Côté Gold Project
Ontario
NI 43-101 Technical Report on Feasibility Study

Prepared for:
IAMGOLD Corporation

Prepared by:
Mr. Peter Oshust, P.Geo., Wood
Dr. Antonio Peralta, P.Eng., Wood
Mr. Dustin Small, P.Eng., Wood
Mr. Paul O'Hara, P.Eng. Wood
Ms. Debbie Dyck, P.Eng., Wood
Dr. Bing Wang, P.Eng., Wood
Mr. Paul Baluch, P.Eng., Wood
Mr Ray Turenne, P.Eng., Wood
Dr. Adam Coulson, P.Eng., Wood
Ms Karen Besemann, P.Geo., Golder
Ms. Marie-France Bugnon, P.Geo. IAMGOLD
Mr. Alan Smith, P.Geo., IAMGOLD.

Effective Date:
1 November, 2018

Project Number:
195640

wood.

CERTIFICATE OF QUALIFIED PERSON

Peter Oshust, P.Geo.,
111 Dunsmuir St., Suite 400
Vancouver, British Columbia, V6B 5W3

I, Peter Oshust, P.Geo. am employed as a Senior Project Geologist.

This certificate applies to the technical report titled "Côté Gold Project, Ontario, NI 43-101 Technical Report on Feasibility Study" that has an effective date of 1 November, 2018 (the "Technical Report").

I am a member of Engineers and Geoscientists British Columbia and of the Association of Professional Geoscientists of Ontario. I graduated from Brandon University with a Bachelor of Science (Specialist) degree in Geology and Economics in 1987.

I have practiced in my profession since 1988 and have been involved in geological modelling and resource estimation for a variety of base and precious metals and diamond deposits across North and South America, and in Asia, since 2001.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43–101 *Standards of Disclosure for Mineral Projects* (NI 43–101).

I visited the Côté Gold Project from July 10 to 12, 2018.

I am responsible for Sections 1.8, 1.10, 1.11, 1.25; Sections 2.3, 2.4, 2.5; Section 12; Section 14; Sections 24.1.13, 24.1.15; Sections 25.1, 25.6; Sections 26.1, 26.2; and Section 27 of the Technical Report.

I am independent of IAMGOLD Corporation as independence is described by Section 1.5 of NI 43–101.

I have been involved with the Côté Gold Project since 2017, during the preparation of the feasibility study.

I have read NI 43–101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument.

As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated: 26 November, 2018

"Signed and sealed"

Peter Oshust, P.Geo.

CERTIFICATE OF QUALIFIED PERSON

Antonio Peralta Romero, P.Eng.
400-111 Dunsmuir Street
Vancouver, British Columbia V6B 5W3

I, Antonio Peralta Romero, P.Eng., am employed as a Principal Mining Engineer with Wood Canada Limited (Wood), formerly known as Amec Foster Wheeler Americas Limited.

This certificate applies to the technical report titled "Côté Gold Project, Ontario, NI 43-101 Technical Report on Feasibility Study" that has an effective date of 1 November, 2018 (the "Technical Report").

I am a Professional Engineer of The Association of Professional Engineers and Geoscientists of British Columbia and Professional Engineers Ontario. I graduated from the University of Guanajuato in 1984 with a B.S. in Mining Engineering, from Queen's University in 1991 with a M.Sc. in Mining Engineering, and from Colorado School of Mines in 2007 with a Ph.D. in Mining and Earth Systems Engineering.

I have practiced my profession for 33 years. I have been directly involved in mine planning and design, ore control, production forecasting and management, and slope stability monitoring, mainly for open-pit precious, base metal and iron ore mines.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43–101 *Standards of Disclosure for Mineral Projects* (NI 43–101).

I visited the Côté Gold Project on May 7–9, 2018.

I am responsible for Sections 1.12, 1.13, 1.14, 1.20, 1.23.2, 1.23.8, 1.25; Sections 2.3, 2.5; Section 3; Section 15; Section 16 (with the exception of Section 16.2); Sections 18.3, 18.4; Sections 21.2.1; Sections 24.1.16, 24.1.17, 24.1.19, 24.1.22; Sections 25.1, 25.7, 25.8, 25.10, 25.14, 25.16; Sections 26.1, 26.4; and Section 27 of the Technical Report.

I am independent of IAMGOLD Corporation as independence is described by Section 1.5 of NI 43–101.

I was involved with mine design in the Preliminary Economic Assessment for the Côté Gold Project in 2017. I have previously co-authored the following technical report on the Côté Gold Project:

- Peralta, A., Wang, B., Dyck, D., Smiley, D., Lipiec, I., Padilla J., Baluch, P., Smith, A., Bugnon, M-F., and Evans, L., 2017: NI 43-101 Technical Report on the Prefeasibility Study of the Côté Gold Project, Porcupine Mining Division, Ontario, Canada: report prepared by Amec Foster Wheeler and Roscoe Postle Associates Inc., effective date May 26, 2017.

I have read NI 43–101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument.

Continued...

As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated: 26 November, 2018

"Signed and sealed"

Antonio Peralta Romero, P.Eng.

CERTIFICATE OF QUALIFIED PERSON

Dustin Small, P.Eng.,
111 Dunsmuir St., Suite 400
Vancouver, British Columbia, V6B 5W3

I, Dustin Small, P.Eng., am employed as a Project Engineer with Wood Canada Limited (Wood), formerly known as Amec Foster Wheeler Americas Limited.

This certificate applies to the technical report titled “Côté Gold Project, Ontario, NI 43-101 Technical Report on Feasibility Study” that has an effective date of 1 November, 2018 (the “Technical Report”).

I am a Professional Engineer and member in good standing with Professional Engineers Ontario. I am a graduate of Dalhousie University in 2001 with a degree in Mechanical Engineering.

I have practiced my profession for 12 years in the mining industry. My relevant experience includes engineering management, cash flow modelling, risk evaluation, financial analysis, project execution, and mine construction.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43–101 *Standards of Disclosure for Mineral Projects* (NI 43–101).

I visited the Côté Gold Project on May 22, 2018.

I am responsible for Sections 1.1, 1.2, 1.18, 1.19, 1.21, 1.22, 1.23.1, 1.23.6, 1.23.7. 1.23.9, 1.23.10, 1.24, 1.25; Section 2; Section 3; Section 19; Section 21.1, 21.2.4, 21.2.5, 21.3; Section 22; Sections 24.1.1, 24.1.2, 24.1.3, 24.1.4, 24.1.6, 24.1.20, 24.1.22, 24.1.23, 24.2; Sections 25.1, 25.12, 25.13, 25.14, 25.15, 25.16, 25.17; Section 26.1; and Section 27 of the Technical Report.

I am independent of IAMGOLD Corporation as independence is described by Section 1.5 of NI 43–101.

I have been involved with the Côté Gold Project since 2017, during the preparation of the feasibility study.

I have read NI 43–101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument.

As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated: 26 November, 2018

“Signed and sealed”

Dustin Small, P.Eng.

CERTIFICATE OF QUALIFIED PERSON

Paul M. O'Hara, P.Eng.,
301-121 Research Drive,
Saskatoon, SK Canada, S7N 1KS

I, Paul M. O'Hara, P.Eng., am employed as a Mining Engineer with Wood Canada Limited (Wood), formerly known as Amec Foster Wheeler Americas Limited.

This certificate applies to the technical report titled "Côté Gold Project, Ontario, NI 43-101 Technical Report on Feasibility Study" that has an effective date of 1 November, 2018 (the "Technical Report").

I am a member of Association of Professional Engineers and Geologists of Saskatchewan (APEGS) member number 11687, and with the Professional Engineers Ontario license number 90543950. I graduated from the University of British Columbia, with a Bachelor of Science degree in Mining and Mineral Process Engineering in 1986. I have practiced my profession for 32 years.

I have been directly involved in the operation of copper, gold, and potash processing plants in Canada. I have also been involved in process design for gold plants in Canada.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43–101 *Standards of Disclosure for Mineral Projects* (NI 43–101).

I have not visited the Côté Gold Project.

I am responsible for Sections 1.9, 1.15, 1.20, 1.23.3, 1.23.8, 1.25; Section 2.3; Section 13; Section 17; Sections 21.2.2, 21.2.3; Sections 24.1.14, 24.1.18, 24.1.22; Sections 25.1, 25.5, 25.9, 25.14, 25.16; Sections 26.1, 26.3; and Section 27 of the Technical Report.

I am independent of IAMGOLD Corporation as independence is described by Section 1.5 of NI 43–101.

I have been involved with the Côté Gold Project since 2018, during the preparation of the feasibility study.

I have read NI 43–101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument.

As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated: 26 November, 2018

"Signed and sealed"

Paul M. O'Hara, P.Eng.

CERTIFICATE OF QUALIFIED PERSON

Debbie Dyck, P.Eng.
160 Traders Blvd. E., Suite 110
Mississauga, Ontario L4W 3K7

I, Debbie Dyck, P.Eng., am employed as a Senior Associate Environmental Engineer with Wood Canada Limited (Wood), formerly known as Amec Foster Wheeler Americas Limited.

This certificate applies to the technical report titled "Côté Gold Project, Ontario, NI 43-101 Technical Report on Feasibility Study" that has an effective date of 1 November, 2018 (the "Technical Report").

I am a member of Professional Engineers Ontario. I graduated from the University of Waterloo in 1990.

I have practiced my profession for 28 years. I have been directly involved in environmental studies, and permitting and approvals, including environmental assessments, specifically for the mining sector, for all phases of mine development, from exploration through to closure.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43–101 *Standards of Disclosure for Mineral Projects* (NI 43–101).

I visited the Côté Gold Project from April 13–14, 2017.

I am responsible for Sections 1.17.1, 1.17.4, 1.17.5, 1.17.6, 1.23.5 (excepting tailings and water management); Sections 2.3, 2.4; Section 3.2; Sections 20.1, 20.2, 20.3, 20.6, 20.7, 20.8, 20.9; Section 24.1.21 (excepting tailings and water management); Sections 25.1, 25.11, 25.16, and Section 27 of the Technical Report.

I am independent of IAMGOLD Corporation as independence is described by Section 1.5 of NI 43–101.

I was involved in the 2015 Environmental Assessment of the Cote Gold Project and the Preliminary Economic Assessment for the Côté Gold Project in 2017. I have previously co-authored a technical report on the Côté Gold Project entitled:

- Peralta, A., Wang, B., Dyck, D., Smiley, D., Lipiec, I., Padilla J., Baluch, P., Smith, A., Bugnon, M-F., and Evans, L., 2017: NI 43-101 Technical Report on the Prefeasibility Study of the Côté Gold Project, Porcupine Mining Division, Ontario, Canada: report prepared by Amec Foster Wheeler and Roscoe Postle Associates Inc., effective date May 26, 2017.

I have read NI 43–101, and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument.

As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical report not misleading.

Dated: 26 November, 2018

"Signed and sealed"

Debbie Dyck, P.Eng.

wood.

CERTIFICATE OF QUALIFIED PERSON

Bing Wang, Ph.D., P.Eng.
160 Traders Blvd. E., Suite 110
Mississauga, Ontario L4W 3K7

I, Bing Wang, Ph.D., P.Eng., am employed as a Senior Associate, Technical Advisor with Wood Canada Limited (Wood), formerly known as Amec Foster Wheeler Americas Limited.

This certificate applies to the technical report titled "Côté Gold Project, Ontario, NI 43-101 Technical Report on Feasibility Study" that has an effective date of 1 November, 2018 (the "Technical Report").

I am a member of Professional Engineers Ontario (License No.: 90293754). I graduated from McGill University, Montreal, Canada, with Masters of Engineering and Doctor of Philosophy degrees in 1984 and 1990, respectively.

I have practiced my profession for 31 years since graduation. I have been directly involved in the field of geo-environmental engineering with site investigations, scoping, prefeasibility and feasibility studies, detailed design and construction for tailings and water management facilities, including geotechnical assessments and implementations for mining projects in the Canadian Shield.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43–101 *Standards of Disclosure for Mineral Projects* (NI 43–101).

I have visited the Côté Gold Project on a number of occasions, including May 16, October 4, and October 31 to November 4, 2016, April 13–14, 2017, and 6 June, 2018.

I am responsible for Sections 1.17.2, 1.17.3, tailings and water management aspects of 1.23.5, 1.25; and Sections 2.3 and 2.4; Sections 18.5, 18.7; Sections 20.4.1 to 20.4.5, 20.5 (excepting 20.5.4); Sections 24.1.21 (TMF aspects excepting the subsections entitled "Seepage Modelling", "TMF Water Quality Prediction", "Water Quality Monitoring" and "Water Quality Prediction"); Sections 25.1, 25.11, 25.16; Section 26.1, 26.5; and Section 27 of the Technical Report.

I am independent of IAMGOLD Corporation as independence is described by Section 1.5 of NI 43–101.

I have been involved with the Côté Gold Project since May, 2016 as a geotechnical lead. I have co-authored a technical report on the Côté Gold Project titled:

- Peralta, A., Wang, B., Dyck, D., Smiley, D., Lipiec, I., Padilla J., Baluch, P., Smith, A., Bugnon, M-F., and Evans, L., 2017: NI 43-101 Technical Report on the Prefeasibility Study of the Côté Gold Project, Porcupine Mining Division, Ontario, Canada: report prepared by Amec Foster Wheeler and Roscoe Postle Associates Inc., effective date May 26, 2017.

I have read NI 43–101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument.

Continued...

As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated: 26 November, 2018

“Signed and sealed”

Bing Wang, Ph.D., P.Eng.

CERTIFICATE OF QUALIFIED PERSON

Paul Baluch, P.Eng.
111 Dunsmuir St., Suite 400
Vancouver, British Columbia, V6B 5W3

I, Paul Baluch, P.Eng., am employed as the Technical Director, Civil with Wood Canada Limited (Wood), formerly known as Amec Foster Wheeler Americas Limited.

This certificate applies to the technical report titled "Côté Gold Project, Ontario, NI 43-101 Technical Report on Feasibility Study" that has an effective date of 1 November, 2018 (the "Technical Report").

I am a Professional Engineer of The Association of Professional Engineers and Geoscientists of British Columbia, Professional Engineers Ontario, The Association of Professional Engineers, Geologists and Geoscientists of Alberta, and The Association of Professional Engineers and Geoscientists of Saskatchewan. I graduated from the Slovak Technical University in Bratislava, Slovakia with a Diploma from Civil Engineering in 1980.

I have practiced my profession for 36 years. I have been directly involved in site investigations, site development, infrastructure and civil works on scoping studies, prefeasibility and feasibility studies, and detailed engineering on mining, infrastructure and other industry projects.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43–101 Standards of Disclosure for Mineral Projects (NI 43–101).

I have visited the Côté Gold Project on October 4, 2016, April 13–14, 2017 and June 6–7 2018.

I am responsible for Sections 1.16, 1.23.4; Sections 2.3, 2.4; Sections 18.1, 18.2, 18.6, 18.9; Section 24.1.19; and Sections 25.1, 25.10 of the Technical Report.

I am independent of IAMGOLD Corporation as independence is described by Section 1.5 of NI 43–101.

I have read NI 43–101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument.

As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the technical report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated: 26 November, 2018

"signed and sealed"

Paul Baluch, P.Eng.

CERTIFICATE OF QUALIFIED PERSON

Raymond Turenne, P.Eng.
111 Dunsmuir St., Suite 400
Vancouver, British Columbia, V6B 5W3

I, Raymond (Ray) Turenne, P.Eng., am employed as the Department Manager, Electrical and Controls with Wood Canada Limited (Wood), formerly known as Amec Foster Wheeler Americas Limited.

This certificate applies to the technical report titled "Côté Gold Project, Ontario, NI 43-101 Technical Report on Feasibility Study" that has an effective date of 1 November, 2018 (the "Technical Report").

I am a Professional Engineer of the Association of Professional Engineers and Geoscientists of British Columbia, and the Professional Engineers Ontario. I graduated from the University of Calgary in Calgary, Alberta with a degree in Electrical Engineering in 1983.

I have practiced my profession for 35 years. I have been directly involved in the electrical and controls designs for scoping studies, prefeasibility and feasibility studies, and detailed engineering on mining and other industry projects.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43–101 Standards of Disclosure for Mineral Projects (NI 43–101).

I have not visited the Côté Gold Project.

I am responsible for Sections 1.16, 1.23.4; Section 2.3; Section 18.8; Section 24.1.19; Sections 25.1, 25.10, 25.16; and Section 27 of the Technical Report.

I am independent of IAMGOLD Corporation as independence is described by Section 1.5 of NI 43–101.

I have read NI 43–101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument.

As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Date: 26 November, 2018

"Signed and sealed"

Raymond Turenne, P.Eng.

CERTIFICATE OF QUALIFIED PERSON

Adam Coulson, PhD, P.Eng.
160 Traders Blvd East, Suite 110,
Mississauga, Ontario, L4Z 3K7

I, Adam Coulson, PhD, P.Eng., am employed as Senior Associate Rock Mechanics Specialist with Wood Canada Limited (Wood), formerly known as Amec Foster Wheeler Americas Limited.

This certificate applies to the technical report titled “Côté Gold Project, Ontario, NI 43-101 Technical Report on Feasibility Study” that has an effective date of 1 November, 2018 (the “Technical Report”).

I am a member in good standing of the Professional Engineers of Ontario (Member No. 100049242). I graduated with a B.Eng, from Camborne School of Mines, UK in 1990; obtained a MSc. (Eng) from Queens University, Canada in 1996; and a Ph.D. from the University of Toronto, Canada in 2009.

I have practiced my profession continuously since my graduation. I have been employed in mining operations, consulting engineering and rock mechanics research for over 28 years.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43–101 *Standards of Disclosure for Mineral Projects* (NI 43–101).

I visited the Côté Gold Project from December 10 to 13, 2017.

I am responsible for Section 1.14; Sections 2.3, 2.4; Section 16.2; Section 24.1.17; and Section 27 of the Technical Report.

I am independent of IAMGOLD Corporation as independence is described by Section 1.5 of NI 43–101.

I have been involved with the Côté Gold Project since 2017, during the preparation of the feasibility study.

I have read NI 43–101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument.

As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated: 26 November, 2018

“Signed and sealed”

Adam Coulson, PhD, P.Eng.

CERTIFICATE OF QUALIFIED PERSON

Karen Besemann, P.Geo.
Golder Associates Ltd.
33 Mackenzie St., Sudbury, Ontario

I, Karen Besemann, am employed as a hydrogeologist with Golder Associates Ltd.

This certificate applies to the technical report titled "Côté Gold Project, Ontario, NI 43-101 Technical Report on Feasibility Study" that has an effective date of 1 November, 2018 (the "Technical Report").

I am a member of the Association of Professional Geoscientists of Ontario. I graduated from the University of Ottawa in Geological Sciences in 1993.

I have practiced my profession for 19 years, completing hydrogeological assessments, mine permitting, Environmental Assessments and site rehabilitation projects at numerous mine sites in Ontario.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43–101 *Standards of Disclosure for Mineral Projects* (NI 43–101).

I visited the Côté Gold Project in 2012 and 2013.

I am responsible for Sections 20.4.6 , 20.4.7, 20.4.8, 20.5.4, and the subsections in Section 24.1.21 entitled "Seepage Modelling", "TMF Water Quality Prediction", "Water Quality Monitoring" and "Water Quality Prediction" of the Technical Report.

I am independent of IAMGOLD Corporation as independence is described by Section 1.5 of NI 43–101.

I have read NI 43–101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument.

As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated: 26 November, 2018

"Signed and sealed"

Karen Besemann, P.Geo

CERTIFICATE OF QUALIFIED PERSON

Marie-France Bugnon M.Sc. P.Geo.
General Manager Exploration, IAMGOLD Corporation
Regional Exploration Office – Val-d'Or
1740, Chemin Sullivan, suite 1300,
Val-d'Or, Québec, Canada J9P 7H1
T: (819) 825-7500 e-mail : marie-france_bugnon@iamgold.com

I, Marie-France Bugnon, am employed as General Manager Exploration – Americas with IAMGOLD Corporation (IAMGOLD).

This certificate applies to the technical report entitled "Côté Gold Project, Ontario, NI 43-101 Technical Report on Feasibility Study" that has an effective date of 1 November, 2018 (the "Technical Report").

I am a registered professional geologist of the Ordre des Géologues du Québec (OGQ # 137) and of Association of Professional Geoscientists of Ontario (APGO # 2820).

I graduated from the University of Montreal with a Bachelor's degree in Geology in 1977 (B.Sc.) and a Master's degree in Geology in 1981 (M.Sc.).

I have practiced my profession continuously since 1979 and have been involved in extensive exploration programs for gold, base metal and other commodities and have completed numerous property reviews in North America, in the Guiana Shield, in Burkina Faso and in South America.

I have been working for Cambior/IAMGOLD Corporation since 1996 as exploration manager for Canada and the Guiana Shield, as General Manager for the Brownfields activities and as General Manager Exploration - Americas.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43–101 *Standards of Disclosure for Mineral Projects* (NI 43–101).

I have been involved in the Côté Gold Project and the exploration district as a General Manager since June 2012. My most recent site visit was September 13–14, 2018.

I am responsible for Sections 1.3, 1.4, 1.6; Sections 2.3, 2.4; Section 4; Section 5; Section 6; Section 24.1.5, 24.1.6, 24.1.7; Sections 25.1, 25.2; Section 27; and Appendix A.

I am a full-time employee of IAMGOLD and own shares of IAMGOLD.

I have read NI 43–101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument.

As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make those sections of the Technical Report not misleading.

Dated 26 November, 2018

"Signed and sealed"

Marie-France Bugnon, M.Sc. P.Geo.

CERTIFICATE OF QUALIFED PERSON

Alan Smith M.Sc., P.Geo.
District Manager – Exploration, IAMGOLD Corporation
Regional Exploration Office – Sudbury
Unit 10 - 2140 Regent Street
Sudbury, ON. P3E 5S8
Tel: 705-222-1520 E-mail: alan_smith@iamgold.com

I, Alan Smith, am employed as the District Manager – Exploration for IAMGOLD Corporation (IAMGOLD).

This certificate applies to the technical report entitled "Côté Gold Project, Ontario, NI 43-101 Technical Report on Feasibility Study" that has an effective date of 1 November, 2018 (the "Technical Report").

I am a practicing member in good standing with the Association of Professional Geoscientists of Ontario (Membership Number 0201). I graduated with an Honors Bachelor of Science Degree in Geology from the University of Western Ontario in 1984. I completed a M.Sc. Degree in Geology at the University of Western Ontario in 1987. I have worked as a geologist for more than 33 years since graduation generally throughout Canada with completing some exploration work in the United States and Mexico.

In my role as District Manager – Exploration, I have been responsible for the supervision of all exploration activities on the Côté Gold Project and surrounding Regional Exploration projects and generally visit the site weekly. I have supervised Côté deposit prefeasibility and feasibility diamond drilling programs since February 2013 and have assisted with the supervision of later diamond drilling phases of the Côte deposit. My most recent site visit was October 9–11, 2018.

I am responsible for Sections 1.5, 1.7; Sections 2.3, 2.4; Section 7; Section 8; Section 9; Section 10; Section 11; Section 23; Sections 24.1.8 to 24.1.12; Sections 25.1, 25.3, 25.4; and Section 27 of the Technical Report.

I am a full-time employee of IAMGOLD and own shares of IAMGOLD.

I have read NI 43–101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument.

As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated: 26 November. 2018

"Signed and sealed"

Alan Smith, M.Sc. P.Geo.

IMPORTANT NOTICE

This report was prepared as National Instrument 43-101 Technical Report for IAMGOLD Corporation (IAMGOLD) by Wood Canada Limited (Wood), formerly known as Amec Foster Wheeler Americas Limited (Amec Foster Wheeler). The quality of information, conclusions, and estimates contained herein is consistent with the level of effort involved in Wood's services, based on i) information available at the time of preparation, ii) data supplied by outside sources, and iii) the assumptions, conditions, and qualifications set forth in this report. This report is intended for use by IAMGOLD subject to terms and conditions of its contract with Wood. Except for the purposed legislated under Canadian provincial and territorial securities law, any other uses of this report by any third party is at that party's sole risk.

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1.0 SUMMARY

1.1 Introduction

Wood Canada Limited (Wood), formerly known as Amec Foster Wheeler Americas Limited (Amec Foster Wheeler) in conjunction with IAMGOLD Corp. (IAMGOLD), has prepared a technical report (the Report) on the results of a feasibility study (the 2018 Feasibility Study) completed on the Côté Gold Project (the Project), a gold development project located near Gogama, Ontario, Canada, approximately 125 km southwest of Timmins, Ontario.

IAMGOLD is operator of an unincorporated joint venture (JV) in respect of the Project, formed pursuant to the terms of a JV agreement dated 20 June 2017 among IAMGOLD, SMM Gold Côté Inc, and Sumitomo Metal Mining Co, Ltd.

1.2 Terms of Reference

The Report was prepared to support disclosures in the news release dated 1 November 2018 entitled "Feasibility Study for Côté Gold Yields Significantly Improved Project Economics" and the news release dated 26 November entitled "IAMGOLD Files NI 43-101 Technical Report For Previously Announced Feasibility Study For Côté Gold".

Two development scenarios are presented in the Report, based on the 2018 Feasibility Study:

- Base Case Mine Plan (Base Case) that supports the current permitting process. The Base Case with a total of 203 Mt of Mineral Reserves processed over the life of mine (LOM) includes a 203 Mt capacity tailings management facility (TMF) that conforms with the current applications for permits
- Extended Case Mine Plan (Extended Case) that supports the total Mineral Reserves (presented in Section 24 of the Report). It will require an updated mine rock area (MRA) and TMF design that may require regulatory approval of amended permits to be submitted prior to its implementation.

The Report uses Canadian English and metric units unless otherwise indicated. Estimates are provided in US$, based on an exchange rate of US$1.00:C$1.30. Mineral Resources and Mineral Reserves are reported in accordance with the 2014 Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards for Mineral Resources and Mineral Reserves (the 2014 CIM Definition Standards).

1.3 Project Setting

The Project is located in the Porcupine Mining Division, 25 km southwest of Gogama, Ontario and extends approximately 57 km from Esther Township in the west to Champagne Township in the east. It comprises a group of properties assembled through staking and option agreements covering a total area of about 521 km^2. The 2018 Feasibility Study area is a portion of the overall claim area.

The Project is bisected by Highway 144 and is about 175 km by road north of Sudbury, along Highway 144 and approximately 125 km by road southwest of Timmins via Highways 101 and 144. Access to the Project area is by a network of logging roads and local bush roads accessed from Highway 144 and from the Sultan Industrial Road which runs east–west along, and below, the southern part of the Project area.

The Project area is characterized by long, cold winters and short, warm summers. Any future mining operations would be expected to be conducted year-round.

1.4 Mineral Tenure, Surface Rights, Water Rights, Royalties and Agreements

IAMGOLD holds a major tenement package consisting of 3,208 tenures covering an area of about 60,017 ha (Table 1-1). The tenure includes patented claims, mining leases, and a series of unpatented cell and boundary claims. All lease and patent boundaries for the property package have been surveyed. Boundary and corner posts defined existing claims.

On April 10, 2018, the Ministry of Energy, Northern Development and Mines (ENDM) converted Ontario's manual system of ground and paper staking, and maintaining unpatented mining claims to an online system, the Mining Land Administration System (MLAS). All active, unpatented claims were converted from their legally defined location by claim posts on the ground or by township survey to a cell-based provincial grid.

IAMGOLD has applied for a number of mining leases. IAMGOLD is of the opinion that there are no risks associated with actual issuance of the Côté Gold Project mining leases, and that the issuance will occur when the ENDM clears the backlog arising from the freeze period imposed as part of the MLAS implementation.

Table 1-1: Mineral Tenure Summary Table

Agreement/Property	Sub-area	Number of Tenures/Claims	Approximate Area (ha)
Chester 1		2	150
Chester 2		28	847
Chester 3		56	1,283
Clam Lake–Crown Minerals		20	241
Clam Lake		8	80
Leliever		3	54
Ontario 986813 Ltd	North	20	174
	Northeast	13	107
	East	119	1,901
	South	106	1,446
Watershed		510	8,059
TAAC East		32	300
TAAC West		854	17,777
Huffman Lake Option		43	629
Falcon Gold Option		36	623
GoldON	Chester	4	29
	Neville-Pottier	297	6,563
	Mollie River	42	677
TME	North	41	891
	East	273	4,717
	South	226	4,819
	Makwa	24	274
	Powerline	144	3,044
	Champagne	90	1,456
Sheridan Option		217	3,876
TOTAL		***3,208***	***60,017***

Following an amalgamation on June 1, 2017, all of IAMGOLD's interests in the groups of properties are now owned by and registered in the name of IAMGOLD Corp., with the exception of the Ontario 986813 Ltd (Arimathaea Resources Inc) property, which is held in the name of Ontario 986813 Ltd (Ontario 986813), an IAMGOLD subsidiary.

On June 20, 2017, IAMGOLD completed a transaction with Sumitomo Metal Mining (Sumitomo) wherein Sumitomo agreed to acquire a 30% undivided participating joint-venture interest in the IAMGOLD's property interests in the property package. Sumitomo's interest in the property is held by the Sumitomo subsidiary SMM Gold Côté Inc.

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. Mineral claims subject to agreements are kept in good standing by IAMGOLD as a requirement of those agreements. Under Provincial requirements IAMGOLD regularly completes assessment work that is filed to renew or extend the claims for as much as five years of validity.

1.5 Geology and Mineralization

The Project area is located in the Swayze greenstone belt in the southwestern extension of the Abitibi greenstone belt of the Superior Province. Igneous lithologies predominate and include both volcanic and plutonic rocks. Sedimentary rocks occur mainly near the top of the succession.

The Chester Intrusive Complex (CIC), a crudely stratified tonalite–diorite laccolith containing numerous screens and inclusions of mafic volcanic rocks is host to the Côté Gold deposit. The CIC units formed from a number of pulses of several distinct and evolving dioritic and tonalitic magmas that display complex crosscutting relationships. The intrusive phases were followed by magmatic-hydrothermal brecciation and the emplacement of several stages of gold-bearing veins. Subsequently, the deposit was intruded by several types of dyke rocks, and was subjected to deformation, in the form of deformation zones and brittle faulting.

The Côté Gold deposit gold mineralization is centred on breccia bodies of magmatic and hydrothermal origin, but also occurs as veins (sheeted veins and stockworks) and disseminations in tonalitic and dioritic rocks. Disseminated mineralization in the hydrothermal matrix of the breccia is the most important style of the gold–copper mineralization. This style consists of disseminated pyrite, chalcopyrite, pyrrhotite, magnetite, gold (often in native form), and molybdenite in the breccia matrix.

Other mineralization styles that have been identified within the Project area include quartz vein and fracture associated, orogenic or structurally-hosted vein occurrences, and syenite intrusion-related gold zones. The syenite intrusion-related gold zones are considered attractive exploration targets.

1.6 History

Prospecting and exploration activity in the Project area began about 1900. Production records have not been compiled for the early mining efforts.

Prior to the discovery of the Côté Gold deposit, exploration activities had included geological mapping, outcrop stripping, numerous small-scale core drilling programs, and geophysical surveys. A number of small-scale shafts and associated development were excavated.

In 2007, Trelawney Augen Acquisition Corp (Trelawney; now an IAMGOLD subsidiary) commenced assembling the large land package. Trelawney undertook prospecting, till, channel, strip, and grab sampling; airborne geophysical surveys (magnetic, electromagnetic, radiometric); ground geophysical surveys (ground magnetics, very low frequency and induced polarization); core drill programs; bulk sampling programs; metallurgical testwork and mining studies.

IAMGOLD acquired Trelawney's interests in 2012. Subsequently, IAMGOLD have completed reconnaissance and mapping, outcrop stripping, geochemical surveys (TBA) and geophysical surveys (ground IP, pole–dipole IP/resistivity, and very-low frequency geophysical surveys), additional metallurgical testwork, environmental and baseline surveys, and mining and technical studies, including a pre-feasibility study (PFS) in 2017.

1.7 Drilling and Sampling

A total of 770 drill holes (321,875 m) were completed within the Côté Gold deposit area. Outside the Côté Gold deposit area, in the period 2008–2018, a total of 567 drill holes for about 159,078 m has been completed.

Core sizes have included HQ (63.5 mm core diameter), NQ (47.6 mm), BQ (36.4 mm), and BQTW (36 mm). Drill programs have included cores drilled for delineation, infill, condemnation, geotechnical and metallurgical purposes.

Geologists completed core logs, recording details of lithology, alteration, mineralization, and structure. The core was photographed. Technicians made meterage marks and logged rock quality designation (RQD). The mineralized and barren core is very competent, except for very local, multiple metre length intervals of blocky core where minor faults are encountered. Overall, the core recovery for the 2009–2018 programs was approximately 99%.

The collar azimuths for pre-2017 holes were established using front and back site markers located in the field with compass or GPS. The collars are subsequently re-surveyed post-drilling. L. Labelle Surveys based in Timmins Ontario has been responsible for collecting the survey measurements for the Côté Gold Project since 2009.

IAMGOLD reports a FlexIT SmartTool instrument was used to collect down hole survey measurements for keyindex holes (drill holes used in the Mineral Resource estimate) drilled between 2009 and 2013. A Reflex EZ-TRAC tool was used to collect down hole survey measurements for holes drilled between 2014 and 2018.

Drilled thicknesses are generally greater than true thicknesses, depending on the dip of the mineralization, and the angle of the drilled hole.

The sampling interval was established by minimum or maximum sampling lengths determined by geological and/or structural criteria. The minimum sampling length was 50 cm, while the maximum was 1.5 m. The typical sample length in most of the mineralized zones is 1 m.

IAMGOLD determines the bulk density of samples by the water immersion method.

The primary laboratories used are independent of IAMGOLD and include:

- Accurassay (2011–2015), Timmins, Thunder Bay, (Ontario), accredited to ISO 17025 by the Standards Council of Canada, Scope of Accreditation 434
- ActLabs (2015–2018), Ancaster, Dryden, Timmins, Thunder Bay (Ontario), accredited to ISO 17025 by the Standards Council of Canada, Scope of Accreditation 266

At Accurassay, samples were crushed to -8 mesh and pulverized to 90% passing -150 mesh. Assays were completed using a standard fire assay (FA) and an atomic absorption (AA) finish. For samples that returned values of 2–5 g/t Au, another pulp was taken, and fire assayed with a gravimetric (FA-gravimetric) finish. Samples returning values >5 g/t Au were reanalyzed by pulp metallic analysis. All samples were subject to a 33-element inductively-coupled plasma (ICP) scan.

Initially at ActLabs, samples were crushed to 10 mesh and pulverized to 85% passing 200 mesh. Assays were completed using a standard FA and an AA finish. For samples that returned values between 2–5 g/t Au, another pulp was taken and assayed using the FA-gravimetric method. Samples returning values >5 g/t Au were reanalyzed by pulp screen metallic analysis. From 2017 onward, the entire sample had to be crushed to 95% passing 2.8 mm screen and a sample split pulverized to 95% passing 100 mesh. Samples analyzed using a standard FA with an AA finish. For samples that returned assay values >2.0 g/t, another cut was taken from the original pulp and subjected to FA-gravimetric analysis. For samples showing visible gold or samples which returned values >20.0 g/t; a reanalysis using pulp metallic methods had to undertaken.

Umpire (check) laboratories were also independent of IAMGOLD and included:

- ActLabs (2012–2014): accredited to ISO 17025 by the Standards Council of Canada, Scope of Accreditation 266
- ALS Minerals (ALS), Val d'Or, Quebec (2015): accredited to ISO 17025 by the Standards Council of Canada, Scope of Accreditation 689.
- AGAT (2017–2018), Mississauga, Ontario, accredited to ISO 17025 by the Standards Council of Canada, Scope of Accreditation 665.

QA/QC insertion included standard reference materials (SRMs), blanks and pulp duplicates as a standard procedure. IAMGOLD inserted control samples after every 12th sample interval. Over the Project life, about 23 different SRMs and two types of blanks have been used. The IAMGOLD QA/QC protocol includes the use of blanks inserted in the sample stream at a frequency of approximately one in 24 samples.

Pre-2017 drill hole data previously stored in a Gems database was moved to acQuire. All new drill hole collars are provided by surveyors and imported into Gems and subsequently transferred to acQuire. All new logging is recorded directly into a Gems database and subsequently transferred to acQuire. All new assay results are imported directly into acQuire. Those assays are subsequently transferred to the Gems database.

Analytical samples are transported by company or laboratory personnel using corporately owned vehicles. Core boxes and samples are stored in safe, controlled areas. Chain-of-custody procedures are followed whenever samples are moved between locations, to and from the laboratory, by filling out sample submittal forms.

Drill core is stored at the property in wooden core boxes under open-sided roofed structures, arranged by year. All rejects and pulps from the laboratory are also stored on site. Pulps are categorized by batch number and are stored inside sea containers. Rejects are stored inside plastic crates under temporary shelter.

1.8 Data Verification

Internal data verification was performed by IAMGOLD staff over the Project history, and included: exploration data reviews, including exploration information, geological mapping, geological interpretations; drill collar position checks; downhole survey data reviews; examination of drill logging; review of sampling procedures, and assay data checks. Errors found in the database were reported to the database administrator and material errors were corrected as needed. Occasional inconsistencies found in the drill logs were addressed. Inconsistent sampling practices, with some samples crossing obvious contacts or lithological and mineralization limits were noted.

In 2012, staff from Roscoe Postle Associates Inc (RPA) completed site visits, and reviewed exploration, drilling, logging, and sampling procedures with Trelawney and IAMGOLD personnel. Witness core samples were collected, which independently confirmed the presence of gold mineralization. RPA also reviewed the available QA/QC data for the Côté Gold deposit. This included reviews of blank, CRM, pulp reject and check assays. Approximately 12% of the drill hole assay database was checked by comparing assay certificates to entries in the IAMGOLD database. Overall, the database was considered to be acceptable to support Mineral Resource estimation.

In December 2014, InnovExplo independently validated the entire assay database against laboratory certificates.

RPA's 2017 reviews included site visits, core reviews, field collar checks. Database checks included visual drill hole trace inspection and checks for extreme and zero assay values, unsampled or missing intervals, and overlapping intervals, routine database validation checks specific to Geovia GEMS to ensure the integrity of the database records, and comparison of about 5% of the assays from the 2015 drilling campaign against the assay certificates. RPA concluded that logging, sampling procedures, and data entry comply with industry standards and that the database that was reviewed was acceptable for Mineral Resource estimation.

Wood conducted data verification in 2018. This program included site visits during which Wood 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. Wood 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 QP, 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 and Mineral Reserve estimation, and mine planning.

1.9 Metallurgical Testwork

Metallurgical laboratories involved with the testwork programs have included: SGS facilities in Lakefield, Ontario; COREM (a consortium composed of several mining companies and the Government of Quebec), in Quebec City, Quebec; and the University of British Columbia.

Metallurgical testwork completed since 2009 has included: comminution (Bond low-impact (crusher), rod mill and ball mill work indexes, Bond abrasion index, semi-autogenous grind (SAG) mill comminution (SMC), high-pressure grind-roll (HPGR), piston press, and Atwal) tests; gravity recoverable gold tests; cyanide leaching (effect of head grade, effect of grind, reagent usage, carbon-in-pulp (CIP) modelling, cyanide destruction, solid–liquid separation and barren solution analysis) testwork; development of recovery projections; and review of potential for deleterious elements.

The comminution testwork indicated that the material tested was very competent, and that the mineralization is well-suited to an HPGR circuit.

The mineralization is free-milling (non-refractory). A portion of the gold liberates during grinding and is amenable to gravity concentration and the response to gravity and leaching is relatively consistent across head grades. Therefore, the lower-grade gold material is expected to exhibit the same level of metal extraction. Individual lithologies follow the general trends for grind size sensitivity and cyanide consumption. However, there is evidence of differences in free gold content. Silver content is consistently reported under 2 g/t. The testwork does not report on silver recovery.

Overall gold recovery is estimated at 91.8% for the processing of 36,000 t/d using the proposed flowsheet.

Cyanide and lime consumptions are quite low in comparison to what is typically seen in the industry which reflects the lack of cyanicides and other cyanide consumers. Lime consumption is also positively impacted by the basic nature of the ore.

Metal dissolution during cyanide leaching was found to be low, and there are no obvious concerns with deleterious elements.

Overall metallurgical test results show that all the variability samples were readily amenable to gravity concentration and cyanide leach. Samples selected for metallurgical testing were representative of the various types and styles of mineralization within the different zones. Samples were selected from a range of locations within the deposit zones. Sufficient samples were taken so that tests were performed on sufficient sample mass.

1.10 Mineral Resource Estimation

The drill hole database for the Côté Gold deposit consists of 713 core holes totalling over 300,000 m drilled by IAMGOLD and Trelawney Mining, between 2009 and 2018. Assay data are available for 711 of the completed holes.

At the resource estimate database cut-off date of 7 June 2018, assays were pending for two holes, CL11-13 and CL11-14. These intervals were excluded from the block grade estimation. In addition, two drill holes contained more than 10 m of consecutive unreported assays; these two intervals were also excluded from the resource update. A further 1,645 intervals amounting to over 16,500 m of core were not sampled due to lack of visible mineralization. Un-sampled intervals are assumed to represent un-mineralized material or diabase dyke. Assay intervals at 0.002 g/t Au were inserted for un-sampled core to prevent extrapolation of grade into the ‘gaps’.

The lithological interpretation of the Côté Gold deposit was modelled in Leapfrog 3D by IAMGOLD exploration geologists. An extensive re-logging effort of drill core photos was conducted in early 2018 on all pre-2017 core holes. The re-logging effort resulted in a detailed and continuous geological model which added a significant amount of diorite breccia and hydrothermal breccia. This resulted in important improvements and a better overall understanding of the Côté deposit and of the distribution of mineralization, as well as a 30% increase in the volume of the Extended Breccia (Ext BX) shapes.

The geological model contains seven units: tonalite (TON), diorite (DR), diorite breccia (BXDR), hydrothermal breccia (HDBX), diabase dykes (DIA), fault zone (FLT), and overburden (OVB). Silica–sodic alteration envelopes were developed in Leapfrog 3D by IAMGOLD geologists based on a review of available core.

Wood reviewed the geology wireframes in 3D, and on vertical section and plan view maps, and concludes that the geological model is reasonable, honours the input data, and is suitable for resource modelling. The alteration envelopes were received late in the resource estimation process and were used for classification only.

Results of exploratory data analysis (EDA) indicate that the Ext BX units generally contain composite gold grades above 0.3 g/t. Higher-grade gold mineralization occurs chiefly within the two breccia units, BXDR and HDBX and to a lesser extent in TON and DR. The mean gold grade is higher in the south breccias. Box-and-whisker plots show that gold mineralization is higher in breccia units. However, mineralization occurs in all lithological packages inside the Ext BX unit (EDA envelope). The gold estimation domains are defined by lithology and the Ext BX units. Units were grouped where inspection showed similarities in the grade distributions or in cases of relatively low composite counts. Contact plots were inspected to determine the behaviour of composite grades across the geological boundaries. Contacts were assigned as either hard, firm, or soft boundaries.

Outlier analysis was undertaken on the original assay sample intervals prior to compositing. The assays were grouped by major lithology inside and outside the Ext BX (EDA envelope) for the analysis. Wood selected capping thresholds after analyzing four types of charts: cutting statistics, decile plots, histograms, probability plots, and Risk-Hi analysis. The number of composites capped was also taken into consideration.

The assay sample intervals were composited to regular 6 m intervals for the entire length of the drill holes. The composites were broken at lithological boundaries.

The drill hole database contains 785 records for density (specific gravity). The density data were analysed by lithology domain. High (>3) and low-density (≤2.4) outliers were identified and filtered before calculating the means and variances of the distributions. The resulting mean density values were assigned to the blocks by lithology.

Variograms were calculated and modelled for grade for change-of-support (COS) analysis and sequential gaussian simulation for mining dig-line optimization and for a metal indicator for a drill hole spacing study. Variograms were modelled for the north and south domain groups.

A 10 x 10 x 12 m block size was selected for the resource block model. The resource block model was sub-blocked to 5 x 5 x 6 m to maintain geological boundary resolution. Various powers of inverse distance (ID) estimation were used for gold block grade estimation. A strategy was employed to adjust or 'tune' the estimator to achieve the selectivity of the target grade–tonnage curve obtained by change of support from a nearest-neighbour (NN) grade–tonnage curve. A three-pass estimation strategy was generally followed, except for the DIA domain, for which a single estimation pass was used. The first-pass sample search distances were adjusted to gather samples from adjacent holes on and off-section. The search criteria were relaxed for passes two and three. The sample search ellipse orientation was aligned to the variogram models. A strict octant search was used for the third pass outside of the Ext BX to mitigate grade smearing in relatively under-sampled areas with no clear geological controls.

The block grade estimates were validated using several methods: visual checks on vertical sections and plan views; statistical checks; swath plots and PRISM plots for local bias; Hermitian correction (HERCO) grade–tonnage curves for change-of-support analysis by domain, and conditional simulation for overall change-of-support analysis. The gold block grade estimate passed all validation checks and is considered suitable for mine planning.

A drill hole spacing study was undertaken for the five major gold estimation domains to establish the drill hole spacing (distance between holes) required to support confidence interval targets at a given production rate for estimated contained metal. Mineral Resources were assigned a block confidence classification based on drill hole spacing with consideration given to geological and grade continuity, and the quality of drill hole information. Blocks in an area with nominal drill hole spacing of 44 m were classified as Measured and blocks in an area with a nominal drill hole spacing of 66 m were classified as Indicated. Blocks outside of the Indicated limits were assigned as Inferred if the nominal spacing was 110 m or less. Smoothing using Vulcan was undertaken, and a number of block classifications were manually adjusted downward in confidence.

A conceptual pit shell was generated using Whittle software to constrain the Mineral Resources.

1.11 Mineral Resource Statement

Based on the input parameters used for the constraining conceptual resource pit, the marginal cut-off grade is calculated at 0.23 g/t Au, and the breakeven cut-off grade is 0.29 g/t Au with the mining costs included. Wood has used a 0.3 g/t Au cut-off for the Mineral Resource tabulation, as it meets the requirement for reasonable prospects of eventual economic extraction, and it supports the assumptions regarding grade continuity at that cut-off.

Mineral Resources are reported in Table 1-2 using the 2014 CIM Definition Standards. The Qualified Person for the estimate is Mr. Peter Oshust, P.Geo., a Wood employee. Mineral Resources summarized in Table 1-2 are reported inclusive of Mineral Reserves. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.

Areas of uncertainty that could affect the Mineral Resource estimates include the following: effect of alteration or other geological attributes as local controls on mineralization; lithological interpretations on a local scale, including fault zone modelling, DIA dyke modelling, and discrimination of breccias; assumptions of density (specific gravity) based on a low number of samples for the size of the deposit; commodity pricing; metal recovery assumptions; assumptions as to operating costs used when assessing reasonable prospects of eventual economic extraction.

Wood is not aware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors that could materially affect the Mineral Resource estimate that are not discussed in this Report.

Geological controls of the mineralization of the Côté Gold deposit are still uncertain at the local scale. At the time of the resource estimate, ICP data required to complete a geological control study were not yet available. This lack of information is mitigated by good drill coverage, the use of an alteration model as one classification criterion, and an open pit operation. The QP does not believe this local uncertainty would materially affect the Mineral Resource estimates.

Table 1-2: Mineral Resource Table

Classification	Cut-off (g/t)	Tonnage (Mt)	Gold Grade (g/t Au)	Contained Gold (koz Au)
Measured	0.3	171.9	0.96	5,310
Indicated	0.3	183.5	0.79	4,660
Measured & Indicated	***0.3***	***355.4***	***0.87***	***9,970***
Inferred	0.3	112.8	0.67	2,430

Notes:

1. The effective date for the Mineral Resource estimate is 26 July, 2018. The Qualified Person for the estimate is Mr. Peter Oshust, P.Geo., a Wood employee.
2. Mineral Resources are constrained within a conceptual pit shell developed using Whittle™ software. Assumptions used to prepare the conceptual pit include: metal price of US$1500/oz Au; base mining cost of US$1.61 /t mined; stockpile reclaim cost of US$0.87; overall processing cost of US$10.17/t milled; treatment and refining cost of US$1.75/oz; mining assumes 100% recovery with dyke dilution,; pit slope angles are forecast to range from 41.3° to 48.1°; process recovery of 91.8%; and net smelter return royalty of 1.5%.
3. Based on the input parameters used for the constraining conceptual resource pit, the marginal cut-off grade is calculated at 0.23 g/t Au, and the breakeven cut-off grade is 0.29 g/t Au with the mining costs included. Wood has used a 0.3 g/t Au cut-off for the Mineral Resource tabulation, as it meets the requirement for reasonable prospects of eventual economic extraction, and it supports the assumptions regarding grade continuity at that cut-off.
4. Mineral Resources are reported using the 2014 CIM Definition Standards, and are stated inclusive of Mineral Reserves. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
5. Mineral Resources are reported on a 100% Project basis.
6. Numbers have been rounded. Totals may not sum due to rounding.

1.12 Mineral Reserve Estimation

Mineral Reserves were classified in accordance with the 2014 CIM Definition Standards. Only Mineral Resources that were classified as Measured and Indicated were given economic attributes in the mine design and when demonstrating economic viability. Mineral Reserves for the Côté Gold deposit incorporate appropriate mining dilution and mining recovery estimations for the open pit mining method.

The mine plan is based on the detailed mine design derived from the optimal pit shell produced by applying the Lerchs–Grossmann (LG) algorithm.

Wood imported the resource model, containing gold grades, block percentages, material density, slope sectors and rock types, and net smelter return, into the optimization software. The optimization run was carried out only using Measured and Indicated Mineral Resources to define the optimal mining limits.

The optimization run included 55 pit shells defined according to different revenue factors, where a revenue factor of 1 is the base case. To select the optimal pit shell that defines the ultimate pit limit, Wood conducted a pit-by-pit analysis to evaluate the contribution of each incremental shell to net present value (NPV), assuming a processing plant capacity of 36 kt/d and a discount rate of 6%.

The Mineral Reserve estimate incorporates considerations of dilution and ore losses on a block basis. As the mining cost increases with depth and the royalty percentage varies by zone, individual blocks captured within the final pit design were tagged as either ore or waste by applying the parameters shown in Table 1-3. Using the partial block percentages within the final pit design the ore tonnage and average grade were estimated.

1.13 Mineral Reserve Statement

The Mineral Reserves statement is shown in Table 1-4. The cut-off applied to the Mineral Reserves is variable with a range of 0.33 to 0.37 g/t Au and averages 0.35 g/t Au. The estimate has an effective date of 1 October, 2018. The QP for the estimate is Dr. Antonio Peralta Romero, P.Eng., a Wood employee.

1.14 Mining Methods

The Base Case mine plan is based on a subset of the Proven and Probable Mineral Reserves and this mine plan is used to support the permit application. Table 1-4 shows the subset of the Mineral Reserves included in the Base Case mine plan.

Geotechnical analyses are based on a combination of site visit inspections by Wood personnel, data processing and compilation of previously completed geomechanical investigations and site-specific resources supplied by IAMGOLD, kinematic analysis, limit equilibrium modelling, and overall slope stability analysis of the main pit walls including review of the hydrogeological conditions.

Table 1-3: Optimization Inputs

Parameter	Unit	Value
Gold price	$/oz	1,200
Discount rate	%	6
Overall slope angles		
KS 1a	degrees	54.0
KS 1b	degrees	54.0
KS 2 Upper	degrees	54.0
KS 2 Lower	degrees	56.4
KS 3	degrees	53.4
KS 4a Upper	degrees	47.9
KS 4a Lower	degrees	49.2
KS 4b Upper	degrees	49.2
KS 4b Lower	degrees	45.8
KS 5 Upper	degrees	54.0
KS 5 Lower	degrees	56.4
Dilution	%	Resource model is already diluted
Mine losses	%	Taken into account by block
Mining Cost		
Base elevation	m	388
Base cost	$/t	1.61
Incremental mining cost	$/t/bench	0.029
Stockpile reclaim cost	$/t	0.87
Process Costs		
Operating cost	$/t milled	7.01
G&A cost	$/t milled	1.84
Process sustaining capital	$/t milled	0.82
Closure	$/t milled	0.50
Processing rate	kt/d	36
Process recovery	%	91.80
Treatment and refining cost	$/oz	1.75

Parameter	Unit	Value
Royalties		
Zone 1	%	0.75
Zone 2	%	1.00
Zone 3	%	0.00
Zone 4	%	1.50
Zone 5	%	0.75
Zone 6	%	1.50
Zone 7	%	0.75
Zone 8	%	0.75

Table 1-4: Mineral Reserves Statement

Classification	Tonnes (Mt)	Grade (g/t Au)	Contained Ounces (oz x 1,000)
Mineral Reserves within Base Case Mine Plan			
Proven	134.3	1.03	4,440
Probable	68.7	0.88	1,950
Proven and Probable	203.0	0.98	6,391
Mine rock within Base Case pit	491.7		
Incremental Mineral Reserves within Extended Case Mine Plan			
Proven	4.9	1.26	200
Probable	25.1	0.86	694
Proven and Probable	30.0	0.93	894
Incremental mine rock within Extended Case pit	119.8		
Total Mineral Reserves			
Proven	139.2	1.04	4,640
Probable	93.8	0.88	2,644
Proven and Probable	233.0	0.97	7,284
Total mine rock within Extended Case pit	611.5		
Total tonnage within Extended Case pit	844.5		

Notes to accompany Mineral Reserves Table:

1. The effective date of the Mineral Reserves estimate is 1 October, 2018. The Qualified Person for the estimate is Dr. Antonio Peralta Romero, P.Eng., a Wood employee.

2. The Mineral Reserves were estimated assuming open pit mining methods, and are reported on a 100% Project basis.

3. Mineral Reserves used the following assumptions: gold price of $1,200/oz; fixed process recovery of 91.8%; treatment and refining costs, including transport and selling costs of $1.75/oz Au; variable royalty percentages by zone: 0.75% for Zone 1, 1.00% for zone 2, 0.00% for zone 3, 1.50% for zone 4, 0.75% for zone 5, 1.50% for zone 6, and 0.75% for zones 7 and 8; overall pit slope angles varying by sector with a range of 45.8° to 56.4°; processing costs of 10.17/t, which includes process operating costs of $7.01/t, general and administrative costs of $1.84/t, sustaining costs of $0.82/t, and closure costs of $0.50/t; mining costs of $1.61/t incremented at $0.029/t/12m below 388 elevation, life-of-mine average mining costs of $2.01/t, and rehandling costs of $0.87/t. The cut-off applied to the reserves is variable with a range of 0.33 to 0.37 g/t Au and averages 0.35 g/t Au.

4. Numbers have been rounded. Totals may not sum due to rounding.

The pit has been sub-divided into five main structural domains related to the pit geometry and a major east–west-trending fault. Bench face angles of 60–75º were recommended. Bench widths in each sector were widened as necessary, based on the significance of toppling and wedge failures, from a minimum value of 9.5 m up to 12 m assuming double benching on the final pit wall. A 20 m wide geotechnical berm is recommended for midpoint between inter-ramp spacing greater than 150 m.

The Base Case is designed as a truck-shovel operation assuming 220 t autonomous trucks and 34 m^3 shovels. The pit design includes four phases to balance stripping requirements while satisfying the concentrator requirements. The design parameters include a ramp width of 35 m, road grades of 10%, bench height of 12 m, targeted mining width between 90 m, berm interval of 24 m, variable slope angles by sector and a minimum mining width of 40 m.

The smoothed final pit design contains approximately 203 Mt of mill feed and 492 Mt of waste for a resulting stripping ratio of 2.4:1. The 203 Mt processed fits within the maximum capacity of the TMF.

The Base Case production schedule includes the process plant ramp-up schedule. This schedule takes into account the inefficiencies related to start of operations, and includes the tonnage processed as well as the associated recoveries, which steadily increase to reach the design capacity after 10 months of operation. The mine will require one year of pre-production before the start of operations in the processing plant.

Although the mine requires one year of pre-stripping, mining starts in Year -2 to provide material for the TMF construction. The deposit is planned to be mined in four phases included within the ultimate pit limit. The schedule was developed in quarters for the pre-production period and for the first five years of production, then in yearly periods. Following evaluation of different rates, a maximum mining capacity of 62 Mt/a was selected to develop the detailed production schedule and the maximum number of benches mined per year was set at eight in each phase.

Additional constraints were used to guide the schedule, including feeding lower grades during the first months of the plant ramp-up schedule, the maximum stockpile capacity and reducing the mining capacity in later years to balance the number of truck requirements per period.

The final proposed Base Case schedule is shown in Figure 1-1. The schedule produced a Base Case life-of-mine (LOM) of 13 years with stockpile reclaim extending into Year 16. The amount of re-handled mill feed is 59 Mt, which requires a maximum stockpile capacity of 48 Mt when considering the reclaim.

The MRA will be constructed southeast of the planned open pit to store mine rock from the open pit excavation. In its ultimate configuration, the MRA will store 350 Mt of mine rock with its final crest elevation at an approximate elevation of 480 m. Collection ditches and six runoff collection ponds/sumps will be built at topographical low points around the MRA perimeter to collect runoff and seepage, which will then be pumped to the polishing pond.

The overburden storage, which will be located to the southwest of the pit, will have a storage capacity of approximately 8.2 Mm^3. The ore stockpiles will be located on the north side of the pit and have a total storage capacity of 23 Mm^3, which is enough to satisfy the maximum stockpiling capacity of approximately 48 Mt required in the production schedule.

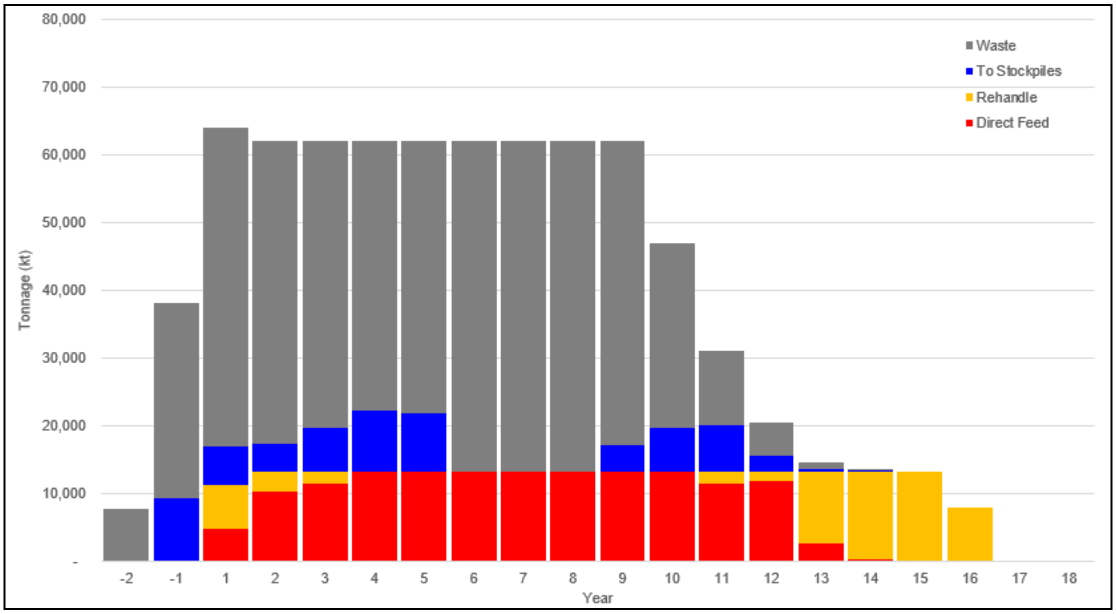
Blasting operations will be contracted to a blasting explosives provider. Drilling will be required for both ore control and blasting.

Base Case mining operations will use an autonomous truck and drill fleet, supported by a conventional manned loading fleet and a fleet of manned support equipment. The truck fleet will be diesel-powered with the capacity to mine approximately 60.0 Mt per year operating on 12 m benches. The hydraulic shovel fleet will be electric powered supported by two large diesel-powered front-end loaders (FELs).

The mine will be supported by multiple contractors. A contractor miner is assumed to mine all overburden within the mine plan and to develop the initial benches in the pre-production period for the autonomous fleet. A maintenance and repair contract (MARC) will be in place during pre-production and the first three years of operation. Blasting will be done by a contract down hole service during the LOM. A full-service contract tire provider will be used throughout the life of mine to supply, repair, and change tires at the mine site.

Equipment requirements are estimated on a quarterly basis during pre-production and the first five years of mining, and annually thereafter. Equipment sizing and numbers are based on the mine plan, maintenance availability assumptions, and a 24/hr, 7 d/wk work schedule.

Figure 1-1: Base Case Proposed Production Schedule



Note: Figure prepared by Wood, 2018.

1.15 Recovery Methods

The process plant design for the Base Case is conventional and uses conventional equipment. The process plant will consist of:

- Primary (gyratory) crushing
- Secondary cone crushing and coarse ore screening
- Coarse ore stockpile (COS)
- Tertiary HPGR crushing
- Fine ore screening and storage
- Two milling stages (ball mill followed by vertical stirred mills)
- Gravity concentration and intensive leaching
- Pre-leach thickening
- Whole ore cyanide leaching
- CIP recovery of precious metals from solution
- Cyanide destruction

- Tails thickening
- Elution of precious metals from carbon
- Recovery of precious metals by electrowinning (EW)
- Smelting to doré.

The plant will have facilities for carbon regeneration, tailings thickening and cyanide destruction. Plant throughput will be 36,000 t/d and it is expected that a ramp-up period of 10 months will be required to reach the design throughput.

Tailings water from the reclaim pond will be the primary source of mill water, providing the majority of the process plant requirements, whereas the storm/mine water pond will be a secondary source of process water. Fresh water will be required for reagent mixing at the process plant which will be pumped from Mesomikenda Lake.

The major reagents required will include flocculant, caustic, cyanide, copper sulphate, molten sulphur, anti-scalant, lime, hydrochloric acid and oxygen. A dedicated, self-contained air service system will be provided.

The mill will require approximately 50.7 MW of power to operate at full capacity.

1.16 Project Infrastructure

Infrastructure required to support Base Case operations will include: the open pit; MRA; stockpiles; TMF and associated ponds; access and internal roads; powerlines and power distribution networks; watercourse realignments, diversion channels, dams and ponds; a New Lake to replace Côté Lake; process facilities; accommodation facilities; and mine support facilities including offices, workshops and warehouses.

Power supply for the Base Case is assumed to be provided via an upgraded existing transmission line operated by Hydro One from Timmins to Shining Tree Junction and a new 44 km-long 115 kV electrical power transmission line from Shining Tree Junction to the Project site. The calculated electrical load for the Côté Gold site is as follows:

- 61 MW maximum demand load
- 59 MW average demand load
- 98% lagging (inductive) power factor.

This calculated load is based on the current electrical load list, and includes two electric shovels, mine dewatering, all ancillary loads, and a 10% allowance for growth during detailed design. Hydro One has allocated a total of 72 MW of capacity to the Project. Emergency back-up power will be available from four diesel standby generators.

The selected route to the plant is the existing Chester Logging Road which has already been upgraded from the Sultan Industrial Road to km 4.62 at the intersection with an existing road to the planned open pit area. At the corner of the planned TMF site, the existing road continues into the footprint of the TMF, and 4.28 km of new road construction will be required to extend the access to the construction/permanent camp entrance. This section of road will be constructed as part of the early works and will be used as a primary construction access to the plant site and the camp area. A mine by-pass road will be constructed to allow the public to access Chester Logging Road north of the TMF without passing through the mine security gate and the mine site proper.

Base Case mine development will require three major haul roads, consisting of access to the MRA, the TMF, and the topsoil/overburden stockpile. In addition, a major intersection is required on the north side of the open pit to tie together the exit from the pit with the pit bypass road, the ramps to the ore stockpiles and the crusher and truck shop ramps.

1.17 Environmental, Permitting and Social Considerations

1.17.1 Environmental Considerations

IAMGOLD received Provincial ministerial approval of the 2015 Environmental Assessment (EA) for the Project. The EA states that no significant effects are anticipated after application of the proposed mitigation measures. Environment Canada stated in May 2016 that the Project is not likely to cause significant adverse environmental effects. The Project presented in the 2018 Feasibility Study has undergone optimizations since the 2015 EA, including: relocation of the TMF to minimize overprinting of fish-bearing waters, reduce the Project footprint, improve Project economics, reduce the need for watercourse realignments, and avoid effluent discharges to the Mesomikenda Lake watershed; smaller open pit; modifications to the process plant; reduction in transmission line voltage, and re-routing of the transmission line. IAMGOLD is of the opinion that there are no new net effects arising from the 2018 Feasibility Study. On October 19, 2018, CEAA confirmed that the proposed Project changes are not considered new designated physical activities and therefore a new environmental assessment is not required. On November 9, 2018, MECP also confirmed their concurrence with the conclusion in the EER report, that the proposed changes to the undertaking result in no new net effects.

Baseline environmental and social studies have been conducted addressing aspects of: water; air and noise; soils; geology and geochemistry; hydrology; hydrogeology; surface water quality; water sedimentation; groundwater quality; aquatic resources; wildlife; land use; cultural heritage and paleontological resources; and Aboriginal traditional land use. IAMGOLD has conducted additional baseline studies within the boundaries of the new TMF and topsoil/overburden stockpile, and new transmission line alignment, to infill the physical, biological and human environment characterizations conducted previously. These additional baseline data, together with design information for the site configuration, were used to prepare the Environmental Effects Review (EER) for the project, for submission to the Canadian Environmental Assessment Agency (CEAA) and the Ministry of the Environment, Conservation and Parks (MECP), thus informing the regulatory agencies of changes or improvements to the EA. As of November 9, 2018, both the CEAA and MECP concur with the conclusion in the EER report, which demonstrates that the proposed changes to the undertaking result in no new net effects.

1.17.2 Tailings Management Facility

Over the proposed Base Case LOM of 16 years, tailings production is approximately 13.1 Mt/a from nominal mill throughput of 36,000 t/d, except in Year 1 when it is about 11 Mt due to ramp-up. The TMF will store 203 Mt of tailings over the LOM.

Tailings will be thickened with solids concentration in slurry at 62% and discharged from the TMF perimeter dams, forming an overall beach slope of approximately 1%. Tailings solids will settle in the TMF with pore water retained in the voids with supernatant water forming a pond. Based on recent rheology, drained and undrained column settling tests, an overall in-situ dry density of 1.5 t/m^3 is expected.

Perimeter embankment dams, raised in stages, will be used for tailings management. Monitoring instrumentation will be used to monitor dam deformation and dam settlement during both operation and post-closure.

TMF water will be pumped from the tailings pond/reclaim pond directly to the mill for reuse and hence forms a closed circuit without contact with other water bodies. Collection ditches and ponds will be located at topographical low points around the TMF perimeter to collect runoff and seepage. In the ultimate TMF configuration there will be six collection ponds. The ponds will lead the seepage to the reclaim pond by gravity (or by pumping in some cases) for recirculation to the process plant.

Water quality will be monitored in the process water (before and after cyanide destruction) prior to discharge to the TMF. Water quality will also be monitored in the TMF settling pond, reclaim pond, and in the seepage collection system. Groundwater quality will be monitored at wells to be installed downgradient of the TMF seepage collection system to confirm that seepage from the TMF is being captured in the seepage collection system.

1.17.3 Water Management

A watercourse realignment system has been designed to redirect water around the mine facilities to enable excavation and dewatering of the open pit.

Four pit protection dams will be constructed either within existing lakes, in shallow water, or at currently dry locations along the eastern periphery of the Clam Lake. These dams will protect water from entering the pit area. Two realignment channels will reroute the existing watercourses running into the open pit.

A polishing pond east dam will be constructed in the Three Duck Lakes (Upper) area to delineate the lake from the polishing pond area. The Côté Lake dam is required to facilitate early dewatering of Côté Lake and separate the Three Duck Lakes system from Côté Lake. A storm/mine water pond near the process plant will receive pumped inflows from the pit, the polishing pond when required, and runoff from the process plant site. Runoff from the ore stockpiles and MRA will report to the polishing pond via perimeter ditches.

1.17.4 Closure and Reclamation Planning

Closure of the Côté Gold Project will be governed by the Ontario Mining Act and its associated regulations and codes. IAMGOLD has prepared a Closure Plan in accordance with the legislative requirements in tandem with the 2018 Feasibility Study. This plan details measures for temporary suspension, care and maintenance and closure of the Project, including determining financial assurance required to implement the Closure Plan.

Conventional methods of closure are expected to be employed at the site. The closure measures for the TMF will be designed to physically stabilize the tailings surface to prevent erosion and dust generation. The pit will be allowed to flood, and the natural flow of the realigned water bodies will be re-established to the extent practicable. Revegetation will be carried out using non-invasive native plant species. Monitoring at appropriate sampling locations, including those established during baseline studies and operations, will be conducted after closure to confirm performance.

MENDM requires financial assurance for implementation of the Closure Plan. A closure cost estimate is included in the Base Case operating cost estimate.

1.17.5 Permitting Considerations

Most mining projects in Canada are reviewed under one or more EA 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, municipalities, Aboriginal groups, the general public and other interested parties.

Three primary Provincial agencies will be involved with Project approvals/permits:

- Ministry of Energy, Northern Development and Mines (MENDM)
- Ministry of Natural Resources and Forestry (MNRF)
- Ministry of Environment, Conservation and Parks (MECP).

Additional agencies that may be involved in permitting include:

- Ontario Energy Board (OEB)
- Ministry of Transportation (MTO)
- Infrastructure Ontario (IO)
- Ministry of Tourism, Culture and Sport (MTCS)
- Fisheries and Oceans Canada (DFO)
- Environment and Climate Change Canada (ECCC; formerly Environment Canada)
- Natural Resources Canada (NRC)
- Transport Canada (TC)
- NAV CAN (NC).

1.17.6 Social Considerations

IAMGOLD has actively engaged local and regional communities, as well as other stakeholders, to gain a better understanding of their issues and interests, identify potential partnerships, and build social acceptance for the Project. Stakeholders involved in Project consultations to date include those with a direct interest in the Project, and those who provided data for the baseline studies. The involvement of stakeholders will continue throughout the various Project stages. The range of stakeholders is expected to increase and evolve over time, to reflect varying levels of interest and issues.

As part of the Provincial conditions of environmental assessment approval, IAMGOLD will develop and submit a Community Communication Plan to the responsible Provincial ministry, outlining its plan to communicate with stakeholders through all phases of the project.

IAMGOLD plans to work with the community of Gogama to collaborate on the development of a socio-economic management and monitoring plan to manage potential socio-economic effects of the project (both adverse and positive).

An understanding of the Indigenous communities potentially interested in the Côté Gold Project was first developed through advice from MENDM to Trelawney Mining and Exploration Inc. in a letter dated 19 August 2011, and through advice from CEAA based on information provided by Aboriginal Affairs and Northern Development Canada (now Indigenous and Northern Affairs Canada). IAMGOLD sought further direction from both Provincial and Federal Crown agencies on the potentially-affected communities.

Based on Federal and Provincial advice and information gathered through engagement activities, IAMGOLD engaged a range of Indigenous groups during the preparation of the EA. Based on consultation efforts since the start of the Project, and on groups expressing a continued interest, IAMGOLD has continued to engage the identified communities through information sharing (e.g., newsletters, notices, invitations to open houses), and has focused on actively engaging affected communities identified through the EA process. IAMGOLD continues to negotiate Impact Benefit Agreements with Mattagami First Nation, Flying Post First Nation and the Métis Nation of Ontario (Region 3).

In addition, a Process and Funding Agreement has been reached between IAMGOLD, Mattagami First Nation and Flying Post First Nation related to the communities' involvement through the review of the EER and required regulatory permit applications to advance the Project.

As part of the Provincial and Federal conditions of approval, IAMGOLD will develop and submit an Indigenous Consultation Plan to the responsible government departments, outlining the Project's plan to consult with identified Indigenous groups throughout all phases of the Project. There is a requirement that IAMGOLD consult all identified Indigenous groups as part of the development of this Plan.

IAMGOLD has committed to work with the communities of Mattagami First Nation and Flying Post First Nation to collaboratively develop a socio-economic management and monitoring plan to manage potential socio-economic effects of the project (both adverse and positive).

1.18 Markets and Contracts

Gold doré bullion is typically sold through commercial banks and metals traders, with sales prices obtained from the World Spot or London fixes. These contracts are easily transacted, and standard terms apply. IAMGOLD expects that the terms of any sales contracts for the Base Case project 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.

The 2018 Feasibility Study assumes a gold price of US$1,250/oz for the economic analysis. Wood considers this price to be an industry consensus long-term forecast price.

1.19 Capital Cost Estimates

The estimate addresses the Base Case mine, process facilities, ancillary buildings, infrastructure, water management and tailings facilities scope, and includes:

- Direct field costs of executing the Base Case including construction and commissioning of all structures, utilities, and equipment
- Indirect costs associated with design, construction and commissioning
- Provisions for contingency and Owner's costs.

The estimate was prepared in accordance with the AACE International Class 3 Estimate with an expected accuracy of +15%/-10% of the final Project cost.

Cost estimates are expressed in third-quarter 2018 US dollars with no allowances for escalation, currency fluctuation or interest during construction. Costs quoted in Canadian dollars were converted to US dollars at an exchange rate of US$1 = C$1.30.

Capital cost estimates for surface facilities include the construction and installation of all structures, utilities, materials, and equipment as well as all associated indirect and management costs. The capital cost includes contractor and engineering support to commission the process plant to ensure all systems are operational. At the point of hand-over of the plant to IAMGOLD's Operations group, all operational costs, including ramp-up to full production, are considered as operating costs. The capital cost estimate is based on a 30-month Project development schedule starting upon Closure Plan approval.

The construction capital cost, summarized in Table 1-5, for the Base Case is estimated to be $1,236 M, inclusive of allowances for Owner's costs and contingency of $27 M and $100 M, respectively. Additional indirect costs for Operational Readiness and other owner's fees totalling $45 M result in a total Base Case initial capital cost of $1,281 M.

Some of the larger capital expenditures are amenable to capital financing. The majority of the initial mining fleet, having an approximate initial capital cost of $142 M, can be financed using capital lease agreements with vendors. Inclusive of a down-payment of 0–15% of the purchase value paid at placement of order and interest payments incurred during the construction period, capital leases reduce the capital cost by approximately $134 M, resulting in a total construction capital of $1,101 M and a total initial capital cost of $1,147 M net of mining equipment leasing. The Base Case capital cost taking into account leases of mining equipment is shown in Table 1-6.

Sustaining costs (including capital leases) over the LOM are estimated to total $527 M.

Reclamation and closure costs are estimated at $63 M, net of security bond fees and an allowance for equipment and materials salvage at the end of mine life.

Table 1-5: Base Case Initial Capital Cost Estimate Summary

Area	Description	Cost, US$ M
Direct costs	Mining	323
	On-site infrastructure	143
	Processing plant	346
	Tailings	67
	Off-site facilities	42
	Total direct costs	921
Indirect costs	Indirects	188
	Owner's costs	27
	Contingency	100
	Total indirect costs	315
Total construction capital		***1,236***
Additional indirect costs		45
Total initial capital cost		***1,281***

Table 1-6: Base Case Initial Capital Cost Estimate Summary With Leased Mining Equipment

Area	Description	Cost, US$ M
Direct costs	Mining	188
	On-site infrastructure	143
	Processing plant	346
	Tailings	67
	Off-site facilities	42
	Total direct costs	786
Indirect costs	Indirects	188
	Owner's costs	27
	Contingency	100
	Total indirect costs	315
Total construction capital		***1,101***
Additional indirect costs		45
Total initial capital cost		***1,147***

1.20 Operating Cost Estimates

Mining quantities were derived from first principles and mine-phased planning to achieve the planned production rates. Process operating costs estimates were developed from first principles, metallurgical testwork, IAMGOLD's salary/benefit guidelines and recent vendor quotations, and benchmarked against historical data for similar process plants. G&A costs were developed from first principles and benchmarked against similar projects. Reclamation and closure costs are estimated based on a detailed closure cost estimate prepared by SLR Consulting Canada Ltd., adjusted to include an allowance for security bond fees and a credit at the end of mine life to account for the estimated salvage value of equipment and materials.

Total operating costs for the Base Case over the LOM are estimated to be $2,947 M (Table 1-7).

Mining and processing costs represent 46% and 44% of this total, respectively. Average operating costs are estimated at $14.52/t of processed ore, as summarized in Table 1-8. Operating cost estimates exclude any allowances for contingencies.

1.21 Economic Analysis

The results of the economic analysis for the Base Case represent 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, statements with respect to future gold prices, the estimation of Mineral Resources and Mineral Reserves, the estimated mine production and gold recovered, the estimated capital and operating costs, and the estimated cash flows generated from the planned mine production. Actual results may be affected by:

- Potential delays in the issuance of permits and any conditions imposed with the permits that are granted
- Differences in estimated initial capital costs and development time from what has been assumed in the 2018 Feasibility Study
- Unexpected variations in quantity of ore, grade or recovery rates, or presence of deleterious elements that would affect the process plant or waste disposal

Table 1-7: Base Case Total Operating Costs

Cost Area	Total, US$ M	Percent of Total
Mining operating	1,366	46
Processing	1,283	44
G&A	298	10
Total	***2,947***	***100***

Table 1-8: Base Case Average Unit Operating Costs

Cost Area	US$/t of processed ore
Mining	6.73
Processing	6.32
G&A	1.47
Total	***14.52***

- Unexpected geotechnical and hydrogeological conditions from what was assumed in the mine designs, including water management during construction, mine operations, and post mine closure
- Differences in the timing and amount of estimated future gold production, costs of future gold production, sustaining capital requirements, future operating costs, assumed currency exchange rate, requirements for additional capital, unexpected failure of plant, equipment or processes not operating as anticipated
- Changes in government regulation of mining operations, environment, and taxes
- Unexpected social risks, higher closure costs and unanticipated closure requirements, mineral title disputes or delays to obtaining surface access to the property.

The Base Case has been evaluated using discounted cash flow (DCF) analysis. Cash inflows consist of annual revenue projections. Cash outflows consist of initial capital expenditures, sustaining capital costs, operating costs, taxes, royalties, and commitments to other stakeholders. These are subtracted from revenues to arrive at the annual cash flow projections. Cash flows are taken to occur at the end of each period. To reflect the time value of money, annual net cash flow (NCF) projections are discounted back to the Base Case valuation date using the yearly discount rate. The discount rate appropriate to a specific project can depend on many factors, including the type of commodity, the cost of capital to the Base Case, and the level of Base Case risks (e.g. market risk, environmental risk, technical risk and political risk) in comparison to the expected return from the equity and money markets. The base case discount rate for the 2018 Feasibility Study is 5%, which has been commonly used to evaluate gold projects. The discounted present values of the cash flows are summed to arrive at the Project's NPV. In addition to the NPV, the internal rate of return (IRR) and the payback period are also calculated. The IRR is defined as the discount rate that results in an NPV equal to zero. The payback period is calculated as the time required to achieve positive cumulative cash flow for the Base Case from the start of production.

The 2018 Feasibility Study Base Case assumes that the doré will be picked up from site and delivered by the Royal Canadian Mint (the Mint) to their refinery in Ottawa. An indicative quote for transportation, insurance and refining was received from the Mint estimating costs at approximately $1.75/oz Au, which has been used in the Base Case cashflow model.

Working capital modelling cash outflow and inflows are included in the Base Case model. The calculations are based on the assumptions that accounts payable will be paid within 45 days and accounts receivable received within 30 days, with an additional allowance for $15 M in materials and supplies inventory, $2 M in reagents inventory, and $1.7 M in gold inventory held in carbon within the process plant. Initial working capital is estimated at approximately $36 M in the first year of production.

Royalties range from 0% to a maximum of 1.5% depending on the source of the ore within the pit. They amount to approximately $68 M over the life of the Base Case. Owner's other costs consist of allowances to meet commitments to stakeholders. They amount to approximately $243 M over the Base Case LOM.

Taxation considerations included in the financial model comprise Provincial and Federal corporate income taxes and Ontario Mineral taxes. While the pre-tax results of the Côté Gold joint venture will be reported for income and mining tax purposes on a 70/30 basis, the after-tax results in the economic analysis should not be viewed on the basis of a 70/30 relationship. That is, differences in the underlying tax attributes of each of the corporate co-venturers will produce actual tax results for each co-venturer that differ from a simple 70/30 split of the total tax expenses generated in the model.

Two economic analysis scenarios for the Base Case have been considered, one which includes the leasing of mining equipment, and one that does not.

The scenario which does not assume that mining equipment will be leased has an after-tax NPV 5% of $788 M (Table 1-9). The after-tax IRR is 14.5%. The after-tax payback of the initial capital investment is estimated to occur 4.5 years after the start of production.

The LOM total cash cost is $594/oz Au derived from mining, processing, on-site G&A, refining, doré transportation and insurance, royalties, other owner's costs and Provincial mining tax costs per ounce payable.

The all-in sustaining cost (AISC) is $668/oz Au derived from total cash costs plus sustaining capital (including interest on capital leases), and reclamation and remediation costs.

The scenario which includes the assumption that mining equipment will be leased has an after-tax NPV 5% of $795 M (Table 1-10). The after-tax IRR is 15.2%. The after-tax payback of the initial capital investment is estimated to occur 4.4 years after the start of production.

The LOM total cash cost is $594/oz Au derived from mining, processing, on-site G&A, refining, doré transportation and insurance, royalties, owner's other costs and Provincial mining tax costs per ounce payable.

The AISC is $694/oz Au derived from total cash costs plus sustaining capital (including interest on capital leases), and reclamation and remediation costs.

In both AISC presentations, AISC as reported is based solely on costs associated with the Base Case and does not take into account any other corporate costs not directly associated with the Base Case.

1.22 Sensitivity Analysis

A sensitivity analysis was performed on the base case NPV 5% after taxes to examine the sensitivity to gold price, operating costs, capital costs (including sustaining), and US$/C$ exchange rate. The results of the sensitivity analysis are shown in Figure 1-2 for the after-tax scenario. In the pre-tax and after-tax evaluations, the Project is most sensitive to changes in gold price and gold head grade, and less sensitive to changes in exchange rate, operating costs and capital costs.

Table 1-9: Summary–Base Case Financial Results Without Mine Equipment Leasing

Parameter	Units	Pre-Tax	After-Tax
Cumulative cash flow	US$M	2,348	1,612
NPV 5%	US$M	1,238	788
NPV 8%	US$M	803	462
NPV 10%	US$M	577	290
Payback period*	year	4.2	4.5
IRR	%	17.8	14.5

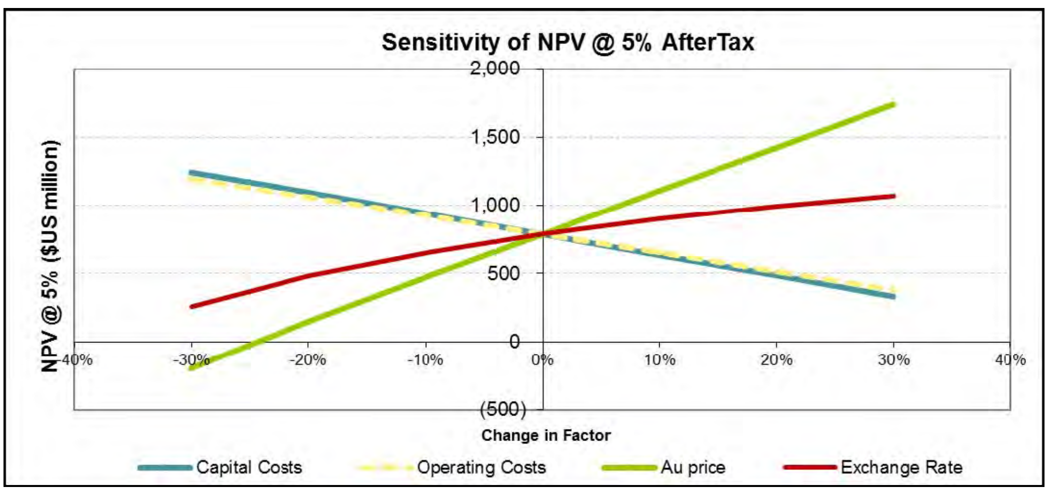
Note: Base case NPV is highlighted. * Payback period is after two years of pre-production

Table 1-10: Summary–Base Case Financial Results With Leasing of Mining Equipment

Parameter	Units	Pre-Tax	After-Tax
Cumulative cash flow	US$M	2,327	1,597
NPV 5%	US$M	1,242	795
NPV 8%	US$M	819	479
NPV 10%	US$M	599	313
Payback period*	year	4.2	4.4
IRR	%	18.7	15.2

Note: base case NPV is highlighted. * Payback period is after two years of pre-production

Figure 1-2: NPV Sensitivity Analysis



Note: Figure prepared by Wood, 2018. Gold head grade is not presented in the sensitivity graph because the impact of changes in the gold grade mirror the impact of changes in the gold price.

1.23 Other Relevant Data and Information

1.23.1 Introduction

The 2018 Feasibility Study Base Case supports the current permitting process with 203 Mt of the Reserves included in the mine plan. The Extended Case summary presented in this sub-section supports the total 233 Mt of Mineral Reserves. Should IAMGOLD pursue development of the additional ore reserves beyond the 203 Mt identified in the Environmental Effects Review, IAMGOLD will, through consultation with the regulatory authorities, confirm whether its environmental assessment coverage is sufficient or if new/amended environmental assessments are required. Development of additional ore would continue to be done in a manner that does not cause significant adverse environmental effects and would continue to extend socio-economic benefits to local communities and the region. The Extended Case adds approximately two years to the mine life with mill throughput remaining the same as the Base Case of 36,000 t/d, remains within the footprint of the current permit application to support the Base Case, but will require an additional 5m raise of the TMF to increase its capacity from 203 Mt to 233 Mt, and extend the height of the MRA.

1.23.2 Mining Methods

The Extended Case mine plan is based on the total Proven and Probable Mineral Reserves of 233 Mt (refer to Table 1-4), adding 30 Mt of additional ore to the mine plan used to support the permit application.

Geotechnical analyses are based on a combination of site visit inspections by Wood personnel, data processing and compilation of previously completed geomechanical investigations and site-specific resources supplied by IAMGOLD, kinematic analysis, limit equilibrium modelling, and overall slope stability analysis of the main pit walls including review of the hydrogeological conditions.

The pit has been sub-divided into five main structural domains related to the pit geometry and a major east–west-trending fault. Bench face angles of 60–75° were recommended. Bench widths in each sector were widened as necessary, based on the significance of toppling and wedge failures, from a minimum value of 9.5 m up to 12 m. A 20 m wide geotechnical berm is recommended for midpoint between inter-ramp spacing greater than 150 m.

The Extended Case is designed as a truck-shovel operation assuming 220 t autonomous trucks and 34 m^3 shovels. The pit design includes four phases to balance stripping requirements while satisfying the concentrator requirements. The design parameters include a ramp width of 35 m, road grades of 10%, bench height of 12 m, targeted mining width between 90 m, berm interval of 24 m, variable slope angles by sector and a minimum mining width of 40 m. The smoothed final pit design contains approximately 233 Mt of mill feed and 611 Mt of waste for a resulting stripping ratio of 2.62:1.

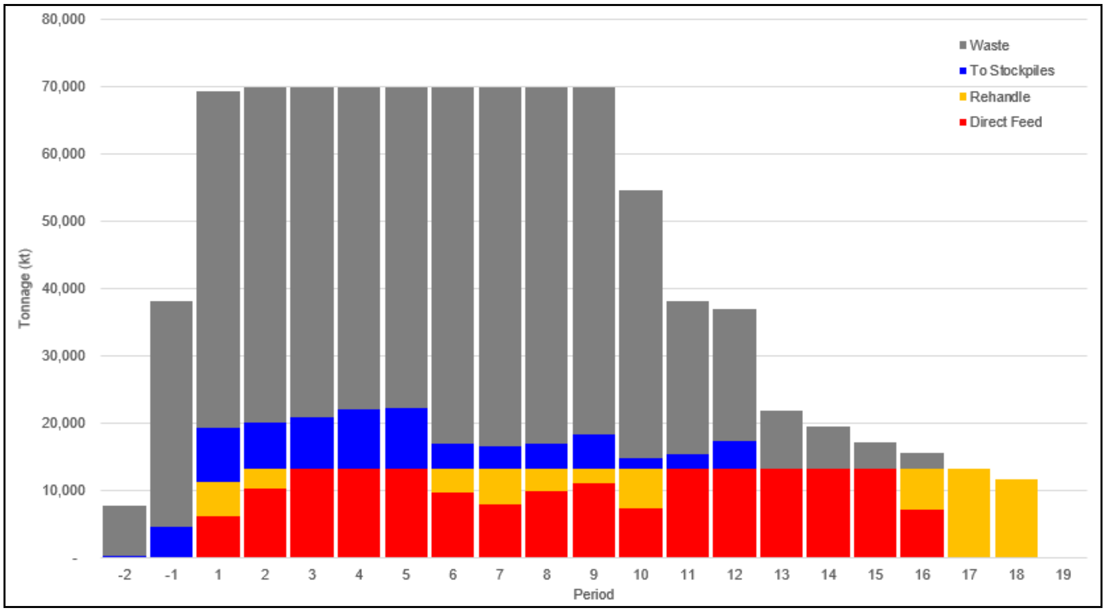
The Extended Case production schedule includes the process plant ramp-up schedule. This schedule takes into account the inefficiencies related to start of operations, and includes the tonnage processed as well as the associated recoveries, which steadily increase to reach the design capacity after 10 months of operation. The mine will require one year of pre-production before the start of operations in the processing plant. Although the mine requires one year of pre-stripping, mining starts in Year -2 to provide material for the TMF construction. The deposit is planned to be mined in four phases included within the ultimate pit limit. The schedule was developed in quarters for the pre-production period and for the first five years of production, then in yearly periods. Following evaluation of different rates, a maximum mining capacity of 70 Mt/a was selected to develop the detailed production schedule and the maximum number of benches mined per year was set at eight in each phase.

Additional constraints were used to guide the Extended Case schedule, including feeding lower grades during the first months of the plant ramp-up schedule, the maximum stockpile capacity and reducing the mining capacity in later years to balance the number of truck requirements per period.

The final proposed Extended Case schedule is shown in Figure 1-3. The schedule produced a Base Case life-of-mine (LOM) of 16 years with stockpile reclaim extending into Year 18. The amount of re-handled mill feed is 59 Mt, which requires a maximum stockpile capacity of 41 Mt when considering the reclaim.

The MRA will be constructed southeast of the planned open pit to store mine rock from the open pit excavation. In its ultimate configuration, the MRA will store 457 Mt of mine rock with its final crest elevation at an approximate elevation of 540 m. Collection ditches and six runoff collection ponds/sumps will be built at topographical low points around the MRA perimeter to collect runoff and seepage, which will then be pumped to the polishing pond.

Figure 1-3: Extended Case Proposed Production Schedule



Note: Figure prepared by Wood, 2018.

The overburden storage, which will be located to the southwest of the pit, will have a storage capacity of approximately 8.2 Mm^3. The ore stockpiles will be located on the north side of the pit and have a total storage capacity of 20 Mm^3, which is enough to satisfy the maximum stockpiling capacity of approximately 41 Mt required in the production schedule.

Blasting operations will be contracted to a blasting explosives provider. Drilling will be required for both ore control and blasting.

Mining operations will use an autonomous truck and drill fleet, supported by a conventional manned loading fleet and a fleet of manned support equipment. The truck fleet will be diesel-powered with the capacity to mine approximately 70 Mt/a operating on 12 m benches. The hydraulic shovel fleet will be electric powered supported by two large diesel-powered FELs.

The mine will be supported by multiple contractors. A contractor miner is assumed to mine all overburden within the mine plan and to develop the initial benches in the pre-production period for the autonomous fleet. A MARC will be in place during pre-production and the first three years of operation. Blasting will be done by a contract down hole service during the LOM. A full-service contract tire provider will be used throughout the life of mine to supply, repair, and change tires at the mine site.

Equipment requirements are estimated on a quarterly basis during pre-production and the first five years of mining, and annually thereafter. Equipment sizing and numbers are based on the mine plan, maintenance availability assumptions, and a 24/hr, 7 d/wk work schedule.

1.23.3 Recovery Methods

The process plant design for the Extended Case is conventional and uses conventional equipment. The process plant will consist of:

- Primary (gyratory) crushing
- Secondary cone crushing and coarse ore screening
- COS
- Tertiary HPGR crushing
- Fine ore screening and storage
- Two milling stages (ball mill followed by vertical stirred mills)
- Gravity concentration and intensive leaching
- Pre-leach thickening
- Whole ore cyanide leaching
- CIP recovery of precious metals from solution
- Cyanide destruction
- Tails thickening
- Elution of precious metals from carbon
- Recovery of precious metals by EW
- Smelting to doré.

The plant will have facilities for carbon regeneration, tailings thickening and cyanide destruction. Plant throughput will be 36,000 t/d and it is expected that a ramp-up period of 10 months will be required to reach the design throughput.

Tailings water from the reclaim pond will be the primary source of mill water, providing the majority of the process plant requirements, whereas the storm/mine water pond will be a secondary source of process water. Fresh water will be required for reagent mixing at the process plant which will be pumped from Mesomikenda Lake.

The major reagents required will include flocculant, caustic, cyanide, copper sulphate, molten sulphur, anti-scalant, lime, hydrochloric acid and oxygen. A dedicated, self-contained air service system will be provided.

The mill will require approximately 50.7 MW of power to operate at full capacity.

1.23.4 Project Infrastructure

Infrastructure required to support operations in the Extended Case scenario will include: the open pit; MRA; stockpiles; TMF and associated ponds; access and internal roads; powerlines and power distribution networks; watercourse realignments, diversion channels, dams and ponds; a New Lake to replace Côté Lake; process facilities; accommodation facilities; and mine support facilities including offices, workshops and warehouses.

Power supply is assumed to be provided via an upgraded existing transmission line operated by Hydro One from Timmins to Shining Tree Junction and a new 44 km-long 115 kV electrical power transmission line from Shining Tree Junction to the Project site. The calculated electrical load for the Côté Gold site is as follows:

- 61 MW maximum demand load
- 59 MW average demand load
- 98% lagging (inductive) power factor.

This calculated load is based on the current electrical load list, and includes two electric shovels, mine dewatering, all ancillary loads, and a 10% allowance for growth during detailed design. Hydro One has allocated a total of 72 MW of capacity to the Project. Emergency back-up power will be available from four diesel standby generators.

The selected route to the plant is the existing Chester Logging Road which has already been upgraded from the Sultan Industrial Road to km 4.62 at the intersection with an existing road to the planned open pit area. At the corner of the planned TMF site, the existing road continues into the footprint of the TMF, and 4.28 km of new road construction will be required to extend the access to the construction/permanent camp entrance. This section of road will be constructed as part of the early works and will be used as a primary construction access to the plant site and the camp area. A mine by-pass road will be constructed to allow the public to access Chester Logging Road north of the TMF without passing through the mine security gate and the mine site proper.

Mine development will require three major haul roads, consisting of access to the MRA, the TMF, and the topsoil/overburden stockpile. In addition, a major intersection is required on the north side of the open pit to tie together the exit from the pit with the pit bypass road, the ramps to the ore stockpiles and the crusher and truck shop ramps.

1.23.5 Environmental, Permitting and Social Considerations

Environmental Considerations

IAMGOLD received Provincial ministerial approval of the 2015 Environmental Assessment (EA) for the Project. The EA states that no significant effects are anticipated after application of the proposed mitigation measures. Environment Canada stated in May 2016 that the Project is not likely to cause significant adverse environmental effects. The project presented in the 2018 Feasibility Study has undergone optimizations since the 2015 EA, including: relocation of the TMF to minimize overprinting of fish-bearing waters, reduce the Project footprint, improve Project economics, reduce the need for watercourse realignments, and avoid effluent discharges to the Mesomikenda Lake watershed; smaller open pit; modifications to the process plant; and reduction in transmission line voltage, and re-routing of the line. IAMGOLD is of the opinion that there are no new net effects arising from the 2018 Feasibility Study. On October 19, 2018, CEAA confirmed that the proposed Project changes are not considered new designated physical activities and therefore a new environmental assessment is not required. On November 9, 2018, MECP also confirmed their concurrence with the conclusion in the EER report, that the proposed changes to the undertaking result in no new net effects.

Baseline environmental and social studies have been conducted addressing aspects of: water; air and noise; soils; geology and geochemistry; hydrology; hydrogeology; surface water quality; water sedimentation; groundwater quality; aquatic resources; wildlife; land use; cultural heritage and paleontological resources; and Aboriginal traditional land use. IAMGOLD has conducted additional baseline studies within the boundaries of the new TMF and topsoil/overburden stockpile, and new transmission line alignment, to infill the physical, biological and human environment characterizations conducted previously. These additional baseline data, together with design information for the site configuration, were used to prepare the EER for the project, for submission to the CEAA and the MECP, thus informing the regulatory agencies of changes or improvements to the EA. As of November 9, 2018, both the CEAA and MECP concur with the conclusion in the EER report, which demonstrates that the proposed changes to the undertaking result in no new net effects.

Tailings Management Facility

Over the proposed Extended Case LOM of 18 years, tailings production is approximately 13.1 Mt/a from nominal mill throughput of 36,000 t/d, except in Year 1 when it is about 11 Mt due to ramp-up. The TMF will store 233 Mt of tailings over the LOM.

To enhance the capacity of the TMF to 233 Mt, the entire perimeter dams will require raising by 5 m. Engineering for raising the TMF dams by 5 m will need to be conducted and the following additional engineering studies will be required: supplementary geotechnical and hydrogeological investigations; tailings deposition plan update; dam stability analyses; TMF 3D seepage model update; water quality predictions model update; seepage collection system update.

Tailings will be thickened with solids concentration in slurry at 62% and discharged from the TMF perimeter dams, forming an overall beach slope of approximately 1%. Tailings solids will settle in the TMF with pore water retained in the voids with supernatant water forming a pond. An overall in-situ dry density of 1.5 t/m^3 is expected.

Perimeter embankment dams, raised in stages, will be used for tailings management. Monitoring instrumentation will be used to monitor dam deformation and dam settlement during both operation and post-closure.

TMF water will be pumped from the tailings pond/reclaim pond directly to the mill for reuse and hence forms a closed circuit without contact with other water bodies. Collection ditches and ponds will be located at topographical low points around the TMF perimeter to collect runoff and seepage. In the ultimate TMF configuration there will be six collection ponds. The ponds will lead the seepage to the reclaim pond by gravity (or by pumping in some cases) for recirculation to the process plant.

Water quality will be monitored in the process water (before and after cyanide destruction) prior to discharge to the TMF. Water quality will also be monitored in the TMF settling pond, reclaim pond, and in the seepage collection system. Groundwater quality will be monitored at wells to be installed downgradient of the TMF seepage collection system to confirm that seepage from the TMF is being captured in the seepage collection system.

Water Management

A watercourse realignment system has been designed to redirect water around the mine facilities to enable excavation and dewatering of the open pit.

Four pit protection dams will be constructed either within existing lakes, in shallow water, or at currently dry locations along the eastern periphery of Clam Lake. These dams will protect water from entering the pit area. Two realignment channels will reroute the existing watercourses running into the open pit.

A polishing pond east dam will be constructed in the Three Duck Lakes (Upper) area to delineate the lake from the polishing pond area. The Côté Lake dam is required to facilitate early dewatering of Côté Lake and separate the Three Duck Lakes system from Côté Lake. A storm/mine water pond near the process plant will receive pumped inflows from the pit, the polishing pond when required, and runoff from the process plant site. Runoff from the ore stockpiles and MRA will report to the polishing pond via perimeter ditches.

Closure and Reclamation Planning

Closure of the Côté Gold Project will be governed by the Ontario Mining Act and its associated regulations and codes. IAMGOLD has prepared a Closure Plan in accordance with the legislative requirements in tandem with the 2018 Feasibility Study. This plan details measures for temporary suspension, care and maintenance and closure of the Project, including determining financial assurance required to implement the Closure Plan.

Conventional methods of closure are expected to be employed at the site. The closure measures for the TMF will be designed to physically stabilize the tailings surface to prevent erosion and dust generation. The pit will be allowed to flood, and the natural flow of the realigned water bodies will be re-established to the extent practicable. Revegetation will be carried out using non-invasive native plant species. Monitoring at appropriate sampling locations, including those established during baseline studies and operations, will be conducted after closure to confirm performance.

Permitting Considerations

MENDM requires financial assurance for implementation of the Closure Plan. A closure cost estimate is included in the Base Case operating cost estimate.

Most mining projects in Canada are reviewed under one or more EA 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, municipalities, Aboriginal groups, the general public and other interested parties.

Three primary Provincial agencies will be involved with Project approvals/permits:

- MENDM
- MNRF
- MECP.

Additional agencies that may be involved in permitting include:

- OEB
- MTO
- IO
- MTCS
- DFO
- ECCC
- NRC
- TC
- NC.

Social Considerations

IAMGOLD has actively engaged local and regional communities, as well as other stakeholders, to gain a better understanding of their issues and interests, identify potential partnerships, and build social acceptance for the Project. Stakeholders involved in Project consultations to date include those with a direct interest in the Project, and those who provided data for the baseline studies. The involvement of stakeholders will continue throughout the various Project stages. The range of stakeholders is expected to increase and evolve over time, to reflect varying levels of interest and issues.

As part of the Provincial conditions of environmental assessment approval, IAMGOLD will develop and submit a Community Communication Plan to the responsible Provincial ministry, outlining its plan to communicate with stakeholders through all phases of the Project.

IAMGOLD plans to work with the community of Gogama to collaborate on the development of a socio-economic management and monitoring plan to manage potential socio-economic effects of the project (both adverse and positive).

An understanding of the Indigenous communities potentially interested in the Côté Gold Project was first developed through advice from MENDM to Trelawney Mining and Exploration Inc. in a letter dated 19 August 2011, and through advice from CEAA based on information provided by Aboriginal Affairs and Northern Development Canada (now Indigenous and Northern Affairs Canada). IAMGOLD sought further direction from both Provincial and Federal Crown agencies on the potentially-affected communities.

Based on Federal and Provincial advice and information gathered through engagement activities, IAMGOLD engaged a range of Indigenous groups during the preparation of the EA. Based on consultation efforts since the start of the Project, and on groups expressing a continued interest, IAMGOLD has continued to engage the identified communities through information sharing (e.g., newsletters, notices, invitations to open houses), and has focused on actively engaging affected communities identified through the EA process. IAMGOLD continues to negotiate Impact Benefit Agreements with Mattagami First Nation, Flying Post First Nation and the Métis Nation of Ontario (Region 3).

In addition, a Process and Funding Agreement has been reached between IAMGOLD, Mattagami First Nation and Flying Post First Nation related to the communities' involvement through the review of the EER and required regulatory permit applications to advance the Project.

As part of the Provincial and Federal conditions of approval, IAMGOLD will develop and submit an Indigenous Consultation Plan to the responsible government departments, outlining the Project's plan to consult with identified Indigenous groups throughout all phases of the Project. There is a requirement that IAMGOLD consult all identified Indigenous groups as part of the development of this Plan.

IAMGOLD has committed to work with the communities of Mattagami First Nation and Flying Post First Nation to collaboratively develop a socio-economic management and monitoring plan to manage potential socio-economic effects of the project (both adverse and positive).

1.23.6 Markets and Contracts

Gold doré bullion is typically sold through commercial banks and metals traders, with sales prices obtained from the World Spot or London fixes. These contracts are easily transacted, and standard terms apply. IAMGOLD expects that the terms of any sales contracts for the Extended Case 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.

The 2018 Feasibility Study assumes a gold price of US$1,250/oz for the economic analysis. Wood considers this price to be an industry consensus long-term forecast price.

1.23.7 Capital Cost Estimates

The estimate addresses the Extended Case mine, process facilities, ancillary buildings, infrastructure, water management and tailings facilities scope, and includes:

- Direct field costs of executing the Extended Case including construction and commissioning of all structures, utilities, and equipment
- Indirect costs associated with design, construction and commissioning
- Provisions for contingency and Owner's costs.

The estimate was prepared in accordance with the AACE International Class 3 Estimate with an expected accuracy of +15%/-10% of the final Project cost.

Cost estimates are expressed in third-quarter 2018 US dollars with no allowances for escalation, currency fluctuation or interest during construction. Costs quoted in Canadian dollars were converted to US dollars at an exchange rate of US$1 = C$1.30.

Capital cost for surface facilities includes the construction and installation of all structures, utilities, materials, and equipment as well as all associated indirect and management costs. The capital cost includes contractor and engineering support to commission the process plant to ensure all systems are operational. At the point of hand-over of the plant to IAMGOLD's Operations group, all operational costs, including ramp-up to full production, are considered as operating costs. The capital cost estimate is based on a 30-month development schedule starting upon Closure Plan approval.

The Extended Case's construction capital cost, summarized in Table 1-11, is estimated to be $1,236 M, inclusive of allowances for Owner's costs and contingency of $27 M and $100 M, respectively. Additional indirect costs for Operational Readiness and other owner's fees totalling $45 M result in a total initial capital cost of $1,281 M.

Some of the larger capital expenditures are amenable to capital financing. The majority of the initial mining fleet, having an approximate initial capital cost of $142 M, can be financed using capital lease agreements with vendors. Inclusive of a down-payment of 0–15% of the purchase value paid at placement of order and interest payments incurred during the construction period, capital leases reduce the capital cost by approximately $134 M, resulting in a total construction capital of $1,101 M and a total initial capital cost of $1,147 M net of mining equipment leasing.

The Extended Case's capital cost taking into account leases of mining equipment is shown in Table 1-12. Sustaining costs (including capital leases) costs over the LOM are estimated to total $589 M.

Reclamation and closure costs are estimated at $63 M, net of security bond fees and an allowance for equipment and materials salvage at the end of mine life.

1.23.8 Operating Cost Estimates

Mining quantities were derived from first principles and mine-phased planning to achieve the planned production rates. Process operating costs estimates were developed from first principles, metallurgical testwork, IAMGOLD's salary/benefit guidelines and recent vendor quotations, and benchmarked against historical data for similar process plants. G&A costs were developed from first principles and benchmarked against similar projects.

Table 1-11: Extended Case Initial Capital Cost Estimate Summary

Area	Description	Cost, US$ M
Direct costs	Mining	323
	On-site infrastructure	143
	Processing plant	346
	Tailings	67
	Off-site facilities	42
	Total direct costs	921
Indirect costs	Indirects	188
	Owner's costs	27
	Contingency	100
	Total indirect costs	315
Total construction capital		***1,236***
Additional indirect costs		45
Total initial capital cost		***1,281***

Table 1-12: Extended Case Initial Capital Cost Estimate Summary w/Leased Mining Equipment

Area	Description	Cost, US$ M
Direct costs	Mining	188
	On-site infrastructure	143
	Processing plant	346
	Tailings	67
	Off-site facilities	42
	Total direct costs	786
Indirect costs	Indirects	188
	Owner's costs	27
	Contingency	100
	Total indirect costs	315
Total construction capital		***1,101***
Additional indirect costs		45
Total initial capital cost		***1,147***

Reclamation and closure costs are estimated based on a detailed closure cost estimate prepared by SLR Consulting Canada Ltd., adjusted to include an allowance for security bond fees and a credit at the end of mine life to account for the estimated salvage value of equipment and materials.

Total operating costs over the Extended Case LOM are estimated to be $3,441 M (Table 1-13). Mining and processing costs represent 47% and 43% of this total, respectively. Average operating costs are estimated at $14.77/t of processed ore, as summarized in Table 1-14. Operating cost estimates exclude any allowances for contingencies.

1.23.9 Economic Analysis

The results of the Extended Case economic analysis represent 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, statements with respect to future gold prices, the estimation of Mineral Resources and Mineral Reserves, the estimated mine production and gold recovered, the estimated capital and operating costs, and the estimated cash flows generated from the planned mine production.

Actual results may be affected by:

- Potential delays in the issuance of permits and any conditions imposed with the permits that are granted
- Differences in estimated initial capital costs and development time from what has been assumed in the 2018 Feasibility Study
- Unexpected variations in quantity of ore, grade or recovery rates, or presence of deleterious elements that would affect the process plant or waste disposal
- Unexpected geotechnical and hydrogeological conditions from what was assumed in the mine designs, including water management during construction, mine operations, and post mine closure

Table 1-13: Extended Case Total Operating Costs Over Project Life

Cost Area	Total, US$ M	Percent of Total
Mining operating	1,627	47
Processing	1,472	43
G&A	342	10
Total	***3,441***	***100***

Table 1-14: Extended Case Average Unit Operating Costs

Cost Area	US$/t of processed ore
Mining	6.98
Processing	6.32
G&A	1.47
Total	***14.77***

- Differences in the timing and amount of estimated future gold production, costs of future gold production, sustaining capital requirements, future operating costs, assumed currency exchange rate, requirements for additional capital, unexpected failure of plant, equipment or processes not operating as anticipated
- Changes in government regulation of mining operations, environment, and taxes
- Unexpected social risks, higher closure costs and unanticipated closure requirements, mineral title disputes or delays to obtaining surface access to the property.

The Project has been evaluated using DCF analysis. Cash inflows consist of annual revenue projections. Cash outflows consist of initial capital expenditures, sustaining capital costs, operating costs, taxes, royalties, and commitments to other stakeholders. These are subtracted from revenues to arrive at the annual cash flow projections. Cash flows 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 Extended Case valuation date using the yearly discount rate. The discount rate appropriate to a specific project can depend on many factors, including the type of commodity, the cost of capital to the Extended Case, and the level of Extended Case risks (e.g. market risk, environmental risk, technical risk and political risk) in comparison to the expected return from the equity and money markets. The base case discount rate for the 2018 feasibility is 5%, which has been commonly used to evaluate gold projects. The discounted present values of the cash flows are summed to arrive at the Project's NPV. In addition to the NPV, the IRR and the payback period are also calculated. The IRR is defined as the discount rate that results in an NPV equal to zero. The payback period is calculated as the time required to achieve positive cumulative cash flow for the Extended Case from the start of production.

The Extended Case in the 2018 Feasibility Study assumes that the doré will be picked up from site and delivered by the Mint to their refinery in Ottawa. An indicative quote for transportation, insurance and refining was received from the Mint estimating costs at approximately $1.75/oz Au, which has been used in the cashflow model for the Project.

Working capital modelling cash outflow and inflows are included in the Extended Case model. The calculations are based on the assumptions that accounts payable will be paid within 45 days and accounts receivable received within 30 days, with an additional allowance for $15 M in materials and supplies inventory, $2 M in reagents inventory, and $1.7 M in gold inventory held in carbon within the process plant. Initial working capital is estimated at approximately $33 M in the first year of production.

Royalties range from 0% to a maximum of 1.5% depending on the source of the ore within the pit. They amount to approximately $76 M over the life of the Extended Case. Owner's other costs consist of allowances to meet commitments to stakeholders. They amount to approximately $270 M over the Extended Case LOM.

Taxation considerations included in the Extended Case financial model comprise Provincial and Federal corporate income taxes and Ontario Mineral taxes. While the pre-tax results of the Côté Gold joint venture will be reported for income and mining tax purposes on a 70/30 basis, the after-tax results in the economic analysis should not be viewed on the basis of a 70/30 relationship. That is, differences in the underlying tax attributes of each of the corporate co-venturers will produce actual tax results for each co-venturer that differ from a simple 70/30 split of the total tax expenses generated in the model.

Two economic analysis scenarios for the Extended Case have been considered, one which includes the leasing of mining equipment, and one that does not.

The scenario which does not assume that mining equipment will be leased has an after-tax NPV 5% of $898M (Table 1-15). The after-tax IRR is 14.7%. The after-tax payback of the initial capital investment is estimated to occur 4.4 years after the start of production. The LOM total cash cost is $606/oz Au derived from mining, processing, on-site G&A, refining, doré transportation and insurance, royalties, other Owner's costs and Provincial mining tax costs per ounce payable. The AISC is $681/oz Au derived from total cash costs plus sustaining capital (including interest on capital leases), and reclamation and remediation costs.

The scenario which includes the assumption that mining equipment will be leased has an after-tax NPV 5% of $905 M (Table 1-16). The after-tax IRR is 15.4%. The after-tax payback of the initial capital investment is estimated to occur 4.4 years after the start of production. The LOM total cash cost is $606/oz Au derived from mining, processing, on-site G&A, refining, doré transportation and insurance, royalties, owner's other costs and Provincial mining tax costs per ounce payable. The AISC is $703/oz Au derived from total cash costs plus sustaining capital (including interest on capital leases), and reclamation and remediation costs.

In both AISC presentations, AISC as reported is based solely on costs associated with the Extended Case and does not take into account any other corporate costs not directly associated with the Extended Case.

1.23.10 Sensitivity Analysis

A sensitivity analysis was performed on the Extended Case base case NPV 5% after taxes to examine the sensitivity to gold price, operating costs, capital costs (including sustaining), and US$/C$ exchange rate. The results of the sensitivity analysis are shown in Figure 1-4 for the after-tax scenario.

1.24 Interpretation and Conclusions

The Base Case and the Extended Case show positive economics under the assumptions presented in the Report.

Table 1-15: Summary–Extended Case Financial Results Without Mine Equipment Leasing

Parameter	Unit	Pre-Tax	After-Tax
Cumulative cash flow	US$M	2,780	1,906
NPV 5%	US$M	1,400	898
NPV 8%	US$M	891	520
NPV 10%	US$M	635	328
Payback period*	year	4.2	4.4
IRR	%	18.0	14.7

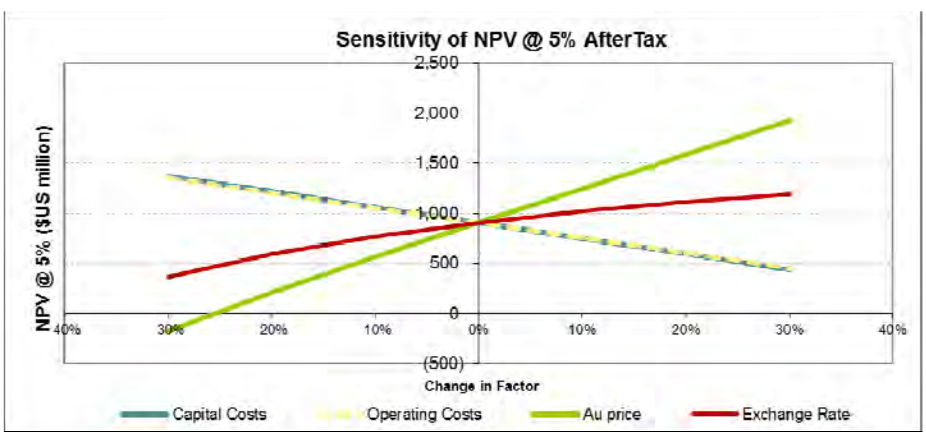
Note: base case NPV is highlighted. * Payback period is after two years of pre-production

Table 1-16: Summary–Extended Case Financial Results With Leasing of Mining Equipment

Parameter	Units	Pre-Tax	After-Tax
Cumulative cash flow	US$M	2,759	1,893
NPV 5%	US$M	1,404	905
NPV 8%	US$M	907	538
NPV 10%	US$M	656	351
Payback period*	year	4.1	4.4
IRR	%	18.7	15.4

Note: Base case NPV is highlighted. * Payback period is after two years of pre-production

Figure 1-4: Extended Case NPV Sensitivity Analysis



Note: Figure prepared by Wood, 2018. Gold head grade is not presented in the sensitivity graph because the impact of changes in the gold grade mirror the impact of changes in the gold price.

1.25 Recommendations

A one-phase work program has been developed to support design considerations for a future Côté Gold operation. The program has been developed by discipline area. The recommended work in each area can be completed concurrently as no aspect of the program are dependent on the results of another. The budget estimates are provided as a range, depending on whether IAMGOLD personnel or a third-party undertake the work program. The total program is estimated at US$155,000 to $215,000.

Recommendations include:

- Conduct a geological controls study of the mineralization of the Côté Gold deposit
- Complete additional HPGR and cyanidation tests
- Undertake trade-off studies, including assessment of autonomous haulage systems, blasthole sampling, and placement of overburden material
- Review of open pit phase designs, optimize feed grade to the processing plant, and assess variable cut-off grade
- Complete cone penetration tests at potentially-liquefiable locations under some dam structures and undertake liquefaction assessments
- Conduct supplementary field investigation and detailed hydrological and hydraulic evaluations to refine the TMF and reclaim pond dam design, freeboard, spillway, and drainage ditch designs
- Develop a water balance model for the TMF and reclaim ponds.

2.0 INTRODUCTION

2.1 Introduction

Wood Canada Limited (Wood), formerly known as Amec Foster Wheeler Americas Limited (Amec Foster Wheeler) in conjunction with IAMGOLD Corp. (IAMGOLD) has prepared a technical report (the Report) on the results of a feasibility study (the 2018 Feasibility Study) completed on the Côté Gold Project (the Project), a gold development project located near Gogama, Ontario, Canada, approximately 125 km southwest of Timmins, Ontario.

IAMGOLD is operator of an unincorporated joint venture (JV) in respect of the Project, formed pursuant to the terms of a JV agreement dated 20 June 2017 among IAMGOLD, SMM Gold Côté Inc, and Sumitomo Metal Mining Co, Ltd.

2.2 Terms of Reference

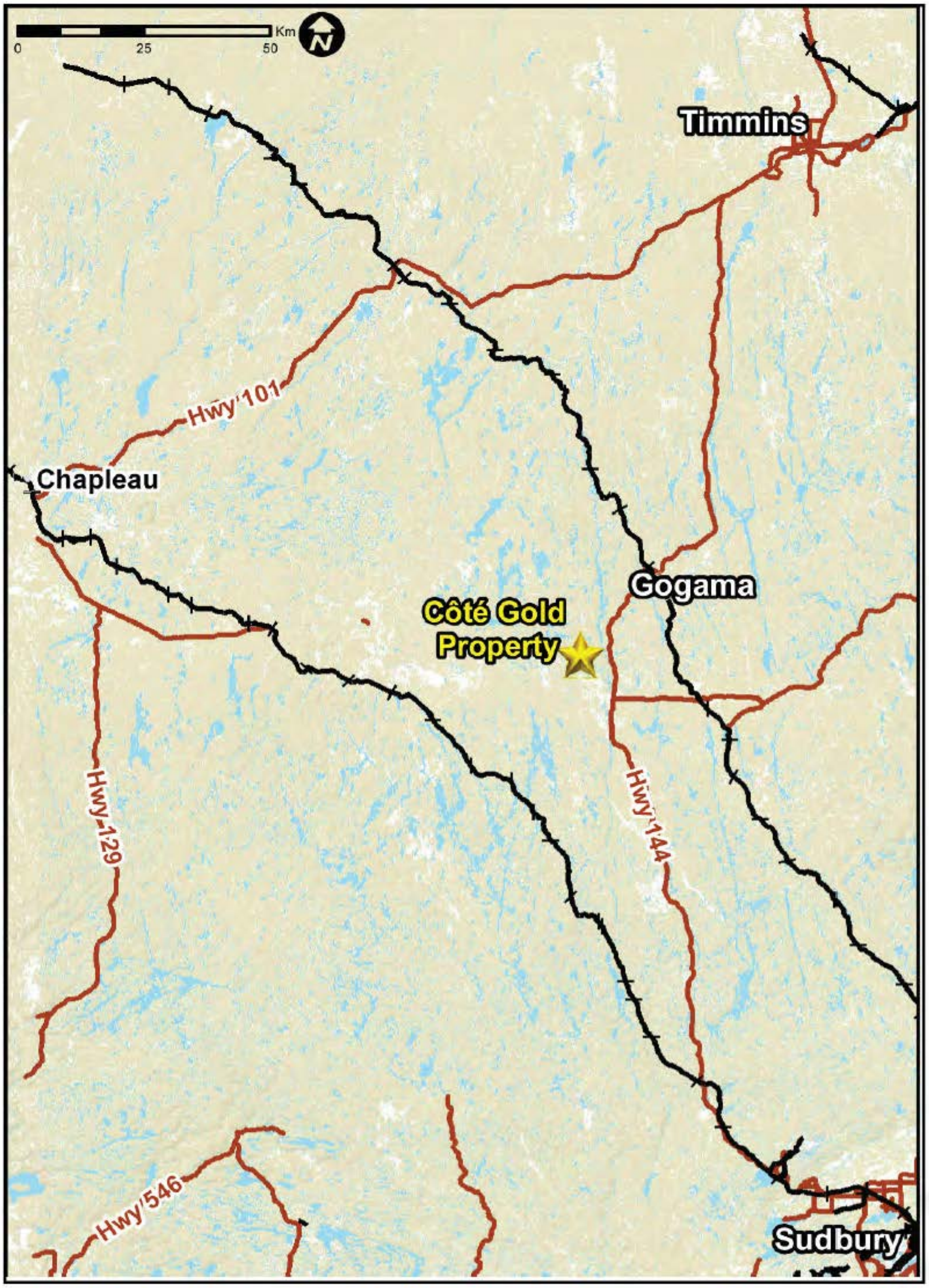
The Report was prepared to support disclosures in the news release dated 1 November 2018 entitled "Feasibility Study for Côté Gold Yields Significantly Improved Project Economics" and the news release dated 26 November entitled "IAMGOLD Files NI 43-101 Technical Report For Previously Announced Feasibility Study For Côté Gold".

Two development scenarios are presented in the Report:

- Base Case Mine Plan (Base Case) that supports the current permitting process. The Base Case with a total of 203 Mt of Mineral Reserves processed over the Life of Mine (LOM) includes a 203 Mt capacity tailings management facility (TMF) that conforms with the current applications for permits
- Extended Case Mine Plan (Extended Case) that supports the total Mineral Reserves. The Extended Case is presented in Section 24 and considers mining and processing the full 233 Mt Mineral Reserve. It will require an updated mine rock area (MRA) and TMF design that may require regulatory approval of amended permits to be submitted prior to its implementation.

The Report uses Canadian English and metric units unless otherwise indicated. Estimates are provided in US$, based on an exchange rate of US$1.00:C$1.30. Mineral Resources and Mineral Reserves are reported in accordance with the 2014 Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards for Mineral Resources and Mineral Reserves (the 2014 CIM Definition Standards).

Figure 2-1: Project Location Plan



Note: Figure courtesy IAMGOLD, 2018

2.3 Qualified Persons

The following persons serve as Qualified Persons (QPs) as defined in NI 43-101:

- Mr. Peter Oshust, P.Geo., Principal Geologist, Wood
- Dr. Antonio Peralta Romero, P.Eng., Principal Mining Engineer, Wood
- Mr. Dustin Small, P.Eng., Engineering Manager, Wood
- Mr. Paul O'Hara, P.Eng. Process Manager, Wood
- Ms. Debbie Dyck, P.Eng., Senior Associate Engineer Environmental, Wood
- Dr. Bing Wang, P.Eng., Senior Associate, Technical Advisor Environmental, Wood
- Mr. Paul Baluch, P.Eng., Technical Director, Civil, Wood
- Mr. Raymond Turenne, P.Eng., Department Manager, Electrical and Controls, Wood
- Dr. Adam Coulson, P.Eng, Senior Associate Rock Mechanics Specialist, Wood
- Ms Karen Besemann, P.Geo., Hydrogeologist, Golder
- Ms. Marie-France Bugnon, P.Geo. General Manager Exploration, IAMGOLD
- Mr. Alan Smith, P.Geo., District Manager Exploration, IAMGOLD.

2.4 Site Visits and Scope of Personal Inspection

Mr. Peter Oshust visited the Project site from July 10 to 12, 2018. During the visit, Mr. Oshust inspected outcrops, checked collar locations and orientations for selected drill holes, and reviewed drill core.

Ms. Debbie Dyck, P. Eng., has been involved in the Côté Gold Project baseline studies and EA process since 2012, and last visited the site from April 13–14, 2017.

Dr. Bing Wang visited the Côté Gold Project site on the following occasions: May 16, October 4, and October 31 to November 4, 2016, April 13–14, 2017, and 6 June, 2018. During these visits, Dr. Wang inspected property mineral lease boundaries, topographic and geographical features, prior mine excavations and outcrops, drill sites, drill core, and proposed infrastructure locations.

Mr. Paul Baluch visited the Côté Gold Project site on three occasions: October 4, 2016, April 13–14, 2017 and June 6–7 2018. Existing Project infrastructure locations and locations for proposed infrastructure were inspected.

Mr. Dustin Small visited the Côté Gold Project site on May 22, 2018 and inspected the camp areas, TMF and open pit areas and the proposed plant site area.

Dr. Antonio Peralta Romero visited the Côté Gold Project on May 7–9, 2018 and inspected the open pit area, the drill core relevant to the rock formations that would support the pit wall and observed a drilling test performed to determine rock penetration rates in the pit area.

Dr. Adam Coulson P.Eng., visited the site from December 10 to 13, 2017. During this visit Dr. Coulson inspected the previously drilled geotechnical cores used for mine design of the open pit, in order to validate the rock mass quality recorded in two previous geotechnical drilling campaigns performed by others.

Ms. Marie-France Bugnon has made site visits, exploration reviews and legal and claims updates to the Côté Gold Project between June 2012 and October 2018, the most recent site visit being on September 13–14, 2018, where the following activities were reviewed and inspected: 2018 winter and spring diamond drilling program results and observations for the Côté Gold geology program, on the geological model of the Côté Gold deposit, on Gosselin area of the Chester property and current regional exploration programs, and status on legal and assessment work requirements for the maintenance of the Côté Gold district exploration properties portfolio and updates.

Mr. Alan Smith has made numerous site visits to the Côté Gold Project and surrounding exploration projects between February 2013 and October 2018 for the supervision of Regional exploration activity and geological programs on the Côté Gold deposit. The most recent site visit was October 9–11, 2018, where the following exploration activities/areas were reviewed and visited: 2018 regional fall/winter exploration diamond drilling results and drill sites (Chester Gosselin Project), review of 2018 regional exploration activity including geological mapping, prospecting, outcrop clearing and channel sampling results (Watershed, Chester 2 and 3, and Ontario 986813 Ltd – Arimathaea properties), inspections of the Côté Gold Project and exploration core farms, and inspection of the lease surveying plan on the Côté Gold Project.

2.5 Effective Dates

The Report has the following effective dates:

- Date of database close-out for Mineral Resource estimation: 7 June 2018

- Date of Mineral Resource estimate: 26 July, 2018
- Date of Mineral Reserve estimate: 1 October, 2018
- Date of Base Case financial analysis: 1 November, 2018
- Date of Extended Case financial analysis: 1 November, 2018.

The overall effective date of the Report is the date of the Base and Extended Case financial analyses and is 1 November, 2018.

2.6 Information Sources and References

The key information source for the technical report is the 2018 Feasibility Study document:

- Amec Foster Wheeler, 2018: Feasibility Study: report prepared for IAMGOLD, 26 October, 2018, 569 p.

Reports and documents listed in Section 3.0 (Reliance on Other Experts) and Section 27.0 (References) of this Report were also used to support the preparation of the Report.

Additional information was sought from IAMGOLD personnel where required.

2.7 Previous Technical Reports

IAMGOLD has previously filed the following technical reports on the Project

- Cook, R. B., 2010: Technical Report on the Chester Township Properties, Ontario, Canada; report prepared for IAMGOLD Mining and Exploration Inc., effective date January 14, 2010.
- Cargill, D. G., and Gow, N. N., 2009: 2009 Technical Report on the Young-Shannon Property, Chester Township, Ontario: report prepared for IAMGOLD Corporation, effective date September 30, 2009.
- Roscoe, W. E., and Cook, R. B., 2011: Technical Report on the Côté Gold Deposit, Chester Property, Ontario, Canada: report prepared for IAMGOLD Mining and Exploration Inc., effective date April 21, 2011.
- Lavigne J, and Roscoe, W. E., 2012: Technical Report on the Côté Gold Project, Chester Township, Ontario, Canada: report prepared by Roscoe Postle Associates Inc. for IAMGOLD Corporation, effective date October 24, 2012.

- Peralta, A., Wang, B., Dyck, D., Smiley, D., Lipiec, I., Padilla J., Baluch, P., Smith, A., Bugnon, M-F., and Evans, L., 2017: NI 43-101 Technical Report on the Prefeasibility Study of the Côté Gold Project, Porcupine Mining Division, Ontario, Canada: report prepared by Amec Foster Wheeler and Roscoe Postle Associates Inc., effective date May 26, 2017.

Trelawney Mining & Exploration Inc. filed a technical report on properties that are now part of the Project as follows

- Roscoe, W. E., and Cook, R. B., 2012: Technical Report on the Côté Lake Resource Update, Chester Property, Ontario, Canada: report prepared by Roscoe Postle Associates Inc. for Trelawney Mining & Exploration Inc., effective date March 30, 2012.

Condor Gold Corp filed two technical report on properties that are now part of the Project as follows:

- McBride, D. E., 2002: Qualifying Report on the Chester Township Property for Northville Gold Corporation: report filed by Condor Gold Corp., effective date July 29, 2002

Augen Gold Corp filed a technical report on properties that are now part of the Project as follows:

- Burt, P. D, Chance, P. N., Burns, J. G., 2011: Technical Report on a Resource Estimate on the Jerome Mine Property: report prepared for Augen Gold Corp., effective date July 18, 2011.

3.0 RELIANCE ON OTHER EXPERTS

3.1 Introduction

The QPs have relied upon the following other expert reports, which provided information on mine closure and taxation as follows.

3.2 Mine Closure

The QPs have relied upon, and disclaim responsibility for mine closure information as applied in the financial model, which was sourced from IAMGOLD through the following document:

- Woolfenden, S., 2018: Reclamation and Closure Costs in the Côté Gold Project Feasibility Study: letter prepared by IAMGOLD for Wood, 14 November, 2018, 1 p.

This information is used in support of the financial analysis in Section 22 and Section 24.1.23, the Mineral Reserve estimate in Section 15, and the mine closure discussions in Section 20.6 and Section 24.1.21.

3.3 Taxation

The QPs have relied upon, and disclaim responsibility for taxation information as applied in the financial model, which was sourced from IAMGOLD through the following document:

- Wilson, A.R., 2018: Taxation Information and tax inputs to the financial model used in the Côté Gold Project Feasibility Study National Instrument 43-101 Technical Report prepared by Amec Foster Wheeler for IAMGOLD: letter prepared by IAMGOLD for Wood, 15 November, 2018, 2 p.

This information is used in support of the financial analysis in Section 22 and Section 24.1.23, and in support of the Mineral Reserve estimate in Section 15.

4.0 PROPERTY DESCRIPTION AND LOCATION

4.1 Location

The Project is located in the Porcupine Mining Division, 25 km southwest of Gogama, Ontario and extends approximately 57 km from Esther Township in the west to Champagne Township in the east. It comprises a group of properties assembled through staking and option agreements covering a total area of about 587 km^2. The 2018 Feasibility Study area is a portion of the overall claim area.

The properties are bisected by Highway 144, and are approximately 175 km north of Sudbury via Highway 144 and about 125 km southwest of Timmins via Highways 101 and 144.

The Chester property is located in the central part of the 2018 Feasibility Study area, and hosts the Côté Gold deposit that is the subject of the 2018 Feasibility Study, as well as the Chester 1 zone and several other gold occurrences. Figure 4-1 provides an outline of the Chester property area. The Chester property is a subset of the overall tenement package of the Côté district as shown on Figure 4-2. The area included in the 2018 Feasibility Study is within the area demarcated by a thick black line on Figure 4-2.

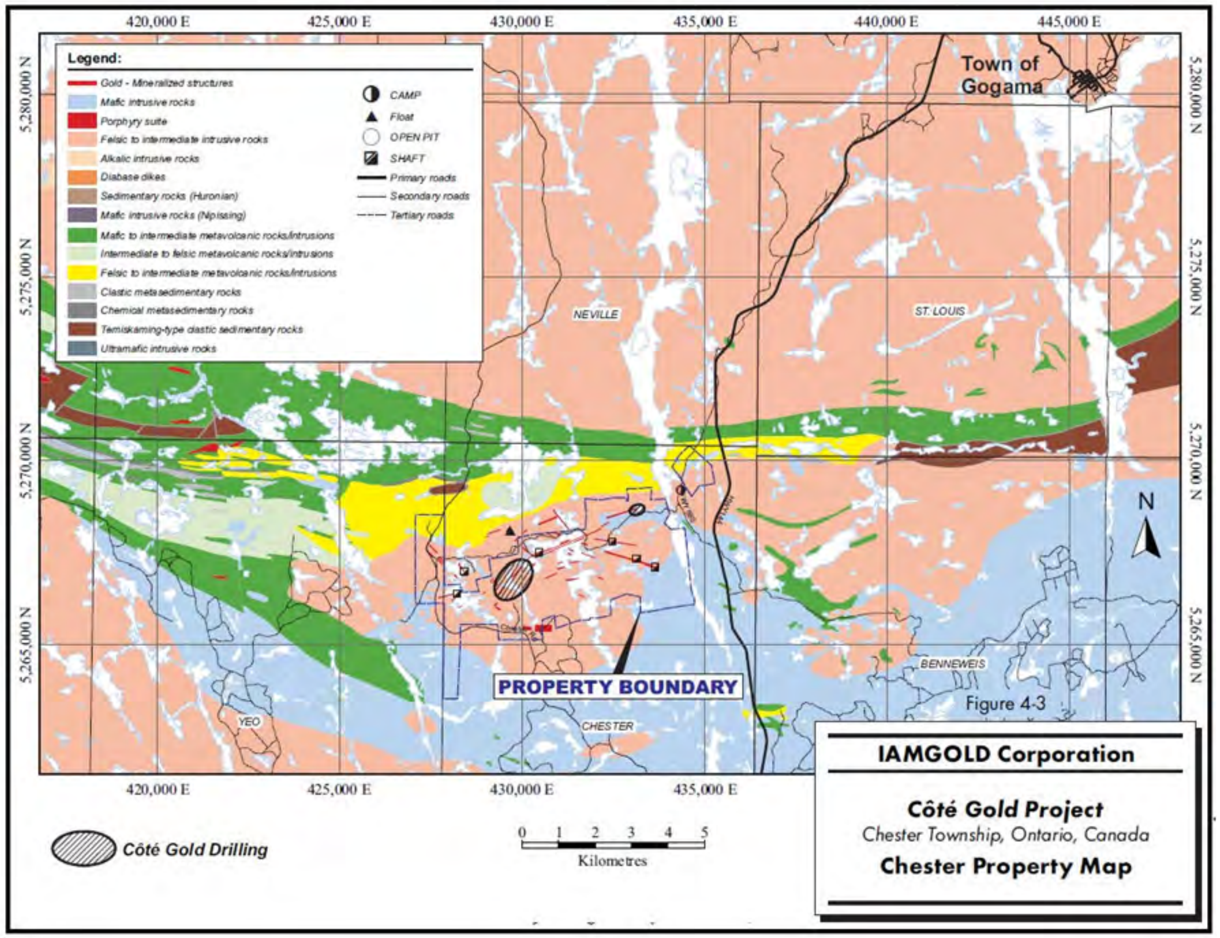
4.2 Property and Title in Ontario

This section provides a general overview of mineral-related law and title in Ontario, sourced from public domain documentation, including Natural Resources Canada (2015), The Fraser Institute (2018), Norton Rose Fulbright, (2013), and the Ontario Mines Act (1990).

4.2.1 Introduction

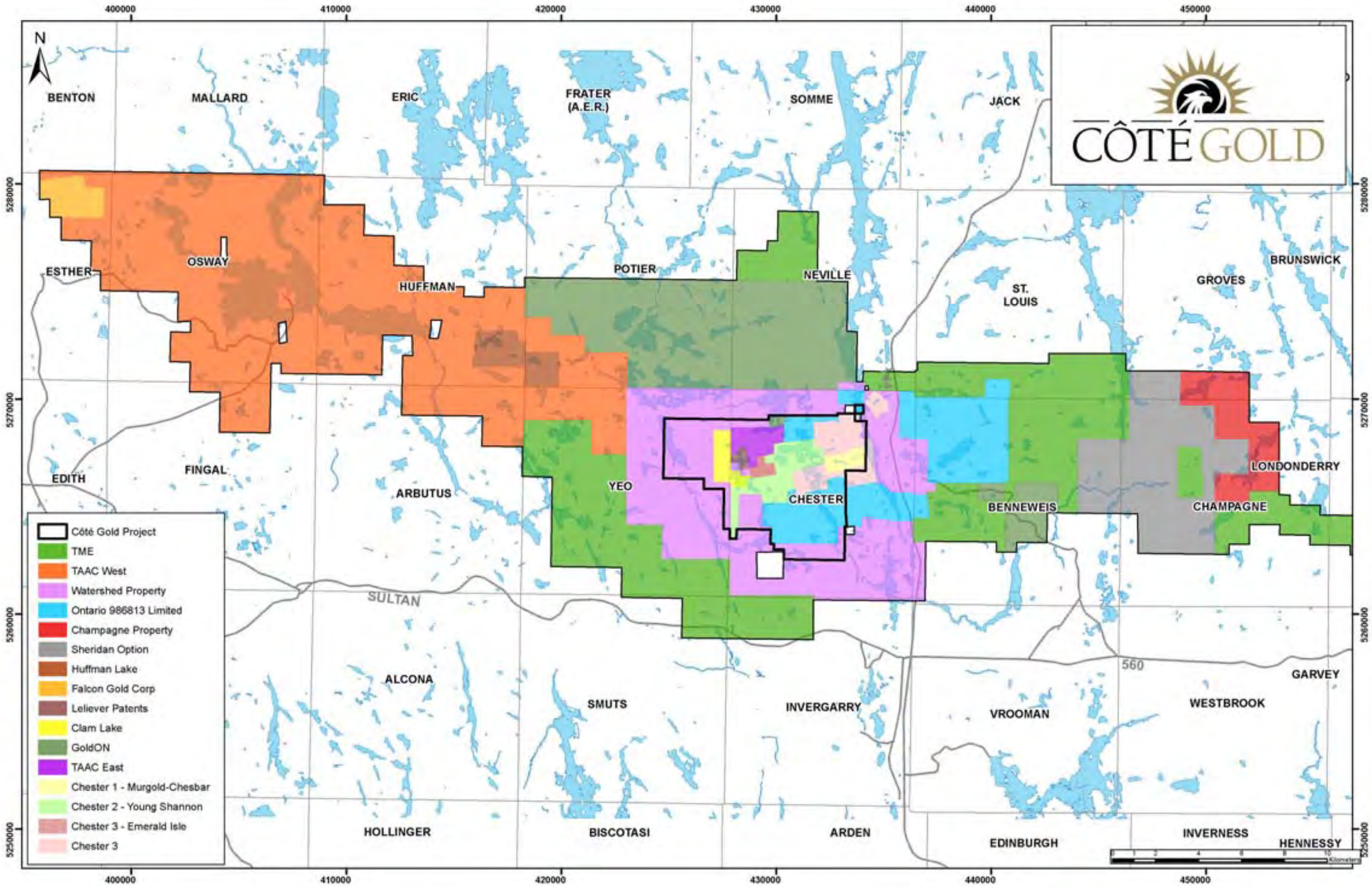
Until 1913, surface rights and mineral rights were acquired with land purchase. At that time, the Ontario Government enacted legislation reserving land mineral rights to the Crown and granting leases to individuals or companies seeking to extract minerals. Where mineral rights are privately owned due to granting prior to 1913, they can be sold independently of surface rights, so that surface and mineral rights on the same property can be held by different owners.

Figure 4-1: Chester Property Geology Map



Note: Figure prepared by IAMGOLD, 2018.

Figure 4-2: Côté Project Summary Tenure Plan



Note: Figure prepared by IAMGOLD, 2018.

The Ministry of Energy, Northern Development and Mines (ENDM) and the Ontario Ministry of Natural Resources and Forestry (MNRF) act as the two main regulatory bodies. The Canadian Federal Government may also be involved in the mining process where First Nations matters arise, or where the subject lands are federally regulated such as when the lands are classified as navigable bodies of water.

4.2.2 Mineral Tenure

Mining Claim

Historically, a mining claim was a square or rectangular area of open Crown land (land that belongs to the Province of Ontario) or Crown mineral rights that a licenced prospector marks out with a series of claim posts and blazed lines which could range in size from 16 ha (a one-unit claim) to 256 ha (a 16-unit claim).

The mining claims in the Sudbury area are administered under Mining Act, R.S.O. 1990, c. M.14 as well as several regulations thereunder.

Mining Lease

A mining claim can be converted into a mining lease. To convert a mining claim into a lease an application letter must be submitted to the Provincial Recording Office's Technical Services Unit any time after the fifth unit of assessment work has been performed (cash payment may be made in lieu of the second to fifth unit of assessment work) on the land and the work has been submitted and approved. After submitting the application letter, the land covered by the mining claims must be surveyed. The applicant may also request that the surface rights be included in the Mining Lease where the surface rights are held by the Crown. Where the surface rights are privately held, the lessee of the mineral rights may need to acquire the surface rights if required for development or production purposes.

A lease grants its owner title and ownership to the land, permits the extracting and sale of extracted resources and removes the requirement to perform yearly assessment work.

To maintain a lease, rent must be paid annually. A lease expires after 21 years but can be renewed if the lease-holder can demonstrate continuous production of minerals for at least one year since the issuance or if the lease-holder can show that it has taken a reasonable effort to bring the property into production. A mining lease can also be renewed on the basis of contiguity with other mining leases where production has occurred.

A mining lease cannot be transferred or mortgaged by the lessee without the prior consent of the ENDM. Transfers require the lessee to submit various documentation and pay a fee.

Patented Claims

The owner of freehold lands in Ontario holds a fee-simple real property interest. Historically, the holder of a mining claim interested in removing minerals from the ground could, instead of obtaining a mining lease, apply to the MNRF to acquire the freehold interest in the subject lands through the granting of a mining patent.

Such patents can include surface and mining rights, or may only comprise mining rights. They give the patentee all of the Crown's title to the subject lands and to all mines and minerals relating to such lands, subject to any reservations set out in the patent. Patented claims are subject to annual Ontario mining taxes and, where surface rights are held, Ontario mineral land taxes.

No regulatory consent is required for the patentee to transfer or mortgage those lands other than Planning Act approval where the transferred lands are adjacent to other lands held by the same party.

Mining Licence of Occupation

These mining licences of occupation allow the holder to use the land in the manner specified in each licence, including the right to dig, excavate and remove ores and minerals from and under the land. The Province of Ontario has the right to revoke licences of occupation on 30 days prior notice.

4.2.3 Ontario Modernizing the Mining Act Process

Information in this section was derived from the ENDM website, and the QP has not independently verified the information.

Ontario has fully implemented the third phase of the Ontario government's Modernizing the Mining Act (MAM) process. This phase:

- Moves Ontario's mining lands administration systems from ground staking and paper map staking to online registration of mining claims

- Creates an online Mining Land Administration System (MLAS) that enhances client access to Ontario's mining lands data and improves their ability to manage their files online.

On April 10, 2018, Ontario converted Ontario's manual system of ground and paper staking, and maintaining unpatented mining claims to an online system. All active, unpatented claims were converted from their legally defined location by claim posts on the ground or by township survey to a cell-based provincial grid. Mining claims are now legally defined by their cell position on the grid and coordinate location in the MLAS Map Viewer. These changes bring greater accuracy and certainty to the location of mining claims, greater certainty of rights and interests, as well as flexible management of land assets.

Annual assessment work requirements remain unchanged, despite new cell sizes being 11% to 50% larger than the size of traditional claim units. Assessment work requirements are C$400 per cell claim and C$200 per boundary claim or any claim that is encumbered. Where work has not been completed ahead of the due date, claims forfeit to the Crown.

In the new MLAS system, registering a mining claim is now completed by paying a single registration fee of $50 per cell. A number of fees, mostly related to leases and lease acquisition, did not change in April 2018, but will be the subject of further discussion with industry in 2018–2019.

4.2.4 Surface Rights

Surface rights refer to any right in land that is not a mining right. The process of acquiring surface rights for mining purposes depends on the owner of the rights:

- If the surface rights are owned by the claim holder, then no action is required
- If the surface rights are owned by the Crown, then the ownership of the surface rights will be granted to the claim holder during the lease application process as requested by the claim holder
- If the surface rights are privately owned by an individual or company, then an agreement to allow the claim holder to use the land must be made with the surface rights holder. The agreement should outline the compensation given if the land covered by the surface rights sustains any damages.

Confirmation of an agreement with the surface rights owner is required for grant of a mining lease, or an order of the Mining Lands Commissioner indicating that surface rights compensation, if any, has been paid, secured or settled must be provided.

4.2.5 Environmental Considerations

The Ontario Environmental Assessment Act is the legislation most often applied to environmental aspects of mining projects in Ontario. Mining project components may also be subject to the Federal Canadian Environmental Assessment Act.

Projects that are directly undertaken by a public agency; are undertaken on their behalf to fulfill a public agency responsibility or involve a public agency resource (for example, use of Crown lands, funding from a government agency, or impact on resources under government jurisdiction such as water bodies, fish habitat, timber or mineral resources) are required to follow an environmental assessment (EA) process. Both the Provincial and Federal EA acts generally apply. Both EA acts provide opportunities for varying levels of effort for conducting an EA, with the most intensive and longer-term processes required either for those projects that have the greatest potential to cause significant adverse environmental effects, or which are relatively unique, with perhaps the scope of potential impacts unknown.

A minimum amount of six months should be anticipated for completion of an environmental assessment, with a likely need of one year or more from the start of the process through to receipt of approval from the relevant agency.

4.2.6 Closure Considerations

All land affected by mining development activity must be rehabilitated after the activity has finished. A closure plan must be developed and acknowledged by the ENDM before mine development can begin. The plan outlines how the affected land will be rehabilitated and the costs associated with doing so. A financial guarantee equal to the estimated cost of the rehabilitation work is held in trust by the ENDM that is included with the submission of a closure plan.

4.2.7 First Nations Considerations

Section 35 of the Canadian Constitution Act, 1982, recognizes and protects aboriginal and treaty rights in Canada. The Crown has a legal duty to engage in meaningful consultation whenever it has reason to believe that its decisions or actions might infringe upon recognized aboriginal or treaty rights.

ENDM has the responsibility for coordinating the Crown's consultation efforts on decisions relating to mining and mineral exploration. If the project requires approvals or decisions by other Ministries with mineral development regulatory authority, there will be a coordinated approach to the government's consultation with aboriginal communities.

4.2.8 Fraser Institute Survey

IAMGOLD and Wood have used the Investment Attractiveness Index from the 2017 Fraser Institute Annual Survey of Mining Companies report (the Fraser Institute survey) as a credible source for the assessment of the overall political risk facing an exploration or mining project in Ontario.

IAMGOLD and Wood have relied on the Fraser Institute survey because it is globally regarded as an independent report-card style assessment to governments on how attractive their policies are from the point of view of an exploration manager or mining company, and forms a proxy for the assessment by industry of political risk in Canada from the mining perspective.

Overall, Ontario ranked seventh out of the 91 jurisdictions in the survey in 2017 for investment attractiveness, 20th for policy perception, and ninth for best practices mineral potential.

4.3 Beneficial Ownership

On April 27, 2012, IAMGOLD announced that it had entered into a definitive agreement with Trelawney Mining and Exploration Inc. (Trelawney) to acquire, through a wholly-owned subsidiary, all the issued and outstanding common shares of Trelawney through a plan of arrangement (the Trelawney transaction). On June 21, 2012, IAMGOLD announced the acquisition of all issued and outstanding common shares of Trelawney, which were subsequently delisted.

Trelawney Augen Acquisition Corporation (TAAC) was a subsidiary of Trelawney at the time of the Trelawney acquisition, and became an indirectly wholly-owned IAMGOLD subsidiary.

Following an amalgamation on June 1, 2017, all of IAMGOLD's interests in the groups of properties are now owned by and registered in the name of IAMGOLD Corp., with the exception of the Ontario 986813 Ltd (Arimathaea Resources Inc) property, which is held in the name of Ontario 986813 Ltd (Ontario 986813), an IAMGOLD subsidiary.

On June 20, 2017, IAMGOLD completed a transaction with Sumitomo Metal Mining (Sumitomo) wherein Sumitomo agreed to aquire a 30% undivided participating joint-venture interest in the IAMGOLD's property interests in the property package. Sumitomo's interest in the property is held by the Sumitomo subsidiary SMM Gold Côté Inc.

The properties acquired through the Trelawney transaction were the result 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 (see discussions on each agreement in Section 4.4). Note that the ownership interests discussed in Section 4.4 may reflect the current registered ownership status, rather than the beneficial ownership status, as some of the leases are still in process of ownership name changes.

4.4 Mineral Title

4.4.1 Overall Tenure Package

IAMGOLD holds a significant ground package outside the 2018 Feasibility Study area (refer to Figure 4-2). Overall, the property package consists of 3,208 tenures covering an area of about 60,017 ha.

4.4.2 Feasibility Study Property Package

The mineral tenure for the 2018 Feasibility Study area consists of a mixture of patented claims, mining leases, and a series of unpatented cell and boundary claims (for which lease applications have been submitted), covering the area defined in the black outline in Figure 4-2.

All lease and patent boundaries for the property package have been surveyed. Boundary and corner posts define existing claims.

As noted in Section 4.4.1, the property package includes tenures with different ownership interests and royalty considerations. The following subsections describe each property included in the 2018 Feasibility Study property package using the property nomenclature of the map legend in Figure 4-2 and the properties shown on Figure 4-3.

The location of the Côté Gold deposit open pit boundary with respect to the underlying mineral tenure is provided for reference in Figure 4-4.

The Chester 1, Chester 2 and Chester 3 agreement/property areas are primarily held under patented lands and mining leases. This combined area can also be referred to as the Chester property. The remaining agreement/property areas are generally held as unpatented claims.

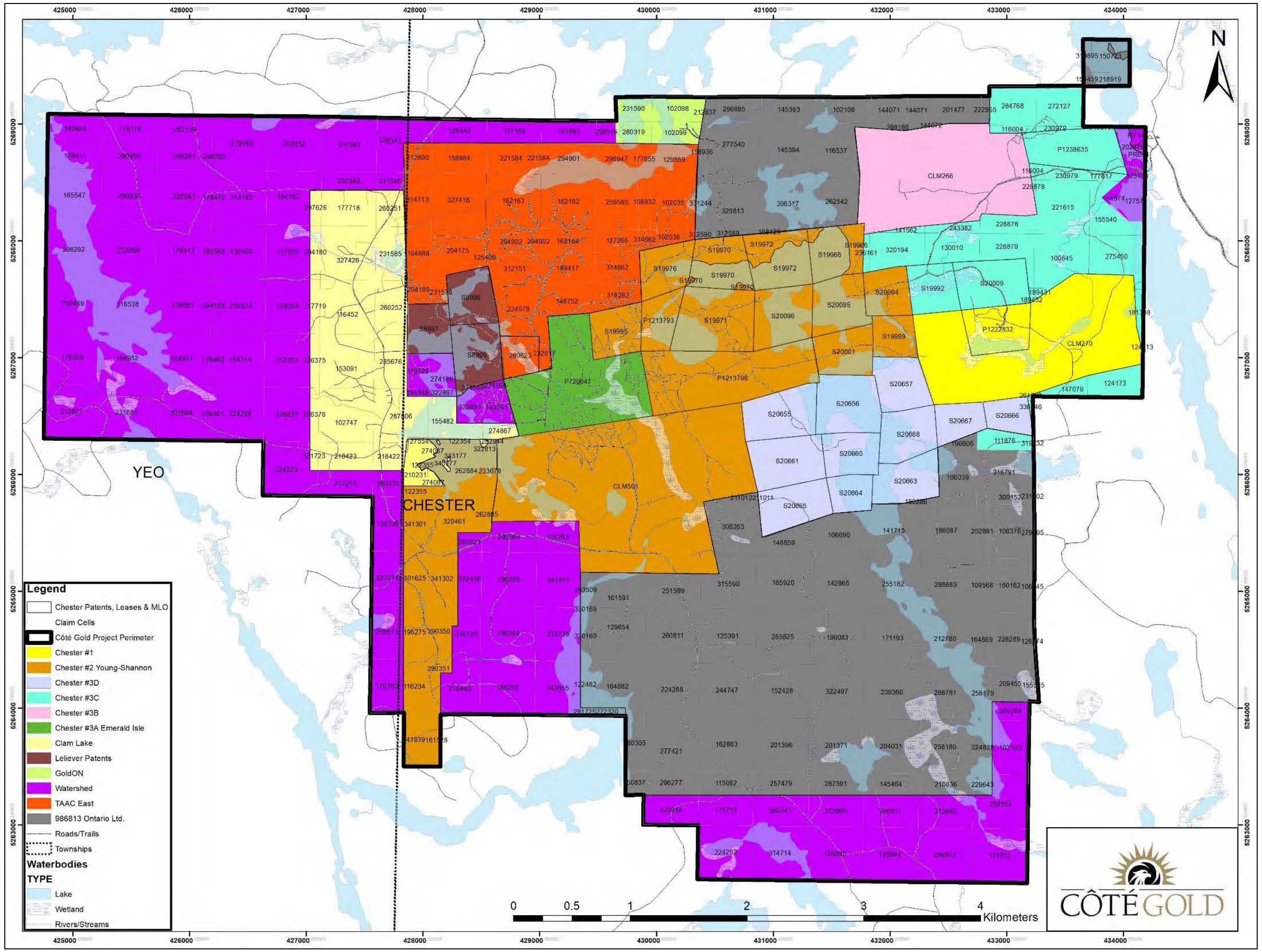
4.4.3 Mining Lease Applications

The location of the areas where mining leases have been applied for are set out in Figure 4-5. In that figure:

- Claims coloured as orange are covered by existing patents and leases.
- Claims coloured as blue, and labelled as Phase 1, are where mining lease applications have been submitted and are awaiting final survey instructions from the office of the Surveyor General in order to advance with surveying and the issuance of mining leases.
- Claims coloured as grey, and labelled as Phase 2, are where mining lease applications have also been submitted. In the case of these lease applications, the ENDM has completed its consultation with MNRFF and a request has been made for survey instruction from the office of the Surveyor General in order to advance with surveying and the issuance of mining leases.

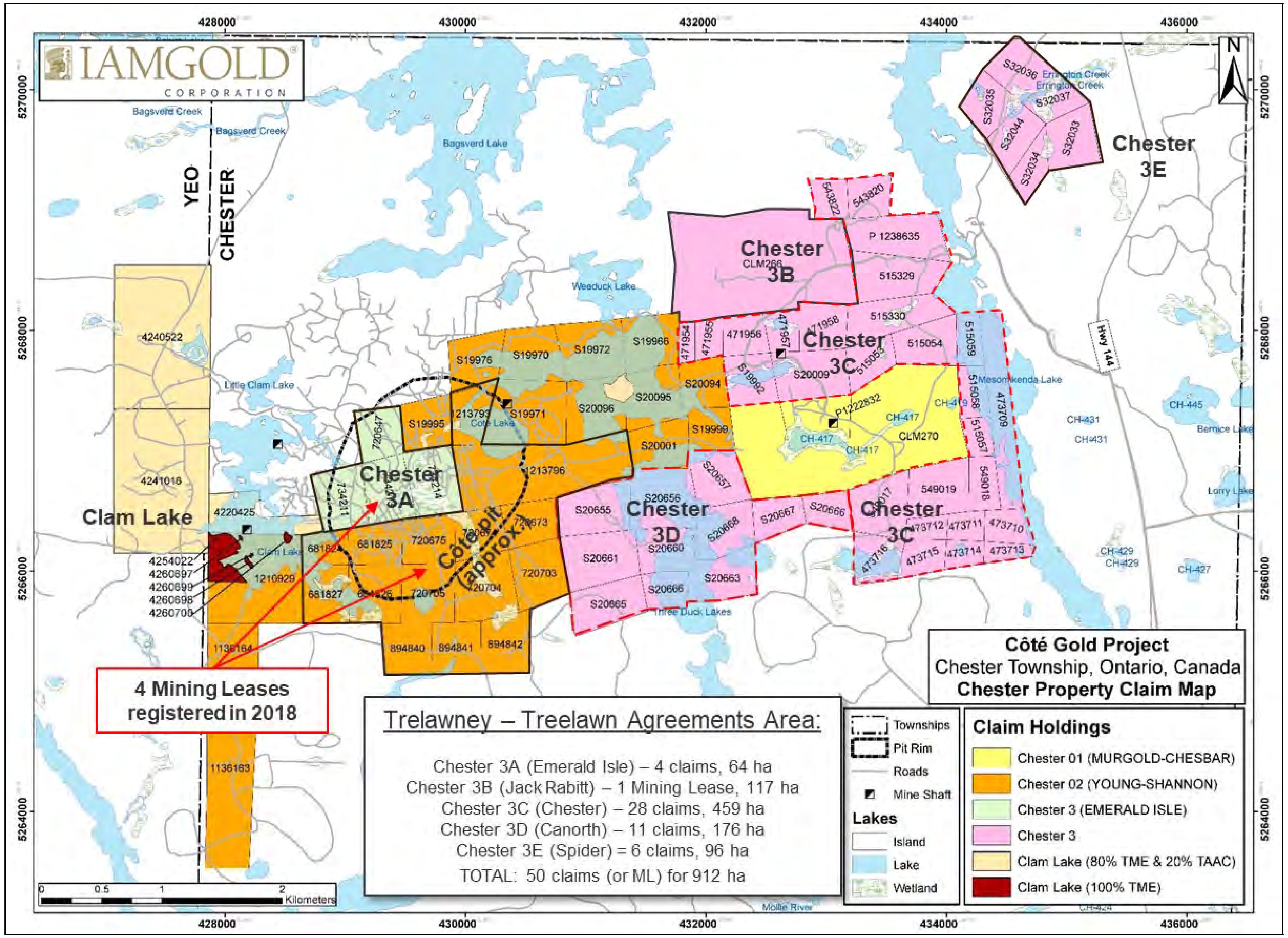
Due to the mining lease applications, the commitments on the underlying claims will be suspended once the surveys have been completed and the mining lease applications are in their final phases. The issuance of survey instructions and the new Mining Lease Applications were delayed by the MLAS implementation (see Section 4.2.3).

Figure 4-3: 2018 Feasibility Study Property Group Map



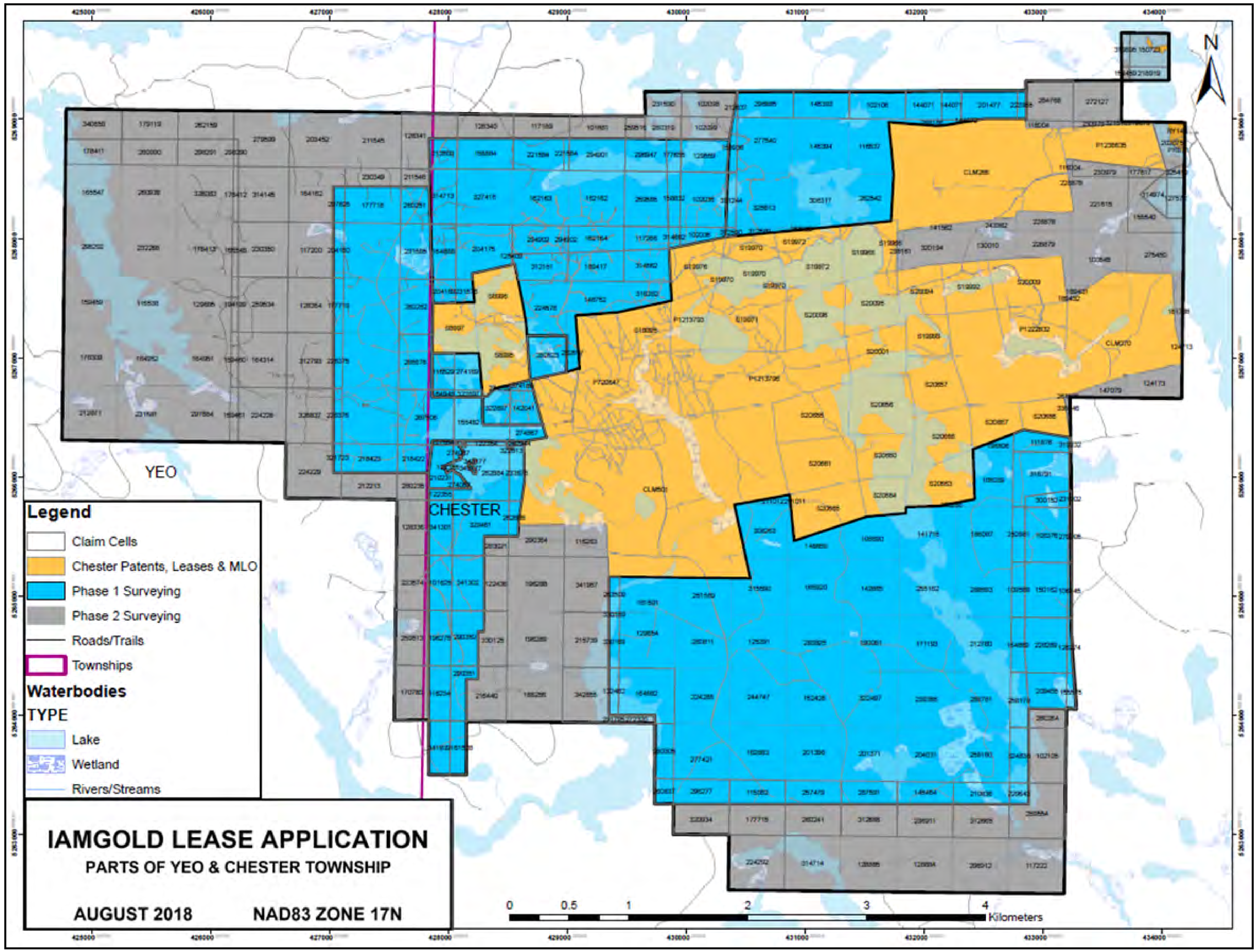
Note: Figure prepared by IAMGOLD, 2018.

Figure 4-4: Chester Property Location Plan and Proposed Côté Gold Deposit Open Pit



Note: Figure prepared by IAMGOLD, 2018.

Figure 4-5: Location Plan, Mining Lease Applications



Note: Figure prepared by IAMGOLD, 2018.

IAMGOLD is of the opinion that there are no risks associated with actual issuance of the Côté Gold Project mining leases, and that the issuance will occur when the ENDM clears the backlog arising from the freeze period imposed as part of the MLAS implementation.

4.4.4 Option Agreements

Mineral claims subject to option agreements are kept in good standing by IAMGOLD as a requirement of those agreements. Under Provincial requirements IAMGOLD regularly completes assessment work that is filed to renew or extend the claims for as much as five years of validity.

The minimum assessment work a mining claim holder must do every year or distribute to the claim from work reserve banked on the claim or from other contiguous claims to keep the mining claim in good standing is C$400 per claim unit or cell claim which corresponds to 16 ha and C$200 per boundary claim or any claim that is encumbered as mentioned in Section 4.2.3.

IAMGOLD has no additional exploration expenses obligations in relation with the various option property agreements.

4.4.5 Chester 1 Agreement

The Chester 1 (Murgold–Chesbar) claim locations are shown in Figure 4-3 and Figure 4-4.

Agreements

On August 11, 2009, Trelawney entered into a definitive option agreement with Treelawn Investment Corp. granting Trelawney the exclusive and irrevocable option to earn up to a 70% interest in the Chester 1 (Murgold-Chesbar) claims. Pursuant to the terms of this option agreement with Trelawn Investment, Trelawney had the option to acquire an initial 50% interest in the claims (the First Chester 1 Option) and an option to increase the 50% interest in 10% increments to 70% (the Second Chester 1 Option).

Treelawn Investment and the Treelawn Group Inc. (Treelawn Group) are sister companies owned by Mr Jeff Woods, and are companies that are independent of Trelawney.

Under the terms of an amending agreement dated November 22, 2011 between Trelawney and Treelawn Investment, Trelawney accelerated the terms of the Chester 1 Option Agreement dated August 11, 2009, and announced on November 23, 2011 that it had completed the exercise of the First Chester 1 Option and the Second Chester 1 Option, to earn 70% of Treelawn Investment's interest in the Chester 1 (Murgold–Chesbar) claims.

Tenure

The mineral tenure within the Chester 1 (Murgold–Chesbar) agreement area is summarized in Table 4-1 and cover an area of approximately 150 ha.

The registered ownership of the Chester 1 (Murgold–Chesbar) claims surface rights and mineral rights shown in Table 4-1 is:

- IAMGOLD: 70%
- Trelawn Capital: 30%.

An application to transfer a 30% interest in IAMGOLD's interest to SMM Gold CôtéInc. is currently pending.

Royalties

In addition, in consideration of waiving certain commercial production requirements under the Chester 1 Option Agreement, Treelawn Investment's residual 30% working interest in the Chester 1 (Murgold–Chesbar) claims was converted into a 30% net profits interest in November of 2011 and transferred to Treelawn Capital Corp. (Treelawn Capital) in October 2016.

Mining Lease 107446 covering CLM270 is subject to a 3% net smelter return (NSR) with IAMGOLD having the right to purchase 2% of the NSR for C$2 M.

4.4.6 Chester 2 Agreement

The location of the Chester 2 agreement property package is provided in Figure 4-3.

Table 4-1: Chester 1 (Murgold–Chesbar) Leases

Claim Number	Lease Number	PIN	Recorded Date	Lease Expiry Date
P1222832	107447	73193-0072	01-Aug-03	31-Jul-23
CLM270	107446	73193-0071	01-Aug-03	31-Jul-24

Note: P1222832 was granted as a 21 year lease but MENDM has a 20 year expiry date recorded.

Agreements

On October 27, 2009, Trelawney signed an amended and restated Mining Claim Acquisition Agreement with Metallum Resources Inc. (Metallum). This agreement allowed Trelawney to acquire a 92.5% interest in the Young–Shannon property (now part of the Chester 2 property package).

Trelawney exercised the option. At the time of the closing of the Metallum agreement, Trelawney held at least a 92.5% interest in the staked and patented claims and the remaining interest was held by Treelawn Investment.

On February 2, 2017, Metallum received final approval from the TSX Venture Exchange for to change its principal business from a Mining Issuer to an Investment Issuer (Torrent Capital Ltd). Metallum has no further rights or interests associated with the Chester 2 property packages.

Treelawn Investment acquired its undivided property interest as a result of a settlement of a charge on a minority owner of the property.

Tenure

The Chester 2 agreement property package consists of 11 patented claims, three mining leases, and 21 cell claims (historically three legacy claims comprising eight units). These claims cover the southern part of the Côté Gold deposit and its northeast and southwest geological extensions. The Chester 2 agreement tenure interests are contiguous, covering an area of approximately 655 ha.

Table 4-2 sets out the patented claims held in the Chester 2 agreement property package.

Table 4-2: Chester 2 Agreement Patented Claims

Parcel Number	PIN	Claim Number
9609 SWS	73193-0039	S19966
9608 SWS	73193-0038	S19970
8471 SWS	73193-0019	S19971
9610 SWS	73193-0040	S19972
10087 SWS	73193-0046	S19976
9607 SWS	73193-0037	S19995
10090 SWS	73193-0047	S19995
10092 SWS	73193-0048	S20001
8478 SWS	73193-0021	S20096
8791 SWS	73193-0068	S20094
8472 SWS	73193-0020	S20095

In Table 4-2, the beneficial ownership is:

- IAMGOLD: 64.75%
- SMM Gold CôtéInc.: 27.75%
- Treelawn Group: 7.5%.

Table 4-3 summarizes the mining leases in the Chester 2 agreement property package. In Table 4-3, the beneficial ownership is:

- IAMGOLD: 64.75%
- SMM Gold CôtéInc.: 27.75%
- Treelawn Group: 7.5%.

Table 4-4 summarizes the legacy claims in relation to the new Ontario cell claims. All of the claims are within Chester township.

In Table 4-4, the beneficial ownership is:

- IAMGOLD: 64.75%
- SMM Gold CôtéInc.: 27.75%
- Treelawn Group: 7.5%.

Table 4-3: Chester 2 Property Mining Leases

Claim Number	Mining Lease Number	PIN	Percent Option Owned (%)	Lease Expiry Date
CLM 501 (P-681825 P-681826 P-681827 P-720673 P-720674 P-720675 P-720703 P-720704 P-720705 P-894840 P-894841 P-894842)	109689	73193-0080	92.5	2038-May-31
		73193-0081		
		73193-0082		
		73193-0083		
		73193-0084 (MRO)		
		73193-0085 (MRO)		
P-1213793	109688	73193-0077	92.5	2038-May-31
		73193-0078		
		73193-0079		
P-1213796	109690	73193-0086	92.5	2038-May-31
		73193-0087		
		73193-0088		

Note: Percent option owned is the combined ownership interest held by IAMGOLD and SMM Gold CôtéInc.; the application to transfer a 30% interest in IAMGOLD's interest to SMM Gold CôtéInc. is currently pending. MRO = mineral rights ownership.

Table 4-4: Chester 2 Property Cell Claims vs Legacy Claims

Cell Claim	Legacy Claim	Grant Date	Good To Date
101625	1136163	10 April, 2018	#
116234	1136163		
161528	1136163		
196275	1136163		
290350	1136163		
290351	1136163		
341302	1136163		

Cell Claim	Legacy Claim	Grant Date	Good To Date
341939	1136163		
101625	1136164		
329461	1136164		
341301	1136164		
341302	1136164		
122354	1210929		
122355	1210929		
180328	1210929		
233678	1210929		
262884	1210929		
262885	1210929		
282944	1210929		
329461	1210929		
341301	1210929		

Note: The application to transfer a 30% interest in IAMGOLD's interest to SMM Gold CôtéInc. is currently pending. The implementation of online registration of mining claims and a new modernized electronic Mining Lands Administration System (MLAS) on April 10, 2018, has converted Ontario's manual system of ground and paper staking, and maintaining unpatented mining claims to an online system and as such all active, unpatented claims were converted from their legally defined location by claim posts on the ground or by township survey to a cell-based provincial grid. All claim numbers have changed. All claims have the same grant date, which corresponds to the date the claims were created in the MLAS. # = the claims are subject to mining lease applications and therefore work commitments will be suspended once the surveys have been completed and the mining lease applications are in their final phases.

Royalties

The Mining Claim Acquisition Agreement with Metallum was subject to a 1% NSR royalty payable when the monthly average gold price exceeds $1,000 per ounce. This royalty was subsequently acquired by IAMGOLD in 2012.

The patented claims are subject to a 1.5% NSR under an agreement dated March 27, 1987. Sixteen of the 18 unpatented claims are subject to a 0.75% NSR under an agreement dated April 15, 1987.

4.4.7 Chester 3 Agreements

The properties within the Chester 3 tenure package are shown in Figure 4-3 and Figure 4-4.

Agreements

On December 21, 2009, Trelawney and Treelawn Group Inc. entered into a Mining Option Agreement, pursuant to which the Treelawn Group granted Trelawney the right to acquire up to a 92.5% interest in the Treelawn Group's interests (the Treelawn Interest) in the Chester 3 claims. Pursuant to the terms of the Mining Option Agreement, Trelawney had the option to acquire an initial 50% interest in Treelawn's Interest in these claims (First Chester 3 Option) and an option to increase such interest to 92.5% (the Second and Third Chester 3 Options). Under the terms of an amending agreement dated November 22, 2011, between Trelawney and Treelawn Group Inc., Trelawney accelerated the terms of the Second and Third Chester 3 Options of the Chester 3 Option Agreement dated 21 December 2009, and announced on November 23, 2011 that it had completed the exercise of the First Chester 1 Option and the Second Chester 1 Option, to earn 92.5% of the Treelawn Interest in the Chester 3 property.

On November 26, 2010, Trelawney entered into an agreement to purchase the 21.62% undivided interest in leased Mining Lease CLM266 held by Gold Bar Resources Inc. (Gold Bar). On September 9, 2011, Trelawney announced that it had completed the acquisition of the 21.62% undivided interest in leased Mining Lease CLM266 to hold a 94.1215% interest. Gold Bar retains no project interest.

Tenure

The Chester 3 agreement tenure package consists of three mining leases, 19 patented claims), and 35 boundary and cell unpatented claims (originally 25 unpatented mining claims covering approximately 804 ha. The tenure package hosts a large portion of the Côté Gold deposit (refer to Figure 4-4). A mining lease application has been submitted for the surface and mining rights over the unpatented claims area.

Table 4-5 summarizes the Emerald Isle claim block (recently granted as a mining lease) within the tenure package (claims shown in green, and labelled as Chester 3A on Figure 4-4). This lease hosts the northern portion of the Côté Gold deposit. The lease is entirely located within the Chester township.

In Table 4-5, the registered ownership interest is:

- IAMGOLD: 92.5%
- Treelawn Group: 7.5% net profits interest.

Table 4-5: Chester 3A (Emerald Isle Block) Lease

Claim Number	Lease Number	PIN	Recording Date	Due Date
CLM 501 (P720647 P734211 P734213 P734214)	109687	73193-0073 73193-0074 73193-0075 73193-0076	1 June 2017	31 May 2038

The transfer of a 30% interest in IAMGOLD's interest to SMM Gold CôtéInc. has been completed.

Table 4-6 provides a list of the Chester 3 unpatented claims, surrounding the Chester 1 agreement property. These claims are adjacent to the north, east and south of tenure CLM 270 that falls within the Chester 1 claims package, and shown in Figure 4-4 as part of the Chester 3C package. All of the claims are within Chester township. A mining lease application has been submitted and these claims are being surveyed for the perimeter of the surface and mining rights. Some of these claims are requested for lease under historical applications and do not require work to retain ownership.

In Table 4-6, the registered ownership is:

- IAMGOLD: 38.85%
- SMM Gold CôtéInc.: 28.65%;
- Ontario 986813 Ltd: 28%
- Treelawn Group: 7.5%.

Ontario 986813 Ltd acquired Arimathaea Resources Inc.'s original property interest. An application to transfer a 30% interest in IAMGOLD's interest in the names of Trelawney and Ontario 986813 Ltd to SMM Gold CôtéInc. has been completed.

Table 4-7 is a list of the surface and mineral rights held under patented claim by beneficial owners IAMGOLD, SMM Gold CôtéInc and the Treelawn Group. All claims are in Chester township. The claim areas are included within the Chester 3E package in Figure 4-4.

Table 4-6: Chester 3C Claims

Cell Claim	Legacy Claim	Grant Date	Good To Date
284768	543820	10 April, 2018	#
272127	543820		
230979	543822		
116004	543822		
147079	549017		
336646	549017		
124173	549019		
261899	549017		
141562	471954		
130010	471956		
243382	471956		
320194	471956		
228878	471957		
181388	515057		
275450	515058		
116004	515329		
230979	515329		
177617	515329		
221615	515329		
228879	515330		
100645	515330		
155540	515054		
236161	471954		
189431	515053		
189432	515053		

Note: The implementation of online registration of mining claims and a new modernized electronic Mining Lands Administration System (MLAS) on April 10, 2018, has converted Ontario's manual system of ground and paper staking, and maintaining unpatented mining claims to an online system and as such all active, unpatented claims were converted from their legally defined location by claim posts on the ground or by township survey to a cell-based provincial grid. All claim numbers have changed. Ontario 986813 Ltd acquired Arimathaea Resources Inc. interests. An application to transfer a 30% interest in IAMGOLD's interest in the names of Trelawney and Ontario 986813 Ltd to SMM Gold CôtéInc. is currently pending. All claims have the same grant date, which corresponds to the date the claims were created in the MLAS. # = the claims are subject to mining lease applications and therefore work commitments will be suspended once the surveys have been completed and the mining lease applications are in their final phases.

Table 4-7: Chester 3E Patented Claims

Claim Number	Parcel Number	PIN
S32033	9625 SWS (SRO) 27911 SWS (MRO)	73193-0041 (SRO) 73193-0066 (MRO)
S32034	9626 SWS 27911 SWS (MRO)	73193-0042 (SRO) 73193-0066 (MRO)
S32035	9627 SWS 27911 SWS (MRO)	73193-0043 (SRO) 73193-0066 (MRO)
S32036	9628 SWS 27911 SWS (MRO)	73193-0044 (SRO) 73193-0066 (MRO)
S32037	9629 SWS 27911 SWS (MRO)	73193-0045 (SRO) 73193-0066 (MRO)
S32044	9627 SWS 27911 SWS (MRO)	73193-0043 (SRO) 73193-0066 (MRO)

Note: SRO = surface rights ownership, MRO = mineral rights ownership

The beneficial ownership interest for the claims shown in Table 4-7 is:

- IAMGOLD: 64.75%
- SMM Gold CôtéInc.: 27.75%
- Treelawn Group: 7.5%.

Table 4-8 is a list of the surface and mineral rights held under patented claim by beneficial owners IAMGOLD, SMM Gold CôtéInc, the Treelawn Group, and Canorth Resources Inc. (Canorth). All claims are in Chester township. The claim areas are shown as the Chester 3D package in Figure 4-4.

In Table 4-8, there is a difference in ownership between the surface rights, and the mineral rights.

The beneficial surface rights ownership is:

- IAMGOLD: 64.75%
- SMM Gold CôtéInc.: 27.75%
- Treelawn Group: 7.5%.

Table 4-8: Chester 3D Patented Claims

Claim Number	Parcel Number	PIN
S20655	8380 SWS 29284 SWS	73193-0008 (SRO) 73193-0067 (MRO)
S20656	8381 SWS 29284 SWS	73193-0009 (SRO) 73193-0067 (MRO)
S20657	8382 SWS 29284 SWS	73193-0010 (SRO) 73193-0067 (MRO)
S20660	8383 SWS 29284 SWS	73193-0011 (SRO) 73193-0067 (MRO)
S20661	8384 SWS 29284 SWS	73193-0012 (SRO) 73193-0067 (MRO)
S20663	8377 SWS 29284 SWS	73193-0005 (SRO) 73193-0067 (MRO)
S20664	8378 SWS 29284 SWS	73193-0006 (SRO) 73193-0067 (MRO)
S20665	8379 SWS 29284 SWS	73193-0007 (SRO) 73193-0067 (MRO)
S20666	8385 SWS 29284 SWS	73193-0013 (SRO) 73193-0067 (MRO)
S20667	8386 SWS 29284 SWS	73193-0014 (SRO) 73193-0067 (MRO)
S20668	8387 SWS 29284 SWS	73193-0015 (SRO) 73193-0067 (MRO)

Note: SRO = surface rights ownership, MRO = mineral rights ownership.

The beneficial mineral rights ownership is:

- IAMGOLD: 48.5625%
- SMM Gold CôtéInc.: 20.8125%
- Treelawn Group: 5.625%
- Canorth: 25%.

Table 4-9 provides the claims held under patent and lease by beneficial owners IAMGOLD, Murgold Resources Inc. (Murgold), SMM Gold CôtéInc., and the Treelawn Group. All claims are within Chester township. The claims are included within the Chester 3C package in Figure 4-4.

Table 4-9: Chester 3C Patented Claims

Claim Number	PIN	Approximate Area (ha)
S19992	73193-0022	16.3
S20009	73193-0023	24.4
P1238635	73193-0070	27.4
Total		**68.1**

In Table 4-9, claim numbers S19992 and S20009 have the following beneficial ownership:

- IAMGOLD: 38.85%
- SMM Gold CôtéInc.: 16.65%
- Treelawn Group: 4.5%
- Murgold: 40%.

Claim P1238635 has the following registered ownership:

- IAMGOLD: 92.5%
- Treelawn Group.: 7.5%.

An application to transfer a 30% interest in IAMGOLD's interest to SMM Gold CôtéInc. is currently pending.

Table 4-10 summarizes the claims held under the grouping "Jack Rabbit" shown as Chester 3B in Figure 4-4. The claims are within Chester township.

The registered owners of the claims in Table 4-10 are:

- IAMGOLD: 65.88505%
- SMM Gold CôtéInc.: 28.23645%
- Treelawn Group: 5.8785%.

An application to transfer a 30% interest in IAMGOLD's interest to SMM Gold CôtéInc. has been completed.

Table 4-10: Chester 3B - Jack Rabbit Group

Claim Number	PIN	Approximate Area (ha)	Start Date	Lease Expiry Date
CLM266	73193-0001	117.2	01-Apr-05	31-Mar-26
Total		**117.2**		

Royalties

In accordance with the Mining Option Agreement, after exercising the First Chester 3 Option, Trelawney granted the Treelawn Group a 1.5% NSR on the Treelawn Interest in the Chester 3 claims. During the 48 months following the grant of the royalty, Trelawney had the right to purchase 0.5% of the royalty from the Treelawn Group for the sum of C$1 M. On May 20, 2015, Trelawney exercised its right to purchase 0.5% NSR by paying the Treelawn Group the sum of C$1 M. This right reduces the total royalty to 1% NSR in the Chester 3 claims.

In consideration for accelerating the exercise of the Chester 3 Option Agreement, Treelawn Group Inc's residual interest in the Chester 3 property was converted into a free-carried interest of 7.5% on the Treelawn Interest (Amended Interest dated 22 November 2011). On 28 March 2012, Trelawney announced that it had entered into a restated amending agreement with Treelawn Group Inc. with respect to the Chester 3 property. Pursuant to the restated amending agreement, the Amended Interest was converted into a 7.5% net profits interest on the Treelawn Interest.

In addition to Treelawn Group's royalty under the Mining Option Agreement covering Chester 3, CLM266 is also subject to an additional 1.5% NSR.

4.4.8 Clam Lake–Crown Minerals

Figure 4-2 and Figure 4-3 show the location of the tenures included in the Clam Lake–Crown Minerals property area.

Agreements

On May 19, 2010, Trelawney announced that it had signed a letter of intent with Crown Minerals Inc. (Crown Minerals) on their Chester/Yeo property in close proximity to the Chester properties. Trelawney purchased an 80% interest in the Chester/Yeo property and Crown Minerals was to retain a 20% carried interest until the completion of a positive pre-feasibility study.

On June 13, 2013, TAAC signed an Acquisition Agreement with Crown Minerals to purchase its interest to earn a 100% interest in the Chester/Yeo property.

Under the Watershed Option and Joint Venture Agreement between Sanatana Resources Inc. (Sanatana) and TAAC, Sanatana exercised its right under the area of interest clause of 5 km from any portion of the Watershed property to acquire half of the acquired interest in the Chester/Yeo claims (the location of the Watershed property is included as the pale lavender claims shown in Figure 4-2). This 20% interest was then held 50:50 between Sanatana and TAAC. Following the purchase on March 9, 2016 of Sanatana's 50% interest of the 20% interest in the Watershed property, TAAC obtained control of the full 20% interest.

In July 2017, the TAAC and Trelawney interests were transferred into IAMGOLD's name.

Tenure

The Clam Lake property tenure package acquired from Crown Minerals is provided in Table 4-11. The claims are within the Chester and Yeo townships. The property is contiguous with, and to the west of, the Chester properties, and consists of 20 boundary and cell claims (historically three legacy claims with 14 units) covering an area of approximately 241 ha.

A mining lease application has been submitted and these claims are being surveyed for the perimeter of the surface and mining rights. As a result of the mining lease applications, work commitments will be suspended once the surveys have been completed and the mining lease applications are in their final phases.

The beneficial and registered ownership of the claim package in Table 4-11 is:

- IAMGOLD: 70%
- SMM Gold CôtéInc.: 30%

Royalties

There are no royalties payable on the Crown Minerals tenure package.

Table 4-11: Clam Lake–Crown Minerals Tenure

Township/Area	Cell Claim	Legacy Claim
Yeo	116452	4240522
	177718	4240522
	177719	4240522
	204180	4240522
	231585	4240522
	260251	4240522
	260252	4240522
	297626	4240522
	327426	4240522
Yeo	102747	4241016
	116452	4241016
	153091	4241016
	177719	4241016
	218422	4241016
	218423	4241016
	226375	4241016
	226376	4241016
	260252	4241016
	285676	4241016
	287506	4241016
	321723	4241016
Chester	155482	4220425
	287506	4220425
	274867	4220425

Note: The implementation of online registration of mining claims and a new modernized electronic Mining Lands Administration System (MLAS) on April 10, 2018, has converted Ontario's manual system of ground and paper staking, and maintaining unpatented mining claims to an online system and as such all active, unpatented claims were converted from their legally defined location by claim posts on the ground or by township survey to a cell-based provincial grid. As such, all claim numbers have changed.

4.4.9 Clam Lake

Figure 4-3 included the location of the Clam Lake property within the overall Crown Minerals/Clam Lake property area.

Agreements

The Clam Lake property is not subject to any agreements.

Tenure

Trelawney staked four claims (4260697, 4260698, 4260699, and 4260700) covering four small islands in Clam Lake, on the western boundary of, and within, Chester township. A fifth claim was staked in 2011. The claims cover an area of approximately 80 ha. Claim details are provided in Table 4-12. A mining lease application has been submitted and these claims are being surveyed for the perimeter of the surface and mining rights.

The claims in Table 4-12 were registered 100% in Trelawney's name. In July 2017, the Trelawney interests were transferred into IAMGOLD's name. The transfer of a 30% interest in IAMGOLD's interest to SMM Gold CôtéInc. has been completed.

Royalties

The Clam Lake package is not subject to any royalty payments.

4.4.10 Leliever Property

The Leliever property is labelled as Leliever Patents in Figure 4-2 and Figure 4-3.

Agreements

Pursuant to an acquisition agreement between Trelawney and John Leliever, dated February 24, 2012, Trelawney purchased a 100% interest in the Leliever claims.

Tenure

The Leliever property is located in the central area of the 2018 Feasibility Study area. It lies immediately to the northwest of the Côté Gold deposit. The Leliever property is found exclusively within Chester township. It is a single contiguous block of three patented claims with an approximate area of 54.4 ha (Table 4-13).

Table 4-12: Clam Lake Tenure

Township/Area	Cell Claim	Legacy Claim
Yeo	127554	4254022
	210231	4254022
	274087	4254022
	322812	4254022
	271286	4260697
	343177	4260697
	343177	4260698
Yeo	343177	4260699
	274087	4260700
	322812	4260700
	320650	4260700
	322813	4260700

Table 4-13: Leliever Patented Claims

Claim Number	Parcel Number	PIN
S8995	8417 SWS	73193-0016
S8996	8418 SWS	73193-0017
S8997	8420 SWS	73193-0018

The claims in Table 4-13 were registered 100% in Trelawney's name. In July 2017, the Trelawney interests were transferred into IAMGOLD's name. The transfer of a 30% interest in IAMGOLD's interest to SMM Gold CôtéInc. has been completed.

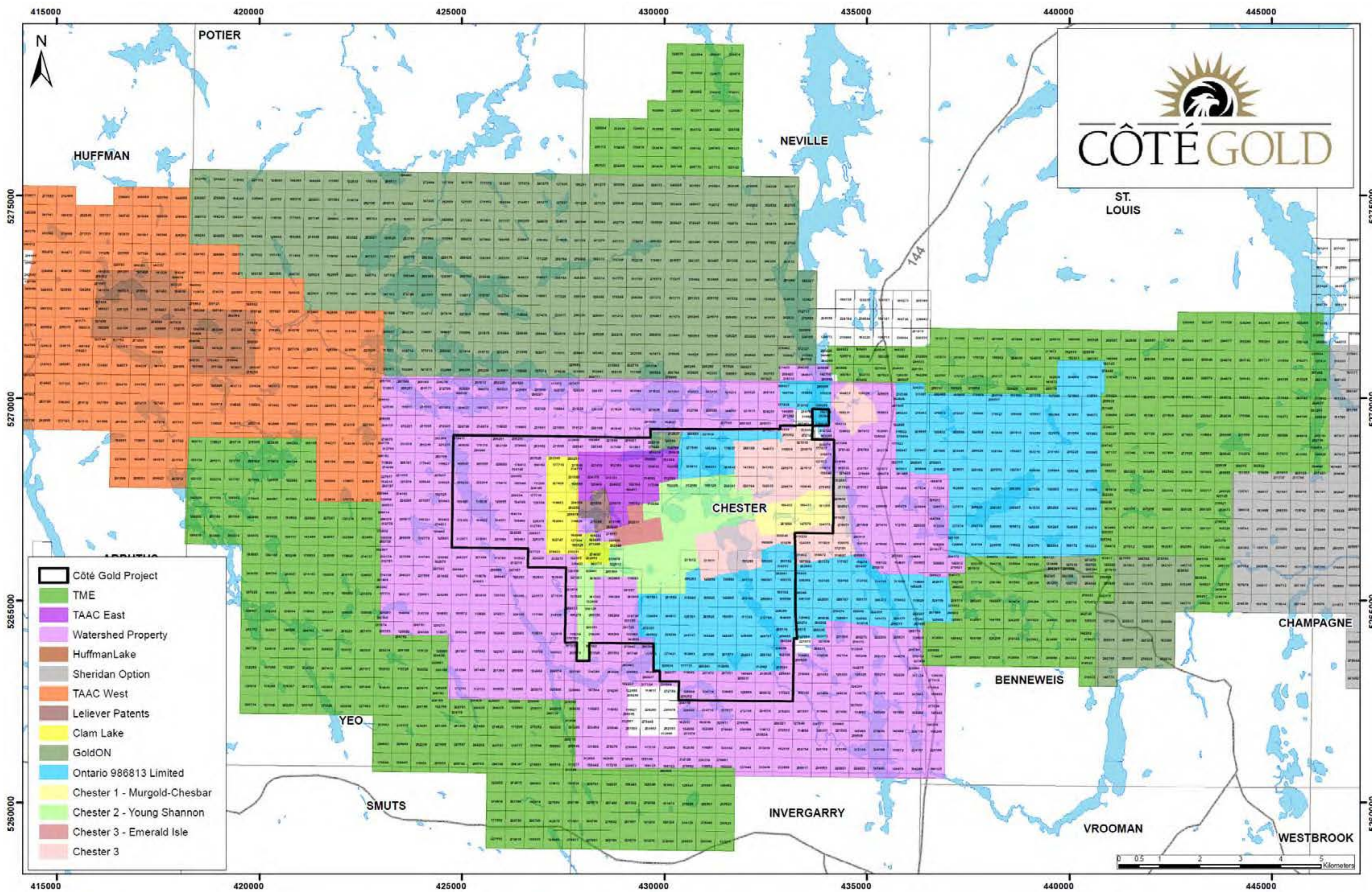
Royalties

The Leliever property is not currently subject to any royalty payments.

4.4.11 Ontario 986813 Ltd. (Arimathaea Resources Inc.) Property

The Ontario 986813 Ltd. property location is labelled as Ontario 986813 Ltd. in Figure 4-2 and Figure 4-6.

Figure 4-6: IAMGOLD Regional Property Interests – Central Area



Note: Figure prepared by IAMGOLD, 2018.

Agreements

Pursuant to an asset purchase agreement between Arimathaea and Ontario 986813 Ltd. (Ontario 986813) dated June 26, 1982, Ontario 986813 acquired the Arimathaea property. By an application to the Commissioner from Ontario 986813, dated December 26, 2011, several separate requests were made. These included vesting 100% interest in the claims comprising the Arimathaea property to Ontario 986813, an application for exclusions, and an application for extension of time.

An order by the Commissioner dated February 6, 2012 granted all of the relief sought with the effective date of transfer of the Arimathaea property to Ontario 896813 being June 26, 1992. Ontario 2294167 Inc. (Ontario 2294167) acquired ownership of 55% of Ontario 986813 on August 3, 2011. Ontario 2294167 was a wholly-owned Trelawney subsidiary.

Tenure

The entire Ontario 986813 Ltd property is separated into four, 100% Ontario 986813-owned distinct blocks in the Project area as illustrated on Figure 4-6, but the 2018 Feasibility Study property area includes only a portion of those claims. All of the claims for the study area are within Chester township while the entire property also extends in Benneweis township.

The number of claims forming the Ontario 986813 Ltd property (also referred as the Arimathaea property) are summarized in Table 4-14. They combine for a total of 258 unpatented boundary and cell claims (historically 233 legacy unpatented claims) and an approximate total area of 3,628 ha.

The Ontario 986813 Ltd property ownership was 100% in the name of Ontario 986813 Ltd. Ontario 986813 Ltd is a subsidiary of IAMGOLD (through Ontario 2294167 which acquired 55% of its ownership). The application to transfer a 30% interest in IAMGOLD's interest to SMM Gold CôtéInc. in the property has been completed.

Royalties

The Ontario 986813 Ltd property is not currently subject to any royalty payments.

Table 4-14: Ontario 986813 Ltd Property Claims

Ontario 986813 Ltd Property - Block Name	Number of Legacy Unpatented Mining Claims	Estimated Number of Boundary and Cell Claims	Approximate Area (ha)
North	16	20	174
Northeast	7	13	107
East	113	119	1,901
South	97	106	1,446
Ontario 986813 Ltd Property Total	**233**	**258**	**3,628**

Note: The implementation of online registration of mining claims and a new modernized electronic Mining Lands Administration System (MLAS) on April 10, 2018, has converted Ontario's manual system of ground and paper staking, and maintaining unpatented mining claims to an online system and as such all active, unpatented claims were converted from their legally defined location by claim posts on the ground or by township survey to a cell-based provincial grid. All claim numbers have changed.

4.4.12 Sanatana Option and Watershed Property

The Sanatana Option and Watershed property is identified as the Watershed property in Figure 4-2, and is shown in Figure 4-6.

Agreements

The Sanatana Option was under an earn-in agreement between TAAC and Sanatana signed on February 14, 2011. Under the terms of this agreement, Sanatana had the right to acquire a 50% interest in the originally 100% TAAC-owned claims (of the Sanatana Option property) by completing the following:

- Paying TAAC C$150,000 within 10 days of February 14, 2011 (completed)
- Allotting and issuing to TAAC a total of 5,000,000 shares on or before February 14, 2013, as follows:
  - 2,000,000 Shares on or before February 24, 2011 (completed)
  - An additional 1,500,000 Shares on or before February 24, 2012 (completed)
  - An additional 1,500,000 Shares on or before February 24, 2013 (completed)
- Incurring work costs of not less than C$5 M as follows:
  - C$1 M on or before February 14, 2012 (completed)
  - An additional C$1.5 M on or before February 14, 2013 (completed)
  - An additional C$1.5 M on or before February 14, 2014 (completed).

This agreement included a provision of an Area of Interest (also termed the Sanatana right of first refusal or Sanatana ROFR) extending up to 5 km from any portion of the property. This required that any acquisition or staking of mineral claims by TAAC or its affiliates must be offered to Sanatana for the benefit of the parties. If exercised by Sanatana, the costs of such an acquisition must be reimbursed under the Option and Joint Venture (JV) terms and the interest will be included in the property for the benefit of Sanatana and TAAC.

Sanatana has:

- Paid TAAC C$150,000 in cash
- Issued TAAC 5,000,000 common shares
- Incurred not less than C$5 M in exploration expenditures, and Sanatana had therefore earned a 50% property interest.

Sanatana could have increased its interest to 51% in the Sanatana Option and Joint Venture property upon completion and delivery of a pre-feasibility study on or before March 23, 2016; however, on November 30, 2015, Sanatana announced that it had given TAAC notice to form a 50/50 joint venture (the JV) to manage the Watershed property. The JV would be formed pursuant to the terms of the option and joint venture agreement between Sanatana and TAAC, dated February 14, 2011, with Sanatana as the initial manager of the JV.

On March 9, 2016, Sanatana sold its 50% interest in the Watershed property to Trelawney Augen Acquisition Corp. in exchange for C$2 M in cash consideration, C$3 M in contingent consideration and a 1% NSR.

Tenure

The Sanatana Option property (or Watershed property) is located in part in the central and east–central portion of the 2018 Feasibility Study area and surrounds it. It is a single contiguous block with claims in Yeo, Chester, Neville, and Benneweis townships.

The entire Watershed property consists of 510 boundary and cell claims (or 46 unpatented legacy mining claims) with an approximate area of 8,059 ha. The Watershed Property claims presently located within the 2018 Feasibility Study area total 83 boundary and cell claims for an approximate 1,274 ha.

Details for the unpatented mining claims of the Watershed property are found in Appendix A.

The ownership interest was initially 100% TAAC. Subsequently, Sanatana obtained a 50% interest in the property; however, TAAC purchased Sanatana's 50% interest in 2016. In July 2017, the TAAC interests were transferred into IAMGOLD's name. The transfer of a 30% interest in IAMGOLD's interest to SMM Gold CôtéInc. has been completed.

Royalties

On March 9, 2016, Sanatana sold its 50% interest in the Watershed property to TAAC in exchange for C$2 M in cash consideration, C$3 M in contingent consideration and a 1% NSR. TAAC has the option to re-purchase 0.5% of the NSR for a C$2 M cash payment. In addition, TAAC also has the right of refusal on any sale of the NSR to other parties.

Both the patented and unpatented claims that encompass the Watershed property and the area of the Sanatana ROFR were also subject to a 1% NSR payable to Trelawney based on an agreement signed between TAAC and Trelawney (pre-acquisition of TAAC). This NSR Royalty has been extinguished with the amalgamation of Trelawney in IAMGOLD.

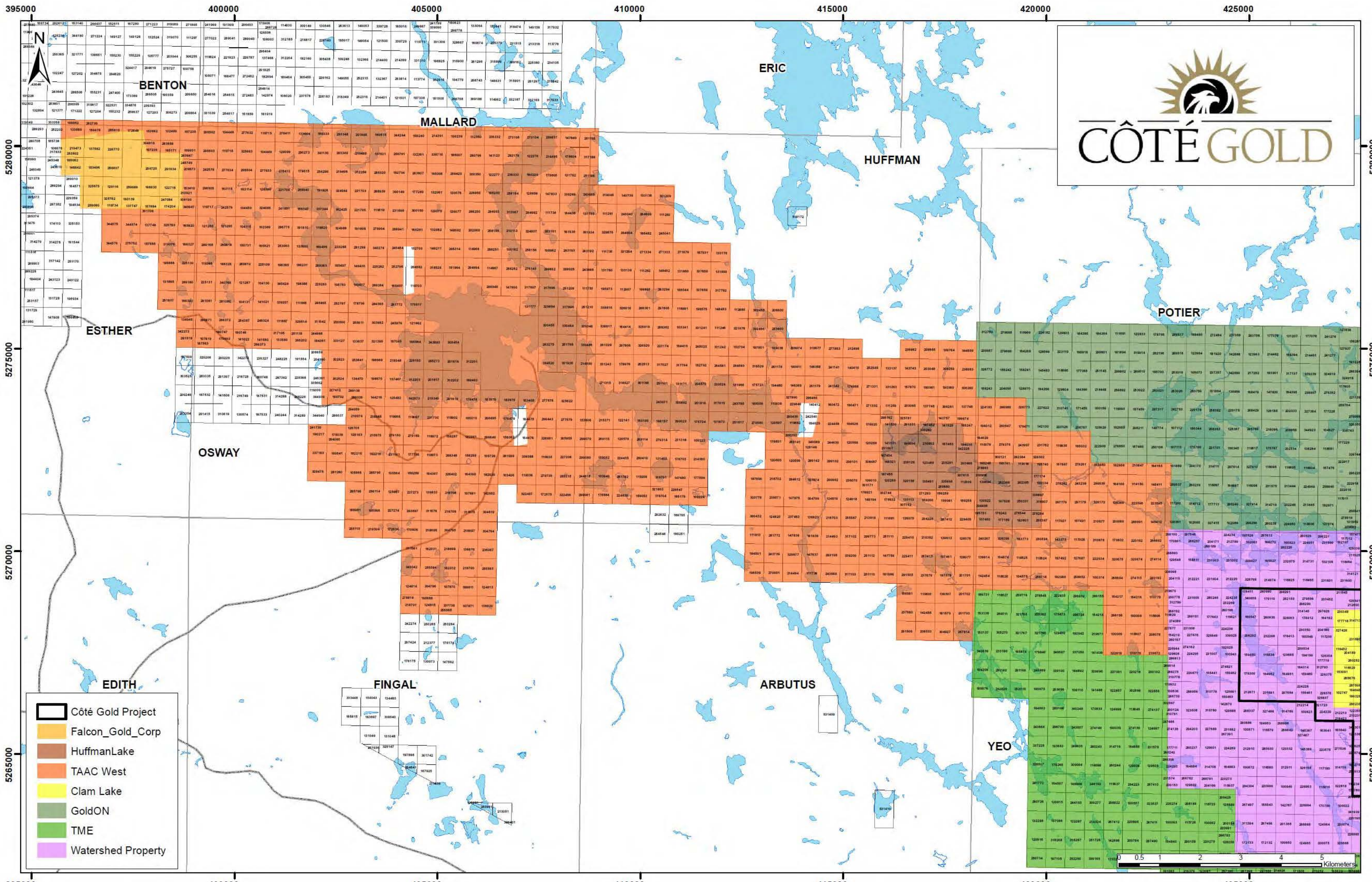
4.4.13 Trelawney Augen Acquisition Corp. (TAAC) Properties

The Trelawney Augen Acquisition Corp properties (TAAC) are separated into two distinct blocks in the regional project area, separated by the Watershed property. They are contiguous with the other property groups. The east block is referred to as the TAAC East property in Figure 4-2 and is illustrated in Figure 4-6. The west block is referred to as TAAC West property in Figure 4-2 and is illustrated in Figure 4-7.

Agreements

There are no agreements in place for the TAAC properties.

Figure 4-7: IAMGOLD Regional Property Interests – West Area



Note: Figure prepared by IAMGOLD, 2018.

Tenure

The TAAC properties originally consisted of two 100% TAAC-owned distinct blocks, the East and West blocks. Only the East block is located in the 2018 Feasibility Study area.

TAAC East is located directly to the north of the Côté Gold deposit and comprises a total of 32 unpatented boundary and cell claims (historically nine legacy unpatented claims) and an approximate total area of 300 hectares.

The TAAC West block is the largest property block in the Project area. It includes the majority of the western half of the regional Project area, covering ground in Benton, Esther, Osway, Huffman, Potier, Fingal, Arbutus, and Yeo townships. The TAAC West block consists of a combination of 40 patents, 50 mining licences of occupation (MLOs), and 822 unpatented boundary and cell claims (historically 83 unpatented mining claims) for an approximate total area of 17,477 ha.

The two blocks combine for a total of 854 boundary and cell claims, 40 patented mining claims and 50 mining licences of occupation, with a total area of 17,777 ha.

The claims are summarized in Table 4-15and Table 4-16. The list of patented crown grants and mining licences of occupation is included in Table 4-17. Details on the patented and unpatented mining claims of the TAAC properties are included in Appendix A.

In July 2017, the TAAC interests were transferred into IAMGOLD’s name. The transfer of a 30% interest in the unpatented mining claims and the patented claims to SMM Gold CôtéInc. has been completed.

Royalties

The TAAC properties are not currently subject to any royalty payments.

4.4.14 Huffman Lake Option Property

The Huffman Lake Option property is identified as the Huffman Lake property in Figure 4-2, and is shown in Figure 4-7.

Table 4-15: Trelawney Augen Acquisition Corp. Claims

TAAC Property - Block Name	Patented		Number of Legacy Unpatented Mining Claims	Estimated Number of Boundary and Cell Claims
	Patents	MLOs		
East	0	0	9	32
West	40	50	83	822
TAAC Property	**40**	**50**	**92**	**854**

Note: The implementation of online registration of mining claims and a new modernized electronic Mining Lands Administration System (MLAS) on April 10, 2018, has converted Ontario's manual system of ground and paper staking, and maintaining unpatented mining claims to an online system and as such all active, unpatented claims were converted from their legally defined location by claim posts on the ground or by township survey to a cell-based provincial grid. All claim numbers have changed.

Table 4-16: Trelawney Augen Acquisition Corp. Property Surveyed Claims

TAAC Property Block Name	Surveyed		Approximate	Total
	Patents (ha)	MLOs (ha)	Unpatented Mining Claims (ha)	Surveyed + Approximate (ha)
East	0	0	300	300
West	485	733	16,259	17,477
TAAC Property Total	**485**	**733**	**16,559**	**17,777**

Table 4-17: Trelawney Augen Acquisition Corp. Patent Crown Grants and Mining Licences of Occupation

Patent Crown Grant Number	Mining Licence of Occupation Number	PIN	Claim Number
4916		73176-0058 (SRO)	S32117
4916		73176-0059 (MRO)	S32117
4918		73176-0060 (SRO)	S32157
4918		73176-0061 (MRO)	S32157
4919		73176-0062 (SRO)	S32159
4919		73176-0063 (MRO)	S32159
4920		73176-0064 (SRO)	S32242
4920		73176-0065 (MRO)	S32242

Patent Crown Grant Number	Mining Licence of Occupation Number	PIN	Claim Number
4921		73176-0066 (SRO)	S32268
4921		73176-0067 (MRO)	S32268
4922		73176-0068 (SRO)	S32160
4922		73176-0069 (MRO)	S32160
4923		73176-0070 (SRO)	S32070
4923		73176-0071 (MRO)	S32070
4933		73176-0072 (SRO)	S32073
4933		73176-0073 (MRO)	S32073
4934		73176-0074 (SRO)	S32074
4934		73176-0075 (MRO)	S32074
4935		73176-0076 (SRO)	S32113
4935		73176-0077 (MRO)	S32113
4936		73176-0078 (SRO)	S32162
4936		73176-0079 (MRO)	S32162
4937		73176-0080 (SRO)	S32215
4937		73176-0081 (MRO)	S32215
4938		73176-0082 (SRO)	S32216
4938		73176-0083 (MRO)	S32216
4939		73176-0084 (SRO)	S32218
4939		73176-0085 (MRO)	S32218
4940		73176-0086 (SRO)	S32264
4940		73176-0087 (MRO)	S32264
4941		73176-0088 (SRO)	S32265
4941		73176-0089 (MRO)	S32265
4942		73176-0090 (SRO)	S32266
4942		73176-0091 (MRO)	S32266
4943		73176-0092 (SRO)	S32366
4943		73176-0093 (MRO)	S32366
4944		73176-0094 (SRO)	S32367
4944		73176-0095 (MRO)	S32367

Patent Crown Grant Number	Mining Licence of Occupation Number	PIN	Claim Number
5066		73176-0096 (SRO)	S32121
5066		73176-0097 (MRO)	S32121
5067		73176-0098 (SRO)	S32071
5067		73176-0099 (MRO)	S32071
5411		73176-0100 (SRO)	S31758
5411		73176-0101 (MRO)	S31758
5570		73176-0102 (SRO)	S32267
5570		73176-0103 (MRO)	S32267
5571		73176-0104 (SRO)	S32269
5571		73176-0105 (MRO)	S32269
5573		73176-0106 (SRO)	S32261
5573		73176-0107 MRO)	S32261
5574		73176-0108 (SRO)	S32262
5574		73176-0109 (MRO)	S32262
5575		73176-0110 (SRO)	S32263
5575		73176-0111 (MRO)	S32263
5584		73176-0112 (SRO)	S32227
5584		73176-0113 (MRO)	S32227
5585		73176-0114 (SRO)	S32395
5585		73176-0115 (MRO)	S32395
5587		73176-0116 (SRO)	S32222
5587		73176-0117 (MRO)	S32222
5588		73176-0118 (SRO)	S32223
5588		73176-0119 (MRO)	S32223
5594		73176-0120 (SRO)	S32316
5594		73176-0121 (MRO)	S32316
5136		73177-0046 (SRO)	S29951
5136		73177-0047 (MRO)	S29951
5137		73177-0048 (SRO)	S29952
5137		73177-0049 (MRO)	S29952

Patent Crown Grant Number	Mining Licence of Occupation Number	PIN	Claim Number
5412		73177-0050 (SRO)	S31759
5412		73177-0051 (MRO)	S31759
5580		73177-0052 (SRO)	S32219
5580		73177-0053 (MRO)	S32219
5581		73177-0054 (SRO)	S32220
5581		73177-0055 (MRO)	S32220
5582		73177-0056 (SRO)	S32224
5582		73177-0057 (MRO)	S32224
5583		73177-0058 (SRO)	S32225
5583		73177-0059 (MRO)	S32225
5915		73177-0060 (SRO)	S32386
5915		73177-0061 (MRO)	S32386
5916		73177-0062 (SRO)	S32387
5916		73177-0063 (MRO)	S32387
	10390		S32119
	10391		S32118
	10392		S32117
	10393		S32116
	10394		S32120
	10395		S32121
	10396		S32071
	10397		S32073
	10398		S32069
	10399		S32070
	10400		S32077
	10401		S32076
	10402		S32075
	10403		S32115
	10404		S32114

Patent Crown Grant Number	Mining Licence of Occupation Number	PIN	Claim Number
	10408		S32160
	10409		S32159
	10410		S32158
	10411		S32157
	10414		S32072
	10415		S33641
	10416		S33640
	10417		S33642
	10418		S32367
	10419		S32368
	10420		S32369
	10421		S32364
	10422		S32365
	10423		S32366
	10424		S32161
	10425		S32162
	10426		S32113
	10427		S32216
	10428		S32215
	10429		S32265
	10430		S32264
	10560		S29951
	10561		S29952
	10692		S31759
	10693		S31758
	10746		S32395
	10748		S32224
	10749		S32226
	10750		S32225
	10751		S32227

Patent Crown Grant Number	Mining Licence of Occupation Number	PIN	Claim Number
	10752		S32219
	10753		S32220
	10754		S32221
	10755		S32222
	10756		S32223

Agreements

The property is subject to an option agreement between TAAC and John Gregory Brady and Reginald James Charron, executed on August 10, 2009. TAAC completed all necessary payments and shares have been issued by previously acquired companies to fulfill the agreement. The optioned property has been transferred to TAAC.

Tenure

The Huffman Lake Option property is located in the west–central part of the project area. It is completely surrounded by the claims of the TAAC West block. The Huffman Lake Option straddles the border of Huffman and Potier townships. It is a single contiguous block of 43 boundary and cell claims (originally four unpatented mining claims) with an approximate area of 624 ha.

Details on the unpatented mining claims of the Huffman Lake Option Property are included in Appendix A.

The ownership interest was initially 100% TAAC. In July 2017, the TAAC interests were transferred into IAMGOLD's name. The transfer a 30% interest in IAMGOLD's interest to SMM Gold CôtéInc. has been completed.

Royalties

The property is subject to a 2% NSR. TAAC has the right to acquire half (50%) of the NSR at any time upon payment of C$1 M. The royalty holders are also entitled to a non-refundable advance royalty payment (ARP) in the amount of C$10,000 per year commencing August 10, 2013.

4.4.15 Falcon Gold Option Property

The Falcon Gold Option property (or also referred as the Burton property) is identified as the Falcon Gold Corp Option property in Figure 4-2, and is shown in Figure 4-7.

Agreements

Under an option agreement dated February 16, 2012 between Trelawney and Falcon Gold, Trelawney was entitled to acquire a 51% interest in the Burton property if Trelawney made certain payments to Falcon Gold and completed expenditures on the property, both of which now have been done.

During this phase of the agreement, Falcon Gold acts as the operator. After completing all terms of this first option, Trelawney may elect to exercise the Falcon Gold Second Option to acquire a further 24% interest in the Burton property a further C$0.6 M of expenditures was completed on or before February 16, 2014. During this phase of the agreement, Trelawney could become operator of the property. The conditions for the Falcon Gold First Option of the Agreement were completed and the Falcon Gold Second Option was not exercised. This gives Trelawney a 51% interest in the property and transfer of interest will be made.

After exercising either the Falcon Gold First or Falcon Gold Second Option, a joint venture may be created with each party to contribute to the pro rata of their interest.

Tenure

The Falcon Gold Option property is located in the far northwest corner of the project area. It is immediately west of the large group of claims of the TAAC West Block. The Falcon Gold Option is found exclusively within Esther township. It is a single contiguous block consisting of 30 boundary and cell claims (originally 16 unpatented mining claims and six patented claims) with an approximate total surface area of 472 ha. Falcon Gold was entitled to acquire a 100% interest in this property (the Burton property) under a Mineral Property Acquisition Agreement dated March 25, 2010 and amended on April 29, 2010. It was signed with the original owners Martin L. Burton, Cumming S. Burton, and Archie S. Burton.

Details for the patented and unpatented mining claims of the Falcon Gold Option property are included in Appendix A. Table 4-18 is a summary of the Falcon Gold Option patents.

Table 4-18: Falcon Gold Option Patents

Parcel Number	PIN	Claim Number
10034SWS	73175-0008	S31116
10035SWS	73175-0007	S31117
10036SWS	73175-0006	S31226
10037SWS	73175-0005	S31227
10038SWS	73175-0004	S32578
10039SWS	73175-0003	S32579

In July 2017, the Trelawney interests were transferred into IAMGOLD's name. The beneficial ownership interest for the unpatented claims is:

- IAMGOLD: 51%
- Falcon Gold Corp: 49%.

The application to transfer a 30% interest in IAMGOLD's interest to SMM Gold CôtéInc. in the unpatented and patented claims is currently pending.

Royalties

A joint venture may be created with each party to contribute to the pro rata of their interest. A dilution process will be applied if either party does not contribute and dilutes to less than 10% interest. The diluted party will then forfeit all of its interest and be entitled to a 2% NSR royalty from any future production.

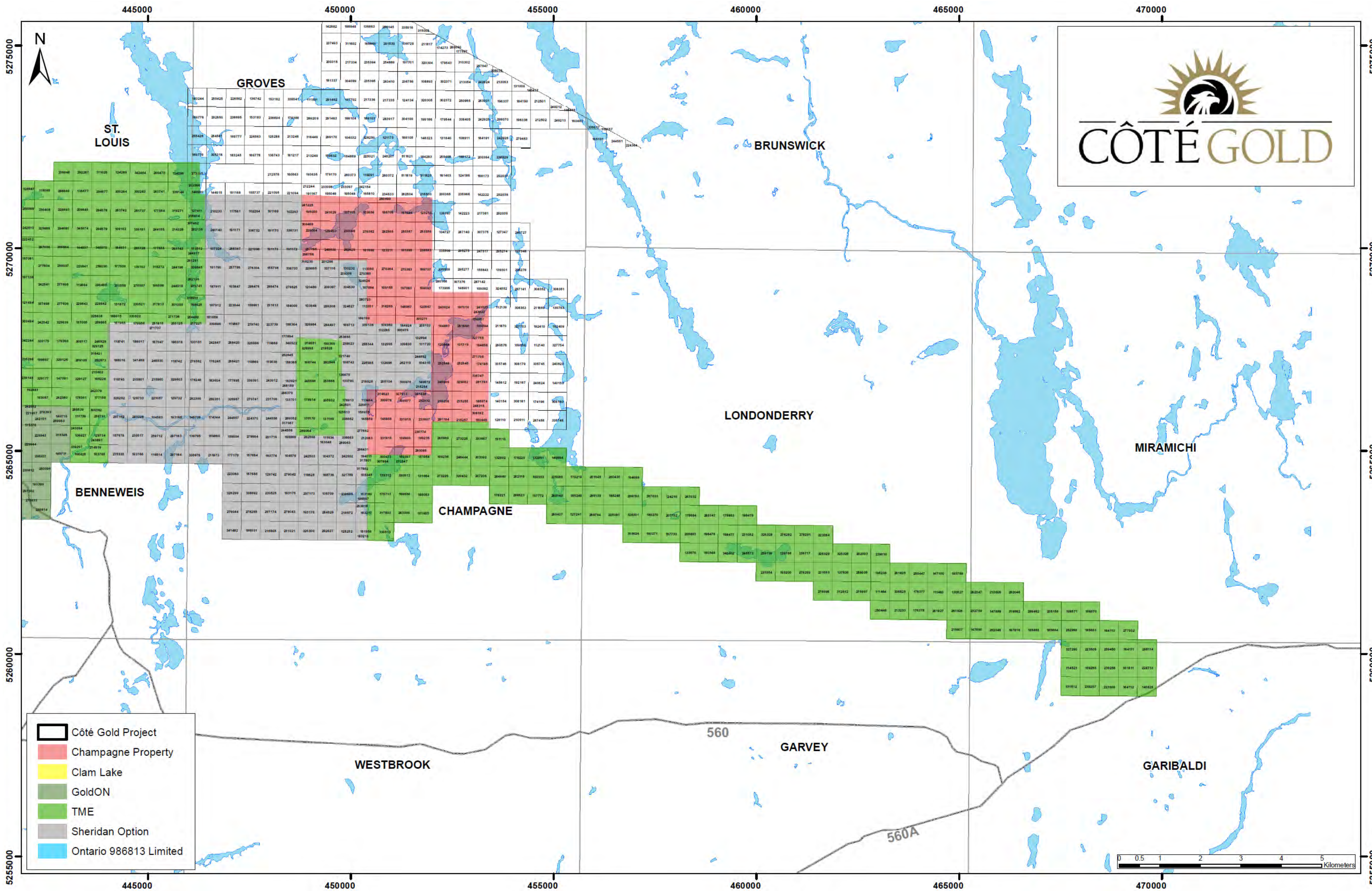
The original owners are entitled to a 2.5% NSR with the possibility to buy-back right 60% of the NSR (total 1.5% NSR) by increments of 0.3% for C$0.5 M or for a 10% NPI.

Either party shall have a right of first refusal, which shall apply to any transfer of all or part of the party's participating interest (including royalties) in the joint venture.

4.4.16 GoldON Swayze Properties

The GoldON Swayze properties is labelled as GoldON in Figure 4-2, and illustrated in Figure 4-8.

Figure 4-8: IAMGOLD Regional Property Interests – East Area



Note: Figure prepared by IAMGOLD, 2018.

Agreements

Under the terms of a definitive agreement announced on September 29, 2016, and closed on December 30, 2016, Trelawney purchased a 100% interest in GoldON Resources' (GoldON) Swayze properties including the small block located in the 2018 Feasibility Study area for C$300,000 in cash, forgiveness of the C$125,000 promissory note issued by GoldON to Trelawney, and assignment of Trelawney's 1,170,544 GoldON shares. In addition, if a storage facility or pond of any nature is constructed on any of the the Swayze Claims for the purpose of storage of tailings derived from Trelawney's Côté Gold Project, Trelawney will pay to GoldON an additional C$800,000.

Tenure

The GoldON Swayze properties are originally separated into three blocks that comprise the Chester township isolated claim, the Neville-Potier townships block, and the Mollie River block located in Benneweis township. Only the Chester block is located in the 2018 Feasibility Study area.

The Chester block consists of four boundary and cell claims (one original legacy mining claim) located approximately 2 km north of the Côté Gold deposit. This unpatented mining claim is situated in Chester township and covers a surface area of 29 ha.

The Neville-Potier block adjoins the north part of the Watershed property. It is centred 6 km north of the Chester property and spans Neville and Potier townships. I t consists of 297 boundary and cell claims (historically 26 unpatented mining claims) for an approximate total area of 6,563 ha.

The Mollie River block is located in the eastern part of the regional project area and contiguous to the Trelawney (TME) East Block. It is centred 10 km east of the Chester property and entirely located in Benneweis township. It consists of 42 boundary and cell claims (originally three unpatented mining claims) for an approximate total area of 677 ha.

The claims are summarized in Table 4-19. Details for the patented and unpatented mining claims of the GoldON Swayze Property are found in Appendix A.

The claims were registered 100% in Trelawney's name. In July 2017, the Trelawney interests were transferred into IAMGOLD's name. The transfer of a 30% interest in IAMGOLD's interest to SMM Gold CôtéInc. has been completed.

Table 4-19: GoldON Swayze Property Claims

GoldOn Swayze Properties - Block Name	Number of Legacy Unpatented Mining Claims	Estimated Number of Boundary and Cell Claims	Approximate Area (ha)
Chester	1	4	29
Neville-Potier	26	297	6,563
Mollie River	3	42	677
GoldON Swayze Property Total	**30**	**343**	**7,269**

Note: The implementation of online registration of mining claims and a new modernized electronic Mining Lands Administration System (MLAS) on April 10, 2018, has converted Ontario's manual system of ground and paper staking, and maintaining unpatented mining claims to an online system and as such all active, unpatented claims were converted from their legally defined location by claim posts on the ground or by township survey to a cell-based provincial grid. All claim numbers have changed. The Chester block claims are subject to a mining lease application and therefore work commitments will be suspended once the surveys have been completed and the mining lease applications are in their final phases.

Royalties

GoldON has acquired 100% interest of the Chester block and signed a Royalty Agreement dated May 12, 2010 with the original owner Pete Robert. The original owner is entitled to a 3.0% NSR with the possibility to buy-back one-third of the NSR (total 1.0% NSR) at any time within 25 years from the date of signature of the agreement, upon payment of C$1 M.

GoldON acquired 100% interest in the Neville-Potier block and signed a Royalty Agreement dated August 12, 2010 with the original owners Pete Robert, Wade Kornik and 2125930 Ontario Limited. The original owners are entitled to a 3.0% NSR with the possibility to buy-back one-half of the NSR (total 1.5% NSR) at any time within 25 years from the date of signature of this agreement upon payment of C$1 M.

GoldON has acquired 100% interest of the Mollie River block and signed a Royalty Agreement dated April 2nd, 2010 with the original owner Larry Salo. The original owner is entitled to a 3.0% NSR with the possibility to buy-back one-third of the NSR (total 1.0% NSR) at any time within 25 years from the date of signature of this agreement upon payment of C$1 M.

4.4.17 Trelawney Mining and Exploration Property

The Trelawney Mining and Exploration Property is identified as the TME property in Figure 4-2, and is shown in Figure 4-8.

Agreements

There are no agreements in place for the Trelawney Mining and Exploration property. Most of the claims included in the property were staked by Trelawney. One block of claims (Champagne) was purchased for a fixed price from a prospector.

Tenure

The Trelawney Mining and Exploration property (Trelawney property) is separated into six blocks that are 100% Trelawney-owned. The northern block is the northernmost located block of the Project area properties. The eastern and southwestern blocks are contiguous with the Watershed property. The fourth, fifth and sixth blocks are the Makwa claims block, the Powerline Corridor block and Champagne block located in the easternmost area of the Project area properties. The Makwa claims block is surrounded by the Sheridan Option property (Table 4-20).

Trelawney North is located north of the rest of the property groups. It is centred 8 km due north of the Chester property in Neville township. It comprises 41 boundary and cell claims (originally three unpatented mining claims) for an approximate total area of 891 ha.

Trelawney East is located at the eastern end of the Project area, between the Ontario 986813 Ltd. (Arimathaea Resources Inc.) and the Sheridan Option properties. The eastern block of the Trelawney East is centred 10 km due east of the Chester property. Trelawney East is contiguous with the Project area, and has claims in Neville, Groves, St. Louis, and Benneweis townships. It consists of 273 boundary and cell claims (originally 21 unpatented mining claims) for an approximate total area of 4,717 ha.

Trelawney South is the southernmost component of the entire Project area. The South Block is contiguous with the remainder of the Project area. It is centred 10 km southwest of the Chester property. Trelawney South has claims in Yeo, Smuts, and Invergarry townships. It consists of 226 boundary and cell claims (originally 17 unpatented mining claims) for an approximate total area of 4,819 ha.

The Makwa Block consists of 24 boundary and cell claims (originally two mining claims) in the easternmost area of the Project area properties. It is centred approximately 18 km due east of the Chester property. These claims are situated in Champagne township and covers a surface area of 274 ha.

Table 4-20: Trelawney Mining and Exploration Property Claims

Trelawney Property Block Name	Number of Legacy Unpatented Mining Claims	Estimated Number of Boundary and Cell Claims	Approximate Area (ha)
North	3	41	891
East	21	273	4,717
South	17	226	4,819
Makwa	2	24	274
Powerline Corridor	13	144	3,044
Champagne	6	90	1,456
Trelawney Property Total	**62**	**798**	**15,201**

Note: The implementation of online registration of mining claims and a new modernized electronic Mining Lands Administration System (MLAS) on April 10, 2018, has converted Ontario's manual system of ground and paper staking, and maintaining unpatented mining claims to an online system and as such all active, unpatented claims were converted from their legally defined location by claim posts on the ground or by township survey to a cell-based provincial grid. All claim numbers have changed.

The Powerline Corridor comprises 144 boundary and cell claims (originally 13 mining claims) in the easternmost area of the Project area properties. It is centred approximately 25 km due east of the Chester property. These 13 unpatented mining claims are situated in Champagne, Londonderry, Garibaldi and Miramichi townships and cover a surface area of 3,044 ha.

The Champagne Block consists of 90 boundary and cell claims (originally six mining claims) in the easternmost area of the Project area properties. It is centred approximately 21 km due east of the Chester property. These unpatented mining claims are situated in Champagne township and cover a surface area of 1,456 ha.

The six blocks combine for a total of 798 boundary and cell claims and an approximate total area of 15,201 ha. These six blocks of claims are all 100% IAMGOLD (Trelawney) owned, and are not subject to any joint ventures or option agreements.

Details on the unpatented mining claims of the Trelawney Property are included in Appendix A.

The ownership interest was initially 100% Trelawney. In July 2017, the TAAC interests were transferred into IAMGOLD's name. The transfer of a 30% interest in IAMGOLD's interest to SMM Gold CôtéInc. has been mostly completed with only the Champagne block pending.

Royalties

The Trelawney property is not currently subject to any royalty payments.

4.4.18 Sheridan Option Property

The Sheridan Option property is labelled as Sheridan Option in Figure 4-2, and is shown in Figure 4-8.

Agreements

The property is subject to an option agreement between Trelawney and John Patrick Sheridan dated March 28, 2012 and amended October 4, 2012. Under the terms of this agreement, Trelawney had the right to acquire a 51% undivided interest in the property by completing certain payments and work programs.

Trelawney was appointed as the operator, completed the necessary payment at signing of the agreement, and completed the necessary work expenditures by December 31, 2013. The exercise of the option has been confirmed, and a joint-venture will be created. The interest of John Patrick Sheridan was subsequently transferred to ET Gold Mining Company Ltd.

Tenure

The Sheridan Option property is located in the easternmost area of the Project. It is centred approximately 18 km due east of the Chester property. The Sheridan Option property is found within Groves, Benneweis, and Champagne townships. It is currently a single contiguous block of 217 boundary and cell claims (16 unpatented legacy mining claims) with an approximate total surface area of 3,876 ha.

In July 2017, the Trelawney interests were transferred into IAMGOLD's name. The beneficial ownership interest for the claims is:

- IAMGOLD: 35.7%
- SMM Gold CôtéInc.: 15.3%
- ET Gold Corp: 49%.

The transfer of a 30% interest in IAMGOLD's interest to SMM Gold CôtéInc. has been completed.

Royalties

The Sheridan Option property is not currently subject to any royalty payments.

4.5 Surface Rights

The owner of a mining claim does not hold the surface rights. At the time of application for a mining lease, the mining claims must be surveyed, and an application for surface rights submitted. IAMGOLD is currently in the process of applying for the necessary surface rights as part of the mining lease application and approval process.

4.6 Water Rights

On 23 February 2010, Trelawney announced that it had received a permit to take water (PTTW for dewatering) from the Ontario Ministry of the Environment (MECP). The permit grants the taking of water from the Bates shaft on the Chester 1 property for construction dewatering. Trelawney initiated the process to begin dewatering the Chester 1 ramp in summer 2010. On 7 July 2010, Trelawney announced that the Mineral Development and Lands Branch of the Ministry of Northern Development, Mines and Forestry (ENDMF) acknowledgement the filing of its Advanced Exploration Closure Plan for the Chester 1 Project. Pursuant to approval for filing of the Closure Plan by the ENDMF, Trelawney began the planned underground exploration program.

Portal and underground rehabilitation began in the second half of 2010 and continued through early 2011. Trelawney recovered an underground bulk sample comprising ~10,000 t of mineralized material and on 25 May 2011, announced its intention to reduce underground operations at the Chester 1 Project. The Chester 1 Project has since been placed on care and maintenance.

4.7 First Nations

Trelawney entered into an Exploration Agreement with Mattagami First Nation; this agreement remains current and is administered by IAMGOLD. The agreement establishes a commitment to an ongoing relationship between Mattagami First Nation and IAMGOLD with respect to IAMGOLD's exploration activities on its Chester Township properties, located in the traditional territory of Mattagami First Nation.

The Exploration Agreement establishes the foundation for a cooperative and mutually-beneficial relationship between Mattagami First Nation and IAMGOLD, by setting out provisions that include training, ongoing communication, and opportunities for businesses within the community to participate in exploration activities.

In addition, Mattagami First Nation and IAMGOLD agreed to negotiate an Impact Benefit Agreement should the Project proceed to production.

4.8 Environmental Site Remediation

IAMGOLD is not aware of any environmental liabilities associated with or attributable to any of the subject property groups in the Project area, other than those that would normally be expected as a result of historical mining activities and associated mine workings.

Diamond drilling work conducted between 2013 and 2018 met all of IAMGOLD's environmental standards. The standards include back-blading of ruts, filling in of sumps, cutting of leaning trees, stacking of large pines, and marking of drill collars. All drill sites and water pump sites are subject to post-drilling inspection. In the event of any non-conformities with IAMGOLD standards, the contractors were notified, and corrective actions were taken.

Legacy site remediation has been ongoing since 2013. Legacy diamond drilling sites are visited for inspection and collars are marked and any debris removed. A total of 186 legacy drill sites have been remediated to date, and the work is still in progress.

4.9 Access and Work Program Risks

IAMGOLD is not aware of any other risks that could affect access, title, or the right or ability to perform work on the Project.

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

5.1 Accessibility

The Côté Gold Project is located about 20 km southwest of Gogama, Ontario. Figure 5-1 shows the location in relation to the major road systems and regional centres.

The Project is bisected by Highway 144 and is about 175 km by road north of Sudbury, along Highway 144 and approximately 125 km by road southwest of Timmins via Highways 101 and 144.

Access to the Project area is by a network of logging roads and local bush roads accessed from Highway 144 and from the Sultan Industrial Road which runs east–west along, and below, the southern part of the Project area.

Additional information on Project access is provided in Section 18.

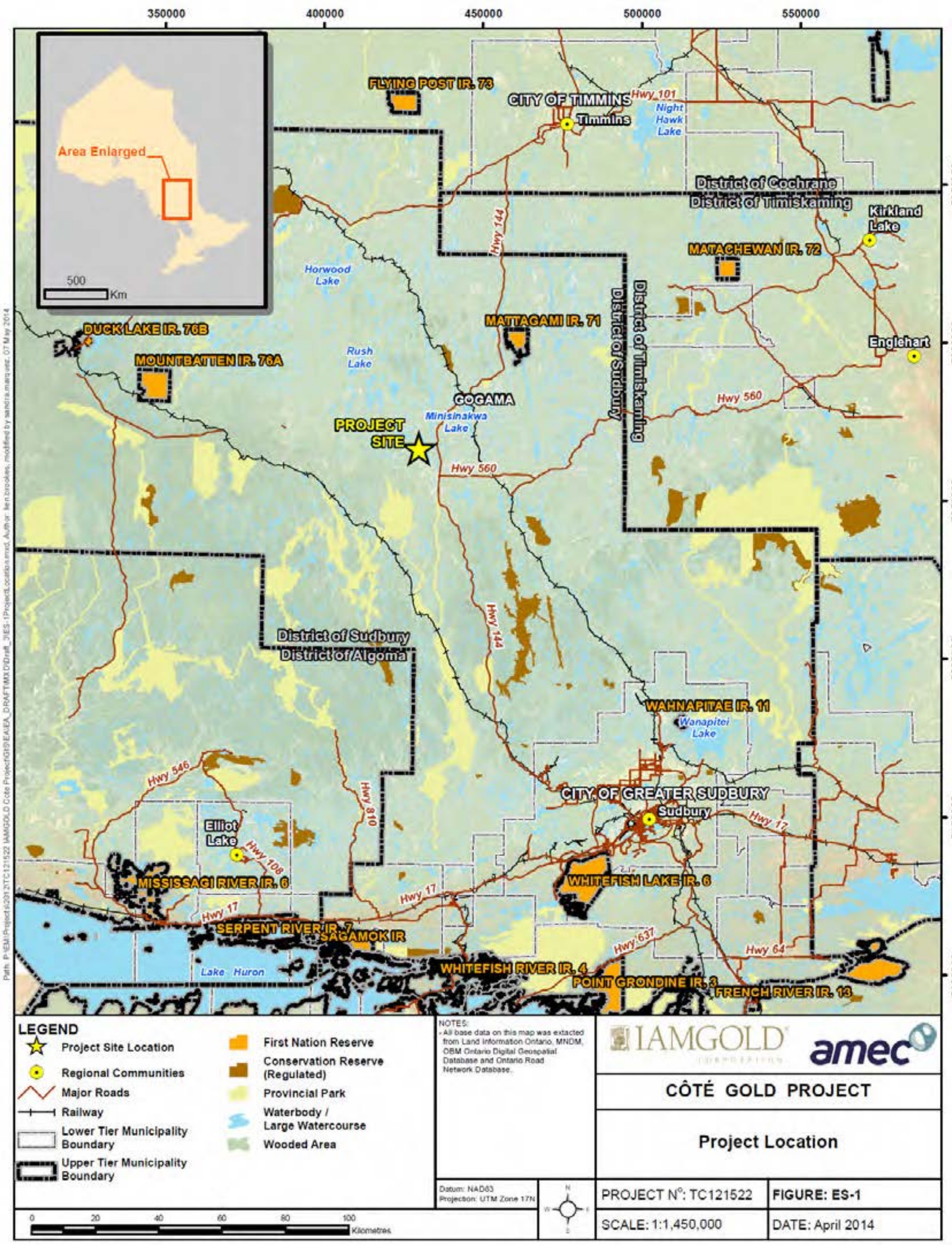
5.2 Climate

The Project is located in the Boreal Shield Ecozone of Ontario, which is itself characterized by long, cold winters and short, warm summers. Regional Environment Canada climate stations indicate climate norms in the range of 800–900 mm of total annual precipitation, and average temperatures in the range 1.3°C to 3.7°C with minimums occurring in January and maximums in June–July. Winds are generally from the south or southwest during the summer months and from the north and northwest during the winter months (IAMGOLD, 2015a).

Data collected from the Project site meteorological station indicates that precipitation at the Project site falls within the range of average annual precipitation for the region, as do daily average temperatures. Wind speeds at the Project site ranged from approximately 27 km/h to 5.4 km/h, based on readings taken from August, 2012 to August, 2013 (IAMGOLD and AMEC, 2015b).

Any future mining operations would be expected to be conducted year-round.

Figure 5-1: Project Access Plan



5.3 Local Resources and Infrastructure

Gogama is on the Canadian National Railway Company (CN Rail) line, is also connected to the regional electric power grid, but has few resources that could be used to support exploration and mining activity. However, Sudbury and Timmins are only about 175 km and 125 km distant by road, respectively. Each of these towns have mining suppliers and contractors plus experienced mining and general labor.

The existing mine infrastructure on the Chester 1 property is a 3 m by 5 m, 1,675 m decline to a final depth of 162 m plus 700 m of lateral drifting on five levels. There is a shallow shaft (Bates) on the east end of the main vein structure and 90 m of raises in mineralization. This infrastructure is located on Lease CLM 270 and Mining Lease P1222832 (Chester 1).

Development work was completed from 1986 to 1989, but no formal production was achieved (see Section 6). The site was closed in July 2015, and all infrastructure onsite was put on care and maintenance. All underground infrastructure was decommissioned.

Surface infrastructure at Chester 1 includes an electrical distribution system, warehouse, workshop, offices, various pieces of mobile equipment, and a mobile camp (not fully installed) that was intended to accommodate 1,000 people. The Chester 1 Project is currently connected to the 120 kV Provincial power grid. The surface electrical distribution system, a warehouse, workshop, offices, and various pieces of mobile equipment could be put back into service in a short time.

A facility located on Mesomikenda Lake Road includes a core shack, a kitchen, rooms for 55 people and a recreation hall. These can also be readily put back into service if required. A series of cabins and a lodge located by Mesomikenda Lake can sleep 15 people.

At the Chester 1 Project, there is also a mobile camp that can hold 1,000 people, which is not fully installed.

5.4 Physiography

The area is typical of glaciated terrain of the Canadian Shield.

The area is typical of glaciated terrain of the Canadian Shield. The topography is gently rolling, with glaciated high points seldom exceeding 50 m above local lake levels.

Elevations range from 375 masl to 425 masl in the general area; however, elevations within the Project are generally between 380 and 400 masl (IAMGOLD and AMEC, 2015d).

The higher ground usually has a veneer of glacial soil over bedrock, with peat and glaciolacustrine deposits present in the low-lying areas between the hills. Outcrop represents only a small percentage of the area and is mostly confined to higher ground.

The Project site is located within an area with moderately hilly boreal mixed wood (birch, pine, poplar and spruce) forest, bogs, fens and lakes commonly less than 10 m deep. Most of the area has been logged in the last 30 years, so vegetation is generally small and second-growth (IAMGOLD and AMEC, 2015c).

Watersheds at the Project site form part of the headwaters of the Mattagami River Watershed, just north of the divide that separates the James Bay Watershed from the Great Lakes Watershed. Surface water flows at the Project site are controlled by a number of lakes and creeks, which flow to the Mollie River and Mesomikenda Lake prior to discharging to Minisinakwa Lake and ultimately the Mattagami River (IAMGOLD and AMEC, 2015c).

5.5 Comments on Section 5

There is sufficient space available in the Project area to locate the Project infrastructure envisaged in the 2018 Feasibility Study, including TMF, MRA, mine infrastructure, and a mineral processing plant.

6.0 HISTORY

6.1 Exploration History

Prospecting and exploration activity in the Project area began about 1900 and has continued sporadically to the present time, spurred on periodically from exploration in the Porcupine and Elk Lake–Gowganda–Shiningtree camps. The first discovery of note was the Lawrence copper prospect on the east shore of Mesomikenda Lake in 1910. Further interest in the area was sparked in 1930 when Alfred Gosselin found outcropping gold mineralization on the east shore of Three Duck Lakes (Laird, 1932).

Historical work on the property was carried out in multiple stages:

- In the early 1940s activity was fairly intense, with a significant amount of prospecting and trenching plus the sinking of a few shallow shafts and some minor production
- Through to the late 1960s there was little or no work performed
- From the early 1970s to about 1990, there was a great deal of surface work performed along with some limited underground investigations
- From 1990 to 2009, fragmented property ownership precluded any major programs
- In 2009, a group of properties that became the Chester property was consolidated by Trelawney.

A significant number of gold showings have been discovered on the Project.

Table 6-1 summarizes the work completed in the general Project area prior to IAMGOLD's involvement in the Project. Exploration conducted by IAMGOLD is provided in Section 9.

Figure 6-1 shows the locations of the occurrences and prospects discussed in Table 6-1. In this figure, the numbered occurrences and the locality they correspond to are:

- Young Shannon: 58, 59, 82
- Jack Rabbit: 73, 76, 77
- Murgold–Chesbar: 67, 68, 69, 70.

Table 6-1: Exploration History

Area	Year	Operator	Work Conducted
Young–Shannon (Chester 2)	1930–1931	Three Ducks Syndicate	Stripped the C-Zone are of the Young–Shannon property
	1931	Consolidated Mining and Smelting Company Limited	Optioned the original Young–Shannon claim group, however, after surface sampling of two veins the option was allowed to lapse
	1932	Martin Syndicate	Completed a core drilling program in 1932 on the A-Zone
	1932–1946	Young–Shannon Gold Mines, Limited (Young–Shannon)	Developed an inclined shaft; lateral underground development; surface geophysical survey; limited core drilling
	1978	Canadian Gold Crest Ltd	Constructed a steel headframe and 60 t/d flotation mill near the C-Zone shaft. Material for the mill came from underground workings on the C-Zone and from a small open pit on the B-Zone. Operations lasted for about seven months and a gold–copper concentrate was sold to Noranda Ltd
	1984–1986	Robert S. Middleton Exploration Services	Very low frequency electromagnetic (VLF-EM) and induced polarization (IP) surveys. Several weak IP anomalies were delineated, both under the lake and on land. Several of the anomalies appeared to align with known gold zones
	1989	Chesbar–Murgold	Mined a 10,900 t sample and reportedly sent it for treatment to the mill of Giant Yellowknife Mines Limited in Timmins
	1987 to 1990	Young–Shannon	Completed 182 core holes (24,696 m) in four drill programs
	1997	Nord Pacific Limited (Nord)	23 core drill holes aggregating 3,650 m were completed to test the C-Zone. A further six drill holes (1,190 m) tested geophysical targets. Performed a mineral resource estimate that outlined 10 separate zones in the C-Prime area
	2002–2003	Northville Gold Corp. (Northville)	Completed 24 core drill holes, 12 drill holes in 2002, and 12 drill holes in 2003
	2004–2005	Young–Shannon	Drilled an additional six core drill holes in 2004 to extend the known mineralization laterally. Completed five holes in 2005. Both programs targeted the C-Prime Zone

Area	Year	Operator	Work Conducted
Jack Rabbit (Chester 3	1965	Sulmac Exploration Services Limited	Explored Zone 3 or Texas Gulf Zone
	1972	Viewpoint Exploration Limited	Zone 3, work program unknown
	1977–1979	Texas Gulf Canada Limited (Texas Gulf)	Drilled nine holes on Zone 3 testing Cu anomalies
	1981	Chester Resources	Zone 3, work program unknown
	1981	Murgold Resources Inc. (Murgold)	Discovered Zone 1
	1982	Rockwell	Drilled approximately 6,000 ft in more than 20 holes on Zone 3 (exact total unknown)
	1985	Pamour Porcupine Mines	Percussion drilling program
	1987	unknown	7,118 t bulk sample from Zone 2 and sent to Diepdome mill in Timmins
	1989?	Rockwell Mining Corp. (Rockwell)	26 drill holes in Zones 1 and 2
	1989?	Kidd Resources Ltd. (Kidd Resources)	Three drill holes in Zones 1 and 2
	1989?	Monte Carlo Resources/Canadian Gold	Two drill holes in Zones 1 and 2
	1989	Gold Bar	34 drill holes totalling 17,028 ft on Zone 1; completed an IP survey
	1989	James Wade Engineering (Wade)	Mineral resource estimate for Zones 1, and 3.
Murgold–Chesbar (Chester 1)	1932–1938	Gomak Mines	Shaft sinking, underground development.
	1938	Strathy Basin Mines Limited	Sank Strathmore shaft
	1945–1948	Chesgo Mines	Drilled 4,786 ft in 16 holes in the No. 3 Vein System.

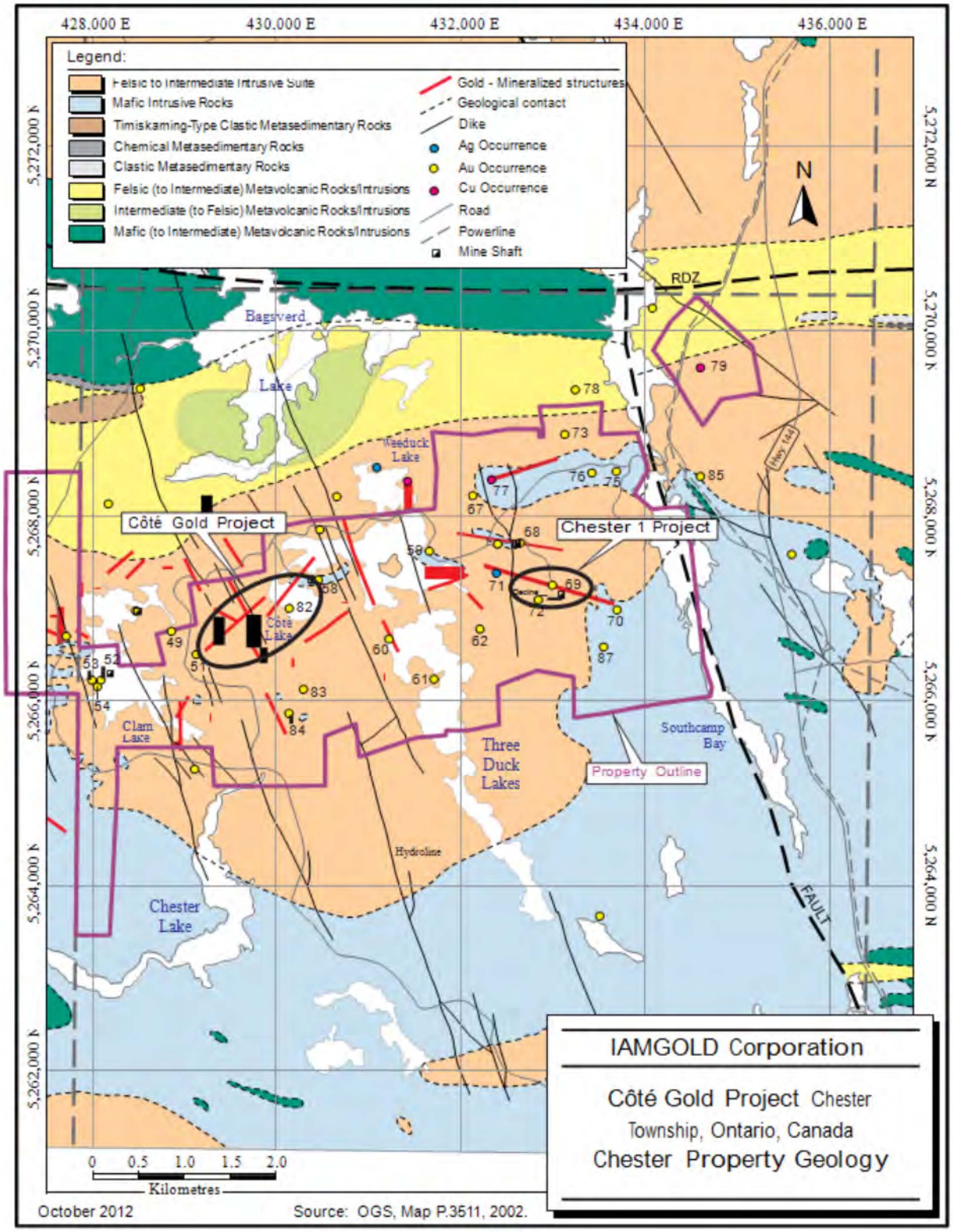
Area	Year	Operator	Work Conducted
		Limited (Chesgo)	Drilled two surface holes for a total of 482 ft at the Strathmore zone.
	1947	Strathmore Mines Limited	Rehabilitated Strathmore shaft, underground drilling program.
	1963	Rinaldi Mines Limited	Four surface drill holes totalling 1,240 ft at Strathmore
	1967–1971	Kingsbridge Mines Limited	Work program unknown
	1968–1969	Three Duck Gold Mines Limited	Completed 252 ft in three drill holes in the No. 3 Vein System
	1974–1975	Olympian International Resources Limited (Olympian)	Drilled five holes totalling 1,340 ft and also collected two bulk samples of 47 tons and 49 tons which reportedly assayed 0.30 oz/st Au and 0.17 oz/st Au, respectively, over estimated widths of 6–10 ft
	1979–1985	Murgold	Surface stripping and trenching were carried out over the main veins and the claims were covered by airborne magnetic and EM plus photo-geological surveys. On the ground, these results were followed up with geological, geophysical, geochemical surveys and surface diamond drilling. This work led to the discovery of 12 separate vein structures. No 1 and No 3 veins the main targets. Sampled Strathmore area from underground. Took a 656 ton bulk sample from a stope on the west drift. 42 holes were drilled in 1982 for a total of 12,776 ft and about two-thirds of this drilling was concentrated on the previously untested central section of the No. 3 Vein. Bates shaft (200 ft) commenced on the No. 3 Vein System in 1982, 1,250 ft to the northwest of the Strathmore shaft. Completed trenching and drilling in 1985.
	1986	Chesbar Resources Inc. (Chesbar)	Drilled 56 holes totalling 19,040 ft on the No. 3 Vein System between 1986 and 1988. Constructed a decline to investigate the No. 3 Vein System. 45,000 ft of surface drilling and 53,000 ft of underground drilling had been completed by early 1989. In April 1989, an 11,000 t surface stockpile was shipped to a custom mill in Timmins
	1988–1989	Murgold	Wade contracted to resample and re-evaluate the underground workings; completed mineral resource estimate. No further work was out on the decline until Trelawny began dewatering and underground rehabilitation in the summer of 2010.
Crown	1933–1934	Chester Shannon	Test pitting, shaft sinking, underground lateral development on Shannon Island prospect; 3,000 ft of core

Area	Year	Operator	Work Conducted
Minerals		Group; Young Shannon GML	drilling
	1965	Chester Minerals Ltd	Geological mapping, magnetic and horizontal loop electromagnetic (HLEM) surveying. Based on this work, five holes were drilled to test targets east of Shannon Island
	1973	Park Precious Metals	Dewatered the Shannon Island shaft, extended the lateral development a short distance, and sampled the mineralized veins. Completed one core hole.
	1980	Hargor Resources; Canadian Gold and Metal Inc.	Completed a regional airborne magnetic and very low frequency (VLF) electromagnetic survey
	1984	Chester Minerals	Geological evaluation of the Shannon Island occurrence in combination with other known occurrences on Clam Lake
	1987	Young Shannon Gold Partnership	Completed a seven core hole drill program totalling 679 m to test the mineralization in a sheared and brecciated structure plus other targets
TAAC East	1981	Canadian Crest Gold Mines (Canadian Crest)	Completed two drill holes for 404.77 m.
	1987–2001	Emerald Isle Resources	During 1987, drilled seven holes for 379.48 m; and sited a further 2 holes (181.05 m) near the Canadian Crest drill holes. Conducted power stripping at two locations northwest and north of Côté Lake in 2001
	2007–2011	Trelawney Augen Acquisition Corp (TAAC)	Prospecting, till, channel, strip, and grab sampling; airborne geophysical survey (magnetic, EM, radiometric); ground geophysical surveys (ground magnetics, VLF, IP) 32 drill holes (11,098.60 m); down-hole IP surveying of 9 drill holes petrography.
TAAC West	1938	Bert Jerome	Jerome deposit discovered
	1939–1945	Jerome Gold Mines, Ltd	Shaft sinking, underground development with 6 levels, erection of 500 st/d mill and some production from 1941 to 1945.
	1974	E. B. Eddy (Eddy)	Surface diamond drilling program of 21 holes, for a total of 8,414 ft over Jerome deposit
	1980-1981	Bridgeview Resources Incorporated	Exploration of Jerome deposit under option from Eddy. Shop construction, headframe and hoistroom rehabilitation, shaft rehabilitation to the 200 ft level, and underground sampling. Completed geophysical survey and eight holes totalling 2,710 ft to test IP anomalies

Area	Year	Operator	Work Conducted
	1983	Osway Explorations, Ltd. (Osway)	Hill-Goettler-De Laporte Ltd completed mineral reserve estimate for the Jerome deposit on Osway's behalf.
	1984–1989	Muscocho Explorations, Ltd. (Muscocho)	Completed surface and underground diamond drilling, hoist installation, headframe and camp construction, dewatering, and shaft rehabilitation to the 500 ft level; exploration drifting on the 500 ft level east to test the South Zone 1-B; mapping and sampling on the 200 ft, 350 ft, and 500 ft levels; and property-wide geophysical surveys. Undertook mineral reserve estimates.
	1998	Domtar Inc. (Domtar)	Purchased claims hosting the Jerome deposit from Eddy.
	2004	Boardwalk Creations, Ltd. (Boardwalk)	Purchased claims from Domtar, added additional claims to property holdings.
	2004	Osprey Gold Corp. (Osprey)	Purchased property from Boardwalk. Completed 33 BQ sized diamond drill holes east-southeast of the Jerome Mine Shaft for a total of 18,780 ft
	2006	Coldrock Resources Inc. (Coldrock)	Purchased property from Osprey.
	2007–2011	Trelawney Augen Acquisition Corp	Completed check sampling of legacy core; conducted drill programs consisting of 21 holes (10,440 m) in 2008, 148 holes (32,728 m) from 2009–2011; soil, rock chip and grab sampling, and magnetic, VLF and IP surveys.
Burton	circa 1928	Archie Burton Sr. and Northern Aerial Minerals Exploration Ltd	Gold discovered; shaft excavated
	late 1930s and early 1940s	Hollinger Consolidated Gold Mines Limited (Hollinger)	Completed a 32 short holes diamond drill program in the immediate Shaft Zone area
	1945	Burscott Mines Limited (Burscott).	10-hole diamond drill program near the Shaft Zone
	1982 to	Canadian Nickel	Line cutting, mapping, geophysics, geochemistry, stripping, sampling, and drilling (total of 2,096 m in 29 holes)

Area	Year	Operator	Work Conducted
	1985	Company Limited (Canico)	
	1987–1988	Grandad Resources Limited (Grandad)	31-hole core drill program totalling 3,077 m, primarily in the Shaft Zone area. Grandad also completed a limited humus sampling geochemical program and down-hole mise-à-la-masse geophysical surveys.
	1989	Northern Mining Properties (Northern)	Desktop data review.
	1996–1997	Rainbow Petroleum Corp. (Rainbow)	Re-established the project grid and completed 3,327 m of core drilling in 33 holes. The drilling completed by Rainbow included 22 drill holes centred over the Shaft Zone, six drill holes to the east of the Shaft zone, and five drill holes immediately west of the Shaft Zone.
	2010	Apex Royalty Corporation (Apex)	Purchased 100% of project from Burton family. Line-cutting of a new grid over the Shaft Zone and East Zone; completed EarthProbe high resolution resistivity/IP survey
	2011	Falcon Gold Corp. (Falcon Gold)	Apex was acquired by Chesstown Capital Inc., which subsequently changed its name to Falcon Gold in May–July 2011, Falcon Gold drilled 24 holes on the Burton property totalling 2,755 m

Figure 6-1: Chester Property Geology



6.2 Production

Production records have not been compiled for the early mining efforts. As noted in Table 6-1, some bulk sampling has occurred as part of historical exploration efforts. No modern production has occurred.

7.0 GEOLOGICAL SETTING AND MINERALIZATION

7.1 Regional Geology

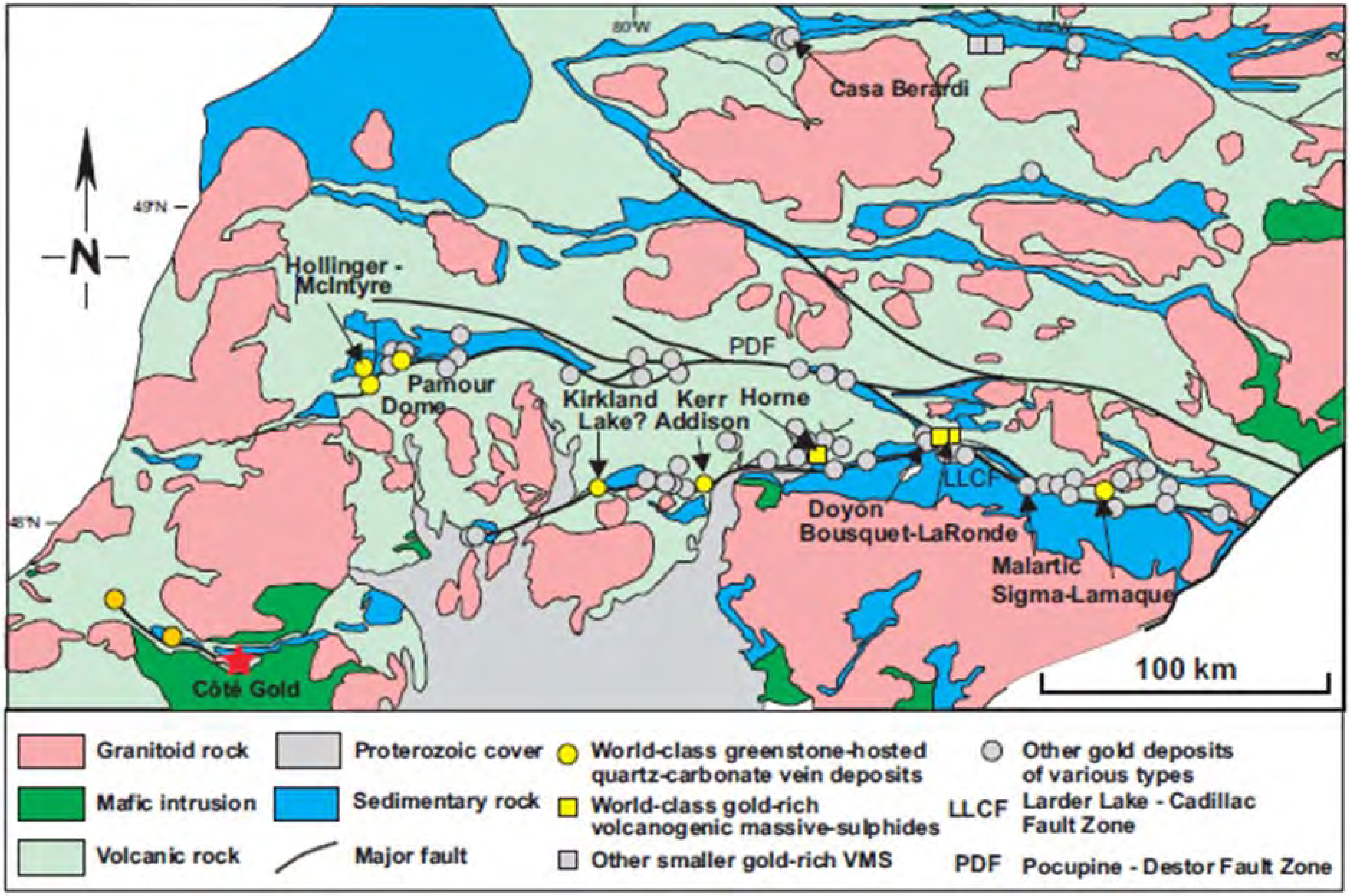
The Project area is in the Swayze greenstone belt in the southwestern extension of the Abitibi greenstone belt of the Superior Province. In very general terms, the Abitibi Subprovince comprises Late Archean metavolcanic rocks, related synvolcanic intrusions, and clastic metasedimentary rocks, intruded by Archean alkaline intrusions and Paleoproterozoic diabase dykes. Figure 7-1 shows the location of gold deposits and fault zones in the Abitibi Subprovince, modified from Dubé and Gosselin (2007), and Poulson et al. (2000). The traditional Abitibi greenstone belt stratigraphic model envisages lithostratigraphic units deposited in autochthonous successions, with their current complex map pattern distribution developed through the interplay of multiphase folding and faulting (Heather, 1998).

The Swayze belt, like the rest of the Abitibi greenstone belt, contains extrusive and intrusive rock types ranging from ultramafic through felsic in composition, as well as both chemical and clastic sedimentary rocks (Heather, 2001). The geology of the South Swayze belt underlying the Project area is illustrated in Figure 7-2 and Figure 7-3. All of the rock types within the Swayze belt are older than 2,680 Ma, with the oldest dates of 2748.2 Ma (Heather et al., 1996, Gemmell and MacDonald, 2017). Igneous lithologies predominate and include both volcanic and plutonic rocks. The latter are found both internally in the supracrustal belts and externally, in large granitoid complexes. Sedimentary rocks occur mainly near the top of the succession.

Heather (2001) recognized six supracrustal groups; from the oldest to the youngest these are the Chester, Marion, Biscotasing, Trailbreaker, Swayze, and Ridout groups. These groups have subsequently been correlated by Ayer et al. (2002) with coeval assemblages across the southern Abitibi greenstone belt having similar characteristic features, respectively named the Pacaud, Deloro, Kidd-Munro, Tisdale, Blake River, and Timiskaming assemblages.

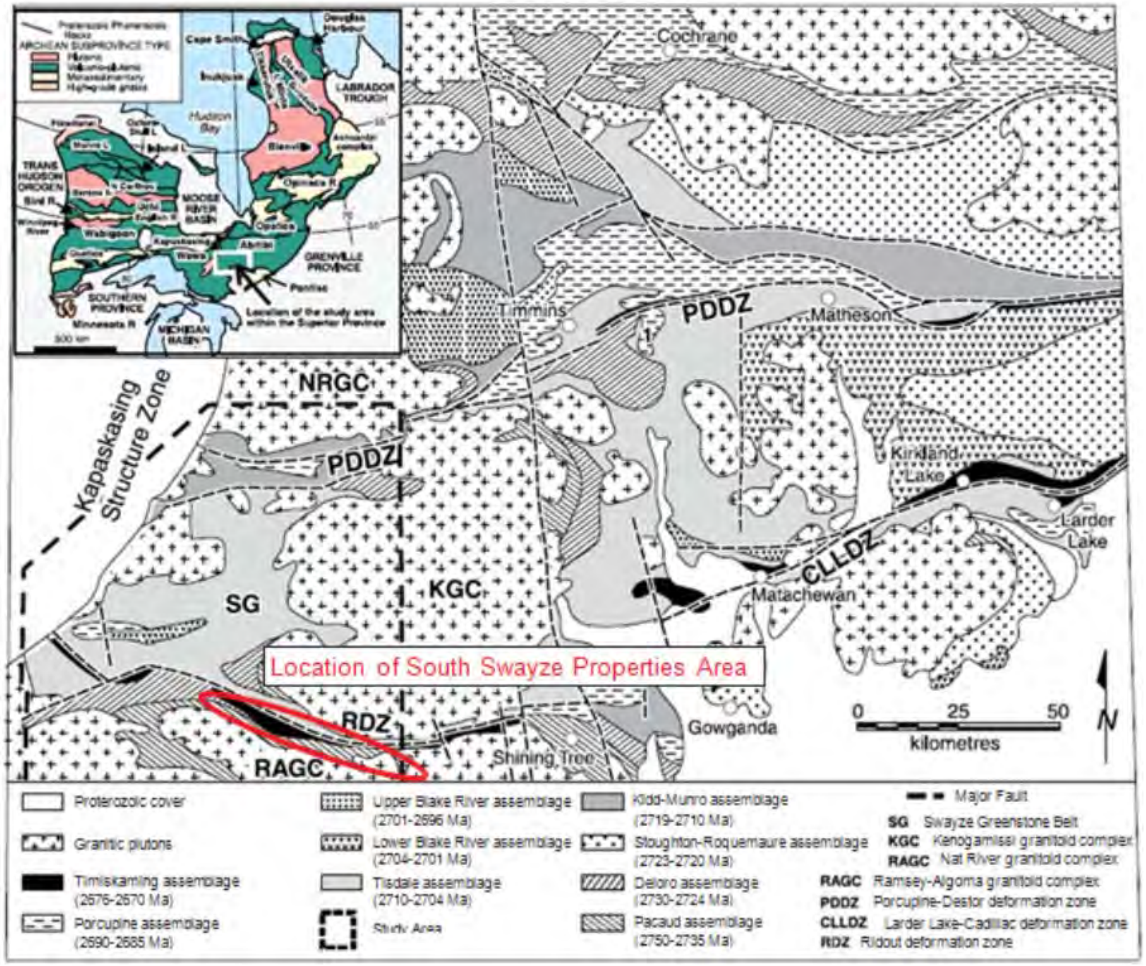
Plutonism in the Swayze belt lasted from 2,740 Ma to 2,660 Ma, during the entire period of volcanism and subsequent sedimentation. No geochronological evidence for pre-existing basement has been found. Plutonism continued after cessation of extensive volcanism. This was also a period of orogen-wide shortening across the entire Superior Province, an event that coincided with gold mineralization (van Breemen et al., 2006).

Figure 7-1: Simplified Geology Map of the Abitibi Subprovince (Dubé et al. 2007)



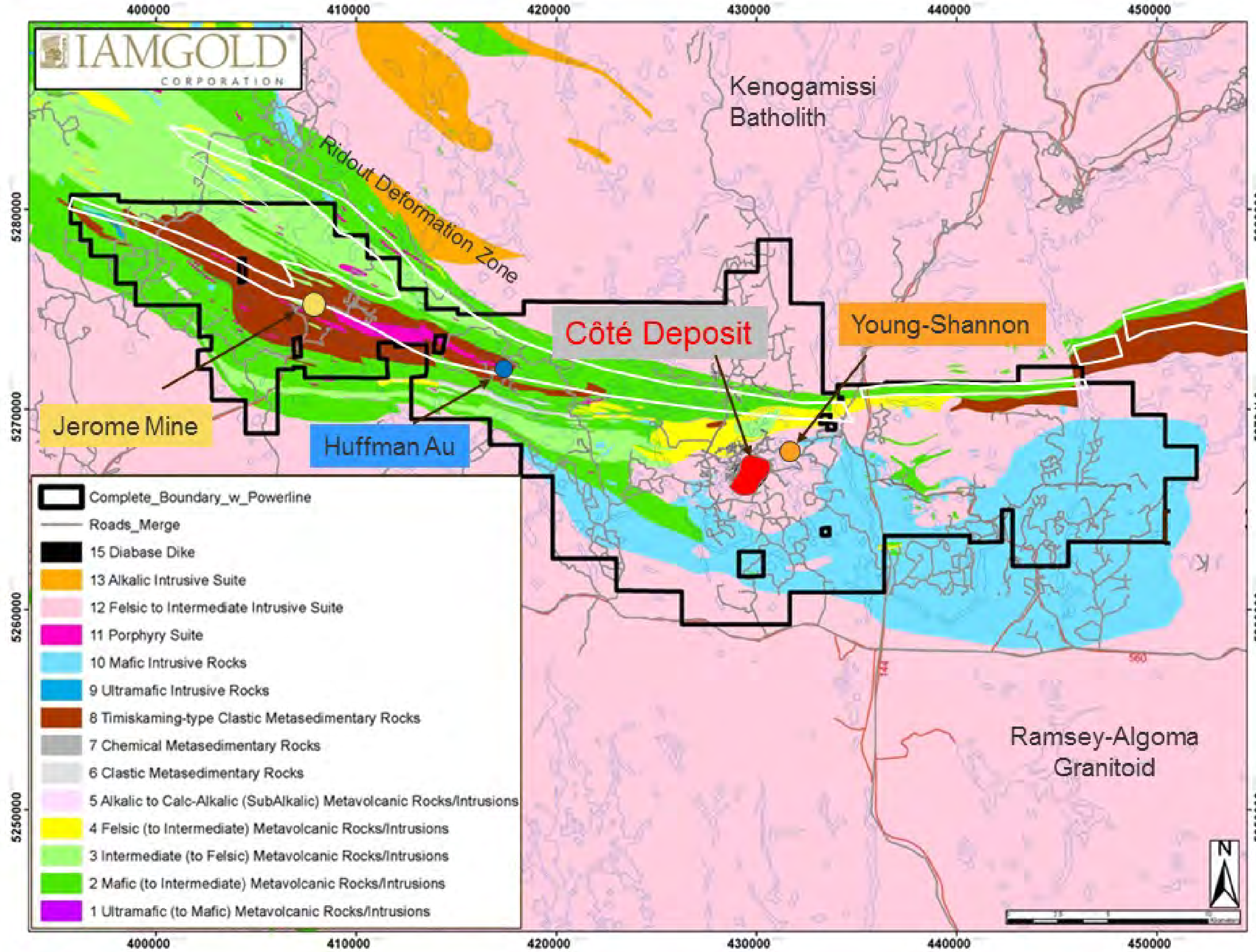
Note: Figure from Dubé et al. 2007. Deposits indicated other than Côté Gold are held by third parties.

Figure 7-2: Regional Geology of Swayze Belt



Note: Figure courtesy IAMGOLD, 2018

Figure 7-3: South Swayze Greenstone Belt Rock Units



Note: Figure courtesy IAMGOLD, 2016.

The Swayze area underwent a complex and protracted structural history of polyphase folding, development of multiple foliations, ductile high-strain zones, and late brittle faulting. The map pattern preserved within the Swayze belt is dominated by regional F2 folding, and anticlines and synclines with an associated S2 axial-planar foliation interpreted to have formed during orogen-wide shortening across the entire Superior Province. An important structural element is the Ridout Deformation Zone (RDZ), a major east–west high-strain zone that is interpreted to be the western extension of the Larder Lake-Cadillac deformation zone of the Abitibi belt (van Breemen et al., 2006). The F2 Ridout Synform coincides with the RDZ wherein intense deformation is characterized by intense flattening, tight to isoclinal folding, transposition, and locally a component of dextral simple shear in east–southeast-striking zones (Heather et al., 1996). The Côté Gold deposit is not located within the RDZ. Metamorphic grade within the southern Abitibi greenstone belt ranges from sub-greenschist to greenschist.

In the Swayze belt there are at least four separate diabase dyke swarms, ranging in age from late Archean to late Proterozoic:

- North-striking Matachewan dyke swarm
- Northwest-striking Sudbury dyke swarm
- East–northeast-striking Abitibi dyke swarm
- Late, southeast-striking dyke swarm.

7.2 Local and Chester Property Geology

7.2.1 Local Geology

The Chester township area overlies a narrow greenstone belt assemblage that extends easterly from the southeast corner of the Swayze belt proper to the Shining Tree area, approximately 60 km to the east. The greenstone (supracrustal) assemblage is part of the well-defined Ridout syncline that separates the Kenogamissi granitoid complex to the north from the Ramsey-Algoma granitoid complex to the south (refer to Figure 7-2). The Kenogamissi complex, yielding ages of 2,747 Ma, consists of sheet-like dioritic and tonalitic intrusions, which are interpreted locally to be synvolcanic. The Chester Intrusive Complex (CIC), which hosts the Côté Gold deposit, is also synvolcanic and was emplaced along what is now the southern margin of the Ridout syncline. The

CIC is a crudely-stratified tonalite–diorite–quartz diorite laccolith containing numerous screens and inclusions of mafic volcanic rocks.

The oldest rocks found in the Swayze belt are assigned to the Chester Group, which occupies the bulk of the stratigraphy of the Ridout syncline through Chester township and Yeo township to the west. Ayer et al. (2002) correlated the Chester Group with the 2750 Ma to 2735 Ma Pacaud assemblage, which comprises the oldest volcanic rocks in the southern Abitibi belt. The Chester Group includes:

- A thin, basal felsic volcanic unit (ca. 2748.2 Ma; Gemmell and MacDonald, 2017) that is overlain by a thick sequence of massive mafic flows or sills, mafic pillows and amphibolite of the Arbutus Formation
- An overlying intermediate–felsic volcanic rocks with associated minor sedimentary rocks and iron formation of the Yeo Formation (ca. 2,739 to 2,734 Ma; refer to Figure 7-3).

Bedding and foliation are steep to vertical. Both formations are highly folded and flattened, presumably by the D2 and F2 events, between the diorite and tonalite intrusions of the Kenogamissi granitoid complex to the north and the synvolcanic CIC (ca. 2,741–2739 Ma, Katz, 2016) Ma) to the south (van Breemen et al., 2006) (refer to Figure 7-2 and Figure 7-3).

To the south of the Chester volcanic rocks is the CIC, a tonalite–diorite intrusion (Heather, 1993; Heather et al., 1996). Locally, within the tonalitic phase of the complex, there is strongly developed, fracture-controlled (stockwork) magnetite–chlorite–epidote ± quartz ± sericite alteration which Heather et al. (1996) interpreted as positive indications for base metal mineralization.

An important structural element in the area is the RDZ, a major zone of east–west high strain that more or less follows the north boundary of Chester township, and extends a further 22 km to the west to Osway township where it is associated with the former Jerome gold mine. The RDZ is described as an anastomosing zone, up to 2,500 m wide, of high strain with local strong carbonate (calcite and Fe-carbonate), chlorite, sericite, and silica alteration within a wide variety of rock types. Kinematic indicators in the RDZ suggest that it was initially a zone of extreme flattening, probably related to early folding, that with progressive strain became a zone of oblique simple shear. Kinematic information indicates an early component of sinistral shear followed by a dextral component. Z-shaped folds of the schistosity are common within the RDZ.

Elongation lineations and mineral lineations within high-strain zones are moderately to steeply plunging (Heather, 2001).

The RDZ high-strain zone is localized within the F2 Ridout syncline which extends for at least 80 km in a generally east–west direction across the southern Swayze greenstone belt. The Timiskaming-like, Ridout Series metasedimentary rocks are localized within the core of the F2 Ridout synform and are interpreted to unconformably overlie the older metavolcanic and metasedimentary rock packages. According to Furse (1932): "In the Swayze area, the Ridout assemblage consists of a narrow band (less than 2 km) of steeply dipping turbidites, arkose and conglomerate, containing well-rounded pebbles and boulders of "granite", chert, vein quartz, mafic metavolcanic rock, porphyritic rhyolite and rare jasper fragments."

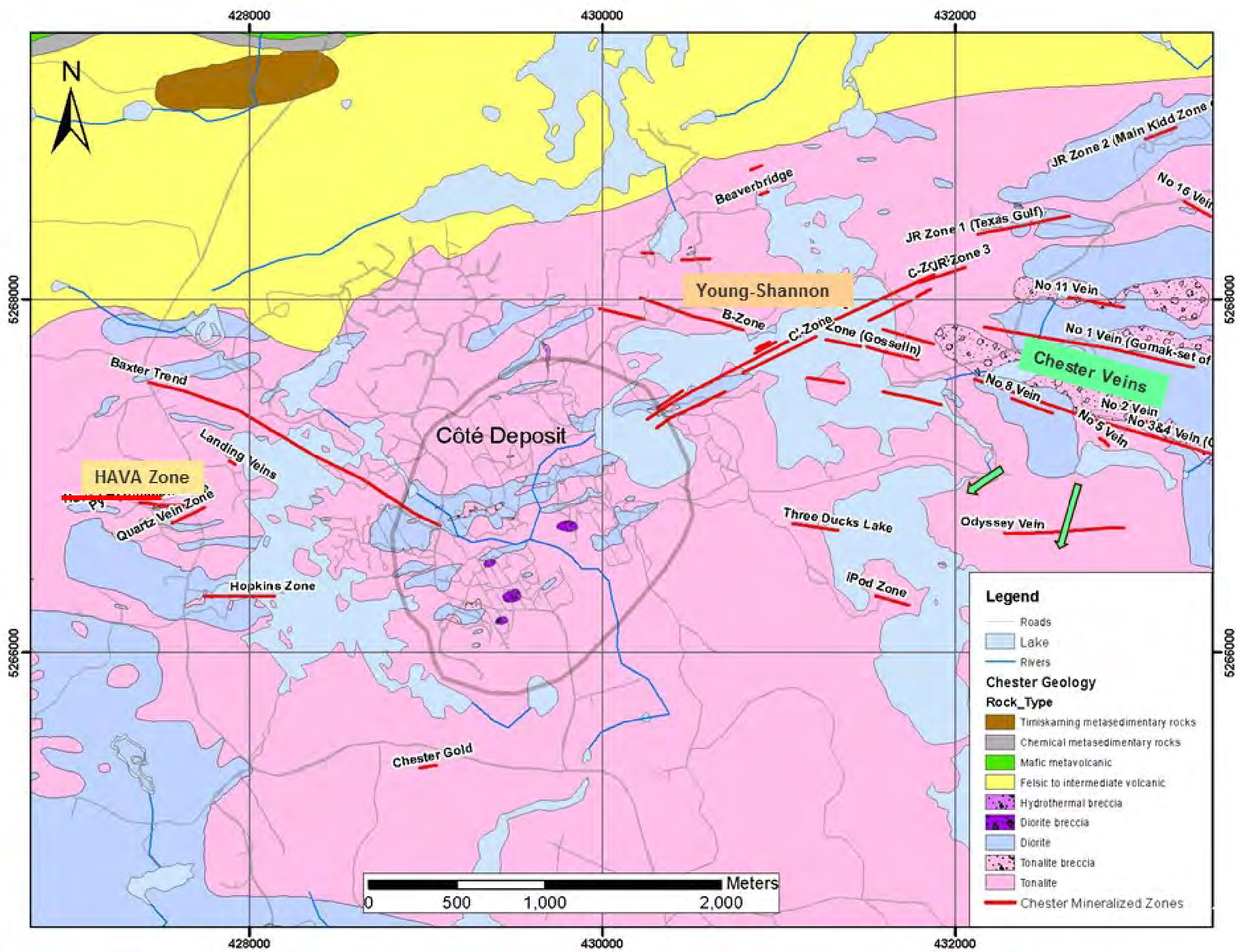
7.2.2 Property Geology

The Chester property contains calc-alkalic pyroclastic metavolcanic rocks of felsic to intermediate composition, felsic to intermediate intrusive rocks (predominantly tonalite and diorite) of the CIC, and related migmatites. Siragusa's remapping (1993) and the Ayer and Trowell (2002) Compilation Map P3511 depict granitoid rocks as the dominant lithology. Recent mapping by Gemmell and MacDonald (2017) provide the most up-to-date Geological Survey coverage of the Chester property. Laird (1932) noted that, locally, the granitoid varies considerably in texture and composition and contains inclusions of older rocks. The texture varies from granular to porphyritic, while in other places it has the appearance of a quartz porphyry phase of the granite.

Large north and north-northwest trending diabase dykes crosscut the intrusive and supracrustal rocks. An available detailed aeromagnetic map of Chester township (Timmins Assessment File, T-3183) clearly shows the prominent north–south and northwest–southeast trends of diabase dykes which overprint all other magnetic fabrics.

Map P 3511, Geological Compilation of the Swayze Area, Abitibi Greenstone Belt (Ayer and Trowell, 2002) displays a 2 km wide belt of felsic–intermediate tuff, lapilli tuff, tuff breccia and pyroclastic breccia (4bc) stretching across the northern end of Chester township and located just north of the Côté Gold property. Centred over the southern half of Bagsverd Lake (Figure 7-4) is an area mapped as intermediate to felsic, variolitic flows (3c).

Figure 7-4: Chester Property Geology



Note: Figure prepared by IAMGOLD, 2018.

West of Bagsverd Lake and straddling the western boundary of Chester township are two localized but interesting units mapped as 7db, chert and oxide and silicate facies iron formation, and 8db, Timiskaming-type mudstone, siltstone, and wacke. While stratigraphic relationships are not implied, units within 8db are most reasonably remnants of Ridout Series. Units 4bc and 7db are compatible with the Yeo Formation (Chester Group). Unit 3c is slightly more problematic as it could represent the basal Arbutus Formation of the Chester Group or the basal Rush River Formation of the Marion Group (which overlies the Chester Group).

7.2.3 Côté Deposit Geology

The Côté Gold deposit is hosted by the CIC. The deposit is centred on magmatic and hydrothermal breccia bodies that intrude tonalitic and dioritic rocks. The CIC intruded into the mafic volcanic rocks of the Arbutus Formation, which forms the basal formation in the Chester Group. The formation consists of low-K tholeiitic pillow basalts, mafic flows, and sills. The intrusive host rocks formed from a number of pulses of several distinct and evolving dioritic and tonalitic magmas that display complex crosscutting relationships (Katz et al., 2015).

A previous geochemical study by Berger (2012) suggested that tonalite and diorite phases of the CIC are genetically related; however, geochemical evidence from the Katz et al. (2015) study suggests otherwise. The diorite contains slightly elevated light rare earth element (LREE) patterns whereas the tonalite contains a relatively flat and less fractionated REE pattern. Although the tonalite and diorite have been demonstrated to be temporally related (Katz et al., 2015), the fractionation pattern suggests that they are genetically unrelated.

The diorite and quartz diorite phases are tholeiitic to transitional in nature, whereas the tonalitic phases have a calc-alkaline to transitional affinity. This spread of chemical affinity and, hence, petrogenetic associations for spatially associated rocks, in particular the quartz diorite–tonalite trondhjemite suites, has been previously documented and may indicate that the intrusive suite consists of a composite of differentiated lithospheric mantle and lower crust partial melts (Galley and Lafrance, 2014).

The evidence suggests a spread across petrogenetic origins for tonalitic and dioritic phases (Katz, 2016). Although petrogenetically unrelated, several high-precision U–Pb zircon geochronology dates for both the tonalite and diorite provide contemporaneous crystallization ages for these rocks. These results are supported by extensive observations in the field and in core both within the deposit area and regionally within the CIC. The deposit is hosted by several tonalite and diorite phases that are intruded by both magmatic and hydrothermal breccias. Each phase is distinguished by their relative crosscutting relationships, texture features and chemistry and include (Katz, 2016):

- Tonalite
- Diorite
- Quartz diorite
- Tonalite breccia
- Hornblende–plagioclase ± quartz pegmatite
- Diorite breccia
- Hydrothermal breccias.

The intrusive phases were followed by hydrothermal brecciation and the emplacement of several stages of gold-bearing veins. Subsequently, the deposit was intruded by several types of dyke rocks, and was subjected to deformation, in the form of deformation zones and brittle faulting.

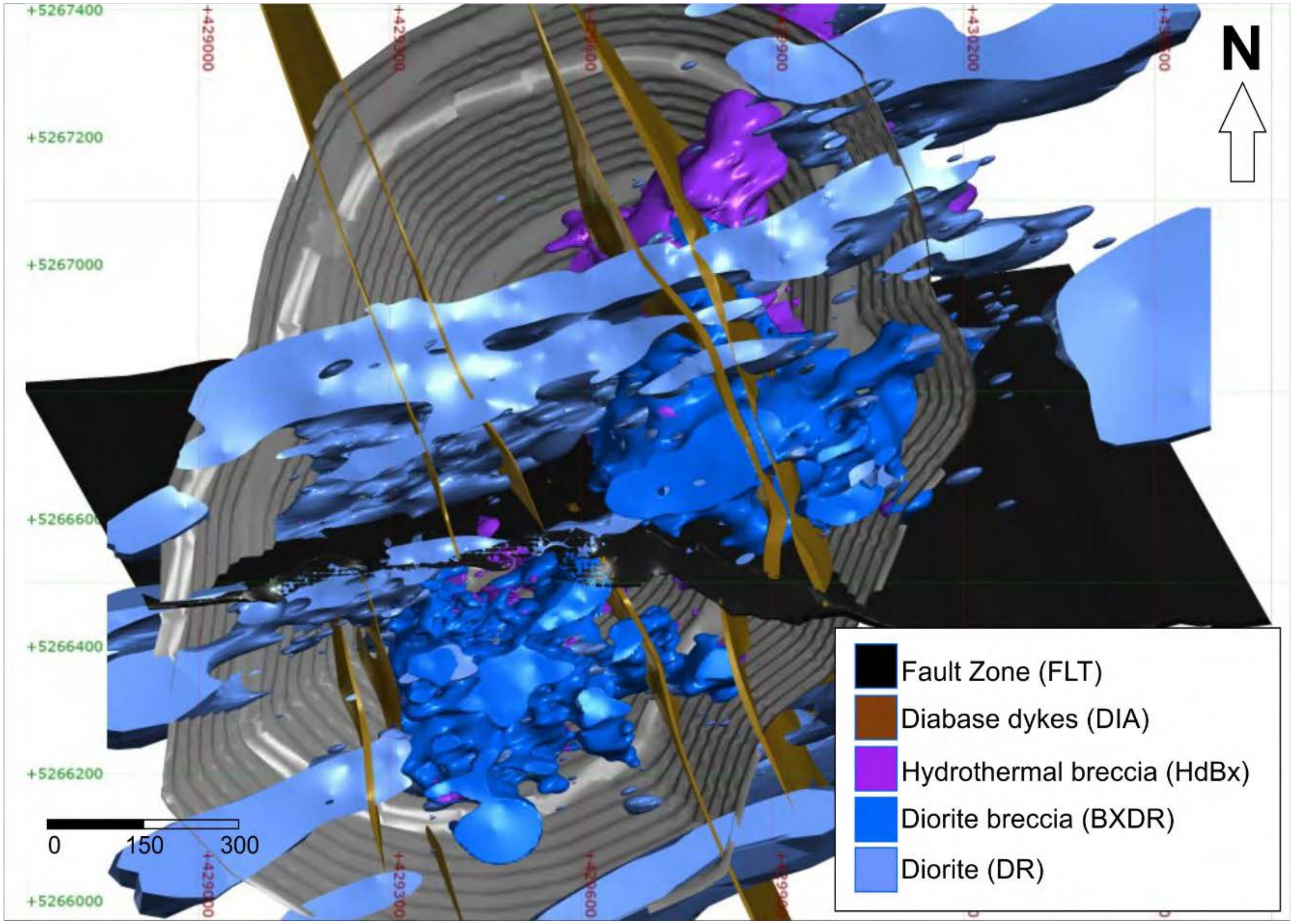
The gold mineralization envelope, the post-mineralization dykes, and the main east–west fault zone are shown in Figure 7-5.

Lithology Description

The following lithological descriptions correspond to the newest nomenclature developed by Katz (2016) and implemented in 2017 prior to the feasibility drill campaign. The objective of implementing the nomenclature is to merge various lithologies in order to simplify the database and facilitate the modelling process. An extensive photo relog of pre-2017 diamond drill holes was performed in 2018 to update the old database to the new nomenclature.

The relog effort resulted in building a detailed and continuous geological model and added a significant amount of diorite and hydrothermal breccia. Internal documents and an updated core library detailing various lithologies, alteration facies, and mineralization styles are available to aid the core logging and ensure consistency of the logs.

Figure 7-5: Côté Gold Deposit Geology



Note: Figure prepared by IAMGOLD, 2018.

Major Lithologies

Tonalite

Tonalite occurs as sill-like bodies and is a medium-grained, equigranular to inequigranular, light to dark grey, intermediate intrusive rock. Tonalite occurs as the earliest phase in the deposit into which dioritic phases intrude but also occurs as a later more voluminous phase that intrudes dioritic phases (Katz et al., 2016).

Dioritic Phases

In the deposit several co-temporal dioritic phases occur and include diorite, quartz diorite and hornblende-plagioclase ± quartz pegmatite. Diorite is typically equigranular, although plagioclase porphyritic varieties occur, whereas quartz diorite is typically plagioclase ± quartz porphyritic and rarely equigranular. The diorite and quartz diorite intrude tonalite and commonly exhibit chilled or brecciated margins. Both melanocratic and leucocratic varieties of the dioritic phases occur. The crosscutting relationship suggests that diorite evolved over time, fractionating to more leucocratic quartz diorite (Katz et al., 2016). Hornblende–plagioclase ± quartz pegmatite is the least abundant magmatic phase and generally occurs as small dykes of less than one meter in apparent thickness.

Tonalite Breccia

This unit is a magmatic breccia and formed as a result of tonalite brecciating diorite and rarely tonalite along its intrusive margins. Therefore, the tonalite matrix is mineralogically and texture identical to the tonalite described above (Katz et al., 2016). The diorite fragments range from centimeter to meter scale and are angular to round with sharp to diffuse contacts. Nearly all tonalite breccia observed is matrix-supported. This breccia is also observed on the outside of the deposit area.

Diorite Breccia

A second type of magmatic breccia is present and formed as a result of dioritic magma brecciating tonalite and dioritic rocks (diorite, quartz diorite and hornblende–plagioclase ± quartz pegmatite). This breccia contains several different types of dioritic matrices:

- Medium- to coarse-grained melanocratic diorite

- Fine- to medium-grained typically quartz porphyritic melanocratic quartz diorite.

The tonalite fragments range from centimeter to meter scale and are angular to round with sharp to diffuse contacts (Katz et al., 2016). Nearly all diorite breccia observed is matrix supported. The heterolithic nature of this unit, i.e., presence of both tonalitic and dioritic clasts, may suggest some transport of the clasts and late establishment. This breccia is also observed regionally.

Hydrothermal Breccia

Tonalite is intruded by a large, overall continuous hydrothermal breccia body on which the Au(-Cu) deposit is partially centred (refer to Figure 7-5). For the hydrothermal breccia, two matrix assemblages have been recognized:

- An amphibole-rich hydrothermal breccia
- A biotite-rich hydrothermal matrix breccia.

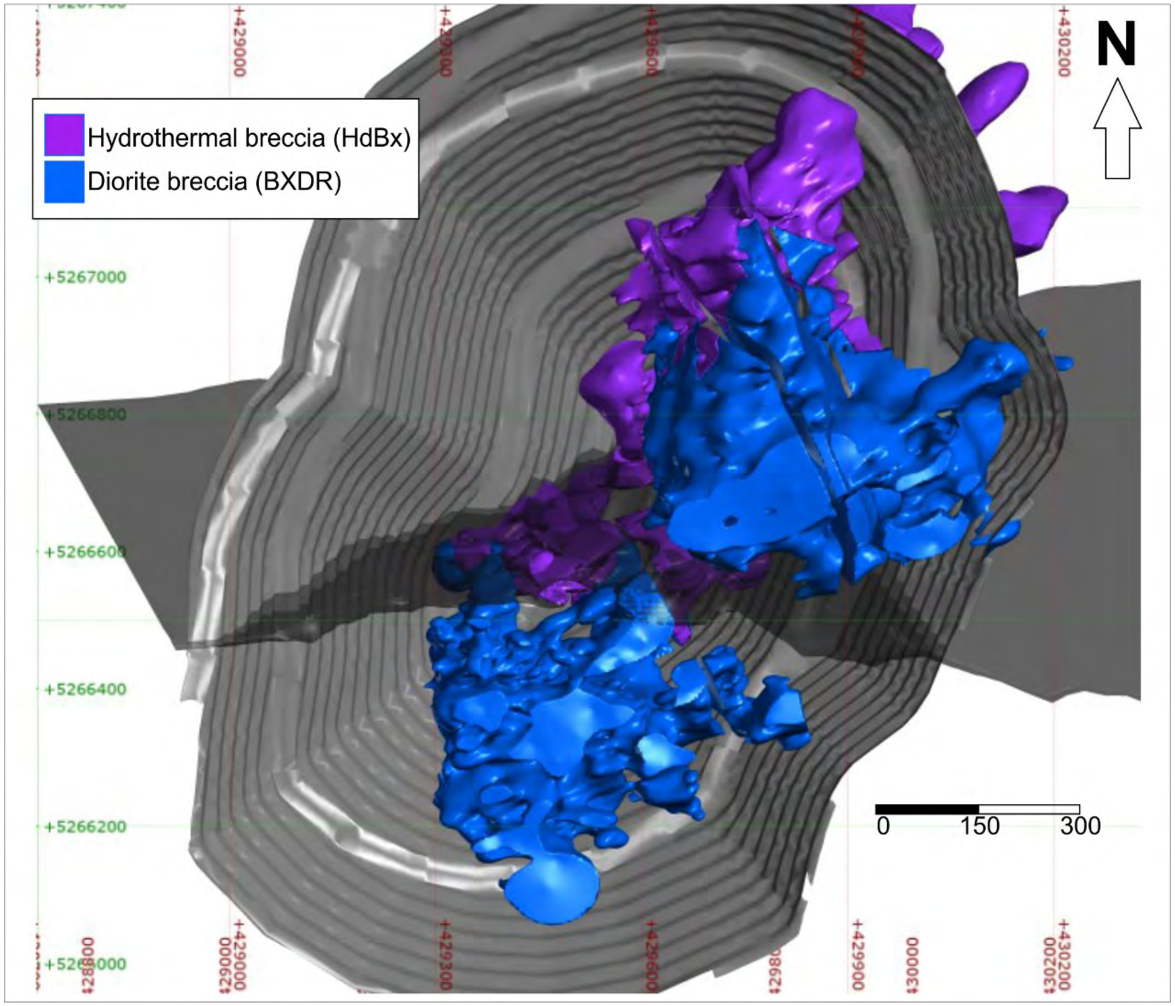
The amphibole-rich hydrothermal breccia unit (Figure 7-6) is the least abundant breccia type and it appears to be restricted to the southern and central parts of the deposit area. The unit contains millimeter to centimeter scale tonalite and rare diorite fragments in a hornblende–quartz–biotite–carbonate matrix. This breccia post-dates the magmatic events. Some gold mineralization does occur in amphibole-bearing breccias; however, significant sulphide mineralization is rare with only minor disseminated pyrite and chalcopyrite associated with amphibole or biotite (Katz et al., 2016). It is noted that due to the restricted nature of this breccia it was not included in the model.

The biotite-rich hydrothermal breccia (Figure 7-6refer to Figure 7-6) predominantly occurs in the northern and central parts of the deposit. The breccia is monolithic and contains millimeter to centimeter scale tonalite fragments.

The breccia matrix varies and consists of:

- Fine-grained biotite-quartz ± epidote ± carbonate ± pyrite ± chalcopyrite ± magnetite ± allanite ± titanite ± fluorite;
- Fine- to coarse-grained biotite-magnetite-quartz-carbonate-chalcopyrite-pyrite ± allanite ± bastnaesite ± apatite ± titanite with up to 50% magnetite;

Figure 7-6: Compositional Zonation of the Diorite and Hydrothermal Breccia Body



Note: Figure prepared by IAMGOLD, 2018.

- Biotite-carbonate-quartz-pyrite ± magnetite ± apatite ± chalcopyrite ± pyrrhotite with coarse biotite set in finer-grained quartz, carbonate and biotite groundmass (Katz et al., 2016).

This breccia type is characterized by an increase in the amount of disseminated sulphides (up to 15% pyrite and chalcopyrite) compared to the magmatic or amphibole-rich hydrothermal breccias.

The relative timing relationships suggest that hydrothermal brecciation post-date the magmatic brecciation. In addition, the breccia appears to be zoned such that the magmatic breccia dominates in the southern part of the deposit, whereas the biotite-rich hydrothermal breccia dominates in the northern part (refer to Figure 7-6).

Minor Lithologies

Later Phases

A few identifiable phases have been observed in the deposit that post-date the host rocks of the CIC.

Quartz–Feldspar Porphyry

This phase includes several types of plagioclase ± quartz porphyritic, grey to black, felsic to intermediate dykes.

Diorite and Gabbro Dykes

Occasionally melanocratic dioritic and gabbro dykes occur along with other more typical dioritic textures. These dykes have been demonstrated to be geochemically distinct from the dioritic phases of the CIC (Katz, 2016). They often display small or absent chill margins, differentiating them from most dykes.

Lamprophyre

Fine- to medium-grained, porphyritic dark green to black intrusive dykes. They are generally weakly to moderately foliated and occasionally display internal folding and crenulation.

Diabase

This dark grey to black mafic intrusive suite is part of the 2,452 Ma Matachewan Dyke Swarm. The dykes strike north–northwest and are sub-vertical to steeply-dipping northeast. They crosscut all rocks within the deposit and are offset by the late west-striking main fault. These dykes are distinctive on aeromagnetic survey maps.

Fault Zone

The main east–west trending fault offsets the Côté Gold deposit. The fault has been interpreted to offset the deposit in a normal (north-side down) dextral offset. The fault zone is varied and consists of the following units:

- From surface to 100 m depth a fault gouge comprises most of the fault zone. This zone is characterized by strong argillic alteration
- At depth, the fault zone width is reduced to 10–30 m and is often composed of a heterolithic quartz carbonate breccia. The unit is composed of angular to rounded tonalite, diorite, quartz diorite, quartz, carbonate, and mafic fragments set in a veined to flooded matrix of quartz-carbonate-chlorite material. It may also occur as zones of quartz-carbonate flooding without any brecciation.

Post-Emplacement Veining and Alteration

Several types of magmatic–hydrothermal alteration are spatially associated with mineralization at the Côté Gold deposit. In paragenetic sequence, the dominant minerals associated with these alterations are amphibole, biotite, sericite, silica–sodic, epidote, and chlorite (after biotite). Less frequent alterations such as hematite, leucoxene, fuchsite, and clay were also observed.

The study and description of alteration types at the Côté Gold deposit is complicated by syn-tectonic alteration associated with regional D2 deformation zones, including chlorite, sericite, silica, Fe- and Ca-carbonate, sulphidation, and tourmaline alteration (Heather, 2001). At the deposit scale, syn-tectonic silica and sericite alteration are associated with D2 deformation zones. Several discrete syn-tectonic shear zones, typically less than 3 m wide, cut through the deposit. Within the shear zones, there is the development of locally strong, pervasive sericite and silica alteration which overprints earlier syn-intrusion amphibole, biotite, sericite, silica-sodic and epidote alteration. Typically, these shear zones do not contain mineralization, however, they can be mineralized when cutting through previously mineralized zones, such as a breccia unit or sheeted veins (Katz et al., 2015).

Major Alteration

Amphibole

Amphibole alteration is rare in the deposit, and occurs as a variety of amphibole-rich veins and breccias. This assemblage consists of hornblende ± apatite ± titanite ± magnetite ± quartz ± albite ± biotite ± pyrite ± chalcopyrite. These amphibole-rich veins crosscut the tonalite, diorite, and the magmatic breccia and, therefore, post-date magmatic events. The veins appear to be spatially restricted to the south of the deposit and represent the earliest hydrothermal alteration type associated with gold mineralization (Katz et al., 2015).

Biotite

Biotite alteration is ubiquitous throughout the deposit and alters all intrusive phases. The biotite assemblage consists of biotite ± quartz ± magnetite ± epidote ± allanite ± carbonate ± pyrite ± chalcopyrite ± pyrrhotite ± titanite ± apatite ± bastnaesite ± fluorite. This assemblage occurs in the matrix of the hydrothermal biotite breccia, as disseminations in tonalite and diorite, in stockwork zones and in sheeted veins. The biotite assemblage in the matrix of the hydrothermal biotite breccia is not the result of alteration, but forms as a primary hydrothermal assemblage. Biotite occurs as disseminated anhedral to subhedral, fine-grained (<1% to >50%) disseminations that partly replace primary plagioclase and amphibole, as well as amphibole in veins and breccias (Katz et al., 2015; Katz, 2016).

Sheeted veins consist of east-west trending, planar, subparallel, moderately to steeply dipping, closely (centimeters to tens of centimeters apart) to widely (several meters apart) spaced veins that occur throughout the deposit. These sheeted veins are also found outside the deposit within the CIC. These veins contain quartz–biotite–pyrite ± chalcopyrite ± pyrrhotite ± carbonate ± titanite ± allanite, and are therefore inferred to be early, having formed during biotite alteration, but are typically overprinted by sericite alteration and deformation resulting in distinct sericite alteration haloes with or without shearing. The various types of biotite alteration are partially to wholly altered by chlorite (Katz et al., 2015).

Sericite

The sericite-bearing alteration assemblage consists of sericite–quartz ± carbonate ± pyrite ± chalcopyrite ± chlorite ± rutile and occurs throughout the deposit. Sericite is light grey to dark grey and rarely green-grey with fine-grained, elongated to stubby grains that replace primary plagioclase. Sericite alteration is generally fracture-controlled as veins, disseminations, and pervasive types. Sericite often forms alteration halos surrounding stockworks and sheeted veins, both of which contain an earlier biotite alteration assemblage. Although the extent of sericite alteration has not been fully determined, it is strongest within the centre of the deposit with its intensity decreasing with distance from the core of mineralization (Katz et al., 2015). Within the deposit area, the sericite alteration occurs as haloes marginal to veins with size varying from meter to decimeter scale (Figure 7-7).

Silica–Sodic Alteration

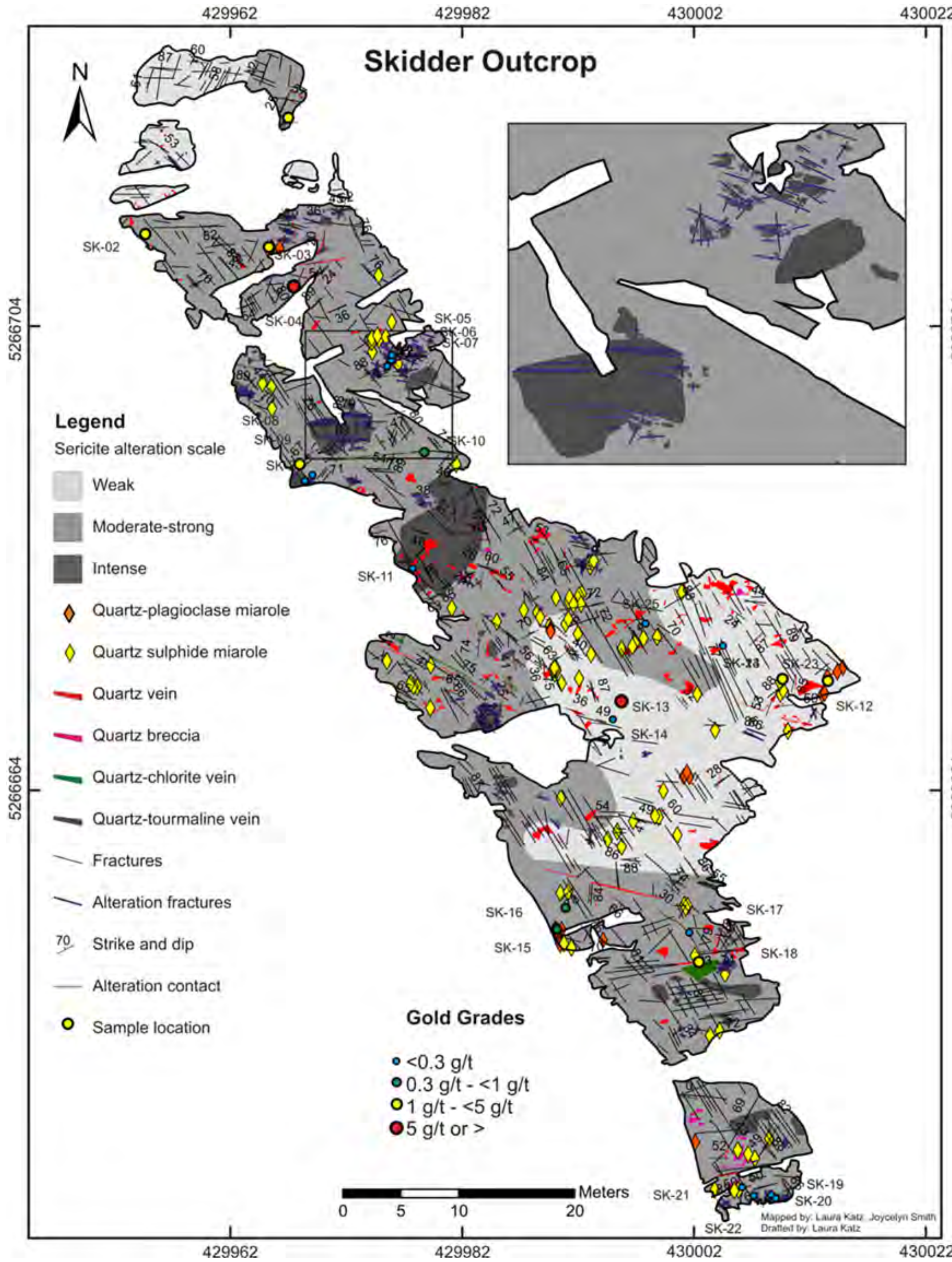
Silica–sodic alteration is a texturally-destructive alteration that occurs as vein-controlled alteration, as well as a pervasive type that overprints earlier biotite and sericite alteration. The alteration envelope can be up to 900 m wide, moderately to steeply dipping to the north or northwest, and is most intensely developed towards the centre of the deposit. Silica–sodic alteration on the outcrop scale is shown on the Skidder Outcrop (Figure 7-8). This alteration overprints the host rocks of the CIC, as well as biotite and silica–sodic alteration. In drill core, this alteration is characterized by bleaching, destruction of primary textures, including grain boundaries, and replacement of mafic minerals. In thin section, this alteration is characterized by replacement of plagioclase by albite, grain-size reduction, and sutured grain boundaries due to dissolution of plagioclase and quartz. Gold mineralization can be spatially associated with this alteration; however, no consistent correlation has been observed (Katz et al., 2015).

Chlorite

Chlorite is ubiquitous throughout the deposit and occurs as disseminated, replacement, and vein-controlled alteration. Petrographic observations indicate chlorite partially to wholly replacing plagioclase, amphibole, and secondary biotite.

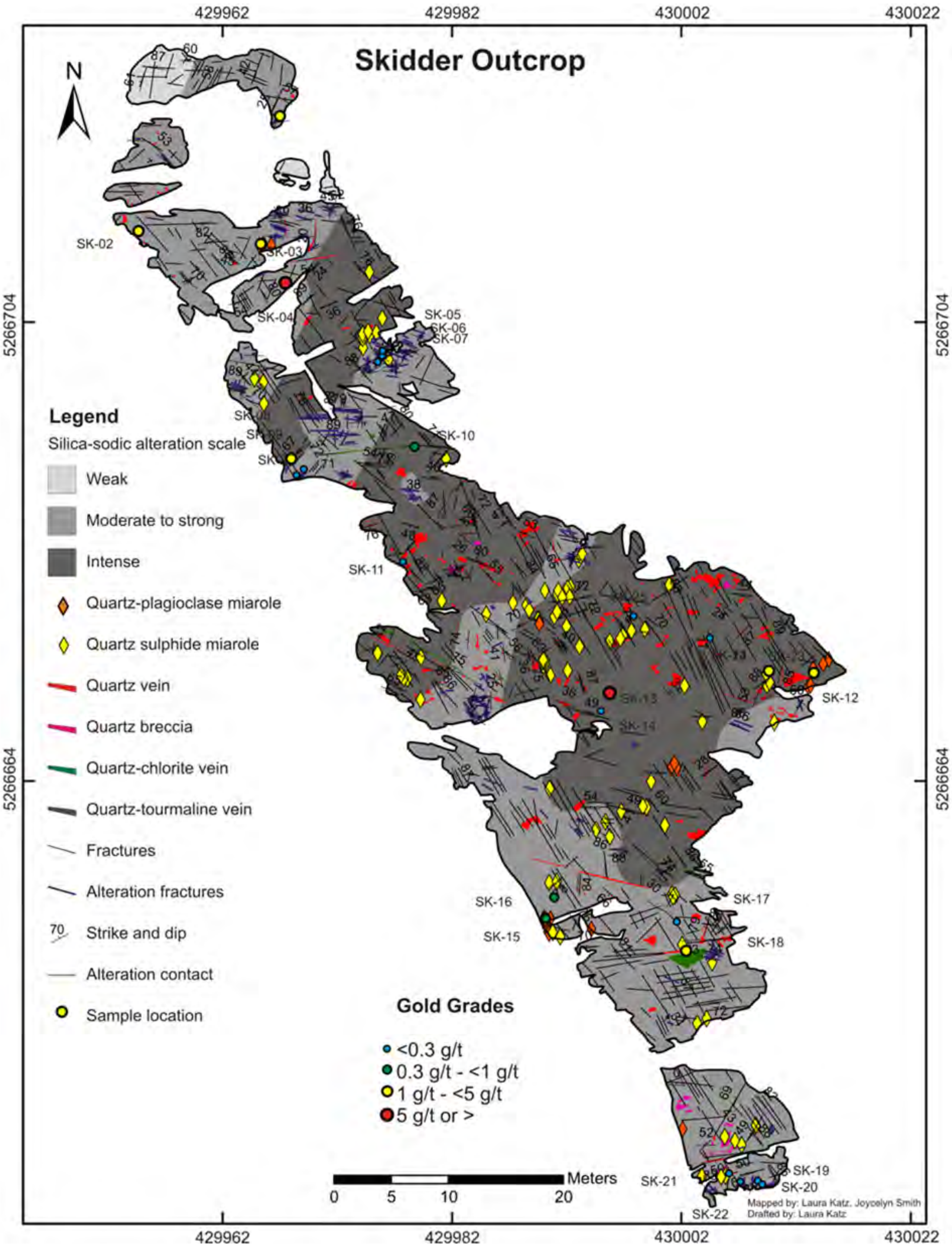
As a result of replacing biotite, titanium-bearing phases, such as rutile, form in association with chlorite. The timing of chlorite alteration is not fully constrained and therefore its importance in terms of deposit formation is unclear. Gold mineralization is spatially associated with hydrothermal chlorite alteration, but its genetic association is not fully understood as it pseudomorphs earlier, higher temperature hydrothermal biotite (Katz, 2015).

Figure 7-7: Sericite Alteration – Skidder Outcrop



Note: Figure courtesy IAMGOLD, 2018.

Figure 7-8: Silica–Sodic Alteration – Skidder Outcrop



Minor Alteration

Hematite

Hematite alteration is minor, and currently thought to be associated with the mafic dykes that crosscut the deposit. Fuchsite and leucoxene are secondary alterations observed to be associated with areas of strong silica–sodic alteration. Argillic alteration, which is not considered as a true alteration, is restricted to areas chiefly proximal to the main fault.

Epidote

The epidote-bearing alteration, consisting of an epidote ± quartz ± carbonate ± chlorite assemblage, occurs as both disseminated and vein-controlled alteration. Epidote occurs as fine-grained anhedral disseminations in the groundmass replacing primary plagioclase and amphibole. An area of vein-controlled epidote alteration is restricted to an approximately 300 m wide by 400 m long zone in the northernmost part of the deposit. Epidote alteration is rarely associated with gold mineralization. This alteration is inferred to be syn-intrusion due to its spatial distribution in the deposit (Katz et al., 2015). Not to be confused with this alteration is the presence of weakly developed, patchy disseminated epidote alteration that occurs throughout the deposit and is interpreted to be a result of later greenschist facies metamorphism.

Mineralogy and Mineralization

Two different types of gold mineralization are recognized on IAMGOLD's Chester township properties. The historically important mineralization can be termed quartz vein and fracture associated (Type 1), while the Côté Gold deposit is interpreted by Kontak et al. (2012) and Katz (2016) as an Archean intrusion-related gold (±copper) deposit (Type 2).

Property Mineralization (Type 1)

The Type 1 quartz vein and fracture mineralization occurs in the Chester 1, 2, and 3 areas on the Chester property and elsewhere in the Project area at the Shaft Zone on the Falcon Gold Option property.

Côté Gold Deposit Mineralization (Type 2)

The Côté Gold deposit-type gold mineralization consists of low- to moderate-grade gold (±copper) mineralization associated with brecciated and altered tonalite and diorite rocks.

Several styles of gold mineralization are recognized within the deposit, and include disseminated, breccia-hosted and vein-type, all of which are co-spatial with biotite (± chlorite), sericite and silica-sodic alteration.

Disseminated mineralization in the hydrothermal matrix of the breccia is the most important style of gold (±copper) mineralization. This style consists of disseminated pyrite, chalcopyrite, pyrrhotite, magnetite, gold (often in native form), and molybdenite in the matrix of the breccia and is associated with primary hydrothermal biotite and chlorite after biotite. In contrast, disseminated biotite and chlorite (after biotite) alteration are not typically associated with gold mineralization. However, when present, disseminated gold and chalcopyrite are intergrown with biotite–chlorite (Katz et al., 2015). Disseminated mineralization is typically associated with sericite or silica-sodic alteration (Katz, 2016).

The nature of the veins and fractures vary from stockworks to closely-spaced, planar, subparallel sheeted vein sets. Stockwork mineralization cuts through all major rock types, but is most prominent in the more brittle tonalitic phases compared to the dioritic phases and formed during the biotite alteration event (Katz et al., 2015; Katz, 2016). The mineralized sheeted veins and stockwork zones cut the hydrothermal breccia and therefore post-date the breccia-controlled mineralization. Miarolitic-like cavities, which consist of millimeter to centimeter size openings lined with feldspar, carbonate and sulphide, can also contain gold. Importantly, the gold-bearing sheeted veins have been shown to be syn-intrusion in timing based on a structural study in the deposit area (Smith, 2016). In addition, Re-Os molybdenite dating of one of these gold-bearing veins returned an age of 2746.8 ± 11.4 Ma, which overlaps with the age of the intrusive events.

Visible gold is observed in several settings within the deposit:

- Quartz ± carbonate ± biotite–chlorite veins: gold is observed to be hosted within the vein quartz and also along fractures cutting the vein. Sulphides include pyrite, chalcopyrite and pyrrhotite

- Sheeted syn-intrusion-related veins: a set of subparallel, sheeted, millimeter to decimeter scale quartz ± carbonate ± chlorite veins with 0.5% to >50% pyrite ± chalcopyrite ± pyrrhotite that commonly contain millimeter to centimeter scale barren sericite alteration haloes. Gold is also observed marginal to these veins within sericite ± silica–sodic ± biotite–chlorite alteration halos. These veins have been interpreted to be syn-intrusion in timing (Smith, 2016) and are also found outside the deposit within the CIC (e.g., Chester 1)
- Magmatic–hydrothermal breccia: gold is more commonly observed in larger, well-developed breccia units but is also present in small, <1 m units. At hand-sample scale, gold appears to have some correlation with biotite–chlorite, sulphides, and magnetite
- Miaroles: gold is observed hosted within miarole quartz, in fractures cutting primary miarole minerals, and within the host rock, proximal to the host/miarole interface commonly within a moderate to intense silica and/or sericite alteration halo
- Alteration related/disseminated: gold is also observed in moderate to intense hydrothermally-altered tonalite and diorite. Typically, this mineralization occurs in silica–sodic and/or sericite alteration of the host, but it may also be associated with biotite/chlorite.

The hydrothermal breccia and the associated hydrothermal alteration zones are the material component of the mineralization providing the mineable widths and grades to the deposit. Areas outside of its significant development are likely not a significant contribution to economically important mineralization. The various gold-bearing quartz vein systems, also found immediately adjacent to the proposed open pit, serve to upgrade the hydrothermal envelope where they are present. The amount of gold contributed by these quartz vein systems to the deposit is difficult to determine but is thought to be of some significance to overall metal content.

7.3 Other Gold Mineralization Styles

Gold mineralization occurs in two other settings of significance on the IAMGOLD South Swayze property

- Orogenic (structurally-hosted vein occurrences)
- Syenite intrusion-related gold zones.

7.3.1 Orogenic (Vein-Hosted) Gold

Orogenic gold zones are the most abundant and take several forms, such as the quartz–carbonate–sulphide vein-hosted gold zones at Chester (#1 Vein, refer to Figure 7-4). Another example is the presence of narrow quartz–sulphide vein networks with subparallel veins containing sericite alteration haloes hosted in altered tonalite (Young-Shannon B and C Zones). Quartz–sulphide vein zones have been discovered throughout the property by historical exploration work and by recent IAMGOLD exploration (refer to Figure 7-4). Zones often display distinct orientations along zones of weakness, but are often difficult to trace over more significant strike lengths. Structural features such as the Ridout High Strain zone which strikes through the South Swayze belt (possible extension to the Larder Lake–Cadillac Deformation zone) provide ground preparation and fluid corridors which can help channel mineralizing fluids and act as depositional sites for gold-bearing solutions.

Several examples of this vein-style of Au mineralization include the following:

- Veins #1 to 8 known collectively as the Chester veins, located 2.5 km east of the Côté Gold deposit (Gomak Mines 1932–1938)
- B and C Zone Veins adjacent to, and extending for up to 800 m to the east northeast of the Côté Gold deposit (Young–Shannon Mines)
- Clam Lake gold zones including the HAVA deformation zone, the pyrite–sphalerite zone, and the quartz vein zone (IAMGOLD discoveries in 2013–2014).

Veins in the Chester area occupy zones of structural weakness generally oriented east–west, and are steeply-dipping. Despite the long strike length of the vein systems (Chester # 3 vein was traced over 1.77 km), the pinch-and-swell character of the veins make these deposits general small and discontinuous. Quartz–sulphide and quartz–carbonate–sulphide veins appear to contain higher gold concentrations when located immediately adjacent to the Côté Gold deposit and in a temporal sense may be part of the broader structural/alteration footprint of the Côté Gold breccia zones.

An interesting variant of the quartz–carbonate–sulphide veins occurs immediately west of Clam Lake (Hava Deformation Zone). Here, structural weakness in the form of a strong deformation zone along the contact of diorite/quartz diorite and tonalite breccia hosts gold-bearing quartz-sulphide veins. The zone has been traced for 300 m in strike length.

7.3.2 Syenite Intrusion-related Gold Zones

Syenite intrusion-related gold zones occur in the South Swayze property in lesser abundance than orogenic vein-deposits and represent good targets for gold exploration. Host rocks are typically syenite with strong potassic and hematitic alteration, and gold is contained in stockwork quartz and iron-carbonate vein systems. Veins are often concentrated on the outer margins of the porphyry bodies where they intrude Timiskaming conglomerates, and often the veins extend into the adjacent sediments. These veins typically contain unique mineral assemblages which may include arsenian pyrite, tetrahedrite and electrum. This style of gold mineralization represents an appealing target as syenite-intrusion hosted stockwork veins are often amenable for bulk mining techniques, such as at the Young-Davidson mine owned by Alamos Gold Inc. near Mattachewan Ontario, approximately 200 km east of the Côte Gold deposit.

The Jerome deposit located approximately 38 km northwest of the Côté Gold deposit (refer to Figure 7-3) is a syenite-intrusion related gold zone where the gold mineralization is spatially-associated with a quartz and iron-carbonate stockwork within and adjacent to a syenite porphyry. A zone of breccia is developed along the porphyry–sediment contact with mineralization consisting of native gold, chalcopyrite, tetrahedrite, galena, sphalerite and molybdenite hosted by blue quartz.

The Huffman or Namex zone on the Huffman Option Property, located approximately 10 km to the south southeast of Jerome (refer to Figure 7-3), is another example of a syenite-intrusion hosted gold zone. Veins here are localized along the shear-zone contact between porphyry and mafic volcanic/sedimentary rocks, and gold is contained within tetrahedrite and tellurides in narrow quartz veins. An envelope of lower-grade gold appears associated with disseminated pyrite within the porphyry as well.

8.0 DEPOSIT TYPES

8.1 Côté Gold Deposit

The Côté Gold deposit is a new Archean low-grade, high-tonnage gold (± copper) discovery. It is described as a synvolcanic intrusion-related and stockwork disseminated gold deposit (Kontak et al., 2012, Katz et al., 2015, Dubé et al., 2015, Katz, 2016). Deposits of this type are commonly spatially associated with and/or hosted in intrusive rocks. They include porphyry Cu–Au, syenite-associated disseminated gold and reduced Au–Bi–Te–W intrusion-related deposits, as well as stockwork-disseminated gold.

Certain features of the Côté Gold deposit resemble those characteristic of gold-rich porphyry deposits (as described by Sillitoe, 2000). These include:

- Emplacment at shallow (1–2 km) crustal levels; frequently associated with coeval volcanic rocks
- Localized by major fault zones, although many deposits show only relatively minor structures in their immediate vicinities
- Hydrothermal breccias are commonly associated with the deposits, and consist of early orthomagmatic as well as later phreatic and phreatomagmatic breccias
- Gold is fine-grained, commonly <20 µm, generally <100 µm, and is closely associated with iron and copper–iron sulphides (pyrite, bornite, chalcopyrite).

8.2 Other Models

Two other gold deposit models are applicable in the Project area:

- Orogenic shear-zone hosted
- Syenite-intrusion related.

8.2.1 Orogenic Shear-Zone Hosted

The discussion below is sourced from Moritz (2000), Goldfarb et al., (2005), and Groves et al., (1998; 2003). Orogenic deposits have many synonyms, including mesozonal and hypozonal deposits, lode gold, shear zone-related quartz–carbonate deposits, or gold-only deposits.

These deposits occur in metamorphic terranes of various ages. The host geological environments include volcano-plutonic and clastic sedimentary terranes that have been metamorphosed to greenschist facies conditions, and locally may reach amphibolite or even granulite facies conditions. Gold deposits can be hosted by any rock type. There is a consistent spatial and temporal association with granitoids of a variety of compositions.

Gold deposition typically occurs adjacent to first-order, deep-crustal fault zones. These first-order faults, which can be hundreds of kilometers long and kilometers wide, show complex structural histories. Economic mineralization typically formed as vein fill of second- and third-order shears and faults, particularly at jogs or changes in strike along the crustal fault zones. Mineralization styles vary from stockworks and breccias in shallow, brittle regimes, through laminated crack-seal veins and sigmoidal vein arrays in brittle-ductile crustal regions, to replacement- and disseminated-type orebodies in deeper, ductile environments.

8.2.2 Syenite-Intrusion Related

The discussion below is sourced from Robert (2001), and Hart and Goldfarb (2005).

These deposits are spatially associated with quartz–monzonite to syenite stocks and dikes, and are located along major fault zones. Disseminated gold orebodies can occur within composite syenitic stocks or along their margins, along satellite dikes and sills, and along faults and lithologic contacts away from intrusions. Mineralized zones in these different positions are interpreted to represent proximal to distal components of large magmatic-hydrothermal systems centred on, and possibly genetically related to, composite syenitic stocks.

Mineralized zones consist of disseminated sulfide replacement zones with variably-developed stockworks of quartz–carbonate–K-feldspar veinlets, within zones of carbonate, albite, K-feldspar, and sericite alteration.

In known Canadian examples, the syenitic intrusions are broadly contemporaneous with deposition of Timiskaming sedimentary rocks, and are often found in association with preserved slivers of alluvial–fluvial sediments. Syenite intrusion-related gold zones develop either contemporaneous with or after emplacement of syenite intrusions, and may be hosted within shear zones developed in the syenite, along the contacts between syentite and Timiskaming sediments, or within Timiskaming sediment/volcanic host rocks.

8.3 Comments on Section 8

8.3.1 Côté Gold Deposit

Katz (2016) completed a study of the deposit as a part of a PhD thesis, and made a number of observations / conclusions as summarized below:

- The Côté deposit is located in the southern limb of the Swayze greenstone belt part of the gold-rich Abitibi subprovince
- The zones of gold mineralization are centred on multi-phase magmatic and hydrothermal breccias, including a mineralized Au-Cu±Mo±Ag hydrothermal breccia that intrudes tonalitic and dioritic phases of the CIC (Katz et al., 2015)
- U–Pb zircon and titanite and Re–Os molybdenite dating highlights the co-temporal link between magmatism and hydrothermal events (Katz, 2016). The hydrothermal breccia is itself overprinted by several types of hydrothermal alteration associated with mineralization. The age of this syn-volcanic-hydrothermal system is ca. 2740 Ma (Katz, 2016)
- Age dating of a number of samples by Katz indicate that the gold mineralization is of hypogene origin and provides additional evidence that the deposit is syn-magmatic and supports a porphyry style model. Furthermore, this deposit now represents the oldest documented gold mineralization within the Abitibi Subprovince (Kontak et al., 2012).

The deposit model for the formation of the Côté Gold deposit proposed by Katz (2016) is included as Figure 8-1.

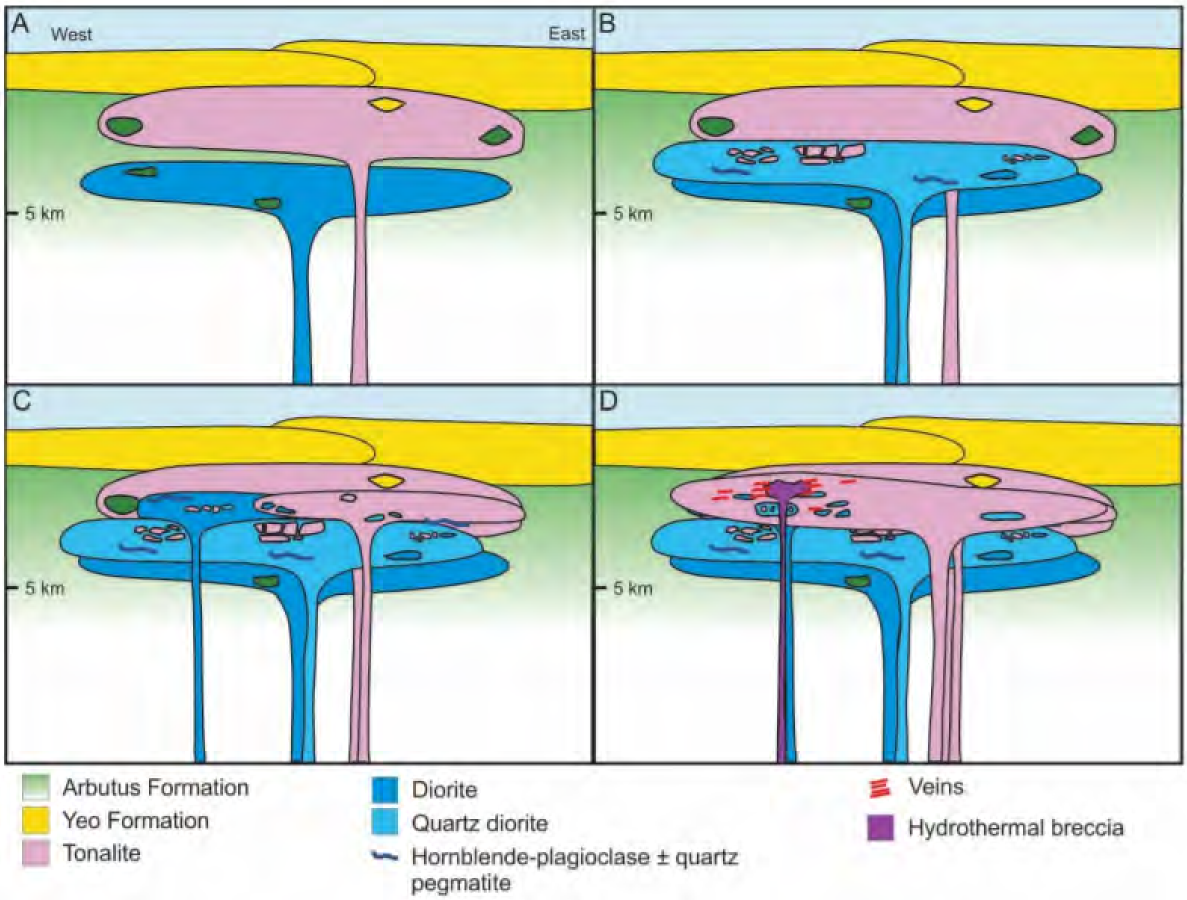
8.3.2 Other Models

Orogenic-style gold zones have been identified in the form of quartz–sulphide vein systems (e.g. Chester veins). These veins formed during compressional to transpressional deformation processes and form narrow veins (generally <2 m width) with strike lengths varying from <500 m to 1,500 m.

Syenite intrusion-related gold zones are evident locally within the South Swayze project area with the most notable one being the Jerome deposit. At Jerome, quartz–carbonate veins host gold mineralization with altered syenite, along the sheared contacts between syentie and Timiskaming sediments, and along the contacts between syenite and Timiskaming sediments.

The QP considers that exploration programs that use these two deposit models, in addition to the synvolcanic-intrusion related gold model (Côté Gold deposit) would be entirely appropriate within the Project area.

Figure 8-1: Deposit Model, Côté Gold Deposit



Note: Figure from Katz (2016).

9.0 EXPLORATION

9.1 Overview

The Project area is divided into three sectors for exploration purposes:

- South Swayze West (western area)
- Chester (central area)
- South Swayze East (eastern area).

Exploration activity within these areas is summarized in the following tables and figures:

- South Swayze West (western area)
  - Table 9-1: South Swayze West Exploration Activities
  - Figure 9-1: South Swayze West Properties
- Chester (central area)
  - Table 9-2: Chester Exploration Activities
  - Figure 9-2: Chester area gold zones
  - Figure 9-3: Clam Lake Geology and Gold Zones updated figure in progress
  - Figure 9-4: Exploration on Other Chester Area Properties
- South Swayze East (eastern area).
  - Table 9-3: South Swayze East
  - Figure 9-5: South Swayze East Exploration Areas

9.2 Grids and Surveys

Exploration grids across the South Swayze properties have been established in a number of orientations and generally oriented with lines trending 340° to 360° to be perpendicular to lithological contacts and structure. Grid line spacings are typically 50 m to 100 m for detailed grids and 200 m to 400 m for reconnaissance grids.

9.3 Geological Mapping

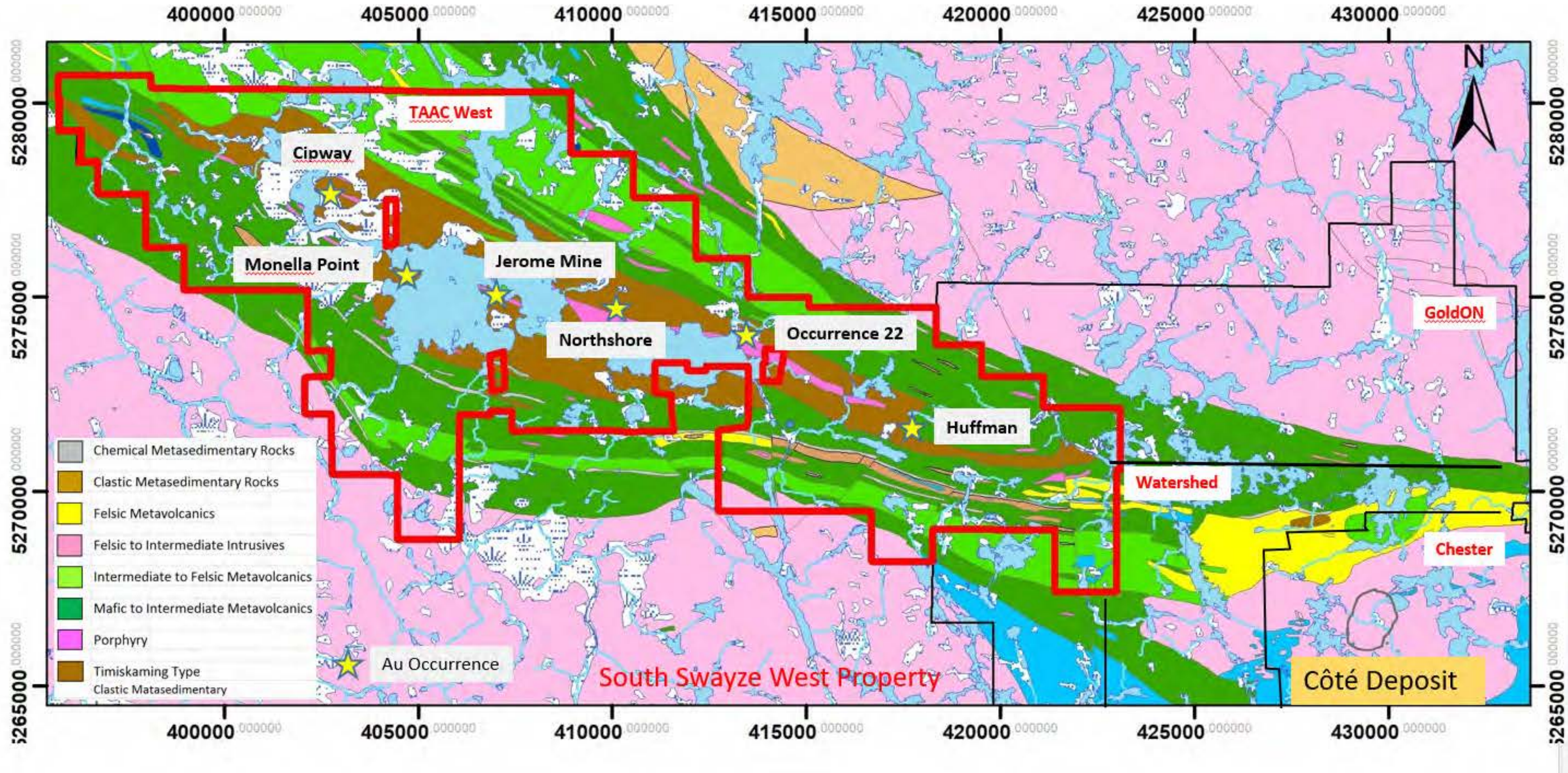
Geological mapping over the Côté Gold deposit key outcrop exposures has been on-going over several field seasons. In the fall of 2013, a mapping program over the entire area within the proposed pit shell commenced. This mapping program assisted in validating the geological interpretations of the 3D deposit model.

Table 9-1: South Swayze West Exploration Activities

Year	Area	Activity	Comment
2013	TAAC West	Data reviews and compilation	Data were compiled into ArcGIS and Geovia GEMS databases for four primary project areas including the Main North Shore, North Shore, Huffman and Schist Lake areas.
	Huffman Lake Option	Data reviews, geological mapping and sampling program	Compilation of all historical work done on the area was carried out with all available information from TAAC and MNDM, compiled and organized into Geovia GEMS and Arc GIS projects. Geological mapping focused on a combination of prospective magnetic breaks, east–west-trending quartz feldspar porphyry intrusions, and mobile metal ion (MMI) soil anomalies identified by the TAAC 2011 MMI survey.
2014	TAAC West	Initial prospecting and geological mapping	
	Huffman Lake Option	Geological mapping, modelling	Small detailed mapping program over the Huffman Lake Zone to verify historical gold values, to check historical drilling collar locations, and to gain a better understanding on the controls of gold mineralization. Modelling in Geovia GEMS and a review of the model with grade and thickness criteria revealed a very low-grade zone that would require a significant upgrade to make it a viable economic zone.
	Schist Lake	Initial prospecting and geological mapping	Channel and grab samples revealed significant anomalous gold in proximity to known shear zones, and the stratigraphic sequence and position of major shear structures were determined. Other work included orientation soil and humus sampling.
2015	TAAC West	B-horizon soil sampling, geological mapping, prospecting, and sampling, core drilling	North Shore area subject to geological mapping, prospecting, mechanized stripping, channel sampling, orientation soil and humus sampling, and core drilling (14 holes, 4,300 m).
	Schist Lake	Outcrop stripping, channel sampling, geological mapping, reconnaissance geophysical surveys, core drilling.	Mechanized stripping and channel sampling were completed to expose the main shear zones and subsequent sampling and mapping validated the stratabound nature of the shear zones. Semi-continuous pyrite and arsenopyrite mineralization was noted and often accompanied by moderate to strong alteration of host volcanic and Temiskaming conglomerate units. Reconnaissance VLF sampling was also completed as an orientation survey across the shear zone and also on reconnaissance lines to the east and west. A three-hole, 657 m drill program tested the main target shear zone as well as a secondary shear zone located immediately to the south.
2016	Watershed	Data review, geophysical survey, core drilling	Review of previous geological mapping and mechanized stripping in the Watershed East portion of the property led to reconnaissance IP surveying, geological mapping and four core holes (1,109 m). testing three altered, Au-bearing structures including the North Shear, the South Shear and the Hydro Zone.
	TAAC West	Geological mapping, mechanized	Work focussed on geological and geophysical investigations to the NW of Jerome where favorable

Year	Area	Activity	Comment
		stripping, IP survey, core drilling	structures along porphyry / Timiskaming Sediment contacts were identified. The work culminated in a drilling of 9 core holes (2,806 m) on three target areas located in the corridor between Cipway and Occurrence 22.
2017	TAAC West	Geological mapping, Airborne EM / Mag., prospecting, soil sampling, petrographic study, core drilling.	Geological mapping focussed on key mineralized trends identified in the 2016 program and also follow-up of the airborne surveying. Petrography / geochemical characterization of porphyry's with anomalous Au mineralization was completed. The program included 2 diamond drill holes (669 m).
	Watershed	Prospecting, geological mapping, lithosampling, mechanized stripping, diamond drilling	Watershed exploration continued on Au-bearing structures with geological mapping, mechanized outcrop stripping, power-washing, and channel sampling. Geological mapping and core drilling (5 holes, 2,244 m) drilled on that portion of Watershed property just west of the Côté Gold deposit (Central Watershed). In the northwest part of the property, drilling of one hole (388 m) was completed.
2018	Watershed (West)	Geological mapping, prospecting, manual outcrop stripping, channel sampling	Geological mapping and prospecting work expanded to the western part of the Watershed property where efforts were accelerated to screen targets in the planned footprint of Côté Gold deposit infrastructure.
	Schist Lake	Prospecting, geological mapping, manual outcrop stripping, channel sampling	Exploration focussed on evaluation of Au showings and structures in the area within and north of planned Côte Gold deposit infrastructure. Key work included geological mapping of showings, prospecting and sampling of favorable areas, and some manual stripping and channel-sampling of historic trenches

Figure 9-1: South Swayze West Properties



Note: Figure prepared by IAMGOLD, 2018

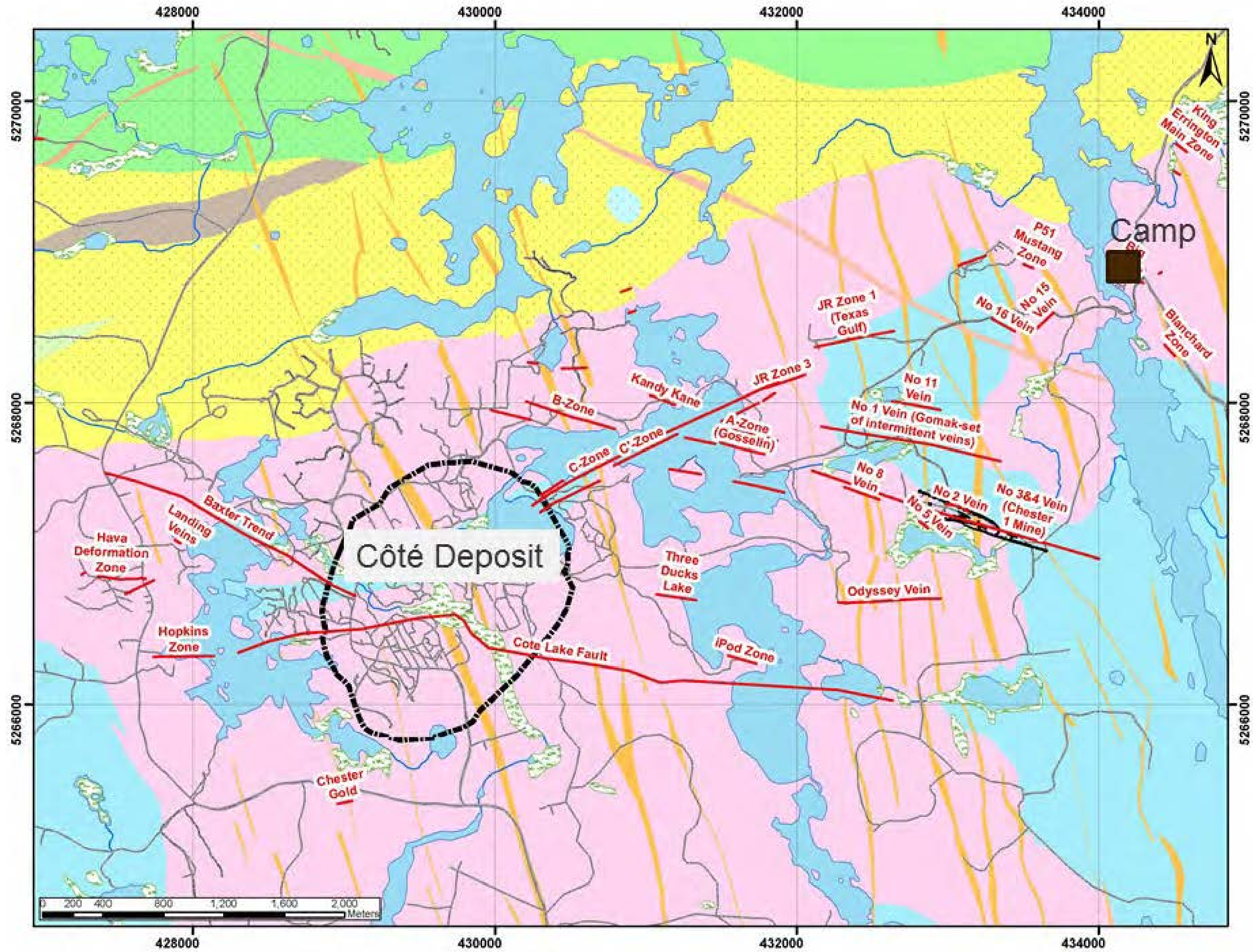
Table 9-2: Chester Exploration Activities

Year	Area	Activity	Comment
2013	Clam Lake, Leliever, West Côté	Detailed compilation, prospecting, geological mapping, core drilling, structural modelling	Compilation of all historical work in Geovia GEMS and Arc GIS platforms was first completed to highlight significant gold showings and to outline the most prospective targets for additional work. Exploration work focused within the Clam Lake property, the Leliever Option, and the West Côté property. Key targets included the previously discovered Baxter and Hopkins trends as well as several historical gold-bearing zones identified by surface grab sampling. A three-hole diamond drill program totaling 892.5 m was completed in late 2013 and was successful in discovering the HAVA Zone. Subsequent down-hole rock property surveying, geology and structural modelling were completed by DGI Geosciences to better understand the zone orientation and host stratigraphy.
	Jack Rabbit	Detailed compilation, geophysical interpretation, prospecting, and geological mapping	Compilation of all historical work and geophysics data was completed in Geovia GEMS and Arc GIS platforms which helped define areas of interest and priority targets. Work focused within Jack Rabbit historical Zone 1 (No. 20 Vein), Zone 2, and Zone 3 (Texas Gulf Zone) followed by the Murgold Chesbar Zone as well as multiple surrounding surface showings. Geological mapping and prospecting were completed over approximately 75% of the property in 2013, and two drill holes (495.3 m) were completed in early December, targeting the western extension of Zone 2 and the north branch of Zone 1 (No. 20 Vein). Narrow sulphide-bearing mineralized zones comprising quartz-sulphide veins were delineated, with the most favourable results on the western extension of Zone 2
2014	Clam Lake	Geological mapping, surface sampling, core drilling	Completed 12 hole (2,841 m) drill program. This program was successful in extending the strike length of the HAVA Zone and also outlined two additional zones: the gold-bearing Pyrite-Sphalerite Zone located to the north of the HAVA Zone; and the upper Quartz-Sulphide Zone parallel to the HAVA Zone.
	Jack Rabbit	Geological mapping, reconnaissance sampling	Continued geological mapping and sampling of prospective Au-sulphide shear zones in attempts to better define the stratigraphy and structures hosting the known gold zones
	South Côté Condemnation Area, Three Duck Lakes area	Geological mapping and sampling	trace Au-bearing structures intersected in 2012 condemnation diamond drill holes. A two-hole, 634 m program was completed in 2015 to determine if these Au-bearing structures had strike continuity or depth extent.
	South Côté SGH target	Geological mapping and sampling	
2015	Clam Lake	Outcrop stripping, core drilling, physical rock property analyses.	Mechanized stripping of the HAVA Zone c conducted. A seven-hole (1,659 m) drill program designed to test the HAVA Zone for easterly and down-plunge continuity and the Pyrite-Sphalerite Zone for its potential strike extent was undertaken. Drilling was successful in

Year	Area	Activity	Comment
			discovering narrow gold-rich intervals and effectively extending the HAVA Zone further to the east by 100 m. It also outlined narrow quartz-sulphide veins up to 10 cm wide with anomalous Au in the hanging wall.
	Jack Rabbit	Geological mapping, reconnaissance sampling, outcrop stripping, core drilling	Identified the South Road Quartz Zone. The area northeast of Zone 2 was evaluated by manual stripping of historic trenches, resulting in the discovery of highly anomalous gold values within intensely altered shear zones in tonalite. A four-hole, 921 m core program evaluated the eastern strike extent and depth potential of Zone 2 and the South Road Quartz Vein in proximity to an IP chargeability anomaly.
	South Côté South Côté Condemnation Area, Three Duck Lakes area	Geological mapping, reconnaissance sampling, core drilling	Exploration along the east shore of Three Duck Lakes helped to define the location and nature of four historic Au-bearing veins (Veins 1, 2, 2', and 8) with surface sampling yielding anomalous gold values in grab samples. Mapping served to identify a zone of strongly silicified and albitized tonalite (South Côté Alteration Zone) approximately 2 km to the southeast. Three core holes, (1,024 m) drilled, with the Three Duck Lakes vein systems tested for possible northwest strike extensions in an area of favorable IP chargeability. In addition, the South Côté Alteration Zone was tested with a single drill hole.
	South Côté SGH target	Geological mapping and sampling, core drilling	Grab samples in proximity to the anomalies returned anomalous gold values from silicified tonalite containing quartz vein networks and fracture-fill quartz veins. The proximity of SGH geochemistry anomalies to the main Côté Gold deposit and the presence of elevated Au in B-horizon soils warranted additional follow-up, and a two-hole, 600 m core drill program was initiated to test each of these anomalies
2016	Clam Lake	Geological mapping, minor in-fill induced polarization (IP) surveying (on grid line extensions) and core drilling	Completed four core holes (1,331 m) to investigate for an eastern extension of the Hava Deformation Zone (HDZ), and to test south of the HDZ to investigate IP and magnetic responses in close proximity the HDZ.
	Leliever	Desktop review	Brief review of previous Augen lithosampling and core drilling
	Jack Rabbit	Geological mapping, outcrop stripping, channel sampling, and core drilling	Geological mapping and mechanized stripping were successful in extending the Au-bearing shear zones for 170 m east of the eastern edge of Zone 2. Diamond drilling (2 DDH, 590 m) was also completed on both the JR #2 Zone and the east extension.
	South Côté Condemnation Area, Three Duck Lakes area	IP surveys	Started to cover the East Chester grid area with the hopes of tracing favorable structures outlined in the Three Ducks Lake/South Chester areas. The work was needed to determine if these structures were associated with the Au mineralizing events in the Côté Gold deposit
	Gosselin (A-Zone) / B-Zone	Mechanized stripping, core drilling	Completed three core holes (801 m) to investigate anomalous IP responses in the B Zone and completed two core holes (589 m) to follow-up mechanized stripping / channel

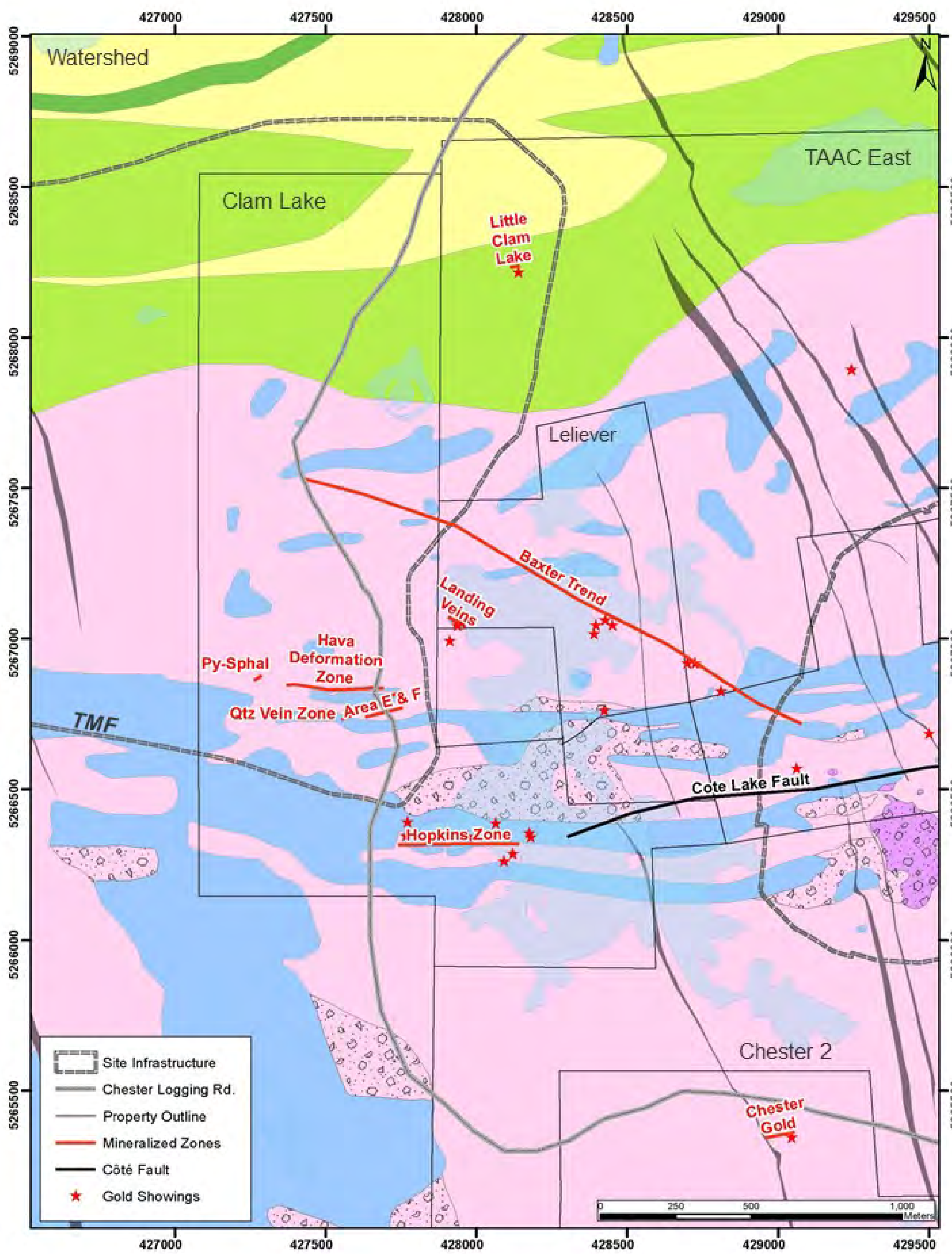
Year	Area	Activity	Comment
			sampling results
2017	South Côté	Geological mapping, Lithosampling	Geological mapping south of the Côte deposit continued from the program started in 2016
	Gosselin (A-Zone)	Mechanized stripping, core drilling	Following the favorable 2016 results, mechanized stripping and diamond drilling (4 core holes, 1,692 m) continued to investigate the corridor between the Gosselin (A-Zone) and the B Zone
	Odyssey Vein, Chester East Grid	Mechanized stripping, core drilling	Prospecting, IP Surveying, Geological mapping, mechanized stripping and core drilling (2 holes – 487 m) was completed on the Odyssey vein
	Jack Rabbit	Geological mapping, prospecting	Geological mapping and prospecting work covered a small corridor north of Jack Rabbit towards Bagsverd Lake.
2018	Gosselin (A-Zone)	Geological mapping, core drilling	Geological mapping, prospecting and core drilling of three drill holes (1,693 m) was completed up to the end of September 2018
	Bagsverd Lake	IP Surveying, geological mapping and prospecting	Exploration work focussed on the area north of the Côte deposit and included IP surveying, geological mapping and prospecting.

Figure 9-2: Chester Area Gold Zones



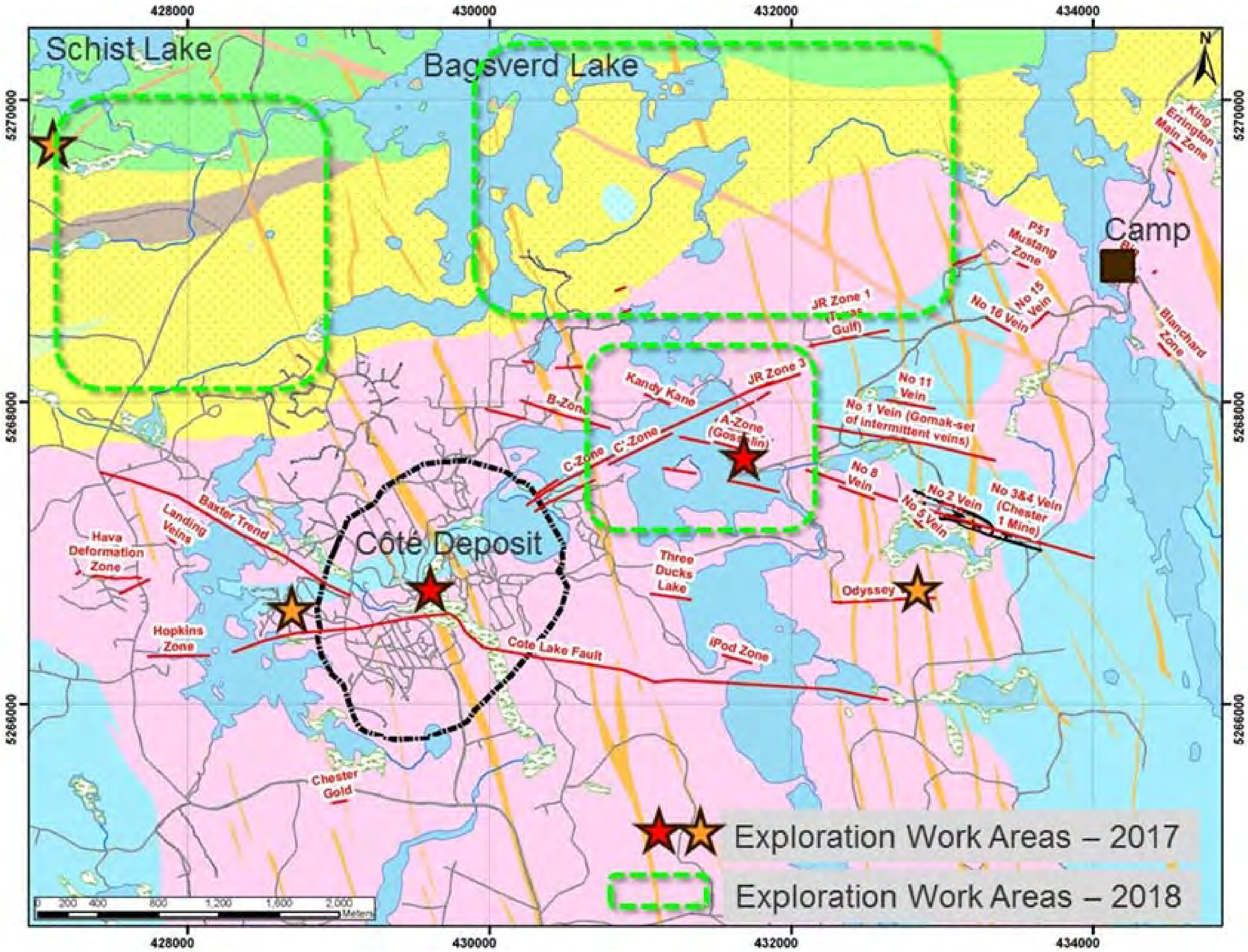
Note: Figure prepared by IAMGOLD, 2018

Figure 9-3: Clam Lake Geology and Gold Zones



Note: Figure prepared by IAMGOLD, 2016

Figure 9-4: Exploration on Other Chester Area Properties



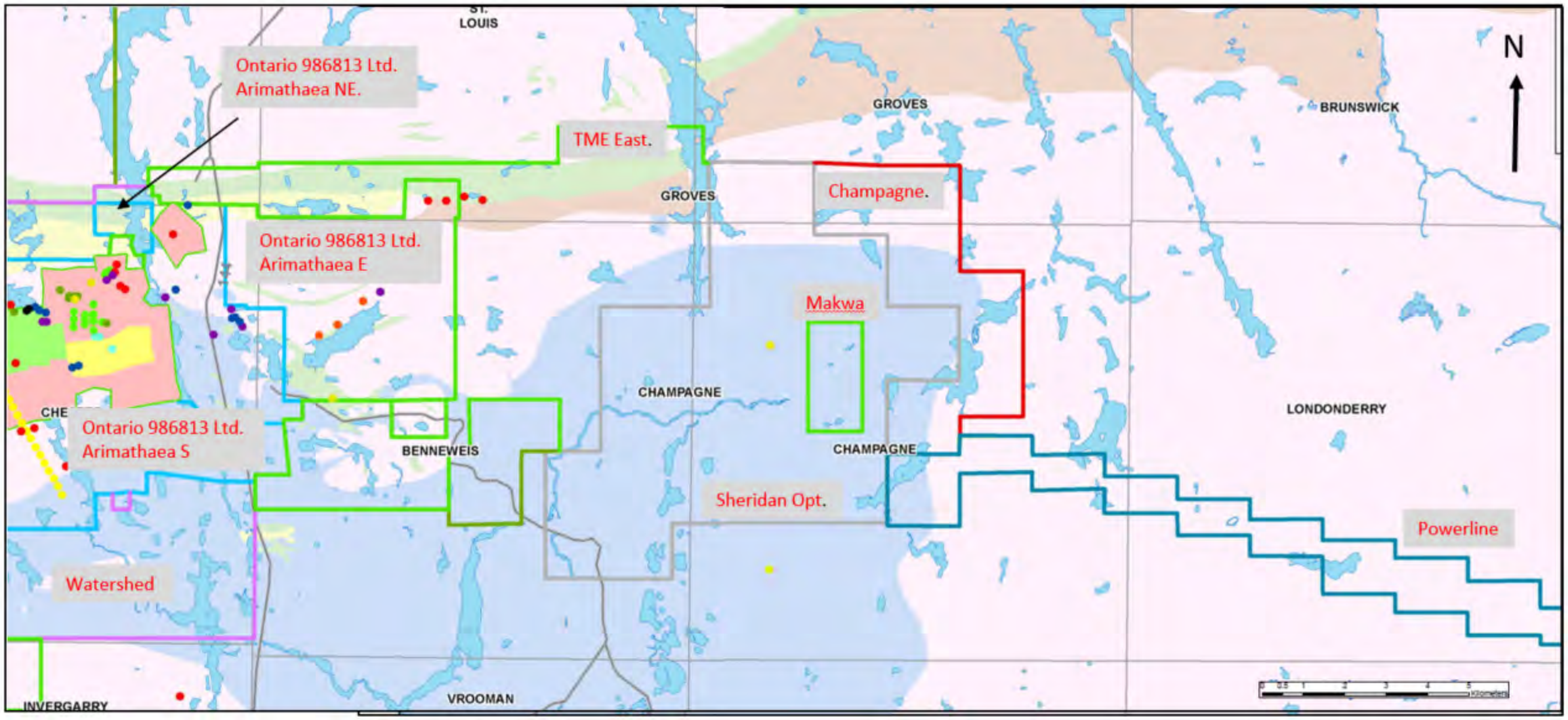
Note: Figure prepared by IAMGOLD, 2018

Table 9-3: South Swayze East Exploration Activities

Year	Area	Activity	Comment
2013	Sheridan Option	Soil sampling, reconnaissance sampling, geological mapping, IP surveys, core drilling, geo-referencing.	452 soil samples; 66 rock grab samples; 2.03 km^2 of geological mapping; 19.65 line-km of IP chargeability/resistivity surveying on the Sheridan Option (phase II); 545 m of BQTK size core
	Trelawney (North, South, and East blocks)	Georeferencing	All claims within TME blocks were georeferenced and the work was submitted for assessment credit.
2014	Sheridan Option	Georeferencing	All claims within the Sheridan Option property were georeferenced and the work was submitted for assessment credit.
	Ontario 986813 Ltd. Arimathaea NE	Georeferencing	All claims within Ontario 986813 Ltd (Arimathaea North block) were georeferenced and the work was submitted for assessment credit.
	TME East (Benneweiss) and Ontario 986813 Ltd. Arimathaea East	IP surveys, geological mapping, core drilling	Line cutting, IP geophysical surveying, geological mapping, sampling, and diamond drilling (three drill holes, 815 m) on the Arimathaea East portion
2015	Sheridan Option	Georeferencing, IP surveys	South Sheridan grid was extended to the west and six lines of IP surveying were completed targeting an area with several B-Horizon soil anomalies
	Trelawney South (Yeo) Block	Soil sampling	A widely spaced reconnaissance B-horizon soil survey was completed over specific structurally interpreted features (geological contacts, folds, and magnetic breaks)
	Ontario 986813 Ltd. Arimathaea NE Block		Geological mapping and IP surveying as part of the larger Errington and Errington West grids
	TME East (Benneweiss) and Ontario 986813 Ltd Arimathaea East	IP surveys, geological mapping, soil surveys, core drilling	Recognition of significant magnetic breaks, possibly representing second order structural splays from the RDZ along the north margin of the property. Line cutting, IP surveying, geological mapping, prospecting, humus, and B-horizon soil sampling and core drilling (four drill holes, 1,547 m) completed. Targets included sheared geological contacts, favourable IP chargeability anomalies, magnetic breaks, and recently discovered quartz vein stockwork zones and sediment-hosted sulphide zones
	King Errington	Geophysical surveys, geological mapping, soil surveys, core drilling	Focused on the delineation of the King Errington main zone, which comprises a series of quartz-sulphide veins and veinlets in a highly silicified and fractured diorite. The zone is interpreted to be a third order growth structure and splay from a large northeast/southwest structure coincident with the Errington Creek drainage. Geological mapping, prospecting, soil sampling,

Year	Area	Activity	Comment
			reconnaissance VLF surveying, and diamond drilling (two holes, 637 m) to determine if the zone had strike or depth continuity and to examine the immediate stratigraphy for additional structurally controlled zones.
2016	TME East (Benneweiss) and Ontario 986813 Ltd Arimathaea East	IP surveys, geological mapping, soil surveys, core drilling	Geological mapping and sampling with some prospecting, humus sampling, 28.7 km of gridding and pole–dipole IP surveys, and one core hole (506 m).
2017	Watershed East	IP Surveying, geological mapping, mechanized stripping	Targets outline by IP surveying were further investigated by mechanized stripping and geological mapping. The work culminated in a three core hole (853 m) diamond drilling program.
	Makwa	IP Surveying, prospecting	Grid cutting, IP surveying and prospecting was completed on the Makwa Property, and reconnaissance prospecting was completed east of Makwa.
2018	Ontario 986813 Ltd. Arimathaea S Block	Geological mapping, recon. Prospecting, litho-sampling	The continuation of geological mapping to cover areas completely surrounding the Côté deposit progressed well, and areas with anomalous Au were subjected to prospecting.
	Makwa / Champagne	Geological mapping, litho-sampling	Geological mapping and lithosampliing was completed over the 2017 IP grid area. Reconnaissance prospecting was completed on the property adjacent to Makwa (Champagne) as part of an evaluation of the Champagne property prior to acquisition
	Powerline	Reconnaissance prospecting, road access scouting	Early stage prospecting / litho-sampling was completed along access roads and in small areas of recent logging activity.

Figure 9-5: South Swayze East Property Locations



Note: Figure prepared by IAMGOLD, 2018

Reconnaissance mapping has been conducted for exploration purposes as outlined in Table 9-1, Table 9-2, and Table 9-3.

9.4 Geochemical Sampling

Geochemical has been conducted for exploration purposes as outlined in Table 9-1, Table 9-2, and Table 9-3.

9.5 Geophysics

Ground induced polarization (IP), pole–dipole IP/resistivity, and very-low frequency geophysical surveys were conducted as part of exploration activities (see Table 9-1, Table 9-2, and Table 9-3).

9.6 Petrology, Mineralogy, and Research Studies

A PhD thesis was completed on the Côté Gold deposit in 2016 (Katz, 2016), and a Master of Science thesis the same year (Smith, 2016). Petrography and geochemical characterization of porphyry's was completed as part of exploration activities (see Table 9-1).

9.7 Exploration Potential

The goal of the present exploration work is to outline new gold mineralization and to evaluate new and existing gold showings for the possibility of economic extraction. Targets with the highest potential to result in bulk-mineable gold will continue to be prioritized.

9.8 Comments on Section 9

Exploration programs to date have identified the Côté Gold deposit and have evaluated a number of nearby gold showings for their potential to be bulk-mineable gold deposits. To date, there have been no economic gold zones outlined. There are, however, gold zones situated near the Côté deposit that remain prospective, and active exploration programs will continue to evaluate these targets.

Exploration programs to date have been sufficient to screen many areas for the presence of a Côté-style deposit, with grid line spacing and general traverse spacing of <200 m (some areas <100 m spacing for traverse/grid line density). Litho-sampling and geological mapping is representative over much of the property land holdings, with some exceptions where glacial till and lacustrine deposits form think mantels on the bedrock. In areas of thick overburden, IP geophysical surveys and diamond drilling has helped screen these overburden-covered areas.

General results and conclusions from ongoing exploration work is summarized below by target area:

- South Swayze West: Côté-style tonalite and diorite-hosted breccia zones have not been discovered to date. Exploration for syenite intrusion-hosted or shear-zone hosted gold zones continues. The presence of Timiskaming-style basin sediments cut by porphyry intrusions and broad structural deformation zones provide a good environment for gold-bearing vein networks.
- Chester Area: West of the Côté Gold deposit, the discovery of gold mineralization in the HAVA deformation zone (with associate breccia) reveals some similar host rocks and alteration styles to the Côté Gold deposit. East of the Côté Gold deposit, exploration work has revealed the presence of lower gold grades in the A-Zone (Gosselin) and B Zone (Young–Shannon). These programs will continue to explore for satellite gold deposits
- South Swayze East: Gold mineralization discovered and investigated to date reveals only narrow and discontinuous shear-zone hosted veins. The lack of Côté-style mineralization makes this area less favorable for the discovery of a bulk-tonnage gold zone.

10.0 DRILLING

10.1 Introduction

Core drilling on the Côté Gold deposit has included exploration, infill, metallurgical and condemnation drilling. Table 10-1 provides a list of the completed drill holes. Drill hole collars are shown in Figure 10-1.

Exploration drilling was conducted outside the Côté Gold deposit as summarized in Table 10-2. Drill collar locations are included as Figure 10-2, Figure 10-3, and Figure 10-4.

10.2 Côté Gold Deposit Drilling

10.2.1 Drill Methods

The drill contractors listed in Table 10-3 have been used for the Côté Gold programs.

Core sizes have included the following: HQ (63.5 mm core diameter), NQ (47.6 mm), BQ (36.4 mm), and BQTW (36 mm).

For holes drilled on land, the casing was left in place and capped. Holes drilled on lakes were cemented and the casing was pulled.

10.2.2 Logging Procedures

Geologists checked all core boxes at their arrival at the core shack and ensured that no core was missing and that any reported drill hole orientation information was provided from the drilling contractor. Technicians made meterage marks and logged rock quality designation (RQD). All core was photographed.

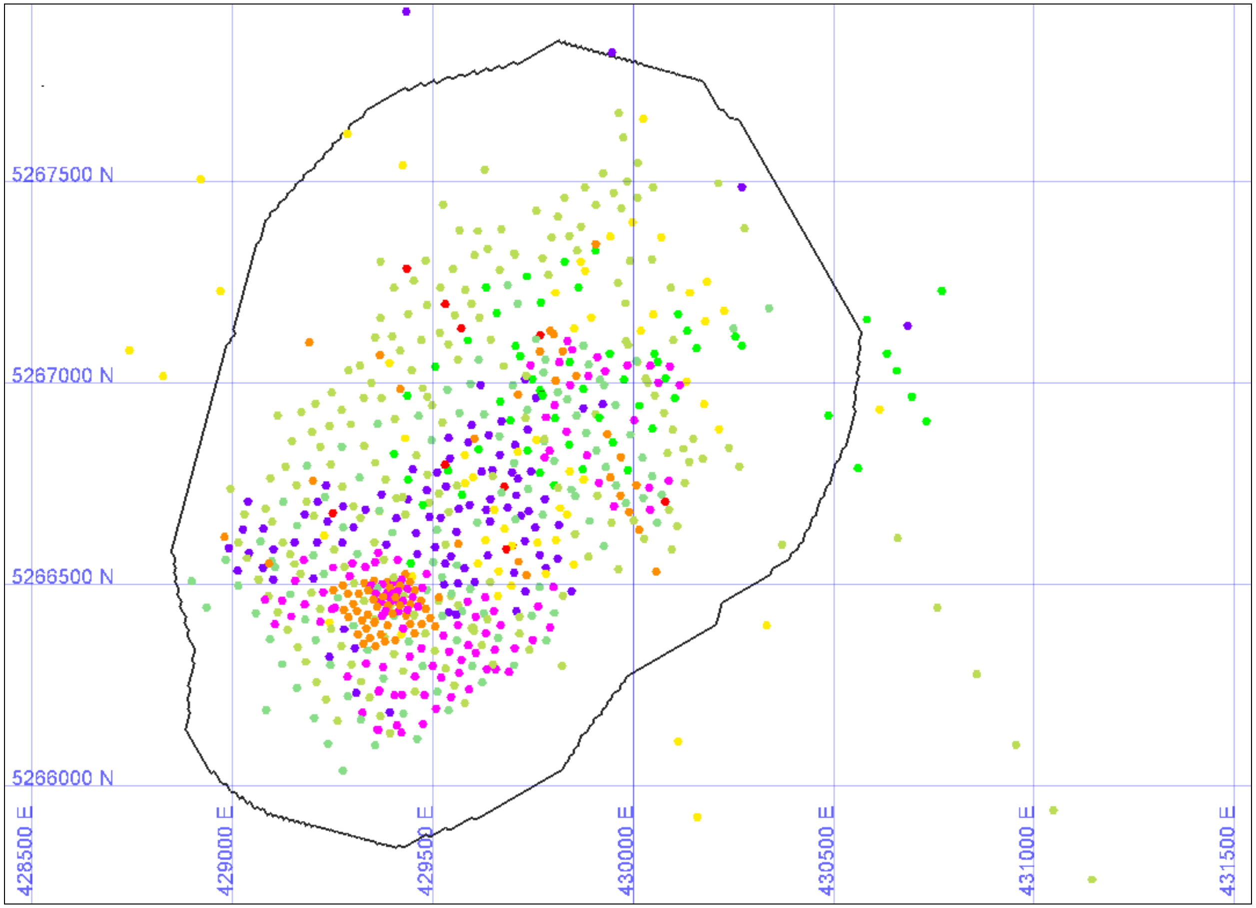
Geologists completed the core log, recording details of lithology, alteration, mineralization, and structure.

For oriented core, technicians drew the bottom of hole line on the core. A full line was drawn when orientation marks were perfectly aligned. Alpha and beta angles were measured for all veins and contacts when the bottom of the hole line was defined.

Table 10-1: Côté Gold Deposit Drilling by Year

Year	Diameter	Number of Drill Holes	Metres	Max Length (m)	Min Length (m)
2009	NQ	3	1,049	582	141
2010	BQ	1	54	54	54
2010	NQ	56	25,802	683	134
2010	NQ/BQ	1	594	594	594
2011	BQ	2	1,261	672	589
2011	NQ	116	59,684	1,047	60
2011	NQ/BQ	9	5,682	814	503
2012	BQ	8	3,977	650	373
2012	BQTW	81	40,117	1,102	20
2012	NQ	135	87,427	1,613	15
2013	BQ	1	478	478	478
2013	BQTW	41	23,138	992	66
2014	NQ	71	19,140	693	21
2015	NQ	11	5,082	780	60
2016	—	—	—	—	—
2017	NQ	140	26,762	552	70
2018	NQ	94	21,628	597	70
Total		***770***	***321,875***		

Figure 10-1: Collar Location Plan, Côté Gold Drilling by Year



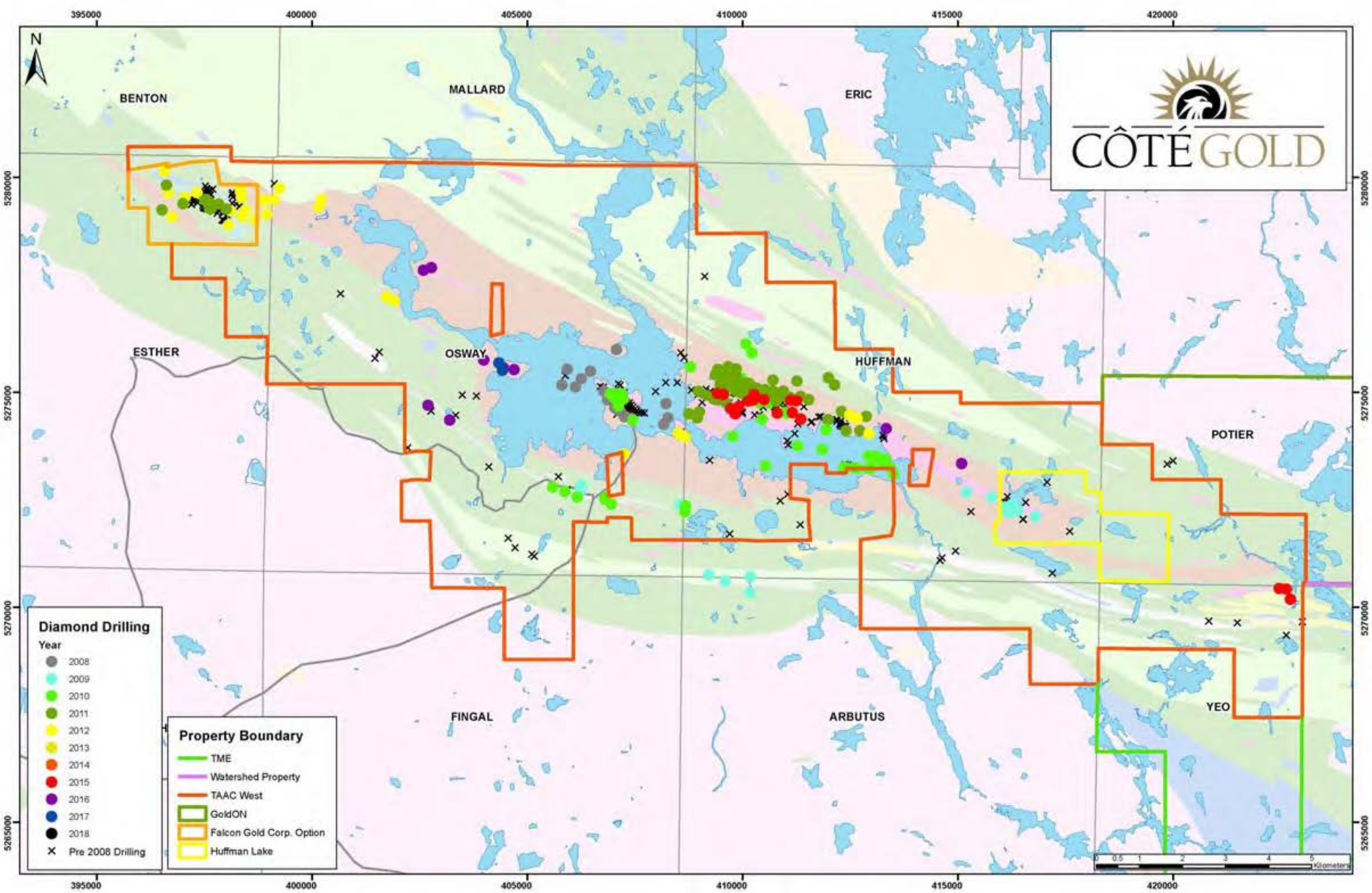
Note: Figure prepared by Wood, 2018. Pit shell outline is the 2018 Feasibility Study pit outline.

Table 10-2: Exploration Drilling

Area	Year	Company	Number of Drill Holes	Metres	Property
Chester 1	2009	Trelawney	1	130	Chester 1
	2017	IAMGOLD	2	487	Chester 1
Chester 2	2010	Trelawney	13	5,031	Chester 2
	2011	Trelawney	3	703	Chester 2
	2012	Trelawney	18	5,156	Chester 2
	2015	IAMGOLD	4	1,370	Chester 2
	2016	IAMGOLD	5	1,394	Chester 2
	2017	IAMGOLD	3	2,122	Chester 2
	2018	IAMGOLD	6	2,799	Chester 2
Chester 3	2009	Trelawney	5	1,701	Chester 3
	2010	Trelawney	26	5,350	Chester 3
	2011	Trelawney	7	1,837	Chester 3
	2012	Trelawney	6	1,578	Chester 3
	2013	IAMGOLD	2	495	Chester 3
	2015	IAMGOLD	6	1,559	Chester 3
	2016	IAMGOLD	2	295	Chester 3
	2017	IAMGOLD	5	2,245	Chester 3 Emerald Isle
Clam Lake	2013	IAMGOLD	3	893	Clam Lake
	2014	IAMGOLD	10	2,181	Clam Lake
	2015	IAMGOLD	7	1,659	Clam Lake
	2016	IAMGOLD	4	1,332	Clam Lake
Leliever	2014	IAMGOLD	1	435	Leliever
Ontario 986813	2012	IAMGOLD	10	2,988	Arimathaea South
	2013	IAMGOLD	1	186	Arimathaea East
	2014	IAMGOLD	3	815	Arimathaea East
	2015	IAMGOLD	7	2,478	Arimathaea South, East
	2016	IAMGOLD	3	1,054	Arimathaea North
Watershed	2009	Augen Gold	9	927	Watershed
	2011	Sanatana Resources	4	2,141	Watershed
	2012	Augen Gold	2	1,606	Watershed
	2012	Trelawney	1	654	Watershed

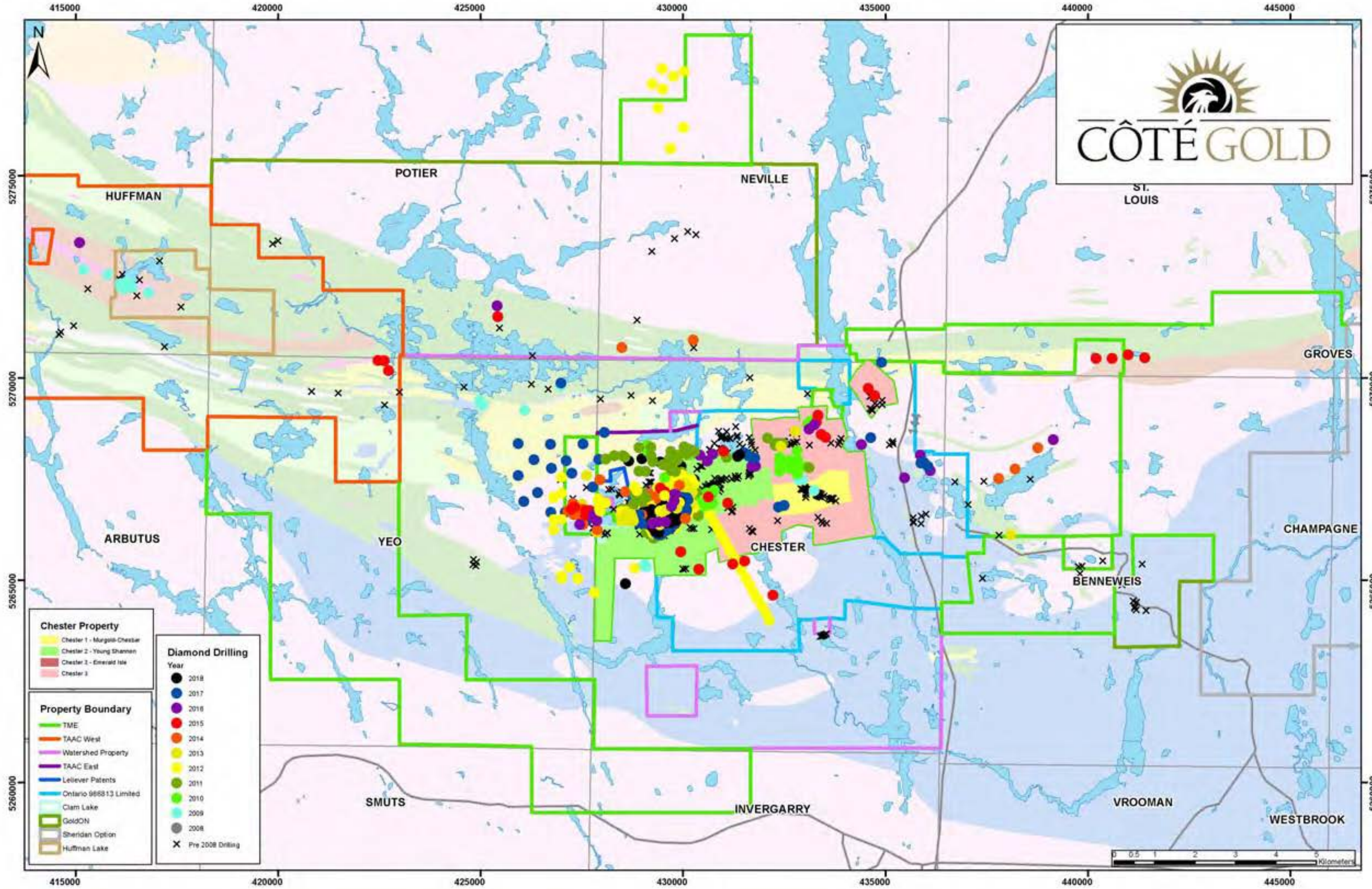
Area	Year	Company	Number of Drill Holes	Metres	Property
	2012	IAMGOLD	1	953	Watershed
	2012	Sanatana Resources	24	10,423	Watershed
	2013	Sanatana Resources	14	3,906	Watershed
	2014	IAMGOLD	1	225	Watershed
	2016	IAMGOLD	4	1,109	Watershed East
	2017	IAMGOLD	18	4,377	Watershed
	2018	IAMGOLD	4	1,436	Watershed
TAAC East	2010	Augen Gold	3	716	TAAC East
	2011	Augen Gold	32	11,510	TAAC East
	2012	Augen Gold	2	1,606	TAAC East
TAAC West	2008	Augen Gold	21	10,175	TAAC West
	2009	Augen Gold	19	3,592	TAAC West
	2010	Augen Gold	77	14,922	TAAC West
	2011	Augen Gold	60	16,533	TAAC West
	2012	Augen Gold	18	4,882	TAAC West
	2015	IAMGOLD	17	4,934	TAAC West
	2016	IAMGOLD	9	2,806	TAAC West
	2017	IAMGOLD	2	769	TAAC West
Falcon Option	2011	Falcon Gold	26	2,934	Falcon Option
	2012	Falcon Gold	13	1,529	Falcon Option
GoldON	2008	Trelawney	8	1,678	GoldON
	2009	IAMGOLD	2	402	GoldON
	2010	IAMGOLD	1	210	GoldON
	2010	IAMGOLD	1	254	GoldON
TME	2015	IAMGOLD	6	2,202	TME East
	2017	IAMGOLD	3	853	TME East
Sheridan Option	2013	IAMGOLD	2	545	Sheridan Option
			567	***159,082***	

Figure 10-2: South Swayze West Drill Collar Location Plan (western area)



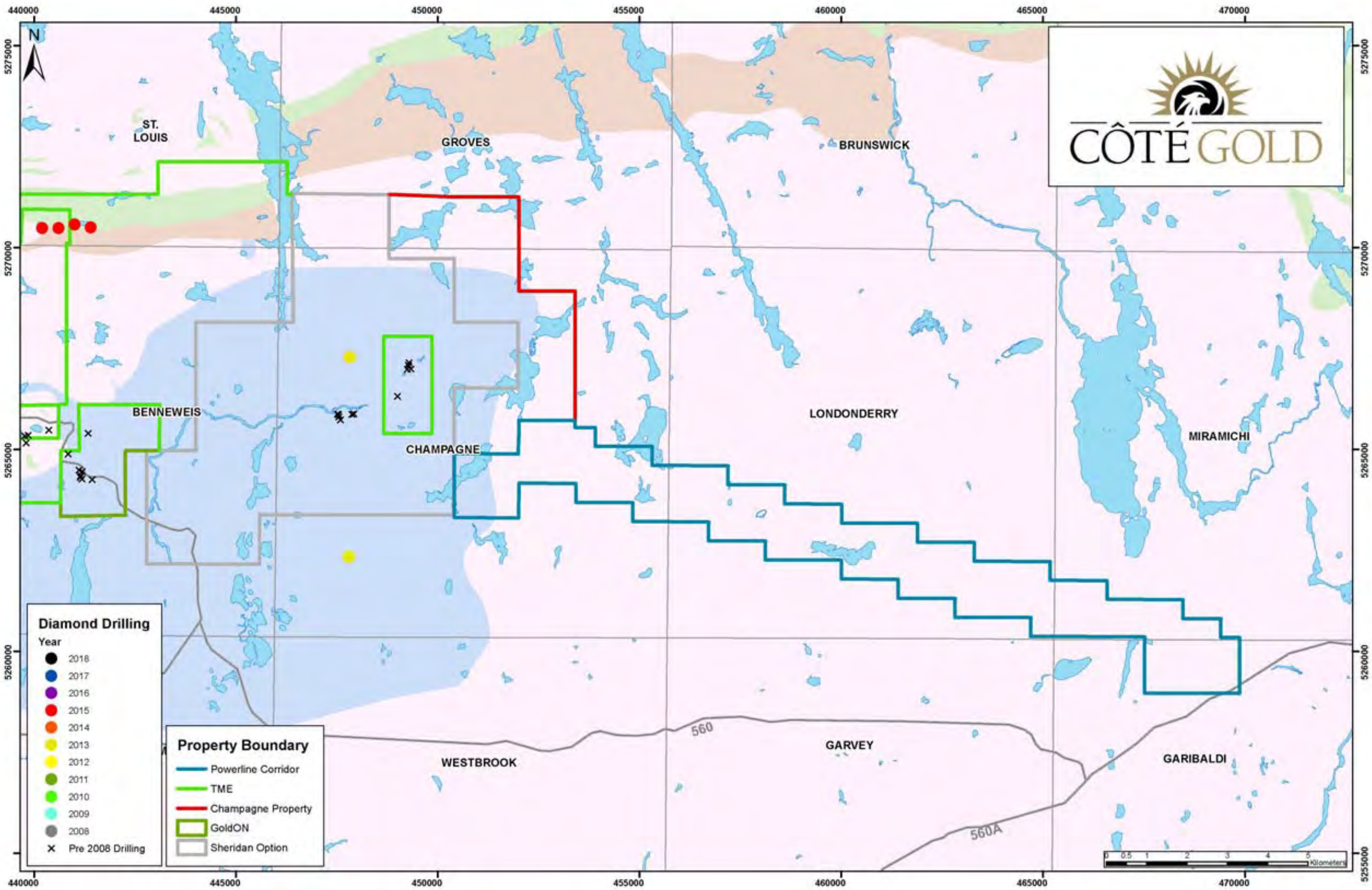
Note: Figure prepared by IAMGOLD, 2018.

Figure 10-3: Chester Drill Collar Location Plan (central area)



Note: Figure prepared by IAMGOLD, 2018.

Figure 10-4: South Swayze East Drill Collar Location Plan (eastern area)



Note: Figure prepared by IAMGOLD, 2018.

Table 10-3: Côté Gold Drill Contractors

Year	Purpose	Contractor
2010–2011	Infill; delineation	Ronkor Diamond Drilling Ltd., Sudbury, Ontario Marathon Drilling Company Ltd., Greely, Ontario Bradley Brothers Limited, Rouyn-Noranda, Quebec Landdrill International Inc., Moncton, New Brunswick Summit Drilling, Sudbury, Ontario.
2012	Condemnation	Chenier Drilling, Val Caron, Ontario
2013	Infill	Chenier Drilling, Val Caron, Ontario
2014–2015	Infill	Chibougameau Drilling, Chibougameau, Québec
2017–2018	Infill; condemnation	Norex Drilling, Timmins, Ontario

10.2.3 Recovery

The gold mineralization at the Côté Gold Project is mostly hosted by tonalite, diorite, and breccias. The mineralized and barren core is very competent, except for very local, multiple metre-length intervals of blocky core where minor faults are encountered. One larger fault has been encountered in the western portion of the Côté Gold deposit with true widths varying from 5 m to 10 m.

The Côté Gold database has core recovery measurements for 179 Trelawney drill holes and 423 IAMGOLD drill holes. Core recovery is generally good at 98.81%.

Overall, the core recovery from the 2009–2018 programs was approximately 99%.

10.2.4 Collar Surveys

The collar azimuths for pre-2017 holes were established using front and back site markers located in the field with compass or global positioning system (GPS) instruments. The collars are subsequently re-surveyed post-drilling.

L. Labelle Surveys based in Timmins Ontario has been responsible for collecting the survey measurements for the Côté Gold Project since 2009.

10.2.5 Downhole Surveys

IAMGOLD reports a FlexIT SmartTool instrument was used to collect down hole survey measurements for keyindex holes drilled between 2009 and 2013. The SmartTool contains triaxial accelerometers and magnetometers and is capable of single and multishot downhole measurements. The SmartTool records an azimuth to magnetic north for each measurement. This azimuth combined with the local magnetic declination values allow correction to true north coordinates. The measurements were collected in single shot mode at approximately 50 m down-hole intervals.

The 2010–2011 holes drilled by Bradley Brothers Limited were surveyed with a Flexit instrument in multishot mode, taking measurements of dip and azimuth at 50 m intervals down the hole.

A Reflex EZ-TRAC tool was used to collect down hole survey measurements for holes drilled between 2014 and 2018. The EZ-TRAC tool is a magnetic and gravimetric instrument with three fluxgate magnetometers to measure the local geomagnetic field and provide the azimuth relative to magnetic north. The measurements at the Côté Gold deposit were collected in multi-shot mode at 3 m down-hole intervals.

Collar azimuth and dip measurements for holes E14-420 to E17-537 were collected by geologists using a Reflex APS (Azimuth Pointing System) tool. The Reflex APS is a GPS-based tool that is not affected by local magnetic interference. Drillers measured collar azimuth and dip measurements for holes drilled after E17-537 using a Reflex TN14 tool. The Reflex TN14 is a gyroscopic tool that is also not affected by local magnetic interference.

10.2.6 Definition Drilling

From December 2009 to September 2011, Trelawney completed a total of 129 core drill holes on the Côté Gold deposit (65,699 m). This program was used to delineate deposit extents and supported Mineral Resource estimation.

Between September 2011 and June 2012, 79 additional core holes (44,856 m) of infill drilling were completed; these data were used to support an updated Mineral Resource estimate.

Infill drilling continued from late 2012 to July 2014 to further delineate the Côté Gold deposit, adding 190 definition drill holes (263,247 m). All definition drilling performed between 2012 and 2014 was inside the then-proposed conceptual pit shell area aiming to achieve a 50 m drilling pattern. A drilling pattern of 25 m was completed inside a small area of 200 m x 200 m to test the short-range geological and grade continuity. Approximately 19,000 m of oriented NQ core was drilled in 2014.

The 2015 drilling campaign was completed by March 2015 and comprised 5,082 m of oriented diamond drill core. The program was intended to fill some gaps and aid the interpretation, resulting in a 50 m drill spacing all over the study zone.

No drilling was conducted in 2016.

The 2017–2018 drilling campaign was initiated in September 2017 and completed by March 2018. It consisted of 208 core drill holes (40,395 m). A 50 m centred drilling pattern was achieved over the bulk of the mineralisation within the conceptual pit shell outline at Year 3 in the pre-feasibility study design. Additionally, a 100 m x 100 m area was drilled at a 25 m drilling pattern, including a 25 m x 25 m area drilled at a 12.5 m drilling pattern. Areas outside the bulk of the mineralisation were also targeted at a 50 m drill pattern.

10.2.7 Condemnation Drilling

Between February 2012 and April 2012, Trelawney completed eight drill holes (1,678 m) north of the Côté Gold deposit within Neville township. This campaign targeted potential MRA and TMF locations.

Throughout the condemnation drilling program, Chenier Drilling from Val Caron, Ontario, was the sole drilling contractor. An LC 3000 drilling rig was used, with the major criterion being the ability to drill to a depth of 300 m using BQTW drill rods. The holes were cased northwest into bedrock and drilled at BQTW size to depth. The holes were sited on a grid and collar sites surveyed by differential GPS instrument.

Holes drilled by Chenier Drilling were surveyed with a Reflex instrument in multi-shot mode, taking measurements of dip and azimuth at 50 m intervals down the hole. All holes were drilled on land, with the casing left in place and capped.

The 2017–2018 drill campaign added 26 condemnation core drill holes (7,757 m). These drill holes targeted the planned TMF area, the proposed mill site, the anticipated ore and overburden stockpile locations and the MRA. All 2017–2018 condemnation drilling was conducted by Norex drilling. All drill holes are NQ in size.

10.2.8 Metallurgical/Geotechnical Drilling

From June 2012 to July 2012, Trelawney drilled six geotechnical (3,858 m) holes in various locations within the conceptual pit shell. The core was processed by Knight Piésold Engineering and Environmental Services, North Bay, Ontario and was also sent for metallurgical testing. This drilling campaign was focused on gathering structural information for open pit construction and design. The IAMGOLD exploration team completed core logging and incorporated the logging information into the database.

From August to September 2013, IAMGOLD completed seven metallurgical (1,185.5 m) drill holes in various locations within the conceptual pit shell of the Côté Gold deposit.

In July and August 2014, four core holes were completed by IAMGOLD and logged by Golder Associates Ltd. (Golder) on site. In 2014, a total of 1,404 m of HQ drill core was drilled targeting the wall of the then pit shell.

In November and December 2016, six HQ size holes (1,422 m) were drilled by Norex Drilling as part of a metallurgical testing program. Two of the drill holes twinned previous metallurgical holes such that the effect of core aging could be assessed. IAMGOLD personnel logged and sampled the core.

10.2.9 Sample Length/True Thickness

Figure 10-5 shows a plan view of the drilling in relation to the major geological units. Figure 10-6 is a long-section through the deposit. Figure 10-7 and Figure 10-8are cross-sections through the mineralization.

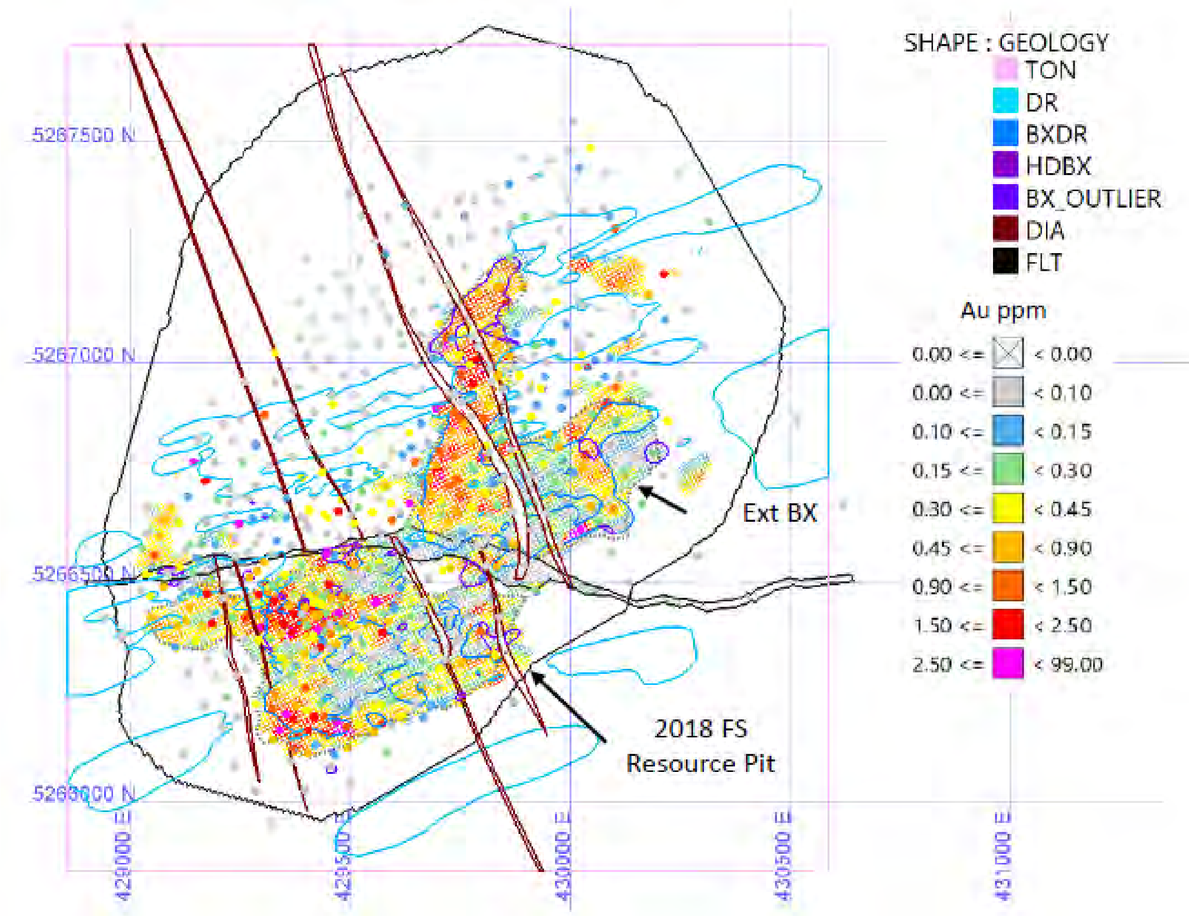
Drilling is normally oriented perpendicular to the strike of the mineralization. Depending on the dip of the drill hole and the dip of the mineralization, drill intercept widths are typically greater than true widths.

10.3 Exploration Drilling

10.3.1 Drill Methods

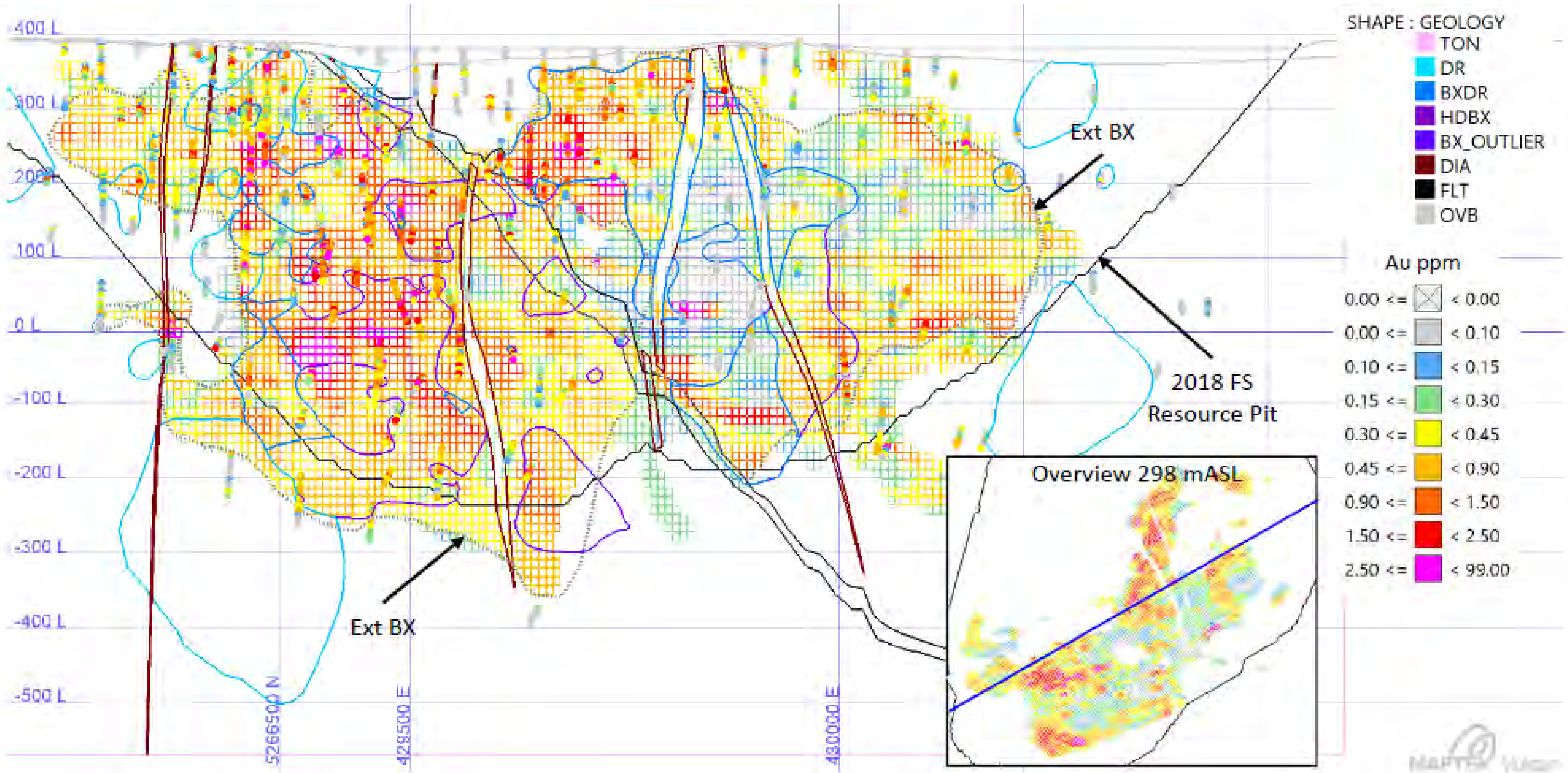
Diamond drilling methods employed for Exploration drilling remained the same as those employed in Côte Gold deposit drilling. The most commonly-drilled core size was NQ, and drill rigs employed wireline systems and generally oriented-core drilling techniques.

Figure 10-5: Plan View, Elevation 298 masl



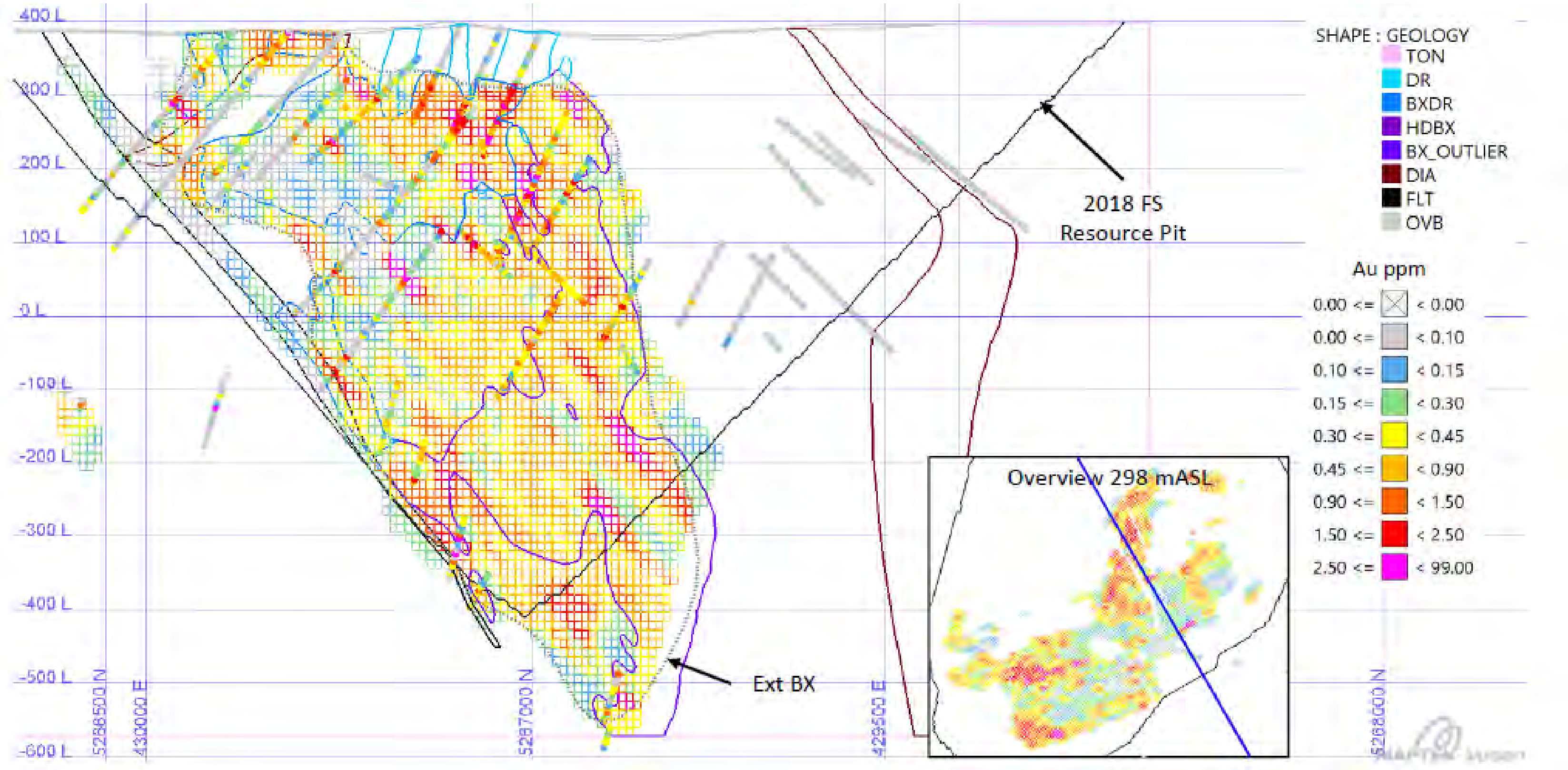
Note: Figure prepared by Wood, 2018. Geological abbreviations: TON = Tonalite; DR = Diorite; BXDR = Diorite Breccia; HDBX = Hydrothermal Breccia; BX_OUTLIER = Breccia; DIA = Diabase Dyke; FLT = Fault Zone; OVB = Overburden. Lower legend is gold grade in g/t Au.

Figure 10-6: Long Section



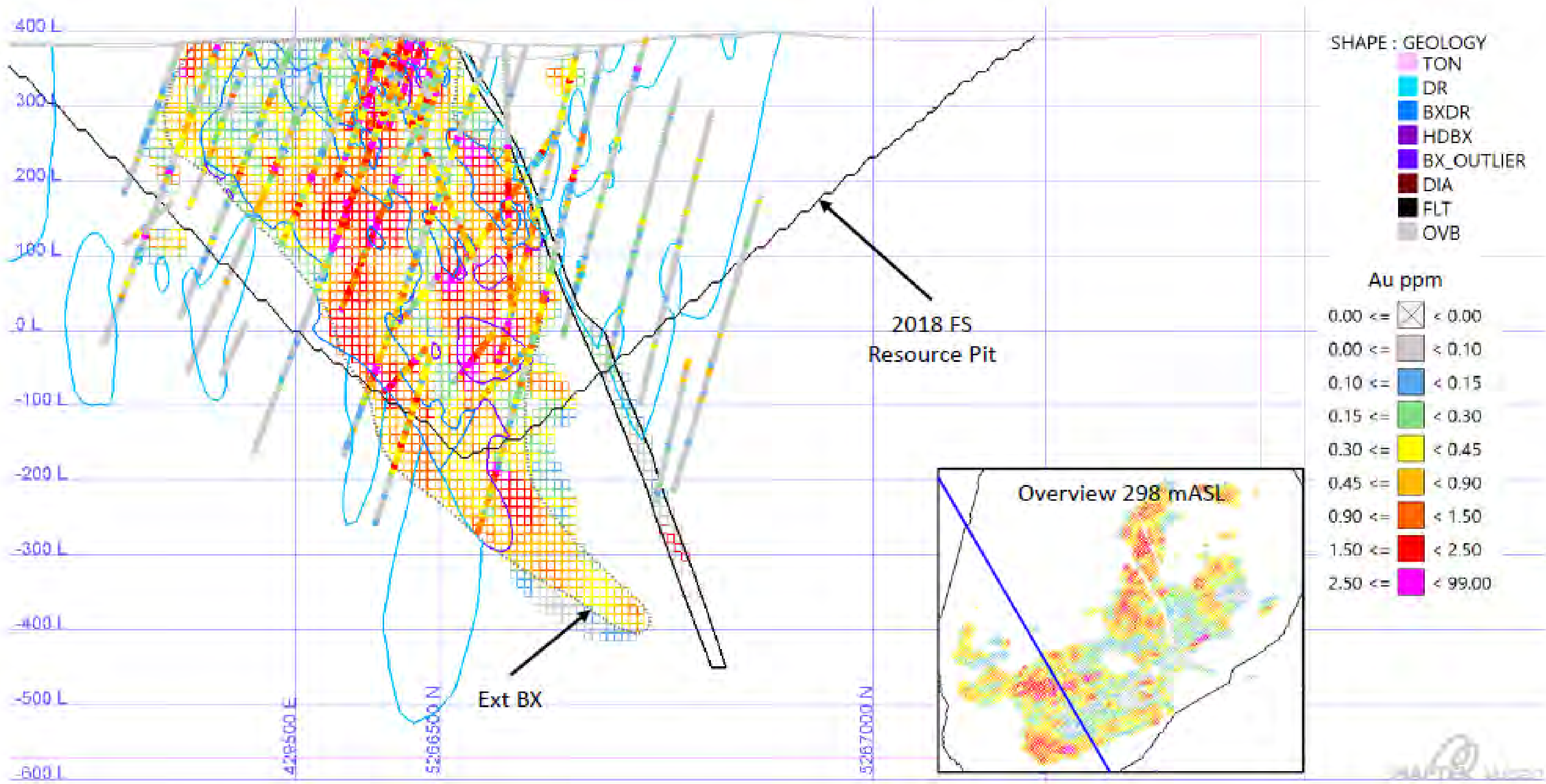
Note: Figure prepared by Wood, 2018. Figure is parallel to the block model and looks northwest. Geological abbreviations: TON = Tonalite; DR = Diorite; BXDR = Diorite Breccia; HDBX = Hydrothermal Breccia; BX_OUTLIER = Breccia; DIA = Diabase Dyke; FLT = Fault Zone; OVB = Overburden. Lower legend is gold grade in g/t Au.

Figure 10-7: North Zone Cross Section



Note: Figure prepared by Wood, 2018. Figure is parallel to the block model, through the north breccia units, and looks southwest. Geological abbreviations: TON = Tonalite; DR = Diorite; BXDR = Diorite Breccia; HDBX = Hydrothermal Breccia; BX_OUTLIER = Breccia; DIA = Diabase Dyke; FLT = Fault Zone; OVB = Overburden. Lower legend is gold grade in g/t Au.

Figure 10-8: South Zone Cross Section



Note: Figure prepared by Wood, 2018. Figure is parallel to the block model, through the south breccia units, and looks southwest. Geological abbreviations: TON = Tonalite; DR = Diorite; BXDR = Diorite Breccia; HDBX = Hydrothermal Breccia; BX_OUTLIER = Breccia; DIA = Diabase Dyke; FLT = Fault Zone; OVB = Overburden. Lower legend is gold grade in g/t Au.

10.3.2 Logging Procedures

Drill core logging procedures and all aspects of drill core handling (including chain-of-custody), core cutting and sampling were the same as those employed for the Côte Gold deposit drilling.

10.3.3 Recovery

Drill core recovery for exploration drilling in general is very high, reaching 99% for drilling in the Chester Intrusive Complex. For areas outside of the CIC in volcanic and sedimentary lithologies, recoveries are slightly lower but remain high and are estimated at between 95–99%.

10.3.4 Collar Surveys

Drill collars for the exploration drill programs are spotted by GPS by the field Geologists. Collars are surveyed by differential GPS upon completion of the drill hole.

10.3.5 Downhole Surveys

Downhole survey measurements employ the identical techniques used in Côte Gold deposit drilling, with both REFLEX EZ-TRAC single-shot readings at fixed intervals as the drill hole progresses, followed by Multi-shot REFLEX EZ-TRAC readings at the culmination of drilling. Instruments are rented from Reflex Instruments NA.

10.3.6 Sample Length/True Thickness

Sample intervals are reported both as sample (core) length and estimated true length.

10.3.7 Comments on Section 10

In the opinion of the QP, the quantity and quality of the lithological, collar and down-hole survey data collected in the exploration and infill drill programs completed at the Côte Gold deposit are acceptable to support Mineral Resource estimation.

11.0 SAMPLE PREPARATION, ANALYSES, AND SECURITY

11.1 Sampling Methods

The sampling interval was established by minimum or maximum sampling lengths determined by geological and/or structural criteria. The minimum sampling length was 50 cm, while the maximum was 1.5 m. The typical sample length in most of the mineralized zones is 1 m.

Sample intervals were tagged using a procedure requiring the geologist to clearly mark the start and end of each sample on the core with a grease pencil. The geologist or geological technician transferred all sample intervals to a sample book. Each page in the sample book represented a unique number with two identical sample tags. The borehole number and sample interval were transferred to one of the tags and recorded in the logs. One tag was placed in a plastic sample bag with the sample and the second was stapled in the core box beneath the representative half sample. This method of recording sample numbers was a quality control (QC) measure that ensured that the proper sample tag was inserted into the correct sample bag. During this procedure, the location for the insertion of standards and blanks into the sample sequence was noted.

IAMGOLD personnel sawed and sampled the entire length of a drill hole. Diabase dykes that occur within the sequence were not sampled except for two 1 m shoulder samples at the upper and lower contacts of the dyke. Prior to sawing, geotechnicians oriented the core for cutting to mitigate biased sampling procedures. For oriented core, the orientation line is used as the cut line. Sawn core was placed in the core box with the cut facing up and the top half of the core was sent for assay.

Samples and inserted quality assurance/quality control (QA/QC) samples were tagged and sealed in plastic bags, which were put into rice bags and sealed with security tags. The sealed rice bags were placed on pallets in a secure area of the camp. Personnel from Gardewine Transport or Manitoulin Transport collected the bagged samples from the IAMGOLD camp once or twice a week and delivered them to the primary laboratory (Accurassay until 2014, ActLabs from 2015 onward).

11.2 Density Determinations

Historically, density measurements were obtained using the immersion method from 2009 to 2012. For 2014 and 2015, density was measured on pulps at ActLabs using a pycnometer. In 2018, additional measurement by water immersion and a comparison between historical pycnometer and water immersion method was completed in order to validate the best method to be used for SG measurement. Lacquer-sealed and uncoated water immersion pair measurements were also completed in 2018.

It was demonstrated that there is little to no correlation between the pycnometer measurement over a selected sample interval and the average density measurement on three pieces of core using water immersion method over the same corresponding interval. Therefore, it was decided that SG measurements obtained using the pycnometer method should not be mixed with SG measurements obtained by water immersion in the Côté density database.

The water immersion and lacquer-sealed water immersion pair measurements compare well indicating minimal bias in the uncoated water immersion measurements.

The water immersion testing procedure involves two mass measurements; one in air, and the other while the sample is submerged in water. The procedure was executed according to the following steps:

- Dry the samples for a 24 hour period.
- Set up the balance and ensure it is both level and zeroed.
- Measure the mass of the sample in air. Make sure the balance is zeroed between samples.
- Measure the mass of the sample while submerged in water using the bottom-loading feature on the balance. Be sure to note the water temperature prior to each measurement.
- Calculate the volume of the sample. This is done by determining the difference in mass between the 'in air' and the submerged measurements. The difference in mass is equal to the volume of the sample assuming that the water has a density of 1t/m3.
- Calculate the bulk density of the sample by dividing the mass in air by the calculated volume.

11.3 Analytical and Test Laboratories

The primary laboratories used were:

- Accurassay (2011–2015), Timmins, Thunder Bay, (Ontario), accredited to ISO 17025 by the Standards Council of Canada, Scope of Accreditation 434
- ActLabs (2015–2018), Ancaster, Dryden, Timmins, Thunder Bay (Ontario), accredited to ISO 17025 by the Standards Council of Canada, Scope of Accreditation 266

Both laboratories are independent of IAMGOLD.

The umpire laboratories included:

- ActLabs (2012–2014): accredited to ISO 17025 by the Standards Council of Canada, Scope of Accreditation 266
- ALS Minerals (ALS), Val d'Or, Quebec (2015): accredited to ISO 17025 by the Standards Council of Canada, Scope of Accreditation 689.
- AGAT (2017–2018), Mississauga, Ontario, accredited to ISO 17025 by the Standards Council of Canada, Scope of Accreditation 665.

These laboratories are all independent of IAMGOLD.

11.4 Sample Preparation and Analysis

Sample preparation and analysis at Accurassay comprised:

- Samples were crushed to -8 mesh after which a 1,000 g subset of each sample was pulverized to 90% passing -150 mesh
- Assays were completed using a standard fire assay (FA) with a 30 g aliquot and an atomic absorption (AA) finish
- For samples that returned values of 2–5 g/t Au, another pulp was taken, and fire assayed with a gravimetric (FA-gravimetric) finish
- Samples returning values >5 g/t Au were reanalyzed by pulp metallic analysis
- All samples were subject to a 33-element inductively-coupled plasma (ICP) scan, using Accurassay procedure ICP 580.

Sample preparation and analysis at Actlabs until 2018 consisted of:

- Samples were crushed to 10 mesh after which a 1,000 g subset of each sample was pulverized to 85% passing 200 mesh.
- Assays were completed using a standard FA with a 30 g aliquot and an AA finish

- For samples that return values between 2–5 g/t Au, another pulp was taken and assayed using the FA-gravimetric method
- Samples returning values >5 g/t Au were reanalyzed by pulp screen metallic analysis.

In 2017, the procedure changed to the protocols outlined in Figure 11-1, and included:

- Sample preparation consisted of coarse crushing to 95% passing 2.8 mm screen (7 mesh screen), and then a 750–850 g split was pulverized to 95% passing 100 mesh (150 µm). The entire sample had to be crushed
- Samples analyzed using a standard 50 g fire assay (50 g aliquot) with an AA finish
- For samples that returned assay values >2.0 g/t, another cut was taken from the original pulp and subjected to FA-gravimetric analysis.
- For samples showing visible gold or samples which returned values >20.0 g/t; a reanalysis using pulp metallic methods had to undertaken. A second pulp (900–1,000 g) was created from the reject. However, flagged visible gold samples still had to go through the entire assay process.

Umpire analysis at ALS and AGAT consisted of:

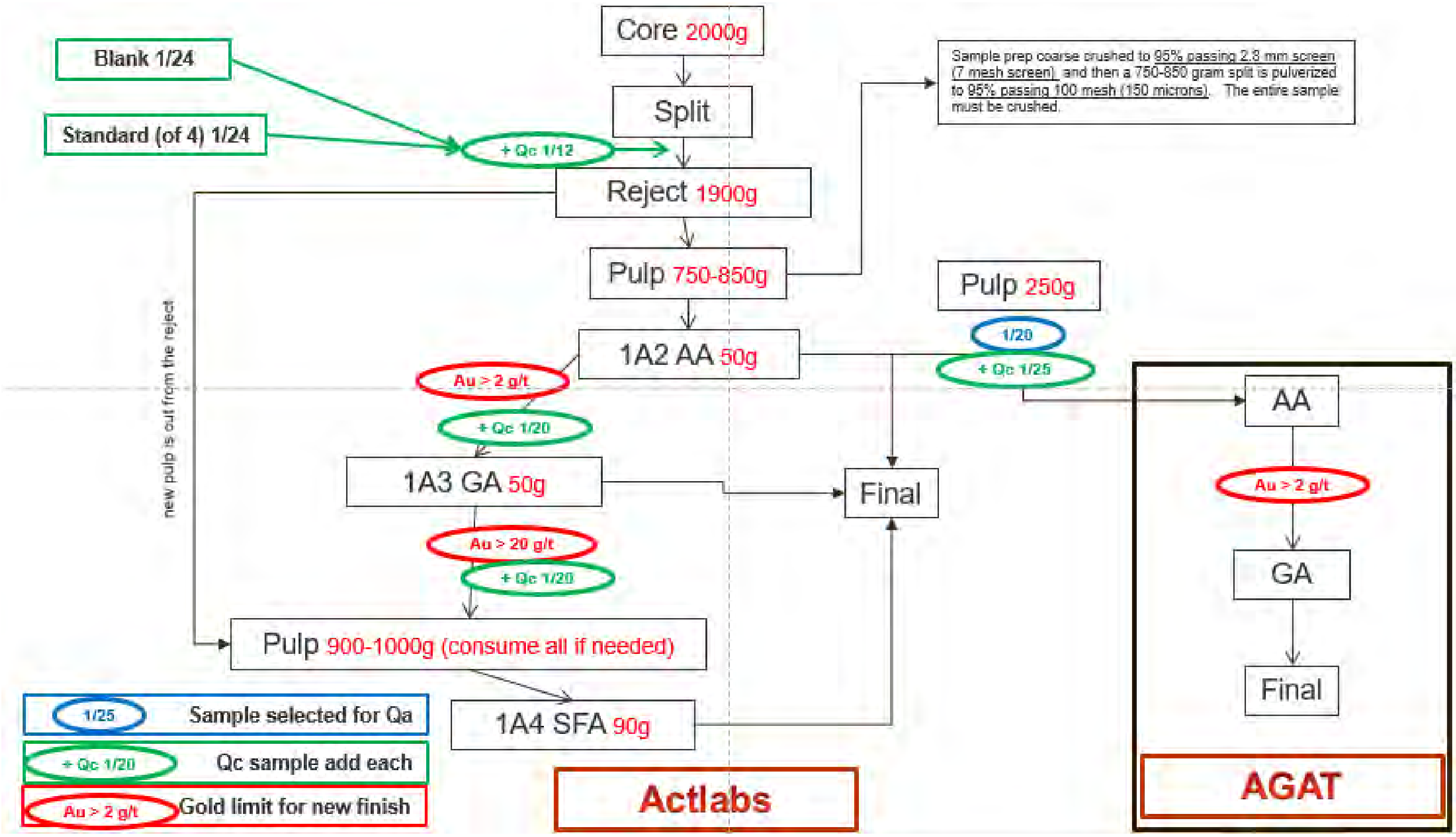
- Initial analysis using the FA-AA method
- Overlimits assays using the FA-gravimetric method.

11.5 Quality Assurance and Quality Control

QA/QC insertion included standard reference materials (SRMs), blanks and pulp duplicates as a standard procedure. IAMGOLD inserted control samples after every 12th sample interval. Over the Project life, about 23 different SRMs and two blanks have been used.

The following subsections outline the results of evaluations undertaken on the control data since the discovery of the Côté Gold deposit.

Figure 11-1: Actlab Protocols 2017 To Date



Note: Figure courtesy IAMGOLD, 2018.

11.5.1 SRMs

Roscoe Postle Associates Inc, 2011

Seven OREAS gold standards ranging from 0.527 g/t Au to 7.15 g/t Au were acquired from Analytical Solutions Ltd. (Analytical Solutions) of Mulmur, Ontario.

RPA compiled and plotted SRM data from the 2011 Côté Gold deposit drilling program. In all cases, the average of the SRM analyses completed at Accurassay was lower than the certified SRM value and, in the case of five of the seven SRMs, the average value was less than the lowest individual mean value of the laboratories used in the testing to establish the SRM statistics. In addition, the Trelawney SRM analyses generally exhibited a considerable data spread.

All SRMs were analyzed by the FA-AA method at Accurassay. RPA recommended that the SRM analyses be consistent with the core sample analyses and what is used in the database; for example, if the SRM accepted value is <2 g/t Au, use the FA-AA analytical method and if the accepted value is >2 g/t Au, use the FA-gravimetric method. In conjunction with a full assessment of the QA/QC basis, RPA recommended that an apparent low bias in the SRM data be evaluated.

11.5.2 Roscoe Postle Associates Inc, 2012

For the 2012 program, IAMGOLD acquired nine SRMs from Analytical Solutions, which ranged from 0.116–8.79 g/t Au. During 2012 and 2013, IAMGOLD used about 16 different SRMs with gold values ranging from 0.334 g/t to 8.79 g/t.

IAMGOLD, 2015

Following recommendations made in RPA's 2012 report, IAMGOLD performed a follow-up on the QA/QC since 2013. A change of laboratory was made in 2015 to support a comparison between laboratories.

Overall, 4.2% of CRMs failed in 2015, out of 473 CRMs sent to the laboratory. Since 2014, follow-up on the laboratory has been undertaken on a bi-monthly basis, which allows for a better control on the final QA/QC.

Wood, 2018

Wood confirmed that the assay grade ranges within the SRMs used in 2017–2018 were acceptable.

Before 2015, a total of 11,332 SRMs were inserted in the sample stream, with an overall percentage of SRM samples passing quality control of 86%. In general, the IAMGOLD SRM analyses exhibit considerable spread of data. Of the 1,544 outliers, 349 were categorized as gross outliers and may represent SRM miss-identifications. It is impossible to clearly identify the source of error for the failed assays prior to 2014. The standard deviation recorded during those campaigns shows more dispersion than expected. Overall, SRM assay results do not appear to show a specific bias or any specific trend. The overall SRM performance from 2009–2015 is summarized in Figure 11-2.

11.5.3 Blanks

The IAMGOLD QA/QC protocol includes the use of blanks inserted in the sample stream at a frequency of approximately one in 24 samples. These blanks are assigned regular sample numbers and inserted in the sample numbering sequence prior to shipment to the laboratory. Until 2014, the blanks consisted of barren diabase, then both barren diabase and commercially-acquired silica blanks were used.

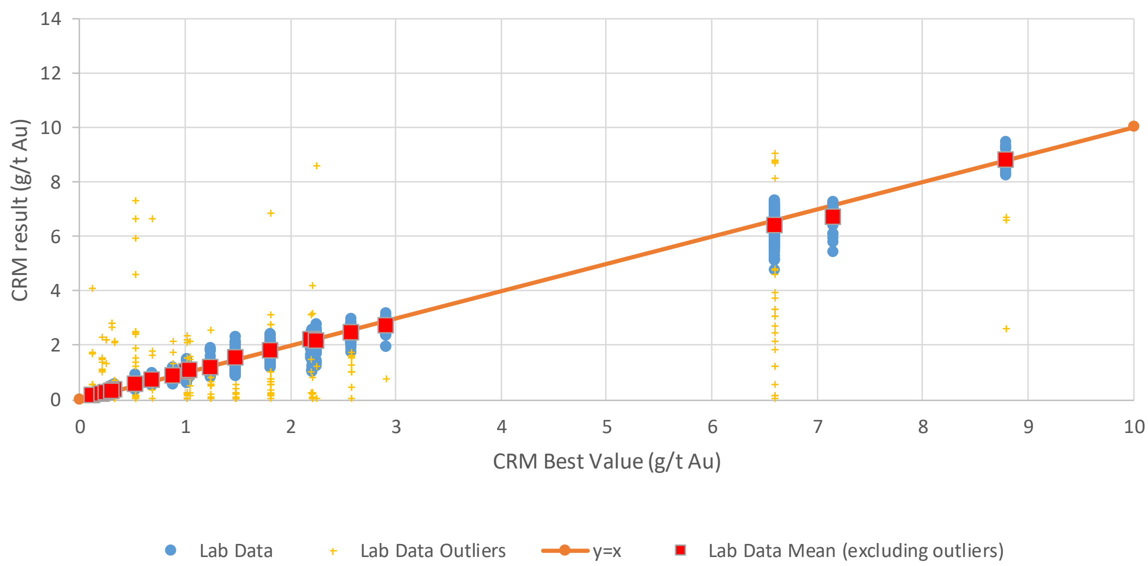
Roscoe Postle Associates Inc, 2011

Graphically, the analyses of the diabase blanks were described as falling into three groups:

- Analyses that returned less than detection limit values
- Analyses that over time had grades greater than the lower detection limit and generally <0.015 g/t Au
- Analyses that were >0.015 g/t Au and <0.1 g/t Au.

Of the 1,066 analyses of diabase blanks there were six samples with gold >0.1 g/t. The majority of the blank analyses were below an assumed upper control limit (UCL) of 0.015 g/t Au.

Figure 11-2: 2009–2015 SRM Results



Note: Figure prepared by Wood, 2018. CRM = SRM.

The diabase used as blank samples was from the Côté Lake drill holes. In the drill hole database, there were 216 samples of diabase. The average of all diabase samples in the database was 0.051 g/t Au with a maximum of 1.08 g/t Au and minimum analyses of <0.05 g/t Au. The average grade of all samples where gold was above the detection limit was 0.062 g/t Au. Diabase intrusion postdates emplacement of gold mineralization and, although Trelawney endeavored to sample only inclusion-free and even-textured diabase, the few samples that are above the UCL may be indicative of assimilation of pre-existing gold mineralization, given that the majority are below the UCL.

RPA recommended that Trelawney use an alternative to the diabase as blanks and that Trelawney independently test the selected material for Au content. RPA concurred with the frequency of use of the blanks but recommended that the blanks be inserted within, and immediately downstream of, clearly gold-mineralized core samples.

Roscoe Postle Associates Inc, 2012

In 2012, RPA received the results from 1,615 analyses of diabase blanks and 147 from standard silica blanks. The assay was considered a failure if the value was higher than the average plus two standard deviations.

In total, there were 18 failures for gold, 11 of which were in the diabase blanks (0.68%), and seven in the silica blanks (4.76%). Although the impact of these blank failures was considered to be of little consequence due to the low grades reported, they did indicate that minor sample contamination problems may exist. The higher percentage of failures in the silica blank may be due to the small number of silica blanks used. RPA recommended close monitoring of these blank results on a batch-by-batch basis.

Wood, 2018

Figure 11-3 shows all the blank results in the Côté Gold database. Overall, 99.5% of the blank results are under 0.1 g/t Au, which is the IAMGOLD maximum threshold. An improvement can be seen starting in 2014.

Overall, the blank results are acceptable and show no significant contamination from sample to sample during the preparation.

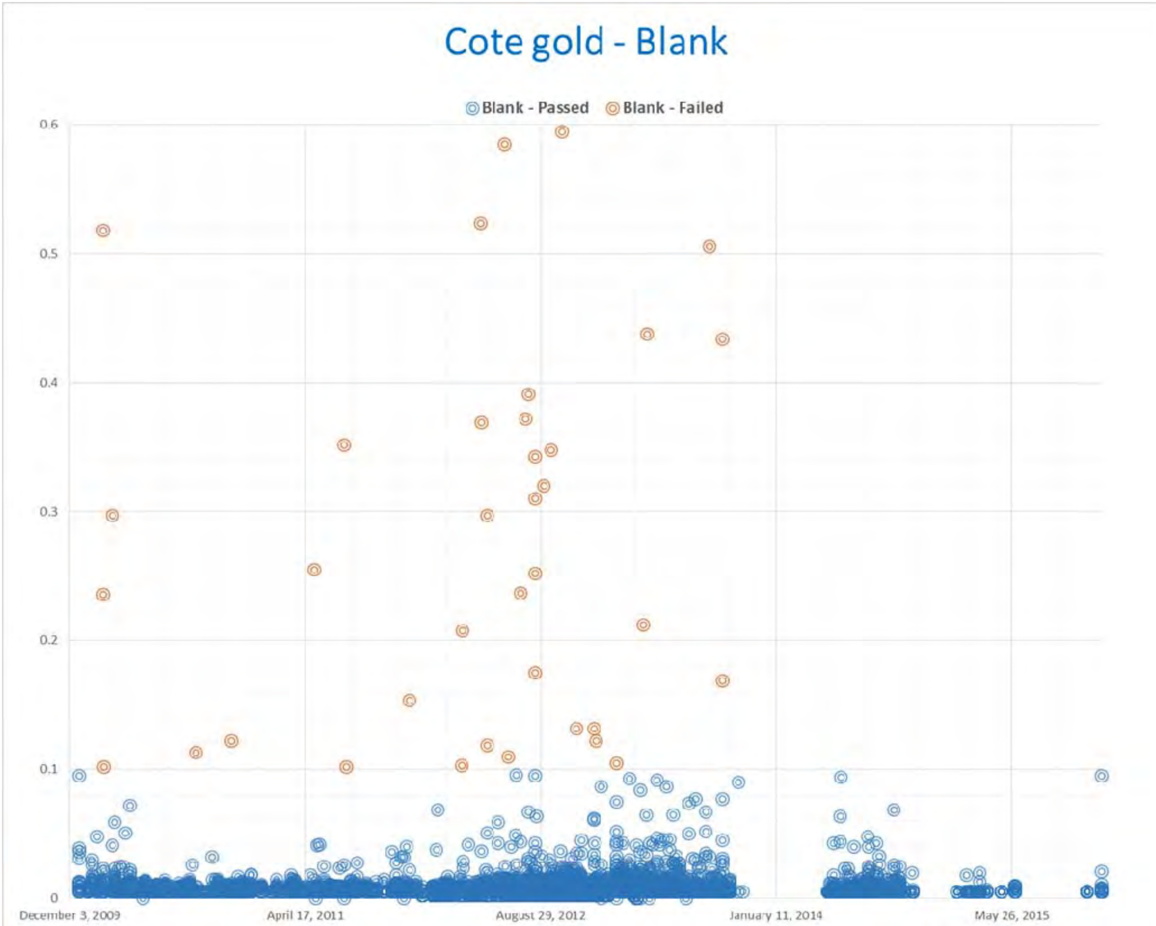
11.5.4 Check Assays

Roscoe Postle Associates Inc, 2011

RPA plotted the repeat data completed at SGS and compared it with the original assays from Accurassay. For the FA-AA data, the best-fit regression line had a coefficient of determination of 0.757. There were a limited number of FA-gravimetric checks which had a coefficient of determination of 0.853.

RPA recommended that Trelawney complete a minimum of 5% check assays on an ongoing basis as part of the QA/QC program. RPA also recommended that the number of check assays completed by FA-gravimetric method be increased to provide an initial baseline.

Figure 11-3: Blank Assay Results



Note: Figure prepared by Wood, 2018.

Roscoe Postle Associates Inc, 2012

Trelawney sent 1,044 pulp samples to ActLabs for check assay. In general, at higher grades, the results from the checks were higher than the results from the primary laboratory (Accurassay).

IAMGOLD, 2014–2015

Trelawney and IAMGOLD sent 9,772 pulp samples to ActLabs for check assay prior to 2014. In general, at higher grades, the results from the checks were slightly higher than the results from the primary laboratory (Accurassay). This shows bias between the two laboratories and the repeatability on pulps is relatively poor. Checks assays sent to ActLabs returned grades that appear to be approximately 10% higher than Accurassay.

In 2015, 921 pulp samples were sent to ALS Minerals for check assay. Correlation between both laboratories was considered to be good overall. Repeatability in 2015 was better than in the previous campaign. The low precision was considered to be associated with coarse gold particles.

Wood, 2018

In the absence of IAMGOLD sample duplicates, Actlab duplicates were assessed for precision using average relatedness density (ARD) and maximum/minimum (max/min) charts. Wood concluded that:

- The precision achieved for grades >20 times the detection limit (5 x 20 = 100 ppb) are reasonable
- The FA-AA results are likely to meet internal Actlabs precision requirements.

11.5.5 Heterogeneity Test

Agorateck International Consultants Inc. (AICI) reviewed the QA/QC data (AICI, 2016) and ran an ore heterogeneity test (AICI, 2017).

QA/QC Review

The QA/QC review analyzed the data generated throughout the various stages of the Côté Gold project. Based on check assays ran at ActLabs and Accurassay, the difference between ActLabs and Accurassay went from positive to negative, increasing in amplitude from 2011 to 2015. SRM samples confirmed the Accurassay change from slightly lower to higher values. The precision obtained from pulp duplicates was well related to gold particle size, in line with the findings of the heterogeneity study. The performance of the laboratories improved over time, as the control on the laboratories increased.

Heterogeneity Test

The reproducibility of the duplicate pulp samples was evaluated to compare sampling difficulty in four areas, which included:

- Inside South Breccia

- Outside South Breccia
- Inside North Breccia
- Outside North Breccia.

This step indicated that the analytical reproducibility within the breccia area warranted further study.

The gold liberation sizes from the available assay duplicate data were plotted to form a liberation curve. Visual observations of gold grains in core with the maximum size measurable on photos were plotted in addition. Gold appeared to progressively increase from very fine at low grades to the 2,000 µm range at high grades, with small inflexions that may or may not indicate mixed mineral populations.

Nomograms were prepared to describe the current core sample preparation in the worst sampling conditions, and more favourable core sampling conditions.

Overall, the heterogeneity study concluded that in order to bring the sampling precision within acceptable limits (32% maximum) and avoid grade under-reporting, an optimized sampling protocol should include:

- 15 kg primary field sample crushed to a P95 estimated at 2.55 mm
- A 1.5 kg split pulverized to 150 µm
- Use of a 50 g assay charge.

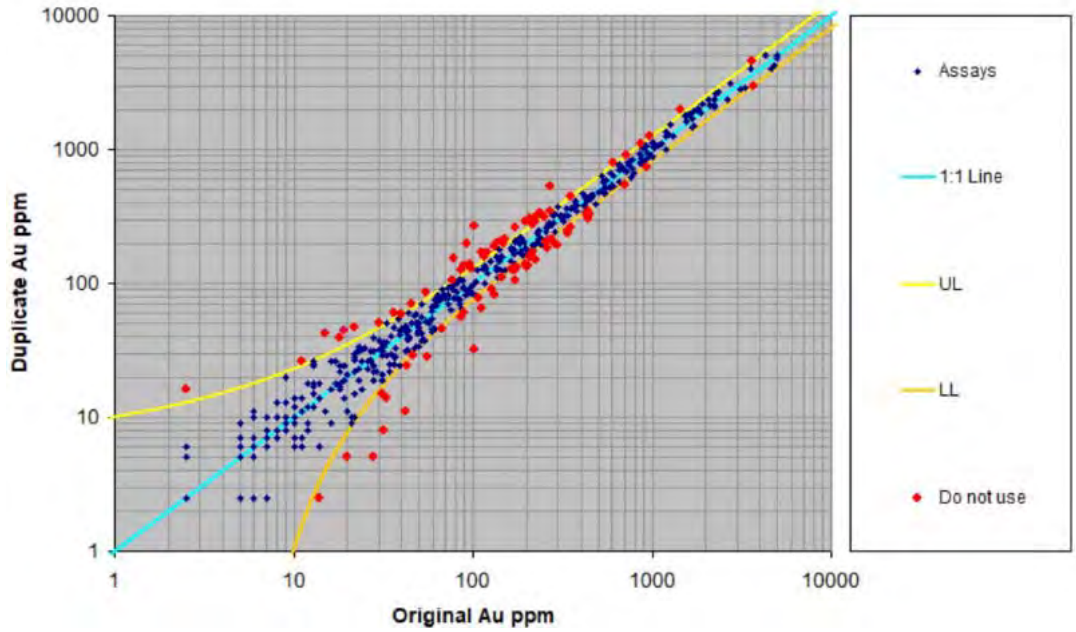
Pulp Duplicate Test

A set of coarse duplicate sample assays, collected since the heterogeneity study was undertaken, was made available to AICI. These samples were processed to compare the corresponding experimental sample precision to that predicted from the heterogeneity parameters.

The outcome (Figure 11-4) was considered to be excellent, with results of 16.8% (actual) versus 15.5% (predicted).

AICI considered that as a large part of the heterogeneity parameters relied on pulp duplicates, this match to the predicted average precision of a full set of coarse duplicates validated the heterogeneity study recommendations.

Figure 11-4: Coarse Duplicate Check on Heterogeneity



Note: Figure prepared by AICI, 2017. UL = upper limit; LL = lower limit.

11.6 Databases

Pre-2017 drill hole data previously stored in a Gems database was moved to acQuire. All new drill hole collars are provided by surveyors and imported into Gems and subsequently transferred to acQuire. All new logging is recorded directly into a Gems database and subsequently transferred to acQuire. All new assay results are imported directly into acQuire. Those assays are subsequently transferred to the Gems database.

11.7 Sample Security

Analytical samples are transported by company or laboratory personnel using corporately owned vehicles. Core boxes and samples are stored in safe, controlled areas.

Chain-of-custody procedures are followed whenever samples are moved between locations, to and from the laboratory, by filling out sample submittal forms.

11.8 Sample Storage

Drill core is stored at the property in wooden core boxes under open-sided roofed structures, arranged by year. A map of the core shack is available on site. Boxes are labelled with the hole number, box sequence number, and the interval in metres. Almost all boxes are labelled with an aluminum tag. All rejects and pulps from the laboratory are also stored on site. Pulps are categorized by batch number and are stored inside sea containers. Rejects are stored inside plastic crates under temporary shelter.

11.9 Comments on Section 11

Sample collection, preparation, analysis and security for drill programs conducted on the Côté Gold deposit since 2009 are in line with industry-standard methods for gold porphyry deposits.

Specific gravity data are measured from core samples using the water displacement method. There are sufficient estimates to support tonnage estimates for the various lithologies.

Drill programs included insertion of blank, duplicate and SRM samples.

QA/QC program results do not indicate any problems with the analytical programs (refer to discussion in Section 12).

The QP is of the opinion that the quality of the analytical data is sufficiently reliable to support Mineral Resource estimation without limitations on Mineral Resource confidence categories.

12.0 DATA VERIFICATION

12.1 Internal Data Verification

Internal data verification was performed by IAMGOLD staff over the Project history, and included:

- Exploration data reviews, including exploration information, geological mapping, geological interpretations
- Drill collar position checks
- Downhole survey data reviews
- Examination of drill logging
- Review of sampling procedures
- Assay data checks.

Errors found in the database were reported to the database administrator and material errors were corrected as needed. Occasional inconsistencies found in the drill logs were addressed. Inconsistent sampling practices, with some samples crossing obvious contacts or lithological and mineralization limits were noted.

12.2 External Data Verification

12.2.1 Roscoe Postle Associates Inc, 2012

Roscoe Postle Associates Inc (RPA) completed site visits, and reviewed exploration, drilling, logging, and sampling procedures with Trelawney and IAMGOLD personnel.

RPA reviewed the geology of the Côté Gold deposit by way of observation of core and outcrop during the site visits and through the independent review of reports and geological literature. Recommendations were made to improve consistency in recording rock types, and in sampling practice.

RPA also reviewed the available QA/QC data for the Côté Gold deposit. This included reviews of blank, CRM, pulp reject and check assays. Approximately 12% of the drill hole assay database was checked by comparing assay certificates to entries in the IAMGOLD database.

Overall, the database was considered to be acceptable to support Mineral Resource estimation.

RPA collected eight remaining half core samples for independent analytical verification, during a January 2012 site visit. These samples independently confirmed the presence of gold mineralization.

12.2.2 InnovExplo, 2014

In December 2014, InnovExplo independently validated the entire assay database against laboratory certificates.

12.2.3 Roscoe Postle Associates Inc, 2017

During a May 2017 site visit, RPA personnel used a handheld GPS to confirm the location of a small number of drill hole collars. RPA reviewed core samples from several drill holes and compared them against the geology and assay tables. RPA also performed routine database validation checks specific to Geovia GEMS to ensure the integrity of the database records.

RPA conducted visual drill hole trace inspection and checks for extreme and zero assay values, unsampled or missing intervals, and interval overlapping. Approximately 5% of the assays from the 2015 drilling campaign were checked against the assay certificates.

RPA concluded that logging, sampling procedures, and data entry comply with industry standards and that the database that was reviewed was acceptable for Mineral Resource estimation.

12.3 Wood Data Verification

12.3.1 Site Visits

Mr. Greg Kulla, P.Geo., visited the site on September 26 and 27, 2017, and again from March 19 to 22, 2018. During these visits Mr. Kulla reviewed drilling, sampling, and QA/QC procedures, and inspected drill core, core photos, core logs, and QA/QC reports and specific gravity measurement procedures.

During the September 2017 site visit, Mr Kulla measured collar coordinates and orientation of eight drill holes using a hand-held Garmin GPS. Observed differences between these resurvey measurements were within expected ranges for a comparison between a hand-held GPS and DGPS measurements.

Mr. Peter Oshust, P.Geo., visited the Côté Gold site during July 10 to 12, 2018. As part of the visit he inspected five outcrops led by Simon Bachand, IAMGOLD Senior Geologist and Yu Yamato, Geology Manager. The outcrops were selected to provide examples of the main rock types and the range of silica–sodic alteration across the deposit. Mr. Oshust checked collar locations and orientations for 20 drill holes completed in 2017 and 2018 in the field with a handheld Garmin GPS instrument for positioning and a magnetic compass with inclinometer for direction and dip. The differences between the field measurements and drill hole database are within expected ranges.

Mr. Oshust, with Mr. Bachand, reviewed drill core from two drill holes which also provided examples of the main rock types, alteration, and gold mineralization. The drill core was compared to the core logs, assays, and drill core reference library. The drill core rock and alteration characterization recorded in the logs reasonably match the examples in the geological reference library.

12.3.2 Collar Database Transcription Error Check

Under Wood's direction, IAMGOLD compared the drill hole database collar coordinates with original records provided by Labelle Surveys Limited. This database transcription error check was limited to the 640 drill holes in the 31 March 2018 database keyindex file (drill holes used in the Mineral Resource estimate). No differences were observed for 622 of the 640 drill holes in the keyindex. No collar records were found for the remaining 18 drill holes. Seven of these were drilled on the lake when frozen and a final survey was likely not collected before the lake thawed.

IAMGOLD reported their intent to have a second independent surveyor resurvey a selection of collars in 2018. The results of this survey have not been reviewed.

Wood concluded that no significant issues are evident in the collar survey table. The collar survey location and orientation measurements have been collected using industry-accepted methods and tools. Transcription error checks found no errors. The original records have been reasonably well archived. Absence of supporting original records for a small number of keyindex holes is mitigated by the apparent good survey practices and no apparent transcription errors.

12.3.3 Downhole Survey Checks

Down-hole measurements were collected by drillers and submitted to project geologists in paper or digital format. These records have not been formally archived.

Wood inspected the down-hole survey data for excessive bends or local kinks. Using proprietary software (KinkCheck), Wood examined the surveys for excessive bends or kinks in the drill holes by looking for 3D deviations more than 5° in 30 m and more than 0.5° in 3 m.

Five suspect holes were flagged in the 30 m interval check. On inspection, two of these drill holes were just slightly over the allowed tolerance and three were identified to have suspect collar azimuths.

The KinkCheck program identified 1,464 intervals in 150 drill holes that exceed the allowed tolerance of 0.5° in 3 m, a majority of which were just slightly over the allowed tolerance.

Closer inspection shows 244 measurements in 55 holes have a measured deviation greater than or equal to 2 times allowed tolerance of 0.5° in 3 m (this represents 1.3% of the 18,315 keyindex hole downhole survey measurements). Most of the flagged measurements are in 10–12 drill holes. Examination of survey measurements within these holes indicates minor magnetic interference may be present but not enough to unequivocally exclude the measurements.

Wood concluded that no significant deviation or data transcription issues are evident in the down-hole database. The down hole survey measurements were collected at reasonable intervals using industry-accepted tools. The number of suspect intervals is low relative to the entire database.

12.3.4 Assay Database Transcription Error Check

Under Wood's guidance, IAMGOLD compared 276,676 keyindex hole assays in the database with archived laboratory certificates. This comparison showed an exact match for 99.6% of the selected assays and no matching certificate results for only 0.2% of the selected records. The check identified 281 assays using an assay method not in alignment with expected over limit assay methods and 236 records with incorrectly reported below detection limit values.

Wood notes that the observed error rate for 2009 (2.6%) and 2015 (7.6%) exceed a Wood guideline of 1%. The high rate in 2015 is mostly related to the incorrect assignment of below detection limit value. The total average error rate of 99.6% indicates minimal transcription errors in the assay database.

The over-limit value assigned by the Côté geologists is below the laboratory detection limit. The use of over-limit assay results not assayed using the expected over-limit method is not a major concern.

The assay database is considered reasonably free of transcription errors

12.3.5 Certified Reference Materials

Between 2009 and 2015, IAMGOLD and its predecessors submitted 257,567 samples to Accurassay for gold analysis. These primary samples were accompanied by 11,283 CRMs. This represents approximately a 4.5% insertion rate for CRMs each year.

A systematic low bias is evident in CRM results for 2009 and 2010. These samples represent approximately 10% of the 2009–2015 sample database. No significant bias is evident CRM results for 2011–2015.

12.3.6 Blanks

The samples submitted to Accurassay were also accompanied by 10,673 blanks, a 4.2% insertion rate. Unsampled diabase was inserted as blanks into the assay sequence until 2014. Blank used after 2014 were supplied by the laboratory.

Using a rule-of-thumb that 80% of coarse blanks should be less than two times the lower detection limit (LDL=5 ppb), a significant contamination is evident in the 2009 data and no significant contamination is evident in the 2010–2015 data. Some of the higher-grade outliers likely represent sample swaps at site or at the laboratory.

12.4 Comments on Section 12

In the opinion of the QP, 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 and Mineral Reserve estimation, and mine planning.

13.0 MINERAL PROCESSING AND METALLURGICAL TESTING

13.1 Metallurgical Testwork

13.1.1 Composites

Grinding and metallurgical testwork was conducted at SGS facilities in Lakefield, Ontario on mineralized material that was extracted during the 2009–2011 drilling campaigns (Table 13-1 and Table 13-2).

The metallurgical list comprises 93 composites (variability samples) labelled C25-01 to C25-93. Master composites A and B were prepared with the 93 variability samples. Master Composite A represents non-copper-bearing mineralization. Master Composite B represents high copper-content material, which represents approximately 10% of the deposit. Figure 13-1 shows the locations of the samples used to generate the composites.

A separate sampling set of composites for comminution tests was generated following the same controls as the metallurgical composites. This comminution characterization work was oriented towards semi-autogenous grind (SAG) milling.

In 2016, a metallurgical drilling program was undertaken to support the pre-feasibility study oriented towards high-pressure grind-roll (HPGR) milling. Six new holes were drilled, totalling 1,422 m. Sample intervals were chosen on the basis of the prevalent lithology–alteration groupings within the mineralized zones. Figure 13-2 shows the 2016 metallurgical drill holes.

13.1.2 Mineralogy

As part of the 2011 testwork program, the mineral content of Composites 1 and 2 were determined using the RMS (Rapid Mineral Scan) function in QEMSCAN. SGS found that:

- The sulphide mineral content of Composite 1 accounted for about 1% of the sample weight and 0.06% for composite 2
- Sulphide minerals and their proportions in Composites 1 and 2, respectively, were:
  - – Pyrite, 0.43% and 0.01%
  - – Chalcopyrite, 0.57% and 0.01%
  - – Other sulphides, 0.02% and 0.05%.

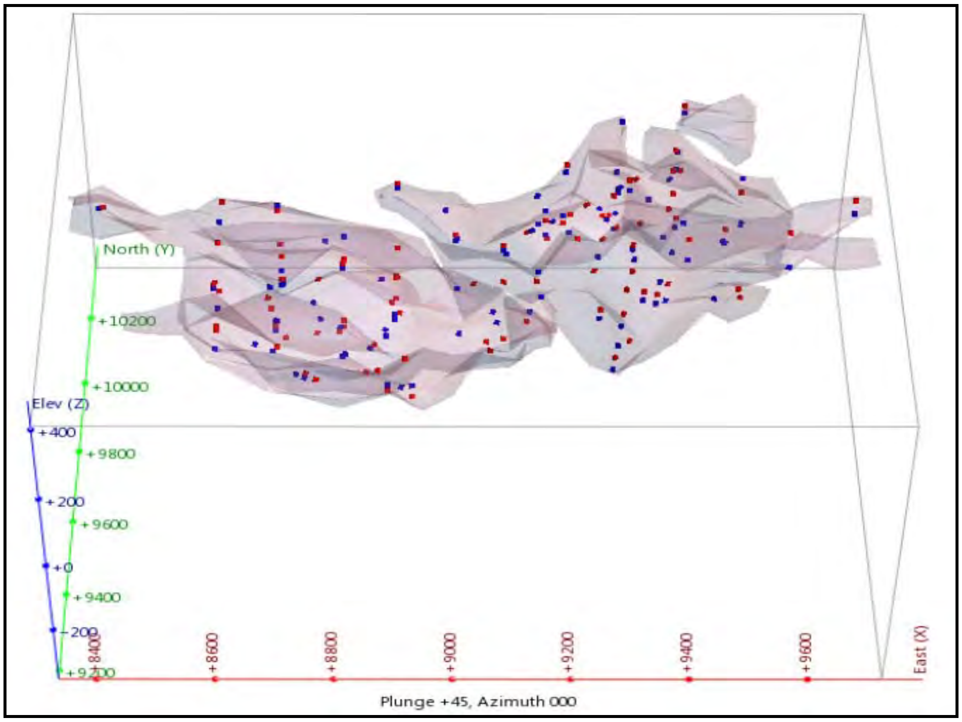
Table 13-1: Comminution Testwork Programs

Program No.	Samples	Purpose
12589-001 (SGS, 2011)	Composite 1 (Cu mineralization) Composite 2 (Au mineralization)	Bond ball mill grindability test
12589-003 (SGS, 2012)	S-1 to S-3 (bulk material from surface)	JK Drop weight test, Bond low energy impact test, Bond rod mill and ball mill grindability test, Bond abrasion test, cyanidation tests
	G-1 to G-10 (geotechnical samples)	
	GR-01 to GR-92 (geometallurgy study)	
12589-004 (SGS, 2014)	GR-2xx 17 samples	JK Drop weight test, Bond low energy impact test, Bond rod mill and ball mill grindability test, Bond abrasion test
	C25-2xx 31 samples	Variability, SAG mill comminution (SMC) test, Bond ball mill grindability test
T2127 (COREM, 2017)	COR0001 to COR0004	Effect of aging of drill core
	COR0005 to COR0013	Single pass high-pressure grind roll (HPGR) on lithologies
	COR0014 – Design Composite	HPGR pilot plant
	COR0014 – Design Composite	Atwal test
	COR0016 – COR0021	Crushing testwork
UBC_CL17 (UBC, 2017)	UBC0001 – UBC0031	31 piston press tests to determine relative ore hardness of 12 varying lithologies and alterations
2220-8975 (Thyssenkrupp, 2017)	WE 15367	High-pressure grinding Atwal wear rate determination

Table 13-2: Testwork Programs - Metallurgy

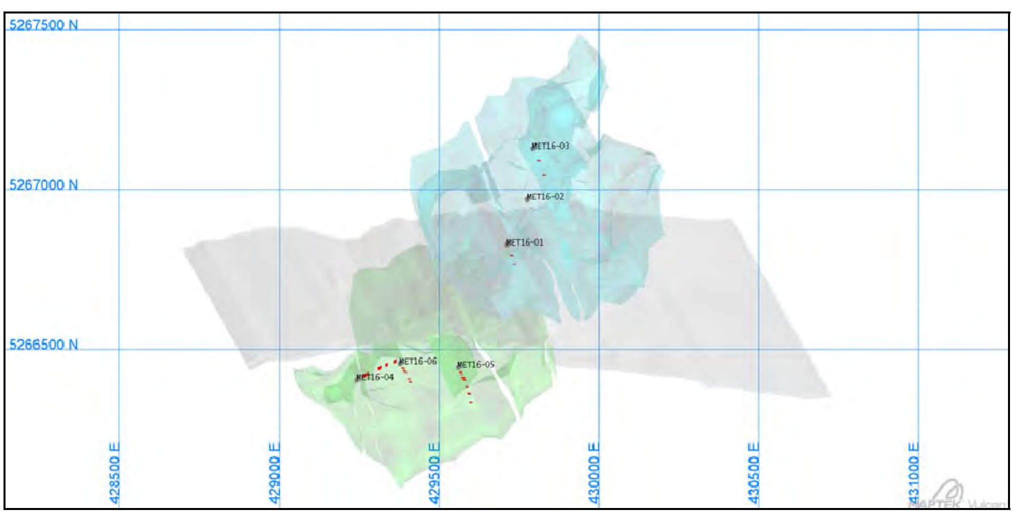
Program No.	Samples	Purpose
13345-001 (SGS, 2011)	Composites 1, 2 & 3	Gold deportment, flotation, leaching, heap leaching, acid base accounting (ABA) studies on whole ore & leach tailings
12589-001 (SGS, 2011)	Composite 1 (Cu mineralization) Composite 2 (Au mineralization)	Gravity, flotation on whole ore and gravity tailings. Leaching on whole ore, gravity tailings and flotation tailings. Non-acid generation and ABA studies. Qualitative mineralogical evaluation (QEMSCAN/RMS)
12589-002 (SGS, 2012)		Geometallurgical Investigation
12589-003 (SGS, 2012 -2013)	S-1 to S-3 (bulk material from surface)	Gravity, leaching on gravity tailings
	G-1 to G-10 (geotechnical samples)	Gravity, leaching on gravity tailings
	Composite A & B C25-01 to C25-93	Variability testwork program. Gravity, flotation, heap leaching. Leaching on whole ore, gravity tailings and flotation tailings. Optimization testwork
T2193 (COREM, 2017) (Phase I)	COR0014 – Design Composite	Mineralogy, gravity, leaching of gravity tails, thickening.
16095-001 (SGS, 2017)	COR0005 to COR0010	Static settling, dynamic thickening, rheology, settling density tests
16529-001 (SGS, 2018)	COR0014-Design Composite	Optimization testing

Figure 13-1: Metallurgical and Comminution Composites Spatial Location



Note: Figure prepared by Wood, 2018. Locations relative to the 0.25 g/t Au grade shell (pink shades); metallurgical composites (blue); comminution composites (red).

Figure 13-2: Plan View, 2016 Metallurgical Drill Holes Location



Note: Figure prepared by Wood, 2018.

Based on these analyses, no obvious environmental concerns are indicated.

SGS undertook a gold deportment study in 2012. SGS reported that the main gold mineral was native gold, with an average composition of 86.9% Au and 9.8% Ag. The second-most abundant gold mineral was electrum, with an average composition of 64.8% Au and 30.8% Ag. Other gold minerals identified were kustelite, calaverite, petsite, and an unknown Te–Au–Bi alloy.

In processing a sample weighing approximately 753 g with a target size K80 of 150 µm, a total of 132 gold grains were observed. The grains ranged in size from 0.6 µm to 216.5 µm, with an average size of 12.5 µm.

The overall gold distribution analysis (ignoring the possible submicroscopic gold contribution to the head gold assay) showed that liberated gold accounts for approximately 19.8% of the total gold assay, with a size range of 1.1 µm to 216.5 µm and an average of 27.1 µm.

Gold attached to pyrite, chalcopyrite, Bi–Te, non-opaque and other minerals accounted for 1.0%, with a size range of 1.5 µm to 22.6 µm and an average of 7.8 µm. Gold that was observed "locked" (at K80 = 150 µm) in non-opaque minerals, pyrite and other minerals accounted for 54.0% of the total gold assay, with a size range of 0.6 µm to 51.7 µm and an average size of 3.9 µm.

The remaining 25% of the gold occurred in an unknown form. A leach test conducted on this fraction determined that 75% of the gold in this sub-sample was leachable. Since sulphides were not observed in this fraction, it was concluded that most of the gold in this fraction was associated with silicates.

Little mineralogical information was obtained on silver. Only traces of silver-bearing minerals, including electrum and silver–gold tellurides, were observed.

13.1.3 Comminution Testwork

Comminution data, which include Bond low-impact (crusher), rod mill and ball mill work indexes, and Bond abrasion index, were produced during several programs. Within these programs, SAG mill comminution (SMC) tests were completed to determine the ore hardness characteristics.

Most of the A x b values are below 30, which indicates very competent material and that the mineralization is well-suited to an HPGR circuit.

Work was also performed at the pilot plant level for HPGR testing at COREM. COREM is a consortium composed of several mining companies and the Government of Quebec, located in Quebec City, Quebec, which provides a wide range of mineral processing and analytical services.

For the design composite (2016 Metallurgical Drill Holes in 5-Year Pit Shell), the recycle HPGR test result showed the m-dot value to be 226.3 (t/h)/(m^3/s). Net energy consumed was 1.63 kWh/t of HPGR feed. Specific pressure was 3.4 N/mm^2. The closing screen was 4 mm. The screen undersize T_{80} value was 2.1 mm.

Atwal testwork was performed on the pilot plant sample used for HPGR sizing. The specific wear rate measured for the sample was classified as high with the wear rate from two tests averaging 54.26 g/t at a specific grinding force of 4 N/mm^2 and varying moisture contents between 1% and 3%.

Piston press testing was performed at the University of British Columbia (UBC) in Vancouver, British Columbia, as part of the mineralization variability assessments. Specific energy consumption in the piston press tests varied from 1.2 to 2.7 kWh/t, with an average of 1.81 kWh/t. Relating this to the pilot plant average specific energy of 1.63 kWh/t, it indicates that the net specific energy could rise to 2.4kWh/t. Although the variability indicates a risk to achieving throughput for the harder ores, it should be noted that piston press tests will always have the extremes of variability and are only used as an additional method to confirm the pilot plant results. With the estimated installed power or 7,776 kW, the design circulating throughput can be achieved at a specific energy of 2.2 kWh/t or approximately the 75th percentile ore specific energy level.

The COREM 2.5t design composite included proportional amounts of post mineralized dykes, namely, Proterozoic age diabase dykes, lamprophyre dykes, and Archean mafic dykes, whereas, the UBC piston tests did not include this softer barren mafic material. This is possibly an important reason why the average specific energy of the design composite is lower than the piston test results.

A summary of the comminution data is presented in Table 13-3.

Table 13-3: Comminution Design Parameters

Metric	Units	75th Percentile
Ore specific gravity		2.7 *1
Ore moisture content	%	3 – 5 *1
Bond abrasion index	g	0.68 *1
Bond low energy impact (crushing) work index	kWh/t	13.3 *1
Bond rod mill work index	kWh/t	17.3 *1
Bond ball mill work index	kWh/t	16.1 *2
Drop-weight index	kWh/m^3	11.0 *2
Mia (coarse particle component)	kWh/t	28.9 *2
Mib (fine particle component)	kWh/t	19.7 *2
Mih (HPGR component)	kWh/t	23.6 *2
Mic (crusher component)	kWh/t	12.2 *2

Notes: *1 SGS 1589-003 and 004 and COREM. *2 Production Year 1-15 samples

These comminution data sets were used primarily for the following:

- Standard bond method for calculating gyratory crusher and secondary cone crusher
- HPGR sizing is based on the m-dot, or specific throughput value determined in the pilot plant work. Pilot plant testwork results were provided to 1st tier HPGR manufacturers for the purpose of applying their proprietary scale up tools and recommend an m-dot for machine sizing and power requirement calculation
- SMC method for ball mill and vertical stirred mill. SMC power was calculated from 80 samples, with adjustment from bulk sample (COR-014) as only Bond work was measured. No credits were taken for micro cracking.
- To add confidence in the use of HPGRs for this particular ore, external reviews were conducted at each stage of the project. The third-party reviewer was chosen on the basis of having supervised HPGR testwork and run operations at a HPGR facility. The third-party recommendations were implemented in the current circuit configuration.

13.1.4 Gravity Testwork

Six Laplante extended gravity recoverable gold (E-GRG) tests were conducted on Côté composites. The bulk extended GRG results and the cumulative three-state GRG recoveries varied between 61% and 74% with a size classification of the GRG as fine to moderate using the AMIRA size classification scale.

Overall, the samples are moderate in GRG, and the GRG is fine to moderate. This characteristic, combined with the two-stage milling circuit configuration, makes gravity recovery more challenging.

Modelling was undertaken for several options for a gravity circuit installation, as follows:

- Primary grinding only
- Secondary grind only
- Primary and secondary grinding, combined.

A secondary-only gravity circuit resulted in the second-highest recovery at the lower cost, with the gravity in both circuits resulting in the highest recovery. Simulations estimate gravity recovery in the range of 20–30%. This estimate is considered indicative as the secondary gravity recovery results have a lower confidence level as any changes in upstream conditions will have a magnified effect on the downstream secondary model.

13.1.5 Cyanide Leaching Testwork

Emphasis in the earlier testwork programs was on determining ultimate gold extraction, followed by variability work on geometallurgical samples and, most recently, optimization on several master composites. Table 13-4 lists the range of conditions of the whole ore leach (WOL) and gravity tailings leach tests performed to date. The results indicate that high recoveries are attainable by cyanide leaching, that gold recoveries are improved by finer grinding and that oxygen enhances the leaching kinetics and allows equivalent results using as low as 0.3 g/L of NaCN. All Côté samples leached with relatively consistent kinetics, with an average gravity recovery of 32% and overall extraction of 91% after 30 hours, reaching a plateau average extraction of 93% for these samples at 48 hours.

Table 13-4: Test General Conditions

	Program (Composite)	Residence Time, hr	Available NaCN, g/L	Nominal Grind P_{80}, µm	Other
WOL tests	12589-001 (1 & 2)	48	0.5	75–150	Preconditioning - O_2
	13345 (1, 2 & 3)	48	0.5	75–250	Preconditioning - O_2 10 g/L carbon
	12589-003 (A)	48	0.5	75–150	Preconditioning - O_2
Gravity tailings cyanidation tests	12589-001 (1 & 2)	48	0.5	75–150	O_2
	12589-003 (A)	48	0.5	75–150	O_2
	12859-003 – Variability (C25, S & G)	48	0.5	75–100	Preconditioning - O_2
	12859-004 – Variability (C25-RV)	48	0.5	85–120	
	T2127 (COR014)	48	0.3–0.7	75–212	O_2
	16529-001 (COR014)	30–48	0.2–0.5	75–212	O_2

Overall results also indicated that gold leached well in the levels of oxygen provided in the standard bottle-roll procedure.

Effect of Head Grade

The response of samples to the gravity leach circuit is relatively consistent through the head-grade range plotted (>0.25 g/t Au). Grinding is a stronger driver of recovery than head grade. The variability work also indicated that ultimate recovery is not determined by lithology: all lithologies seem to behave similarly. However, this apparent uniformity in the mineralization may be a consequence of the gravity step ahead of leaching, which removes liberated gold to produce a more uniform leach feed sample highlighting the importance of the gravity step in achieving consistent plant recoveries.

Effect of Grind

The positive effect of grind on extraction was recognized early in the Project development. Each program to date has collected data on this aspect.

SGS Program 12589-003 compared the effect of grind for the WOL and gravity tailings leach flowsheet options. At coarser grinds, gravity concentration ahead of leaching can contribute to higher recovery by removing coarser gold that would take longer than the allocated leach residence time. The regression coefficients between grind size and extraction suggests that grind is indeed the main driver. Other factors, such as alteration, head grade and lithology, are not determinants. Similar trends were observed in the variability program.

In 2017, additional grind size vs. leach extraction work was performed on the five-year production composite used for HPGR pilot plant testing. The five-year composite follows the general trend but with better metallurgical extractions, likely related to the higher than average gravity recoverable gold content in the composite.

Reagent Usage

The laboratory tests indicate the following cyanide consumption trends:

- The mineralization is clean, and no cyanicides are present except for small amounts of S and Fe
- High NaCN concentrations result in increased NaCN consumption
- For in-plant practice, the optimal dosage range is 0.3–0.5 g/L
- The use of oxygen allows the dosage to be brought to the lower end of the range
- Cyanide consumption in the plant is anticipated to be in line with industrial practice, and for the gravity tailings leach is expected to be around 100 g/t of ore.

Laboratory results also indicate that both cyanide and lime consumptions are quite low in comparison to what is typically seen in industry, but this reflects the lack of cyanicides and other cyanide consumers. Lime consumption is also positively impacted by the basic nature of the ore. The use of oxygen further reduces cyanide and lime consumption.

The higher consumption reported by the five-year composite is thought to be caused by the aging of the sample. Moreover, the cyanide consumption in the test with sparged air was very likely a function of the large volume of air sparged into the pulp. Cyanide was likely volatilized into the air, and not consumed by the ore itself.

Carbon-in Pulp Modelling

The semi-empirical Mintek models were used to simulate the operating conditions and check the robustness of the carbon-in-pulp (CIP) option.

Carbon adsorption modelling testwork on the five-year composite gravity tails showed that the gravity tails respond well to the CIP process. Barren gold solutions losses of 0.006 mg/L were achieved based on a system comprising eight stages of 450 m^3 tanks, using 50 g/L carbon concentration and a 20 t/day carbon transfer rate with an estimated carbon loading of about 1,000 g/t.

Cyanide Destruction

The cyanide destruction continuous lab tests using the SO_2/air process resulted in tailings containing less than 1 mg/L total cyanide (CNT). The best cyanide destruction results were achieved at the pulp density of 50% solids, pH of 8.8, using an SO_2/weakly acid dissociable cyanide (CN_{WAD}) ratio of 5 and a Cu/CN_{WAD} ratio of 0.1. Retention time was estimated to be sufficient to achieve the target CNT of less than 1 mg/L.

13.1.6 Solid–Liquid Separation

Thickening and Rheology

Early solid–liquid separation testwork indicated that an underflow density of 62% was achievable at a unit area of 0.075 m^2/t/d while still maintaining acceptable levels of suspended solids in the overflow. There was also a strong indication that operating at lower unit areas was possible as unit rate of 0.06–0.07 m^2/t/d still produced acceptable underflow densities.

Optimization testwork was performed on a cyanide-destroyed (CND) five-year composite sample. Site water was not available for this test. Results indicated:

- The flocculant scoping tests confirmed that Magnafloc 333 was suitable at a dosage of 15 g/t to a diluted thickener feed at 15% w/w solids
- The thickener unit areas that were examined ranged from 0.1 to 0.05 m^2/t/d

- The critical solids density reported was approximately 67.5%, which corresponds to a yield stress of 35 Pa under unsheared flow conditions. The fully-sheared whole tailings yield stress at 62% thickener underflow target was below 10 Pa yield stress.

In summary, high rate thickening should achieve the thickener underflow target of 62% w/w solids and laminar settling concerns are not expected.

13.1.7 Barren Solution Analysis

The barren solution analysis performed in the early scoping programs on Composites 1, 2 and 3 suggest that metal dissolution during cyanide leaching is low, and there are no obvious environmental concerns.

13.2 Recovery Estimates

The average recovery estimate remains as set during the pre-feasibility study at 91.8% (Table 13-5).

13.3 Metallurgical Variability

Samples selected for metallurgical testing were representative of the various types and styles of mineralization within the different zones. Samples were selected from a range of locations within the deposit zones. Sufficient samples were taken so that tests were performed on sufficient sample mass.

Overall metallurgical test results show that all the variability samples were readily amenable to gravity concentration and cyanide leach. A total of 93 samples and 162 tests were performed.

13.4 Deleterious Elements

Metal dissolution during cyanide leaching was found to be low, and there are no obvious concerns with deleterious elements.

13.5 Comments on Section 13

The mineralization is free-milling (non-refractory). A portion of the gold liberates during grinding and is amenable to gravity concentration and the response to gravity and leaching is relatively consistent across head grades. Therefore, the lower-grade gold material is expected to exhibit the same level of metal extraction.

Table 13-5: Gold Recovery Estimate for 36,000 kt/d and 100 µm Target Grind

Parameter	Units	Value
Head gold grade, average	g/t Au	0.94
Head silver grade, average	g/t Ag	<2
Au Recovery by Gravity	%	23
Intensive leach recovery	%	99
Leach recovery	%	90.9
CIP Recovery (soluble and carbon fines losses)	%	99
Desorption, regeneration and refining recovery	%	99.5
Overall Au recovery	%	91.8

Individual lithologies follow the general trends for grind size sensitivity and cyanide consumption.

Overall recovery is estimated at 91.8% for the processing of 36,000 t/d using the proposed flowsheet.

Cyanide and lime consumptions are quite low in comparison to what is typically seen in the industry which reflects the lack of cyanicides and other cyanide consumers. Lime consumption is also positively impacted by the basic nature of the ore.

Metal dissolution during cyanide leaching was found to be low, and there are no obvious concerns with deleterious elements.

14.0 MINERAL RESOURCE ESTIMATES

14.1 Introduction

The drill hole database for the Côté Gold deposit consists of 713 core holes totalling over 300,000 m drilled by IAMGOLD and Trelawney Mining, between 2009 and 2018. Assay data are available for 711 of the completed holes.

At the resource estimate database cut-off date of 7 June 2018, assays were pending for two holes, CL11-13 and CL11-14. These intervals were excluded from the block grade estimation. In addition, two drill holes contained more than 10 m of consecutive unreported assays; these two intervals were also excluded from the resource update.

A further 1,645 intervals amounting to over 16,500 m of core were not sampled due to lack of visible mineralization. Un-sampled intervals are assumed to represent un-mineralized material or diabase dyke. Assay intervals at 0.002 g/t Au were inserted for un-sampled core to prevent extrapolation of grade into the 'gaps'.

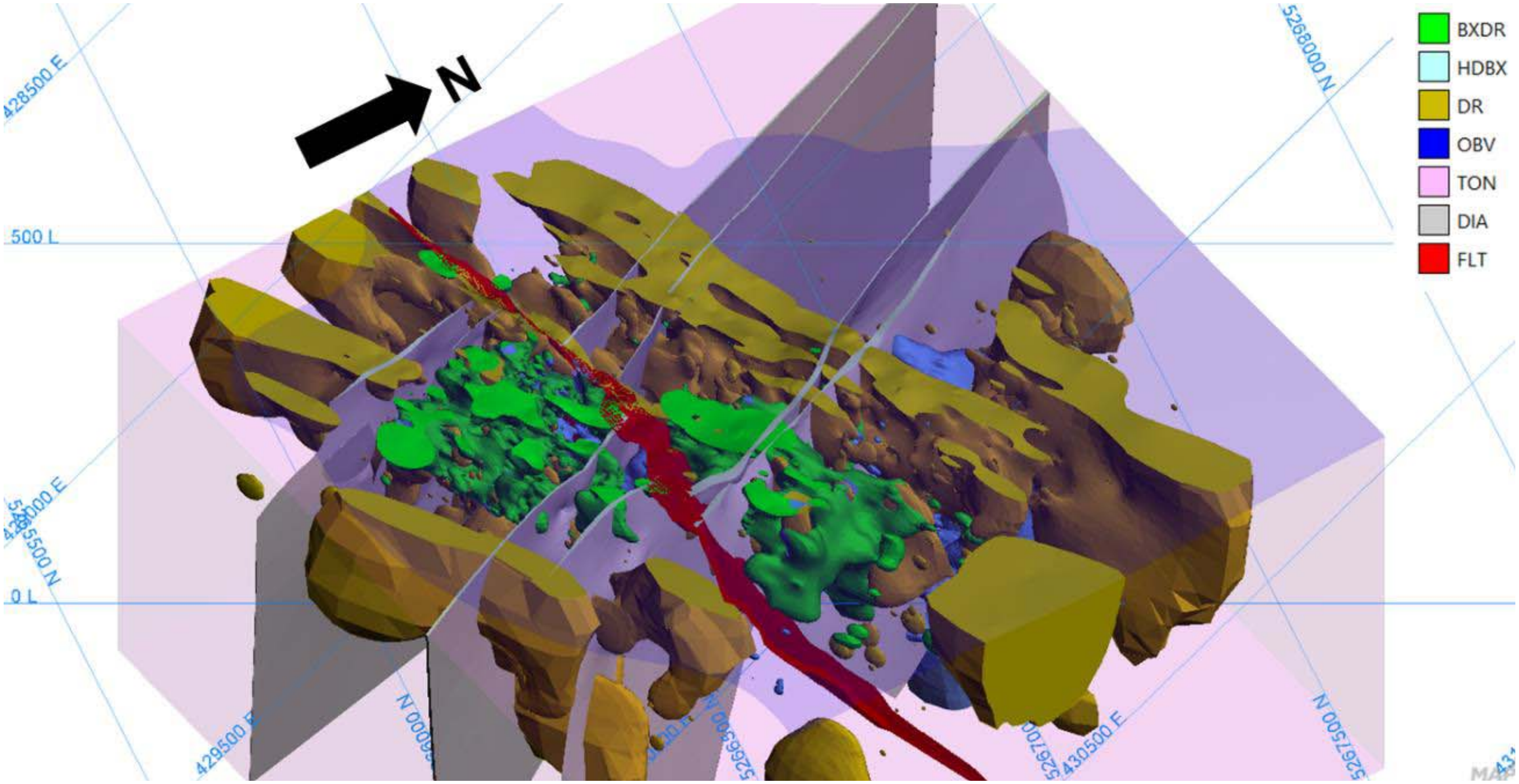
14.2 Geological Models

The lithological interpretation of the Côté Gold deposit was modelled in Leapfrog 3D by IAMGOLD exploration geologists. An extensive re-logging effort of drill core photos was conducted in early 2018 on all pre-2017 core holes. The re-logging effort resulted in a detailed and continuous geological model which added a significant amount of diorite breccia and hydrothermal breccia. This resulted in important improvements and a better overall understanding of the Côté deposit and of the distribution of mineralization, as well as a 30% increase in the volume of the Extended Breccia (Ext BX) shapes.

The Ext BX and fault zone wireframes were developed in GEMS by IAMGOLD geologists. The north and south Ext BX shapes were modelled deterministically by digitizing contours around breccia and sample grades ≥0.3 g/t Au. The Ext BX boundary is used in conjunction with lithology to define the Au estimation domain grouping and forms the exploratory data analysis (EDA) envelope.

The geological model contains seven units: tonalite (TON), diorite (DR), diorite breccia (BXDR), hydrothermal breccia (HDBX), diabase dykes (DIA), fault zone (FLT), and overburden (OVB). The 3D wireframe geological model is shown in Figure 14-1.

Figure 14-1: Three-Dimensional Model



Note: Figure prepared by Wood, 2018.

Wood reviewed the geology wireframes in 3D, and on vertical section and plan view maps, and concludes that the geological model is reasonable, honours the input data, and is suitable for resource modelling. Wood suggests that the Ext BX wireframes should be updated in Leapfrog to better define the 0.3 g/t Au grade shell contours and to make the lithological boundaries coincident.

Silica–sodic alteration envelopes were developed in Leapfrog 3D by IAMGOLD geologists based on a review of available core. Five alteration levels were recognized:

- Weak fracture-controlled
- Weak to moderate fracture-controlled
- Moderate to strong fracture-controlled/moderate pervasive
- Strong fracture-controlled/ strong pervasive
- Intense pervasive.

The alteration envelopes were received late in the resource estimation process and were used for classification only. Wood suggests that the alteration model be further developed using a combination of core observation and ICP data, and that model be used in subsequent resource modeling.

14.3 Exploratory Data Analysis

The assay database contains over 295,000 samples of generally 1 m length. The assay database contains three different methods of gold fire assay (FA) types: FA AA, FA gravimetric and FA metallic screen. IAMGOLD geologists prioritized metallic screen over gravimetric, and gravimetric over AA, and populated the best assay values under a variable named “au_ppm_bestel” in the assay database.

The Ext BX wireframes were used to define an exploratory data analysis (EDA) envelope to limit the number of distal low-grade composites so as not to skew the analysis. There are just over 20,600 6 m gold composites in the EDA envelope.

The Ext BX units generally contain composite gold grades above 0.3 g/t. Higher-grade gold mineralization occurs chiefly within the two breccia units, BXDR and HDBX and to a lesser extent in TON and DR. The mean gold grade is higher in the south breccias.

Box-and-whisker plots show that the gold mineralization is higher in breccia units. However, mineralization occurs in all lithological packages inside the Ext BX unit (EDA envelope).

The gold estimation domains are defined by lithology and the Ext BX units. Units were grouped where inspection showed similarities in the grade distributions or in cases of relatively low composite counts.

Contact plots were prepared from the capped grade composites between gold estimation domains. The contact plots were inspected to determine the behaviour of composite grades across the geological boundaries. Contacts were assigned as either hard, firm, or soft boundaries.

14.4 Grade Capping/Outlier Restrictions

The variability in the gold assay sample grade distribution is high, as seen in the coefficients of variation (CVs), which are typically much greater than 1.0. High CVs indicate the need for outlier analysis and possibly capping. Outlier analysis showed that capping is justified to prevent the extrapolation of high-grade outliers in the block grade estimate.

Outlier analysis was undertaken on the original assay sample intervals prior to compositing. The assays were grouped by major lithology inside and outside the Ext BX (EDA envelope) for the analysis. Wood selected capping thresholds after analyzing four types of charts: cutting statistics, decile plots, histograms, probability plots, and Risk-Hi analysis. The number of composites capped was also taken into consideration. The capping choices and impacts are presented in Table 14-1 and Table 14-2.

14.5 Compositing

The assay sample intervals were composited to regular 6 m intervals for the entire length of the drill holes. The composites were broken at lithological boundaries. Short-length composites at the ends of the holes and lithology boundaries were retained. Short-length composites <3 m were stitched onto the previous composite interval. Short-length composites ≥3.0 m were considered useable composite intervals.

14.6 Density Assignment

The drill hole database contains 785 records for density (specific gravity). The density data were analysed by lithology domain. High (> 3) and low-density (≤ 2.4) outliers were identified and filtered before calculating the means and variances of the distributions.

Table 14-1: Summary of Metal Grade Capping Choices Inside the Ext BX Shapes

Domain	Sample Count	Top Cut Value	Mean Before Top Cut	Mean after top cut	Number of Data Capped	Mean % Difference (uncap to cap)	% of Samples Top-cut
North BXDR	17,521	50	0.791	0.669	15	-1 5	0.09
South BXDR	22,022	50	1.197	0.948	32	-21	0.15
North HDBX	16,745	40	0.836	0.721	31	-14	0.19
South HDBX	8,307	40	0.944	0.885	11	-6	0.13
North DR	2,209	15	0.535	0.484	6	-10	0.27
South DR	2,609	15	0.675	0.511	9	-24	0.34
North Ton	21,002	50	0.621	0.567	16	-9	0.08
South Ton	35,553	50	0.888	0.734	49	-17	0.14
All	***125,968***	**—**	***0.871***	***0.739***	***169***	***-17***	***0.13***

Table 14-2: Summary of Metal Grade Capping Choices Outside the Ext BX Shapes

Domain	Sample Count	Top Cut Value	Mean Before Top-Cut	Mean After Top-Cut	Number of Data Capped	Mean % Difference (uncap to cap)	% of Samples Top-Cut
North BXDR	702	15	0.354	0.348	1	-2	0.14
South BXDR	399	15	0.310	0.307	1	-1	0.25
North HDBX	342	15	0.256	0.135	1	-47	0.29
South HDBX	132	15	0.176	0.176	0	0	0.00
North DR	23,197	15	0.155	0.128	21	-17	0.09
South DR	10,512	15	0.163	0.133	12	-18	0.11
North Ton	79,865	15	0.158	0.142	51	-10	0.06
South Ton	42,633	15	0.140	0.127	26	-9	0.06
All	***157,782***	***15***	***0.154***	***0.137***	***-113***	***-11***	***0.07***
Fault	6,229	10	0.424	0.258	23	-39	0.37
Dyke	4,822	7	0.106	0.08	18	-25	0.37

The resulting mean density values were assigned to the blocks by lithology. The CVs of the distributions are low. However, the predictions of contained metal will benefit from a local density estimate. It is recommended that additional density samples are collected for local block density estimation.

14.7 Variography

Variograms were calculated and modelled for grade for change-of-support (COS) analysis and sequential gaussian simulation for mining dig-line optimization and for a metal indicator for a drill hole spacing study. A normal score (NSCO) transform was applied to the grade distribution prior to variography for sequential gaussian simulation. The back-transformed variogram models were used for COS analysis. The grade variograms were also used to inform the block grade estimation sample search orientation.

Variograms were modelled for the north and south domain groups. The south area data was filtered for drill holes from 2009 to 2013 to remove the cluster of holes drilled on the tight grid beginning in 2014. The tight grid drilling created a strong trend in the down-hole direction.

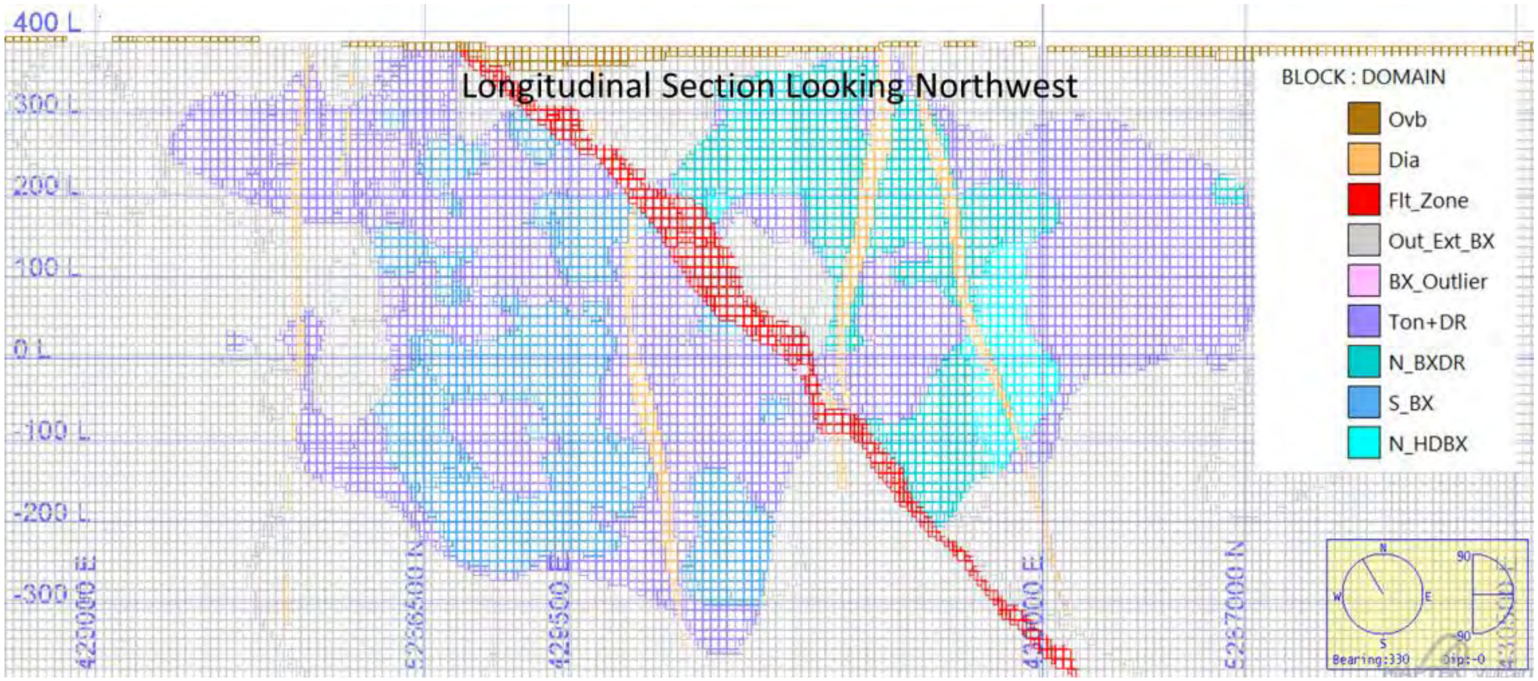
14.8 Estimation/Interpolation Methods

A 10 x 10 x 12 m block size was selected for the resource block model. The resource block model was sub-blocked to 5 x 5 x 6 m to maintain geological boundary resolution. The block model is rotated left 30º (Vulcan X Axis = azimuth 60º). The block grade model was flagged for lithological and extended breccia wireframes from the geological model. A longitudinal projection of the block model lithology is shown in Figure 14-2.

Various powers of inverse distance (ID) estimation were used for gold block grade estimation. A strategy was employed to adjust or 'tune' the estimator to achieve the selectivity of the target grade–tonnage curve obtained by change of support from a nearest-neighbour (NN) grade–tonnage curve. A summary of ID powers by gold estimation domain is shown in Table 14-3.

A three-pass estimation strategy was generally followed, except for the DIA domain, for which a single estimation pass was used. The first-pass sample search distances were adjusted to gather samples from adjacent holes on and off-section. The search criteria were relaxed for passes two and three.

Figure 14-2: Longitudinal View of Block Model Lithology



Note: Figure prepared by Wood, 2018.

Table 14-3: Inverse Distance Estimation Powers by Au Domain

Area	Au Domain		ID Power
	Description	Code	
North	Outside of Ext Bx	101	3
	BX Outliers	561	3
	Ton+Dio	1201	3.3
	BXDR	5001	3.3
	HDBX	6001	4
South	Outside of Ext Bx	102	3
	BX Outliers	562	3
	Ton+Dio	1202	2
	BXDR+HDBX	5602	2
Deposit-wide	Fault Zone	50	3
	Diabase Dykes	40	3

The sample search ellipse orientation was aligned to the variogram models. A strict octant search was used for the third pass outside of the Ext BX to mitigate grade smearing in relatively under-sampled areas with no clear geological controls. The sample search criteria are shown in Table 14-4.

14.9 Block Model Validation

The block grade estimates were validated using several methods:

- Visual checks on vertical sections and plan views
- Statistical checks
- Swath plots and PRISM plots for local bias
- Hermitian correction (HERCO) grade–tonnage curves for change-of-support analysis by domain
- Conditional simulation for overall change-of-support analysis.

The gold block grade estimate passed all validation checks and is considered suitable for mine planning.

Table 14-4: Gold Block Grade Estimation Sample Search Criteria

Domain	Estimation Pass	Number of Samples				Octant Search		
		Minimum	Maximum	Max/Hole	Min Holes	Max/Oct	Min Oct	Min Samp/Oct
40	1	3	8	3	1			
50, 561, 562, 1201, 1202, 5001, 5602, 6001	1	9	12	3	3			
	2	6	9	3	2			
	3	3	8	2	2			
101, 102	1	9	12	3	3			
	2	6	9	3	2			
	3	6	8	2	6	2	6	1

14.9.1 Visual Checks

Visual inspection shows that there is good agreement between 6 m composites and estimated block grades. A longitudinal view of the gold block grade model with 6 m composites is shown in Figure 14-3.

14.9.2 Statistical Checks

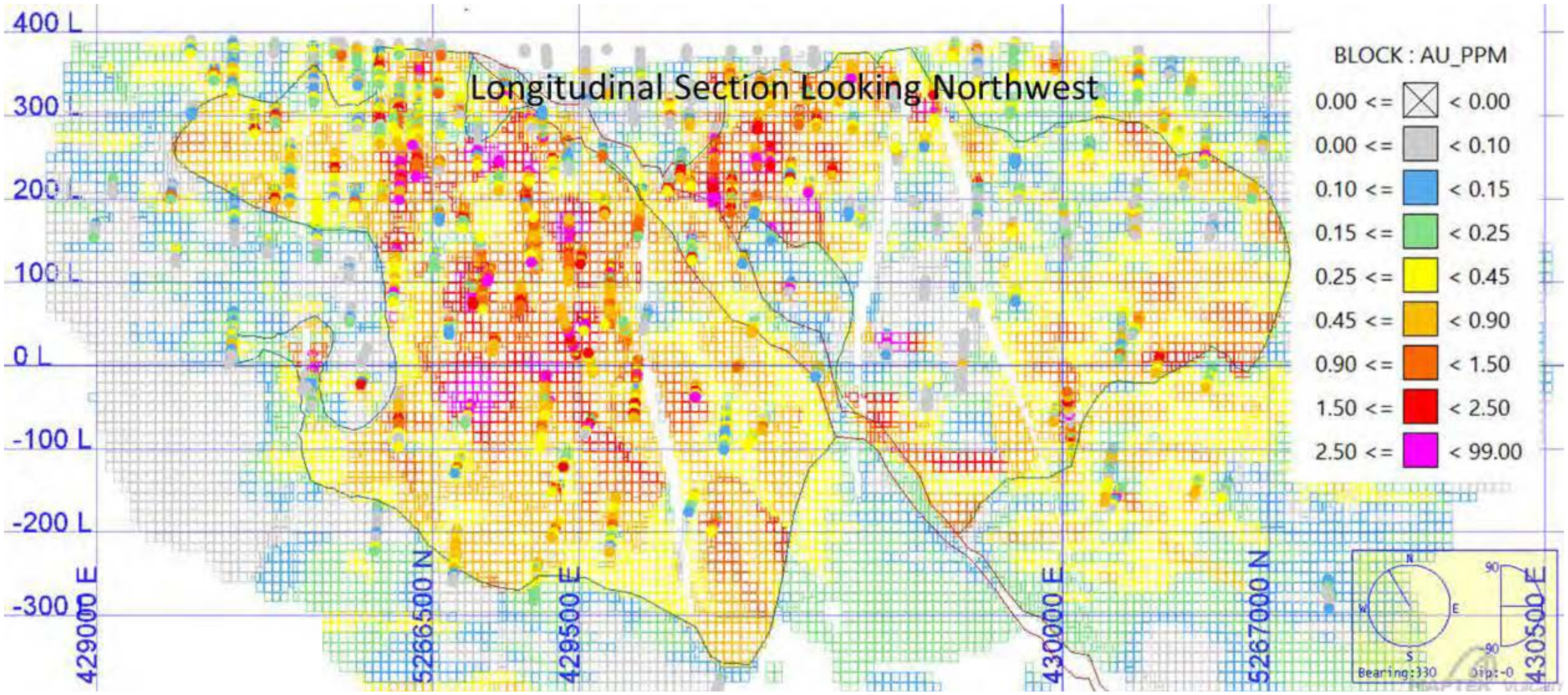
The reference composite grade distribution used for the statistical checks is a hard boundary NN declustered model of the capped gold composite values.

The estimated block grades are within ±5% of the composite declustered mean grades for the main gold domains. The breccia outliers show a larger percent difference (14%) due to higher estimated grades. However, the volume of breccia outlier blocks is very low and pose little project risk. The controls of the breccia outliers should be revisited as part of the geological control study.

14.9.3 Swath Plots

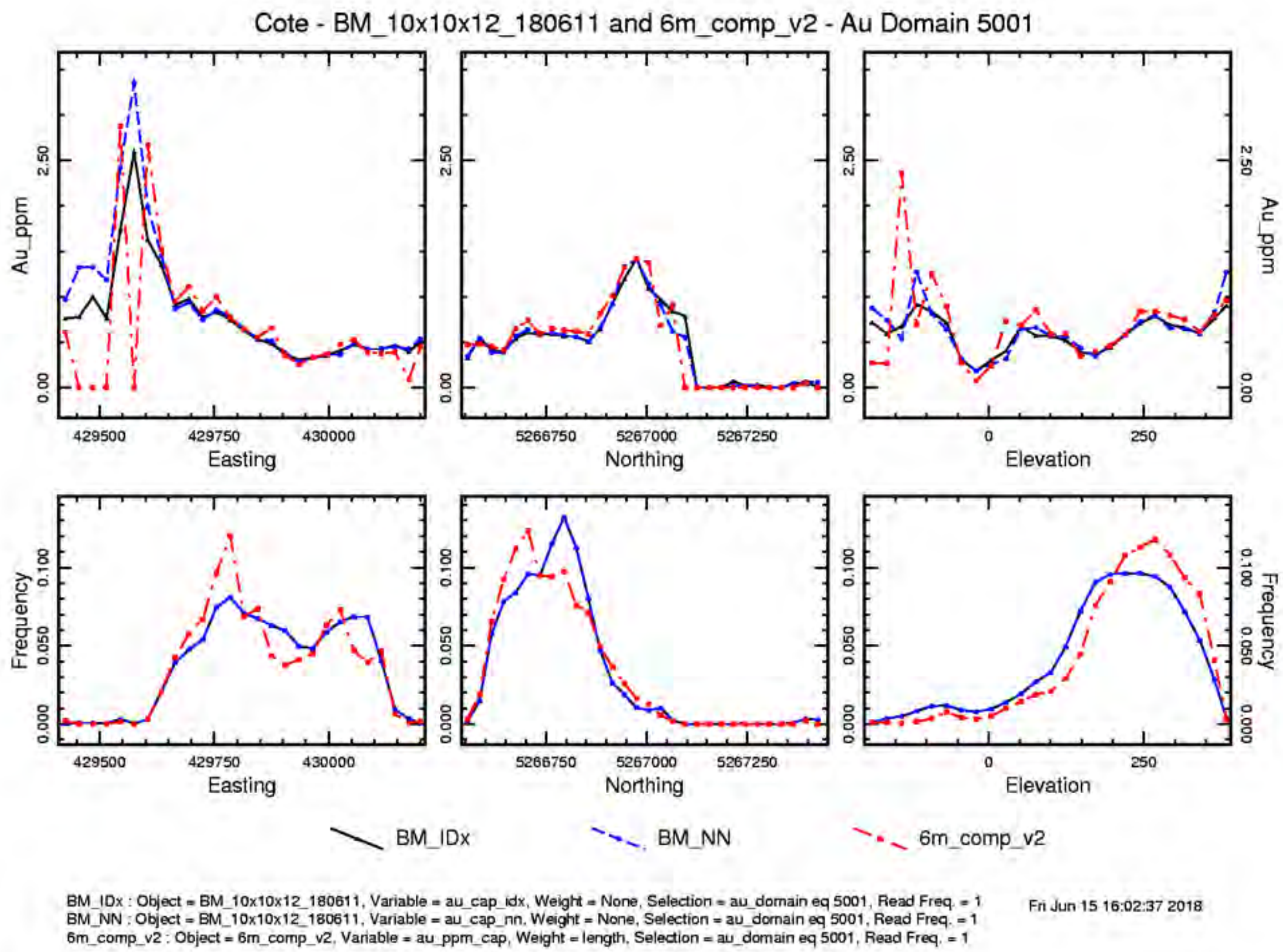
Swath plots or grade profiles of estimated blocks (black) compared to the NN declustered reference distribution (blue) show good agreement and no bias. An example plot for the north BXDR (domain 5001) is provided in Figure 14-4.

Figure 14-3: Longitudinal View of the Gold Block Grade Model with Composites



Note: Figure prepared by Wood, 2018.

Figure 14-4: Example Swath Plot, North BXDR (domain 5001)



Note: Figure prepared by Wood, 2018.

14.9.4 PRISM Plots

PRISM plots, scatter plots of mean composite sample grade versus mean block grades in large (90 m x 90 m x 60 m) rectangular panels (prisms), were also used to check for bias. This check can be considered to be a form of cross-validation. Outliers on the scatter plots are inspected in 3D to determine the reason for the difference. In general, the outliers occur in areas of irregular boundary geometry and high sample variability.

14.9.5 Selectivity Checks

The selective mining unit (SMU) is the smallest block of material that is selected as high grade, or stockpiled, or rejected as waste. A 15 x 15 x 12 m SMU size is appropriate for a 13 Mt/a mining scenario with 12 m benches and an approximate 5 x 5 m blast hole spacing.

Grade–tonnage curves were used to check for appropriate selectivity in the block grade estimate at a range of cut-offs. SMU target grade–tonnage curves were obtained by HERCO (discrete Gaussian) change-of-support corrections of reference composite grade distributions and were compared to block grade estimate grade–tonnage curves.

14.9.6 Conditional Simulation

A sequential Gaussian simulation of the capped gold composite grades was completed to assess the ability of the estimated resource block model to predict recovered tonnes and grades at various cut-off grades. Another objective not discussed in this section was assessing the reasonableness of the high-grade/stockpile mining sequencing.

Twenty-five realizations of the composite gold grades were simulated on a 2.5 x 2.5 x 6 m resolution within five domains inside the extended breccia wireframe. The five domains are North BXDR, North HDBX, North TON + DR, South BXDR+HDBX and South TON + DR. Diabase grades were set to zero. Fault gold grades were not simulated and set to the estimated grades within the fault domain. Domain boundaries were hard.

The simulation was re-blocked from 2.5 x 2.5 x 6 m to 15 x 15 x 12 m to get a conditional simulation of SMU gold grades. Grade–tonnage curves were computed within the PFS Pit 10 and compared with preliminary resource block model grade–tonnage curves within the same envelope. There was good agreement between the estimated resource block model grade–tonnage curves and the simulated SMU grade–tonnage curves.

14.9.7 Capped vs Uncapped Block Grades

Capped and uncapped estimated mean gold block grades were compared to assess the metal reduction due to the capping of sample assays. Measured and Indicated blocks were selected for the comparison. The reduction in block metal was similar to that predicted in the outlier analysis and capping study for assays.

14.10 Classification of Mineral Resources

14.10.1 Drill Spacing Study

A drill hole spacing study was undertaken to establish the drill hole spacing (distance between holes) required to support confidence interval targets at a given production rate for estimated contained metal. The drill hole spacing study was done for the five major gold estimation domains: 1201, 5001, 6001, 1202, and 5602. The drill hole spacing confidence is based on contained metal which is reflective of both tonnage and grade. A metal indicator was used as a proxy for contained metal. The drill hole spacing study was based on:

- Gold metal indicator of 12 m composites (0. 7g/t Au cut-off)
- Assumed production rate of 36,000 t/d
- Confidence interval based on ordinary kriging variance of the metal indicator within quarterly/yearly production blocks.

Drill hole spacing for classification was based on confidence intervals from the results of the five drill hole spacing study runs:

- For Measured Mineral Resources the ±15% relative precision at the 90% confidence on a quarterly production volume is achieved when drill hole spacing is approximately 40 m.
- For Indicated Mineral Resources the ±15% relative precision at the 90% confidence on a yearly production volume is achieved when drill hole spacing is approximately 60 m.

- An additional 10% of the distance was added to the drill hole spacing for distance-based classification. For Inferred Mineral Resources a distance of two times the approximate actual drill grid spacing of 50 m + 10%, or 110 m was used.

14.10.2 Classification

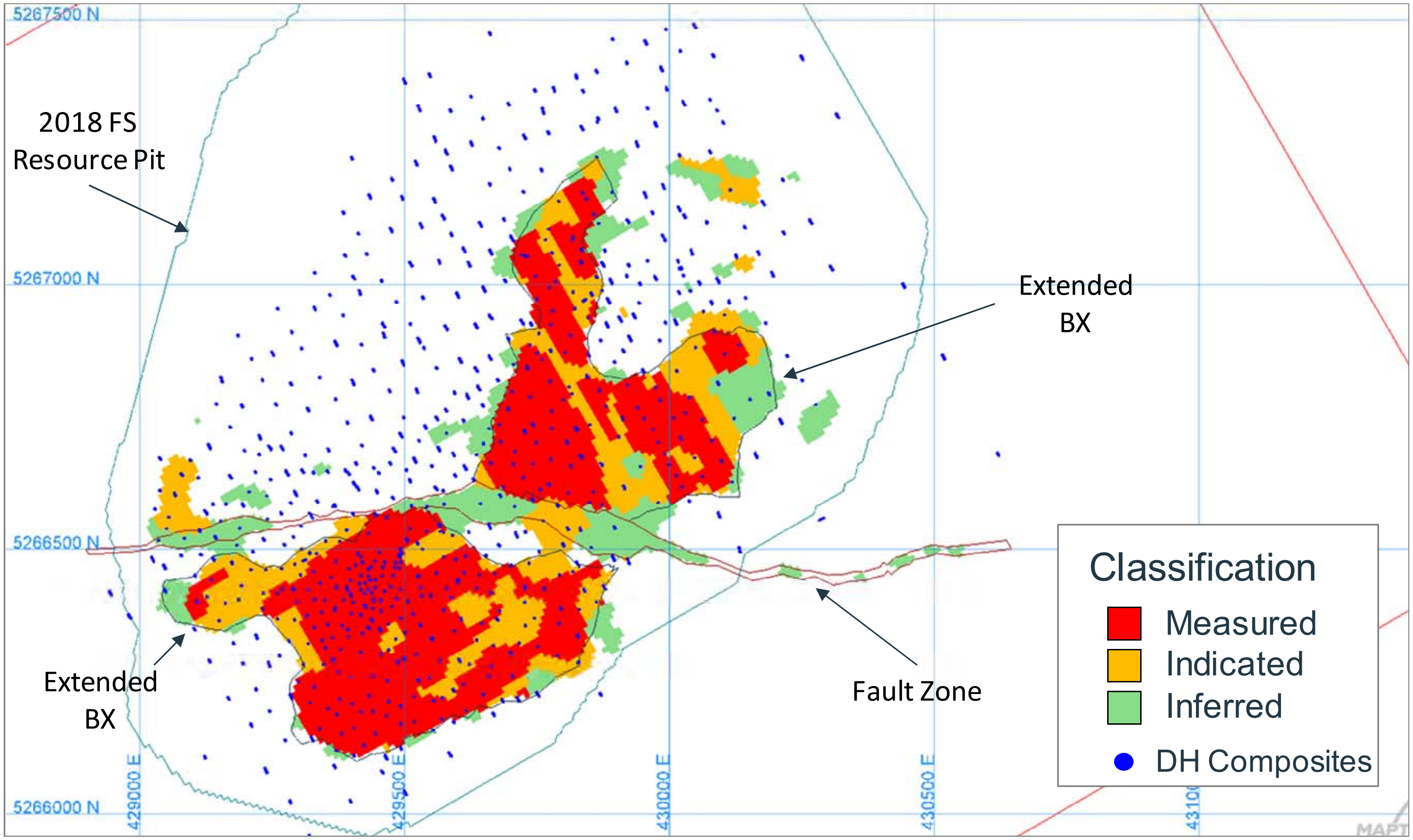
Mineral Resources were assigned a block confidence classification based on drill hole spacing with consideration given to geological and grade continuity, and the quality of drill hole information.

Nominal spacing around the blocks was established using calculations based on the distance from the block centroid to the three nearest drill holes. Blocks in an area with nominal drill hole spacing of 44 m were classified as Measured and nominal drill hole spacing of 66 m classified Indicated. Blocks outside of the Indicated limits were assigned as Inferred if the nominal spacing was 110 m or less. Five iterations of categorical smoothing were applied in Vulcan to remove 'spots' (regions of isolated or non-contiguous blocks of one class inside another). The resulting smoothed classification was adjusted such that:

- Blocks in the Fault Zone are Indicated at best
- Inside the Ext BX but outside the breccia wireframes
  - Blocks inside Alteration 1 and 2 are Indicated at best
  - Measured and Indicated blocks within unaltered areas are downgraded to Indicated and Inferred respectively
- Outside the Ext BX
  - Blocks inside Alteration 3/4/5 are Indicated at best
  - Blocks inside Alteration 2 are Inferred at best
  - Blocks inside Alteration 1 or 0 are zeroed out.
- Blocks in OVB or outside of the geological model are not classified.

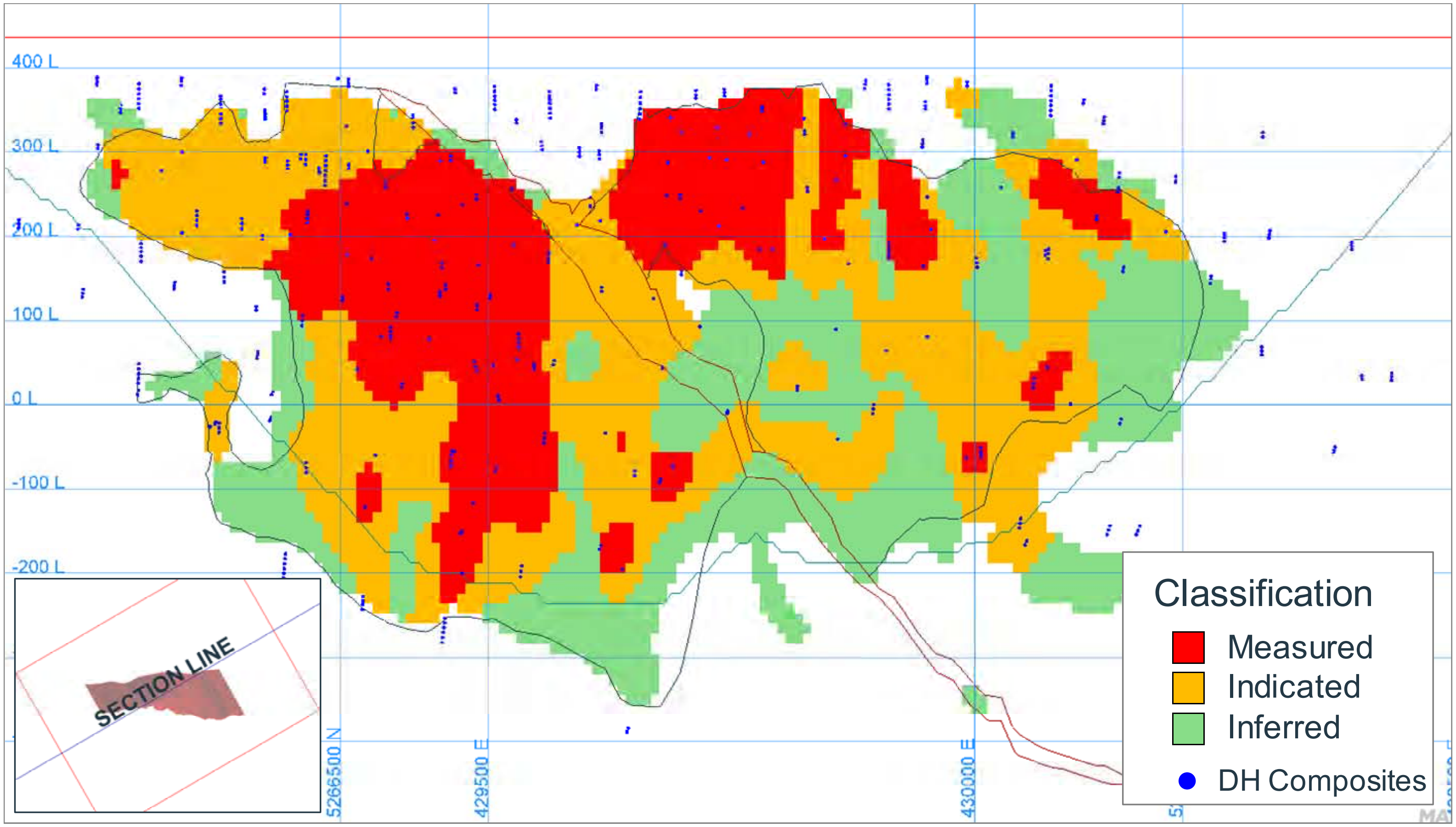
Block classification examples are provided in Figure 14-5, Figure 14-6, and Figure 14-7.

Figure 14-5: Block Classification Map at 310.0m RL



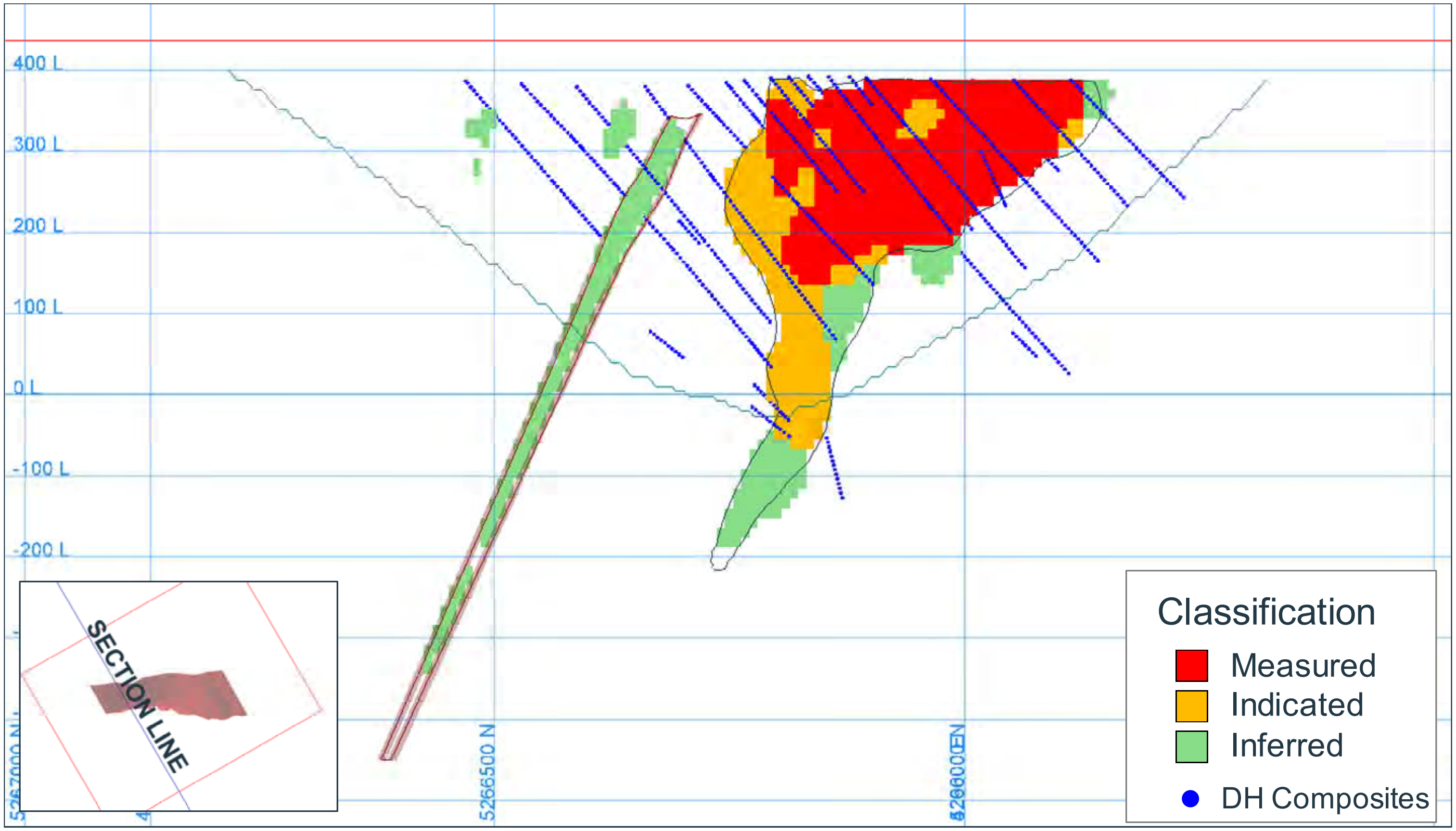
Note: Figure prepared by Wood, 2018.

Figure 14-6: Block Classification Map (southwest–northeast section)



Note: Figure prepared by Wood, 2018.

Figure 14-7: Block Classification Map (southwest–northeast section)



Note: Figure prepared by Wood, 2018.

14.11 Reasonable Prospects of Eventual Economic Extraction

A conceptual pit shell was generated using Whittle software to constrain Mineral Resources. The parameters used to define the conceptual pit shell are provided in Table 14-5.

14.12 Mineral Resource Statement

Mineral Resources are reported using the 2014 CIM Definition Standards. The Qualified Person for the estimate is Mr Peter Oshust, P.Geo., a Wood employee. Mineral Resources summarized in Table 14-6 are reported inclusive of Mineral Reserves. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.

Based on the input parameters used for the constraining conceptual resource pit, the marginal cut-off grade is calculated at 0.23 g/t Au, and the breakeven cut-off grade is 0.29 g/t Au with the mining costs included. Wood has used a 0.3 g/t Au cut-off for the Mineral Resource tabulation, as it meets the requirement for reasonable prospects of eventual economic extraction, and it supports the assumptions regarding grade continuity at that cut-off.

Table 14-7 is a table showing the sensitivity of the Mineral Resource estimate to variations in the gold cut-off grade. The reporting base case of 0.3 g/t Au is highlighted.

14.13 Factors That May Affect the Mineral Resource Estimate

Areas of uncertainty that could affect the Mineral Resource estimates include the following:

- Effect of alteration or other geological attributes as local controls on mineralization
- Lithological interpretations on a local scale, including fault zone modelling, DIA dyke modelling, and discrimination of breccias
- Assumptions of density (specific gravity) based on a low number of samples for the size of the deposit
- Commodity pricing, metal recovery assumptions, and assumptions as to operating costs used when assessing reasonable prospects of eventual economic extraction.

Table 14-5: Input Parameters to Conceptual Resource Pit Shell

Description	Units	Value	Comments
Gold price	US$/oz	1,500	For resource definition only
Discount rate	%	6	
Processing rate	kt/a	13,140	
Mining dilution	%	Dykes	Non-segregable diabase dykes
Mining losses	%	Variable	
Resource categories		MII	Measured, Indicated, Inferred
Process recovery		91.8%	
Pit slopes	degrees	Variable	41.3 to 48.1
Operating costs			
Base mining cost	US$/t	1.61	
Uphill incremental cost	US$/t/bench	0.029	
Stockpile reclaim cost	US$/t	0.87	
Processing cost			
Operating cost	US$/t milled	7.01	
G&A	US$/t milled	1.84	
Sustaining capital	US$/t milled	0.82	
Closure cost	US$/t milled	0.50	
Treatment & refining cost	US$/oz	1.75	Includes transport and selling costs
Royalties	%	0 to 1.5	Net smelter return

Table 14-6: Mineral Resource Table

Classification	Cut-off (g/t)	Tonnage (Mt)	Gold Grade (g/t Au)	Contained Gold (koz Au)
Measured	0.3	171.9	0.96	5,310
Indicated	0.3	183.5	0.79	4,660
Measured & Indicated	***0.3***	***355.4***	***0.87***	***9,970***
Inferred	0.3	112.8	0.67	2,430

Notes:

1. The effective date for the Mineral Resource estimate is 26 July, 2018. The Qualified Person for the estimate is Mr Peter Oshust, P.Geo., a Wood employee.
2. Mineral Resources are constrained within a conceptual pit shell developed using Whittle™ software. Assumptions used to prepare the conceptual pit include: metal price of US$1500/oz Au; base mining cost of US$1.61 /t mined; stockpile reclaim cost of US$0.87; overall processing cost of US$10.17/t milled; treatment and refining cost of US$1.75/oz; mining assumes 100% recovery with dyke dilution,; pit slope angles are forecast to range from 41.3° to 48.1°; process recovery of 91.8%; and net smelter return royalty of 1.5%.
3. Based on the input parameters used for the constraining conceptual resource pit, the marginal cut-off grade is calculated at 0.23 g/t Au, and the breakeven cut-off grade is 0.29 g/t Au with the mining costs included. Wood has used a 0.3 g/t Au cut-off for the Mineral Resource tabulation, as it meets the requirement for reasonable prospects of eventual economic extraction, and it supports the assumptions regarding grade continuity at that cut-off.
4. Mineral Resources are reported using the 2014 CIM Definition Standards, and are stated inclusive of Mineral Reserves. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
5. Mineral Resources are reported on a 100% Project basis.
6. Numbers have been rounded. Totals may not sum due to rounding.

Table 14-7: Mineral Resource Sensitivity Table

Classification	Au Cut-Off (g/t)	Tonnage (Mt)	Grade		Classification	Au Cut-Off (g/t)	Tonnage (Mt)	Grade	
			Au (g/t)	Au (koz)				Au (g/t)	Au (koz)
Measured	0.2	193.8	0.88	5,483	Measured & Indicated	0.2	410.7	0.79	10,433
	0.3	***171.9***	***0.96***	***5,305***		***0.3***	***355.4***	***0.87***	***9,965***
	0.4	148.9	1.06	5,074		0.4	297.6	0.98	9,330
	0.5	127.1	1.16	4,741		0.5	245.1	1.09	8,572
	0.6	107.7	1.28	4,433		0.6	200.7	1.21	7,811
	0.7	91.3	1.39	4,081		0.7	164.9	1.33	7,064
	0.8	77.4	1.50	3,733		0.8	136.2	1.45	6,362
	0.9	65.6	1.62	3,418		0.9	113.1	1.58	5,739
	1.0	55.7	1.74	3,117		1.0	94.4	1.70	5,158
Indicated	0.2	216.9	0.71	4,950	Inferred	0.2	146.7	0.57	2,688
	0.3	***183.5***	***0.79***	***4,660***		***0.3***	***112.8***	***0.67***	***2,431***
	0.4	148.7	0.89	4,256		0.4	85.1	0.77	2,106
	0.5	118.0	1.01	3,831		0.5	62.5	0.89	1,787
	0.6	93.0	1.13	3,378		0.6	46.7	1.01	1,517
	0.7	73.6	1.26	2,983		0.7	35.3	1.13	1,281
	0.8	58.8	1.39	2,629		0.8	26.8	1.25	1,078
	0.9	47.5	1.52	2,321		0.9	20.9	1.36	913
	1.0	38.7	1.64	2,041		1.0	16.4	1.47	774

Note: Footnotes to Table 14-6 also apply to this table.

14.14 Comments on Section 14

Wood is not aware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors that could materially affect the Mineral Resource estimate that are not discussed in this Report.

Geological controls of the mineralization of the Côté Gold deposit are still uncertain at the local scale. At the time of this resource estimate, ICP data required to complete a geological control study were not yet available. This lack of information is mitigated by good drill coverage, the use of an alteration model as one classification criterion, and an open pit operation. Wood does not believe this local uncertainty would materially affect the Mineral Resource estimates.

15.0 MINERAL RESERVE ESTIMATES

15.1 Introduction

Mineral Reserves were classified in accordance with the 2014 CIM Definition Standards. Only Mineral Resources that were classified as Measured and Indicated were given economic attributes in the mine design and when demonstrating economic viability. Mineral Reserves for the Côté Gold deposit incorporate appropriate mining dilution and mining recovery estimations for the open pit mining method.

The Mineral Reserve estimate for the Côté Gold deposit is based on the resource block model estimated by Wood, as well as information provided by IAMGOLD and information generated by Wood based on the preceding pre-feasibility study.

Mineral Reserves are an estimate of the tonnage and grade of ore that can be economically mined and processed. To be considered Mineral Reserves the estimated material must pay for all costs incurred during mining.

The following subsections outline the procedures used to estimate the Mineral Reserves. The mine plan is based on the detailed mine design derived from the optimal pit shell produced by applying the Lerchs–Grossmann (LG) algorithm.

15.2 Pit Optimization

The pit shells that define the ultimate pit limit, as well as the internal phases, were derived using the LG pit optimization algorithm. This process takes into account the information stored in the geological block model, the pit slope angles by geotechnical sector, the commodity prices, and each of the inputs listed in Table 15-1. Figure 15-1 provides a graphic of the various royalty zones within the planned open pit area.

Wood imported the resource model, containing gold grades, block percentages, material density, slope sectors and rock types, and net smelter return, into the optimization software. The optimization run was carried out only using Measured and Indicated Mineral Resources to define the optimal mining limits.

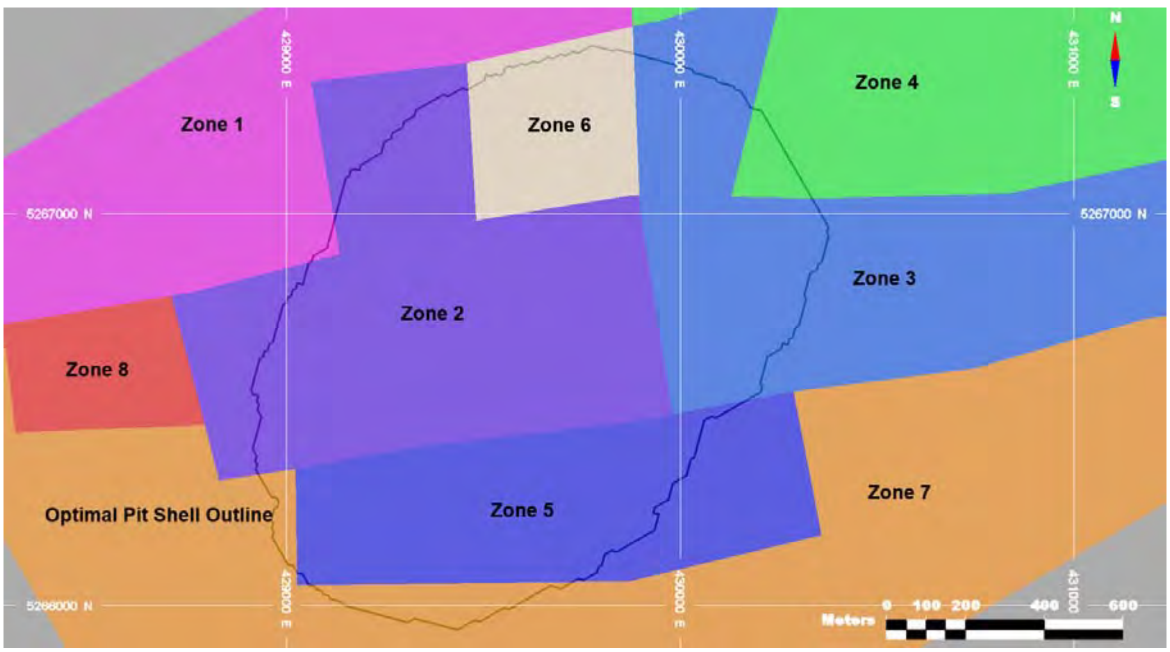
The optimization run included 55 pit shells defined according to different revenue factors, where a revenue factor of 1 is the base case. To select the optimal pit shell that defines the ultimate pit limit, Wood conducted a pit-by-pit analysis to evaluate the contribution of each incremental shell to NPV, assuming a processing plant capacity of 36 kt/d and a discount rate of 6% (Figure 15-2).

Table 15-1: Optimization Inputs

Parameter	Unit	Value
Gold price	$/oz	1,200
Discount rate	%	6
Overall Slope Angles		
KS 1a	degrees	54.0
KS 1b	degrees	54.0
KS 2 Upper	degrees	54.0
KS 2 Lower	degrees	56.4
KS 3	degrees	53.4
KS 4a Upper	degrees	47.9
KS 4a Lower	degrees	49.2
KS 4b Upper	degrees	49.2
KS 4b Lower	degrees	45.8
KS 5 Upper	degrees	54.0
KS 5 Lower	degrees	56.4
Dilution	%	Resource model is already diluted
Mine losses	%	Taken into account by block
Mining Cost		
Base elevation	m	388
Base cost	$/t	1.61
Incremental mining cost	$/t/bench	0.029
Stockpile reclaim cost	$/t	0.87
Process Costs		
Operating cost	$/t milled	7.01
G&A cost	$/t milled	1.84
Process sustaining capital	$/t milled	0.82
Closure	$/t milled	0.50
Processing rate	kt/d	36
Process recovery	%	91.80
Treatment and refining cost	$/oz	1.75
Royalties		
Zone 1	%	0.75

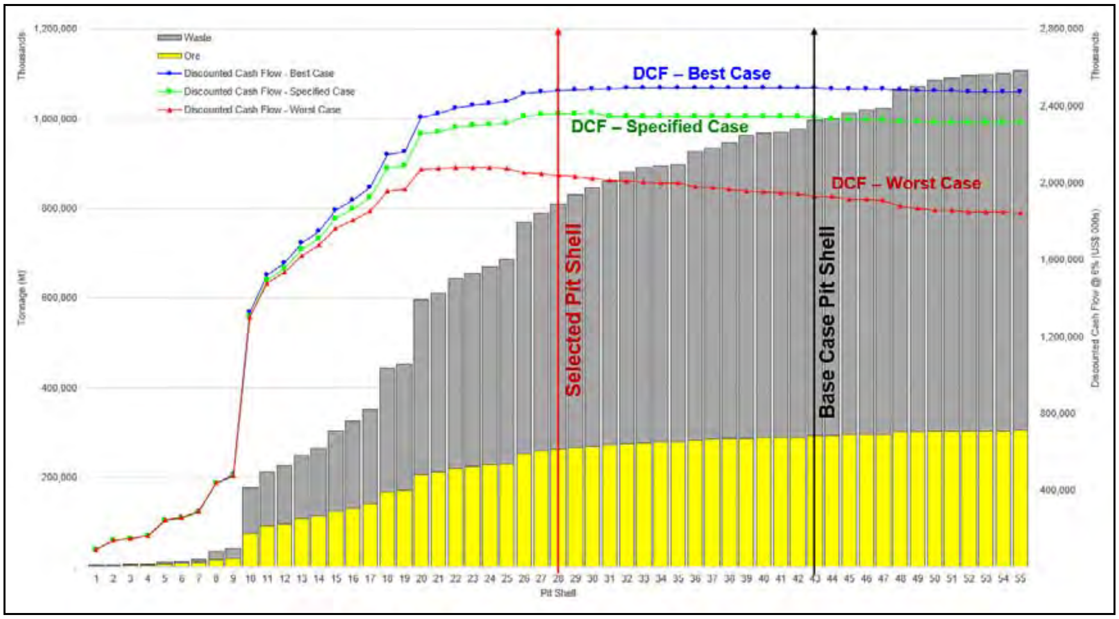
Parameter	Unit	Value
Zone 2	%	1.00
Zone 3	%	0.00
Zone 4	%	1.50
Zone 5	%	0.75
Zone 6	%	1.50
Zone 7	%	0.75
Zone 8	%	0.75

Figure 15-1: Royalty Zones



Note: Figure prepared by Wood, 2018.

Figure 15-2: Pit-by-Pit Analysis



Note: Figure prepared by Wood, 2018.

Following this analysis, the selected pit shell is usually smaller than the base case pit shell. The selected pit shell is shown in Figure 15-3. This represents a net present value (NPV) improvement of US$17.9 M over the base case pit shell.

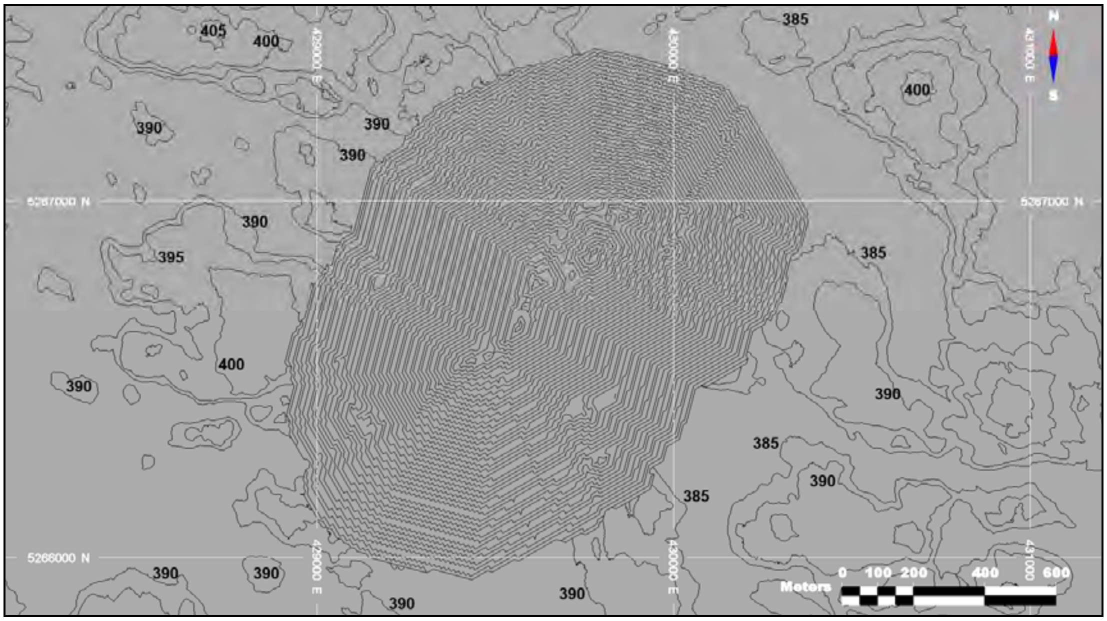
15.3 Dilution and Ore Losses

The resource model is diluted. However, ore losses during mining are accounted for by simulating the mixing of material from adjacent blocks. The procedure to determine ore losses during mining results in a reduction of gold grade but it does not reduce tonnage. The procedure is illustrated in Figure 15-4.

Ore losses were estimated using the following steps:

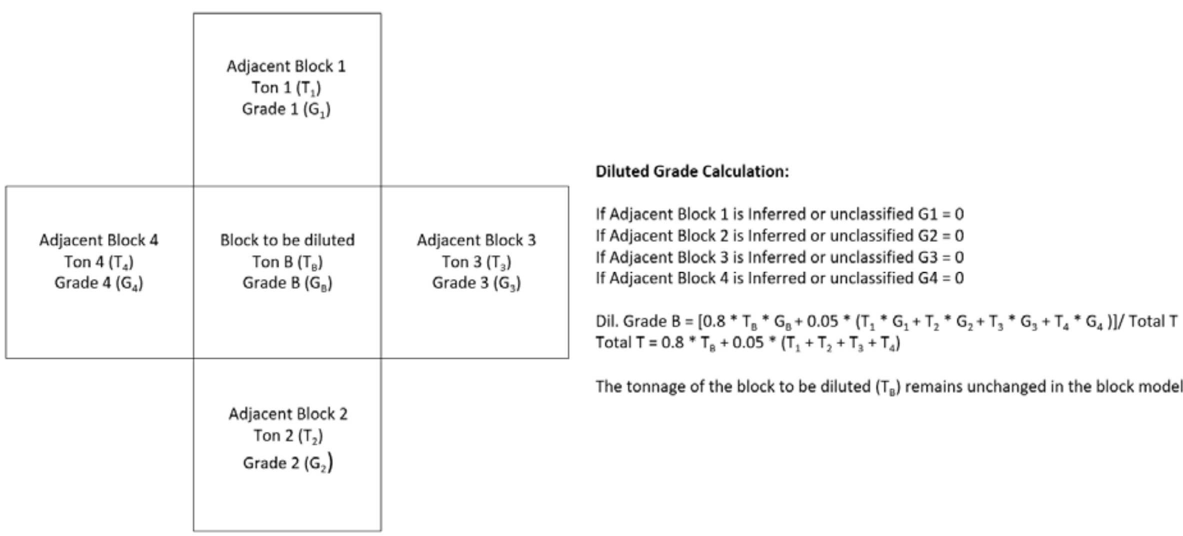
- The grade of a given block will be blended using 5% of the tonnage from each of the four adjacent blocks
- If an adjacent block is classified as Inferred Mineral Resource, its grade is considered to be zero. If the adjacent block is Measured or Indicated, but below cut-off, dilution is taken at the grade of the adjacent block
- The estimated average ore losses (gold) using this procedure is 0.7%.

Figure 15-3: Selected Pit Shell



Note: Figure prepared by Wood, 2018.

Figure 15-4: Ore Losses Estimation Procedure



Note: Figure prepared by Wood, 2018.

15.4 Mineral Reserve Statement

The Mineral Reserve estimate includes the tonnage and grade of ore that can be economically mined and processed. To be considered Mineral Reserves the mineralised material must pay for mining costs, processing costs, selling costs, royalties and rehandling costs.

As the mining cost increases with depth and the royalty percentage varies by zone, individual blocks captured within the final pit design were tagged as either ore or waste by applying the parameters shown in Table 15-1. Using the partial block percentages within the final pit design the ore tonnage and average grade were estimated.

The Mineral Reserves statement is shown in Table 15-2. The cut-off applied to the reserves is variable with a range of 0.33 to 0.37 g/t Au and averages 0.35 g/t Au. The effective date of the Mineral Reserves estimate is 1 October, 2018. The Qualified Person for the estimate is Dr. Antonio Peralta Romero, P.Eng., a Wood employee.

15.5 Factors That May Affect the Mineral Reserve Estimate

The Mineral Reserves estimated for the Côté Gold Project are subject to the types of risks common to most open pit gold mining operations that exist in Ontario. The risks are reasonably well understood at the feasibility level of study and should be manageable. Proper management of groundwater will be important to maintaining pit slope stability.

15.6 Comments on Section 15

The mine plan and financial analysis supporting the Mineral Reserves statement is included in Section 24 of this Report. Note that only 203 Mt of the Mineral Reserves are included in the Base Case mine plan in Section 16 and the financial analysis in Section 22 to support the permit application. The remaining 30 Mt of Mineral Reserves are included in the Extended Case mine plan discussed in Section 24.

Table 15-2: Mineral Reserves Statement

Classification	Tonnes (Mt)	Grade (g/t Au)	Total Contained Ounces (oz x 1,000)
Mineral Reserves within Base Case Mine Plan			
Proven	134.3	1.03	4,440
Probable	68.7	0.88	1,950
Proven and Probable	203.0	0.98	6,391
Mine rock within Base Case pit	491.7		
Incremental Mineral Reserves within Extended Case Mine Plan			
Proven	4.9	1.26	200
Probable	25.1	0.86	694
Proven and Probable	30.0	0.93	894
Incremental mine rock within Extended Case pit	119.8		
Total Mineral Reserves			
Proven	139.2	1.04	4,640
Probable	93.8	0.88	2,644
Proven and Probable	233.0	0.97	7,284
Total mine rock within Extended Case pit	611.5		
Total tonnage within Extended Case pit	844.5		

Notes to accompany Mineral Reserves Table:

1. The effective date of the Mineral Reserves estimate is 1 October, 2018. The Qualified Person for the estimate is Dr. Antonio Peralta Romero, P.Eng., a Wood employee.

2. The Mineral Reserves were estimated assuming open pit mining methods, and are reported on a 100% Project basis.

3. Mineral Reserves used the following assumptions: gold price of $1,200/oz; fixed process recovery of 91.8%; treatment and refining costs, including transport and selling costs of $1.75/oz Au; variable royalty percentages by zone: 0.75% for Zone 1, 1.00% for zone 2, 0.00% for zone 3, 1.50% for zone 4, 0.75% for zone 5, 1.50% for zone 6, and 0.75% for zones 7 and 8; overall pit slope angles varying by sector with a range of 45.8° to 56.4°; processing costs of 10.17/t, which includes process operating costs of $7.01/t, general and administrative costs of $1.84/t, sustaining costs of $0.82/t, and closure costs of $0.50/t; mining costs of $1.61/t incremented at $0.029/t/12m below 388 elevation, life-of-mine average mining costs of $2.01/t, and rehandling costs of $0.87/t. The cut-off applied to the reserves is variable with a range of 0.33 to 0.37 g/t Au and averages 0.35 g/t Au.

4. Numbers have been rounded. Totals may not sum due to rounding.

16.0 MINING METHODS

16.1 Overview

The Base Case mine plan is based on a subset of the Proven and Probable Mineral Reserves and this Base Case mine plan is used to support the permit application. The pit optimization steps were outlined in Section 15.2.

16.2 Geotechnical Considerations

Wood completed the following tasks to support and update the Base Case mine plan feasibility-level pit slope design:

- Site visit to perform geomechanical logging and reconciliation of previously drilled rock core for QA/QC (572 m of “GT” core and 335 m of “GA” core);
- Data processing and compilation of previously completed geomechanical investigations and site-specific resources supplied by IAMGOLD to produce the following data summary for subsequent analysis:
  - Sub-division of the structural and rock mass classification data into 5 design sectors
  - Main joint sets orientation and joint set number (Jn) per domain
  - Rock mass characterization per domain and lithology (RMR76, RMR89, GSI, Q)
  - Laboratory strength testing data per lithology (density, unconfined compressive strength or UCS)
  - Intact rock (m, s) or Joint (C, Phi) strength data per lithology
- Kinematic analysis establishing the potential mode of structural failures such as wedge, topple and planar failures
- Limit equilibrium modelling of the above modes of failure to determine factor of safety and criticality based on the probability of failure and wedge size
- Overall slope stability analysis of the main pit walls including review of the hydrogeological conditions (Limit Equilibrium and Finite Element)
- Evaluation and recommendation of the final pit walls geometry, by developing optimal bench design, bench face angles (BFA), bench widths (BW), inter-ramp angles (IRA), and overall slope angles (OSA) per sector.

Initial pit slope design criteria were based primarily on all the compiled, reconciled and updated geomechanical data using the PFS pit shell geometry defined by Amec Foster Wheeler (2017). Following pit optimization, the pit geometry was compared for changes in the slope orientation that may be impacted by different kinematic influences, and review using limit equilibrium modelling of the potential modes of failure to determine adequacy of the bench and inter-ramp design, with recommendations for adjustment.

The database of geomechanical features within each lithological unit was compiled based on comparison and review of the different data sources provided by IAMGOLD. This database was used for pit slope design. The assessment of various rock structural domains was based on the analysis of 26 HQ-3 sized inclined boreholes from three different drilling programs.

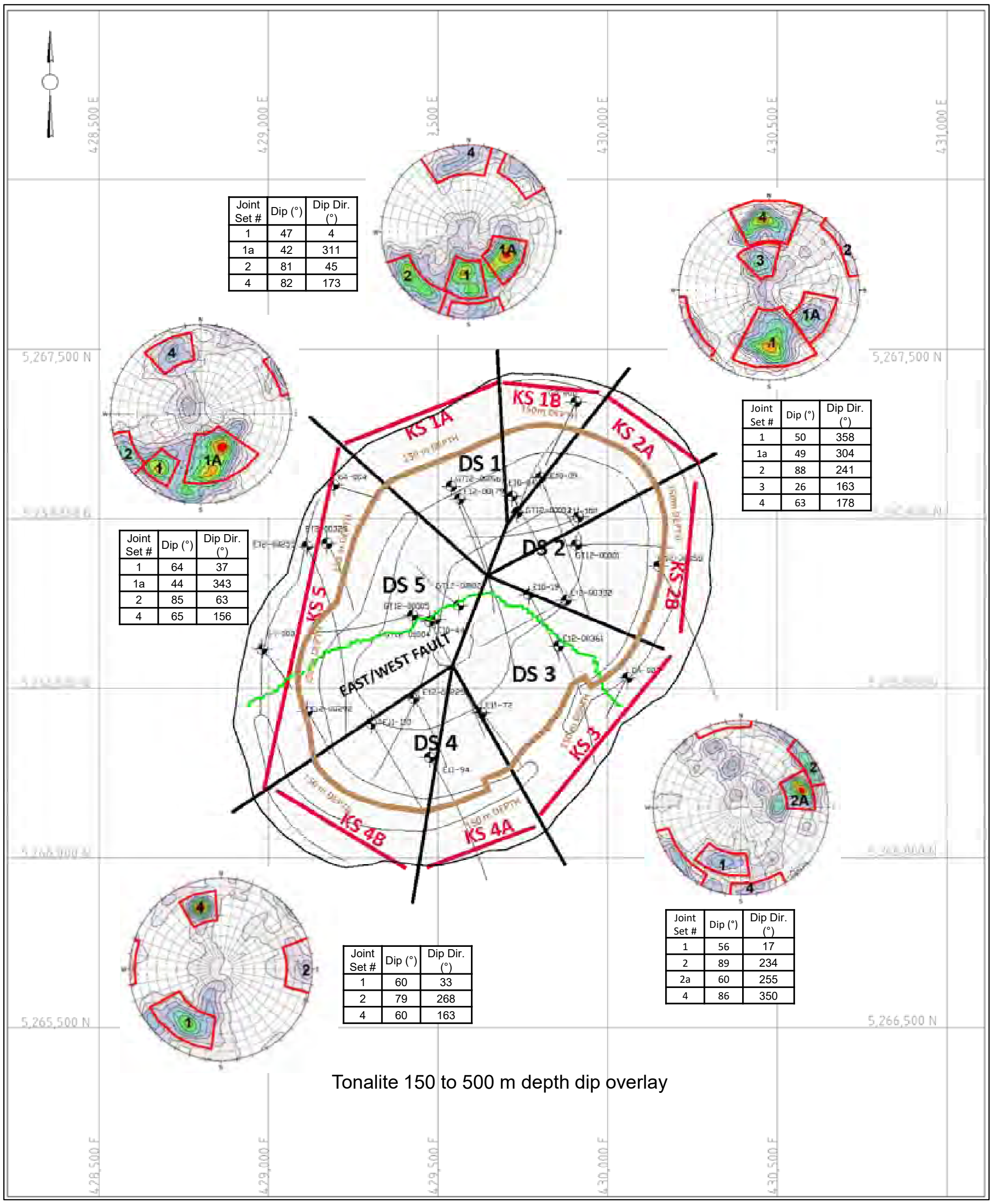
The pit has been sub-divided into five (5) main structural domains (design sectors) related to the pit geometry such that the structural joint fabric was analysed for each design sector with subdivision of the data into the upper (0–150 m below ground surface (bgs)) and lower (150–500 m bgs) zones of the pit to separate the near surface variation of the increased joint frequency. The predominant rock type that is expected to form the final walls is primarily tonalite, which is expected to form roughly 55–70% of the exposed wall.

It was found that the rock mass quality did not vary greatly with lithology, with an average weighted GSI for Tonalite of between 62 and 66. The uniaxial compressive strength of the tonalite was on average 166 MPa with a mi of 11 for the Hoek and Brown (1980) intact failure parameter. From direct shear testing on open joints it was found the Mohr-Coulomb shear strength of a cohesion of 112 KPa and friction angle of 35° was determined for the tonalite joints.

This geotechnical model was used as the basis for kinematic stability analysis and failure criteria filtering. Wedge, plane and toppling limit equilibrium analysis of critical failure modes were used to develop appropriate BFAs and inter-ramp angles (IRA) that met an 80% reliability acceptance criterion. These slope design criteria were then used to perform pit optimization per design sector. A final evaluation of the slope stability and final OSA, was undertaken under various conditions.

The five main design sectors of the pit related to the geometry and the major east–west-trending fault can be seen in Figure 16-1.

Figure 16-1: Open Pit Design Sectors, Kinematic Segments and Joint Fabric (150 to 500 m) for the Base Case Pit Shell



Joint Set #	Dip (°)	Dip Dir. (°)
1	47	4
1a	42	311
2	81	45
4	82	173

Joint Set #	Dip (°)	Dip Dir. (°)
1	50	358
1a	49	304
2	88	241
3	26	163
4	63	178

Joint Set #	Dip (°)	Dip Dir. (°)
1	64	37
1a	44	343
2	85	63
4	65	156

Joint Set #	Dip (°)	Dip Dir. (°)
1	56	17
2	89	234
2a	60	255
4	86	350

Joint Set #	Dip (°)	Dip Dir. (°)
1	60	33
2	79	268
4	60	163

Note: Figure prepared by Wood, 2018.

For most sectors, a BFA of 75° is achievable, resulting in an IRA between 54° and 56.4°. In southeast and south design sectors 3 and 4, which are controlled by planar and wedge failures associated with the dominant joint set 1, the BFA was adjusted to an appropriate value between 60° and 72°. Bench widths in each sector were widened as necessary, based on the significance of toppling and wedge failures, from a minimum value of 9.5 m up to 12 m assuming double benching on the final wall (single bench height of 12 m). A 20 m wide geotechnical berm is recommended for midpoint between inter-ramp spacing greater than 150 m.

The principal failure modes controlling bench and inter-ramp stability are toppling failure observed in the north and northeast walls (DS 1 and KS 2A). Wedge failure dominates in the east wall (DS 2 and 3) while planar failure controls bench face angles, with also some toppling failure in DS 4. In sector 5 again wedge failure dominates but at a lower likelihood of formation. Overall, wedge failure dominates the stability of the benches.

Overall slope stability analysis was performed using limit equilibrium and two-dimensional finite element modelling to determine a probabilistic assessment of the overall factor of safety and probability of failure. Hydraulic consideration based hydrogeological modelling were incorporated into static and pseudo-static analyses. The results indicate factor of safety ranges from a lowest of 1.3 to >3.0 for the highest and steepest slope sectors for the pseudo-static and static cases respectively. The acceptance criteria of 1.1 and 1.3 for pseudo-static and static cases are exceeded for all pit sectors with a probability of failure of <1%, indicating global stability is anticipated.

16.3 Hydrogeological Considerations

Dewatering will be accomplished via inpit pumping for both ground water inflows, and inflows from precipitation and runoff.

16.4 Mine Design

The Base Case mine plan is designed as a truck-shovel operation assuming 220-t autonomous trucks and 34 m^3 shovels. The pit design includes four phases to balance stripping requirements while satisfying the concentrator requirements.

The design parameters include a ramp width of 35 m, road grades of 10%, bench height of 12 m, targeted mining width between 90 m, berm interval of 24 m, variable slope angles by sector and a minimum mining width of 40 m.

The smoothed final pit design contains approximately 203 Mt of mill feed and 492 Mt of waste for a resulting stripping ratio of 2.4:1. The 203 Mt processed fits within the maximum capacity of the TMF. The average grade of this material is 0.98 g/t Au. These tonnages and grades were derived by following an elevated cut-off strategy in the production schedule. Figure 16-2 shows the ultimate pit design. Figure 16-3 and Figure 16-4 are sections through the pit illustrating the LG shell vs the Base Case pit design.

16.5 Storage Facilities

The design and construction of the MRA, overburden stockpile and ore stockpiles for the Base Case should ensure physical and chemical stability during and after mining activities. To achieve this, the MRA and stockpiles were designed to account for benching, drainage, geotechnical stability, and concurrent reclamation.

16.5.1 Mine Rock Area

The MRA will be constructed southeast of the planned open pit to store mine rock from the open pit excavation. The rock piles will be built in 10 m lifts with 25.5 m benches to provide an overall safe slope of 2.6H:1V. The inter-bench slopes will be at the angle of repose of the rock. In its ultimate configuration, the MRA will store 350 Mt of mine rock with its final crest elevation at an approximate elevation of 480 m.

Collection ditches and six runoff collection ponds/sumps will be built at topographical low points around the MRA perimeter to collect runoff and seepage, which will then be pumped to the polishing pond.

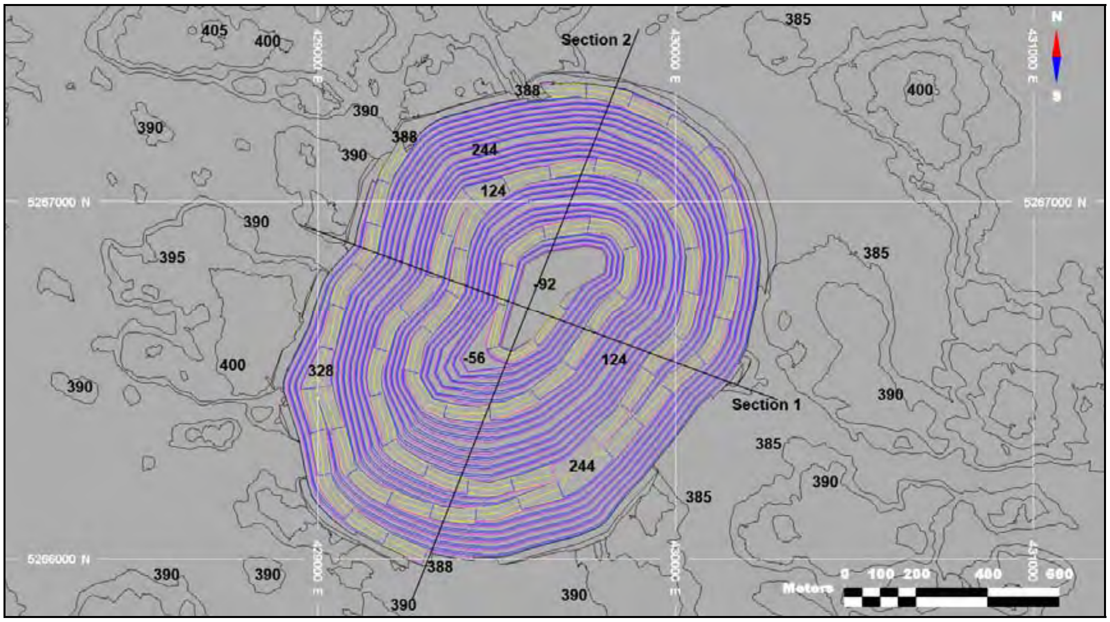
Figure 16-5 shows the proposed locations of the MRA and the overburden stockpile.

16.5.2 Topsoil/Overburden Storage

The overburden storage, which will be located to the southwest of the pit, will have a storage capacity of approximately 8.2 Mm^3.

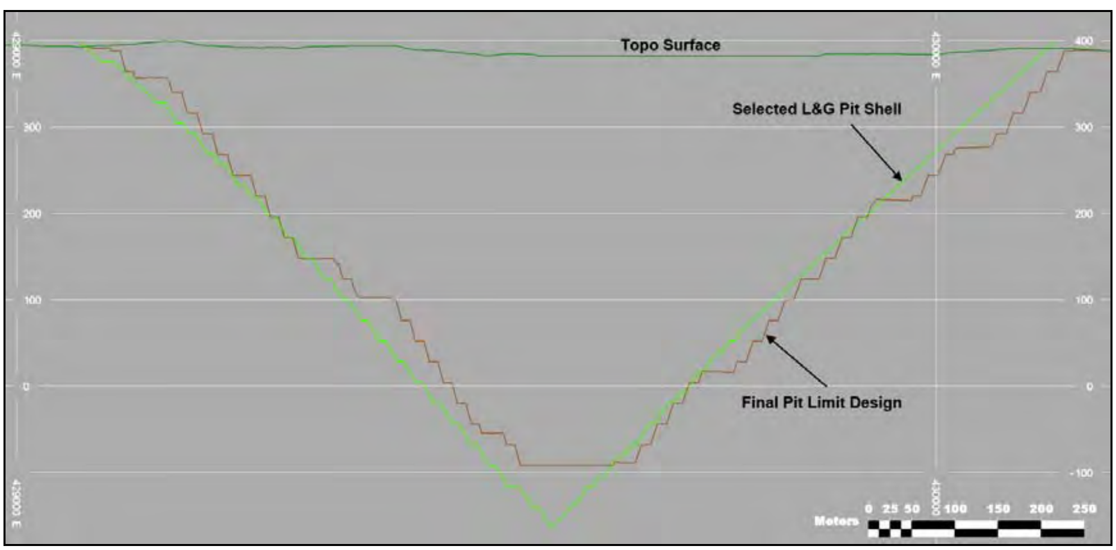
The stockpiles will contain stripped materials from all excavations from the project development. The stockpiled materials will be used for rehabilitation applications at closure. Sedimentation ponds will be built to settle out solids before release to the environment.

Figure 16-2: Ultimate Pit Design



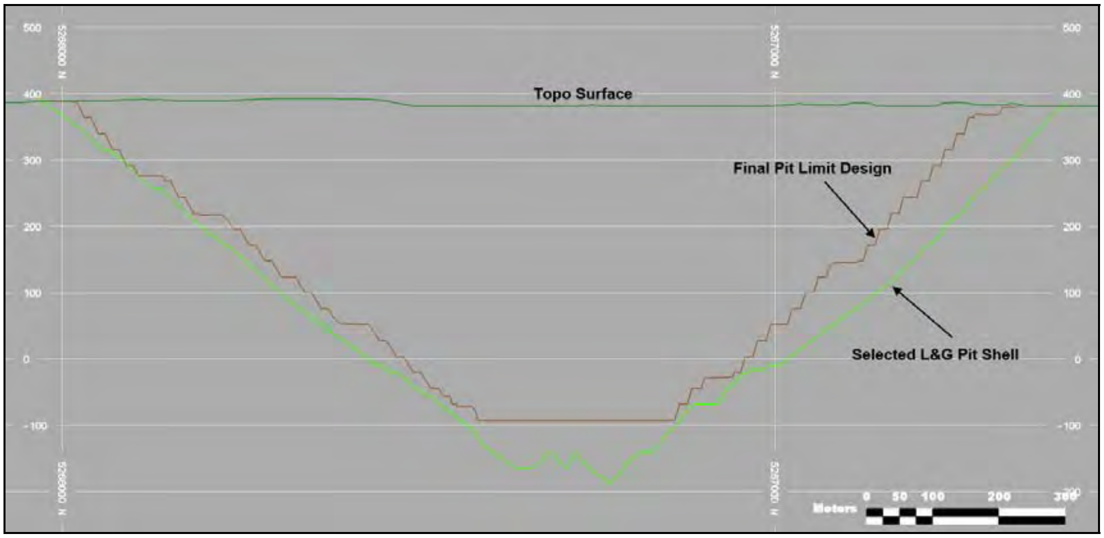
Note: Figure prepared by Wood, 2018.

Figure 16-3: Section 1 Showing Mine Design and Selected Pit Shell



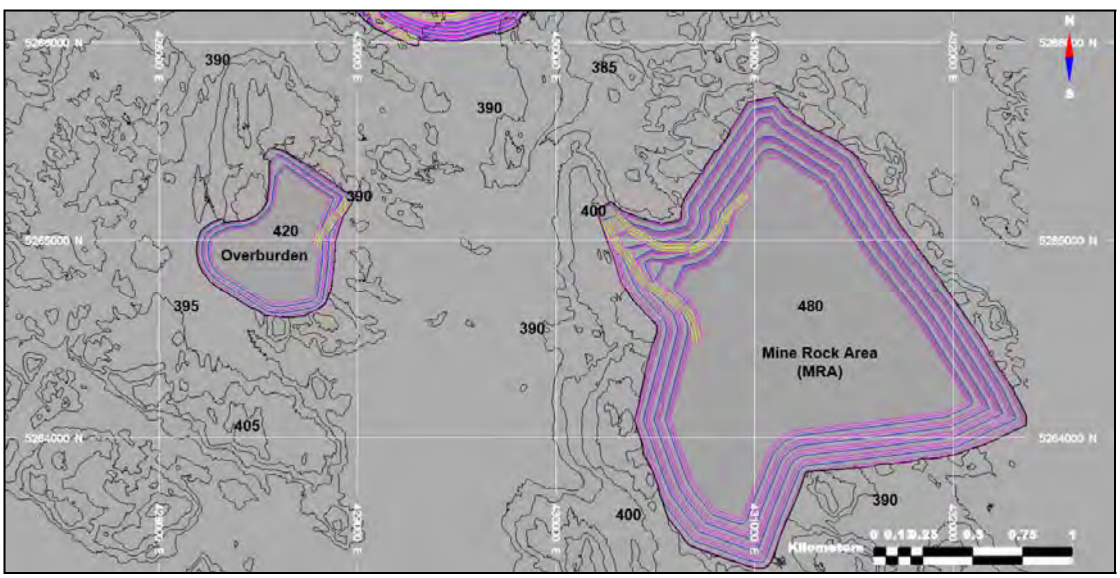
Note: Figure prepared by Wood, 2018.

Figure 16-4: Section 2 Showing Mine Design and Selected Pit Shell



Note: Figure prepared by Wood, 2018.

Figure 16-5: Mine Rock Area and Overburden Stockpile



Note: Figure prepared by Wood, 2018.

16.5.3 Ore Stockpiles

The ore stockpiles will be located on the north side of the pit and have a total storage capacity of 23 Mm^3, which is enough to satisfy the maximum stockpiling capacity of approximately 48 Mt required in the production schedule. Figure 16-6 shows the stockpile design with respect to the Côté pit.

16.6 Base Case Production Schedule

16.6.1 Throughput Analysis

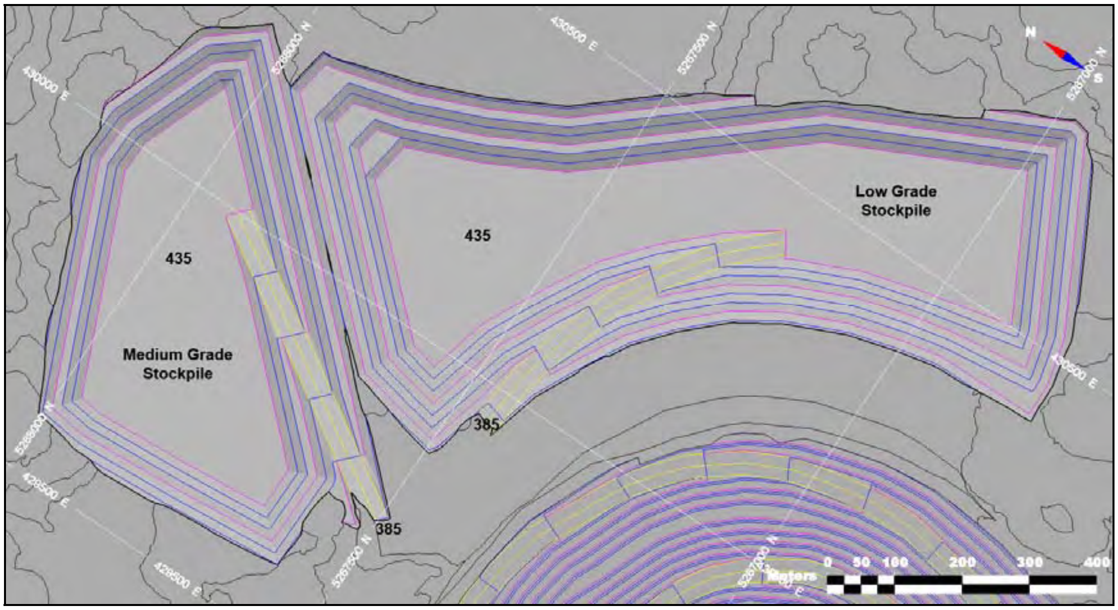
Prior to conducting a detailed production schedule, a series of high-level production scenarios were analyzed using SIMO. The designed ultimate pit limit and the operational phases were imported into SIMO. Mining capacities of 70, 72.5 and 75 Mt/a were analyzed for stockpiling capacities of 30, 40 and 50 Mt generating nine scenarios. The SIMO analysis shows that a stockpile capacity of 40 Mt or more maximizes the cash flow. In the same manner, the cash flow improves as the mining capacity increases. However, this analysis does not include capital expenditures and the excess mining capacity will require additional equipment. An additional high-level scenario was developed using MineSight Schedule Optimizer (MSSO). This analysis showed that the highest cash flow achieved by SIMO could be replicated using a lower mining capacity. As a result, a maximum mining capacity of 62 Mt/a was selected to develop the detailed production schedule.

16.6.2 Production Schedule

The production schedule includes the process plant ramp up schedule. This schedule takes into account the inefficiencies related to start of operations, and includes the tonnage processed as well as the associated recoveries, which steadily increase to reach the design capacity after 10 months of operation. The mine will require one year of pre-production before the start of operations in the processing plant. Although the mine requires one year of pre-stripping, mining starts in Year -2 to provide material for the TMF construction.

The deposit is planned to be mined in four phases included within the ultimate pit limit. The schedule was developed in quarters for the pre-production period and for the first five years of production, then in annual periods.

Figure 16-6: Ore Stockpiles

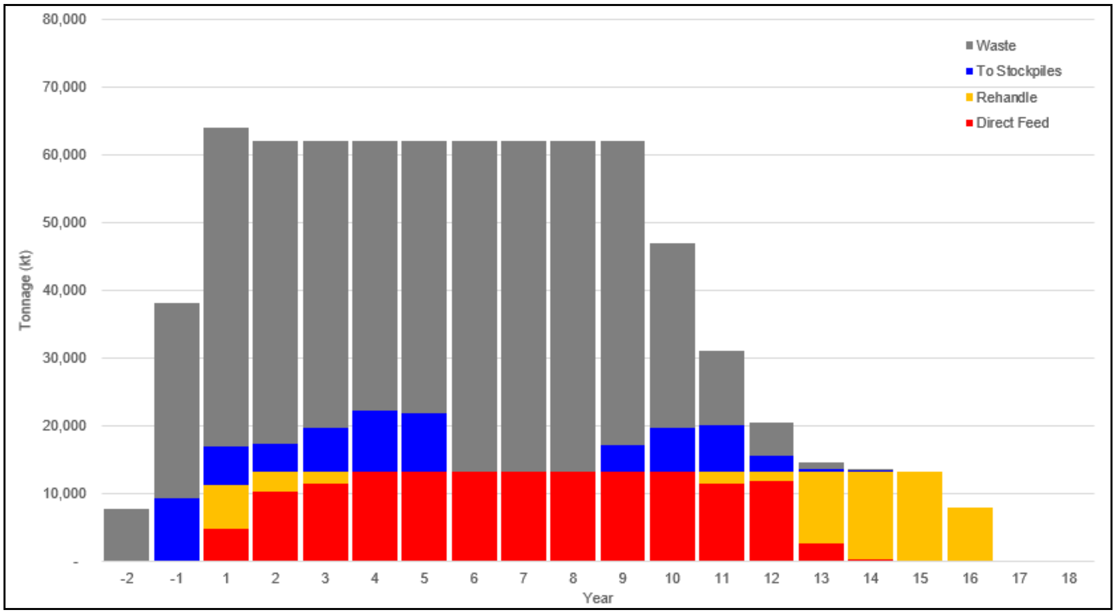


Note: Figure prepared by Wood, 2018.

The scheduling constraints set the maximum mining capacity at 62 Mt/a and the maximum number of benches mined per year at eight in each phase. Additional constraints were used to guide the schedule and to obtain the desired results. Examples of these additional constraints include feeding lower grades during the first months of the plant ramp-up schedule, the maximum stockpile capacity and reducing the mining capacity in later years to balance the number of truck requirements per period.

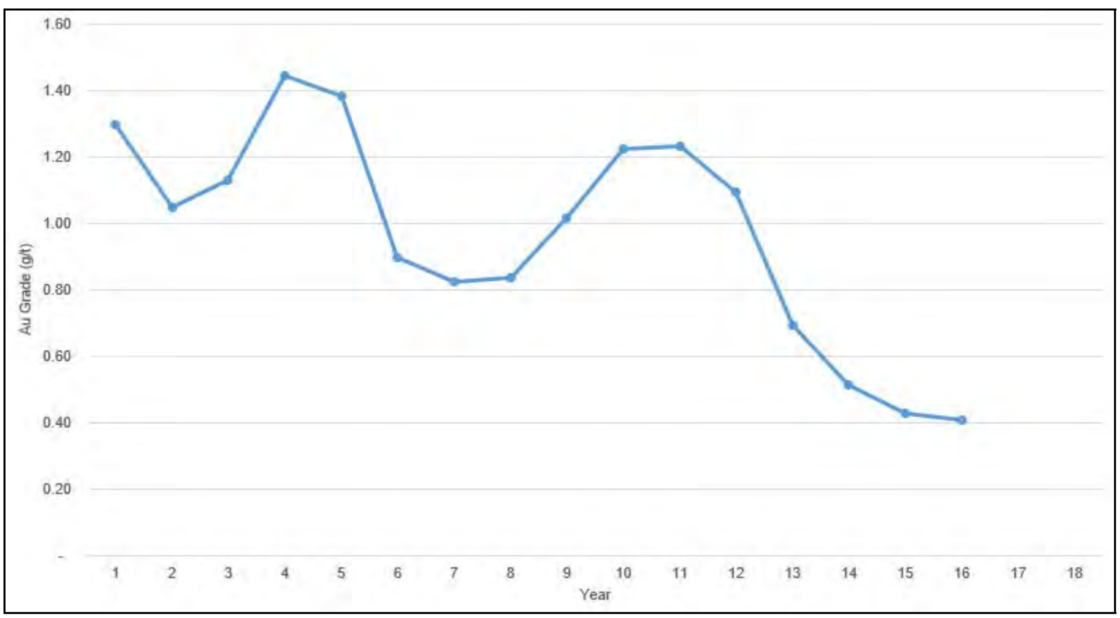
The schedule produced a life-of-mine (LOM) of 13 years with stockpile reclaim extending into Year 16. The amount of re-handled mill feed is 59 Mt, which requires a maximum stockpile capacity of 48 Mt when considering the reclaim. The average grade is 0.98 g/t Au. The proposed yearly LOM schedule is shown in Figure 16-7. Figure 16-8 shows the scheduled feed grade and Figure 16-9 shows the anticipated stockpile balance.

Figure 16-7: Production Schedule



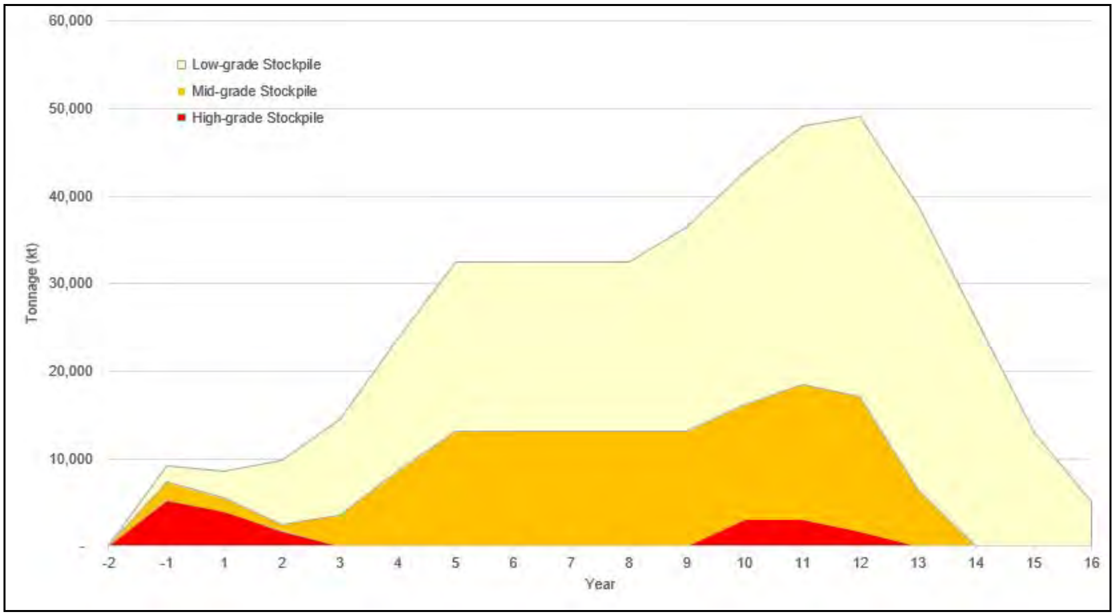
Note: Figure prepared by Wood, 2018.

Figure 16-8: Scheduled Total Feed Grade



Note: Figure prepared by Wood, 2018.

Figure 16-9: Stockpile Balance



Note: Figure prepared by Wood, 2018.

16.6.3 Mining Sequence

Waste Material Handling

Waste will be hauled to the MRA using 220 t trucks. The construction sequence starts at the bottom of the dump by dumping the material in 10-m lifts, leaving a 25.5-m berm every two lifts. The resulting overall slope angle of the dump face will be 2.6H:1V.

16.7 Base Case Operating Schedule

The Base Case mine plan is scheduled to operate 24 hr/d, seven d/wk using four rotating crews working 12 hr shifts. During the day, there are two 12 hr shifts scheduled, consisting of a day shift and a night shift.

Because the mine will support autonomous truck and drill operations, shovel, drill, and truck crews "hot change" or overlap between shifts to allow for continuous mine operations. Additionally, the autonomous trucks and drills do not require breaks, and the shovels will use relief operators to cover for breaks which should allow the equipment to achieve approximately 7,287 gross operating hours in a year. The autonomous equipment standby time per day includes 30 minutes (0.25 hours/shift) for fueling, 20 minutes (0.17 hours/shift) for blast delay, and 15 minutes (0.13 hours/shift) for shift change. Autonomous equipment is not affected by poor visibility due to inclement weather; consequently, only 30 hours per year are considered for weather delays.

For support equipment, approximately 3.25 hours are lost per day to standby time, inclusive of two hours for breaks, 30 minutes for fueling, 20 minutes for shift change, 20 minutes for blast delay, and five minutes for meetings. Over a year, approximately five days or 120 hours are assumed lost to poor weather conditions, predominantly in the winter time. It is assumed that the equipment is manned but delayed during these weather events.

Based on input from multiple equipment suppliers, productive utilization following ramp-up is estimated at 90% for the autonomous trucks and 80% for the autonomous drills. For all support equipment and the shovels, it is estimated that the equipment is in a productive cycle approximately 50 minutes each hour, or 83% of the time. During the pre-production period, the truck and shovel equipment's productive utilization has been de-rated to account for the autonomous commissioning, initial site conditions and operator skill level. On the advice of multiple equipment suppliers, the truck commissioning schedule allows for one year.

Like mine operations, mine maintenance is scheduled to work a 24/7 schedule to allow for continuous maintenance coverage. However, the majority of planned maintenance work is anticipated to be done during the day shift with a skeleton crew scheduled for the night shift.

Blasting is scheduled during the daylight hours. Two contract blasting crews will rotate on a 12 hr/d shift, for 7 d/wk coverage.

A number of duties only require work during the daylight hours. For these duties, two crews rotate to provide 7 d/wk day-shift coverage. Personnel not engaged in shift work, work a four-day on, three-day off schedule, for a 10-hr shift.

16.8 Blasting and Explosives

Blasting operations will be contracted to a blasting explosives provider who will be responsible for explosive supply, shot design, loading, stemming, and blast initiation.

Based on a bid analysis, EPC was selected to support the 2018 Feasibility Study, and will supply a 50/50 emulsion product from an off-site facility.

Drilling will be required for both ore control and blasting. Rock fragmentation achieved through blasting is the overriding design criteria for the drill hole pattern design.

Penetration rate assumptions are based on field tests conducted by Epiroc within the deposit area. The production drill equipment is likely to consist of a PV231 drill fleet. By the end of pre-production, the Project requires four large production drills. The four drills will be required until Year 9, after which production rates began to decline. Meters drilled assumptions include a 2% allowance for re-drills. Penetration rates are estimated to average 23.1 m/h.

In addition to production drilling, pre-split drilling will be required for all intermediate and final walls. A Smartroc D65 drill is likely to be used for pre-split drilling.

For highwall protection, a three-hole trim pattern will be shot adjacent to all walls. All material with the exception of overburden will be shot. The overburden material, consisting of peat and glacial till that overlies the deposit, will be free-dug by the contractor. For production ore shots, electronic detonators will be used. All other shots will use pyrotechnic detonators.

16.9 Grade Control

Ore control will be conducted by sampling the bench drill cuttings, assaying these cuttings at an onsite laboratory, estimating ore grades from the assays, and then muck staking the ore polygons in the field. Ore and waste routing will be tracked via the MineStar fleet management system.

16.10 Mining Equipment

16.10.1 Overview

Mining operations for the Base Case will use an autonomous truck and drill fleet, supported by a conventional manned loading fleet and a fleet of manned support equipment. The truck fleet will be diesel-powered with the capacity to mine approximately 60.0 Mt per year operating on 12 m benches. The hydraulic shovel fleet will be electric powered supported by two large diesel-powered front-end loaders (FELs).

The mine will be supported by multiple contractors. A contractor miner is assumed to mine all overburden within the mine plan and to develop the initial benches in the pre-production period for the autonomous fleet. A maintenance and repair contract (MARC) will be in place during pre-production and the first three years of operation. Blasting will be done by a contract down hole service during the LOM. A full-service contract tire provider will be used throughout the LOM to supply, repair, and change tires at the mine site.

Equipment requirements are estimated on a quarterly basis during pre-production and the first five years of mining, and annually thereafter. Equipment sizing and numbers are based on the mine plan, maintenance availability assumptions, and a 24/hr, 7 d/wk work schedule.

16.10.2 Loading

The selected primary loading unit is the CAT 6060 electric/hydraulic (6060E) shovel. Two are required at peak. To assist the CAT 6060E shovel, two CAT 994K high lift FELs are scheduled throughout the mine life. The CAT 994K FEL will also be used for stockpile re-handle, most of which is scheduled towards the end of mining. The FELs are also scheduled to supplement the shovel production on an as-needed basis and to dig shovel drop cuts. The mine is designed in an over-shoveled configuration.

16.10.3 Hauling

The selected primary hauling unit is a CAT 793F mechanical drive truck operated in autonomous mode. It has a payload capacity of 217.6 t wet, assuming a standard body with a full set of liners. The dry capacity is estimated at 215 t, assuming 1.2% moisture and carry back.

Truck requirements during preproduction are based on a one-year commissioning period. One autonomous truck is assumed to be assembled and then commissioned every two weeks. During the first two months, the trucks would be operated on day shift only. The night shift would be introduced after the third month. Truck commissioning would be performed in a large rock bench located in phase 1 developed by the contract miner during pre-production Year -2. The autonomous trucks would be commissioned in isolation with no interference with contract miners or construction activities. Following the one-year commissioning period, the truck fleet will grow to 17 trucks and then steadily increase to a peak of 20 in Year 6. Truck requirements will then ramp down as production ramps down with two trucks remaining for stockpile re-handle in Years 15 and 16.

16.10.4 Support

Support equipment includes excavators, track dozers, rubber-tired dozers (RTDs), sand trucks, graders, water trucks, fuel/lube trucks, and water trucks. The major tasks for the support equipment include:

- Bench and road maintenance
- Shovel support/clean-up
- Blasting support/clean-up
- MRA maintenance
- Stockpile construction/maintenance
- Road building/maintenance
- Field equipment servicing.

Support equipment requirements over the LOM are shown in Table 16-1.

16.10.5 Auxiliary

To support mine maintenance and mine operation activities, a fleet of auxiliary equipment is required. The equipment to support mine maintenance is planned to be purchased in Year 4 following the three-year MARC contract and prior to starting Owner maintenance. The types and numbers of auxiliary equipment are listed in Table 16-2.

16.11 Comments on Section 16

The Base Case mine plan is based on 203 Mt of the total 233 Mt of the Proven and Probable Mineral Reserves and this mine plan is used to support the permit application. The mine design is conventional.

Table 16-1: LOM Support Equipment Requirements

Year	CAT 390F Excavator	CAT 336F Excavator	CAT D10 Dozer	CAT 834 RTD	CAT 777 Water Truck	CAT 16 Grader	CAT 740 Sand Truck	CAT 740 Fuel/Lube Truck
PP -1	1	1	2	1	2	2	1	2
Yr1	1	1	4	2	2	3	1	2
Yr2	1	1	4	2	2	3	1	2
Yr3	1	1	4	2	2	3	1	2
Yr4	1	1	4	2	2	3	1	2
Yr5	1	1	4	2	2	3	1	2
Yr6	1	1	4	2	2	3	1	2
Yr7	1	1	4	2	2	3	1	2
Yr8	1	1	4	2	2	3	1	2
Yr9	1	1	4	2	2	3	1	2
Yr10	1	1	4	2	2	3	1	2
Yr11	1	1	3	1	2	2	1	2
Yr12	1	1	3	1	1	2	1	1
Yr13	1	1	2	—	1	1	1	1
Yr14	1	1	2	—	1	1	1	1
Yr15	—	—	1	—	1	1	-	1
Yr16	—	—	1	—	1	1	-	1

Table 16-2: Auxiliary Equipment

Item	Q1 Yr-1	Q2 Yr-1	Q3 Yr-1	Q4 Yr-1	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr10	Yr15	Yr16
Truck-mounted 40 t crane	—	—	1	1	1	1	1	1	1	1	-	-
80 t rough terrain	—	—	1	1	1	1	1	1	1	1	-	-
5 t forklift	—	—	—	—	—	—	—	2	2	2	1	1
10 t forklift	—	—	—	—	—	—	—	2	2	2	1	1
Mechanic service truck	—	—	—	—	—	—	—	3	3	3	1	1
Small fuel/lube truck	—	—	—	—	—	—	—	1	1	1	1	1
CAT262 skid steer	—	—	—	—	—	—	—	1	1	1	1	1
Flatbed truck	—	—	—	—	—	—	—	2	2	2	1	1
CAT TL1255 telehandler	—	—	—	—	—	—	—	1	1	1	1	1
CAT 450F backhoe/loader	1	1	1	1	1	1	1	1	1	1	—	—
Cat H180DS hydraulic hammer/impactor	1	1	1	1	1	1	1	1	1	1	—	—
160t lowboy	1	1	1	1	1	1	1	1	1	1	—	—
Compactor	1	1	1	1	1	1	1	1	1	1	—	—
Light plant	3	3	9	12	12	12	12	12	12	11	3	2
4,000 gallon water truck	1	1	1	1	1	1	1	1	1	1	—	—
Small dump truck	2	2	2	2	2	2	2	2	2	2	—	—
3/4 ton pickup	—	—	3	3	3	3	3	5	5	5	2	2
1 ton pickup	1	2	3	4	4	4	4	6	6	6	2	2
Crew bus	1	1	3	3	3	3	3	5	5	5	2	1
Slope monitoring stations	2	2	2	2	2	2	2	2	2	2	—	—
Mine and geology software	1	1	1	1	1	1	1	1	1	1	—	—
Pumps	1	1	1	1	1	1	1	1	1	1	—	—
980 k cable reeler	—	—	1	1	1	1	1	1	1	1	—	—
Communication system	1	1	1	1	1	1	1	1	1	1	1	1

17.0 RECOVERY METHODS

17.1 Introduction

The Base Case process circuits will include primary crushing, secondary crushing, HPGR, ball milling, vertical milling, gravity concentration and cyanide leaching, followed by gold recovery by CIP, stripping and electrowinning (EW). Tailings handling will incorporate cyanide destruction and tailings thickening.

Plant throughput will be 36,000 t/d and it is expected that a ramp-up period of 10 months will be required to reach the design throughput.

17.2 Process Flow Sheet

The Base Case process plant will consist of:

- Primary (gyratory) crushing
- Secondary cone crushing and coarse ore screening
- Coarse ore stockpile (COS)
- Tertiary HPGR crushing
- Fine ore screening and storage
- Two milling stages (ball mill followed by vertical stirred mills)
- Gravity concentration and intensive leaching
- Pre-leach thickening
- Whole ore cyanide leaching
- CIP recovery of precious metals from solution
- Cyanide destruction
- Tails thickening
- Elution of precious metals from carbon
- Recovery of precious metals by EW
- Smelting to doré.

The plant will have facilities for carbon regeneration, tailings thickening and cyanide destruction. The overall process flow diagram is shown in Figure 17-1. The process design criteria assumptions are included as Table 17-1. Unit operations are summarized in Table 17-2.

17.3 Base Case Plant Design

17.3.1 Crushing and Coarse Ore Stockpile

Major comminution equipment parameters are shown in Table 17-3.

The 54 x 75 primary gyratory crusher will crush the ore at an average rate of 2,143 t/hr to a P_{80} of 140 mm. Selection of this crusher was based on volumetric throughput and power requirements.

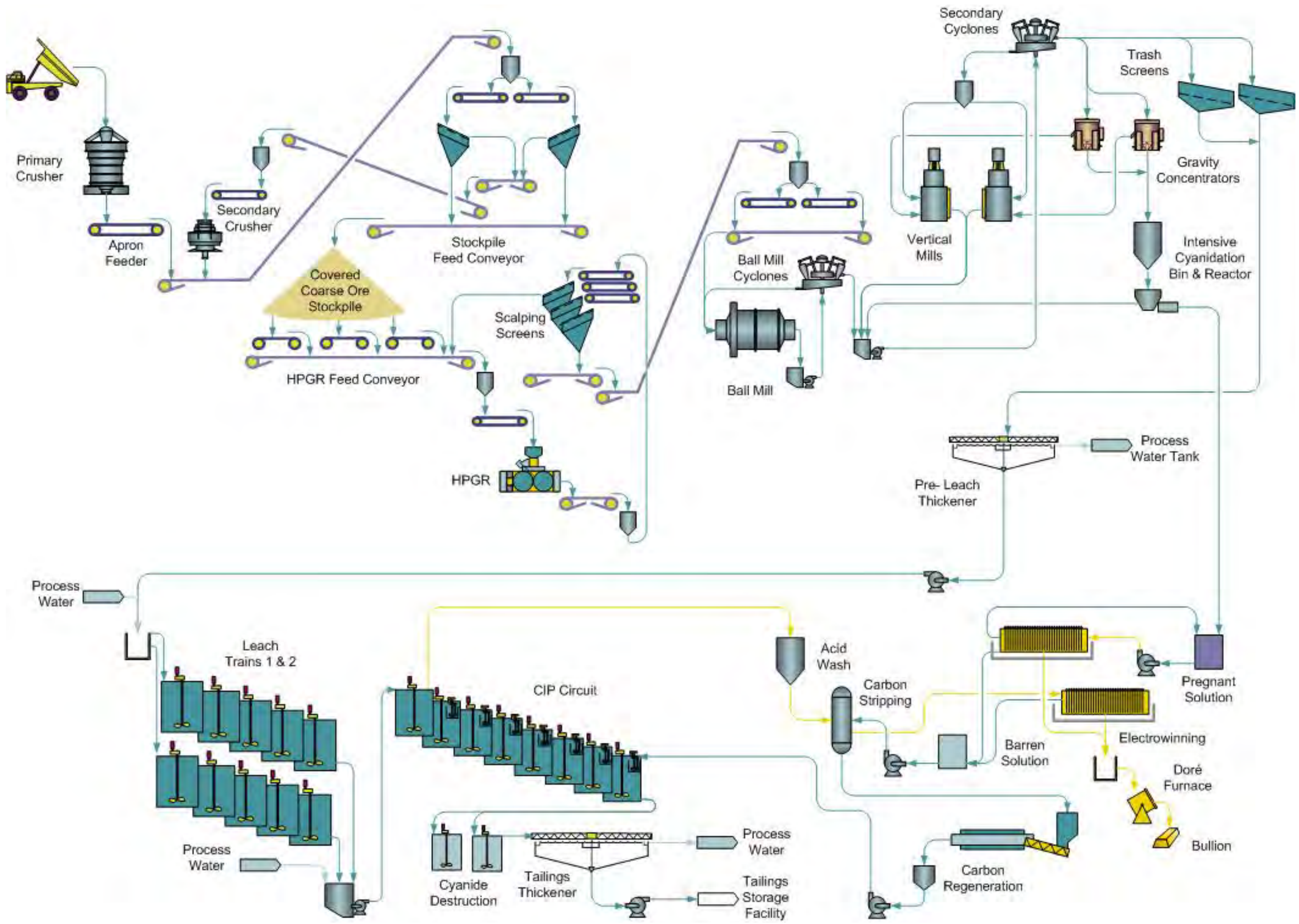
Run-of-mine (ROM) ore from the trucks will be discharged to a dump pocket with a capacity of 330 t or the equivalent to 1.5 times the size of a truckload. The dump pockets will have an agglomerative dust suppression or "fogging" water spray system. The apron feeder discharge chute at the crusher exit will have a baghouse-type dust collector. Crushed ore product from the primary crusher will be transferred to the covered coarse ore conveyor and conveyed, approximately 300 m, to a coarse ore screen distributor located in the screening building.

Primary crusher product will be sized on the coarse ore screens consisting of two double-deck multi-slope vibrating screens. The coarse ore screen oversize will be sent to the 1,250 hp secondary cone crusher. Secondary crusher product will be sent back to the coarse ore screens through the coarse ore conveyor.

Coarse ore screen undersize will be conveyed to the covered COS, which will have a live capacity of 20,157 t, or 12 hr of nominal process plant operation. Total live and dead storage capacity will be 74,720 t, equivalent to 44 hr of normal operation. Using a bulldozer will enable the process plant to continue operating during primary/secondary crushing circuit maintenance shutdown or upset conditions.

The COS will be equipped with three reclaim apron feeders, sized in a way that two feeders can deliver the design rate. A 93 m diameter dome structure will cover the stockpile for weather and dust containment. Additionally, apron feeder discharge chutes will be equipped with filter cartridge-type dust collectors to control dust in the tunnel. Reclaim apron feeders will discharge onto an approximately 260 m long covered stockpile reclaim conveyor.

Figure 17-1: Overall Process Flow Diagram



Note: Figure prepared by Wood, 2018.

Table 17-1: Process Design Criteria

	Parameter	Units	Value
Plant Feed Rate	Shifts / Day		2
	Hours / Shift	Hr	12
	Hours / Day	Hr	24
	Days / Year	Days	365
	Primary / Secondary crushing circuit Utilization	%	70
	Process Plant Availability (1)	%	94
	Annual Processing Rate	M tpy, dry	13.1
	Daily Processing Rate	tpd, dry	36,000
	Crushing Processing Rate, Nominal (2)	tph, dry	2,143
	Plant Processing Rate, Nominal (2)	tph, dry	1,596
Mill Feed Properties	Specific Gravity		2.7
	ROM Bulk Density, Unpacked	t/m^3	1.6
	Moisture Content	%, w/w	3-5
	Design (75th percentile)		
	Abrasion Index		0.68
	Crusher Work Index	kWh/t	13.3
	Bond Ball Mill Work Index	kWh/t	16.1
	Bond Rod Mill Work Index	kWh/t	17.3
	Drop-Weight Index	kWh/m3	11
	Mia (coarse particle component)	kWh/t	28.9
	Mib (fine particle component)	kWh/t	19.7
	Mih (HPGR component)	kWh/t	23.6
	Mic (crusher component)	kWh/t	12.2
Head Grades and Recoveries	Head Gold Grade, Average	g/t Au	0.98
	Au Recovery by Gravity	%	23
	Intensive Leach Recovery	%	99
	Leach Recovery	%	91.2
	CIP Recovery	%	99
	Desorption, Regeneration & Refining Recovery	%	99.5
	Overall Au Recovery	%	91.8

Notes: 2018 Feasibility Study target availability, to be confirmed in design phase; Based on target availability to achieve daily processing rate

Table 17-2: Summary of Unit Operations

Item		Unit	Design
Crushing	Nominal throughput	t/hr	2,143
	Primary / secondary crushing circuit utilization	%	70
	Feed top particle size, maximum	mm	1000
	Product particle size, P_{80}	mm	38
	Stockpile live capacity	t	20,157
Grinding	Nominal throughput	tph	1,596
	HPGR feed, F_{80}	mm	38
	HPGR product, P_{80}	mm	2.4
	Ball mill grind, P_{80}	µm	235
	Ball mill circulating load	%	300
	Vertical mill grind, P_{80}	µm	100
	Vertical mill circulating load	%	250
	Grinding circuit availability	%	94
Leach	Leach feed thickener unit area	m^2/t/d	0.075
	Type of circuit	-	CIP
	Residence time, leach tanks	hr	30
	Residence time, CIP tanks	hr	1.6
	Cyanide consumption	kg/t	0.1
	Carbon concentration	g/L	50
Elution	Stripping method		Pressure Zadra
	Number of carbon strip vessels		2
	Carbon strip vessel capacity	t	11.3
Carbon Regeneration	Type		Indirect
	Method of heating		Electric
	Number of kilns		1
	Rate	kg/hr	1,100
Cyanide Destruction	Number of stages		1
	Residence time	min	120
	Oxidant		SO_2/air
	SO_2 addition	g/g CN_{wad}	5
	Total residual cyanide	mg/L	<2
	Leach tails thickener unit area	m^2/t/d	0.072

Table 17-3: Major Comminution Equipment Parameters

	Equipment	Unit	Value
Gyratory Crusher	Number of units	#	1
	Throughput	dry tph	2,143
	Installed motor	kW	600
	Product particle size, P_{80}	mm	140
	Size	mm	1400 x 2100 TSU
Cone Crusher	Number of units	#	1
	Throughput	dry tph	2,250
	Installed motor	kW	930
	Product particle size, P_{80}	mm	38
HPGR	Number of units	#	1
	Throughput	dry tph	3,511
	Installed motor	kW	7,800
	Crusher Product, P_{80}	mm	2.4
	Size	mm Ø x mm W	2,400 x 2,400
Ball Mill	Number of mills	#	1
	Throughput (fresh)	dry tph	1,596
	Size	m (ø x length EGL)	7.93 x 12.34
		ft (ø x length EGL)	26 x 40.5
	Installed motor	kW	16,000
	Motor/mill		2
	Drive type		Dual pinion
	Cyclone O/F, P_{80}	µm	235
Vertical Mill	Number of units	#	2
	Throughput (fresh)	dry tph	1,596
	Installed power (total)	kW	6,712
	Cyclone O/F, P_{80}	µm	100

Combined ore from HPGR screens' oversize will report into the HPGR feed bin via two covered transfer conveyors of approximately 90 m and 70 m long respectively.

The screening building will be an insulated structure. The screen building will contain two coarse ore and three fine ore screens, apron feeders to each screen, product transfer conveyors and chute works. Dedicated dust collectors for each set of screens will be located outside of the building.

The crushing building will also be an insulated structure. Equipment will include the secondary crusher and the HPGR with respective apron feeders and a shared 100 t/20 t crane. Dedicated feed bins and dust collectors will be located adjacent to the main building.

17.3.2 HPGR and Grinding Circuits

The selected flowsheet to achieve 36 kt/d with a final passing P_{80} product of 100 µm consists of a closed HPGR circuit, a primary grinding with ball mill circuit, and secondary grinding with vertical mills circuit.

The HPGR will have 2,400 mm diameter by 2,400 mm width rolls, and two variable speed motors with a total installed power of 7,776 kW. The HPGR discharge will fall into a discharge conveyor and feeds a scalping screen feed distributor. The crushed ore stream will be evenly split into three double-deck dry-scalping screens with 12 mm and 4 mm apertures, to achieve a transfer P_{80} of 2.4 mm. Oversized material will be recycled back to the HPGR feed, while undersize will be sent to the primary grind ball mill circuit via a 16 m diameter fine ore bin capable of storing two hours of plant feed. This bin will receive ore from the screening building via a 166 m long covered conveyor. A dust collector system will be installed in the discharge to the bin. Ore will be reclaimed from the bin using two reclaim feeders, which will discharge onto a 240 m long ball mill feed covered conveyor.

The 7.92 m diameter by 12.3 m EGL ball mill, powered by two motors of 8,000 kW each, will operate in a closed-circuit configuration with a 12-way radial cyclone cluster. Fresh circuit feed will be fed directly to the ball mill and the product will be discharged by gravity through the mill trommel to the cyclone feed pumpbox, where the slurry will then be pumped to the cyclone cluster. A total of ten 750 mm diameter cyclones will work in closed circuit with the ball mill, with two cyclones on stand-by. All coarse cyclone underflow material will report to the ball mill with an estimated circulating load of 300%. Overflow fine material from the primary cluster cyclones will report to the secondary grind cyclone feed pumpbox with a passing P_{80} of 235 µm

The secondary grind circuit will consist of two vertical stirred mills with a total installed power of 6,700 kW. Stirred mills will operate in closed circuit with the secondary grind cyclone cluster consisting of 13 operating 750 mm diameter cyclones. Underflow material from the cyclones will fed the stirred vertical mills. A 40% split from the cyclones underflow will fed the gravity concentrators for gold recovery. Tailings from the gravity circuit will be returned to feed the vertical mills. Secondary cyclone overflow will be directed to the whole ore leach circuit with a final passing P_{80} product size of 100 µm. A particle size analyzer will monitor the performance of the entire grinding circuit.

17.3.3 Gravity Concentration and Intensive Leach

Material from the secondary cyclone underflow up to a maximum of 1,600 t/hr will be directed to the gravity concentration circuit. The stream will be evenly split directly from the cyclone cluster into two gravity concentrators working in parallel, to separate high-density particles producing a high-grade-gold concentrate. The gravity concentrators will be equipped with feed by-pass arrangements to direct the slurry to the vertical mills during concentrate discharge cycles.

This high-grade concentrate will be discharged by batches every 45 minutes, and stored in the intensive cyanidation feed tank for further processing. The contents of the intensive cyanidation feed tank will be discharged into the intensive cyanidation reactor, to be leached with a high-cyanide concentration solution. Caustic will be added to maintain the pH between 10.5 and 11, along with a leaching aid to complete the gold dissolution process. Solids from this reactor will be discharged back to the secondary cyclone feed pumpbox, and the pregnant solution, containing dissolved valuable metals, will be forwarded to the pregnant solution holding tank located in the gold room area.

17.3.4 Whole Ore Leach and CIP

Secondary cyclone overflow will flow by gravity to a distribution box, where it will be split into two trash screens for the removal of organics, metal, and other miscellaneous tramp materials. The oversize will be diverted to a trash screen bin, which will be emptied periodically. Undersize from the two trash screens will flow by gravity to the pre-leach thickener feed de-aeration tank, where lime will be added to adjust pH as necessary before leaching.

The pre-leach feed thickener will be fed from the de-aeration tank. An auto dilution high-rate thickener of 45 m diameter will be used to thicken the slurry from 33% to 50% in the underflow. The speed of the underflow pumps beneath the thickener will be varied to control the density of the feed to the leach circuit.

Thickener overflow water will be reused as process water in the different mill circuits, as required.

The pre-leach thickener underflow stream will be pumped to a leach feed tank, where it will be mixed with cyanide to achieve a concentration of 300 mg/L. The slurry will then be distributed to two leach lines. Each leach line will consist of five tanks in series, each 19.3 m diameter x 26.1 m high (average). Each tank will have triple impeller agitators to maintain slurry solids in suspension in the high-aspect-ratio tanks. Oxygen will be injected into the tanks to enhance the leaching kinetics of gold. Slurry will overflow by gravity from one tank to the next as it makes its way through the line. Total residence time in the leaching circuit will be 30 hrs.

Once leaching is completed, the slurry from both leach lines will be recombined in the pump cell CIP circuit feed launder. The CIP circuit will consist of eight 450 m^3 tanks operating in carousel mode. In this mode of operation, each tank will have its own discrete batch of carbon, which will spend a defined period in the circuit before the entire batch is removed to elution. Each tank will contain a total of 22.5 t of activated carbon, and will use a 29 m^2 interstage screen, to prevent activated carbon from flowing with the slurry flow.

17.3.5 Stripping Circuit

Slurry containing loaded carbon from the CIP circuit will be pumped to a vibrating loaded carbon screen. Carbon washed from the screen will fall through a chute into a storage bin, and then to the acid wash vessel with a capacity of 11.3 t each. The remaining slurry on the recovery screen will flow through the screen deck, to be collected in a screen undersize launder and pumped back to the CIP feed.

All loaded carbon will be acid-washed in two batches. While half of the carbon is being acid-washed, the other half will be stored in the loaded carbon storage bin on top of the acid-wash vessel. After four hours of acid-wash operation, the loaded carbon in the acid-wash vessel will be discharged and pumped to one of the elution vessels. The loaded carbon in the storage bin will be acid-washed and transferred to the second elution vessel.

Pressure Zadra elution will be applied to the carbon stripping process for 16 hrs, using two elution vessels with a capacity of 11.3 t each. Solution from the barren solution tank will be pumped to the carbon stripping vessels. Pregnant solution will overflow from the vessels and will be distributed to the EW cells. After stripping, the barren carbon will be pumped from the strip vessel to a carbon regeneration circuit, consisting of a vibrating carbon dewatering screen and a 1,100 kg/hr regeneration kiln. The screened carbon will be sent to the carbon regeneration kiln, and the undersize to a fines tank. Material from the fines tank will be pumped through a carbon fines filter press, and captured carbon will be stored in bags. Periodically, the carbon fines will be treated in an off-site smelter to recover credits for residual gold values.

17.3.6 Electrowinning and Refining

Overflow pregnant solution from the stripping vessels will report to an EW cells distribution box and split in two. Four 3.5 m^3 EW sludging cells, arranged in two lines of two, will capture valuable metals in a sludge form. After EW, the eluate will flow to the barren solution tank, and be recycled to elution as part of the carbon stripping process.

Pregnant solution generated in the intensive leaching reactor and held in the pregnant solution holding tank will be treated in a dedicated EW cell. This cell will work in a closed loop with the holding tank. At the end of the EW process, this eluate will be discharged into the barren solution tank.

Sludge recovered periodically from the EW cells will be mixed with flux in an induction-style unit.

The melted metal will be poured into a series of moulds to produce doré bars, while the slag produced will be poured into slag moulds. After cooling, the slag will be broken up, with the high-grade slag material re-poured to increase recovery, and the low-grade slag recycled to the grinding circuit.

17.3.7 Cyanide Destruction

Tailings generated in the CIP circuit will initially be screened through carbon safety screens, to capture any attritioned carbon particles remaining in the discharge slurry. Undersize from the screens will be sent to cyanide destruction.

Cyanide destruction will take place in two tanks in parallel, each 14 m in diameter x 17.5 m high. The process will involve the addition of sulphur dioxide to destroy the cyanide, lime to neutralize the sulphuric acid that is formed as by-product, and copper sulphate, which will act as a catalyst in the reaction. An on-line cyanide analyzer will measure levels of free and weakly acid dissociable cyanide (CN_{WAD}) for the feed and product streams in the cyanide destruction circuit.

Molten sulphur will be the main source of sulphur dioxide. A complete back-up system using metabisulphite will also be installed.

After cyanide destruction, the slurry will be discharged into a tailings thickener feed tank, from where it will be routed to the tailings thickener.

17.3.8 Tailings Thickening

The tailings thickener will be 55 m in diameter, with a high-rate type mechanism with an auto-diluting feed well. The feed slurry density of 50% solids will be increased to a target of about 62% in the underflow after thickening.

Overflow water from the tailings thickener will be recycled back to the process-water tank. Underflow solids will be pumped to the TMF.

17.3.9 Production Ramp-up Schedule

The ramp-up period will be highly influenced by design considerations, especially relating to the grinding circuit. Current practice incorporates learnings from HPGR circuits installed in the last decade. At some sites, these have experienced ramp-up periods as long as one year, although expansions at other sites have reached nameplate throughput in only six months.

The Côté processing plant is expected to take 10 months to reach the design throughput of 36,000 t/d. Reliable modelling, a focus on engineering design, and equipment selection will be key to achieving full production in this timeframe.

17.4 Base Case Energy, Water, and Process Materials Requirements

17.4.1 Water

Tailings water from the reclaim pond will be the primary source of mill water, providing the majority of the process plant requirements, whereas the storm/mine water pond will be a secondary source of process water. Fresh water will be required for reagent mixing at the process plant which will be pumped from Mesomikenda Lake.

Water from the polishing water pond will be filtered and stored for use in a filtered water tank, providing clean water for carbon handling, cooling, gland sealing, gravity concentration fluidization, and reagents preparation. Fresh lake water will be stored and used as fire water. Pumps will be installed to bring water to the process building and the truck shop. Some of this water will be treated in a potable-water treatment plant, and stored in a high tank.

17.4.2 Reagent Preparation

The reagent preparation area will include receiving systems, mixing and holding tanks, and metering systems for flocculant, caustic, cyanide, copper sulphate, molten sulphur, anti-scalant, lime and hydrochloric acid. These systems will be in individually contained areas forming part of the plant main building, with easy access by delivery trucks. The molten sulphur burning facility will be adjacent to the reagent area next to the cyanide destruction tanks.

Oxygen for the leach circuit will be delivered to site in bulk, and managed in stationary storage units. Oxygen piping will run from the pad to the leach circuit.

17.4.3 Air Services

A dedicated, self-contained air service system will be provided for the:

- Crusher area to service the primary, secondary and HPGR crusher facilities
- Reclaim area
- Screening building
- Storage bin
- Leaching circuit
- Cyanide destruction and reagent area.

The systems will consist of an air compressor with its own service-air receiver, air dryer, and instrument-air receiver.

Two additional air compressors, fitted with intake filters and silencers, will feed plant air into a receiver for distribution to different parts of the plant. Some of this air will be fed to a system to prepare it for use as instrument air.

17.4.4 Cyanide Management

ISOtainers containing solid sodium cyanide will be offloaded from trucks, parked on a bermed concrete pad, and then stored within the reagent storage area. Bulk cyanide will be dissolved within the ISOtainers and transferred to a mix tank for further make-down with filtered water. The solution will then be pumped to a holding tank for distribution to the leach circuit, barren eluate tank, and intensive cyanidation unit. Secondary containment will be implemented in the reagent preparation, leach and CIP areas. Transportation, management and storage of cyanide will be consistent with the International Cyanide Management Code.

17.4.5 Energy

The mill will require approximately 50.7 MW of power to operate at full capacity. Additional information on the power supply assumptions for the Project are provided in Section 18.8.

17.5 Comments on Section 17

The process design uses a conventional flowsheet and conventional equipment.

The ramp-up period will be highly influenced by design considerations, especially relating to the grinding circuit. The plant is expected to take 10 months to reach the design throughput of 36,000 t/d. Reliable modelling, a focus on engineering design, and equipment selection will be key to achieving full production in this timeframe.

18.0 PROJECT INFRASTRUCTURE

18.1 Introduction

Base Case infrastructure will include:

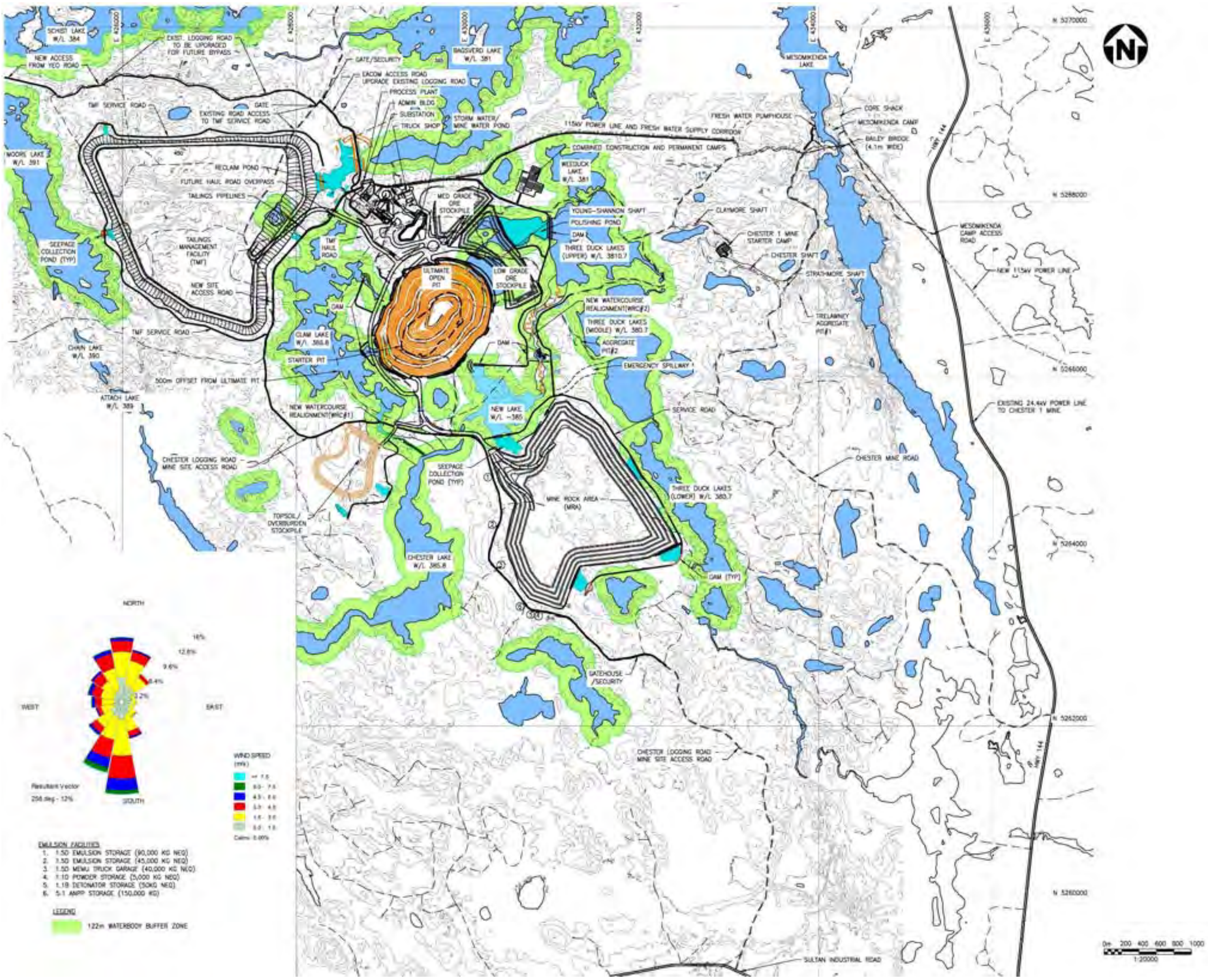
- Open pit
- RMA and stockpile facilities
- TMF
- Permanent camp and a temporary construction camp
- Emulsion plant
- Process facilities
- Workshop, offices, facilities and other services
- Watercourse realignment dams and channels
- New lake to be created to compensate the loss of Côté Lake
- Storm/mine water, polishing and tailings reclaim ponds
- Collection, surplus water discharge, and dispersion systems
- Two-lane gravel access road
- Upgraded existing transmission line from Timmins to Shining Tree Junction and a new 44 km-long 115 kV electrical power transmission line from Shining Tree Junction to the project site
- Electrical distribution network.

A layout plan is included as Figure 18-1.

18.2 Road and Logistics

Current access to the property is by a network of logging roads and local bush roads accessed from Highway 144 and from the Sultan Industrial Road, which runs east-west along and below the southern part of the Project area.

Figure 18-1: Infrastructure Layout Plan



Note: Figure prepared by Wood, 2018.

The selected route to the plant is the existing Chester Logging Road which has already been upgraded from the Sultan Industrial Road to km 4.62 at the intersection with an existing road to the planned open pit area. The upgraded road is 9 m wide and deemed to be sufficient to serve as the main access to the mine site. From here to approximately the southeast corner of the TMF, Chester Logging Road will require upgrading to 10 m design width, which is accounted for in the estimate. At the corner of the planned TMF site, the existing road continues into the footprint of the TMF, and 4.28 km of new road construction will be required to extend the access to the construction/permanent camp entrance. This section of road will be constructed as part of the early works and will be used as a primary construction access to the plant site and the camp area.

A mine site bypass route will use the existing Yeo Road, from the Sultan Industrial Road to a point opposite the northwest corner of the TMF, without upgrade. From there a new connector road of 3.94 km will be constructed to tie into an existing road which parallels the north dam of the TMF. This existing road requires upgrading. It will permit the public to access Chester Logging Road north of the TMF without passing through the mine security gate and the mine site proper.

Mine development will require three major haul roads, consisting of access to the MRA, the TMF, and the topsoil/overburden stockpile. In addition, a major intersection is required on the north side of the open pit to tie together the exit from the pit with the pit bypass road, the ramps to the ore stockpiles and the crusher and truck shop ramps.

Approximately 24.7 km of new 6 m wide service roads are required to access all site facilities, including many shorter spurs to dam locations, and perimeter roads around the TMF and the east side of the MRA.

The site layout includes three major watercourse crossings. Roads will be designed with a crossfall from side to side (as opposed to a central crown), such that the runoff from the entire road surface will be discharged to another developed drainage area on one side of the road, such as the process plant site, the reclaim water pond basin, the TMF, MRA, polishing pond, or the open pit itself.

18.3 Stockpiles

Stockpiles required for the mine plan are discussed in Section 16.5.

18.4 Mine Rock Area Facilities

Mine rock area facilities required for the mine plan are discussed in Section 16.5.

18.5 Tailings Management Facilities

The TMF is discussed in Section 20.4.

18.6 Built Infrastructure

18.6.1 Mine and Process Facilities

The buildings and structures that will be required for the mine plan are summarized in Table 18-1.

Three building design types are envisaged:

- Pre-engineered, such as the process building and truck shop. All process and internal platforms/structures inside these buildings will be stick-built and tied to pre-engineered building columns where possible
- Stick-built, such as secondary crusher/HPGR and screen buildings. Each building and its internal platforms/structures will be designed as one structure
- Modular structural steel, such as control rooms, with foundation or supporting steel structure provided.

All facilities will include the required electrical, HVAC, fire protection and other services.

18.6.2 Accommodation Facilities

Permanent Accommodation Facilities

The permanent accommodations will be pre-fabricated modular buildings consisting of the core services facilities and the individual dormitories which will be manufactured offsite and transported, assembled, anchored on permanent foundations and commissioned at site.

Dormitories will consist of a one-storey dorm for 38 people and three, three-storey dorms to house 114 people each, connected by prefabricated, heated link/utility corridors to the one-storey core services building that will house recreation, dining, kitchen, food preparation and food storage facilities.

Table 18-1: Buildings and Structures

Item	Comment
Primary crusher	Cast-in-place concrete; a steel structure will support the control room and crane. The crusher discharge conveyor will be approximately 300 m long, extending from the primary crusher tower (tail pulley) to the coarse ore feed distributor (head pulley) located in the screening building
Secondary crusher and HPGR building	Insulated steel structure. Equipment will include the secondary crusher and the HPGR with respective apron feeders, and a shared 150 t/20 t area crane, access stairways and platforms
Coarse ore conveyors and reclaim	Coarse product from the coarse ore screens will travel on a 174 m long conveyor back to the secondary crusher feed bin, while the fine product will travel on a 207 m long conveyor to the covered coarse ore stockpile
Coarse ore screen building	Insulated steel structure. Equipment will include two coarse ore and three fine ore screens, apron feeder to each screen, products transfer conveyors and chute works, 35 t overhead crane, access stairways and platforms.
Coarse ore stockpile and reclaim tunnel	A 93 m diameter dome structure will cover the stockpile for weather protection and dust containment. The coarse ore reclaim tunnel will be approximately 190 m long overall, consisting of a reclaim section with a sump for pumping accumulated water, an escape tunnel, and a conveyor tunnel with varying cross-sectional areas for each.
Fine ore feed bin	A 16 m diameter fine ore feed bin capable of storing 2 hrs of ball mill feed material will be located south of the secondary crushing building. This bin will receive fine ore from the screening building via a 166.5 m long fine ore bin feed conveyor. Ore will be reclaimed from this bin using two reclaim feeders, which discharge on to a 240 m long ball mill feed conveyor, which will directly feed the ball mill.
Process building (includes the subset areas below)	Pre-engineered steel structure with a ridged sloping roof, completely enclosed with a building envelope that will comprise pre-painted, insulated sandwich wall and roof panels, personnel access doors, large-equipment access doors, air intake louvers, wall exhaust fans and variation cowlings.
Grinding area	One-storey structure that will house the ball mill, vertical mills, cyclones and feed pumps, ball bins, mill lube system, compressor room, gravity circuit and other associated equipment, including a traveling bridge 80/20 t crane
Refinery, CIP and reagent areas	Form part of process building, and will house the CIP, carbon operations, compressor, EW and refinery, reagent and cyanide areas. These areas will contain related mechanical process equipment, piping,

Item	Comment
	tanks and pumps, and will be provided with elevated platforms and stairs for maintenance
Metallurgical laboratory	Two prefabricated, prefinished steel modules will house the metallurgical laboratory including a receiving/preparation area, metallurgical testing room, clean metallurgical room, and office
Thickener and leaching area	A pre-leach thickener, tailings thickener, and leach tanks will be located outdoors, south of the process building
Assay laboratory	One-story pre-engineered steel building. Will house sample receiving and preparation, mill preparation, fire assay, wet chemical lab, weighing and fluxing, environmental laboratory and other functional areas to support sample analysis. Ancillaries will include offices, lunchroom, mechanical room, electrical room and washrooms
Lube oil room	Will contain the lube-oil skid unit
Mill maintenance workshop	An enclosed room that will have an overhead 5 t crane to perform day-to-day mill maintenance equipment repair
Mill offices, lunchrooms and washrooms	prefabricated modular steel assembly will comprise eight 4 m wide modules
Mine dry	One-storey, pre-fabricated modular building. The facility will include 350-man “clean side” and 350-man “dirty side” locker rooms with a central washroom consisting of shower areas, wash fountain area, toilet cubicles, urinals, and vanity lavatories. A similar facility will be provided for up to 60 women.
Administration offices	One-storey prefabricated modular building will house a few private managers’ offices and mostly open offices. It will also house the central mine and mill control room, dispatch and training rooms, a large conference room with accordion partitions, washrooms, lunchroom and supporting services.
Truck shop	Insulated pre-engineered steel building. Will have high and low bays. The high bays will house four heavy mine vehicle repair bays with an overhead 50 t bridge crane. These heavy repair bays will accommodate autonomous haul trucks and wheel loaders. The low bays will be dedicated to machine and electrical shops with an overhead 10 t bridge crane. Other functional areas will include lube storage, light-vehicle repair bays, compressor room, electrical and tool storage, women’s and men’s washrooms and changerooms, and office. A partial second floor will house building services, open maintenance offices, lunchroom and washrooms.
Warehouse	Pre-engineered insulated fabric building. Will store general-inventory

Item	Comment
	parts to support maintenance of the mine equipment fleet
Truck wash	Insulated pre-engineered fabric building. Will house one drive-through wash bay and related equipment to accommodate mine haul trucks and wheeled and tracked vehicles including light vehicles. Modified modular containers will house washing equipment, and water storage and filtration equipment
Heated and cold storage	Pre-engineered insulated fabric structure. Will be divided into equal areas for heated storage, with an insulated double-skin fabric enclosure for palletized parts, and cold storage, unheated with a single-skin fabric enclosure
Emergency vehicle storage and first aid	Pre-engineered insulated fabric facility. Will consist of two emergency vehicle storage bays to house the fire truck and mine rescue
Gate house	Prefabricated modular building. Will house a security office, washrooms, and X-ray and search rooms

Construction Accommodation Facilities

Fifteen buildings, housing 44 people each, will be configured as "Jack and Jill" single-occupancy bedrooms with every two bedrooms sharing a shower and toilet. Five additional buildings, holding 37 people each, will be configured as "VIP" single-occupancy bedrooms with private washrooms. Each dorm will have a dedicated-entry mudroom, personnel laundry, janitorial services, furnace closets, mechanical room and other services. All dorms will be connected to the permanent core services facility by 1.5 m wide treated timber walkways, slightly above ground to allow for proper drainage.

To handle overflow during construction, an additional 670-person modular dining room will be assembled on skids.

Chester Construction Camp

Six one-storey dorms will house a total of 264 people, configured as "Jack and Jill" single occupancy bedrooms with shared shower and toilet between two rooms. Each dorm will have a dedicated-entry mudroom, personnel laundry, janitorial, furnace closets, mechanical room and other services. All dorms will be connected to the construction core services facility via treated timber walkways slightly above the ground. The core services facility will have with similar functional areas as the permanent core services facility at the mine site, including a 250-seat dining room.

18.7 Water Management

Water management for the Project is discussed in Section 20.5.

18.8 Power and Electrical

The power supply for the proposed mine site will be delivered at 115 kV by a new 44 km overhead line from the Hydro One's Shining Tree Junction. Upstream of the Shining Tree Junction is an 'idle' 118 km 115 kV line fed from Timmins Tie Station (TS) which will be refurbished and restrung. The independent electricity system operator (IESO) has completed a system impact assessment (SIA) and determined that the proposed connection to its power grid is technically feasible, that the system has sufficient capacity, and that it can meet the proposed in-service date of Q3 2020. Hydro One is currently completing a customer impact assessment (CIA), the next step to providing power at site on schedule.

The incoming 115 kV overhead line will terminate at the main substation north of the main process building. The substation will include incoming circuit breakers, motorized isolating disconnect switches, power transformers, switchgear, and protective equipment for the transformation of power from 115 kV to 13.8 kV. The site protection scheme will interface with Hydro One and will include a load-shedding scheme as identified in its SIA.

The calculated electrical load for the Côté Gold site is as follows:

- 61 MW maximum demand load
- 59 MW average demand load
- 98% lagging (inductive) power factor.

This calculated load is based on the current electrical load list, and includes two electric shovels, mine dewatering, all ancillary loads, and a 10% allowance for growth during detailed design.

Hydro One has allocated a total of 72 MW of capacity to the Project.

The main substation will be adjacent to the mill grinding building, which has the largest electrical loads, to minimize cabling costs and losses. The incoming transmission line from Shining Tree Junction will terminate at the substation, where incoming voltage will be stepped down from 115 kV to 13.8 kV for site distribution. The main power transformer secondaries will be connected to the main site 15kV switchgear to distribute power around the site. Feeders from the substation will be run in cable trenches, cable tray and/or on overhead lines to the area loads

The primary power supply to the open-pit mine will be a single 13.8 kV overhead pole line running from the switchgear at the main substation to the west side of the open pit. The system will comprise two portable skid mounted substations that transform the power from 13.8 kV to 7.2 kV for the mine's electric shovels and dewatering pumps.

Emergency back-up power will be available from four diesel standby generators, sized to provide essential power to the process and ancillary electrical equipment. The four 1 MW prime gensets will be located in the main substation area, will be 600 V rated and will be stepped up to 13.8 kV to be distributed around the site. During construction, these standby generators will be strategically located around the site to provide power to the construction and permanent camps, laydown areas, construction trailers, and for construction activities.

Uninterruptible power supplies (UPSs) will provide backup power to critical control systems including process control as well as autonomous fleet communications. The UPSs will be sized to permit operations to shut down, and back up the computer and control systems to facilitate start-up on restoration of normal (utility) power.

18.9 Comments on Section 18

Infrastructure required to support operations will include: the open pit; MRA; stockpiles; TSF and associated ponds; access and internal roads; powerlines and power distribution networks; watercourse realignments, diversion channels, dams and ponds; a New Lake to replace Côté Lake; process facilities; accommodation facilities; and mine support facilities including offices, workshops and warehouses.

19.0 MARKET STUDIES AND CONTRACTS

19.1 Market Studies

Gold doré bullion is typically sold through commercial banks and metals traders, with sales prices obtained from the World Spot or London fixes. These contracts are easily transacted, and standard terms apply.

IAMGOLD expects that the terms of any sales contracts 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.

Limited additional effort is considered to be required to develop a doré marketing strategy.

19.2 Commodity Price Projections

The 2018 Feasibility Study assumes a gold price of US$1,250/oz for the economic analysis. Wood considers this price to be an industry consensus long-term forecast price, using:

- Bank analysts' long-term forecasts
- Historical metal price averages
- Prices used in publicly-disclosed comparable studies.

Gold prices were kept constant throughout the life of the project.

It is common industry practice to use higher metal prices for Mineral Resource estimates than Mineral Reserve estimates and the economic analysis. For the 2018 Feasibility Study, the following prices were used:

- Mineral Resources: US$1,500/oz (cut-off grade and constraining shell)
- Mineral Reserves: US$1,200 (cut-off grade)
- Cashflow analysis: US$1,250 (financial analysis).

19.3 Contracts

No sales contracts are in place for the Project, however, once gold is refined by IAMGOLD's refiner (within five to seven days of receipt of the doré), the bullion is credited to IAMGOLD's bullion account and sales of IAMGOLD's bullion can be made immediately. Cash from the settlement of those bullion sales are then credited to IAMGOLD's bank account within two days.

IAMGOLD received indicative pricing for refining arrangements from the Royal Canadian Mint (the Mint). Total costs of $1.75/oz gold for refining, transportation and insurance were used in the cashflow analysis.

Other key contracts that will be required in support of construction and operations include: MARC, open pit mining, operation of the assay laboratory, fuel supply to site, camp operations, and mine construction.

19.4 Comments on Section 19

Wood reviewed the information provided by IAMGOLD on marketing and contracts. In the QP's opinion, the information provided is consistent with that available in the public domain, and can be used to support the financial analysis

20.0 ENVIRONMENTAL STUDIES, PERMITTING, AND SOCIAL OR COMMUNITY IMPACT

20.1 Introduction

IAMGOLD received Provincial ministerial approval of the 2015 Environmental Assessment (EA) for the Project. The EA states that no significant effects are anticipated after application of the proposed mitigation measures.

Environment Canada stated in May 2016 that the Project is not likely to cause significant adverse environmental effects.

The project presented in the 2018 Feasibility Study has undergone optimizations since the 2015 EA, including:

- Relocation of the TMF to minimize overprinting of fish-bearing waters, reduce the Project footprint, improve Project economics, reduce the need for watercourse realignments, and avoid effluent discharges to the Mesomikenda Lake watershed
- Smaller open pit
- Modifications to the process plant
- Reduction in transmission line voltage, and re-routing of the transmission line; a new Provincial EA for the 44 km line is expected to be completed in 2018.

IAMGOLD is of the opinion that there are no new net effects arising from the 2018 Feasibility Study. On October 19, 2018, CEAA confirmed that the proposed Project changes are not considered new designated physical activities and therefore a new environmental assessment is not required. On November 9, 2018, MECP also confirmed their concurrence with the conclusion in the EER report, that the proposed changes to the undertaking result in no new net effects.

20.2 Baseline Studies

A list of the baseline studies completed to date is provided in Table 20-1.

Table 20-1: Baseline Studies

Study	Comment
Water	The Project site is within the Mollie River and Neville Lake sub-watersheds. A number of lakes lie within the area, including Chester Lake, Clam Lake, Côté Lake, Three Duck Lakes, Moore Lake, Chain Lake, Attach Lake, Sawpeter Lake and Schist Lake. Small tributaries, including Clam Creek, Unnamed Pond and Mill Pond, drain from the site into the Mollie River. The open-water reach of the river between Chester Lake and Côté Lake ranges in width from 5–20 m, with a depth of 1–2 m, and is bordered by a flooded grassy marsh, interspersed with dead standing conifers. Numerous stands of planted jackpine occur adjacent to the marsh, and there is evidence of recent logging.
Air and noise	Air quality in the vicinity of the project site indicates no significant nearby anthropogenic sources of air emissions, and there are no significant emissions from the project site. Air quality in the project area is, however, affected by long-range transport of emissions from the south, and by natural sources such as fires and volatile organic emissions from vegetation. Noise in the vicinity reflects a rural environment, including sounds of nature and minimal road traffic.
Soils	Overburden throughout the study area generally consists of an organic layer (peat in many cases) overlying silt and/or sand, with occasional till overlying bedrock. Bedrock is very close to or at surface in most areas, except for valley bottoms and low-lying wet areas. Overburden ranges in depth from 0–18 m. Soil pH values range from 6.8–7.3.
Geology and geochemistry	A detailed assessment of the potential for metal leaching and acid rock drainage (ML/ARD) was completed for overburden, mine rock and tailings. The work included characterization (static testing) of overburden and bedrock in previous areas planned for construction, with results indicating little potential for ML/ARD. More extensive studies, including static and kinetic testing (humidity cells and field cells), were conducted for open-pit mine rock and tailings. The mine rock was characterized with a generally low sulphide content (<0.3% sulphide), a low potential for ML/ARD, and an excess of neutralization potential overall. The tailings were determined to be non-potentially acid generating (NPAG), with a substantial excess of neutralization potential expected. Short-term leaching tests showed little evidence of concern for neutral metal leaching in mine rock or tailings. Field cell tests were continued to further confirm the low ML/ARD potential. Simulated tailings were subjected to rheology tests that characterized settling rates and density. The existing studies are largely expected to be representative of the proposed mine plan. Updated geological and metallurgical information is being evaluated with respect to the 2018 Feasibility Study designs (e.g., smaller pit design and ore processing modifications). If gaps are identified, further testing will be completed

Study	Comment
	as necessary to support future permitting and detailed design. Additional confirmatory studies may be required for new construction areas requiring excavation (e.g., diversion channels outside the previous investigation footprint).
Hydrology	The Project is within the Upper Mattagami River watershed, which drains northward through the City of Timmins and ultimately to James Bay. Surface water flows are controlled by lakes and creeks that flow to the Mollie River and Mesomikenda Lake, before discharging to Minisinakwa Lake and ultimately the Mattagami River. The Mattagami River upstream of the City of Timmins water filtration plant is within Intake Protection Zone 3 in the context of the Mattagami River Source Water Protection Program; this zone does not prohibit the proposed mining activities. Water Survey of Canada maintains regional hydrological monitoring stations in the Mollie River (unregulated flow) and at Minisinakwa Lake (regulated flow), and Ontario Power Generation monitors the Mesomikenda Lake Dam (regulated flow). The regulated flow systems are governed by a Water Management Plan in place for the Mattagami River. Surface water flow-paths at the project site are currently monitored by 15 hydrological sampling stations selected and installed during 2012, and increased to 22 stations in 2016. In general, these stations are distributed throughout the Mollie River sub-watershed and Neville Lake sub-watershed. Automated water-level data loggers have been installed and will be used in conjunction with instantaneous discharge measurements to develop a characterization of the streamflow regime.
Hydrogeology	Between 2012 and 2014, over 150 boreholes were drilled to characterize subsurface conditions. Groundwater monitoring wells (single and nested) were installed at 62 of these locations, and slug testing and packer testing was conducted to develop estimates of the hydraulic conductivity of various overburden materials and at a range of bedrock depths. In 2016, an additional 23 monitoring wells were installed in various locations within the proposed TMF footprint. An additional 29 boreholes were drilled in 2017 and 2018 to reflect the updated site configuration. In addition, six angled drill holes were advanced into the deep bedrock within the proposed open pit, to facilitate hydrogeological and geomechanical testing of major lithological units and structural features (e.g., dykes and faults) along ultimate pit walls. Wells were installed in many of the boreholes drilled with screens located in overburden, where present, and bedrock materials. Groundwater levels have been monitored at selected locations at various times. Hydraulic conductivity estimates for granular overburden materials range to a high of 2E 03 m/s, with a geomean value of about 9E-06 m/s. For fractured bedrock, hydraulic conductivity estimates ranged up to about 3E-04 m/s. Hydraulic conductivity values showed a trend to declining values with depth, generally

Study	Comment
	independent of rock type and rock structure. Where unfractured, a hydraulic conductivity of about 1E 11 m/s has been inferred. The geomean hydraulic conductivity declined from 1E-07 m/s in the upper 10 m of the bedrock profile to about 2E-10 m/s below a depth of 200 m. The primary groundwater flow paths are inferred to occur through the granular materials within bedrock troughs. The bedrock troughs have limited lateral extent and an average depth of about 7 m, with a maximum observed depth of about 20 m.
Surface water quality	Quarterly or monthly surface water quality sampling was completed during the EA and feasibility baseline studies at 48 locations in the two main sub-watersheds of the site and in the vicinity of the site infrastructure, including lake outflow stations, lakewater column profile stations, and watercourse stations. The baseline monitoring program was modified in 2016 to reflect the updated site configuration. Results were typically consistent across seasons, with concentrations of copper, cadmium, iron, selenium, mercury, zinc, total phosphorus and dissolved aluminum occasionally exceeding Provincial Water Quality Objectives (PWQOs) and the Canadian Council of Ministers of the Environment's Canadian Water Quality Guidelines (CWQGs) for the Protection of Aquatic Life. Exceedances were generally interpreted to be naturally occurring. Surface water quality monitoring is ongoing.
Water sedimentation	Sampling results indicated good sediment quality, with most parameter concentrations below the 2008 MECP Provincial Sediment Quality Guidelines (PSQGs). PSQG lowest-effect levels (LELs) were exceeded for most of the total organic carbon results. A few results also exceeded PSQG severe-effect levels (SELs), but this is typical of lakes in northern Ontario. Provincial SELs were found to be exceeded for iron and manganese concentrations in the Mollie River. In some surface waters, Federal threshold effect level exceedances were observed in 2011 for copper. The PSQGs were developed for, and are strongly weighted by, data for sediments in the Great Lakes, which tend to have substantially lower content of many metals compared to Canadian Shield lakes (Prairie and McKee, 1994). Natural background concentrations, particularly in mineralized areas of the Canadian Shield lakes, can naturally exceed PSQG LELs. Further sediment quality evaluation will include a comparison to PSQG LELs, SELs, and reference area values.
Groundwater quality	In 2012, groundwater samples were collected three times at 37 wells, at sites of potential mine infrastructure development. In 2016, an additional 23 wells were added to cover the PEA/PFS TMF location. Groundwater chemistry was analyzed for major ions, metals, nutrients and physical parameters (e.g., conductivity and total dissolved solids). Results were compared to Ontario Drinking Water

Study	Comment
	Standards (ODWS), PWQOs, and the Canadian Council of Ministers of the Environment CWQGs for the Protection of Aquatic Life. Results indicated that values occasionally exceeded these regulatory criteria, including but not limited to copper, zinc, molybdenum, aluminum, silver, arsenic, iron, free cyanide and cadmium. Additional investigations to verify these results were completed in 2013. With respect to groundwater quality, several values were measured above their applicable ODWSs or PWQOs during one or more monitoring events in 2012. Since there is currently limited development at the site (other than exploration and geotechnical drilling), these values are considered to represent background conditions, and will continue to be monitored to assess trends in water quality.
Aquatic resources	Aquatic assessments were conducted of water bodies within the boundaries of the proposed open pit and associated potential initial locations of the MRAs and TMF. Studies included characterization of fish habitat and community structure of the water bodies, as well as sport-fish populations in Côté Lake and Unnamed Lake. Additional data on aquatic resources were collected during the summer and fall of 2010. These studies included water quality/hydrogeology analysis, benthic invertebrate surveys, aquatic macrophyte community assessment, and fish community assessment and habitat characterization. Samplings did not provide evidence of any aquatic species at risk (such as lake sturgeon), either under the Federal Species at Risk Act (SARA) or Ontario's Endangered Species Act (ESA).
Wildlife	Sensitive species refers to those listed in the ESA, the SARA (Schedule 1), or those considered vulnerable or imperiled in the Province (Provincial ranking of S1-S3). Based on desktop studies, there is potential for 18 Provincially-listed wildlife species, one Federally-listed species, and two Provincially-tracked wildlife species to occur in the Project area. Seven of these species were documented: four are listed as Special Concern (bald eagle, Canada warbler, common nighthawk and olive-sided flycatcher); and one as Endangered (little brown myotis) under the Provincial ESA. One species listed as Special Concern under SARA (the rusty blackbird) was also observed during field surveys. Based on the habitat ranges provided by the Atlas of the Mammals of Ontario (Dobbyn, 1994), 49 mammals have potential to inhabit the project area. A winter aerial survey conducted between 27 February and 1 March 2013 observed 21 moose and one red fox along the alternative transmission line routes. In addition, tracks of moose, red fox, wolves, lynx, river otter, pine marten, mink, weasel, snowshoe hare, and porcupine were observed. In 2017, additional aerial and wildlife surveys were conducted at the new TMF and topsoil/overburden stockpile, and additional aerial surveys were conducted along the 44 km transmission line route from the Project site to Shining Tree distribution station. No additional Federally- or Provincially-listed species were identified

Study	Comment
	during the 2017 studies.
Land use	Studies completed included assessments of regional demographics, population, regional economy, agricultural, forestry and mining use, and recreation and tourism.
Cultural heritage and paleontological resources	The cultural landscape consists of a 1930s-era gold mining camp with associated sites and remains. Further documentation and assessment of this landscape was conducted in 2013. No built heritage resources other than ruins have been identified. Archaeological sites and features were recorded in the study area, including pre-contact sites, historical sites, ancient trails and portages. While many of these sites have been mitigated or are outside the area of development, several require further archaeological work. Almost all of the fieldwork undertaken on the Côté Gold property has directly involved members of Mattagami First Nation, and a member of Flying Post First Nation during the 2012 and 2013 field seasons.
Aboriginal traditional land use	Traditional knowledge and traditional land-use studies were conducted by a consultant selected by Wabun Tribal Council, on behalf of the Wabun member communities of Mattagami First Nation and Flying Post First Nation. The Métis Nation of Ontario also conducted a traditional knowledge and traditional land-use study of the Project area. Both studies show some level of current use in the broader area around the site.

20.3 Environmental Considerations

Potential environmental effects associated with the construction, operation, and closure of the Côté Gold Project include:

- Changes in air quality
- Increases in noise
- Potential loss of aquatic habitat
- Disturbance of aquatic species
- Reduction of terrestrial habitat, and associated species disturbance
- Alteration of local groundwater infiltration rates and aquifers
- Changes in water quality in the Mollie River and Mesomikenda Lake watersheds
- Increased demands on community/regional infrastructure and social services

- Effects on cultural heritage resources
- Effects on local Aboriginal and Métis traditional land uses
- Alterations to local terrain and visual aesthetics.

The 2015 EA provides a complete assessment of potential environmental effects, and states that no significant adverse effects are anticipated after application of the proposed mitigation measures.

IAMGOLD has conducted additional baseline studies within the boundaries of the new TMF and topsoil/overburden stockpile, and new transmission line alignment, to infill the physical, biological and human environment characterizations conducted previously. These additional baseline data, together with design information for the site configuration, were used to prepare the Environmental Effects Review (EER) for the project, for submission to the Canadian Environmental Assessment Agency (CEAA) and the Ministry of the Environment, Conservation and Parks (MECP), thus informing the regulatory agencies of changes or improvements to the EA. On October 19, 2018, the CEAA confirmed that the proposed Project changes are not considered new designated physical activities and therefore a new environmental assessment is not required. On November 9, 2018, MECP also confirmed their concurrence with the conclusion in the EER report, that the proposed changes to the undertaking result in no new net effects.

Based on the Federal and Provincial Environmental Assessment processes, IAMGOLD has established a preliminary environmental monitoring program that includes monitoring parameters, methods, applicable standards, frequencies and locations for the physical, biological and human environments. The program will be updated to reflect conditions of various environmental approvals as they are received. Environmental baseline monitoring programs to date provide the basis for the monitoring frameworks, and may be modified to meet compliance and reporting requirements as the project moves through the permitting phase. The monitoring programs will apply to the construction, operation, closure and post-closure phases of the project, as appropriate, and will allow for compliance with anticipated environmental approvals and permits, while providing information to determine the effectiveness of proposed mitigation measures.

Follow-up monitoring is expected to provide for an adaptive management approach, should environmental effects vary from those predicted; if mitigation measures prove less effective than anticipated; or as new information becomes available. Mitigation strategies may be modified accordingly, and monitoring parameters, locations and/or frequencies will be adapted as appropriate.

20.4 Tailings Management Facility

20.4.1 Design Basis

Over the proposed LOM of 16 years, tailings production is approximately 13.1 Mt/a from nominal mill throughput of 36,000 t/d, except in Year 1 when it is about 11 Mt due to ramp-up. The TMF will store 203 Mt of tailings over the LOM.

Tailings will be thickened with solids concentration in slurry at 62% and discharged from the TMF perimeter dams, forming an overall beach slope of approximately 1%. Tailings solids will settle in the TMF with pore water retained in the voids with supernatant water forming a pond. Based on recent rheology, drained and undrained column settling tests (SGS, 2017), an overall in-situ dry density of 1.5 t/m^3 is expected.

Additional tests on tailings which include confirmatory column settling tests, air drying tests and tailings consolidation tests are currently underway at the SGS laboratories in Vancouver. Most of the supernatant water from tailings will report to the reclaim pond, where it will be reclaimed for use as process water.

Both the tailings and mine rock have been classified as non-potentially acid-generating (NPAG) materials, with a low potential for metal leaching.

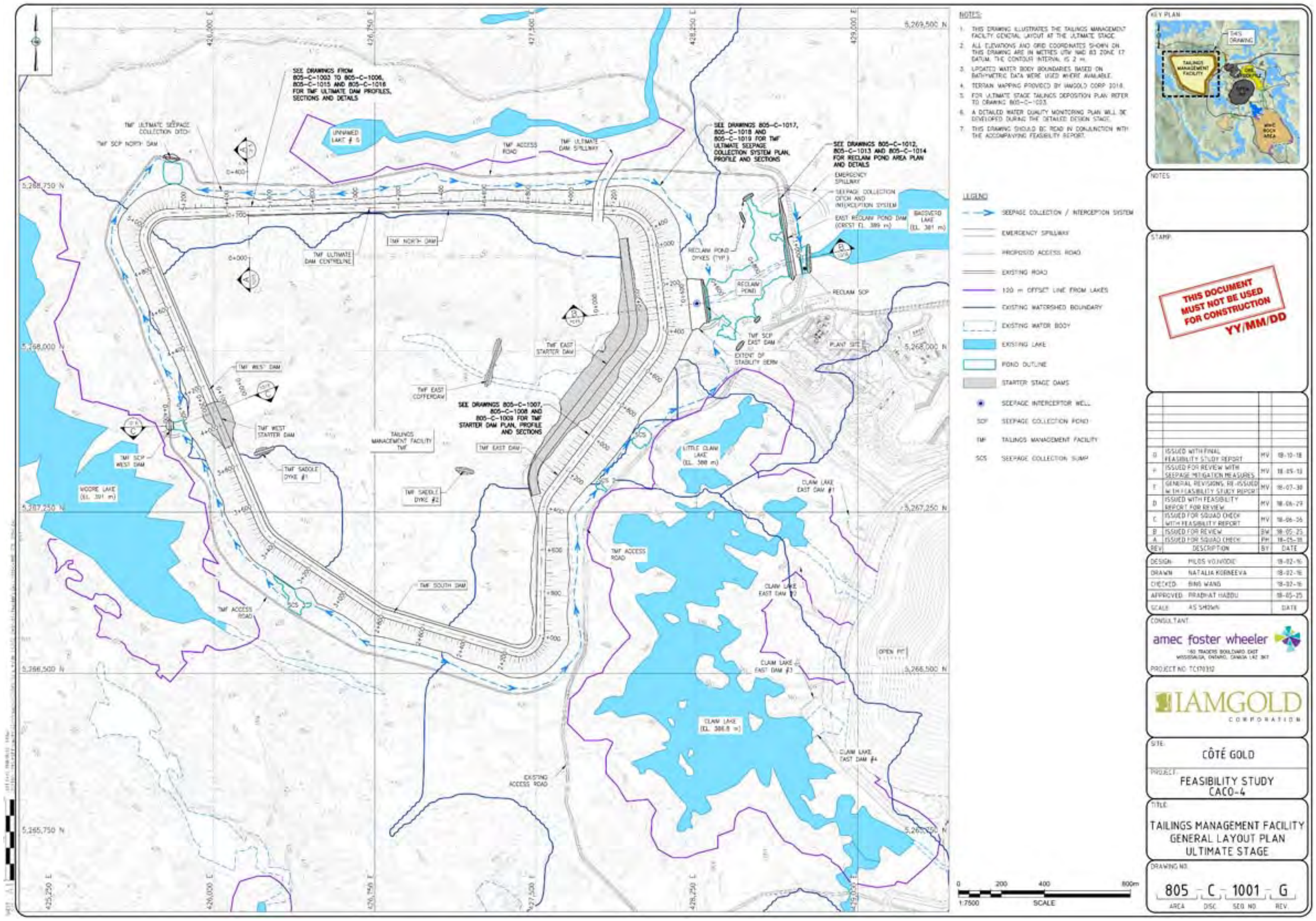
20.4.2 TMF Layout and Configuration

Perimeter embankment dams, raised in stages, will be used for tailings management. Figure 20-1 presents the general design layout of the TMF.

A minimum 120 m off-set has been provided from the TMF to the surrounding major water bodies in accordance with the mining act.

The dam rockfill will be primarily sourced from the open pit development. Mine rock will be hauled to the dam and end-dumped and compacted. The sand and gravel filter for the initial years of operation will be sourced from locally available commercial borrow pits. The transition material and abutting select rock fill material will be sourced from mine rock.

Figure 20-1: Tailings Management Facility Layout Plan



Note: Figure prepared by Wood, 2018.

The TMF dams will be constructed with a low permeability, high strength bituminous geomembrane liner (BGML) on the upstream slopes of the TMF starter dams and the TMF east dam only in the second year of operations. The BGML must be used because of the lack of low-permeability overburden materials onsite.

Water from the tailings pond will be recirculated to the process plant by pumping from the tailings pond. Starting from Year 3 of operations the tailings dams will be raised as pervious dams with transition and filter layers placed along the upstream slopes of TMF perimeter dams. To prevent potential erosion of the filter layer, a geotextile will be placed over the filter zone. The reclaim pond constructed downstream of the TMF footprint will be used to collect the TMF water and recirculate to the process plant from Year 3 of operations to the end of the mine life.

The dams' potential hazard classification is "HIGH", resulting from the risk of potential environmental impact on the surrounding lakes. However, the current design supports a higher classification, i.e., "VERY HIGH" with the necessary dam safety requirements for this classification "built-in" to the design.

In accordance with the guidelines the TMF will be designed to contain the Environmental Design Flood (EDF) of 1-in-100 year return period without direct discharge to the environment. An emergency spillway will be provided in the TMF to safely pass the inflow design flood corresponding to the probable maximum flood.

TMF dams have been designed for seismic events corresponding to maximum credible earthquake (MCE) with 1-in-10,000 year annual exceedance probability.

The upstream slopes of the dams are designed at 2.5H:1V and downstream slopes will be built at 2H:1V. Dam slope stability analyses have been performed for various loading combinations. The factors of safety of upstream and downstream slopes meet the required target factors of safety in accordance with the CDA guidelines.

Dam instrumentation will mainly include vibrating wire piezometers in the foundation, inclinometers in the downstream slope footprints, survey monuments along the downstream slopes to monitor dam deformation and dam settlement during both operation and post-closure.

Collection ditches and ponds will be located at topographical low points around the TMF perimeter to collect runoff and seepage. In the ultimate TMF configuration there will be six collection ponds. The ponds will lead the seepage to the reclaim pond by gravity (or by pumping in some cases) for recirculation to the process plant.

20.4.3 Geotechnical Conditions

Geotechnical investigations indicate that the overall TMF site has very little overburden underlain by bedrock. The overburden units consist of generally free draining sand, sand and gravel and silty sand varying in thickness from 0–3 m. The high permeability overburden deposits in the central valley vary from 6 m thick at the east dam to about 13 m thick further east. The bedrock is at very shallow depths along the proposed TMF north dam site.

20.4.4 Tailings Deposition

Tailings slurry will be pumped to the TMF and spigotted along the dam crest during operations throughout the year. In the winter the discharge locations will not be altered, to avoid buildup of ice on the beach. The TMF will be developed in stages for better water management and water balance and tailings deposited in a manner that optimizes dam raises and water management. The tailings deposition plan will provide flexibility and will facilitate progressive closure in the final years.

Tailings will be discharged from the west side initially, and later deposition will be done from the south and eventually from all three sides on the south, west, and north perimeter dams, to maintain the tailings pond to the east side of the impoundment for easy management during operation and closure.

20.4.5 TMF Water Management

TMF water will be pumped from the tailings pond/reclaim pond directly to the mill for reuse and hence forms a closed circuit without contact with other water bodies.

TMF water management assumptions include:

- The TMF will accumulate approximately 2 Mm^3 of water prior to mill start up to ensure enough water for winter operation
- Significant amounts of mill make-up water will be provided by reclaim from the TMF in winter
- The TMF is the primary source of mill make-up water with additional sources being the polishing and storm/mine water ponds
- A sitewide water balance study has been performed for climate normal, 1-in-100 year wet and 1-in-100 year dry scenarios. The study indicates that the TMF would

be able to supply significant volume of reclaim water to the mill for all scenarios supplemented by reclaim water from mine water pond or polishing pond when required.

All ponds, including the tailings reclaim pond, will have emergency spillways to safeguard the dams.

20.4.6 Seepage Modelling

A preliminary 3D groundwater flow model of the Project site includes the proposed Project and regional surroundings, covering an area of approximately 167 km^2. The active model domain is delineated based on hydrogeological boundaries such as major lakes, rivers and interpreted groundwater divides.

TMF seepage mitigation measures have been implemented in the model to reduce potential seepage by-pass and include seepage collection ditches and ponds ringing the TMF, the installation of geomembrane liner along the upstream flanks of starter dams adjacent to Moore and Clam Lakes, and the installation of interceptor wells to the north of the TMF.

Further modelling will be undertaken during design, and prior to the TMF north dam construction, which will consider sensitivity analyses, alternative engineering controls and future field investigation results and may alter some of the seepage control measure requirements.

20.4.7 TMF Water Quality Prediction

Water quality predictions for the settling pond account for inputs from process water from the process plant and tailings runoff within the TMF. The water quality predictions for the reclaim pond account for inputs from the TMF (including runoff, seepage directly entering the reclaim pond, and seepage collected via the seepage collection system that is pumped to the reclaim pond). The resulting water quality model simulates the natural degradation of cyanide in the TMF tailings mass, TMF settling pond, and the reclaim pond.

The predicted maximum monthly average concentrations of total cyanide in the reclaim pond are above the MDMER maximum authorized monthly mean concentrations of prescribed deleterious substances for existing mines that come into force on June 1, 2021. However, the TMF water, including the water in the reclaim pond, will be pumped to the mill for reuse and will not be directly discharged to the receiving environment. All other predicted monthly average concentrations are below the MDMER.

The predicted monthly average concentrations at lakes receiving TMF seepage (Bagsverd Lake [south basin], Unnamed Lake #5 [tributary to Schist Lake outflow], Schist Lake, Moore Lake, Clam Lake and Little Clam Lake) are below the water quality guidelines for key seepage parameters (i.e., free cyanide, copper).

20.4.8 Water Quality Monitoring

Water quality will be monitored in the process water (before and after cyanide destruction) prior to discharge to the TMF. Water quality will also be monitored in the TMF settling pond, reclaim pond, and in the seepage collection system.

With respect to completing monitoring to evaluate potential effects due to TMF seepage that bypasses the seepage collection system, water quality will be monitored at lakes surrounding the TMF and at those lakes further downstream. Monitoring points include:

- Lakes in the Mesomikenda Lake watershed: Bagsverd Lake, Unnamed Lake #6 (tributary to Schist Lake outflow), Schist Lake, Neville Lake, and Mesomikenda Lake
- Lakes in the Mollie River watershed: Moore Lake, Clam Lake, Little Clam Lake, Chester Lake, New Lake, Three Duck Lakes, Delaney Lake, and Dividing Lake.

Groundwater quality will be monitored at wells to be installed downgradient of the TMF seepage collection system to confirm that seepage from the TMF is being captured in the seepage collection system. The groundwater monitoring will assist with confirming water quality model and 3D groundwater model predictions and provide information as part of the adaptive management of TMF seepage. It is expected that the monitoring data will assist with determining the need for potential additional mitigation measures (i.e., pumping well system).

Monitoring well installations will be located downgradient of where the seepage collection systems are constructed with an increased focus on areas where there may be preferential groundwater flow pathways. The monitoring well locations will be (in part) selected based on the results of the 3D groundwater modelling.

The monitored water quality will be assessed relative to applicable effluent discharge requirements and water quality guidelines.

Should water quality monitoring in the vicinity of the TMF indicate unacceptable concentrations associated with site sources and/or seepage bypass rates, the contingency measure would be to further capture the TMF seepage followed by treatment to acceptable concentrations. An option for further capture of TMF seepage may include seepage interception using pumping wells installed upstream of the lakes that surround the TMF, as any additional mitigation would likely be localized in nature.

20.5 Water Management

Infrastructure required for water management over the LOM is shown in Figure 20-2.

20.5.1 Watercourse Realignment Dams and Channels

A watercourse realignment system has been designed to redirect water around the mine facilities to enable excavation and dewatering of the open pit.

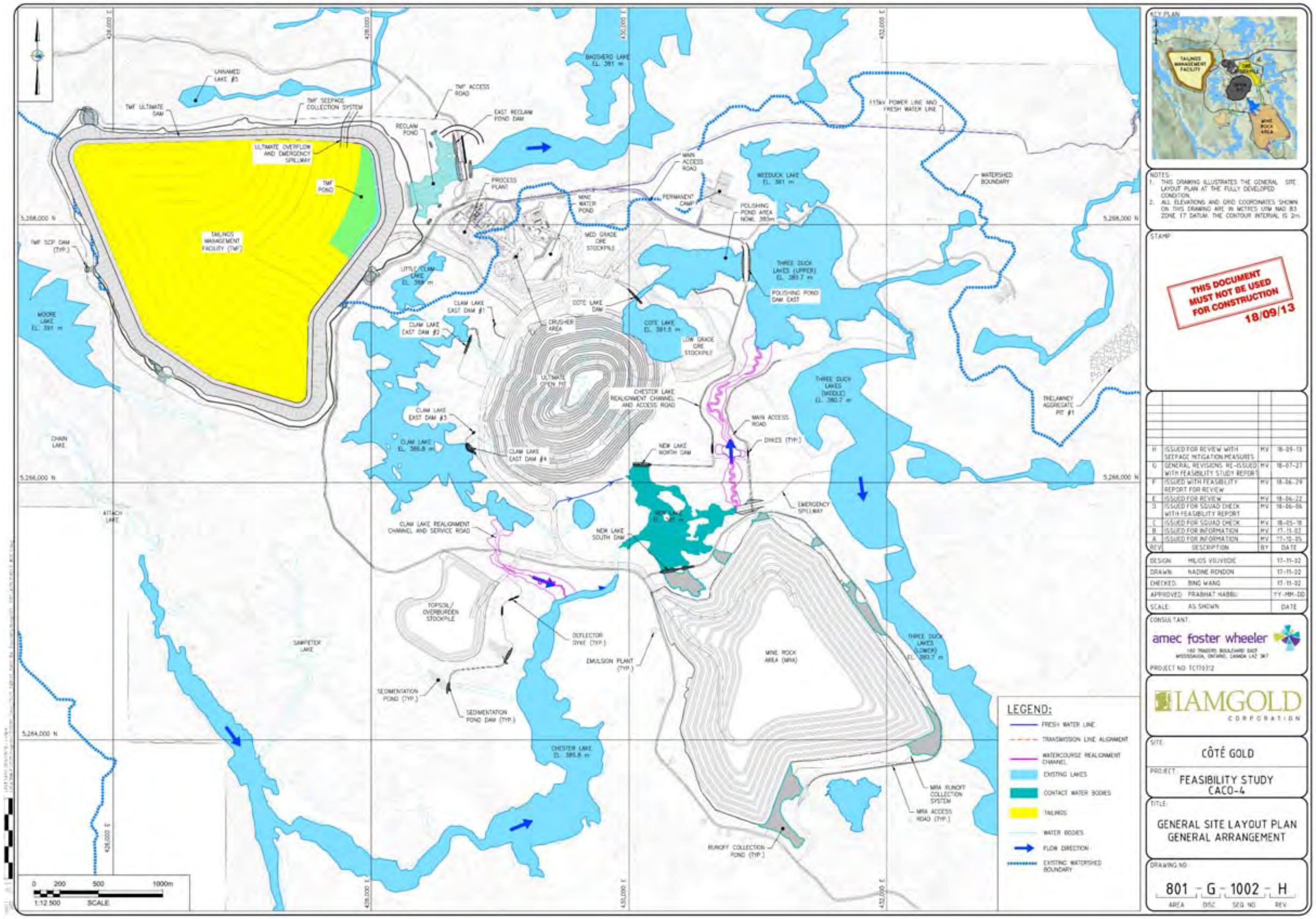
Four pit protection dams will be constructed either within existing lakes, in shallow water, or at currently dry locations along the eastern periphery of the Clam Lake. These dams will protect water from entering the pit area. Sufficient freeboard has been provided above the lake levels to avoid potential overtopping of the dams under flood conditions. Dam designs are based on the water and ground conditions at each location, and in accordance with the Canadian Dam Association Dam Safety Guideline (CDA, 2014) and the Ontario Lakes and Rivers Improvement Act (MNR, 2011).

Two realignment channels will reroute the existing watercourses running into the open pit: WRC 1 from Clam Lake to Chester Lake flowing south, and WRC 2 from the New Lake (built in compensation for the partial elimination of Côté Lake by the pit) to the Three Duck Lakes (Upper). The channels have been designed to provide fish migration and habitats under both low and high flow conditions. Routing the water to the Three Duck Lakes (Upper) will maintain fresh-water inflow, and the lakes will remain oxygenated for fish habitat.

20.5.2 Storm/Mine Water, Reclaim, and Polishing Ponds and Collection System

The polishing pond east dam will be constructed in the Three Duck Lakes (Upper) area to delineate the lake from the polishing pond area. The Côté Lake dam is required to facilitate early dewatering of Côté Lake and separate the Three Duck Lakes system from Côté Lake.

Figure 20-2: Water Management Infrastructure Layout Plan



Note: Figure prepared by Wood, 2018.

The polishing pond to be located downstream of the ore stockpile will receive water from various sources before it is released to the environment after meeting discharge quality standards. The polishing pond will be controlled with a normal operating level at El. 380 m, i.e., about 0.8 m below the adjoining Three Duck Lakes (Upper) with normal operating level at El. 380.8, which will create a reverse hydraulic gradient, to mitigate migration of contact water to the lake.

A storm/mine water pond near the process plant will receive pumped inflows from the pit, the polishing pond when required during, and runoff from the process plant site.

Runoff from the ore stockpiles and MRA will report to the polishing pond via perimeter ditches. Pit water will be routed to the storm/mine water pond due to the possible presence of ammonia from blasting operations in order to provide additional retention time before directing the water to the polishing pond.

20.5.3 Water Management Facility Dam Designs

All WMF dams, except the Polishing Pond East Dam, will be built out of mine rock with a low permeability central till core. In order to mitigate foundation seepage through the high permeability overburden layers, the central till core will be extended to low permeability silt or bedrock. The polishing pond dam will be built in the Three Duck Lakes (Upper) by construction of two rockfill shells and a central sand and gravel core. A cut-off wall will be constructed in the sand and gravel to provide a low permeability barrier. The cut-off wall will be extended into the foundation to mitigate seepage into polishing pond area. Dredging of the organic silt layer in the dam footprint will be necessary.

The WMF dams are designed as per guidelines set by Ministry of Natural Resources 'Lakes and Rivers Improvement act (LRIA Technical bulletin 2011) and the "Canadian Dam Association". In accordance with LRIA, the hazard potential classification for most of these dams is 'High'.

Dam slope stability analyses has been carried out for various loading conditions. The factors of safety for the dam slopes meet the stipulated target factors of safety by CDA for all loading conditions.

20.5.4 Water Quality Prediction

A water quality model was developed to predict the water quality of the polishing pond. Flow rates were used with baseline water quality and geochemistry inputs to derive mass loading rates for each of the model components. The model predicts water quality under average, 1:100-year dry and 1:100-year wet flow conditions.

The effluent quality predictions account for inputs to the polishing pond from watershed runoff, the storm/mine water pond, the MRA, the camp septic system, and drainage from the ore stockpile. The development of site-specific effluent water quality limits and objectives is currently underway as part of the permitting process.

The predicted maximum monthly average arsenic concentrations in Three Duck Lakes (0.0074 mg/L to 0.0087 mg/L) are less than the site-specific benchmark (0.0375 mg/L). Therefore, the predicted concentrations in Three Duck Lakes are expected to be protective of fish and other aquatic life. The predicted monthly average concentrations in Three Duck Lakes are below the water quality guidelines for all other parameters.

20.5.5 Polishing Pond Water Discharge

Before discharging any excess water from the polishing pond to the environment, the accumulated water will be retained with sufficient residence time, estimated at approximately 15 days for settling of solids, so that the total suspended solids (TSS), among other parameters, meet the discharge water quality guidelines. Monitoring of water quality will be performed to ensure abatement. Treatment will be implemented if necessary.

20.6 Closure Plan

Closure of the Côté Gold Project will be governed by the Ontario Mining Act and its associated regulations and codes under Ontario Regulation 240/00. The objective of closure is to return the project site to a naturalized and productive condition after mining is complete. "Naturalized and productive" is interpreted to mean a rehabilitated site without infrastructure (unless otherwise negotiated) and one that, while different from the existing environment, is capable of supporting plant, wildlife and fish communities, and other applicable land uses.

IAMGOLD has prepared a Closure Plan in accordance with the legislative requirements in tandem with the 2018 Feasibility Study. This plan details measures for temporary suspension, care and maintenance and closure of the Project, including determining financial assurance required to implement the Closure Plan.

Conventional methods of closure are expected to be employed at the site. The closure measures for the TMF will be designed to physically stabilize the tailings surface to prevent erosion and dust generation. The pit will be allowed to flood, and the natural flow of the realigned water bodies will be re-established to the extent practicable. Revegetation will be carried out using non-invasive native plant species. Monitoring at appropriate sampling locations, including those established during baseline studies and operations, will be conducted after closure to confirm performance.

MENDM requires financial assurance for implementation of the Closure Plan. Closure costs are described in Section 21.

20.7 Permitting

20.7.1 Environmental Permitting

Most mining projects in Canada are reviewed under one or more EA 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, municipalities, Aboriginal groups, the general public and other interested parties.

On 3 May 2013, IAMGOLD entered into a Voluntary Agreement with the Ontario Ministry of the Environment and Climate Change (now MECP) to conduct a Provincial Individual EA for the entire Côté Gold project, to meet the requirements of the Ontario Environmental Assessment Act. Approval of the Provincial EA was received in January 2017.

The project as presented in the 2018 Feasibility Study differs only slightly from the project presented in the EA. Mine rock and tailings management areas have been relocated to minimize impacts on fish-bearing waters, and to reduce the need for retention dams and watercourse realignments. Improvements to the project since the EA are expected to be managed through Condition 26(1) of the EA approval, which states:

26(1). Prior to implementing any proposed changes to the Undertaking, the Proponent shall determine what Environmental Assessment Act requirements are applicable to the proposed changes and shall fulfill those Environmental Assessment Act requirements. If a contemplated change to the Undertaking would result in no new net effects, it shall be considered a minor amendment. In such cases, the Proponent will be required to provide an Addendum to the Ministry to document the change and demonstrate that there are *no new net effects associated with it. The Proponent shall consult with the Ministry about any consultation requirements that may apply, and whether any changes can be permitted without an amendment to the Environmental Assessment.*

In discussions with MECP, IAMGOLD has completed an Environmental Effects Review that assesses the potential for new net effects associated with the project improvements.

In addition to the Provincial EA, the project required completion of a Federal EA pursuant to the Canadian Environmental Assessment Act (CEAA 2012). CEAA 2012 identifies the physical activities that could require completion of a Federal EA. At the time of the EA preparation, the following sections (which have since been revised) were considered to apply to the Côté Gold project:

- Section 7: *"The construction, operation, decommissioning and abandonment of a structure for the diversion of 10,000,000 m^3/a or more of water from a natural water body into another natural water body…"*. However, it should be noted that most waters will be realigned and not diverted.
- Section 8: "*The construction, operation, decommissioning and abandonment of a facility for the extraction of 200,000 m^3/a or more of ground water…*"
- Section 15 (b): *"The construction, operation, decommissioning and abandonment of a metal mill with an ore input capacity of 4,000 t/d or more."*
- Section 15 (c): "*The construction, operation, decommissioning and abandonment of a gold mine, other than a placer mine, with an ore production capacity of 600 t/d or more.*"

On 13 April 2016, the Federal Minister of the Environment issued a decision stating that the project is not likely to cause significant adverse environmental effects. Similar to the Provincial EA, the Federal EA addressed conditions regarding changes to the project as presented in the EA. The Environmental Effects Review prepared for the Provincial EA condition 26(1) also addressed Federal conditions 2.10 and 2.11:

- *2.10. The Proponent shall consult with Indigenous groups prior to initiating any material change(s) to the Designated Project that may result in adverse environmental effects, and shall notify the Agency in writing no later than 60 days prior to initiating the change(s)*

- *2.11. In notifying the Agency pursuant to condition 2.10, the Proponent shall provide the Agency with an analysis of the adverse environmental effects of the change(s) to the Designated Project, as well as the results of the consultation with Indigenous groups.*

A new 115 kV, 44 km transmission line will be constructed by IAMGOLD from the Shining Tree distribution station along an unused corridor to provide power to the site. The routing of this line was considered as an alternative in the Federal and Provincial EAs, but not fully assessed as it had insufficient capacity to meet project needs at that time. In accordance with the Guide to Environmental Assessment Requirements for Electricity Projects (Ministry of the Environment 2011), and based on guidance from the Ministry of Environment, Conservation and Parks (2018), the proposed 44 km, 115 kV transmission line from the Shining Tree distribution station to the Côté Gold Project site is required to follow the process under the Class EA for Minor Transmission Facilities (Hydro One Networks, 2016).

IAMGOLD is undergoing the Class EA for Minor Transmission Facilities, and the EA process is expected to be completed in late 2018.

20.7.2 Provincial Approvals

Three primary Provincial agencies will be involved with Project approvals/permits:

- Ministry of Energy, Northern Development and Mines (MENDM)
- Ministry of Natural Resources and Forestry (MNRF)
- Ministry of Environment, Conservation and Parks (MECP).

Additional agencies that may be involved in permitting include:

- Ontario Energy Board (OEB)
- Ministry of Transportation (MTO)
- Infrastructure Ontario (IO)
- Ministry of Tourism, Culture and Sport (MTCS).
- Fisheries and Oceans Canada (DFO)
- Environment and Climate Change Canada (ECCC; formerly Environment Canada)
- Natural Resources Canada (NRC)

- Transport Canada (TC)
- NAV CAN (NC).

Provincial environmental approvals that are expected to be required to construct and operate the Project include those shown in the preliminary list in Table 20-2.

20.7.3 Federal Approvals

Additional Federal environmental approvals that are expected to be required to construct and operate the Project include those shown in the preliminary list in Table 20-3. In addition, engineering approvals related to explosives manufacturing and/or storage will be required.

20.8 Considerations of Social and Community Impacts

20.8.1 Community Consultation

IAMGOLD has actively engaged local and regional communities, as well as other stakeholders, to gain a better understanding of their issues and interests, identify potential partnerships, and build social acceptance for the Project. Stakeholders involved in Project consultations to date include those with a direct interest in the Project, and those who provided data for the baseline studies.

The involvement of stakeholders will continue throughout the various Project stages. The range of stakeholders is expected to increase and evolve over time, to reflect varying levels of interest and issues.

IAMGOLD continues to engage stakeholders and interested individuals through:

- Open houses to share Project updates and seek feedback
- Quarterly *Let's Talk* Project newsletters
- The Project website (www.iamgold.com/Côté gold)
- Meetings and discussions.

As part of the Provincial conditions of environmental assessment approval, IAMGOLD will develop and submit a Community Communication Plan to the responsible Provincial ministry, outlining its plan to communicate with stakeholders through all phases of the Project.

Table 20-2: Expected Additional Provincial Environmental Approvals

Agency	Permit/Approval	Act	Relevant Components
MNRF	Various Work Permits for Construction	*Lakes & Rivers Improvement Act/ Public Lands Act*	For work/construction on Crown land. Could be required as part of construction of the transmission line.
	Lakes and Rivers Improvement Act (LRIA) Permit	*Lakes & Rivers Improvement Act*	Construction of a dam in/near any lake or river in circumstances set out in the regulations requires a written approval for location of the dam and its plans and specifications.
	Forest Resource Licence (Cutting Permit)	*Crown Forest Sustainability Act*	For clearing of Crown merchantable timber. Could be required as part of construction of the transmission line.
	Aggregate Permit	*Aggregate Resources Act*	For extraction of aggregate (e.g., sand/gravel/ rock for tailings dam or other site construction).
	Land Use Permit, Easement	*Public Lands Act*	To obtain tenure for permanent facilities on Crown land, such as for the transmission line.
	Endangered Species Permit	*Endangered Species Act*	For any activity that could adversely affect species or their habitat identified as 'Endangered' or 'Threatened' in the various schedules of the Act.
MECP	Environmental Compliance Approval – Industrial Sewage Works	*Ontario Water Resources Act*	For constructing a mine/mill water treatment system(s) discharging to the environment, such as for tailings, pit water, site stormwater and mine rock pile runoff.
	Permits to Take Water	*Ontario Water Resources Act*	For taking of ground or surface water (in excess of 50 m^3/day), such as for potable and processing needs and pit dewatering. During construction, a permit(s) may be required for dam and/or mill construction to keep excavations dry.
	Environmental Compliance Approval – Air and Noise	*Environmental Protection Act*	For discharge of air emissions and noise, such as from mill processes, on-site laboratory and haul trucks (road dust).
	Environmental Compliance Approval – Waste Disposal Site	*Environmental Protection Act*	For operation of a landfill and/or waste transfer site.
	Environmental Compliance Approval	*Environmental Protection Act*	For establishment and operation of a domestic sewage treatment plant.

Agency	Permit/Approval	Act	Relevant Components
MENDM	Closure Plan	*Mining Act*	For mine construction/production and closure, including financial assurance.
MTCS	Clearance Letter	*Heritage Act*	For confirmation that appropriate archaeological studies and mitigation, if required, have been completed.

Table 20-3: Expected Additional Federal Environmental Approvals

Agency	Permit/Approval	Act	Relevant Components
DFO	Section 35 (2)b. Authorization for serious harm to fish that are part of a commercial, recreational or Aboriginal fishery, or to fish that support such a fishery	*Fisheries Act*	For construction of the tailings facility, mine rock stockpiles, access road creek crossings, water works for water intake structures, and/or groundwater dewatering effects, that would cause disruption to creeks and/or ponds supporting fish that are part of, or support a fishery.
ECCC	Schedule 2 Listing	*Fisheries Act* *(Metal Mining Effluent Regulations; MMER)*	For overprinting of waters frequented by fish, by a deleterious mineral waste (tailings management facility).
NRC	Licence for an explosives factory	*Explosives Act*	For operation of an on-site facility to supply explosives for use in the open pit operations.
TC	Aeronautical obstruction clearance		Marking and lighting for structures that could interfere with aeronautical navigation.
NC	Land-use clearance	*Civil Air Navigation Services Commercialization Act*	Construction of tall structures, use of cranes, high-voltage equipment, blasting.

IAMGOLD plans to work with the community of Gogama to collaborate on the development of a socio-economic management and monitoring plan to manage potential socio-economic effects of the Project (both adverse and positive).

20.8.2 Indigenous Consultation and Communications

An understanding of the Indigenous communities potentially interested in the Côté Gold project was first developed through advice from MENDM to Trelawney Mining and Exploration Inc. in a letter dated 19 August 2011, and through advice from CEAA based on information provided by Aboriginal Affairs and Northern Development

Canada (now Indigenous and Northern Affairs Canada). IAMGOLD sought further direction from both Provincial and Federal Crown agencies on the potentially-affected communities:

- On 6 March 2013, the Federal Crown agency informed IAMGOLD that Mattagami First Nation, Flying Post First Nation, Brunswick House First Nation, the Métis Nation - Region 3, and the Algonquin Anishinabeg Tribal Council should be consulted about the Project. They noted that as the Federal EA progresses, the Chapleau First Nation, Matachewan First Nation, and Beaverhouse First Nation would also be notified
- At a meeting on 23 May 2013, the Provincial Crown identified the Mattagami First Nation, Flying Post First Nation, Brunswick House First Nation, Matachewan First Nation and the Métis Nation of Ontario – Region 3 as groups that should be consulted.

Based on Federal and Provincial advice and information gathered through engagement activities, IAMGOLD engaged a range of Indigenous groups during the preparation of the EA. The Federal and Provincial conditions of approval for the project each included a list of Indigenous communities to be considered, where relevant, for the purpose of fulfilling specific conditions. These lists are considered to supersede any prior direction from Federal or Provincial authorities. The Federal list included:

- Mattagami First Nation
- Flying Post First Nation
- Brunswick House First Nation
- Métis represented by the Métis Nation of Ontario Region 3 Consultation Committee.

Based on consultation efforts since the start of the Project, and on groups expressing a continued interest, IAMGOLD has continued to engage the identified communities through information sharing (e.g., newsletters, notices, invitations to open houses), and has focused on actively engaging affected communities identified through the EA process, namely Mattagami First Nation, Flying Post First Nation and Métis Nation of Ontario – Region 3. IAMGOLD continues to negotiate Impact Benefit Agreements with Mattagami First Nation, Flying Post First Nation and the Métis Nation of Ontario (Region 3), with approximately 25 meetings between January 2017 and July 2018. The details of the negotiations are confidential, as per the agreement of all parties involved. In addition, a Process and Funding Agreement has been reached between IAMGOLD, Mattagami First Nation and Flying Post First Nation related to the communities' involvement through the review of the EER and required regulatory permit applications to advance the Project.

As part of the Provincial and Federal conditions of approval, IAMGOLD will develop and submit an Indigenous Consultation Plan to the responsible government departments, outlining the Project's plan to consult with identified Indigenous groups throughout all phases of the Project. There is a requirement that IAMGOLD consult all identified Indigenous groups as part of the development of this Plan.

IAMGOLD has committed to work with the communities of Mattagami First Nation and Flying Post First Nation to collaboratively develop a socio-economic management and monitoring plan to manage potential socio-economic effects of the Project (both adverse and positive).

20.9 Comments on Section 20

Wood and other consultants conducted environmental baseline studies on the Project to characterize the physical, biological, and human environment. This work applied standard field protocols and scientific methodologies, and addressed the information needs of regulatory agencies for the approval of Ontario mining projects. In addition, baseline studies were undertaken to infill data to characterize areas covered by the current FS site configuration.

IAMGOLD received Provincial ministerial approval of the 2015 EA for the Project. The EA states that no significant effects are anticipated after application of the proposed mitigation measures. Environment Canada stated in May 2016 that the Project is not likely to cause significant adverse environmental effects.

The Base Case project presented in the 2018 Feasibility Study has undergone optimizations since the 2015 EA, but there are no new net effects.

Based on the Federal and Provincial Environmental Assessment processes, IAMGOLD has established a preliminary environmental monitoring program that includes monitoring parameters, methods, applicable standards, frequencies and locations for the physical, biological and human environments. The program will be updated to reflect conditions of various environmental approvals as they are received. Environmental baseline monitoring programs to date provide the basis for the monitoring frameworks, and may be modified to meet compliance and reporting requirements as the project moves through the permitting phase. The monitoring programs will apply to the construction, operation, closure and post-closure phases of the project, as appropriate, and will allow for compliance with anticipated environmental approvals and permits, while providing information to determine the effectiveness of proposed mitigation measures.

Follow-up monitoring is expected to provide for an adaptive management approach, should environmental effects vary from those predicted; if mitigation measures prove less effective than anticipated; or as new information becomes available. Mitigation strategies may be modified accordingly, and monitoring parameters, locations and/or frequencies will be adapted as appropriate.

21.0 CAPITAL AND OPERATING COSTS

21.1 Capital Cost Estimates

21.1.1 Basis of Estimate

The estimate addresses the Base Case mine, process facilities, ancillary buildings, infrastructure, water management and tailings facilities scope, and includes:

- Direct field costs of executing the Base Case including construction and commissioning of all structures, utilities, and equipment
- Indirect costs associated with design, construction and commissioning
- Provisions for contingency and Owner's costs.

The estimate was prepared in accordance with the AACE International Class 3 Estimate with an expected accuracy of +15%/-10% of the final Project cost.

Cost estimates are expressed in third-quarter 2018 US dollars with no allowances for escalation, currency fluctuation or interest during construction. Costs quoted in Canadian dollars were converted to US dollars at an exchange rate of US$1 = C$1.30.

Capital cost for surface facilities includes the construction and installation of all structures, utilities, materials, and equipment as well as all associated indirect and management costs. The capital cost includes contractor and engineering support to commission the process plant to ensure all systems are operational. At the point of hand-over of the plant to IAMGOLD's Operations group, all operational costs, including ramp-up to full production, are considered as operating costs. The capital cost estimate is based on a 30-month Base Case development schedule starting upon Closure Plan approval.

The following documents were used as support for the estimate:

- General arrangement drawings
- Process flow diagrams (PFDs)
- Piping and instrumentation diagrams (P&IDs)
- Pre-production mining costs from the mine plan
- Equipment and electrical load lists

- Budgetary quotations for major equipment and buildings
- Firm quotations for ball mill, crushers, HPGR, and mining fleet
- Firm quotations for construction camps
- Budget quotations for power transmission lines
- Project work breakdown structure (WBS)
- Material take-offs (MTOs)
- Benchmarking against other projects

21.1.2 Direct Costs

Mine Costs

The scope of the mining cost estimate includes the purchase of initial mining fleet, maintenance, and mine support equipment, wages for hourly and salary personnel for pre-production mine operation, haul road construction, and miscellaneous equipment. Estimates for mining equipment were based on mining fleet equipment schedules and equipment pricing provided by vendors for supply, delivery, assembly, and testing. Costs include pre-production stripping and haul road construction by a contractor fleet.

Labour

Wage rates for construction crews were established based on recent building trade labour and Christian Labour Association of Canada (CLAC) agreements.

Wood's North American unit work-hours are based on ideal working conditions which have been adjusted using a productivity factor to account for conditions at the Project site. These productivity factors were incorporated into the construction labour unit work-hours as multipliers on the base man-hours.

Construction Equipment

Estimates for contractors' construction equipment are included in the direct costs. These costs are estimated as dollars per direct work-hour by discipline account, and include equipment ownership, depreciation, insurance, fuel oil, lubricants, maintenance, and service and repair.

Capital Leases

The majority of the initial mining fleet is amenable to capital financing. The initial mining fleet, having an approximate initial capital cost of $142 M, can be financed using capital lease agreements with vendors. Inclusive of a down-payment of 0–15% of the purchase value paid at placement of order and interest incurred during the construction period, capital leases reduce the initial capital cost by approximately $134 M.

21.1.3 Indirect Costs

Engineering Procurement and Construction Management

The allowance for EPCM costs is $59 M, and is based on a detailed estimate for these services.

Construction Indirects

Construction indirects are estimated based on a detailed indirects model prepared by Wood and IAMGOLD. First fills were estimated per specific equipment/process requirements.

21.1.4 Owner's Costs

An allowance of $27 M has been made for Owner's costs based on a detailed estimate completed by IAMGOLD and was carried in the capital cost estimate as a component of the total construction capital cost.

An allowance of $45 M for Operational Readiness and other Owner's fees was carried as additional indirect costs as a component to the total initial capital cost. Operational Readiness is the cost to allow operations personnel to mobilize, receive training, and prepare for the start of operations during the initial capital phase of the Project.

21.1.5 Contingency

The contingency has been applied based on the assignment of levels of confidence to each component of the estimate, and the running of a Monte-Carlo simulation to determine the appropriate level of contingency required.

The contingency on direct and indirect costs (not including mining, owner's costs, and the Hydro One transmission line) has been calculated at P_{50}, using a Monte Carlo Simulation through the software @RISK and resulted in a 10% contingency of $80 M.

A mining contingency of 10% of the contractor's portion of the pre-production mining scope has been applied, for a total of $8 M.

A further mining contingency of $12 M has been applied to the autonomous mining system.

The overall total contingency included in the capital cost estimate is $100 M.

21.1.6 Sustaining Capital Costs

Sustaining costs include the following:

- Purchase of mining fleet to maintain production
- Annual TMF build-out costs
- Capital lease payments on the initial mining fleet and permanent camp.

The basis for estimating the sustaining costs for capital leases of mining equipment are as follows:

- 0–15% down payment of purchase order value on placement of order depending on the equipment (included in capital cost)
- Lease rate of 3.85–4.5% per annum depending on the equipment (interest incurred during the construction period is included in capital cost)
- Lease term of 5–7 years depending on the equipment.

Sustaining capital costs are estimated at $527 M. Without capital leasing of mining equipment, sustaining capital costs are estimated at $371 M. An allocation of $16 M has been made for the permanent camp.

21.1.7 Capital Cost Summary

The construction capital cost, summarized in Table 21-1 for the Base Case, is estimated to be $1,236 M, inclusive of allowances for Owner's costs and contingency of $27 M and $100 M, respectively. Additional indirect costs for Operational Readiness and other owner's fees totalling $45 M result in a total initial capital cost of $1,281 M.

Table 21-1: Base Case Initial Capital Cost Estimate Summary

Area	Description	Cost, US$ M
Direct costs	Mining	323
	On-site infrastructure	143
	Processing plant	346
	Tailings	67
	Off-site facilities	42
	Total direct costs	921
Indirect costs	Indirects	188
	Owner's costs	27
	Contingency	100
	Total indirect costs	315
Total construction capital		***1,236***
Additional indirect costs		45
Total initial capital cost		***1,281***

Some of the larger capital expenditures are amenable to capital financing. The majority of the initial mining fleet, having an approximate initial capital cost of $142 M, can be financed using capital lease agreements with vendors. Inclusive of a down-payment of 0–15% of the purchase value paid at placement of order and interest payments incurred during the construction period, capital leases reduce the capital cost by approximately $134 M, resulting in a total construction capital of $1,101 M and a total initial capital cost of $1,147 M net of mining equipment leasing. The capital cost taking into account leases of mining equipment for the Base Case is shown in Table 21-2.

Sustaining costs (including capital leases) over the LOM are estimated to total $527 M.

Reclamation and closure costs are estimated at $63 M, net of security bond fees and an allowance for equipment and materials salvage at the end of mine life.

Table 21-2: Base Case Initial Capital Cost Estimate Summary With Leased Mining Equipment

Area	Description	Cost, US$ M
Direct costs	Mining	188
	On-site infrastructure	143
	Processing plant	346
	Tailings	67
	Off-site facilities	42
	Total direct costs	786
Indirect costs	Indirects	188
	Owner's costs	27
	Contingency	100
	Total indirect costs	315
Total construction capital		***1,101***
Additional indirect costs		45
Total initial capital cost		***1,147***

21.2 Operating Cost Estimates

21.2.1 Mine Operating Costs

Mining quantities were derived from first principles and mine-phased planning to achieve the planned production rates. Mining excavation estimates were based on geological studies, mine models, drawings, and sketches. Mine costs generally increase with time as the pit increases in depth and the MRAs increase in height.

Diesel fuel, maintenance parts and supplies, and personnel costs are the largest cost items for the mine, followed by contract services, autonomous licence fees, explosives, and tire costs.

A diesel price of $0.89/L was used for operating cost estimate and was held constant over the LOM. Fuel consumption was estimated from vendor-supplied data for each type of equipment and equipment utilization factors, based upon calculated cycle times. Diesel fuel usage peaks in Year 9 at 32.3 ML consumed.

Equipment suppliers provided equipment maintenance and repair cost estimates in 6,000-hr increments for the equipment service lives as part of the 2018 request for quotation (RFQ). Maintenance costs were provided for both a three-year Maintenance and Repair Contract (MARC) and for LOM Owner maintenance. The 6,000-hr incremental MARC costs were applied in the cost model in Years 1–10 with the average costs applied thereafter.

IAMGOLD provided costs for both salaried and hourly mine personnel, which were applied to the mine staffing plan to estimate total labour costs.

Suppliers of the mining fleet charge annual licence fees for their autonomous systems. An allowance of $65,000 per drill per year and while licence fees for the truck fleet vary, they are substantial, peaking at nearly $253,000 per truck per year.

Also included in the mine operating cost estimate are costs associated with explosives, tires, drilling supplies, lubricants, contract services, electric power, and overhead.

On a cost by cost centre basis, mine haulage accounts for approximately half of the mine operating costs at 43%. Open pit services accounts for 12% of the mine costs, followed by loading, blasting, and drilling. Contract mining accounts for 7% of the costs and stockpile rehandle accounts for 5%. Other costs include costs for pit dewatering, engineering and geology, and operations and management overhead.

Mining costs over the LOM are estimated to average $6.98/t of processed mill feed. Excluding the pre-production period, operating costs average $2.04/primary tonne mined including stockpile rehandle, and $1.90/total tonne moved.

21.2.2 Process Operating Costs

Process operating costs estimates were developed from first principles, metallurgical testwork, IAMGOLD's salary/benefit guidelines and recent vendor quotations, and benchmarked against historical data for similar process plants. The operating costs includes reagents, consumables, personnel, electrical power and laboratory testing. The consumables accounted for in the operating costs include spare parts, grinding media and liner and screen components.

The main operating costs for the process plant are the grinding media, electrical power and reagents. The bulk of the reagent costs are associated with cyanide leaching and cyanide destruction.

Reagent consumptions were estimated based on testwork, industrial references, literature and assumed operational practice. Due to high SO_2 prices, the decision was made for the purposes of the 2018 Feasibility Study to buy molten sulphur to generate SO_2 on site. Molten sulphur pricing was obtained from vendors active in the Ontario market. Oxygen costs quoted by a local supplier were very similar in bulk and vapour pressure swing absorption (VPSA) options. Pricing for bulk delivery was used in the estimate.

Wear parts and maintenance allocations were calculated using a ratio of 7.5% against the value of purchased equipment, applied annually to project the cost of replacing mechanical equipment due to normal wear and tear.

The annual cost for grinding media for the ball mill and vertical mills was estimated based on the expected media consumption (g/kWh) and the cost per tonne of steel media. HPGR tires and mill liner costs are based on projected circuit wear times, with liners made out of appropriate material as required. The individual media costs ($/t steel media) were established through vendor quotations.

A manpower estimate for a 36,000 t/d mill was developed and a 38% labour burden factor was applied. The personnel costs incorporate requirements for plant management, metallurgy, operations, maintenance, site services, as well as a contractor allowance. Salaries and benefits guidelines were provided by IAMGOLD. There is a total of 86 employees accounted for in the process operating costs.

A third party will be contracted to provide metallurgical laboratory services at site to assay the plant, mine, geology and environmental samples.

Power cost was estimated to be $0.0538/kWh (C$0.07/kWh), which takes into account a load-shedding strategy to reduce the Global Adjustment Fee imposed by the electric utility. Electrical power loads were developed by Wood based on the project equipment list.

Process operating costs over LOM are estimated to average $6.32/t of processed ore and include the following:

- Reagents represent approximately 24% of the total process operating cost at $1.53/t milled
- Wear parts and maintenance supplies represent approximately 13% of the total process operating cost at $0.80/t milled

- Grinding media represent approximately 23% of the total process operating cost at $1.49/t milled
- Personnel costs represent approximately 10% of the total process operating cost at $0.64/t milled
- The cost of the assay laboratory contract represents approximately 3% of the total process operating costs at $0.21/t milled
- Power costs represent approximately 26% of the total process operating cost at $1.65/t milled.

21.2.3 General and Administrative Operating Costs

G&A costs were developed from first principles and benchmarked against similar projects.

The camp and catering contract cost is based on 382 total employees on site at a rate of US$60.99 per person per camp day.

Insurance, freight and logistics, and road, site and power line maintenance were provided by IAMGOLD based on benchmarking with their operations and similar projects.

Freight for components other than bulk materials were incorporated into bulk consumables costs (e.g. fuel, reagents, grinding media).

Costs for electrical power loads for the camp and administrative facilities were developed from a power usage estimate developed by Wood.

General and administrative costs over the LOM are estimated to average $1.47/t of processed ore.

21.2.4 Reclamation and Closure Costs

Reclamation and closure costs are estimated to total $63 M, distributed annually from early in the mine life until post-closure. This is based on a detailed closure cost estimate prepared by SLR Consulting Canada Ltd., adjusted to include an allowance for security bond fees and a credit at the end of mine life to account for the estimated salvage value of equipment and materials.

21.2.5 Operating Cost Summary

Total operating costs over the LOM are estimated to be $2,947 M (Table 21-3). Mining and processing costs represent 46% and 44% of this total, respectively. Average operating costs are estimated at $14.52/t of processed ore, as summarized in Table 21-4.

Operating cost estimates exclude any allowances for contingencies.

21.3 Comments on Section 21

The Project's construction capital cost is estimated to be $1,236 M, inclusive of allowances for Owner's costs and contingency of $27 M and $100 M, respectively. Additional indirect costs for Operational Readiness and other Owner's fees totalling $45 M result in a total initial capital cost of $1,281 M.

Some of the larger capital expenditures are amenable to capital financing. Capital leases of mining equipment reduce the capital cost by approximately $134 M, resulting in a total construction capital of $1,101 M and a total initial capital cost of $1,147 M.

Total operating costs over the LOM are estimated to be $2,947 M. Average operating costs are estimated at $14.52/t of processed ore.

Table 21-3: Base Case Total Operating Costs over Life of Project

Cost Area	Total, US$ M	Percent of Total
Mining operating	1,366	46
Processing	1,283	44
G&A	298	10
Total	***2,947***	***100***

Table 21-4: Base Case Average Unit Operating Costs

Cost Area	US$/t of processed ore
Mining	6.73
Processing	6.32
G&A	1.47
Total	***14.52***

22.0 ECONOMIC ANALYSIS

22.1 Cautionary Statement

The results of the Base Case economic analysis represent 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, statements with respect to future gold prices, the estimation of Mineral Resources and Mineral Reserves, the estimated mine production and gold recovered, the estimated capital and operating costs, and the estimated cash flows generated from the planned mine production. Actual results may be affected by:

- Potential delays in the issuance of permits and any conditions imposed with the permits that are granted
- Differences in estimated initial capital costs and development time from what has been assumed in the 2018 Feasibility Study
- Unexpected variations in quantity of ore, grade or recovery rates, or presence of deleterious elements that would affect the process plant or waste disposal
- Unexpected geotechnical and hydrogeological conditions from what was assumed in the mine designs, including water management during construction, mine operations, and post mine closure
- Differences in the timing and amount of estimated future gold production, costs of future gold production, sustaining capital requirements, future operating costs, assumed currency exchange rate, requirements for additional capital, unexpected failure of plant, equipment or processes not operating as anticipated
- Changes in government regulation of mining operations, environment, and taxes
- Unexpected social risks, higher closure costs and unanticipated closure requirements, mineral title disputes or delays to obtaining surface access to the property.

22.2 Methodology Used

The Base Case has been evaluated using discounted cash flow (DCF) analysis. Cash inflows consist of annual revenue projections. Cash outflows consist of initial capital expenditures, sustaining capital costs, operating costs, taxes, royalties, and commitments to other stakeholders. These are subtracted from revenues to arrive at the annual cash flow projections. Cash flows are taken to occur at the end of each period.

To reflect the time value of money, annual net cash flow (NCF) projections are discounted back to the Project valuation date using the yearly discount rate. The discount rate appropriate to a specific project can depend on many factors, including the type of commodity, the cost of capital to the Base Case, and the level of Base Case risks (e.g. market risk, environmental risk, technical risk and political risk) in comparison to the expected return from the equity and money markets. The base case discount rate for the Base Case in the 2018 Feasibility Study is 5%, which has been commonly used to evaluate gold projects. The discounted present values of the cash flows are summed to arrive at the Project's net present value (NPV).

In addition to the NPV, the internal rate of return (IRR) and the payback period are also calculated. The IRR is defined as the discount rate that results in an NPV equal to zero. The payback period is calculated as the time required to achieve positive cumulative cash flow for the Base Case from the start of production.

22.3 Financial Model Parameters

The financial analysis is based on:

- Royalty rates as described in Section 4
- The subset of the Mineral Reserves as included in the mine plan presented in Section 16
- Mill feed treated in the process plant described in Section 17
- Support from the projected infrastructure requirements outlined in Section 18
- Doré marketing assumptions described in Section 19
- Permitting, social and environmental regime discussions in Section 20
- Capital and operating cost estimates detailed in Section 21.

22.3.1 Metal Prices

For the purposes of the financial analysis, the assumed gold price for the LOM is US$1,250/oz. The gold price was what Wood considers the industry consensus price forecast of the following sources: bank analysts' long-term forecasts; historical metal price averages; and prices used in recent publicly-disclosed comparable studies.

22.3.2 Exchange Rates

For the purpose of the capital cost estimate, the operating cost estimate, and financial analysis, the assumed exchange rate for the LOM is US$1.00:C$1.30. 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.

22.3.3 Transport, Insurance and Refining

The 2018 Feasibility Study assumes that the doré will be picked up from site and delivered by the Royal Canadian Mint (the Mint) to their refinery in Ottawa. An indicative quote for transportation, insurance and refining was received from the Mint estimating costs at approximately $1.75/oz Au, which has been used in the cashflow model for the Base Case.

22.3.4 Working Capital

Working capital modelling cash outflow and inflows are included in the Base Case model. The calculations are based on the assumptions that accounts payable will be paid within 45 days and accounts receivable received within 30 days, with an additional allowance for $15 M in materials and supplies inventory, $2 M in reagents inventory, and $1.7 M in gold inventory held in carbon within the process plant.

Initial working capital is estimated at approximately $36 M in the first year of production.

22.3.5 Royalties and Owner's Other Costs

The royalty rates are presented in Section 4. Royalties range from 0% to a maximum of 1.5% depending on the source of the ore within the pit. They amount to approximately $68 M over the life of the Project.

Owner's other costs consist of allowances to meet commitments to stakeholders. They amount to approximately $243 M over the life of the Project.

22.3.6 Tax

Taxation considerations included in the Base Case financial model comprise Provincial and Federal corporate income taxes and Ontario Mineral taxes. The following discussion outlines the main Federal and Provincial taxation considerations used in the economic model as provided by IAMGOLD:

- On a non-discounted basis LOM, the model provides for $515 M of Federal and Provincial income taxes, and $214 M of Ontario Mining Tax
- Income tax is payable to the Federal government of Canada, pursuant to the Income Tax Act (Canada). The applicable Federal income tax rate is 15% of taxable income
- Income tax is payable to the Province of Ontario at a tax rate of 11.5% of taxable income, which includes the manufacturing and processing tax credit. Ontario income tax is administered by the Canada Revenue Agency and, since 2008, Ontario's definition of taxable income is fully harmonized with the Federal definition
- Ontario Mining Tax (OMT) is levied at a rate of 10% on taxable profit in excess of C$500,000 derived from mining operations in Ontario. OMT is deductible in calculating Federal income tax and a similar resource allowance is available as a deduction in calculating Ontario income tax. OMT is not affected by harmonization; accordingly, it is administered Provincially by Ontario.

While the before-tax results of the Côté Gold joint venture will be reported for income and mining tax purposes on a 70/30 basis, the after-tax results in the economic analysis should not be viewed on the basis of a 70/30 relationship. That is, differences in the underlying tax attributes of each of the corporate co-venturers will produce actual tax results for each co-venturer that differ from a simple 70/30 split of the total tax expenses generated in the Base Case model.

The tax calculations are underpinned by the following key assumptions:

- The Project is held 100% by two corporate entities and the after-tax analysis does not attempt to reflect any future changes in those corporate structures or property ownership

- Payments projected relating to royalties, as applicable, are allowed as a deduction for Federal and Provincial income tax purposes, but are added back for Provincial mining tax purposes
- Actual taxes payable will be affected by corporate activities, and future tax benefits have not been considered.

22.3.7 Financing

The Base Case model does not include any costs associated with financing other than the capital leases as presented in Section 21.

22.3.8 Inflation

There is no adjustment for inflation in the Base Case financial model; all cash flows are based on 2018 US dollars.

22.4 Economic Analysis

Two economic analysis scenarios have been considered for the Base Case, one which includes the leasing of mining equipment, and one that does not.

22.4.1 Results Without Lease of Mining Equipment

Table 21-1 summarizes the Base Case financial results with the base case NPV 5% highlighted in grey for the scenario that does not consider leasing of mining equipment.

The Base Case after-tax NPV 5% is $788 M. The after-tax IRR is 14.5%. The after-tax payback of the initial capital investment is estimated to occur 4.5 years after the start of production. Table 22-2 shows the cashflow broken out on an annualized basis. Calendar years are shown for illustrative purposes only and may change.

The LOM total cash cost is $594/oz Au derived from mining, processing, on-site G&A, refining, doré transportation and insurance, royalties, other owner's costs and Provincial mining tax costs per ounce payable. The all-in sustaining cost (AISC) is $668/oz Au derived from total cash costs plus sustaining capital (including interest on capital leases), and reclamation and remediation costs. Note that AISC as reported is based solely on costs associated with the Base Case project and does not take into account any other corporate costs not directly associated with the Base Case.

Table 22-1: Base Case Summary–Financial Results Without Mine Equipment Leasing

Parameter	Units	Pre-Tax	After-Tax
Cumulative cash flow	US$M	2,348	1,612
NPV 5%	US$M	1,238	788
NPV 8%	US$M	803	462
NPV 10%	US$M	577	290
Payback period*	year	4.2	4.5
IRR	%	17.8	14.5

Note: base case NPV is highlighted. * Payback period is after two years of pre-production

Table 22-2: Base Case Financial Model Without Mining Equipment Leasing

CASHFLOW MODEL																								
Project Time line																								
Year				**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**
Project time (year)				**-2**	**-1**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**
Production				0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0
	UNITS	**PV**	**LOM**																					
Metal Prices																								
Gold	US$/oz		1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250
Ore mined																								
Ore	kmt		208,078	2	9,155	10,503	14,451	17,819	22,300	21,874	13,140	13,139	13,140	17,115	19,656	18,297	14,095	2,984	410					
Waste Mined																								
Waste	kmt		486,663	7,733	28,862	47,021	44,660	42,446	39,750	40,176	48,910	48,911	48,910	44,935	27,229	11,103	4,902	955	159					
Mill Feed																								
Mill Direct Feed	kmt		144,234			4,692	10,201	11,355	13,140	13,140	13,140	13,139	13,140	13,140	13,140	11,438	11,729	2,563	276					
Stockpile Mill Feed	kmt		58,766			6,455	2,939	1,785								1,702	1,411	10,577	12,864	13,140	7,894			
REVENUES																								
Dore																								
Au recovered	koz		5,868			427	408	439	560	537	349	319	325	394	475	479	425	269	201	167	95			
Au payable	koz		5,866			425	408	439	560	537	349	319	325	394	475	479	425	269	201	167	95			
Au value	000 US$	4,967,557	7,332,724			531,858	509,831	548,592	700,469	671,763	435,690	399,224	405,852	492,267	593,769	598,472	530,861	336,098	250,676	208,258	119,044			
Transport and insurance																								
Dore refining, transport, insurance and other charges	000 US$	6,957	10,268			747	714	768	981	940	610	559	568	689	831	838	743	471	351	292	167			
Total Refining Transport and Insurance	000 US$	6,957	10,268			747	714	768	981	940	610	559	568	689	831	838	743	471	351	292	167			
NSR																								
Dore	000 US$	4,960,600	7,322,456			531,111	509,117	547,824	699,488	670,823	435,080	398,665	405,284	491,578	592,938	597,634	530,117	335,628	250,325	207,966	118,877			
Total	000 US$	4,960,600	7,322,456			531,111	509,117	547,824	699,488	670,823	435,080	398,665	405,284	491,578	592,938	597,634	530,117	335,628	250,325	207,966	118,877			
OPERATING COSTS ONSITE																								
Mining	000 US$	943,666	1,366,205			95,774	102,138	119,049	106,067	106,979	132,475	107,995	107,060	122,779	104,592	84,629	63,054	41,220	32,793	21,598	18,003			
Process	000 US$	833,130	1,283,229			76,622	82,640	82,640	82,640	82,640	82,640	82,632	82,640	82,640	82,640	82,640	82,640	82,640	82,640	82,640	49,649			
G&A	000 US$	192,878	297,684			16,346	19,269	19,269	19,269	19,269	19,269	19,267	19,269	19,269	19,269	19,269	19,269	19,269	19,269	19,269	11,576			
Total onsite operating cost	000 US$	1,969,674	2,947,118			188,742	204,047	220,958	207,976	208,888	234,384	209,894	208,970	224,689	206,501	186,539	164,963	143,129	134,703	123,507	79,229			
OPERATING COSTS OFF SITE																								
Royalties and Owner's Other Costs																								
Royalty	000 US$	46,090	68,286			4,829	4,614	5,060	6,680	6,474	3,634	3,339	3,730	4,187	5,849	5,909	5,295	3,262	2,358	1,879	1,186			
Owner's Other Costs	000 US$	167,171	243,418			19,644	15,798	18,371	30,564	28,696	10,611	5,921	9,165	10,774	25,326	27,626	23,353	9,789	4,502	2,072	1,205			
Total royalties and owner's other costs	000 US$	213,261	311,705			24,473	20,412	23,430	37,245	35,170	14,245	9,260	12,896	14,961	31,176	33,535	28,648	13,051	6,861	3,951	2,391			
OPERATING PROFIT																								
Operating profit	000 US$	2,777,665	4,063,634			317,896	284,658	303,436	454,267	426,765	186,450	179,512	183,419	251,928	355,261	377,560	336,506	179,448	108,762	80,508	37,257			
Taxes	000 US$	449,730	736,684	-	-	-	-	-	50,975	96,620	31,571	34,254	40,140	66,929	104,067	113,133	101,202	49,124	26,616	16,457	5,596	-	-	-
CAPITAL COSTS																								
Total Initial Capital	000 US$	1,241,630	1,281,382	446,594	834,789																			
Sustaining Capital	000 US$	254,831	371,027			35,086	30,066	30,172	35,641	18,436	23,852	19,382	28,337	40,027	22,541	17,337	21,223	16,026	15,980	16,903	19			
Closure Costs	000 US$	26,666	62,952				73	146	576	285	358	467	845	927	636	2,179	1,126	3,510	848	3,966	967	4,058	1,229	40,757
Total capital costs	000 US$	1,523,127	1,715,361	446,594	834,789	35,086	30,139	30,317	36,217	18,721	24,209	19,849	29,182	40,954	23,177	19,515	22,348	19,536	16,827	20,869	986	4,058	1,229	40,757
Working Capital																								
Accounts receivable yearly	000 US$		7,322,456			531,111	509,117	547,824	699,488	670,823	435,080	398,665	405,284	491,578	592,938	597,634	530,117	335,628	250,325	207,966	118,877			
Accounts receivable adjusted	000 US$		601,846			43,653	41,845	45,027	57,492	55,136	35,760	32,767	33,311	40,404	48,735	49,121	43,571	27,586	20,575	17,093	9,771			
Change in accounts receivable	000 US$					43,653	(1,808)	3,181	12,466	(2,356)	(19,376)	(2,993)	544	7,093	8,331	386	(5,549)	(15,985)	(7,011)	(3,482)	(7,322)	(9,771)		
Accounts payable yearly	000 US$		3,269,091			213,962	225,173	245,156	246,201	244,999	249,239	219,713	222,434	240,339	238,508	220,911	194,354	156,650	141,914	127,749	81,786			
Accounts payable adjusted	000 US$		403,039			26,379	27,761	30,225	30,354	30,205	30,728	27,088	27,423	29,631	29,405	27,236	23,961	19,313	17,496	15,750	10,083			
Change in account payable	000 US$					26,379	1,382	2,464	129	(148)	523	(3,640)	335	2,208	(226)	(2,169)	(3,274)	(4,648)	(1,817)	(1,746)	(5,667)	(10,083)		
Working inventory	000 US$					18,905	18,905	18,905	18,905	18,905	18,905	18,905	18,905	18,905	18,905	18,905	18,905	18,905	18,905	18,905	18,905	18,905	18,905	
Change in working inventory	000 US$					18,905																		(18,905)
Change in working capital	**000 US$**	**(16,581)**	**0**			**(36,179)**	**3,190**	**(718)**	**(12,337)**	**2,208**	**19,899**	**(647)**	**(209)**	**(4,885)**	**(8,557)**	**(2,555)**	**2,275**	**11,337**	**5,194**	**1,735**	**1,656**	**(313)**		**18,905**
VALUATION INDICATORS																								
Discount factor				1.00	0.95	0.91	0.86	0.82	0.78	0.75	0.71	0.68	0.64	0.61	0.58	0.56	0.53	0.51	0.48	0.46	0.44	0.42	0.40	0.38
Pre Tax																								
Cash flow	000 US$	1,237,957	2,348,273	(446,594)	(834,789)	246,631	257,709	272,401	405,713	410,251	182,140	159,016	154,028	206,089	323,527	355,489	316,433	171,249	97,129	61,374	37,926	(4,370)	(1,229)	(21,852)
Cumulative cashflow	000 US$			(446,594)	(1,281,382)	(1,034,752)	(777,043)	(504,641)	(98,928)	311,323	493,463	652,479	806,507	1,012,596	1,336,123	1,691,612	2,008,045	2,179,294	2,276,423	2,337,797	2,375,724	2,371,353	2,370,125	2,348,273
NPV 5%	000 US$		1,237,957																					
Payback period	Years		4.2	1.0	1.0	1.0	1.0	1.0	1.0	0.2														
IRR before tax	%		17.8%																					
After Tax																								
Cash flow	000 US$	788,226	1,611,589	(446,594)	(834,789)	246,631	257,709	272,401	354,738	313,631	150,569	124,762	113,887	139,160	219,461	242,356	215,231	122,125	70,513	44,917	32,330	(4,370)	(1,229)	(21,852)
Cumulative cashflow	000 US$			(446,594)	(1,281,382)	(1,034,752)	(777,043)	(504,641)	(149,903)	163,728	314,297	439,059	552,947	692,107	911,568	1,153,924	1,369,155	1,491,280	1,561,793	1,606,710	1,639,040	1,634,669	1,633,441	1,611,589
NPV 5%	000 US$		788,226																					
Payback period	Years		4.5	1.0	1.0	1.0	1.0	1.0	1.0	0.5														
IRR after tax	%		14.5%																					

22.4.2 Results with Lease of Mining Equipment

Table 22-3 summarizes the financial results for the Base Case with the base case NPV 5% highlighted in grey for the scenario that does consider the leasing of mining equipment. The after-tax NPV 5% is $795 M. The after-tax IRR is 15.2%. The after-tax payback of the initial capital investment is estimated to occur 4.4 years after the start of production. Table 22-4 shows the cashflow broken out on an annualized basis. Years are shown for illustrative purposes only and may change.

The LOM total cash cost is $594/oz Au derived from mining, processing, on-site G&A, refining, doré transportation and insurance, royalties, owner's other costs and Provincial mining tax costs per ounce payable. The AISC is $694/oz Au derived from total cash costs plus sustaining capital (including interest on capital leases), and reclamation and remediation costs. Note that AISC as reported is based solely on costs associated with this Base Case and does not take into account any other corporate costs not directly associated with this Base Case.

22.5 Sensitivity Analysis

A sensitivity analysis was performed on the base case NPV 5% after taxes to examine the sensitivity to gold price, operating costs, capital costs (including sustaining), and US$/C$ exchange rate. The results of the sensitivity analysis are shown in Figure 22-1 for the after-tax scenario.

In the pre-tax and after-tax evaluations, the Base Case is most sensitive to changes in gold price and gold head grade, and less sensitive to changes in exchange rate, operating costs and capital costs.

Gold head grade is not presented in the sensitivity graph because the impact of changes in the gold grade mirror the impact of changes in the gold price.

Table 22-3: Base Case Summary–Financial Results With Leasing of Mining Equipment

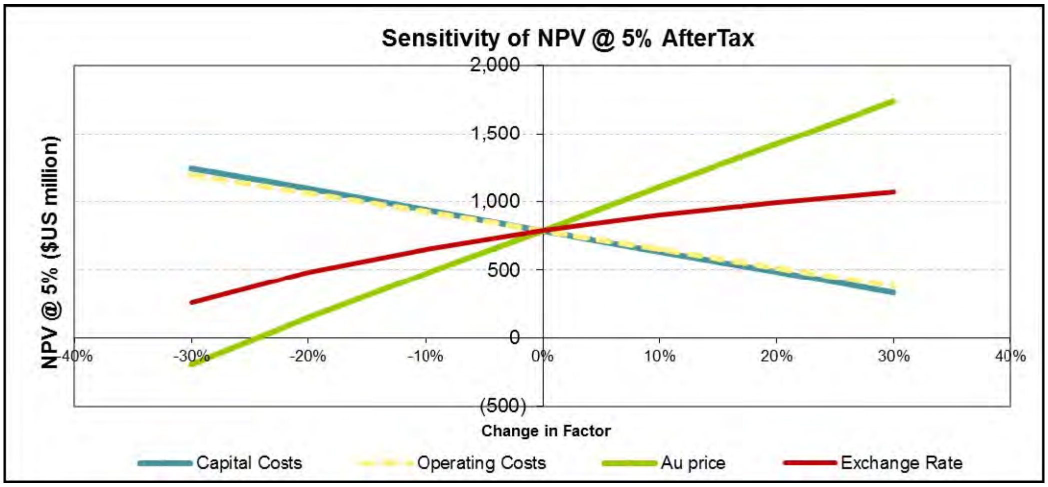
Parameter	Units	Pre-Tax	After-Tax
Cumulative cash flow	US$M	2,327	1,597
NPV 5%	US$M	1,242	795
NPV 8%	US$M	819	479
NPV 10%	US$M	599	313
Payback period*	year	4.2	4.4
IRR	%	18.7	15.2

Note: base case NPV is highlighted. * Payback period is after two years of pre-production

Table 22-4: Base Case Financial Model With Leasing of Mining Equipment

CASHFLOW MODEL																								
Project Time line																								
Year				2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
Project time (year)				-2	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Production				0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0
	UNITS	**PV**	**LOM**																					
Metal Prices																								
Gold	US$/oz		1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250
Ore mined																								
Ore	kmt		208,078	2	9,155	10,503	14,451	17,819	22,300	21,874	13,140	13,139	13,140	17,115	19,656	18,297	14,095	2,984	410					
Waste Mined																								
Waste	kmt		486,663	7,733	28,862	47,021	44,660	42,446	39,750	40,176	48,910	48,911	48,910	44,935	27,229	11,103	4,902	955	159					
Mill Feed																								
Mill Direct Feed	kmt		144,234			4,692	10,201	11,355	13,140	13,140	13,140	13,139	13,140	13,140	13,140	11,438	11,729	2,563	276					
Stockpile Mill Feed	kmt		58,766			6,455	2,939	1,785								1,702	1,411	10,577	12,864	13,140	7,894			
REVENUES																								
Dore																								
Au recovered	koz		5,868			427	408	439	560	537	349	319	325	394	475	479	425	269	201	167	95			
Au payable	koz		5,866			425	408	439	560	537	349	319	325	394	475	479	425	269	201	167	95			
Au value	000 US$	4,967,557	7,332,724			531,858	509,831	548,592	700,469	671,763	435,690	399,224	405,852	492,267	593,769	598,472	530,861	336,098	250,676	208,258	119,044			
Transport and insurance																								
Dore refining, transport, insurance and other charges	000 US$	6,957	10,268			747	714	768	981	940	610	559	568	689	831	838	743	471	351	292	167			
Total Refining Transport and Insurance	000 US$	6,957	10,268			747	714	768	981	940	610	559	568	689	831	838	743	471	351	292	167			
NSR																								
Dore	000 US$	4,960,600	7,322,456			531,111	509,117	547,824	699,488	670,823	435,080	398,665	405,284	491,578	592,938	597,634	530,117	335,628	250,325	207,966	118,877			
Total	000 US$	4,960,600	7,322,456			531,111	509,117	547,824	699,488	670,823	435,080	398,665	405,284	491,578	592,938	597,634	530,117	335,628	250,325	207,966	118,877			
OPERATING COSTS ONSITE																								
Mining	000 US$	943,666	1,366,205			95,774	102,138	119,049	106,067	106,979	132,475	107,995	107,060	122,779	104,592	84,629	63,054	41,220	32,793	21,598	18,003			
Process	000 US$	833,130	1,283,229			76,622	82,640	82,640	82,640	82,640	82,640	82,632	82,640	82,640	82,640	82,640	82,640	82,640	82,640	82,640	49,649			
G&A	000 US$	192,878	297,684			16,346	19,269	19,269	19,269	19,269	19,269	19,267	19,269	19,269	19,269	19,269	19,269	19,269	19,269	19,269	11,576			
Total onsite operating cost	000 US$	1,969,674	2,947,118			188,742	204,047	220,958	207,976	208,888	234,384	209,894	208,970	224,689	206,501	186,539	164,963	143,129	134,703	123,507	79,229			
OPERATING COSTS OFF SITE																								
Royalties and Owner's Other Costs																								
Royalty	000 US$	46,090	68,286			4,829	4,614	5,060	6,680	6,474	3,634	3,339	3,730	4,187	5,849	5,909	5,295	3,262	2,358	1,879	1,186			
Owner's Other Costs	000 US$	167,171	243,418			19,644	15,798	18,371	30,564	28,696	10,611	5,921	9,165	10,774	25,326	27,626	23,353	9,789	4,502	2,072	1,205			
Total royalties and owner's other costs	000 US$	213,261	311,705			24,473	20,412	23,430	37,245	35,170	14,245	9,260	12,896	14,961	31,176	33,535	28,648	13,051	6,861	3,951	2,391			
OPERATING PROFIT																								
Operating profit	000 US$	2,777,665	4,063,634			317,896	284,658	303,436	454,267	426,765	186,450	179,512	183,419	251,928	355,261	377,560	336,506	179,448	108,762	80,508	37,257			
Taxes	000 US$	446,512	729,629	-	-	-	-	-	60,277	95,688	28,405	30,374	37,343	65,097	102,915	112,350	100,611	48,678	26,280	16,204	5,406	-	-	-
CAPITAL COSTS																								
Total Initial Capital	000 US$	1,113,548	1,146,896	446,594	700,302																			
Sustaining Capital	000 US$	378,937	526,977			60,512	54,677	53,967	58,621	40,601	42,688	37,520	28,337	40,027	22,541	17,337	21,223	16,026	15,980	16,903	19			
Closure Costs	000 US$	26,666	62,952				73	146	576	285	358	467	845	927	636	2,179	1,126	3,510	848	3,966	967	4,058	1,229	40,757
Total capital costs	000 US$	1,519,151	1,736,825	446,594	700,302	60,512	54,749	54,112	59,197	40,886	43,046	37,987	29,182	40,954	23,177	19,515	22,348	19,536	16,827	20,869	986	4,058	1,229	40,757
Working Capital																								
Accounts receivable yearly	000 US$		7,322,456			531,111	509,117	547,824	699,488	670,823	435,080	398,665	405,284	491,578	592,938	597,634	530,117	335,628	250,325	207,966	118,877			
Accounts receivable adjusted	000 US$		601,846			43,653	41,845	45,027	57,492	55,136	35,760	32,767	33,311	40,404	48,735	49,121	43,571	27,586	20,575	17,093	9,771			
Change in accounts receivable	000 US$					43,653	(1,808)	3,181	12,466	(2,356)	(19,376)	(2,993)	544	7,093	8,331	386	(5,549)	(15,985)	(7,011)	(3,482)	(7,322)	(9,771)		
Accounts payable yearly	000 US$		3,269,091			213,962	225,173	245,156	246,201	244,999	249,239	219,713	222,434	240,339	238,508	220,911	194,354	156,650	141,914	127,749	81,786			
Accounts payable adjusted	000 US$		403,039			26,379	27,761	30,225	30,354	30,205	30,728	27,088	27,423	29,631	29,405	27,236	23,961	19,313	17,496	15,750	10,083			
Change in account payable	000 US$					26,379	1,382	2,464	129	(148)	523	(3,640)	335	2,208	(226)	(2,169)	(3,274)	(4,648)	(1,817)	(1,746)	(5,667)	(10,083)		
Working inventory	000 US$					18,905	18,905	18,905	18,905	18,905	18,905	18,905	18,905	18,905	18,905	18,905	18,905	18,905	18,905	18,905	18,905	18,905	18,905	
Change in working inventory	000 US$					18,905																		(18,905)
Change in working capital	**000 US$**	**(16,581)**	**0**			**(36,179)**	**3,190**	**(718)**	**(12,337)**	**2,208**	**19,899**	**(647)**	**(209)**	**(4,885)**	**(8,557)**	**(2,555)**	**2,275**	**11,337**	**5,194**	**1,735**	**1,656**	**(313)**		**18,905**
VALUATION INDICATORS																								
Discount factor				1.00	0.95	0.91	0.86	0.82	0.78	0.75	0.71	0.68	0.64	0.61	0.58	0.56	0.53	0.51	0.48	0.46	0.44	0.42	0.40	0.38
Pre Tax																								
Cash flow	000 US$	1,241,933	2,326,809	(446,594)	(700,302)	221,205	233,098	248,606	382,734	388,087	163,303	140,877	154,028	206,089	323,527	355,489	316,433	171,249	97,129	61,374	37,926	(4,370)	(1,229)	(21,852)
Cumulative cashflow	000 US$			(446,594)	(1,146,896)	(925,691)	(692,593)	(443,986)	(61,253)	326,834	490,137	631,015	785,042	991,132	1,314,659	1,670,148	1,986,581	2,157,830	2,254,959	2,316,333	2,354,260	2,349,889	2,348,661	2,326,809
NPV 5%	000 US$		1,241,933																					
Payback period	Years		4.2	1.0	1.0	1.0	1.0	1.0	1.0	0.2														
IRR before tax	%		18.7%																					
After Tax																								
Cash flow	000 US$	795,421	1,597,180	(446,594)	(700,302)	221,205	233,098	248,606	322,456	292,399	134,898	110,503	116,685	140,992	220,612	243,139	215,822	122,571	70,849	45,170	32,521	(4,370)	(1,229)	(21,852)
Cumulative cashflow	000 US$			(446,594)	(1,146,896)	(925,691)	(692,593)	(443,986)	(121,530)	170,869	305,767	416,270	532,955	673,948	894,559	1,137,699	1,353,521	1,476,091	1,546,940	1,592,110	1,624,631	1,620,260	1,619,032	1,597,180
NPV 5%	000 US$		795,421																					
Payback period	Years		4.4	1.0	1.0	1.0	1.0	1.0	1.0	0.4														
IRR after tax	%		15.2%																					

Figure 22-1: Base Case NPV Sensitivity Analysis



Note: Figure prepared by Wood, 2018.

22.6 Comments on Section 22

Under the assumptions presented in this Report, the Base Case demonstrates positive economics for both the scenario that does not consider the lease of mining equipment, as well as the scenario that does consider the leasing of mining equipment; however, the latter scenario resulted in the most positive results from an economic perspective.

For the Base Case scenario that does not consider leasing of mining equipment, the after-tax NPV at a 5% discount rate is $788 million, the after-tax IRR is 14.5%, and the after-tax payback of the initial capital investment is estimated to occur 4.5 years after the start of production.

For the Base Case scenario that does consider leasing of mining equipment, the after-tax NPV at a 5% discount rate is $795 million, the after-tax IRR is 15.2%, and the after-tax payback of the initial capital investment is estimated to occur 4.4 years after the start of production.

In the pre-tax and after-tax evaluations, the Base Case is most sensitive to changes in gold price and gold head grade, and less sensitive to changes in mill recovery and operating and capital costs from the factors that were evaluated.

23.0 ADJACENT PROPERTIES

This section is not relevant to this Report.

24.0 OTHER RELEVANT DATA AND INFORMATION

24.1 Extended Case

24.1.1 Introduction

The Base Case used in the 2018 Feasibility Study, and outlined within the main body of this Report supports the current permitting process with 203 Mt of the Mineral Reserves included in the mine plan. The Extended Case included within this section supports the total 233 Mt of Mineral Reserves. Should IAMGOLD pursue development of the additional Mineral Reserves beyond the 203 Mt identified in the Environmental Effects Review, IAMGOLD will, through consultation with the regulatory authorities, confirm whether its environmental assessment coverage is sufficient or if new/amended environmental assessments are required. Development of additional ore would continue to be done in a manner that does not cause significant adverse environmental effects and would continue to extend socio-economic benefits to local communities and the region. The Extended Case adds approximately two years to the mine life with mill throughput remaining the same as the Base Case of 36,000 t/d, remains within the footprint of the current permit application to support the Base Case, but will require an additional 5m raise of the TMF to increase its capacity from 203 Mt to 233 Mt, and extend the height of the MRA.

Much of the technical information for the Extended Case remains the same as the material contained in other sections of this Report. The following sub-sections provide the changes made to the Base Case to accommodate the two-year mine life extension and treatment of an additional 30 Mt of Mineral Reserves. Sections common to the Base Case and Extended Case are referenced but not repeated in this section of the Report.

24.1.2 Summary

Refer to Section 1.0.

24.1.3 Introduction

Refer to Section 2.0.

24.1.4 Reliance on Other Experts

Refer to Section 3.0.

24.1.5 Property, Description and Location

Refer to Section 4.0.

24.1.6 Accessibility, Climate, Local Resources, Infrastructure, and Physiography

Refer to Section 5.0.

24.1.7 History

Refer to Section 6.0.

24.1.8 Geological Setting and Mineralization

Refer to Section 7.0.

24.1.9 Deposit Types

Refer to Section 8.0.

24.1.10 Exploration

Refer to Section 9.0.

24.1.11 Drilling

Refer to Section 10.0.

24.1.12 Sample Preparation, Analyses, Quality Control and Security

Refer to Section 11.0.

24.1.13 Data Verification

Refer to Section 12.0.

24.1.14 Mineral Processing and Metallurgical Testing

Refer to Section 13.0.

24.1.15 Mineral Resource Estimates

Refer to Section 14.0

24.1.16 Mineral Reserve Estimates

Refer to Section 15.0.

24.1.17 Mining Methods

Overview

The Extended Case mine plan is based on the total Proven and Probable Mineral Reserves of 233 Mt (refer to Table 15-2), adding 30 Mt of additional ore to the mine plan used to support the permit application.

The pit optimization steps were outlined in Section 15.2.

Geotechnical Considerations

Wood completed the following tasks to support and update the Base Case mine plan feasibility-level pit slope design:

- Site visit to perform geomechanical logging and reconciliation of previously drilled rock core for QA/QC (572 m of "GT" core and 335 m of "GA" core);
- Data processing and compilation of previously completed geomechanical investigations and site-specific resources supplied by IAMGOLD to produce the following data summary for subsequent analysis:
  - Sub-division of the structural and rock mass classification data into 5 design sectors
  - Main joint sets orientation and joint set number (Jn) per domain
  - Rock mass characterization per domain and lithology (RMR76, RMR89, GSI, Q)
  - Laboratory strength testing data per lithology (density, unconfined compressive strength or UCS)
  - Intact rock (m, s) or Joint (C, Phi) strength data per lithology
- Kinematic analysis establishing the potential mode of structural failures such as wedge, topple and planar failures

- Limit equilibrium modelling of the above modes of failure to determine factor of safety and criticality based on the probability of failure and wedge size
- Overall slope stability analysis of the main pit walls including review of the hydrogeological conditions (Limit Equilibrium and Finite Element)
- Evaluation and recommendation of the final pit walls geometry, by developing optimal bench design, bench face angles (BFA), bench widths (BW), inter-ramp angles (IRA), and overall slope angles (OSA) per sector.

Initial pit slope design criteria were based primarily on all the compiled, reconciled and updated geomechanical data using the PFS pit shell geometry defined by Amec Foster Wheeler (2017). Following pit optimization, the pit geometry was compared for changes in the slope orientation that may be impacted by different kinematic influences, and review using limit equilibrium modelling of the potential modes of failure to determine adequacy of the bench and inter-ramp design, with recommendations for adjustment.

The database of geomechanical features within each lithological unit was compiled based on comparison and review of the different data sources provided by IAMGOLD. This database was used for pit slope design. The assessment of various rock structural domains was based on the analysis of 26 HQ-3 sized inclined boreholes from three different drilling programs.

The pit has been sub-divided into five main structural domains (design sectors) related to the pit geometry such that the structural joint fabric was analysed for each design sector with subdivision of the data into the upper (0–150 m bgs) and lower (150–500 m bgs) zones of the pit to separate the near surface variation of the increased joint frequency. The predominant rock type that is expected to form the final walls is primarily tonalite, which is expected to form roughly 55–70% of the exposed wall.

It was found that the rock mass quality did not vary greatly with lithology, with an average weighted GSI for Tonalite of between 62 and 66. The uniaxial compressive strength of the tonalite was on average 166 MPa with a mi of 11 for the Hoek and Brown (1980) intact failure parameter. From direct shear testing on open joints it was found the Mohr-Coulomb shear strength of a cohesion of 112 KPa and friction angle of 35° was determined for the tonalite joints.

This geotechnical model was used as the basis for kinematic stability analysis and failure criteria filtering. Wedge, plane and toppling limit equilibrium analysis of critical failure modes were used to develop appropriate BFAs and inter-ramp angles (IRA) that met an 80% reliability acceptance criterion. These slope design criteria were then used to perform pit optimization per design sector. A final evaluation of the slope stability and final OSA, was undertaken under various conditions.

The five main design sectors of the pit related to the geometry and the major east–west-trending fault can be seen in Figure 24-1.

For most sectors, a BFA of 75° is achievable, resulting in an IRA between 54° and 56.4°. In southeast and south design sectors 3 and 4, which are controlled by planar and wedge failures associated with the dominant joint set 1, the BFA was adjusted to an appropriate value between 60° and 72°. Bench widths in each sector were widened as necessary, based on the significance of toppling and wedge failures, from a minimum value of 9.5 m up to 12 m assuming double benching on the final wall (single bench height of 12 m). A 20 m wide geotechnical berm is recommended for midpoint between inter-ramp spacing greater than 150 m.

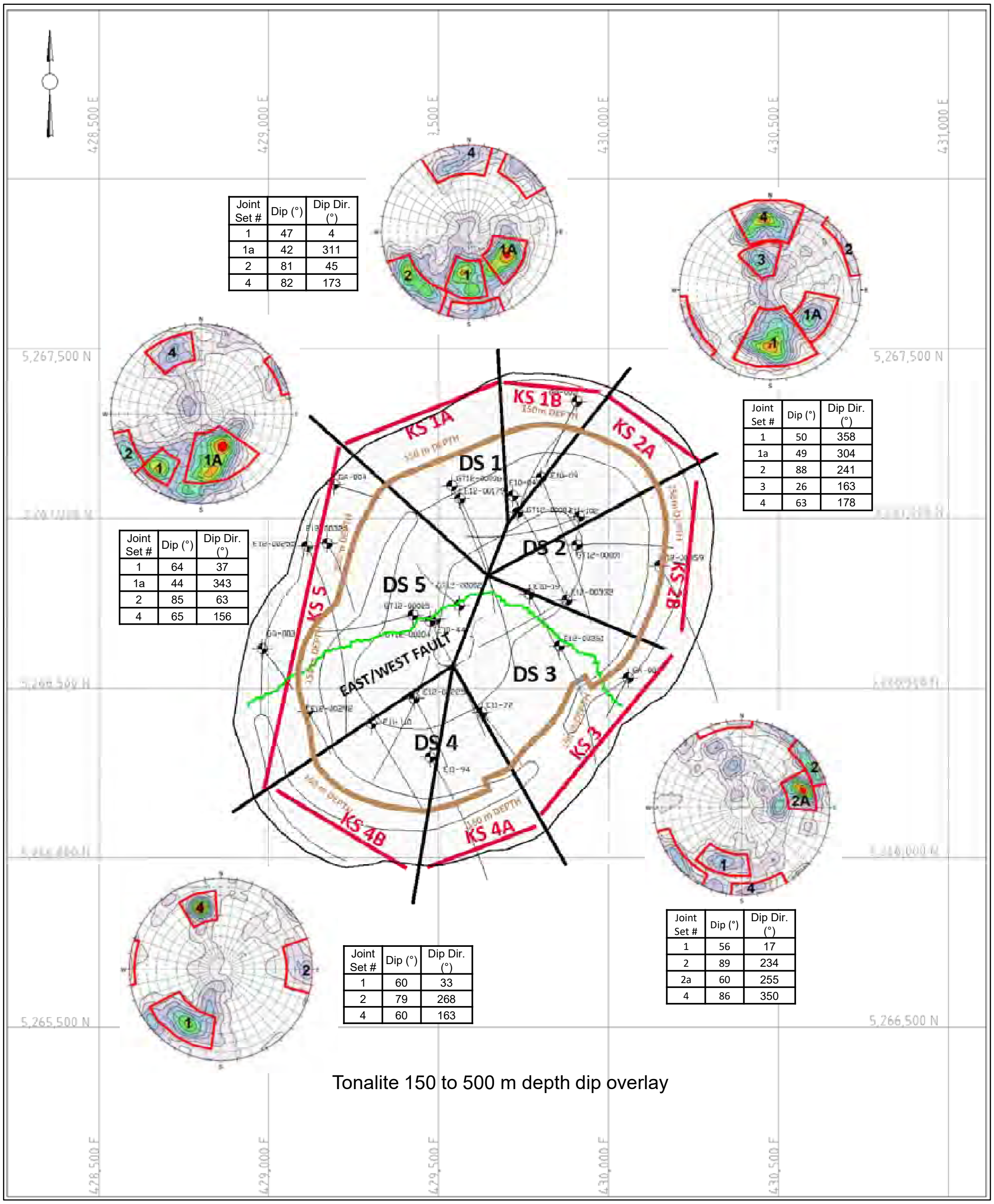
The principal failure modes controlling bench and inter-ramp stability are toppling failure observed in the north and northeast walls (DS 1 and KS 2A). Wedge failure dominates in the east wall (DS 2 and 3) while planar failure controls bench face angles, with also some toppling failure in DS 4. In sector 5 again wedge failure dominates but at a lower likelihood of formation. Overall, wedge failure dominates the stability of the benches.

Overall slope stability analysis was performed using limit equilibrium and two-dimensional finite element modelling to determine a probabilistic assessment of the overall factor of safety and probability of failure. Hydraulic consideration based hydrogeological modelling were incorporated into static and pseudo-static analyses. The results indicate factor of safety ranges from a lowest of 1.3 to >3.0 for the highest and steepest slope sectors for the pseudo-static and static cases respectively. The acceptance criteria of 1.1 and 1.3 for pseudo-static and static cases are exceeded for all pit sectors with a probability of failure of <1%, indicating global stability is anticipated.

Hydrogeological Considerations

Dewatering will be accomplished via inpit pumping for both ground water inflows, and inflows from precipitation and runoff.

Figure 24-1: Open Pit Design Sectors, Kinematic Segments and Joint Fabric (150 to 500 m) for the Extended Case Pit Shell



Joint Set #	Dip (°)	Dip Dir. (°)
1	47	4
1a	42	311
2	81	45
4	82	173

Joint Set #	Dip (°)	Dip Dir. (°)
1	50	358
1a	49	304
2	88	241
3	26	163
4	63	178

Joint Set #	Dip (°)	Dip Dir. (°)
1	64	37
1a	44	343
2	85	63
4	65	156

Joint Set #	Dip (°)	Dip Dir. (°)
1	56	17
2	89	234
2a	60	255
4	86	350

Joint Set #	Dip (°)	Dip Dir. (°)
1	60	33
2	79	268
4	60	163

Note: Figure prepared by Wood, 2018.

Mine Design

The Extended Case mine plan is designed as a truck-shovel operation assuming 220-t autonomous trucks and 34 m^3 shovels. The pit design includes four phases to balance stripping requirements while satisfying the concentrator requirements.

The design parameters include a ramp width of 35 m, road grades of 10%, bench height of 12 m, targeted mining width between 90 m, berm interval of 24 m, variable slope angles by sector and a minimum mining width of 40 m.

The smoothed final pit design contains approximately 233 Mt of mill feed and 611 Mt of waste for a resulting stripping ratio of 2.62:1. The average grade of this material is 0.97 g/t Au. These tonnages and grades were derived by following an elevated cut-off strategy in the production schedule. Figure 24-2 shows the ultimate pit design.

Storage Facilities

The design and construction of the MRA, overburden stockpile and ore stockpiles should ensure physical and chemical stability during and after mining activities. To achieve this, the MRA and stockpiles were designed to account for benching, drainage, geotechnical stability, and concurrent reclamation.

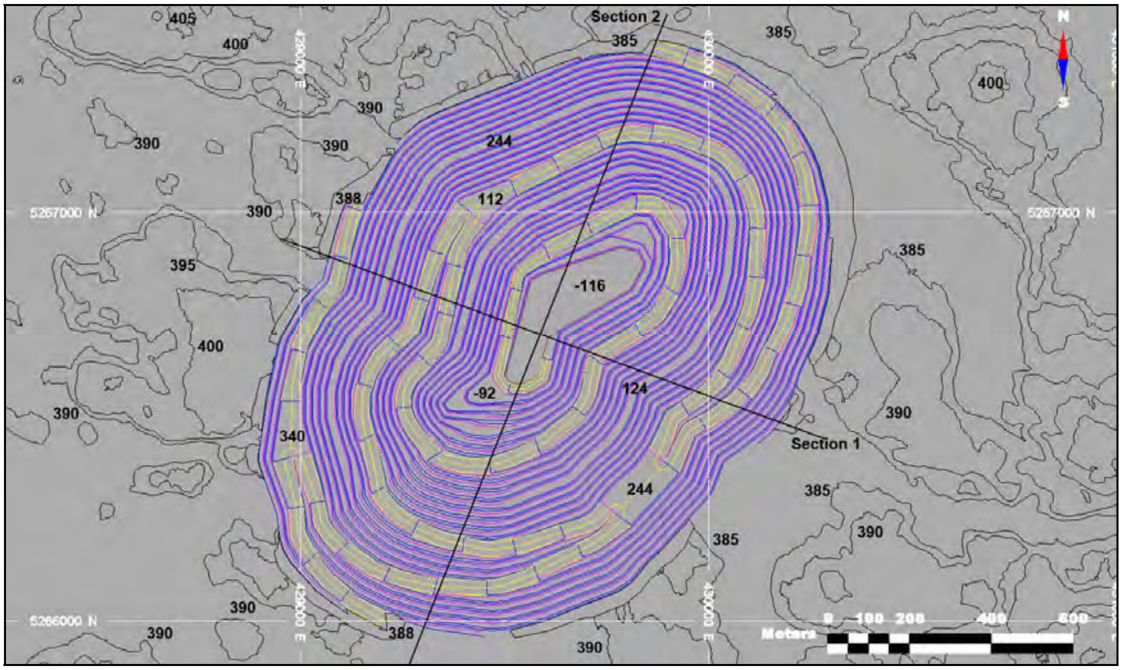
Mine Rock Area

The MRA will be constructed southeast of the planned open pit to store mine rock from the open pit excavation. The rock piles will be built in 20 m lifts with 25.5 m benches to provide an overall safe slope of 2.6H:1V. The inter-bench slopes will be at the angle of repose of the rock. The MRA will have a storage capacity of approximately 231 Mm^3 and a top elevation of 540 m. The maximum storage capacity that the MRA can grow to is 236 Mm^3 with a top elevation of 550 m. In its ultimate configuration, the MRA will store 457 Mt of waste rock with its final crest elevation at approximately an elevation of 540 m.

Collection ditches and six runoff collection ponds/sumps will be built at topographical low points around the MRA perimeter to collect runoff and seepage, which will then be pumped to the polishing pond.

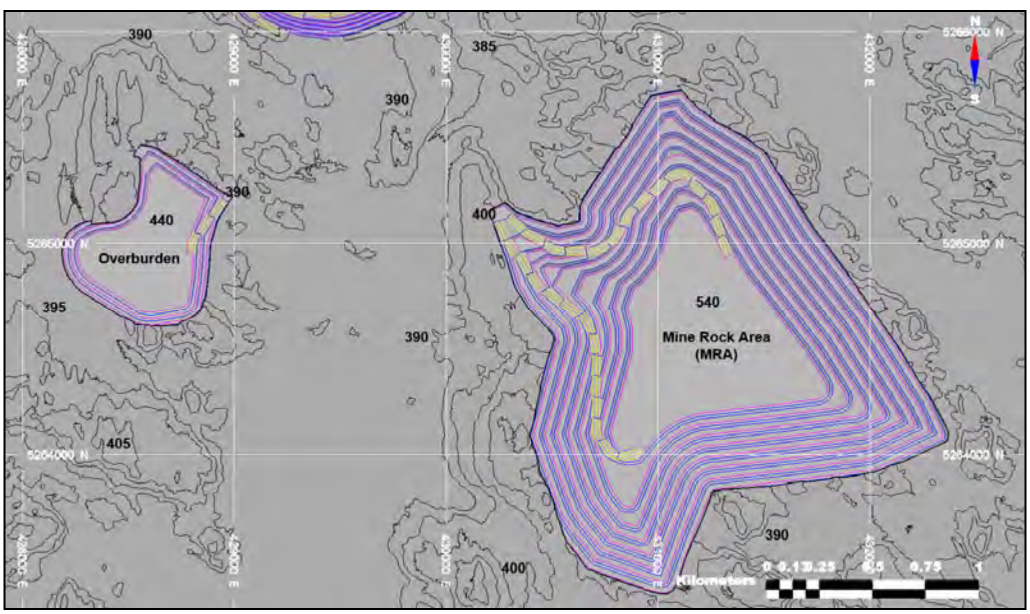
Figure 24-3 shows the proposed locations of the MRA and the overburden stockpile.

Figure 24-2: Ultimate Pit Design, Extended Case



Note: Figure prepared by Wood, 2018.

Figure 24-3: Mine Rock Area and Overburden Stockpile



Note: Figure prepared by Wood, 2018.

Topsoil/Overburden Storage

The overburden storage, which will be located to the southwest of the pit, will have a storage capacity of approximately 8.2 Mm^3.

The stockpiles will contain stripped materials from all excavations from the project development. The stockpiled materials will be used for rehabilitation applications at closure. Sedimentation ponds will be built to settle out solids before release to the environment.

Ore Stockpiles

The ore stockpiles will be located on the north side of the pit and have a total storage capacity of 20 Mm^3, which is enough to satisfy the maximum stockpiling capacity of approximately 41 Mt required in the production schedule. Figure 24-4 shows the stockpile design with respect to the Côté pit.

Production Schedule

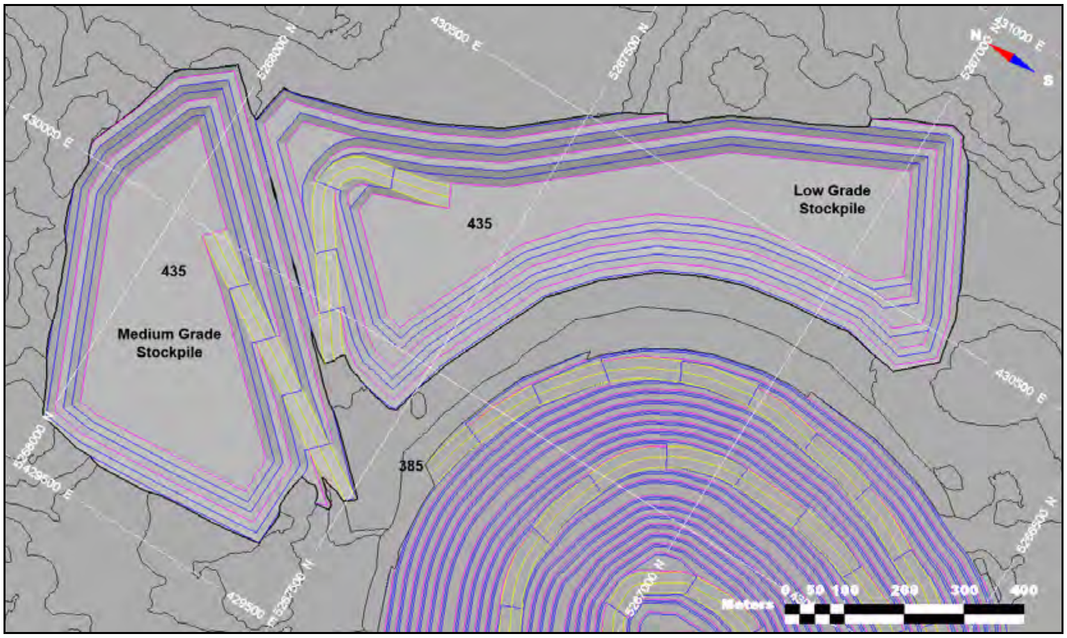
Throughput Analysis

Prior to conducting a detailed production schedule, a series of high-level production scenarios were analyzed using SIMO. The designed ultimate pit limit and the operational phases were imported into SIMO. Mining capacities of 70, 72.5 and 75 Mt/a were analyzed for stockpiling capacities of 30, 40 and 50 Mt generating nine scenarios.

The SIMO analysis shows that a stockpile capacity of 40 Mt or more maximizes the cash flow. In the same manner, the cash flow improves as the mining capacity increases. However, this analysis does not include capital expenditures and the excess mining capacity will require additional equipment.

An additional high-level scenario was developed using MineSight Schedule Optimizer (MSSO). This analysis showed that the highest cash flow achieved by SIMO could be replicated using a lower mining capacity. As a result, a maximum mining capacity of 70 Mt/a was selected to develop the detailed production schedule.

Figure 24-4: Ore Stockpiles



Note: Figure prepared by Wood, 2018.

Production Schedule

The production schedule includes the process plant ramp up schedule. This schedule takes into account the inefficiencies related to start of operations, and includes the tonnage processed as well as the associated recoveries, which steadily increase to reach the design capacity after ten months of operation. The mine will require one year of preproduction before the start of operations in the processing plant. Although the mine requires one year of pre-stripping, mining starts in Year -2 to provide material for the TMF construction.

The deposit will be mined in four phases, included the ultimate pit limit. The schedule was developed in quarters for the pre-production period and for the first five years of production, then in yearly periods to the end of the mine life.

The scheduling constraints set the maximum mining capacity at 70 Mt per year and the maximum number of benches mined per year at eight in each phase. Additional constraints were used to guide the schedule and to obtain the desired results. Examples of these additional constraints include feeding lower grades during the first months of the plant ramp up schedule, the maximum stockpile capacity and reducing the mining capacity in later years during the LOM to balance the number of truck requirements per period.

The schedule produced shows a LOM of 16 years with stockpile reclaim extending into Year 18. The amount of re-handled mill feed is 59 Mt, which requires a maximum stockpile capacity of 41 Mt when considering the reclaim. The average grade is 0.97 g/t Au. The yearly LOM schedule is shown in Figure 24-5. Figure 24-6 shows the scheduled feed grade and Figure 24-7 shows the stockpile balance.

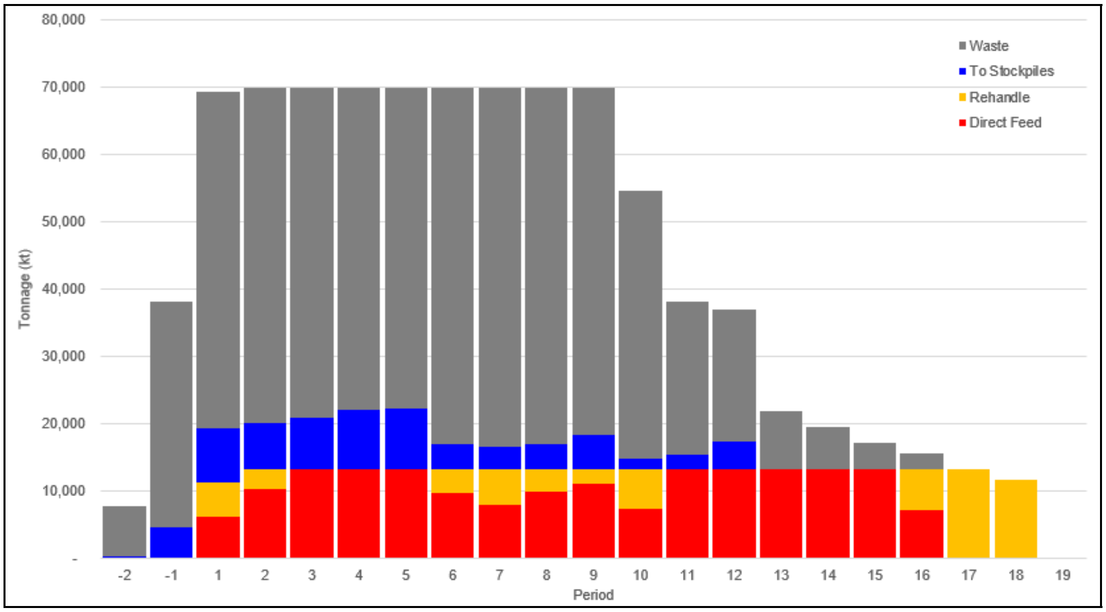
Operating Schedule

The mine is scheduled to operate 24 hr/d, 7 d/wk using four rotating crews working 12 hr shifts. During the day, there are two 12-hour shifts scheduled, consisting of a day shift and a night shift. Because the mine supports autonomous truck and drill operations, shovel, drill, and truck crews "hot change" or overlap between shifts to allow for continuous mine operations. Additionally, the autonomous trucks and drills do not require breaks, and the shovels utilize relief operators to cover for breaks which allows the equipment to achieve approximately 7,287 gross operating hours in a year.

The autonomous equipment standby time per day includes 30 minutes (0.25 hours/shift) for fueling, 20 minutes (0.17 hours/shift) for blast delay, and 15 minutes (0.13 hours/shift) for shift change. Autonomous equipment is not affected by poor visibility due to inclement weather; consequently, only 30 hours per year are considered for weather delays.

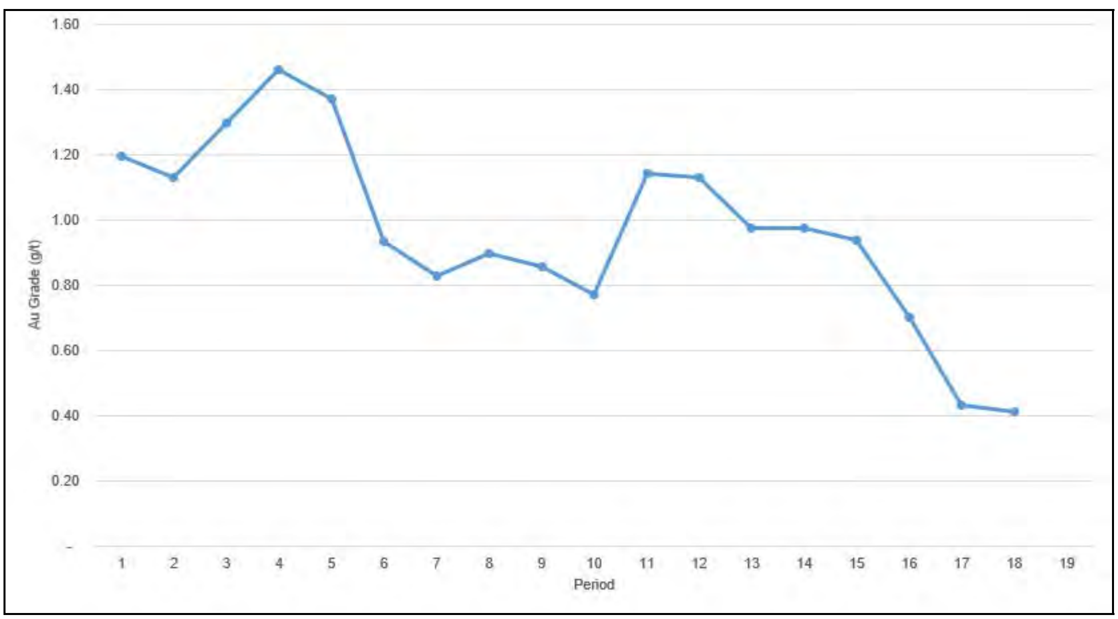
For support equipment, approximately 3.25 hours are lost per day to standby time, inclusive of two hours for breaks, 30 minutes for fueling, 20 minutes for shift change, 20 minutes for blast delay, and five minutes for meetings. Over a year, approximately five days or 120 hours are assumed lost to poor weather conditions, predominantly in the winter time. It is assumed that the equipment is manned but delayed during these weather events.

Figure 24-5: Extended Case Production Schedule



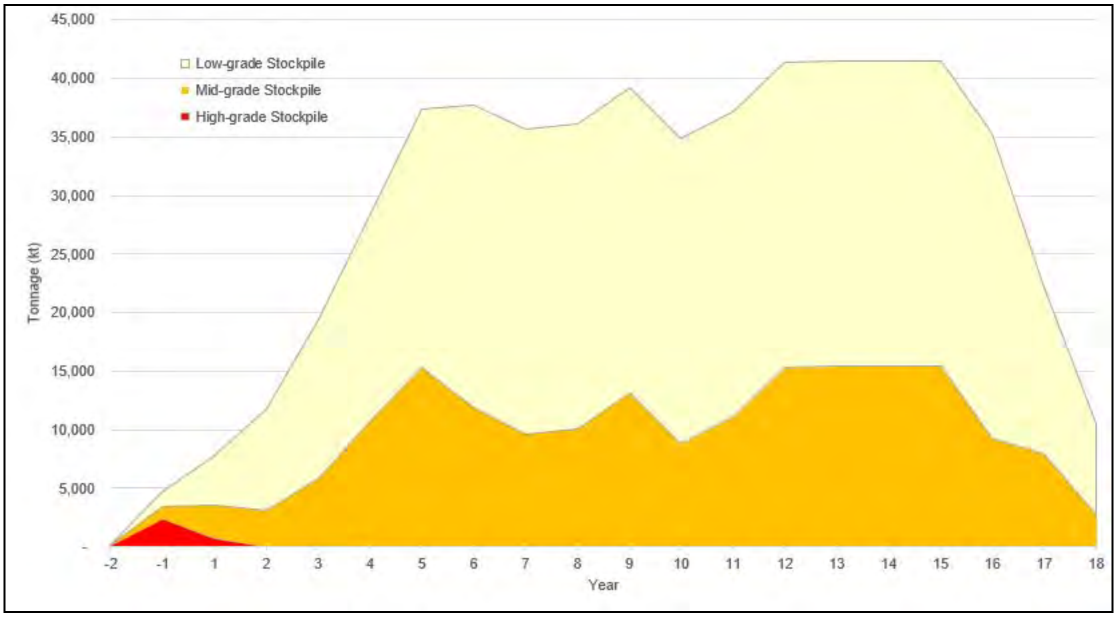
Note: Figure prepared by Wood, 2018.

Figure 24-6: Extended Case Scheduled Feed Grade



Note: Figure prepared by Wood, 2018.

Figure 24-7: Extended Case Stockpile Balance



Note: Figure prepared by Wood, 2018.

Based on input from multiple equipment suppliers, productive utilization following ramp-up is estimated at 90% for the autonomous trucks and 80% for the autonomous drills. For all support equipment and the shovels, it is estimated that the equipment is in a productive cycle approximately 50 minutes each hour, or 83% of the time. During the pre-production period, the truck and shovel equipment's productive utilization has been de-rated to account for the autonomous commissioning, initial site conditions and operator skill level. On the advice of multiple equipment suppliers, the truck commissioning schedule allows for one year.

Like mine operations, mine maintenance is scheduled to work a 24/7 schedule to allow for continuous maintenance coverage. However, the majority of planned maintenance work is anticipated to be done during the day shift with a skeleton crew scheduled for the night shift.

Blasting is scheduled during the daylight hours. Two contract blasting crews will rotate on a 12 hr/d shift, for 7 d/wk coverage.

A number of duties only require work during the daylight hours. For these duties, two crews rotate to provide 7 d/wk day-shift coverage. Personnel not engaged in shift work, work a four-day on, three-day off schedule, for a 10-hr shift.

Blasting and Explosives

Blasting operations will be contracted to a blasting explosives provider who will be responsible for explosive supply, shot design, loading, stemming, and blast initiation. Based on a bid analysis, EPC was selected to support the 2018 Feasibility Study, and will supply a 50/50 emulsion product from an off-site facility.

Drilling will be required for both ore control and blasting. Rock fragmentation achieved through blasting is the overriding design criteria for the drill hole pattern design.

Penetration rate assumptions are based on field tests conducted by Epiroc within the deposit area. The production drill equipment is likely to consist of a PV231 drill fleet. By the end of pre-production, the Project requires four large production drills. A fifth drill is added in Year 2. The drill fleet remains at five drills until Year 5, after which drilling requirements began to decline. Meters drilled assumptions include a 2% allowance for re-drills. Penetration rates are estimated to average 23.1 m/h.

In addition to production drilling, pre-split drilling will be required for all intermediate and final walls. A Smartroc D65 drill is likely to be used for pre-split drilling.

For highwall protection, a three-hole trim pattern will be shot adjacent to all walls. All material with the exception of overburden will be shot. The overburden material, consisting of peat and glacial till that overlies the deposit, will be free-dug by the contractor. For production ore shots, electronic detonators will be used. All other shots will use pyrotechnic detonators.

Grade Control

Ore control will be conducted by sampling the bench drill cuttings, assaying these cuttings at an onsite laboratory, estimating ore grades from the assays, and then muck staking the ore polygons in the field. Ore and waste routing will be tracked via the MineStar fleet management system.

Mining Equipment

The open pit will be mined using an autonomous truck and drill fleet, supported by a conventional manned loading fleet and a fleet of manned support equipment. The truck fleet will be diesel powered with the capacity to mine approximately 70.0 Mt per year operating on 12 m benches. The hydraulic shovel fleet will be electric powered supported by two large diesel-powered FELs.

The mine will be supported by multiple contractors. A contractor miner will be used to mine all overburden within the mine plan and to develop the initial benches in the pre-production period for the autonomous fleet. A MARC will be used during pre-production and the first three years of operation. Blasting is done by a contract down hole service during the LOM. A full-service contract tire provider will be used throughout the LOM to supply, repair, and change tires at the mine site.

Equipment requirements are estimated quarterly during preproduction and the first five years of mining, and annually thereafter. Equipment sizing and numbers are based on the mine plan, the maintenance availabilities, and a 24 hr/d, 7 d/wk work schedule.

Loading

The selected primary loading unit is the CAT 6060 electric/hydraulic (6060E) shovel. Two are required at peak. To assist the CAT 6060E shovel, two CAT 994K high lift FELs are scheduled throughout the mine life. The loaders are scheduled as primary digging units for ore production and stockpile rehandle. They are also scheduled to supplement the shovel production on an as-needed basis and to dig shovel drop cuts. The mine is designed in an over-shoveled configuration.

Hauling

The primary hauling unit selected is a CAT 793F mechanical drive truck operated in autonomous mode. It has a payload capacity of 217.6 t wet, assuming a standard body with a full set of liners. The dry capacity is estimated at 215 t, assuming 1.2% moisture and carry back.

Truck requirements during preproduction are based on a one-year commissioning period. One autonomous truck will be assembled and then commissioned every two weeks. During the first two months, the trucks will be operated on day shift only. The night shift will be introduced after the third month. Truck commissioning will be performed in a large rock bench located in phase 1 developed by the contract miner during pre-production Year -2. The autonomous trucks will be commissioned in isolation with no interference with contract miners or construction activities. Following the one-year commissioning period, the truck fleet will grow to 16 trucks and then will steadily increase to the peak of 23 in Year 5. Truck requirements then ramp down as production ramps down with two remaining for stockpile re-handle in Years 17 and 18.

Support

Support equipment includes excavators, track dozers, rubber-tired dozers (RTDs), sand trucks, graders, water trucks, fuel/lube trucks, and water trucks. The major tasks for the support equipment include:

- Bench and road maintenance
- Shovel support/clean-up
- Blasting support/clean-up
- WRF maintenance
- Stockpile construction/maintenance
- Road building/maintenance
- Field equipment servicing.

Support equipment requirements are shown in Table 24-1.

Auxiliary

To support mine maintenance and mine operation activities, a fleet of auxiliary equipment is required. The equipment to support mine maintenance would be purchased in Year 4 following the three-year MARC contract and prior to starting Owner maintenance. The types and numbers of auxiliary equipment are listed in Table 24-2.

Table 24-1: Support Equipment

Year	CAT 390F Excavator	CAT 336F Excavator	CAT D10 Dozer	CAT 834 RTD	CAT 777 Water Truck	CAT 16 Grader	CAT 740 Sand Truck	CAT 740 Fuel/Lube Truck
PP -1	1	1	2	1	2	2	1	2
Yr 1	1	1	4	2	2	2	1	2
Yr 2	1	1	5	2	2	3	1	2
Yr 3	1	1	5	2	2	3	1	2
Yr 4	1	1	5	2	2	3	1	2
Yr 5	1	1	5	2	2	3	1	2
Yr 6	1	1	4	2	2	3	1	2
Yr 7	1	1	4	2	2	3	1	2
Yr 8	1	1	4	2	2	3	1	2
Yr 9	1	1	4	2	2	3	1	2
Yr 10	1	1	4	2	2	3	1	2
Yr 11	1	1	3	1	2	2	1	2
Yr 12	1	1	3	1	2	2	1	2
Yr 13	1	1	2	—	1	2	1	1
Yr 14	1	1	2	—	1	2	1	1
Yr 15	1	1	2	—	1	2	1	1
Yr 16	1	1	2	—	1	1	1	1
Yr 17	—	—	1	—	1	1	—	1
Yr 18	—	—	1	—	1	1	—	1

Table 24-2: Auxiliary Equipment

Auxiliary Equipment	Q1 Yr-1	Q2 Yr-1	Q3 Yr-1	Q4 Yr-1	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr10	Yr15	Yr16
Truck mounted 40 t crane	—	—	1	1	1	1	1	1	1	1	—	—
80 t rough terrain	—	—	1	1	1	1	1	1	1	1	—	—
5 t forklift	—	—	—	—	—	—	—	2	2	2	1	1
10 t forklift	—	—	—	—	—	—	—	2	2	2	1	1
Mechanic service truck	—	—	—	—	—	—	—	3	3	3	2	1
Small fuel/lube truck	—	—	—	—	—	—	—	1	1	1	1	1
CAT262 skid steer	—	—	—	—	—	—	—	1	1	1	1	1
Flatbed truck	—	—	—	—	—	—	—	2	2	2	1	1
CAT TL1255 telehandler	—	—	—	—	—	—	—	1	1	1	1	1
CAT 450F backhoe/loader	1	1	1	1	1	1	1	1	1	1	1	—
Cat H180DS hydraulic hammer/impactor	1	1	1	1	1	1	1	1	1	1	1	—
160 t lowboy	1	1	1	1	1	1	1	1	1	1	1	—
Compactor	1	1	1	1	1	1	1	1	1	1	1	—
Light plant	3	3	9	12	14	14	14	14	14	11	6	3
4,000 gallon water truck	1	1	1	1	1	1	1	1	1	1	1	—
Small dump truck	2	2	2	2	2	2	2	2	2	2	2	—
3/4 ton Pickup	—	—	3	3	3	3	3	5	5	5	3	2
1 ton pickup	1	2	3	4	4	4	4	6	6	6	3	2
Crew bus	1	1	3	3	3	3	3	5	5	5	3	2
Slope monitoring stations	2	2	2	2	2	2	2	2	2	2	2	—
Mine and geology software	1	1	1	1	1	1	1	1	1	1	1	—
Pumps	1	1	1	1	1	1	1	1	1	1	1	—
980k cable reeler	—	—	1	1	1	1	1	1	1	1	-	—
Communication system	1	1	1	1	1	1	1	1	1	1	1	—

24.1.18 Recovery Methods

Introduction

The Extended Case process plan will use a conventional flowsheet and conventional equipment.

The process circuits will include primary crushing, secondary crushing, HPGR, ball milling, vertical milling, gravity concentration and cyanide leaching, followed by gold recovery by CIP, stripping and EW. Tailings handling will incorporate cyanide destruction and tailings thickening.

Plant throughput will be 36,000 t/d and it is expected that a ramp-up period of 10 months will be required to reach the design throughput.

Process Flow Sheet

The Extended Case process plant will consist of:

- Primary (gyratory) crushing
- Secondary cone crushing and coarse ore screening
- COS
- Tertiary HPGR crushing
- Fine ore screening and storage
- Two milling stages (ball mill followed by vertical stirred mills)
- Gravity concentration and intensive leaching
- Pre-leach thickening
- Whole ore cyanide leaching
- CIP recovery of precious metals from solution
- Cyanide destruction
- Tails thickening
- Elution of precious metals from carbon
- Recovery of precious metals by EW

- Smelting to doré.

The plant will have facilities for carbon regeneration, tailings thickening and cyanide destruction. The overall process flow diagram is shown in Figure 24-8. Unit operations are summarized in Table 24-3.

Plant Design

Crushing and Coarse Ore Stockpile

Major comminution equipment parameters are shown in Table 24-4.

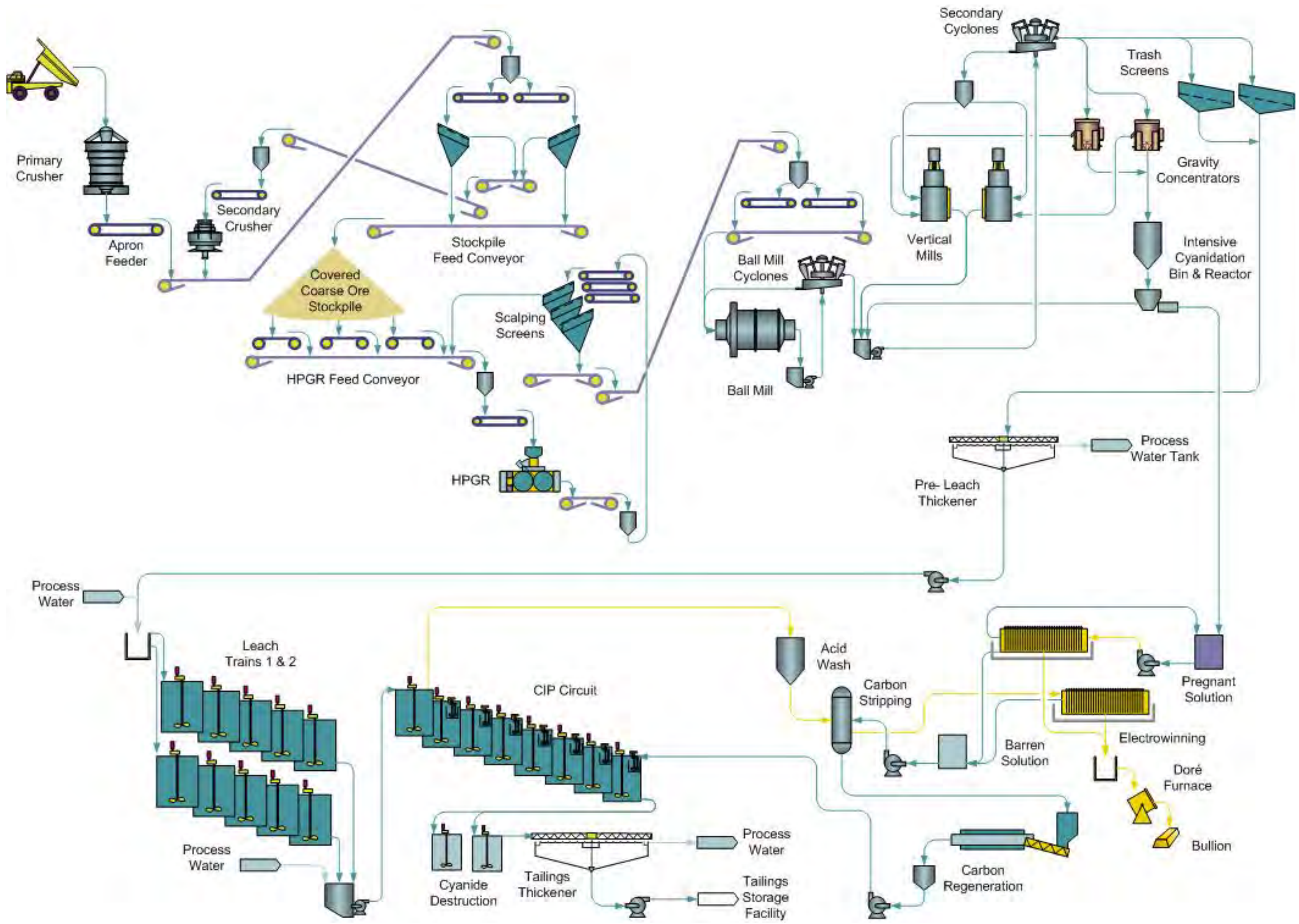
The 54 x 75 primary gyratory crusher will crush the ore at an average rate of 2,143 t/hr to a P_{80} of 140 mm. Selection of this crusher was based on volumetric throughput and power requirements.

Run-of-mine (ROM) ore from the trucks will be discharged to a dump pocket with a capacity of 330 t or the equivalent to 1.5 times the size of a truckload. The dump pockets will have an agglomerative dust suppression or "fogging" water spray system. The apron feeder discharge chute at the crusher exit will have a baghouse-type dust collector. Crushed ore product from the primary crusher will be transferred to the covered coarse ore conveyor and conveyed, approximately 300 m, to a coarse ore screen distributor located in the screening building.

Primary crusher product will be sized on the coarse ore screens consisting of two double-deck multi-slope vibrating screens. The coarse ore screen oversize will be sent to the 1,250 hp secondary cone crusher. Secondary crusher product will be sent back to the coarse ore screens through the coarse ore conveyor.

Coarse ore screen undersize will be conveyed to the covered COS, which will have a live capacity of 20,157 t, or 12 hr of nominal process plant operation. Total live and dead storage capacity will be 74,720 t, equivalent to 44 hr of normal operation. Using a bulldozer will enable the process plant to continue operating during primary/secondary crushing circuit maintenance shutdown or upset conditions.

Figure 24-8: Overall Process Flow Diagram



Note: Figure prepared by Wood, 2018.

Table 24-3: Summary of Unit Operations

Item		Unit	Design
Crushing	Nominal throughput	t/hr	2,143
	Primary / secondary crushing circuit utilization	%	70
	Feed top particle size, maximum	mm	1000
	Product particle size, P_{80}	mm	38
	Stockpile live capacity	t	20,157
Grinding	Nominal throughput	tph	1,596
	HPGR feed, F_{80}	mm	38
	HPGR product, P_{80}	mm	2.4
	Ball mill grind, P_{80}	µm	235
	Ball mill circulating load	%	300
	Vertical mill grind, P_{80}	µm	100
	Vertical mill circulating load	%	250
	Grinding circuit availability	%	94
Leach	Leach feed thickener unit area	$m^2/t/d$	0.075
	Type of circuit	-	CIP
	Residence time, leach tanks	hr	30
	Residence time, CIP tanks	hr	1.6
	Cyanide consumption	kg/t	0.1
	Carbon concentration	g/L	50
Elution	Stripping method		Pressure Zadra
	Number of carbon strip vessels		2
	Carbon strip vessel capacity	t	11.3
Carbon Regeneration	Type		Indirect
	Method of heating		Electric
	Number of kilns		1
	Rate	kg/hr	1,100
Cyanide Destruction	Number of stages		1
	Residence time	min	120
	Oxidant		SO_2/air
	SO_2 addition	g/g CN_{wad}	5

Item		Unit	Design
	Total residual cyanide	mg/L	<2
	Leach tails thickener unit area	m^2/t/d	0.072

Table 24-4: Major Comminution Equipment Parameters

	Equipment	Unit	Value
Gyratory Crusher	Number of units	#	1
	Throughput	dry tph	2,143
	Installed motor	kW	600
	Product particle size, P_{80}	mm	140
	Size	mm	1400 x 2100 TSU
Cone Crusher	Number of units	#	1
	Throughput	dry tph	2,250
	Installed motor	kW	930
	Product particle size, P_{80}	mm	38
HPGR	Number of units	#	1
	Throughput	dry tph	3,511
	Installed motor	kW	7,800
	Crusher Product, P_{80}	mm	2.4
	Size	mm Ø x mm W	2,400 x 2,400
Ball Mill	Number of mills	#	1
	Throughput (fresh)	dry tph	1,596
	Size	m (ø x length EGL)	7.93 x 12.34
		ft (ø x length EGL)	26 x 40.5
	Installed motor	kW	16,000
	Motor/mill		2
	Drive type		Dual pinion
	Cyclone O/F, P_{80}	μm	235
Vertical Mill	Number of units	#	2
	Throughput (fresh)	dry tph	1,596
	Installed power (total)	kW	6,712
	Cyclone O/F, P_{80}	μm	100

The COS will be equipped with three reclaim apron feeders, sized in a way that two feeders can deliver the design rate. A 93 m diameter dome structure will cover the stockpile for weather and dust containment. Additionally, apron feeder discharge chutes will be equipped with filter cartridge-type dust collectors to control dust in the tunnel. Reclaim apron feeders will discharge onto an approximately 260 m long covered stockpile reclaim conveyor. Combined ore from HPGR screens' oversize will report into the HPGR feed bin via two covered transfer conveyors of approximately 90 m and 70 m long respectively.

The screening building will be an insulated structure. The screen building will contain two coarse ore and three fine ore screens, apron feeders to each screen, product transfer conveyors and chute works. Dedicated dust collectors for each set of screens will be located outside of the building.

The crushing building will also be an insulated structure. Equipment will include the secondary crusher and the HPGR with respective apron feeders and a shared 100 t/20 t crane. Dedicated feed bins and dust collectors will be located adjacent to the main building.

HPGR and Grinding Circuits

The selected flowsheet to achieve 36 kt/d with a final passing P_{80} product of 100 µm consists of a closed HPGR circuit, a primary grinding with ball mill circuit, and secondary grinding with vertical mills circuit.

The HPGR will have 2,400 mm diameter by 2,400 mm width rolls, and two variable speed motors with a total installed power of 7,776 kW. The HPGR discharge will fall into a discharge conveyor and feeds a scalping screen feed distributor. The crushed ore stream will be evenly split into three double-deck dry-scalping screens with 12 mm and 4 mm apertures, to achieve a transfer P_{80} of 2.4 mm. Oversized material will be recycled back to the HPGR feed, while undersize will be sent to the primary grind ball mill circuit via a 16 m diameter fine ore bin capable of storing two hours of plant feed. This bin will receive ore from the screening building via a 166 m long covered conveyor. A dust collector system will be installed in the discharge to the bin. Ore will be reclaimed from the bin using two reclaim feeders, which will discharge onto a 240 m long ball mill feed covered conveyor.

The 7.92 m diameter by 12.3 m EGL ball mill, powered by two motors of 8,000 kW each, will operate in a closed-circuit configuration with a 12-way radial cyclone cluster.

Fresh circuit feed will be fed directly to the ball mill and the product will be discharged by gravity through the mill trommel to the cyclone feed pumpbox, where the slurry will then be pumped to the cyclone cluster. A total of ten 750 mm diameter cyclones will work in closed circuit with the ball mill, with two cyclones on stand-by. All coarse cyclone underflow material will report to the ball mill with an estimated circulating load of 300%. Overflow fine material from the primary cluster cyclones will report to the secondary grind cyclone feed pumpbox with a passing P_{80} of 235 µm

The secondary grind circuit will consist of two vertical stirred mills with a total installed power of 6,700 kW. Stirred mills will operate in closed circuit with the secondary grind cyclone cluster consisting of 13 operating 750 mm diameter cyclones. Underflow material from the cyclones will fed the stirred vertical mills. A 40% split from the cyclones underflow will fed the gravity concentrators for gold recovery. Tailings from the gravity circuit will be returned to feed the vertical mills. Secondary cyclone overflow will be directed to the whole ore leach circuit with a final passing P_{80} product size of 100 µm. A particle size analyzer will monitor the performance of the entire grinding circuit.

Gravity Concentration and Intensive Leach

Material from the secondary cyclone underflow up to a maximum of 1600 t/hr will be directed to the gravity concentration circuit. The stream will be evenly split directly from the cyclone cluster into two gravity concentrators working in parallel, to separate high-density particles producing a high-grade-gold concentrate. The gravity concentrators will be equipped with feed by-pass arrangements to direct the slurry to the vertical mills during concentrate discharge cycles.

This high-grade concentrate will be discharged by batches every 45 minutes, and stored in the intensive cyanidation feed tank for further processing. The contents of the intensive cyanidation feed tank will be discharged into the intensive cyanidation reactor, to be leached with a high-cyanide concentration solution. Caustic will be added to maintain the pH between 10.5 and 11, along with a leaching aid to complete the gold dissolution process. Solids from this reactor will be discharged back to the secondary cyclone feed pumpbox, and the pregnant solution, containing dissolved valuable metals, will be forwarded to the pregnant solution holding tank located in the gold room area.

Whole Ore Leach and CIP

Secondary cyclone overflow will flow by gravity to a distribution box, where it will be split into two trash screens for the removal of organics, metal, and other miscellaneous tramp materials. The oversize will be diverted to a trash screen bin, which will be emptied periodically. Undersize from the two trash screens will flow by gravity to the pre-leach thickener feed de-aeration tank, where lime will be added to adjust pH as necessary before leaching.

The pre-leach feed thickener will be fed from the de-aeration tank. An auto dilution high-rate thickener of 45 m will be used to thicken the slurry from 33% to 50% in the underflow. The speed of the underflow pumps beneath the thickener will be varied to control the density of the feed to the leach circuit.

Thickener overflow water will be reused as process water in the different mill circuits, as required.

The pre-leach thickener underflow stream will be pumped to a leach feed tank, where it will be mixed with cyanide to achieve a concentration of 300 mg/L. The slurry will then be distributed to two leach lines. Each leach line will consist of five tanks in series, each 19.3 m diameter x 26.1 m high (average). Each tank will have triple impeller agitators to maintain slurry solids in suspension in the high-aspect-ratio tanks. Oxygen will be injected into the tanks to enhance the leaching kinetics of gold. Slurry will overflow by gravity from one tank to the next as it makes its way through the line. Total residence time in the leaching circuit will be 30 hrs.

Once leaching is completed, the slurry from both leach lines will be recombined in the pump cell CIP circuit feed launder. The CIP circuit will consist of eight 450 m^3 tanks operating in carousel mode. In this mode of operation, each tank will have its own discrete batch of carbon, which will spend a defined period in the circuit before the entire batch is removed to elution. Each tank will contain a total of 22.5 t of activated carbon, and will use a 29 m^2 interstage screen, to prevent activated carbon from flowing with the slurry flow.

Stripping Circuit

Slurry containing loaded carbon from the CIP circuit will be pumped to a vibrating loaded carbon screen. Carbon washed from the screen will fall through a chute into a storage bin, and then to the acid wash vessel with a capacity of 11.3 t each. The remaining slurry on the recovery screen will flow through the screen deck, to be collected in a screen undersize launder and pumped back to the CIP feed.

All loaded carbon will be acid-washed in two batches. While half of the carbon is being acid-washed, the other half will be storage in the loaded carbon storage bin on top of the acid-wash vessel. After four hours of acid-wash operation, the loaded carbon in the acid-wash vessel will be discharged and pumped to one of the elution vessels. The loaded carbon in the storage bin will be acid-washed and transferred to the second elution vessel.

Pressure Zadra elution will be applied to the carbon stripping process for 16 hrs, using two elution vessels with a capacity of 11.3 t each. Solution from the barren solution tank will be pumped to the carbon stripping vessels. Pregnant solution will overflow from the vessels and will be distributed to the EW cells. After stripping, the barren carbon will be pumped from the strip vessel to a carbon regeneration circuit, consisting of a vibrating carbon dewatering screen and a 1,100 kg/hr regeneration kiln. The screened carbon will be sent to the carbon regeneration kiln, and the undersize to a fines tank. Material from the fines tank will be pumped through a carbon fines filter press, and captured carbon will be stored in bags. Periodically, the carbon fines will be treated in an off-site smelter to recover credits for residual gold values.

Electrowinning and Refining

Overflow pregnant solution from the stripping vessels will report to an EW cells distribution box and split in two. Four 3.5 m^3 EW sludging cells, arranged in two lines of two, will capture valuable metals in a sludge form. After EW, the eluate will flow to the barren solution tank, and be recycled to elution as part of the carbon stripping process.

Pregnant solution generated in the intensive leaching reactor and held in the pregnant solution holding tank will be treated in a dedicated EW cell. This cell will work in a closed loop with the holding tank. At the end of the EW process, this eluate will be discharged into the barren solution tank.

Sludge recovered periodically from the EW cells will be mixed with flux in an induction-style unit.

The melted metal will be poured into a series of moulds to produce doré bars, while the slag produced will be poured into slag moulds. After cooling, the slag will be broken up, with the high-grade slag material re-poured to increase recovery, and the low-grade slag recycled to the grinding circuit.

Cyanide Destruction

Tailings generated in the CIP circuit will initially be screened through carbon safety screens, to capture any attritioned carbon particles remaining in the discharge slurry. Undersize from the screens will be sent to cyanide destruction.

Cyanide destruction will take place in two tanks in parallel, each 14 m in diameter x 17.5 m high. The process will involve the addition of sulphur dioxide to destroy the cyanide, lime to neutralize the sulphuric acid that is formed as by-product, and copper sulphate, which will act as a catalyst in the reaction. An on-line cyanide analyzer will measure levels of free and weakly acid dissociable cyanide (CN_{WAD}) for the feed and product streams in the cyanide destruction circuit.

Molten sulphur will be the main source of sulphur dioxide. A complete back-up system using metabisulphite will also be installed.

After cyanide destruction, the slurry will be discharged into a tailings thickener feed tank, from where it will be routed to the tailings thickener.

Tailings Thickening

The tailings thickener will be 55 m in diameter, with a high-rate type mechanism with an auto-diluting feed well. The feed slurry density of 50% solids will be increased to a target of about 62% in the underflow after thickening.

Overflow water from the tailings thickener will be recycled back to the process-water tank. Underflow solids will be pumped to the TMF.

Production Ramp-up Schedule

The ramp-up period will be highly influenced by design considerations, especially relating to the grinding circuit. Current practice incorporates learnings from HPGR circuits installed in the last decade. At some sites, these have experienced ramp-up periods as long as one year, although expansions at other sites have reached nameplate throughput in only six months.

The Côté processing plant is expected to take 10 months to reach the design throughput of 36,000 t/d. Reliable modelling, a focus on engineering design, and equipment selection will be key to achieving full production in this timeframe.

Energy, Water, and Process Materials Requirements

Water

Tailings water from the reclaim pond will be the primary source of mill water, providing the majority of the process plant requirements, whereas the storm/mine water pond will be a secondary source of process water. Fresh water will be required for reagent mixing at the process plant which will be pumped from Mesomikenda Lake.

Water from the polishing water pond will be filtered and stored for use in a filtered water tank, providing clean water for carbon handling, cooling, gland sealing, gravity concentration fluidization, and reagents preparation. Fresh lake water will be stored and used as fire water. Pumps will be installed to bring water to the process building and the truck shop. Some of this water will be treated in a potable-water treatment plant, and stored in a high tank.

Reagent Preparation

The reagent preparation area will include receiving systems, mixing and holding tanks, and metering systems for flocculant, caustic, cyanide, copper sulphate, molten sulphur, anti-scalant, lime and hydrochloric acid. These systems will be in individually contained areas forming part of the plant main building, with easy access by delivery trucks. The molten sulphur burning facility will be adjacent to the reagent area next to the cyanide destruction tanks.

Oxygen for the leach circuit will be delivered to site in bulk, and managed in stationary storage units. Oxygen piping will run from the pad to the leach circuit.

Air Services

A dedicated, self-contained air service system will be provided for the:

- Crusher area to service the primary, secondary and HPGR crusher facilities
- Reclaim area
- Screening building

- Storage bin
- Leaching circuit
- Cyanide destruction and reagent area.

The systems will consist of an air compressor with its own service-air receiver, air dryer, and instrument-air receiver.

Two additional air compressors, fitted with intake filters and silencers, will feed plant air into a receiver for distribution to different parts of the plant. Some of this air will be fed to a system to prepare it for use as instrument air.

Cyanide Management

ISOtainers containing solid sodium cyanide will be offloaded from trucks, parked on a bermed concrete pad, and then stored within the reagent storage area. Bulk cyanide will be dissolved within the ISOtainers, and transferred to a mix tank for further make-down with filtered water. The solution will then be pumped to a holding tank for distribution to the leach circuit, barren eluate tank, and intensive cyanidation unit. Secondary containment will be implemented in the reagent preparation, leach and CIP areas. Transportation, management and storage of cyanide will be consistent with the International Cyanide Management Code.

Energy

The mill will require approximately 50.7 MW of power to operate at full capacity. Additional information on the power supply assumptions for the Project are provided in Section 24.1.19.

24.1.19 Project Infrastructure

Introduction

Project infrastructure for the Extended Case will include:

- Open pit
- RMA and stockpile facilities
- TMF with an increase of approximately 5 m in height from the Base Case TMF design

- Permanent camp and a temporary construction camp
- Emulsion plant
- Process facilities
- Workshop, offices, facilities and other services
- Watercourse realignment dams and channels
- New Lake, to be created to compensate the loss of Côté Lake
- Storm/mine water, polishing and tailings reclaim ponds
- Collection, surplus water discharge, and dispersion systems
- Two-lane gravel access road
- Upgraded existing transmission line from Timmins to Shining Tree Junction and a new 44 km-long 115 kV electrical power transmission line from Shining Tree Junction to the project site
- Electrical distribution network.

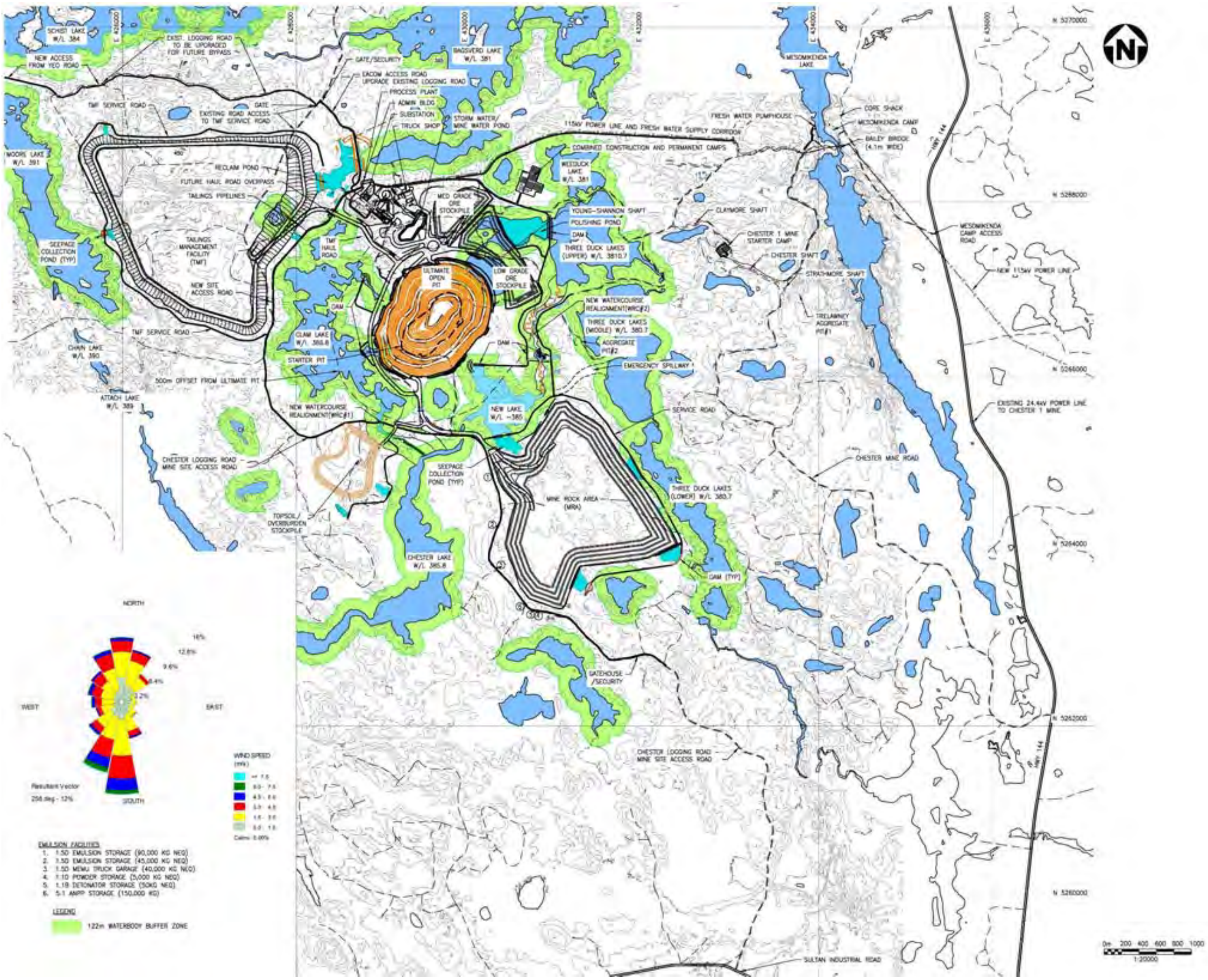
A layout plan is included as Figure 24-9.

Road and Logistics

Current access to the property is by a network of logging roads and local bush roads accessed from Highway 144 and from the Sultan Industrial Road, which runs east-west along and below the southern part of the Project area.

The selected route to the plant is the existing Chester Logging Road which has already been upgraded from the Sultan Industrial Road to km 4.62 at the intersection with an existing road to the planned open pit area. The upgraded road is 9 m wide and deemed to be sufficient to serve as the main access to the mine site. From here to approximately the southeast corner of the TMF, Chester Logging Road will require upgrading to 10 m design width, which is accounted for in the estimate. At the corner of the planned TMF site, the existing road continues into the footprint of the TMF, and 4.28 km of new road construction will be required to extend the access to the construction/permanent camp entrance.

Figure 24-9: Infrastructure Layout Plan



Note: Figure prepared by Wood, 2018.

This section of road will be constructed as part of the early works and will be used as a primary construction access to the plant site and the camp area.

A mine site bypass route will use the existing Yeo Road, from the Sultan Industrial Road to a point opposite the northwest corner of the TMF, without upgrade. From there a new connector road of 3.94 km will be constructed to tie into an existing road which parallels the north dam of the TMF. This existing road requires upgrading. It will permit the public to access Chester Logging Road north of the TMF without passing through the mine security gate and the mine site proper.

Mine development will require three major haul roads, consisting of access to the MRA, the TMF, and the topsoil/overburden stockpile. In addition, a major intersection is required on the north side of the open pit to tie together the exit from the pit with the pit bypass road, the ramps to the ore stockpiles and the crusher and truck shop ramps.

Approximately 24.7 km of new 6 m wide service roads are required to access all site facilities, including many shorter spurs to dam locations, and perimeter roads around the TMF and the east side of the MRA.

The site layout includes three major watercourse crossings. Roads will be designed with a crossfall from side to side (as opposed to a central crown), such that the runoff from the entire road surface will be discharged to another developed drainage area on one side of the road, such as the process plant site, the reclaim water pond basin, the TMF, MRA, polishing pond, or the open pit itself.

Stockpiles

Stockpiles required for the mine plan are discussed in Section 24.1.21.

Built Infrastructure

Mine and Process Facilities

The buildings and structures that will be required for the Extended Case mine plan are summarized in Table 24-5.

Table 24-5: Buildings and Structures

Item	Comment
Primary crusher	Cast-in-place concrete; a steel structure will support the control room and crane. The crusher discharge conveyor will be approximately 300 m long, extending from the primary crusher tower (tail pulley) to the coarse ore feed distributor (head pulley) located in the screening building
Secondary crusher and HPGR building	Insulated steel structure. Equipment will include the secondary crusher and the HPGR with respective apron feeders, and a shared 150 t/20 t area crane, access stairways and platforms
Coarse ore conveyors and reclaim	Coarse product from the coarse ore screens will travel on a 174 m long conveyor back to the secondary crusher feed bin, while the fine product will travel on a 207 m long conveyor to the covered coarse ore stockpile
Coarse ore screen building	Insulated steel structure. Equipment will include two coarse ore and three fine ore screens, apron feeder to each screen, products transfer conveyors and chute works, 35 t overhead crane, access stairways and platforms.
Coarse ore stockpile and reclaim tunnel	A 93 m diameter dome structure will cover the stockpile for weather protection and dust containment. The coarse ore reclaim tunnel will be approximately 190 m long overall, consisting of a reclaim section with a sump for pumping accumulated water, an escape tunnel, and a conveyor tunnel with varying cross-sectional areas for each.
Fine ore feed bin	A 16 m diameter fine ore feed bin capable of storing 2 hrs of ball mill feed material will be located south of the secondary crushing building. This bin will receive fine ore from the screening building via a 166.5 m long fine ore bin feed conveyor. Ore will be reclaimed from this bin using two reclaim feeders, which discharge on to a 240 m long ball mill feed conveyor, which will directly feed the ball mill.
Process building (includes the subset areas below)	Pre-engineered steel structure with a ridged sloping roof, completely enclosed with a building envelope that will comprise pre-painted, insulated sandwich wall and roof panels, personnel access doors, large-equipment access doors, air intake louvers, wall exhaust fans and variation cowlings.
Grinding area	One-storey structure that will house the ball mill, vertical mills, cyclones and feed pumps, ball bins, mill lube system, compressor room, gravity circuit and other associated equipment, including a traveling bridge 80/20 t crane
Refinery, CIP and reagent areas	Form part of process building, and will house the CIP, carbon operations, compressor, EW and refinery, reagent and cyanide areas. These areas will contain related mechanical process equipment, piping,

Item	Comment
	tanks and pumps, and will be provided with elevated platforms and stairs for maintenance
Metallurgical laboratory	Two prefabricated, prefinished steel modules will house the metallurgical laboratory including a receiving/preparation area, metallurgical testing room, clean metallurgical room, and office
Thickener and leaching area	A pre-leach thickener, tailings thickener, and leach tanks will be located outdoors, south of the process building
Assay laboratory	One-story pre-engineered steel building. Will house sample receiving and preparation, mill preparation, fire assay, wet chemical lab, weighing and fluxing, environmental laboratory and other functional areas to support sample analysis. Ancillaries will include offices, lunchroom, mechanical room, electrical room and washrooms
Lube oil room	Will contain the lube-oil skid unit
Mill maintenance workshop	An enclosed room that will have an overhead 5 t crane to perform day-to-day mill maintenance equipment repair
Mill offices, lunchrooms and washrooms	prefabricated modular steel assembly will comprise eight 4 m wide modules
Mine dry	One-storey, pre-fabricated modular building. The facility will include 350-man “clean side” and 350-man “dirty side” locker rooms with a central washroom consisting of shower areas, wash fountain area, toilet cubicles, urinals, and vanity lavatories. A similar facility will be provided for up to 60 women.
Administration offices	One-storey, prefabricated modular building will house a few private managers’ offices and mostly open offices. It will also house the central mine and mill control room, dispatch and training rooms, a large conference room with accordion partitions, washrooms, lunchroom and supporting services.
Truck shop	Insulated pre-engineered steel building. Will have high and low bays. The high bays will house four heavy mine vehicle repair bays with an overhead 50 t bridge crane. These heavy repair bays will accommodate autonomous haul trucks and wheel loaders. The low bays will be dedicated to machine and electrical shops with an overhead 10 t bridge crane. Other functional areas will include lube storage, light-vehicle repair bays, compressor room, electrical and tool storage, women’s and men’s washrooms and changerooms, and office. A partial second floor will house building services, open maintenance offices, lunchroom and washrooms.
Warehouse	Pre-engineered insulated fabric building. Will store general-inventory

Item	Comment
	parts to support maintenance of the mine equipment fleet
Truck wash	Insulated pre-engineered fabric building. Will house one drive-through wash bay and related equipment to accommodate mine haul trucks and wheeled and tracked vehicles including light vehicles. Modified modular containers will house washing equipment, and water storage and filtration equipment
Heated and cold storage	Pre-engineered insulated fabric structure. Will be divided into equal areas for heated storage, with an insulated double-skin fabric enclosure for palletized parts, and cold storage, unheated with a single-skin fabric enclosure
Emergency vehicle storage and first aid	Pre-engineered insulated fabric facility. Will consist of two emergency vehicle storage bays to house the fire truck and mine rescue
Gate house	Prefabricated modular building. Will house a security office, washrooms, and X-ray and search rooms

Three building design types are envisaged:

- Pre-engineered, such as the process building and truck shop. All process and internal platforms/structures inside these buildings will be stick-built and tied to pre-engineered building columns where possible
- Stick-built, such as secondary crusher/HPGR and screen buildings. Each building and its internal platforms/structures will be designed as one structure
- Modular structural steel, such as control rooms, with foundation or supporting steel structure provided.

All facilities will include the required electrical, HVAC, fire protection and other services.

Accommodation Camps

Permanent Camp

The permanent accommodations will be pre-fabricated modular buildings consisting of the core services facilities and the individual dormitories which will be manufactured offsite and transported, assembled, anchored on permanent foundations and commissioned at site.

Dormitories will consist of a one-storey dorm for 38 people and three, three-storey dorms to house 114 people each, connected by prefabricated, heated link/utility corridors to the one-storey core services building that will house recreation, dining, kitchen, food preparation and food storage facilities.

Construction Camp

Fifteen buildings, housing 44 people each, will be configured as "Jack and Jill" single-occupancy bedrooms with every two bedrooms sharing a shower and toilet. Five additional buildings, holding 37 people each, will be configured as "VIP" single-occupancy bedrooms with private washrooms. Each dorm will have a dedicated-entry mudroom, personnel laundry, janitorial services, furnace closets, mechanical room and other services. All dorms will be connected to the permanent core services facility by 1.5 m wide treated timber walkways, slightly above ground to allow for proper drainage.

To handle overflow during construction, an additional 670-person modular dining room will be assembled on skids.

Chester Construction Camp

Six one-storey dorms will house a total of 264 people, configured as "Jack and Jill" single occupancy bedrooms with shared shower and toilet between two rooms. Each dorm will have a dedicated-entry mudroom, personnel laundry, janitorial, furnace closets, mechanical room and other services. All dorms will be connected to the construction core services facility via treated timber walkways slightly above the ground. The core services facility will have with similar functional areas as the permanent core services facility at the mine site, including a 250-seat dining room.

Power and Electrical

The power supply for the Côté Gold site will be delivered at 115 kV by a new 44 km overhead line from the Hydro One's Shining Tree Junction. Upstream of the Shining Tree Junction is an 'idle' 118 km 115 kV line fed from Timmins Tie Station (TS) which will be refurbished and restrung. The independent electricity system operator (IESO) has completed a system impact assessment (SIA) and determined that the proposed connection to its power grid is technically feasible, that the system has sufficient capacity, and that it can meet the proposed in-service date of Q3 2020. Hydro One is currently completing a customer impact assessment (CIA), the next step to providing power at site on schedule.

The incoming 115 kV overhead line will terminate at the main substation north of the main process building. The substation will include incoming circuit breakers, motorized isolating disconnect switches, power transformers, switchgear, and protective equipment for the transformation of power from 115 kV to 13.8 kV. The site protection scheme will interface with Hydro One and will include a load-shedding scheme as identified in its SIA.

The calculated electrical load for the Côté Gold site is as follows:

- 61 MW maximum demand load
- 59 MW average demand load
- 98% lagging (inductive) power factor.

This calculated load is based on the current mechanical load list, and includes two electric shovels, mine dewatering, all ancillary loads, and a 10% allowance for growth during detailed design.

Hydro One has allocated a total of 72 MW of capacity to the Project.

The main substation will be adjacent to the mill grinding building, which has the largest electrical loads, to minimize cabling costs and losses. The incoming transmission line from Shining Tree Junction will terminate at the substation, where incoming voltage will be stepped down from 115 kV to 13.8 kV for site distribution. The main power transformer secondaries will be connected to the main site 15kV switchgear to distribute power around the site. Feeders from the substation will be run in cable trenches, cable tray and/or on overhead lines to the area loads

The primary power supply to the open-pit mine will be a single 13.8 kV overhead pole line running from the switchgear at the main substation to the west side of the open pit. The system will comprise two portable skid mounted substations that transform the power from 13.8 kV to 7.2 kV for the mine's electric shovels and dewatering pumps.

Emergency back-up power will be available from four diesel standby generators, sized to provide essential power to the process and ancillary electrical equipment. The four 1 MW prime gensets will be located in the main substation area, will be 600 V rated and will be stepped up to 13.8 kV to be distributed around the site. During construction, these standby generators will be strategically located around the site to provide power to the construction and permanent camps, laydown areas, construction trailers, and for construction activities.

Uninterruptible power supplies (UPSs) will provide backup power to critical control systems including process control as well as autonomous fleet communications. The UPSs will be sized to permit operations to shut down, and back up the computer and control systems to facilitate start-up on restoration of normal (utility) power.

24.1.20 Market Studies and Contracts

Market Studies

Gold doré bullion is typically sold through commercial banks and metals traders, with sales prices obtained from the World Spot or London fixes. These contracts are easily transacted, and standard terms apply.

IAMGOLD expects that the terms of any sales contracts for the Extended Case 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.

Limited additional effort is considered to be required to develop a doré marketing strategy.

Commodity Price Projections

The Extended Case in the 2018 Feasibility Study assumes a gold price of US$1,250/oz for the economic analysis. Wood considers this price to be an industry consensus long-term forecast price, using:

- Bank analysts' long-term forecasts
- Historical metal price averages
- Prices used in publicly-disclosed comparable studies.

Gold prices were kept constant throughout the life of the project.

It is common industry practice to use higher metal prices for Mineral Resource estimates than Mineral Reserve estimates and the economic analysis. For the 2018 Feasibility Study, the following prices were used:

- Mineral Resources: US$1,500/oz (cut-off grade and constraining shell)
- Mineral Reserves: US$1,200 (cut-off grade)

- Cashflow analysis: US$1,250 (financial analysis).

Contracts

No sales contracts are in place for the Extended Case; however, once gold is refined by IAMGOLD's refiner (within five to seven days of receipt of the doré), the bullion is credited to IAMGOLD's bullion account and sales of IAMGOLD's bullion can be made immediately. Cash from the settlement of those bullion sales are then credited to IAMGOLD's bank account within in 2 days.

IAMGOLD received indicative pricing for refining arrangements from the Royal Canadian Mint. Total costs of $1.75/oz gold for refining, transportation and insurance were used in the cashflow analysis.

Other key contracts that will be required in support of construction and operations include: MARC, open pit mining, operation of the assay laboratory, fuel supply to site, camp operations, and mine construction.

Comments

Wood reviewed the information provided by IAMGOLD on marketing and contracts. In the QP's opinion, the information provided is consistent with that available in the public domain, and can be used to support the Extended Case financial analysis.

24.1.21 Environmental Studies, Permitting, and Social or Community Impact

Introduction

IAMGOLD received Provincial ministerial approval of the 2015 Environmental Assessment (EA) for the Project. The EA states that no significant effects are anticipated after application of the proposed mitigation measures.

Environment Canada stated in May 2016 that the Project is not likely to cause significant adverse environmental effects.

The project presented in the 2018 Feasibility Study has undergone optimizations since the 2015 EA, including:

- Relocation of the TMF to minimize overprinting of fish-bearing waters, reduce the Project footprint, improve Project economics, reduce the need for watercourse realignments, and avoid effluent discharges to the Mesomikenda Lake watershed

- Smaller open pit
- Modifications to the process plant
- Reduction in transmission line voltage, and re-routing of the transmission line; a new Provincial EA for the 44 km line is expected to be completed in 2018.

IAMGOLD is of the opinion that there are no new net effects arising from the 2018 Feasibility Study. On October 19, 2018, CEAA confirmed that the proposed Project changes are not considered new designated physical activities and therefore a new environmental assessment is not required. On November 9, 2018, MECP also confirmed their concurrence with the conclusion in the EER report, that the proposed changes to the undertaking result in no new net effects.

Baseline Studies

A list of the baseline studies completed to date is provided in Table 24-6.

Environmental Considerations

Potential environmental effects associated with the construction, operation, and closure of the Côté Gold Project include:

- Changes in air quality
- Increases in noise
- Potential loss of aquatic habitat
- Disturbance of aquatic species
- Reduction of terrestrial habitat, and associated species disturbance
- Alteration of local groundwater infiltration rates and aquifers
- Changes in water quality in the Mollie River and Mesomikenda Lake watersheds
- Increased demands on community/regional infrastructure and social services
- Effects on cultural heritage resources
- Effects on local Aboriginal and Métis traditional land uses
- Alterations to local terrain and visual aesthetics.

Table 24-6: Baseline Studies

Study	Comment
Water	The Project site is within the Mollie River and Neville Lake sub-watersheds. A number of lakes lie within the area, including Chester Lake, Clam Lake, Côté Lake, Three Duck Lakes, Moore Lake, Chain Lake, Attach Lake, Sawpeter Lake and Schist Lake. Small tributaries, including Clam Creek, Unnamed Pond and Mill Pond, drain from the site into the Mollie River. The open-water reach of the river between Chester Lake and Côté Lake ranges in width from 5–20 m, with a depth of 1–2 m, and is bordered by a flooded grassy marsh, interspersed with dead standing conifers. Numerous stands of planted jackpine occur adjacent to the marsh, and there is evidence of recent logging.
Air and noise	Air quality in the vicinity of the project site indicates no significant nearby anthropogenic sources of air emissions, and there are no significant emissions from the project site. Air quality in the project area is, however, affected by long-range transport of emissions from the south, and by natural sources such as fires and volatile organic emissions from vegetation. Noise in the vicinity reflects a rural environment, including sounds of nature and minimal road traffic.
Soils	Overburden throughout the study area generally consists of an organic layer (peat in many cases) overlying silt and/or sand, with occasional till overlying bedrock. Bedrock is very close to or at surface in most areas, except for valley bottoms and low-lying wet areas. Overburden ranges in depth from 0–18 m. Soil pH values range from 6.8–7.3.
Geology and geochemistry	A detailed assessment of the potential for metal leaching and acid rock drainage (ML/ARD) was completed for overburden, mine rock and tailings. The work included characterization (static testing) of overburden and bedrock in previous areas planned for construction, with results indicating little potential for ML/ARD. More extensive studies, including static and kinetic testing (humidity cells and field cells), were conducted for open-pit mine rock and tailings. The mine rock was characterized with a generally low sulphide content (<0.3% sulphide), a low potential for ML/ARD, and an excess of neutralization potential overall. The tailings were determined to be non-potentially acid generating (NPAG), with a substantial excess of neutralization potential expected. Short-term leaching tests showed little evidence of concern for neutral metal leaching in mine rock or tailings. Field cell tests were continued to further confirm the low ML/ARD potential. Simulated tailings were subjected to rheology tests that characterized settling rates and density. The existing studies are largely expected to be representative of the proposed mine plan. Updated geological and metallurgical information is being evaluated with respect to the 2018 Feasibility Study designs (e.g., smaller pit design and ore processing modifications). If gaps are identified, further testing will be completed

Study	Comment
	as necessary to support future permitting and detailed design. Additional confirmatory studies may be required for new construction areas requiring excavation (e.g., diversion channels outside the previous investigation footprint).
Hydrology	The Project is within the Upper Mattagami River watershed, which drains northward through the City of Timmins and ultimately to James Bay. Surface water flows are controlled by lakes and creeks that flow to the Mollie River and Mesomikenda Lake, before discharging to Minisinakwa Lake and ultimately the Mattagami River. The Mattagami River upstream of the City of Timmins water filtration plant is within Intake Protection Zone 3 in the context of the Mattagami River Source Water Protection Program; this zone does not prohibit the proposed mining activities. Water Survey of Canada maintains regional hydrological monitoring stations in the Mollie River (unregulated flow) and at Minisinakwa Lake (regulated flow), and Ontario Power Generation monitors the Mesomikenda Lake Dam (regulated flow). The regulated flow systems are governed by a Water Management Plan in place for the Mattagami River. Surface water flow-paths at the project site are currently monitored by 15 hydrological sampling stations selected and installed during 2012, and increased to 22 stations in 2016. In general, these stations are distributed throughout the Mollie River sub-watershed and Neville Lake sub-watershed. Automated water-level data loggers have been installed and will be used in conjunction with instantaneous discharge measurements to develop a characterization of the streamflow regime.
Hydrogeology	Between 2012 and 2014, over 150 boreholes were drilled to characterize subsurface conditions. Groundwater monitoring wells (single and nested) were installed at 62 of these locations, and slug testing and packer testing was conducted to develop estimates of the hydraulic conductivity of various overburden materials and at a range of bedrock depths. In 2016, an additional 23 monitoring wells were installed in various locations within the proposed TMF footprint. An additional 29 boreholes were drilled in 2017 and 2018 to reflect the updated site configuration. In addition, six angled drill holes were advanced into the deep bedrock within the proposed open pit, to facilitate hydrogeological and geomechanical testing of major lithological units and structural features (e.g., dykes and faults) along ultimate pit walls. Wells were installed in many of the boreholes drilled with screens located in overburden, where present, and bedrock materials. Groundwater levels have been monitored at selected locations at various times. Hydraulic conductivity estimates for granular overburden materials range to a high of 2E 03 m/s, with a geomean value of about 9E-06 m/s. For fractured bedrock, hydraulic conductivity estimates ranged up to about 3E-04 m/s. Hydraulic conductivity values showed a trend to declining values with depth, generally

Study	Comment
	independent of rock type and rock structure. Where unfractured, a hydraulic conductivity of about 1E 11 m/s has been inferred. The geomean hydraulic conductivity declined from 1E-07 m/s in the upper 10 m of the bedrock profile to about 2E-10 m/s below a depth of 200 m. The primary groundwater flow paths are inferred to occur through the granular materials within bedrock troughs. The bedrock troughs have limited lateral extent and an average depth of about 7 m, with a maximum observed depth of about 20 m.
Surface water quality	Quarterly or monthly surface water quality sampling was completed during the EA and feasibility baseline studies at 48 locations in the two main sub-watersheds of the site and in the vicinity of the site infrastructure, including lake outflow stations, lakewater column profile stations, and watercourse stations. The baseline monitoring program was modified in 2016 to reflect the updated site configuration. Results were typically consistent across seasons, with concentrations of copper, cadmium, iron, selenium, mercury, zinc, total phosphorus and dissolved aluminum occasionally exceeding Provincial Water Quality Objectives (PWQOs) and the Canadian Council of Ministers of the Environment's Canadian Water Quality Guidelines (CWQGs) for the Protection of Aquatic Life. Exceedances were generally interpreted to be naturally occurring. Surface water quality monitoring is ongoing.
Water sedimentation	Sampling results indicated good sediment quality, with most parameter concentrations below the 2008 MECP Provincial Sediment Quality Guidelines (PSQGs). PSQG lowest-effect levels (LELs) were exceeded for most of the total organic carbon results. A few results also exceeded PSQG severe-effect levels (SELs), but this is typical of lakes in northern Ontario. Provincial SELs were found to be exceeded for iron and manganese concentrations in the Mollie River. In some surface waters, Federal threshold effect level exceedances were observed in 2011 for copper. The PSQGs were developed for, and are strongly weighted by, data for sediments in the Great Lakes, which tend to have substantially lower content of many metals compared to Canadian Shield lakes (Prairie and McKee, 1994). Natural background concentrations, particularly in mineralized areas of the Canadian Shield lakes, can naturally exceed PSQG LELs. Further sediment quality evaluation will include a comparison to PSQG LELs, SELs, and reference area values.
Groundwater quality	In 2012, groundwater samples were collected three times at 37 wells, at sites of potential mine infrastructure development. In 2016, an additional 23 wells were added to cover the PEA/PFS TMF location. Groundwater chemistry was analyzed for major ions, metals, nutrients and physical parameters (e.g., conductivity and total dissolved solids). Results were compared to Ontario Drinking Water

Study	Comment
	Standards (ODWS), PWQOs, and the Canadian Council of Ministers of the Environment CWQGs for the Protection of Aquatic Life. Results indicated that values occasionally exceeded these regulatory criteria, including but not limited to copper, zinc, molybdenum, aluminum, silver, arsenic, iron, free cyanide and cadmium. Additional investigations to verify these results were completed in 2013. With respect to groundwater quality, several values were measured above their applicable ODWSs or PWQOs during one or more monitoring events in 2012. Since there is currently limited development at the site (other than exploration and geotechnical drilling), these values are considered to represent background conditions, and will continue to be monitored to assess trends in water quality.
Aquatic resources	Aquatic assessments were conducted of water bodies within the boundaries of the proposed open pit and associated potential initial locations of the MRAs and TMF. Studies included characterization of fish habitat and community structure of the water bodies, as well as sport-fish populations in Côté Lake and Unnamed Lake. Additional data on aquatic resources were collected during the summer and fall of 2010. These studies included water quality/hydrogeology analysis, benthic invertebrate surveys, aquatic macrophyte community assessment, and fish community assessment and habitat characterization. Samplings did not provide evidence of any aquatic species at risk (such as lake sturgeon), either under the Federal Species at Risk Act (SARA) or Ontario's Endangered Species Act (ESA).
Wildlife	Sensitive species refers to those listed in the ESA, the SARA (Schedule 1), or those considered vulnerable or imperiled in the Province (Provincial ranking of S1-S3). Based on desktop studies, there is potential for 18 Provincially-listed wildlife species, one Federally-listed species, and two Provincially-tracked wildlife species to occur in the Project area. Seven of these species were documented: four are listed as Special Concern (bald eagle, Canada warbler, common nighthawk and olive-sided flycatcher); and one as Endangered (little brown myotis) under the Provincial ESA. One species listed as Special Concern under SARA (the rusty blackbird) was also observed during field surveys. Based on the habitat ranges provided by the Atlas of the Mammals of Ontario (Dobbyn, 1994), 49 mammals have potential to inhabit the project area. A winter aerial survey conducted between 27 February and 1 March 2013 observed 21 moose and one red fox along the alternative transmission line routes. In addition, tracks of moose, red fox, wolves, lynx, river otter, pine marten, mink, weasel, snowshoe hare, and porcupine were observed. In 2017, additional aerial and wildlife surveys were conducted at the new TMF and topsoil/overburden stockpile, and additional aerial surveys were conducted along the 44 km transmission line route from the Project site to Shining Tree distribution station. No additional Federally or Provincially listed species were identified

Study	Comment
	during the 2017 studies.
Land use	Studies completed included assessments of regional demographics, population, regional economy, agricultural, forestry and mining use, and recreation and tourism.
Cultural heritage and paleontological resources	The cultural landscape consists of a 1930s-era gold mining camp with associated sites and remains. Further documentation and assessment of this landscape was conducted in 2013. No built heritage resources other than ruins have been identified. Archaeological sites and features were recorded in the study area, including pre-contact sites, historical sites, ancient trails and portages. While many of these sites have been mitigated or are outside the area of development, several require further archaeological work. Almost all of the fieldwork undertaken on the Côté Gold property has directly involved members of Mattagami First Nation, and a member of Flying Post First Nation during the 2012 and 2013 field seasons.
Aboriginal traditional land use	Traditional knowledge and traditional land-use studies were conducted by a consultant selected by Wabun Tribal Council, on behalf of the Wabun member communities of Mattagami First Nation and Flying Post First Nation. The Métis Nation of Ontario also conducted a traditional knowledge and traditional land-use study of the Project area. Both studies show some level of current use in the broader area around the site.

The 2015 EA provides a complete assessment of potential environmental effects, and states that no significant adverse effects are anticipated after application of the proposed mitigation measures.

IAMGOLD has conducted additional baseline studies within the boundaries of the new TMF and topsoil/overburden stockpile, and new transmission line alignment, to infill the physical, biological and human environment characterizations conducted previously. These additional baseline data, together with design information for the site configuration, were used to prepare the EER for the project, for submission to the CEAA and the MECP, thus informing the regulatory agencies of changes or improvements to the EA. On October 19, 2018, CEAA confirmed that the proposed Project changes are not considered new designated physical activities and therefore a new environmental assessment is not required. On November 9, 2018, MECP also confirmed their concurrence with the conclusion in the EER report, that the proposed changes to the undertaking result in no new net effects.

Based on the Federal and Provincial Environmental Assessment processes, IAMGOLD has established a preliminary environmental monitoring program that includes monitoring parameters, methods, applicable standards, frequencies and locations for the physical, biological and human environments. The program will be updated to reflect conditions of various environmental approvals as they are received. Environmental baseline monitoring programs to date provide the basis for the monitoring frameworks and may be modified to meet compliance and reporting requirements as the project moves through the permitting phase. The monitoring programs will apply to the construction, operation, closure and post-closure phases of the project, as appropriate, and will allow for compliance with anticipated environmental approvals and permits, while providing information to determine the effectiveness of proposed mitigation measures.

Follow-up monitoring is expected to provide for an adaptive management approach, should environmental effects vary from those predicted; if mitigation measures prove less effective than anticipated; or as new information becomes available. Mitigation strategies may be modified accordingly, and monitoring parameters, locations and/or frequencies will be adapted as appropriate.

Tailings Management Facility

Design Basis

Over the proposed Extended Case LOM of 18 years, tailings production is approximately 13.1 Mt/a from nominal mill throughput of 36,000 t/d, except in Year 1 when it is about 11 Mt due to ramp-up. The TMF will store 233 Mt of tailings over the LOM.

Tailings will be thickened with solids concentration in slurry at 62% and discharged from the TMF perimeter dams, forming an overall beach slope of approximately 1%. Tailings solids will settle in the TMF with pore water retained in the voids with supernatant water forming a pond. Based on recent rheology, drained and undrained column settling tests (SGS, 2017), an overall in-situ dry density of 1.5 t/m^3 is expected.

Additional tests on tailings which include confirmatory column settling tests, air drying tests and tailings consolidation tests are currently underway at the SGS laboratories in Vancouver. Most of the supernatant water from tailings will report to the reclaim pond, where it will be reclaimed for use as process water.

Both the tailings and mine rock have been classified as non-potentially acid-generating (NPAG) materials, with a low potential for metal leaching.

To enhance the capacity of the TMF to 233 Mt, the entire perimeter dams will require raising by 5 m. Engineering for raising the TMF dams by 5 m will need to be conducted and the following additional engineering studies will be required.

- Supplementary geotechnical and hydrogeological investigations
- Tailings deposition plan update
- Dam stability analyses
- TMF 3D seepage model update
- Water quality predictions model update
- Seepage collection system update.

TMF Layout and Configuration

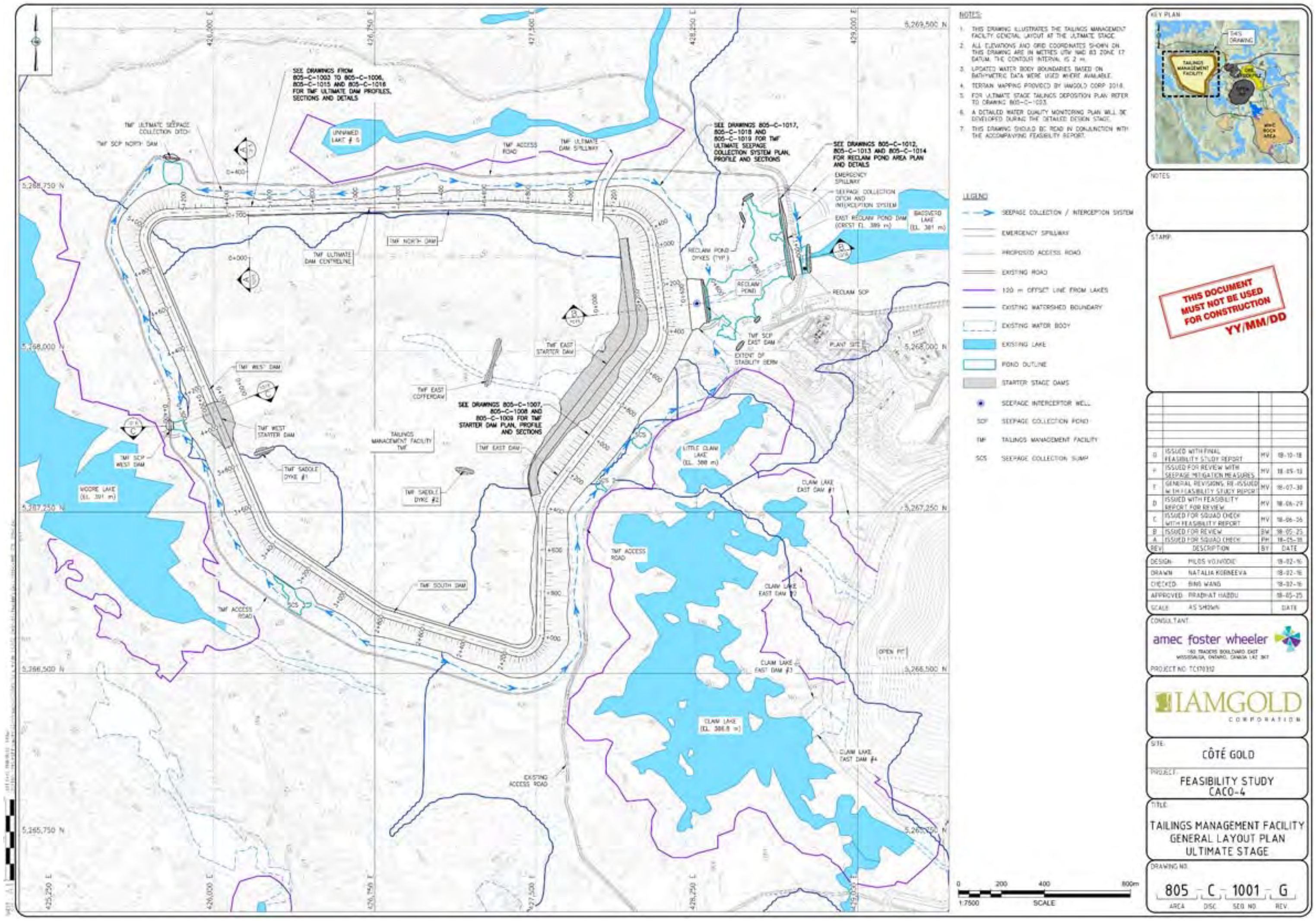
Perimeter embankment dams, raised in stages, will be used for tailings management. The Extended Case TMF will raise the final dam height by 5 m. Figure 24-10 presents the general design layout of the TMF.

A minimum 120 m off-set has been provided from the TMF to the surrounding major water bodies in accordance with the mining act.

The dam rockfill will be primarily sourced from the open pit development. Mine rock will be hauled to the dam and end-dumped and compacted. The sand and gravel filter for the initial years of operation will be sourced from locally available commercial borrow pits. The transition material and abutting select rock fill material will be sourced from mine rock.

The TMF dams will be constructed with a low permeability, high strength bituminous geomembrane liner (BGML) on the upstream slopes of the TMF starter dams and the TMF east dam only in the second year of operations. The BGML must be used because of the lack of low-permeability overburden materials onsite.

Figure 24-10: Tailings Management Facility Layout Plan



Note: Figure prepared by Wood, 2018.

Starting from Year 3 of operations the tailings dams will be raised as pervious dams with transition and filter layers placed along the upstream slopes of TMF perimeter dams. To prevent potential erosion of the filter layer, a geotextile will be placed over the filter zone. The reclaim pond constructed downstream of the TMF footprint will be used to collect the TMF water and recirculate to the process plant from Year 3 of operations to the end of the mine life.

The dams' potential hazard classification is "HIGH", resulting from the risk of potential environmental impact on the surrounding lakes. However, the current design supports a higher classification, i.e., "VERY HIGH" with the necessary dam safety requirements for this classification "built-in" to the design.

In accordance with the guidelines the TMF will be designed to contain the EDF of 1-in-100 year return period without direct discharge to the environment. An emergency spillway will be provided in the TMF to safely pass the inflow design flood corresponding to the probable maximum flood.

TMF dams have been designed for seismic events corresponding to MCE with 1-in-10,000 year annual exceedance probability.

TMF dam designs for the Extended Case will be required to confirm the dams are in accordance with the LRIA and CDA guidelines. The upstream slopes of the dams for the Extended Case are expected to be maintained at 2.5H:1V and downstream slopes at 2H:1V with an expanded downstream footprint to accommodate the increased final dam heights. Dam slope stability analyses will be required and the factors of safety of upstream and downstream slopes confirmed to meet the required target factors of safety in accordance with the CDA guidelines.

Dam instrumentation will mainly include vibrating wire piezometers in the foundation, inclinometers in the downstream slope footprints, survey monuments along the downstream slopes to monitor dam deformation and dam settlement during both operation and post-closure.

Collection ditches and ponds will be located at topographical low points around the TMF perimeter to collect runoff and seepage. In the ultimate TMF configuration there will be six collection ponds. The ponds will lead the seepage to the reclaim pond by gravity (or by pumping in some cases) for recirculation to the process plant.

Geotechnical Conditions

Geotechnical investigations indicate that the overall TMF site has very little overburden underlain by bedrock. The overburden units consist of generally free draining sand, sand and gravel and silty sand varying in thickness from 0–3 m. The high permeability overburden deposits in the central valley vary from 6 m thick at the east dam to about 13 m thick further east. The bedrock is at very shallow depths along the proposed TMF north dam site.

Tailings Deposition

Tailings slurry will be pumped to the TMF and spigotted along the dam crest during operations throughout the year. In the winter the discharge locations will not be altered, to avoid buildup of ice on the beach. The TMF will be developed in stages for better water management and water balance and tailings deposited in a manner that optimizes dam raises and water management. The tailings deposition plan will provide flexibility and will facilitate progressive closure in the final years.

Tailings will be discharged from the west side initially, and later deposition will be done from the south and eventually from all three sides on the south, west, and north perimeter dams, to maintain the tailings pond to the east side of the impoundment for easy management during operation and closure.

TMF Water Management

TMF water will be pumped from the tailings pond/reclaim pond directly to the mill for reuse and hence forms a closed circuit without contact with other water bodies.

TMF water management assumptions include:

- The TMF will accumulate approximately 2 Mm^3 of water prior to mill start up to ensure enough water for winter operation
- Significant amounts of mill make-up water will be provided by reclaim from the TMF in winter
- The TMF is the primary source of mill make-up water with additional sources being the polishing and storm/mine water ponds
- A sitewide water balance study has been performed for climate normal, 1-in-100 year wet and 1-in-100 year dry scenarios. The study indicates that the TMF would be able to supply significant volume of reclaim water to the mill for all scenarios

supplemented by reclaim water from mine water pond or polishing pond when required.

All ponds, including the tailings reclaim pond, will have emergency spillways to safeguard the dams.

Seepage Modelling

For the Extended Case, a preliminary 3D groundwater flow model of the Project site includes the proposed Project and regional surroundings, covering an area of approximately 167 km^2. The active model domain is delineated based on hydrogeological boundaries such as major lakes, rivers and interpreted groundwater divides.

TMF seepage mitigation measures have been implemented in the model to reduce potential seepage by-pass and include seepage collection ditches and ponds ringing the TMF, the installation of geomembrane liner along the upstream flanks of starter dams adjacent to Moore and Clam Lakes, and the installation of interceptor wells to the north of the TMF.

Further modelling will be undertaken during design, and prior to the TMF north dam construction, which will consider sensitivity analyses, alternative engineering controls and future field investigation results and may alter some of the seepage control measure requirements.

The Extended Case will require an update of the 3D groundwater flow model of the Project site, which will also encompass the raised TMF. Numerous TMF seepage mitigation measures will need to be included to reduce potential seepage bypass and include seepage collection ditches and ponds, and installation of interceptor wells in select areas of the TMF. The updated groundwater seepage estimates will need to be applied to a revised process water balance during the next phase of design.

TMF Water Quality Prediction

Water quality predictions for the settling pond account for inputs from process water from the process plant and tailings runoff within the TMF. The water quality predictions for the reclaim pond account for inputs from the TMF (including runoff, seepage directly entering the reclaim pond, and seepage collected via the seepage collection system that is pumped to the reclaim pond). The resulting water quality model simulates the natural degradation of cyanide in the TMF tailings mass, TMF settling pond, and the reclaim pond.

The predicted maximum monthly average concentrations of total cyanide in the reclaim pond are above the MDMER maximum authorized monthly mean concentrations of prescribed deleterious substances for existing mines that come into force on June 1, 2021. However, the TMF water, including the water in the reclaim pond, will be pumped to the mill for reuse and will not be directly discharged to the receiving environment. All other predicted monthly average concentrations are below the MDMER.

The predicted monthly average concentrations at lakes receiving TMF seepage (Bagsverd Lake [south basin], Unnamed Lake #5 [tributary to Schist Lake outflow], Schist Lake, Moore Lake, Clam Lake and Little Clam Lake) are below the water quality guidelines for key seepage parameters (i.e., free cyanide, copper).

Water Quality Monitoring

Water quality will be monitored in the process water (before and after cyanide destruction) prior to discharge to the TMF. Water quality will also be monitored in the TMF settling pond, reclaim pond, and in the seepage collection system.

With respect to completing monitoring to evaluate potential effects due to TMF seepage that bypasses the seepage collection system, water quality will be monitored at lakes surrounding the TMF and at those lakes further downstream. Monitoring points include:

- Lakes in the Mesomikenda Lake watershed: Bagsverd Lake, Unnamed Lake #6 (tributary to Schist Lake outflow), Schist Lake, Neville Lake, and Mesomikenda Lake.
- Lakes in the Mollie River watershed: Moore Lake, Clam Lake, Little Clam Lake, Chester Lake, New Lake, Three Duck Lakes, Delaney Lake, and Dividing Lake.

Groundwater quality will be monitored at wells to be installed downgradient of the TMF seepage collection system to confirm that seepage from the TMF is being captured in the seepage collection system. The groundwater monitoring will assist with confirming water quality model and 3D groundwater model predictions and provide information as part of the adaptive management of TMF seepage. It is expected that the monitoring data will assist with determining the need for potential additional mitigation measures (i.e., pumping well system).

Monitoring well installations will be located downgradient of where the seepage collection systems are constructed with an increased focus on areas where there may be preferential groundwater flow pathways. The monitoring well locations will be (in part) selected based on the results of the 3D groundwater modelling.

The monitored water quality will be assessed relative to applicable effluent discharge requirements and water quality guidelines.

Should water quality monitoring in the vicinity of the TMF indicate unacceptable concentrations associated with site sources and/or seepage bypass rates, the contingency measure would be to further capture the TMF seepage followed by treatment to acceptable concentrations. An option for further capture of TMF seepage may include seepage interception using pumping wells installed upstream of the lakes that surround the TMF, as any additional mitigation would likely be localized in nature.

Water Management

Infrastructure required for water management over the LOM is shown in Figure 24-11.

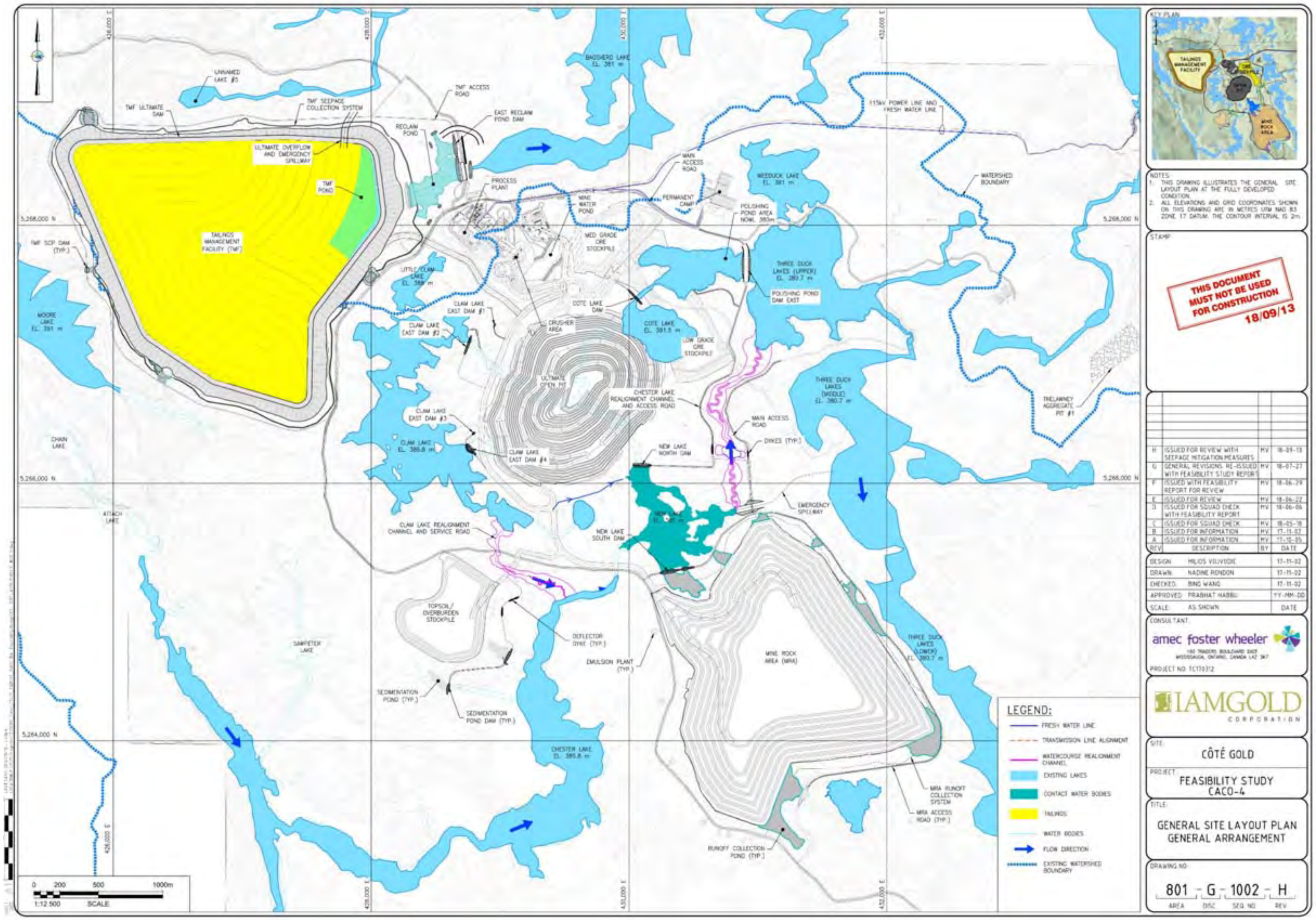
Watercourse Realignment Dams and Channels

A watercourse realignment system has been designed to redirect water around the mine facilities to enable excavation and dewatering of the open pit.

Four pit protection dams will be constructed either within existing lakes, in shallow water, or at currently dry locations along the eastern periphery of the Clam Lake. These dams will protect water from entering the pit area. Sufficient freeboard has been provided above the lake levels to avoid potential overtopping of the dams under flood conditions.

Dam designs are based on the water and ground conditions at each location, and in accordance with the Canadian Dam Association Dam Safety Guideline (CDA, 2014) and the Ontario Lakes and Rivers Improvement Act (MNR, 2011).

Figure 24-11: Water Management Infrastructure Layout Plan



Note: Figure prepared by Wood, 2018.

Two realignment channels will reroute the existing watercourses running into the open pit: WRC 1 from Clam Lake to Chester Lake flowing south, and WRC 2 from the New Lake (built in compensation for the partial elimination of Côté Lake by the pit) to the Three Duck Lakes (Upper). The channels have been designed to provide fish migration and habitats under both low and high flow conditions. Routing the water to the Three Duck Lakes (Upper) will maintain fresh-water inflow, and the lakes will remain oxygenated for fish habitat.

Storm/Mine Water, Reclaim, and Polishing Ponds and Collection System

The polishing pond east dam will be constructed in the Three Duck Lakes (Upper) area to delineate the lake from the polishing pond area. The Côté Lake dam is required to facilitate early dewatering of Côté Lake and separate the Three Duck Lakes system from Côté Lake.

The polishing pond to be located downstream of the ore stockpile will receive water from various sources before it is released to the environment after meeting discharge quality standards. The polishing pond will be controlled with a normal operating level at El. 380 m, i.e., about 0.8 m below the adjoining Three Duck Lakes (Upper) with normal operating level at El. 380.8, which will create a reverse hydraulic gradient, to mitigate migration of contact water to the lake. A storm/mine water pond near the process plant will receive pumped inflows from the pit, the polishing pond when required during, and runoff from the process plant site.

Runoff from the ore stockpiles and MRA will report to the polishing pond via perimeter ditches. Pit water will be routed to the storm/mine water pond due to the possible presence of ammonia from blasting operations in order to provide additional retention time before directing the water to the polishing pond.

Water Management Facility Dam Designs

All WMF dams, except the Polishing Pond East Dam, will be built out of mine rock with a low permeability central till core. In order to mitigate foundation seepage through the high permeability overburden layers, the central till core will be extended to low permeability silt or bedrock. The polishing pond dam will be built in the Three Duck Lakes (Upper) by construction of two rockfill shells and a central sand and gravel core. A cut-off wall will be constructed in the sand and gravel to provide a low permeability barrier. The cut-off wall will be extended into the foundation to mitigate seepage into polishing pond area. Dredging of the organic silt layer in the dam footprint will be necessary.

The WMF dams are designed as per guidelines set by Ministry of Natural Resources 'Lakes and Rivers Improvement act (LRIA Technical bulletin 2011) and the "Canadian Dam Association". In accordance with LRIA, the hazard potential classification for most of these dams is 'High'.

Dam slope stability analyses has been carried out for various loading conditions. The factors of safety for the dam slopes meet the stipulated target factors of safety by CDA for all loading conditions.

Water Quality Prediction

A water quality model was developed to predict the water quality of the polishing pond. Flow rates were used with baseline water quality and geochemistry inputs to derive mass loading rates for each of the model components. The model predicts water quality under average, 1:100-year dry and 1:100-year wet flow conditions.

The effluent quality predictions account for inputs to the polishing pond from watershed runoff, the storm/mine water pond, the MRA, the camp septic system, and drainage from the ore stockpile. The development of site-specific effluent water quality limits and objectives is currently underway as part of the permitting process.

The predicted maximum monthly average arsenic concentrations in Three Duck Lakes (0.0074 mg/L to 0.0087 mg/L) are less than the site-specific benchmark (0.0375 mg/L). Therefore, the predicted concentrations in Three Duck Lakes are expected to be protective of fish and other aquatic life. The predicted monthly average concentrations in Three Duck Lakes are below the water quality guidelines for all other parameters.

Polishing Pond Water Discharge

Before discharging any excess water from the polishing pond to the environment, the accumulated water will be retained with sufficient residence time, estimated at approximately 15 days for settling of solids, so that the TSS, among other parameters, meet the discharge water quality guidelines. Monitoring of water quality will be performed to ensure abatement. Treatment will be implemented if necessary.

Closure Plan

Closure of the Côté Gold Project will be governed by the Ontario Mining Act and its associated regulations and codes under Ontario Regulation 240/00. The objective of closure is to return the project site to a naturalized and productive condition after mining is complete. "Naturalized and productive" is interpreted to mean a rehabilitated site without infrastructure (unless otherwise negotiated) and one that, while different from the existing environment, is capable of supporting plant, wildlife and fish communities, and other applicable land uses.

IAMGOLD has prepared a Closure Plan in accordance with the legislative requirements in tandem with the 2018 Feasibility Study. This plan details measures for temporary suspension, care and maintenance and closure of the Project, including determining financial assurance required to implement the Closure Plan.

Conventional methods of closure are expected to be employed at the site. The closure measures for the TMF will be designed to physically stabilize the tailings surface to prevent erosion and dust generation. The pit will be allowed to flood, and the natural flow of the realigned water bodies will be re-established to the extent practicable. Revegetation will be carried out using non-invasive native plant species. Monitoring at appropriate sampling locations, including those established during baseline studies and operations, will be conducted after closure to confirm performance.

MENDM requires financial assurance for implementation of the Closure Plan. Closure costs are described in Section 24.1.22.

Permitting

Environmental Permitting

Most mining projects in Canada are reviewed under one or more EA 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, municipalities, Aboriginal groups, the general public and other interested parties.

On 3 May 2013, IAMGOLD entered into a Voluntary Agreement with the Ontario Ministry of the Environment and Climate Change (now Ministry of the Environment, Conservation and Parks, or MECP) to conduct a Provincial Individual EA for the entire Côté Gold project, to meet the requirements of the Ontario Environmental Assessment Act. Approval of the Provincial EA was received in January 2017.

The project as presented in the 2018 Feasibility Study differs only slightly from the project presented in the EA. Mine rock and tailings management areas have been relocated to minimize impacts on fish-bearing waters, and to reduce the need for retention dams and watercourse realignments. Improvements to the project since the EA are expected to be managed through Condition 26(1) of the EA approval, which states:

26(1). Prior to implementing any proposed changes to the Undertaking, the Proponent shall determine what Environmental Assessment Act requirements are applicable to the proposed changes and shall fulfill those Environmental Assessment Act requirements. If a contemplated change to the Undertaking would result in no new net effects, it shall be considered a minor amendment. In such cases, the Proponent will be required to provide an Addendum to the Ministry to document the change and demonstrate that there are no new net effects associated with it. The Proponent shall consult with the Ministry about any consultation requirements that may apply, and whether any changes can be permitted without an amendment to the Environmental Assessment.

In discussions with MECP, IAMGOLD prepared an EER that assessed the potential for new net effects associated with the project improvements.

In addition to the Provincial EA, the project required completion of a Federal EA pursuant to the Canadian Environmental Assessment Act (CEAA 2012). CEAA 2012 identifies the physical activities that could require completion of a Federal EA. At the time of the EA preparation, the following sections (which have since been revised) were considered to apply to the Côté Gold project:

- Section 7: *"The construction, operation, decommissioning and abandonment of a structure for the diversion of 10,000,000 m^3/a or more of water from a natural water body into another natural water body…"*. However, it should be noted that most waters will be realigned and not diverted.
- Section 8: "*The construction, operation, decommissioning and abandonment of a facility for the extraction of 200,000 m^3/a or more of ground water…*"
- Section 15 (b): *"The construction, operation, decommissioning and abandonment of a metal mill with an ore input capacity of 4,000 t/d or more."*

- Section 15 (c): "*The construction, operation, decommissioning and abandonment of a gold mine, other than a placer mine, with an ore production capacity of 600 t/d or more.*"

On 13 April 2016, the Federal Minister of the Environment issued a decision stating that the project is not likely to cause significant adverse environmental effects. Similar to the Provincial EA, the Federal EA addressed conditions regarding changes to the project as presented in the EA. The Environmental Effects Review prepared for the Provincial EA condition 26(1) also addressed Federal conditions 2.10 and 2.11:

- *2.10. The Proponent shall consult with Indigenous groups prior to initiating any material change(s) to the Designated Project that may result in adverse environmental effects, and shall notify the Agency in writing no later than 60 days prior to initiating the change(s)*
- *2.11. In notifying the Agency pursuant to condition 2.10, the Proponent shall provide the Agency with an analysis of the adverse environmental effects of the change(s) to the Designated Project, as well as the results of the consultation with Indigenous groups.*

A new 115 kV, 44 km transmission line will be constructed by IAMGOLD from the Shining Tree distribution station along an unused corridor to provide power to the site. The routing of this line was considered as an alternative in the Federal and Provincial EAs, but not fully assessed as it had insufficient capacity to meet project needs at that time. In accordance with the Guide to Environmental Assessment Requirements for Electricity Projects (Ministry of the Environment 2011), and based on guidance from the Ministry of Environment, Conservation and Parks (2018), the proposed 44 km, 115 kV transmission line from the Shining Tree distribution station to the Côté Gold Project site is required to follow the process under the Class EA for Minor Transmission Facilities (Hydro One Networks 2016).

IAMGOLD is undergoing the Class EA for Minor Transmission Facilities, and the EA process is expected to be completed in late 2018.

Provincial Approvals

Three primary Provincial agencies will be involved with Project approvals/permits:

- MENDM
- MNRF

- MECP.

Additional agencies that may be involved in permitting include:

- OEB
- MTO
- IO
- MTCS
- DFO
- ECCC
- NRC
- TC
- NC.

Provincial environmental approvals that are expected to be required to construct and operate the Project include those shown in the preliminary list in Table 24-7.

Federal Approvals

Additional Federal environmental approvals that are expected to be required to construct and operate the Project include those shown in the preliminary list in Table 24-8. In addition, engineering approvals related to explosives manufacturing and/or storage will be required.

Considerations of Social and Community Impacts

Community Consultation

IAMGOLD has actively engaged local and regional communities, as well as other stakeholders, to gain a better understanding of their issues and interests, identify potential partnerships, and build social acceptance for the Project. Stakeholders involved in Project consultations to date include those with a direct interest in the Project, and those who provided data for the baseline studies. The involvement of stakeholders will continue throughout the various Project stages. The range of stakeholders is expected to increase and evolve over time, to reflect varying levels of interest and issues.

Table 24-7: Expected Additional Provincial Environmental Approvals

Agency	Permit/Approval	Act	Relevant Components
MNRF	Various Work Permits for Construction	*Lakes & Rivers Improvement Act/ Public Lands Act*	For work/construction on Crown land. Could be required as part of construction of the transmission line.
	Lakes and Rivers Improvement Act (LRIA) Permit	*Lakes & Rivers Improvement Act*	Construction of a dam in/near any lake or river in circumstances set out in the regulations requires a written approval for location of the dam and its plans and specifications.
	Forest Resource Licence (Cutting Permit)	*Crown Forest Sustainability Act*	For clearing of Crown merchantable timber. Could be required as part of construction of the transmission line.
	Aggregate Permit	*Aggregate Resources Act*	For extraction of aggregate (e.g., sand/gravel/ rock for tailings dam or other site construction).
	Land Use Permit, Easement	*Public Lands Act*	To obtain tenure for permanent facilities on Crown land, such as for the transmission line.
	Endangered Species Permit	*Endangered Species Act*	For any activity that could adversely affect species or their habitat identified as 'Endangered' or 'Threatened' in the various schedules of the Act.
MECP	Environmental Compliance Approval – Industrial Sewage Works	*Ontario Water Resources Act*	For constructing a mine/mill water treatment system(s) discharging to the environment, such as for tailings, pit water, site stormwater and mine rock pile runoff.
	Permits to Take Water	*Ontario Water Resources Act*	For taking of ground or surface water (in excess of 50 m^3/day), such as for potable needs and pit dewatering. During construction, a permit(s) may be required for dam and/or mill construction to keep excavations dry.
	Environmental Compliance Approval – Air and Noise	*Environmental Protection Act*	For discharge of air emissions and noise, such as from mill processes, on-site laboratory and haul trucks (road dust).
	Environmental Compliance Approval – Waste Disposal Site	*Environmental Protection Act*	For operation of a landfill and/or waste transfer site.

Agency	Permit/Approval	Act	Relevant Components
	Environmental Compliance Approval	*Environmental Protection Act*	For establishment and operation of a domestic sewage treatment plant, industrial sewage treatment facility (such as minewater pond, TMF), domestic landfill, construction water management, and management of air emissions.
MENDM	Closure Plan	*Mining Act*	For mine construction/production and closure, including financial assurance.
MTCS	Clearance Letter	*Heritage Act*	For confirmation that appropriate archaeological studies and mitigation, if required, have been completed.

Table 24-8: Expected Additional Federal Environmental Approvals

Agency	Permit/Approval	Act	Relevant Components
DFO	Section 35 (2)b. Authorization for serious harm to fish that are part of a commercial, recreational or Aboriginal fishery, or to fish that support such a fishery	*Fisheries Act*	For construction of the tailings facility, mine rock stockpiles, access road creek crossings, water works for water intake structures, and/or groundwater dewatering effects, that would cause disruption to creeks and/or ponds supporting fish that are part of, or support a fishery.
ECCC	Schedule 2 Listing	*Fisheries Act* *(Metal Mining Effluent Regulations; MMER)*	For overprinting of waters frequented by fish, by a deleterious mineral waste (tailings management facility).
NRC	Licence for an explosives factory	*Explosives Act*	For operation of an on-site facility to supply explosives for use in the open pit operations.
TC	Aeronautical obstruction clearance		Marking and lighting for structures that could interfere with aeronautical navigation.
NC	Land-use clearance	*Civil Air Navigation Services Commercialization Act*	Construction of tall structures, use of cranes, high-voltage equipment, blasting.

IAMGOLD continues to engage stakeholders and interested individuals through:

- Open houses to share Project updates and seek feedback
- Quarterly *Let's Talk* Project newsletters
- The Project website (www.iamgold.com/Côté gold)
- Meetings and discussions.

As part of the Provincial conditions of environmental assessment approval, IAMGOLD will develop and submit a Community Communication Plan to the responsible Provincial ministry, outlining its plan to communicate with stakeholders through all phases of the Project.

IAMGOLD plans to work with the community of Gogama to collaborate on the development of a socio-economic management and monitoring plan to manage potential socio-economic effects of the Project (both adverse and positive).

Indigenous Consultation and Communications

An understanding of the Indigenous communities potentially interested in the Côté Gold project was first developed through advice from MENDM to Trelawney Mining and Exploration Inc. in a letter dated 19 August 2011, and through advice from CEAA based on information provided by Aboriginal Affairs and Northern Development Canada (now Indigenous and Northern Affairs Canada). IAMGOLD sought further direction from both Provincial and Federal Crown agencies on the potentially affected communities:

- On 6 March 2013, the Federal Crown agency informed IAMGOLD that Mattagami First Nation, Flying Post First Nation, Brunswick House First Nation, the Métis Nation - Region 3, and the Algonquin Anishinabeg Tribal Council should be consulted about the Project. They noted that as the Federal EA progresses, the Chapleau First Nation, Matachewan First Nation, and Beaverhouse First Nation would also be notified
- At a meeting on 23 May 2013, the Provincial Crown identified the Mattagami First Nation, Flying Post First Nation, Brunswick House First Nation, Matachewan First Nation and the Métis Nation of Ontario – Region 3 as groups that should be consulted.

Based on Federal and Provincial advice and information gathered through engagement activities, IAMGOLD engaged a range of Indigenous groups during the preparation of the EA. The Federal and Provincial conditions of approval for the Project each included a list of Indigenous communities to be considered, where relevant, for the purpose of fulfilling specific conditions. These lists are considered to supersede any prior direction from Federal or Provincial authorities. The Federal list included:

- Mattagami First Nation
- Flying Post First Nation
- Brunswick House First Nation
- Métis represented by the Métis Nation of Ontario Region 3 Consultation Committee.

Based on consultation efforts since the start of the Project, and on groups expressing a continued interest, IAMGOLD has continued to engage the identified communities through information sharing (e.g., newsletters, notices, invitations to open houses), and has focused on actively engaging affected communities identified through the EA process, namely Mattagami First Nation, Flying Post First Nation and Métis Nation of Ontario – Region 3. IAMGOLD continues to negotiate Impact Benefit Agreements with Mattagami First Nation, Flying Post First Nation and the Métis Nation of Ontario (Region 3), with approximately 25 meetings between January 2017 and July 2018. The details of the negotiations are confidential, as per the agreement of all parties involved. In addition, a Process and Funding Agreement has been reached between IAMGOLD, Mattagami First Nation and Flying Post First Nation related to the communities' involvement through the review of the EER and required regulatory permit applications to advance the Project.

As part of the Provincial and Federal conditions of approval, IAMGOLD will develop and submit an Indigenous Consultation Plan to the responsible government departments, outlining the Project's plan to consult with identified Indigenous groups throughout all phases of the Project. There is a requirement that IAMGOLD consult all identified Indigenous groups as part of the development of this Plan.

IAMGOLD has committed to work with the communities of Mattagami First Nation and Flying Post First Nation to collaboratively develop a socio-economic management and monitoring plan to manage potential socio-economic effects of the Project (both adverse and positive).

Comment

Should IAMGOLD pursue development of additional ore reserves beyond the 203 Mt identified in the Environmental Effects Review, IAMGOLD will confirm whether its environmental assessment coverage is sufficient or if new/amended environmental assessments are required. Regulatory approvals will be amended as required. Development of additional ore would continue to be done in a manner that does not cause significant adverse environmental effects and would continue to extend socio-economic benefits to local communities and the region.

24.1.22 Capital and Operating Costs

Capital Cost Estimates

Basis of Estimate

The estimate addresses the Extended Case mine, process facilities, ancillary buildings, infrastructure, water management and tailings facilities scope and includes:

- Direct field costs of executing the Project including construction and commissioning of all structures, utilities, and equipment
- Indirect costs associated with design, construction and commissioning
- Provisions for contingency and Owner's costs.

The estimate was prepared in accordance with the AACE International Class 3 Estimate with an expected accuracy of +15%/-10% of the final Extended Case cost.

Cost estimates are expressed in third-quarter 2018 US dollars with no allowances for escalation, currency fluctuation or interest during construction. Costs quoted in Canadian dollars were converted to US dollars at an exchange rate of US$1 = C$1.30.

Capital cost for surface facilities includes the construction and installation of all structures, utilities, materials, and equipment as well as all associated indirect and management costs. The capital cost includes contractor and engineering support to commission the process plant to ensure all systems are operational. At the point of hand-over of the plant to IAMGOLD's Operations group, all operational costs, including ramp-up to full production, are considered as operating costs. The capital cost estimate is based on a 30-month Project development schedule starting upon Closure Plan approval.

The following documents were used as support for the estimate:

- General arrangement drawings
- PFDs
- P&IDs
- Pre-production mining costs from the mine plan
- Equipment and electrical load lists
- Budgetary quotations for major equipment and buildings
- Firm quotations for ball mill, crushers, HPGR, and mining fleet
- Firm quotations for construction camps
- Budget quotations for power transmission lines
- WBS
- MTOs
- Benchmarking against other projects.

Direct Costs

Mine Costs

The scope of the mining cost estimate includes the purchase of initial mining fleet, maintenance, and mine support equipment, wages for hourly and salary personnel for pre-production mine operation, haul road construction, and miscellaneous equipment. Estimates for mining equipment were based on mining fleet equipment schedules and equipment pricing provided by vendors for supply, delivery, assembly, and testing. Costs include pre-production stripping and haul road construction by a contractor fleet.

Labour

Wage rates for construction crews were established based on recent building trade labour and CLAC agreements.

Wood's North American unit work-hours are based on ideal working conditions which have been adjusted using a productivity factor to account for conditions at the Project site. These productivity factors were incorporated into the construction labour unit work-hours as multipliers on the base man-hours.

Construction Equipment

Estimates for contractors' construction equipment are included in the direct costs. These costs are estimated as dollars per direct work-hour by discipline account, and include equipment ownership, depreciation, insurance, fuel oil, lubricants, maintenance, and service and repair.

Capital Leases

The majority of the initial mining fleet is amenable to capital financing. The initial mining fleet, having an approximate initial capital cost of $142 M, can be financed using capital lease agreements with vendors. Inclusive of a down-payment of 0–15% of the purchase value paid at placement of order and interest incurred during the construction period, capital leases reduce the initial capital cost by approximately $134 M.

Indirect Costs

Engineering Procurement and Construction Management

The allowance for EPCM costs is $59 M, and is based on a detailed estimate for these services.

Construction Indirects

Construction indirects are estimated based on a detailed indirects model prepared by Wood and IAMGOLD. First fills were estimated per specific equipment/process requirements.

Owner's Costs

An allowance of $27 M has been made for Owner's costs based on a detailed estimate completed by IAMGOLD and was carried in the capital cost estimate as a component of the total construction capital cost.

An allowance of $45 M for Operational Readiness and other Owner's fees was carried as additional indirect costs as a component to the total initial capital cost. Operational

Readiness is the cost to allow operations personnel to mobilize, receive training, and prepare for the start of operations during the initial capital phase of the project.

Contingency

The contingency has been applied based on the assignment of levels of confidence to each component of the estimate, and the running of a Monte-Carlo simulation to determine the appropriate level of contingency required.

The contingency on direct and indirect costs (not including mining, owner's costs, and the Hydro One transmission line) has been calculated at P_{50}, using a Monte Carlo Simulation through the software @RISK and resulted in a 10% contingency of $80 M.

A mining contingency of 10% of the contractor's portion of the pre-production mining scope has been applied, for a total of $8 M.

A further mining contingency of $12 M has been applied to the autonomous mining system.

The overall total contingency included in the capital cost estimate is $100 M.

Sustaining Capital Costs

Sustaining costs include the following:

- Purchase of mining fleet to maintain production
- Annual TMF build-out costs
- Capital lease payments on the initial mining fleet and permanent camp.

The basis for estimating the sustaining costs for capital leases of mining equipment are as follows:

- 0–15% down payment of purchase order value on placement of order depending on the equipment (included in capital cost)
- Lease rate of 3.85–4.5% per annum depending on the equipment (interest incurred during the construction period is included in capital cost)
- Lease term of 5–7 years depending on the equipment.

Sustaining capital costs are estimated at $589 M. Without capital leasing of mining equipment, sustaining capital costs are estimated at $433 M. An allocation of $16 M has been made for the permanent camp.

Capital Cost Summary

The Extended Case's construction capital cost, summarized in Table 24-9, is estimated to be $1,236 M, inclusive of allowances for Owner's costs and contingency of $27 M and $100 M, respectively. Additional indirect costs for Operational Readiness and other Owner's fees totalling $45 M result in a total initial capital cost of $1,281 M.

Some of the larger capital expenditures are amenable to capital financing. The majority of the initial mining fleet, having an approximate initial capital cost of $142 M, can be financed using capital lease agreements with vendors. Inclusive of a down-payment of 0–15% of the purchase value paid at placement of order and interest payments incurred during the construction period, capital leases reduce the capital cost by approximately $134 M, resulting in a total construction capital of $1,101 M and a total initial capital cost of $1,147 M net of mining equipment leasing. The Extended Case's capital cost taking into account leases of mining equipment is shown in

Table 24-10.

Sustaining costs (including capital leases) costs over the LOM are estimated to total $589 M.

Reclamation and closure costs are estimated at $63 M, net of security bond fees and an allowance for equipment and materials salvage at the end of mine life.

Operating Cost Estimates

Mine Operating Costs

Mining quantities were derived from first principles and mine-phased planning to achieve the planned production rates. Mining excavation estimates were based on geological studies, mine models, drawings, and sketches. Mine costs generally increase with time as the pit increases in depth and the MRAs increase in height.

Diesel fuel, maintenance parts and supplies, and personnel costs are the largest cost items for the mine, followed by contract services, autonomous licence fees, explosives, and tire costs.

A diesel price of $0.89/L was used for operating cost estimate and was held constant over the LOM. Fuel consumption was estimated from vendor-supplied data for each type of equipment and equipment utilization factors, based upon calculated cycle times. Diesel fuel usage peaks in Year 5 at 34.8 ML consumed.

Table 24-9: Initial Capital Cost Estimate Summary

Area	Description	Cost, US$ M
Direct costs	Mining	323
	On-site infrastructure	143
	Processing plant	346
	Tailings	67
	Off-site facilities	42
	Total direct costs	921
Indirect costs	Indirects	188
	Owner's costs	27
	Contingency	100
	Total indirect costs	315
Total construction capital		***1,236***
Additional indirect costs		45
Total initial capital cost		***1,281***

Table 24-10: Initial Capital Cost Estimate Summary w/Leased Mining Equipment

Area	Description	Cost, US$ M
Direct costs	Mining	188
	On-site infrastructure	143
	Processing plant	346
	Tailings	67
	Off-site facilities	42
	Total direct costs	786
Indirect costs	Indirects	188
	Owner's costs	27
	Contingency	100
	Total indirect costs	315
Total construction capital		***1,101***
Additional indirect costs		45
Total initial capital cost		***1,147***

Equipment suppliers provided equipment maintenance and repair cost estimates in 6,000-hr increments for the equipment service lives as part of the 2018 RFQ. Maintenance costs were provided for both a three-year MARC and for LOM Owner maintenance. The 6,000-hr incremental maintenance and repair costs were applied in the cost model in Years 1–10 with the average costs applied thereafter.

IAMGOLD provided costs for both salaried and hourly mine personnel, which were applied to the mine staffing plan to estimate total labour costs.

Suppliers of the mining fleet charge annual licence fees for their autonomous systems. An allowance of $65,000 per drill per year and while licence fees for the truck fleet vary, they are substantial, peaking at nearly $253,000 per truck per year.

Also included in the mine operating cost estimate are costs associated with explosives, tires, drilling supplies, lubricants, contract services, electric power, and overhead.

On a cost by cost centre basis, mine haulage accounts for approximately half of the mine operating costs at 46%. Open pit services accounts for 12% of the mine costs, followed by loading, blasting, and drilling. Contract mining accounts for 6% of the costs and stockpile rehandle accounts for 4%. Other costs include costs for pit dewatering, engineering and geology, and operations and management overhead.

Mining costs over the LOM are estimated to average $6.98/t of processed mill feed. Excluding the pre-production period, operating costs average $2.04/primary tonne mined including stockpile rehandle, and $1.90/total tonne moved.

Process Operating Costs

Process operating costs estimates were developed from first principles, metallurgical testwork, IAMGOLD's salary/benefit guidelines and recent vendor quotations, and benchmarked against historical data for similar process plants. The operating costs includes reagents, consumables, personnel, electrical power and laboratory testing. The consumables accounted for in the operating costs include spare parts, grinding media and liner and screen components.

The main operating costs for the process plant are the grinding media, electrical power and reagents. The bulk of the reagent costs are associated with cyanide leaching and cyanide destruction.

Reagent consumptions were estimated based on testwork, industrial references, literature and assumed operational practice. Due to high SO_2 prices, the decision was made for the purposes of the 2018 Feasibility Study to buy molten sulphur to generate SO_2 on site. Molten sulphur pricing was obtained from vendors active in the Ontario market. Oxygen costs quoted by a local supplier were very similar in bulk and VPSA options. Pricing for bulk delivery was used in the estimate.

Wear parts and maintenance allocations were calculated using a ratio of 7.5% against the value of purchased equipment, applied annually to project the cost of replacing mechanical equipment due to normal wear and tear.

The annual cost for grinding media for the ball mill and vertical mills was estimated based on the expected media consumption (g/kWh) and the cost per tonne of steel media. HPGR tires and mill liner costs are based on projected circuit wear times, with liners made out of appropriate material as required. The individual media costs ($/t steel media) were established through vendor quotations.

A manpower estimate for a 36,000 t/d mill was developed and a 38% labour burden factor was applied. The personnel costs incorporate requirements for plant management, metallurgy, operations, maintenance, site services, as well as a contractor allowance. Salaries and benefits guidelines were provided by IAMGOLD. There is a total of 86 employees accounted for in the process operating costs.

A third party will be contracted to provide metallurgical laboratory services at site to assay the plant, mine, geology and environmental samples.

Power cost was estimated to be $0.0538/kWh (C$0.07/kWh), which takes into account a load-shedding strategy to reduce the Global Adjustment Fee imposed by the electric utility. Electrical power loads were developed by Wood based on the project equipment list.

Process operating costs over LOM are estimated to average $6.32/t of processed ore and include the following:

- Reagents represent approximately 24% of the total process operating cost at $1.53/t milled
- Wear parts and maintenance represents approximately 13% of the total process operating cost at $0.80/t milled
- Grinding media represent approximately 23% of the total process operating cost at $1.49/t milled

- Personnel costs represent approximately 10% of the total process operating cost at $0.64/t milled
- The cost of the assay laboratory contract represents approximately 3% of the total process operating costs at $0.21/t milled
- Power costs represent approximately 26% of the total process operating cost at $1.65/t milled.

General and Administrative Operating Costs

G&A costs were developed from first principles and benchmarked against similar projects.

The camp and catering contract cost is based on 382 total employees on site at a rate of US$60.99 per person per camp day.

Insurance, freight and logistics, and road, site and power line maintenance were provided by IAMGOLD based on benchmarking with their operations and similar projects.

Freight for components other than bulk materials were incorporated into bulk consumables costs (e.g. fuel, reagents, grinding media).

Costs for electrical power loads for the camp and administrative facilities were developed from a power usage estimate developed by Wood.

General and administrative costs over the LOM are estimated to average $1.47/t of processed ore.

Reclamation and Closure Costs

Reclamation and closure costs are estimated to total $63 M, distributed annually from early in the mine life until post-closure. This is based on a detailed closure cost estimate prepared by SLR Consulting Canada Ltd., adjusted to include an allowance for security bond fees and a credit at the end of mine life to account for the estimated salvage value of equipment and materials.

Operating Cost Summary

Total operating costs for the Extended Case over the LOM are estimated to be $3,441 M (Table 24-11).

Table 24-11: Extended Case Total Operating Costs over Life of Project

Cost Area	Total, US$ M	Percent of Total
Mining operating	1,627	47
Processing	1,472	43
G&A	342	10
Total	***3,441***	***100***

Mining and processing costs represent 47% and 43% of this total, respectively. Average operating costs are estimated at $14.77/t of processed ore, as summarized in Table 24-12. Operating cost estimates exclude any allowances for contingencies.

Comments

The construction capital cost for the Extended Case is estimated to be $1,236 M, inclusive of allowances for Owner's costs and contingency of $27 M and $100 M, respectively. Additional indirect costs for Operational Readiness and other owner's fees totalling $45 M result in a total initial capital cost of $1,281 M.

Some of the larger capital expenditures are amenable to capital financing. Capital leases of mining equipment reduce the capital cost by approximately $134 M, resulting in a total construction capital of $1,101 M and a total initial capital cost of $1,147 M. Total operating costs over the Extended Case LOM are estimated to be $3,441 M. Average operating costs are estimated at $14.77/t of processed ore.

24.1.23 Economic Analysis

Forward-looking Information

The results of the Extended Case economic analysis represent 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, statements with respect to future gold prices, the estimation of Mineral Resources and Mineral Reserves, the estimated mine production and gold recovered, the estimated capital and operating costs, and the estimated cash flows generated from the planned mine production.

Table 24-12: Extended Case Average Unit Operating Costs

Cost Area	US$/t of processed ore
Mining	6.98
Processing	6.32
G&A	1.47
Total	***14.77***

Actual results may be affected by:

- Potential delays in the issuance of permits and any conditions imposed with the permits that are granted
- Differences in estimated initial capital costs and development time from what has been assumed in the 2018 Feasibility Study
- Unexpected variations in quantity of ore, grade or recovery rates, or presence of deleterious elements that would affect the process plant or waste disposal
- Unexpected geotechnical and hydrogeological conditions from what was assumed in the mine designs, including water management during construction, mine operations, and post mine closure
- Differences in the timing and amount of estimated future gold production, costs of future gold production, sustaining capital requirements, future operating costs, assumed currency exchange rate, requirements for additional capital, unexpected failure of plant, equipment or processes not operating as anticipated
- Changes in government regulation of mining operations, environment, and taxes
- Unexpected social risks, higher closure costs and unanticipated closure requirements, mineral title disputes or delays to obtaining surface access to the property.

Valuation Methodology

The Extended Case has been evaluated using DCF analysis. Cash inflows consist of annual revenue projections. Cash outflows consist of initial capital expenditures, sustaining capital costs, operating costs, taxes, royalties, and commitments to other stakeholders. These are subtracted from revenues to arrive at the annual cash flow projections. Cash flows are taken to occur at the end of each period.

To reflect the time value of money, NCF projections are discounted back to the Project valuation date using the yearly discount rate. The discount rate appropriate to a specific project can depend on many factors, including the type of commodity, the cost of capital to the Extended Case, and the level of Extended Case risks (e.g. market risk, environmental risk, technical risk and political risk) in comparison to the expected return from the equity and money markets. The base case discount rate for the Extended Case in the 2018 Feasibility Study is 5%, which has been commonly used to evaluate gold projects. The discounted present values of the cash flows are summed to arrive at the Extended Case's NPV.

In addition to the NPV, the IRR and the payback period are also calculated. The IRR is defined as the discount rate that results in an NPV equal to zero. The payback period is calculated as the time required to achieve positive cumulative cash flow for the Extended Case from the start of production.

Basis of Analysis

The financial analysis was based on:

- Royalty rates as described in Section 4
- The Mineral Reserves outlined in Section 15
- Mill feed treated in the process plant as described in Section 24.1.18
- Support from the projected infrastructure requirements outlined in Section 24.1.19
- Doré marketing assumptions described in Section 24.1.20
- Permitting, social and environmental regime discussions in Section 24.1.21
- Capital and operating cost estimates detailed in Section 24.1.22.

Metal Pricing

For the purposes of the financial analysis, the assumed gold price for the Extended Case LOM is US$1,250/oz. The gold price was what Wood considers the industry consensus price forecast of the following sources: bank analysts' long-term forecasts; historical metal price averages; and prices used in recent publicly-disclosed comparable studies.

Exchange Rate

For the purpose of the Extended Case capital cost estimate, the operating cost estimate, and financial analysis, the assumed exchange rate for the LOM is US$1.00:C$1.30. 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.

Transport, Insurance and Refining

The 2018 Feasibility Study assumes that the doré will be picked up from site by the Mint and transported to their refinery in Ottawa. An indicative quote for transportation, insurance and refining was received from the Mint estimating costs at approximately $1.75/oz Au, which has been used in the cashflow model for the Extended Case.

Working Capital

Working capital modelling cash outflow and inflows are included in the Extended Case model. The calculations are based on the assumptions that accounts payable will be paid within 45 days and accounts receivable received within 30 days, with an additional allowance for $15 M in materials and supplies inventory, $2 M in reagents inventory, and $1.7 M in gold inventory held in carbon within the process plant. Initial working capital is estimated at approximately $33 M in the first year of production.

Royalties and Owner's Other Costs

The royalty rates are presented in Section 4 of the Report. Royalties range from 0% to a maximum of 1.5% depending on the source of the ore within the pit. They amount to approximately $76 M over the life of the Extended Case.

Owner's other costs consist of allowances to meet commitments to stakeholders. They amount to approximately $270 M over the life of the Extended Case.

Tax

Taxation considerations included in the financial model comprise Provincial and Federal corporate income taxes and Ontario Mineral taxes. The following discussion outlines the main Federal and Provincial taxation considerations used in the economic model as provided by IAMGOLD:

- On a non-discounted basis LOM, the model provides for $614 M of Federal and Provincial income taxes, and $252 M of Ontario Mining Tax
- Income tax is payable to the Federal government of Canada, pursuant to the Income Tax Act (Canada). The applicable Federal income tax rate is 15% of taxable income
- Income tax is payable to the Province of Ontario at a tax rate of 11.5% of taxable income, which includes the manufacturing and processing tax credit. Ontario income tax is administered by the Canada Revenue Agency and, since 2008, Ontario's definition of taxable income is fully harmonized with the Federal definition
- Ontario Mining Tax (OMT) is levied at a rate of 10% on taxable profit in excess of C$500,000 derived from mining operations in Ontario. OMT is deductible in calculating Federal income tax and a similar resource allowance is available as a deduction in calculating Ontario income tax. OMT is not affected by harmonization; accordingly, it is administered Provincially by Ontario.

While the pre-tax results of the Coté Gold joint venture will be reported for income and mining tax purposes on a 70/30 basis, the after-tax results in the economic analysis should not be viewed on the basis of a 70/30 relationship. That is, differences in the underlying tax attributes of each of the corporate co-venturers will produce actual tax results for each co-venturer that differ from a simple 70/30 split of the total tax expenses generated in the model.

The tax calculations are underpinned by the following key assumptions:

- The Project is held 100% by two corporate entities and the after-tax analysis does not attempt to reflect any future changes in those corporate structures or property ownership
- Payments projected relating to royalties, as applicable, are allowed as a deduction for Federal and Provincial income tax purposes, but are added back for Provincial mining tax purposes
- Actual taxes payable will be affected by corporate activities, and future tax benefits have not been considered.

Financing

The Extended Case model does not include any costs associated with financing other than the capital leases as presented in Section 24.1.22.

Inflation

There is no adjustment for inflation in the Extended Case financial model; all cash flows are based on 2018 US dollars.

Economic Analysis Results

Two scenarios for the Extended Case economic analysis have been considered, one which includes the leasing of mining equipment, and one that does not. The results of each are presented in the following sections.

Results Without Lease of Mining Equipment

Table 24-13 summarizes the Extended Case financial results with the base case NPV 5% highlighted in grey for the scenario that does not consider leasing of mining equipment. The after-tax NPV 5% is $898 M. The after-tax IRR is 14.7%. The after-tax payback of the initial capital investment is estimated to occur 4.4 years after the start of production.

Table 24-14 shows the Extended Case cashflow broken out on an annualized basis. Calendar years are shown for illustrative purposes only and may change.

The LOM total cash cost is $606/oz Au derived from mining, processing, on-site G&A, refining, doré transportation and insurance, royalties, other owner's costs and Provincial mining tax costs per ounce payable. The AISC is $681/oz Au derived from total cash costs plus sustaining capital (including interest on capital leases), and reclamation and remediation costs. Note that AISC as reported is based solely on costs associated with the Extended Case and does not take into account any other corporate costs not directly associated with this Extended Case.

Table 24-13: Summary–Extended Case Financial Results Without Mine Equipment Leasing

Parameter	Unit	Pre-Tax	After-Tax
Cumulative cash flow	US$M	2,780	1,906
NPV 5%	US$M	1,400	898
NPV 8%	US$M	891	520
NPV 10%	US$M	635	328
Payback period*	year	4.2	4.4
IRR	%	18.0	14.7

Note: base case NPV is highlighted. * Payback period is after two years of pre-production

Table 24-14: Financial Model Without Mining Equipment Leasing

CASHFLOW MODEL																								
Project Time line																								
Year				**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**
Project time (year)				**-2**	**-1**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**
Production				0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0
	UNITS	**PV**	**LOM**																					
Metal Prices																								
Gold	US$/oz		1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250
Ore mined																								
Ore	kmt		243,570	165	4,573	14,145	17,145	20,840	21,926	22,265	13,486	11,105	13,597	16,214	8,771	15,415	17,367	13,259	13,140	13,140	7,016			
Waste Mined																								
Waste	kmt		600,974	7,569	33,445	50,033	49,914	49,160	48,074	47,735	53,096	53,541	53,181	51,696	39,827	22,625	19,641	8,607	6,337	4,044	2,449			
Mill Feed																								
Mill Direct Feed	kmt		174,071			6,045	10,199	13,140	13,140	13,140	9,723	7,786	9,918	11,050	7,214	13,140	13,140	13,140	13,140	13,140	7,016			
Stockpile Mill Feed	kmt		58,929			5,102	2,941				3,417	5,354	3,222	2,090	5,926						6,124	13,140	11,613	
REVENUES																								
Dore																								
Au recovered	koz		6,687			394	439	503	567	532	363	321	349	332	300	443	438	378	379	365	273	167	142	
Au payable	koz		6,686			393	439	503	567	532	363	321	349	332	300	443	438	378	379	365	273	167	142	
Au value	000 US$	5,418,888	8,357,174			490,720	548,715	629,014	708,988	665,337	453,967	401,310	436,014	415,178	374,391	553,862	548,093	473,093	473,889	456,367	341,386	209,357	177,493	
Transport and insurance																								
Dore refining, transport, insurance and other charges	000 US$	7,589	11,702			689	768	881	993	931	636	562	610	581	524	775	767	662	663	639	478	293	248	
Total Refining Transport and Insurance	000 US$	7,589	11,702			689	768	881	993	931	636	562	610	581	524	775	767	662	663	639	478	293	248	
NSR																								
Dore	000 US$	5,411,299	8,345,472			490,030	547,946	628,133	707,996	664,405	453,331	400,748	435,404	414,597	373,867	553,086	547,326	472,431	473,226	455,728	340,908	209,064	177,244	
Total	000 US$	5,411,299	8,345,472			490,030	547,946	628,133	707,996	664,405	453,331	400,748	435,404	414,597	373,867	553,086	547,326	472,431	473,226	455,728	340,908	209,064	177,244	
OPERATING COSTS ONSITE																								
Mining	000 US$	1,085,596	1,627,329			99,173	108,743	127,456	116,846	123,268	139,286	117,027	113,749	119,640	111,018	91,424	86,152	68,346	61,099	58,388	45,858	20,193	19,662	
Process	000 US$	910,772	1,471,906			76,622	82,640	82,640	82,640	82,640	82,640	82,640	82,640	82,640	82,640	82,640	82,640	82,640	82,640	82,640	82,640	82,640	73,036	
G&A	000 US$	210,981	341,677			16,346	19,269	19,269	19,269	19,269	19,269	19,269	19,269	19,269	19,269	19,269	19,269	19,269	19,269	19,269	19,269	19,269	17,029	
Total onsite operating cost	000 US$	2,207,349	3,440,912			192,141	210,652	229,366	218,755	225,177	241,196	218,936	215,659	221,549	212,927	193,334	188,062	170,255	163,008	160,298	147,767	122,102	109,728	
OPERATING COSTS OFF SITE																								
Royalties and Owner's Other Costs																								
Royalty	000 US$	49,479	76,480			4,119	5,160	6,031	6,791	6,285	3,478	3,251	4,038	3,709	3,049	5,271	5,168	4,532	4,549	4,530	3,345	1,756	1,419	
Owner's Other Costs	000 US$	175,451	269,997			16,194	17,714	23,737	30,320	26,733	8,184	6,510	7,849	7,813	6,465	20,285	21,718	18,332	18,659	18,159	11,423	5,070	4,831	
Total royalties and owner's other costs	000 US$	224,930	346,477			20,313	22,874	29,768	37,111	33,018	11,662	9,761	11,887	11,522	9,514	25,556	26,886	22,864	23,208	22,689	14,767	6,826	6,250	
OPERATING PROFIT																								
Operating profit	000 US$	2,979,020	4,558,083			277,576	314,420	369,000	452,130	406,211	200,474	172,051	207,858	181,526	151,427	334,197	332,378	279,312	287,009	272,741	178,373	80,135	61,266	
Taxes	000 US$	502,173	873,911	-	-	-	-	-	60,680	91,086	35,782	31,603	48,251	43,345	35,175	97,765	98,672	81,243	85,122	79,843	51,594	18,769	14,982	-
CAPITAL COSTS																								
Total Initial Capital	000 US$	1,241,630	1,281,382	446,594	834,789																			
Sustaining Capital	000 US$	293,910	433,432			40,680	35,037	35,467	45,370	18,807	19,501	20,064	28,957	37,694	23,546	25,293	27,237	23,926	26,393	25,441	19			
Closure Costs	000 US$	26,666	62,952				73	146	576	285	358	467	845	927	636	2,179	1,126	3,510	848	3,966	967	4,058	1,229	40,757
Total capital costs	000 US$	1,562,206	1,777,766	446,594	834,789	40,680	35,110	35,613	45,946	19,092	19,859	20,531	29,802	38,621	24,182	27,472	28,362	27,436	27,241	29,407	986	4,058	1,229	40,757
Working Capital																								
Accounts receivable yearly	000 US$		8,345,472			490,030	547,946	628,133	707,996	664,405	453,331	400,748	435,404	414,597	373,867	553,086	547,326	472,431	473,226	455,728	340,908	209,064	177,244	
Accounts receivable adjusted	000 US$		685,929			40,276	45,037	51,627	58,191	54,609	37,260	32,938	35,787	34,076	30,729	45,459	44,986	38,830	38,895	37,457	28,020	17,183	14,568	
Change in accounts receivable	000 US$					40,276	4,760	6,591	6,564	(3,583)	(17,349)	(4,322)	2,848	(1,710)	(3,348)	14,730	(473)	(6,156)	65	(1,438)	(9,437)	(10,837)	(2,615)	(14,568)
Accounts payable yearly	000 US$		3,799,091			213,144	234,294	260,014	256,859	259,126	253,493	229,259	228,156	233,653	222,965	219,665	215,715	193,781	186,880	183,626	163,012	129,221	116,227	
Accounts payable adjusted	000 US$		468,381			26,278	28,886	32,057	31,668	31,947	31,253	28,265	28,129	28,807	27,489	27,082	26,595	23,891	23,040	22,639	20,097	15,931	14,329	
Change in account payable	000 US$					26,278	2,608	3,171	(389)	280	(694)	(2,988)	(136)	678	(1,318)	(407)	(487)	(2,704)	(851)	(401)	(2,541)	(4,166)	(1,602)	(14,329)
Working inventory	000 US$					18,905	18,905	18,905	18,905	18,905	18,905	18,905	18,905	18,905	18,905	18,905	18,905	18,905	18,905	18,905	18,905	18,905	18,905	
Change in working inventory	000 US$					18,905																		(18,905)
Change in working capital	**000 US$**	**(16,878)**	**0**			**(32,904)**	**(2,153)**	**(3,420)**	**(6,953)**	**3,862**	**16,654**	**1,334**	**(2,984)**	**2,388**	**2,030**	**(15,137)**	**(13)**	**3,452**	**(916)**	**1,037**	**6,896**	**6,671**	**1,013**	**19,144**
VALUATION INDICATORS																								
Discount factor				1.00	0.95	0.91	0.86	0.82	0.78	0.75	0.71	0.68	0.64	0.61	0.58	0.56	0.53	0.51	0.48	0.46	0.44	0.42	0.40	0.38
Pre Tax																								
Cash flow	000 US$	1,399,936	2,780,317	(446,594)	(834,789)	203,993	277,158	329,967	399,230	390,981	197,269	152,854	175,072	145,293	129,275	291,588	304,002	255,327	258,852	244,371	184,283	82,748	61,051	(21,613)
Cumulative cashflow	000 US$			(446,594)	(1,281,382)	(1,077,390)	(800,232)	(470,264)	(71,034)	319,947	517,216	670,070	845,141	990,434	1,119,709	1,411,297	1,715,299	1,970,626	2,229,478	2,473,849	2,658,132	2,740,880	2,801,930	2,780,317
NPV 5%	000 US$		1,399,936																					
Payback period	Years		4.2	1.0	1.0	1.0	1.0	1.0	1.0	0.2														
IRR before tax	%		18.0%																					
After Tax																								
Cash flow	000 US$	897,763	1,906,406	(446,594)	(834,789)	203,993	277,158	329,967	338,550	299,894	161,487	121,251	126,820	101,948	94,100	193,823	205,330	174,084	173,730	164,528	132,689	63,979	46,069	(21,613)
Cumulative cashflow	000 US$			(446,594)	(1,281,382)	(1,077,390)	(800,232)	(470,264)	(131,714)	168,180	329,667	450,919	577,739	679,687	773,787	967,610	1,172,940	1,347,025	1,520,755	1,685,283	1,817,971	1,881,951	1,928,019	1,906,406
NPV 5%	000 US$		897,763																					
Payback period	Years		4.4	1.0	1.0	1.0	1.0	1.0	1.0	0.4														
IRR after tax	%		14.7%																					

Results with Lease of Mining Equipment

Table 24-15 summarizes the financial results for the Extended Case with the base case NPV 5% highlighted in grey for the scenario that does consider the leasing of mining equipment. The after-tax NPV 5% is $905 M. The after-tax IRR is 15.4%. The after-tax payback of the initial capital investment is estimated to occur 4.4 years after the start of production.

Table 24-16 shows the cashflow broken out on an annualized basis. Calendar years are shown for illustrative purposes only and may change.

The LOM total cash cost is $606/oz Au derived from mining, processing, on-site G&A, refining, doré transportation and insurance, royalties, Owner's other costs and Provincial mining tax costs per ounce payable. The AISC is $703/oz Au derived from total cash costs plus sustaining capital (including interest on capital leases), and reclamation and remediation costs. Note that AISC as reported is based solely on costs associated with the Extended Case and does not take into account any other corporate costs not directly associated with this Extended Case.

Sensitivity Analysis

A sensitivity analysis for the Extended Case was performed on the base case NPV after taxes to examine the sensitivity to gold price, operating costs, capital costs (including sustaining), and US$/C$ exchange rate. The results of the sensitivity analysis are shown in Figure 24-12 for the after-tax scenario.

In the pre-tax and after-tax evaluations, the Extended Case is most sensitive to changes in gold price and gold head grade, and less sensitive to changes in exchange rate, operating costs and capital costs.

Comments

Under the assumptions presented in this Report for the Extended Case, the Extended Case demonstrates positive economics for both the scenario that does not consider the lease of mining equipment, as well as the scenario that does consider the leasing of mining equipment; however, the latter scenario resulted in the most positive results from an economic perspective. The after-tax NPV at a 5% discount rate for the Extended Case is $110 M more than that of the Base Case.

Table 24-15: Summary–Extended Case Financial Results With Leasing of Mining Equipment

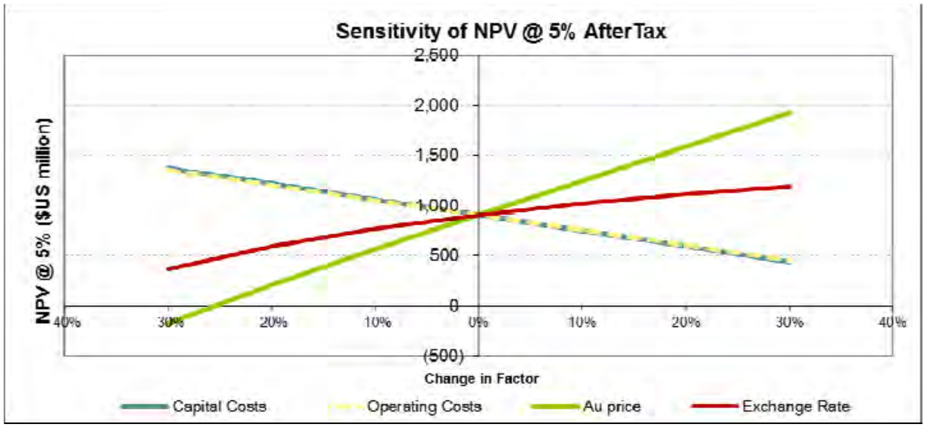
Parameter	Units	Pre-Tax	After-Tax
Cumulative cash flow	US$M	2,759	1,893
NPV 5%	US$M	1,404	905
NPV 8%	US$M	907	538
NPV 10%	US$M	656	351
Payback period*	year	4.1	4.4
IRR	%	18.7	15.4

Note: base case NPV is highlighted. * Payback period is after two years of pre-production

Table 24-16: Financial Model With Leasing of Mining Equipment

CASHFLOW MODEL																								
Project Time line																								
Year				2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
Project time (year)				-2	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Production				0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0
	UNITS	PV	LOM																					
Metal Prices																								
Gold	US$/oz		1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250
Ore mined																								
Ore	kmt		243,570	165	4,573	14,145	17,145	20,840	21,926	22,265	13,486	11,105	13,597	16,214	8,771	15,415	17,367	13,259	13,140	13,140	7,016			
Waste Mined																								
Waste	kmt		600,974	7,569	33,445	50,033	49,914	49,160	48,074	47,735	53,096	53,541	53,181	51,696	39,827	22,625	19,641	8,607	6,337	4,044	2,449			
Mill Feed																								
Mill Direct Feed	kmt		174,071			6,045	10,199	13,140	13,140	13,140	9,723	7,786	9,918	11,050	7,214	13,140	13,140	13,140	13,140	13,140	7,016			
Stockpile Mill Feed	kmt		58,929			5,102	2,941				3,417	5,354	3,222	2,090	5,926						6,124	13,140	11,613	
REVENUES																								
Dore																								
Au recovered	koz		6,687			394	439	503	567	532	363	321	349	332	300	443	438	378	379	365	273	167	142	
Au payable	koz		6,686			393	439	503	567	532	363	321	349	332	300	443	438	378	379	365	273	167	142	
Au value	000 US$	5,418,888	8,357,174			490,720	548,715	629,014	708,988	665,337	453,967	401,310	436,014	415,178	374,391	553,862	548,093	473,093	473,889	456,367	341,386	209,357	177,493	
Transport and insurance																								
Dore refining, transport, insurance and other charges	000 US$	7,589	11,702			689	768	881	993	931	636	562	610	581	524	775	767	662	663	639	478	293	248	
Total Refining Transport and Insurance	000 US$	7,589	11,702			689	768	881	993	931	636	562	610	581	524	775	767	662	663	639	478	293	248	
NSR																								
Dore	000 US$	5,411,299	8,345,472			490,030	547,946	628,133	707,996	664,405	453,331	400,748	435,404	414,597	373,867	553,086	547,326	472,431	473,226	455,728	340,908	209,064	177,244	
Total	000 US$	5,411,299	8,345,472			490,030	547,946	628,133	707,996	664,405	453,331	400,748	435,404	414,597	373,867	553,086	547,326	472,431	473,226	455,728	340,908	209,064	177,244	
OPERATING COSTS ONSITE																								
Mining	000 US$	1,085,596	1,627,329			99,173	108,743	127,456	116,846	123,268	139,286	117,027	113,749	119,640	111,018	91,424	86,152	68,346	61,099	58,388	45,858	20,193	19,662	
Process	000 US$	910,772	1,471,906			76,622	82,640	82,640	82,640	82,640	82,640	82,640	82,640	82,640	82,640	82,640	82,640	82,640	82,640	82,640	82,640	82,640	73,036	
G&A	000 US$	210,981	341,677			16,346	19,269	19,269	19,269	19,269	19,269	19,269	19,269	19,269	19,269	19,269	19,269	19,269	19,269	19,269	19,269	19,269	17,029	
Total onsite operating cost	000 US$	2,207,349	3,440,912			192,141	210,652	229,366	218,755	225,177	241,196	218,936	215,659	221,549	212,927	193,334	188,062	170,255	163,008	160,298	147,767	122,102	109,728	
OPERATING COSTS OFF SITE																								
Royalties and Owner's Other Costs																								
Royalty	000 US$	49,479	76,480			4,119	5,160	6,031	6,791	6,285	3,478	3,251	4,038	3,709	3,049	5,271	5,168	4,532	4,549	4,530	3,345	1,756	1,419	
Owner's Other Costs	000 US$	175,451	269,997			16,194	17,714	23,737	30,320	26,733	8,184	6,510	7,849	7,813	6,465	20,285	21,718	18,332	18,659	18,159	11,423	5,070	4,831	
Total royalties and owner's other costs	000 US$	224,930	346,477			20,313	22,874	29,768	37,111	33,018	11,662	9,761	11,887	11,522	9,514	25,556	26,886	22,864	23,208	22,689	14,767	6,826	6,250	
OPERATING PROFIT																								
Operating profit	000 US$	2,979,020	4,558,083			277,576	314,420	369,000	452,130	406,211	200,474	172,051	207,858	181,526	151,427	334,197	332,378	279,312	287,009	272,741	178,373	80,135	61,266	
Taxes	000 US$	498,525	866,144	-	-	-	-	268	69,092	90,467	32,637	27,727	45,450	41,423	33,994	96,971	98,072	80,789	84,779	79,584	51,399	18,621	14,871	-
CAPITAL COSTS																								
Total Initial Capital	000 US$	1,113,548	1,146,896	446,594	700,302																			
Sustaining Capital	000 US$	418,016	589,383			66,105	59,647	59,262	68,350	40,972	38,338	38,203	28,957	37,694	23,546	25,293	27,237	23,926	26,393	25,441	19			
Closure Costs	000 US$	26,666	62,952				73	146	576	285	358	467	845	927	636	2,179	1,126	3,510	848	3,966	967	4,058	1,229	40,757
Total capital costs	000 US$	1,558,230	1,799,230	446,594	700,302	66,105	59,720	59,408	68,926	41,257	38,696	38,670	29,802	38,621	24,182	27,472	28,362	27,436	27,241	29,407	986	4,058	1,229	40,757
Working Capital																								
Accounts receivable yearly	000 US$		8,345,472			490,030	547,946	628,133	707,996	664,405	453,331	400,748	435,404	414,597	373,867	553,086	547,326	472,431	473,226	455,728	340,908	209,064	177,244	
Accounts receivable adjusted	000 US$		685,929			40,276	45,037	51,627	58,191	54,609	37,260	32,938	35,787	34,076	30,729	45,459	44,986	38,830	38,895	37,457	28,020	17,183	14,568	
Change in accounts receivable	000 US$					40,276	4,760	6,591	6,564	(3,583)	(17,349)	(4,322)	2,848	(1,710)	(3,348)	14,730	(473)	(6,156)	65	(1,438)	(9,437)	(10,837)	(2,615)	(14,568)
Accounts payable yearly	000 US$		3,799,091			213,144	234,294	260,014	256,859	259,126	253,493	229,259	228,156	233,653	222,965	219,665	215,715	193,781	186,880	183,626	163,012	129,221	116,227	
Accounts payable adjusted	000 US$		468,381			26,278	28,886	32,057	31,668	31,947	31,253	28,265	28,129	28,807	27,489	27,082	26,595	23,891	23,040	22,639	20,097	15,931	14,329	
Change in account payable	000 US$					26,278	2,608	3,171	(389)	280	(694)	(2,988)	(136)	678	(1,318)	(407)	(487)	(2,704)	(851)	(401)	(2,541)	(4,166)	(1,602)	(14,329)
Working inventory	000 US$					18,905	18,905	18,905	18,905	18,905	18,905	18,905	18,905	18,905	18,905	18,905	18,905	18,905	18,905	18,905	18,905	18,905	18,905	
Change in working inventory	000 US$					18,905																		(18,905)
Change in working capital	**000 US$**	**(16,878)**	**0**			**(32,904)**	**(2,153)**	**(3,420)**	**(6,953)**	**3,862**	**16,654**	**1,334**	**(2,984)**	**2,388**	**2,030**	**(15,137)**	**(13)**	**3,452**	**(916)**	**1,037**	**6,896**	**6,671**	**1,013**	**19,144**
VALUATION INDICATORS																								
Discount factor				1.00	0.95	0.91	0.86	0.82	0.78	0.75	0.71	0.68	0.64	0.61	0.58	0.56	0.53	0.51	0.48	0.46	0.44	0.42	0.40	0.38
Pre Tax																								
Cash flow	000 US$	1,403,912	2,758,853	(446,594)	(700,302)	178,567	252,547	306,172	376,251	368,816	178,432	134,716	175,072	145,293	129,275	291,588	304,002	255,327	258,852	244,371	184,283	82,748	61,051	(21,613)
Cumulative cashflow	000 US$			(446,594)	(1,146,896)	(968,329)	(715,781)	(409,609)	(33,359)	335,458	513,890	648,606	823,677	968,970	1,098,245	1,389,833	1,693,835	1,949,162	2,208,014	2,452,385	2,636,668	2,719,415	2,780,466	2,758,853
NPV 5%	000 US$		1,403,912																					
Payback period	Years		4.1	1.0	1.0	1.0	1.0	1.0	1.0	0.1														
IRR before tax	%		18.7%																					
After Tax																								
Cash flow	000 US$	905,387	1,892,709	(446,594)	(700,302)	178,567	252,547	305,904	307,158	278,349	145,795	106,988	129,622	103,869	95,282	194,616	205,930	174,538	174,073	164,787	132,884	64,127	46,180	(21,613)
Cumulative cashflow	000 US$			(446,594)	(1,146,896)	(968,329)	(715,781)	(409,877)	(102,719)	175,630	321,425	428,413	558,035	661,904	757,186	951,802	1,157,733	1,332,271	1,506,344	1,671,131	1,804,015	1,868,142	1,914,322	1,892,709
NPV 5%	000 US$		905,387																					
Payback period	Years		4.4	1.0	1.0	1.0	1.0	1.0	1.0	0.4														
IRR after tax	%		15.4%																					

Figure 24-12: Extended Case NPV Sensitivity Analysis



Note: Figure prepared by Wood, 2018. Gold head grade is not presented in the sensitivity graph because the impact of changes in the gold grade mirror the impact of changes in the gold price.

For the Extended Case scenario that does not consider leasing of mining equipment, the after-tax NPV at a 5% discount rate is $898 M, the after-tax IRR is 14.7%, and the after-tax payback of the initial capital investment is estimated to occur 4.4 years after the start of production.

For the Extended Case scenario that does consider leasing of mining equipment, the after-tax NPV at a 5% discount rate is $905 M, the after-tax IRR is 15.4%, and the after-tax payback of the initial capital investment is estimated to occur 4.4 years after the start of production.

In the pre-tax and after-tax evaluations, the Extended Case is most sensitive to changes in gold price and gold head grade, and less sensitive to changes in mill recovery and operating and capital costs from the factors that were evaluated.

24.2 Risk Analysis

A risk analysis was undertaken at the completion of the 2018 Feasibility Study process to determine the major risks that might face the Project during construction and operations. About a hundred different risks were identified, assessed, and mitigation procedures developed. At the end of the risk assessment process, the risks summarized in Table 24-17 were the highest ranked.

Table 24-17: Risk Analysis Results

Risk Area	Potential Impact	Completed or Proposed Mitigation
Regulatory	Permit grants delayed or declined	Ongoing discussions with stakeholders; EA has been approved; consultation to date with regulators has not revealed significant issues
Safety, security environment, sustainability	TMF incident	Inclusion of cyanide destruction circuit in ore process plant; closed-loop water management; modelling and simulation tests of waste rock and tailings: environmental test work shows low potential for acid generation and metals leaching TMF design supports a higher potential hazard classification than required by MNRF guidelines, with the necessary dam safety requirements for this classification "built-in" to the design
	Unauthorized site access	Control gates on access roads
Mineral Resources	Sampling does not match resource model predictions	Completed preliminary blast hole sampling test and heterogeneity study to guide sample preparation Good stockpile management practices; stockpile sequencing adequately modelled
Process/metallurgy	Throughput rate assumptions not met	Design assumptions verified with laboratories. Design assumptions underwent simulation examinations; dynamic simulation with only major equipment confirm the surge capacity is sufficient to achieve 94% availability Design factor for ancillary material handling equipment is 15% or more Confirm the sizing of equipment with supplier during selection of equipment; include performance warranties for throughout of equipment during negotiation of long lead packages
Finance	Budget estimates and projections not met	Monthly and quarterly reviews of construction; process for approval of scope changes; contracts with suppliers with negotiated rates

25.0 INTERPRETATION AND CONCLUSIONS

25.1 Introduction

The QPs note the following interpretations and conclusions in their respective areas of expertise, based on the review of data available for this Report.

25.2 Mineral Tenure, Surface Rights, Water Rights, 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.

IAMGOLD has applied for a number of mining leases. IAMGOLD is of the opinion that there are no risks associated with actual issuance of the Côté Gold Project mining leases, and that the issuance will occur when the ENDM clears the backlog arising from the freeze period imposed as part of the MLAS implementation.

25.3 Geology and Mineralization

Mineralization at the Côté Gold deposit is interpreted to be intrusion-related.

The geological setting, mineralization style, and structural and stratigraphic controls are sufficiently well understood to provide useful guides to exploration and Mineral Resource estimation.

25.4 Exploration, Drilling and Analytical Data Collection in Support of Mineral Resource Estimation

Exploration completed to date has resulted in delineation of the Côté Gold deposit and a number of exploration targets. Work conducted by IAMGOLD has included geological reconnaissance and mapping, outcrop stripping, geochemical surveys (TBA) and geophysical surveys (ground IP, pole–dipole IP/resistivity, and very-low frequency geophysical surveys).

A total of 770 drill holes (321,875) have been completed within the Côté Gold deposit area.

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 and Mineral Reserve estimation and mine planning at the Côté Gold deposit.

The quantity and quality of the lithological, recovery, collar and downhole survey data collected are consistent with industry standards and are adequate to support Mineral Resource and Mineral Reserve 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 adequate to support Mineral Resource and Mineral Reserve 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 and Mineral Reserve estimation and mine planning.

Density determinations are acceptable to support Mineral Resource and Mineral Reserve 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.

Wood conducted data verification in 2018. This program included site visits during which Wood 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. Wood 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 QP, 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 and Mineral Reserve estimation, and mine planning.

25.5 Metallurgical Testwork

Metallurgical testwork completed since 2009 has included: comminution (Bond low-impact (crusher), rod mill and ball mill work indexes, Bond abrasion index, SMC, HPGR, piston press and Atwal) tests; gravity recoverable gold tests; cyanide leaching (effect of head grade, effect of grind, reagent usage, CIP modelling, cyanide destruction, solid–liquid separation and barren solution analysis) testwork; development of recovery projections; and review of potential for deleterious elements.

The mineralization is free-milling (non-refractory). A portion of the gold liberates during grinding and is amenable to gravity concentration and the response to gravity and leaching is relatively consistent across head grades. Therefore, the lower-grade gold material is expected to exhibit the same level of metal extraction.

Individual lithologies follow the general trends for grind size sensitivity and cyanide consumption. However, there is evidence of differences in free gold content. Overall recovery is estimated at 91.8% for the processing of 36,000 t/d using the proposed flowsheet. Silver content is consistently reported under 2 g/t. The testwork does not report on silver recovery.

Cyanide and lime consumptions are quite low in comparison to what is typically seen in the industry which reflects the lack of cyanicides and other cyanide consumers. Lime consumption is also positively impacted by the basic nature of the ore.

Metal dissolution during cyanide leaching was found to be low, and there are no obvious concerns with deleterious elements.

Overall metallurgical test results show that all the variability samples were readily amenable to gravity concentration and cyanide leach. Samples selected for metallurgical testing were representative of the various types and styles of mineralization within the different zones. Samples were selected from a range of locations within the deposit zones. Sufficient samples were taken so that tests were performed on sufficient sample mass.

25.6 Mineral Resource Estimates

Mineral Resource estimation was performed by Wood staff. The resource estimate database cut-off date is 7 June 2018.

The estimate is based on lithology, fault, and breccia interpretations performed by IAMGOLD staff and modelled using wireframes. Wood completed EDA analysis, evaluated grade capping/outlier restriction thresholds, reviewed and selected appropriate compositing intervals, assigned bulk density values, modelled variograms, completed block estimates using various ID estimates, validated the model, and assigned confidence categories. A conceptual pit shell was generated using Whittle software to constrain the Mineral Resource estimate.

Areas of uncertainty that could affect the Mineral Resource estimates include the following: effect of alteration or other geological attributes as local controls on mineralization; lithological interpretations on a local scale, including fault zone modelling, DIA dyke modelling, and discrimination of breccias; assumptions of density (specific gravity) based on a low number of samples for the size of the deposit; commodity pricing; metal recovery assumptions; assumptions as to operating costs used when assessing reasonable prospects of eventual economic extraction.

Wood is not aware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors that could materially affect the Mineral Resource estimate that are not discussed in this Report.

Geological controls of the mineralization of the Côté Gold deposit are still uncertain at the local scale. At the time of the resource estimate, ICP data required to complete a geological control study were not yet available. This lack of information is mitigated by good drill coverage, the use of an alteration model as one classification criterion, and an open pit operation. The QP does not believe this local uncertainty would materially affect the Mineral Resource estimates.

25.7 Mineral Reserve Estimates

Mineral Reserve estimation was performed by Wood staff. Optimization runs were carried out only using Measured and Indicated Mineral Resources to define the optimal mining limits. Inferred Mineral Resources were set to waste.

Mineral Reserves incorporate appropriate mining dilution and mining recovery estimations for the proposed open pit mining method.

Wood is not aware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors that could materially affect the Mineral Reserve estimate that are not discussed in this Report.

25.8 Mine Plan

The Base Case mine plan is based on 203 Mt of the total 233 Mt of the Proven and Probable Mineral Reserves. This mine plan is used to support the permit application.

The TMF capacity restricts the mine throughput design. The mine will require one year of pre-production before the start of operations in the processing plant. Although the mine requires one year of pre-stripping, mining starts in Year -2 to provide material for the TMF construction. The pit design includes four phases to balance stripping requirements while meeting the concentrator requirements. Stockpiling of lower-grade material is incorporated into the plan.

Scheduling constraints (e.g. feeding lower grades during the first months of the plant ramp up schedule, the maximum stockpile capacity and reducing the mining capacity in later years during the LOM to balance the number of truck requirements per period) set the maximum mining capacity at 62 Mt per year and the maximum number of benches mined per year at eight in each phase. The schedule produced a LOM of 13 years with stockpile reclaim extending into Year 16. The amount of rehandled mill feed is 59 Mt, which requires a maximum stockpile capacity of 48 Mt.

The Base Case mine plan uses a truck-shovel operation. The required support equipment is adequately considered in the design.

25.9 Recovery Plan

The Base Case process design uses conventional technology and equipment. The process circuits will include primary crushing, secondary crushing, HPGR, ball milling, vertical milling, gravity concentration and cyanide leaching, followed by gold recovery by CIP, stripping and EW.

Tailings handling will incorporate cyanide destruction and tailings thickening.

Equipment proposed is appropriate for the type of flowsheet.

Reagent usage and storage requirements are typical of the industry and require no specialist handling.

Plant throughput will be 36,000 t/d and it is expected that a ramp-up period of 10 months will be required to reach the design throughput.

The ramp-up period will be highly influenced by design considerations, especially relating to the grinding circuit. Current practice incorporates learnings from HPGR circuits installed in the last decade. At some sites, these have experienced ramp-up periods as long as one year, although expansions at other sites have reached nameplate throughput in only six months. The processing plant is expected to take 10 months to reach the design throughput of 36,000 t/d. Reliable modelling, a focus on engineering design, and equipment selection will be key to achieving full production in the timeframe projected.

25.10 Infrastructure

Infrastructure required to support Base Case operations will include: the open pit; MRA; stockpiles; TMF and associated ponds; access and internal roads; powerlines and power distribution networks; watercourse realignments, diversion channels, dams and ponds; a New Lake to replace Côté Lake; process facilities; accommodation facilities; and mine support facilities including offices, workshops and warehouses.

Power supply is assumed to be provided via an upgraded existing transmission line from Timmins to Shining Tree Junction and a new 44 km-long 115 kV electrical power transmission line from Shining Tree Junction to the Project site.

25.11 Environmental, Permitting and Social Considerations

The project presented in the 2018 Feasibility Study has undergone optimizations since the 2015 EA, including: relocation of the TMF to minimize overprinting of fish-bearing waters, reduce the Project footprint, improve Project economics, reduce the need for watercourse realignments, and avoid effluent discharges to the Mesomikenda Lake watershed; smaller open pit; modifications to the process plant; reduction in transmission line voltage, and re-routing of the line. IAMGOLD is of the opinion that there are no new net effects arising from the 2018 Feasibility Study. On October 19, 2018, CEAA confirmed that the proposed Project changes are not considered new designated physical activities and therefore a new environmental assessment is not required. On November 9, 2018, MECP also confirmed their concurrence with the conclusion in the EER report, that the proposed changes to the undertaking result in no new net effects.

Baseline environmental and social studies have been completed.

The Base Case TMF design is conventional. Over the proposed LOM of 16 years, tailings production is approximately 13.1 Mt/a from nominal mill throughput of

36,000 t/d, except in Year 1 when it is about 11 Mt due to ramp-up. The TMF will store 203 Mt of tailings over the LOM.

A watercourse realignment system has been designed to redirect water around the mine facilities to enable excavation and dewatering of the open pit. A system of dams and ponds will be used to capture, store, and where required treat, water from various sources before the water is released to the environment after meeting discharge quality standards.

Site closure will be governed by the Ontario Mining Act and its associated regulations and codes. A Closure Plan was prepared in accordance with the legislative requirements in tandem with the 2018 Feasibility Study. The plan assumes conventional closure measures. MENDM requires financial assurance for implementation of the Closure Plan; these costs were included in the economic analysis.

Provincial environmental approvals that are expected to be required to construct and operate the Project have been identified. Three primary Provincial agencies will be involved with Project approvals/permits. An additional nine agencies may be involved with some permitting aspects.

IAMGOLD has actively engaged local and regional communities, as well as other stakeholders, to gain a better understanding of their issues and interests, identify potential partnerships, and build social acceptance for the Project. Stakeholders involved in Project consultations to date include those with a direct interest in the Project, and those who provided data for the baseline studies.

Based on consultation efforts since the start of the Project, and on groups expressing a continued interest, IAMGOLD has continued to engage identified Indigenous communities. IAMGOLD continues to negotiate Impact Benefit Agreements with Mattagami First Nation, Flying Post First Nation and the Métis Nation of Ontario (Region 3). A Process and Funding Agreement has been reached between IAMGOLD, Mattagami First Nation and Flying Post First Nation related to the communities' involvement through the review of the EER and required regulatory permit applications to advance the Project.

IAMGOLD plans to work with the community of Gogama and with the communities of Mattagami First Nation and Flying Post First Nation to collaborate on the development of a socio-economic management and monitoring plan to manage potential socio-economic effects of the Project (both adverse and positive).

25.12 Markets and Contracts

IAMGOLD expects that the terms of any sales contracts for the Base Case 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. No sales contracts are in place for the Project.

The 2018 Feasibility Study assumes a gold price of US$1,250/oz for the Base Case economic analysis. Wood considers this price to be an industry consensus long-term forecast price.

Wood reviewed the information provided by IAMGOLD on marketing and contracts. In the QP's opinion, the information provided is consistent with that available in the public domain, and can be used to support the Base Case financial analysis.

25.13 Capital Cost Estimates

The Base Case's construction capital cost is estimated to be $1,236 M, inclusive of allowances for Owner's costs and contingency of $27 M and $100 M, respectively. Additional indirect costs for Operational Readiness and other owner's fees totalling $45 M result in a total initial capital cost of $1,281 M.

Some of the larger capital expenditures are amenable to capital financing. The majority of the initial mining fleet, having an approximate initial capital cost of $142 M, can be financed using capital lease agreements with vendors. Inclusive of a down-payment of 0–15% of the purchase value paid at placement of order and interest payments incurred during the construction period, capital leases reduce the capital cost by approximately $134 M, resulting in a total construction capital of $1,101 M and a total initial capital cost of $1,147 M net of mining equipment leasing.

Sustaining costs (including capital leases) and operating costs over the LOM are estimated to total $527 M and $2,947 M, respectively.

Reclamation and closure costs are estimated at $63 M, net of security bond fees and an allowance for equipment and materials salvage at the end of mine life.

25.14 Operating Cost Estimates

Total operating costs over the Base Case LOM are estimated to be $2,947 M. Mining and processing costs represent 46% and 44% of this total, respectively. Average operating costs are estimated at $14.52/t of processed ore.

25.15 Economic Analysis

Two economic analysis scenarios for the Base Case have been considered, one which includes the leasing of mining equipment, and one that does not.

The Base Case scenario which does not assume that mining equipment will be leased has an after-tax NPV 5% of $788 M. The after-tax IRR is 14.5%. The after-tax payback of the initial capital investment is estimated to occur 4.5 years after the start of production. The LOM total cash cost is $594/oz Au derived from mining, processing, on-site G&A, refining, doré transportation and insurance, royalties, other owner's costs and Provincial mining tax costs per ounce payable. The AISC is $668/oz Au derived from total cash costs plus sustaining capital (including interest on capital leases), and reclamation and remediation costs.

The Base Case scenario which includes the assumption that mining equipment will be leased has an after-tax NPV 5% of $795 M. The after-tax IRR is 15.2%. The after-tax payback of the initial capital investment is estimated to occur 4.4 years after the start of production. The LOM total cash cost is $594/oz Au derived from mining, processing, on-site G&A, refining, doré transportation and insurance, royalties, owner's other costs and Provincial mining tax costs per ounce payable. The AISC is $694/oz Au derived from total cash costs plus sustaining capital (including interest on capital leases), and reclamation and remediation costs.

In the pre-tax and after-tax evaluations, the Base Case is most sensitive to changes in gold price and gold head grade, and less sensitive to changes in exchange rate, operating costs and capital costs.

25.16 Other Relevant Data and Information

The Extended Case mine plan is based on the total Proven and Probable Mineral Reserves of 233 Mt, adding 30 Mt of additional ore to the Base Case mine plan used to support the permit application. Much of the technical information for the Extended Case remains the same as that presented for the Base Case.

The Extended Case mine plan uses a conventional truck-shovel operation. The mine will require one year of preproduction before the start of operations in the processing plant. Although the mine requires one year of pre-stripping, mining starts in Year -2 to provide material for construction of the TMF. The deposit will be mined in four phases, included the ultimate pit limit. Stockpiling of lower-grade material is incorporated into the plan. Scheduling constraints (e.g. feeding lower grades during the first months of the plant ramp up schedule, the maximum stockpile capacity and reducing the mining capacity in later years during the LOM to balance the number of truck requirements per period) set the maximum mining capacity at 70 Mt per year and the maximum number of benches mined per year at eight in each phase. The LOM is 16 years with stockpile reclaim extending into Year 18. The amount of rehandled mill feed is 59 Mt, which requires a maximum stockpile capacity of 41 Mt. The mine plan uses a truck–shovel operation. The required support equipment is adequately considered in the design.

The Extended Case process design uses conventional technology and equipment. The process circuits will include primary crushing, secondary crushing, HPGR, ball milling, vertical milling, gravity concentration and cyanide leaching, followed by gold recovery by CIP, stripping and EW. Tailings handling will incorporate cyanide destruction and tailings thickening. Equipment proposed is appropriate for the type of flowsheet. Reagent usage and storage requirements are typical of the industry and require no specialist handling.

Infrastructure required to support Extended Case operations will include: the open pit; MRA; stockpiles; TMF and associated ponds; access and internal roads; powerlines and power distribution networks; watercourse realignments, diversion channels, dams and ponds; a New Lake to replace Côté Lake; process facilities; accommodation facilities; and mine support facilities including offices, workshops and warehouses. Power supply is assumed to be provided via an upgraded existing transmission line from Timmins to Shining Tree Junction and a new 44 km-long 115 kV electrical power transmission line from Shining Tree Junction to the Project site.

The Extended Case adds approximately two years to the mine life with mill throughput remaining the same as the Base Case of 36,000 t/d, remains within the footprint of the current permit application to support the Base Case, but will require an additional 5 m raise of the TMF to increase its capacity from 203 Mt to 233 Mt, and extend the height of the MRA.

Should IAMGOLD pursue development of the additional Mineral Reserves beyond the 203 Mt identified in the Environmental Effects Review, IAMGOLD will, through consultation with the regulatory authorities, confirm whether its environmental assessment coverage is sufficient or if new/amended environmental assessments are required. Development of additional ore would continue to be done in a manner that does not cause significant adverse environmental effects and would continue to extend socio-economic benefits to local communities and the region.

Baseline environmental and social studies have been completed.

The Extended Case TMF design is conventional. Over the proposed LOM of 18 years, tailings production is approximately 13.1 Mt/a from nominal mill throughput of 36,000 t/d, except in Year 1 when it is about 11 Mt due to ramp-up. The TMF will store 233 Mt of tailings over the LOM.

A watercourse realignment system has been designed to redirect water around the mine facilities to enable excavation and dewatering of the open pit. A system of dams and ponds will be used to capture, store, and where required treat, water from various sources before the water is released to the environment after meeting discharge quality standards.

Site closure will be governed by the Ontario Mining Act and its associated regulations and codes. A Closure Plan was prepared in accordance with the legislative requirements in tandem with the 2018 Feasibility Study. The plan assumes conventional closure measures. MENDM requires financial assurance for implementation of the Closure Plan; these costs were included in the economic analysis for the Extended Case.

Provincial environmental approvals that are expected to be required to construct and operate the Project have been identified. Three primary Provincial agencies will be involved with Project approvals/permits. An additional nine agencies may be involved with some permitting aspects.

IAMGOLD has actively engaged local and regional communities, as well as other stakeholders, to gain a better understanding of their issues and interests, identify potential partnerships, and build social acceptance for the Project. Stakeholders involved in Project consultations to date include those with a direct interest in the Project, and those who provided data for the baseline studies.

Based on consultation efforts since the start of the Project, and on groups expressing a continued interest, IAMGOLD has continued to engage identified Indigenous communities. IAMGOLD continues to negotiate Impact Benefit Agreements with Mattagami First Nation, Flying Post First Nation and the Métis Nation of Ontario (Region 3). A Process and Funding Agreement has been reached between IAMGOLD, Mattagami First Nation and Flying Post First Nation related to the communities' involvement through the review of the EER and required regulatory permit applications to advance the Project.

IAMGOLD plans to work with the community of Gogama and with the communities of Mattagami First Nation and Flying Post First Nation to collaborate on the development of a socio-economic management and monitoring plan to manage potential socio-economic effects of the Project (both adverse and positive).

IAMGOLD expects that the terms of any sales contracts 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. No sales contracts are in place for the Extended Case. The 2018 Feasibility Study Extended Case assumes a gold price of US$1,250/oz for the economic analysis. Wood considers this price to be an industry consensus long-term forecast price. Wood reviewed the information provided by IAMGOLD on marketing and contracts. In the QP's opinion, the information provided is consistent with that available in the public domain, and can be used to support the Extended Case financial analysis.

The Extended Case construction capital cost is estimated to be $1,236 M, inclusive of allowances for Owner's costs and contingency of $27 M and $100 M, respectively. Additional indirect costs for Operational Readiness and other owner's fees totalling $45 M result in a total initial capital cost of $1,281 M. Some of the larger capital expenditures are amenable to capital financing. The majority of the initial mining fleet, having an approximate initial capital cost of $142 M, can be financed using capital lease agreements with vendors. Inclusive of a down-payment of 0–15% of the purchase value paid at placement of order and interest payments incurred during the construction period, capital leases reduce the capital cost by approximately $134 M, resulting in a total construction capital of $1,101 M and a total initial capital cost of $1,147 M net of mining equipment leasing. Sustaining costs (including capital leases) costs over the LOM are estimated to total $589 M. Reclamation and closure costs are estimated at $63 M, net of security bond fees and an allowance for equipment and materials salvage at the end of mine life.

Total operating costs over the Extended Case LOM are estimated to be $3,441 M. Mining and processing costs represent 47% and 43% of this total, respectively. Average operating costs are estimated at $14.77/t of processed ore.

Two economic analysis scenarios were considered in the Extended Case, one which includes the leasing of mining equipment, and one that does not.

The Extended Case scenario which does not assume that mining equipment will be leased has an after-tax NPV 5% of $898M. The after-tax IRR is 14.7%. The after-tax payback of the initial capital investment is estimated to occur 4.4 years after the start of production. The LOM total cash cost is $606/oz Au derived from mining, processing, on-site G&A, refining, doré transportation and insurance, royalties, other Owner's costs and Provincial mining tax costs per ounce payable. The AISC is $681/oz Au derived from total cash costs plus sustaining capital (including interest on capital leases), and reclamation and remediation costs.

The Extended Case scenario which includes the assumption that mining equipment will be leased has an after-tax NPV 5% of $905 M. The after-tax IRR is 15.4%. The after-tax payback of the initial capital investment is estimated to occur 4.4 years after the start of production. The LOM total cash cost is $606/oz Au derived from mining, processing, on-site G&A, refining, doré transportation and insurance, royalties, owner's other costs and Provincial mining tax costs per ounce payable. The AISC is $703/oz Au derived from total cash costs plus sustaining capital (including interest on capital leases), and reclamation and remediation costs.

In the pre-tax and after-tax evaluations, the Extended Case is most sensitive to changes in gold price and gold head grade, and less sensitive to changes in exchange rate, operating costs and capital costs.

25.17 Conclusions

Each of the 2018 Feasibility Study Base Case and Extended Case show positive economics under the assumptions presented in the Report.

26.0 RECOMMENDATIONS

26.1 Introduction

A one-phase work program has been developed to support design considerations for a future CôtéGold operation. The program has been developed by discipline area. The recommended work in each area can be completed concurrently as no aspect of the program are dependent on the results of another. The budget estimates are provided as a range, depending on whether IAMGOLD personnel or a third-party undertake the work program. The total program is estimated at US$155,000 to $215,000.

26.2 Geology and Mineral Resources

Geological controls of the mineralization of the Côté Gold deposit are still uncertain at the local scale. A study should be undertaken using ICP data to determine if there are discernable controls that can be used to fine-tune the resource estimate, or potentially provide additional information for use in exploration vectoring.

This work is estimated at US$20,000–$30,000

26.3 Metallurgy

Additional HPGR and cyanidation tests should be conducted to better define the geometallurgical variability. Samples should consist of both domain and point composites.

This work is estimated at US$30,000–$50,000

26.4 Mining

Trade-off studies should be performed in support of detailed designs. These would include:

- Assessment of autonomous haulage systems on phase designs and pit in support of optimization of automated system processes
- Sampling for blast hole drilling in support of optimization of the sampling process
- Placement of overburden material for use at the end of the LOM

Further mine plan studies should be completed, including: a review of phase designs, feed grade optimization to the processing plant, and variable cut-off grade assessment.

This work is estimated at US$35,000–$45,000.

26.5 Infrastructure

Additional geotechnical investigations should be undertaken to further characterize foundation soils. Cone penetration tests should be conducted at potentially-liquefiable locations under some dam structures and liquefaction assessments performed based on the cone penetration test results.

Detailed hydrological and hydraulic evaluations should be undertaken to refine the TMF and reclaim pond dam freeboard, spillway, and drainage ditch designs. The 3D seepage model and dam core settlement analyses should be reviewed to confirm acceptable freeboard.

A water balance model should be developed that specifically addresses the TMF and reclaim ponds.

This assessment and evaluation work is estimated at US$70,000–$90,000.

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Appendix A – Claims Listing

Chester 2 Property

Chester 2	Number of Claims = 17		Surface Area = 655 Ha				
Claim	**Anniversary**						
101625	July-03-22						
116234	July-03-22						
122354	October-25-22						
122355	October-25-22						
161528	July-03-22						
180328	October-25-22						
196275	July-03-22						
233678	October-25-22						
262884	October-25-22						
262885	October-25-22						
282944	October-25-22						
290350	July-03-22						
290351	July-03-22						
329461	October-25-22						
341301	October-25-22						
341302	July-03-22						
341939	July-03-22						
17							

Chester 3 Property

Chester 3	Number of Claims = 35		Surface Area = 804 Ha				
Claim	**Anniversary**						
100645	November-25-22						
116004	March-10-23						
116079	March-30-22						
124053	March-30-22						
124173	October-15-22						
128879	March-30-22						
130010	August-20-22						
141562	August-20-22						
147079	March-30-22						
155540	November-25-22						
158151	March-30-22						
171823	March-30-22						
177617	November-25-22						
181388	October-15-22						
187508	March-30-22						
189431	October-15-22						
189432	October-15-22						
211558	October-15-22						
221615	November-25-22						
223602	October-15-22						
228878	November-25-22						
228879	November-25-22						
230979	March-10-23						
236161	August-20-22						
243382	August-20-22						
261899	March-30-22						
272127	March-10-23						
275450	November-25-22						
278071	October-15-22						
284768	March-10-23						
307372	March-30-22						
312661	October-15-22						
314697	March-30-22						
320194	August-20-22						
336646	March-30-22						
35							

Clam Lake – Crown Minerals Property

Clam Lake - Crown Minerals		Number of Claims = 20			Surface Area = 241 Ha		
Claim	**Anniversary**						
102747	May-26-22						
116452	May-26-22						
153091	May-26-22						
155482	February-13-22						
177718	May-07-22						
177719	May-26-22						
204180	May-07-22						
218422	May-26-22						
218423	May-26-22						
226375	May-26-22						
226376	May-26-22						
231585	May-07-22						
260251	May-07-22						
260252	May-26-22						
274867	February-13-22						
285676	May-26-22						
287506	May-26-22						
297626	May-07-22						
321723	May-26-22						
327426	May-07-22						
20							

Clam Lake Property

Clam Lake		Number of Claims = 8			Surface Area = 80 Ha	
Claim	**Anniversary**					
127554	March-08-22					
210231	March-08-22					
271286	December-03-22					
274087	December-03-22					
320650	December-03-22					
322812	December-03-22					
322813	December-03-22					
343177	December-03-22					
8						

Ontario 986813 Ltd North Property

Ontario 986813 Ltd North		Number of Claims = 20		Surface Area = 174 Ha			
Claim	**Anniversary**						
102106	April-24-19						
116537	October-12-19						
144071	April-24-19						
144072	April-24-19						
145393	April-24-19						
145394	April-24-20						
158936	June-05-19						
168129	January-09-19						
201477	April-24-19						
212837	June-05-19						
222955	April-24-19						
262542	October-12-19						
277540	April-24-20						
288186	April-24-19						
296885	June-05-19						
306317	October-12-19						
312589	February-09-19						
312590	February-09-19						
325813	February-09-19						
331244	February-09-19						
20							

Ontario 986813 Ltd Northeast Property

Ontario 986813 Ltd Northeast		Number of Claims = 13		Surface Area = 107 Ha		
Claim	**Anniversary**					
115329	April-24-22					
133974	April-24-22					
150723	April-24-22					
153459	April-24-22					
205527	April-24-22					
218313	April-24-22					
218919	April-24-22					
234788	April-24-22					
235559	April-24-22					
272033	April-24-22					
284831	April-24-22					
319895	April-24-22					
333844	April-24-22					
13						

Ontario 986813 East Property

Ontario 986813 Ltd East		Number of Claims = 119			Surface Area = 1,901 Ha		
Claim	**Anniversary**		**Claim**	**Anniversary**		**Claim**	**Anniversary**
103635	May-22-19		199122	May-16-19		298507	May-22-19
105265	May-16-19		201413	May-16-19		301446	May-22-19
105649	May-22-19		203446	May-16-19		302303	May-22-19
119781	July-05-19		209228	May-22-19		304698	July-05-19
119922	May-16-19		211872	July-05-19		306303	May-16-19
120310	May-16-19		219189	May-22-19		306898	May-16-19
121880	July-05-19		223601	May-16-19		310088	May-22-19
121881	May-22-19		223826	May-22-19		310089	May-22-19
123979	May-22-19		224906	May-16-19		315475	May-16-19
124683	May-16-19		227358	May-22-19		316133	May-22-19
127573	May-16-19		229571	May-16-19		324154	May-16-19
127574	May-16-19		230987	May-16-19		324155	May-16-19
130791	May-22-19		231079	May-16-19		324202	May-16-19
134359	May-22-19		231796	May-22-19		326182	May-22-19
135042	May-22-19		231959	May-16-19		326184	May-16-19
136184	May-22-19		235742	May-22-19		326342	May-16-19
141533	May-22-19		237570	May-22-19		330985	May-22-19
142813	May-16-19		238107	May-22-19		331064	May-22-19
142951	May-22-19		239984	May-22-19		335657	May-22-19
144766	May-16-19		259525	May-22-19		336955	May-22-19
144770	May-22-19		259638	July-05-19		344565	May-22-19
146846	July-05-19		259747	May-16-19			
147402	May-22-19		261465	May-16-19			
148055	May-16-19		268951	May-16-19		119	
156875	May-16-19		272423	May-22-19			
158947	May-22-19		275493	May-16-19			
158948	May-22-19		275494	May-16-19			
158998	May-22-19		276770	May-22-19			
160364	May-22-19		278067	May-16-19			
162886	May-16-19		278307	May-16-19			
163806	May-16-19		278448	July-05-19			
163817	May-16-19		278449	July-05-19			
164573	May-22-19		279073	May-16-19			
169172	May-16-19		279779	May-16-19			
176057	May-22-19		279858	May-22-19			
177622	May-16-19		283286	May-22-19			
178527	May-22-19		287600	May-16-19			
181860	May-22-19		289779	July-05-19			
182619	July-05-19		290245	May-22-19			
182809	July-05-19		290806	May-22-19			
183318	May-22-19		292546	July-05-19			
183955	May-16-19		292564	May-16-19			
183956	May-16-19		294845	May-16-19			
186993	May-22-19		294899	May-16-19			
190065	May-22-19		295380	May-22-19			
190872	May-16-19		295620	May-22-19			
193222	May-16-19		296907	May-16-19			
194235	May-16-19		297569	May-16-19			
195672	May-22-19		297910	May-22-19			

Ontario 986813 Ltd South Property

Ontario 986813 Ltd South		Number of Claims = 106			Surface Area = 1,446 Ha		
Claim	**Anniversary**		**Claim**	**Anniversary**		**Claim**	**Anniversary**
102149	May-14-20		211012	May-29-20		318791	May-14-20
106039	May-29-20		212780	May-29-20		319232	May-14-20
106145	May-14-20		221672	May-14-20		322497	May-29-20
106376	May-14-20		221673	May-14-20		324109	May-14-20
106690	May-29-20		224288	May-29-20		324838	May-14-20
109568	May-14-20		228289	May-14-20		330169	May-29-20
111876	May-14-20		229643	May-14-20		338366	May-14-20
114889	May-14-20		231902	May-14-20		511819	April-10-20
114890	May-14-20		239366	May-29-20		511820	April-10-20
115082	May-29-20		242891	May-14-20		511821	April-10-20
115928	May-14-20		244747	May-29-20			
117187	May-14-20		251589	May-29-20		106	
122482	May-29-20		252881	May-14-20			
125391	May-29-20		255182	May-29-20			
126274	May-14-20		257479	May-29-20			
126962	May-14-20		257553	May-14-20			
129654	May-29-20		258179	May-14-20			
130185	May-14-20		258180	May-29-20			
141715	May-29-20		259536	May-14-20			
142865	May-29-20		260811	May-29-20			
143412	May-14-20		260837	May-29-20			
145464	May-29-20		263509	May-29-20			
148859	May-29-20		267494	May-14-20			
150162	May-14-20		267495	May-14-20			
152428	May-29-20		276052	May-14-20			
155575	May-14-20		276079	May-14-20			
156177	May-14-20		277421	May-29-20			
158132	May-14-20		279905	May-14-20			
158788	May-14-20		280305	May-29-20			
161591	May-29-20		283825	May-29-20			
162883	May-29-20		287591	May-29-20			
164869	May-14-20		288187	May-14-20			
164882	May-29-20		288683	May-29-20			
165920	May-29-20		288781	May-29-20			
171193	May-29-20		292883	May-14-20			
180286	May-29-20		296273	May-14-20			
186087	May-29-20		296274	May-14-20			
190081	May-29-20		296277	May-29-20			
196606	May-14-20		296902	May-14-20			
201371	May-29-20		298048	May-14-20			
201396	May-29-20		300152	May-14-20			
202072	May-14-20		308263	May-29-20			
202077	May-14-20		311989	May-14-20			
203437	May-14-20		312018	May-14-20			
204031	May-29-20		312782	May-14-20			
209455	May-14-20		314148	May-14-20			
210836	May-29-20		315590	May-29-20			
211011	May-29-20		316972	May-14-20			

Watershed Property

Watershed		Number of Claims = 510			Surface Area = 8,059 Ha		
Claim	**Anniversary**		**Claim**	**Anniversary**		**Claim**	**Anniversary**
100022	December-08-20		116538	March-17-20		129602	March-17-20
100208	September-21-20		116579	March-17-20		129603	June-07-20
100209	September-21-20		116580	March-17-20		129608	March-17-20
100210	September-21-20		116621	March-17-20		129621	December-25-20
100339	September-21-20		116825	March-17-20		129685	March-17-20
100408	February-07-20		116981	September-21-20		129686	March-17-20
100536	March-17-20		116982	September-21-20		139039	September-21-20
100642	January-15-20		117050	February-07-20		142041	August-08-21
100649	May-22-20		117180	October-03-20		142679	March-17-20
100650	May-22-20		117188	December-12-20		142766	August-14-20
100683	September-11-20		117189	December-12-20		142767	May-22-20
100753	December-12-20		117200	March-17-20		142768	May-22-20
100754	December-12-20		117215	September-21-20		144036	September-21-19
100823	March-17-20		117216	September-21-20		144069	December-12-20
100871	March-17-20		117217	September-21-20		144070	December-12-20
100872	March-17-20		117222	September-21-20		144674	September-21-20
100943	March-17-20		117234	September-11-20		144675	September-21-20
101859	December-12-20		117235	September-11-20		145049	September-21-20
101860	December-12-20		117783	April-09-20		145387	October-03-20
101861	December-12-20		120332	March-17-20		145388	October-03-20
101898	September-21-20		122436	September-13-20		145436	September-11-20
101899	September-21-20		122455	April-09-20		145488	September-21-20
102012	July-05-20		124964	December-08-20		145489	September-21-20
102023	May-26-20		124965	December-08-20		145490	September-21-20
102024	May-26-20		125661	March-17-20		152323	April-09-20
102025	March-17-20		126258	May-22-20		155441	March-17-20
102081	June-07-20		126329	December-25-20		155543	May-22-20
102086	September-21-20		126330	December-25-20		155584	February-07-20
102104	December-25-20		126331	September-21-19		155585	February-07-20
102105	December-25-20		126883	December-12-20		156140	September-21-20
102107	March-17-20		126982	September-21-20		156847	December-08-20
102108	March-17-20		127571	December-08-20		157524	September-11-20
110076	September-21-20		127572	December-08-20		158116	December-12-20
114841	February-07-20		127648	September-21-20		158149	September-21-20
114883	September-21-19		127649	September-21-20		158168	September-11-20
114884	September-21-20		128336	October-03-20		158211	May-10-20
114974	May-22-20		128339	December-12-20		158212	May-10-20
115616	December-08-20		128340	December-12-20		158245	September-21-20
115937	May-22-20		128341	December-12-20		158781	August-14-20
115972	September-21-20		128354	March-17-20		158803	July-05-20
116012	September-21-20		128884	September-21-20		158811	March-17-20
116022	July-05-20		128885	September-21-20		158906	December-25-20
116263	April-06-20		128895	September-11-20		159459	March-17-20
116282	April-09-20		128896	September-11-20		159460	March-17-20
116283	April-09-20		128975	September-21-20		159461	March-17-20
116463	December-25-20		129028	July-05-20		159462	March-17-20
116464	March-17-20		129029	July-05-20		159463	March-17-20
116465	March-17-20		129548	March-17-20		162202	December-12-20
116529	April-18-20		129601	March-17-20		162936	September-21-20

Watershed							
Claim	Anniversary		Claim	Anniversary		Claim	Anniversary
162937	September-21-20		195527	March-17-20		212189	July-05-20
162938	September-21-20		196288	September-13-20		212196	September-21-20
162939	September-21-20		196289	September-13-20		212213	March-17-20
163531	February-07-20		200073	December-08-20		212214	March-17-20
163532	February-07-20		200074	December-08-20		212220	March-17-20
163640	October-03-20		200075	December-08-20		212221	March-17-20
163641	October-03-20		200076	December-08-20		212809	December-25-20
163643	December-12-20		201368	May-22-20		212871	March-17-20
163644	December-12-20		201414	February-07-20		212910	March-17-20
163645	December-12-20		201453	December-25-20		212911	March-17-20
164162	March-17-20		201454	September-21-19		214974	March-17-20
164268	September-21-20		202075	May-22-20		215739	September-13-20
164314	March-17-20		202174	December-08-20		216440	September-13-20
164823	May-26-20		202754	September-21-20		217124	April-09-20
164883	March-17-20		202821	February-07-20		220190	December-08-20
164884	March-17-20		203438	December-12-20		220871	March-17-20
164885	June-07-20		203452	March-17-20		220990	May-22-20
164948	April-18-20		203463	September-21-20		220991	May-22-20
164951	March-17-20		203464	September-21-20		221583	September-21-19
164952	March-17-20		204083	September-21-20		221612	December-12-20
164953	March-17-20		204091	July-05-20		221613	December-12-20
165547	March-17-20		204094	September-21-20		221614	December-12-20
165548	March-17-20		204115	March-17-20		222207	September-21-20
166272	March-17-20		204166	March-17-20		222208	September-21-20
167563	September-13-20		204176	September-21-20		222209	September-21-20
167564	April-09-20		204948	April-09-20		222310	December-08-20
168256	September-13-20		206256	April-09-20		222888	September-21-20
170780	December-08-20		208096	December-08-20		222958	February-07-20
170799	December-08-20		209423	December-12-20		223574	October-03-20
172127	January-15-20		209424	May-22-20		223575	October-03-20
172132	May-22-20		209425	May-22-20		224186	September-21-20
172133	May-22-20		209470	September-11-20		224187	September-21-20
172180	February-07-20		209508	September-21-19		224188	September-21-20
172181	February-07-20		209528	December-12-20		224189	September-21-20
173604	September-21-20		209529	December-12-20		224206	September-21-20
177638	July-05-20		209530	December-12-20		224228	March-17-20
177643	March-17-20		209531	December-12-20		224229	March-17-20
177711	March-17-20		210757	December-08-20		224234	March-17-20
177715	September-21-20		210833	September-21-20		224235	March-17-20
178309	March-17-20		210834	September-21-20		224236	March-17-20
178411	March-17-20		210835	September-21-20		224289	March-17-20
178412	March-17-20		211523	December-12-20		224292	September-21-20
178413	March-17-20		211524	December-12-20		224295	March-17-20
179119	March-17-20		211525	December-12-20		226963	December-08-20
181746	April-09-20		211526	December-12-20		226964	December-08-20
191669	September-21-20		211545	March-17-20		226965	December-08-20
194199	March-17-20		211546	March-17-20		226966	December-08-20
194822	August-14-20		212122	May-10-20		227659	March-17-20
195526	March-17-20		212155	September-21-20		228300	September-11-20

Watershed							
Claim	Anniversary		Claim	Anniversary		Claim	Anniversary
230334	December-12-20		260166	March-17-20		279606	September-21-20
230335	December-12-20		260167	March-17-20		279621	December-04-20
230349	March-17-20		260237	March-17-20		279690	September-21-20
230350	March-17-20		260241	September-21-20		280221	September-21-20
230960	September-21-20		260262	December-25-20		280233	July-05-20
230986	September-21-20		260263	December-25-20		280235	March-17-20
231001	May-26-20		260264	December-25-20		280237	July-05-20
231002	March-17-20		260936	March-17-20		280246	May-26-20
231003	March-17-20		262159	March-17-20		280247	May-26-20
231004	March-17-20		263482	April-09-20		280248	March-17-20
231005	March-17-20		266688	December-08-20		280306	March-17-20
231006	March-17-20		267391	March-17-20		280326	March-17-20
231007	March-17-20		267497	May-22-20		280886	March-17-20
231574	March-17-20		267498	May-22-20		280930	March-17-20
231577	September-21-20		268189	March-17-20		280989	August-14-20
231578	September-21-20		268190	March-17-20		280990	March-17-20
231598	December-25-20		268191	March-17-20		282226	March-17-20
231599	March-17-20		268192	March-17-20		283021	April-06-20
231600	March-17-20		268270	December-25-20		283046	April-09-20
231601	March-17-20		268271	December-25-20		286956	March-17-20
231681	March-17-20		268337	March-17-20		287465	March-17-20
231682	March-17-20		268842	March-17-20		287610	February-07-20
232268	March-17-20		268888	March-17-20		288184	December-12-20
232269	March-17-20		270942	September-13-20		288185	December-12-20
232975	March-17-20		272320	April-09-20		288779	September-21-20
234289	April-09-20		274188	August-08-21		288780	September-21-20
234290	April-09-20		274189	August-08-21		290364	April-06-20
235663	April-09-20		274821	March-17-20		290382	September-13-20
235664	April-09-20		275509	February-07-20		291725	April-09-20
240305	September-21-20		275510	February-07-20		294203	March-17-20
247863	September-21-20		276049	December-25-20		294294	January-15-20
257498	February-07-20		276170	September-21-20		294295	January-15-20
257550	September-21-19		276769	December-08-20		294304	May-22-20
257551	September-21-20		276836	September-21-20		294305	May-22-20
257585	December-12-20		277039	September-21-20		295531	September-21-20
258177	September-21-20		277420	February-07-20		296275	February-07-20
258178	September-21-20		277536	October-03-20		296276	February-07-20
258816	September-21-20		278069	September-21-20		296906	September-21-20
258817	September-21-20		278070	September-21-20		296911	September-21-20
258884	September-11-20		278091	September-11-20		296912	September-21-20
258885	February-07-20		278143	May-10-20		296922	December-04-20
259513	October-03-20		278180	September-21-20		296923	September-11-20
259516	December-12-20		278203	September-21-20		297523	July-05-20
259534	March-17-20		278880	September-21-20		297546	March-17-20
259548	September-21-20		278881	September-21-20		297612	June-07-20
259549	September-21-20		278882	September-21-20		297684	March-17-20
259554	December-25-20		278956	February-07-20		298290	March-17-20
260120	September-21-20		278957	February-07-20		298291	March-17-20
260164	May-26-20		279599	March-17-20		298292	March-17-20

Watershed							
Claim	**Anniversary**		**Claim**	**Anniversary**			
299027	March-17-20		326235	August-14-20			
307609	September-21-20		326776	September-21-20			
310778	March-17-20		326777	September-21-20			
310779	March-17-20		326801	September-21-20			
310780	March-17-20		326835	July-05-20			
310781	March-17-20		326837	March-17-20			
311394	May-22-20		326846	March-17-20			
311438	February-07-20		327417	September-21-20			
311986	September-21-19		327436	December-25-20			
312124	September-21-20		327486	March-17-20			
312656	September-21-20		327487	March-17-20			
312657	September-21-20		328083	March-17-20			
312658	September-21-20		328798	March-17-20			
312659	September-21-20		330125	September-13-20			
312665	September-21-20		335267	September-21-20			
312666	September-21-20		335268	September-21-20			
312793	March-17-20		339925	March-17-20			
312798	May-26-20		340658	March-17-20			
312799	March-17-20		341957	September-13-20			
313368	December-08-20		342655	September-13-20			
313436	September-21-20						
314116	October-03-20		510				
314119	December-12-20						
314120	December-12-20						
314121	December-12-20						
314145	March-17-20						
314708	March-17-20						
314714	September-21-20						
314715	September-21-20						
314731	March-17-20						
314789	March-17-20						
320668	December-08-20						
320669	December-08-20						
320934	April-09-20						
322818	December-08-20						
322897	August-08-21						
323508	March-17-20						
324116	May-22-20						
324201	September-21-19						
324231	December-12-20						
324232	December-12-20						
324233	December-12-20						
325419	December-08-20						
325420	December-08-20						
325564	September-11-20						
326155	October-03-20						
326157	December-12-20						
326158	December-12-20						
326201	September-11-20						

TAAC East Property

TAAC Property East		Number of Claims = 32			Surface Area = 300 Ha		
Claim	**Anniversary**						
102035	January-20-20						
102036	January-20-20						
118703	October-26-20						
121962	October-26-20						
125409	January-20-20						
129559	January-20-20						
148752	January-20-21						
158832	January-20-20						
158884	January-20-21						
162163	January-20-21						
164888	January-11-20						
167005	September-21-21						
177655	January-20-20						
179917	October-26-20						
185964	October-26-20						
189417	January-20-20						
204175	January-20-21						
204189	January-11-20						
212800	January-11-20						
221584	January-20-21						
224578	January-20-21						
231576	January-11-20						
232617	January-20-21						
245979	September-21-21						
280623	January-20-21						
281772	October-26-20						
294902	January-20-21						
312151	January-20-20						
314662	January-20-20						
314713	January-11-20						
318282	January-20-20						
327416	January-20-21						
32							

TAAC West Property

TAAC West		Number of Claims = 822			Surface Area = 17,447 Ha		
Claim	Anniversary		Claim	Anniversary		Claim	Anniversary
100008	February-05-20		111734	October-20-20		121266	September-21-21
100009	February-05-20		111735	September-21-21		121287	September-21-21
100182	October-19-20		111736	April-14-20		122141	February-05-21
100374	March-17-20		111753	March-24-21		122276	September-21-20
101889	May-24-20		111813	May-26-20		122277	September-21-20
102369	September-21-21		112039	August-04-20		124813	December-15-21
103341	October-20-21		112685	March-01-21		124814	December-15-21
103405	June-30-20		112967	October-20-21		124815	December-15-21
103406	May-03-21		114966	October-19-20		124818	March-01-21
103940	May-03-21		114967	March-24-21		124819	March-01-21
104115	September-21-21		115606	February-05-20		124820	March-01-21
104130	September-21-21		115607	February-05-20		125482	September-21-21
104131	September-21-21		117027	June-05-20		125628	May-24-20
104448	September-21-20		117028	March-17-20		125967	January-15-21
104449	September-21-20		117203	May-24-20		126958	October-20-20
104450	September-21-20		117266	January-20-20		127687	March-17-20
104574	June-05-20		118524	June-05-20		128075	August-04-20
104575	June-05-20		118525	June-05-20		128076	August-04-20
105564	January-15-21		118526	June-05-20		128077	August-04-20
105565	January-15-21		118527	June-05-20		128183	January-15-21
105566	January-15-21		118972	September-21-20		128360	May-24-20
106012	August-11-20		118973	September-21-20		128361	May-24-20
106783	October-20-20		118981	November-17-21		128390	September-21-20
107112	March-16-19		119035	May-03-21		129099	September-21-20
107113	March-16-19		119036	May-03-21		131171	October-10-21
107460	August-04-20		119067	September-21-20		131455	May-03-21
107461	August-04-20		119068	January-15-21		131759	September-21-21
107870	December-15-21		119114	May-24-20		131760	October-20-21
107871	December-15-21		119209	May-03-21		131762	September-21-20
107874	March-01-21		119339	September-21-21		131777	March-24-21
107875	March-01-21		119386	September-21-21		131859	November-17-21
107881	December-15-21		119519	September-21-20		131860	November-17-21
109010	August-11-20		119520	October-20-20		131865	September-21-21
109223	September-21-20		119715	September-21-20		131873	March-01-21
109224	September-21-20		119716	September-21-20		132061	September-21-20
109239	September-21-20		119717	September-21-20		132062	October-19-20
109240	September-21-20		119902	September-21-20		132360	September-21-20
109726	May-03-21		119935	May-24-20		132361	September-21-20
109764	August-11-20		120076	September-21-20		132490	September-21-20
110600	March-25-20		120077	September-21-20		133137	February-13-20
110938	March-01-21		120078	September-21-20		133138	September-21-21
111246	March-24-21		120268	August-11-20		133139	October-20-21
111259	February-13-20		120269	August-11-20		133176	November-17-21
111260	September-21-21		120576	May-03-21		133603	September-21-20
111261	September-21-21		120597	March-01-21		133664	September-21-20
111262	October-20-21		120598	March-01-21		133837	September-21-21
111661	April-14-20		120599	March-01-21		134470	September-21-21
111666	January-15-21		120600	March-01-21		134945	January-15-21
111667	January-15-21		121265	September-21-21		136397	March-25-20

TAAC West							
Claim	Anniversary		Claim	Anniversary		Claim	Anniversary
136819	December-15-21		150100	February-05-21		162425	September-21-20
136820	December-15-21		150333	September-21-20		162956	May-24-20
136823	March-01-21		150478	September-21-20		162988	June-05-20
136833	December-15-21		151936	October-11-21		163114	September-21-20
137467	September-21-21		151964	October-19-20		163115	September-21-20
137521	September-21-20		151968	March-01-21		163773	June-05-20
137745	August-11-20		152702	March-24-21		164165	May-24-20
137746	August-11-20		152703	October-19-20		164166	May-24-20
137747	September-21-21		152704	March-01-21		164396	December-15-21
137748	September-21-21		153136	March-25-20		164397	December-15-21
139613	August-04-20		153137	March-25-20		164414	October-20-21
139614	August-04-20		153410	September-21-20		164415	October-20-21
139694	August-04-20		153806	May-03-21		164475	June-30-20
140410	February-13-21		153882	September-21-20		164476	June-30-20
140411	February-13-21		154216	March-17-20		165010	June-30-21
140412	February-13-21		154217	March-17-20		165032	May-24-20
141021	January-15-21		154218	February-05-20		165179	May-03-21
141022	January-15-21		154219	February-05-20		165247	August-11-20
141123	September-21-20		156250	October-19-20		165248	May-24-20
141439	February-05-20		156347	September-21-20		165281	October-19-20
142130	May-24-20		156581	March-25-20		165820	September-21-21
142454	June-05-20		157460	March-16-19		165821	September-21-21
142455	March-25-20		157491	May-24-20		166327	September-21-21
142852	December-15-21		157492	June-05-20		166328	September-21-21
142973	October-26-20		157687	May-24-20		166343	September-21-21
143373	June-05-20		157870	August-11-20		166496	October-20-20
143743	August-11-20		157884	September-21-21		166497	October-20-20
143757	August-11-20		157885	September-21-21		167931	November-17-21
144216	September-21-21		158243	August-11-20		168652	September-21-20
145411	May-24-20		158287	September-21-20		169731	June-05-20
145412	May-24-20		158288	May-03-21		170506	December-15-21
146368	February-13-21		158289	December-15-21		170775	March-17-20
146369	February-13-21		158362	May-03-21		170776	February-05-20
146774	March-16-19		159052	May-03-21		170801	May-24-20
147460	May-03-21		159053	May-03-21		170802	March-17-20
147759	April-14-20		159258	August-04-20		172575	May-03-21
147833	October-20-20		159259	August-04-20		172634	January-15-21
147836	May-26-20		159260	August-04-20		172648	September-21-20
147837	April-14-20		159702	September-21-21		174958	February-13-21
147840	September-21-20		159731	September-21-21		175038	January-15-21
147856	March-24-21		160471	February-13-21		175604	September-21-20
148052	October-19-20		160472	February-13-21		175605	September-21-20
148321	August-11-20		160541	January-15-21		175632	March-01-20
148452	November-17-21		161866	April-14-20		175723	March-01-21
148453	November-17-21		161934	September-21-21		175724	March-01-21
149217	October-19-20		161935	October-20-20		176703	May-03-21
149436	October-20-20		161936	April-14-20		176704	May-03-21
149437	October-20-20		162162	January-20-20		176920	August-11-20
149739	September-21-21		162164	January-20-20		176921	August-11-20

TAAC West							
Claim	Anniversary		Claim	Anniversary		Claim	Anniversary
176976	September-21-21		190361	August-11-20		210847	May-24-20
177169	June-05-20		191808	September-21-20		210877	May-24-20
177174	May-24-20		191809	October-20-20		210878	March-17-20
177289	September-21-20		191810	September-21-20		210974	January-15-21
177599	September-21-20		192218	January-15-21		210975	January-15-21
177798	January-15-21		192219	January-15-21		212498	February-13-21
178471	May-24-20		193036	March-01-21		213918	April-14-20
178478	June-30-21		194480	March-01-21		214380	September-21-20
178479	June-30-21		195892	October-10-21		214391	September-21-20
178584	May-03-21		195962	October-20-20		214493	April-14-20
178601	March-01-21		195973	October-20-21		214494	May-26-20
178709	October-20-20		196539	May-26-20		214495	September-21-20
179515	September-21-20		196575	November-17-21		214599	October-11-21
179603	January-15-21		196588	September-21-21		215371	February-05-21
180224	September-21-20		197235	September-21-20		218697	December-15-21
181578	March-25-20		197236	September-21-20		218698	December-15-21
181579	March-25-20		197851	March-01-21		218699	December-15-21
182031	December-15-21		198385	September-21-20		218700	December-15-21
182032	December-15-21		198386	January-15-21		218701	December-15-21
182039	December-15-21		198669	September-21-21		218702	March-01-21
182734	September-21-20		198670	September-21-21		218703	March-01-21
183941	May-03-21		199895	October-20-21		218708	December-15-21
183975	June-30-21		200080	May-24-20		218709	December-15-21
183976	June-30-21		200500	September-21-21		219304	January-15-21
184029	May-24-20		200992	March-01-21		219348	September-21-21
184030	May-24-20		201616	October-26-20		219349	October-26-20
184361	September-21-21		201617	October-26-20		219405	September-21-20
184438	October-20-20		201618	October-26-20		219406	September-21-20
184501	May-26-20		201668	September-21-20		219670	March-17-20
184520	October-11-21		201701	March-25-20		219671	February-05-20
184628	March-01-21		201702	March-25-20		219672	February-05-20
184629	March-01-21		201703	March-25-20		220192	May-24-20
185007	September-21-20		202069	October-19-20		220193	March-17-20
185008	September-21-20		203048	August-11-20		220326	May-24-20
185044	November-17-21		203065	August-11-20		221703	September-21-20
185058	March-01-21		204228	August-04-20		221704	September-21-20
185171	September-21-20		204498	August-04-20		221705	September-21-20
185497	October-20-20		204570	March-01-21		222900	May-24-20
185738	September-21-20		205314	October-19-20		222934	March-17-20
186157	October-10-21		206599	September-21-20		222935	June-05-20
186231	September-21-20		206600	March-01-21		223174	October-20-21
186482	September-21-21		206659	September-21-21		223595	May-24-20
187563	January-15-21		208078	February-05-20		223596	May-24-20
187896	May-26-20		208098	March-17-20		224183	August-11-20
188811	December-15-21		208533	March-25-20		224435	May-03-21
189463	October-26-20		208757	May-24-20		224436	May-03-21
189515	September-21-20		209855	August-11-20		224458	March-01-21
189981	January-15-21		210113	October-19-20		225109	September-21-21
190360	August-11-20		210382	August-04-20		225130	September-21-21

TAAC West							
Claim	Anniversary		Claim	Anniversary		Claim	Anniversary
225131	September-21-21		244639	March-01-21		258852	March-17-20
225282	October-20-20		245023	March-24-21		259537	May-24-20
225283	January-15-21		245040	September-21-21		259538	May-24-20
226160	October-26-20		245041	September-21-21		259585	January-20-20
226944	February-05-20		245464	October-20-20		259718	June-05-20
227206	May-03-21		245465	January-15-21		259719	June-05-20
227273	December-15-21		245749	September-21-20		261029	October-20-21
227274	January-15-21		246324	January-15-21		261059	May-03-21
227622	May-24-20		246381	September-21-21		261178	March-01-21
228959	October-19-20		247084	September-21-21		261179	February-13-21
229409	August-04-20		250108	March-16-19		261260	January-15-21
229410	August-04-20		250847	May-24-20		261782	May-03-21
229411	August-04-20		251067	August-11-20		262513	September-21-21
230524	June-05-20		251101	October-10-21		263191	October-20-20
230957	August-11-20		251111	April-14-20		263192	October-20-20
231141	January-15-21		251112	April-14-20		263193	October-20-20
231318	May-03-21		251113	April-14-20		263196	April-14-20
231730	September-21-20		251115	January-15-21		263275	October-11-21
231762	May-24-20		251195	September-21-20		263294	November-17-21
231896	September-21-20		251196	September-21-20		263807	September-21-20
233288	October-20-20		251209	March-24-21		263947	September-21-20
236067	December-15-21		251210	October-11-21		264581	March-24-21
236070	March-01-21		251772	May-26-20		264582	October-19-20
236071	March-01-21		251788	October-11-21		264583	March-01-21
236332	September-21-20		251807	September-21-21		264603	September-21-21
236333	September-21-20		251816	March-01-21		264604	September-21-21
237453	March-01-21		251817	March-01-21		266155	March-17-20
237679	March-25-20		252549	February-13-20		266156	February-05-20
237680	March-25-20		252796	October-20-20		266372	January-15-21
238885	January-15-21		252797	October-20-20		266373	January-15-21
238982	August-11-20		253060	September-21-20		266691	May-24-20
238983	August-11-20		253801	September-21-20		266692	May-24-20
239393	September-21-20		253802	September-21-20		266693	March-17-20
240287	August-04-20		253803	March-01-21		266694	March-17-20
241141	February-13-21		253841	September-21-21		267814	March-25-20
241142	February-13-21		254290	September-21-20		268348	September-21-20
241730	January-15-21		254387	January-15-21		268361	October-20-21
241851	September-21-20		255583	December-15-21		268362	October-20-21
242578	September-21-20		255584	December-15-21		268485	June-30-21
242579	September-21-20		255585	December-15-21		269114	May-03-21
243071	October-10-21		255587	March-01-21		269115	May-03-21
243238	May-24-20		255611	September-21-21		269141	March-01-21
243665	September-21-21		256114	January-15-21		269142	March-01-21
243666	March-24-21		256115	January-15-21		269818	September-21-21
243668	April-14-20		256637	September-21-20		269819	September-21-21
243739	May-26-20		256791	September-21-20		269925	March-24-21
243785	March-01-21		258154	October-19-20		269948	March-24-21
243997	May-24-20		258155	October-19-20		270001	May-26-20
244615	May-03-21		258156	October-20-20		270560	March-01-21

TAAC West							
Claim	**Anniversary**		**Claim**	**Anniversary**		**Claim**	**Anniversary**
271315	September-21-21		288251	October-19-20		300149	September-21-20
271331	February-13-20		288252	March-24-21		300150	September-21-20
271332	February-13-20		288939	September-21-20		300350	September-21-20
271333	November-17-21		288940	September-21-20		300432	May-26-20
271334	September-21-21		288941	October-20-20		300455	October-11-21
271879	November-17-21		289138	September-21-21		301188	September-21-21
273104	September-21-20		289168	September-21-21		301209	September-21-21
273105	September-21-20		289180	September-21-21		302455	March-01-21
274089	February-05-20		289383	October-20-20		302456	March-01-21
274114	March-17-20		289384	October-20-20		302523	September-21-21
274115	March-17-20		289385	October-20-20		302524	September-21-21
275752	September-21-21		290023	October-10-21		303682	September-21-21
276143	March-24-21		290273	September-21-20		303778	May-26-20
276904	October-20-20		290871	January-15-21		304794	December-15-21
277578	September-21-20		291505	April-14-20		304795	December-15-21
277579	May-03-21		291506	March-25-20		304796	December-15-21
277632	September-21-20		292179	September-21-20		304799	March-01-21
277633	September-21-20		293348	September-21-20		304819	December-15-21
277634	September-21-20		293349	September-21-20		304927	March-25-20
277853	February-13-21		293897	December-15-21		305454	October-26-20
278254	June-05-20		294901	January-20-20		305955	May-03-21
278261	May-24-20		294992	October-20-20		306259	August-11-20
278262	May-24-20		294993	October-19-20		306260	August-11-20
278411	September-21-20		294994	October-19-20		306281	August-11-20
278412	September-21-20		295775	September-21-20		306282	August-11-20
278544	June-05-20		296232	March-17-20		307752	August-04-20
278545	June-05-20		296443	May-03-21		308974	February-13-21
279159	September-21-20		296502	September-21-20		311042	September-21-21
279160	January-15-21		296503	September-21-20		311561	December-15-21
279314	May-03-21		296504	September-21-20		311575	December-15-21
279376	May-24-20		296505	September-21-20		311576	December-15-21
279738	May-03-21		296840	May-03-21		312087	October-19-20
280419	May-03-21		296947	January-20-20		312201	October-26-20
280430	March-01-21		296988	May-24-20		312202	October-26-20
280796	September-21-20		297178	May-24-20		312203	October-26-20
281080	September-21-21		297179	May-24-20		312256	September-21-20
281081	September-21-21		297805	November-17-21		313076	September-21-21
281298	October-20-20		297806	October-20-21		313450	May-24-20
281519	January-15-21		298162	August-11-20		314150	May-24-20
284612	March-01-21		299079	May-03-21		315677	February-13-21
285215	May-03-21		299080	May-03-21		316701	May-03-21
285273	October-26-20		299081	May-03-21		317027	September-21-21
285320	September-21-20		299101	March-01-21		317102	April-14-20
285795	January-15-21		299102	March-01-21		317103	April-14-20
285796	January-15-21		299420	September-21-20		317105	January-15-21
285819	September-21-20		299773	April-14-20		317168	September-21-20
287412	August-04-20		299852	March-24-21		317696	March-24-21
287413	August-04-20		299857	September-21-20		317697	March-24-21
288250	October-19-20		300121	May-24-20		317698	October-11-21

TAAC West							
Claim	Anniversary		Claim	Anniversary			
317792	November-17-21		333127	September-21-21			
317794	March-25-21		333358	September-21-20			
317815	March-01-21		335895	August-04-20			
318527	September-21-21		337183	January-15-21			
318528	October-19-20		337344	September-21-20			
318529	March-01-21		337858	November-17-21			
319045	September-21-21		337859	November-17-21			
319817	September-21-20		338487	August-11-20			
320674	March-17-20		338697	May-24-20			
320675	March-17-20		338816	October-20-21			
321390	September-21-21		338817	October-20-21			
321976	March-01-21		339200	April-14-20			
322456	May-03-21		339207	January-15-21			
322457	May-03-21		339269	October-20-20			
322531	September-21-20		339348	October-11-21			
322816	February-05-20		339388	June-30-20			
324807	October-20-20		339716	September-21-20			
324984	September-21-20		340089	March-01-21			
324985	September-21-20		340274	October-20-20			
324986	October-20-20		340424	January-15-21			
325622	September-21-20		340768	September-21-21			
325663	September-21-20		340947	September-21-21			
325781	August-11-20		341130	September-21-20			
325782	September-21-21		343042	December-15-21			
325783	September-21-21		343693	October-26-20			
326172	May-24-20		344244	September-21-20			
326298	June-05-20		344559	August-11-20			
326302	May-24-20		344574	September-21-21			
326402	December-15-21		344575	September-21-21			
326772	August-11-20		344576	September-21-21			
326773	May-24-20		200124	October-31-19			
326918	October-20-21		200778	October-31-19			
326919	October-20-21		227676	October-31-19			
326920	October-20-21		227677	October-31-19			
326981	May-03-21		266739	October-31-19			
327890	February-13-21		274162	October-31-19			
328478	January-15-21		286813	October-31-19			
329814	January-15-21		115829	October-31-19			
329875	September-21-21						
329877	May-26-20		822				
329894	October-11-21						
330484	October-11-21						
330485	October-11-21						
330524	March-01-21						
331241	March-24-21						
331242	March-24-21						
331243	September-21-21						
331263	February-13-20						
331264	September-21-21						

Huffman Lake Option Property

Huffman Lake Option		Number of Claims = 43			Surface Area = 629 Ha		
Claim	**Anniversary**						
110078	August-23-20						
123489	November-13-20						
130134	August-23-20						
130922	August-23-20						
133113	August-23-20						
135491	November-13-20						
139061	August-23-20						
141529	November-13-20						
141530	November-13-20						
141531	November-13-20						
147628	August-23-20						
149194	August-23-20						
176242	August-23-20						
180694	November-13-20						
183601	August-23-20						
187452	November-13-20						
187453	November-13-20						
187454	November-13-20						
187455	November-13-20						
195740	August-23-20						
195741	August-23-20						
195751	August-23-20						
199674	November-13-20						
216662	November-13-20						
235281	November-13-20						
236129	November-13-20						
250331	August-23-20						
250347	August-23-20						
259880	August-23-20						
262384	August-23-20						
262385	August-23-20						
262386	August-23-20						
271293	August-23-20						
278863	August-23-20						
291331	November-13-20						
301171	August-23-20						
303466	November-13-20						
307615	August-23-20						
316906	August-23-20						
316907	August-23-20						
320156	November-13-20						
332744	August-23-20						
342225	November-13-20						
43							

Falcon Gold Option Property

Falcon Gold Option		Number of Claims = 30			Surface Area = 472 Ha	
Claim	**Anniversary**					
103496	September-23-20					
109931	September-14-20					
119734	November-02-20					
122718	November-02-20					
129116	November-02-20					
133589	August-19-20					
137582	August-19-20					
165062	September-23-20					
174204	November-02-20					
193139	November-02-20					
194534	September-23-20					
198930	November-02-20					
209873	September-14-20					
210921	November-02-20					
219473	August-19-20					
226770	July-09-20					
243810	August-19-20					
254720	October-17-20					
256837	September-23-20					
259080	September-23-20					
259689	November-02-20					
269010	September-23-20					
282736	July-09-20					
283858	September-14-20					
291934	October-17-20					
301706	November-02-20					
304615	September-14-20					
308190	November-02-20					
317833	August-19-20					
325675	September-23-20					
30						

GoldON Chester Property

GoldON Chester		Number of Claims = 4			Surface Area = 29 Ha		
Claim	**Anniversary**						
102098	June-04-19						
102099	June-04-19						
231590	June-04-19						
280319	June-04-19						
4							

GoldON Neville-Potier Property

GoldON Neville-Potier		Number of Claims = 297			Surface Area = 6,563 Ha		
Claim	Anniversary		Claim	Anniversary		Claim	Anniversary
100159	March-16-19		128387	March-16-19		175246	March-16-19
100363	March-16-19		128969	March-16-19		175247	March-16-19
100364	March-16-19		128970	March-16-19		175248	March-16-19
100949	March-16-19		129803	March-16-19		175787	March-16-19
102083	March-16-19		129804	March-16-19		175788	March-16-19
102084	March-16-19		129909	March-16-19		177065	March-16-19
102085	March-16-19		131207	March-16-19		177078	March-16-19
102335	March-16-19		135492	March-16-19		177079	March-16-19
102336	March-16-19		135956	March-16-19		177228	March-16-19
104627	March-16-19		141532	March-16-19		177229	March-16-19
105073	March-16-19		143362	March-16-19		177713	March-16-19
106326	March-16-19		143415	March-16-19		178795	March-16-19
106327	March-16-19		143416	March-16-19		180117	March-16-19
106328	March-16-19		145483	March-16-19		181920	March-16-19
106329	March-16-19		145807	March-16-19		184384	March-16-19
108284	March-16-19		147800	March-16-19		184385	March-16-19
110088	March-16-19		150875	March-16-19		184386	March-16-19
111691	March-16-19		150876	March-16-19		184394	March-16-19
112212	March-16-19		151864	March-16-19		184395	March-16-19
115969	March-16-19		156281	March-16-19		185703	March-16-19
116095	March-16-19		156313	March-16-19		187456	March-16-19
116096	March-16-19		156314	March-16-19		191228	March-16-19
116097	March-16-19		156344	March-16-19		191769	March-16-19
116604	March-16-19		156345	March-16-19		191770	March-16-19
116605	March-16-19		157459	March-16-19		191771	March-16-19
116606	March-16-19		157473	March-16-19		194826	March-16-19
116990	March-16-19		157474	March-16-19		195916	March-16-19
117011	March-16-19		157475	March-16-19		202333	March-16-19
117012	March-16-19		157476	March-16-19		202334	March-16-19
117055	March-16-19		157477	March-16-19		202769	March-16-19
117605	March-16-19		157527	March-16-19		202770	March-16-19
118581	March-16-19		157528	March-16-19		202771	March-16-19
118586	March-16-19		158241	March-16-19		202823	March-16-19
119497	March-16-19		158242	March-16-19		202824	March-16-19
119517	March-16-19		161894	March-16-19		202825	March-16-19
122833	March-16-19		161901	March-16-19		204056	March-16-19
123627	March-16-19		162955	March-16-19		204170	March-16-19
123628	March-16-19		162971	March-16-19		204171	March-16-19
123629	March-16-19		163535	March-16-19		210861	March-16-19
123963	March-16-19		163858	March-16-19		210862	March-16-19
123964	March-16-19		163859	March-16-19		211420	March-16-19
126185	March-16-19		164265	March-16-19		212442	March-16-19
127672	March-16-19		164266	March-16-19		212443	March-16-19
127673	March-16-19		164887	March-16-19		212799	March-16-19
127674	March-16-19		165523	March-16-19		213444	March-16-19
127836	March-16-19		165554	March-16-19		213445	March-16-19
127837	March-16-19		168479	March-16-19		214448	March-16-19
128225	March-16-19		168480	March-16-19		214461	March-16-19
128365	March-16-19		171459	March-16-19		214462	March-16-19

Goldon Neville Potier							
Claim	Anniversary		Claim	Anniversary		Claim	Anniversary
216082	March-16-19		253022	March-16-19		295769	March-16-19
217282	March-16-19		254185	June-14-19		296211	March-16-19
218096	March-16-19		254327	March-16-19		296218	March-16-19
221138	March-16-19		258353	March-16-19		296220	March-16-19
221139	March-16-19		258354	March-16-19		296221	March-16-19
221172	March-16-19		258382	March-16-19		296280	March-16-19
221701	March-16-19		258383	March-16-19		296281	March-16-19
222917	March-16-19		258839	March-16-19		296282	March-16-19
222918	March-16-19		258840	March-16-19		297317	March-16-19
222919	March-16-19		258841	March-16-19		297613	March-16-19
222959	March-16-19		259764	March-16-19		297614	March-16-19
223119	March-16-19		260238	March-16-19		298295	March-16-19
224182	March-16-19		260239	March-16-19		298296	March-16-19
224949	March-16-19		260240	March-16-19		299113	June-14-19
224950	March-16-19		260944	March-16-19		299801	March-16-19
224951	March-16-19		268256	March-16-19		299802	March-16-19
224974	March-16-19		268257	March-16-19		302382	March-16-19
227384	March-16-19		269892	March-16-19		302892	March-16-19
229175	March-16-19		272484	March-16-19		303467	March-16-19
229176	March-16-19		276352	March-16-19		303468	March-16-19
229681	March-16-19		276850	March-16-19		310741	March-16-19
229682	March-16-19		276867	March-16-19		310893	June-14-19
230242	March-16-19		276868	March-16-19		312717	March-16-19
230645	March-16-19		276869	March-16-19		312750	March-16-19
230646	March-16-19		276878	March-16-19		314710	March-16-19
230647	March-16-19		277424	March-16-19		314711	March-16-19
231575	March-16-19		278916	March-16-19		314712	March-16-19
232248	March-16-19		278962	March-16-19		316052	March-16-19
232440	June-14-19		279096	March-16-19		317137	March-16-19
234698	March-16-19		279685	March-16-19		319014	March-16-19
234699	March-16-19		279686	March-16-19		320157	March-16-19
236130	March-16-19		281464	March-16-19		320316	March-16-19
237356	March-16-19		282196	March-16-19		324918	March-16-19
237357	March-16-19		282705	March-16-19		324919	March-16-19
238857	March-16-19		282706	March-16-19		324957	March-16-19
238858	March-16-19		283284	March-16-19		325508	March-16-19
241275	June-14-19		283285	March-16-19		326350	March-16-19
241276	March-16-19		283758	March-16-19		327413	March-16-19
241277	March-16-19		283759	March-16-19		327414	March-16-19
241278	March-16-19		288393	March-16-19		327415	March-16-19
241313	March-16-19		288394	March-16-19		338743	March-16-19
242753	March-16-19		288429	March-16-19		338744	March-16-19
242778	March-16-19		289517	March-16-19		339239	March-16-19
246256	March-16-19		289518	March-16-19		339928	March-16-19
246257	March-16-19		289519	March-16-19		340095	June-14-19
251145	March-16-19		291332	March-16-19		340096	June-14-19
253019	March-16-19		291333	March-16-19		341172	March-16-19
253020	March-16-19		291981	June-14-19		341652	March-16-19
253021	March-16-19		295743	March-16-19		341653	March-16-19

Goldon Neville Potier							
Claim	Anniversary						
342888	March-16-19						
342889	March-16-19						
344923	March-16-19						
297							

GoldON Mollie River Property

GoldON Mollie River		Number of Claims = 42			Surface Area = 677 Ha		
Claim	**Anniversary**						
106927	June-18-19						
106928	June-18-19						
107100	June-18-19						
129229	June-18-19						
129230	June-18-19						
129231	June-18-19						
140710	June-18-19						
140711	June-18-19						
146770	June-18-19						
175376	June-18-19						
193390	June-18-19						
221957	June-18-19						
221958	June-18-19						
221959	June-18-19						
222605	June-18-19						
229943	June-18-19						
229944	June-18-19						
230612	June-18-19						
230613	June-18-19						
230614	June-18-19						
242101	June-18-19						
242745	June-18-19						
242746	June-18-19						
250096	June-18-19						
250097	June-18-19						
278632	June-18-19						
278633	June-18-19						
288539	June-18-19						
297302	June-18-19						
309978	June-18-19						
315346	June-18-19						
316021	June-18-19						
316022	June-18-19						
316023	June-18-19						
336906	June-18-19						
336907	June-18-19						
187019	September-09-19						
199709	September-09-19						
199710	September-09-19						
254341	September-09-19						
254342	September-09-19						
302395	September-09-19						
42							

TME North Property

TME North		Number of Claims = 41			Surface Area = 891 Ha		
Claim	**Anniversary**						
103966	June-14-19						
103967	June-14-19						
103968	June-14-19						
103969	June-14-19						
107089	June-14-19						
107713	June-14-19						
119236	June-14-19						
120603	June-14-19						
120604	June-14-19						
129874	June-14-19						
129875	June-14-19						
129876	June-14-19						
129877	June-14-19						
130755	June-14-19						
136142	June-14-19						
136143	June-14-19						
146755	June-14-19						
159076	June-14-19						
176011	June-14-19						
178610	June-14-19						
188121	June-14-19						
193377	June-14-19						
222594	June-14-19						
224468	June-14-19						
232437	June-14-19						
232438	June-14-19						
232439	June-14-19						
236768	June-14-19						
236769	June-14-19						
236770	June-14-19						
250081	June-14-19						
250082	June-14-19						
250083	June-14-19						
269148	June-14-19						
280436	June-14-19						
280437	June-14-19						
283929	June-14-19						
299112	June-14-19						
304112	June-14-19						
309969	June-14-19						
316012	June-14-19						
41							

TME East Property

TME East	Number of Claims = 273		Surface Area = 4,717 Ha				
Claim	**Anniversary**		**Claim**	**Anniversary**		**Claim**	**Anniversary**
101925	February-03-19		155482	February-13-22		209646	February-03-20
102747	May-26-22		157005	February-03-20		210231	March-08-22
104412	February-03-21		157061	February-03-20		212909	February-03-22
107582	February-03-19		163087	February-03-21		214328	February-03-20
107887	February-03-22		163143	February-03-22		214519	October-17-20
107888	February-03-22		163144	February-03-20		216672	February-03-19
107889	February-03-22		163145	February-03-20		216710	February-03-19
107890	February-03-22		164198	February-03-19		216711	February-03-19
109161	February-03-20		164199	February-03-19		218422	May-26-22
109162	February-03-20		165491	February-03-22		218423	May-26-22
109163	February-03-20		165492	February-03-22		222452	February-03-20
111581	February-03-22		170472	February-03-19		222453	February-03-20
111759	October-17-20		175726	February-03-22		224922	February-03-22
111865	February-03-22		175727	February-03-22		226033	February-03-22
116452	May-26-22		176360	February-03-19		226375	May-26-22
117243	February-03-19		176361	October-17-20		226376	May-26-22
117244	February-03-19		176526	February-03-20		228693	February-03-20
119684	February-03-20		176959	February-03-22		229841	February-03-20
119748	February-03-20		177554	February-03-20		229842	February-03-20
119749	February-03-20		177555	February-03-20		229843	February-03-20
120329	February-03-22		177556	February-03-20		230408	February-03-20
120330	February-03-22		177714	February-03-20		230888	February-03-19
121484	February-03-20		177718	May-07-22		230889	February-03-19
123498	February-03-19		177719	May-26-22		231585	May-07-22
124268	February-03-19		184931	February-03-20		235297	February-03-20
124269	February-03-19		187473	February-03-19		235298	February-03-19
124835	February-03-22		187474	February-03-19		236139	February-03-19
127554	March-08-22		187475	February-03-19		236140	February-03-19
128900	February-03-19		187476	February-03-19		236145	February-03-19
128901	February-03-20		187494	February-03-19		236945	February-03-19
128902	February-03-19		192483	February-03-21		242379	October-17-20
131872	February-03-19		194258	February-03-22		242380	October-17-20
131874	February-03-22		195226	February-03-19		242469	February-03-22
132333	February-03-22		195820	February-03-22		242541	February-03-20
132345	February-03-20		196598	February-03-19		242542	February-03-20
132346	February-03-20		197136	February-03-20		242552	February-03-21
135504	February-03-19		197137	February-03-20		242608	February-03-20
135534	February-03-19		199685	February-03-19		242609	February-03-20
136842	February-03-22		199697	February-03-19		242610	February-03-20
138877	February-03-20		200475	February-03-19		243693	October-17-20
141540	February-03-19		201008	February-03-22		243694	October-17-20
144837	February-03-20		201009	February-03-22		243786	February-03-22
145442	February-03-19		201010	February-03-22		243787	February-03-22
147091	February-03-19		203499	February-03-19		244195	February-03-20
148470	February-03-22		204172	February-03-20		244196	February-03-20
149008	February-03-22		204173	February-03-20		244917	February-03-20
149680	February-03-20		204174	February-03-20		244918	February-03-20
151965	February-03-19		204180	May-07-22		251737	February-03-20
153091	May-26-22		205125	February-03-20		251815	February-03-19

TME East							
Claim	Anniversary		Claim	Anniversary		Claim	Anniversary
251819	February-03-22		285676	May-26-22		325639	February-03-20
254264	February-03-19		286669	February-03-20		325687	February-03-20
256116	February-03-22		287506	May-26-22		325688	February-03-20
256117	February-03-22		292287	February-03-19		326205	February-03-19
256118	February-03-22		292680	February-03-22		326206	February-03-19
259036	February-03-20		293849	February-03-19		327426	May-07-22
259037	February-03-20		293850	February-03-19		327538	February-03-22
259097	February-03-22		294677	February-03-20		329125	February-03-19
259098	February-03-20		294678	February-03-20		329126	February-03-19
259566	February-03-19		294679	February-03-20		329127	February-03-19
259567	February-03-19		294680	February-03-20		330521	February-03-19
260251	May-07-22		296468	February-03-20		330522	February-03-19
260252	May-26-22		297036	February-03-20		337498	February-03-20
260885	February-03-22		297615	February-03-20		337503	February-03-21
260886	February-03-22		297626	May-07-22		337873	February-03-22
263741	February-03-20		300283	February-03-20		338059	February-03-20
263742	February-03-20		300284	February-03-20		339144	February-03-20
263743	February-03-20		300328	February-03-22		339297	October-17-20
264460	February-03-20		300382	October-17-20		339845	February-03-20
269185	February-03-19		301000	February-03-20		339846	February-03-20
269953	October-17-20		303473	February-03-19		339883	February-03-22
270557	February-03-19		303474	February-03-19		342244	February-03-19
270558	February-03-19		303484	February-03-20		342262	February-03-19
271286	December-03-22		303485	February-03-19		342454	February-03-19
273195	February-03-19		306864	February-03-20		343177	December-03-22
274087	December-03-22		309717	February-03-19		343572	February-03-22
274867	February-13-22		311026	February-03-19		345074	February-03-20
277604	February-03-20		312681	February-03-20		345075	February-03-20
277605	February-03-20		312682	February-03-19			
277606	February-03-20		312683	February-03-19		273	
277612	February-03-21		312684	February-03-19			
277613	February-03-21		316421	February-03-19			
278103	February-03-19		317813	February-03-19			
278104	February-03-19		317816	February-03-22			
278393	February-03-21		318271	February-03-20			
279625	February-03-19		318272	February-03-20			
279626	February-03-19		318954	February-03-20			
280307	February-03-20		318955	February-03-20			
280728	February-03-20		320175	February-03-19			
280767	February-03-22		320176	February-03-19			
280780	February-03-20		320177	February-03-19			
280928	February-03-22		320198	February-03-19			
282135	February-03-20		320199	February-03-19			
282136	February-03-20		320650	December-03-22			
283293	February-03-19		321723	May-26-22			
283302	February-03-20		322478	February-03-19			
283322	February-03-19		322812	December-03-22			
284636	February-03-22		322813	December-03-22			
285240	February-03-19		325638	February-03-20			

TME South Property

TME South	Number of Claims = 226		Surface Area = 4,818 Ha				
Claim	Anniversary		Claim	Anniversary		Claim	Anniversary
100039	May-30-19		155442	May-30-19		208794	May-30-19
100092	May-30-19		155443	May-30-19		208822	May-30-19
100093	May-30-19		158122	May-30-19		214324	May-30-19
100513	May-30-19		158123	May-30-19		215071	May-30-19
100529	May-30-19		158124	May-30-19		216379	May-30-19
100530	May-30-19		158209	May-30-19		220216	February-03-19
100535	May-30-19		163652	May-30-19		220273	May-30-19
100537	May-30-19		164889	May-30-19		220274	May-30-19
100557	May-30-19		166890	May-30-19		220275	May-30-19
100558	May-30-19		170832	February-03-19		220872	May-30-19
101063	May-30-19		170833	February-03-19		220873	May-30-19
101873	May-30-19		171501	May-30-19		220895	May-30-19
101874	May-30-19		171502	May-30-19		224293	May-30-19
101875	May-30-19		171506	May-30-19		227001	February-03-19
104206	February-03-19		171525	May-30-19		227654	May-30-19
109110	February-03-19		175473	February-03-19		227655	May-30-19
115645	February-03-19		176265	May-30-19		227656	May-30-19
115725	May-30-19		179666	May-30-19		227657	May-30-19
115726	May-30-19		179840	February-03-19		227658	May-30-19
115727	May-30-19		184892	February-03-19		227661	May-30-19
115813	May-30-19		184893	February-03-19		227683	May-30-19
115837	May-30-19		185874	February-03-19		230339	May-30-19
116098	May-30-19		185875	February-03-19		230340	May-30-19
116859	May-30-19		185876	February-03-19		230922	May-30-19
117271	May-30-19		192942	February-03-19		231579	May-30-19
120915	May-30-19		193653	May-30-19		233190	February-03-19
120916	May-30-19		194597	May-30-19		233596	May-30-19
123081	May-30-19		195638	May-30-19		241772	May-30-19
124996	February-03-19		195639	May-30-19		243657	May-30-19
124997	May-30-19		197086	May-30-19		243658	May-30-19
125569	May-30-19		197105	May-30-19		244192	May-30-19
125659	May-30-19		200102	February-03-19		244193	May-30-19
125660	May-30-19		200153	May-30-19		245889	February-03-19
128347	May-30-19		200154	May-30-19		249587	February-03-19
128348	May-30-19		200155	May-30-19		249836	May-30-19
129409	February-03-19		200156	May-30-19		251728	May-30-19
129605	May-30-19		200748	May-30-19		252019	February-03-19
129606	May-30-19		200749	May-30-19		252020	February-03-19
132287	May-30-19		200750	May-30-19		252250	May-30-19
132288	May-30-19		200757	May-30-19		255362	February-03-19
141486	February-03-19		200758	May-30-19		259523	May-30-19
142674	May-30-19		200760	May-30-19		260242	May-30-19
142675	May-30-19		200784	May-30-19		260243	May-30-19
142680	May-30-19		203523	May-30-19		260244	May-30-19
142698	May-30-19		208188	May-30-19		262208	May-30-19
145462	May-30-19		208189	May-30-19		263696	February-03-19
148968	May-30-19		208791	May-30-19		266781	May-30-19
154840	May-30-19		208792	May-30-19		266782	May-30-19
154841	May-30-19		208793	May-30-19		266783	May-30-19

TME South							
Claim	Anniversary		Claim	Anniversary			
267386	May-30-19		302596	February-03-19			
267389	May-30-19		302597	February-03-19			
267390	May-30-19		305270	February-03-19			
267392	May-30-19		309094	May-30-19			
267410	May-30-19		310758	May-30-19			
267411	May-30-19		310777	May-30-19			
267412	May-30-19		314128	May-30-19			
270252	May-30-19		314129	May-30-19			
274137	February-03-19		314716	May-30-19			
274138	May-30-19		318267	May-30-19			
274139	May-30-19		318268	May-30-19			
274140	May-30-19		320690	February-03-19			
274801	May-30-19		321765	February-03-19			
274815	May-30-19		321766	February-03-19			
274816	May-30-19		321767	February-03-19			
274817	May-30-19		322856	February-03-19			
274818	May-30-19		322857	February-03-19			
274820	May-30-19		323503	May-30-19			
274822	May-30-19		323507	May-30-19			
278049	May-30-19		323510	May-30-19			
278050	May-30-19		323537	May-30-19			
279587	May-30-19		328507	May-30-19			
279588	May-30-19		328840	May-30-19			
279589	May-30-19		337050	February-03-19			
280194	February-03-19		337225	May-30-19			
280726	May-30-19		339100	February-03-19			
280734	May-30-19		339165	May-30-19			
281168	February-03-19		340839	February-03-19			
281169	February-03-19		341285	May-30-19			
284511	February-03-19		286814	October-31-19			
286275	February-03-19						
286953	May-30-19		226				
286955	May-30-19						
287466	May-30-19						
287467	May-30-19						
287490	May-30-19						
289649	May-30-19						
289650	May-30-19						
289714	May-30-19						
289715	May-30-19						
294197	May-30-19						
294198	May-30-19						
294202	May-30-19						
294223	May-30-19						
296724	February-03-19						
296891	May-30-19						
298790	May-30-19						
300248	February-03-19						
300277	May-30-19						

TME Makwa Property

TME Makwa	Number of Claims = 24		Surface Area = 274 Ha				
Claim	**Anniversary**						
108743	November-09-18						
108744	November-09-18						
111634	February-12-19						
131169	February-12-19						
131170	February-12-19						
133700	November-09-18						
133701	February-12-19						
150369	November-09-18						
178913	February-12-19						
178914	February-12-19						
195868	February-12-19						
205832	February-12-19						
245596	November-09-18						
253665	November-09-18						
253666	November-09-18						
262568	February-12-19						
265159	November-09-18						
282844	November-09-18						
282845	November-09-18						
317087	February-12-19						
319651	November-09-18						
338662	February-12-19						
338663	February-12-19						
340522	November-09-18						
24							

TME Powerline Property

TME Powerline		Number of Claims = 144			Surface Area = 3,044 Ha		
Claim	**Anniversary**		**Claim**	**Anniversary**		**Claim**	**Anniversary**
104088	January-24-19		223509	January-27-19		331811	March-03-19
108570	January-24-19		224733	March-03-19		331812	January-27-19
108571	January-24-19		225081	January-24-19		338525	January-24-19
111483	January-24-19		231052	January-24-19		338717	January-24-19
111484	January-24-19		231053	January-24-19		340502	January-24-19
121241	January-24-19		231054	January-24-19		131864	January-24-19
124216	January-24-19		232759	January-24-19		132991	January-24-19
129766	January-24-19		239256	January-27-19		132992	January-24-19
130527	January-24-19		239257	January-27-19		149664	January-24-19
133675	January-24-19		239810	January-24-19		151113	January-24-19
137836	January-24-19		245573	January-24-19		151954	January-24-19
140525	March-03-19		250447	January-24-19		151955	January-24-19
147100	January-24-19		250448	January-24-19		151956	January-24-19
147889	January-24-19		252968	January-27-19		175712	January-24-19
147890	January-24-19		258036	January-24-19		175713	January-24-19
150348	January-24-19		259450	January-27-19		178220	January-24-19
159286	January-27-19		259739	January-24-19		178221	January-24-19
164110	January-27-19		260436	January-24-19		185053	January-24-19
164111	March-03-19		260437	January-24-19		196586	January-24-19
164112	March-03-19		261925	January-24-19		196587	January-24-19
176377	January-24-19		261926	January-24-19		197772	January-24-19
176378	January-24-19		261927	January-24-19		199235	January-24-19
178883	January-24-19		262046	January-24-19		199236	January-24-19
178884	January-24-19		262047	January-24-19		207236	January-24-19
179219	January-24-19		262048	January-24-19		225080	January-24-19
180270	January-24-19		265147	January-24-19		246444	January-24-19
180271	January-24-19		267032	January-24-19		263309	January-24-19
185248	January-24-19		267033	January-24-19		263816	January-24-19
185249	January-24-19		268114	March-03-19		264440	January-24-19
185663	January-27-19		269783	January-24-19		265980	January-24-19
185664	January-24-19		269784	January-24-19		270547	January-24-19
185665	January-24-19		275997	January-24-19		273225	January-24-19
187733	January-24-19		275998	January-24-19		273226	January-24-19
193200	January-24-19		277932	January-27-19		282116	January-24-19
193789	January-24-19		278291	January-24-19		289140	January-24-19
195238	January-24-19		278292	January-24-19		299523	January-24-19
197818	January-24-19		278293	January-24-19		300473	January-24-19
198476	January-24-19		281045	January-24-19		303092	January-24-19
198477	January-24-19		289139	January-24-19		317801	January-24-19
198478	January-24-19		289482	January-24-19		317802	January-24-19
202003	January-24-19		303624	January-24-19		317803	January-24-19
205156	January-24-19		312612	January-24-19		320432	January-24-19
205803	January-24-19		314523	January-27-19		330512	January-24-19
207752	January-24-19		318982	January-24-19		330513	January-24-19
213233	January-24-19		325326	January-24-19		333667	January-24-19
215606	January-24-19		326328	January-24-19		109353	January-24-19
215607	January-24-19		326329	January-24-19			
223084	January-24-19		327280	January-27-19		144	
223508	January-27-19		328301	January-24-19			

Champagne Property

TME Champagne		Number of Claims = 90			Surface Area = 1,456 Ha		
Claim	**Anniversary**		**Claim**	**Anniversary**			
103656	May-05-19		234533	May-05-19			
104310	May-05-19		236583	May-05-19			
109092	May-05-19		241629	May-05-19			
109093	May-05-19		243623	May-05-19			
109094	May-05-19		243624	May-05-19			
109155	May-05-19		245989	May-05-19			
113464	May-05-19		249629	May-05-19			
120847	May-05-19		249630	May-05-19			
120848	May-05-19		251660	May-05-19			
123210	May-05-19		252645	May-05-19			
123211	May-05-19		252646	May-05-19			
129453	May-05-19		253356	May-05-19			
130232	May-05-19		253357	May-05-19			
131719	May-05-19		260065	May-05-19			
131720	May-05-19		270382	May-05-19			
132285	May-05-19		270383	May-05-19			
139900	May-05-19		270384	May-05-19			
145858	May-05-19		270385	May-05-19			
145859	May-05-19		271705	May-05-19			
148901	May-05-19		280168	May-05-19			
148967	May-05-19		280723	May-05-19			
159397	May-05-19		281783	May-05-19			
160448	May-05-19		281784	May-05-19			
161694	May-05-19		282504	May-05-19			
161695	May-05-19		282505	May-05-19			
161696	May-05-19		288756	May-05-19			
184867	May-05-19		300211	May-05-19			
184868	May-05-19		307884	May-05-19			
184924	May-05-19		309488	May-05-19			
185974	May-05-19		314623	May-05-19			
186706	May-05-19		316230	May-05-19			
186707	May-05-19		318265	May-05-19			
194011	May-05-19		327913	May-05-19			
195048	May-05-19		329062	May-05-19			
195049	May-05-19		331915	May-05-19			
195050	May-05-19		331916	May-05-19			
197019	May-05-19		337115	May-05-19			
197083	May-05-19		337116	May-05-19			
197084	May-05-19		339136	May-05-19			
212063	May-05-19		341438	May-05-19			
212244	May-05-19		342154	May-05-19			
215254	May-05-19						
215255	May-05-19		90				
215256	May-05-19						
215257	May-05-19						
216500	May-05-19						
230098	May-05-19						
230774	May-05-19						
233807	May-05-19						

Sheridan Option Property

Sheridan Option		Number of Claims = 217			Surface Area = 3,876 Ha		
Claim	**Anniversary**		**Claim**	**Anniversary**		**Claim**	**Anniversary**
102263	April-18-19		158961	April-06-19		209307	April-06-19
102264	April-18-19		159004	April-06-19		209308	April-06-19
103847	April-06-19		159860	April-06-19		210233	April-06-19
103848	April-06-19		163048	April-06-19		211873	April-06-19
104372	April-06-19		163765	April-06-19		215800	April-18-19
104563	April-06-19		163774	April-06-19		215801	April-18-19
104576	April-06-19		167047	April-18-19		215802	April-18-19
105345	April-06-19		168425	April-06-19		215808	April-06-19
107324	April-06-19		169199	April-06-19		217221	April-06-19
109360	April-06-19		169713	April-06-19		218525	April-06-19
113350	April-06-19		173512	April-06-19		218526	April-06-19
113351	April-06-19		174344	April-06-19		218572	April-06-19
117561	April-18-19		176245	April-06-19		221094	April-18-19
118514	April-06-19		176246	April-06-19		221095	April-18-19
118528	April-06-19		177158	April-18-19		221096	April-18-19
118741	April-18-19		177170	April-06-19		223057	April-18-19
118742	April-18-19		177894	April-06-19		223063	April-06-19
118743	April-18-19		177895	April-06-19		223739	April-06-19
119038	April-06-19		179956	April-18-19		223844	April-06-19
119867	April-06-19		181859	April-06-19		224370	April-06-19
119868	April-06-19		183217	April-06-19		225985	April-06-19
119869	April-06-19		183218	April-06-19		229064	April-18-19
120480	April-06-19		183604	April-06-19		229065	April-18-19
125252	April-06-19		183921	April-06-19		229811	April-06-19
127411	April-06-19		184009	April-06-19		230517	April-06-19
129732	April-18-19		186015	April-18-19		230525	April-06-19
129733	April-18-19		186016	April-18-19		231021	April-06-19
129734	April-06-19		186017	April-18-19		231706	April-06-19
129742	April-06-19		186018	April-18-19		231813	April-06-19
130151	April-06-19		186031	April-06-19		235741	April-06-19
132994	April-06-19		187911	April-06-19		238623	April-06-19
132995	April-06-19		187912	April-06-19		238660	April-06-19
132996	April-06-19		188736	April-06-19		240140	April-06-19
136675	April-06-19		191167	April-18-19		241225	April-18-19
136709	April-06-19		191168	April-18-19		242501	April-06-19
139795	April-06-19		191169	April-18-19		242502	April-06-19
144915	April-06-19		191170	April-18-19		242503	April-06-19
145738	April-06-19		191171	April-18-19		242847	April-06-19
149672	April-06-19		191172	April-18-19		243226	April-06-19
151790	April-06-19		191173	April-18-19		243912	April-06-19
153160	April-06-19		193165	April-06-19		244556	April-06-19
155737	April-18-19		193166	April-06-19		244557	April-06-19
155738	April-18-19		193175	April-06-19		244558	April-06-19
156975	April-06-19		193176	April-06-19		244892	April-06-19
157678	April-06-19		201288	April-06-19		246529	April-18-19
157684	April-06-19		203586	April-06-19		246530	April-18-19
157685	April-06-19		205103	April-06-19		250351	April-06-19
158364	April-06-19		205104	April-06-19		252673	April-18-19
158365	April-06-19		209306	April-06-19		252932	April-06-19

Sheridan Option							
Claim	**Anniversary**		**Claim**	**Anniversary**			
255344	April-06-19		324626	April-06-19			
257785	April-18-19		324627	April-06-19			
257786	April-18-19		325613	April-06-19			
259711	April-06-19		326292	April-18-19			
259712	April-06-19		326299	April-06-19			
261719	April-06-19		326300	April-06-19			
262399	April-06-19		326984	April-06-19			
268420	April-06-19		326985	April-06-19			
268421	April-06-19		326986	April-06-19			
269052	April-06-19		326987	April-06-19			
271736	April-18-19		329603	April-18-19			
271737	April-18-19		334530	April-06-19			
276304	April-18-19		335978	April-06-19			
277562	April-06-19		336731	April-18-19			
278255	April-06-19		336732	April-18-19			
278535	April-06-19		336733	April-18-19			
279042	April-06-19		338692	April-06-19			
279043	April-06-19		339391	April-06-19			
279044	April-06-19		339830	April-06-19			
279382	April-06-19		341468	April-18-19			
279740	April-06-19		341482	April-06-19			
279741	April-06-19						
279825	April-06-19		217				
279864	April-06-19						
282119	April-06-19						
284497	April-06-19						
284528	April-06-19						
288347	April-18-19						
289063	April-06-19						
289064	April-06-19						
289885	April-18-19						
291261	April-06-19						
292627	April-06-19						
296431	April-06-19						
297162	April-06-19						
297163	April-06-19						
297164	April-06-19						
297173	April-06-19						
297174	April-06-19						
298370	April-06-19						
298474	April-06-19						
298475	April-06-19						
300975	April-06-19						
300976	April-06-19						
300977	April-06-19						
300978	April-06-19						
307462	April-06-19						
321749	April-06-19						
321789	April-06-19						