriptions of alteration, mineral assemblages and grade distribution within each host lithological units were also used to inform mineralization domain boundaries.

All mineralization domain outlines were modelled to a nominal grade cut-off of approximately 0.2 g/t Au cut-off which allowed the model shapes to have optimum continuity. The use of this low-grade threshold has resulted in some areas having simplified mineralized domains encompassing discontinuous tabular shapes.

Sectional interpretations were then used to create 3DM wireframe models based on analysis of all the relevant information collated. In order of priority, gold mineralization zones were interpreted based on the following methodology:

- Creation of 50 m north-south cross section reference lines in Surpac along the drilling fences approximate to the local grid reference line number.
- Review of Landore geologists hand drawn cross-sections and logging descriptions.
- Core photos, where available, were used to visually identify mineralized zones.
- Mineralized domains were digitized on cross-section using 3D strings and then wireframed to generate solids.
- Interpretation strings were snapped to drill holes along the defined mineralization boundaries for later flagging of estimation domain codes into the MS Access database.
- End sections were projected to the distance of the average drill hole spacing along strike of 50 m.
- Projection down dip was extended to 0 m RL, ~50 to100 m below the deepest drill hole for the main BAM Sequence hosted mineralization.
- Projection down dip was confined to projected plunge and dip for minor mineralization zones, on average ~25 m past the deepest hole.
- Review of interpretation in long section and plan view flitches, then editing in 3D space.
- Final validation checks of 3D wireframe and volume checks.

A listing of the mineralization 3DM wireframe interpretations is provided in Table 14-8. A total of 28 Au mineralization domains were modelled for the December 2019 MRE.

Table 14-8: 3DM Mineralization Domain Files Names and Descriptions (December 2019)

Zones	Cube File Name (*.dtm/str)	Cube Comments
BAM/BAM	bam_min_dom_1001	Main Zone - Main BAM, extended to the west for 2019 Model
BAM East	bam_min_dom_1002	Main Zone - FW Contact
BAM East	bam_min_dom_1003	Main Zone - HW Zone
BAM East	bam_min_dom_1004	Main Zone - HW Zone
BAM East	bam_min_dom_1005	Main Zone - HW Zone
BAM East	bam_min_dom_1006	Main Zone - HW Zone
BAM East	bam_min_dom_1007	Main Zone - HW Zone
BAM East	bam_min_dom_1008	Main Zone - HW Zone
BAM East	bam_min_dom_1009	Main Zone - FW Zone
BAM East	bam_min_dom_1010	Main Zone - HW Zone
BAM East	bam_min_dom_1011	Main Zone - HW Zone
BAM East	bam_min_dom_1012	Main Zone - HW Zone
BAM East Ext.	bam_min_dom_2001	BAM East Extension - BAM zone, interpreted fault offset
BAM East Ext.	bam_min_dom_2002	BAM East Extension - BAM zone, interpreted fault offset
BAM East Ext.	bam_min_dom_2003	BAM East Extension - HW zone, interpreted fault offset
BAM East Ext.	bam_min_dom_2004	BAM East Extension - BAM zone eastern projection
BAM East Ext.	bam_min_dom_2005	BAM East Extension - BAM zone eastern projection
BAM West	bam_min_dom_3001	West Zone Main BAM hosted mineralisation
BAM West	bam_min_dom_3002	West Zone - FW Contact
BAM West	bam_min_dom_3003	West Zone - HW Zone
BAM West	bam_min_dom_3004	West Zone - HW Zone
BAM West	bam_min_dom_3005	West Zone - HW Zone
BAM West	bam_min_dom_3006	West Zone - HW Zone
BAM West	bam_min_dom_3007	West Zone - HW Zone
BAM West	bam_min_dom_3008	West Zone - HW Zone
BAM West	bam_min_dom_3009	West Zone - HW Zone
BAM West	bam_min_dom_3010	West Zone - HW Zone
BAM West	bam_min_dom_3011	West Zone - HW Zone

A Plan view of the all the gold mineralization domains interpretations illustrates the relatively simple strike orientation, dimensions and continuity of gold mineralization (Figure 14-3).

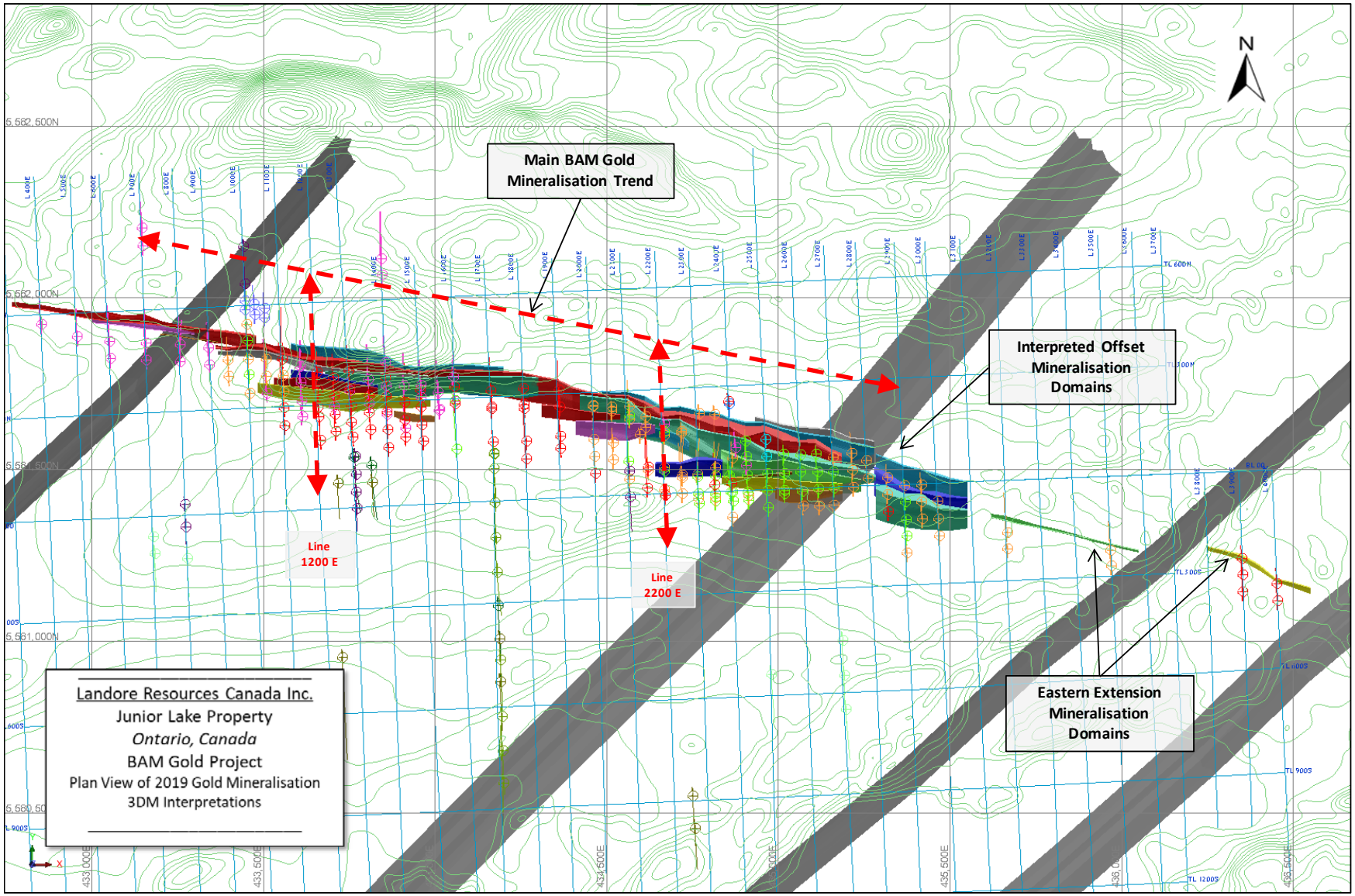


Figure 14-3: Plan of BAM Gold Mineralization 3DM Interpretations with Drill Coverage (December 2019)

Factors Affecting Geological and Grade Continuity

- Grade distribution plots were created in Surpac to assist with assessing grade continuity along strike, down dip, and to assess if any down plunge component was apparent. The main BAM zone gold mineralization displays good continuity along strike for ~600 m with an apparent WSW plunge component of ~16o. There is also an apparent offset close to the local mine grid Line 2800 E that has been interpreted and is a significant fault structure.
- The main BAM Sequence hosted mineralization was guided by the Hanging wall (HW) contact within the GPS unit (gabbro). Mineralization often crosses the HW contact, so there does not appear to be a consistent boundary directly on the contact.
- Within the BAM sequence, the main mineralization grade varies, as evident from the visible gold observed in the drill core. In some sections, the domain interpretations were drawn to include intervals in the drill holes where the average grades did not meet the nominal cut-off grade criteria (0.2 g/t Au). It is likely some of these low-grade zones are due to the post mineralization dike intrusives.
- Minor mineralization domains occur along the BAM sequence footwall (FW) contact and within sheared and altered "lensoidal" zones within the hanging wall sequence. Gold mineralization tends to be less continuous and narrower outside of the main BAM Sequence host unit.

Figure 14-4, and Figure 14-5 show cross section views of the typical style of Au mineralization domains interpreted in the for BAM Sequence. The cross section views also highlight the down dip continuity, thickness variations, and the steeply dipping nature of the gold mineralization.

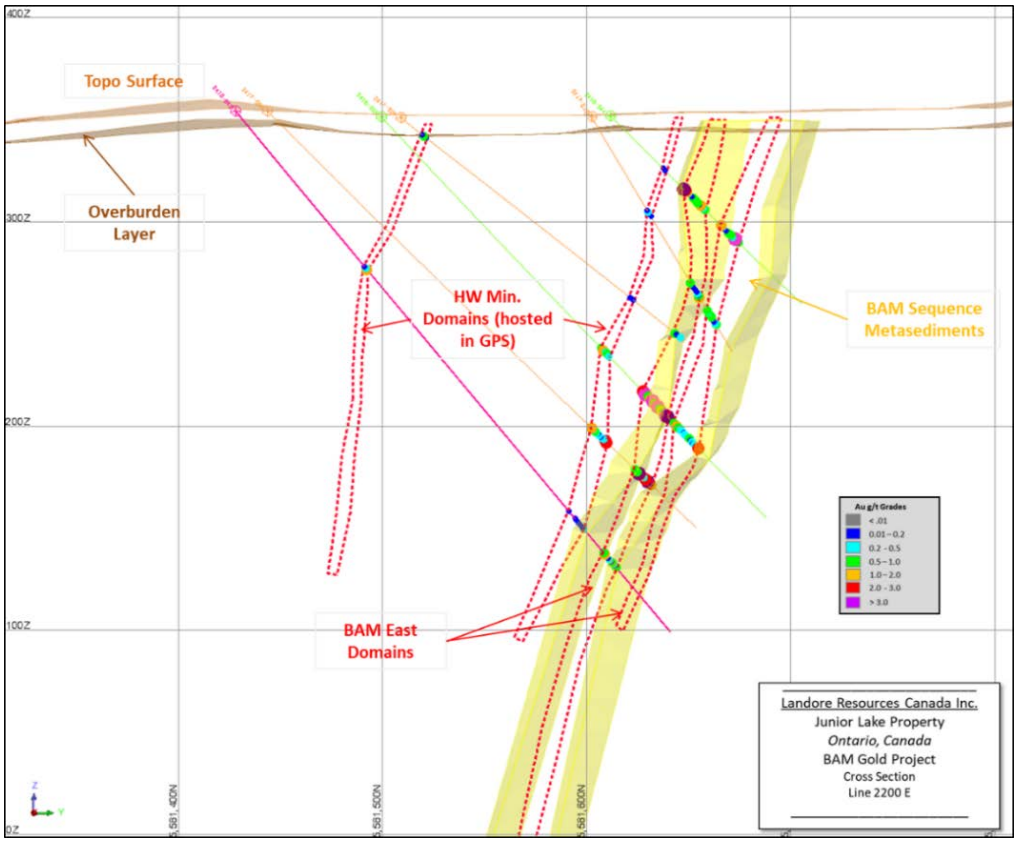


Figure 14-4: Cross Section on Line 2200 E: Showing Gold Domains and Distribution (December 2019)

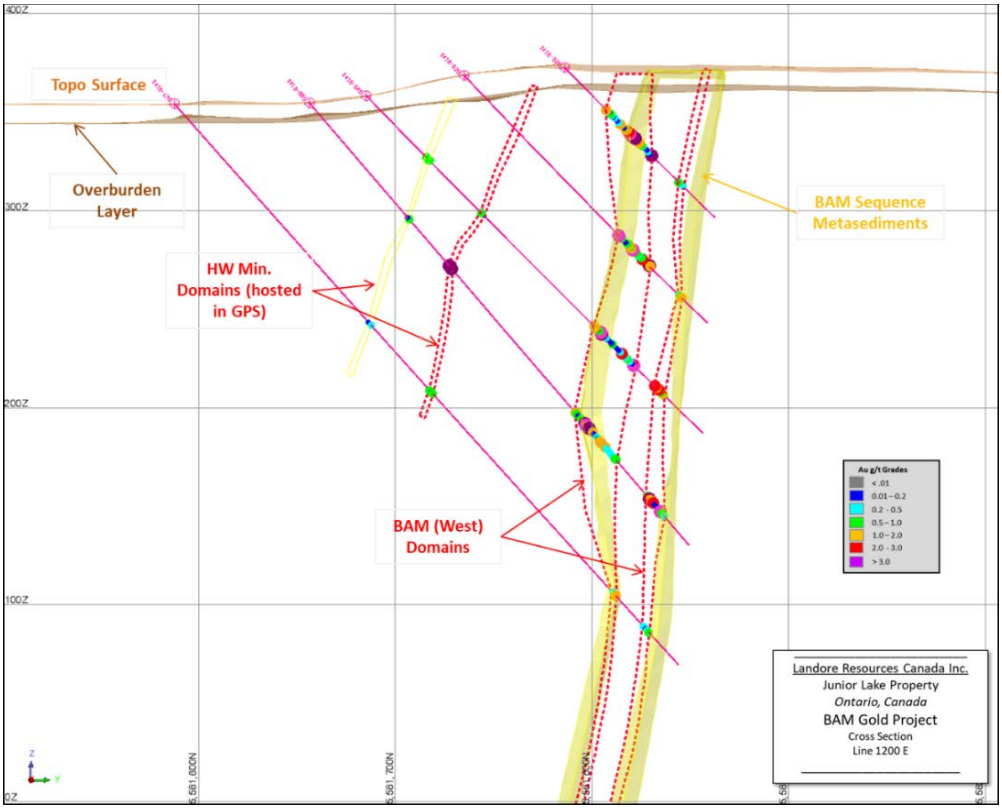


Figure 14-5: Cross Section on Line 1200 E: Showing Gold Domains and Distribution (December 2019)

Resource Dimensions

The 2019 drilling has resulted in an extension of the Mineral Resource to an overall strike length of 3.7 km, with a maximum width of the mineralization envelope being approximately 50 m. The main mineralization zone within the BAM Deposit has a continuous strike length of 1.9 km. Overall, the strike length of gold mineralization along the Junior Lake Shear Zone is now over 5 km.

The Mineral resource is modelled to 380 m vertical depth, with the estimate based primarily on diamond core drilling collared from surface. The deepest hole to date has been drilled to approximately 384 m depth (hole 0418-680).

There are minimal changes in strike and dip of the mineralization across the sequence, and there is very good continuity overall from east to west for the main BAM mineralization, but this is likely to be affected locally by minor faulting and dolerite dyke intrusives, disrupting the mineralization trends.

Interpretation of the main BAM mineralization was projected further along strike and down dip for conceptual modelling and potential drill targeting within the BAM sequence. The main BAM mineralization is steeply south dipping which narrows to both the west and east, although drill lines 200 m away in both directions have intersected significant mineralization along the general strike of the main anomalous trend.

Changes from Previous Interpretations

The major change compared to previous interpretations prior to the 2018 drilling program has been the broadening of the main BAM mineralization domain along the HW contact with the GPS unit and including internal waste zones of up to 3 m downhole, or ~2 m true width. Previous interpretations included very narrow domaining of high-grade zones within the BAM Sequence. Many of these sub-domains were in close proximity and were not consistent in orientation and true thickness from one section to the next. With the likelihood of open pit mining methods, broader domaining with minimum open pit mining SMU width (2.0 m) was used as a guide for updated interpretation width threshold.

Interpretations prior to 2018 for the minor HW mineralization contained very low-grade intervals, or across un-sampled intervals. For the 2019 MRE, these zones were interpreted as more discrete gold mineralization envelopes in order to define any zones that may contain higher grade pods large enough for open pit mining extraction.

The 2019 drilling program infill and step out drilling to the west continued to intersect BAM style mineralization, resulting in extensions to the main BAM mineralization (Domain 1001), along with additional hanging wall mineralization. These gold intersections have been interpreted and modelled in the 2019 update.

14.5. Domain Boundary Analysis

A boundary analysis was undertaken to assess the grade boundary characteristics between the main mineralization domains and the waste material. The boundary analysis plots the average grade of Au, based on a nominal distance above and below the boundary of interest (Figure 14-6).

The example in Figure 14-6 shows the characteristics for the BAM Sequence mineralization (Domain 1001). The domain boundary plots clearly show sharp (or hard) boundary between the main mineralization domains and the waste material. The analysis provides confidence that the mineralization domains created can be used as hard boundaries to constrain the sample data during the later sample compositing process. Similar results were evident in all interpreted mineralized domains where there was sufficient sample population.

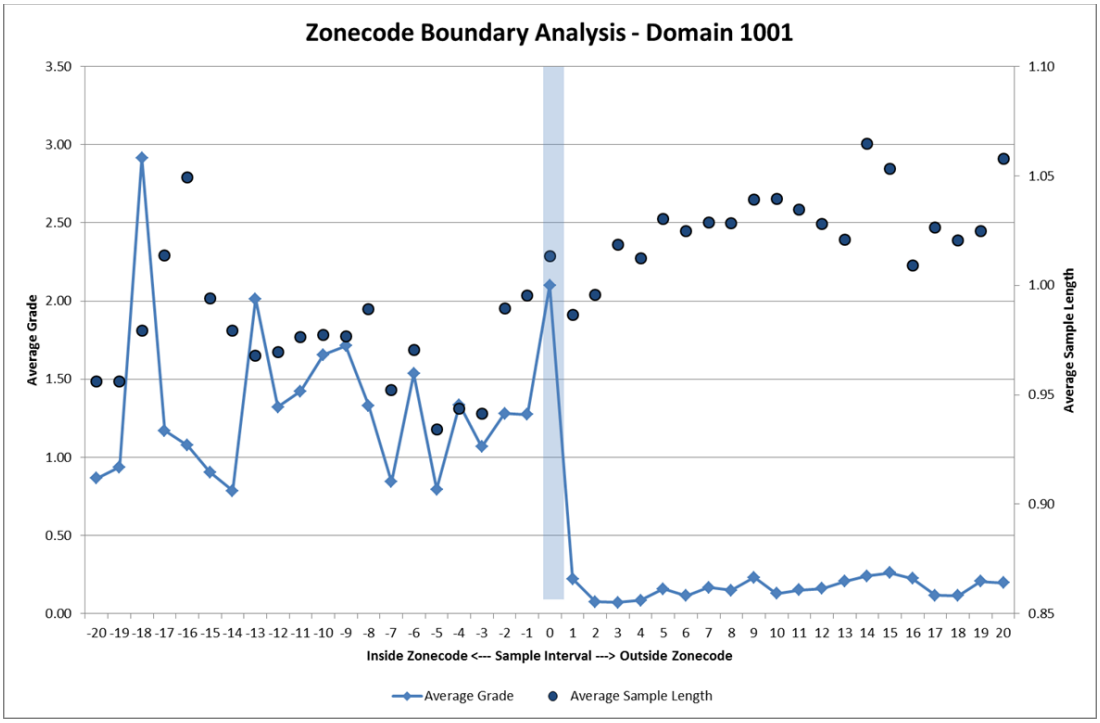


Figure 14-6: Boundary Analysis between Domain 1001 and Waste Material for Au g/t, (December 2019)

14.6. Domain Coding and Compositing

14.6.1. Sample Flagging

Drilling intervals within mineralized domains were flagged with a unique database code in the following manner:

- Within the MS Access database, a table named "*zonecode*" was created to store the unique codes.
- The mineralized domain was initially coded using the drill hole intersect wireframe process in Surpac to write a unique code representing the interpreted domain.
- A four-digit numbering system was created to define the domains which were stored in the '*zonecode'* field within the zonecode table (e.g. 1001 = Domain 1001).
- Cube graphically checked each intercept and made manual adjustments where necessary.
- The zonecode table unique codes were used to extract sample and composite data combinations for later statistical analysis and estimation.

14.6.2. Sample Lengths

Analysis of the overall raw sample length within the mineralization domains was carried out prior to compositing, as illustrated in the normal histogram for sample lengths graph as shown in Figure 14-7. Sample lengths for the diamond drill core varied from 0.5 m to 2.0 m and controlled by geology. The common sample length is 1 m (56%), although there are a number of samples with lengths up to 1.5 m. Approximately 35% of the sample intervals were less than 1 m, which would generally be sample intervals within mineralized zones, or to lithological or structural contacts.

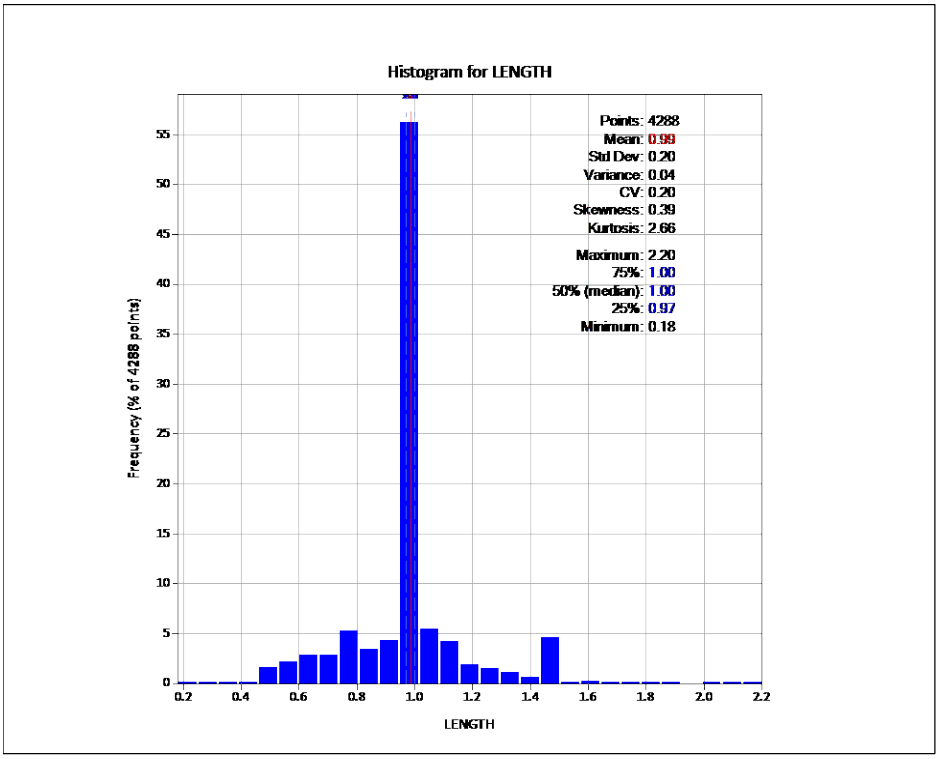


Figure 14-7: Normal Histogram Plot of Raw Sample Lengths (up to 02 November 2019)

The scatter plot (Figure 14-8) shows sample length versus gold grade, which assesses if there is any high or low bias related to sample size within the domains.

No bias was evident from the graphical analysis as illustrated.

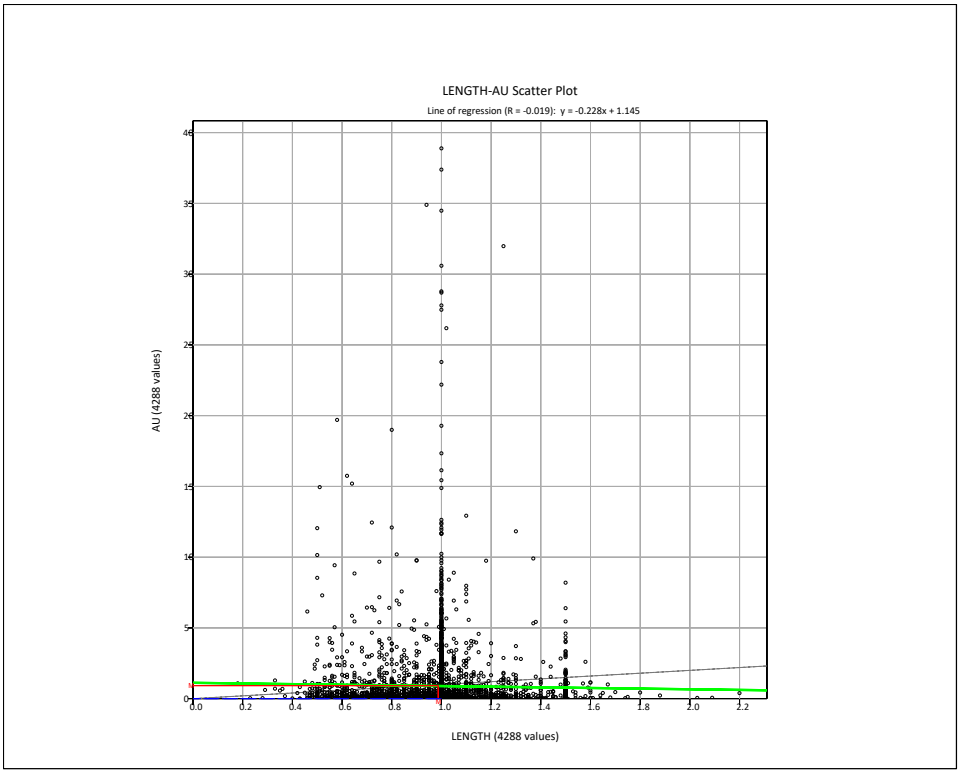


Figure 14-8: Scatter Plot of Raw Sample Lengths versus Au Grades (up to 02 November 2019)

14.6.3. Raw Sample Statistics

Statistical and visual analysis (grade distribution plots) for gold was undertaken to validate the overall domain controls on mineralization and to determine whether further sub-domaining was required on the basis of mineralization controls, lithology or other factors.

The raw statistical summary for gold values is shown for each mineralization domain in Table 14-9. The table provides information about the univariate statistics for samples informing the domain to be used for spatial data analysis prior to estimation.

For both the well-informed domains (higher number of samples populating the domain) and less informed domains, the coefficient of variation (**CV**) varies greatly and is in most cases very high. It is likely that this is the result of the coarse nature of visible gold, and the variable sample lengths within the mineralized envelopes. The CV statistics are not uncommon in the raw statistical analysis for gold but do indicate the need for compositing the sample lengths in order to reduce the variability in the CV and improve the conditional bias evident in the raw data.

Table 14-9: Raw Sample Statistics for Gold Inside Mineralization Domains (December 2019)

Stat. Type	Domain Number									
	1001	1002	1003	1004	1005	1006	1007	1008	1009	1010
Samples	2390	443	540	117	69	23	11	34	109	17
Minimum	0.001	0.001	0.001	0.001	0.001	0.001	0.01	0.001	0.001	0.001
Maximum	38.90	10.25	8.22	4.36	1.87	12.35	2.42	3.13	37.40	3.29
Mean	1.25	0.51	0.51	0.64	0.41	0.92	0.79	0.41	0.71	0.56
SD	2.723	1.014	0.943	0.836	0.443	2.523	0.979	0.615	3.635	0.773
CV	2.185	1.988	1.849	1.299	1.077	2.740	1.233	1.506	5.125	1.374
Variance	7.417	1.027	0.89	0.698	0.196	6.367	0.958	0.378	13.215	0.597
Stat. Type	**Domain Number**									
	1012	2001	2002	2003	2004	2005	3001	3002	3003	3004
Samples	60	79	120	94	29	27	124	456	144	27
Minimum	0.001	0.001	0.001	0.001	0.001	0.01	0.001	0.001	0.00	0.00
Maximum	1.68	5.94	14.95	5.10	2.80	26.20	7.81	32.00	22.90	9.24
Mean	0.28	0.53	0.69	0.58	0.72	1.15	0.38	0.76	0.49	0.80
SD	0.337	0.903	2.048	0.933	0.828	5.021	0.956	2.068	1.979	2.229
CV	1.191	1.712	2.969	1.605	1.145	4.356	2.506	2.733	4.049	2.772
Variance	0.114	0.815	4.195	0.87	0.686	25.212	0.914	4.278	3.917	4.97
Stat. Type	**Domain Number**									
	3005	3006	3007	3008	3009	3010	3011			
Samples	36	12	56	32	210	19	25			
Minimum	0.001	0.001	0.001	0.001	0.001	0.001	0.001			
Maximum	12.10	15.20	28.80	1.13	5.53	0.49	2.50			
Mean	1.18	1.84	1.39	0.22	0.27	0.18	0.40			
SD	2.977	4.33	5.058	0.286	0.645	0.179	0.657			
CV	2.518	2.358	3.639	1.319	2.383	1.006	1.661			
Variance	8.86	18.746	25.58	0.082	0.417	0.032	0.431			

14.6.4. Compositing Method

The compositing of raw sample intervals aims to reduce the variability inherent in raw samples and assist in reducing the nugget effect when carrying out spatial data analysis (variography). Several factors were considered when determining the most appropriate compositing length for the various mineralized styles at BAM:

- Sample length statistics
- Mineralization complexity and dimensions
- Homogeneity of gold mineralization in the zones
- Suitability of the composites for the MRE

Both 1.0 m and 2.0 m downhole composites were considered for the estimation work. The drill hole sampling information was composited to a 2.0 m composite interval for the main BAM mineralisation (Domain 1001) in order to reduce the variability inherent in raw samples and evident in the 1.0 m composite length relative to estimation resource model block dimensions. For all other domains, a downhole composite length of 1.0 m was used for all domains for the estimation work.

The compositing approach was carried out in the following manner:

- In diamond core holes drilled from North to South (potentially drilling down mineralized structures), the assay data was not used for the 1 m compositing data extraction and later interpolation process due to the potential for drilling down mineralized structures.
- Compositing was done using Surpac software on samples selected inside the mineralized domain being modelled.
- Composites were extracted from the 'au_use' field within the MS Access database table 'assay'.
- Sample data was composited to 1 m or 2 m downhole length using the 'Fixed Length' method algorithm, to ensure equal weighting within each interval.
- Composites that failed the length threshold of 50% (0.5 m) were length weighted and added back into the preceding full composite.
- The composite files for each mineralized domain were viewed in Surpac to analyse spatial grade distribution as part of spatial data analysis.

The structure for composite files created in Surpac is summarized in Table 14-10.

Table 14-10: Structure of Surpac Composite Files (December 2019)

Field	Description
D1	Au g/t – Uncut composite
D2	Hole ID
D3	Interval Depth From
D4	Interval Depth To
D6	Downhole Length
D15	Zonecode (Domain number)
D20	Au g/t – Cut composites grades

14.7. Statistical Analysis and Grade Capping

A statistical and visual analysis of the extracted downhole composites was undertaken for each of the mineralised domains. A key objective was to validate the definition of the mineralised domains and also to evaluate the need for special treatment of obvious statistical outliers (top cutting or grade capping).

14.7.1. Basic Statistics

Basic statistics for the composite gold grades are summarised in Table 14-11 with log probability plots showing the composite gold grade distribution trends in Figure 14-9 to Figure 14-11.

The gold grade statistics reveal that the distributions are highly variable and positively skewed, which is typical of this deposit type in the relatively broad domains. The log-probability distribution plots generally show an inflexion point separating significantly mineralised from unmineralized areas in the 0.1 g/t Au to 0.3 g/t Au range. The broad domains are highly tolerant of internal waste, which accounts for most the 'unmineralized' portion of the distribution. No other prominent or systematic inflexion points are visible.

Linear interpolation methods, such as the OK estimation method, are generally not optimal for such highly variable and positively skewed attributes, and so it was decided to use a more appropriate non-linear estimator, namely Localised Uniform Conditioning (**LUC**) for the larger, more economically important domains (these account for more than 80% of contained metal).

Table 14-11 Basic Statistics – Au Grade (Au g/t) for Composites for All Domains

Est Method	Domain	N	Min	Max	Mean	Median	Std Dev	CoV
LUC	1001	2,305	0.001	38.39	1.25	0.51	2.55	2.05
	1002	442	0.001	10.25	0.52	0.21	0.93	1.79
	1003	557	0.001	8.03	0.52	0.22	0.90	1.73
OK	1004	130	0.001	4.36	0.68	0.37	0.82	1.21
	1005	77	0.001	1.87	0.41	0.27	0.43	1.05
	1006	22	0.001	12.35	0.93	0.31	2.57	2.76
	1007	12	0.010	2.24	0.71	0.20	0.86	1.21
	1008	33	0.001	2.72	0.37	0.20	0.52	1.41
	1009	111	0.001	37.40	0.68	0.09	3.59	5.31
	1010	19	0.010	2.71	0.58	0.39	0.63	1.08
	1011	82	0.001	1.84	0.18	0.04	0.34	1.89
	1012	59	0.004	1.21	0.29	0.23	0.31	1.04
	2001	75	0.001	5.60	0.54	0.28	0.86	1.59
	2002	109	0.002	14.50	0.66	0.20	1.75	2.65
	2003	98	0.001	4.90	0.57	0.31	0.89	1.55
	2004	35	0.010	2.80	0.71	0.48	0.71	1.01
	2005	27	0.010	26.20	1.17	0.06	5.02	4.28
	3001	111	0.006	7.00	0.38	0.16	0.91	2.44
LUC	3002	427	0.001	30.64	0.77	0.26	2.00	2.60
OK	3003	146	0.001	22.38	0.50	0.08	1.92	3.87
	3004	26	0.001	9.24	0.75	0.13	1.99	2.67
	3005	37	0.001	11.95	1.43	0.22	3.30	2.30
	3006	11	0.001	11.86	1.58	0.19	3.52	2.23
	3007	56	0.001	28.36	1.29	0.06	4.59	3.55
	3008	31	0.002	0.95	0.21	0.12	0.24	1.12
	3009	211	0.001	3.92	0.26	0.07	0.55	2.10
	3010	17	0.001	0.48	0.19	0.10	0.18	0.94
	3011	29	0.001	2.50	0.38	0.10	0.62	1.63

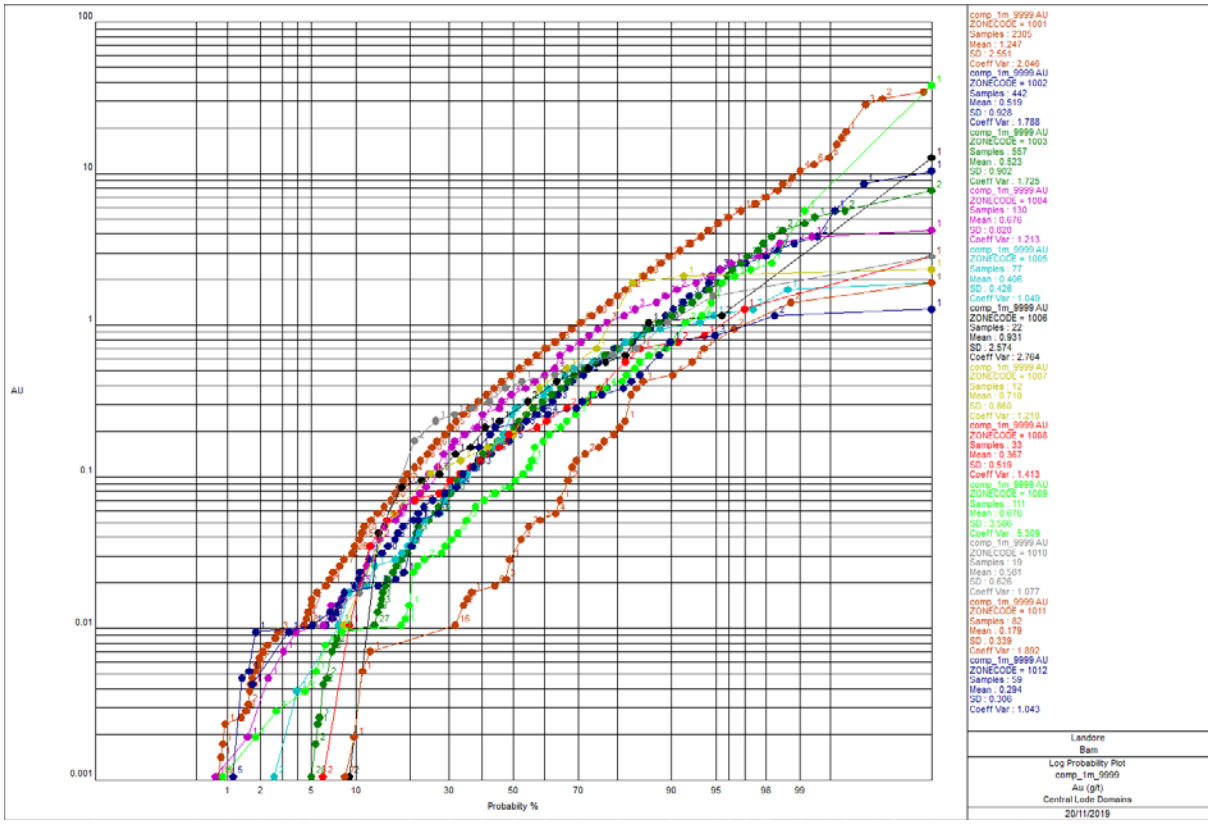


Figure 14-9 Log-probability Plot of Gold Grade for Composites – Main Zone Domains

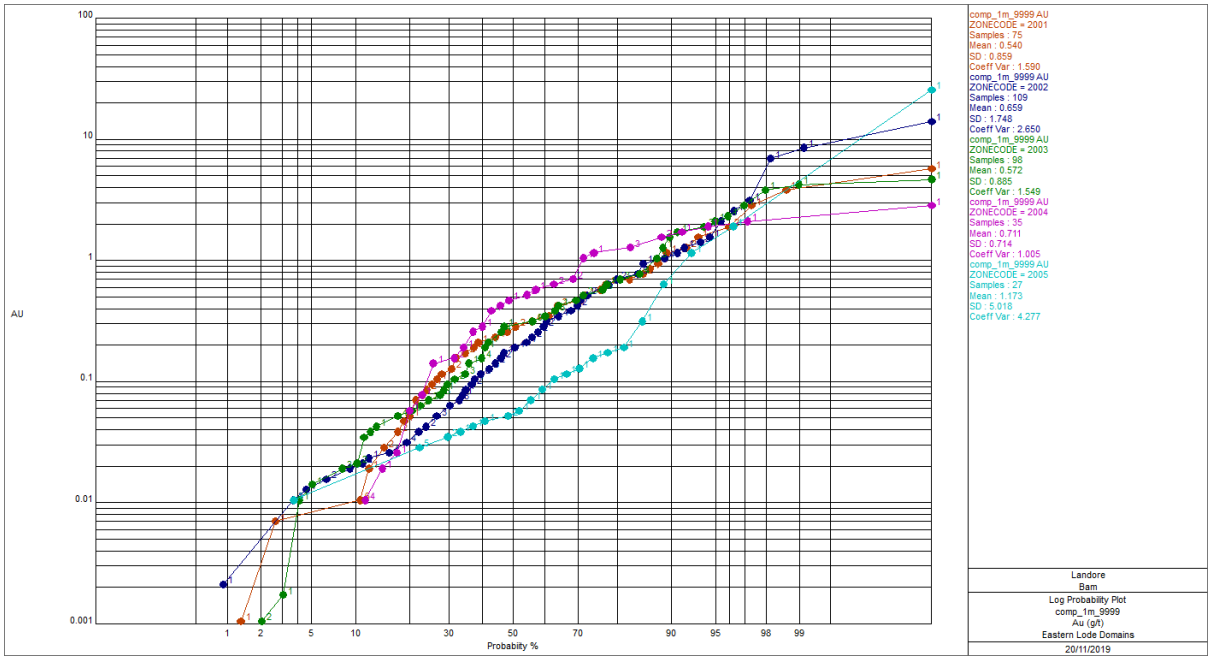


Figure 14-10 Log-probability Plot of Gold Grade for Composites – Eastern Domains

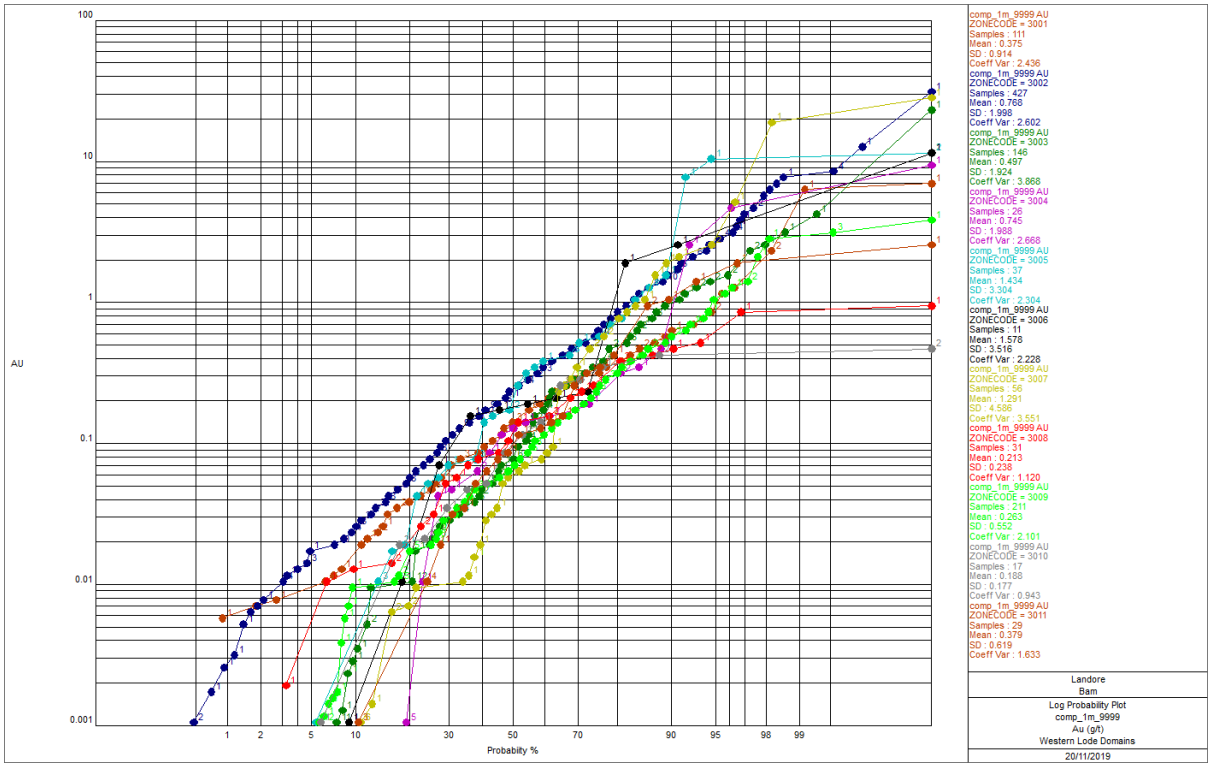


Figure 14-11 Log-probability Plot of Gold Grade for Composites – Western Zone Domains

14.7.2. Gold Grade Caps

Cube reviewed the statistics of the composites to check for outlier composite grades prior to estimation. The composite data were reviewed for each domain and gold grade caps were chosen, where considered appropriate, using the following criteria:

- By consideration of the stability of the upper tail of the grade distribution, as observed in log-probability plots and log-histograms
- By graphical inspection of the spatial grade distribution

High-grade top cuts were applied to the gold composite data for estimation in the various domains as listed in Table 14-12.

In the major domains, the caps have an immaterial impact on the mean composite grade. Much larger effects are evident in some of the smaller domains, where the capping of isolated outlier values has significantly reduced the mean grade. However, such domains make only a minor contribution to the overall resource.

Table 14-12 Gold Grade Caps (g/t Au) for Composite by Domain

Domain	Grade Cap	No. Capped	Uncapped Mean	Capped Mean	%Reduction Mean	Uncut CoV	Cut CoV	%Reduction CoV
1001	18	9	1.25	1.20	-3.8%	2.05	1.72	-16.2%
1002	No Cut	0	0.52	0.52	0.0%	1.79	1.79	0.0%
1003	No Cut	0	0.52	0.52	0.0%	1.73	1.73	0.0%
1004	No Cut	0	0.68	0.68	0.0%	1.21	1.21	0.0%
1005	No Cut	0	0.41	0.41	0.0%	1.05	1.05	0.0%
1006	2	1	0.93	0.46	-50.5%	2.76	1.07	-61.4%
1007	No Cut	0	0.71	0.71	0.0%	1.21	1.21	0.0%
1008	No Cut	0	0.37	0.37	0.0%	1.41	1.41	0.0%
1009	7	1	0.68	0.40	-40.5%	5.31	2.35	-55.8%
1010	No Cut	0	0.58	0.58	0.0%	1.08	1.08	0.0%
1011	No Cut	0	0.18	0.18	0.0%	1.89	1.89	0.0%
1012	No Cut	0	0.29	0.29	0.0%	1.04	1.04	0.0%
2001	No Cut	0	0.54	0.54	0.0%	1.59	1.59	0.0%
2002	7	2	0.66	0.58	-12.3%	2.65	2.09	-21.0%
2003	No Cut	0	0.57	0.57	0.0%	1.55	1.55	0.0%
2004	No Cut	0	0.71	0.71	0.0%	1.01	1.01	0.0%
2005	6	1	1.17	0.43	-63.8%	4.28	2.79	-34.9%
3001	5	2	0.38	0.35	-7.2%	2.44	2.10	-13.7%
3002	10	2	0.77	0.71	-7.2%	2.60	1.96	-24.5%
3003	7	1	0.50	0.39	-21.1%	3.87	2.11	-45.6%
3004	No Cut	0	0.75	0.75	0.0%	2.67	2.67	0.0%
3005	7	4	1.43	1.04	-27.2%	2.30	2.04	-11.4%
3006	8	1	1.58	1.23	-22.2%	2.23	1.96	-12.1%
3007	8	2	1.29	0.72	-44.5%	3.55	2.33	-34.5%
3008	No Cut	0	0.21	0.21	0.0%	1.12	1.12	0.0%
3009	No Cut	0	0.26	0.26	0.0%	2.10	2.10	0.0%
3010	No Cut	0	0.19	0.19	0.0%	0.94	0.94	0.0%
3011	No Cut	0	0.38	0.38	0.0%	1.63	1.63	0.0%

14.8. Variography Analysis

Variograms generated from the composited raw variable produced uninterpretable experimental variograms. To overcome the influence of the skewed distribution, the raw data were transformed into standard Gaussian space.

Variogram models were based on the 1 m composites derived from the mineralised domains, initially evaluated after a Gaussian transformation, and then back-transformed. Where data for smaller, less populated domains proved to be insufficient for variography analysis, parameters for grade estimation were adopted from other, representative mineralisation domains.

Table 14-13 summarises the gold grade variogram parameters for the key domains, with an example of Gaussian and back-transformed variogram models for Domain 1001 shown in Figure 14-12 and Figure 14-13, respectively. Variogram parameter substitutions are listed in Table 14-14.

Table 14-13 Variogram Model Parameters for Gold Grade Composites - Sills Normalised to 100%

Domain	Nugget	Spherical 1				Spherical 2				Isatis Rotation (Geol. Plane)		
		sill	major (m)	semi (m)	minor (m)	sill	major (m)	semi (m)	minor (m)	A	+X	-Z
1001	27.6%	56.2%	8	8	3	16.2%	51	51	9	100	80	0
1002	38.4%	42.5%	10	10	5	19.2%	48	48	10	100	75	0
1003	37.7%	43.1%	10	10	5	19.1%	50	50	10	100	70	0
3002	38.7%	41.7%	8	8	5	19.6%	65	65	8	100	85	0

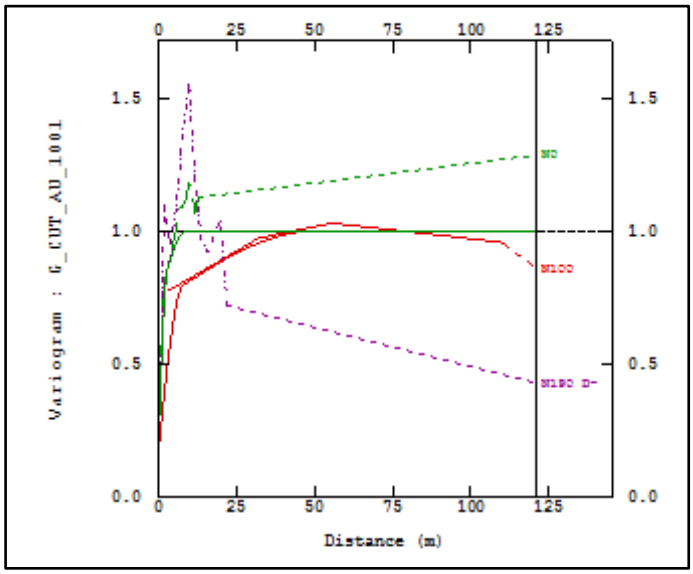


Figure 14-12 Example Gaussian variogram model – Domain 1001

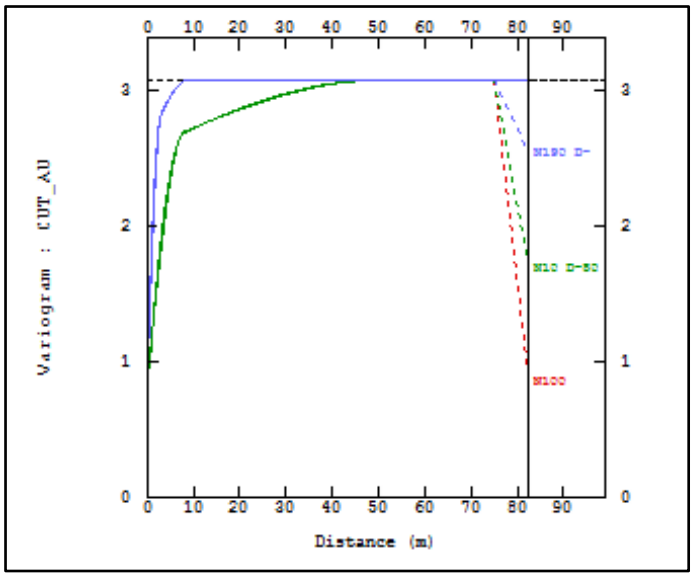


Figure 14-13 Example back-transformed variogram model – Domain 1001

Table 14-14 Assignment of Variogram Model Parameters for Minor Domains (December 2019)

Domain for Source Variogram Model	Domains for Model Substitution
1001	1004-to 1012
1002	2001 to 2005; 3001; 3003 to 3011

14.9. Block Model Construction

Several key points to consider when taking into account the selection of an appropriate estimation block size are:

- Evaluate the parent cell size with the drill density in the X (easting) and Y (northing) dimensions.
- Consider the approach to mining and minimum SMU dimensions when deciding on the vertical block size (Z).
- Ensure sufficient sub-celling to fill the wireframes in the most efficient manner. More sub-celling will be required around narrower mineralized structures, whereas less sub-celling will be required around the broader core of the mineralized breccia zone.
- Optimise the block model dimensions to the immediate confines of the interpreted area to reduce processing time and optimising the block model size.

A single block model was created in Surpac with dimensions extended out to fully cover the entire BAM Gold Project mineral resource area.

14.9.1. Block Model Extents and Attributes

The block model construction was optimized for data spacing, volume fill and mine planning purposes. The parent block size was set to a chosen block size of 20 mX x 5 mY x 5 mRL and sub-blocked to 5 mX x 1.25 mY x 1.25 mRL. The model construction was not rotated.

The origin and extent of the Surpac model are summarized in Table 14-15. The spatial dimensions for the block model are illustrated in the plan and section views in Figure 14-14 and Figure 14-15.

Table 14-15 Final Model Construction Parameters for the BAM 2019 Block Model (December 2019)

Block Model File ID	bam_bm_v4_20191130.mdl		
Type	**Northing (y)**	**Easting (x)**	**RL (z)**
Minimum Coordinates	5,580,900	432,800	-100
Maximum Coordinates	5,582,200	436,580	450
User Block Size	5	20	5
Min. Block Size	1.25	5	1.25
Rotation	0	0	0
Total Blocks	6,113,142		
Storage Efficiency %	98.23		

The block model was generated in Surpac, and flagged with the appropriate estimation domains, topographical surfaces and other domain coding attributes listed in Table 14-16.

Table 14-16: Block Model Attributes (December 2019)

Attribute Name	Background	Description
au_ppm_fin	0.001	Au ppm (cut) - Reporting Final MRE Estimate
au_ppm_id2	0.001	Au ppm (cut) - ID2 estimate
au_ppm_luc	0.001	Au ppm (cut) -LUC estimate
au_ppm_ok	0.001	Au ppm (cut) - OK estimate
au_ppm_uncut	0.001	Au ppm (uncut) - OK uncut estimate
density	2.8	Density: Air=0, 2.2 = Overburden; 2.82 = BAM; 2.84 = GPS;2.9 = MLS
depletion	1	Depletion - Numeric: 0= Air, 1=Insitu, 2 = Open Pit, 9=Cover/Dumps
design	-1	Mine Design - Numeric: 0=Above topo, 1=Inside Opti Shell
dynamic_dip	-1	controls dip component of dynamic estimate
dynamic_dipd	-1	controls dip direction component of dynamic estimate
material_code	-1	Material Type: 0=Air, 1=Ore, 2=Waste
ok_asd	-1	Average Distance to Samples - OK estimation
ok_ns	-1	Number of Samples - OK estimation
ok_sor	-1	Slope of regression - Au_ppm - OK estimation
oxidation	3	Oxidation - Numeric: 0=Air, 1=Fresh, 9=Overburden
pass_no	-1	search pass number - 1, 2 or 3
rep_flag	-1	Reporting Flag - Numeric: 0=Not Reported, 1=Reported
res_cat	4	Resource Classification - Numeric: 0=Air, 1=Measured, 2=Indicated, 3=Inferred, 4=Unclassified
rock_code	NL	Lith Codes for Density assign: OB=Overburden; GPS = Grassy Pond Sill; BAM = BAM Sequence; MLS = Marshall Lake Sequence
zonecode	-1	Mineralised Domain Code - Numeric: 1001, 1002, etc

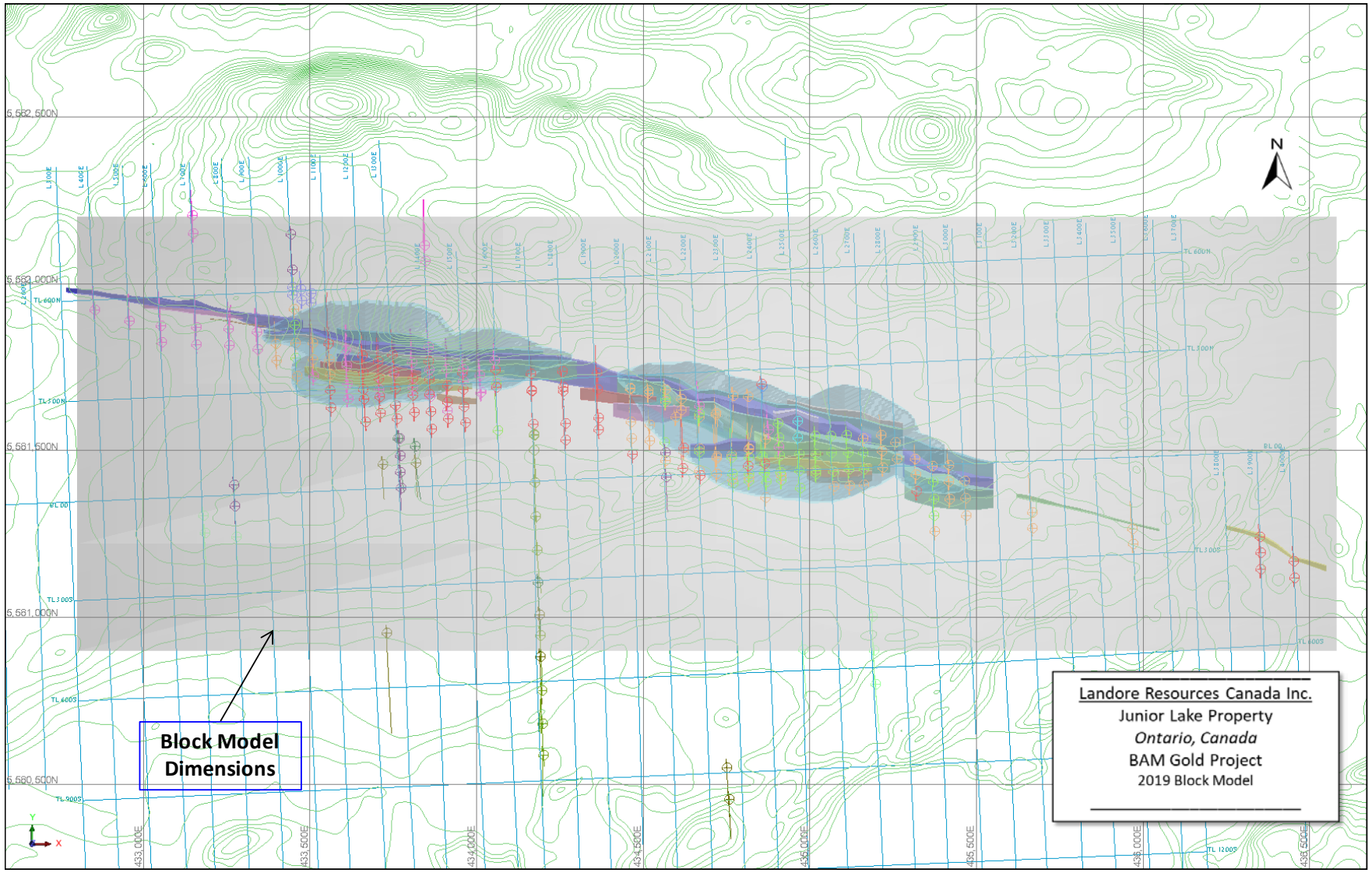


Figure 14-14 Plan View of 2019 BAM Block Model Dimensions (December 2019)

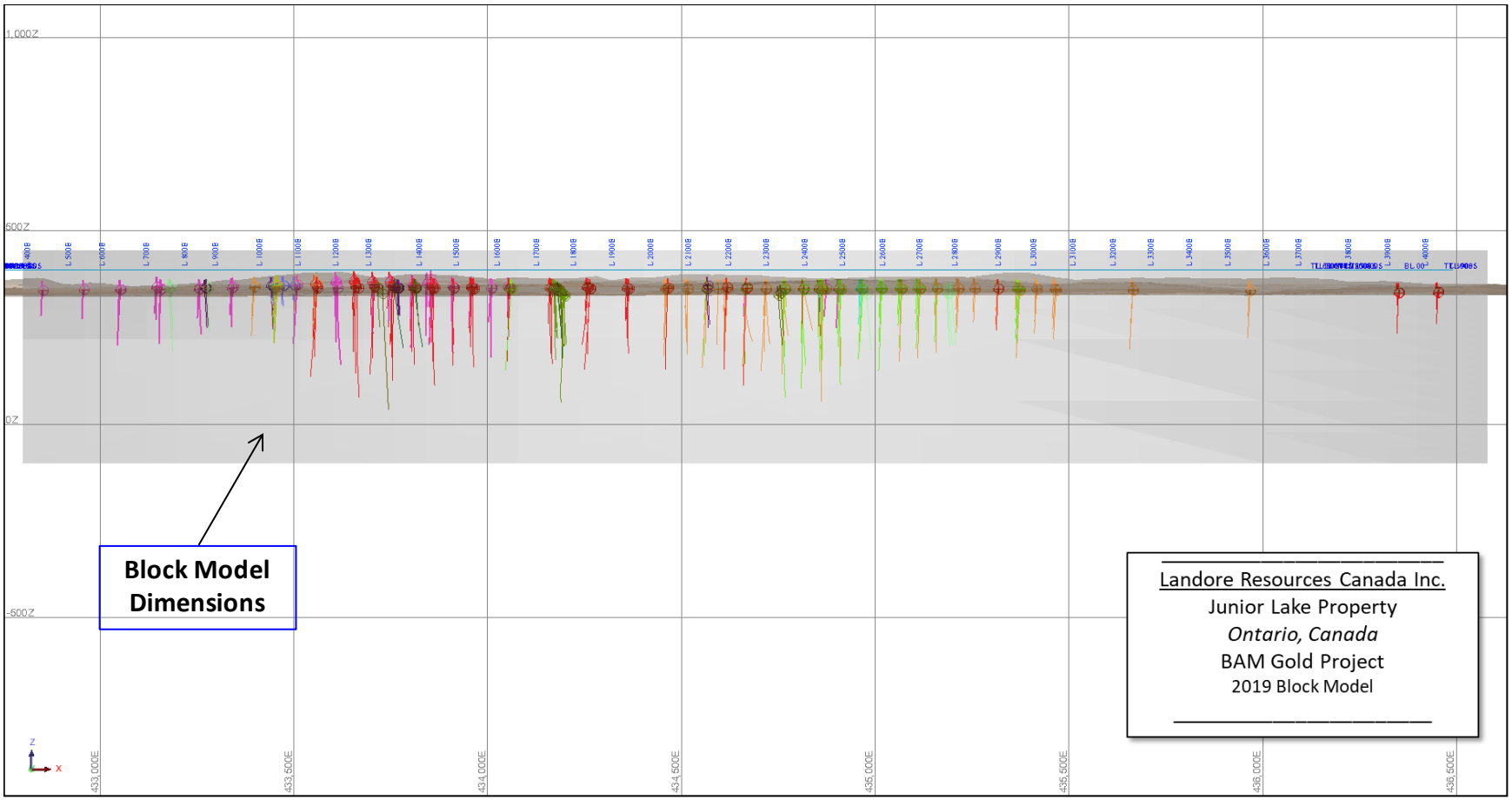


Figure 14-15 Long Section View Looking North – 2019 BAM Block Model Dimensions (December 2019)

14.9.2. Lithology Assignment

Lithology codes were assigned within the block model attribute '*rock_code'* based on the interpreted lithology 3DM wireframes and the overburden surface DTM as listed in Table 14-17.

Table 14-17: Assigned Lithology Codes in Rock_Code Model Attribute (December 2019)

Lithology/ Other Type	Rock_Code Code	Constraint	Constraint ID (*.dtm/str)
Air	AIR	Above	bam_topo_surface_clipped_2019
Overburden	OB	Above	bam_ob_surface_final_oct_2019
		Below	bam_topo_surface_clipped_2019
BAM Sequence	BAM	Inside	bam_geo_su_final_oct_2019
Grassy Pond Sill	GPS	Inside	bam_geo_gps_v1_2019
Marshall Lake Group	MLS	Inside	bam_geo_mls_v1_2019

14.9.3. Bulk Density Assignment

Bulk density was assigned within the block model attribute '*density'* according to the lithology, based on the '*rock_code'* attributes in Table 14-18.

Table 14-18: Assigned BD Values in the Density Attribute (December 2019)

Material Type	Density Value (t/m3)	Constraint	Constraint ID (*.con)
Air	0	=	rock_code= AIR
Overburden	2.2	=	rock_code= OB
BAM Sequence	2.82	=	rock_code= BAM
Grassy Pond Sill	2.84	=	rock_code= GPS
Marshall Lake Group	2.92	=	rock_code= MLS

14.9.4. Estimation Domains Assignment

The mineralized domains acted as hard boundaries to control the Mineral Resource estimation. Geological domains were assigned within the block model attribute '*zonecode'* according to the 3D wireframes and are summarized Table 14-19.

Table 14-19: Assigned Domain Codes in the Zonecode Attribute (December 2019)

Description	Domain Code	Constraint	Constraint ID (.dtm/str)
BAM/BAM	1001	Inside	bam_min_dom_1001
BAM East	1002	Inside	bam_min_dom_1002
BAM East	1003	Inside	bam_min_dom_1003
BAM East	1004	Inside	bam_min_dom_1004

Description	Domain Code	Constraint	Constraint ID (.dtm/str)
BAM East	1005	Inside	bam_min_dom_1005
BAM East	1006	Inside	bam_min_dom_1006
BAM East	1007	Inside	bam_min_dom_1007
BAM East	1008	Inside	bam_min_dom_1008
BAM East	1009	Inside	bam_min_dom_1009
BAM East	1010	Inside	bam_min_dom_1010
BAM East	1011	Inside	bam_min_dom_1011
BAM East	1012	Inside	bam_min_dom_1012
BAM East Ext.	2001	Inside	bam_min_dom_2001
BAM East Ext.	2002	Inside	bam_min_dom_2002
BAM East Ext.	2003	Inside	bam_min_dom_2003
BAM East Ext.	2004	Inside	bam_min_dom_2004
BAM East Ext.	2005	Inside	bam_min_dom_2005
BAM West	3001	Inside	bam_min_dom_3001
BAM West	3002	Inside	bam_min_dom_3002
BAM West	3003	Inside	bam_min_dom_3003
BAM West	3004	Inside	bam_min_dom_3004
BAM West	3005	Inside	bam_min_dom_3005
BAM West	3006	Inside	bam_min_dom_3006
BAM West	3007	Inside	bam_min_dom_3007
BAM West	3008	Inside	bam_min_dom_3008
BAM West	3009	Inside	bam_min_dom_3009
BAM West	3010	Inside	bam_min_dom_3010
BAM West	3011	Inside	bam_min_dom_3011

14.9.5. Mining Depletion Assignment

There have been no historic mine excavations or major ground disturbance previously within the BAM Gold Project area.

The topography wireframe supplied by Landore has been used to assign blocks above the topographic surface to a value of “0” for the following attributes – density, depletion, design, and res_cat.

14.9.6. Classification Assignment

Mineral Resource classification boundaries were created in Surpac for each mineralized domain following grade interpolation and model validation. Assigned codes in the ‘*res_cat*’ attribute were used for classifying the block model as Indicated and Inferred are summarized in Table 14-20.

There are no Measured mineral resources classified for the December 2019 MRE. Material within the mineralization domain zone_code attributes that are below the Inferred category have been coded as Unclassified material within the block model.

Table 14-20: Assigned Resource Classification in the Rescat Attribute (December 2019)

Classification Type	Rescat Code	Constraint	Constraint ID
Air or Overburden	0	Above	bam_ob_surface_final_oct_2019
Indicated	2	Inside	bam_rescat_ind_2019.dtm
		>	zone_code > '0'
		=	depletion = 1 (in-situ material)
Inferred	3	Inside	bam_rescat_inf_2019.dtm
		>	zone_code > '0'
		=	depletion = 1 (in-situ material)
Unclassified	4	Default Value	depletion = 1 (in-situ material)

14.10. Estimation Methodology

14.10.1. Estimation Approach

The estimation of the BAM deposit consisted of:

- Undertake KNA to establish search parameters
- Three-dimensional OK and LUC estimation, the latter only for major domains
- Inverse Distance to the power of 2 (**ID^2**) estimation approach for model comparison analysis.

14.10.2. Grade Estimation Using LUC

The primary grade estimation method used for gold and silver in the main mineralised zones (Domains 1001, 1002, 1003 and 3002) is Localised Uniform Conditioning (LUC), and was undertaken using Isatis software. LUC is considered an appropriate method for the estimation of local recoverable resources as it produces more accurate grade-tonnage functions, which are in accordance with well understood volume-variance relationship principles. It limits the smearing of high-grade and the over-smoothing of grade compared to linear estimation methods such as OK.

The final grade estimate for gold used for the main mineralised domain is effectively a diluted recoverable resource estimate. The process attempts to estimate the recoverable tonnage and grade based on the dimensions of a SMU, which is broadly representative of what will be practically achievable during actual mining. The initial step in a LUC estimation is undertaken using the OK method to estimate into relatively large Panels and therefore can be considered as being 'diluted', as the Panels are estimated using all data within a broad mineralised envelope. A Change of Support (**CoS**) correction is then applied to the large diluted panels in order to predict the likely grade-tonnage distribution at SMU selectivity within each Panel. In addition to the imposition of a minimum selective mining dimension, a further CoS correction was applied to the models in the form of an Information Effect. The Information Effect is a theoretical 'penalty' adjustment to the

SMU grade-tonnage distribution to account for the anticipated misclassification when making mining selectivity decisions based on future grade control spaced data.

The LUC method consists of the following steps:

- Undertake an OK estimate of gold grade into Panels, in this case 20 mE x 10 mN x 10 mRL. This was undertaken for all the domains and retained as the primary estimate for all of the zones except Domains 1001, 1002, 1003, and 3002, which were subject to the additional steps below.
- Undertake a CoS process, using a Discrete Gaussian Model (**DGM**). This makes use of a Gaussian model fitted to the sample data, in conjunction with the gold variogram model, to predict the grade distribution for smaller, SMU-sized blocks defined in this case at 10 mE x 5 mN x 2.5 mRL.
- Implement Uniform Conditioning (**UC**), which uses the results of the CoS and the Panel OK to produce an array variable of volume proportion and grade above a chosen set of grade thresholds. This represents the grade distribution of SMU's inside each panel. The UC results are conditioned to the original panel OK grade estimate.
- The UC is post-processed using the Abzalov (2006) approach to produce a single grade per SMU block (this is the final LUC estimate). The mean grade of the SMU's in any given Panel is equal to the OK grade for that Panel, and so the total metal is preserved.

14.10.3. Panel Ordinary Kriging

Search neighbourhood analysis for Panel OK at BAM was undertaken based on the gold grade variable and variogram, with reference to the chosen Panel block size. The analysis was undertaken in the following manner:

- The shape of the search ellipsoid was determined with due consideration given to the anisotropy in the variogram models. In addition, some visual inspections, using tools available in Isatis, were undertaken to assess the pattern of informing sample selection. The search ellipsoid radii ratios were then chosen so as to provide an optimal sample neighbour selection for estimation.
- The minimum and maximum allowable number of samples was chosen using KNA. KNA makes use of kriging quality statistics, in this case the Slope of Regression, Weight of the Mean and Negative Weights statistics, to select optimal minimum and maximum values for estimation. An example of such an analysis is shown in Figure 14-16.
- The search neighbourhood radii were chosen to be as small as possible while still fulfilling the requirement of filling all blocks in the estimation domains with estimates. The use of a multi-pass approach is contra-indicated for LUC estimation, since this creates an artefact at pass boundaries.

Search neighbourhood parameters used for OK Panel estimation are listed in Table 14-21. Dynamic local rotations, based on interpreted trend surfaces, were used in Domains 1001, 1002, 1003, 3002 and 3003, in order to better reflect local mineralisation continuity orientation. Fixed rotations were used for the remainder of the domains.

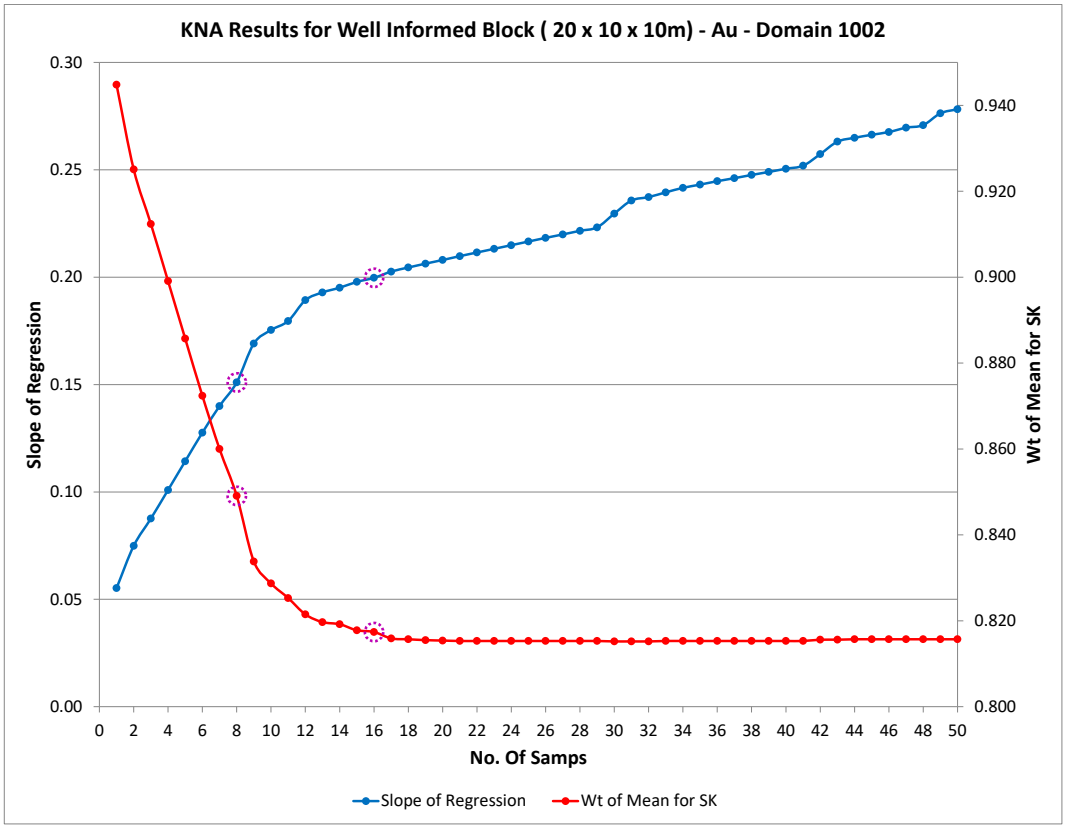


Figure 14-16 Example of KNA Plot for Domain 1002

Table 14-21 Search Neighbourhood Parameters for Panel OK, gold grade

Domain	Search Radii (m)			Min Samp	Max Samp	Isatis Rotation (Geol. Pl.)			Block Discretisation		
	major	semi	minor			A	+X	-Z	X	Y	Z
1001	240	240	60	8	5	100	80	0	5	3	5
1002	220	220	55	8	4	100	75	0	5	3	5
1003	180	180	45	8	4	100	70	0	5	3	5
1004	180	180	45	8	4	100	80	0	5	3	5
1005	160	160	40	8	4	95	85	0	5	3	5
1006	180	180	45	8	4	95	85	0	5	3	5
1007	200	200	50	8	4	100	80	0	5	3	5
1008	160	160	40	8	4	95	70	0	5	3	5
1009	140	140	35	8	4	100	75	0	5	3	5
1010	100	100	25	6	4	90	85	0	5	3	5
1011	200	200	50	6	4	80	75	0	5	3	5
1012	100	100	25	8	4	100	80	0	5	3	5
2001	200	200	50	8	5	100	60	0	5	3	5
2002	160	160	40	8	5	110	60	0	5	3	5
2003	220	220	55	8	5	110	60	0	5	3	5
2004	220	220	55	8	5	110	90	0	5	3	5
2005	180	180	45	8	5	120	80	0	5	3	5
3001	280	280	70	8	5	280	80	0	5	3	5
3002	220	220	55	8	5	100	85	0	5	3	5
3003	140	140	35	8	5	95	80	0	5	3	5
3004	180	180	45	8	5	110	55	0	5	3	5

Domain	Search Radii (m)			Min Samp	Max Samp	Isatis Rotation (Geol. Pl.)			Block Discretisation		
	major	semi	minor			A	+X	-Z	X	Y	Z
3005	200	200	50	8	5	100	70	0	5	3	5
3006	120	120	30	8	5	100	70	0	5	3	5
3007	120	120	30	8	5	100	70	0	5	3	5
3008	180	180	45	4	5	90	85	0	5	3	5
3009	120	120	30	8	5	100	80	0	5	3	5
3010	140	140	35	8	5	100	90	0	5	3	5
3011	180	180	45	8	5	100	75	0	5	3	5

14.10.4. Change of Support and Uniform Conditioning

The CoS was undertaken using the DGM functionality provided in Isatis. An Information Effect Correction was implemented; a grade control sample pattern of 10 mE x 10 mN x 1 mRL was assumed. Uniform Conditioning (UC) makes use of the results of the Change of Support step, along with the Panel grade estimated by OK in the previous step. It also takes account of the variance of the Panel estimate.

It should be noted that following the UC, the distribution of SMU grades within each Panel is available, but there is not as yet an SMU block model with a single grade per block. This means that the results of the UC can be difficult to work with, especially when undertaking mine planning studies.

Table 14-22 contains the Change of Support and final LUC block grade variances. It is evident that there is good agreement between the LUC variance and the theoretical block variance with Information Effect Correction.

Table 14-22: Change of Support and UC Parameters – LUC Au grade estimation

Domain	Sample Variance	Dispersion Variance	Theoretical Block Variance	Block Variance with IEC	CoS Co-Efficient	No. of UC Classes	LUC Block Variance
1001	3.077	2.406	0.672	0.580	0.538	10	0.480
1002	0.733	0.531	0.202	0.176	0.603	10	0.208
1003	0.743	0.535	0.209	0.182	0.604	10	0.094
3002	1.994	1.506	0.488	0.430	0.608	10	0.395

14.10.5. Localised Uniform Conditioning

LUC is a post-processing step that maps the grade distribution of the SMU's, as estimated by UC, into individual SMU block grades:

- The first step in this mapping process is to estimate a block grade for each SMU using OK. This estimate is used only to rank the SMU blocks falling within each larger Panel block from lowest to highest grade.
- The final SMU block grade is calculated simply by dividing the UC tonnage curve in each Panel into equal portions, according to the number of SMU's in the Panel. The SMU

dimensions must be factors of the Panel dimensions. The grade of the tonnage slice at the high-grade end of the curve is then assigned to the highest ranked SMU, and so forth.

Essentially LUC is a post-processing step that discretizes the UC distribution estimate and assigns grades to SMU's based on the most likely grade ranking of each SMU. The search neighbourhood parameters used for the OK SMU ranking estimates are summarised in Table 14-23.

The final result of the LUC step is thus a single grade per SMU (in this case 2.5 mX x 5 mY x 5 mZ), with the SMU block model being much more amenable to mine planning studies than the relatively cumbersome UC estimates that are stored at a Panel resolution.

Table 14-23: Search parameters for Au grade – SMU Ranking OK estimates in the LUC domains

Domain	Search Radii (m)			Min Samp	Max Samp	Isatis Rotation (Geol. Pl.)			Block Discretisation		
	major	semi	minor			A	+X	-Z	X	Y	Z
1001	240	240	60	8	5	100	80	0	5	2	5
1002	220	220	55	8	4	100	75	0	5	2	5
1003	180	180	45	8	4	100	70	0	5	2	5
3002	220	220	55	8	5	100	80	0	5	2	5

14.11. Model Validation

Cube carried out the following validation methods for the BAM gold grade LUC and OK estimates:

- Comparison of volumetric data (3D wireframe vs block model domain volume).
- Global comparison of the estimated mean LUC/OK block grades to the un-declustered and declustered mean of informing composite grades, on a domain-by-domain basis. The LUC estimates were also compared to the mean grade of a check ID^2 estimation.
- Semi-locally using swath plots comparing the LUC/OK gold estimates to the sample data and the ID^2 check estimate, and
- Visual inspection of block grade estimates versus raw samples from drill holes on sections.

14.11.1. Visual Validation

Figure 14-17 shows a plan view of the block model in 3D space whereby block grades for each mineralised domain are compared with the 1 m composite grade distributions and also the raw drill hole grades.

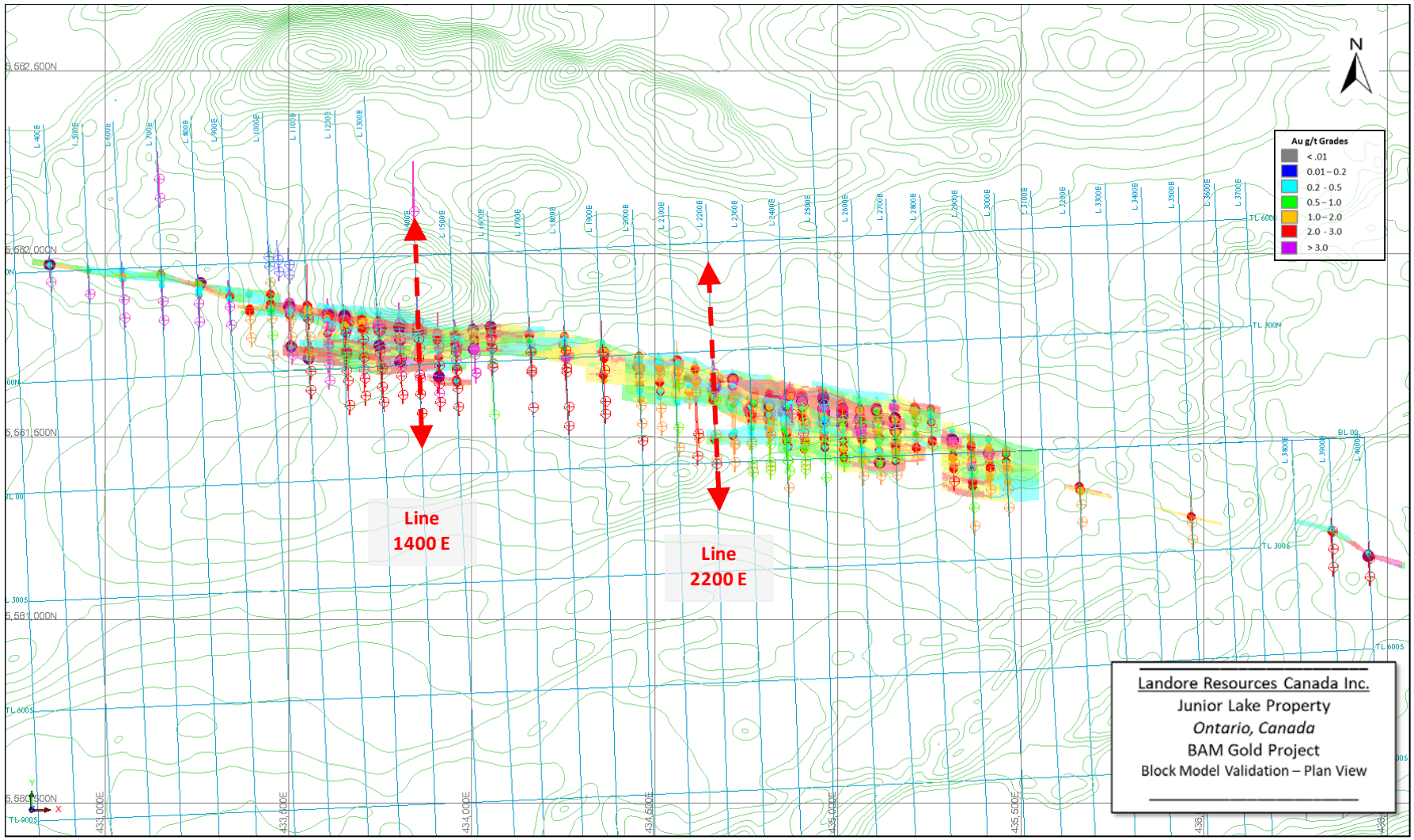


Figure 14-17: Block Model Plan View –with Cross Section Reference Line (December 2019)

Figure 14-18 to Figure 14-21 show examples of a validation in cross section view on local grid Lines 2200 E and 1400 E within the Central and West zones of the BAM sequence, where significant mineralization is present.

Analysis of the Line 2200 E cross section indicates:

- Local block grade estimates in general are honouring the higher and lower grade intersections around the actual raw data intersections within the drill holes.
- The estimation parameters were kept tight for high grade samples – a distance limiting factor of 25 m around the HG samples (>15 g/t) was used. This limits the influence of HG "nuggety Au" that may risk in over-estimating block grades further away where data does not support higher grades.
- The section shows that the grades in the blocks around the HG intersections are tightly controlled by the estimation factors applied in the case.

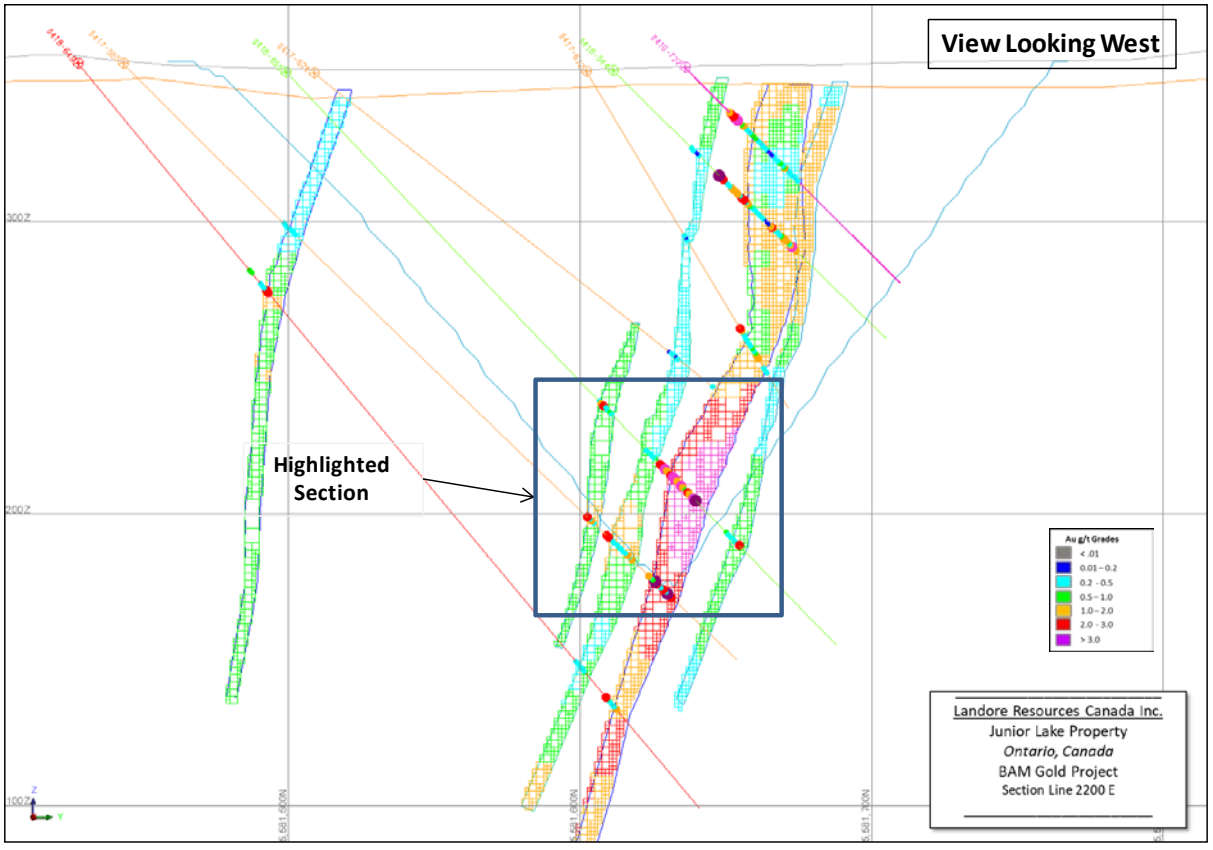


Figure 14-18: Cross Section Line 2200 E– Domain Block Grade Estimation with Drilling (December 2019)

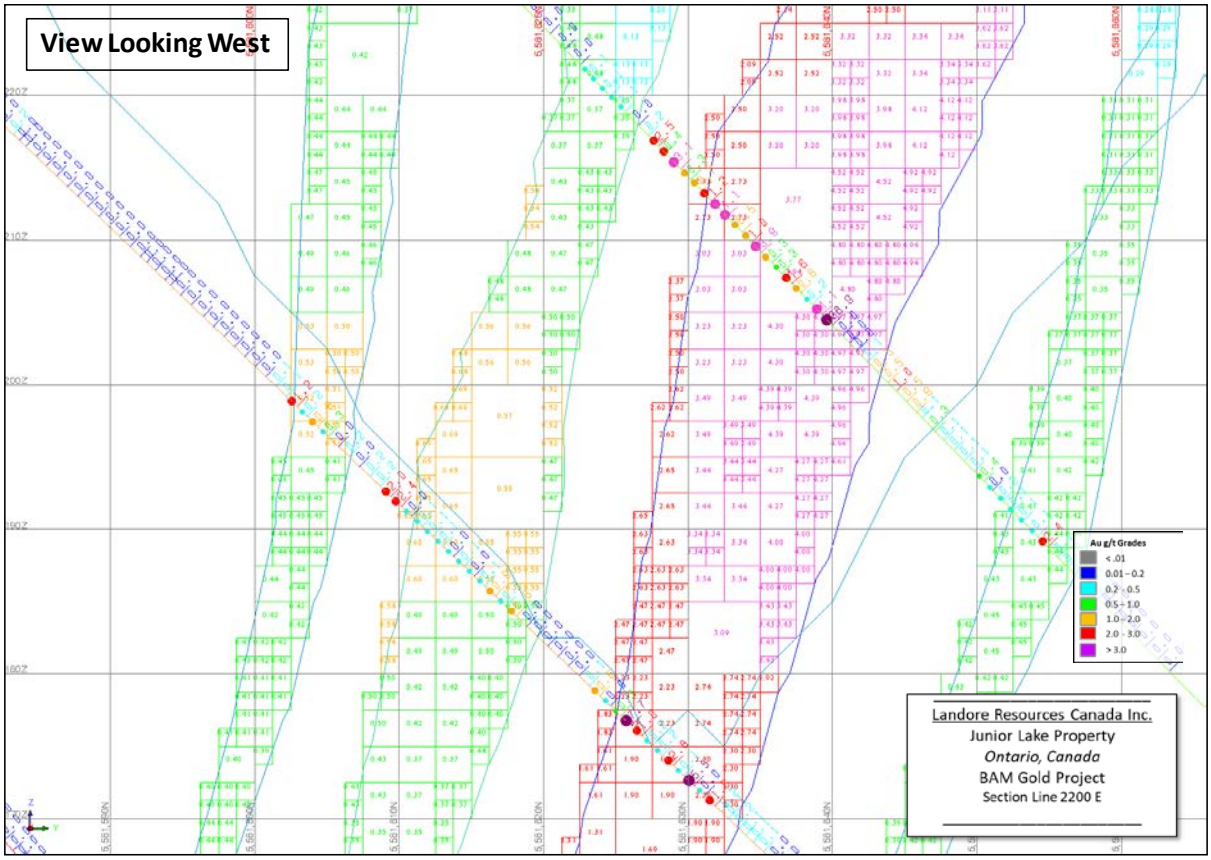


Figure 14-19: Cross Section Line 2200 E– Highlighted Zone Block Grades versus Drill Hole Grades (December 2019)

Analysis of the Line 1400 E cross section indicates:

- Higher and lower grade continuity is honoured in the block model estimation, based on the search influence from each drilling intersection within the interpreted Au mineralization envelope.

The visual validation showed that overall, the raw samples with block grade estimates demonstrated that the estimates have honoured the raw sample data satisfactorily.

There are some instances where some smearing of the grade occurs in poorly informed areas and this is most prominent where drilling spacing is broader. These zones have been classified accordingly in the resource classification boundary definitions at a later stage.

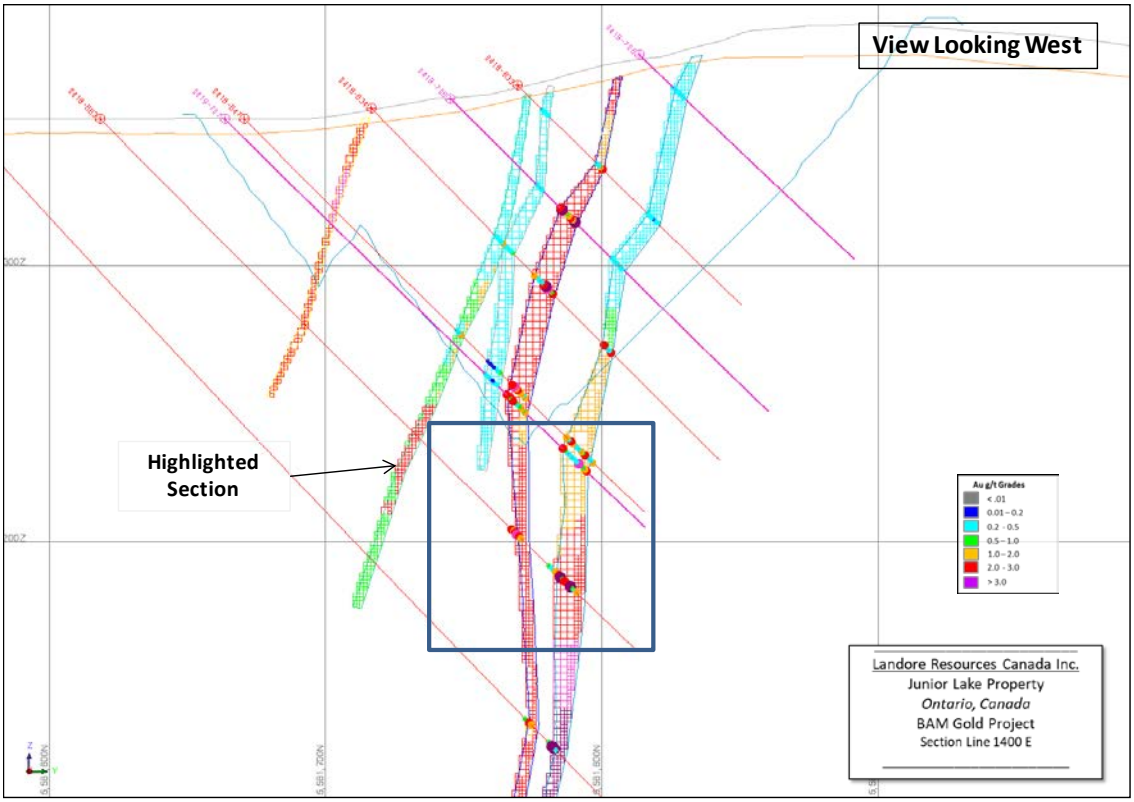


Figure 14-20: Cross Section Line 1400 E– Domain Block Grade Estimation with Drilling (December 2019)

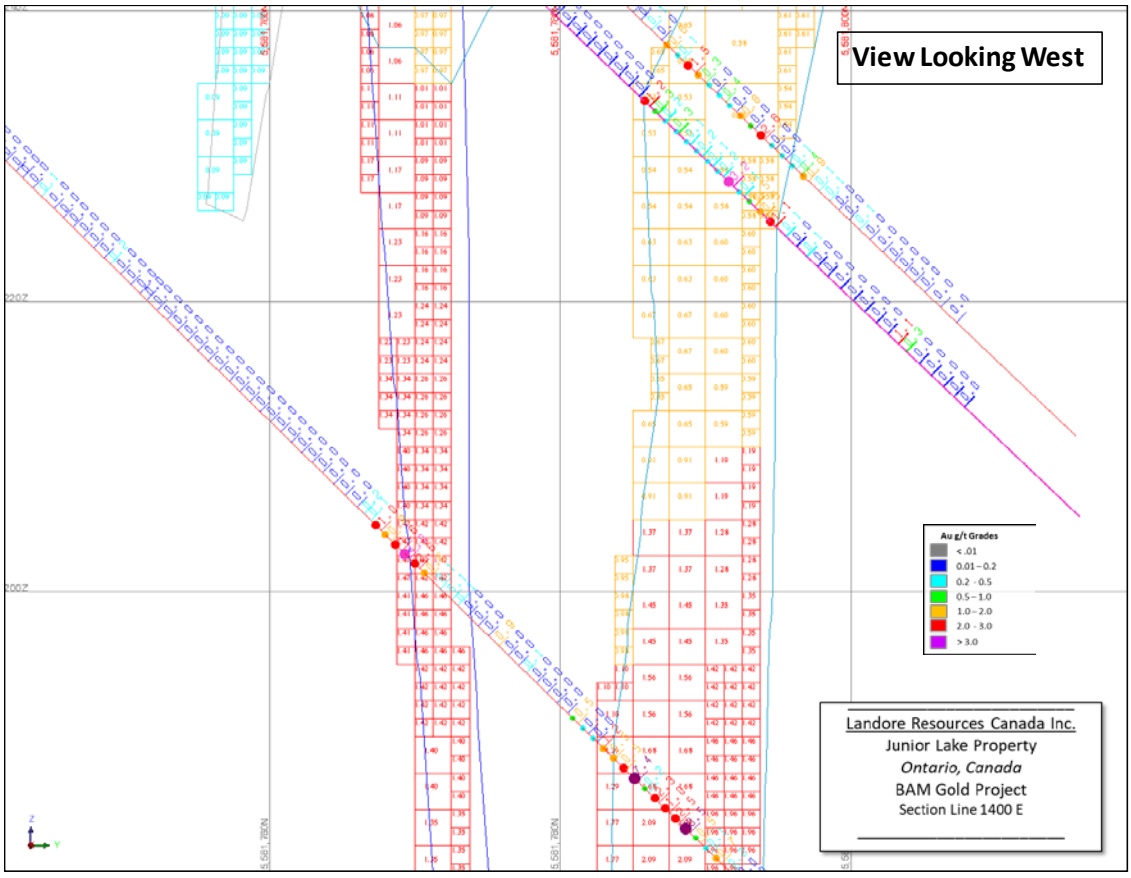


Figure 14-21: Cross Section Line 1400 E– Highlighted Zone Block Grades versus Drill Hole Grades (December 2019)

14.11.2. Volumetric Comparisons

Validation checks included volumetric comparison between undepleted 3DM wireframes against the mineralized domains coded in the block model to ensure no errors in coding would lead to discrepancies in mineral resource reporting at a later stage.

All domain 3DM wireframes correlated well with the volume estimates from the block model. In addition, a calculation check was made of the BD assignment, with no discrepancies noted.

The volume variance between the wireframes and the block models was acceptable for the intended use of the block models (Table 14-24).

Table 14-24: Volumetric Comparisons for All Mineralization Domains (December 2019)

Domain	3DM Volume (undepleted) (m3)	BM Volume (undepleted) (m3)	% diff chk	BM Volume - depleted of OB (m3)	BM Tonnage (t)	BD - assigned	BD - calculated (ave)
1001	4,779,513	4,781,125	0.0%	4,781,125	13,497,798	2.82	2.82
1002	1,208,175	1,199,828	-0.7%	1,199,828	3,393,059	2.82	2.83
1003	1,253,785	1,246,008	-0.6%	1,246,008	3,538,076	2.84	2.84
1004	331,429	327,531	-1.2%	327,531	930,189	2.84	2.84
1005	176,346	174,875	-0.8%	174,875	496,645	2.84	2.84
1006	82,927	82,117	-1.0%	82,117	233,213	2.84	2.84
1007	63,408	63,086	-0.5%	63,086	179,164	2.84	2.84
1008	98,231	97,430	-0.8%	97,430	276,700	2.84	2.84
1009	274,738	274,188	-0.2%	274,188	789,962	2.90	2.88
1010	22,862	22,695	-0.7%	22,695	64,455	2.84	2.84
1011	223,695	218,453	-2.4%	218,453	620,407	2.84	2.84
1012	113,055	112,914	-0.1%	112,914	320,676	2.84	2.84
2001	227,438	222,719	-2.1%	222,719	630,982	2.82	2.83
2002	314,250	310,984	-1.1%	310,984	876,995	2.82	2.82
2003	294,331	287,328	-2.4%	287,328	816,012	2.84	2.84
2004	268,688	265,813	-1.1%	265,813	754,907	2.84	2.84
2005	94,955	93,609	-1.4%	93,609	263,981	2.82	2.82
3001	752,500	734,914	-2.4%	734,914	2,072,477	2.82	2.82
3002	1,280,241	1,273,273	-0.5%	1,273,273	3,592,701	2.82	2.82
3003	393,634	389,883	-1.0%	389,883	1,106,949	2.84	2.84
3004	35,097	34,992	-0.3%	34,992	99,378	2.82	2.84
3005	139,425	137,008	-1.8%	137,008	389,102	2.84	2.84
3006	25,020	24,523	-2.0%	24,523	69,647	2.82	2.84
3007	146,701	146,523	-0.1%	146,523	416,127	2.84	2.84
3008	118,152	115,906	-1.9%	115,906	328,430	2.84	2.83
3009	366,173	360,656	-1.5%	360,656	1,024,264	2.84	2.84
3010	51,938	51,406	-1.0%	51,406	145,990	2.84	2.84
3011	126,575	126,969	0.3%	126,969	360,591	2.84	2.84

14.11.3. Global Statistical Comparisons

The base OK Panel estimates and ID^2 check estimates were compared to the informing composites (Table 14-25). The agreement between estimates and declustered composites is good, with the check estimate also generally being within a few percentage points of the OK Panel estimate.

Table 14-25 Global comparison – OK and ID^2 estimates versus informing 1m composites (Au g/t)

Domain	Variable	N	Min	Max	Mean	Std Dev	CoV
1001	Composites (undecl.)	2,305	0.001	18.00	1.20	2.06	1.71
	Composites (decl.)	2,305	0.001	18.00	1.07	1.91	1.79
	OK EST CUT_AU 1001	7,349	0.082	5.66	1.07	0.70	0.66
	ID2 CHKEST CUT_AU 1001	69,913	0.022	9.85	1.00	0.71	0.71
1002	Composites (undecl.)	442	0.001	10.25	0.52	0.93	1.79
	Composites (decl.)	442	0.001	10.25	0.60	1.18	1.95
	OK EST CUT_AU 1002	2,239	0.009	2.10	0.60	0.42	0.70
	ID2 CHKEST CUT_AU 1002	17,069	0.005	3.36	0.56	0.44	0.78
1003	Composites (undecl.)	557	0.001	8.03	0.52	0.90	1.72
	Composites (decl.)	557	0.001	8.03	0.48	0.87	1.83
	OK EST CUT_AU 1003	2,148	0.029	2.47	0.48	0.26	0.54
	ID2 CHKEST CUT_AU 1003	16,756	0.002	4.05	0.50	0.39	0.79
1004	Composites (undecl.)	130	0.001	4.36	0.68	0.82	1.21
	Composites (decl.)	130	0.001	4.36	0.59	0.81	1.37
	OK EST CUT_AU 1004	744	0.123	1.82	0.59	0.29	0.48
	ID2 CHKEST CUT_AU 1004	5,140	0.021	2.54	0.54	0.36	0.66
1005	Composites (undecl.)	77	0.001	1.87	0.41	0.42	1.04
	Composites (decl.)	77	0.001	1.87	0.40	0.38	0.95
	OK EST CUT_AU 1005	461	0.094	0.80	0.40	0.12	0.29
	ID2 CHKEST CUT_AU 1005	3,034	0.029	1.17	0.38	0.17	0.46
1006	Composites (undecl.)	22	0.001	2.00	0.46	0.48	1.04
	Composites (decl.)	22	0.001	2.00	0.47	0.49	1.04
	OK EST CUT_AU 1006	225	0.209	0.70	0.47	0.13	0.27
	ID2 CHKEST CUT_AU 1006	1,390	0.095	0.70	0.42	0.11	0.27
1007	Composites (undecl.)	12	0.010	2.24	0.71	0.82	1.16
	Composites (decl.)	12	0.010	2.24	0.92	0.88	0.96
	OK EST CUT_AU 1007	178	0.528	1.13	0.92	0.13	0.14
	ID2 CHKEST CUT_AU 1007	1,125	0.268	1.37	0.75	0.27	0.37
1008	Composites (undecl.)	33	0.001	2.72	0.37	0.51	1.39
	Composites (decl.)	33	0.001	2.72	0.43	0.61	1.42
	OK EST CUT_AU 1008	228	0.090	1.01	0.43	0.20	0.46
	ID2 CHKEST CUT_AU 1008	1,471	0.077	1.09	0.38	0.20	0.53
1009	Composites (undecl.)	111	0.001	7.00	0.40	0.94	2.34
	Composites (decl.)	111	0.001	7.00	0.44	1.03	2.32

Domain	Variable	N	Min	Max	Mean	Std Dev	CoV
	OK EST CUT_AU 1009	616	0.024	1.99	0.44	0.38	0.85
	ID2 CHKEST CUT_AU 1009	4,201	0.007	2.31	0.42	0.39	0.93
1010	Composites (undecl.)	19	0.010	2.71	0.58	0.61	1.05
	Composites (decl.)	19	0.010	2.71	0.57	0.48	0.85
	OK EST CUT_AU 1010	58	0.195	0.77	0.57	0.12	0.22
	ID2 CHKEST CUT_AU 1010	374	0.162	1.26	0.56	0.23	0.41
1011	Composites (undecl.)	82	0.001	1.84	0.18	0.34	1.88
	Composites (decl.)	82	0.001	1.84	0.23	0.42	1.88
	OK EST CUT_AU 1011	378	0.012	0.65	0.23	0.15	0.66
	ID2 CHKEST CUT_AU 1011	3,003	0.004	1.16	0.25	0.21	0.83
1012	Composites (undecl.)	59	0.004	1.21	0.29	0.30	1.03
	Composites (decl.)	59	0.004	1.21	0.32	0.32	1.01
	OK EST CUT_AU 1012	236	0.095	0.57	0.32	0.10	0.31
	ID2 CHKEST CUT_AU 1012	1,719	0.025	0.67	0.32	0.15	0.46
2001	Composites (undecl.)	75	0.001	5.60	0.54	0.85	1.58
	Composites (decl.)	75	0.001	5.60	0.45	0.76	1.68
	OK EST CUT_AU 2001	485	0.097	1.94	0.45	0.26	0.58
	ID2 CHKEST CUT_AU 2001	3,324	0.012	2.67	0.41	0.27	0.65
2002	Composites (undecl.)	109	0.002	7.00	0.58	1.20	2.08
	Composites (decl.)	109	0.002	7.00	0.55	1.12	2.05
	OK EST CUT_AU 2002	557	0.039	2.08	0.55	0.31	0.58
	ID2 CHKEST CUT_AU 2002	4,168	0.022	2.44	0.51	0.43	0.85
2003	Composites (undecl.)	98	0.001	4.90	0.57	0.88	1.54
	Composites (decl.)	98	0.001	4.90	0.64	1.02	1.58
	OK EST CUT_AU 2003	490	0.104	1.49	0.64	0.31	0.48
	ID2 CHKEST CUT_AU 2003	3,709	0.034	2.25	0.50	0.34	0.68
2004	Composites (undecl.)	35	0.010	2.80	0.71	0.70	0.99
	Composites (decl.)	35	0.010	2.80	0.88	0.76	0.87
	OK EST CUT_AU 2004	529	0.351	1.39	0.88	0.21	0.23
	ID2 CHKEST CUT_AU 2004	3,963	0.068	1.49	0.88	0.27	0.31
2005	Composites (undecl.)	27	0.010	6.00	0.43	1.16	2.73
	Composites (decl.)	27	0.010	6.00	0.34	0.78	2.27
	OK EST CUT_AU 2005	260	0.067	1.28	0.34	0.20	0.59
	ID2 CHKEST CUT_AU 2005	1,724	0.038	1.77	0.26	0.18	0.69
3001	Composites (undecl.)	111	0.006	5.00	0.35	0.73	2.09
	Composites (decl.)	111	0.006	5.00	0.55	1.05	1.91
	OK EST CUT_AU 3001	1,263	0.089	1.44	0.55	0.31	0.56
	ID2 CHKEST CUT_AU 3001	10,228	0.037	1.84	0.52	0.35	0.66
3002	Composites (undecl.)	427	0.001	10.00	0.71	1.40	1.96
	Composites (decl.)	427	0.001	10.00	0.73	1.65	2.26

Domain	Variable	N	Min	Max	Mean	Std Dev	CoV
	OK EST CUT_AU 3002	1,989	0.065	3.41	0.73	0.60	0.83
	ID2 CHKEST CUT_AU 3002	16,671	0.032	4.82	0.86	0.99	1.15
3003	Composites (undecl.)	146	0.001	7.00	0.39	0.82	2.10
	Composites (decl.)	146	0.001	7.00	0.40	0.72	1.80
	OK EST CUT_AU 3003	873	0.033	1.01	0.40	0.19	0.48
	ID2 CHKEST CUT_AU 3003	6,112	0.012	3.20	0.37	0.27	0.73
3004	Composites (undecl.)	26	0.001	9.24	0.75	1.95	2.62
	Composites (decl.)	26	0.001	9.24	1.15	2.49	2.16
	OK EST CUT_AU 3004	91	0.103	2.61	1.15	0.78	0.67
	ID2 CHKEST CUT_AU 3004	574	0.027	7.27	1.03	1.49	1.45
3005	Composites (undecl.)	37	0.001	7.00	1.04	2.10	2.01
	Composites (decl.)	37	0.001	7.00	1.12	2.20	1.96
	OK EST CUT_AU 3005	419	0.233	2.66	1.12	0.51	0.45
	ID2 CHKEST CUT_AU 3005	2,563	0.026	4.74	1.10	0.92	0.84
3006	Composites (undecl.)	11	0.001	8.00	1.23	2.29	1.87
	Composites (decl.)	11	0.001	8.00	1.26	2.31	1.83
	OK EST CUT_AU 3006	84	0.575	1.72	1.26	0.30	0.24
	ID2 CHKEST CUT_AU 3006	508	0.109	3.89	1.08	0.60	0.56
3007	Composites (undecl.)	56	0.001	8.00	0.72	1.65	2.31
	Composites (decl.)	56	0.001	8.00	0.67	1.56	2.33
	OK EST CUT_AU 3005	378	0.056	1.68	0.67	0.42	0.63
	ID2 CHKEST CUT_AU 3005	2,507	0.002	3.92	0.65	0.66	1.01
3008	Composites (undecl.)	31	0.002	0.95	0.21	0.23	1.10
	Composites (decl.)	31	0.002	0.95	0.20	0.22	1.11
	OK EST CUT_AU 3006	278	0.080	0.36	0.20	0.06	0.32
	ID2 CHKEST CUT_AU 3006	1,989	0.044	0.37	0.21	0.07	0.33
3009	Composites (undecl.)	211	0.001	3.92	0.26	0.55	2.09
	Composites (decl.)	211	0.001	3.92	0.26	0.54	2.09
	OK EST CUT_AU 3005	749	0.044	0.78	0.26	0.11	0.43
	ID2 CHKEST CUT_AU 3005	5,677	0.009	1.80	0.27	0.19	0.72
3010	Composites (undecl.)	17	0.001	0.48	0.19	0.17	0.91
	Composites (decl.)	17	0.001	0.48	0.20	0.18	0.89
	OK EST CUT_AU 3006	131	0.113	0.30	0.20	0.05	0.24
	ID2 CHKEST CUT_AU 3006	920	0.027	0.28	0.20	0.06	0.31
3011	Composites (undecl.)	29	0.001	2.50	0.38	0.61	1.61
	Composites (decl.)	29	0.001	2.50	0.40	0.58	1.45
	OK EST CUT_AU 3005	303	0.077	0.89	0.40	0.13	0.32
	ID2 CHKEST CUT_AU 3005	2,083	0.028	1.50	0.40	0.21	0.54

14.11.4. Swath Plots

Examples of swath plots for Domain 1001 by Easting and RL slices for gold grade are shown in Figure 14-23 and Figure 14-23. The correspondence between samples and estimates is good, as evident in the Swath plots. The comparison of the composite grades against the block model grades indicated the raw grade spikes and sections of limited data are adequately handled by the block grade estimates. Other swath plots for smaller domains are illustrated in Appendix 7.

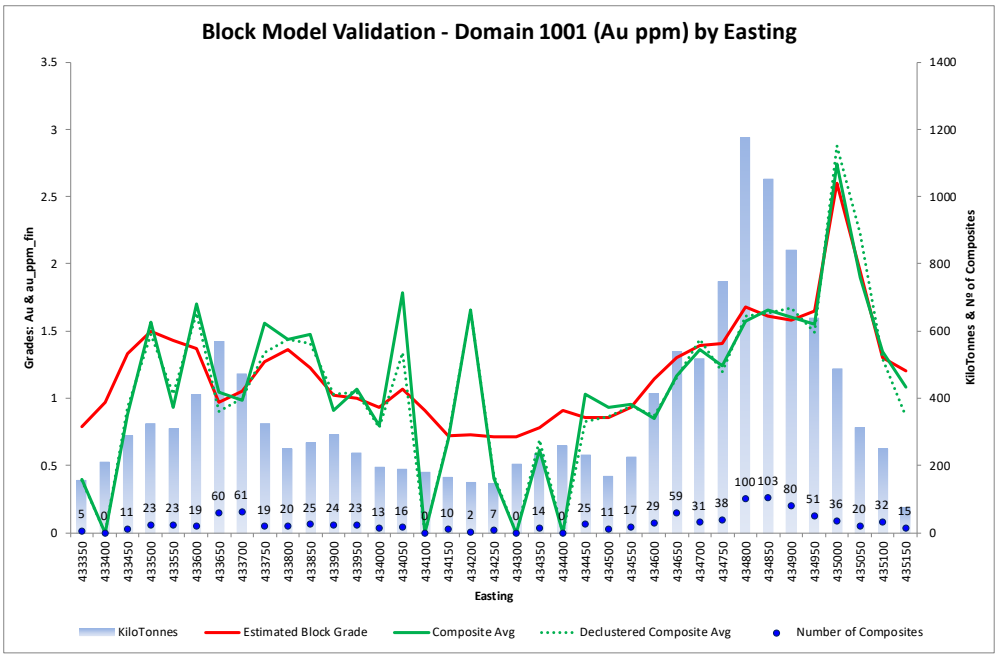


Figure 14-22 Example swath plots for gold grade, Domain 1001 – by Easting

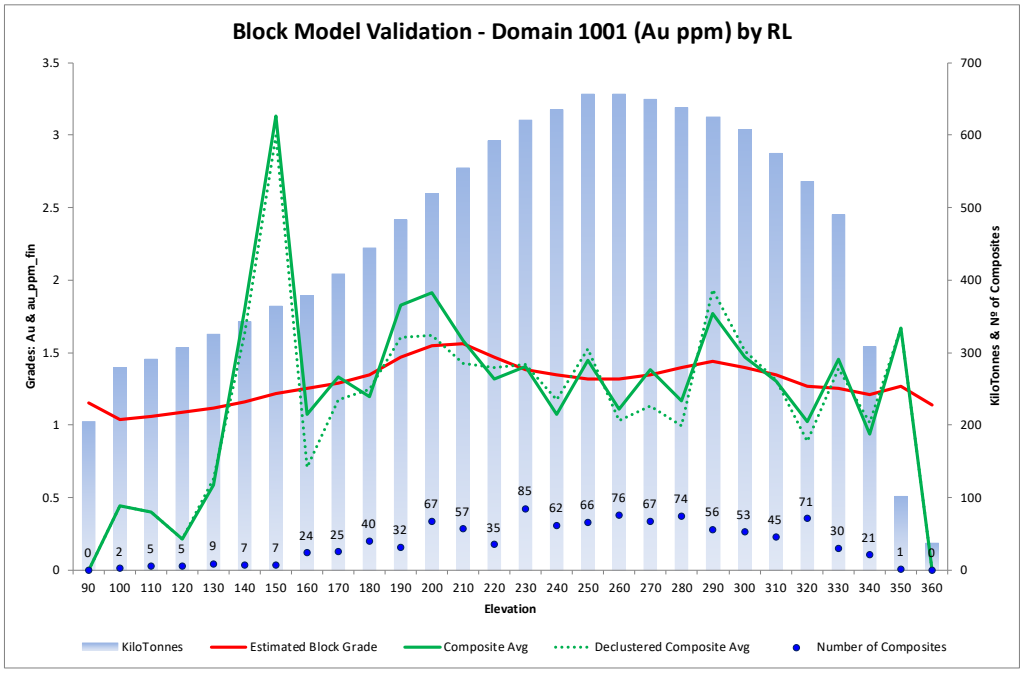


Figure 14-23 Example swath plots for gold grade, Domain 1001 – by RL

14.11.5. Model Validation Summary

Visual comparison of the block model grade estimates to the informing composites shows that the estimation reflects local variations in the data. Given the drill hole spacing and the high nugget effect, the estimates reconciled well against the drill hole composited data.

The informing composites and the OK block estimates, as well as the ID^2 check estimates were observed to correspond satisfactorily both globally and in the swath plots.

It is Cube's opinion that the OK gold estimates are valid and satisfactorily represent the informing data for the December 2019 MRE.

14.12. Mineral Resource Estimate Classification

A range of criteria were considered when addressing the suitability of the classification boundaries. These criteria include:

- Geological continuity and volume.
- Drill spacing and drill data quality - drill holes oriented to the south or drilled close to the same orientation as the mineralization dip were removed from the estimation composite data. There was sufficient confidence in all other data used, and the reliability of data based on high quality diamond drill core.
- Geostatistical measures to provide confidence in the tonnage and grade estimates, including search strategy, number of informing composites, average distance of composites from blocks and kriging quality parameters which are quantified in the slope of regression.
- Risk or uncertainty present in the estimated gold grades.

The drill spacing at BAM is considered by Cube to be adequate to determine the geological and grade continuity for reporting of Mineral Resources. Most drilling completed is orientated normal to the dip of the mineralization, providing in most instances a representative sample across the mineralization.

The resource classification for the BAM Gold Project is mostly based on drill data spacing in combination with the slope of regression data for each block in the estimate.

Blocks have been classified as Indicated or Inferred essentially based on data spacing and using a combination of search volume and number of data used for the estimation. No material in the MRE has been classified as Measured Mineral Resources.

The drill spacing criteria for classification is as follows:

- Indicated Mineral Resources are defined nominally by 50 m x 50 m spaced drilling or less.
- Inferred Mineral Resources are defined by data greater than 50 m x 50 m spaced drilling and the confidence that the continuity of geology and mineralization can be extended along strike and at depth to a nominal 50 m maximum extent past Indicated Resource limit.
- Unclassified material, all material within the mineralization domains, but outside of indicated and inferred material. Blocks in the 2nd and 3rd passes that contained high-grade

smearing due to the effects of the OK estimation, were re-assigned the mean block grade of the overall estimation domain. These blocks were located at lower depths or along strike, extending more than 100 m passed the last drilling fences and were assigned in the block model as unclassified blocks.

Figure 14-24 provides visual overviews summarizing the Mineral Resource classification categories for the BAM block model area.

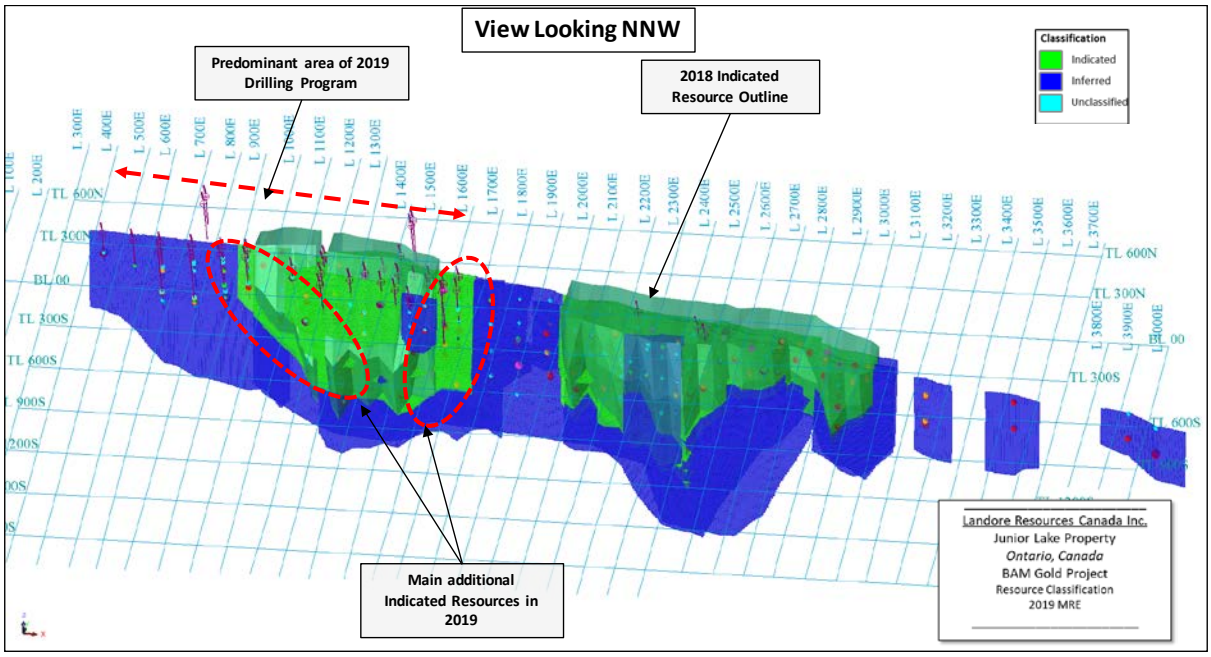


Figure 14-24:Block Model Isometric View Showing Resource Classification and Drilling Density (December 2019)

14.13. Mineral Resource Statement

14.13.1. In situ Mineral Resources

The BAM Gold Project Mineral Resource, Effective Date as at 30 December 2019 is suitable for public reporting in accordance with the NI 43-101 and the CIM Definition Standards (May 2014). All drilling information, including all drilling completed up to the end of 2019 has been used in the preparation of the current MRE. The input drilling data is comprehensive in its coverage of the gold mineralization at the BAM Gold Project and does not misrepresent the mineralization. Knowledge of the geological controls on mineralization has been used to develop the overall resource estimate.

The December 2019 Mineral Resource is reported at a base-case 0.3 g/t gold cut-off grade within the interpreted mineralized domains to a maximum vertical depth of 380 m.

Table 14-26 is a summary of the Indicated and Inferred Mineral Resources, effective as of 30 December 2019.

Table 14-26 BAM Gold Project In-situ Mineral Resource – All Indicated and Inferred Resources (as at 30 December 2019)

Resource Category	Material Type	Au g/t cut off	Tonnes (kT)	Grade (g/t Au)	Contained Metal (Oz Au)
Measured	**ALL**	>0.3	0	0	0
Indicated	**ALL**	>0.3	21,930	1.06	747,000
Inferred	**ALL**	>0.3	9,153	0.91	268,000

Notes:

1 *Effective date of 30 December 2019.*

2 *The tonnages are estimated on a dry tonnes basis. Moisture was not considered in the bulk density assignment*

3 *Mineral Resources are estimated at a block cut-off grade of 0.3 g/t Au.*

4 *A minimum mining width of two metres was used.*

5 *Bulk densities for the main lithologies are 2.82 t/m^3, 2.84 t/m^3, and 2.90 t/m^3. All material below the glacial overburden is fresh rock.*

6 *Mineral resources that are not mineral reserves do not have demonstrated economic viability.*

7 *Figures may not add up due to rounding*

14.13.2. Pit Optimised Mineral Resources

Based on the current input parameters that have been used for the 2019 pit optimization by Cube, a 0.3 g/t Au lower cut-off was deemed appropriate for the December 2019 Mineral Resource reporting.

At a cut-off grade of 0.3 g/t Au, the Mineral Resources are reported here within the pit optimization run B open pit shell. The Run B open pit shell include Indicated Mineral Resources and Inferred Mineral Resources. The figures reported in Table 14-27 are estimated using a long-term gold price of US$1,500 per ounce.

Table 14-27 2019 BAM Gold Project In-situ Mineral Resources – Inside USD $1,500 Pit Shell (as at 30 December 2019)

Resource Category	Material Type	Au g/t cut off	Tonnes (kT)	Grade (g/t Au)	Contained Metal (Oz Au)
Measured	**ALL**	>0.3	0	0	0
Indicated	**ALL**	>0.3	13,832	1.22	531,000
Inferred	**ALL**	>0.3	664	1.46	30,000

Notes:

1 *Effective date of 30 December 2019.*

2 *Mineral Resources are estimated at a block cut-off grade of 0.3 g/t Au.*

3 *Mineral Resources are estimated using a long-term gold price of US$1,500 per ounce.*

4 *A minimum mining width of two metres was used.*

5 *Bulk densities for the main lithologies are 2.82 t/m^3, 2.84 t/m^3, and 2.90 t/m^3. All material below the glacial overburden is fresh rock.*

6 *Mineral Resources are constrained by a preliminary pit shell generated in Whittle software.*

7 *Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.*

8 *Figures may not add up due to rounding*

The pit optimization study resulted in two distinct areas, an east pit optimisation (BAM East Pit Shell) and a west pit optimisation (BAM West Pit Shell). No further work involving pit designs and open pit schedules were carried out for the December 2019 MRE work.

Figure 14-25 shows a plan view of the pit designs in relation to the block model mineral resources and based on the Run B scenario from the December 2019 pit optimization work carried out by Cube.

14.13.1. Cut-off Grade Parameters

The economic portion of a resource is typically determined by the application of a breakeven cut-off grade that considers the total estimated operating costs for the mine, process plant and administration.

As gold resources occur at near-surface, the model was constructed with a view towards selective open pit mining and processed using conventional milling techniques. A block cut-off grade of 0.3 g/t Au has been selected for reporting of all mineral resources for the BAM Gold Project.

Based on the current input parameters that have been used for the December 2019 pit optimization by Cube, a 0.3 g/t Au lower cut-off was deemed appropriate for the December 2019 Mineral Resource reporting.

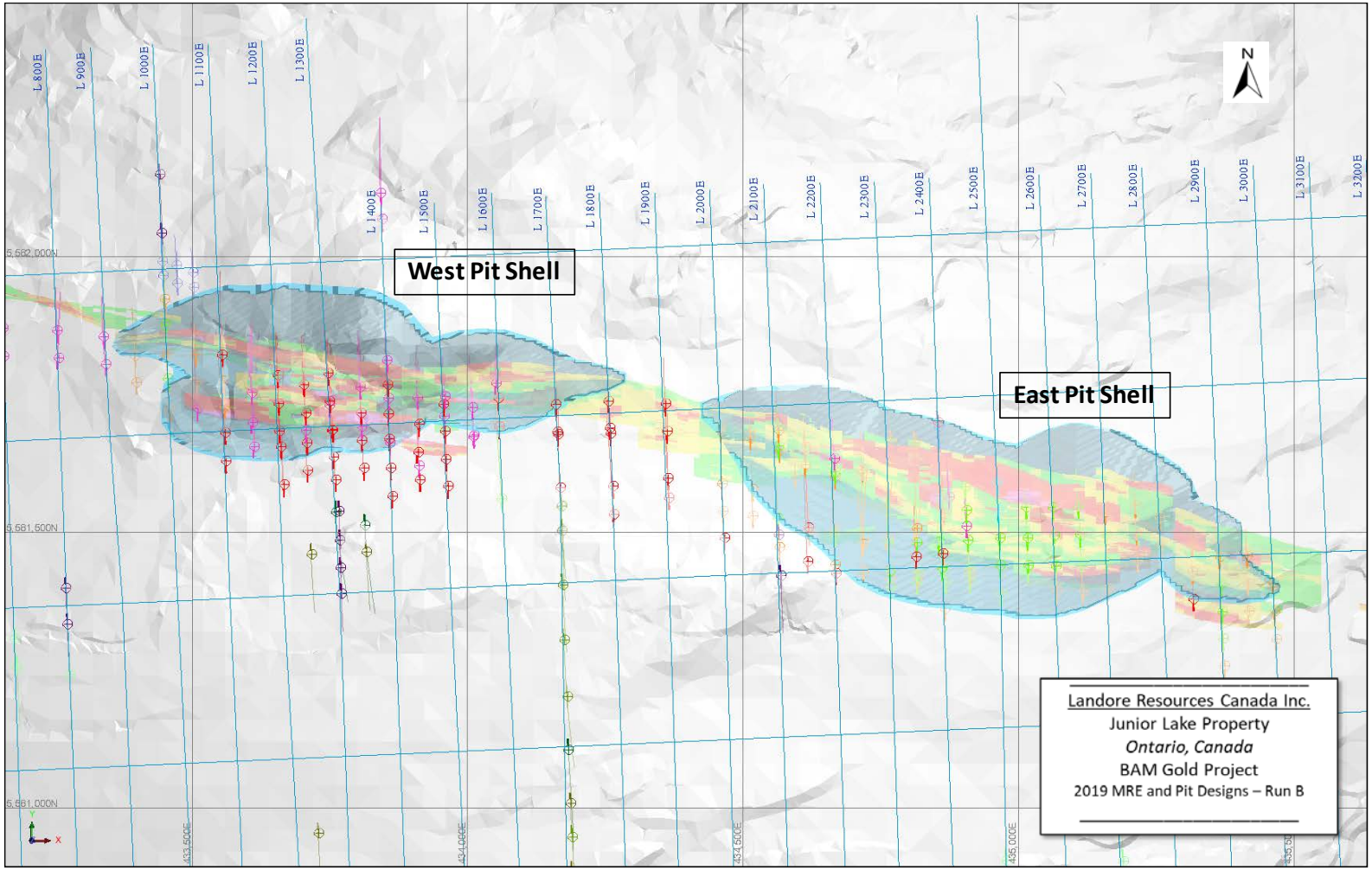


Figure 14-25: Plan View of West and East Pit Shells with Resource Blocks (December 2019 Run B Pit Design)

14.13.2. Previous Mineral Resource Estimates

During 2017, RPA was retained by Landore to update the Mineral Resource estimates for the BAM East Gold Deposit, the B4-7 Nickel-Copper-Cobalt-Platinum-Group Element (PGE) Deposit (B4-7 Deposit) and associated Alpha Zone PGE Deposit (Alpha Zone), and the VW Nickel Deposit (VW Deposit), all located on Landore's Junior Lake property. RPA prepared a supporting Technical Report, with an Effective Date of 16 January 2018, which is compliant with the requirements of National Instrument 43-101 Standards of Disclosure for Mineral Projects (NI 43-101) (RPA, 2018).

2018 BAM East Gold Deposit MRE

The 2018 MRE for the BAM East Gold Deposit as estimated by RPA were based on drill hole and assay data available up to 22 September 2017 and are summarized in Table 14-28.

Table 14-28 2018 BAM East Gold Deposit - Indicated and Inferred Mineral Resource (RPA, 2018)

Resource Category	Material Type	Au g/t cut off	Tonnes (kt)	Grade (g/t Au)	Contained Metal (Oz Au)
Measured	**ALL**	>0.3	0	0	0
Indicated	**ALL**	>0.3	7,413	1.37	326,000
Inferred	**ALL**	>0.3	1,662	1.39	74,000

Notes:

1 *CIM (2014) definitions were followed for Mineral Resource estimation and classification.*

2 *Mineral Resources are estimated at a block cut-off grade of 0.3 g/t Au.*

3 *Mineral Resources are estimated using a long-term gold price of US$1,500 per ounce, and an exchange rate (C$/US$) of 0.75.*

4 *A minimum mining width of three metres was used.*

5 *Bulk densities for the main host rocks are 2.82 t/m^3, 2.84 t/m^3, and 2.90 t/m^3.*

6 *Mineral Resources are constrained by a preliminary pit shell generated in Whittle software.*

7 *Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.*

8 *Numbers may not add due to rounding*

2018 B4-7 Nickel-Copper-Cobalt-PGE Deposit and Alpha Zone MRE

The 2017 Mineral Resource estimates for the B4-7 Deposit and Alpha Zone which incorporate metal prices and exchange rate as at 1 December 2017, as well as additional geotechnical and engineering parameters, are summarized in Table 14-29. The Mineral Resource estimates are based on a potential combined open pit and underground mining scenario.

Table 14-29 Mineral Resources for the B4-7 Ni-Cu-Co-PGE Deposit and Alpha Zone as at 1 December 2017 (RPA, 2018)

Material	Deposit	Tonnes (t)	Ni (%)	Cu (%)	Co (%)	Pt (g/t)	Pd (g/t)	Au (g/t)	Ni_Eq (%)
Open Pit									
Indicated	**Alpha Zone**	132,000	0.23	0.09	0.02	0.18	0.99	0.01	0.63
Indicated	**B4-7**	1,640,000	0.62	0.41	0.05	0.14	0.55	0.03	1.20
Inferred	**-**	-	-	-	-	-	-	-	-
Underground									
Indicated	**B4-7**	1,520,000	0.65	0.45	0.06	0.12	0.48	0.03	1.25
Inferred	**B4-7**	568,000	0.61	0.52	0.05	0.08	0.50	0.03	1.26
TOTAL									
Indicated	**All**	**3,292,000**	**0.62**	**0.42**	**0.05**	**0.13**	**0.53**	**0.03**	**1.20**
Inferred	**All**	**568,000**	**0.61**	**0.52**	**0.05**	**0.08**	**0.50**	**0.03**	**1.26**

Notes:

1 *CIM (2014) definitions were followed for Mineral Resource estimation and classification.*

2 *Mineral Resources are estimated using average long-term metal prices (US$) of $8.00/lb nickel, $3.50/lb copper, $19.00/lb cobalt, $1,400/oz platinum, $1,000/oz palladium, and $1,400/oz gold and an exchange rate (C$/US$) of 1.25, and the NSR factors stated in the body of this report.*

3 *Open Pit Mineral Resources are reported within a resource pit shell at an NSR cut-off value of $22/t. Underground Mineral Resources are reported at an NSR cut-off value of $62/t.*

4 *Tonnage figures are rounded to three significant figures. Totals may not add correctly due to rounding.*

5 *The Mineral Resource estimate uses drill hole data available as of December 16, 2015.*

6 *The Mineral Resource estimate for the B4-7 Deposit is reported using densities calculated from estimated nickel + cobalt grades. The Mineral Resource estimate for the Alpha Zone is reported using densities calculated from estimated nickel grades.*

2018 VW Nickel Deposit MRE

The 2017 Mineral Resource estimates for the VW Deposit, which incorporate metal prices and exchange rate as at 1 December 2017 is presented in Table 14-30. The VW Mineral Resource estimate is based on a potential combined open pit and underground mining scenario.

Table 14-30 Mineral Resources for the VW Ni-Cu-Co-PGE Deposit as at 1 December 2017 (RPA, 2018)

Material	Tonnes (t)	Ni (%)	Cu (%)	Co (%)	Pt (g/t)	Pd (g/t)	Au (g/t)	Ni_Eq (%)
Open Pit								
Indicated	165,000	0.43	0.05	0.02	0.03	0.03	0.01	0.49
Inferred	69,000	0.45	0.08	0.02	0.02	0.02	0.01	0.52
Underground								
Indicated	919,000	0.67	0.07	0.02	0.04	0.06	0.01	0.75
Inferred	111,000	0.69	0.07	0.02	0.03	0.05	0.01	0.77
TOTAL								
Indicated	**1,084,000**	**0.63**	**0.07**	**0.02**	**0.04**	**0.05**	**0.01**	**0.71**
Inferred	**180,000**	**0.60**	**0.07**	**0.02**	**0.02**	**0.04**	**0.01**	**0.68**

Notes:

1. *CIM (2014) definitions were followed for Mineral Resource estimation and classification.*
2. *Mineral Resources are estimated using average long-term metal prices (US$) of $8.00/lb nickel, $3.50/lb copper, $19.00/lb cobalt, $1,400/oz platinum, $1,000/oz palladium, and $1,400/oz gold and an exchange rate (C$/US$) of 1.25, and the NSR factors stated in the body of this report.*
3. *Open Pit Mineral Resources are reported within a resource pit shell at an NSR cut-off value of $22/t.*

   Underground Mineral Resources for the VW Deposit are reported within preliminary mining shapes that are based on an NSR block value of $62/t.
4. *Tonnage figures are rounded to three significant figures. Totals may not add correctly due to rounding.*
5. *The Mineral Resource estimate uses drill hole data available as of October 8, 2014.*

15. Mineral Reserve Estimates

There have been no studies of the Project designed to convert Mineral Resources described in this report to Mineral Reserves at this time.

16. Mining Methods

The BAM gold resources occur close to the surface below a thin glacial till overburden, averaging approximately 8 m vertical thickness. The 2019 model was therefore constructed with a view towards selective open pit mining.

The base input parameters used in the open pit optimization completed by Cube are based on information collated after discussions with Landore and review of economic analyses in PEA reports from similar projects in Ontario, Canada. Geotechnical pit design parameters were based on recommendations from the geotechnical assessment work carried out by WSP in 2018 (Nelson, 2018).

16.1. Input Parameters

A summary of key input parameters as used in the pit optimization process is listed in Table 16-1.

The mining costs supplied by Landore were broadly based on costs of similar operations in the region with adjustments for base elevations with smoothed incremental cost increases above and below this base elevation.

Table 16-1 Summary of Key Input Parameters used in the 2019 Pit Optimization (December 2019)

Item Description	Unit	Input
PROJECT BASE PARAMETERS		
Processing feed capacity	Mtpa	2.2
Project discount rate	%	10
Base currency	USD	
MINING		
Load and Haul cost	$/t	*see Table 16-2*
Drill and Blast cost	$/BCM	0.7
Mining Dilution	%	0
Mining Recovery	%	100
ORE BASED COSTS		
Process Variable Cost		
Fresh	$/t	14
Plant Fixed Costs		
General and Administration	$/t	1.5
Tailing Storage Facility	$/t	0.1
Subtotal Plant costs	**$/t**	**1.6**
Mining - Ore based costs		
Ore re-handle	$/t	0.5
Percentage Ore re-handle	%	50
Ore re-handle cost per feed tonne	$/t	0.25
Mining owner's team cost	$/t	0.3
Pit Dewatering	$/t	0.1
Grade Control	$/t	0.42

Item Description	Unit	Input
Ore over-haulage	$/t	0
Subtotal Mining Ore Cost	**$/t**	**1.07**
TOTAL ORE BASED COSTS	**$/t**	**16.67**
METALLURGICAL RECOVERIES		
Fresh	%	98
REVENUE		
Selling Price	$/oz	1,500
Royalty	%	2.5
Net Selling Cost	$/oz	1,218.75
CUT_OFF GRADE		
Fresh	g/t	0.42

16.2. Pit Optimization Results

The input parameters listed in Table 16-1 were used in the following optimization runs in which a combination of runs was completed to include and exclude inferred resources, and to include and exclude unclassified resources. Table 16-2 shows the pit optimizations run types.

Table 16-2 Optimization Run Types and Descriptions (December 2019)

Run	Description
Run A	Measured and Indicated Resources included
Run B	Measured, Indicated and Inferred Resources included
Run C	Measured, Indicated, Inferred and Unclassified Resources included

The results of the optimization runs at a range of gold prices is for each run description are listed in Table 16-3, Table 16-4 and Table 16-5. Visual trends for each run description are shown in Figure 16-1, Figure 16-2, and Figure 16-3. The optimization runs comprise of a range of nested shells obtained by varying the base metal price by means of revenue factors to enable evaluation across a range of pit shell sizes. These are also presented graphically to assist in the shell selection process.

Selection of optimization shells on which the pit designs is to be based was undertaken in consultation with Landore. Only Run B (including Indicated and Inferred Resources only) was considered for the shell selection for this study with the other two runs being for information only. In selecting the shell consideration was given to mine life and overall value.

Within Run B, optimization run 21 was selected as it represented a potential 6-year mine life with only a marginal reduction in shell value compared to smaller shells.

The results of the pit optimisation are illustrated in Figure 16-4, showing a plan view of the pit shells for the West and East Pits in relation to topography and the block model constrained by the mineralisation domains.

Table 16-3 Run A Optimization Results Summary – December 2019

Shell	Factor	Price (USD)	Base	Total	Waste	Strip	Mill Feed Material			Mining	Process	Revenue	Undiscounted	Discounted	Discounted	Cost	Inc.
			RL	Tonnes (Mt)	Tonnes (Mt)	Ratio	Tonnes (Mt)	Au g/t	Rec. Au kOz	Cost ($M)	Cost ($M)	Au ($M)	Cash Flow ($M)	Best ($M)	Worst ($M)	/Oz	Cost /Oz
1	0.600	900	170.0	27.7	21.1	3.2	6.7	1.45	303.6	67.4	111.8	455.4	276.2	225.2	225.2	590	590
2	0.620	930	165.0	29.1	22.2	3.2	6.9	1.44	311.0	70.7	115.4	466.6	280.5	228.3	227.7	598	929
3	0.640	960	165.0	31.9	24.6	3.4	7.3	1.41	325.8	77.5	122.9	488.8	288.4	233.9	231.3	615	967
4	0.660	990	165.0	35.1	27.3	3.5	7.7	1.40	340.4	85.2	129.5	510.6	295.9	239.1	234.7	631	981
5	0.680	1020	160.0	36.9	28.9	3.7	7.9	1.39	348.3	89.6	133.1	522.5	299.8	241.7	236.2	639	1,014
6	0.700	1050	155.0	45.4	36.3	4.0	9.1	1.35	386.6	111.0	152.3	579.8	316.5	252.3	241.1	681	1,061
7	0.720	1080	150.0	46.7	37.4	4.0	9.3	1.35	392.3	114.2	155.3	588.4	319.0	253.8	241.9	687	1,077
8	0.740	1110	150.0	48.1	38.6	4.1	9.5	1.34	398.6	117.7	158.8	597.9	321.4	255.3	242.6	694	1,109
9	0.760	1140	150.0	56.3	45.9	4.4	10.4	1.31	429.8	137.9	174.2	644.7	332.6	261.9	244.1	726	1,142
10	0.780	1170	150.0	57.7	47.0	4.4	10.7	1.30	436.8	141.4	179.0	655.2	334.9	263.1	243.5	733	1,174
11	0.800	1200	150.0	59.7	48.8	4.5	11.0	1.29	445.1	146.3	183.8	667.6	337.4	264.4	242.7	742	1,190
12	0.820	1230	145.0	63.6	52.3	4.6	11.3	1.28	457.9	156.0	189.8	686.9	341.1	266.5	242.8	755	1,219
13	0.840	1260	145.0	64.7	53.3	4.6	11.5	1.28	462.4	158.8	192.6	693.6	342.2	267.2	242.7	760	1,246
14	0.860	1290	140.0	67.0	55.3	4.7	11.7	1.27	469.7	164.5	196.2	704.5	343.8	268.1	242.3	768	1,275
15	0.880	1320	140.0	68.0	56.2	4.8	11.8	1.27	473.1	166.9	198.2	709.7	344.5	268.5	241.9	772	1,306
16	0.900	1350	140.0	70.7	58.5	4.8	12.2	1.26	482.7	173.7	204.2	724.0	346.1	269.3	240.3	783	1,335
17	0.920	1380	135.0	72.5	60.1	4.9	12.4	1.25	488.5	178.1	207.8	732.8	346.9	269.7	239.3	790	1,361
18	0.940	1410	135.0	75.8	63.1	5.0	12.8	1.24	498.9	186.5	213.9	748.4	348.0	270.3	236.8	802	1,391
19	0.960	1440	135.0	76.7	63.9	5.0	12.9	1.24	501.7	188.8	215.6	752.6	348.2	270.4	236.1	806	1,423
20	0.980	1470	135.0	78.0	65.0	5.0	13.0	1.24	505.4	191.9	217.9	758.2	348.4	270.4	235.2	811	1,457
21	**1.000**	**1500**	**130.0**	**81.3**	**68.0**	**5.1**	**13.4**	**1.22**	**515.3**	**200.4**	**224.0**	**773.0**	348.6	270.5	**232.6**	**824**	**1,479**
22	1.020	1530	130.0	100.0	85.4	5.9	14.5	1.22	559.3	247.5	243.5	839.0	347.9	270.0	221.9	878	1,515
23	1.040	1560	125.0	101.7	87.0	5.9	14.7	1.22	563.7	252.0	245.8	845.5	347.8	269.9	220.6	883	1,539
24	1.060	1590	125.0	103.9	89.1	6.0	14.8	1.22	569.1	257.8	248.5	853.6	347.3	269.7	218.9	890	1,579
25	1.080	1620	115.0	107.5	92.4	6.1	15.1	1.22	577.3	266.8	252.6	865.9	346.5	269.2	216.2	900	1,601
26	1.100	1650	110.0	110.0	94.8	6.2	15.2	1.22	582.7	273.2	255.0	874.1	345.8	268.9	214.5	906	1,624
27	1.120	1680	110.0	111.0	95.8	6.3	15.3	1.22	585.2	276.0	256.4	877.8	345.4	268.7	213.4	910	1,669

Shell	Factor	Price (USD)	Base	Total	Waste	Strip	Mill Feed Material			Mining	Process	Revenue	Undiscounted	Discounted	Discounted	Cost	Inc.
			RL	Tonnes (Mt)	Tonnes (Mt)	Ratio	Tonnes (Mt)	Au g/t	Rec. Au kOz	Cost ($M)	Cost ($M)	Au ($M)	Cash Flow ($M)	Best ($M)	Worst ($M)	/Oz	Cost /Oz
28	1.140	1710	110.0	112.0	96.7	6.3	15.4	1.21	587.3	278.4	257.6	881.0	345.0	268.5	212.5	913	1,694
29	1.160	1740	110.0	117.8	101.9	6.4	15.9	1.20	600.9	292.7	266.6	901.3	342.0	266.9	205.8	931	1,721
30	1.180	1770	110.0	119.0	103.0	6.4	16.0	1.20	603.5	295.8	268.2	905.3	341.3	266.6	204.9	934	1,760
31	1.200	1800	110.0	120.9	104.8	6.5	16.1	1.20	607.5	300.7	270.3	911.2	340.2	266.0	203.1	940	1,785
32	1.220	1830	105.0	122.1	105.9	6.5	16.2	1.20	609.8	303.8	271.5	914.7	339.4	265.6	202.1	943	1,832
33	1.240	1860	105.0	123.0	106.7	6.6	16.3	1.19	611.6	306.0	272.6	917.5	338.8	265.3	201.3	946	1,854
34	1.260	1890	105.0	128.1	111.5	6.7	16.6	1.19	621.6	319.3	278.2	932.4	334.9	263.4	196.4	961	1,885
35	1.280	1920	105.0	130.2	113.5	6.8	16.7	1.19	625.5	324.6	280.3	938.2	333.3	262.7	194.3	967	1,917
36	1.300	1950	105.0	132.3	115.5	6.9	16.8	1.19	629.3	330.0	282.3	943.9	331.7	261.9	192.2	973	1,939
37	1.320	1980	100.0	135.0	118.1	7.0	17.0	1.19	634.1	337.1	284.7	951.1	329.4	260.8	189.6	981	1,977
38	1.340	2010	100.0	135.9	118.9	7.0	17.0	1.18	635.7	339.4	285.7	953.6	328.5	260.4	188.7	983	2,012
39	1.360	2040	100.0	139.0	121.8	7.1	17.2	1.18	641.3	347.3	289.0	961.9	325.5	259.0	185.4	992	2,041
40	1.380	2070	100.0	139.6	122.3	7.1	17.3	1.18	642.3	348.8	289.7	963.4	324.9	258.8	184.7	994	2,074
41	1.400	2100	100.0	140.8	123.4	7.1	17.3	1.18	644.2	351.9	290.7	966.4	323.8	258.2	183.4	997	2,094
42	1.420	2130	100.0	142.7	125.3	7.2	17.5	1.18	647.7	357.1	292.8	971.5	321.6	257.3	181.3	1,003	2,143
43	1.440	2160	100.0	143.2	125.7	7.2	17.5	1.18	648.5	358.3	293.5	972.8	321.0	257.0	180.6	1,005	2,211
44	1.460	2190	100.0	144.5	127.0	7.2	17.6	1.18	650.6	361.7	294.7	975.9	319.5	256.3	179.1	1,009	2,208
45	1.480	2220	100.0	146.5	128.8	7.3	17.7	1.17	653.7	366.7	296.6	980.6	317.2	255.3	177.1	1,015	2,227
46	1.500	2250	100.0	152.0	134.0	7.4	18.0	1.17	662.3	380.6	302.6	993.5	310.3	252.1	169.3	1,031	2,303
47	1.520	2280	100.0	152.1	134.0	7.4	18.0	1.17	662.4	380.7	302.7	993.6	310.2	252.1	169.2	1,032	2,265
48	1.540	2310	100.0	153.4	135.3	7.5	18.1	1.17	664.3	384.1	303.6	996.5	308.7	251.4	167.7	1,035	2,309
49	1.560	2340	100.0	155.5	137.3	7.5	18.2	1.16	667.4	389.7	305.5	1,001.1	306.0	250.2	165.3	1,042	2,380
50	1.580	2370	100.0	157.4	139.1	7.6	18.3	1.16	670.3	394.6	307.3	1,005.4	303.5	249.0	163.1	1,047	2,380
51	1.600	2400	100.0	158.2	139.8	7.6	18.4	1.16	671.4	396.6	308.1	1,007.1	302.4	248.6	162.1	1,050	2,426

Table 16-4 Run B Optimization Results Summary – December 2019

Shell	Factor	Price (USD)	Base	Total	Waste	Strip	Mill Feed Material			Mining	Process	Revenue	Undiscounted	Discounted	Discounted	Cost	Inc.
			RL	Tonnes (Mt)	Tonnes (Mt)	Ratio	Tonnes (Mt)	Au g/t	Rec. Au kOz	Cost ($M)	Cost ($M)	Au ($M)	Cash Flow ($M)	Best ($M)	Worst ($M)	/Oz	Cost /Oz
1	0.600	900	170.0	29.1	22.3	3.3	6.8	1.47	313.0	70.5	113.7	469.5	285.3	232.2	232.2	588	588
2	0.620	930	165.0	30.4	23.5	3.4	7.0	1.45	320.6	73.9	117.3	480.8	289.6	235.3	234.6	597	929
3	0.640	960	165.0	33.3	25.8	3.5	7.5	1.43	335.7	80.8	125.1	503.6	297.7	240.9	238.2	613	967
4	0.660	990	165.0	36.5	28.7	3.7	7.9	1.42	350.6	88.6	131.9	525.9	305.4	246.1	241.4	629	981
5	0.680	1020	160.0	38.5	30.4	3.8	8.1	1.41	358.9	93.4	135.5	538.4	309.5	248.7	243.0	638	1,013
6	0.700	1050	155.0	47.1	37.8	4.1	9.2	1.37	397.3	114.9	154.8	596.0	326.3	259.1	248.1	679	1,061
7	0.720	1080	150.0	48.8	39.3	4.2	9.4	1.36	404.2	119.0	158.0	606.3	329.3	261.0	248.9	685	1,075
8	0.740	1110	150.0	50.3	40.6	4.2	9.6	1.35	410.9	122.8	161.7	616.3	331.9	262.5	249.6	692	1,108
9	0.760	1140	150.0	60.9	49.9	4.6	10.9	1.31	452.6	148.9	183.2	678.8	346.7	270.8	250.0	734	1,144
10	0.780	1170	150.0	62.1	51.0	4.6	11.2	1.30	458.7	152.1	187.2	688.0	348.7	271.9	250.0	740	1,171
11	0.800	1200	150.0	64.7	53.2	4.6	11.5	1.29	468.6	158.3	192.7	702.8	351.8	273.7	250.0	749	1,192
12	0.820	1230	145.0	67.4	55.7	4.8	11.7	1.29	477.3	165.2	196.6	716.0	354.2	275.2	250.0	758	1,222
13	0.840	1260	145.0	68.7	56.8	4.8	11.9	1.29	482.0	168.4	199.3	723.0	355.4	275.8	249.7	763	1,251
14	0.860	1290	140.0	71.2	59.0	4.9	12.1	1.28	489.8	174.5	203.0	734.7	357.1	276.8	249.2	771	1,275
15	0.880	1320	140.0	73.8	61.3	4.9	12.4	1.27	499.1	181.2	208.5	748.6	358.9	277.7	248.3	781	1,311
16	0.900	1350	140.0	76.4	63.6	5.0	12.8	1.26	508.2	187.7	214.2	762.3	360.4	278.5	246.4	791	1,333
17	0.920	1380	135.0	78.3	65.3	5.0	13.0	1.26	514.6	192.6	218.0	771.9	361.3	278.9	245.2	798	1,364
18	0.940	1410	135.0	81.5	68.2	5.1	13.3	1.25	524.4	200.5	223.7	786.6	362.3	279.4	242.8	809	1,390
19	0.960	1440	135.0	83.6	70.1	5.2	13.5	1.24	530.3	205.7	227.0	795.5	362.8	279.7	241.9	816	1,422
20	0.980	1470	135.0	91.3	77.2	5.5	14.2	1.24	551.2	225.3	237.4	826.7	364.0	280.3	237.8	840	1,444
21	**1.000**	**1500**	**130.0**	**95.2**	**80.7**	**5.6**	**14.5**	**1.23**	**561.5**	**235.0**	**243.1**	**842.3**	**364.2**	**280.3**	**235.5**	**851**	**1,481**
22	1.020	1530	130.0	110.1	94.6	6.1	15.5	1.23	598.0	273.1	259.8	897.1	364.1	280.2	225.8	891	1,501
23	1.040	1560	125.0	111.7	96.1	6.2	15.6	1.22	601.9	277.0	261.9	902.8	364.0	280.1	224.7	895	1,544
24	1.060	1590	115.0	116.6	100.6	6.3	15.9	1.22	613.3	289.6	267.2	920.0	363.1	279.6	221.6	908	1,572
25	1.080	1620	110.0	119.8	103.7	6.4	16.2	1.22	620.8	298.0	270.8	931.2	362.4	279.2	219.3	916	1,603
26	1.100	1650	110.0	121.5	105.2	6.5	16.3	1.22	624.9	302.3	273.2	937.4	361.9	278.9	218.0	921	1,624
27	1.120	1680	110.0	123.5	107.0	6.5	16.4	1.22	629.4	307.3	275.7	944.1	361.1	278.5	216.3	926	1,665

Shell	Factor	Price (USD)	Base	Total	Waste	Strip	Mill Feed Material			Mining	Process	Revenue	Undiscounted	Discounted	Discounted	Cost	Inc.
			RL	Tonnes (Mt)	Tonnes (Mt)	Ratio	Tonnes (Mt)	Au g/t	Rec. Au kOz	Cost ($M)	Cost ($M)	Au ($M)	Cash Flow ($M)	Best ($M)	Worst ($M)	/Oz	Cost /Oz
28	1.140	1710	110.0	126.6	109.8	6.6	16.7	1.21	636.8	314.8	280.8	955.2	359.6	277.7	212.1	935	1,706
29	1.160	1740	110.0	130.5	113.5	6.7	17.1	1.20	645.7	324.8	286.2	968.6	357.6	276.7	207.8	946	1,722
30	1.180	1770	100.0	135.2	117.8	6.8	17.4	1.20	655.6	337.0	291.4	983.4	355.0	275.5	203.9	958	1,758
31	1.200	1800	100.0	136.7	119.2	6.8	17.5	1.20	658.6	340.7	293.1	988.0	354.2	275.1	202.4	962	1,788
32	1.220	1830	100.0	138.0	120.4	6.8	17.6	1.19	661.5	344.0	295.0	992.2	353.2	274.7	201.0	966	1,830
33	1.240	1860	100.0	139.0	121.3	6.9	17.7	1.19	663.6	346.6	296.4	995.5	352.5	274.3	200.0	969	1,846
34	1.260	1890	95.0	145.4	127.3	7.1	18.0	1.19	675.6	363.1	302.5	1,013.4	347.9	272.2	194.2	985	1,886
35	1.280	1920	95.0	148.9	130.6	7.2	18.3	1.19	682.3	372.0	306.3	1,023.4	345.1	271.0	190.9	994	1,913
36	1.300	1950	95.0	151.8	133.4	7.2	18.5	1.18	688.0	379.7	309.7	1,032.0	342.6	269.9	188.0	1,002	1,940
37	1.320	1980	95.0	155.0	136.3	7.3	18.7	1.18	693.8	387.9	312.9	1,040.7	339.9	268.7	185.1	1,010	1,974
38	1.340	2010	95.0	157.7	138.9	7.4	18.8	1.18	698.7	394.9	315.7	1,048.0	337.4	267.7	182.3	1,017	2,003
39	1.360	2040	90.0	163.8	144.6	7.5	19.2	1.17	710.0	410.9	322.7	1,065.0	331.4	265.2	176.1	1,033	2,032
40	1.380	2070	75.0	176.9	156.9	7.9	20.0	1.16	732.0	444.1	335.4	1,098.1	318.6	260.0	160.8	1,065	2,077
41	1.400	2100	75.0	178.7	158.6	7.9	20.1	1.16	735.1	448.8	337.1	1,102.7	316.8	259.2	159.0	1,069	2,099
42	1.420	2130	65.0	192.4	171.4	8.2	21.0	1.15	758.5	484.0	351.4	1,137.8	302.4	253.3	146.2	1,101	2,118
43	1.440	2160	60.0	195.9	174.8	8.3	21.1	1.15	763.8	492.9	354.0	1,145.7	298.9	252.0	142.8	1,109	2,162
44	1.460	2190	60.0	198.4	177.2	8.3	21.2	1.15	767.8	499.4	356.2	1,151.7	296.1	250.9	140.2	1,114	2,179
45	1.480	2220	60.0	199.2	177.9	8.4	21.3	1.15	769.1	501.5	357.0	1,153.7	295.2	250.5	139.2	1,116	2,234
46	1.500	2250	60.0	200.8	179.4	8.4	21.4	1.15	771.5	505.4	358.6	1,157.3	293.3	249.8	137.4	1,120	2,277
47	1.520	2280	55.0	203.9	182.4	8.5	21.5	1.14	776.1	513.2	361.2	1,164.1	289.7	248.5	133.7	1,127	2,288
48	1.540	2310	55.0	207.5	185.8	8.6	21.7	1.14	781.3	522.5	364.0	1,171.9	285.5	246.9	129.6	1,135	2,318
49	1.560	2340	55.0	209.5	187.8	8.6	21.8	1.14	784.0	527.6	365.2	1,176.0	283.2	246.0	127.5	1,139	2,331
50	1.580	2370	50.0	213.9	192.0	8.8	22.0	1.14	789.8	538.5	368.1	1,184.7	278.1	244.2	123.2	1,148	2,376
51	1.600	2400	50.0	219.0	196.8	8.9	22.2	1.14	796.7	551.0	372.0	1,195.0	272.0	241.8	116.7	1,159	2,399

Table 16-5 Run C Optimization Results Summary – December 2019

Shell	Factor	Price (USD)	Base	Total	Waste	Strip	Mill Feed Material			Mining	Process	Revenue	Undiscounted	Discounted	Discounted	Cost	Inc.
			RL	Tonnes (Mt)	Tonnes (Mt)	Ratio	Tonnes (Mt)	Au g/t	Rec. Au kOz	Cost ($M)	Cost ($M)	Au ($M)	Cash Flow ($M)	Best ($M)	Worst ($M)	/Oz	Cost /Oz
1	0.600	900	170.0	29.1	22.3	3.3	6.8	1.47	313.0	70.5	113.7	469.5	285.3	232.2	232.2	588	588
2	0.620	930	165.0	30.4	23.5	3.4	7.0	1.45	320.6	73.9	117.3	480.8	289.6	235.3	234.6	597	929
3	0.640	960	165.0	33.3	25.8	3.5	7.5	1.43	335.7	80.8	125.1	503.6	297.7	240.9	238.2	613	967
4	0.660	990	165.0	36.5	28.7	3.7	7.9	1.42	350.6	88.6	131.9	525.9	305.4	246.1	241.4	629	981
5	0.680	1020	160.0	38.5	30.4	3.8	8.1	1.41	358.9	93.4	135.5	538.4	309.5	248.7	243.0	638	1,013
6	0.700	1050	155.0	47.1	37.8	4.1	9.2	1.37	397.3	114.9	154.8	596.0	326.3	259.1	248.1	679	1,061
7	0.720	1080	150.0	48.8	39.3	4.2	9.4	1.36	404.2	119.0	158.0	606.4	329.3	261.0	248.9	685	1,075
8	0.740	1110	150.0	50.3	40.6	4.2	9.6	1.35	410.9	122.8	161.7	616.3	331.9	262.5	249.5	692	1,108
9	0.760	1140	150.0	60.9	49.9	4.6	10.9	1.31	452.6	148.9	183.3	678.9	346.7	270.8	250.0	734	1,144
10	0.780	1170	150.0	62.1	51.0	4.6	11.2	1.30	458.7	152.1	187.2	688.1	348.7	271.9	250.0	740	1,171
11	0.800	1200	150.0	64.7	53.2	4.6	11.5	1.29	468.6	158.4	192.8	702.9	351.8	273.7	250.0	749	1,192
12	0.820	1230	145.0	67.5	55.7	4.8	11.7	1.29	477.4	165.2	196.6	716.1	354.2	275.2	250.0	758	1,222
13	0.840	1260	145.0	68.7	56.8	4.8	11.9	1.29	482.1	168.4	199.3	723.1	355.4	275.8	249.7	763	1,251
14	0.860	1290	140.0	71.2	59.1	4.9	12.1	1.28	489.9	174.6	203.1	734.8	357.1	276.8	249.2	771	1,275
15	0.880	1320	140.0	73.8	61.3	4.9	12.4	1.27	499.2	181.2	208.6	748.8	358.9	277.8	248.3	781	1,311
16	0.900	1350	140.0	76.4	63.6	5.0	12.8	1.26	508.4	187.8	214.3	762.5	360.4	278.5	246.4	791	1,333
17	0.920	1380	135.0	78.4	65.4	5.0	13.0	1.26	514.8	192.7	218.1	772.1	361.3	278.9	245.2	798	1,364
18	0.940	1410	135.0	81.6	68.2	5.1	13.3	1.25	524.5	200.6	223.8	786.8	362.4	279.5	242.8	809	1,390
19	0.960	1440	135.0	83.6	70.1	5.2	13.5	1.24	530.5	205.8	227.1	795.7	362.8	279.7	241.9	816	1,422
20	0.980	1470	135.0	91.4	77.3	5.5	14.2	1.24	551.4	225.5	237.6	827.1	364.0	280.3	237.8	840	1,444
21	**1.000**	**1500**	**130.0**	**95.2**	**80.7**	**5.6**	**14.5**	**1.23**	**561.8**	**235.2**	**243.3**	**842.7**	364.2	280.3	**235.4**	**852**	**1,481**
22	1.020	1530	130.0	110.2	94.7	6.1	15.5	1.23	598.3	273.3	260.1	897.5	364.2	280.2	225.7	891	1,501
23	1.040	1560	125.0	111.7	96.1	6.2	15.6	1.22	602.2	277.2	262.1	903.3	364.0	280.1	224.6	896	1,544
24	1.060	1590	115.0	116.7	100.7	6.3	15.9	1.22	613.6	289.8	267.4	920.4	363.2	279.6	221.5	908	1,572
25	1.080	1620	110.0	120.0	103.8	6.4	16.2	1.22	621.2	298.2	271.1	931.7	362.4	279.2	219.1	917	1,603
26	1.100	1650	110.0	121.6	105.3	6.5	16.3	1.22	625.2	302.5	273.4	937.8	361.9	278.9	217.9	921	1,624
27	1.120	1680	110.0	123.6	107.1	6.5	16.5	1.22	629.7	307.5	275.9	944.5	361.2	278.5	216.2	926	1,665

Shell	Factor	Price (USD)	Base	Total	Waste	Strip	Mill Feed Material			Mining	Process	Revenue	Undiscounted	Discounted	Discounted	Cost	Inc.
			RL	Tonnes (Mt)	Tonnes (Mt)	Ratio	Tonnes (Mt)	Au g/t	Rec. Au kOz	Cost ($M)	Cost ($M)	Au ($M)	Cash Flow ($M)	Best ($M)	Worst ($M)	/Oz	Cost /Oz
28	1.140	1710	110.0	126.6	109.9	6.6	16.8	1.21	637.2	315.0	281.1	955.7	359.6	277.7	212.0	936	1,706
29	1.160	1740	110.0	130.7	113.6	6.7	17.1	1.20	646.3	325.2	286.6	969.5	357.6	276.7	207.5	947	1,722
30	1.180	1770	100.0	135.4	118.0	6.8	17.4	1.20	656.1	337.3	291.8	984.1	355.1	275.5	203.7	959	1,759
31	1.200	1800	100.0	136.8	119.3	6.8	17.5	1.20	659.0	340.9	293.4	988.6	354.2	275.1	202.2	963	1,788
32	1.220	1830	100.0	138.1	120.5	6.8	17.6	1.19	661.9	344.3	295.3	992.8	353.3	274.7	200.8	966	1,829
33	1.240	1860	100.0	139.1	121.4	6.9	17.7	1.19	664.1	346.9	296.7	996.1	352.5	274.3	199.9	969	1,846
34	1.260	1890	95.0	145.5	127.5	7.1	18.1	1.19	676.1	363.4	302.9	1,014.2	347.9	272.2	194.0	985	1,885
35	1.280	1920	95.0	149.0	130.7	7.2	18.3	1.19	682.8	372.4	306.7	1,024.2	345.1	271.0	190.7	995	1,913
36	1.300	1950	95.0	152.0	133.5	7.2	18.5	1.18	688.5	380.1	310.1	1,032.8	342.6	269.9	187.8	1,002	1,940
37	1.320	1980	95.0	155.2	136.5	7.3	18.7	1.18	694.4	388.4	313.4	1,041.7	339.8	268.7	184.7	1,011	1,974
38	1.340	2010	95.0	158.0	139.1	7.4	18.9	1.18	699.4	395.6	316.3	1,049.1	337.3	267.6	181.9	1,018	2,003
39	1.360	2040	90.0	164.0	144.8	7.5	19.3	1.17	710.6	411.4	323.2	1,066.0	331.3	265.1	175.7	1,034	2,032
40	1.380	2070	75.0	177.2	157.1	7.8	20.0	1.16	732.7	444.6	335.9	1,099.1	318.6	259.9	160.4	1,065	2,077
41	1.400	2100	75.0	179.0	158.9	7.9	20.1	1.16	735.9	449.4	337.7	1,103.8	316.7	259.1	158.6	1,070	2,098
42	1.420	2130	65.0	192.6	171.7	8.2	21.0	1.15	759.2	484.7	351.9	1,138.8	302.2	253.3	145.8	1,102	2,118
43	1.440	2160	60.0	196.3	175.1	8.3	21.2	1.15	764.7	493.8	354.7	1,147.1	298.6	251.8	142.2	1,110	2,161
44	1.460	2190	60.0	198.9	177.6	8.3	21.3	1.15	768.8	500.5	356.9	1,153.2	295.8	250.8	139.5	1,115	2,179
45	1.480	2220	60.0	199.5	178.2	8.4	21.3	1.15	769.9	502.2	357.6	1,154.9	295.0	250.5	138.7	1,117	2,241
46	1.500	2250	60.0	201.1	179.6	8.4	21.4	1.14	772.3	506.1	359.2	1,158.4	293.2	249.8	136.9	1,120	2,277
47	1.520	2280	55.0	204.3	182.7	8.5	21.6	1.14	777.0	514.1	361.9	1,165.5	289.5	248.4	133.2	1,127	2,285
48	1.540	2310	55.0	207.9	186.1	8.6	21.7	1.14	782.1	523.3	364.6	1,173.2	285.3	246.8	129.1	1,135	2,319
49	1.560	2340	55.0	213.0	191.0	8.7	22.0	1.14	789.4	536.0	368.8	1,184.1	279.2	244.6	122.2	1,146	2,329
50	1.580	2370	50.0	217.4	195.3	8.8	22.2	1.14	795.2	547.0	371.7	1,192.8	274.2	242.6	118.1	1,155	2,376
51	1.600	2400	50.0	220.1	197.8	8.9	22.3	1.14	798.7	553.6	373.5	1,198.1	271.0	241.5	115.3	1,161	2,397

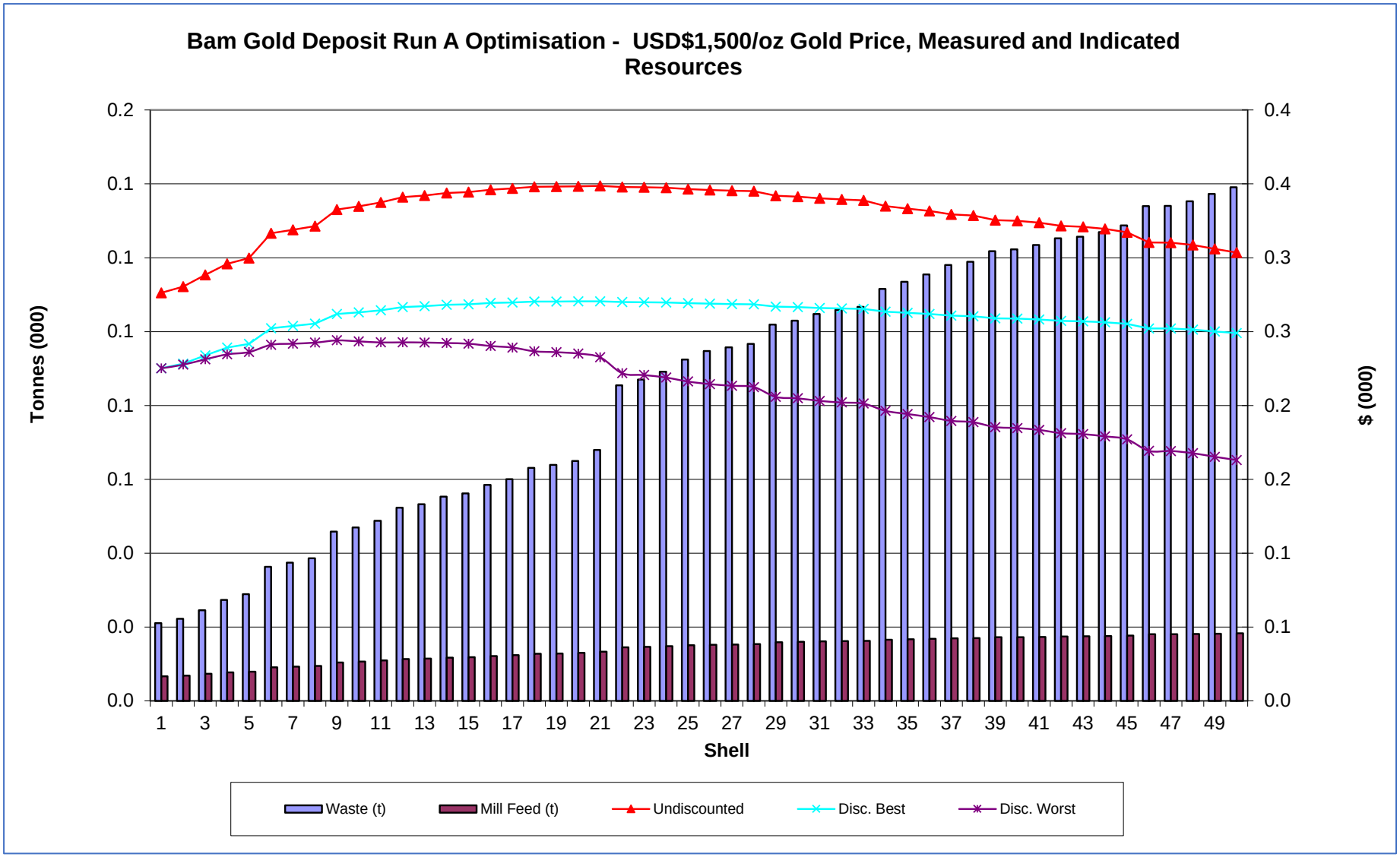


Figure 16-1 Run A Optimization Results - Tonnage/Cash-flow Chart (December 2019)

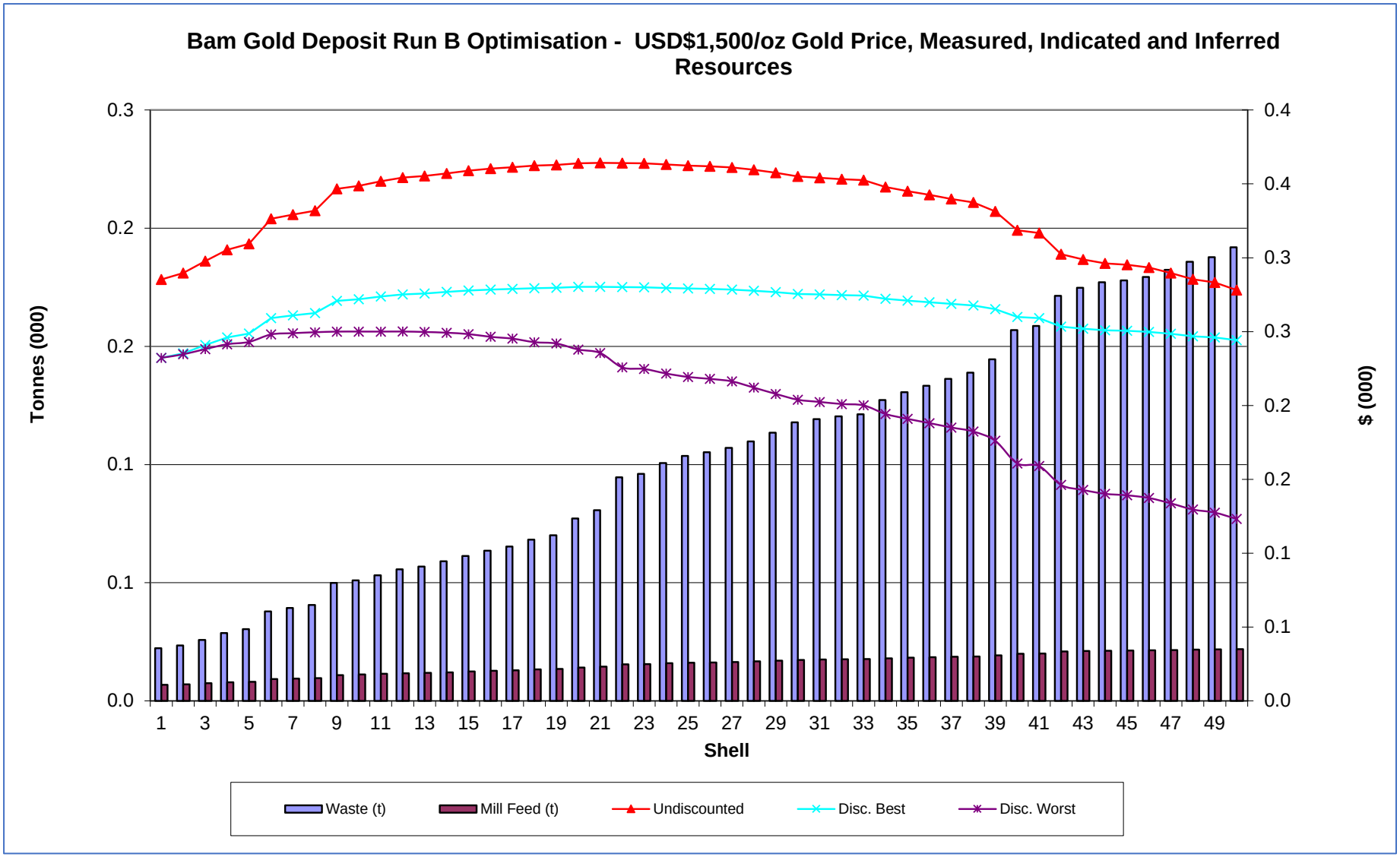


Figure 16-2 Run B Optimization Results - Tonnage/Cash-flow Chart (December 2019)

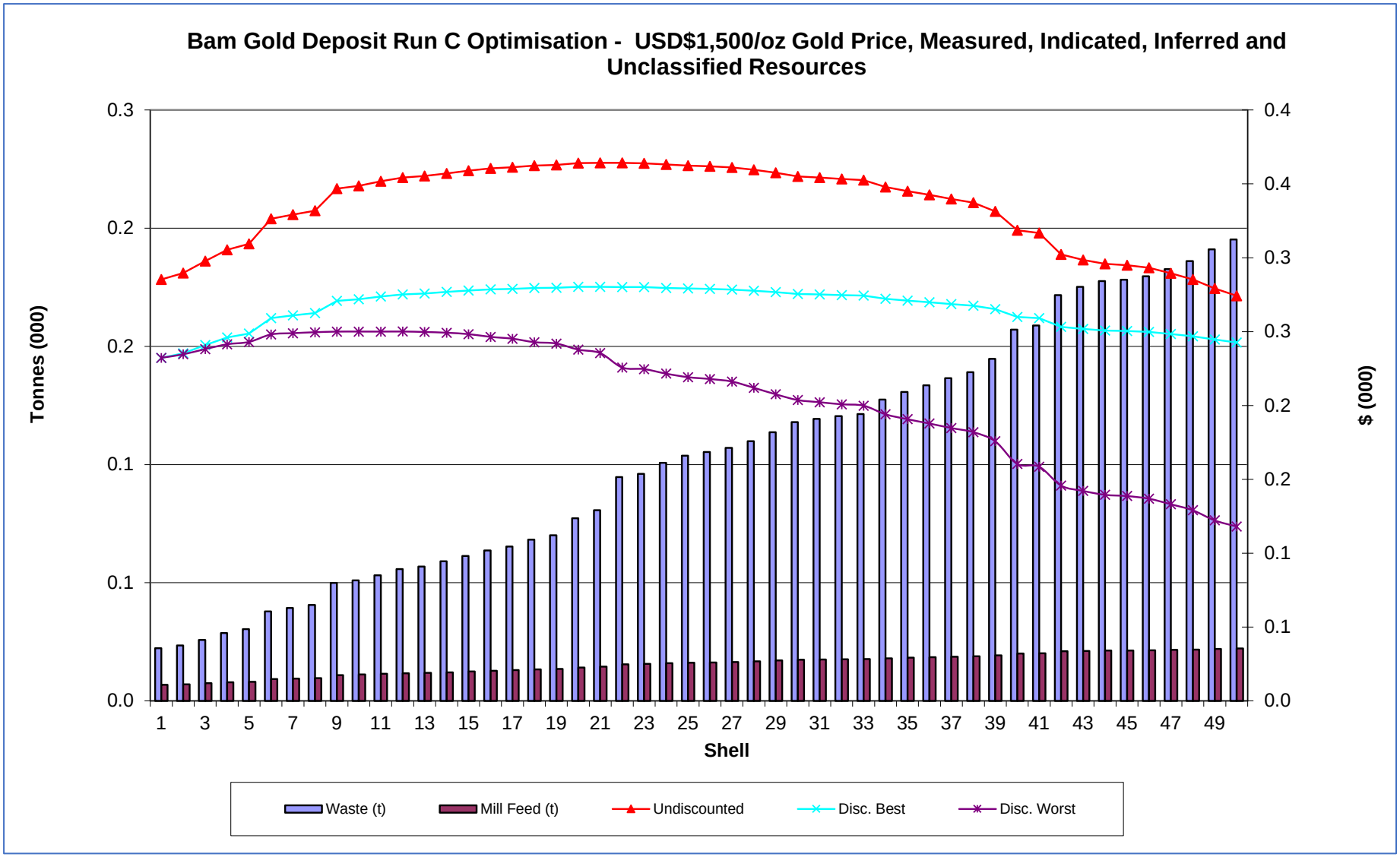


Figure 16-3 Run C Optimization Results - Tonnage/Cash-flow Chart (December 2019

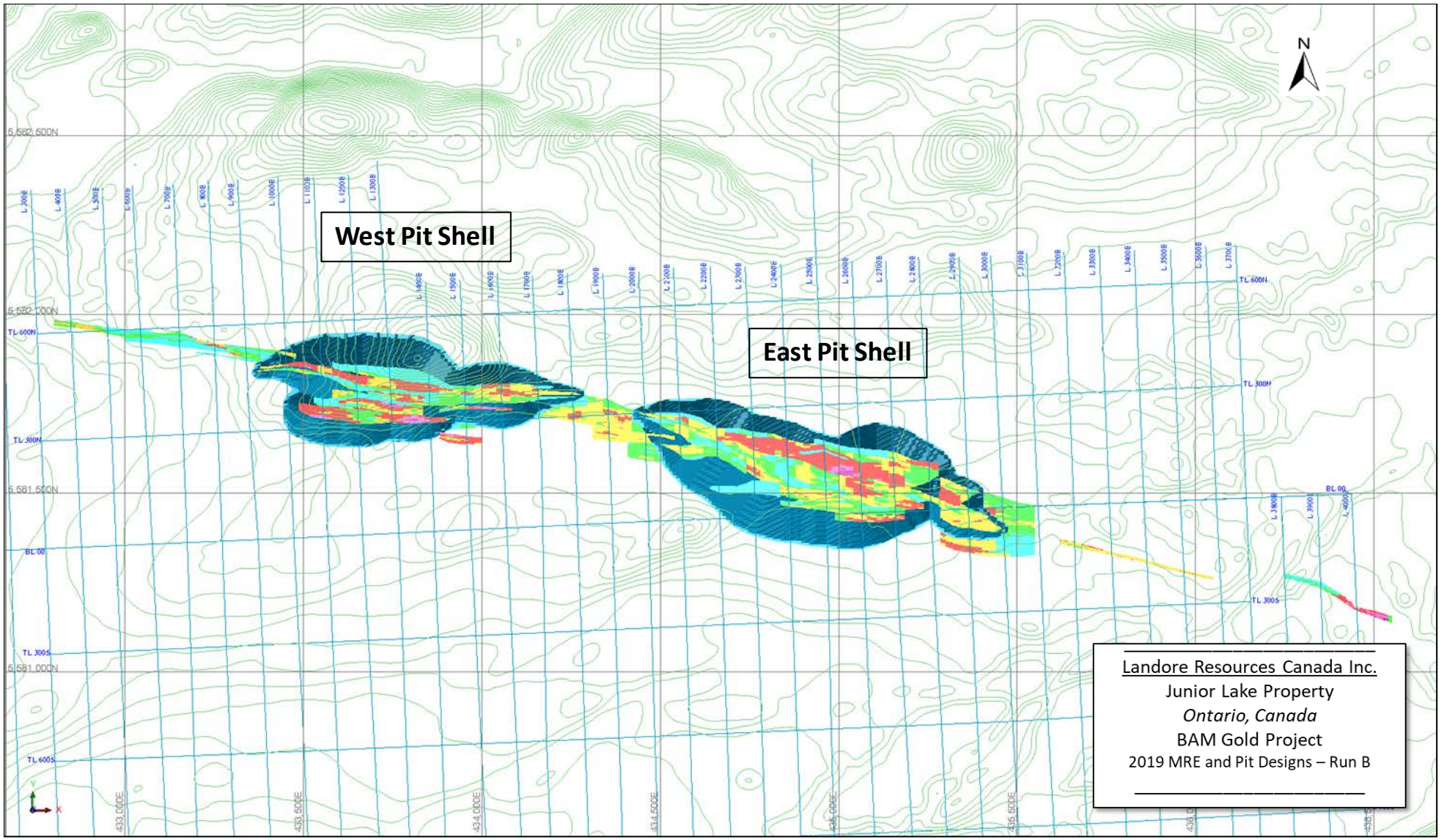


Figure 16-4 Plan View of Run B Optimization Shell 21 (December 2019)

17. Recovery Methods

The Phase 1 test work indicated high extraction of gold was achieved with the BAM composite using a combination of grinding, gravity separation and agitation leaching of the gravity tails with cyanide. A conceptual flowsheet of this concept has been prepared for the BAM project. It is understood that this flowsheet represents one option, albeit favoured by the current testing, and that additional testing may identify alternative processes that would be attractive (either metallurgically or economically) for the BAM Project. The basic design criteria and assumptions are included in Table 17-1 and the flowsheet is included as Figure 17-1. It is anticipated that all the facilities will be enclosed for all-weather operation.

Table 17-1: Process Assumptions for Conceptual Flowsheet

Area	Unit	Assumption
Operating:		
Production Rate:	tonne/day	8,000
Operating Time:	hrs/day	24
Ore:		
Gold Grade:	g/t	1.3
Silver Grade:	g/t	1
Copper Grade:	g/t	130
SPG:	t/m^3	2.7
Extractions - Gold:		
Gravity Separation:	% nom.	65%
Agitation Leach:	% nom.	95%
Overall:	% nom.	98%
Extractions - Silver:		
Agitation Leach:	% nom.	22%
Extractions - Copper:		
Agitation Leach:	% nom.	0%
Crushing Plant:		
Feed:	type	ROM
Feed Grizzly Opening:	cm	60
Availability:	%	80%
Primary:	type	Sizer
Product, Nom.100% passing:	mm	150
Secondary:	type	Sizer
Product, Nom.100% passing:	mm	40
Stockpile, Live Volume:	hrs	24
Tertiary:	type	HPGR
Product, Nom.100% passing:	mm	6
Milling:	type	Ball
Classification:		Hydrocyclones
Mesh-of-Grind, 80% passing:	µm	150
Leaching:	type	CIL

Area	Unit	Assumption
Residence Time:	hrs	72
Percent Solids, w/w:	%	40%
Tank Volume:	m^3 ea	4,580
Number of Trains in parallel:	ea	2
Number of Tanks in Series:	ea	6
Sparge:	type	O2
Cyanide Consumption:	kg/t	0.4
Lime Consumption:	kg/t	0.6
Neutralization:	type	Air/SO2
Tailings Disposal:	type	impoundment
Concentrate Leaching:	type	in-line reactor
Recovery:	type	Direct Electrowinning
Elution Plant:	type	Pressure Zadra
Capacity, carbon:	t/d	4
Electrowinning:	type	sludging
Reactivation:	%/day	100%

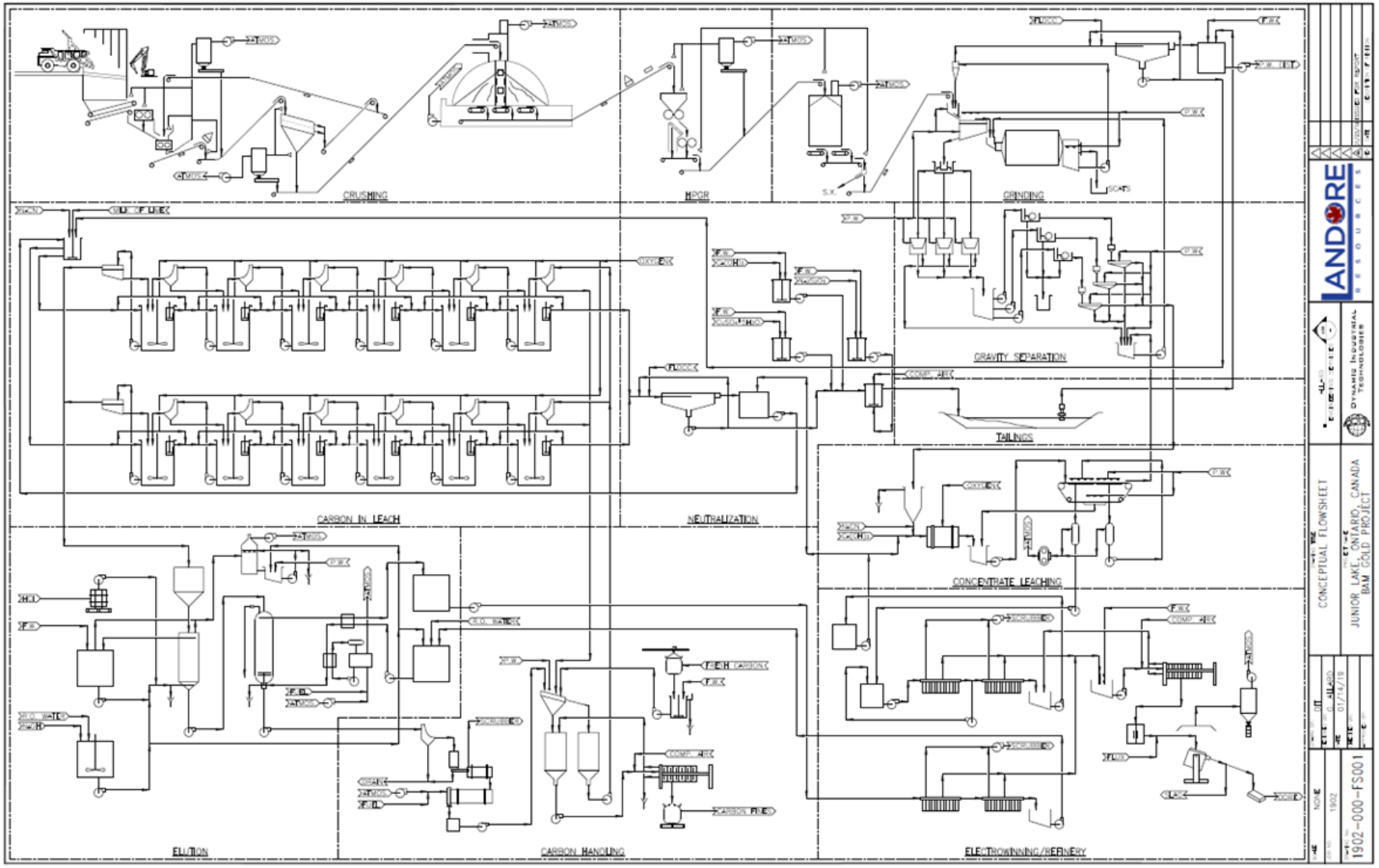


Figure 17-1: Conceptual Milling Flowsheet (Allard, 2019)

17.1. Process Description

A brief discussion of each processing area is presented that includes the rationale for selection of the unit processes. Potential alternatives to the conceptual unit processes are identified. Testing recommendations in Section 13.0 will confirm (or refute) the selections in the conceptual flowsheet. Recommendations for tests requisite to obtain engineering design information are included.

17.1.1. Crushing

Run of Mine ("ROM") ore is fed to a hopper at the crushing station. The hopper is enclosed with a stilling shed to reduce dust. A 60 cm X 60 cm static grizzly is included on top of the hopper to limit the size of feed to the primary sizer. A hydraulic rock pick is included to reduce any oversize.

Ore in the hopper is fed to a primary sizer using an apron feeder. Product from the primary sizer is fed by gravity to a secondary sizer. Secondary product is sent to a screen. The screen is fitted with a 40 mm deck with the oversize returning to the secondary. Screen undersize reports to a covered stockpile. It is assumed that all conveyors will be in galleries.

Ore is reclaimed from the stockpile and fed to a High-Pressure Grinding Roll ("**HPGR**") crusher. A powered flake breaker is included after the HPGR to eliminate flakes prior to milling. The HPGR product is conveyed to a fine ore bin at the milling area.

Dust collection is employed rather than wet dust suppression due to the cold temperatures.

Sizers were selected due to the low abrasion index of the ore and because sizers produce less fines. Lower fines are preferable due to the reduced liberation of free gold particles that could segregate in stockpiles.

Depending on the design of the secondary sizer, closing the secondary product with a screen may not be necessary. The screen is included to ensure that the feed to the HPGR is top-side limited.

The HPGR has not been tested on the BAM material; however, it is included due to its ability to break on grain boundaries which will potentially liberate additional gold. An additional rationale is that power at BAM will likely be generated on site. Using the HPGR will reduce required mill power.

Future investigations should provide information on the following

- Crushability testing on samples from the depth and breadth of the deposit are needed to determine the variability of the properties
- Tests for compressive strength of the BAM material will be required to confirm suitability of the sizers. Vendor testing should follow for product size determination and capacity
- Metallurgical tests will be required on HPGR crushed products to assess the benefit
- Testing should determine the extent of flake generation and the necessity of the flake breaker.

17.1.2. Milling

Ore from the fine ore bin is fed to a wet screen above the ball mill. The wet screen is fitted with one or two decks to separate the feed into a size suitable for feed to the gravity separators and the oversize drops by gravity to the ball mill feed chute.

The ball mill is a conventional overflow wet grinding mill. The ball mill discharges to a sump and is pumped to a hydrocyclone cluster where the fines are removed in the overflow and the coarser

material is discharged onto the wet screen to join the new feed. Mesh of grind is approximately 80 percent passing 150 µm and 100% passing 212 µm.

The hydrocyclone overflow reports to a grind thickener where it is flocculated and settled to increase the percent solids and to reclaim process water for use in the milling circuit. The underflow of the grind thickener reports to the agitation leach.

It is anticipated that the grinding circuit would be run without cyanide to reduce soluble inventory and make the gravity circuit less complicated to operate

Future investigations should provide information on the following:

- Grindability and abrasion tests will be required using samples from various locations and depth in the deposit to determine variability
- Variability of the process flowsheet to these samples should also be assessed to determine an optimized mesh-of-grind
- Rheology, flocculant screening, and thickener testing will be required for design of the pumps and thickener.

17.1.3. Gravity Separation

Undersize of the wet screen is distributed to a trio of Knelson concentrators where the coarse liberated gold is removed from the stream. Tails from the gravity concentrators report to a sump and are pumped to the ball mill feed. The gravity concentrate is fed to a wet magnetic separator where any ferromagnetic materials are removed (wear metal, magnetite, etc.). The magnetics drop to a bin for disposal. The non-magnetics are tabled to increase the concentrate grade. The table tails join the Knelson tails and are returned to the ball mill feed chute. The table concentrate reports to Concentrate Leaching.

Future investigations should provide information on the following:

- Investigation into the Gravity Recoverable Gold (“GRG”) variation over multiple samples should be conducted to determine the reliable recovery in the gold circuit and confirm the liberation size
- Investigation should be made into recovery of fine gold in the cyclone overflow
- Communications with the vendor should be held to determine the optimal number and size of the gravity separators required
- Bulk gravity separation tests will be needed to assess the upgrading using tables
- Vendor testing would be required to size the wet drum magnetic separators.

17.1.4. Carbon-In-Leach (CIL)

Grind thickener underflow reports to two trains of agitated leach tanks in parallel. The pulp density is adjusted with solution from the leach tails thickener overflow. Cyanide concentration is adjusted in the feed. Oxygen is sparged into the leach tanks through the hollow shaft on the agitator.

Preliminary sizing of the CIL tanks in the conceptual flowsheet is 18.0 m dia. X 18.0 m high, agitated, rubber-lined, open-top vessels. The tanks are arranged with a 2m elevation difference so the pulp will flow by gravity from the first tank to the second. All agitated tanks can be bypassed for maintenance.

Activated carbon in the pulp is prevented from flowing to the second tank by a submerged, agitated "Interstage" screen. These screens consist of slotted wedge wire cylinders with a slot opening smaller than the finest carbon in the tank. Pulp freely flows through the slots while the carbon remains in the tank.

Reactivated granular activated carbon at a design rate of 2.0 dry tonnes per day per train is continuously introduced to the sixth tank of each leach train where it is mixed with the pulp by a bridge mounted agitator. Fresh carbon is pumped as a water slurry to a sieve bend screen above the sixth tank where the water is removed and the dewatered carbon drops into the feed launder entering the tank.

A fraction of the slurry and the contained carbon from the sixth tank is pumped over a separate sieve bend screen to advance the carbon to the fifth stage. Pulp that flows through the screen returns to the tank from where it came. The granular carbon drops into the launder immediately before the fifth tank. This operation is continuous and advances carbon from the last (sixth) tank to the first tank, adsorbing gold in the process. In a similar manner, the pulp and carbon from the first tank is pumped to a screen. The screen receiving the pulp from the first tank is a horizontal vibrating screen, where any remaining pulp is washed from the carbon and returned to the first tank. The carbon from the screen reports to elution.

Slurry overflowing the last tank in the CIL circuit flows by gravity to a leach tails thickener. The tails are flocculated and thickened to reclaim water for makeup to the leach circuit. Thickener underflow is pumped to the cyanide neutralization circuit.

Future investigations should provide information on the following:

- Carbon loading tests from pulps should be conducted to determine carbon advance rate and concentration in the pulp
- Rheology to determine agitator performance and pump requirements should be pursued
- Additional investigation should be conducted with various percent solids and cyanide concentration on the residence time of the agitation leach circuit.

17.1.5. Tails Neutralization

Once the metal values are extracted from the feed, the slurry will be thickened and discharged to settling ponds. Prior to discharge, any residual cyanide must be neutralized, which occurs in the Air/SO_2 circuit. The combination of air and sulfur dioxide oxidizes the free cyanide (CN-) and weakly-bound metal cyanide complexes (weak acid dissociable -WAD) to form cyanate (CNO-):

$$CN^- + SO_2 + O_2 + H_2O \rightarrow OCN^- + H_2SO_4$$

SO_2 is provided by sodium meta-bisulfite ($Na_2S_2O_5$) that is prepared from either solid or liquid depending on what form is available. Milk of lime is added as necessary to neutralize the sulfuric acid generated by the reaction. Copper is a catalyst for the reaction. A mixing tank for copper sulfate is included to ensure the pulp has sufficient copper after leaching to achieve sufficient extent of the neutralization reaction.

The agitated, closed-top neutralization reactor is estimated at 10.0 m dia. X 12.0 m high to provide 90 minutes retention time. The slurry, SO_2 and compressed air are contacted in this reactor to oxidize any residual cyanides. Detoxified slurry overflows the reactor and flows to the tails impoundment.

Future investigations should provide information on the following:

- Neutralization-test work has not been performed on the BAM composite. This will be needed to determine the reagent addition required to obtain acceptable cyanide levels for discharge.

17.1.6. Tails Disposal

Neutralized tails are pumped to a lined tailings impoundment. In the impoundment the pulp consolidates, releasing process water that is pumped back to the process facility as necessary.

Future investigations should provide information on the following:

- A geotechnical engineer will be required to evaluate the material for the properties relevant to tails impoundment design.

17.1.7. Concentrate Leaching

Table concentrate is charged to a Gekko In-Line leach reactor that rotates to vigorously agitate the slurry. Concentrated cyanide and oxygen are added to the reactor. The leached pulp is filtered on a countercurrent washing vacuum filter. The filtercake is deposited into the concentrate tails sump and returned to the mill. The filtrate reports to a pair of electrowinning cells in series where the precious metals are plated onto stainless steel knit mesh.

Future investigations should provide information on the following:

- If a Gekko In-Line leach reactor is selected, vendor testing would be required to size an appropriate unit; and
- Rheology, filtration and wash rate testing of the leached concentrate will be required to select the filter.

17.1.8. Elution

The elution circuit as depicted in Figure 17-1 is a standard Pressure Zadra circuit, which is a semi-continuous batch operation

Loaded carbon from the first stage of the CIL circuit is screened and washed of the pulp on a screen. The washed carbon drops into a holding tank in the elution circuit. When sufficient carbon is accumulated (a unit batch) it is discharged to the acid wash column.

Acid Washing

Activated carbon accumulates carbonate scale during the adsorption cycle. This scale is caused by the calcium in the lime used for pH control and CO_2 absorbed from the atmosphere. This scale, typically, does not interfere with adsorption of gold onto the carbon but will extend the elution time and consume more carbon during reactivation. This scale is removed by soaking the carbon in a hydrochloric acid solution.

The acid wash solution is made up to about 3% HCl and pumped into the acid wash vessel which is constructed of FRP. The carbon in the holding tank is flushed in the acid wash column. Once the acid wash column is full, solution is circulated through the bed of carbon and additional acid is injected into the recirculating stream as required.

Once the pH of the circulating stream stabilizes below 1.0, the solution is drained from the carbon and the carbon is rinsed with a sodium hydroxide solution to neutralize the acid. This neutralization step is required to reduce the evolution of hydrogen cyanide and corrosion in subsequent unit operations. The neutralized carbon is transferred by pump to the elution column.

Hydrogen cyanide monitors are included in this area to notify the operators if HCN gas is present. The acid wash area is isolated from the rest of the plant by low containment walls with a separate gravity sump.

Since HCL is a gas at room temperature, all the tanks that have acid are closed top and are vented to a caustic scrubber. An ID fan maintains a slight negative pressure on the tanks to minimize acid vapor from entering the operating area. Overflow of the scrubber sump reports to the acid gravity drain.

Elution

The conditions that enhance gold adsorption onto carbon are high ionic strength, divalent cations, low temperatures and low pH (within reason). The elution circuit reverses some of these conditions to remove the gold from the carbon. RO (reverse osmosis) water is used to make the elution solution to give it a lower ionic strength. Acid washing removes some of the divalent cations. The elution solution is made with NaOH to achieve a high pH and the solution is heated to around 130° C. As might be expected with the elevated temperature, the elution column is a coded carbon steel, epoxy lined pressure vessel.

The elution solution is stored in a lean eluate tank, which is insulated and constructed of epoxy-lined carbon steel. The solution is pumped through heat exchangers where it is heated to the appropriate temperature and enters the bottom of the elution column. The solution flows upwards through the activated carbon and carries away the desorbed metals.

The solution exits the top of the column and is cooled to below the flash point. The solution then flows to a strong eluate tank. The strong eluate is pumped to the electrowinning area. After electrowinning the gold from the solution, the now-lean eluate is returned to a lean eluate tank for recycling to the elution column.

Once the elution cycle is complete (nominally 20 hours), the carbon is cooled, drained and transferred by pump to a reactivation kiln.

Little mercury was identified in the composite tested in Phase 1, so a wet scrubber or retort was not included.

Future investigations should provide information on the following:

- Assaying for mercury should continue as the metallurgical testing continues.

17.1.9. Electrowinning/Refining

Gold is removed from the strong eluate by electro-plating it on stainless steel mesh. A DC electrical current is passed through the solution, and the gold plus any silver or copper will be reduced at the cathode to form a metallic plating. The elevated voltage generates hydrogen gas at the cathode, dislodging some of the plated material, which falls to the bottom of the cell as a metallic sludge.

Two electrowinning cells in series/parallel are included. Periodically, the cathodes are removed, and the adhering gold sludge is washed off. The sludge in the bottom of the cell is removed and all the gold sludge is filtered. The filter cake is dried and sent to the refinery.

The electrowinning cells for direct electrowinning of the concentrate leach are operated in an identical manner. The two are kept separate to prevent contamination of the low ionic strength eluate.

In the refinery, the gold sludge filtercake is mixed with fluxes and smelted in a propane-fired nose-pour crucible furnace. The mixture is heated until liquid and the impurities are dissolved in the slag. The slag is poured off and the liquid metal remaining is poured into molds where it is allowed to cool and solidify into a doré bar. The doré is cleaned, weighed and shipped offsite for refining into bullion.

Combustion products from the smelting furnace are vented from the refinery through a baghouse. Any dust in the baghouse is occasionally returned to the furnace.

17.1.10. Carbon Handling

As carbon is processed through each unit operation, a small portion is abraded into fines. These fines are removed each cycle and replaced with new carbon. In addition, the activity (the ability to adsorb gold to a high level) diminishes over time. The carbon is thermally reactivated to regain the original activity.

Eluted carbon is transferred to a hopper that feeds a reactivation kiln. The kiln is sized to reactivate 100% of the carbon batch each elution cycle.

The wet carbon is heated to 650° C in a steam atmosphere in a rotary kiln where the conditions are such that the carbon activity is restored. The hot carbon is discharged sub-surface into a tank filled with water to cool and quench the carbon. The quenched carbon is transferred by pump to the carbon sizing screen.

The carbon sizing screen is a wet, horizontal vibrating screen with an 850 µm aperture where the screen undersize is discharged to a fines tank. The screen oversize reports to a carbon holding tank for return to the CIL circuit.

Fine carbon slurry in the fines tank is pumped through a plate and frame filter to remove the carbon. When the filter is full the cake is blown down with compressed air and the cake is manually discharged into a supersack and stored.

New coconut-shell activated-carbon is delivered in supersacks. New activated carbon has a dry bulk density of 0.48 tonne/m^3 due to the large quantity of pores created in the activation process. Dry carbon needs to soak in water to allow the pores to fill and displace the air in the pores; otherwise the carbon would float in the process. Typically, 24 - 48 hours is sufficient to displace the air. An agitated tank is provided to soak the fresh carbon. In addition to de-gassing the carbon, the agitator action abrades the carbon edges and breaks up any fragile pieces before these get introduced into the process. Degassed and abraded carbon is stored under water in this tank and is transferred to the carbon sizing screen as necessary.

17.1.11. Ancillary Unit Operations

Several ancillary operations required for the process are not included with the conceptual flowsheet in Figure 17-1. These areas are discussed briefly below.

Reagents

Concentrated cyanide solution is prepared in a dedicated mix building separated from the rest of the process. Two carbon steel tanks are provided in the mix building for preparing cyanide solution.

Sodium cyanide is commonly available as briquettes in 1 tonne bags. One of the tanks is filled with water and sufficient NaOH is added to elevate the pH. The cyanide bags are emptied into the tank and the agitator started. Once the briquettes are dissolved the solution is transferred by pump to the second tank. Cyanide is mixed to 23% NaCN by weight in solution.

Hydrogen cyanide monitors are included in this area to notify the operators if HCN gas is present. The cyanide mix area is inside a containment wall that will contain the total volume of the two tanks.

Hydrochloric acid (HCl) is used in the carbon acid wash circuit. HCl is available as a 34% solution in 1000 litre totes. This solution will be metered directly into the process stream as necessary.

Quick lime (CaO) will be used in the agitation leach circuit. Lime will be delivered as 3/8" pebble lime and slaked on-site before dilution and feeding to the process.

Sodium hydroxide (NaOH) will be used in the elution circuit. Sodium hydroxide will be delivered to site in solid flake form in 25-kg bags or one-tonne supersacks. A mix tank and storage tank will be used to prepare solution at 25% strength. The uses of NaOH in the elution plant are for carbon stripping (NaCN/NaOH solution), neutralization of acid wash solution, acid scrubber, and pH adjustment of the cyanide mix solution.

Oxygen is generated on-site and on-demand by vacuum swing adsorption ("**VSA**") for sparging into the leach circuits.

Utilities

Propane is used to fire the Smelting Furnace, Elution Boiler, Carbon Reactivation Kiln and various drying ovens.

Compressed air is used in the refinery for air tools, the baghouse and to blow down the gold sludge filter. In the process plant, compressed air is used to blow down the fine carbon filter. Compressed air is also used in the crushing plant for cleaning the bag houses and bin vents. The Air/SO_2 reactor uses compressed air as part of the process.

Raw water for the project is assumed to be available from wells. Residual water in the impounded tails slurry represents the bulk of the water requirement for the process area. Water is reclaimed from the tailings impoundment as necessary.

A water softener and Reverse Osmosis ("**RO**") unit are included to obtain higher quality water for the elution area.

It is assumed that power is by on-site generation. It is also anticipated that the waste heat from the generators will be recovered for various heating duties.

17.2. Alternative Processes

Additional testing and investigation is anticipated to bring to light methods for optimization of the conceptual flowsheet. Some of the obvious alternative processes are discussed below.

17.2.1. Crushing Alternatives

Various potential alternatives for the crushing area are apparent. A primary jaw could be used if the milling circuit consisted of a SAG (Semi-Autogenous Grinding mill)/ball mill combination.

If additional test work determines the ore characteristics do not favor using sizers or an HPGR, a conventional compression crushing (jaw/cone) circuit could be employed

17.2.2. Milling Alternatives

The most obvious alternative unit operations for the milling circuit would be to install a SAG/Ball circuit.

17.2.3. Gravity Concentration Alternatives

The only obvious alternative in the gravity concentration area would be for equipment of different manufacture. Whole ore leaching resulted in high extractions of gold and agitation leaching without gravity separation is potential alternative. urrent operating wisdom is that removing the gravity recoverable gold before leaching typically results in higher overall extraction.

17.2.4. Carbon-In-Leach Alternatives

Agnico-Eagle's Goldex operation in Ontario, Canada achieves high recovery of the free gold in a gravity circuit followed by flotation to generate a concentrate that is leached off-site. Flotation of the gravity tail with the BAM composite was less attractive than cyanide leaching and produced a low-grade concentrate. The Goldex concentrate was leached at a near-by Agnico-Eagle facility, so this approach may not be directly applicable to BAM. However, the option exists where, with additional gravity separation testing, a situation may be obtained where a gravity-only facility can be constructed that would achieve acceptable extraction of gold with a lower expenditure of capital. The un-leached gravity tails would be sent to an interim tailings impoundment. Then, after positive cash flow is achieved, an over-sized agitation leach facility can be constructed that would be fed from the milling circuit in real-time and with material reclaimed from the interim tailings impoundment.

17.2.5. Concentrate Leaching Alternatives

It is possible that with additional test work, the table concentrate may be sufficiently high in grade that it could be smelted directly which would eliminate the need for the Gekko In-Line Leach Reactor and the direct electrowinning circuits. This is the method employed at Agnico-Eagle's Goldex mine.

17.2.6. Tailings Neutralization Alternatives

Various methods of cyanide destruction have been developed, however, Air/SO_2 (Inco Process) is the most common.

17.2.7. Tailings Disposal Alternatives

The obvious alternative for a tailings impoundment would be for dry stacked tails. This would require filters, conveyors and stacking operations.

17.2.8. Elution Alternatives

Several alternatives for the elution circuit are available. However, the obvious choice would be to install an Anglo American Research Laboratory ("**AARL**") circuit. The AARL system has a faster cycle which equates to a smaller plant; however, it requires more automation.

17.2.9. Ancillary Operation Alternatives

Alternative unit operations are available for the ancillary operations; however, these are limited to nuance, form of reagent, or minor in scope and would not significantly impact the cost or feasibility of the project.

17.2.10. Heap Leaching

Heap leach testing showed acceptable extraction of gold from fine-crushed material. Fine-crushed, in this case, being minus 6 mm heap feed. Observation indicated that the ore is likely to require agglomeration to be successfully leached. The observation indicated that agglomeration would be needed not only to reduce the mobility of the fines, but to maintain the porosity.

Cold weather heap leaches are common, and the climate is accommodated by seasonal curtailments, snow removal, solution heating, buried emitters, and insulated pipes, among other operational procedures. The potential requirement for agglomeration has a significant impact on the implementation of heap leaching at the BAM site. Extensive test work would be required to justify pursuing heap leaching as an alternative processing option.

18. Project Infrastructure

18.1. Current Resources and Infrastructure

18.1.1. Local Resources

Thunder Bay is the major centre for north-western Ontario and provides most of the services required by exploration and mining operations. The Thunder Bay commercial airport has daily scheduled service to major Canadian cities, and the city offers rail facilities and a port on Lake Superior that provides Atlantic Ocean access via the Great Lakes and the St. Lawrence Seaway. Mining and skilled labour are available in Thunder Bay and elsewhere in Ontario and Québec.

Most consumables, including food, fuel, natural gas, propane, and cement are readily available in Thunder Bay. Limited fuel and accommodations are available in Armstrong, formerly a service centre for the CNR main cross-country line. Wiskair Helicopters maintains a small jet at a fuel depot at the Ontario Ministry of Natural Resources (**OMNR**) site in Armstrong.

18.1.2. Infrastructure

Other than a cabin camp, there is no infrastructure on the property. No electric power or rail lines exist on the property. Due to the bankruptcy of Buchanan Forest Products Inc. in May 2009, maintenance of the pulp haulage road to the Junior Lake property has been assumed by the Ontario Ministry of Transportation to within 30 km of the camp site, with the balance of the distance maintained by private interests. The CNR main single line is 13 km south of the property, passing between Junior Lake and the north shore of Lake Nipigon. Ontario Power Generation (**OPG**) plans on constructing two hydroelectric power plants (100 MW) on the Little Jackfish River with the power lines connecting the OPG grid to cross the Junior Lake property.

The size of the property is more than sufficient for mining exploration, development, and production activities. Many sources of water are present on the property. No grid power is currently available in the immediate vicinity of the property.

The nearest operating mine is the Lac Des Iles Mine (**LDIM**) owned by Lac Des Iles Mines Ltd., a subsidiary of North American Palladium Ltd. (**NAP**). LDIM is located 100 km north of Thunder Bay, approximately 15 km west of Highway 527, and is approximately 259 km by road from the Junior Lake property.

18.2. Proposed Infrastructure

The project is to consist of two pits, (BAM West Pit and BAM East Pit). There will also be a processing facility, a tailings storage area, a waste dump and a camp site.

The proposed locations of these infrastructures can be seen on plan view in Figure 18-1. The plan also includes the location of the B4-7 Ni-Cu-Co-PGE Deposit pit shell, from optimization work previously completed by RAP (2018).

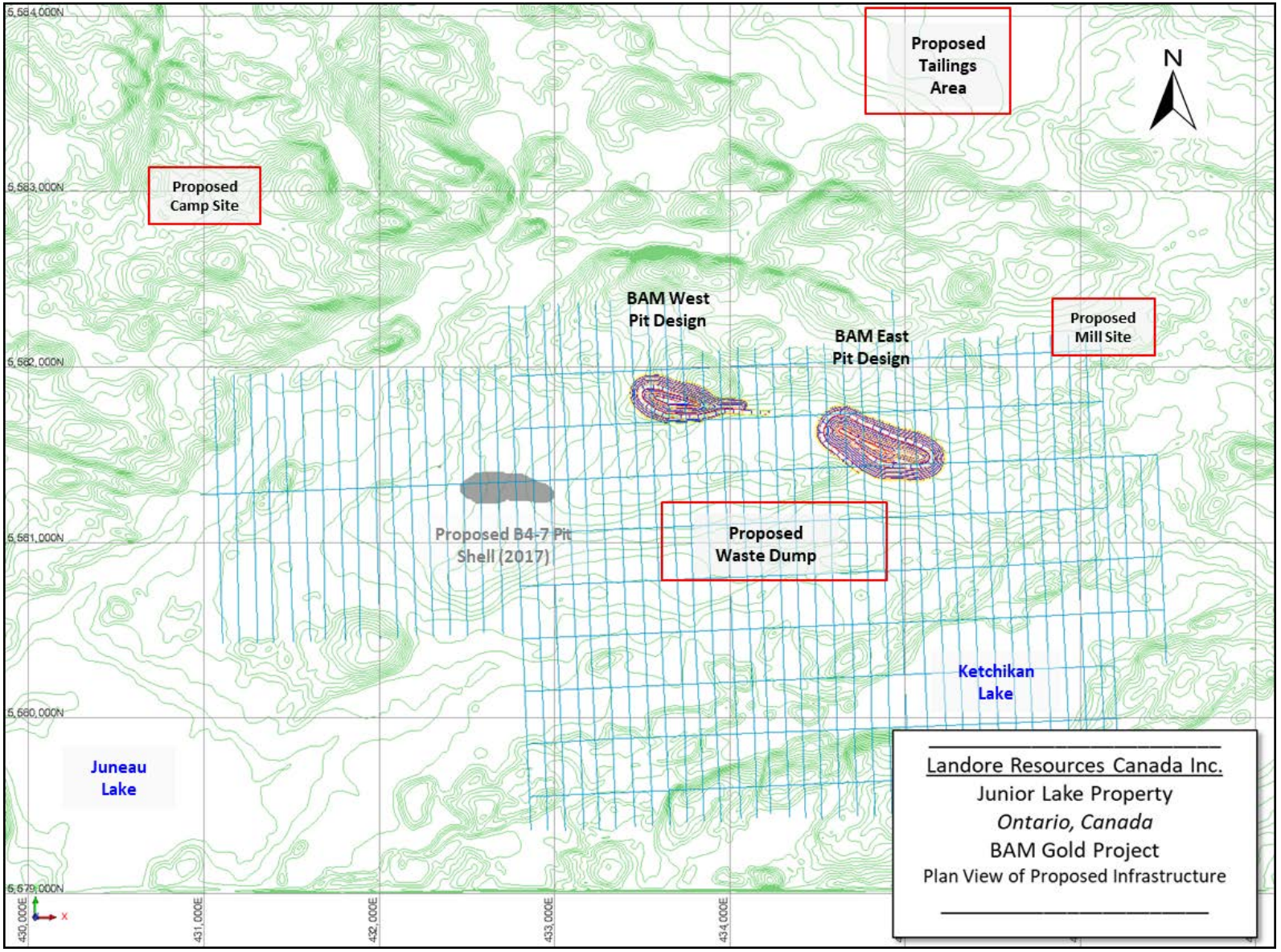


Figure 18-1 BAM Gold Project Site Plan Showing Proposed Infrastructure Locations (February 2019)

19. Market Studies and Contracts

According to 43-101 F1, Instruction No. 4, the QP should only use Items 15-22 for reports on Advanced Properties.

Advanced Properties is defined under NI43-101, Section 1.1 as one that has mineral reserves and/or mineral resources of which the potential economic viability is supported with an economic analysis.

20. Environmental Studies, Permitting, and Social or Community Impact

20.1.Summary

Environmental Studies

Landore has conducted various environmental baseline studies on the Junior Lake property since 2007. Surface water sampling of various lakes and streams has been conducted since 2007.

Beginning in 2007, Landore retained Golder Associates Ltd. (**Golder**) to implement a baseline surface water quality monitoring program for the Property. The most recent report on the surface water quality monitoring was issued on December 5, 2018. The purpose of water quality monitoring program is to characterize local baseline surface water quality and help in identifying potential receiving water environments. This data would be required as one component to the supporting documentation for permit applications to various regulatory agencies, should the project be developed as a mining operation.

Bathymetry and fish habitat studies of Ketchikan Lake were conducted in 2007. In 2008, a bedrock surface investigation of the northern portion of Ketchikan Lake was completed.

Terrestrial and fish habitat studies were conducted by Golder over the property during 2008, subsequently reported in an environmental baseline study in 2009. Results of the vegetation surveys, wildlife surveys, and incidental observations did not identify any listed species within the site boundary that would trigger a specialized study. The site has been highly disturbed in some locations by recent commercial forestry activity.

The environmental and baseline studies are all pre-requisites for permitting requirements for the development of the BAM Gold Project. A list of the reports covering all the environmental baseline studies carried out since 2007 is provided in Table 20-1.

Table 20-1: Listing of Environmental Baseline Studies at Junior Lake Property Commissioned by Landore (up to February, 2019)

Report Title	Issue Date	Report Issuer
Baseline Water Quality Interim Monitoring Report, Junior Lake Property, Ontario	July 13, 2007	*Golder*
Fish Population Survey and Fish Habitat Assessment including bathymetry survey of Ketchikan Lake, Junior Lake Property, Thunder Bay, Ontario	January 15, 2008	*Golder*
Surface Water and Sediment Quality Monitoring Report, February 2007 to January 2008, Junior Lake Property	April 18, 2008	*Golder*
ERI Investigation of Bedrock Surface, Ketchikan Lake, Landore Resources Canada	June 2008	*Golder*
Surface Water Quality Monitoring Report, February 2007 to October 2008, Junior Lake Property	January 28, 2009	*Golder*
Junior Lake Property, Environmental Baseline Study, Landore Resources Canada Inc, Armstrong, Ontario	February 13, 2009	*Golder*
Surface Water Quality Monitoring Report, February 2009 to January 2010, Junior Lake Property	February 18, 2010	*Golder*
2010 Surface Water Quality Monitoring Report, Junior Lake Property	April 6, 2011	*Golder*
2011 Surface Water Quality Monitoring Report, Junior Lake Property	May 3, 2012	*Golder*

Report Title	Issue Date	Report Issuer
2012 Surface Water Quality Monitoring Report, Junior Lake Property	March 27, 2013	*Golder*
2013 Surface Water Quality Monitoring Report, Junior Lake Property	February 26, 2014	*Golder*
2014 Surface Water Quality Monitoring Report, Junior Lake Property	October 22, 2015	*Golder*
2015 Surface Water Quality Monitoring Report, Junior Lake Property	January 24, 2017	*Golder*
2016 Surface Water Quality Monitoring Report, Junior Lake Property	October 18, 2017	*Golder*
2017 Surface Water Quality Monitoring Report, Junior Lake Property	December 5, 2018	*Golder*

Permitting

The Ontario Ministry of the Environment Conservation and Parks (**MECP**) will require baseline surface water quality information from Landore to support an Environmental Compliance Approval (formerly called Certificate of Approval) application associated with a potential mine project, while the Ontario Ministry of Energy, Northern Development and Mines (**ENDM**) will require similar information to support Closure Plan requirements under Part VII of the Mining Act.

In addition to these requirements, Landore will be required to supply baseline water quality information to Environment Canada under the Metal and Diamond Mining Effluent Regulations (**MDMER**) to fulfil the "site characterization" and "initial monitoring" requirements contained in the Environmental Effects Monitoring section of the MDMER. The information compiled from this monitoring program could assist in meeting some of these requirements.

Social/Community Impact

Landore continues to work with the following First Nations and Aboriginal groups to ensure that each is informed of the project details such that their engagement helps to contribute to the development of the project:

- Whitesand First Nation
- Animbiigoo Zaagi'igan Anishinaabek (AZA) First Nation
- Aroland First Nation.

20.2.Environmental Studies

20.2.1. Surface Water Quality Monitoring Summary

The surface water quality monitoring programs were established in February 2007 and have been conducted continuously up to the present day. Water testing results are not summarised for 2018 and 2019, with reports pending.

The 2007 baseline surface water quality monitoring program was initiated to characterize the local water quality and potential receiving water environments (Braun and Grant, 2009).

Lake sample stations on the Junior Lake property include Ketchikan Lake, Juneau Lake, Junior Lake, East Ketchikan Lake, North Lamaune Lake, Lamaune Lake, and two small unnamed lakes located

approximately 3 km north of Lamaune Lake (Figure 20-1 and Figure 20-2, from Golder, 2018). Stream sample locations include an unnamed stream flowing from Ketchikan Lake to Juneau Lake, an unnamed stream flowing from Juno Lake to Juneau Lake, and an unnamed stream flowing into Lamaune Lake from the north. In 2017, sampling was carried out on one occasion in November at the three stream sample locations.

Five lakes and two interconnecting streams are designated as sampling locations and have been monitored since monitoring commenced in 2007. A further three lakes and one stream were added in 2010, for a total monitoring program of eight lakes and three interconnecting streams. Sampling protocols were established by Golder and qualified Landore personnel were trained in the collection and documentation methods (Table 20-2). Samples are analyzed by a qualified laboratory designated by Golder and the validity of data is assessed through standard QAQC methods in the laboratory. The sampling program remains on-going as of 2017.

Surface water quality results are compared by Golder to the applicable Ontario Provincial Water Quality Objectives (**PWQO**), which outlines criteria established for surface waters. Results were reported for the 2007 to 2008 two-year period. Over the course of the period, Golder did not identify any trend changes in the surface water quality with all samples reporting within the acceptable levels as established by government guidelines and reflective of background conditions at the sample sites.

Table 20-2: Water Sampling Protocols (Golder, 2018)

Analytical Parameters	Preparation and Preservation Protocols
General chemistry (TDS, alkalinity, chloride, etc.)	Plastic bottle, unfiltered and unpreserved.
Ammonia	Glass bottle, unfiltered and preserved to pH<2 with sulphuric acid.
Total Metals	Plastic bottle, unfiltered and preserved to pH<2 with nitric acid.
Dissolved Metals	Plastic bottle, lab filtered to 0.45 microns and preserved to pH<2 with nitric acid.

Additional sampling programs were carried out in subsequent years as summarized in Golder (2012) as follows.

- The initial surface water quality monitoring program was established in 2007. Landore employees were trained in water sampling techniques by Golder during the June 2007 sampling period and have carried out the sampling program since that time. In 2007, four rounds of water samples (February, June, August, and November) were collected from three lakes and two streams. A fifth round of water sampling was completed in January 2008 due to ice conditions that prevented sampling at all stations in November 2007.
- In 2008, three rounds of water samples (April, July, and October) were collected from the same locations. Two additional sampling stations were established for the April, July, and October 2008 sampling rounds on Junior Lake and East Ketchikan Lake.
- In 2009, three rounds of water samples (February, June, and September) were collected from the five lake stations and two stream stations. An additional sampling round was conducted in January 2010 due to ice conditions that prevented sampling at all locations in December 2009.
- In 2010, two rounds of surface water samples were collected (June and September) from Ketchikan Lake, Juneau Lake, Junior Lake East Ketchikan Lake, and stream stations R2 and R3.

No samples were collected from Juno Lake in 2010 due to a drop-in water levels. This shallow lake, more accurately described as a beaver pond, is no longer accessible by boat. Additional sampling locations were added to the program in 2010 and were sampled on one occasion (September 2010). The new sampling locations included North Lamaune Lake, Lamaune Lake (two locations), two small unnamed lakes north of Lamaune Lake, and an unnamed stream flowing to Lamaune Lake.

- In 2011, two rounds of water samples were collected (June and November) from each of the stations sampled in 2010. Results of the 2011 sampling program indicated that surface water quality was generally meeting applicable PWQO at all stations during the June and November sampling rounds.
- In 2011, the only noted exceedances of PWQO were total phosphorous in East Ketchikan Lake during the November sampling round and dissolved aluminium at Stations L8-S and L8-B during both the June and November sampling rounds. Water quality in 2011 generally appears to be consistent with historical data collected between 2007 and 2010. It should be noted that total phosphorous values reported prior to 2010 are higher than true values as the contract laboratory (Testmark Laboratories Ltd.) analysed phosphorus with equipment normally reserved for detecting phosphorous at much higher levels (industrial waste-water) rather than surface water. Total phosphorous levels from 2010 onward are considered a more accurate reflection of true total phosphorous concentrations. The 2011 water quality data is interpreted to be reflective of background conditions.
- Quarterly surface water testing was also conducted during 2012. Between one and three rounds of surface water testing per year were conducted during 2013 to 2018.

A summary of surface water quality results for the years 2007 through 2017 is presented in Table 20-3, with detailed descriptions and findings tabulated in Appendix 7. Juno Lake (L3) has not been sampled since 2009 and the bottom sample (L6-B) from East Ketchikan Lake has not been sampled since 2010, therefore both have been removed from Appendix 7. As only R2, R3, and R4 were sampled in 2017, the table below has only been updated for those stations. Results for other locations represent only historical results.

Discussion (Golder, 2018)

Surface water quality results were compared to the applicable MECP PWQO criteria established for surface waters, as stated in the MECP document Water Management Policies, Guidelines, Provincial Water Quality Objectives of the Ministry of the Environment and Energy, (MOE 1994). 2017 was the eleventh year of water quality sampling for the Property. Complete surface water quality results, including those collected from 2007 through 2017 are available in the Golder (2018) report.

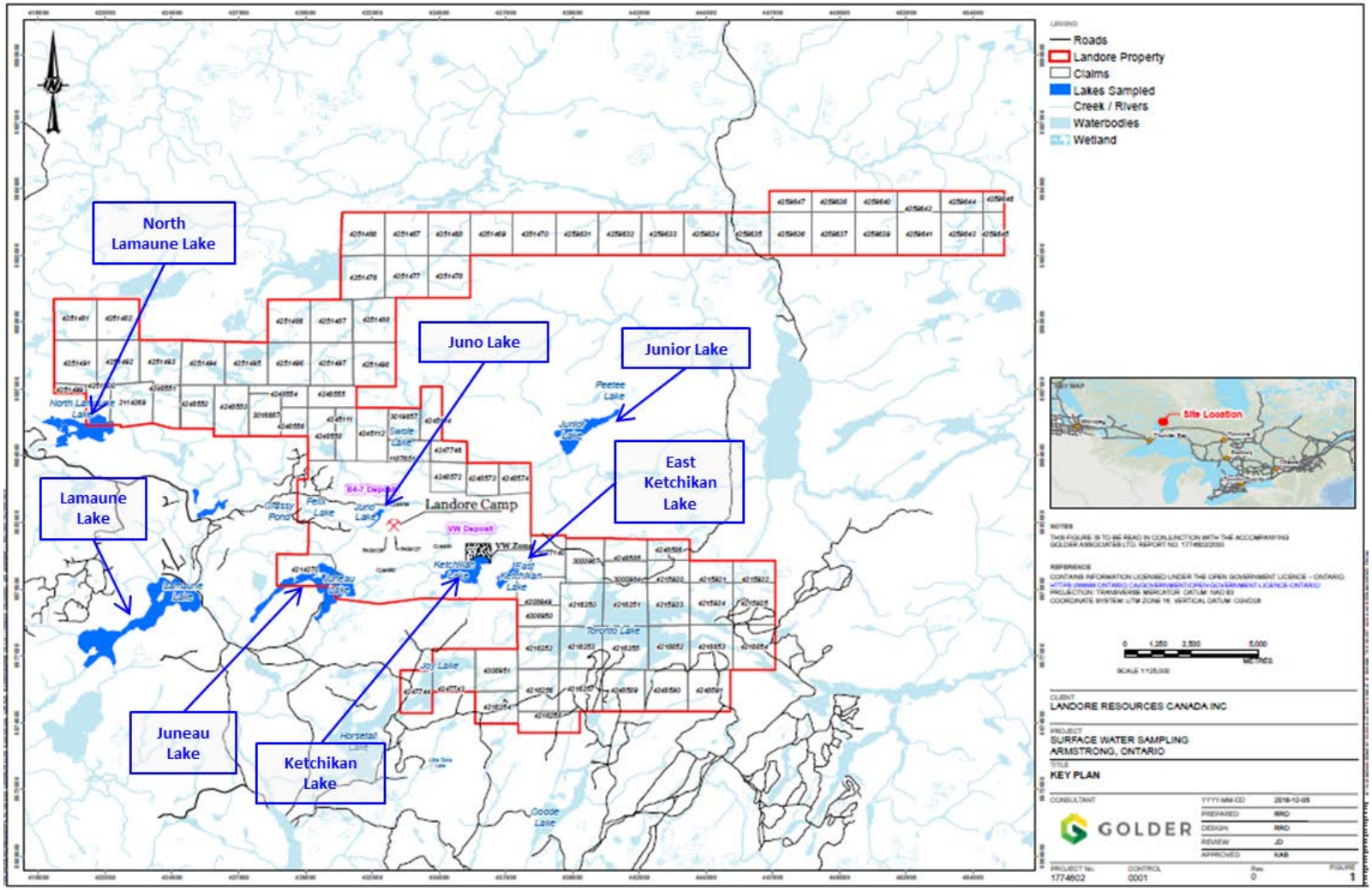


Figure 20-1 Surface Water Sampling Locations, Armstrong Region, Ontario (Golder, 2018)

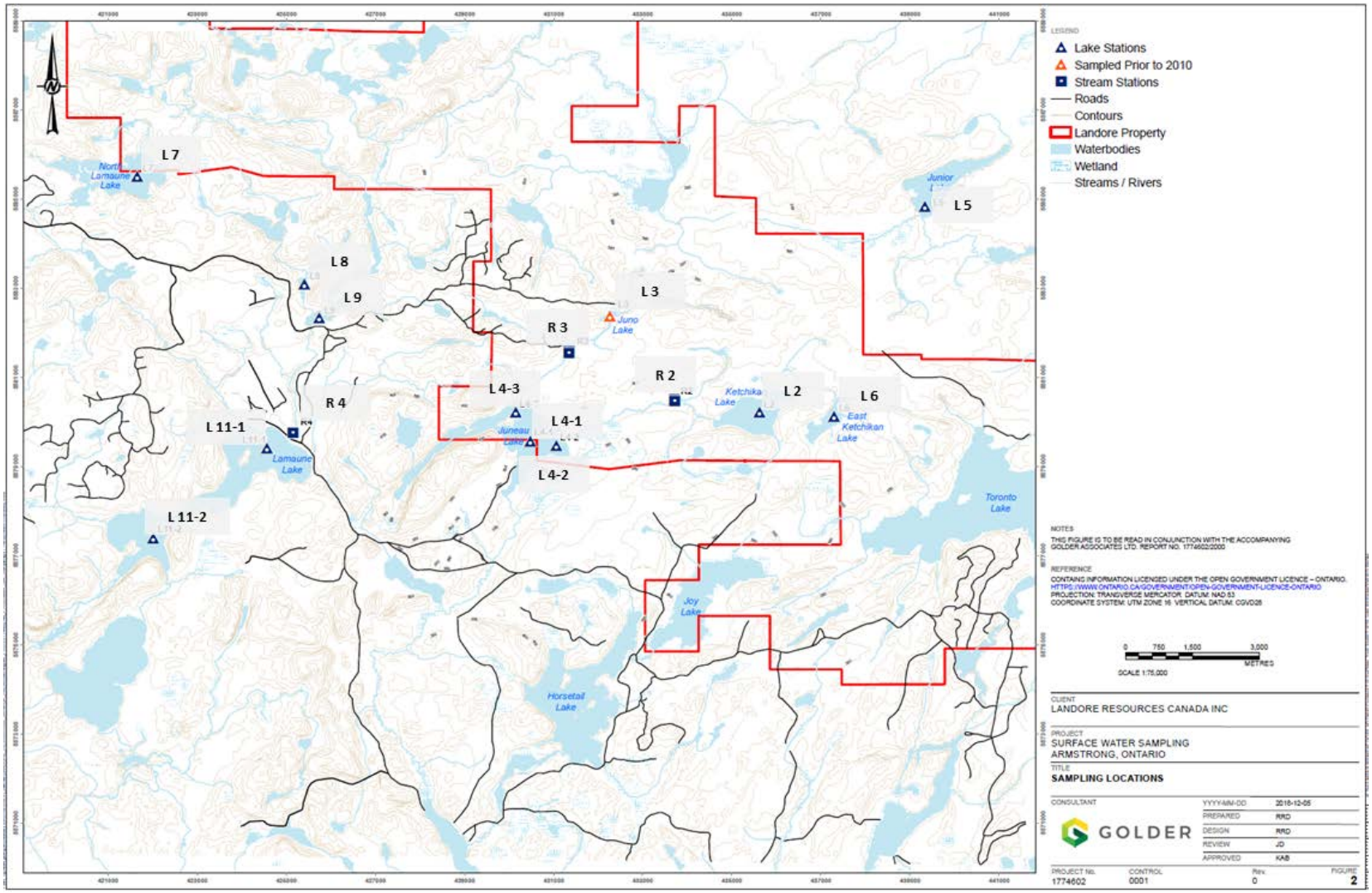


Figure 20-2 Surface Water Monitoring Station Locations, Junior Lake Property (Golder, 2018)

Table 20-3: Summary of Water Quality Sampling Events 2007 to 2017 (Golder, 2018)

Sampling Date		Sampling Location											
Year	Month	Ketchikan Lake	Juno Lake[22]	Juneau Lake	Junior Lake[11]	E. Ketchikan Lake[11]	N. Lamaune Lake[33]	Misc. Streams			Lamaune Lake[33]	Misc. Lakes[3]	
		(L2)	(L3)	(L4-1, L4-2)	(L5)	(L6)	(L7)	R2	R3	R4[33]	(L11-1, L11-2)	L8	L9
2007	February												
	June	X	X	X				X	X				
	August	X	X	X				X	X				
	November	X						X	X				
2008	January		X	X									
	April	X		X		X							
	July	X	X	X	X	X		X	X				
	October	X	X	X	X	X		X	X				
2009	February	X		X	X	X		X	X				
	June	X	X	X	X	X		X	X				
	September	X	X	X	X	X		X	X				
2010	January	X		X	X	X		X	X				
	June	X		X	X	X		X	X				
	September			X	X				X	X	X		
	October	X				X	X	X				X	X
2011	June	X		X	X	X	X	X	X	X	X	X	X
	November	X		X	X	X	X	X	X	X	X	X	X
2012	May	X		X	X	X	X	X	X	X	X	X	X
	August	X		X	X	X	X	X	X	X	X	X	X
	October			X	X			X	X	X	X		X
	November						X						
2013	January	X		X	X	X	X		X	X	X		
	June	X		X	X	X	X	X	X	X	X	X	X
	October	X		X	X	X	X	X	X	X	X	X	X
2014	July	X		X	X	X	X	X	X	X	X	X	X
	October	X		X	X	X	X	X	X	X	X	X	X
2015	June	X		X	X	X	X	X	X	X	X	X	X
2016	September	X		X	X	X	X	X	X	X	X	X	X
2017	November							X	X	X			

Notes:
[1] Sampling location established in 2008; [2] Sampling location removed from sampling program in 2010 due to a drop-in water level; [3] Sampling location established in 2010.

X annotates sampling event.

20.2.2. Terrestrial Study (Environmental Baseline Study)

The purpose of the terrestrial study was to characterize existing site conditions at the Junior Lake property and to identify potential environmental constraints associated with the site. It included a field study to ground truth existing background information, identify plant communities, and make supplemental observations of wildlife and wildlife habitat. An aquatic survey was also completed (Braun et al., 2009). The field study was undertaken in July 2008 and the fishery study in August 2008.

General information was collected to determine the presence of:

- Areas of Natural and Scientific Interest
- Significant wetlands
- Listed flora and fauna
- Habitat of significant species, waterfowl concentration areas, important wildlife habitats, raptors forestry information
- Fish community and habitat.

Results of the vegetation surveys, wildlife surveys, and incidental observations did not identify any listed species within the site boundary that would trigger a specialized study. The site has been highly disturbed in some locations by recent commercial forestry activity.

20.2.3. Bedrock Surface Investigation (Ketchikan Lake)

The elevation of bedrock surface and depth of lake sediments near Ketchikan Lake's north shore was required for open pit stripping and design at the VW Deposit. Golder was contracted to complete an electrical resistivity imaging (ERI) survey from approximately 100 m onshore towards a baseline located near the centre of the lake. The survey was undertaken in March 2008 which included six lines of ERI, with one oriented perpendicular for correlation purposes (Mulder and Monier-Williams, 2008).

Results of the survey included an interpreted bedrock contour map indicating shallow bedrock along the north shore and within the eastern arm of Ketchikan Lake. The bedrock appears to be deeper toward the centre of the lake. There appear to be zones of low resistivity beneath the overburden/bedrock contact which have an interpreted east–west trend (correlating to local stratigraphy/geology and mineralized horizons of the VW Deposit).

Golder recommendations are a correlation study of local drill hole data in order to verify and produce a better model of the bedrock surface.

20.2.4. Fish Population Survey and Fish Habitat Assessment (Ketchikan Lake)

The fish habitat of Ketchikan Lake (at the VW Deposit) on the Junior Lake property was examined in late summer 2007, including mapping of the shoreline of the lake to determine the types of habitat, available fish, and included collection of bathymetric data to characterize deeper areas of the lake (greater than 2.0 m) (Genrich and Seyler, 2008).

A bathymetry map and coded habitat map were produced identifying the various types of fish and habitats in Ketchikan Lake. Surface water quality of the lake was within acceptable parameters applicable to the Ontario PWQO. Water quality at surface, mid-depth, and bottom indicated metal

values below the applicable acceptability, with the exception of one elevated cobalt value from a sample taken from near lake-bottom. General values were indicative of those associated with other typical Precambrian Shield lakes.

20.3.Social and Community Impact

20.3.1. First Nations Relations

Landore maintains a sound working relationship with First Nations on whose traditional lands the Junior Lake property is situated. In 2007, Landore signed a Memorandum of Understanding ("MOU") with Whitesand and AZA First Nations. This agreement formalizes the desire and commitment to develop a positive, mutually beneficial relationship amongst all parties and establishes the process by which this is to be accomplished while Landore is conducting exploration and advanced exploration activities in the area.

The MOU was later revised to reflect significant changes in Landore's claim holdings in the Junior Lake area. Whitesand signed the revised MOU on April 30, 2012. AZA signed the revised MOU on December 6, 2013.

More recently, in December 2018 an Exploration Agreement between Landore, AZA and Aroland First Nations was signed which reaffirms this mutually beneficial relationship going forward. A separate Exploration Agreement between Landore and Whitesand First Nation was signed in February 2019.

20.3.2. Landore Engagement and Consultation with Stakeholders

No other pending or approved agreements are in place over Landore's Junior Lake property at the current stage of development.

The Project has involved a range of stakeholders associated with the Project. This range of stakeholders has included those that hold direct interest in the development of the Project, Federal and Provincial government agencies, community and municipal organizations, First Nation representatives, and other similar groups. The range of stakeholders is expected to grow with the development of the Project and with the reintroduction of the Project's development within the local community representing the varying levels of interest and opportunities presented by the Project.

21. Capital and Operating Costs

According to 43-101 F1, Instruction No. 4, the QP should only use Items 15-22 for reports on Advanced Properties.

Advanced Properties is defined under NI43-101, Section 1.1 as one that has mineral reserves and/or mineral resources of which the potential economic viability is supported with an economic analysis.

22. Economic Analysis

According to 43-101 F1, Instruction No. 4, the QP should only use Items 15-22 for reports on Advanced Properties.

Advanced Properties is defined under NI43-101, Section 1.1 as one that has mineral reserves and/or mineral resources of which the potential economic viability is supported with an economic analysis.

23. Adjacent Properties

There are no mining operations or advanced mineral projects in close proximity to the Junior Lake properties.

The nearest operating mine is the Lac Des Iles Mine (**LDIM**), an open pit and underground palladium mine located 100 km north of Thunder Bay, approximately 15 km west of Highway 527, and 190 km to the southwest of the Junior Lake property (approximately 259 km by road). LDIM extends over 86.4km2 of mineral claims and leases.

LDIM was a subsidiary of North American Palladium Ltd (**NAPL**). NAPL was purchased by Johannesburg-based Impala Platinum Holdings Limited for CA$1 billion in 2019. From that point on, LDIM has been operated by the new company called Impala Canada Limited.

LDIM primarily mined and explored for palladium but also for gold. Platinum, silver, nickel, and copper are mined as by-products. Metal production figures from 1994 to 2008 have been reported up to December 2017 (NAP, 2018):

- Palladium = 3.6Moz (2.5 g/t head grade)
- Platinum = 277koz
- Gold = 253koz
- Copper = 71Mlb
- Nickel = 37.5Mlb.

24. Other Relevant Data and Information

No historic mining activity has taken place within the BAM Gold Project area and so there are no production records ore reconciliation data available for review.

There is no other relevant data or information required for disclosure in this NI 43-101 technical report.

25. Interpretation and Conclusions

25.1. Data Quality

The December 2019 MRE incorporates diamond drilling data completed predominantly since 2016 over the BAM Gold Project area. It is also informed by sampling and geological information from trenches, the surface expression of exposed mineralized zones as indicated by geological mapping, a dataset of bulk density measurements taken from whole core samples, topographic survey files of the project, digital photos of all relevant diamond drill core, and updated geological interpretations.

The drilling information reviewed by Cube is considered to be consistent with the Principal Authors' understanding of the style of gold mineralization targeted by Landore and is adequate for the estimation of Mineral Resources, based on review and analysis of the following:

- Drilling and sampling methodology.
- Collar and downhole surveying techniques.
- Sample preparation and assaying methods by independent laboratories.
- Bulk density methodology review and analysis.
- Geological logging and core sampling; core recovery analysis.
- Cube has reviewed and independently assessed all available QAQC sample data for diamond drill drilling.
- Use of certified standards and assay blanks as control samples in the sample stream to monitor QAQC trends.
- Drilling data and QAQC storage is securely stored in Landore electronic database.
- Systematic data validation and verification checks of diamond drill core, collar locations, and hardcopy data were conducted by Cube at during the site visit and subsequent follow up analysis.
- The drilling database used for the 2019 MRE was validated and found to be well structured and no obvious material discrepancies were detected in the collar, survey, assay or geology data. There were only a small number of minor issues that were noted but were not a material influence within the Mineral Resource area.

Cube has made the following conclusions based on the data validation and data verification review:

- The typical drilling data spacing (50 m x 50 m) is adequate to determine the geological and grade continuity for reporting of Mineral Resources and Mineral Reserves.
- Core logging is conducted both qualitatively and quantitatively with description of lithologies, structural measurements and comments completed; 100% of all holes have been logged.
- Industry standard sample preparation and gold analysis has been conducted for all sampling. The appropriateness of the assaying and laboratory methods is considered a total measure of gold.

- Geometry and true widths of the mineralization zones within the BAM Gold Project are well understood because the area has been infill drilled on a regular spacing using only diamond drill core since the 2004.
- This information has been used to create 3D models of the lithologies and mineralization domains. It is well known that the main mineralization zones dip steeply toward 280° at -65° to -80°.
- Infill and step-out drilling since 2018 has provided sufficient confidence in the current mineralization true widths for the main mineralization zones in the BAM Project area.
- The 2019 diamond drilling results have verified the reproducibility of the original mineralized drill intersections from the previous stages of drilling.
- Whilst QAQC analysis completed so far for the drilling since 2016 is satisfactory, recommendations have been made in order to follow up precision and bias related to duplicate sampling and check sampling by an independent laboratory.

In Cube's opinion, the drilling, logging, and sampling procedures at the BAM Project have been carried out to industry best practices.

The input drill data is comprehensive in its coverage of the gold mineralization at BAM Gold Project and adequately represents the mineralization. Knowledge of the geological controls on mineralization has been used to develop the overall December 2019 MRE.

Following the standard validation checks, Cube believes the database for the BAM Gold Project is adequate for Mineral Resource estimation.

25.2.Mineral Resource Estimate

The MRE appropriately reflects the Competent Person's view of the BAM Gold Project mineral resources. The following interpretations and conclusions have been made following the 2019 MRE work.

Interpretation and Domaining:

- The December 2019 MRE is made up predominantly of broad to narrow, very continuous mineralized gold zones hosted within volcano-sedimentary sequence.
- The confidence in the geological interpretation of the December 2019 MRE is good as a result of the optimally spaced diamond core drilling programs, predominantly between 2016 and 2019 by Landore.
- The interpretation of the mineralization domain boundaries was guided by the orientation of the main lithological units in 3D,from observations noted from Landore hard copy sections and observations from DD core viewed on site. Descriptions of alteration, mineral assemblages and grade distribution within each host lithological units were also used to inform mineralization domain boundaries.
- The BAM Mineral Resource currently has an overall strike length of almost 3,700 m, with a maximum width of the mineralization envelope being approximately 50 m, down to a

minimum mining width of 2 m. The resource is modelled to 380 m vertical depth, with the estimate based on diamond core drilling collared from surface.

- There are minimal changes in strike and dip of the mineralization across the sequence, and there is very good continuity overall from east to west for the main BAM gold mineralization, but it is likely to be affected by minor faulting and dolerite dyke intrusives, disrupting the mineralization trends.
- Mineralization domain boundary analyses clearly show sharp (or hard) boundary between the main mineralization domains and the waste material (>0.2 g/t Au). The analysis provides confidence that the mineralization domains created can be used as hard boundaries to constrain the sample data during the sample compositing process.
- The domaining interpretations are based good quality diamond drilling information which shows steeply dipping mineralization hosted within the BAM sequence.

Data Analysis:

- The drill hole sampling information was composited to a 1 m composite interval in order to reduce the variability inherent in raw samples or a smaller composite length relative to estimation resource model block dimensions.
- Statistical and visual analysis for Au grades was undertaken to validate the overall controls on mineralization and to determine which estimation approach to adopt. The aim was also to evaluate the need for special treatment of obvious statistical outliers.
- Experimental variograms were generated within major mineralization domains. Gaussian variograms for the mineralization domains were generated and interpreted as part of the spatial data analysis. Where data for particular domains proved to be insufficient for variography analysis, parameters for grade estimation were adopted from other representative mineralization.

Estimation Methodology and Validation:

- The block model definition parameters included a primary block size and sub-blocking deemed appropriate for the mineralization and to provide adequate volume definition where there are narrow or disrupted zones due to contacts or structural boundaries. These dimensions are suitable for block estimation and modelling the selectivity for an open pit operation.
- LUC and OK estimation was used to produce the reported estimates for the mineralisation domains within a parent block size of 20 m x 5 m x 5 m in the X, Y, Z directions respectively was used, and they were sub-blocked to 5 m x 1.25 m x 1.25 m. These dimensions were deemed to be appropriate for block estimation and modelling the selectivity for an open pit mining operation.
- After exploratory data analysis on all domains, it was decided that no grade capping would be used for any of the domains as there was either no material difference when applying suitable top cut values, or there were no significant outliers for most of the

domains. Instead, Cube has adopted a distance limiting factor to domains where grade outliers were prevalent and top cutting had some influence on improving CoV.

- The CoV is relatively high in the economically most important Domain 1001 and for most of the other well-informed domains, most likely as a result of the high nugget value and visual evidence of coarse gold in the diamond drill core. In some domains with poorly informed data (sparsely drilled), it is possible that the use of a standard linear estimation method such as OK may produce over-smoothed block estimates.
- Search ellipse geometry and size was determined from the experimental variograms generated for mineralized domain.
- Cube carried out the several validation methods for the block OK estimates and check ID2 estimates - no significant variations in global estimate results were noted. The correspondence between mean grade composite samples and block grade estimates is good, as demonstrated by the visual inspection in cross sections, global comparisons of volume and mean grade statistics, and semi-local comparisons on sections and levels.
- There are no historic workings and no mining activity has taken place at the BAM Gold Project, so there are mine reconciliation records in order to assess past performance comparing mineral resources against mine production.

Classification and Reporting:

- The mineral resource classification for the BAM Gold Project is mainly based on data quality, drill data spacing, kriging parameters and the number of composites used for the estimation. Blocks have been classified as Indicated or Inferred only.
- The cut-off grade for reporting is 0.3 g/t Au. As gold resources occur near-surface, the model was constructed with a view towards selective open pit mining and heap leach operation. Thus, a 0.3 g/t Au lower cut-off was deemed appropriate.
- The current modelled MRE is a reasonable representation of the global contained metal.
- The density of drilling supports the classification Mineral Resource to be classified as Indicated and Inferred. The resource risk is considered to be low to moderate.
- The December 2019 BAM MRE constitutes a global resource estimate.

25.3.Future Resource Upgrades and Exploration Potential

25.3.1. BAM Gold Project - Extensions

Cube concurs with the Landore opinion there is significant potential to expand the limits of the BAM Gold Project.

The 2019 drilling program was successful in confirming the gold mineralization extension to the west and east, and also confirming the correlation of an IP anomaly from geophysics conducted in 2004 with the main BAM gold mineralization trend to the west, which remains open and un-tested.

The current 3D model interpretation of the extents of the BAM gold mineralization remains open along strike, both to the east and west, and future drilling should target the eastern extension of the

BAM Sequence, beyond approximately local grid section 4000 E. The BAM gold mineralization remains open down dip, providing additional exploration targets for future drill programs.

The 2019 soil sampling program was successful in generating several anomalies of interest. Gold is shown to respond well to the low cost survey and has strong potential for future exploration. From the soil sampling program recommendations there are four areas identified as priority targets (Johnson, 2019):

1. Gold anomaly trend west of Juno Lake, adjacent to the interpreted BAM Gold metasedimentary sequence. The presence of anomalous gold values along this trend gives additional strength to the continuation of gold mineralization along this horizon.
2. Follow up on the anomalous trends between Felix Lake and Boras Lake associated with the iron formations. Unfortunately, terrain may prove to be a problem as much of the area has thick overburden.
3. Follow up on the gold trend westwards from line 1000E, towards Juno Lake along the projected metasedimentary sequence of the BAM Gold deposit and coincident gold anomalies. The possibility of a southwest auriferous splay occurring and passing just south of Juno Lake needs to be evaluated.
4. L4100E, located 1.1 km east of the defined BAM Gold deposit, contains numerous anomalies including the highest Au RR (147) of the survey. Past work in the area is limited to five exploration diamond drill holes conducted in 2018 and located 100 m east. These exploration diamond drill holes intersected elevated gold values and are project along strike to occur between the gold anomalies. It is recommended that additional soil sampling as well as prospecting and mapping be conducted in this highly prospective area to help define the gold anomalies.

Figure 25-1 shows a plan view of highly prospective geophysical anomaly targets that have been identified by Landore from IP surveys carried out in 2006 and now confirmed by the soil sampling and ground geophysical survey conducted in 2019. The geophysical anomaly trends are interpreted as representing massive to disseminated sulphides zones along the FW within the main BAM sequence gold mineralised trends. The results of the additional geophysics and soil geochemistry conducted at the Felix Lake Prospect has opened up the area north-west of the BAM Project for further potential economic gold mineralisation.

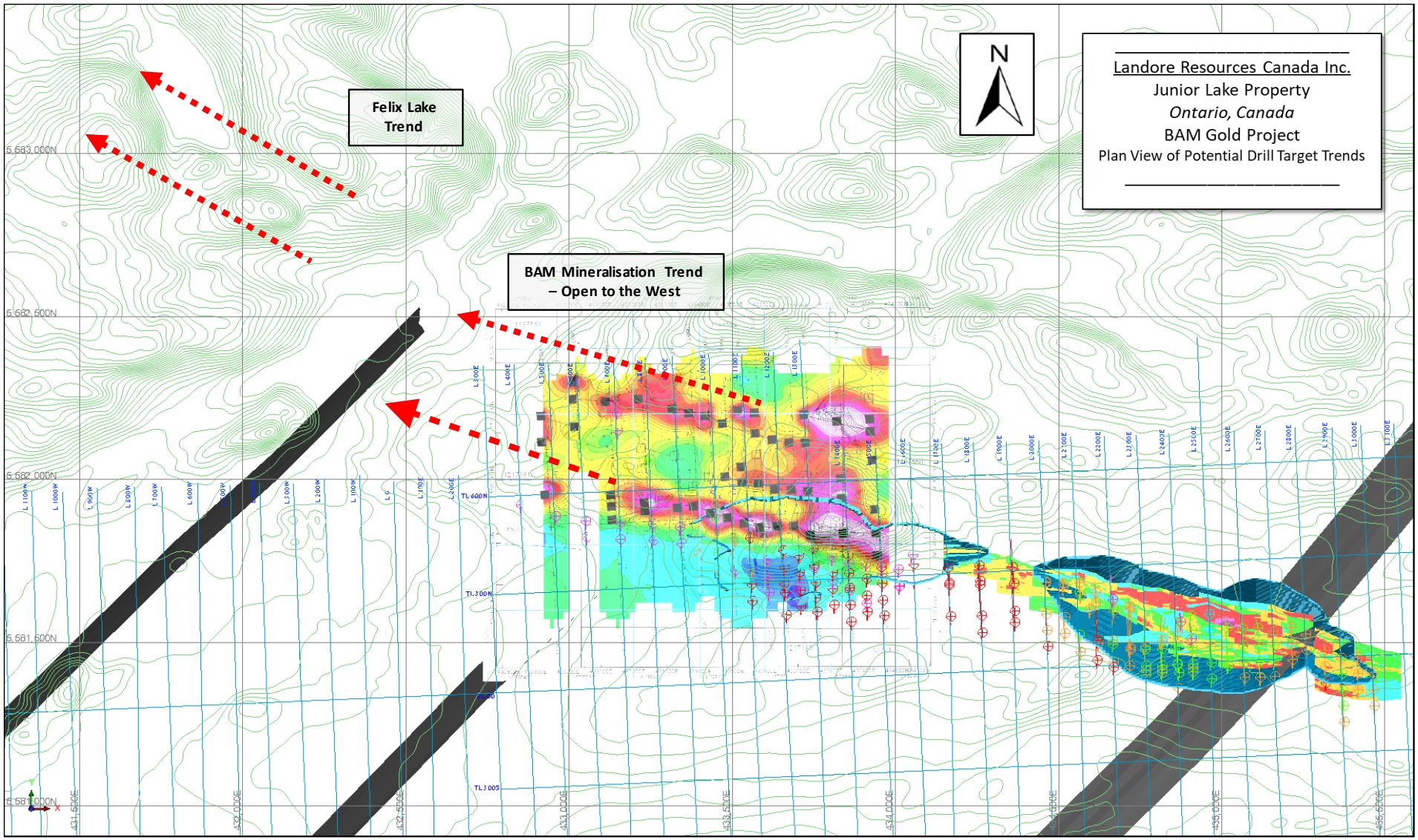


Figure 25-1: Plan View of Targets for Future Drill Testing for the BAM Gold Project (December 2019)

25.3.2. Junior Lake Property Exploration Potential

Based on exploration work completed by Landore up to December 2019, there is significant resource potential that clearly indicates follow up district scale exploration programs are warranted. There is potential for other gold mineralization targets along the 31 km strike length of the Junior Lake Shear (Lamaune) and historic discovery at Toronto Lake.

Lamaune Gold Prospect (RPA, 2018)

In 2010, Landore prepared a 3D model and a conceptual estimate for the Lamaune Gold Prospect using Inverse Distance to the power of three (ID^3) linear weighting of composite samples extracted from within the defined weak and high-grade mineralization zones (Brown, 2010). A specific gravity of 2.93 g/cm^3 was used for tonnage calculations. Low grade composites were not capped, and high-grade composites were capped at 30 g/t Au prior to estimation. A percent block model was used to represent the volumes contained within the constraining mineralization domains, based on a 5 m x 5 m x 5 m rotated block model. The estimate was not NI 43-101 compliant and was used for internal purposes only.

The RPA report noted that based upon the review of the existing drill hole and assay information, there is potential to find additional mineralization in this area that may total 50,000 tonnes to 100,000 tonnes and grade 4 g/t Au to 8 g/t Au.

It is important to note that the tonnage and grade of this exploration potential is conceptual in nature, that there has been insufficient exploration to define a mineral resource, and that it is uncertain if further exploration will result in the target being delineated as a Mineral Resource.

B4-7 Deposit (RPA, 2018)

Based upon its detailed review of the drill hole information, it was noted that good potential remains along the down-plunge direction of the B4-7 Deposit. In establishing its estimate of the exploration target, RPA considered the spatial configuration and trends of the grade distribution of the known mineralization, the location of those drill holes that form the limits of the B4-7 Deposits, the average thickness of that portion of the $62/t NSR mineralized wireframe that lies below the preliminary open pit shell, and the average densities of the available samples in this portion of the $62/t NSR wireframe model (Figure 25-2).

Based upon these criteria, it was recommended that additional drilling along the down-plunge extensions of the B4-7 Deposit has the potential to outline an additional 1.5 Mt to 2.0 Mt of sulphide mineralization of similar grades to that which has been outlined to-date. It is important to note that the potential quantity and grade is conceptual in nature, that insufficient exploration has been carried out in this area to define a Mineral Resource and that it is uncertain if further exploration will result in the target being delineated as a Mineral Resource.

Further detailed review of the drill hole information at shallow depths along the western strike projection of the $22/t NSR wireframe outline of the B4-7 Deposit led to the observation that the limits of the mineralization in this area is poorly defined by the existing drill holes.

RPA made the following conclusions:

- Potential exists to outline additional sulphide mineralization at shallow depths for a 150 m to 200 m long segment to the west of Section Line 0+00.
- Any such mineralization located in this area would have the potential of extending the western limit of the current preliminary open pit shell.

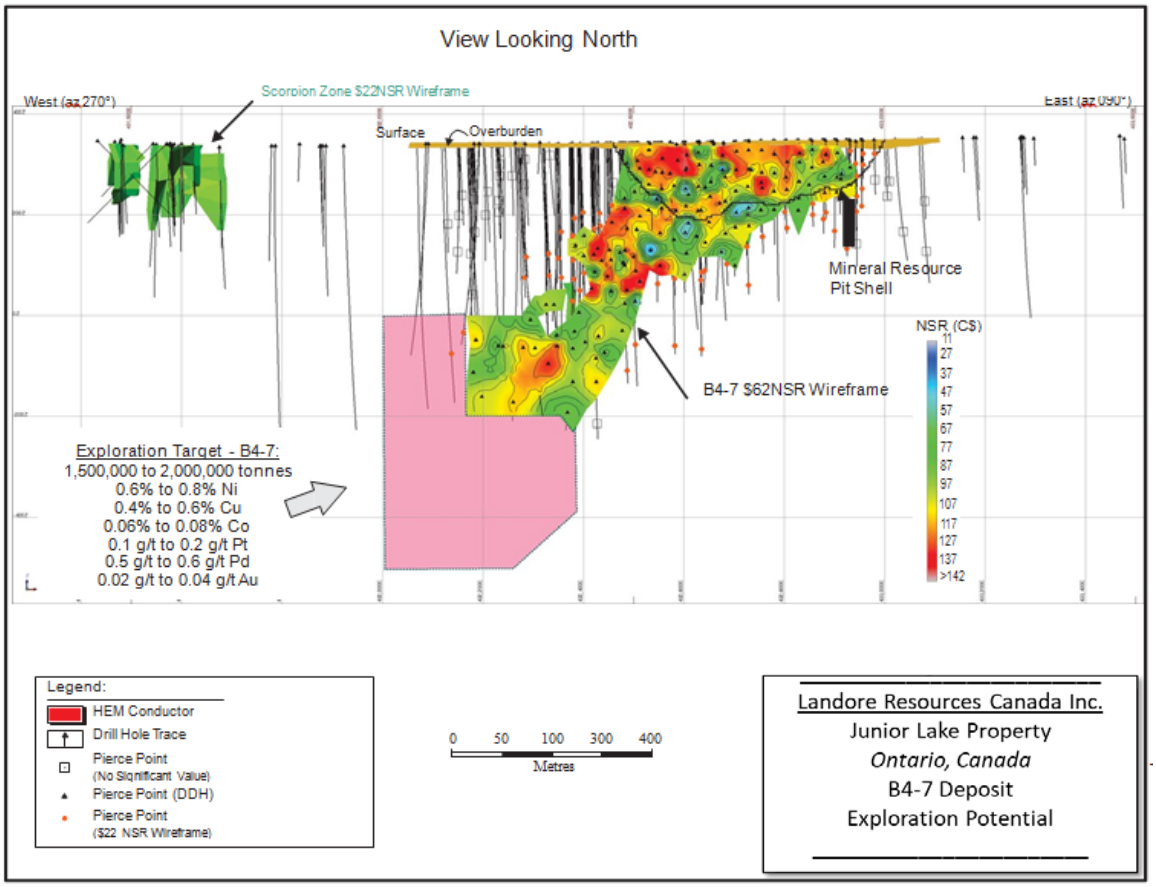


Figure 25-2: Cross Section View Showing Exploration Potential of the B4-7 Deposit (RPA, 2018)

B4-8 Conductor (RPA, 2018)

As part of its scope of work for the Junior Lake Project, RPA carried out preliminary compilations of available drilling, mapping and geophysical information along an approximately 10 km strike length of the Grassy Pond sill. Examination of the compiled information in the immediate area of the B4-7 Deposit and Alpha Zone shows that, while the known mineralization for the B4-7 Deposit correlates very well with the B4-7 Horizontal Loop conductor, a second conductor is located to the south and west (Figure 25-3)

This conductor is known as the B4-8 conductor and has been intersected by drill holes at depth. These drill holes have shown this conductor to be caused by narrow zones of massive sulphide mineralization. It was noted that the shallow portions of the B4-8 conductor have not been adequately tested by drilling and so there is potential to locate additional sulphide mineralization at shallow levels that could be exploited by means of open pit mining methods.

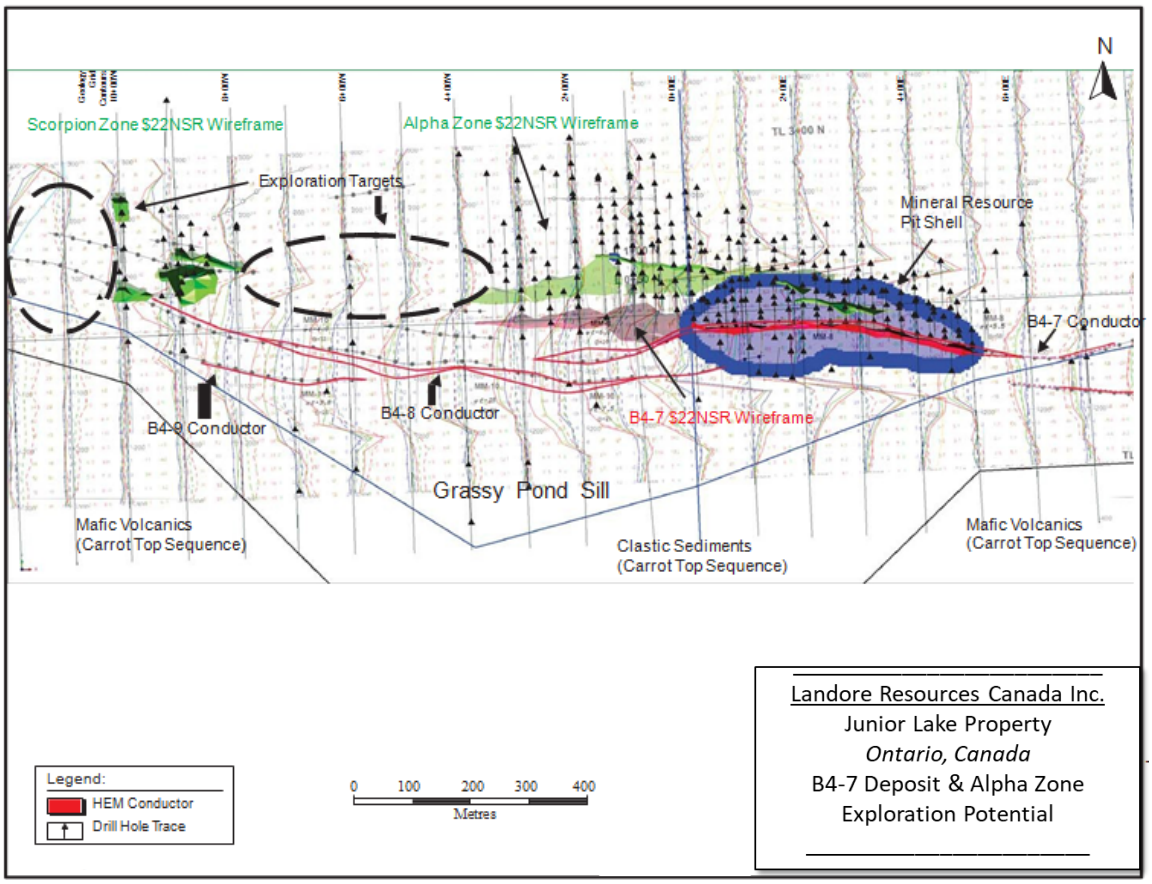


Figure 25-3: Plan View Showing Exploration Potential of the B4-7 Deposit and Location of B4-8 and Alpha Prospects (RPA, 2018)

Scorpion Zone (RPA, 2018)

Based upon its detailed examination of the drill hole information and modelling of the mineralization located at the Scorpion Zone, RPA noted that while the known mineralization in this area has not been of sufficient grade or continuity to be classified as a Mineral Resource, the immediate east and west strike extensions of this zone have not been defined by drilling. It was concluded that these two areas have the potential of hosting additional Alpha Zone style of mineralization that could be exploited by means of open pit mining methods.

26. Recommendations

Landore plans to focus on advancing the highly prospective targets within the Junior Lake Property. Significant exploration and drill testing is summarised as follows:

- Phase 1 - Exploration:
  - Infill soil sampling Felix Lake to BAM along the following local grid lines.
    - 5600W to 1000W (infill only)
    - 100W to 1000W
  - Establish grid east from 3100E to 5000E with subsequent exploration, ground geophysics and soil sampling.
- Phase 2 - Diamond Drilling at BAM:
  - Exploration drilling to follow-up on identified gold targets = 4000 m
  - Deep holes for depth potential = 3000 m
  - Resource infill and extension = 3000 m

Cube concurs with Landore's proposed work program on the Junior Lake Project. The Phases 2 drilling is not contingent on the Phase 1 results. The work program expenditure estimates are summarised in Table 26-1.

Table 26-1: Proposed Work Program for BAM (Landore, 2020)

Phase/Item	Estimated Budget (C$)
PHASE 1	
Gridding, soil geochemistry, ground geophysics, assaying	$ 150,000
Total - Phase 2	**$ 150,000**
PHASE 2	
Personnel and Logistics	$1,466,000
20,000 metres drilling, assays, access	$3,930,000
Studies and Consultants	$ 255,000
Sub Total Operations	**$5,651,000**
Management/Administration	$ 672,000
Total - Phase 2	**$6,323,000**

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28. Date and Signature Page

This Report titled "Mineral Resource Estimate on the BAM Gold Project, Junior Lake Property, Ontario, Canada" for Landore Resources Canada Inc. and dated 31/12/2019 was prepared and signed by the following authors.

Dated at Perth, Western Australia, Australia,

this 31st day of December 2019

Brian Fitzpatrick
B.Sc., MAusIMM CP (Geo)
Principal Geologist
Cube Consulting Pty Ltd

29. Certificates of Qualified Persons

I, Brian Fitzpatrick, do hereby certify that:

- I am a Principal Geologist with Cube Consulting Pty Ltd of 1111 Hay Street, West Perth, WA 6005.
- I am the lead author of the technical report titled “NI 43-101 Independent Technical Report (NI 43-101), Mineral Resource Estimate / Preliminary Economic Assessment, XYZ Project, Location, Country" and dated 31st day of December 2019 (the “Technical Report”) relating to Landore’s BAM Gold Project in Ontario, Canada.
- I am a Geologist, with a Bachelor of Science degree, majoring in Geology from the University of Tasmania graduating in 1985. I am a member of the Australasian Institute of Mining and Metallurgy (MAusIMM) with Chartered Professional accreditation (member number 203397). I have worked as a geologist for more than 33 years since my graduation from University.
- I am a Qualified Person as defined in NI 43-101, having more than 5 years of experience which is relevant to the style of mineralization and type of deposit described in the Technical Report, and to the activity for which I am accepting responsibility. Relevant experience has been gained from working in the gold and base metal mining and exploration industry in various provinces throughout Australia and other countries. This includes exploration, open pit and underground mining experience in greenstone hosted gold deposits, epithermal gold deposits and Volcanogenic Massive Sulphide (**VMS**) poly-metallic deposits.
- I conducted site visits of the BAM Gold Project area from 23 to 28 June 2018. The site visit included field inspection of the lithologies and mineralization outcropping at the project area, and inspection of core samples, sample preparation and data storage facilities at the Junior Lake property. Data verification and data validation on all the drilling data supplied for the current MRE was also conducted.
- I am responsible for the preparation of sections 1 to 12, 14, and 20 to 26 of the Technical Report.
- I am independent of Landore Resources Canada Inc. in accordance with Section 1.5 of NI 43-101.
- I have read NI 43-101 and Form 43-101F1 and the Technical Report has been prepared in compliance with that instrument and form.
- As of the date of this Technical Report and certificate, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated at Perth, Western Australia, Australia, this 31st day of March 2020.

Brian Fitzpatrick
B.Sc., MAusIMM CP (Geo)
Principal Geologist
Cube Consulting Pty Ltd

30. Abbreviations and Units of Measure

Units of measurement used in the report conform to the metric system, unless noted otherwise (Table 30-1). All costs in this study are expressed in Canadian dollars (C$ or $) unless noted otherwise.

Table 30-1 List of Abbreviations for Units of Measurement

Units	Description	Units	Description
a	annum	L	litre
A	ampere	lb	pound
bbl	barrels	L/s	litres per second
btu	British thermal units	m	metre
bcm	bank cubic metre	M	million
°C	degree Celsius	Ma	Millions of years
$ or C$	Canadian dollars	m^2	square metre
$US	US dollars	m^3	cubic metre
cal	calorie	µm	microns
cfm	cubic feet per minute	MASL	metres above sea level
cm	centimetre	µg	microgram
cm^2	square centimetre	m^3/h	cubic metres per hour
d	day	ml	millilitre
dia	diameter	mi	mile
dmt	dry metric tonne	min	minute
dwt	dead-weight ton	µm	micrometre
°F	degree Fahrenheit	mm	millimetre
ft	foot	mph	miles per hour
ft^2	square foot	Mt	Million tonnes
ft^3	cubic foot	Mtpa	million tonnes per annum
ft/s	foot per second	MVA	megavolt-amperes
g	gram	MW	megawatt
G	giga (billion)	MWh	megawatt-hour
Gal	Imperial gallon	oz	Troy ounce (31.1035g)
g/L	gram per litre	oz/st, opt	ounce per short ton
g/m^3	gram per cubic metre	P80-75µ	80% passing 75 µm

Units	Description	Units	Description
Gpm	Imperial gallons per minute	%	Percentage
g/t	gram per tonne	ppb	part per billion
gr/ft^3	grain per cubic foot	ppm	part per million
gr/m^3	grain per cubic metre	psia	pound per square inch absolute
ha	hectare	psig	pound per square inch gauge
hp	horsepower	RL	reduced level
hr	hour	s	second
Hz	hertz	st	short ton
" or in.	inch	stpa	short ton per year
in^2	square inch	stpd	short ton per day
J	joule	t or T	metric tonne
k	kilo (thousand)	t/m^3	tonnes per cubic metre
kcal	kilocalorie	tpa	metric tonne per year
kg	kilogram	tpd	metric tonne per day
kg/t	kilogram per tonne	US$	United States dollar
km	kilometre	USg	United States gallon
km^2	square kilometre	USgpm	US gallon per minute
km/h	kilometre per hour	V	volt
koz	Thousand ounces	W	watt
kPa	kilopascal	wmt	wet metric tonne
kVA	kilovolt-amperes	wt%	weight percent
kW	kilowatt	yd^3	cubic yard
kWh	kilowatt-hour	yr	year