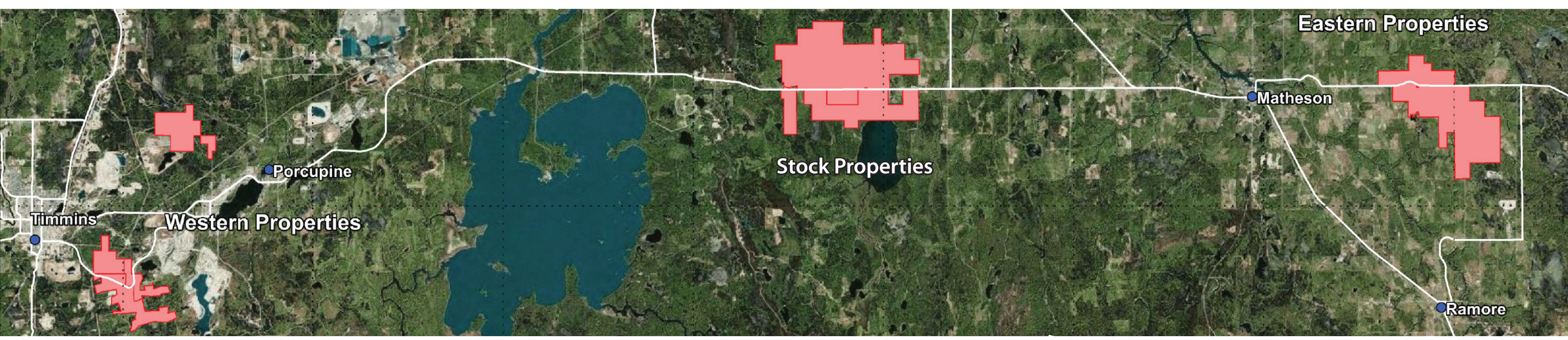
TECHNICAL REPORT SUMMARY ON THE INITIAL ASSESSMENT OF THE FOX COMPLEX Ontario, Canada



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Prepared by:

William Bagnell, P. Eng., Wood

Benoit Bissonnette, P.Eng., Wood

Adam Coulson, P.Eng., Wood

Sheila Daniel, P.Geo., Wood

Daniel Downton, P.Geo., McEwen

Lewis Kitchen, P.Eng., Wood

Channa Kumarage, P.Eng., McEwen

Aleksandr Mitrofanov, P.Geo., SRK

Eric Sellars, P.Eng., SLR

Steven Sibbick, P.Geo., Wood

Kenneth Tylee, P.Geo., McEwen

W. David Tyler, RM SME, Gingerquill Consulting

Piers Wendlandt, P.E., Wood

DATE AND SIGNATURE PAGE

The following Qualified Persons prepared this technical report summary, entitled "Technical Report Summary on the Initial Assessment of the Fox Complex Ontario, Canada" and confirm that the information in the technical report summary is current as at December 31, 2021.

/s/ William Bagnell

William Bagnell, P.Eng., Wood

/s/ Aleksandr Mitrofanov

Aleksandr Mitofanov, P.Geo., SRK

/s/ Benoit Bissonnette

Benoit Bissonnette, P.Eng., Wood

/s/ Eric Sellars

Eric Sellars, P.Eng., SLR

/s/ Adam Coulson

Adam Coulson, P.Eng., Wood

/s/ Steven Sibbick

Steven Sibbick, P.Geo., Wood

/s/ Sheila Daniel

Sheila Daniel, P.Geo., Wood

/s/ Kenneth Tylee

Kenneth Tylee, P.Geo., McEwen

/s/ Daniel Downton

Daniel Downton, P.Geo., McEwen

/s/ W. David Tyler

W. David Tyler, RM SME, Gingerquill Consulting

/s/ Lewis Kitchen

Lewis Kitchen, P.Eng., Wood

/s/ Piers Wendlandt

Piers Wendlandt, P.E., Wood

/s/ Channa Kumarage

Channa Kumarage, P.Eng., McEwen

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1.0 Executive Summary

1.1 Introduction

McEwen Mining Inc. (McEwen) engaged Wood Canada Limited (Wood), SLR Consulting (Canada) Ltd., and SRK Consulting (Canada) Inc. (SRK), together with McEwen, to prepare a technical report summary (Report) on an initial assessment (IA) study for the Fox Complex Expansion (Project) located in Northern Ontario, Canada. The Project comprises several gold bearing properties, including the Black Fox Mine and Froome Mine, Tamarack, Grey Fox (Eastern properties), Stock West and Stock East, and the Western properties, including Fuller, Davidson-Tisdale, Buffalo-Ankerite and Paymaster.

1.2 Terms of Reference

The Report is being used by McEwen as a preliminary technical and economic study of the economic potential of the mineralization to support disclosure of Mineral Resources. The IA includes appropriate assessments of reasonably assumed technical and economic factors, together with any other relevant operational factors, that are necessary to demonstrate at the time of reporting that there are reasonable prospects for economic extraction. The IA does not support disclosure of Mineral Reserves; however, it is used to identify work required to advance the Project.

In order to show the business case for the mine expansion from the current Froome operations, the economics of the mine expansion are broken out from the full mine plan and shown separately. The costs of the expansion and the additional revenue from the expansion are presented, including the net present value (NPV), internal rate of return (IRR), and Payback Period.

Mineral Resource estimates were prepared in accordance with the Subpart 229.1300 – Disclosure by Registrants Engaged in Mining Operations (S-K 1300). Definitions of mining technical terms used in the IA, including those for Mineral Resources, are in accordance with Item 1300 of Regulation S-K.

Using the Item 1300 definitions of Regulation S-K the Fox Complex is defined as an Exploration Stage Property. The definition is determined by the fact that the Fox Complex has no Mineral Reserves. However, the Fox Complex is currently mining Mineral Resources and producing gold.

Unless otherwise noted, all measurements used in this Report are metric and currency is expressed in Canadian dollars ($).

1.3 Key Outcomes

Key financial inputs and outcomes of the Project, including the ongoing Froome operations, are presented in Table 1-1.

Table 1-1: Key Financial Inputs and Outcomes of the IA

Economics	Unit	Pre-Tax	After Tax
NPV @ 5%	US$M	227.6	175.0
LOM Average Annual Cashflow	US$M	29.8	23.0
LOM Cumulative Cashflow (undiscounted)	US$M	366.1	283.4
LOM Average Cash Costs	US$/oz	796.80	
LOM Average AISC	US$/oz	1,223.50	
Capital Costs	$M	437.5	
Gold Price Assumption*	US$/oz	1,650	
LOM	years	12.3	
Head Grade (Diluted)	g/t	4.06	
Average Recovery	%	89.5	
Average Annual Mining Rate	t/d	1,587	
Average Annual Gold Production	oz/year	71,980	
Total LOM Recovered Gold	oz	885,400	

Note: NPV = Net Present Value; LOM = Life-of-Mine; AISC = All-in sustaining cost. [1]Non-GAAP financial measures, such as average cash costs and AISC are common performance measures in the gold mining industry but do not have any standardized meaning under US GAAP. They are intended to provide additional information and should not be considered in isolation or as a substitute for measures of performance prepared in accordance with GAAP. There are limitations associated with the use of such non-GAAP measures. *Exception is the gold streaming price was applied to the portion of the Froome deposit that is subject to gold streaming agreement.

Readers are cautioned that the IA is preliminary in nature. It includes inferred mineral resources that are considered too speculative geologically to have modifying factors applied to them that would enable them to be categorized as mineral reserves, and there is no certainty that this economic assessment will be realized. Unlike Mineral Reserves, Mineral Resources do not have demonstrated economic viability. Inferred Mineral Resources make up 21.2% of the total tonnes of Mineral Resources, and 19.6% of the recoverable ounces of gold in the cashflows.

S-K 1300 permits the inclusion of Inferred Mineral Resources in the economic analysis provided that a version of the economic analysis that excludes the Inferred Mineral Resources is also presented. Table 1-2 shows the results of the economic analysis of the Fox Complex with Inferred Mineral Resources excluded from the mine plan.

Table 1-2: Key Financial Inputs and Outcomes of IA Excluding Inferred Mineral Resources

Economics	Unit	Pre-Tax	After Tax
NPV @ 5%	US$M	149.6	125.6
LOM Average Annual Cashflow	US$M	23.4	19.5
LOM Cumulative Cashflow (undiscounted)	US$M	212.6	177.8
LOM Average Cash Costs	US$/oz	836	
LOM Average AISC	US$/oz	1,223.60	
Capital Costs	$M	358.9	
Gold Price Assumption	US$/oz	1,650	
LOM	years	9.1	
Head Grade (Diluted)	g/t	4.28	
Average Recovery	%	88.7	
Average Annual Mining Rate	t/d	1,312	
Average Annual Gold Production	oz/year	57,718	
Total LOM Recovered Gold	oz	525,235	

1.4 Location, Surface Rights and Mineral Tenure

The Fox Complex consists of three groups of properties with historical and operating mines, and a processing facility (Figure 1-1) near the City of Timmins (Timmins) in northeastern Ontario, Canada. The Eastern group of properties is approximately 60 km east of Timmins and includes the operating Black Fox and Froome mines, the Tamarack deposit to the east, and the Gibson and Grey Fox property (Grey Fox) 7 km to the southeast. The historical Stock Mine, Stock West, Stock East deposit and Fox Mill, are centrally located in the Stock township 20 km west of the community of Matheson and 43 km east of Timmins. The Western group of properties includes four deposits: Buffalo Ankerite, Paymaster, Fuller and Davidson-Tisdale, located within the municipal boundaries of Timmins.

The properties of the Fox Complex consist of several blocks of land comprising 114 parcels representing either mining claims or leases and overlapping surface right parcels, for a total of approximately 4,763 ha of mining land and 2,821 ha of surface land. All the required fees and duties have been paid and the claims are in good standing.

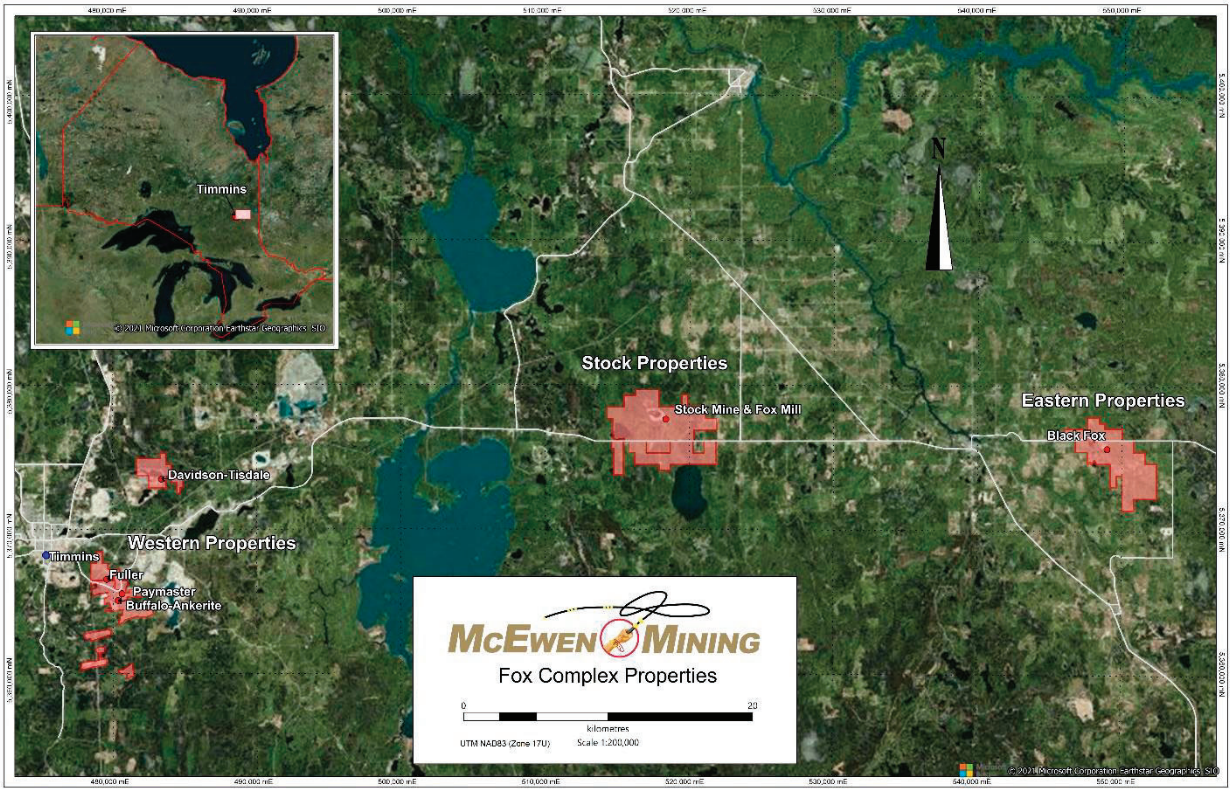

Figure 1-1: Fox Complex Properties (prepared by McEwen, dated 2021)

The Eastern property comprises 37 owned parcels with surface and/or mining rights, and eight mining leases covering 1,797 ha (4,441 acres). The Stock property comprises 28 owned parcels with surface and/or mining rights, and 17 mining leases covering 1,468 ha. McEwen owns 100% interest in the Buffalo Ankerite property, consisting of 11 owned parcels with surface and/or mining rights with an area of 485 ha. McEwen owns 100% interest in the Fuller property, consisting of four owned parcels with surface and/or mining rights covering an area of 210.2 ha. McEwen owns 61% interest in the Paymaster property, with the remaining 39% of mineral rights held by Newmont Mining Corporation (Newmont). Paymaster consists of 15 contiguous owned parcels covering 179.2 ha. The joint venture interest is limited to the property above the 4,075 level below surface. McEwen owns 100% interest in the Davidson-Tisdale property consisting of 14 owned parcels surface and/or mining rights covering 207.7 ha.

1.5 Royalties and Agreements

The Eastern properties are subject to several royalties, including:

- Two royalties at the Froome Mine, of which none are applicable to the current mine plan
- A 3% net smelter return (NSR) royalty at Tamarack
- Four royalties at Grey Fox, including a 3% NSR, 2.5% NSR, 0.15% NSR, as well as a 5% net profit interest (NPI) or sliding scale NSR royalty

The Black Fox Mine is not subject to any royalties.

The Stock property is subject to several royalties, with only the existing Stock Mine subject to a 1% NSR royalty. Both the Stock West and the Stock East deposits are not subject to royalties.

The Western properties are subject to royalties as shown in Appendix C. The Fuller project is subject to the Summit Organization Inc. NPI royalty of 10%. The Davidson-Tisdale project has no royalties in the location of Mineral Resources.

McEwen has agreements with First Nations, who have treaty and Indigenous rights which they assert within the operations area of the Eastern and Stock properties. An Impact Benefit Agreement is in place with the Wahgoshig First Nations for the Eastern properties, since 2011. The Métis Nation of Ontario was also consulted regarding the Eastern properties. McEwen does not currently have agreements with First Nations in the area of the Western properties; it is expected that agreements will be negotiated.

The Newmont agreement on the Eastern properties was originally made with Apollo Gold in 2009. Under Instrument Number CB56690, the agreement establishes that in the event McEwen desires to option, joint venture, assign, transfer, convey or otherwise dispose of any of its rights or interests in and to specific property near the Black Fox Mine, excluding a corporate merger transaction, McEwen shall promptly notify Newmont in writing of its intentions in order that Newmont may consider a possible acquisition from McEwen of a portion or all of McEwen's interest in the named Property.

The joint venture agreement with Newmont provided the framework for McEwen (as Lexam VG Gold) to earn their 61% interest in the Paymaster claims during the option term. The agreement provides for McEwen's management of exploration, development, and mining on the Paymaster property, down to the 4075 ft level, and the funding of that work on the Paymaster claims. Newmont holds 100% of the interest below that level.

A Goldstream agreement exists between McEwen and Sandstorm Resources Ltd (Sandstorm) whereby McEwen currently sells 8% of gold produced from the Froome Mine at a price of US$565.95/oz gold.

1.6 History

Exploration of the Fox Complex dates back as early as 1910 with the discovery of the Western properties. Trenching, diamond drilling, shaft sinking, drifting and limited mining were completed by the 1950s. Further diamond drilling and ramp extensions at Fuller began in the 1980s with additional work, including: metallurgical testing, surface and underground diamond drilling, excavation of drifts, cross-cuts and raises. Mineral Resource estimation has continued over the years by various owners. McEwen acquired the mineral rights to the Western properties from Lexam VG Gold Inc. (Lexam) in 2017.

Several companies have worked on the Grey Fox property since the 1930s, completing geological mapping, geological, magnetic and geophysical surveys, trenching, drilling, Mineral Resource estimates, as well as initiating an exploration decline ramp at Gibson. Historical production from the Glimmer Mine (now Black Fox) between 1997 and 2001 resulted in the production of 1.1 Mt at 5.97 g/t and approximately 211,000 oz of gold. Exploration at Froome began in 1991 with ground total field magnetometer and very-low frequency electromagnetic survey (EM) followed by geological mapping. The Tamarack base metal deposit was discovered more recently in 2003 with exploration drill holes.

Mineralization at the Stock property was discovered in 1961 with an initial shaft collared in the 1970s, and further deepened in the 1980s to complete underground drilling. St Andrew Goldfields (St Andrew) developed the Stock Mine and Stock Mill (now Fox Mill) in the late 1980s and continued mining on and off until 2005. During production, approximately 831,000 t of material was milled at 5.48 g/t, recovering 137,000 oz of gold.

McEwen acquired the Eastern properties, Stock, and all of its assets from Primero Mining Corporation (Primero) in 2017.

1.7 Geology and Mineralization

The Fox Complex properties are underlain by Precambrian rock of the Southern Abitibi Greenstone Belt (SAGB), located in the central part of the Wawa-Abitibi Sub-province, southeastern Superior Province, of northeastern Ontario. T he SAGB consists of numerous intercalated assemblages of 2750 to 2695 Ma metavolcanic rocks and their intrusive equivalents, which are unconformably or disconformably overlain by the younger 2690 to 2685 Ma Porcupine and 2677 to 2670 Ma Timiskaming metasedimentary assemblages and alkalic intrusive rocks.

Major crustal-scale faults, such as the Porcupine-Destor Deformation Zone (PDDZ) and Cadillac-Larder Lake Deformation Zone (CLDZ) commonly occur at assemblage boundaries and are spatially associated with east-trending belts of Porcupine and Timiskaming assemblage metasedimentary rocks. These major faults record multiple generations of deformation, including normal, strike-slip, and reverse movements. The PDDZ and CLDZ define a corridor of gold deposits, generally known as the Timmins-Val D'Or camp, which accounts for the bulk of historic and current gold production from the Superior Province.

Several important secondary structures occur in the vicinity of the Black Fox Mine, most notably the Gibson-Kelore Deformation Zone (GKDZ), previously known as the Hislop Fault, which is one of the most recognizable structural features on the Black Fox property. Geophysical surveys indicate that this splay departs the regional track of the PDDZ and trends south-eastwards for approximately 4 to 5 km, passing off the southern property limits. The Arrow Fault is a local name applied to a shear zone striking 085° located near the south limit of the Grey Fox cluster of exploration targets. The fault is defined by a prominent linear disruption in airborne magnetic patterns and corresponds to sheared rock on the ground. The southwest-trending Nighthawk Lake Break bifurcates/splays away from the main PDDZ in the vicinity of the Stock East deposit and has been traced by regional geophysical survey responses for approximately 15 km into the historically mined and explored Nighthawk peninsula area.

The Fox Complex properties are essentially underlain by these three assemblages: 1) Tisdale volcanic sequence, 2) Porcupine clastic sediments, and the 3) irregular (less abundant) Timiskaming assemblage. The Tisdale Assemblage volcanics are typically found adjacent to the PDDZ structural belt running for 200 km between the towns of Foleyet (Ontario) and Destor (Quebec). These volcanic rocks are dominantly comprised of tholeiitic mafic and komatiitic metavolcanic rocks with subordinate calc-alkaline intermediate and felsic flows, pyroclastic and epiclastic deposits. The Porcupine Assemblage is composed of wacke, siltstone, argillite, and rare pebble conglomerate. Gabbro, quartz-feldspar porphyry, syenite stocks and lamprophyre dykes intruded the metasedimentary rocks. Rare felsic metavolcanic tuff is interbedded with the metasedimentary rocks in Beatty Township. The Porcupine Assemblage is widespread in the Abitibi Sub-province and, in general, the youngest detrital zircons are approximately 2695 Ma. The Timiskaming Assemblage is composed of clastic metasedimentary rocks that lay unconformably over older metavolcanic rocks and/or Porcupine Assemblage rocks and less abundant alkaline extrusive and intrusive rocks. Throughout the SAGB, the Timiskaming assemblage clastic metasedimentary occur as conglomerate, wacke-sandstone, siltstone, argillite, and schist, and are closely associated with the PDDZ.

Gold mineralization at both the Eastern properties and Stock is part of a metallogenetic domain, and shares similarities with ultramafic-hosted and associated deposits that occur along the Destor-Porcupine corridor between Nighthawk Lake and the Black Fox Mine to the east. Known mineralization at Froome is hosted within an intensely altered, steeply to the southwest-dipping metasedimentary unit, up to 40 m true width, within the GKDZ. The upper 200 m of the unit is mineralized throughout, with mineralization becoming less predictable and more proximal (within 10 m) of the hanging wall contact. Lead, zinc, and silver mineralization at Tamarack is preferentially located in the hanging wall of the quartz breccia, occurring as either: a) stringers, disseminations, and semi-massive knots, clusters and bands of sphalerite and galena hosted within both the volcanic and sedimentary rock units, b) as clasts in quartz breccias; and, c) as inclusions and fragments within adjacent diabase dykes. Gold mineralization is preferentially hosted within the quartz breccia, occurring as fine visible gold and in association with disseminated fine-grained pyrite. The mineralization observed on the Grey Fox property occurs in association with quartz-carbonate veins which are often sheeted and occur at shallow to moderate core axis angles in drill holes which are drilled from east to west with westerly azimuths, which is the dominant drilling direction. The veins in examined drill intersections form closely spaced sets 0.2 to 10 cm thick. Veins often have a complex, multi-generational history. The Stock Mine deposits have a moderate west plunge defined by the lenticular to lobe-like shapes of hosting mafic volcanic rocks and surrounding carbonate alteration envelope. These are surrounded by lenses of highly-strained, talc-chlorite ultramafic rocks. The main minerals of the gold-bearing zones found in and around the Western properties are quartz, carbonates, alkali feldspar (most commonly albite), sericite, pyrite, tourmaline, arsenopyrite, scheelite, and molybdenite. Pyrrhotite is common in the deep parts of deposits, as well as in deposits hosted in banded iron formation. Arsenopyrite seems to be common in deposits hosted in sedimentary rocks.

1.8 Drilling and Sampling

Relevant drilling completed on the Project includes core holes completed by McEwen and those drilled prior to their involvement. A total of 7,329 core holes (1,064,158 m) have been drilled on the Black Fox Mine since 1989. Holes drilled by McEwen since 2018 total 1,287 (192,924 m). Drilling at Froome during the period of 2000 to present day consists of 374 core holes (117,308 m). Holes drilled by McEwen since 2018 total 153 (51,364 m). A total of approximately 1,469 core holes (546,868 m) have been drilled on the Grey Fox-Hislop area by several operators since 1993. Holes drilled by McEwen since 2018 total 296 (118,885 m). A total of 181 core holes (66,103 m) have been drilled on the Tamarack deposit since 2003. A total of 322 (128,092 m) have been drilled on the Stock property since 1983. Holes drilled by McEwen since 2018 total 272 (113,287 m). A total of 632 core holes (75,116 m) and 691 (80,026 m), respectively have been drilled on the Fuller and Davidson-Tisdale properties since before 1983. McEwen has not completed any drilling on the Western properties.

Logging software replaced paper logging in and around 2015. Logging typically identifies the main lithological unit, alteration, mineralization style and structural features. Core recoveries from 85% have been recorded through bedrock, competent mafic volcanic flows or hard, unfractured felsic intrusive rocks.

Drill hole collars have been surveyed using transit (prior 1980), hand-held global positioning system (GPS), differential GPS tools, and more recently with Reflex instruments TN-14 gyroscopic tools. Downhole surveys have used Tropari/Pajari or acid methods (1990s) and more recently, Reflex Instrument EZ Gyro or multi-shot Sprint orientation tools.

Since 2018, McEwen has obtained specific gravity determinations from the primary assay laboratory using gravimetric and pycnometric procedures. Existing drill hole databases for the Eastern properties prior to McEwen ownership contained density measurements used for Mineral Resource estimation. Specific gravity measurements were determined for Fuller and Paymaster drill core between 2006 and 2012, converted to density values and used in Mineral Resource estimation.

Several independent commercial laboratories have been used for analyzing samples from the Eastern properties since 1993, including Swastika Laboratory (Swastika, Ontario; 1993 to 1995; 2005 to 2008; 2014 to 2016), Techni-Lab (Ste. Germaine Boulé, Quebec; 1995 to 2002), SGS Canada (Toronto, Ontario; 2003 to 2005; 2012 to 2014; 2016 to 2017), PolyMet Laboratories (PolyMet, Cobalt, Ontario; 2012 to 2017), Cattarello Assayers (Timmins, Ontario; 2012), Accurassay Laboratories (Thunder Bay, Ontario; 2012 to 2018), Geosol Lakefield (ALS, Lakefield, Ontario; 2012; 2015 to 2017), AGAT Laboratories (AGAT, Timmins and Mississauga, Ontario; 2012 to 2015; 2019 to 2020), Activation Laboratories (Actlabs, Timmins, Ontario; 2014 to 2017), ALS (Timmins and Toronto, Ontario; Vancouver, British Columbia; 2018 to 2020).

Prior to the installation of the mine laboratory, Techni-Lab provided sample preparation of a 30 g sample and completed a FA of the sample.

Laboratories prepared dried samples by crushing, riffle splitting to 250 g, pulverizing the crushed, and splitting the 250 g sample.

SGS Canada, PolyMet, Accurassay Laboratories, ActLabs analyzed gold using a 30 g lead fire assay (FA) with an atomic absorption (AA) finish with samples greater than 10 ppm gold sent for lead FA with gravimetric finish while ALS used 50 g packets. AGAT used a 30 g lead FA with an optical emission spectrometer (ICP-OES) finish with samples greater than 10 g/t gold sent for lead FA with gravimetric finish.

The Stock Laboratory was operated and utilized by St Andrew for preparation and analysis of Stock (Main, East and West) samples between 1987 and 1994 and was not independent or an accredited laboratory. Dried samples were crushed, riffle split to between 250 and 300 g, pulverized to prepare a 30 g sample that was treated by FA. High-grade samples were re-treated using a gravimetric finish. ALS, AGAT and Actlabs have since been used by McEwen using the methods described above.

Swastika, ALS and Expert have been used to prepare and analyze samples from the Western properties. Dried samples were crushed, riffle split to between 250, pulverized to prepare a 30 g sample that was assayed for gold by FA-ICP finish at ALS and by FA-atomic absorption spectroscopy (AAS) finish at Expert and Swastika. Gold values greater than 10 ppm were re-analyzed by FA with gravimetric finish at ALS.

McEwen have employed a quality assurance (QA) quality control (QC) program of certified reference materials (CRMs), blanks and duplicates at a rate of one per 20 samples. Additionally, check assays were submitted to an umpire laboratory. Duplicate sample insertion was discontinued in 2019 after an external audit showed laboratory duplicates would be sufficient. Previous owners (from 2010) of the Eastern properties implemented similar QA/QC protocols. A QA/QC review of samples prior to 2010 showed substandard procedures; however, conclusions were made to suggest that no material risk to the Mineral Resource estimate is present. At Stock, it has been recorded that St Andrew maintained QA/QC protocol between 2011 and 2015 whereby blanks and CRMs were included on the basis of one sample in each 20 samples submitted, while check assays were processed to an umpire laboratory. At the Western properties, previous owners did not undertake their own QA/QC, but rather relied on the laboratory's internal QA/QC program, which consisted of one standard and duplicate for every 20 assays. Additionally, 10% of all samples were submitted to an umpire laboratory for check analysis.

1.9 Data Verification

The current Mineral Resource estimation QP conducted an independent spot check review of the data, which consisted of a visual inspection of drill collars and deviation surveys, a review of analytical QA/QC statistics, and random spot-checks on a limited number of database assay results versus assay laboratory certificate reports. The QP is satisfied that the 2017 and prior data is acceptable for use in the current Mineral Resource estimate.

Since 2017, McEwen directly adds drill hole logging data to a central SQL database as it is collected. All drill hole collar locations are either professionally surveyed with underground collar locations surveyed using a Total Station and underground chip samples measured from surveyed reference points. In April 2020, a check survey of 25% of the Froome collars was conducted and a minor adjustment to the calculated coordinates was performed based on the results. Drill holes are surveyed using a down hole instrument with data monitored, verified, and validated by McEwen's geology team prior to import into the main database. Data are then imported into a three-dimensional (3D) geological modelling software where the de-surveying process checks for overlapping or missing data, and a visual check is completed to ensure no significant errors are included.

QA/QC assay samples are regularly inserted into, and analyzed with, the drill hole and production chip samples. Check samples of second splits of the final prepared pulverized samples are routinely resubmitted to a secondary laboratory. Overall, McEwen found the results acceptable.

In 2018, McEwen undertook a core re-sampling program of data collected by St Andrew at Stock East and found there was a reasonable correlation between the original assay and the re-assays, therefore the data was acceptable for use in Mineral Resource estimation. A selection of drill hole collars and survey monuments were also resurveyed by a professional surveying firm to ensure that the holes were accurately transferred from the Stock Mine grid to UTM coordinates.

As part of the data verification process for Fuller, the Mineral Resource estimation QP visited the site and reviewed some of the historical drilling information, including drill logs and laboratory certificates; reviewed the drill core from 1996 to 1998 and from 2004 to 2012; and validated the collar position for historical drilling. Additionally, the QP reviewed the data verification documented in the 2014 RPA technical report (Altman et al, 2014) and conducted several additional checks to verify the quality of the drilling data collected, including a combined dataset for all Western properties that included QA/QC information between the exploration period 2010 and 2012.

As part of the data verification process for Davidson-Tisdale, the Mineral Resource estimation QP visited the historical drilling information, including drill logs and laboratory certificates supported by McEwen representatives, reviewed the drill core from 2003 to 2007 and 2010, and validated several historical drilling collars. Additionally, the QP reviewed the data verification documented in the most recent technical reports by Wardrop (Naccashian et al., 2007) and RPA (Altman et al., 2014) and reviewed a combined dataset that included QA/QC information for all Western properties between the exploration period 2010 and 2012.

All QPs have reviewed the analytical QC procedures and data and confirm that the analytical results are reliable for informing the current Mineral Resource estimates presented in Chapter 11.

1.10 Metallurgical Testwork

The bulk of the metallurgical testwork was conducted prior to McEwen. All deposits of the Fox Complex are gold-bearing and will feed the Fox Mill. Some mineralized zones contain free gold. Preliminary testwork has shown this gold mineralization to be amenable to grind and cyanide leach recovery, the same process at the Fox Mill. Results are supportive of assumptions used and detailed metallurgical testwork is ongoing.

Metallurgical testing for Froome was first performed in 2017 by ALS Metallurgy (ALS) including comminution tests and bottle roll leach tests. Results showed the material to be very hard and moderately abrasive. Leach kinetics at various grind sizes was evaluated and identified a well-defined linear relationship between grind size and recovery.

Metallurgical testing for Grey Fox was first performed in 2013 by SGS on samples from the 147 Zone and Contact Zone. Master Composites and eight variability samples were tested for head analysis, mineralogy, comminution characterization, bulk cyanidation, and environmental testing. A second mineralogical and metallurgical characterization program was carried out by

XPS Consulting & Testwork Services (XPS) in 2013 to confirm gold recovery from additional variability samples. Results showed that both zones are very hard, with Contact Zone to be medium abrasive and 147 Zone to be abrasive. Overall, the 147 Zone samples averaged 88% gold recovery and Contact Zone averaged 81%. Although overall recoveries are generally lower, Contact Zone composites had faster leach kinetics. The main driver of higher recoveries is higher head grade; recovery curves for both zones are based on head grade. Recovery is negatively impacted by pyrite-associated gold. Lithology does not appear to be a major factor in determining metallurgical performance.

Metallurgical testing for the other Grey Fox zones continued with South Zone at XPS in 2014. Gold grade drives recovery, and sulphur content negatively affects recovery with recoveries ranging from 73 to 89%. There was no significant difference in recovery between lithologies. Overall, gold recoveries were marginally lower than the 147 Zone. South Zone has higher Bond work indices (BWI's) ranging between 24 to 27.

Testing of the Grey Fox Whiskey Jack Zone is currently ongoing.

The Fuller deposit belonged to Vedron when some of the historical metallurgical test programs were completed. Grade was a driving factor for gold recovery with higher grade composites ranging from 93 to 98% and other composites ranging from 82 to 89%. The BWI of one composite indicated a relatively soft rock.

Stock Main performed well with the same plant, that now has some minor upgrades, based on discussion with operators from that time. Testing of Stock West is currently ongoing.

1.11 Mineral Resource Estimate

Mineral Resources have been updated for: Black Fox, Froome, Grey Fox, Stock West and Stock East (McEwen), Tamarack, Fuller and Davidson-Tisdale (SRK). Generally, blocks within modelled mineralized domains were estimated with capped composites using ordinary kriging. Mineral Resource estimates are based on underground mining scenarios with cut-off grades determined by considering metal price, mining, process, general and administrative (G&A) and selling costs, mining dilution, process recovery and royalties where relevant. Mineral Resource statements presented in Table 1-3 to Table 1-10 are reported in accordance with the definitions in S-K 1300.

Common factors that could affect the Mineral Resource estimates include: changes to the local geological interpretations and assumptions used to generate the estimation domains, mineralization and geological geometry and continuity of mineralized zones; changes to the treatment of high-grade values, interpolation methodology and confidence assumptions for classification; density assignment; metal price, exchange rates and other economic parameters used in the cut-off grade determination; mining, metallurgical and other design assumptions; and changes to assumptions made to the continued ability to access the mine site, retain mineral and surface rights titles, maintain the operation within environmental and other regulatory permits and maintain social license to operate.

Table 1-3: Black Fox Mineral Resource Statement, 1 May 2021

Classification	Tonnes, kt	Au Grade, g/t	Contained Au, koz
Measured	284	5.58	51
Indicated	97	5.21	16
Total Measured + Indicated	**381**	**5.48**	**67**
Inferred	204	5.57	36

Note: (1) Date of the Mineral Resource estimate is 1 May 2021. The QP for the estimate is Mr. Daniel Downton, P.Geo, an employee of McEwen

(2) Mineral Resources are reported using the S-K 1300 definitions. Unlike Mineral Reserves, Mineral Resources do not have demonstrated economic viability

(3) Mineral Resources are reported above an economic cut-off grade of 3.10 g/t gold assuming underground extraction methods and based on a mining cost of $141.08/t, process cost of $24.34/t, G&A cost of $10.50/t, haulage cost of $4.70/t, refining cost of $1.82/oz, metallurgical recovery of 96%, dilution of 15% and gold price of US$1,725/oz

(4) Figures may not sum due to rounding.

Table 1-4: Froome Mineral Resource Statement, 16 July 2021

Classification	Tonnes, kt	Au Grade, g/t	Contained Au, koz
Measured	790	4.47	113
Indicated	641	3.92	81
Inferred	276	3.32	29

Note: (1) Date of the Mineral Resource estimate is 16 July 2021. The QP for the estimate is Mr. Daniel Downton, P.Geo, an employee of McEwen

(2) Mineral Resources are reported using the S-K 1300 definitions. Unlike Mineral Reserves, Mineral Resources do not have demonstrated economic viability

(3) Mineral Resources are reported above an economic cut-off grade of 2.35 g/t gold assuming underground extraction methods and based on a mining cost of $80/t, process cost of $24.34/t, G&A cost of $10.50/t, haulage cost of $4.70/t, refining cost of $1.82/oz, metallurgical recovery of 87%, royalty buyout of $1.21/t, dilution of 15% and gold price of US$1,725/oz

(4) Figures may not sum due to rounding.

Table 1-5: Grey Fox Mineral Resource Statement, 31 January 2021

Classification	Tonnes, kt	Au Grade, g/t	Contained Au, koz
Indicated	7,566	4.80	1,168
Inferred	1,685	4.35	236

Note: (1) Date of the Mineral Resource estimate is 31 January 2021. The QP for the estimate is Mr. Daniel Downton, P.Geo, an employee of McEwen

(2) Mineral Resources are reported using the S-K 1300 definitions. Unlike Mineral Reserves, Mineral Resources do not have demonstrated economic viability

(3) Mineral Resources are reported above an economic cut-off grade of 2.30 g/t gold assuming underground extraction methods and based on a mining cost of $80/t, process cost of $24.34/t, G&A cost of $10.50/t, haulage cost of $5.64/t, refining cost of $1.82/oz, metallurgical recovery of 85%, royalty NSR of 2.65%, dilution of 15% and gold price of US$1,725/oz

(4) Figures may not sum due to rounding.

Table 1-6: Tamarack Mineral Resource Statement, 30 April 2021

Classification	Tonnes , kt	Grade					Contained Metal			
		AuEq, g/t	Au, g/t	Ag, g/t	Pb, %	Zn, %	Au, koz	Ag, koz	Pb, kt	Zn, kt
Indicated										
Upper Lens	672	3.62	1.70	19	0.60	2.84	37	417	4	19
Lower Lens	382	3.15	1.51	22	1.12	1.76	19	274	4	7
Total Indicated	**1,055**	**3.45**	**1.63**	**20**	**0.79**	**2.45**	**55**	**692**	**8**	**26**

Note: (1) Date of the Mineral Resource estimate is 30 April 2021. The QP for the estimate is Dr. Aleksandr Mitrofanov, P.Geo, an employee of SRK

(2) Mineral Resources are reported using the S-K 1300 definitions. Unlike Mineral Reserves, Mineral Resources do not have demonstrated economic viability

(3) Mineral Resources are reported above an economic cut-off grade of 2.00 g/t AuEq assuming underground extraction methods and based on a mining cost of $90/t, process cost of $24.55/t, G&A cost of $10.50/t, haulage cost of $5.64/t, metallurgical recovery of 100% for all metals, dilution of 10% and gold price of US$1,725/oz, silver price of US$21.85/oz, lead price of US$1.05/lb and zinc price of US$1.27/lb

(4) The AuEq value was calculated using the following formula: AuEq = Au + Ag * 0.0127 + Pb * 0.4174 + Zn * 0.5048

(5) Figures may not sum due to rounding

Table 1-7: Stock East Mineral Resource Statement, 30 April 2021

Classification	Tonnes, kt	Au Grade, g/t	Contained Au, koz
Indicated	1,232	2.41	95
Inferred	21	2.32	2

Note: (1) Date of the Mineral Resource estimate is 30 April 2021. The QP for the estimate is Mr. Daniel Downton, P.Geo, an employee of McEwen

(2) Mineral Resources are reported using the S-K 1300 definitions. Unlike Mineral Reserves, Mineral Resources do not have demonstrated economic viability

(3) Mineral Resources are reported above an economic cut-off grade of 1.67 g/t gold assuming underground extraction methods and based on a mining cost of $60.61/t, process cost of $18.60/t, G&A cost of $7.95/t, metallurgical recovery of 94%, and gold price of US$1,725/oz.

(4) Mineral Resources include the 'must take' minor material below cut-off grade which is interlocked with masses of blocks above the cut-off grade within the mineable shape optimizer stopes

(5) Figures may not sum due to rounding.

Table 1-8: Stock West Mineral Resource Statement, 30 July 2021

Classification	Tonnes, kt	Au Grade, g/t	Contained Au, koz
Indicated	1,171	3.83	144
Inferred	1,049	3.30	111

Note: (1) Date of the Mineral Resource estimate is 30 July 2021. The QP for the estimate is Mr. Daniel Downton, P.Geo, an employee of McEwen

(2) Mineral Resources are reported using the S-K 1300 definitions. Unlike Mineral Reserves, Mineral Resources do not have demonstrated economic viability

(3) Mineral Resources are reported above an economic cut-off grade of 1.95 g/t gold assuming underground extraction methods and based on a mining cost of $80/t, process cost of $24.34/t, G&A cost of $10.50/t, refining cost of $1.82/oz, metallurgical recovery of 94%, dilution of 15% and gold price of US$1,725/oz

(4) Figures may not sum due to rounding.

Table 1-9: Fuller Mineral Resource Statement, 30 April 2021

Classification	Tonnes, kt	Au Grade, g/t	Contained Au, koz
Indicated	1,149	4.25	157
Inferred	693	3.41	76

Note: (1) Date of the Mineral Resource estimate is 30 April 2021. The QP for the estimate is Dr. Aleksandr Mitrofanov, P.Geo, an employee of SRK

(2) Mineral Resources are reported using the S-K 1300 definitions. Unlike Mineral Reserves, Mineral Resources do not have demonstrated economic viability

(3) Mineral Resources are reported above an economic cut-off grade of 2.30 g/t gold assuming underground extraction methods and based on a mining cost of $90/t, process cost of $24.55/t, G&A cost of $10.50/t, haulage cost of $6.64/t, metallurgical recovery of 88%, 10% NPI royalty, dilution of 10% and gold price of US$1,725/oz

(4 Figures may not sum due to rounding.

Table 1-10: Davidson-Tisdale Mineral Resource Statement, 30 April 2021

Classification	Tonnes, kt	Au Grade, g/t	Contained Au, koz
Measured	200	7.25	47
Indicated	75	6.42	15
Total M+I	**275**	**7.02**	**62**
Inferred	105	4.35	15

Note: (1) Date of the Mineral Resource estimate is 30 April 2021. The QP for the estimate is Dr. Aleksandr Mitrofanov, P.Geo, an employee of SRK

(2) Mineral Resources are reported using the S-K 1300 definitions. Unlike Mineral Reserves, Mineral Resources do not have demonstrated economic viability

(3) Mineral Resources are reported above an economic cut-off grade of 2.20 g/t gold assuming underground extraction methods and based on a mining cost of $90/t, process cost of $24.55/t, G&A cost of $10.50/t, haulage cost of $5.72/t, metallurgical recovery of 92%, dilution of 10% and gold price of US$1,725/oz

(4) Figures may not sum due to rounding.

1.12 Proposed Mine Plan

The Fox Complex life-of-mine (LOM) plan in the IA indicates mining at Froome, Grey Fox, Stock West and Fuller will have an overall mine life of 13 years. Mining at the Fox Complex is currently conducted using underground mining methods at Froome Mine and will continue as underground operations across all project sites, with production from Grey Fox commencing in Year 4, from Stock West in Year 4, and from Fuller in Year 9. A target processing rate of approximately 2,000 t/d was used to schedule the LOM.

Froome is accessed from two parallel ramps driven from the western wall of the Black Fox pit, while Stock West, Grey Fox, and Fuller are accessed by declines via the rehabilitation of existing portals or the development of new ones.

Longitudinal and/or transverse long hole mining methods are used to extract the mineralized material with either cemented or unconsolidated rockfill. Stope shape optimizations were run to generate production stopes using cut-off grades determined from preliminary cost modelling, stope optimization parameters and process recoveries. Broken development material hauled to surface is scheduled to be fed directly to the mill at grades greater than or equal to 1.8 g/t Au, or stockpiled in the low-grade (LG) stockpile at grades greater than 0.7 g/t and less than 1.8 g/t. Dilution through development is 5% while production dilution ranges between 19 and 31% (internal) and 14 and 17% (external). Mining recovery is 95%.

A subset of the Mineral Resources included within the IA LOM mine plan is summarized in Table 1-11.

Table 1-11: Subset of Mineral Resource Estimate in the IA Mine Plan

Classification	Tonnes, kt	Au, g/t	Contained Au, koz
Froome			
Measured and Indicated	1,383	3.33	147
Inferred	20	2.38	2
Grey Fox			
Indicated	2,924	4.71	443
Inferred	435	4.81	67
Stock West			
Indicated	901	3.87	112
Inferred	681	3.43	75
Fuller			
Indicated	718	4.06	94
Inferred	521	2.89	48
Total			
Indicated	**5,926**	**4.18**	**797**
Inferred	**1,657**	**3.61**	**192**

Note: (1) Input assumptions to constrain the Froome estimate above 225 mL include metal price of US$1,725/oz gold, development cut-off grade of 0.5 g/t gold, production cut-off grade of 2.8 /t gold, process recovery of 89.5%, mining costs of $115.65/t including haulage, process costs of $22.14/t, G&A costs of $23.26/t, transport costs to the Fox mill of $6.14/t, sustaining costs of $38.04/t, internal dilution of 5%, external dilution of 5% and mine recovery of 95%

(2) Input assumptions to constrain the Froome estimate below 225 mL include metal price of US$1,650/oz gold, development cut-off grade of 0.7 g/t gold, production cut-off grade by zone of 2.2 g/t gold, process recovery of 87%, mining costs of $52.47/t, process costs of $22.03/t, haulage costs of $6.14/t, G&A costs of $16.90/t, transport costs of $1.24/oz, sustaining costs of $13.62/t, internal dilution of 32%, external dilution of 14% and mine recovery of 95%

(3) Input assumptions to constrain the Grey Fox estimate include metal price of US$1,650/oz gold, development cut-off grade of 0.7 g/t gold, production cut-off grade by zone of 2.5 to 2.6 g/t gold, process recovery by zone of 81.0 to 93.1%, mining costs of $66.15/t, process costs of $22.57/t, haulage costs of $5.53/t, G&A costs of $18.48/t, transport costs of $1.24/oz, sustaining costs of $38.04/t, internal dilution of 31%, external dilution of 15% and mine recovery of 95%

(4) Input assumptions to constrain the Stock West estimate include metal price of US$1,650/oz gold, development cut-off grade of 0.7 g/t gold, production cut-off grade of 2.2 g/t gold, process recovery of 94%, mining cost of $72.18/t, process costs of $20.62/t, G&A costs of $18.92/t, transport costs of $1.24/oz, sustaining costs of $51.87/t, internal dilution of 19%, external dilution of 14% and mine recovery of 95%

(5) Input assumptions to constrain the Fuller estimate include metal price of US$1,650/oz gold, development cut-off grade of 0.7 g/t gold, production cut-off grade of 2.4 g/t gold, process recovery of 88%, mining cost of $60.12/t, process costs of $20.62/t, haulage costs of $6.64/t, G&A costs of $16.55/t, transport costs of $1.24/oz, sustaining costs of $34.60/t, internal dilution of 29%, external dilution of 17% and mine recovery of 95%

(6) Figures may not sum due to rounding.

1.13 Process Design

Mineralized material from Froome, Grey Fox, Stock West and Fuller will be processed through the Fox Mill located at the Stock mine site. Material from the various sites will be blended, based on the overall production schedule and hardness, to achieve target throughputs of around 2,000 t/d. The existing overall plant design will be maintained, with some modifications to the crushing and grinding circuits to increase overall tonnage throughput and process harder materials at the higher rates.

Mineralized material delivered to the Fox Mill is stockpiled and bucket-blended into a portable crusher. From there, the material is three-stage crushed and fed to a primary ball mill operating in closed circuit. Sized material is transferred to regrind with two ball mills operating in parallel in closed circuit. Final sized product is then leached with cyanide and gold-cyanide in solution is recovered to activated carbon. The gold is stripped from the carbon and recovered with electrowinning cells and eventually poured into doré bars as a final product. Stripped carbon is acid washed, regenerated, and returned to the leach circuit.

Current plant operations process material on an on/off schedule, based on mining rates, at a typical target of 1,600 t/d with a product grind size of 75 µm. To meet a higher throughput in the future, the mill will require modifications to operations and equipment. Operational improvements are focused on the crushing and grinding stages and include relocating the portable crusher to discharge directly to the apron feeder eliminating rehandle, and increasing the width of select conveyors. Additionally, the installation of a larger diameter primary ball mill will better utilize the installed power. The addition of a tailings thickener is added to send thickened tails to the tailings facility and return overflow water back to the mill solution tank.

Reagents used in the leaching, carbon stripping and electrowinning processes are handled and stored onsite. Process water is reclaimed from the water management pond and can be supplemented with water from the nearby North Driftwood Creek. The site infrastructure will provide enough power for the proposed modified and current process equipment in the crushing and grinding circuits, as well as the current equipment in the other areas of the plant.

1.14 Planned Project Infrastructure

The infrastructure required to develop Froome, Grey Fox, Stock West, and Fuller is similar. When possible, existing site infrastructure will be utilized at Stock for mining Stock West and at Black Fox for mining Grey Fox. Froome will utilize the existing Black Fox infrastructure. Required buildings at all sites include a truck shop, maintenance area, warehouse, mine dry and offices.

Froome, Grey Fox and Stock West are easily accessible via Highway 101, a major highway that cuts across Northern Ontario. Grey Fox is located approximately 3 km southeast of the existing

Black Fox site on Hislop 2 Road and will require improvements to accommodate haulage trucks. Fuller is accessed via Buffalo Ankerite Road and will also require improvements to accommodate haulage trucks. With the exception of Froome, all sites will require either upgrades to existing onsite roads or the construction thereof to act as service roads and for moving material from portals to temporary waste rock storage facilities (WRSF) and LG stockpiles.

A temporary WRSF, ROM stockpile and LG stockpile are planned at each site. Froome will utilize the existing WRSF at Black Fox and the transfer facility for mill feed.

A thickener capable of producing non-segregating tailings will be installed at the Stock site to allow for increased storage capacity of the existing tailings management area (TMA) due to its flexibility in allowing for steeper depositional slopes while reducing water storage requirements.

Mine contact water from the WRSF, stockpile and mine workings will be routed to the site dewatering pond. The pond will serve to manage and settle any entrained sediment from the site facilities, and will serve as a monitoring point to assess site water quality. Water that meets discharge requirements will be released to the environment at an approved location following accepted practices. If necessary, water that does not meet regulatory requirements will be managed or treated through a water treatment plant until it is suitable for discharge. Water from Grey Fox will be pumped to the Black Fox water treatment plant via an onsite pump house.

New and existing sites are supplied power by 27.6 kV overhead lines to meet site power demands. The existing power supply available at Black Fox and Froome is sufficient to meet the needs of Grey Fox as the Grey Fox demand will reach its peak after the Froome Mine ceases operation. The existing power supply available at the Stock site is sufficient to meet the anticipated demands of the Fox Mill and mine facilities. At Fuller, power will be supplied from a local utility substation.

Switchgear installed in portable electrical houses (E-house) at the entrance to new sites will distribute power to the site loads by overhead power lines. A power supply of 4.16 kV will be used to power underground facilities, stepping down to 600 V at underground substations equipped with dry transformers.

1.15 Markets

An independent market study for the Project's gold product has not been undertaken for this study. Gold is traded on all major international commodity exchanges. Gold produced from the Froome operations is currently being sold through commercial banks and market dealers. The gold market is stable in terms of commodity price and investment interest.

Forecast gold prices used in the Mineral Resource estimates and the IA are based on an assessment of industry consensus of long-term gold prices using an average reputable bank forecasts and prices being used by peers in the mining industry in their publicly filed documents.

McEwen currently has contracts in place that relate to the Sandstorm Goldstream financing, contract mining of access development, the drilling and blasting, the transportation of doré, and refining of precious metals. These contracts are on standard industry terms. No other contracts relating to concentrating, handling, sales and hedging, and forward sales contracts are currently in place.

McEwen currently sells 8% of the gold production from the Froome Mine to Sandstorm at a 2021 base price of US$565.95/oz gold.

1.16 Environmental Studies, Permitting, and Social/Community Impact

Environmental baseline (pre-development) investigations have been completed for a number of the properties and provide a basis for future closure comparison. Additional baseline data collection is underway at the Grey Fox and Stock properties. Environmental baseline studies and/or environmental monitoring plans will be developed for the Davidson-Tisdale and Fuller properties as the projects progress.

Based on the proposed designs at Froome, Grey Fox, Stock and Fuller, a Federal Impact Assessment process is not expected to be required. There may be a requirement to complete a Provincial Class EA for Resource Stewardship and Facility Development Projects for facilities or infrastructure that are to be constructed on Crown land (including typically below the high water mark of waterbodies/watercourses) or other use of Crown resources (such as aggregates or timber). Based on current information, Federal environmental approvals, including those associated with the Fisheries Act and Canadian Navigable Waters Act, are not expected to be required.

Reclamation work will be completed progressively during operations as reasonable. Closure costs for the properties have been estimated at $22.8 million.

The McEwen Black Fox Mining Camp is located within territories traditionally used by Indigenous peoples. Consultation and engagement activities with Indigenous Nations regarding the Black Fox Mine have been ongoing since 2006 and McEwen has a signed Impact Benefit Agreement with the Wahgoshig First Nation, the First Nation community in closest proximity to the Fox Mill site.

Consultation and engagement will also be required with other stakeholders, including regulatory agencies, local communities and community members. This will be particularly important where development is proposed close to existing residential properties and/or existing industrial operations, such as for the Fuller site.

1.17 Capital Costs

The Project's capital costs are summarized in Table 1-12 totalling $437.5 million. As the Project is in production at the Froome operation, all capital is treated as sustaining capital to continue mining operations within the Fox Complex.

The capital costs estimate is classified as a Class 5 estimate with an expected accuracy of +30/-15%, contingency of 22%, and prepared in accordance with AACE International Guidelines Practice No. 47R-11 (AACE International, 2012). All costs are expressed in second-quarter 2021 Canadian dollars.

Table 1-12: Summary of Capital Costs

Area	Capital Cost, $M
Froome	**20.7**
Grey Fox	
Surface Infrastructure	28.3
Mine Development	69.5
Mobile Equipment	30.7
UG Infrastructure	15.8
Indirects & Owners' Costs	9.2
Grey Fox Subtotal	**153.5**
Stock West	
Surface Infrastructure	15.8
Mine Development	35.8
Mobile Equipment	11.7
UG Infrastructure	12.3
Indirects & Owners' Costs	4.4
Stock West Subtotal	**80.0**
Fuller	
Surface Infrastructure	21.9
Mine Development	33.2
Mobile Equipment	13.0
UG Infrastructure	6.6
Indirects & Owners' Costs	5.0
Fuller Subtotal	**79.7**
Process Facilities	**7.3**
Tailings Facility	**17.3**
Contingency	79.0
Grand Total	**437.5**

Note: Figures may not sum due to rounding.

1.18 Operating Costs

Total operating costs over the LOM plan have been estimated at $823.1 M and were based on budgeted Froome operating costs. Average operating costs have been estimated at $108.55/t processed as summarized in Table 1-13. The expected accuracy range of the operating costs are +30/-15% with no contingency applied.

Table 1-13: Total Operating Costs over LOM

Cost Area	Total, $000s	Unit Average, $/t	Percent of Total, %
Mining	512,612	67.60	62.3
Processing	193,193	25.48	23.5
G&A	117,324	15.47	14.3
Total	**823,130**	**108.55**	**100.0**

1.19 Financial Analysis

The results of the economic analysis in the IA represents forward-looking information that is subject to a number of known and unknown risks, uncertainties, and other factors that may cause actual results to differ materially from those presented here. Forward-looking statements in this Report include, but are not limited to: timing and amount of future cashflows from mining operations, forecast production rates and amounts of gold produced from the Fox Complex mining operation, estimation of the Mineral Resources and the realization of the Mineral Resource estimates within the IA mine plans, the time required to develop the mine based on the IA mine design, statements with respect to future price of gold, assumptions regarding mine dilution and losses, the expected grade of the material delivered to the mill, metallurgical recovery rates, sustaining capital costs, NPV, IRR, payback period, LOM, production, cash costs and all-in-sustaining (AISC), cashflows and other financial and operational metrics, as well as mine closure costs and reclamation, timing and conditions of permits required to initiate mine construction, maintaining mining activities, mine closure, and assumptions regarding geotechnical and hydrogeological factors.

The IA has been evaluated using a discounted cashflow (DCF) analysis. Cash inflow consists of annual revenue projections for the mine. Cash outflows such as capital costs, operating costs, taxes, and royalties are subtracted from the inflows to arrive at the annual cashflow projections. Cashflows are taken at the end of each period.

The after-tax NPV at a 5% discount rate, is US$175.0 million. The financial evaluation of the Project generates positive before and after-tax results.

Readers are cautioned that the IA is preliminary in nature. It includes Inferred Mineral Resources that are considered too speculative geologically to have the modifying factors applied to them that would enable them to be categorized as mineral reserves, and there is no certainty that this economic assessment will be realized. Unlike Mineral Reserves, Mineral Resources do not have demonstrated economic viability. Inferred Mineral Resources make up 21.9% of the total tonnes of Mineral Resources, and 19.6% of the recoverable ounces of gold in the cashflows.

The Project is most sensitive to fluctuations in gold feed grade and selling price.

The after-tax NPV at a 5% discount rate for the mine plan excluding Inferred Mineral Resources is US$125.6 million.

1.20 Other Relevant Data and Information

In order to show the business case for the mine expansion from the current Froome operations, the economics of the mine expansion are broken out from the full mine plan and shown separately. The costs of the expansion and the additional revenue from the expansion are presented, including the NPV, IRR, and Payback Period. To evaluate the Expansion Case, cashflows from existing Froome operations were removed from the analysis with only Stock West, Grey Fox, and Fuller deposits considered. Table 1-14 summarizes the key financials of the expansion case financials demonstrating positive economics with an IRR of 21% and after-tax NPV_5 of US$137 million. Inferred Mineral Resources make up 26.5% of the total tonnes of Mineral Resources, and 22.9% of the recoverable ounces of gold in the cashflows.

S-K 1300 allows Inferred Mineral Resources to be included in an economic analysis of an IA as long as the results of the economic analysis excluding Inferred Mineral Resources is also shown. The IA that excludes Inferred Mineral Resources has been evaluated using a discounted cashflow analysis. Table 1-15 summarizes the key financials of the expansion case demonstrating positive economics with an IRR of 31%, after-tax NPV_5 of US$99.6 million and Payback Period is 4.2 years.

Table 1-14: Expansion Case Financial Summary(1,2,4)

Financial and Operating Metrics (After-tax)			
LOM	9.3 years		
LOM Gold Production	751,700 oz		
Average Annual Gold Production – LOM	80,800 oz		
Average Cash Costs – LOM(3)	US$769/oz		
Average AISC – LOM(3)	US$1,246/oz		
Gold Price Sensitivity	**Downside Case US$1,500/oz Au**	**Base Case US$1,650/oz Au**	**Upside Case US$1,800/oz Au**
NPV @ 5%(5)(6), US$M	81	137	192
IRR, %	15	21	26
Payback Period, years	6.5	5.9	5.4

Note: (1) The economic analysis presented in Chapter 19 of this Report is inclusive of the expansion case. The economics of the expansion case are not additive to those of the full mine plan.

(2) The IA is preliminary in nature and includes Inferred Mineral Resources that are considered too speculative geologically to have modifying factors applied to them that would enable them to be categorized as Mineral Reserves. There is no certainty that the IA will be realized. Unlike Mineral Reserves, Mineral Resources do not have demonstrated economic viability. Inferred Mineral Resources make up 21.2% of the tonnes in the IA and 19.6% of the recoverable ounces of gold.

(3.) Non-GAAP financial measures, such as Average Cash Costs and AISC are common performance measures in the gold mining industry but do not have any standardized meaning under US GAAP. They are intended to provide additional information and should not be considered in isolation or as a substitute for measures of performance prepared in accordance with GAAP. There are limitations associated with the use of such non-GAAP measures.

(4) The IA assumes an exchange rate of C$1.22:US$1.00.

(5) After-tax cashflow incorporates available tax credits as at 31 December 2021. Tax credits may expire if not used by a specific time.

(6 NPV is discounted at 5% to 31 December 2022.

Table 1-15: Expansion Case Financial Summary Excluding Inferred Mineral Resources(1,2,4)

Financial and Operating Metrics (After-tax)			
LOM	6.1 years		
LOM Gold Production	392,960 oz		
Average Annual Gold Production – LOM	64,420 oz		
Average Cash Costs per oz. – LOM(3)	US$789		
Average AISC per oz. – LOM(3)	US$1,238		
Gold Price Sensitivity	**Downside Case $1,500/oz Au**	**Base Case $1,650/oz Au**	**Upside Case $1,800/oz Au**
NPV_5 (5)(6), US$M	61	99.6	131
IRR, %	22	31.4	39
Payback Period, years	4.7	4.2	3.9

Note: (1) The financial analysis presented in Chapter 19 of this Report is inclusive of the expansion case.
(2) There is no certainty that the IA will be realized. Unlike Mineral Reserves, Mineral Resources do not have demonstrated economic viability.
(3) Non-GAAP financial measures, such as Average Cash Costs and AISC are common performance measures in the gold mining industry but do not have any standardized meaning under US GAAP. They are intended to provide additional information and should not be considered in isolation or as a substitute for measures of performance prepared in accordance with GAAP. There are limitations associated with the use of such non-GAAP measures.
(4) The IA assumes a $C1.22:US$1.00 exchange rate.
(5) After-tax cashflow incorporates available tax credits as at 31 December 2021. Tax credits may expire if not used by a specific time.
(6) NPV is discounted at 5% to 31 December 2023.

1.21 Interpretations and Conclusions

Under the assumptions in this Report, the full mine plan of the Project shows a positive financial return, based on average cash costs for production of US$796.80/oz gold and an average AISC for the LOM of US$1,223.50/oz gold. The mine plan excluding Inferred Mineral Resources shows a positive financial return, based on average cash costs for production of US$836.00/oz gold and an average AISC for the LOM of US$1,223.60/oz gold.

The business case for the expansion of the mine from current operations shows a positive financial return, with average cash costs for gold production of US$769.50/oz gold and an average AISC for the LOM of US$1,246.70/oz gold. The mine plan excluding Inferred Mineral Resources shows a positive financial return, based on average cash costs for production of US$789.30/oz gold and an average AISC for the LOM of US$1,238.10/oz gold.

1.22 Risks and Opportunities

The following opportunities for the Project have been identified:

- Drilling in Stock Mine area could define potential resource higher up, near the new proposed decline. This drilling will also focus on defining extensions of the host CGR unit for Stock West in the footwall of Stock Mine.
- Ongoing integration of data gathered from both historical and active mining sites will support improved geological modelling and sensitivity of estimates locally.
- A redesign of ramp location, sublevel, and stope designs to reduce development and scheduling priorities at Grey Fox based on the learnings from this Report has potential to improve the timings of returns and expenses.
- Evaluate opportunity to leave rock pillars in lower grade stopes and backfill with uncemented fill instead of cemented fill to improve cycle times and reduce backfill consumables costs.
- Metallurgical testing of the Whiskey Jack zone is limited and the recovery estimate is low for the average recoveries from other portions of the Grey Fox deposit. Further testwork may show improved recoveries.

The following risks have been identified for the Project:

- The volume estimate of Mineral Resources based on the true width of the Grey Fox mineralization may represent a risk as a result of some drilling campaigns being drilled at a subparallel angle to the interpreted vein-controlled mineralization.
- The higher grade variability in the footwall zones of the Froome deposit is not well understood.
- There may be an impact to gold recovery from sulphides in pyrite-rich mineralized zones of Grey Fox.
- The nuggety nature of the Black Fox mineralization is difficult to model
- Proceeding with increasing the ball mill diameter without the completion of an engineering study.
- A portion of the Mineral Resources in the mine plans, production schedules, and cashflows include Inferred Mineral Resources, which are considered too speculative geologically to have modifying factors applied to them that would enable them to be categorized as Mineral Reserves, and there is no certainty that the PEA will be realized
- Talc-chlorite schist identified in the host rock at Stock West has the potential to create a spalling failure in the hanging wall of stopes. This risk can be mitigated with additional geotechnical drilling at Stock West to confirm the prevalence of this schist on the immediate hanging wall and to further evaluate equivalent linear overbreak slough (ELOS) used in the estimation. Adjustment of stope size and ground support may be required.

- The Stock West zone has been designed as a separate mine, however, the adjacent Stock mine which has development adjacent to the new Stock West may have to be dewatered. The hydrogeological conditions and interaction of both should be reviewed and modelled at the next stage to determine pumping requirements if the two are connected. If dewatering is performed, then consideration for stability of historical openings during the dewatering process with monitoring of stopes close to surface is required.

1.23 Recommendations

The QPs have identified additional drilling, testwork and engineering studies required to support further mining studies, including a pre-feasibility study. This work will be completed as one phase and no one aspect of the work is contingent on the completion of others. The total estimated cost for the work summarized in Table 1-16 is between $14.1 million and $19.1 million.

Table 1-16: Recommended Work Program

Area	Recommendation
Geology and Mineral Resource Estimation	**Black Fox** • Expand current mineralization solids beyond the historical drill hole intercepts and enhance geological mineralized zone interpretations utilizing local historical data • Benchmark estimation techniques to improve accuracy for high-nugget zones • Drill program (of not more than 8,000 m) in areas of continuous Inferred material to upgrade and increase confidence in the model and to test the deposit's extents **Froome** • Update the geological model using data collected from mine activities to refine the estimation parameters **Grey Fox** • Optimize confidence in the model with drill holes totalling 8,000 m to confirm the true width of the Grey Fox deposit, specifically 147, South, Contact and Gibson zones • An exploration drill program of 10,000 m in the sediment lens centrally located between the Contact and Gibson zones • Identify a suitable high-potential area to perform tightly-spaced resource definition drilling/bulk sample for additional mining and recovery analyses • Refine the initial drill hole spacing analysis to improve the classification of Mineral Resources • Update the lithological model for local accuracy, control of density and resource domaining **Tamarack** • Conduct a litho-structural evaluation to validate controls on mineralization • Exploration drill program of some 3,000 m to expand and upgrade Mineral Resource confidence • Limited metallurgical testwork to evaluate potential base metal recoveries **Stock West** • Definition drill program not exceeding 24,000 m from surface and underground platforms utilizing alternative orientations to optimize the lithological, structural and alteration models with the goal of converting Inferred Mineral Resources to Indicated Mineral Resources

Area	Recommendation
	• Determine the extent of the deposit along strike, dip and plunge • Perform a drill hole spacing analysis and additional metallurgical and geotechnical work to support the Mineral Resource model **Stock East** • Initial drill program of 10,000 m to expand and upgrade Inferred Mineral Resources **Fuller and Davidson-Tisdale** • Digitize historical information of the existing database to improve interpretations of mineralized zones • Drill program not exceeding 5,000 m to verify historical drilling • Survey existing collar positions during the summer season • Verify the existing database against all available historical drilling logs and laboratory certificates and move assay and QA/QC data into the McEwen Fusion database **Resource Modelling** • Update resource models by McEwen personnel with reviews by third-party consultants
Metallurgical Testwork	**Gibson, Whiskey Jack (Grey Fox), Stock West and Fuller** • Head material testing, including mineralogy and detailed analysis, should be completed for a master composite and include: – Gold by fire assay (AA finish) – Screen metallics (gravimetric finish) – LECO (total sulphur, sulphide sulphur, total carbon, organic carbon) – QEMSCAN (Bulk Mineral Analysis (BMA) and gold deportment) – Inductively coupled plasma (ICP) analyses • Communition testing on spatially representative samples as well as blocks of material expected to be processed. Tests include: – 10 Bond crushability tests – 10 Bond Ball Mill Work Index tests and samples for the primary grind (P80 150 mesh, closing screen), plus another 10 tests done at the final P_{80} (200 mesh) of the second stage grinding for ball mill grinding – At least 10 tests should be done for the Bond Rod Mill Work Index to understand the power requirements from the larger product size range (P_{80} 14 mesh)

<table>
<tr><th>Area</th><th>Recommendation</th></tr>
<tr><td></td><td>

Leach testing of the master composite to test the cyanidation leach response with interval sampling to evaluate leach kinetics. The same test conditions should be repeated at least three times with different target grind sizes over the anticipated size range (55 to 130 µm) for a minimum of four points to generate a grind sensitivity curve. Further variability testing will be used to confirm any correlation. Each master composite will need cyanide leach and CIL tests at the same conditions to evaluate the potential for preg-robbing carbon in the material.
Liquid-solid separation testing to determine settling rates. This is used to assess the thickener dimensions and operation to ensure proper settling and determine whether this unit’s operation will become a bottleneck. These tests should also be completed on cyanidation tails samples to confirm the sizing of the tailings thickener.
Variability testing on the final flowsheet design; this may include the addition of gravity recovery and/or flotation with fixed reagent conditions. A total of 20 to 30 bottle rolls per domain should be performed. This includes each deposit and the geometallurgical domains identified for Grey Fox by earlier testwork. For Grey Fox, variability samples should include those from 147 Zone, 147NE Zone, Contact Zone, South Zone, Gibson and Whiskey Jack and within those defined by the domains as listed below:

High grade (>4 g/t gold)
High pyrite, low grade (<4 g/t, sulphur:gold >0.75)
Low pyrite, low grade (<4 g/t, sulphur:gold <0.75)

</td></tr>
<tr><td>Geotechnical</td><td>

Subsurface geotechnical drilling investigations, including 26 holes totalling approximately 500 m, and material testing to understand the soil foundation conditions at the Grey Fox, Stock West and Fuller sites related to site infrastructure and mine rock storage

</td></tr>
<tr><td>Rock Mechanics</td><td>
Grey Fox

Geomechanical drilling (using oriented core), including packer testing, to support the development of underground mine design for the sites. It is estimated that approximately five to six boreholes will be required at 150 to 200 m in length for approximately 1,000 m of drilling. It is recommended to supplement this work with geophysical acoustic televiewer surveys in open exploration boreholes. This work can be accomplished in tandem with the hydrogeological work and exploration drilling.
Geomechanical logging of previously drilled exploration boreholes are also recommended to increase the database and geomechanical model.
Rock strength testing of the various rock types is recommended for uniaxial compressive strength (UCS), Brazilian Tensile, Triaxial and Elastic constants.

</td></tr>
</table>

Area	Recommendation
	Stock West • Geomechanical drilling (using triple tube, oriented core), including packer testing, will be required to move the study to a PFS level to support the development of underground mine design for the sites. It is estimated that approximately three to four boreholes will be required of 400 to 500 m in length for approximately 1,400 m of drilling. It is recommended to supplement this work with geophysical acoustic televiewer surveys in these boreholes and any additional exploration boreholes that are open. This work can be accomplished in tandem with the hydrogeological work and exploration drilling. • Geomechanical logging of previously drilled exploration boreholes are also recommended to increase the database and geomechanical model. • Rock strength testing of the various rock types is recommended for UCS, Brazilian Tensile, Triaxial and Elastic constants. **Fuller** • Geomechanical drilling (using triple tube, oriented core), including packer testing, will be required to move the study to a PFS level to support the development of underground mine design for the sites. It is estimated that approximately two to three boreholes will be required of 200 to 300 m in length for approximately 750 m of drilling. It is recommended to supplement this work with geophysical acoustic televiewer surveys in these boreholes and any additional exploration boreholes that are open. This work can be accomplished in tandem with the hydrogeological work and exploration drilling. • Geomechanical logging of previously drilled exploration boreholes are also recommended to increase the database and geomechanical model. • Rock strength testing of the various rock types is recommended for UCS, Brazilian Tensile, Triaxial and Elastic constants.
Hydrogeology	• Installation of 13 groundwater wells around the sites with subsequent regular monitoring to characterize elevations and quality of the local groundwaters. This data will be integrated into groundwater models for the sites. • Packer testing should be performed in conjunction with selected geomechanical boreholes.

Area	Recommendation
Geochemistry	• Continuation of geochemical studies on the Grey Fox and Stock West properties and initiation of studies at the Fuller property to assess the risks of metal leaching and acid rock drainage regarding the mine workings and mine wastes
Water Management	• Water flow and quality monitoring from the Grey Fox, Stock West and Fuller properties. From this, data water balance and flow/quality information will be developed that will support the project designs.
Permitting	• Permitting efforts will focus on approvals necessary to advance the next stages of investigations, including items such as Permit To Take Water applications, drilling permits, and preliminary discussions with regulators

2.0 Introduction

McEwen Mining, Inc. (McEwen), a registrant with the United States Securities and Exchange Commission (SEC), requested Wood Canada Limited (Wood), SLR Consulting (Canada) Ltd., and SRK Consulting (Canada) Inc. (SRK), together with McEwen, prepare a technical report summary (Report) on an initial assessment (IA) study for the Fox Complex Expansion (Project) located in Northern Ontario, Canada. The Project comprises several gold bearing properties, including the Black Fox Mine and Froome Mine; Tamarack; Grey Fox (Eastern properties); Stock West and Stock East; and the Western properties, including Fuller, Davidson-Tisdale, Buffalo-Ankerite and Paymaster. The project was considered as a single-district, as all of the material was planned to be milled at the existing Fox Mill (formerly Stock Mill).

2.1 Terms of Reference

The Report is being used by McEwen as a preliminary technical and economic study of the economic potential of the mineralization to support disclosure of Mineral Resources. The IA includes appropriate assessments of reasonably assumed technical and economic factors, together with any other relevant operational factors, that are necessary to demonstrate at the time of reporting that there are reasonable prospects for economic extraction. The IA does not support disclosure of Mineral Reserves; however, it is used to identify work required to advance the Project.

In order to show the business case for the mine expansion from the current Froome operations, the economics of the mine expansion are broken out from the full mine plan and shown separately. The costs of the expansion and the additional revenue from the expansion are presented, including the NPV, IRR, and Payback Period.

Mineral resource estimates were prepared in accordance with the Subpart 229.1300 Disclosure by Registrants Engaged in Mining Operations (S-K 1300). Definitions of mining technical terms used in the IA, including those for Mineral Resources, are in accordance with Item 1300 of S-K 1300.

Using the Item 1300 definitions of Regulation S-K the Fox Complex is defined as an Exploration Stage Property. The definition is determined by the fact that the Fox Complex has no Mineral Reserves. However, the Fox Complex is currently mining Mineral Resources and producing gold.

Unless otherwise noted, all measurements used in this Report are metric and currency is expressed in Canadian dollars ($).

2.2 Qualified Persons

The following individuals serve as Qualified Persons (QPs), as that term is defined in S-K 1300, for this Report:

- Mr. William Bagnell, P.Eng., Technical Director, Underground Mining, Wood
- Mr. Benoit Bissonnette, P.Eng., Technical Director, Metallurgical Process Engineering, Wood
- Dr. Adam Coulson, P.Eng., Principal Rock Mechanics Engineer, Wood
- Ms. Sheila Daniel, P.Geo., Principal Geoscientist, Wood
- Mr. Daniel Downton, P.Geo., Senior Resource Geologist, McEwen
- Mr. Lewis Kitchen, P.Eng., Senior Mining Engineer, Wood
- Mr. Channa Kumarage, P.Eng., Technical Services Superintendent, McEwen
- Dr. Aleksandr Mitrofanov, P.Geo., Senior Consultant (Resources), SRK
- Mr. Eric Sellars, P.Eng., Geotechnical Engineer, SLR
- Mr. Steven Sibbick, P.Geo., Principal Geochemist, Wood
- Mr. Kenneth Tylee, P.Geo., Exploration Manager, McEwen
- Mr. W. David Tyler, SME Registered Member, Gingerquill Consulting LLC
- Mr. Piers Wendlandt, P.E., Principal Mining Engineer, Wood

Mr. Bagnell is responsible for Sections 1.1, 1.2, 1.14; Chapter 2.0; Sections 15.1-15.3, 15.4.1-15.4.3; 15.4.5-15.4.11, 15.5; Section 22.7; Section 23.1; Chapter 24.0. and Section 25.1 of the Report.

Mr. Bissonnette is responsible for Sections 1.1, 1.2, 1.10, 1.13, 1.17, 1.18, 1.22, 1.23; Chapter 2.0; Chapter 10.0; Chapter 14.0; Sections 18.3.5, 18.4.1, 18.4.2, 18.4.5; Sections 22.6, 26.10; Sections 23.1, 23.3, 23.10; Chapter 24.0, and Section 25.1 of the Report.

Dr. Coulson is responsible for Sections 1.1, 1.2, 1.22, 1.23; Chapter 2.0; Sections 13.4.4, 13.5.4, 13.6.4; Sections 22.13, 22.14; Sections 23.1, 23.5, 23.10; Chapter 24.0, and Section 25.1 of the Report.

Ms. Daniel is responsible for Sections 1.1, 1.2, 1.16; Chapter 2.0; Chapter 17.0; Section 22.8; Sections 23.1, 23.9, 23.10; Chapter 24.0, and Section 25.1 of the Report.

Mr. Downton is responsible for Sections 1.1, 1.2, 1.9, 1.11, 1.22, 1.23; Chapter 2.0; Sections 9.1-9.5, 9.8; Sections 11.1-11.4, 11.6, 11.7; Sections 22.3, 22.4, 22.13, 22.14; Sections 23.1, 23.2, 23.10; Chapter 24.0, and Section 25.1 of the Report.

Mr. Kitchen is responsible for Sections 1.1, 1.2, 1.12, 1.17, 1.18; Chapter 2.0; Sections 13.1, 13.2, 13.3.2, 13.4.1-13.4.3, 13.4.5-13.4.9, 13.5.1-13.5.3, 13.5.5-13.5.9, 13.6.1-13.6.3, 13.6.5-13.6.9; 13.7, 13.8; Sections 18.1, 18.2, 18.3.1-18.3.4, 18.3.6-18.3.9, 18.4.1-18.4.4, 18.4.6; Sections 22.5, 22.10, 22.13, 22.14; Section 23.1; Chapter 24.0, and Section 25.1 of the Report.

Mr. Kumarage is responsible for Sections 1.1, 1.2, 1.12; Chapter 2.0; Sections 13.1- 13.3; Section 22.5; Section 23.1; Chapter 24.0, and Section 25.1 of the Report.

Dr. Mitrofanov is responsible for Sections 1.1, 1.2, 1.9, 1.11, 1.22, 1.23; Chapter 2.0; Sections 9.1, 9.6-9.8; Sections 11.1, 11.5, 11.8, 11.9; Sections 22.3, 22.4, 22.13, 22.14; Sections 23.1, 23.2, 23.10; Chapter 24.0, and Section 25.1 of the Report.

Mr. Sellars is responsible for Sections 1.1, 1.2, 1.14; Chapter 2.0; Section 15.4.4; Chapter 24.0, and Section 25.1 of the Report.

Mr. Sibbick is responsible for Sections 1.1, 1.2, 1.16, 1.23; Chapter 2.0; Chapter 17.0; Section 22.8; Sections 23.1, 23.4, 23.6-23.8, 23.10; Chapter 24.0, and Section 25.1 of the Report.

Mr. Tylee is responsible for Sections 1.1, 1.2, 1.7, 1.8; Chapter 2.0; Chapters 6.0-8.0; Sections 22.2, 22.3; Sections 23.1, 23.2, 23.10; Chapter 24.0, and Section 25.1 of the Report.

Mr. Tyler is responsible for Sections 1.1, 1.2, 1.4-1.6, 1.15; Chapters 2.0-5.0; Chapter 16.0; Sections 22.1, 22.9; Section 23.1; Chapter 24.0, Section 25.1 of the Report.

Mr. Wendlandt is responsible for Sections 1.1-1.3, 1.19-1.21; Chapter 2.0; Chapter 19.0; Chapter 21.0; Sections 22.11, 22.12; Section 23.1; Chapter 24.0 and Chapter 25.0 of the Report.

2.3 Site Visits and Scope of Personal Inspection

Mr. Bagnell visited the Fox Complex facilities from 17-18 November 2020. During the visit, he reviewed data of the Black Fox and Froome LOM development and production plan; toured the underground Froome Mine decline where he observed development in the Destor Fault; discussed the Black Fox production plan and Froome development plans with McEwen personnel; toured the Black Fox open pit and Grey Fox sites observing drill locations, stream and road culverts within the Grey Fox proposed pit boundary, as well as the Pike River bridge crossing on the community road.

Mr. Bissonnette visited the Fox Mill on 18 November 2020. The visit included discussions with McEwen personnel; a tour of the crushing plant, grinding, leaching, elution and cyanide detox facilities; and a brief tour of the tailings and water management facilities.

Dr. Coulson visited the Fox Complex facilities from 17-18 November 2020. During the visit, he toured the Black Fox pit and underground ramp to Froome Mine and observed existing plane failures and joint structures; visited the core shack and performed a geomechanical review of selected holes; and visited the Grey Fox property observing drill locations, surface conditions and surrounding infrastructure. On a previous site visit on 29 October 2008, Dr. Coulson visited the Stock Mine and mill site area in preparation for a crown pillar investigation of the Stock Mine.

Mr. Downton has worked and is located at the Black Fox Mine since February 2019. He is responsible for Mineral Resource estimation for Black Fox, Froome, Grey Fox, Stock West and Stock East. He has been underground at Black Fox and Froome multiple times and has validated the geological models through independent mapping. He has visited one of the Grey Fox trenches where independent mapping aided the development of the geological models. He has visited the Stock West and East sites regularly to review exploration results, and he is involved with reviewing the QA/QC data of exploration and/or production analytical sample information for all five of the resource models for which he is responsible.

Mr. Kumarage has worked for McEwen in Ontario and has been located at the Black Fox Mine since January 2019. Mr. Kumarage manages the Technical Services Department of the Fox Complex. His responsibilities include supervising and managing the Engineering and Geology departments and all related activities. Mr. Kumarage has also had exposure to other Northern Ontario gold mine sites between 2014 and 2019.

Dr. Mitrofanov visited the Fuller site from 5-6 November 2018 and Davidson-Tisdale from 10-11 December 2020. During his visit at Fuller, Dr. Mitrofanov and the former Chief Geologist who supervised exploration work on the property between 2004 and 2012 reviewed some of the historical drilling information, including drill logs and laboratory certificates; reviewed the drill core from 1996 to 1998 and from 2004 to 2012; and validated collar positions for historical drilling.

Mr. Sellars visited Stock Mill four times between December 2014 and January 2015. He was the resident engineer for the construction of the Phase 7 dam raise of the Tailings and Water Management dams. During that time, he observed dam raise construction, toured the tailings and water management areas, and met McEwen personnel.

Mr. Tylee has worked for McEwen in Ontario and has been located at the Black Fox Mine since November 2017. Mr. Tylee is responsible for the exploration activities of the Fox Complex. His responsibility includes design and execution of exploration programs at McEwen's Ontario operations. Mr. Tylee has also had exposure to the Western properties as a Senior Exploration Geologist with Goldcorp between 2010 and 2013.

2.4 Cut-off Dates for Information Used

The Report has the following cut-off dates:

- Mineral Resource estimate (Black Fox) – 1 May 2021
- Mineral Resource estimate (Froome) – 16 July 2021
- Mineral Resource estimate (Grey Fox) – 31 January 2021
- Mineral Resource estimate (Tamarack) – 30 April 2021
- Mineral Resource estimate (Stock West) – 30 July 2021

- Mineral Resource estimate (Stock East) – 30 April 2021
- Mineral Resource estimate (Fuller) – 30 April 2021
- Mineral Resource estimate (Davidson-Tisdale) – 30 April 2021

The Report is current as of 31 December 2021.

2.5 Previous Technical Reports

All sources of information used for the development of this Report are listed in Chapter 24.

The following previous technical reports have been filed by McEwen and past owners on the properties contained with this Report:

- Alexander, E., Fung, N., Machuca, D., Martin, J., Mitrofanov, A., Selby, M., and Stubina, N., 2018: Technical Report for the Black Fox Complex, Canada: report prepared by SRK Consulting (Canada) Inc. for McEwen Mining Inc., effective date 31 October 2017
- Brisson, H., 2014: Technical Report on the Mineral Resource and Mineral Reserve Estimates for the Black Fox Complex: report prepared for Primero Mining Corp., effective date 19 June 2014
- Altman, K., Armstrong, T., Ciuculescu, T., Ehasoo, G., Ewert, W., Martin, J., Masun, K., Puritch, E., Routledge, R., Wu, Y., and Yassa, A., 2014: Technical Report on the Preliminary Economic Assessment of the Buffalo Ankerite, Fuller, Paymaster, and Davidson-Tisdale Gold Deposits Northeastern Ontario, Canada: report prepared by Roscoe Postle Associates Inc for Lexam VG Gold Inc.
- Armstrong, T., Ciuculescu, T., Ewert, W., Masun, K., Puritch, E., Routledge, R., Wu, Y., and Yassa, A., 2013: Technical Report and Updated Resource Estimate on the Buffalo Ankerite, Fuller, Paymaster, and Davidson-Tisdale Gold Deposits Porcupine Mining Division North-Eastern Ontario, Canada: report prepared by P & E Mining Consultants Inc. and Roscoe Postle Associates Inc. for Lexam VG Gold Inc., effective date 01 June 2013
- Pelletier, C., Richard, P., and Turcotte, B., 2013: Technical Report and Mineral Resource Estimate for the Grey Fox Project: report prepared by InnovExplo – Consulting Firm Mines & Exploration for Brigus Gold Corp., effective date 21 June 2013
- Daigle, P.J., 2012. Technical report on the 147 and Contact zones of the Black Fox Complex, Ontario, Canada.: report prepared by Tetra Tech for Brigus Gold Corp., effective date 15 December 2011
- Bridson, P., Broad, P., Corpuz, V., Gabora, M., Hope, R., MacKenzie, A., Maunula, T., Mehilli, V., Ramsey, D., Silva, M., Tkaczuk, C., and Jansons, K., 2011: Black Fox Project National Instrument 43-101 Technical Report: report prepared for Brigus Gold Corp., effective date 6 June 2011
- Buss, L., 2010. 43-101 Mineral Resource Technical Report on the Grey Fox–Pike River Property of the Black Fox Complex, Hislop Township, Matheson, Ontario, Canada: report

prepared for Brigus Gold Corp.

- Stryhas, B.A., Raffield, M., Dyck, D., Hu, X., Schneider, R.P., 2008. NI 43-101 Technical Report Apollo Gold Corporation Black Fox Project, Timmins, Ontario, Canada: report prepared by SRK Consulting for Apollo Gold Corp., effective date 29 February 2008
- Naccashian, S., and Moreton, C., 2007. Technical Report on the Fuller Gold Property, report prepared by Wardrop Engineering Inc. for Vedron Gold Inc, effective date 31 August 2007
- Nanna, R.F., Stryhas, B., and Young, D.K, 2007. NI 43-101 Prefeasibility Study Apollo Gold Corporation Black Fox Timmins, Ontario, Canada: report prepared for Apollo Gold Corporation, effective date 2 July 2007
- Prenn, N.B., 2006. Technical Report Black Fox Project, Matheson, Ontario, Canada, report prepared by Mine Development Associates for Apollo Gold Corporation, effective date 14 August 2006
- Gow, N., and Roscoe, W., 2006: Technical Report on the Taylor, Clavos, Hislop and Stock Projects in the Timmins Area, Northeastern Ontario, Canada: report prepared by Scott Wilson Roscoe Postle and Associates Inc. for St Andrew Goldfields Ltd., effective date 01 September 2006
- Naccashian, S., 2006. Mineral Resource Estimate of the Fuller Gold Property, report prepared by Wardrop Engineering Inc. for Vedron Gold Inc, effective date 3 May 2006

2.6 Sources of Information

Sources of information include documents listed in Chapter 24, and information provided by McEwen as described in Chapter 25.

3.0 Property Description

3.1 Location

The Fox Complex consists of three groups of properties, with historical and operating mines, and a processing facility (Figure 3-1) around the City of Timmins (Timmins) in northeastern Ontario, Canada.

The Eastern group of properties includes the operating Black Fox and Froome mines that are located in the Beatty and Hislop Townships, approximately 60 km east of Timmins. The approximate coordinates for the geographic centre of the Black Fox Mine are 48° 32' 2" N and 80° 20' 2" W (UTM coordinates: 549170E and 5375871N, NAD 83, Zone 17). Seven kilometres to the southeast of the Black Fox property is the Gibson and Grey Fox property (Grey Fox). The approximate coordinates for the geographic centre of Grey Fox are 48°30'20.0" N and 80°18'20.0" N (UTM coordinates: 551100E and 5372750N, NAD 83, Zone 17). The surrounding land has an elevation of about 275 to 325 masl.

The historical Stock Mine, Stock West and Stock East deposit, and the Fox Mill are centrally located in the Stock township on the north side of Highway 101, some 20 km west of the community of Matheson and 43 km east of the City of Timmins. The underground Stock mine workings have been under care and maintenance since the cessation of mining in 2005. The approximate coordinates for the geographic centre are 48° 33' 0" N and 80° 45' 1" W (UTM coordinates 518421 E and 5377476 N in NAD 83, Zone 17).

The Western group of deposits includes four deposits: Buffalo Ankerite, Paymaster, Fuller, and Davidson-Tisdale located in Tisdale and Deloro townships within the municipal boundaries of Timmins. The deposits are past producers and part of the historic Porcupine Gold Camp, which accounted for more than 67 Moz of gold production over the past 100 years. The approximate coordinates for the geographic centre of the Buffalo Ankerite parcels are 48° 26' 31" N and 81° 16' 14" W (UTM coordinates: 479994 E and 5365448 N, NAD 83, Zone 17). The approximate coordinates for the geographic centre of the Paymaster are 48° 27' 28" N and 81° 15' 42" W (UTM coordinates: 479415 E and 5366605N, NAD 83, Zone 17). The approximate coordinates for the geographic centre of the Fuller are 48° 27' 8" N and 81° 16' 42" W (UTM coordinates: 479415 E and 5366605N, NAD 83, Zone 17). The approximate coordinates for the geographic centre of the Davidson Tisdale are 48° 30' 46" N and 81° 13' 40" W (UTM coordinates: 483186 E and 5373326 N, NAD 83, Zone 17).

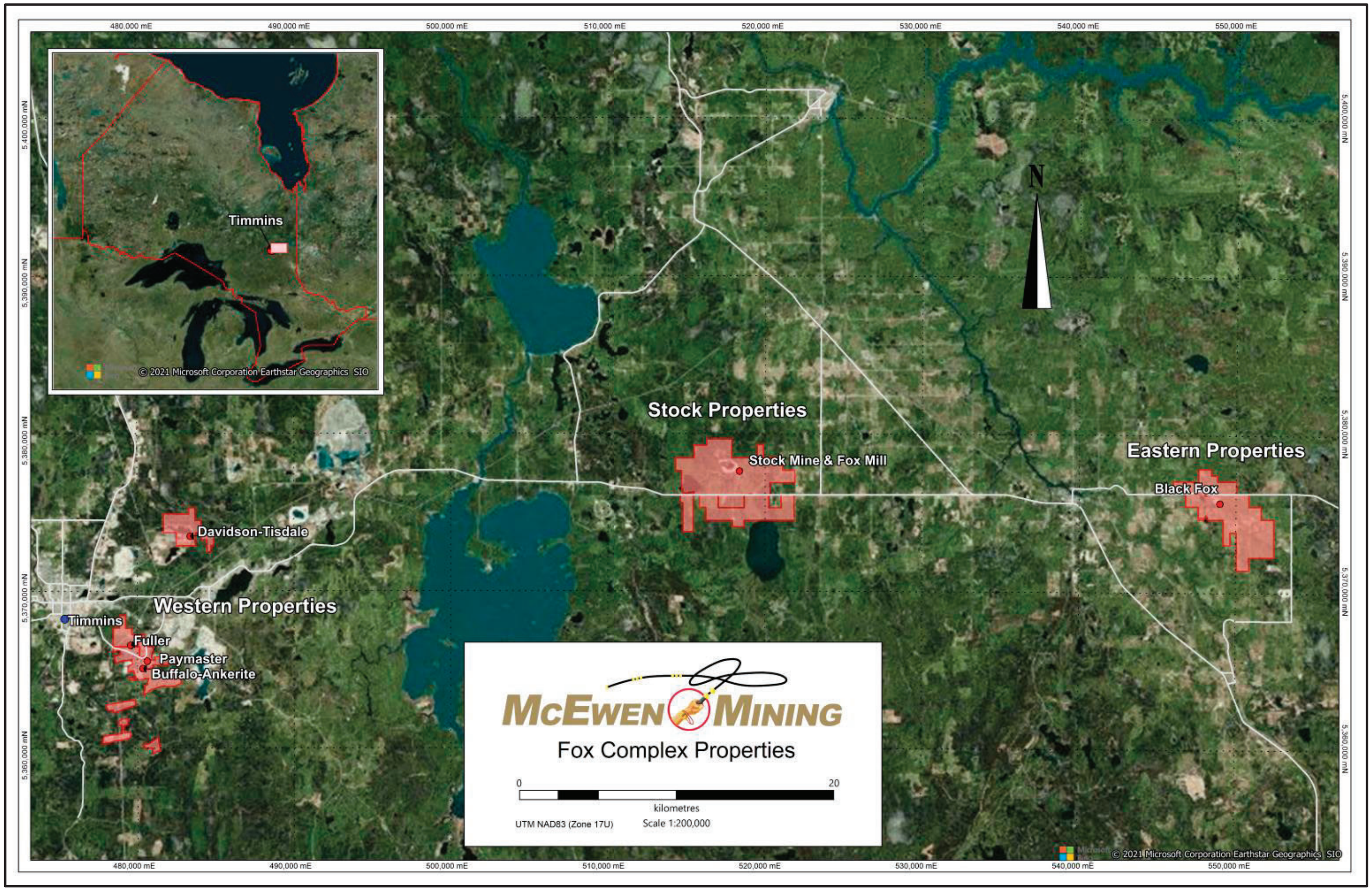

Figure 3-1: Fox Complex Properties (prepared by McEwen, dated 2021)

3.2 Mineral Tenure and Surface Rights

The properties of the Fox Complex consist of several blocks of land comprising 114 parcels representing either mining claims or leases and overlapping surface right parcels, for a total of approximately 4,763 ha of mining land and 2,821 ha of surface land. All surface rights and mining rights parcels are located in the Tisdale, Deloro, Beatty and Hislop townships and their boundaries are defined by the Cochrane (06) Land Registry Office. All parcels are one of the following: a freehold mining land (mining patent), mining claim, a mining lease, a freehold surface land, or a surface lease. In the figures that follow, parcels with surface holdings without mining rights are shown with only green stripes, and parcels with surface holdings with underlying parcels with mining rights are shown with green and gray stripes. Parcels with both surface and mining rights are shown in orange.

All the required fees and duties have been paid and the claims are in good standing.

The PIN (Property Identification Number) is a numeric reference issued by the Land Registry Office referencing the newly automated depository of registered transactions affecting the land.

3.2.1 Eastern Properties

McEwen owns 100% interest in the Eastern properties which are located in a single parcel block, covering Black Fox, Froome, Tamarack, Grey Fox, and Gibson deposits in the Hislop and Beatty Townships. The surface and mining rights are shown in Figure 3-2.

The Eastern property comprises 37 owned parcels with surface and/or mining rights, and eight mining leases covering 1,797 ha (see Appendix A).

3.2.1.1 Black Fox Mine

The Black Fox Mine open pit and underground mine is located within the boundaries of PIN 65380-0556. The mine complex is situated on PIN 65380-0538, 65380-0556, and 65380-0670.

Tamarack Zone

The Tamarack mineralized zone is situated approximately 100 m to the east of the Black Fox Mine open pit. The mineralized zone is within the boundaries of PIN 65380-0670, 65380-0676, 65380-0558.

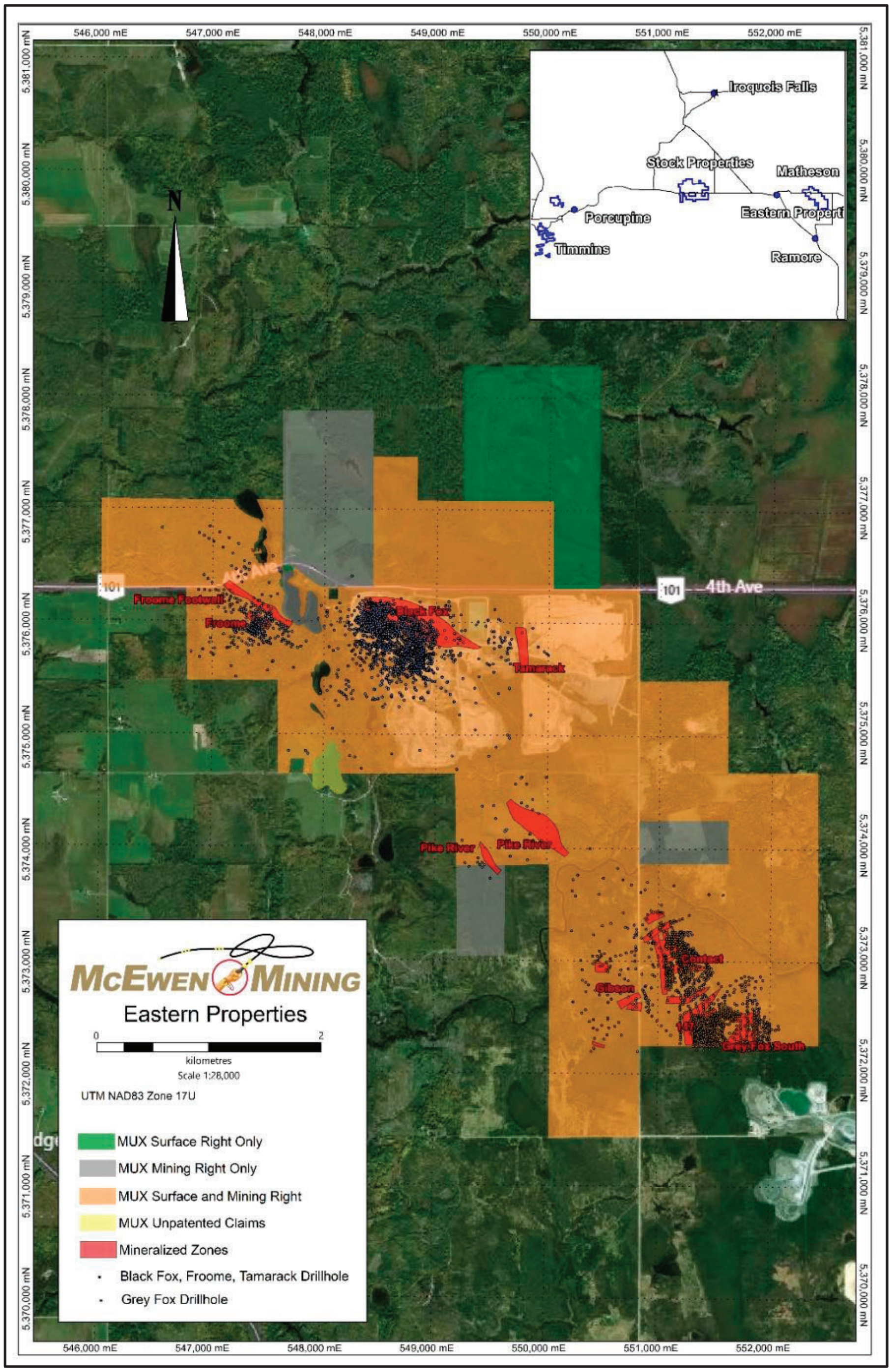

Figure 3-2: Eastern Properties Parcel Location Map (prepared by McEwen, dated 2021)

Note: MUX = McEwen

3.2.1.2 Froome Mine

The mineralized zone for the Froome Mine is situated within the boundaries of PIN 65366-0143, 65380-0552 and 65380-0553. The zone is situated approximately 700 m west of the Black Fox Mine open pit.

3.2.1.3 Grey Fox

The entire mineralized zone for the Grey Fox Project, including the Gibson deposit, is situated within the boundaries of PIN 65380-04998, 65380-0489, 65380-0556, 65380-0490 and 65380-0491. The zone is located approximately 3 km southeast of the Black Fox Mine.

3.2.2 Stock Property

McEwen owns 100% interest in the Stock property which comprises 28 owned parcels with surface and/or mining rights, and 17 mining leases covering 1,468 ha in the Stock Township (see Appendix B). The surface and mining rights are shown in Figure 3-3.

The Fox mill and related facilities are situated within the boundaries of PIN 65363-0060, 65363-0061, 65363-0087, 65363-0088, and 65363-0232.

The entire Stock West mineralized zone is situated within the boundaries of PIN 65363-0061, 65363-0237, and 65363-240. This zone is situated approximately 1 km southwest of the Fox Mill.

3.2.3 Western Properties

The Western properties are located in several parcel blocks, Davidson-Tisdale in the northern part of Tisdale Township and a second block of contiguous parcels comprising the Buffalo Ankerite, Fuller, and Paymaster properties to the south in Tisdale and Deloro Townships. The surface and mining rights for the northern parcel blocks are shown in Figure 3-4 and the southern parcel blocks are shown in Figure 3-5.

3.2.3.1 Buffalo Ankerite

McEwen owns 100% interest in the Buffalo Ankerite property consisting of 11 owned parcels with surface and/or mining rights listed in Appendix C with an area of 485 ha in the north half of Deloro Township. The property boundaries were located either in the field, by the use of historical records, or from the parcel map issued by the Minister of Northern Development, Mines and Forestry.

The mineralized zone for the Buffalo-Ankerite Project is situated within the boundaries of PIN 65442-0714, 65442-0717, 65442-0718, and 65442-0719.

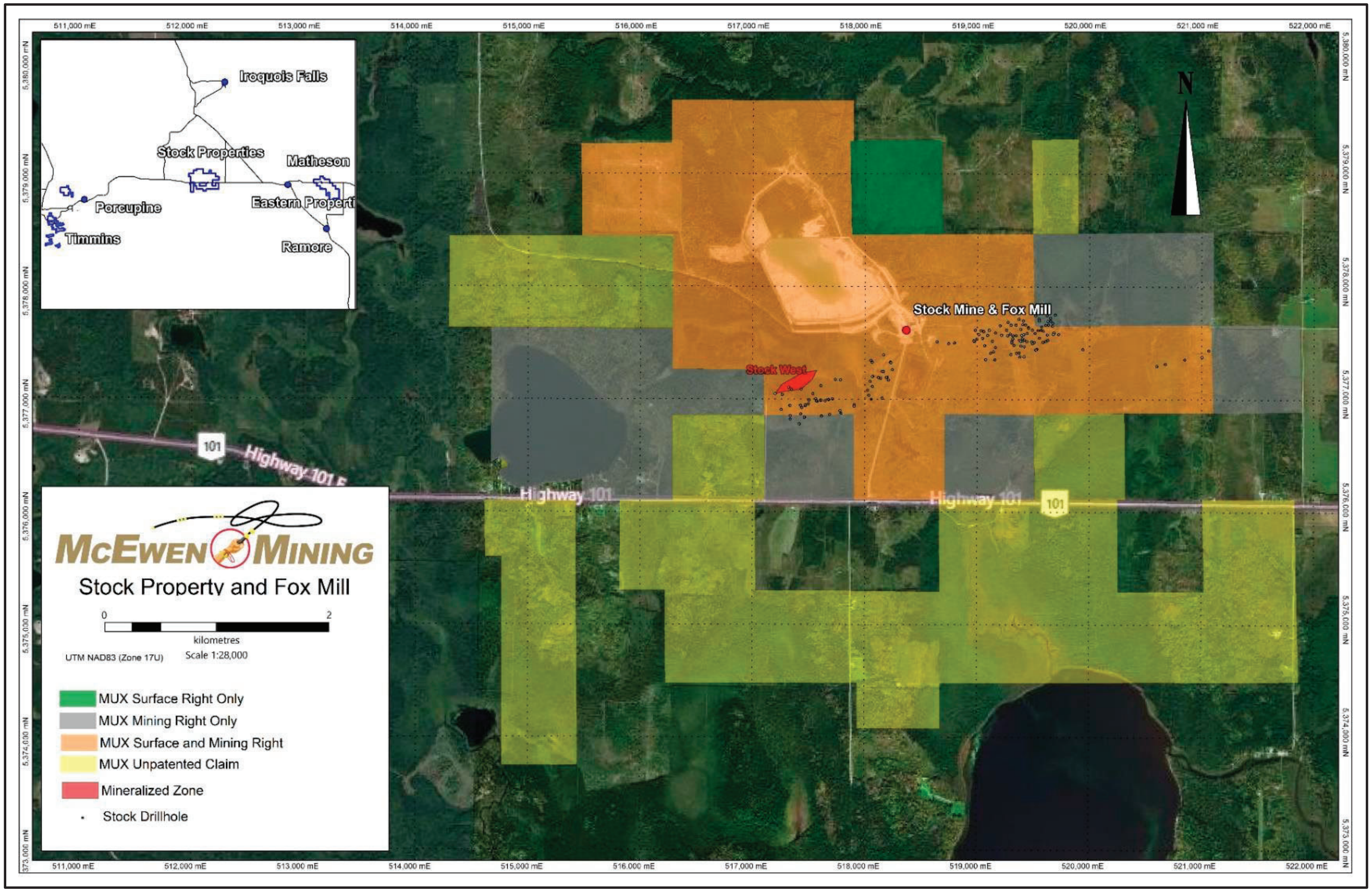

Figure 3-3: Stock Parcel Location Map (prepared by McEwen, dated 2021)

Note: MUX = McEwen

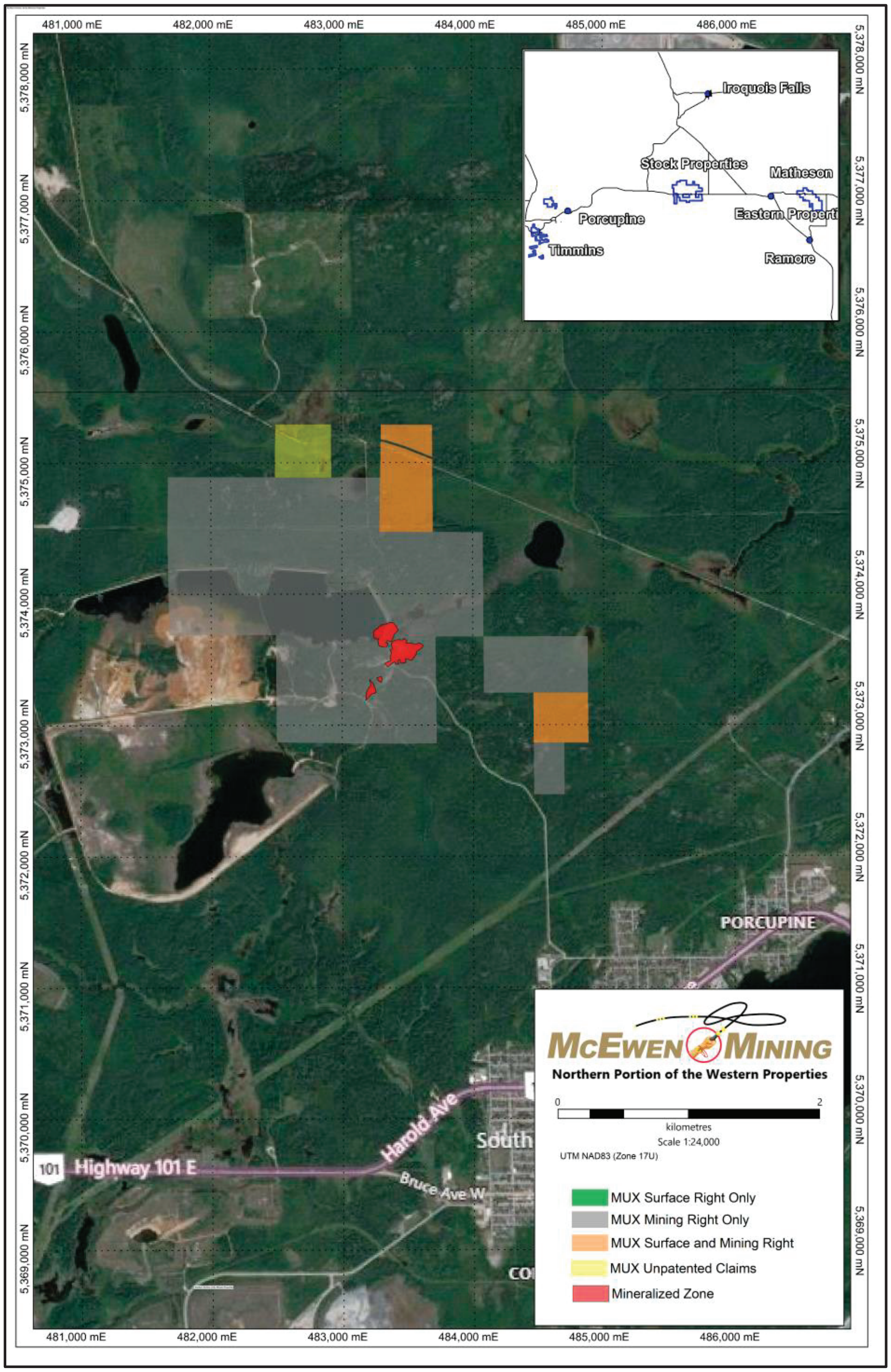

Figure 3-4: Northern Portion of the Western Properties Parcel Location Map (prepared by McEwen, dated 2021)

Note: MUX = McEwen

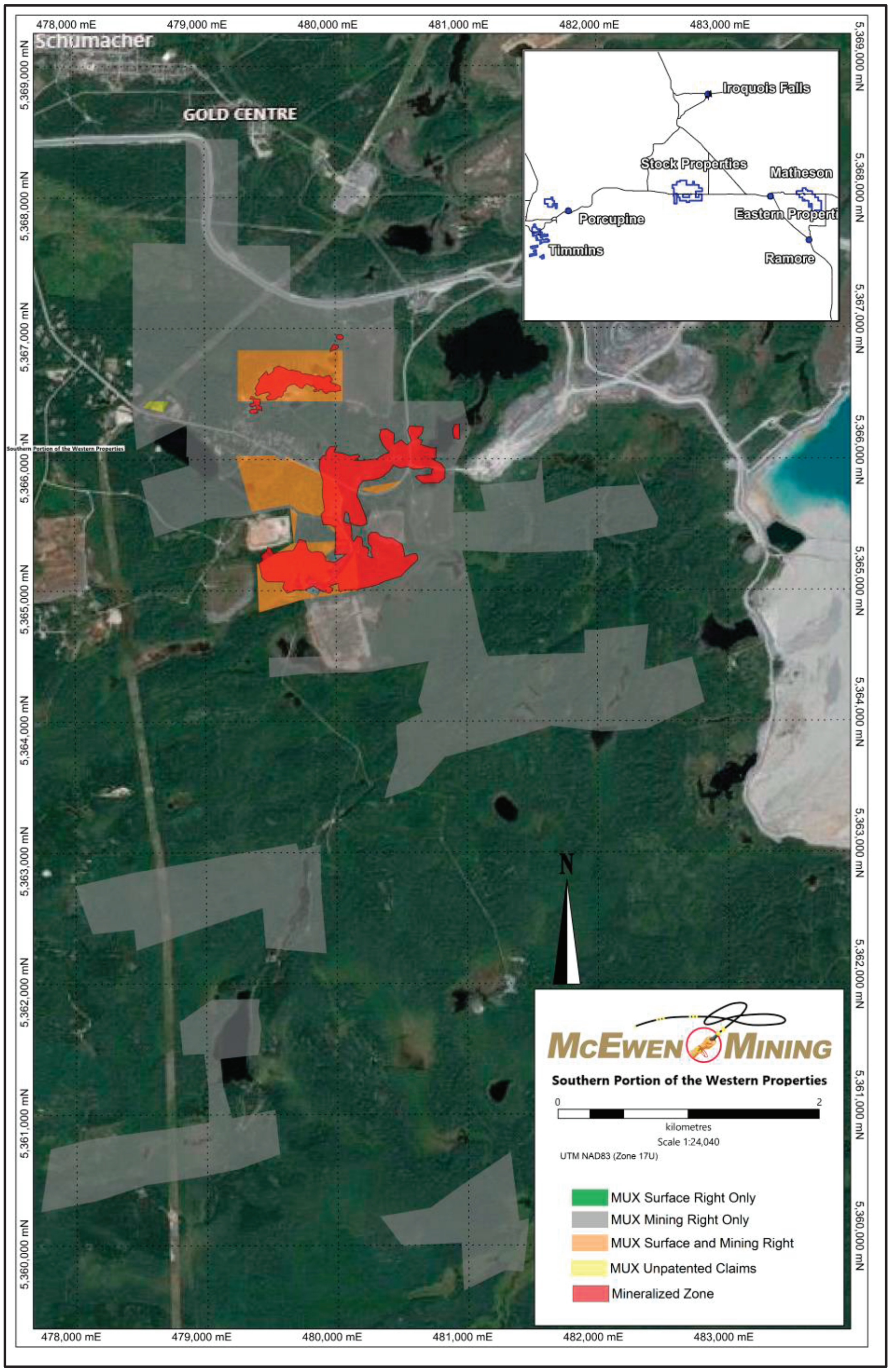

Figure 3-5: Southern Portion of the Western Properties Parcel Location Map (prepared by McEwen, dated 2021)

Note: MUX = McEwen

3.2.3.2 Fuller

McEwen owns 100% interest in the Fuller property, consisting of four owned parcels with surface and/or mining rights listed in Appendix C and covering an area of 210.2 ha in Tisdale Township within the Porcupine Mining Division.

A ramp to access the underground workings was excavated in the 1980s. It is collared on a single patented claim (P13189) called the Fuller Claim, for which McEwen owns both the surface and the mineral rights. In 2008, McEwen acquired from Goldcorp Inc. (Goldcorp) the mineral rights for a parcel consisting of four claim units called the Chisholm Property (S1/2 of Lot 8, Con 1). In exchange for the mineral rights on the Chisholm Property, McEwen granted Goldcorp the surface rights to five Fuller claims (P13099, P13100, P13313, P13314, and P13084).

The entire mineralized zone is situated within the boundaries of PIN 65410-0069 and 65410-0071.

3.2.3.3 Paymaster

McEwen owns 61% interest in the Paymaster property, with the remaining 39% of mineral rights held by Newmont. Paymaster consists of 15 contiguous owned parcels (Appendix C) covering 179.2 ha, with two owned parcels located in the south-central part of Tisdale Township and the remaining 13 owned parcels in the north central part of Deloro. The joint venture interest is limited to the property above the 4,750 level below surface.

The mineralized zone is situated within the boundaries of PIN 65398-0284, 65398-286, 65442-0580,65442-0793, 65442-0795, 65442-0799, 65442-0801, 65442-0803, 65442-0805, 65442-0807, 65442-0809, 65442-0811, 65442-0813, and 65442-0815.

3.2.3.4 Davidson-Tisdale

McEwen owns 100% interest in the Davidson-Tisdale property. Davidson-Tisdale consists of 14 owned parcels with surface and/or mining rights covering 207.7 ha in the Tisdale Township (Appendix C).

The mineralized zone is situated within the boundaries of PIN 65399-0133, 65399-0129 and 65399-0130.

3.3 Royalties and Encumbrances

3.3.1 Royalties

The Eastern properties are subject to royalties as listed in Appendix A and shown in Figure 3-6. The Tamarack deposit is subject to the Ewen NSRs of 3%.

The Froome Mine is subject to three royalties, 3.25% NSR on the Plouffe parcel, 3% NSR on the Steinman parcel and 1.5% NSR on the Durham parcel. In 2021, the Plouffe royalty was bought out for $1.0 million. The Steinman and Durham royalties are not applicable to the current mine plan.

The Black Fox Mine is not subject to any royalties. Both the Black Fox and Froome mines are subject to the Sandstorm Goldstream Agreement (Section 3.4 and Chapter 16).

The Grey Fox project is subject to the Schumacher royalty (3% NSR), the Newmont royalty (2.5% NSR), and the Gray royalty (0.15% NSR). A portion of the Grey Fox project is subject to the Parsons-Ginn royalty (5% NPI or sliding scale NSR royalty).

The Stock properties are subject to royalties as listed in Appendix B and shown in Figure 3-7. The existing Stock Mine has a 1% NSR. Both the Stock West and Stock East deposits are not subject to royalties.

The Western properties are subject to royalties as shown in Appendix C. The Fuller project is subject to the Summit Organization Inc. NPI royalty of 10%. The Davidson-Tisdale project has no royalties in the location of Mineral Resources.

3.3.2 Stakeholders and Interested Parties

3.3.2.1 Eastern Properties

Stakeholders include the First Nations of the Abitibi Indian Reserve 70, which is jointly owned by the Abitibiwinn (Québec) and Wahgoshig (Ontario) First Nations, and local private landowners in both Hislop and Beatty townships. The Abitibi Indian Reserve 70 is located 25 km east of the Black Fox mine site.

McEwen has undertaken ongoing consultation with the public, government regulators and its Indigenous partners regarding the operations, environmental commitments, and planned activities.

3.3.3 Violations and Fines

There are no known significant violations or fines incurred by McEwen on the properties that make up the Fox Complex.

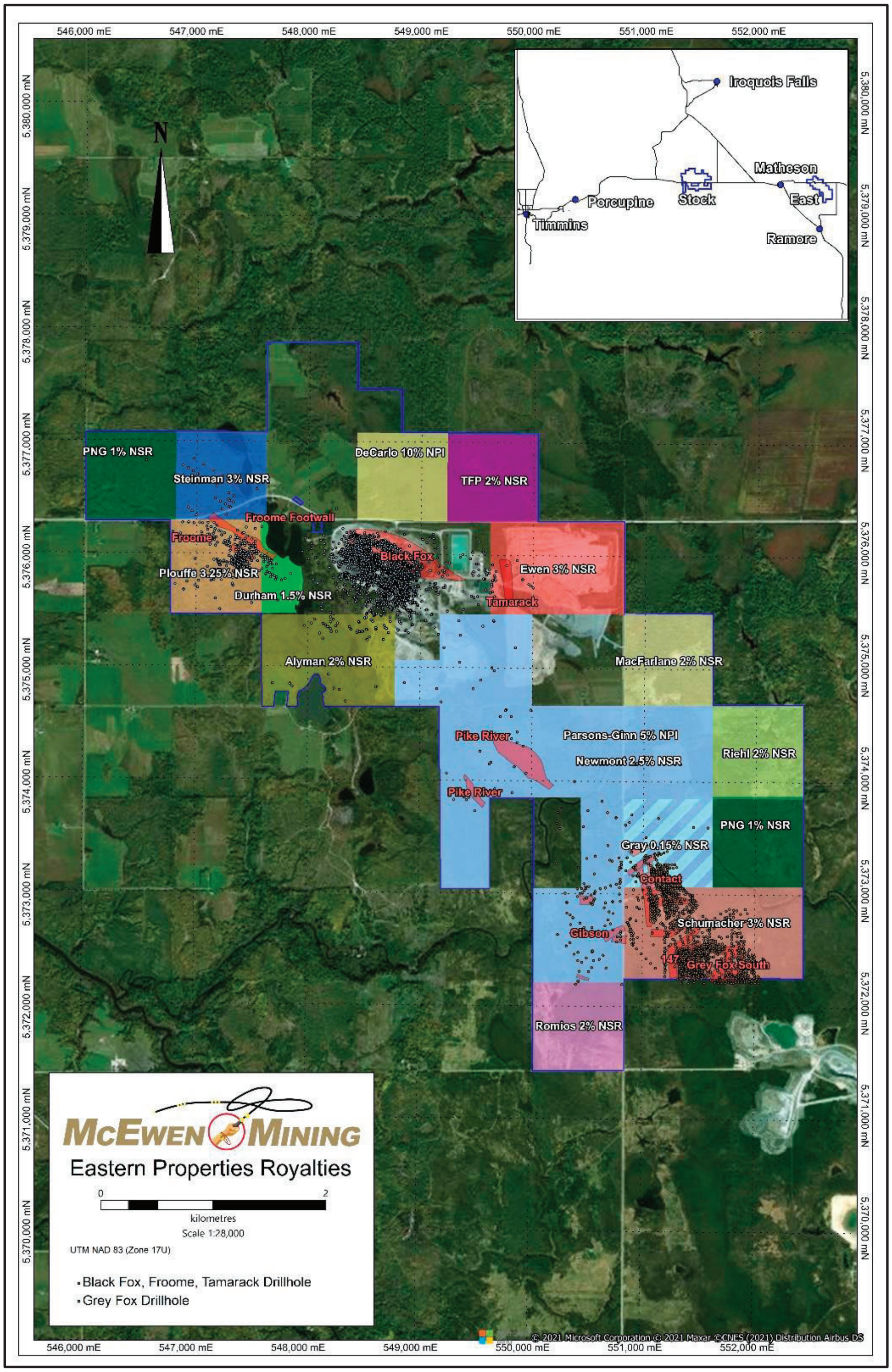

Figure 3-6: Eastern Properties Royalty Location Map (prepared by McEwen, dated 2021)

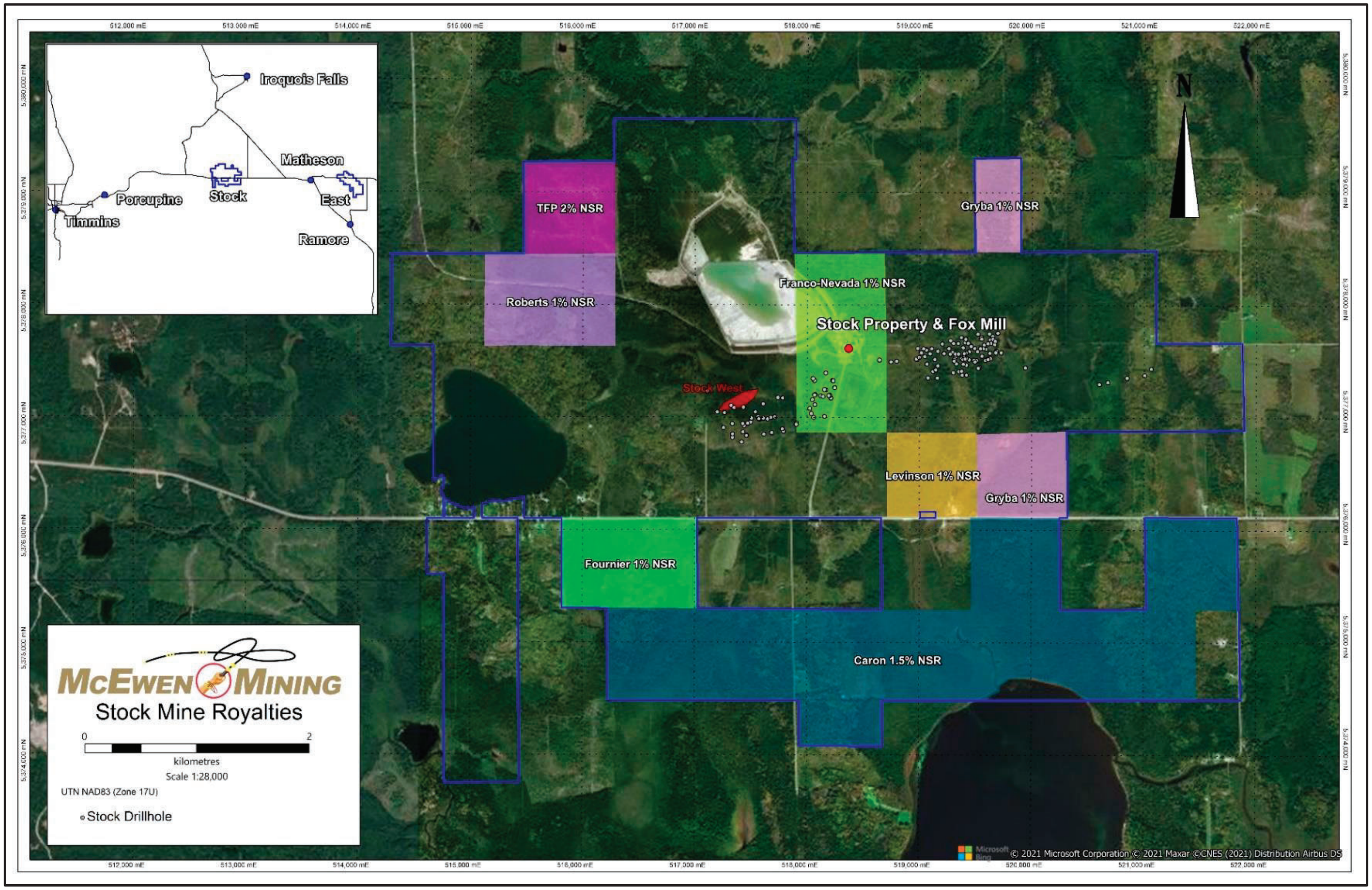

Figure 3-7: Stock Properties Royalty Location Map (prepared by McEwen, dated 2021)

3.4 Agreements

3.4.1 Goldstream

A Goldstream agreement exists between McEwen and Sandstorm, whereby McEwen currently sells 8% of gold produced from the Froome Mine at a price of US$565.95/oz gold. More detail on the Sandstorm agreement can be found in Chapter 16.

3.4.2 Indigenous Communities

McEwen has agreements with First Nations who have treaty and Indigenous rights which they assert within the operations area of the Eastern and Stock properties. These agreements reduce risk and provide a framework for strengthened collaboration in the development and operations of the mine and outlines tangible benefits for the First Nations, including direct financial support, skills training and employment, opportunities for business development and contracting, and a framework for issues resolution, regulatory permitting, and McEwen's future financial contributions. In addition, McEwen engages with Indigenous communities in connection with permitting applications and ongoing projects.

More specifically, an Impact Benefit Agreement has been in place with the Wahgoshig First Nations for the Eastern properties since 2011. The Métis Nation of Ontario was also consulted regarding the Eastern properties.

McEwen does not have agreements with First Nations in the area of the Western properties. Agreements will have to be negotiated for those projects to move forward. The mines adjacent to Fuller and Davidson-Tisdale have agreements in place with Flying Post First Nation, Matachewan First Nation, and Mattagami First Nation through the Wabun Tribal Council and the Wahgoshig First Nation. It is expected that McEwen will be able to negotiate similar agreements for the Western properties.

3.4.3 Newmont Agreement

The Newmont agreement was originally made with Apollo Gold in 2009. Under Instrument Number CB56690, the agreement establishes that in the event McEwen desires to option, joint venture, assign, transfer, convey or otherwise dispose of any of its rights or interests in and to specific property located near the Black Fox Mine (Figure 3-8), excluding a corporate merger transaction, McEwen shall promptly notify Newmont in writing of its intentions in order that Newmont may consider a possible acquisition from McEwen of a portion or all of McEwen's interest in the named Property.

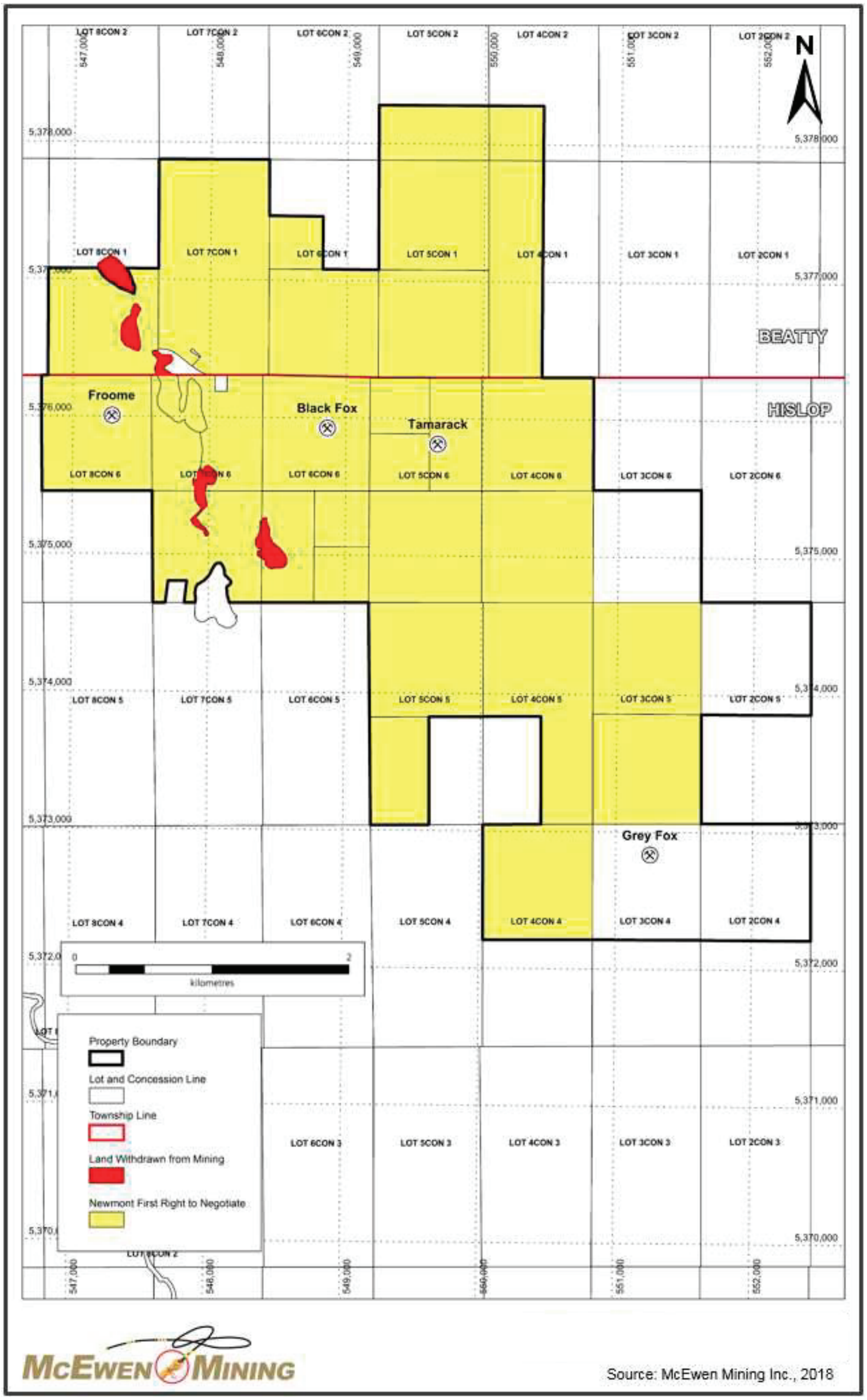

Figure 3-8: Location Map Showing Property subject to Newmont Agreement Near the Eastern Properties (prepared by McEwen, dated 2018)

The Eastern properties subject to the agreement includes PIN 65366-0126, 65366-0127, 65366-0129, 65366-0143, 65366-0199, 65380-0498, 65380-0499, 65380-0520, 65380-0521, 65380-0525, 65380-0531, 65380-0532, 65380-0534, 65380-0552, 65380-0553, 65380-0555, 65380-0556, 65380-0557, 65380-0558, 65380-0559, 65380-0566, 65380-0636, 65380-0637, 65380-0638, 65380-0670, 65380-0671, and 65380-0676.

3.4.4 Paymaster Option and Joint Venture Agreement

The joint venture agreement with Newmont provided the framework for McEwen (as Lexam VG Gold) to earn their 61% interest in the Paymaster claims during the option term. The option provided an opportunity to earn an undivided 60% interest through a combination of cash, stock, drilling and expenditures. The option was fully vested when the term expired in 2012. The additional 1% interest was earned through McEwen's investment in the Paymaster property. Voluntary non-participation in funding reduces the interest of the non-participating party. The agreement expires in 2062 or as long as products are produced from the Paymaster property.

The agreement provides for McEwen's management of exploration, development, and mining on the Paymaster property down to the 4075 ft level, and the funding of that work on the Paymaster claims. Newmont holds 100% of the interest below that level.

McEwen's management committee makes decisions on the work performed on the Paymaster property. As the majority interest holder and manager of the joint venture, McEwen is able to cast any deciding votes.

3.5 Environmental Liabilities

There are environmental liabilities related to historical and current mining at the Fox Complex properties. These liabilities are addressed through the closure plans that have been prepared for the properties that make up the Complex and approved by the Ministry of Energy, Northern Development and Mines.

The detail on closure plans and permits required to conduct the recommended work program on the property are described in Chapter 17 of this Report.

3.6 Significant Risk Factors

The 2020 Fraser Institute Annual Survey of Mining Companies (Yunis and Aliakbari, 2020) provides an independent assessment of the overall political risk facing an exploration or mining project across various global jurisdictions. Overall, Ontario ranked 20 out of 77 jurisdictions in the survey on the investment attractiveness index which combines the policy perception index in which Ontario ranked 31st, with results from the best practices mineral potential index where it ranked 20th.

The QP has identified the following risk factors of operating in Ontario:

- **Title defects or additional rights:** uncertainties inherent in the mineral properties relate to such things as the sufficiency of mineral discovery, proper posting and marking of boundaries, assessment work and possible conflicts with other claims not determinable from public record.
- **Environmental regulation**: the introduction of stricter standards and enforcement, increased fines and penalties for noncompliance, more stringent environmental assessments of proposed projects, and a heightened degree of responsibility could have an adverse effect on McEwen. Environmental hazards may exist on the Property that are unknown at the present and that have been caused by previous owners or operators, or that may have occurred naturally.

4.0 Accessibility, Climate, Local Resources, Infrastructure and Physiography

4.1 Accessibility

The area is serviced from Toronto via Highways 400 and 69 to Sudbury, and Highway 144 to Timmins; or Highway 11 from Barrie to Matheson and Highway 101 westward to Timmins. The City of Timmins is also serviced by regularly scheduled airline flights from Toronto.

All claims pertaining to the Western properties are located within the Municipality of Timmins and are accessible by either provincial or municipal roads. The Buffalo Ankerite, Paymaster, and Fuller properties are all near or intersected by the secondary GMR highway. The Davidson Tisdale property is accessible by an all-weather gravel road north of Crawford Street in South Porcupine.

The Stock property is located in Stock Township on the north side of Highway 101 some 20 km west of the community of Matheson and 43 km east of the City of Timmins. The area encompassed by the mine property is not noted as a major tourist attraction, nor is it noted for its outdoor recreational esteem. However, there are permanent residences, cottages and tourist cabins located at Reid Lake, west and upstream of the property and at Moose Lake, south and downstream of the mine property. The Stock Mine site is easily accessible via an access road from Highway 101 located approximately 1.5 km to the south. Provincial Highway 101, along with numerous all-weather secondary, concession, and lot roads, provides excellent access to all of the Stock claim groups.

The Eastern property is located approximately 10 km east of the town of Matheson, which lies 55 km north-northwest of Kirkland Lake (population approximately 8,000), and 60 km east of Timmins (population approximately 42,000). Access is via Highway 101 East, which crosses the Black Fox property from east to west through its centre. The mine site and facilities are located on the south side of Highway 101 East. The Grey Fox property is easily accessible along Highway 101, and then south for 2 km along a township road (Hislop 2 or Tamarack Road) about 10 km east of Matheson, Ontario. The population of the Black River-Matheson Township, which includes the communities of Holtyre, Matheson, Ramore, Shillington, Val Gagne and Wavell, is approximately 2,500. Access within the property is achieved by various drill roads and all-terrain vehicle trails. There is sufficient surface rights to support mining operations.

4.2 Local Resources and Infrastructure

Supplies and services are available in Matheson or Timmins, and materials can be delivered with a 12-hour turnaround time. Forestry and mining are the primary industries, and the properties are located within well-established mining camps. Therefore, mining and exploration personnel as well as equipment can be locally sourced.

A 500 kV power line and transformer station are within 2 km of the Fuller, Buffalo-Ankerite and Paymaster properties. Numerous operational gold processing facilities, as well as facilities on care and maintenance, are located in the Timmins area. The closest to the main cluster is the Dome Mill Complex owned and operated by Newmont. This complex is located approximately 2 km northeast of the Paymaster pit for the Project and has a rated capacity between 12,000 t/d and 14,000 t/d dependent on rock hardness.

Electrical power is available at Stock and Froome and also readily available at the exploration site of Grey Fox via power lines along Tamarack Road. Electrical services were historically available on the property during production from the Gibson Mine during the early 1980s.

4.3 Climate

The minimum mean annual temperatures in the region range from -19°C in January to +12°C in July. The maximum mean annual temperatures in the region range from -11°C in January to +24°C in July. The mean annual rainfall for the region is 1,211 mm (www.worldweatheronline.com). The mean annual snowfall over the winter is 353 cm.

Rapid melting of accumulated snowfall can produce local flooding on the property for short periods during the spring months. Average monthly wind speeds for the region are 11 to 15 km/hr (Dyck, 2007). It is possible to conduct mining and exploration activities year-round.

Operations on the property can continue year-round.

4.4 Physiography

4.4.1 Eastern Properties

The Eastern properties are predominantly agricultural land with a mature willow shrub, poplar, black spruce, and white birch forest along the southern and eastern edges of the property. The region is characterized by outwash deposits from continental glaciation, including raised beaches, flat clay pans and eskers. The low to moderate topography is marked by rock knobs and ridges (Dyck, 2007). The elevation around the Eastern properties range from 295 to 330 masl (Prenn, 2006).

Surface waters around the Eastern property include lakes, rivers, and their associated habitats. Lakes include Froome Lake located 0.25 km west of the mine, Leach Lake located 1.4 km northwest of the mine and Lawler Lake located 1.7 km to the south. Two others, Salve Lake and Nickel Lake respectively located 5.2 and 5.9 km north of the mine, form the headwaters of Salve Creek.

The Eastern properties are located within the Salve Creek and Pike River watersheds, which are both tributaries of Black River. Black River flows north into Abitibi River, which in turn flows into Moose River. Moose River ultimately flows into James Bay (Dyck, 2007).

4.4.2 Stock Property

The site is contained in an area of stratified silts and clays and includes wetland depressions containing organics of depths up to 1 m and more. The topography in the vicinity of the property is controlled by a level lacustrine plain of sand and clay with patches of organics and ridges bounded by esker/outwash units to the east and west. The ridges are considered to be bedrock-controlled, although available information indicates that overburden thickness over the bedrock is significant. Local topographic variations range from 267 to 276 masl. The gentle undulating terrain is characterized by dry to moist clay surfaces with shallow wet organics occurring in the depressions. Local areas of moderate relief are generally well drained. In contrast, topographical lows are frequently occupied by organic wetland deposits and are poorly drained.

4.4.3 Western Properties

The Western properties are historical mining sites with residential areas adjacent to them, except at Davidson-Tisdale. The area in the vicinity of the properties is typical of glacial regions with low to moderate topographic relief and numerous rivers and lakes. Elevations range from approximately 250 to 300 masl. Drainages are characterized by creeks and rivers which comprise part of the Arctic watershed. Bedrock outcrop exposure is limited on the properties.

The Timmins area supports boreal forest tree species and an active timber, pulp, and paper industry. Local tree species include: American Mountain Ash, Balsam Fir, Black Spruce, Eastern White Cedar, Eastern White Pine, Jack Pine, Pin Cherry, Red, Tamarack, Trembling Aspen, White Birch, White Spruce, and Speckled Alder.

5.0 History

5.1 Eastern Properties History

In 2017, McEwen acquired all assets of the Eastern properties, including the Black Fox Mine, Froome deposit, and Grey Fox property from Primero.

5.1.1 Black Fox Mine

Drilling appears to have been first carried out on the Black Fox properties by Dominion Gulf in 1952, followed by Hollinger Consolidated Gold Mines Ltd. (Hollinger) in 1962. The holes were drilled near diabase dykes located in the easternmost part of the properties. In 1988, Glimmer Resources, Inc. (Glimmer) put together the property package using a combination of crown and private lands. In 1989, Noranda Exploration Company Ltd. (Noranda) entered into a joint venture agreement with Glimmer to earn a 60% interest in the properties. Between 1989 and 1994, Noranda, and later Hemlo Gold Mines Inc. (Hemlo), completed eight drill programs. In all, 27,800 m of drilling was completed in 142 holes. In addition to diamond drilling, exploration was conducted by way of geological, magnetic and gradiometer surveys, a UTEM survey, and a limited induced polarization (IP) survey. In 1996, a final feasibility study on the Glimmer Gold Project was based on probable reserves outlined to a depth of 250 m.

The joint venture advanced an access ramp from surface to 55 m depth in 1996. Exall Resources Ltd. (Exall) purchased the property from Hemlo in April 1996, obtaining approximately 60% interest with Glimmer holding the remaining portion. A bulk sample was taken in 1997 from underground following development of a spiral decline ramp to a depth of 120 m, and 3,800 m of drifting. Commercial production from the Glimmer Mine was achieved in 1998. The sample and production were custom milled at St Andrew Goldfields Ltd.'s (St Andrew) Stock Mill (now the Fox Mill) from 1997 through 2001, after mineral tests carried out by Lakefield Research and others.

In September 2002, Apollo Gold Corporation (Apollo Gold) completed the acquisition of the assets of the Glimmer Mine from Exall and Glimmer. The project was renamed the Black Fox property. Between 2003 and 2007, Apollo Gold completed five drill programs. In addition to diamond drilling, exploration was conducted by way of IP surveys.

In 2008, Apollo Gold produced a feasibility study declaring Mineral Reserves. On 28 July 2008, Apollo Gold completed the acquisition from St Andrew of its Stock Mill and related equipment, infrastructure, property rights, laboratory, and tailings facilities.

In October 2008, Apollo Gold awarded a contract for the removal of the glacial till material over the open pit site and work commenced on 23 October 2008. During the same year, Apollo

Gold received all necessary permits and approvals required to commence mining activities of the open pit. Apollo Gold received a Certified Closure Plan Approval, an Amended Certificate of Approval for Industrial Sewage Works, and a Permit to Take Water (Surface and Ground Water).

Apollo Gold commenced open pit mining at the Black Fox Mine in March 2009. The 2009 drilling program focused on the Pike River property to test the northern extension of mineralization from the adjoining Grey Fox Project.

Apollo Gold and Linear Gold Corporation (Linear Gold) merged to form Brigus Gold Corporation (Brigus Gold) in June 2010. The drilling surface program completed 14 condemnation drill holes (3,468 m) around the Black Fox Mine. A helicopter-borne, high-resolution magnetometer survey was completed in September 2010, covering the 17 km^2 Black Fox Complex.

Apollo Gold and Brigus Gold continued drilling at the Black Fox Mine from 1 January 2008 to 31 December 2013.

Details of the drilling history at Black Fox is tabulated in Table 5-1.

On 5 March 2014, Primero acquired all issued and outstanding common shares of Brigus Gold.

Table 5-1: Summary of Black Fox Drilling

Company	Year	No. Drill Holes	Metres Drilled
Dominion Gulf	1952	Unknown	Unknown
Hollinger	1692	Unknown	Unknown
Noranda	1989-1994	142	27,800
Glimmer/Exall	2000-2002	1,088	96,053
Apollo Gold	2003-2007	889	224,162
Apollo Gold/Brigus Gold	2010-2013	1,318	135,800
Primero	2014-2017	2,605	387,419
McEwen	2018-2021	1,287	192,924
Total		**7,329**	**1,064,158**

5.1.1.1 Past Production

Historical production from the Glimmer Mine era is shown in Table 5-2. The Black Fox Mine production between 2009 through May 2021 is summarized in Table 5-3. Note that the Fox Mill production includes material mined from the Froome Mine and from stockpiles.

Table 5-2: Production History of the Glimmer Mine from 1997 to 2001

Year	Tonnes	Au Grade, g/t	Au Produced, oz	Recovery, %
1997	194,460	6.79	39,884	96.4
1998	308,734	6.67	64,319	96.9
1999	258,699	5.82	48,266	97.8
2000	255,234	5.82	46,418	97.0
2001	81,700	4.53	11,895	98.2
Total	**1,098,827**	**5.97**	**210,782**	**97.1**

Table 5-3: Production History of the Black Fox Mine from 2009 to October 2021 including Froome Mine

Year	Open Pit Tonnes	U/G Tonnes	Total Tonnes Mined	Tonnes Milled	Mill Au Head Grade, g/t	Au Produced, oz	Recovery, %
2009	631,000	-	631,000	531,000	3.28	52,152	93%
2010	792,482	-	792,482	718,400	3.17	67,499	92%
2011	433,267	170,889	604,156	725,541	2.54	55,756	94%
2012	907,077	164,926	1,072,003	735,573	3.43	77,374	95%
2013	663,428	297,110	960,538	752,959	4.34	98,710	94%
2014	775,403	122,249	897,652	695,131	3.00	64,018	95%
2015	849,668	140,836	990,504	875,833	2.58	69,733	96%
2016	-	234,518	234,518	913,235	2.22	62,171	96%
2017	-	263,549	263,549	685,293	3.14	66,733	96%
2018	-	255,982	255,982	268,288	5.57	46,672	97%
2019	-	213,887	213,887	243,677	4.88	37,288	98%
2020	-	200,326	200,326	234,744	3.19	23,129	96%
2021 thru Oct	-	225,279	225,279	246,813	3.15	23,111	92%
Total	**5,052,325**	**2,289,551**	**7,341,876**	**7,626,487**	**3.04**	**744,346**	**95%**

Note: U/G = underground

5.1.2 Froome Mine

Noranda began exploration on the Froome lake claims in 1991 using a ground total field magnetometer and a very low frequency electromagnetic survey (EM), finding results consistent with the geological terrain of the PDDZ. This work was followed by geological mapping in both the Froome and Glimmer claims.

The Froome deposit is located on the Durham, Plouffe, and Steinman properties acquired by Apollo Gold. The Durham and Plouffe properties were acquired in 2003 and the Steinman property in 2007.

In 2014, Primero completed a diamond drilling program which discovered the Froome deposit. This program was targeting an IP anomaly, intercepting 23 m (core length) of silicified rock with disseminated pyrite. Through the latter part of 2015 and early 2016, subsequent diamond drilling defined mineralization over a strike length of approximately 150 m and dip length of approximately 300 m. In addition to the main deposit, drilling in 2016 identified a second zone of mineralization, 25 m (core length) below the current deposit.

Drilling history at Froome Mine is tabulated in Table 5-4, through October 2021.

The initial Mineral Resource estimate was constructed in 2017.

Table 5-4: Summary of Froome Drilling

Company	Year	No. Drill Holes	Metres Drilled
Noranda	1991-1994	2	551
Glimmer/Exall	2000-2002	1	200
Apollo Gold	2003-2007	1	693
Primero	2014-2017	219	65,051
McEwen	2018-October 2021	459	77,790
Total		**682**	**144,285**

5.1.3 Grey Fox Project

5.1.3.1 Gibson

In the area of the Gibson deposit, originally called Hislop West, two shafts were sunk between 1933 and 1939. Both were mined to 122 m, with underground and surface diamond drilling, drifting, and crosscutting. In 1946, S.J. Bird (later Martin-Bird) diamond drilled 11 holes totalling 2,972 m. During the period between 1979 and 1980, A.P. Ginn and G.E. Parsons (Parsons) completed geological and magnetic surveys, and diamond drilling. Additional diamond drilling and a VLF-EM survey took place in 1981 by Parson and Armco Minerals Exploration Ltd. (Armco) in the north half of lot 4, concession 4, which were reported to have intersected high-grade gold tenors (Atherton, 1981).

In 1983, Geddes Resources Ltd (Geddes Resources) and Armco completed geophysical surveys, trenching, and drilling. In 1986, subsequent to a 2,133 m surface diamond drilling program, Goldpost Resources Inc. (Goldpost Resources) initiated an exploration decline ramp to explore anomalous gold tenors associated with the north-northeast striking Gibson Fault. In 1987, Goldpost Resources mined a 61 m crosscut, diamond drilled 56 holes totalling 7,798 m from underground, and extended the decline ramp an additional 579 m to the 122 m level. In the following year, Goldpost Resources completed a magnetic survey, extended the decline ramp by 610 m, drifted 168 m, and diamond drilled more than 7,620 m from underground.

Goldpost Resources reported drill defined material at Gibson, above the 122 m level in 1989.

Mining Corporation of Canada Ltd. (Mining Corp) purchased Gibson from Goldpost Resources and began mining in 1989 (Fenwick et al., 1990; Atherton, 1989). According to Hemlo maps for the Pike River project, about 8,000 t were mined at a grade of 27.4 g/t gold.

5.1.3.2 Grey Fox

The property was first staked by Frederick Schumacher in the early 1900s. In 1936, the area was mapped by the Ontario Department of Mines. Eventually the claims were patented and was worked as farmland until 1992. From 1937 to 1989, there was no reported exploration activity. In 1989, Goldpost Resources drilled an unknown number of holes in the Contact breccia zone, with unspecified results (Atherton, 1989).

According to Buss (2010), Noranda Exploration Company (Noranda) acquired the property in the early 1990s. Noranda developed a north-south grid along the Contact Zone in 1993 (Garber, 1997). In 1994, Noranda re-established the north-south grid and conducted a magnetometer and IP resistivity survey on the property. This was followed up with three exploration holes spaced 200 m apart along the north end of the Contact Zone, for a total of 919 m. Whole rock geochemistry was also performed on one of the drill holes (Garber, 1997).

Noranda optioned the property in 1995 to Hemlo (Buss, 2010). Hemlo and Battle Mountain Gold Company (Battle Mountain) developed an east-west grid over the property and drilled holes on the south end of the zone. They also calculated an estimated resource on the Contact Zone based on results from the previous year's drilling program.

In July 1996, Hemlo merged with Battle Mountain. In 1996, Battle Mountain, in conjunction with Cameco Gold drilled holes on the central portion of the Contact Zone at a 200 m spacing and submitted samples for mineralogical examination (Garber, 1997). Additional drilling was conducted on the south end of the zone in 1997. A resource calculation was completed in 1997 for the Contact Zone. The property was then transferred back to the Schumacher Estate.

Apollo Gold acquired the property in November 2007 and began drilling the southern extension of the Contact Zone in 2008.

The 2010 and 2011 Brigus Gold exploration drilling programs led to the completion of a Mineral Resource estimate supporting open pit and underground mining in October 2012 (Daigle, 2012).

An updated Mineral Resource estimate (Richard, 2013) followed the 2012 and part of the 2013 drilling programs completed by Brigus Gold to upgrade the classification.

The 2014 and 2015 Primero drilling programs focused on infill drilling and expanding the Mineral Resources on the 147 Zone, Contact and Grey Fox South Zones.

McEwen began drilling at Grey Fox in 2018 both infill and step-out drill holes.

Drilling history at Grey Fox is tabulated in Table 5-5.

Table 5-5: Summary of Grey Fox Drilling

Company	Year	No. Drill Holes	Metres Drilled	Target Zone
Abuy Gold Mines	1939-1945	16	1,277.0	Gibson
Martin-Bird Gold Mines	1946	11	2,972.0	Gibson
Nevada Exploration	1973-1974	11	610.0	
A.P. Ginn and G.E. Parsons	1979-1980	38	3,910.0	Gibson
Armco	1981	18	884.0	Gibson
Geddes Resources and Armco	1983-1984	28	2,170.0	Gibson
Goldpost Resources	1986-1989	At least 56	17,549.0	Gibson surface and underground drilling
Noranda	1993	21	5,533.0	Contact Zone
Noranda	1994	6	1,367.0	Contact Zone
Battle Mountain/Hemlo	1995	8	2,109.0	Grey Fox
Battle Mountain and Cameco Gold	1996	16	5,872.0	Contact, 147 and South Zones, Gibson and Hislop North
Battle Mountain and Cameco Gold	1997	13	5,367.5	Contact, 147, South Zones, Gibson and Hislop North
Glimmer/Exall	2001	4	1,667.0	Romios
Apollo Gold	2008	16	3,715.0	Southern extension of Contact Zone
Apollo Gold	2009	53	9,960.0	Contact Zone
Brigus Gold	2010	76	29,084.0	Contact Zone, Gibson, South Zone, Hislop North, 147 Zone
Brigus Gold	2011	274	101,893.0	Contact Zone, Gibson, South Zone, 147 Zone
Brigus Gold	2012	282	87,971.0	Contact Zone, 147 Zone, Whiskey Jack, South Zone
Brigus Gold	2013	148	65,417.0	Contact Zone, 147 Zone, South Zone
Primero	2014	199	81,933.0	Contact Zone, 147 Zone, South Zone
Primero	2015	57	26,094.0	Contact Zone, Gibson, South Zone
McEwen	2018	64	25,181.3	Gibson, 147 Zone, 147NE Zone
McEwen	2019	219	89,266.0	Gibson, 147 Zone, 147NE Zone, South Zone, Whiskey Jack Zone, Romios
McEwen	2020	13	4,438.0	Whiskey Jack Zone
McEwen	2021 thru Oct	29	11,396.0	Gibson Zone, Whiskey Jack Zone
Total		**at least 1,676**	**587,635.8**	

5.1.4 Tamarack Deposit

In 2003, Apollo Gold began drilling in the hanging wall of the Black Fox deposit looking for additional Mineral Resources. Anomalous and significant base metals were noted in assays beginning in 2004. Continued exploration in the area between 2003 and 2016 totalled 126 holes from both surface and underground for a total of 43,626 m.

In 2017, McEwen drilled 10 holes, completing 3,377 m. The initial Mineral Resource model for Tamarack deposit was focused on gold in 2017. In 2018, the deposit was looked at as a base metal deposit with gold and silver. A significant drilling exploration program was undertaken by McEwen in 2018 to understand the base metal deposit. The program drilled 45 holes for a total of 19,100 m.

5.2 Stock Property History

The Stock property was originally staked and drilled by Hollinger from 1959 to 1964. The Stock Mine mineralization was discovered in 1961. This work located auriferous carbonate rocks, volcanic rocks, and porphyries within the PDDZ, but limited exploration funds and changing exploration priorities postponed further evaluation. The claims were allowed to lapse.

Quebec Sturgeon River Mines Ltd. (Quebec Sturgeon) re-staked the property and discovered substantial gold mineralization in 1973. Development began in 1974 and included construction of a headframe with a shaft being collared and driven through 15 m of overburden and 4 m of bedrock.

During 1980 to 1981, Quebec Sturgeon deepened the three-compartment shaft to 82 m below surface and a station was established on the 61 m level. Some 413 m of drifting and cross-cutting was completed on this level along with a total of 4,481 m of underground drilling from 113 holes. Quebec Sturgeon ceased all work in early 1982 due to the drop in gold price.

In 1983, a $14 million equity financing was completed by turning the property over to St Andrew, a 68% owned subsidiary of Quebec Sturgeon. Development resumed on the property in mid-1983 and by the end of 1985, the shaft had been deepened to 269 m and underground development had been conducted on four levels.

In early 1986, St Andrew acquired additional property along the PDDZ by purchasing Labrador Mining and Exploration Company Ltd.'s (Labrador Mining and successor of Hollinger) interest in properties in three townships and by entering into joint venture agreements with Esso Resources Canada Ltd. (Esso) and Quebec Sturgeon. In mid-1987, St Andrew announced that the Stock Township deposit would be brought into production. Financing was raised in Europe in 1988. It was also announced that a 454 t/d mill would be constructed by late 1988. Production and milling of stockpiled development material began in 1989.

In 1989, St Andrew bought out the remaining interests of Esso. By the end of 1989, five levels in the Stock Mine had been developed and 91,500 t of material had been milled to produce 17,999 oz of gold. The shaft could not be used below the fourth level due to bad ground conditions and the fifth, sixth and seventh levels had to be accessed by a ramp. Mining methods included cut-and-fill, room-and-pillar and longhole.

Between 1988 to 2000, production of 130,000 oz of gold from 733,000 t of material at an average grade of 5.5 g/t gold was mined from the N2, West and East Zones. Mining and milling were suspended in December 2000 so St Andrew could focus on restructuring financially to deal with a working capital deficit and debt burden.

In 2004, St Andrew dewatered and rehabilitated the underground workings, and the Stock head frame and hoist were refurbished. An underground development, mining and drilling program was then undertaken. During 2004, 30,500 t grading 2.56 g/t gold were mined and treated at the Stock Mill.

In 2005, underground mining operations were again suspended at the Stock Mine because of the decision to extend the period of the Advanced Exploration Program at the St Andrew's -owned Clavos Mine. Daily production levels at the Stock Mine were insufficient to satisfy the critical tonnages required for the Stock Mill to operate at profitable levels. Underground development and drilling in the deeper portions of the Stock Mine did not generate sufficient gold resources to sustain future economic mining operations and the mine was placed on care and maintenance pending further exploration.

In 2006, RPA prepared a technical report on behalf of St Andrew on their properties in and around the Timmins area. No Mineral Resources or Mineral Reserves were reported at Stock (Gow and Roscoe, 2006).

The Stock Mine and mill facility were sold in 2008 to Apollo Gold (later Brigus Gold). Brigus Gold purchased and upgraded the Stock Mill to provide milling facilities for its Black Fox project. Refurbishment of the mill was completed in April 2009, and it began operating on 1 May 2009.

McEwen acquired the property and all of its assets in 2017.

Drilling history at Stock, including Stock Main, Stock East and Stock West is tabulated in Table 5-6.

Table 5-6: Summary of Stock Drilling

Company	Year	No. Drill Holes	Metres Drilled	Target Zone
Various companies	1959-1982	315	31,950	
St Andrew	1983-2008	1,124	91,282	Stock Main, Stock East
Brigus Gold	2008-2017	6	2,164	
Primero	2014-2015	35	10,541	
McEwen	2018	91	28,389	Stock East
McEwen	2019	108	43,219	Stock East, Stock Main N-2 Shoot Extension, Stock West
McEwen	2020	33	17,813	Stock West
McEwen	2021 thru Oct	136	61,046	Stock West, Stock Main N-2 Shoot Extension
Total		**1,848**	**286,404**	

5.2.1 Past Production

Production commenced in July 1989 and ceased in mid-1994 due to a lack of working capital. The Central Zone was discovered in 1994 by underground drilling and the 8-12 decline had almost reached the Central Zone when the mine closed.

The overall production history of Stock Mine to date is shown in Table 5-7. Over half of the production came from the N2 Zone where 405,298 t averaging 6.2 g/t gold was mined. The average grade increased in 1992, when production from the higher-grade West Zone commenced. From 1992 to 1994, 30,425 oz of gold were recovered from West Zone production, totalling 103,857 t averaging 9.1 g/t gold.

Table 5-7: Stock Mine Production History, St Andrew

Year	Tonnes Milled	Au Grade, g/t	Contained Au, koz	Recovered Au, koz
1989	90,883	3.87	11,320	10,657
1990	163,129	5.59	29,310	27,295
1991	132,191	5.62	23,897	21,961
1992	173,413	6.79	37,848	36,301
1993	151,187	5.14	24,998	23,788
1994	20,677	5.38	3,578	3,403
2000	68,723	5.88	12,983	12,395
2004	23,015	1.83	1,355	1,355
2005	7,527	4.78	172	172
Total	**830,745**	**5.48**	**145,461**	**137,327**

5.3 Western Properties History

McEwen acquired the mineral rights to the Western properties through either Lexam VG Explorations Inc. or VG Holdings, a wholly owned subsidiary of Lexam in 2017. Lexam and VG Gold (Vedron, originally Vedron Gold Inc.) amalgamated forming a new corporation called Lexam VG Gold Inc. (Lexam) in 2011. The history of the individual property mineral rights ownership is discussed in the history for each property.

5.3.1 Buffalo Ankerite Property

Prior to 1935, Buffalo Ankerite was developed by two independent owners. The operations were distinct and covered two different mineralized bodies, the South Zone (Buffalo Ankerite South) and the North Zone (Buffalo Ankerite North). In 1935, the operator of Buffalo Ankerite North, Buffalo Ankerite Holdings Ltd. (BAH, previously Buffalo Ankerite Gold Mines Ltd.) consolidated both properties under its ownership. The reporting of historical work is divided into these two properties prior to 1935.

5.3.1.1 Buffalo Ankerite North

In 1911, the Armstrong-McGibbon syndicate sunk three shafts: No. 1 shaft to 12 m with 5 m of drifting, the No. 2 shaft to 14 m with 16 m of cross-cutting, and No. 4 shaft to 14 m with 10 m of cross-cutting.

From 1915 to 1916, Coniagas Mines Ltd. (Coniagas Mines) optioned the Ankerite Mining Company Ltd. property. Previously, Dobie Mines Ltd. had completed a 15 m shaft with 26 m drifting and sunk another 37 m shaft. Under the option agreement, Coniagas Mines drove a tunnel in the mineralized body on one of the claims and completed diamond drilling. Coniagas Mines also completed trenching, diamond drilling and limited shaft sinking and drifting. It is uncertain if the Dobie shafts were abandoned.

In 1918, Coniagas Mines again optioned the property from Ankerite Gold Mines Ltd. (Ankerite) and proceeded to complete a three-compartment vertical shaft to 70 m with 21 m of drifting on the 200 ft level. Before 1923, five shafts had been sunk on the Buffalo Ankerite North property; Main to 107 m, Armstrong to 15 m, Farish to 42 m, Watson to 15 m, and Air to 15 m.

The property was then optioned by United States Refining and Smelting Company in 1923. They dewatered existing development and conducted sampling under option from North American Gold Corporation.

From 1923 to 1925, the Porcupine Goldfields Development and Finance Company Ltd. optioned the claims and completed significant development and surface and underground diamond drilling. The development included 1,048 m of lateral work on 61 m and 91 m levels; 2,359 m of surface drilling from 17 holes, and 1,411 m of underground drilling from 21 holes. A new four-compartment No. 2 shaft was completed to 147 m.

In 1926, Ankerite deepened the No. 2 shaft to 189 m. Mining and milling continued by Ankerite from mid-1926 until 1929.

Mining resumed by Ankerite Gold Mines Syndicate in 1931. The company became BAH in 1932.

Development, mining, and milling continued by BAH from 1932 to 1935.

In 1935, BAH acquired the adjoining March (Marbuan) Mine. Development in 1935 included the deepening the Ankerite No. 1 shaft to 112 m, Ankerite No. 2 shaft to 366 m, the Ankerite No. 5 (Main) shaft to 1,218 m, the No. 8 (Imperial) shaft to 33 m, and the establishment of 27 levels with the deepest at 1,143 m. Drifting amounted to approximately 19,202 m, cross-cutting approximately 14,326 m with mill capacity increasing to 363 t/d.

The Buffalo Ankerite operations were closed in 1953.

5.3.1.2 Buffalo Ankerite South

Before 1916, two 15 m shafts, one vertical and one inclined at 65°, were sunk by Maidens MacDonald.

From 1916 to 1917, the shafts were deepened, the vertical shaft was deepened to 33 m and the inclined shaft was deepened to 30 m. This work was performed by LaRose Mines Ltd. under an option from Coniagas Mines.

In 1919, March Gold Ltd. (March) was incorporated. From 1921 to 1925 March sunk the March No. 1 shaft to 244 m, with levels at 30 and 98 m below the surface. Production stoping began on the No. 3 vein in 1926. Mill construction was completed and milling began in 1926 from a 136 t/d operation.

From 1926 to 1932, March operated the mill, deepened the March No. 3 shaft to 386 m, deepened the South Winze from 386 to 612 m, and established six levels between the 52 and 206 m levels.

Milling was suspended in February 1927, while mining was suspended in March 1927 and resumed in November. Work in the mine was confined to development on the 52 and 91 m levels. Milling resumed in May 1928. Both mining and milling ceased in 1932 due to a reduction in gold grades. The mine was then allowed to flood.

In 1933, Marbuan Gold Mines Ltd. (Marbuan) acquired the holdings of March and dewatering began in late 1934 with milling resuming mid-1935. Marbuan deepened the South Winze to 953 m and established three more mining levels between 244 and 320 m.

After the consolidation with BAH, the Buffalo Ankerite North and South mines operated until 1953. The No. 6 Winze was extended from 953 to 1,833 m with the establishment of another six mining levels between 1,133 and 1,814 m. The No. 5 shaft served as a production shaft for both the North and South operations and was connected with haulage drives on both the 320 and 610 m levels.

5.3.1.3 Buffalo Ankerite – Post 1953

BAH changed the focus of their corporation to property management and residential construction and changed their name to Romfield Building Corporation Ltd. (Romfield) in 1964 (Financial Post, 2018).

An agreement between Romfield and Pamour Porcupine Mines Ltd. (Pamour) was made to clean up dumps and surface mine the veins in 1978 (Kustra, 1979).

In 1982, Vedron created a joint venture with Pamour to develop the property, which it had under option (Kustra, 1983). Fifteen drill holes (1,245 m) were drilled in 1983 from surface to explore the 37 m level. The option to purchase the property was exercised by Vedron for $1 million late in 1985 (Pamour Porcupine Mines Limited, 1986).

In 1986, Belmoral Mines Ltd. (Belmoral) made an agreement with Vedron to undertake an underground development program with a 1,067 m ramp planned to 152 vertical m below surface.

By the end of 1986, 1 km of new access road was built, a power line was installed, and two buildings were rehabilitated at the old Buffalo Ankerite mine site for use as a shop and warehouse. A garage and compressor building were erected at the site. A total of 3,048 m of ramping was completed and access gained to the first (49 m) level of the old Edwards Mine workings. The old shaft was dewatered, and 610 m of underground diamond drilling was completed. A Mineral Resource estimate followed (Kustra, 1987).

Under an exploration and share purchase agreement, by 1987 Belmoral had earned a 56% interest in Vedron. The underground ramp was advanced 259 m to reach the 152 m level. On the 84 m level, 354 m of drifting was completed, 411 m on the 114 m level, and 183 m on the 152 m level. A total of 267 m of cross cutting was done on the 114 and 152 m levels. A vent raise was driven 136 m. Underground diamond drilling amounted to 5,791 m, and 5,145 m of surface diamond drilling was completed. Some of the surface diamond drilling was done on claims to the north of the Vedron Zone to explore for the extensions of the number 18 Vein, which was mined at depth on the adjoining eastern property by Paymaster Consolidated Gold Mines. A bulk sample of 3,600 t obtained from underground development was shipped to Belmoral's mill in Quebec (Kustra, 1988).

In 1991, control of Vedron passed to Timmins Nickel due to the latter's acquisition of Belmoral's debt and equity interests in Vedron (Timmins Nickel gets control of Vedron, 1991). In 1995, Vedron restructured as Vedron Gold Inc. and re-acquired the Buffalo Ankerite claims (Northern Miner, 1995).

In 1996, Vedron conducted a surface diamond drill program on the Buffalo Ankerite property. Vedron also completed a trenching program around the Buffalo Ankerite No. 5 shaft area in Deloro Township and another program around the Edwards shaft. Line cutting and IP surveys were done on the Tisdale Ankerite property to the north of the Edwards shaft (Ontario Geological Survey, 1997).

In 1997, Vedron completed geophysical surveys over 48 km of grid lines on the Buffalo Ankerite South Zone (Ontario Geological Survey, 1998).

In 2001, Vedron optioned the Buffalo Ankerite property to Placer Dome (CLA) Ltd. (Placer Dome) to allow them to earn 51% in the property.

In 2002, the Placer Dome/Porcupine Joint Venture (PJV), a joint venture between Placer Gold Inc. (Placer Gold) and Kinross Gold Corporation (Kinross), optioned the Buffalo Ankerite and Fuller properties from Vedron. Exploration by Placer Dome/PJV consisted of diamond drilling at Buffalo Ankerite North and Paymaster and two drilling phases at Buffalo Ankerite South.

A Mineral Resource estimate was carried out by Placer Dome on Buffalo Ankerite South in July 2002. A Mineral Resource estimate was developed for the Buffalo Ankerite South by PJV.

Between 2005 and 2012, additional diamond drilling was done by Lexam.

A Mineral Resource estimate was prepared by P&E and RPA (Armstrong et al., 2013) for the Buffalo Ankerite North and South zones including the portions of these zones that lie on the east-adjacent Paymaster Property.

Details of the drilling history at Buffalo Ankerite is tabulated in Table 5-8.

Table 5-8: Summary of Buffalo Ankerite Drilling

Company	Year	No. Drill Holes	Metres Drilled	Target Zone
Various companies	Prior 1953	Unknown	Unknown	Historical records limited
Vedron and Pamour	1982	15	1,245	
Placer Dome	2001	15	2,728	North Zone
Placer Dome	2002	59	6,097	South Zone
Lexam	2005-2012	66	26,806.1	North Zone
Lexam	2005-2012	159	54,419.4	South Zone
Total		**314**	**91,295.5**	

5.3.1.4 Past Production

Production from the Buffalo Ankerite and the March operations between 1926 and 1953 totalled 4.8 Mt with an average grade of 6.5 g/t gold. Total metal produced was 1.02 Moz of gold.

Between 1978 and 1982, production came from Pamour extracting the Buffalo Ankerite South crown pillars and milled at their adjacent Timmins Mill. The amount of material mined was not consistently reported by Pamour and the total is unknown. In 1978, Pamour reported milling 38,160 t. The Regional Geologist for Timmins reported 16,300 t in 1982 (Kustra,1983). A later three-dimensional model created by Dome Mines suggests that a total of approximately 320,000 t of material was removed.

5.3.2 Fuller Property

Periodic surface exploration has been performed on Fuller since 1910 and limited production from the Fuller claim has occurred. The claim was originally held by W. S. Edwards of Chicago and was purchased from his estate by A. S. Fuller of Toronto.

In 1924, the Mitchelson Partners optioned the property, drilled three core holes and sank an inclined shaft to 73 m. A level was established at 50 m vertically, and 305 m of diamond drilling, 640 m of drifting and cross cutting were completed.

In 1940, F. J. Fisher took an option to purchase the claim. Between 1940 and 1943, Nakhodas Mining Company began underground development and put the property into production. The material was mined by a shrinkage-stoping method, hoisted to surface, and trucked to the Faymar mill in Deloro Township. Production ceased during World War II due to the shortage of equipment and manpower (Vedron Limited, 1980).

Early in 1943, Mr. Fisher died, and the property passed to his heirs. They chose to abandon the option because payments were incomplete, and the property reverted to A.S. Fuller (Ontario Department of Mines, 1968).

Pamour drilled two surface holes in 1974 on the Buffalo Ankerite property close to the east boundary of the Fuller property. One of these drill holes deviated badly onto the (then) single Vedron claim and intersected three well-mineralized zones at a depth of between 137 to 161 m, encouraging Vedron to drill beneath the 145 m level (Vedron Limited, 1980).

In 1977, LaPrarie Ltd. acquired an option on the property from the Fuller estate. Vedron then obtained an assignment of the option to purchase the property in 1979.

In 1983, Vedron diamond drilled more than 1,200 m in 15 holes to test mineralization below the Fuller workings. They also arranged with Pamour to extend the Fuller ramp onto Pamour's adjacent property, which would allow Pamour to earn a 33% interest in the property. Vedron also completed site preparations for the decline. The decline was never extended onto the adjacent property.

Belmoral conducted work from 1986 to 1989, estimated Mineral Resources and produced a mine plan on behalf of Vedron. Belmoral drove 1,405 m of decline and established five levels to 198 m below surface (46 m, 84 m, 114 m, 152 m, and 198 m levels). On these levels, 1,634 m of drifts and 1,068 m of cross cuts and raises were excavated. Other work done by Belmoral included data review, metallurgical testing, and diamond drilling from surface and underground including the probing of an IP survey anomaly located in the northern part of the property.

No further work was done from 1989 to 1996 until Vedron started drilling the first phase of a program designed to explore the down-dip extension of the known mineralized body below the 198 m level of the Fuller mine to the depth of the upper Buffalo Ankerite workings (472 m level). Vedron executed another drilling program in 1997.

In 1997, Bevan produced a Mineral Resource estimate on behalf of Vedron.

The decline was extended to the 590 m level. In late 1997 and 1998, a second phase of an exploration program was executed to test the continuation of previously outlined gold mineralization between 457 m and 777 m below surface using diamond drilling. That program completed five additional holes for 961 m.

Fuller was optioned to Placer Dome in 2002. Placer Dome carried out both field exploration and office database management activities on Fuller in early 2002 and drilled several holes.

In 2007 Wardrop Engineering Inc. prepared a Mineral Resource estimate on behalf of Vedron.

Lexam and predecessor companies completed significant surface diamond drilling on the Fuller property during the period 2004 through 2012. The majority of the drilling was conducted on the Contact Zone/Edwards porphyry area. A significant amount of both surface and underground drilling completed by various operators during the period 1986 through 1997.

A diamond drilling program was performed by Lexam between 2004 to 2012.

In 2014, RPA prepared a Mineral Resource estimate for the Fuller Property on behalf of Lexam (Altman et al., 2014).

Details of the drilling history at Fuller are tabulated in Table 5-9. In addition to the drilling, 691 chip samples were taken during the Belmoral work, totalling 2,586.5 m. Bazooka drilling (short probe core holes) during the same period totalled 184 holes totalling 1,487 m.

Table 5-9: Summary of Fuller Drilling

Company	Year	No. Drill Holes	Metres Drilled
Various companies	Prior 1974	92	7,572
Pamour	1974	1	162
Vedron	1983	15	1,219
Belmoral	1986-1989	545	37,196
Vedron	1996-1998	83	39,636
Placer Dome	2002	9	3,618
Lexam	2004-2012	71	22,858
Total		**816**	**112,261**

5.3.2.1 Past Production

A production report in 1942 showed 39,941 t with a recovered grade of 5.14 g/t gold was mined and milled at the Faymar Mill, producing 6,566 oz of gold and 586 oz of silver (Ferguson, 1968).

5.3.3 Paymaster Property

Subsequent to the discovery of the Dome Mine on the adjacent property in 1909, extensive work was done on the Paymaster property which resulted in the discovery of gold in 1910 on claim HR 908. Three shafts were sunk, and mining conducted with workings extending down to the 726 m level on six levels to exploit the porphyritic bodies.

From 1924 to 1925, United Mineral Lands sank a 230 m shaft and carried out development on the 105 m and 210 m levels in the Paymaster No. 4 shaft area. No records of stope development or underground sampling are available. Gold values were reported to occur in a fuchsite-carbonate zone with several small porphyries intruding the zone.

The present-day Paymaster property was formed by the amalgamation of several claim groups in 1930 by Paymaster Consolidated Mines Ltd.

The West Porphyries were mined from both the adjacent Preston and Dome Mines. The Paymaster mine ceased operation in April 1966.

Placer Dome acquired the property in 1989 and conducted surface mapping, a lithogeochemical survey, a magnetic survey, power stripping, and channel sampling.

In 1995, Placer Dome drilled 47 holes to outline a near surface resource in the Paymaster No. 2 and No. 3 shaft area. In 1996, 28 additional holes were drilled along the mafic-ultramafic contact south of the No. 2 and No. 3 shaft area.

In 1994 and 1996 Placer Dome prepared Mineral Resource estimates on Paymaster No. 2 and No. 3 shaft area.

From 1999 to 2000, Placer Dome conducted a two-phase diamond drill program totalling 12,008 m from 17 holes in the No. 4 shaft area. The 1999 fall drill program was designed as an exploration phase to test the carbonate rock-highly altered rock lithologies and coincident resistivity high geophysical feature on approximately 122-m centres. The 2000 winter drill program was designed to follow up on a significant gold intercept to test northeast and southwest strike extents of the carbonate rock-highly altered rock package and coincident resistivity high geophysical feature, and to examine a number of magnetic low features interpreted to represent potential structural-alteration zones.

In June 2008, Lexam entered into a four-year option agreement with Goldcorp (now Newmont) to acquire a 60% interest, by spending $6.0 million over four years in the 16 patented mining claims that represent the Paymaster property.

In 2010, Guy and Bevan (2010) prepared a Mineral Resource estimate on behalf of VG Gold.

In June 2012, Lexam had completed the earn-in requirements and elected to exercise the option to acquire 60% interest in the Paymaster property. Following the acquisition, Lexam proposed a work program that Goldcorp declined to participate in. In accordance with the joint venture agreement, Goldcorp's 40% ownership was then diluted, and, by the end of 2016, Lexam had increased its interest to 61%.

A Mineral Resource estimate was prepared by P&E and RPA (Armstrong et al., 2013) for the Paymaster property on behalf of Lexam. The QP has not verified the information relating to the preparation of the estimate to endorse it.

Details of the drilling history at Paymaster is tabulated in Table 5-10.

Table 5-10: Summary of Paymaster Drilling

Company	Year	No. Drill Holes	Metres Drilled	Target Zone
Various companies	Prior 1995	Unknown	Unknown	Historical records limited
Placer Dome	1995-1996	75	16,154	No. 2/3 shaft area
Placer Dome	1999-2000	17	12,008	No. 4 shaft area
Lexam	2008-2012	163	48,729	-
Total		**255**	**76,891**	

5.3.3.1 Past Production

Past production from the Paymaster mine totaled 5.1 Mt at an average grade of 7.2 g/t gold. In total, 1.19 Moz of gold were produced between 1915 and 1966 (Atkinson et al., 1999). Between 1995 and 1995, Placer Dome produced 25,737 t of development ore at an average grade of 6.15 g/t.

5.3.4 Davidson-Tisdale Property

The property was incorporated as Davidson Gold Mines Ltd. in 1911 and was succeeded in 1919 by Davidson Consolidated Gold Mines Ltd. (DCGM).

From 1911 to 1924, exploration included 4,070 m of surface diamond drilling and underground development by way of a small two-compartment exploration shaft (Main Shaft) sunk to a depth of 95 m. Workings were established at the 30 m, 60 m, and 90 m levels with a total of approximately 700 m of lateral development. An internal winze was sunk an additional 67 m from the 90 m level and three additional mining levels were developed. A limited amount of underground drilling was also completed.

In 1921, Porcupine Davidson Mines Ltd. was formed as a 50/50 joint venture with British interests. A legal dispute between the joint venture partners resulted in the suspension of work on the property until 1925 when control of the property was reverted to DCGM.

From 1923 to 1924, the three-compartment inclined Horseshoe shaft was sunk 180 m west of the Main shaft. The shaft dipped 72° to the northwest and was intended to be driven to a vertical depth of 300 m but the withdrawal of support by the British financial backers caused the development to be terminated at 247 m. Stations were established at 60 m, 120 m, and 167 m along the incline.

The property was sold in 1933 to the Mining Contracting and Supply Company Ventures Ltd. (Mining Contracting and Supply), a predecessor company to Falconbridge Ltd. (Ferguson, 1964).

From 1933 to 1945, Mining Contracting and Supply drilled 1,557 m in 11 holes into and below the historical workings in an effort to locate the vein extensions and to verify high-grade intersections encountered in previous drill programs. The results did not meet expectations and Mining Contracting and Supply sold the rights to Davidson Tisdale Mines Ltd. (DTM) in 1945.

Little work was done from 1945 to the early 1980s.

In 1981, Dome Mines drilled 1,118 m from ten holes with one deep hole in the vicinity of the old workings. Dome Mines drilled an eleventh hole (length unknown) to test for mineralization along strike and down dip.

In 1983, DTM completed geophysical surveys, trenching, stripping, dewatering and rehabilitation of underground workings, and drilling. Diamond drill holes were completed in the Main shaft area from surface. The program demonstrated that the major vein system in the Main shaft area strikes at 030° and dips 45° to the northwest. This information was a departure from the previously accepted orientation which had guided historical exploration programs.

In early 1984, DTM drilled in the vicinity of the Main shaft area. This work was accompanied by underground mapping and sampling.

Later in 1984, Getty Canadian Metals Limited (Getty) became operator and completed three exploration programs, in 1984, 1985, and 1986/1987. In 1985, a bulk sample was extracted to validate resources.

The 1984 exploration program included drilling and sampling in two zones, Main shaft, and Smith Vet-T. Drilling these zones resulted in the identification of visible gold and two gold-bearing en echelon vein systems.

Getty used the results of the 1984 exploration program to estimate a Mineral Resource for both zones and identified the potential to increase resources through further exploration and the open pit potential of the S-Zone.

In 1985, Getty conducted a two-phase exploration program. Phase 1 was developed to evaluate the potential for near-surface bulk minable resources in the S-Zone part of the Smith Vet-T Zone area. This phase included additional diamond drill holes. With a lack of significant assay results, Phase 1 was prematurely terminated, and efforts focused on Phase 2.

During the Phase 2 program, a mining bulk sample was extracted between Level 4 and Level 5 to validate the Mineral Resources estimated after the 1984 exploration campaign. Surface and underground pilot core holes were drilled. Other components of this phase included site preparation, headframe installation, and underground rehabilitation. Ninety-seven metres of cross-cut development and 53 m of raises were completed, and a 2,885-t bulk sample was obtained. Systematic chip and muck sampling resulted in approximately 4,000 samples sent for analyses. A comparison of drill hole assays to these other sampling methods was done.

Phase 1 of the 1986 and 1987 exploration program consisted of a bulk sample to test the Lower Vein system. In total, 7,270 t of material was extracted, of which 1,750 t was classified as waste. The mineralized material was primarily extracted from Level 4 (75%) with mineralization also recovered from Level 3 and Level 5. The excavations were geologically mapped, panel and muck sampled, and additional diamond drilling was completed from underground (Kustra, 1988).

During 1988, Getty mined 10 stopes, sending the mineralized material for custom milling at the Go-Mill at the Schumacher Mine site of Giant Yellowknife Mines Limited. Getty then closed down the Davidson-Tisdale operations. Following that, the property was optioned to Midas Minerals (Midas). Midas drilled five deep diamond holes in 1989 to follow the structure down plunge. Midas decided not to complete their earn-in.

In 1994, a study commissioned by Placer Dome provided an estimate of an open pit mineable resource.

From 1999 to 2003, Northcott Gold Inc. (Northcott, formerly DTM) drilled several holes. Northcott subsequently optioned the property to Vedron in 2003, allowing Vedron to earn a 50% undivided interest. From 2003 to 2006, Vedron drilled a significant number of holes. In 2004, the company amended the option agreement to allow earning 75%. In 2005, the option agreement was further amended, resulting in Vedron acquiring 54% of the interest in the property.

A Mineral Resource was estimated by Guy and Puritch in 2007 (Guy and Puritch, 2007). Vedron expenditures on the property had increased the interest to 66% by the filing of their 2007 annual information form in June. Later in 2007, a preliminary economic assessment was filed on Davidson Tisdale. In 2008, the option expired with Vedron earning a 68.5% interest in the Tisdale property by 2014, with Laurion Mineral Exploration Inc. (Laurion, previously Northcott) holding the remaining 31.5%.

In 2010, Vedron purchased the remaining 31.5% minority stake in Davidson-Tisdale, held by SGX Resources, Inc (previously Laurion) to fully control the property.

From 2006 to 2010, Vedron continued to drill diamond drill holes from surface.

In 2013, a Mineral Resource estimate and technical report was prepared by P&E and RPA (Armstrong et al., 2012).

Details of the drilling history at Davidson-Tisdale is tabulated in Table 5-11.

Table 5-11: Summary of Davidson-Tisdale Drilling

Company	Year	No. Drill Holes	Metres Drilled
Various companies	Prior 1980	24	5,267.0
Dome Mines	1981	11	1,118.0
DTM	1983-1984	35	4,576.8
Getty	1984-1987	537	49,165.9
Midas Minerals	1989	5	1,486.2
Northcott	1999-2003	17	399.3
Lexam VG Gold	2003-2015	97	23,397.5
Total		**726**	**86,410.6**

5.3.4.1 Past Production

Production from 1918 to 1921 was processed on site with a 10-stamp mill until it burned down in 1924. A reported total of 8,501 t at 8.9 g/t gold was milled, and 2,438 oz gold recovered using mercury amalgamation. It is noted that about 20% of the gold content was lost using this process.

From April to November 1988, custom milling of the mined material at Davidson-Tisdale occurred at the nearby Giant Yellowknife Go-Mill. A total of 39,800 t was mined and milled during the Getty period, producing a total of 7,300 oz of gold and 5,665 oz silver.

6.0 Geology Setting, Mineralization and Deposit

6.1 Deposit Types

Numerous studies and exploration results over the past 50 years have focused on gold deposition styles and mineralization controls within the Abitibi Greenstone Belt. It appears that almost every deposit is somewhat unique with minor differences to the geochemical characteristics and/or formational environments (Figure 6-1). Many of these gold deposit types can be grouped into clans, or families, of deposits that either formed by related processes or that are distinct products of large-scale hydrothermal systems (Robert et al., 1997; Poulsen et al., 2000).

The Eastern properties, Stock, and Western properties are all located proximal to a 200 km central segment of the PDDZ which has generated approximately 100 Moz of gold since 1910. Over a hundred gold deposits are distributed along this major, compressional to trans-extensional, crustal-scale fault zone. Studies suggest a long-lived, multi-staged open/close orogenic system resulting in the emplacement of auriferous quartz-carbonate veins - a major component of the greenstone deposit clan (Dubé and Gosselin, 2007).

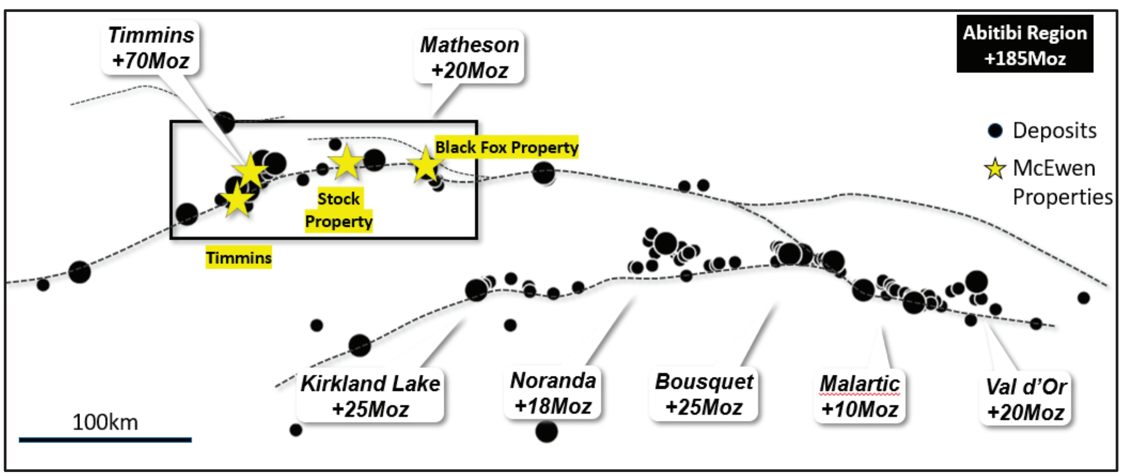

Figure 6-1: Schematic Map of the Abitibi Greenstone Belt Showing Relationship of Gold Deposition to Major Structural Conduits (prepared by McEwen, dated 2021)

At the Black Fox and Froome mines, Stock and Western properties, gold-bearing veins are predominantly associated with:

- Structurally controlled dilatant zones (shearing, brecciation, offsets)
- Greenschist facies metavolcanic host rocks
- Crustal scale faults (i.e., the PDDZ)

- Syn-tectonic intrusive bodies

These characteristics are consistently seen at the Western properties, Stock and Froome sites and are classified as orogenic gold occurrences related to longitudinal shear zones. These greenstone-hosted quartz-carbonate vein deposits are a sub-type of lode-gold deposits (Poulsen et al., 2000) and correspond to structurally controlled, complex epigenetic deposits hosted in deformed metamorphosed terranes (Dubé and Gosselin, 2007) (Figure 6-2).

Gold mineralization at the Grey Fox deposit (located 4 km to the southeast of the Black Fox Mine), is spatially associated with syenite, melanosyenite and quartz-feldspar porphyritic intrusive rocks, has a strong metal association with molybdenum-tungsten-arsenic (Kelly, 2018), is observed within narrow quartz-carbonate veins with crustiform and colloform textures, and is spatially associated with a sericite-albite-carbonate alteration. Thus, the Grey Fox deposit could be a series of low-sulphidation gold deposits.

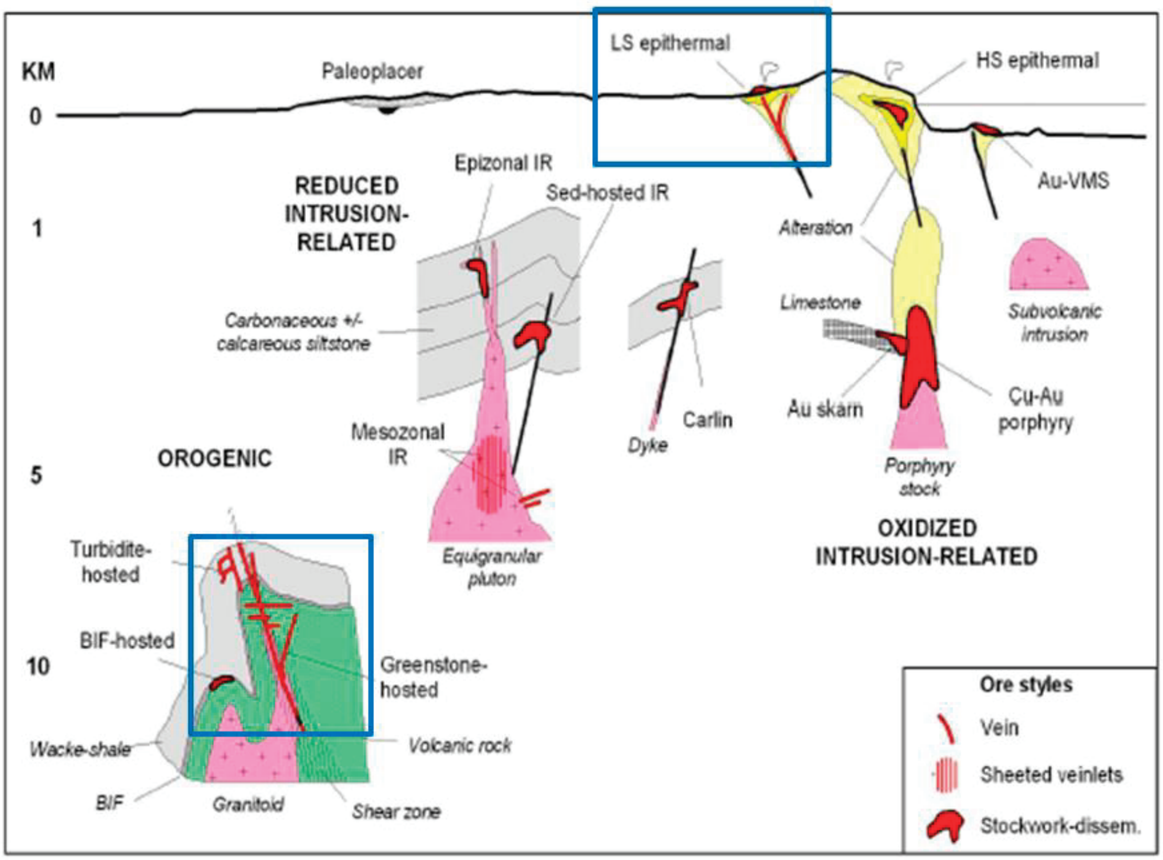

Figure 6-2: Schematic Cross-Section showing Key Geologic Elements of the Main Gold Systems and their Crustal Depths of Emplacement (modified after Poulsen et al., and Robert, 2004)

Note: Blue boxes highlighting the two deposit styles present for the Fox Complex deposits and the logarithmic depth scale.

The formational details for the Tamarack multi-metal deposit have not yet been thoroughly determined. Insights collected from two regional experts on volcanogenic massive sulphide (VMS) deposits (Comba, 2018, personal communication, 26 February; and Riverin, 2018, personal communication) agree that Tamarack lacks the metal-flow indicators (stringer zones), gravitational-separation features, or paleo-volcanic metal phases that are typically associated with the VMS deposits in the Region.

McEwen's interpretation currently stands as a multiphase deposition into a structurally prepared dilatation zone. A distinct later-stage vein event appears to crosscut the base metal deposition. Anomalous gold values appear related to the vein formation.

The source or pathway of the metal fluids has not yet been accurately identified. An electromagnetic geophysical survey performed by Exsics Exploration Ltd in 2017 confirmed that the boundaries and dimensions agree with the drilling results.

6.1.1 Greenstone-Hosted Quartz Carbonate-Vein Deposits

Greenstone-hosted quartz-carbonate vein deposits typically occur in deformed greenstone terranes of all ages (Dubé and Gosselin, 2007), especially those with commonly variolitic tholeiitic basalts and ultramafic komatiitic flows intruded by intermediate to felsic porphyry intrusions, sometimes with swarms of albitite or lamprophyre dykes (e.g., Timmins and Red Lake districts). Deposits are associated with collisional or accretionary orogenic events and are typically distributed along reverse-oblique crustal-scale major fault zones, commonly marking the convergent margins between major lithological boundaries such as volcano-plutonic and sedimentary domains (e.g., the PDDZ and the CLDZ). These major structures are characterized by different increments of strain, and consequently several generations of steeply dipping foliations and folds result in a fairly complex geological collisional setting.

Crustal-scale faults are thought to represent the main hydrothermal pathways towards higher crustal levels. However, the deposits are spatially and genetically associated with higher order compressional reverse-oblique to oblique brittle-ductile high-angle shear zones commonly located less than 5 km away and best developed in the hanging wall of the major fault (Robert, 1990). Brittle faults may also be the main host to mineralization as illustrated by the Kirkland Lake Main Break, a brittle structure hosting the 25 Moz gold Kirkland Lake deposit. The deposits typically formed late in the tectonic-metamorphic history of the greenstone belts (Groves et al., 2000) and the mineralization is syn- to late-deformation and typically post-peak greenschist facies and syn-peak amphibolite facies metamorphism (Kerrich and Cassidy, 1994; Hagemann and Cassidy, 2000).

The greenstone-hosted quartz-carbonate vein deposits are also commonly spatially associated with Timiskaming-like regional unconformities. Several deposits are hosted by a Timiskaming-like regional unconformity (e.g., the Pamour and Dome deposits in Timmins) or located next to one (e.g., the Campbell-Red Lake deposit in Red Lake) (Dubé et al., 2003), suggesting an empirical time and space relationship between large-scale greenstone quartz-carbonate gold deposits and regional unconformities (Hodgson, 1993; Robert, 2000; Dubé et al., 2003).

Stockworks and hydrothermal breccias may represent the main host to the mineralization when developed in competent units such as granophyric facies of gabbroic sills. Due to the complexity of the geological and structural setting and the influence of strength anisotropy and competency contrasts, the geometry of the vein network varies from simple, such as the Silidor deposit in Canada, to more complex geometries with multiple orientations of anastomosing and/or conjugate sets of veins, breccias, stockworks and associated structures (Dubé et al., 1989; Hodgson, 1989; Robert et al., 1994; Robert and Poulsen, 2001).

Economic-grade mineralization also occurs as disseminated sulphides in altered (carbonatized) rocks along vein selvages. In this document the use of the term ore is not related to Mineral Resources or Mineral Reserves but only to common industry terms such ore shoots, ore mineral, ore pass. Ore shoots are commonly controlled by: 1) the intersections between different veins or host structures, or between an auriferous structure and an especially reactive and/or competent rock type such as iron-rich gabbro (geometric ore shoot); or 2) the slip vector of the controlling structure(s) (kinematic ore shoot). For laminated fault-fill veins, the kinematic ore shoot will be oriented at a high angle to the slip vector (Robert et al., 1994; Robert and Poulsen, 2001).

At the district scale, greenstone-hosted quartz-carbonate vein deposits are associated with large-scale carbonate alteration commonly distributed along major fault zones and subsidiary structures (Dubé and Gosselin, 2007). At the deposit scale, the nature, distribution and intensity of the wall-rock alteration is largely controlled by the composition and competence of the host rocks and their metamorphic grade. Typically, alteration haloes are zoned and characterized – at greenschist facies – by iron-carbonatization and sericitization, with sulphidation of the immediate vein selvages (mainly pyrite, less commonly arsenopyrite).

The main gangue minerals are quartz and carbonate with variable amounts of white micas, chlorite, scheelite and tourmaline. The sulphide minerals typically constitute less than 10% of the mineralization. The main mineralized minerals is native gold with pyrite, pyrrhotite and chalcopyrite without significant vertical zoning (Dubé and Gosselin, 2007).

6.1.2 Low-Sulphidation Epithermal Gold Deposits

At the district scale or larger, the tectonic setting of epithermal gold deposits is characterized by extension, localizing, and facilitating emplacement of magma and, at higher levels, hydrothermal fluids (Taylor, 2007). Regionally extensive rift zones can also provide the extensional framework. Pull-apart basins formed between regional strike-slip faults, or at transitions between these faults, provide favourable sites for intrusions and epithermal deposits. Synchronous tectonic and hydrothermal activity is indicated in some deposits by the fact that many of the vein-bearing faults were active during and after vein filling; tectonic vein breccias and displaced mineralized and altered rocks resulted.

Low-sulphidation epithermal gold deposits are harder to recognize in ancient terranes owing to the fact that their commonly found alteration mineral assemblages are not unique, especially in regional metamorphic terranes, or may no longer be present, depending on the grade of subsequent metamorphism, and that these deposits are often not as intimately associated with igneous rocks (Taylor, 2007).

Low-sulphidation epithermal gold deposits are distinguished from high-sulphidation deposits primarily by the different sulphide mineralogy (pyrite, sphalerite, galena, chalcopyrite) typically within quartz veins with local carbonate, and associated near neutral wall rock alteration (illite clays) deposited from dilute hydrothermal fluids (Corbett and Leach, 1998).

Nearly any rock type, even metamorphic rocks, may host epithermal gold deposits, although volcanic, volcaniclastic, and sedimentary rocks tend to be more common (Taylor, 2007). Typically, epithermal deposits are younger than their enclosing rocks, except in the cases where deposits form in active volcanic settings and hot springs. Here, the host rocks and epithermal deposits can be essentially synchronous with spatially associated intrusive or extrusive rocks. Lithological control occurs mainly as competent or brittle host rocks which develop through going fractures as vein hosts, although permeability is locally important. In interlayered volcanic sequences epithermal veins may be confined to only the competent rocks while the intervening less competent sequences host only fault structures (Corbet, 2007).

Low-sulphidation gold deposits that occur further removed from active magmatic vents may be controlled by structural components with zones of fluid mixing and emplacement of smaller magmatic bodies (e.g., dykes) (Taylor, 2007). Meteoric waters dominate the hydrothermal systems, which are nearly pH neutral in character. Low-sulphidation gold deposit related geothermal systems are more closely linked to passive rather than to active magmatic degassing (if at all), and sustained by the energy provided by cooling, subvolcanic intrusions, or deeper subvolcanic magma chambers.

The morphology of epithermal vein-style deposits can be quite variable. Deposits may consist of roughly tabular lodes controlled by the geometry of the principal faults they occupy or comprise a host of interrelated fracture fillings in stockwork, breccia, lesser fractures, or, when formed by replacement of rock or void space, they may take on the morphology of the lithologic unit or body of porous rock replaced (e.g., irregular breccia pipes and lenses). Volumes of rock mineralized by replacement may be discordant and irregular, or concordant and tabular, depending on the nature of porosity, permeability, and water-rock interaction. In deposits of very near-surface origin, an upward enlargement of the volume of altered and mineralized rocks may be found centred about the hydrothermal conduits. Brecciation of previously emplaced veins can form permeable zones along irregularities in fault planes: vertically plunging mineralized zones in faults with strike-slip motion and horizontal mineralized zones in dip-slip faults.

Structures act as fluid channel-ways and more dilational portions of the host structures may represent sites of enhanced fluid flow and so promote the development of ore shoots which host most mineralization in many low-sulphidation vein systems (Corbett, 2002). Elsewhere fault intersections host ore shoots at sites of fluid mixing. Several structural settings provide ore shoots of varying orientations. Steep dipping strike-slip structures provide vertical ore shoots in flexures and fault jogs. Tension veins and dilatant sheeted veins dominate in the latter setting. Normal, and, in particular, listric faults in extensional settings host wider and higher-grade veins as flat ore shoots in steep dipping vein portions. In compressional settings, reverse faults host flat-plunging ore shoots.

6.2 Regional Geology

The Fox Complex properties are underlain by Precambrian rocks of the Southern Abitibi Greenstone Belt (SAGB), located in the central part of the Wawa-Abitibi Subprovince, southeastern Superior Province, of northeastern Ontario (Figure 6-3). The SAGB consists of numerous intercalated assemblages of 2750 to 2695 Ma metavolcanic rocks and their intrusive equivalents, which are unconformably or disconformably overlain by the younger 2690-2685 Ma Porcupine and 2677 to 2670 Ma Timiskaming metasedimentary assemblages and alkalic intrusive rocks.

Major crustal-scale faults, such as the Porcupine-Destor Deformation Zone (PDDZ) and Cadillac-Larder Lake Deformation Zone (CLDZ) commonly occur at assemblage boundaries and are spatially associated with east-trending belts of Porcupine and Timiskaming assemblage metasedimentary rocks. These major faults record multiple generations of deformation, including normal, strike-slip, and reverse movements. The PDDZ and CLDZ define a corridor of gold deposits, generally known as the Timmins-Val D'Or camp (Robert et al., 2005), which accounts for the bulk of historical and current gold production from the Superior Province.

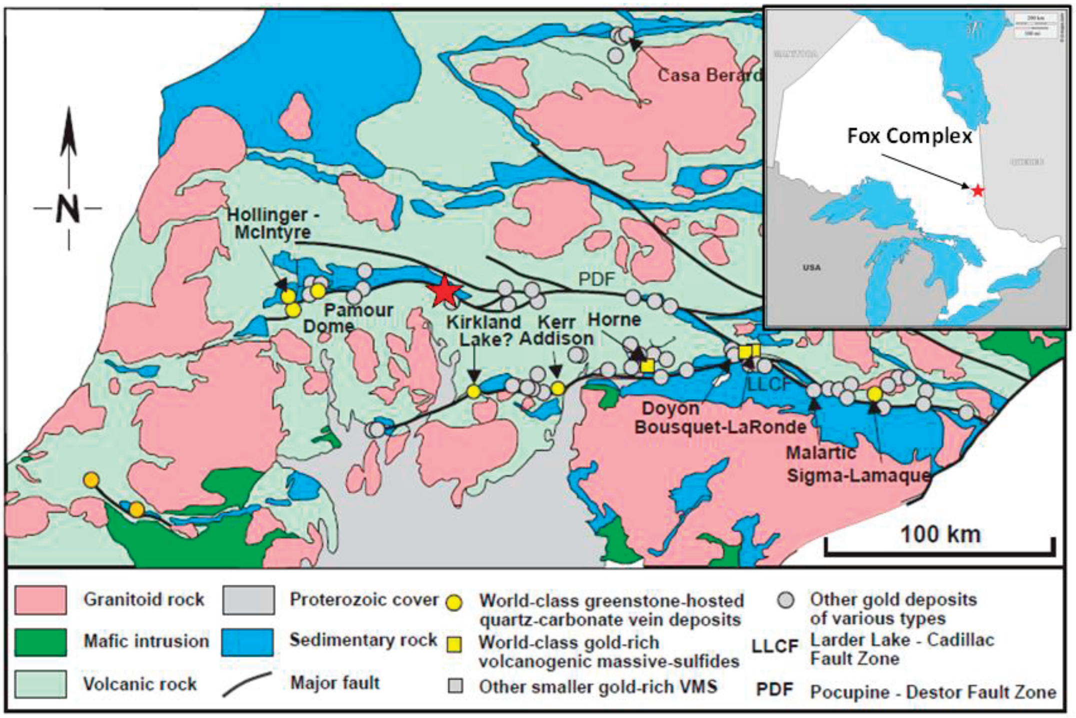

Figure 6-3: Map of the Southern Abitibi Greenstone Belt (modified after Poulsen et al., 2000, and Dube and Gosselin, 2007)

Note: The red star highlights the location of the Fox Complex.

6.3 Local Geology

The local geological setting in the Timmins-Matheson area (Figure 6-4) is represented by Neoarchean supracrustal rocks, intruded by Matachewan and Keweenawan diabase dykes and Mesozoic kimberlite dykes and pipes. The supracrustal rocks are composed of ultramafic, mafic, intermediate, and felsic metavolcanic rocks, related intrusive rocks, clastic and chemical metasedimentary rocks, and a suite of ultramafic to felsic alkalic plutonic and metavolcanic rocks (Berger, 2002).

Assemblages underlying the Timmins-Shillington-Matheson 'corridor' correlate with regional assemblages proposed by Jackson and Fyon (1991) and later modified by Ayer et al. (1999b) and Thurston et al. (2008). Six assemblages are present in the corridor (from oldest to youngest): 1) Kidd-Munro, 2) Tisdale, 3) Deloro calc-alkaline, 4) Lower Blake River, 5) Porcupine, and, 6) Timiskaming (Figure 6-5). The first four are predominantly composed of metavolcanic rocks, whereas the last two are predominantly metasedimentary rocks. These units have been intruded by several generations of alkaline-sodic intrusive plugs/lenses and three ages of mafic (predominantly diabase) dykes; Matachewan, Abitibi, and Keweenawan dykes.

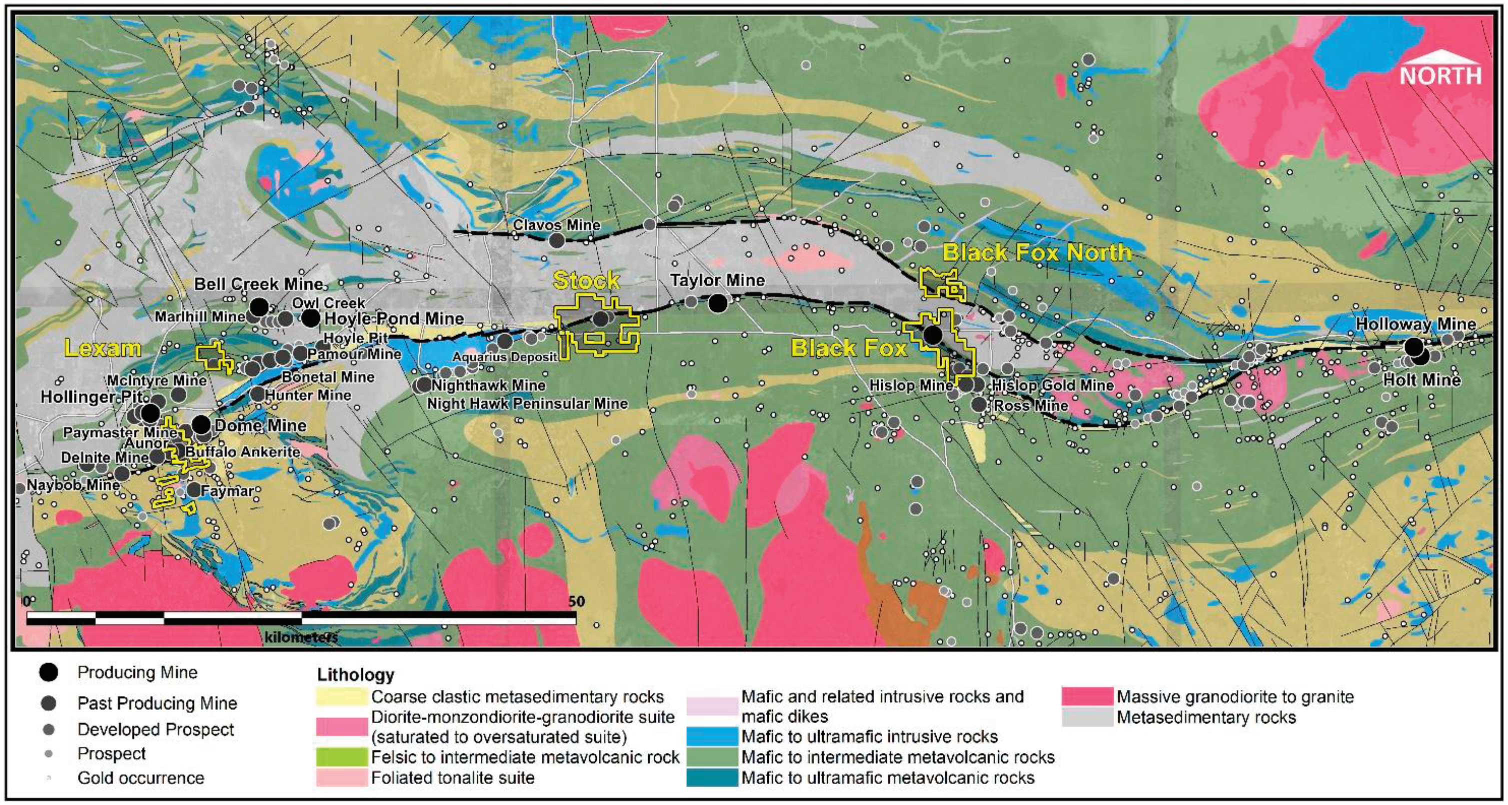

Figure 6-4 Geological Map of the Timmins-Matheson Sector within the Abitibi Subprovince showing Distribution of Gold Mining Operations (prepared by McEwen, dated 2021)

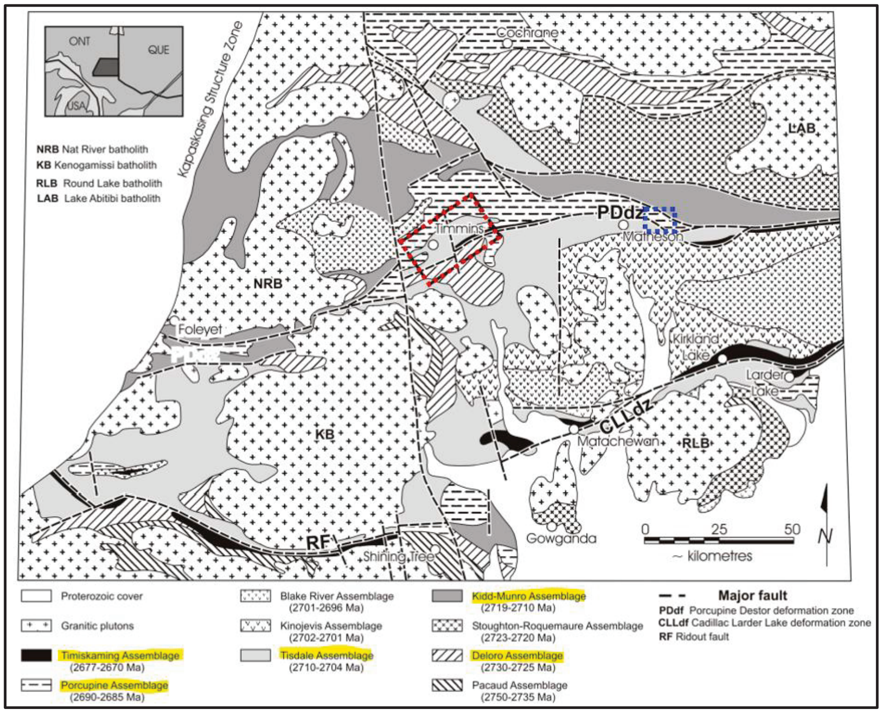

Figure 6-5: Map of the Western Half of the Abitibi Subprovince showing Distribution of Geological Assemblages (Farrow et al., 2006)

Note: The five principal assemblages (highlighted yellow). Modified to show the Timmins (red outline) and Matheson (blue outline) areas. Note that only three of these assemblages: 1) Tisdale volcanic sequence, 2) Porcupine clastic sedimentary rocks, and, 3) Timiskaming assemblage, underly the McEwen claims.

The Fox Complex properties are essentially underlain by just three of these assemblages: 1) Tisdale volcanic sequence, 2) Porcupine clastic sediments, and, 3) irregular (less abundant) Timiskaming assemblage.

6.3.1 Tisdale Assemblage

The Tisdale Assemblage volcanic rocks are typically found adjacent to the PDDZ structural belt running for 200 km between the towns of Folyet (Ontario) and Destor (Quebec). These volcanic rocks are dominantly comprised of tholeiitic mafic and komatiitic metavolcanic rocks with subordinate calc-alkaline intermediate and felsic flows, pyroclastics, and epiclastic deposits. Ayer et al. (1999a) and Ayer et al. (1999b) included these rocks with the Tisdale Assemblage based on U/Pb ages (ca. 2704 Ma) that are similar to those in the type throughout the area.

Ultramafic metavolcanic rocks are common (Berger, 2002). Talc-chlorite schist is most common, and green mica, iron carbonate and quartz veins are observed in hydrothermally altered zones. Ultramafic metavolcanic rocks are poorly exposed, and their distribution is inferred based on diamond-drill data and airborne geophysical magnetic surveys.

Mafic metavolcanic rocks comprise approximately 50% of the Tisdale Assemblage and are predominantly composed of massive, pillowed and pillow breccia flows (Berger, 2002). Chlorite schist is common in faults and shear zones, and iron carbonate, albite, sericite, and quartz occur in hydrothermally altered zones. Variolitic flows, flow breccia and hyaloclastite are common, whereas tuff is rare. Massive flows are exposed in several areas and are generally green, fine- to medium-grained, equigranular rocks with no distinguishing features.

Pillowed mafic metavolcanics flows are common. The pillows measure 60 to 70 cm long by 30 to 40 cm wide and display rims up to 2 cm thick (Berger, 2002). They are generally well formed and may be either closely packed with little inter-pillow material or may have up to 15% inter-pillow chert and hyaloclastite. Flows are generally a few metres thick and commonly capped by flow breccia and hyaloclastite.

Fragmental rocks are interpreted as mafic intrusion breccia, younger than the Porcupine Assemblage metasedimentary rock (Berger, 2002). These deposits are heterolithic with aphanitic and phaneritic mafic metavolcanic clasts, wacke, argillite, framboidal pyrite clasts and rare felsic porphyry clasts that are up to 30 cm in size, but average 2 to 8 cm. The clasts are angular to round; some have reaction rims, some chilled margins, a few have very angular boundaries, and most are subangular massive mafic metavolcanic clasts.

Mafic schist occurs in faults and shear zones throughout the Tisdale Assemblage and is characterized by light to dark green fissile rock that retains few if any primary features (Berger, 2002). Chlorite and secondary amphibole are common minerals in unaltered schist. Iron carbonate, white mica and quartz are common minerals in hydrothermally altered schist.

Variolitic flows occur throughout the Tisdale Assemblage but are less abundant than in the Kidd-Munro Assemblage (Berger, 2002). East of Matheson, well-formed variolitic flows occur commonly at the Grey Fox area (Black Fox property). These variolitic flows contain 30 to 85% varioles that are commonly coalesced. The strong spatial association of variolitic flows with gold mineralization in the Abitibi Subprovince appears to be a function of the iron to magnesium ratio and brittle failure of the altered flows in response to stress (Fowler et al., 2002; Ropchan, 2000; Jones, 1992).

White albitite dykes intruded ultramafic and mafic schist at the Black Fox mine in northern Hislop Township (Berger, 2002). Although the dykes are relatively narrow and discontinuous, they contain high-grade gold mineralization where stringer and disseminated pyrite are present.

6.3.2 Porcupine Assemblage

The Porcupine Assemblage is composed of wacke, siltstone, argillite, and rare pebble conglomerate (Berger, 2002). Gabbro, quartz-feldspar porphyry, syenite stocks and lamprophyre dykes intruded the metasedimentary rocks. Rare felsic metavolcanic tuff is interbedded with the metasedimentary rocks in Beatty Township. Ayer et al. (1999a) indicated that the Porcupine Assemblage is widespread in the Abitibi Sub-province and, in general, the youngest detrital zircons are approximately 2695 Ma.

Fine to very fine-grained wacke and siltstone are the most abundant meta-sedimentary rock types and commonly weather light brown to light grey with a grey to dark grey fresh surface (Berger, 2002). Wacke is texturally immature with angular to subrounded grains that are clast- to matrix-supported, with a matrix characterized by white mica, chlorite and rarely epidote. The absence of biotite indicates that metamorphism at low green schist facies affected these rocks (Winkler, 1979).

6.3.3 Timiskaming Assemblage

The Timiskaming Assemblage is composed of clastic metasedimentary rocks that lay unconformably over older metavolcanic rocks and/or Porcupine Assemblage rocks and less abundant alkaline extrusive and intrusive rocks. Throughout the SAGB, the Timiskaming assemblage clastic metasedimentary occur as conglomerate, wacke-sandstone, siltstone, argillite, and schist, and are closely associated with the PDDZ (Berger, 2002). Polymictic conglomerates were observed within the historical Pamour Mine in Timmins, and 120 km to the east, in Hislop Township. Sandstones and wackes are the most abundant rock type in the Timiskaming Assemblage and are commonly composed of fine to very fine grained laminated, bedded to massive argillites with interbedded siltstones. Robust minerals such as quartz and plagioclase are the major detrital grains, whereas white mica, carbonate, biotite and minor chlorite make up the matrix of the metasedimentary rocks (Berger, 2002).

Alkaline intrusive rocks are common throughout the region. Local examples are readily studied at Paymaster, Fuller and Black Fox (Gibson target) properties. Fine to coarse grained pink to mauve syenite and white albite altered dykes can occur as large intrusive bodies 1,500 to 2,000 m long by 50 to 100 m in width in the western portion of the Grey Fox property (the Gibson intrusive complex). More commonly, alkaline intrusive rocks of the Timiskaming Assemblage occur as narrow (1 to 5 m wide) dykes or dyke swarms that are often highly deformed, boudinaged and discontinuous (Hoxha, 1998; Rhys 2016; Chappell 2018). These dykes are associated with significant gold mineralization throughout the SAGB (e.g., Timmins Camp, Bateman et al., 2008; Kirkland Lake Camp, Ispolatov et al., 2008).

6.3.4 Faults

6.3.4.1 Porcupine-Destor Deformation Zone

The PDDZ extends across the Highway 101 area, continuing westward to the Kapuskasing Structural Zone (Ayer et al., 1999a) and eastward through Québec to the Grenville Front area (Mueller et al., 1996), for a total distance of more than 600 km. The PDDZ strikes southeast in Hislop Township and generally becomes more east striking along the rest of Highway 101 (Siragusa, 1994). The deformation zone is complex, with different structural styles restricted to specific segments. Each segment is bound, to a first-order approximation, by prominent north-northwest-striking faults that transect the PDDZ. For example, distinct differences in structural style occur across the Hislop and Garrison faults (Figure 6-6).

West of the Hislop Fault, the PDDZ strikes southeast to east and dips moderately (45 to 65°) to the south (Figure 6-6). The PDDZ marks the contact between the Porcupine and Tisdale Assemblages and is characterized by mafic and ultramafic schist in zones that range from 250 to 800 m wide, as well as numerous foliation-parallel and crosscutting brittle faults.

The main trace of the PDDZ (Figure 6-6) is accurate between the Hislop and Garrison faults (Berger, 2002). Clastic and chemical metasedimentary rocks of the Timiskaming Assemblage occur within the deformation zone that varies between 100 and 1,500 m wide. Talc-chlorite schist occurs along the north margin of the deformation zone in the Tisdale Assemblage and is indicative of ductile strain. The southern limit of the deformation zone is marked by brittle-ductile faulting accompanied by diabase dyke intrusions and abrupt contacts between the Lower Blake River and Timiskaming Assemblages. The deformation zone is near vertical and kinematics are poorly constrained. North-northeast and north-northwest brittle and brittle-ductile faults transect and offset the PDDZ.

6.3.4.2 Related Splay Fault Structures

Several important secondary structures occur in the vicinity of the Black Fox Mine.

The Gibson-Kelore Deformation Zone (GKDZ) is one of the most recognizable structural features on the Black Fox property. This feature has been previously known as the Hislop Fault. It is defined by a strongly fractured-broken band of talcose-chloritic schist. Regional airborne geophysical surveys indicate that this splay departs the regional track of the DPPZ and trends south-eastwards for approximately 4 to 5 km, passing off the southern property limits. Studies suggest the steeply southwest dipping GKDZ brittle-ductile structure contains schist, fault gouge and extensive fracturing. West of the Fault, the stratigraphy is an east-striking, south-facing homoclinal sequence. Structural fabrics are commonly nonpenetrative fracture cleavages.

The GKDZ is one of the five regionally bounding cross-faults that separate different segments along the PDDZ from Timmins to Québec. The structural style and setting of gold mineralization in each segment is different and knowledge of these differences can be used to tailor exploration programs specific to each segment (Berger 2001).

Jensen (1985) identified the Ross Fault as the northwest-striking lineament immediately east of the Ross Mine (Figure 6-6). Berger (2002) has modified the extent and strike of the fault based on detailed airborne geophysical data. The fault is located near or on the inferred axis of an anticline that closes in the vicinity of the Ross mine.

The Arrow Fault is a local name applied to a shear zone striking 085° located near of the south limit of the Grey Fox cluster of exploration targets. The fault is defined by a prominent linear disruption in airborne magnetic patterns and corresponds to sheared rock on the ground (Berger, 2002).

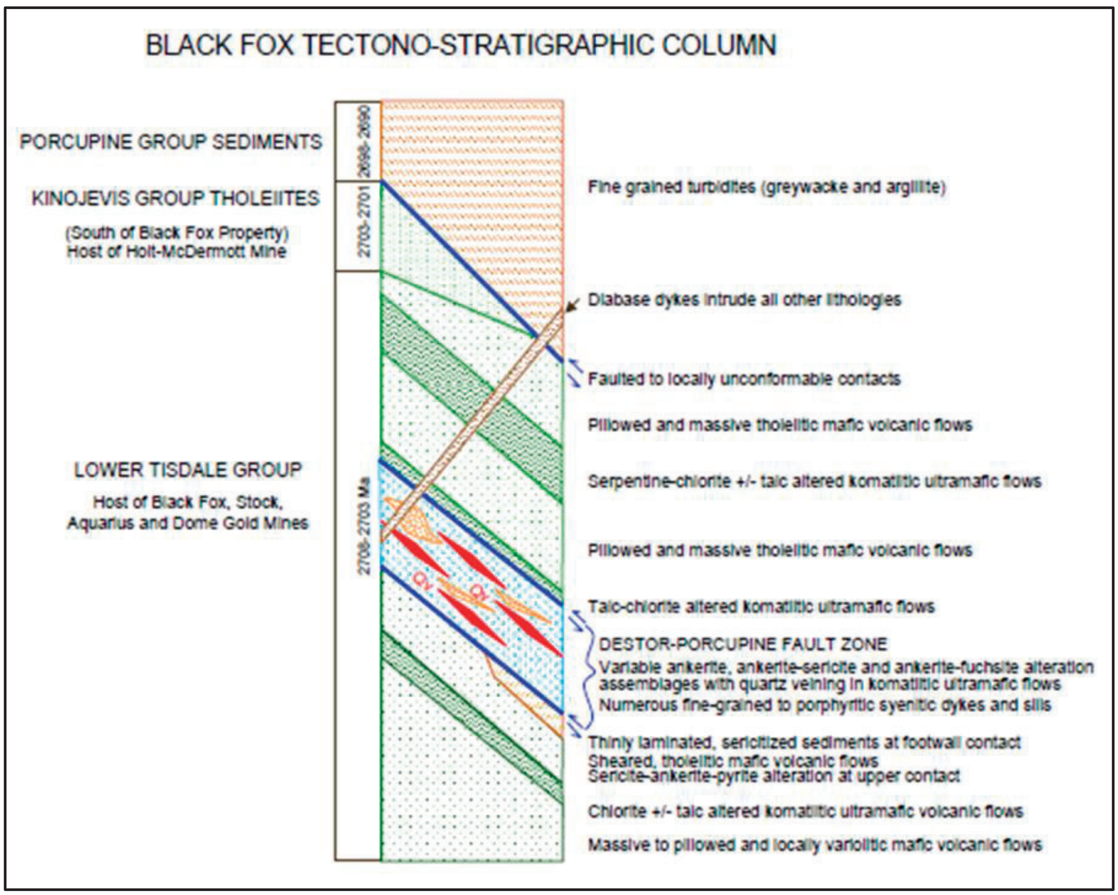

Figure 6-6: Stratigraphic Column for the general Black Fox – Hislop area (modified after Berentsen et al., 2004)

One splay structure is also important to the Stock Mine property setting. The southwest-trending Nighthawk Lake Break bifurcates/splays away from the main PDDZ in the vicinity of the Stock East deposit and has been traced by regional geophysical survey responses for approximately 15 km into the historically mined and explored Nighthawk peninsula area.

6.4 Property Geology

6.4.1 Eastern Properties

The highly prospective Black Fox Complex/Property straddles a 5-km segment of the regional PDDZ. These claims are underlain by a complex series (almost braided in appearance) of faulted-thrusted slabs and wedges structural emplaced into the 500 to 1,000 m "gap" (or, belt) that separates the PDDZ from the semi-parallel GKDZ splay structure. These intercalated, non-conformable units are generally composed of Tisdale Assemblage volcanic rocks, localized felsic intrusive rocks, and localized wedges of Porcupine and Temiskaming clastic sedimentary rocks. The bedrock north of the structural corridor is dominated by a thick accumulation of Porcupine Assemblage sedimentary rocks. To the south, relatively unaltered Tisdale volcanic rocks prevail (Figure 6-7).

6.4.1.1 Black Fox Mine

The following description of the Black Fox Mine area geology was modified and summarized from Berentsen et al. (2004).

Most of the project area is rather flat and lacking in outcrops. Pleistocene overburden averages 20m thick and is composed of lacustrine clay, gravel and till.

A variably sheared, faulted, carbonatized and mineralized sequence of komatiitic ultramafic volcanic rocks belonging to the Lower Tisdale Group strikes southeast across the property, along the southeast strike of the PDDZ. These altered and deformed komatiites are generally bleached to a light grey-buff colour with carbonate-talc and carbonate-quartz-sericite-fuchsite assemblages. This alteration package is underlain to the north by a sequence of intercalated massive to pillowed (tholeiitic) mafic metavolcanic rocks and variably sheared/fragmented komatiitic metavolcanic rocks, and lastly by the regionally extensive package of argillites and wackes of the Porcupine Group sediments which underlie the northeastern portion of the property.

To the south and forming the hanging wall of the main carbonate zone are green, relatively undeformed, very fine-grained and pillowed tholeiitic mafic volcanic rocks with intercalations of black komatiitic ultramafic flows displaying chlorite-serpentine, chlorite and talc-chlorite alteration.

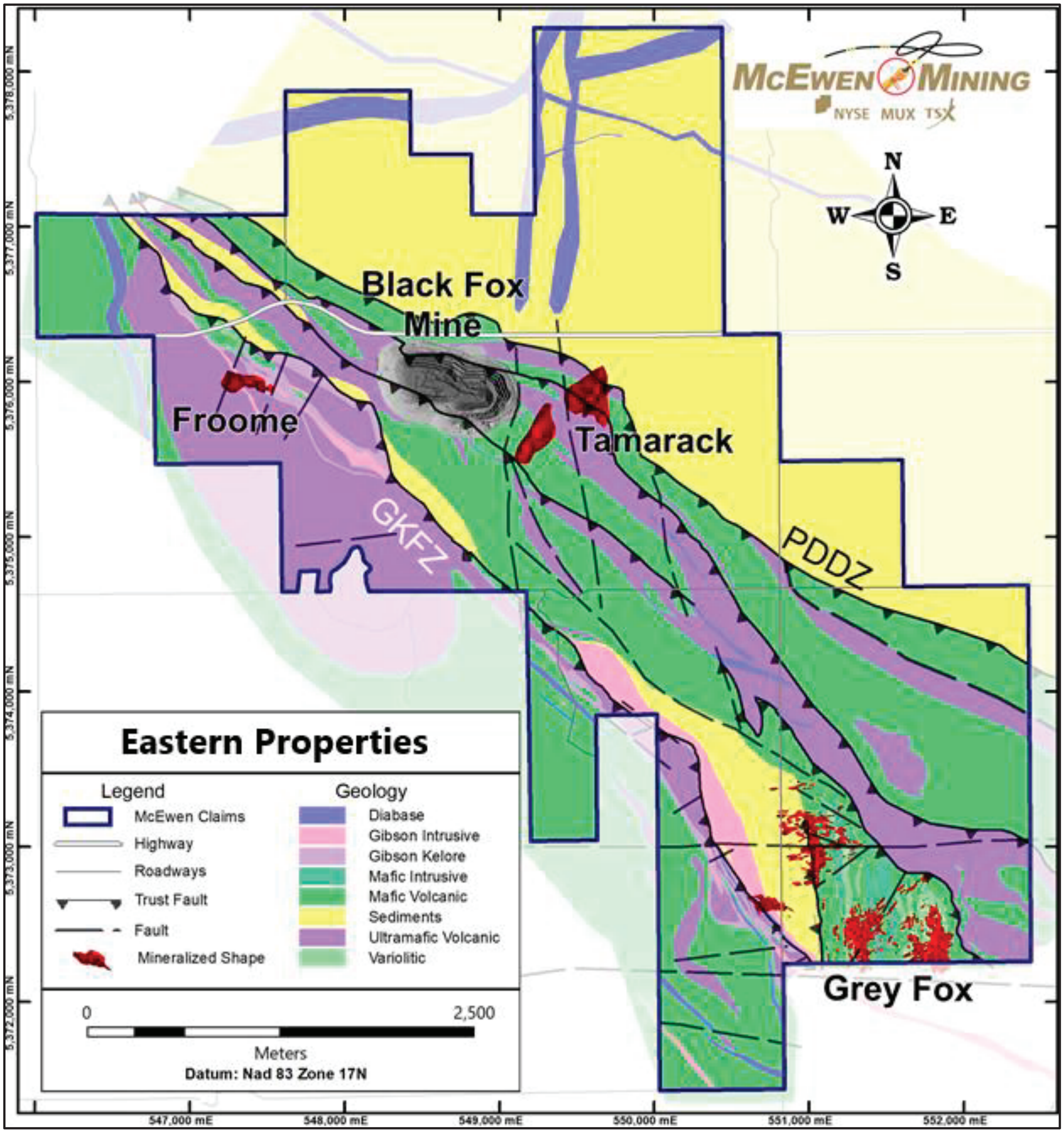

Figure 6-7: Bedrock Geology of the Eastern Properties and Locations of the Significant Gold Mineralized Zones (red) (prepared by McEwen, dated 2020)

Numerous syenitic and feldspar±quartz porphyry sills and dykes of various ages occur primarily within the main carbonate alteration zone. They are commonly massive to brecciated, silicified and pyritic with occasional sericite and hematite alteration and a more common black chlorite alteration at the contacts. They vary in colour from pink, grey, whitish, pale green and reddish. Fragments of these dykes frequently occur within the more strongly deformed green carbonate zones. Very narrow, massive, dark green to buff-green mafic dykes and sills commonly occur within the main carbonate zone. Diabase dykes are the youngest rocks in the area, occupying very late north-striking crustal fractures.

Within the main carbonate zone of the Black Fox deposit, metavolcanic rocks and to a lesser degree the intrusive rocks have undergone variable amounts of strain that resulted in a penetrative schistosity. When observed within the volcanic rocks, this fabric is expressed as microliths of elongate carbonate-albite and microdomains of talc-sericite-chlorite-fuchsite. Though rarely observed within the intrusive rocks it is expressed as a carbonate-sericite+/-biotite+/-chlorite cleavage. The schistosity cuts across lithologies and becomes increasingly more developed with proximity to high strain zones. This fabric generally strikes east-southeast and dips to the south-southwest with a pronounced down dip stretching lineation defined by chlorite-carbonate groves along foliation planes as well as stretched carbonate and albite crystals.

This fabric, and lithological contacts are folded by north verging drag folds that plunge shallowly to the west with an east striking south dipping axial planar cleavage. These drag folds formed during south-over-north shear that also produced well developed C and S fabric in high strain zone consistent with the observed reverse movement sense. Felsic and mafic intrusive rocks observed within these high strain zones are folded and boudinaged by this deformation. Gold-bearing quartz-carbonate veins cut across the regional schistosity and lithological contacts. Quartz-carbonate veining is common throughout the Black Fox Mine site and are one the major constituents of the ore. These veins are observed being folded by the drag folds with younger quartz-carbonate veins overprinting the axial planar cleavage indicating that these veins are syn-shear (Hoxha and James, 1998; Berger, 2002; Rhys, 2016; Chappell, 2018). Minor folds with z-asymmetry are observed in the Black Fox Mine deforming the transposed schistosity. These folds plunge moderately to the southwest and have a steep axial planar cleavage that strikes southwest and dips steeply to the north.

In the Black Fox Mine, the dominant structure is the A1 fault. This fault is south of and parallel to the PDDZ. The A1, strikes (80 to 120^{o}) and dips to the south-southwest between 45 to 60°. The fault has a pronounced cleavage, is gouge rich and its width ranges from tens of centimetres to several metres. This fault is primarily hosted within carbonate altered ultramafic volcanic rocks adjacent to mafic volcanic rocks. Within the fault, there are multiple movements observed that occurred during a protracted deformation history. The primary movement along this fault is consistent with south-over-north reverse displacement (Hoxha and James, 1998;

Rhys, 2016; Chappell, 2018) with subsequent normal to oblique right-lateral normal movement (Rhys, 2016.)

6.4.1.2 Froome

The Froome area is underlain by moderately to steeply dipping to the southwest clastic metasedimentary, mafic metavolcanic, and ultramafic metavolcanic rocks and chlorite ± talc schists. Feldspar porphyry and lamprophyre dykes intrude the ultramafic volcanic rocks and chlorite-talc schist. The chlorite-talc schist is characteristic of the steeply dipping to the southwest GKDZ, striking northwest-southeast across the Black Fox Complex. The hanging wall of the GKDZ is characterized by southwest dipping massive to pillowed ultramafic volcanic rocks, grading into chlorite-talc schist. Within the GKDZ a package of silicified arkose to lithic sandstone flanked by chlorite-talc schist hosts the deposit.

6.4.1.3 Tamarack

A complex system of mixed, polymetallic (gold-silver-lead-zinc) mineralization was discovered during a 2004 exploration drilling campaign at the adjacent Black Fox deposit. The Tamarack zone is centred on an intensely developed quartz breccia system emplaced along a drill-indicated north-south step/offset in the path of the regional PDDZ that structurally separates the (southern) Tisdale Assemblage ultramafic-mafic volcanic flows, from the (northern) Porcupine Group sedimentary rocks. Infill drilling (2017 to 2018) delineated two mineralized lenses including an upper lens trending for 350 m along the north-south strike, and extending from the overburden "base" to a depth of 450 m (steeply west-dipping) and a lower lens measuring approximately 400 m along strike and 350 m down dip from a depth of 500 m. The lower lens has a variable true width from 30 to 50 m. These lenses are separated by minor, narrow and discontinuous, diabase dykes.

The depositional method is currently interpreted as a structurally-controlled dilatant zone that has been filled by an accumulation of base metal enriched fluids – possibly remobilized from the Kidd-Munro volcanic belt to the north. Subsequent quartz-veining further exploited the void-opening with multiple phases of intrusion.

6.4.1.4 Grey Fox

The Grey Fox deposit is underlain by an overturned, steeply dipping to the east assemblage of metasedimentary and massive, pillowed, and variolitic mafic metavolcanic with minor interflow sedimentary rocks. In the western part of the area, a syenitic to diorite feldspar porphyry, locally referred to as the Gibson Intrusive intrudes the metasedimentary unit. The deposit area is bound to the west by the steeply dipping to the southwest GKDZ which juxtaposes chlorite – talc schist, typical of the GKDZ at the Black Fox Complex, and brecciated feldspar porphyry.

This fault contact is locally crosscut by diabase dykes, likely of the Matachewan dyke swarm. To the east, the Grey Fox deposit is bound by a moderately to steeply dipping to the west to southwest fault contact between steeply dipping to the east mafic metavolcanic rocks comprising the hanging wall of the Grey Fox area, and moderately to steeply dipping to the southwest ultramafic and mafic metavolcanic rocks correlated with those hosting the Black Fox deposit. A penetrative foliation is developed with the bounding faults, and locally in narrow intra-package shear zones associated with mineralization and along contacts. No tectonic fabric corresponding to the regional fabric has been identified within the metasedimentary-metavolcanic-feldspar porphyry package hosting the deposit.

The metasedimentary package, assigned to the Timiskaming Assemblage by Berger (2002), is up to 350 m true width and consists of graded sandstone to mudstone layers, with bedding tops to the west. At the Contact Zone, the sedimentary-mafic volcanic contact is steeply dipping to the east from surface to a depth of approximately 300 m, below which the contact rolls to a steep dip to the west. West of the 147 Zone, the sedimentary-volcanic contact steeply dips to the east from surface to the extent of drilling at 500 m below surface.

The mafic metavolcanic package, assigned to the Tisdale Assemblage by Berger (2002), is situated between the east dipping sedimentary package to the west and west dipping ultramafic volcanic package to the east. The metavolcanic package ranges from 300 m true width in the north to at least 800 m at the southern boundary of the property. The mafic metavolcanic package consists of interleaved massive to pillowed mafic flows and massive to pillowed variolitic mafic interflows, with true widths ranging from 10 to 130 m true width. The mafic volcanic flows dip steeply to the east and are truncated by the sheared contact with ultramafic volcanic rocks to the east. In the central part of the deposit, an outcrop of pillowed variolitic metavolcanic rock suggest flow tops are to the west.

6.4.2 Stock Property

The Stock property occurs along the PDDZ corridor, which separates moderately to steeply south-dipping Porcupine Assemblage turbiditic sedimentary rocks to the north from ultramafic and mafic volcanic rocks of the Tisdale Assemblage to the south (Figure 6-8). Both the Porcupine and Tisdale Assemblages young to the south, based on graded bedding, pillow facing, and stratigraphic distribution patterns both on the property and in drilling on adjacent properties, although folding in the Porcupine Assemblage results in local inversions. The juxtaposition of south-younging 2680 to 2690 Ma Porcupine Assemblage to the north of the fault towards older structurally overlying and south younging, >2700 Ma Tisdale Assemblage rocks to the south indicates substantial reverse displacement along the contact area that forms the main strand of the PDDZ to emplace the older volcanic rocks onto the younger sedimentary units.

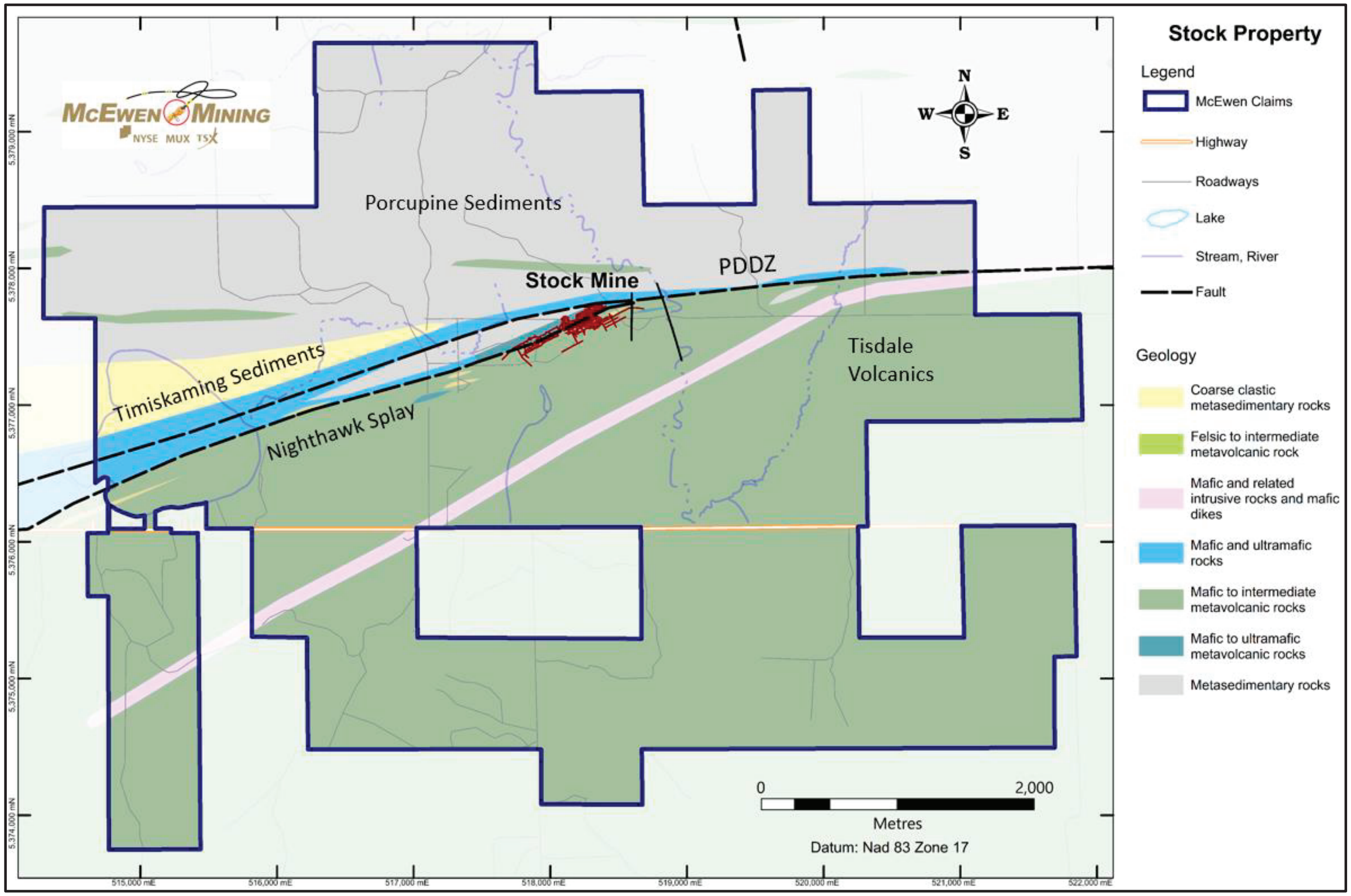

Figure 6-8: Interpreted Geology of the Stock Property and Locations of the Significant Gold Mineralized Zones (red) (prepared by McEwen, dated 2019)

Note: the eastward – thinning sequence of ultramafic rocks which contain bands of variably altered mafic volcanic units and sill-like intermediate to felsic porphyritic intrusions.

6.4.3 Western Properties

Generally, thick accumulations of glacial overburden cover more than 90% of the Timmins area; only a limited number of bedrock exposures occur in the four Western Properties.

The northern sector of the Porcupine Mining Camp is dominated by an irregular accumulation of Tisdale Assemblage volcanic flows, intercalated with several belts and irregular wedges of Porcupine sediments. This stratigraphic sequence is apparently focused along irregular lineament (structural splay?) known locally as the New Mines Trend – diverging westwards off of a southwest-trending flex PDDZ at the Pamour Mine splay-point (Figure 6-9).

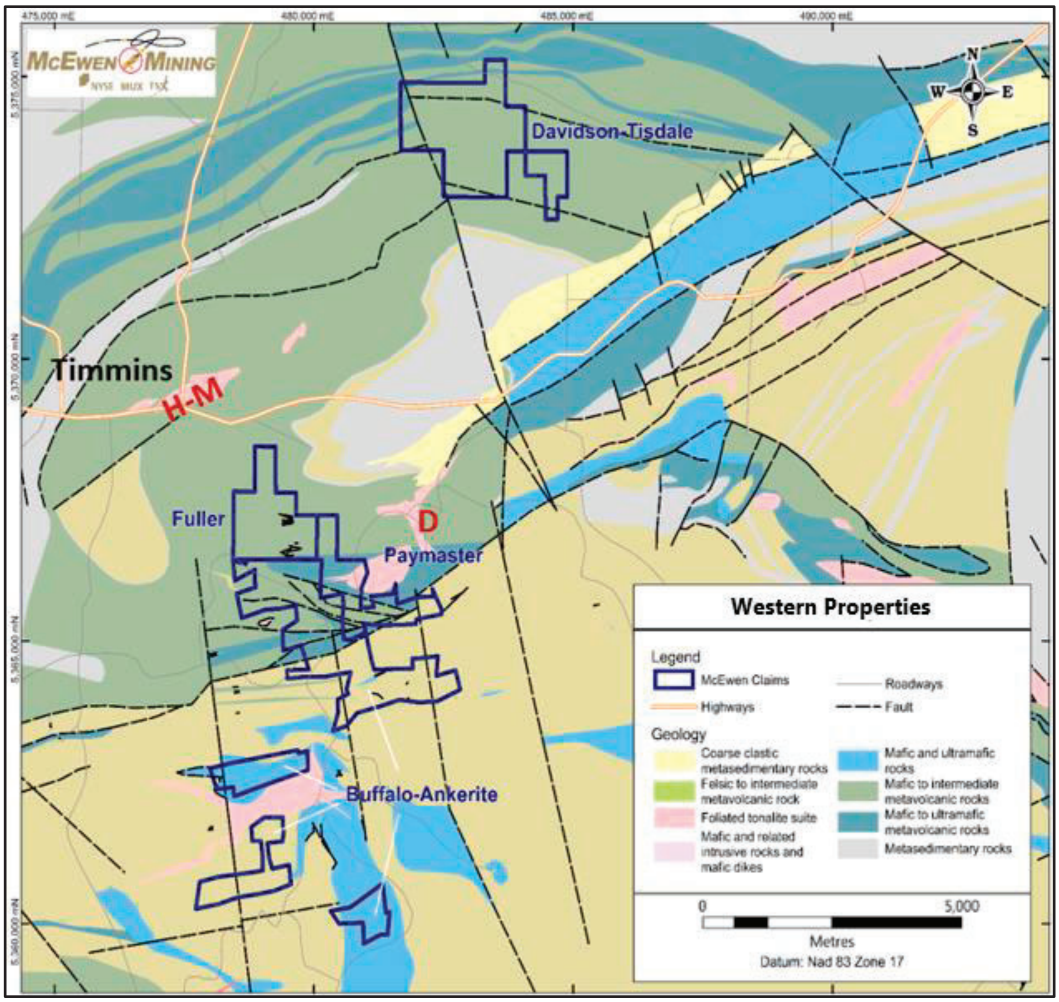

Figure 6-9: Schematic Geological Map of the Timmins Area, showing the Complex Stratigraphy-Structure underlying the Western Properties (prepared by McEwen, dated 2019)

Note: H-M =Hollinger-McIntyre Mine, and D =Dome Mine

The southern sector of the central Porcupine Mining Camp is focused on a belt-sequence of mineralized bodies which extend from the Dome Mine (to east), through Buffalo Ankerite, Paymaster, and Fuller claims, to the western Delnite Mine property. They occur within the South Tisdale Anticline sector and are underlain by a sequence of ultramafic and mafic flows of the Hershey Lake Formation, and locally subdivided mafic flows (C-series) of the Central Formation. The discordant contact/delineation between these two formations is locally referred to as the Paymaster Shear (Pope, 2000).

Property geology described herein for Davidson Tisdale, Fuller, Paymaster and Buffalo Ankerite properties was derived from technical reports prepared by P & E and RPA (Armstrong et al., 2013).

6.4.3.1 Davidson-Tisdale

The property occurs within the Northern Sector and is underlain by a sequence of overturned east-striking, north dipping, pillowed and massive, magnesium tholeiitic volcanic flows of the Tisdale Assemblage.

Alteration is wide-spread, consisting of a low-grade calcite-chlorite envelope enclosing a more intense quartz-sericite-ferro-dolomite or ankerite core. Alteration has not been well documented in the historical drill log database and has been observed to be somewhat patchy at the margins. The alteration is largely, if not entirely, pre-faulting.

The abundance and complexity of faults is one of the most prominent features of the Davidson Tisdale property. Three distinct fault sets have been identified from previous underground mapping (Guy and Puritich, 2007). The faults are moderate to strong shear zones up to 2 m thick. All known mineralized blocks lie within or very close to these faults. The Main Fault strikes 060º and dips 50º to the north. There is a set of faults, which generally run parallel the Main Fault, and dip at 60º to 75º to the north. The second set of faults strikes 025° and dips northwest at 60° to 65°. Two sets occurring between the mine’s No. 4 and 5 Levels represent a dilatant zone between two 060° structures. They contain prominent short veins, locally with gold mineralization. The third set trends 080°, and dips 30° to the north. These are limited to the east end of the workings and contain large “blow-outs” of quartz with erratic gold grains.

6.4.3.2 Fuller

Fuller is underlain by a generally east-west-trending assemblage of massive and pillowed mafic metavolcanic flows with minor variolitic flows. These have been traced onto the adjacent Paymaster Mine and Dome Mine properties to the east. To the west, the units are traceable into complex fold structures; part of the package is believed to be folded to the south around the South Tisdale Anticline (STA), while the northerly part of the package appears to trend onto the Hollinger Mine property.

A ramp was sunk in the vicinity of what was interpreted to be the hinge of the easterly-plunging Fuller synclinal fold. The geology observed in proximity to this ramp has been the best information available in the immediate area of the Fuller deposit. In a general south to north direction, the succession of rocks includes talc-chlorite schist (metamorphosed ultramafic rocks), quartz-feldspar porphyry, pillowed amygdaloidal basaltic flows, massive basaltic flows, and a series of alternating units of massive, pillowed, and amygdaloidal volcanic rocks. The porphyry is interpreted to have been intruded prior to folding. Hydrothermally altered volcanic rocks, including a strongly altered unit with more than 50% quartz flooding, green mica, and pyrite mineralization, are spatially associated with the porphyry; there are also large-folded zones of highly carbonate altered volcanic rocks in contact with the porphyry stocks.

The structure from the small historical Edwards shaft to Buffalo Ankerite South is dominated by an S-shaped fold pattern expressed by the contact between an assemblage of largely massive to pillowed metavolcanic flows on the west, and talc-chlorite schist (meta-ultramafic rocks) with lesser mafic volcanic rock to the east and south. The mineralization on the property occurs stratigraphically above what appears to be the contact between the older ultramafic lower formation and the basaltic middle formation of the Tisdale Assemblage.

6.4.3.3 Buffalo Ankerite

Mineralization is located primarily within a narrow pillowed mafic volcanic flow unit of the Central Series, Tisdale Assemblage. The volcanic rocks are complexly folded around the STA and Kayorum Syncline resulting in an S-shaped flexure in the stratigraphy. The pillowed mafic volcanic rock unit, which hosts the main mineralized domains of the Buffalo Ankerite South property, is flanked to the north and south by Hershey Lake Series magnesium-rich ultramafic flow units. In the area of the Buffalo Ankerite, the volcanic flows strike between 065° and 070°, and dip at approximately 60° to the north and thicken to the west. A discontinuous conglomerate unit is located along the contact between a flow-textured mafic volcanic rock unit and the south ultramafic rock unit. The conglomerate sedimentary rock unit is interpreted as Timiskaming in age containing mainly bleached mafic volcanic clasts with occasional porphyry and ultramafic clasts and typically follows this contact and is similarly oriented for dip. Quartz-feldspar porphyries intrude the volcanic rock units and late northwest-trending diabase dykes cut all the above rock types.

The pillowed mafic volcanic rocks show moderate ankerite and weak sericite alteration while the flanking ultramafic rocks show moderate to strong ankerite alteration with minor local fuchsite. The ultramafic rocks are in fault contact with the mafic volcanic rocks as evidenced by talc fault gouge at the contacts.

6.4.3.4 Paymaster

The Paymaster property hosts the assemblage of massive and pillowed mafic flows with minor variolitic flows extending east from the Fuller property which strike 075° and dip from 65° to 80° north.

In the eastern part of the property the Paymaster Porphyry intrudes the basalts. The Paymaster Porphyry is characterized by the inclusion of 1 to 3% small (1 to 10 mm) clasts of the country rock, typically of ultramafic composition. No clasts of surrounding host rocks are typically found in the Preston Porphyry.

The Main Zone Porphyry has been drill traced for a strike length of 760 m in an east-west direction, and for a depth of 580 m below surface. It dips at 45° to 70° to the north. The shallower dips are in the central and shallow areas with steeper dips to the east and at depth that indicate a plunge to the east at approximately 70° to 80°. This corresponds to the plunge as indicated in the mined-out workings.

The West Porphyry Zone indicates the geometry of the quartz-feldspar units. They are all sub-parallel and moderately north-dipping. Widths can vary greatly both down dip and along strike (Armstrong et al., 2013).

All rock types at the mine have some degree of alteration developed, with four principal types of alteration being recognized. Carbonatization and sericitization are the two dominant alteration types, with silicification and chloritization being developed to a lesser degree. The alteration is most strongly developed in the Preston Porphyry where it occurs as strongly developed sericitization immediately adjacent to gold-bearing veins, and as an alteration halo around groups of veins.

6.5 Mineralization

Gold mineralization at both the Eastern properties and Stock is part of a metallogenetic domain, and shares similarities with ultramafic-hosted and associated deposits that occur along the Destor-Porcupine corridor between Nighthawk Lake and the Black Fox Mine to the east. This domain includes deposits such as those at Nighthawk Lake (Porcupine Peninsular Mine, Hopson Zone, Ronnoco deposit), the Aquarius Deposit, the Taylor Mine (West Porphyry, Shoot and Shaft Zones), and the Black Fox Mine. Similar ultramafic-hosted styles are also present along the Cadillac-Larder Lake corridor to the south, as is exemplified by the Kerr Addison Mine. In all these deposits, deposits occur in association with sets of reverse quartz shear veins and associated sets of gently to moderately dipping quartz-carbonate-albite extension vein arrays in areas where strong Complex rheological control influences the position of mineralization in areas of high strain.

6.5.1 Eastern Properties

6.5.1.1 Black Fox Mine

Gold mineralization at the Black Fox Mine occurs in several different geological environments within the main ankerite alteration zone. This mineralized envelope occurs primarily within komatiitic ultramafics and lesser mafic volcanic rocks within the outer boundaries of the PDDZ. The auriferous zones have several modes of occurrence, from concordant zones that follow lithological contacts and have been subsequently deformed, to slightly discordant zones associated with syenitic sills and quartz veins or stockworks.

Four different styles of mineralization within the mineralized envelope have been identified:

- Free gold associated with east to southeast striking (100 to 170°) moderately to steeply dipping (40 to 80°) quartz-carbonate-chlorite shear veins; sigmoidal vein arrays that strike to the west, north-west (290 to 315°) and dip moderately (30 to 60°) to the south. Visible gold is observed along chlorite stylolites, slip surfaces and within the vein matrix itself
- Gold-bearing pyrite associated with albite-carbonate-sericite altered syenitic and plagioclase porphyry sill-like bodies spatially associated with gold-bearing quartz-carbonate vein systems
- Gold associated with disseminated fine-grained pyrite within intensely sheared Fe-carbonate-sericite-albite altered mafic volcanic rocks adjacent to or within ultramafic rocks. These zones are associated with variably deformed quartz-carbonate veins that can host visible gold as well (Rhys, 2016)
- A much less common form of gold mineralization occurs in carbonate-quartz-talc alteration as disseminated free gold flakes, seen in the Deep Central Zone in areas of elevated matrix quartz and/or quartz veinlets in the altered ultramafic volcanic rocks matrix (Rhys, 2016).

6.5.1.2 Froome

Known mineralization at Froome is hosted within an intensely altered, steeply to the southwest-dipping metasedimentary unit, up to 40 m true width, within the GKDZ. The upper 200 m of the unit is mineralized throughout, with mineralization becoming less predictable and more proximal (within 10 m) of the hanging wall contact (Figure 6-10).

From surface to a depth of approximately 200 m, the metasedimentary unit is intensely silicified, with alteration being focused enough to destroy primary structures and textures. The silicified metasediment is cut by quartz-carbonate stockwork and breccias, with up to 10% fine-grained pyrite disseminated throughout. Below approximately 200 m, the hanging wall area is intensely silicified and mineralized; however, the silica-pyrite content decreases (as sericite increases) towards the zone's footwall. As alteration intensity drops, relict bedding and rounded clasts become evident.

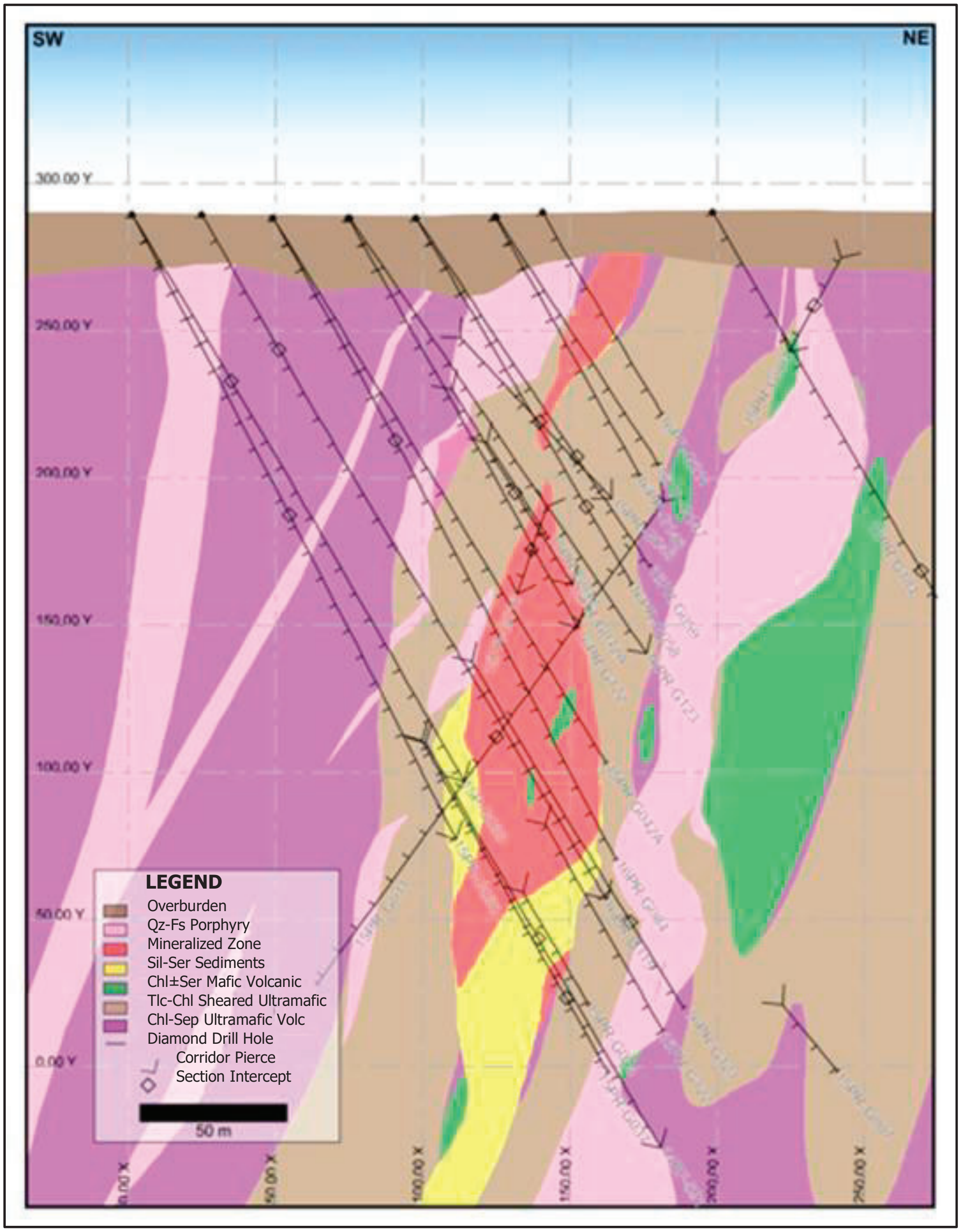

Figure 6-10: Cross-Section looking Northwest through the Stratigraphic Sequence of Units at the Froome Deposit (prepared by McEwen, dated 2017)

Throughout the deposit, the mineralization style consists of disseminated fine-grained pyrite, comprising up to 10% of the rock mass, associated with quartz-carbonate stockwork and breccias. The stockworks and breccias typically have sharp, planar contacts with wall rock. Visible gold has not been noted in the deposit, although a qualitative correlation between pyrite content and fire assay values has been noted.

6.5.1.3 Tamarack

Lead, zinc, and silver mineralization is preferentially located in the hanging wall of the quartz breccia, occurring as either i) stringers, disseminations, and semi-massive knots, clusters and bands of sphalerite and galena hosted within both the volcanic and sedimentary rock units; ii) as clasts in quartz breccias; and iii) as inclusions and fragments within adjacent diabase dykes. Gold mineralization is preferentially hosted within the quartz breccia, occurring as fine visible gold and in association with disseminated fine-grained pyrite.

6.5.1.4 Grey Fox

Zones of mineralization occur along and adjacent to the eastern end of the Timiskaming Sediment lens, which in the area of the mineralized zones trends northerly and dips steeply to the east. Drilling suggests that east of the mafic-sedimentary contact, the stratigraphy in the mafic volcanic sequence also trends north and dips steeply east.

The sequence comprises alternating massive, pillowed, and variolitic mafic units, and local thin volcano-sedimentary horizons as shown in Figure 6-11. Drill core observations suggest that the sequence is generally weakly foliated, despite proximity to the intense ductile strands of the PDDZ to the north, although some lithologies including sedimentary horizons and contacts may have localized displacement, as suggested by cataclastic breccias and narrow semi-brittle shear zones associated with mineralization (Ross and Rhys, 2011).

Mineralization is associated with hematization which occurs in albite-carbonate dominant alteration assemblages often peripheral to mineralized zones, and also as outer envelopes to some veins. Pyritic carbonate-albite-sericite alteration generally overprints the hematite, suggesting that much of the pervasive hematite is early, although later structurally controlled hematite is suggested in vein envelopes as well. The presence of hydrothermal hematite and carbon in vein envelopes suggest that alternating redox states, potentially in response to fluid mixing or evolution, may have contributed to gold deposition.

The mineralization observed on the Grey Fox property occurs in association with quartz-carbonate veins which are often sheeted and occur at shallow to moderate core axis angles in drill holes which are drilled with from east to west with westerly azimuths, which is the dominant drilling direction. The veins in examined drill intersections form closely spaced sets 0.2 to 10 cm thick. Veins often have a complex, multi-generational history.

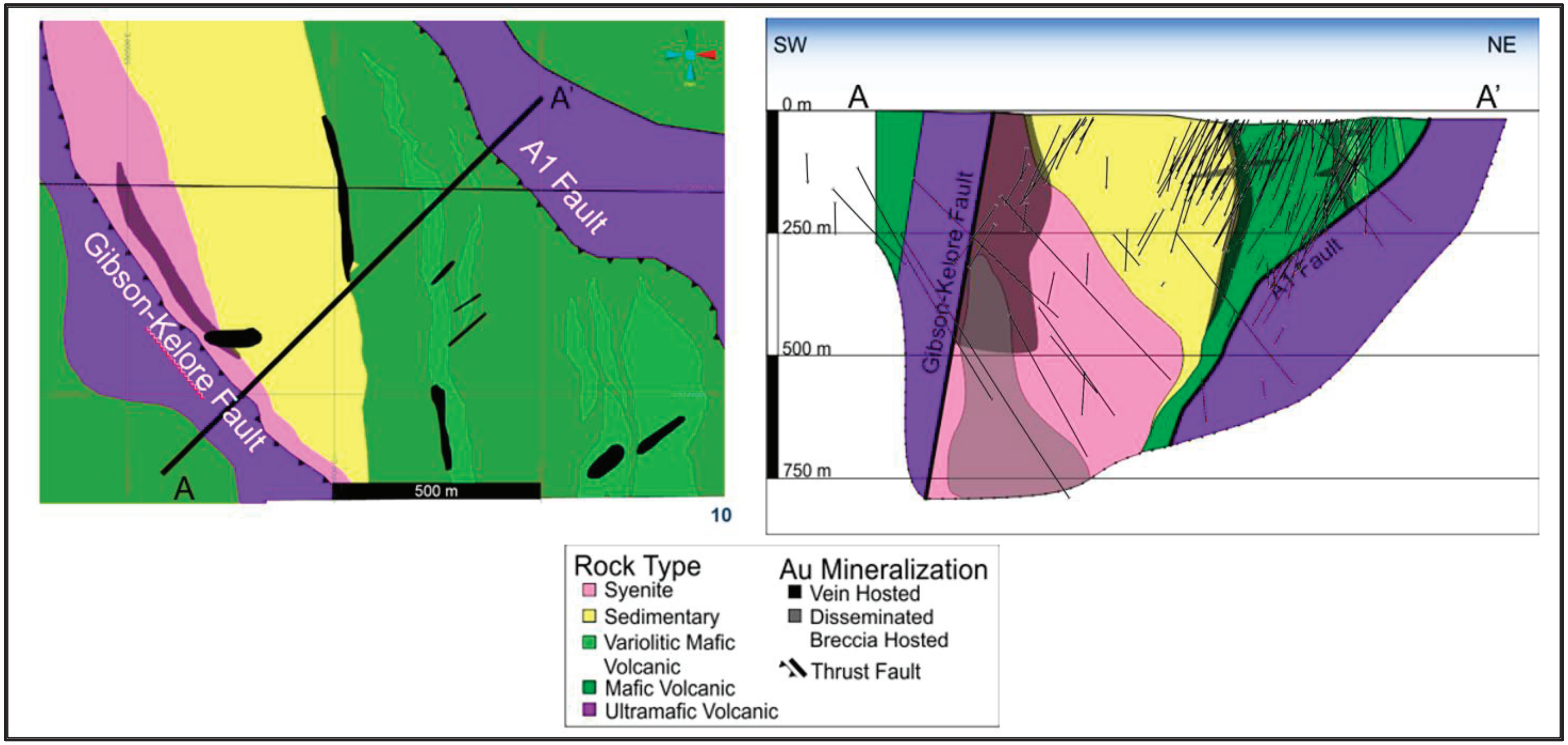

Figure 6-11: Grey Fox Area – Schematic Geological Plan Map (left) and North-Looking Cross-Section (right) (prepared by McEwen, dated 2021)

In the 147 Zone, veins often have thin margins of crustiform banded quartz, overgrown by crustiform a quartz matrix breccia over, and later development of cores of fine-grained, matrix-supported quartz-carbonate matrix lithified vein breccia containing fragments of earlier quartz phases. These veins also often have thin, dark green-grey breccia selvages with abundant disseminated pyrite; petrography indicates they are carbon-bearing.

In the Contact Zone, mineralization occurs on both sides of the mafic-sedimentary contact. The contact itself is not faulted in the examined drill hole intersection, but a broad zone of structural disruption which includes semi-brittle contact parallel minor shear zones and slip surfaces is host to the mineralization. As with the 147 Zone, core axis angles of veins are shallow to moderate. The complex multigenerational crustiform veining observed in the 147 intercepts is not as well developed in the Contact Zone intercept, but veins do display compatible textures and style.

The Whiskey Jack exploration target was identified in 2019. Veining consists of multiple sets/pulses of cataclastite textured quartz-ankerite, over widths of up to approximately 8 m. Less than 30 holes have been 'correctly' drilled at Whiskey Jack and the mineralization model is still developing.

A significant control on mineralization in the 147 and Contact zones is lithology since veins are developed in brittle lithologies or at lithologic contacts. In the 147 Zone, the mineralization is preferentially developed in a variolitic unit which has common quenched fine-grained hyaloclastic texture, suggesting that originally would have been a glassy unit that was susceptible to later hydrothermal albite-carbonate-quartz-chlorite alteration.

Similar textures are developed at the Holloway deposit to the east, where variolitic flows with hyaloclastic breccia textures are host to much of the mineralization.

The 147, Contact, and new Whiskey Jack zones occur in association with breccia veins, crustiform veining and thin quartz-carbonate matrix cataclastic-hydrothermal breccias. Overall mineralization style is brittle compared to other deposits in the region, and the crustiform textures are reminiscent of high-level epithermal mineralization, although such textures can also be developed in shallow orogenic gold systems.

6.5.2 Stock Property

The prospective PDDZ corridor tracks across approximately 7 km of Stock property. To date, most of the exploration has been focused on assessing just a 3 km segment and includes the area of the former Stock Mine, as well as the West and East zones. The Stock Mine deposits (N and M Zones; West and Central Zones), have a moderate west plunge defined by the lenticular to lobe-like shapes of hosting mafic volcanic rocks and surrounding carbonate alteration envelope. These are surrounded by lenses of highly strained, talc-chlorite ultramafic rocks (Siragusa, 1994). Limited historical documentation suggests that much of the mined material is comprised of swarms/zones of white quartz veining (both shear and extensional) hosted within sericite-carbonate altered mafic volcanic bands and along mafic-ultramafic contacts. The quartz shear veins were often accompanied by disseminated pyritic mineralization in shear zones. Pyrite altered, albitized dykes formed additional areas of mineralization sometimes associated with the shear veins (Siragusa, 1994). Gold mineralization in the Stock East area appears to be related to enhanced gold-pyrite accumulation (often exceeding 10%), spread over a wide range of lithologies immediately south of the track of the PDDZ.

The Stock West deposit was discovered in mid-2019. It is hosted within the PDDZ, approximately 1.1 km west of the historic Stock Mine shaft, in an area where the Nighthawk Lake Break bifurcates/splays away from the main PDDZ. The section of the steeply dipping to the south PDDZ hosting Stock West is characterized by chlorite – talc ± serpentine schists (local rock code TUV) with variable ankerite alteration (local rock code AUV), minor mafic volcanic rocks (local rock code MV) which may be silica-sericite altered, pyritized, and quartz veined (local rock code BMV) bound by Porcupine sedimentary rocks in the footwall to the north and a variably altered feldspar porphyry (local rock code FP, or AFP if altered) or relatively undeformed mafic volcanic rocks (MV), likely of the Tisdale Assemblage, in the hanging wall to the south.

In the Stock West drilling, principal intercepts obtained in 2019 occur over an approximately 300 by 200 m area within which multiple, >5 g/t gold intercepts have been obtained over intervals up to several tens of metres in thickness in green carbonate altered. Adjacent holes to the higher-grade areas show that this body thins laterally and is probably lenticular in form (Figure 6-12).

The overall texture is consistent with a possible origin as a potentially pyroxene-olivine porphyritic ultramafic intrusion that is now completely altered, that may have been coeval with the finer-grained, probable komatiite flow sequence that is host to it. Local abrupt variations in its grain size from medium to coarse grained suggest potential for relict textures of pegmatitic phases (Rhys and Ross, 2020).

6.5.3 Western Properties

Many deposits spread over the Porcupine Mining Camp have contributed to approximately 70 Moz of gold production since 1910. Common characteristics of this significant gold deposition are listed below:

- Dominant source of gold is within quartz vein lodes containing locally coarse free gold
- Greater than 50% of the major Hollinger deposit's gold is associated with pyrite formation
- Quartz vein lode deposits are structurally controlled areas of dilatancy which permitted the development of vein zones
- The majority of gold production in the camp is hosted by rocks of the Tisdale Assemblage.

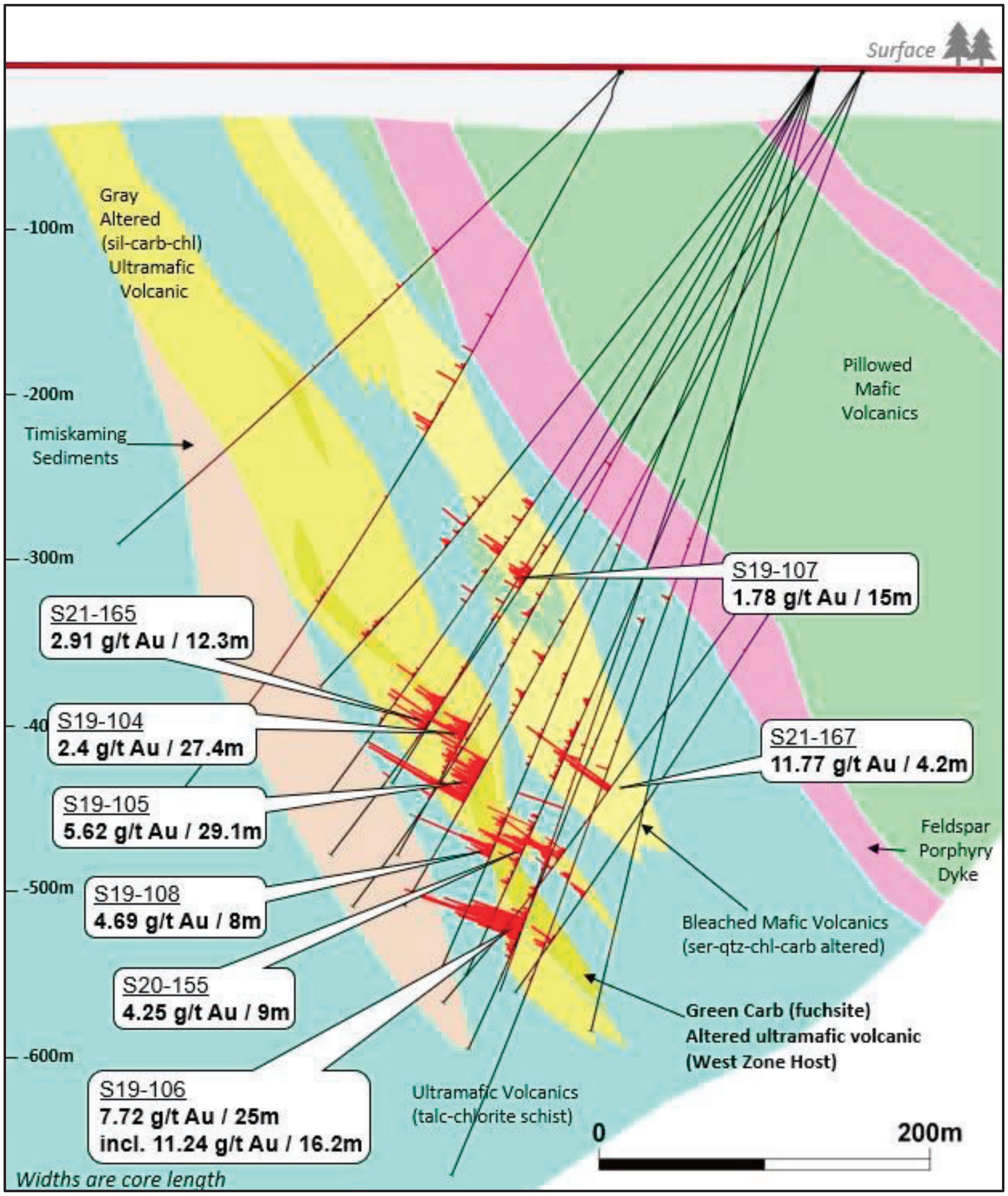

Figure 6-12: Exploration Drilling at Stock West – Schematic Cross-Section Looking to Southeast (prepared by McEwen, dated 2021)

Minor production came from 1) pyrite-bearing pyroclastics within the mafic volcanic rocks of the Tisdale Group, 2) vein sets intruding local felsic porphyry bodies (Pearl Lake and Miller porphyries), 3) quartz veins within the sediments of the Porcupine and Timiskaming Assemblage (Dome Mine) where they unconformably overlie productive portions of the Tisdale Assemblage.

The main minerals of these gold-bearing zones are quartz, carbonates, alkali feldspar (most commonly albite), sericite, pyrite, tourmaline, arsenopyrite, scheelite, and molybdenite. Pyrrhotite is common in the deep parts of deposits, as well as in deposits hosted in banded iron formation. Arsenopyrite seems to be common in deposits hosted in sedimentary rocks.

The concentration of gold may be considered to be a product of the alteration process, as well as the concentrations of barite, tungsten, antimony, tellurium, molybdenum, and arsenic. Although gold in quartz veins is the most distinctive occurrence, the gold in some deposits is found predominantly within the wall rock.

6.5.3.1 Fuller

Most of the mineralization found at Fuller is within the Contact Zone, which is located along the contact between massive and pillowed basalt rock units. Mineralization is characterized by numerous parallel to subparallel quartz-carbonate veinlets hosted within a suite of volcanic rocks. Pyrite is often abundant, both as very fine-grained disseminations and small pyrite trains roughly conformable to the stringers. The Contact Zone meanders along the contact between the pillowed and massive volcanic rock units, and frequently occurs entirely within one of the units. The boundaries of the zone are locally gradational. This is illustrated in the plan section shown in Figure 6-13 and the section shown in Figure 6-14. Note that the grade and widths in these figures are troy ounce per short ton over widths in feet.

The Hanging Wall (HW) Zones are located in the structural hanging wall side of the Contact Zone, partly within the pillowed basalt rock sequence and partly within breccia rocks. The zones are similar, but the quartz tends to reflect a pervasive silicification rather than discrete quartz veining.

Mineralization also occurs in highly carbonate-altered zones, and in porphyry bodies with quartz-tourmaline veinlets near the core of the synclinal structure and the Contact and HW Zones. Quartz-tourmaline-calcite veins with minor sulphides occur irregularly distributed throughout the massive volcanic rock unit; they generally vary in width from 9 to 61 cm.

A significant type of mineralization is porphyry gold-pyrite-quartz mineralization where the porphyry has been relatively strongly deformed, particularly near the core of the Fuller syncline. Underground drill holes outlined, around the 500-ft level, a possibly continuous zone of mineralization which may extend laterally for more than 122 m and vertically approximately 61 m.

Three footwall zones occur north of the Contact Zone in the eastern part of Fuller. These contained quartz veins are designated as the F1 Zone, F2 Zone and F3 Zone. They are very similar to the Contact Zone, but are less silicified, sericitized, carbonatized, with less pyrite mineralization

The Green Carbonate #1 and #2 Zones occur at or near the contacts of feldspar porphyry structurally above the HW Zone. These are similar to carbonate zones found elsewhere but contain more fuchsite and pyrite. Because they are related to lenses of porphyry, their continuity is somewhat uncertain.

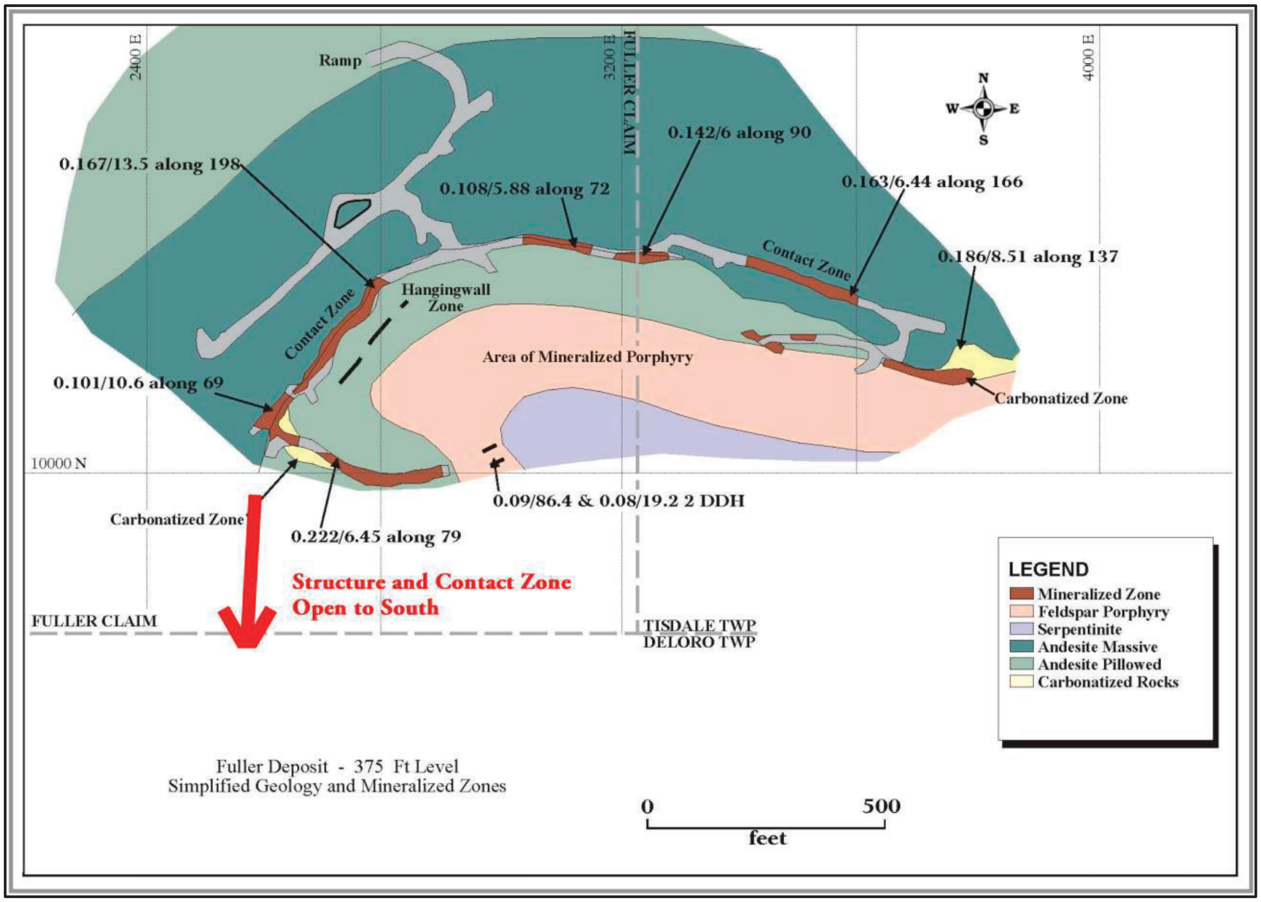

Figure 6-13: Fuller Deposit – 375 Level Simplified Geology and Mineralized Zones (prepared by McEwen, dated 1999)

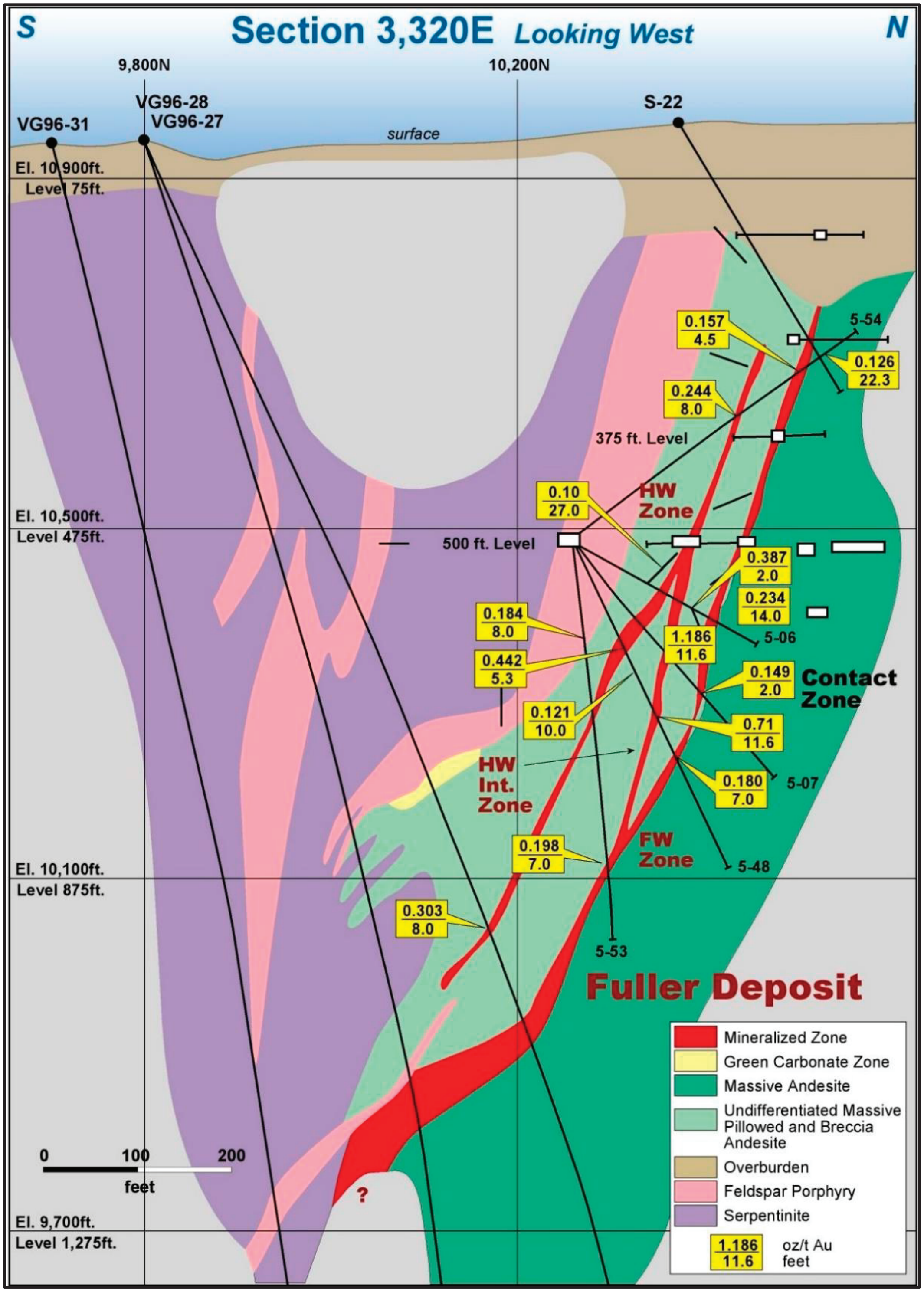

Figure 6-14: Fuller Section 3,320E Looking West (prepared by McEwen, dated 2011)

6.5.3.2 Davidson-Tisdale

Two types of quartz veins were identified on the property (Brooks, 1987). Type 1 are continuous tabular veins striking generally east-west and dipping 15° to 55° to the north. Type 2 are discontinuous, irregular, sub-vertical and steep north-dipping to shallow south-dipping lenses of quartz stringers and veins, striking 040° to 070° azimuth.

Previous explorationists (Getty, 1990's) made the following observations regarding the nature of the mineralized zones:

- In the vicinity of the Main Shaft gold occurs in a quartz stringer zone associated with a strong shear and sericite-carbonate alteration halo
- Though the quartz conforms to the shearing along strike, it cross cuts the shearing down dip
- Locally the stringer zones are very irregular and contain very erratic gold values
- Individual veins dip steeply to 90° at the centre of the system and locally flatten to 0°, suggesting a sigmoidal pattern
- Interpretation of surface drilling had suggested a "sheet-like" vein system dipping approximately 45° to the northwest
- Underground, the gold mineralization was seen to be largely confined to a series of steeply dipping, en-echelon quartz vein fracture systems occurring within the overall 45° dipping structure.

The geometries of these mineralized zones were found to have strike lengths up to 40 m, widths of 2 to 4 m, and near vertical dips with dip lengths of approximately 12 m.

6.5.3.3 Buffalo Ankerite

Studies indicate that mineralization is associated with tourmaline-quartz-carbonate breccia zones located within a narrow pillowed mafic volcanic flow unit of the Central Series, of the Tisdale Assemblage. Breccia fragments are comprised of ankerite-sericite altered pillowed mafic volcanic rocks within a tourmaline-ankerite rich matrix. The finer the size of the carbonatized mafic fragments within the vein, the higher the gold grade.

Pyrite is widespread within these veins and ranges from 5 to 10% with a halo of 3 to 5% pyrite within the highly carbonatized pillowed volcanic flow. Visible gold is generally not observed but a correlation between pyrite content and gold grade has been observed. Gold likely occurs in fractures within the pyrite or along boundaries of the pyrite grains.

Gold values within the conglomerate lithology are associated with quartz and quartz-tourmaline veins with 2 to 5% pyrite content at the vein margins.

6.5.3.4 Paymaster

The main producing area of the Paymaster deposit is associated with the Paymaster Porphyry stock and other small porphyry bodies to the north and northwest with quartz ankerite veins occurring to the north, west and southwest of the porphyry. In general, the tenure of gold in the quartz ankerite veins appears to increase with increased silicification and quartz impregnation partially replacing the ankerite. North- and south-trending white quartz veins are barren.

The Porphyry Greenstone mineralization is associated with the fringes of porphyry bodies located immediately south-southwest of the Preston Porphyry. Mineralization consists of strong alteration of the greenstone that may make it difficult to distinguish greenstone from porphyry. Veining is not always present.

The gold mineralization found in the Paymaster Porphyry appears to be related to various combinations of tectonized porphyry with variable amounts of silica, tourmaline, and sericite alteration, which seem to define corridors of low-level gold mineralization.

Mineralization in the No. 2 Shaft Porphyry is similar to that in the Main Porphyry although the alteration is heavily weighted in favour of silicification and potassic alteration. Sericitization is generally weak and erratic. The porphyry is laced with quartz veins of varying intensities and orientations. To the south, the porphyry body turns west and mineralization decreases rapidly. A similar situation exists to the north where the porphyry system turns to the east. The overall shape of the porphyry suggests a strong shear or deformation zone sub-parallel to the central and mineralized portion.

7.0 Exploration

Gold mineralization was originally noted in the Nighthawk Lake area a few years prior to the 1909-1910 discovery and development of the world-class Dome-Hollinger-McIntyre gold deposits in Timmins. Since then, numerous periods of exploration have been conducted throughout the region, primarily focused on the volcanic assemblages proximal to the regional PDDZ.

7.1 Eastern Properties

Many exploration activities conducted within the claim group occurred concurrently; numerous targets could be assessed by large scope surveys or property scale drilling programs. McEwen took ownership of the Eastern properties in 2017 and has performed a limited number of exploration activities, including geophysical surveys and trenching.

7.1.1 Grids and Surveys

The last vintage of traditional grid work was likely undertaken between 2002 and 2003 to facilitate an electromagnetic TITAN-24 geophysical survey in the Grey Fox and Froome areas.

In September 2019, Zen GeoMap was contracted to fly a UAV (unmanned aerial vehicle) aerial photo survey over the Grey Fox target. Approximately 2,000 photos were collected, geo_referenced, stitched together, and filed onto a separate disk drive. Several low altitude transects were also made over the few bedrock exposures available in the 147 Zone sector.

7.1.2 Geological Mapping

The Black Fox property, including Tamarack, is generally overlain by 5 to 40 m of clay and till overburden. The only bedrock outcrops in the areas are found at:

- Approximately 300 m south of the mining operations (with infringement by waste rock dumping), and is composed of Tisdale Assemblage massive to pillowed mafic volcanic flows
- A road-cut face on Highway 101, situated immediately west of the property's western-most claim boundary. This exposure consists of a Matachewan diabase dyke hosted in mafic volcanic rocks.

No natural bedrock exposures have been located within the Froome or Grey Fox areas.

7.1.3 Geochemical Sampling

The widespread deposition of interbedded glacial tills and dense clays up to 40 m in thickness have discouraged any reliable soil geochemistry surveys being conducted over the Black Fox property.

7.1.4 Geophysics

Several vintages of regional airborne geophysical surveys have been conducted by over-flying the flat topography at the Froome Mine, Black Fox Mine, and Grey Fox target areas. These acted as mapping tools, providing good resolution for determining structural offsets, limits for lithologies such as cross-cutting magnetic diabase dykes, or conversely, nonconductive Porcupine sedimentary rocks. Completed surveys are detailed in Table 7-1.

7.1.5 Pits and Trenches

In September 2019, McEwen exposed a part of the 147NE structure near-surface. High pressure washing followed by detailed mapping confirmed the presence of northwest-dipping veinlets and breccias hosted by massive mafic volcanic rocks. This provided insight as to the continuity of, and relationship between, the 147-area hydrothermal breccias and veinlets defining mineralized structures. Channel samples were then cut-collected (walls cut 8 to 10 cm apart, to a depth of 10 to 13 cm) across the mineralized structure. Gold assaying returned low-grade values.

7.1.6 Additional Surveys

In September 2019, Zen GeoMap flew several low-level (<30 m altitude) passes on a grid pattern over the 147 target area that had been recently exposed by mechanical stripping. This work provided a high-resolution map of the brecciated vein system and confirmed the intensity, orientation, and structural limits of the breccia vein model for the Grey Fox area.

7.1.7 Exploration Potential

Considerable exploration potential exists for the remainder of the Eastern properties, including:

- Under explored lateral extensions away from Grey Fox Mineral Resource cluster
- Untested volcanic stratigraphy in the footwall of the Black Fox-Grey Fox trend
- Assessment of the actual track of the PDDZ structure for approximately 4 km southeast of the Black Fox mining operations.

Table 7-1: Eastern Properties Geophysical Surveys

Date/ Location	Service Provider	Survey Type	Survey Basis	Note
1991	Noranda	Total Field Magnetic & VLF Electromagnetic survey	-	Froome Lake Claim
1993	Exscis Exploration Ltd.	Total Field Magnetic VLF Electromagnetic survey	Survey grid totalling 15.4 line-km	-
2003 Black Fox Complex	Quantec	Electromagnetic TITAN 24 geophysical survey	Deep penetrating	-
2010 Black Fox	Scott Hogg & Associates Ltd.	Airborne magnetics	-	-
2016 Froome	Exsics Exploration Ltd.	Down-hole mise-à-la-masse electromagnetic survey	Two holes within Froome mineralization	Sedimentary rock dips to the south-southwest and strike length of 125-175 m
2018 Black Fox & Black Fox mill	Geotech Ltd.	Helicopter-borne electromagnetic survey, high-resolution VTEM	Two survey grids totalling 1,164 line-km split between Black Fox Complex and Black Fox mill	Several conductors delineated; no follow up drilling has occurred
2019	CGG Canada Services Ltd. TERRA Resources	Airborne gravity gradiometry employing the HeliFALCON platform	• 100 m spaced grid lines flown at a height of 35 m. • Filtering was completed to reduce terrain effects, line corrections and potential impact from underground voids	Four target areas outlined for exploration follow-up two of which has been previously drilled and explained.
2019 Grey Fox	Quantec Geoscience	Orion 3D plus electromagnetic survey	3D depth connection between responses collected at surface and in situ bedrock. Electromagnetic injections within a 1.5 x 1.8 km quadrant – 176 from surface, 256 subsurface from seven holes	Favourable resistivity likely indicating silica-albite enrichment at 500 m level occurring below current drill limits. Follow-up with 750 m holes in 2021 and 2022

Note: VTEM = Versatile Time Domain Electromagnetic

7.2 Stock Property

The lack of sustained exploration funding and limited gold production within the Shillington-Stock area has pragmatically directed exploration efforts towards "quick-test" drilling along the east/west track of the PDDZ. Mine infrastructure and hazards commonly limit access into prospective staging points for proposed exploration drilling.

Since McEwen took ownership of the Stock property in 2017, exploration has included aerial and geophysical surveying, structural interpretation and analysis, and drilling. Significant drilling was completed at both Stock West and Stock Main over last two years.

7.2.1 Grids and Surveys

The Stock property terrain/topography has been untouched since Brigus Gold completed a TITAN 24-ground geophysical (electromagnetic) survey in 2010.

In October 2019, Zen Geomap was contracted to fly a UAV aerial photo survey over the Stock property target area. Two days of flying utilizing an eBee fixed wing drone with a 20-megapixel camera was completed over the Stock West and Fox Mill access road areas. The images were georeferenced to two fixed survey stations on-ground, converted into Pix4D MapInfo format and stored on a jump drive.

This survey was repeated in late April 2021 to capture new drilling access trails and environmental impact.

7.2.2 Geological Mapping

The Stock property is overlain by up to 50 m of heavy overburden, predominantly clay and compacted tills. No bedrock exposures are known to occur within the property limits.

7.2.3 Geochemical Sampling

St Andrew attempted enzyme leach, sodium pyrophosphate geochemistry surveys over a portion of the claims in 1997 to 1998 (Gow and Roscoe, 2006). The thick accumulation of glacial tills and interbedded clays would make soil sample geochemistry data difficult to base a reliable interpretation on.

7.2.4 Geophysics

Completed surveys are listed in Table 7-2. These acted as mapping tools, providing geologists with high resolution images for delineating structural offsets, lithological borders, and accurate locations for cross-cutting diabase dykes (highly magnetic).

Table 7-2: Stock Geophysical Surveys

Date/ Location	Service Provider	Survey Type	Survey Basis	Note
1997	St Andrew	Regional airborne geophysical survey	Four townships centred on the mining operations	-
1997 to 1998	Quantec/M C Exploration Services Inc.	RealSection IP survey and helicopter airborne EM-magnetics	Conducted over a portion of the property	-
2010	Scott Hogg & Associates Ltd.	Airborne (total field) magnetics	-	Delineated north-east trending regional Abitibi diabase dyke from the north-trending Matachewan diabase intrusions
2010	Quantec	Deep-penetrating electromagnetic TITAN-24 geophysical survey	-	Highly detailed 3D level-plans of both resistivity and chargeability (IP) were delineated
2018	Geotech Ltd.	Helicopter-borne, high-resolution VTEM survey	1,164 line-km of data collection over Black Fox and Stock sites	Favourable EM responses were influenced by mining infrastructure. Weak responses were indicated west of the Black Fox mill's tailings dam

Note: VTEM = Versatile Time Domain Electromagnetic

7.2.5 Pits and Trenches

The thick accumulation of dense tills and clays in the Shillington area limits mechanical excavation of the underlying bedrock.

7.2.6 Exploration Potential

The majority of exploration at Stock since the 1990s has been conducted within three, 600 x 400 m segments or "windows" straddling the prominent PDDZ corridor as it tracks across the property. Escalating success at the East Zone (2018 to 2019) and West Zone (2019-current) has dominated exploration planning, culminating in updated Mineral Resource estimations and initiation of prefeasibility studies and consultations. Approximately 60% of the PDDZ corridor on site remains undertested, with less than two-dozen known drill holes present. The adjacent southwest trending Nighthawk splay structure (potentially related to the West Zone deposition mechanisms) has not yet been specifically drill tested. The wedge of Temiskaming sedimentary rocks lying immediately north of the West Zone shows lithologic similarities to the coarse-grained sedimentary rocks that host one of the key mineralized zones mined at the historical Pamour Mine in Timmins.

Drilling at Stock Main is currently targeting potential additions to mineralization near surface and proximal to the proposed Stock West decline. In addition, there is an ongoing exploration program at Froome to targeting potential additions to mineralization at depth and along strike.

7.3 Western Properties

The exploration description provided is mainly based on a technical report prepared by RPA (Altman et al., 2014) and a variety of internal documents circa 2012 to 2015.

7.3.1 Grids and Surveys

In May 2021, Zen Geomap was contracted to fly a UAV aerial photo survey over the following areas:

- The northern portion of the Davidson-Tisdale site centred on the Getty-vintage portal
- The central portion of Fuller covering the claims occupied by the 1988 mining infrastructure

A drone was used to capture images from the flight lines 110 m above ground that were automatically geo-referenced to several fixed survey stations on-ground, converted to a MapInfo format and stored on a portable hard drive.

7.3.2 Field Sampling Programs

Placer Dome conducted surface mapping, a lithogeochemical survey, a magnetic survey, power stripping, and channel sampling at Fuller in 1989.

Lexam conducted a limited prospecting campaign at the Davidson-Tisdale and Fuller groups in 2015, where:

- Davidson-Tisdale test samples were taken from historical trenches and pits. Extensive quartz veining was noted. The historical trenches coincided with the Spatiotemporal Geochemical Hydrocarbon (SGH) geochemical anomalies.
- At Fuller, anomalous gold samples were located within a strongly altered mafic volcanic formation in the southeast portion of the Chisholm property, adjacent to the Fuller property boundary. These results represent the surface expression of the extension of the Fuller zones onto the Chisholm property.

7.3.2.1 Geochemical Sampling

During 2015, SGH sampling was completed over portions of the Fuller and Davidson-Tisdale properties.

Favourable results were obtained on the northern Kinch claims on Davidson-Tisdale where several high priority anomalies were detected. Lexam's subsequent diamond drilling tested the Kinch anomalies and intersected altered volcanic with low but anomalous gold values.

At Fuller, the SGH geochemistry results identified low level anomalies and follow-up was deemed to be low priority.

7.3.2.2 Geophysics

At least two generations of surveys have been performed, as detailed below:

- **Davidson Tisdale:** In 1983, new exploration grids were established and magnetic, very low frequency electromagnetic, max-min horizontal loop electromagnetic, and pulse electromagnetic surveys were conducted on the south claim group. Airborne electromagnetic and pulse time domain electromagnetic surveys were carried out on part of the claim groups.
- **Fuller:** An IP survey was conducted during 1986 and 1989 over the northern part of the property. Later, fieldwork in 1996 and 1997 included IP and magnetic geophysical surveys conducted by Exsics Exploration Ltd. over the ground between the north shaft of the Buffalo Ankerite property and the northern part of Fuller.

7.3.3 Pits and Trenches

According to Altman et al. (2014), between 1996 and 1997, Belmoral undertook a mechanical trenching program to expose mineralization on the numerous shallow outcroppings in the vicinity of the Fuller mining site.

In their 1987 Ontario Mineral Exploration Program report, Getty indicated excavation work at Davidson Tisdale included:

- Extensive stripping in the Main Shaft area that uncovered numerous occurrences of visible gold over an area greater than 183 m long. Smith Vet and South Shaft areas were stripped but not mapped, while trenching and stripping at Cal's Dome showed high gold values in quartz veins in sedimentary rocks which could be traced across the property based on very low frequency electromagnetic survey results.
- Stripping that uncovered visible gold in quartz veins at the intersection of northwest and northeast trending quartz vein systems (the T-Zone) which are underlain by highly carbonated volcanic rocks containing visible gold.

7.3.4 Exploration Targets

There is an opportunity for establishing additional mineral resources on the Western properties.

Mineral Resources have been reported on Buffalo Ankerite and Paymaster in the past (Altman et al., 2014) and are no longer considered current because of outdated cost assumptions. There are opportunities to re-establish current Mineral Resources at these two deposits.

7.3.4.1 Buffalo Ankerite

Prior Mineral Resources were estimated assuming amenability to both underground and open pit mining methods (Altman et al., 2014). The Buffalo Ankerite deposits were divided between North and South zones. Both the North and South zones extend onto the Paymaster property.

Mineral Resources in the North Zone were intersected by 736 holes totalling 73,279 m whereas the South Zone resources were intersected by 692 holes for 73,586 m. The balance of 135 holes in the North Zone and 181 holes in the South Zone were drilled from surface. Holes drilled before 2002 on the Buffalo Ankerite property were not considered with the exception of a limited amount of underground drilling completed by Buffalo Ankerite Mines Ltd.

The North Zone was geologically modeled within four mineralized domains. The South Zone has been modeled within 27 geological domains. The mineralized domains are reasonably continuous section to section.

The Buffalo Ankerite target for further exploration is estimated for both a target that would be amenable to underground mining methods and a target amenable to open pit mining methods. The open pit target is between 5 to 6 Mt grading between 2.3 to 2.7 g/t Au. The underground estimate is between 3.5 to 11 Mt grading between 3.4 to 5.5 g/t Au.

The tonnage and grade ranges are based on the historical mineral resource estimation by RPA (Altman et al., 2014). The potential tonnages and grades are conceptual in nature and are based on previous drill results that defined the approximate length, thickness, depth, and grade of the portion of the historical resource estimate. There has been insufficient exploration to define a current mineral resource and the QP cautions that it is uncertain whether further exploration will result in the target being delineated as a current Mineral Resource.

7.3.4.2 Paymaster

Prior Mineral Resources were estimated assuming amenability to both underground and open pit mining methods (Altman et al., 2014).

The resource was based on 263 drill holes with a total drilled length of 66,439.6 m and a total of 21,439 samples representing 27,960.6 m. These are the holes from the Placer Dome (1995-1996) and the Lexam drill programs (2005-2012). Holes drilled before 1995 on the Paymaster property were not considered.

From this data, wireframes were created to limit the resource model.

The Paymaster target for further exploration includes mineralization in multiple mineralized structures to a depth of 457 m over a strike of approximately 914 m. The exploration target that would be amenable open pit mining methods is between 3.5 to 6 Mt grading between 1.6 to 2.2 g/t Au. The exploration target amenable to underground mining methods is between 0.2 to 0.8 Mt grading between 3.3 to 7.0 g/t Au.

The potential tonnages and grades are conceptual in nature and are based on previous drill results that defined the approximate length, thickness, depth, and grades of the historical resource estimate. There has been insufficient exploration to define a current mineral resource and the QP cautions that it is uncertain whether further exploration will result in the target being delineated as a current Mineral Resource.

7.4 Drilling

A significant amount of drilling on the Property has been completed over the past century. Much of the work is historical in nature. Drilling described includes holes drilled for geological exploration, metallurgical and geotechnical work. A complete drilling history is tabulated in Chapter 5. Drill holes used for the Mineral Resource estimation are tabulated below.

7.4.1 Eastern Properties

A total of 7,329 core holes (1,064,158 m) have been drilled on the Black Fox Mine since 1989. Drilling used for Mineral Resource estimation are tabulated in Table 7-3 with drill hole collars shown in Figure 7-1.

Drilling at Froome during the period of 2000 to present day consists of 374 core holes (117,308 m). Drill holes are presented in Table 7-4 and drill hole collars are shown in Figure 7-1. Interpretations of the Froome drilling are represented in Figure 6-10, Figure 11-3 and Figure 11-4.

A total of approximately 1,469 core holes (546,868 m) have been drilled on the Grey Fox-Hislop area by several operators since 1993. Drill holes used for Mineral Resource estimation are tabulated in Table 7-5 and surface drill hole collars are shown in Figure 7-1. Historical drill hole information prior to 1993 is not used in the resource estimation. Interpretations of the Grey Fox drilling are represented in Figure 6-11, Figure 11-8 and Figure 11-9. The red mineralized shapes are based on the resource cut-off grades for each deposit.

A total of 181 core holes (66,103 m) have been drilled on the Tamarack deposit since 2003.

Table 7-3: Summary of Black Fox Drilling Used for Mineral Resource Estimation

Company	Year	No. Drill Holes	Metres Drilled
Noranda	1989-1994	142	27,800
Glimmer/Exall	2000-2002	1,088	96,053
Apollo Gold	2003-2007	889	224,162
Apollo Gold/Brigus Gold	2010-2013	1,318	135,800
Primero	2014-2017	2,605	387,419
McEwen	2018-2021	1,287	192,924
Total		**7,329**	**1,064,158**

Table 7-4: Summary of Froome Drilling Used in Mineral Resource Estimation

Company	Year	No. Drill Holes	Metres Drilled
Glimmer/Exall	2000-2002	1	200
Apollo Gold	2003-2007	1	693
Primero	2014-2017	219	65,051
McEwen	2018-2021	153	51,364
Total		**374**	**117,308**

Table 7-5: Summary of Grey Fox Drilling Used for Mineral Resource Estimation

Company	Year	No. Drill Holes	Metres Drilled	Target Zone
Noranda	1993	21	5,533.0	-
Noranda	1994	6	1,367.0	-
Battle Mountain / Hemlo Gold	1995	8	2,109.0	Grey Fox
Battle Mountain and Cameco Gold	1996	16	5,872.0	Contact, 147 and South Zones, Gibson and Hislop North
Battle Mountain and Cameco Gold	1997	13	5,367.5	Contact, 147, South Zones, Gibson and Hislop North
Glimmer/Exall	2001	4	1,667.0	Romios
Apollo Gold	2008	16	3,715.0	Southern extension of Contact Zone
Apollo Gold	2009	53	9,960.0	Contact Zone
Brigus Gold	2010	76	29,083.8	Contact Zone, Gibson, South Zone, Hislop North, 147 Zone
Brigus Gold	2011	274	101,893.2	Contact Zone, Gibson, South Zone, 147 Zone
Brigus Gold	2012	282	87,971.0	Contact Zone, 147 Zone, South Zone
Brigus Gold	2013	148	65,417.4	Contact Zone, 147 Zone, South Zone
Primero	2014	199	81,933.2	Contact Zone, 147 Zone, South Zone
Primero	2015	57	26,093.7	Contact Zone, Gibson, South Zone
McEwen	2018	64	25,181.3	Gibson, 147 Zone, 147NE Zone
McEwen	2019	219	89,266.0	Gibson, 147 Zone, 147NE Zone, South Zone, Whiskey Jack Zone
McEwen	2020	13	4,437.7	Whiskey Jack Zone
Total		**1,469**	**546,868.0**	

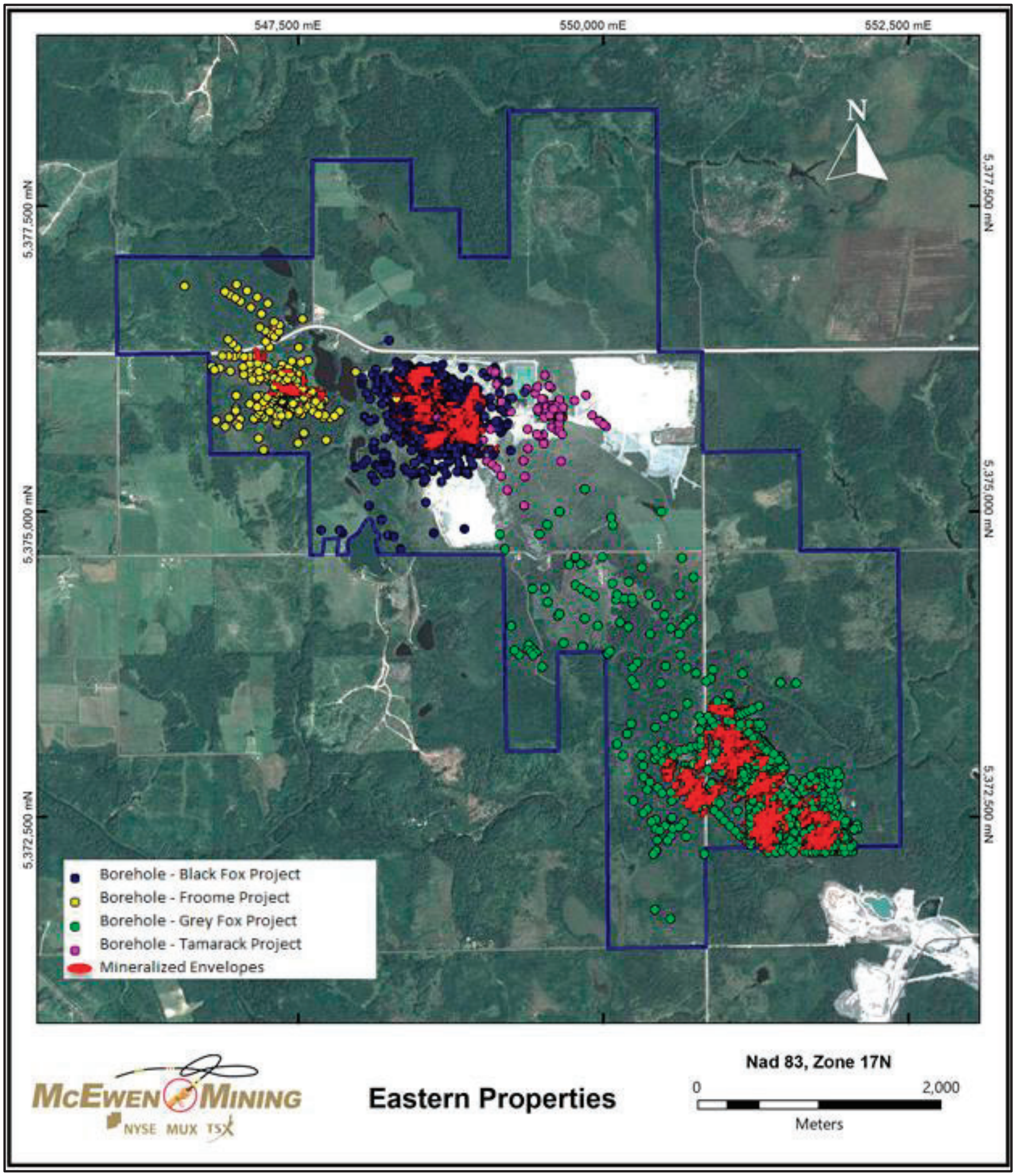

Figure 7-1: Distribution of Surface Drilling at the Eastern Properties (prepared by McEwen, dated 2021)

7.4.2 Stock Property

Drill holes are presented in Table 7-6 with drill hole collars used for Mineral Resource estimation shown in Figure 7-2. Interpretations of the Stock West drilling are represented in Figure 6-12, Figure 11-15 and Figure 11-16.

Table 7-6: Summary of Stock Drilling Used in Mineral Resource Estimation

Company	Year	No. Drill Holes	Metres Drilled	Target Zone
St Andrew	1983-2008	50	14,805.0	Stock East
McEwen	2018	73	20,181.0	Stock East
McEwen	2019	99	36,826.7	Stock East, Stock West
McEwen	2020	30	17,727.0	Stock West
McEwen	2021	70	38,552.6	Stock West
Total		**322**	**128,092.3**	

7.4.3 Western Properties

Many phases of exploration and mining operations have occurred since 1910 on the properties. Prior to the early 2000s, exploration drilling was sporadic, and mineralization-boundary driven. Historical drilling records are available in paper form and require additional organization for future work.

Lexam conducted aggressive, results-driven exploration at a steady pace during 2003 and 2012. Many of the procedures described are assumed after viewing several drill logs and maps/ sections from this era.

A drilling summary on the Fuller and Davidson-Tisdale properties is presented in Table 7-7 and collar locations shown in Figure 7-3 and Figure 7-4. In addition to the drilling at Fuller, 598 chip samples were used from the Belmoral work, totalling 2,279.9 m. Bazooka drilling at Fuller during the same period totalled 184 holes (1,487 m). These samples were digitized by SRK in 2017. Drilling in the Buffalo Ankerite and Paymaster deposits do not support a current Mineral Resource estimate and are therefore not considered relevant to this IA. Interpretations of the Fuller drilling are represented in Figure 11-21 and 11-22.

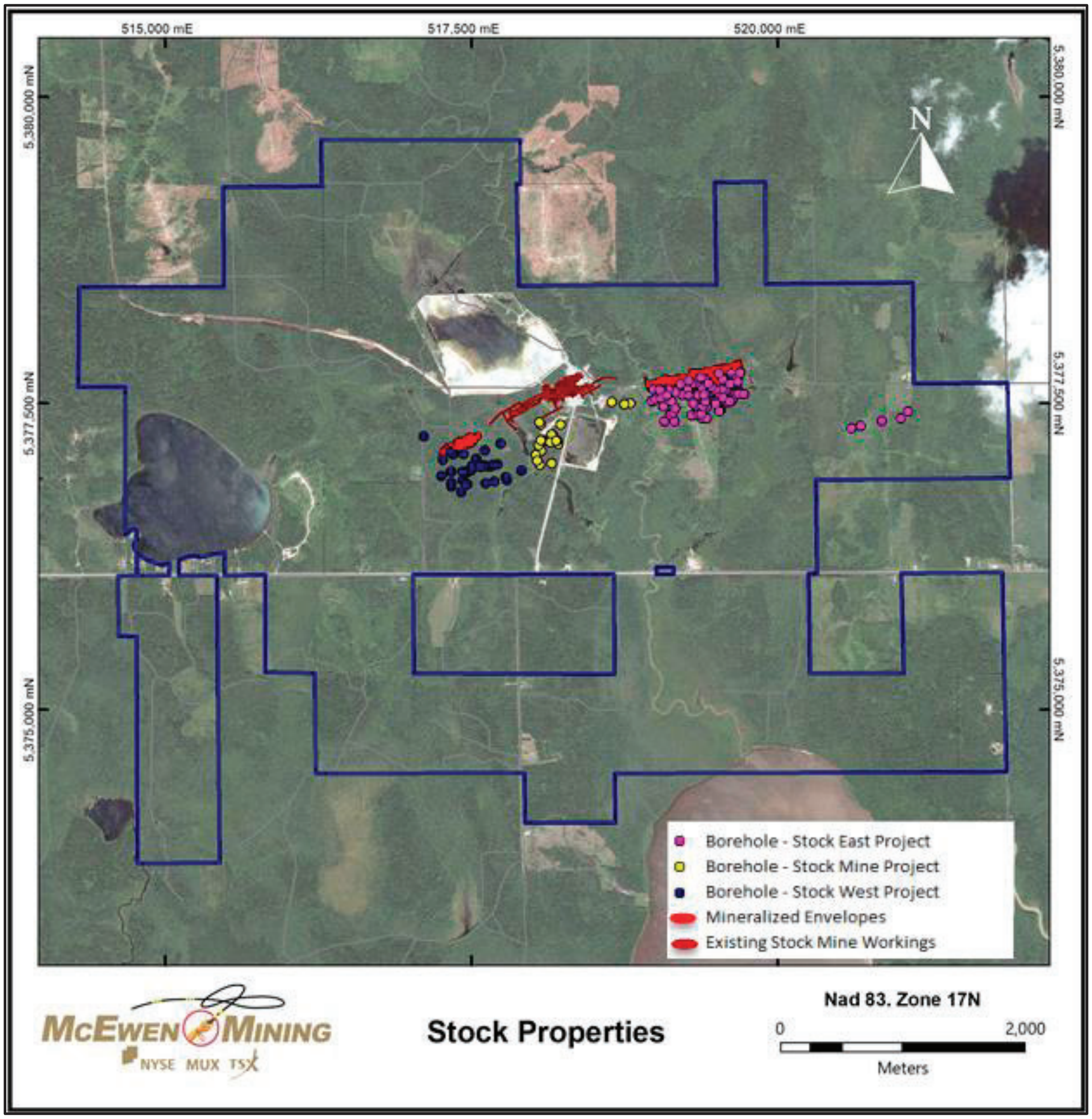

Figure 7-2: Distribution of Surface Drilling at the Stock Property (prepared by McEwen, dated 2021)

Table 7-7: Summary of the Western Properties Drilling Used in the Mineral Resource Estimate

Company	Year	No. Drill Holes	Metres Drilled
Fuller			
Various companies	Prior to 1983	75	7,060.20
Belmoral	1986-1989	458	30,026.20
Vedron	1996-1998	58	27,626.00
Lexam	2004-2012	41	10,403.90
Total		**632**	**75,116.30**
Davidson-Tisdale			
DTM	1983-1984	35	4,576.8
Getty	1984-1987	537	49,165.9
Midas Minerals	1989	5	1,486.2
Northcott	1999-2003	17	399.3
Lexam	2003-2015	97	24,397.5
Total		**691**	**80,025.6**

7.5 Drilling Methods

Early drilling operations from both surface and underground have been done using diamond drilling. Historical drill data has not been used to define Mineral Resources unless the data could be verified through QA/QC documented procedures or adjacent holes.

7.5.1 Eastern Properties

Surface-stage diamond drilling operations have been provided by several local service contractors since the 1990s; their basic procedures/protocols do not change as the rigs shift from target to target within the property. No underground exploration drilling has been conducted at Grey Fox since the late 1980s during Goldpost Resources' underground drill program at Gibson.

Fully hydraulic diamond drill rigs have been commonly utilized by the various contractors since 2010; innovations such as mechanized rod-breaking, remote-control manipulation, and safety-perimeter cages have improved coring performance by 30 to 50% such that crews today commonly produce 80 to 120 m in a 24-hour period.

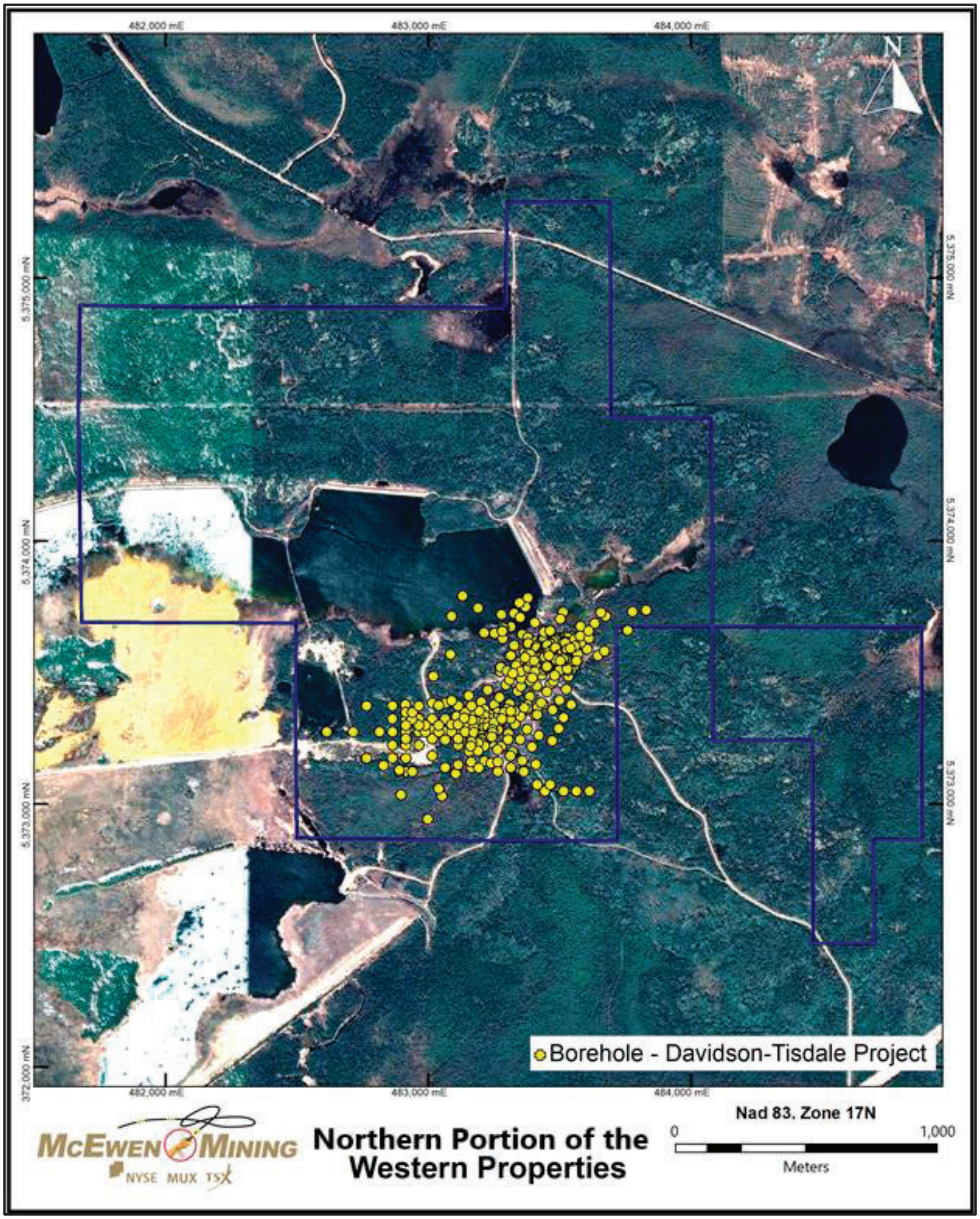

Figure 7-3: Northern Portion of the Western Properties Drill Hole Collar Location Plan (prepared by McEwen, dated 2021)

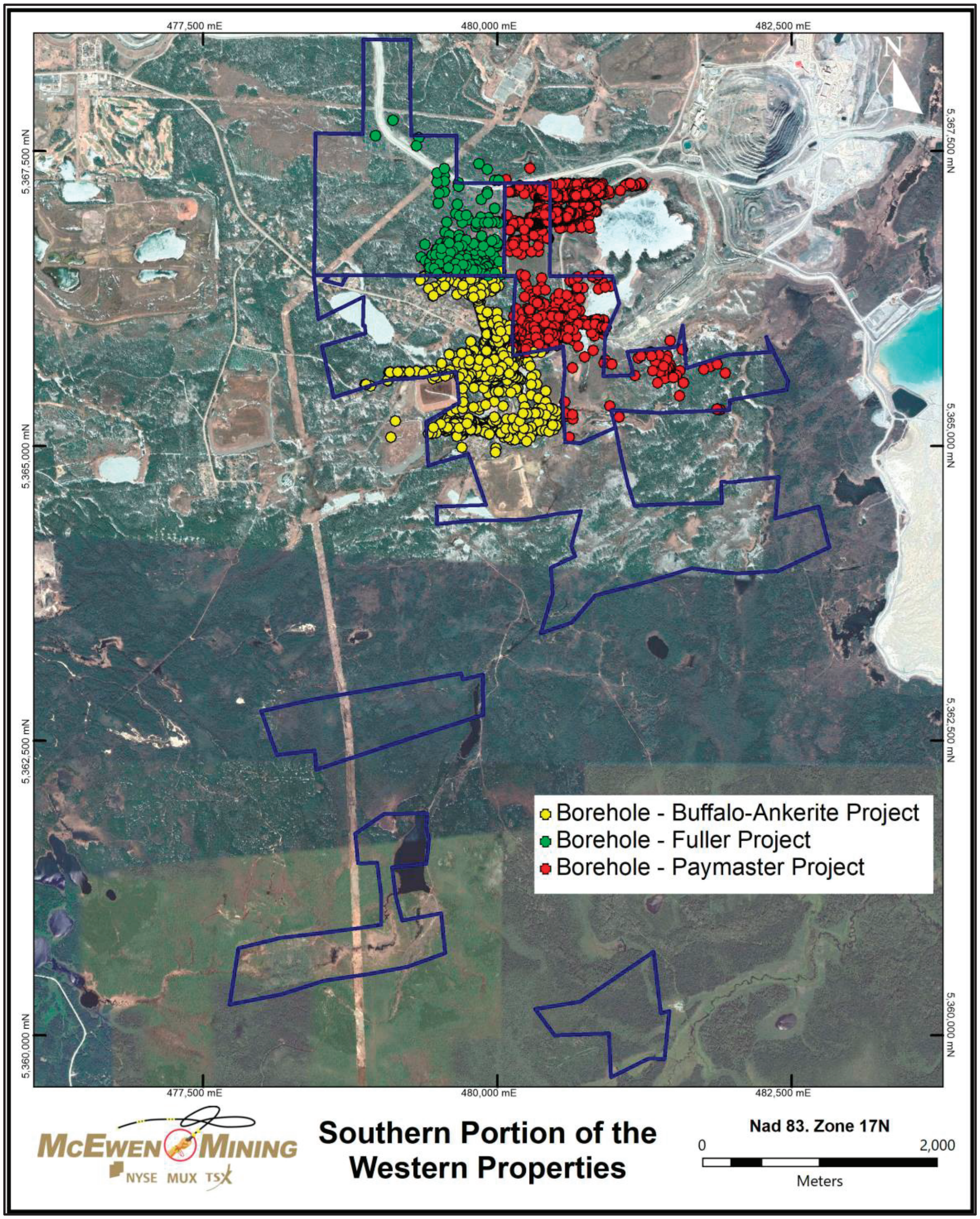

Figure 7-4: Southern Portion of the Western Properties Drill Hole Collar Location Plan (prepared by McEwen, dated 2021)

NQ-diameter coring (47.6 mm) has been the property-standard at the Grey Fox and Froome targets since 2010. The drill core is removed from the core tube carrier and immediately placed into wooden core boxes capable of holding 4.5 m of core. During the coring procedures, drillers place a small wooden block identifying the downhole length of overburden, and progressively place depth marker blocks at 3-m intervals of core. Upon filling, the boxes are transported to McEwen's nearby core facility for logging, photography, and sawing for assay. When the drillers retract the string of 3 m rods, they carefully count the number arriving to surface to verify that the lowest depth-block within the core boxes is correct.

7.5.1.1 Black Fox

Drilling by Noranda was performed using NQ diameter core unless ground conditions required reduction to BQ. The drill program was executed by Norex drilling. Core was sent to the Hemlo Gold Mines storage facility at the Aunor mine site in Timmins for storage and logging. The core was split and sent for assay.

7.5.1.2 Gibson

Sludge samples were taken in the 1980s and used as a guide for most of the core sampling. The core diameter was NQ from 1983 on and BQ prior to that. Core recoveries were better for NQ than for BQ core.

7.5.1.3 Grey Fox

Sludge samples were taken in 1979 and the 1980s and used as a guide for most of the core sampling. The core diameter was NQ from 1983 on and BQ prior to that. Heath and Sherwood was the drilling contractor used. Reports from Ginn do not indicate sampling methods used on the core.

Core from the Noranda epoch was drilled NQ diameter, and core was taken to the Hemlo Gold Mines storage facility at the Aunor mine site in Timmins. Core was split for assay. Longyear was the drilling contractor used.

7.5.2 Stock Property

Drilling operations since 2018 have employed the same contractors and operating procedures using NQ diameter core as described for the Eastern properties. Sealed core boxes are delivered daily by the foreman to McEwen's logging facilities at the Fox Mill facility.

Brigus Gold performed a drill program in 2011 using Norex drilling. Samples were taken over zones that indicated mineralization or in areas normally associated with mineralization.

According to the RPA report on the property from 2003 (Roscoe et al., 2003), most of the surface diamond drill holes were drilled from 1961 to 1989 and most of the underground diamond drill holes were drilled from 1981 to 1994. There is not much documentation available that covers the specific sampling method used during these time periods. Most of the underground drilling core from 1989 to 1994 was AQ diameter and most of the surface drilling core before 1996 was BQ diameter. All of the underground and surface drilling from 1996 to 2000 was NQ diameter. Generally, the diamond drill core was split, with half being assayed and half retained. While the mine was in production from 1989 to 1994, assays were carried out on some whole core from infill drilling, carried out on 7.5 m centres.

A manual core splitter was used prior to 1994. Since 1996, a diamond core saw with a continuous supply of fresh water was used to split core.

7.5.3 Western Properties

Lexam exclusively used Norex drilling for all surface drilling on all four properties. The majority of Norex's rig inventory after 2010 were hydraulic rigs typically equipped to generate NQ-diameter core.

Considerably large footprints of underground development (now water or sand-filled cavities) are associated with the mining excavations at each site. The QP assumes that if a surface-staged exploration hole encountered an underground void, the drillers were directed to reduce their coring size to BQ-diameter (36.5 mm) and proceed onwards (back into solid rock) if able.

Drill core from the rigs was picked up twice per day by Lexam core technicians and taken to the core logging facilities in nearby South Porcupine. Towards the end of Lexam's activities, the exploration team was based at the Davidson Tisdale property.

7.6 Logging Procedures

Core logging procedures have been followed since approximately 1996 with regional gold industry-standard procedures followed since January 2018.

As they arrive from the drillers, core boxes are opened and immediately checked for missing or damaged core. Core is logged immediately or placed into steel holding racks adjacent to the logging stations. Core is first fitted together and aligned to ensure contiguity and proper alignment of any structure fabric. The geologist then marks off 1 m standard intervals and measures recovery percentages (over the 3 m core run). The geologist then identifies and quantifies the main lithological unit, alteration, and mineralization style. Care is taken to record and measure structural features, including foliations, offsets-displacements, and ductile deformations of linear flow features.

7.6.1 Eastern Properties

Gemcom logging software was commonly used onsite between 2015 and 2018 and has since been replaced by Datamine's DH Logger.

Core is photographed from an elevated perspective to capture an image/record of three to five boxes at a time. These images are downloaded, labelled using a standard numbering format, and stored with the drill logging records.

Paper logging of historical drilling includes logging for mineralization, lithology, and geologic structure.

7.6.2 Stock Property

Since 2018, McEwen has followed the same procedures as described in Section 7.6.1.

Paper logging of historical drilling includes logging for mineralization, lithology, and geologic structure.

7.6.3 Western Properties

Lexam followed a uniform protocol for all properties recording the lithological, structural, alteration and mineralogical features.

According to the technical report prepared by RPA (Altman et al., 2014) surface drilling at Buffalo Ankerite between 2009 and 2012 followed a system where the Lexam technicians collected rock quality measurements and indicated core recoveries in addition to the usual core logging. Features such as alteration, mineralization and rock-unit descriptions were logged by the geologists into a Geotic Log software system. The Geotic lithological legend was later merged into a Gemcom GEMS-3D modelling software system. Drill core was photographed after samples were marked up.

Paper logging of historical drilling includes logging for mineralization, lithology, and geologic structure.

7.4 Core Recovery

7.4.1 Eastern Properties

Recovery of diamond drill core during the hole's advance through bedrock is generally reliable within the confines of the Black Fox, Froome and Tamarack properties, with recoveries of at least 85% expected unless a localized fault zone or void is intercepted. The country rock underlying the Eastern property claims is generally weakly deformed, and faults in the deposit area are relatively competent when drilled at attack angles greater than 45° to the structure/ zone. The majority of modern drilling within the Grey Fox cluster of targets has been oriented at high angles to the north-south foliation fabric. Core recovery issues have typically exceeded 85%.

After 2015, Froome holes were designed to dip at a high angle to the GKDZ (adjacent to the targeted zone), maximizing driller's core recovery. This pattern was thought to lessen the impact of the structural fabric of the Gibson-Kelore Fault, lowering the tendency for the core to naturally part along the foliation planes within the soft chloritic ± talc schistose ultramafic volcanic rocks.

Drill logs of historical drilling informing resources indicate similar recoveries of core.

7.4.2 Stock Property

The country rock underlying the Stock targets is relatively strongly deformed given the proximity to the PDDZ and Nighthawk Lake fault structures. Core recovery rates between 85 and 100% are expected when the track is passing through competent mafic volcanic flows or the hard, unfractured felsic intrusives. Local zones of soft, chloritic/talcose rubble (chips and gravel), occasionally impede the driller's coring to depth. Approximately 5% of the drill holes since 2018 have failed to penetrate these zones, often resulting in breakage and loss of rods.

Drill logs of historical drilling informing resources indicate similar recoveries of core.

7.4.3 Western Properties

The country rock within the south-central portion of the Porcupine Mining Camp is moderately-strongly deformed, given the proximity of the PDDZ and related South Tisdale Anticline structures. According to the technical report prepared by P&E and RPA (Armstrong et al., 2013), core recoveries of 99% were reported at the Paymaster, Buffalo Ankerite and Fuller sites as the holes passed through competent mafic volcanic flows or the hard, unfractured felsic intrusives. The QP is unaware of any significant faulting/gouge limiting successful core recovery at the Davidson Tisdale exploration site.

Drill logs of historical drilling informing resources indicate similar recoveries of core.

7.5 Collar Surveys

7.5.1 Eastern Properties

Drill sites were selected and measured-in using a 50 m tape from a cut and picketed with a 1,000 m spaced gridline system established along the flanks of Tamarack Road (Hislop 2 Road).

Between 2008 and 2015, diamond drill holes at Black Fox, Froome and Grey Fox targets were spotted in the bush using a handheld GPS, accurate to approximately 1 m.

Since 2016, a differential GPS tool accurate to within 1 m and linked to the base station at the Black Fox Mine has been used to survey collar locations.

Since 2019, drillers have been using Reflex Instruments TN-14 gyroscopic tool to capture survey and collar alignment data. This tool uses a north-seeking gyroscopic compass digitally linked to the local GPS grid system.

Earlier holes from 1988 have been surveyed using handheld GPS units. Follow-up surveys using conventional surveying methods were required to accurately locate hole collars.

Holes before 1980 were surveyed using transit.

7.5.2 Stock Property

Between 2018 and 2019 diamond drill holes were spotted using a handheld GPS accurate to approximately 1 m. Since 2019, McEwen has utilized a differential GPS system for establishing accurate survey control of the drill hole collars. All data collected is reported in NAD83 values for geographic zone #17U and are fed to the base station established at the Fox Mill.

Since October 2020, drillers have been using Reflex Instruments TN-14 collar gyroscopic survey tool.

During Spring 2021, the company began use of an independent DeviSight APS differential GPS tool (a true North azimuth gyro-alignment system) to improve the accuracy of planned collar locations and drill azimuth alignments.

Earlier holes from 1988 have been surveyed using handheld GPS units. Follow-up surveys using conventional surveying methods were required to accurately locate hole collars.

7.5.3 Western Properties

Drill logs coupled with the technical report prepared by RPA (Altman et al., 2014) indicate drill hole collars were surveyed by a differential corrected GPS instrument commonly accurate to within 0.1 m under good conditions.

Earlier holes from 1988 have been surveyed using handheld GPS units. Follow-up surveys using conventional surveying methods were required to accurately locate hole collars.

7.6 Downhole Surveys

7.6.1 Eastern Properties

Between 2014 and 2017, drillers used an EX-Shot downhole survey tool that utilizes a magnetic-north pointing 'single shot' gimballed globe compass with readings collected at 50 m intervals.

Since 2017, drillers have been using a Reflex Instrument EZ Gyro or multi-shot Sprint orientation tool which is a north-seeking gyroscopic compass proven to reduce magnetic effect. This is particularly important because of the presence of high-iron mafic-ultramafic rock units found within the Black Fox and Froome Mines and Grey Fox stratigraphic sequences. Data was collected on 50 m intervals with down-hole data digitally relayed to a handheld receiver at the surface. Paper copies are inserted into core boxes at the appropriate survey location.

Noranda drilling logs indicated that Tropari or acid/Pajari methods were used for downhole surveys. No indication of downhole surveys was available on the logs from Ginn or Parsons.

7.6.2 Stock Property

Paper drill logs generated in the 1990s indicate survey readings were collected on a hole-by-hole basis; however, the survey method or sensitivity is rarely noted. Drill logs from the 1990's indicates that the Tropari or Acid/Pajari methods were used.

From 2018 onwards, drillers have followed the same survey procedures using EZ Gyro data collection at 50 m intervals, as detailed in Section 7.6.1.

7.6.3 Western Properties

According to the technical report prepared by RPA (Altman et al., 2014), Lexam supervised drillers to collect down-hole survey data carried out using a Reflex EZ-Shot instrument with readings taken every 50 m.

7.7 Geotechnical, Hydrological and Metallurgical Drilling

Geotechnical diamond drill holes have been drilled on the Eastern properties and at Stock. In 2006, four holes were drilled at Black Fox with NQ-sized core totalling 630 m. Ten were drilled by Primero in 2015 to 2016 totalling 2,017 m with partial geotechnical logging (W, R, RQD and Jr) of exploration holes. In 2017, six NQ3-sized holes were drilled in the Black Fox ramp to Froome totalling 1,646 m.

At Grey Fox, six geotechnical holes were drilled in 2013 totalling 1,218 m. Seven NQ-sized holes (525 m) were drilled at the Stock Main deposit in 2010.

Forty monitoring wells, installed primarily in overburden, were completed at Black Fox in 2004 and 2005. The total length of boreholes with installations is approximately 700 m with overburden drilling typically using 150 to 200 mm hollow stem augers and bedrock portions using NQ coring.

Twenty-two boreholes have been completed as monitoring wells at Grey Fox. Holes are primarily in overburden with a total length of all installations approximately 375 m. Overburden drilling was typically 200 mm hollow stem augers and bedrock portions using NQ coring. The holes were installed by various consultants between 2011 and 2015.

No specific metallurgical holes have been drilled on any of the deposits. Samples for metallurgical testing have come as half or quarter NQ-sized core from intervals of exploration drill holes.

7.8 Sample Length/True Thickness

7.8.1 Eastern Properties

Mineralization at Froome consists of disseminated sulphide hosted gold. As such, discrete structures hosting mineralization have not been identified, and mineralization is thought to be more closely related to alteration/replacement within the host unit. The host unit contacts with the flanking schist and bedding within the unmineralized part of the host unit typically angles to core axis between 45° and 65°, suggesting the true width of mineralization within the Froome deposit is approximately 70 to 80% of the core length.

Mineralization at Grey Fox is controlled by northwest and south dipping structures and, locally, the interaction of these structures with lithological contacts which are steeply dipping to the east. Due to the variable orientations of these structures, the relationship between sample length and true thickness is also variable.

Most of the drilling between 2008 and 2016 was completed in an east to west azimuth. This orientation of drilling results in intersections of mineralized veinlets and breccias at low angles to the core axis, in which case the true width of the structure may be as low as 10 and 20% of the core length. Since 2018, the majority of drilling in the 147 and 147NE zones at Grey Fox have been in a northwest to southeast orientation and has resulted in intersections of northwest dipping structures with high (>60°) angles to core axis, where the true width may be as high as 80 to 90% of the core length. Low angle mineralized structures, corresponding to south dipping structures are also intercepted in this northwest to southeast orientation.

Additional drilling (now reoriented towards the southeast) is warranted to verify any adverse affects of using estimations statistics on the pre-2018 oblique intercepts in the Grey Fox resources cluster.

7.8.2 Stock Property

Exploration drilling over the past 40 years has been designed to intersect the PDDZ corridor of alteration/mineralization at perpendicular angles with almost all holes pointing towards 330 to 360°. The steeply southeast dipping, inclined stratigraphic sequence presents an opportunity for these holes to cut the conformable mineralized structures with high (>60°) angles to core axis, where the true width may be as high as 80 to 90% of the core length.

7.8.3 Western Properties

According to the technical report prepared by RPA (Altman et al., 2014), Lexam attempted to intercept their targets at near-perpendicular attack angles. This included near vertical drilling to intersect the flat-lying mineralized zones at Davidson Tisdale and the swinging/reactive dip angles to bracket the folded stratigraphy at the north and south target zones at Buffalo Ankerite.

7.9 Drilling Completed Since Database Close-out Date

Drilling has continued at Stock West, Froome, and Grey Fox since the database close-out dated of 30 July 2021, 16 July 2021, and 30 November 2020, respectively. Drilling on these deposits is as follows:

- **Stock West:** an additional 66 core holes (22,493 m) completed to 31 October 2021 as infill drilling to expand the known limits of the shallow, southeast plunging mineralization trend. The structural orientations, coupled with detailed zone logging, will aid the next phase of mineralization-modelling with greater clarity for volumes/dimensions, and likely provide 20 new composited assay averages.
- **Froome:** an additional 85 core holes (39,518 m) were completed between 16 July and 31 October 2021 to continue delineation of the mineralized zone.
- **Grey Fox (Whiskey Jack):** an additional 21 core holes (9,047 m) were completed between 1 April and 31 October 2021 to infill the upper, shallow gaps in proposed conceptual stoping design.

7.10 QP Comment on Chapter 7

The deposits within the Fox Complex are relatively narrow, with variable orientations. This requires reorienting drill programs as the deposits are better understood to more accurately capture the volume of mineralization. Insufficient drilling in orientations that are perpendicular to the fabric of the deposits risk overestimation of the volumes of the Mineral Resource.

The deposits remain open at depth and along strike in many cases.

The QP believes that the quantity and quality of the lithological, collar and downhole survey data collected during the exploration and infill drill programs completed at the Fox Complex deposits are acceptable to support Mineral Resource estimation.

8.0 Sample Preparation, Analyses, and Security

8.1 Eastern Properties

Descriptions provided for work completed by previous operators are sourced from previous technical and exploration reports prepared by Noranda Exploration (1995), Mine Development Associates (Prenn, 2006) and InnovExplo (Pelletier et al., 2013).

8.1.1 Sampling Methods

8.1.1.1 McEwen

McEwen geologists select the drill hole sample intervals during the core logging process. Intervals are identified and selected by geological features and marked directly onto the core with a grease pencil. Sample lengths are typically limited to between 0.3 and 1.5 m. Wherever possible, key contacts or boundary features, such as lithologic borders, are not crossed. Occasionally, when the hole passes through long runs of relatively homogeneous alteration/ mineralization where numerous contiguous samples are requested, it is normal to use repetitive intervals until the lower limiting feature is reached.

Underground chip sampling is accomplished by thoroughly washing the area to be sampled. Sample intervals are marked depending on the structural controls and mineralization and range between 0.3 to 1.0 m in length. A sample is chipped into a sample bag using a geology rock hammer. Measures are taken to ensure that the sample is representative of the interval by ensuring that it is equally proportional by weight to the length of the sample.

The chip sample is then tagged and documented with the date and shift, level, round number, wall and face location, the sampler's name and a geological description, including structure, lithology and/or mineralization of the sample. The sample is transported along with chain-of-custody documentation to the in-house McEwen assay laboratory at the Fox Mill, at least once per day, where sample prep is performed.

Drill hole sample tags with unique barcodes are used to identify sample locations (from/to) and other notes as needed. Tags are placed between the core and underlying wood channel at the sample interval. All sample books are labelled, archived into boxes, and stored adjacent to the sampling facility.

When a multi-element inductively coupled plasma (ICP) assay determination is requested for a sample, the samples stay concurrent with the adjacent/contiguous gold samples and are delineated separately during the dispatch process. Sample lengths, and collection methods do not change.

Drill core that has been sawn and sampled is transferred to an adjacent, permanent storage yard within the Black Fox property limits.

McEwen's sampling protocols for all gold-bearing targets are as follows:

- Underground definition and Mineral Resource delineation drill core samples are whole core sampled (100% consumption). Chip samples are sent unsplit to the assay lab to be prepared. All samples are collected, bagged, and sealed by a McEwen technician.
- Exploration drill core samples, from both surface and underground sources, are sawn into two equal halves using an industry standard diamond saw. One consistent half of the core sample is returned to the original core box in the proper progressive order or sequence and the corresponding ticket stub is placed into the core box for that specific sample interval. The core is commonly marked with the sample number as well. The other half of the sawn core is collected, bagged, and tagged with a corresponding sample number tag, then promptly sealed and grouped nearby into batches for shipment.
- Bags are grouped into small batches of ten (size or weight dependant) and placed into large canvas or Tyvek bags for subsequent shipping offsite.

Definition and delineation core samples are transported to the in-house Fox Mill assay laboratory near Shillington, at least once per day.

All shipments are assigned specific work order numbers by McEwen with a digital PDF sent to the receiving laboratory for when samples arrive.

In December 2019, one truckload of palletized core was shipped to Technominex, in Rouyn, Quebec for sampling support. The QP visited the facility and is confident that McEwen sampling process and procedures were followed. Subsequent check assaying at ALS Global (ALS) did not indicate any quality control anomalies.

8.1.1.2 Previous Owners

Primero and Brigus Gold

The core was logged and sampled by, or under the supervision of, Primero or Brigus geologists. Drill core samples were cut by technicians and then bagged and sealed before being grouped in batches. Each sample was tagged with a unique number.

The sample batches were shipped to Polymet Labs (Polymet) in Cobalt, SGS Laboratories (SGS) in Cochrane, or AGAT in Mississauga where they were prepared according to the laboratories' sample preparation protocol for the given analytical procedure. The decision to send a batch to either one laboratory or the other was based on pickup schedules and turnaround time.

Apollo Gold

Core was logged and sampled in 0.5 to 1.5 m intervals over the length of the hole. The core was split in half with a diamond saw. Drilling was done at approximately 25 m spacing. Sampling intervals are controlled by geological boundaries.

Apollo sent the bulk of the core samples to Swastika Laboratories Ltd. (Swastika). A smaller number of samples are sent to the SGS Laboratory in Rouyn, Quebec.

Exall

All drill core was NQ diameter, unless ground conditions required reduction to BQ. Diamond drilling was used to define existing mineralized zones, find new zones, and define the lithology between two holes. The surface drill holes were surveyed down-hole, however, the underground holes were not surveyed for down-hole deflection, therefore the bearing and inclination at the collar was used for the entire underground drillhole.

The core was brought to the surface where the geologist logged and sampled it. The core was split in half with a diamond saw.

Noranda

Core recovery was apparently very good, as few recovery problems were listed in the logs. The core was brought to the surface and taken to Noranda's local logging facility. The core was logged for geology and geotechnical parameters and then cut in half with a diamond saw. The sample was then sent to either Swastika or Chemex Laboratories (Chemex) in Rouyn, Quebec.

8.1.2 Density Determinations

8.1.2.1 McEwen

Only a few drill holes from the Grey Fox exploration drilling programs had specific gravity measurements prior to 2018.

McEwen's current in-house procedures follow (Scott and Chappell, 2020):

- Weigh approximately 10 cm segment of dry core
- Weigh the same piece of core suspended in water to obtain its weight in water
- Specific gravity was determined with the following equation:

specific gravity = (dry weight) / [(weight in air)- (weight in water)]

At Froome, specific gravity data was collected and manually entered into the Gemcom Logger application, which would be loaded into the main "GKLOGGER" drill database.

During the period from 2018 to 2020, McEwen contracted ALS (the primary laboratory during that period) to provide specific gravity determinations on every tenth core sample, using their gravimetric procedure.

From 2020 onwards, McEwen contracted AGAT (the primary laboratory during that period) to provide specific gravity determinations on every tenth core sample, using their pycnometric procedure.

8.1.2.2 Previous Owners

Primero and Brigus Gold

For the 2013 Mineral Resource estimate, a density was independently calculated for each of the geological zones. InnovExplo received a database containing 2,514 measurements taken within the deposit area, of which 2,436 fall within the interpreted geological zones.

A density of 2.00 g/cm^3 was assigned to the overburden, a density of 2.87 g/cm^3 was assigned to country rock of the deposit based on the weighted average of all measures available, and 3.00 g/cm^3 to the country rock within the fault zone, believed to be ultramafic units.

Apollo Gold and Exall

In the 2006 Mineral Resource estimate, a total of 1,218 in-house density measurements were taken. The average density of mineralized material is 2.78 g/cm^3, while the average density of unmineralized material is 2.85 g/cm^3. Subsequently in 2010, Brigus further refined this data by sending additional samples to an outside laboratory for independent analysis. Those laboratory results reported an average density of 2.84 g/cm^3 for the mineralized material.

Noranda

There is no mention of density measurements in prior reporting.

8.1.3 Analytical and Test Laboratories

Table 8-1 lists the known independent, primary, commercial laboratories used for analyzing core samples from Black Fox, Tamarack, Froome and Grey Fox since 1993. The majority of the material drilled for the Black Fox deposit during the period from 1995 to 2002 represents areas where the resource has been mined out.

Umpire laboratories used for the Eastern properties include AGAT and ALS.

Table 8-1: Analytical and Test Laboratories Used for Eastern Properties' Samples

Period	Operator	Deposit	Laboratory	Location	Certification
1993 to 1995	Noranda		Swastika	Swastika, Ontario	ISO 9001:2000
1995 to 2002	Glimmer/ Exall	Glimmer/Black Fox	Techni-Lab	Ste. Germaine Boule, Quebec	Unknown
2002 to 2005	Apollo Gold	Black Fox, Grey Fox	SGS Canada	Toronto, Ontario	Unknown
2005 to 2008	Apollo Gold	Black Fox, Grey Fox	Swastika	Swastika, Ontario	ISO 9001:2000
2009 to 2011	Apollo Gold	Black Fox, Grey Fox	PolyMet	Cobalt, Ontario	ISO 9001
2012	Apollo Gold	Black Fox	Cattarello Assayers	Timmins, Ontario	Unknown
2012 to 2018	Apollo Gold, Primero and McEwen	Black Fox, Tamarack, Froome	Accurassay Laboratories	Thunder Bay, Ontario	ISO/IEC 17025 through SCC
2012 to 2017	Apollo Gold and Primero	Black Fox, Grey Fox	PolyMet	Cobalt, Ontario	ISO 9001
2012 to 2014, 2016 to 2017	Apollo Gold and Primero	Black Fox, Froome, Grey Fox	SGS Canada	Toronto, Ontario	ISO 9001 certification and ISO/IEC17025 through SCC
2012, 2015 to 2017	Apollo Gold and Primero	Black Fox	ALS (Geosol Lakefield)	Lakefield, Ontario	Can-P-4E and ISO/IEC17025 through SCC
2012 to 2015	Apollo Gold and Primero	Grey Fox	AGAT	Timmins Ontario (preparation) Mississauga, Ontario	ISO 9001 certification and ISO/IEC17025 through SCC
2014 to 2016	Apollo Gold and Primero	Black Fox, Tamarack, Froome, Grey Fox	Swastika	Swastika, Ontario	ISO/IEC 17025 (CALA)
2014 to 2017	Apollo Gold and Primero	Black Fox, Tamarack, Froome	Actlabs	Timmins, Ontario	ISO 9001 certification and ISO/IEC17025 through SCC
2018 to 2021	McEwen	Black Fox, Tamarack, Froome, Grey Fox	ALS	Timmins, Ontario (preparation) Toronto, Ontario Vancouver, British Columbia	Can-P-4E and ISO/IEC17025 through SCC
2019 to 2021	McEwen	Black Fox, Tamarack, Grey Fox	AGAT	Timmins, Ontario (preparation) Mississauga, Ontario Thunder Bay	ISO 9001 certification and ISO/IEC17025 through SCC

Note: SCC = Standards Council of Canada

8.1.4 Sample Preparation and Analysis

8.1.4.1 McEwen

Procedures for the laboratories utilized between 2018 and 2020 for core derived from the Grey Fox and Froome deposits have been summarized by Scott and Chappell (internal McEwen reports 2019, 2020).

AGAT performed gold analysis on samples from the Grey Fox drilling program. Once samples were received, they were logged against chain-of-custody sheets provided by McEwen, weighed, and then dried. Dried samples were prepped following a preparation package that was not noted on the certificate but involved crushing, riffle splitting to 250 g, and pulverizing the crushed and split 250 g sample.

Thirty-gram packets of pulverized samples were sent for FA and followed the 202-052 package which consisted of lead FA with an ICP-OES finish. Samples that returned greater than 10 ppm gold were sent for the 202-064 lead FA package with a gravimetric finish.

ALS performed gold analysis and arbitrary ICP multi-element on core samples from the Black Fox Mine, Tamarack, Grey Fox and Froome deposits to early 2020. Once samples were received, they were logged against chain-of-custody sheets provided by McEwen and then dried. Once dried, the samples were prepped following their PREP31 package which involved crushing to >70% passing 2 mm, riffle splitting to 250 g, and pulverizing the crushed and split 250 g sample to >85% passing 75µm.

Fifty-gram packets of pulverized samples were sent for FA and followed the AuAA24 package which consisted of lead FA with an AA finish. Over-limit gold values that returned greater than 10 ppm gold were sent for the FA package with a gravimetric finish.

8.1.4.2 Previous Owners

Primero, Brigus Gold, and Apollo Gold

Actlabs performed gold analysis on samples from the Black Fox Mine, Tamarack, and Froome drill programs. Once samples were received, they were logged against chain-of-custody sheets provided by McEwen and then dried. Once dried, samples were prepped following their RX1 preparation package which involved crushing to >90% passing 2 mm, riffle splitting to 250 g, and pulverizing the crushed and split 250 g sample to 105 µm.

Thirty-gram packets of pulverized samples were sent for FA following the 1A2 package, which consisted of lead FA with an AA-finish. Samples that returned greater than 10 ppm gold were sent for the 1A4 lead FA package with a gravimetric finish.

SGS Canada performed gold analysis on samples from the Black Fox Mine, Tamarack and Froome drill programs up to early 2018. Once samples were received, they were logged against chain-of-custody sheets provided by McEwen and then dried. Once dried, the samples were prepped following their PRP90 preparation package, which involved crushing to >90% passing 2 mm, riffle splitting to 250 g, and pulverizing the crushed and split 250 g sample to >85% passing 106 µm.

Thirty-gram packets of pulverized samples were sent for FA and followed the GE FAA313 package which consisted of lead FA with an AA-finish. Samples that returned greater than 10 ppm gold were sent for the GO FAG303 lead FA package with a gravimetric finish.

PolyMet Laboratories performed gold analysis on samples from the Black Fox Mine and the Grey Fox drilling program prior to 2018. Once samples were received, they were logged against chain-of-custody sheets provided by McEwen, weighed, and then dried. Dried samples were prepped following a preparation package that was not noted on the certificate but involved crushing, riffle splitting to 250 g, and pulverizing the crushed and split 250 g sample. Thirty-gram packets of pulverized samples were sent for lead FA with a gravimetric finish.

At AGAT, gold was analyzed by lead fire assay with ICP-OES (optical emission spectrometer) finish. For grades over 10.0 g/t gold, samples were re-assayed with a gravimetric finish.

Accurassay Laboratories provided gold analysis on samples from the Black Fox Mine, Tamarack and Froome drill programs. Once samples were received, they were logged against chain-of-custody sheets provided by McEwen, weighed, and then dried. Once dried, samples were prepared following a preparation package which involved crushing, riffle splitting to 250 g, and pulverizing the crushed and split 250 g sample.

Thirty-gram packets of pulverized sample were sent for lead fire assay (FA) with an AA-finish (atomic absorption). Samples that returned greater than 10 ppm gold were sent for lead FA with a gravimetric finish.

No mention was made of Cattarello sample preparation procedures.

Exall

Prior to the installation of the mine site laboratory, Techni-Lab provided sample preparation and assaying of their drill holes.

Techni-Lab dried and crushed the sample to 10 mesh, where a 300 g split was taken. The split was pulverized to 80% passing 200 mesh. A one assay ton (30 gram) sample was split from the pulverized material for fire assay with AA finish. Exall requested checks on all assays exceeding 34.3 g Au/t.

When the mine site laboratory was operational, they completed the analysis of the split core. Techni-Lab assayed the occasional overflow that the Exall laboratory could not handle.

Noranda

Swastika prepared 15 to 30g samples for assay. Samples were crushed to 80% passing 10 mesh, then split to 1-5 kg. Those samples were then pulverized to 95% passing 100 mesh and split to a 400 g pulp sample.

Most of the assays were completed by fire assay methods with a gravimetric finish. Samples were re-run if the initial analysis was greater than 2 g/t gold on a 30 g sample.

All reported assays were analyzed on 15 g pulps from which the lab performs internal checks on approximately every tenth sample. Reported final assays were averaged where more than one assay was available.

8.1.5 Quality Assurance and Quality Control

8.1.5.1 McEwen

The former Senior Project Geologist for the Grey Fox and Froome campaigns has reported (internal report, Scott, 2020) on the QA/QC programs for those projects, based on his personal knowledge after 2014.

Both the Grey Fox and Froome exploration drilling program (2014 to 2018) sampling procedures included an infield QA/QC program consisting of the insertion of QC samples into the drill core sampling sequence. One blank sample, one standard certified reference material (CRM) sample and one duplicate sample were inserted into every batch of 20 samples. QC samples were handled in the same manner as the drill core sample; each QC sample was given a unique sample identification number, which followed the same sample sequence number as the drill core samples. The QC samples and tags were bagged, sealed, and sent to the laboratory for analyses. In addition to this program, pulp samples from the laboratories were sent to umpire labs to confirm the original assayed value.

In addition to the QA/QC sampling program implemented on site, each laboratory used their own internal QA/QC protocols, which included the insertion of blank samples, CRMs, and duplication of reject or pulp material.

McEwen has been following industry standard external “referee” comparison testing since at least 2017, where pulps from 5 to 7% of the annual assay volume have been randomly selected, retrieved and submitted to an umpire laboratory.

Chip sampling has followed similar QA/QC procedures since 2015, with blanks and CRM standards inserted into the assay runs. Results of QA/QC analysis are discussed in Chapter 9.

Blanks

Blank samples used in the Grey Fox and Froome projects (2014 to 2017) consisted of core blank and quarry blank samples. Core blank samples were derived from unmineralized sections of core that was quarter cut. Quarry blank samples consisted of certified blank pulp material purchased from an outside vendor. After 2018, blank samples were composed of commercial garden stone (marble) inserted into the sampling series to monitor any possible contamination throughout the sample analysis process, on a one per 20 sample ratio. In 2019, a switch was made to harder, high-silica aggregate after several labs confirmed a zero-gold content. This is currently purchased in bulk quantities from Technominex in Rouyn, Quebec.

Results of the QA/QC analysis are discussed in Chapter 9.

Standards

QA/QC standards used in both the Froome and Grey Fox core sampling programs since 2014 consisted of CRMs purchased from Rocklabs Ltd. (internal report, Scott, 2020). The CRMs used throughout the programs were:

- Grey Fox: SK78, SG66 and SN75
- Froome: SE68, Ox98, Oxi121, OxJ120, SJ63, SK78, SG66, SN75

In February 2019, the following OREAS standards were purchased via Analytical Solutions Ltd. and inserted into both Froome and Grey Fox sampling programs:

- OREAS #255, 228b, 221 (replaced in 2020 by #253 & 231), 621, 624.

All CRMs were inserted into the sampling series to monitor the accuracy and precision of the results obtained by the lab, on a one per 20 ratio.

Results of the QA/QC analysis are discussed in Chapter 9.

Pulp Duplicates

McEwen inserted pulp duplicates in Grey Fox and Froome samples between 2017 and 2019 at a ratio of one per 20 samples.

External reviews (Bloom and Jolette, 2019) indicated that:

- Field duplicates were conceptually incorrect due to the comparison of original half core against duplicated quarter core.
- Laboratory’s internal pulp duplicate program showed very good repeatability on the logger selected samples advising McEwen to rely on the laboratory’s own in-house duplicate collections (on pulps) moving forward.

Field Duplicates

Field duplicates were inserted for Grey Fox and Froome between 2017 and 2018. The duplicate sample was prepared from the original core samples by quarter cutting the half of the core that was to be sent to the laboratory. Each quarter core was put into a plastic bag with its own sample tag. Duplicate samples were inserted into the samples' sequence to monitor the laboratory's ability to reproduce the result of the same sample. Field duplicates were used primarily for screen metallic analyses.

External review suggested that the internal laboratory duplicates would be sufficient to demonstrate any QA/QC issues (Bloom and Jolette, 2019).

8.1.5.2 Previous Owners

Primero and Brigus Gold

The sampling and assay QA/QC protocol consisted of an in-field component managed by Primero or Brigus logging, and sampling personnel and an in-laboratory component managed by Polymet, SGS and AGAT. The in-field QA/QC consisted of inserting blanks, CRMs, and field duplicates consisting of the second half of core samples.

Apollo Gold, Exall and Noranda

In 2006 and 2007, Analytical Solutions (ASL) of Toronto, Canada, conducted an independent QA/QC review of historical and current sampling at Black Fox (internal reports, Bloom 2006, 2007) with the following findings:

- No evidence was found by previous consultants of a bias in the gold assays.
- Concerns were raised regarding sample representativeness of the Black Fox deposit. Thousands of pulp and reject duplicates confirm that it is difficult to reproduce assays within an arbitrary ±10%, but the assay reproducibility is typical of similar deposits and does not represent a material risk.
- The historical check sampling on the project appears to be weak based on current QA/QC requirements for similar styles of gold mineralization. The Noranda check assays appeared to be limited to only the same assay pulps. In general, they show reasonable agreement on the mean grade, however, individual sample variance is relatively high. The Exall check assay program also was conducted on the same assay pulps. Techni-Lab, who conducted the majority of the exploration assaying for Exall, have been shown in a previous report to produce good reproducibility of the assay pulps.
- In 2008, SRK (Stryhas, et al., 2008) concluded that the historical check assaying program conducted by previous operators Exall and Noranda while substandard by today's requirements, present no material risk to Mineral Resource estimation.

8.1.6 Sample Security

8.1.6.1 McEwen

Tyvek bags containing sealed sample bags were promptly sealed with heavy plastic tie-wrap after filling, then labelled and numbered with the sample number contained within. The sealed transport bags were stored within a secure area immediately adjacent to the logging and sampling facility.

Since 2014, all exploration core samples from the entire Black Fox property have been shipped off site to several commercial lab preparation facilities. As the assayer picks up the samples, McEwen technicians do not employ distinctly numbered security tags for bag shipping. There are no third-party transports and only McEwen or lab employees have access to the bags.

8.1.6.2 Previous Owners

Primero, Brigus Gold, Apollo Gold and Exall

The drill core was boxed, covered, and sealed at the drill rigs, then transported by drilling employees to the logging facility where company personnel would take over the core handling.

Drill core samples were cut by technicians and then bagged and sealed before being grouped in batches. Shipping was handled by lab personnel.

Noranda

Sample security was not mentioned in prior reporting.

8.1.7 Databases

Drill hole logging data (collar locations, down hole surveys, geology etc.) and related assays from the 2014 to 2017 programmes were collected and added to Gemcom project files. Separate workspaces were used for Grey Fox and Froome. When Black Fox was acquired from Primero in 2017, there were four databases in Gemcom provided that were merged into one database in Minesight Fusion.

Regular QA/QC audits on collar locations, down hole surveys, and assay certificates have been performed since 2014. Once verified, drill holes would be locked in the Gemcom project to ensure no changes to the data could occur.

In April 2018, a transition to Datamine's products occurred with DH Logger software performing all logging and sampling data entry. Upon completion of logging, and subsequent satisfaction of the database manager, the files are compiled, organized, and locked into the Fusion data-manager module, on a project-by-project basis. Currently, the data from DH Logger is uploaded electronically, as is assay data from the external laboratories. The laboratories use the "Century" format to provide their data. Historical information before 1993 is not relied on for resource estimation at Grey Fox.

8.2 Stock

The procedures and protocols described in Section 8.1 were followed on McEwen drill programs at Stock East and Stock West. Historical information before 1983 is not relied on for resource estimation.

Descriptions provided for work completed by St Andrew is sourced from previous reports prepared by RPA (Roscoe and Gow, 2006; Roscoe et al., 2013).

8.2.1 Sampling Methods

8.2.1.1 McEwen

McEwen's basic protocols for logging and sample delineation as described in Section 8.1.1 have been followed since commencement of the Stock East Zone exploration program in late 2018. Core has been logged within trailers onsite.

Selected intervals are centred on the suspected gold mineralized feature, in a concise interval ensuring that the interval volume is not exaggerated. Key lithological boundaries are not crossed. All sampling between 2018 and 2021 has been limited to between 0.3 and 1.5 m core lengths.

Sample tags are inserted under the core with sample booklet stubs labelled and stored within the Stock exploration trailers. The predominantly NQ-sized core is sawn along the long axis using an industry standard diamond saw.

After the sawing process, all core is cross piled onto pallets and stored adjacent to the Black Fox Mill equipment yard. Mineralized zones have been racked separately for easy access. All boxes are identified by embossed aluminum tags, stapled to the box end.

8.2.1.2 St Andrew

Much of the underground drilling core from 1989 to 1994 was AQ diameter and most of the surface drilling core before 1996 was BQ diameter. There is not much documentation available that covers the specific sampling method used up to 1994. All of the underground and surface drilling from 1996 to 2000 was NQ diameter. Generally, the diamond drill core was split, with half being assayed and half retained. While the mine was in production from 1989 to 1994, assays were carried out on some whole core from infill drilling on 7.5 m centres. A manual core splitter was used prior to 1994. Since 1996, St Andrew has used a diamond core saw with a continuous supply of fresh water to split core.

8.2.2 Density Determinations

8.2.2.1 McEwen

McEwen has contracted two independent laboratories to provide accurate specific gravity determinations on every tenth core sample employing the following methods:

- ALS in 2018 to 2019 using proprietary gravimetric density procedure
- AGAT in 2020 to 2021 using their pycnometric procedure.

8.2.2.2 St Andrew

No mention of density analysis was mentioned in prior reporting.

8.2.3 Analytical and Test Laboratories

St Andrew's in-house assay laboratory performed the majority of the core, assaying from it opening in 1987 until its 1994 closure. The St Andrew laboratory was not certified as an accredited laboratory.

Since the initiation of surface exploration drilling by McEwen in late 2018, all core samples have been analyzed by three independent, commercial laboratories. In the timeframe analyzed, Expert was used as an umpire laboratory. Other than the Stock Laboratory, the laboratories are independent, commercial laboratories.

The following labs have been contracted for FA/AA gold, and occasional ICP multi-element determinations (Table 8-2).

Table 8-2: Analytical and Test Laboratories Used for Stock Samples

Period	Operator	Deposit	Laboratory	Location	Certification
Pre-1996	St Andrew	Stock Main	• Bell White Laboratories • Stock Laboratory	• Haileybury, Ontario • Stock Mine, Ontario	• Unknown • Unknown
1996 to 2000	St Andrew	Stock Main	• XRAL Laboratories (SGS) • Bondar Clegg (ALS) • Swastika Laboratories	• Toronto, Ontario • Timmins, Ontario • Swastika, Ontario	• ISO 9002 • Unknown • ISO 9001:2000
2000 to 2008	St Andrew	Stock Main	Stock Laboratory	Stock Mine, Ontario	Unknown
2011 to 2017	St Andrew	Stock Main, East Zone	Stock Laboratory	Stock Mine, Ontario	Unknown
2011	St Andrew	Stock West	Polymet	Cobalt, Ontario	ISO 9001:2000
2018 to 2019	McEwen	Stock Main, East Zone, West Zone	ALS	Timmins, Ontario (preparation) Toronto, Ontario Vancouver, British Columbia	Can-P-4E and ISO/IEC17025 through SCC
2018 to date	McEwen	Stock Main, East Zone, West Zone	AGAT	Timmins, Ontario (preparation) Mississauga, Ontario Thunder Bay, Ontario	ISO 9001 certification and ISO/IEC17025 thro ugh SCC
2021	McEwen	Stock Main, West Zone	Actlabs	Geraldton, Ontario	ISO 9001:2015

8.2.4 Sample Preparation and Analysis

8.2.4.1 McEwen

Procedures for the assay laboratories utilized between 2018 and 2021 for all Stock project core have followed those described in Section 8.1.4.

Additionally, a second FA determination using gravimetric procedures on samples greater than 10 g/t gold are currently a standard protocol.

Samples identified with visible gold during the logging process are marked for a screen metallic analysis, to ensure total-volume processing capability.

8.2.4.2 St Andrew

Samples are analyzed via fire assay with AA-finish. A relatively modest number of samples, as well as assay check samples, have been processed at Swastika.

From 1996 to 2000, split core was fire assayed using 30 g of pulp and an AA-finish at XRAL Laboratories, Intertek Testing Services-Bondar Clegg, and Swastika. All samples over approximately 3.4 g/t gold were re-assayed from a second split of pulps using a gravimetric finish.

A reserve audit carried out in 1987 states that all gold assays were by FA at Bell White Laboratories at the Stock Laboratory (Tyler and Thompson, 1987). Every tenth sample, plus all anomalously high assays from the Stock Laboratory, were checked at Bell White Laboratories. Based on a number of assay certificates checked by RPA, RPA believes that most of the fire assays prior to 1996 were from 15 g of pulp (Roscoe et al., 2003).

The protocols observed in the St Andrew laboratory are:

- Samples are delivered to the bucking room and dried
- The samples pass through a series of crushers to reduce particle size to about 0.3 mm
- Riffles are used to separate about 250 to 300 g
- The sample is pulverized in a ring and puck pulverizer for about 120 seconds
- The samples are put through a 20-mesh screen to break them up and then matted about 20 times to achieve a homogeneous blend
- A 1 assay-ton sample is treated by FA
- The bead is dissolved, and gold is determined by atomic absorption. High grade samples are re-treated using a gravimetric finish.

8.2.5 Quality Assurance and Quality Control

8.2.5.1 McEwen

All exploration core samples generated since 2018 follow the same protocols described in Section 8.1.5. QA/QC insertion samples (blanks and grade-appropriate CRMs) have been purchased centrally and distributed between McEwen's three core processing sites.

Stock project assay pulps have been included within the annual 5 to 7% random collection for submission to the external umpire laboratory.

Blanks

Blank samples utilizing either commercial garden stone (marble) or siliceous aggregate (quartz) are inserted into the sampling series to monitor any possible contamination throughout the sample crushing or pulverization stages, or (later) analysis process. Insertions are made on a one blank per 20 sample ratio.

Results of the QA/QC analysis are discussed in Chapter 9.

Standards

As described in Section 8.1.5.1, one CRM sample is inserted into every batch of 20 samples. Up to a dozen standards have been purchased via RockLabs or OREAS (after 2019). Selection of the standard is at the logger's discretion based on logged alteration or mineralization.

Results of the QA/QC analysis are discussed in Chapter 9.

Pulp Duplicates

Pulp duplicates were inserted to a random sample within the 20-sample batch noting on the tag whether the repeat applied to the reject or the pulp material remaining from the initial assay. QA/QC statistics showed very good duplicate repeatability (Bloome and Jolette, 2019), which led to a decision to halt the duplicate insertion and rely on the lab's internal duplicated repeatability tests.

Field Duplicates

Field duplicates were inserted for Stock East between 2017 and 2018. The duplicate sample was prepared from the original core samples by quarter cutting the half of the core that was to be sent to the laboratory. Each quarter core was put into a plastic bag with its own sample tag. Duplicate samples were inserted into the samples' sequence to monitor the laboratory's ability to reproduce the result of the same sample. Field duplicates were used primarily for screen metallic analysis.

As with the Eastern properties, external review suggested that the internal laboratory duplicates would be sufficient to demonstrate any QA/QC issues and the practice was discontinued (Bloome and Jolette, 2019).

8.2.5.2 St Andrew

In 2006, it was noted that St Andrew maintained a QA/QC protocol whereby blanks and reference samples were included on the basis of one sample in each 20 samples submitted in its most recent drilling program. Assay check samples were processed at Swastika.

8.2.6 Sample Security

8.2.6.1 McEwen

All sample collection since 2018 has occurred within the secure Fox Mill facility compound. Protocols similar to those described in Section 8.1.6 have been employed. All individual sample bags are sealed and commonly marker identified after filling. These are accumulated, placed into Tyvek bags, and sealed by heavy gauge plastic tie-wraps.

The Tyvek shipping bags are placed into bulk carry crates and picked-up the contracted assay laboratory two to three times per week.

8.2.6.2 St Andrew

Diamond drill core, rejects and pulps were stored in secure locations at the Stock Mine site (Roscoe and Gow, 2006).

8.2.7 Databases

Many exploration holes from the 2018 campaign at Stock East Zone were logged and processed utilizing the Gemcom software and captured as PDF files for printing and filing using Primero's formatting. In 2019, the team transitioned to using Datamine products with the DH Logger module used for logging and sampling data entry. Upon completion of logging, and subsequent satisfaction of the database manager, the files were compiled, organized, and locked into the Fusion data-manager module on a Stock project (only) basis.

Data was captured electronically directly from the laboratories into the Datamine Fusion database.

8.3 Western Properties

The following summaries rely on a compilation of sample preparation and analysis made by the 2014 RPA technical report (Altman et al., 2014). It in turn draws from several references from Lexam's sampling programmes as identified below. SRK provided their own inspection of core, collar locations, and QA/QC data that were used for the resources reported in this Report.

Buffalo Ankerite

- February 11, 2009, report, authored by Peter A. Bevan, P.Eng., titled "Qualifying Report"
- October 20, 2012, report, authored by Peter A. Bevan, P.Eng. and Kenneth W. Guy, P.Geo., titled "Resource Estimate on the Buffalo Ankerite Property".

Fuller

- Sample preparation, analysis, and security on the Fuller Property prior to 2009 were described by Wardrop in the previous technical reports (Naccashian and Moreton, 2007; Altman et al., 2014)

Paymaster

- RPA had no knowledge of the joint venture partner's (Placer Dome) protocols employed while they were previously drilling onsite or conducting QA/QC programs on the core samples.

Davidson-Tisdale

- March 26, 2007, report, authored by Kenneth Guy, P.Geo. and Eugene Puritch, P.Eng., titled "Exploration Report 2003-05 and Resource Estimate Technical Report on the Tisdale Project".

RPA stated in their June 2014 technical reporting that the sampling, sample preparation, assaying, and security procedures used by Lexam are reasonable and acceptable for generation of data utilized by a resource estimation. SRK performed their own verification of the data, which is discussed in detail in Chapter 9. SRK reviewed the provided data and found the results acceptable.

Historical information before 1974 for Fuller or 1983 for Davidson-Tisdale were not used in the estimation of resources.

8.3.2 Sampling Methods

Lexam's geologists logged the drill core at their facilities in South Porcupine. They selected samples to be analyzed based on the alteration, mineralization and veining observed. Sample length varied from 0.9 to 2.1 m; however, in zones that are well mineralized sample length was limited to approximately 0.9 m. When visible gold was observed, the drill core was marked for special laboratory analytical methods.

The core was then split lengthways in half using a manual core splitter. One half of the core sample was placed in a plastic sample bag containing a sample tag then sealed. Samples awaiting shipment to the contracted laboratory were securely stored at Lexam's core facility, which was locked with a security system. The remaining half core was left in the core box and stored at the South Porcupine core facility for future reference.

8.3.3 Density determinations

RPA (Altman et al., 2014) states that at the Fuller and Paymaster projects, specific gravity measurements were determined on the core between 2006 and 2012, on both altered and unaltered drill core, but primarily in mineralized intersections. Measurements were made by weighing the core dry and then immersing the core in a bucket of distilled water and weighing the core again. The dry bulk density was calculated using the following formula:

Specific gravity (g/cm^3) = Weight of core dry (g) / (Weight of core dry (g) – Weight of core in water (g))

The calculated measurement was converted into a density value for use in Mineral Resource estimation.

8.3.4 Analytical and Test Laboratories

Table 8-3 lists the independent, commercial assay laboratories used by Lexam. Expert was used as an umpire lab.

Table 8-3: Analytical and Test Laboratories Used for Samples from the Western Properties

Period	Operator	Deposit	Laboratory	Location	Certification
1986 to 1989	Belmoral	Fuller	Timmins Analytical Services	Schumacher, Ontario	unknown
1996 to 1998	Vedron	Fuller	Swastika	Swastika, Ontario	ISO 9001:2000
2009 to 2012	Lexam	Buffalo Ankerite	ALS	Timmins, Ontario	ISO/IEC 17025:2005
2004, 2006 to 2007	Lexam	Fuller	Expert	Rouyn-Noranda, Quebec	ISO 9001:2000
2009 to 2012	Lexam	Fuller	ALS	Val d'Or, Quebec	ISO/IEC 17025:2005
2009 to 2012	Lexam	Paymaster	ALS	Timmins, Ontario	ISO/IEC 17025:2005
2010 to 2012	Lexam	Davidson-Tisdale	ALS	Timmins, Ontario	ISO/IEC 17025:2005
2009 to 2012	Lexam	Fuller and Paymaster	Expert (umpire)	Rouyn-Noranda, Quebec	ISO 9001:2000

8.3.5 Sample Preparation and Analysis

Procedures for the laboratories utilized between 2009 and 2012 were summarized by RPA (Altman et al., 2014) as follows:

- **ALS:** samples were dried and crushed to 70% passing -10 mesh. A Jones riffle splitter was used to take a 250 g sub sample for pulverizing and the reject portion was bagged and stored. After reducing the 250 g sample to 85% passing -200 mesh, the sample was thoroughly blended, and a 30 g charge was assayed for gold by standard FA-ICP finish. Gold values greater than 10 ppm were re-analyzed by FA with gravimetric finish for greater accuracy. Sample preparation was performed in Timmins and the pulp sent to Val d'Or for assaying.

- **Expert:** samples were crushed to 70% passing -2.0 mm and 250 g was collected and pulverized to 85% passing <75 µm in a ring mill. The pulverized sample was then split utilizing a riffle splitter. Analysis for gold was carried out using a one-ton (30 g) FA with an atomic absorption spectroscopy (AAS) finish.
- **Swastika:** samples were crushed to 70% passing -2.0 mm and 250 g was collected and pulverized to 85% passing <75 µm in a ring mill. The pulverized sample was then split utilizing a riffle splitter. Analysis for gold was carried out using a one-ton (30 g) FA with an AAS finish.
- **Timmins Analytical Services:** samples were prepared for FA with an AAS finish.

8.3.6 Quality Assurance and Quality Control

RPA (Altman et al., 2014) notes that Lexam did not undertake their own QA/QC for the drilling carried out at their Western properties. They instead relied upon ALS's own internal QA/QC program which consisted of the insertion of one standard and one duplicate for every 20 assays. RPA could not confirm that the standards used were certified.

Lexam submitted 10% of all pulp samples to a second laboratory for check analysis. RPA notes that no QA/QC issues were reported.

8.3.7 Sample Security

All samples were collected and transported by Lexam's personnel. The core logging facility in South Porcupine was locked with an alarm system, and the entire facility is fenced with access via a locked gate.

8.3.8 Databases

In October 2018 the database was transferred to McEwen's digital network system with restricted access.

8.4 QP Comments on Chapter 8

The QP finds that the sampling methods, sample preparation and analysis, and QA/QC methods used on the Eastern and Stock properties are adequate to ensure quality data for use in Mineral Resource estimation. The databases used protects the integrity of the collected data.

A brief in-field audit/review of Lexam's core for the Western properties sourced from their 1997 to 2012 exploration campaigns and stored at the Davidson-Tisdale property, was performed by SRK in December 2020.

The QP finds that the sampling methods, sample preparation and analysis, and QA/QC methods used on the Western properties are adequate to ensure quality data for use in Mineral Resource estimation. The databases used include systems that protect the integrity of the collected data.

9.0 Data Verification

Exploration and production work completed by McEwen is conducted using documented procedures and involves detailed verification and validation of data prior to being considered for geological modelling and Mineral Resource estimation. Company QA/QC procedures were reviewed and changes were made based on recommendations from ASL in May 2018. During data collection, experienced geologists implemented best practices designed to ensure the reliability and trustworthiness of the exploration and production data.

This chapter provides a description of the data verification that McEwen and SRK completed for the data informing the Mineral Resource statements documented in this Report. Data verification measures prior to 2017 have been discussed in previous technical reports for Black Fox, Tamarack, Froome, Grey Fox, Stock East, Fuller, and Davidson-Tisdale, as noted in the subsequent sections, and the respective QPs have independently reviewed their data. This Report discusses the data verification since 2017 to each project's Mineral Resource statements' reported cut-off dates and the applicable underlying data.

9.1 Black Fox and Tamarack Data Verification

9.1.1 Previous Data Verification

Details of data verification measures prior to 2017 were discussed in previous technical reports, however, the current resource estimation QP conducted an independent spot check review of this data. This consisted of a visual inspection of drill collars and deviation surveys, a review of analytical QA/QC statistics, and random spot checks on a limited number of database assay results versus assay laboratory certificate reports. The QP is satisfied that the 2017 and prior data is acceptable for use in the current Mineral Resource estimate.

9.1.2 McEwen Data Verification

All data pertaining to drill holes from the 2017 to 2018 drilling campaigns (collar locations, down hole surveys, assays, etc.) was collected and added to the main drill hole workspace in a SQL Gemcom project. In late 2018 and early 2019, all the data was migrated into a central Datamine Fusion SQL database and subsequent data has been added directly into this central database as it is collected. Underground production chip sample data collected by the production geology team is added to a main MSSQL database using the AutoCAD extension Amine CoreLog software.

All surface drill hole collar locations on the Black Fox deposit were either professionally surveyed using GPS with real time kinematic (RTK) correction or surveyed using a handheld GPS device. Underground drill hole collar locations were marked up by underground survey technicians using a Leica TCRP1203+R1000 Total Station providing fore sights and back sights for each drill hole. The drilling contractors then used a Devico DeviAligner tool to confirm they were on the precise azimuth and inclination prior to drilling. Underground chip sample locations were measured from surveyed reference points using a Leica Disto tool and were marked up by the production geology team.

The McEwen assay laboratory follows the same assay protocol/process with chip samples as with core samples.

The majority of all drill holes were surveyed using a down hole instrument. Most down hole surveys were completed with a continuous north seeking Gyro tool. The Gyro tests are monitored, verified, and validated by McEwen's geology team prior to import into the main Fusion database.

Once the drill hole and chip sample data was imported into the database, it was imported into 3D geological modeling software (Gemcom and subsequently Datamine Studio), where the de-surveying process checked for overlapping or missing data and a visual check was completed to ensure no significant errors were included.

QA/QC assay samples were regularly inserted into, and analyzed with, the drill hole and production chip samples. The drill hole QC data was regularly monitored by the database geologist and the chip sample QC data was monitored by the production geology team. A review of all the drill hole analytical QC data for Black Fox and Tamarack during the period 2017 to 2020 shows that the ratio of QC samples to total samples analyzed is 18.7%.

9.1.2.1 Certified Reference Material (Standards)

Overall, the data for 5,416 standard samples (5.9% of the drill hole assay dataset) and for the 489 chip standard samples (3.7% of the chip assay dataset) was used post-2017.

Of the CRMs used, SH82 showed a significant failure rate. As a result, the use of this standard was discontinued.

CRM samples for drill holes were considered a fail if the assay value returned was greater than three standard deviations of the expected value. Few of the samples exceeded this level, which shows an acceptable level of accuracy for the assays.

CRM samples for chip samples were considered a fail if the assayed value was greater than a 15% variance from the expected value. Of the data, 2.5% of the CRM samples assayed were outliers. The QP reviewed the provided data and found the results acceptable. The drill hole CRM results are tabulated in Table 9-1.

Table 9-1: Tabulation of Standards Used at Black Fox and Tamarack Post-2017

Standard	Manufacturer	Element	Number of Samples	Expected Value, g/t or %	Standard Deviation, g/t	Outside 2StdDev, %	Outside 3StdDev	Outside 3StdDev, %
SG84	Rocklabs	Au	183	18.12	0.36	6	4	2
SG66	Rocklabs	Au	3	24.88	0.56	33	0	0
SH82	Rocklabs	Au	50	0.86	0.1	38	13	26
SJ80	Rocklabs	Au	131	2327	48	18	9	7
SK78	Rocklabs	Au	138	133	12	4	2	1
SN75	Rocklabs	Au	93	30.9	1.29	15	4	4
SP59	Rocklabs	Au	1	1.72	0.049	0	0	0
OxQ90	Rocklabs	Au	2	2.83	0.08	0	0	0
OREAS13b	OREAS	Ag	50	201	7	10	3	6
OREAS13b	OREAS	Zn	50	17.27	0.553	6	2	4
OREAS131a	OREAS	Ag	30	5.49	0.152	0	0	0
OREAS131a	OREAS	Pb	30	3.03	0.082	3	1	3
OREAS131a	OREAS	Zn	30	1.06	0.036	0	0	0
OREAS134a	OREAS	Ag	19	8.73	0.279	0	0	0
OREAS134a	OREAS	Pb	19	8.57	0.199	0	0	0
OREAS134a	OREAS	Zn	20	4.08	0.087	0	0	0
OREAS210	OREAS	Au	209	7.66	0.238	1	1	0
OREAS214	OREAS	Au	381	1.25	0.042	2	1	0
OREAS221	OREAS	Au	1222	69.2	2.65	1	4	0
OREAS228	OREAS	Au	206	3630	80	1	0	0
OREAS228b	OREAS	Au	715	1.36	0.039	3	2	0
OREAS255	OREAS	Au	830	5.22	0.139	2	2	0
OREAS256	OREAS	Au	26	1.85	0.066	0	0	0
OREAS621	OREAS	Au	91	102	3.3	1	0	0
OREAS621	OREAS	Ag	90	4860	80	2	0	0
OREAS621	OREAS	Pb	90	10.24	0.182	0	0	0

Standard	Manufacturer	Element	Number of Samples	Expected Value, g/t or %	Standard Deviation, g/t	Outside 2StdDev, %	Outside 3StdDev	Outside 3StdDev, %
OREAS621	OREAS	Zn	90	1.16	0.053	3	0	0
OREAS622	OREAS	Au	83	45.3	1.26	2	0	0
OREAS622	OREAS	Ag	60	3.1	0.079	0	0	0
OREAS622	OREAS	Pb	83	2.4	0.078	1	0	0
OREAS622	OREAS	Zn	83	18.12	0.36	12	4	5
OREAS624	OREAS	Au	77	24.88	0.56	0	0	0
OREAS624	OREAS	Ag	77	0.86	0.1	17	1	1
OREAS624	OREAS	Pb	77	133	12	10	0	0
OREAS624	OREAS	Zn	77	30.9	1.29	1	0	0
Total			**5,416**				**53**	

Note: OREAS = Ore Research and Exploration, CDN = CDN Resource Laboratories

9.1.2.2 Blanks

Overall, the data for 4,844 blank samples (5.9% of the drill hole assay dataset) and 491 chip blank samples (3.7% of the chip assay dataset) was used post-2017.

McEwen considers a value of 10 times the laboratory detection limit for FA-AAS analysis (or 0.05 g/t) as an indicator of failure for blank samples. Few of the samples exceeded this level (0.2%), which shows the low level of contamination of the sample preparation. Any outliers identified were re-run by assay batch to ensure the assay quality. Prior to McEwen, 4.7% of the blanks assayed were outliers.

Blank samples for chip samples were considered a fail if the assayed value was greater than 10 times the laboratory detection limit for FA-AAS analysis (or 0.05 g/t) as an indicator of failure for blank samples. Of the data, 1.6% of the blanks assayed were outliers. The QP found the results acceptable.

9.1.2.3 Duplicates

A total of 971 pulp and 911 preparation duplicate samples (2.3% of the assay dataset) were used post-2017.

A scatter plot of the original samples versus the duplicate samples is presented in Figure 9-1. The QP found the results acceptable without any significant bias.

9.1.2.4 Check Samples

A total of 2,894 check samples (2.8% of the assay dataset) were used post-2017.

Check samples consist of second splits of the final prepared pulverized samples analyzed by the primary laboratory that were routinely resubmitted to a secondary laboratory under a different sample number. These samples are used to assess the assay accuracy of the primary laboratory relative to the secondary laboratory. Repeat assays that exceed ±10% of the original assay are considered failures.

A scatter plot of the original samples versus the check samples is presented in Figure 9-2. Five failures were noted in the check assay program, representing 0.14% of the samples. The values below 60 g/t demonstrated good correlation, and the QP found these results acceptable.

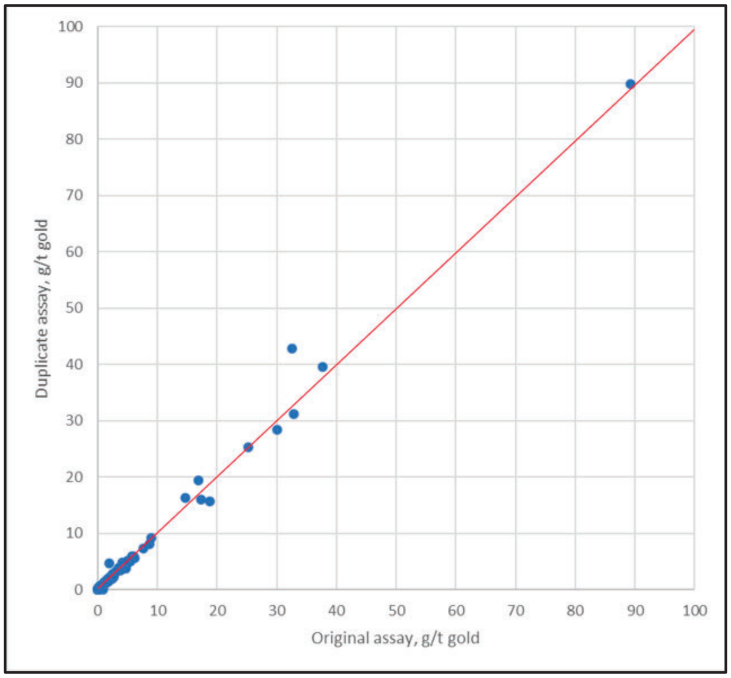

Figure 9-1: Original Assays Against Duplicates for the period 2017 to Current Exploration Period (prepared by McEwen, dated 2021)

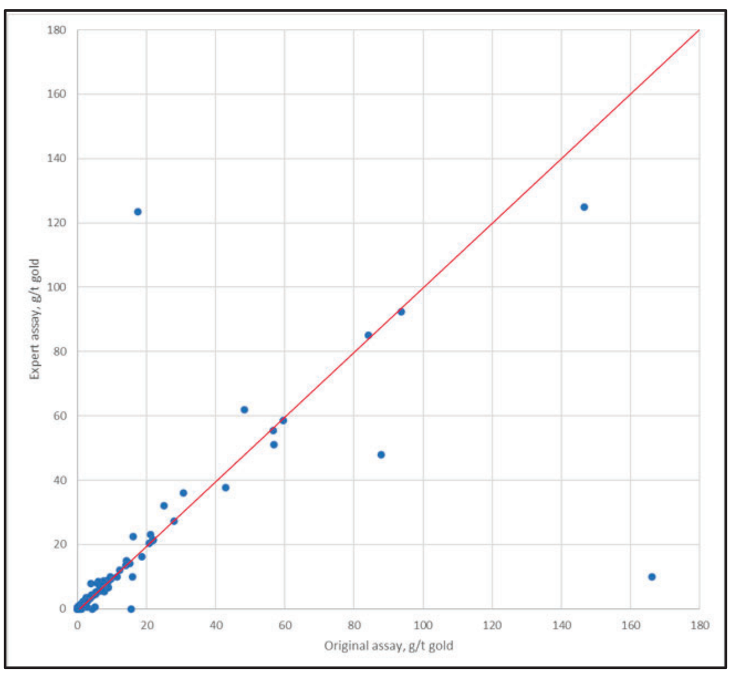

Figure 9-2: Original Assay Data Against Umpire Assay Data for the 2017 to Current Exploration Period (prepared by McEwen, dated 2021)

9.2 Froome Data Verification

9.2.1 Previous Data Verification

Details of data verification measures prior to 2017 were discussed in previous technical reports, however, the current Mineral Resource estimation QP conducted an independent spot check review of this data. This consisted of a visual inspection of drill collars and deviation surveys, a review of analytical QA/QC statistics, and random spot checks on a limited number of database assay results versus assay laboratory certificate reports. The QP is satisfied that the 2017 and prior data is acceptable for use in the current Mineral Resource estimate.

9.2.2 McEwen Data Verification

All data pertaining to drill holes from the 2017 to 2018 drilling campaigns (collar locations, down hole surveys, assays, etc.) was collected and added to a main project drill hole workspace in a sequel Gemcom project. In late 2018 and early 2019, all the data was migrated into a central Datamine Fusion SQL database and subsequent data has been added directly into this central database as it is collected.

All drill hole collar locations at the Froome deposit were either professionally surveyed using GPS with RTK correction or surveyed using a handheld GPS device. Collars were surveyed in UTM NAD83 coordinate system. In April 2020, a check survey of 25% of the Froome collars was conducted by the Black Fox mine survey technicians in the local mine grid. A minor adjustment to the calculated coordinates was performed based on the results.

All drill holes were surveyed using a continuous north seeking Gyro tool. The Gyro tests were monitored, verified, and validated by McEwen's geology team prior to import into the main database.

Chip samples were located using a Disto meter from a known survey point or placed on a freshly issued survey print.

From the central database, drill holes and chip data were imported into 3D geological modelling software (Gemcom, and subsequently Datamine Studio), where the de-surveying process checked for overlapping or missing data and a visual check was completed to ensure no significant errors were included.

QA/QC assay samples were regularly inserted into and analyzed with the chip and drill hole samples. McEwen geologists regularly insert blank and standard samples every run of 20 samples. The QC data was regularly monitored by the database geologist. A review of all the drill hole analytical quality control data generated for Froome during the period 2017 to 2020 shows that the ratio of QC samples to total samples analyzed is 20.6%.

9.2.2.1 Certified Reference Material (Standards)

Overall, the data for 1,163 standard samples (5.8% of the drill hole assay dataset) and 48 chip standard samples (5.1% of the chip assay dataset) was used post-2017.

McEwen considers a CRM drill hole sample a failure if the assay value returned was greater than three standard deviations of the expected value. Only a low level of failures occurred, which shows an acceptable level of accuracy for the assays.

CRM samples for chip samples were considered a fail if the assayed value was greater than 15% variance from the expected value. Of the data, 4.2% of the CRM samples assayed were outliers.

The QP reviewed the provided data and found the results acceptable. The drill hole CRM results are tabulated in Table 9-2.

9.2.2.2 Blanks

Overall, the data for 1,182 blank samples (5.9% of the drill hole assay dataset), and 47 chip blank samples (5.0% of the chip assay dataset) was used post-2017.

McEwen considers a value of 10 times the laboratory detection limit for FA-AAS analysis (or 0.05 g/t) as an indicator of failure for blank samples. None of the samples exceeded this level, which shows the low level of contamination of the sample preparation.

Blank samples for chip samples were considered a fail if the assayed value was greater than 10 times the laboratory detection limit for FA-AAS analysis (or 0.05 g/t) as an indicator of failure for blank samples. Of the data, 4.3% of the blanks assayed were outliers. The QP found the results acceptable.

9.2.2.3 Duplicates

A total of 448 pulp and 403 preparation duplicate samples (4.3% of the assay dataset) were used post-2017.

Assays for pulp duplicates provide an estimate of the reproducibility related to the uncertainties inherent in the analytical method and the homogeneity of the pulps. A scatter plot of the original samples versus the duplicate samples is presented in Figure 9-3. QP found the results acceptable without a significant bias.

Table 9-2: Tabulation of Standards Used at Froome

Standard	Manufacturer	Element	Number of Samples	Expected Value, g/t or %	Standard Deviation, g/t	Outside 2StdDev, %	Outside 3StdDev	Outside 3StdDev, %
SG84	Rocklabs	Au	1	1.026	0.025	0	0	0
SH82	Rocklabs	Au	1	1.333	0.027	0	0	0
SK78	Rocklabs	Au	9	4.134	0.138	11	1	11
SN75	Rocklabs	Au	2	8.671	0.199	0	0	0
OREAS210	OREAS	Au	185	5.49	0.152	5	0	0
OREAS214	OREAS	Au	221	3.03	0.082	7	3	1
OREAS221	OREAS	Au	359	1.06	0.036	2	2	1
OREAS228	OREAS	Au	138	8.73	0.279	9	1	1
OREAS228b	OREAS	Au	58	8.57	0.199	7	0	0
OREAS255	OREAS	Au	149	4.08	0.087	4	0	0
OREAS256	OREAS	Au	21	7.66	0.238	5	0	0
OREAS621	OREAS	Au	3	1.25	0.042	0	0	0
OREAS621	OREAS	Ag	2	69.2	2.65	0	0	0
OREAS621	OREAS	Pb	2	1.36	0.039	0	0	0
OREAS621	OREAS	Zn	2	5.22	0.139	0	0	0
OREAS622	OREAS	Au	2	1.85	0.066	0	0	0
OREAS622	OREAS	Ag	1	102	3.3	0	0	0
OREAS622	OREAS	Pb	1	2.21	0.067	0	0	0
OREAS622	OREAS	Zn	1	10.24	0.182	100	0	0
OREAS624	OREAS	Au	2	1.16	0.053	0	0	0
OREAS624	OREAS	Ag	1	45.3	1.26	0	0	0
OREAS624	OREAS	Pb	1	6240	190	0	0	0
OREAS624	OREAS	Zn	1	2.4	0.078	0	0	0
Total			**1,163**				**7**	

Note: OREAS = Ore Research and Exploration, CDN Lab = CDN Resource Laboratories

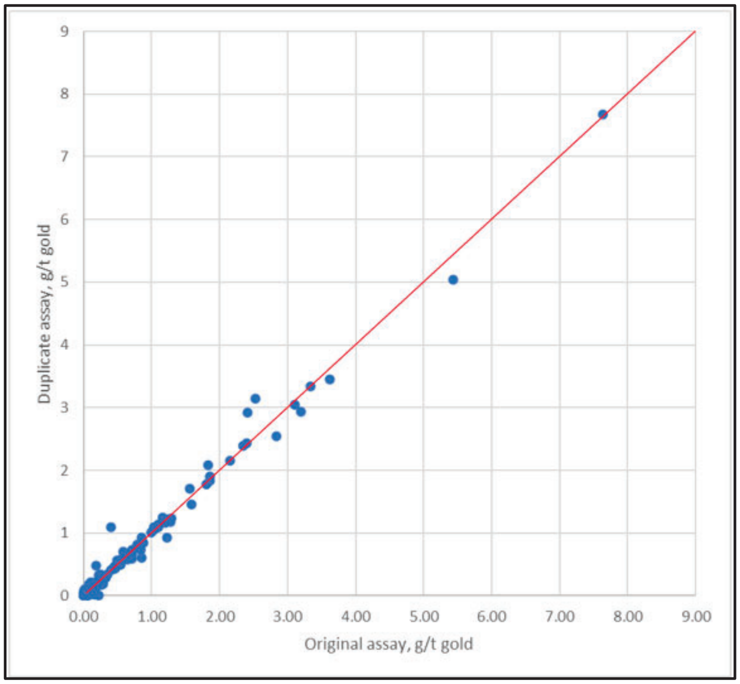

Figure 9-3: Original Assays Against Duplicates for the period 2017 to Current Exploration Period (prepared by McEwen, dated 2021)

9.2.2.4 Check Samples

A total of 909 check samples (4.6% of the assay dataset) was used post-2017.

Check samples consist of second splits of the final prepared pulverized samples analyzed by the primary laboratory that were routinely resubmitted to a secondary laboratory under a different sample number. These samples are used to assess the assay accuracy of the primary laboratory relative to the secondary laboratory. Repeat assays that exceed ±10% of the original assay are considered failures.

A scatter plot of the original samples versus the check samples is presented in Figure 9-4. The values demonstrated good correlation, and the QP found these results acceptable.

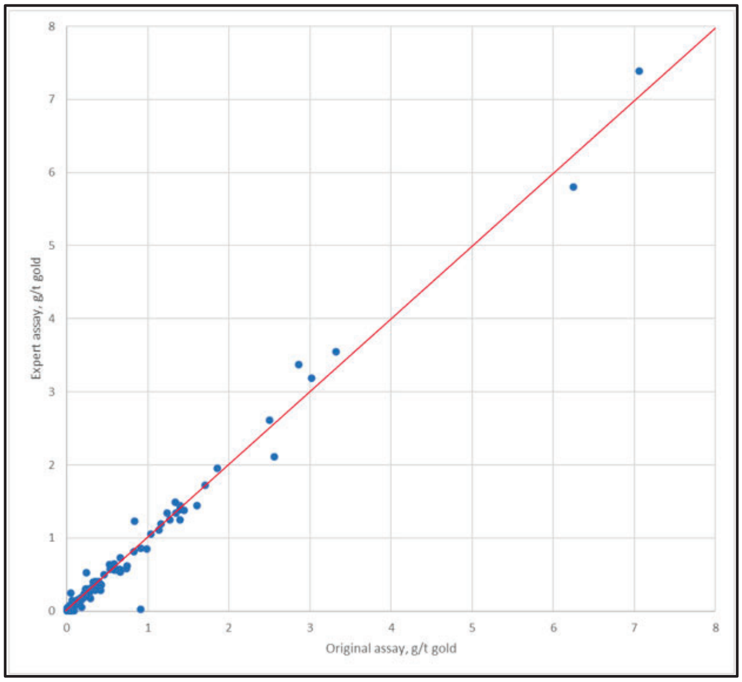

Figure 9-4: Original Assay Data Against Umpire Assay Data for the 2017 to Current Exploration Period (prepared by McEwen, dated 2021)

9.3 Grey Fox/Gibson Data Verification

9.3.1 Previous Data Verification

Details of data verification measures prior to 2017 were discussed in previous technical reports; however, the current resource estimation QP conducted an independent spot check review of this data. This consisted of a visual inspection of drill collars and deviation surveys, a review of analytical QA/QC statistics and random spot checks on a limited number of database assay results versus assay laboratory certificate reports. The QP is satisfied that the 2017 and prior data is acceptable for use in the current Mineral Resource estimate.

9.3.2 McEwen Data Verification

At the start of the 2018 drilling program, all data pertaining to drill holes (collar locations, down hole surveys, assays, etc.) was collected and added to a main project drill hole workspace in a SQL Gemcom project. In late 2018 and early 2019, all the data was migrated into a central Datamine Fusion SQL database and subsequent data has been added directly into this central database as it is collected.

All drill hole collar locations at the Grey Fox deposit were either professionally surveyed or surveyed using a handheld GPS device.

All drill holes were surveyed using a down hole instrument. Down hole surveys were completed using a continuous north seeking Gyro tool. The Gyro tests were monitored, verified, and validated by McEwen's geology team prior to import into the main database.

Once the drill hole data was imported into the database, it was imported into 3D geological modelling software (Gems and subsequently Datamine Studio), where the de-surveying process checked for overlapping or missing data, and a visual check was completed to ensure no significant errors were included.

QA/QC assay samples were regularly inserted into and analyzed with the drill hole samples. The drill hole QC data was regularly monitored by the database geologist. A review of all the drill hole analytical QC data generated for Grey Fox during the period 2018 to 2020 shows that the ratio of QC samples to total samples analyzed is 17.9%.

9.3.2.1 Certified Reference Material (Standards)

Overall, the data for 4,817 standard samples (6.1% of the assay dataset) was used post-2017.

CRM samples were considered a fail If the assay value returned was greater than three standard deviations of the expected value. Few of the samples exceeded this level, which shows an acceptable level of accuracy for the assays. The QP reviewed the provided data and found the results acceptable. The results are tabulated in Figure 9-3.

9.3.2.2 Blanks

Overall, the data for 4,620 blank samples (5.9% of the assay dataset) was used post-2018.

McEwen considers a value of 10 times the laboratory detection limit for FA-AAS analysis (or 0.05 g/t) as an indicator of failure for blank samples. None of the samples exceeded this level, which shows the low level of contamination of the sample preparation. The QP found the results acceptable.

Table 9-3: Tabulation of Standards Used at Grey Fox/Gibson

Standard	Manufacturer	Element	Number of Samples	Expected Value, g/t or %	Standard Deviation, g/t	Outside 2StdDev, %	Outside 3StdDev	Outside 3StdDev, %
SG84	Rocklabs	Au	32	1.026	0.025	0	0	0
SH82	Rocklabs	Au	6	1.333	0.027	17	0	0
SJ80	Rocklabs	Au	28	2.656	0.057	4	0	0
SK78	Rocklabs	Au	30	4.134	0.138	0	0	0
SN75	Rocklabs	Au	7	8.671	0.199	0	0	0
OREAS210	OREAS	Au	208	5.49	0.152	6	6	3
OREAS214	OREAS	Au	235	3.03	0.082	4	3	1
OREAS221	OREAS	Au	1497	1.06	0.036	3	3	0
OREAS228	OREAS	Au	185	8.73	0.279	2	0	0
OREAS228b	OREAS	Au	956	8.57	0.199	6	0	0
OREAS255	OREAS	Au	1254	4.08	0.087	5	4	0
OREAS256	OREAS	Au	9	7.66	0.238	11	0	0
OREAS621	OREAS	Au	37	1.25	0.042	5	0	0
OREAS621	OREAS	Ag	35	69.2	2.65	3	0	0
OREAS621	OREAS	Pb	30	1.36	0.039	0	0	0
OREAS621	OREAS	Zn	30	5.22	0.139	3	0	0
OREAS622	OREAS	Au	34	1.85	0.066	6	0	0
OREAS622	OREAS	Ag	22	102	3.3	0	0	0
OREAS622	OREAS	Pb	25	2.21	0.067	0	0	0
OREAS622	OREAS	Zn	25	10.24	0.182	12	0	0
OREAS624	OREAS	Au	38	1.16	0.053	3	0	0
OREAS624	OREAS	Ag	33	45.3	1.26	21	3	9
OREAS624	OREAS	Pb	33	6240	190	6	1	3
OREAS624	OREAS	Zn	28	2.4	0.078	4	0	0
Total			**4,817**				**20**	

Note: OREAS = Ore Research and Exploration, CDN Lab = CDN Resource Laboratories

9.3.2.3 Duplicates

Overall, the data for 492 pulp and 459 preparation duplicate samples (1.2% of the assay dataset) was used post-2018.

A scatter plot of the original samples versus the duplicate samples is presented in Figure 9-5. One assay plotted outside the graph, at 58.8 g/t original assay vs 29.7 g/t on the duplicate assay. The sample was re-assayed according to McEwen procedures. The QP found the results acceptable; without a significant bias.

9.3.2.4 Check Samples

Overall, the data for 3,673 check samples (4.7% of the assay dataset) was used post-2018.

Check samples consist of second splits of the final prepared pulverized samples analyzed by the primary laboratory that were routinely resubmitted to a secondary laboratory under a different sample number. These samples are used to assess the assay accuracy of the primary laboratory relative to the secondary laboratory. Repeat assays that exceed ±10% of the original assay are considered failures.

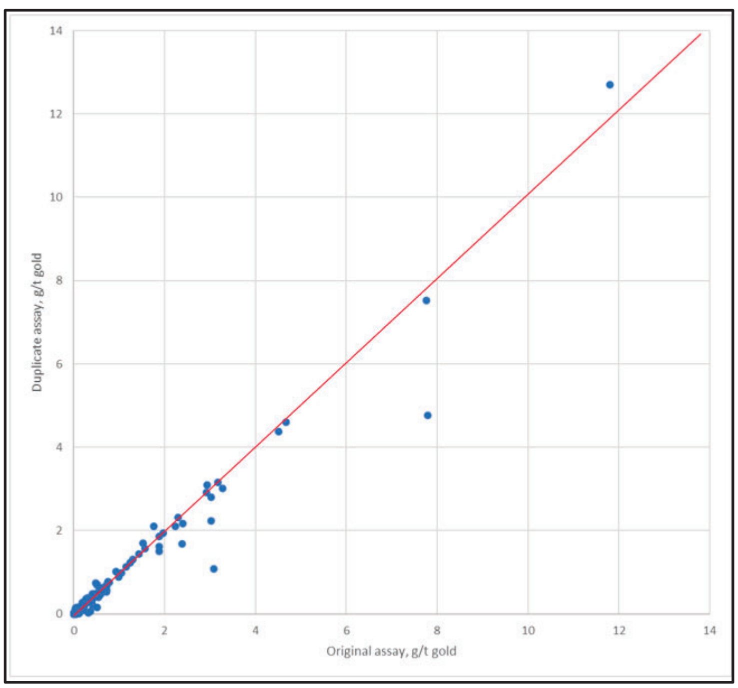

Figure 9-5: Original Assays Against Duplicates for the period 2017 to Current Exploration Period (prepared by McEwen, dated 2021)

A scatter plot of the original samples versus the duplicate samples is presented in Figure 9-6. Ten samples failed, five high and five low, with an error rate of 0.3%. The values below 5 g/t demonstrated good correlation, and the QP found these results acceptable.

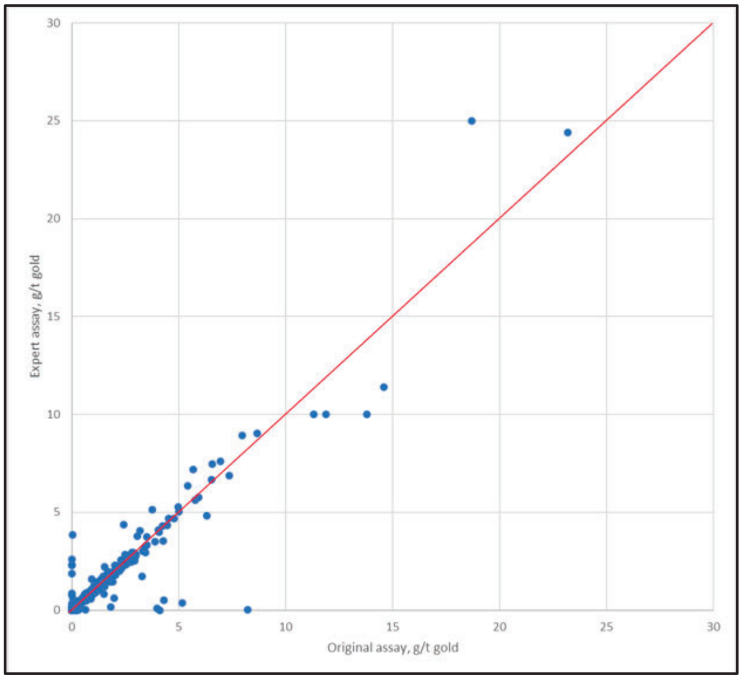

Figure 9-6: Original Assay Data Against Umpire Assay Data for the 2017 to Current Exploration Period (prepared by McEwen, dated 2021)

9.4 Stock West Data Verification

9.4.1 McEwen Data Verification

All data used was subject to QA/QC by McEwen. In the 2019 to October 2021 drilling program, all data pertaining to drill holes (collar locations, down hole surveys, assays, etc.) was collected and added into a central Datamine Fusion SQL database.

All drill hole collar locations at the Stock deposit were surveyed using a handheld GPS device.

All drill holes were surveyed using a down hole instrument. Down hole surveys were completed using a continuous north seeking Gyro tool. The Gyro tests were monitored, verified, and validated by McEwen's geology team prior to import into the main database.

Once the drill hole data was imported into the database, it was imported into 3D geological modelling software (Datamine Studio), where the de-surveying process checked for overlapping or missing data, and a visual check was completed to ensure no significant errors were included.

QA/QC assay samples were regularly inserted into and analyzed with the drill hole samples. The drillhole QC data was regularly monitored by the database geologist. A review of all the drill hole analytical QC data generated for Stock West during the period 2019 to 2021 shows that the ratio of QC samples to total samples analyzed is 15.5%.

9.4.1.1 Certified Reference Material (Standards)

Overall, the data for 1,064 standard samples (7.4% of the assay dataset) was used from 2019 to date.

CRM samples were considered a fail if the assay value returned was greater than three standard deviations of the expected value. Few of the samples exceeded this level, which shows an acceptable level of accuracy for the assays. The QP reviewed the provided data and found the results acceptable. The results are tabulated in Table 9-4.

9.4.1.2 Blanks

Overall, the data for 925 blank samples (6.4% of the assay dataset) was used from 2019 to date.

McEwen considers a value of 10 times the laboratory detection limit for FA-AAS analysis (or 0.05 g/t) as an indicator of failure for blank samples. One of the samples exceeded this level, which shows the low level of contamination of the sample preparation. The QP found the results acceptable.

9.4.1.3 Duplicates

No duplicates were submitted for Stock West. As part of its own internal QA/QC checks, the independent laboratory routinely assays duplicate samples.

9.4.1.4 Check Samples

Overall, the data for 252 check samples (1.7% of the assay dataset) was used from 2019 to-date.

Check samples consist of second splits of the final prepared pulverized samples analyzed by the primary laboratory that were routinely resubmitted to a secondary laboratory under a different sample number. These samples are used to assess the assay accuracy of the primary laboratory relative to the secondary laboratory. Repeat assays that exceed ±10% of the original assay are considered failures.

A scatter plot of the original samples versus the check samples is presented in Figure 9-7. The values below 5 g/t demonstrated good correlation, and the QP found these results acceptable.

Table 9-4: Tabulation of Standards Used at Stock West

Standard	Manufacturer	Element	Number of Samples	Expected Value, g/t or %	Standard Deviation, g/t	Outside 2StdDev, %	Outside 3StdDev	Outside 3StdDev, %
OREAS214	OREAS	Au	13	3.03	0.082	0	0	0
OREAS221	OREAS	Au	282	1.06	0.036	2	0	0
OREAS228b	OREAS	Au	195	8.57	0.199	5	0	0
OREAS232	OREAS	Au	82	0.902	0.023	2	0	0
OREAS253	OREAS	Au	1	1.22	0.044	0	0	0
OREAS255	OREAS	Au	305	4.08	0.087	2	0	0
OREAS255b	OREAS	Au	4	4.16	0.109	0	0	0
OREAS621	OREAS	Au	28	1.25	0.042	18	2	7
OREAS621	OREAS	Ag	18	69.2	2.65	6	0	0
OREAS621	OREAS	Pb	16	1.36	0.039	0	0	0
OREAS621	OREAS	Zn	16	5.22	0.139	0	0	0
OREAS622	OREAS	Au	28	1.85	0.066	7	2	7
OREAS622	OREAS	Ag	15	102	3.3	33	0	0
OREAS622	OREAS	Pb	15	2.21	0.067	0	0	0
OREAS622	OREAS	Zn	15	10.24	0.182	13	1	7
OREAS624	OREAS	Au	13	1.16	0.053	0	0	0
OREAS624	OREAS	Ag	6	45.3	1.26	50	1	17
OREAS624	OREAS	Pb	6	6240	190	50	1	17
OREAS624	OREAS	Zn	6	2.4	0.078	17	1	17
Total			**1,064**				**8**	

Note: OREAS = Ore Research and Exploration, CDN Lab = CDN Resource Laboratories

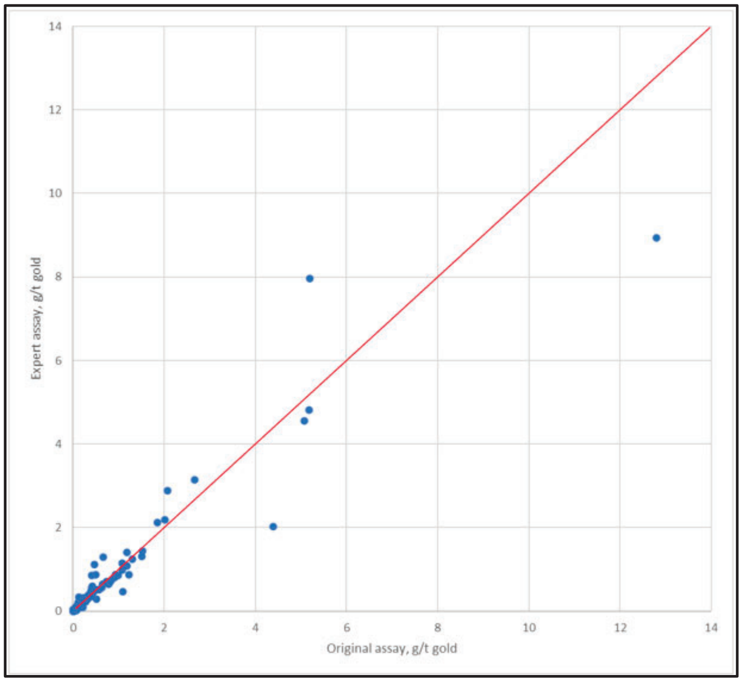

Figure 9-7: Original Assay Data Against Umpire Assay Data for the 2017 to Current Exploration Period (prepared McEwen, dated 2021)

9.5 Stock East Data Verification

9.5.1 Previous Data Verification

The majority of the data used was subject to QA/QC by McEwen. In addition, McEwen re-assayed a significant amount of St Andrew samples that were used for estimation to validate their accuracy.

Gow and Roscoe (2006) found that data verification completed in previous examinations, sampling, and database work in the Stock Mine were found to be up to industry standards at the time.

In 2015, an inventory and verification of the St Andrew data was begun using the drill hole database provided by St Andrew as a starting point. From that audit, only data from 2011 to 2015 was found to have QA/QC information to be able to validate the assay data. As a result, a core resampling program was undertaken in 2018 by McEwen (see Section 9.5.2.4).

9.5.2 McEwen Data Verification

In the 2018 to 2019 drilling program, all data pertaining to drill holes (collar locations, down hole surveys, assays, etc.) was collected and added into a central Datamine Fusion SQL database.

All drill hole collar locations at the Stock East deposit were surveyed using a handheld GPS device.

All drill holes were surveyed using a down hole instrument. Down hole surveys were completed using a continuous north seeking Gyro tool. The Gyro tests were monitored, verified, and validated by McEwen's geology team prior to import into the main database.

Once the drill hole data was imported into the database, it was imported into 3D geological modeling software (Datamine Studio), where the de-surveying process checked for overlapping or missing data, and a visual check was completed to ensure no significant errors were included.

QA/QC assay samples were regularly inserted into and analyzed with the drillhole samples. The drillhole QC data was regularly monitored by the database geologist. A review of all the drill hole analytical QC data generated for Stock East during the period 2017 to 2018 shows that the ratio of QC samples to total samples analyzed is 13.3%.

Data used from the St Andrew period was re-sampled and assayed by McEwen to verify the original data. A total of 18 holes were assayed, representing 417 intervals and 471 m of drilling. Since the vast majority of the original core was split using a manual core splitter, the samples were not the same size sample due to irregularities in the splitting process. There were missing pieces of core as in some holes, high grade core had already been consumed and pieces had fallen out of the core boxes, adding to the difficulty in getting a duplicate sample.

A selection of drill hole collars and survey monuments were also resurveyed by a professional surveying firm to ensure that the holes were accurately transferred from the Stock Mine grid to UTM coordinates.

9.5.2.1 Certified Reference Material (Standards)

Overall, the data for 790 standard samples (5.4% of the assay dataset) was used.

CRM samples were considered a fail if the assay value returned was greater than three standard deviations of the expected value. None of the samples exceeded this level, which shows an acceptable level of accuracy for the assays. The QP reviewed the provided data and found the results acceptable. The results are tabulated in Table 9-5.

Table 9-5: Tabulation of Standards Used at Stock East

Standard	Manufacturer	Element	Number of Samples	Expected Value, g/t or %	Standard Deviation, g/t	Outside 2StdDev, %	Outside 3StdDev	Outside 3StdDev, %
SG84	Rocklabs	Au	3	1.026	0.025	0	0	0
OREAS210	OREAS	Au	72	5.49	0.152	1	0	0
OREAS214	OREAS	Au	117	3.03	0.082	5	0	0
OREAS221	OREAS	Au	272	1.06	0.036	1	0	0
OREAS228	OREAS	Au	30	8.73	0.279	0	0	0
OREAS228b	OREAS	Au	123	8.57	0.199	2	0	0
OREAS255	OREAS	Au	151	4.08	0.087	2	0	0
OREAS256	OREAS	Au	21	7.66	0.238	5	0	0
OREAS621	OREAS	Au	1	1.25	0.042	0	0	0
Total			**790**				**0**	

Note: OREAS = Ore Research and Exploration, CDN Lab = CDN Resource Laboratories

9.5.2.2 Blanks

Overall, the data for 795 blank samples (5.4% of the assay dataset) was used.

McEwen considers a value of 10 times the laboratory detection limit for FA-AAS analysis (or 0.05 g/t) as an indicator of failure for blank samples. Two of the samples exceeded this level, which shows the low level of contamination of the sample preparation. The QP found the results acceptable.

9.5.2.3 Duplicates

Overall, the data for 169 pulp and 194 preparation duplicate samples (2.5% of the assay dataset) was used.

A scatter plot of the original samples versus the duplicate samples is presented in Figure 9-8. The QP found the results acceptable without a significant bias.

9.5.2.4 Check Samples

Overall, the data for 694 check samples (4.7% of the assay dataset) was used.

Check samples consist of second splits of the final prepared pulverized samples analyzed by the primary laboratory that were routinely resubmitted to a secondary laboratory under a different sample number. These samples are used to assess the assay accuracy of the primary laboratory relative to the secondary laboratory. Repeat assays that exceed ±10% of the original assay are considered failures.

A scatter plot of the original samples versus the check samples is presented in Figure 9-9. The values below 5 g/t demonstrated good correlation, and the QP found these results acceptable.

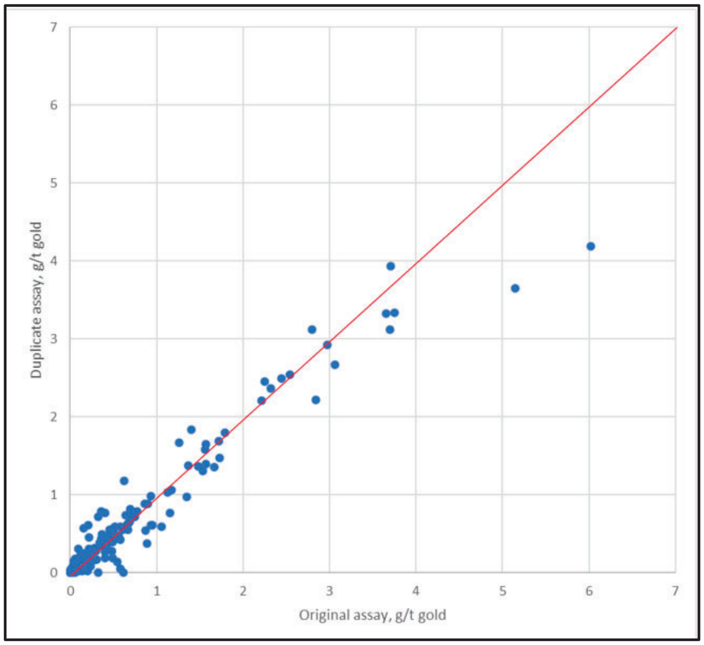

Figure 9-8: Original Assays Against Duplicates for the period 2017 to Current Exploration Period (prepared by McEwen, dated 2021)

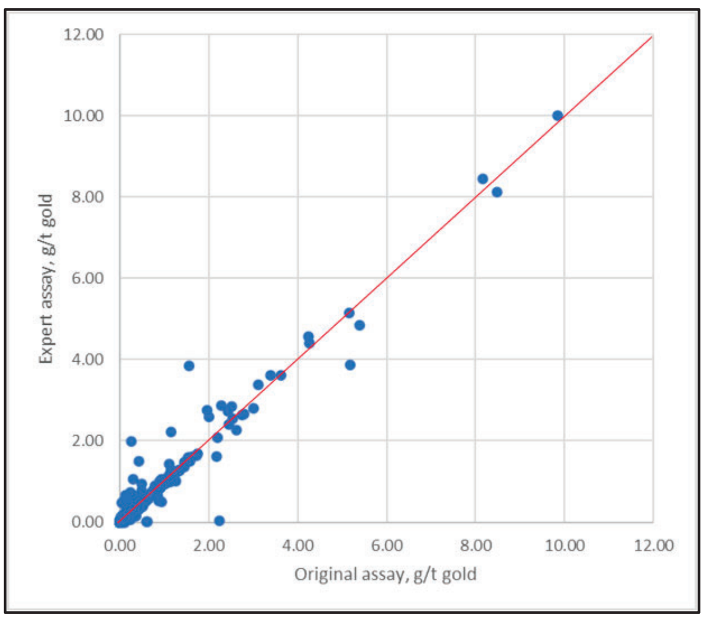

Figure 9-9: Original Assay Data Against Umpire Assay Data for the 2017 to Current Exploration Period (prepared by McEwen, dated 2021)

The St Andrew resampling program showed that there was a reasonable correlation between the original assays and the re-assay performed in 2018 by McEwen.

A statistical analysis of the data from the program showed that the two data sets are behaving similarly, passing a paired t-test with a 95% confidence interval showing the mean difference near zero. The difference between the two assays are close to zero with the mean of the re-assays averaging 0.092 g/t lower than the original assays when six outliers and the maximum value were removed.

A quantile-quantile plot of the original samples versus the re-assayed samples is presented in Figure 9-10 and demonstrates the two populations are similarly distributed. The values below 3 g/t demonstrated good correlation, and the QP found these results acceptable.

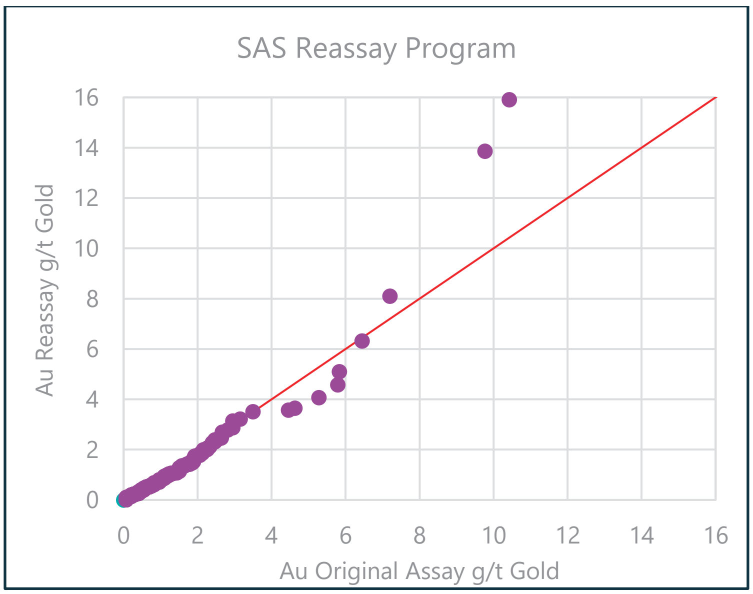

Figure 9-10: Original Assay Data Against Re-assay Data for the St Andrew (SAS) Core Used (prepared by McEwen, dated 2021)

9.6 Fuller Data Verification

As part of the data verification process, the QP visited the Fuller site and reviewed some of the historical drilling information, including drill logs and laboratory certificates, and reviewed the drill core from 1996 to 1998 and from 2004 to 2012, and also validated the collar position for historical drilling.

Below is a summary of the QC work undertaken by the QP to confirm the integrity of the source datasets which inform the Mineral Resource estimation.

9.6.1 Data Verification

Exploration on the Fuller project was primarily conducted during the following four time periods:

- Pre-1980's: Exploration at the Nakhodas Mine during 1941 to 1942 and drilling at the Buffalo Ankerite Mine in the 1950s
- 1986 to 1989: Exploration, including surface and underground drilling and underground sampling by Balmoral
- 1996 to 1997: Surface drilling performed by Vedron
- 2004 to 2012: Surface drilling performed by Lexam

A detailed description of the exploration work and exploration data verification findings to support previous Mineral Resource estimations is documented in the two most recent technical reports issued for the Fuller property by Wardrop (Naccashian, 2006) and RPA (Altman et al., 2014). There is no new exploration information available since 2012. Therefore, SRK did not conduct a complete data verification audit, but instead opted to undertake a series of selective high-level data checks from all major project exploration periods. The data verification audit comprised core review, drill collar position verification, drill logs reviews and a high-level review of analytical assay QA/QC data.

9.6.2 Core Review

The drill core is only available for Vedron and Lexam drilling campaigns. The QP reviewed the drill core from the following boreholes:

- Vedron drilling 1990s:
  - VG96-26
  - VG98-82
  - VG98-83
  - VG96-01
- Lexam drilling 2000s:
  - VG-06-100
  - VGF-11-117
  - VGF-11-121
  - VGF-11-122
  - VGF-12-130
  - VGF-12-131
  - VGF-12-135

The QP reviewed the logging data records against the drill core as well as the geological features of the mineralized intervals used for the resource estimation. The QP can confirm that the selected drilling logs correspond with the rock types and features observed in the core. The core is stored in wooden boxes clearly marked with metal stripes indicating the borehole number, number of the box and footage of the core interval. The most representative mineralized intersections are stored in a secure hanger, all other core is covered and stored outside within the Tisdale property area. The QP found the results of the review acceptable.

9.6.3 Verification of Drill Collar Coordinates

The QP reviewed the following drill collar positions:

- Balmoral 1980s drilling:
  - S88-107_VED
  - S88-108_VED
  - S88-118_VED
- Vedron 1990s drilling:
  - VG96-01_VED
  - VG96-02_VED and VG96-03_VED (same collar)
  - VG96-25_VED and VG96-26_VED (same collar)
  - VG96-27_VED and VG96-28_VED (same collar)
  - VG96-29_VED
  - VG96-39_VED
- Lexam 2000s drilling:
  - VG-06-99
  - VGF-11-119
  - VGF-12-125
  - VGF-12-134
  - VGF-12-139

The QP compared coordinates of the collar positions from a handheld GPS instrument against drill hole database information. No significant variances were found except for the coordinate of borehole S88-118_VED. This may be caused by distortion in the GPS signal caused by tree cover. The collar position may also have been confused with VG-96-50 since no label was found on the casing. As neither of these drill holes intersect the mineralization or are included in the Mineral Resource estimation, the QP does not consider this deviation to represent a material risk to the reliability of the overall resource estimation results. However, checking more of the accessible collar positions against the existing database is highly recommended for future scopes of work.

9.6.4 Review of the Historical Drill Logs and Laboratory Certificates

During the site visit, the QP was given access to paper drill logs and laboratory certificates for the pre-2000 exploration periods. The following boreholes were audited:

- 1941 to 1942 (Nakhodas Mine): S-06, S-07, S-14, S-15, S-31, S-34
- 1950s (Buffalo Ankerite Mine): D15-22_VED, D15-28_VED, D15-36_VED, D15-50_VED, D15-51_VED, D25-25_VED
- 1980s (Balmoral):
  Drilling logs:
  - Surface drilling: S87-93, S87-96, S87-97
  - Underground drilling: 2-08, 2-13, 2-18, 3-29, 3-32, 3-35, 5-06, 5-07, 5-26, UG87-16, UG87-25, UG87-26, UG87-70

  Laboratory certificates:
  - Surface drilling: S88-108
  - Underground drilling: 5-52, UG87-24, UG88-54, UG88-56, UG88-57, UG88-59
- 1990s (Vedron): VG96-01_VED, VG96-26_VED, VG96-30_VED, VG96-54_VED, VG97-71_VED

The QP compared the source data with that in the digital drill hole database. Verified data is tabulated in Table 9-6. The QP did not find any material mistypes or differences in the database that could potentially impact the Mineral Resource estimation results.

Table 9-6: Verified Historical Drilling Data

Data Period	Verification Data	Number of Assays Checked	Total Number of Assays	% Checked
Pre 1980	Drill logs	294	6,321	5
Balmoral 1980s	Drill logs and laboratory certificates	1,345	22,771	6
Vedron 1990s	Drill logs and laboratory certificates	630	10,108	6
Total / Average		**2,269**	**39,200**	**6**

9.6.5 Review of the QA/QC Data for 2010 to 2012 Exploration Drilling

The most extensive exploration drilling in the Fuller area by Lexam was conducted from 2010 to 2012. The details of the work conducted, and data verification information is documented in the 2014 RPA technical report (Altman et al., 2014). The QP conducted several additional checks to verify the quality of the drilling data.

The QP was provided with a combined dataset that included the QA/QC information for four deposits that make up the Western properties: Buffalo Ankerite, Fuller, Paymaster and Davidson-Tisdale. In most cases, the data package only included the data analysis charts and not the original dataset of QA/QC information. In addition, as the QP was unable to extract the QA/QC dataset associated with only the Fuller area, the analysis in this chapter represents the combined dataset of all deposits in representing the Western properties. The QP cannot confirm that the dataset used for the interpretation represents the complete QA/QC dataset available for the 2010 to 2012 drilling period. They do however believe that the provided dataset is adequate for a high-level overview and is reliant on the more detailed data verification undertaken by RPA 2014.

For the Fuller property QA/QC program, Lexam used ALS in Val d'Or, Quebec, an ISO 17025 accredited laboratory, as the primary laboratory and Expert in Rouyn-Noranda, Quebec as the secondary laboratory. In both cases, Lexam relied on the internal QA/QC procedures used by the laboratory and did not insert any external field standards, duplicates and blanks into the sample stream.

9.6.5.1 Certified Reference Material

The QP was provided with information about the standards used for the 2010 to 2012 exploration work in two datasets:

- Original data from a laboratory in Excel format
- Exported interpretational charts from GEOTIC© software in PDF format

The QP notes that these two datasets partially overlapped. Additionally, the Excel data does not contain the date the analysis was conducted, and PDF data does not contain the original numeric data. As the QP was unable to adequately split these datasets for the four Lexam projects, they were combined to provide an overview of the overall statistics. The QP understands that the total amount of samples may not precisely represent the total used in the 2010 to 2012 QA/QC program, but the data appears to be sufficiently reliable for the high-level audit.

The QP counted outliers of greater than two standard deviations as a high-level indicator of failure. This analysis was an overview of the historical protocols, therefore the same logic was used as was implemented originally.

The results of the audit are presented in Table 9-7. The results show that an extensive number of standards (about 25% of the original assay dataset) was used as a part of the QC procedures. The reference materials used are also evenly distributed by the gold grade class. Some deviations usually occur in poorly informed datasets and were successfully checked against other standards with a similar reference value. The QP reviewed the provided data and found the results acceptable.

Table 9-7: Tabulation of Standards Used by Lexam in the 2010-2012 Exploration Program

Standard	Manufacturer	Number of Samples	Source of Data	Expected Value, g/t	Standard Deviation, g/t	Below 2StdDev	Above 2StdDev	Outside 2StdDev, %	SRK Comments
OxC58	Rocklabs	14	PDF	0.201	0.007	0	2	14	Small dataset, low grade
OxC88	Rocklabs	1,641	XLS (1486) and PDF (155)	0.203	0.01	5	3	0	Representative dataset, no significant errors
OxC72	Rocklabs	456	XLS (437) and PDF (19)	0.205	0.008	5	9	3	Representative dataset, no significant errors
OXD73	Rocklabs	63	XLS (21) and PDF (42)	0.416	0.013	0	0	0	Representative dataset, no significant errors
OREAS-15g	OREAS	24	PDF	0.527	0.023	0	0	0	Representative dataset, no significant errors
SE29	Rocklabs	45	XLS	0.597	0.016	0	6	13	Positive bias probably caused by small dataset
SE58	Rocklabs	99	XLS	0.607	0.019	0	0	0	Representative dataset, no significant errors
OxF65	Rocklabs	63	XLS (26) and PDF (37)	0.805	0.034	0	0	0	Representative dataset, no significant errors
SF45	Rocklabs	12	XLS	0.848	0.028	0	0	0	Representative dataset, no significant errors
SG31	Rocklabs	20	XLS	0.996	0.028	1	1	10	Small bias that can be explained by small dataset
SI25	Rocklabs	124	XLS (93) and PDF (31)	1.801	0.044	6	18	19	Biased dataset
OxI54	Rocklabs	32	PDF	1.868	0.066	0	2	6	Representative dataset, no significant errors
OREAS-16b	OREAS	1,163	XLS (1118) and PDF (45)	2.21	0.07	17	10	2	Representative dataset, no significant errors
OREAS-67a	OREAS	608	XLS	2.238	0.096	1	1	0	Representative dataset, no significant errors

Standard	Manufacturer	Number of Samples	Source of Data	Expected Value, g/t	Standard Deviation, g/t	Below 2StdDev	Above 2StdDev	Outside 2StdDev, %	SRK Comments
OREAS-60b	OREAS	54	PDF	2.57	0.11	0	0	0	Representative dataset, no significant errors
OxK95	Rocklabs	1,154	XLS (1145) and PDF (9)	3.537	0.125	8	6	1	Representative dataset, no significant errors
OREAS-68a	OREAS	404	XLS (389) and PDF (15)	3.89	0.15	1	0	0	Representative dataset, no significant errors
OxL78	Rocklabs	307	XLS (276) and PDF (31)	5.876	0.153	2	8	3	Representative dataset, no significant errors
SL34	Rocklabs	5	PDF	5.893	0.14	0	0	0	Representative dataset, no significant errors
OxN92	Rocklabs	855	XLS	7.643	0.242	9	5	2	Representative dataset, no significant errors
OxN77	Rocklabs	72	XLS (26) and PDF (46)	7.732	0.17	0	6	8	Small bias, small dataset and high grade standard sample
CDN-CGS-20	CDN Lab	10	PDF	7.75	0.47	0	0	0	Representative dataset, no significant errors
Total/Average		**7,225**				**55**	**77**	**2**	

Note: OREAS = Ore Research and Exploration, CDN Lab = CDN Resource Laboratories

9.6.5.2 Blanks

The QP was provided with the blanks dataset exported from GEOTIC© software as interpretational charts in PDF format. Overall, the data for 524 blank samples (2% of the assay dataset) was used.

The QP considers 10 times the detection limit for FA-AAS analysis (0.05 g/t) as used by ALS and Expert as an indicator of failure for the blank check sample. None of the samples exceeded this level, which shows the low level of contamination of the sample preparation. The QP found the results acceptable.

9.6.5.3 Duplicates

The QP was provided with a duplicate dataset exported from GEOTIC© software as an interpretational graphic in PDF format. Lexam relies on the results of ALS's pulp duplicates to ensure that analytical precision meets project requirements. The provided PDF files included 713 pulp duplicates (2% of the assay amount), did not contain the original values, and covered the exploration period from 2008 to 2012. A scatter plot of the original samples versus the duplicate samples is presented in Figure 9-11. The QP found the results acceptable without a significant bias.

9.6.5.4 Check Samples

Check samples consist of second splits of the final prepared pulverized samples routinely analyzed by the primary laboratory and resubmitted to a secondary laboratory under a different sample number. These samples are used to assess the assay accuracy of the primary laboratory relative to the secondary laboratory.

SRK was provided with a duplicate dataset exported from GEOTIC© software as an interpretational graphic in PDF format. The provided PDF files, including 391 pulp duplicates (1% of the assay amount), did not contain the original values and covered the period exploration from 2009 to 2012 (there is no reference in the file, but RPA reported that check samples were used only within this period). A scatter plot of the original samples versus the duplicate samples is presented in Figure 9-12. The QP notes a slightly positive bias towards the ALS data that is related to high-grade sample values. This might be explained by the small population of this grade class. The values below 5 g/t demonstrated good correlation, and the QP found these results acceptable.

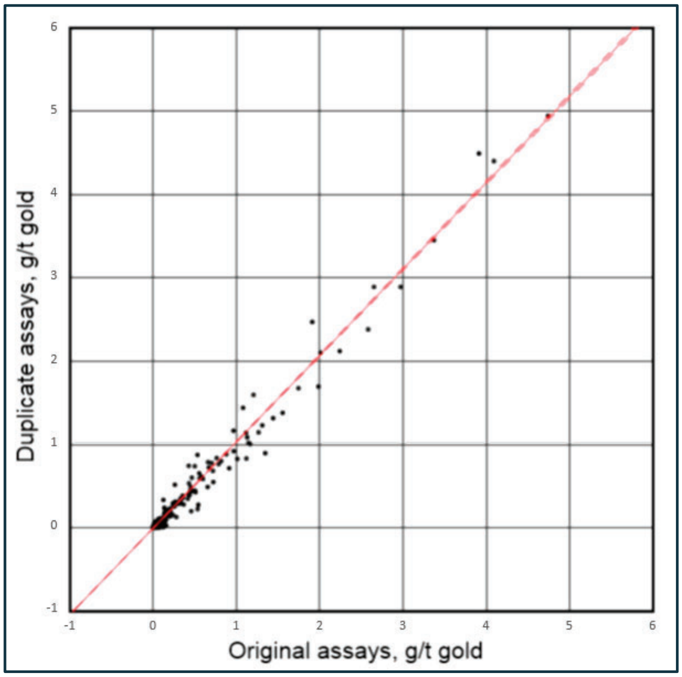

Figure 9-11: Original ALS Assays Against Duplicates for the 2008 to 2012 Exploration Period (prepared by SRK, dated 2018)

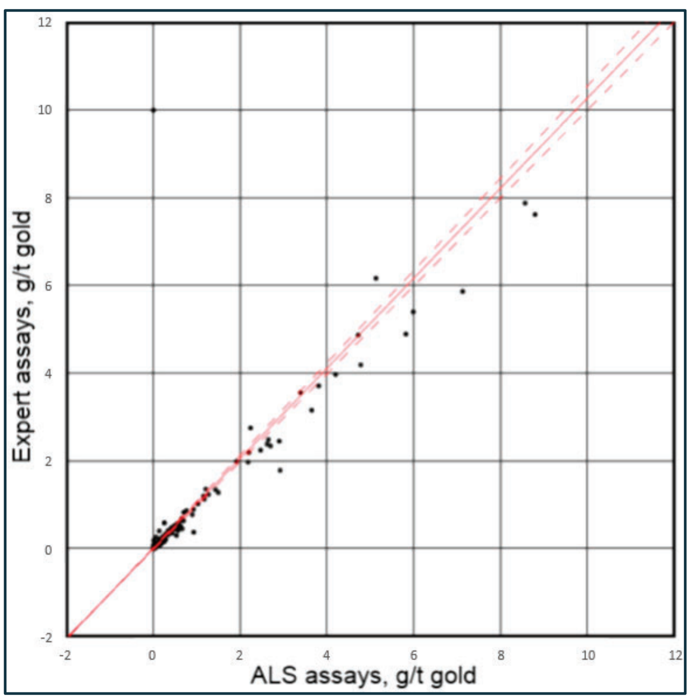

Figure 9-12: ALS Data Against Expert Data for the 2009 to 2012 Exploration Period (prepared by SRK, dated 2018)

9.7 Davidson-Tisdale Data Verification

As part of the data verification process, the QP visited the Davidson-Tisdale site and reviewed some of the historical drilling information, including drill logs and laboratory certificates supported by McEwen representatives, reviewed the drill core from 2003 to 2007 and 2010, and validated several historical drilling collars.

Below is a summary of the QC work undertaken by the QP to confirm the absence of material deficiencies within the source datasets that could materially impact the results of the Mineral Resource estimation.

9.7.1 Data Verification

Exploration at Davidson-Tisdale commenced in 1911 with detailed documentation of this work, and exploration data verification findings to support previous mineral resource estimations being documented in the two most recent technical reports issued by Wardrop (Naccashian et al., 2007) and RPA (Altman et al., 2014). The majority of the exploration data available and used for the current Mineral Resource estimate was acquired during the following exploration periods:

- 1983 to 1988: DTM and Getty – approximately 87% of the total assay length in the mineralized domains
- 2003 to 2007 and 2010: Lexam – approximately 12% of the total assay length in the mineralized domains

As no new exploration information has been generated since 2010, the QP did not conduct a complete data verification audit, but instead opted to undertake a series of selective high-level data spot checks from the two major project exploration periods. The data verification audit process comprised of drill core review, drill collar position verification, and drill logs and assay certificate reviews.

9.7.2 Core Review

Drill core is only available for the Lexam drilling campaign. The QP reviewed drill core from the following boreholes to obtain a representative coverage across all exploration periods and the mineralization intersections applied for resource estimation purposes:

- 03-310: interval 159-171 m
- 03-315: intervals 155-171, 193-211 m
- 04-322: interval 132-152 m
- 04-324: interval 148-168 m
- 04-327: interval 136-182 m

- 04-332: interval 160-220 m
- 04-347: interval 178-206 m
- 05-352: interval 270-307 m
- 05-354: interval 272-306 m
- 07-359: interval 64-76 m
- VGT-10-365: interval 104-108 m
- VGT-10-371: interval 91-96 m
- VGT-10-380: interval 264-277 m
- VGT-10-383: intervals 120-125, 307-320 m

The QP reviewed the logging data records against the drill core, as well as the geological features of the mineralized intervals used for the resource estimation. The QP can confirm that the selected drilling logs correspond with the rock types and features observed in the core. The core is stored in wooden boxes clearly marked with metal stripes indicating the borehole number, number of the box and footage of the core interval. The most representative mineralized intersections are stored in a secure hanger, all other core is covered and stored outside within the Tisdale property area. The QP found the results of the review acceptable, but note there was a core storage incident that led to some misplaced core, making their positive identification impossible. The QP highly recommends transferring the Lexam core material to the more secure Black Fox or Grey Fox mine sites.

9.7.3 Drill Collar Coordinates

The QP reviewed the following drill collar positions:

- DTM and Getty drilling during 1980s:
  - DT-83-025
  - GT84-111
- Lexam drilling during 2000s:
  - 03-305, 04-335, 03-304
  - 04-328, 04-329, 04-330 (labelled)
  - 04-331
  - 04-332, 04-333
  - 04-334
  - 04-347
  - 04-348 (labelled)
  - 07-361 (labelled)
  - 07-362 (labelled)
  - VGT-10-374
  - VGT-10-375
  - VGT-15-392

The QP was able to locate several drill hole collars under the snow cover and compared coordinates of the collar positions from a handheld GPS instrument against the current drill hole database. Most of the collars were not labelled, however, for almost all cases the location coordinates aligned well with the documented collar positions. No significant variances (most were less than 5 m) were found, except for the coordinate of borehole GT84-111 where the total in-plane deviation was 12 m. This may have been caused by distortion in the GPS signal caused by tree cover, therefore, overall the QP does not consider this deviation to represent a material risk to the reliability of the overall resource estimation results. Future additional checking of accessible collar positions (especially for historical drilling prior to 2000s) in the summer season against the current database is highly recommended.

9.7.4 Review of the Historical Drill Logs and Laboratory Certificates

During the site visit, the QP was provided with access to paper drilling logs and laboratory certificates for the pre-2000 exploration periods. The following logs were audited:

- 1983 to 1984 – DTM:
  - DT83-017
  - DT83-019
  - DT83-020
  - DT83-021
  - BR85-2
- 1984 to 1987 – Getty:
  - GT84-042
  - GT84-092
  - GT84-107
  - GT84-109
  - GT84-111
  - GT84-117
  - GT85-05-01
  - GT85-05-03
  - GT85-130
  - GT85-132
  - GT86-03-15
  - GT86-03-18
  - GT86-04-101
  - GT86-04-110
  - GT86-04-27
  - GT86-04-48
  - GT86-140
  - GT87-02-143

  - GT87-228
  - GT87-400-194A
  - GT87-R-224
  - GT87-R-256
  - GT87-R-242
- 2000s Lexam:
  - 03-302
  - 03-306
  - 04-332
  - 04-342
  - VGT-10-366
  - VGT-10-380
- VGT-10-384

The QP compared the source data with that in the digital drill hole datasets. Verified data is tabulated in Table 9-8. The QP found several data entry errors and discrepancies between the source and digital data (noted as issues) but their total number is within an acceptable limit and does not appear to materially affect the global results of the Mineral Resource estimation.

The QP also reviewed the available assay certificates from the major exploration periods and compared the results against the data in the existing database. The results are summarized in Table 9-9. Similar to the drill hole logs, the QP believes that the total number of errors is within the acceptable limit and does not appear to materially affect the global results of the Mineral Resource estimation.

Table 9-8: Review of the Drilling Logs

Exploration Period	Total No. of Assays	Drill Log Check				
		No Issues	Issues	Total Assays Checked	% Checked	% of Issues
Getty and DT 1980s	18,002	1,853	8	1,903	11	0.4
Lexam 2003-2007	3,588	135	0	137	4	0.0
Lexam 2010	2,461	308	0	308	13	0.0

Table 9-9: Review of the Assay Certificates

Exploration Period	Total No. of Assays	Assay Certificate Check				
		No Issues	Issues	Total Assays Checked	% Checked	% of Issues
Getty and DT 1980s	18,002	3,341	15	3,461	19	0.4
Lexam 2003-2007	3,588	124	0	124	3	0.0
Lexam 2010	2,461	844	0	844	34	0.0

9.7.5 Review of the Available 2010 QA/QC Data

The QP reviewed the combined dataset that included the QA/QC information for deposits that make up the Western properties: Buffalo Ankerite, Fuller, Paymaster and Davidson-Tisdale. This data covers the exploration period 2010 to 2012 and therefore represents the data collected for only the last exploration period for Davidson-Tisdale. The QP reviewed this combined dataset as documented in Section 0.

9.8 QP Comments on Chapter 9

QA/QC by McEwen has been performed on the primary data used for the remaining mineral resource at Black Fox. Also, the QP conducted an independent spot check review of other data used for estimation. This consisted of a visual inspection of drill collars and deviation surveys, a review of analytical QA/QC statistics, and random spot-checks on a limited number of database assay results versus assay laboratory certificate reports.

The QP has reviewed the analytical QC procedures and data and confirms that the analytical results are reliable for informing the current Black Fox and Tamarack Mineral Resource estimates.

QA/QC by McEwen has been performed on the data used for the Mineral Resource at Froome. The QP has reviewed the analytical QC procedures and data and confirms that the analytical results are reliable for informing the current Froome Mineral Resource estimate.

The QP conducted an independent spot check review of Grey Fox data prior to McEwen ownership. This consisted of a visual inspection of drill collars and deviation surveys, a review of analytical QA/QC statistics, and random spot-checks on a limited number of database assay results versus assay laboratory certificate reports. The QP has reviewed the analytical QC procedures and data and confirms that the analytical results are reliable for informing the current Grey Fox Mineral Resource estimate.

QA/QC by McEwen has been performed on the data used for the Mineral Resource at Stock West. The QP has reviewed the analytical QC procedures and data and confirms that the analytical results are reliable for informing the current Stock West Mineral Resource estimate.

QA/QC by McEwen has been performed on the majority of the data used for the Mineral Resource at Stock East. In addition, McEwen verified earlier data by re-assaying a significant amount of St Andrew samples that were used for estimation to validate their accuracy. The QP has reviewed the analytical QC procedures and data and confirms that the analytical results are reliable for informing the current Stock East Mineral Resource estimate.

No additional project exploration data has been generated at Fuller since the recent technical reports on the project therefore, the QP has referenced the verification work conducted by RPA (Altman et al., 2014) and Wardrop (Naccashian., 2006).

The QP also undertook a series of additional validation checks, including: verification of collar positions, validation of historic drilling logs and laboratory certificates against the database, and an audit of QA/QC data from the 2010 to 2012 exploration period. The QP did not find any substantial flaws that could materially impact the quality of the Fuller Mineral Resource estimation. The QP has reviewed the analytical QC procedures and data and confirms that the analytical results are reliable for informing the current Fuller Mineral Resource estimate.

As no additional project exploration data has been generated since the recent technical reports on the project, the QP has referenced the verification work conducted by RPA (Altman et al., 2014) and Wardrop (Naccashian et al., 2007).

The QP undertook a series of additional validation checks, including verification of collar positions, core review, validation of historical drilling logs and laboratory certificates against the database, and an audit of QA/QC data from the 2010 to 2012 exploration period. The QP, however, had limited access to information on the QC procedures used in the 1980s exploration programs which were described in the previous technical reports.

The QP did not however detect any substantial flaws that could materially impact the quality of the Mineral Resource estimation. The QP has reviewed the analytical QC procedures and data and confirms that the analytical results are reliable for informing the current Davidson-Tisdale Mineral Resource estimate.

10.0 Mineral Processing and Metallurgical Testing

The bulk of the metallurgical testwork was conducted prior to McEwen. All deposits of the Fox Complex are gold-bearing and will feed the Fox Mill. Some mineralized zones contain free gold. Preliminary testwork has shown this gold mineralization to be amenable to grind and cyanide leach recovery, the same process as the Fox Mill. Results are supportive of assumptions used and detailed metallurgical testwork is ongoing.

10.1 Historical Testwork Summary

Historical metallurgical testing has been completed for Froome, some zones of Grey Fox, and for some of the Western properties.

Material from Stock Main was previously processed through the Fox Mill (then Stock Mill). No historical testwork had been completed on Stock West.

The Davidson-Tisdale and Fuller deposits have been considered in different combinations over several decades, with the oldest testwork results dating back to 1975.

Historical metallurgical testing for the Eastern properties has been previously summarized in technical reports prepared by Primero and RPA (Brisson, 2014; Altman et al., 2014).

10.1.1 Eastern Properties

10.1.1.1 Froome

Metallurgical testing for Froome was first performed in 2017 by ALS for Primero. Testwork was completed on a master composite and four domain composites representing the underground deposit. This program was designed to assess the physical characteristics and to confirm mineralized material from Froome could be processed by the mill, as well as environmental testing.

Quarter and half NQ core was shipped to ALS and used to compile the master and domain composites. Composites were sub-sampled for Bond tests and bottle roll test charges. Head assay results for chemical content are shown in Table 10-1.

Gold grades ranged from 4.75 g/t for the Py 1-3 composite to 6.20 g/t for the Py 3-5 composite. Sulphur is present predominantly as sulphide, suggesting the presence of sulphide minerals. The organic carbon and graphitic carbon were both low for all samples, preg-robbing should not cause gold recovery issues for “whole ore” cyanidation of these samples.

Table 10-1: Froome Composite Samples Chemical Content

Sample	Gold, g/t	Total Sulphur, %	Sulphide Sulphur, %	Sulphate, %	Total Carbon, %	Total Organic Carbon, %	Graphitic Carbon, %
Master Composite	5.73	1.60	1.56	0.03	1.62	0.02	0.01
Silica MS Composite	4.83	1.42	1.39	0.03	1.50	0.03	0.01
Silica WM Composite	5.54	1.65	1.62	0.03	1.33	0.03	<0.01
Py 1-3 Composite	4.75	1.41	1.38	0.03	1.62	0.03	0.01
Py 3-5 Composite	6.15	1.84	1.81	0.03	1.37	0.03	0.01

Note: MS = Moderate-Strong; WM = Weak-Moderate; Py = pyrite content %.

Comminution tests were only performed on the master composite. The Bond ball mill work index was completed using a closing screen of 200 mesh and gave a work index value of 20.9 kWhr/t, while the Bond rod mill work index gave a value of 19.1 kWhr/t. The Bond abrasion index was measured at 0.39. The sample is considered very hard in terms of ball milling and is moderately abrasive.

Bottle roll leach tests were completed on the master composite over a 48-hour period at a pH 11, with either 500 ppm or 1,000 ppm cyanide, and either sparged or exposed to the atmosphere (Table 10-2). Gold extraction was rapid with most extracted by 24 hours. There was relatively little difference in recovery for oxygen sparging or open bottle tests. Cyanide consumption ranged from 0.5 to 2.9 kg/t and lime consumption from 0.5 to 0.9 kg/t.

A mineralogical assessment was completed on the cyanidation leach tails from test KM5132-02. Leach residue assayed 0.6 g/t gold and dynamic secondary ion mass spectrometry results indicated that 10% of the gold contained was sub-microscopic in pyrite.

Bottle roll leach tests were also performed on the four domain composites at the same conditions with most of the gold extracted by 24 hours (Table 10-3). Results for gold extraction for all composites was close, with an average of 90.13% and a standard deviation of 0.44%. Cyanide consumption ranged from 0.9 to 1.1 kg/t and lime consumption from 0.9 to 1.0 kg/t.

The master composite was also used to evaluate leach kinetics at various grind sizes. There is a well-defined linear relationship between grind size and recovery. This trend is confirmed with results from the leach tests on the four domain samples. The head grade for the master composite was 5.73 g/t, and the domain samples ranged from 4.75 to 6.15 g/t. Table 10-4 and Figure 10-1 show the gold recoveries at each grind size and the correlating trendline.

Table 10-2: Summary of Froome Master Composite Bottle Roll Tests

Test Number	Cyanide Concentration, ppm	Oxygen Condition	CIL	Gold Extraction, %	Cyanide Consumption, kg/t	Lime Consumption, kg/t
1	500	O2 purge	No	91.1	0.8	0.9
2	500	O2 purge	No	89.4	0.7	0.7
3	500	O2 purge	No	85.0	0.5	0.6
4	500	Air	No	89.3	0.8	0.9
5	500	Air	Yes	88.2	0.9	0.8
11	500	Air	No	87.5	1.1	0.5
6	1,000	Air	No	93.3	2.9	0.7

Note: CIL = carbon-in-leach

Table 10-3: Summary of Froome Domain Composites Bottle Roll Tests

Composite Name	Test Number	Cyanide Concentration, ppm	Oxygen Condition	CIL	Gold Extraction, %	Cyanide Consumption, kg/t	Lime Consumption, kg/t
Silica MS	7	500	Air	No	90.6	0.9	1.0
Silica WM	8	500	Air	No	89.8	1.1	0.9
Py 1-3	9	500	Air	No	90.4	1.1	0.9
Py 3-5	10	500	Air	No	89.7	0.9	0.9

Note: MS = Moderate-Strong; WM = Weak-Moderate; Py = pyrite content %.

Table 10-4: Froome Grind Sensitivity Results

Composite	P_{80}, µm	Recovery 48 h, %
Master Composite	55	91.1
	82	89.4
	119	85.0
	82	89.3
	82	88.2
	45	93.3
Silica MS Composite	62	90.6
Silica WM Composite	66	89.8
Py 1-3 Composite	58	90.4
Py 3-5 Composite	59	89.7

Note: MS = Moderate-Strong; WM = Weak-Moderate; Py = pyrite content %.

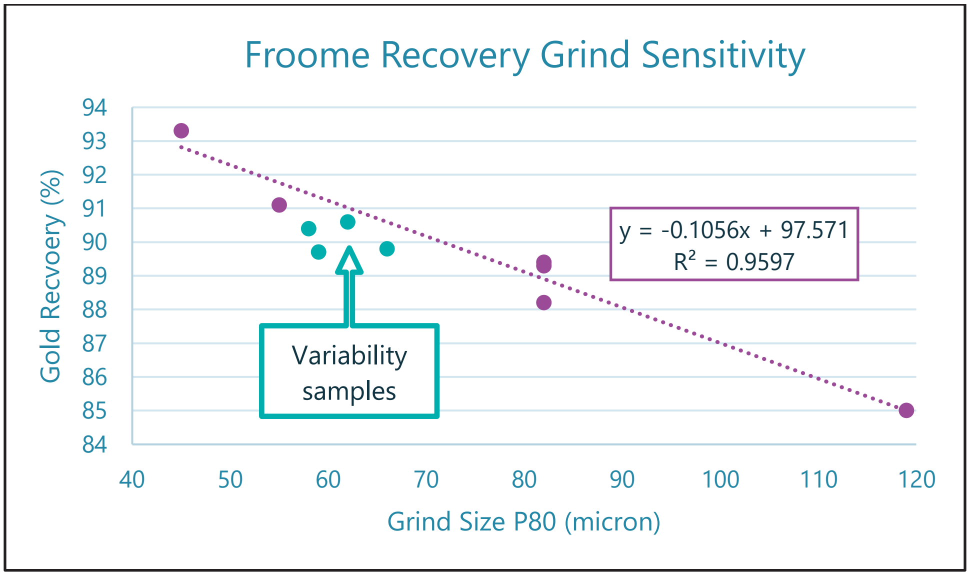

Figure 10-1: Froome Grind Sensitivity Trend (prepared by Wood, dated 2021)

10.1.1.2 Grey Fox

Metallurgical testing for Grey Fox was first performed in 2013 by SGS for Brigus Gold. Two sets of samples were shipped to SGS for testwork to be completed in two stages. Samples for the 147 Zone and Contact Zone master composites were coarse assay rejects. The second set contained samples from 16 grid zones, 8 from the 147 Zone and 8 from the Contact Zone. The intervals contained in the grid zones were composited to generate variability samples. The test program included a head analysis, mineralogy, comminution characterization, bulk cyanidation, and environmental testing, including cyanide destruction testing.

A second mineralogical and metallurgical characterization program was carried out by XPS in 2013 to confirm gold recovery of variability samples. Samples were selected by XPS to represent the material that would be fed to the mill. Samples for both programs were limited to the 147 Zone and Contact Zone.

Most historical testwork has been done on the Contact Zone and the 147 Zone; however, other zones, including 147 NE, South Zone, Gibson, and Whiskey Jack; had limited to no testwork completed historically.

147 Zone and Contact Zone

SGS Phased Testwork

Head assay results for gold, silver, copper, and chemical content are shown in Table 10-5. Mineralogical analysis showed that carbonate is the predominant form of carbon, thus impact to recovery from preg-robbing should be negligible. Pyrite/marcasite was found to be the main sulphide mineral. Minor amounts of chalcopyrite and molybdenite were also identified.

Table 10-5: Grey Fox 147 Zone and Contact Zone Composites Head Assays

Sample	Gold, g/t	Silver, g/t	Copper, %	Sulphur, %	Tellurium, g/t	Total Carbon %	CO_2, %
147 Master Composite	3.35	1.6	0.010	1.7	<4	2.76	9.77
Contact Zone Master Composite	4.64	1.8	0.015	1.9	<4	1.91	6.61

Composites were tested for grindability, including the SMC test, the Bond rod mill grindability and Bond abrasion tests, a high-pressure grinding roll (HPGR) investigation with locked-cycle tests, and Bond ball mill grindability. Contact Zone and 147 Zone are hard with respect to impact breakage and very hard with respect to Rod work index. The Contact Zone is considered medium abrasive and the 147 Zone is abrasive. Both zones are very hard in terms of specific grinding force and net specific energy, and medium in terms of throughput. Both zones are very hard with respect to Bond work index with results at or near the 100th percentile of SGS database. The effect of HPGR reduced Bond work index by 2% for the 147 Zone and 5% for the Contact Zone.

Table 10-6: Grey Fox 147 Zone and Contact Zone Grindability Test Summary (SGS, 2012)

Sample Name	HPGR (kWh/t) B3[1]	HPGR (kWh/t) LCT	Relative Density	JK Parameters A x b	JK Parameters t_a[2]	RWI kWh/t	BWI (kWh/t) Feed	BWI (kWh/t) LCT	BWI (kWh/t) % Red.[3]	AI (g)
147 Zone Master Comp	2.54	3.84	2.91	32.6	0.29	23.1	27.1	26.5	6	0.547
CZ Breccia Lithology	-	-	2.91	30.1	0.27	-	-	-	-	-
CZ Tuff Lithology	-	-	2.73	35.3	0.33	-	-	-	-	-
CZ Master Comp	2.42	3.36	-	-	-	21.5	21.9	20.8	11	0.306

[1] Optimal HPGR batch conditions corresponding to test B3
[2] The t_a value reported as part of the SMC procedure is an estimate
[3] kWh/t reduction based on [gross gram per revolution]$^{-1}$

Note: BWI = Bond work index; RWI = Rod work index; LCT = lock-cycle test; Ai = Abrasion index

Table 10-7: Grey Fox 147 Zone and Contact Zone SMC Test Results (SGS, 2012)

Sample Name	A	b	A x b	Hardness Percentile	t_a[1]	DWI (kWh/m^3)	M_{ia} (kWh/t)	M_{ih} (kWh/t)	M_{ic} (kWh/t)	Relative Density
147 Zone Master Comp	79.4	0.41	32.6	81	0.29	9.01	22.9	18.0	9.3	2.91
CZ Breccia Lithology	75.2	0.40	30.1	86	0.27	9.58	24.0	19.1	9.9	2.91
CZ Tuff Lithology	90.5	0.39	35.3	75	0.33	7.82	21.7	16.6	8.6	2.73

[1] The t_a value reported as part of the SMC procedure is an estimate

Note: DWI =drop weight index

Table 10-8: Grey Fox 147 Zone and Contact Zone HPGR Test Summary (SGS, 2012)

Sample Name	HPGR Batch Test B3					HPGR Locked-cycle Test				
	Force	Net energy	m_f	P_{80}	CL[1]	Force	Net Energy	m_f	P_{80}	CL[1]
	N/mm^2	kWh/t	ts/hm^3	micron	%	N/mm^2	kWh/t	ts/hm^3	micron	%
147 Zone Master Comp	3.72	2.54	211	4,514	-	3.64	3.84	221	2,129	73
CZ Master Comp	3.49	2.42	207	4,621	-	3.39	3.36	216	2,196	61

[1] Circulating Load

Gravity separation tests were completed as a potential pre-treatment to downstream cyanidation. Gravity separation on 147 Zone and Contact Zone composites over a size range of 54 to 100 µm resulted in gravity recovered gold ranging from 17.2 to 29.1% for Contact Zone and 20.1 to 28.0% for 147 Zone. Gravity gold recovery was directly related to grind size for the Contact Zone with a finer grind resulting in higher recovery to concentrate. Gravity gold recovery was independent of grind size for 147 Zone.

Flotation testing was completed as a preliminary investigation of recovery to concentrate performance considering the presence of pyrite. Rougher flotation on gravity tailings resulted in 90% gold recovered (based on flotation feed) to concentrate with a grade of approximately 15.5 g/t gold for the 147 Zone. Grind size did not appear to affect gold recovered to concentrate. Rougher flotation on gravity tailings resulted in 93% gold recovered (based on flotation feed) to concentrate with a grade ranging between 18.0 to 24.4 g/t gold for the Contact Zone. Results suggested that a higher recovery can be achieved at finer grind sizes.

Additionally, cyanidation tests were also completed on the gravity tailings. Gold recovery by cyanidation on gravity tailings ranged from 67 to 72% for the Contact Zone and 63 to 75% for the 147 Zone. Combined gravity and cyanidation did not exceed 81% for the 147 Zone and 79% for the Contact Zone. For both composites, grind size did not influence gold extraction. Cyanidation of gravity tailings from 147 Zone achieved 75% recovery and 83% when combined with gravity recovery.

Variability testing was completed on 16 individual composites using gravity separation followed by CIL of the gravity tailings. Average gold grades for the 147 Zone range from 0.65 to 4.50 g/t and from 1.73 to 11.1 g/t for the Contact Zone.

The gravity recoverable gold for the 147 Zone ranged from 33 to 38%. The gravity recoverable gold for Contact Zone was significantly lower and ranged from 9 to 18%.

Cyanidation tests were completed at 40% solids with a pre-aeration step for two hours, cyanide concentration of 0.5 g/L, carbon concentration of 15 g/L, and leached for 48 hours. Gold extraction on gravity tails for the master composites ranged from 76 to 80%. Total gold extraction for gravity and cyanide ranged from 79 to 85%.

Table 10-9: 147 Zone and Contact Zone Master Composites Gold Extraction with Gravity and Cyanidation (SGS, 2013)

CN Test No.	Ore Type /Comp	Feed Size P_{80}, µm	Reag. Consumption kg/t of CN Feed		% Au Extraction		Residue Au, g/t	Carbon Au, g/t	Head, Au, g/t
			NaCN	CaO	48 h	CN+Grav			Calc
CN-18	147 Zone MC	69	0.29	0.98	77	85	0.41	58	1.72
CN-20		52	0.25	1.07	76	84	0.39	59	1.60
CN-17	Contact Zone MC	84	0.32	0.76	76	79	0.83	119	3.51
CN-21		59	0.34	0.84	80	83	0.76	144	3.71

Note: The 48 hour extraction is the sum of gold in solution and loaded onto carbon.
Calc: This is the calculated head grade of the cyanidation test.

The 147 Zone and Contact Zone variability composites were also submitted for "whole ore" CIL tests at a grind size of 75 µm. Leach conditions were the same as those applied to the gravity tailings. "Whole ore" leach gold recovery ranged from 63 to 94% for the 147 Zone and from 64 to 94% for the Contact Zone. For the 147 Zone, cyanide consumption ranged from 0.25 to 0.61 kg/t and lime consumption ranged from 0.83 to 1.65 kg/t. For the Contact Zone, cyanide consumption ranged from 0.16 to 0.69 kg/t and lime consumption ranged from 0.79 to 2.39 kg/t.

Table 10-10: 147 Zone and Contact Zone Variability Testing Results (SGS, 2013)

CN Test No.	Ore Type /Comp	Feed Size P_{80}, µm	Reag. Consumption kg/t of CN Feed		% Au Ext	Residue Au, g/t	Carbon Au, g/t	Head, Au, g/t		
			NaCN	CaO	48 h			Calc	Direct	Client
CN-1	147 Zone 1	75	0.24	0.83	93	0.19	112	2.75	2.68	2.95
CN-2	147 Zone 2	81	0.36	1.27	90	0.36	148	3.67	2.82	3.03
CN-3	147 Zone 3	71	0.33	1.46	94	0.14	86	2.09	1.50	2.09
CN-4	147 Zone 4	42	0.45	1.65	90	0.58	237	5.93	4.20	4.75
CN-5	147 Zone 5	75	0.43	1.03	93	0.24	140	3.46	4.51	3.36
CN-6	147 Zone 6	81	0.61	1.33	81	0.43	78	2.26	1.66	2.08
CN-7	147 Zone 7	80	0.25	0.84	71	0.21	22	0.73	0.65	1.17
CN-8	147 Zone 8	93	0.39	1.28	63	0.90	62	2.41	2.29	2.47
CN-9	Contact Zone 1	114	0.16	0.79	78	0.42	64	1.91	1.73	2.69
CN-10	Contact Zone 2	52	0.69	1.26	64	1.25	95	3.48	3.33	3.15
CN-11	Contact Zone 3	58	0.27	2.39	83	0.77	165	4.60	4.78	4.66
CN-12	Contact Zone 4	52	0.33	1.02	76	0.63	84	2.56	2.12	2.90
CN-13	Contact Zone 5	46	0.57	1.11	94	0.43	304	7.45	11.1	7.43
CN-14	Contact Zone 6	59	0.57	1.15	84	0.64	151	4.12	4.98	6.12
CN-15	Contact Zone 7	71	0.35	1.06	90	0.90	377	9.30	9.24	9.17
CN-16	Contact Zone 8	46	0.33	1.24	79	0.66	108	3.14	2.88	2.75

Note: The 48 hour extraction is the sum of gold in solution and loaded onto carbon.
Calc: This is the calculated gold head grade from the cyanidation test.
Direct: This is the average of two 30g gold fire assays performed at SGS Lakefield
Client: This is the average gold assay supplied by Brigus Gold

From XPS Phased Testwork

Mineralogical and metallurgical characterization was conducted on samples from 147 Zone and Contact Zone over four phases. Phase 1 included testwork on eight variability samples. Based on Phase 1, four geometallurgical samples were selected for testwork performed as part of Phase 2. The four geometallurgical composites were 147 Zone high grade, 147 Zone low grade, Contact Zone mafic volcanics, and Contact Zone sediments. Bond ball work indices for all composites were determined at SGS. Phase 3 included samples from the South Zone. Phase 4 tested the potential of flotation to recover gold to a concentrate product.

XPS Phase 1 Testwork (December 2013)

From Phase 1, it was shown that the main driver of higher recoveries is higher head grade. High head grade may overcome negative impact of pyrite if there is an increased proportion of coarser grained "free milling" gold. It was also found that sulphur content negatively impacts gold recoveries. Sulphur is directly related to pyrite content with a correlation coefficient of 0.96. Of note, pyrite does not necessarily increase with depth.

For the 147 Zone, the variolitic volcanic unit does not have geometallurgical differentiation from the mafic intrusive host unit. For the Contact Zone, the lowest recovery composite is from the mafic volcanic host unit. Molybdenite content increases with sulphur content, and also correlates to poorer metallurgical recoveries, although it is not clear if the molybdenite has a direct impact. The sedimentary host unit makes up a significant amount of the gold host unit in the Contact Zone. Within a zone and lithologies, there is localized variance likely due to the nature of the gold texture and host association. In the Grey Fox database, there are no available sulphur assays to support separation based on geometallurgical grouping

Overall, the 147 Zone composites averaged 88% gold recovery and Contact Zone averaged 81%. Although overall recoveries are generally lower, Contact Zone composites had faster leach kinetics.

XPS Phase 2 Testwork (February 2014)

Four geometallurgical definitions were selected, however, these were deemed inaccurate during further testing: 147 Zone high grade; 147 Zone low grade; Contact Zone sedimentary; and Contact Zone mafic volcanics.

Samples were subjected to flotation tests and for all samples gold is recoverable by flotation with 93 to 97% recovered to a concentrate. However, there was evidence of nugget effect in flotation concentrates.

Samples from the 147 Zone showed high variability, standard sampling produces significant gold head grade variance. Some indication of minor preg robbing as 24-hour leach recovery often exceeded 48-hour recoveries.

The Contact Zone mafic volcanics sample had the highest Total Carbon percentage and displayed the largest variance in 24- to 48-hour recovery, 88% down to 85.7%. Using a grade of 6.0 g/t the 147 Zone could expect a gold recovery of 92.3%.

The four samples tested were very hard in terms of their Bond ball work index with lowest results in the Contact Zone sedimentary sample (19.2 kWh/t) and the highest in the 147 Zone high grade sample (25.9 kWh/t).

XPS Phase 3 Testwork (2014)

Phase 3 included additional investigation on the metallurgical factors influencing gold recovery for the Grey Fox zones. There is a combination of free milling (easily liberated) and gold intricately associated with pyrite. There is also abundant visible gold.

Lithology does not appear to be a major factor in determining metallurgical performance. The dominant variable that affects leach recovery is pyrite-associated gold. Gold in tailings is related to micro-inclusion, or solid solution in pyrite. Gold locked in pyrite does not respond to fine grinding to 12 µm.

The 147 Zone contains low pyrite and recovery can be predicted on the basis of head grade. The Contact Zone has variable sulphur and recoveries are less predictable. The Contact Zone (contains about 30% of mineralized material) subdivides to high and low pyrite. Negative effect of pyrite is related to microfine encapsulation of gold within pyrite, rendering this gold unavailable to leaching.

Three main geometallurgical units were identified for performance:

- High grade (>4 g/t gold) – recovery model from Phase 2 testwork
- High pyrite, low grade (<4 g/t, sulphur/gold >0.75) – lower recoveries in range of 75 to 80%
- Low-grade pyritic material should be considered an exception to model and are assigned a lower recovery of 78%. Low pyrite, low grade (<4 g/t, sulphur/gold <0.75) is less predictable and ranged 75 and 90% and with an average of 85%.

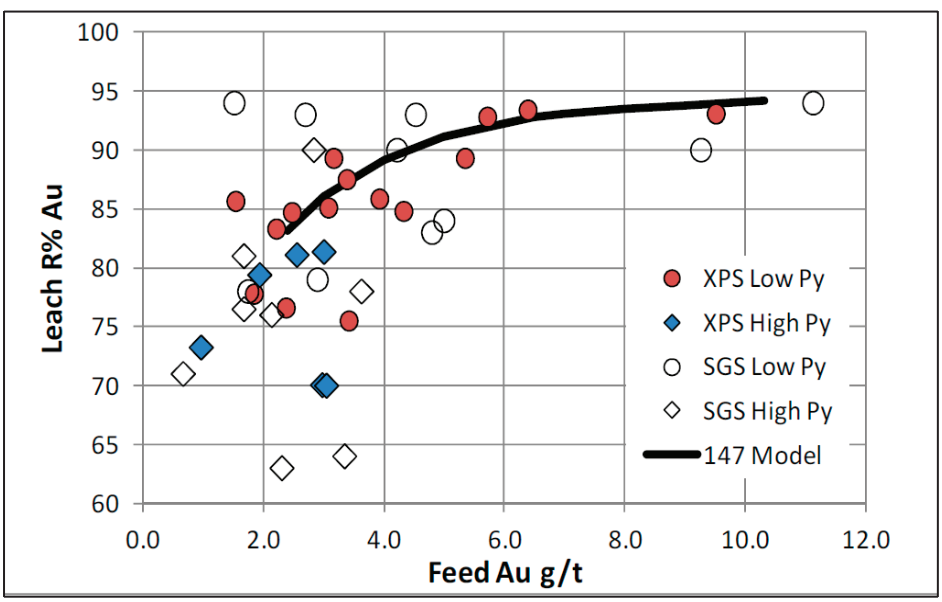

Figure 10-2: Grey Fox Combined Lab Gold Recoveries (XPS, 2014)

Bond ball work index tests were completed to examine whether lithology had an impact on hardness. Results range from 19.2 kWh/t in the Contact Zone to 27.1 kWh/t in the 147 Zone.

XPS Phase 4 Testwork (2015)

Flotation as a means of processing was evaluated for 147 Zone and Contact Zone. Leaching a flotation concentrate and flotation tail almost exactly duplicates "whole ore" leach recoveries, indicating there is not a benefit to adding flotation to the flowsheet.

Flotation does not add value as the contained metal value makes it difficult to market because the concentrate would need to be treated by oxidative leaching, or by roasting.

147NE Zone

The 147NE Zone has crustiform veining and breccias, some of which can be directly observed from surface. No historical metallurgical testing was completed on this zone, McEwen has completed a test program since acquiring the property (Section 10.3).

South Zone

The South Zone has intense silica-ankerite-sericite alteration, variolitic flows, crustiform-style veining, and is at a shallow depth. Testing of the South Zone was part of Phase 3 XPS testwork and results from six variability composites are presented.

XPS Phase 3 Testwork (2014)

The South Zone is largely comprised of variolitic volcanic hosted material (approximately 80%). Composite head assays ranged from 0.95 to 5.33 g/t. gold grade drives recovery, and sulphur content negatively affects recovery with recoveries ranging from 73.2 to 89.3%. There was no significant difference in recovery between lithologies. Overall, gold recoveries were marginally lower than the 147 Zone. South Zone has higher Bond work indices ranging between 24 to 27.

Table 10-11: Grey Fox South Zone Variability Bottle Roll Leach Results (XPS, 2014)

	ERD		Head1	Head2	Avg.	Test1	Test2	Avg.
GFS COMPO	**Au g/t**	**S/Au**	**Au g/t**	**Au g/t**	**Head**	**R%Au**	**R%Au**	**R%Au**
HG	**5.33**	0.28	5.52	5.12	**5.32**	89.5	89.1	**89.3**
LG	**0.95**	1.46	1.33	1.23	**1.28**	73.0	73.5	**73.2**
VIV	**3.06**	0.40	3.89	3.24	**3.57**	86.1	84.1	**85.1**
MV	**1.53**	0.54	1.71	1.67	**1.69**	86.2	85.1	**85.7**
High Py	**2.99**	1.32	3.08	3.42	**3.25**	81.2	81.5	**81.3**
Low Py	**3.40**	0.31	2.94	2.86	**2.90**	76.0	75.0	**75.5**

Note: HG = high grade; LG = low grade; VIV = variolitic volcanic; MV = mafic volcanic; Py = pyrite; ERD = external reference distribution

Gibson

The Gibson deposit has veining (C-veins breccia) similar to Grey Fox. It also includes mineralized areas of sulphide replacement in chalcopyrite breccias.

Contact Zone is considered a reasonable analogue for metallurgical recovery (see Section 10.5.2).

Whiskey Jack

Whiskey Jack is a new target discovered in the fourth quarter of 2019, located close to Grey Fox and Gibson. Mineralization includes quartz-carbonate-molybdenite breccia and veins.

10.1.2 Stock

Stock West has a large resource potential with access from the historical Stock Mine underground workings. Stock Main performed well with the same mill, that now has some minor upgrades, based on discussion with operators from that time. Assumptions on recovery and costs are based on Black Fox past operations and preliminary metallurgical results. Assumptions for gold recovery can be found later in Table 10-17.

10.1.3 Western Properties

10.1.3.1 Davidson-Tisdale

Area Metallurgical Laboratory (1975)

Flotation and cyanidation testing on samples from Pamour and Tisdale Ankerite were conducted. Direct cyanidation for the non-ratioed Tisdale Ankerite sample is similar to results from more recent testing. However, the sampling location cannot be confirmed, therefore using those results should be discounted to account for the risk of the unknown representativity. More recent testing was completed in 2013 at SGS on a sample that was outside of the open pit but would be indicative of underground performance. Gold recovery at a grind of 95.5% minus 44 µm was 96.3%.

Davidson-Tisdale has two types of quartz veins, Type 1 and Type 2. Type 1 veins are uncommon and are mostly barren with small high-grade pockets of native gold. Type 2 veins combine to create areas of quartz breccia and include localized increases in fine- to coarse-grained pyrite and chalcopyrite.

SGS Testwork (2014)

Metallurgical testing (SGS, 2014) was completed on composites from the Western properties' areas to verify the metallurgical response and provide information for a PEA (Altman et al., 2014). Drill core was shipped to SGS and composited based on direction from Lexam. The Davidson-Tisdale composite was crushed and split for testing.

The composite sample for Davidson-Tisdale was subjected to gravity separation and cyanidation of the gravity tails. The direct head grade was measured at 0.7 g/t, which is lower than the back calculated head grade of 1.23 g/t.

Gravity separation recovery was 24% to a Mozley concentrate. Gravity tails were ground to two different P80s and leached for 48 hours with kinetic samples taken at 4, 7, and 24 hours. Results suggest grind sensitivity and longer leach times to achieve the best recovery (Table 10-12).

Table 10-12: Davidson-Tisdale Composite Cyanidation Test Results

Test No.	Head Grade, g/t	P_{80}, µm	Extraction at 24 h, %	Extraction at 48 h, %	Gravity Recovery, %	Gravity + CN Recovery, %
CN-9	1.23	137	91.0	94.8	24.2	96.1
CN-10	1.23	68	94.0	98.0	24.2	98.5

10.1.3.2 Fuller

Mineralization at Fuller is primarily in the Contact Zone but also in the HW Zones (structural hanging wall of Contact Zone), F1 Zone, F2 Zone and F3 Zone (footwall zones), and the Green Carbonate #1 and #2 Zones. Carbonization and pyrite mineralization vary between zones and it would be expected that each zone would have a different metallurgical response for flowsheet selection, gold recoveries, and reagent consumption.

The Fuller deposit belonged to Vedron Gold when some of the historical metallurgical test programs were completed.

Area Metallurgical Laboratory of Pamour Mines Limited Testwork (1988)

A sample from the Vedron Hanging Wall (HW) Zone and a sample from the Vedron Main zone (likely Contact Zone) were tested for flotation and cyanide leach of the concentrate (Table 10-13).

Table 10-13: Flotation and Gold Recovery from Fuller Deposit

Sample	Assay Head, g/t	Flotation Recovery, %	Cyanide Recovery, %	Overall Recovery, %
HW Zone	26.1	95.6	97.1	93.8
Main Zone	4.9	92.6	93.9	87.0

Lakefield Research Testwork (1989)

Five samples were tested from the 102 and 103 Mining Blocks (Fuller zone) and the HW Zone representing the 375, 500, and 650 levels. Two composites were made from the samples (composite A and B) with composite A representing an estimated distribution of the deposit and composite B of similar distribution with the exclusion of the high-grade sample.

Mineralogical analysis on the samples suggests that one-third of the gold in the samples was fairly coarse and easily liberated, while the remaining gold is fine and associated with pyrite and gangue. The samples contained 2% to 3% pyrite with few impurities.

Two gravity concentration tests on composite A gave 20.6% and 34.1% of gold distribution to the Mozley concentrate.

The Bond work index of composite A was calculated at 11.4 kWh/t, indicating a relatively soft rock.

Samples were subjected to direct cyanidation testing and flotation with cyanide leach on the concentrate, both methods returned similar overall gold recovery. Results showed a slight improvement with the use of pre-aeration and thus it was included with the test program. The level of gold recovery was dependent on grind size and head grade.

Gold recovery of composite A that included the high-grade sample was 96.3% and composite B without it was 88.5% at 80% passing 200 mesh. The individual samples with head grade of 4.11 to 4.46 g/t had gold recoveries ranging from 82.0 to 89.2%. The high-grade sample with a head grade of 49.71 g/t had a recovery of 97.6%.

SGS Testwork (2014)

Metallurgical testing (SGS, 2014) was completed on composites from the Western properties' areas to verify the metallurgical response and provide information for a PEA (Altman et al., 2014). A composite sample from Fuller was subjected to gravity separation and cyanidation of the gravity tails. Drill core was shipped to SGS and composited based on direction from Lexam. The Fuller composite was crushed and split for testing.

Gravity separation recovery was 37.0% to a Mozley concentrate. Gravity tails were ground to two different P_{80}s and leached for 48 hours with kinetic samples taken at 4, 7, and 24 hours. Results are similar to historical testing with recovery being grind dependent and leach time more critical to recovery at the coarser grind (Table 10-14).

Table 10-14: Fuller Composite Cyanidation Test Results

Test No.	Head Grade, g/t	P_{80}, µm	Extraction at 24 h, %	Extraction at 48 h, %	Gravity Recovery, %	Gravity + CN Recovery, %
CN-7	1.06	135	76.0	79.7	37.0	87.2
CN-8	1.06	65	85.0	85.3	37.0	90.7

10.2 McEwen Metallurgical Testing (2018)

10.2.1 Tamarack

McEwen contracted XPS (2018) to find the best process treatments for Tamarack project samples. The Tamarack deposit has two types of mineralization, a zinc-lead-silver (base metal) and a gold-silver (precious metal). The following was concluded from the test program:

- The gold mineralization composite was shown to be amenable to cyanidation and carbon-in-leach testing
- Gold recoveries ranged from 77 to 90%
- The base metal mineralization composite flotation tests show zinc recoveries ranged from 45 to 59%, lead recoveries ranged from 68 to 85% and silver recoveries ranged from 78 to 95%.

10.3 McEwen Metallurgical Testing (2020)

10.3.1 147NE Zone

McEwen contracted ALS to test six individual composites and a master composite from the Grey Fox 147NE Zone. Composites were made from drill core samples as directed by McEwen. Figure 10-3: shows the location of the intervals used for the individual composites. The program was designed to assess gold assays, investigate recovery grind sensitivity on the master composite, confirm cyanidation leach response, and conduct environmental testing on cyanidation leach residue.

Duplicate head assays for gold on each composite resulted in variations, leading to the likelihood of coarse "free" gold. Gold content ranged from 2.60 to 8.09 g/t.

A Bond ball work index test was completed on the master composite at a closing screen size of 106 µm with a result of 25 kWh/t.

Cyanidation tests were carried out over a 48-hour period at 33% solids, a pH 11, a cyanide concentration of 600 ppm, with oxygen sparging (Table 10-15).

Leach tests were performed on the master composite and grind sizes ranging from 66 to 157 µm. The sample would be considered grind sensitive with an improvement of about 4% gold extraction at finer than 98 µm, compared to the coarsest size tested of 157 µm. Cyanide consumption ranged from 0.5 to 0.9 kg/t and lime consumption ranged from 0.9 to 1.5 kg/t.

Composites were generated from mineralized intervals from three HQ drill holes selected to be representative of the mineralized zones (Figure 10-3).

Cyanidation tests on the individual composites were carried out at 40% solids and a primary grind size of 100 µm, all other variables remained the same as the master composite leach tests. Results presented in Table 10-16 shows gold extraction for the individual composite samples ranged from 85 to 96%. Gold extraction was rapid, with the majority of the gold extracted during the first six hours. Cyanide consumption ranged from 0.2 to 1.1 kg/t and lime consumption ranged from 0.5 to 1.2 kg/t.

Leach residue from cyanidation leach tests on the master composite were used for mineralogical analysis and environmental testing. Analysis using dynamic secondary ion mass spectrometry indicated that 86% of gold in tailings were within pyrite (refractory) and 11% as visible gold. A QEMSCAN (quantitative evaluation of materials by scanning electron microscopy) bulk mineral analysis was also completed on the leach residue to understand the deportment, which showed that pyrite was the predominant sulphur bearing mineral.

Table 10-15: Summary of 147NE Zone Master Composite Bottle Roll Tests

Test No,	Grind Size, µm	Gold Extraction, %	Cyanide Consumption, kg/t	Lime Consumption, kg/t
1	66	90.2	0.9	1.5
2	98	91.0	0.8	1.3
4	157	87.0	0.5	0.9
11	98	92.5	1.1	0.9
12	98	89.8	0.9	1.2

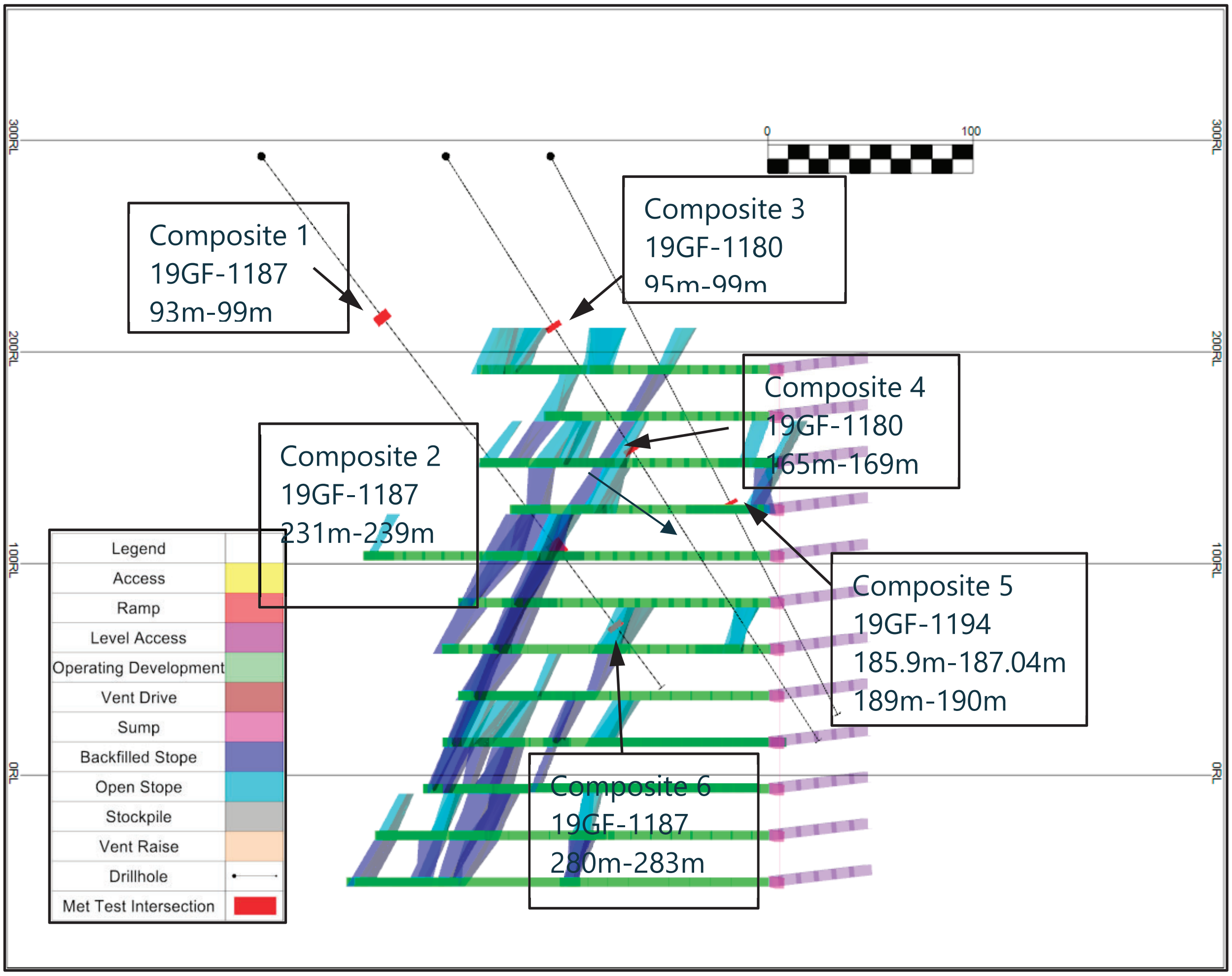

Figure 10-3: Section View Looking Northwest of Location of Interval Locations for Individual Composites Taken at 147NE (prepared by Wood, dated 2021)

Table 10-16: Summary of 147NE Zone Individual Composites Bottle Roll Tests

Composite Name	Test No.	Gold Extraction, %	Cyanide Consumption, kg/t	Lime Consumption, kg/t
Composite 1	5	95.8	0.2	0.5
Composite 2	6	90.8	1.1	1.1
Composite 3	7	85.1	1.0	1.2
Composite 4	8	93.0	0.4	0.5
Composite 5	9	91.1	0.4	0.9
Composite 6A	10	91.3	1.1	1.1

10.4 Ongoing Testwork

Metallurgical testwork on samples obtained from Whiskey Jack (Grey Fox) and Stock West is ongoing at SGS and ALS.

10.5 Recoveries

Table 10-17 presents the gold recoveries and grade-dependent recovery curves that were used in metal planning for the Fox Complex. It includes the average grade from each deposit based on mine optimization (used only for illustrative purposes), unadjusted recoveries, and adjusted recovery curves for some zones at Grey Fox. Where a flat recovery is used, the values align with what was used for cut-off grade and/or mine design optimization calculations for those deposits. The adjusted recovery curves for Grey Fox presented in Table 10-17 are those that are recommended to be used for metal planning.

Table 10-17: Gold Recoveries for Metal Planning

Mineralized Material Source	Avg. Au Grade, g/t	Recovery, %	Notes
Black Fox – UG	3.00	93.9	Based on plant actual recovery, mining memo uses 95%
Froome – UG	4.18	87.0	Expect higher recovery with finer grind
Grey Fox – Contact	6.88	86.4	= 2.2844*HG + 69.859 (unadjusted) = 2.3316*HG = 70.317 (adjusted)
Grey Fox – Gibson	4.57	81.0	Assumed to behave like Contact
Grey Fox – Whiskey Jack	7.61	85.0	Hosted in quartz breccia instead of crustiform veins
Grey Fox – 147NE	7.73	88.0	= -1.1182*HG + 96.664, minimum 85%
Grey Fox – 147	6.43	93.1	= 3.5979*HG + 73.219, capped at 93% (unadjusted) <4.5, = 75 + 3.5*SQRT(31.5 - (HG- 7)^2) (adjusted) >4.5, = HG/3 + 91 (adjusted)
Grey Fox – South	5.50	91.2	Behaves like 147 at lower grades = 2.819*HG + 73.222 (unadjusted) = 4.8268*HG + 64.651 (adjusted)
Stock East – UG	-	94.0	Assumed similar recovery to Black Fox processed in early 2020 (Micon, 2020)
Stock West – UG	-	94.0	Same assumption for Stock East
Davidson-Tisdale	7.63	92.0	From RPA PEA (Altman et al., 2014), expect higher recovery with finer grind
Fuller UG	3.74	88.0	Expect higher recovery with finer grind
Fuller OP	1.81	88.0	Expect higher recovery with finer grind

Note: UG = underground; OP = open pit; HG – head grade

10.5.1 Froome

Gold recovery of Froome mineralized material is dependent on grind size, with a finer grind achieving higher recoveries.

Froome feed does not appear to be grade dependent, thus a flat 87% recovery is suggested. This assumes a higher throughput with a coarser grind and a discount for scale-up from laboratory tests to plant performance.

Plant performance to-date is 89.5%. This is expected given the finer grind material at a lower 1,400 t/d mill throughput.

10.5.2 Grey Fox

Grey Fox includes production from several zones with different styles of gold mineralization, thus recoveries for each will vary. An overall recovery curve was previously developed by SRK (Alexander et al., 2018) with a best fit for all the data points. However, due to the different metallurgical response for each zone, the curve under- or over-estimates recovery in nearly all cases and is therefore not considered accurate for this analysis.

Only 147 Zone, 147NE Zone, Contact Zone, and South Zone have sufficient tests to determine grade dependent recovery curves. Figure 10-4 shows individual test results over multiple test programs for each zone, and a linear regression for each. For reference, the curve developed by SRK in 2018 is included in grey.

Generally, the South Zone recoveries are similar to 147 Zone especially at lower (open pit) grades, as is expected. South Zone and 147 Zone have some results significantly different than the linear interpolation, which could be related to sulphide content.

Overall, the Contact Zone is shifted lower than the other zones, which is likely due to gold partially hosted in sediments. Future metallurgical testwork should target this rock type to better understand geometallurgical characterization for Grey Fox.

The 147NE Zone is the only zone that has an inverse relationship between grade and recovery, this is likely due to the sulphides increasing with increasing grade. This association tends to the likelihood that the mineralized material is more refractory at higher grades. This is further supported with grind sensitivity tests showing reduced recovery at a coarse grind, but no measurable difference in recovery from “typical” to fine grind, as shown in Figure 10-5. Future testwork on this zone should include a fine grind test as well as mineralogy to better understand gold association and what recoveries can be achieved at the mill with this feed.

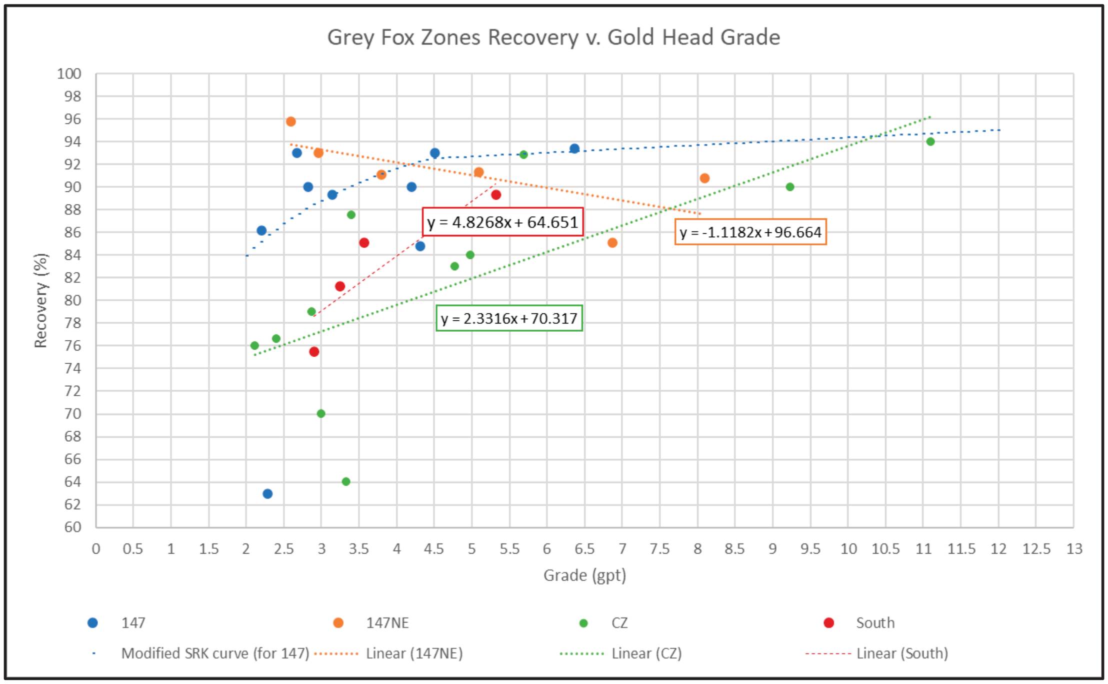

Figure 10-4: Adjusted Recovery Curves for Grey Fox Zones (prepared by Wood, dated 2021)

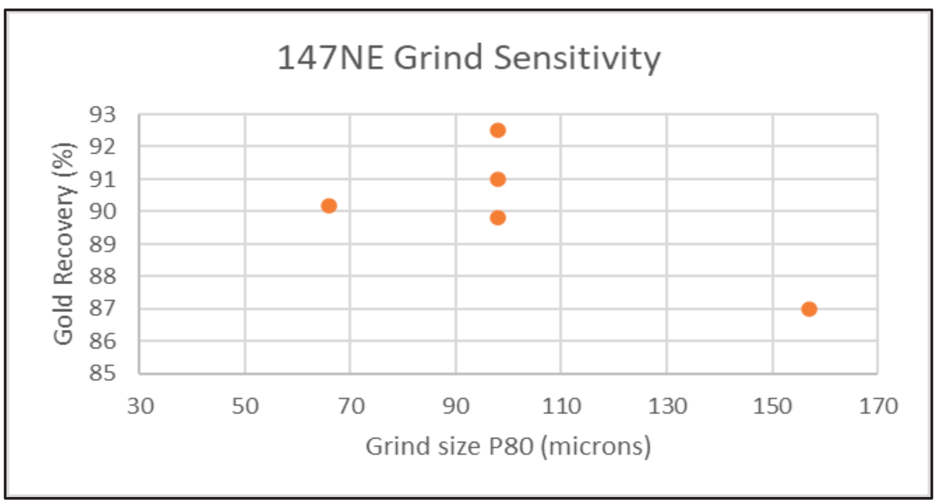

Figure 10-5: Gold Recovery Sensitivity to Grind Size for 147NE Zone (prepared by Wood, dated 2021)

The geometallurgical characteristics of Gibson and Whiskey Jack are not dissimilar and a reasonable analog to the Contact Zone portion of the deposit. The style of mineralization is similar and there is sufficient knowledge of metallurgy to support the recovery assumptions used.

Mine optimization studies recommend mining the Grey Fox deposit using underground mining methods. With mining from underground, the cut-off grade will be higher and to improve recovery curve accuracy, results from low grade samples (<2 g/t) were removed. Additionally, samples that were gravity separated were removed as the mill does not include a gravity circuit. With these adjustments, most of the zones fit a linear regression and the curves presented in Figure 10-4 for each zone are what is recommended for use in metal planning. For 147 Zone, the power regression from earlier work was modified to fit just the results from tests on 147 Zone.

10.5.3 Stock East/West

Historically, material from the Stock Main deposit was processed at the mill. Stock East and Stock West gold mineralization is amenable to grind and cyanide leach recovery with the current process plant, however, the plant recoveries during that operation are unknown. It is assumed that performance from this feed will be similar to recoveries achieved early in 2020 on material from Black Fox. Metal planning used a 94% recovery, which remains consistent with previous work.

10.5.4 Davidson-Tisdale

Past testwork has been done on samples from "Tisdale Ankerite". More recent testing was completed in 2013 at SGS on a sample that was outside of the open pit but would be indicative of underground performance. Final results reported were for 48 hours of residence time. The mill's residence time at 2,000 t/d throughput would be closer to 20 hours. The result for 24 hours at a P80 of 67 µm with a 2% straight discount is recommended and is 92% overall. This recovery can be improved with longer residence times, up to 4% for 48 hours, and likely with an even finer grind.

10.5.5 Fuller

Historical testwork was completed for the Fuller deposit when it was owned by Lexam, however, the head grade averaged 22.3 g/t over five samples and is not representative of the overall head grade for the deposit. Instead, results from the 2013 SGS report were considered for metal planning. Fuller shows grind sensitivity for gold recovery, therefore a recovery at 65 µm with a 2% straight discount is recommended and is 88% overall.

At the coarser grind, recovery improved with 48 hours of leach time and recoveries were similar at the finer grind. The one historical test at a similar grade (4.5 g/t) also examined the effect of grind size and kinetics and found similar trends. Recovery improves with grind and time, to a point where additional leach time doesn't add to overall recovery for the same finer P_{80} (Figure 10-6).

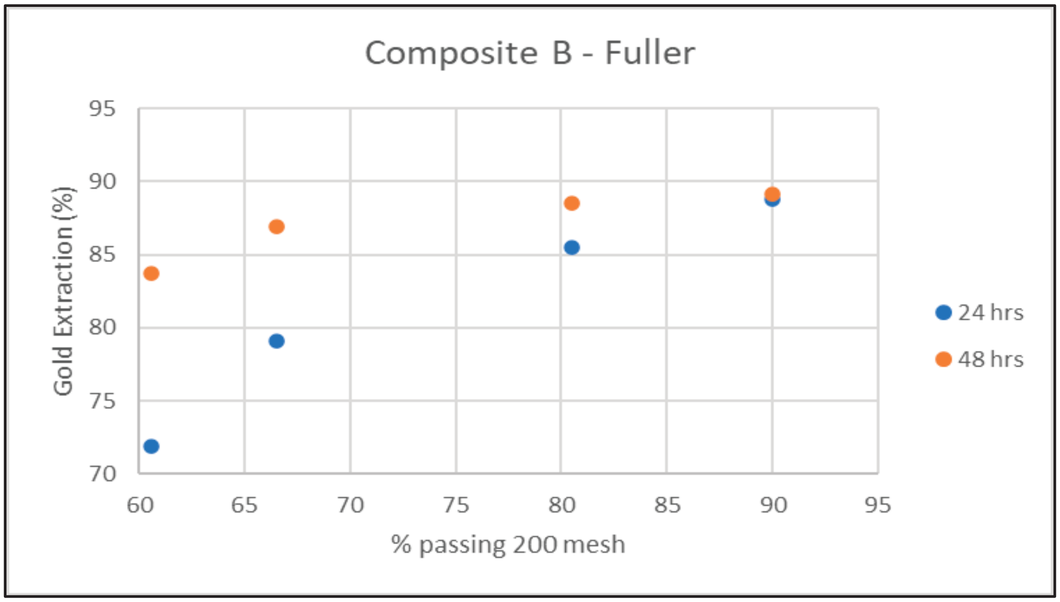

Figure 10-6: Effect of Grind on Kinetics and Overall Recovery for a Fuller Sample with a Head Grade of 4.5 g/t (prepared by Wood, dated 2021)

11.0 Mineral Resource Estimates

11.1 Introduction

McEwen estimated the Mineral Resources for Black Fox, Froome, Grey Fox and Stock West. Micon estimated the Mineral Resources for Stock East, and SRK estimated the Mineral Resources for Fuller and Davidson-Tisdale.

11.2 Black Fox

11.2.1 Mineral Resource Database

The close-out date for the Mineral Resource database is 9 November 2020 and consists of the following:

- 7,247 core drill holes totalling 1,048,262.39 m of drill core and 410,957.1 m of sampled core (82 drill holes were excluded from the drilling campaigns summarized in Table 7-3, primarily due to low confidence in their locations
- 11,540 strings of chip samples totalling 44,777.4 m from development
- 49,939 assays from chip samples.

Unsampled intervals were considered barren and were assigned a background gold grade of 0.0005 g/t, based on one-quarter of the assay laboratory's lower detection limit.

On importing the drill hole database from the central SQL database to Datamine Studio software in preparation for resource estimation, sample data were checked for missing, duplicated and overlapping intervals in the assay and lithology tables; missing and overlapping intervals in the survey table; and visually checking collar locations in 3D against mine excavations and surface topography.

Underground grade control drilling has continued since the close-out date in areas of proposed mining. Small local geological interpretations have been improved in these areas; however, no material difference is indicated by the results.

11.2.2 Geological Modelling

11.2.2.1 Mineralized Domains

Gold mineralization at Black Fox occurs in several different geological settings within the main Ankerite Alteration envelope. The mineralization occurs within both ultramafic and mafic volcanic rock types within the outer boundaries of the PDDZ. The mineralization and alteration envelopes are primarily parallel/subparallel and adjacent to the regional A1 fault. The lenses of the mineralization have been developed within the main lithological and alteration units and primarily occur in vein arrays, shear veins, and replacement zones within the interleaved mafic-ultramafic host rocks.

The mineralized lenses were interpreted and explicitly modelled considering structural and lithological controls, and a grade threshold of approximately 0.5 g/t gold for mineralized continuity. The mineralized lenses were divided into nine mineralized domains (Figure 11-1) based primarily on mineralization style, grade population statistics and primary host lithologies.

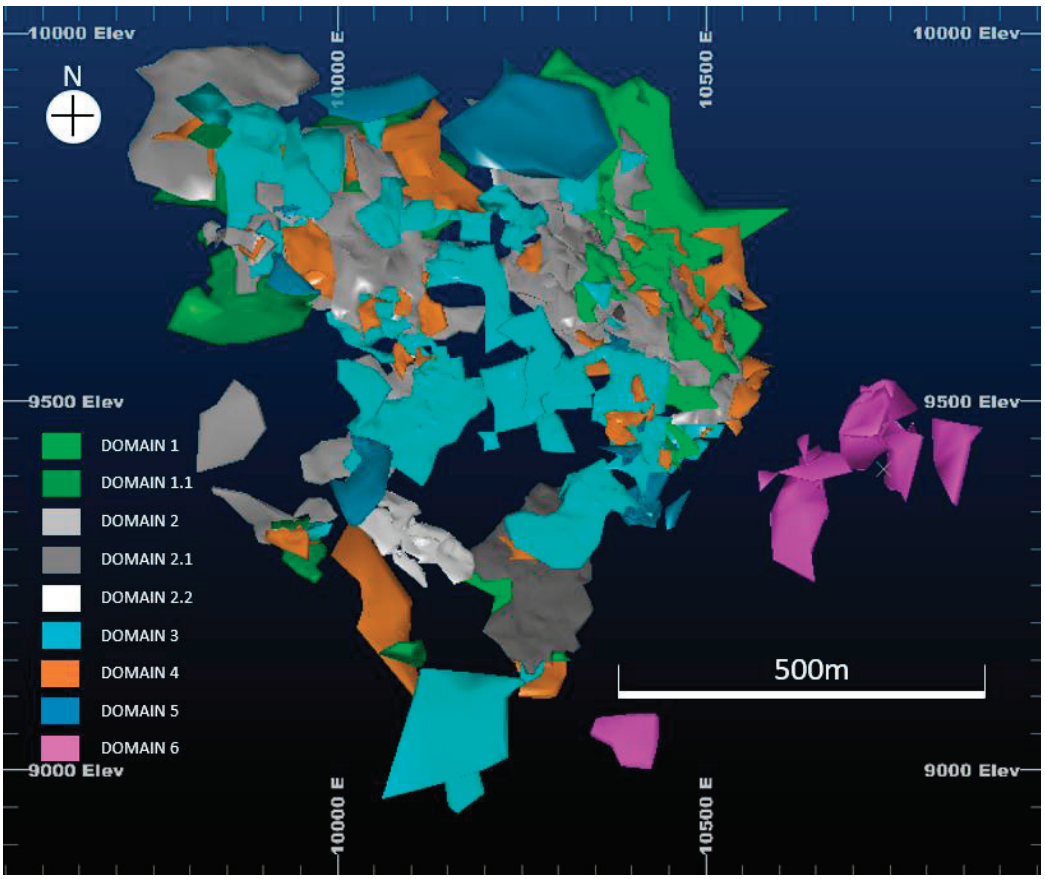

Figure 11-1: Long Section Looking North of Black Fox Mineralized Domains (prepared by McEwen, dated 2020)

Background Envelope

A background envelope (Domain 100) representing a low-grade alteration package surrounding the mineralization, was constructed around all mineralized domains to capture mineralized samples outside the mineralized domains and to estimate adjacent dilution.

11.2.3 Composites

A large percentage of the assays within the mineralized domains have a sample length of 1 m. A modal composite length of 1 m was applied to all samples (drill hole and chip) in the database. This generated composites close to 1 m with a minimum composite length of 0.3 m.

11.2.4 Capping

The impact of high-grade outlier populations was analyzed using histograms, log probability plots, mean and variance, and cumulative metal plots. Results are presented in Table 11-1 for each mineralized domain, with metal removed ranging from 0.6% in Domain 6, to 44% in Domain 2. Capping was warranted on all mineralized domains except for Domain 5. The capping values derived from this analysis were applied to both drill hole and chip sample composites.

Table 11-1: Black Fox – Metal Removed by Capping Composites

Domain	Raw Composites		Capped Grade, g/t	Capped Composites		No. Capped	Metal Removed, %
	Mean, g/t	CV		Mean, g/t	CV		
1	3.87	4.07	52.0	3.55	2.00	58	8.1
1.1	2.20	4.47	20.0	1.67	1.99	42	24.0
2	6.19	6.16	28.0	3.47	2.00	541	44.0
2.1	8.89	3.45	140.0	7.90	2.73	38	11.0
2.2	2.58	4.56	16.5	1.63	2.0	19	36.9
3	4.08	4.26	30.0	2.90	2.10	209	29.0
4	1.92	3.70	29.0	1.66	2.09	39	13.3
5	1.46	1.49	-	1.46	1.49	-	-
6	0.90	2.21	33.0	0.90	2.10	3	0.6
100	0.27	27.62	30.0	0.19	6.8	307	28.4
100	0.27	27.62	15.0	0.17	5.3	656	36.1

Note: CV = coefficient of variation

11.2.5 Density

A constant density value of 2.84 g/cm^3 was applied to all material. This value has been used in previous estimates and for production tracking. This value has been validated by analyzing the bulk average value of 2,307 specific gravity measurements taken from drill hole samples since 2018.

11.2.6 Variography

The spatial distribution (continuity) of gold within each mineralized domain was evaluated using variograms.

Primary directions of the variograms were modelled based on field observations and interpreted mineralization orientations. The stability of the variograms were evaluated by varying the direction and comparing the resulting experimental variograms. The developed variograms displayed two spherical structures and three rotations to match the strike, dip and plunge of the modelled mineralization. Nugget effects range from 21% in Domain 6 to 33% in Domains 2 and 3.

11.2.7 Grade Estimation

A block size of 3 m x 3 m x 3 m was selected based on drill hole spacing, composite length, the geometry of the modelled mineralized zones, and anticipated mining methods. Sub-cells as small as 0.5 m x 0.5 m x 0.5 m were used to better reflect the shape and volume of the mineralized domains. No rotation was applied to the block model.

Ordinary kriging was used to estimate the blocks within the mineralized domains using a three-pass approach with increasing search neighbourhoods with each pass. Datamine's dynamic anisotropy function was implemented due to the anisotropic nature and widths of the mineralized domains. This function aligns the search ellipse with the local dip direction and dip with the plunge defined as per the variography direction.

Data selection for mineralized domains remained the same for the first and second passes using a minimum of 7 and a maximum of 15 composites from at least three drill holes to estimate a given block. The third pass reduced the minimum requirement to four composites from at least two drill holes.

Blocks within the background envelope (Domain 100) were estimated using inverse distance to the power of three with its ellipsoid guided by the deposit's general mineralized orientation. An initial estimation pass focused on estimating areas where high-grade composites were not captured in the mineralized domains. This estimation pass used composites capped at 15 g/t gold with a tight isometric search ellipse to limit the number of blocks estimated to one or two in each direction. Three subsequent passes were made with increasing search ranges and any blocks not estimated were assigned a background gold value of one-quarter of a detection limit, or 0.0005 g/t.

11.2.8 Model Validation

In validating the estimated block model, a nearest neighbour and inverse distance model were constructed. The nearest neighbour model produces a theoretically globally unbiased estimate of the average value when no cut-off grade is applied and is a good basis for checking the performance of different estimation methods.

The estimated block model was validated by visual inspection, with swath plots to determine whether any local bias exists, and with local and global reconciliations using randomly selected stopes in mined out areas.

Results of the validation show the estimated model acceptably reflects the sample data and past production results.

11.2.9 Confidence Classification

The QP is confident that the Black Fox mineralization model honours the current informing data from the geological database. The location of the samples and the assay data are sufficiently reliable to support Mineral Resource evaluation. The Mineral Resource model is constrained by mineralized domains based on lithological, structural and grade criteria and is modelled from core holes drilled on an irregular grid. The controls on the distribution of the gold mineralization are understood, and the confidence in geological continuity is reasonable.

Block classification scenarios were analyzed using a combination of criteria, including confidence in the mineralization's continuity, drill spacing, sample spacing (in the form of average distance to informing samples – weighted on kriging weights), and the number of drill holes used to estimate. The QP considers the average distance at approximately one-third the modelled variogram (10 m) to adequately represent the local mineralization grades considering the amount of informing data used in the estimate. The QP also considers the estimated grades, using a search distance equal to the average full sill ranges of the modelled variograms (30 m), to adequately represent the global mineralization grades. The following classification criteria were defined:

- **Measured:** assigned to those continuous blocks within the mineralized domains, estimated within 10 m of informing composites from at least three drill holes
- **Indicated:** assigned to those continuous blocks within the mineralized domains, estimated within 10 m of informing composites from at least two drill holes
- **Inferred:** assigned to those continuous blocks within the mineralized domains estimated within 30 m of informing composites from at least two drill holes.

Blocks within the mineralized zones not meeting the above criteria were not classified. Blocks within the background envelope were not classified.

11.2.10 Reasonable Prospects for Economic Extraction

Based on the IA in this Report, the QP concludes that there are reasonable prospects for economic extraction of the Mineral Resources. The Mineral Resources were prepared in accordance with the definitions and standards in S-K 1300.

Due to the narrow vein nature, geometry, and location of the Black Fox mineralization, the QP considers the deposit to be amenable to underground mining methods. A cut-off grade of 3.10 g/t gold was determined considering the costs and input parameters (Table 11-2) based on recent quotations and benchmarked with similar projects.

Table 11-2: Black Fox Mineral Resource Cut-off Grade Parameters

Parameter	Unit	Value
Mining Cost	$/t	141.08
G&A Cost	$/t	10.50
Haulage Cost	$/t	4.70
Milling Cost	$/t	24.34
Treatment Cost	$/oz	0.55
Transport Cost	$/oz	0.67
Selling Cost	$/oz	0.60
Payable Gold	%	99.95
Dilution	%	15
Gold Price	US$/oz	1,725
Exchange Rate (C$/US$)	-	1.22
Royalty (NSR)	%	3.25
Mill Recovery	%	96

Reasonable prospects for economic extraction were derived from potentially mineable shapes developed using Datamine's Mineable Shape Optimizer function. A stope size of 12 m vertical height by 6 m wide, along strike by a minimum 3 m wide across strike was adopted. Sub stopes were developed at half height and half width along strike (6 m x 3 m) to account for local anisotropy of the grade continuity. Stope shapes were developed using the economic cut-off grade of 3.10 g/t Au. All classified blocks were analyzed by the mineable shape optimizer.

11.2.11 Mineral Resource Statement

Table 11-3 summarizes the Mineral Resource estimates for Black Fox, assuming underground stoping methods, and reported in accordance with the definitions and standards in S-K 1300. The Mineral Resource was limited to those parts of the gold mineralization for which there are reasonable prospects for economic extraction via underground stope extraction.

Table 11-3: Black Fox Mineral Resource Statement, 1 May 2021

Classification	Tonnes, kt	Au Grade, g/t	Contained Au, koz
Measured	284	5.58	51
Indicated	97	5.21	16
Total Measured + Indicated	**381**	**5.48**	**67**
Inferred	204	5.57	36

Note: (1) Effective date of the Mineral Resource estimate is 1 May 2021. The QP for the estimate is Mr. Daniel Downton, P.Geo, an employee of McEwen

(2) Mineral Resources are reported using the S-K 1300 definitions. Unlike Mineral Reserves, Mineral Resources do not have demonstrated economic viability

(3) Mineral Resources are reported above an economic cut-off grade of 3.10 g/t gold assuming underground extraction methods and based on a mining cost of $141.08/t, process cost of $24.34/t, G&A cost of $10.50/t, haulage cost of $4.70/t, refining cost of $1.82/oz, metallurgical recovery of 96%, dilution of 15% and gold price of US$1,725/oz

(4) Figures may not sum due to rounding.

11.2.12 Factors That Could Affect the Mineral Resource Estimate

Factors that may affect the Black Fox Mineral Resource estimate include:

- Changes in the local geological interpretations and assumptions used to generate the estimation domains
- Changes in mineralization and geological geometry and continuity of mineralized zones
- Changes in assumptions of mineralization and grade continuity
- Changes in the treatment of high-grade gold values
- Changes in the grade interpolation methods and estimation parameter assumptions
- Changes in the confidence assumptions used in the resource classification
- Density assignment
- Changes in metal price and exchange rates and other economic assumptions used in the cut-off grade determination
- Changes in input and design parameter assumptions that pertain to the underground mining constraints
- Changes to assumptions as to the continued ability to access the mine site, retain mineral

and surface rights titles, maintain the operation within environmental and other regulatory permits, and maintain the social license to operate.

No other environmental, permitting, legal, title, taxation, socioeconomic, marketing, political or other relevant factors are known to the QP that would materially affect the estimation of Mineral Resources that are not discussed in this Report.

11.3 Froome

11.3.1 Mineral Resource Database

The close-out date for the Mineral Resource database was 16 July 2021 and consisted of 374 core drill holes totalling 117,308.29 m of drill core and 41,354.93 m of sampled core. The database also includes 193 strings of chip samples totalling 790 gold assays values from 708 m of underground development. Unsampled intervals were considered barren and assigned a background gold grade of 0.0005 g/t, based on one-quarter of the assay laboratory's lower detection limit.

Underground drilling has continued since the close of the database, primarily for grade control purposes. Initial results indicate geological modelling, and local grade estimates compare well.

On importing the drill hole and chip databases from the central SQL databases to Datamine Studio software in preparation for resource estimation, sample data were checked for missing and overlapping intervals in the assay, lithology and survey tables, and density values inspected to ensure no erroneous entries were present.

11.3.2 Geological Modelling

11.3.2.1 Mineralized Domains

The Froome project area is subdivided into four mineralized domains. There are two grade populations hosted primarily in metasediments and two grade populations hosted in footwall mafic and ultramafic metavolcanics. All mineralized domains were created using explicit wireframing techniques around static drill holes. Figure 11-2 shows the location of the mineralized domains.

Domain 300 is comprised of the relatively higher gold grade population hosted in metasediments. An unmineralized mafic intrusive dyke (domain 300-MI) running through the core of Domain 300 was modelled separately to reduce the smearing of low-grade samples in the surrounding sediments and high-grade samples from in the mafic dyke. No major structures were noted as gold mineralization is hosted within disseminated sulphide mineralization. However, grade trends were analyzed and planes representing those trends were created.

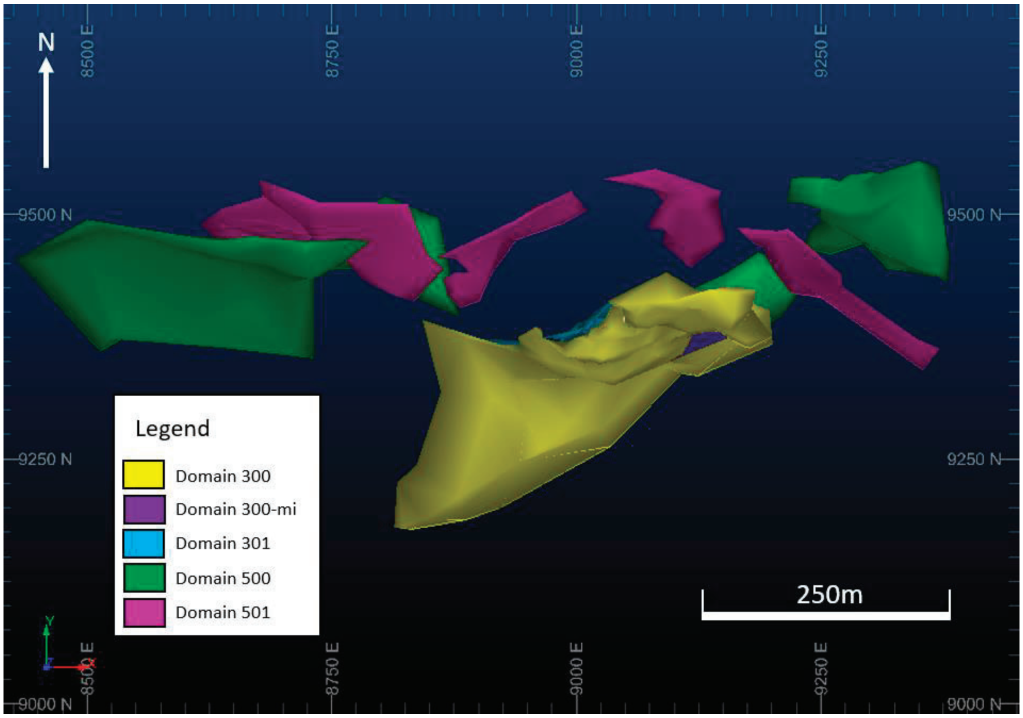

Figure 11-2: Plan View of Froome Project Mineralized Domains (prepared by McEwen, dated 2021)

Domain 301 is disseminated through the metasediments, primarily along the north (footwall) contact and consists of a lower gold grade population.

Both domains 500 and 501 are hosted primarily in the mafic and ultramafic metavolcanics in the footwall of the metasediment unit. The mineralization of these domains is hosted in fault-filled quartz carbonate veins and breccias typical of Archean lode gold vein structures along the PDDZ. Statistical analysis of the gold grades within the mineralized lenses that make up these domains suggests there are two populations of gold grade. Domain 501 has a higher probability of containing higher-grade mineralization.

Average structural planes through the footwall domain lenses were created to determine each lens anisotropy. The bedrock/overburden contact was generated from the drill holes and used to constrain the extent of mineralization.

Background Envelope

A background envelope (Domain 400) was constructed around all mineralized domains to capture mineralized samples outside the mineralized domains and to estimate adjacent dilution.

11.3.3 Composites

More than 70% of the assays within the mineralized domains have a sample length of 1 m. A modal composite length of 1 m was applied to all samples in the database. This generated composites close to 1 m with a minimum composite length of 0.3 m and a maximum of 1.5 m.

11.3.4 Capping

The impact of high-grade outlier populations was analyzed using histograms, log probability plots, mean and variance, and cumulative metal plots. Results are presented in Table 11-4 with metal removed ranging from 1.8% in Domain 400 to 37.4% in Domain 501. Capping was warranted only on domains 500, 501 and the background envelope (domain 400).

Table 11-4: Froome – Metal Removed by Capping Composites

Domain	Raw Composites		Capped Grade, g/t	Capped Composites		No. Capped	Metal Removed, %
	Mean, g/t	CV		Mean, g/t	CV		
300	3.40	1.02	-	3.40	1.02	-	-
301	0.99	1.25	-	0.99	1.25	-	-
500	1.47	9.35	12.5	1.00	1.65	6	31.9
501	3.15	4.80	12.5	1.97	1.53	16	37.4
400	0.07	2.65	2.3	0.07	2.30	7	1.8

Note: CV = coefficient of variation

11.3.5 Density

There were 2,973 density samples used in the Froome Mineral Resource bulk density analysis. Density samples were measured on NQ sized core with lengths between 10 and 15 cm, using hydrostatic immersion method using water as the Archimedean fluid. A study of all the density data in the resource database was conducted and used to determine an average density value for each of the modelled domains. The average densities for each domain are presented in Table 11-5 and applied to the blocks contained within.

Table 11-5: Froome – Density Values by Mineralized Domain

Domain	Density, g/cm^3
300	2.76
301	2.76
500	2.85
501	2.85
400	2.81

11.3.6 Variography

The spatial distribution (continuity) of gold within each mineralized domain was evaluated using variograms.

Primary directions of the variograms were modelled based on observed mineralization orientations. The stability of the variograms were evaluated by varying the direction and comparing the resulting experimental variograms. The developed variograms displayed two spherical structures and three rotations to match the strike, dip and plunge of the modelled mineralization. Nugget effects range from 0% in Domain 500 to 23% in Domain 301.

11.3.7 Grade Estimation

A block size of 3 m x 3 m x 3 m was selected based on drill hole spacing, composite length, the geometry of the modelled mineralized zones, and anticipated mining methods. Sub-cells as small as 0.5 m x 0.5 m x 0.5 m were used to better reflect the shape and volume of the mineralized domains. No rotation was applied to the block model.

Ordinary kriging was used to estimate the blocks within the mineralized domains using a three-pass approach. Search neighbourhoods are based on variography with ranges doubling in length with each pass. Datamine’s dynamic anisotropy function was implemented due to the anisotropic nature and widths of the mineralized domains. This function aligns the search ellipse with the local dip direction and dip with the plunge defined as per the variography direction.

Data selection for mineralized domains remained the same for all passes using a minimum of seven and a maximum of 15 composites from at least three drill holes to estimate a given block.

Blocks within waste Domains 300-MI and 400 were estimated using ordinary kriging with its ellipsoid guided by the general lithology contact orientation determined through variography without the use of dynamic anisotropy. Any blocks that were not estimated in one of the three passes were assigned a background gold value of a ¼ of detection limit, or 0.0005 g/t.

11.3.8 Model Validation

The estimated block model was validated by visually comparing the drill holes with the block grades (Figure 11-3 and Figure 11-4), with swath plots to determine whether any statistical local bias exists, a nearest neighbour estimate versus the kriged estimate to determine if any global bias exists, and a local stope reconciliation. A histogram comparison of the estimated grades versus the composite grades was also used to investigate grade smoothing. These analyses indicate the block model acceptably reflects the assay sample data with only minor local bias in areas of sparse data. There is a minor amount of local smoothing of the higher grades; however, the grade distribution of the samples is reasonably reproduced by the estimate.

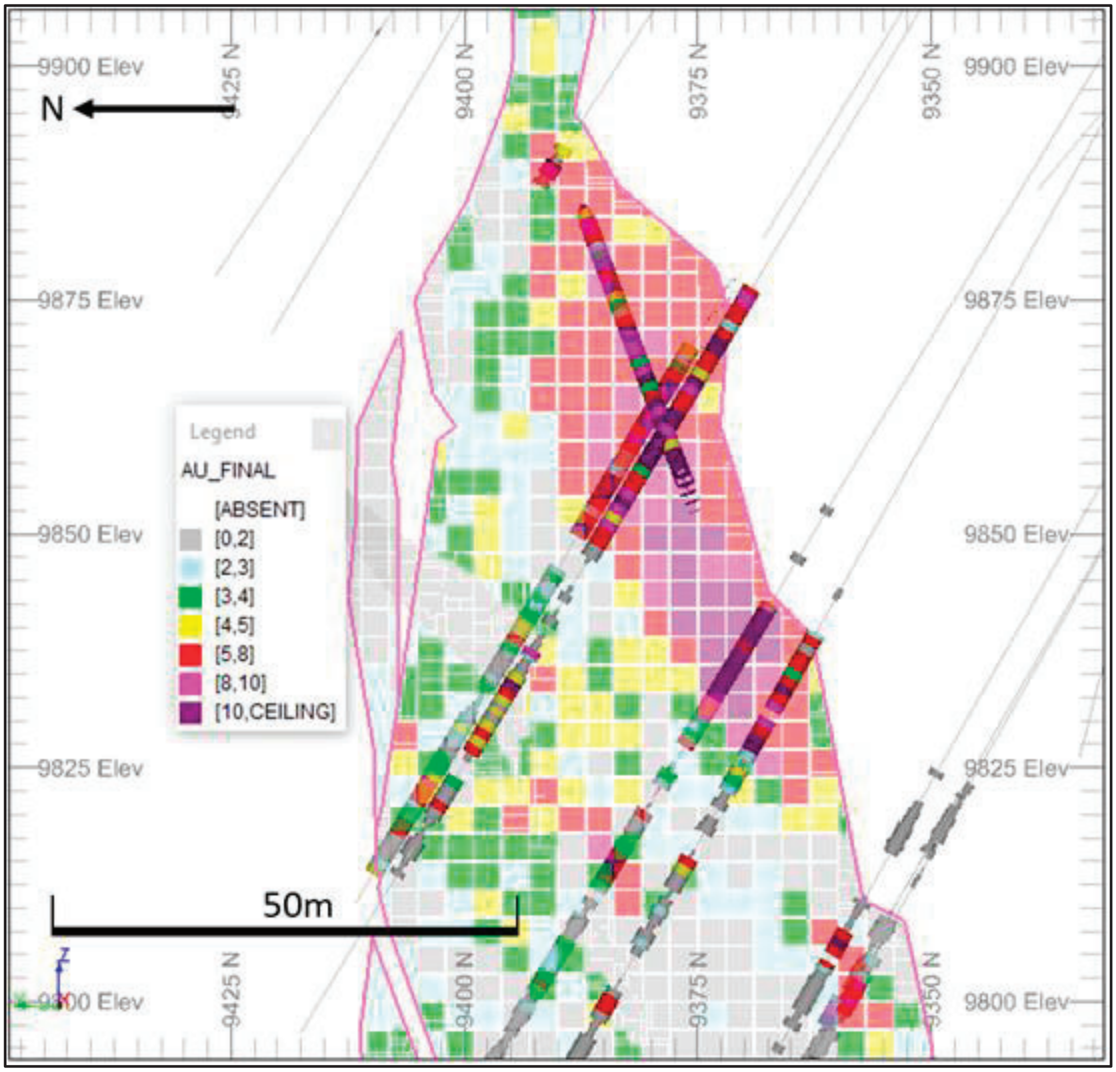

Figure 11-3: Section View Looking East Comparing Block Grades with Drill Hole Data in Froome Domains 300-301 (prepared by McEwen, dated 2021)

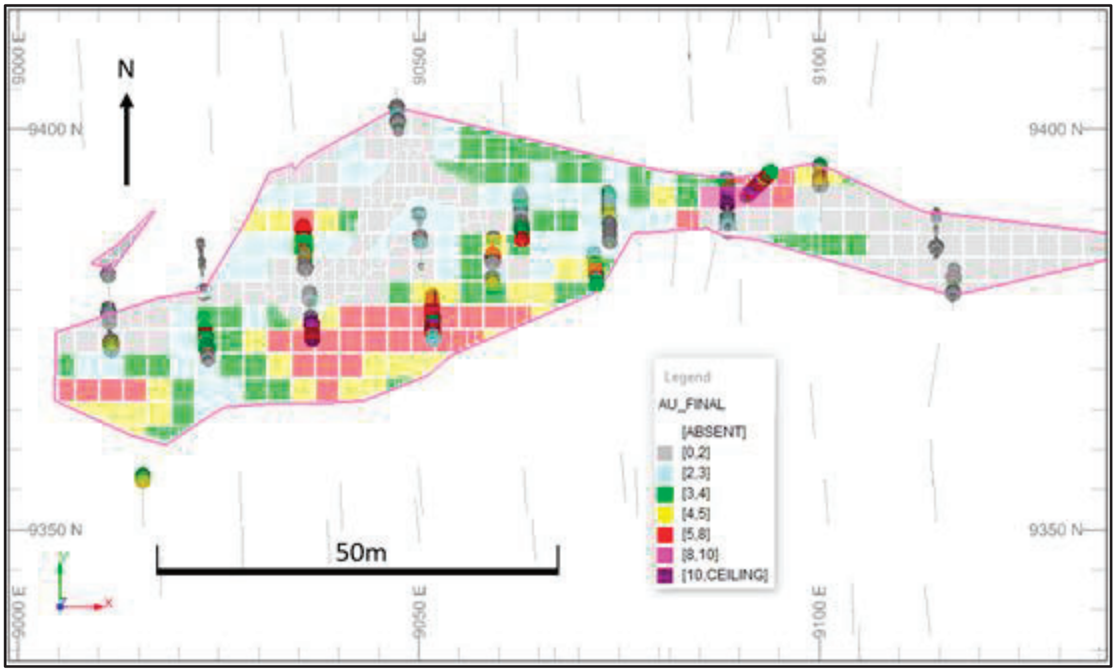

Figure 11-4: Plan View at Elevation 9900 Comparing Block Grades with Drill Hole Data in Froome Domain 300 (prepared by McEwen, dated 2021)

11.3.9 Confidence Classification

The QP is confident that the Froome mineralization model honours the current informing data from the geological database. The location of the samples and the assay data are sufficiently reliable to support Mineral Resource evaluation. The Mineral Resource model is constrained by mineralized domains based on lithological, structural and grade criteria and is modelled from underground mapping and core holes drilled on an irregular grid, with average spacing between 10 and 30 m. The controls on the distribution of the gold mineralization are understood, and the confidence in geological continuity is reasonable.

Classification criteria considers the confidence in the continuity of mineralization, distance to the closest informing sample, and average drill hole spacing based on the three closest drill holes. The following classification criteria were defined:

- **Measured:** assigned to those continuous blocks within the mineralized Domains 300 and 301, informed by three or more drill holes, less than 7 m to the nearest drill hole, and within an average drill hole spacing of 10 m
- **Indicated:** assigned to those continuous blocks within the mineralized Domains 300 and 301, informed by three or more drill holes, less than 15 m to the nearest drill hole, and within an average drill hole spacing of 25 m

- **Inferred:** assigned to those continuous blocks within all mineralized domains, informed by three or more drill holes, less than 20 m to the nearest drill hole, and within an average drill hole spacing of 40 m.

The geological nature of the gold mineralization in Domains 500 and 501 exhibits higher variability in grade then other domains and are therefore only classified in the Inferred category. Blocks within the mineralized domains not meeting the above criteria were not classified. Blocks within the background envelope were not classified.

11.3.10 Reasonable Prospects for Economic Extraction

Based in the IA in this Report the QP concludes that there are reasonable prospects for economic extraction of the Mineral Resources. The Mineral Resources were prepared in accordance with the definitions and standards in S-K 1300.

Due to the geometry and location of the Froome mineralization, the QP considers the deposit to be amenable to underground mining methods. A cut-off grade of 2.35 g/t gold was determined considering the costs and input parameters (Table 11-6) based on recent quotations and benchmarked with similar projects.

Table 11-6: Froome Mineral Resource Cut-off Grade Parameters

Parameter	Unit	Value
Mining Cost	$/t	80.00
G&A Cost	$/t	10.50
Haulage Cost	$/t	4.70
Milling Cost	$/t	24.34
Treatment Cost	$/oz	0.55
Transport Cost	$/oz	0.67
Selling Cost	$/oz	0.60
Payable Gold	%	99.95
Dilution	%	15
Gold Price	US$/oz	1,725
Realized Gold Price After Gold Stream	US$/oz	1,632
Exchange Rate (C$/US$)	-	1.22
Royalty Buyout	$/t	1.21
Mill Recovery	%	87

Reasonable prospects for economic extraction were derived from potentially mineable shapes developed using Datamine's Mineable Shape Optimizer function. A stope size of 12 m vertical height by 6 m wide along strike by a minimum 3 m wide across strike was adopted. This size was benchmarked against mined stopes at the nearby Black Fox underground mine. Sub stopes were developed at half height and half width along strike (6 m x 3 m) to account for local anisotropy of the grade continuity. Stopes with a width less than 3 m across strike were not considered potentially economical and excluded. Stope shapes were developed using the economic cut-off-grade of 2.35 g/t. All classified blocks were analyzed by the mineable shape optimizer with resulting stopes shown in Figure 11-5. All classified blocks were flagged by the potentially mineable shapes including those below the 2.35 g/t gold cut-off grade.

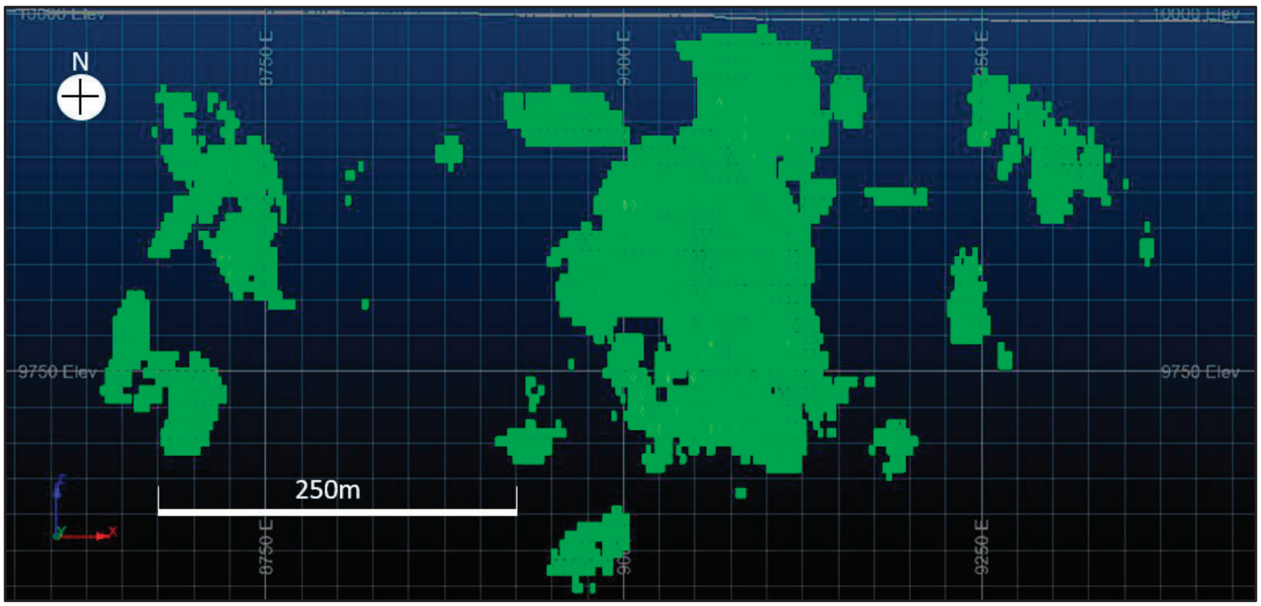

Figure 11-5: Long Section Looking North of the Potentially Mineable Stope Shapes at Froome (prepared by McEwen, dated 2021)

11.3.11 Mineral Resource Statement

Table 11-7 summarizes the Mineral Resource estimates for Froome, assuming underground stoping methods, reported in accordance with the definitions and standards in S-K 1300. The Mineral Resource was limited to those parts of the gold mineralization for which there are reasonable prospects for economic extraction via underground stope extraction.

Table 11-7: Froome Mineral Resource Statement, 16 July 2021

Classification	Tonnes, kt	Au Grade, g/t	Contained Au, koz
Measured	790	4.47	113
Indicated	641	3.92	81
Total Measured + Indicated	**1,432**	**4.22**	**194**
Inferred	276	3.32	29

Note: (1) Effective date of the Mineral Resource estimate is 16 July 2021. The QP for the estimate is Mr. Daniel Downton, P.Geo, an employee of McEwen

(2) Mineral Resources are reported using the S-K 1300 definitions. Unlike Mineral Reserves, Mineral Resources do not have demonstrated economic viability

(3) Mineral Resources are reported above an economic cut-off grade of 2.35 g/t gold assuming underground extraction methods and based on a mining cost of $80/t, process cost of $24.34/t, G&A cost of $10.50/t, haulage cost of $4.70/t, refining cost of $1.82/oz, metallurgical recovery of 87%, royalty buyout of $1.21/t, dilution of 15% and gold price of US$1,725/oz

(4) Figures may not sum due to rounding.

11.3.12 Factors That Could Affect the Mineral Resource Estimate

Factors that may affect the Froome Mineral Resource estimate include:

- Changes in the local geological interpretations and assumptions used to generate the estimation domains
- Changes in mineralization and geological geometry and continuity of mineralized zones
- Changes in assumptions of mineralization and grade continuity
- Changes in the grade interpolation methods and estimation parameter assumptions
- Changes in the confidence assumptions used in the resource classification
- Density assignments
- Changes in metal price and exchange rates and other economic assumptions used in the cut-off grade determination
- Changes in input and design parameter assumptions that pertain to the underground mining constraints
- Changes to assumptions as to the continued ability to access the mine site, retain mineral and surface rights titles, maintain the operation within environmental and other regulatory permits, and maintain the social license to operate.

No other environmental, permitting, legal, title, taxation, socioeconomic, marketing, political or other relevant factors are known to the QP that would materially affect the estimation of Mineral Resources that are not discussed in this Report.

11.4 Grey Fox

11.4.1 Mineral Resource Database

The close-out date for the Mineral Resource database was 30 November 2020. Six drill holes were excluded from the drill database because they are geotechnical or metallurgical holes and were never assayed for gold. The database now consists of 1,463 core drill holes totalling 544,895.51 m of drill core and 255,919.74 m of sampled core. Unsampled intervals were considered barren and assigned a background gold grade of 0.0005 g/t based on ¼ of the assay laboratory's lower detection limit.

Drilling recommenced in May 2021 and initial logging and assay results indicate continuity of mineralization in the Whiskey Jack zone giving higher confidence in the geological model of that area. Also, preliminary core logging indicates mineralized structures in line with the existing geological interpretations west of the contact zone and east of the Gibson zone.

On importing the drill hole database from the central SQL database to Datamine Studio software in preparation for resource estimation, sample data were checked for missing and overlapping intervals in the assay and survey tables, and collar locations checked against the Lidar topography surface.

11.4.2 Geological Modelling

11.4.2.1 Lithology

A lithology model was constructed to capture the seven key deposit lithologies as shown in Figure 11-6. The primary deposit area is bounded in the east by ultramafic metavolcanics and in the west by chlorite-talc schist ultramafic metavolcanics. Each are separated from the main deposit area by regional faults and deformation zones. The western portion of the deposit is hosted in a metasedimentary unit intruded by a brecciated syenitic to dioritic feldspar porphyry intrusion. The metasedimentary unit has an angular unconformity contact with an assemblage of metavolcanic mafic rocks in the east. There is a prominent diabase dyke (believed to be post mineralization) running through the assemblage sub parallel to the unconformable sediment-mafic contact. The mafic metavolcanic units can be described as massive, pillowed, and variolitic textured and have been separated in the model based on those primary textures.

A 3D surface of the bedrock/overburden contact was generated from the drill holes and used to cap the mineralization extent.

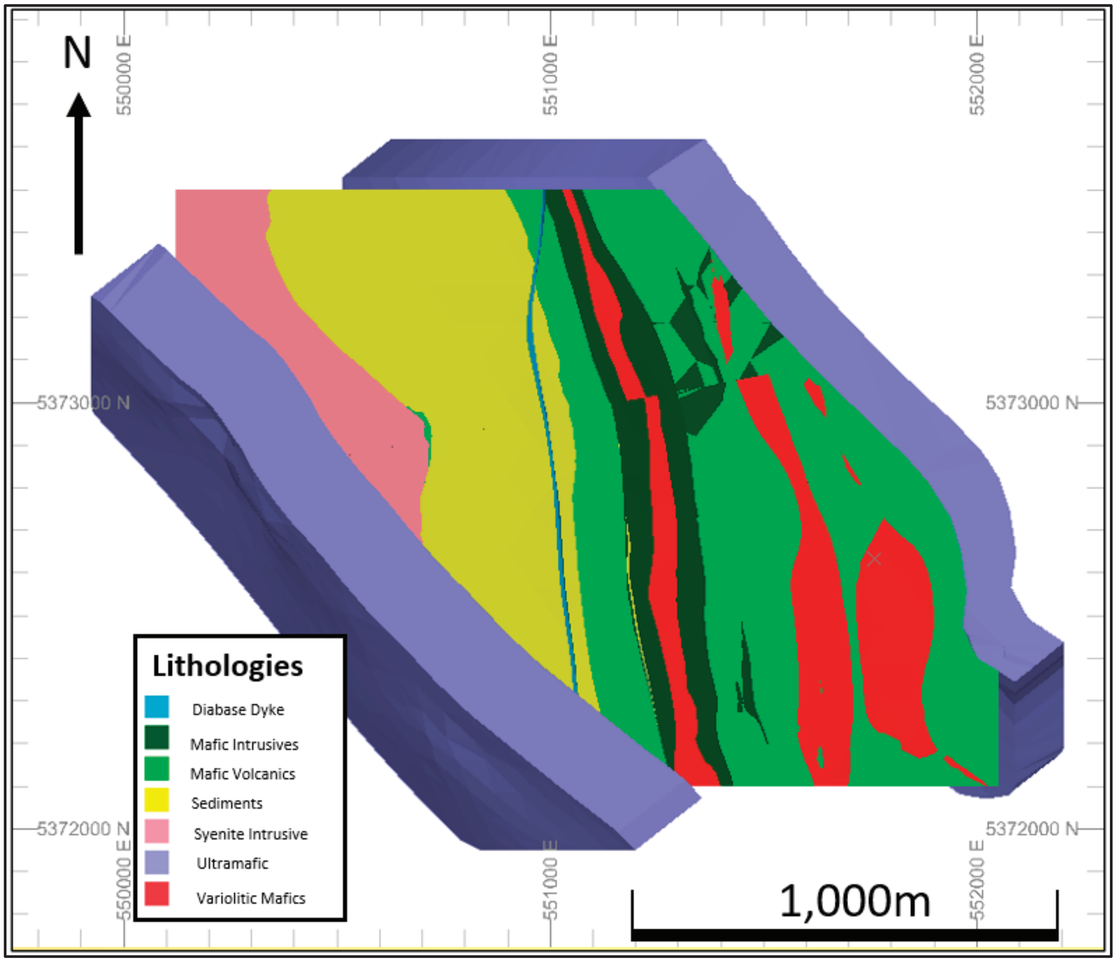

Figure 11-6: Plan View of the Grey Fox Project Lithology Model (prepared by McEwen, dated 2020)

11.4.2.2 Mineralized Zones

The Grey Fox deposit area is subdivided into five mineralized zones differing in host lithology. The zones include Contact, the 147, the 147NE, the Gibson and the South Zone with the northern most mineralized lens of the Contact Zone area named the Whiskey Jack Zone (Figure 11-7). The mineralization is further categorized into six domains based on mineralization style, orientation, grade population, and host lithologies.

The mineralization wireframes were created by geologically interpreting the structures controlling mineralization, guided by structural data and gold grades. These were then explicitly modelled creating closed volumes around the defining drill hole intercepts at an approximate cut-off grade of 0.5 g/t gold.

A description of each mineralized zone is summarized in Table 11-8.

Veins hosted in the syenite and sediments are from the same lower-grade population and form the local Domain 10. Similarly, veins hosted in the mafic intrusive and volcanic rocks make up a higher-grade population and together form Domain 30. The veins hosted in the variolitics appear to be a continuation or subset of the veins in the surrounding mafic rocks and form Domain 31. Due to their physical continuity with Domain 30, but a slight grade population difference, Domain 31 veins were estimated using a soft boundary contact with veins of Domain 30.

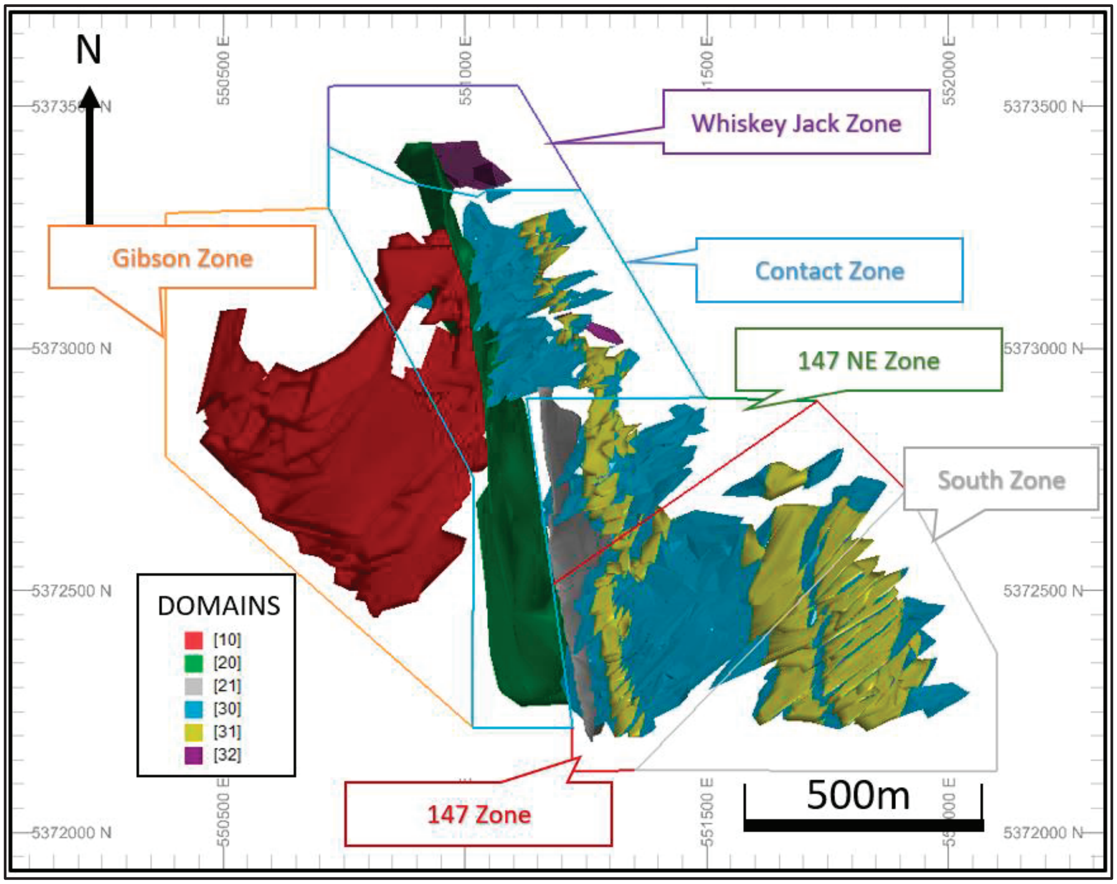

Figure 11-7: Plan View of the Grey Fox Project Mineralized Zones and Domains (prepared by McEwen, dated 2020)

Table 11-8: Grey Fox Mineralized Domains

Domain	Description
10	Southwest trending, steeply northwest dipping quartz veins and breccias hosted in sediments and the Gibson syenite intrusive (65° dip @ 300° dip direction)
20	North-south trending unconformity contact between mafic rocks and sedimentary rocks. Outcrop is steeply east dipping (75° dip @ 80° dip direction), at the northern extent and at depth the zone rolls over to a steep westerly dip (75° dip @ 250° dip direction)
21	North-south trending interflow sediment hosted mineralization (65° dip @ 95° dip direction)
30	Southwest trending, steeply northwest dipping quartz veins and breccias hosted in mafic volcanic flows and mafic intrusive rocks (65° dip @ 310° dip direction)
31	Southwest trending, steeply northwest dipping quartz veins and breccias hosted in dominantly iron-rich variolitic textured mafic rocks (65° dip @ 310° dip direction)
32	East trending sub-vertical to steep south dipping quartz breccia veins hosted in mafic volcanic and intrusive rocks (70° dip @ 170° dip direction)

Background Envelope

A background envelope (Domain 100) of approximately 24 m was constructed around all mineralized domains to capture mineralized samples outside the mineralized domains and to estimate adjacent dilution.

11.4.3 Composites

More than 70% of the assays have a sample length of 1 m. A modal composite length of 1 m was applied to samples within the mineralized zones which generated composites close to 1 m with a minimum composite length of 0.3 m. A modal composite length of 4 m was applied to samples within the background envelope (dilution) based on the parent cell size of the block model.

11.4.4 Capping

The impact of high-grade outlier populations was analyzed using histograms, log probability plots, mean and variance, and cumulative metal plots. Results are presented in Table 11-9 for each mineralized domain with metal removed ranging from 7.5% in Domains 10 and 32 and 27.8% in Domain 20.

Table 11-9: Grey Fox – Metal Removed by Capping Composites

Domain	Raw Composites		Capped Grade, g/t	Capped Composites		No. Capped	Metal Removed, %
	Mean, g/t	CV		Mean, g/t	CV		
10	1.61	3.58	27	1.49	1.88	18	7.5
20	2.60	9.46	34	1.88	2.22	19	27.8
21	0.42	4.90	10	0.36	1.07	2	14.7
30	1.53	7.71	87	1.31	3.85	6	14.2
31	2.04	8.19	70	1.80	3.00	34	11.9
32	3.95	2.52	48	3.66	2.09	9	7.5
100	0.11	10.84	10	0.10	4.16	31	9.6

Note: CV = coefficient of variation

11.4.5 Density

There are 14,728 density samples contained in the Mineral Resource database. Currently, one density sample is collected by the assay laboratory for analysis per every ten samples collected for gold assay analysis. A study of all density data was conducted to determine an average density value for each of the host lithology units. For density analysis, the ultramafic unit was separated into northeast and southwest units, and the variolitic lenses were split as they appear to be preferentially mineralized.

Nearest neighbour estimation with an isometric search volume was used to interpolate the density values in the block model within each lithological unit. Blocks that were not estimated were assigned the average density per unit as listed in Table 11-10.

Table 11-10: Grey Fox – Density Values by Lithology

Lithology	Density, g/cm^3
Variolitic (Iron Rich) West Host Lithology	2.92
Variolitic (Iron Rich) Central Host Lithology	2.89
Variolitic (Iron Rich) East Host Lithology	2.80
Mafic Volcanic Host Lithology	2.88
Mafic Intrusive Host Lithology	2.90
Sedimentary Host Lithology	2.76
Gibson-Intrusive Host Lithology	2.77
Northeast Ultramafic Host Lithology	2.83
Southwest Ultramafic Host Lithology	2.84
Diabase Dyke Lithology	2.91

11.4.6 Variography

The spatial distribution (continuity) of gold within each mineralized zone was evaluated using variograms.

Primary directions of the variograms were modeled based on observed mineralization orientations. These orientations were then examined statistically to ensure they represented the best possible fit with the variography. The stability of the variograms was evaluated by varying the direction specification and comparing the resulting experimental variograms. Variograms were modelled with two spherical structures and two or three rotations to match the strike, dip and plunge of the mineralized zone. Nugget effects range from 5% in Domain 21 to 25% in Domain 31.

11.4.7 Grade Estimation

A block size of 4 m x 4 m x 4 m was selected based on drill hole spacing, composite length, the geometry of the modelled mineralized zones, and anticipated mining methods. Sub-cells as small as 0.5 m x 0.5 m x 0.5 m were used to better reflect the shape and volume of the mineralized domains. No rotation was applied to the block model.

Ordinary kriging was used to estimate the blocks within the mineralized domains using a three-pass approach. Search neighbourhoods are based on variography with ranges doubling in length with each pass. Datamine's dynamic anisotropy function was implemented due to the anisotropic nature and widths of the mineralized domains.

Data selection for mineralized domains remained the same for all passes using a minimum of four and a maximum of 10 composites from at least two drill holes to estimate a given block.

Blocks within the background envelope were estimated using inverse distance to the power of three with its ellipsoid guided by the general lithology contact orientation determined through variography. Any blocks that were not estimated in one of the three passes were assigned a background gold value of a ¼ of detection limit, or 0.0005 g/t.

11.4.8 Model Validation

The estimated block model was validated by visually comparing the drill holes with the block grades (Figure 11-9 and Figure 11-10), and with swath plots to determine whether any local bias exists. These analyses indicate the block model acceptably reflects the assay sample data with only minor local bias in areas of sparse data.

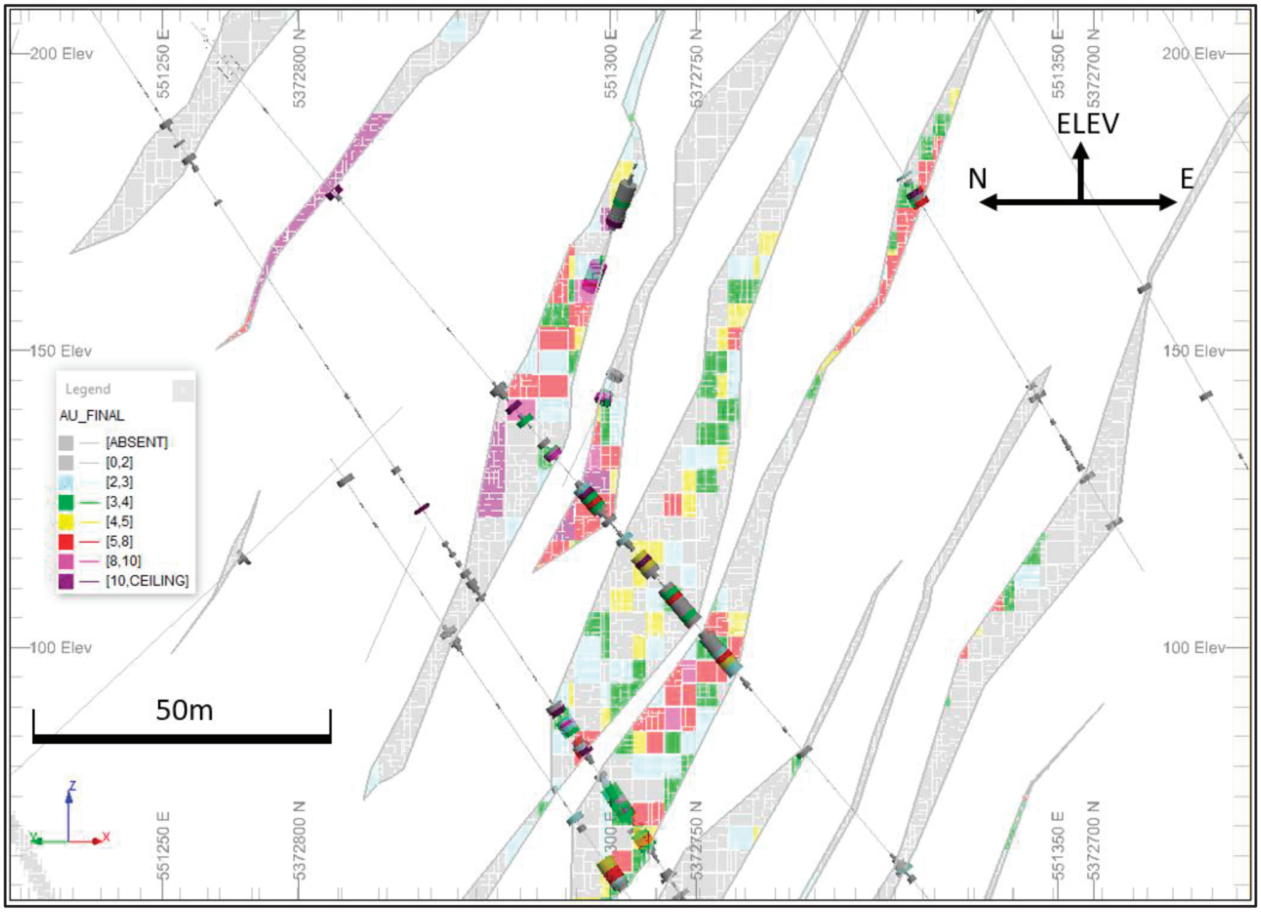

Figure 11-8: Section View Looking NE Comparing Block Grades in Grey Fox Model with Drill Hole Data (prepared by McEwen, dated 2021)

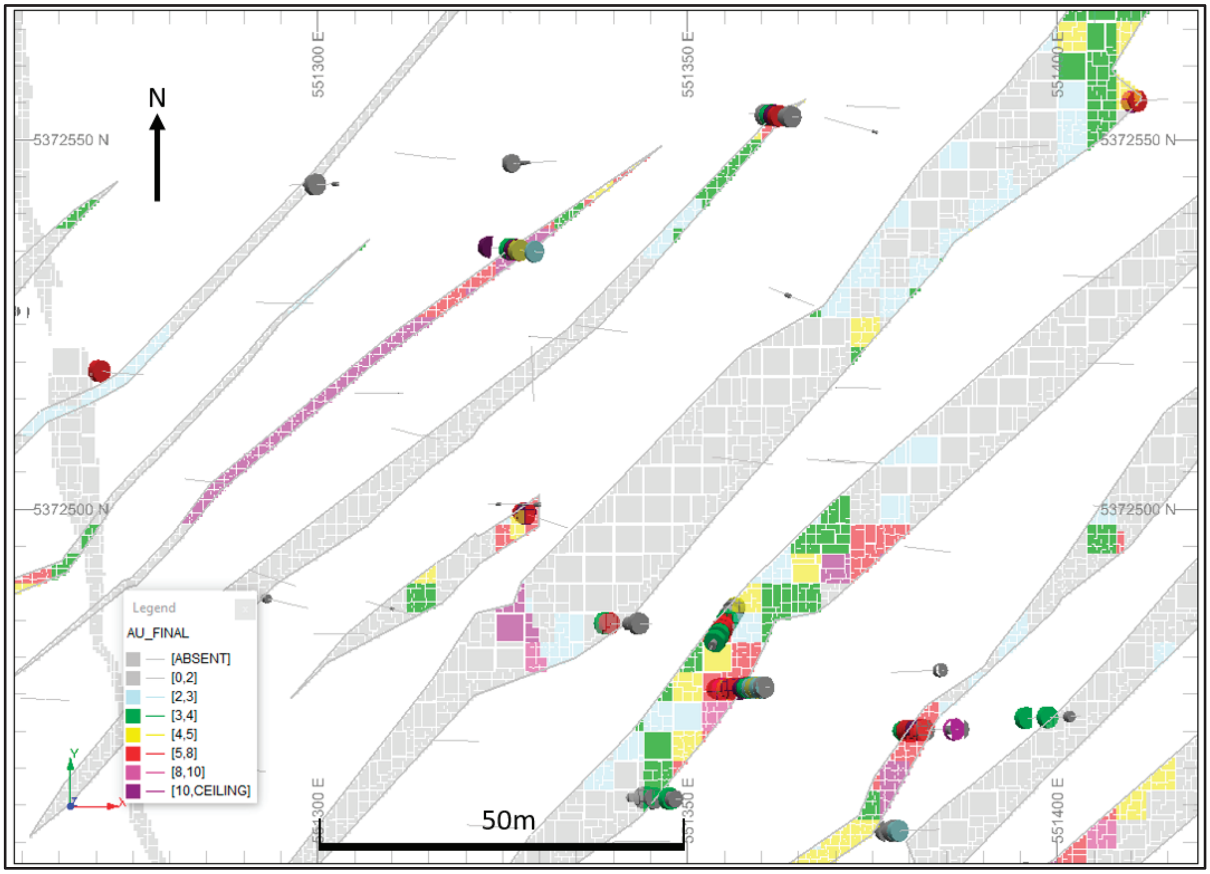

Figure 11-9: Plan View at Elevation 80.5 m Comparing Block Grades in Grey Fox Model with Drill Hole Data (prepared by McEwen, dated 2021)

11.4.9 Confidence Classification

The QP is confident that the Grey Fox mineralization model honours the current informing data from the geological database. The location of the samples and the assay data are sufficiently reliable to support Mineral Resource evaluation. The Mineral Resource model is constrained by mineralized domains based on lithological, structural and grade criteria and is modelled from core holes drilled on an irregular grid, with a spacing between 5 and 50 m. The controls on the distribution of the gold mineralization are understood, and the confidence in geological continuity is reasonable.

Classification criteria considers the confidence in the continuity of mineralization, average distance to informing samples (weighted on distance), and continuity of drill hole spacing. The following classification criteria were defined:

- **Indicated:** assigned to those continuous blocks within the mineralized domains and within a weighted average informing sample distance of 40 m. The estimates had to be informed by, and the sample spacing had to be continuous between two or more drill holes. A wireframe surface was developed around the blocks meeting these criteria to limit and smooth the edges of the Indicated category.
- **Inferred:** assigned to those continuous blocks within the mineralized domains informed by at least two drill holes and within a weighted average informing sample distance of 60 m. A wireframe surface was developed to smooth and limit the edges of the Inferred category. Each mineralized lens was visually inspected and classified separately.

Blocks within the mineralized zones not meeting the above criteria were not classified. Blocks within the background envelope were not classified.

11.4.10 Reasonable Prospects for Economic Extraction

Based on the IA in this Report the QP concludes that there are reasonable prospects for economic extraction of the Mineral Resources. The Mineral Resources were prepared in accordance with the definitions and standards in S-K 1300.

Due to the narrow vein nature, geometry, and location of the Grey Fox mineralization, the QP considers the deposit to be amenable to underground mining methods. A cut-off grade of 2.30 g/t gold was determined considering the costs and input parameters (Table 11-11) based on recent quotations and benchmarked with similar projects.

Table 11-11: Grey Fox Mineral Resource Cut-off Grade Parameters

Parameter	Unit	Value
Mining Cost	$/t	80.00
G&A Cost	$/t	10.50
Haulage Cost	$/t	5.64
Milling Cost	$/t	24.34
Treatment Cost	$/oz	0.55
Transport Cost	$/oz	0.67
Selling Cost	$/oz	0.60
Payable Gold	%	99.95
Dilution	%	15
Gold Price	US$/oz	1,725
Exchange Rate (C$/US$)	-	1.22
Royalty (NSR)	%	2.65
Mill Recovery	%	85

Reasonable prospects for economic extraction were derived from potentially mineable shapes developed using Datamine's Mineable Shape Optimizer function. A stope size of 12 m vertical height by 6 m wide along strike by a minimum 3 m wide across strike was adopted. This size was benchmarked against mined stopes at the nearby Black Fox underground mine. Sub stopes were developed at half height and half width along strike (6 m x 3 m) to account for local anisotropy of the grade continuity. Stopes with a width less than 3 m across strike were not considered potentially economical and excluded. Stope shapes were developed using the economic cut-off-grade of 2.30 g/t gold. All classified blocks were analyzed by the mineable shape optimizer with resulting stopes shown in Figure 11-10. All classified blocks were flagged by the potentially mineable shapes including those below the 2.30 g/t gold cut-off grade.

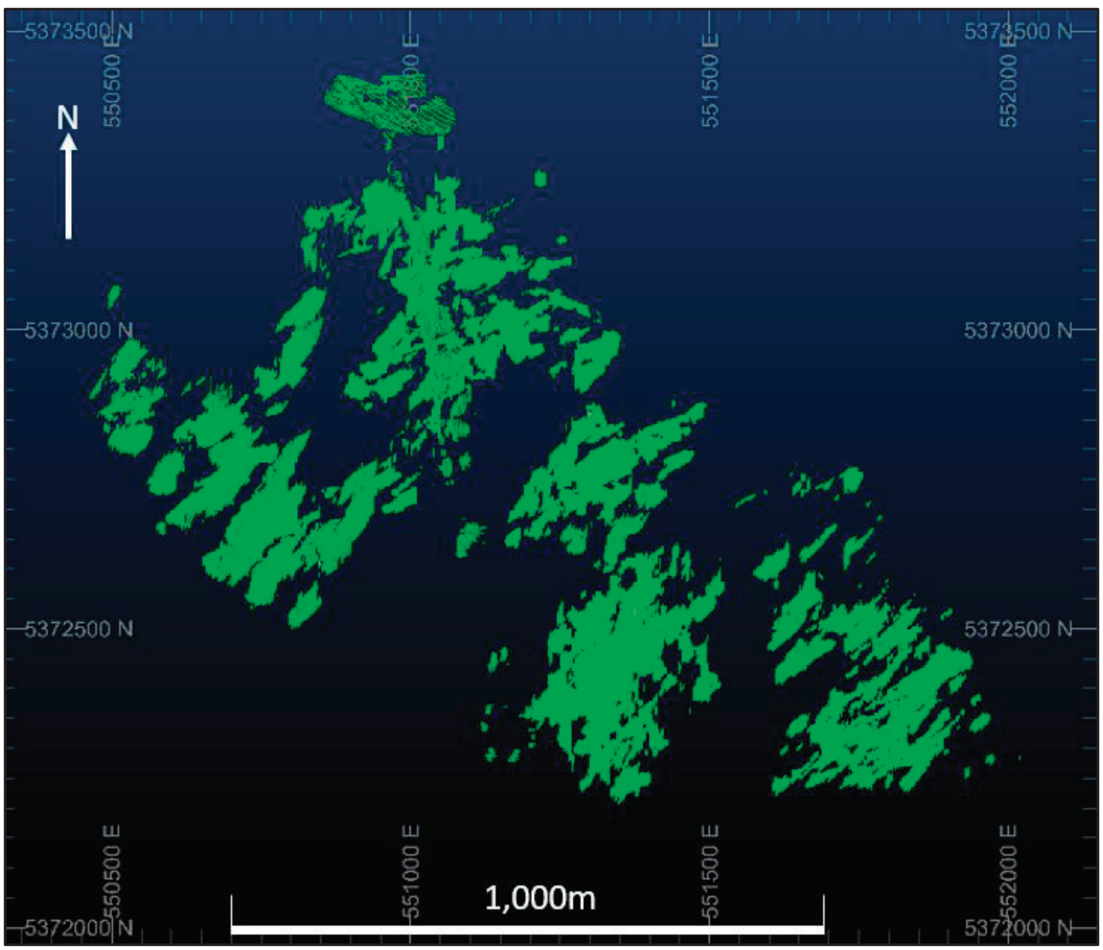

Figure 11-10: Plan View of the Potentially Mineable Stope Shapes at Grey Fox (prepared by McEwen, dated 2020)

11.4.11 Mineral Resource Statement

Table 11-12 summarizes the Mineral Resource estimates for Grey Fox, assuming underground stoping methods, reported in accordance with the definitions and standards in S-K 1300. The Mineral Resource was limited to those parts of the gold mineralization for which there are reasonable prospects for economic extraction via underground stope extraction.

Table 11-12: Grey Fox Mineral Resource Statement, 31 January 2021

Classification	Tonnes, kt	Au Grade, g/t	Contained Au, koz
Indicated	7,566	4.80	1,168
Inferred	1,685	4.35	236

Note: (1) Effective date of the Mineral Resource estimate is 31 January 2021. The QP for the estimate is Mr Daniel Downton, P.Geo, an employee of McEwen

(2) Mineral Resources are reported using the S-K 1300 definitions. Unlike Mineral Reserves, Mineral Resources do not have demonstrated economic viability

(3) Mineral Resources are reported above an economic cut-off grade of 2.30 g/t gold assuming underground extraction methods and based on a mining cost of $80/t, process cost of $24.34/t, G&A cost of $10.50/t, haulage cost of $5.64/t, refining cost of $1.82/oz, metallurgical recovery of 85%, royalty NSR of 2.65%, dilution of 15% and gold price of US$1,725/oz

(4) Figures may not sum due to rounding.

11.4.12 Factors That Could Affect the Mineral Resource Estimate

Factors that may affect the Grey Fox Mineral Resource estimate include:

- Changes in the local geological interpretations and assumptions used to generate the estimation domains
- Changes in mineralization and geological geometry and continuity of mineralized zones
- Changes in assumptions of mineralization and grade continuity
- Changes in the treatment of high-grade gold values
- Changes in the grade interpolation methods and estimation parameter assumptions
- Changes in the confidence assumptions and methods used in the mineral resource classification
- Changes in the density and the methods used in the density assignments
- Changes in metal price and exchange rates and other economic assumptions used in the cut-off grade determination
- Changes in input and design parameter assumptions that pertain to the underground mining constraints
- Changes to assumptions as to the continued ability to access the mine site, retain mineral and surface rights titles, maintain the operation within environmental and other regulatory permits, and maintain the social license to operate.

No other environmental, permitting, legal, title, taxation, socioeconomic, marketing, political or other relevant factors are known to the QP that would materially affect the estimation of Mineral Resources that are not discussed in this Report.

11.5 Tamarack

11.5.1 Introduction

In April 2018, McEwen requested SRK to prepare an update of the existing Mineral Resource model for the Tamarack deposit of the Black Fox Complex using new drilling information obtained between 31 October 2017 to 31 March 2018. In April 2021, McEwen commissioned SRK to prepare the updated Mineral Resource statement for Tamarack using the updated economic parameters. No additional drilling was completed on Tamarack and the existing 2018 resource model was used for reporting.

11.5.2 Mineral Resource Database

The resource database comprises primarily of samples from surface and underground core drilling. The database is comprised of 190 core drill holes (65,372 m) and contains 24,722 intervals assayed for gold, silver, lead and zinc, and 11,826 assay intervals within the mineralized domains. The database also contains 6,382 intervals of lithological logging that were used for constructing the quartz breccia (QBX) mineralized zone.

On importing the drill hole database to Datamine Studio and Leapfrog software, sample data were checked for missing and overlapping intervals in the assay and lithology tables, minimum and maximum values for each quality value field were checked for any outliers, and between 5 and 10% of the database was verified against corresponding assay certificates.

The QP is satisfied that the exploration work carried out by McEwen is conducted in a manner consistent with industry best practices and, therefore, the exploration data and the drilling database are sufficiently reliable to support a preliminary mineral resource evaluation.

11.5.3 Geological Modelling

The polymetallic (gold-silver-lead-zinc) Tamarack zone is centred on a north-south striking quartz breccia that cross cuts the faulted contact between Tisdale Assemblage ultramafic- to mafic-volcanic flows and Porcupine Group sedimentary rocks. The zone is characterized by an Upper and Lower lens; the Upper Lens measures approximately 400 m along strike and 500 m down dip from near surface and variable true width from 20 to 50 m. The Lower Lens measures approximately 400 m along strike and 350 m down dip from a depth of 500 m. The lower lens has a variable true width from 30 to 50 m. These lenses are separated by minor, narrow and discontinuous diabase dykes.

Six mineralized domains were constructed (Figure 11-11) based on lithological and grade criteria:

- Two High-Grade QBX domains (601 and 602) were based on the lithological logging and represent the high-grade gold core of the mineralization.
- Three Low-Grade mineralized domains (8041, 8042, 8043) were developed based on a threshold value of 0.1 g/t gold equivalent (AuEq). AuEq metal grades were solely based on prices of US$1,200/oz gold, US$17.00/oz silver, US$1.00/lb lead, and US$1.20/lb zinc. The domains were not adjusted based on the 2021 prices of metals.
- The mineralized envelope (901) was developed based on the external boundary of the mineralization.

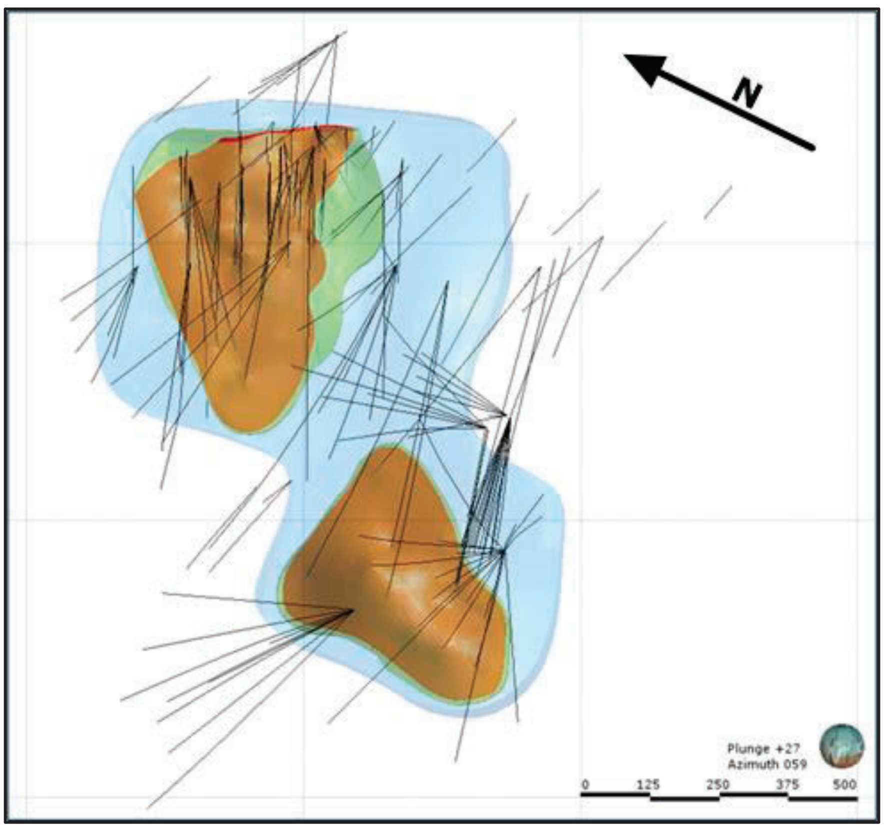

Figure 11-11: Isometric View of the Tamarack Mineralized Domains (prepared by SRK, dated 2021)

Note: Azimuth of the view - +059, dip – 27; Red – High-Grade QBX domains, Green – Low-Grade domains, Blue – Mineralized Envelope

11.5.4 Composites

Most of the analytical samples within the mineralized zones were collected at 1 m intervals. A modal composite length of approximately 1 m was applied to all the data generating composites as close to 1 m as possible, while creating residual intervals of up to 0.5 m in length.

11.5.5 Capping

Domains with similar geological characteristics were grouped together and the impact of high-grade outlier populations examined using log probability plots and cumulative statistics. Results are presented in Table 11-13 for each group and metal.

Table 11-13: Tamarack – Metal Removed by Capping Composites

Domain	Raw Composites		Capped Grade	Capped Composites		No. Capped	Metal Removed, %
	Mean	CV		Mean	CV		
High-Grade QBX (601 and 602) – 1,264 Samples							
Au (g/t)	0.72	4.58	20	0.62	3.70	12	14
Ag (g/t)	3.44	2.97	30	2.90	1.86	18	16
Pb (%)	0.10	4.89	-	0.10	4.89	-	-
Zn (%)	0.42	3.97	7	0.36	3.17	14	15
Low Grade (8041, 8042 and 8043) – 3,466 Samples							
Au (g/t)	0.28	3.27	-	0.28	3.27	-	-
Ag (g/t)	4.01	5.88	200	3.60	4.94	14	10
Pb (%)	0.11	9.02	10	0.10	7.71	13	17
Zn (%)	0.40	6.39	20	0.35	5.32	18	12
Tamarack Envelope (901) – 9,900 Samples							
Au (g/t)	0.06	19.98	30	0.05	16.45	5	13
Ag (g/t)	0.22	4.32	10	0.21	2.67	10	6
Pb (%)	0.002	10.58	-	0.002	10.58	-	-
Zn (%)	0.012	15.77	1	0.007	7.06	18	34

Note: CV = coefficient of variation

11.5.6 Density

Given the proximity of the Tamarack deposit to Black Fox, the average density values used at the mine were assigned to the block model:

- Overburden – 2.00
- Mineralization zones – 2.80
- Waste rocks – 2.84.

11.5.7 Variography

The spatial distribution of gold, silver, lead and zinc in the High-Grade QBX and Low-Grade domains were evaluated using variograms.

Primary directions and orientations of the variograms were observed in the data visually in 3D space. The general orientation of the variogram model for all Tamarack domains was 250° dip azimuth, 60° dip angle and -35° plunge in the southwest direction.

Variograms were modelled using two spherical structures and three rotations to match the strike, dip, and plunge of the modelled mineralization. Nugget effects for all metals in the High-Grade QBX are 20% and range from 20% for lead and zinc and 40% for gold in the Low-Grade domain.

11.5.8 Grade Estimation

The criteria used in the selection of block size included drill hole spacing, composite length, the geometry of the modelled domains, and the anticipated mining method. A block size of 3 m x 3 m x 3 m was selected. Sub-cells were used allowing a resolution of 1 m x 1 m x 1 m to better reflect the shape of the mineralization domain. Sub-cells were assigned the same values as their parent cell. No rotation was applied to the block model.

Ordinary kriging was used to estimate the blocks within the High-Grade QBX and Low-Grade domains using a three-pass approach. Search neighbourhoods are sized based on the range of the second variogram structure and is increased such that all blocks within the mineralized domains are estimated.

Data selection for the High-Grade QBX and Low-Grade domains utilized an octant search in pass 1 and required a minimum number of composites decreasing from 7 in pass 1 to two composites in pass 3, and a maximum number of composites starting with 12 in pass 1 and increasing to 18 in pass 3. Estimated blocks required at least three holes in pass 1 and two in pass 2.

The Tamarack envelope was estimated using inverse distance to the third power where an initial pass focused on estimating blocks in areas where there were high-grade composites. Composites with a value between 10 and 30 g/t gold were used with a tight search ellipse to limit the number of blocks estimated to one or two in each direction to minimize the smearing of high-grade composites. The subsequent three passes used capped composites (30 g/t gold) and have increasing search ellipses to ensure all blocks are estimated.

11.5.9 Model Validation

The block model was validated by visual comparison of informing sample data with resource blocks data (on plan and section) and with swath plots (section by section) comparing the ordinary kriging estimate and declustered dataset represented by a nearest neighbour model based on 3 m composites.

The results of the validation show that the block model acceptably reflects the assay sample data.

11.5.10 Confidence Classification

Mineral resource classification is typically a subjective concept, and industry best practices suggest that classification should consider the confidence in the geological continuity of the mineralized structures, the quality and quantity of exploration data supporting the estimates, and the geostatistical confidence in the tonnage and grade estimates. Appropriate classification criteria should aim at integrating these concepts to delineate regular areas at similar resource classification as well as the continuity of the deposit at the reporting cut-off grade.

The QP is satisfied that the mineralization model honours the current informing data from the geological database. The location of the samples and the assay data are sufficiently reliable to support resource evaluation and do not present a risk that should be considered for block classification. The mineral resource model is constrained by mineralized domains based on lithological, alteration and grade criteria and is modelled from drill hole sampling on a somewhat irregular grid with a spacing between 10 and 60 m apart. The controls on the distribution of the gold mineralization are well understood, and the confidence in its geological continuity is reasonable.

The QP considers the drill spacing to be sufficient to assume reasonable continuity of the gold mineralization. Accordingly, block estimates were classified using a combination of criteria, including confidence in the mineralization's continuity, drilling spacing and estimation results. There are no Measured blocks classified in this model. The following classification criteria were defined:

- **Indicated:** assigned to those continuous blocks informed by at least three drill holes within a 40 m radius. An Indicated wireframe surface to limit and smooth the Indicated category was also developed.
- **Inferred:** assigned to all remaining estimated blocks.

11.5.11 Reasonable Prospects for Economic Extraction

Based on the IA in this Report, the QP concludes that there are reasonable prospects for economic extraction of the Mineral Resources. The Mineral Resources were prepared in accordance with the definitions and standards in S-K 1300.

The reasonable prospects for economic extraction requirement generally imply that the quantity and grade estimates meet certain economic thresholds and that the Mineral Resources are reported at an appropriate cut-off grade that considers extraction scenarios and processing recoveries. Preliminary metallurgical testwork provided the following recoveries:

- Gold between 77 and 90%
- Zinc between 45 and 59%
- Lead between 68 and 85%
- Silver between 78 to 95%.

The QP considers that the gold mineralization of the Tamarack deposit is amenable to underground mining methods. A cut-off grade of 2.00 g/t AuEq was determined considering the cost and input parameters summarized in Table 11-14 and the following equation:

$$AuEq\ (\%) = Au + Ag * 0.0127 + Pb * 0.4174 + Zn * 0.5048$$

Table 11-14: Tamarack Project Optimization Parameters

Parameter	Unit	Value
Mining Cost	$/t	90.00
G&A Cost	$/t	10.50
Haulage Cost	$/t	5.64
Milling Cost	$/t	24.55
Selling Cost	US$/oz	5.00
Payable Metal	%	99
Mining Recovery/Mining Dilution	%	100/10
Gold Price	US$/oz	1,725
Silver Price	US$/oz	21.85
Lead Price	US$/lb	1.05
Zinc Price	US$/lb	1.27
Exchange Rate (C$/US$)	-	1.22
All Metal Recovery*	%	100.0
Revenue Factor	-	1

Note: *As the metallurgical testwork was preliminary, an assumption of 100% recoveries for all metals was made for the purpose of a AuEq determination

The mineable shape optimizer algorithm within Deswik software package was used to evaluate the profitability of each resource block based on its value (Figure 11-12). All classified blocks were flagged by the potentially mineable shapes including those below the 2.00 g/t AuEq cut-off grade.

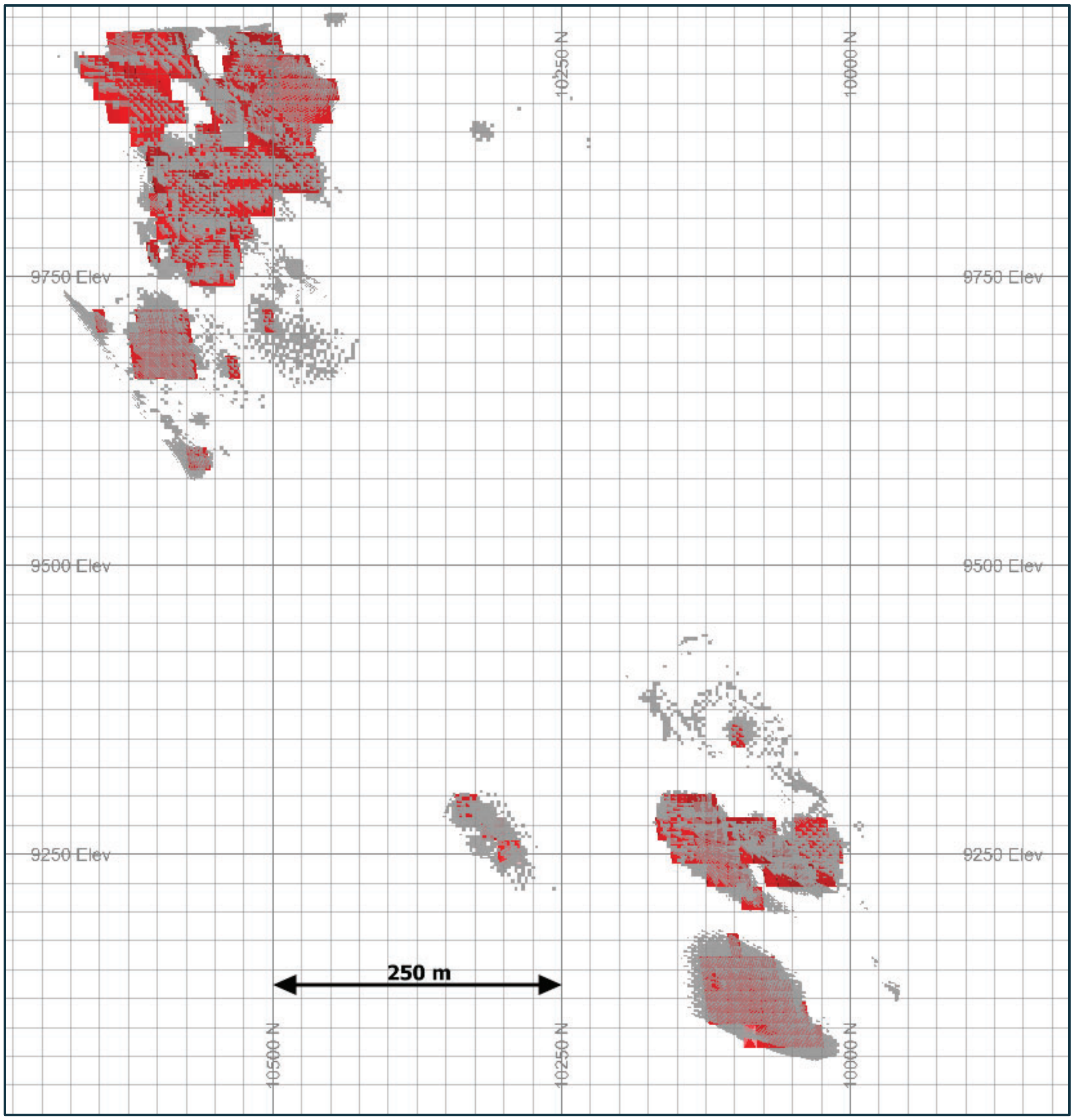

Figure 11-12: North-South Section looking East Mineable Shape Optimizer Shapes (red) and the Block Model Above AuEq Cut-Off Grade 2.00 g/t (grey) (prepared by SRK, dated 2021)

11.5.12 Mineral Resource Statement

Table 11-15 summarizes the Mineral Resource estimates for Tamarack assuming underground stoping methods, reported in accordance with the definitions and standards in S-K 1300. The Mineral Resource was limited to those parts of the gold mineralization for which there are reasonable prospects for economic extraction via underground stope extraction.

Table 11-15: Tamarack Mineral Resource Statement, 30 April 2021

Classification	Tonnes, kt	Grade					Contained Metal			
		AuEq, g/t	Au, g/t	Ag, g/t	Pb, %	Zn, %	Au, koz	Ag, koz	Pb, kt	Zn, kt
Indicated										
Upper Lens	672	3.62	1.70	19	0.60	2.84	37	417	4	19
Lower Lens	382	3.15	1.51	22	1.12	1.76	19	274	4	7
Total Indicated	**1,055**	**3.45**	**1.63**	**20**	**0.79**	**2.45**	**55**	**692**	**8**	**26**

Note: (1) Effective date of the Mineral Resource estimate is 30 April 2021. The QP for the estimate is Dr. Aleksandr Mitrofanov, P.Geo, an employee of SRK

(2) Mineral Resources are reported using the S-K 1300 definitions. Unlike Mineral Reserves, Mineral Resources do not have demonstrated economic viability

(3) Mineral Resources are reported above an economic cut-off grade of 2.00 g/t AuEq assuming underground extraction methods and based on a mining cost of $90/t, process cost of $24.55/t, G&A cost of $10.50/t, haulage cost of $5.64/t, assumed metallurgical recovery of 100% for all metals, dilution of 10% and gold price of US$1,725/oz, silver price of US$21.85/oz, lead price of US$1.05/lb and zinc price of US$1.27/lb

(4) The AuEq value was calculated using the following formula: AuEq = Au + Ag * 0.0127 + Pb * 0.4174 + Zn * 0.5048

(5) Figures may not sum due to rounding.

11.5.13 Factors That Could Affect the Mineral Resource Estimate

The factors that could materially affect the Mineral Resource Estimate results include:

- New drilling and sampling information that may potentially extend the mineralization zones down dip and along the strike.
- Metallurgy testwork results that will affect the recovery assumptions of the gold and other metals.
- Changing metal prices may alter the mine optimization results and the cut-off grade value.
- Changes in the local geological interpretations and assumptions used to generate the estimation domains
- Changes in mineralization and geological geometry and continuity of mineralized zones
- Changes in assumptions of mineralization and grade continuity
- Changes in the treatment of high-grade gold values

- Changes in the grade interpolation methods and estimation parameter assumptions
- Changes in the confidence assumptions and methods used in the mineral resource classification
- Changes in the density and the methods used in the density assignments
- Changes in metal price and exchange rates and other economic assumptions used in the cut-off grade determination
- Changes in input and design parameter assumptions that pertain to the underground mining constraints
- Changes to assumptions as to the continued ability to access the mine site, retain mineral and surface rights titles, maintain the operation within environmental and other regulatory permits, and maintain the social license to operate.

11.6 Stock West

11.6.1 Mineral Resource Database

The close-out date for the Mineral Resource database is 30 July 2021 and consists of 118 core drill holes totalling 63,216.19 m of drill core and 14,421 intervals assayed for gold. Unsampled intervals were considered barren and assigned a background gold grade of 0.0005 g/t based on ¼ of the assay laboratory's lower detection limit.

Drilling at the property has continued since the database close-out. Recent logging and assay results indicate the geological and mineralization model reported here continues to be valid. As new data arrives, the estimation methods and parameters will be refined, which will affect the Mineral Resources dynamically.

On importing the drill hole database from the central SQL database to Datamine Studio software in preparation for resource estimation, sample data were checked for missing and overlapping intervals in the assay and survey tables, and collar locations checked against the Lidar topography surface.

11.6.2 Geological Modelling

11.6.2.1 Lithology

A lithology model was developed implicitly to capture the eight key deposit lithologies and the overburden as shown in Figure 11-13.

Using the logged lithology, an overburden volume was modeled to the top of the bedrock and was used to cap the lithology wireframes.

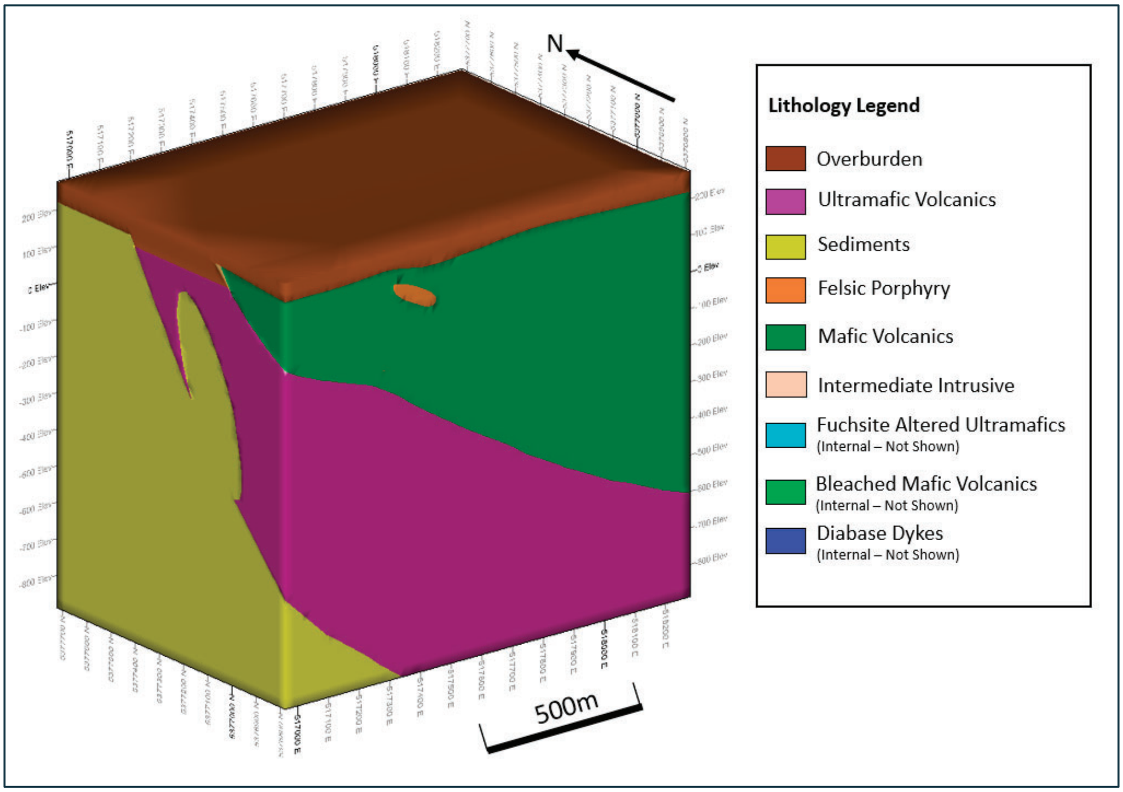

Figure 11-13: Isometric View of the Stock West Project Lithology Model (prepared by McEwen, dated 2021)

11.6.2.2 Mineralized Domains

The Stock West deposit contains two main zones of mineralization (Figure 11-14). Domain 10 is a shear zone, hosted in highly altered ultramafic rocks. Coincident with the most intense mineralization within Domain 10 is the primary alteration carbonate mineral, fuchsite. Disseminated gold mineralization occurs in en echelon quartz veins, quartz stockwork and matrix material. Domain 10 trends east-northeast and dips moderately to steeply southeast. Domain 20 is a lower grade zone located in the hanging wall of Domain 10 and is hosted primarily in a bleached altered mafic volcanic unit trending east-northeast and dipping moderately to steeply southeast.

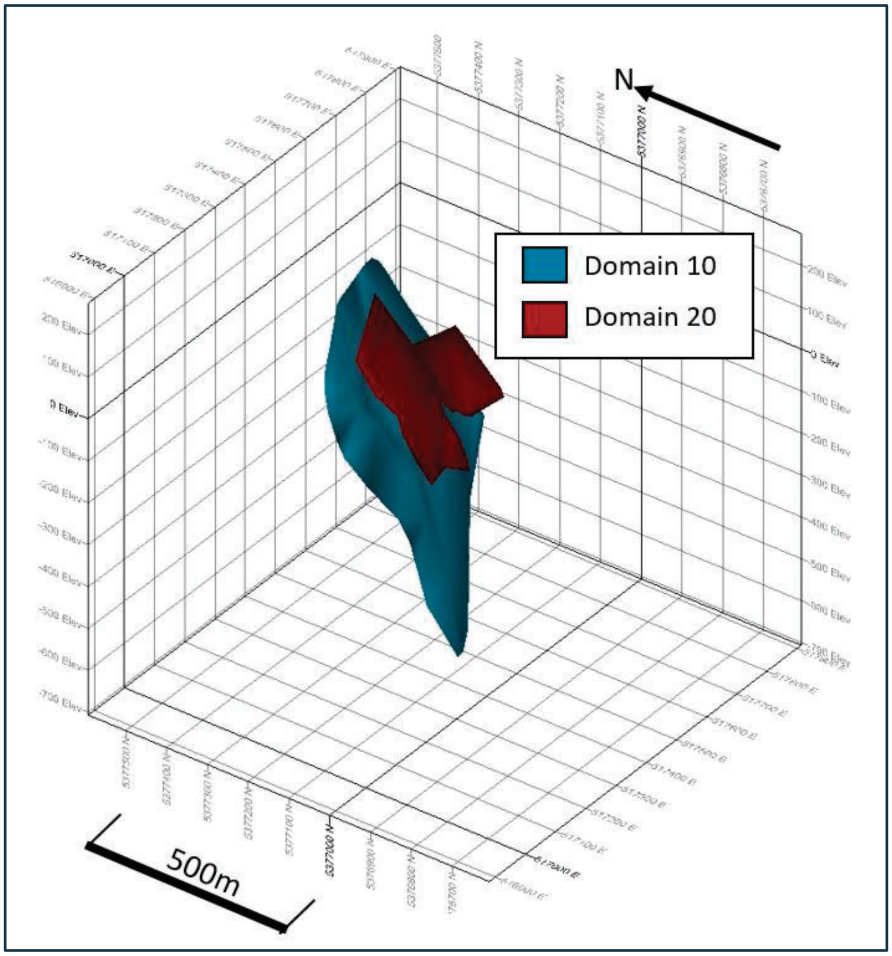

Figure 11-14: Isometric View of the Stock West Mineralized Zones (prepared by McEwen, dated 2021)

Background Envelope

A background envelope (Domain 200) was constructed around the mineralized domains to capture mineralized samples outside the mineralized domains and to estimate adjacent dilution.

11.6.3 Composites

More than 50% of the assays have a sample length of 1 m. A modal composite length of 1 m was applied to samples within the modeled domains which generated composites close to 1 m with a minimum composite length of 0.3 m.

11.6.4 Capping

The impact of high-grade outlier populations was analyzed using histograms, log probability plots, mean and variance, and cumulative metal plots. Results are presented in Table 11-16 for each domain with metal removed ranging from 1.6% in Domain 10 to 10.7% in Domain 20.

Table 11-16: Stock West – Metal Removed by Capping Composites

Domain	Raw Composites		Capped Grade, g/t	Capped Composites		No. Capped	Metal Removed, %
	Mean, g/t	CV		Mean, g/t	CV		
10	1.60	1.95	20.0	1.57	1.86	14	1.6
20	0.63	2.55	6.0	0.56	1.69	13	10.7
200	0.04	5.18	2.4	0.04	3.93	16	5.3

Note: CV = coefficient of variation

11.6.5 Density

There are 1,169 density samples contained in the Mineral Resource database. Currently, one density sample is collected by the assay laboratory for analysis per every 20 samples collected for gold assay analysis. A study of all density data was conducted to determine an average density value for each of the host lithology units. Outliers were identified and removed resulting in the average density values listed in Table 11-17.

The block model was flagged by the major lithology wireframes and average densities were applied to the blocks accordingly. Any blocks outside the modelled lithologies were assigned overall average density value of 2.84 g/cm^3. Blocks above the bedrock and below the topography were flagged as overburden and assigned a density of 2.0 g/cm^3.

Table 11-17: Stock West – Density Values by Lithology

Lithology	No. Measurements	Density, g/cm^3
Felsic Porphyry	55	2.73
Mafic Volcanic Rocks	12	2.85
Sedimentary Rocks	52	2.76
Ultramafic Volcanic Rocks	196	2.84
Bleached Mafic Volcanic Rocks	318	2.82
Fuchsite Altered Ultramafic Rocks	486	2.88
Intermediate Intrusive Volcanic Rocks	26	2.71
Diabase Dykes	14	2.76

11.6.6 Variography

The spatial distribution (continuity) of gold within each mineralized domain was evaluated using variograms.

Primary directions of the variograms were modelled based on observed mineralization and structural orientations. These orientations were then examined statistically to ensure they represented the best possible fit with the variography. The stability of the variograms was evaluated by varying the direction specification and comparing the resulting experimental variograms. Variograms were modelled with spherical structures and two or three rotations to match the strike, dip and plunge of the mineralized zone. Nugget effects are 10% in Domain 10 and 24% in Domain 20.

11.6.7 Grade Estimation

A block size of 3 m x 3 m x 3 m was selected based on drill hole spacing, composite length, the geometry of the modelled mineralized zones, and anticipated mining methods. Sub-cells as small as 0.5 m x 0.5 m x 0.5 m were used to better reflect the shape and volume of the mineralized domains. No rotation was applied to the block model.

Ordinary kriging was used to estimate the blocks within the mineralized domains using a four-pass approach. Search neighbourhoods are based on variography with ranges doubling in length for passes two and three with the maximum search length in pass four equal to one and one half the range of the maximum variogram structure.

Data selection for mineralized domains remained the same for the first three passes using a minimum of seven and a maximum of fifteen composites from at least three drill holes to estimate a given block. These restrictions were reduced to a minimum of four composites from at least two drill holes to estimate a block in the fourth pass.

Blocks within the background envelope were estimated using inverse distance to the power of three with its ellipsoid guided by the general lithology contact orientation determined through variography. An initial estimation pass focused on estimating areas where high-grade composites were not captured in the mineralized domains. This estimation pass used uncapped composites with a tight search ellipse to limit the number of blocks estimated to one or two in each direction. Three subsequent passes were made with increasing search ranges and any blocks not estimated were assigned a background gold value of a one-quarter of detection limit, or 0.0005 g/t.

11.6.8 Model Validation

In validating the estimated block model, a nearest neighbour model was constructed. This model mimics a declustered data set and was generated using 3 m capped composites following the same search ellipse as the ordinary kriged estimate.

The estimated block model was validated by visual inspection, comparing the global statistics of the estimated model with the nearest neighbour model, and with swath plots to determine whether any local bias exists.

Inspecting drill holes with block estimates in section (Figure 11-15) and plan (Figure 11-17) confirms gold grades of the model follow the grades of the informing samples.

Swath plots indicate the mean grades of the estimates follow the mean grades of the declustered informing samples relatively well with small local biases in areas with less informing sample data.

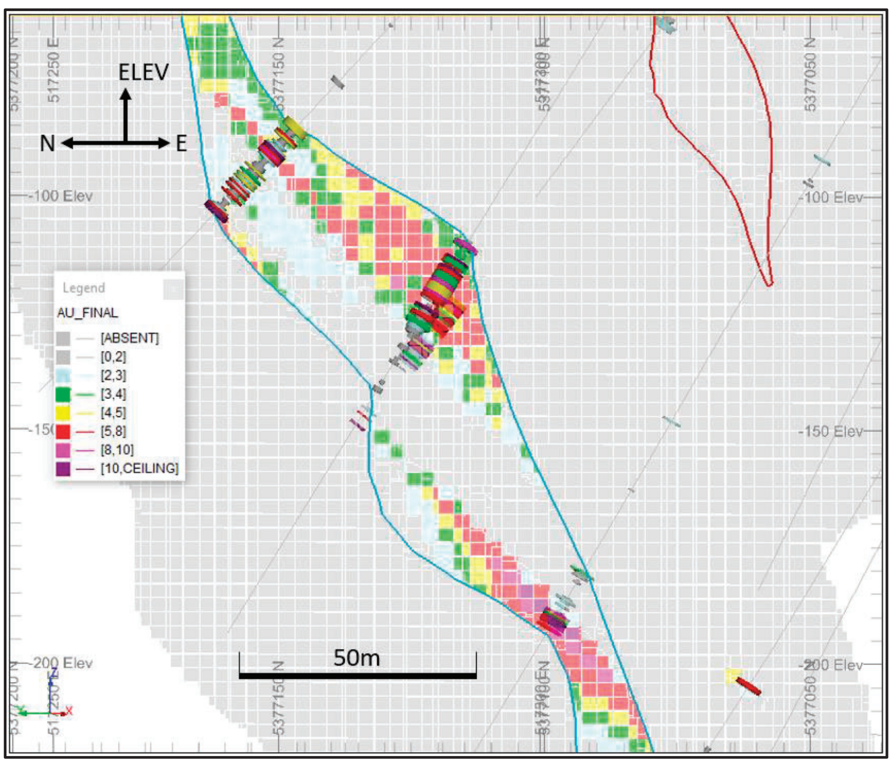

Figure 11-15: Section View Looking East-Northeast Comparing Block Grades in Domains 10 and 20 with Drill Hole Data (prepared by McEwen, dated 2021)

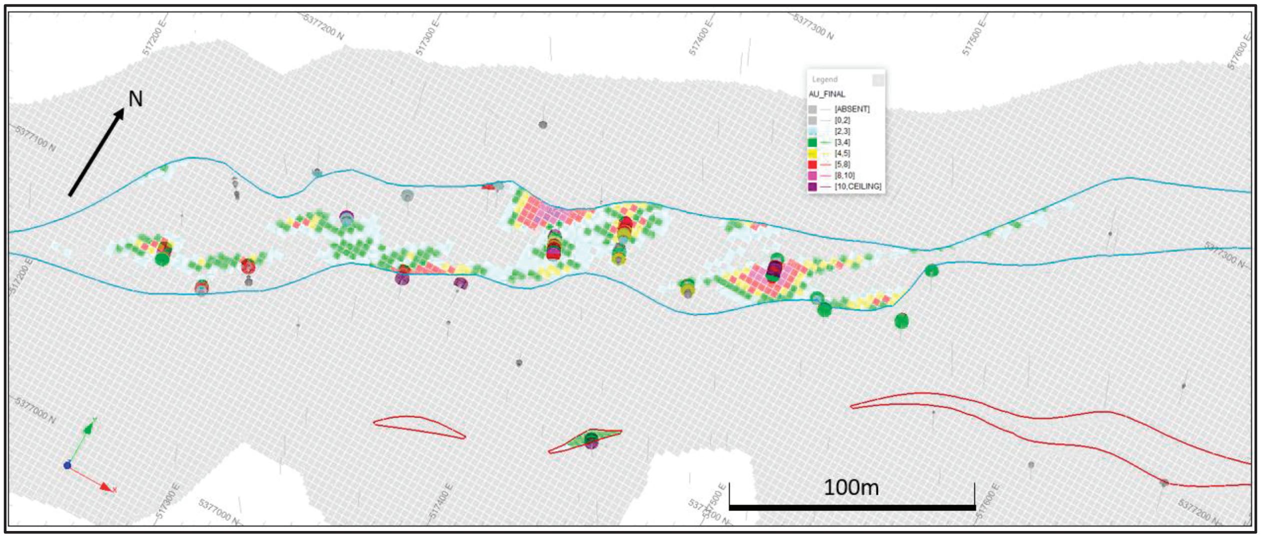

Figure 11-16: Plan View at -163 m Elevation Comparing Block Grades with Drill Hole Data (prepared by McEwen, dated 2021)

The block estimates were checked for global bias by comparing the average grade (at a zero cut-off) of the estimated model with that obtained from nearest neighbour estimates. The QP considers the estimate to be globally unbiased if the comparison is within a ±5% tolerance. The global bias check was made on the classified Mineral Resource resulting in less than a 3% difference showing no global bias exists.

11.6.9 Confidence Classification

The QP is confident that the Stock West mineralization model honours the current informing data from the geological database. The location of the samples and the assay data are sufficiently reliable to support Mineral Resource evaluation. The Mineral Resource model is constrained by mineralized domains based on lithological, structural and grade criteria and is modelled from core holes drilled on an irregular grid, with a spacing between 25 and 35 m. The controls on the distribution of the gold mineralization are understood, and the confidence in geological continuity is reasonable.

Classification criteria considers the confidence in the continuity of mineralization, average distance to the closest three drill holes, distance to the nearest drill hole, and search neighbourhood. The following classification criteria were defined:

- **Indicated:** assigned to those continuous blocks within the mineralized domains, informed by three or more drill holes, within the first three search neighbourhoods, less than 15 m to the nearest drill hole, and an average drill spacing less than 25 m.
- **Inferred:** assigned to those continuous blocks within the mineralized domains and

within the first three search neighbourhoods, informed by at least three drill holes, and an average drill spacing less than 40 m. Also assigned to those continuous blocks within the mineralized domains and within the fourth search neighbourhood, informed by at least three drill holes, less than 12.5 m to the nearest drill hole, and within an average drill spacing less than 40 m.

Blocks within the mineralized domains not meeting the above criteria were not classified. Blocks within the background envelope were not classified.

11.6.10 Reasonable Prospects for Economic Extraction

Based on the IA in this Report the QP concludes that there are reasonable prospects for economic extraction of the Mineral Resources. The Mineral Resources were prepared in accordance with the definitions and standards in S-K 1300.

Due to the geological nature, geometry, and location of the Stock West mineralization, the QP considers the deposit to be amenable to underground mining methods. A cut-off grade of 1.95 g/t gold was determined considering the costs and input parameters (Table 11-18) based on recent quotations and benchmarked with similar projects.

Table 11-18: Stock West Mineral Resource Cut-off Grade Parameters

Parameter	Unit	Value
Mining Cost	$/t	80.00
G&A Cost	$/t	10.50
Haulage Cost	$/t	-
Milling Cost	$/t	24.34
Treatment Cost	$/oz	0.55
Transport Cost	$/oz	0.67
Selling Cost	$/oz	0.60
Payable Gold	%	99.95
Dilution	%	15
Gold Price	$/oz	1,725
Exchange Rate (C$/US$)	-	1.22
Royalty (NSR)	%	-
Mill Recovery	%	94

Reasonable prospects for economic extraction were derived from potentially mineable shapes developed using Datamine's M ineable Shape Optimizer function. A stope size of 12 m vertical height by 6 m wide along strike by a minimum 3 m wide across strike was adopted. This size was benchmarked against mined stopes at the nearby Black Fox underground mine. Sub stopes were developed at half height and half width along strike (6 m x 3 m) to account for local anisotropy of the grade continuity. Stopes with a width less than 3 m across strike were not considered potentially economical and excluded. Stope shapes were developed using the economic cut-off-grade of 1.95 g/t gold. All classified blocks were analyzed by the mineable shape optimizer with resulting stopes shown in Figure 11-17. All classified blocks were flagged by the potentially mineable shapes including those below the 1.95 g/t gold cut-off grade.

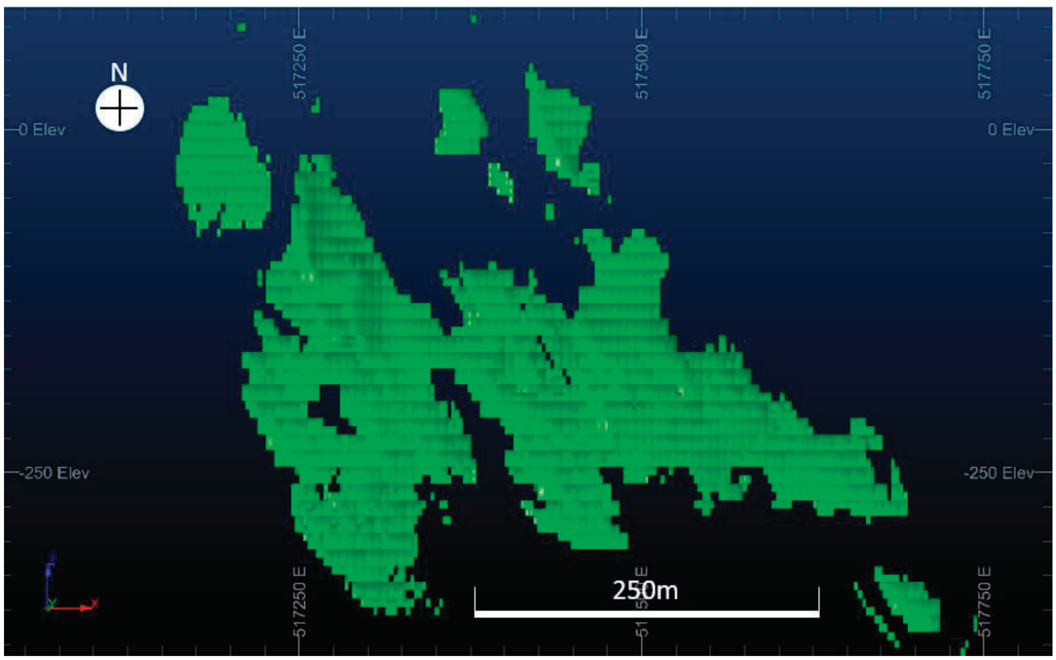

Figure 11-17: Plan View of the Potentially Mineable Stope Shapes at Stock West (prepared by McEwen, dated 2021)

11.6.11 Mineral Resource Statement

Table 11-19 summarizes the Mineral Resource estimates for Stock West, assuming underground stoping methods, reported in accordance with the definitions in S-K 1300. The Mineral Resource was limited to those parts of the gold mineralization for which there are reasonable prospects for economic extraction via underground mining methods.

Table 11-19: Stock West Mineral Resource Statement, 30 July 2021

Classification	Tonnes, kt	Au Grade, g/t	Contained Au, koz
Indicated	1,171	3.83	144
Inferred	1,049	3.30	111

Note: (1) Effective date of the Mineral Resource estimate is 30 July 2021. The QP for the estimate is Mr. Daniel Downton, P.Geo, an employee of McEwen

(2) Mineral Resources are reported using the S-K 1300 definitions. Unlike Mineral Reserves, Mineral Resources do not have demonstrated economic viability

(3) Mineral Resources are reported above an economic cut-off grade of 1.95 g/t gold assuming underground extraction methods and based on a mining cost of $80/t, process cost of $24.34/t, G&A cost of $10.50/t, refining cost of $1.82/oz, metallurgical recovery of 94%, dilution of 15% and gold price of US$1,725/oz

(4) Figures may not sum due to rounding.

11.6.12 Factors That Could Affect the Mineral Resource Estimate

Factors that may affect the Stock West Mineral Resource estimate include:

- Changes in the local geological interpretations and assumptions used to generate the estimation domains
- Changes in mineralization and geological geometry and continuity of mineralized zones
- Changes in assumptions of mineralization and grade continuity
- Changes in the treatment of high-grade gold values
- Changes in the grade interpolation methods and estimation parameter assumptions
- Changes in the confidence assumptions and methods used in the mineral resource classification
- Changes in the density and the methods used in the density assignments
- Changes in metal price and exchange rates and other economic assumptions used in the cut-off grade determination
- Changes in input and design parameter assumptions that pertain to the underground mining constraints
- Changes to assumptions as to the continued ability to access the mine site, retain mineral and surface rights titles, maintain the operation within environmental and other regulatory permits, and maintain the social license to operate.

No other environmental, permitting, legal, title, taxation, socioeconomic, marketing, political or other relevant factors are known to the QP that would materially affect the estimation of Mineral Resources that are not discussed in this Report.

11.7 Stock East

11.7.1 Mineral Resource Database

The Stock East deposit has been tested by diamond drilling over a cumulative strike length of approximately 900 m and down to a vertical depth of about 500 m. The close-out date for the Mineral Resource database is 11 July 2019 and consists of 180 surface diamond drill holes. The average drill hole spacing in the best drilled areas of the deposit is about 20 m; the spacing in the more poorly drilled areas is between 100 and 150 m.

11.7.2 Geological Modelling

11.7.2.1 Mineralized Domains

Gold mineralization in the Stock East deposit is spread across several lithology units with higher grade mineralization hosted in a brecciated mafic volcanic (BMV) unit. The association of the gold mineralization with brecciation implies strong structural controls and thus, the deposit is largely orogenic with minor lithological controls. The dominant controlling structure follows the strike of the BMV unit.

Background Envelope

A background envelope (LG) was constructed around the BMV domain to capture low-grade mineralization defined using a 0.07 g/t gold cut-off.

The modelled domains for Stock East are shown in Figure 11-18.

11.7.3 Composites

A composite length of 1 m was selected based on the mode of the sample lengths. Any residual length was distributed equally to the 1 m composites to ensure that the entire length of each drill intersection within a domain was utilized. The rationale behind adopting a standard sample length of 1 m within zones perceived to be geologically similar was to maintain resolution in terms of the gold grade distribution. That resolution is maintained by adopting 1 m as the composite length.

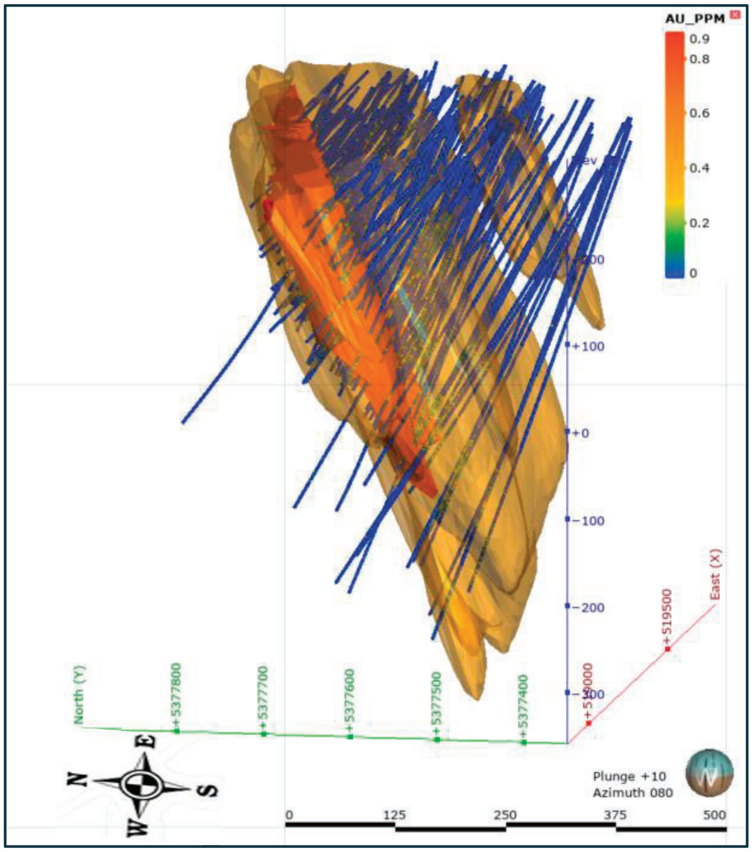

Figure 11-18: Stock East Modelled Domains (prepared by Micon, dated 2021)

BMV = red orange; background envelope = brown yellow

11.7.4 Capping

Grade capping was conducted using population histograms and probability/log-probability plots to limit the influence of outlier values within each domain. Results are presented in Table 11-20 for each domain with 11.9% metal removed from the BMV domain.

Table 11-20: Stock East – Metal Removed by Capping Composites

Domain	Raw Composites		Capped	Capped Composites		No.	Metal
	Mean, g/t	CV	Grade, g/t	Mean, g/t	CV	Capped	Removed, %
BMV	0.88	-	25	0.78	-	9	11.9
LG	0.16	-	10	0.15	-	7	6.0

Note: CV = coefficient of variation

11.7.5 Density

There are 321 density determinations for BMV, the average of which is 2.85 g/cm^3. The LG domain encompasses several lithologies with different densities. There is a total of 584 density determinations within these lithologies with an overall average of 2.75 g/cm^3. The block model was flagged by the modelled domains and average densities were applied to the blocks accordingly.

11.7.6 Variography

The spatial distribution (continuity) of gold within each modeled domain was evaluated using variograms.

Precision in spatial analysis/variography is directly proportional to the quality of the sampling pattern. Due to the moderate to steeply dipping nature of the Stock East deposit, some of the drill holes from surface intersect the mineralization at oblique angles while some are at the desired right angles, culminating in a mixture of orientations. Thus, variography results are not perfectly representative of the spatial continuity/distribution patterns of the mineralization. Experimental variograms were modeled with two spherical structures and with a dip and strike. Nugget effects are 20% in the BMV domain and 16% in the LG domain.

11.7.7 Grade Estimation

A block size of 5 m x 5 m x 5 m was selected after comparing the kriging efficiency and slope of regression for various block sizes. The selected block size is supported by the average drill hole spacing of 20 to 30 m in well drilled areas of the deposit. No sub-cells were used and no rotation was applied to the block model.

Ordinary kriging was used to estimate the blocks within the modelled domains using a three-pass approach. Search neighbourhoods are based on the range of the second variogram structure with the first pass equal to the range of the second structure that is doubled in the second pass and increased to estimate all blocks in the third pass.

Data selection for modeled domains require 20 composites from four drill holes to be estimated in pass 1. Subsequent passes require a minimum of 10 composites and a maximum of 20 from at least two drill holes.

11.7.8 Model Validation

In validating the estimated block model, nearest neighbour and inverse distance cubed models were constructed. The nearest neighbour model mimics a declustered data set and was generated using 5 m composites.

The estimated block model was validated by visually comparing the drill holes with the block grades, and with swath plots to determine whether any local bias exists.

Inspecting drill holes with block estimates in section and plan confirms gold grades of the model follow the grades of the informing samples.

Swath plots indicate the mean grades of the estimates follow the mean grades of the declustered informing samples relatively well with small local biases in areas with less informing sample data.

11.7.9 Confidence Classification

Classification criteria considers the confidence in the continuity of mineralization, average distance to informing samples (weighted on distance), and continuity of sample spacing. No material has been classified as a Measured Mineral Resource. The following classification criteria were defined:

- **Indicated:** assigned to those contiguous blocks within the mineralized domain informed by at least four drill holes, within the variogram range of less than 40 m and defined on an average sample spacing less than 30 m.
- **Inferred:** assigned to those contiguous blocks within the mineralized domain informed by at least two drill holes, defined on an average sample spacing greater than 30 m

11.7.10 Reasonable Prospects for Economic Extraction

Based on the IA in this Report, the QP concludes that there are reasonable prospects for economic extraction of the Mineral Resources. The Mineral Resources were prepared in accordance with the definitions and standards in S-K 1300.

The Stock East deposit area is in close proximity to the existing plant/mill infrastructure, and in the QP's opinion, the small size of the deposit does not justify relocating the processing facilities to allow for extraction via an open pit. Thus, it seems more feasible to access the Stock East deposit via the underground workings at the nearby past producing Stock mine and mine the deposit using underground mining methods. A cut-off grade of 1.67 g/t gold was determined considering the costs and input parameters summarized in Table 11-21.

Reasonable prospects for economic extraction were derived from potentially mineable shapes developed using Datamine's Mineable Shape Optimizer function. A stope size of 10 m vertical height by 10 m wide along strike by a minimum 3 m wide across strike was adopted. This size was benchmarked against mined stopes at the nearby Black Fox underground mine which mines a similar geological structure. It should be noted that different stope dimensions will yield different resources at the same cut-off grade.

Table 11-21: Stock East Mineral Resource Cut-off Grade Parameters

Parameter	Unit	Value
Mining Cost	$/t	60.61
G&A Cost	$/t	7.95
Haulage Cost	$/t	-
Milling Cost	$/t	18.60
Gold Price	US$/oz	1,725
Exchange Rate (C$/US$)	-	1.22
Mill Cut-Off Grade	g/t	0.51
Mill Recovery	%	94

11.7.11 Mineral Resource Statement

Table 11-22 summarizes the Mineral Resource estimates for Stock East, assuming underground mining methods, reported in accordance with the definitions and standards in S-K 1300. The Mineral Resource was limited to those parts of the gold mineralization for which there are reasonable prospects for economic extraction via underground mining methods.

Table 11-22: Stock East Mineral Resource Statement, 30 April 2021

Classification	Tonnes, kt	Au Grade, g/t	Contained Au, koz
Indicated	1,232	2.41	95
Inferred	21	2.32	2

Note: (1) Effective date of the Mineral Resource estimate is 30 April 2021. The QP for the estimate is Mr. Daniel Downton, P.Geo, an employee of McEwen

(2) Mineral Resources are reported using the S-K 1300 definitions. Unlike Mineral Reserves, Mineral Resources do not have demonstrated economic viability

(3) Mineral Resources are reported above an economic cut-off grade of 1.67 g/t gold assuming underground extraction methods and based on a mining cost of $60.61/t, process cost of $18.60/t, G&A cost of $7.95/t, metallurgical recovery of 94%, and gold price of US$1,725/oz

(4) Mineral Resources include the 'must take' minor material below cut-off grade which is interlocked with masses of blocks above the cut-off grade within the mineable shape optimizer stopes

(5) Figures may not sum due to rounding.

11.7.12 Factors That Could Affect the Mineral Resource Estimate

Factors that may affect the Stock East Mineral Resource estimate include:

- Changes in the local geological interpretations and assumptions used to generate the estimation domains
- Changes in mineralization and geological geometry and continuity of mineralized zones

- Changes in assumptions of mineralization and grade continuity
- Changes in the treatment of high-grade gold values
- Changes in the grade interpolation methods and estimation parameter assumptions
- Changes in the confidence assumptions and methods used in the mineral resource classification
- Changes in the density and the methods used in the density assignments
- Changes in metal price and exchange rates and other economic assumptions used in the cut-off grade determination
- Changes in input and design parameter assumptions that pertain to the underground mining constraints
- Changes to assumptions as to the continued ability to access the mine site, retain mineral and surface rights titles, maintain the operation within environmental and other regulatory permits, and maintain the social license to operate.

No other environmental, permitting, legal, title, taxation, socioeconomic, marketing, political or other relevant factors are known to the QP that would materially affect the estimation of Mineral Resources that are not discussed in this Report.

11.8 Fuller

11.8.1 Introduction

In May 2017, Lexam commissioned SRK to prepare the Mineral Resource estimate for the Fuller gold deposit. SRK completed this assignment and prepared the Mineral Resource Statement. After acquisition of Lexam by McEwen the latter commissioned SRK to prepare the Mineral Resource statement for Fuller using the updated economic parameters in April 2021. No additional drilling was completed on Fuller and the existing resource model was used for reporting. This chapter summarizes the data, methodology, and parameters considered by SRK to prepare the Mineral Resource model for Fuller.

11.8.2 Mineral Resource Database

A database containing information from Fuller, Paymaster and Buffalo Ankerite comprises 6,622 drill holes and underground workings with a total length of 501,523 m. The total number of samples with gold assays is 153,113 (200,730 m). The database also includes 496,064 m of lithological, structural and alteration logging.

The total Fuller data used for estimation comprises 1,514 drill holes and underground workings (chip samples) for a total length 118,070 m. The subset of drillholes and workings intersecting the estimation domains is 1,230 totaling 77,485.2 m. The total number of samples with gold assays is 35,562 (42,379 m). The total number of samples with gold assays is 35,562 (42,379 m).

The database also includes 113,927 m of lithological, structural and alteration logging. SRK understands that Buffalo Ankerite, Fuller and Paymaster property are adjacent, and some drilling intervals can occur in several properties.

SRK also digitized five Fuller level plans from the graphic data, adding 4,137 chips and bazooka samples to the database.

On importing the drill hole database to Datamine Studio and Leapfrog software several validation steps were performed and any errors identified were corrected.

11.8.3 Geological Modelling

11.8.3.1 Lithology

The deposit comprises several lithologies that have contrasting density characteristics. To use this information for the accurate tonnage calculations a simplified lithological model was developed for four key lithologies.

11.8.3.2 Mineralized Zones

Gold mineralization belongs to the class of structurally controlled Archean lode gold deposits. The mineralization is associated with foliated shear zones with strong sericite and fuchsite alteration and occurs stratigraphically above what appears to be the contact between the older ultramafic lower formation and the basaltic middle formation of the Tisdale group. The porphyry intrusive body also contains the lower grade mineralization.

A combination of lithological, alteration, structural and grade criteria (in that order) were used to define resource domains.

Shear Zone

The Shear (or historically called “contact”) Zone is the main mineralization host occurring stratigraphically above the contact between the older ultramafic rocks and the basaltic middle formation.

The following combined criteria were used to define resource domains:

- Grade criteria: gold > 0.3 g/t
- Lithological criteria: shear/mineralized zone, foliation, presence of quartz veins
- Alteration criteria: presence of sericite or fuchsite.

An interval containing any data defined above was treated as mineralized with several non-mineralized intervals included to keep the continuity of the mineralized zone.

Considering the good general continuity but high variability on a smaller scale the Shear Zone wireframe was modelled in two steps:

Building the external general wireframe manually containing some internal barren intervals within it (Figure 11-19)

Building the internal wireframe within the external contour with semi-automatic wireframing algorithms which exclude the barren intervals and follow the general trend of the Shear Zone. This wireframe was used as the estimation domain for Shear Zone (Figure 11-20).

Porphyry

The Porphyry Zone was developed based on the lithological logging data. Some adjustments were made to make the wireframe correspond better with the level plans interpretation. The internal mineralized zone was developed within the porphyry body based on the same criteria used for the Shear Zone.

Hanging wall Zone

The Hanging wall (HW) Zone has a similar morphology as the Shear Zone and follows the boundary between the Porphyry and Shear zones within the East area of the project. The modelling method for the HW Zone replicates that of the Shear Zone.

Low Grade Zone

The residual mineralized intervals with grade more than 0.3 g/t gold were contoured with an automatic contouring algorithm, but only wireframes with a total volume greater than 500 m^3 were used to define a Low Grade (LG) Zone.

11.8.4 Composites

Most of the analytical samples within the mineralized zones were collected at 1.5 m intervals for drill holes and 1 m intervals for underground channels. A modal composite length of approximately 1.5 m was applied to all data generating composites as close to the 1.5 m as possible, while creating residual intervals of up to 0.75 m in length (drill hole assays and channel samples).

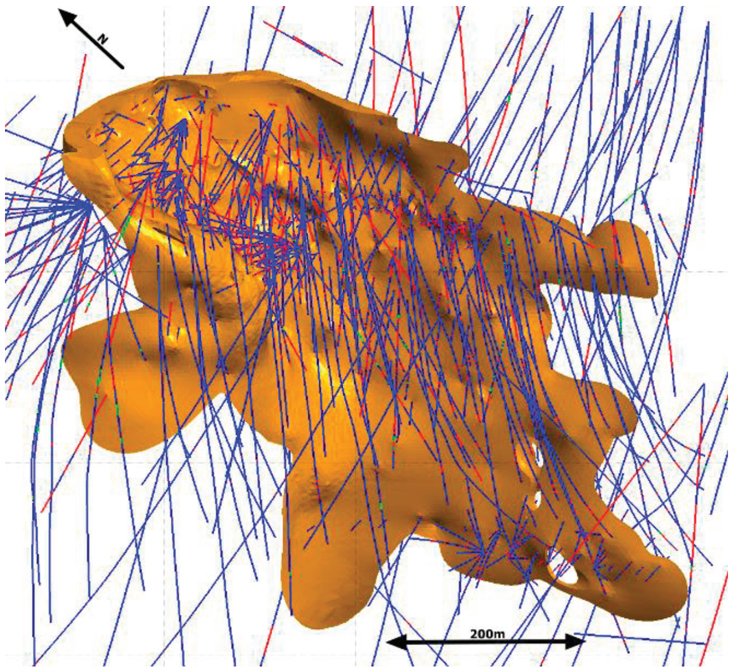

Figure 11-19: Isometric View of the Shear Zone, External Contours (prepared by SRK, dated 2021)

Note: Red drill hole traces represent the mineralized intervals, blue – waste, green – potentially mineralized (logging anomaly with no grade confirmation)

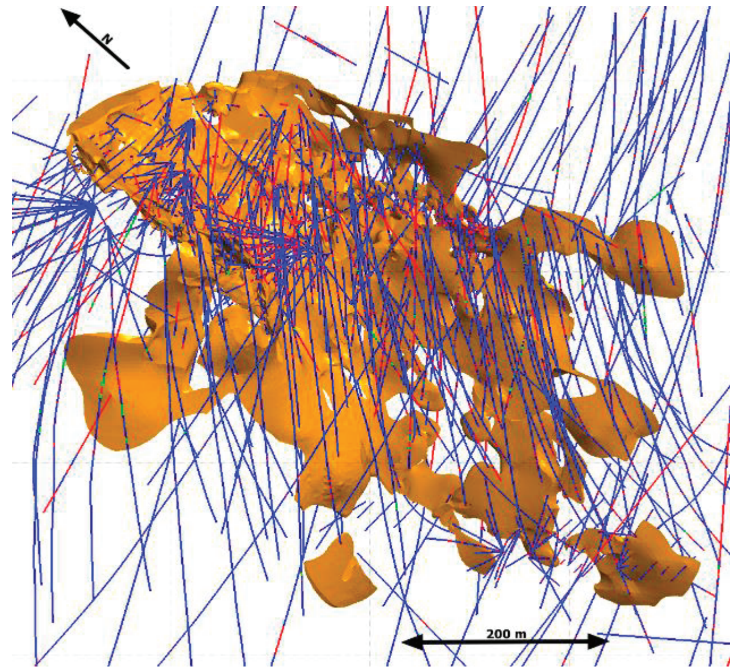

Figure 11-20: Isometric View of the Shear Zone, Internal Contours (prepared by SRK, dated 2021)

Note: Red drill hole traces represent the mineralized intervals, blue – waste, green – potentially mineralized (logging anomaly with no grade confirmation)

11.8.5 Capping

The impact of high-grade outlier populations was examined on composite data using log probability plots and cumulative statistics separately for mineralized zones. The capping value was determined separately for underground development sampling and drill hole data types and the changing of statistical parameters after compositing and capping, analyzed. Capping was not warranted in the Porphyry Zone or for the underground samples of the LG Zone. Results are presented in Table 11-23 for each zone with metal removed ranging from 6% in the drill hole data of the LG Zone to 16% in the underground samples of the HW Zone.

Table 11-23: Fuller – Metal Removed by Capping Composites

Domain	Raw Composites		Capped Grade, g/t	Capped Composites		No. Capped	Metal Removed, %
	Mean, g/t	CV		Mean, g/t	CV		
Drill Hole Data							
Shear Zone	2.85	5.19	40	2.47	1.87	10	13
Porphyry	0.98	1.59	-	0.98	1.59	-	-
HW Zone	2.93	3.05	30	2.54	1.73	5	13
LG Zone	2.03	2.30	30	1.91	1.72	3	6
Underground Samples							
Shear Zone	3.72	3.08	30	3.35	1.36	13	10
Porphyry	0.87	0.79	-	0.87	0.79	-	-
HW Zone	6.07	2.05	30	5.11	1.29	7	16
LG Zone	1.12	0.87	-	1.12	0.87	-	-

Note: CV = coefficient of variation

11.8.6 Density

Average densities for each modelled lithology are presented in Table 11-24 and applied to the blocks contained within. The density data is based on the results of 181 historical measurements; however, no original data was provided for SRK.

Table 11-24: Fuller – Density Values by Lithology

Lithology	Density, g/cm^3
Dyke	2.92
Porphyry	2.69
Mafic Volcanics	2.82
Ultramafic Volcanics	2.85

11.8.7 Variography

The spatial distribution of gold in the mineralized zones was evaluated using variograms. Both channel and boreholes sample data were considered for variogram analysis. A variogram analysis was done within the east and the most flattened zone of the fold.

Variograms for the Shear Zone and Porphyry were modelled from the corresponding datasets. Variograms for the HW and LG Zones were modelled using composites from all mineralized zones due to the limited number of composites they each contain.

Variograms were modelled using two spherical structures and three rotations to match the strike, dip, and plunge of the modelled mineralization. Nugget effects are 40% for Shear Zone and 20% for the Porphyry.

11.8.8 Grade Estimation

The criteria used in the selection of block size included the drill hole spacing, composite length, the geometry of the modelled zone, and anticipated mining method. A block size of 5 m x 5 m x 5 m was selected. Sub-cells were used allowing a resolution of 1 m x 1 m x 1 m to better reflect the shape of the mineralized zone. No rotation was applied to the block model.

Ordinary kriging was used to estimate the blocks within the mineralized domains using a four-pass approach. The first pass used a smaller search ellipsoid to constrain the influence of the channel samples.

The three following passes used increasing search neighbourhoods sized from variography results. Datamine's dynamic anisotropy function was implemented due to the anisotropic nature and widths of the mineralized domains.

Data selection for mineralized zones varied for each pass requiring a minimum number of composites between six and four, and a maximum number of composites between eight and 16 for passes 1 to 2, respectively. Estimated blocks required at least two holes in pass 1 and 3, and three holes in pass 2. Blocks estimated in pass 4 required at least one composite.

The waste material located outside the constrained zones was estimated with composites capped at 10 g/t gold, and an isotropic search requiring a minimum of seven composites and a maximum of 12.

This estimation allowed the incorporation of several unconstrained mineralized intervals into the model.

11.8.9 Model Validation

The block model was validated by visual comparison of informing sample data with resource blocks data (on plan and section) and with swath plots (section by section) comparing the ordinary kriged blocks with the informing composite data.

The results of the validation show that the block model adequately reflects the assay sample data. The deviations between the averages on swath plots appear only within the areas of the low data density.

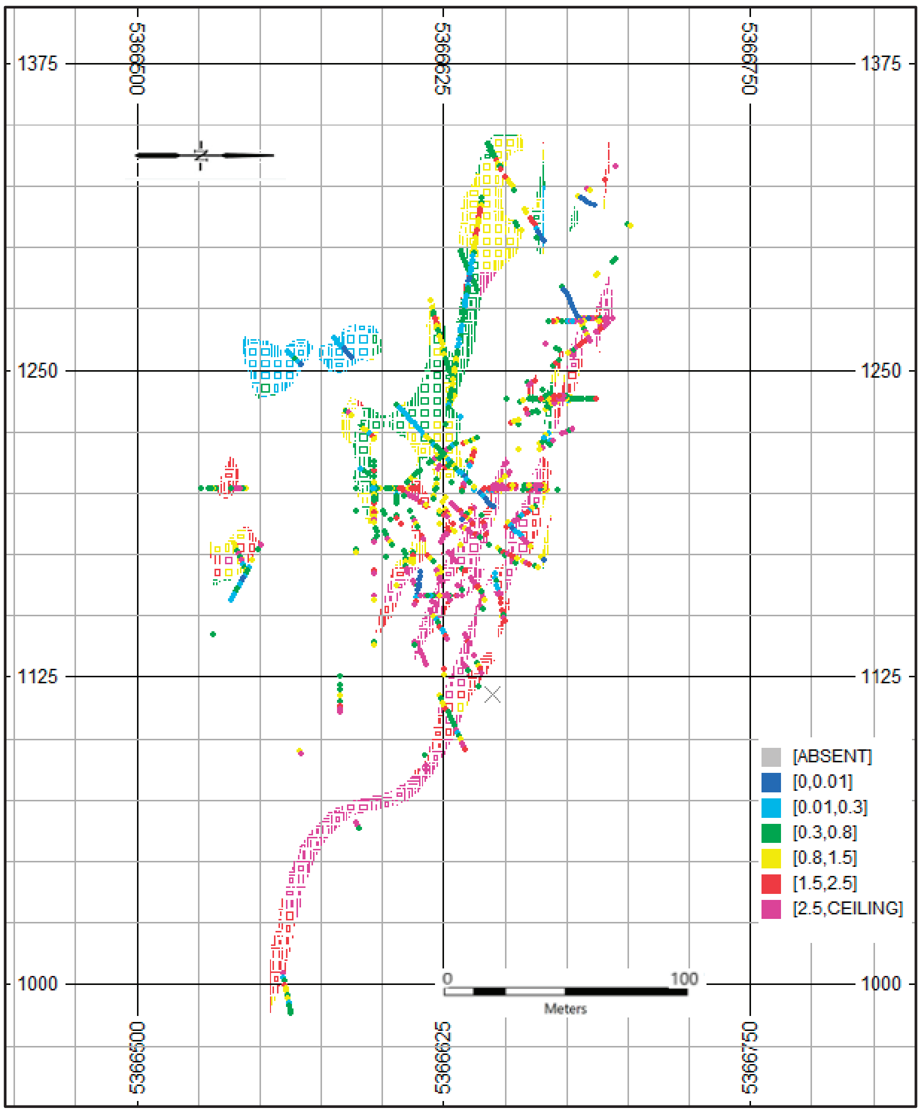

Figure 11-21: South-North Section View at Easting 479,600 Comparing Block Grades with Drill Hole Data (dots) (prepared by SRK, dated 2021)

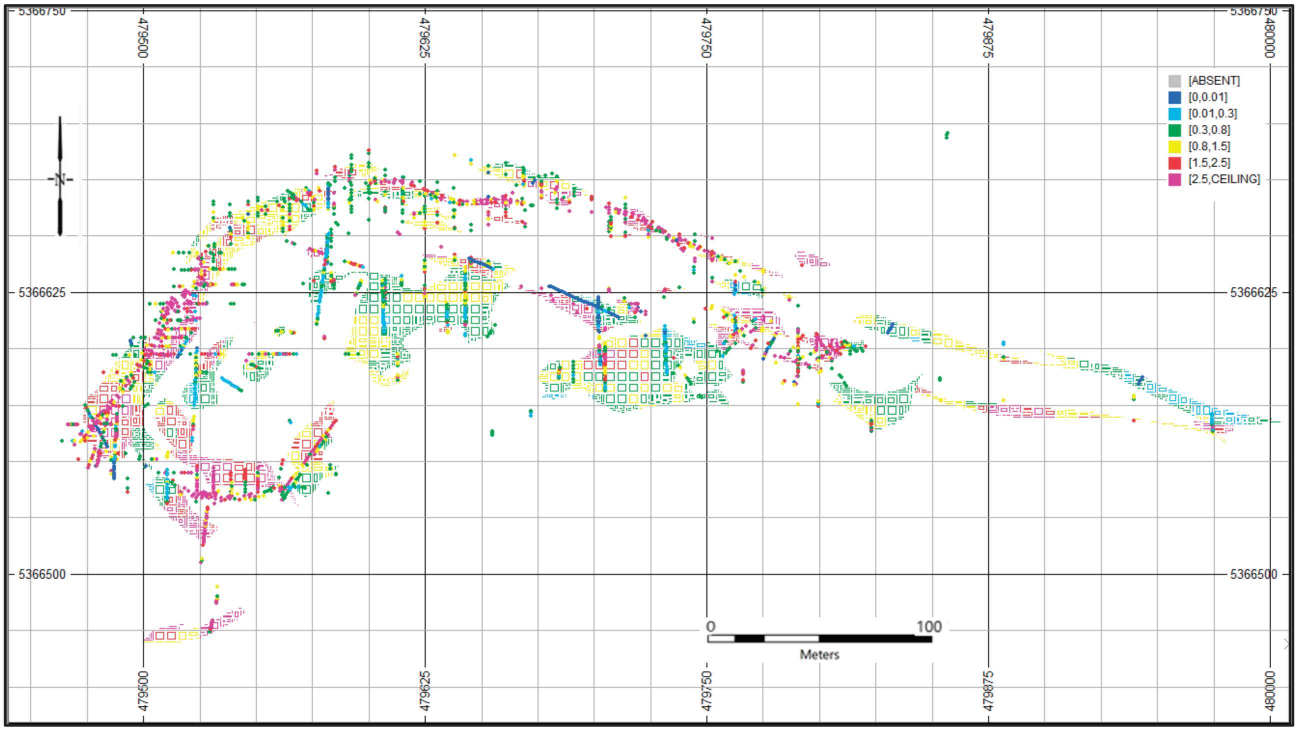

Figure 11-22: Plan View at the 1230 elevation Comparing Block Grades with Drill Hole Data (dots) (prepared by SRK, dated 2021)

11.8.10 Confidence Classification

Industry best practices suggest that classification should consider the confidence in the geological continuity of the mineralized structures, the quality and quantity of exploration data supporting the estimates, and the geostatistical confidence in the tonnage and grade estimates. Appropriate classification criteria should aim at integrating these concepts to delineate regular areas at similar resource classification as well as the continuity of the deposit at the reporting cut-off grade.

The QP is satisfied that the mineralization model honours the current informing data from the geological database. The location of the samples and the assay data are sufficiently reliable to support resource evaluation and do not present a risk that should be considered for block classification. The Mineral Resource model is constrained by mineralized zones based on lithological, structural and grade criteria and is modelled from drill holes and underground sampling on a somewhat irregular grid, with a spacing between 5 and 40 m.

The QP considers the drill spacing to be sufficient to assume reasonable continuity of the gold mineralization. Accordingly, block estimates were classified using a combination of criteria, including confidence in the mineralization's continuity, drilling spacing and estimation results. The following classification criteria were defined:

- **Indicated:** assigned to those continuous blocks located within one of the mineralization zones (Shear Zone, Porphyry Zone, HW Zone or LG Zone) and informed by the data from at least three drill holes within a 30 m buffer. A wireframe surface, which limits and smooths the Indicated category, was also developed.
- **Inferred:** assigned to those blocks located within one of the mineralization domains (Shear Zone, Porphyry Zone, HW Zone or LG Zone) and outside the Indicated contour. An Inferred classification was also assigned to the unconstrained blocks located within the Indicated contour.

All remaining blocks were not classified.

11.8.11 Reasonable Prospects for Economic Extraction

Based on the IA in this Report, the QP concludes that there are reasonable prospects for economic extraction of the Mineral Resources. The Mineral Resources were prepared in accordance with the definitions and standards in S-K 1300.

The requirement for reasonable prospects for economic extraction generally implies that the quantity and grade estimates meet certain economic thresholds and that the Mineral Resources are reported at an appropriate cut-off grade considering extraction scenarios and processing recoveries. The QP considers the mineralization to be amenable to underground mining methods. A cut-off grade of 2.30 g/t gold was determined considering the costs and input parameters summarized in Table 11-25.

Table 11-25: Fuller Optimization Parameters

Parameter	Unit	Value
Mining Cost	$/t	90.00
G&A Cost	$/t	10.50
Haulage Cost	$/t	6.64
Milling Cost	$/t	24.55
Treatment, Transport and Selling Cost	US$/oz	5.00
Payable Metal	%	99
Mining Recovery/Mining Dilution	%	100/10
Gold Price	US$/oz	1,725
Exchange Rate (C$/US$)	-	1.22
Mill Recovery	%	88.0
Revenue Factor	-	1

The mineable shape optimizer algorithm within Deswik software package was used to evaluate the profitability of each resource block based on its value (Figure 11-23). All classified blocks were flagged by the potentially mineable shapes including those below the 2.30 g/t gold cut-off grade.

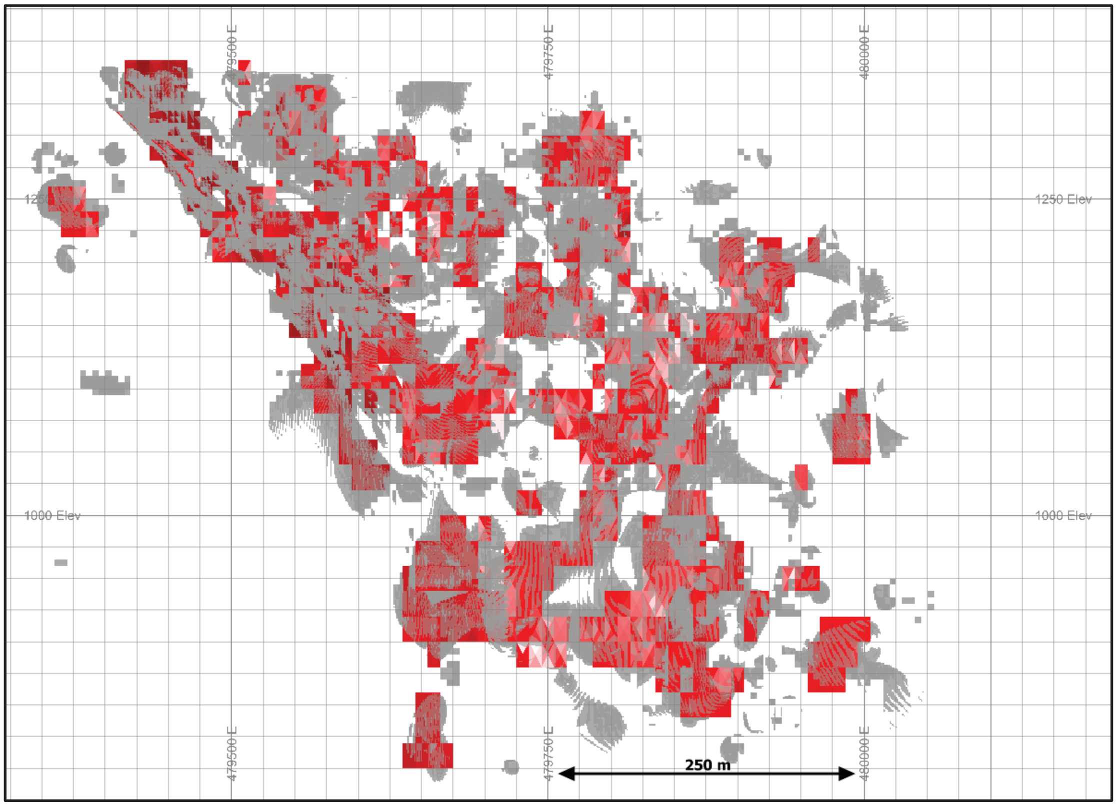

Figure 11-23: East-West Section looking North of Mineable Shape Optimizer Shapes (red) and the Block Model Above Gold Cut-Off Grade 2.30 g/t (grey) (prepared by SRK, dated 2021)

11.8.12 Mineral Resource Statement

Table 11-26 summarizes the Mineral Resource estimates for Fuller underground stoping methods, reported in accordance with the definitions in S-K 1300. The Mineral Resource was limited to those parts of the gold mineralization for which there are reasonable prospects for economic extraction via underground mining methods.

Table 11-26: Fuller Mineral Resource Statement, 30 April 2021

Classification	Tonnes, kt	Au Grade, g/t	Contained Au, koz
Indicated	1,149	4.25	157
Inferred	693	3.41	76

Note: (1) Effective date of the Mineral Resource estimate is 30 April 2021. The QP for the estimate is Dr. Aleksandr Mitrofanov, P.Geo, an employee of SRK

(2) Mineral Resources are reported using the S-K 1300 definitions. Unlike Mineral Reserves, Mineral Resources do not have demonstrated economic viability

(3) Mineral Resources are reported above an economic cut-off grade of 2.30 g/t gold assuming underground extraction methods and based on a mining cost of $90/t, process cost of $24.55/t, G&A cost of $10.50/t, haulage cost of $6.64/t, metallurgical recovery of 88%, 10% NPI royalty, dilution of 10% and gold price of US$1,725/oz

(4) Figures may not sum due to rounding.

11.8.13 Factors That Could Affect the Mineral Resource Estimate

The factors that could materially affect the Mineral Resource Estimate results include:

- The new drilling and sampling information that may potentially extend the mineralization zones down dip and along the strike.
- The metallurgy testwork results that will affect the recovery assumptions of the gold.
- The gold price may alter the mine optimization results.
- Changes in the local geological interpretations and assumptions used to generate the estimation domains
- Changes in mineralization and geological geometry and continuity of mineralized zones
- Changes in assumptions of mineralization and grade continuity
- Changes in the treatment of high-grade gold values
- Changes in the grade interpolation methods and estimation parameter assumptions
- Changes in the confidence assumptions and methods used in the mineral resource classification
- Changes in the density and the methods used in the density assignments
- Changes in gold price and exchange rates and other economic assumptions used in the cut-off grade determination
- Changes in input and design parameter assumptions that pertain to the underground mining constraints
- Changes to assumptions as to the continued ability to access the mine site, retain mineral and surface rights titles, maintain the operation within environmental and other regulatory permits, and maintain the social license to operate
- Changes due to social implications due to the proximity of neighbouring houses.

No other environmental, permitting, legal, title, taxation, socioeconomic, marketing, political or other relevant factors are known to the QP that would materially affect the estimation of Mineral Resources that are not discussed in this Report.

11.9 Davidson-Tisdale

11.9.1 Introduction

In May 2017, Lexam commissioned SRK to conduct a trade-off study for the Davidson-Tisdale gold deposit followed by the preparation of a Mineral Resource estimate and Mineral Resource statement. After acquisition of Lexam by McEwen, the latter commissioned SRK to prepare the Mineral Resource statement for Davidson-Tisdale using the updated economic parameters in April 2021. No additional drilling has been completed on Tisdale-Davidson since 2017 and the existing resource model was used for reporting.

11.9.2 Mineral Resource Database

The resource database comprises primarily of samples from core surface and underground drilling. The database comprises 691 drill holes with a total length of 80,026 m. The total number of samples with gold assays is 24,162 (26,665 m). The database also includes 80,847 m of lithological, structural and alteration logging.

SRK also used six level plans as well as the existing geological and structural maps to guide mineral resource modelling.

On importing the drill hole database to Datamine Studio and Leapfrog software several validation steps were performed and any errors revealed were corrected.

11.9.3 Geological Modelling

11.9.3.1 Mineralized Areas

Gold mineralization at Davidson-Tisdale belongs to the class of structurally controlled Archean lode gold deposits. The mineralization is associated with the quartz vein zones whose distribution and orientation generally corresponds with the structure of the faults.

Two main areas of mineralization were modelled. The North area comprises the most abundant and high-grade mineralization with a general strike of 060° and a dip of 30 to 50° northwest. Mineralization in the North area also has strike lengths up to 300 m and widths up to 20 m. The South area is lower grade, but with good continuity, an eastern strike of 060° and a dip of 10 to 20° north. Mineralization in the South area has strike lengths up to 700 m and widths up to 25 m.

North Area

Three zones of mineralization were modelled within the North Area: Zones A, B and C. The B Zone was split into Zones B1 and B2 by the Main fault.

A combination of lithological, alteration, structural and grade criteria were used to define the resource domains. The lithological criteria included the presence of foliation, shearing and quartz veins. The grade threshold was chosen as 0.4 g/t gold. The intervals were prioritized based on the satisfaction of one or more criteria as follows:

- High priority intervals – lithological + grade criteria
- Medium priority intervals – only grade criteria
- Low priority intervals – only lithological criteria.

The low priority intervals were used only to maintain the continuity of the mineralized zone and used with adjacent high and medium priority intervals.

Considering the good general continuity, but high variability on a smaller scale, the mineralized zone wireframes were modelled in two steps:

- Generation of the external general wireframe manually containing some internal barren intervals within it (Figure 11-24)
- Generation of the internal wireframe within the external contour with semi-automatic wireframing algorithms which excludes the barren intervals and follows the general trend of the mineralized zone (Figure 11-25). This wireframe was used to constrain grade estimation.

South Area

South Area wireframe (S Zone) was modelled based on quartz veins lithological criteria only. Lexam describes the S Zone as having very good continuity, but relatively low grades so no internal wireframe was constructed (Figure 11-26).

11.9.4 Composites

Most of the analytical samples within the mineralized areas were collected at 0.5 m and 1 m intervals. A modal composite length of approximately 1 m was applied to all the data generating composites as close to the 1 m as possible, while creating residual intervals of up to 0.5 m in length.

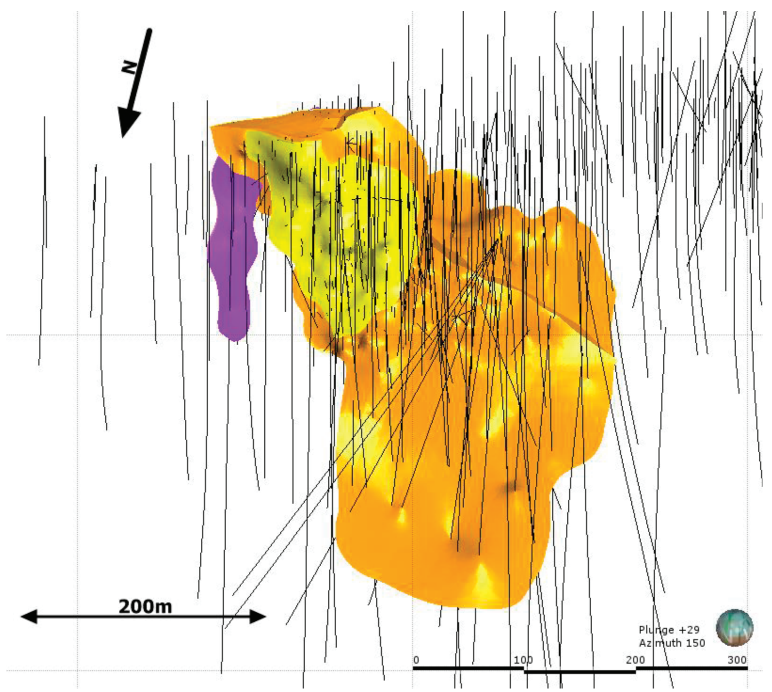

Figure 11-24: Isometric View of the Davidson-Tisdale North Area, External Contours (prepared by SRK, dated 2021)

Note: A Zone – purple, B Zone – orange, C Zone – yellow

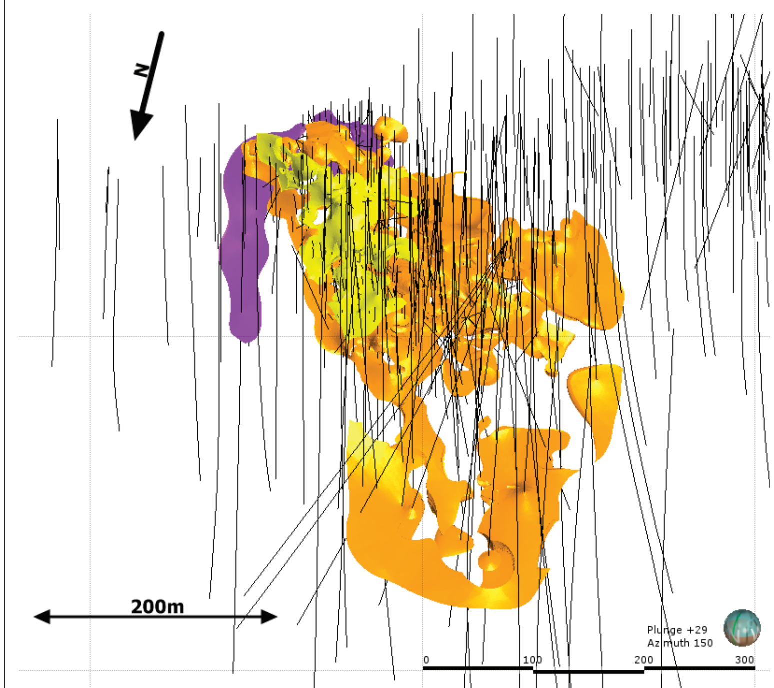

Figure 11-25: Isometric View of the Davidson-Tisdale North Area, Internal Contours (prepared by SRK, dated 2021)

Note: A Zone – purple, B Zone – orange, C Zone – yellow

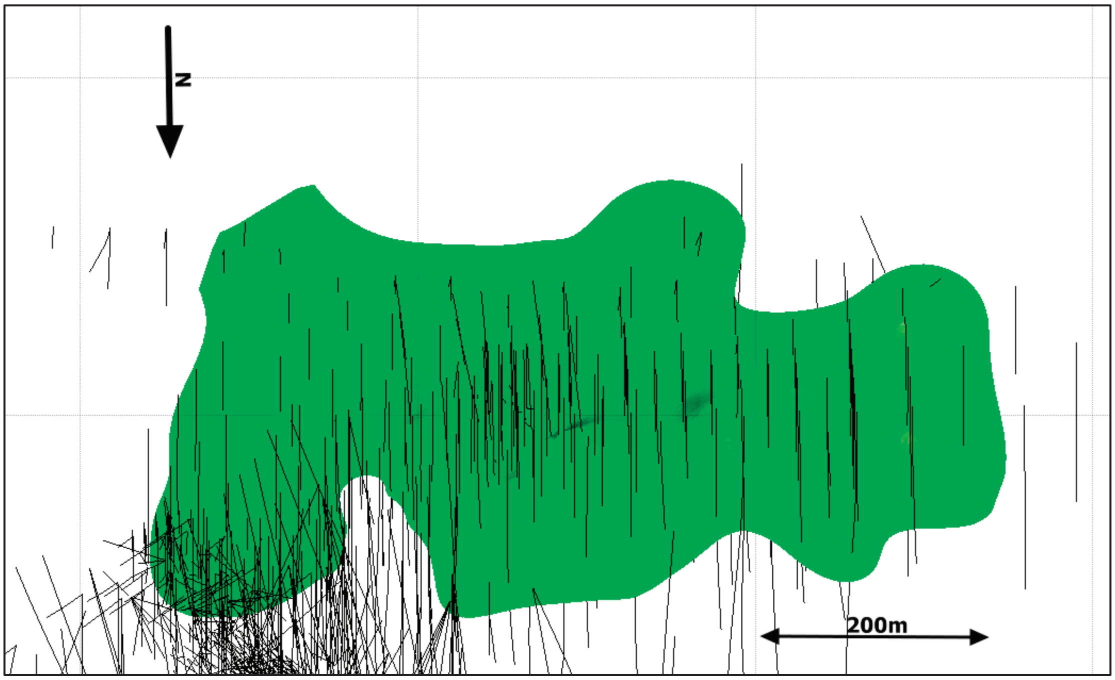

Figure 11-26: Isometric View of the S Zone Wireframe (prepared by SRK, dated 2021)

11.9.5 Capping

The impact of high-grade outlier populations was examined on composite data using log probability plots and cumulative statistics separately for all mineralized areas. A capping value of 110 g/t was applied for the B Zone and 100 g/t for the C and S Zones. No capping was used for the A Zone. Results are presented in Table 11-27 for each zone with metal removed, ranging from 6% in C Zone to 29% in B Zone.

Table 11-27: Davidson-Tisdale – Metal Removed by Capping Composites

Domain	Raw Composites		Capped Grade, g/t	Capped Composites		No. Capped	Metal Removed, %
	Mean, g/t	CV		Mean, g/t	CV		
North Zone							
A Zone	5.54	1.61	-	5.54	1.61	-	-
B1+B2 Zone	5.59	6.40	110	3.99	3.16	16	29
C Zone	4.56	3.44	100	4.29	3.12	5	6
South Zone							
S Zone	1.71	7.33	100	1.45	6.01	5	15

Note: CV = coefficient of variation

11.9.6 Density

In 2012, a total of 55 core samples were taken and analyzed at AGAT (Altman et al., 2014). The average bulk density 2.87 g/m^3 of the 55 samples was applied to this resource estimate for Zones A, B and C.

For Zone S, a more conservative density value of 2.70 g/m^3 was used on Lexam's recommendation.

11.9.6.1 Variography

The spatial distribution of gold in the North and South areas was evaluated using variograms and correlograms.

Variograms/correlograms were modelled using two spherical structures and three rotations to match the strike, dip and plunge of the modelled mineralization. Nugget effects are 40% for both areas.

11.9.7 Grade Estimation

The criteria used in the selection of block size included the drill hole spacing, composite length, the geometry of the modelled zone, and the anticipated mining method. A block size of 5 m x 5 m x 5 m was selected. Sub-cells were used allowing a resolution of 0.5 m x 0.5 m x 0.5 m to better reflect the shape of the mineralized area. No rotation was applied to the block model.

Ordinary kriging was used to estimate the blocks within the mineralized zones using a three-pass approach in the North Area and four passes in the South Area. An initial pass in the S Zone focused on estimating areas where there were high-grade composite values. Capped composites with a tight isotropic search ellipse were used to limit the number of blocks estimated to one or two in each direction. Subsequent passes were made with composites capped to 10 g/t gold to minimize smearing of high-grade outliers in lower grade areas and increasing search ranges based on the variogram ranges. Datamine's dynamic anisotropy function was implemented due to the anisotropic nature and widths of the mineralized zones.

Data selection for mineralized zones varied for each pass requiring a minimum number of composites between seven and four and a maximum number of composites between 10 and 16 for passes 1 to 3. Estimated blocks required at least three holes in pass 1, and two holes in pass 2 and 3.

11.9.8 Model Validation

The block model was validated by visual comparison of informing sample data with resource blocks data (on plan and section, see Figure 11-27) and with swath plots (section by section) comparing the ordinary kriged blocks with the informing composite data.

The results of the validation show that the block model acceptably reflects the assay sample data. The deviations between the averages on swath plots appear within the areas of the low data density and within the S Zone where more restrictive capping was applied.

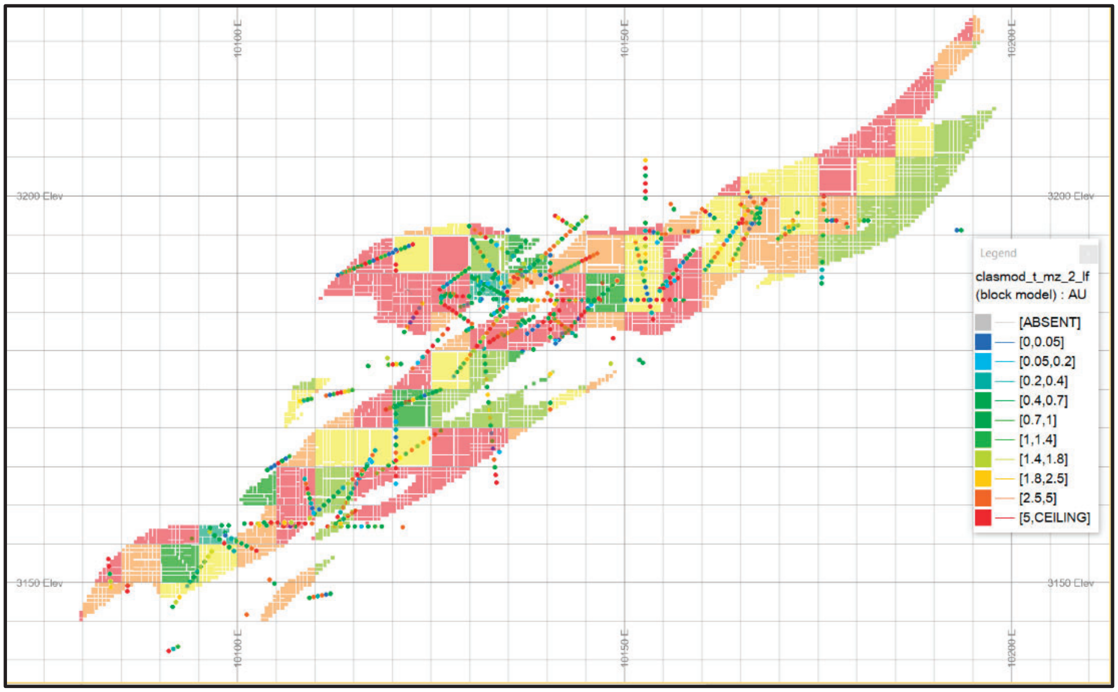

Figure 11-27: East-West Cross-Section at Y=9,920 Comparing B Zone Estimated Blocks and Composite Data (prepared by SRK, dated 2021)

11.9.9 Confidence Classification

Industry best practices suggest that classification should consider the confidence in the geological continuity of the mineralized structures, the quality and quantity of exploration data supporting the estimates, and the geostatistical confidence in the tonnage and grade estimates. Appropriate classification criteria should aim at integrating these concepts to delineate regular areas at similar resource classification as well as the continuity of the deposit at the reporting cut-off grade.

The QP is satisfied that the mineralization model honours the current informing data from the geological database. The location of the samples and the assay data are sufficiently reliable to support resource evaluation and do not present a risk that should be considered for block classification. The Mineral Resource model is constrained by mineralized zones based on lithological, structural and grade criteria and is modelled from drill holes on a somewhat irregular grid, with a spacing between 5 and 40 m.

The QP considers the drill spacing to be sufficient to assume reasonable continuity of the gold mineralization. Accordingly, block estimates were classified using a combination of criteria, including confidence in the mineralization's continuity, drilling spacing and estimation results. The following classification criteria were defined:

- **Measured:** assigned to those continuous blocks located within Zones B and C of the North Area and informed by the data from at least three drill holes within a 15 m buffer. The wireframe surface, which limits and smooths the Measured category, was also developed.
- **Indicated:** assigned to those continuous blocks informed by the data from at least three drill holes within one search radius (one variogram range). The wireframe surface, which limits and smooths the Indicated category, was also developed.
- **Inferred:** assigned to all remaining blocks.

11.9.10 Reasonable Prospects for Economic Extraction

Based on the IA in this Report, the QP concludes that there are reasonable prospects for economic extraction of the Mineral Resources. The Mineral Resources were prepared in accordance with the definitions and standards in S-K 1300.

The requirement for reasonable prospects for economic extraction generally implies that the quantity and grade estimates meet certain economic thresholds and that the Mineral Resources are reported at an appropriate cut-off grade considering extraction scenarios and processing recoveries. The QP considers the mineralization is amenable to underground extraction. A cut-off grade of 2.20 g/t gold was determined considering the cost and input parameters summarized in Table 11-28.

The mineable shape optimizer algorithm within Deswik software package was used to evaluate the profitability of each resource block based on its value (Figure 11-28). All classified blocks were flagged by the potentially mineable shapes including those below the 2.20 g/t gold cut-off grade.

Table 11-28: Davidson-Tisdale Optimization Parameters

Parameter	Unit	Value
Mining Cost	$/t	90.00
G&A Cost	$/t	10.50
Haulage Cost	$/t	5.72
Milling Cost	$/t	24.55
Treatment, Transport and Selling Cost	US$/oz	5.00
Payable Metal	%	99
Mining Recovery/Mining Dilution	%	100/10
Gold Price	US$/oz	1,725
Exchange Rate (C$/US$)	-	1.22
Mill Recovery	%	92.0
Revenue Factor		1

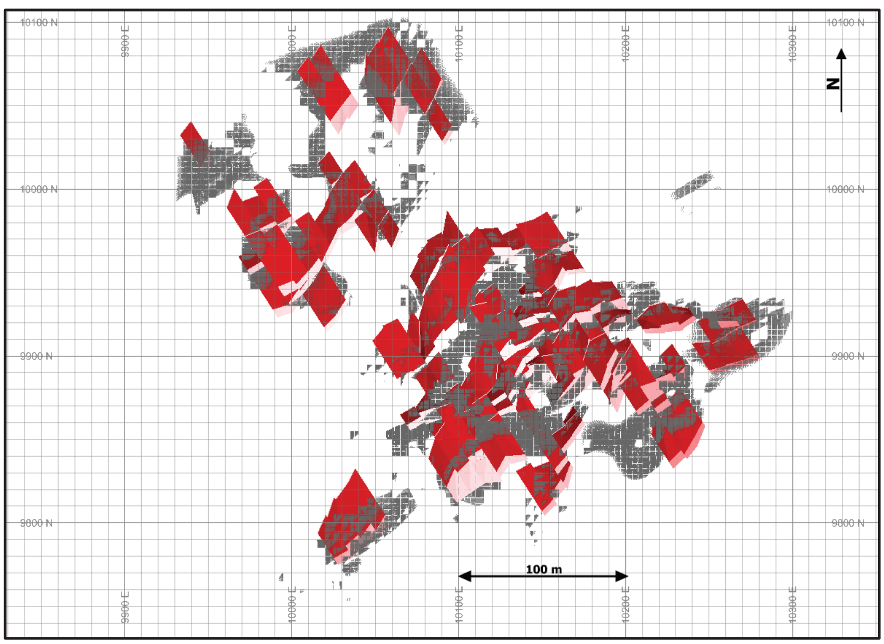

Figure 11-28: Plan View of the Mineable Shape Optimizer Shapes (red) and the Davidson-Tisdale Block Model Above Gold Cut-Off Grade 2.20 g/t (grey) (prepared by SRK, dated 2021)

11.9.11 Mineral Resource Statement

Table 11-29 summarizes the Mineral Resource estimates for Davidson-Tisdale assuming underground mining methods, reported in accordance with the definitions and standards in S-K 1300. The Mineral Resource was limited to those parts of the gold mineralization for which there are reasonable prospects for economic extraction via underground mining methods.

Table 11-29: Davidson-Tisdale Mineral Resource Statement, 30 April 2021

Classification	Tonnes, kt	Au Grade, g/t	Contained Au, koz
Measured	200	7.25	47
Indicated	75	6.42	15
Total M+I	**275**	**7.02**	**62**
Inferred	105	4.35	15

Note: (1) Effective date of the Mineral Resource estimate is 30 April 2021. The QP for the estimate is Dr. Aleksandr Mitrofanov, P.Geo, an employee of SRK

(2) Mineral Resources are reported using the S-K 1300 definitions. Unlike Mineral Reserves, Mineral Resources do not have demonstrated economic viability

(3) Mineral Resources are reported above an economic cut-off grade of 2.20 g/t gold assuming underground extraction methods and based on a mining cost of $90/t, process cost of $24.55/t, G&A cost of $10.50/t, haulage cost of $5.72/t, metallurgical recovery of 92%, dilution of 10% and gold price of US$1,725/oz

(4) Figures may not sum due to rounding.

11.9.12 Factors That Could Affect the Mineral Resource Estimate

The factors that could materially affect the Mineral Resource Estimate results include:

- New drilling and sampling information that may potentially extend the mineralization zones down dip and along the strike.
- Metallurgy testwork results that will affect the recovery assumptions of the gold and other metals.
- Changing gold prices may alter the mine optimization results.
- Changes in the local geological interpretations and assumptions used to generate the estimation domains
- Changes in mineralization and geological geometry and continuity of mineralized zones
- Changes in assumptions of mineralization and grade continuity
- Changes in the treatment of high-grade gold values
- Changes in the grade interpolation methods and estimation parameter assumptions
- Changes in the confidence assumptions and methods used in the mineral resource classification

- Changes in the density and the methods used in the density assignments
- Changes in metal price and exchange rates and other economic assumptions used in the cut-off grade determination
- Changes in input and design parameter assumptions that pertain to the underground mining constraints
- Changes to assumptions as to the continued ability to access the mine site, retain mineral and surface rights titles, maintain the operation within environmental and other regulatory permits, and maintain the social license to operate.

12.0 Mineral Reserve Estimates

This is a technical report summary of an IA and there are no Mineral Reserve estimates for the Fox Complex.

13.0 Mining Methods

13.1 Introduction

High-level evaluations were completed to evaluate open pit and underground trade-off scenarios for Grey Fox and Fuller. Due to the depth of the deposit, it was assumed that underground mining methods were preferable for the Stock West deposit. The results indicated underground mining is preferable at Grey Fox, and a combination of open pit to underground was preferable at Fuller. The high-level variation between an open pit to underground and an underground-only mine at Fuller is relatively low, and to reduce potential surface impacts, the decision was made to proceed with an underground operation at Fuller.

Mining at the Fox Complex is currently conducted using underground mining methods at Froome Mine and will continue as underground operations across all project sites, with production from Grey Fox commencing in Year 4, from Stock West in Year 4, and from Fuller in Year 9. A target processing rate of approximately 2,000 t/d was used to schedule the LOM.

Significant work is in progress to reduce mining costs at Froome. The mining costs for Froome are expected to drop as mining continues by reducing infrastructure development, sharing the G&A costs across the complex, and by increasing the annual mining tonnage at Froome.

A subset of the LOM Mineral Resources within the Fox Complex is summarized Table 13-1.

The underground mines are planned to be accessed from surface portals, using existing infrastructure where possible and establishing new portals where required. Either mechanized transverse or longitudinal open stoping will be used to exploit the deposits. Underground production rates will vary across the sites by year, but are planned to maintain a target mill feed of 2,000 t/d.

This assessment is preliminary in nature, includes Inferred Mineral Resources that are considered too speculative geologically to have modifying factors applied to them that would enable them to be categorized as Mineral Reserves and there is no certainty that this economic assessment will be realized.

S-K 1300 permits the inclusion of Inferred Mineral Resources in the economic analysis provided that a version of the economic analysis that excludes the Inferred Mineral Resources is also presented. That version is presented in Section 13.8.

Table 13-1: Subset of the Mineral Resources within the Fox Complex within the IA Mine Plan

Classification	Tonnes, kt	Au Grade, g/t	Contained Oz Au, koz
Indicated	5,926	4.18	797
Inferred	1,657	3.61	192

Note: (1) Input assumptions to constrain the Froome estimate above 225mL include metal price of US$1,725/oz gold, development cut-off grade of 0.5 g/t gold, production cut-off grade of 2.8 g/t gold, process recovery of 89.5%, mining costs of $115.65/t including haulage, process costs of $22.14/t, G&A costs of $23.26/t, haulage costs to the Fox Mill of $6.14/t, sustaining costs of $38.04/t, internal dilution of 5%, external dilution of 5% and recovery of 95%.

(2) A higher gold price has been used for the Froome mine plan above 225mL because it will be produced earlier in the mine plan and is influenced by the higher current gold price

(3) Input assumptions to constrain the Froome estimate below 225 mL include metal price of $1,650/oz gold, development cut-off grade of 0.7 g/t gold, production cut-off grade by zone of 2.2 g/t gold, process recovery of 87%, mining costs of $52.47/t, process costs of $22.03/t, haulage costs to the Fox Mill of $6.14/t, G&A costs of $16.90/t, transport costs of $1.24/oz, sustaining costs of $13.62/t, internal dilution of 32%, external dilution of 14% and recovery of 95%.

(4) Input assumptions to constrain the Grey Fox estimate include metal price of US$1,650/oz gold, development cut-off grade of 0.7 g/t gold, production cut-off grade by zone of 2.5-2.6 g/t gold, process recovery by zone of 81.0-93.1%, mining costs of $66.15/t, process costs of $22.57/t, haulage costs of $5.53/t, G&A costs of $18.48/t, transport costs of $1.24/oz, sustaining costs of $38.04/t, internal dilution of 31%, external dilution of 15% and recovery of 95%.

(5) Input assumptions to constrain the Stock West estimate include metal price of US$1,650/oz gold, development cut-off grade of 0.7 g/t gold, production cut-off grade of 2.2 g/t gold, process recovery of 94%, mining cost of $72.18/t, process costs of $20.62/t, G&A costs of $18.92/t, transport costs of $1.24/oz, sustaining costs of $51.87/t, internal dilution of 19%, external dilution of 14% and recovery of 95%.

(6) Input assumptions to constrain the Fuller estimate include metal price of US$1,650/oz gold, development cut-off grade of 0.7 g/t gold, production cut-off grade of 2.4 g/t gold, process recovery of 88%, mining cost of $60.12/t, process costs of $20.62/t, haulage costs of $6.64/t, G&A costs of $16.55/t, transport costs of $1.24/oz, sustaining costs of $34.60/t, internal dilution of 29%, external dilution of 17% and recovery of 95%.

(7) Figures may not sum due to rounding.

13.2 Underground Mining

The Fox Complex mining operations are planned to extract mineralized material from four independent operations. The Froome Mine at the Black Fox site entered production in 2021. Grey Fox is located 3.5 km southeast of the existing Black Fox mine and has six defined zones for extraction using two portals from surface and four internal declines to access the zones. Stock West is located near the existing Fox Mill and will develop a new decline access from surface to the deposit. Initial access to the Fuller Mine will involve the rehabilitation of the existing portal and workings of the historical Fuller Mine with the development a new decline to the deposit, connecting with historical workings.

Using a simplified all-in cost of US$150/t and US$1,625/oz gold price, Table 13-2 was generated to summarize early scheduling decisions for the timing of the three new mining complexes, as well as the internal scheduling of the Grey Fox mining zones.

Table 13-2: Fox Complex Expansion Production Summary of IA Mine Plan

Zone	Category	Tonnes, kt	Grade, g/t	Mill Recovery, %	Recovered Au Ounces, koz	Total Au Production, %	Total Simplified Cashflow, %
Froome	Measured & Indicated	1,383	3.32	89.5	132.3	15.9	2
	Inferred	20	2.38		1.4		
Grey Fox Gibson	Indicated	236	4.10	81.0	25.2	4.5	3
	Inferred	116	4.13		12.4		
Grey Fox Contact	Indicated	578	4.36	86.4	70.0	8.9	10
	Inferred	39	4.43		4.7		
Grey Fox 147NE	Indicated	428	4.81	88.0	58.2	7.9	13
	Inferred	36	7.82		8.1		
Grey Fox 147	Indicated	682	4.36	93.1	89.1	11.7	16
	Inferred	59	5.45		9.6		
Grey Fox South	Indicated	632	4.60	91.2	85.3	11.8	16
	Inferred	112	4.23		13.9		
Grey Fox Whiskey Jack	Indicated	367	6.41	85.0	64.3	8.8	18
	Inferred	74	4.91		9.9		
Stock West	Indicated	901	3.87	94.0	105.4	20.9	16
	Inferred	681	3.43		70.5		
Fuller	Indicated	719	4.06	88.0	82.5	14.8	6
	Inferred	521	2.89		42.6		

Note: Figures may not sum due to rounding.

13.3 Froome

13.3.1 Summary

Froome mine development started with the initial ramp development in 2020, culminating with the initial stope production in early 2021. The mine is now producing at a daily rate range of 1300-1,500 t/d and further optimizations are underway to improve gold production.

The Froome mine has a relatively short mine life that will strategically provide feed to the Fox Mill while additional resources at Grey Fox and Stock West are developed and brought into production. The estimated mine life of Froome is currently three years from production start in 2021, however, the LOM plan in this IA considers production from 2022. Froome is designed to be a profitable standalone mine.

13.3.2 Subset of Mineral Resource Estimate within the IA Mine Plan

The optimized stope shapes used to establish the final mine design and obtain a subset of the Mineral Resource estimate are presented in Chapter 11. Table 13-3 and Table 13-4 presents the subset of the Mineral Resource that is used in the IA mine plan.

Table 13-3: Froome Subset of Mineral Resource Estimate above 225 mL in the IA Mine Plan

Classification	Tonnes, kt	Au, g/t	Contained Au, koz
Measured and Indicated	1,288	3.36	139
Inferred	-	-	-

Note: (1) Input assumptions to constrain the Froome estimate above 225 mL include metal price of US$1,725/oz gold, development cut-off grade of 0.5 g/t gold, production cut-off grade of 2.8 g/t gold, process recovery of 89.5%, mining costs of $115.65/t including haulage, process costs of $22.14/t, G&A costs of $23.26/t, transport costs to the Fox mill of $6.14/t, sustaining costs of $38.04/t, internal dilution of 5%, external dilution of 5% and recovery of 95%.
(2) A higher gold price has been used for the Froome mine plan above 225mL because it will be produced earlier in the mine plan with an assumed near-term gold price influenced by the current gold prices
(3) Figures may not sum due to rounding.

Table 13-4: Froome Subset of Mineral Resource Estimate below 225 mL in the IA Mine Plan

Classification	Tonnes, kt	Au, g/t	Contained Au, koz
Indicated	95	2.83	8
Inferred	20	2.38	2

Note: (1) Input assumptions to constrain the Froome estimate below 225 mL include metal price of US$1,650/oz gold, development cut-off grade of 0.7 g/t gold, production cut-off grade by zone of 2.2 g/t gold, process recovery of 87%, mining costs of $52.47/t, process costs of $22.03/t, haulage costs of $6.14/t, G&A costs of $16.90/t, transport costs of $1.24/oz, sustaining costs of $13.62/t, internal dilution of 32%, external dilution of 14% and recovery of 95%.
(2) Figures may not sum due to rounding.

13.3.3 Mining Method

The Froome mine is situated between 275 mL and 100 mL levels. The mining methods used are longitudinal and transverse long hole mining with delayed backfill in a bottom-up sequence accessed from the footwall of the deposit. The levels are spaced at 25 m intervals and follow the strike of the Froome deposit. Initial production is focusing on the highest tonnage and highest-grade central area and will progress upwards from the 200 mL, which will be established as a sill level to the 100 mL top level. A ramp will be driven down to the 275 mL, and production will progress upwards from the 275 mL to the 250 mL, which is situated underneath the 225 mL sill level. The average stope size is 25,000 t. Mined material is trucked from each sublevel to surface where it will be hauled to the Fox Mill.

Production drilling uses in-the-hole drills (ITH) which are suited for longer accurate holes. Stope raises are established using 61 cm bored slot holes as the relief face with 11 cm production holes loaded with explosives. Once a stope has been mined, both longitudinal and primary transverse stopes are filled using cemented hydraulic fill while secondary transverse stopes will use unconsolidated mine hydraulic backfill or rockfill.

Longitudinal mining will start at the extremities of the access drift and retreat towards the intersection crosscut. Transverse mining stopes will start in the centre of the deposit and be mined in a primary/secondary sequence. Both methods will utilize drop raises as the free face and all material will be blasted towards the raise. Longitudinal mining on the 250 mL and 100 mL elevations will require inverse raises due to the mining under previously mine stopes (225 mL sill level) and being the top level respectively.

13.3.4 Geotechnical and Hydrogeological

13.3.4.1 Geotechnical

Geotechnical design work was initially performed by Golder Associates (Golder) (2016a) and was revisited by Mine Design Engineering Inc. (MDEng, 2019b) including the stope dimensioning and mining sequence. MDEng created a list of assumptions listed below:

- Stope panel lengths for both transverse and longitudinal stopes should be restricted to 15 m in strike length.
- Stopes can be extracted full deposit length (approximately 40 m hangingwall to footwall) and to 25 m height (floor to floor).
- Cable bolting of the hangingwall from the top and bottom cuts can be used to increase the hangingwall stability and reduce dilution where required.
- Sequencing can be designed for optimal production convenience with minimal concern for mining induced stress related problems. Numerical stress modelling should be

conducted as the project advances to verify low risk levels for mining induced stress hazards and relaxation of the hangingwall as extraction progresses.

- Backfill strength for 30 m high vertical exposures should be a minimum 0.5 MPa for cemented hydraulic backfill and 0.75 MPa for cemented rockfill.
- Mining directly under a backfilled stope will require either a permanent rock sill pillar (approximately 1:1 width to height ratio) or a cemented fill plug with an uniaxial compressive strength between 1.4 and 2.5 MPa depending on the undercut span. Detailed engineering for mining under fill will be required as the project advances and is currently being evaluated.
- Vertical development should be sited outside the chlorite-talc schist, if possible. When evaluating construction methods, consideration should be given to ground support requirements.

13.3.4.2 Crown Pillar Analysis

In 2016, Golder Associates (Golder, 2016a) completed an analysis of the crown pillar and stope sizing for the Froome deposit. Golder recommended that the crown pillar be 30 m thick for a mine under an open pit and 50 m for a mine not under an open pit (includes overburden). The current plan for the Froome crown pillar is 60 m including the overburden.

13.3.4.3 Hydrogeological

The assumed inflow of water into the mine will be 23 m^3/h. This is an assumption that was made by Stantec. This could be higher when developing Froome due to its shallow depth. A hydrogeological hole was drilled January 2020 below the Froome Lake through the planned development to determine potential inflow of water and results have shown low permeability of the rock. The worst case has been assumed for developing through this area with contingency funds set aside in case of grouting requirements.

Three wells allow for water to fill and pump into the Black Fox Mine water holding pond which has the capacity to accommodate the additional storage of water. These wells will be serviced by three pumps displacing a total of 141,147 m^3/year.

13.3.5 Access

The Froome deposit required approximately 8,500 m of capital and operating lateral development. Two parallel 1.0 km ramps were driven at a -5% grade from the western wall of the Black Fox pit to the deposit. The initial ramp development access to the first mining horizon was completed in April 2021. The primary ramp provides main access and haulage and serves as the ventilation exhaust drift. The second ramp serves as a fresh air drift and a secondary egress. The ramps are connected at irregular intervals that acted as ventilation loops during the initial development phase.

An internal ramp was driven from the declines to access the production levels.

For transverse stoping, the stopes are accessed through crosscuts from the footwall and are connected to the main ramp. Material handling infrastructure, ventilation raises, and egress access are all accessed from the footwall drives.

For longitudinal mining, stopes are accessed through sills and are connected to the internal ramp through a sill access drift. Similar to the transverse mining method, material handling infrastructure, ventilation raises, and egress accesses are accessed from the footwall. Figure 13-1 illustrates the development access at Froome.

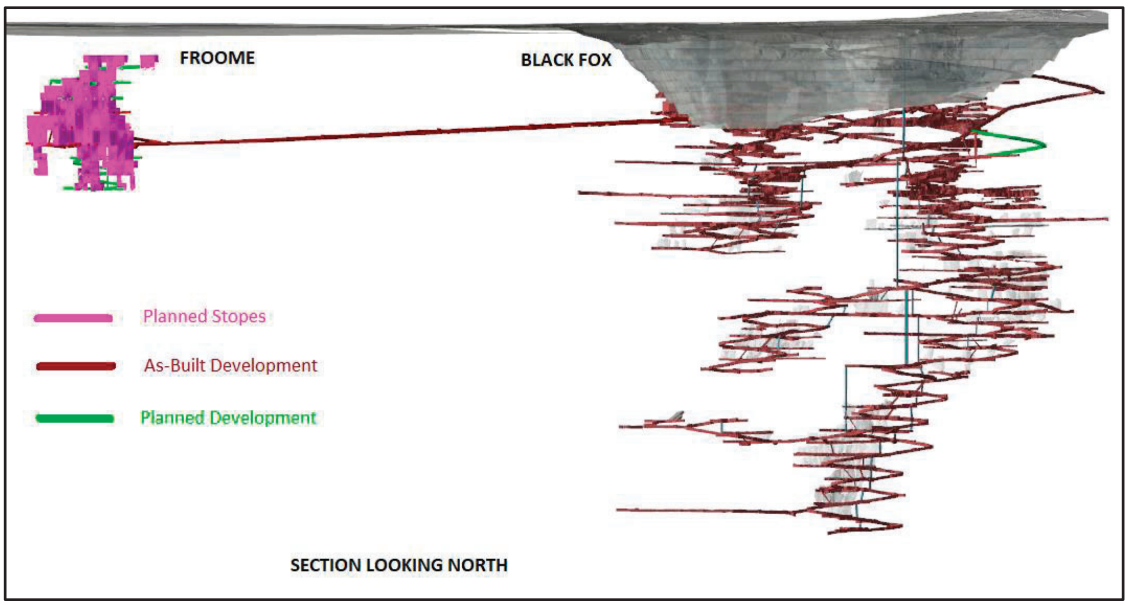

Figure 13-1: Black Fox and Froome Long Section Looking North (prepared by McEwen, dated 2021)

13.3.6 Stope Design

Average stope design parameters are outlined in Table 13-5.

Table 13-5: Froome Average Production Stope Parameters

Parameter	Unit	Value
Height	m	25
Width	m	14 (along strike)
Length	m	15 to 40
Average Tonnage	t	25,000
Tonnes per Drill Metre	t/m	12.3
Powder Factor	kg/t	0.8

13.3.6.1 Cut-off Grade

The cut-off grade calculation was based on current and projected mining and operation costs.

Stope shapes generated by the cut-off grade were evaluated on an individual basis within the mining area for economic viability (Table 13-6 and Table 13-7).

Broken development material hauled to surface is scheduled to be processed at grades greater than 0.7 g/t as it is greater than the 0.5 g/t processing breakeven grade.

Table 13-6: Froome Above 225 mL Cut-off Grade Calculation

Description	Unit	Value
Revenues		
Gold Price	US$/oz	1,725
Exchange Rate (C$/US$)	-	1.22
Operating Costs		
Mining Operating Cost	$/t	115.65
Processing Costs	$/t	22.14
Surface Haulage to Mill	$/t	6.14
G&A	$/t	23.26
Royalty Amortization	$/oz	1.21
Operating Recoveries		
Mining Recovery	%	95
Milling Recovery	%	91.5
Gold Payable	%	99.95
Cut-off Grade		
Processing Breakeven Grade	g/t	0.94
Operating Breakeven Grade	g/t	1.94
Stoping Cut-off Grade	**g/t**	**2.80**

Note: (1) Royalty costs are amortization of the purchased royalty cost
(2) A higher gold price has been used for the Froome mine plan above 225 mL due to influence of current gold prices.

Table 13-7: Froome Below 225 mL Cut-off Grade Calculation

Description	Unit	Value
Revenues		
Gold Price	US$/oz	1,650
Exchange Rate (C$/US$)	-	1.22
Operating Costs		
Sustaining Capital Cost	$/t	13.62
Mining Operating Cost	$/t	52.47
Processing Costs	$/t	22.03
Surface Haulage to Mill	$/t	6.14
G&A	$/t	16.90
Transport, Insurance & Refining	$/oz	1.24
Operating Assumptions		
Dilution	%	7
Mining Recovery	%	95
Milling Recovery	%	87
Royalty	%	0
Gold Payable	%	99.95
Cut-off Grade		
Processing Breakeven Grade	g/t	0.5
Operating Breakeven Grade	g/t	2.0
Sustaining Breakeven Grade	g/t	2.2
Production Recovery Margin		10%
Stoping Cut-off Grade	**g/t**	**2.20**

13.3.6.2 Stope Shape Optimization Parameters

Table 13-8 and Table 13-9 present the target stope shape optimization parameters above and below 225 mL, respectively. Design work for Froome was split vertically at the 225 mL for evaluation, as the main access ramp provides initial access to the 200 mL and the initial production sequencing is from the 200 mL going up. The section above 225 mL was evaluated as an active production zone with detailed stope design, level design, and sequencing for an active production area. The section below 225 mL was evaluated as a future expansion with access development starting in 2023 and designed at an IA level of detail.

Table 13-8: Froome Above 225 mL Stope Optimization Parameters

Parameter	Unit	Value
Height	m	25
Section Length	m	20
Minimum Width	m	10
Maximum Width	m	18
Stope Pillar Minimum Width	m	1
ELOS Near Side Dilution	m	0.5
ELOS Far Side Dilution	m	0.5
Minimum Dip	degree	65
Maximum Dip	degree	80

Table 13-9: Froome Below 225 mL Stope Optimization Parameters

Parameter	Unit	Value
Height	m	25
Section Length	m	6
Minimum Width	m	2.1
Maximum Width	m	30
Stope Pillar Minimum Width	m	11
ELOS Near Side Dilution	m	0.5
ELOS Far Side Dilution	m	0.5
Minimum Dip	degree	60
Maximum Dip	degree	120

13.3.7 Underground Infrastructure

13.3.7.1 Existing Infrastructure

The access declines to the Froome deposit are completed and development is ongoing within the deposit to support production activities. All of the underground infrastructure is unique to Froome, with the exception of the Black Fox air compressor.

Surface infrastructure common to both Black Fox and Froome includes the water treatment facilities, power, the WRSF, the stockpile, and administration and mechanical buildings.

13.3.7.2 Primary Ventilation

The primary ventilation circuit provides 150 m^3/s of fresh air via the ventilation ramp and through the internal fresh air raises. Exhaust air returns to surface through the internal ramp and the main haulage access.

The current design uses two parallel 186 kW, 2.1m diameter axial vane fans and mine heaters at the ventilation ramp near the main access. Mine air velocities are within an acceptable limit of 6.0 to 6.5 m/s. Froome will use a 30 million btu surface mine heater to heat fresh air into the main ventilation access, which will travel down the ventilation ramp and enter the levels through vent raises. The air will move across the levels and internal ramps to exit the mine through the haulage access.

Ventilation requirements of underground equipment have been evaluated based on total engine power (kW) of all equipment, an engine operating factor of 80%, and a leakage factor of 30%. The minimum airflow requirement is based on a requirement of 0.06 $m^3/s/kW$ of diesel-powered equipment.

Secondary ventilation will be required to provide air to active work areas from the fresh air raises through bulkheads/regulators and auxiliary ventilation fans in the footwall drifts/level access drifts.

13.3.7.3 Emergency Preparedness

Refuge stations will be located on 200 mL and 125 mL. The refuge station on 200 mL will be the larger of the two as a permanent installation built in an excavation 5 m x 5.2 m Arched and 15 m deep. The refuge chamber on 125 mL will be a portable refuge that will be stored in a drift near the working face and selected for the maximum crew size expected to be working in the area. All other levels will receive retreat air tents.

The current mine plan uses the fresh air raises as escapeways. Inside each fresh air raise will be a self-contained ladder to provide access to any level. The main fan station in the ventilation decline has a personnel bypass to provide egress to the surface.

13.3.7.4 Backfill

Cemented hydraulic fill will be used on longitudinal and primary transverse stopes. Fill lines will be installed in holes that will be drilled from surface. Unconsolidated mine rockfill will be used in secondary transverse stopes and the final stopes in a longitudinal level.

13.3.7.5 Mine Dewatering

A 12 m-long sump will be developed on each level and drain holes will be drilled between the levels to allow for water to gravity flow to main pumps stations on 200 mL and 275 mL. The mine water from the pumps stations will discharge into the Black Fox water management system.

13.3.7.6 Compressed Air and Process Water

Two compressors are used at Froome. One is located underground at Black Fox and is connected through a borehole. A second is located on the Froome haulage ramp. These provide compressed air to equipment with a redundant backup. The peak requirement for compressed air within the mine is 105 m^3/min while process water requirements reach 60 m^3/h.

Compressed air will be distributed throughout the mine using steel pipe and extended with development services.

13.3.7.7 Power

Mine power is provided from existing Black Fox mine electrical infrastructure. A surface substation above the Froome portals will feed power to the mine through a borehole. Three electrical substations will be required for power distribution underground.

13.3.7.8 Communications

Communications will be provided throughout the mine using handheld or equipment mounted radios supported by a leaky feeder system. The system will be advanced with development to extend communications to working faces.

13.3.7.9 Maintenance Facilities

Scheduled maintenance will be done on surface at the existing Black Fox maintenance shop, and equipment will tram to the surface for service. Breakdown maintenance will be conducted at the working face or in an access drive when it is possible to move the equipment to a better location for service.

13.3.7.10 Explosives Storage

An explosives storage facility exists on the surface to support the mining activities at Froome.

13.3.8 Mine Equipment

The underground Black Fox mining fleet is being utilized at Froome. Table 13-10 lists the fleet required for the Froome Mine.

Table 13-10: Froome Mobile Equipment

Unit	Quantity
ITH	2
2-Boom Jumbo	2
Scissor Deck	3
Mechanized Bolter	1
4yd LHD	1
6yd LHD	3
8yd LHD	2
30t Truck	3
50t Truck	2
Total	**19**

Note: LHD = load haul dump

13.3.9 Mine Schedule

The mine scheduling begins January 2022. A steady state production is estimated to be 1,500 t/d and will be achieved in July 2022. Figure 13-2 illustrates the planned production profile.

The overall strategy focuses on the higher tonnage, higher grade transverse mining areas for the initial production while sequencing the production working bottom-up from the 200 mL. A secondary mining front will begin from 275 mL (the bottom of the mine) and mine bottom-up to maintain tonnage while the upper-level stopes are mined longitudinally.

External dilution of 5% is added to the stope shapes. Mining recovery is estimated at 95%.

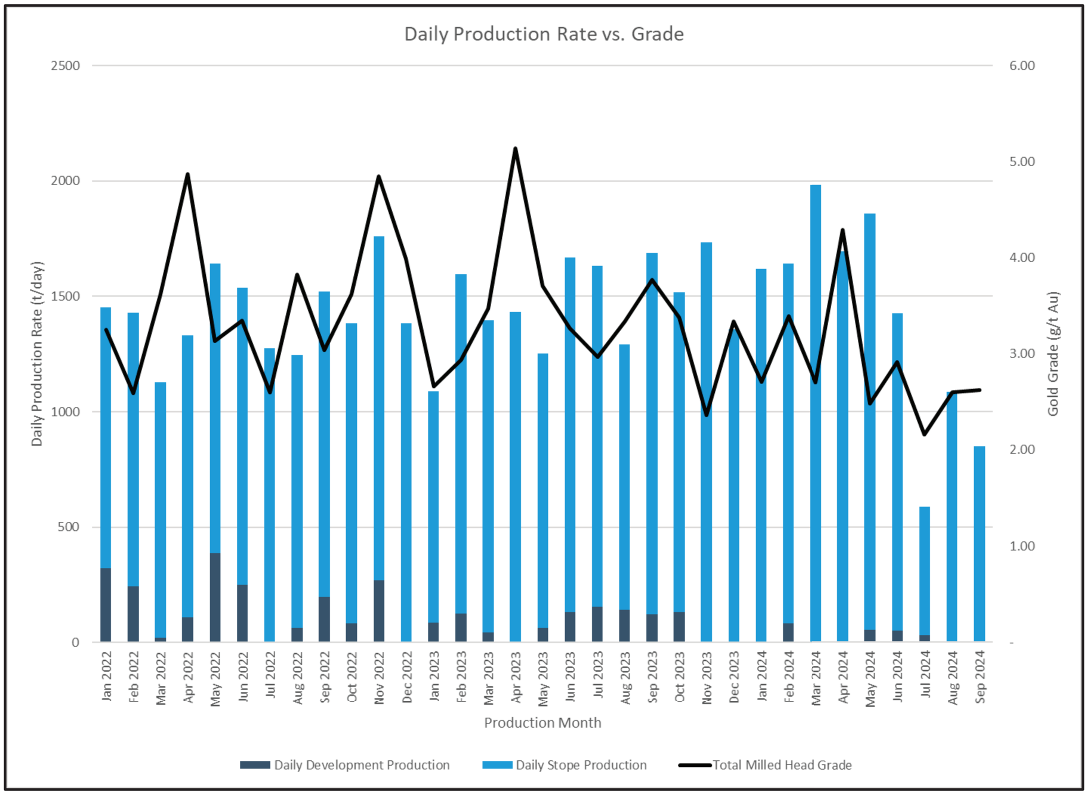

Figure 13-2: Froome Production Profile (prepared by McEwen, dated 2021)

13.4 Grey Fox

13.4.1 Summary

The Grey Fox mine layout has been designed to access six identified zones (Figure 13-3):

- Gibson Zone
- Contact Zone
- 147 Zone
- 147NE Zone
- South Zone
- Whiskey Jack Zone

The steeply dipping geometry of the deposits is suitable to be mined using longitudinal retreat stoping with blind uphole raising without backfill, or downhole longitudinal stoping with backfill.

Mined material will be hauled to surface, stockpiled, sorted on site, and transported to the Fox Mill using contractor and highway haul trucks.

Mining operations are expected to have an eight-year life following a year of development.

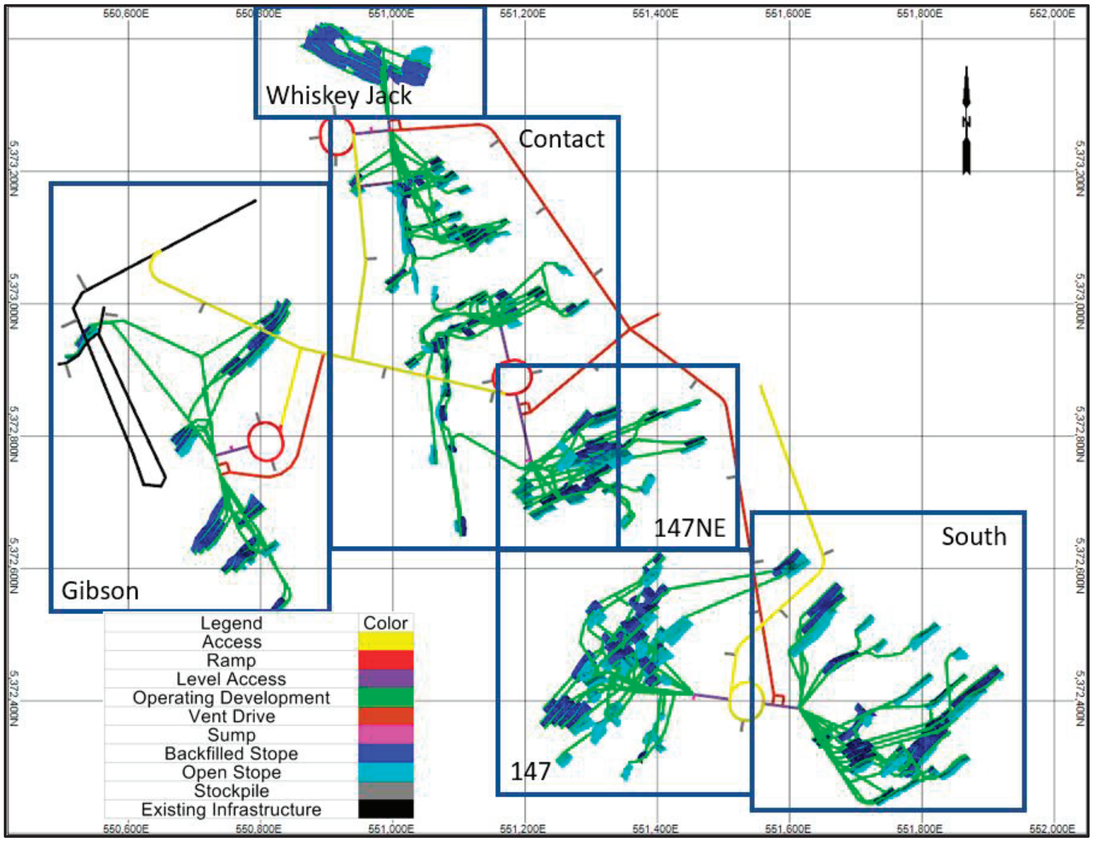

Figure 13-3: Plan View of Grey Fox Delineating Zones (prepared by Wood, dated 2021)

13.4.2 Subset of Mineral Resource Estimate within the IA Mine Plan

Optimized stope shapes were used to establish the final mine design and obtain a subset of the Mineral Resource estimate presented in Chapter 11. Table 13-11 presents the subset of the Mineral Resource that was used in the IA mine plan.

Table 13-11: Grey Fox Subset of Mineral Resource Estimate in the IA Mine Plan

Classification	Tonnes, kt	Au, g/t	Contained Au, koz
Indicated	2,924	4.71	443
Inferred	435	4.81	67

Note: (1) Input assumptions to constrain the Grey Fox estimate include metal price of US$1,650/oz gold, development cut-off grade of 0.7 g/t gold, production cut-off grade by zone of 2.5 to 2.6 g/t gold, process recovery by zone of 81.0 to 93.1%, mining costs of $66.15/t, process costs of $22.57/t, haulage costs of $5.53/t, G&A costs of $18.48/t, transport costs of $1.24/oz, sustaining costs of $38.04/t, internal dilution of 31%, external dilution of 15% and recovery of 95%.

(2) Figures may not sum due to rounding.

13.4.3 Mining Method

Longhole retreat stoping was selected as the preferred mining method based on ground conditions and deposit dimensions.

A vertical level spacing of 22 m was selected based on initial review of stope shapes generated on level spacings compared against a simplified cashflow. A cost factor was applied to the mine operating costs to approximate the variable costs of operating development and production.

Stope width varies between 2.6 and 51.4 m with an average of 8.1 m. Stope shapes with a width greater than 18 m generally span across two mineralized lenses and were removed from the production plan if they were not reasonable mining shapes.

Stopes will be backfilled when another stope is planned to be mined immediately above it and left open when it is at the top of the lens. Blind uphole retreat stoping will be used to extract open stopes, eliminating the need for development of an overcut drift. Downhole mining will be used to extract stopes with access from a drill drive above.

At the bottom of the mining zones, development benching with cemented rockfill has been planned in the floor of the deepest levels where there is sufficient grade in the nearest 5 to 10 vertical metres to justify additional development work, but insufficient to justify a ramp extension at this time.

Grey Fox typically consists of multiple stacked lenses which increases the complexity of the extraction sequencing and development planning. The advance rate of the ramp to provide appropriate definition drilling platforms in advance of production development will be critical to ensure production drives are developed along the most economic lenses. Figure 13-4 illustrates an isometric view of the design layout.

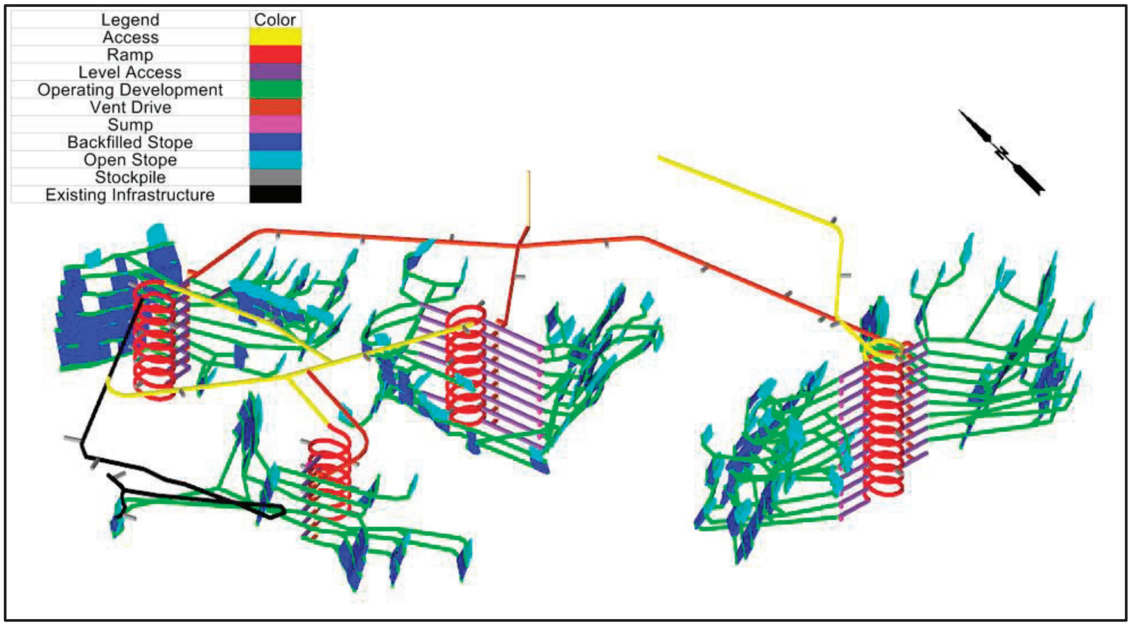

Figure 13-4: Isometric View of Grey Fox Looking Northeast (prepared by Wood, dated 2021)

13.4.4 Geotechnical and Hydrogeological

13.4.4.1 Geotechnical

There have been two main previous studies of the Grey Fox deposit, Golder (2015) and MDEng (2019a). In the original study by Golder (2015a), the mining method was assumed to be by open pit methods and Golder performed geomechanical drilling using oriented core of six shallow inclined boreholes (each around 200 m long), in which rock mass classification and Acoustic Televiewer (ATV) Surveys where performed, supplemented with surveys in two exploration boreholes. In addition, some limited hydrogeological test work was also performed for the Grey Fox deposit at this time. This site investigation and pre-feasibility design work was all targeted at an open pit operation.

In 2019 a re-review of the deposits was performed by MDEng (2019a) using the Golder site investigation work to develop preliminary underground stope dimensioning and crown pillar stability.

Wood QPs, Adam Coulson and William Bagnell performed a site visit in November 2020 to visit the Black Fox and the Grey Fox sites and to review cores from the Golder boreholes (Golder, 2015a) at Grey Fox and other drilling performed by Knight Piésold (2017) for the Froome ramp and Black Fox pit. The review of these cores was used in this study as a baseline to determine the Q-system rock mass classification for stope design.

Note that limited laboratory strength testing has been performed for the rocks at site, however, most rock units based on point load testing are of a fair to good Uniaxial Compressive Strength (UCS) in the range of 80 to 120 MPa (MDEng, 2019a).

A summary of the geotechnical parameters used in this study for mine design are:

- Rock mass qualities (modified Q-system, Hoek *et. al.*, 1995) were grouped into two main zones, Contact (incorporating Contact, Whisky Jack, Gibson and 147NE) and 147 (147 and South) refer to Figure 13-3. The Contact zones are on average Q′ = 15 ranging typically 12 to 18 for all walls, with the 147 zones on average Q′ = 8 typically ranging from 7 to 10.
- Based on a sublevel spacing of 22 m, strike lengths in the Contact zones based on hangingwall stability could be up to 30 m unsupported (no deep cable bolt support required for any stope 20 m along strike).
- For the 147 zone stopes could be up to 20 m unsupported along strike with approximately 66% requiring cable bolt support in the hangingwall.
- As mineralization thicknesses vary from typically 4 to 12 m, cable bolt support will not be required for the backs of stopes based on the present rock mass quality assumptions.
- Standard ground support has been assumed for all these underground excavations, with the exception that small faults which may be intersected and require locally 75 mm of shotcrete over mesh. Standard ground support of 2.4 m long 19 mm resin rebar in the back spaced 1.2 m x 1.2 m on a staggered diamond pattern, with 0.1 m weld wire 6-gauge screen to 1.5 m of the floor, and 1.5 m bolts in the side wall similarly spaced 1.2 m x 1.2 m. It has been assumed that the main Hislop fault (part of the Destor Fault Deformation system), which is intersected in the Froome ramp, will not be intersected in any development for Grey Fox.
- Stopes will be backfilled with a combination of cemented rockfill and uncemented rockfill. Hydraulic fill may also be available. Assumed binder requirements similar to Black Fox/ Froome will be required for strength of 0.5 MPa for cemented hydraulic fill and 0.75 MPa for rockfill.
- Sequencing will be on a primary-secondary sequence, mining two primary stopes high and backfilling before a secondary stope is mined.
- At all zones, dilution from the hangingwall and footwall will be expected, with equivalent linear overbreak/slough (ELOS) in the range of 0.35 and 0.25 m for the hangingwall and footwall respectively in the Contact zones, and 0.6 and 0.4 m for the hangingwall and footwall respectively in the 147 zones. Depending on stope width and zone, dilution is estimated at between 6% to 12%.

Assuming a maximum stope width of 10 m for near surface stopes and strike length of 20 m, a sufficient crown pillar of 30 m is expected to be stable.

13.4.4.2 Hydrogeological

A total of 40 boreholes have been drilled as part of the geotechnical and hydrogeological site investigations completed at the Grey Fox site from 2005 to 2015 (AMEC, 2008a; AMEC, 2008b; Golder 2015b).

- Monitoring well installations were completed in 22 of the boreholes for groundwater level monitoring and groundwater sampling.
- Of the 22 monitoring locations, four have been completed as multi-level wells (two pairs of overburden/shallow bedrock installations) and the remaining 18 as single well installations. Depth of installations is 6 to 35m below ground surface.
- Packer testing has been preformed in three exploration boreholes (max depth 409 m).
- Overburden at site is primarily (from top to bottom) glaciolacustrine clay/silty clay overlaying till (silty sand to sand) overlaying bedrock (the glaciolacustrine is everywhere based on the current understanding).
- Permeability assumptions, K (hydraulic conductivity) summary as follows:
  - Glaciolacustrine: 8.5E-08 m/s (geomean K of 3 tests)
  - Till: 3.4E-07 m/s (geomean K of 8 tests)
  - Shallow bedrock: 3.8E-07 m/s (geomean K of 5 tests) – assumed upper 10m of rock
  - Intermediate bedrock: 7.4E-08 m/s (geomean K of 12 tests) – assumed from 10 m to 50 m
  - Deep Bedrock: 2.1E-09 m/s (geomean K of 3 tests) – assumed greater than 50 m
- An estimate of groundwater inflow to Grey Fox underground is determined at 1,000 m^3/d. This is an approximation based on pumping from Black Fox and experience at similar sites in Northern Ontario.

13.4.5 Access

The Grey Fox mine layout is based on utilizing declines developed from surface to access the mine workings. Two portals from surface are required due to the lateral extent of the deposits and will allow for the most efficient haulage routes to surface from all mining areas. The main haulage ramps will be connected via a ventilation drive at approximately 100 vertical metres from surface.

The existing Gibson portal will be used as initial access for developing a ramp to the Gibson, Contact, 147NE, and Whiskey Jack zones A new portal will be established to the southwest of the mining area to develop access to the South and 147 zones.

Internally, four ramps are utilized to access the six defined zones. The ramps are located in areas that are currently identified as waste areas, but in proximity to the zones. Ramps are levelled at the level access takeoff to facilitate equipment turning onto and off of the ramp.

A level access will provide a location for infrastructure including dewatering, ventilation, and material handling, and as the access point for production drives that will be driven into the deposit and along strike of stoping horizons. The production drives will be utilized as drilling horizons for stopes below and mucking horizons for stopes above. Figure 13-5 presents development access at Grey Fox.

Remucks have been included at intervals of approximately 150 m, with adjustments made to the location to facilitate diamond drilling.

Sumps are planned for level accesses to prevent water from operations pooling and draining down the ramp.

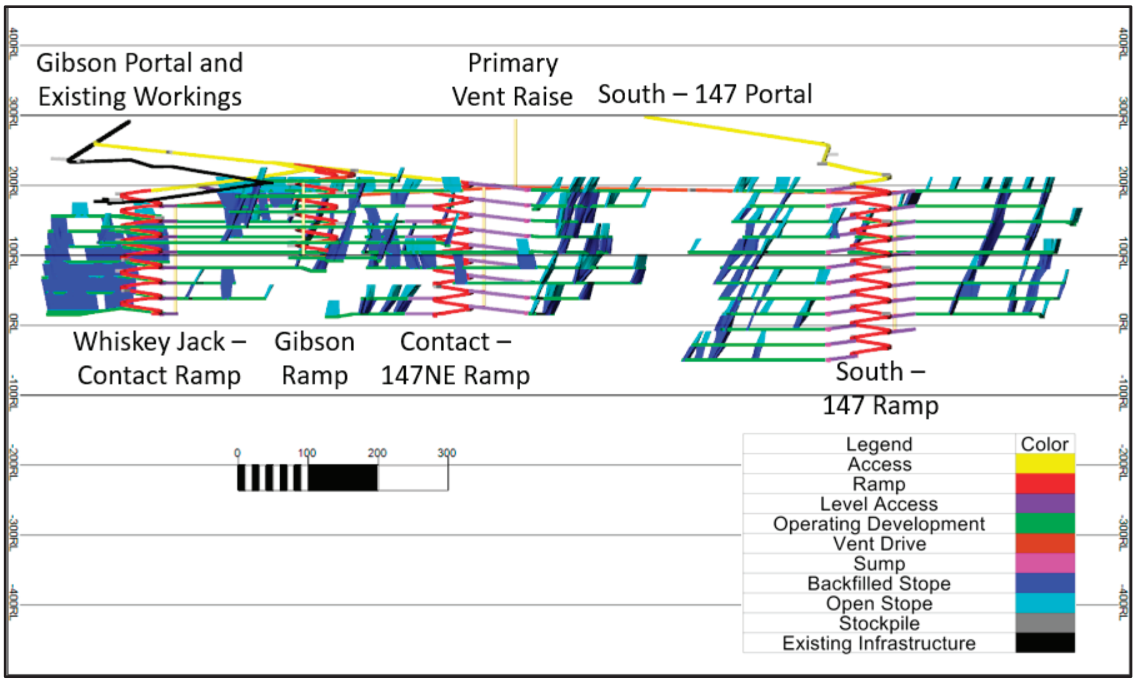

Figure 13-5: Grey Fox Development Access Long Section View Looking Northeast (prepared by Wood, dated 2021)

13.4.6 Stope Design

Typical stope drill and blast parameters are outlined in Table 13-2. Average stope dip is approximately 70° from horizontal.

Production blasting will be conducted using bulk emulsion and nonel detonators.

Stope optimizer shapes were evaluated for geotechnical stability and economic return. Stopes were generated on 6 m intervals, but stopes less than 12 m in final length were removed from the evaluation.

Stope shapes within the crown pillar represent 646,000 t at 4.9 g/t gold. Detailed evaluation of a required crown pillar or an extraction plan prior to mine closure could be utilized to extract some of this material.

Table 13-12: Grey Fox Average Production Stope Parameters

Stope Parameters	Unit	Value
Stope Width	m	8.1
Stope Length	m	18
Stope Tonnage	t	7,118
Hole Diameter	mm	89
Tonnes Per Drill Metre	t/m	4.7
Powder Factor	kg/t	0.8

13.4.6.1 Cut-off Grade

The cut-off grade calculation was based on a combination of benchmarking, in-progress cost estimations, and preliminary estimates. A 30% production recovery margin was added to the production breakeven grade.

Preliminary cost modelling, stope shape optimization parameters, and recovery values by zone were used to generate a cut-off grade for each operating area (Table 13-13). Stope shapes generated by the cut-off grade were evaluated on an individual basis within the mining area for economic viability.

Broken development material hauled to surface is scheduled to be fed directly to the mill at grades greater than 1.8 g/t, or stockpiled in the LG stockpile at grades greater than 0.7 g/t and less than 1.8 g/t.

Table 13-14 shows the results of the cut-off grade calculations by mining area.

Table 13-13: Grey Fox South Zone Cut-off Grade Calculation

Description	Unit	Value
Revenues		
Gold Price	US$/oz	1,650
Exchange Rate (C$/US$)	-	1.22
Operating Costs		
Sustaining Capital Cost	$/t	38.04
Development Operating Cost	$/t	23.81
Production Operating Cost	$/t	42.34
Processing Costs	$/t	22.57
Surface Haulage to Mill	$/t	5.53
G&A	$/t	18.48
Transport, Insurance, & Refining	$/oz	1.24
Operating Assumptions		
Dilution	%	19
Mining Recovery	%	95
Milling Recovery	%	91.2
Royalty	%	3
Gold Payable	%	99.95
Cut-off Grade		
Processing Breakeven Grade	g/t	0.5
Production Breakeven Grade	g/t	2.0
Operating Breakeven Grade	g/t	2.5
Sustaining Capital Breakeven Grade	g/t	3.3
Production Recovery Margin	%	30
Deswik.SO Cut-off Grade	**g/t**	**2.6**

Table 13-14: Grey Fox Cut-off Grades by Zone

Zone	Cut-off Grade, g/t Au
Contact	2.6
Gibson	2.6
Whiskey Jack	2.5
147NE	2.5
147	2.5
South	2.6

13.4.6.2 Stope Shape Optimization Parameters

Stope shape optimizations were run to generate production stopes. Table 13-15 shows the target stope shape optimization parameters after testing various orientations and maximum widths.

Table 13-15: Grey Fox Stope Optimization Parameters

Parameter	Unit	Value
Height	m	22
Section Length	m	6
Minimum Width	m	2.1
Maximum Width	m	30
Stope Pillar Minimum Width	m	11
ELOS Footwall Dilution	m	0.3-0.45
ELOS Hangingwall Dilution	m	0.3-0.5
Minimum Dip	degree	50
Maximum Dip	degree	130

13.4.7 Underground Infrastructure

13.4.7.1 Existing Infrastructure

During initial access, the Gibson portal will be dewatered and rehabilitated as required. The new access decline will be established off the Gibson exploration decline at 170 m down ramp from the current portal location. The remainder of the Gibson exploration decline will be rehabilitated to the full length and used for establishing explosive magazines isolated from the main ramp, and to facilitate exploration drilling of the Gibson Zone.

13.4.7.2 Ventilation

The mine is designed as a push ventilation network, using a dual fan arrangement with propane-fired heaters installed on the fresh air raise. Annual ventilation requirements have been evaluated based on total engine power (kW) of all equipment, an engine operating factor of 80% and a leakage factor of 30%. The minimum airflow requirement is based on a requirement of 0.06 m^3/s/kW of diesel-powered equipment.

Regulators will be used in the primary ventilation drives to direct airflow as required to the mining areas. Airflow to each level connected to the fresh air raise circuit will be restricted by a concrete bulkhead and regulator that can be reduced to minimal flow when not required.

During production years of the Gibson Zone, a 225 kW booster fan will be installed in a bulkhead in the ventilation drive access to the Gibson Zone to pull air from the decline.

Secondary ventilation will be provided by 45 kW and 90 kW fans supplying fresh air to the working face in active mining areas. Ventilation ducts will be run to multiple headings and controlled with choke lines installed at the intersections to restrict airflow to inactive faces.

13.4.7.3 Emergency Preparedness

Diesel equipment will be equipped with automatic fire suppression systems where possible, as well as hand-held fire extinguishers. Hand-held fire extinguishers will be located throughout the mine at various locations.

Portable refuge chambers will be utilized in each mining area and sufficient space will be allowed for a maximum crew size based on scheduled activities in the area. The refuge chambers will be moved periodically to maintain safe operating distances from active production areas to ensure personnel will have minimal time to reach the refuge chamber in the event of an emergency.

Secondary egress to surface from each sublevel will be provided by ladders installed in independent emergency escapeways. Secondary egress from each mining zone exists through the ventilation drive connecting to the primary ventilation network, and then up to one of the two surface portals via the decline.

13.4.7.4 Backfill

Stopes will be backfilled with a cemented rockfill when mined laterally adjacent to a future stope, or with unconsolidated mine rock when mined underneath a future stope. Mine rock will be sourced from active development headings or from the surface WRSF to reduce surface footprint at closure. For this study, it was assumed that all mine rock will be hauled to surface, and all backfill will be hauled from surface to the backfill level.

On surface, a load haul dump unit (LHD) will load a haul truck with mine rock, and a mixing station will be used to add cement slurry directly to the truck box with a spray bar after loading when required. The truck will tram down the ramp and dump into the stockpile location. Once unloaded at the backfill level, a LHD will haul the material to the top of the stope void to be dumped.

13.4.7.5 Mine Process Water Supply and Dewatering

During initial portal development, the flooded workings will be pumped into water supply tanks positioned at the entrance to the portals to provide process water. Water will be distributed throughout the mine using steel pipe with head pressure controlled using pressure reducing valves.

Once the primary ventilation circuit has been connected, a backup steel line from the south portal process water tank will be run down the fresh air raise and connected into the fresh water circuit to ensure sufficient supply and pressure in all mine areas.

The mine will be dewatered using a cascading series of sumps and settling systems. After settling in a dewatering pond at surface, water can be recycled into the process water supply and excess water will be pumped to the Black Fox site for treatment and discharge.

13.4.7.6 Compressed Air

During initial portal development, two compressors will be positioned at each portal and used to provide compressed air to equipment with a redundant backup. Once the primary ventilation circuit has been connected, a compressor station will be installed underground and provide compressed air to the operation.

Compressed air will be distributed throughout the mine using steel pipe and extended with development services.

13.4.7.7 Power Distribution

Power will be distributed throughout the mine on 4160 V cables to skid mounted substations. The skid mounted substations will step down power to a 600 V feed that will be distributed to active areas into electrical boxes for connecting fans and equipment.

13.4.7.8 Communications

Communications will be provided throughout the mine using handheld or equipment mounted radios supported by a leaky feeder system. The system will be advanced with development to extend communications to working faces.

13.4.7.9 Maintenance Facilities

Scheduled maintenance will be done on surface at the truck shop, and equipment will tram to surface for service. Breakdown maintenance will be conducted at the working face or in an access drive when it is possible to move the equipment to a better location for service.

13.4.7.10 Explosives Storage

Two magazines will be developed and maintained underground in accordance with Regulation 854 Mines and Mining Plants 126-129 (July 1, 2019). The location will be new workings developed off existing infrastructure and down ramp from the access to the new decline. One magazine will be dedicated to the storage of detonators, and the other will be dedicated to the storage of bulk explosives.

13.4.8 Mine Equipment

Table 13-16 outlines the fleet selected for Grey Fox. Annual equipment requirements are based on modelled operating hours and availability.

A trade-off exploring the suitability of battery electric vehicles produced results that were inconclusive in overall effectiveness of capital, so the better understood technology of a diesel fleet was chosen.

Table 13-16: Grey Fox Mobile Equipment

Mobile Equipment	Year								
	3	4	5	6	7	8	9	10	11
Twin-Boom Jumbo	1	2	3	2	2	2	1	0	0
ITH Production Longhole	1	1	1	2	2	2	2	2	1
Development Bolter	1	2	3	2	2	2	2	1	1
Scissor Deck	1	1	1	1	1	1	1	1	1
4 yd LHD	0	1	1	1	1	1	1	0	0
6 yd LHD	1	2	3	3	3	3	2	2	1
45t truck	1	2	3	3	4	4	3	2	1
Grader	0	0	1	1	1	1	1	0	0
Explosives Loader	1	2	2	2	2	2	1	1	1
Utility Vehicle	1	4	4	5	4	5	4	3	1
Personnel Carrier	1	2	3	3	3	3	2	2	1

13.4.9 Mine Schedule

The planned production schedule is shown in Table 13-17 and represented in Figure 13-6. The LOM plan for Grey Fox is nine years, with an average annual stope production of 429,000 t between Year 6 and Year 10. Total production will average approximately 1,400 t/d during this period with an average gold grade of 5.0 g/t. Dilution and mining recovery have been accounted for and are shown in Table 13-18.

Table 13-17: Grey Fox Mine Schedule

Activity	Unit	Year								
		3	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
Gibson Rehabilitation	m	420	274	333	0	0	0	0	0	0
Capital Development	m	2,095	3,594	3,821	1,322	2,399	1,859	0	0	0
Infrastructure Development (4.2 m x 5.0 m)	m	504	1074	0	0	0	0	0	0	0
Capital Raising	m	123	68	214	107	86	121	7	0	0
Operating Waste Development	m	74	,2430	3,762	4,812	2,712	3,949	1,045	0	0
Operating Production Development	m	0	1,289	2,116	2,973	1,444	1,793	776	0	0
Development Production Tonnes	kt	0	68	110	155	75	94	40	0	0
Development Production Grade	g/t Au	0	3.73	4.51	4.58	4.36	4.14	3.61	0	0
Development LG Stockpile Tonnes	kt	0	29	49	56	30	28	8	0	0
Development LG Stockpile Grade	g/t Au	0	1.21	1.14	1.15	1.16	1.13	1.16	0	0
Development Benching	m	0	0	0	65	54	0	104	0	0
Development Benching Tonnes	kt	0	0	0	4	3	0	6	0	0
Development Benching Grade	g/t Au	0	0	0	3.20	3.80	0	2.88	0	0
Production Tonnes	kt	0	65	214	372	457	446	465	403	182
Production Grade	g/t Au	0	5.76	4.87	5.39	5.56	5.11	4.72	4.94	4.72
Total Tonnes	kt	0	132	326	530	535	540	511	403	182
Average Grade	g/t Au	0	4.72	4.74	5.14	5.38	4.94	4.61	4.94	4.72
Total Au Ounces	Au koz	0	20	50	88	93	86	76	64	28

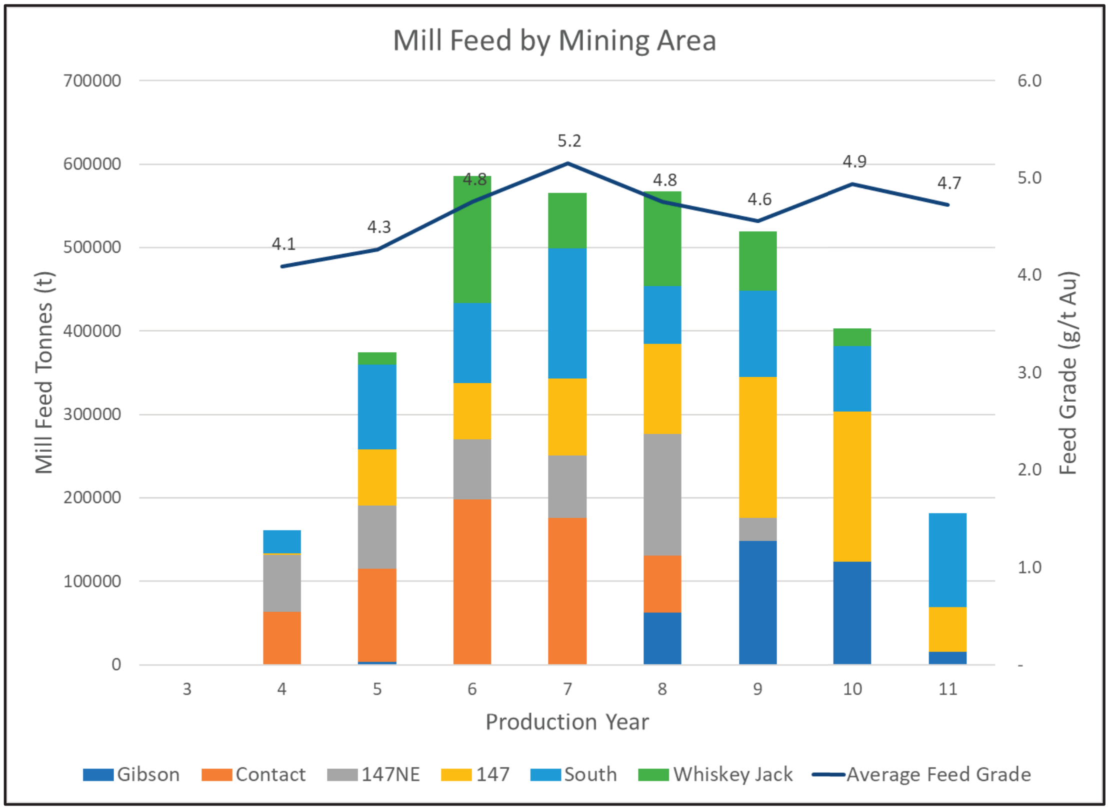

Figure 13-6: Grey Fox Mill Feed by Mine Area (prepared by Wood, dated 2021)

Note: Total mill feed tonnes and grade by mining area includes low grade stockpile material by extraction year

Table 13-18: Grey Fox Dilution Parameters

Dilution	Development	Production
Internal Dilution, %	-	31
External Dilution, %	5	15
Mining Recovery, %	95	

13.5 Stock West

13.5.1 Summary

Stock West will be accessed by developing a new decline from surface that will bypass the existing workings of the historical Stock Mine. The decline has been located near the existing workings so it can be used to re-access the existing workings for exploration.

The majority of production mining will be done using a bottom-up longitudinal mining method with backfill. Stopes in the upper levels with no mining above will be extracted using uppers and left unfilled.

The Stock West decline will be the primary haulage for the Stock West Zone allowing material to be hauled to surface and directly to the mill stockpile. Figure 13-7 illustrates an isometric view of the design layout.

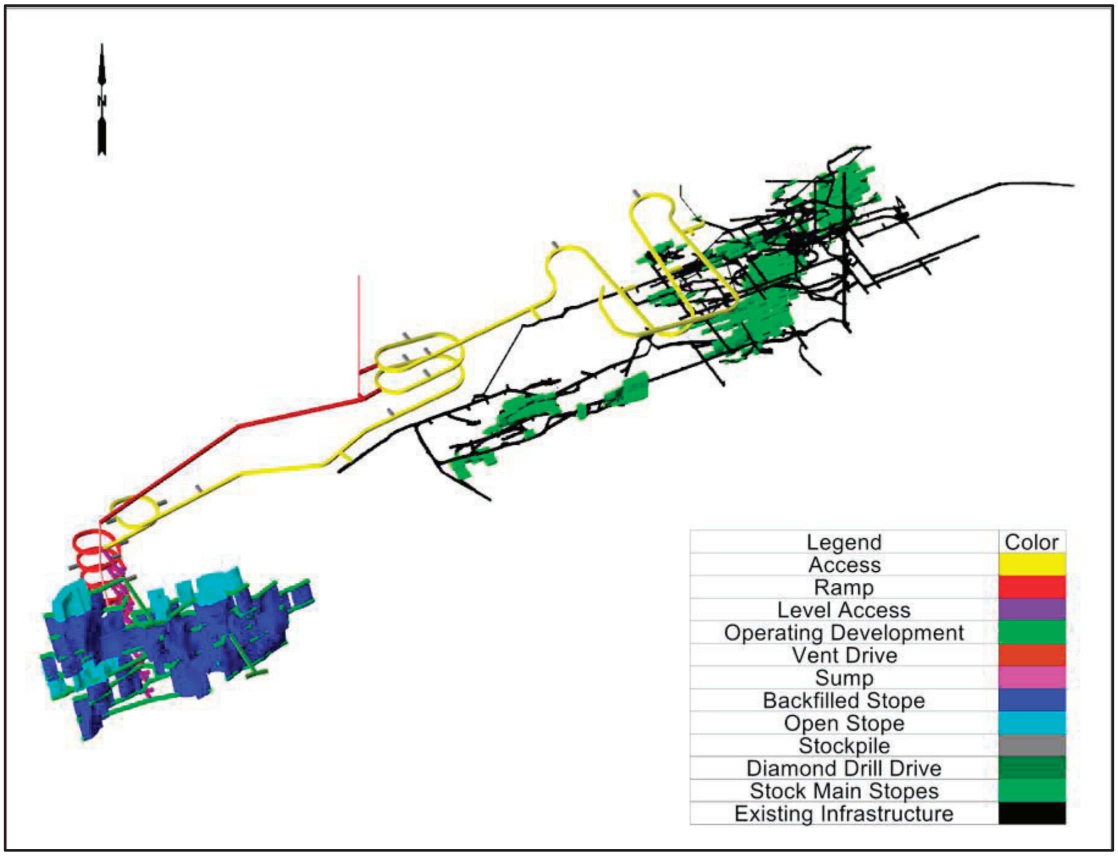

Figure 13-7: Isometric View of Stock and Stock West looking North (prepared by Wood, dated 2021)

13.5.2 Subset of Mineral Resource Estimate within the IA Mine Plan

Optimized stope shapes were used to establish the final mine design and to obtain a subset of the Mineral Resource estimate presented in Chapter 11. Table 13-19 presents the subset of the Mineral Resource that was included in the IA mine plan.

Table 13-19: Stock West Subset of Mineral Resource Estimate in the IA Mine Plan

Classification	Tonnes, kt	Au, g/t	Contained Au, koz
Indicated	901	3.87	112
Inferred	681	3.43	75

Note: (1) Input assumptions to constrain the Stock West estimate include metal price of US$1,650/oz gold, development cut-off grade of 0.7 g/t gold, production cut-off grade of 2.2 g/t gold, process recovery of 94%, mining cost of $72.18/t, process costs of $20.62/t, G&A costs of $18.92/t, transport costs of $1.24/oz, sustaining costs of $51.87/t, internal dilution of 19%, external dilution of 14% and recovery of 95%.
(2) Figures may not sum due to rounding.

13.5.3 Mining Method

Longitudinal longhole stoping in a bottom-up retreat sequence was selected as the preferred mining method based on ground conditions and deposit dimensions, as well as scheduling and cost savings associated with reducing waste development.

A vertical sublevel spacing of 24 m was selected based on an initial review of stope shapes generated on level spacings compared against a simplified cashflow. Production costs have been calculated at a constant value with varied operating development costs associated with the additional levels required for shorter level spacings.

Stope width varies between 2.8 and 25.5 m with an average of 13.6m.

Stopes will be backfilled when another stope is planned to be mined immediately adjacent or above and left open when it is at the top of the lens. Blind uphole retreat stoping will be used to extract final stopes in a vertical sequence, eliminating the need for overcut development. Downhole mining will be used when overcut development is available.

13.5.4 Geotechnical and Hydrogeological

Geotechnical investigations have not been performed at the Stock West site. Geotechnical information does exist from the adjacent historical Stock Mine, based primarily on a crown pillar study for near surface stopes at the Stock Mine (AMEC, 2013). During the 2021 McEwen drilling campaign, Rock Quality Designation (RQD) measurements were determined for all exploration cores. These have been used along with review of the core photos and associated lithologies to develop the assumed the rock mass qualities for the hangingwall and footwall zones.

Note the Stock Mine Complex is associated with the Destor Deformation Zone and situated in the zone between the Minor (Nighthawk Fault) and Major (Porcupine – Destor Fault) breaks. As such, typically the footwall of the zone is formed in Timiskaming Sediments (SED) and Green Carbonates (CGR), with the mineralized zone predominantly in CGR and Grey Carbonates (CGY), transitioning into Ankerite altered Ultramafic Volcanics (AUV). These units are of a reasonable quality of fair to good. The hangingwall is typically formed in AUV and Talc-altered Ultramafic Volcanics (TUV). The latter TUV can have significant soft talc alteration. Based on the interpretation at present, this forms as pods or patchy zones in the hangingwall, but minor amounts can also be interspersed in the footwall and mineralized zone. The talc-altered rocks are typically poor to fair in rock mass quality and strength. Further geotechnical drilling will be required to determine the extent and location of these pods.

No hydrogeological investigation or modelling have been performed for Stock West. Historical pumping records may exist for the Stock Mine.

A summary of the geotechnical parameters used in this study for mine design are below:

- Rock mass qualities (modified Q-system, Hoek *et. al.*, 1995) were determined for the footwall and mineralized zones assumed to be predominantly in CGR and for the hangingwall in a combination of CGR and TUV. The RQD's of the exploration boreholes in Stock West were used with assumed joint parameters from the Stock Mine crown pillar study. For the footwall rocks CGR/AUV, the average Q' = 9 and ranges from 7 to 12. The mineralized zone CGR/AUV/CGY is in slightly better quality rock with an average Q' = 11 and ranging from 10 to 12. The hangingwall can vary between the same competency as the footwall, however, if significant TUV is encountered then the rock mass quality drops with an average Q' = 3.5 and ranges from 1 to 9.
- The rock strength (UCS) was assumed for the footwall AUV/CGR to vary between 40 to 85 MPa) with an average of 60 MPa, for the mineralized zone 35 to 75 MPa with an average of 55 MPa, and for the TUV in the hangingwall ranges from 20 to 50 MPa with an average of 30 MPa.
- Based on a sublevel spacing of 24 m, the maximum cable bolt supported strike length of 20 m is achievable for a combination of CGR/AUV/CGY. If significant TUV is found to be present, then the maximum supported strike length of 15 m could be achieved.
- As mineralized thicknesses vary from typically 4 to 15 m, cable bolt support will be required for the backs of all stopes greater then 6 m wide based on the present rock mass quality assumptions.
- Standard ground support has been assumed for most of these excavations, with the exception where TUV is encountered in significant amount and requires locally 75 mm of shotcrete over mesh taken to the floor. Standard ground support of 2.4 m long 19 mm resin rebar in the back spaced 1.2 m x 1.2 m on a staggered diamond pattern, with 0.1 m weld wire 6-gauge screen to 1.5 m of the floor unless TUV is encountered, and 1.5 m bolts in the side wall similarly spaced 1.2 m x 1.2m.
- Stopes will be backfilled with a combination of cemented rockfill and uncemented rockfill. Assumed binder requirements similar to Black Fox/Froome will be required for strength of 0.75 MPa for rockfill. Where a rib pillar can be left due to low grade material, stopes can be backfilled with uncemented rockfill, or on the final cut on that level
- Sequencing will be on an "End slice" retreat sequence, mining generally in a retreating

half pyramid where access to the upper stopes does not hinder mining below and blasting always onto a mined and filled stope.

- Dilution from the hangingwall and footwall will be expected with ELOS. The footwall ELOS is expected to vary between 0.5 to 1 m, while the hangingwall will vary between 0.5 to 3 m, largely dependent on the presence of talc alteration in which progressive spalling can occur. Depending on stope (mineralized) width, dilution can vary from 10% to greater than 25%.
- Due to the depth, no crown pillars will be excavated, although an initial sill pillar may be developed in one zone as it is assumed the upper stopes are filled with good quality backfill such that the sill can be extracted.

13.5.5 Access

The Stock West mine layout is based on a primary decline developed from surface to access the deposit and historical workings in the existing Stock Mine. The access to Stock Mine will be used for exploration purposes while advancing to the Stock West deposit.

At Stock West, a spiral ramp is utilized to access the deposit. An access drive will be driven from the ramp into the mineralized lens, and then production drives will be driven along the strike to be utilized as drilling and mucking horizons.

Two diamond drill drives are planned to develop through the deposit and be established in the hangingwall early in the mine life. These will be critical to both definition drilling of the deposit prior to extraction and as exploration drilling platforms. Figure 13-8 presents development access at Stock West.

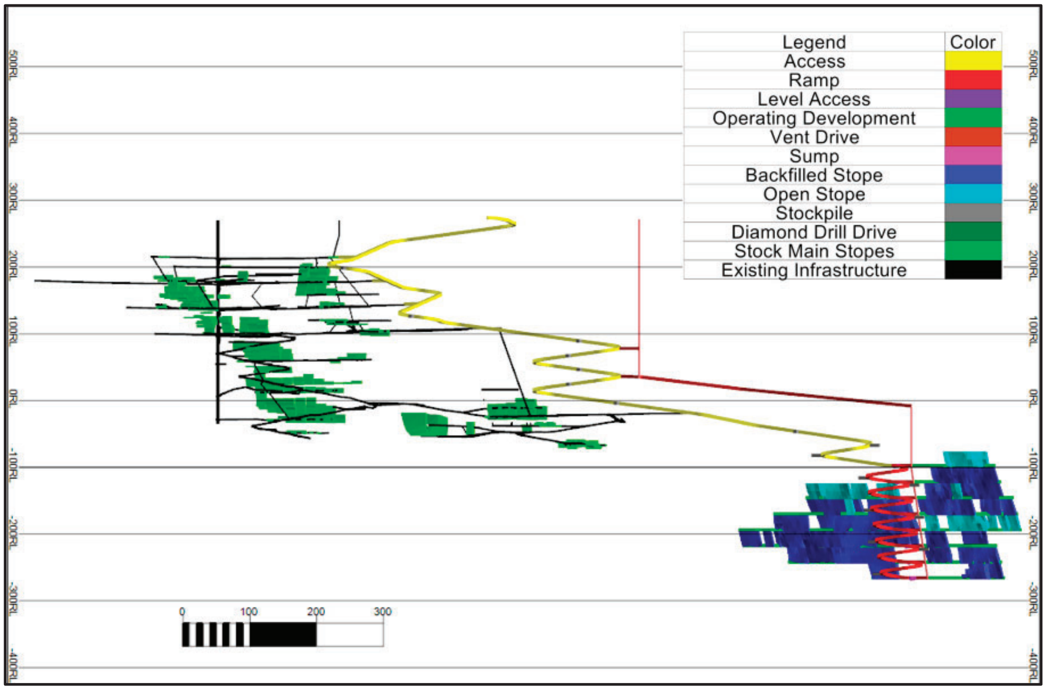

Figure 13-8: Stock West Development Access Long Section View Looking Southeast (prepared by Wood, dated 2021)

13.5.6 Stope Design

Typical stope drill and blast parameters for mining are outlined in Table 13-20. Average stope dip is approximately 68° from horizontal.

Production blasting will be conducted using bulk emulsion and nonelectric detonators.

Generated shapes were evaluated for geotechnical stability and economic return. Stopes were generated on 6 m intervals, and stopes less than 12 m in final length were removed from the evaluation.

Table 13-20: Stock West Average Production Stope Parameters

Stope Parameters	Unit	Value
Stope Width	m	14.8
Stope Length	m	18
Stope Tonnage	t	14,545
Hole Diameter	mm	89
Tonnes Per Drill Metre	t/m	5.9
Powder Factor	kg/t	0.6

13.5.6.1 Cut-off Grade

The cut-off grade calculation was based on a combination of benchmarking, in-progress cost estimations, and preliminary estimates. A 20% production recovery margin was added to the production breakeven grade.

Preliminary cost modelling, stope shape optimization parameters, and recovery values were used to generate a cut-off grade (Table 13-21). Stope shapes generated by the cut-off grade were evaluated on an individual basis within the mining area for economic viability.

Broken development material hauled to surface is scheduled to be fed directly to the mill at grades greater than 1.8 g/t, or stockpiled in the LG stockpile at grades greater than 0.7 g/t and less than 1.8 g/t.

Table 13-21: Cut-off Grade Calculation

Description	Unit	Value
Revenues		
Gold Price	US$/oz	1,650
Exchange Rate (C$/US$)	-	1.22
Operating Costs		
Sustaining Capital Cost	$/t	51.87
Development Operating Cost	$/t	11.90
Mining Operating Cost	$/t	60.28
Processing Costs	$/t	20.62
Surface Haulage to Mill	$/t	-
G&A	$/t	18.92
Transport, Insurance, & Refining	$/oz	1.24
Operating Assumptions		
Dilution	%	6
Mining Recovery	%	95
Milling Recovery	%	94
Royalty	%	-
Gold Payable	%	99.95
Cut-off Grade		
Processing Breakeven Grade	g/t	0.4
Production Breakeven grade	g/t	1.9
Operating Breakeven Grade	g/t	2.1
Sustaining Capital Breakeven Grade	g/t	3.1
Production Recovery Margin	%	20
Deswik.SO Cut-off Grade	**g/t**	**2.2**

13.5.6.2 Stope Shape Optimization Parameters

Stope shape optimizations were run to generate production stopes. Table 13-22 shows the target stope shape optimization parameters.

Table 13-22: Stock West Stope Optimization Parameters

Parameter	Unit	Value
Height	m	24
Section Length	m	6
Minimum Width	m	2.1
Maximum Width	m	24
Stope Pillar Minimum Width	m	12
ELOS Near Side Dilution	m	0.5
ELOS Far Side Dilution	m	0.5
Minimum Dip	deg	50
Maximum Dip	deg	140

13.5.7 Underground Infrastructure

13.5.7.1 Existing Infrastructure

The Stock West decline will be excavated near the Stock Mine existing workings to provide opportunistic breakthrough locations into the existing workings at regular intervals for exploration and provide a material handling route for additional material from the Stock Mine. It is expected that exploration work will be undertaken from the existing workings to identify material that was not previously economic for extraction potential.

13.5.7.2 Ventilation

A push ventilation network with a dual fan arrangement and propane-fired heaters will be installed in a new vent raise connected to the planned workings. Annual ventilation requirements have been evaluated based on total engine power (kW) of all equipment, an engine operating factor of 80%, and a leakage factor of 30%. The minimum airflow requirement is based on the requirement of $0.06m^3/s/kW$ of diesel-powered equipment.

Bulkheads or ventilation doors will be installed at the breakthroughs between the decline and the existing workings to direct airflow to the Stock West workings. Airflow to each level connected to the fresh air raise circuit will be restricted by a concrete bulkhead and regulator that can be adjusted to minimal flow when not required.

Secondary ventilation will be provided by 90 kW fans supplying fresh air to the working face in active mining areas. Ventilation ducts will be run to multiple headings and controlled with choke lines installed at the intersections to restrict airflow to inactive faces.

13.5.7.3 Emergency Preparedness

Diesel equipment will be equipped with automatic fire suppression systems where possible, and hand-held fire extinguishers. Hand-held fire extinguishers will be located throughout the mine at various locations

Portable refuge chambers will be utilized in each mining area and sufficient space will be allowed for a maximum crew size based on scheduled activities in the area. The refuge chambers will be moved periodically to maintain safe operating distances from active production areas to ensure personnel will have minimal time to reach the refuge chamber in the event of an emergency.

Secondary egress to surface from each sublevel will be provided by ladders installed in independent emergency escapeways. Secondary egress from the underground workings will exist through the fresh air raise to surface.

13.5.7.4 Backfill

Stopes will be backfilled with a cemented rockfill. Mine rock will be sourced from active development headings or from the surface WRSF to reduce surface footprint at closure. It is assumed that all mine rock will be hauled to surface, and all backfill will be hauled from surface to the backfill level.

On surface, a LHD will load a haul truck with mine rock, and a mixing station will be used to add cement slurry directly to the truck box with a spray bar after loading when required. The truck will tram down ramp to the backfill level, and dump into the stockpile location. Once unloaded at the backfill level, a LHD will haul the material to the top of the stope void to be dumped.

13.5.7.5 Mine Process Water Supply and Dewatering

Water will be distributed throughout the mine using steel pipe with the head pressure controlled using pressure reducing valves.

The mine will be dewatered using a cascading series of sumps and settling systems discharging to a surface settling pond. Water will be recycled into the mine process water supply and excess water will be treated on site using a small-scale water treatment plant prior to discharge to the environment.

13.5.7.6 Compressed Air

Two compressors will be positioned at the portal and used to provide compressed air to equipment with a redundant backup. Once the primary ventilation circuit has been connected, a compressor station will be installed underground and provide compressed air to the operation.

Compressed air will be distributed throughout the mine using steel pipe and extended with development services.

13.5.7.7 Power

Power will be distributed throughout the mine on 4160 V cables to skid mounted substations. The skid mounted substations will step down power to a 600 V feed that will be distributed to active areas into electrical boxes for connecting fans and equipment.

13.5.7.8 Communications

Communications will be provided throughout the mine using handheld or equipment mounted radios supported by a leaky feeder system. The system will be advanced with development to extend communications to working faces.

13.5.7.9 Maintenance Facilities

Scheduled maintenance will be done on surface at the truck shop, and equipment will tram to the surface for service. Breakdown maintenance will be conducted at the working face or in an access drive when it is possible to move the equipment to a better location for service.

13.5.7.10 Explosives Storage

Two magazines will be developed and maintained underground in accordance with Regulation 854 Mines and Mining Plants 126-129 (July 1, 2019). The magazine locations will be based in old workings connected to the primary decline during the initial access. One magazine will be dedicated to the storage of detonators, and the other will be dedicated to the storage of bulk explosives.

The existing workings are sized at 3.0 m x 3.7 m and are sufficient for light vehicle and personnel access to gather explosives for loading.

13.5.8 Mine Equipment

Table 13-23 outlines the fleet selected for Stock West. Annual equipment requirements are based on modelled operating hours and availability.

The trade-off exploring the suitability of battery electric vehicles indicated an increase in discounted costs combined with a projected decrease in IRR to operate Stock West as an electrical battery vehicle mine.

Table 13-23: Stock West Mobile Equipment

Mobile Equipment	Year										
	2	3	4	5	6	7	8	9	10	11	12
Twin-Boom Jumbo	1	1	1	1	1	0	0	0	0	0	0
ITH Production Longhole	1	1	1	1	1	1	1	1	1	1	1
Development Bolter	1	1	1	1	1	1	1	1	1	1	1
Scissor Deck	1	1	1	1	1	1	1	1	1	1	1
4 yd LHD	0	0	0	0	0	0	0	0	0	0	0
6 yd LHD	1	1	1	1	1	1	1	1	1	1	1
45t truck	1	1	1	2	2	2	2	2	2	2	2
Explosives Loader	1	1	1	1	1	1	1	1	1	1	1
Utility Vehicle	1	1	2	3	3	3	3	3	3	1	1
Personnel Carrier	1	1	1	1	1	1	1	1	1	1	1

13.5.9 Mine Schedule

The planned production schedule is shown in Table 13-24 and is represented in Figure 13-9. The LOM plan for Stock West is 11 years, with an average annual stope production of 188,000 t between Year 5 to Year 11. Total production will average approximately 550 t/d during this period, with an average gold grade of 3.8 g/t. Dilution and mining recovery have been accounted for and are shown in Table 13-25.

Table 13-24: Stock West Mine Schedule

Activity	Unit	Year										
		2	3	4	5	6	7	8	9	10	11	12
Capital Development	m	1,255	2,712	1,304	714	0	0	0	0	0	0	0
Capital Raising	m	0	257	203	80	0	0	0	0	0	0	0
Operating Waste Development	m	0	0	624	697	87	0	0	0	0	0	0
Operating Production Development	m	0	0	917	1,755	239	0	0	0	0	0	0
Development Production Tonnes	kt	0	0	48	89	8	0	0	0	0	0	0
Development Production Grade	g/t Au	0	0	3.33	3.75	3.24	0	0	0	0	0	0
Development LG Stockpile Tonnes	kt	0	0	48	89	8	0	0	0	0	0	0
Development LG Stockpile Grade	g/t Au	0	0	1.16	1.26	1.17	0	0	0	0	0	0
Production Tonnes	kt	0	0	0	122	176	179	207	207	212	217	72
Production Grade	g/t Au	0	0	0	3.05	4.09	3.66	4.32	3.66	3.95	3.50	3.62
Total Tonnes	kt	0	0	48	211	184	179	207	207	212	217	72
Average Grade	g/t Au	0	0	3.33	3.35	4.06	3.58	4.32	3.66	3.95	3.50	3.62
Total Au Ounces	Au koz	0	0	5	23	24	21	29	24	27	24	8

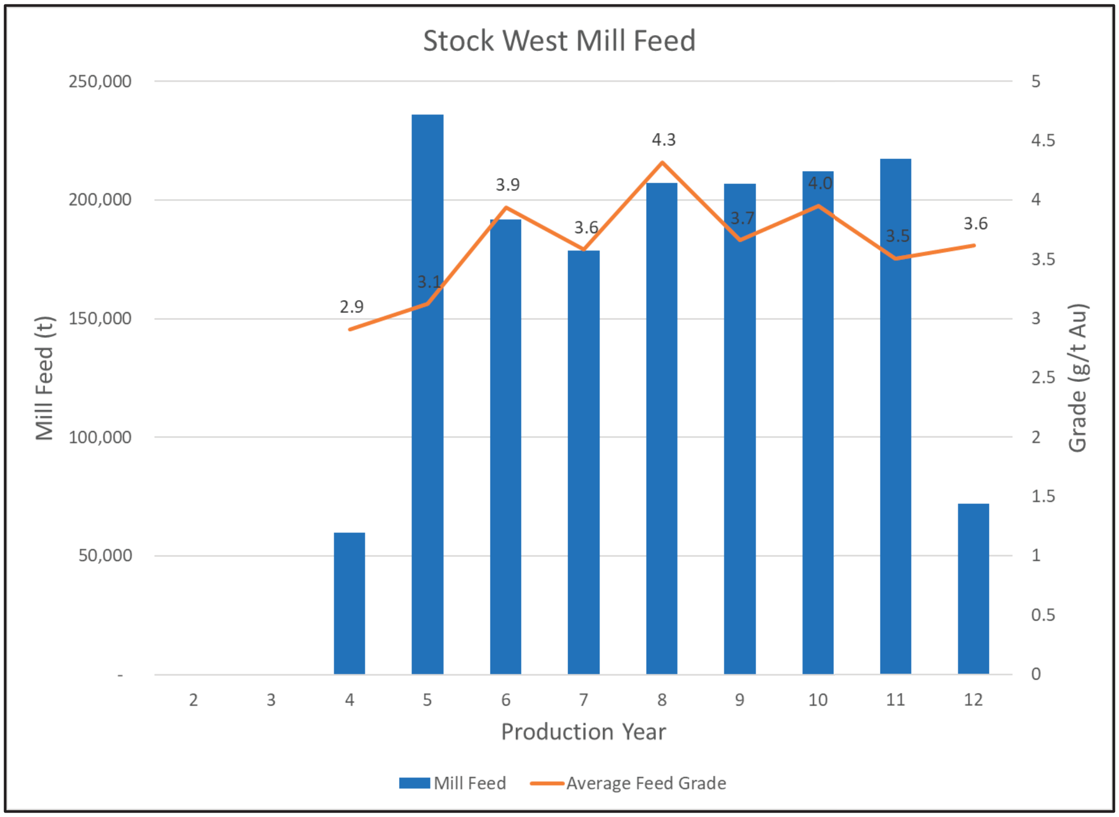

Figure 13-9: Stock West Mill Feed (prepared by Wood, dated 2021)

Note: Total Mill Feed tonnes and grade includes low grade stockpile material by extraction year

Table 13-25: Stock West Dilution Parameters

Dilution	Development	Production
Internal Dilution, %	-	19
External Dilution, %	5	14
Mining Recovery, %	95	

13.6 Fuller

13.6.1 Summary

Fuller will be accessed via an existing portal that will be rehabilitated to a depth of 35 m from surface. At 195 m below surface, a new decline will be established to bypass existing infrastructure that will be utilized in the extraction of the deposit. The decline will continue to a depth of 465 m to extract material below the existing infrastructure.

Production mining will use longitudinal retreat stoping using blind uphole drilling without backfill or downhole with backfill.

Material is hauled to the surface, stockpiled, sorted on site, and will be transported to the Fox Mill using a contractor and highway haul trucks.

Stopes are planned within the existing infrastructure that had been developed as part of a prior exploration program. The design accounts for existing infrastructure and will utilize it to reduce costs where possible. Stopes are planned to full height between the existing infrastructure and will be mined top-down in these areas. During development of the ramp to depth, these voids can be used as a short haul to dump development mine rock and reduce the surface footprint at closure.

In the lower area of the deposit where no historical mining has occurred, there is an upper and lower zone separated by a lower-grade area. Stope shapes were generated in this area but did not carry sufficient gold to justify development of a new mining level at this time. This lower-grade zone will serve as a rock pillar to separate the two mining areas and allow them to be extracted independently. Figure 13-10 illustrates an isometric view of the design layout.

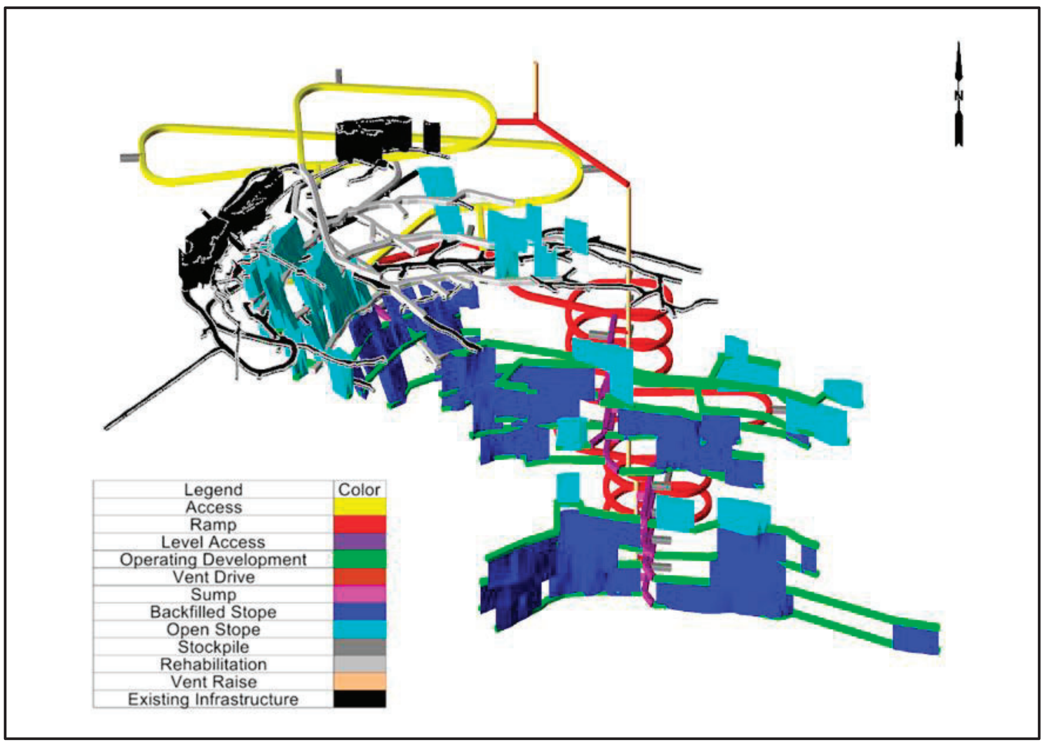

Figure 13-10: Isometric View of Fuller Looking North (prepared by Wood, dated 2021)

13.6.2 Subset of Mineral Resource Estimate within the IA Mine Plan

Optimized stope shapes were used to establish the final mine design and to obtain a subset of the Mineral Resource estimate presented in Chapter 11. Table 13-26 presents the subset of the Mineral Resource that was used in the IA mine plan.

Table 13-26: Fuller Subset of Mineral Resource Estimate in the IA Mine Plan

Classification	Tonnes, kt	Au, g/t	Contained Au, koz
Indicated	718	4.06	94
Inferred	521	2.89	48

Note: (1) Input assumptions to constrain the Fuller estimate include metal price of US$1,650/oz gold, development cut-off grade of 0.7 g/t gold, production cut-off grade of 2.4 g/t gold, process recovery of 88%, mining cost of $60.12/t, process costs of $20.62/t, haulage costs of $6.64/t, G&A costs of $16.55/t, transport costs of $1.24/oz, sustaining costs of $34.60/t, internal dilution of 29%, external dilution of 17% and recovery of 95%.
(2) Figures may not sum due to rounding.

13.6.3 Mining Method

Longitudinal retreat longhole stoping was selected as the preferred mining method based on ground conditions and deposit dimensions.

Level spacing was defined based on existing infrastructure and varies from 25 to 36 m. The bottom level of existing infrastructure has a 44 m level spacing from the nearest level. A level of new development has been added between the existing infrastructure to create a level spacing of 22 m.

A vertical level spacing of 30 m was selected for the remainder of the stoping areas based on an initial review of stope shapes generated on level spacings compared against a simplified cashflow.

Stope width varies between 3.1 and 19 m with an average of 7.9 m.

13.6.4 Geotechnical and Hydrogeological

As can be seen in Figure 13-10, the Fuller deposit forms a partial horseshoe-shape hosted in a shear zone, with the north arm wrapped around the Quartz Feldspar Porphyry (QFP) intrusive forming the main hangingwall, with the eastern arm more steeply dipping and planar, again with the QFP predominating in the hangingwall to the south. Also, Ultramafic Volcanics (UMF) may be found at the hangingwall contact which can be talc altered. The Mafic Volcanics flows (MF) form the predominant footwall of the deposit (SRK, 2018).

Presently, no geotechnical investigations of the Fuller site have been performed other than a review by Wood of the exploration borehole lithologies. The adjacent Hollinger Mine, in which similar mineralized mineralogy can be found, was used to develop baseline qualities for the mineralized zone from crown pillar studies (Golder, 2011). Although some distance away (45 km southeast), the Young-Davidson Mine has similar rock types of MF and UMF. The rock mass classification from Young-Davidson was also used as a baseline for Fuller (AMEC, 2009). The QFP is anticipated to be similar to the MF in terms of rock mass quality and may be of better quality.

No hydrogeological investigation or modelling have been performed for Fuller.

A summary of the geotechnical parameters used in this study for mine design is:

- Rock mass qualities were assumed for the footwall, mineralized zone and hangingwall zones. The Q′ value for the MF in the footwall was assumed to be an average Q′ = 8.5 ranging from 6.5 to 9, while for the mineralized zone (based on Golder, 2011), an average Q′ = 8, ranging from 6 to 10. For the hangingwall in the QFP, the same Q′ values were assumed as for the footwall; however, for potential occurrence of UMF and talc alteration, an average Q′ = 4 and ranging from 2 to 6 was assumed.
- The intact rock strength for the various units for the MF/QFP/mineralized zone was assumed to have an average UCS = 125 MPa ranging from 100 to 150 MPa. For the UMF found in the hangingwall and average UCS = 40 MPa ranging from 30 to 50 MPa.
- Based on a sublevel spacing of 22 m, the maximum unsupported strike length of 18 m is achievable when QFP forms the hangingwall or a supported strike length of up to 50 m. If significant UMF is found to occur, then the maximum supported strike length of 25 m could be achieved.
- The stope thicknesses vary from typically 4 to 15 m with an average of 8 m, cable bolt support will be required for the backs of all stopes greater then 8 m wide based on the present rock mass quality assumptions.
- Standard ground support has been assumed for most of these excavations, with the exception when UMF is encountered in significant amounts in the central southern access and will require locally 75 mm of shotcrete over mesh taken to the floor. Standard ground support of 2.4 m long 19 mm resin rebar in the back spaced 1.2 m x 1.2 m on a staggered diamond pattern, with 0.1 m weld wire 6-gauge screen to 1.5 m of the floor unless MUF is encountered, and 1.5 m bolts in the side wall similarly spaced 1.2 m x 1.2m.
- Stopes will be backfilled with a combination of cemented rockfill and uncemented rockfill. Assumed binder requirements similar to Black Fox/Froome will be required for strength of 0.75 MPa for rockfill. Where a rib pillar can be left due to low grade material, stopes can be backfilled with uncemented rockfill, or on the final cut on that level.

- Sequencing will be on an “end slice” retreat sequence, mining generally in a retreating half pyramid where access to the upper stopes does not hinder mining below and blasting always onto a mined and filled stope.
- A number of pillars will be left behind due to the distribution of the mineralization. These will have to be assessed for stability in the next phase.
- Dilution from the hangingwall and footwall will be expected, with ELOS. For a stope with a strike length of 20 m, the footwall ELOS is expected to vary between 0.25 to 0.5 m while the hangingwall will vary between 0.25 to 3 m, largely dependent on the presence of talc alteration in which progressive spalling can occur. However, this talc alteration is not thought to be as prevalent as noticed at Stock West. Where QFP predominates, then ELOS will be limited to 0.25 to 0.5m. Depending on stope (mineralized) width, dilution can vary from 6% to greater than 15%
- A crown pillar with a minimum thickness of 30 m will be required for stopes of 8 to 10 m wide. If wider stopes are formed, then this thickness of bedrock may have to be increased to 40 m.

13.6.5 Access

The Fuller Mine will be accessed from a primary decline developed from surface to the mine workings. The primary decline will access historical Fuller Mine workings for production purposes while developing to the lower portion of the Fuller deposit.

The existing portal will be rehabilitated and initial access will utilize the existing workings. The existing decline will not be utilized as the primary haulage decline in the mine due to its proximity to historical mining areas. The bypass decline will re-access existing workings for early production.

The primary decline at depth has been designed as a spiral decline with level access from a flattened section of the decline to facilitate equipment turning.

Levels will include a level access with infrastructure for material handling, ventilation, and dewatering. The production drives from the level access will drive along the strike of the deposit through the stopes and will be used as both drilling and mucking horizons.

Remucks have been included at intervals of approximately 150 m, with adjustments made to the location to facilitate diamond drilling.

13.6.6 Stope Design

Typical stope drill and blast parameters are outlined in Table 13-27. Average stope dip is approximately 80° from horizontal.

Production blasting will be conducted using bulk emulsion and nonelectric detonators.

Generated shapes were evaluated for geotechnical stability and economic return. Stopes were generated on 6 m intervals, with stopes less than 12 m in final length removed from the mine plan.

13.6.6.1 Cut-off Grade

The cut-off grade calculation was based on a combination of benchmarking, in-progress cost estimations, and preliminary estimates. A 30% production recovery margin was added to the production breakeven grade.

Preliminary cost modelling, stope shape optimization parameters, and recovery values were used to generate a cut-off grade (Table 13-28). Stope shapes generated by the cut-off grade were evaluated on an individual basis within the mining area for economic viability.

Broken development material hauled to surface is scheduled to be fed directly to the mill at grades greater than 1.8 g/t, or stockpiled in the LG stockpile at grades greater than 0.7 g/t and less than 1.8 g/t.

13.6.6.2 Stope Shape Optimization Parameters

Stope shape optimizations were run to generate production stopes. Table 13-29 shows the target stope shape optimization parameters after testing various orientations and maximum widths.

Table 13-27: Fuller Average Production Stope Parameters

Stope Parameters	Unit	Value
Stope Height	m	30
Stope Width	m	7.9
Stope Tonnage	t	10,088
Hole Diameter	mm	89
Tonnes Per Drill Metre	t/m	4.5
Powder Factor	kg/t	0.82

Table 13-28: Fuller Cut-off Grade Calculation

Description	Unit	Value
Revenues		
Gold Price	US$/oz	1,650
Exchange Rate (C$/US$)	-	1.22
Operating Costs		
Sustaining Capital Cost	$/t	34.60
Development Operating Cost	$/t	15.40
Mining Operating Cost	$/t	44.72
Processing Costs	$/t	20.62
Surface Haulage to Mill	$/t	6.64
G&A	$/t	16.55
Transport, Insurance, & Refining	$/oz	1.24
Operating Assumptions		
Dilution	%	13
Mining Recovery	%	95
Milling Recovery	%	88
Royalty	%	-
Gold Payable	%	99.95
Cut-off Grade		
Processing Breakeven Grade	g/t	0.5
Production Breakeven Grade	g/t	1.9
Operating Breakeven Grade	g/t	2.2
Sustaining Capital Breakeven Grade	g/t	2.9
Production Recovery Margin	%	30
Deswik.SO Cut-off Grade	**g/t**	**2.4**

Table 13-29: Fuller Stope Optimization Parameters

Parameter	Unit	Value
Height	m	22-36
Section Length	m	6
Minimum Width	m	2.1
Maximum Width	m	30
Stope Pillar Minimum Width	m	11
ELOS Near Side Dilution	m	0.5
ELOS Far Side Dilution	m	0.5
Minimum Dip	degree	50
Maximum Dip	degree	130

13.6.7 Underground Infrastructure

13.6.7.1 Existing Infrastructure

Fuller has an existing decline and exploration infrastructure to a depth of 195 m below surface. Some limited historical production has also been completed within the existing workings.

The existing workings will be dewatered and partially rehabilitated during reaccess. The original portal location will be utilized for the Fuller decline.

13.6.7.2 Ventilation

The mine is designed as a push ventilation network, using a dual fan arrangement with propane-fired heaters installed on the fresh air raise. Annual ventilation requirements have been evaluated based on total engine power (kW) of all equipment, an engine operating factor of 80% and a leakage factor of 30%. The minimum airflow requirement is based on a requirement of 0.06m^3/s/kW of diesel-powered equipment.

Airflow to each level connected to the fresh air raise circuit will be controlled by a concrete bulkhead and regulator that can be adjusted to minimal flow when not required.

Secondary ventilation will be provided by 90 kW fans supplying fresh air to the working face in active mining areas. Ventilation ducts will be run to multiple headings and controlled with choke lines installed at the intersections to restrict airflow to inactive faces.

13.6.7.3 Emergency Preparedness

Diesel equipment will be equipped with automatic fire suppression systems where possible, and hand-held fire extinguishers. Hand-held fire extinguishers will be located throughout the mine at various locations.

Portable refuge chambers will be utilized in each mining area and sufficient space will be allowed for a maximum crew size based on scheduled activities in the area. The refuge chambers will be moved periodically to maintain safe operating distances from active production areas to ensure personnel will have minimal time to reach the refuge chamber in the event of an emergency.

Secondary egress to surface from each sublevel will be provided by ladders installed in independent emergency escapeways. Secondary egress from the underground workings will exist through the fresh air raise to surface.

13.6.7.4 Backfill

Stopes will be backfilled with a cemented rockfill when mined laterally adjacent to a future stope, or with loose mine rock when mined underneath a future stope. Mine rock will be sourced from active waste development headings or from the surface WRSF to reduce surface footprint at closure. It is assumed that all mine rock will be hauled to surface, and all backfill will be hauled from surface to the backfill level.

On surface, an LHD will load a haul truck with mine rock, and a mixing station will be used to add cement slurry directly to the truck box with a spray bar after loading when required. The truck will tram down the ramp to the backfill level and dump into the stockpile location. Once unloaded, a LHD will haul the material to the top of the stope void to be dumped.

13.6.7.5 Mine Process Water Supply and Dewatering

During initial portal development, the flooded workings will be pumped into water supply tanks positioned at the entrance to the portal to provide the initial fill of mine process water. Water will be distributed throughout the mine using steel pipe with head pressure controlled using pressure reducing valves.

The mine will be dewatered using a cascading series of sumps and settling systems discharging to a surface settling pond. Water will be recycled into the mine process water supply and excess water will be treated on site using a small-scale water treatment plant prior to discharge to the environment.

13.6.7.6 Compressed Air

During initial portal development, two compressors will be positioned at the portal and used to provide compressed air to equipment with a redundant backup. Once the primary ventilation circuit has been connected, a compressor station will be installed underground and provide compressed air to the operation.

Compressed air will be distributed throughout the mine using steel pipe and extended with development services.

13.6.7.7 Power

Power will be distributed throughout the mine on 4160 V cables to skid mounted substations. The skid mounted substations will step down power to a 600 V feed that will be distributed to active areas into electrical boxes for connecting fans and equipment.

13.6.7.8 Communications

Communications will be provided throughout the mine using handheld or equipment mounted radios supported by a leaky feeder system. The system will be advanced with development to extend communications to working faces.

13.6.7.9 Maintenance Facilities

Scheduled maintenance will be done on surface at the truck shop, and equipment will tram to the surface for service. Breakdown maintenance will be conducted at the working face or in an access drive when it is possible to move the equipment to a better location for service.

13.6.7.10 Explosives Storage

Two magazines will be developed and maintained underground in accordance with Regulation 854 Mines and Mining Plants 126-129 (July 1, 2019). The magazine locations will be based in old workings connected to the primary decline during the initial access. One magazine will be dedicated to the storage of detonators, and the other will be dedicated to the storage of bulk explosives.

As digitization of existing workings is progressed, new workings or utilizing existing workings can be evaluated. There are multiple potential locations within the existing workings away from the access decline for explosive storage

13.6.8 Mine Equipment

Table 13-30 outlines the fleet selected for Fuller. Annual equipment requirements are based on modelled operating hours and availability.

Table 13-30: Fuller Mobile Equipment

	Year				
Mobile Equipment	**9**	**10**	**11**	**12**	**13**
Twin-Boom Jumbo	1	1	1	1	0
ITH Production Longhole	0	1	1	2	1
Development Bolter	1	1	1	1	1
Scissor Deck	1	1	1	1	1
6 yd LHD	1	1	2	2	1
45t truck	1	1	2	3	2
Grader	0	0	0	1	0
Explosives Loader	1	1	1	1	1
Utility Vehicle	3	3	3	4	2
Personnel Carrier	1	1	2	2	1

13.6.9 Mine Schedule

The planned production schedule is shown in Table 13-31 and represented in Figure 13-11. Dewatering and development is planned to commence in Year 7. The LOM plan for Fuller is five years with an average annual stope production of 210,000 t between Year 9 and Year 12. Production will average approximately 660 t/d during this period with an average gold grade of 3.7 g/t.

Dilution and mining recovery have been accounted for and is summarized in Table 13-32.

Table 13-31: Fuller Mine Schedule

Activity	Unit	Year				
		9	10	11	12	13
Fuller Mine Rehabilitation	m	891	853	0	0	0
Capital Development	m	2,702	1,658	1,198	872	0
Capital Raising	m	61	238	95	92	0
Operating Waste Development	m	119	763	951	459	0
Operating Production Development	m	43	915	999	712	0
Development Production Tonnes	kt	7	36	52	37	0
Development Production Grade	g/t Au	3.36	3.60	3.17	4.25	0
Development LG Stockpile Tonnes	kt	5	19	21	9	0
Development LG Stockpile Grade	g/t Au	1.01	1.19	1.20	1.10	0
Production Tonnes	kt	42	135	239	384	251
Production Grade	g/t Au	3.54	3.61	3.64	3.71	3.78
Total Tonnes	kt	49	172	291	421	251
Average Grade	g/t Au	3.51	3.60	3.55	3.76	3.78
Total Au Ounces	Au koz	6	20	33	51	30

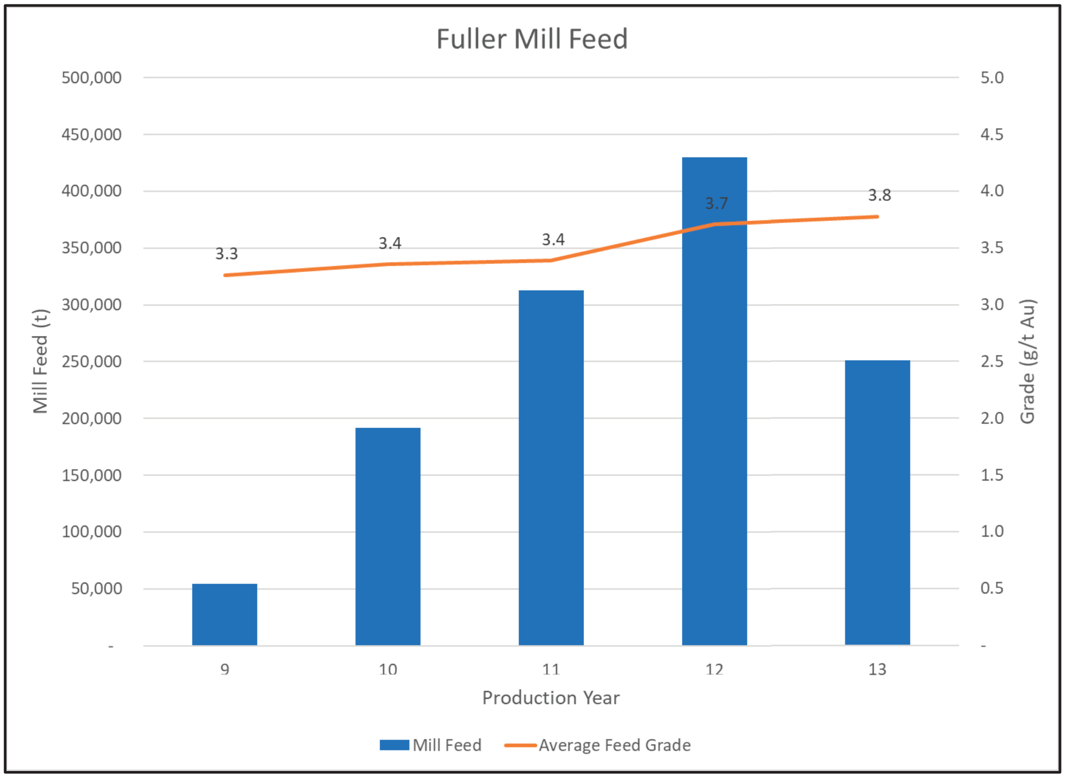

Figure 13-11: Fuller Mill Feed (prepared by Wood, dated 2021)

Note: Total Mill Feed tonnes and grade includes low grade stockpile material by extraction year

Table 13-32: Fuller Dilution Parameters

Dilution	Development	Production
Internal Dilution, %	-	29
External Dilution, %	5	17
Mining Recovery, %	95%	

13.7 Fox Complex Combined Production Schedule within the IA Mine Plan

The strategic Fox Complex LOM production schedule is presented in Table 13-33 and represented in Figure 13-12 and Figure 13-13. Mine plans from each deposit have been combined into a production schedule to provide consistent mill feed while adhering to the Fox Mill's capacity.

Table 13-33: Fox Complex Combined Production Schedule within the IA Mine Plan

Description	Unit	Year													Total
		1	2	3	4	5	6	7	8	9	10	11	12	13	
Froome															
Tonnes	kt	475	574	354	-	-	-	-	-	-	-	-	-	-	**1,403**
Au Grade	g/t	3.64	3.36	2.79	-	-	-	-	-	-	-	-	-	-	**3.31**
Contained Oz	koz	56	62	32	-	-	-	-	-	-	-	-	-	-	**149**
Recovered Oz	koz	50	55	28	-	-	-	-	-	-	-	-	-	-	**134**
Recovery	%	89.5	89.5	89.5	-	-	-	-	-	-	-	-	-	-	**89.5**
Grey Fox															
Tonnes	kt	-	-	-	132	326	530	535	540	511	403	182	-	-	**3,159**
Au Grade	g/t	-	-	-	4.72	4.74	5.14	5.38	4.94	4.61	4.94	4.72	-	-	**4.95**
Contained Oz	koz	-	-	-	20	50	88	93	86	76	64	28	-	-	**503**
Recovered Oz	koz	-	-	-	18	44	77	82	75	67	56	25	-	-	**444**
Recovery	%	-	-	-	88	89	88	89	88	88	88	91	-	-	**88**
Stock West															
Tonnes	kt	-	-	-	48	211	184	179	207	207	212	217	72	-	**1,537**
Au Grade	g/t	-	-	-	3.33	3.35	4.06	3.58	4.32	3.66	3.95	3.50	3.62	-	**3.75**
Contained Oz	koz	-	-	-	5	23	24	21	29	24	27	24	8	-	**185**
Recovered Oz	koz	-	-	-	5	21	23	19	27	23	25	23	8	-	**174**
Recovery	%	-	-	-	94	94	94	94	94	94	94	94	94	-	**94**

Description	Unit	Year													Total
		1	2	3	4	5	6	7	8	9	10	11	12	13	
Fuller															
Tonnes	kt	-	-	-	-	-	-	-	-	49	172	291	421	251	**1,185**
Au Grade	g/t	-	-	-	-	-	-	-	-	3.51	3.60	3.55	3.76	3.78	**3.68**
Contained Oz	koz	-	-	-	-	-	-	-	-	6	20	33	51	30	**140**
Recovered Oz	koz	-	-	-	-	-	-	-	-	5	18	29	45	27	**123**
Recovery	%	-	-	-	-	-	-	-	-	88	88	88	88	88	**88**
LG Stockpile Feed															
Tonnes	kt	-	-	-	40	74	6	6	-	-	-	30	143	-	**299**
Au Grade	g/t	-	-	-	1.19	1.18	1.15	1.16	-	-	-	1.15	1.15	-	**1.18**
Contained Oz	koz	-	-	-	2	3	0	0	-	-	-	1	5	-	**11**
Recovered Oz	koz	-	-	-	1	3	0	0	-	-	-	1	5	-	**10**
Recovery	%	-	-	-	90	91	88	89	-	-	-	88	88	-	**89**
Combined															
Tonnes	kt	475	574	354	221	611	720	720	747	766	788	720	636	251	**7,583**
Au Grade	g/t	3.64	3.36	2.79	3.77	3.83	4.83	4.90	4.77	4.28	4.38	3.73	3.16	3.78	**4.06**
Contained Oz	koz	56	62	32	27	75	112	113	115	106	111	86	65	30	**989**
Recovered Oz	koz	50	55	28	24	68	99	102	102	94	99	78	57	27	**885**
Recovery	%	90	90	90	89	91	98	90	89	89	90	91	89	88	**90**

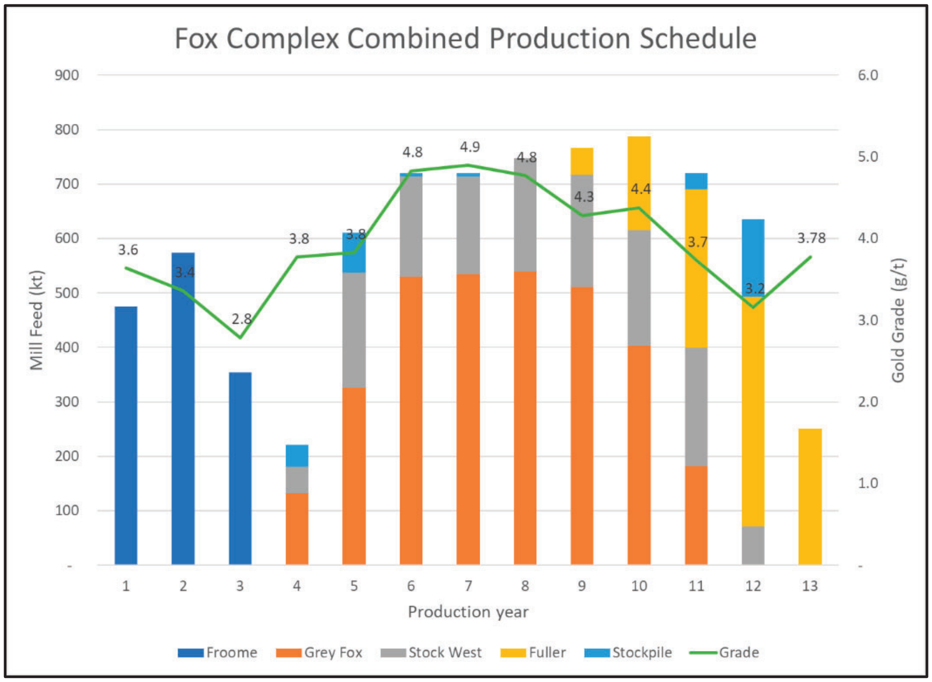

Figure 13-12: LOM Mill Feed by Site (prepared by Wood, dated 2021)

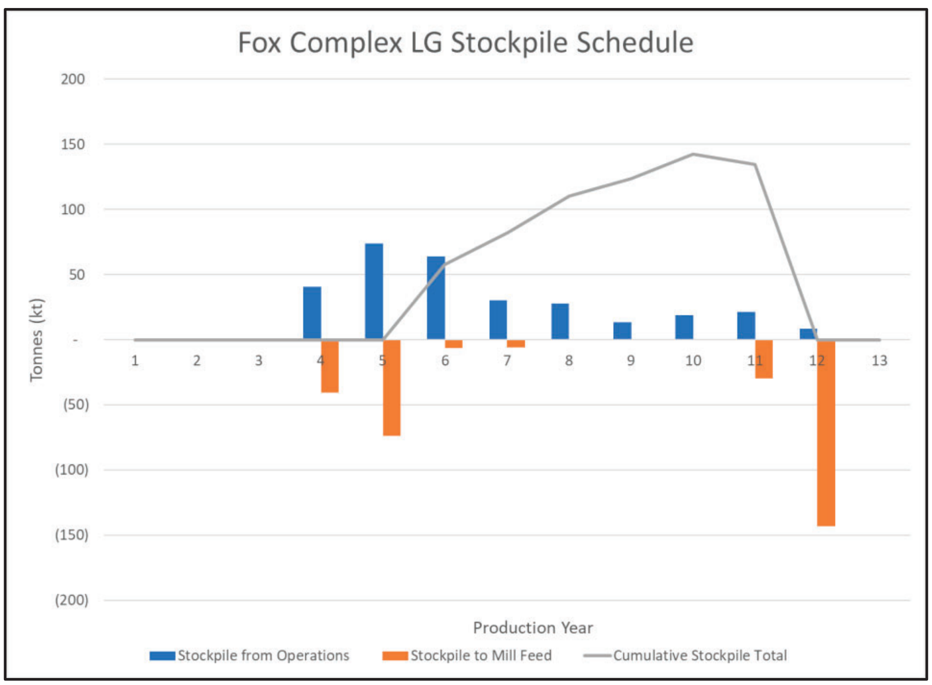

Figure 13-13: LG Stockpile LOM Schedule (prepared by Wood, dated 2021)

The Fox Complex LOM production schedule, annual fleet requirements and fleet operating hours were measured against the equipment schedules by operating complex. The models have been modified to transfer equipment from one operation to another, maintaining the existing operating hours and removing the upfront capital of purchasing new equipment where feasible.

13.8 IA Mine Plan Excluding Inferred Mineral Resources

S-K 1300 permits the inclusion of Inferred Mineral Resources in the economic analysis provided that a version of the economic analysis that excludes the Inferred Mineral Resources is also presented. The following presentation shows the mine and production schedule for the Fox Complex with the Inferred Mineral Resources excluded. For this version of the IA the production schedules follow the same initial schedule, but removes production from the Stock West and Fuller properties, and removes the Inferred Mineral Resources from Froome and Grey Fox mine plans. This results in a version of the IA that is based only on Measured and Indicated Mineral Resources from Froome and Grey Fox (Table 13-34).

Table 13-34: Measured and Indicated Mineral Resources within the Fox Complex IA Mine Plan in the IA Mine Plan Excluding Inferred Mineral Resources

Classification	Tonnes, kt	Au Grade, g/t	Contained Oz Au, koz
Measured and Indicated	4,299	4.28	592

Note: (1) Input assumptions to constrain the Froome estimate above 225mL include metal price of $1,725/oz gold, development cut-off grade of 0.5 g/t gold, production cut-off grade of 2.8 g/t gold, process recovery of 89.5%, mining costs of $115.65/t including haulage, process costs of $22.14/t, G&A costs of $23.26/t, haulage costs to the Fox Mill of $6.14/t, sustaining costs of $38.04/t, internal dilution of 5%, external dilution of 5% and recovery of 95%.

(2) A higher gold price has been used for the Froome mine plan above 225mL due to production in the mine plan that is influenced by the current, higher gold prices.

(3) Input assumptions to constrain the Froome estimate below 225 mL include metal price of $1,650/oz gold, development cut-off grade of 0.7 g/t gold, production cut-off grade by zone of 2.2 g/t gold, process recovery of 87%, mining costs of $52.47/t, process costs of $22.03/t, haulage costs to the Fox Mill of $6.14/t, G&A costs of $16.90/t, transport costs of $1.24/oz, sustaining costs of $13.62/t, internal dilution of 32%, external dilution of 14% and recovery of 95%.

(4) Input assumptions to constrain the Grey Fox estimate include metal price of $1,650/oz gold, development cut-off grade of 0.7 g/t gold, production cut-off grade by zone of 2.5-2.6 g/t gold, process recovery by zone of 81.0-93.1%, mining costs of $66.15/t, process costs of $22.57/t, haulage costs of $5.53/t, G&A costs of $18.48/t, transport costs of $1.24/oz, sustaining costs of $38.04/t, internal dilution of 31%, external dilution of 15% and recovery of 95%.

(5) Figures may not sum due to rounding.

13.8.1 Subset of Froome Mineral Resource Estimates Within the IA Mine Plan Excluding Inferred Mineral Resources

The stope shapes for the IA were reviewed for viability with the Inferred Mineral Resources backed out, and stopes that did not reach the cut-off grade were removed from the mine plan. The resulting Measured and Indicated Mineral Resources that were included the IA mine plan (without Inferred) are shown for the Froome mine above 225mL in Table 13-35 and below 225 mL in Table 13-36.

Table 13-35: Froome Subset of Mineral Resource Estimate Above 225 mL in the IA Mine Plan Excluding Inferred Mineral Resources

Classification	Tonnes, kt	Au, g/t	Contained Au, koz
Measured and Indicated	1,288	3.36	139

Note: (1) Input assumptions to constrain the Froome estimate above 225 mL include metal price of $1,725/oz gold, development cut-off grade of 0.5 g/t gold, production cut-off grade of 2.8 g/t gold, process recovery of 89.5%, mining costs of $115.65/t including haulage, process costs of $22.14/t, G&A costs of $23.26/t, transport costs to the Fox mill of $6.14/t, sustaining costs of $38.04/t, internal dilution of 5%, external dilution of 5% and recovery of 95%.
(2) A higher gold price has been used for the Froome mine plan above 225mL due to higher impact from current gold prices
(3) Figures may not sum due to rounding

Table 13-36: Froome Subset of Mineral Resource Estimate Below 225 mL in the IA Mine Plan Excluding Inferred Mineral Resources

Classification	Tonnes, kt	Au, g/t	Contained Au, koz
Indicated	99	2.71	8

Note: (1) Input assumptions to constrain the Froome estimate below 225 mL include metal price of $1,650/oz gold, development cut-off grade of 0.7 g/t gold, production cut-off grade by zone of 2.2 g/t gold, process recovery of 87%, mining costs of $52.47/t, process costs of $22.03/t, haulage costs of $6.14/t, G&A costs of $16.90/t, transport costs of $1.24/oz, sustaining costs of $13.62/t, internal dilution of 32%, external dilution of 14% and recovery of 95%.
(2) Figures may not sum due to rounding.

13.8.2 Subset of the Grey Fox Mineral Resource Estimate Within the IA Mine Plan Excluding Inferred Mineral Resources

An alternate set of stope shapes was generated without the Inferred Mineral Resources in the evaluation and used to establish the alternate mine design and obtain a subset of the Mineral Resource estimate presented in Chapter 11. Table 13-37 presents the subset of the Mineral Resource excluding Inferred Mineral Resources.

Table 13-37: Grey Fox Subset of Mineral Resource Estimate in the IA Mine Plan Excluding Inferred Mineral Resources

Classification	Tonnes, kt	Au, g/t	Contained Au, koz
Indicated	2,911	4.75	444

Note: (1) Input assumptions to constrain the Grey Fox estimate include metal price of $1,650/oz gold, development cut-off grade of 0.7 g/t gold, production cut-off grade by zone of 2.5 to 2.6 g/t gold, process recovery by zone of 81.0 to 93.1%, mining costs of $66.15/t, process costs of $22.57/t, haulage costs of $5.53/t, G&A costs of $18.48/t, transport costs of $1.24/oz, sustaining costs of $38.04/t, internal dilution of 31%, external dilution of 15% and recovery of 95%.

(2) Figures may not sum due to rounding.

13.8.3 Grey Fox Mine Production Schedule for IA Excluding Inferred Mineral Resources

The planned production schedule is shown in Table 13-38 and represented in Figure 13-14. The LOM plan for Grey Fox is nine years, with an average annual stope production of 429,000 t between Year 6 and Year 10. Total production will average approximately 1,400 t/d during this period with an average gold grade of 5.0 g/t.

Table 13-38: Grey Fox Mine Schedule Excluding Inferred Mineral Resources

		Year								
Activity	Unit	3	4	5	6	7	8	9	10	11
Gibson Rehabilitation	m	420	274	333	0	0	0	0	0	0
Capital Development	m	2,095	3,594	3,934	1,533	2,346	1,588	0	0	0
Infrastructure Development (4.2m x 5.0m)	m	504	1074	0	0	0	0	0	0	0
Capital Raising	m	123	68	215	107	86	129	0	0	0
Operating Waste Development	m	74	2,533	3,877	4,874	2,723	4,287	682	0	0
Operating Production Development	m	0	1,186	1,887	2,626	1,359	1,461	364	0	0
Development Production Tonnes	kt	0	62	98	167	71	76	19	0	0
Development Production Grade	g/t Au	0	3.81	4.36	4.63	4.42	3.99	3.97	0	0
Development LG Stockpile Tonnes	kt	0	25	42	54	28	23	3	0	0
Development LG Stockpile Grade	g/t Au	0	1.20	1.15	1.15	1.10	1.10	1.19	0	0
Development Benching	m	0	0	0	0	54	111	0	0	0
Development Benching Tonnes	kt	0	0	0	0	3	3	0	0	0
Development Benching Grade	g/t Au	0	0	0	0	4	3	0	0	0
Production Tonnes	kt	0	118	179	387	471	478	528	101	0
Production Grade	g/t Au	0	5.26	4.84	5.85	5.31	5.33	4.45	4.38	0
Total Tonnes	kt	0	199	305	576	600	616	602	111	0
Average Grade	g/t Au	0	4.76	4.66	5.54	5.18	5.12	4.44	4.38	0
Total Au Ounces	Au koz	0	28	42	93	91	86	78	14	0

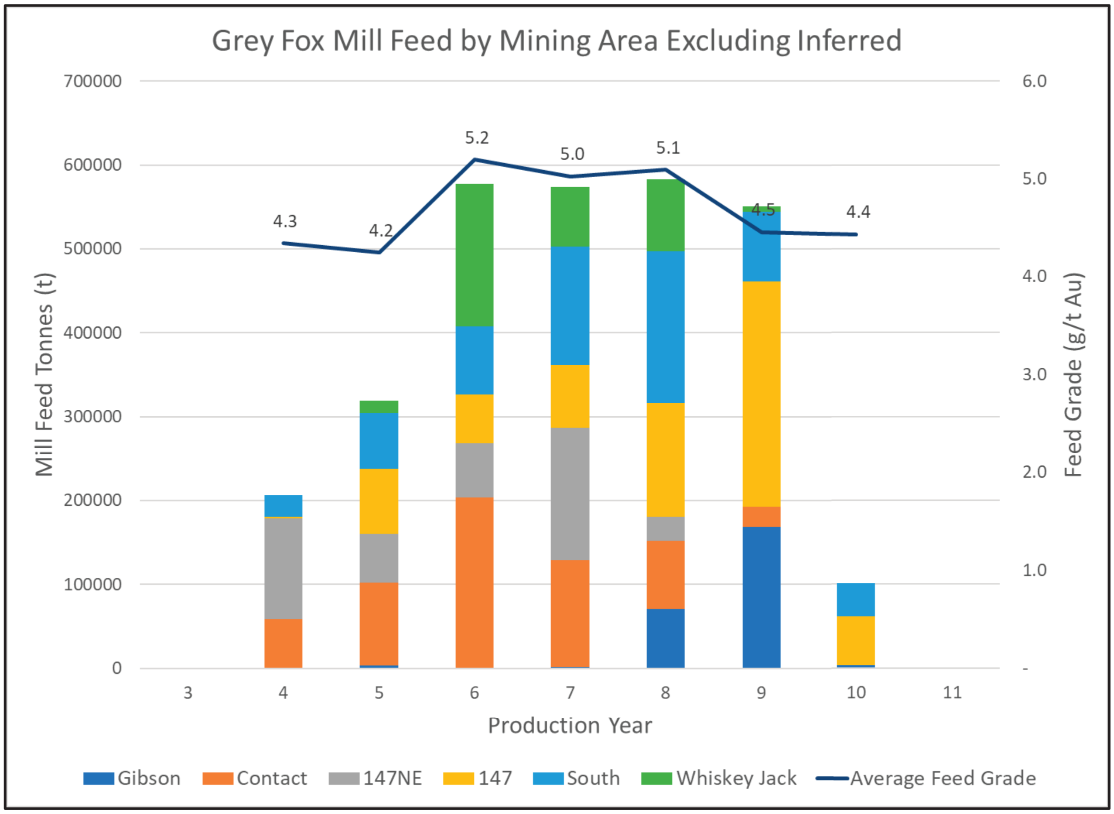

Figure 13-14: Grey Fox Mill Feed by Mine Area Excluding Inferred (prepared by Wood, dated 2021)

Note: Total mill feed tonnes and grade by mining area includes low grade feed material

13.8.4 Fox Complex Combined Production Schedule for IA Excluding Inferred Mineral Resources

The Fox Complex LOM production schedule with Inferred excluded is presented Table 13-39 and Figure 13-15. Mine plans from each deposit have been combined into a production schedule to provide consistent mill feed. This mine plan scenario excludes Inferred Mineral Resources from Froome and Grey Fox, and the Stock West and Fuller deposits have been removed completely.

The low-grade material will be direct fed to the mill in this scenario to utilize mill throughput capacity.

Table 13-39: Fox Complex Combined Production Schedule Excluding Inferred Mineral Resources

Description	Unit	Year													Total
		1	2	3	4	5	6	7	8	9	10	11	12	13	
Froome															
Tonnes	kt	475	565	347	-	-	-	-	-	-	-	-	-	-	**1,387**
Au Grade	g/t	3.64	3.38	2.75	-	-	-	-	-	-	-	-	-	-	**3.31**
Contained Oz	koz	56	62	31	-	-	-	-	-	-	-	-	-	-	**148**
Recovered Oz	koz	50	55	27	-	-	-	-	-	-	-	-	-	-	**132**
Recovery	%	89.5	89.5	89.5	-	-	-	-	-	-	-	-	-	-	**89.5**
Grey Fox															
Tonnes	kt	-	-	-	181	278	523	545	560	547	101	-	-	-	**2,735**
Au Grade	g/t	-	-	-	4.76	4.66	5.54	5.18	5.12	4.44	4.38	-	-	-	**4.98**
Contained Oz	koz	-	-	-	28	42	93	91	92	78	14	-	-	-	**438**
Recovered Oz	koz	-	-	-	24	37	81	81	82	69	13	-	-	-	**387**
Recovery	%	-	-	-	88	89	87	89	89	89	92	-	-	-	**88**
LG Direct Feed															
Tonnes	kt	-	-	-	25	42	54	28	23	3	-	-	-	-	**299**
Au Grade	g/t	-	-	-	1.20	1.15	1.15	1.10	1.10	1.19	-	-	-	-	**1.18**
Contained Oz	koz	-	-	-	1	2	2	1	1	0	-	-	-	-	**11**
Recovered Oz	koz	-	-	-	1	1	2	1	1	0	-	-	-	-	**10**
Recovery	%	-	-	-	88	89	87	89	89	89	-	-	-	-	**88**
Combined															
Tonnes	kt	475	565	347	206	319	577	574	583	551	101	-	-	-	**4,299**
Au Grade	g/t	3.64	3.38	2.75	4.32	4.20	5.12	4.98	4.96	4.42	4.38	-	-	-	**4.28**
Contained Oz	koz	56	62	31	29	43	95	92	93	78	14	-	-	-	**592**
Recovered Oz	koz	50	55	27	25	39	83	81	82	69	13	-	-	-	**525**
Recovery	%	90	90	90	88	89	87	89	89	89	92	-	-	-	**89**

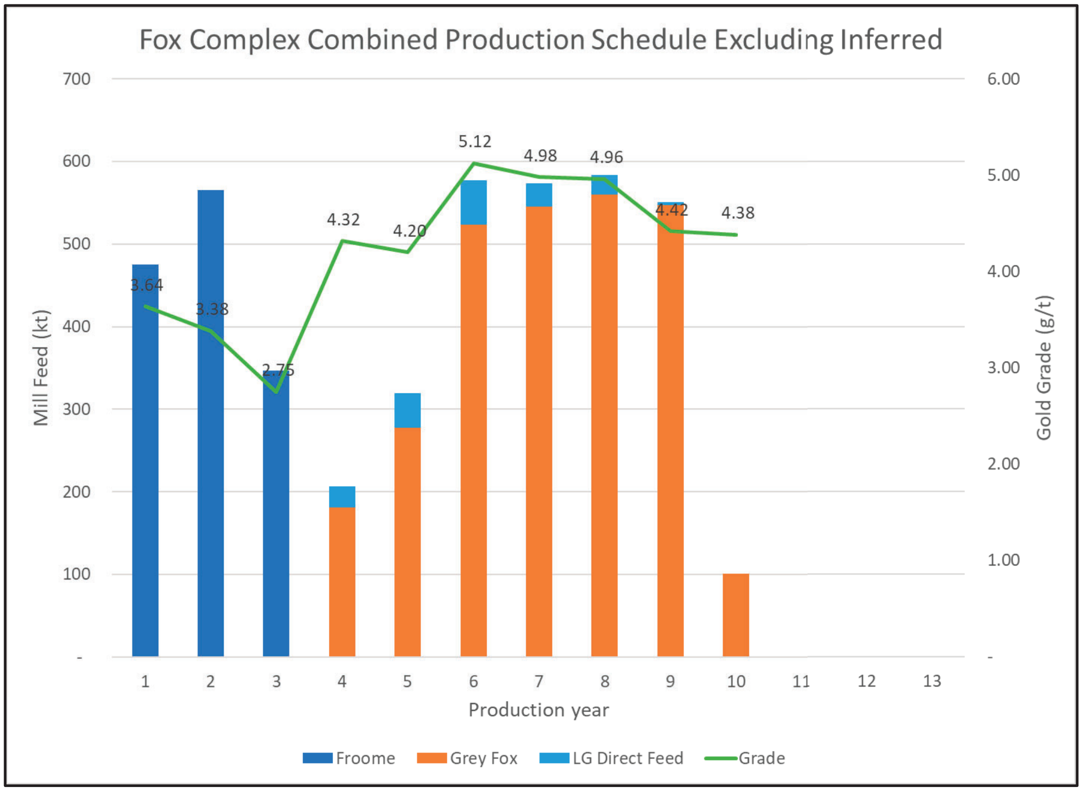

Figure 13-15: LOM Mill Feed by Site Excluding Inferred Mineral Resources (prepared by Wood, dated 2021)

14.0 Processing and Recovery Methods

14.1 Introduction

Mineralized material from multiple deposits will be processed through the Fox Mill at the Stock mine site. These include: Froome, Grey Fox, Stock West, and Fuller. Feed to the mill will be blended based on the overall production schedule and hardness to achieve target throughputs.

The overall flow of the existing plant is maintained with some modifications to increase overall tonnage throughput and to process harder materials at the higher rates. A brief description of the modified flowsheet is included in this chapter, with consideration for changes required from current operation. Testwork and past operational performance supports this flowsheet as appropriate to process mineralized material from all the deposits.

14.2 Process Flowsheet Summary

The simplified process flowsheet that aligns with the recommendations from this IA are included in Figure 14-1. Mineralized material delivered to the Fox Mill is stockpiled and bucket-blended into a portable crusher. The material then continues through a three-stage crusher and fed to a primary ball mill operating in closed-circuit. Sized material is transferred to regrind with two ball mills operating in parallel in closed-circuit. Final sized product is then leached with cyanide and recovered to activated carbon. The gold is stripped from the carbon and recovered with electrowinning cells and eventually poured into doré bars as a final product. Stripped carbon is acid washed, regenerated, and returned to the leach circuit.

14.3 Process Description

When the IA study work started, plant operations processed material on an on/off schedule based on mining rates and typically run at 1,600 t/d with a target grind of 75 µm. Future mine production schedules require more material to be processed at the mill which will require modifications to operations and equipment to meet the higher throughputs. The mill now operates continuously with a 24/7 schedule. This will also help maintain equipment and improve operability by longer periods of steady-state operation.

Other operational changes required within the plant include increasing the target production size to 130 µm and reducing the closed side setting (CSS) on the secondary crusher to 12 mm. The larger product size requires less grinding and the tighter CSS reduces the workload on the tertiary crusher, which is the current plant bottleneck. Since the site visit, the primary crusher has been rebuilt, improving availability.

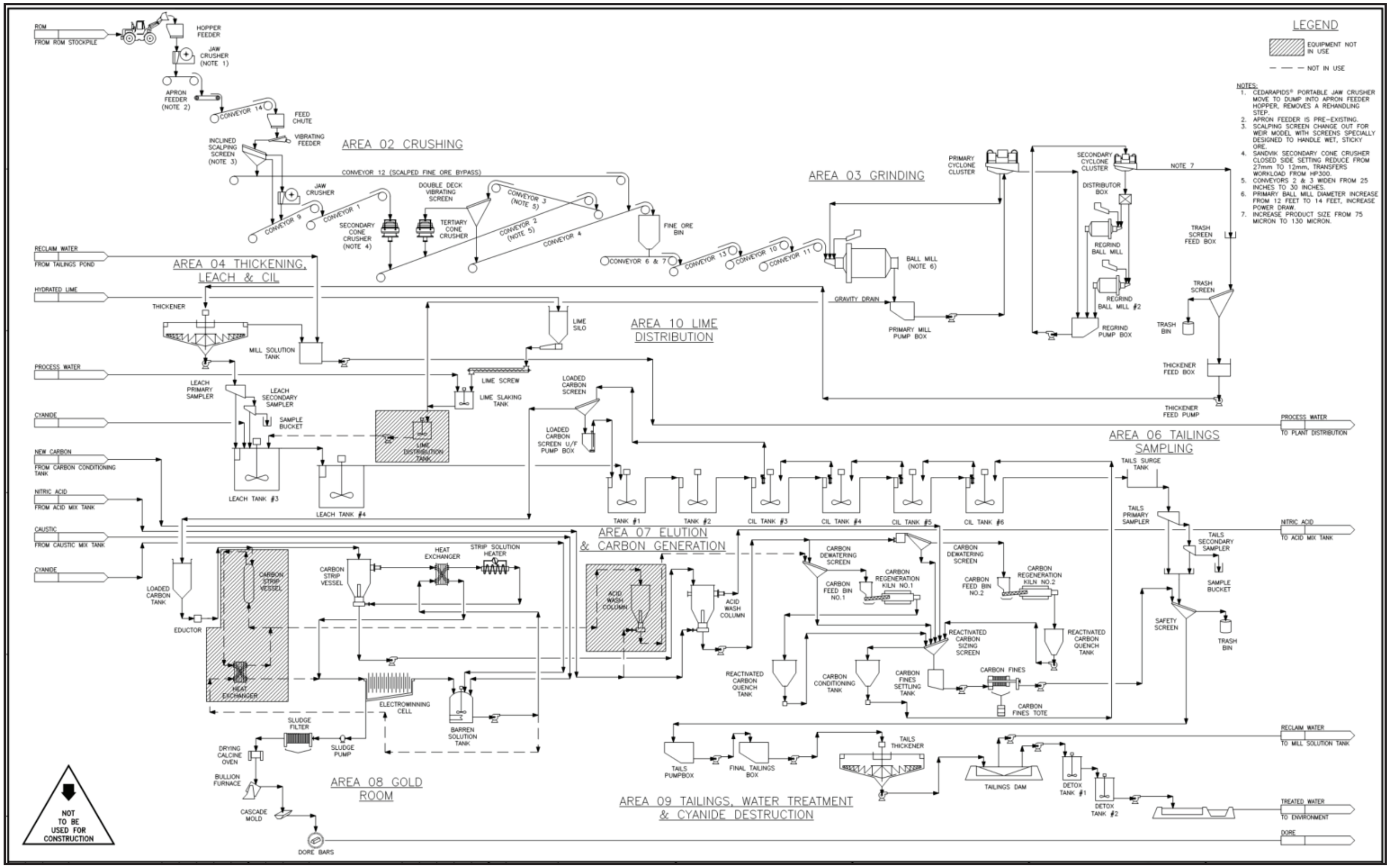

Figure 14-1: Basic Process Flowsheet (prepared by Wood, dated 2021)

Recommendations for operational improvements that are not imperative to production but will improve operation and reduce risk of not meeting throughput rates include:

- Moving the portable crusher to discharge to the apron feeder
- Increasing the width of the conveyors around the secondary and tertiary crushers feeding the sizing screen.

14.4 Process Design Criteria

The design criteria used to determine recommendations for the IA are presented in Table 14-1.

Table 14-1: Process Design Criteria

Parameter	Unit	Value
Feed Characteristics		
Bond Work Index		
Froome	kWh/t	20.9
Grey Fox	kWh/t	25.9
Other feed	kWh/t	16.0
Run of Mine Size		
F_{80}	mm	264
F_{100}	mm	500
Operating Schedule		
Rotation		24/7
Shifts	shifts/day	2
Operating days	days	365
Operating hours	hours	24
Crusher availability	%	70
Plant availability	%	93
Production Rate		
Plant Feed Rate (nominal)		
100% Grey Fox/Froome	t/d	1,950
50% Grey Fox	t/d	2,350
0% Grey Fox	t/d	2,500
Grind size (P_{80})	µm	130
Gold recovery	%	85 – 94

14.4.1 Crushing

Plant feed involves a pre-crush step with a Cedarapids portable crusher. Currently the product is discharged back onto the ground and is rehandled and fed to the apron feeder at the tail of the conveyor feeding the main crushing plant. Wood recommends relocating the portable crusher such that the product discharges to the apron feeder. The apron feeder is still required to control the flow of material onto the main conveyor.

Feed to the crushing circuit first passes over a fines screen to remove undersize material. However, the installed screen does not currently operate properly, and all of the feed is transferred to the Kemco C-95N jaw crusher. This screen should be replaced with screens specifically designed to manage wet, sticky material. McEwen is currently replacing the existing screen with a Weir scalping screen to address this issue. Material that is less than 11 mm reports to a bypass conveyor and goes directly to the fine ore bin. Material that is larger than 11 mm and less than 50 mm bypasses the jaw crusher. Oversize material is crushed in the jaw crusher to a transfer size P100 of 133 mm.

Jaw crusher product and intermediate size material from the fines screen are fed to the Sandvik secondary cone crusher. The secondary cone crusher operates in open circuit. Wood recommends the CSS be reduced to 12 mm which will reduce the P80 to 15.6 mm. Product from the secondary and tertiary cone crusher combine on a single conveyor, conveyor #2, that feeds onto conveyor #3, which feeds the sizing screen. Wood recommends increasing the width of conveyor #2 and #3 to 762 mm. The sizing screen is a Metso "banana screen" with undersize as the final product to the fine ore bin and oversize fed to the tertiary crusher. The tertiary crusher is a Metso cone crusher and is often overloaded but with the crusher circuit modifications should operate at 60 to 70% of installed power.

Table 14-2 lists the major equipment included in the crushing circuit.

Table 14-2: Crusher Circuit Major Equipment

Equipment	Type	Unit	Specification
Cedarapids Portable Plant	Model		CRJ3042 Jaw Plant
	Size	mm	760 x 1067
	Conveyor	mm	1067
	Power	kW	110
	CSS	mm	120
	F_{100}	mm	295
	F_{80}	mm	118
Apron Feeder	Width	mm	1067
Inclined Vibrating Screen	Model		Weir Trio TIOSP6162
	Decks		2
	Width	m	1.83
	Length	m	4.88
	Deck 1		
	Material		Linatex Snapdeck 1'x4' panels
	Aperture	mm	50
	Deck 2		
	Material		Self-cleaning wire cloth
	Aperture	mm	11
Jaw Crusher	Model		Kemco C-95N
	F_{80}	mm	116
	P_{80}	mm	67
	Gape	mm	610
	Width	mm	915
	CSS	mm	75
	F_{100}	mm	288
	P_{100}	mm	133
Cone Crusher	Model		Sandvik CH430 H3800
	F_{100}	mm	133
	F_{80}	mm	58
	P_{80}	mm	15.6
	Power	kW	150
	Cavity		Coarse liner
	CSS	mm	12

Equipment	Type	Unit	Specification
Banana Screen	Model		Metso TS-302
	Decks		2
	Width	m	6.10
	Length	m	1.80
	Deck 1		
	Material		Steel wire
	Aperture	mm	20
	Deck 2		
	Material		Steel wire
	Aperture	mm	10
Cone Crusher	Model		Metso HP300
	F_{100}	mm	26.2
	F_{80}	mm	21.6
	P_{80}	mm	10.3
	Power	kW	224
	Cavity		Short head medium liner
	CSS	mm	10

14.4.2 Grinding

Crushed material is fed to the primary ball mill via conveyor from the fine ore bin. Wood recommends increasing the diameter of the primary ball mill to 4.3 m to utilize the installed power. An engineering study should be completed to confirm that a larger shell will fit without major modifications and that items, such as bearings, can withstand the additional weight of the mill and increased volume of a total charge. The primary ball mill is operated in closed circuit with three hydrocyclones and one stand-by. Underflow is returned to the ball mill and overflow is sent to the secondary cyclone feed pumpbox. Underflow of the secondary cyclone cluster, with five cyclones operating and one stand-by, is split to two regrind mills operating in parallel. The split is a static split and is relative to the installed power for each mill. Overflow from the secondary cyclone cluster is sent to a trash screen and a thickener feed box. Wood recommends increasing the target grind size to P_{80} 130 µm to meet tonnage production targets. With the larger primary ball mill and coarser transfer and product size, Wood also recommends using larger size grinding media. The primary ball mill should use 89 mm grinding balls and the regrind mills should use 38 mm grinding balls.

Table 14-3 lists the major equipment included in the grinding circuit.

Table 14-3: Grinding Circuit Major Equipment

Primary Mill	Type	Unit	Specification
Ball Mill	Model	m	4.3 x 5.5
	F_{80}	µm	6,000
	P_{80}	µm	235
	Fraction ball charge	vol. media/vol. mill	0.4
	Fraction total charge	vol. media/vol. mill	0.4
	Fraction critical speed	-	0.75
	Available power	kW	1,500
	Ball size	mm	89
	Operating model	-	closed circuit
	Slurry density	mass solids/mass slurry	0.72
	Ball attrition	kg/op. hr	131
Primary Hydrocyclone Cluster	Model	-	Linatex 375 Gen10/20
	Number	-	4 (3 duty; 1 stand-by)
	Feed pressure (max)	kPa	73 (106)
Ball Mill #1	Model	-	Allis-Chalmers 2.9 m x 3.7 m 448 kW
	Length	m	3.66
	Diameter	m	2.9
	F_{80}	µm	235
	P_{80}	µm	130
	Fraction ball charge	vol. media/vol. mill	0.4
	Fraction total charge	vol. media/vol. mill	0.4
	Fraction critical speed	speed/critical speed	0.75
	Available power	kW	371
	Ball size	mm	38
	Operating model	-	closed circuit
	Slurry density	mass solids/mass slurry	0.72
	Ball attrition	kg/op. hr	55
Ball Mill #2	Model	-	Allis-Chalmers 2.7 m x 3.4 m 336 kW
	Length	m	3.51
	Diameter	m	2.74
	F_{80}	µm	139
	P_{80}	µm	60

Primary Mill	Type	Unit	Specification
	Fraction ball charge	vol. media/vol. mill	0.4
	Fraction total charge	vol. media/vol. mill	0.4
	Fraction critical speed	-	0.75
	Available power	kW	296
	Ball size	mm	38
	Operating mode	-	closed circuit
	Slurry density	mass solids/mass slurry	0.72
	Ball attrition	kg/op. hr	44
Secondary Hydrocyclone Cluster	Model	-	Linatex 250Gen10/2
	Number	#-	6 (5 duty; 1 stand-by)
	Feed pressure (max)	kPa	92 (146)

14.4.3 Leach

The back end of the process plant is adequate to process the increased production levels. Wood does not recommend any changes to the leach circuit.

Ground slurry is thickened in the thickener and pumped to the first of two leach tanks. Cyanide is added to the first tank, leach tank #3. Lime is currently added to the primary mill cyclone pumpbox for pH control and could be added to the first leach tank if necessary. There are two concrete pedestals available if additional leach volume is required in the future.

Leached slurry overflows to the carbon-in-leach (CIL) circuit with six tanks. The first two tanks do not contain carbon and loaded carbon is removed from CIL tank #3. This is to keep gold inventory down and the carbon capacity is not currently needed. If additional carbon and residence time is required in the future, interstage screens and carbon transfer pumps could be installed to the first two tanks to convert them to CIL. Loaded carbon is transferred to the carbon stripping and electrowinning circuit. Tailings pass over a safety screen before being pumped to the tailings dam.

14.4.4 Carbon Stripping and Electrowinning

Carbon from the loaded carbon screen is transferred to the loaded carbon tank. Carbon is transferred in three tonne batches to the carbon strip vessel. There is a parallel system to strip and acid wash a one tonne batch that is not in use. Gold is removed from the carbon utilizing a typical Zadra process with a concentrated solution of caustic and cyanide at 142°C. Hot pregnant solution is cooled through a heat exchanger before going into an electrowinning cell where gold plates onto stainless steel cathodes. Sludge is removed from the cathodes with pressure-washing and collected in the bottom of the cell where it is pumped to a filter press. Filtered product is dried, smelted, and poured into doré bars. Barren solution from the electrowinning cell is returned to the strip circuit and remains in closed circuit until the strip is complete.

Stripped carbon is not currently being acid washed. Wood recommends reinstating this practice. The circuit has the capability to acid wash carbon in three tonne batches with 3% nitric acid.

Acid washed carbon is split to two carbon regeneration kilns that can each process 1.5 t/d. Thus, if the original one tonne strip circuit were utilized some carbon would be bypassed and not regenerated before returned to the CIL circuit. Regenerated carbon is cooled in a quench tank, passed over a carbon sizing screen into a conditioning tank before being pumped back to the CIL circuit. New carbon is added here and conditioned before being used in the leach circuit.

14.4.5 Tailings and Water Management

A new 16 m tailings thickener is presented as an addition to the current flowsheet to send thickened tails to the tailings facility and return overflow water back to the mill solution tank. Underflow will target 60 to 65% solids to the tailings facility, pumped with a centrifugal pump.

Additional reclaimed water is recovered from tailings via a barge-mounted pump to the mill solution tank and used at various addition points in the mill. Water can also be pumped to the first of two water treatment tanks for cyanide destruction. Air, sodium metabisulphite, and copper sulphate are used to destroy residual cyanide. Ferric sulphate can be added to the second tank to precipitate arsenic when required.

Treated water flows to a polishing pond to allow for completion of the cyanide destruction and particulate settling before discharging to the environment. Environmental discharge is limited to certain times of year. This process is typical for operations in the area.

14.5 Requirements for Reagents, Power and Water

14.5.1 Reagents

The reagents used throughout the process plant are listed below:

- Hydrated lime: pH control
- Sodium cyanide (NaCN): gold leaching in CIL and carbon stripping
- Carbon: adsorb leached gold-cyanide complex
- Sodium hydroxide (NaOH): carbon stripping
- Nitric acid (HNO_3): carbon acid wash

- Flocculant: improve settling rates in thickeners
- Antiscalant: prevent scale on pipes and carbon
- Sodium metabisulphite (SMBS, $Na_2S_2O_5$): cyanide destruction
- Ferric sulphate ($Fe_2(SO_4)_3$): arsenic precipitation
- Coagulant: water treatment

14.5.2 Power

The site will provide enough power for the proposed modified and current process equipment in the crushing and grinding circuits, as well as the current equipment in the other areas of the plant. Refer to Chapter 15 for further information.

14.5.3 Water

Mill process water is mainly reclaimed water pumped from the water management pond by barge-mounted pump to the mill solution tank and distributed to the plant from there. When additional makeup water is required, mill process water can be supplemented with water from the North Driftwood Creek.

15.0 Infrastructure

15.1 Introduction

The infrastructure required to develop Froome, Grey Fox, Stock West, and Fuller is similar. When possible, existing site infrastructure will be used at Stock for mining Stock West, and Black Fox for mining Froome and Grey Fox.

No camps or onsite accommodation are required for the Project. It is expected that personnel will commute from the surrounding towns of Timmins, South Porcupine or Matheson.

15.2 Black Fox/Froome

15.2.1 Summary

Facilities currently available at Black Fox/Froome include:

- Administrative area
- Change house
- Core shack and sheds
- Explosives and detonator magazines
- Froome and Black Fox Backfill plant
- Fuel distribution area
- Maintenance shop
- Overburden and two WRSFs
- Security gate
- Seepage collection ponds
- Surface shop
- Warehouses and laydown areas
- Water treatment holding and polishing pond (Holding Pond)

The Black Fox and Froome site plans are provided in Figure 15-1 and Figure 15-2.

15.2.2 Roads and Logistics

Black Fox/Froome is adjacent to Highway 101, and site access is immediately off the highway. Site roads are used to access the facilities, and a primary haulage road from the Black Fox/ Froome portals within the Black Fox pit is used to transport material to the WRSF and mill feed transfer stockpile.

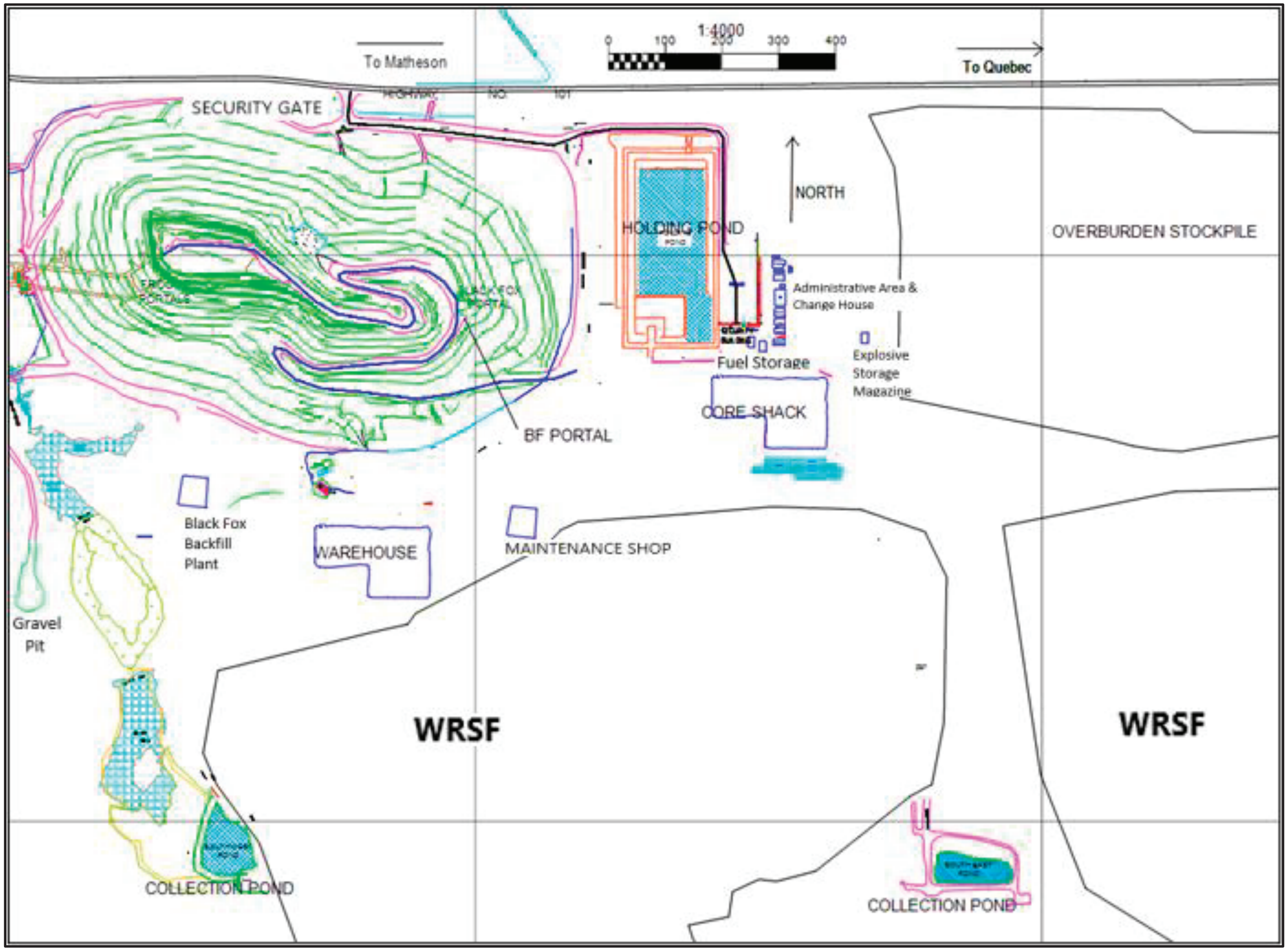

Figure 15-1: Black Fox Site Layout (prepared by McEwen, dated 2021)

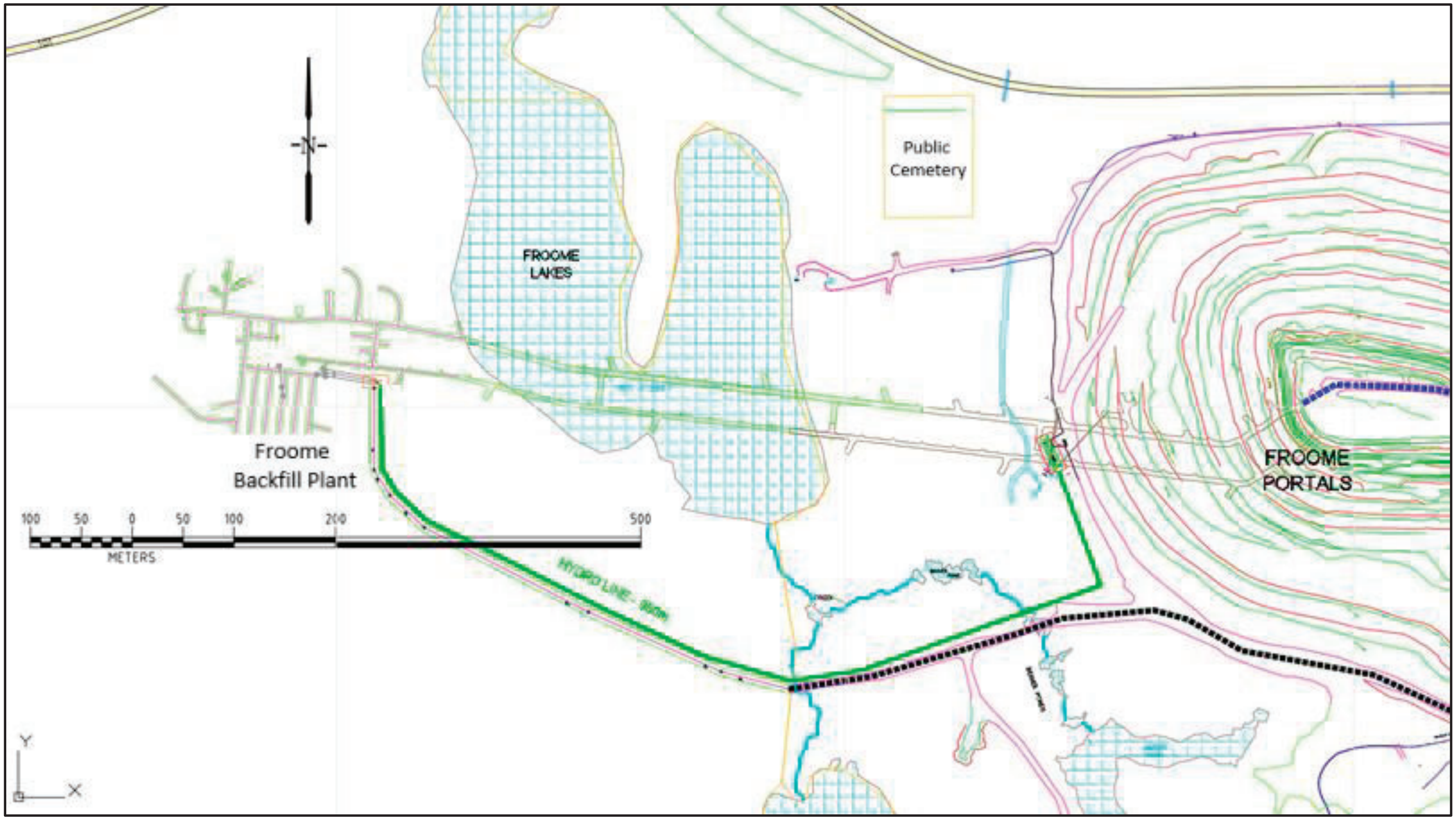

Figure 15-2: Froome Site Layout (prepared by McEwen, dated 2021)

15.2.3 Mine Rock Storage Facilities

The WRSF from the mining of the Black Fox pit are used for continued storage of waste from Froome, and as a transfer facility for mill feed destined for the Fox Mill.

15.2.4 Water Management

Water management infrastructure at Black Fox and Froome mines consists of a series of collection ponds, piping, pumping and a treatment facility. WRSF seepage and runoff is collected and isolated from clean runoff from the surrounding areas by containment berms and directed to collection ponds. Water in these ponds is directed to the holding pond and treatment system. Water is then discharged to the Pike River, 4 km south of the mine site.

All collected underground and surface water from the WRSF is monitored and treated in accordance with environmental compliance approval permits and is non-lethal to aquatic life.

15.2.5 Buildings and Infrastructure

Existing facilities established for mining at Black Fox will continue to be utilized for mining the Froome deposit.

An administrative area consists of trailers dedicated to offices, a first aid station, training room, lunchroom, and men's and women's locker rooms and washrooms (dry).

A laboratory facility consists of prefabricated, steel-frame buildings dedicated to sample preparation, sample storage, a weighing room, a wet lab, a metallurgical lab, as well as offices and washrooms.

A surface shop consists of prefabricated, steel-frame buildings dedicated to a small vehicle repair shop, large vehicle repair bays, a truck wash station, and a warehouse.

15.2.6 Power and Electrical

Power to the site is provided by a 27.6 kV line, and there is available capacity of up to 7.5 MW of load demand for all facilities, with a current draw of approximately 4.5 MW for active mining activities at both the Froome and Black Fox deposits.

15.2.7 Sewage

Four septic tanks with associated tile beds are installed at Black Fox to handle domestic sewage.

15.2.8 Communications

Telephone and digital subscriber line (DSL) internet networks are available at site.

15.2.9 Fuel

A fuel distribution area exists on the Black Fox site and will continue to be used for mining at Froome.

15.2.10 Water Supply

Process water supply is available on site and distributed to the Froome operation from the surface.

15.3 Grey Fox

15.3.1 Summary

Required infrastructure at Grey Fox will include:

- Dewatering ponds, pump house and water pipeline
- Fuel storage and distribution
- Hydrogeology monitoring wells
- Mine air heater and ventilation fans
- Onsite haul roads
- Power supply and distribution
- ROM stockpile
- Truck shop, maintenance area, warehouse, mine dry and offices
- Ventilation shaft
- WRSFs

The Grey Fox site plan is provided in Figure 15-3.

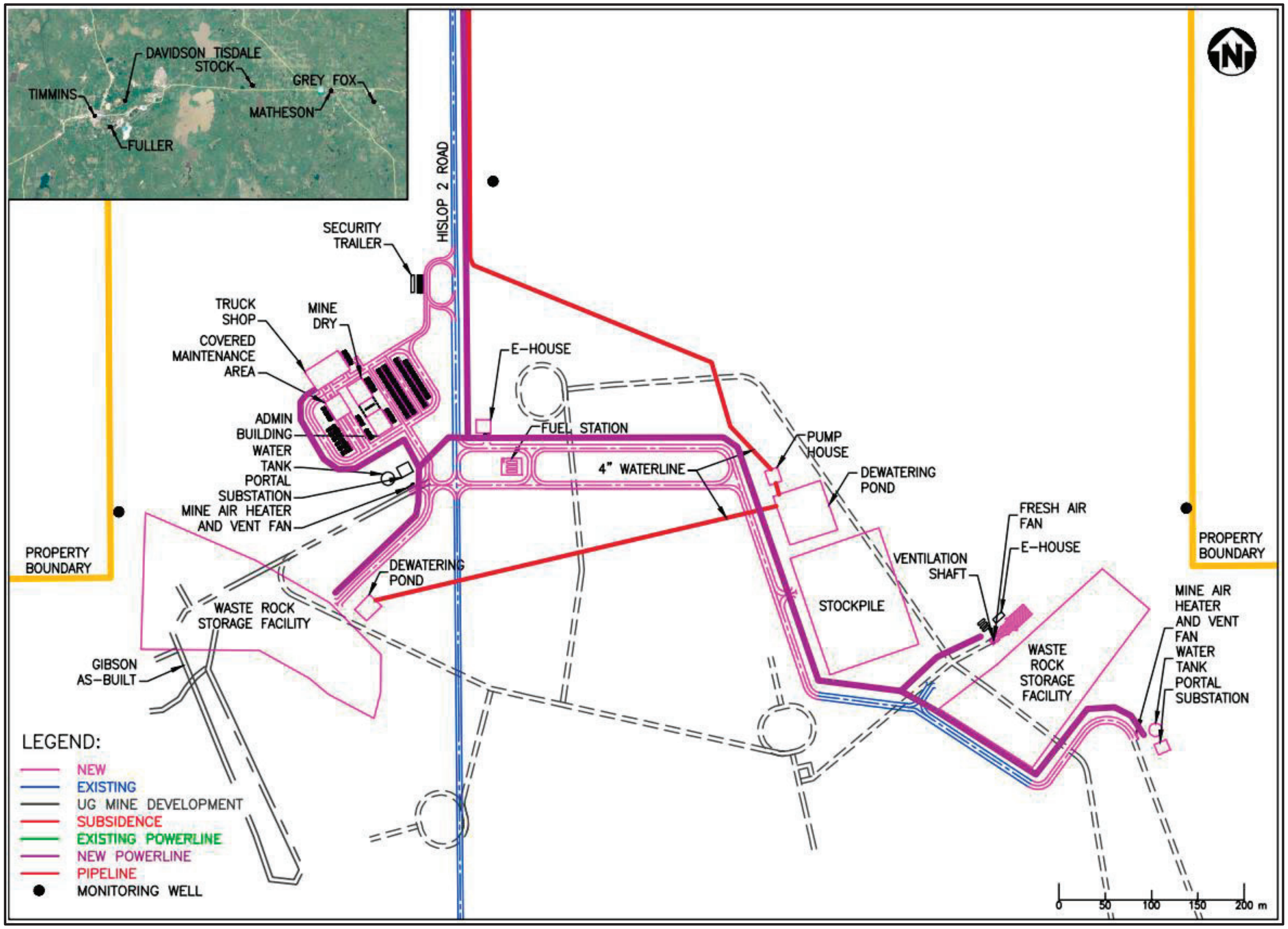

Figure 15-3: Grey Fox Site Layout (prepared by Wood, dated 2021)

15.3.2 Roads and Logistics

Grey Fox is accessible via Hislop 2 (or Tamarack) Road and is currently leased to McEwen. The road runs 3 km south of Highway 101, a major highway that cuts across Northern Ontario. Hislop 2 Road will require improving to accommodate haulage trucks for a distance of approximately 3.4 km to Highway 101.

A small existing dirt road will be upgraded and site haul roads connecting the two portals with stockpiles and WRSF of approximately 2.6 km will be constructed.

15.3.3 Mine Rock Storage Facilities

Two WRSFs located proximal to the portals are planned for temporary storage. Areas sufficient to store 0.5 Mt and 0.4 Mt of material have been allocated for development waste.

A ROM stockpile is sized to hold approximately 4,000 t of material and space for sorting and rehandling for transport to the Fox Mill.

15.3.4 Water Management

General site surface runoff from undisturbed areas and surface runoff from the topsoil stockpile and the potential buildings and laydown areas will be allowed to drain naturally to sumps for settling of suspended solids prior to direct discharge to the environment. Diversion channels will be used to bypass non-contact water around the mining areas. Mine contact water from mine workings, surface runoff and seepage from the ROM stockpile, and from the waste rock stockpiles will be collected and pumped to settling ponds. The ponds will serve to manage and settle any entrained sediment from the site facilities, as well as serve as a monitoring point to assess site water quality.

Water that meets environmental compliance approval for discharge will be released to the environment at an approved location. If necessary, water that does not meet regulatory requirements will be managed or treated until it is suitable for discharge.

A 4 km pipeline will move water from the two onsite dewatering ponds to the Black Fox pond treatment system via the onsite pump house.

15.3.5 Buildings and Infrastructure

Required facilities include a truck shop, covered maintenance area, mine dry, offices and lunchroom, warehouse, administration building, and security trailer. Buildings will be either modular trailers for the offices, mine dry and lunchroom, or a seacan-type for the warehouse.

The truck shop will be a constructed building with two maintenance bays and a wash bay. The covered maintenance area will be a sprung structure to support the truck shop with storage, unplanned maintenance, and for additional capacity during peak years.

Explosives will not be stored on surface as they can be readily available from suppliers in nearby towns.

15.3.6 Power and Electrical

Maximum power demand at Grey Fox is evaluated at 3.34 MW. The site will be supplied from Black Fox by a new single-circuit overhead line 27.6 kV. Grey Fox demand will reach its peak after the Froome Mine ceases operation, with maximum total demand of both sites not exceeding 6.3 MW. With 7.5 MW available (see Section 15.2.6), the existing power supply is sufficient.

A 27.6 kV switchgear will be installed in a dedicated portable E-house at the entrance of the new power line to Grey Fox. Additional power lines originating at the switchgear will distribute power to site consumers. All above-ground consumers will utilize 600 V, stepped down by pole-mounted or pad-mounted, oil-filled transformers. Power supply of 4.16 kV will be used to power underground facilities, stepping down to 600 V at underground substations equipped with dry transformers. Portable E-houses will be used to install a 600 V switchgear and variable frequency drive (VFD) for fresh air fans as well as a 5 kV rated switchgear for underground power supply.

15.3.7 Sewage

A mobile wastewater treatment system is planned for domestic raw sewage. Effluent discharge is released directly into a swamp, bog, or fen.

15.3.8 Communications

Telecommunications transmission lines exist in close proximity to the Grey Fox site and will be extended to site along with the new power lines planned. Office buildings will have phone and DSL internet connections available.

Surface mobile communications will be provided through cellular phones and radio sets for operating staff.

15.3.9 Fuel

Three above ground diesel and gasoline tanks each with a capacity of 19,000 L will be installed to supply mine operations with seven days of fuel storage.

15.3.10 Water Supply

It is anticipated that all process water supply can be obtained on site.

Should the well water quality not meet potable water standards, potable water will be supplied by a commercial source in 20 L jugs.

15.4 Stock

15.4.1 Summary

Required infrastructure at Stock will include:

- Dewatering pond
- Fuel storage and distribution
- LG stockpile
- Mine air heater and ventilation fan
- Onsite haul roads
- Onsite roads
- Power supply and distribution
- Truck shop, maintenance area, warehouse, mine dry and offices
- Ventilation shaft
- WRSF

Existing Stock facilities that will be utilized include:

- Administration offices
- Existing site access road
- Polishing and tailings pond
- Power supply and distribution
- Process plant
- ROM stockpile
- Stockpile
- Water treatment plant

The Stock site plan is provided in Figure 15-4.

15.4.2 Roads and Logistics

The Stock site is accessed via St Andrews Road, 1.5 km north of Highway 101. Additionally, approximately 1.3 km of service roads and 2.1 km of onsite haulage roads for moving material from the portal to the mill feed pad, LG stockpile or temporary WRSF, and to allow equipment access to the maintenance facilities, will be constructed.

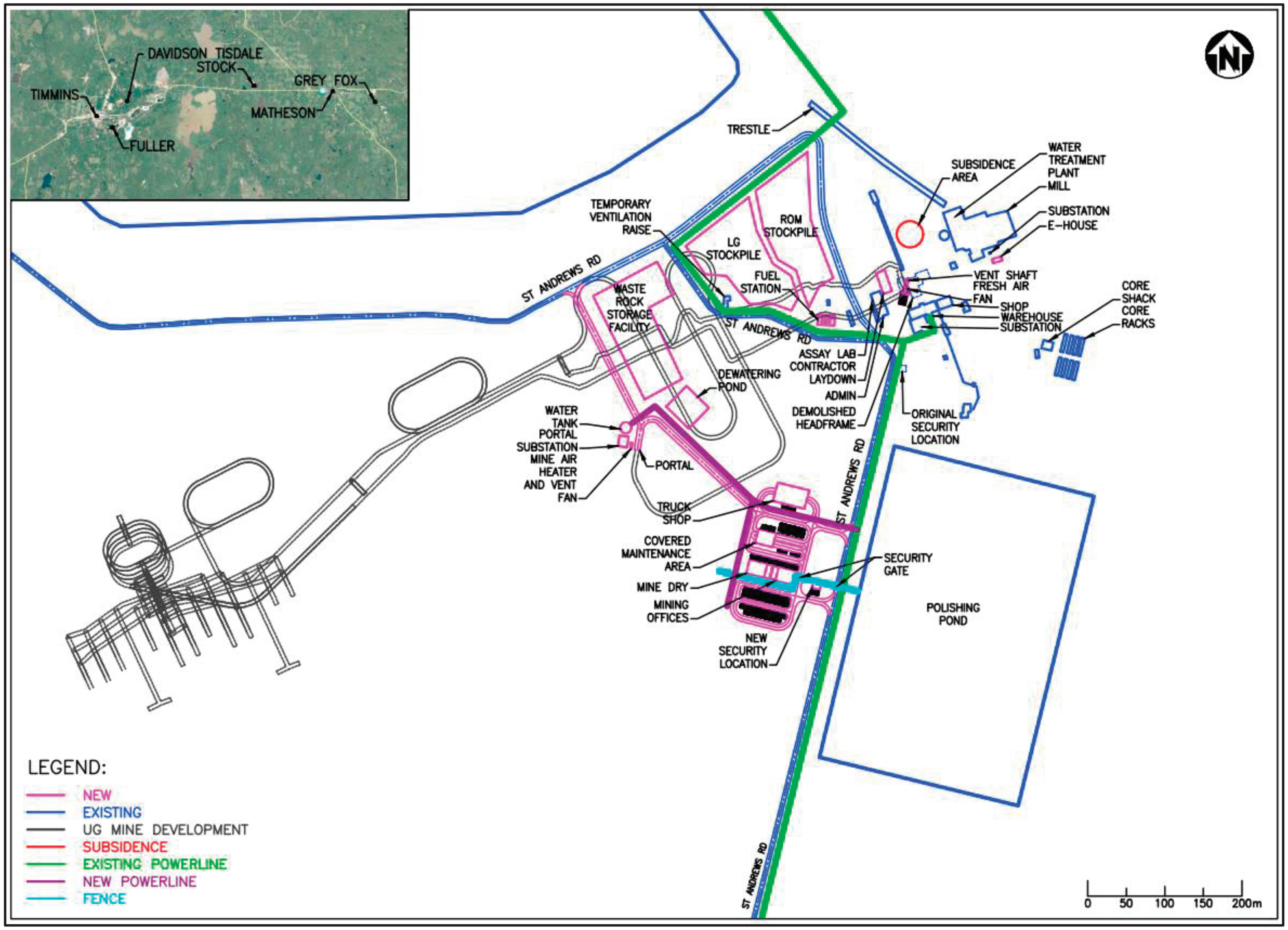

Figure 15-4: Stock Site Layout (prepared by Wood, dated 2021)

15.4.3 Mine Rock Storage Facilities

A WRSF located proximal to the portal is planned for temporary waste storage. An area sufficient to store 0.4 Mt of material has been allocated.

Material scheduled to be processed will be hauled to the existing ROM stockpile facility for mill feed. The ROM stockpile will also receive highway haul trucks transporting mill feed from Froome, Grey Fox, and Fuller.

A LG stockpile is planned for the Stock site to provide a storage location for approximately 0.3 Mt of development material from all sites grading between 0.7 and 1.8 g/t Au. The low_grade mill feed will be processed opportunistically to supplement planned mill feed and drawn down at end of mine life.

15.4.4 Tailings Management Area

The Fox Mill currently processes material from the Froome Mine and tailings are pumped to the adjacent TMA. The TMA is a stage-raised facility that has been operated since 1989 and raised in the upstream manner with adjacent Water Management Pond (WMP) to allow passive drainage and avoid issues normally associated with upstream raises. Tailings liquid-solid separation occurs via a small pond in the TMA which overflows to the WMP, from where mill make-up water is recirculated to the mill.

The current permitted design for the TMA involves five planned raises (termed Phase 8B through 8E), culminating in an ultimate elevation of 285 m (Golder, 2016b) and providing an estimated 2.9 Mt of future tailings storage. The TMA has currently been constructed to Phase 8B crest elevation and the next phase of raise construction (Phase 8C-1) is currently being constructed.

The current expansion concept is to implement a thickened, non-segregating tailings system that will provide 3.8 Mt of storage within the 8E crest elevation covered by the current closure plan. This avoids operational risks associated with expanding above 8E with the current conventional tailings, or start-up capital and operational challenges with the West Wing expansion cell. To contain the tailings anticipated for this study will require construction of West Wing expansion cell which has been provisionally designed and costed.

The use of a thickener capable of producing non-segregating tailings with a target of 65% solids by weight will be introduced prior to Phase 8E-1 of the current TMA development to provide an estimated 0.9 Mt of additional tailing storage capacity within the currently approved ultimate elevation as shown in Figure 15-5. Thickened tailings will increase storage capacity because the enhanced depositional flexibility would allow for steeper depositional slopes and reduce the water storage requirements in the TMA, thereby increasing the volume of tailings storage capacity within the existing TMA development plan.

The TMA is founded on a soft clay foundation. Ongoing monitoring of existing dam instrumentation with oversight by SLR as independent Engineer-of-Record is required to ensure the design intent is followed. Dam instrumentation includes vibrating wire piezometers to measure foundation porewater pressure dissipation due to consolidation, inclinometers to record dam slope deformation, and survey monuments on the crest.

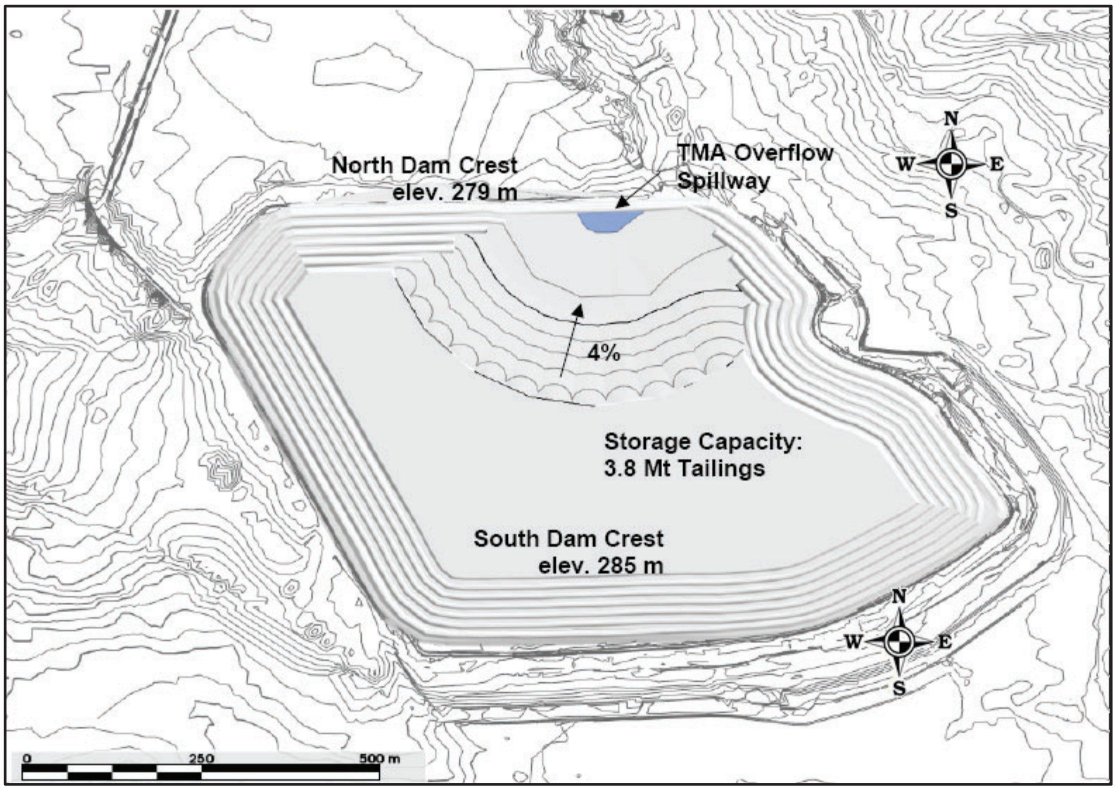

Figure 15-5: Ultimate TMA with Thickened Tailings (prepared by SLR, dated 2021)

15.4.5 Water Management

Contact water at the Fox Mill site consists of water from the TMA enabling for solid-liquid separation produced from mill slurry deposited within the structure. Excess water from the TMA flows through an overflow spillway to a Water Management Pond (WMP). The WMP provides storage of tailings supernatant, precipitation, and runoff. The WMP also provides most of the water required for operation of the mill. A pump station located in the WMP reclaims water to the process plant.

Excess water not required by the process plant is treated and pumped to the polishing pond before it is discharged into North Driftwood creek. Water from the polishing pond is monitored and treated in accordance with an environmental compliance approval permit and is non-lethal to aquatic life. If necessary, water that does not meet regulatory requirements will be managed or treated until it is suitable for discharge.

15.4.6 Buildings and Infrastructure

Required facilities include: a truck shop, covered maintenance area, mine dry, offices, and lunchroom, warehouse, administration building, and security trailer. Buildings will be either modular trailers for the offices, mine dry and lunchroom, or a seacan-type for the warehouse.

The truck shop will be a constructed building with a maintenance bay and a wash bay. The covered maintenance area will be a sprung structure to support the truck shop with storage, unplanned maintenance, and for additional capacity during peak years.

Explosives will not be stored on surface as they can be readily available from suppliers in nearby towns.

The existing Fox mill will be upgraded as discussed in Chapter 14.

15.4.7 Power and Electrical

The current power supply to site is by a single-circuit overhead line 27.6 kV. The current power demand of the mill facilities is 4.2 MW with anticipated demands reaching to 4.6 MW due to a planned increase in the operational capacity of the mill. Maximum demand of the mine facilities is evaluated as 2.7 MW. Total demand of the mill and the mine is 7.3 MW. With the available allotted power of 7.5 MW, current power supply is sufficient.

Power supply for the new underground facilities at Stock West will come from an available spare feeder of an existing 4.16 kV switchgear, with a new dedicated mine switchgear installed in a portable E-house. Power supply of 4.16 kV will be stepped down to 600 V at underground substations equipped with dry transformers. The E-house will also contain a 600 V switchgear and VFDs for fresh air fan supply. This 600 V switchgear will be fed from a new 27.6-0.6 kV transformer connected by cables to the existing 27.6 kV overhead line.

Power supply to new auxiliary facilities (mine dry, truck shop, etc.) will be provided by a new 27.6 kV overhead line branching off the existing line. The consumers will utilize 600 V, stepped down by pole-mounted or pad-mounted oil-filled transformers.

15.4.8 Sewage

A mobile wastewater treatment system is planned for domestic raw sewage. Effluent discharge is released directly into a swamp, bog, or fen.

15.4.9 Communications

Telecommunications transmission lines connect to the Stock site. Office buildings will have phone and DSL internet connections available.

15.4.10 Fuel

Two above ground diesel and gasoline tanks, each with a capacity of 19,000 L, will be installed to supply mine operations with seven days of fuel storage.

15.4.11 Water Supply

It is anticipated that all process water supply can be obtained on site.

Should the well water quality not meet potable water standards, potable water will be supplied by a commercial source in 20 L jugs.

15.5 Fuller

15.5.1 Summary

Required infrastructure at Fuller will include:

- Dewatering pond
- Fuel storage and distribution
- Mine air heater and ventilation fan
- Noise protection barrier
- Onsite haul roads
- Power supply and distribution
- ROM stockpile
- Truck shop, maintenance area, warehouse, mine dry and offices
- Ventilation shaft
- Water treatment plant
- WRSF

The Fuller site plan is provided in Figure 15-6.

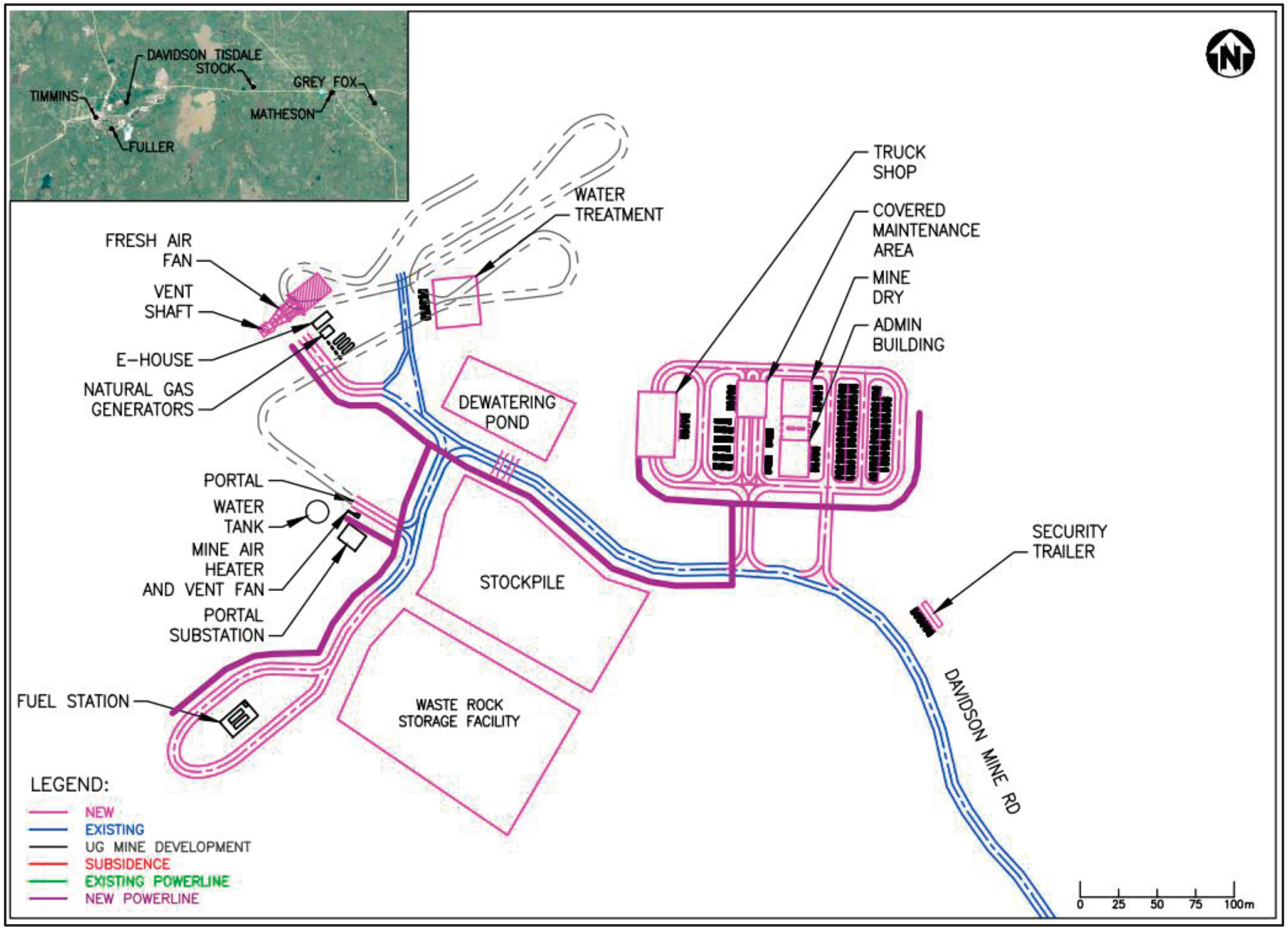

Figure 15-6: Fuller Site Layout (prepared by Wood, dated 2021)

15.5.2 Roads and Logistics

The Fuller site is accessed via Buffalo Ankerite Road, north of Gold Mine Road, and will require improving to accommodate haulage trucks for a distance of approximately 0.6 km. Additionally, approximately 0.3 km of service roads and 2.0 km of onsite haulage for moving material from the portal to the temporary WRSF will be constructed.

15.5.3 Mine Rock Storage Facilities

A WRSF located proximal to the portal is planned for temporary waste storage. An area sufficient to store 0.3 Mt of material has been allocated.

A ROM stockpile is sized to hold approximately 1,500 t of material and space for sorting and rehandling for transport to the Fox Mill.

15.5.4 Water Management

Mine contact water from the WRSF, stockpile and mine workings will be routed to the site dewatering pond. The pond will serve to manage and settle any entrained sediment from the site facilities, as well as serve as a monitoring point to assess site water quality.

Water that meets discharge requirements will be released to the environment at an approved location following accepted practices. If necessary, water that does not meet regulatory requirements will be managed or treated until it is suitable for discharge.

15.5.5 Buildings and Infrastructure

Required facilities include: a truck shop, covered maintenance area, mine dry, offices, a lunchroom, a warehouse, an administration building, and a security trailer. Buildings will be either modular trailers for the offices, mine dry and lunchroom, or seacan-type for the warehouse.

The truck shop will be a constructed building with a maintenance bay and a wash bay. The covered maintenance area will be a sprung structure to support the truck shop with storage, unplanned maintenance, and for additional capacity during peak years.

Explosives will not be stored on surface as they can be readily available from suppliers in nearby towns.

15.5.6 Power and Electrical

Maximum power demand at Fuller site is evaluated at 2.2 MW. The site will be supplied from a local utility substation located in the proximity, by an existing single-circuit overhead line 27.6 kV.

A 27.6 kV switchgear will be installed in a dedicated portable E-house at the entrance of the power line to Fuller. Additional power lines originating at the switchgear will distribute power to site consumers. All above-ground consumers will utilize 600 V, stepped down by pole-mounted or pad-mounted oil-filled transformers. Power supply of 4.16 kV will be used to power underground facilities, stepping down to 600 V at underground substations equipped with dry transformers. Portable E-houses will be used to install a 600 V switchgear and VFD for fresh air fans as well as a 5 kV rated switchgear for underground power supply.

15.5.7 Sewage

A mobile wastewater treatment system is planned for domestic raw sewage. Effluent discharge is released directly into a swamp, bog, or fen.

15.5.8 Communications

Telecommunications transmission lines exist in close proximity to the Fuller site and will be extended to site along with the new power lines planned. Office buildings will have phone and DSL internet connections available.

15.5.9 Fuel

Two above ground diesel and gasoline tanks, each with a capacity of 19,000 litres, will be installed to supply mine operations with seven days of fuel storage.

15.5.10 Water Supply

It is anticipated that all process water supply can be obtained on site.

Should the well water quality not meet potable water standards, potable water will be supplied by a commercial source in 20 L jugs.

15.5.11 Noise Protection Barrier

The noise protection barrier is a 2.4 m high fence running along the southwestern edge of the Fuller property. It is included to reduce noise pollution to the properties south of the facilities.

The northern and eastern sides of the Fuller property are adjacent to existing mining operations that are not expected to require noise protection.

The noise protection barrier will double as security fencing for the southwestern edge of the property.

16.0 Market Studies

16.1 Market Studies

An external market study for the Project's gold product has not been undertaken for this IA. Gold is freely traded on international commodity markets, with spot and future prices readily available. Gold from existing operations is currently being sold through commercial banks and market dealers. The gold market is stable in terms of commodity price and investment interest.

Wood uses an assessment of industry consensus on long-term gold prices determined by an average of forecasted price from a number of reputable banks and comparison to gold prices used in Technical Reports filed on SEDAR and the trend of gold prices used over the past year.

16.2 Commodity Price Projections

16.2.1 Mineral Resource Estimate

A long-term gold price of US$1,725/oz is used for constraining mineable shapes, input to cut-offs, and for establishing reasonable prospects for economic extraction for Mineral Resources. Using a higher long-term gold price assumption for Mineral Resources helps ensure that the Mineral Resources within the IA mine plans are a subset of the Mineral Resources and gives more flexibility to the mining engineer when determining the cut-off used. The use of a higher metal price assumption for Mineral Resources has become a common industry practice.

16.2.2 Mine Plan

A long-term gold price is assumed at US$1,625/oz for the constraining mine shapes, and cut-offs applied to the deposits, except for Froome above 225 mL. Material from Froome above 225 mL will be mined earlier in the mine plan and uses a gold price of US$1,725/oz which is influenced by the current high gold prices.

16.2.3 Economic Analysis

A long-term gold price is assumed at US$1,650/oz for the economic analysis. A lower gold price is assumed for that portion of the Froome deposit which is subject to a gold streaming agreement (Section 16.3.1).

16.3 Contracts

Material contracts currently in place relate to the Sandstorm Goldstream, financing contract, mining of access development, the drilling and blasting, the transportation of doré, and the refining of precious metals. These contracts are on standard industry terms. No other contracts relating to concentrating, handling, sales and hedging, and forward sales contracts are currently in place.

The current process facility will produce gold doré bars between 90 to 99% purity. Gold bars will be weighed and assayed at the mine to establish value. Refining costs are calculated yearly based on gold production and an assumed bi-weekly shipping schedule. The basis of the costs is a fixed fee of $0.55/oz of material for refining and a flat-rate shipping pickup fee of $1,065 plus $0.45 per $1 thousand dollar value over $1.5 million. Gold is 99.95% payable at the refiner.

16.3.1 Sandstorm Goldstream Streaming Agreement

On 9 November 2010, Brigus Gold entered into a gold streaming agreement with Sandstorm Resources Ltd. [Sandstorm pursuant to which Sandstorm agreed to purchase 12% of the gold production from the Black Fox Mine beginning in January 2011 and 10% of future production from the Black Fox Extension covering a portion of the adjoining Pike River property for a fixed price of US$500/oz (the Goldstream)]. Sandstorm made an upfront payment of $56.3 million to Brigus Gold relating to the Goldstream.

On 5 November 2012, Brigus Gold elected to exercise their option and repurchased 4% of the Goldstream on the Black Fox Mine, and 3.7% of the Goldstream on the Black Fox Extension, for $24.4 million. This reduced Sandstorm's stream on future production at the Black Fox Mine to 8% and the Black Fox Extension to 6.3% (Figure 16-1).

McEwen currently sells 8% of the gold production from the Froome Mine to Sandstorm at a 2021 base price of US$565.95/oz gold (reflecting a contractual annual inflation adjustment based on the consumer price index and capped at 2%). Any remnant mining at Black Fox would also be subject to the streaming agreement. Sales pursuant to the Goldstream will continue for the foreseeable future for gold produced within the boundaries of the agreement, including the Froome Mine or further mining from the Black Fox Mine or any future developed deposits such as Tamarack.

16.4 QP Comments on Chapter 16

The QPs believe the gold price assumptions are appropriate and consistent with other current studies and are suitable for use in establishing reasonable prospects for economic extraction for the Mineral Resources, the mine plans and the financial analysis.

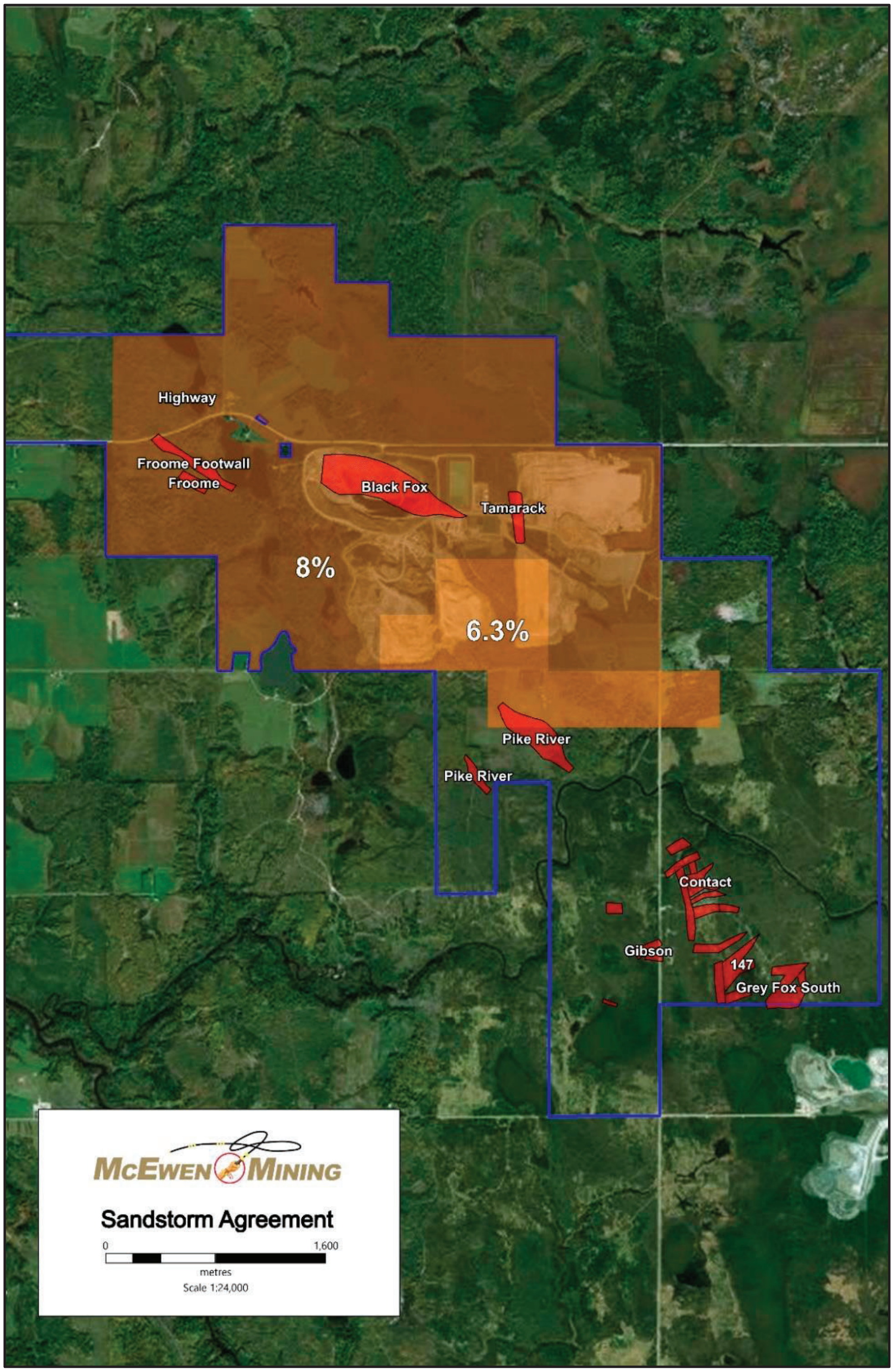

Figure 16-1: Current Sandstorm Agreement (prepared by McEwen, dated 2021)

17.0 Environmental Studies, Permitting, and Plans, Negotiations, or Agreements with Local Individuals or Groups

17.1 Environmental Setting

Environmental baseline (pre-development) investigations were completed for a number of the properties and provide a basis for future closure comparison. These include the following:

- Fox Mill Complex:
  - AMEC Earth & Environmental. Terrestrial Resources Baseline Study Black Fox Mill Site, Prepared for Primero Gold Canada, May 2014.
  - Environmental Applications Group Ltd. Aquatic Impact Assessment, North Driftwood Creek and Moose Lake. Prepared for St Andrew Goldfields Ltd., November 1992.
- Fuller:
  - BZ Environmental Consulting. Timmins Area Mines Background Environmental Study. Prepared for Verdron Gold Inc., 2006.

Additional baseline data collection is underway at the Grey Fox and Stock properties. Environmental baseline studies and/or environmental monitoring plans will be developed for the Davidson-Tisdale and Fuller properties as the projects progress.

In addition, as required by existing permits and approvals, McEwen operates an ongoing, comprehensive environmental monitoring program for the Black Fox Mine and Fox Mill. This information will be used to support future permitting application requirements. From discussion with McEwen staff, Wood understands that the properties are in compliance with all regulatory requirements, including provision of financial assurance for closure activities as required.

17.2 Requirements for Waste and Tailings Disposal

See Chapter 15 for plans on waste and tailings disposal.

17.3 Regulatory Framework

17.3.1 Impact/Environmental Assessment

Many mining projects in Canada, whether greenfield or brownfield redevelopments, are reviewed under one or more Environmental Assessment (EA)/Impact Assessment processes, whereby design choices, environmental impacts and proposed mitigation measures are compared and reviewed to determine how best to proceed through the environmental approvals and permitting stages. Entities involved in the review process normally include government agencies, Indigenous Nations, various interested parties and the general public.

Based on the proposed designs at Froome, Grey Fox, Stock, Fuller and Fox Mill, a Federal Impact Assessment process is not expected to be required.

Ontario mining projects are also required to meet the requirements of the Ontario *Environmental Assessment Act*. There may be a requirement to complete a Provincial Class EA for Resource Stewardship and Facility Development Projects, for facilities or infrastructure that are to be constructed on Crown land (including typically below the highwater mark of waterbodies/watercourses) or other use of Crown resources (such as aggregates or timber). The determination of whether a Class EA is required is determined by the Ministry of Northern Development, Mines and Natural Resources on review of documentation regarding the proposed works.

17.3.2 Environmental Approvals

Pending final design information, environmental approvals related to the *Fisheries Act* and the *Canadian Navigable Waters Act* are the most common Federal environmental approvals associated with mine site developments. Based on current information, Federal environmental approvals, including associated with these Acts, are not expected to be required.

There are a large number of existing, active environmental approvals for the individual Fox Complex properties (Table 17-1).

New approvals or amendments to existing approvals may be required depending on the final designs, and application for these has not yet been made. Table 17-2 provides a preliminary listing.

The Township of Matheson may require construction-related permits, such as building permit(s).

Table 17-1: Existing Environmental Approvals

Site	Regulatory Agency	Reference	Type	Issue Date	Expiration	Status
Black Fox Mine	MECP	0328-8XVPXT	ECA-ISW	January 23, 2019	N/A	Active
Black Fox Mine	MECP	1568-9PQRTF	ECA-Air	March 26, 2015	N/A	Active
Black Fox Mine	MECP	6824-9VCNXB	PTTW	October 26, 2020	October 26, 2030	Active
Black Fox Mine	NDMNRF	N/A	Closure Plan	June 2018	N/A	Active
Fox Mill	MECP	4371B2KHZT	ECA-ISW	August 2, 2018	N/A	Active
Fox Mill	MECP	1357-A4KKFS	ECA-Air	December 11, 2015	N/A	Active
Fox Mill	MECP	6377-88UJE5	PTTW	September 18, 2018	September 18, 2028	Active
Fox Mill	NDMNRF	N/A	Closure Plan	June 2018	N/A	Active
Buffalo-Ankerite	MECP	2388-9Z4JCR	ECA-ISW	November 2015	N/A	Active
Buffalo-Ankerite	MECP	1493-89GNNC	ECA - Air	November 2015	N/A	Active
Buffalo-Ankerite	MECP	6348-BAFR84	PTTW	April 2019	April 24 2029	Inactive
Davidson Tisdale	MECP	4802-7TBPAF	ECA-ISW	July 2009	N/A	Active
Davidson Tisdale	MECP	1356-7RRQRP	ECA - Air	June 2009	N/A	Active
Davidson Tisdale	MECP	5683-ACHPTN	PTTW	August 2016	July 14, 2026	Inactive
Davidson Tisdale	NDMNRF	N/A	Closure Plan	August 2002	N/A	Active

Note: ECA-ISW: Environmental Compliance Approval – Industrial Sewage; ECA-Air: Environmental Compliance Approval – Air and Noise; MECP: Ministry of Environment, Conservation and Parks; N/A: not applicable (no expiry); PTTW: Permit to Take Water

Table 17-2: Anticipated Provincial Approval/Amendment Requirements

Approval	Responsible Ministry	Description
Closure Plan Amendment	NDMNRF	Mine construction / production and closure, including financial assurance. Offline (above the highwater mark of local waterbodies/watercourse) dams, such as for the TMA.
Environmental Compliance Approval(s) – Air and Noise	MECP	Release of air emissions and noise, such as from haul trucks (road dust), and structures, including the processing plant, refuelling/oil/lubrication area, administration complex, onsite laboratory and other buildings.
Environmental Compliance Approval – Waste Disposal Site / Waste Management	MECP	For operation of a waste transfer site. For the transportation of waste materials offsite and onto Provincial highways.
Environmental Compliance Approval – Domestic Sewage	MECP	Establishment and operation of a domestic sewage treatment plant, treatment of domestic waste produced at the Project site including back wash and sludge produced in the sewage treatment plant. This not expected to be required if pre-approved mobile sewage treatment plants are used.
Environmental Compliance Approval(s) – Industrial Sewage Works	MECP	Construction of a mine/mill water treatment system(s) discharging to the environment, such as for the TMA, ponds, minewater, site storm water, stockpile runoff and refuelling and oil/lubrication areas.
Permit(s) to Take Water Ontario Water Resources Act	MECP	For taking of groundwater or surface water (in excess of 50,000 litres per day), such as for supplementing the process plant water balance and mine dewatering. During construction, a permit(s) may be required for dam and/or mill construction to keep excavations dry. A permit may be required for realignments and dam construction at Project site waterbodies/watercourses.
Forest Resource License(s) Crown Forest Sustainability Act	MNRF	For cutting of Crown merchantable timber, such for site development or as part of construction of the transmission line.
Work Permit(s) Lakes and Rivers Improvement Act, Public Lands Act	MNRF	• For work/construction on Crown land. Could be required as part of construction of infrastructure. • Construction of a dam in any lake or river (in circumstances as set out in the regulations) requires written approval of the Ministry for the location of the dam, and its plans and specifications.

17.4 Community Relations and Engagement

The McEwen Fox Complex is located within territories traditionally used by Indigenous peoples. Consultation and engagement activities with Indigenous Nations regarding the Black Fox Mine has been ongoing since 2006 and has included consultation with:

- Wahgoshig First Nation (Reserve located approximately 23 km east)
- Matachewan First Nation (Reserve approximately 60 km southwest)
- Métis Nation of Ontario – Timmins Community Council
- Métis Nation of Ontario – Northern Lights Council
- Temiskaming Métis Council

McEwen has a signed Impact Benefit Agreement with the Wahgoshig First Nation, the First Nation community in closest proximity to the Fox Mill site.

McEwen discusses all projects that require permit or approval applications to the government with the First Nation. Prior to the submission of any application to the government, whether consultation is required or not, the project and associated permits are discussed in advance with representatives of the community. Any questions or concerns raised are addressed within this process.

Details of the agreements and discussions with the local Indigenous communities can be found in Section 3.4.2.

Consultation and engagement will also be required with other stakeholders, including regulatory agencies, local communities, and community members. This will be particularly important where development is proposed close to existing residential properties and/or existing industrial operations, such as for the Fuller site which is located southeast of Timmins and proximal to the Newmont Dome Mine.

17.5 Preliminary Closure Planning

Table 17-3 summarizes a preliminary closure approach for the Fox Complex. Reclamation work will be completed progressively during operations as reasonable, which is considered an industry best practice. Closure costs for Black Fox/Froome, Grey Fox, Stock, and Fuller properties have been estimated at $22.8 million and is included in Chapter 19.

Table 17-3: Closure Approaches

Feature	Proposed Approach
Open Pits (Black Fox)	• Remove all infrastructure and equipment within the open pit for proper disposal. • Reshape if needed and revegetate overburden slopes to a stable condition. • Allow pit to fill naturally with water by means of seepage and runoff inputs from the local area. • Ramps will be barricaded, and a safety berm established around the perimeter. • Channels will be constructed from the open pit for future passive overflow to the environment. • Batch treatment of the pit water as required prior to discharge.
Underground Mine (Black Fox, Froome, Grey Fox, Stock, Fuller)	• Remove all infrastructure and equipment with value or presenting or environmental hazard within the underground workings. • Allow workings to flood naturally via groundwater seepage. • Seal the entrances to underground.
Buildings, Machinery, Equipment and Infrastructure (Black Fox, Froome, Grey Fox, Stock, Fuller, Fox Mill)	• Salvageable machinery, equipment and other materials will be dismantled and taken off site (sale or reuse if possible). • Remaining items managed according to regulatory requirements at the time, either within an approved landfill developed on the site or at a licensed facility off site. • Above grade concrete structures will be broken and reduced to near grade with rebar and will be cut flush with the surface. • Concrete structures will be infilled with clean mine rock, if needed.
Chemicals (Black Fox, Froome, Grey Fox, Stock, Fuller, Fox Mill)	• All petroleum products, chemicals and explosives remaining will be removed from the site and transported to a licensed facility for disposal. • Soil found to exceed acceptable criteria will be handled otherwise according to regulatory requirements.
Onsite Infrastructure (Black Fox, Grey Fox, Stock, Froome, Fuller)	• Roads not needed in the longer term will be scarified and seeded. • Onsite power distribution lines and associated materials will be dismantled and deposited in an approved landfill if they cannot be sold/re-used.
TMA (Stock)	• Tailings surface will be progressively covered with soil and revegetated. • Tailings pond will be drained and the water treated prior to discharge.
Waste Rock (Black Fox)	• Progressive reclamation during operations. • Regrading of the slopes to 3:1 (overall) where required. • Placement of an overburden cover followed by revegetation. • Pumping of stockpile runoff/seepage to open pit.
Waste Rock (Grey Fox, Stock, Fuller)	• Regrading of stockpiles to acceptable slopes where required. • Placement of a geosynthetic liner with vegetated overburden cover.

18.0 Capital and Operating Costs

18.1 Capital Cost Summary

Estimates for capital costs were prepared at an IA level with an expected accuracy of +30/-15% and a contingency of 22%. The capital costs estimate can be classified as a Class 5 estimate in accordance with AACE International Guidelines Practice No. 47R-11 (AACE International, 2012). All costs are expressed in second-quarter 2021 Canadian dollars.

The capital cost estimate addresses the mine, process and site infrastructure and includes:

- Direct costs
- Indirect costs
- Owner's costs
- Contingency

Capital costs are summarized in Table 18-1.

Table 18-1: Summary of Capital Costs

Area	Capital Cost, $M
Froome	**20.7**
Grey Fox	
Surface Infrastructure	28.3
Mine Development	69.5
Mobile Equipment	30.7
UG Infrastructure	15.8
Indirects & Owners' Costs	9.2
Grey Fox Subtotal	**153.5**
Stock West	
Surface Infrastructure	15.8
Mine Development	35.8
Mobile Equipment	11.7
UG Infrastructure	12.3
Indirects & Owners' Costs	4.4
Stock West Subtotal	**80.0**
Fuller	
Surface Infrastructure	21.9
Mine Development	33.2
Mobile Equipment	13.0
UG Infrastructure	6.6
Indirects & Owners' Costs	5.0
Fuller Subtotal	**79.7**
Process Facilities	**7.3**
Tailings Facility	**17.3**
Contingency	79.0
Grand Total	**437.5**

Note: Figures may not sum due to rounding.

18.2 Capital Cost Summary for IA Excluding Inferred Mineral Resources

Capital costs for the LOM scenario excluding Inferred Mineral Resources are summarized in Table 18-2. Capital costs related to the Stock West and Fuller deposits have been removed, and capital for the Froome and Grey Fox deposits have been adjusted to reflect the allocation of costs to capital within the working cost models. Estimates for capital costs were prepared at an IA level with an expected accuracy of +30/-15% and a contingency of 21%.

Table 18-2: Summary of Capital Costs Excluding Inferred Mineral Resources

Area	Capital Cost, $M
Froome	**21.8**
Grey Fox	
Surface Infrastructure	28.3
Mine Development	68.9
Mobile Equipment	30.2
UG Infrastructure	14.9
Indirects & Owners' Costs	9.0
Grey Fox Subtotal	**151.3**
Process Facilities	**7.1**
Tailings Facility	**9.6**
Contingency	40.2
Grand Total	**229.9**

Note: Figures may not sum due to rounding.

18.3 Capital Cost Estimate

18.3.1 Basis of Estimate

The majority of the costs for the buildings, tanks, roads, building ventilation, and civil works are based on historical data from similar projects or facilities, with allowances being used whenever historical data was unavailable. A quote was received for increasing the diameter of the primary ball mill, which is the major cost associated with the process plant upgrade. Other costs associated with the process plant upgrade were based on historical costs or allowances.

An estimating approach was used for bulk materials/discipline costs, including: earthworks, structural steel, concrete, and the pipeline from Grey Fox to the Black Fox water treatment facility. A factored approach was used for electrical, instrumentation, and the remaining piping costs. The supply rates were based on recent historical projects in the North American region. The factored approach was based on recent North American projects.

Mining mobile equipment was based on vendor quotes for equipment currently in use at the Black Fox Mine. Fixed plant for underground mining was based on factored supply rates for recent historical projects in the North American region. Mining capital development costs were based on consumables, labour, maintenance, and a portion of mine general operating costs, including power, heating, and fuel that are attributable to capital development activities on an annual basis.

18.3.2 Labour Assumptions

The labour estimate includes for the labour rate and construction equipment and was developed using historical rates. The rates account for overtime, small tools and consumables, overhead, and profit. The installation hours were based on historical data or factored based on the supply cost. The productivity factor applied to the process plant upgrade accounts for brownfield work productivity.

18.3.3 Mine Capital Costs

The mine capital costs include the following:

- Mine development
- Mine fixed equipment
- Mobile equipment
- Indirects and Owners' costs

Mobile equipment purchases include leasing terms provided by a vendor over a three-year lease period.

18.3.4 Surface Infrastructure Capital Costs

Onsite surface infrastructure capital costs include the following:

- Access road mobile equipment
- Power supply and distribution
- Site preparation and development
- Site utilities
- Storm water management facilities
- Surface mine facilities
- Warehouse and administrative buildings

Offsite infrastructure capital costs include transmission lines and connections to the grid.

18.3.5 Process Capital Costs

The process capital costs include:

- Upgrades to the grinding circuit
- Upgrades to the crushing circuit
- Tailings thickener

18.3.6 Tailings Facility Capital Costs

Tailings facility capital costs include:

- Lifts on current facility
- Designed expansion of current facility
- Undesigned future expansion

The designed lifts and expansion provide capacity for 5.4 Mt of tailings, with the remaining 2.2 Mt of expansion factored at an average cost of $2.78/t incurred the year prior to deposition.

18.3.7 Indirect Costs

Indirect costs were developed as follows:

- Engineering Procurement (EP): a factored approach was used; the factor was developed based on similar historical projects.
- Construction Management (CM): an estimate for construction management labour force is included for owner-operator project execution.
- Construction indirects: a factored approach was used, includes costs such as mobilization/ demobilization, supervision, QA/QC, site support, scaffolding. It is factored based on the labour costs.
- Commissioning and ramp-up: a factored approach was used; the factor was developed based on similar historical projects.
- Vendor representatives: a factored approach was used; the factor was developed based on similar historical projects.
- Spares: a factored approach was used: the factor was developed based on similar historical projects.
- Freight: a factored approach was used: the factor was developed based on similar historical projects and accounts for the recent increase in freight costs.

18.3.8 Owner Capital Costs

The owner's cost was developed using a factored approach. The owner's costs include:

- Operational manpower
- Operation readiness
- Owner's EPCM team
- Consultants
- Testing/environmental monitoring
- Spares/first fills
- Vendor representatives
- Permitting

18.3.9 Contingency

Contingency is a monetary provision intended to cover items that have not been included in the described scope of work yet cannot be accurately defined at this stage. This is due to normal variability of quantities, productivity, unit rates, the current level of engineering and other factors that could affect the accuracy of the expected final cost of the Project. Contingency should be considered as an expenditure that is predictable but nondefinable at this stage of the project, therefore contingency is expected to be spent. Contingency does not include for any project scope change.

Contingency has been applied using a "deterministic" approach inferring that it has been applied to the base estimate and based on a single point evaluation. It has been based on in-house project data and historical data. Total contingency considers the following:

- 10% – Mining Mobile Equipment
- 30% – Mining Fixed Plant and Capital Development
- 35% – Owner's cost
- 35% – Estimated, factored
- 35% – Historical

18.4 Operating Cost Estimate

18.4.1 Operating Cost Summary

Total operating costs over the LOM plan have been estimated at $823.1 million and average operating costs have been estimated at $108.55/t of material processed as summarized in Table 18-3. Estimates for operating costs were prepared at an expected accuracy of +30/-15% with no contingency applied.

Table 18-3: Total Operating Costs

Cost Area	Total, $000s	Unit Average, $/t	Percent of Total, %
Mining	512,612	67.60	62.3
Processing	193,193	25.48	23.5
G&A	117,324	15.47	14.3
Total	**823,130**	**108.55**	**100.0**

18.4.2 Operating Cost Summary for IA Excluding Inferred Mineral Resources

Total operating costs over the LOM plan that excludes Inferred Mineral Resources have been estimated at $504.5 million and average operating costs have been estimated at $117.35/t processed as summarized in Table 18-4. Estimates for operating costs were prepared at an expected accuracy of +30/-15% with no contingency applied.

Table 18-4: Total Operating Costs over IA LOM Excluding Inferred Mineral Resources

Cost Area	Total, $000s	Unit Average, $/t	Percent of Total, %
Mining	291,438	67.79	57.8
Processing	123,669	28.77	24.5
G&A	89,371	20.79	17.7
Total	**504,478**	**117.35**	**100.0**

18.4.3 Basis of Estimate

Operating costs are based on, in order of preference:

- McEwen's budgetary information
- Supplier estimates
- Estimates based on comparable operations

For the mining activities, a mining cost model was developed. The cost model estimates work processes by activity type to measure equipment usage and consumables required per development metre, stope tonne, and raise metre. Variable factors are used by activity type and operation specifics to adjust for development profile and average stope sizing.

18.4.4 Mine Operating Costs

Total mine operating costs for all deposits contributing to the LOM that includes Inferred Mineral Resources is approximately $512.6 million, equivalent to $67.60/t mined, as detailed in Table 18-5.

Table 18-5: Mine Operating Costs

Operating Cost	Total, $000s	$/t Mined
Labour	255,646	33.71
Consumables	209,429	27.67
Maintenance	47,536	6.27
Total	**512,612**	**67.60**

Costs at the Froome operation are based on McEwen's budgetary estimate for mining activities for LOM of the Froome deposit. Mining costs are budgeted in 2022 to be an average of $67.97/t due to lower mining rates. Mining costs for the remainder of the Fox Complex are based on a build-up from labour, consumables, and maintenance, based on annual operational requirements.

Labour rates are based on owner-operator projects in Northern Ontario. Annual operations labour requirements are estimated based on total operating hours to achieve the mining schedule. Maintenance labour requirements are estimated based on total active equipment in the operation. Consumable costs and consumption rates have been developed by activity. Annual power consumption is based on connected site equipment, including surface facilities and an estimated utilization rate of the connected load. Annual natural gas consumption is based on heating requirements within the underground operation as a function of annual airflow requirements and surface temperatures. Annual fuel consumption is based on the operating hours estimate by equipment type and an average fuel consumption rate.

Operating consumable costs for drill, blast, ground support, and mine services are estimated based on usage rates measured against schedule physicals.

Maintenance costs are estimated by engine operating hours for trucks, loaders, and drilling equipment. Annual maintenance costs have been applied to the fleet based on supplier estimates of operating costs and McEwen's in-house data for ongoing maintenance costs.

18.4.5 Process Operating Costs

Process operating costs over the LOM have been estimated at $25.48/t processed with breakdowns for the various deposits are provided in Table 18-6 and Table 18-7. These have been modified from recent actual costs to reflect changes to the mill with the introduction of different mineralized material, particularly Froome and Grey Fox, which are harder and more abrasive than the other deposits. Power consumption and consumables, such as liners, have been adjusted during the time periods these deposits are in the feed. Processing costs are budgeted in 2022 to be an average of $38.56/t due to lower milling rates.

Table 18-6: Fixed and Variable Process Operating Costs

($/t)	Froome, $/t	Grey Fox, $/t	Others, $/t
Fixed	10.78	8.09	8.09
Variable	14.60	13.97	12.53
Total	**25.39**	**22.06**	**20.62**

Table 18-7: Labour and Power Process Operating Costs

Site	Labour Costs, $/t	Power Costs, $/t
Froome	8.66	5.10
Grey Fox	6.50	5.02
Others	6.50	4.23

Increasing the mill throughput results in changing from the current 5/5/4 schedule with many down days in the month to operating 24/7. This will require additional labour resources to support four full crews and additional staff for constant operation. The actual labour count was based on input from Fox Mill operations management.

Reagent consumptions from composite and variability testwork is similar to current operations. Consumption rates and unit prices were taken from McEwen's recent actual costs.

18.4.6 General and Administrative Operating Costs

Site G&A staffing requirements are estimated based on a combined operations rollup. Staff will be able to support multiple sites during active operations. Labour costs are based on 55 full-time employees, including: site surface, health and safety, environment, administration, information technology (IT), human resources and security. Site G&A consumables for Froome are based on the current mine budget. G&A costs are budgeted in 2022 to be an average of $20.40/t due to lower mining and milling rates. G&A consumables for future operations are estimated based on total staffing levels to include safety supplies, IT hardware and software, and general administration consumables. Site G&A costs are summarized in Table 18-8.

Table 18-8: Site G&A Operating Costs

G&A	Average Annual Cost, $000s/year
Labour	5,747
Expenses	3,278
Total	**9,025**

19.0 Economic Analysis

The results of the economic analysis in the IA represents forward-looking information that is subject to a number of known and unknown risks, uncertainties and other factors that may cause actual results to differ materially from those presented here. Forward-looking statements in the IA of this Report include, but are not limited to: timing and amount of future cashflows from mining operations; forecast production rates and amounts of gold produced from the Fox Complex mining operation; estimation of the Mineral Resources and the realization of the Mineral Resource estimates within the IA mine plans; the time required to develop the mine based on the IA mine design; statements with respect to the future price of gold; assumptions regarding mine dilution and losses; the expected grade of the material delivered to the mill; metallurgical recovery rates; sustaining capital costs, as well as mine closure costs and reclamation; timing and conditions of permits required to initiate mine construction, maintain mining activities, and mine closure; and assumptions regarding geotechnical and hydrogeological factors.

The reader is cautioned that the actual mine results of mining operations may vary from what is forecast. Risks to forward-looking information include, but are not limited to unexpected variations in grade or geological continuity, as well as geotechnical and hydrogeological assumptions that are used in the mine designs. There could be seismic or water management events during the construction, operations, closure, and post-closure periods that could affect predicted mine production, timing of the production, costs of future production, capital expenditures, future operating costs, permitting time lines, potential delays in the issuance of permits, or changes to existing permits, as well as requirements for additional capital. The plant, equipment or metallurgical or mining processes may fail to operate as anticipated. There may be: changes to government regulation of mining operations, environmental issues, permitting requirements, and social risks, or unrecognized environmental, permitting and social risks, closure costs and closure requirements, unanticipated reclamation expenses, title disputes or claims and limitations on insurance coverage.

The IA is preliminary in nature, and a portion of the Mineral Resources in the mine plans, production schedules, and cashflows includes Inferred Mineral Resources that are considered too speculative geologically to have the modifying factors applied to them that would enable them to be categorized as Mineral Reserves, and there is no certainty that the economic assessment will be realized. Due to the conceptual nature of the IA, Mineral Resources cannot be converted to Mineral Reserves and therefore do not have demonstrated economic viability.

19.1 Methodology Used

The IA has been evaluated using a discounted cashflow analysis. Cash inflows consist of annual revenue projections for the mine. Cash outflows such as capital, including the pre-production mining costs, operating costs, taxes, and royalties, are subtracted from the inflows to arrive at the annual cashflow projections. Cashflows are taken to occur at the end of each period.

To reflect the time value of money, annual net cashflow (NCF) projections are discounted back to the start of construction using a 5% discount rate. The discount rate appropriate to a specific project depends on many factors, including the type of commodity and the level of project risks, such as market risk, technical risk and political risk. The discounted present values of the cashflows are summed to arrive at the NPV.

19.2 Financial Model Parameters

The financial analysis was based on: royalty agreements described in Chapter 3; the Mineral Resources presented in Chapter 11; the mine and process plan and assumptions detailed in Chapters 13 and 14; the projected infrastructure requirements outlined in Chapter 15; the gold price assumptions in Chapter 16; the permitting, social and environmental regime discussions in Chapter 17; and the capital and operating cost estimates detailed in Chapter 18. All costs within the financial model are expressed in first-quarter 2022 US dollars.

19.2.1 Metal Recovery

Within the financial model, metal recovery is estimated on a period-by-period basis. For the Fox Complex, recovery differs for each of the four mines. For Froome, a gold recovery of 89.5% is used for all mineralization types. Grey Fox recoveries vary with production zones within the mine and adjusted recovery curves range between 93% and 81%. Stock West assumes a 94% recovery. Fuller assumes a recovery of 88%. Total process recovery for the combined Fox Complex varies annually by feed source and ranges between 88% and 91%. An overall process schedule recovery for the life of project is estimated at 89.5%. Chapter 13 provides a summary of the production schedule showing an approximate total of 885,400 oz recovered over the 12.3-year project life.

19.2.2 Metal Price

A gold price of US$1,650/oz is assumed for the economic analysis. The price guidance follows industry consensus on long-term metal prices which reflect the average forecasted price from a number of reputable banks and is updated quarterly. The gold metal price was kept consistent throughout the life of the Project except for the portion of the Froome deposit that is subject to a gold streaming agreement (see Section 19.2.5).

19.2.3 Exchange Rate

For the purpose of the capital cost estimate, the operating cost estimate, and financial analysis, the assumed exchange rate for the LOM is C$1.22:US$1.00. The exchange rate was what Wood considers to be an industry consensus on the forecast of the following sources: bank analysts' long-term forecasts; historical exchange rate averages; and prices used in recent publicly-disclosed comparable studies.

19.2.4 Refining and Transportation

Refining and transportation costs payables are applied according to Chapter 16. Refining costs are calculated yearly based on gold production and an assumed bi-weekly shipping schedule. The basis of the costs are a fixed fee of $0.55/oz of material for refining and a flat-rate shipping pickup fee of $1,065 plus $0.45 per $1 thousand dollar value over $1.5 million. Gold is 99.95% payable at the refinery. At a US$1,650/oz gold price, the 0.05% in metal not payable is equivalent to US$0.83/oz.

19.2.5 Royalties and Metal Streams

Royalties in the financial model are applied according to the royalty agreements described in Chapter 3. The Grey Fox property is subject to three NSR royalties and a NPI royalty shown in Table 19-1. The Fuller property is subject to a NPI royalty. Over the life of project production schedule, the Grey Fox NSR and NPI royalties pays US$29.06 million. The Fuller NPI royalty does not pay out with a US$1,650/oz gold price.

A gold metal streaming agreement on the Froome property exists for 8% of the gold ounces at a 2021 base sales price of US$565.95. A 2% sales price escalation is applied annually. Table 19-2 shows the stream sales ounces and cost.

Table 19-1: Fox Complex NSR and NPI Royalties

Grey Fox Royalties @ US$1,650/oz Au	NSR, %	Payment, US$000s
Schumacher Royalty	3.00	16,529
Newmont First Right Royalty	2.50	1,865
Newmont First Right (Gray Overlap) Royalty	2.50	5,396
Gray Royalty	0.15	324
Parsons-Ginn NPI Royalty		4,965
Total		**29,056**

Note: Figures may not sum due to rounding

Table 19-2: Goldstream Payouts

Froome Goldstream	Au Price, US$/oz	Ounces
Year 1	577.27	4,450
Year 2	588.81	4,959
Year 3	600.59	2,538
Total		**11,946**

Note: Figures may not sum due to rounding

19.2.6 Bonds

The Fox Complex has previously posted $15.56 million in surety bonds on the Black Fox Mine and Fox Mill with annual interest payments of 2%. The surety bonds have a collateral balance of $3.74 million attributed to them that will be recovered at the end of the Project.

19.2.7 Holding Fees

The Fox Complex mines are not subject to any holding fees.

19.2.8 Taxes

Taxation within the model is based on Canadian and Ontario Provincial mining taxes. The following is a summary of the calculations and tax assumptions in the cashflow model for the Project, including Canadian federal and Ontario provincial corporate income taxes, and Ontario mining license tax.

Canadian federal income tax:

- Income tax rate of 15.0%
- Tax losses carried forward up to 20 years following the year of the loss. Three years' carryback allowed
- Canadian exploration expenses annual deduction rate of 100%
- Canadian development expenses annual deduction rate of 30.0% on declining balance
- Undepreciated capital cost annual depreciation rate of 25.0% on declining balance.

Ontario provincial income tax:

- Income tax rate of 10.0%
- Tax losses carried forward up to 20 years following the year of the loss. Three years carryback allowed.

Ontario mining tax (Mining Tax Act):

- Mining tax rate of 10.0%
- General tax exemption: annual deductions of $0.5 million/year (or proportion for partial production year)
- Mining tax exemption for new mines: total deduction of $10 million during the first three operating years, whichever comes first
- A processing allowance of 8.0% of the cost of the processing asset to be applicable, associated with milling in Canada, subject to the following limits:
  - Minimum processing allowance equal to 15.0% of the profit that year
  - Maximum processing allowance equal to 65.0% of the profit that year
- Processing assets and assets for transporting processed mineral substances to market to be depreciated at an annual rate of 15.0% straight-line
- New mining assets to be depreciated at an annual rate of 30.0% straight-line and other mining assets to be depreciated at an annual rate of 25.0% straight-line
- Mining assets acquired before the start of commercial production can be depreciated at 100%, not exceeding the profit in the year
- Exploration and development expenses depreciated at an annual rate of 100%
- No minimum on depreciation allowances applies, except during the mining tax exemption period when 30.0% depreciation of processing and other mining assets must be claimed
- Tax losses cannot be carried forward.

The Fox Complex is comprised of two separate operating companies for taxation purposes; McEwen Ontario and Lexam Gold (Fuller). The McEwen Ontario company is comprised of the Froome, Black Fox, Grey Fox, and Stock West properties. The Lexam Gold (Fuller) company is comprised of Fuller, and other properties not included in this analysis. Taxes and tax pools for each company were applied individually.

19.2.9 Working Capital

Working capital is the capital required to fund operations prior to receiving revenue from the finished product. It is defined as the current assets minus the current liabilities. The financial model estimates working capital by subtracting 30 days of direct operating costs from three days of revenue. Over the project life, working capital nets to zero.

19.2.10 Closure and Reclamation

Closure costs are incurred incrementally, and immediately following the closure of each mine site. Closure costs include the following amounts by year in Table 19-3.

Table 19-3: Closure Costs by Mine Site

Mine Site	Year Incurred	Amount, $000s
Froome/Black Fox	Year 13	10,000
Grey Fox	Year 12	5,972
Stock West	Year 13	2,999
Fuller	Year 14	3,856
Total		**22,827**

Note: Figures may not sum due to rounding

19.2.11 Capital

Total project capital is $437.6 million as described in Chapter 18. Figure 19-1 shows the distribution of total capital spend throughout the Project.

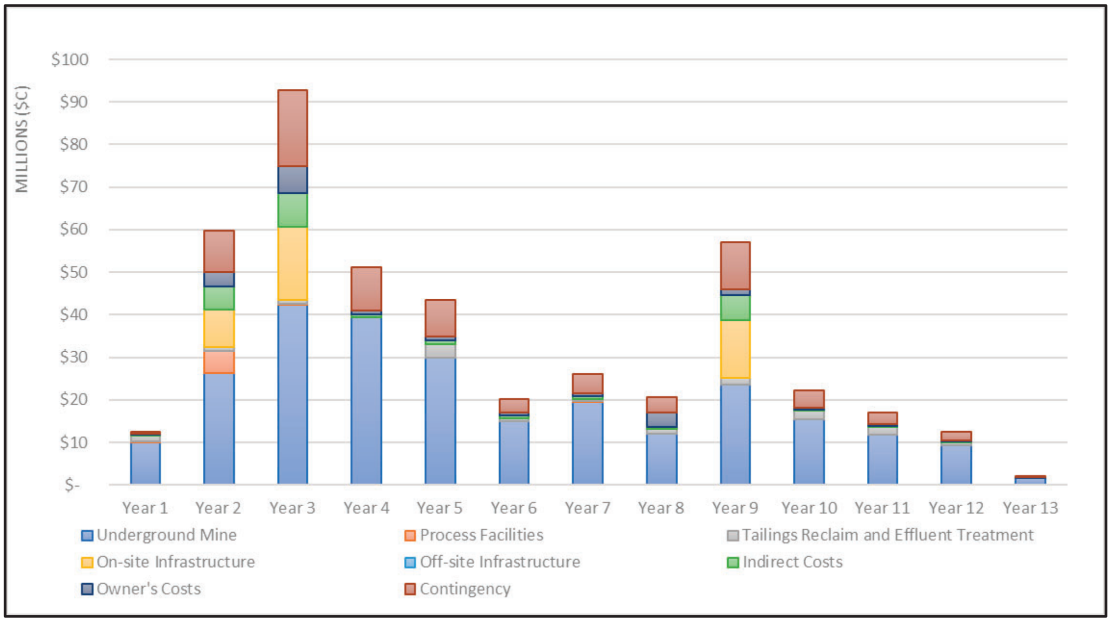

Figure 19-1: Capital Distribution (prepared by Wood, dated 2022)

19.2.12 Salvage Value

No salvage value is applied within the financial model.

19.2.13 Inflation

No escalation or inflation are applied. All amounts expressed in constant real first-quarter 2022 terms.

19.3 Financial Results

Based on QP's financial evaluation, the Project generates positive before- and after-tax financial results. The after-tax NPV_5 for the Project is US$175.0 million. The full cashflow is included in Table 19-4.

The Fox Complex expansion project is partly funded by operating earnings from ongoing operations at Froome, some of which occur before the expansion project is started. Consequently, IRR and Payback metrics are not applicable to the project cashflows. As can be seen in Figure 19-2, cumulative project cashflows in Years 1 and 2 are positive as a result of revenue from Froome operations. Subsequent capital expenditures for project expansion drive annual and cumulative cashflows negative until becoming positive again in Year 5 and Year 7, respectively. With the inclusion of operating earnings for Froome as a funding source for project expansion, the cumulative cashflow shortfall is US$89.8 M and occurs in Year 4.

Table 19-5 and Table 19-6 show the before- and after-tax financial statistics, respectively.

Table 19-4: Financial Model for IA Mine Plan Including Inferred Mineral Resources

Description	Unit	Present Value	Constant	LOM	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	Y13	Y14
											Year							
NET SMELTER RETURN (NSR)																		
NSR from dore																		
McEwen Ontario Au payable value	US$000	902,659		1,242,472	77,826	86,782	44,441	39,487	112,390	164,047	167,610	168,803	147,496	134,943	80,934	17,714	-	-
McEwen Ontario Dore selling cost	US$000	(811)		(1,114)	(74)	(82)	(47)	(41)	(98)	(139)	(142)	(142)	(126)	(116)	(74)	(34)	-	-
Fuller Au payable value	US$000	117,395		206,286	-	-	-	-	-	-	-	-	8,014	28,940	48,263	76,885	44,184	-
Fuller Dore selling cost	US$000	(133)		(231)	-	-	-	-	-	-	-	-	(30)	(37)	(48)	(70)	(45)	-
Total Au payable value	**US$000**	**1,020,054**		**1,448,758**	**77,826**	**86,782**	**44,441**	**39,487**	**112,390**	**164,047**	**167,610**	**168,803**	**155,510**	**163,883**	**129,198**	**94,599**	**44,184**	**-**
Total Dore selling cost	**US$000**	**(944)**		**(1,345)**	**(74)**	**(82)**	**(47)**	**(41)**	**(98)**	**(139)**	**(142)**	**(142)**	**(156)**	**(153)**	**(122)**	**(104)**	**(45)**	**-**
McEwen Ontario NSR from dore	US$000	**901,848**		**1,241,359**	**77,752**	**86,700**	**44,394**	**39,446**	**112,292**	**163,908**	**167,469**	**168,660**	**147,370**	**134,827**	**80,861**	**17,681**	**-**	**-**
Fuller NSR from dore	US$000	117,262		206,055	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**7,984**	**28,902**	**48,215**	**76,815**	**44,139**	**-**
Total NSR from dore	**US$000**	**1,019,109**		**1,447,414**	**77,752**	**86,700**	**44,394**	**39,446**	**112,292**	**163,908**	**167,469**	**168,660**	**155,354**	**163,729**	**129,076**	**94,495**	**44,139**	**-**
ROYALTY																		
McEwen Ontario Royalty Cost	C$000	(24,436)		(35,448)	(3)	(3)	(3)	(1,269)	(3,163)	(5,602)	(6,159)	(6,365)	(5,998)	(5,102)	(1,781)	-	-	-
Fuller Royalty Cost	C$000	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Royalty Cost	**US$000**	**(20,030)**		**(29,056)**	**(2)**	**(2)**	**(2)**	**(1,040)**	**(2,593)**	**(4,592)**	**(5,048)**	**(5,217)**	**(4,916)**	**(4,182)**	**(1,460)**	**-**	**-**	**-**
BOND PAYMENTS																		
Total Bond payments	C$000			(4,046)	(311)	(311)	(311)	(311)	(311)	(311)	(311)	(311)	(311)	(311)	(311)	(311)	(311)	-
Total Bond collateral	C$000				-	-	-	-	-	-	-	-	-	-	-	-	-	3,735
Total Bond Payments	**US$000**	**(850)**		**(255)**	**(255)**	**(255)**	**(255)**	**(255)**	**(255)**	**(255)**	**(255)**	**(255)**	**(255)**	**(255)**	**(255)**	**(255)**	**(255)**	**3,061**
IBA PAYMENTS																		
Total IBA payments	C$000			-														
Total IBA Payments	**US$000**	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OPERATING COST																		
Mining Operating Cost																		
McEwen Ontario Mining Operating Cost Subtotal	C$000			(435,109)	(32,315)	(30,176)	(17,779)	(25,950)	(46,480)	(57,895)	(50,584)	(54,773)	(47,414)	(39,410)	(27,954)	(4,379)	-	-
Fuller Mining Operating Cost Subtotal	C$000			(77,503)	-	-	-	-	-	-	-	-	(3,108)	(12,389)	(19,702)	(25,496)	(16,808)	-
Total Mining Operating Cost	**C$000**			**(512,612)**	**(32,315)**	**(30,176)**	**(17,779)**	**(25,950)**	**(46,480)**	**(57,895)**	**(50,584)**	**(54,773)**	**(50,521)**	**(51,800)**	**(47,656)**	**(29,876)**	**(16,808)**	**-**
Processing Operating Cost																		
McEwen Ontario Mining Operating Cost Subtotal	C$000			(167,641)	(18,336)	(18,233)	(13,767)	(5,247)	(14,261)	(17,384)	(17,409)	(17,976)	(17,233)	(14,610)	(9,749)	(3,437)	-	-
Fuller Mining Operating Cost Subtotal	C$000			(25,552)	-	-	-	-	-	-	-	-	(1,009)	(3,555)	(6,007)	(9,809)	(5,171)	-
Total Processing Operating Cost	**C$000**			**(193,193)**	**(18,336)**	**(18,233)**	**(13,767)**	**(5,247)**	**(14,261)**	**(17,384)**	**(17,409)**	**(17,976)**	**(18,242)**	**(18,165)**	**(15,757)**	**(13,246)**	**(5,171)**	**-**

Description	Unit	Present Value	Constant	LOM	Year													
					Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	Y13	Y14
G&A Operating Costs																		
McEwen Ontario Mining Operating Cost Subtotal	C$000			(103,492)	(9,699)	(11,248)	(11,051)	(5,911)	(9,415)	(9,451)	(9,390)	(9,449)	(8,577)	(8,250)	(7,695)	(3,356)	-	-
Fuller Mining Operating Cost Subtotal	C$000			(13,832)	-	-	-	-	-	-	-	-	(1,993)	(1,993)	(2,140)	(3,826)	(3,880)	-
Total G&A Operating Cost	**C$000**			**(117,324)**	**(9,699)**	**(11,248)**	**(11,051)**	**(5,911)**	**(9,415)**	**(9,451)**	**(9,390)**	**(9,449)**	**(10,570)**	**(10,243)**	**(9,834)**	**(7,183)**	**(3,880)**	**-**
Total McEwen Ontario operating cost	C$000			(706,242)	(60,351)	(59,657)	(42,598)	(37,108)	(70,155)	(84,729)	(77,382)	(82,198)	(73,223)	(62,271)	(45,398)	(11,172)	-	-
Total Fuller operating cost	C$000			(116,887)	-	-	-	-	-	-	-	-	(6,110)	(17,938)	(27,849)	(39,132)	(25,859)	-
Total Operating Cost	**C$000**			**(823,130)**	**(60,351)**	**(59,657)**	**(42,598)**	**(37,108)**	**(70,155)**	**(84,729)**	**(77,382)**	**(82,198)**	**(79,333)**	**(80,209)**	**(73,247)**	**(50,304)**	**(25,859)**	**-**
Mining Operating Cost																		
McEwen Ontario Mining Operating Cost Subtotal	US$000			(356,647)	(26,488)	(24,734)	(14,573)	(21,271)	(38,098)	(47,455)	(41,462)	(44,896)	(38,864)	(32,304)	(22,913)	(3,590)	-	-
Fuller Mining Operating Cost Subtotal	US$000			(63,527)	-	-	-	-	-	-	-	-	(2,547)	(10,155)	(16,149)	(20,899)	(13,777)	-
Total Mining Operating Cost	**US$000**	**(299,406)**		**(420,174)**	**(26,488)**	**(24,734)**	**(14,573)**	**(21,271)**	**(38,098)**	**(47,455)**	**(41,462)**	**(44,896)**	**(41,411)**	**(42,459)**	**(39,062)**	**(24,488)**	**(13,777)**	**-**
Processing Operating Cost																		
McEwen Ontario Mining Operating Cost Subtotal	US$000			(137,411)	(15,030)	(14,945)	(11,284)	(4,301)	(11,689)	(14,249)	(14,269)	(14,734)	(14,125)	(11,975)	(7,991)	(2,817)	-	-
Fuller Mining Operating Cost Subtotal	US$000			(20,944)	-	-	-	-	-	-	-	-	(827)	(2,914)	(4,924)	(8,040)	(4,238)	-
Total Processing Operating Cost	**US$000**	**(115,685)**		**(158,355)**	**(15,030)**	**(14,945)**	**(11,284)**	**(4,301)**	**(11,689)**	**(14,249)**	**(14,269)**	**(14,734)**	**(14,952)**	**(14,890)**	**(12,915)**	**(10,857)**	**(4,238)**	**-**
G&A Operating Cost																		
McEwen Ontario Mining Operating Cost Subtotal	US$000			(84,829)	(7,950)	(9,219)	(9,059)	(4,845)	(7,717)	(7,747)	(7,696)	(7,745)	(7,030)	(6,762)	(6,307)	(2,751)	-	-
Fuller Mining Operating Cost Subtotal	US$000			(11,338)	-	-	-	-	-	-	-	-	(1,634)	(1,634)	(1,754)	(3,136)	(3,180)	-
Total G&A Operating Cost	**US$000**	**(70,702)**		**(96,167)**	**(7,950)**	**(9,219)**	**(9,059)**	**(4,845)**	**(7,717)**	**(7,747)**	**(7,696)**	**(7,745)**	**(8,664)**	**(8,396)**	**(8,061)**	**(5,887)**	**(3,180)**	**-**
Total McEwem Ontario operating cost	US$000	(431,091)		(578,887)	(49,468)	(48,899)	(34,916)	(30,417)	(57,504)	(69,450)	(63,428)	(67,375)	(60,019)	(51,041)	(37,212)	(9,158)	-	-
Total Fuller operating cost	US$000	(54,703)		(95,809)	-	-	-	-	-	-	-	-	(5,008)	(14,703)	(22,827)	(32,075)	(21,196)	-
Total Operating Cost	**US$000**	**(485,794)**		**(674,696)**	**(49,468)**	**(48,899)**	**(34,916)**	**(30,417)**	**(57,504)**	**(69,450)**	**(63,428)**	**(67,375)**	**(65,027)**	**(65,745)**	**(60,039)**	**(41,233)**	**(21,196)**	**-**
NET OPERATING EARNINGS																		
Net Operating Earnings																		
Operating revenue (NSR)	US$000	1,019,109		1,447,414	77,752	86,700	44,394	39,446	112,292	163,908	167,469	168,660	155,354	163,729	129,076	94,495	44,139	-
Bond Payments	US$000	(850)		(255)	(255)	(255)	(255)	(255)	(255)	(255)	(255)	(255)	(255)	(255)	(255)	(255)	(255)	3,061
IBA payments	US$000	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Royalty	US$000	(20,030)		(29,056)	(2)	(2)	(2)	(1,040)	(2,593)	(4,592)	(5,048)	(5,217)	(4,916)	(4,182)	(1,460)	-	-	-
Operating cost	US$000	(485,794)		(674,696)	(49,468)	(48,899)	(34,916)	(30,417)	(57,504)	(69,450)	(63,428)	(67,375)	(65,027)	(65,745)	(60,039)	(41,233)	(21,196)	-
Total Net Operating Earnings	**US$000**	**512,436**		**743,406**	**28,026**	**37,543**	**9,220**	**7,733**	**51,940**	**89,611**	**98,738**	**95,812**	**85,155**	**93,548**	**67,323**	**53,007**	**22,688**	**3,061**

Description	Unit	Present Value	Constant	LOM	Year													
					Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	Y13	Y14
TAXES																		
Taxes																		
McEwen Ontario Ontario mining tax	US$000	(23,247)		(34,664)	-	(611)	-	-	(40)	(4,769)	(6,447)	(6,893)	(6,212)	(6,346)	(3,305)	(40)	-	-
McEwen Ontario Ontario income tax	US$000	(9,418)		(14,913)	-	-	-	-	-	-	-	(2,980)	(4,610)	(5,139)	(2,109)	(75)	-	-
McEwen Ontario Federal income tax	US$000	(14,127)		(22,369)	-	-	-	-	-	-	-	(4,470)	(6,916)	(7,708)	(3,163)	(112)	-	-
McEwen Ontario Total Taxes Subtotal	*US$000*	*(46,792)*		*(71,945)*	-	*(611)*	-	-	*(40)*	*(4,769)*	*(6,447)*	*(14,343)*	*(17,738)*	*(19,193)*	*(8,576)*	*(228)*	-	-
Fuller Ontario mining tax	US$000	(1,765)		(3,229)	-	-	-	-	-	-	-	-	-	-	-	(1,992)	(1,236)	-
Fuller Ontario income tax	US$000	(1,613)		(2,983)	-	-	-	-	-	-	-	-	-	-	-	(1,160)	(1,823)	-
Fuller Federal income tax	US$000	(2,419)		(4,475)	-	-	-	-	-	-	-	-	-	-	-	(1,741)	(2,734)	-
Fuller Total Taxes Subtotal	*US$000*	*(5,797)*		*(10,687)*	-	-	-	-	-	-	-	-	-	-	-	*(4,893)*	*(5,793)*	-
Total Taxes	**US$000**	**(52,589)**		**(82,632)**	**-**	**(611)**	**-**	**-**	**(40)**	**(4,769)**	**(6,447)**	**(14,343)**	**(17,738)**	**(19,193)**	**(8,576)**	**(5,121)**	**(5,793)**	**-**
CAPITAL COST, CLOSURE AND WORKING CAPITAL																		
Capital Cost																		
McEwen Ontario Initial capital	C$000			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
McEwen Ontario Sustaining capital	C$000			(335,695)	(12,555)	(59,843)	(92,797)	(51,136)	(43,471)	(20,216)	(26,026)	(17,668)	(5,098)	(3,364)	(2,482)	(954)	(85)	-
McEwen Ontario capital cost subtotal	*C$000*			(335,695)	*(12,555)*	*(59,843)*	*(92,797)*	*(51,136)*	*(43,471)*	*(20,216)*	*(26,026)*	*(17,668)*	*(5,098)*	*(3,364)*	*(2,482)*	*(954)*	*(85)*	-
Fuller Initial capital	C$000			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fuller Sustaining capital	C$000			(101,829)	-	-	-	-	-	-	-	(3,000)	(52,005)	(18,779)	(14,511)	(11,634)	(1,900)	-
Fuller capital cost subtotal	C$000			(101,829)	-	-	-	-	-	-	-	*(3,000)*	*(52,005)*	*(18,779)*	*(14,511)*	*(11,634)*	*(1,900)*	-
Total Capital Cost	**C$000**			**(437,525)**	**(12,555)**	**(59,843)**	**(92,797)**	**(51,136)**	**(43,471)**	**(20,216)**	**(26,026)**	**(20,668)**	**(57,103)**	**(22,143)**	**(16,993)**	**(12,588)**	**(1,985)**	**-**
Capital Cost																		
McEwen Ontario Initial capital	US$000	**-**		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
McEwen Ontario Sustaining capital	US$000	**(225,777)**		(275,160)	(10,291)	(49,052)	(76,063)	(41,914)	(35,632)	(16,570)	(21,333)	(14,482)	(4,178)	(2,758)	(2,034)	(782)	(70)	-
McEwen Ontario capital cost subtotal	US$000	**(225,777)**		(275,160)	(10,291)	(49,052)	(76,063)	(41,914)	(35,632)	(16,570)	(21,333)	(14,482)	(4,178)	(2,758)	(2,034)	(782)	(70)	-
Fuller Initial capital	US$000	**-**		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fuller Sustaining capital	US$000	**(51,682)**		(83,467)	-	-	-	-	-	-	-	(2,459)	(42,627)	(15,393)	(11,894)	(9,536)	(1,557)	-
Fuller capital cost subtotal	US$000	**(51,682)**		(83,467)	-	-	-	-	-	-	-	(2,459)	(42,627)	(15,393)	(11,894)	(9,536)	(1,557)	-
Total Capital Cost	**US$000**	**(277,459)**		**(358,627)**	**(10,291)**	**(49,052)**	**(76,063)**	**(41,914)**	**(35,632)**	**(16,570)**	**(21,333)**	**(16,941)**	**(46,806)**	**(18,150)**	**(13,929)**	**(10,318)**	**(1,627)**	**-**
Closure Cost																		
McEwen Ontario Closure Capital (as spent)	C$000			(18,971)	-	-	-	-	-	-	-	-	-	-	-	(5,972)	(12,999)	-
Fuller Closure Capital (as spent)	C$000			(3,856)	-	-	-	-	-	-	-	-	-	-	-	-	-	(3,856)
Total Closure Capital	C$000			(22,827)	-	-	-	-	-	-	-	-	-	-	-	(5,972)	(12,999)	(3,856)
Total Closure Cost	**US$000**	**(9,972)**		**(18,710)**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**(4,895)**	**(10,655)**	**(3,161)**

					Year													
Description	**Unit**	**Present Value**	**Constant**	**LOM**	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	**Y6**	**Y7**	**Y8**	**Y9**	**Y10**	**Y11**	**Y12**	**Y13**	**Y14**
Salvage Value																		
Salvage value	C$000			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Salvage Value	**US$000**	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Working Capital																		
Accounts receivable yearly	US$000			1,447,414	77,752	86,700	44,394	39,446	112,292	163,908	167,469	168,660	155,354	163,729	129,076	94,495	44,139	-
Days in accounts receivable	days		**3**															
Accounts receivable adjusted	US$000			11,897	639	713	365	324	923	1,347	1,376	1,386	1,277	1,346	1,061	777	363	-
Change in accounts receivable	US$000			-	639	74	(348)	(41)	599	424	29	10	(109)	69	(285)	(284)	(414)	(363)
Accounts payable yearly	US$000			1,033,323	59,759	97,951	110,979	72,331	93,136	86,020	84,760	84,316	111,833	83,895	73,968	51,551	22,823	-
Days in accounts payable	days		**30**															
Accounts payable adjusted	US$000			84,931	4,912	8,051	9,122	5,945	7,655	7,070	6,967	6,930	9,192	6,895	6,080	4,237	1,876	-
Change in accounts payable	US$000			-	4,912	3,139	1,071	(3,177)	1,710	(585)	(104)	(36)	2,262	(2,296)	(816)	(1,842)	(2,361)	(1,876)
Change in Working Capital	**US$000**	**2,588**		**-**	**4,273**	**3,066**	**1,419**	**(3,136)**	**1,111**	**(1,009)**	**(133)**	**(46)**	**2,371**	**(2,365)**	**(531)**	**(1,558)**	**(1,947)**	**(1,513)**
VALUATION INDICATORS																		
Discounting index					1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0
Discount factor	**%**		**5.00**		**0.9524**	**0.9070**	**0.8638**	**0.8227**	**0.7835**	**0.7462**	**0.7107**	**0.6768**	**0.6446**	**0.6139**	**0.5847**	**0.5568**	**0.5303**	**0.5051**
Before Tax																		
Cashflow	US$000			366,069	22,008	(8,443)	(65,424)	(37,317)	17,419	72,032	77,272	78,825	40,721	73,032	52,863	36,236	8,459	(1,612)
Cumulative cashflow	US$000				22,008	13,564	(51,860)	(89,177)	(71,758)	273	77,546	156,371	197,092	270,124	322,987	359,223	367,681	366,069
NPV 5.00%	US$000	227,593		227,593														
After Tax																		
Cashflow	US$000			283,437	22,008	(9,054)	(65,424)	(37,317)	17,378	67,263	70,825	64,482	22,983	53,839	44,287	31,115	2,665	(1,612)
Cumulative Cashflow	US$000				22,008	12,953	(52,471)	(89,788)	(72,410)	(5,147)	65,678	130,160	153,143	206,982	251,269	282,384	285,049	283,437
NPV 5.00%	US$000	175,004		175,004														

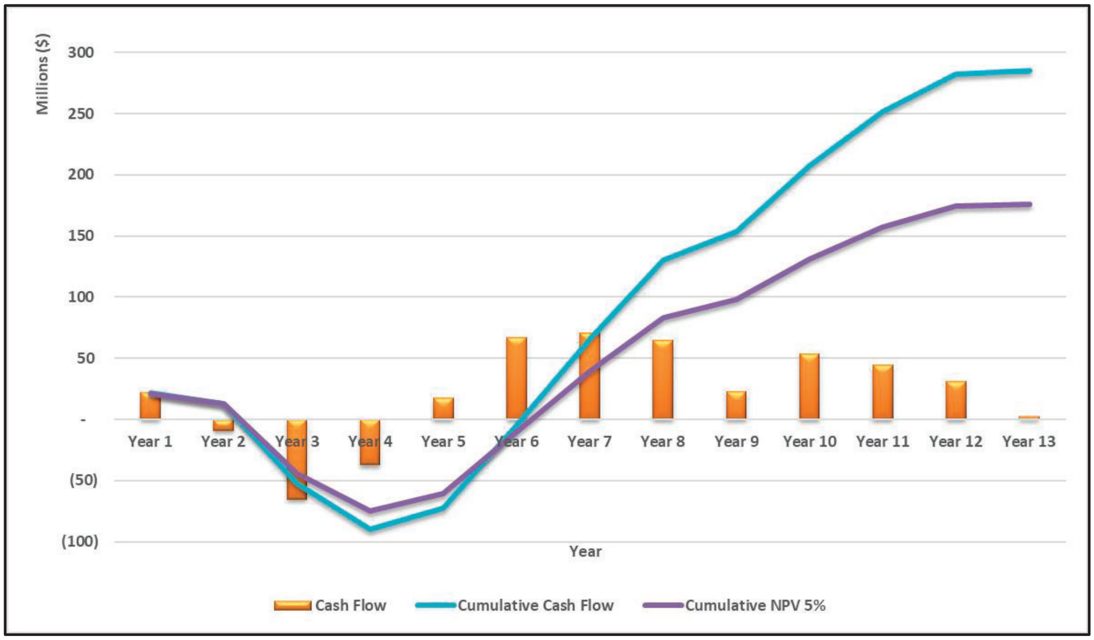

Figure 19-2: Distribution of After-Tax Cashflows (prepared by Wood, dated 2022)

Table 19-5: Before-Tax Financial Results

Before-Tax Valuation Indicators	Unit	Value
Undiscounted cumulative cashflow	US$M	366.1
NPV @ 5%	**US$M**	**227.6**
NPV @ 8%	US$M	172.5
NPV @10%	US$M	143.8
Payback period (from start of operations)	years	N/A
IRR before tax	%	N/A

Note: Base case is bolded.

Table 19-6: After-Tax Financial Results

After-Tax Valuation Indicators	Unit	Value
Undiscounted cumulative cashflow	US$M	283.4
NPV @ 5%	**US$M**	**175.0**
NPV @ 8%	US$M	131.8
NPV @10%	US$M	109.4
Payback period (from start of operations)	years	N/A
IRR	%	N/A

Note: Base case is bolded.

19.4 Cost Metrics

Cost metrics for total cash costs (TCC), AISC, and all-in costs were calculated for the Project according to World Gold Council guidance (World Gold Council, 2013). The TCC and AISC are US$797, and US$1,224/oz sold, respectively (Table 19-7).

Table 19-7: Cost Metrics

Cost Area	US$/oz Au Payable
Mining	474.8
Processing	178.9
G&A	108.7
Royalties	32.8
Dore refining/selling cost	1.5
TCC	**796.8**
Bond cost	0.3
Closure costs	21.1
Sustaining capital costs	405.3
AISC	**1,223.5**

Note: Figures may not sum due to rounding

19.5 Sensitivity Analysis

A sensitivity analysis was completed for the Project's NPV over the ranges of ±30% for gold selling price, grade, total capital, and operating cost and shown in the spider graphs in Figure 19-3. The Project's cashflow and NPV sensitivity to gold price are shown in Figure 19-4. Because the project has positive cashflows from continuing operations, IRR and Payback Period have been excluded from the sensitivity analysis.

The Project is most sensitive to changes in gold feed grade and metal selling price, followed by changes to operating costs and total capital costs.

Gold prices have trended upward during 2020 and into 2021. As such, alternate pricing scenarios both above and below the study price of US$1,650/oz are presented in Table 19-8.

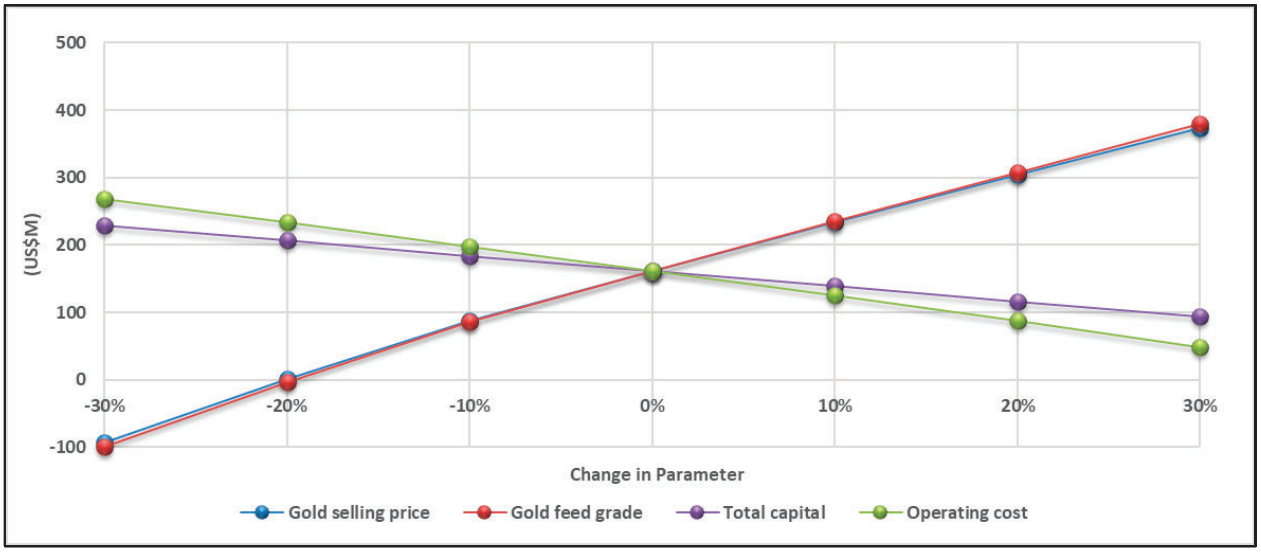

Figure 19-3: After-Tax NPV 5% Sensitivity (prepared by Wood, dated 2022)

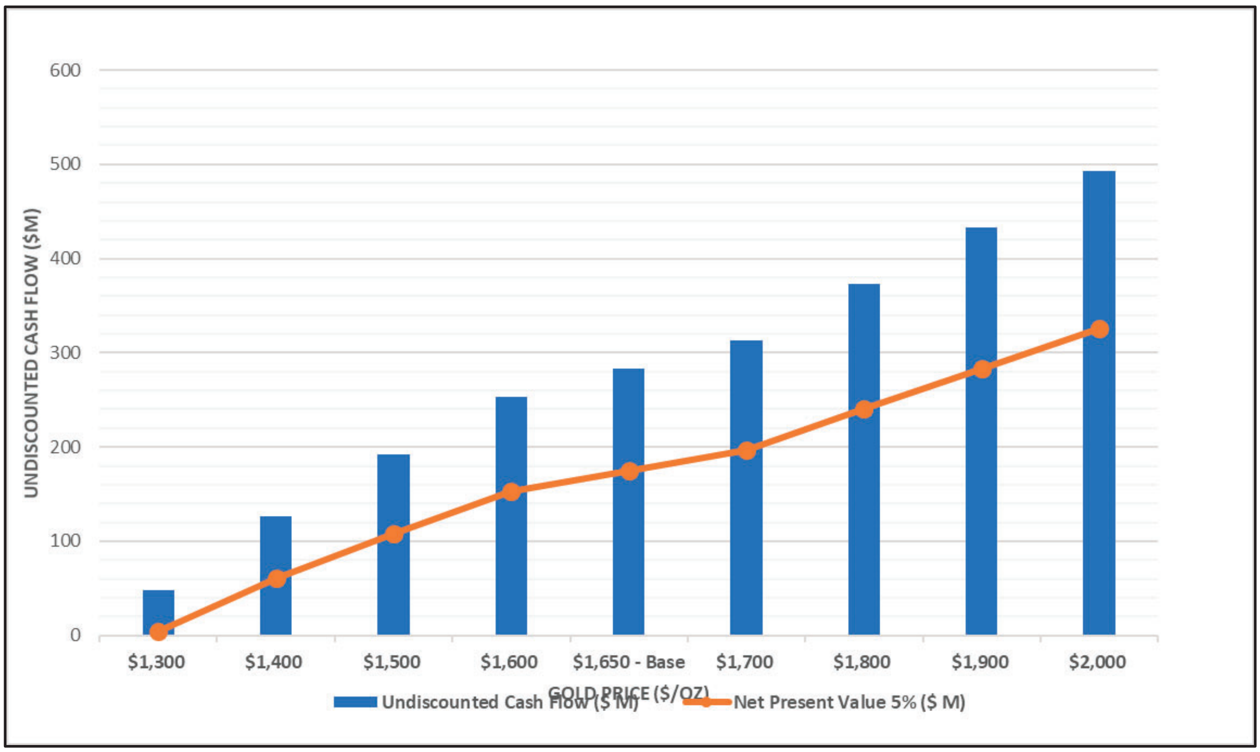

Figure 19-4: After-Tax Cashflow and NPV 5% Sensitivity to Gold Price (prepared by Wood, dated 2022)

Table 19-8: Alternate Metal Pricing Scenarios

Gold Price ($/oz)	$1,300	$1,400	$1,500	$1,600	$1,650 – Base	$1,700	$1,800	$1,900	$2,000
Before-Tax Metrics									
Undiscounted Cashflow ($M)	65.3	151.3	237.2	323.	**366.1**	409.0	495.0	580.9	666.8
NVP_5 ($M)	16.2	76.6	137.0	197.4	**227.6**	257.8	318.2	378.6	439.0
After-Tax Metrics									
Undiscounted Cashflow ($M)	47.7	126.3	191.8	253.3	**283.4**	313.4	373.4	433.2	492.6
NVP_5 ($M)	4.7	60.4	108.2	153.2	**175.0**	196.7	240.1	283.2	326.0

19.6 Economic Analysis for IA Mine Plan Excluding Inferred Mineral Resources

S-K 1300 allows Inferred Mineral Resources to be included in an economic analysis of an IA as long as the results of the economic analysis excluding Inferred Mineral Resources is also shown. The following sections of this chapter show the mine plans and production schedules of the portions of the Fox Complex that can generate positive cashflows when the Inferred Mineral Resources are treated as waste. Due to the conceptual nature of the IA, none of the Mineral Resources can be converted to Mineral Reserves, and therefore do not have demonstrated economic viability.

19.6.1 Methodology Used

The IA that excludes Inferred Mineral Resources has been evaluated using a discounted cashflow analysis. Cash inflows consist of annual revenue projections for the mine. Cash outflows such as capital costs, operating costs, taxes, and royalties, are subtracted from the inflows to arrive at the annual cashflow projections. Cashflows are taken to occur at the end of each period.

To reflect the time value of money, annual NCF projections are discounted back to the start of construction using a 5% discount rate. The discount rate appropriate to a specific project depends on many factors, including the type of commodity and the level of project risks, such as market risk, technical risk and political risk. The discounted present values of the cashflows are summed to arrive at the NPV.

19.6.2 Financial Model Parameters

The financial analysis was based on: royalty agreements described in Chapter 3; the Mineral Resources presented in Chapter 11; the mine and process plan and assumptions detailed in Chapters 13 and 14; the projected infrastructure requirements outlined in Chapter 15; the gold price assumption in Chapter 16; the permitting, social and environmental regime discussions in Chapter 17; and the capital and operating cost estimates detailed in Chapter 18. All costs within the financial model are expressed in first-quarter 2022 US dollars.

19.6.2.1 Metal Recovery

Within the financial model, metal recovery is estimated on a period-by-period basis. For the Fox Complex, recovery differs for each mine. For Froome, a gold recovery of 89.5% is used for all mineralization types. Grey Fox recoveries vary with production zones within the mine and adjusted recovery curves range between 93% and 81%. An overall process schedule recovery for the life of project is estimated at 88.7%. Chapter 13 provides a summary of the process schedule showing an approximate total of 525,235 oz recovered over the 9.1-year project life.

19.6.2.2 Metal Price

A gold price of US$1,650/oz is assumed for the economic analysis. The price guidance follows industry consensus on long-term metal prices which reflect the average forecasted price from a number of reputable banks and is updated quarterly. The gold metal price was kept consistent throughout the life of the Project except for the portion of the Froome deposit that is subject to a gold streaming agreement (see Section 19.6.2.5).

19.6.2.3 Exchange Rate

For the purpose of the capital cost estimate, the operating cost estimate, and financial analysis, the assumed exchange rate for the LOM isC$1.22: US$1.00. The exchange rate was what Wood considers to be an industry consensus on the forecast of the following sources: bank analysts' long-term forecasts; historical exchange rate averages; and prices used in recent publicly-disclosed comparable studies.

19.6.2.4 Refining and Transportation

Refining and transportation costs payables are applied according to Chapter 16. Refining costs are calculated yearly based on gold production and an assumed bi-weekly shipping schedule. The basis of the costs are a fixed fee of $0.55/oz of material for refining and a flat-rate shipping pickup fee of $1,065 plus $0.45 per $1 thousand dollar value over $1.5 million. Gold is 99.95% payable at the refinery. At a US$1,650/oz gold price, the 0.05% in metal not payable is equivalent to US$0.83/oz.

19.6.2.5 Royalties and Metal Streams

Royalties in the financial model are applied according to the royalty agreements described in Chapter 3. The Grey Fox property is subject to three NSR royalties and a NPI royalty shown in Table 19-9. Over the life of project production schedule, the Grey Fox NSR and NPI royalties pays US$24.57 million.

A gold metal streaming agreement on the Froome property exists for 8% of the gold ounces at a 2021 base sales price of US$565.95. A 2% sales price escalation is applied annually. Table 19-10 shows the stream sales ounces and cost.

Table 19-9: Fox Complex NSR and NPI Royalties

Grey Fox Royalties @ US$1,625/oz Au	% NSR	Payment, US$000s
Schumacher Royalty	3.00	14,916
Newmont First Right Royalty	2.50	1,330
Newmont First Right (Gray Overlap) Royalty	2.50	4,772
Gray Royalty	0.15	286
Parsons-Ginn NPI Royalty		3,288
Total		**24,571**

Note: Figures may not sum due to rounding.

Table 19-10: Goldstream Payouts

Froome Goldstream	Au Price, US$/oz	Ounces
Year 1	577.27	3,983
Year 2	588.81	4,404
Year 3	600.59	2,195
Total		**10,582**

Note: Figures may not sum due to rounding.

19.6.2.6 Bonds

The Fox Complex has previously posted $15.56 million in surety bonds on the Black Fox Mine and Fox Mill with annual interest payments of 2%. The surety bonds have a collateral balance of $3.74 million attributed to them that will be recovered at the end of the Project.

19.6.2.7 Holding Fees

The Fox Complex mines are not subject to any holding fees.

19.6.2.8 Taxes

Taxation within the model is based on Canadian and Ontario Provincial mining taxes. The following is a summary of the calculations and tax assumptions in the cashflow model for the Project, including Canadian federal and Ontario provincial corporate income taxes, and Ontario mining license tax.

Canadian federal income tax:

- Income tax rate of 15.0%
- Tax losses carried forward up to 20 years following the year of the loss. Three years' carryback allowed
- Canadian exploration expenses annual deduction rate of 100%
- Canadian development expenses annual deduction rate of 30.0% on declining balance
- Undepreciated capital cost annual depreciation rate of 25.0% on declining balance.

Ontario provincial income tax:

- Income tax rate of 10.0%
- Tax losses carried forward up to 20 years following the year of the loss. Three years carryback allowed.

Ontario mining tax (Mining Tax Act):

- Mining tax rate of 10.0%
- General tax exemption: annual deductions of $0.5 million/year (or proportion for partial production year)
- Mining tax exemption for new mines: total deduction of $10 million during the first three operating years, whichever comes first
- A processing allowance of 8.0% of the cost of the processing asset to be applicable, associated with milling in Canada, subject to the following limits:
  - Minimum processing allowance equal to 15.0% of the profit that year
  - Maximum processing allowance equal to 65.0% of the profit that year
- Processing assets and assets for transporting processed mineral substances to market to be depreciated at an annual rate of 15.0% straight-line
- New mining assets to be depreciated at an annual rate of 30.0% straight-line and other mining assets to be depreciated at an annual rate of 25.0% straight-line
- Mining assets acquired before the start of commercial production can be depreciated at 100%, not exceeding the profit in the year
- Exploration and development expenses depreciated at an annual rate of 100%
- No minimum on depreciation allowances applies, except during the mining tax exemption period when 30.0% depreciation of processing and other mining assets must be claimed

- Tax losses cannot be carried forward.

The Fox Complex is comprised of two separate operating companies for taxation purposes; McEwen Ontario and Lexam Gold (Fuller). The McEwen Ontario company is comprised of the Froome, Black Fox, Grey Fox, and Stock West properties. The Lexam Gold (Fuller) company is comprised of Fuller and other properties not included in this analysis. Taxes and tax pools for each company were applied individually.

19.6.2.9 Working Capital

Working capital is the capital required to fund operations prior to receiving revenue from the finished product. It is defined as the current assets minus the current liabilities. The financial model estimates working capital by subtracting 30 days of direct operating costs from three days of revenue. Over the Project life, working capital nets to zero.

19.6.2.10 Closure and Reclamation

Closure costs are incurred incrementally, and immediately following the closure of each mine site. Closure costs include the following amounts by year in Table 19-11.

Table 19-11: Closure Costs by Mine Site

Mine Site	Year Incurred	Amount, $000s
Froome/Black Fox	Year 10	10,000
Grey Fox	Year 10	5,972
Stock Mill	Year 10	2,999
Total		**18,971**

Note: Figures may not sum due to rounding.

19.6.2.11 Capital

Total Project capital is $229.9 million as described in Chapter 18. Figure 19-5 shows the distribution of total capital spend throughout the Project.

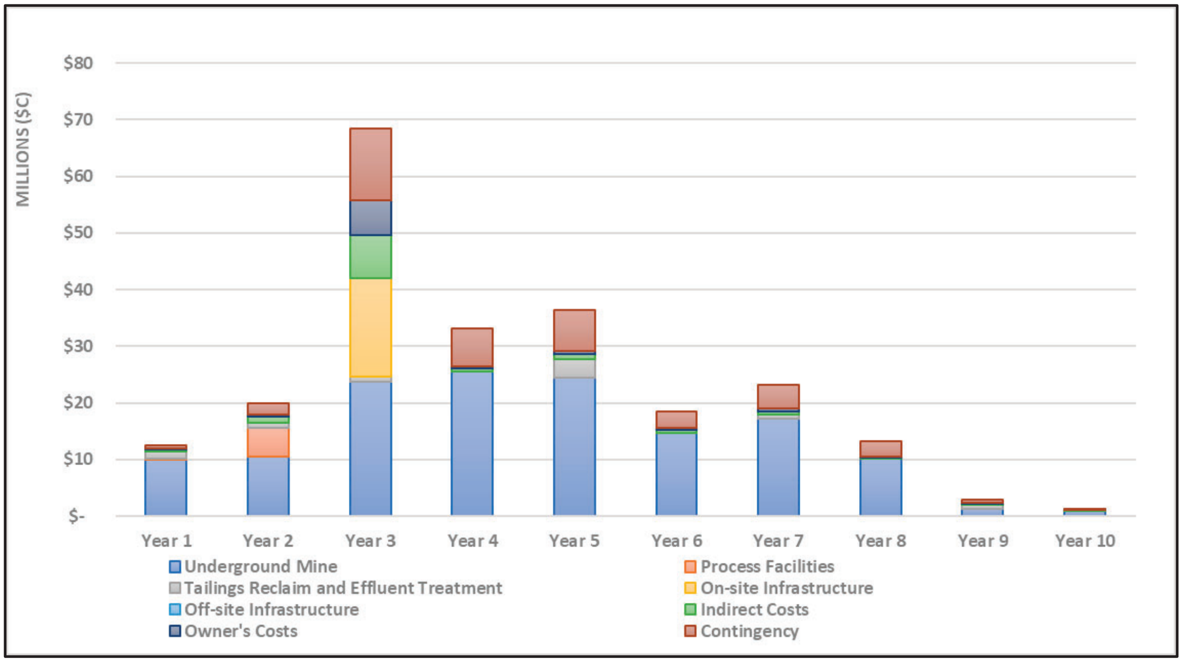

Figure 19-5: Capital Distribution (prepared by Wood, dated 2022)

19.6.2.12 Salvage Value

No salvage value is applied within the financial model.

19.6.2.13 Inflation

No escalation or inflation are applied. All amounts expressed in constant real first-quarter 2022 terms.

19.6.3 Financial Results

Based on QP's financial evaluation, the Project generates positive before- and after-tax financial results. The after-tax NPV_5 for the Project is US$125.6 million. The full cashflow is included in Table 19-12. The annual cashflows are based on the Fox Complex combined production schedule shown in Table 13-39 and Figure 13-15.

Table 19-12: Financial Model for IA Mine Plan Excluding Inferred Mineral Resources

					Year										
Description	**Unit**	**Present Value**	**Constant**	**LOM**	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	**Y6**	**Y7**	**Y8**	**Y9**	**Y10**	**Y11**
NET SMELTER RETURN (NSR)															
NSR from dore															
McEwen Ontario Au payable value	US$000	649,813		854,955	77,826	86,112	42,951	41,561	63,587	136,882	134,276	135,909	114,331	21,520	-
McEwen Ontario Dore selling cost	US$000	(600)		(788)	(74)	(81)	(46)	(43)	(60)	(117)	(115)	(117)	(100)	(35)	-
Fuller Au payable value	US$000	-		-	-	-	-	-	-	-	-	-	-	-	-
Fuller Dore selling cost	US$000	-		-	-	-	-	-	-	-	-	-	-	-	-
Total Au payable value	**US$000**	**649,813**		**854,955**	**77,826**	**86,112**	**42,951**	**41,561**	**63,587**	**136,882**	**134,276**	**135,909**	**114,331**	**21,520**	**-**
Total Dore selling cost	**US$000**	**(600)**		**(788)**	**(74)**	**(81)**	**(46)**	**(43)**	**(60)**	**(117)**	**(115)**	**(117)**	**(100)**	**(35)**	**-**
McEwen Ontario NSR from dore	US$000	649,213		854,167	**77,752**	**86,031**	**42,906**	**41,519**	**63,527**	**136,765**	**134,161**	**135,792**	**114,231**	**21,485**	**-**
Fuller NSR from dore	US$000	-		-	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Total NSR from dore	**US$000**	**649,213**		**854,167**	**77,752**	**86,031**	**42,906**	**41,519**	**63,527**	**136,765**	**134,161**	**135,792**	**114,231**	**21,485**	**-**
ROYALTY															
McEwen Ontario Royalty Cost	C$000	(21,186)		(29,976)	(3)	(3)	(3)	(1,689)	(2,659)	(6,002)	(5,733)	(7,089)	(5,910)	(884)	-
Fuller Royalty Cost	C$000	-		-	-	-	-	-	-	-	-	-	-	-	-
Total Royalty Cost	**US$000**	**(17,365)**		**(24,571)**	**(2)**	**(2)**	**(2)**	**(1,385)**	**(2,180)**	**(4,920)**	**(4,699)**	**(5,811)**	**(4,845)**	**(724)**	**-**
BOND PAYMENTS															
Total Bond payments	C$000			(3,112)	(311)	(311)	(311)	(311)	(311)	(311)	(311)	(311)	(311)	(311)	-
Total Bond collateral	C$000			-	-	-	-	-	-	-	-	-	-	-	3,735
Total Bond Payments	**US$000**	**(180)**		**510**	**(255)**	**(255)**	**(255)**	**(255)**	**(255)**	**(255)**	**(255)**	**(255)**	**(255)**	**(255)**	**3,061**
IBA PAYMENTS															
Total IBA payments	C$000			-	-	-	-	-	-	-	-	-	-	-	-
Total IBA Payments	**US$000**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
OPERATING COST															
Mining Operating Cost															
McEwen Ontario Mining Operating Cost Subtotal	C$000			(291,438)	(32,315)	(28,947)	(17,454)	(19,795)	(29,040)	(43,237)	(37,701)	(41,982)	(32,917)	(8,050)	-
Fuller Mining Operating Cost Subtotal	C$000			-	-	-	-	-	-	-	-	-	-	-	-
Total Mining Operating Cost	**C$000**			**(291,438)**	**(32,315)**	**(28,947)**	**(17,454)**	**(19,795)**	**(29,040)**	**(43,237)**	**(37,701)**	**(41,982)**	**(32,917)**	**(8,050)**	**-**
Process Operating Cost															
McEwen Ontario Mining Operating Cost Subtotal	C$000			(123,669)	(18,336)	(18,233)	(13,767)	(5,147)	(7,966)	(14,480)	(14,473)	(14,734)	(13,972)	(2,561)	-
Fuller Mining Operating Cost Subtotal	C$000			-	-	-	-	-	-	-	-	-	-	-	-
Total Processing Operating Cost	**C$000**			**(123,669)**	**(18,336)**	**(18,233)**	**(13,767)**	**(5,147)**	**(7,966)**	**(14,480)**	**(14,473)**	**(14,734)**	**(13,972)**	**(2,561)**	**-**

Description	Unit	Present Value	Constant	LOM	Year Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11
G&A Operating Costs															
McEwen Ontario Mining Operating Cost Subtotal	C$000			(89,371)	(9,699)	(8,178)	(11,051)	(5,911)	(9,415)	(9,451)	(9,390)	(9,449)	(8,577)	(8,250)	-
Fuller Mining Operating Cost Subtotal	C$000			-	-	-	-	-	-	-	-	-	-	-	-
Total G&A Operating Cost	**C$000**			**(89,371)**	**(9,699)**	**(8,178)**	**(11,051)**	**(5,911)**	**(9,415)**	**(9,451)**	**(9,390)**	**(9,449)**	**(8,577)**	**(8,250)**	**-**
Total McEwen Ontario operating cost	C$000			(504,478)	(60,351)	(55,358)	(42,272)	(30,853)	(46,420)	(67,168)	(61,563)	(66,165)	(55,465)	(18,861)	-
Total Fuller operating cost	C$000			-	-	-	-	-	-	-	-	-	-	-	-
Total Operating Cost	**C$000**			**(504,478)**	**(60,351)**	**(55,358)**	**(42,272)**	**(30,853)**	**(46,420)**	**(67,168)**	**(61,563)**	**(66,165)**	**(55,465)**	**(18,861)**	**-**
Mining Operating Cost															
McEwen Ontario Mining Operating Cost Subtotal	US$000			(238,884)	(26,488)	(23,727)	(14,306)	(16,226)	(23,803)	(35,440)	(30,903)	(34,412)	(26,981)	(6,598)	-
Fuller Mining Operating Cost Subtotal	US$000			-	-	-	-	-	-	-	-	-	-	-	-
Total Mining Operating Cost	**US$000**	**(184,247)**		**(238,884)**	**(26,488)**	**(23,727)**	**(14,306)**	**(16,226)**	**(23,803)**	**(35,440)**	**(30,903)**	**(34,412)**	**(26,981)**	**(6,598)**	**-**
Processing Operating Cost															
McEwen Ontario Mining Operating Cost Subtotal	US$000			(101,368)	(15,030)	(14,945)	(11,284)	(4,219)	(6,529)	(11,869)	(11,863)	(12,077)	(11,452)	(2,099)	-
Fuller Mining Operating Cost Subtotal	US$000			-	-	-	-	-	-	-	-	-	-	-	-
Total Processing Operating Cost	**US$000**	**(80,337)**		**(101,368)**	**(15,030)**	**(14,945)**	**(11,284)**	**(4,219)**	**(6,529)**	**(11,869)**	**(11,863)**	**(12,077)**	**(11,452)**	**(2,099)**	**-**
G&A Operating Cost															
McEwen Ontario Mining Operating Cost Subtotal	US$000			(73,255)	(7,950)	(6,703)	(9,059)	(4,845)	(7,717)	(7,747)	(7,696)	(7,745)	(7,030)	(6,762)	-
Fuller Mining Operating Cost Subtotal	US$000			-	-	-	-	-	-	-	-	-	-	-	-
Total G&A Operating Cost	**US$000**	**(56,685)**		**(73,255)**	**(7,950)**	**(6,703)**	**(9,059)**	**(4,845)**	**(7,717)**	**(7,747)**	**(7,696)**	**(7,745)**	**(7,030)**	**(6,762)**	**-**
Total McEwem Ontario operating cost	US$000	(321,269)		(413,506)	(49,468)	(45,376)	(34,649)	(25,289)	(38,049)	(55,056)	(50,462)	(54,234)	(45,463)	(15,460)	-
Total Fuller operating cost	US$000	-		-	-	-	-	-	-	-	-	-	-	-	-
Total Operating Cost	**US$000**	**(321,269)**		**(413,506)**	**(49,468)**	**(45,376)**	**(34,649)**	**(25,289)**	**(38,049)**	**(55,056)**	**(50,462)**	**(54,234)**	**(45,463)**	**(15,460)**	**-**
NET OPERATING EARNINGS															
Net Operating Earning															
Operating revenue (NSR)	US$000	649,213		854,167	77,752	86,031	42,906	41,519	63,527	136,765	134,161	135,792	114,231	21,485	-
Bond Payments	US$000	(180)		510	(255)	(255)	(255)	(255)	(255)	(255)	(255)	(255)	(255)	(255)	3,061
IBA payments	US$000	-		-	-	-	-	-	-	-	-	-	-	-	-
Royalty	US$000	(17,365)		(24,571)	(2)	(2)	(2)	(1,385)	(2,180)	(4,920)	(4,699)	(5,811)	(4,845)	(724)	-
Operating cost	US$000	(321,269)		(413,506)	(49,468)	(45,376)	(34,649)	(25,289)	(38,049)	(55,056)	(50,462)	(54,234)	(45,463)	(15,460)	-
Total Net Operating Earnings	**US$000**	**310,398**		**416,600**	**28,026**	**40,398**	**7,999**	**14,590**	**23,043**	**76,534**	**78,745**	**75,492**	**63,668**	**5,045**	**3,061**

					Year										
Description	**Unit**	**Present Value**	**Constant**	**LOM**	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	**Y6**	**Y7**	**Y8**	**Y9**	**Y10**	**Y11**
TAXES															
Taxes															
McEwen Ontario Ontario mining tax	US$000	(15,215)		(21,431)	-	(1,687)	-	-	-	(4,405)	(5,079)	(5,434)	(4,826)	-	-
McEwen Ontario Ontario income tax	US$000	(3,493)		(5,363)	-	-	-	-	-	-	-	(1,430)	(3,587)	(346)	-
McEwen Ontario Federal income tax	US$000	(5,239)		(8,045)	-	-	-	-	-	-	-	(2,146)	(5,381)	(519)	-
McEwen Ontario Total Taxes Subtotal	*US$000*	*(23,947)*		*(34,839)*	-	*(1,687)*	-	-	-	*(4,405)*	*(5,079)*	*(9,010)*	*(13,794)*	*(864)*	-
Fuller Ontario mining tax	US$000	-		-	-	-	-	-	-	-	-	-	-	-	-
Fuller Ontario income tax	US$000	-		-	-	-	-	-	-	-	-	-	-	-	-
Fuller Federal income tax	US$000	-		-	-	-	-	-	-	-	-	-	-	-	-
Fuller Total Taxes Subtotal	*US$000*	-		-	-	-	-	-	-	-	-	-	-	-	-
Total Taxes	**US$000**	**(23,947)**		**(34,839)**	**-**	**(1,687)**	**-**	**-**	**-**	**(4,405)**	**(5,079)**	**(9,010)**	**(13,794)**	**(864)**	**-**
CAPITAL COST, CLOSURE AND WORKING CAPITAL															
Capital Cost															
McEwen Ontario Initial capital	C$000			-	-	-	-	-	-	-	-	-	-	-	-
McEwen Ontario Sustaining capital	C$000			(229,895)	(12,555)	(19,993)	(68,452)	(33,221)	(36,398)	(18,550)	(23,174)	(13,248)	(2,944)	(1,360)	-
McEwen Ontario capital cost subtotal	*C$000*			*(229,895)*	*(12,555)*	*(19,993)*	*(68,452)*	*(33,221)*	*(36,398)*	*(18,550)*	*(23,174)*	*(13,248)*	*(2,944)*	*(1,360)*	-
Fuller Initial capital	C$000			-	-	-	-	-	-	-	-	-	-	-	-
Fuller Sustaining capital	C$000			-	-	-	-	-	-	-	-	-	-	-	-
Fuller capital cost subtotal	C$000			-	-	-	-	-	-	-	-	-	-	-	-
Total Capital Cost	**C$000**			**(229,895)**	**(12,555)**	**(19,993)**	**(68,452)**	**(33,221)**	**(36,398)**	**(18,550)**	**(23,174)**	**(13,248)**	**(2,944)**	**(1,360)**	**-**
Capital Cost															
McEwen Ontario Initial capital	US$000	**-**		-	-	-	-	-	-	-	-	-	-	-	-
McEwen Ontario Sustaining capital	US$000	**(153,347)**		(188,438)	(10,291)	(16,387)	(56,108)	(27,231)	(29,834)	(15,205)	(18,995)	(10,859)	(2,413)	(1,114)	-
McEwen Ontario capital cost subtotal	*US$000*	*(153,347)*		*(188,438)*	*(10,291)*	*(16,387)*	*(56,108)*	*(27,231)*	*(29,834)*	*(15,205)*	*(18,995)*	*(10,859)*	*(2,413)*	*(1,114)*	-
Fuller Initial capital	US$000	**-**		-	-	-	-	-	-	-	-	-	-	-	-
Fuller Sustaining capital	US$000	**-**		-	-	-	-	-	-	-	-	-	-	-	-
Fuller capital cost subtotal	US$000	-		-	-	-	-	-	-	-	-	-	-	-	-
Total Capital Cost	**US$000**	**(153,347)**		**(188,438)**	**(10,291)**	**(16,387)**	**(56,108)**	**(27,231)**	**(29,834)**	**(15,205)**	**(18,995)**	**(10,859)**	**(2,413)**	**(1,114)**	**-**
Closure Cost															
McEwen Ontario Closure Capital (as spent)	C$000			(18,971)	-	-	-	-	-	-	-	-	-	-	(18,971)
Fuller Closure Capital (as spent)	C$000			-	-	-	-	-	-	-	-	-	-	-	-
Total Closure Capital	C$000			(18,971)	-	-	-	-	-	-	-	-	-	-	(18,971)
Total Closure Cost	**US$000**	**(9,092)**		**(15,550)**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**(15,550)**

Description	Unit	Present Value	Constant	LOM	Year										
					Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11
Salvage Value															
Salvage value	C$000			-	-	-	-	-	-	-	-	-	-	-	-
Total Salvage Value	**US$000**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Working Capital															
Accounts receivable yearly	US$000			854,167	77,752	86,031	42,906	41,519	63,527	136,765	134,161	135,792	114,231	21,485	-
Days in accounts receivable	days		**3**												
Accounts receivable adjusted	US$000			7,021	639	707	353	341	522	1,124	1,103	1,116	939	177	-
Change in accounts receivable	US$000			(0)	639	68	(354)	(11)	181	602	(21)	13	(177)	(762)	(177)
Accounts payable yearly	US$000			601,945	59,759	61,763	90,757	52,520	67,884	70,260	69,457	65,093	47,877	16,574	-
Days in accounts payable	days		**30**												
Accounts payable adjusted	US$000			49,475	4,912	5,076	7,459	4,317	5,579	5,775	5,709	5,350	3,935	1,362	-
Change in accounts payable	US$000			-	4,912	165	2,383	(3,143)	1,263	195	(66)	(359)	(1,415)	(2,573)	(1,362)
Change in Working Capital	**US$000**	**1,604**		**0**	**4,273**	**97**	**2,738**	**(3,131)**	**1,082**	**(407)**	**(45)**	**(372)**	**(1,238)**	**(1,811)**	**(1,186)**
VALUATION INDICATORS															
Discounting index					1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0
Discount factor	**%**		**5.00%**		**0.9524**	**0.9070**	**0.8638**	**0.8227**	**0.7835**	**0.7462**	**0.7107**	**0.6768**	**0.6446**	**0.6139**	**0.5847**
Before Tax															
Cashflow	US$000			212,612	22,008	24,107	(45,372)	(15,773)	(5,709)	60,923	59,705	64,260	60,017	2,120	(13,674)
Cumulative cashflow	US$000				22,008	46,115	743	(15,030)	(20,739)	40,184	99,889	164,149	224,166	226,286	212,612
NPV 5.00%	US$000	149,563		149,563											
Payback period	years			-											
IRR before-tax	%			-											
After Tax															
Cashflow	US$000			177,773	22,008	22,420	(45,372)	(15,773)	(5,709)	56,518	54,626	55,250	46,222	1,256	(13,674)
Cumulative Cashflow	US$000				22,008	44,428	(944)	(16,716)	(22,426)	34,092	88,718	143,969	190,191	191,447	177,773
NPV 5.00%	US$000	125,615		125,615											
Payback period	years			-											
IRR	%			-											

The Fox Complex expansion project is partly funded by operating earnings from ongoing operations at Froome, some of which occur before the expansion project is started. Consequently, IRR and Payback metrics are not applicable to the project cashflows. Figure 19-6 shows the cumulative project cashflows in Years 1 and 2 are positive as a result of revenue from Froome operations. Subsequent capital expenditures for project expansion drive annual and cumulative cashflows negative in Year 3 through Year 5 until becoming positive again in Year 6. With the inclusion of operating earnings for Froome as a funding source for project expansion, the cumulative cashflow shortfall is US$22.4 million and occurs in Year 5

Table 19-13 and Table 19-14 show the before- and after-tax financial statistics, respectively.

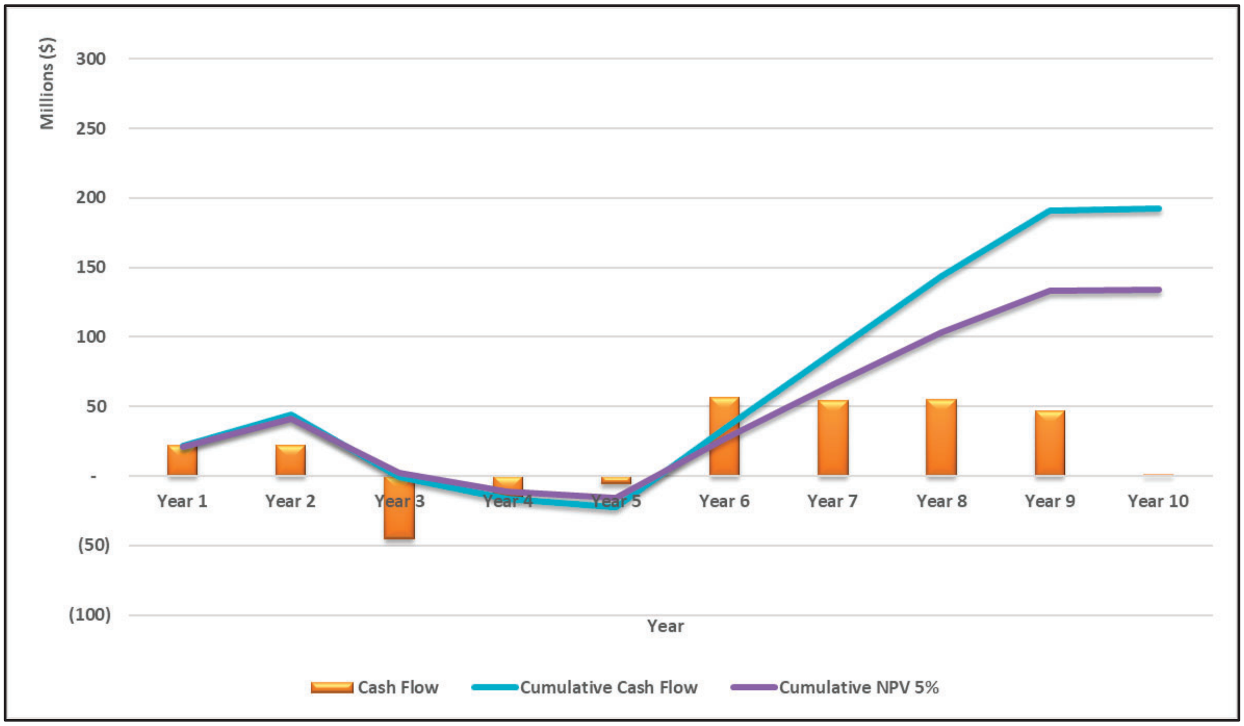

Figure 19-6: Distribution of After-Tax Cashflows (prepared by Wood, dated 2022)

Table 19-13: Before-Tax Financial Results

Before-Tax Valuation Indicators	Unit	Value
Undiscounted cumulative cashflow	US$M	212.6
NPV @ 5%	**US$M**	**149.6**
NPV @ 8%	US$M	122.6
NPV @10%	US$M	108.0
Payback period (from start of operations)	years	N/A
IRR before-tax	%	N/A

Note: Base case is bolded.

Table 19-14: After-Tax Financial Results

After-Tax Valuation Indicators	Unit	Value
Undiscounted cumulative cashflow	US$M	177.8
NPV @ 5%	**US$M**	**125.6**
NPV @ 8%	US$M	103.3
NPV @10%	US$M	91.1
Payback period (from start of operations)	years	N/A
IRR	%	N/A

Note: Base case is bolded.

19.6.4 Cost Metrics

Cost metrics for TCC, AISC, and all-in costs were calculated for the Project according to World Gold Council guidance (World Gold Council, 2013). The TCC and AISC are US$836, and US$1,224/oz sold, respectively (Table 19-15).

Table 19-15: Cost Metrics

Cost Area	US$/oz Au Payable
Mining	455.0
Processing	193.1
G&A	139.5
Royalties	46.8
Dore refining/selling cost	1.5
TCC	**836.0**
Bond cost	(1.0)
Closure costs	29.6
Sustaining capital costs	358.9
AISC	**1,223.6**

Note: Figures may not sum due to rounding

19.6.5 Sensitivity Analysis

A sensitivity analysis was completed for the Project's NPV over the ranges of ±30% for gold selling price, grade, total capital, and operating cost and shown in the spider graphs in Figure 19-7. The Project's cashflow and NPV sensitivity to gold price are shown in Figure 19-8. Because the project has positive cashflows from continuing operations, IRR and Payback have been excluded from the sensitivity analysis.

The Project is most sensitive to changes in gold feed grade and metal selling price, followed by changes to operating costs and total capital costs.

Gold prices have trended upward during 2020 and 2021. As such, alternate pricing scenarios both above and below the study price of US$1,650/oz are presented in Table 19-16.

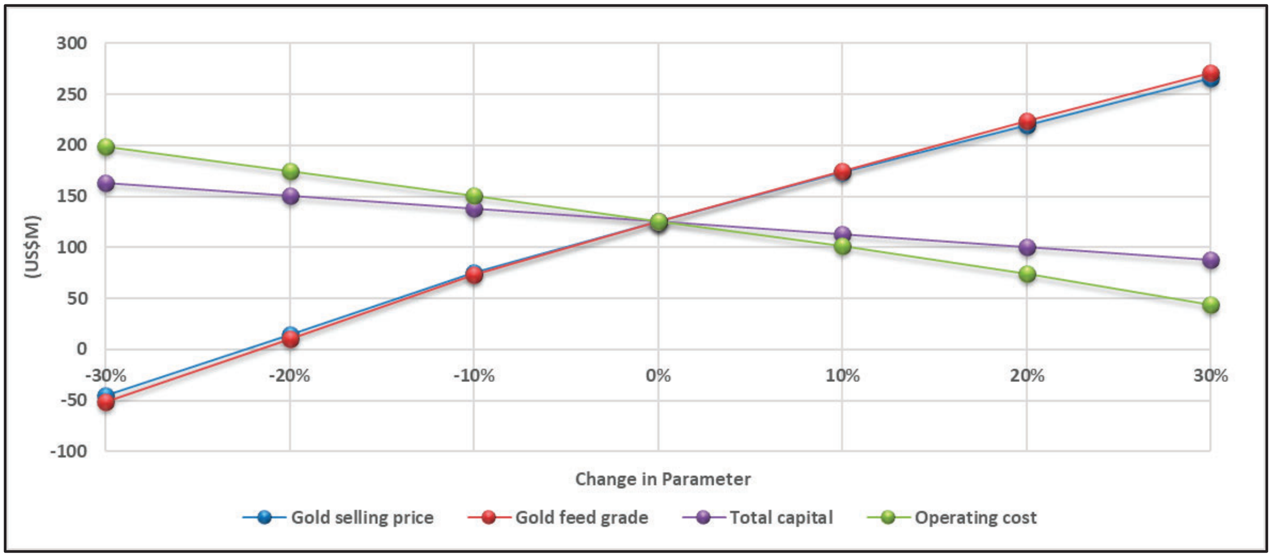

Figure 19-7: After-Tax NPV 5% Sensitivity (prepared by Wood, dated 2022)

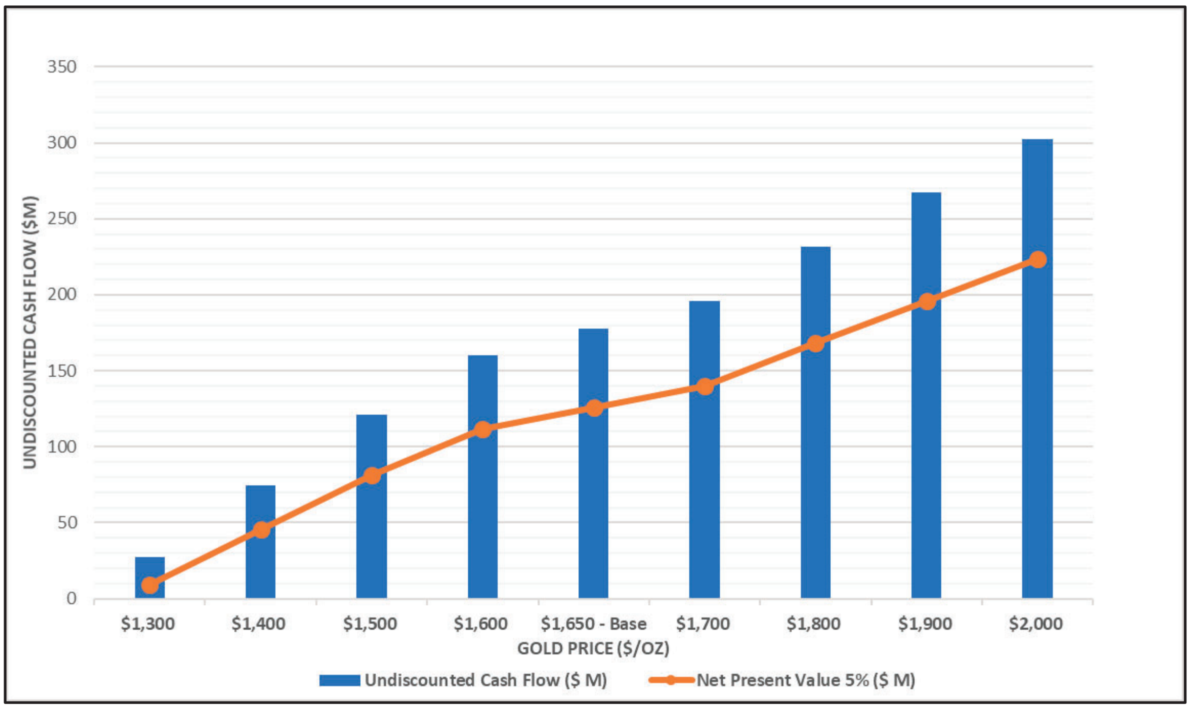

Figure 19-8: After-Tax Cashflow and NPV 5% Sensitivity to Gold Price (prepared by Wood, dated 2022)

Table 19-16: Alternate Metal Pricing Scenarios

Gold Price ($/oz)	$1,300	$1,400	$1,500	$1,600	$1,650 – Base	$1,700	$1,800	$1,900	$2,000
Before-Tax Metrics									
Undiscounted Cashflow ($ M)	37.2	87.3	137.4	187.5	**212.6**	237.7	287.8	337.9	388.1
NPV_5 ($ M)	16.3	54.3	92.4	130.5	**149.6**	168.6	206.7	244.8	282.9
After-Tax Metrics									
Undiscounted Cashflow ($ M)	27.2	74.3	121.2	159.9	**177.8**	195.6	231.6	267.4	302.6
NPV_5 ($ M)	9.4	45.3	81.1	111.5	**125.6**	139.7	168.1	196.1	223.7

20.0 Adjacent Properties

There are no relevant adjacent properties that are relevant to this Report.

21.0 Other Relevant Data and Information

As a subset of the Fox Complex financial analysis, the expansion project as a stand-alone case was evaluated. In the expansion case, cashflows from existing Froome operations were removed from the analysis with only Stock West, Grey Fox, and Fuller deposits evaluated. Table 21-1 summarizes the key financials of the expansion case financials demonstrating positive economics with an IRR of 20% and after-tax NPV_5 of US$137 million. Inferred Mineral Resources make up 26.5% of the total tonnes of Mineral Resources, and 22.9% of the recoverable ounces of gold in the cashflows. Figure 21-1 shows the expansion project cashflows and Figure 21-2 shows a sensitivity analysis to the cashflows.

Table 21-1: Expansion Case Financial Summary(1,2,4)

Financial and Operating Metrics (After-tax)			
LOM	9.3 years		
LOM Gold Production	751,700 oz		
Average Annual Gold Production – LOM	80,800 oz		
Average Cash Costs per oz. – LOM(3)	US$769		
Average AISC per oz. – LOM(3)	US$1,246		
Gold Price Sensitivity	**Downside Case $1,500/oz Au**	**Base Case $1,650/oz Au**	**Upside Case $1,800/oz Au**
NPV_5 (5)(6), US$M	81	137	192
IRR, %	15	21	26
Payback Period, years	6.5	5.9	5.4

Note: (1) The financial analysis presented in Chapter 19 of this Report is inclusive of the expansion case.

(2) The IA is preliminary in nature and includes Inferred Mineral Resources that are considered too speculative geologically to have modifying factors applied to them that would enable them to be categorized as Mineral Reserves. There is no certainty that the IA will be realized. Unlike Mineral Reserves, Mineral Resources do not have demonstrated economic viability. Inferred Mineral Resources make up 21.2% of the tonnes in the IA and 19.6% of the recoverable ounces of gold.

(3) Non-GAAP financial measures, such as Average Cash Costs and AISC are common performance measures in the gold mining industry but do not have any standardized meaning under US GAAP. They are intended to provide additional information and should not be considered in isolation or as a substitute for measures of performance prepared in accordance with GAAP. There are limitations associated with the use of such non-GAAP measures.

(4). The IA assumes a C$1.22:US$1.00 exchange rate.

(5) After-tax cashflow incorporates available tax credits as at 31 December 2021. Tax credits may expire if not used by a specific time.

(6) NPV is discounted at 5% to 31 December 2022.

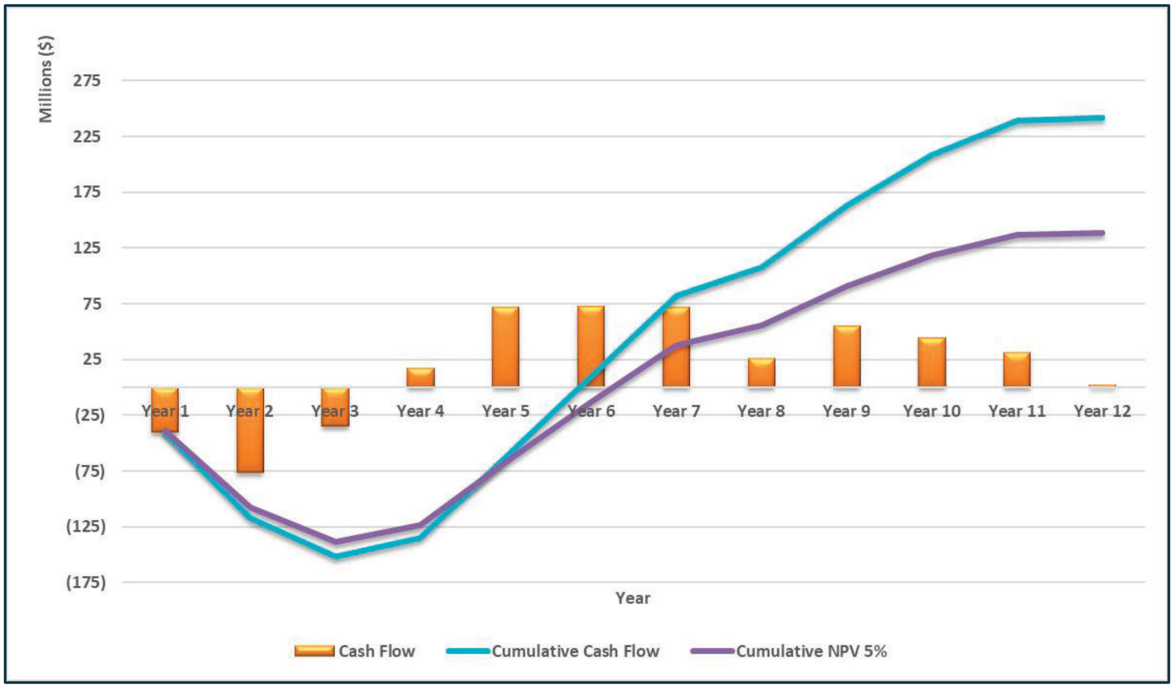

Figure 21-1: Expansion Project Cashflows (Prepared by Wood Dated 2022)

Figure 21-2: Expansion Project After-Tax NPV 5% Sensitivity (Prepared by Wood Dated 2022)

21.1 Expansion Case Excluding Inferred Mineral Resources

As a subset of the Fox Complex financial analysis, the expansion project as a stand-alone case was evaluated. In the expansion case, cashflows from existing Froome operations were removed from the analysis with only the Grey Fox deposit evaluated. Table 21-2 summarizes the key financials of the expansion case financials demonstrating positive economics with an IRR of 31.4% and after-tax NPV_5 of US$99.6 million. Figure 21-3 shows the expansion project cashflows and Figure 21-4 shows a sensitivity analysis to the cashflows.

Table 21-2: Expansion Case Financial Summary Excluding Inferred Mineral Resources[1,2,4]

Financial and Operating Metrics (After-tax)			
LOM	6.1 years		
LOM Gold Production	392,960 oz		
Average Annual Gold Production – LOM	64,420 oz		
Average Cash Costs per oz. – LOM[3]	US$789		
Average AISC per oz. – LOM[3]	US$1,238		
Gold Price Sensitivity	**Downside Case $1,500/oz Au**	**Base Case $1,650/oz Au**	**Upside Case $1,800/oz Au**
NPV_5 [5][5], US$M	61	99.6	131
IRR, %	22	31.4	39
Payback Period, years	4.7	4.2	3.9

Note: (1) The financial analysis presented in Chapter 19 of this Report is inclusive of the expansion case.

(2) There is no certainty that the IA will be realized. Unlike Mineral Reserves, Mineral Resources do not have demonstrated economic viability.

(3) Non-GAAP financial measures, such as Average Cash Costs and AISC are common performance measures in the gold mining industry but do not have any standardized meaning under US GAAP. They are intended to provide additional information and should not be considered in isolation or as a substitute for measures of performance prepared in accordance with GAAP. There are limitations associated with the use of such non-GAAP measures.

(4) The IA assumes a $C1.22:US$1.00 exchange rate.

(5) After-tax cashflow incorporates available tax credits as at 31 December 2021. Tax credits may expire if not used by a specific time.

(6) NPV is discounted at 5% to 31 December 2023.

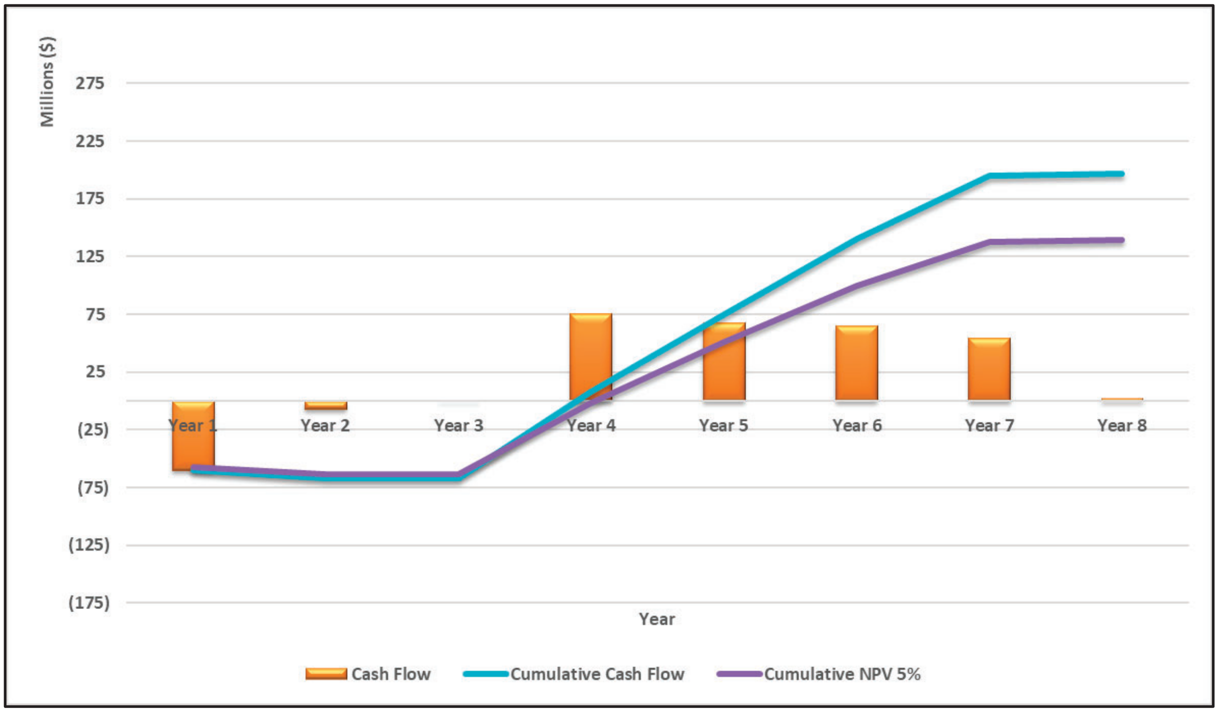

Figure 21-3: Expansion Project Cashflows Excluding Inferred Mineral Resources (Prepared by Wood Dated 2022)

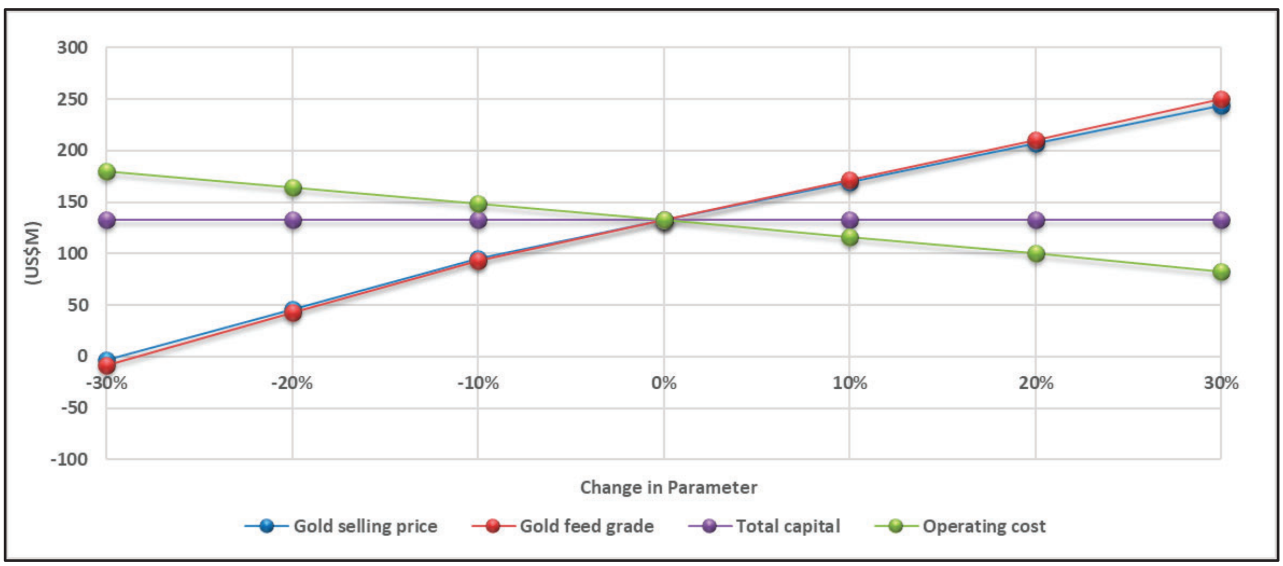

Figure 21-4: Expansion Project Excluding Inferred Mineral Resources After-Tax NPV 5% Sensitivity (Prepared by Wood Dated 2022)

22.0 Interpretation and Conclusions

The QPs note the following interpretations and conclusions in their respective areas of expertise, based on the review of data available for this Report.

22.1 Surface Rights, Mineral Tenure, Royalties and Agreements

The mineral tenure package includes patented claims, mining leases, and a series of unpatented cell and boundary claims.

The claims package consists of a number of agreements with third parties; these third parties may retain an interest in some of the properties within the property package either by way of an actual property interest or through royalty interests.

22.2 Geology and Mineralization

The Fox Complex properties are underlain by Precambrian rocks of the Southern Abitibi Greenstone Belt (SAGB), located in the central part of the Wawa-Abitibi Sub-province, southeastern Superior Province, of northeastern Ontario. The SAGB are unconformably overlain by younger Porcupine and Timiskaming metasedimentary assemblages and alkalic intrusive rocks.

Major crustal-scale faults, including the Porcupine-Destor Deformation Zone and Cadillac-Larder Lake Deformation Zone, commonly occur at assemblage boundaries and are spatially associated with east-trending belts of Porcupine and Timiskaming assemblage metasedimentary rocks. These major faults define a corridor of gold deposits known as the Timmins-Val D'Or camp, which accounts for the bulk of historic and current gold production from the Superior Province.

The local geological setting in the Timmins-Matheson area is represented by Neoarchean supracrustal rocks, intruded by Matachewan and Keweenawan diabase dykes and Mesozoic kimberlite dykes and pipes. The supracrustal rocks are composed of ultramafic, mafic, intermediate, and felsic metavolcanic rocks, related intrusive rocks, clastic and chemical metasedimentary rocks, and a suite of ultramafic to felsic alkalic plutonic and metavolcanic rocks.

Gold mineralization at both the Eastern properties and Stock is part of a metallogenetic domain that shares similarities with ultramafic-hosted and associated deposits that occur along the Destor-Porcupine corridor between Nighthawk Lake and the Black Fox Mine to the east. Deposits occur in association with sets of reverse quartz shear veins and associated sets of gently to moderately dipping quartz-carbonate-albite extension vein arrays.

22.3 Data Collection in Support of Mineral Resource Estimation

Exploration completed to date has resulted in delineation of the Froome, Grey Fox, Stock West, Fuller, Stock East, and Davidson Tisdale deposits, as well as a number of exploration targets. Work conducted by McEwen has included geological reconnaissance and mapping, outcrop stripping, geochemical surveys and geophysical surveys (ground IP, pole–dipole IP/resistivity, and very low frequency geophysical surveys).

A total of 9,687 drill holes (1,796,079 m) have been completed within the Eastern Properties. A total of 1,848 drill holes (286,404 m) have been completed within the Stock Property. A total of 2,111 drill holes (366,858 m) have been completed within the Western Properties.

Drilling equipment and procedures since 2009 are consistent with industry standards at the time the drill programs were conducted and are acceptable to support Mineral Resource estimation and mine planning at the Fox Complex deposits.

The quantity and quality of the lithological, recovery, collar and downhole survey data collected is consistent with industry standards and is adequate to support Mineral Resource estimation and mine planning.

Drilling is normally oriented perpendicular to the strike of the mineralization. Depending on the dip of the drill hole and the dip of the mineralization, drill intercept widths are typically greater than true widths.

Sampling methods are consistent with industry practices and are adequate to support Mineral Resource estimation and mine planning.

Sample preparation and analytical procedures since 2009 are consistent with typical industry practices at the time the samples were prepared and are adequate to support Mineral Resource estimation and mine planning.

Density determinations are acceptable to support Mineral Resource estimation and mine planning.

Sample security procedures met industry standards at the time the samples were collected. Current sample storage procedures and storage areas are consistent with industry standards.

Data verification was undertaken in support of technical reports on the Project by external consultants RPA (2012, 2017), and Innovexplo (2014). These consultants concluded, at the time of their examination, that the data were suitable to support Mineral Resource estimation.

SRK has conducted data verification in 2017. McEwen has an ongoing program of data verification. This program included site visits during which SRK personnel reviewed drilling, sampling, and QA/QC procedures; and inspected outcrops, drill core, core photos, core logs, and QA/QC reports and specific gravity measurement procedures. SRK personnel reviewed collar, down-hole, and assay data in the database for transcription and other errors. Blank and CRM data were also evaluated.

In the opinion of the QPs, sufficient verification checks have been undertaken on the databases to provide confidence that the current database is reasonably error free and may be used to support Mineral Resource estimation and mine planning.

22.4 Mineral Resource Estimate

Mineral Resource estimates for Black Fox, Froome, Grey Fox, Stock West and Stock East are the responsibility of the McEwen QP. Mineral Resource estimates for Fuller, Davidson-Tisdale and Tamarack are the responsibility of the SRK QP.

In the opinion of the QP, the resource evaluation reported herein is a reasonable representation of the Mineral Resources found at the Black Fox, Froome, Grey Fox, Stock West and Stock East deposits at the current level of sampling. The Mineral Resources were estimated in conformity with definitions and standards in S-K 1300. Unlike Mineral Reserves, Mineral Resources do not have demonstrated economic viability. There is no certainty that all or any part of the Mineral Resource will be converted into Mineral Reserves.

In the opinion of the QPs, the resource evaluation reported herein is a reasonable representation of the Mineral Resources found at the Fuller, Tisdale-Davidson and Tamarack deposits at the current level of sampling. The Mineral Resources were estimated in conformity with definitions and standards in S-K 1300. Unlike Mineral Reserves, Mineral Resources do not have demonstrated economic viability.

22.5 Mine Plan

The PEA Mine Plan has four independent underground operations (Froome, Grey Fox, Stock West, and Fuller) with Grey Fox having six mining zones (Whiskey Jack, Contact, 147NE, 147, South, and Gibson). These provide a total of 7.6 Mt of mill feed at an average grade of 4.1 g/t Au. The mines will support a combined mill feed of 2,000 t/d by a combination of transverse and longitudinal longhole open-stoping mining techniques which are suitable for the geometry and ground conditions of the operations. The mill feed has dilution and mining recoveries applied. Dilution varies by deposit and geotechnical conditions. Mining recovery is applied at 95%.

The four underground mines will provide mill feed over an 11-year operating life starting in 2022 with initial feed provided entirely by the operating Froome mine. The deposits and mining zones are sequenced to prioritize ease of access and high grade zones. As production ramps up at Grey Fox and Stock West, low grade (<1.8 g/t Au) development feed will be stockpiled at the Fox mill for processing when capacity is available.

The mines are ramp and portal access with maximum ramp grades of 1:7 (14.2%). Froome has two ramps driven from the bottom of the Black Fox open pit that serve as a main access and ventilation drive. Grey Fox will have two portals driven from surface to access the mining zones. Stock West will have a single portal driven from surface. Fuller will utilize existing infrastructure from the historical Fuller Mine during the initial access and then develop a new decline to depth from the single portal access.

The mine fleets will consist of equipment typical in mechanized underground mines in Canada, including jumbos, LHDs, trucks, longhole drills, scissor decks, explosive carriers, and other support equipment.

Development waste will be hauled to surface and stored in stockpiles proximal to the portals. Waste will later be rehandled from the WRSF to the underground to be used as a backfill material.

The IA mine plan contains 192 koz of gold from Inferred Mineral Resources and 797 koz of Measured and Indicated Mineral Resources.

22.6 Metallurgical Testwork and Mineral Processing

The Fox Mill is currently in operation and is able to process material at 1,600 t/d through crushing, grinding, CIL, Zadra stripping, electrowinning, and refining to produce gold doré.

Metallurgical testwork has demonstrated that this flowsheet is able to recover gold at economic levels from material mined from each deposit. These deposits include Froome, multiple zones at Grey Fox, Stock West, and Fuller. Master composites have been tested for: Froome, Grey Fox 147 Zone, Grey Fox 147NE Zone, Grey Fox Contact Zone, and Fuller, as well as some variability testing. Ongoing testwork is focused on Grey Fox Whiskey Jack and Stock West.

Comminution tests indicate that material from Froome and Grey Fox will be harder and more abrasive than the other deposits; consideration has been given to the strategic production profile to blend the deposits to maintain higher milling throughputs. Additionally, minor modifications to the crushing and grinding circuits have been recommended to manage the harder material and increase overall production rates.

With an operating process plant and processing similar type material that is amenable to gold recovery with the same flowsheet, it is expected that plans presented in the IA are achievable.

22.7 Infrastructure

Existing infrastructure at the Black Fox Mine will be used for Froome and partially for Grey Fox, while existing infrastructure at Stock Mine with be partially used for Stock West. Additional facilities are required to supplement existing infrastructure at Grey Fox, Stock West, and Fuller, including waste, ROM and LG stockpiles. Other infrastructure includes: maintenance workshops, administration buildings, mine dry, storage buildings, portal boxcuts, ventilation raises, TMA and water collection ponds.

22.8 Environmental Studies, Permitting and Social Impact

Additional environmental baseline studies to support the Project have been initiated for the Grey Fox and Stock properties. Further studies and monitoring plans will be developed, including programs for the Davidson-Tisdale and Fuller properties, as the Project progress. Ongoing comprehensive monitoring will be continued to support the Black Fox Mine and Fox Mill.

There are a large number of existing, active environmental approvals for the individual Fox Complex properties. New approvals or amendments to existing approvals may be required depending on the final designs, and application for these will be made as required to satisfy the Provincial (and possibly Federal) approvals process.

Consultation and engagement with Indigenous Nations has been ongoing for the Black Fox Mine, and will be continued in regards to the Fox Complex Project. Consultation will also be required with other stakeholders, including regulatory agencies, local communities, and community members.

22.9 Markets and Contracts

McEwen expects that the terms of any sales contracts for gold would be typical of, and consistent with, standard industry practices, and would be similar to contracts for the supply of gold doré elsewhere in Canada. Material contracts currently in place relate to the Sandstorm Goldstream financing contract mining of access development, drilling and blasting, the transportation of doré, and refining of precious metals. These contracts are on standard industry terms. No other contracts relating to concentrating, handling, sales and hedging, and forward sales contracts are currently in place.

The Project assumes a gold price of US$1,650/oz for the base case economic analysis and is considered to be consistent with industry consensus on long-term forecast prices.

The QP has reviewed the information provided by McEwen on marketing and contracts, and believes the information provided is consistent with that available in the public domain, and can be used to support the mine plans and financial analysis.

22.10 Capital and Operating Costs

The capital cost estimate is classified as a Class 5 estimate following AACE International Guidelines Practice No. 47R-11 with an accuracy within the range of +30/-15% of final project cost, including contingency. The Project's capital costs totals $437.5 million. As the Project is in production at the Froome operation, all capital is treated as sustaining capital to continue and expand mining operations within the Fox Complex.

The operating costs over the IA LOM are estimated at $823.1 million, equivalent to $108.55/t processed.

22.11 Economic Analysis

Content in the IA represents forward-looking information, including assumed gold prices, Mineral Resource estimates, capital and operating costs, LOM plans, production schedules, and cashflows. Readers of this study are cautioned that actual results may vary from what is presented. The factors and assumptions used in preparing the results of the IA are presented in the relevant sections of this Report. A portion of the Mineral Resources in the mine plans, production schedules, and cashflows include Inferred Mineral Resources that are considered too speculative geologically to have modifying factors applied to them that would enable them to be categorized as Mineral Reserves, and there is no certainty that the IA will be realized. Unlike Mineral Reserves, Mineral Resources do not have demonstrated economic viability.

Under the assumptions presented in this Report, the Project generates positive after-tax results. The after-tax NPV at a 5% discount rate (NPV_5) is $175 million. Cash costs for production are estimated at US$769/oz Au and an average AISC for the life-of-mine of US$1,246/oz Au.

The Project is most sensitive to fluctuations in gold feed grade and gold selling price.

S-K 1300 allows Inferred Mineral Resources to be included in an economic analysis of an IA as long as the results of the economic analysis excluding Inferred are also shown. The IA with Inferred Mineral Resources excluded results in a before tax NPV_5 of US$149.6 million and an after-tax NPV_5 of US$125.6 million.

22.12 Other Relevant Data and Information

A subset to the Fox Complex financial analysis (expansion case) was evaluated by removing all cashflows from the existing Froome operations. This allows a presentation of the business case for the expansion that considers only Stock West, Grey Fox, and Fuller deposits. The business case demonstrates positive economics with an IRR of 21% and an after-tax NPV_5 of US$137 million. The business case that excludes Inferred Mineral Resources demonstrates positive economics with an IRR of 31%, after-tax NPV_5 of US$99.6 million and Payback Period of 4.2 years.

22.13 Opportunities

Table 22-1 summarizes Project opportunities.

Table 22-1: Project Opportunities

Area	Opportunity
Geology and Mineral Resource Estimate	• Drilling in Stock Mine area could define potential resource higher up, near the new proposed decline. This drilling will also focus on defining extensions of the host CGR unit for Stock West in the footwall of Stock Mine. • Ongoing integration of data gathered from both historic and active mining sites will support improved geological modelling and sensitivity of estimates locally. • Drilling to add more potential resources amongst or near mine plan workings at Stock, Froome and Grey Fox. Focus on additions at Froome and Stock to target quicker ramp up of gold production in years 1-5 • Additional resource definition at Grey Fox may define an open pit mineable resource
Metallurgical	• Metallurgical testing of the Whiskey Jack deposit is limited and the recovery estimate is low for the average recoveries from Grey Fox. • Optimization of blend to improve grind and recoveries • Expedite lower hardness mill feed from Stock which could increase throughput.
Mining	• Accelerated Stock development with drilling targeting nearer surface mineralization and earlier permitting and construction of the new decline access • A redesign of ramp location, sublevel, and stope designs to reduce development and improve scheduling priorities at Grey Fox based on the learnings from this Report has potential to improve the timings of returns and expenses. • Evaluate opportunity to leave rock pillars in lower grade stopes and backfill with uncemented fill instead of cemented fill to improve cycle times and reduce backfill consumables costs. • Utilization of hydraulic fill at Stock to reduce TMF storage requirements

22.14 Risks

Table 22-2 summarizes the identified risks to the Project.

Table 22-2: Project Risks

Area	Risk
Geology and Mineral Resource Estimate	• The volume estimate of Mineral Resources based on the true width of the Grey Fox mineralization may represent a risk as a result of some drilling campaigns being drilled at a subparallel angle to the interpreted vein-controlled mineralization. • The higher grade variability in the footwall zones of the Froome deposit is not well understood. • The impact to gold recovery from sulphides in pyrite-rich mineralized zones of Grey Fox • The nuggety nature of Black Fox mineralization is difficult to model.
Metallurgical	• Proceeding with increasing the ball mill diameter without the completion of an engineering study
Mining	• The inclusion of Inferred Mineral Resources in the mine plan, production schedule and cashflows is too speculative geologically to have economic considerations applied that would enable them to be categorized as Mineral Reserves, and there is no certainty that the PEA will be realized.
Geotechnical	• Talc-chlorite schist identified in the host rock at Stock West has the potential to create a spalling failure in the hangingwall of stopes. This risk can be mitigated with additional geotechnical drilling at Stock West to confirm the prevalence of this schist on the immediate hangingwall and to further evaluate ELOS used in the estimation. Adjustment of stope size and ground support may be required. • The Stock West zone has been designed as a separate mine; however, the adjacent Stock mine which has development adjacent to the new Stock West may have to be dewatered. The hydrogeological conditions and interaction of both should be reviewed and modelled at the next stage to determine pumping requirements if the two are connected. If dewatering is performed, then consideration of stability of historical openings during the dewatering process with monitoring of stopes close to surface is required.

23.0 Recommendations

23.1 Introduction

Recommendations are designed to support more detailed studies and consist of testwork, field programs, and studies and has an estimated budget of $14.1 to 19.1 million to complete a pre-feasibility study.

23.2 Geology and Mineral Resource Estimation

The following recommendations are provided to improve confidence associated in the current Mineral Resource estimates and enhance the future geological/Mineral Resource modelling and processes.

Black Fox

- Expand current mineralization solids beyond the historical drill hole intercepts and enhance geological mineralized zone interpretations using local historical data
- Benchmark estimation techniques to improve accuracy for high-nugget zones
- Drill program (of not more than 8,000 m) in areas of continuous Inferred material to upgrade and increase confidence in the model and to test the deposit's extent.

Froome

- Update geological model using data collected from mine activities to refine the estimation parameters.

Grey Fox

- Optimize confidence in the model with drill holes totalling 8,000 m to confirm the true width of the Grey Fox deposit, specifically 147, South, Contact and Gibson zones
- Exploration drill program not exceeding 10,000 m in the sediment lens centrally located between the Contact and Gibson zones
- Identify a suitable high-potential area to perform tightly-spaced resource definition drilling/bulk sample for additional mining and recovery analyses
- Refine the initial drill hole spacing analysis to improve the classification of Mineral Resources
- Update the lithological model for local accuracy, control of density and resource domaining.

Tamarack

- Conduct a litho-structural evaluation to validate controls on mineralization
- Exploration drill program of some 3,000 m to expand and upgrade Mineral Resource
- Limited metallurgical test work to evaluate potential base metal recoveries.

Stock West

- Definition drill program not exceeding 24,000 m from surface and underground platforms using alternative orientations to optimize the lithological, structural and alteration models with the goal of converting Inferred Mineral Resources to Indicated Mineral Resources
- Determine the extent of the deposit along strike, dip and plunge
- Perform a drill hole spacing analysis and additional metallurgical and geotechnical work to support the Mineral Resource model.

Stock East

- Initial drill program of 10,000 m to expand and upgrade Inferred Mineral Resources.

Fuller and Davidson-Tisdale

- Digitize historical information of the existing database to improve interpretations of mineralized zones
- Drill program not exceeding 5,000 m to verify historical drilling
- Survey existing collar positions during the summer season
- Verify the existing database against all available historical drilling logs and laboratory certificates and move assay and QA/QC data into the McEwen Fusion database.

Resource Modelling

- Update resource models by McEwen personnel with reviews by third-party consultants.

This work is estimated to cost $10 million to $15 million.

23.3 Metallurgical Testwork

Further metallurgical testwork is required to close the gaps identified in the IA and prepare for supporting a pre-feasibility study.

The following testwork is recommended for Gibson and Whiskey Jack Zones (Grey Fox), Stock West and Fuller:

- Head material testing including mineralogy and detailed analysis should be completed for a master composite and include:
  - Gold by fire assay (AA finish)
  - Screen metallics (gravimetric finish)
  - LECO (total sulphur, sulphide sulphur, total carbon, organic carbon)
  - QEMSCAN (Bulk Mineral Analysis (BMA) and gold deportment)
  - Inductively coupled plasma (ICP) analyses.
- Communition testing on spatially representative samples as well as being from blocks of material expected to be processed. Tests include:
  - 10 Bond crushability tests
  - 10 Bond Ball Mill Work Index tests and samples for the primary grind (P_{80} 150 mesh, closing screen), plus another 10 tests done at the final P_{80} (200 mesh) of the second stage grinding for ball mill grinding
  - At least 10 tests should be done for Bond Rod Mill Work Index to understand the power requirements from the larger product size range (P_{80} 14 mesh).
- Leach testing of the master composite to test the cyanidation leach response with interval sampling to evaluate leach kinetics. The same test conditions should be repeated at least three times with different target grind sizes over the anticipated size range (55 to 130 µm) for a minimum of four points to generate a grind sensitivity curve. Further variability testing will be used to confirm any correlation. Each master composite will need cyanide leach and CIL tests at the same conditions to evaluate the potential for preg-robbing carbon in the material.
- Liquid-solid separation testing to determine settling rates. This is used to assess the thickener dimensions and operation to ensure proper settling and determine whether this unit's operation will become a bottleneck. These tests should also be completed on cyanidation tails samples to confirm the sizing of the tailings thickener.
- Variability testing on the final flowsheet design; this may include the addition of gravity recovery and/or flotation with fixed reagent conditions. A total of 20 to 30 bottle rolls per domain should be performed. This includes each deposit and the geometallurgical domains identified for Grey Fox by earlier testwork. For Grey Fox, variability samples should include those from 147 Zone, 147NE Zone, Contact Zone, South Zone, Gibson and Whiskey Jack and within those defined by the domains as listed below:
  - High grade (>4 g/t gold)
  - High pyrite, low grade (<4 g/t, sulphur:gold >0.75)
  - Low pyrite, low grade (<4 g/t, sulphur:gold <0.75).

The total estimated cost is $0.5 million.

23.4 Geotechnical

Investigations will be required to collect additional data to support the pre-feasibility study level designs for the Fox Complex properties. This will include:

- Subsurface geotechnical drilling investigations including 26 holes totalling approximately 500 m, and material testing to understand the soil foundation conditions at the Grey Fox, Stock West and Fuller sites related to site infrastructure and mine rock storage.

Pre-feasibility study level design efforts are not included in these activities.

Total estimated cost is $0.2 million.

23.5 Rock Mechanics

Additional site investigations are needed to collect data to support the pre-feasibility study level designs for the Fox Complex properties. This will include:

Grey Fox

- Geomechanical drilling (using oriented core) including packer testing to support the development of underground mine design for the sites. It is estimated that approximately five to six boreholes will be required of 150 to 200 m in length for approximately 1,000 m of drilling. It is recommended to supplement this work with geophysical acoustic televiewer surveys in open exploration borehole. This work can be accomplished in tandem with the hydrogeological work and exploration drilling
- Geomechanical logging of previously drilled exploration boreholes are also recommended to increase the database and geomechanical model
- Rock strength testing of the various rock types is recommended for UCS, Brazilian Tensile, Triaxial and Elastic constants.

Stock West

- Geomechanical drilling (using triple tube, oriented core) including packer testing will be required to move the study to a PFS level to support the development of underground mine design for the sites. It is estimated that approximately three to four boreholes will be required of 400 to 500 m in length for approximately 1,400 m of drilling. It is recommended to supplement this work with geophysical acoustic televiewer surveys in these boreholes and any additional exploration borehole that are open. This work can be accomplished in tandem with the hydrogeological work and exploration drilling.
- Geomechanical logging of previously drilled exploration boreholes are also recommended to increase the database and geomechanical model.
- Rock strength testing of the various rock types is recommended for UCS, Brazilian Tensile,

Triaxial and Elastic constants.

Fuller

- Geomechanical drilling (using triple tube, oriented core) including packer testing will be required to move the study to a PFS level to support the development of underground mine design for the sites. It is estimated that approximately two to three boreholes will be required of 200 to 300 m in length for approximately 750 m of drilling. It is recommended to supplement this work with geophysical acoustic televiewer surveys in these boreholes and any additional exploration borehole that are open. This work can be accomplished in tandem with the hydrogeological work and exploration drilling.
- Geomechanical logging of previously drilled exploration boreholes are also recommended to increase the database and geomechanical model.
- Rock strength testing of the various rock types is recommended for UCS, Brazilian Tensile, Triaxial and Elastic constants.

Pre-feasibility study level design efforts are not included in these activities.

Total estimated cost is $0.6 million.

23.6 Hydrogeology

Further studies will be required to advance the overall project to the pre-feasibility study level. This will include:

- Installation of 13 groundwater wells around the sites with subsequent regular monitoring to characterize elevations and quality of the local groundwaters. This data will be integrated into groundwater models for the sites.
- Packer testing should be performed in conjunction with selected geomechanical boreholes.

Pre-feasibility study level design efforts are not included in these activities.

Total estimated cost is $0.3 million.

23.7 Geochemistry

Further studies will be required to advance the overall project to the pre-feasibility study level. This will include:

- Continuation of geochemical studies on the Grey Fox and Stock West properties and initiation of studies at the Fuller property to assess the risks of metal leaching and acid rock drainage regarding the mine workings and mine wastes.

Pre-feasibility study level design efforts are not included in these activities.

Total estimated cost is $0.4 million.

23.8 Water Management

Further studies will be required to advance the overall project to the pre-feasibility study level. This will include:

- Water flow and quality monitoring from the Grey Fox, Stock West and Fuller properties. From this data water balance and flow/quality information will be developed that will support the project designs.

Pre-feasibility study level design efforts are not included in these activities.

Total estimated cost is $0.3 million.

23.9 Permitting

Pending final design information, permitting efforts will focus on approvals necessary to advance the next stages of investigations, including items such as Permit To Take Water applications, drilling permits, and preliminary discussions with regulators.

Total estimated cost is $0.2 million.

23.10 Summary of Costs

Table 23-1 is a summary of the costs of the recommended work to advance the Project through the completion of a pre-feasibility study. The work will all be completed as one phase and one aspect of the work is not contingent on the completion of another aspect.

Table 23-1: Recommended Project Budget

Item	Cost, $M
Exploration and definition drilling	9.7 to 14.7
Mineral Resource updates and third-party audits	0.3
Metallurgical testwork	0.5
Geotechnical drilling, analysis and reporting	0.2
Rock mechanics field program, analysis and reporting	0.6
Hydrogeological drilling, monitoring, analysis and reporting	0.3
Geochemical field sampling, laboratory testing, analysis and reporting	0.4
Water management site data collection, water quality and design	0.3
Permitting	0.2
Pre-feasibility study	1.6
Total	**14.1 to 19.1**

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25.0 Reliance on Information Provided by Registrants

The QPs have relied upon other expert reports that provided information regarding mineral rights, surface rights, property agreements, royalties and taxation contained within this Report. The QPs considered it reasonable to rely on McEwen for this information because McEwen is an operating mining company with subject matter experts that supervised the preparation of this information.

25.1 Legal Status

The QPs have not independently reviewed the ownership of the mineral or surface rights of the property and/or any underlying property agreements. The QPs have fully relied upon information supplied by McEwen for the property legal ownership information through the following document:

- Reliance on Other Experts for Mineral Property Information: letter prepared by McEwen for Wood Canada Limited, dated November 29, 2021, 2 pages.

This information is used in Chapter 3 for property description, in Chapter 11 to support reasonable prospects for economic extraction, including inputs to the cut-off applied to the Mineral Resource estimates, and in Chapter 19 to support various inputs to the financial model of the Report.

25.2 Taxation

The Wood QPs have not independently reviewed the taxation information. The Wood QPs have fully relied upon, and disclaim responsibility for, information supplied by McEwen for information related to taxation contained in the following document:

- Reliance on Other Experts for Tax Information: Taxation: letter prepared by McEwen for Wood Canada Limited, dated January 26, 2022, 3 pages.

This expert information is used in support of the sub-section on tax information and the tax inputs to the financial model that provides the after-tax financial analysis in Chapter 19 of the Report.

Appendices

Appendix A: Land Tenure and Royalties of the Eastern Properties

Appendix A: Land Tenure and Royalties of the Eastern Properties

Township	PIN	Parcel No.	Lease/Expiry	Crown Grant	Mining Claims	Lot & Concession	Status	Parcel Type	Royalty Holder	Royalty	Buyout
Beatty	65366-0126	24577		CP1689, CP1690, CP1802, CP1894, CP1895, CP1896, CP1897, CP3160, CP5912, CP6242, CP6416, CP6661		S1/2 Lot 5 con 1	Surface and Mineral Rights	Fee Simple	Timmins Forestry Products Ltd.	2% NSR	1% for $500,000
Beatty	65366-0127	14572		CP1056		Pt Lot 6 con 1	Surface and Mineral Rights	Fee Simple	Joachim Joseph DeCarlo	Net profits royalty 10%	
Beatty	65366-0129	23874		CP1988, NP3636		Pt Lot 7 con 1	Mining Right Only	Fee Simple			
Beatty	65366-0142	3265		TP7748		S1/2 Lot 9 con 1	Surface and Mineral Rights	Option			
Beatty	65366-0143	4150		CP966		S Pt Lot 8 con 1	Surface and Mineral Rights	Fee Simple	Lisa Steinman	3% NSR	1% for $1,000,000
Beatty	65366-0186	13005		CP1988		S Pt Lot 7 con 1	Surface and Mineral Rights	Fee Simple			
Beatty	65366-0188	13006		CP1988		S Pt Broken Lot 7 con 1	Surface Rights Only	Fee Simple			
Beatty	65366-0199		108180 30-Apr-29	-	L1115059	Pt Lot 6 con 1	Surface and Mineral Rights	Leasehold			
Hislop	65380-0470	2618		TP6687		S1/2 Lot 4 con 4	Surface and Mineral Rights	Fee Simple	Romios Gold Resources Inc.	2%NSR	1% for $2,000,000
Hislop	65380-0489	16262		NP5052		N1/2 Lot 3 con 4	Surface and Mineral Rights	Schumacher	Estate of Frederick William Schumacher c/o The Canadian Trust Company	$100,000.00 rent or 3% NSR	
Hislop	65380-0490	16265		CP2063		NW Pt Lot 2 con 4	Surface and Mineral Rights	Schumacher	Estate of Frederick William Schumacher c/o The Canadian Trust Company	$100,000.00 rent or 3% NSR	
Hislop	65380-0491	16266		CP2064		NE Pt Lot 2 con 4	Surface and Mineral Rights	Schumacher	Estate of Frederick William Schumacher c/o The Canadian Trust Company	$100,000.00 rent or 3% NSR	
Hislop	65380-0494	1544		TP492		S 1/2 Lot 2 con 5	Surface and Mineral Rights	Option			
Hislop	65380-0495	21256		CP467		S Pt Broken Lot 3 con 5	Surface Rights Only	Fee Simple			
Hislop	65380-0496	21255		CP467		Pt S Pt Broken Lot 3 con 5	Surface Rights Only	Fee Simple			
Hislop	65380-0497	21254		CP467		Pt S Pt Lot 3 con 5	Surface Rights Only	Fee Simple			
Hislop	65380-0498	3852		CP467		S Pt Broken Lot 3 con 5	Surface and Mineral Rights	Fee Simple	• Newmont, Gail Lackie & Gerry Leckie 50% • (Parsons), Peter Ginn 50% (Parsons-Ginn) • Gray	• Newmont: 2.5% NSR • Parsons-Ginn: – Advance royalty of C$3,000 payable each year, and – 5% Net Proceeds Interest, or – Sliding Production Royalty based on the price of gold • Gray: 0.15% NSR	
Hislop	65380-0499	11125		CP2847		E1/2 of S1/2 Lot 4 con 5	Surface Rights Only	Fee Simple			

Hislop	65380-0500	7057		CP2929		W1/2 of S 1/2 Lot 4 con 5	Surface and Mineral Rights	Fee Simple			
Hislop	65380-0520	23687		TP857/CP3420		W1/2 of N1/2 Lot 4 con 5 & N1/2 Lot 5 con 5	Surface and Mineral Rights	Fee Simple	• Newmont, Gail Lackie & Gerry Leckie 50% • (Parsons), Peter Ginn 50% (Parsons-Ginn)	• Newmont: 2.5% NSR • Parsons-Ginn: – Advance royalty of C$3,000 payable each year, and – 5% Net Proceeds Interest, or – Sliding Production Royalty based on the price of gold	
Hislop	65380-0521	24023		TP857		N1/2 Lot 4 con 5	Surface Rights Only	Fee Simple			
Hislop	65380-0522	16736		TP857		Pt of N1/2 Lot 4 con 5	Surface Rights Only	Fee Simple			
Hislop	65380-0523	24024		TP857		Pt Lot 4 con 5	Surface Rights Only	Fee Simple			
Hislop	65380-0524	19093		TP857		Pt Lot 4 con 5	Surface Rights Only	Fee Simple			
Hislop	65380-0525	10255		CP5036		N1/2 of N1/2 Lot 3 con 5	Surface Rights Only	Fee Simple			
Hislop	65380-0526	2563		TP3696		N 1/2 lot 2 con 5	Surface and Mineral Rights	Fee Simple	• David Ross Riehl 25% • Helen Bernadette Riehl 25% • Dale Richard Stere 25% • Russell Rae Stere 12.5% • Trevor Verle Stere 12.5%	2% NSR	1% for $1,000,000
Hislop	65380-0530	3310		CP123		S 1/2 Lot 3 con 6	Surface and Mineral Rights	Fee Simple	Thomas MacFarlane & Sheila MacFarlane	2% NSR	1% for $1,000,000
Hislop	65380-0531	10706		CP1329		S 1/2 Lot 4 con 6	Surface and Mineral Rights	Fee Simple			
Hislop	65380-0532	6413		CP2561		SW 1/4 Lot 6 con 6	Surface and Mineral Rights	Fee Simple	Shirley Maud Alyman & Raphael Thomas Alyman	2% NSR	1% for $1,000,000
Hislop	65380-0534	388		TP6616		Pt Broken Lot 7 con 6	Surface and Mineral Rights	Fee Simple	Shirley Maud Alyman & Raphael Thomas Alyman	2% NSR	1% for $1,000,000
Hislop	65380-0552	7745		NNDP1155		N 1/2 Lot 8 con 6	Surface and Mineral Rights	Fee Simple	Donald Plouffe	Sliding scale NSR based on the price of gold and paid quarterly as follows (all amounts in US dollars): • Less than $200.00 = No royalty • $200.00 to $224.99 = 0.25% NSR • $225.00 to $249.99 = 0.50% NSR • $250.00 to $274.99 = 0.75% NSR • $275.00 to $299.99 = 1.00% NSR • $300.00 to $324.99 = 1.25% NSR • $325.00 to $349.99 = 1.50% NSR • $350.00 to $374.99 = 1.75% NSR • $375.00 to $399.99 = 2.00% NSR • $400.00 to $424.99 = 2.25% NSR • $425.00 to $449.99 = 2.50% NSR	100% for $1,000,000

										• $450.00 to $474.99 = 2.75% NSR • $475.00 to $499.99 = 3.00% NSR • Above $500.00 = 3.25% NSR	
Hislop	65380-0553	4707		TP7063		Pt N Pt Lot 7 con 6	Surface and Mineral Rights	Fee Simple	Ray Steven Durham	1.5% NSR	100% for $2,000,000
Hislop	65380-0555	15466		TP7063		Pt N Lot 7 con 6	Surface Rights Only	Fee Simple			
Hislop	65380-0556	23876		TP3747/TP7063		N 1/2 Lot 6 con 6 & Pt N Pt Broken Lot 7 con 6	Mining Right Only	Fee Simple			
Hislop	65380-0557	2582		TP3747		N1/2 Lot 6 con 6	Surface Rights Only	Fee Simple			
Hislop	65380-0558	11511		CP5862		Pt NE 1/4 Lot 5 con 6	Surface and Mineral Rights	Fee Simple	Mildred Elizabeth Ewen	3% NSR	
Hislop	65380-0559	3393		CP350		N1/2 Lot 4 con 6	Surface and Mineral Rights	Fee Simple	Mildred Elizabeth Ewen	3% NSR	
Hislop	65380-0566	23777		CP495/TP2285		N 1/2 Lot 4 con 4	Surface and Mineral Rights	Fee Simple	• Newmont Canada Corporation, Gail Lackie & Gerry Leckie 50% • (Parsons), Peter Ginn 50%	• Newmont: 2.5% NSR • Parsons-Ginn: – Advance royalty of C$3,000 payable each year, and – 5% Net Proceeds Interest, or – Sliding Production Royalty based on the price of gold	
Hislop	65380-0636	1735	108420 108421 30-Nov-30	-	L512572, L512573	N1/2 of N1/2 Lot 4 con 5	Mining Right Only	Leasehold	• Newmont Gail Lackie & Gerry Leckie 50% • (Parsons), Peter Ginn 50% (Parsons-Ginn)	• Newmont: 2.5% NSR • Parsons-Ginn: – Advance royalty of C$3,000 payable each year, and – 5% Net Proceeds Interest, or – Sliding Production Royalty based on the price of gold	
Hislop	65380-0637	1735	109227 31-May-33	-	L512568, L512569, L512570, L512571, L512574, L512575, L512576, L512577	E 1/2 of S 1/2 & E1/2 of S1/2 Lot 4 con 5 & S 1/2 of N 1/2 Lt 4 con 5 & N1/2 Lot 3 con 5	Mining Right Only	Leasehold	• Newmont Gail Lackie & Gerry Leckie 50% • (Parsons), Peter Ginn 50% (Parsons-Ginn)	• Newmont: 2.5% NSR • Parsons-Ginn: – Advance royalty of C$3,000 payable each year, and – 5% Net Proceeds Interest, or – Sliding Production Royalty based on the price of gold	
Hislop	65380-0637	1726	109227 31-May-33	-	L547989, L547990	W1/2 of S1/2 Lot 5 con 5	Mining Right Only	Leasehold	• Newmont Gail Lackie & Gerry Leckie 50% • (Parsons), Peter Ginn 50% (Parsons-Ginn)	• Newmont: 2.5% NSR • Parsons-Ginn: – Advance royalty of C$3,000 payable each year, and – 5% Net Proceeds Interest, or – Sliding Production Royalty based on the price of gold	

Hislop	65380-0638	1726	108179 30-Apr-29	-	L531728, L531729, L531730, L531731, L547915	S1/2 Lot 5 con 6, SE1/4 S 1/2 Lot 6 con 6	Mining Right Only	Leasehold	• Newmont Gail Lackie & Gerry Leckie 50% • (Parsons), Peter Ginn 50% (Parsons-Ginn)	• Newmont: 2.5% NSR • Parsons-Ginn: – Advance royalty of C$3,000 payable each year, and – 5% Net Proceeds Interest, or – Sliding Production Royalty based on the price of gold	
Hislop	65380-0670		108179 108181 30-Apr-29	-	L1048334	Pt Lot 5 con 6	Surface and Mineral Rights	Leasehold			
Hislop	65380-0671		108264 30-Sep-29	-	L1048335	Pt Lot 6 con 6	Surface and Mineral Rights	Leasehold			
Hislop	65380-0671		109416 31-May-33	-	L1113087	Pt Lot 7 con 6	Mining Right Only	Leasehold			
Hislop	65380-0676		108420 108421 30-Nov-30	-	L1048333	Pt Lot 5 con 6	Surface and Mineral Rights	Leasehold			
Hislop	65380-0681		109227 31-May-33	-	L531728, L531729, L531730, L531731, L547915	S1/2 Lot 5 con 6, SE1/4 S 1/2 Lot 6 con 6	Surface Rights Only	Leasehold			

Appendix B: Land Tenure and Royalties of Stock Property

Appendix B: Land Tenure and Royalties of Stock Property

Township	PIN	Parcel No.	Lease/Expiry	Crown Grant	Mining Claims	Lot & Concession	Status	Parcel Type	Royalty Holder	Royalty	Buyout
Stock	65363-0026	12080		CP6377		S1/2 Lot 7 con 1	Surface Rights Only	Fee Simple			
Stock	65363-0027	18786		CP6377		Pt S1/2 Lot 7 con 1	Surface and Mineral Rights	Fee Simple			
Stock	65363-0060	270	108205 28-Feb-29	-	L70548, L70549	N 1/2 of N1/2 Lot 9 con 1	Surface and Mineral Rights	Leasehold			
Stock	65363-0061	271	108204 28-Feb-29	-	L70550, L70551, L70552, L70553	N Pt Lot 8 con 1	Surface and Mineral Rights	Leasehold			
Stock	65363-0062	5714		CP2330		N 1/2 Lot 7 con 1	Surface and Mineral Rights	Fee Simple	Franco-Nevada	1.0% NSR	
Stock	65363-0063	16236		NIP4554		N PT LT 6 con 1	Surface Rights Only	Fee Simple			
Stock	65363-0064	272	108203 28-Feb-29	-	L70554, L70555, L70556, L70557	N1/2 Lot 5 con 1	Surface and Mineral Rights	Leasehold			
Stock	65363-0065	7130		CP3045		N 1/2 Lot 4 con 1	Surface and Mineral Rights	Fee Simple			
Stock	65363-0085	269	108208 28-Feb-29	-	L70542, L70543, L70546, L70547	S Pt Lot 6 con 2	Surface and Mineral Rights	Leasehold			
Stock	65363-0086	268	108206 28-Feb-29	-	L70540, L70541, L70544, L70545	S Pt Lot 7 con 2	Surface and Mineral Rights	Leasehold	Franco-Nevada	1.0% NSR	
Stock	65363-0087	267	108207 28-Feb-29	-	L70538, L70539	S1/2 S1/2 Lot 8 con 2	Surface and Mineral Rights	Leasehold			
Stock	65363-0088	266	108209 28-Feb-29	-	L70536, L70537	S1/2 S1/2 Lot 9 con 2	Surface and Mineral Rights	Leasehold			
Stock	65363-0090				P16267	N 1/2 Lot 10 con 2	Surface	Fee Simple	Timmins Forest Products Ltd. (TFP)	2.0% NSR	$1,000,000
Stock	65363-0091	14573		NNDP814		N Pt Lot 7 con 2	Surface Rights Only	Fee Simple			
Stock	65363-0204	19217		CP6377		S 1/2 Lot 7 con 1	Mining Right Only	Fee Simple			
Stock	65363-0210	14806		CP4004		S Pt Lot 6 con 1	Mining Right Only	Fee Simple	Ulysses Levinson (Levinson)	1.0% NSR	1% for $300,000.00
Stock	65363-0219	8458		NP4976		S Pt Lot 8 con 1	Mining Right Only	Fee Simple			
Stock	65363-0225	5183		NNDP513		S Pt Broken Lot 10 con 1	Mining Right Only	Fee Simple			
Stock	65363-0232	1871	107376 31-Oct-22	-	P1226419, P1226420, P1226421, P1226656, P1226657, P1226658, P1226659, P1226660, P1226661, P1226662, P1226663,	Pt Lot 8 con 2 (N1/2 & N1/2 of S1/2) & Pt Lot 8 con 3 (S1/2 of S1/2) & Pt Lot 9 con 2 (N1/2 & N1/2 of S1/2) & Lot 9 con 3 (s1/2 of S1/2)	Surface and Mineral Rights	Leasehold			

Township	PIN	Parcel No.	Lease/Expiry	Crown Grant	Mining Claims	Lot & Concession	Status	Parcel Type	Royalty Holder	Royalty	Buyout
					P122664, P1226665, P1226666, P12266667						
Stock	65363-0233	1657	109009 28-Feb-33	-	P525654, P567927	Pt Broken Lot 10 con 1	Mining Right Only	Leasehold			
Stock	65363-0234	1658	109008 28-Feb-33	-	P516672, P516673, P522387, P522388, P522389, P522390, P522391, P522392	Pt Lot 11 con 1	Mining Right Only	Leasehold			
Stock	65363-0235	1195	110018 31-Jul-42	-	P354552, P354553, P354554, P354555	N Pt Lot 3 con 1	Mining Right Only	Leasehold			
Stock	65363-0236		110018 31-Jul-42	-	P354605, P354606, P354607, P354608	S Pt Lot 4 con 2	Mining Right Only	Leasehold			
Stock	65363-0237		110018 31-Jul-42	-	P342351	SE1/4 N1/2 Lot 9 con 1	Mining Right Only	Leasehold			
Stock	65363-0238	1131	109823 28-Feb-40	-	L76082, L76083, L76084, L76087	S1/2 Lot 5 con 2	Mining Right Only	Leasehold			
Stock	65363-0239	475	109464 31-Jul-34	-	L73709, L73710	Lot 10 con 1 (underwater)	Mining Right Only	Leasehold			
Stock	65363-0240	376	108584 30-Sep-31	-	L76079	SW1/4 of N1/2 Lot 9 con 1	Mining Right Only	Leasehold			
Stock	65363-0241	471	109389 31-May-34	-	L76080, L76081, L76085, L76086	N Pt Lot 6 con 1	Mining Right Only	Leasehold			

Appendix C: Land Tenure and Royalties of the Western Properties

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Township	PIN	Parcel No.	Lease/Expiry	Crown Grant	Mining Claims	Lot & Concession	Status	Parcel Type	Royalty Holder	Royalty	Buyout
Buffalo Ankerite											
Deloro	65442-0166	5032		HR832			Surface Rights Only				
Deloro	65442-0660	23818		CP3247 CP3248 CP3327	P20815, P20409, P20410		Mining Right Only	Fee Simple	NPI Summit Organization Inc.	10% NPI	
Deloro	65442-0661	23935		TP7260 TP7261 TP7262 TP7263	P7994, P7995, P7992, P7993		Mining Right Only	Fee Simple	NPI Summit Organization Inc.	10% NPI	
Deloro	65442-0662	23936		CP930 CP931 CP938 CP939 CP940 CP956 CP957	P9132, P9165, P9166, P9804, P9853, P9854, P9897		Mining Right Only	Fee Simple	NPI Summit Organization Inc.	10% NPI	
Deloro	65442-0714	23817		TP6400 TP3435	HR830(P7251), HR951(TRS774)		Mining Right Only	Fee Simple	NPI Summit Organization Inc.	10% NPI	
Deloro	65442-0717	23817		CP2563 TP3711 TP3712	P24590, HR1138(TRS1280), HR1139(TRS1281)		Mining Right Only	Fee Simple	NPI Summit Organization Inc.	10% NPI	
Deloro	65442-0718	23816		TP7011 CP10 TP3568	HR952(P7934), P8269, HR950(TRS775)		Mining Right Only	Fee Simple	NPI Summit Organization Inc.	10% NPI	
Deloro	65442-0719	23816		CP11 CP1574 CP2278 CP25 CP310 CP4371 CP971 CP972 CP973 CP974 CP979 CP980 CP981 CP982 SNP471 TP1352 TP140 TP141 TP142 TP1948 TP1949 TP2907 TP2953 TP3300 TP404 TP49 TP6914	ME60, ME61, ME62, P7407, P7406, P7426(HR905), P7413(ME73), HR906, P8271(ME50), P8272, LO336(P8204), HR904(P9598), HR902(P9600), HR903(P9599), ME57(P9605), ME58(P.9604), ME59(P9603), ME67(P9602), HR901(P9601), P9856, HR832, HR823, P8276, HR926, HR900, HR902(P9600), P17839, P7426A		Mining Right Only	Fee Simple	NPI Summit Organization Inc.	20% royalty on parcels (ME61, HR906, HR832, P8276) and 10% royalty on remaining parts of the parcel	
Deloro	65442-0732				HR926		Surface Rights Only	Fee Simple			
Deloro	65442-0733				ME60		Surface Rights Only	Fee Simple			
Deloro	65442-0734				P9856, P8271, P8272, ME62		Surface Rights Only	Fee Simple			
Davidson-Tisdale											
Tisdale	65399-0034	7011		TP1386	P12764		Surface Rights Only	Fee Simple			
Tisdale	65399-0041	7015		TP1387	P12762		Surface Rights Only	Fee Simple			
Tisdale	65399-0117	1584			P836942, P6576		Mining Right Only	Leasehold			
Tisdale	65399-0129	3847		TP1384	P12753		Mining Right Only	Fee Simple			

Township	PIN	Parcel No.	Lease/Expiry	Crown Grant	Mining Claims	Lot & Concession	Status	Parcel Type	Royalty Holder	Royalty	Buyout
Tisdale	65399-0130	3848		TP1385	P12761		Mining Right Only	Fee Simple			
Tisdale	65399-0131	3849		TP1386	P12764		Mining Right Only	Fee Simple			
Tisdale	65399-0132	3850		TP1387	P12762		Mining Right Only	Fee Simple			
Tisdale	65399-0133	3852		SWP1022 (PCL SWP2278)			Mining Right Only	Fee Simple			
Tisdale	65399-0134	3853		SNP360 (PCL SND1005)	P14215.5		Mining Right Only	Fee Simple			
Tisdale	65399-0157	14003		TP2633	P12886, P12906		Mining Right Only	Fee Simple			
Tisdale	65399-0162			SWP1738 SWP2304 TP725	P12888, P12887, P6285		Mining Right Only	Fee Simple			
Tisdale	65399-0163			SWP2309 SWP2305 SWP2307 SWP2303 TP726 TP913 TP727 TP728 SWP2313 TP729 TP915 TP914	P12969, P12970, P12972, P6270, P6287, P6239, P12889, P12812, P12811, P12890, P6454, P12959		Mining Right Only	Fee Simple			
Tisdale	65399-0164			SWP1736 SWP 1737 TP2633	P6577		Mining Right Only	Fee Simple			
Tisdale	65399-0165			SWP1736 SWP 1737 TP2633	P6577		Surface Rights Only	Fee Simple			
Fuller											
Tisdale	65408-0153	8368		SWP2314	P13102		Mining Right Only	Fee Simple	NPI Summit Organization Inc.	10% NPI	
Tisdale	65410-0069	1502		SNP432	P13189		Surface and Mineral Rights	Fee Simple			
Tisdale	65410-0071	14213		SWP2306 SWP2308 SWP2310 SWP2311 SWP2312 SWP2314 SWP2315 SWP2316	P13409		Surface Rights Only	Fee Simple			
Tisdale	65410-0085	9912		CP7608	P44835, P44836 P44837, P44838		Mining Right Only	Fee Simple			
Tisdale	65410-0097	8368		SWP2306 SWP2308 SWP2310 SWP2311	P13101, P13099, P13084, P13314, P13313, P13409, P13100		Mining Right Only	Fee Simple	NPI Summit Organization Inc.	10% NPI	

Township	PIN	Parcel No.	Lease/Expiry	Crown Grant	Mining Claims	Lot & Concession	Status	Parcel Type	Royalty Holder	Royalty	Buyout
				SWP2312 SWP2315 SWP2316							
Paymaster											
Tisdale	65398-0284			SWP2189	P14114		Mining Right Only	Fee Simple			
Tisdale	65398-0286			SWP2188	P14086		Mining Right Only	Fee Simple			
Deloro	65442-0580	13257		CP7180	P46953(HR1010)		Mining Right Only	Fee Simple			
Deloro	65442-0793			TP6184	HR1085, HR847-A(P7860)		Mining Right Only	Fee Simple			
Deloro	65442-0795			TP2869	P7148(LO323)		Mining Right Only	Fee Simple			
Deloro	65442-0797			TP3491	LO322		Mining Right Only	Fee Simple			
Deloro	65442-0799			TP3119	LO320(TRS881)		Mining Right Only	Fee Simple			
Deloro	65442-0801			TP2911	ME15		Mining Right Only	Fee Simple			
Deloro	65442-0803			TP2910	HR908		Mining Right Only	Fee Simple			
Deloro	65442-0805			TP3423	ED98(P7385)		Mining Right Only	Fee Simple			
Deloro	65442-0807			SNP532	HS747 (TRS938)		Mining Right Only	Fee Simple			
Deloro	65442-0809			SNP531	HS748		Mining Right Only	Fee Simple			
Deloro	65442-0811			SNP533	HS749		Mining Right Only	Fee Simple			
Deloro	65442-0813			CP503	HF390(P9932)		Mining Right Only	Fee Simple			
Deloro	65442-0815			TP3490	LO321		Mining Right Only	Fee Simple			

Note: NPI = net profit interest