Ausenco

GENERATION MINING

Marathon Copper-Palladium Project Feasibility Study Report Update

Marathon, Ontario, Canada

Effective Date: November 1, 2024

Report Date: March 28, 2025

Prepared for:

Generation Mining Limited
100 King Street West, Suite 7010
Toronto, Ontario, M5X 1B1

Prepared by:

Ausenco Engineering Canada ULC
11 King St. West, 15th Floor
Toronto, Ontario, M5H 4C7

List of Competent Persons:

Tommaso Roberto Raponi, P. Eng., Ausenco Engineering Canada ULC
Jean-Francois Maille, P. Eng., JDS Energy & Mining Inc.
Marc Schulte, P. Eng., Moose Mountain Technical Services
Craig Hall, P. Eng., Knight Piesold Ltd.
Eugene Puritch, P. Eng., P&E Mining Consultants Inc.
Jarita Barry, P. Geo., P&E Mining Consultants Inc.
Fred Brown, P. Geo., P&E Mining Consultants Inc.
David Burga, P. Geo., P&E Mining Consultants Inc.
William Stone, P. Geo, P&E Mining Consultants Inc.

Important Notice

This report was prepared as a National Instrument 43-101 Technical Report for Generation Mining Limited (Gen Mining) by Ausenco Engineering Canada ULC (Ausenco); JDS Energy and Mining Inc. (JDS); Moose Mountain Technical Services (MMTS); Knight Piesold Ltd. (KP); and P&E Mining Consultants Inc. (P&E), collectively the Technical Report Authors. The quality of information, conclusions, and estimates contained herein is consistent with the level of effort involved in the technical report authors' services, based on (i) information available at the time of preparation, and (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 Gen Mining subject to terms and conditions of its contracts with each of the technical report authors. Except for the purpose legislated under Canadian securities law, any other uses of this report by any third party are at that party's sole risk.

This report contains certain forward-looking statements. Such statements are only predictions based on certain assumptions and involve known and unknown risks, uncertainties, and other factors, many of which are beyond the control of the Technical Report Authors. Actual events or results may differ materially from the events or results expected or implied in any forward-looking statement.

The inclusion of such statements should not be regarded as a representation, warranty, or prediction with respect to the accuracy of the underlying assumptions or that any forward-looking statements will be or are likely to be fulfilled. The Technical Report Authors undertake no obligation to update any forward-looking statements to reflect events or circumstances after the date of this report.

CERTIFICATE OF QUALIFIED PERSON

Tommaso Roberto Raponi, P. Eng

I, Tommaso Roberto Raponi, P. Eng., certify that I am employed as a Senior Mineral Processing Specialist with Ausenco Engineering Canada ULC (Ausenco), with an office address of Suite 1550 - 11 King St West, Toronto, ON M5H 4C7.

1. This certificate applies to the technical report titled "Marathon Copper-Palladium Project Feasibility Study Report Update," which has an effective date of November 1, 2024 (the "Technical Report").
2. I graduated from the University of Toronto with a Bachelor of Applied Science degree in Geological Engineering with specialization in Mineral Processing in 1984.
3. I am a Professional Engineer registered with the Professional Engineers of Ontario (license No. 90225970), the Engineers and Geoscientists of British Columbia (license No. 23536), and the Northwest Territories and Nunavut Association of Professional Engineers and Geoscientists (license No. L4508).
4. I have practiced my profession continuously for over 40 years with experience in the development, design, operation and commissioning of mineral processing plants, focusing on gold projects, both domestic and internationally. My project design and development experience include the generation of capital and operating costs for mineral processing plants and associated infrastructure and financial modeling of project economics.
5. I have read the definition of "Qualified Person" set out in the National Instrument 43-101 Standards of Disclosure for Mineral Projects ("NI 43-101") and certify that by virtue of my education, affiliation to a professional association and past relevant work experience, I fulfill the requirements to be a "Qualified Person" for those sections of the Technical Report that I am responsible for preparing.
6. I visited the project site on August 12 and 13, 2020.
7. I am responsible for Sections 1.1, 1.12, 1.16, 1.17.1, 1.18, 1.20, 1.21, 1.23 to 1.25, 2, 3, 13, 17, 18.1, 18.3, 1.18.4.3 to 18.4.6, 18.5, 18.6.2.2, 18.6.2.3, 18.6.4, 19, 21.1 to 21.4, 21.5.3 to 21.5.7, 21.7.1, 21.7.3, 21.7.4, 22, 25.1, 25.5, 25.6, 25.8, 25.11, 26.1, 26.2, 26.5, 26.6, 26.8, 26.9, and 27 of the Technical Report
8. I am independent of Generation Mining Limited as independence is defined in Section 1.5 of NI 43-101.
9. I have had prior involvement with the property. I was a co-author on the Technical Report titled: "Feasibility Study – Marathon Palladium and Copper Project, Northwestern Ontario, Canada" with an effective date of March 03, 2021, and prepared for Generation Mining Limited.
10. 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: March 28, 2025

"Signed and sealed"

Tommaso Roberto Raponi, P. Eng.

CERTIFICATE OF QUALIFIED PERSON

Jean-Francois Maille, P. Eng.

I, Jean-Francois Maille, P.Eng, certify that I am employed as a Project Manager with JDS Energy and Mining (JDS), with an office address of 900-999 West Hastings St., Vancouver, BC, V6C 2W2.

1. This certificate applies to the technical report titled "Marathon Copper-Palladium Project Feasibility Study Report Update," which has an effective date of November 1, 2024 (the "Technical Report").
2. I graduated from Ecole de Technologie Superieure with a bachelor (Mechanical Engineering) in 2007
3. I am a Professional Engineer registered with the "Ordre des Ingénieurs du Québec" (OIQ-Licence: 143426)
4. I have practiced my profession continuously since 2007. I have been directly involved in project and team management, construction coordination and engineering with projects located in North and South America.
5. I visited the Marathon Project site between October 18th and October 20th, 2022.
6. I am responsible for Sections 1.22,18.2, 18.6.1, 18.6.2.1, 18.6.3, 21.5.2, 24, 25.10, and 26.13 of the Technical Report.
7. I am independent of Generation Mining Limited as independence is defined in Section 1.5 of NI 43-101.
8. I have had prior involvement with the Property. I was a co-author on the technical report entitled "Amended Feasibility Study Update – Marathon Palladium & Copper Project" with an effective date of December 31st, 2022.
9. 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: March 28, 2025

"Signed and sealed"

Jean-Francois Maille, P. Eng.

CERTIFICATE OF QUALIFIED PERSON

Marc Schulte, P. Eng.

I, Marc Schulte, P. Eng., certify that:

1. I am working as Vice President of Engineering and Operations with Moose Mountain Technical Services, (MMTS), with an office address of #210 1510 2nd Street North Cranbrook, BC V1C 3L2.
2. This certificate applies to the technical report titled "Marathon Copper-Palladium Project Feasibility Study Report Update," which has an effective date of November 1, 2024 (the "Technical Report").
3. I graduated from the University of Alberta with a Bachelor of Science in Mining Engineering in 2002.
4. I am a member of the self-regulated Association of Professional Engineers and Geoscientists of Alberta (#71051)
5. I have worked as a mining engineer for over 22 years since my graduation from university. Throughout my career I have worked on numerous open pit base and precious metals projects, within project engineering studies and within mining operations, on mineral reserve estimates, mine planning, and mine cost estimates.
6. I visited the Marathon project site on November 27, 2024.
7. I am responsible for Sections 1.14, 1.15, 15, 16, 21.5.1, 21.7.2, 25.3, 25.4, 26.3, and 26.4 of the Technical Report.
8. I am independent of Generation Mining Limited, as independence is defined in Section 1.5 of NI 43-101.
9. I have not been previously involved with the Marathon Project.
10. 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: March 28, 2025

"Signed and sealed"

Marc Schulte, P. Eng.

Knight Piésold CONSULTING

CERTIFICATE OF QUALIFIED PERSON

Craig N. Hall, P. Eng.

I, Craig N. Hall, P. Eng., certify that I am employed as Managing Principal with Knight Piésold Ltd. (KP) with an office located at 200 - 1164 Devonshire Avenue, North Bay, ON P1B 6X7, Canada.

1. This certificate applies to the technical report titled "Marathon Copper-Palladium Project Feasibility Study Report Update," which has an effective date of November 1, 2024 (the "Technical Report").
2. I graduated from the University of Waterloo, Ontario, Canada with a Bachelor of Applied Science in 2003 in Geological Engineering.
3. I am a Professional Engineer registered with Professional Engineers Ontario, (Licence: 100075047).
4. I have practiced my profession continuously in the mining industry since my graduation from university. I have been involved in mining operations, engineering and financial evaluations for 22 years, including tailings, mine waste, water management facilities and other mining related surface infrastructure.
5. I visited the Marathon Palladium and Copper Project between October 28th and 29th 2021 for a visit duration of 1 day.
6. I am responsible for Sections 1.17.2, 1.19, 18.4.1, 18.4.2, 18.4.7, 18.4.8, 20, 21.6, 25.7, 25.9, 26.7, and 26.10 to 26.12 of the Technical Report.
7. I am independent of Generation Mining Limited as independence is defined in Section 1.5 of NI 43-101.
8. I have been involved with the Marathon Project since February 2011 for work related to tailings, waste rock and water management. I was a co-author on the technical report entitled "Amended Feasibility Study Update – Marathon Palladium & Copper Project" with an effective date of December 31, 2022.
9. 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: March 28, 2025

"Signed and sealed"

Craig N. Hall, P. Eng.

CERTIFICATE OF QUALIFIED PERSON

Eugene J. Puritch, P. Eng., FEC, CET

I, Eugene J. Puritch, P. Eng., FEC, CET, residing at 44 Turtlecreek Blvd., Brampton Ontario, L6W 3X7, do hereby certify that:

1. I am an independent mining consultant and President of P&E Mining Consultant Inc.
2. This certificate applies to the technical report titled "Marathon Copper-Palladium Project Feasibility Study Report Update," which has an effective date of November 1, 2024 (the "Technical Report").
3. I am a graduate of The Haileybury School of Mines, with a Technologist Diploma in Mining, as well as obtaining an additional year of undergraduate education in Mine Engineering at Queen's University. In addition, I have also met the Professional Engineers of Ontario Academic Requirement Committee's Examination requirement for Bachelor's Degree in Engineering Equivalency. I am a mining consultant currently licensed by the Professional Engineers, Geoscientists Newfoundland and Labrador (License No. 5998); Ontario Association of Certified Engineering Technicians and Technologists (License No. 45252); Professional Engineers of Ontario (License No. 100014010); and Association of Professional Engineers and Geoscientists of British Columbia (License No.42912). I am also a member of the National Canadian Institute of Mining and Metallurgy.

   I have read the definition of "Qualified Person" set out in National Instrument 43-101 ("NI 43-101") and certify that, by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "Qualified Person" for the purposes of NI 43-101.

   I have practiced my profession continuously since 1978. My summarized career experience is as follows:

Mining Technologist - H.B.M.& S. and Inco Ltd.,	1978-1980
Open Pit Mine Engineer – Cassiar Asbestos/Brinco Ltd.,	1981-1983
Pit Engineer/Drill & Blast Supervisor – Detour Lake Mine,	1984-1986
Self-Employed Mining Consultant – Timmins Area,	1987-1988
Mine Designer/Resource Estimator – Dynatec/CMD/Bharti,	1989-1995
Self-Employed Mining Consultant/Resource-Reserve Estimator,	1995-2004
President – P&E Mining Consultants Inc,	2004-Present

4. I have visited the Property that is the subject of this Technical Report numerous times between 2005 and 2010.
5. I am responsible for Sections 1.2 to 1.11, 1.13, and 25.2 of this Technical Report.
6. I am independent of Generation Mining Limited and the Property, applying the test in Section 1.5 of NI 43-101.
7. I have had prior involvement with the project that is the subject of this Technical Report. I was a "Qualified Person" for Technical Reports titled "Amended Feasibility Study Update Marathon Palladium & Copper Project", with an effective date of December 31, 2022, "Feasibility Study – Marathon Palladium and Copper Project, Northwestern Ontario, Canada", with an effective date of March 3, 2021, "(Amended) Technical Report, Updated Mineral Resource Estimate and Preliminary Economic Assessment of The Marathon Deposit, Thunder Bay Mining District, Northwestern Ontario, Canada" with an effective date of January 6, 2020, "Technical Report, Updated Mineral

Resource Estimate of the Marathon Deposit, Thunder Bay Mining District Northwestern Ontario, Canada", with an effective date of September 9, 2019 and "Updated Technical Report and Preliminary Economic Assessment on the Marathon PGM-Cu Property Marathon Area, Thunder Bay Mining District, Northwestern Ontario, Canada", with an effective date of April 5, 2007.

8. I have read NI 43-101 and Form 43-101F1. This Technical Report has been prepared in compliance therewith.
9. As of the effective date of this Technical Report, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated: March 28, 2025

"Signed and sealed"

Eugene J. Puritch, P. Eng., FEC, CET

CERTIFICATE OF QUALIFIED PERSON

Jarita Barry, P. Geo.

I, Jarita Barry, P. Geo., residing at 4 Creek View Close, Mount Clear, Victoria, Australia, 3350, do hereby certify that:

1. I am an independent geological consultant contracted by P&E Mining Consultants Inc.
2. This certificate applies to the technical report titled "Marathon Copper-Palladium Project Feasibility Study Report Update," which has an effective date of November 1, 2024 (the "Technical Report").
3. I am a graduate of RMIT University of Melbourne, Victoria, Australia, with a B.Sc. in Applied Geology. I have worked as a geologist for a total of 19 years since obtaining my B.Sc. degree. I am a geological consultant currently licensed by Engineers and Geoscientists British Columbia (License No. 40875), Professional Engineers and Geoscientists Newfoundland & Labrador (License No. 08399), and Northwest Territories and Nunavut Association of Professional Engineers and Geoscientists (License No. L3874). I am also a member of the Australasian Institute of Mining and Metallurgy of Australia (Member No. 305397);

   I have read the definition of "Qualified Person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant

   work experience, I fulfill the requirements to be a "Qualified Person" for the purposes of NI 43-101.

   My relevant experience for the purpose of this Technical Report is:

Geologist, Foran Mining Corp.	2004
Geologist, Aurelian Resources Inc.	2004
Geologist, Linear Gold Corp.	2005-2006
Geologist, Buscore Consulting	2006-2007
Consulting Geologist (AusIMM)	2008-2014
Consulting Geologist, P. Geo. (EGBC/AusIMM)	2014-present

4. I have not visited the property that is the subject of this Technical Report.
5. I am responsible for Sections 11 and 12 of this Technical Report.
6. I am independent of Generation Mining and the property applying the test in Section 1.5 of NI 43-101.
7. I have had prior involvement with the Project that is the subject of this Technical Report. I was a "Qualified Person" for Technical Reports titled "Amended Feasibility Study Update Marathon Palladium & Copper Project", with an effective date of December 31, 2022, "Feasibility Study – Marathon Palladium and Copper Project, Northwestern Ontario, Canada", with an effective date of March 3, 2021, "(Amended) Technical Report, Updated Mineral Resource Estimate and Preliminary Economic Assessment of The Marathon Deposit, Thunder Bay Mining District, Northwestern Ontario, Canada" with an effective date of January 6, 2020 and "Technical Report, Updated Mineral Resource Estimate of the Marathon Deposit, Thunder Bay Mining District Northwestern Ontario, Canada", with an effective date of September 9, 2019.

8. I have read NI 43-101 and Form 43-101F1 and the Technical Report has been prepared in compliance therewith.
9. As of the effective date of this Technical Report, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated: March 28, 2025

"Signed and sealed"

Jarita Barry, P. Geo.

CERTIFICATE OF QUALIFIED PERSON

Fred H. Brown, P. Geo.

I, Fred H. Brown, P. Geo., of PO Box 332, Lynden, WA, USA, do hereby certify that:

1. I am an independent geological consultant and have worked as a geologist continuously since my graduation from university in 1987.
2. This certificate applies to the technical report titled "Marathon Copper-Palladium Project Feasibility Study Report Update," which has an effective date of November 1, 2024 (the "Technical Report").
3. I graduated with a Bachelor of Science degree in Geology from New Mexico State University in 1987. I obtained a Graduate Diploma in Engineering (Mining) in 1997 from the University of the Witwatersrand and a Master of Science in Engineering (Civil) from the University of the Witwatersrand in 2005. I am registered with the South African Council for Natural Scientific Professions as a Professional Geological Scientist (registration number 400008/04), the Association of Professional Engineers and Geoscientists of British Columbia as a Professional Geoscientist (171602) and the Society for Mining, Metallurgy and Exploration as a Registered Member (#4152172).

   I have read the definition of "Qualified Person" set out in National Instrument 43-101 ("NI 43-101") and certify that, by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "Qualified Person" for the purposes of NI 43-101.

   My relevant experience for the purpose of the Technical Report is:

Underground Mine Geologist, Freegold Mine, AAC	1987-1995
Mineral Resource Manager, Vaal Reefs Mine, Anglogold	1997-2000
Resident Geologist, Venetia Mine, De Beers	1995-1997
Chief Geologist, De Beers Consolidated Mines	2000-2004
Consulting Geologist	2004-2008
P&E Mining Consultants Inc. – Sr. Associate Geologist	2008-Present

4. I have not visited the property that is the subject of this Technical Report.
5. I am responsible for Section 14 of this Technical Report.
6. I am independent of Generation Mining and the property applying the test in Section 1.5 of NI 43-101.
7. I have had prior involvement with the Project that is the subject of this Technical Report. I was a "Qualified Person" for Technical Reports titled "Amended Feasibility Study Update Marathon Palladium & Copper Project", with an effective date of December 31, 2022, "Feasibility Study – Marathon Palladium and Copper Project, Northwestern Ontario, Canada", with an effective date of March 3, 2021, "(Amended) Technical Report, Updated Mineral Resource Estimate and Preliminary Economic Assessment of The Marathon Deposit, Thunder Bay Mining District, Northwestern Ontario, Canada" with an effective date of January 6, 2020 and "Technical Report, Updated Mineral Resource Estimate of the Marathon Deposit, Thunder Bay Mining District Northwestern Ontario, Canada", with an effective date of September 9, 2019.

8. I have read NI 43-101 and Form 43-101F1 and this Technical Report has been prepared in compliance therewith.
9. As of the effective date of this Technical Report, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated: March 28, 2025

"Signed and sealed"

Fred Brown, P. Geo.

CERTIFICATE OF QUALIFIED PERSON

David Burga, P. Geo.

I, David Burga, P. Geo., residing at 3884 Freeman Terrace, Mississauga, Ontario, do hereby certify that:

1. I am an independent geological consultant contracted by P&E Mining Consultants Inc.
2. This certificate applies to the technical report titled "Marathon Copper-Palladium Project Feasibility Study Report Update," which has an effective date of November 1, 2024 (the "Technical Report").
3. I am a graduate of the University of Toronto with a Bachelor of Science degree in Geological Sciences (1997). I have worked as a geologist for over 20 years since obtaining my B.Sc. degree. I am a geological consultant currently licensed by the Association of Professional Geoscientists of Ontario (License No 1836).

   I have read the definition of "Qualified Person" set out in National Instrument 43-101 ("NI 43-101") and certify that, by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "Qualified Person" for the purposes of NI 43-101.

   My relevant experience for the purpose of the Technical Report is:

Exploration Geologist, Cameco Gold	1997-1998
Field Geophysicist, Quantec Geoscience	1998-1999
Geological Consultant, Andeburg Consulting Ltd.	1999-2003
Geologist, Aeon Egmond Ltd.	2003-2005
Project Manager, Jacques Whitford	2005-2008
Exploration Manager – Chile, Red Metal Resources	2008-2009
Consulting Geologist	2009-Present

4. I have visited the property that is the subject of this Technical Report on April 4, 2012.
5. I am responsible for Sections 9, 10, and 25.12 of this Technical Report.
6. I am independent of Generation Mining and the property applying the test in Section 1.5 of NI 43-101.
7. I have had prior involvement with the Project that is the subject of this Technical Report. I was a "Qualified Person" for Technical Reports titled "Amended Feasibility Study Update Marathon Palladium & Copper Project", with an effective date of December 31, 2022, "Feasibility Study – Marathon Palladium and Copper Project, Northwestern Ontario, Canada", with an effective date of March 3, 2021, "(Amended) Technical Report, Updated Mineral Resource Estimate and Preliminary Economic Assessment of The Marathon Deposit, Thunder Bay Mining District, Northwestern Ontario, Canada" with an effective date of January 6, 2020 and "Technical Report, Updated Mineral Resource Estimate of the Marathon Deposit, Thunder Bay Mining District Northwestern Ontario, Canada", with an effective date of September 9, 2019.
8. I have read NI 43-101 and Form 43-101F1 and this Technical Report has been prepared in compliance therewith.

9. As of the effective date of this Technical Report, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated: March 28, 2025

"Signed and sealed"

David Burga, P. Geo.

CERTIFICATE OF QUALIFIED PERSON

William E. Stone, Ph.D., P. Geo.

I, William Stone, Ph.D., P.Geo, residing at 4361 Latimer Crescent, Burlington, ON, do hereby certify that:

1. I am an independent geological consultant working for P&E Mining Consultants Inc.
2. This certificate applies to the technical report titled "Marathon Copper-Palladium Project Feasibility Study Report Update," which has an effective date of November 1, 2024 (the "Technical Report").
3. I am a graduate of Dalhousie University with a Bachelor of Science (Honours) degree in Geology (1983). In addition, I have a Master of Science in Geology (1985) and a Ph.D. in Geology (1988) from the University of Western Ontario. I have worked as a geologist for a total of 35 years since obtaining my M.Sc. degree. I am a geological consultant currently licensed by the Professional Geoscientists of Ontario (License No 1569).

   I have read the definition of "Qualified Person" set out in National Instrument 43-101 ("NI 43-101") and certify that, by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "Qualified Person" for the purposes of NI 43-101.

   My relevant experience for the purpose of the Technical Report is:

Contract Senior Geologist, LAC Minerals Exploration Ltd.	1985-1988
Post-Doctoral Fellow, McMaster	1988-1992
Contract Senior Geologist, Outokumpu Mines and Metals Ltd	1993-1996
Senior Research Geologist, WMC Resources Ltd	1996-2001
Senior Lecturer, University of Western	2001-2003
Principal Geologist, Geoinformatics Exploration Ltd	2003-2004
Vice President Exploration, Nevada Star Resources Inc	2005-2006
Vice President Exploration, Goldbrook Ventures Inc	2006-2008
Vice President Exploration, North American Palladium Ltd	2008-2009
Vice President Exploration, Magma Metals Ltd	2010-2011
President & COO, Pacific North West Capital Corp	2011-2014
Consulting Geologist	2013-2017
Senior Project Geologist, Anglo American	2017-2019
Consulting Geoscientist	2020-Present

4. I have not visited the property that is the subject of this Technical Report
5. I am responsible for Sections 4, 5, 6, 7, 8 and 23 of this Technical Report.
6. I am independent of Generation Mining and the property applying the test in Section 1.5 of NI 43-101.
7. I have had prior involvement with the Property that is the subject of this Technical Report. I was a "Qualified Person" for the Technical Report titled "Amended Feasibility Study Update Marathon Palladium & Copper Project," with an effective date of December 31, 2022.

8. I have read NI 43-101 and Form 43-101F1 and this Technical Report has been prepared in compliance therewith.
9. As of the effective date of this Technical Report, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated: March 28, 2025

"Signed and sealed"

William E. Stone, Ph.D., P. Geo.

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1 SUMMARY

1.1 Introduction

Generation Mining Limited (Gen Mining) commissioned Ausenco Engineering Canada ULC (Ausenco) to compile a Feasibility Study Update and Mineral Resource and Reserve Estimate (MRE) for the Marathon Palladium-Copper project (Marathon Project).

The responsibilities of the engineering consultants and firms who are providing qualified persons (QPs) are as follows:

- Ausenco managed and coordinated the work related to the report.
- Knight Piésold Ltd. (KP)
- P&E Mining Consultants Inc. (P&E)
- JDS Energy and Mining, Inc. (JDS)
- Moose Mountain Technical Services (MMTS).

Gen Mining currently indirectly owns a 100% interest in the Marathon Project. The project is directly owned, managed and operated by Gen Mining's 100%-owned subsidiary, Generation PGM Inc. (Gen PGM). In this document, Gen PGM and Gen Mining will be used interchangeably for simplicity.

This technical report summarizes the current progress and latest results following the 2023 Feasibility Study with updated plant and infrastructure designs, and capital and operating cost estimates. This technical report also presents updated mineral resource and mineral reserve estimates for the Marathon property. The technical report outlines the feasibility study update with the development of an open pit mine, processing facilities and related infrastructure both on site and off site.

This technical report was prepared pursuant to the requirements of Canadian National Instrument 43-101 (NI 43-101). The reported mineral resource and mineral reserve estimates in this technical report were prepared in accordance with the guidelines of the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Standards (2014) on Mineral Resources and Reserves, Definitions and Guidelines (2019).

All dollar amounts are in Canadian dollars and stated on a 100% project ownership basis unless otherwise noted.

1.2 Property Description and Location

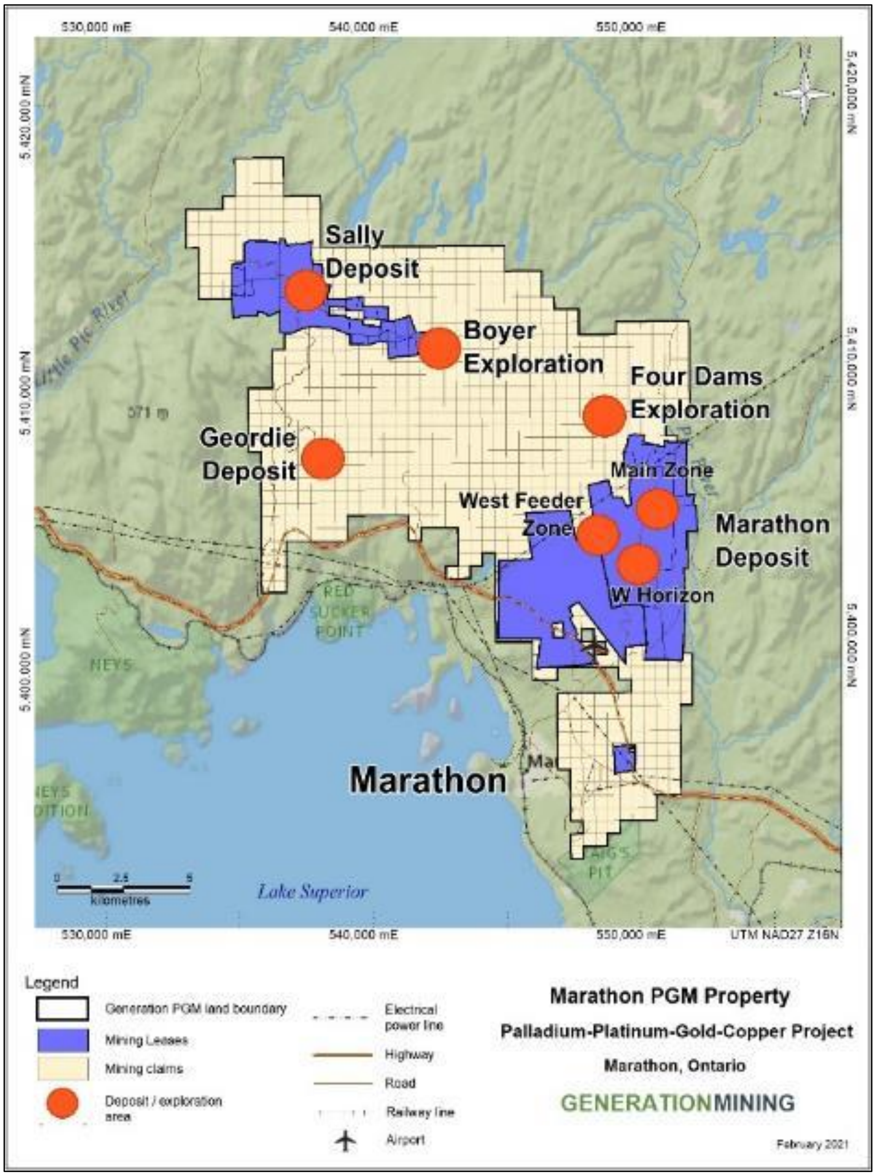
The Marathon property is located approximately 10 km north of the Town of Marathon, Ontario, on the northeast shore of Lake Superior (Figure 1-1). The Town of Marathon lies along the Trans-Canada Highway (Highway 17) approximately 300 km east of The City of Thunder Bay and 400 km northwest of the City of Sault Ste. Marie, and has a population of 3,138 (2021 StatsCan census).

Local access to the property is via gravel road from Highway 17 (Figure 1-2). The centre of the proposed project footprint sits at approximately 48°45'N latitude and 86°19'W longitude. Mining is the primary industry in the Town of Marathon.

Figure 1-1: Regional Location

Source: Marathon PGM Corp. (2006).

Figure 1-2: Local Property Map



Source: Gen Mining (2021).

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

The property consists of a total of 21,883 ha, including 46 leases and 933 claim cells.

Portions of the property are subject to net smelter return (NSR) royalties ranging from 1% to 4%. Within the mineral reserve footprint, only the top northern extent of the Marathon deposit (specifically on the North pit) is subject to an NSR royalty of 4%.

On January 26, 2022, Gen Mining completed the acquisition of the remaining 16.5% interest in the project from Stillwater Canada Inc. (Stillwater), a subsidiary of Sibanye Stillwater Limited. Gen Mining now holds 100% of the Marathon Project, and the joint venture agreement dated July 10, 2019 between Stillwater and Gen PGM has been terminated.

1.4 Accessibility, Climate, Local Resources, Infrastructure and Physiography

Access to the property is directly off the Trans-Canada Highway No. 17 and is accessible via gravel road. The property is characterized by moderate to steep hilly terrain with a series of interconnected creeks and lakes surrounded by dense vegetation. Outcrops are common on the property and overburden is generally minimal (0.5 m) with the deepest areas ranging from 3 to 10 m in thickness. The general elevation around the mine site is slightly higher than the overall regional topography. Ground surface elevations around the proposed site range from approximately 260 to over 400 masl with a gradual decrease in elevation from north to south and west to east.

The vegetation consists of northern hardwood and conifer trees, as well as areas with muskeg, which are bogs or wetlands common to boreal forest regions. The project area is bounded to the east by the Pic River and Lake Superior to the south and west.

The climate is typical of the northern Canadian Shield with long winters and short, warm summers. Average annual precipitation in Marathon was 759 mm for 2015-2019 (Pukaskwa station, which is approximately 15 km south of the property). On average, annual snowfall is between November and April with a peak average snow depth of 45 cm in March. The annual average temperature is 1.4°C with the highest average monthly temperature of 15°C in August and lowest in January of -14°C (Marathon Airport 2015-2019).

Electrical power and telephone communication are present at the property and in the Town of Marathon, which is linked to the Ontario power grid. The construction of the East-West Tie Transmission Project was completed in 2022. This is a 450 km double-circuit 230 kV transmission line connecting the Lakehead transfer station in the Municipality of Shuniah near the city of Thunder Bay to the Wawa transfer station located east of the Municipality of Wawa. It will also connect to the Marathon transformer station.

The Marathon airport is located immediately north of the Town of Marathon and runs adjacent to Highway 17 near the southwest corner of the property.

1.5 History

The Marathon property was explored by various companies over the past 60+ years. During this time, 193,057 m of drilling was completed, with most of the drilling delineating the Marathon deposit. Most of the drilling (567 holes and 103,834 m) was completed by Marathon PGM Corp. between 2004 and 2009 to expand the mineral resource and for condemnation holes outside of the proposed open pit area.

The Marathon property went through various ownership changes during the history of the project. The most recent history including Gen Mining started on July 11, 2019, when Gen Mining (through its wholly-owned subsidiary) completed the acquisition of a 51% initial interest in the property, from Stillwater Canada Inc., a wholly owned subsidiary of Sibanye Stillwater Limited, and entered into a joint venture agreement with respect to the property.

On November 30, 2020, Gen Mining completed all the requirements under the joint venture agreement to increase its interest in the property and Joint Venture to 80%. Following the increase in ownership to 80%, Sibanye Stillwater Limited did not continue funding the Joint Venture and its position decreased to 16.5%. Gen Mining purchased Sibanye Stillwater's ownership interest and completed the acquisition of the outstanding portion from Sibanye Stillwater Limited acquiring 100% interest in the property on January 26, 2022.

On March 3, 2021, the Company announced the results of a Feasibility Study completed by G Mining Services.

On December 22, 2021, the Company announced that it had agreed to enter into a definitive Precious Metal Purchase Agreement (PMPA) with Wheaton Precious Metals Corp. (Wheaton). Pursuant to the PMPA, Wheaton will pay Gen Mining total upfront cash consideration of $240 million, $40 million of which was paid on an early deposit basis (March and September 2022) prior to construction, with the remainder payable in four staged installments during construction, subject to various customary conditions being satisfied.

On May 19, 2022, the public hearings conducted by the Joint Review Panel for the Environmental Assessment of the Company's Marathon Project were concluded. The Joint Review Panel process is the highest standard of environmental assessment review in Canada. The project's Environmental Impact Statement and other evidence were subject to a rigorous review by the Joint Review Panel with more than 50 participants. The Joint Review Panel report was delivered on August 3, 2022, with recommendations to the Federal and Provincial governments. The Honourable Steven Guilbeault, Federal Minister of Environment and Climate Change, and The Honourable David Piccini, Ontario Minister of the Environment, Conservation and Parks, each announced on November 30, 2022, that the Company's Marathon Project may proceed, subject to conditions set out in the Federal decision statement and the provincial approval order, respectively. The decision Statement and approval order were made following a thorough, multi-year, joint Federal and Provincial environmental assessment process, with input received from Indigenous groups, the public, federal government departments including the Ministry of Environment Canada and Climate Change, Fisheries and Oceans Canada, Natural Resources Canada and Transport Canada, and provincial government departments including Ministry of Northern Development, Mines, Natural Resources and Forestry, the Ministry of Environment, Conservation and Parks, the Ministry of Transportation, the Ministry of Labour, and the Technical Standards and Safety Authority.

On November 14, 2022, the Biigtigong Nishnaabeg community ratified a Community Benefits Agreement. This agreement between Gen PGM and Biigtigong Nishnaabeg describes the benefits the Biigtigong Nishnaabeg community will receive from the project and details how the project's impact on the community will be mitigated. It includes commitments from the Company regarding environmental management, employment, training and education, business opportunities, social and cultural support, and financial participation.

No previous mining activity has taken place on the property.

1.6 Geology and Mineralization

The Marathon property is situated along the eastern margin of the Proterozoic Coldwell Complex, which is part of the Keweenawan Supergroup of igneous, volcanic, and sedimentary rocks (Figure 1-3).

The Marathon deposit is hosted by the Two Duck Lake Gabbro, a late intrusive phase of the Eastern Gabbro (Figure 1-4). The Eastern Gabbro is a composite intrusion and occurs along the northern and eastern margin of the Coldwell Complex, which intrudes the much older Archean Schreiber-Hemlo Greenstone Belt. The entire Coldwell Complex is considered to have intruded over a relatively short period of time between 1108 and 1094 Ma.

The Marathon deposit consists of several large, thick, and continuous zones of disseminated sulphide mineralization hosted within the Two Duck Lake Gabbro. The mineralized zones occur as shallow dipping sub-parallel lenses that follow the basal gabbro contact and are labelled as footwall, main, hanging wall zones and the W-Horizon. The Main Zone is the thickest and most continuous zone. For 418 drill hole intersections with mineralized intervals greater than 4 m thick, the average thickness is 42 m, and the maximum is 205 m.

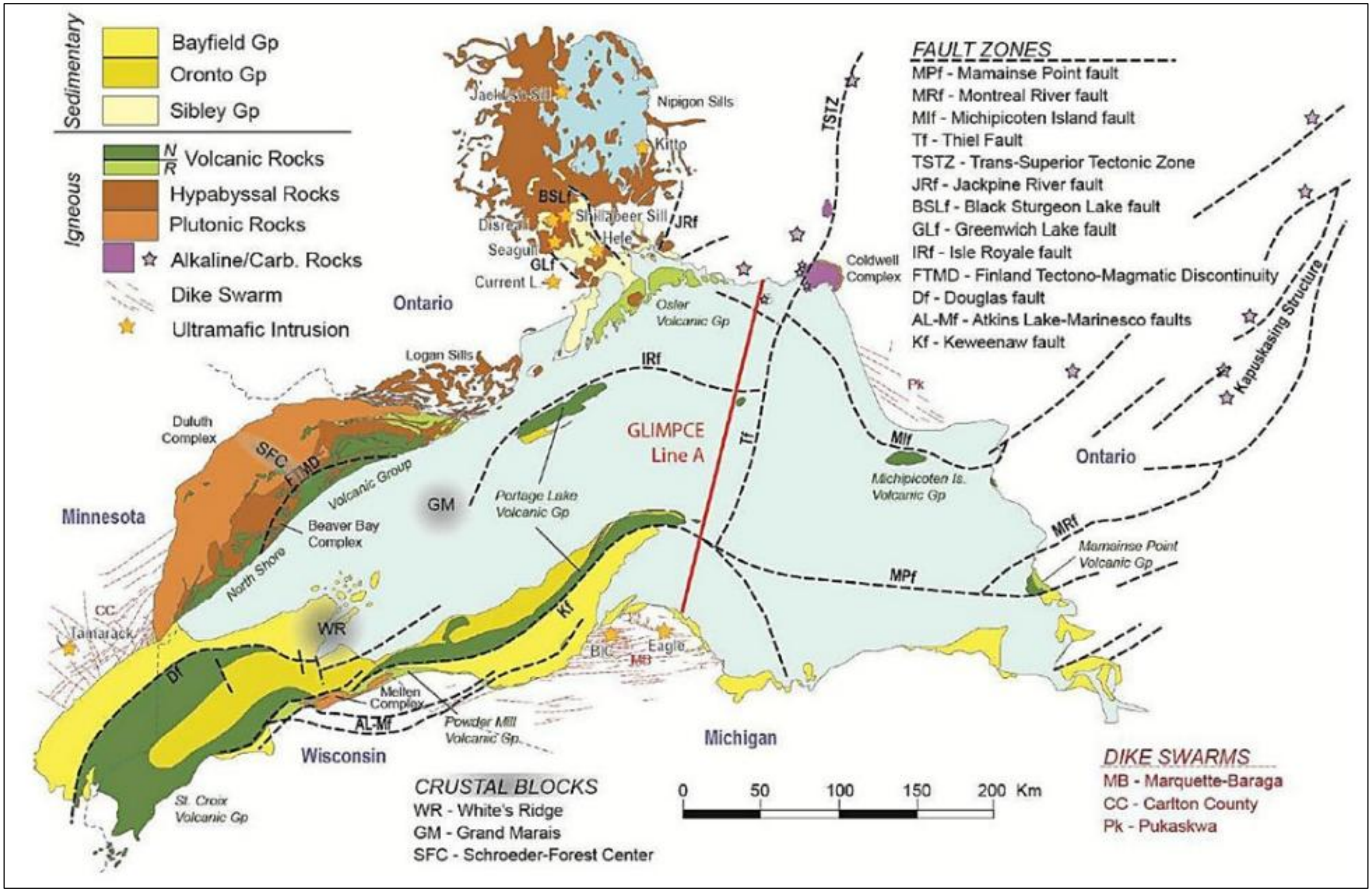
Sulphides in the Two Duck Lake Gabbro consist predominantly of chalcopyrite, pyrrhotite and minor amounts of bornite, pentlandite, cobaltite and pyrite. The proportions of sulphide minerals as determined in a QEMSCAN survey of a bulk sample are 2.75% pyrrhotite, 0.79% copper-iron sulphides (chalcopyrite and bornite), 0.09% pentlandite, and trace amounts of pyrite, galena, and sphalerite.

The relative proportions of pyrrhotite and chalcopyrite vary significantly across the Marathon deposit; however, in general, the sulphide assemblage changes gradually up section from the base to the top of mineralized zones. Sulphides at the base of the Two Duck Lake Gabbro consist predominantly of pyrrhotite and minor chalcopyrite but the relative proportion of chalcopyrite increases up section to nearly 100% chalcopyrite near the top. In the W-Horizon, sulphides consist mainly of chalcopyrite and bornite and minor to trace amounts of pentlandite, cobaltite, pyrite and pyrrhotite. In general, the variations in the chalcopyrite to pyrrhotite ratio across the deposit, and from bottom to top of the deposit, correlates with variations in the copper/palladium ratio, with the highest concentrations of palladium occurring in samples with copper-rich sulphide assemblages.

The model that best explains the Marathon deposit is based on the accumulation of sulphides in basins and troughs of a magma conduit, which underwent significant upgrading of copper and platinum group metals content by the process of multi-stage dissolution grading that was described for similar disseminated mineralization in the Noril'sk region, Russia by Kerr and Leitch (2005).

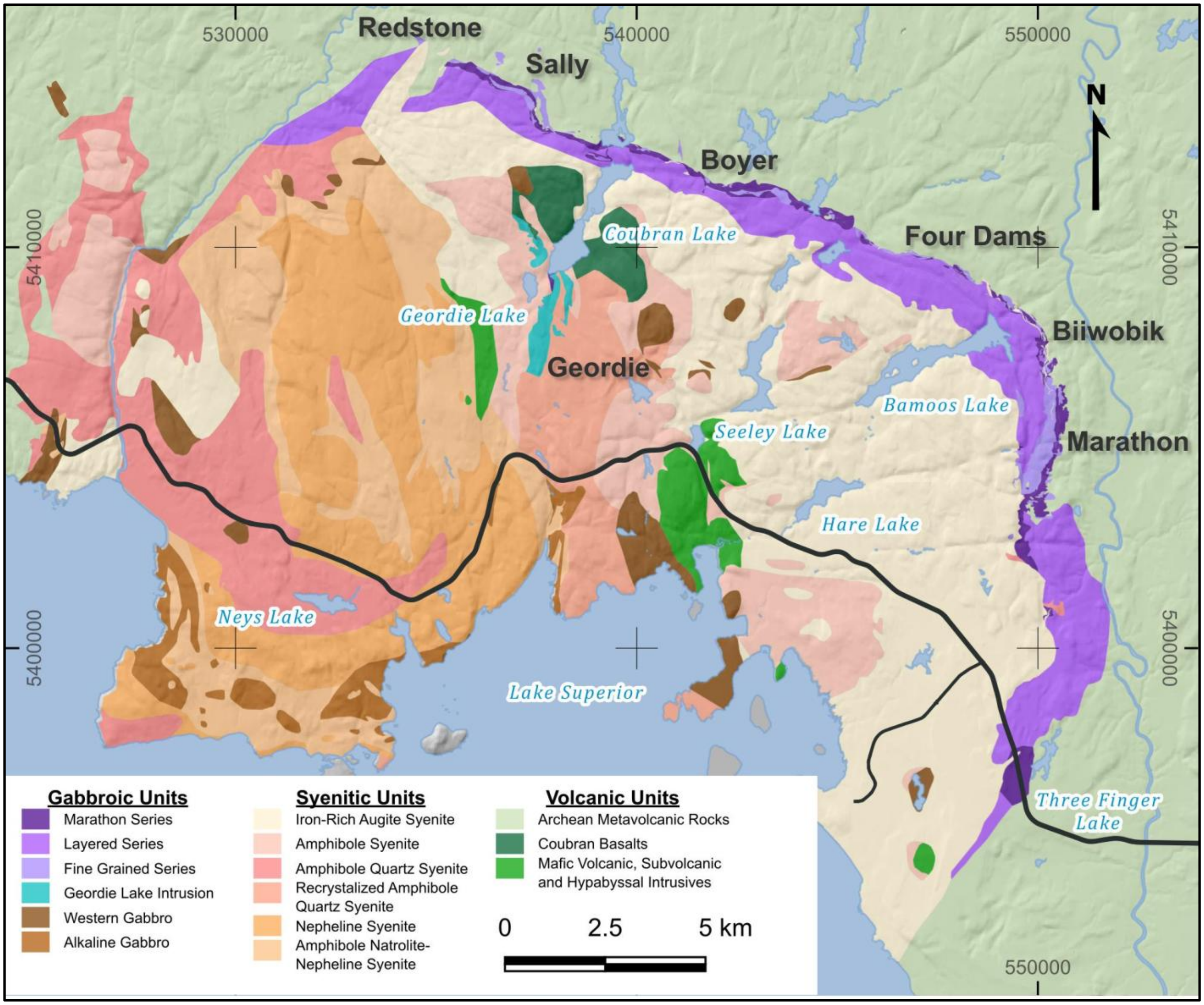
In addition to the Marathon deposit, the property hosts other platinum group metals deposits/mineralization in four additional areas: Geordie, Sally, Boyer, and Four Dams.

Figure 1-3: Regional Structural Geology



Source: Miller and Nicholson (2013).

Figure 1-4: Coldwell Complex Geology



Source: Gen Mining (2024), modified after Walker et al. (1993).

1.7 Deposit Types

The Marathon deposit is one of several mafic to ultramafic intrusive bodies in the Mid-Continent Rift System (MRS) that host significant copper, nickel, or platinum group metals sulphide mineralization. These intrusions are the Yellow Dog peridotite (Eagle deposit), the Tamarack Intrusive Complex (Tamarack deposit), the Current Lake Intrusive Complex (Thunder Bay North deposit), and the numerous intrusions located along the base of the Duluth Complex.

The intrusion and deposition of sulphides within magma conduits has recently been accepted as the dominant mineralization process chosen to explain rift related deposits and has been proposed for the Marathon, Thunder Bay North, and the Eagle deposits. The magma conduit model has grown in favour since it was proposed to explain deposits in the Noril'sk-Talnakh (Noril'sk) region, Siberia and the deposits at Voisey's Bay, Newfoundland and Labrador, Canada.

Comparisons between the MRS and the Voisey's Bay and Noril'sk settings point to several similarities that suggest that the MRS is a likely setting for Ni-Cu mineralization. The continental rifting and associated voluminous igneous activity in all three regions formed in response to the rise of a hot plume of mantle material from deep in the Earth, fracturing the overlying continental crust. In the MRS, melting of the plume produced more than 2 million cubic km of mostly basalt lava flows and related intrusions.

1.8 Exploration

In 2018, Stillwater partnered with PACIFIC (a consortium of industry, government, and academic partners) and completed a production-scale passive seismic survey of the Marathon deposit which resulted in a 3D velocity inversion model.

In 2019, exploration work by Gen Mining consisted of geologic mapping and prospecting at the Boyer zone and the northern extension of the Geordie Deposit. Three trenches were completed at Boyer exposing the continuation of mineralization at surface. A passive seismic survey was completed at Sally to help define deep high-density targets for potential drill testing. Borehole EM surveys were completed by Crone Geophysics on diamond drill holes SL-19-72, M-19-536 and M-19-537.

In 2020, to compliment the previous seismic surveys, a magnetotelluric survey was conducted over a portion of the Marathon deposit and an area immediately west of the Marathon deposit as well as over the Sally deposit and the immediate surrounding area.

In 2021, a high-resolution LiDAR and aerial photography survey was carried out over the entire property. Field mapping programs were carried out at the Four Dams, Willie Lake, and Redstone prospects as well as the area immediately west of the Marathon deposit. Three trenches were completed at the Marathon deposit to better define the mineralization-footwall contact in areas of lower confidence.

The exploration work completed since 2021 has been focused on prospecting the exploration targets north and west of the Main Marathon deposit. No new discoveries were found with the prospecting work primarily focussed on improving understanding of the previously known targets and deposits to prioritize future work programs.

In 2024, Gen Mining engaged ALS Goldspot to initiate an artificial intelligence (AI) driven 2D prospectivity analysis using over 60 years of historical exploration data over the entire land package. This work produced 46 untested exploration targets, six of which were ranked "high" priority and 14 "moderate" priority. The high-priority targets were selected based on their similarities to other known deposits and prospects, upside size potential, and low density of surface prospecting data. These results will be used to guide surface stripping and mapping programs. Also in 2024, 1,001 A-horizon soil samples were collected over 2.5 km^2 grid west of Coubran Lake in the areas between the Geordie and Sally deposits. Several discrete multi-element anomalies were highlighted that will be prospected during future field programs.

1.9 Drilling

In 2019, Gen Mining completed a 12,435 m exploration drilling program on the Marathon property. The program tested several high-priority targets along a strike length of more than 25 km.

In 2020, Gen Mining completed 12 drill holes totalling 5,068 m. The drilling was focused on the Feeder Zone conduit associated with the Main Marathon deposit and the northern limb of the W-Horizon. This drilling followed the successful completion, in 2019, of drill holes M-19-537 and M-19-538 which intercepted the down-dip continuation of the Main Marathon deposit for the first time. The 2020 drilling filled a 300 m gap between the historical drilling and the 2019 drilling south of the 5,404,900N fault. Additional targets included the conductive zone west of the Marathon deposit identified in the 2020 MT survey and the down-dip extension of high-grade Platinum Group Metals mineralization in the W-Horizon.

In 2021, Gen Mining completed 22 drill holes totalling 9,875 m, of which 11 drill holes (5,735 m) were completed at the central feeder zone and followed up on mineralization defined as part of the 2020 drill program. An additional 11 drill holes (4,140 m) were completed at the Biiwobik prospect, testing the Chonolith and Powerline West occurrences.

In 2022, Gen Mining completed 48 drill holes totalling 7327 m. The program was aimed at de-risking mineral resources and gaining confidence in the mineral reserve in the North, Central and South pits. An additional 741 m (2 drill holes), were completed to test continuity between the Main Zone and Central Feeder Zone. Finally, 125 m of drilling was completed as a means of extending drill hole M-21-551, which was completed in 2021 but had to be abandoned due to technical issues prior to reaching its target depth.

In 2024, Gen Mining completed an aggregate 6,871 m drilling campaign at the Biiwobik and Four Dams prospects and the Sally deposit. The Biiwobik program totalled 3,447 m in 8 drill holes and was focused on testing the down-dip extensions and northern extent of the Powerline and Chonolith zones. The Sally deposit drill program consisted of a single drill hole totalling 954 m and was designed to target a large magnetotelluric (MT) anomaly down-dip from that deposit. The Four Dams program totalled 2,470 m in 5 drill holes and was designed to test the down-dip and eastern extension of the Four Dams prospect, including a large untested magnetotelluric target 400 m east of the main Four Dams occurrence.

1.10 Sampling Preparation and Security

The core and trench cut sampling protocol (preparation, analysis, and security procedures) instituted and used by past project operator Marathon PGM Corp. in each of their drilling and other rock sampling programs were identical to those reported in prior NI 43-101 technical reports on the property.

Prior to 2011, all drill core samples were sent for preparation and analysis to Accurassay in Thunder Bay. From 2011 to 2024, all drill core samples were sent for preparation to ALS Minerals in Thunder Bay and for subsequent analysis at the ALS Vancouver facility.

Marathon PGM Corp. continued with a robust quality assurance/quality control (QA/QC) program that had been implemented by that company in the mid-2000s. The QA/QC program consisted of the insertion of reference materials, field blanks and duplicate pair monitoring. All data from the 2009 and 2011 drill programs were examined. Drill data prior to 2009 were previously examined by the qualified person (QP) and accepted for use in previous mineral resource estimates.

The QP reviewed the corresponding laboratory QC data for Gen Mining's 2019-2022 drilling programs, including standards, blanks, and duplicates, and do not consider that the laboratory QC data indicates issues with data accuracy, contamination, or precision.

The QP consider the sampling methods from the current and past drilling programs to be satisfactory and consider the data to be of good quality and acceptable for use in the current Mineral Resource Estimates for the Marathon, Geordie, and Sally deposits.

1.11 Data Verification

1.11.1 Resource Data Verification

The Marathon project was visited by Mr. David Burga, P. Geo. of P&E, an independent qualified person as defined by NI 43-101 on April 4, 2012, during which he collected 10 verification samples from nine holes. The samples were taken by Mr. Burga to AGAT Labs in Mississauga, Ontario, for analysis. Copper, silver, and nickel were analyzed using four-acid digest with AAS finish. Gold, platinum, and palladium were analyzed using lead collection fire assay with ICP-OES finish.

A site visit to the project was undertaken by Mr. Bruce Mackie, P. Geo., of Bruce Mackie Geological Consulting Services on May 4, 2019. As part of the site visit, 12 verification samples from nine diamond drill holes intervals were taken by Mr. Mackie, P.Geo., and submitted to Activation Laboratories Ltd. in Thunder Bay for analysis of Au, Ag, Pt, Pd and Cu.

For both the site visits, drill logs for the sections reviewed were found to be appropriately detailed and present a reasonable representation of geology, alteration mineralization, and structure. No discrepancies in the sample tag numbers within the core trays and the intervals quoted in the Excel spreadsheets were noted.

Based on the results of their investigation, the QP is of the professional opinion that the mineralized drill hole assay results and corresponding drill hole logs reported by Stillwater and Marathon PGM that were the subject of their investigations are verifiable and accurate and portray a reasonable representation of the types of mineralization encountered on the Marathon and Geordie deposits.

Based on the review from the QP, there is good correlation between the independent verification samples and the original analyses in the company database.

Based on the evaluation of the QA/QC program undertaken by Gen Mining, as well as database verification carried out by the QP, it is the QP's opinion that the data are robust and suitable for use in the Mineral Resource Estimates for the Marathon, Geordie, and Sally deposits.

1.11.2 Process Data Verification

The process QP has reviewed the metallurgical test results and the composite samples that were selected for metallurgical testing and considers them suitable for this level of study and for the process design in this report.

1.12 Mineral Processing and Metallurgical Testwork

Metallurgical testing and process flowsheet definition for the Marathon Project dates to 1960. Historical testing has allowed for a thorough review of concepts and criteria to optimize process plant design and metallurgical performance. Tests included crushing, grinding, as well as batch, cycle, and mini-pilot plant-scale flotation testing. The focus of the 2020 metallurgical testwork programs was to initially validate then to optimize the process flowsheet and associated criteria with the priority of maximizing palladium and copper recovery.

The 2020 metallurgical testing, along with data from historical results, were used to shape and optimize the process flowsheet. The 2020 metallurgical testwork (in-lab work) was completed at SGS Canada Inc. (SGS) in Lakefield, Ontario spanning June to December 2020. Additional metallurgical testing was undertaken at SGS in 2022, including specific grinding energy testing for concentrate regrind mill sizing, and additional locked cycle testing on metallurgical drill holes completed by Gen Mining was carried out in 2023 to refine model recovery estimation for payable metals.

Determination of a predictive curve for metal recovery to a combined Cu-PGM concentrate was initially established as part of the 2020 metallurgical testing program. Metal recovery estimates as a function of head grade have been refined in more recent Q4 2022 testwork with separate recovery equations for copper, palladium, platinum, gold, and silver (Table 1-1). Based on the outcome of 2022 testwork and improved metal recovery, a previously considered PGM-scavenger circuit to reprocess the rougher tailings coarse fraction is excluded from current planning.

Table 1-1: Recovery Equations for Metal Recovery to Final Concentrate

Parameter	Formula	Maximum Value
%Rec Cu to Final Conc	$= 97.55 \times (\%\ Cu\ head\ grade)^{0.0239}$	94% Rec Cu
%Rec Pd to Final Conc	$= 89.14 \times (g/t\ Pd\ head\ grade)^{0.0203}$	90% Rec Pd
%Rec Pt to Final Conc	$= 104.51 \times (g/t\ Pt\ head\ grade)^{0.2034}$	84% Rec Pt
%Rec Au to Final Conc	$= 116.51 \times (g/t\ Au\ head\ grade)^{0.1822}$	86% Rec Au
%Rec Ag to Final Conc	$= 50.82 \times (g/t\ Ag\ head\ grade)^{0.6090}$	68% Rec Ag
%Mass Pull to Final Conc	$= 0.625 \times e^{(2.899 \times \%Cu\ head\ grade)}$	2.0% Mass Pull

The process plant metallurgical recovery (at the average head grade) is estimated at an average of 88.0% palladium, 93.5% copper, 75.8% platinum, 72.0% gold, and 65.8% silver.

1.13 Mineral Resource Estimate

The Mineral Resource Estimate presented herein has been prepared following the guidelines of the Canadian Securities Administrators' NI 43-101 and Form 43-101F1 and in conformity with generally accepted "CIM Estimation of Mineral Resource and Mineral Reserves Best Practices" guidelines (2019). Mineral resources that are not mineral reserves do not have demonstrated economic viability. The estimate of mineral resources may be materially affected by environmental, permitting, legal, marketing, or other relevant issues.

The Mineral Resource Estimate in Table 1-2 was completed by the P&E QPs. The QPs are not aware of any known permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors that could materially affect the Mineral Resource Estimate.

Table 1-2: Pit Constrained Mineral Resource Estimates for the Marathon, Geordie, and Sally Deposits (Effective Date November 1, 2024)

Mineral Resource Classification	Tonnage	Pd		Cu		Pt		Au		Ag	
	(kt)	(g/t)	(koz)	(%)	(M lbs)	(g/t)	(koz)	(g/t)	(koz)	(g/t)	(koz)
Marathon Deposit											
Measured	163,976	0.56	2,973	0.20	712	0.18	970	0.07	358	1.7	9,089
Indicated	38,055	0.39	476	0.18	153	0.13	159	0.06	71	1.6	1,896
Measured+Indicated	**202,031**	**0.53**	**3,449**	**0.19**	**865**	**0.17**	**1,129**	**0.07**	**429**	**1.7**	**10,985**
Inferred	2,906	0.36	34	0.16	10	0.13	12	0.06	6	1.2	112
Geordie Deposit											
Indicated	17,268	0.56	312	0.35	133	0.04	20	0.05	25	2.4	1,351
Inferred	12,899	0.51	212	0.28	80	0.03	12	0.03	14	2.4	982
Sally Deposit											
Indicated	24,801	0.35	278	0.17	93	0.2	160	0.07	56	0.7	567
Inferred	14,019	0.28	124	0.19	57	0.15	70	0.05	24	0.6	280
Total Project											
Measured	163,976	0.56	2,973	0.20	712	0.18	970	0.07	358	1.7	9,089
Indicated	80,124	0.41	1,066	0.21	379	0.13	339	0.06	152	1.5	3,814
Measured+Indicated	**244,100**	**0.51**	**4,039**	**0.20**	**1,091**	**0.17**	**1,309**	**0.06**	**510**	**1.6**	**12,903**
Inferred	29,824	0.39	370	0.22	147	0.10	94	0.05	44	1.4	1,374

Notes: **1.** Mineral resources were estimated using the Canadian Institute of Mining, Metallurgy and Petroleum (CIM), CIM Standards on Mineral Resources and Reserves, Definitions (2014) and Best Practices Guidelines (2019) prepared by the CIM Standing Committee on Reserve Definitions and adopted by CIM Council. **2.** Mineral resources that are not mineral reserves do not have demonstrated economic viability. The estimate of mineral resources may be materially affected by environmental, permitting, legal, marketing, or other relevant issues. **3**. The inferred mineral resource in this estimate has a lower level of confidence that that applied to an indicated mineral resource and must not be converted to a mineral reserve. It is reasonably expected that the majority of the inferred mineral resource could be upgraded to an indicated mineral resource with continued exploration. **4.** The Marathon mineral resource is reported within a constrained pit shell at a NSR cut-off value of C$13.6/t. **5.** Marathon NSR (C$/t) = (Cu % x 111.49) + (Ag g/t x 0.73) + (Au g/t x 80.18) + (Pd g/t x 56.02) +(Pt g/t x 36.49) – 2.66. **6.** The Marathon Mineral Resource Estimate was based on metal prices of US$1,550/oz Pd, US$4.250/lb Cu, US$1,100/oz Pt, US$2,300/oz Au and US$27/oz Ag, and a CAD:USD exchange rate of C$1.35 to US$1.00. **7.** The Sally and Geordie mineral resources are reported within a constraining pit shell at a NSR cut-off value of C$13/t. **8.** Sally and Geordie NSR (C$/t) = (Ag g/t x 0.48) + (Au g/t x 42.14) + (Cu % x 73.27) + (Pd g/t x 50.50) + (Pt g/t x 25.07) – 2.62. **9.** The Sally and Geordie Mineral Resource Estimate was based on metal prices ofUS$1,600/oz Pd, US$3.00/lb Cu, US$900/oz Pt, US$1,500/oz Au and US$18/oz Ag, and a CAD:USD exchange rate of 1.30 C$ to 1.00 US$. **10.** Contained metal totals may differ due to rounding.

1.13.1 Mineral Resource Estimate – Marathon Deposit

Mineral resources for the Marathon deposit have been constrained within an optimized pit shell. The results within the constraining pit shell are used solely for the purpose of reporting mineral resources and include measured, indicated and inferred mineral resources. Pit-constrained mineral resources are reported using a NSR cut-off value of $13.6 /t. Wireframe modelling utilized Seequent Leapfrog Geo™ software. Mineral resource estimation was carried out using Datamine Studio RM software. Variography was carried out using Snowden Supervisor™. Pit optimization was carried out using Whittle.

The modelled Marathon mineralization domains extend along a corridor 2,000 m wide and 3,500 m in length. An orthogonal block model was established with the block model limits selected to cover the extent of the mineralized structures, the proposed open pit design, and to reflect the general nature of the mineralized domains. The block model consists of separate variables for estimated grades, rock codes, percent, bulk density, and classification attributes. A sub-celled block model was used to accurately represent the volume and tonnage contained within the constraining mineralized domains. The block size used in the estimate is 5 m (easting), 10 m (northing), 5 m (elevation) with no rotation assumed.

The Mineral Resource Estimate was constrained by mineralization domains that form hard boundaries between the respective composite samples. Block grades were estimated in a single pass with inverse distance cubed (ID3) interpolation using a minimum of four and a maximum of 12 composites with a maximum of three samples per drill hole. Composited samples were selected within a 200 m x 200 m x 50 m diameter search envelope oriented to the dip and dip direction of the mineralization. The Datamine dynamic anisotropy method was used to estimate dip and dip direction values for each block. This has allowed the search ellipse to be optimized to the dip and dip direction of the mineralization. For each grade element, an uncapped nearest neighbour model was also generated using the same search parameters. An NSR block model was subsequently calculated from the estimated block grades.

Blocks were classified algorithmically based on the local drill hole spacing within each domain. All blocks within 70 m of four or more drill holes were classified as measured and blocks within 120 m of three or more drill holes were classified as indicated. All additional estimated blocks were classified as inferred.

The QPs consider that the information available for the Marathon deposit is reliable, demonstrates consistent geological and grade continuity, and satisfies the requirements for a Mineral Resource Estimate.

1.13.2 Mineral Resource Estimate – Geordie and Sally Deposits

Mineral resource estimates were generated by the P&E QPs for the Geordie and Sally deposits. The methodologies to create the block models were similar to those used for the Marathon deposit. The GEOVIA GEMS™ V6.8.2 database was used for the Geordie and Sally deposit Mineral Resource Estimates.

1.14 Mineral Reserve Estimate

Proven and probable mineral reserves are modified from measured and indicated mineral resources. Inferred mineral resources are set to waste.

The Marathon deposit is amenable to open pit mining practices. Mineral reserves are based on the 2024 Feasibility Study Update mine plan for Marathon. The open pit is based on the results of Pseudoflow sensitivity analysis and then designed into detailed pit phases for production scheduling purposes. Run-of-mine mill feed estimates are based on 5 m x 10 m x 5 m SMU (selective mining unit) block sizes, with further block to block edge dilution and recovery factors considered.

Mineral reserves are reported at the point of delivery to the primary crusher using the 2014 CIM Definition Standards, and have an effective date of November 1, 2024. The Qualified Person for the estimate is Mr. Marc Schulte, P.Eng., a member of MMTS.

Proven and probable mineral reserves are summarized in Table 1-3.

Table 1-3: Marathon Project Open Pit Mineral Reserve Estimates (Effective Date of November 1, 2024)[1-7]

Mineral Reserves	Tonnage	Pd		Cu		Pt		Au		Ag	
	Mt	g/t	koz	%	Mlbs	g/t	koz	g/t	koz	g/t	koz
Proven	115.5	0.66	2,434	0.22	549	0.20	754	0.07	264	1.7	6,242
Probable	12.7	0.47	193	0.20	56	0.15	61	0.06	26	1.6	635
Total Proven & Probable	**128.3**	**0.64**	**2,627**	**0.21**	**605**	**0.20**	**815**	**0.07**	**291**	**1.7**	**6,877**

Notes: **1**. The mineral reserves estimate were prepared by Marc Schulte, P.Eng., who is also an independent Qualified Person, reported using the 2014 CIM Definition Standards, and have an effective date of November 1, 2024. **2**. Mineral reserves are a subset of the measured and indicated mineral resources estimate that has an effective date of November 1, 2024. Inferred class resources are treated as waste. **3**. Mineral reserves are based on the 2024 Marathon Project Feasibility Study Update mine plan. **4**. Mineral reserves are mined tonnes and grade; the reference point is the process plant feed at the primary crusher. Process plant feed tonnes and grade include consideration of mining operational dilution and recovery. **5**. Mineral reserves are reported at a cutoff grade of $16/t NSR. The NSR cut-off assumes Pd Price of US$1,525/oz, Cu price of US$4.00/lb, Pt Price of US$950/oz, Au price of US$2,000/oz, Ag price of US$24/oz, at an exchange rate of 0.74 US dollar per 1.00 Canadian dollar; payable percentages of 95% for Pd, 96.5% for Cu, 93% for Pt, 93.5% for Au, 93.5% for Ag; refining charges of US$24.5/oz for Pd, US$0.079/lb for Cu, US$24.5/oz for Pt, US$0.50/oz for Ag; minimum deductions of 2.875 g/t for Pd, 1.1% for Cu, 2.875 g/t for Pt, 1.0 g/t for Au, 30.0 g/t for Ag; treatment charges of US$79/t and transport and off-site costs of US$125/t concentrates, concentrate ratio of 90.9%; metallurgical recoveries are based on variable grade dependent metallurgical recovery curves (See Section 13). **6**. The NSR cut-off grade covers processing costs of $8.27/t, general and administrative (G&A) costs of $2.63/t, sustaining and closure costs of $3.13/t, ore mining differential costs of $0.57/t, and stockpile rehandle costs of $1.40/t. **7**. Numbers have been rounded, which may result in summation differences.

Changes in the following factors and assumptions may affect the mineral reserve estimate: metal prices and foreign exchange rates; interpretations of mineralization geometry and continuity of mineralization zones; geotechnical and hydrogeological assumptions; changes to pit designs from those currently envisaged; ability of the mining operation to meet the annual production rate; changes to operating and capital cost assumptions; mining and process plant recoveries; and the ability to meet and maintain permitting and environmental license conditions and the ability to maintain the social license to operate.

1.15 Mining Methods

Mining is based on conventional open pit methods suited for the deposit location and local site requirements. Open pit operations will commence 24 months prior to process plant start-up and are anticipated to run for 13 years.

The economic pit limits are determined using the Pseudoflow implementation of the Lerchs-Grossman algorithm. Ultimate pit limits are split up into phases or pushbacks to target higher economic margin material earlier in the mine life; four phases in the northern portion of the deposit, one phase in the central part of the deposit, and two phases in the southern part of the deposit.

The production is planned on 10 m bench heights in both ore and waste, with the ability to flitch mine on 5 m intervals in ore, should grade control require it. Pit designs carry a double benching configuration, with 20 m between berms. Geotechnical analysis has defined several unique pit configuration zones based on the encountered ground properties within those zones. Bench face angles ranging from 65 to 75 degrees and inter-ramp angles ranging from 48 to 55 degrees.

Process plant feed targets are 10.1 Mt/a, with a ramp-up period assumed over the first 2 years of mill operations. Run-of-mine ore from the pits will be sent to a primary crusher to the southwest, within 2 km of the pit rim, or stored within an ore stockpile directly northeast of the crusher. Waste rock will be deposited into waste rock storage facilities (MRSA) directly adjacent to the pits, backfilled into mined out pits, or used as rockfill to construct a tailing's dam 3 km to 4 km southwest of the pit rim. Estimated PAG waste rock will be stored sub-aqueously within the tailings facility, or backfilled into mined out pits.

Cut-off grade optimization has been carried out on the mine production schedule. The bottom cut-off grade for the process plant feed is dynamically altered in each scheduled period, based on the process plant throughput target and the availability of ore in the open pit. Quantities of mined lower grade ore, exceeding the annual process plant feed target, are stockpiled for processing later in the mine life, preferentially treating higher grade ores earlier in the mine life. The stockpiled ore is planned to be re-handled back to the crusher during the mine life.

Figure 1-5 summarizes the proposed ore and waste schedule for the 2024 Feasibility Study Update Mine Plan. Owner-managed mining and fleet maintenance operations are planned for 365 days per year, with two 12-hour shifts per day. An allowance of five days of no mine production has been built into the mine schedule to allow for adverse weather conditions.

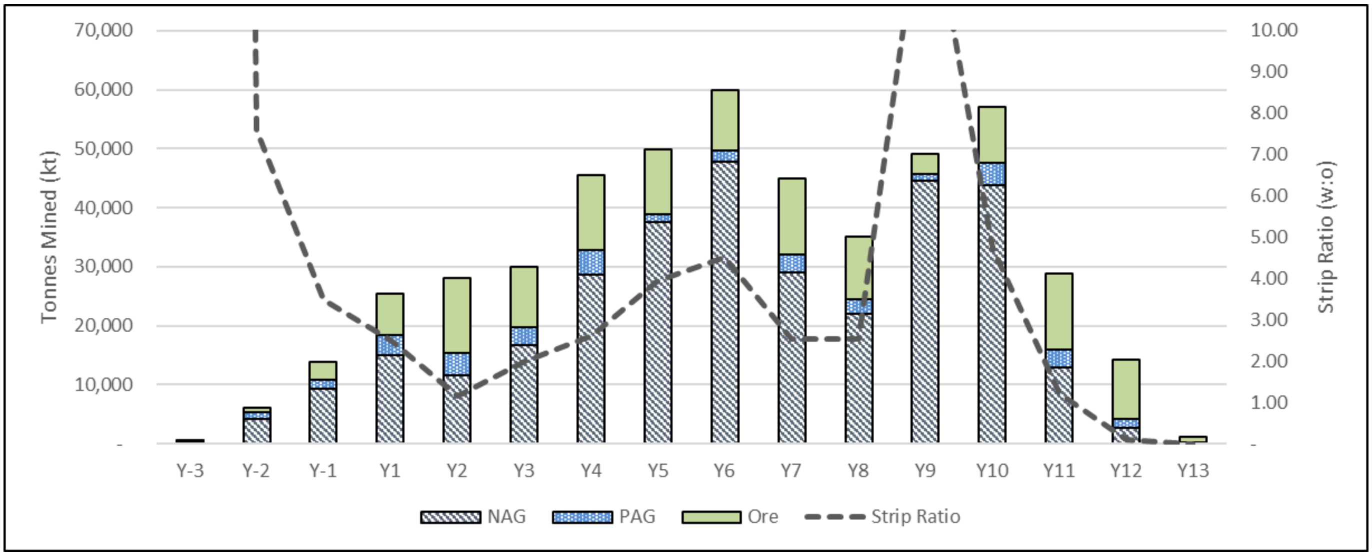
The mining fleet will include diesel-powered rotary drills with 229 mm bit size for bulk production drilling and down-the-hole (DTH) drills with 160 mm bit size for highwall drilling; 29 m^3 bucket-sized hydraulic shovels and 20 m^3 bucket-sized wheel loaders for bulk production loading and 4.5 m^3 bucket-sized diesel hydraulic excavators for ore and grade control production loading; 246 and 92 t payload rigid-frame haul trucks for production hauling; plus ancillary and service equipment to support the mining operations. In-pit and perimeter dewatering systems will be established for each pit. All surface water and precipitation encountered in the pits will be directed out of the pits and into ex-pit settling ponds by ditching, in pit sumps, and diesel-driven pumps.

The initial mine equipment fleet is assumed to be paid back through a lease arrangement with the suppliers. All expansion and replacements to the fleet are planned as traditional capital purchases in the period they are required.

Maintenance on mine equipment will be performed in the field with major repairs to mobile equipment conducted in the workshops located near the plant facilities, within 3 km of the pit rim.

Annual mine operating costs per tonne mined are estimated to range from $2.76 to $5.12/t with a life-of-mine average (LOM) of $3.49/t mined. Mine operations will include production drilling, blasting, loading, hauling, ore control, and pit, haul road, and waste pile maintenance functions. Mobile equipment maintenance operations and mine technical services will also be managed by the Owner and are included in the estimated mining costs.

Figure 1-5: Mine Production Schedule



Source: MMTS (2025).

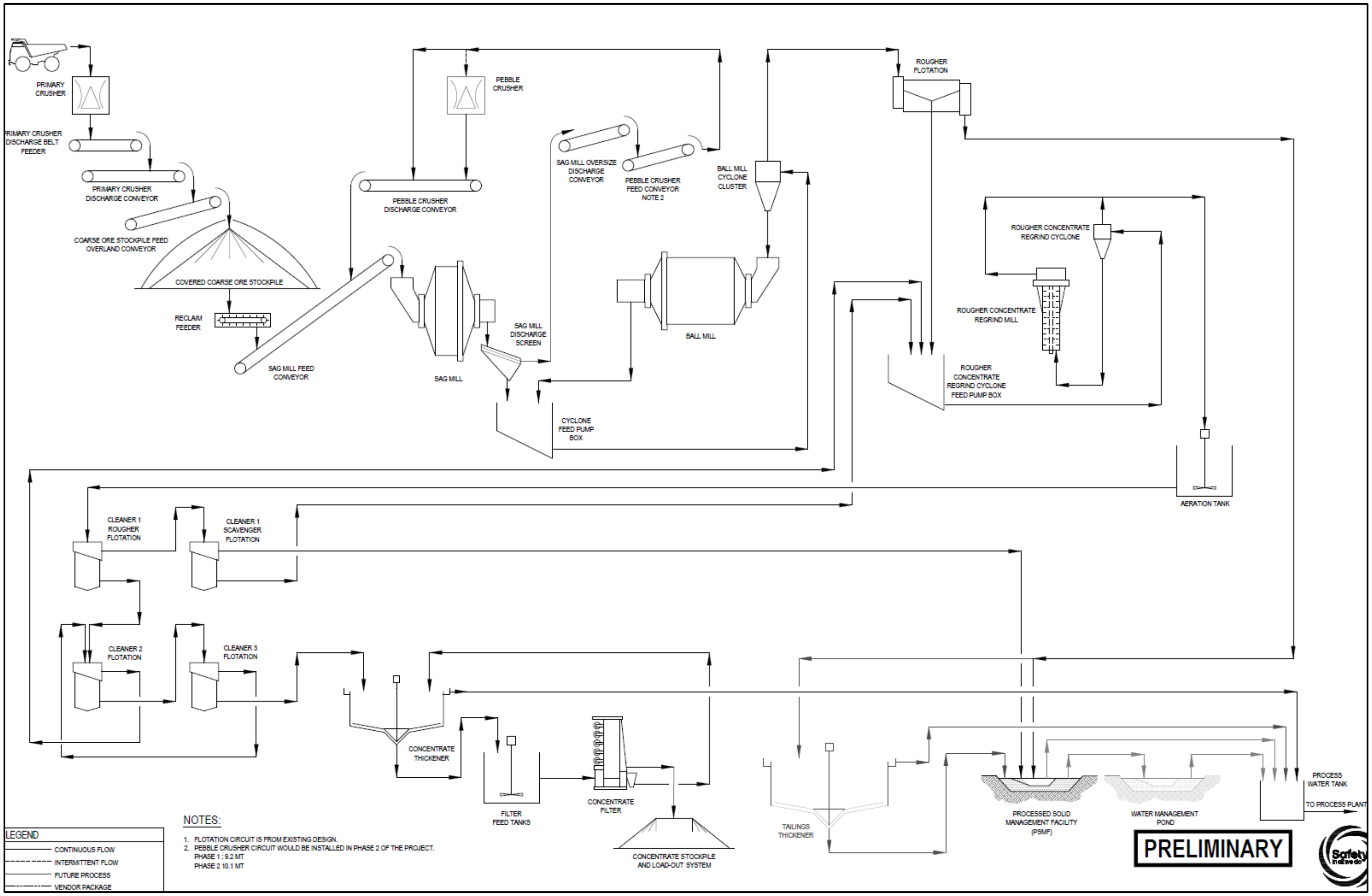
1.16 Recovery Methods

The Marathon Project process design is based on 2020-2023 metallurgical test programs and operational design criteria focused on the recovery of platinum group metals and copper. The process plant flowsheet includes a conventional comminution circuit consisting of a SAG mill, followed by a ball mill (an “SAB” circuit). A pebble crusher is added following the initial capital phase and is assumed to be required to achieve the ultimate plant throughput at 10.1 Mt/a.

After the comminution circuit, the flowsheet (Figure 1-6) includes a flotation circuit, followed by concentrate dewatering and tailings impoundment. Cu-PGM flotation includes a rougher flotation circuit followed by regrinding rougher concentrate and a three-stage cleaner circuit.

The processing plant will produce a Cu-PGM concentrate for shipment off site.

Figure 1-6: Optimized Process Flowsheet



Source: Ausenco (2024).

1.17 Project Infrastructure

1.17.1 Regional Infrastructure and Project Design

The existing regional infrastructure provides the project with logistical opportunities for project execution and operations, including the availability and movement of personnel, materials, equipment and consumables to site, and the transport of Cu-PGM concentrate by rail or highway to third-party smelters.

Project design for the feasibility study update has considered access roads, processing facilities, workshops, warehouse, administrative buildings, water treatment, explosive plant, communication systems, power and power transmission lines, water management, and environmental controls. Off-site infrastructure (including the transload concentrate facility, assay laboratory and accommodation units) to support the project and operation has been included.

1.17.2 Tailings Storage Facility

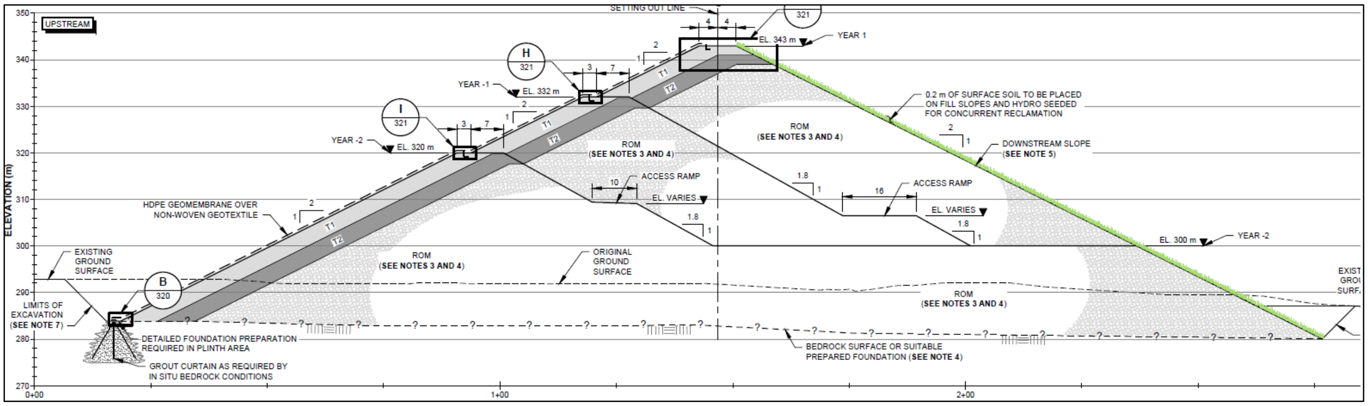
The tailings storage facility (TSF) and associated water management facilities have been designed to meet the requirements of the *Lakes and River Improvement Act* (LRIA) Ministry of Natural Resources and Forestry (MNRF, 2017) and the 2021 Canadian Dam Association (CDA) guidelines. The TSF is located west of the processing plant and generally southwest of the open pits.

The TSF design methodology includes for raising perimeter embankments using downstream construction with run-of-mine rockfill (Figure 1-7). The embankment will be primarily founded directly on bedrock or competent overburden. The majority of the TSF area provides for robust foundation conditions primarily consisting of exposed bedrock. A thin, intermittent layer of glacial drift (sand and gravels) is present within localized areas. The upstream transition and filter zones are graded to the tailings and a high-density polyethylene geomembrane is included on embankment faces to minimize seepage. The embankments will be raised in stages through the life of mine to provide the required storage capacity for tailings and temporary water management. The embankment stability exceeds the factor of safety requirements outlined in LRIA and CDA guidelines for all stages of mine life (construction, operation, and closure).

The TSF arrangement includes two storage cells. Cell 1 and Cell 2A will provide storage for the initial production years; Cell 2A and 2B will provide storage for the remaining production years. Potentially acid generating (PAG or Type 2) material will be stored in Cell 2A (designed to ensure PAG material is saturated for closure conditions and in perpetuity).

The TSF will provide permanent, secure confinement for approximately 120 Mt of tailings material and 30 Mt of PAG mine rock. The available storage capacity within the TSF has been aligned with production profile requirements for the life of mine. The remaining required capacity for tailings and PAG material storage is provided by backfilling the South and/or Central pits once mined out.

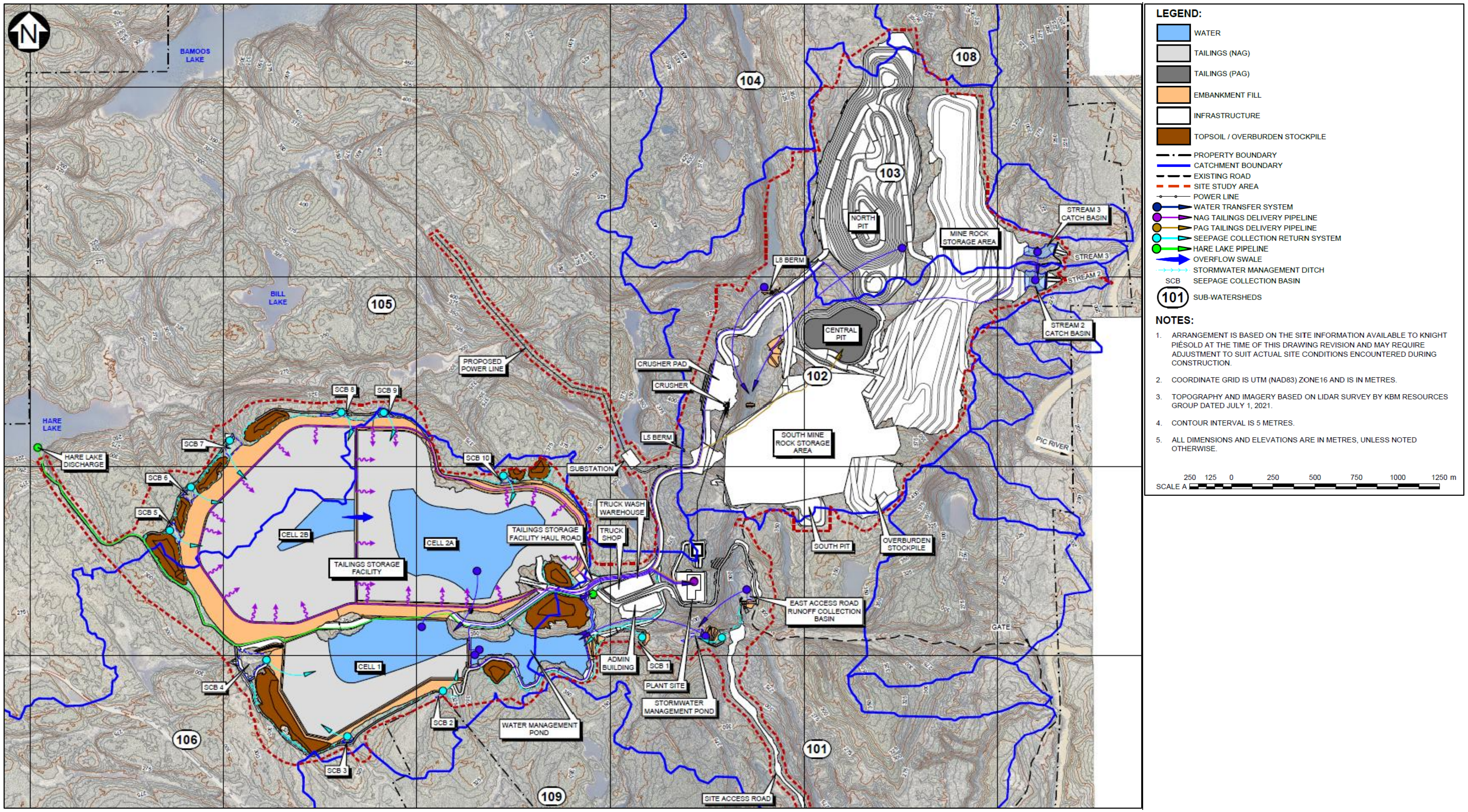
Figure 1-7: TSF Typical Design Section



Source: KP (2023).

The water management facilities (Figure 1-8) associated with the TSF include a water management pond and a stormwater management pond. The water management pond is located east of Cell 1 and will be the source of plant operating water, manage contact water from the site and allow for seasonal discharge to Hare Lake as required. An additional collection basin, the East Access Road collection basin (EARCB) is planned east of the plant site and below the main site access road. Together, the stormwater management pond and east access road collection basin will manage contact water from the plant area.

Figure 1-8: General Arrangement of Site, TSF and Water Management System



1.18 Market Studies and Contracts

1.18.1 Metal Price Data

The information in Table 1-4 outlines the considerations used for determining the metal price assumptions for the economic analysis.

Table 1-4: Commodity Prices and Exchange Rates

Metal	Price
Palladium (oz)	$1,525
Copper (lb)	$4.00
Gold (oz)	$2,000
Platinum (oz)	$950
Silver (oz)	$24.00
CAD:USD Foreign Exchange Rate	1.35

Note: As of November 1, 2024 the 3-year averages are as follows: Palladium - US$1,523/oz, Copper at U$4.02/lb, Platinum at US$964/oz, Gold at US$1,995/oz and Silver at US$24.02/oz. Project economic sensitivities to changes in metal prices are evaluated in Section 22. Numbers have been rounded for simplicity. Source: Factset, 2024.

1.18.2 Concentrate Sale

Gen Mining has run a competitive tender process with multi-metallic international smelters that can recover PGMs. Firm term sheets have been received from domestic and international smelters with competitive treatment charges, refining charges (TC/RC) and payability terms reflecting the high value per tonne and potential for higher margins than traditional clean copper concentrates.

Final payment terms will be based on prevailing metal prices from the London Metals Exchange (copper) and the London Bullion Market Association (palladium, platinum, gold, and silver), subject to payabilities and minimum deductions. The economic model assumes an average of TC/RCs and payability terms between smelters where the product is envisioned to be sold. A summary of the payment terms and costs is presented in Table 1-5 and Table 1-6.

Table 1-5: Payable Metals in Concentrates

Payable Element	Approximate Net Payable Rates (%)	Minimum Deductions
Palladium	95.0	2.6 g/t
Copper	96.5	1.1%
Gold	75.0	1.0 g/t
Platinum	77.0	2.6 g/t
Silver	75.0	30 g/t

Table 1-6: Treatment and Refining Charges

Element	Treatment Charge	Refining Charge
Palladium	-	US$24.50/oz
Copper	US$79.00/dmt	US$0.079/lb
Gold	-	US$5.00/oz
Platinum	-	US$24.50/oz
Silver	-	US$0.50/oz

1.19 Environmental, Permitting and Social Considerations

1.19.1 Permitting

The Environmental Assessment for the project was approved on November 30, 2022 in accordance with the *Canadian Environmental Assessment Act* (CEAA, 2012) and Ontario's *Environmental Assessment Act* through a Joint Review Panel pursuant to the Canada-Ontario Agreement on Environmental Assessment Cooperation (2004).

As of the effective date of this technical report, the project is in the process of obtaining various federal, provincial, and municipal permits, approvals, and licences required to construct and operate the project.

Sixteen Indigenous groups were identified by the Crown (Canada and Ontario) as having a potential interest in the project. Of the 16 Indigenous groups, seven indicated they were interested in participating in consultation processes related to the project. The seven groups are the Biigtigong Nishnaabeg First Nation, Pays Plat First Nation, Mitchipicoten First Nation, Ginoogaming First Nation, Superior North Shore Métis – MNO, Jackfish Métis – Ontario Coalition of Indigenous Peoples, and Red Sky Métis Independent Nation.

1.19.2 Communities Proximal to the Project

The project is situated within the geographic territory of the Robinson Superior Treaty area. It is also within lands claimed by Biigtigong Nishnaabeg, as it asserted exclusive Aboriginal Title. In November 2022, a Community Benefits Agreement was completed between Biigtigong Nishnaabeg and Gen Mining for the development and operation of the project.

The Town of Marathon is the closest population centre to the project site. The town has a population of approximately 3,200 and is located 10 km to the south of the site. The site lies partially within the municipal boundaries of the Town of Marathon, as well as partially within the unorganized townships of Pic, O'Neil, and McCoy.

1.20 Capital and Operating Costs

1.20.1 Capital and Operating Cost Summaries

The summary of the project's capital and operating costs are presented in Table 1-7 and Table 1-8.

Table 1-7: Capital Costs

Capital Costs	Units	Value
Initial Capital*	$M	992
Pre-Production Revenue	$M	(184)
Initial Capital (Adjusted)[1]	**$M**	**809**
Life-of-Mine Sustaining Capital	$M	565
Total Capital Cost (Adjusted)	**$M**	**1,374**
Closure Costs	$M	72

Note: *Lease drawdowns net of lease payment during the construction and pre-production periods.

Table 1-8: Operating Costs

Category	Total Costs	Unit Cost
	($M)	($/t Processed)
Mining	1,626	12.93
Processing	1,077	8.57
G&A	329	2.62
Concentrate Transport Costs	247	1.96
Treatment & Refining Charges	299	2.38
Royalties	12	0.10
Total Operating Cost	**3,590**	**28.56**

1.20.2 All-In Sustaining Cost Summary

The AISC, which includes closure, reclamation, and sustaining capital costs but excludes the impact of the Wheaton PMPA is presented in Table 1-9 and averages US$781/oz PdEq or US$2.05/lb CuEq over the life of mine.

Table 1-9: AISC Cost Summary

Category	Total Costs ($M)
Total Operating Cost	3,590
Closure & Reclamation	72
Sustaining Capital	565
All-in Sustaining Cost (AISC)	**4,228**
All-in Sustaining Cost (AISC)[1]	**US$781/oz PdEq**
All-in Sustaining Cost (AISC)[1]	**US$2.05/lb CuEq**

Note: [1] Refer to Section 2 for details on PdEq and CuEq calculation.

1.21 Economic Analysis

The economic analysis is carried out in nominal terms (i.e., without inflation factors) as of the effective date of the technical report and in Canadian dollars without any project financing but inclusive of the Wheaton PMPA, equipment financing and costs for closure bonding.

The economic results are calculated as of the beginning of Q1 Year -3, which corresponds to the start of the pre-production initial capital phase (over 13 quarters), including engineering and procurement, with all prior costs treated as sunk costs but considered for the purposes of taxation calculations.

Key results and assumptions used in the feasibility study are summarized in Table 1-10 and Table 1-11.

Table 1-10: Key Economic Input Assumptions

Price Assumptions	Units	Value
Palladium	US$/oz	1,525
Copper	US$/lb	4.00
Platinum	US$/oz	950
Gold	US$/oz	2,000
Silver	US$/oz	24.00
Exchange Rate	CAD/USD	1.35
Diesel Fuel	$/L	1.10
Electricity	$/kWh	0.07

Note: Commodities listed in order of revenues.

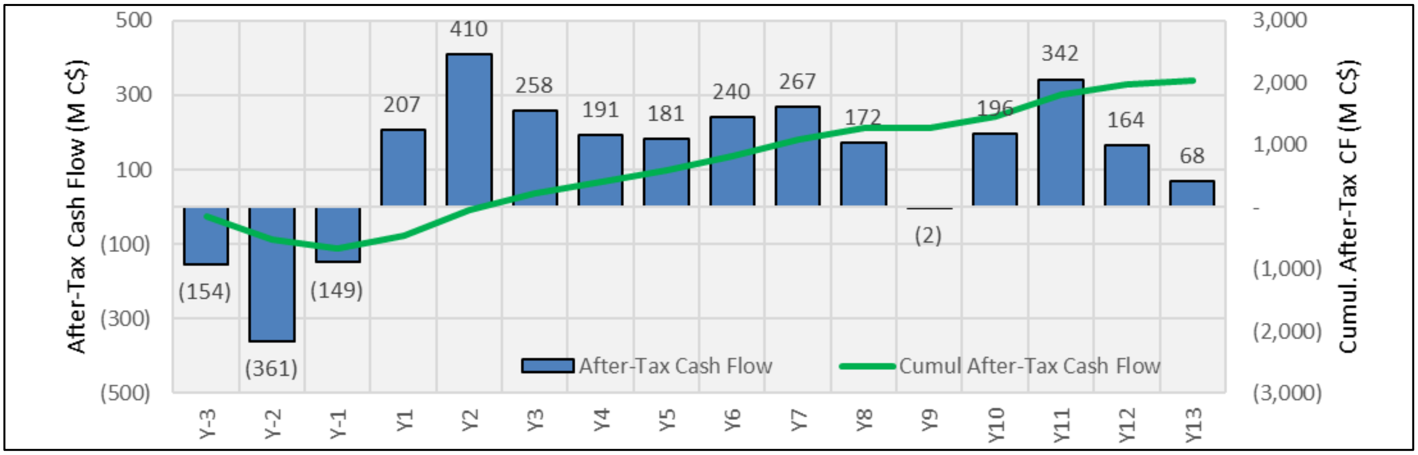
Table 1-11: Economic Analysis

Economic Analysis	Units	Value
Pre-Tax Undiscounted Cash Flow	$M	3,009
Pre-Tax NPV6%	$M	1,660
Pre-Tax IRR	%	35.1
Pre-Tax Payback	years	1.7
After-Tax Undiscounted Cash Flow	$M	2,031
After-Tax NPV6%	$M	1,070
After-Tax IRR	%	27.6
After-Tax Payback	years	1.9

1.21.1 Project Cash Flow (After-Tax)

A summary of the life-of-mine cash flow is presented in Figure 1-9.

Figure 1-9: Project Cash Flow (After-Tax)



Source: Ausenco (2025).

1.21.2 Sensitivities

The project has significant leverage to palladium and copper prices. The after-tax valuation sensitivities for the key metrics are shown in Table 1-12.

Table 1-12: Economic Sensitivity Tables

After-Tax NPV 6% Results		Palladium Price Sensitivity (US$/oz)							
		800	1,000	1,250	1,500	1,525	1,750	2,000	2,200
Copper Price Sensitivity (US$/lb)	2.50	-291	-9	308	612	643	916	1,214	1,466
	3.00	-120	145	452	758	788	1,057	1,368	1,606
	3.50	41	296	598	899	929	1,211	1,509	1,746
	4.00	194	438	741	1,040	**1,070**	1,352	1,649	1,886
	4.50	337	582	883	1,195	1,225	1,492	1,788	2,023
	5.00	484	723	1,023	1,335	1,365	1,632	1,927	2,165
	5.50	625	866	1,178	1,475	1,505	1,771	2,067	2,306

After-Tax IRR Results		Palladium Price Sensitivity (US$/oz)							
		800	1,000	1,250	1,500	1,525	1,750	2,000	2,200
Copper Price Sensitivity (US$/lb)	2.50	0.0%	5.7%	13.5%	19.9%	20.5%	25.5%	30.7%	34.5%
	3.00	2.8%	9.6%	16.4%	22.4%	23.0%	27.8%	32.7%	36.4%
	3.50	7.0%	12.9%	19.2%	24.8%	25.4%	30.0%	34.7%	38.3%
	4.00	10.5%	15.8%	21.7%	27.1%	**27.6%**	32.1%	36.6%	40.1%
	4.50	13.6%	18.5%	24.1%	29.3%	29.8%	34.1%	38.5%	41.9%
	5.00	16.4%	21.0%	26.4%	31.4%	31.9%	36.0%	40.3%	43.6%
	5.50	19.0%	23.5%	28.6%	33.4%	33.8%	37.8%	42.1%	45.3%

After-Tax Results	Operating Cost Sensitivity				
	+30%	+15%	0%	-15%	-30%
NPV 6% ($M)	669	871	**1,070**	1,282	1,479
Payback (y)	2.3	2.1	**1.9**	1.8	1.6
IRR (%)	21.2%	24.6%	**27.6%**	30.5%	33.1%

After-Tax Results	Capital Cost Sensitivity				
	+30%	+15%	0%	-15%	-30%
NPV 6% ($M)	860	966	**1,070**	1,173	1,277
Payback (y)	3.0	2.3	**1.9**	1.5	1.2
IRR (%)	19.6%	23.1%	**27.6%**	33.8%	42.7%

Discount Rate Sensitivity	NPV (After-Tax) ($M)
0%	2,031
5%	1,191
6%	**1,070**
8%	862
10%	691

Foreign Exchange Rate CAD:USD	NPV (After-Tax) ($M)
1.25	840
1.30	955
1.35	**1,070**
1.40	1,199
1.45	1,313

Fuel Price Sensitivity	NPV (After-Tax) ($M)
0.90	1,097
1.00	1,083
1.10	**1,070**
1.17	1,056
1.30	1,043
1.40	1,030

Power Price Sensitivity ($/kWh)	NPV (After-Tax) ($M)
0.05	1,124
0.06	1,090
0.07	**1,070**
0.08	1,050
0.09	1,030
0.10	1,010

1.22 Execution Plan

The project execution strategy is currently anticipated to employ an integrated engineering procurement and construction management (EPCM) and commissioning team, which has formed the basis of the construction cost estimate. Engineering and procurement are expected to be performed by various contractors given responsibility for specific areas and scope. Throughout the execution and commissioning phases, the project management team will consist of employees of Gen Mining and consulting firms with experience in implementing similar sized projects. The project construction period is estimated at 24 months. Estimated construction labour is to average approximately 520 full-time equivalents over the construction period and a peak of approximately 800 full-time equivalent contractors and employees on the project.

The project team will manage and execute the engineering, procurement, and construction, provide project control, staff for start-up and operation, and commission both the mine and process areas. In parallel to construction, an Operational Readiness Plan will be developed. This plan will establish all the critical operating systems and operating procedures to allow for efficient start-up and ramp-up to commercial production.

1.23 Risks and Opportunities

Table 1-13 outlines the significant risks and uncertainties that could reasonably be expected to affect the reliability of confidence in the projected economic outcome for the feasibility study update. Table 1-14 outlines the significant opportunities that could reasonably be expected to have a positive impact on improving future project economics.

Table 1-13: Risks

Risk Category	Description	Potential Impact[1]
Mineral Resource Estimate	Until the operation commences, and operational grade reconciliation is undertaken, there is some level of uncertainty related to the predictability of the Mineral Resource Estimate.	▪ Reduction in mineral resources available for conversion to mineral reserves.
Environment Assessment Conditions and Permitting	There is uncertainty associated with the precise timing for the approval of permits required to build and operate the project as designed and there are EA conditions which are required to be completed prior to construction commencing.	▪ A delay to the start date for project construction. ▪ A delay to the start of operations or future operations continuity.
Project Financing	There is uncertainty with Gen Mining securing timely and/or adequate project financing.	▪ Delay (short-term or long-term) in the start date of the project.
Construction Costs	Construction costs are based on the current designs; final designs and construction methodology may change.	▪ Increased construction costs.
Operating Costs	Operating efficiency, operating time, productivity, and consumables are assumed based on provisional budgetary quotations along with similar benchmark operations; any reduction in operating efficiency or increased consumables will increase operating costs.	▪ Increased operating costs.
Processing Plant Metallurgical Recovery	The plant metallurgical recovery models are based on laboratory scale testing. Actual metallurgical recovery and mass pull of the operating plant may be different to the predicted model.	▪ Variability in payable metal or increase in plant operating costs.
Labour and Skilled Resources	There is a national and international shortage of unskilled, skilled, and technical expertise in mining.	▪ Increased labour costs. ▪ Increase in remote employees with an increase in camp requirements.

Risk Category	Description	Potential Impact[1]
Metal Prices and Exchange Rates	For each payable element and the exchange rate, the economic assumptions are sensitive (both positively and negatively impacted) by metal prices and changes in CAD/USD exchange rates.	▪ Variability in economic results with changing metal prices. ▪ Strengthening of the Canadian dollar against the US dollar will negatively impact economic results.
US/Canadian Tariffs	The impact of US/Canadian tariffs could impact some of the supply cost where international alternatives are not available.	▪ Increase in construction cost

Note: [1] This is not intended to outline all potential impacts, simply the impacts that could reasonably be expected to occur in the event the risk item results in an impact.

Table 1-14: Opportunities

Opportunity	Description	Potential Impact[1]
Mineral Resource Estimate	Unrealized local variability due to grade interpolation smoothing may lead to opportunities to extract somewhat more metal from fewer tonnes.	▪ Higher value per tonne of ore.
Plant Throughput	Metallurgical tests in 2022 indicated variability in material hardness; the process design criteria have allowed for the higher-than-average material hardness.	▪ Decreased material hardness would support an increase in throughput, de-risking the production profile, and an opportunity to advance metal production and cash flow.
Exploration Success on the Property	With the conversion of the property resources to reserves or new exploration success, would be expected to increase material feed to the plant and increase either mine life beyond the 13 years or allow for increased throughput over the same operating life.	▪ Increased reserves would increase production which would imply increased value and cash flow. ▪ Increased mine life would extend employment opportunities and increase operating cash flow.
Trolley Assist or the 'Next Generation' Powered Mining Fleet	The concept of trolley assist was evaluated with equipment suppliers / dealers but was not included in the base case operating design. Trolley assist would conceptually increase up-ramp truck speed and allow for additional tonnage (with a reduced cycle time) or reduce capital requirements. Mining fleet manufactures are testing battery and fuel cell mining equipment with viable options being marketed within the life of mine of the operation.	▪ Improved operating efficiency and lower mine operating costs. ▪ Reduction in the generation of GHG from operations (reduced diesel consumption).
Automation of the Mining Fleet	With the truck fleet being relatively small, autonomous haulage is not expected to be viable; however, the automation of drills and dozers would improve operating efficiency or reduce operating costs.	▪ Reduced operating costs on a dollar-per-tonne basis.
Government Support of Critical Mineral Production	The governments of Canada and Ontario have been supportive of critical mineral industries. There is the possibility of bespoke programs and financial support that would add to the project financing.	▪ Additional bespoke government funding or tax credits schemes that would support the Project Financing.
Contract Mining	Contract mining could be considered during the construction period and into the initial years of operations. This would reduce the initial capital costs for equipment.	▪ Reduction in equipment purchase and leasing costs

Note: [1] This is not intended to outline all potential benefits but those that could reasonably be expected to occur or possibly realized.

1.24 Conclusions and Interpretations

The completion of this feasibility study update has confirmed the technical and economic viability of the Marathon Project based on an open pit mining operation with an average mining rate of approximately 40 Mt/a and an SABC/flotation plant operating at up to 10.1 Mt/a.

1.25 Recommendations

A summary of the main recommendations for the next phase are provided below. A comprehensive list of recommendations can be found in Section 26.

- Under the inputs assumed in the financial modeling and given the positive results, it is recommended to progress to the next phase of project development including project financing, advancing required permits to allow for the property to be developed through construction and into production.
- The total cost of the next phase of the project up to commercial production is estimated at $992 million including fleet leasing but excluding pre-production revenue.
- Continue to progress detailed engineering for the process plant and associated site infrastructure upon receiving suitable financing to proceed.
- Advance on the EA conditions as outlined by the federal and provincial agencies per the positive EA decision report and progress the permitting activities to allow for construction to start as soon as financing is available.
- Continue with implementation of an Independent Tailing Review Panel for the oversight during the tailing storage facility life cycle.
- Investigate opportunities related to the Canadian and Ontario critical mineral strategies for project financing or tax credit schemes.
- Execute off-take agreements with smelters.

2 INTRODUCTION

2.1 Introduction

The Technical Report for the Marathon Palladium-Copper Project (Marathon Project) was prepared by Ausenco Engineering Canada ULC (Ausenco) along with contributions from Generation Mining Limited (Gen Mining), JDS Mining Ltd. (JDS), Knight Piésold Ltd. (KP), P&E Mining Consultants Inc. (P&E) and Moose Mountain Technical Services (MMTS). The project is located just outside the Town of Marathon on the shores of Lake Superior in Ontario, Canada.

Gen Mining currently indirectly owns a 100% interest in the Marathon Project. The project is directly owned, managed and operated by Gen Mining's 100%-owned subsidiary, Generation PGM Inc. (Gen PGM).

Gen Mining commissioned the above consultants to prepare and issue this technical report in accordance with disclosure and reporting requirements set forth in the Canadian Securities Administrators' current "Standards of Disclosure for Mineral Projects" under the provisions of National Instrument 43-101 (NI 43-101), Companion Policy 43-101 CP and Form 43-101F1.

The objective of this report is to provide a summary of the results of additional optimization, design work, and updated cost estimates for the development of an open pit mine at the Marathon site, including the processing facilities and related infrastructure required.

2.2 Qualified Persons

The qualified persons for the report are listed in Table 2-1. By virtue of their education, experience, and professional association membership, they satisfy the requirements to be qualified persons as defined by NI 43-101.

2.3 Scope and Terms of Reference

The scope of this technical report and feasibility study includes the geology and mineral resources of the Marathon property, including the Marathon, Geordie, and Sally deposits. The mineral reserves, mining, infrastructure, processing, and financial analysis sections of this report considers only the Marathon deposit.

The monetary units are in Canadian dollars, unless otherwise stated.

Mineral resources and mineral reserves are reported in accordance with the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards for Mineral Resources and Mineral Reserves. Estimates of mineral resources and mineral reserves follow industry best practices as defined by CIM (2019). Classification of mineral resources and mineral reserves conform to CIM's Definition Standards (2014).

Table 2-1: Report Contributors

Qualified Person	Employer	Independent of Client	Report Section
Robert Raponi, P. Eng.	Ausenco	Yes	1.1, 1.12, 1.16, 1.17.1, 1.18, 1.20, 1.21, 1.23 to 1.25, 2, 3, 13, 17, 18.1, 18.3, 1.18.4.3 to 18.4.6, 18.5, 18.6.2.2, 18.6.2.3, 18.6.4, 19, 21.1 to 21.4, 21.5.3 to 21.5.7, 21.7.1, 21.7.3, 21.7.4, 22, 25.1, 25.5, 25.6, 25.8, 25.11, 26.1, 26.2, 26.5, 26.6, 26.8, 26.9, 27
Jean-Francois Maille, P. Eng.	JDS	Yes	1.22,18.2, 18.6.1, 18.6.2.1, 18.6.3, 21.5.2, 24, 25.10, 26.13
Marc Schulte, P. Eng.	MMTS	Yes	1.14, 1.15, 15, 16, 21.5.1, 21.7.2, 25.3, 25.4, 26.3, 26.4
Craig Hall, P. Eng.	KP	Yes	1.17.2, 1.19, 18.4.1, 18.4.2, 18.4.7, 18.4.8, 20, 21.6, 25.7, 25.9, 26.7, 26.10 to 26.12
Eugene Puritch, P. Eng., FEC, CET	P&E	Yes	1.2 to 1.11, 1.13, 25.2
Jarita Barry, P. Geo.	P&E	Yes	11, 12
Fred Brown, P. Geo.	P&E	Yes	14
David Burga, P. Geo.	P&E	Yes	9, 10, 25.12
William Stone, P. Geo	P&E	Yes	4, 5, 6, 7, 8, 23

2.4 Source of Information and Data

Previous reports issued on the Marathon Project are listed in Section 27, References, and include the following:

Previous reports issued on the Marathon Project are listed in Section 27, References, and include the following:

- G Mining Services Inc., 2024: Technical Report, Amended Feasibility Study Update – Marathon Palladium-Copper Project, Ontario, Canada for Generation Mining Ltd., effective date December 31, 2022, issue date May 31, 2024.
- G Mining Services Inc., 2023: Technical Report, Feasibility Study Update of the Marathon Palladium-Copper Project, Ontario, Canada for Generation Mining Ltd., effective date December 31, 2022, issue date March 31, 2023.
- G Mining Services Inc., 2021: Technical Report, Feasibility Study of the Marathon Palladium-Copper Project, Ontario, Canada for Generation Mining Ltd., effective date March 3, 2021, issue date March 23, 2021.
- P&E Mining Consultants Inc., 2020: (Amended) Technical Report, Updated Mineral Resource Estimate and Preliminary Economic Assessment of the Marathon Deposit Thunder Bay Mining District, Northwestern Ontario, Canada for Generation Mining Ltd., effective date January 6, 2020.
- Nordmin Engineering Ltd., 2014: Marathon PGM-Cu Feasibility Study (Draft Report), document dated March 14, 2014 for Stillwater Canada Inc.
- Micon International Limited, 2010: Technical Report on the Updated Feasibility Study for the Marathon PGM-Cu Project, Marathon, Ontario, Canada, dated January 8, 2010.

- Micon International Limited, 2009: Technical Report on the Updated Mineral Resource Estimate and Feasibility Study for the Marathon PGM-Cu Project, Marathon, Ontario, Canada, dated February 2, 2009.
- P&E Mining Consultants Inc., 2006b: Technical Report and Preliminary Economic Assessment of the Marathon PGM-Cu Property, Marathon Area, Thunder Bay Mining district, Northwestern Ontario, Canada, June 30, 2006, revised July 8, 2006.
- P&E Mining Consultants Inc., 2006a: Technical Report and Resource Estimate on the Marathon PGM-Cu Property Marathon Area, Thunder Bay Mining District, Northwestern Ontario, Canada for Marathon PGM Corporation, dated March 24, 2006.

2.5 Site Visits and Scope of Personal Inspection

Site visits were carried out by the independent QPs as described in Table 2-2.

Table 2-2: QP Site Visit Dates

Name of Qualified Person	Consultant Company	Site Visit Date	Visit Details
Tommaso Robert Raponi, P. Eng.	Ausenco	August 2020	Site visit of overall site, main infrastructure locations and proposed plant area
Jean-Francois Maille, P. Eng.	JDS	October 2022	Site visit of overall site and main infrastructure locations
Marc Schulte, P. Eng.	MMTS	November 2024	Site visit of overall site, pit areas, main infrastructure locations and core review
Craig Hall, P. Eng.	KP	April 2011, March 2012 and October 2021	Site visit of pit areas, main infrastructure locations, Tailings and Water Management Facility Locations
Eugene Puritch, P. Eng., FEC, CET	P&E	Various visits between 2005 and 2010	Site visit of overall site, core, log and sample review
David Burga, P. Geo.	P&E	April 2012	Site visit of overall site, core, log and sample review

2.6 Currency, Units, Abbreviations and Definitions

All units of measurement in this report are metric and all currencies are expressed in Canadian dollars (symbol: C$ or currency: CAD) unless otherwise stated. Contained precious metals (gold, silver, platinum, and palladium) are expressed as troy ounces (oz), where 1 oz = 31.1035 g. All material tonnes are expressed as dry tonnes (t) unless stated otherwise. A list of abbreviations and acronyms is provided in Table 2-2, and units of measurement are listed in Table 2-3.

Table 2-3: Abbreviations and Acronyms

Abbreviation	Description
AA	atomic absorption spectroscopy
Ag	silver
Au	gold
Az	azimuth
BIF	banded iron formation
BWi	bond ball mill work index
CAD:USD	Canadian-American exchange rate
CIM	Canadian Institute of Mining, Metallurgy and Petroleum
CIM Definition Standards	CIM Definition Standards for Mineral Resources and Mineral Reserves 2014
CIP	carbon in pulp
COG	cut-off grade
CRM	certified reference material
Cu	Copper
CuEq	Copper Equivalent
CWi	Bond crusher work index
DCIP	direct current resistivity and induced polarization
DDH	diamond drill hole
E-GRG	extended gravity recoverable gold
EM	electromagnetic
FA	fire assay
FET	federal excise tax
FS	feasibility study
G&A	general and administration
GPR	gross production royalty
GQCV	greenstone-hosted quartz-carbonate vein deposits
GRAV	gravimetric finish method
ICP	inductively coupled plasma
ICP-OES	inductively coupled plasma - optical emission spectrometry
ID2	inverse distance squared
ID3	inverse distance cubed
IOCG	iron oxide copper gold
IP	induced polarization
IRGS	intrusion-related gold system
ISO	International Organization for Standardization
LIDAR	light detection and ranging
LUP	land use permit
MCF	mechanized cut and fill
MRE	mineral resource estimate
NAD 83	North American Datum of 1983
NI 43-101	National Instrument 43-101 (Regulation 43-101 in Quebec)

Abbreviation	Description
NN	nearest neighbour
NSR	net smelter return
NTS	national topographic system
OK	ordinary kriging
PEA	preliminary economic assessment
PFS	prefeasibility study
PGE	platinum group elements
Pd	Palladium
PdEq	Palladium Equivalent
Pt	Platinum
QA/QC	quality assurance/quality control
QP	qualified person (as defined in National Instrument 43-101)
ROM	run of mine
RQD	rock quality designation
SAG	semi-autogenous grinding
SCC	Standards Council of Canada
SD	standard deviation
S_d-BWI	micro hardness or bond ball mill work index on SAG ground material
SEDEX	sedimentary exhalative deposits
SG	specific gravity
TMF	tailings management facility
UG	underground
UTM	Universal Transverse Mercator coordinate system
UV	ultraviolet
VLF-EM	very low frequency electromagnetic
VMS	volcanogenic massive sulphide

Table 2-4: Units of Measurement

Abbreviation	Description
%	percent
% solids	percent solids by weight
CAD	Canadian dollar (currency)
C$	Canadian dollar (as symbol)
$/t	dollars per metric ton
°	angular degree
°C	degree Celsius
µm	micron (micrometer)
cm	centimeter

Abbreviation	Description
cm^3	cubic centimeter
ft	foot (12 inches)
g	gram
g/cm^3	gram per cubic centimeter
g/L	gram per liter
g/t	gram per metric ton (tonne)
h	hour (60 minutes)
ha	hectare
kg	kilogram
kg/t	kilogram per tonne
km	kilometer
km^2	square kilometer
koz	thousand (troy) ounces
kW	kilowatt
kWh/t	kilowatt-hour per tonne
L	litre
lb	pound
m, m^2, m^3	metre, square metre, cubic metre
M	million
Ma	million years (annum)
masl	meters above mean sea level
mm	millimeter
Moz	million (troy) ounces
Mt	million tonnes
MW	megawatt
oz	troy ounce
oz/t	ounce (troy) per tonne
oz/ton	ounce (troy) per short ton (2,000 lbs)
ppb	parts per billion
ppm	parts per million
t	metric tonne (1,000 kg)
ton	short ton (2,000 lbs)
t/d	tonnes per day
USD	US dollars (currency)
US$	US dollar (as symbol)

2.7 Palladium and Copper Equivalent Calculations

The Marathon Project is a polymetallic deposit. For purposes of estimating the project's anticipated production, costs and future financial performance, certain measures herein are based on estimates of palladium equivalent ("PdEq") and copper equivalent ("CuEq") metal production.

For the purposes of reporting economic analysis results or other cost measures, the Company's estimated PdEq and CuEq are calculated using the payable metals estimates derived from the Company's life of mine, as follows:

- Palladium Equivalent ounces uses the formula PdEq oz = Pd oz + (Cu lb x 4.00 US$/lb + Pt oz x US$950/oz + Au oz x US$2000/oz + Ag oz x US$24.00/oz) / US$1525 Pd/oz.
- Copper Equivalent pounds uses the formula CuEq lbs = Cu lbs + (Pd oz x US$1,525/oz + Pt oz x US$950/oz + Au oz x US$2000/oz + Ag oz x US$24.00/oz) / US$4.00 Cu/lb.

Historical drill results in Section 10 have been reported using different historical metal prices and formulas.

In Section 10, the CuEq calculation expressed in % is calculated as the sum of the theoretical in-situ value of the constituent metals (Au + Pt + Pd + Cu + Ag) in one tonne sampled divided by the value of one percent of copper in such one tonne sample. The calculation makes no provision for expected metal recoveries or smelter payables. See additional information in Section 10 for the applicable metal price assumptions used to determine the CuEq.

In Section 10, the palladium equivalent ("PdEq") calculation expressed in grams per tonne (g/t) is calculated as the sum of the theoretical in situ value of the constituent metals (Au + Pt + Pd + Cu + Ag) in one tonne sampled divided by the value of one gram of palladium. The calculation makes no provision for expected metal recoveries or smelter payables. See additional information in Section 10 for the applicable metal price assumptions used to determine the PdEq.

3 RELIANCE ON OTHER EXPERTS

The technical report has been compiled by the QPs based on information prepared and/or reviewed by the independent QPs. The information, conclusions, opinions, and estimates presented are based on the following:

- information available to the QPs at the time of the preparation of the technical report
- assumptions, conditions, and qualifications as set forth in this technical report
- data, reports, and other information supplied by Gen Mining, including Jean-Paul Deco, Generation Mining, Manager Business Development and Concentrate Marketing with respect to concentrate marketing, and other third-party sources that have been vetted and verified.

The QPs believe that the basic assumptions contained in the information indicated above are factual and accurate and that the interpretations are reasonable. The QPs have, to the extent applicable, relied on this data and have no reason to believe that any material facts have been withheld. The QPs have taken all appropriate steps in their professional judgement to ensure that the work, information, and/or advice from the above information sources are sound and the QPs do not disclaim any responsibility for this technical report.

In preparing the report, the QPs that prepared the following section have relied upon certain work, opinions, and statements of experts. The QPs consider the reliance on other experts, as described herein, as being reasonable based on their knowledge, experience, and qualifications. The QPs that authored this technical report disclaim responsibility for such expert report content:

- Section 22: Liam Fitzgerald, Partner, Tax, PwC, worked on the tax section of the feasibility study model reviewed by PricewaterhouseCoopers LLP for Gen Mining based on a draft of the model for the Marathon Project provided by GMS for inclusion in the financial analysis and the tax narrative for the technical report. Mr. Fitzgerald's information is used in support of the financial analysis.

The results and opinions expressed in this technical report are conditional upon the information provided by the experts listed as being current, accurate, and complete as of the effective date of this report.

The authors wish to emphasize that they are QPs only in the areas of this technical report as identified in their "Certificates of Qualified Persons" submitted with this technical report to the Canadian Securities Administrators.

Except for the purposes contemplated under provincial securities laws, any other use of this technical report by any third party is at the party's sole risk.

4 PROPERTY DESCRIPTION AND LOCATION

The Marathon property is located approximately 10 km north of the Town of Marathon, Ontario, on the northeast shore of Lake Superior. The Town of Marathon lies along the Trans-Canada Highway (Highway 17) approximately 300 km east of the City of Thunder Bay, Ontario and 400 km northwest of the City of Sault Ste. Marie, Ontario and has a population of 3,138 (2021 StatsCan census).

Local access to the property is via gravel road from Highway 17 (Figure 4-1 and Figure 4-2). The centre of the proposed project footprint sits at approximately 48°45'N latitude and 86°19'W longitude. Mining is the primary industry in the Town of Marathon.

Figure 4-1: Regional Location Map

Source: Marathon PGM Corp. (2006).

Figure 4-2: Regional Mining Activity Map

Source: Gen Mining (2023).

4.1 Project Ownership

In 2010, the property was acquired by Stillwater Mining Company (Stillwater) from Marathon PGM Corporation (Marathon PGM) (TSX: MAR) for US$118 million. At that time, Stillwater was a palladium and platinum mining company with headquarters in Littleton, Colorado, USA. Stillwater mined PGMs from the Stillwater igneous complex in south-central Montana known as the J-M Reef and recovered metals from spent catalytic converters. In 2017, Stillwater was acquired by Sibanye Gold Limited (NYSE: SBSW) for US$2.2 billion.

On July 10, 2019, Generation Mining (Gen Mining), through Generation PGM Inc. (Gen PGM), completed the acquisition of a 51% initial interest in the Marathon property and entered into a joint venture agreement with Stillwater Canada Inc. (Stillwater Canada). Gen Mining paid $3 million in cash and issued 11,053,795 common shares of Gen Mining at a price of $0.2714 per common share (totalling $3 million), for total consideration of $6 million. Pursuant to the joint venture agreement, Gen Mining had the right to increase its interest in the property to 80%

by expending $10 million in exploration, evaluation, and development costs and preparing a preliminary economic assessment (PEA) within four years.

On February 19, 2020, Gen Mining filed a PEA, and by November 2020, it had expended $10 million to explore and evaluate the property, fulfilling the ownership increase right. On November 27, 2020, Gen Mining increased its ownership interest to 80% in the Marathon property. On December 14, 2020, Stillwater Canada elected to forego its proportionate share of joint venture funding and dilute pursuant to the provisions of the joint venture agreement. On July 21, 2021, Stillwater Canada elected to not exercise its ownership increase right to expand its ownership in the Marathon property to 51%.

On December 8, 2021, Gen Mining entered into an acquisition agreement with Stillwater Canada pursuant to which Gen Mining would acquire Stillwater Canada’s remaining 16.5% interest in the Marathon Project. On January 26, 2022, Gen Mining completed the acquisition by issuing 21,759,332 common shares of its company to Stillwater Canada. Gen Mining now holds 100% of the Marathon property, and its joint venture agreement dated July 10, 2019 with Stillwater Canada has been terminated in accordance with its terms.

As of the effective date of this technical report, Gen Mining is the operator of the project.

4.2 Property Description and Tenure

4.2.1 Original Marathon Property

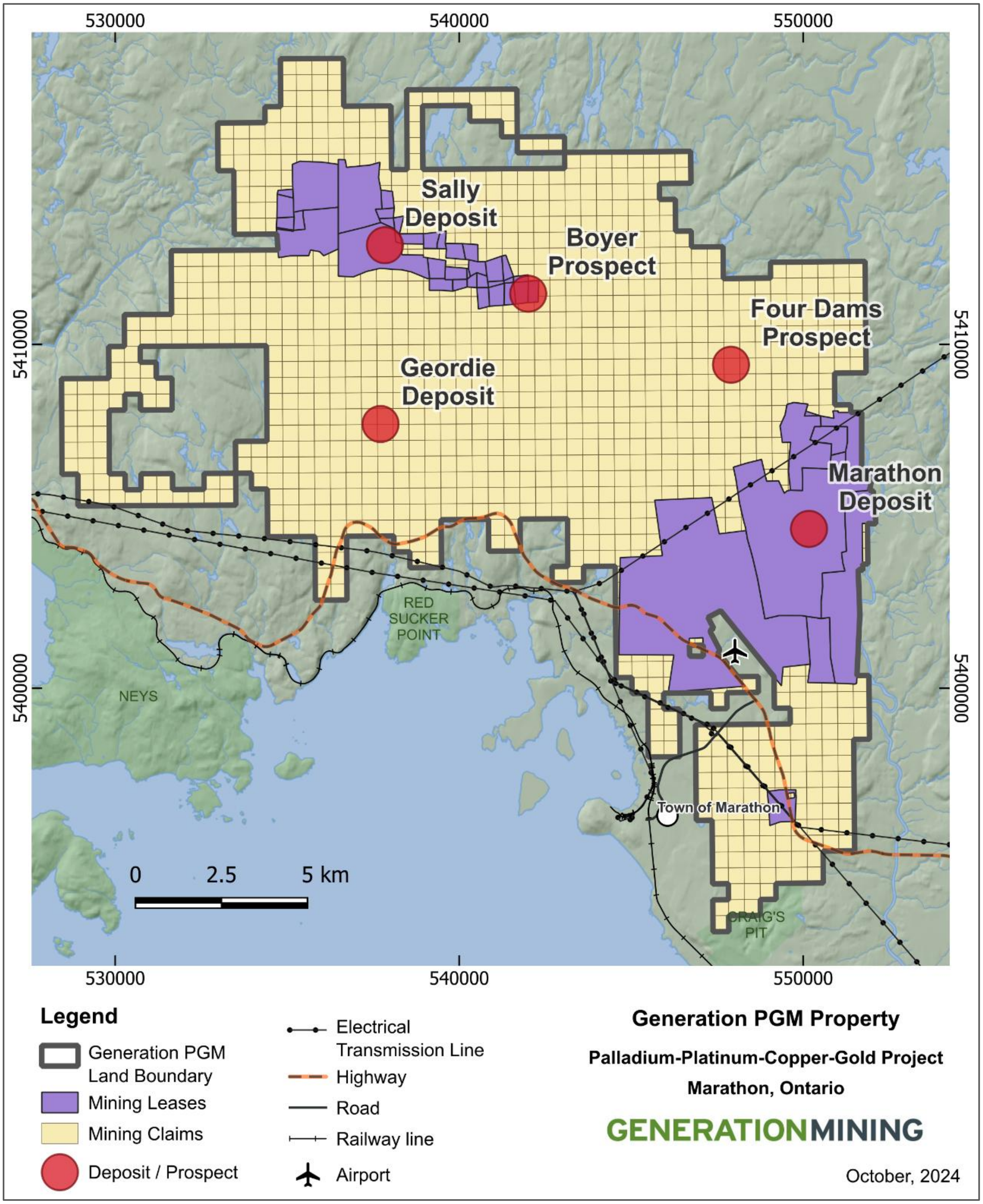
The original Marathon property held by Stillwater Canada from 2010 to 2019 has since been expanded by Gen Mining through the periodic staking of unpatented mining claims. Gen Mining staked an additional 215 claim blocks totalling 4,558 ha during the summer of 2019. In the winter of 2024, Gen Mining acquired 29 claim blocks and staked an additional 195 claim blocks contiguous to the Marathon property. As shown in Figure 4-3, this periodic staking and acquisition has increased the land position to 46 leases and 1,166 claims for a total of 26,802 ha (268.02 km^2).

The 46 leases are in Seeley Lake, Pic, O’Neill, Grain, and Martinet Lake Townships and total 4,810.2 ha. The leases and claims information are tabulated in Appendix A of this report. The expiry date of Mining Lease LEA-107323 was July 30,2021, but renewal is in progress as of the effective date of this report.

All claims have been renewed to their respective anniversary dates ranging from 2026 to 2028. Assessment work will have to be applied by these dates to keep the claims in good standing. The claims are registered in the name of Gen PGM, a subsidiary of Gen Mining.

In 2014, Stillwater Canada initiated the conversion of mineral claims comprising surveyed area CLM509 to a mining lease with surface rights. The survey area CLM509 is west of the Marathon deposit. The timing for the conversion of CLM509 extended through the implementation of the Ministry of Energy, Northern Development and Mines (MENDM) new MLAS system in 2017. The lease was granted on November 25, 2020 (lease number 110068). However, since the conversion was initiated with legacy claims, there is no connection to current claim cells in the new MLAS system referencing which cells comprise the new lease 110068.

Figure 4-3: Marathon Deposit Claim Location Map



Source: Gen Mining (2024). Claims information effective as of December 31, 2024.

4.2.2 Ontario Mineral Tenure

The Ontario claims information presented in this section is valid as of the effective date of this report. Crown lands are available to licensed prospectors for the purpose of mineral exploration. A licensed prospector must first stake a mining claim to gain the exclusive right to explore on Crown land. Claim staking is governed by the *Ontario Mining Act* and is administered through the Provincial Mining Recorder and Mining Lands offices of the MENDM.

Mining claims can be staked either in a single unit or in a block consisting of several single units. In unsurveyed territory, a single unit claim is laid out to form a 16 ha (40 acre) square with boundary lines running 400 m (1,320 ft) astronomic north, south, east, and west. Multiples of single units, up to a maximum of 16 units (256 ha), may be staked with only a perimeter boundary as one block claim.

Upon completion of staking, a recording application form is filed with payment to the Provincial Recording Office. All claims are liable for inspection at any time by the MENDM. A claim remains valid as long as the claim holder properly completes and files the assessment work as required by the *Mining Act* and the Minister approves the assessment work. A claim holder is not required to complete any assessment work within the first year of recording a mining claim. To keep an unpatented mining claim current, the mining claim holder must perform $400 worth of approved assessment work per mining claim unit, per year.

Immediately following the initial staking date, the claim holder has two years to file one year's worth of assessment work. Claims are forfeited if the assessment work is not completed.

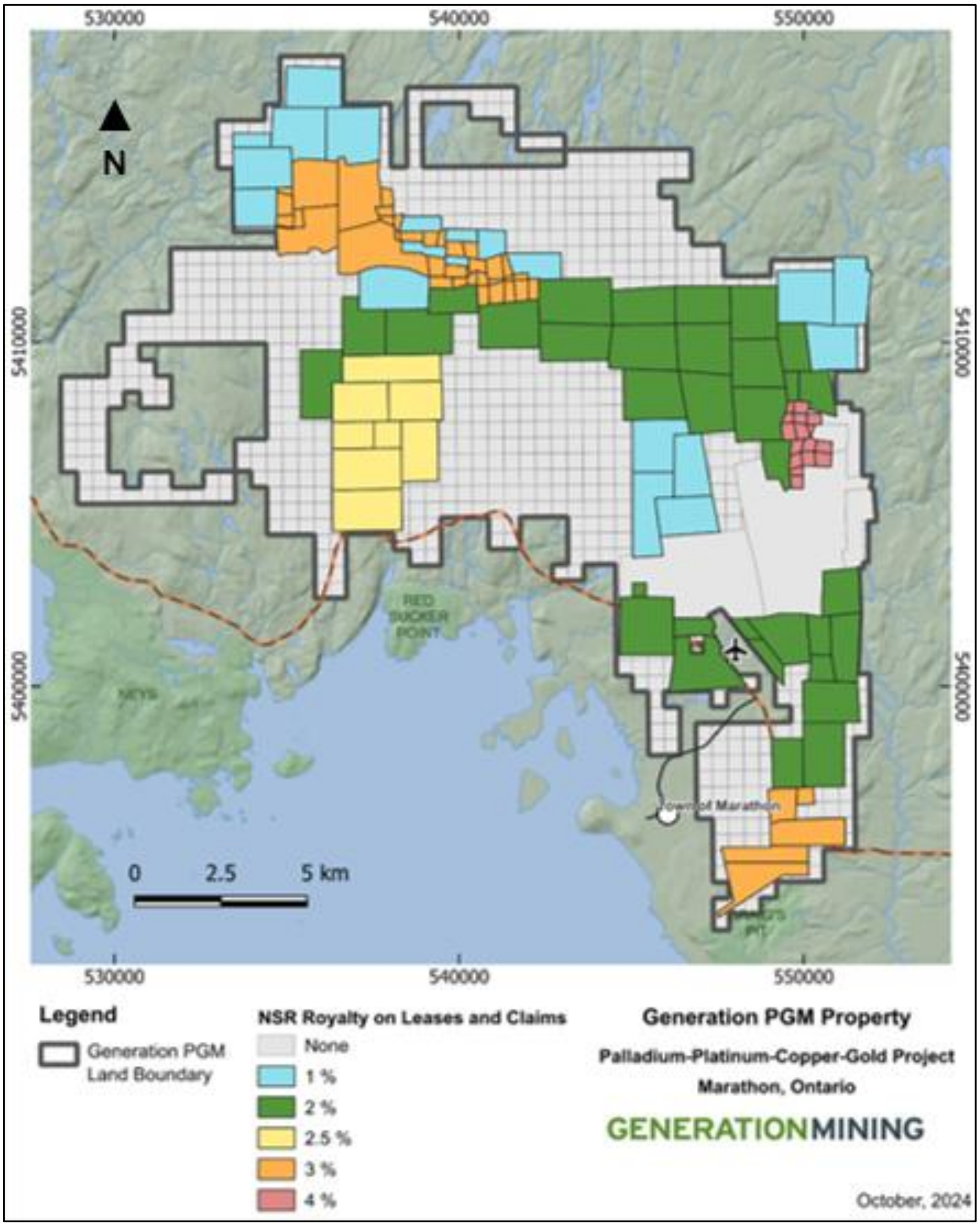
A claimholder may prospect or carry out mineral exploration on the land under the claim. However, the land covered by these claims must be converted to leases before any development work or mining can be performed. Mining leases are issued for 21-year terms and may be renewed for further 21-year periods. Leases can be issued for surface and mining rights, mining rights only or surface rights only. When issued, the lessee pays an annual rent to the province. Furthermore, prior to bringing a mine into production, the lessee must comply with all applicable federal and provincial legislation.

4.3 Royalties and Other Encumbrances

The property is subject to net smelter return (NSR) royalties ranging from 1% to 4% (Figure 4-4). In particular, the top northern extent of the Marathon deposit (specifically on the North pit) is subject to a NSR royalty of 4%. A complete summary of the encumbrances can be found in Table 4-1.

In addition to the royalties described above, the property is also subject to encumbrances in connection with the Wheaton PMPA and encumbrances in favour of an Indigenous community as security for future payments under an agreement between the parties. Additional information on the Wheaton PMPA can be found in Section 19.2, and additional information on the agreement with the Indigenous community can be found in Section 4.4.

Figure 4-4: Map of NSR Royalties



Source: Gen Mining (2024).

Table 4-1: Royalties and Agreements

Party	Date	NSR Value	Details
Marathon Project Area – Royalty Agreements			
Fenwick/ Leishman	August 16, 2005	3%	Royalty in favour of Kenneth Fenwick and Don Leishman on mining claims TB 1247007, TB 1247010-11. Gen Mining has the right at any time to acquire up to one-third of the royalty (up to an aggregate of 1% of the royalty) upon a payment of $500,000 for every 0.5% of the royalty purchased.
Seafield	November 2, 2004	2%	Royalty in favour of Seafield Resources Ltd. on mining claim TB 1205330. Gen Mining has the right at any time to acquire up to half of the royalty (up to an aggregate of 1% of the royalty) upon a payment of $1,000,000.
Dunlop	March 21, 2006	3%	In favour of W. Bruce Dunlop on mining claims TB 104122 and TB 104118-104121 inclusive. Gen Mining has the right at any time to acquire up to one half of the royalty (an aggregate of 1.5%) upon payment of $500,000 for every 0.5% of the royalty purchased.
Gionet	May 2007	1%	With a right of first refusal on the sale of the royalty in favour of Brian D. Gionet and Michael Dorval on mining claims 4208442 and 3014935.
Michano/ Gionet	April 21, 2005	2%	In favour of Michano/Gionet on mining claims TB 3012177, TB 3006862, TB 3012173, TB 3019790, TB 4204047-49. Gen Mining has the right at any time to acquire up to one half of the royalty (an aggregate of 1%) upon payment of $1,000,000.
Benton	March 25, 2009	4% and $0.05/t waste management fee	Certain conditions of which were modified by the Benton Resources/Stillwater Mining Co. Agreement dated December 16, 2010 - 2% NSR and $0.05/t waste manage fee in favour of Teck Resources on mining claims 1240016, TB101224-25, TB101578-81, TB101583, TB103572-75, TB103583-84, TB106983, TB103657 and TB107641. Also includes a 2% NSR currently held by Sibanye-Stillwater under the terms of the Benton Resources/Stillwater Mining Co. Agreement dated December 16, 2010.
Michano/ Gionet/ Dorval	July 12, 2011	2%	On mining claims TB 4246277, TB 4242127, and TB 4246285. Gen Mining has the right at any time to acquire up to one half of the royalty (an aggregate of 1%) upon payment of $1,000,000.
Michano/ Gionet	July 12, 2011	2%	On mining claims TB 4246283-84. Gen Mining has the right at any time to acquire up to one half of the royalty (an aggregate of 1%) upon payment of $1,000,000.
Yozipovic	November 14, 2011	2%	On mining claim TB3006106. Gen Mining has the right at any time to acquire the 2% NSR from the vendor for a fee of $1,000,000.
Sally Project Area – Royalty Agreements			
Benton/ Gold Royalties Corp.	December 13, 2011	1%	Pursuant to the Benton Agreement dated March 25, 2009, certain conditions of which were modified by the Benton Resources/Stillwater Mining Co. Agreement dated December 16, 2010 - 1% NSR in favour of Stephan Stares on mining leases CLM 121-124, TB101845-47, TB101849-50, TB101864-66, TB101869-71, TB101891-905, TB101910, TB101915-17, TB101924, TB108223-24 and mining claims 4204476-78, 4207280-83, 4209025-26, 1240550-55, 1240548-49, 1240017-19, 4207863, 4207856-59, 4207860-61, 4203971-72, 1245401, and 1246640-43,. Note: In December 2011, Stares sold one half of the subject royalty (an aggregate of 0.5%), excluding TB120016, to Gold Royalties Corp. and one-half to Kalt.
Benton "Newmont Royalty"	December 16, 2010	2%	In favour of Newmont (Franco-Nevada) on mining leases CLM 121-124, TB101845-47, TB101849, TB101850, TB101864-66, TB101869-71, TB101891-905, TB101910, TB101915-17, TB101924, and TB108223-24. Note: an annual report to Franco-Nevada is required on the Par Lake property.
Benton	December 16, 2010	1%	In favour of Benton Resources on mining leases CLM 121-124, TB101845-47, TB101849-50, TB101864-66, TB101869-70, TB101871, TB101845, TB101891-905, TB101910, TB101915-17, TB101924, TB108223-24 and mining claims 4204476-78, 4207280-81, 4207282-83, 4209025-26, 1240550-55, 1240548-49, 1240017-19,4207863, 4207856-61, 4203971-72, 1245401, and 1246640-43. Royalty is only payable commencing on and from the date that a minimum aggregate combined total of 2,500,000 ounces of platinum, palladium and gold is produced from the above-mentioned leases and claims.
Geordie Project Area			
Wahl	July 8, 2008	2%	In favour of Rudy Wahl, on mining claims 3015131-33. Gen Mining has the right at any time to acquire up to one half of the royalty (an aggregate of 1%) after commencement of commercial production and payment of $1,000,000.
Discovery	March 3, 2008	2.5%	Pursuant to underlying agreements of record that remained in effect subsequent the acquisition of Discovery PGM Corp. by a predecessor of Stillwater Canada, the Geordie Lake property is encumbered by a 2.5% NSR in favor of Superior Prospects Inc. and Melvin Joa (in aggregate) on mining claims 1184283, 1184297, 1209682-84, and 1237697-99.
Gryphon/ L.E.H. Ventures	June 3, 1999	0%	Gryphon Metals Corp. retains the right upon the completion and presentation of a definitive feasibility study on the Geordie Lake property to back into a 12.5% interest on the property by paying Stillwater Canada a total of 31.25% of all exploration and development costs incurred on the property to that point.

4.4 Indigenous Community Participation

In connection with the certain financial commitments to an Indigenous community, and at the request of that community, a royalty agreement has been executed and registered on title to the property. The terms of this agreement are confidential, but the anticipated costs of this agreement are included in general and administration costs as described in Section 21, Capital and Operating Costs.

4.5 QP Comment

To the QP's current knowledge, there are no other significant factors and risks that may affect access, title, or the right or ability to perform work on the project that have not been discussed in this technical report. To the QP's current knowledge, permits have been acquired or are reasonably expected to be acquired to conduct the work proposed for the property. To the QP's current knowledge, there are no known environmental liabilities on the property. Details on permitting and environment can be found in Section 20, Environmental Studies, Permitting and Social or Community Impact.

The Environmental Assessment (EA) for the project was approved on November 30, 2022 in accordance with the *Canadian Environmental Assessment Act* (CEAA, 2012) and Ontario's *Environmental Assessment Act* (EA Act) through a joint review panel (JRP) pursuant to the Canada-Ontario Agreement on Environmental Assessment Cooperation (2004).

As of the effective date of this technical report, the Marathon project is in the process of obtaining various federal, provincial and municipal permits, approvals, and licenses as required to construct and operate the project.

5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

5.1 Access and Infrastructure

The Marathon property is located at latitude 48°45’N latitude and 86°19’W longitude. The property is accessed by paved and gravel roads from the Town of Marathon approximately 10 km to the south (Figure 5-1). Regional infrastructure is considered very good with the Trans-Canada highway, Canadian Pacific Kansas City Railway (previously known as CPR) and a municipal airport all in proximity to the Marathon property.

The local site access will be developed off the Camp-19 Road during the construction period to minimize water impacts.

Figure 5-1: Access Road Photograph

Source: Gen Mining (2019).

5.2 Climate

The property lies in the sub-arctic region. The property's climate is typical of northern areas within the Canadian Shield with long, cold winters and short, warm to hot summers; however, due to its proximity to Lake Superior, it experiences cooler summers and warmer winters compared to other more remote, northerly communities in northwestern Ontario. The annual average temperature is 1°C with the highest average monthly high of 15°C in August and average monthly low in January of -15°C. Extreme minimum temperatures at the Marathon Airport ranged from -41.7°C to +2.1°C and maximum temperatures ranged from +2.6°C to +28.5°C (Environment Canada). The average annual precipitation for the Pukaskwa Station (located 15 km south of the Marathon Airport) is 759 mm, which compares well to the Marathon Airport data for 1988 to 1999 (840 mm).

Operations in this climate typically require covered buildings. Adverse weather conditions are rarely severe enough to halt an open pit operation for any more than a few hours under low-traction surface conditions during winter storms. Winter conditions are neither expected to be noteworthy nor have a significant impact on annual production.

5.3 Local Resources

Thunder Bay is the largest city in the region and acts as a hub for the communities north of Lake Superior. Thunder Bay is approximately 300 km west of the Marathon property via the Trans-Canada Highway.

The Town of Marathon has a population of 3,138 (2021 census) and is the closest municipality to the project. There are several active mines in the general area, so some local mining services are available in Marathon. The Marathon airport is located immediately north of the town and runs adjacent to Highway 17, near the southwest corner of the property. Marathon Municipal Airport (CYSP) operates as a registered airport (Aerodrome class) under Canadian Aviation Regulations (CARs; Subsection 302). The airport is used by private aircraft owners and commercial helicopter companies. As of the effective date of this report, commercial flight service is not available.

Electric power from the Ontario power grid is readily available for the project with a new east-west tie line crossing the southern limits of the property. In addition to this line, the Manitouwadge (M2W) high-voltage power line transects the property northwest of the Marathon deposit.

A rail line runs a few km south of the property (Figure 5-2) and shallow water dock facilities are available at Marathon and Heron Bay. Telephone and mobile communication infrastructure are readily available regionally and close to the property boundary.

Water is readily available on site from various sources, including local lakes and creeks.

Land-use activities in the area include hunting, fishing, trapping, and snowmobiling. The existing property access road is used by anglers to access the Pic River and by snowmobilers in the winter. Sport fishing is focused on the Pic River, which contains a variety of warm water fish species and in Hare and Bamoos lakes located to the northwest. Pukaskwa National Park is situated near the mouth of the Pic River, approximately 20 km downstream from the property.

Figure 5-2: Project Access, Topography, and Physiography

Source: Gen Mining (2020).

5.4 Physiography

The property is in an area of moderate to steep, hilly terrain typical of glaciated areas of the Canadian Shield (Figure 5-3). The surrounding terrain is typical boreal forest cover with significant topographic relief characterized by relatively flat plateaus, truncated at steep cliffs adjacent to a series of creeks and ponds. The vegetation consists of northern hardwood and conifer trees and muskeg areas, which are bogs or wetlands common to all boreal forest regions. The land is not used for agriculture. Wildlife includes black bear, wolves, moose, rabbits, and various migratory birds.

Figure 5-3: Property Topography

Source: Generation Mining (2022).

The Marathon Project site is bounded to the east by the Pic River (Figure 5-4) and Lake Superior to the south and west, respectively. The project site is drained by six sub-watersheds, four of which drain to the Pic River and two of that drain directly to Lake Superior. All other small creeks in the area drain into the Pic River. The interior of the project site is isolated from both the Pic River and Lake Superior by steep relief, so many of the higher elevation lakes and streams of this area are fishless. In the waterbodies where fish do occur, the community is limited to small-bodied (forage) fish (EcoMetrix, 2012).

The general elevation around the project site is slightly higher than the overall regional topography. Ground surface elevations range from approximately 260 m to over 400 m above sea level with a gradual decrease in elevation from north to south.

Outcrops of gabbro are locally present on the property. The overburden consists of boulder till with gabbro and mafic volcanic boulders ranging from 0.1 to 10 m in thickness and with a typical thickness of 0.3 to 1.0 m.

Figure 5-4: Pic River

Source: Stillwater Canada (2012).

5.5 Sufficiency of Surface Rights

There is sufficient surface area for all the facilities stated in this technical report, including topsoil stockpiles, ore and waste rock storage facilities, tailings storage facilities, processing plant sites, and other associated infrastructure.

6 HISTORY

6.1 Exploration History

6.1.1 Introduction

Exploration for copper and nickel deposits in the Marathon area began in the 1920s and continued until the 1940s with the discovery of titaniferous magnetite and disseminated chalcopyrite occurrences.

Exploration within the Coldwell Complex and on the Marathon property in particular began in the early 1960s and accelerated after 2003. Several changes in the approach to exploration over the years reflect the evolving understanding of the geology and the deposit model.

Early exploration was focused on iron and copper. With the rise in PGM prices, the property was re-evaluated for its PGM potential, thereby expanding the zones of interest. Additionally, property access development over time has allowed for more continuous and lower cost exploration, particularly along the north margin of the Coldwell Complex.

6.1.2 Summary 1964 – 2024

Over the past five decades, several phases of exploration and economic evaluation, including geophysical surveys, prospecting, trenching, diamond drilling programs, geological studies, mineral resource estimates, metallurgical studies, mining studies, and economic analyses were carried out on the property. Each study enhanced the knowledge base of the Marathon Deposit. The following historical summary of work is taken, in part, from an internal Nordmin Marathon PGM-Cu Feasibility Study dated March 14, 2014.

In 1963, Anaconda Copper acquired the property and carried out systematic exploration work, including diamond drilling of 32,741 m in 151 drill holes from 1964 to 1966. This work culminated in the discovery of a large copper-PGM deposit (the Marathon deposit). Many of the drill holes were completed in areas off the present property. Anaconda carried out a test pitting program that recovered 23 tonnes of mineralized material, which was sent for testing to its Extraction Metallurgy Research Division (EMRD) facilities. Anaconda conducted several metallurgical tests intermittently from 1965 to 1982. Their primary objective was to improve metallurgical recoveries of copper and increase the copper concentrate grade. Anaconda discontinued further work on the property in the early 1980s, due to low metal prices at the time.

In 1985, Fleck Resources Ltd. (Fleck) purchased a 100% interest in the property with the objective of improving the economics by focusing on the PGM values of the Marathon deposit. Fleck carried out an extensive program, which included re-assaying the Anaconda drill core, further diamond drilling, surface trenching of the mineralized zones, bulk sampling, and a pilot plant testing at Lakefield Research Limited (Lakefield). Fleck drilled 3,627 m in 37 diamond drill holes.

In 1986, H.A. Simons carried out a feasibility study for Fleck based on a 9,000 t/d conventional flotation plant with marketing of copper concentrate. The study indicated a low internal rate of return (IRR). In 1987, Kilborn Limited

(Kilborn) carried out a pre-feasibility study for Fleck that included preliminary results from the Lakefield pilot plant tests (Kilborn, 1987). The study envisaged a 13,400 t/d conventional flotation plant with marketing of copper concentrate, but showed a low IRR, which was later confirmed by Teck Corporation (Teck).

In late 1987, Teck prepared a preliminary economic feasibility report on Fleck's Marathon Project based on a conventional open pit operation and concluded that the project was uneconomic due to low metal prices at that time. In 1987, Euralba Mining Ltd. (Euralba), an Australian junior mining company, entered into a joint venture agreement with Fleck.

In 1989, BHP Engineering Pty Ltd. (BHP) carried out a pre-feasibility study for Euralba and compiled approximately 2,500 samples of drill core for assay at Lakefield. Euralia retained Geostat Systems International (Geostat) to develop a mineral resource block model of the Marathon deposit that was used by BHP to design an optimized open pit. BHP considered several metallurgical processes, including an on-site smelter process.

In 1998, Fleck changed its name to PolyMet Mining Corp.

In 2000, Geomaque Exploration Ltd. (Geomaque) acquired certain rights to the property through an option agreement with PolyMet. Under the terms of the November 7, 2000 option agreement, Geomaque could earn a 50% interest in the property by spending $2,750,000 on exploration or by completing a feasibility study by October 31, 2004. The terms of the option agreement also allowed Geomaque to earn an additional 10% interest in the property by making a payment of $1 million within three months of the fourth anniversary of the option agreement.

Geomaque and its consultants carried out a study of the economic potential of the project. The study included a review of the geology and drill hole database, interpretation of the mineralized zones, statistics and geostatistics, computerized block model, mineral resource estimation, open pit design and optimization, metallurgy, process design, environmental aspects, capital and operating cost estimates, and financial modelling. Geomaque also completed 15 diamond drill holes totalling 3,158 m; however, the results were not available for incorporation in the study. The internal Geomaque study was presented as a NI 43-101 technical report titled "Marathon Palladium Project Preliminary Assessment and Technical Report" dated April 9, 2001.

Marathon PGM acquired the property from PolyMet in December 2003 and carried out exploration and various studies from 2004 through 2010. On December 23, 2003, Roscoe Postle Associates Inc. (RPA) was retained by Marathon PGM to prepare an independent technical report on the project, including an independent updated Mineral Resource Estimate. The purpose was to provide an independent assessment of the property in relation to an initial public offering by Marathon PGM. As part of their assignment, RPA prepared the Mineral Resource Estimate of the Marathon deposit using the same drill hole database that Geomaque used for its 2001 Mineral Resource Estimate. In addition to the drill hole database, RPA used the assay database from trenches on the Marathon deposit that were excavated by Anaconda and Fleck.

Between June 2004 and 2009, Marathon PGM funded programs of advanced exploration and diamond drilling on a continuous basis. Approximately 617 drill holes and 113,030 m were completed from 2004 to 2009 to expand the mineral resource and for condemnation outside the proposed open pit area. In 2006, a technical report titled "Technical Report and Resource Estimate on the Marathon PGM-Cu property, Marathon" was prepared by P&E

Mining Consultants (P&E). In 2007, P&E prepared a second technical report titled “Updated Technical Report and Preliminary Economic Assessment on the Marathon PGM-Cu property, Marathon Area” for Marathon PGM. An internal study on the mineral resource update of the Geordie Palladium-Copper property was produced on June 4, 2008 and filed on SEDAR. A feasibility study was published in 2008 and updated in January 2010 by Micon/Metchem titled “Technical Report on the Updated Mineral Resource Estimate and Updated Feasibility Study for the Marathon PGM-Cu Project” Stillwater and Marathon PGM closed an agreement on December 1, 2010. Stillwater subsequently formed a Canadian corporation, Stillwater Canada.

In March 2012, Mitsubishi Corp Mining Ltd. of South Africa (formerly called Coal of Africa Limited) purchased a 25% interest in Stillwater Canada. In March 2014, Nordmin Engineering Ltd. (Nordmin) provided Stillwater Canada with an internal feasibility study on the property. Stillwater Canada completed 45 drill holes totalling 10,285 m.

From 2011 to 2017, Stillwater Canada developed trail access and conducted a systematic approach to prospecting, geological mapping, trenching, geophysics, and diamond drilling. Stillwater Canada also re-logged over 150 drill holes. A total of 45 drill holes were completed totalling 9,767 m of core recovered.

In 2017, Stillwater was acquired by Sibanye Gold Limited (NYSE: SBSW) and renamed Sibanye-Stillwater (NYSE: SBSW).

On July 10, 2019, Gen Mining had (through its wholly-owned subsidiary Gen PGM) completed the acquisition of a 51% initial interest in the Marathon property and entered into a joint venture agreement with Stillwater. The company paid $3 million in cash and issued 11,053,795 common shares of Gen Mining at a price of $0.2714 per common share (totalling $3 million) for a total consideration of $6 million. Pursuant to the joint venture agreement, Gen Mining had the right to increase its interest in the Marathon property to 80% by funding $10 million in exploration, evaluation, and development expenditures and preparing a PEA within four years (the “ownership increase right”).

On February 19, 2020, Gen Mining filed a PEA and in November 2020 incurred a total of $10 million in exploration and evaluation expenditures, thereby fulfilling the ownership increase right. On November 27, 2020, the Company increased its ownership interest to hold an 80% interest in the Marathon property. On December 14, 2020, Stillwater elected to forgo its proportionate share of joint venture funding and dilute pursuant to the provisions of the joint venture agreement (dilution provisions). On July 21, 2021, Stillwater elected to not exercise its ownership increase right to expand its ownership in the Marathon property to 51%. Pursuant to the dilution provisions, Gen Mining held 83.5% and Stillwater 16.5% interest in the joint venture as of September 30, 2021.

On December 8, 2021, Gen Mining entered into a binding acquisition agreement with Stillwater, pursuant to which Gen Mining would acquire Stillwater’s remaining 16.5% interest in the Marathon Project for 21,759,332 common shares of Gen Mining.

On January 26, 2022, Gen Mining completed the acquisition of Stillwater’s interest and currently owns a 100% interest in the Marathon property. As a result of this transaction, Sibanye-Stillwater, a leading international precious metals mining company, with a diverse portfolio of operations in the United States and Southern Africa, now holds 32,813,127 common shares of the company, representing approximately 13.9% of the company’s issued and outstanding common shares (as of November 1, 2024).

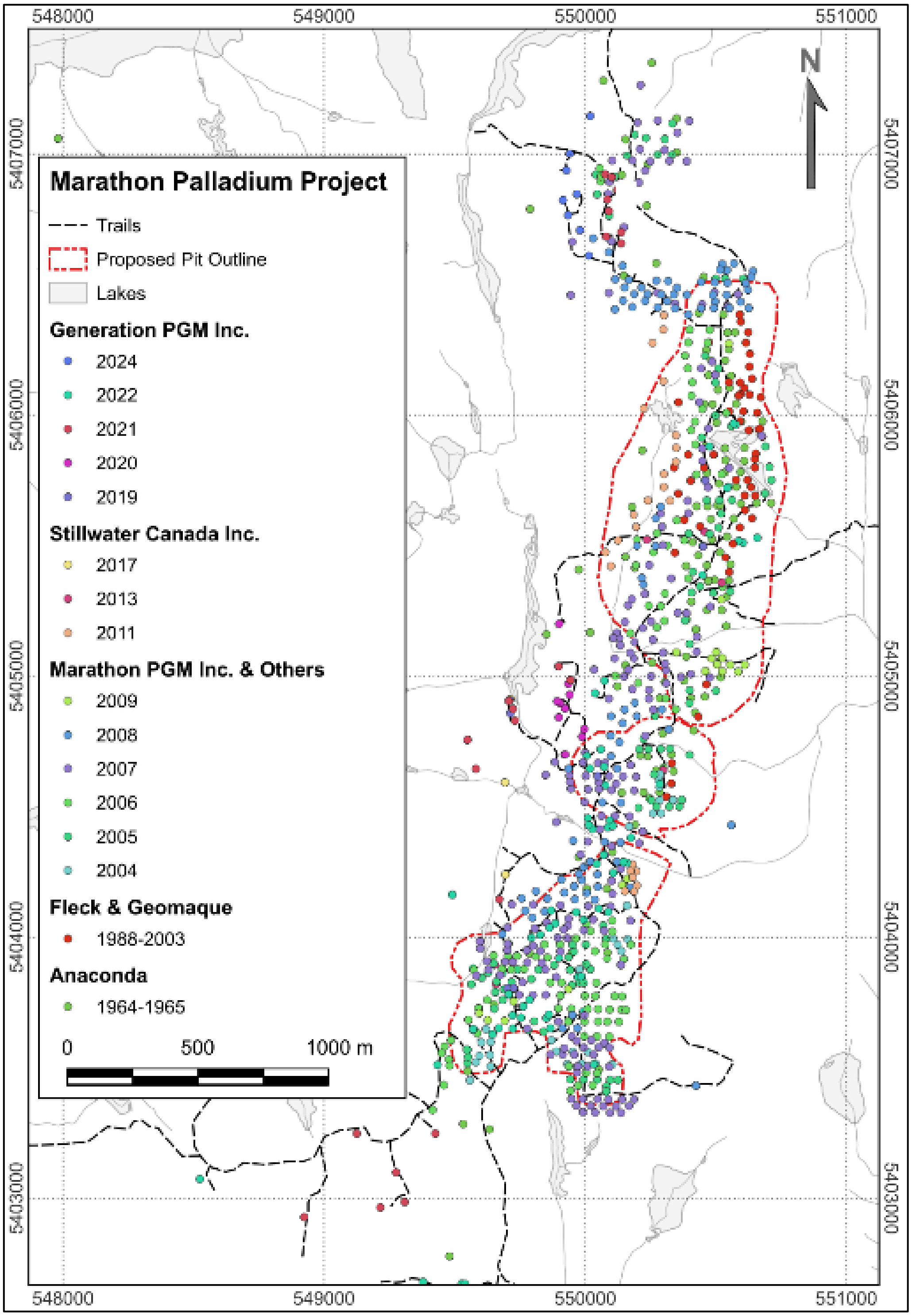
6.2 Drilling

A summary of the diamond drilling prior to November 1, 2024 is listed in Table 6-1 and illustrated in Figure 6-1. Historical drill holes (prior to 2022) were previously surveyed in UTM NAD 27 Zone 16N. In 2022, all historical UTM NAD27 information was converted to UTM NAD83.

Table 6-1: Summary of Historical Drilling and Trenching on the Marathon Property, 1964-2024

Company	Year	No. of Drill Holes / Trenches	Total Length (m)
Drilling Data			
Anaconda	1964-1966	151	32,741
Fleck	1980s	37	3,627
Geomaque	2000	15	3,158
Marathon	2004	32	4,080
Marathon	2005	102	14,602
Marathon	2006	108	21,799
Marathon	2007	205	39,781
Benton	2005-2007	50	9,198
Various – Geordie	1987-2010	61	9,647
Various – Sally	1991-2017	82	16,975
Marathon	2008	99	21,239
Marathon	2009	21	2,333
Stillwater Canada	2011	35	6,553
Stillwater Canada	2013	6	1,400
Stillwater Canada	2017	22	5,925
Generation Mining	2019	39	12,809
Generation Mining	2020	12	5,068
Generation Mining	2021	22	10,000
Generation Mining	2022	50	8,068
Generation Mining	2024	14	6,871
Subtotal		**1,163**	**235,873**
Trenching by Location			
Marathon	2004-2021	111	7,832
Sally-Redstone	1991-2024	32	2,357
Skipper-Boyer	2017-2021	13	824
Four Dams-Lacobeer	2013	20	994
Total		**169**	**11,507**

Figure 6-1: Diamond Drill Hole Locations by Exploration Company



Source: Gen Mining (2024).

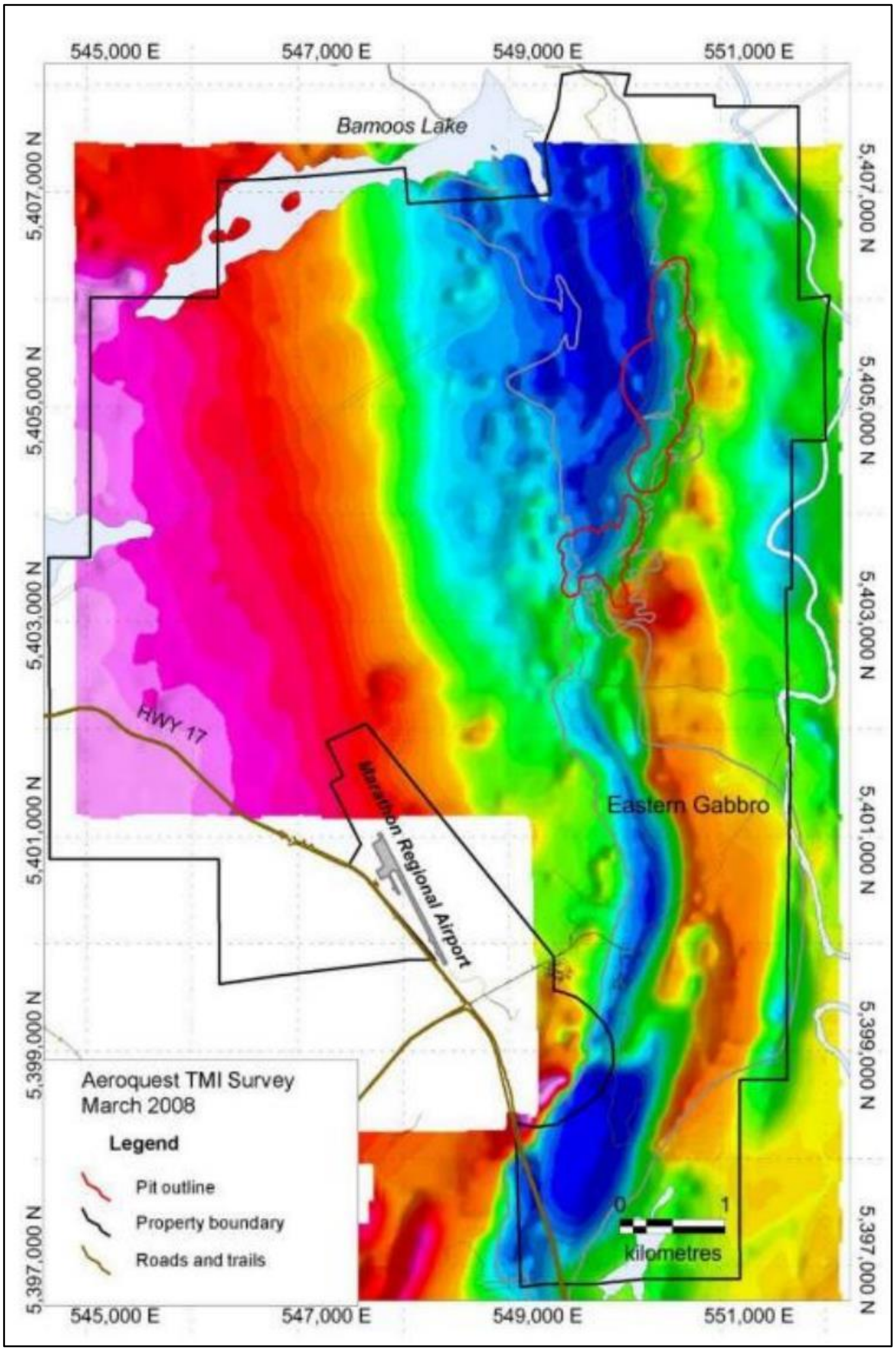
6.3 Historical Geophysical Surveying

Several geophysical surveys have been conducted over the property, as summarized in Table 6-2.

Table 6-2: Summary of Geophysical Surveys

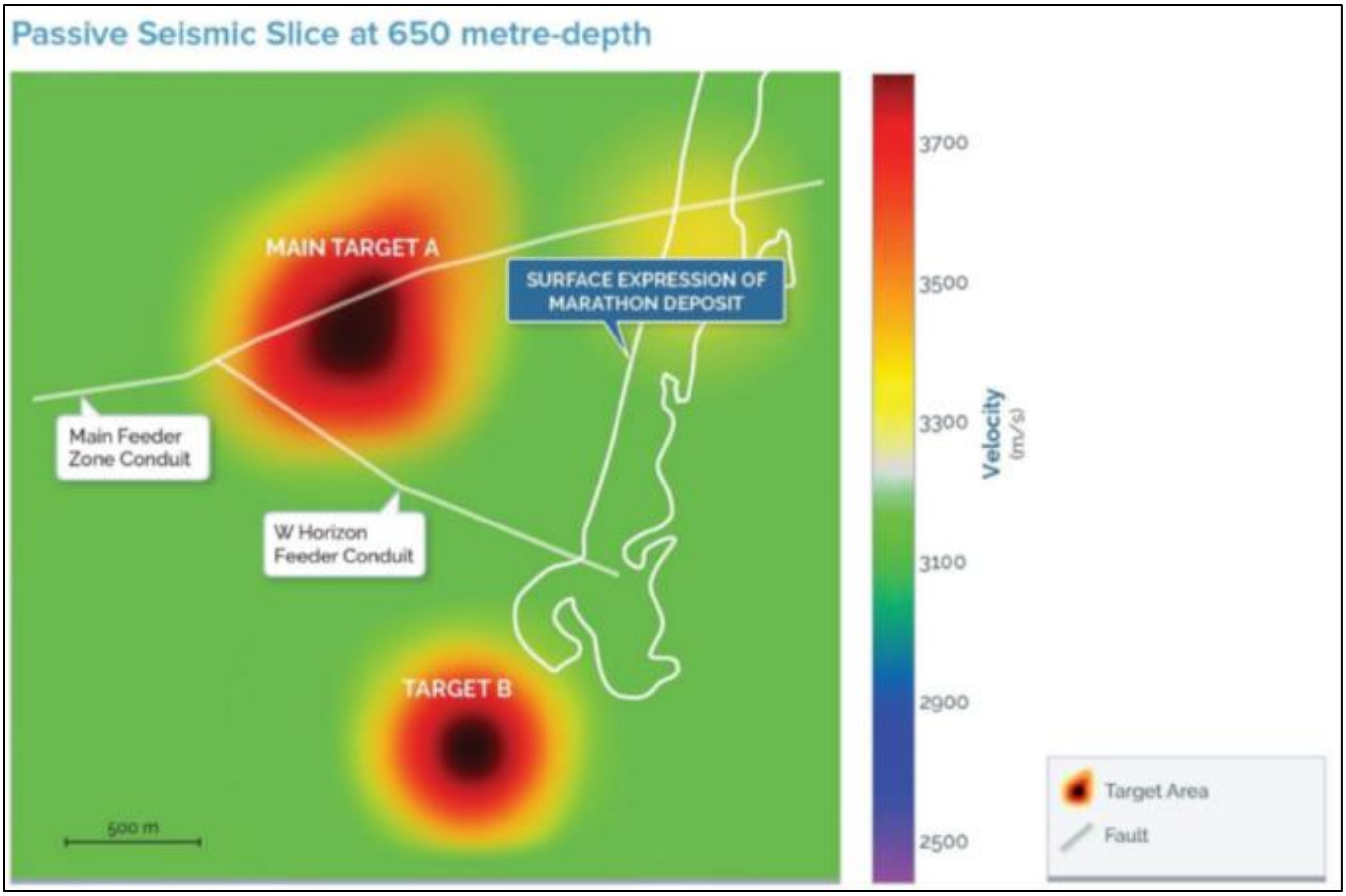
Year	Survey Type	Purpose
2005	IP/Resistivity and Magnetics by JVX.	Delineate disseminated sulphide zones believed to contain copper and PGM mineralization.
2007	Geophysical Survey Report: Insight Section Array Induced Polarization and Resistivity Surveys. February 2007. Insight Geophysics Inc.	Acquire high-density apparent resistivity and chargeability measurements from near surface to depths up to 500 m.
2007	Heliborne VTEM and Cesium Magnetometer Geophysical Survey. October to December 2007.	Identify sub-surface conductive and magnetic features of interest for follow-up ground exploration and drilling.
2007	Geophysical Survey Report: Insight Section Array Induced Polarization and Resistivity Surveys. May 2007. Insight Geophysics Inc.	Determine the geometry of the source producing the negative magnetic trend with the possibility of outlining any embayment that could be favourable to hosting wider zones of the targeted mineralization (Figure 6-2).
2008	Heliborne AeroTEM System EM and Magnetic Survey Superior Block. March 2008. by Aeroquest International.	
2011	Heliborne High Resolution Aeromagnetic and Spectrometric Survey. June 2011. Geo Data Solutions GDS Inc.	Data used to guide exploration over the Marathon property.
2012	Gravity Survey of the Marathon PGM-Cu Deposit. August 2012.	Model the Eastern Gabbro at depth and identify a potential magma source below the Coldwell Complex.
2015	Hole to Hole 3D Borehole IP. July 2015. Abitibi Geophysics.	Attempt to define a conductive zone within the higher sulphide portion of the high-grade PGM Zone.
2016	Surface Pulse-EM Survey. October 2016. Crone Geophysics.	Confirm and model the conductive zones below the W-horizon.
2017	Borehole EM Survey at Sally. June 2017. Crone Geophysics.	Search for off hole conductors in drill holes SL-17-58 & SL-17-59.
2018	Passive Seismic Tomography Survey. August 2018. Pacific.	Delineate the likely conduits for the magma that originally formed the Main Zone and W-Horizon deposits (Figure 6-3 and Figure 6-4).
2018	High Resolution Ground Gravity Survey. October 2018. Abitibi Geophysics.	
2019	Borehole EM Survey at Marathon and Sally. November 2019. Crone Geophysics.	Search for off hole conductors in drill holes M-19-536, M-19-537, SL-19-78.
2020	Borehole EM Survey at Marathon. August - October 2020. Crone Geophysics.	Search for off hole conductors in drill holes M-20-539, M-20-543 & M-20-547.
2024	Borehole EM Survey at Marathon, Four Dams and Sally. April-October 2024. Crone Geophysics.	Search for off hole conductors in drill holes MB-24-055, MB-24-059, FD-24-048 and SL-24-079.

Figure 6-2: Magnetometer Survey Results Over the Marathon Property



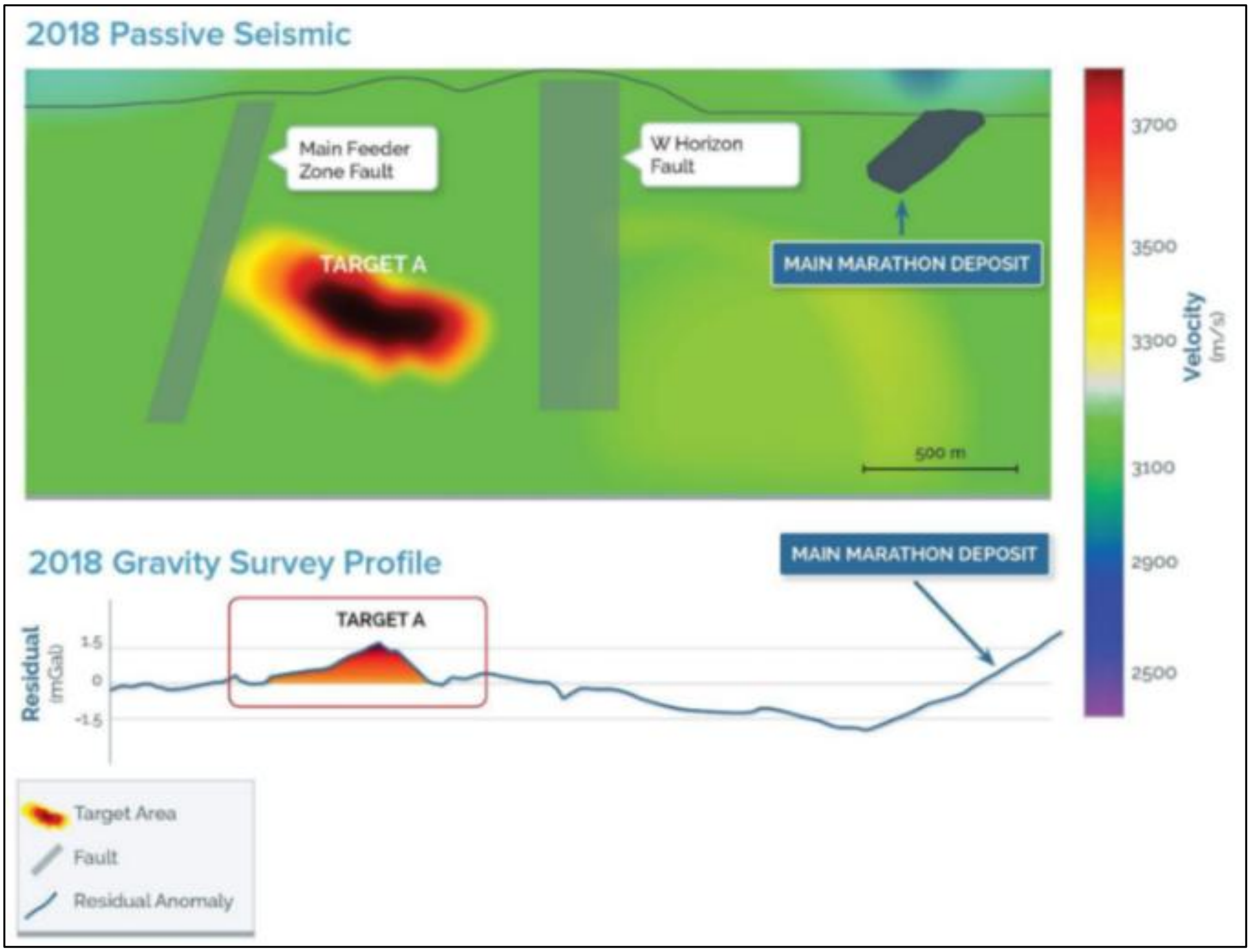
Source: Stillwater Canada Inc. (2014).

Figure 6-3: Seismic Data Revealing Potential Feeder Zones



Source: Gen Mining (2019).

Figure 6-4: Seismic Data Profile on Potential Feeder Zones (Looking North)



Source: Gen Mining (2019).

6.4 Geological Mapping

As part of the 2005 summer exploration program, a detailed geological survey was carried out over the same grid that was established for the geophysical surveying. Approximately 15.0 line-km of mapping and prospecting were conducted. The results of the geological mapping program were incorporated into the existing geological database. Geological mapping also continued through the 2007-2009 summer exploration programs. Geological mapping was carried out between 2014-2018 at Sally and Four Dams to Boyer to update historical mapping into the current geological legend. Additional geological mapping was carried out in the summer of 2021 to cover the areas between Marathon and Four Dams, Boyer and Sally, and Sally and Redstone that had not yet been mapped into the current geological legend. At the conclusion of this program, the entire Marathon horizon from the main deposit area to the western extent of the property had been mapped to modern standards. Additional mapping between 2021 and 2022 was focused on proposed infrastructure for the mining operations to support detailed engineering and ensure that mineralization of economic potential does not exist in these areas.

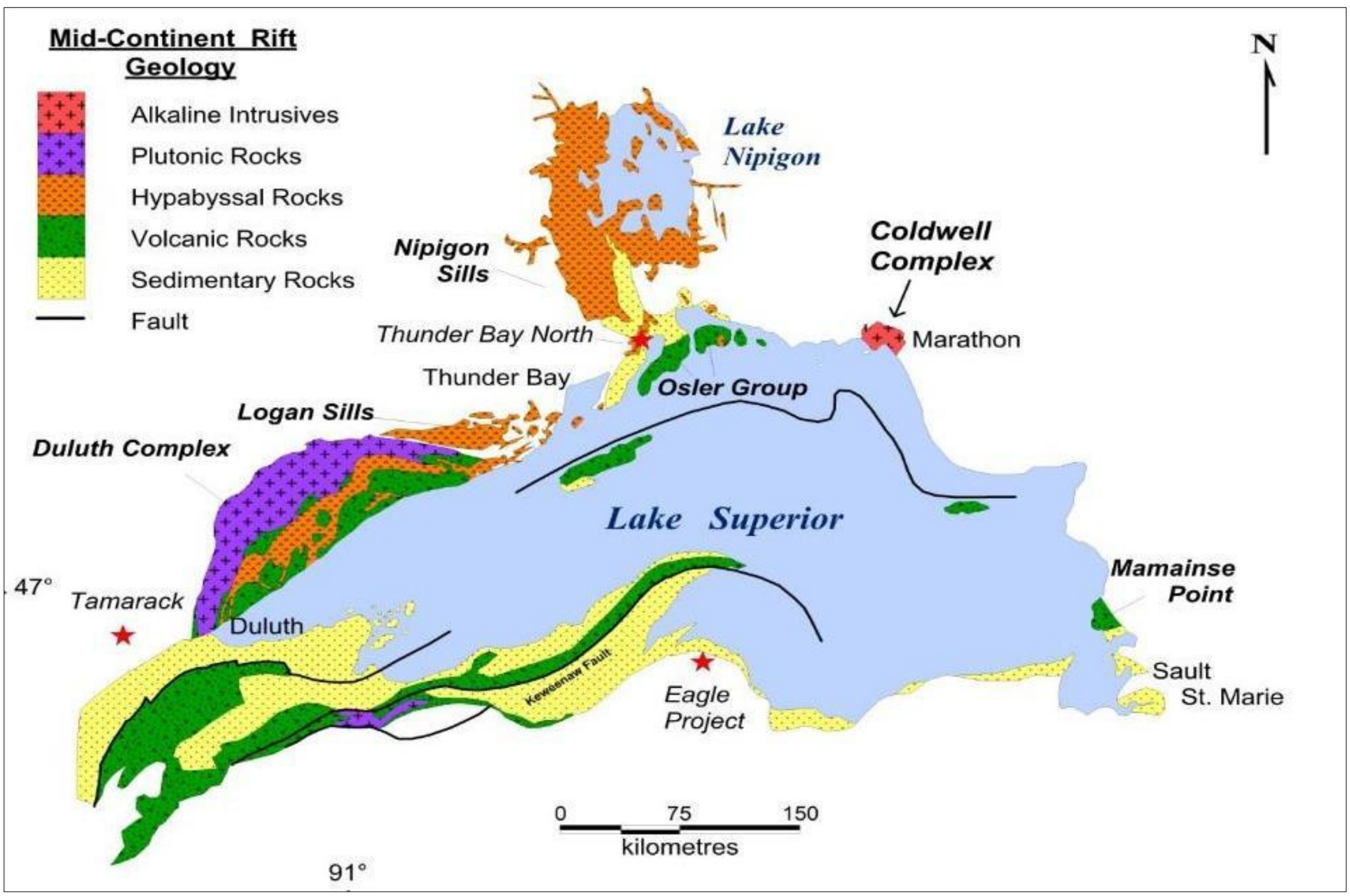
7 GEOLOGICAL SETTING AND MINERALIZATION

7.1 Regional Geology

The Marathon deposit is hosted by the Two Duck Lake (TDL) gabbro, a late intrusive phase of the Eastern Gabbro. The Eastern Gabbro has recently been described as a composite intrusion by Good et al. (2012) and occurs along the northern and eastern margin of the Proterozoic Coldwell Complex, which intrudes the much older Archean Schreiber-Hemlo greenstone belt (Figure 7-1). The sub-circular Coldwell Complex has a diameter of 25 km and a surface area of 580 km^2 and is the largest alkaline intrusive complex in North America (Walker et al. 1993).

The Coldwell Complex is considered to have intruded over a relatively short period of time near the beginning of the main stage of the Mid-Continent Rift magmatism, which occurred between 1108 and 1094 Ma (Heaman and Machado, 1992 and Heaman et al., 2007).

Figure 7-1: Regional Geology of the Mid-Continent Rift in the Lake Superior Area



Source: Marathon PGM Corp. (2010).

7.1.1 Geology of the Coldwell Complex

The Coldwell Complex was first described as a lopolith by Puskas (1967) and as three intrusive centres by Mitchell and Platt (1977). The intrusive centres were later described as three superimposed rings by Currie (1980). Detailed mapping across the Coldwell Complex by Walker et al. (1993) supported the multiple intrusive centre model of previous interpretations. Walker et al. (1993) also proposed that the Coldwell Complex has a sub-horizontal structure or stratigraphy.

The major rock units of each magmatic centre of the Coldwell Complex are shown in Figure 7-2 and described below:

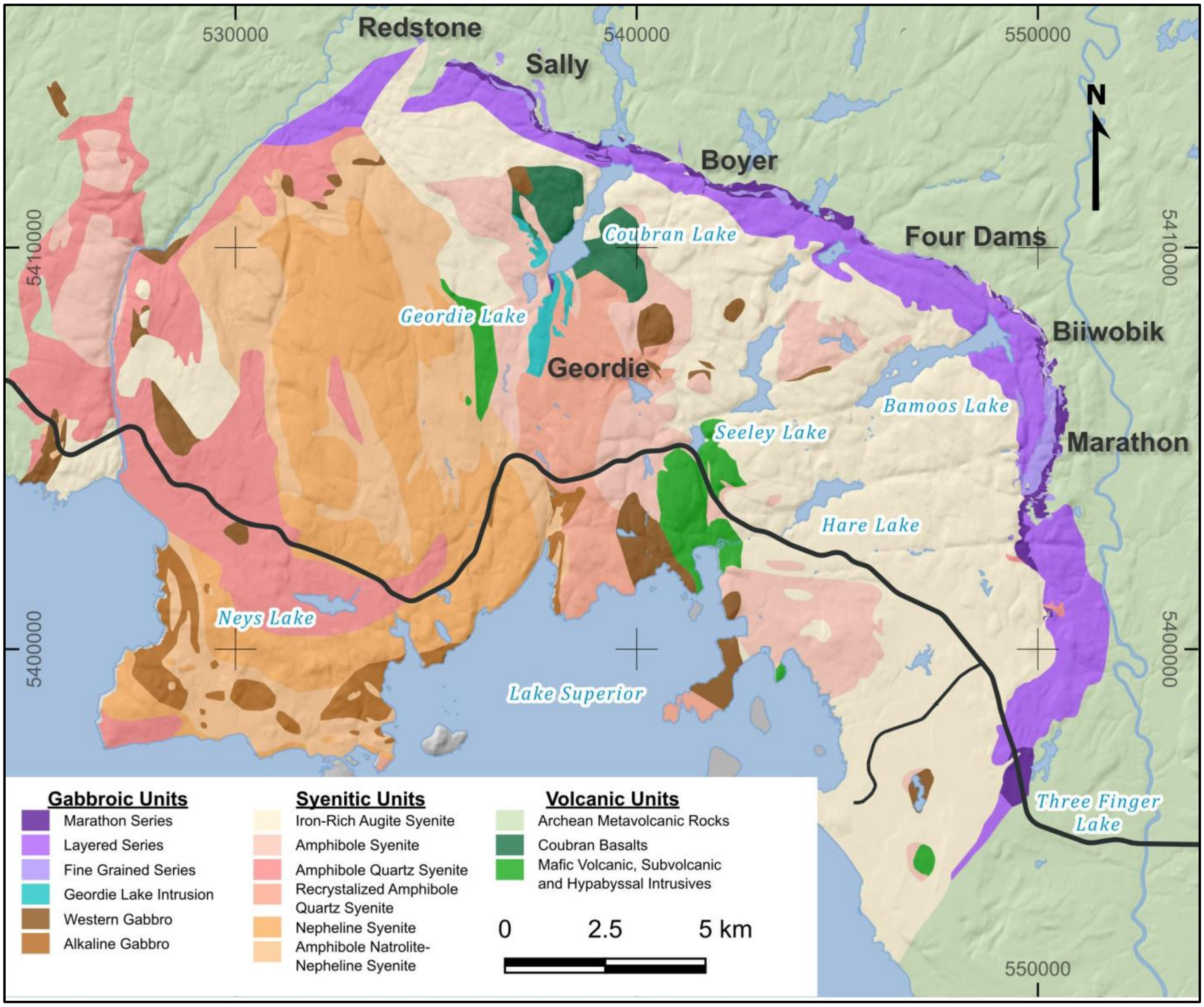
- Centre I: eastern and western gabbros, amphibole quartz syenite, iron-rich augite syenite, monzodiorite and mafic volcanic and subvolcanic rocks
- Centre II: amphibole nepheline syenite and alkaline gabbro
- Centre III: quartz syenite and amphibole quartz syenite.

Work by Kern et al. (2012) and Kulakov et al. (2012) suggests Centres I and III were intruded prior to Centre II. These two studies presented comprehensive paleomagnetic data from the Coldwell Complex and included measurements from intrusive syenite to gabbro rocks of Centres I, II and III. The results of Kern et al. (2012) indicate that paleomagnetic signatures for Centres I and III are statistically indistinguishable, and that rocks of Centre II were emplaced after the magnetic reversal that occurred at approximately 1103-1104 Ma. The study by Kulakov et al. (2012) examined the package of volcanic rocks located in the centre of the Coldwell Complex and determined that the paleomagnetic signature for the basalts is very similar to that for intrusive rocks of Centres I and III as determined by Kern et al. (2012), and is consistent with a deposition age of 1107 Ma.

Most recently passive seismic surveys were completed at the Marathon deposit in 2018 and 2019 and at the Sally deposit in 2019. This technique measures wave velocity contrasts between lithologies based on density variation. The density contrast between basement Archean footwall, syenites, gabbros and oxide melagabbros is sufficient to distinguish between lithologies. The survey results showed a large sub-horizontal, undulating high-velocity zone dipping to the west, extending from the eastern gabbros (Good et al., 2020).

In 2019, an exploration drill hole tested the velocity model with a 1,000 m deep hole through the syenites of Center I. The stratigraphy intersection started with syenites from surface to 300 m depth followed by layered series gabbro showing inward-dipping layering and flattening to a sub-horizontal sheet (Good et al., 2020). This does not support an outer ring dyke structure or a larger lopolith with basalt roof pendants. The Coldwell Complex most likely formed by intrusions of alkaline gabbro or syenite sills into a basalt pile. The features of the Coldwell Complex, particularly the sub-horizontal emplacement, circular shape of the complex and coincident gravity high, are most consistent with emplacement within a volcanic caldera (Good et al., 2020).

Figure 7-2: Geology of the Coldwell Complex



Note: Shows the locations of the Marathon deposit and the Geordie deposit. Geology modified after Walker et al. (1993).
Source: Gen Mining (2024).

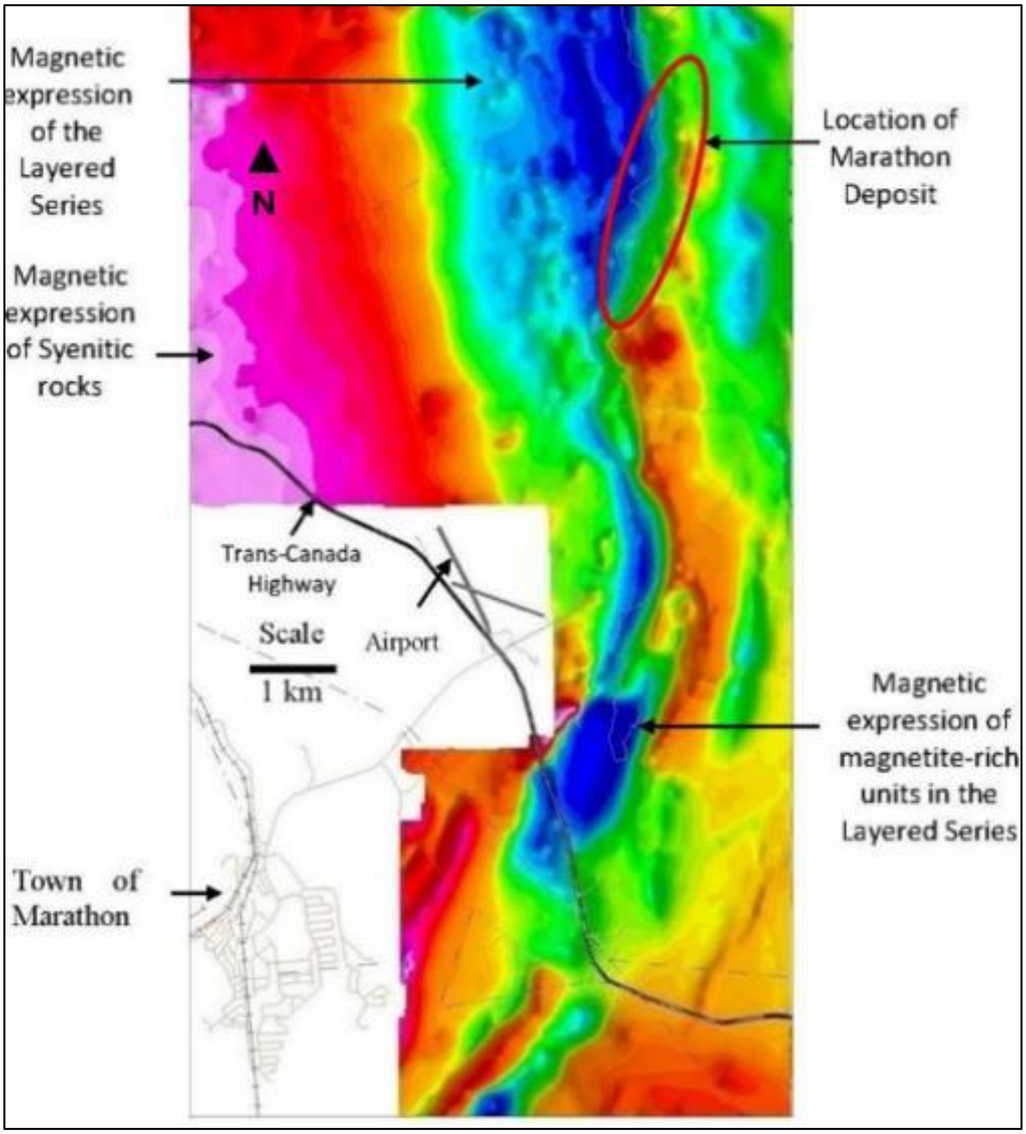
7.1.2 Geology of the Eastern Gabbro

The Eastern Gabbro forms part of a very large magmatic system and contains numerous Cu-PGM occurrences along its entire length. This unit is up to 1,500 m thick and strikes for 33 km around the eastern margin of the Coldwell Complex (Figure 7-12). It is considered the oldest intrusive phase of the Coldwell Complex and was interpreted to have formed by multiple intrusions of magma into restricted dilatant zones within volcanics, possibly associated with ongoing caldera collapse (Walker et al., 1993 and Shaw, 1997 after work by Puskas 1967 and 1970; and Currie 1980). Shaw (1997) concluded the Eastern Gabbro consists of evolved basalt magma with a sub-alkaline parentage.

The magnetic signature of the Eastern Gabbro in the area of the Marathon deposit is shown in Figure 7-3, which highlights the segmented or discontinuous character of various phases of the Eastern Gabbro.

The Eastern Gabbro is overlain by massive to layered augite syenite (Puskas, 1970; and Walker et al., 1993). The layering in the gabbro and the augite syenite dip moderately towards the centre of the complex.

Figure 7-3: Total Magnetic Image Over Eastern Boundary of the Coldwell Complex



Source: Marathon PGM Corp. (2010).

7.1.2.1 Historical Classification of the Eastern Gabbro

Puskas (1970) subdivided the Eastern Gabbro into three groups: (1) the outer border zone of chilled gabbro; (2) the inner border Zone A of massive gabbro; and (3) the inner border Zone B of layered gabbro. Based on detailed regional mapping, Walker et al. (1993) subdivided the Eastern Gabbro into three dominant intrusive bodies: (1) the eastern layered gabbro series; (2) the TDL gabbro; and (3) the Malpa Lake gabbro. Further detailed study of two stratigraphic sections through the layered gabbro series by Shaw (1997) resulted in the definition of at least three intrusive phases separated by thick zones of xenolith-laden massive gabbro bodies. The lower zone consists of a fine-grained chill (Sequence I) that grades upward into metre-scale layered gabbro (Sequence II) to the centimetre scale layered gabbro (Sequence III).

7.1.2.2 New Classification of the Eastern Gabbro

A new classification of the Eastern Gabbro, as proposed by Good et al. (2015), includes the fine-grained series, layered series, and Marathon series. The new classification is based on distinctive petrographic features, geochemical characteristics, and cross-cutting relationships. The three series largely maintain the subunits of the Eastern Gabbro as presented by Puskas (1970) and Shaw (1997) but with the main differences that the units are not necessarily co-genetic. The Marathon series is the youngest intrusive phase and is defined here to include all mafic and ultramafic intrusive rocks that host copper and PGM mineralization in the vicinity of the Marathon deposit. The fine-grained series is the oldest phase and is equivalent to the outer boundary chill gabbro of Puskas or Sequence I rocks of Shaw (1997). The layered gabbro series matches the inner zones A and B of Puskas or Sequences II and III of Shaw (Table 7-1).

Table 7-1: New Classification Scheme for the Eastern Gabbro

Good et al.'s Classification for Eastern Gabbro				Previous Classification Schemes		
Series	**Unit**	**No. of Sub-Units**	**Relative Age**	**Puskas (1970)**	**Wilkinson (1983)**	**Shaw (1997)**
Fine-Grained Series	Metabasalt	4	Oldest	Outer border zone of chilled gabbro	Fine-Grained Gabbro	Layered Series Gabbro Series I
	Peridotite	2				
Layered Series	Olivine Gabbro	2		Inner Border Zone B of Layered gabbro	Banded gabbro	Layered Gabbro Series II and III
	Oxide Augite Melatroctolite	1				
Marathon Series	Gabbroic Anorthosite	1		Inner Border Zone A of massive gabbro	Mottled Gabbro	
	Wehrlite	4				
	Augite Troctolite	7				
	Oxide Melatroctolite	2			Magnetite Olivinite	
	Two Duck Lake Gabbro	6			Heterogeneous Gabbro	Two Duck Lake Gabbro
	Apatitic Clinopyroxenite	3	Youngest			

7.1.3 Detailed Geology of the Marathon PGM-Cu Property

The property geology is defined largely by the intrusive cross-cutting relationships between the Marathon series and the earlier fine-grained series, and by the complicated nature of the basal contact with the partially melted Archean rocks. The geology of the property is shown on a plan map in Figure 7-4.

The TDL gabbro is the dominant host rock for Cu-PGM mineralization. Additional accumulations of Cu-PGM mineralization are associated with oxide ultramafic intrusions of the Marathon series that consist of clinopyroxene ± olivine ± magnetite ±apatite cumulate rocks. These ultramafic bodies occur predominantly in the hangingwall of the Marathon deposit and were formerly referred to as layered magnetite olivine cumulates.

7.1.4 Archean Country Rock and Rheomorphic Intrusive Breccia

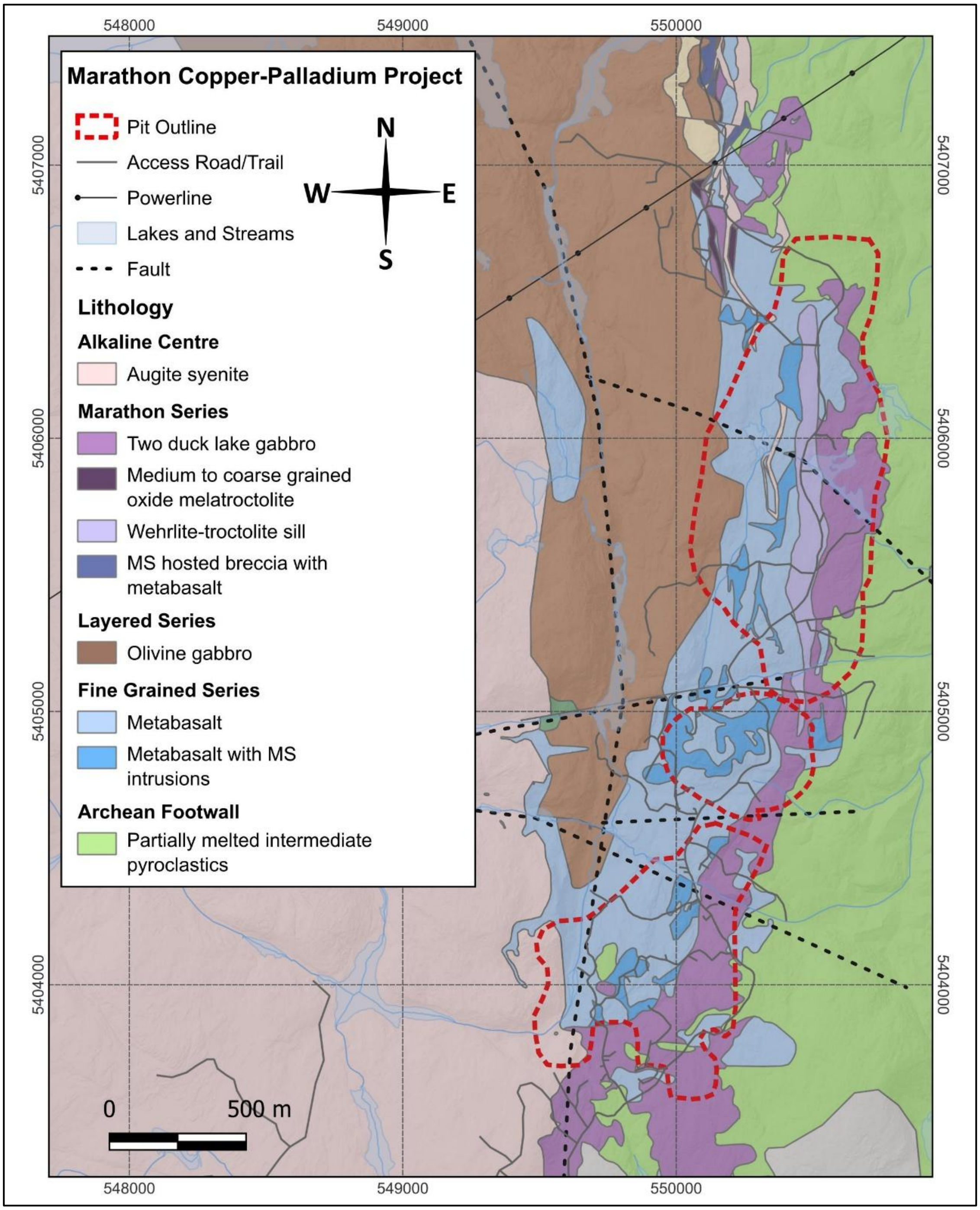
The footwall of the Marathon deposit consists of Archean intermediate pyroclastic rocks that have undergone partial brecciation during intrusion of the Eastern Gabbro. At the contact with the Eastern Gabbro, the footwall is referred to as rheomorphic intrusive breccia (RIB). The RIB/gabbro contact is not a simple contact as blocks of RIB material occur within the gabbroic series and intrusions of gabbro extend deep below the footwall contact. Also, a few thin near-vertical promontories of RIB extend into the gabbroic series (Figure 7-4).

In a detailed study of the RIB, Abolins (1967) described the breccia as a matrix-supported heterogeneous mixture of angular and sub-rounded fragments composed of fine- to coarse-grained gabbro material, quartzite, pyroxenite and layered quartz pyroxenite. A distinguishing feature of the RIB is the common occurrence of elongate curved pyroxenite fragments. Abolins (1967) estimated the composition of the breccia matrix to be close to that of a quartz norite.

Locally, the footwall forms basins and ridges under the TDL gabbro. This paleo surface played an important role in the formation of the Marathon deposit by encouraging accumulation of sulphides through physical processes such as settling of sulphide droplets in the magma conduit (refer to Section 8, Deposit Types).

The Archean country rock types vary along strike from the Marathon deposit to the north, from amphibolite, granodiorite, mafic to felsic volcanics, and metasedimentary rocks; however, in all areas RIB can be observed in surface mapping and drill core.

Figure 7-4: Geological Map of the Marathon Deposit



Note: Mapping by geologists of Marathon PGM Corp and Stillwater Canada Inc, 2012. Source: Gen Mining (2025).

7.1.5 Metabasalt (Fine-Grained Series)

The most abundant rock type in the hangingwall overlying the Marathon deposit is metabasalt. Layering can be detected at the metre scale by gradational change in grain size. Contacts with other gabbro units are sharp.

The metabasalt consists of equigranular clinopyroxene, olivine, plagioclase, and minor magnetite. Intergranular angles are near 120° indicating the fine metabasalt is re-crystallized. Re-crystallization would require very high temperature metamorphism perhaps up to pyroxene hornfels grade. Metamorphism occurred during intrusion of layered series and TDL gabbro.

An important and remarkable feature of metabasalt is the extremely small amount of secondary alteration. In a survey of 50 thin sections, only a few sections contained serpentine alteration of olivine and one section contained amphibole alteration of olivine. Tremolite was not observed. Trace are amounts of secondary minerals such as chlorite and muscovite occur in the vicinity of olivine or cross-cutting fractures.

Locally, the occurrences of flattened pipe shaped features that resemble amygdules imply the unit originated as basalt flows that were recrystallized during pyroxene hornfels grade contact metamorphism.

A common feature within metabasalt, particularly proximal to intrusions of TDL gabbro, is the formation of 1 to 2 cm sized zoned amoeboid-shaped blebs with either a clinopyroxene or olivine core or a thin plagioclase-rich rim. This texture is interpreted to have formed either by migration of material from the TDL magma along a very fine 3D network or by pyroxene hornfels metamorphism related to intrusion of the TDL magma.

An early intrusive peridotite associated geochemically with the early metabasalt phase occurs at the Sally deposit and is adjacent to mineralization. The peridotite is composed of medium- to coarse-grained euhedral clinopyroxene, fine- to medium-sized euhedral olivine, interstitial tabular to irregular plagioclase, and minor accessory magnetite. There are multiple occurrences emplaced as vertical pipes to horizontal sills and change orientation over short distances. They can be up to 100 m thick and they are homogenous with little compositional variation.

7.1.6 Layered Olivine Gabbro and Oxide Augite Melatroctolite (Layered Series)

The layered series composes the majority of the Eastern Gabbro and only occurs along the western edge of the property. It is compositionally, geochemically, and texturally similar along the entire strike length of the complex. The layered series is dominated by massive to modally layered olivine gabbro with smaller amounts of inter-layered thick units of oxide augite melatroctolite. Contacts between these units are typically gradational.

The olivine gabbro is medium- to coarse-grained and is characterized by intergranular texture, plagioclase alignment, and modal layering. The modal layering is defined by a gradational increase in the abundance of plagioclase and ranges in composition from olivine melagabbro to olivine gabbroic anorthosite. The lower contact of modal layers is not sharp but shows strong contrast. The modal layers are variable on a decimetre- to metre-scale and may show continuous to lenticular rhythmic layering. Cross-bedded, wavy, or convoluted layering may also be present.

The olivine gabbro has an intergranular texture and is composed of, in decreasing order of abundance, plagioclase, clinopyroxene, olivine, magnetite, and apatite. Medium- to coarse-grained plagioclase is euhedral to subhedral, whereas olivine and clinopyroxene crystals are medium-grained and subhedral. The gabbro includes up to 10%, fine-grained, euhedral, and interstitial apatite, and up to 10% interstitial magnetite. Alteration of plagioclase and mafic minerals to sericite and chlorite or actinolite, respectively, is weak to moderate.

The oxide augite melatroctolite is texturally similar and gradational to the layered olivine gabbro and is distinguished by abundant magnetite (15% to 25%). The oxide augite melatroctolite occurs as discontinuous and irregular pods and lenses within the layered olivine gabbro. The unit is typically medium- to coarse-grained and may exhibit plagioclase alignment.

7.1.7 Wehrlite-Troctolite Sill (Marathon Series)

The wehrlite-troctolite (WT) sill located immediately above the main mineralization-bearing TDL gabbro (Figure 7-5 and Figure 7-6) is an important marker horizon and is thought to have important implications regarding the origin of the Marathon deposit mineralization. Further, of equal or greater significance, the excellent continuity of the unit across a total of 128 carefully logged drill holes negates the possibility of numerous post mineralization faults as proposed by Dahl et al. (2001). The sill is 30 to 50 m thick and composed of an upper wehrlite and lower augite troctolite unit and lacks significant sulphides.

The WT sill is an excellent marker horizon and provides the only evidence for normal faulting along the surface lineaments located near 5,404,900 N and 5,404,500 N, as illustrated in Figure 7-5.

The WT sill occurs along the entire strike length of the Marathon deposit and forms an important marker horizon above the Main Zone of mineralization. This relationship changes at the south end of the Marathon deposit (near 5,403,800 N), where the dip of the sill is sub-horizontal and the TDL gabbro cross-cuts the sill to form the southwest limb of the Marathon deposit.

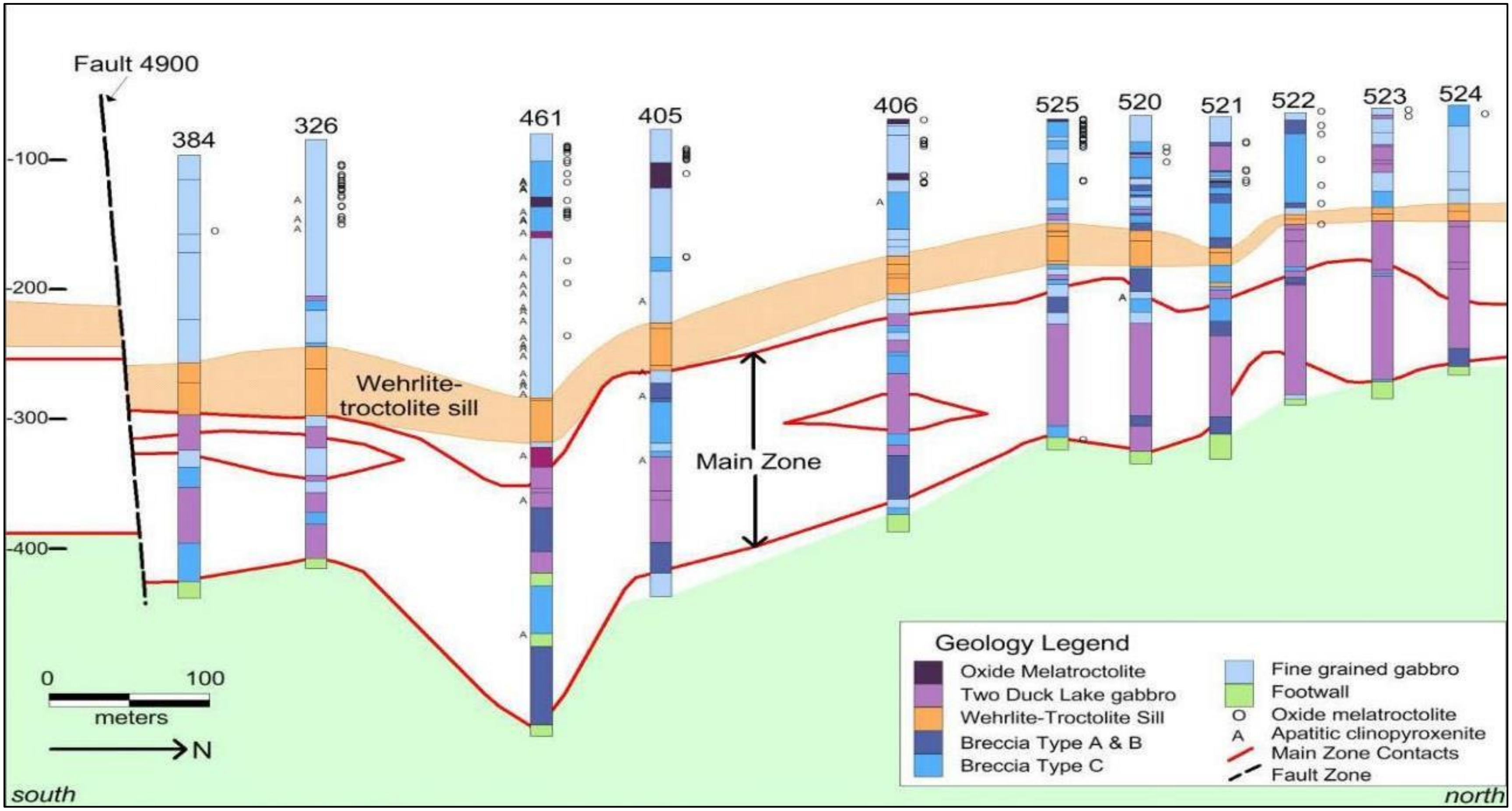
The wehrlite typically occurs immediately above the augite troctolite unit. The wehrlite consists of, in decreasing order of abundance, olivine, clinopyroxene, plagioclase, and magnetite. Olivine and clinopyroxene are medium- to very coarse-grained. Olivine is generally subhedral and clinopyroxene is anhedral. Plagioclase is interstitial and medium- to coarse-grained, and magnetite is anhedral to subhedral. Plagioclase composes 5% to 25% of the rock. Thin layers of coarse-grained oxide wehrlite commonly occur within the wehrlite.

The augite troctolite is distinguished by the presence of coarse-grained olivine, clinopyroxene and magnetite oikocrysts. The nature of plagioclase varies from euhedral laths to anhedral, interstitial networks; the latter feature giving the augite troctolite a mottled appearance.

7.1.8 Two Duck Lake Gabbro (Marathon Series)

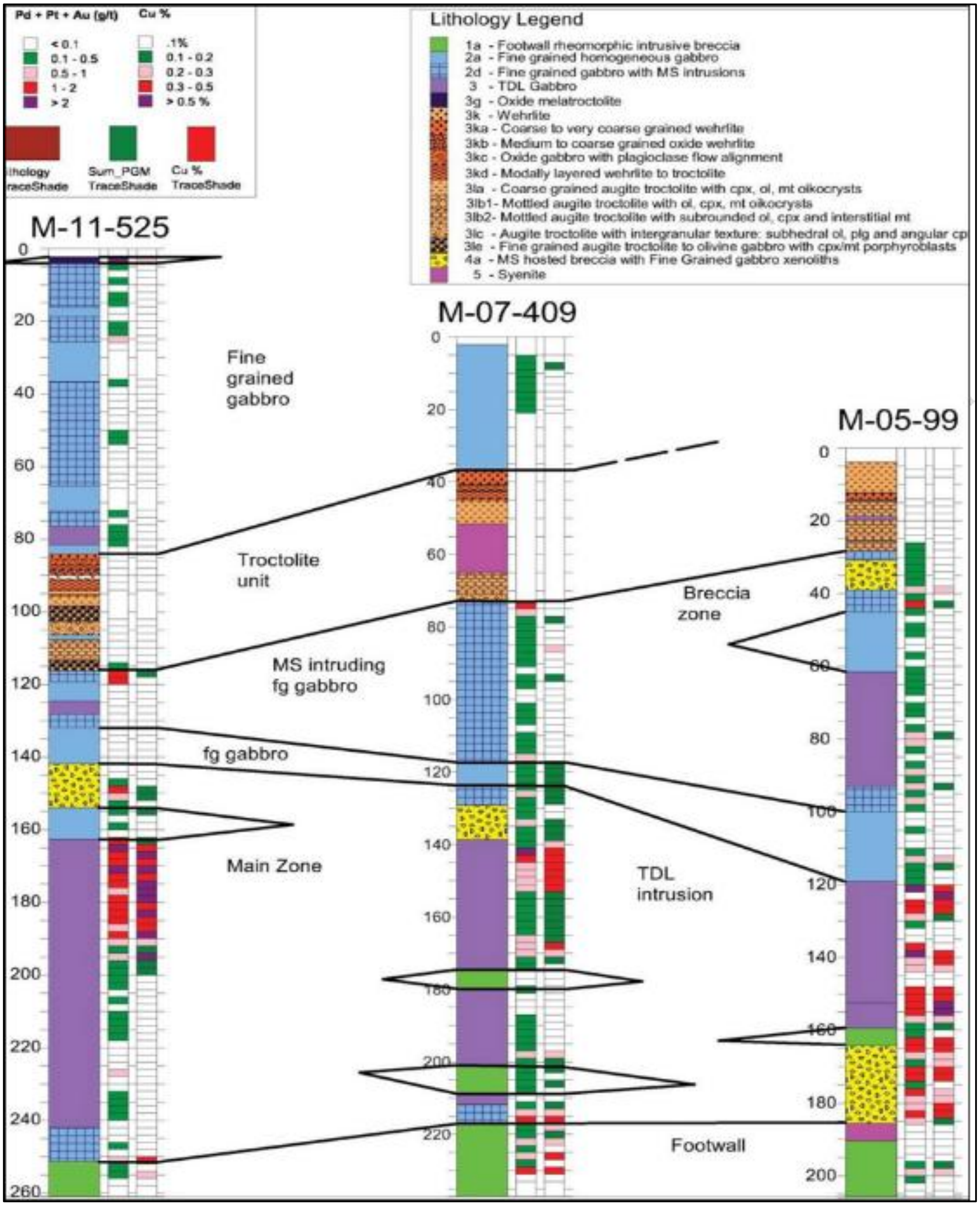
The TDL gabbro is the host rock for the Marathon deposit. It occurs as a massive and poorly layered unit approximately 50 to 250 m thick that strikes near north for >6 km (Figure 7-5, Figure 7-6 and Figure 7-7) and in general dips west at 5° to 45°.

Figure 7-5: Longitudinal View through the Central Portion of the Marathon Deposit (Looking West)



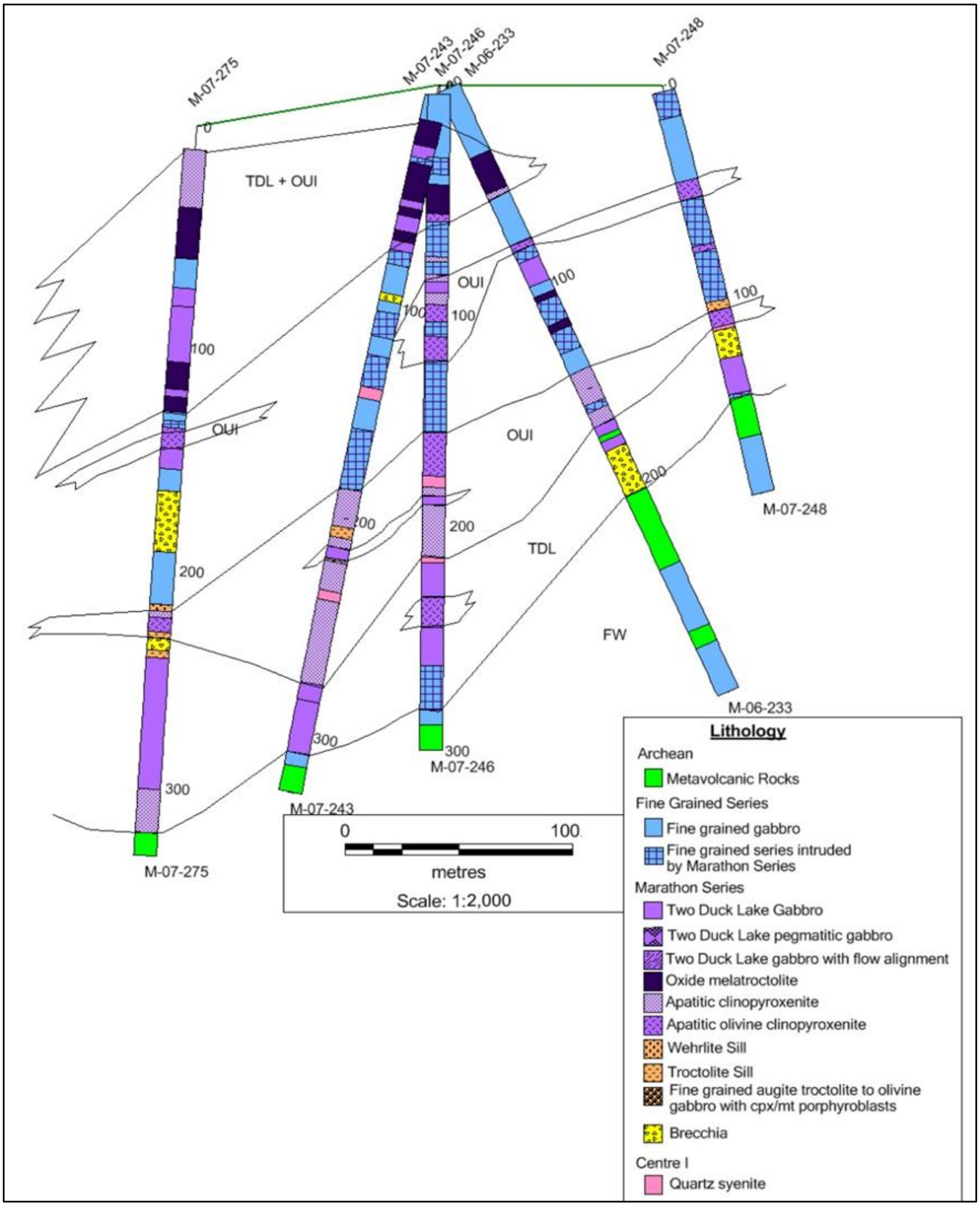
Note: Figure highlights the complicated sequence of rock units within the Marathon series and the relative location of the WT sill above the Main Zone of TDL gabbro. Note the offset along the normal fault close to 5,404,900 N. Note the distribution of apatitic clinopyroxenite immediately above the central portion of the Main Magma conduit as indicated by the position of hole M08-461. Hole numbers indicated without prefix example 525 is M-11-525. Note that for Figure 7-5, breccia types A and B are described as breccia with Marathon series matrix, and breccia type C is described as fine-grained gabbro with Marathon series intrusions. Source: Stillwater Canada (2014).

Figure 7-6: Vertical Cross-Section Through the Main Zone at Section 5,405,450 N (Looking North)



Note: Figure highlights the complicated sequence of rock units within the Marathon series and the relative location of the WT sill above the Main Zone mineralization. Note that hole M-11-525 is also located in the longitudinal projection in Figure 7-5. Source: Stillwater Canada (2012).

Figure 7-7: Vertical Cross-Section at 5,403,750 N (Looking North)



Note: Figure shows the irregular but complicated nature of the oxide +/- apatite bearing ultramafic intrusions (OUI) of the Marathon series. Source: Stillwater Canada (2012).

The TDL gabbro intruded the fine-grained series beneath the WT sill and near the basal contact with Archean footwall. The TDL gabbro is intruded by very thin dykelets of RIB, which are partial melt derivatives of the Archean basement and by late north-northwest-trending quartz syenite dykes.

The modal mineralogy of a composite sample that is representative of the Marathon deposit mineralization (and TDL gabbro) was determined in a QEMSCAN survey by XPS (Kormos, 2008). A total of nine aliquots of material were analyzed. In decreasing order of abundance, the composite sample consisted of 42.0% plagioclase, 25.7% clinopyroxene, 7.8% amphibole, 5.5% iron oxides, 4.6% olivine, 2.6% other silicates (quartz, epidote, talc, and serpentine), 2.2% orthoclase, 0.7% biotite, and the remainder of various sulphide phases (pyrrhotite, chalcopyrite and pentlandite). Orthopyroxene is rare and where present, occurs as late reaction rims on olivine (Good, 1993).

The TDL gabbro is distinguished from other gabbro types by cross-cutting relationships and mineral textures resulting from the respective crystallization histories. In TDL gabbro, plagioclase crystallized first and forms elongate laths that are surrounded by ophitic-textured clinopyroxene or olivine. Pegmatitic textured TDL gabbro occurs locally as pods within coarse-grained gabbro or as rims on fine-grained series xenoliths. Mineralized pegmatite makes-up less than approximately 5% of all mineralized zones. The composition of pegmatitic TDL gabbro was compared to that of coarse-grained, TDL gabbro by Good (1992), and found to be similar.

An important aspect of TDL gabbro relative to other Cu-PGM deposits, such as at the Archean Lac des Iles Mine, is the fresh unaltered nature of primary minerals and textures. There is some local development of secondary minerals such as chlorite, amphibole, serpentine, and calcite, but the abundance of these minerals is <10% for the Marathon deposit (Kormos, 2008).

There is only a minor fluctuation in mineral compositions across the TDL gabbro (Good and Crocket, 1994a; Ruthart, 2013). Plagioclase crystals are normally zoned with compositions between 52% and 65% anorthite; however, the main mineralized zone (Main Zone) typically exhibits replacement at grain margins by a more calcic plagioclase (69% to 79% anorthite). The average olivine composition is 56.9% forsterite and 540 ppm Ni. Clinopyroxene and orthopyroxene Mg numbers are between 0.6 and 0.7, and plot, respectively, within the fields of augite and hypersthene.

7.1.9 Oxide Ultramafic and Apatitic Clinopyroxenite Intrusions (Marathon Series)

The thickest accumulations of magnetite rich oxide melatroctolite are located between approximately 5,404,500 N and 5,405,200 N, and occur to the north and south of the normal fault along the surface lineaments located near 5,404,900 N.

Oxide ultramafic intrusions commonly contain disseminated chalcopyrite and pyrrhotite and make up an important, but very irregular component of the Marathon series. The intrusions typically occur as discontinuous sills and irregular pods that cross-cut fine-grained series, the WT sill, and the TDL gabbro. The intrusions are <200 m in strike length and up to 100 m thick, but are commonly a few to tens of metres thick and <50 m along strike. The size, irregular shape and mineralogy of these intrusions resemble the oxide ultramafic intrusions (OUI) that occur in the Duluth Complex (Ripley et al., 1998) and Sept Isles Intrusive Suite (Tollari et al., 2008).

The numerous cumulate phases and combinations thereof in oxide ultramafic intrusions are best described using the cumulate terminology of Miller et al. (2002). For example, the intrusive units vary in composition from oxide melatroctolite (FOCpA to FCOpA) to apatitic clinopyroxenite (CCoFAp to CCFoAp) to apatitic olivine clinopyroxenite (COFAp to OCFAp). Magnetite content varies from 5% in the clinopyroxenite to 25% in the oxide melatroctolite. Semi-massive or massive bands of magnetite are common and vary from 2 to 50 cm in thickness. Apatite is ubiquitous and varies in abundance from 5% to 30%. Massive apatite cumulate bands up to 30 cm thick are rare, but occur in apatitic clinopyroxenite.

In general, these intrusions occur throughout the stratigraphy at the Marathon deposit. However, units located high in the stratigraphy are predominantly oxide melatroctolite and have higher overall magnetite content. These oxide melatroctolite intrusions are typically intermixed with plagioclase-rich gabbro bands (PcOf to PFoc), which display ophitic and (or) flow-aligned textures. Units lower down in the stratigraphy are composed primarily of apatitic clinopyroxenite and apatitic olivine clinopyroxenite. Compositional zonation is not evident within the lower intrusions.

7.1.10 Breccia Units (Marathon Series)

The TDL gabbro intruded along planes of weakness in earlier metabasalt and the Archean pyroclastic or rheomorphic footwall breccia to form numerous sills and intrusive breccias. Four types of intrusive breccias are recognized at the Marathon deposit: (1) type A consists of TDL gabbro matrix and angular xenoliths of fine-grained series; (2) type B is similar to type A but also includes xenoliths of footwall material; (3) type C consists of metabasalt that is cut by multiple thin dykelets of TDL gabbro, or higher up in the stratigraphic section, typically oxide melatroctolite; and (4) type D consist of TDL gabbro matrix and angular xenoliths of WT sill only observed south of the 5,404,500 N fault. In general, the main body of TDL gabbro progresses outward from a central uniform gabbro without xenoliths to breccia type A and lastly to breccia type C near the upper contact with metabasalt. Breccia type B, which typically occurs along the basal contact, but is not always present. However, it should be noted that the distribution of breccia units is not regular, and reversals are common, as illustrated for example, by the distribution of breccia units down drill holes 461 and 514 in Figure 7-5.

Breccia types A, B, C and D typically contain sulphide-bearing TDL gabbro, or higher up in the stratigraphy, sulphide-bearing oxide melatroctolite. Hence, breccia units are an important host rock for Cu-PGM mineralization.

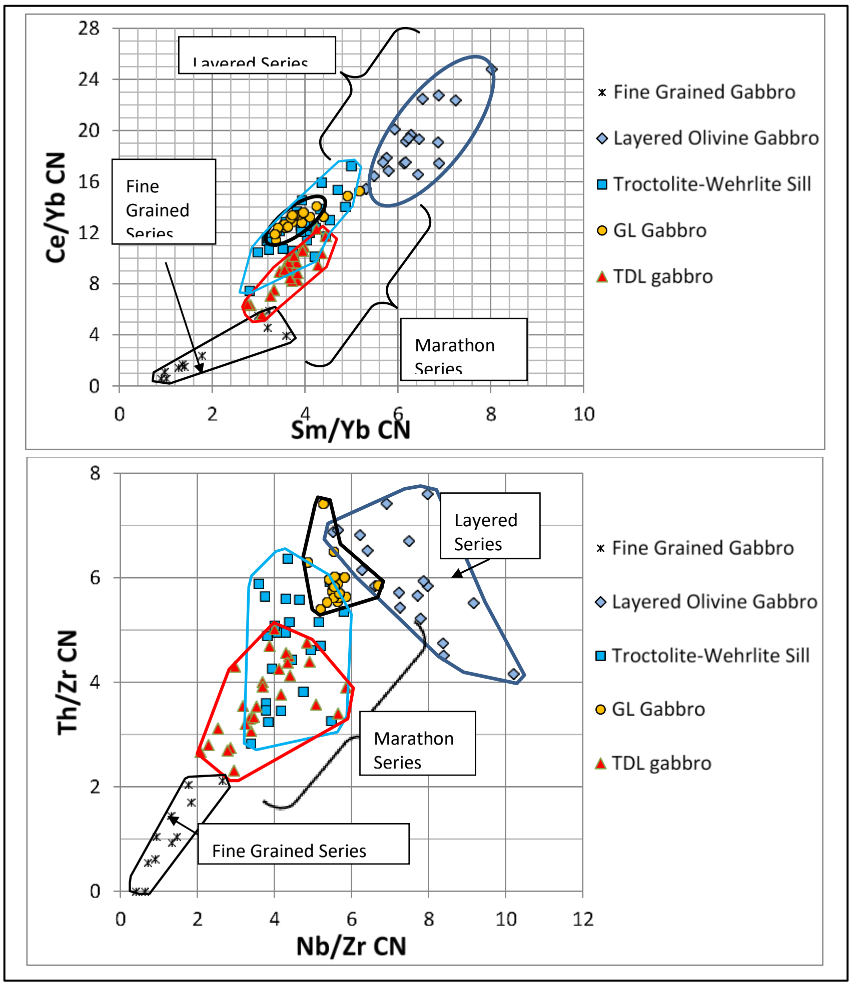
7.2 Geochemical Discrimination Diagrams for the Eastern Gabbro

Trace element data, together with cross-cutting relationships, provide clear evidence that the Eastern Gabbro is a composite intrusion. Each of the three magmatic series (fine-grained series, layered series, and Marathon series) previously characterized by textural, petrographic, and cross-cutting relationships have recently been shown to have distinctive trace element signatures that can only be explained by intrusion of distinct magma types.

Pearce element diagrams (Figure 7-8) are very useful as discrimination diagrams, because they neatly characterize the three intrusive series of the Eastern Gabbro into separate fields. In each figure, rock units of the Marathon series plot in a field that lies between those for fine-grained and layered series with the fine-grained series having lower Ce/Yb, Sm/Yb, Th/Zr and Nb/Zr; and conversely, the layered series having higher Ce/Yb, Sm/Yb, Th/Zr and Nb/Zr (note: “Ce” = cerium, “Yb” = ytterbium, “Sm” = samarium, “Th” = thorium, “Zr” = zirconium, “Nb” = niobium).

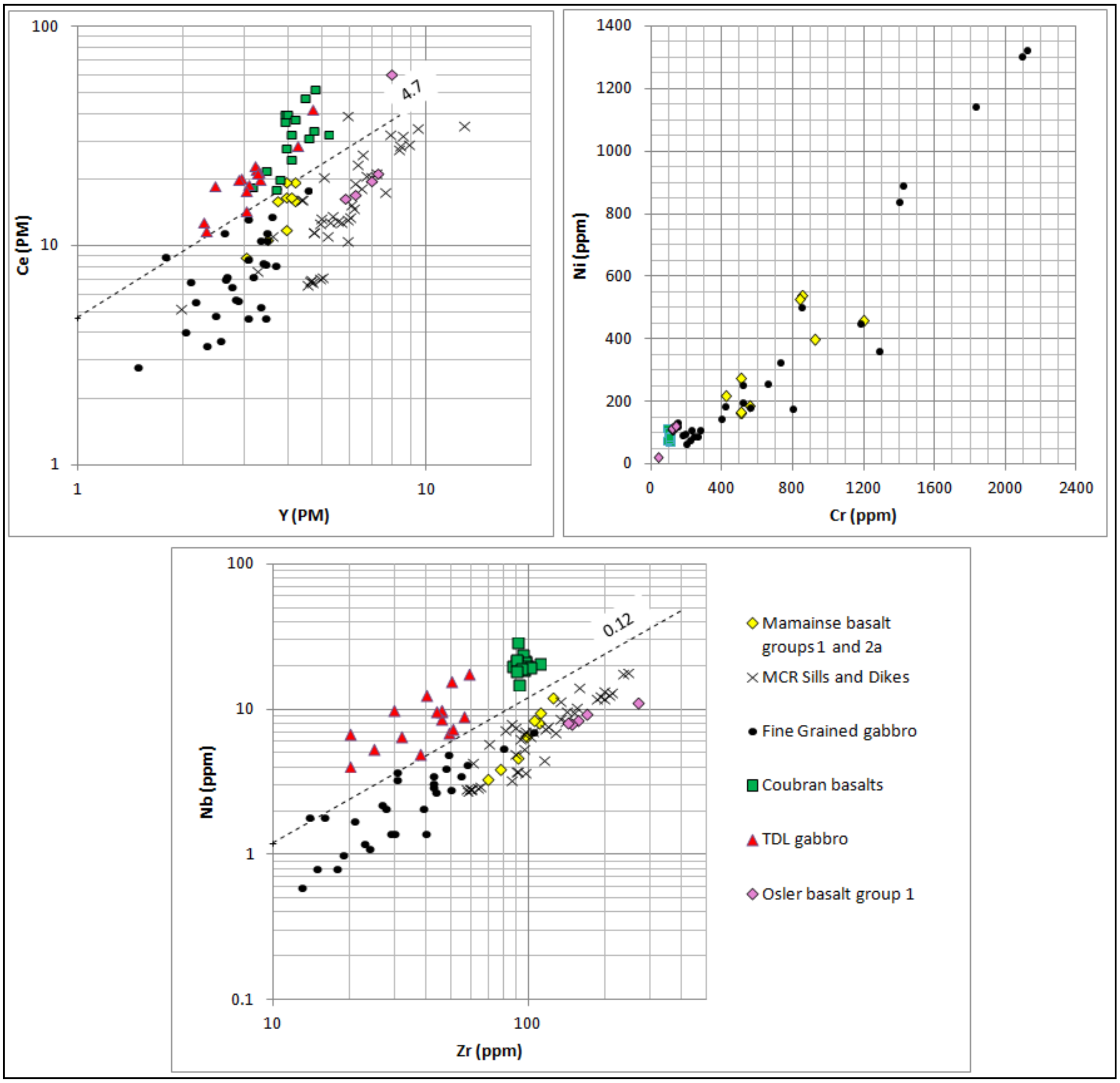
In Figure 7-9, three prominent units from the Coldwell Complex are compared to other mid-continent rift system (MRS) related intrusive and extrusive rock units located along the north shore of Lake Superior (Figure 7-1 and Figure 7-2). In Figure 7-9, the representative samples of TDL gabbro are compared to fine-grained series, Coubran basalt and MRS-related intrusive sills and dykes of the Logan and Nipigon sills located near Thunder Bay, Ontario (after Hollings et al., 2011). The data for the fine-grained series overlie the fields for the Nipigon and Logan sills, whereas the rocks of the Marathon series have somewhat higher Ce/Yb, Sm/Yb, Th/Zr and Nb/Zr. Since the fine-grained series is the earliest intrusive phase in the CC, then the similarity of the fine-grained series to the Logan and Nipigon sills suggests that timing of the two events was simultaneous.

Figure 7-8: Pearce Element Ratio Diagrams for the Three Major Intrusive Suites in the Eastern Gabbro Suite



Note: These diagrams very nicely characterize the units into three groups that could be considered as least evolved (fine-grained series) to most evolved (layered series). Note the element in the denominator for axes on both figures is considered to be the least incompatible, respectively. Some data for TDL gabbro after Ruthart (2013). Ratios are chondrite normalized after Sun and McDonough (1989). Source: Stillwater Canada (2012).

Figure 7-9: Comparison of TDL Gabbro and Coubran Basalt to Intrusive and Extrusive Rocks of Mid-Continent Rift



Note: Comparison of Coldwell units (TDL gabbro and basaltic flows north of Coubran Lake) to MRS-related intrusive sills (Nipigon sills) in the vicinity of Thunder Bay and basalt flows from Mamainse Point located along the eastern shoreline of Lake Superior and Osler basalt. Data for Nipigon sills after Hollings et al. (2011), and Mamainse Point after Lightfoot et al. (1999). Some data for TDL gabbro after Ruthart (2013). Ratios are chondrite normalized after Sun and McDonough (1989). Source: Stillwater Canada (2014).

7.3 Mineralized Showings and Occurrences

7.3.1 Mineralized Zones

This section describes Cu and PGM occurrences located in the vicinity of the Marathon deposit; for example, the Geordie and Sally deposits and other occurrences located along the outer margin of the Coldwell Complex.

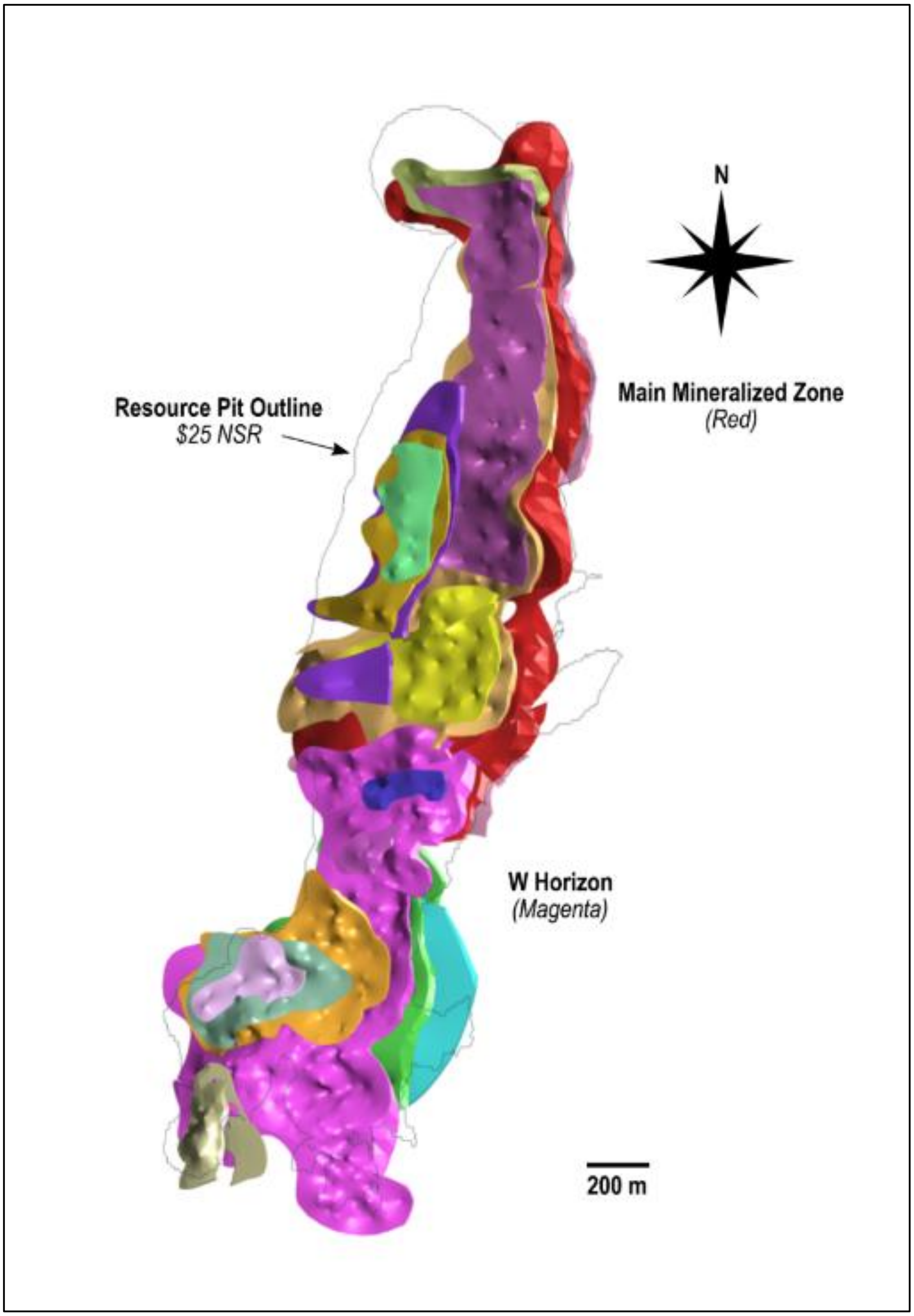
The Marathon deposit consists of several large, thick, and continuous zones of disseminated sulphide mineralization hosted within the TDL gabbro (Figure 7-10 and Figure 7-11). The mineralized zones occur as shallow-dipping sub-parallel lenses that follow the basal gabbro contact and are labelled as footwall, main, and hangingwall zones, and the W-Horizon. The Main Zone is the thickest and most continuous zone. For 393 drill hole intersections with mineralized intervals >4 m thick, the average thickness is 42.8 m and the maximum thickness is 205.1 m. Figure 7-11 and Figure 7-12 illustrate the location of the main mineralized areas on the property.

Each of these occurrences displays at least some of the many characteristics described at the Marathon deposit. Given that these prospects share a common origin, then similarities between them are expected. However, in detail, there is much dissimilarity in the respective petrography or metal compositions that imply, for example, that a dominant intrusive or mineralization forming process at one location might have played a minimal role at another. These factors are assessed at every locale and used to determine deposit significance and relevant exploration criteria.

Mineralized domains have been defined by drilling and 3D modelling at several, but not all, locations. These mineralized domains are displayed with the Marathon deposit in Figure 7-13. The figures are reproduced to the same scale to illustrate their relative size, and each body is oriented in their true position with north toward the top of the page.

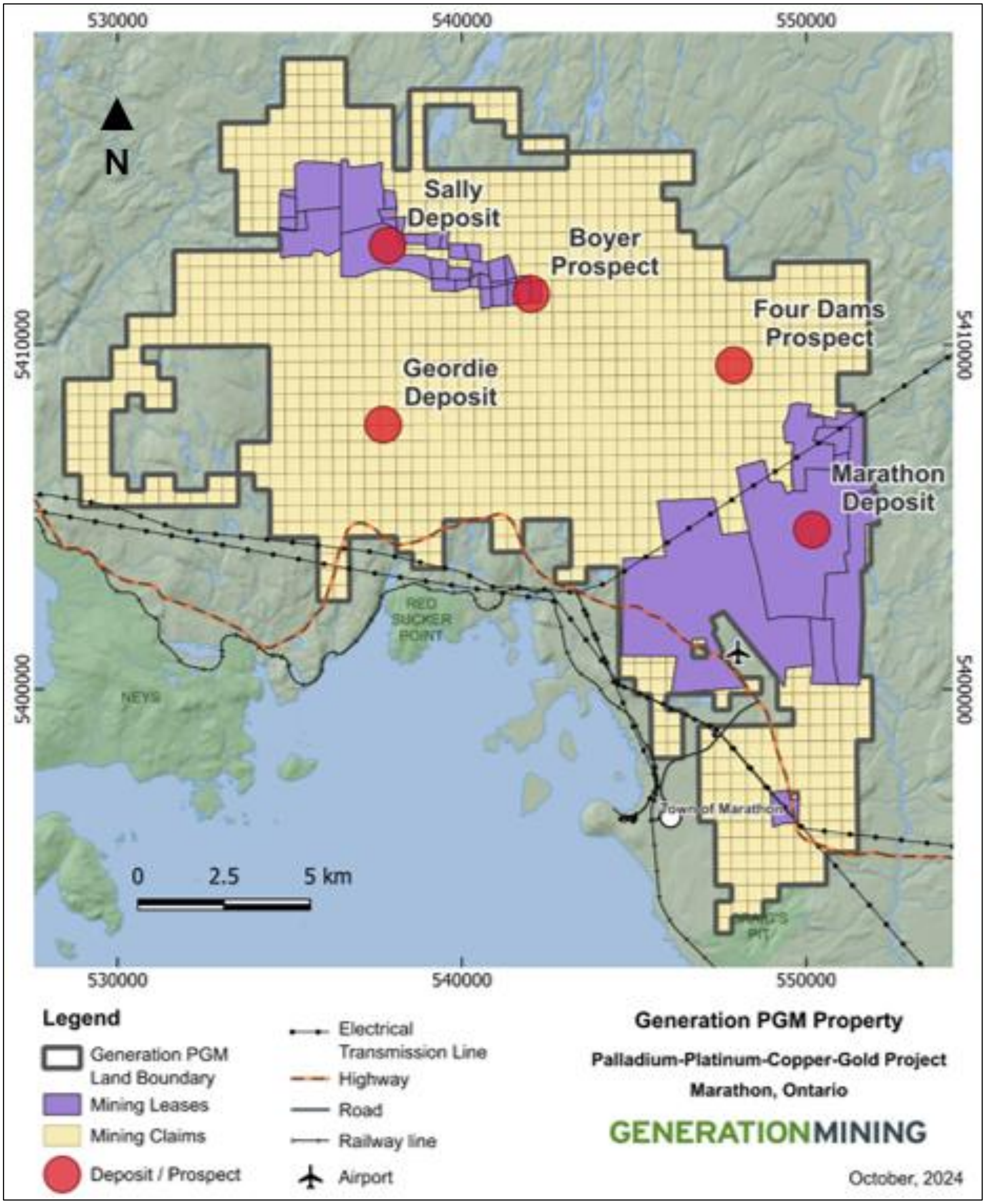
There are significant differences in the Cu and PGM abundances between the various deposits in the Coldwell Complex. These differences are best illustrated in the plot of Cu versus Pd (Figure 7-14). For example, the distribution of Cu and Pd at Sally Deposit closely matches the distribution observed at the Marathon deposit. The abundance of Cu relative to Pd is much higher at Four Dams compared to other deposits. Samples such as those at Four Dams north have Cu/Pd ratios of 20,000 to 200,000 and >200,000 at Four Dams south. The distribution of Cu and Pd at Geordie shows a strong positive correlation and the average Cu/Pd (6,500) is slightly higher than the average Cu/Pd at the Marathon deposit (3,800). Similarly, at Redstone, there is a strong positive correlation and the average Cu/Pd (22,000) is greater than at either Geordie or Marathon.

Figure 7-10: Plan View of the Marathon Deposit Mineralized Zones



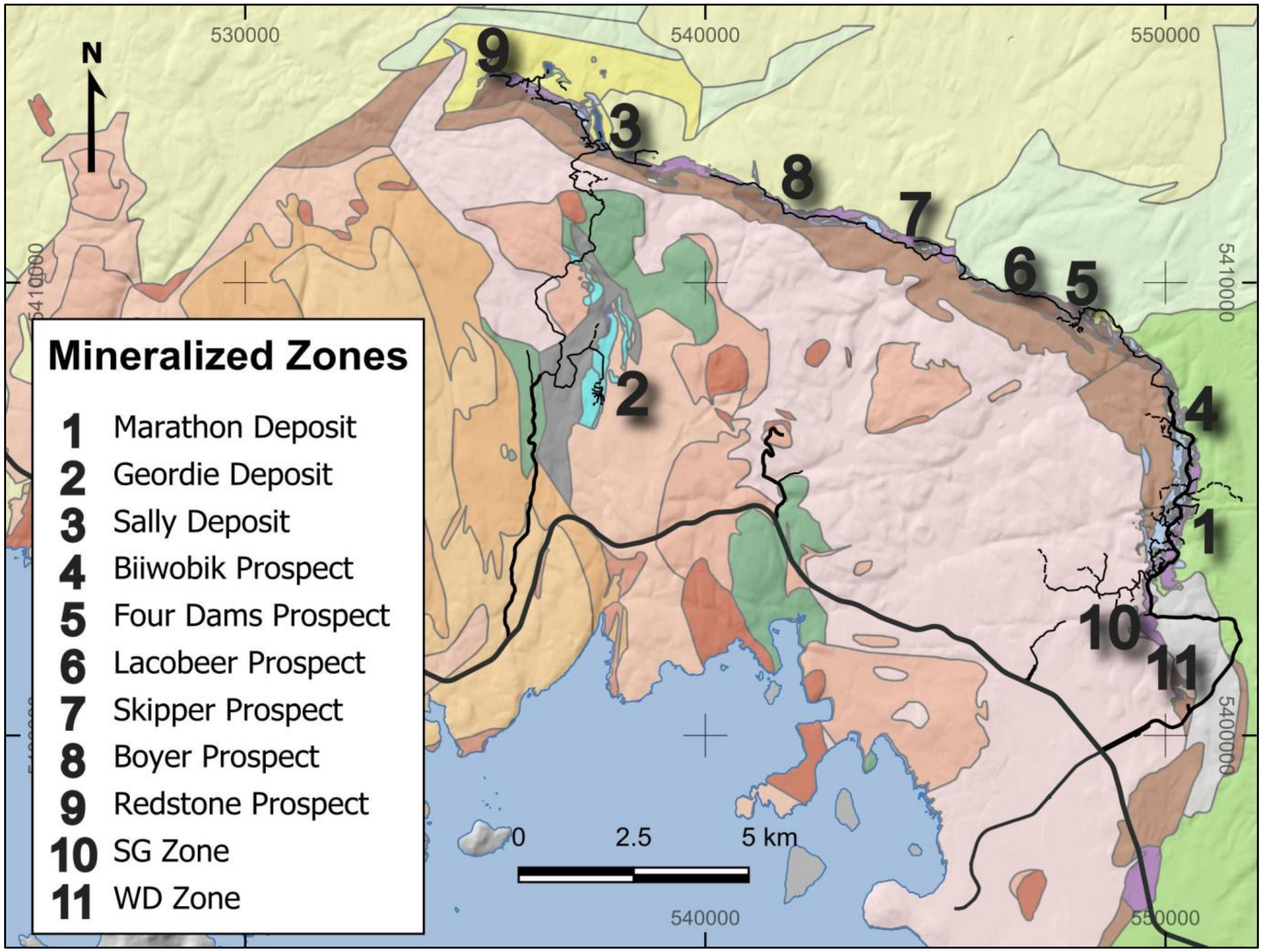
Source: Gen Mining (2022).

Figure 7-11: Locations of Mineralized Deposits and Those Areas Identified for Exploration



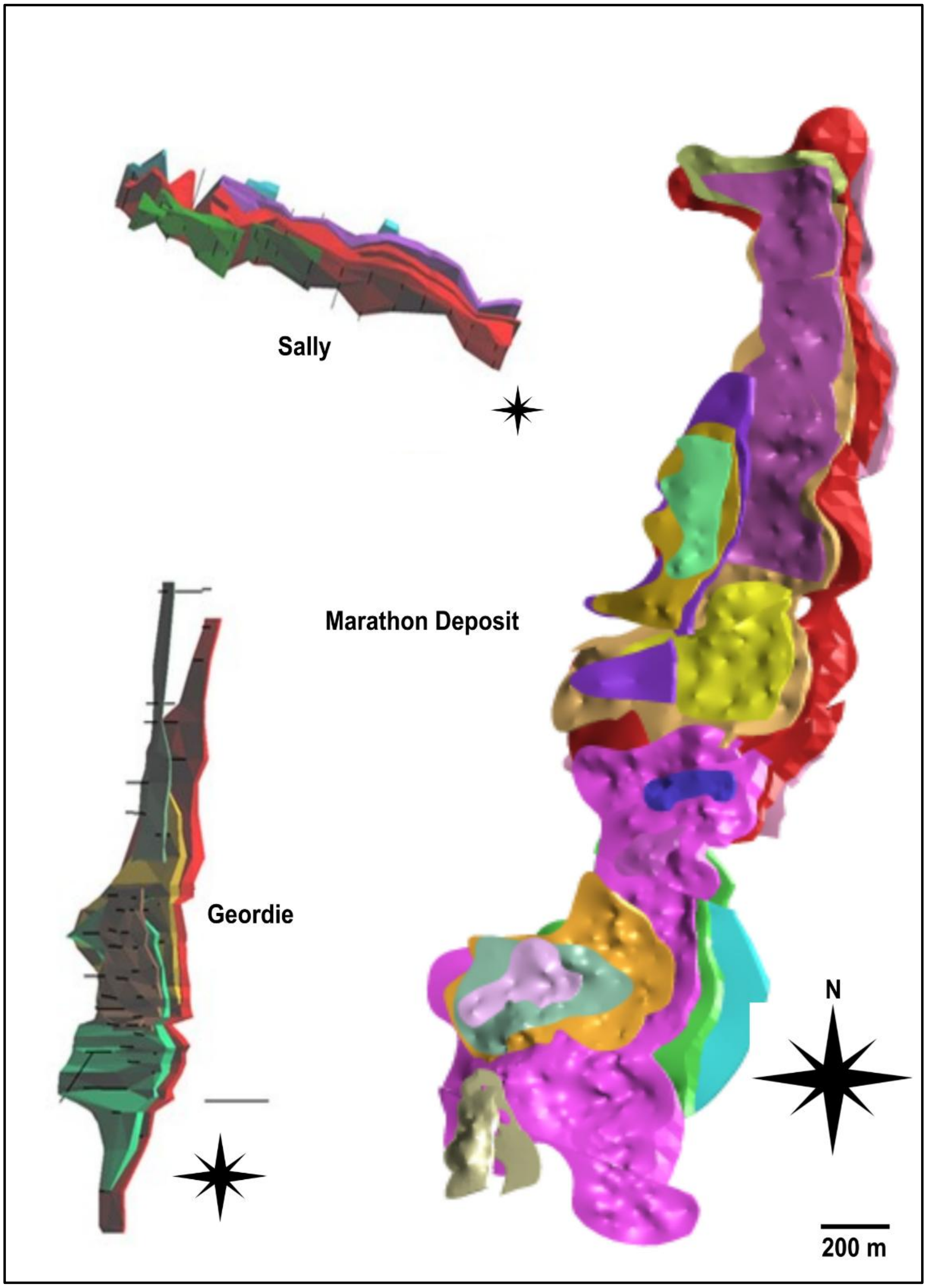
Source: Gen Mining (2024).

Figure 7-12: Geology Map of the Coldwell Complex and Location of all Known Cu-PGM Occurrences as of January 1, 2020



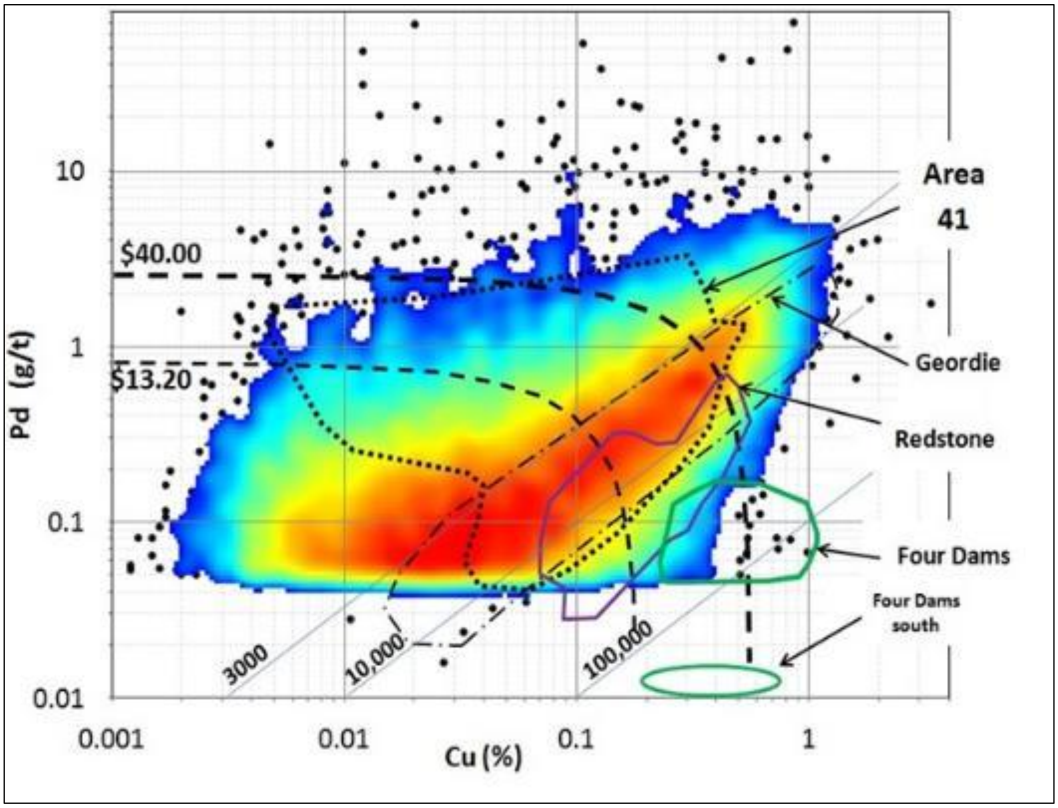
Source: Gen Mining (2024).

Figure 7-13: Scaled 3D Models of Coldwell Mineralized Domains Compared to Marathon Deposit



Note: The scaled 3D models are oriented correctly with north pointing up as shown by individual north arrows. Trace of drill holes at each location except for the Marathon deposit are indicated by faint grey lines. Source: Gen Mining (2023).

Figure 7-14: Comparison of Cu vs. Pd for Coldwell Complex Deposits



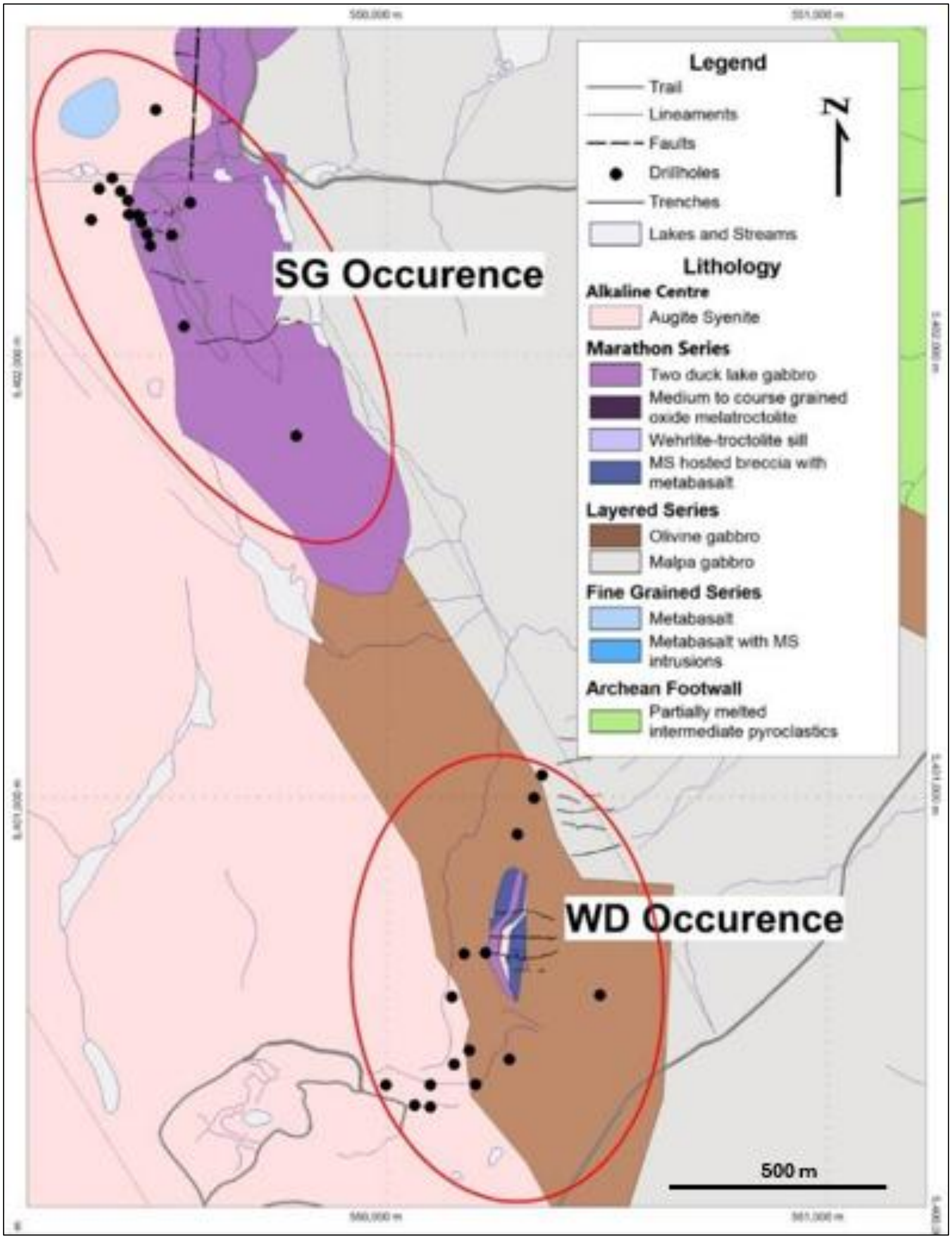
Notes: The coloured contours represent the point density map for Marathon deposit assays (black dots). Fields for assays from other occurrences are represented by individual curves. Dashed curves labelled as $13.20 and $40.00 represent calculated NSR $/t values using the 2010 Mineral Resource Estimate metal prices and process recoveries. Diagonal blue lines represent constant Cu/Pd values, for example 3,000.
Source: Micon (2010).

7.3.2 SG and WD Occurrences

The SG and WD occurrences are located south of the Marathon deposit as shown in Figure 7-12 and Figure 7-15. These zones are hosted by TDL gabbro, but unlike at the Marathon deposit where mineralization occurs directly above the footwall, mineralized TDL gabbro at the SG and WD zones occurs along the west margin of the Eastern Gabbro, close to the contact with the overlying augite syenite. The depth to footwall and nature of the contact in this area are unknown.

The change in stratigraphy south of the Marathon deposit is interpreted to be related to faulting at 5,402,350 N resulting in the footwall offset to the east by approximately 2 km. A southeast-trending fault connects the SG and WD zones; both zones also encompass additional converging faults (Figure 7-15). The area between these two zones lacks exploration, due to thick overburden that makes prospecting, trenching, and drilling difficult.

Figure 7-15: Lithology Map Showing the SG and WD Occurrences



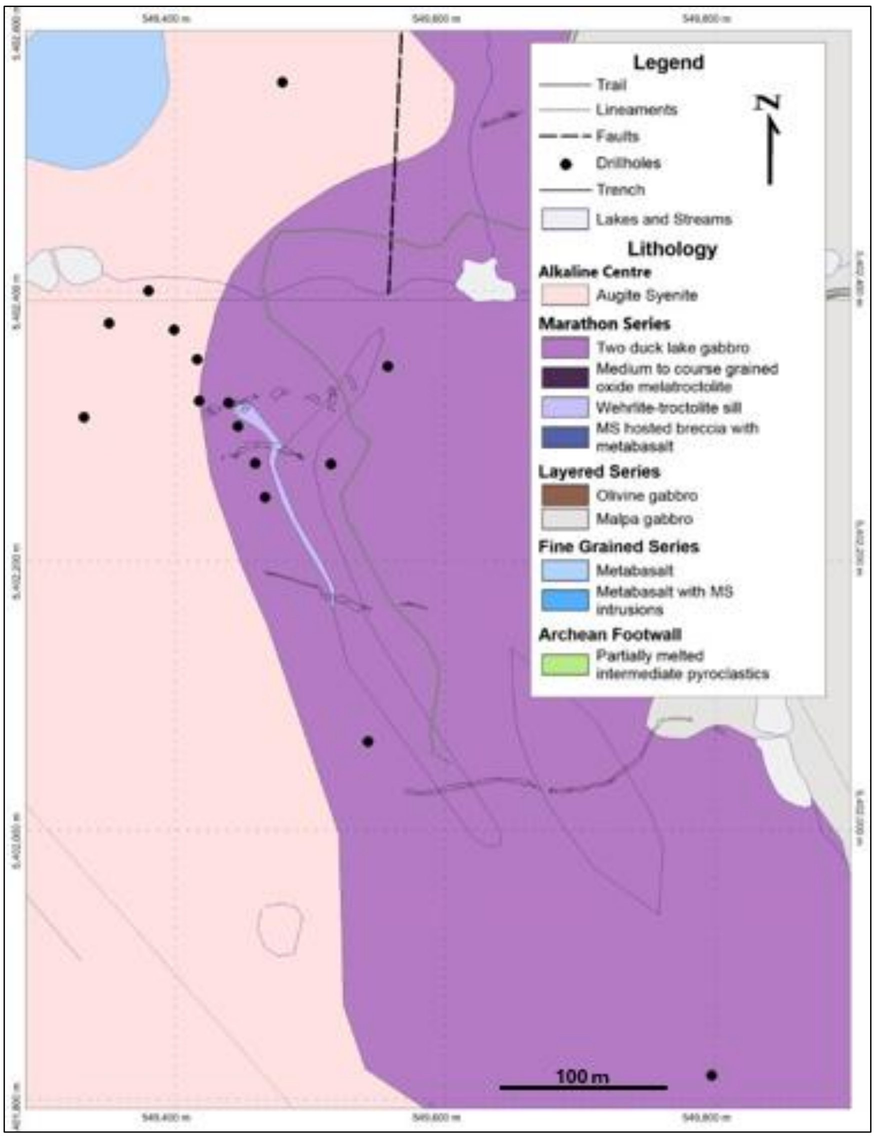
Source: Gen Mining (2021).

7.3.2.1 SG Zone

The SG zone is characterized by near-surface mineralization in TDL gabbro (Figure 7-16), similar to that at the Marathon deposit. Previous work included 16 drill holes, 56 grab samples and 600 m of outcrop stripping. The mineralized zone strikes 160° to 170°, dips 30° to 45° west, and extends for 120 m along strike.

The SG zone includes a thick sequence of TDL gabbro. Mineralization typically occurs in zones where TDL gabbro is intermixed with lenses of oxide ultramafic rocks. The best drill hole intersection to date is shallow with an average grade of 1.33 g/t total PGM and 0.27% Cu over 18 m.

Figure 7-16: SG Occurrence Showing Lineaments, Trenches, and Drill Holes

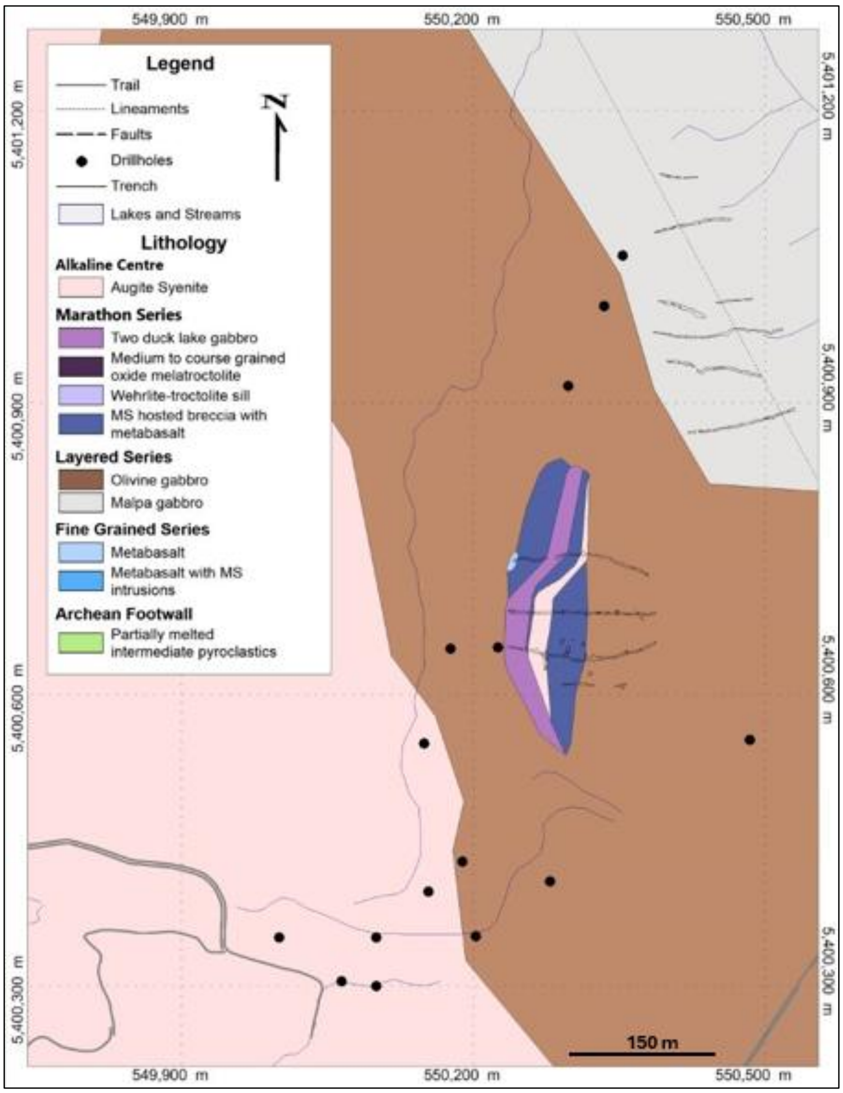


Source: Gen Mining (2021).

7.3.2.2 WD Zone

The WD zone is located southeast of the SG zone (Figure 7-17). Previous work included 15 drill holes, 1,000 m of outcrop stripping and channel sampling, and 48 grab samples. Mineralization in this area occurs at two stratigraphic positions: (1) TDL gabbro, and (2) layered series gabbro. These two mineralized zones are easily classified using Cu/Pd ratios. The Cu/Pd ratio for mineralization in the layered series is much higher than for mineralization in the TDL gabbro, due to the negligible Pd values and higher average copper content in the layered series rocks. Strike length for the mineralized zones is 100 m in the Layered series and 150 m in the TDL gabbro. Both zones are open to the north. All mineralization strikes north-south. The Marathon series mineralization dips 70° west. The layered series mineralization dips 45° west.

Figure 7-17: WD Occurrence Showing Lineaments, Trenches, and Drill Holes



Source: Gen Mining (2021).

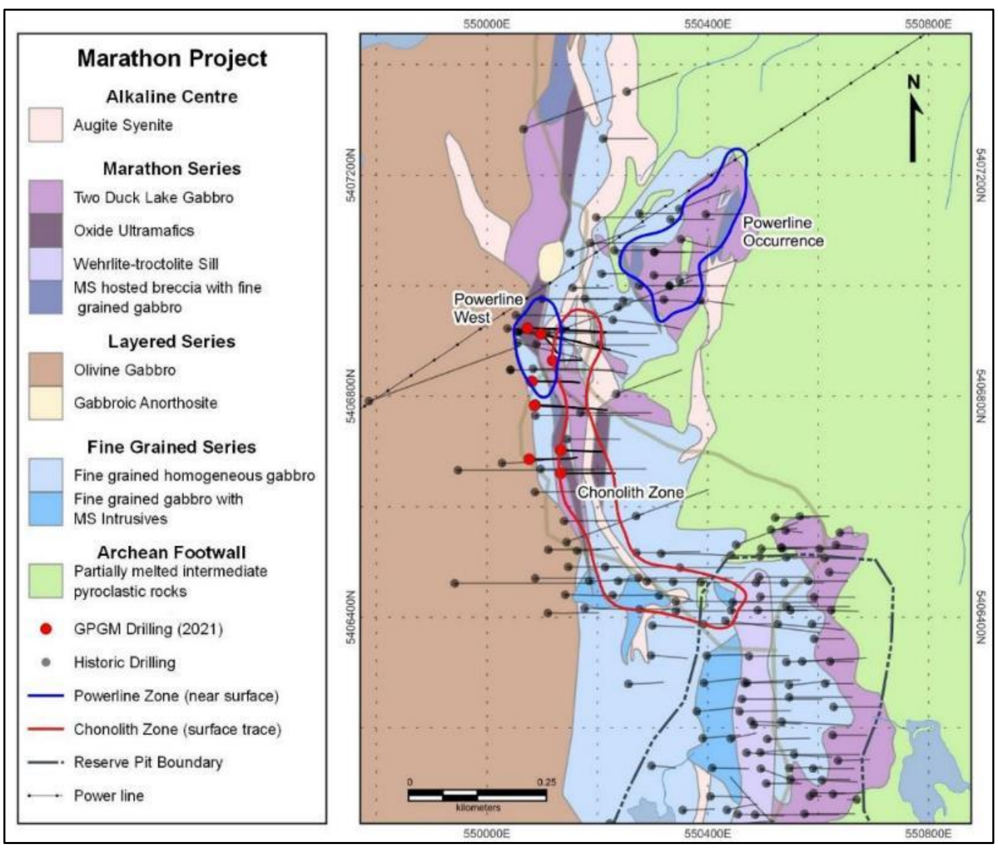
7.3.3 Biiwobik Prospect

The Biiwobik prospect consists of three targets: (1) chonolith zone; (2) powerline west; and (3) powerline occurrence.

7.3.3.1 Chonolith Zone

The chonolith zone is a continuous extension of the north end of the Main Zone, as confirmed by drilling in 2021 and 2024. In general, the Main Zone follows the footwall contact north along the edge of the proposed Main pit and at 5,406,300 N changes direction and continues down-dip to the west. The mineralization continues for 350 m west before turning north where it is interpreted to connect to a 200 m deep channel of mineralization referred to as the chonolith (Figure 7-18). The chonolith zone is up to 120 m thick and begins in the north at a depth of 200 m. The north-south-trending section of the chonolith is 650 m long and has been cut by 18 drill holes, including 14 drill holes drill completed by Gen Mining between 2021 and 2024. The best intersection in this area returned 1.3 g/t total PGM and 0.6% Cu over 95 m. The section of the chonolith that strikes west and connects with the Main Zone inside the proposed open pit, was intersected by a total of 10 drill holes. The best intersection in this area was 1.28 g/t total PGM and 0.41% Cu over 50 m.

Figure 7-18: North End of the Marathon Deposit Showing the Biiwobik Prospect which includes the Chonolith and Power Line Occurrences



Source: Gen Mining (2023).

7.3.3.2 Powerline West

The powerline west occurrence directly overlies the chonolith zone and is interpreted to be the western extension of the main powerline occurrence that occurs 200 m to the east. The mineralization is near surface (<100 m vertical depth) and hosted predominantly within a mix of oxide rich ultramafic pods and fine-grained to pegmatitic TDL gabbro. The best intersection to date returned 1.78 g/t PGM and 0.46% Cu over 46 m.

7.3.3.3 Powerline Occurrence

The powerline occurrence, located northeast of the chonolith zone, consists of a flat-lying, bowl-shaped body of TDL gabbro that sits in an embayment of the footwall (Figure 7-18). The chonolith zone and power line occurrence are separated by a shift in the footwall to the east and a syenite dyke. The powerline zone consists of multiple lenses of mineralization, including intervals such as 0.44 g/t total PGM and 0.2% Cu over 18 m.

7.3.4 Geordie Deposit

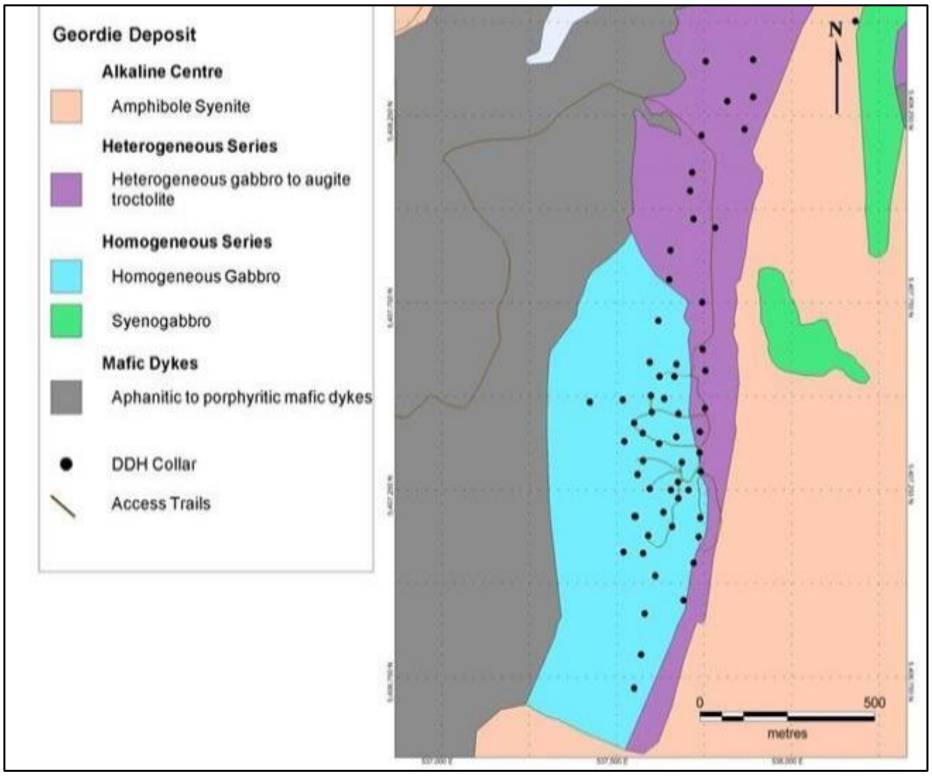
The Geordie deposit is located near the centre of the Coldwell Complex (Figure 7-12). Mineralization occurs along the base of the Geordie intrusion, a large, layered gabbro with a basal zone of heterogeneous augite troctolite and gabbro. A simplified geology map of the Geordie deposit is shown in Figure 7-19 and a cross-section through the middle of the deposit is shown in Figure 7-20.

Exploration activities on the Geordie deposit include 69 diamond drill holes totalling 12,234 m, trenching, mapping, magnetic and radiometric airborne survey, and soil sampling.

The sulphides consist predominantly of chalcopyrite and bornite, and minor pyrite, millerite, cobaltite, siegenite, sphalerite and galena. Sulphides are disseminated with angular to blebby grain shapes. Thin veins of chalcopyrite occur near the base of the intrusion and in the underlying syenite. The mineralization occurs within a thick continuous basal zone that dips 45° to 60° and has been traced over a strike length of 1.7 km. Minor thin discontinuous zones occur higher up in the stratigraphy.

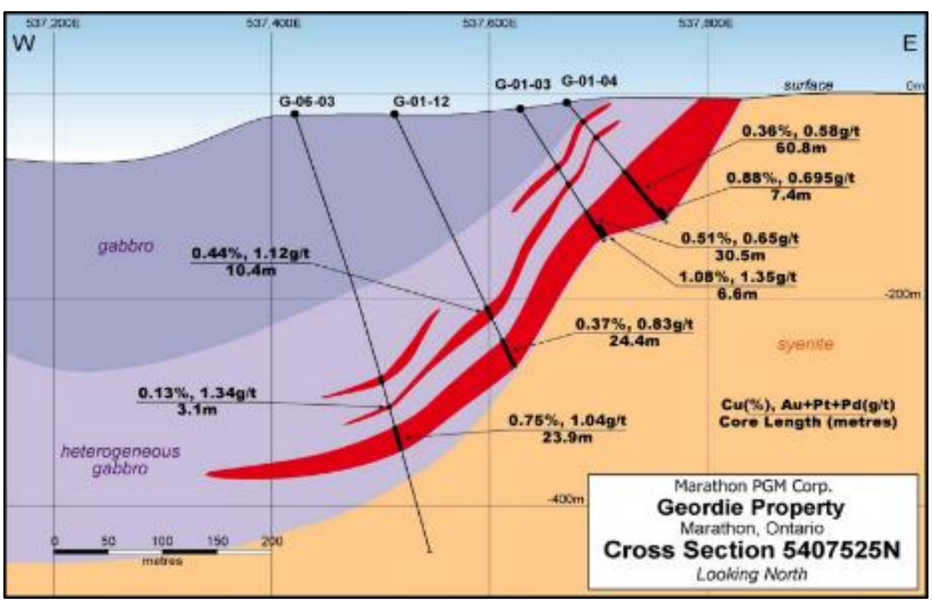
Drilling has outlined a series of sub-parallel mineralized zones within the gabbroic/troctolite body. Mineralization is mainly chalcopyrite with smaller amounts of bornite, pyrite, magnetite, and supergene chalcocite. Associated with concentrations and disseminated grains of chalcopyrite are a wide variety of PGM and precious-metal tellurides, bismuthinites, and alloys. The abundance of Pt is very low; however, for samples with >45 ppb Pt or Pd (three times the detection limit of Pd), the average Pd/Pt is 11. There is a strong positive correlation between Cu and Pd and the average ratio for Cu/Pd is 6,500.

Figure 7-19: Geologic Map of the Geordie Deposit



Source: Stillwater Canada (2014).

Figure 7-20: Vertical Cross-Section at the Geordie Deposit (Looking North)

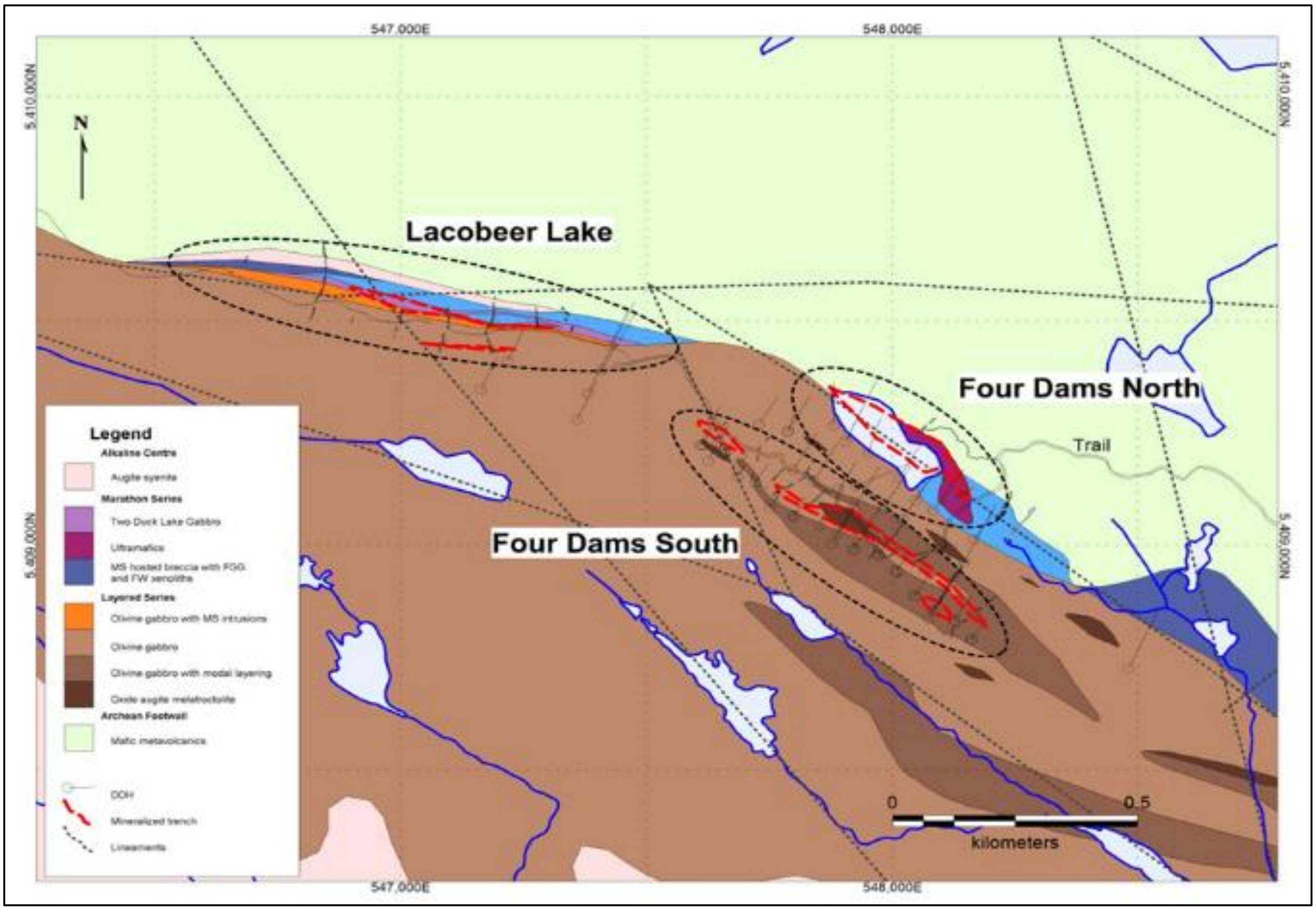


Source: Stillwater Canada (2014).

7.3.5 Four Dams Prospect

The Four Dams prospect is located 4 km northwest of the Marathon deposit on the northern rim of the Coldwell Complex (Figure 7-12). Four Dams is subdivided into three mineralized zones, as follows: Four Dams north, Four Dams south and Lacobeer Lake (Figure 7-21).

Figure 7-21: Three Mineralization Zones at Four Dams



Note: Mineralized surface zones were determined using projected drill hole data (Four Dams North) and surface sampling. Source: Micon (2010).

The Four Dams north mineralization occurs in a 100 m thick lens of Marathon Series ultramafic rocks that strikes northwesterly for 350 m and dips 60° to the southwest. To date the intrusion has been drilled to approximately 350 m in depth, where it remains open down-dip. The intrusion has a thin marginal zone of melagabbro and a core of apatitic clinopyroxenite to apatitic wehrlite.

Sulphides present in the Four Dams north zone are disseminated to blebby chalcopyrite with pyrrhotite and trace bornite. The mineralization includes intervals such as 0.16 g/t PGM and 0.39% Cu over 74 m, and 0.23 g/t PGM and 0.40% Cu over 85 m. Higher PGM grades occur in the central apatitic wehrlite zone.

The Four Dams south mineralization is hosted by the layered series rocks, located approximately 150 m south of the Four Dams north mineralization. The mineralization occurs in homogeneous or modally layered olivine gabbro interlayered with magnetite rich lenses.

The Four Dams south zone is continuous for 700 m along strike, dips 40° to the southwest, and pinches and swells from thicknesses of up to 50 m down to 4 m. The Zone was defined by 32 short diamond drill holes in 2013. The best intersection was 0.33% Cu and only trace Pd over 48 m.

The sulphide minerals consist of fine- to medium-grained disseminated pyrrhotite and chalcopyrite, which are associated with actinolite and albite alteration. The Four Dams south mineralization is considered to be a result of hydrothermal remobilization.

The Lacobeer Lake zone is poorly defined owing to thick overburden. Work to date includes five trenches, of which only one intersected mineralization. The zone is inferred to be a maximum of 25 m thick on surface with complicated textural relationships within Marathon series gabbros. Best grab samples from prospecting returned 2.6 g/t PGM and 0.53% Cu.

7.3.6 Sally Deposit

The Sally deposit occurs along the northern margin of the Eastern Gabbro (Figure 7-12). The Sally deposit strikes east-southeast, dips at 45° to 50° south, and extends for >1.2 km along strike. The Sally deposit is open to the east and west. P&E completed an initial Mineral Resource Estimate of the Sally deposit in 2019, which is presented in Section 14 of this report. Drilling in 2024 encountered a broad 50 m thick zone of mineralization approximately 275 m down-dip from the currently defined resource.

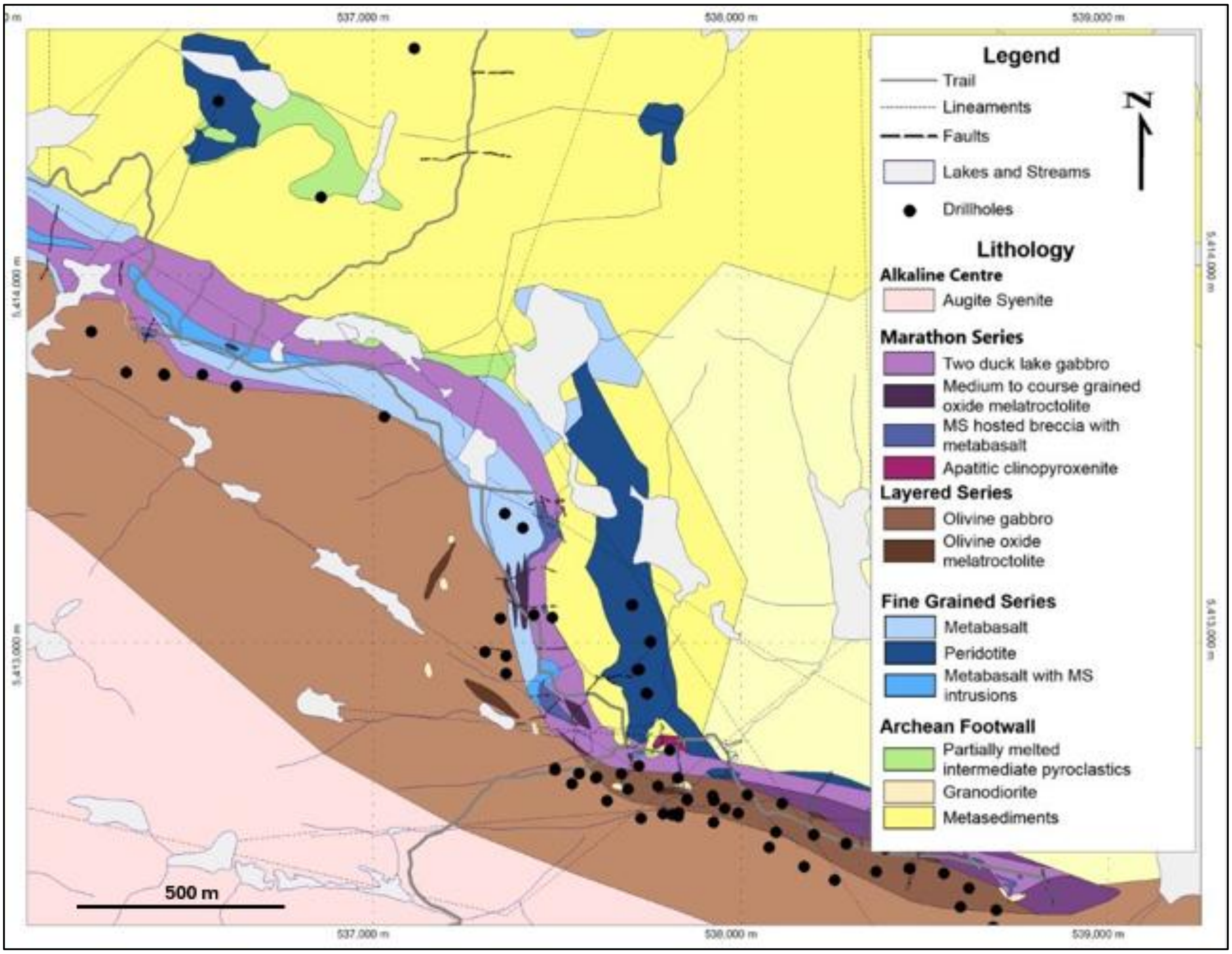
Sixty-five holes have been drilled in the Sally deposit area, of which 48 were drilled into Sally main zone (Figure 7-22). The drilling at Sally main zone is considered to be sufficient to define the thickness and continuity of the mineralized envelope. Closer spaced drilling will be required to define and characterize zones of higher-grade material.

Drilling has thus far intersected four main mineralized horizons at Sally, referred to in descending order from top to bottom, as Zones 1 to 4 (Figure 7-23), as follows:

- **Zone 1**, the uppermost mineralized zone, contains Cu and trace amounts of Pd and is commonly <10 m thick. Zone 1 is hosted by fine-grained early intrusion TDL gabbro that is intermixed with Marathon series oxide melatroctolite.
- **Zone 2** is hosted by TDL gabbro and clinopyroxenites that generally include xenoliths of the fine-grained series. This second mineralized zone is typically 40 to 50 m thick and contains some of the highest Pd grades in the Sally deposit, particularly at the contact between the Marathon series (breccia unit A) and the peridotite unit of the fine-grained series. Grab samples K008054 returned 188.3 g/t PGM+Au and 9.11% Cu.

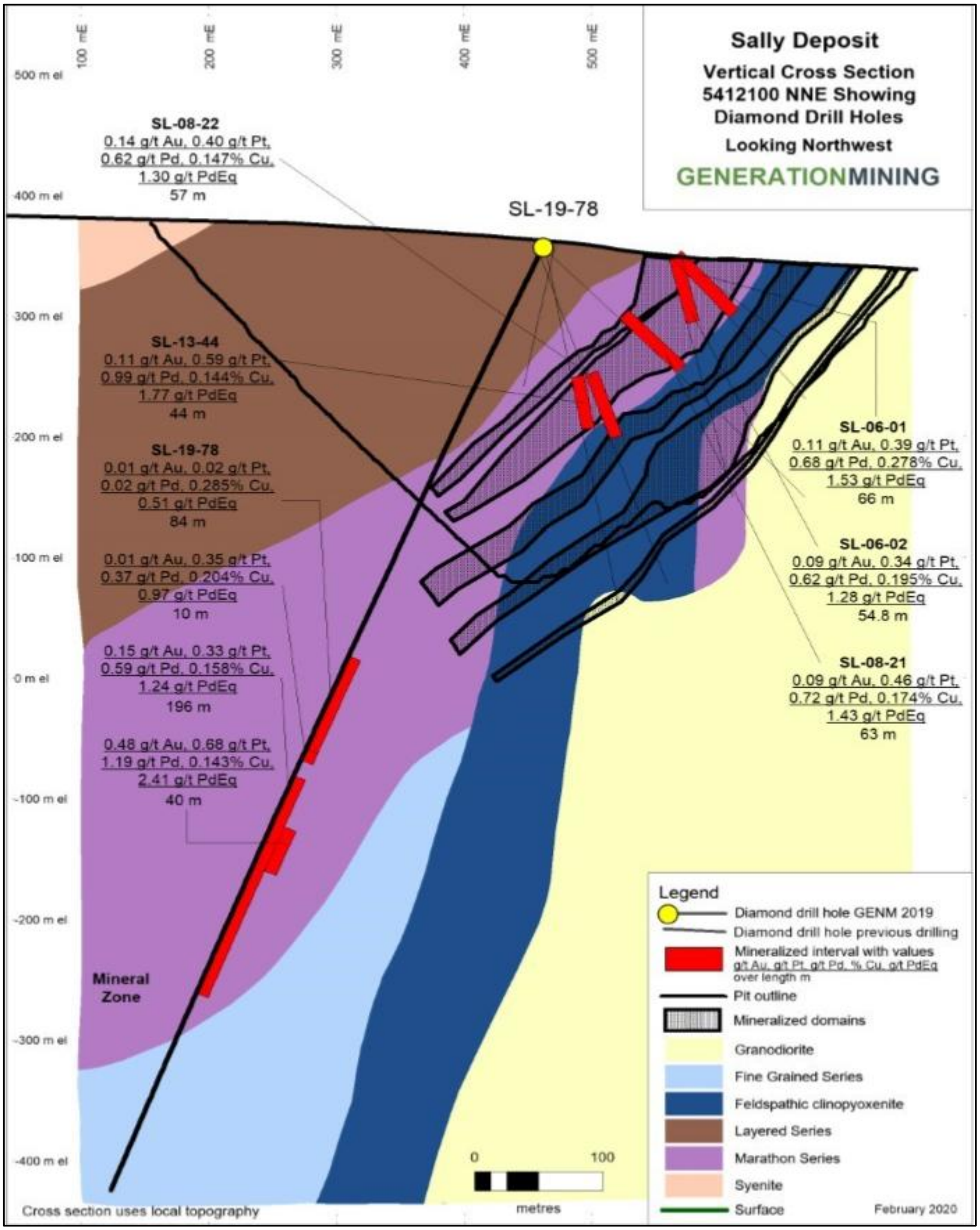
- **Zone 3** occurs below the peridotite unit and is referred to as the Main Zone because it is normally >40 m thick and is the most continuous over the strike length of the Sally deposit, except at the far west end where the mineralization is cut by multiple faults. The mineralization is hosted in TDL gabbro.
- **Zone 4** occurs below the Main Zone, where fine-grained series and/or Archean footwall is cross-cut by Marathon series intrusions. Mineralization contains Cu and Pd values that are similar to the Main Zone, but has increased pyrrhotite content, and thus is considered to be lower tenor.

Figure 7-22: Geology Map of Sally with Drill Hole Collars



Source: Gen Mining (2021).

Figure 7-23: Vertical Cross-Section of Sally Showing Stratigraphy of Geological Units and Mineralization



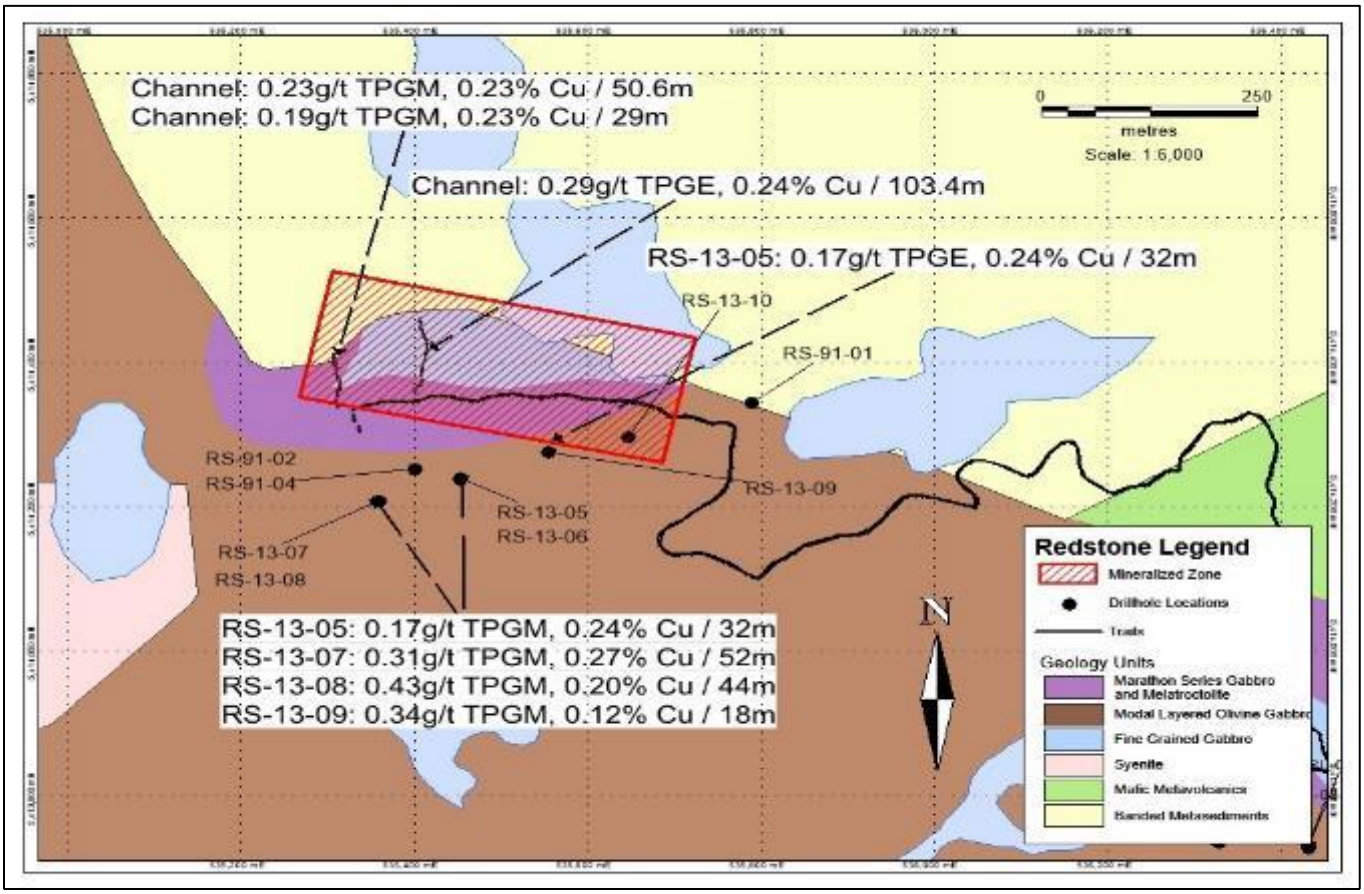
Source: Gen Mining (2020).

7.3.7 Redstone Prospect

The Redstone prospect is situated along the outer margin of the Eastern Gabbro in the northwest corner of the Caldwell Complex (Figure 7-12). The mineralized zone strikes near east-west, dips between 30° and 45° south and is continuous along strike for 450 m (Figure 7-24). The zone extends down-dip for at least 200 m and is open to the west.

The mineralization consists of disseminated chalcopyrite, pyrrhotite and trace bornite hosted in a complex assemblage of Marathon series rocks. The upper portion of the sequence is dominated by oxide melatroctolite with minor TDL gabbro and the lower zone is composed predominantly of Marathon series breccia units. The lower breccia units are composed of TDL gabbro intermixed with oxide melatroctolite and numerous xenoliths of the fine-grained series and/or metavolcanic footwall.

Figure 7-24: Geology of the Redstone Prospect with 2013 Drill Hole and Surface Channel Assays



Source: Stillwater Canada (2014).

7.3.8 The W-Horizon

The W-Horizon forms a nearly continuous sheet of mineralization that strikes north-south for 1.5 km from section 5,403,100 N to section 5,404,600 N and continues down-dip for >700 m. The zone is open at depth. It ranges in thickness from 0.40 to 108.0 m and occurs near the top of the mineralized zones. The zone is difficult to identify in drill core, because it commonly contains only trace sulphides (chalcopyrite and bornite). Continuity of the W-Horizon between drill holes is shown by minimum PGM abundances of 1 g/t and by Cu/(Pt+Pd) ratios <3,500.

Several very high-grade lenses ranging from 30 to 200 m in length occur within the W-Horizon. The best intersections to date are 107 g/t PGM+Au, 1.04 g/t Rh and 0.02% Cu over 2 m (drill hole M07-239) and 45.2 g/t PGM+Au and 0.49% Cu over 10 m (drill hole M07-306).

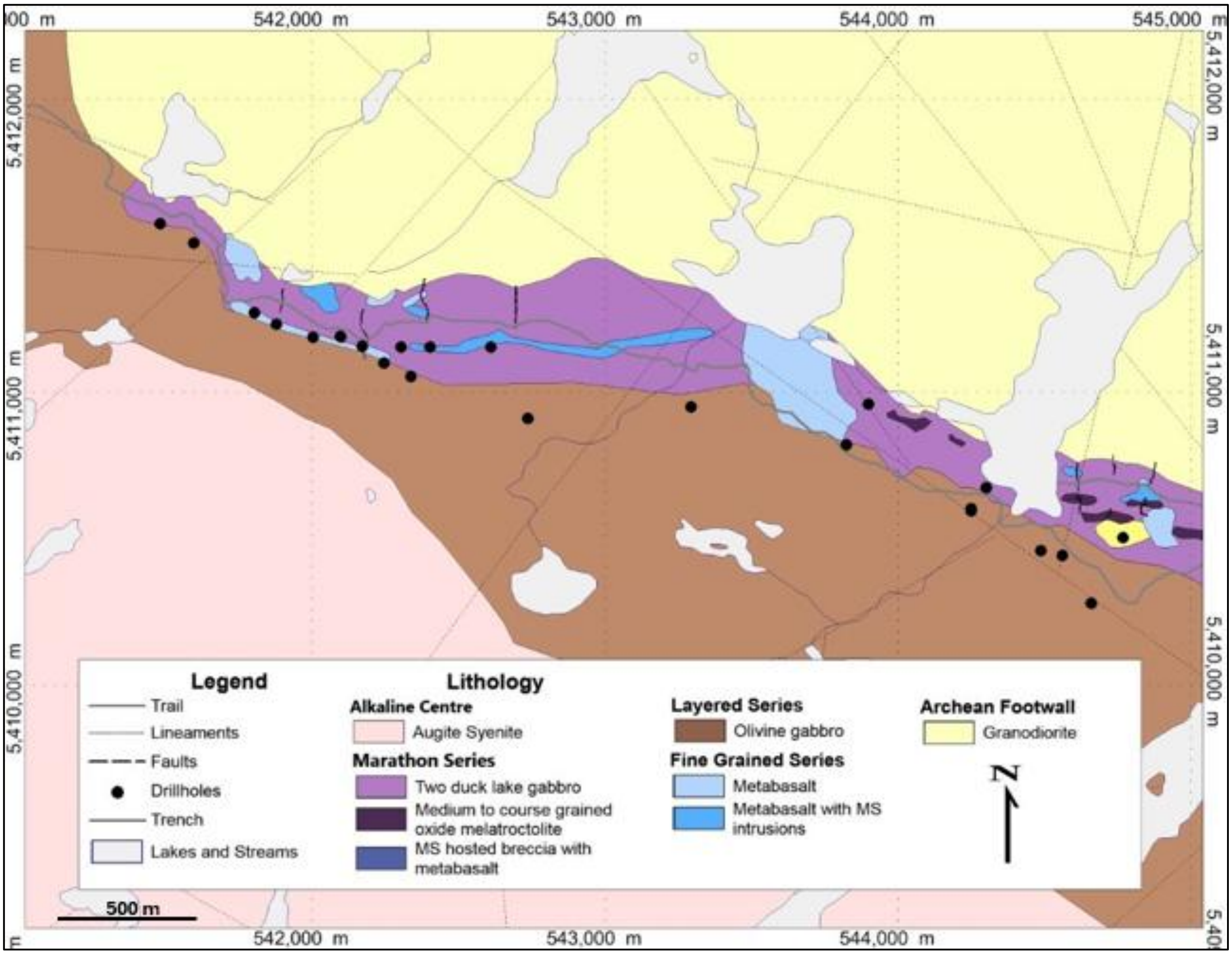
7.3.9 Boyer Prospect

The Boyer prospect is located 10 km north and along strike from the Marathon deposit to the roughly east-west trending northern margin of the Caldwell Complex and 4 km east of the Sally deposit. It was discovered in 2016 and work completed includes surface mapping, six trenches and 14 diamond drill holes. Channel samples from various trenching programs returned total PGM+Au values up to 3.1 g/t over 2.02 m, 0.82 g/t over 21.78 m, and 1.11 g/t over 7.69 m, with surface grab samples yielding up to 6.78 g/t.

The Boyer area has the largest intrusion of TDL gabbro outside of the Marathon and Sally deposits and has a prominent reversely magnetized signature. The TDL intrusion has a strike length of 3 km extending from the Skipper zone to the east and is up to 150 m thick. It dips 20° to 45° to the south. The Boyer prospect area along with the drill holes are shown in Figure 7-25.

The TDL gabbro at Boyer is similar to Marathon and Sally deposits, but there is an increased proportion of pegmatitic material, brecciation and fragments of troctolites, wehrlites and dunites. The TDL gabbro intrudes the metabasalt along the basal granodiorite footwall.

Figure 7-25: Geology Map of Boyer Zone with Drill Hole Collars



Source: Gen Mining (2021).

7.4 Sulphide Mineralization

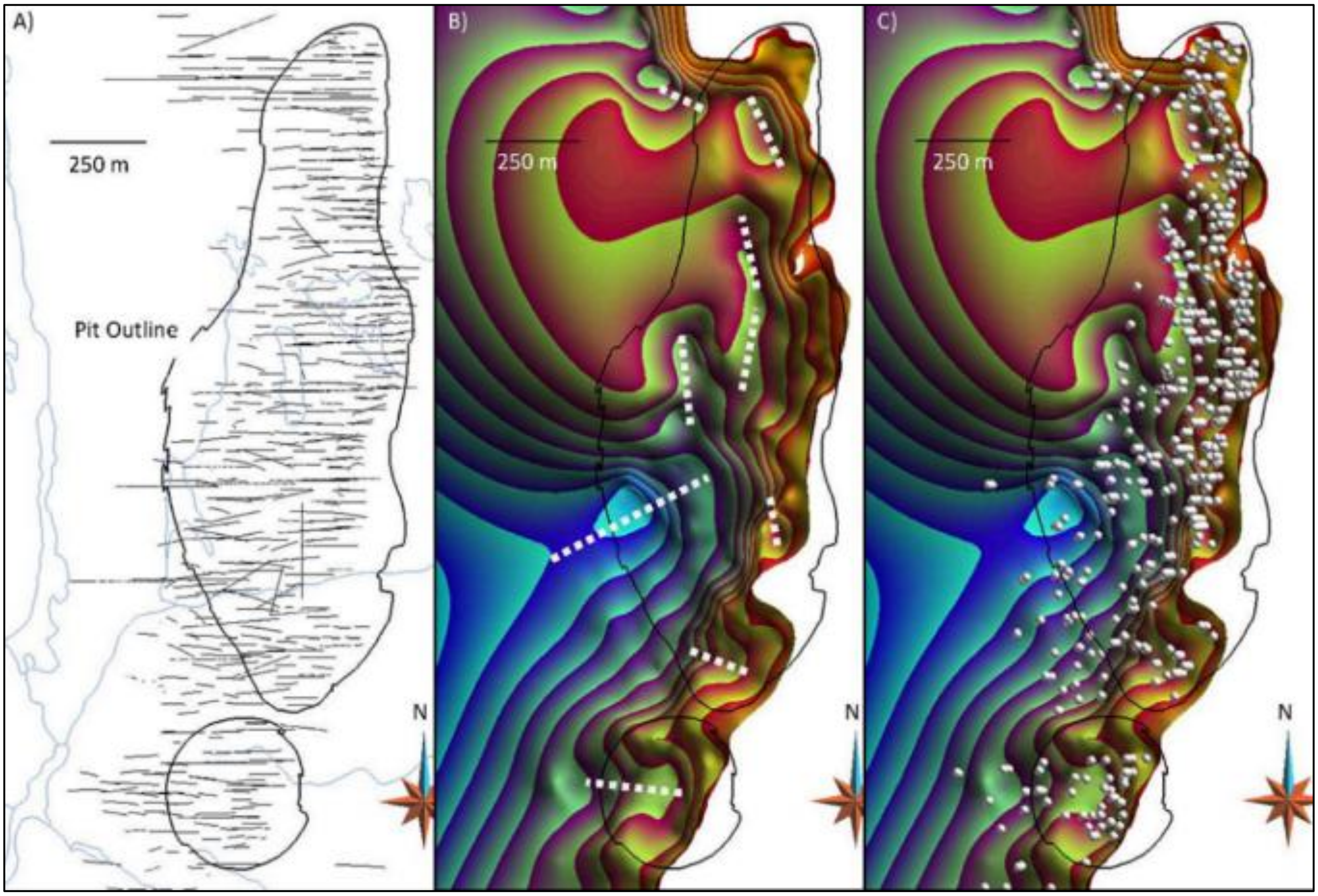
Sulphides in the TDL gabbro consist predominantly of chalcopyrite, pyrrhotite and minor amounts of bornite, pentlandite, cobaltite, and pyrite. The sulphides occur in between primary silicates and to a less extent in association with secondary calcite and hydrous silicates, such as chlorite and serpentine (Watkinson and Ohnenstetter, 1992). Chalcopyrite occurs as separate grains or as replacement rims on pyrrhotite grains. Some chalcopyrite is intergrown with highly calcic plagioclase (An_{70} to An_{80}) in replacement zones at the margins of plagioclase crystals (Good and Crocket, 1994).

The modal mineralogy of a composite sample that is representative of the Marathon deposit mineralization (and TDL gabbro) was determined in a QEMSCAN™ survey by XPS (Kormos, 2008). A total of nine aliquots of material were analyzed. In decreasing order of abundance, the sulphide component of the composite sample consists of 2.75% pyrrhotite, 0.79% Cu-Fe sulphides (chalcopyrite and bornite), 0.09% pentlandite, and trace amounts of pyrite, galena, and sphalerite.

The relative proportions of pyrrhotite and chalcopyrite vary significantly across the Marathon deposit. In general, the sulphide assemblage changes gradually up section from the base to the top of mineralized zones. Sulphides at the base of the TDL gabbro consist predominantly of pyrrhotite and minor chalcopyrite. The relative proportion of chalcopyrite increases up section to nearly 100% chalcopyrite near the top. In the W-Horizon, sulphides consist mainly of chalcopyrite and bornite and minor to trace amounts of pentlandite, cobaltite, pyrite, and pyrrhotite.

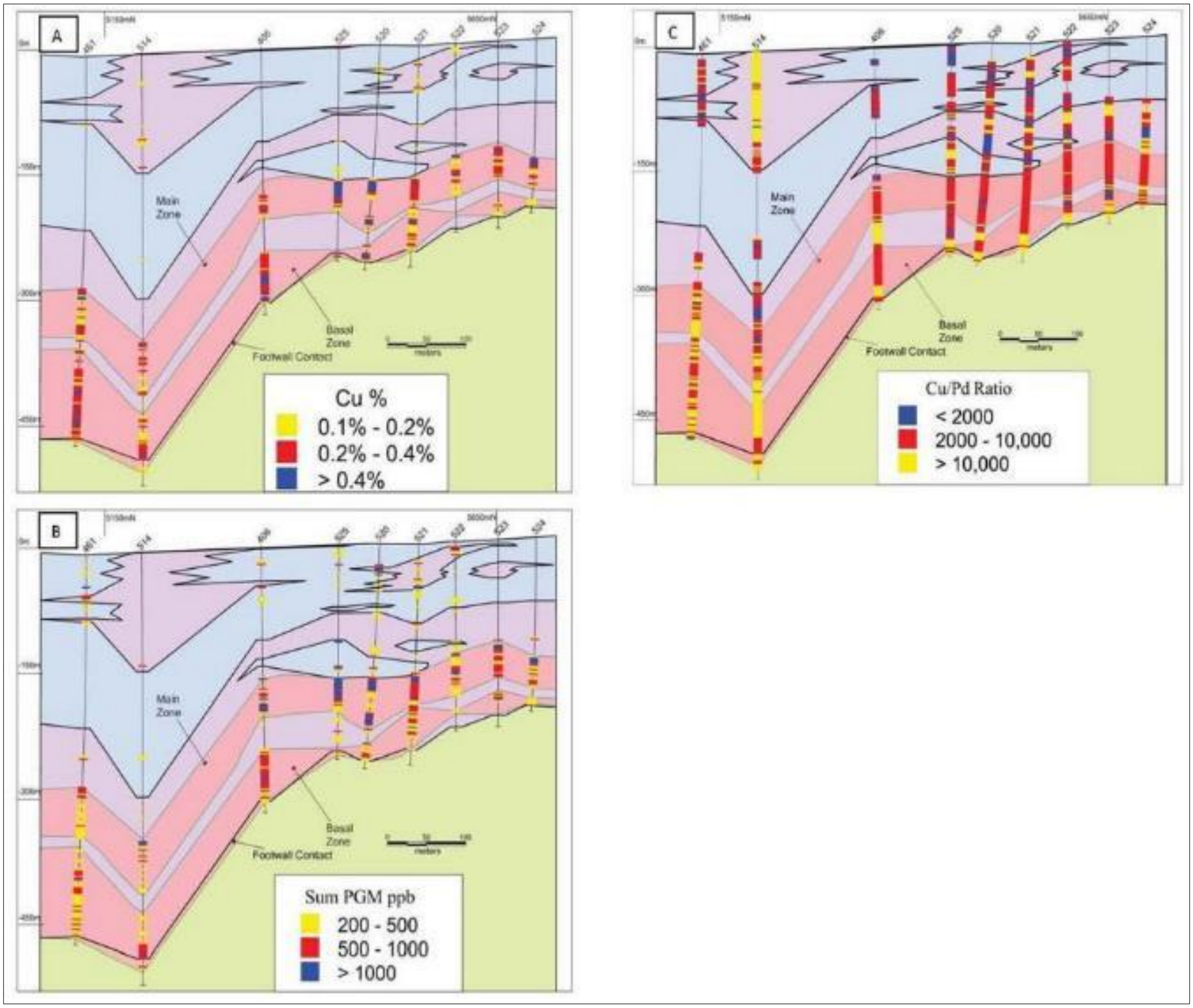
There is a relationship between mineralization and the paleo-topography of the footwall contact, as demonstrated in Figure 7-26. For example, mineralization is best developed within basins or troughs (b and c) of the footwall and thins or pinches out above prominent footwall ridges. Although the mineralized zones are almost continuous from the north to south extents of the Marathon deposit, assays with the best grades (combined Pd+Cu recalculated and presented as NSR) in Figure 7-27, plot along trends that mimic the alignment of troughs or ridges.

Figure 7-26: Plan Views of the Proposed Pit Outline (2010) Beneath the Marathon Main Zone



Notes: Figure A) includes all diamond drill holes and outlines for small lakes and streams. Figure B) includes the contoured 3D surface model for the footwall contact. The white dashed lines highlight the trough axes in the footwall. Figure C) includes white spheres that represent drill hole assays that are filtered to show only those with NSR values greater than $75/t. Source: Marathon PGM Corp. (2010).

Figure 7-27: Marathon Deposit North-South Vertical Cross-Section Along the Western Edge of the Main Open Pit (Looking West)



Note: The above figures show the Main and Footwall zones hosted within TDL gabbro. Detailed geology along the drill stems for this section is located in Table 7-5. Numbers along the top of drill stems are drill hole numbers (example, M11-514). Numbers at top of figure are deposit section indicator (example 5150 m N corresponds to 5405150 m N, NAD 27 Zone 16N). Figures A, B and C contain assay values along the drill stem for Cu, Pd and Cu/Pd, respectively. Source: Marathon PGM Corp. (2010).

7.4.1 Platinum Group Minerals

The following summary was prepared from the detailed petrographic and SEM studies conducted at Lakehead University by Liferovich (2006, 2007). Two sample groups from the Main Zone and W-Horizon are described and compared. A total of 2,304 grains from 55 thin sections were analyzed and 39 different platinum group minerals and gold and silver alloys were identified.

The grain size distribution for PGM in the Main Zone is similar to that in the W-Horizon (Table 7-2). In general, approximately 60% of PGM grains are <5 µm in size.

Table 7-2: Size Distribution for PGM Minerals in the Main Zone Compared with the W-Horizon

Zone	No. of Grains	< 5 Microns (%)	5-10 Microns (%)	10-20 Microns (%)	>20 Microns (%)
Main	573	64.9	16.9	12.5	5.7
W-Horizon	1,731	58.3	27.1	9.6	5.0

Source: Ruthart (2013).

The type and proportion of host minerals for the PGM are presented in Table 7-3. The dominant host minerals in both areas are sulphides and other PGM. Similar proportions occur within the boundaries of plagioclase crystals, but note that the 25% proportion is by count (mass) and not by volume, and it is expected that the volume percent of grains in plagioclase margins is <25%, because included grains are smaller. The relatively high proportion (38%) of PGM in hydrous silicates (chlorite and serpentine) in the Main Zone contrasts with the much lower proportion in the W-Horizon (4.3%).

Table 7-3: Proportion of PGM Minerals Spatially Associated with Silicates, Sulphides or Other PGMs

Zone	No. of Grains	Plagioclase Boundaries (%)	Sulphides (%)	Other PGMs (%)	Hydrous Silicates (%)
Main	573	22.4	34.9	4.36	38
W-Horizon	1,731	25	53.7	16.5	4.3

Note: This does not represent volume percent as grains included in plagioclase boundaries are smaller than those located elsewhere. Source: Ruthart (2013).

The suite of PGM in the Main Zone is very different from that of the W-Horizon (Table 7-4). Indeed, of the 12 dominant PGM that comprise 85% of the PGM reported in the W-Horizon, none were found in the Main Zone. Conversely, of the 10 dominant minerals found in the Main Zone (91% of all PGM found), only 2.6% occurred in the W-Horizon. This remarkable difference in the ranges of PGM for the two zones implies different conditions of PGM mineral crystallization.

This finding from Lakehead is supported by work completed by Cabri (2014) and Ames et al. (2016). The two studies apply two various techniques to separate sulphide phases from silicates, Cabri's work utilized hydro-separation, whereas Ames used energy pulse disaggregation. Both methods then took the separated grains, mounted them on a thin section, and completed mineral identification by SEM. Both studies observed that the main Pd mineralogy at the Main Marathon deposit was dominantly antimony-arsenide, arsenides, bismuthides, telluride and stannite. Only the Ames et al. (2016) study contained samples from the W-Horizon and found a very different mineral assemblage: that is, arsenides, sulphides, antimony-arsenides, plumbide, and tellurides. There was also a higher variety of palladium, platinum, and rhodium mineral species in the W-Horizon relative to the Main zone.

Table 7-4: Dominant PGM Mineral Phases in the Main Zone Compared to the W-Horizon

Mineral	Formula	W-Horizon (%)	Main Zone (%)
Zvyagintsevite	$(Pd,Pt,Au)_3Pb$	41.8	-
Palladinite	(Pd,Cu,Au)O	15.5	-
Telargpalite	$(Pd,Ag)_3Te$	5.5	-
Skaergaardite	PdCu	3.9	-
Kotulskite, Pb-Rich	Pd(Te,Bi,Pb)	3.8	-
Isoferroplatinum	$(Pt,Pd)_3(Fe,Cu)$	3.7	-
Keithconnite, Pb-Rich	$Pd_{3-x}(Te,Pb,Sb)$	3.5	-
Tetraferroplatinum	PtFe	3.4	-
Plumbopalladinite	Pd_3Pb_2	1.2	-
Vysotskite	PdS	1.2	-
Laflammeite	$Pd_3Pb_2S_2$	1.1	-
Atokite, Pb-Rich	$(Pd,Pt)_3(Sn,Pb)$	0.9	-
Au, Ag and Alloys		7.0	3.3
Stilwaterite	Pd_8As_3	0.4	0.9
Arsenopalladinite	$Pd_8(As,Sb,Pb)_3$	0.3	1.7
Cotunnite, Ru-Rich	$(Pb,Ru)Cl_2$	-	2.1
Hessite	Ag_2Te	-	3.7
Hollingworthite	(Rh,Pt,Pd)AsS	0.2	5.6
Sperrylite	$PtAs_2$	1.1	6.3
Kotulskite	Pd(Te,Bi)	-	9.9
Sobolevskite	PdBi	0.1	10.1
Mertierite-II	$Pd_8(Sb,As,Pb)_3$	0.3	16.1
Kotulskite-Sobolevskitess	$Pd_2Te(Bi,Pb)$	0.2	34.9

Note: 2,304 grains from 55 thin sections were analyzed from the two zones. Other minerals with <1% distribution in both zones were excluded from this list. Source: Ruthart (2013).

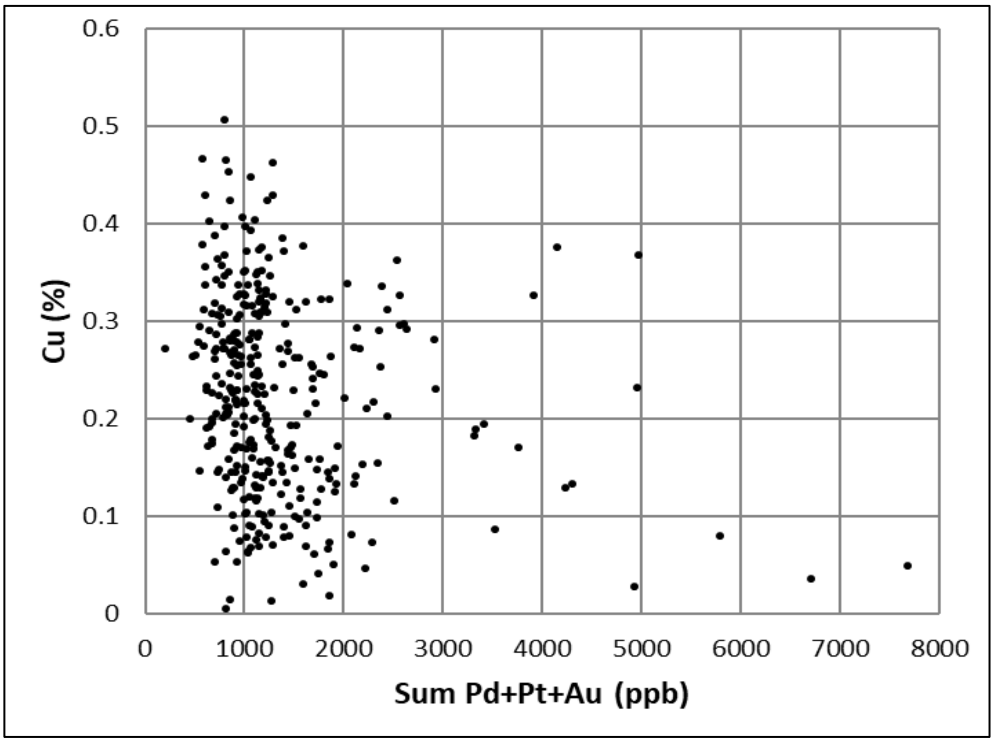
7.4.2 Distribution of Cu, Ni and PGM within the Marathon Deposit

A very prominent feature of the Marathon deposit is the local and extreme enrichment of PGM relative to Cu and Ni. For example, high-grade samples from the W-Horizon that contain between 25 and 50 g/t Pd (1 g/t = 1 part per million) might also contain very low concentrations of Cu and Ni (<0.02%). The separation of PGM from Cu is observed throughout the Marathon deposit, but is most common near the top of the mineralized zone. In the southern half of the Marathon deposit, PGM enrichment is most prominent in the W-Horizon.

The separation of PGM from Cu is shown by the very poor correlation between Cu and the sum of PGM for the average of 356 intersections in the Marathon deposit (Figure 7-28). The disparity in the relative behavior of PGM and Cu and Ni is unusual for contact type magmatic sulphide deposits. Barrie et al. (2002) attributed the PGM enrichment to high temperature zone refining process. However, this process is inconsistent with mass balance calculations and the close correlation between Pd and the other PGM metals.

An understanding of the separation of PGM from Cu is important to define the model for deposition of the Marathon deposit. In this section, the trends for S, Cu, Ni and PGM concentrations in these zones are described and three mechanisms for metal concentration during magmatic processes are proposed.

Figure 7-28: Cu Vs. the Sum of Pd+Pt+Au for Average Values of 356 Diamond Drill Hole Intersections (NSR Cut-off of $15/t)



Note: Each point represents an intersection of between 4 and 160 m thickness. All the points represent 14,485 m of drill core or approximately 8,000 samples. Source: Marathon PGM Corp. (2010).

7.4.3 Metal Ratios for the Marathon Deposit

Inter-element ratios for metals that show positive and significant correlation are calculated for a subset of samples representative of the Marathon deposit (Table 7-5).

Table 7-5: Calculated Ratios for Cu, Ni and the PGM Metals

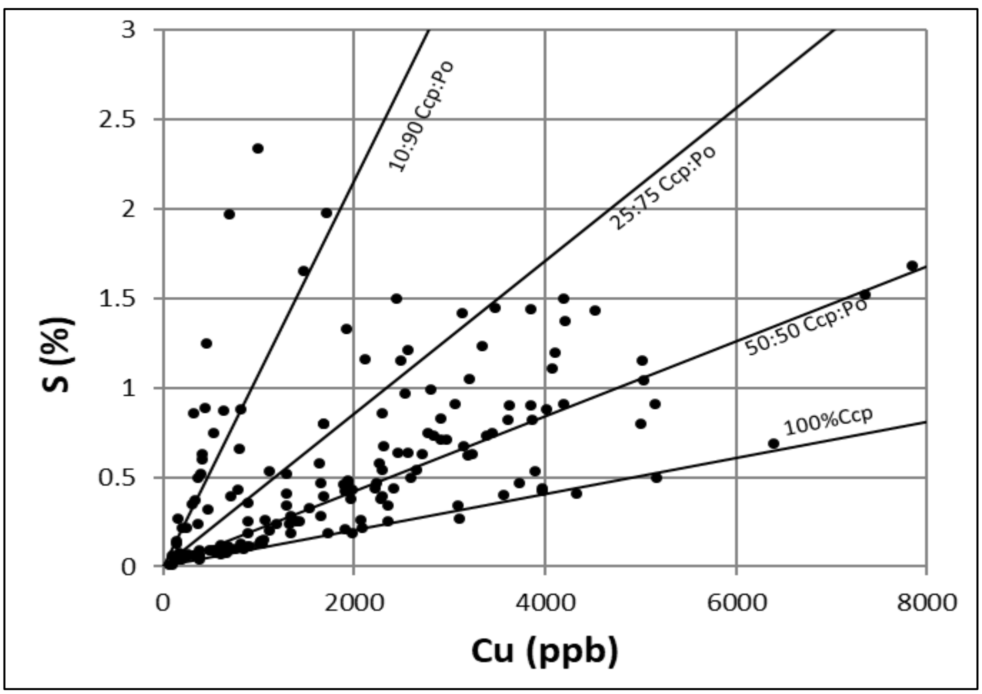
Ratio	Average	Standard Deviation	Minimum	Maximum	No. of Samples
Cu/Ni	14.5	2.8	8.2	21	40
Pd/Pt	2.99	1.02	0.83	9.2	8,663
Pd/Rh	40	19	10	84	32
Pd/Ir	910	636	147	2,573	28
Pd/Au	9.6	6.6	0.3	80	8,663

Note: Cu/Ni ratio calculated for samples with >3,000 ppm Cu. Pd/Pt ratio calculated for intersection data. Pd/Rh and Pd/Ir calculated using high precision and high accuracy data by Good (1993) and 10 high grade samples analyzed by Activation Labs. Source: Gen Mining (2019).

7.4.4 Distribution of Cu in TDL Gabbro

The sulphide assemblage in the Marathon deposit comprises predominantly chalcopyrite and pyrrhotite with minor amounts of pentlandite and bornite. Chalcopyrite is the dominant copper mineral and bornite occurs locally, particularly in the W-Horizon. In general, sulphides at the base of the Main Zone are composed of pyrrhotite and the proportion of chalcopyrite increases up section. On average, the majority of mineralized samples contain >25% chalcopyrite and <75% pyrrhotite as shown in Figure 7-29. Samples with the highest concentrations of PGM plot along or close to the curve representing 100% chalcopyrite.

Figure 7-29: Sulphur vs. Copper for Samples Representative of Marathon Deposit Mineralization



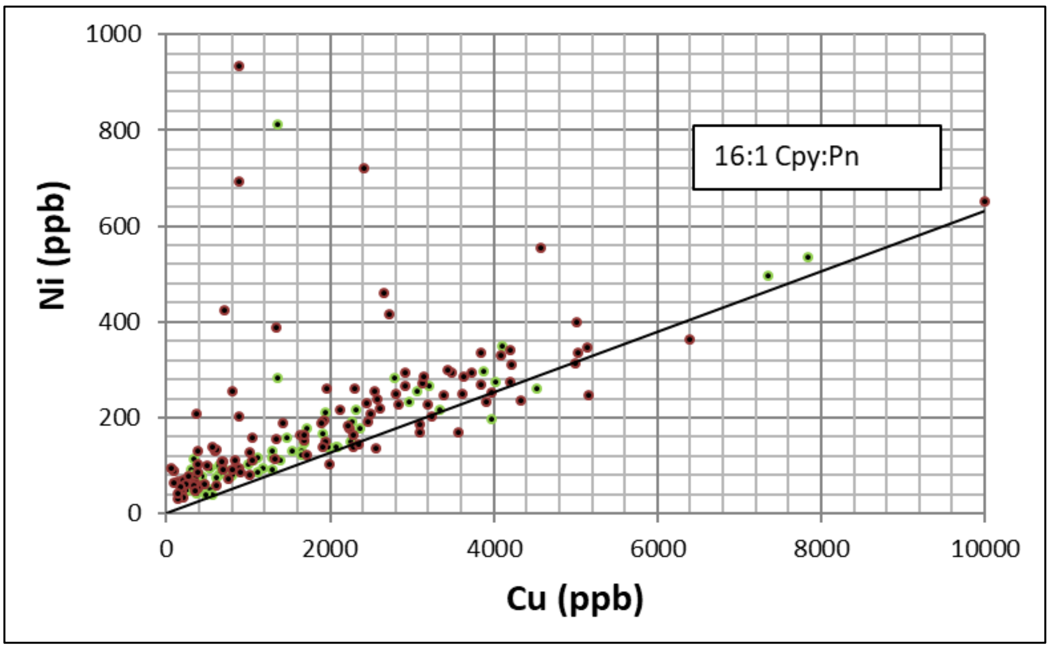
Note: The lines represent the location where samples with the specified chalcopyrite: pyrrhotite ratios would plot. Source: Marathon PGM Corp. (2010).

7.4.5 Distribution of Ni Relative to Cu

Pentlandite is the dominant nickel-bearing mineral and is present as a minor component of the sulphide assemblage. Based on whole rock data for Ni versus Cu, as shown in Figure 7-30, the chalcopyrite to pentlandite ratio for mineralized samples is relatively constant at approximately 16:1. For whole rock data where Cu is >3,000 ppm, the Cu/Ni ratio is relatively constant at 14.5. A small proportion of samples in the Marathon deposit reveals that the abundance of nickel is normally <1,200 ppm and rarely >1,500 ppm (Figure 7-30).

In Figure 7-30, the abundance of nickel, where the abundance of copper is 0%, corresponds to the amount of nickel (60 to 100 ppm) held in olivine and clinopyroxene. The nickel content of olivine, as measured by Good (1993) for samples in the Main Zone and Ruthart (2013) for samples in the W-Horizon, is between 400 and 600 ppm.

Figure 7-30: Ni vs. Cu for a Subset of Main Zone Samples for which S (wt %) was Determined

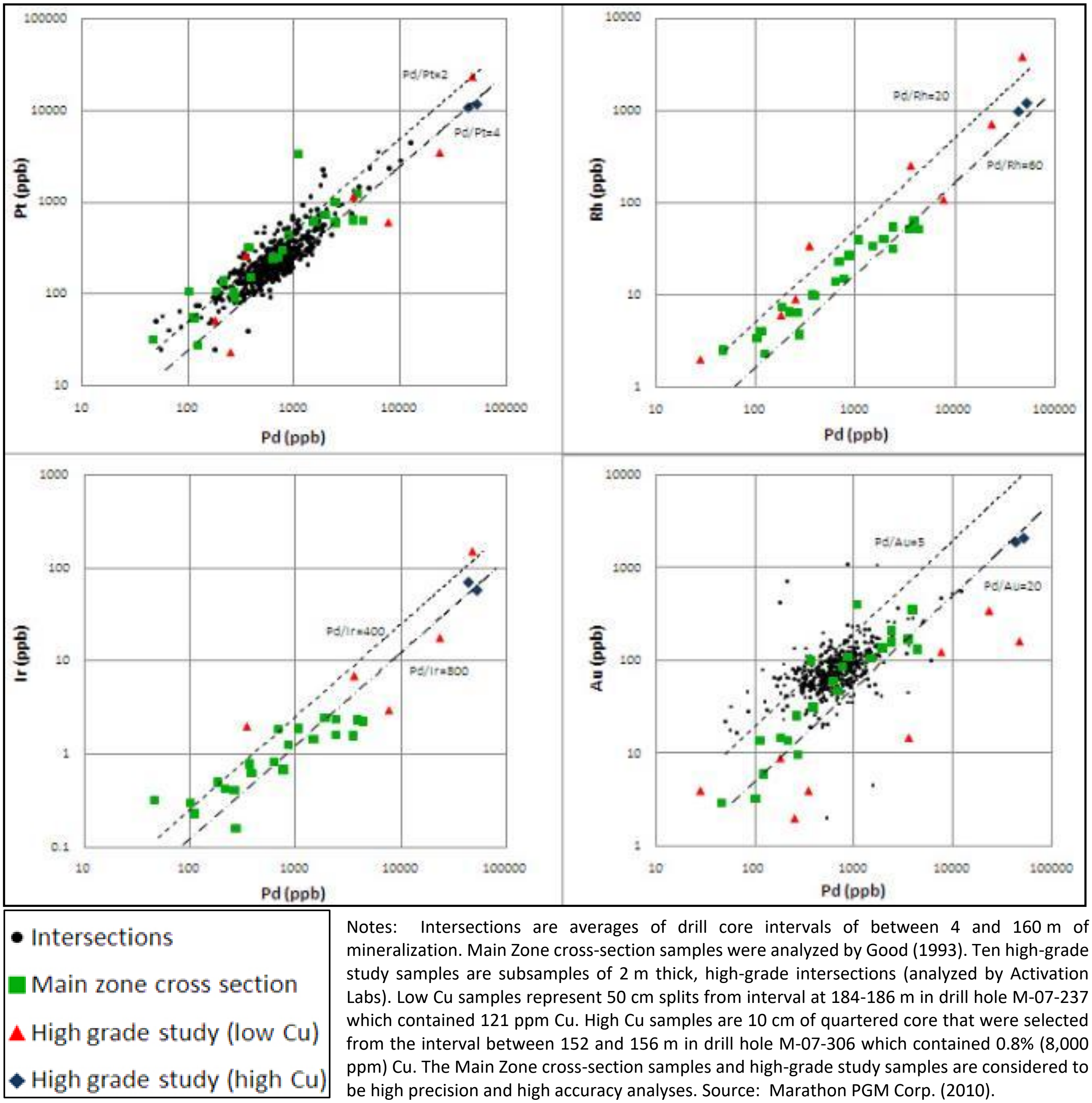


Notes: 1. In general, the nickel content increases with increasing Cu. The majority of samples plot along a trend parallel to a calculated line representing samples with 94% chalcopyrite and 6% pentlandite or an approximate ratio of 16:1. 2. wt % = weight percent. Source: Marathon PGM Corp. (2010).

7.4.6 Distribution of PGMs

There is a strong and positive correlation between Pd and the other PGM metals (Pt, Rh and Ir) and Au for all types of mineralization in the Marathon deposit (Figure 7-31).

Figure 7-31: Pd vs. Rh, Ir and Au for Representative Sample Groups of the Marathon Deposit



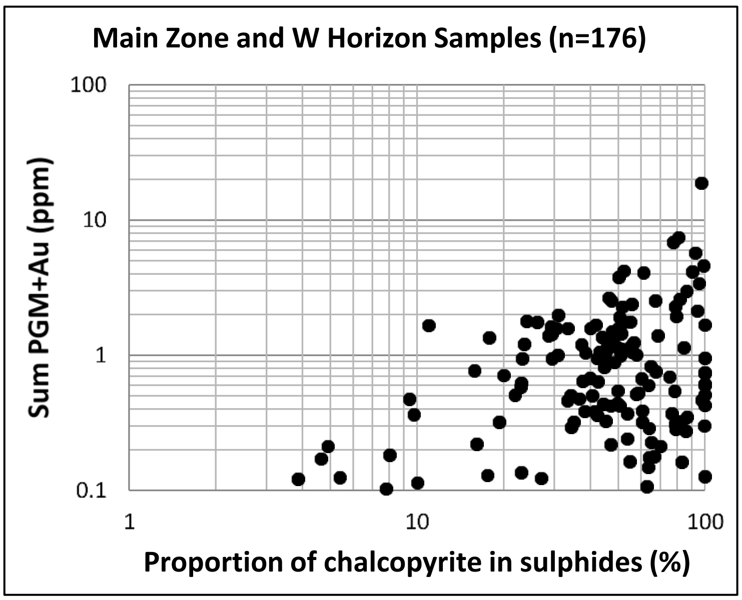
Notes: Intersections are averages of drill core intervals of between 4 and 160 m of mineralization. Main Zone cross-section samples were analyzed by Good (1993). Ten high-grade study samples are subsamples of 2 m thick, high-grade intersections (analyzed by Activation Labs). Low Cu samples represent 50 cm splits from interval at 184-186 m in drill hole M-07-237 which contained 121 ppm Cu. High Cu samples are 10 cm of quartered core that were selected from the interval between 152 and 156 m in drill hole M-07-306 which contained 0.8% (8,000 ppm) Cu. The Main Zone cross-section samples and high-grade study samples are considered to be high precision and high accuracy analyses. Source: Marathon PGM Corp. (2010).

7.4.7 Relationship Between Sulphide Assemblage and PGM

The composition of the sulphide assemblage is in general indicative of PGM enrichment. For example, a pyrrhotite rich sulphide assemblage is typically poor in PGM whereas chalcopyrite-rich (up to 100%) or bornite-bearing sulphide assemblages are typically high in PGM. This general field relationship is verified in Figure 7-32, where the values for the sum of PGM+Au are highest in samples with high calculated proportions of chalcopyrite in total sulphides. Note this relationship differs from that represented in Figure 7-35, where there is no correlation between Cu and Pd. Also note that the increasing proportion of chalcopyrite is not always a sign of increasing PGM+Au.

That there is a relationship between chalcopyrite and total PGM+Au, but no correlation between copper and Pd implies multiple mechanisms acted to concentrate Cu and PGM+Au.

Figure 7-32: Sum of Pt+Pd+Au vs. Calculated Proportion of Chalcopyrite in Sulphide Assemblage



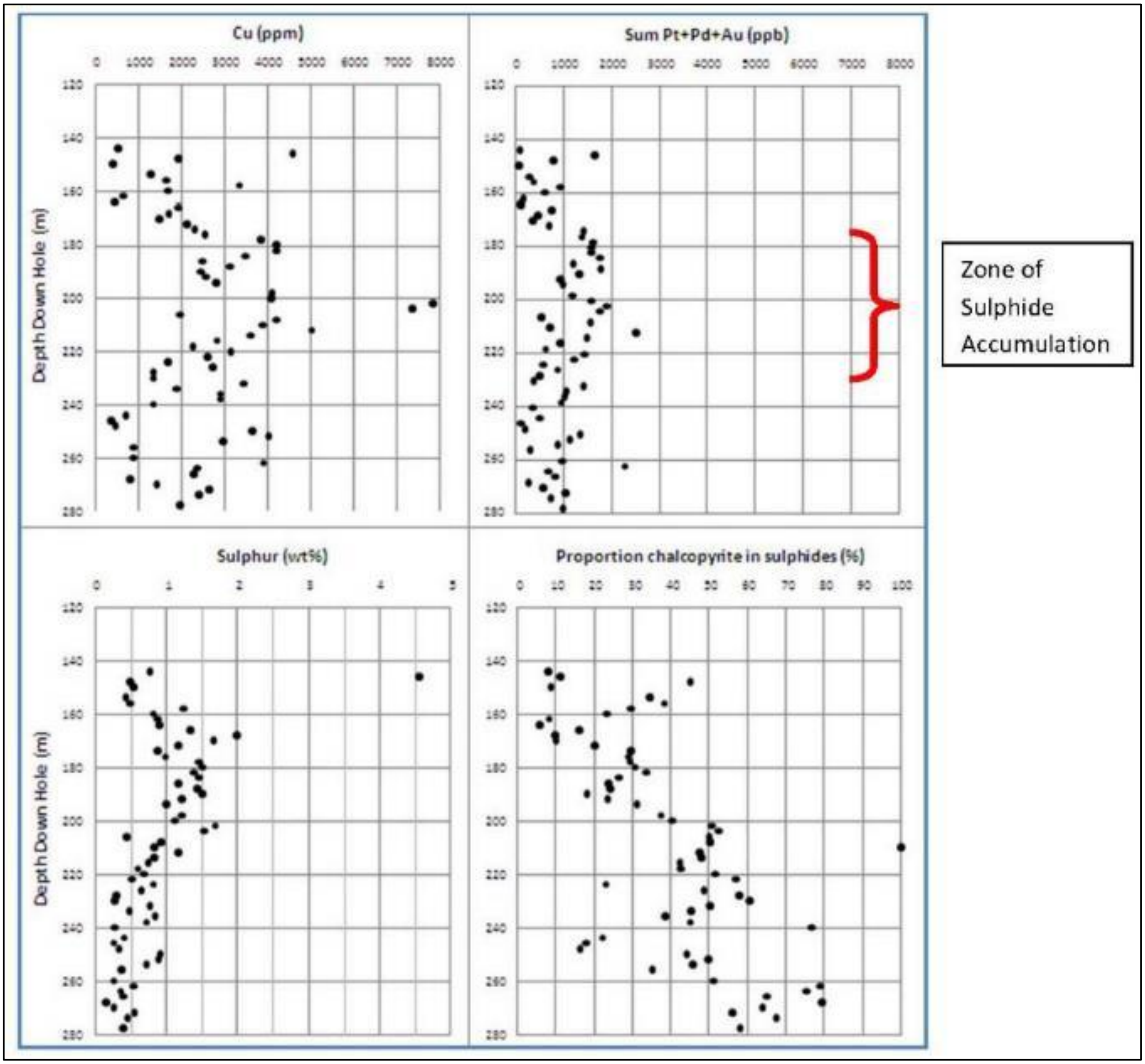
Note: Data set is representative of Main Zone and W-Horizon.
Source: Marathon PGM Corp. (2010).

7.4.8 Variations of Cu, PGM, Sulphur and Chalcopyrite Across Mineralized Zones

Two different trends are shown by metal variation plots across mineralized zones in Figure 7-33 and Figure 7-34. In Figure 7-33, the abundances of S and PGM increase systematically up section and can be attributed to the simple accumulation of sulphides. The change in the abundance of Cu is less obvious, but there is a systematic decrease in the proportion of chalcopyrite in the sulphide assemblage. In summary, the abundance of sulphides and PGM are increasing, but sulphide assemblage is becoming more pyrrhotite-rich.

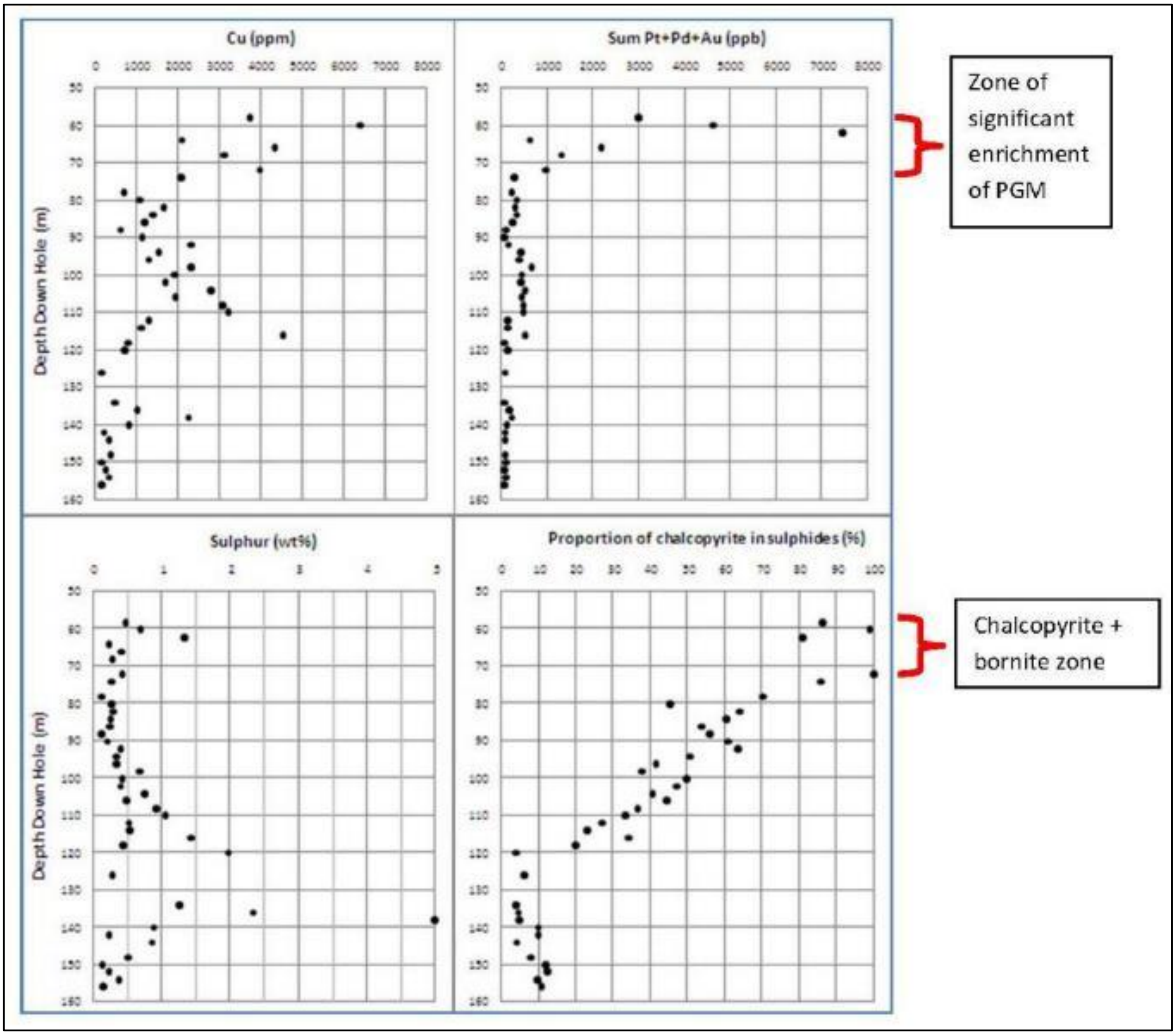
In Figure 7-34, the abundance of Cu and the proportion of chalcopyrite increase up section, the abundance of S stays flat or decreases, and the Pd stays low, but increases drastically in the uppermost 12 m where the samples contain the highest proportion of chalcopyrite.

Figure 7-33: Metal Variation Down Diamond Drill Hole MB-08-10



Note: Each sample represents 2 m of split drill core. It shows elevated PGM and Cu with increasing sulphur (sulphides) regardless of proportion of chalcopyrite. Source: Marathon PGM Corp. (2010).

Figure 7-34: Metal Variation Down Diamond Drill Hole G9



Note: Each sample is 2 m of split drill core. It shows significant PGM enrichment in zones with highest proportion of chalcopyrite. Source: Marathon PGM Corp. (2010).

7.4.9 Mechanisms for Cu-PGM Concentration in the Marathon Deposit

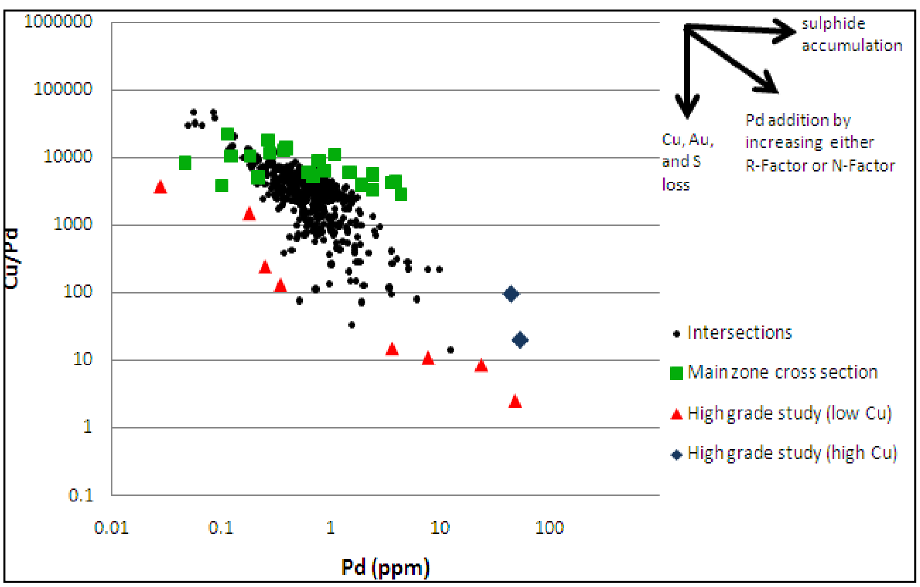
At least three mechanisms for sulphide and PGM precipitation have been proposed for the Marathon deposit including hydrothermal (Watkinson and Ohnenstetter, 1992), magmatic (Good and Crocket, 1994a), and zone refining (Barrie, 2002). A hydrothermal mechanism at low or intermediate temperatures (<600°C) is not possible, because of the near total absence of hydrous minerals in the W-Horizon and the significant correlations between Pd-Pt, Pd-Rh and Pd-Ir. The high temperature zone refining mechanism suggested by Barrie (2002) is compelling, but there is insufficient experimental evidence to use PGM correlation as support for or against the model and the implied redistribution and concentration of PGM by zone refining does not fit with a mass balance calculation. In other words, there is too much PGM and too little gabbro for a zone refining mechanism to have played a significant role.

Based on petrographic and geochemical evidence, it seems most likely that more than one process operated at high temperatures (>700°C) to concentrate metals in the Marathon deposit. Three possible mechanisms include the following:

1. accumulation of sulphide liquid in fluid dynamic traps in the magma conduit
2. ongoing interaction of sulphides with magma that is flowing through the conduit (R-factor); and
3. removal of S, Cu, and Au from the sulphide assemblage.

The effects of the three mechanisms on the abundance of Cu and Pd are shown in Figure 7-35. The effect of accumulating sulphides is shown by the trend for the Main Zone samples (green squares). The effect of the R-factor is the rapid increase in Pd relative to Cu (pulls samples toward the lower right corner of Figure 7-35). The intersection data (dots) represent the average effects produced by sulphide accumulation and R-factor enrichment. Finally, the removal of Cu in PGM enriched zones (W-Horizon) is shown by the downward displacement of the samples from the low Cu, high grade zone (red triangles). The removal of Au is inferred from the Pd-Au variation diagram in Figure 7-31.

Figure 7-35: Dominant Mechanism Diagram for Cu and PGM Concentration



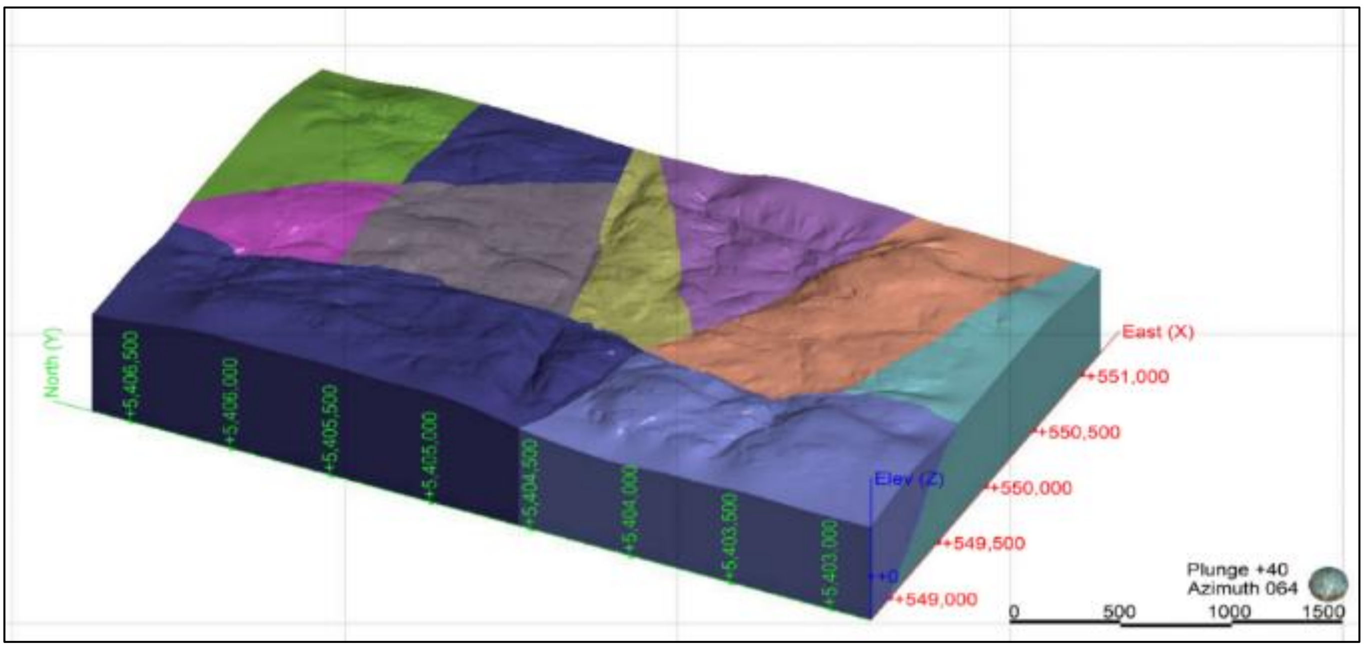
Note: Figure highlights the effects on metal values of the three dominant mechanisms proposed to explain the concentration of Cu and PGM in the Marathon deposit. Source: Marathon PGM Corp. (2010).

7.5 Marathon Structure

Based on the interpretation of drill hole contacts and surface geology, a structural model has been developed that incorporates 11 fault blocks for the Marathon deposit (Figure 7-36). Lineament structures are prominent throughout the Coldwell Complex and are associated with brittle faulting. Such structures occur in two series; 1) radial; and 2) concentric. The radial faults extend from a central location on the southwest of the Coldwell Complex below Lake Superior. There are five prominent large continuous faults that extend beyond the lithological boundary of the Coldwell Complex, and less prominent secondary and tertiary splays off the larger faults. The concentric faulting occurs as discontinuous faulting perpendicular to the radial faulting. The two series of lineaments create a mosaic of various blocks throughout the Coldwell Complex, but is most prominent along the central, east, and northern margin. From surface geology, it is recognized that there is offset between the blocks; however, only at the Marathon deposit is the offset measurable due to the continuous WT sill. The radial faulting at the Marathon deposit are normal faults, with up to 50 m offset and rotation of north side from 7° to 12° downwards. The radial faults are less defined as they do not pass through the Marathon deposit but, based on exploration drilling, dip towards the center of the Coldwell Complex at <65°.

Faulting is considered to have been a critical component in the emplacement of the Marathon deposit. The thickest drill intercepts of the Marathon Series are adjacent to known fault and surface lineaments. Mineralization is also thickest within footwall embayments that show a spatial relationship and similar orientation to known lineaments and faulting. Faulting acts as the structural control for magma emplacement within a conduit setting.

Figure 7-36: Modelled Marathon Fault Blocks



Source: Gen Mining (2022).

8 DEPOSIT TYPES

8.1 Deposit Type Magma Conduit Model

The Marathon deposit is one of several mafic to ultramafic intrusive bodies in the mid-continent rift systems (MRS) that host significant copper, nickel or PGM sulphide mineralization. These intrusions are the Yellow Dog peridotite (Eagle deposit), the Tamarack Intrusive Complex (Tamarack deposit), the Current Lake Intrusive Complex (Thunder Bay North deposit), and the numerous intrusions located along the base of the Duluth Complex.

Intrusion and deposition of sulphides within magma conduits has recently become the dominant mineralization forming process chosen to explain the rift related deposits. For example, a magma conduit deposit model has been proposed for the Marathon deposit by Good (2010), Thunder Bay North by Goodgame et al. (2010), and the Eagle deposit (Ding et al., 2012). The magma conduit model has grown in favour since it was proposed to explain deposits in the Noril'sk region, Siberia by Naldrett et al. (1995) and Naldrett and Lightfoot (1999) and the deposits at Voisey's Bay by Li and Naldrett (1999). Further, an important contribution to the understanding of magma conduits and the formation of very high tenor PGM deposits was presented by Kerr and Leitch (2005). They derived a sophisticated geochemical model for an open system multiple stage process expected in a magma conduit. This model was applied to explain the extreme PGM concentrations found in the W-Horizon at the Marathon deposit by Good (2010).

8.2 Magma Conduit Model for Marathon Mineralization

In the magma conduit deposit model, the present exposure of the TDL and Eastern Gabbro series represents only a fraction of the magma that was generated in the mantle and ascended through the crust. Most of the magma flowed through the magma conduits and erupted on the surface as basalt volcanic flows. The gabbroic units and associated Cu-PGM mineralization represent material that crystallized or settled out of the magma as it moved through the conduit.

It is envisaged that a very large volume of magma, perhaps >10,000 times the volume of gabbro present in situ, flowed through the conduit and formed the TDL gabbro. Based on mass balance calculations and considering the TDL gabbro is <250 m thick, only a very large magmatic system such as this can explain the excessive enrichments of platinum metals with up 45 g/t of combined Pt, Pd and Au over 10 m or the accumulations of disseminated sulphide layers that are up to 160 m thick. Similarly, in the case of the oxide ultramafic intrusions, very large volumes of magma are required to deposit the very thick layers (tens of metres) of massive magnetite (>75% magnetite).

In the magma conduit model, fluid dynamic factors that affected magma flow are relevant to exploration. Features such as pooling of TDL magma in basins within the footwall or brecciation of Eastern Gabbro by TDL magma as it stopes its way upward during ascent are important examples of how the magma flow was slowed, resulting in the precipitation of the denser sulphide liquid from the magma. Conversely above ridges or crests in the footwall, where TDL gabbro thins and the magma velocity increased, sulphides were unable to settle and the mineralized horizons thin or pinch out. Accumulation of sulphide by fluid dynamic processes can explain the bulk of the mineralization in the Marathon deposit and metal trends such as that shown in diamond drill hole MB-08-10. Metal trends show increasing Cu and PGM+Au with increasing total sulphides regardless of the proportion of chalcopyrite in the sulphide assemblage.

After sulphides settled out of the magma, a second process acted to upgrade the sulphides with PGM+Au, particularly in the upper portions of the mineralized zone (as described in drill hole G9). The upgrading occurred as magma passed through the conduit and interacted with sulphides in the crystal pile possibly by stirring up early formed sulphides. This process of sulphide upgrading was used to describe the extreme enrichments of PGM relative to Cu in disseminated sulphides at the Noril'sk deposits by Naldrett et al. (1995). They described the mathematical model whereby the ratio of magma in the conduit that interacted with sulphides to the amount of sulphides is referred to as the R-factor. Under conditions where the R-factor is very high, continued interaction of fresh magma with sulphides will continue to increase the grade of PGM while the copper concentration remains constant. Very high PGM concentrations in the W-Horizon such as 45 g/t over 10 m (drill hole M07-306) and metal trends such as the gradual increase in the proportion of chalcopyrite and the matching rapid increase in PGM+Au are interpreted to be a result of continuous upgrading.

A third process of PGM upgrading by sulphide dissolution (after Kerr and Leitch, 2005) is envisaged to have occurred in the W-Horizon to explain samples with extreme PGM content and only trace Cu. For example, in many instances the PGM enrichment of up to 75 ppm Pd occurs in samples with only 0.01% to 0.02% Cu. These levels of Pd when re-calculated to abundances in 100% sulphides correspond to untenable concentrations of between 2% and 4% Pd in 100% sulphide. The sulphide dissolution process involves the progressive removal of Cu and S from the pre-existing sulphides when they interact with magma that is sulphur under saturated. The Pd and Pt remain behind with the remnant sulphides. Evidence of Au loss in samples of the W-Horizon imply that Au was also removed along with Cu and S by this same process.

8.3 Comparison of Marathon Deposit with Mid-Continent Rift-Related Deposits

There are many striking petrologic and geochemical similarities between the TDL gabbro and the Partridge River intrusion, located at the base of the Duluth Complex in Minnesota (Good and Crockett, 1994). The Partridge River intrusion is the best described gabbro intrusion in the Duluth Complex and hosts the Minnamax (Babbit) and Dunka Road Cu-Ni-PGM deposits. The relevant features described from the Partridge River intrusion that are also observed in the TDL gabbro are as follows:

- The textures and abundance of minerals in the Partridge River intrusion and the inferred crystallization path are remarkably like those of the TDL gabbro.
- The compositions of plagioclase, pyroxene, and olivine are restricted relative to other mafic intrusions and overlie values for the TDL gabbro.
- The coherent behavior of Zr, Rb, and Y, indicative of control by variable proportions of intercumulus liquid, is consistent with observations in the TDL gabbro.
- Chalcopyrite and PGM are intergrown with calcic plagioclase that replaces less calcic plagioclase.
- Pyrrhotite, but not pentlandite, is replaced by chalcopyrite.

- Sulphides are predominantly interstitial to unaltered plagioclase, olivine, and pyroxenes and chalcopyrite and PGM are associated with Cl-enriched biotite and apatite, and altered minerals, such as chlorite, epidote, and calcite.
- Variable Cu/Ni ratios within deposits and between deposits and a trend of increasing ratios with increasing Cu are indicative of chalcophile element fractionation as shown for the TDL gabbro.
- The occurrence of more than one type of disseminated sulphide zone, one being relatively sulphur-rich, is analogous to the main and basal sulphide zones in the TDL gabbro.

The many similarities between the Partridge River intrusion and the TDL gabbro imply that they formed by analogous processes. Four mechanisms have previously been proposed to account for features observed in the Partridge River intrusion:

- Chalockwu and Grant (1990) proposed that the magma of the Partridge River intrusion was emplaced as a plagioclase plus olivine crystal mush that crystallized in situ.
- Grant and Chalockwu (1992) provided geochemical and isotopic evidence implying that the Partridge River intrusion consists of a mechanical mixture of cumulus plagioclase, olivine, and intercumulus liquid that were not in equilibrium with each other.
- Foose and Weiblen (1986), and Ripley (1986) proposed various mechanisms for the mixing of magmas of similar compositions, but at different stages of crystal fractionation, to account for compositional irregularities.
- Finally, an external source for sulphur is well documented in the available literature. Andrews and Ripley (1989) argue that sulphur assimilation occurred prior to intrusion of the host gabbro. These mechanisms are, to some extent, analogous to those proposed in the model for the formation of the Marathon deposit.

8.4 Comparisons of Mid-Continent Rift, Voisey Bay and Noril'sk Deposits

Comparisons between the MRS and the Voisey Bay and Noril'sk settings point to several similarities that suggest that the mid-continent rift is a likely setting for Ni-Cu mineralization. The continental rifting and associated voluminous igneous activity in all three regions formed in response to the rise of a hot plume of mantle material from deep in the earth, fracturing the overlying continental crust. In the mid-continent rift, melting of the plume produced more than 2,000,000 km^2 of mostly basalt lava flows and related intrusions.

In all three regions, basalts derived from the mantle plume are enriched in trace elements, particularly in comparison to the most common basalts erupted on earth, those formed at rifts in the ocean floors. Like basalts in the Noril'sk region, early basalts of the mid-continent rift have compositions characterized by relatively high abundances of magnesium, chromium, nickel, and platinum, and relatively low abundances of sulphur. Such metal-rich and sulphur-poor basalt magmas can carry metals (such as Ni, Cu, and PGM) to high levels in the crust, because sulphur is not available to form a separate sulphide liquid that would scavenge metals from the magma while at depth. If these metal-rich basalts encounter a source of sulphur near the surface, and sulphur is incorporated into the basalt magma, they would be ripe for sulphide mineral formation.

8.5 Marathon Deposit Model Conclusions

A five-step model for the emplacement and crystallization history of the TDL magma and genesis of sulphides is proposed as outlined below:

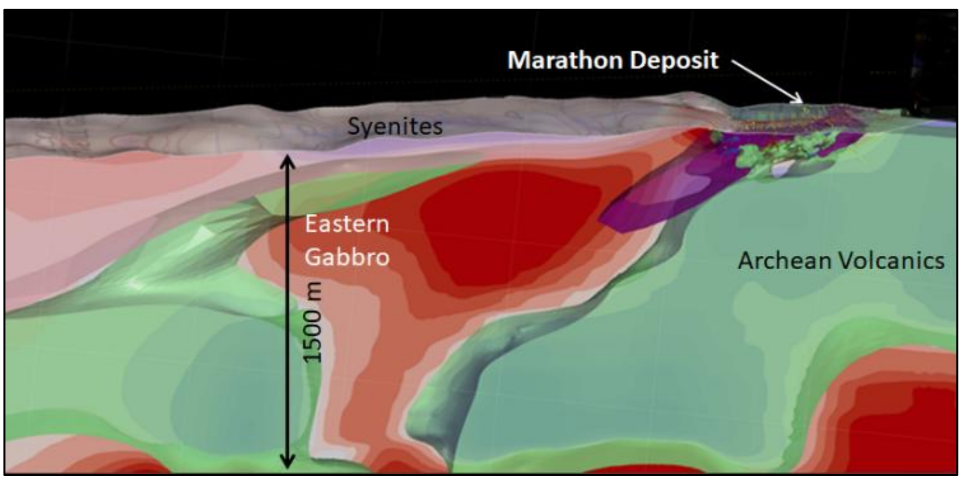
1. Crystallization of plagioclase and olivine occurred in a deep magma chamber prior to emplacement at its present site. Due to density differences, plagioclase did not settle out of the magma column, but much of the olivine did. During crystallization and sporadic replenishment with unfractionated magma, the magma chamber becomes compositionally stratified.
2. Sulphur migrated out of the country rock into the magma chamber, resulting in the formation of sulphide droplets. The Ni/S ratio of the sulphide droplets will be high in the lower layers of the chamber and low in the upper layers of residual magma.
3. The Two Duck Lake intrusion and sulphide deposit formed when magma was forced upward out of the deep chamber. The more fractionated, plagioclase-rich upper layers become mixed with the less fractionated lower layers via turbulent flow from the deep chamber. The sulphide droplets grow larger as they incorporate other droplets during transport. At the time of intrusion, the crystal mush consists of plagioclase crystals of nearly uniform composition, interstitial silicate magma, and droplets of sulphide liquid; there was little, if any, crystal-free magma in the chamber.
4. Following intrusion, minor settling of plagioclase crystals occurred, and plagioclase formed a framework for crystallization of the interstitial melt. The crystal mush cooled rapidly thereby inhibiting post-cumulus processes, such as complete internal equilibration of the system. A very small amount of volatile-rich interstitial melt migrated toward the center of the intrusion, crystallized granophyre, and released water into the surrounding gabbro, resulting in the formation of pegmatite.
5. Subsolidus reactions occurred involving local migration of components in deuteric fluid. This process results in features such as the replacement of pyrrhotite by chalcopyrite and the deposition of PGM in association with hydrous silicates; the last to form are microscopic chalcopyrite, calcite, and chlorite veinlets. The numerous documented features presumably reflect reactions that occur as the temperature decreases and the fluid evolves.

9 EXPLORATION

Shortly after acquiring the Marathon property from Stillwater Canada in July 2019, Gen Mining followed up on exploration targets previously developed by Stillwater Canada with a focus on the search for high-grade mineralization, as either density-accumulated semi-massive to massive sulphides or highly enriched PGM zones like the W-Horizon. Geological controls on these types of higher-grade mineralization require focused exploration along feeder conduits and provided opportunities for target generation at greater depths.

Exploration for density-accumulated semi-massive to massive sulphides was in part guided by a partnership, established in 2018 between Stillwater Canada and PACIFIC, a consortium of industry, government, and academic partners to conduct fundamental and applied research to develop passive seismic techniques for mineral exploration. The purpose of this work was to image the Coldwell Complex to a depth of 2 km, modelling the geometry of the Eastern Gabbro as a guide for future exploration. A production-scale survey was completed at the Marathon deposit and resulted in a 3D velocity inversion model (Figure 9-1). The survey successfully imaged the stepping boundary between the Archean footwall and Eastern Gabbro. The resolution of the passive seismic survey was also much improved over the gravity survey and is the first model showing the west-dipping footwall contact to the Coldwell Complex.

Figure 9-1: Passive Seismic 3D Velocity Inversion Showing the Marathon Deposit Relative to the Coldwell Complex



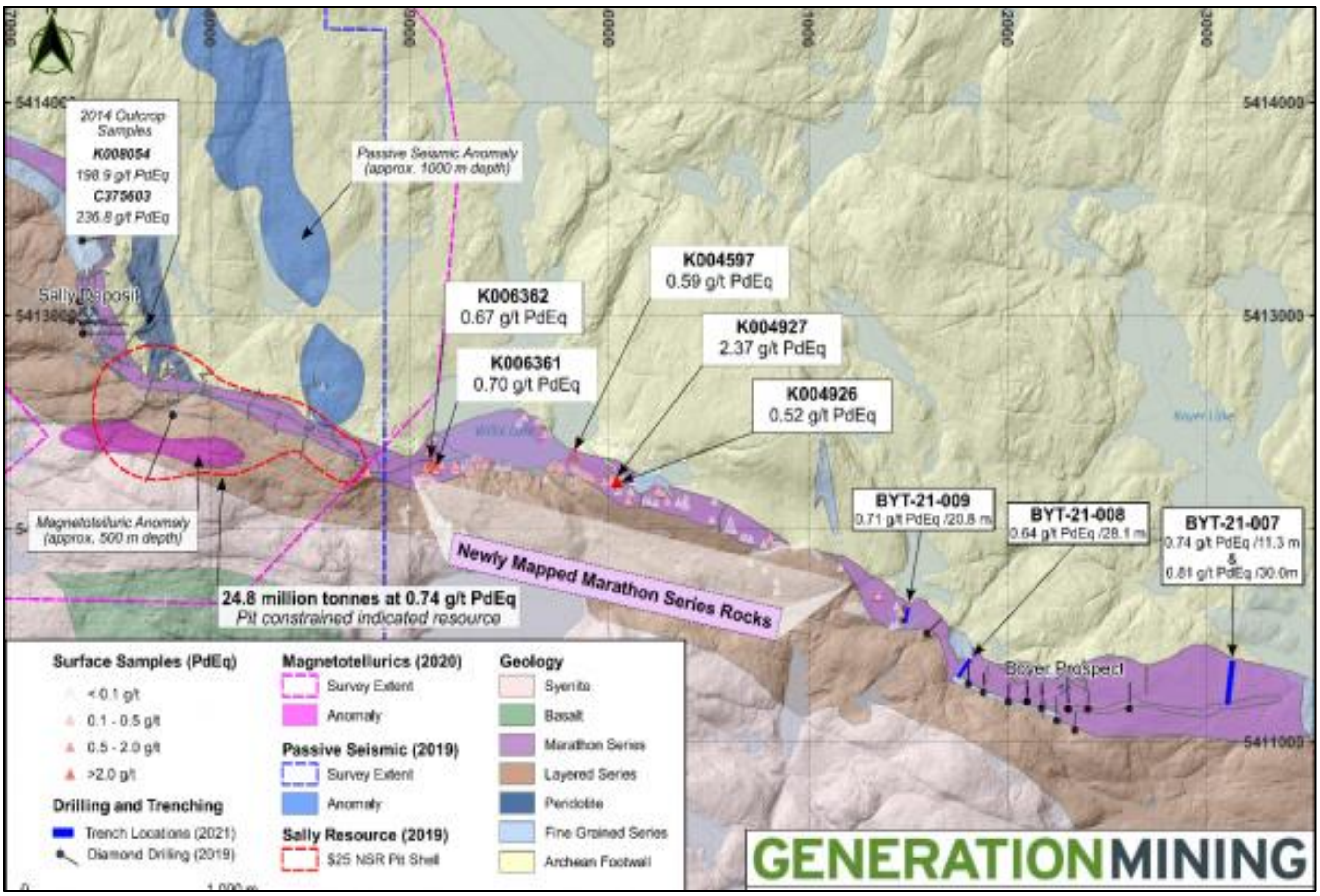
Note: View looking north. Source: Gen Mining (2021).

In 2019, exploration work by Gen Mining consisted of geologic mapping and prospecting at the Boyer zone and the northern extension of the Geordie deposit. Three trenches were completed at Boyer, exposing the continuation of mineralization at surface. A passive seismic survey was completed at the Sally deposit to help define deep high-density targets for potential drill testing. Borehole EM surveys were completed by Crone Geophysics on diamond drill holes SL-19-72, M-19-536 and M-19-537.

In 2020, to compliment the previous seismic surveys, a magnetotelluric (MT) survey was completed over a portion of the Marathon deposit and an area immediately to the west, which was thought to be underlain by one of the feeder zone conduits of the Marathon deposit. A MT survey was also completed over the Sally deposit and immediate environs. The 2020 MT survey at Marathon delineated one target for drill testing. MT targets at Sally are, as of the effective date of this report, under development. Borehole EM surveys were completed by Crone Geophysics on diamond drill holes M-20-539, M-20-543 and M-20-547.

In 2021, a field mapping program was carried out over four grids on the property. The Four Dams, Willie Lake and Redstone grids were planned to help better understand the continuity of the favorable Marathon series horizon in areas where modern mapping was sparse or non-existent. A small condemnation mapping program was carried out on the hilltop immediately west of the Marathon deposit, on which critical site infrastructure is planned as part of proposed mine development. The Willie Lake program was particularly successful in defining a broad, continuous sequence of Two Duck Lake gabbro extending from the Boyer prospect to the Sally deposit and extending the mapped prospective horizon by nearly 2 km. The best grab sample on this grid returned 2.08 g/t PGM and 0.17% Cu (Figure 9-2).

Figure 9-2: Boyer-Sally Area – 2021 Summer Mapping Program

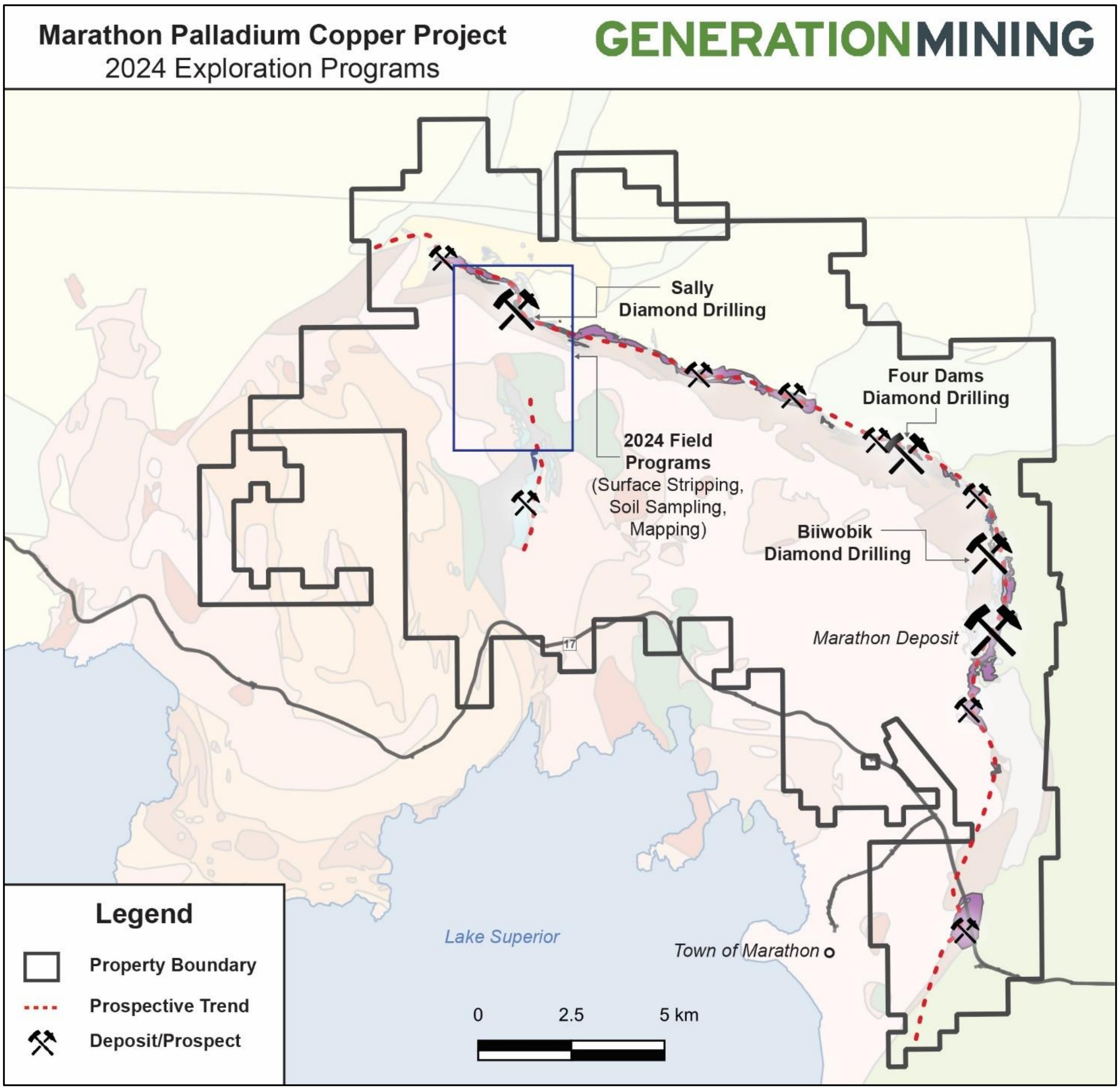


Source: Gen Mining news release, November 8, 2021.

In 2024, surficial field programs and a 2D prospectivity analysis were undertaken. The following summaries are derived largely from company press releases dated March 7, 2024 and July 26, 2024.

New surface stripping, soil sampling and geological mapping programs were planned at the Sally deposit and in the area between the Sally and Geordie deposits, where mapping and sampling by past operators had shown potential for significant copper mineralization (Figure 9-3).

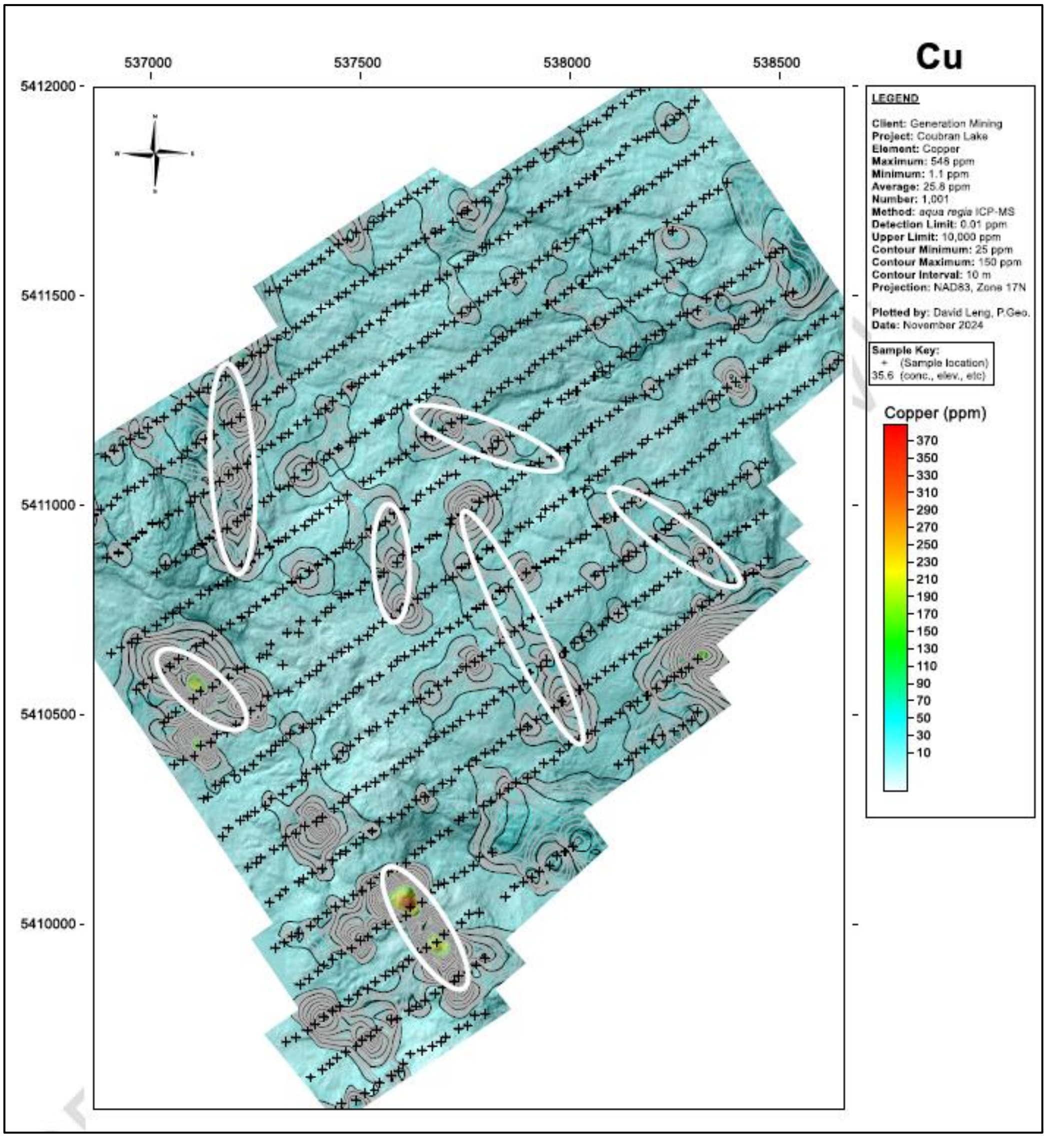
Figure 9-3: 2024 Exploration Programs



Source: Gen Mining (2024).

The Coubran A-horizon soil sampling program was completed in July 2024, and the final report was received from RGCI Inc. in December 2024. This program identified several discrete overlapping Cu and PGM anomalies that will be used to guide future prospecting in the area. A gridded contour map of Cu values with highlighted anomalies can be found in Figure 9-4.

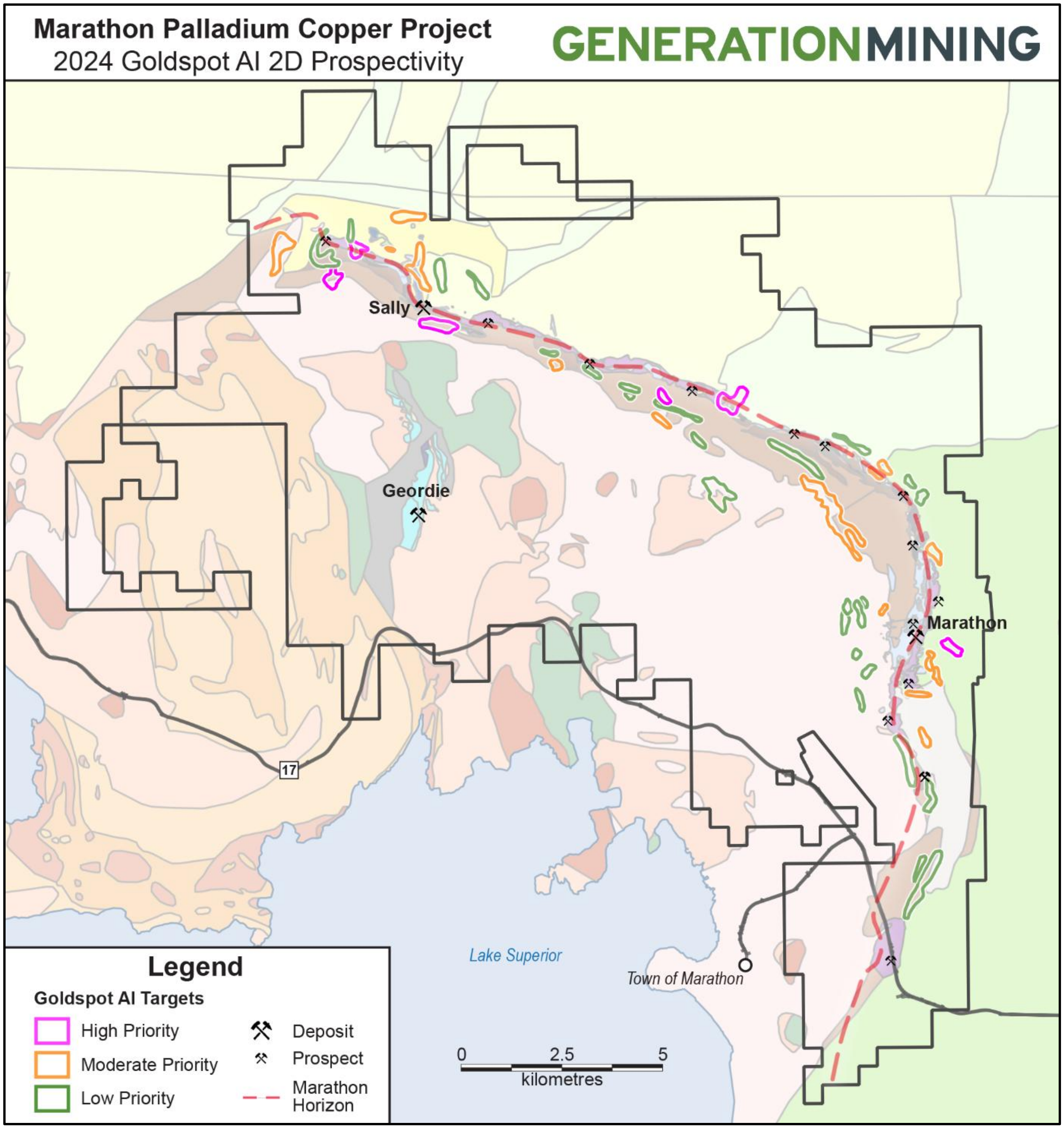
Figure 9-4: Copper Values with Highlighted Anomalies



Source: RGCI (2024).

From March to June 2024, Gen Mining engaged ALS Goldspot to review and analyse more than 60 years of historical surface exploration data using their artificial intelligence (AI) driven integrated 2D targeting technique. Targets were identified by comparing overlapping geophysical and geochemical signatures to those of known mineralization on the property. This work produced 46 untested exploration targets, six of which were ranked “high” priority and 14 “moderate” priority. The high priority targets were selected based on their similarities to other known deposits and prospects, upside size potential, and low density of surface prospecting data. These results will be used to guide surface stripping and mapping programs. The exploration targets are shown in Figure 9-4.

Figure 9-5: 2024 Goldspot AI 2D Exploration Targets

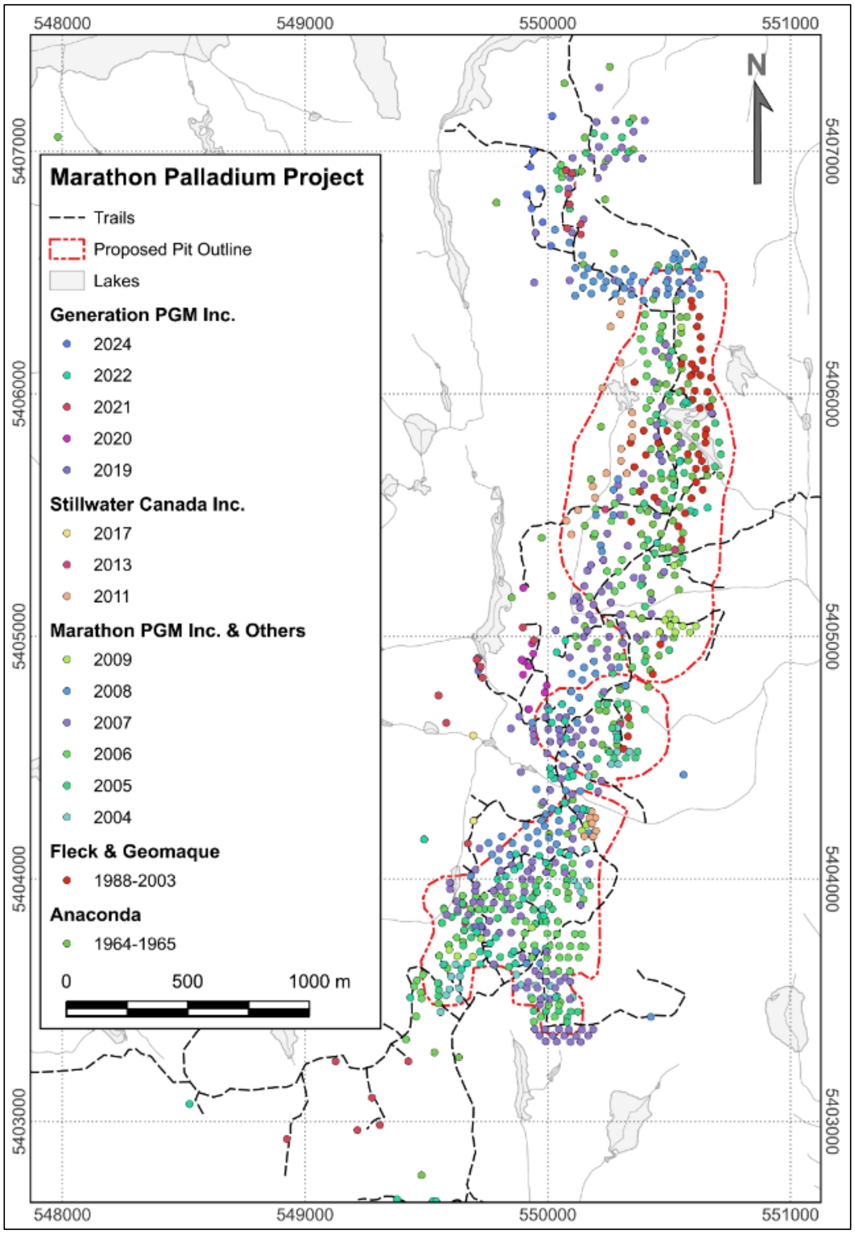


Source: Gen Mining (2024).

10 DRILLING

This section describes the drilling activities completed by Gen Mining from 2019 through 2024 on the Marathon deposit and surrounding targets. Drilling activities prior to 2019 are summarized in Section 6 of this report. Collar locations of all previous and current drill holes at the Marathon deposit are represented in Figure 10-1.

Figure 10-1: Diamond Drilling by Year at the Marathon Project



Source: Gen Mining (2024).

The QPs are not aware of any drilling, sampling or recovery factor issues that could materially impact the accuracy and reliability of the results. Generally, rock conditions on the Marathon property are very good, and core recovery issues are uncommon. In rare cases where there is notable core loss (>20% of a drill core run), the missing interval will be logged as "No Recovery" (NR). If the interval occurs within a mineralized zone, it will be represented as a gap in the sampling interval.

The 2024 drilling program results were not material to necessitate an update to the Mineral Resource Estimate.

10.1 2019 Exploration Drilling Program

The property had been underexplored during a time of very low palladium prices. In 2019 Gen Mining's goal was to confirm historical results, evaluate the potential to expand known mineral resources, and drill test several exploration targets. In 2019, Gen Mining completed 39 NQ diamond drill holes totalling 12,434.5 m, which included 1,023 m of confirmation drilling. Results were consistent and validated historical drill results (Table 10-1).

Table 10-1: 2019 Drilling Program

Deposit	Target	No. Holes Drilled	Meters Drilled
Marathon	Confirmation/Infill	5	1,023
Marathon	West Feeder Zone near Main Zone	6	3,484
Boyer	Greenfield Exploration Drilling	14	3,063
Geordie	Two Offsets	8	2,587
Sally	High- Grade Samples and Massive Sulphides	6	2,278
Total		**39**	**12,435**

Drilling of various geophysical targets within the West Feeder Zone, and approximately 1.4 km west of the Marathon deposit, confirmed that Target A, as described in Section 6.3 and shown in Figure 6-3 and Figure 6-4, probably represents a high-density olivine and magnetite-rich phase of the layered series gabbro. Drill holes M-19-537 and M-19-538, which were completed approximately 350 m west of the Marathon deposit, intersected significant widths (102 m and 80 m, respectively) of Marathon series rocks down dip from the Marathon deposit. Results from drill holes M-19-537 and M-19-538 confirmed the continuation of the Marathon deposit to the south side of the 5,404,900 N fault, which is considered to have provided a locus for the feeder conduit to the Marathon deposit and the north part of the W-Horizon, which hosts high-grade PGM mineralization.

Additionally, Gen Mining completed 14 holes for 3,063 m on the Boyer Zone area, six holes totalling 2,278 m in the Sally deposit area, and eight holes totalling 2,587 m in the Geordie area.

Drilling at Sally significantly extended the mineralized zone along strike and down dip. Boyer, which had not been previously drilled, is currently a 500 m long prospective horizon displaying anomalous subeconomic PGM concentrations. Significant mineralization was not intersected at Geordie, where the program focused on reconnaissance drill testing of gabbro intrusions proximal and similar to the gabbro hosting the Geordie deposit.

Data from the 2019 drill program were incorporated where appropriate into the 2020 Mineral Resource Estimate for the Marathon deposit; however, they were not incorporated in the 2020 Mineral Resource Estimate for the Sally deposit. In 2019, drilling was not completed within the Geordie deposit mineral resource domains.

10.2 2020 Exploration Drilling Program

In 2020, Gen Mining completed 12 NG diamond drill holes totalling 5,068 m (Table 10-2). The drilling focused on the feeder zone conduit associated with the main Marathon deposit and the northern limb of the W-Horizon. This drilling followed the successful completion of drill holes M-19-537 and M-19-538, which intercepted the down-dip continuation of the main Marathon deposit for the first time.

The 2020 drilling filled a 300 m gap between the historical drilling and the 2019 drilling south of the 5404900 N fault. Additional targets included the conductive zone west of the Marathon deposit identified in the 2020 MT survey and the down-dip extension of high-grade PGM mineralization in the W-Horizon.

Table 10-2: 2020 Drilling Program

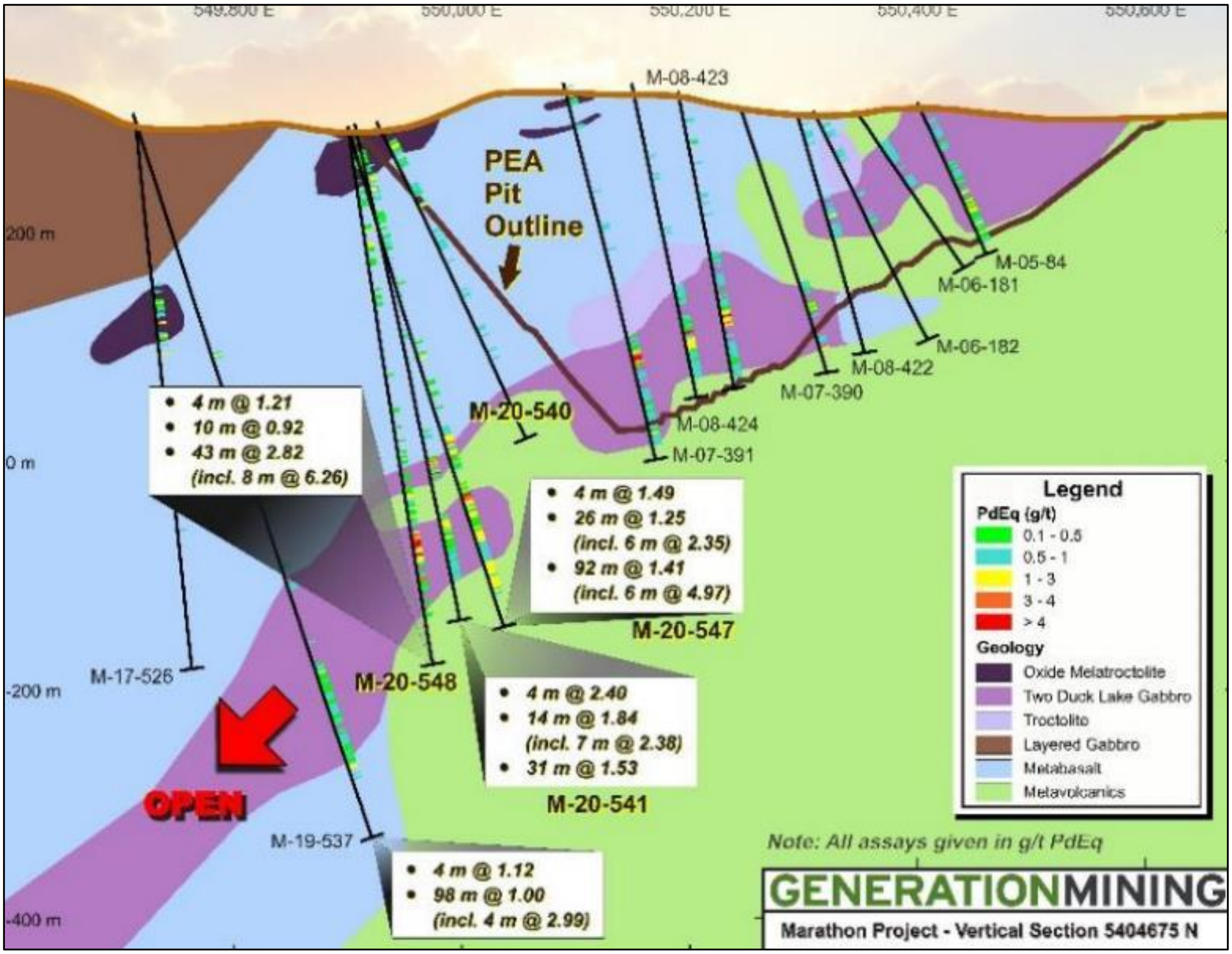
Deposit	Target	Completed	Meters Drilled
Marathon	MT Target	1	711
Marathon	West Feeder Zone	7	2,988
Marathon	W-Horizon	4	1,369
Total		**12**	**5,068**

The principal aim of the 2020 exploration drill program was to test for the potential of near-surface, ramp-accessible mineralization. PGM mineralization was not intersected in drill hole M-20-539, which tested the MT target north of the 54048900N fault; however, significant intervals of PGM mineralization were intersected in drill holes testing the West Feeder Zone and extensions to the W-Horizon south bracketed by the 5404900N and 5404500N faults.

Assay results from selected drill holes are shown as g/t PdEq in a vertical section and in a plan view of the West Feeder Zone area (Figure 10-2 and Figure 10-3). Here, down-hole lengths approximate true thicknesses.

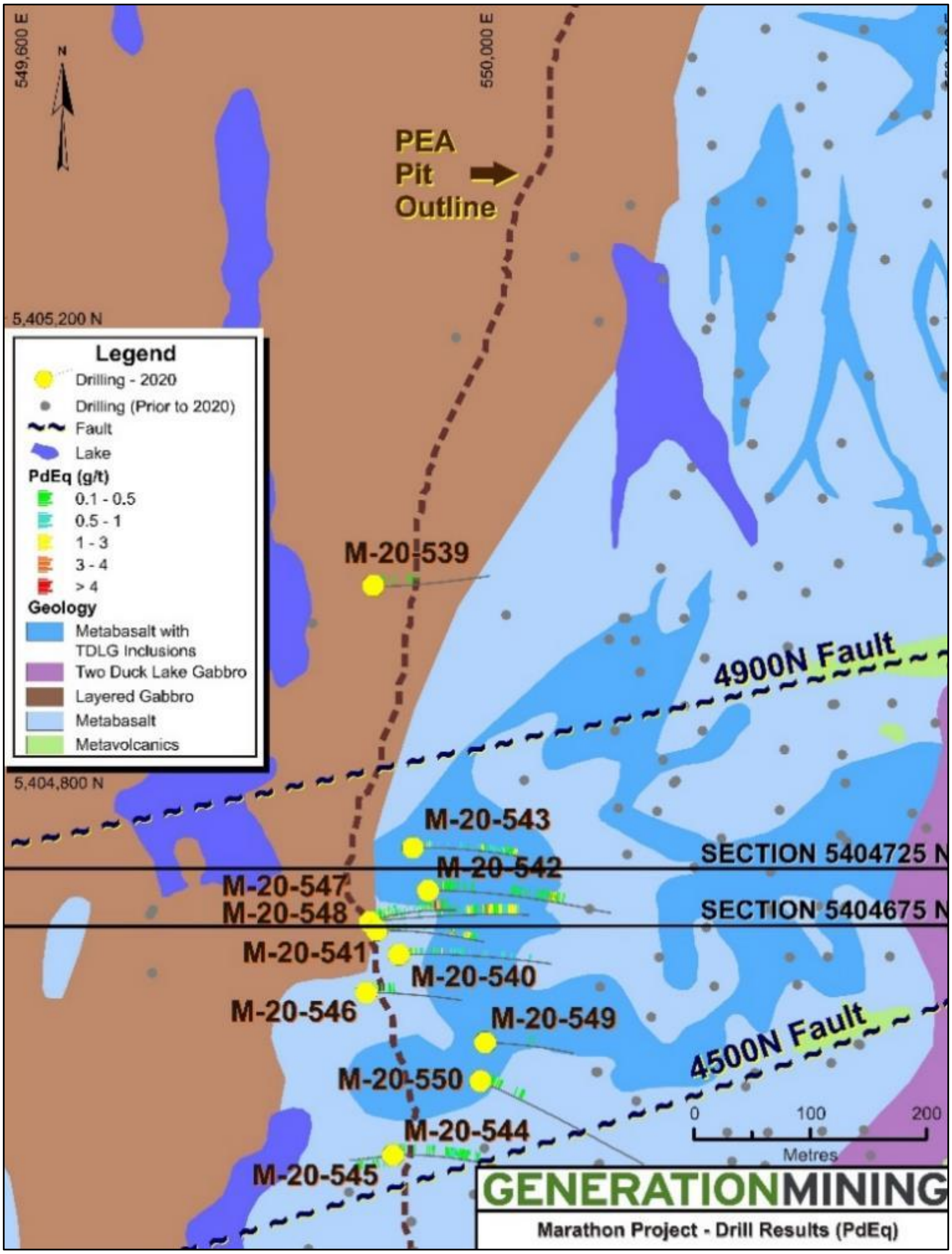
The palladium equivalent calculation, expressed in grams per tonne, is the sum of the theoretical in-situ value of the constituent metals (Au+Pt+Pd+Cu) divided by the value of 1 g of Pd. The calculation makes no provision for expected metal recoveries or smelter payables. The following commodity prices were used in the calculation: US$1,300/oz Au, US$900/oz Pt, US$1,275/oz Pd, and US$3.00/lb Cu.

Figure 10-2: Marathon Deposit – Vertical Section 5404675 N



Source: Gen Mining news release: January 5, 2021.

Figure 10-3: Marathon Deposit – Plan Views of the West Feeder Zone (Drill Results PdEq)



Source: Gen Mining news release: January 5, 2021.

10.3 2021 Exploration Drilling Program

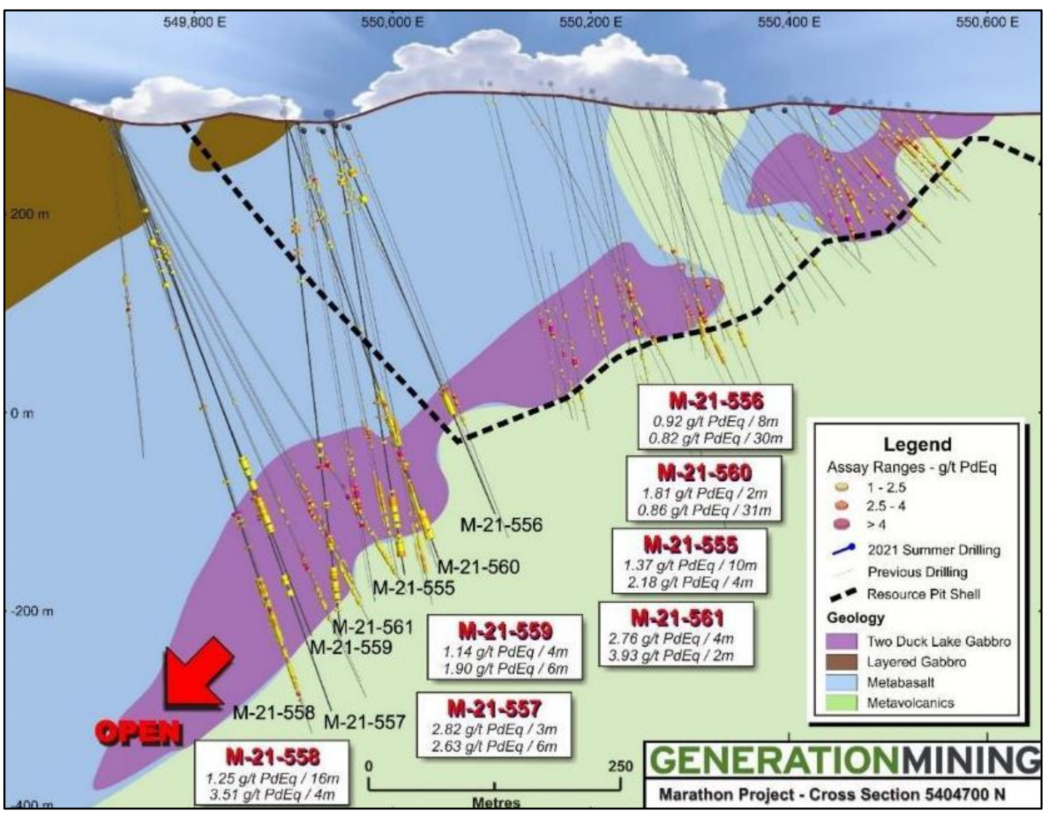
In 2021, Gen Mining completed 22 NQ diamond drill holes totalling 9,875.2 m on the Marathon deposit and the Biiwobik Prospect (Chonolith and Powerline Zones) to the north of the Marathon deposit (Table 10-3).

Table 10-3: 2021 Drilling Program

Deposit	Target	No. Drill Holes Completed	Metres Drilled
Marathon	Central Feeder Zone	11	5,735
Marathon	Biiwobik Prospect	11	4,140
Total		**22**	**9,875**

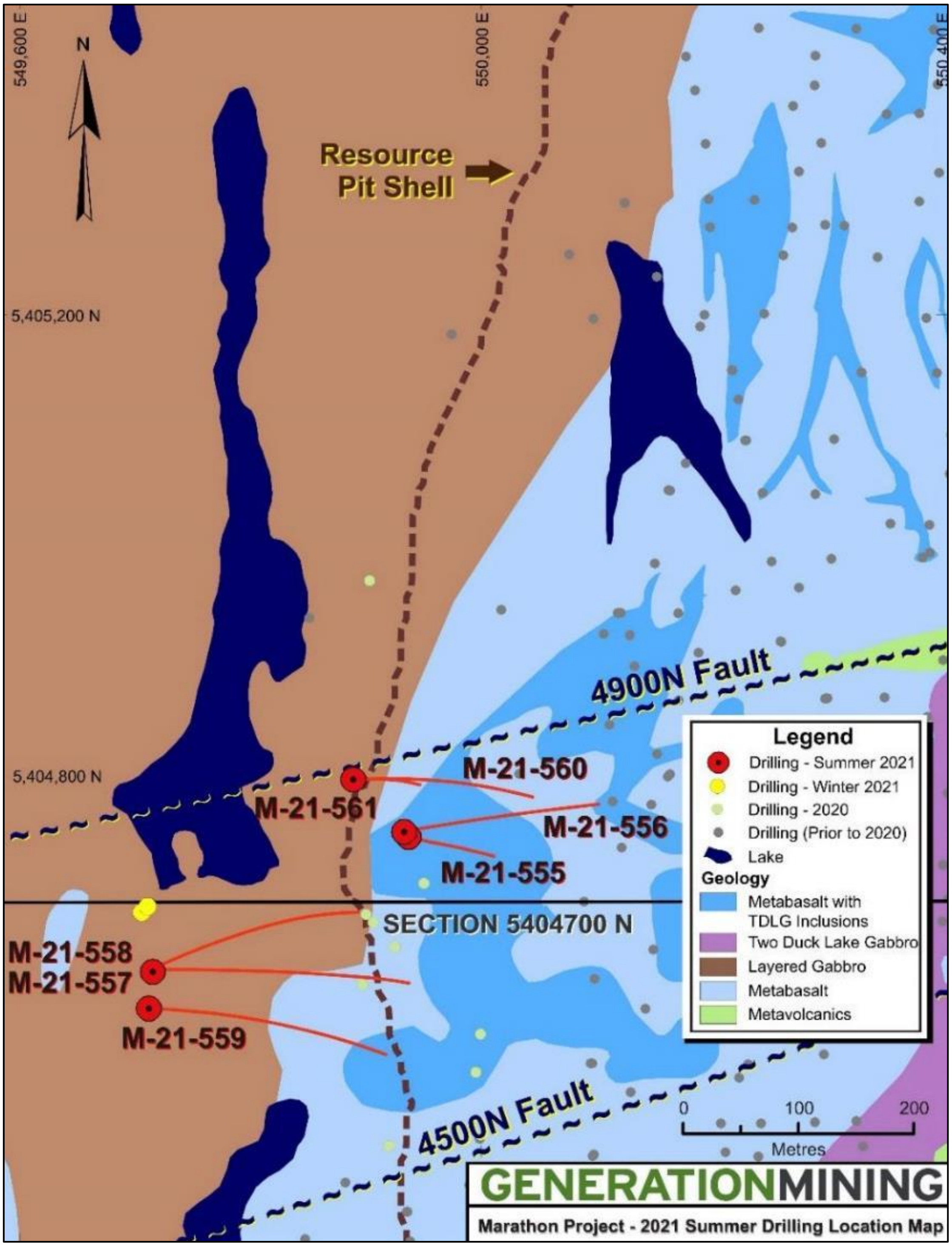
Following the success of the 2020 drilling program, 11 drill holes totalling 5,735.2 m targeted the potential down-dip feeder channels for both the Main Zone and W-Horizon. Assay results from selected drill holes (shown as g/t PdEq) are shown in a vertical section in Figure 10-4 and in plan view of the West Feeder Zone area in Figure 10-5. Downhole lengths approximate true thicknesses. The following commodity prices were used in the calculation of PdEq within this section: US$1,400/oz Au, US$1,000/oz Pt, US$1,725/oz Pd, and US$3.20/lb Cu.

Figure 10-4: Marathon Deposit – Vertical Section 5404700



Notes: The mineral resource pit shell shown is that from the 2021 feasibility study. View looking north. Source: Gen Mining news release: August 17, 2021.

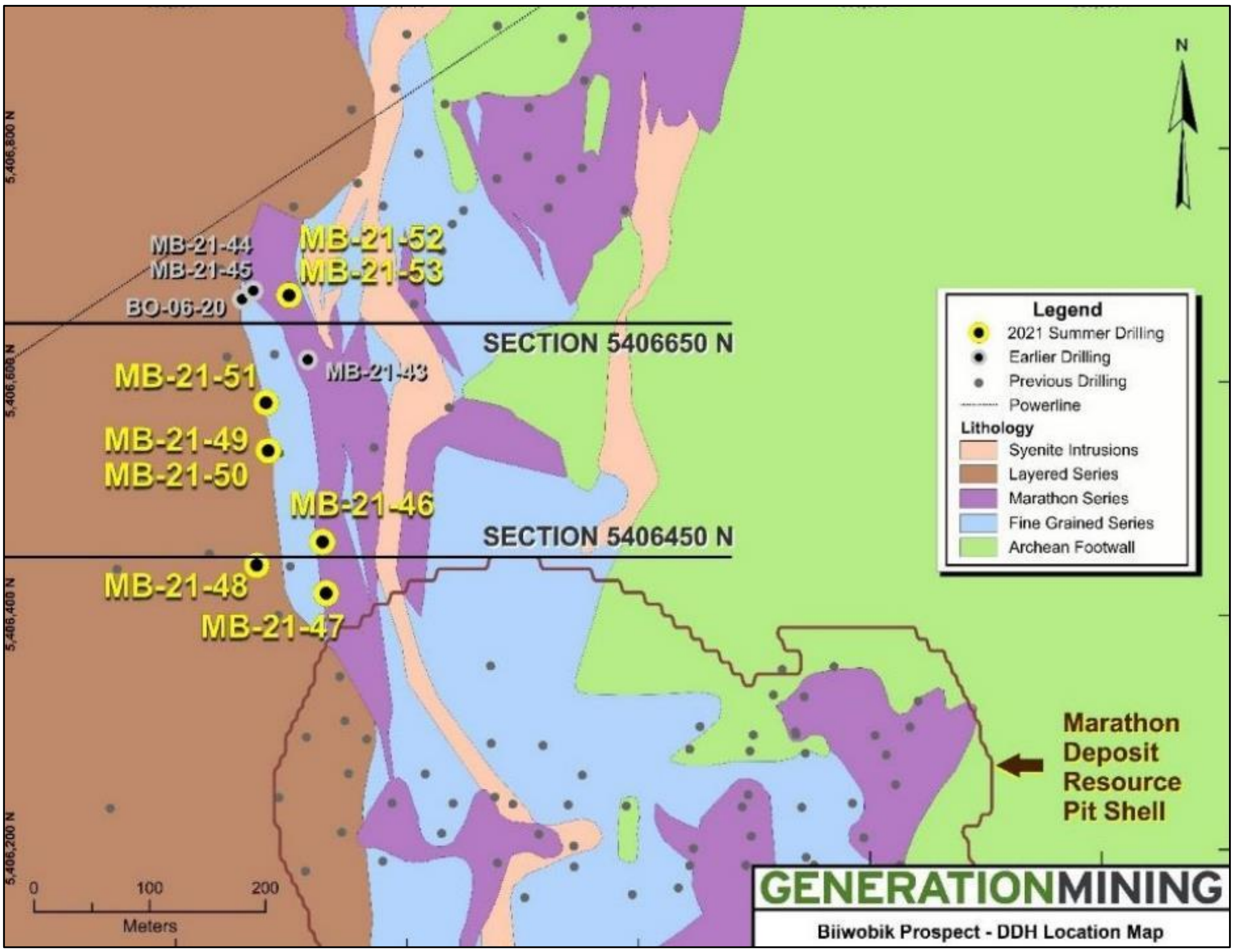
Figure 10-5: Marathon Deposit – Plan Views of the Central Feeder Zone – 2021 Drill Locations



Source: Gen Mining news release: August 17, 2021.

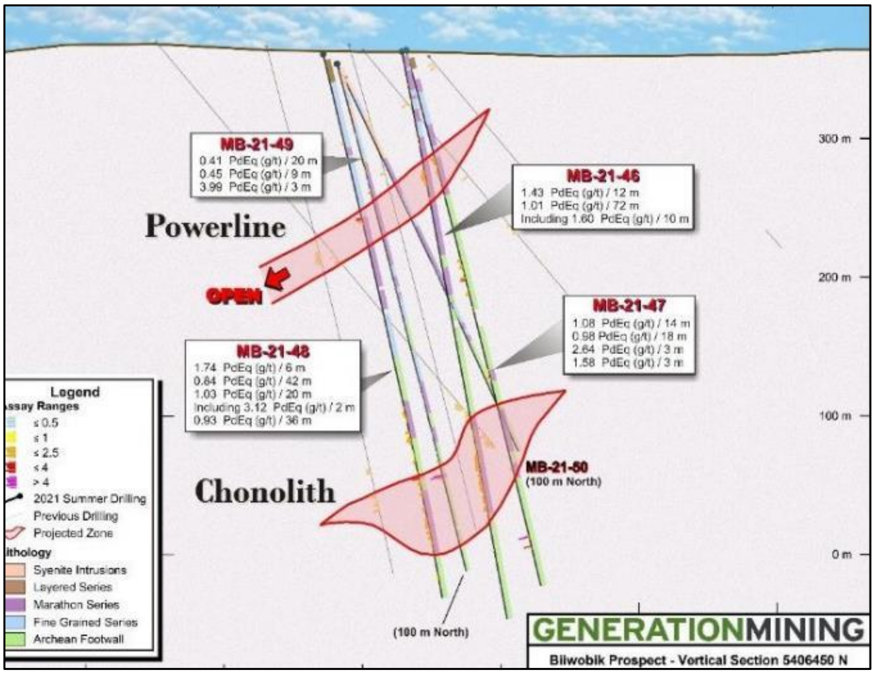
An additional 11 drill holes totalling 4,140 m focused on the Biiwobik prospect, which includes the chonolith zone and the newly defined powerline west occurrences. The Chonolith zone represents a tube-like feeder channel that is presumed to be continuous and extends approximately 300 m N-NW from the northern extent of the Marathon deposit. Wide mineralized intercepts in drill holes MB-21-43 (0.82 g/t PdEq over 135 m) and MB-21-46 (1.10 g/t PdEq over 72 m) demonstrated the economic potential of this zone. The powerline west occurrence represents near-surface mineralization (<100 m vertical depth) that overlies the chonolith zone, and is highlighted by MB-21-44 (1.08 g/t PdEq over 80 m) and MB-21-45 (1.78 g/t PdEq over 46 m). Both the chonolith and powerline west occurrences remain open down dip and along strike. Assay results from selected drill holes (shown as g/t PdEq) are shown in a plan view of the West Feeder Zone area and vertical sections 5406450N and 5406650N in Figure 10-6 to Figure 10-8. Downhole lengths approximate true thicknesses.

Figure 10-6: Biiwobik Prospect – Plan View of the 2021 Drill Locations



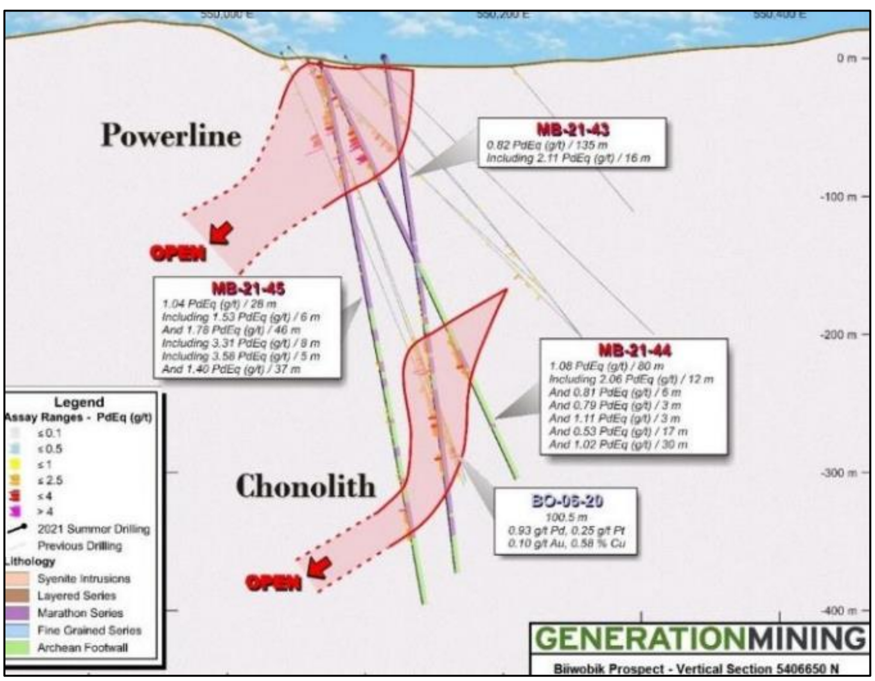
Note: The Marathon deposit mineral resource pit shell shown is that from the 2021 Technical Report. Source: Gen Mining news release: November 8, 2021.

Figure 10-7: Biiwobik Prospect – Vertical Section 5406450



Source: Gen Mining news release: November 8, 2021.

Figure 10-8: Biiwobik Prospect – Vertical Section 5406650



Source: Gen Mining news release: September 2, 2021.

10.4 2022 Resource Definition Drilling Program

In 2022, Gen Mining completed 46 NQ diamond drill holes for 7,540 m and 5 HQ diamond drill holes for 528 m focused within the Marathon mineral resource in areas of lower drill density (Table 10-4). An additional 125 m NQ diamond drilling was completed to extend hole M-21-551, which was abandoned during the 2021 drilling campaign due to technical issues.

Table 10-4: 2022 Drilling Program

Deposit	Target	No. Drill Holes Completed	Metres Drilled
Marathon	North Pit	5	821
Marathon	Central Pit	12	2,210
Marathon	South Pit	31	4,296
Marathon	Central Feeder	2	741
Marathon	M-21-551 Extension	1	125
Total		**51**	**8,193**

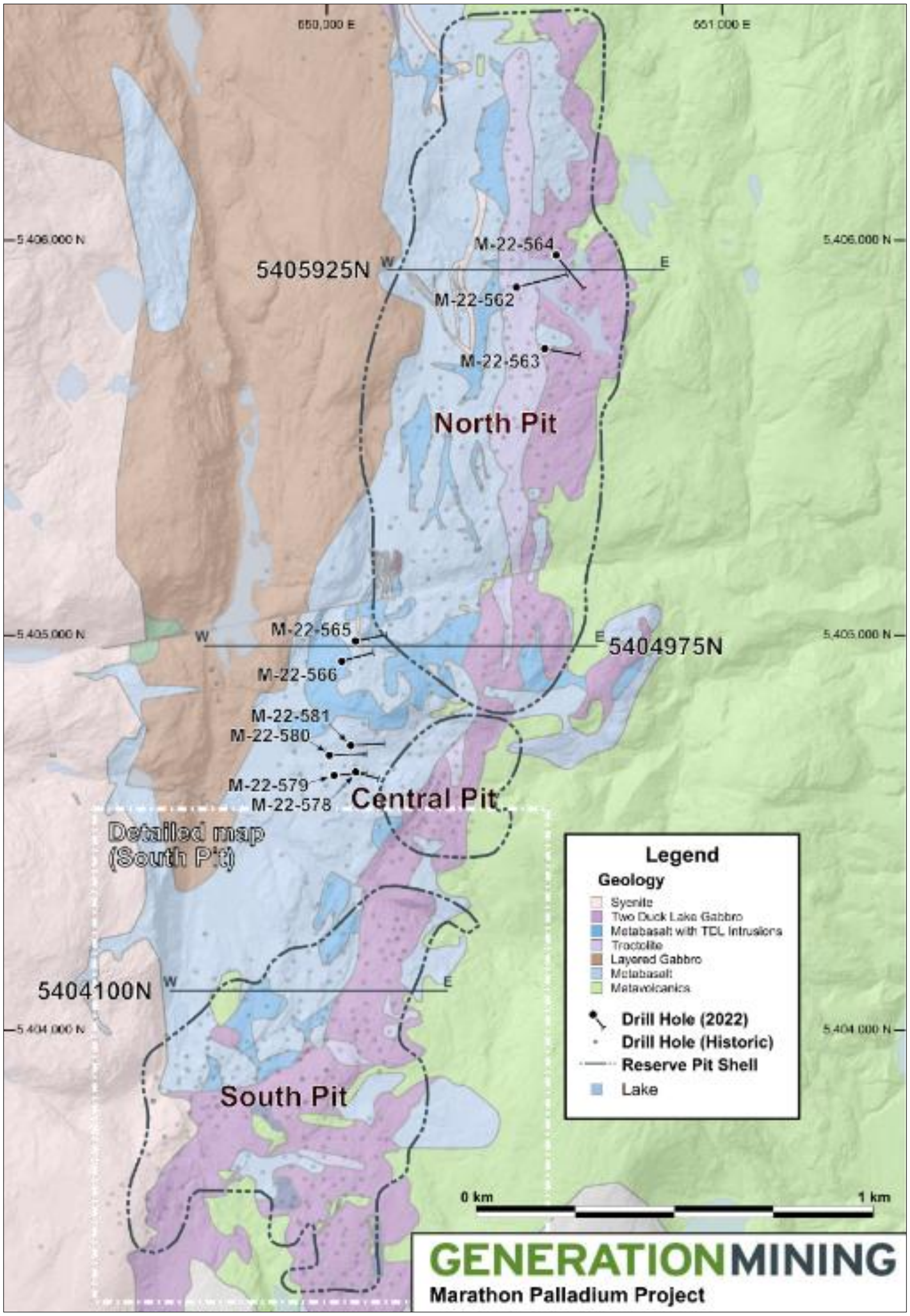
Much of the 2022 drill program was aimed at de-risking the mineral resources by testing and confirming high-grade mineralization scheduled in the first three years of mining.

Assay results from selected drill holes in the North and Central pits (shown as g/t total PGM) are shown in plan view and vertical sections 5405925N and 5404975N in Figure 10-9 to Figure 10-11.

Assay results from selected drill holes in the South pit (shown as g/t total PGM) are shown in plan view and vertical section 5404100N in Figure 10-12 and Figure 10-13.

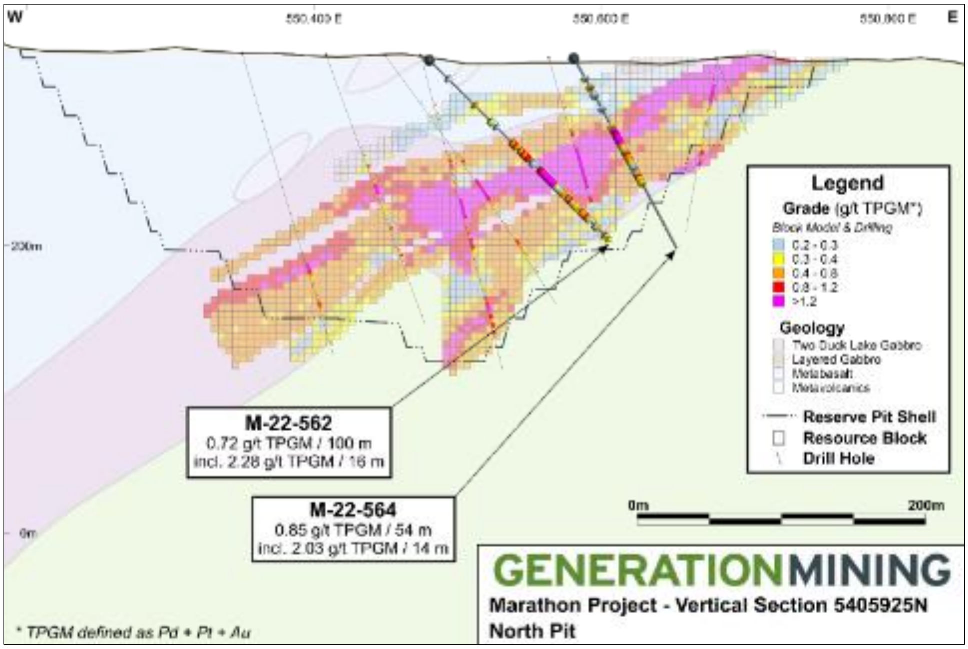
Total PGM is the sum of Pd, Pt, and Au in grams per tonne, and excludes Cu.

Figure 10-9: North and Central Pit Areas – Plan View of the 2022 Drill Locations



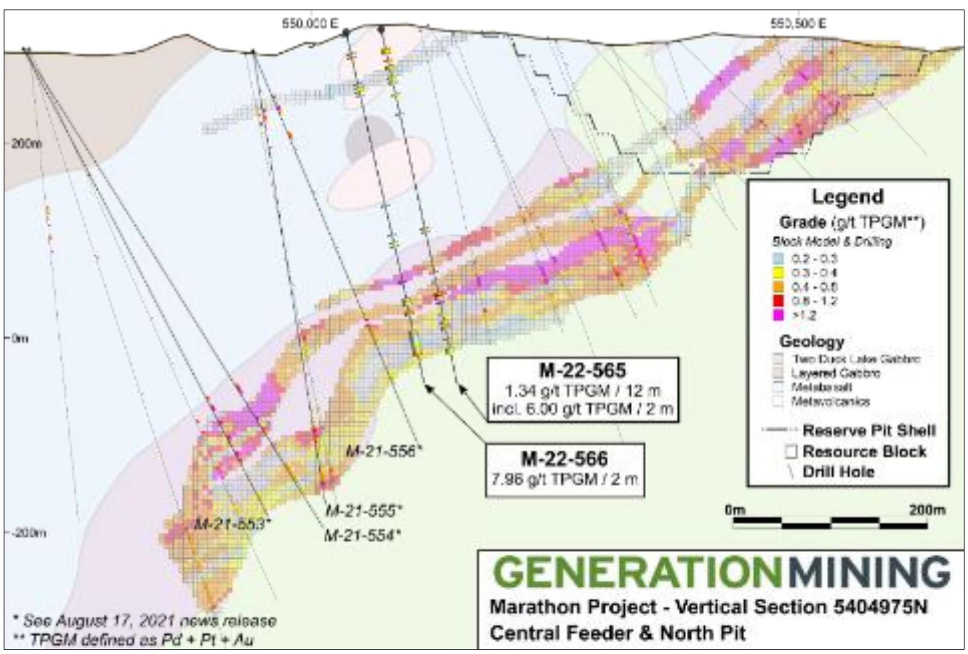
Source: Gen Mining (2022).

Figure 10-10: North Pit – Vertical Section 5405925N



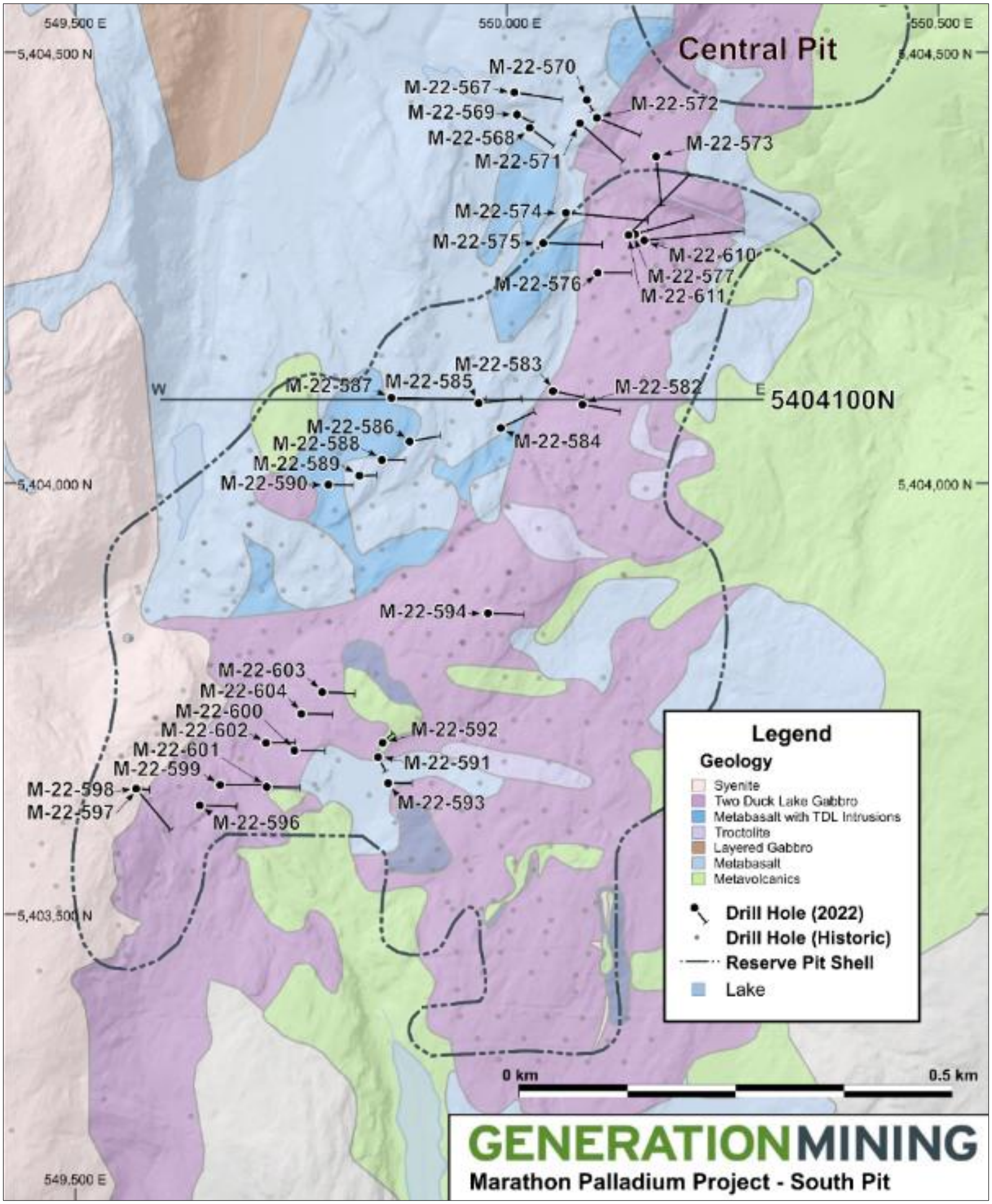
Source: Gen Mining (2022).

Figure 10-11: Central Feeder – Vertical Section 54049750N



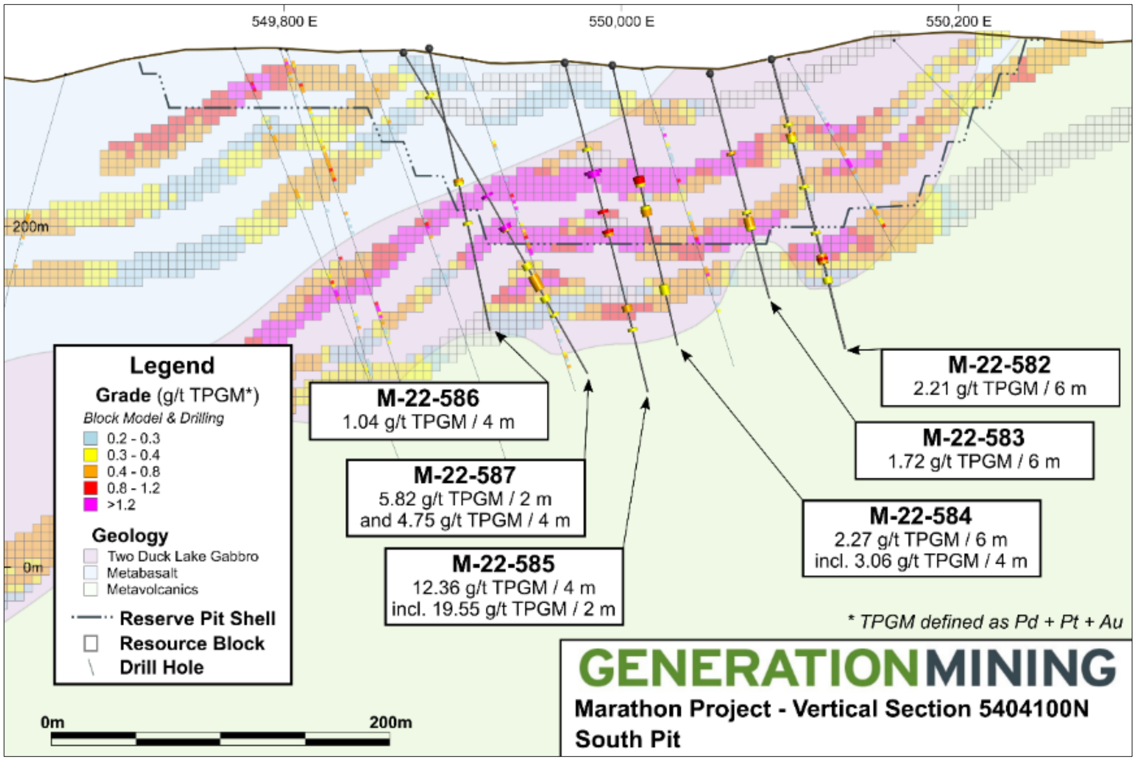
Source: Gen Mining (2022).

Figure 10-12: South Pit Area – Plan View of the 2022 Drill Locations



Source: Gen Mining (2022).

Figure 10-13: South Pit – Vertical Section 5404100N (Looking North)



Source: Gen Mining (2022).

10.5 2024 Exploration Drilling Program

In 2024, Gen Mining completed an aggregate 6,871 m NQ and BQ drilling campaign at the Biiwobik and Four Dams prospects and the Sally deposit (Table 10-5). The commodity prices were used in the calculation of PdEq and CuEq within this section: US$1,800/oz Au, US$1,100/oz Pt, US$1,500/oz Pd, and US$3.20/lb Cu.

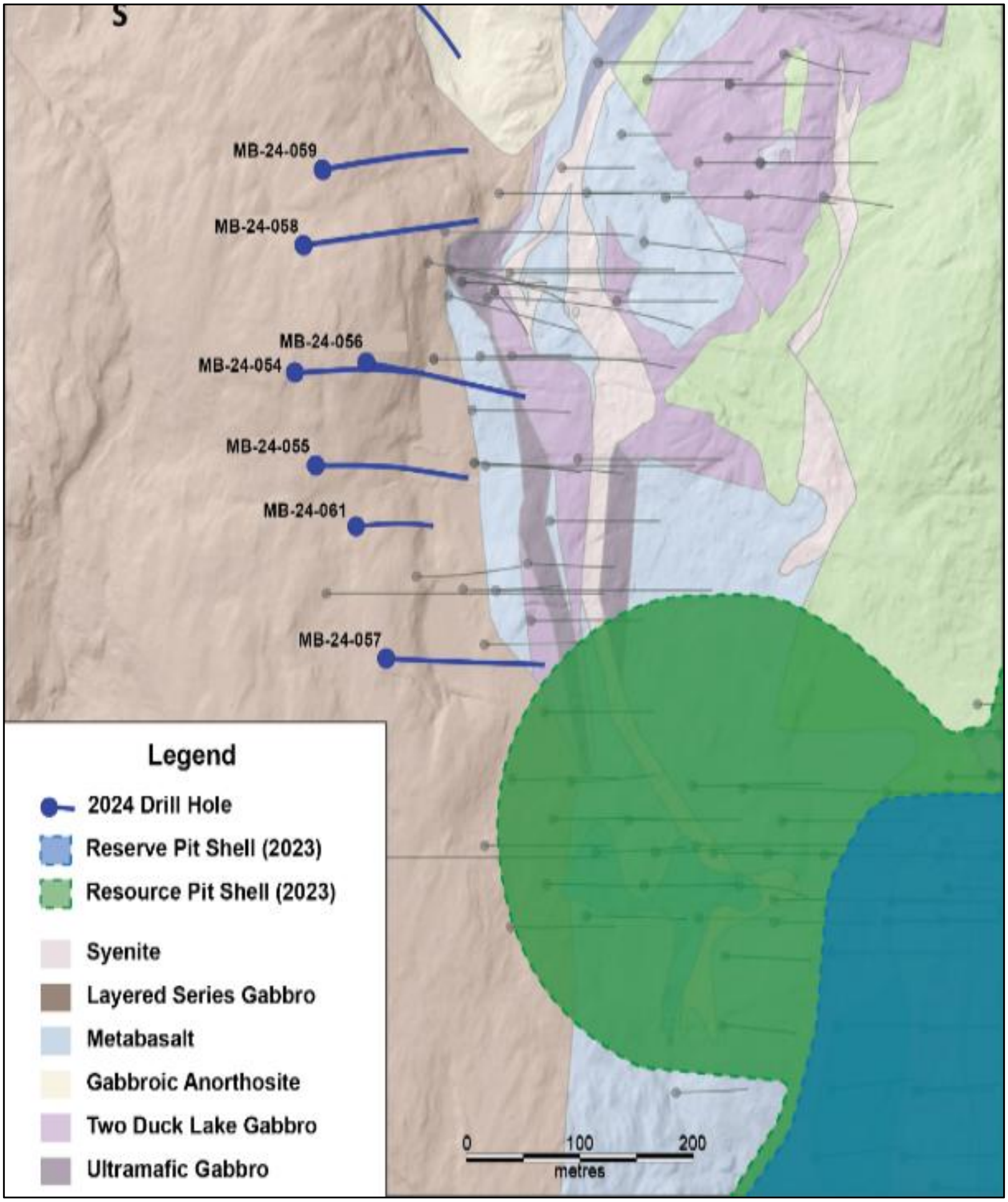
Table 10-5: 2024 Drilling Program

Deposit	Target	No. Drill Holes Completed	Metres Drilled
Marathon	Biiwobik Prospect	8	3,447
Sally	Deep MT Anomaly	1	954
Four Dams	Main Pipe & Eastern Extension	5	2,470
Total		**14**	**6,871**

The Biiwobik program totalled 3,447 m in 8 NQ diamond drill holes and was focused on testing the down-dip extensions and northern extent of the powerline and chonolith zones. The program successfully extended the Biiwobik prospect by approximately 150 m, with the best intercept being 8.0 m at 0.85% Cu, 2.48 g/t Pd, 0.57 g/t

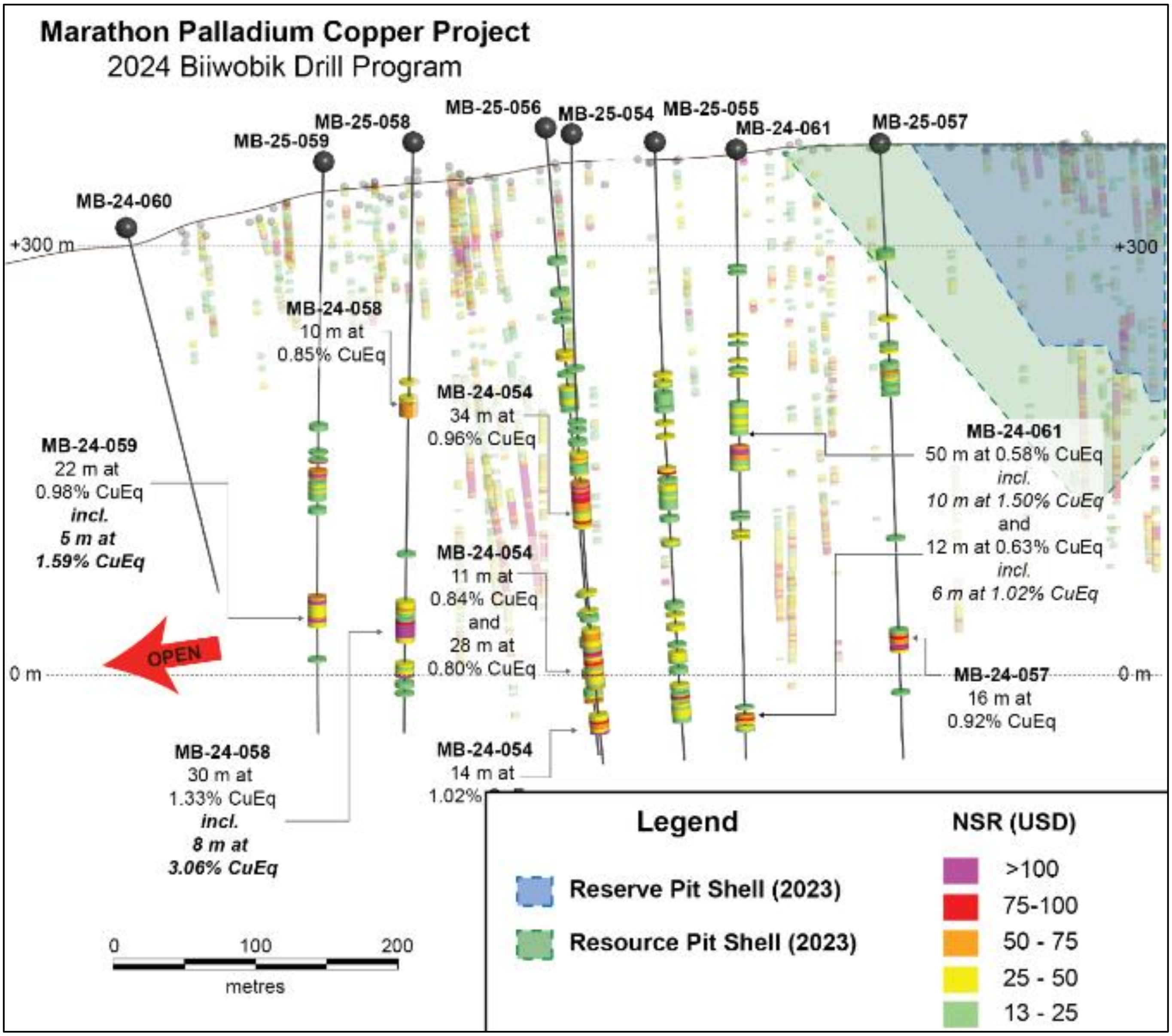
Pt, and 0.22 g/t Au in drill hole MB-24-058. Plan and long section views are shown in Figure 10-14 and Figure 10-15, respectively.

Figure 10-14: Biiwobik Prospect – Plan View of the 2024 Drill Locations



Source: Gen Mining (2024).

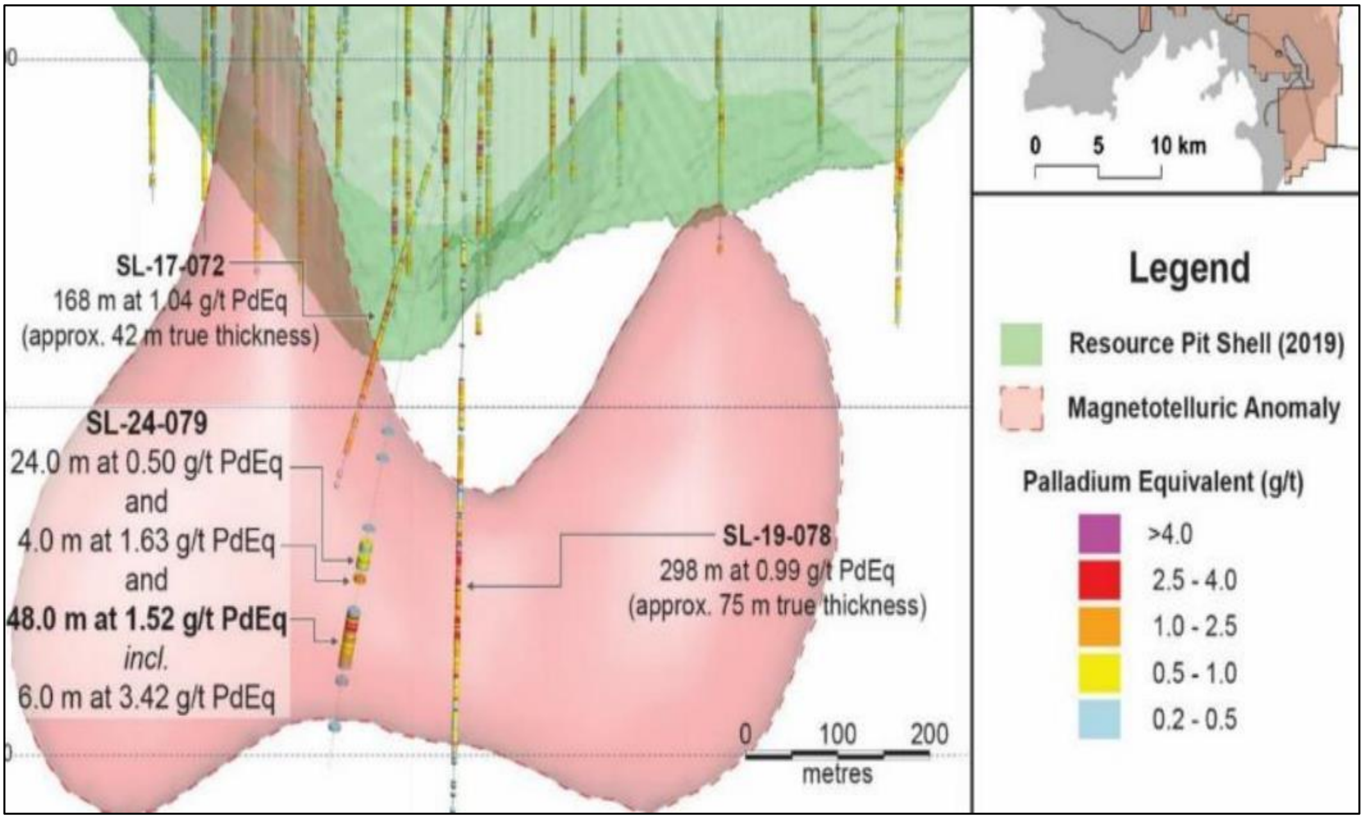
Figure 10-15: Biiwobik Prospect – Longitudinal Section of 2024 Drilling



Source: Gen Mining (2024).

The Sally deposit drill program consisted of a single BQ diamond drill hole totalling 954 m and was designed to target a large magnetotelluric (MT) anomaly down-dip from that deposit (Figure 10-16). The drill hole successfully intersected a wide interval of disseminated sulphide mineralization that corresponded to the MT anomaly, with the best intercept being 48 m at 0.74 g/t Pd, 0.18% Cu, 0.46 g/t Pt, 0.13 g/t Au and 0.94 g/t Ag.

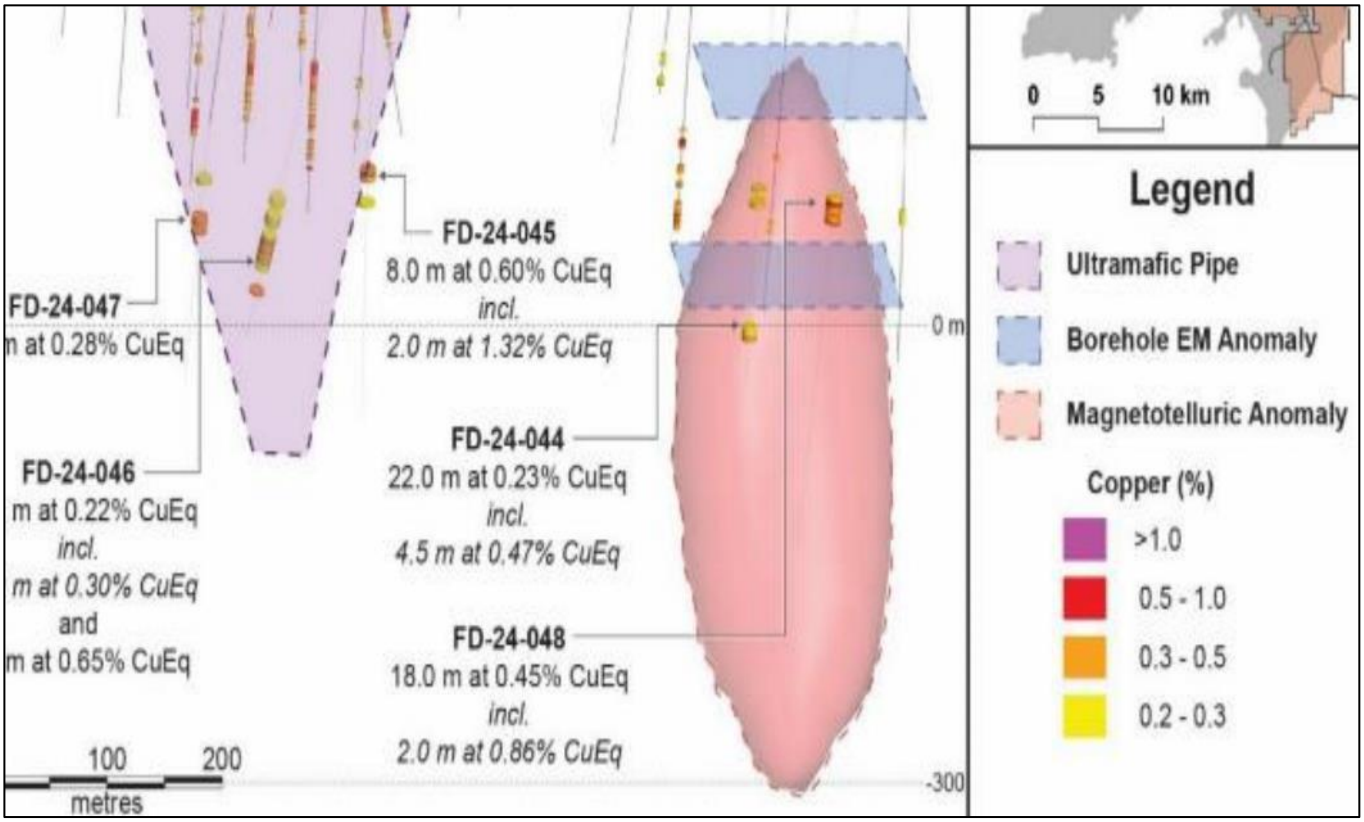
Figure 10-16: Sally Deposit – Longitudinal Section of 2024 Drilling (Hole No. SL-24-079)



Source: Gen Mining (2024).

The Four Dams program totalled 2,470 m in 5 NQ diamond drill holes and was designed to test the down-dip and eastern extension of the Four Dams prospect, including a large untested magnetotelluric target 400 m east of the main Four Dams occurrence (Figure 10-17). Drill hole FD-24-046, in testing the main pipe, encountered 74 m of mineralized ultramafic rock; the best interval being 24 m grading 0.29% Cu with nominal PGMs. This drill hole also intercepted 2 m of basal massive sulphides that graded 0.59% Cu, 0.02 g/t Pd, 0.03 g/t Pt and 0.03 g/t Au. Drill holes FD-24-044 and FD-24-048 confirmed the association between disseminated sulphides and the eastern MT anomaly, with the best intercept being 18 m at 0.25% Cu, 0.16 g/t Pd, 0.04 g/t Pt and 0.07 g/t Au.

Figure 10-17: Four Dams Prospect – Longitudinal Section of 2024 Drilling



Source: Gen Mining (2024).

11 SAMPLE PREPARATION, ANALYSES, AND SECURITY

11.1 Introduction

This section documents historical sampling protocol defined by past operators, including Python Mining Consultants Inc. (Python) (2010) and Nordmin Engineering Ltd. (Nordmin) (2014), and outlines the sampling protocols (preparation, analysis, and security procedures) instituted and used by Marathon PGM in their drilling and rock sampling programs. These protocols are consistent with those reported in earlier NI 43-101 technical reports issued by Marathon PGM and Gen Mining on the property.

11.1.1 Sampling Method and Approach

During the earlier drilling programs, drill core was logged and sampled on the property. In more recent programs (including the Company's 2019, 2020, 2022 and 2024 drilling programs), drill core was transported from the property to a drill core logging facility in the Town of Marathon. A geologist was responsible for logging the drill core and marking sample intervals. Samples were collected at 1 or 2 m intervals in all significant mineralized zones and from known mineralized rock units. Some samples were shortened to <1 m at the logging geologist's discretion and samples from known non-mineralized zones were sampled at up to 3 m intervals. Sampling was continuous wherever possible to minimize potential continuity problems during mineral resource modelling. At least two samples were collected before and after each mineralized domain to help estimate dilution.

The beginning and end of each sample was marked with a wax crayon, and a sample tag was placed at the beginning of each sample. The drill core was also marked with a line along the length of the drill core to indicate where the drill core was to be cut in half. The drill core was then cut using a wet saw with a diamond blade. One half of the cut core was placed in a sample bag and sent for assay and the other half remained in the box as a permanent record or in some cases to be utilized for additional metallurgical test work. The duplicate samples were prepared by splitting the remaining halved core leaving only quartered drill core in the box.

Each sample bag had a numbered identification (ID) tag placed inside along with the sample before being sealed. The sample ID number was also written on the outside of the sample bag. The position of the samples on the remaining half drill cores was marked with a corresponding ID tag. Samples were then grouped into batches before being placed into rice bags. Each rice bag was also sealed and labelled before being dispatched. From 2011 to present, samples were no longer grouped in batches, instead each drill hole had its own batch.

The sealed rice bags were kept on site in a secure storage area until the batch was ready to be shipped, at which point they were delivered directly by Company personnel or placed on pallets and shipped via courier to the ALS preparation facilities in Thunder Bay. Upon arrival at the laboratory, ALS personnel would check each rice bag to ensure all seals were in place and there was no sign of tampering, and report back any damaged or missing samples.

11.1.2 Laboratory Protocols

Prior to 2011, all drill core samples were sent for preparation and analysis to Accurassay in Thunder Bay. From 2011 to 2024, all drill core samples were sent for preparation to ALS Minerals in Thunder Bay and subsequent analysis to the ALS Vancouver facility.

During the 2006 to 2010 drilling programs, samples were delivered either by Marathon PGM personnel or shipped via courier to Accurassay's facilities (acquired by AGAT Laboratories (AGAT) in 2017) in Thunder Bay, Ontario. When samples were deemed to be high priority, they were transported from the property by helicopter to the Greyhound Bus Lines station in the Town of Marathon, from where they were shipped via bus to Accurassay in Thunder Bay. Upon receipt of the samples, Accurassay personnel would ensure that the seals on rice bags and individual samples had not been tampered with.

Accurassay (now AGAT) is independent of Gen Mining and provides analytical services to the mining and mineral exploration industry. Accurassay has been accredited for analysis of Au, Pt, Pd, Cu, Ni and Co under ISO/IEC Guideline 17025 by the Standards Council of Canada and is registered under ISO 9001:2000 quality standard.

In 2011, Stillwater Canada changed assay laboratories and initiated analyses at ALS Chemex Labs Ltd. (ALS Minerals) in Thunder Bay. ALS Minerals used a similar protocol, except that PGM analyses were conducted by ICP-AES instead of atomic absorption used at Accurassay.

At the time of delivery, the laboratory acknowledged receipt of the sample shipment being in acceptable condition and logged all samples into their Laboratory Information Management System (LIMS). Samples were both prepared and analyzed at the Accurassay or the ALS Minerals laboratory in Thunder Bay, Ontario.

All samples were analyzed for Cu, Ni, Ag, Au, Pt and Pd. Rh was requested on samples within an intersection of two or more consecutive samples with an NSR value >$8 per tonne, and the two samples on either side of the intersection, even though the values were likely to be below detection limit. The two samples outside of the mineralized intersection were requested for dilution information purposes. Rh analysis was not completed for the 2022 drill program.

11.1.3 Sample Preparation

11.1.3.1 Accurassay

Marathon PGM provided Accurassay with drill core samples, rock samples, and pulp samples. The samples were dried, if necessary, crushed to approximately minus 10 mesh and riffle-split into 250 to 450 g sub-samples. The sub-samples were then pulverized to 90% passing 150 mesh using a ring and puck pulverizer and homogenized prior to analysis. Silica sand cleaning between each sample was performed to prevent cross-contamination.

11.1.3.1.1 Fire Assay Precious Metals

For flame atomic absorption spectroscopy (AAS) determinations, preliminary concentrations for Au, Pt, and Pd by fire assay (lead collection) was the preferred method. The standard operating procedure for fire assaying at Accurassay involved weighing, fluxing, fusion, and cupellation of each sample.

A 30.2 g sample mass was routinely used, although select sample masses may have been altered to accommodate sample chemistry, if required.

A furnace load consisted of 23 or 24 samples with a check done every 10th sample (by client ID), along with a laboratory blank and a quality control standard. Duplicate checks were performed on pulverized samples.

Samples provided to Accurassay by Marathon PGM did not require preliminary treatment and were mixed directly with the assay flux and fused. Accurassay used a pre-mixed basic flux purchased from Reliable Industrial Supply. The composition of the flux is as follows: litharge (PbO) at 50.4%, soda ash (dense) at 35.9%, borax at 10%, and silica flour at 3.6%. It is standard practice for laboratories to use a pre-mixed flux and adjust the ingredients when necessary.

Samples were typically fused for 1.25 hours at 1,800 to 2,000°F. The fusion time may have been increased if needed.

Samples were typically cupelled for 50 minutes at 1,900°F. The cupellation time may have been increased if needed.

11.1.3.1.2 Digestion – Precious Metals

Precious metal beads were digested using a nitric/hydrochloric acid digestion at Accurassay and bulked up with a 1% lanthanum oxide (La_2O_3) solution and distilled water. The use of lanthanum in the concentration of 0.2% to 1.0% is an acceptable practice and complies with accepted published methods. A final volume of 3 ml was used for analysis.

11.1.3.1.3 Digestion – Base Metals

For flame AAS determinations of Cu, Co, Ni, Pb, and Ag at Accurassay, an acid digestion consisting of aqua regia (one part nitric to three parts hydrochloric acid) was the preferred method. A sample mass of 0.25 g and a final volume of 10 ml was used for analysis. For samples requiring a full assay digestion (high grade); a sample mass of 2.5 g and a final volume of 250 ml was used. A full assay was required whenever the concentration of any given element was >1% for any of the above noted elements.

11.1.3.1.4 Flame Atomic Absorption Spectrometric Measurement

Accurassay used a Varian AA240FS with manual sample introduction for the determination of Au, Pt, and Pd. A Varian 220FS or 240FS with SIPS and auto-diluter was used for the determination of base metals.

Calibration certified reference materials (CRMs) were made from 1,000 ppm certified stock solutions. Quality assurance (QA) solutions were made up from separately purchased 1,000 ppm certified stock solutions. All stock solutions were prepared commercially by ISO certified suppliers.

11.1.3.1.5 Reporting

Laboratory reports were produced using Accurassay's LIMS program. All duplicate assays were reported on the certificate of analysis. Quality control (QC) CRM and blanks were not reported unless requested by the client.

11.1.3.1.6 Control Charts for Quality Control Certified Reference Materials

All Accurassay data generated for QC CRM, blanks and duplicates were retained with the client's file and used in the validation of results. For each QC CRM, control charts were produced to monitor the performance of the laboratory. Warning limits were set at ±2 standard deviations, and control limits were set at ±3 standard deviations. Any data points for the quality control CRM that plotted outside the warning limits but within the control limits required 10% of the samples in that batch to be re-assayed. If the results from the re-assays matched the original assays, the data were validated. If the re-assay results did not match the original data, the entire batch was rejected and new re-assays were generated. Any QC CRM that plotted outside the control limits was automatically re-assayed and all the initial test results were rejected.

11.1.3.1.7 Certified Reference Materials

Accurassay's in-house CRMs used for Au, Pt, Pd, and Rh was derived from a rock source provided to Accurassay by a third party. The CRM names were APG1 and APP7. The CANMET CRM used for the analysis of Au, Pt, Pd, and Rh were WMS-1 and WMG-1. All CRMs used to certify base metal values were provided by CANMET. The following CRMs were used: CZN3, RTS-2, and RTS-3.

Two in-house CRMs (MPG1 and MPG2) were used for control of Au, Pt, Pd, and Cu determinations. The CRMs were derived from a composite of core sample reject material provided to Accurassay by Marathon PGM from the Marathon deposit and were representative of the metal abundances in the Coldwell Complex deposits. The values for MPG1 and MPG2 were developed by Accurassay and verified through round-robin analysis with other assay laboratories in Canada.

The QA sample was made in the laboratory from certified stock solutions purchased from an ISO 9000 certified supplier. The solution was made from a completely different lot number than the solutions used to calibrate CRM. The QC CRMs were used to monitor the processes involved in analyzing the samples. The QA samples were used to verify the initial calibration of the instruments and monitor the calibration throughout the analysis.

It should be noted that although a CRM or QA standard may not have been listed by batch number on the control charts, a CRM and QA sample was run with each batch.

The values for APG1 and APP7 were developed by Accurassay and verified through round-robin analysis with other laboratories in Canada. The values for CANMET certified reference materials were obtained from their respective certificates of analysis.

11.1.3.2 ALS Minerals

Since 2011, all drill core samples were sent to ALS Minerals' sample preparation facility in Thunder Bay. Pulp sample material was then sent to the Vancouver ALS facility for analysis. ALS Minerals is independent of Gen Mining and operates with a quality management system and complies with ISO 9001:2008. The quality management system of ALS is audited both internally and by external parties.

The samples were prepared and underwent multi-element analyses (Table 11-1).

Table 11-1: Sample Analysis Methods

Procedure	Description	Element Analyzed and Range (ppm)		
Prep 31	Crush to 70% less than 2 mm, riffle-split off 250 g, pulverize split to better than 85% passing 75 µm.			
PGM-ICP23	Pt, Pd and Au by fire assay and ICP-AES finish. 30 g nominal sample weight.	Pt 0.005-10 Pd 0.001-10 Au 0.001-10		
ME-ICP41	Aqua regia digestion – first pass exploration tool, dissolution of base metals.	Ag 0.2-100 W 10-10,000 Ca 0.01%-25% La 10-10,000 Sb 2-10,000 Zn 2-10,000 Cd 0.5-1,000 Mg 0.01%-25% Sc 1-10,000 Co 1-10,000 Mn 5-50,000 Sr 1-10,000	Al 0.01%-25% Cr 1-10,000 Mo 1-10,000 Th 20-10,000 As 2-10,000 Cu 1-10,000 Na 0.01%-10% Ti 0.01%-10% B 10-10,000 Fe 0.01%-50% Ni 1-10,000 Tl 10-10,000	Ba 10-10,000 Ga 10-10,000 P 10-10,000 U 10-10,000 Be 0.5-1,000 Hg 1-10,000 Pb 2-10,000 V 1-10,000 Bi 2-10,000 K 0.01%-10% S 0.01%-10%
OG46-OL	Aqua regia is a powerful solvent for sulphides, which dissolves Ag and base metals but may not completely dissolve more resistive elements. Minimum sample weight 0.5 g.	Ag 1-1,500 ppm As 0.001-60 Cd 0.001-10 Co 0.0005-30 Cu 0.001-50 Fe 0.01-100	Mn 0.01-60 Mo 0.001-10 Ni 0.001-30 Pb 0.001-20 S 0.01-10 Zn 0.001-30	
S-IR08 OL for S > 10%	Total sulphur by combustion furnace.	Total S 0.01% - 50%		

Source: Geochemistry Service Schedule (2022).

11.1.4 Conclusions

In the QP's opinion, the sample preparation, analysis, and security measures taken at the Marathon, Geordie and Sally deposits were adequate.

11.2 Marathon Deposit Quality Assurance / Quality Control

11.2.1 2009 and 2011 Programs

Marathon PGM continued with the robust QA/QC program that had been implemented in the mid-2000s. The QA/QC program consisted of inserting reference materials and field blanks, and monitoring duplicate pairs.

Two CRMs, named MPG1 and MPG2, were prepared by Accurassay in Thunder Bay. The material was sourced from the Marathon Project; 375 samples were analyzed to characterize MPG1 and 325 samples were analyzed to characterize MPG2. Mean and standard deviation values were calculated for each reference material.

All data from the 2009 and 2011 drill programs were examined by the QP. Drill data prior to 2009 was previously examined and accepted for use in previous mineral resource estimates.

11.2.1.1 Performance of Reference Materials

For the 2009 data, there were 31 data points for MPG1 and 18 data points for MPG2. All data points plotted between ±2 standard deviations from the mean for Au, Cu, Pd, and Pt.

For the 2011 data, there were 35 data points for MPG1 and 32 data points for MPG2. All data points plotted between ±2 standard deviations from the mean.

11.2.1.2 Performance of Blank Material

The blank material used for the 2009 and 2011 programs was commercially prepared nepheline syenite sand. There were 49 data points in 2009 and 68 in 2011. All blank results plotted below five times the detection limit for the commodity in question.

11.2.1.3 Performance of Duplicates

There were 81 pulp duplicate pairs analyzed at ALS Chemex for Au, Pt, and Pd for the 2011 drilling program. All duplicate pairs were plotted on a simple scattergraph. The precision on the gold pulp pairs was acceptable, with less precision (as is to be expected) on the very low grades. Both platinum and palladium demonstrated excellent precision at the pulp level. There were no duplicates available for copper.

11.2.2 Surface Trench Samples

The Marathon deposit database contains 4,479 surface trench sample assays collected from channels that were cut by saw along lines spaced 30 to 50 m apart along approximately 2 km strike length. The channels were cut in approximately straight lines located close and perpendicular to the base of the Marathon deposit during 1985, 1986, 2005 to 2009, and 2021.

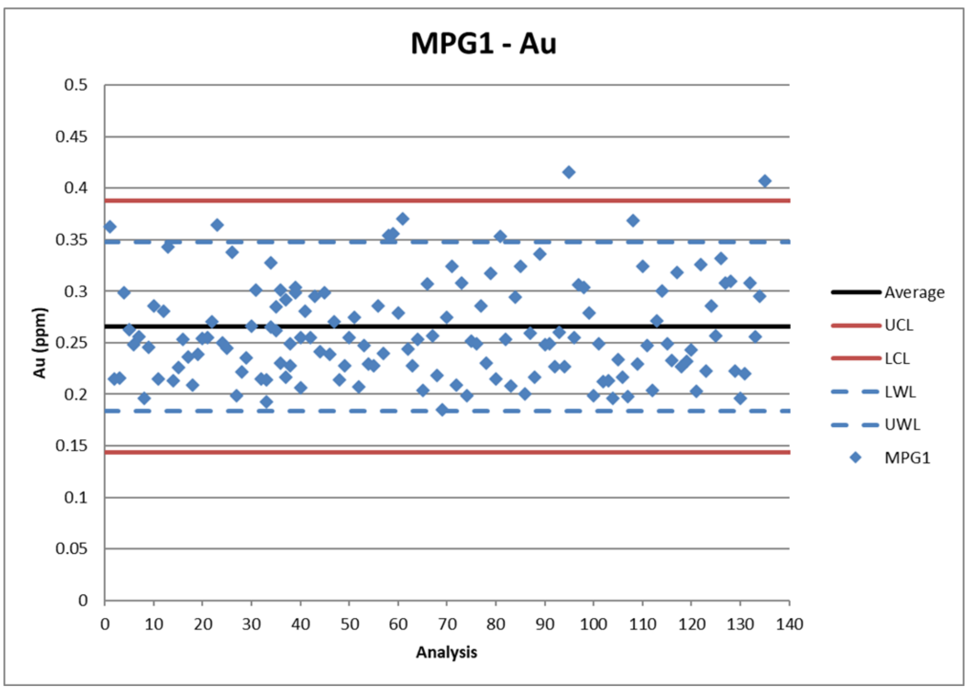
After a comparison of the trench samples with the diamond drill holes in the same vicinity, the channel samples were included in the Mineral Resource Estimate. In a report titled, “Trench vs. Core Assay Data in the Marathon deposit Main Zone,” authored by D. Good, Ph.D., P. Geo. (March 18, 2012), it was clearly shown that channel samples should not be excluded from the database, because a sampling bias was not observed. The test sample set included channel samples cut from a relatively Pd-rich zone of the Main Zone, and when compared to the core samples drilled in the immediate vicinity, there was no sampling bias demonstrated. The QP has reviewed the report by Dr. Good and has accepted the methodology and conclusions.

11.2.3 Gen Mining 2019 to 2024 Drilling Programs

11.2.3.1 Performance of Certified Reference Materials

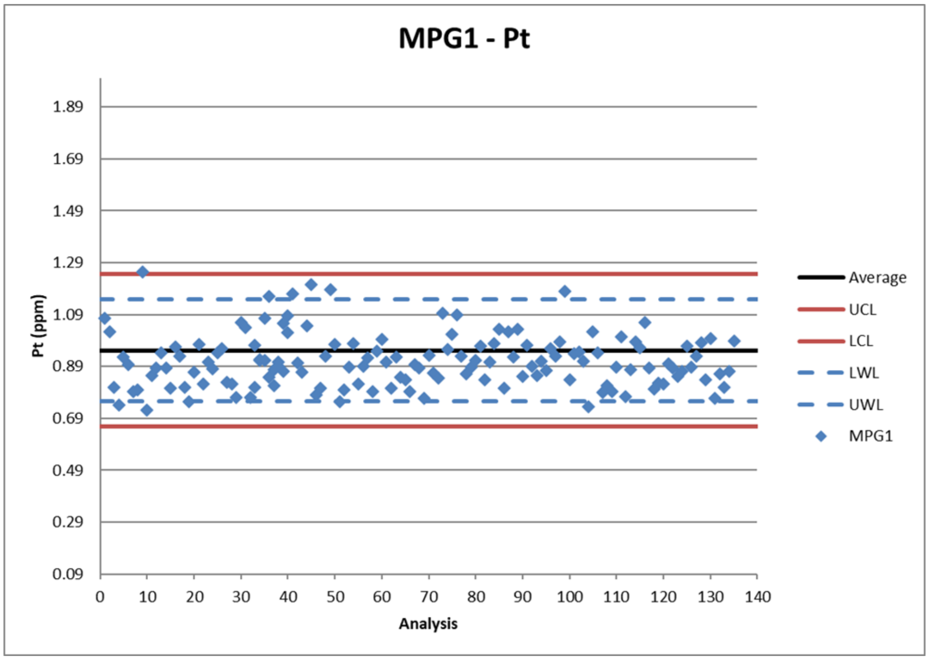
The analyses for elements Au, Pt, Pd, Ag, and Cu for CRMs MPG1 and MPG2 are plotted in Figure 11-1 to Figure 11-10. A few minor outliers beyond the set control limits are apparent; however, the overall performance of both CRMs for all elements was excellent and no bias or temporal variation in the 2019-2022 data were observed.

Figure 11-1: Performance of CRM MG1 for Au



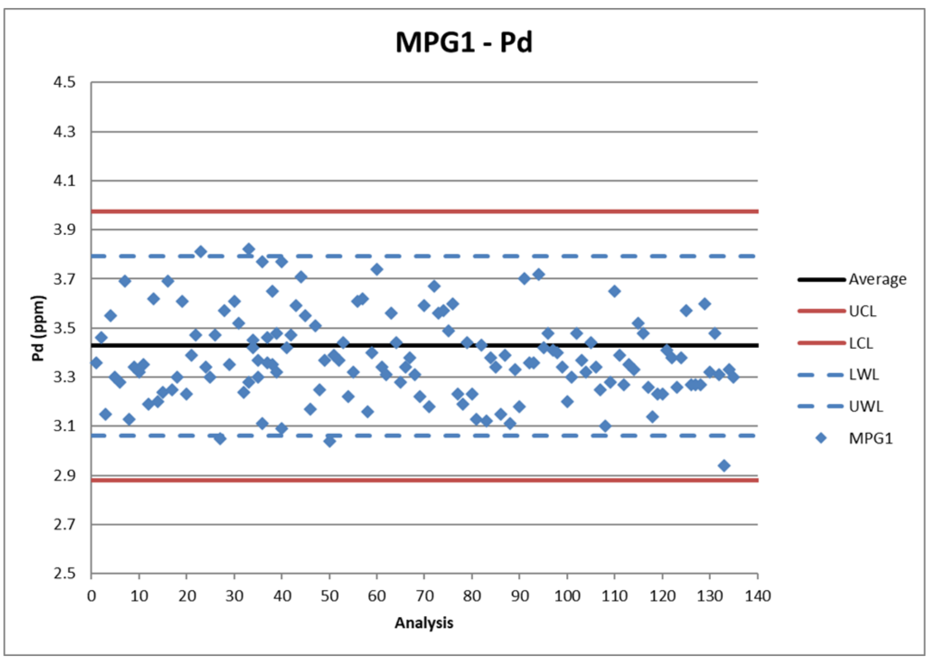
Source: Gen Mining (2024).

Figure 11-2: Performance of CRM MPG1 for Pt



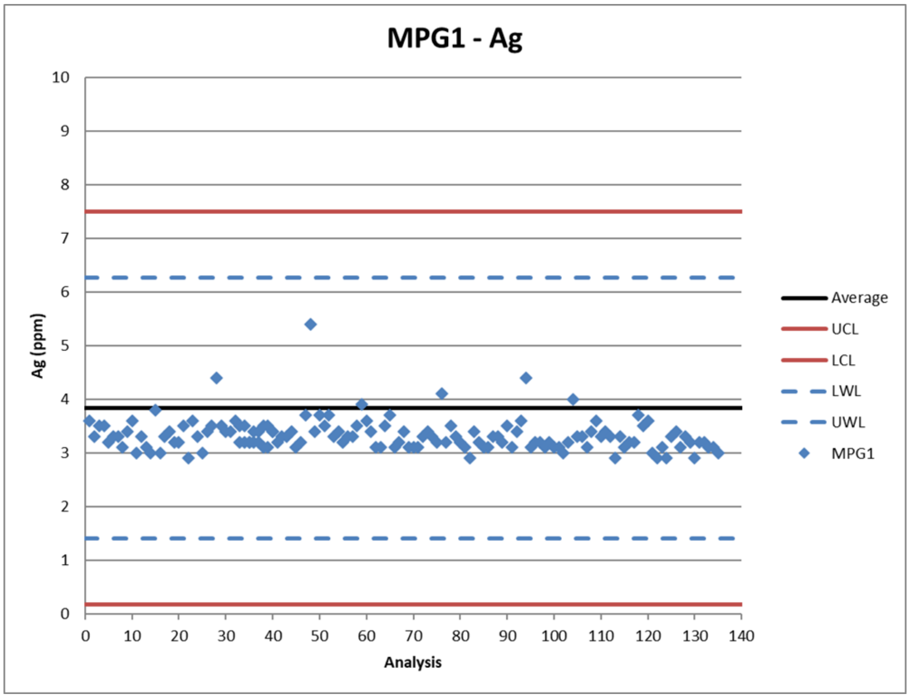
Source: Gen Mining (2024).

Figure 11-3: Performance of CRM MPG1 for Pd



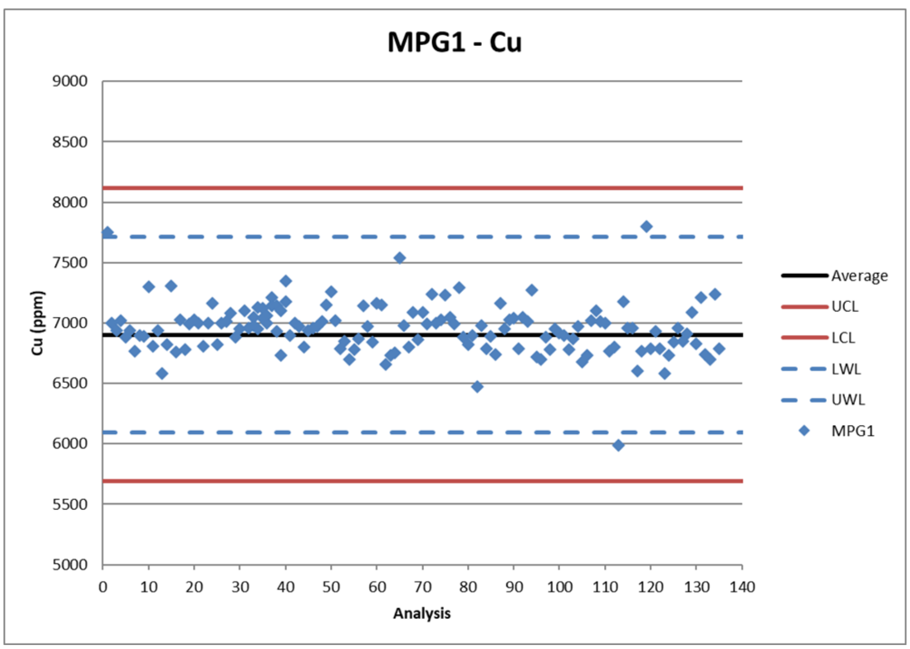
Source: Gen Mining (2024).

Figure 11-4: Performance of CRM MPG1 for Ag



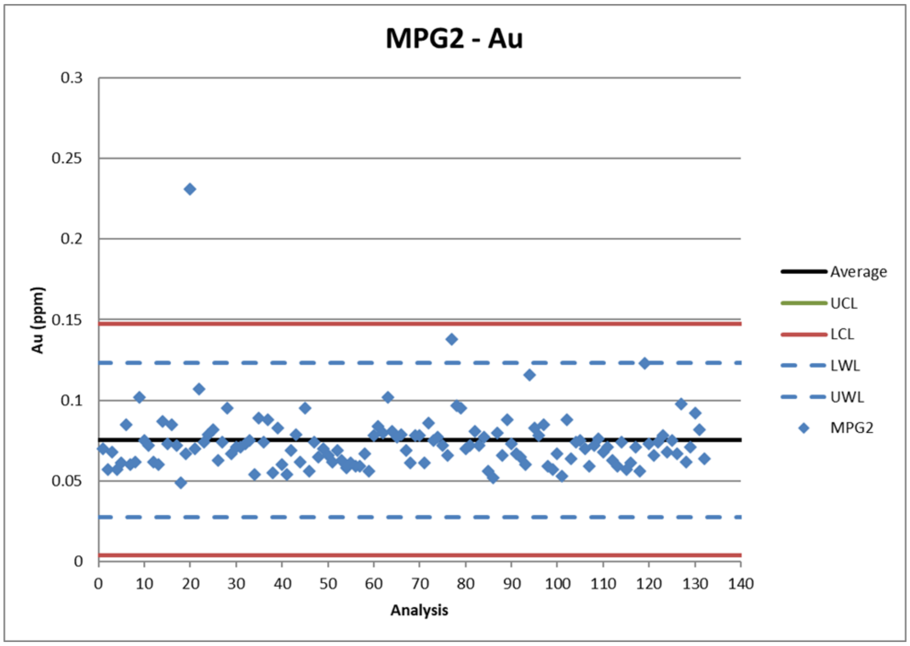
Source: Gen Mining (2024).

Figure 11-5: Performance of CRM MPG1 for Cu



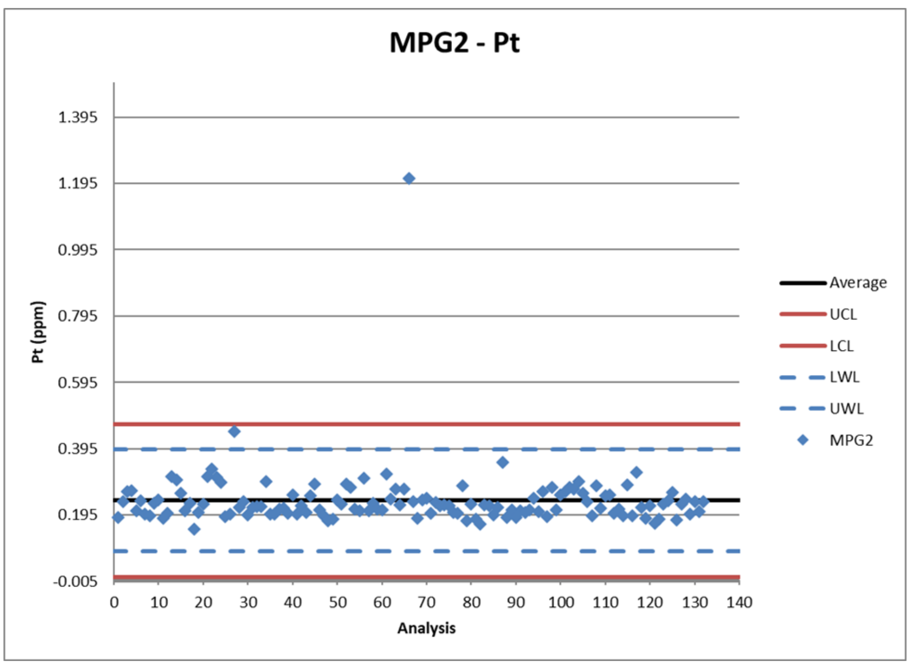
Source: Gen Mining (2024).

Figure 11-6: Performance of CRM MPG2 for Au



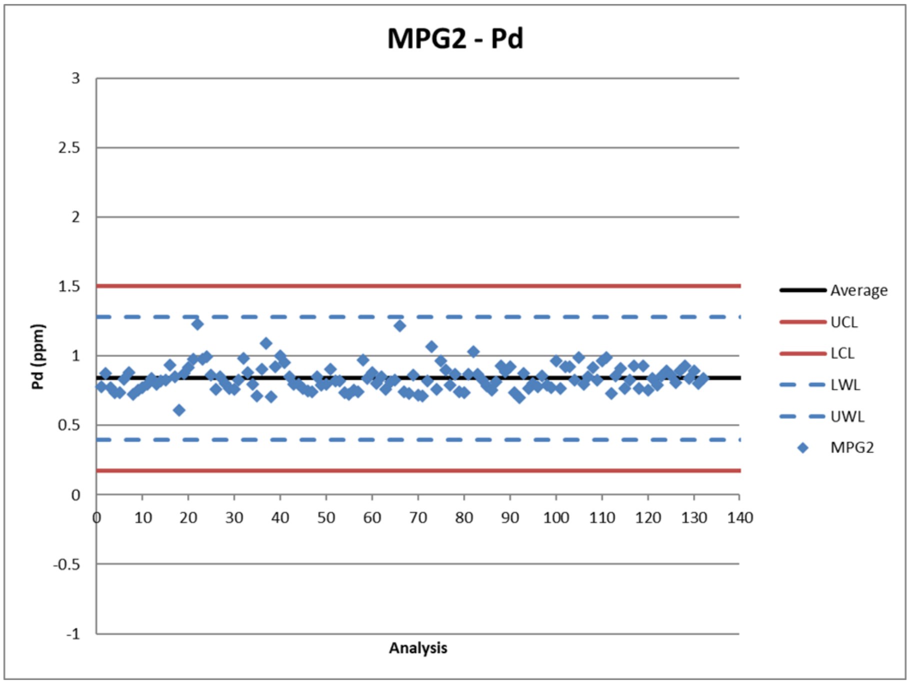
Source: Gen Mining (2024).

Figure 11-7: Performance of CRM MPG2 for Pt



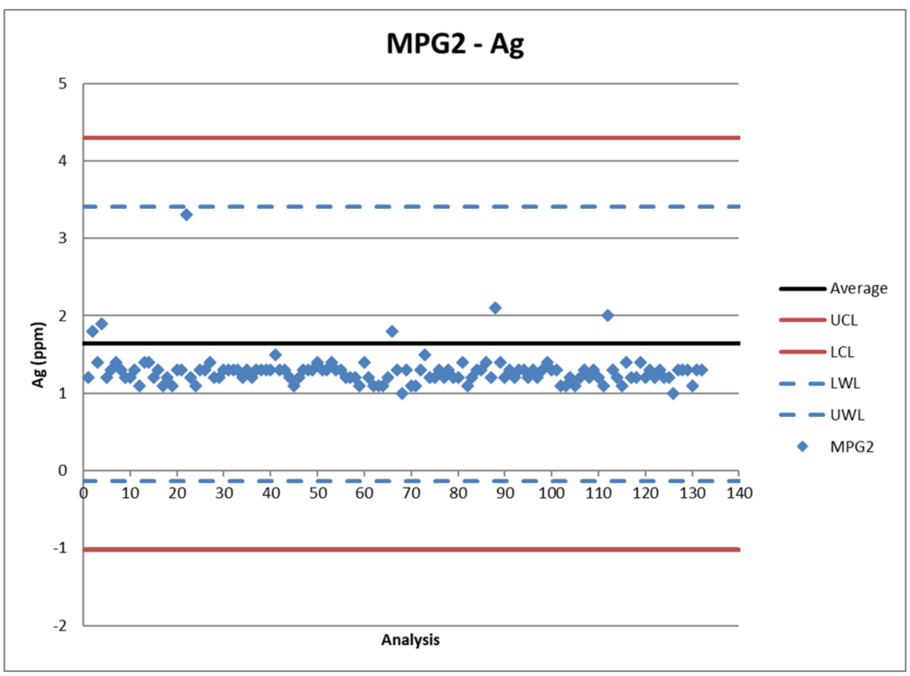
Source: Gen Mining (2024).

Figure 11-8: Performance of CRM MPG2 for Pd



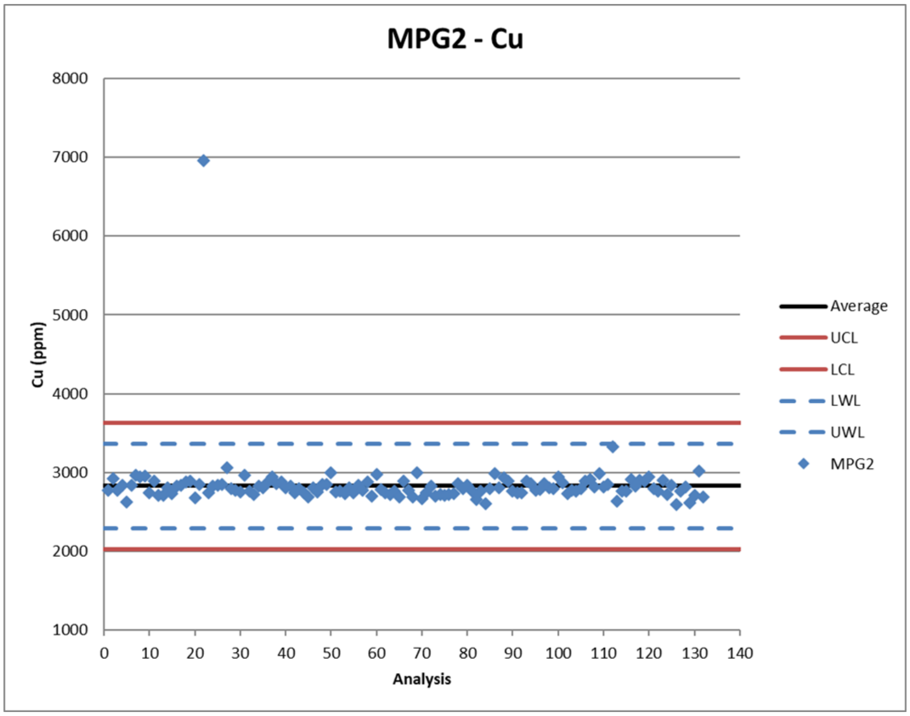
Source: Gen Mining (2024).

Figure 11-9: Performance of CRM MPG2 for Ag



Source: Gen Mining (2024)

Figure 11-10: Performance of CRM MPG2 for Cu

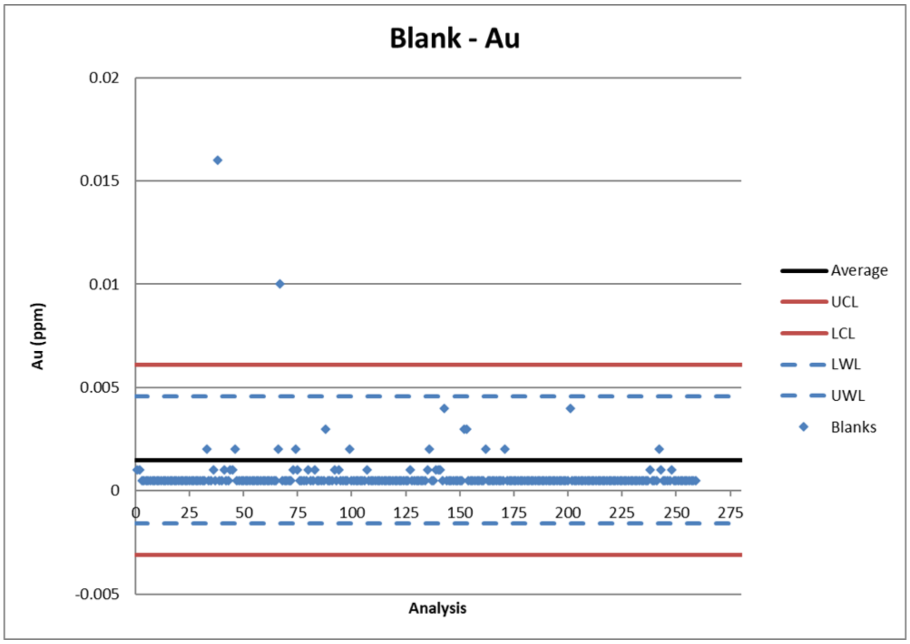


Source: Gen Mining (2024).

11.2.3.2 Performance of Blank Material

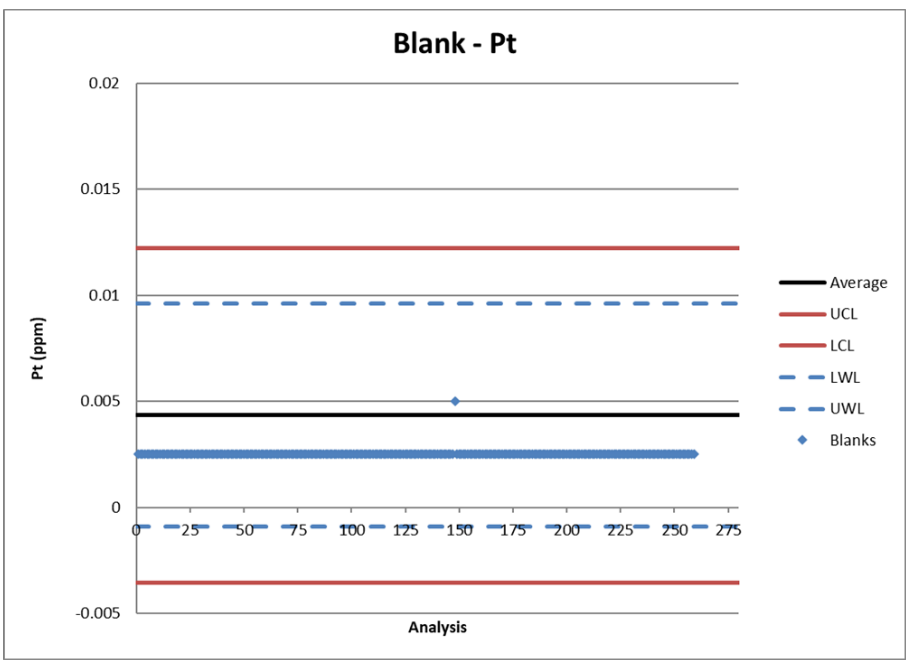
The results of the blank sample analyses were considered excellent, with most of the Au, Pt, Pd, Ag, and Cu determinations plotting below the respective upper working limit of two times the standard deviation of the mean of each element (Figure 11-11 to Figure 11-15). The occasional result plotting above the upper working limit was considered to be immaterial to the Mineral Resource Estimate and contamination was not considered to be an issue with the 2019, 2020, and 2022 data.

Figure 11-11: Performance of Blanks for Au



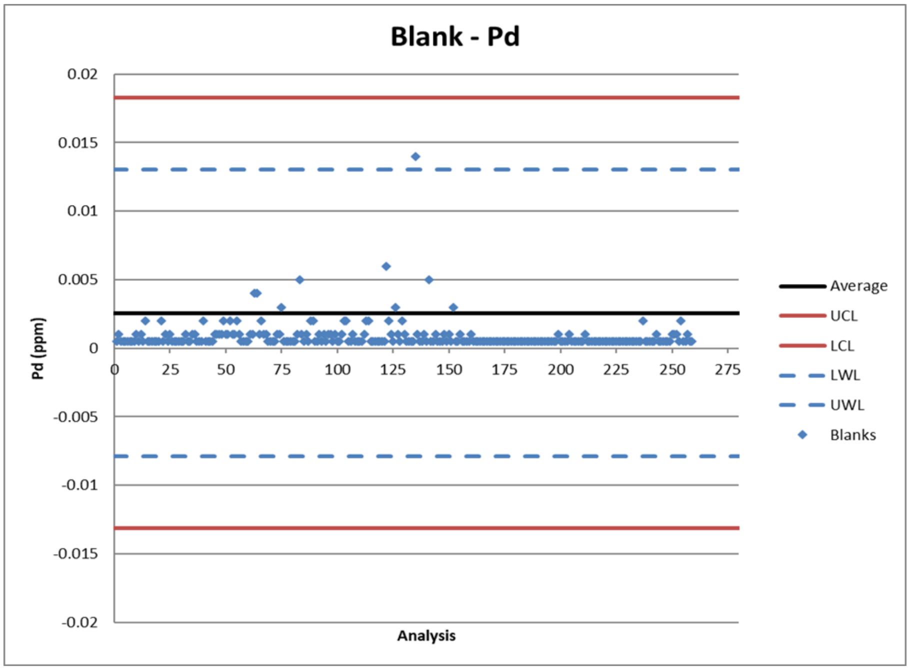
Source: Gen Mining (2024).

Figure 11-12: Performance of Blanks for Pt



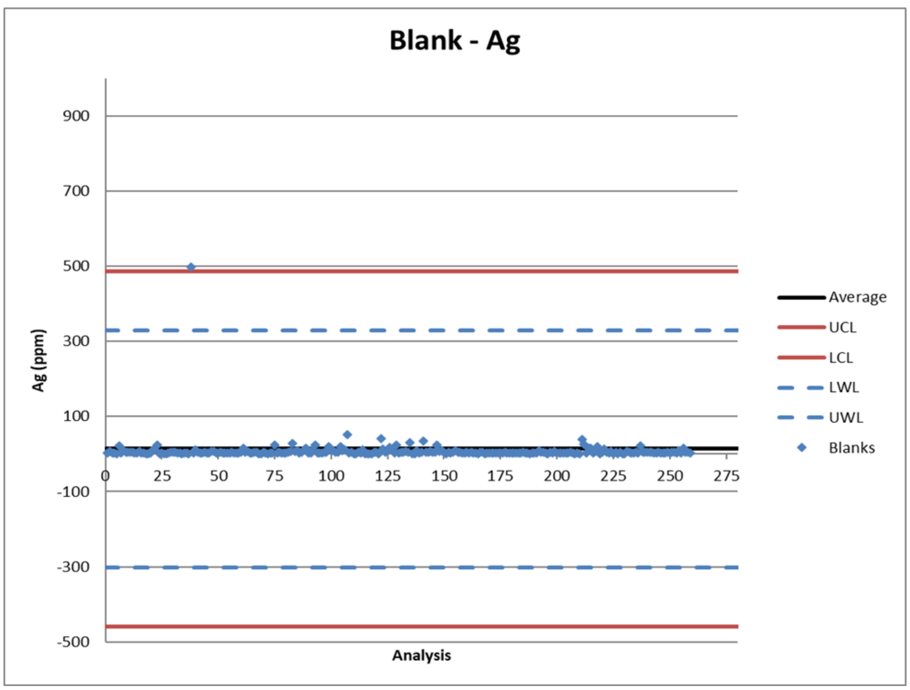
Source: Gen Mining (2024).

Figure 11-13: Performance of Blanks for Pd



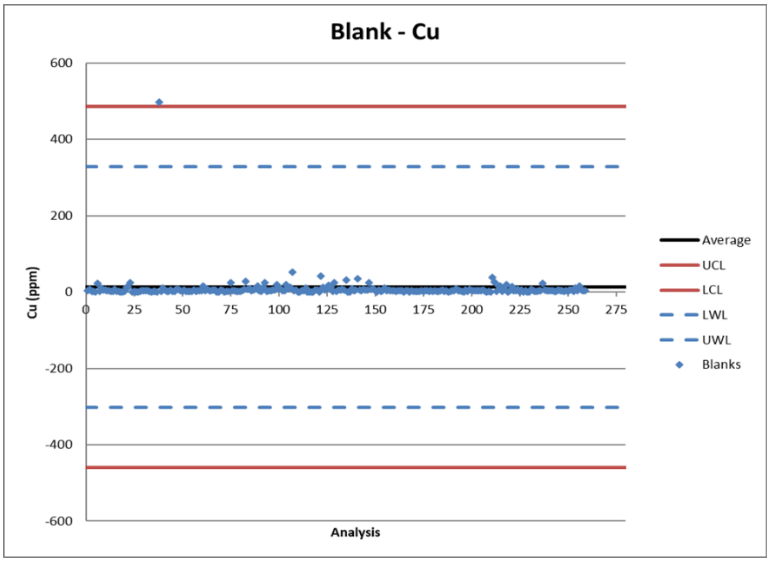
Source: Gen Mining (2024).

Figure 11-14: Performance of Blanks for Ag



Source: Gen Mining (2024).

Figure 11-15: Performance of Blanks for Cu

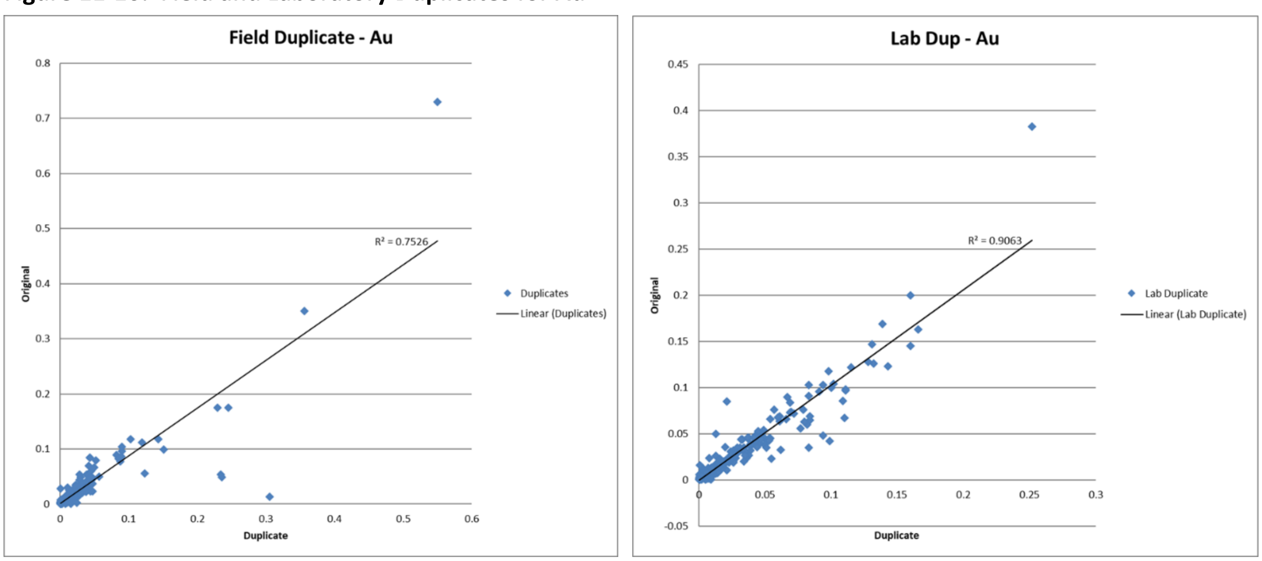


Source: Gen Mining (2024).

11.2.3.3 Performance of Duplicates

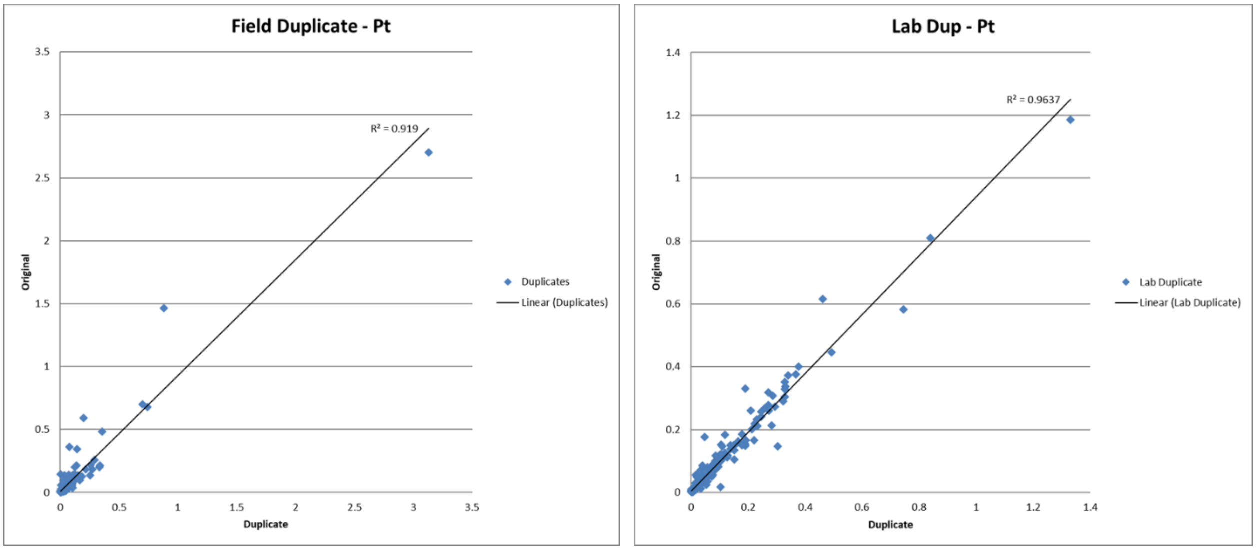
The field duplicate data for Au, Pt, Pd, Ag, and Cu were plotted on scatterplots and compared with the laboratory duplicate data (Figure 11-16 to Figure 11-20). Precision for all elements is shown to increase with the reduction in grain size from field to laboratory (as expected) and in precision at the laboratory level, as demonstrated by R^2 values; all of which are considered satisfactory by the QP for this section.

Figure 11-16: Field and Laboratory Duplicates for Au



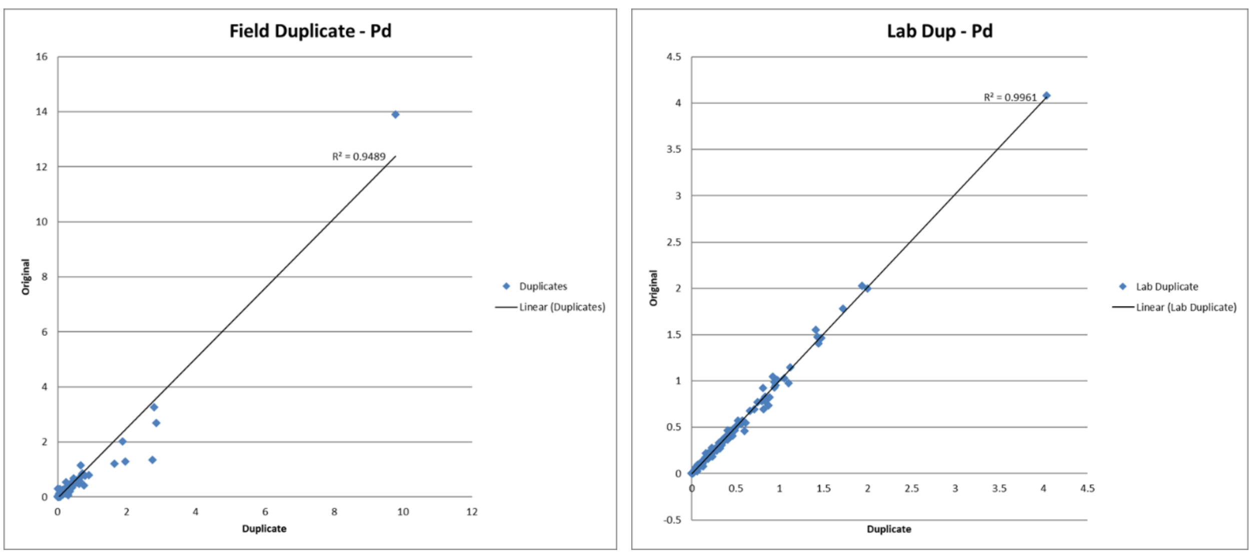
Source: Gen Mining (2024).

Figure 11-17: Field and Laboratory Duplicates for Pt



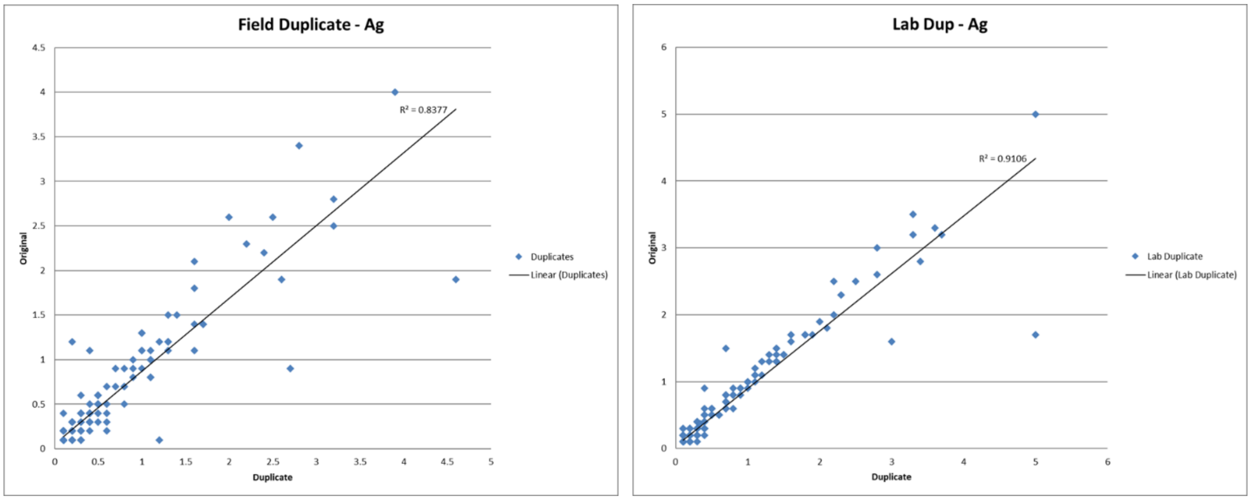
Source: Gen Mining (2024).

Figure 11-18: Field and Laboratory Duplicates for Pd



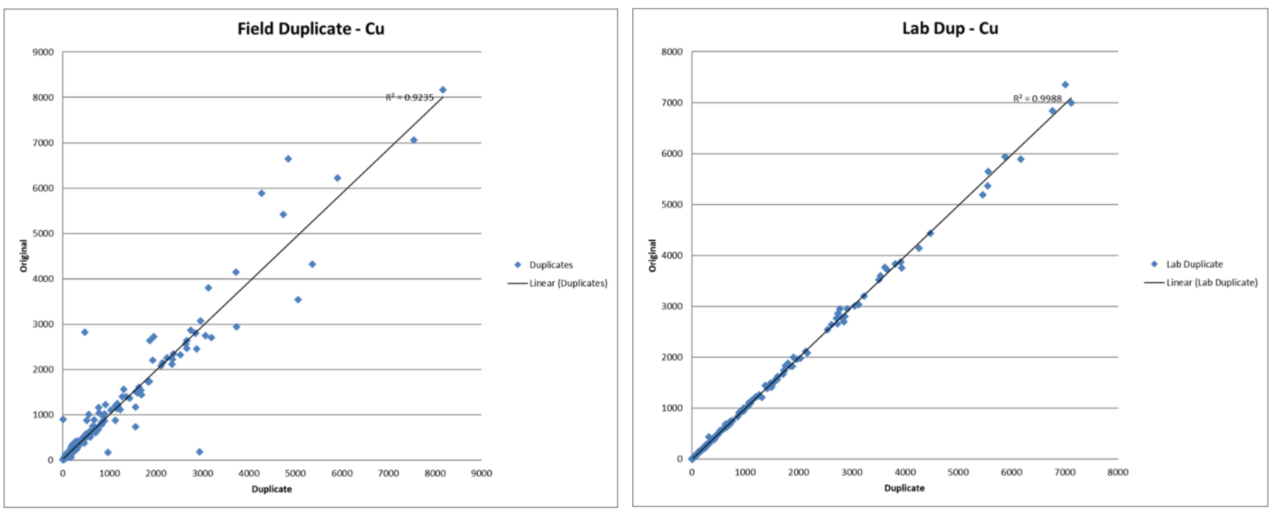
Source: Gen Mining (2024).

Figure 11-19: Field and Laboratory Duplicates for Ag



Source: Gen Mining (2024).

Figure 11-20: Field and Laboratory Duplicates for Cu



Source: Gen Mining (2024).

11.2.3.4 Laboratory Quality Control

The QP has reviewed the corresponding laboratory QC data from 2019 to 2022 drilling programs, including CRMs, and blanks and duplicates, and does not consider that the laboratory QC data indicates issues with sample data accuracy, contamination, or precision.

11.2.4 Conclusions

The QP considers the Marathon deposit data to be of good quality and acceptable for use in mineral resource estimation.

11.3 Geordie Deposit Quality Assurance / Quality Control

11.3.1 2010 Program

11.3.1.1 Performance of Certified Reference Materials

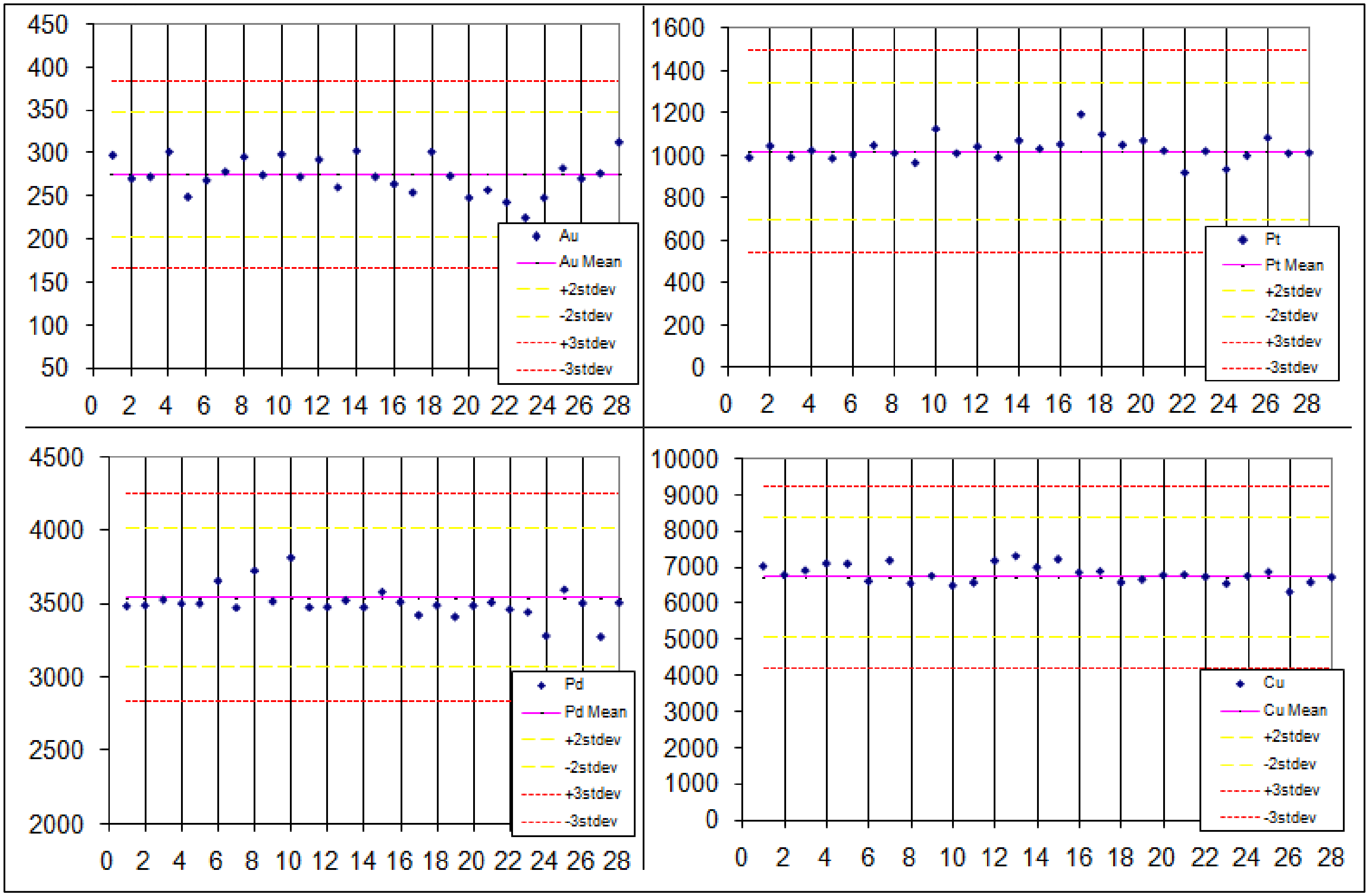
All data generated for QC CRMs, blanks, and duplicates were used to validate results. For each QC standard, control charts were produced to monitor the performance of the laboratory. Warning limits were set at ±2 standard deviations, and control limits were set at ±3 standard deviations. If two consecutive data points for the QC CRM plot outside the warning limits, but within the control limits, 10% of the samples in that batch were to be re-assayed. If the results from the re-assays matched the original assays the data was validated, if the re-assay results did not match the original data the entire batch was rejected, and new re-assays were performed. Any QC CRM that plotted outside the control limits was automatically re-assayed and all the initial test results were rejected.

As can be observed in the control charts shown in Figure 11-21 and Figure 11-22, none of the Cu, Au, or Pd assay results plotted outside of the warning limit and only one of the Pt results plotted between the warning limit and the control limit. Consequently, no action was considered necessary.

The results of the MPG1 CRM tests are shown in Figure 11-21. All values are in ppb except Cu in ppm. As shown in the figure, no determination fell outside of the 2x detection limit (warning) boundary and there was no sample drift during the period.

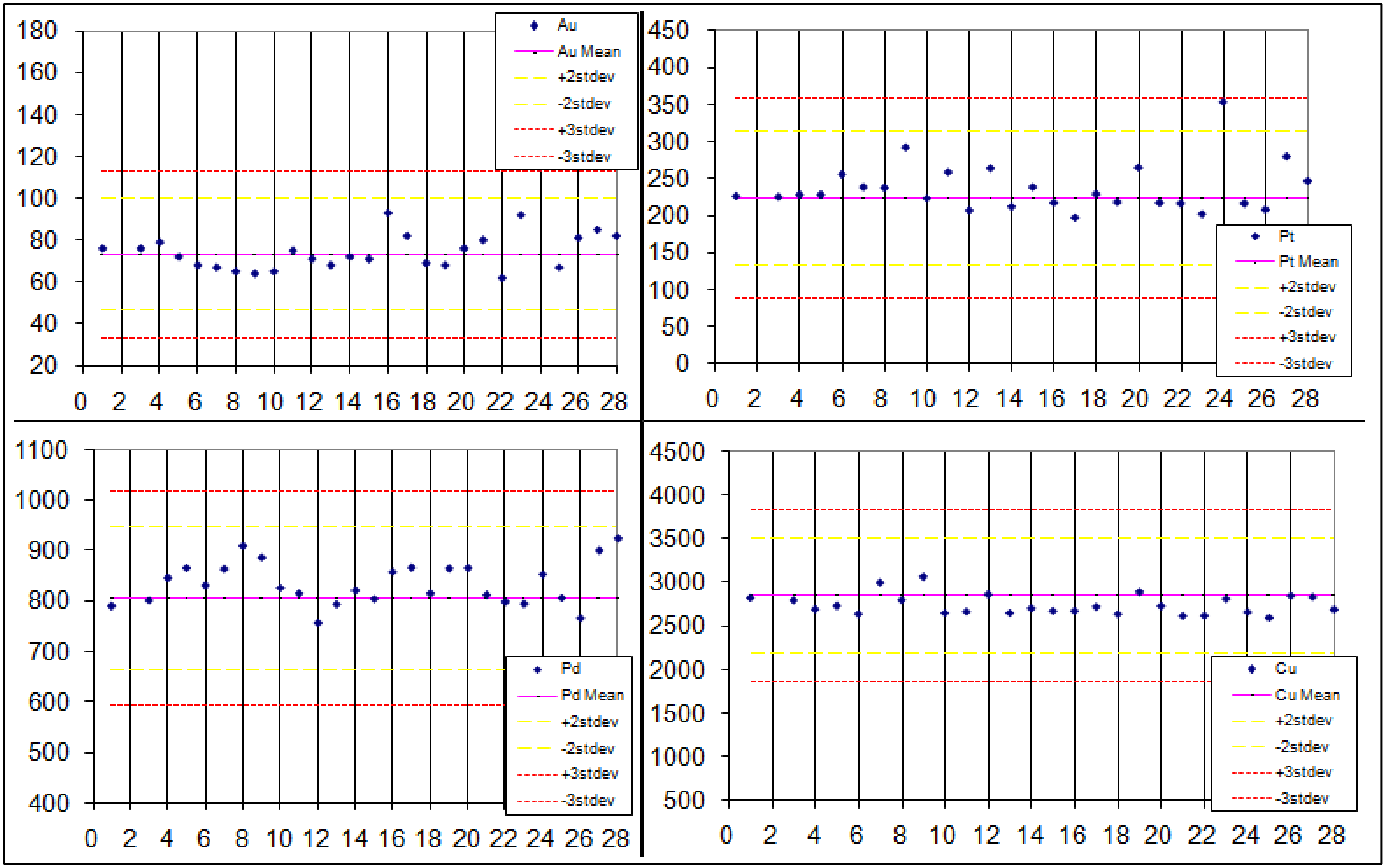
The results of the MPG2 CRM tests are shown in Figure 11-22. All values are in ppb except Cu in ppm. As shown in the figure, only one determination fell outside of the 2x detection (warning) limit boundary and there was no sample drift evident during the period observed. No action was taken for the batch where Pt plots outside of the warning limit.

Figure 11-21: Determinations for In House Standard MPG1



Source: Python (2010).

Figure 11-22: Determinations for In House Standard MPG2



Source: Python (2010).

11.3.1.2 Performance of Blank Material

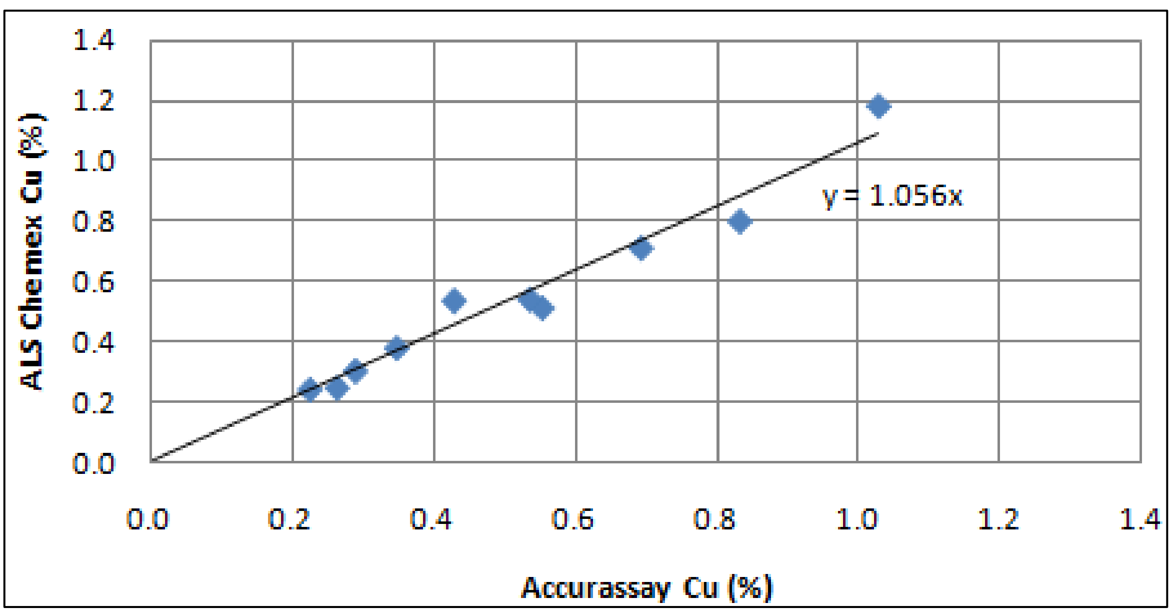
Every sample batch (consisting of 22 or 23 samples) shipped to Accurassay contained a single blank sample. The blank material comprised 40 g of pulverized nepheline syenite, obtained from "B and L" in Thunder Bay. To verify the quality of the blank material, 10 samples were tested at ALS Chemex to ensure the viability of this material.

The results of the 56 blank sample analyses were considered excellent, with all Au, Pt, and Pd determinations at or below the detection limits of 5, 15, and 10 ppb, respectively. Three blank Cu determinations returned results of 6, 7, and 46 ppm (greater than three times the detection limit of 1 ppm); however, these elevated results were still considered acceptable levels of contamination and of no material impact. Therefore, no remediation action was necessary for these three batches.

11.3.1.3 Performance of Pulp Duplicates

To further verify the accuracy of Cu determinations carried out by Accurassay, 10 pulp samples selected from the two main host rocks (units 3a and 3b) with a varying range of Cu grades were submitted to ALS Minerals in Thunder Bay for comparison analysis. Results of the duplicate analyses are shown in Figure 11-23 and Table 11-2. Two samples returned 15% to 25% higher values from the ALS Minerals; however, the results are considered acceptable.

Figure 11-23: Comparison Chart of ALS and Accurassay Cu Results



Source: Python (2010).

Table 11-2: Duplicate Pulp Analyses from Accurassay and ALS Chemex

Hole ID	Sample No.	From (m)	To (m)	Zone	Cu % (AA)	Cu % (ALS)	ALS-AA (%)
Heterogeneous Gabbro (Unit 3a)							
G10-01	870004	10.00	12.00	MZ	0.55	0.51	-7.4
G10-02	870059	66.00	68.00	MZ	0.35	0.38	9.2
G10-03	870090	42.00	44.00	HW	0.29	0.30	4.5
G10-04	870149	142.00	144.00	MZ	0.43	0.54	25.1
G10-13	870620	184.00	186.00	MZ	0.69	0.71	2.8
Heterogeneous Gabbro (Unit 3b)							
G10-03	870084	32.00	34.00	MZ	0.54	0.54	1.1
G10-07	870258	60.00	62.00	HW	0.26	0.25	-6.4
G10-10	870433	180.00	182.00	MZ	1.03	1.19	15.2
G10-11	870504	186.00	188.00	MZ	0.22	0.24	7.0
G10-13	870618	180.00	182.00	MZ	0.83	0.80	-3.8

Note: ALS-AA (%) = % difference in values of ALS compared with AA.

11.3.2 Conclusions

The QP for this section considers the Geordie deposit data to be of satisfactory quality and acceptable for use in mineral resource estimation.

11.4 Sally Deposit Quality Assurance / Quality Control

The QA/QC from the 2013 through 2019 drilling program was established by means of an internal quality management system with a rotating sequence of duplicates, blanks, and CRMs that are inserted for every 15th sample. The blanks were created in-house using granular nepheline syenite sand purchased from Bell and Mackenzie Ltd. (Thunder Bay). Baggies of blank material were prepared in a clean environment.

11.4.1 2013 Drilling Program

11.4.1.1 Performance of Certified Reference Materials

Two CRMs (MPG1 and MPG2) were prepared and certified by Accurassay Laboratories in 2008 and used during the 2013 through 2019 drilling programs. The certified results for CRMs MPG1 and MPG2 are shown in Table 11-3 and Table 11-4.

The CRMs were prepared from sample rejects collected from drilling the property in 2007 and 2008. The preparation and certification procedures used for MPG1 and MPG2 are described in an article entitled “Use of Geochemical Reference Materials in A Quality Control/Quality Assurance Program” by Wesley M. Johnson (Geostandards Newsletter, Vol. 15, No. 1, April 1991, pp. 23 to 31).

Table 11-3: CRM MPG1

Element	Average (ppb)	Standard Deviation (ppb)
Pd	3,538	236
Pt	1,019	160
Au	275	36
Cu	6,715	835
Ni	444	33
Co	70	5

Table 11-4: CRM MPG2

Element	Average (ppb)	Standard Deviation (ppb)
Au	70	13
Pt	223	45
Pd	805	71
Cu	2,853	329
Ni	318	28
Co	85	8

The mean value, standard deviation, and lower and upper working limits (two standard deviations from the average) of both the MPG1 and MPG2 standards are presented in Table 11-5 and Table 11-6.

Table 11-5: CRM MPG1 Control Limits

Description	Au (ppm)	Pt (ppm)	Pd (ppm)	Ag (ppm)	Cu (ppm)	Ni (ppm)	S (%)
Average	0.261	0.914	3.334	3.320	6,982.89	375.495	1.115
Standard Deviation	0.056	0.101	0.203	0.268	339.049	19.2712	0.0593
Lower Working Limit	0.149	0.712	2.928	2.784	6,304.792	336.9526	0.9964
Upper Working Limit	0.372	1.116	3.740	3.856	7,660.98	414.037	1.233

Note: Ag = silver, Au = gold, Cu = copper, Ni = nickel, Pd = palladium, Pt = platinum, S = sulphur.

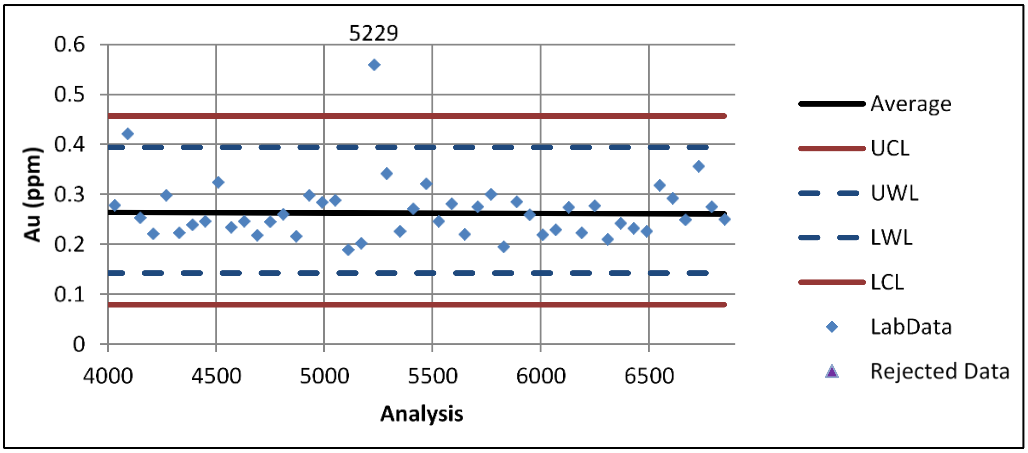
Table 11-6: CRM MPG2 Control Limits

Description	Au (ppm)	Pt (ppm)	Pd (ppm)	Ag (ppm)	Cu (ppm)	Ni (ppm)	S (%)
Average	0.0835	0.2503	0.8337	1.2396	2,860.879	277.6593	1.1777
Standard Deviation	0.0409	0.0883	0.0992	0.2043	130.0568	13.0896	0.0612
Lower Working Limit	0.0017	0.0737	0.6353	0.831	2,600.7653	251.4801	1.0553
Upper Working Limit	0.1653	0.4270	1.0322	1.6482	3,120.993	303.8386	1.3002

Note: Ag = silver, Au = gold, Cu = copper, Ni = nickel, Pd = palladium, Pt = platinum, S = sulphur.

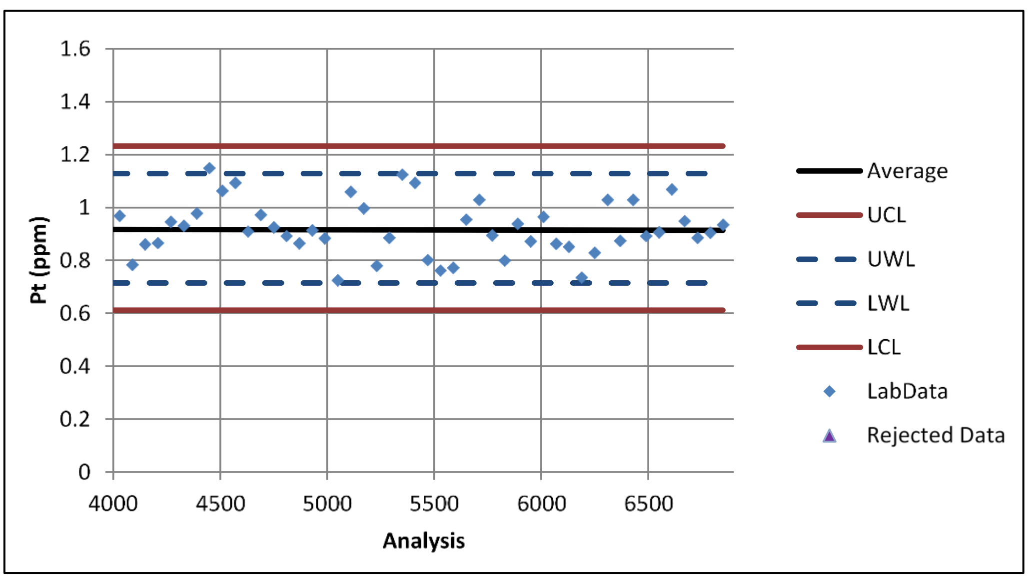
The analyses for elements Au, Pt, Pd, Ag and Cu for standards MPG1 and MPG2 are plotted in Figure 11-24 to Figure 11-33. As noted in Figure 11-24, there are some outliers beyond the upper control limit (example point 5229); however, individual outliers were isolated to a specific element and did not fail for all tested elements in the same sample. In addition, inspection of the internal CRM data determined by routine ALS Minerals procedure verified the analyses were acceptable and no further action was taken. There is a strong confidence for the analysis as data fell within the 95% confidence interval as observed in Figure 11-24 to Figure 11-33, and there was no systematic bias either above or below the recommended values, nor was there temporal variation in the data.

Figure 11-24: Performance of CRM MPG1 for Au



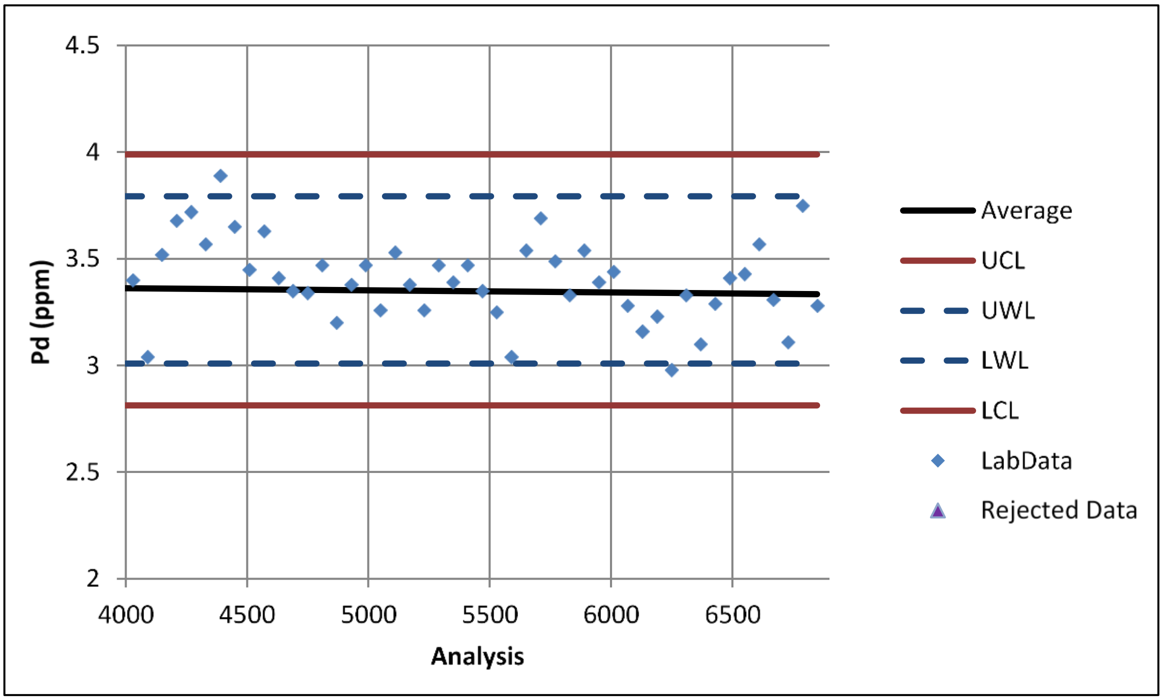
Source: Gen Mining (2024).

Figure 11-25: Performance of CRM MPG1 for Pt



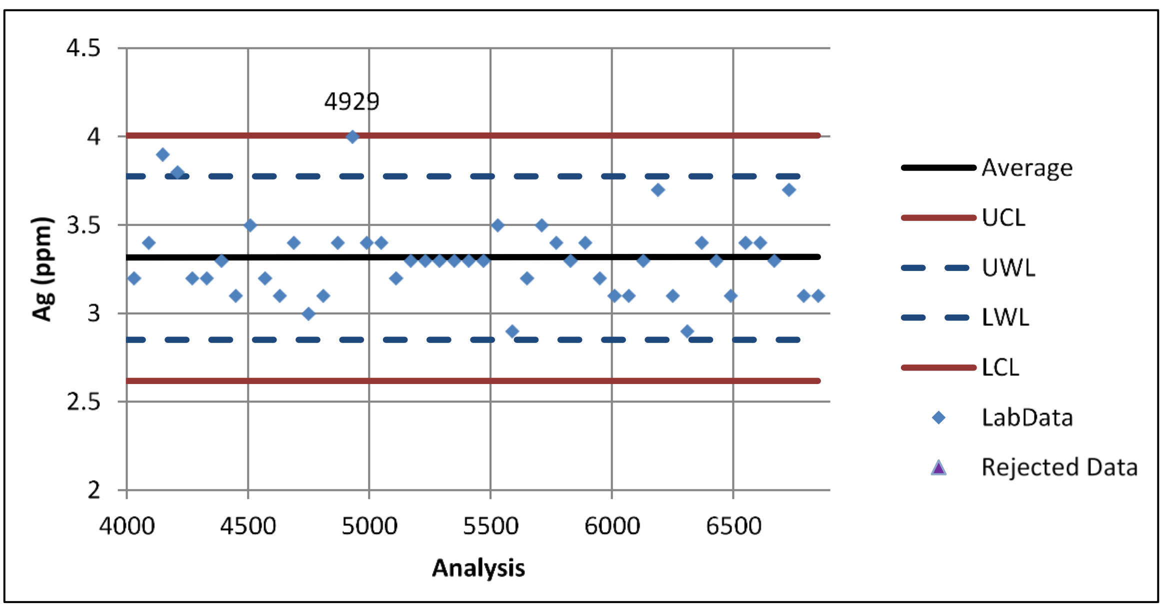
Source: Gen Mining (2024).

Figure 11-26: Performance of CRM MPG1 for Pd



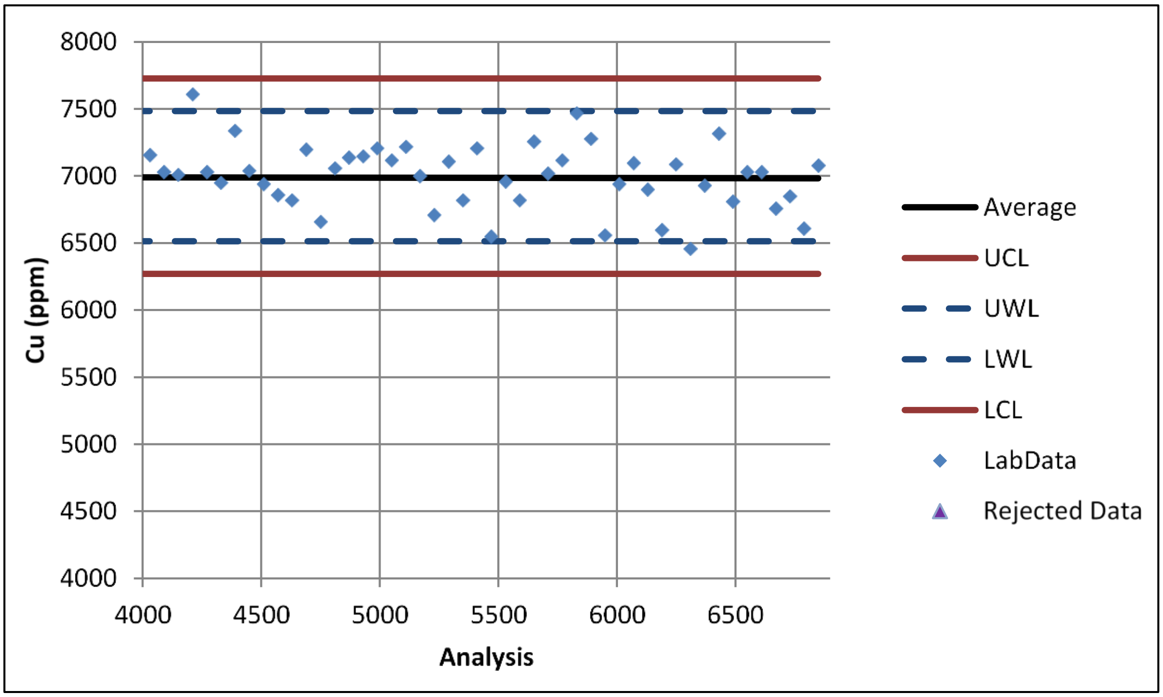
Source: Gen Mining (2024).

Figure 11-27: Performance of CRM MPG1 for Ag



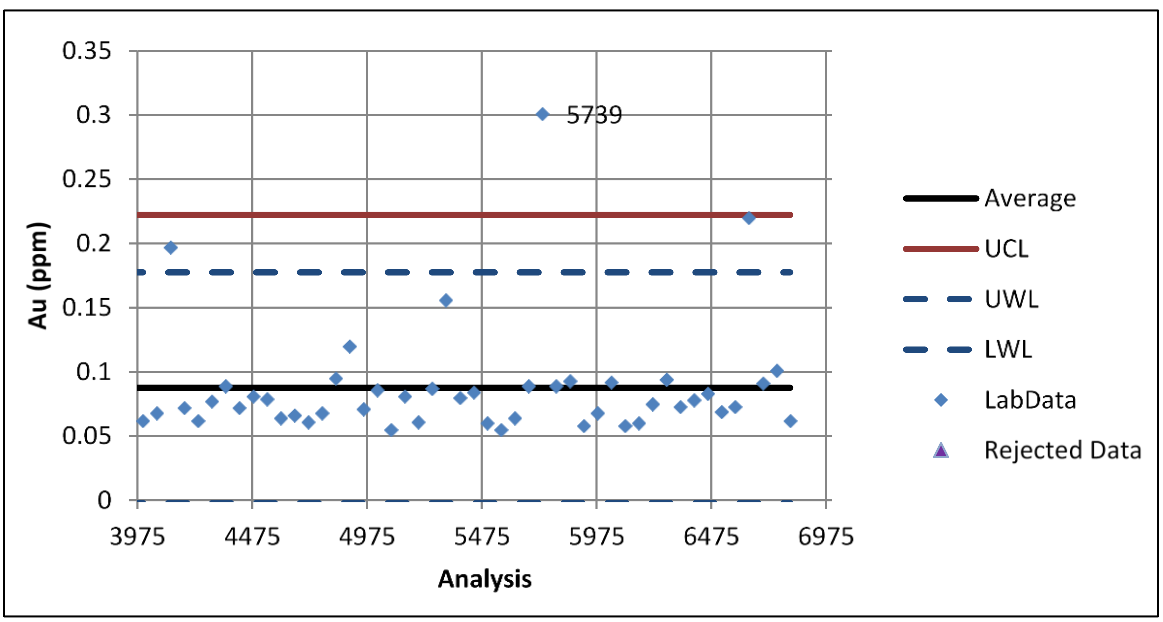
Source: Gen Mining (2024).

Figure 11-28: Performance of CRM MPG1 for Cu



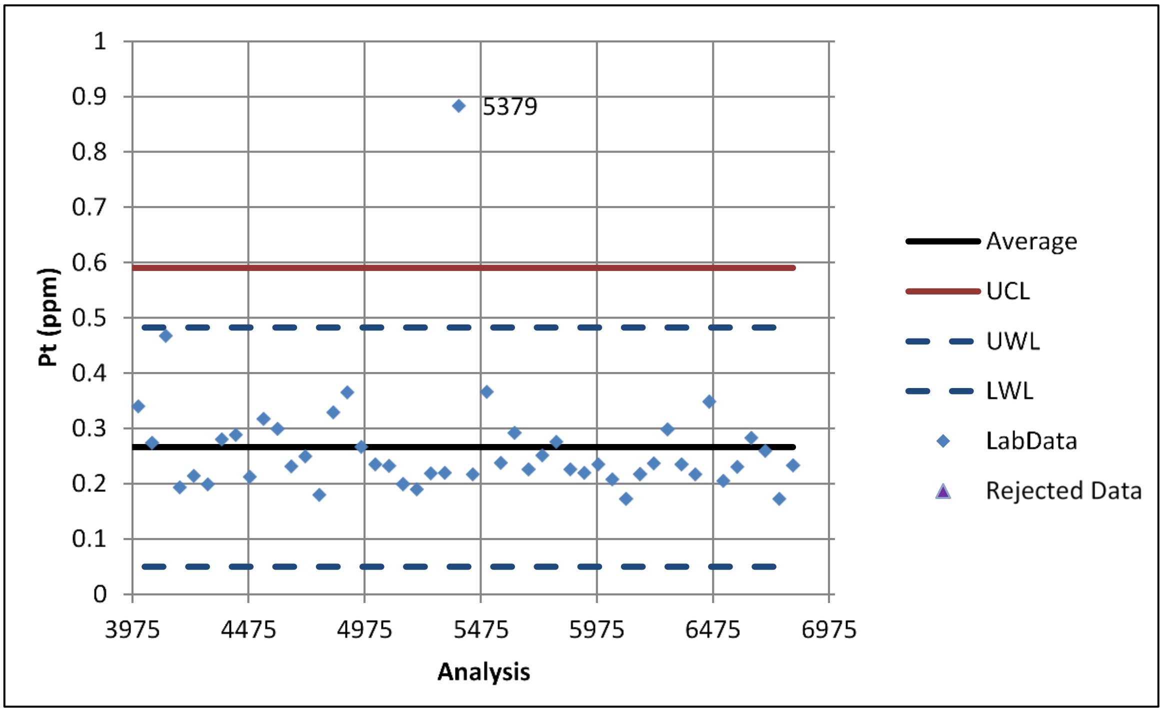
Source: Gen Mining (2024).

Figure 11-29: Performance of CRM MPG2 for Au



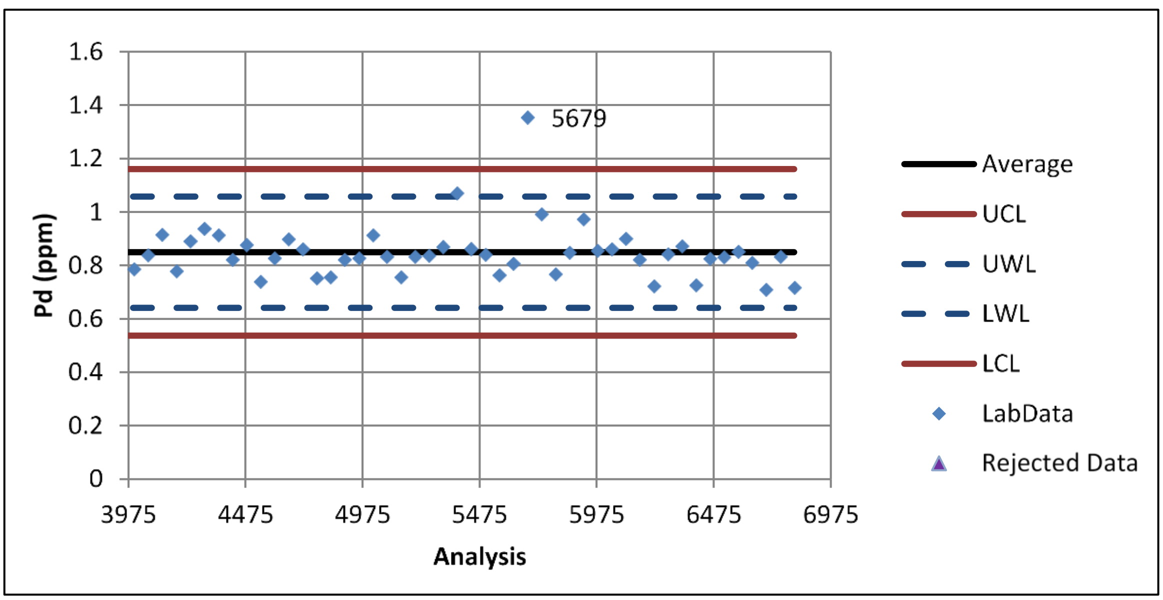
Source: Gen Mining (2024).

Figure 11-30: Performance of CRM MPG2 for Pt



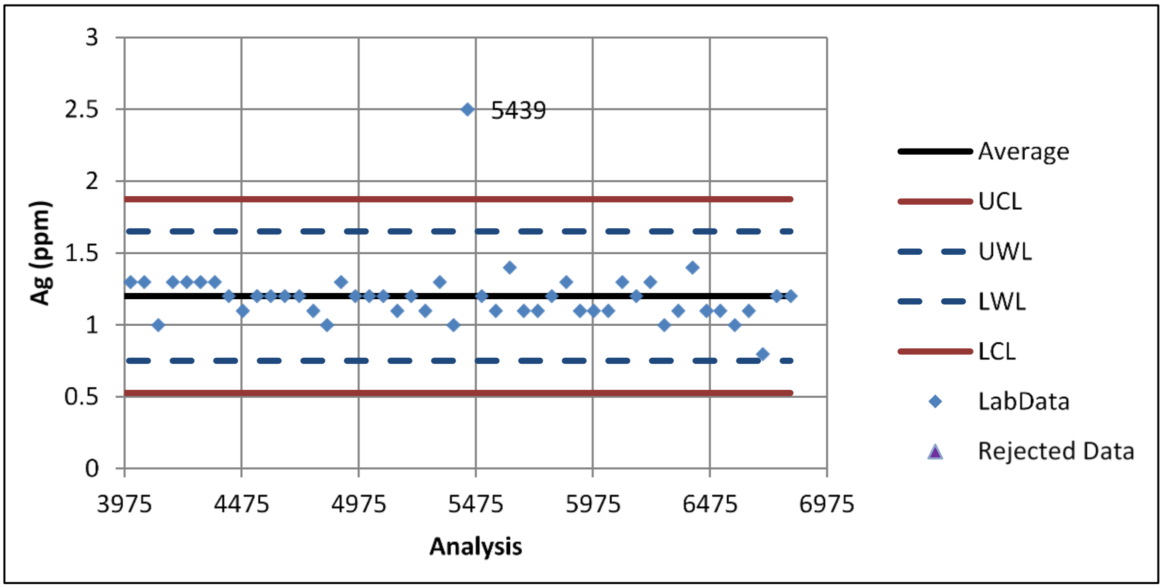
Source: Gen Mining (2024).

Figure 11-31: Performance of CRM MPG2 for Pd



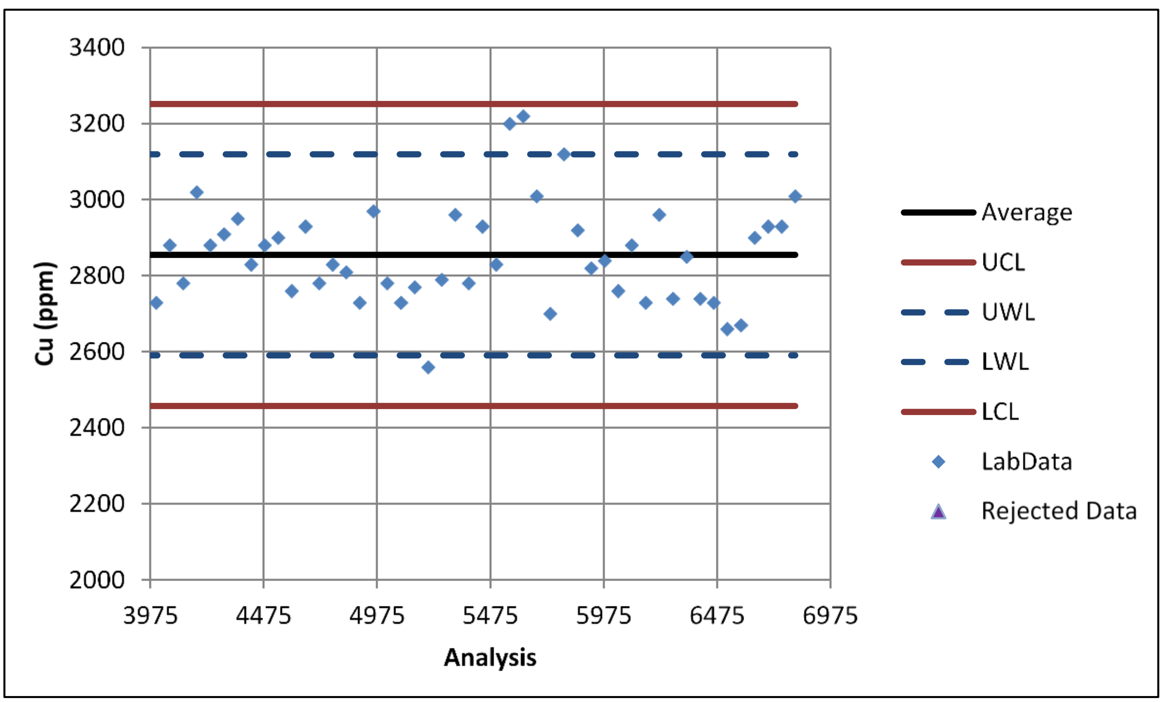
Source: Gen Mining (2024).

Figure 11-32: Performance of CRM MPG2 for Ag



Source: Gen Mining (2024).

Figure 11-33: Performance of CRM MPG2 for Cu



Source: Gen Mining (2024).

11.4.1.2 Performance of Blank Material

The blanks were created in-house using granular nepheline syenite sand purchased from Bell and Mackenzie Ltd. (Thunder Bay). Baggies of blank material were prepared in a clean environment.

The mean value, standard deviation, and upper working limits (two standard deviations from the average) of the blank material are presented in Table 11-7.

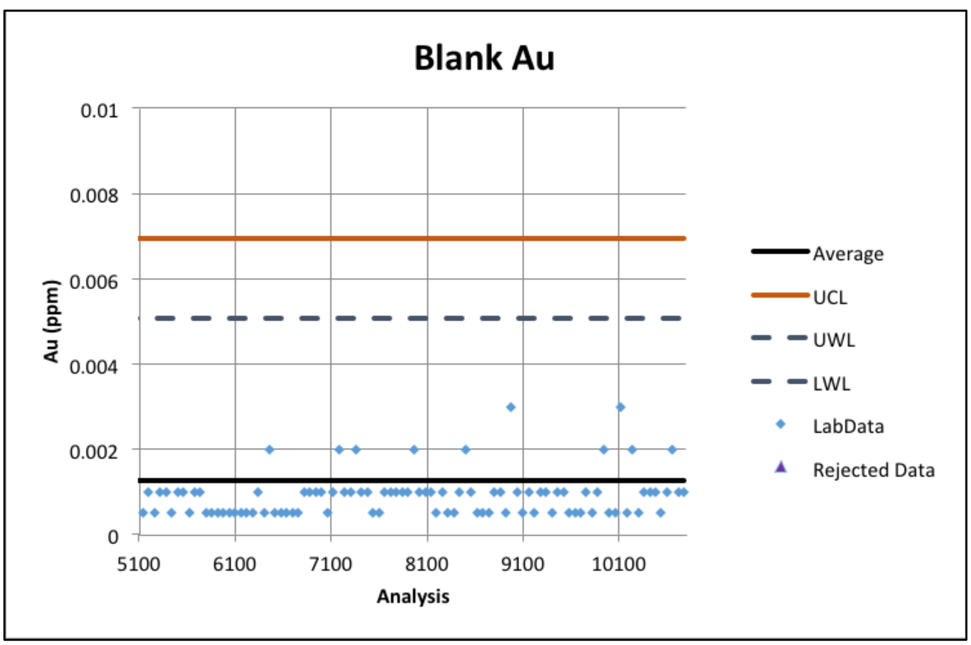
The results of the blank sample analyses were considered excellent, with the vast majority of the Au, Pt, Pd, Ag and Cu determinations plotting below the respective upper working limit of two times the standard deviation of the mean of each element (Figure 11-34 to Figure 11-38). The occasional result plotting above the upper working limit (as with sample 8621 in Figure 11-35) was considered to be immaterial to the Mineral Resource Estimate and contamination was not considered to be an issue in the 2013 data.

Table 11-7: Blank Control Limits

Description	Au (ppm)	Pt (ppm)	Pd (ppm)	Ag (ppm)	Cu (ppm)	Ni (ppm)	S (%)
Average	0.0013	0.0028	0.0011	0.1096	8.0593	2.9765	0.0176
Standard Deviation	0.0019	0.0009	0.0012	0.0327	8.7975	10.5980	0.0414
Upper Working Limit	0.0051	0.0046	0.0034	0.1751	25.6543	24.1726	0.1004

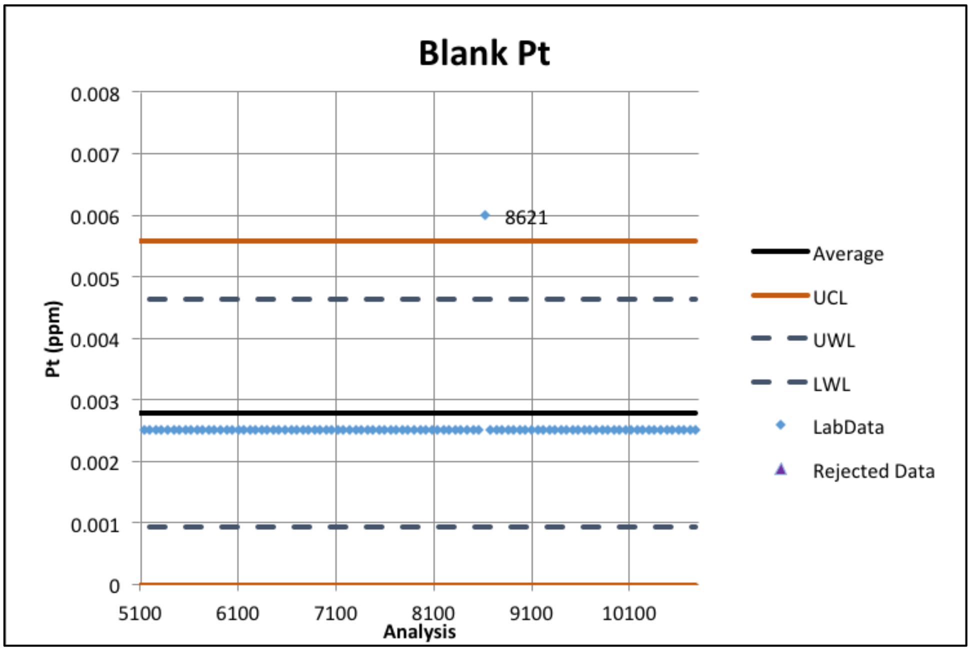
Note: Ag = silver, Au = gold, Cu = copper, Ni = nickel, Pd = palladium, Pt = platinum, S = sulphur.

Figure 11-34: Performance of Blanks for Au



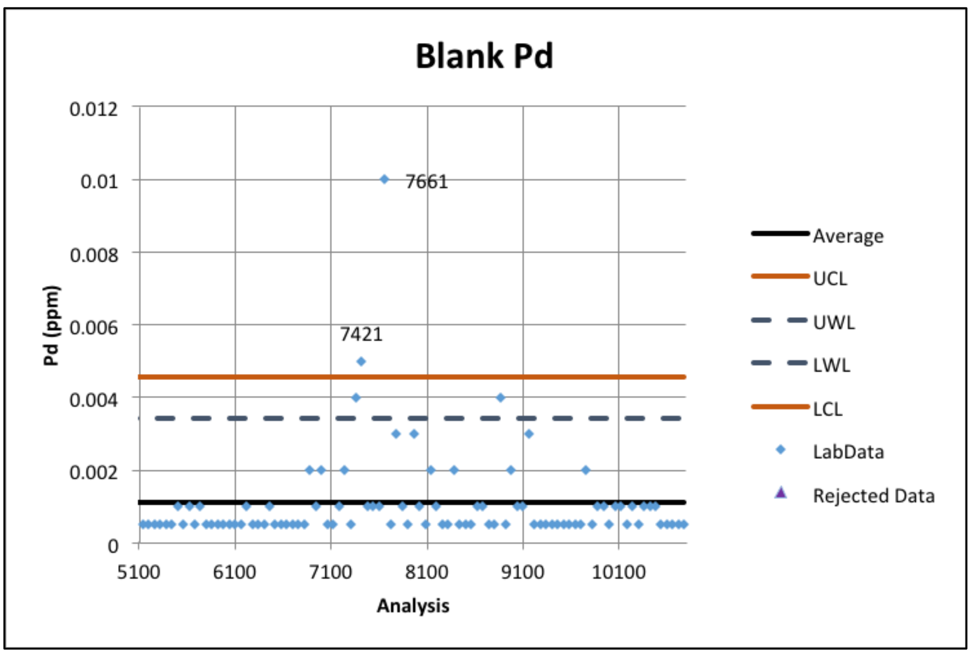
Source: Gen Mining (2024).

Figure 11-35: Performance of Blanks for Pt



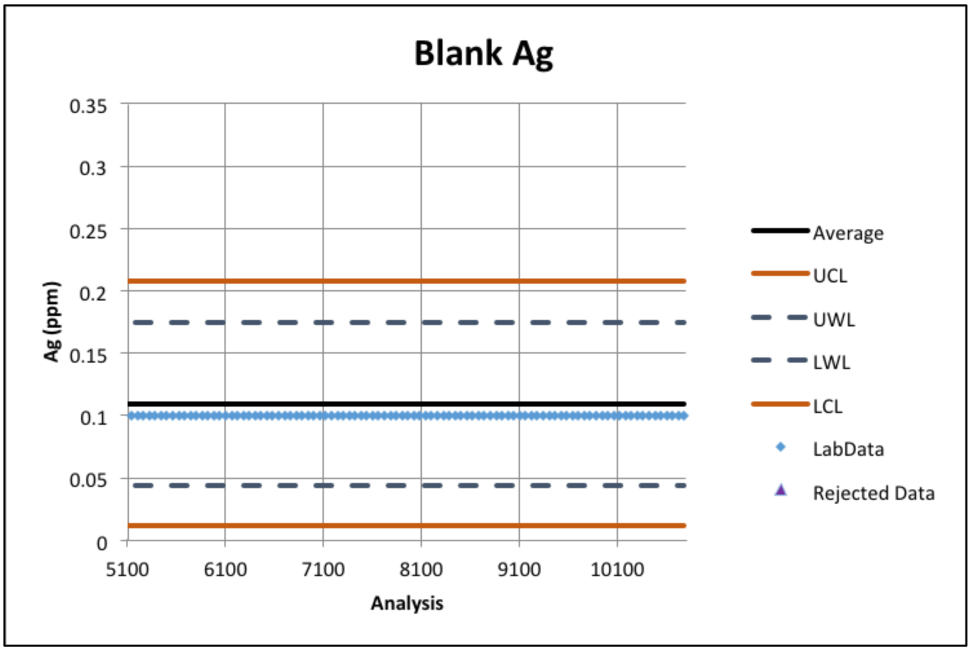
Source: Gen Mining (2024).

Figure 11-36: Performance of Blanks for Pd



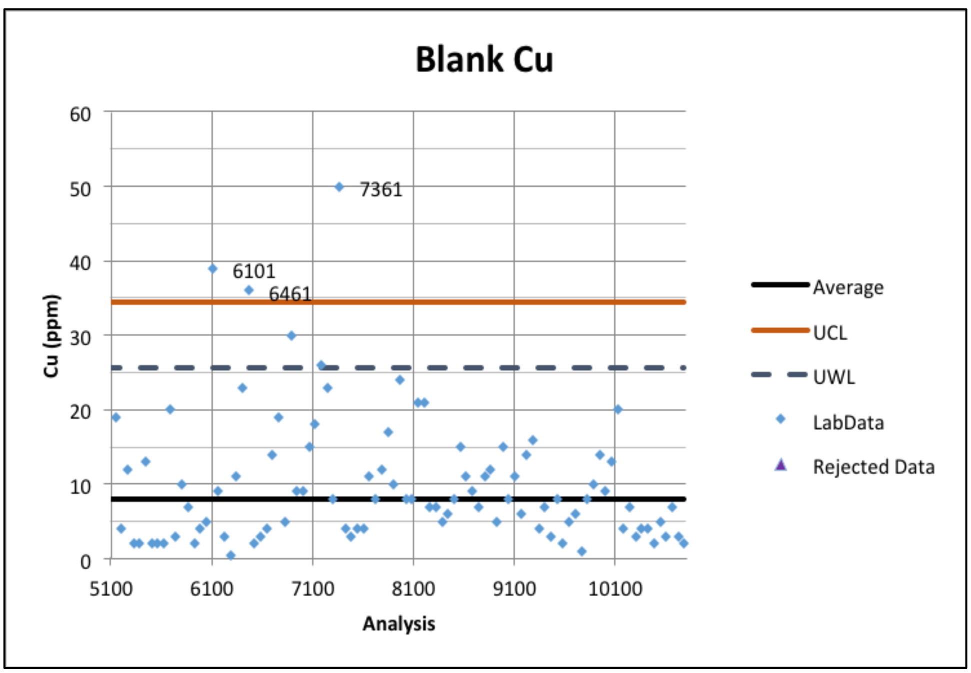
Source: Gen Mining (2024).

Figure 11-37: Performance of Blanks for Ag



Source: Gen Mining (2024).

Figure 11-38: Performance of Blanks for Cu



Source: Gen Mining (2024).

11.4.1.3 Performance of Field Duplicates

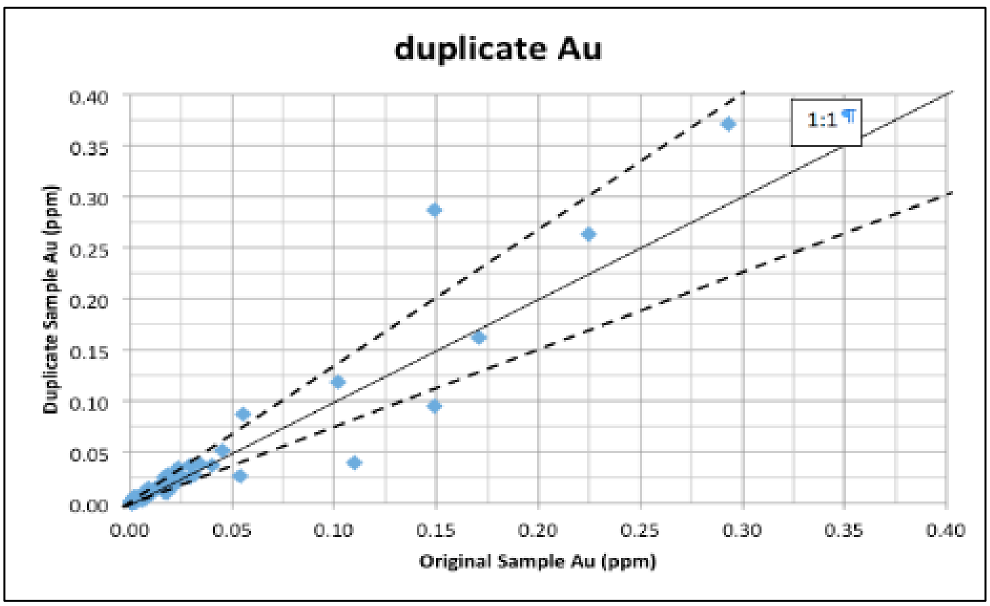
The field duplicate data is represented in Table 11-8 and the duplicate sample results are plotted in Figure 11-39 through Figure 11-43 for Au, Pt, Pd, Ag, Cu, Ni, and S. A best-fit line and the R^2 value is calculated for each element. There is a strong confidence in the data, with all R^2 values >89%.

Table 11-8: Field Duplicate Control Limits

Description	Au (ppm)	Pt (ppm)	Pd (ppm)	Ag (ppm)	Cu (ppm)	Ni (ppm)	S (%)
Average	0.0195	0.0489	0.0854	0.3417	825	124.1472	0.3048
Standard Deviation	0.0391	0.1054	0.1771	0.3329	909.051	164.5228	0.3599
R^2	0.899	0.8933	0.9508	0.911	0.9551	0.9874	0.944

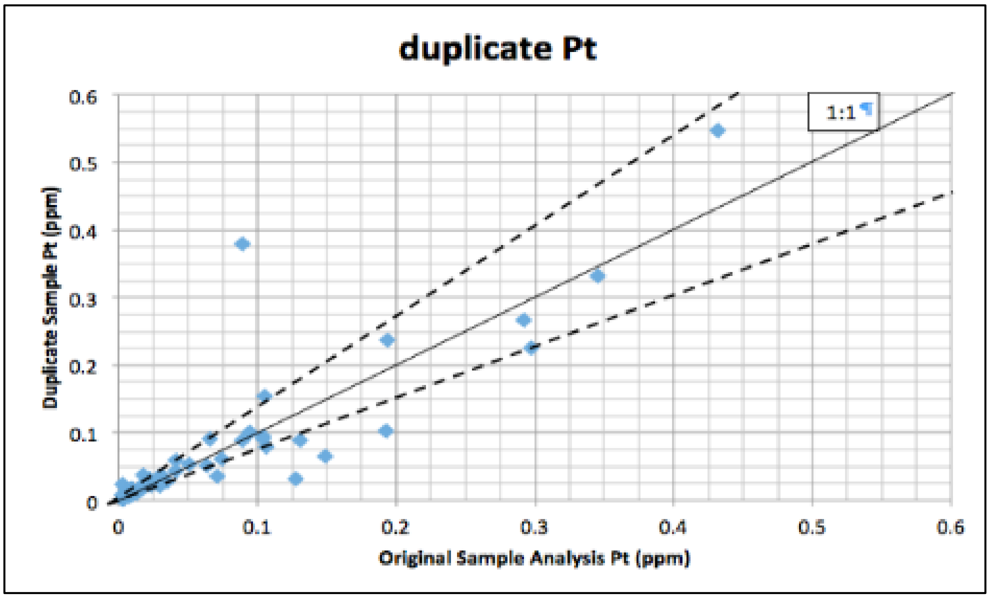
Note: Ag = silver, Au = gold, Cu = copper, Ni = nickel, Pd = palladium, Pt = platinum, S = sulphur.

Figure 11-39: Performance of Field Duplicates for Au



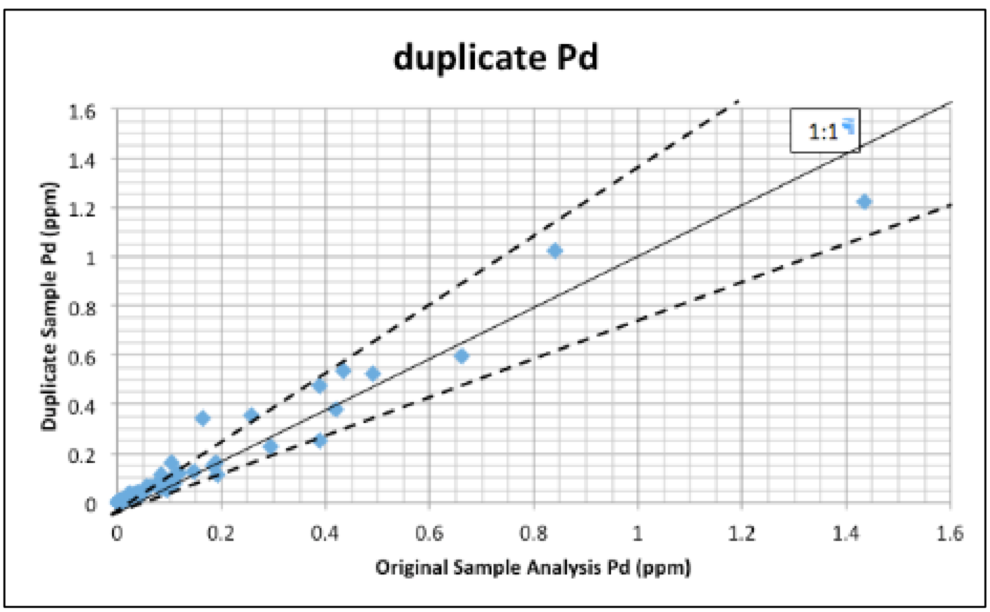
Source: Gen Mining (2024).

Figure 11-40: Performance of Field Duplicates for Pt



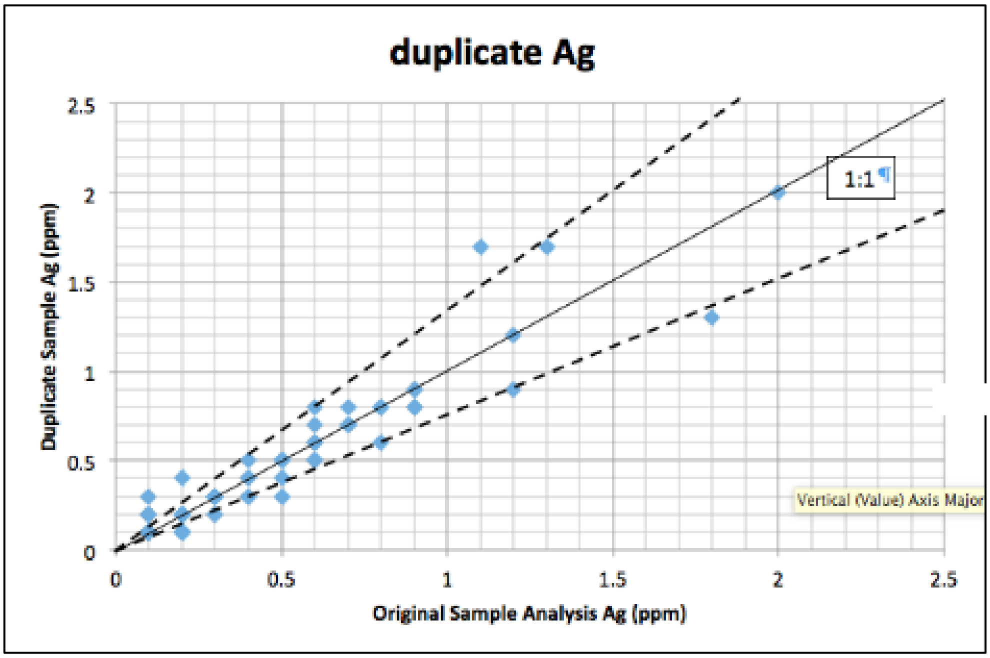
Source: Gen Mining (2024).

Figure 11-41: Performance of Field Duplicates for Pd



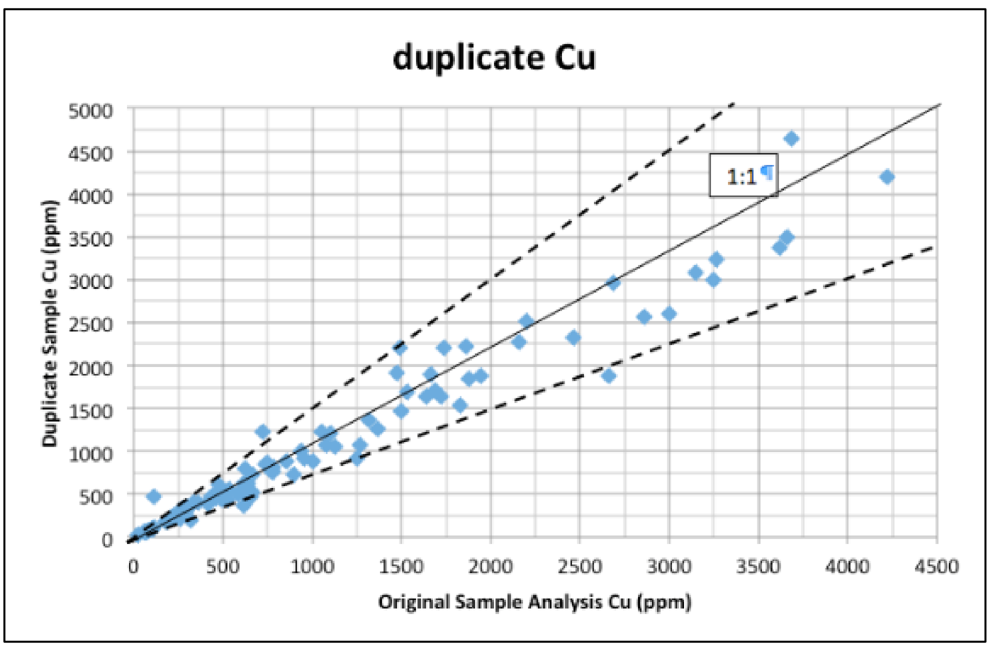
Source: Gen Mining (2024).

Figure 11-42: Performance of Field Duplicates for Ag



Source: Gen Mining (2024).

Figure 11-43: Performance of Field Duplicates for Cu



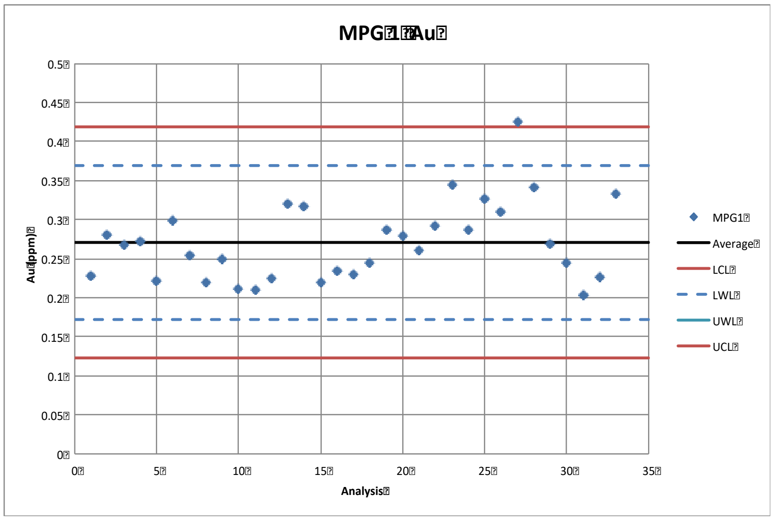
Source: Gen Mining (2024).

11.4.2 2017 Drilling Program

11.4.2.1 Performance of Certified Reference Materials

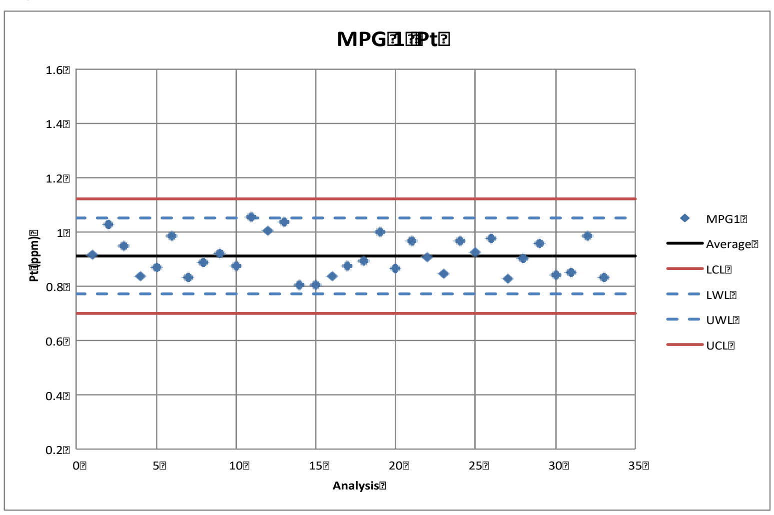
The analyses for elements Au, Pt, Pd, Ag and Cu for CRMs MPG1 and MPG2 are plotted in Figure 11-44 to Figure 11-53. Some outliers beyond the set control limits are apparent; however, the overall performance of both CRMs, for all elements, was excellent and no bias or temporal variation in the 2017 data was observed.

Figure 11-44: Performance of CRM MPG1 Au



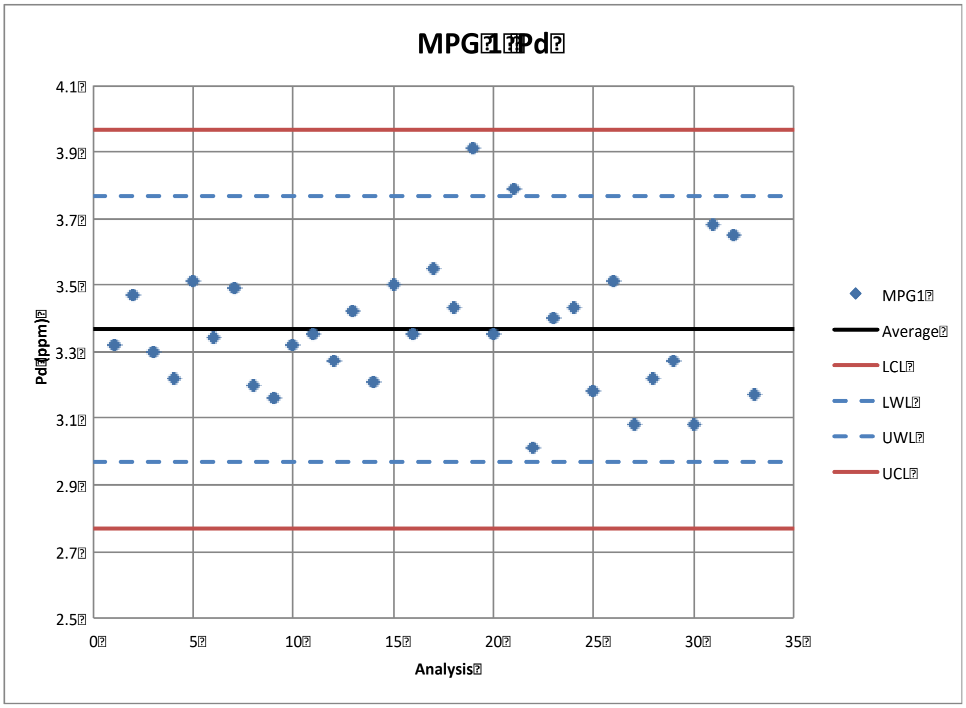
Source: Gen Mining (2024).

Figure 11-45: Performance of CRM MPG1 for Pt



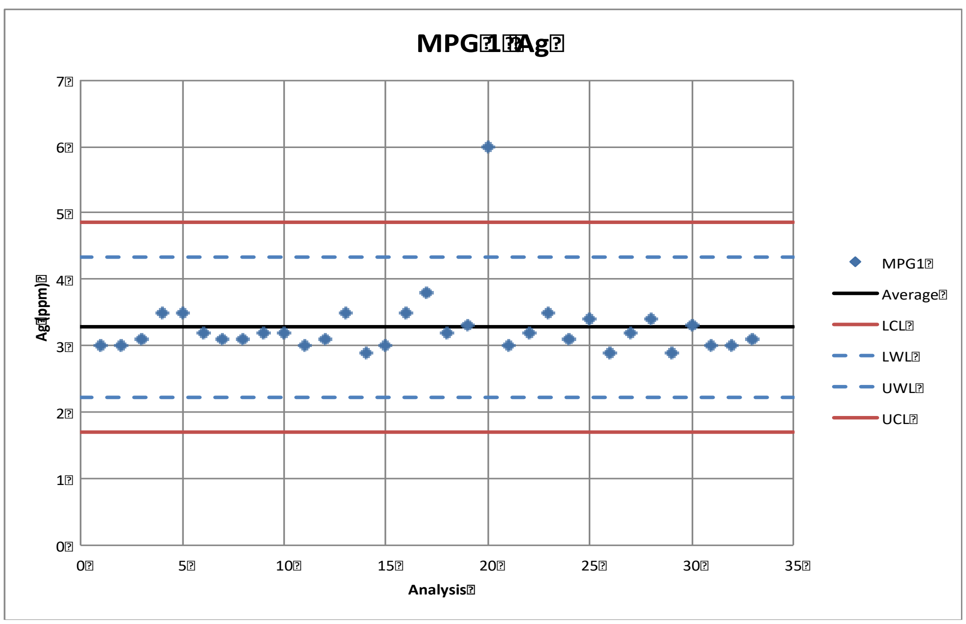
Source: Gen Mining (2024).

Figure 11-46: Performance of CRM MPG1 for Pd



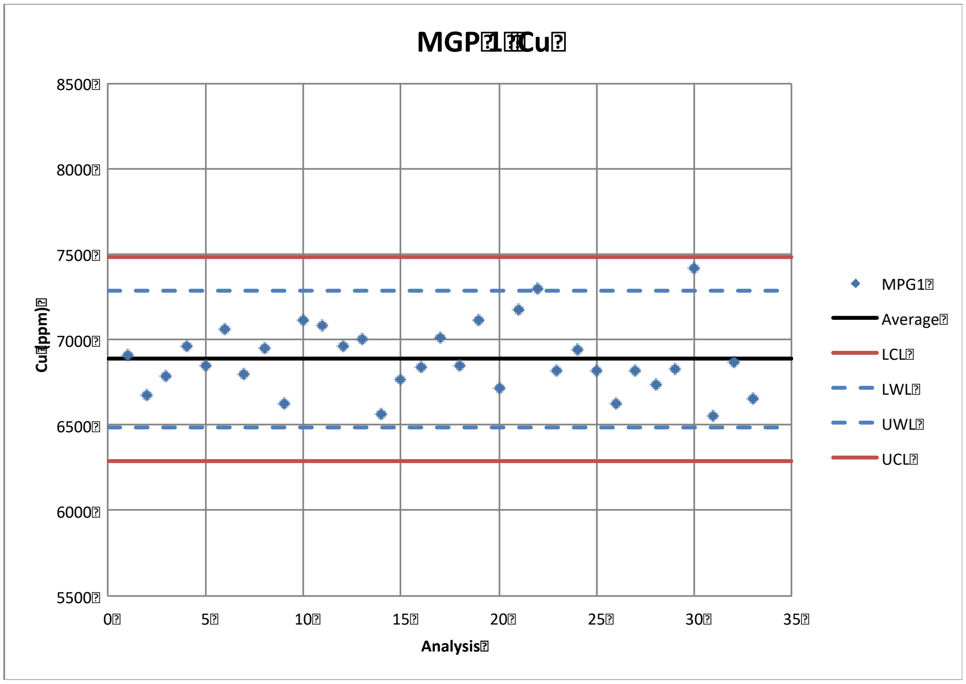
Source: Gen Mining (2024).

Figure 11-47: Performance of CRM MPG1 for Ag



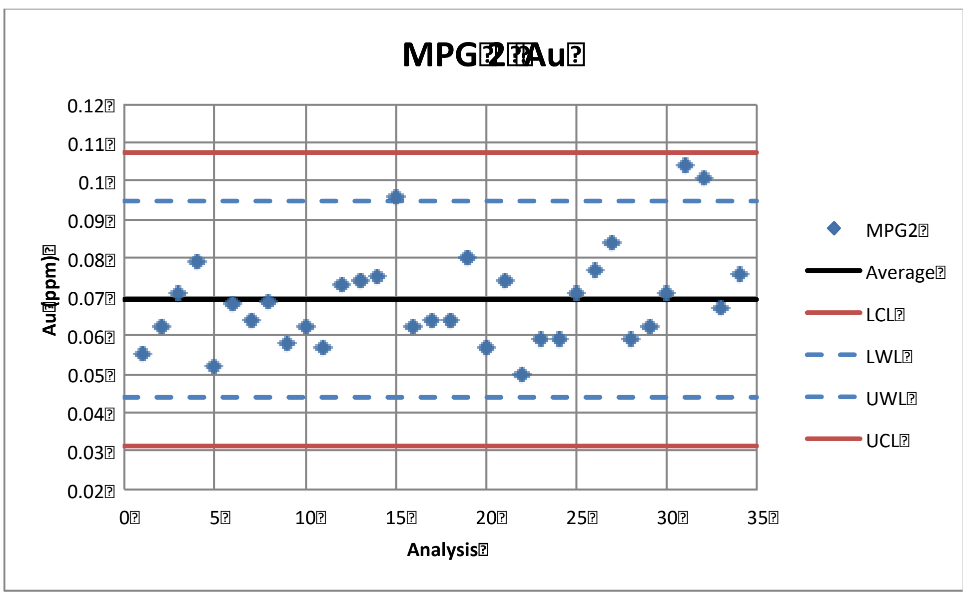
Source: Gen Mining (2024).

Figure 11-48: Performance of CRM MPG1 for Cu



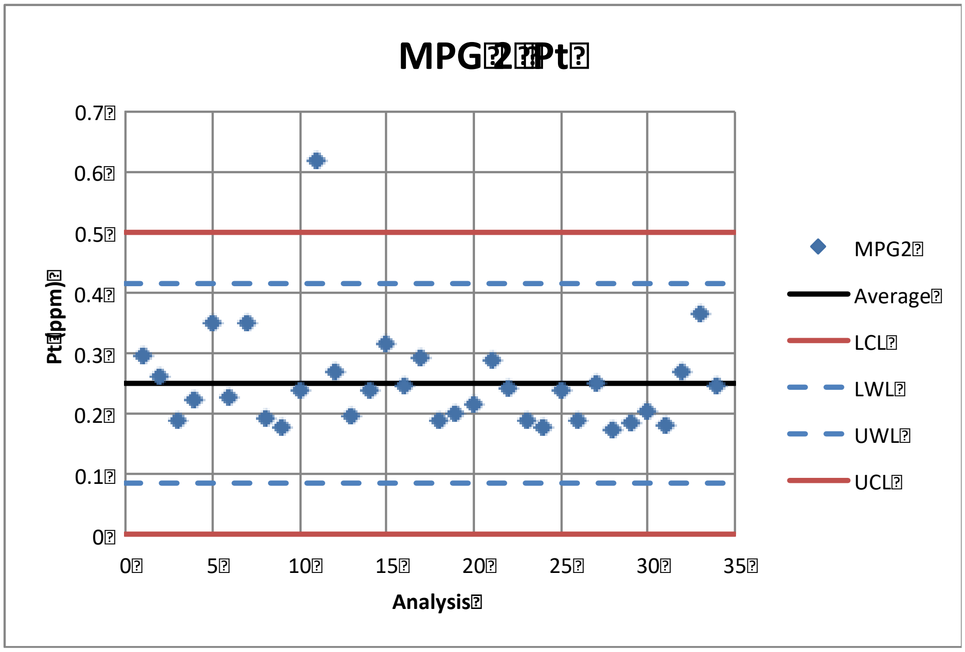
Source: Gen Mining (2024).

Figure 11-49: Performance of CRM MPG2 for Au



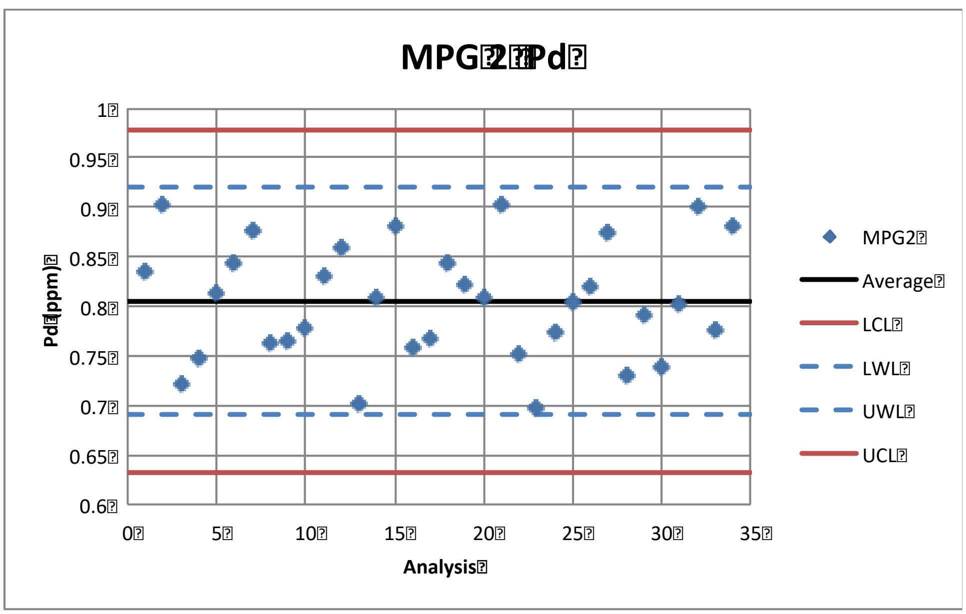
Source: Gen Mining (2024).

Figure 11-50: Performance of CRM MPG2 for Pt



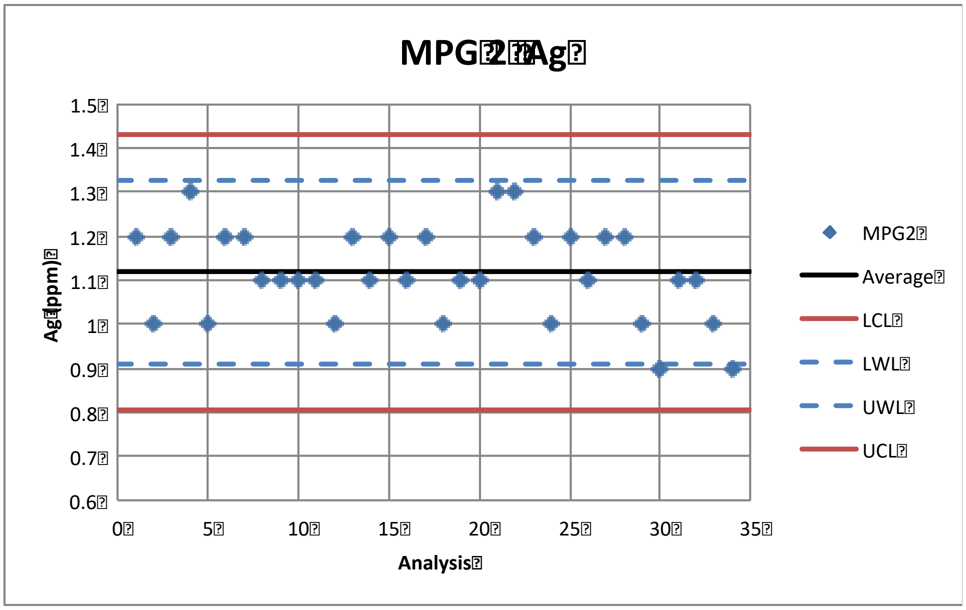
Source: Gen Mining (2024).

Figure 11-51: Performance of CRM MPG2 for Pd



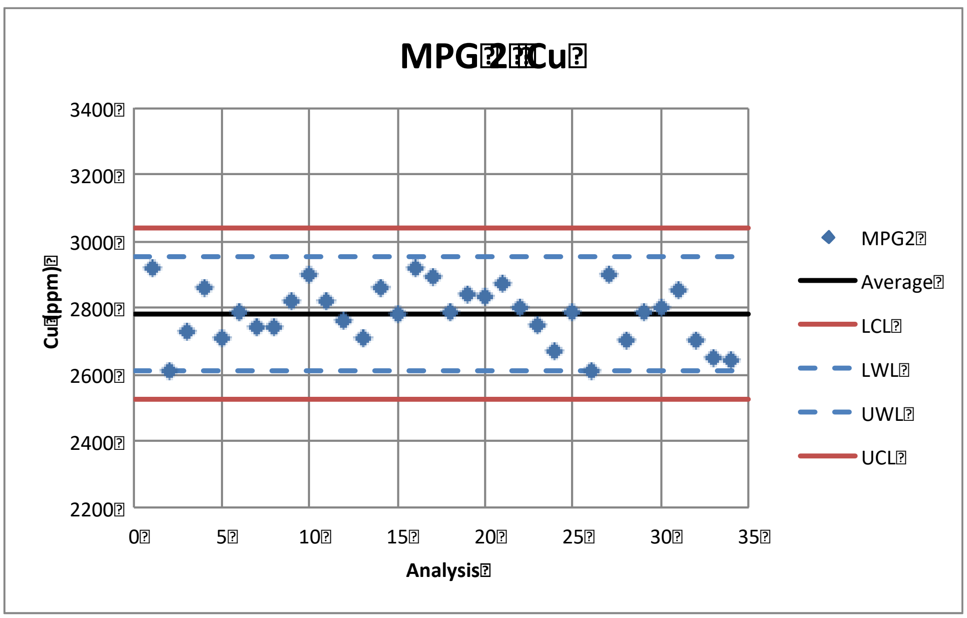
Source: Gen Mining (2024).

Figure 11-52: Performance of CRM MPG2 for Ag



Source: Gen Mining (2024).

Figure 11-53: Performance of CRM MPG2 for Cu

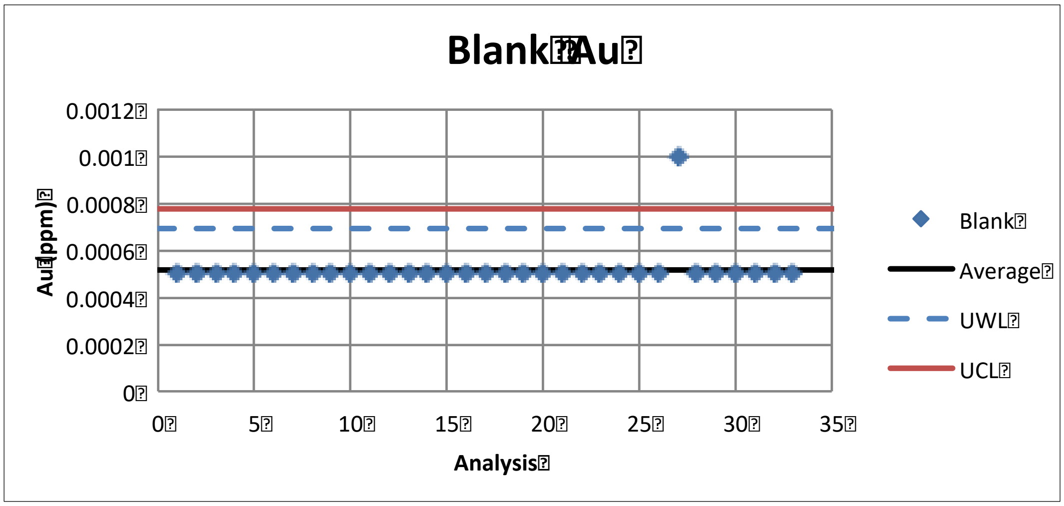


Source: Gen Mining (2024).

11.4.2.2 Performance of Blank Material

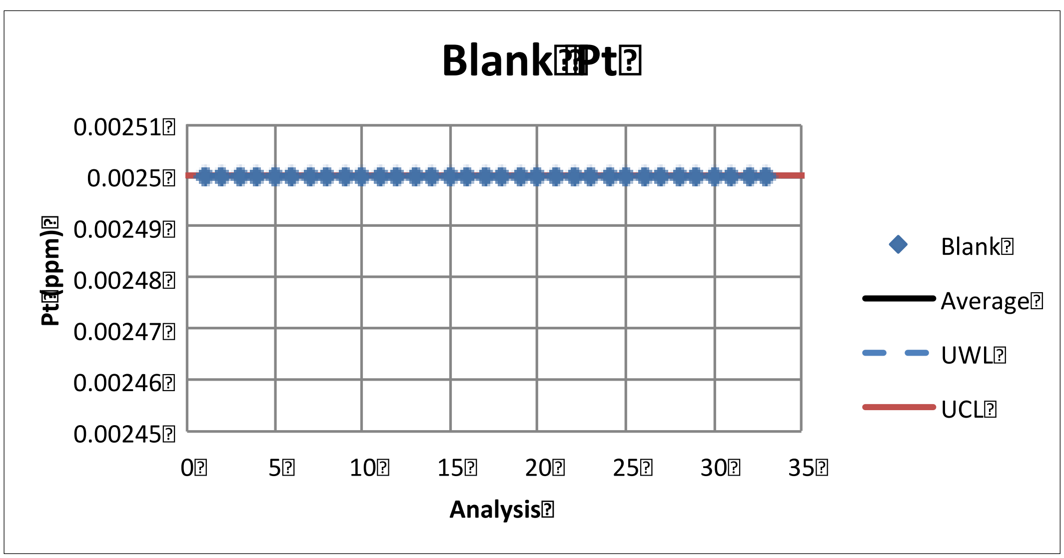
The results of the blank sample analyses (Figure 11-54 to Figure 11-58) were considered excellent, with the vast majority of the Au, Pt, Pd, Ag, and Cu determinations plotting below the respective upper working limit of two times the standard deviation of the mean of each element. The occasional result which plotting above the upper working limit was not considered to be of material impact to the Mineral Resource Estimate and contamination was not considered to be an issue with the 2017 data.

Figure 11-54: Performance of Blanks for Au



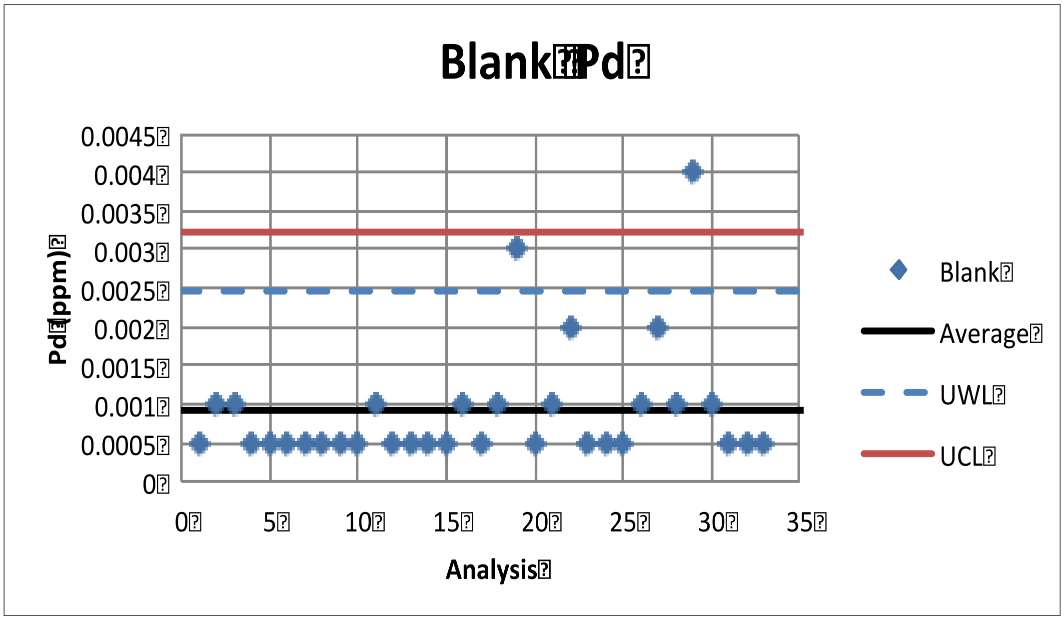
Source: Gen Mining (2024).

Figure 11-55: Performance of Blanks for Pt



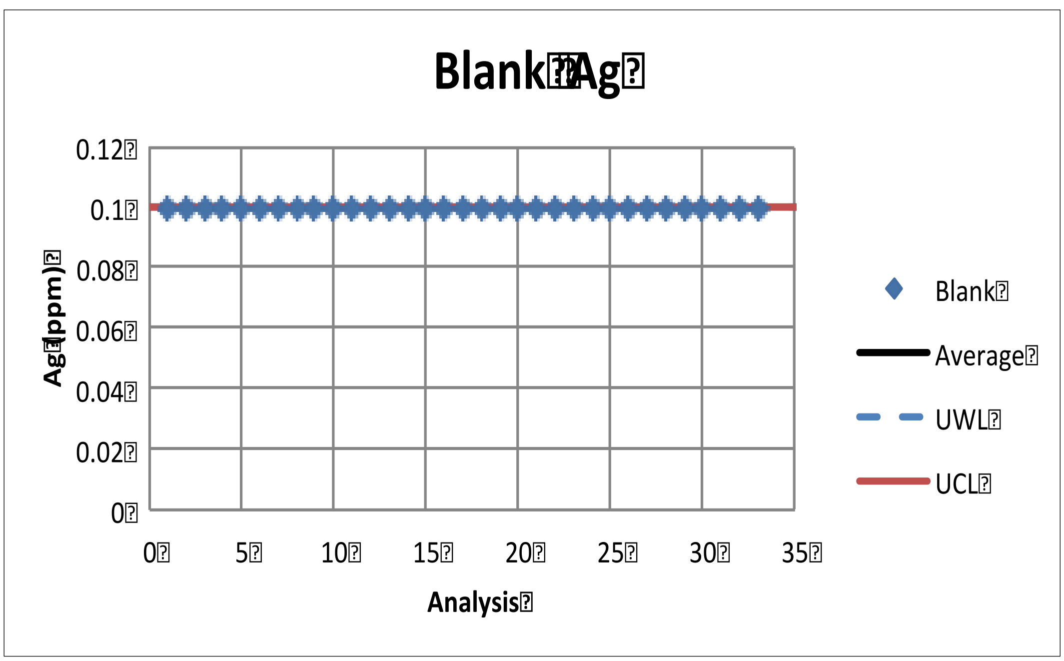
Source: Gen Mining (2024).

Figure 11-56: Performance of Blanks for Pd



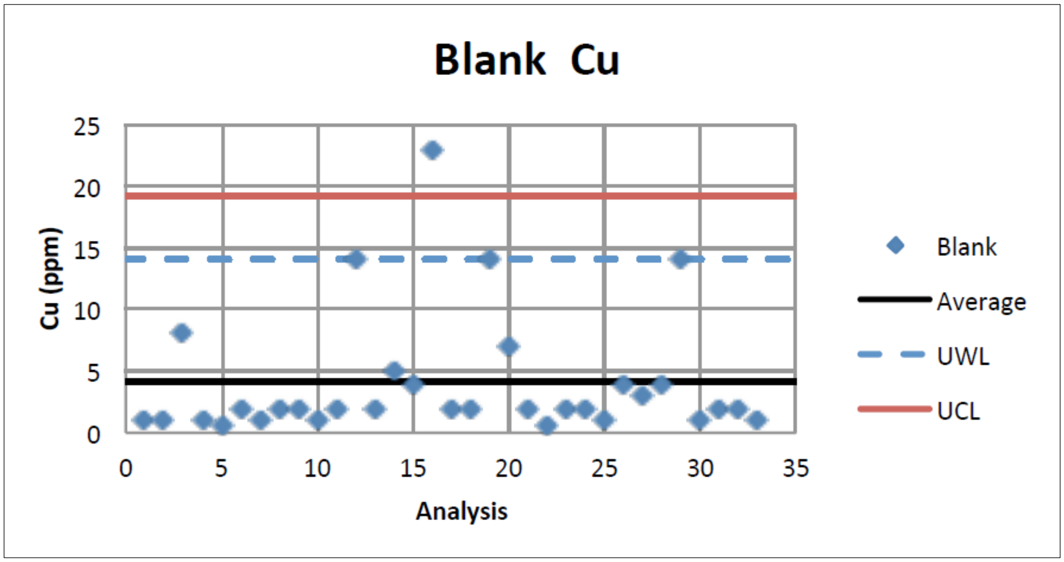
Source: Gen Mining (2024).

Figure 11-57: Performance of Blanks for Ag



Source: Gen Mining (2024).

Figure 11-58: Performance of Blanks for Cu



Source: Gen Mining (2024).

11.4.2.3 Performance of Field Duplicates

The field duplicate data for Au, Pt, Pd, Ag, and Cu were plotted on scatterplots and precision for all elements was considered acceptable by the QP.

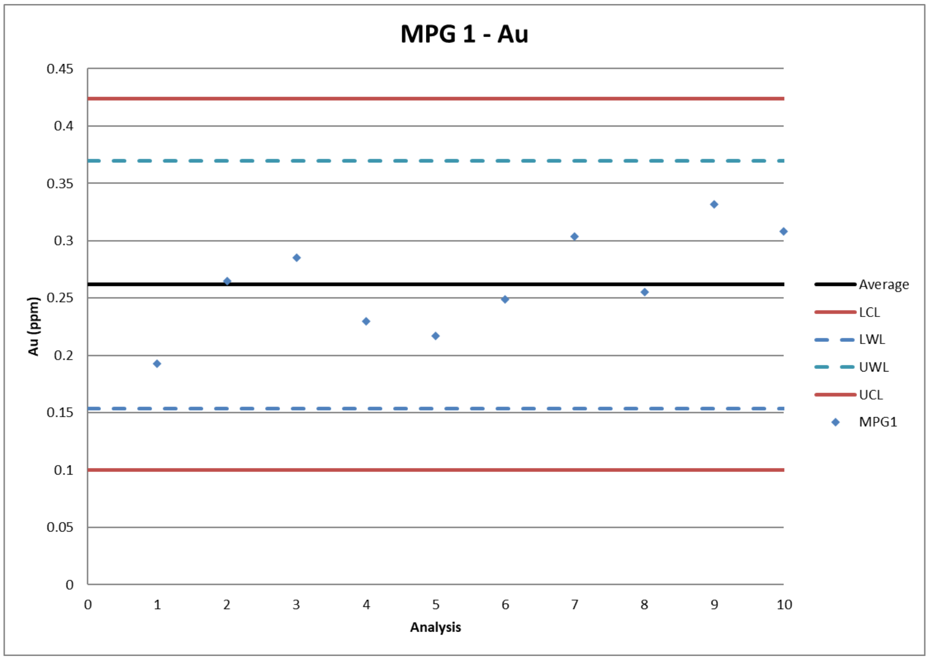
11.4.3 2019 to 2024 Drilling Programs

11.4.3.1 Performance of Certified Reference Material

The analyses for elements Au, Pt, Pd, Ag, and Cu for CRMs MPG1 and MPG2 are plotted in Figure 11-59 to Figure 11-68.

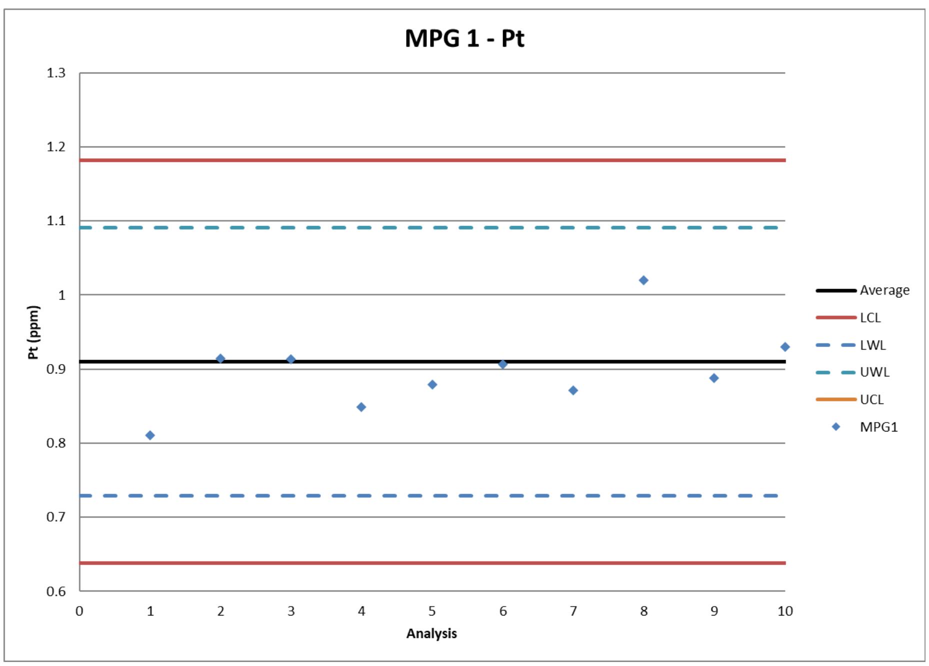
Some outliers beyond the set control limits can be observed; however, the overall performance of both CRMs for all elements was excellent and no bias or temporal variation in the 2019 data is apparent.

Figure 11-59: Performance of CRM MPG1 Au



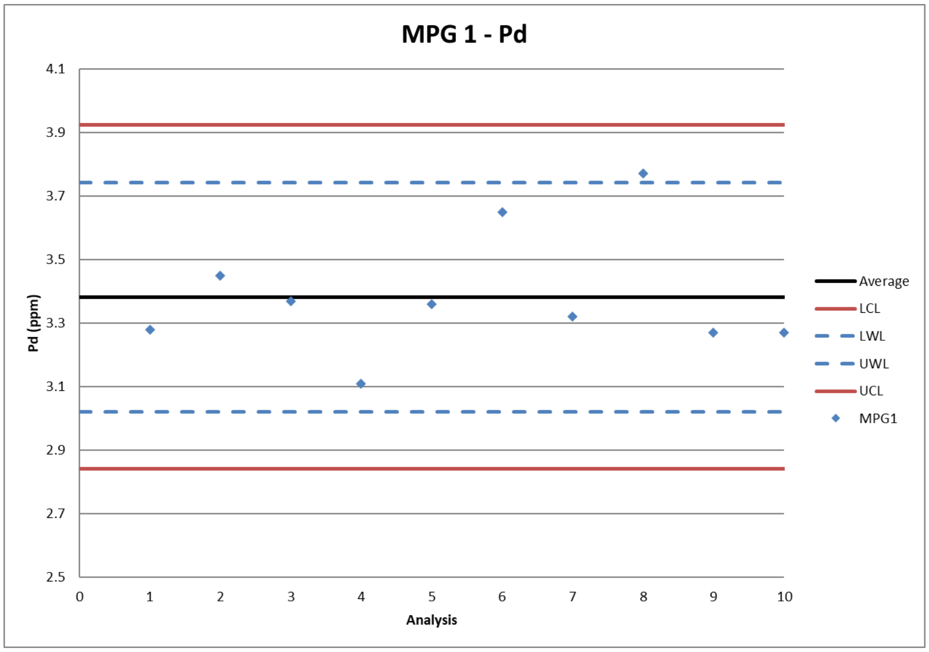
Source: Gen Mining (2024).

Figure 11-60: Performance of CRM MPG1 for Pt



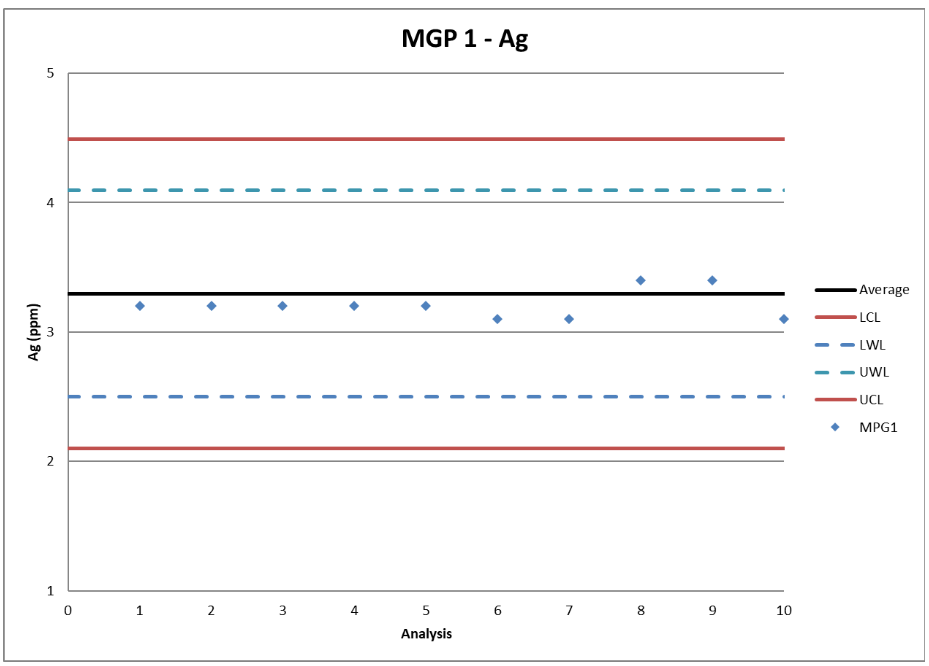
Source: Gen Mining (2024).

Figure 11-61: Performance of CRM MPG1 for Pd



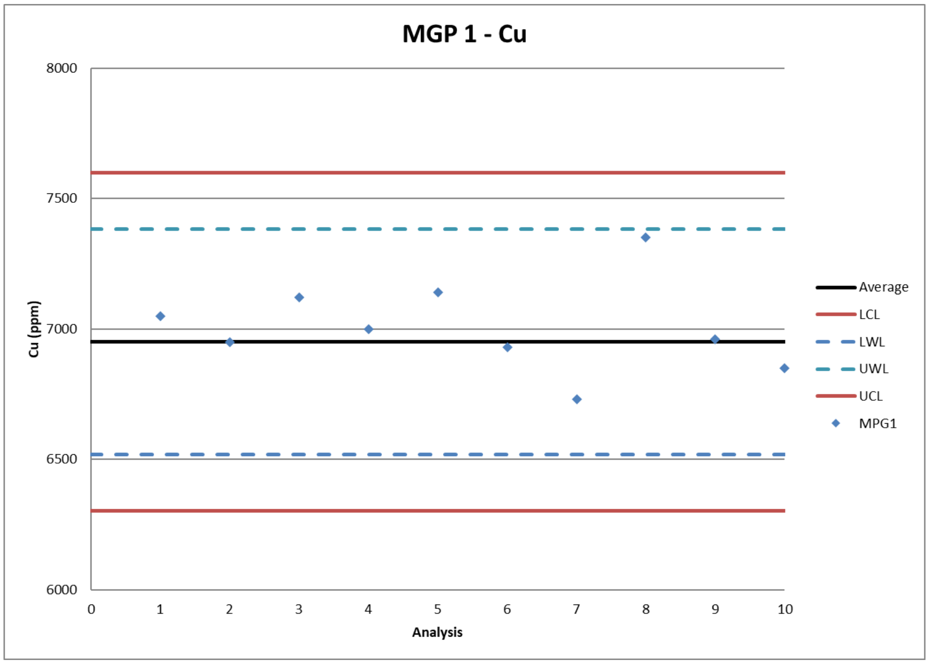
Source: Gen Mining (2024).

Figure 11-62: Performance of CRM MPG1 for Ag



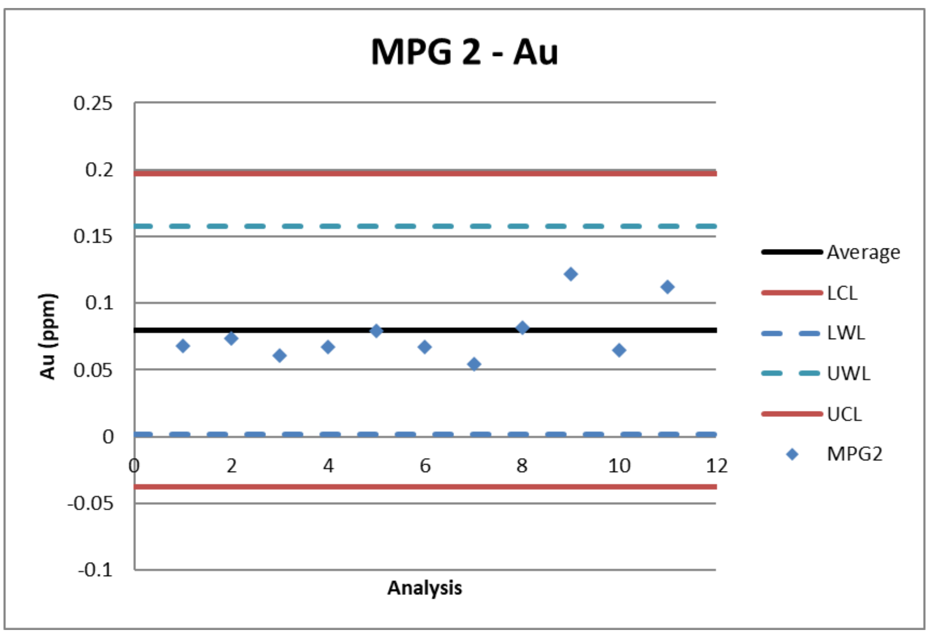
Source: Gen Mining (2024).

Figure 11-63: Performance of CRM MPG1 for Cu



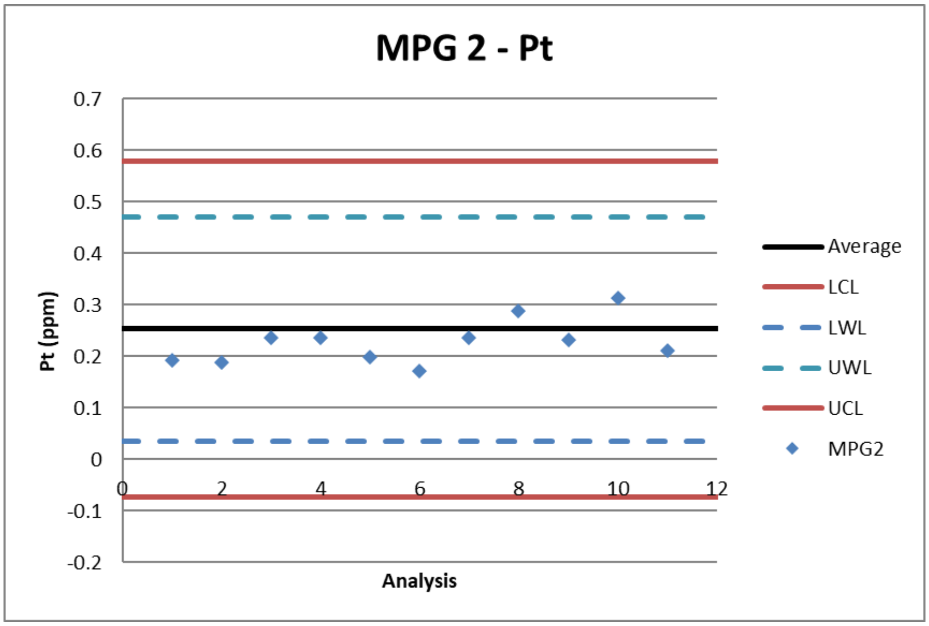
Source: Gen Mining (2024).

Figure 11-64: Performance of CRM MPG2 for Au



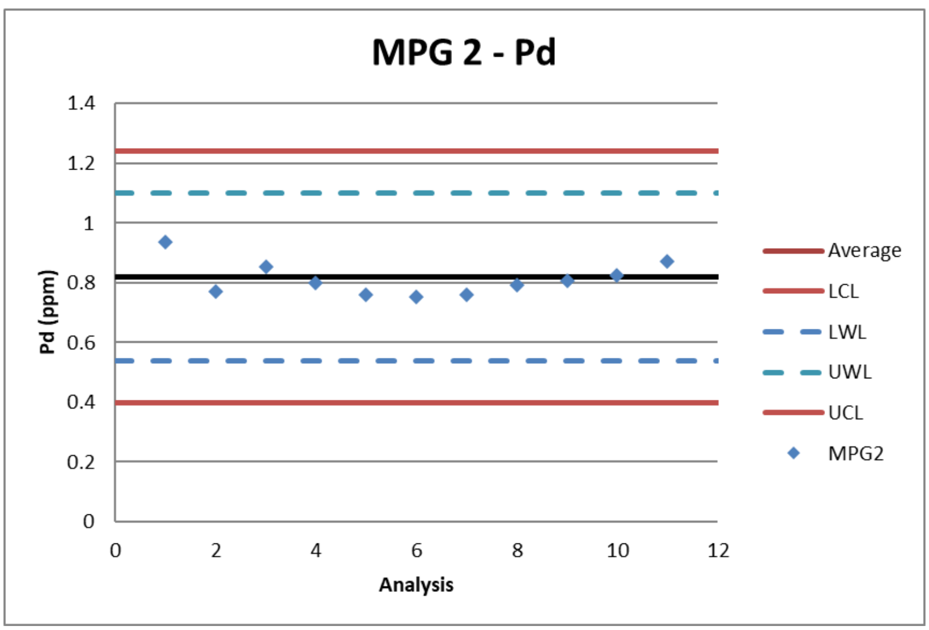
Source: Gen Mining (2024).

Figure 11-65: Performance of CRM MPG2 for Pt



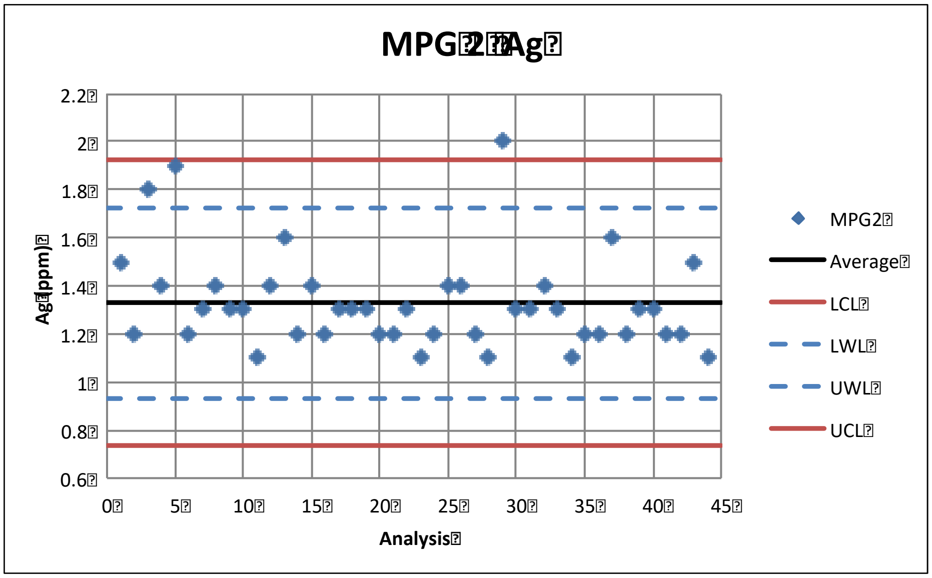
Source: Gen Mining (2024).

Figure 11-66: Performance of CRM MPG2 for Pd



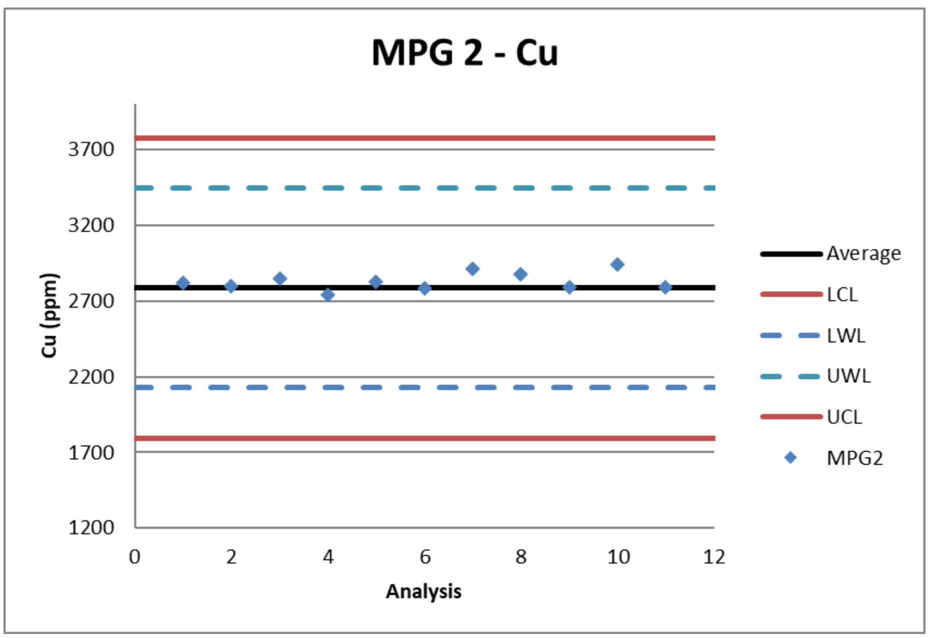
Source: Gen Mining (2024).

Figure 11-67: Performance of CRM MPG2 for Ag



Source: Gen Mining (2024).

Figure 11-68: Performance of CRM MPG2 for Cu

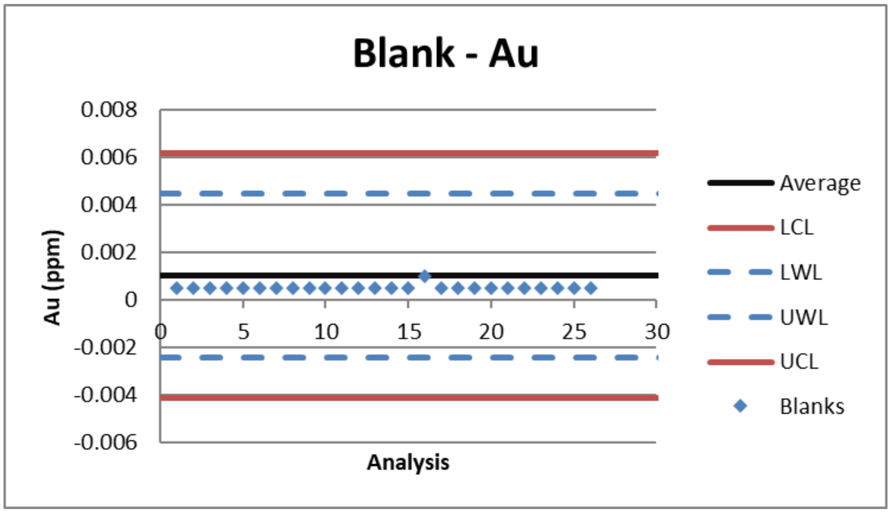


Source: Gen Mining (2024).

11.4.3.2 Performance of Blank Material

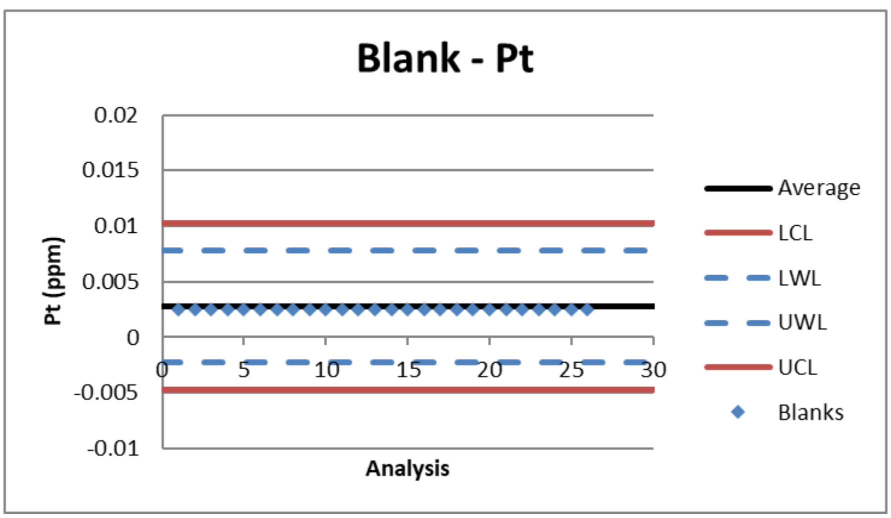
The results of the blank sample analyses were considered excellent, with the vast majority of the Au, Pt, Pd, Ag, and Cu determinations plotting below the respective upper working limit of two times the standard deviation of the mean of each element (Figure 11-69 to Figure 11-73). The occasional result plotting above the upper working limit was not considered to be of material impact to the Mineral Resource Estimate and contamination was not considered to be an issue with the 2019 data.

Figure 11-69: Performance of Blanks for Au



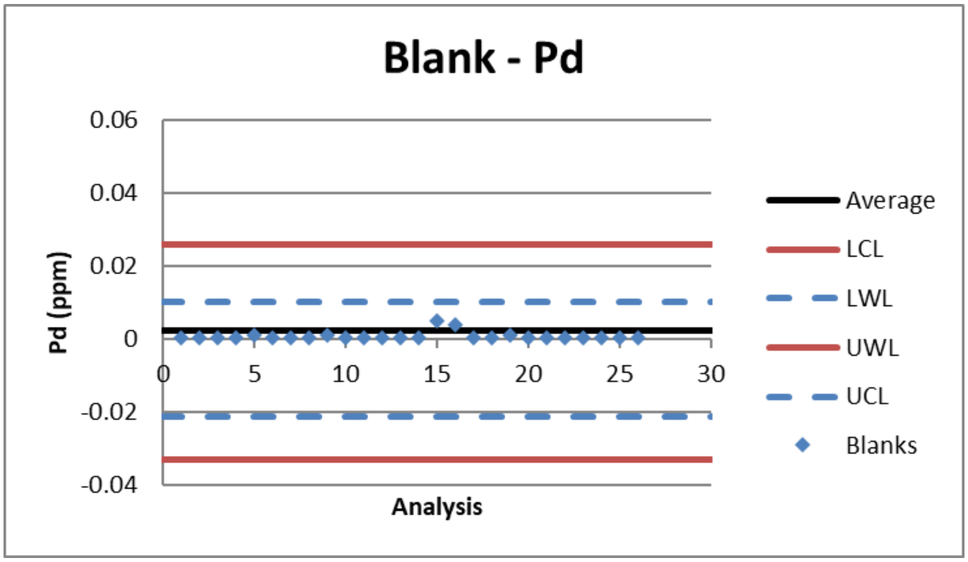
Source: Gen Mining (2024).

Figure 11-70: Performance of Blanks for Pt



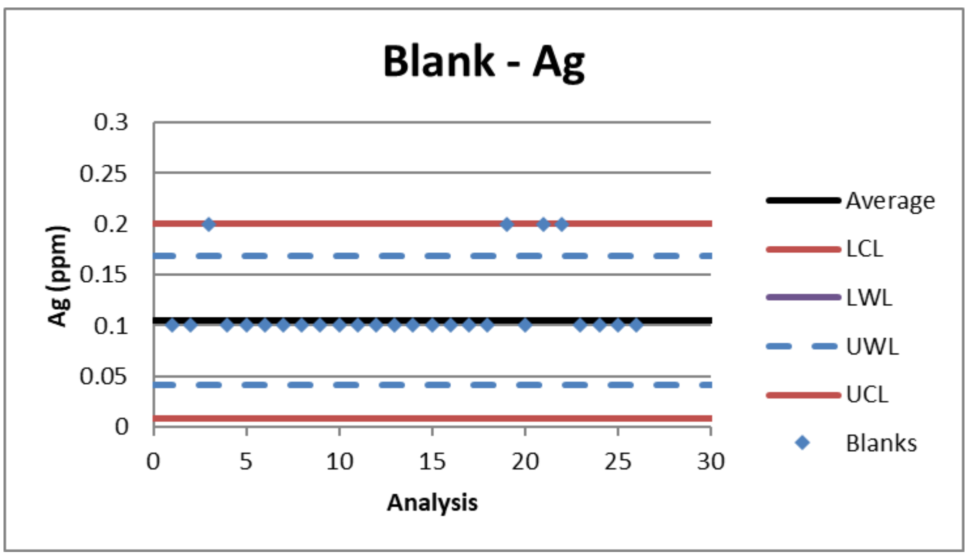
Source: Gen Mining (2024).

Figure 11-71: Performance of Blanks for Pd



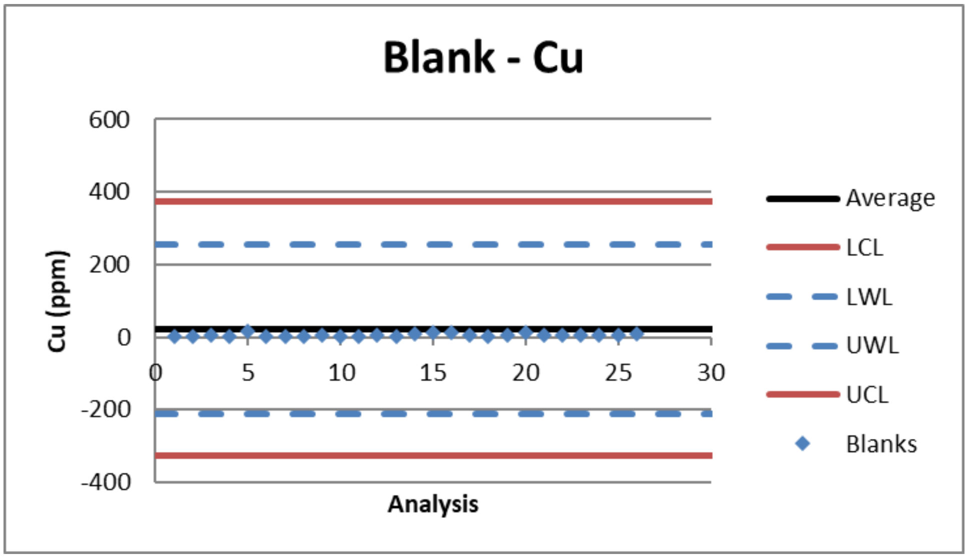
Source: Gen Mining (2024).

Figure 11-72: Performance of Blanks for Ag



Source: Gen Mining (2024).

Figure 11-73: Performance of Blanks for Cu



Source: Gen Mining (2024).

11.4.3.3 Performance of Field Duplicates

The field duplicate data for Au, Pt, Pd, Ag, and Cu were plotted on scatterplots and the precision for all elements was considered acceptable by the QP.

11.4.4 Conclusions

The QP of this section considers the Sally deposit data to be of satisfactory quality and acceptable for use in mineral resource estimation.

12 DATA VERIFICATION

12.1 April 2012 Site Visit Independent Sampling

The property was visited on April 4, 2012 by Mr. David Burga, P. Geo., of P&E, an independent QP as defined by NI 43-101. Mr. Burga collected 10 samples from nine holes. Samples were collected by sawing in half the half core that was remaining in the core box.

The samples were placed in plastic bags, given a unique sample ID, and taken by Mr. Burga to AGAT in Mississauga, Ontario for analysis.

Copper, silver, and nickel were analyzed using four-acid digest with AAS finish. Gold, platinum, and palladium were analyzed using lead collection fire assay with ICP-OES finish.

AGAT has developed and implemented a quality management system (QMS) at each of its locations to ensure the production of consistently reliable data. The system covers all laboratory activities and takes into consideration the requirements of ISO standards.

AGAT maintains ISO registrations and accreditations. ISO registration and accreditation provide independent verification that a QMS is in operation at the location in question. Most AGAT laboratories are registered or are pending registration to ISO 9001:2000.

Results of the independent site visit samples are presented in Figure 12-1 through Figure 12-4.

Figure 12-1: P&E Site Visit Results for Palladium

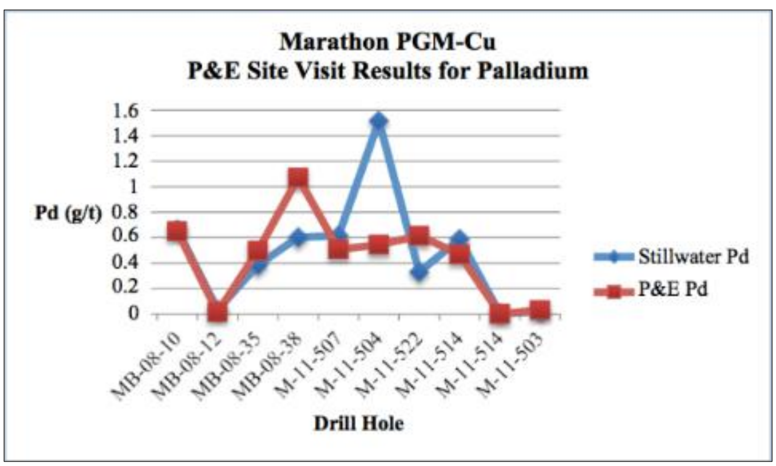


Figure 12-2: P&E Site Visit Results for Platinum

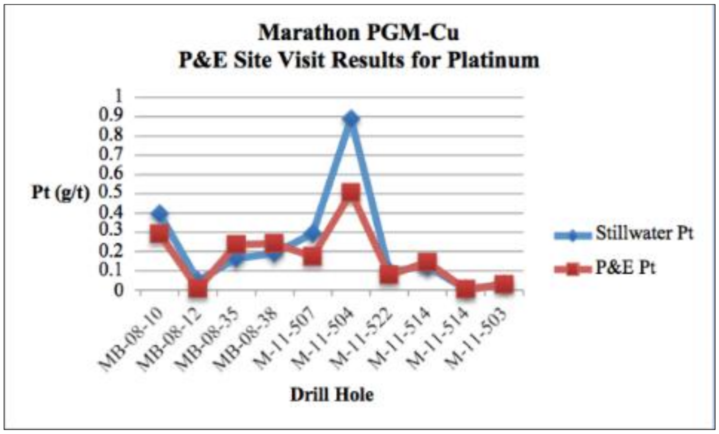


Figure 12-3: P&E Site Visit Results for Copper

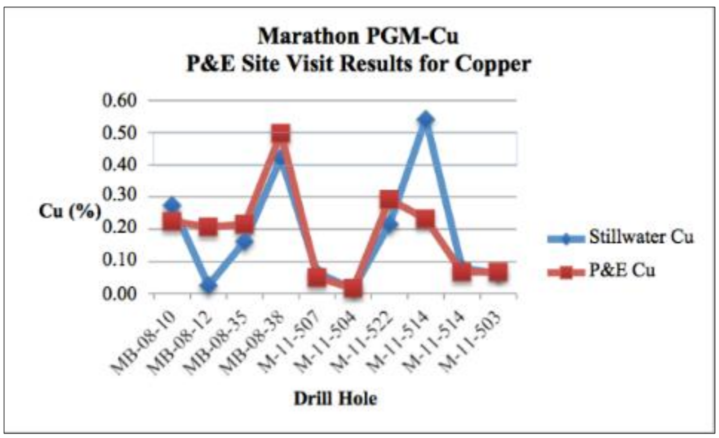
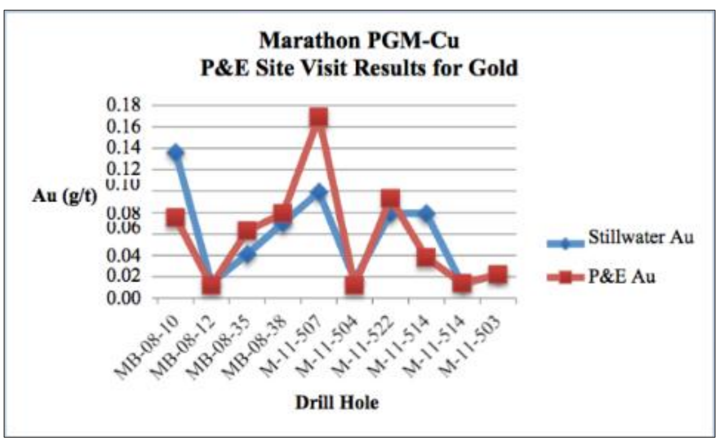


Figure 12-4: P&E Site Visit Results for Gold



12.2 May 2019 Site Visit and Independent Sampling

Mr. Bruce Mackie, P. Geo., of Bruce Mackie Geological Consulting Services, an independent QP as defined by NI 43-101, visited the site on May 4, 2019. As part of the site visit, confirmation samples from selected drill core intervals were taken by Mr. Mackie and submitted to Activation Laboratories Ltd. in Thunder Bay. This work was aided by Mr. John McBride, P. Geo., a senior project geologist employed by Stillwater Canada.

12.2.1 Data Verification and Drill Core Examination

During the site visit, 12 mineralized drill hole intercepts were inspected by Mr. Mackie (Table 12-1). Prior to the inspection, the core was located and laid out at the main core storage facility in the Town of Marathon. This work was performed by Mr. McBride. It should be noted that while the mineralized drill hole intercepts were provided in advance to save time during the site visit, the specific intervals that were to be re-sampled by Mr. Mackie were not provided in advance.

Table 12-1: Drill Hole Intercepts Inspected

Mineralized Zone	Drill Hole No.	From (m)	To (m)	Interval (m)
Main Zone	M-05-49	20.0	34.0	14.0
Main Zone	M-05-49	80.0	90.0	10.0
Main Zone	M-11-520	176.0	189.0	13.0
Main Zone	M-11-520	211.0	227.0	16.0
BR Zone	M-06-178	3.0	17.0	14.0
Southern Resource Zone	M-17-528	43.0	55.0	12.0
Southern Resource Zone	M-17-529	70.0	80.0	10.0
Sally Zone	SL-17-71	31.0	49.0	18.0
Sally Zone	SL-17-72	264.0	284.0	20.0
Sally Zone	SL-17-72	310.0	320.0	10.0
Geordie	G-00-08	158.0	168.5	10.5
Geordie	G-10-17	216.0	234.0	18.0
Total				**165.5**

Source: Mackie (2019).

The 12 intercepts were selected from nine diamond drill holes based largely on the following criteria: availability of core (much of the mineralized core from historic drilling from the core area of the Marathon deposit was taken for metallurgical testwork), and intercepts ranging from low-grade (<0.5 g/t Pd), medium- grade (0.5 to 1.0 g/t Pd) and high-grade (>1.0 g/t Pd). In addition, drill core intercepts selected were from five different zones. The core area is defined as the area of the property from which the historical mineral resource estimates were estimated (the Main Zone, BR Zone, and Southern Resource Zone) and the Sally and Geordie deposits. Finally, the selection included drill core from several different drill programs completed between 2005 and 2017 by Marathon PGM and Stillwater Canada.

Mr. Mackie's inspection of the mineralized drill hole intercepts included the following tasks:

- Drill hole numbers were verified, and initial and final depths of the mineralized intercepts were reviewed.
- Core sample lengths were measured and sample numbers and tags were verified.
- The descriptive geology was validated with an emphasis on the reported visual estimates of pyrite, chalcopyrite, pyrrhotite, chalcocite, and magnetite content reported by Marathon PGM and Stillwater Canada.
- Using original Accurassay and ALS Chemex assay certificates, the Pd, Pt, Au, and Cu assays reported for the mineralized intercepts in two MS Excel files (Marathon Assays and Core.xlsx and Geordie Assay Range for Due Diligence.xlsx) that were provided by Stillwater Canada were validated.

Mr. Mackie's visual estimates of pyrite, chalcopyrite, pyrrhotite, chalcocite, and magnetite content generally agree with those reported by Marathon PGM and Stillwater Canada for the 12 mineralized drill hole intercepts reviewed.

Drill logs for the sections reviewed were found to be appropriately detailed and presented a reasonable representation of geology, alteration, mineralization, and structure.

Discrepancies in the sample tag numbers within the drill core trays and the intervals quoted in the above-mentioned Excel spreadsheets were not observed. Nor were any discrepancies observed in the Pd, Pt, Au, and Cu values quoted from those in the original assay certificates.

Based on the results of the investigation, Mr. Mackie is of the opinion that the mineralized drill hole assay results and corresponding drill hole logs reported by Stillwater Canada and Marathon PGM (for drill holes M-05-49, M-11-520, M-06-178, M-17-528, M-17-529, SL-17-71, SL-17-72, G-00-08, and G-10-17 that were the subject of the investigation) are verifiable and accurate and portray a reasonable representation of the types of mineralization encountered at the Marathon and Geordie deposits.

12.2.2 Confirmation of Sampling

Twelve samples were taken for due diligence to verify the presence of palladium, platinum, gold, and copper in the drill core. In addition, a sample of both the high- and low-grade standards used by Stillwater Canada in its 2017 drill program were also taken for analyses. The sample intervals were selected by Mr. Mackie without prior knowledge given to Gen Mining. The samples collected consisted of sawn quarter core. All verification samples duplicated the original sample intervals. In all instances the original sample interval was visible in the core box. Each verification sample was indicated with a Bruce Mackie sample identification tag that was placed in the core box. Mr. Mackie collected each sample and placed them in clearly identified plastic bags with a unique sample number tag.

The verification samples remained in the custody of Mr. Mackie until he delivered them in person in a sealed container to Activation Laboratories Ltd. (Actlabs), an accredited assay laboratory, in Thunder Bay.

The samples were prepared and analyzed using similar methodologies employed by Stillwater Canada during its 2017 diamond drilling program: sample preparation Code RX1, gold, platinum and palladium analyses by fire assay followed by ICP-MS (Code 1C-EXP2) and trace element analyses by partial aqua regia digestion with an ICP-MS finish (Code UT-1M). In addition, the specific bulk gravity of each of the core samples was determined by pycnometer (nitrogen). Table 12-2 lists the intervals sampled and Table 12-3 summarizes the results of the confirmation sampling.

Table 12-2: Confirmation of Sample Intervals

Mineralized Zone	Hole No.	From (m)	To (m)	Interval (m)	Laboratory / Year	Laboratory Certificate Number
Sally	SL-17-71	41.0	43.0	2.0	ALS/2017	TB17177687
Sally	SL-17-72	276.0	278.0	2.0	ALS/2017	TB17210631
Sally	SL-17-72	314.0	316.0	2.0	ALS/2017	TB17210631
Southern Resource	M-17-529	72.0	74.0	2.0	ALS/2017	TB17233256
Southern Resource	M-17-528	45.0	47.0	2.0	ALS/2017	TB17220588
BZ Zone	M-06-178	7.0	9.0	2.0	Accurassay/2006	200641225
Main Zone	M-11-520	183.0	185.0	2.0	ALS/2011	TB11168362
Main Zone	M-11-520	217.0	219.0	2.0	ALS/2011	TB11168362
Main Zone	M-05-49	22.0	24.0	2.0	Accurassay/2005	200541214
Main Zone	M-05-49	84.0	86.0	2.0	Accurassay/2005	200541214
Geordie	G-00-08	160.1	161.1	1.0	Accurassay/2000	200041175
Geordie	G-10-17	222.0	224.0	2.0	Accurassay/2010	201040690

Table 12-3: Confirmation of Assay Results

Survey By	From (m)	To (m)	Length (m)	Au (g/t)	Pd (g/t)	Pt (g/t)	Cu (ppm)
DDH SL-17-71 Mineralized Intercept Sally Zone							
Stillwater	41.0	43.0	2.0	0.200	0.633	0.245	3,330
Mackie	41.0	43.0	2.0	0.195	0.591	0.246	3,510
DDH SL-17-72 Mineralized Intercept Sally Zone							
Stillwater	276.0	278.0	2.0	0.124	1.310	0.850	529
Mackie	276.0	278.0	2.0	0.065	1.190	0.587	225
Stillwater	314.0	316.0	2.0	0.252	1.085	0.658	1,920
Mackie	314.0	316.0	2.0	0.263	1.790	0.924	2,840
DDH M-17-529 Mineralized Intercept Southern Resource							
Stillwater	72.0	74.0	2.0	0.136	0.815	0.239	3,510
Mackie	72.0	74.0	2.0	0.101	0.750	0.235	3,530
DDH M-17-528 Mineralized Intercept Southern Resource							
Stillwater	45.0	47.0	2.0	0.190	0.274	0.129	2,770
Mackie	45.0	47.0	2.0	0.103	0.113	0.101	2,530
DDH M-06-178 Mineralized Intercept BZ Zone							
Marathon	7.0	9.0	2.0	0.963	2.230	0.727	2,352
Mackie	7.0	9.0	2.0	0.152	1.750	0.583	852

Survey By	From (m)	To (m)	Length (m)	Au (g/t)	Pd (g/t)	Pt (g/t)	Cu (ppm)
DDH M-11-520 Mineralized Intercept Main Zone Resource							
Stillwater	183.0	185.0	2.0	0.055	0.616	0.139	3,480
Mackie	183.0	185.0	2.0	0.053	0.599	0.120	2,940
DDH M-11-520 Mineralized Intercept Main Zone Resource							
Stillwater	217.0	219.0	2.0	0.160	1.160	0.244	4,680
Mackie	217.0	219.0	2.0	0.092	0.935	0.275	3,860
DDH M-05-49 Mineralized Intercept Main Zone Resource							
Marathon	22.0	24.0	2.0	0.005	0.755	0.530	190
Mackie	22.0	24.0	2.0	0.013	0.461	0.430	190
DDH M-05-049 Mineralized Intercept Main Zone Resource							
Marathon	84.0	86.0	2.0	0.039	0.321	0.106	1,410
Mackie	84.0	86.0	2.0	0.043	0.327	0.071	2,340
DDH G-00-08 Mineralized Intercept Geordie							
Marathon	160.1	161.1	1.0	0.141	2.125	0.107	9,980
Mackie	160.1	161.1	1.0	0.092	1.700	0.092	8,670
DDH G-10-17 Mineralized Intercept Geordie							
Marathon	222.0	224.0	2.0	0.065	0.981	0.065	5,163
Mackie	222.0	224.0	2.0	0.052	0.824	0.051	5,860
MPG-1 High Grade Standard 2017 Drill Program							
Stillwater				0.275	3.538	1.109	6,715
Mackie				0.240	3.550	0.868	7,070
MPG-2 Low Grade Standard 2017 Drill Program							
Stillwater				0.073	0.805	0.223	2,853
Mackie				0.119	1.110	0.245	2,800

Note: DDH = diamond drill hole. Source: Mackie (2019).

The QPs of this report section consider that there is satisfactory correlation between the independent verification samples and the original analyses in the company database.

12.3 Marathon Deposit Assay Database Verification

In September 2019, verification of assay data entry was performed on 7,022 assay intervals for Cu, Au, Ag, Pt, and Pd. Only a few data entry errors were observed and corrected. The 7,022 verified intervals were checked against assay laboratory certificates from Accurassay Laboratories of Thunder Bay, Ontario, ALS Chemex of Vancouver (B.C.), ACME Analytical Laboratories Ltd. of Vancouver (B.C.), Bell White Analytical Laboratories of Haileybury (Ontario), and XRAL Laboratories of Don Mills (Ontario). The checked assays represented 51% of the data to be used for the Mineral Resource Estimate and approximately 13% of the entire database.

12.4 Geordie Deposit Database Verification

In January 2020, the QP of this report section conducted verification of the Geordie drill hole assay database for gold, platinum, palladium, silver, and copper by comparing the database entries with assay certificates supplied to P&E by Gen Mining in portable document format (PDF) format files.

Assay data ranging from 1987 through 2010 were verified for the Geordie Project. Sixty-nine percent, representing 3,163 out of 4,558 samples, of the database was checked for gold, platinum, palladium, silver, and copper, which included 82% (1,047 out of 1,277 samples) of the constrained drilling assay data.

Only two minor errors for gold and one minor error for palladium were encountered during verification of the Geordie deposit database, which are of no material impact to the Mineral Resource Estimate.

12.5 Geordie Deposit Site Visit and Due Diligence Sampling

Due diligence sampling was not considered necessary on the Geordie deposit for verification purposes due to the extensive verification sampling already undertaken over several drilling programs.

12.6 Sally Deposit Database Verification

In January 2020, the QP verified the Sally deposit drill hole assay database of gold, platinum, palladium, silver, and copper by comparing the database entries with assay certificates supplied to P&E by Gen Mining in .pdf format. Assay data ranging from 2007 through 2017 were verified for the Sally deposit.

Fifty-seven percent, representing 5,182 out of 9,119 samples, of the database was checked for gold, platinum, and palladium, which included 50% (1,275 out of 2,529 samples) of the constrained drilling assay data.

Fifty-three percent, representing 4,874 out of 9,119 samples, of the database was checked for copper, which included 50% (1,275 out of 2,529 samples) of the constrained drilling assay data.

Thirty-seven percent, representing 3,325 out of 9,119 samples, of the database was checked for silver, which included 41% (1,029 out of 2,529 samples) of the constrained drilling assay data.

No errors were encountered during verification of the Sally deposit database.

12.7 Sally Deposit Site Visit and Due Diligence Sampling

Due diligence sampling was not considered necessary to verify the Sally deposit because of the extensive verification sampling already undertaken on the property over several drilling programs.

12.8 Conclusion

Based on the evaluation of the QA/QC program undertaken by Gen Mining and the data verification work carried out by the QPs, it is the opinion of the QPs that the data is robust and suitable for use in the current Mineral Resource Estimate.

13 MINERAL PROCESSING AND METALLURGICAL TESTING

13.1 Introduction

Metallurgical testing associated with the project was initiated in the 1960's and has been the subject of testing and study for the past 60 years. The flowsheet, described in more detail in Section 17, has evolved to deal with the impact of fluctuations in the value of PGM over time. The evaluation of an optimized processing strategy and process flowsheet was improved by minimizing the influence of pyrrhotite in the cleaner circuit, while maximizing the recovery of PGM and Cu recovery to a single saleable concentrate. The optimized process flowsheet has a flotation feed target grind size of 80% passing (k_{80}) 106 µm a. The flotation circuit includes rougher flotation, followed by regrind of the rougher flotation concentrate and aeration at pH 11. The final concentrate is produced after three stages of closed-circuit cleaner flotation.

13.2 Historical Testwork Programs

A list of the relevant recent testwork campaigns and reports is provided in Table 13-1. A summary of historical and current testwork results is provided below.

- Copper occurs as sulphide minerals and PGMs are mainly in the forms of free minerals or silicate interlocked particles. Less than 40% of the PGMs are associated with sulphides.
- Comminution tests were carried out from 2007 to 2023 for material characterization. The ore is characterized as medium to hard with a ball mill bond work index (75th percentile) of 17.5 (metric) and an estimated SMC Test® Axb value (75th percentile) of 38. The ore is also moderately abrasive with an abrasion index of 0.35.
- A flotation feed grind size of 106 µm was selected in the Phase 1 test program (LR No. 18005-01) based on optimal recovery of Cu and Pd to rougher concentrate.
- The result of reagent optimization tests concluded that PAX, Aero 3501, MIBC, and lime achieved the best selectivity of target minerals and rejection of pyrite and talc.
- A bench-scale rougher flotation retention time of 24 minutes was selected to reach the target mass pull of 12% to 15% and ensure maximum Cu and Pd recovery.
- A rougher regrind size k_{80} of 18 µm was selected as the target for subsequent baseline conditions and liberation from gangue minerals. The signature plot test measured a specific energy of 12.7 kWh/t to achieve the target particle size.
- Locked cycle tests were used to develop the recovery model for prediction of Cu and PGM recovery as a function of respective head grades.
- During the phase 1 and phase 2 test programs, a mini-pilot plant was used to evaluate the capability of Woodgrove direct flotation reactors (DFR's). Gen Mining chose staged recovery reactors (SFRs) for the cleaner circuit.

- In phase 2 testwork, both SNF and Metso (Formerly Outotec) participated in the test program for selecting dewatering reagents and filtration test schemes on samples generated from the flotation tests.

Table 13-1: Metallurgical Testwork Summary

Year	Laboratory/Project#	Testwork Performed
2007	SGSV/OO070908	Comminution tests
2021	SGS/18005-01 – Phase 1	Comminution/flotation/DFR pilot test
2021	SGS/18005-02 – Phase 2	Pilot flotation test/HIG/filtration
2023	SGS/18005-06 – Phase 3	Comminution/LCT flotation

13.3 Sample Selection

Drill core samples (½ split HQ drill core) that were stored in wooden crate were shipped to SGS Lakefield and tested for a comparison with past test programs. The samples presented a combination of materials from Main Zone and W-Horizon called Composite 3. Additionally, eight 150 kg samples—including five Main Zone samples identified as 2020 MZ-1 through 2020 MZ-5 and three W-Horizon samples identified as 2020 WH-1 through 2020 WH-3—were used for the bench-scale tests in 2020.

The head assays of the selected samples are listed in Table 13-2 and Table 13-3. The sample locations are shown in Figure 13-1.

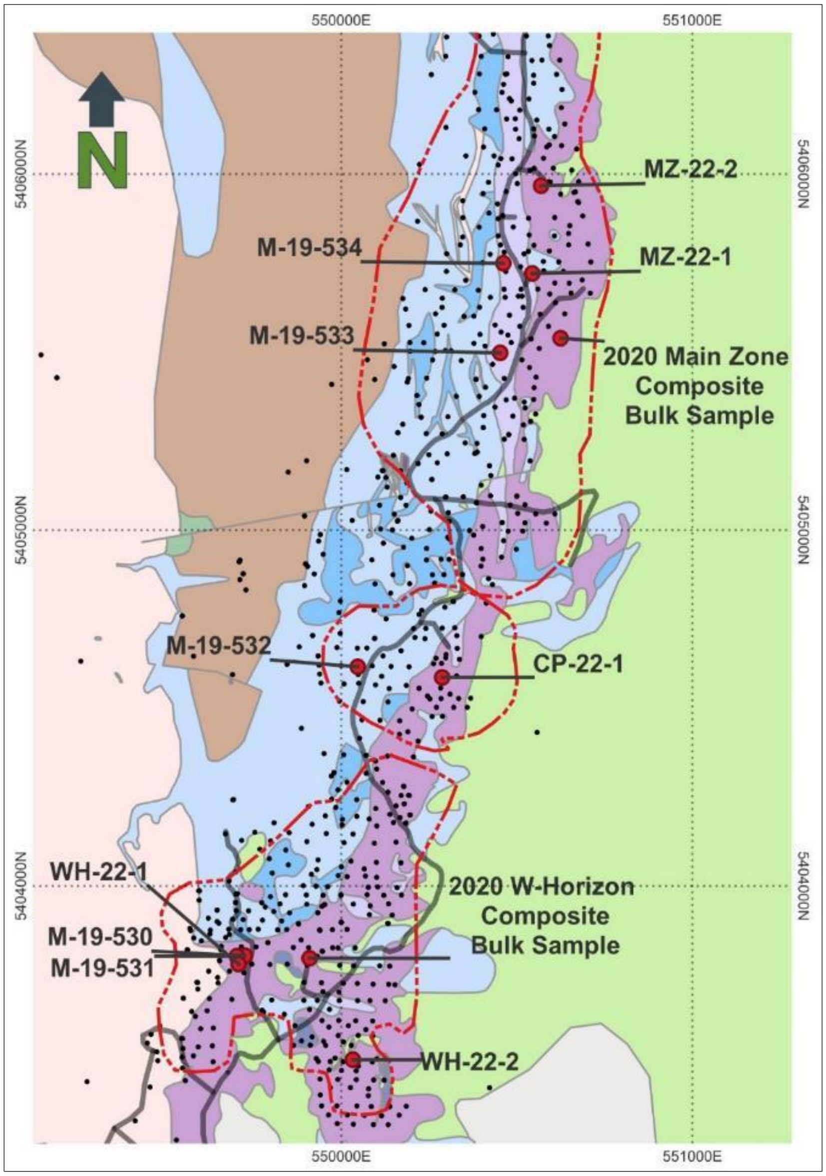
Table 13-2: 2020 W-Horizon and Main Zone Bulk Samples

Composite	Cu	Fe	S	Au	Pt	Pd
	(%)	(%)	(%)	(g/t)	(g/t)	(g/t)
2012 Composite 3 Bulk Sample	0.36	10.1	1.67	0.26	0.11	0.5
2020 North Pit (Main Zone) Composite Bulk Sample	0.23	9.65	0.44	0.07	0.15	0.63
2020 South Pit (W-Horizon) Composite Bulk Sample	0.09	6.39	0.08	0.58	0.42	0.9

Table 13-3: 2022 Main Zone, Central Pit, W-Horizon Composite Samples

Composite	Cu	Pd	Pt	Au	Ag
	%	g/t	g/t	g/t	g/t
WH-22-1	0.3	0.91	0.22	0.09	1.45
WH-22-2	0.23	0.66	0.19	0.8	1.13
CP-22-1	0.13	0.63	0.16	0.06	0.76
MZ-22-1	0.17	0.93	0.32	0.13	0.84
MZ-22-2	0.19	0.64	0.22	0.07	1.08

Figure 13-1: Location of Composite Locations



Source: Gen Mining (2023).

Samples were selected to represent the variability of the Cu and PGM grades in the ore deposit. Where possible, contiguous discrete intervals were selected, such that the composite sample also represented a spatial volume within the deposit that could conceptually be mined and fed to the process plant at some point in the time. This compares to a composite sample comprised of intervals from across the entire wireframe and surface of the Marathon deposit which, while of interest, would realistically not represent a mix of lithology that might be considered as feed to the process plant.

Additional samples with a total mass of 1.5 tonnes from surface outcrops in the Main Zone and W-Horizon were chosen for Phase 2 bench-scale cleaner circuit optimization and pilot plant tests. In 2022, additional samples were prepared for the Phase 3 metallurgical tests and 25 standard Bond ball mill tests.

13.4 Mineralogy Results

The Marathon deposit is situated within a gabbro intrusion (coarse-grained crystalline matrix associated with plagioclase, clinopyroxene, olivine, magnetite, apatite with minor amounts of biotite, chlorite, orthopyroxene, amphibole, and feldspar). Emplacement of the gabbro involved multiple events resulting in a fine-grained to pegmatic, brecciated, metabasalt host rock. Deposit mineralization is characterized by less than 40% of PGMs in association with sulphides. The majority of PGMs are present on grain boundaries of silicates, as opposed to finely disseminated or solid solution style deportment. Magnesium is associated with pyroxenes as well as a basic magnesium silicate within the host rock. Approximately 70% of PGM mineralization present was noted in mineralogical studies as being coarser than 20 µm in size (Cabri, 2014).

Palladium mineralization includes arsenides (arsenopalladinite $Pd_{11}Sb_2As_2$, palladoarsenide Pd_2As), bismuthides (sobolevskite PdBi, froodite $PdBi_2$), stannides (paolovite Pd_2Sn, atokite Pd/Pt_3Sn), tellurides (kotulskite $PdTe/Bi_2$, naldretteite Pd_2Sb), plumbides (zvyaginstevite Pd_3Pb), and sulphides (laflameitte $Pd_3Pb_2S_2$, coldwellite Pd_3Ag_2S).

Platinum content is typically associated with arsenic or iron as sperrylite ($PtAs_2$), isoferroplatinum (Pt_3Fe), or tetraferroplatinum (PtFe).

Dominant sulphides include chalcopyrite ($CuFeS_2$), cubanite ($CuFe_2S_3$), pyrite (FeS_2), pyrrhotite (FeS) and minor amounts of nickel (pendlandite $(Fe,Ni)_9S_8$, mackinawite [$(Fe,Ni)_{1+x}S$ (where x = 0 to 0.11)] Fe/Ni_9S_8). Gold and silver values are present as solid solutions within sulphides as electrum or in native form.

Copper mineralization is bimodal and present as both coarse- and fine-grained sulphides. The focus of studies by Gen Mining during 2020-2023 was to optimize PGM recovery. The same process conditions inherently yielded favourable performance for copper recovery.

13.5 Comminution Test Results

The breakage characteristics were quantified in a series of comminution tests (over 50 tests): SAG power index (SPI) test, Bond low-energy impact (CWi) test, Bond rod mill work index (RWi) test, Bond ball mill work index (BWi) test and the Bond abrasion index (Ai) test. The results of the breakage tests, summarized in Table 13-4, showed the following:

- moderately high competency with a design (75th percentile) Bond crushing index of 18.6 (metric)
- moderately high competency with a design (75th percentile) SPI value of 100 minutes laboratory-scale grinding time, equivalent to an SMC Test® Axb value of 38 (conventional SAG milling is feasible)
- moderately high hardness with a design (75th percentile) ball mill work index of 17.5 (metric)
- moderate to high abrasiveness with a design (average) abrasion index of 0.35 g.

Table 13-4: Comminution Test Results Summary

Parameter	Unit	Plant Feed
Specific Gravity	t/m^3	3.09
SAG Power Index	min	100
SAG Power Index (SPI)	minutes	100
Bond Crushing Index	metric	18.6
Bond Rod Mill Work Index	metric	16.5
Bond Ball Mill Work Index	metric	17.5
Bond Abrasion Index	g	0.35

13.6 Flotation Test Results

13.6.1 2020 Flotation Reagent Selection

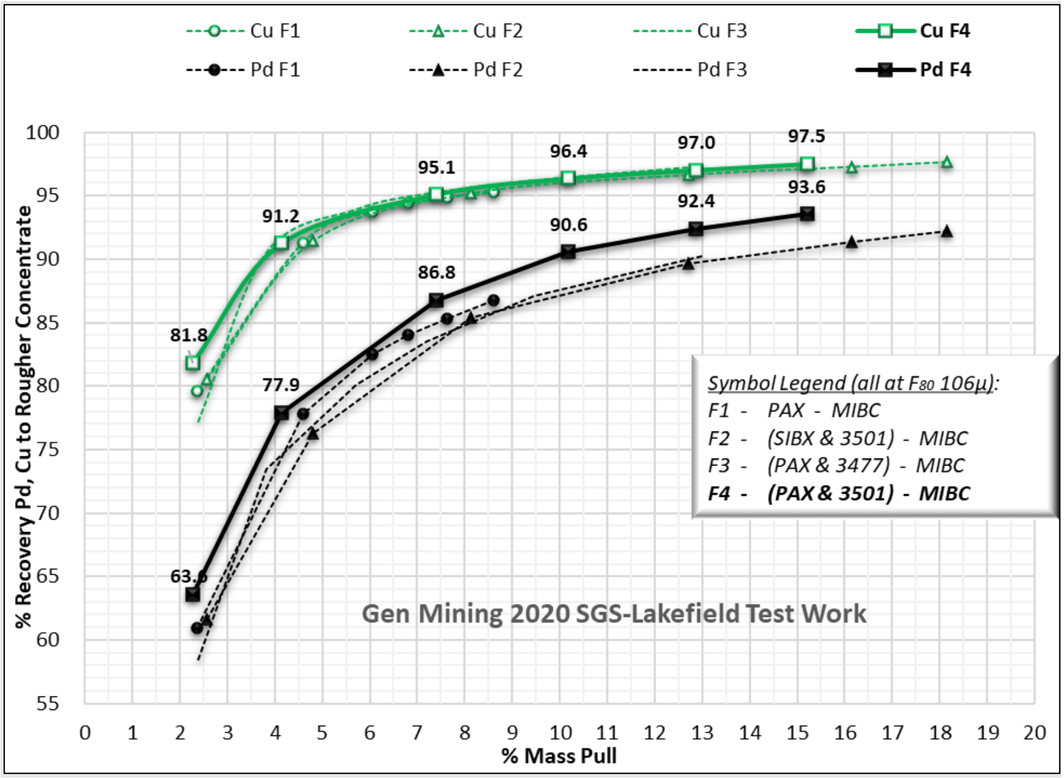
The 2020 test program included flotation reagents optimization. Historically, a wide range of flotation reagents were used in the various testing programs but with no clear consensus on an optimal reagent suite.

Test schemes of PAX only, SIBX and Aero 3501, PAX and Aero 3477, and PAX and Aero 3501 were used for rougher kinetic tests (Figure 13-2). MIBC was used as frother for all the tests as well. The test program found that the combination of PAX and MIBC resulted in the highest Cu recovery and the combination of PAX and Aero 3501 resulted in the highest Pd recovery. Aero 3501, an isoamyl di-thiophosphate, also provides additional frothingl.

For all samples tested, a rougher collector combination of (PAX + Aero 3501) or (SIBX + Aero 3501) exhibited an increase in metal recovery because of increased mass recovery. PAX is a more aggressive collector than SIBX and in conjunction with Aero 3501, yielded a gain of 8% Pd recovery to rougher concentrate relative to PAX only, and 4% Pd recovery increase relative to (PAX + Aero 3477).

The selection of reagent dosages also considered the cost of each used reagent. As a result, an average reagent addition rate of 35 g/t PAX, 35 g/t 3501, and 25 g/t MIBC was selected for rougher flotation baseline testing and remains the base case for detailed design.

Figure 13-2: 2020 Flotation Circuit Reagent Selection (2012 Composite 3)



Source: Gen Mining (2023).

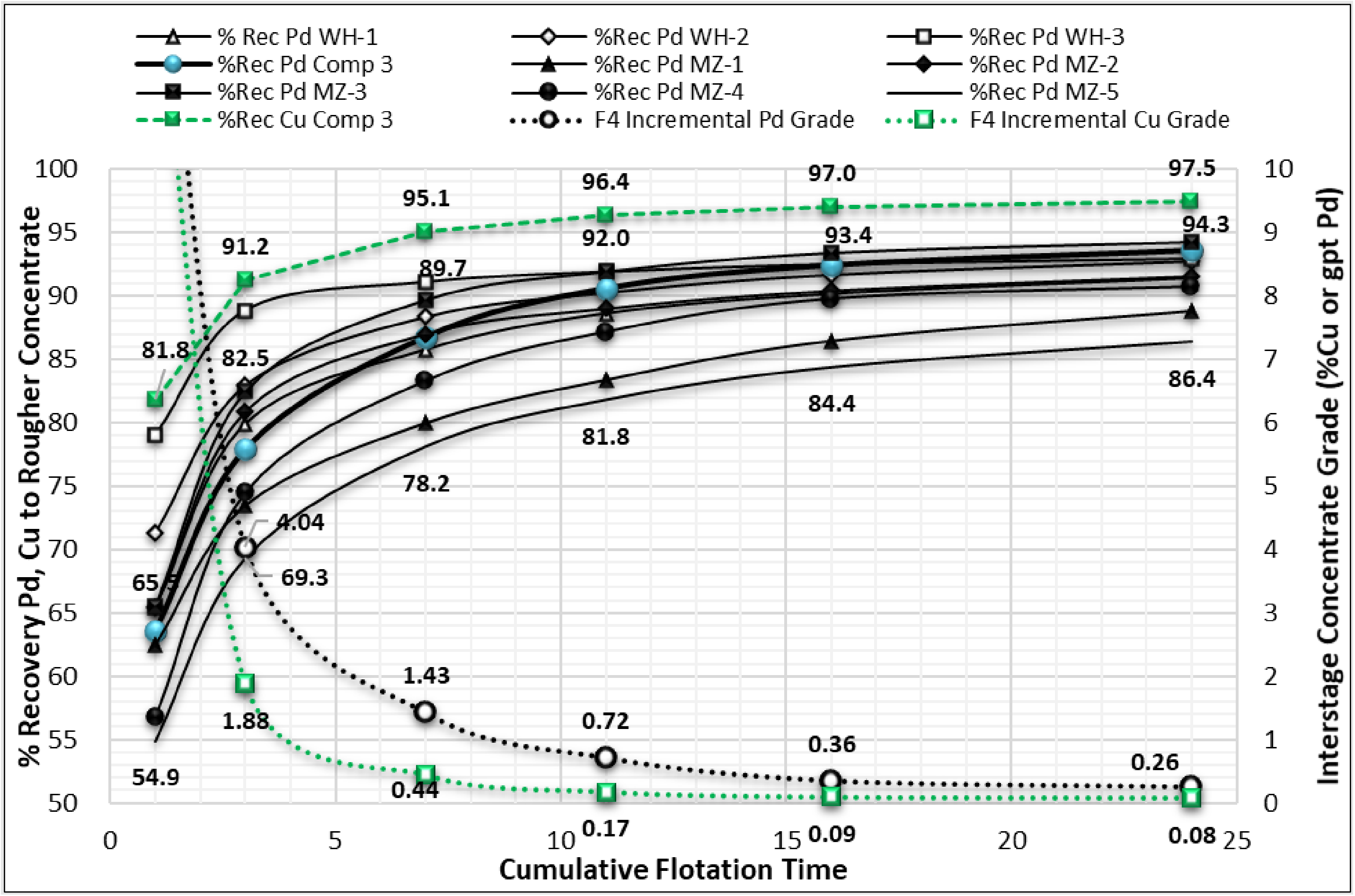
13.6.2 2020 Rougher Flotation Performance and Rate Kinetics

Metallurgical testwork from 2010 to 2013 evaluated five separate bulk composites that represented a cross-section of the Marathon deposit. Composite sample specifics are detailed in Section 13.3. The 2012 Composite 3, retested in 2020, is a blend of 890 separate intervals from the Main Zone, South Zone, and W-Horizon at varying grade. Testwork completed in 2020 confirmed that oxidation effects on the bulk composite were minimal, with the half-split HQ core used for the testwork having been stored outdoors since 2012 in wooden crates. This information indicates that future processing of the low-grade stockpiled ore that is expected to remain exposed for 7 to 10 years over the life of mine is possible with minimal impacts on metallurgy.

In contrast to previous testing, discrete interval composite samples selected for the 2020 testing were chosen from the Main Zone and W-Horizon with a grade range from 0.05% to 0.47% Cu, 0.38 to 2.62 g/t Pd, and a Pd/Cu ratio from 1.2 to 51.4. The primary difference for sample selection in 2020 bench-scale testwork is that discrete interval samples were from specific drill holes and a continuous length that would be representative of a mineable bench.

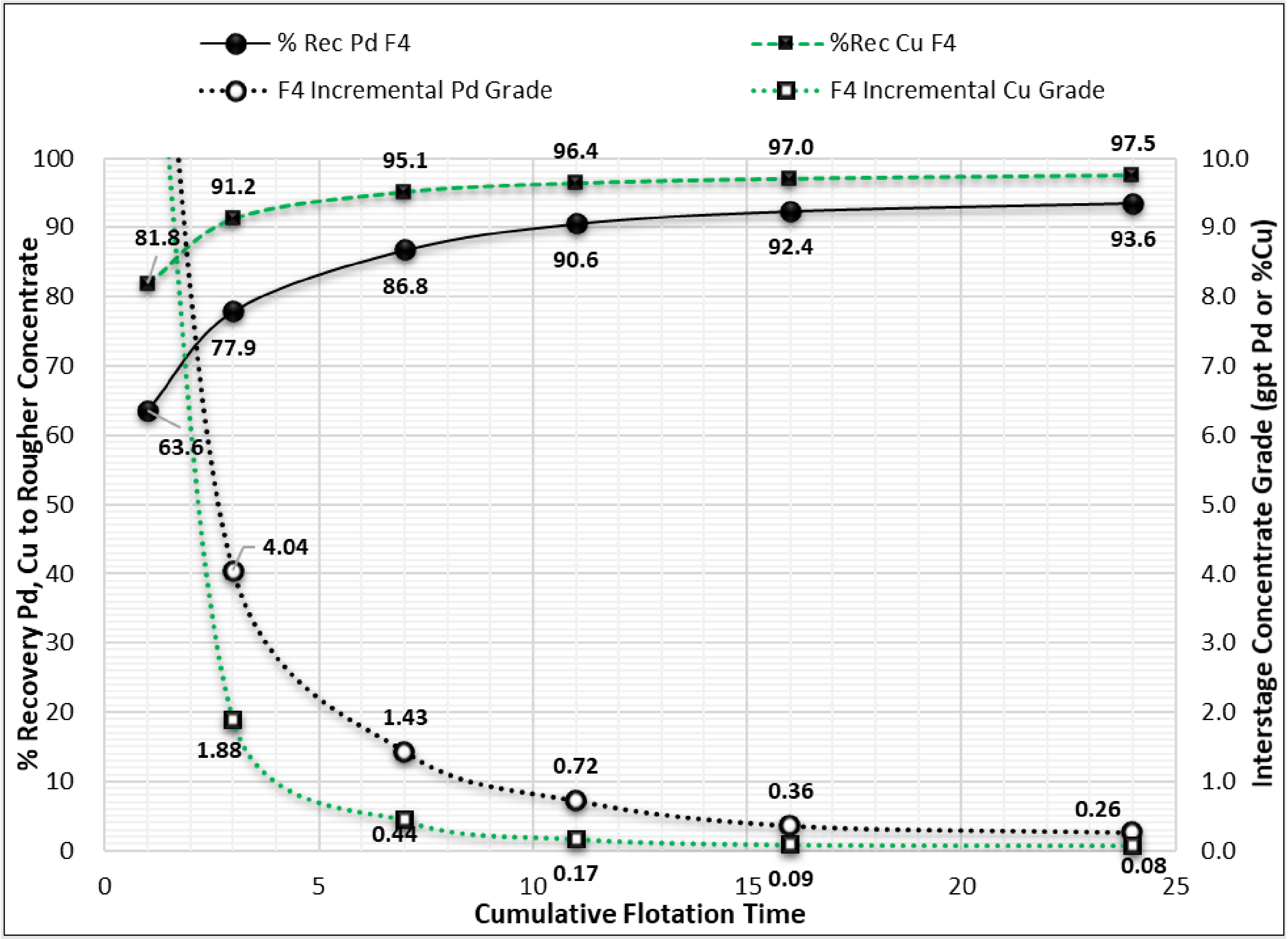
In a 2020 metallurgical program, the rate kinetics of rougher flotation were investigated (Figure 13-3 to Figure 13-5). The flotation test results are listed in Table 13-5. Both Cu and PGM recovery increased as the rougher flotation time was prolonged, resulting in a maximum recovery of 97.5% for Cu, and 94.3% for Pd.

Figure 13-3: 2020 Rougher Flotation Rate Kinetics and Interstage Grade



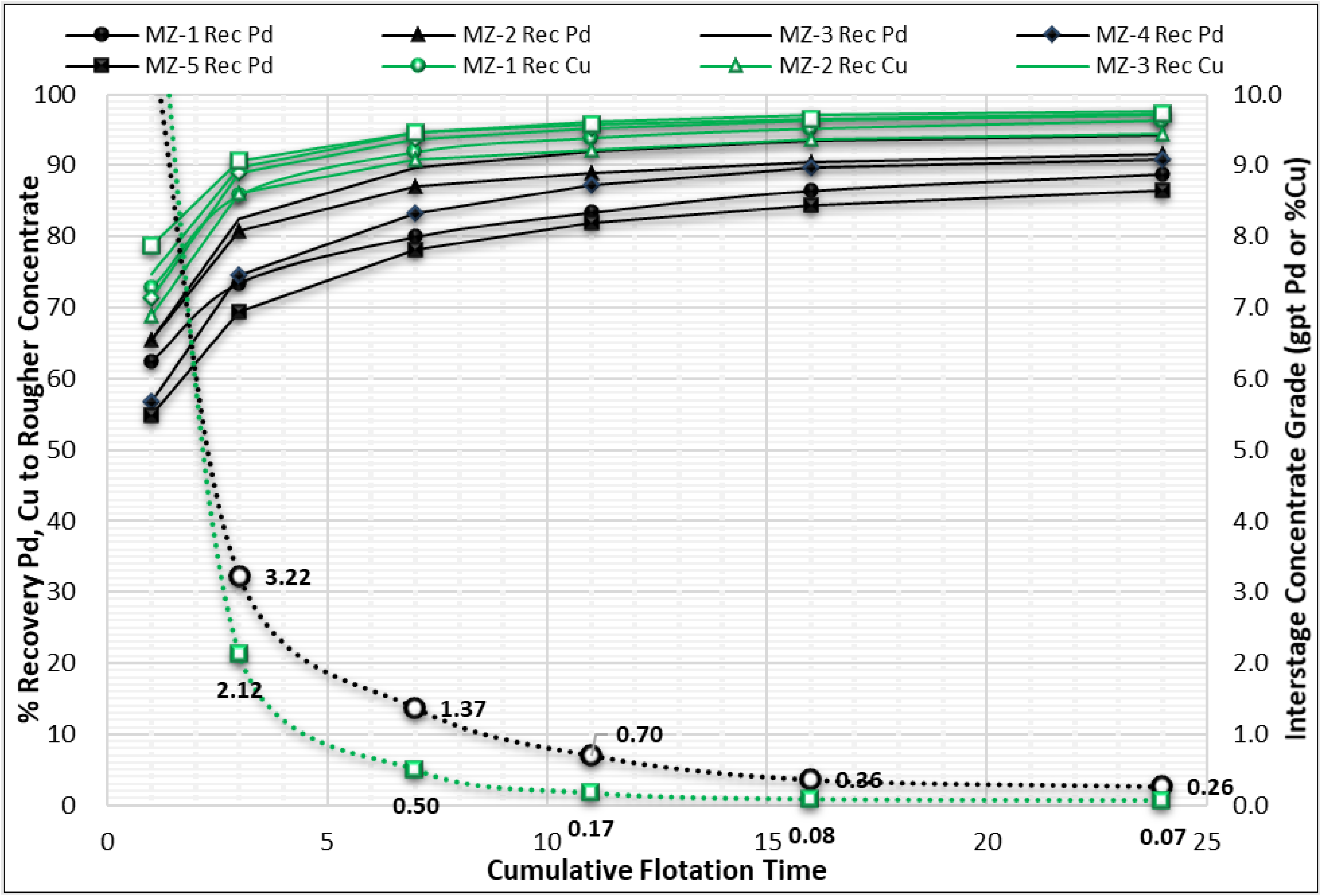
Source: Gen Mining (2023).

Figure 13-4: North Pit (Main Zone) Composites – Rougher Concentrate Rate Kinetics and Interstage Grades



Source: Gen Mining (2023).

Figure 13-5: 2020 South Pit (W-Horizon) Composites – Rougher Concentrate Rate Kinetics and Interstage Grade



Source: Gen Mining (2023).

Table 13-5: 2020 Rougher Flotation Kinetic Testing

Sample	Pd/Cu	Flotation Feed				Flotation Tailings				Combined Rougher Concentrate No. 1 to 6						
	Ratio	%Cu	g/t Pd	g/t Pt	g/t Au	%Cu	g/t Pd	g/t Pt	g/t Au	%Weight	%Rec Cu	%Rec Pd	%Rec Pt	%Rec Au	%Rec Ni	%Rec Fe
2012 Composite #3 (Entire Deposit)	1.4	0.37	0.53	0.18	0.08	0.01	0.04	0.02	0.02	15.2	97.5	93.6	90.7	78.0	76.3	32.8
2020 W-Horizon Composite 1	24.5	0.08	2.01	0.71	0.13	0.00	0.20	0.06	0.02	14.0	96.8	91.4	92.8	86.4	31.1	17.5
2020 W-Horizon Composite 2	6.5	0.19	1.23	0.30	0.09	0.01	0.10	0.03	0.02	10.7	96.8	92.7	91.0	80.8	56.9	16.6
2021 W-Horizon Composite 3	51.4	0.05	2.62	0.79	0.14	0.00	0.11	0.02	0.02	11.5	94.8	96.3	97.7	86.9	23.5	12.9
2020 Main Zone Composite 1	2.3	0.31	0.71	0.18	0.07	0.01	0.09	0.03	0.02	11.8	96.2	88.8	85.2	76.2	48.7	16.7
2020 Main Zone Composite 2	1.9	0.59	1.12	0.30	0.13	0.04	0.11	0.03	0.03	14.2	94.4	91.6	91.4	80.8	76.6	24.1
2020 Main Zone Composite 3	1.9	0.46	0.88	0.24	0.11	0.01	0.06	0.02	0.02	16.3	97.6	94.3	93.0	84.3	79.4	27.9
2020 Main Zone Composite 4	1.6	0.47	0.73	0.20	0.08	0.02	0.08	0.02	0.02	15.9	97.1	90.7	91.8	79.3	84.8	35.1
2020 Main Zone Composite 5	1.2	0.31	0.38	0.12	0.06	0.01	0.06	0.02	0.02	13.8	97.2	86.4	85.5	72.6	79.9	27.8

Rate kinetic float tests were completed on 2 kg feed samples and baseline conditions: F_{80} 106 µm grind size, 35 g/t PAX, 35 g/t, 3501, MIBC, natural pH 8.5

Details	Copper %									Palladium g/t								
	Comp 3	MZ-1	MZ-2	MZ-3	MZ-4	MZ-5	WH-1	WH-2	WH-3	Comp 3	MZ-1	MZ-2	MZ-3	MZ-4	MZ-5	WH-1	WH-2	WH-3
Flotation Feed	0.37	0.31	0.59	0.46	0.47	0.31	0.08	0.19	0.05	0.53	0.71	1.12	0.88	0.73	0.38	2.01	1.23	2.62
Flotation Tails	0.01	0.01	0.04	0.01	0.02	0.01	0.00	0.01	0.00	0.04	0.09	0.11	0.06	0.08	0.06	0.20	0.10	0.11
Rougher Concentrate Mass Pull %	15.2	11.8	14.2	16.3	15.9	13.8	14.0	10.7	11.5	15.2	11.8	14.2	16.3	15.9	13.8	14.0	10.7	11.5
Rougher Concentrate 1 min % Rec	81.8	72.7	68.9	74.7	71.3	78.8	71.8	70.8	79.7	63.6	62.5	65.4	65.5	56.7	54.9	65.4	71.3	82.4
Rougher Concentrate 1-3 min % Rec	91.2	85.7	86.1	89.8	89.0	90.7	90.4	86.2	88.9	77.9	73.5	80.9	82.5	74.5	69.3	79.9	83.0	90.7
Rougher Concentrate 1-7 min % Rec	95.1	91.8	90.7	94.7	93.6	94.7	94.0	92.9	92.0	86.8	80.0	87.0	89.7	83.3	78.2	85.8	88.3	93.8
Rougher Concentrate 1-11 min % Rec	96.4	93.8	92.1	96.2	95.2	95.8	95.5	94.7	93.0	90.6	83.4	89.0	92.0	87.2	81.8	88.6	90.2	94.9
Rougher Concentrate 1-16 min % Rec	97.0	95.1	93.6	97.1	96.3	96.5	96.1	95.8	93.9	92.4	86.5	90.4	93.4	89.8	84.4	90.2	91.7	95.6
Rougher Concentrate 1-24 min % Rec	97.5	96.2	94.4	97.6	97.1	97.2	96.8	96.8	94.8	93.6	88.8	91.6	94.3	90.7	86.4	91.4	92.7	96.3

Specific details and findings associated with rougher flotation rate kinetics testing include:

- Baseline conditions were applied to all rougher flotation kinetic tests involving a flotation feed size of k_{80} 106 µm, natural pH in the order of 8.5, 35% slurry density, and the staged addition of collectors including 35 g/t PAX, 35 g/t 3501, and MIBC as a frother.
- Mass recovery to rougher concentrate between ranged from 5.0% to 21.0%.
- Recoveries to rougher concentrate varied from 90.1% to 97.8% for Cu, 81.9% to 94.9% for Pd, 76.2% to 95.3% for Pt and 66.7% to 93.3% for Au based over the range of feed grades analyzed.
- Within the first seven minutes of bench-scale rougher flotation, 96.6% of final Cu recovery and 93.6% of final Pd recovery was achieved; within 16 minutes 99.2% of final Cu recovery and 98.6% of final Pd recovery was achieved with final recovery of respective metals assumed after 24 minutes.
- For baseline conditions applied, Cu flotation rate kinetics were rapid with excellent recoveries. Pd flotation rate kinetics were slower in comparison with incremental recovery gains of 1.5% Pd recovery versus 0.5% Cu recovery with an extended bench-scale flotation time from 17 to 24 minutes.
- The scale-up factor from bench-scale to full-scale design is typically in the order of 2.0 for copper sulphide only applications. The project considers a scale-up factor of 2.5 to compensate for the slower PGM flotation rate kinetics and the relative value of PGM metals.
- Rougher flotation retention time of 24 minutes and a target mass recovery of 12% to 15% feed weight to rougher concentrate were defined as baseline parameters and targets for subsequent testing and process design criteria (average of 13.3% used).

Results from metallurgical testing confirm an expected range in sulphide sulphur content (S^{2-}) in the rougher tailings from 0.01% to 0.10% S^{2-} and in first cleaner tailings from 0.10% to 10.0% S^{2-}. The recovery and separation of sulphides within the process flowsheet supports an intention of project design to produce separate low sulphide NAG tailings and sulphidic PAG first cleaner tailings for co-disposal in such a way as to prevent long-term ARD potential.

13.6.3 2020 Rougher Concentrate Regrind and Specific Energy Testing

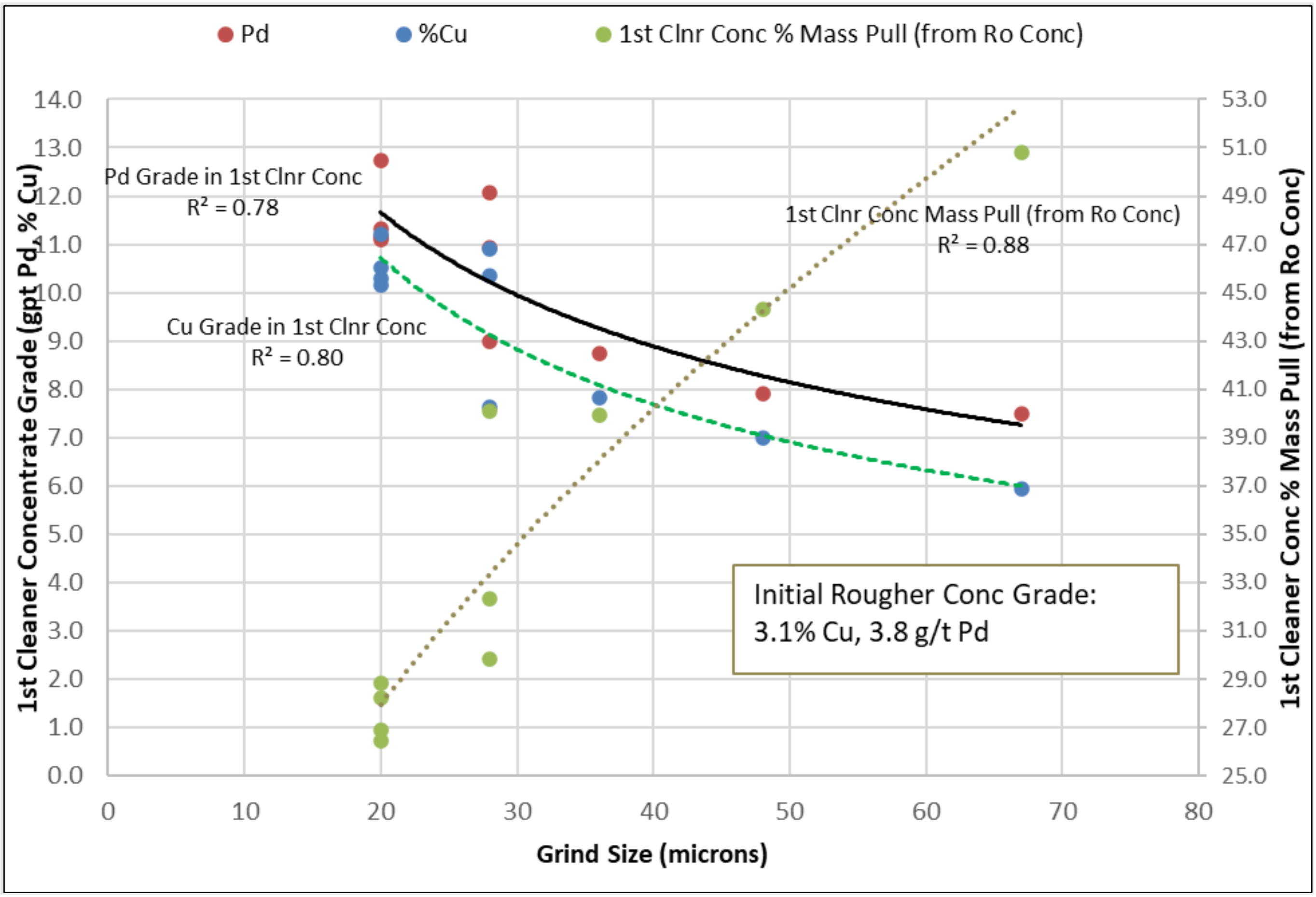
13.6.3.1 Rougher Concentrate Regrind Size Selection

Optimization of rougher concentrate regrind size was completed in the 2020 metallurgical test program and the results are shown in Figure 13-6. Regrind k_{80} sizes from 70 to 20 µm were tested using 2012 Composite 3 samples. Data suggests that after the regrind size becomes finer than k_{80} = 20 µm, the mass recovery can be significantly reduced to achieve higher Cu and Pd grades.

The applied flotation conditions include the addition of lime at pH 10, followed by an adjustment of pH 11. In the cleaner circuit, PAX (50 to 100 g/t) and Aero 3501 (50 g/t) are dosed at addition rates that are related to rougher concentrate tonnages, and no MIBC is required for the cleaner circuit. The test results showed that the Cu and Pd recoveries range from 94% to 99% regardless of the tested size. There was no indication of a detrimental effect on the recovery of either metal when the regrind size becomes finer.

When the rougher concentrate regrind size decreases from a k_{80} of 68 µm to 20 µm, the mass recovery of first cleaner concentrate can drop from 51% to 27% while maintaining the same metal recoveries. Previous mineralogy studies completed in 2014 aligned with the findings that regrind sizes below 20 µm are preferable for mineral release to achieve optimal PGM-Cu concentrate grade. Magnesium silicate (talc) content in first cleaner concentrate at fine regrind size was noted as being less than 6% Mg, confirming acceptable liberation of values from gangue materials without the use of depressants such as carboxyl methyl cellulose (CMC) or Depramin.

Figure 13-6: Rougher Concentrate Regrind Size Optimization

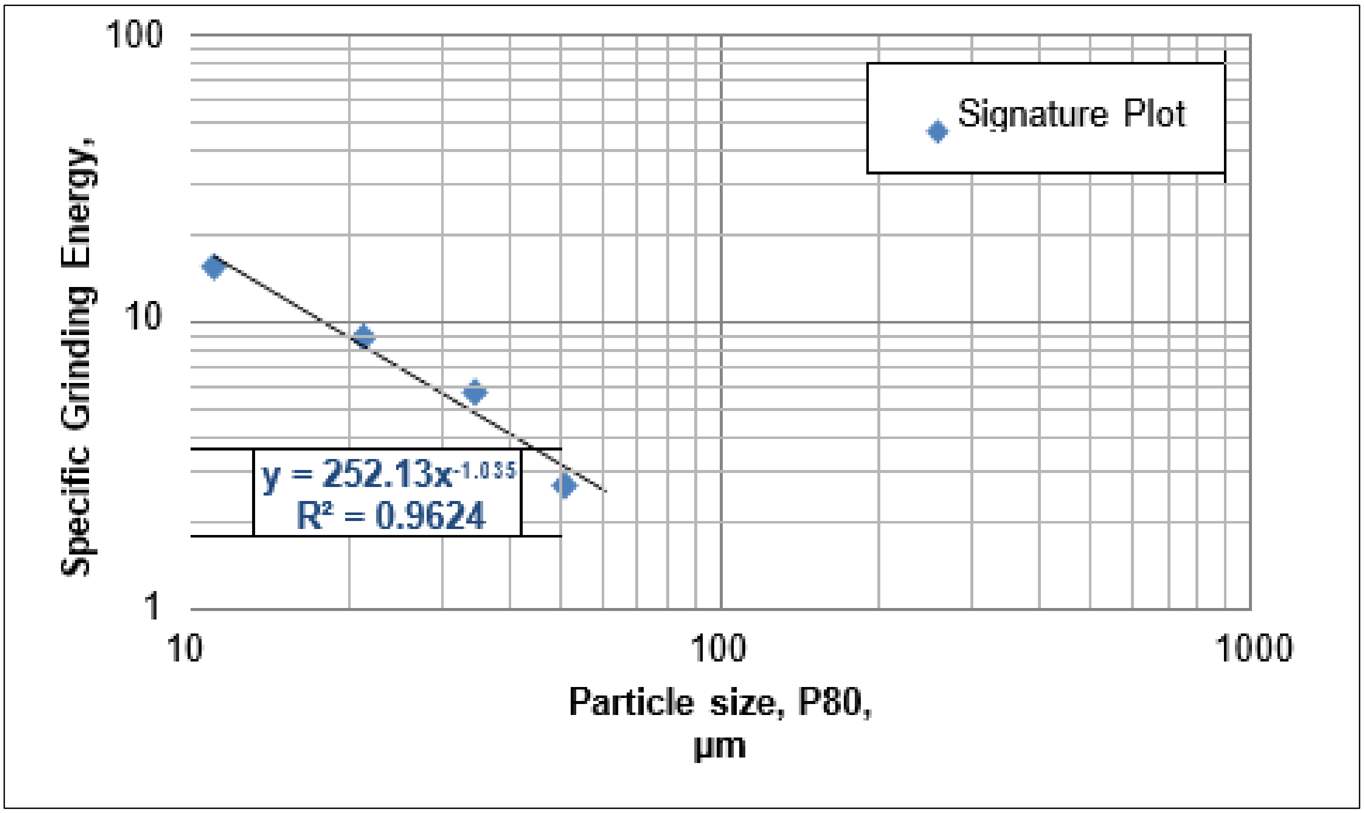


Source: Gen Mining (2023)

13.6.3.2 Rougher Concentrate Regrind Specific Energy

The high-intensity grinding (HIG) mill test was used to evaluate the fine grinding characteristics of the rougher concentrate using the HIG5 mill at SGS Lakefield in 2022. The test was carried out at a K_{80} of 87 µm and reached a k_{80} of 11 µm after four grinding passes. The ceramic media used was 60% 3 mm and 40% 2 mm diameter, and the media SG was 3.9 g/cm^3. The test used a media filling level of 60% and a slurry density of 40% w/w solids. The incremental grind sizes are used to plot the results of specific grinding energy vs. particle size (k_{80}). The rougher concentrate requires 12.7 kWh/t specific energy to reduce it from a k_{80} of 87 µm to a k_{80} of 18 µm.

Figure 13-7: Rougher Concentrate Regrind Size Optimization



Source: Gen Mining (2023).

13.6.4 Locked Cycle Flotation Tests

From 2020 to 2023, Gen Mining completed a series of locked cycle flotation tests, including cleaner circuit optimization, to expand the geometallurgical model database and improve the predictive recovery estimates of Cu, Pd, Pt, Au, Ag to final concentrate.

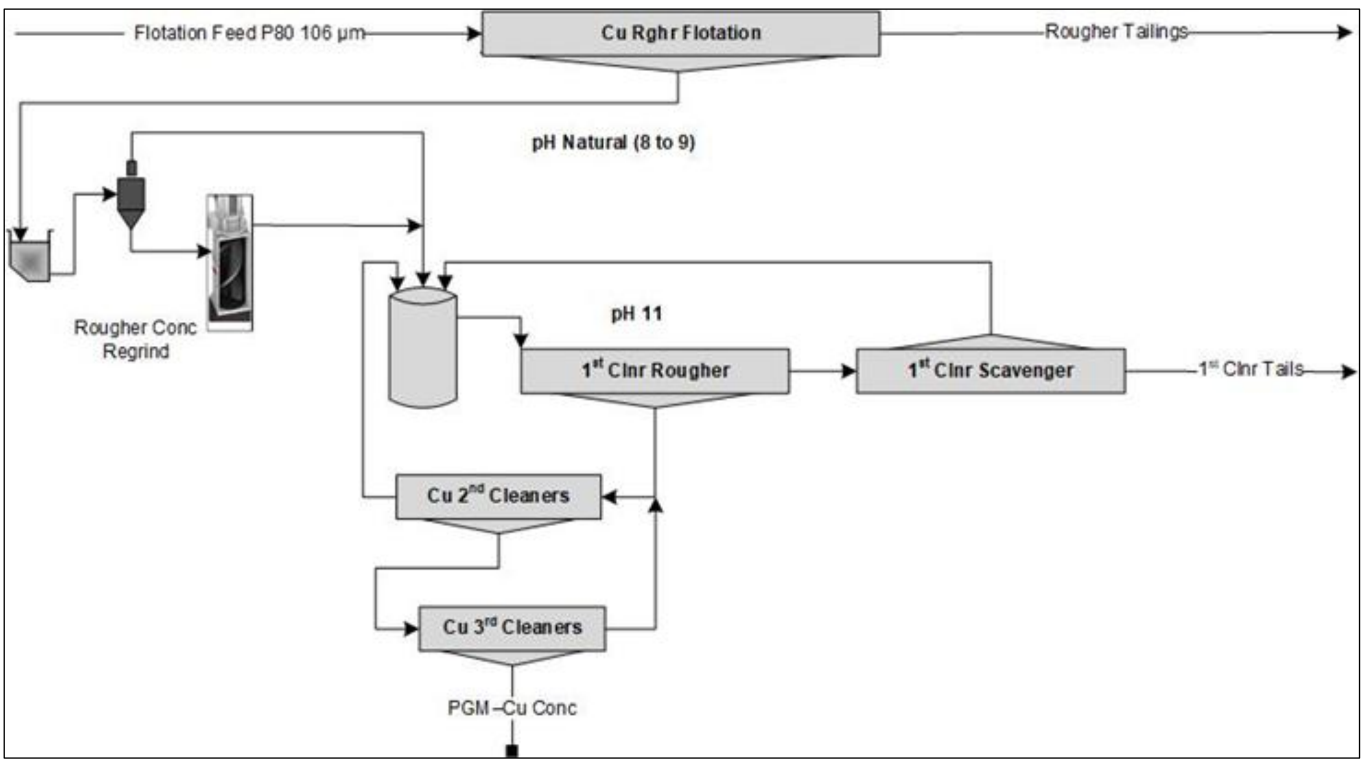
Metallurgical studies completed by Gen Mining during 2020 to 2021 included rate kinetic bench-scale flotation testwork, which provided an indication of rougher, concentrate regrinding, and cleaner circuit performance. The initial 2020 Geo-Met model focused primarily on Cu and Pd recovery, with estimates for Pt and Au recovery being less quantitative due to the limited number of samples involved, and variable Au and Pt performance in the cleaner circuit. Additional locked cycle tests completed in Phase 3 (Project No. 18005-06) were completed to expand the test database and were used to quantify the recovery models for Au, Pt, and Ag.

Ten locked cycle tests were completed for the development of the geometallurgical recovery model. Samples subjected to locked cycle testing include the following:

- 2012 bulk composite 3
- 2020 Main Zone plant composite
- 2020 W Horizon pilot plant (PP) composite
- 2022 Main Zone composite MZ-22-1
- 2022 Main Zone composite MZ-22-2
- Central Pit composite CP-22-1
- 2022 W-Horizon composite WH-22-1
- 2022 W-Horizon Composite WH-22-2.

The schematic for locked cycle flotation testing is provided in Figure 13-8.

Figure 13-8: 2020 SGS Locked Cycle Test Schematic



Note: Schematic is based on six iterations with 4 kg feed samples; use of the reagents PAX, Aero 3501, MIBC, lime; a rougher concentrate regrind size k_{80} 15 to 20 µm, a flotation feed of k_{80} 106 µm grind; 24 minutes of rougher flotation; and a first to third cleaner pH of 11. Source: Gen Mining (2023).

Locked cycle tests simulate closed circuit operation through recycling of cleaner tailings streams to a subsequent cycle, over a total of six cycles. The results of the last three cycles are compared to ensure stability (primarily concentrate masses) and meaningful outcomes. Recovery to final concentrate includes 50% of the metal distribution associated with third cleaner tailings since at the conclusion of the locked cycle test, values in this middling product at full scale would be expected as reporting to either final concentrate, or to first cleaner tailings.

Baseline conditions were applied for all the locked cycle tests with a target flotation feed size k_{80} of 106 µm, natural pH in the roughers at 30% slurry density, and collector addition including 35 g/t PAX, 35 g/t Aero 3501 and 22 g/t MIBC to the roughers. Rougher concentrate regrinding to a k_{80} of 18 µm was followed by 30 minutes of aeration at pH 11. In the cleaner circuit, both PAX and Aero 3501 were applied at a rate of 7.5 g/t to the first half of first cleaner roughers, with an equivalent 7.5 g/t to the second half of first cleaner roughers, followed by 15 g/t to the first cleaner scavenger. An additional 5 g/t Aero 3501 was added to the second cleaners, with an MIBC addition of 10 g/t to first cleaner roughers.

Concentrate regrind particle size for all cleaner circuit testwork was checked using a bench-scale Malvern panalytical particle size monitor and was determined to be within the range of k_{80} 12 to 20 µm. It was therefore not considered to be a constraint in cleaner circuit performance.

Locked cycle testing involved six iterations for each sample simulating grinding, rougher flotation, concentrate regrinding, aeration, and first to third cleaner stages. Results are summarized in Table 13-6. Locked cycle test results, including mass recovery to rougher concentrate and final concentrate, are well aligned with process design criteria.

For the locked cycle testing from 2022 to 2023, the focus was placed on increasing the mass recovery from first cleaner stage. Reagent addition rates for 2022 locked cycle testing were held constant. Aero 3501 was stage added to the second cleaners over the five-minute laboratory-scale flotation cycle to promote PGM recovery.

Table 13-6: Locked Cycle Test Head Grades and Results

Locked Cycle Test Data	Grind Size K_{80} µm	Flotation Feed					Rougher Concentrate Metal Recovery					Final Concentrate Metal Recovery				
		Cu	Pd	Pt	Au	Ag	Cu	Pd	Pt	Au	Ag	Cu	Pd	Pt	Au	Ag
		%	g/t	g/t	g/t	g/t	%	%	%	%	%	%	%	%	%	%
2012 Composite 3 (A)	99	0.37	0.57	0.14	0.08	-	97.1	88.8	87.2	76.3	-	94.5	80.1	66.8	67.1	-
2012 Composite 3 (B)	106	0.37	0.52	0.15	0.08	1.58	97.6	89.0	89.3	80.7	75.0	95.9	83.0	69.5	74.1	67.2
2020 MZ PP Composite	106	0.19	0.48	0.13	0.06	1.18	94.8	89.9	85.5	69.3	61.0	93.8	87.2	70.0	67.2	57.0
2022 MZ-22-1	103	0.29	0.94	0.24	0.10	1.65	95.1	93.2	91.7	82.9	73.1	91.3	87.7	73.0	76.1	63.3
2022 MZ-22-2	107	0.23	0.60	0.18	0.11	1.31	96.4	93.1	89.6	84.1	68.1	94.5	89.3	68.1	80.6	59.8
2020 WH PP Composite (A)	108	0.09	1.24	0.41	0.24	0.95	89.5	92.2	88.6	92.1	50.2	86.5	88.6	62.7	88.2	46.1
2020 WH PP Composite (B)	106	0.10	1.23	0.42	0.21	-	96.3	91.3	88.8	91.2	-	92.6	87.9	69.7	86.1	-
2022 WH-22-1	107	0.14	0.83	0.28	0.09	1.08	94.2	93.4	92.0	82.4	60.5	93.1	90.3	83.9	78.7	53.3
2022 WH-22-2	107	0.19	0.54	0.18	0.09	0.85	95.5	92.0	90.5	80.5	50.8	93.6	86.9	73.0	75.9	38.3
2022 CP-22-1	107	0.13	0.54	0.17	0.06	0.88	93.2	94.0	89.8	72.7	51.3	91.3	90.6	75.6	69.0	44.4
Locked Cycle Test Average	**106**	**0.2**	**0.8**	**0.2**	**0.1**	**1.2**	**95.0**	**91.7**	**89.3**	**81.2**	**61.3**	**92.7**	**87.1**	**71.2**	**76.3**	**53.7**

13.7 Variability Testing

13.7.1 Flotation Feed Size Variation

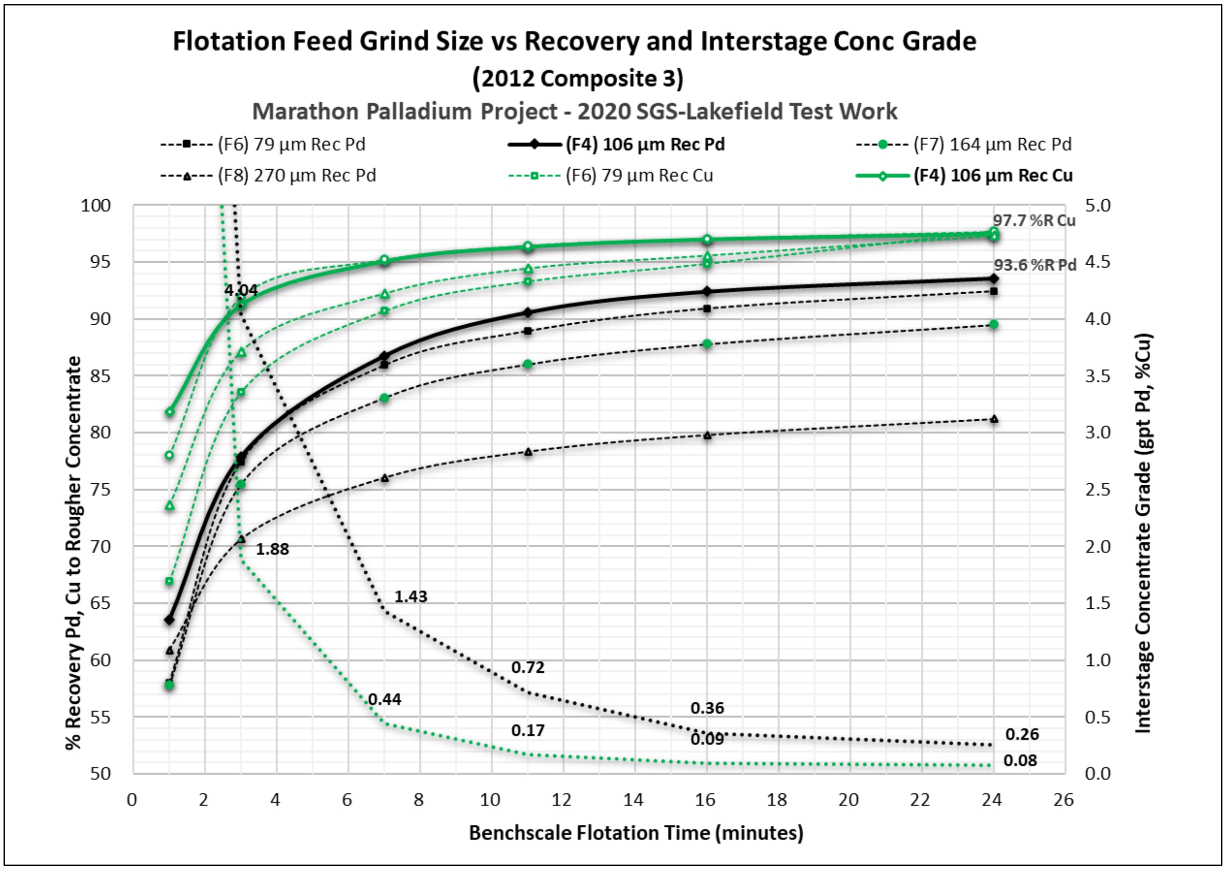
Previous technical studies by Stillwater Canada (2010-2013) considered an initial grind size k_{80} of 212 µm for Cu flotation, followed by regrinding of Cu rougher tails to a k_{80} of 110 µm as a feed to a secondary PGM flotation circuit. This flowsheet would generate a high-grade Cu concentrate and a lower grade PGM concentrate. The flotation was later optimized to produce a single concentrate that includes both Cu and PGM.

The rougher flotation floats at natural pH, and the obtained combined concentrate is reground at pH 11 with additional aeration. Thereafter, the reground concentrate goes through three stages of cleaner circuits to produce the final concentrate.

The optimal grind size was investigated in the 2020 metallurgical test program; the results were also validated in the 2022 test program. The relationship between metal recovery and flotation feed sizes are shown in Figure 13-9. At all tested grind sizes, the recovery of Cu and Pd increases as flotation time increases. A product grind of k_{80} 106 µm to rougher flotation yielded a near optimal recovery of 93.6% Pd and 97.7% Cu to a rougher concentrate at 15% mass recovery from a flotation feed grade of 0.36% Cu and 0.53 g/t Pd.

In 2022, additional testwork completed during the Phase 3 program studied the expected incremental difference in metal recovery to rougher concentrate at increasing flotation feed sizes from a k_{80} 75 µm to a k_{80} 200 µm. The test program included eight samples from Composite 3, Main Zone, W-Horizon, and Central pit (2012 pilot plant composite 3, 2020 Main Zone pilot plant composite, 2020 W-Horizon pilot plant composite, 2022 Main Zone composite MZ-22-1, 2022 Main Zone composite MZ-22-2, 2022 W-Horizon composite WH-22-1, 2022 W-Horizon composite WH-22-2, and 2022 Central pit composite CP-22-1). The variability in expected recovery at coarser grind size is of interest for future process plant throughput optimization efforts and is tabulated in Table 13-7.

Figure 13-9: Flotation Feed Grind Size vs. Recovery and Interstage Concentrate Grade (2012 Composite 3)



Source: Gen Mining (2023).

As shown, particle size distribution becomes coarser, the recovery decreases slightly, and the trend is the same for all metals. The results agree with the 2012 grind size optimization tests shown in Figure 13-2. Therefore, a final grind size k_{80} of 106 µm was selected as the flotation feed size for the remaining of the tests in the development of the recovery model (Table 13-7).

Table 13-7: Flotation Feed Grind Size vs. Metal Recovery to Rougher Concentrate

Metal	Regression Formula	P_{80}					
		75 µm	106 µm	125 µm	150 µm	175 µm	200 µm
		Metal Recovery as a Function of Grind Size					
Copper	%Rec Cu = (-0.021 x P_{80} µm) + 97.57	96.0	95.3	94.9	94.4	93.9	93.4
Palladium	%Rec Pd = (-0.067 x P_{80} µm) + 99.29	94.2	92.2	90.9	89.2	87.5	85.8
Platinum	%Rec Pt = (-0.057 x P_{80} µm) + 95.57	91.3	89.5	88.4	87	85.5	84.1
Gold	%Rec Au = (-0.030 x P_{80} µm) + 82.59	80.3	79.4	78.8	78	77.3	76.5

13.8 2022 Flotation Optimization

In conjunction with concentrate regrind, a 30-minute aeration step was added to improve the performance of first cleaner. The additional aeration step has a pH of 11 by adding lime. The introduction of aeration oxidizes the surfaces of pyrrhotite and pyrite, reducing overall oxygen demand in flotation. As a result, the collector is less likely to bond and these two gangue sulphide minerals can be depressed. The effect of sulphide aeration, in conjunction with decreased PAX addition rates to the first cleaners, improved first cleaner selectivity favouring PGM and Cu flotation and iron sulphide rejection.

In 2022, Gen Mining pursued additional mineralogical studies on first cleaner scavenger tailings (2012 Composite 3 LCT Test A, and 2020 W-Horizon LCT Test B) to determine whether Pt may be associated with pyrite mineralization. Since pyrite (FeS_2) is rejected at a slurry pH of 11.0, there is potential for Pt losses with pyrite rejection.

Mineralogical studies completed with SGS Lakefield confirmed that in samples tested, there was no association of Pt with pyrite which was determined through QEMSCAN scanning electron microscopy (SEM), and Tescan integrated mineral analyzer (TIMA) PGM SEM. The Pt content present in first cleaner tails is expected as free, or interlocked, sperrylite ($PtAs_2$), which exhibits slower flotation rate kinetics when compared to other mineralization present.

The effective capture of Pt in rougher flotation of 85.5% to 92.2% Pt recovery is followed by a slight loss to first cleaner scavenger tailings that is influenced by Pt flotation rate kinetics, slurry redox potential, slurry pH, as well as the potential requirement for a more specific Pt focused collector-promoter. Compared to a cleaner circuit efficiency or metal transfer of 95.6% to 98.7% for Cu, Pd, and Au from rougher concentrate to final concentrate (Table 13-8), the lower cleaner circuit efficiency of 84.8% for Pt signifies the potential for future improvement.

Based on the recovery model equations, the calculated recovery to final concentrate versus the calculated recovery of metal to rougher concentrate for the same head grade suggests a cleaner circuit efficiency for the present flotation circuit configuration and design process criteria of 98.7% for Cu, 96.9% for Pd, 84.8% for Pt, 95.6% for Au, and 92.4% for Ag.

Table 13-8: Cleaner Circuit Efficiency

Component	Cleaner Circuit Efficiency (%)
Cu	98.7
Pd	96.9
Pt	84.8
Au	95.6
Ag	92.4

For rougher circuit performance, data selected for analysis utilized metal recoveries from rate kinetic testwork between a range of 12% to 15% mass recovery to rougher concentrate to avoid overstating metal recovery to a rougher concentrate at higher mass recoveries. The cleaner circuit efficiency is an indicator of mineral or metal recovery from rougher concentrate to final concentrate, which occurs simultaneously with the counter-current rejection of gangue materials including silicate and pyrite to first cleaner scavenger tailings.

Recovery to rougher concentrate is excellent for all metals, with lower Ag recovery limited by low Ag head grade relative to a minimum analytical detection limit of 0.5 g/t Ag. Cleaner circuit efficiency highlights the lower transfer rate of Pt to final concentrate with sperrylite ($PtAs_2$) continuing to exhibit slower flotation rate kinetics in first to third cleaner stages.

13.9 Recovery Estimates

13.9.1 Introduction

The geo-metallurgical (GeoMet) model has been updated with the completion of the Phase 3 (2022-2023) metallurgical test program. An increase in the number of samples, a broader range of head grades, and an increased number of locked cycle tests has allowed recovery equations to be expressed as a function of head grade for respective metals. An estimate of mass recovery to final concentrate was determined as a function of copper head grade considering locked cycle flotation test final concentrate grades, relative to modelled metal recovery, and the implied mass recovery associated with those concentrate grades. Equations for metal recoveries and final concentrate mass recoveries are outlined in Table 13-9 and yield calculated copper concentrate grades that are close to observed locked cycle test results.

Table 13-9: Recovery Equations for Metal Recovery to Final Concentrate

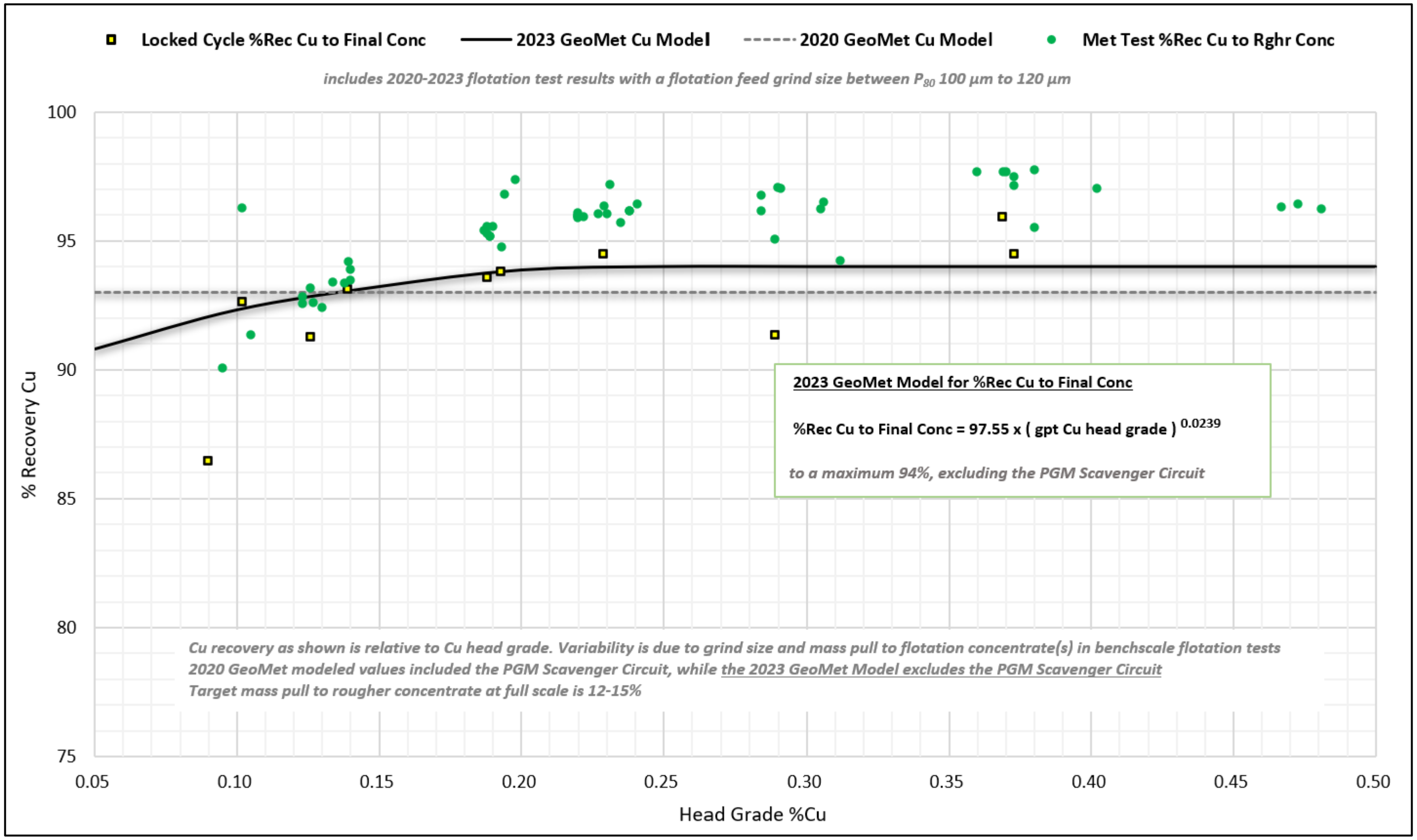
Parameter	Formula	Maximum Value
% Rec Cu to Final Concentrate	$= 97.55 \times (\%\ \text{Cu head grade})^{0.0239}$	94% Rec Cu
% Rec Pd to Final Concentrate	$= 89.14 \times (\text{g/t Pd head grade})^{0.0203}$	90% Rec Pd
% Rec Pt to Final Concentrate	$= 104.51 \times (\text{g/t Pt head grade})^{0.2034}$	84% Rec Pt
% Rec Au to Final Concentrate	$= 116.51 \times (\text{g/t Au head grade})^{0.1822}$	86% Rec Au
% Rec Ag to Final Concentrate	$= 50.82 \times (\text{g/t Ag head grade})^{0.6090}$	68% Rec Ag
% Mass Pull to Final Concentrate	$= 0.625 \times e^{(2.899 \times \%\text{Cu head grade})}$	2.0% Mass Pull

The developed recovery model considers a best-fit equation that correlates each metal head grade with the recovery to final concentrate based on locked cycle tests. In conjunction with statistical analysis, consideration was given to whether mass recovery to respective inter-stage concentrates for a given test was above or below target, and whether the flotation feed grind size relative to a target P_{80} 106 µm was close to, or coarser than, target.

13.9.2 Model Recovery vs. Locked Cycle Testing

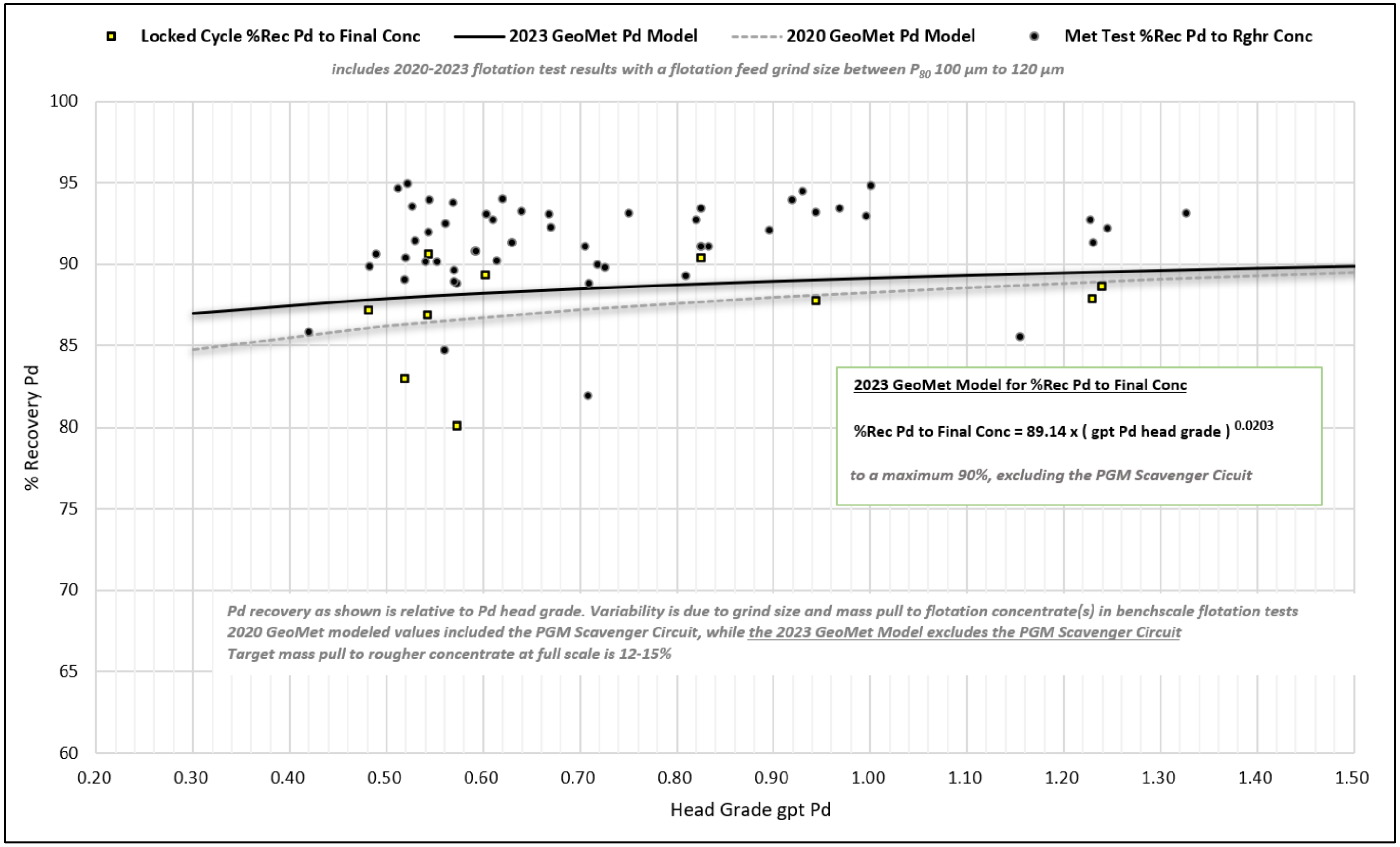
The updated 2023 model for recovery is plotted in comparison to the 2020 model for reference in Figure 13-10 to Figure 13-14. In comparison to predicted metal recovery to final concentrate, locked cycle test results are included in the chart and reconcile well with the modelled curve.

Figure 13-10: Recovery Model for Copper Recovery to Final Concentrate



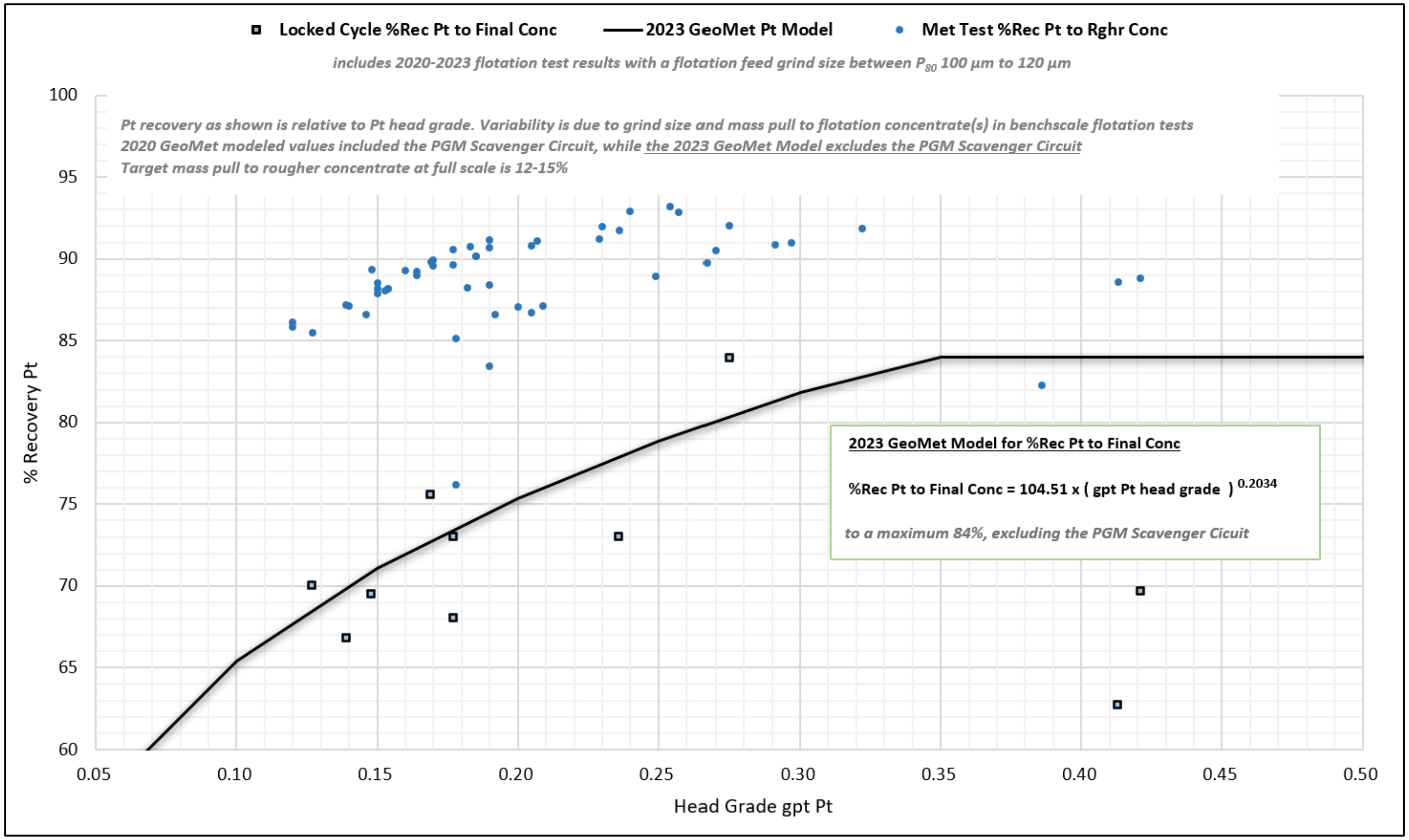
Source: Gen Mining (2023).

Figure 13-11: Recovery Model for Palladium Recovery to Final Concentrate



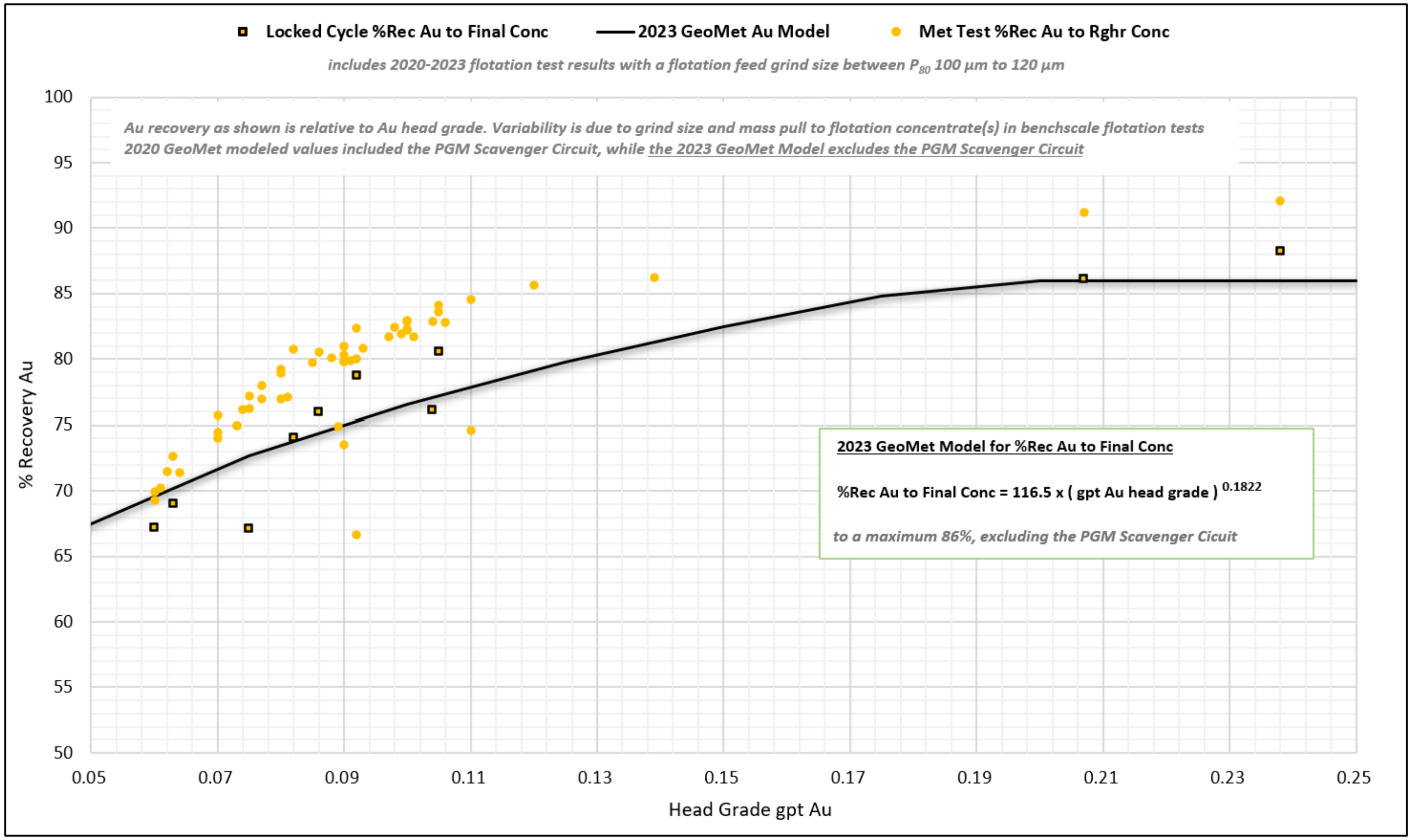
Source: Gen Mining (2023).

Figure 13-12: Recovery Model for Platinum Recovery to Final Concentrate



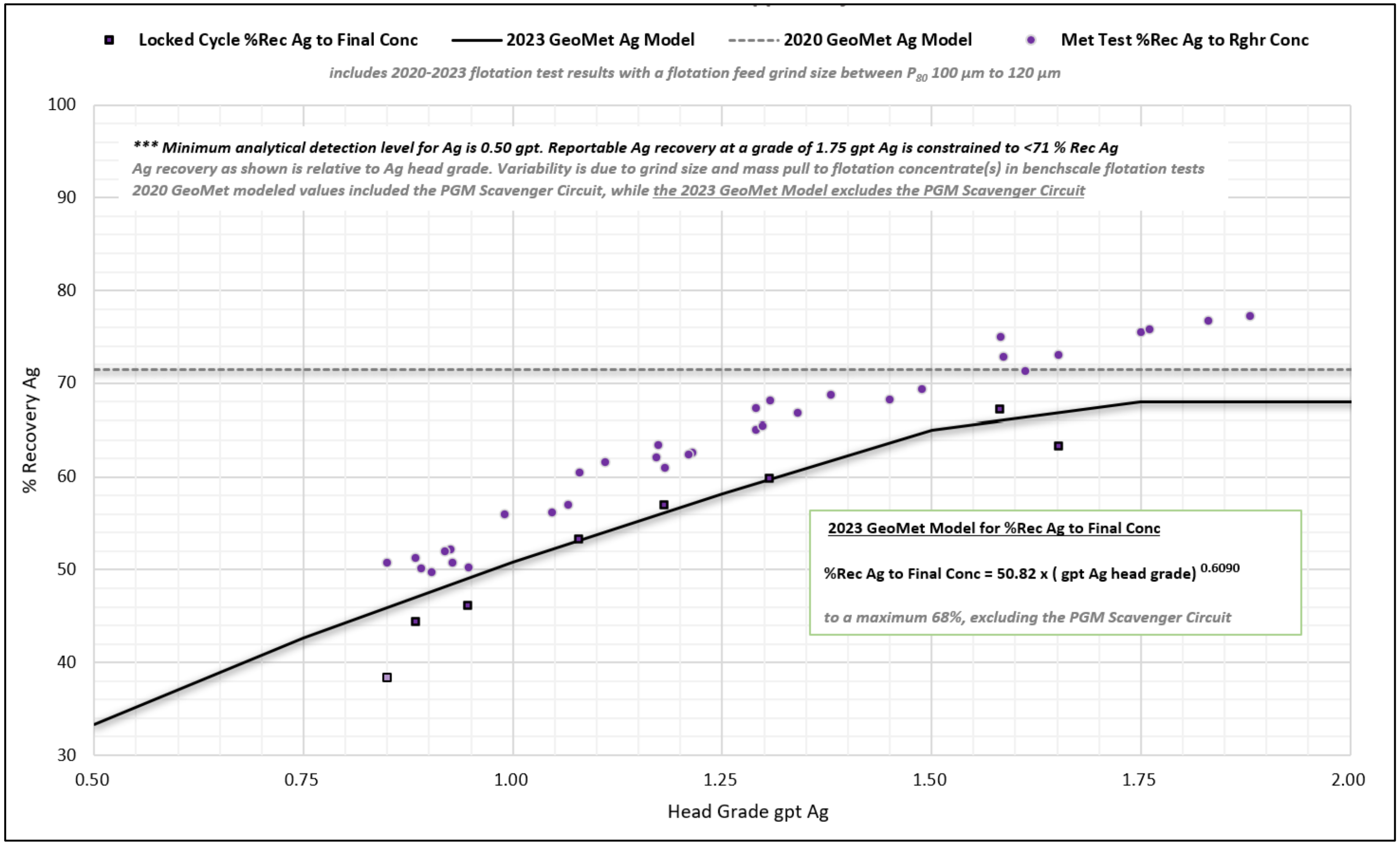
Source: Gen Mining (2023).

Figure 13-13: Recovery Model for Gold Recovery to Final Concentrate



Source: Gen Mining (2023).

Figure 13-14: Recovery Model for Silver Recovery to Final Concentrate



Source: Gen Mining (2023).

The following maximum were applied to each element:

- The maximum Cu recovery to final concentrate is constrained to a recovery of 94% Cu, which corresponds to Cu head grades >0.21%.
- The maximum Pd recovery to final concentrate is constrained to 95% which corresponds to Pd head grades >1.60 g/t.
- The maximum Pt recovery to final concentrate is constrained to 84% Rec Pt.
- The maximum Au recovery to final concentrate is constrained to 86% which corresponds to Au head grades >0.19 g/t.
- The maximum Ag recovery to final concentrate is constrained to 68% which corresponds to Ag head grades >1.60 g/t.

Note that the previous 2020 recovery model considered Pt and Au recovery as a function of Pd head grade and Cu and Ag recovery at a fixed 93% and 71.5%, respectively. The minimum analytical detection level for Ag of 0.50 g/t is a constraint that was not considered previously. For a head grade of 2.0 g/t Ag, 25% of contained value cannot be determined as recovered or lost due to analytical detection limits.

The previous 2020 recovery model also included the incremental gain associated with the PGM scavenger circuit, while the 2023 recovery model excludes the PGM scavenger circuit and is associated with the design flowsheet including rougher flotation, concentrate regrinding, and first to third cleaners.

A slight overall improvement in recovery for the design flowsheet was achieved in 2022 metallurgical testwork with a focus on pursuing design mass pull in first to third cleaners, and most importantly pursuing a target 12% to 15% mass pull to rougher concentrate.

13.10 Deleterious Elements and PGM-Cu Concentrate Quality

PGM-Cu concentrate grade is a variable that is influenced by initial head grade, rougher concentrate regrind particle size, and cleaner circuit performance, all of which ultimately define mass pull and metal recovery to a final Cu-PGM concentrate. Pilot plant testwork during 2021 yielded sufficient concentrate to pursue a multi-element analysis, the results of which are summarized in Table 13-10. Testwork confirmed an ability to achieve a range in Mg content in the final Cu-PGM concentrate from 2.0% to 6.3% Mg relative to an initial Mg head grade of 3.9% to 4.5% Mg. Aside from Mg, there are no other elements of concern in the final concentrate.

Table 13-10: Concentrate Produced during 2021 Pilot Plant Testing

Analyte	Unit	South Pit	North Pit	Blended Historical Composite
		(W-Horizon)	(Main Zone)	(Composite 3)
Cu	%	18.7	19.7	18.7
Ni	%	0.3	0.5	0.4
Zn	%	0.1	0.2	0.1
Fe	%	20.3	24.7	28.4
As	%	0.0	0.0	0.0
Au	g/t	17.6	3.3	2.7
Pt	g/t	43.5	7.6	4.0
Pd	g/t	171.0	39.0	19.0
Ag	g/t	50.0	68.0	42.0
S	%	17.0	24.0	26.0
F	%	0.1	0.1	0.0
Rh	g/t	2.4	0.6	0.2
Si	%	11.3	7.0	6.2
Mg	%	6.2	2.2	1.9
V	g/t	80	88	1000
Pb	%	0.0	0.0	0.0
Co	%	0.0	0.1	0.1
Al_2O_3	%	1.1	3.7	2.9
CaO	%	0.9	3.2	2.8
Mn	g/t	0.0	355.0	370.0
Cr	g/t	40.0	40.0	142.0
Ba	g/t	27.0	85.0	75.0
Se	g/t	174.0	87.0	70.0
Te	g/t	51.0	13.0	9.0
SG	-	3.6	3.7	3.9

13.11 2020 Dewatering and Filtration Testing

13.11.1 Concentrate Dewatering and Filtration

The thickening and filtration characteristics of final Cu-PGM concentrate are studied in Phase 2 test programs by SGS Lakefield with the participation of SNF-Canada and Metso Canada. The concentrate samples have a k_{80} of 33.6 µm, and a solid specific gravity (SG) of 3.71, which is slightly coarser than the target concentrate k_{80} of 18 µm. The results of the dynamic settling tests are shown in Table 13-11. To achieve a thickened underflow density of at least 60% solids, at least 30 g/t of flocculant VHM 920 SH needs to be dosed. Since the tested sample had a coarser grind. 35 g/t flocculant will be used to ensure an underflow density of 55% to 60% solids density. Additional tests should be carried out at the target grind size to confirm if the flocculant dosages need to be adjusted. Concentrate thickener sizing from dynamic simulation tests was confirmed as 0.15 t/m^2-h (Table 13-11).

Table 13-11: Concentrate Dynamic Thickening Test Results

Run No.	Feed		Flocculant		Underflow		Overflow
	Flux ($t/(m^2 \cdot h)$)	Liquor Rise Rate (m/h)	Type	Dose (g/t)	Solids (% (w/w))	Yield Stress (Pa)	Solids (mg/L)
1	0.25	1.61	VHM 920 SH	40	52.7	56	< 100
2	0.25	1.61		30	53.1	56	< 100
3	0.20	1.29		30	53.6	55	< 100
4	0.15	0.97		30	61.6	61	< 100
5	0.15	0.97		40	62.7	97	< 100

Pressure filtration tests were carried out on the concentrate samples with a target moisture content of less than 12%. A Labox 100 with a filtration area of 0.01 m^2 was used in the test. The concentrate sample had a k_{80} of 33.5 µm and slurry densities of 56.5% and 60% solids by weight.

Four tests were conducted, resulting in the moisture content changes shown in Table 13-12. The concentrate sample reached a minimal moisture content of 12.6% at a filtration rate of 391 kg/m^2-h. Since the material was tested at a coarser k_{80} of 33.5 µm and did not reach a moisture content of lower than 12% w/w, a longer filtration time would be used for filter sizing to ensure the materials can reach a target moisture content at k_{80} of 18 µm. It is suggested that additional tests be carried out to confirm the required filtration time for concentrate at a k_{80} of 18 µm.

Table 13-12: Pressure Filtration Test Results

Parameters	Units	Run 1	Run 2	Run 3	Run 4
Feed Density	% w/w	56.5	56.5	60	60
Filter Cloth Type		AINO K13			
Chamber Depth	mm	45	45	45	45
Cycle Time	min	10	11	10	11
Pumping Pressure	bar	6	6	6	6
Pressing Pressure	bar	12	12	12	12
Air Drying	bar	10	10	10	10
Cake Thickness	mm	20.3	20.5	20.4	20.3
Cake Moisture	% w/w	13.2	13.2	12.6	13.8
Filtration Rate (Dry Solids Basis)	$kg/m^2.h$	393	358	391	346

13.11.2 Tailings Dewatering

The tailings thickener will be constructed in Year 3 after the tonnage ramps up to 10.1 Mt/a. Both static and dynamic settling tests were conducted to characterize the dewatering characteristics of rougher tailings, with the dynamic results shown in Table 13-13. Tailings dewatering required a blend of coagulant (7 g/t SNF DB45-SH) and flocculant (13 g/t relative to final tailings tonnage) to achieve acceptable overflow clarity (100 NTU or 83 mg/L suspended solids) with 55% to 60% underflow density. Tailings thickener sizing from dynamic simulation testing was confirmed at 0.90 t/m^2-h. The thickened rougher tailings are deposited in Cell 1 of the TSF.

Table 13-13: Dynamic Thickening Test of Tailings

DB 45 SH	AN 934 SH	Unit Area	Solids Loading	Net Rise Rate	Underflow	Overflow TSS	Turbidity	Residence Time	U/F Yield Stress
g/t	g/t	$m^2/(t/d)$	$t/m^2/h$	m/h	%w/w solids	mg/L	NTU	h	Pa
7	20	0.12	0.35	2.9	69.1	30	27	0.5	18
7	20	0.1	0.42	3.5	66.5	16	10	0.41	10
7	20	0.08	0.52	4.4	62.4	35	11	0.33	no yield
7	20	0.07	0.6	5.0	63.9	35	15	0.29	no yield
7	20	0.06	0.69	5.9	63.3	81	16	0.25	no yield
7	20	0.05	0.83	7.0	65.5	97	24	0.21	28
7	20	0.04	1.04	8.8	61.9	225	23	0.17	no yield
Underflow extended for 30 minutes:					75.1				143

13.12 Comments on Mineral Processing and Metallurgical Testing

Metallurgical testwork completed by Gen Mining between 2020 and 2023 included an evaluation of deposit material hardness and competency; the influence of flotation feed grind size; the influence of independent Cu, Pd, Pt, Au and Ag head grades; flotation rate kinetics; rougher concentrate regrind size; sulphide deportment; mineralogical analysis, reagent suite and cleaner circuit performance; thickening and filtration requirements, material environmental characterization studies, and water balance optimization. The design flowsheet has been validated and confirmed as being well-suited to the expected variability in Pd and Cu feed grades and iron sulphide content with a focus on maximizing PGM and Cu recovery.

Follow-up Phase 2 metallurgical testing was completed on three bulk samples including: (1) 2012 Composite 3, (2) 2020 Main Zone composite, and (3) 2020 W-Horizon composite. Testwork included cleaner circuit optimization studies, locked cycle flotation tests, an evaluation of DFR performance, flocculant scoping tests, thickening and pressure filtration studies, concentrate regrind specific energy tests, and semi-continuous pilot plant trials for the validation of bench-scale and locked cycle testing. Additional Phase 3 metallurgical testing included evaluating 25 additional samples from within the deposit to evaluate the variability in expected ore competencies.

The results of the completed metallurgical tests would be used to design the process plant flowsheet and to select and size process equipment. The scope of the 2020-2023 metallurgical testing is thorough and supports the requirements for the completion of a feasibility study, basic engineering, and detailed engineering.

The QP has reviewed the metallurgical test results and composite samples that were selected for metallurgical testing and considers them suitable for this level of study and the process design described in this report.

14 MINERAL RESOURCE ESTIMATES

14.1 Introduction

The Mineral Resource Estimate presented in this report has been prepared following the Canadian Securities Administrators' NI 43-101 and Form 43-101F1 and in conformity with generally accepted "CIM Estimation of Mineral Resource and Mineral Reserves Best Practices" guidelines (2019). Mineral resources have been classified in accordance with the "CIM Standards on Mineral Resources and Reserves: Definition and Guidelines" as adopted by CIM Council on May 10, 2014:

A measured mineral resource is that part of a mineral resource for which quantity, grade or quality, densities, shape, and physical characteristics are estimated with confidence sufficient to allow the application of modifying factors to support detailed mine planning and final evaluation of the economic viability of the deposit. Geological evidence is derived from detailed and reliable exploration, sampling and testing and is sufficient to confirm geological and grade or quality continuity between points of observation.

A measured mineral resource has a higher level of confidence than that applying to either an indicated mineral resource or an inferred mineral resource. It may be converted to a proven mineral reserve or to a probable mineral reserve.

An indicated mineral resource is that part of a mineral resource for which quantity, grade or quality, densities, shape, and physical characteristics are estimated with sufficient confidence to allow the application of modifying factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit. Geological evidence is derived from adequately detailed and reliable exploration, sampling and testing and is sufficient to assume geological and grade or quality continuity between points of observation.

An indicated mineral resource has a lower level of confidence than that applied to a measured mineral resource and may only be converted to a probable mineral reserve.

An inferred mineral resource is that part of a mineral resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling. Geological evidence is sufficient to imply but not verify geological and grade or quality continuity.

An inferred mineral resource has a lower level of confidence than that applied to an indicated mineral resource and must not be converted to a mineral reserve. It is reasonably expected that the majority of inferred mineral resources could be upgraded to indicated mineral resources with continued exploration.

Mineral resources are not mineral reserves and do not have demonstrated economic viability. There is no guarantee that all or any part of the mineral resource will be converted into mineral reserve. Confidence in the estimate of inferred mineral resources is insufficient to allow the meaningful application of technical and economic parameters or to enable an evaluation of economic viability worthy of public disclosure.

The authors are not aware of any known permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors that could materially affect the Mineral Resource Estimate. All mineral resource estimation work reported herein was carried out by Mauro Bassotti, P. Geo., from Gen Mining, and reviewed by Fred Brown, P. Geo., and Eugene Puritch, P. Eng., FEC, CET, who are independent qualified persons as defined by National Instrument 43-101.

Wireframe modelling utilized Seequent Leapfrog Geo™ software. Mineral resource estimation was carried out using Datamine Studio RM software. Variography was carried out using Snowden Supervisor™.

The effective date of the Mineral Resource Estimate for the Marathon deposit is November 1, 2024. The effective date of the Mineral Resource Estimate for the Geordie and Sally deposits is June 30, 2020. The Geordie and Sally Mineral Resource Estimates have remained unchanged and are summarized below in Section 14.3.

14.2 Marathon Mineral Resource Estimate

The drilling database remains unchanged from the December 31, 2022 Mineral Resource Estimate. Sample data was provided in Excel files. Gen Mining supplied the database which contained 1,217 unique collar records (Table 14-1). Of these, 209 records fell outside the block model limits or had no reported assay data. Drill hole and surface channel sample records consist of collar, survey, lithology, bulk density, and assay data. Assay data fields consist of the drill hole ID, down-hole interval distances, sample number, and g/t Ag, g/t Au, % Cu, g/t Pd, and g/t Pt assay grades. All data are in metric units. Collar coordinates were provided in the NAD83 UTM Zone 16 coordinate system. The drilling covers an area of approximately 470 ha (Table 14-1).

Table 14-1: Drill Hole Database Summary

Item	Drill Holes	Channel Samples	Total
Count (Number)	1,107	110	**1,217**
Total Metres (m)	191,673	9,851.27	**201,524**
Minimum Length (m)	0.005	0.07	**0.0375**
Maximum Length (m)	269.3	103.9	**186.6**
Average Length (m)	2.24	1.80	**2.02**

Gen Mining supplied the database which contained a total of 64,438 assays for Ag, Au, Cu, Pd, and Pt. For domain modelling, a calculated NSR field was added to the assay table as follows:

$$NSR = (Cu\ \%\ x\ 88.72) + (Ag\ g/t\ x\ 0.47) + (Au\ g/t\ x\ 44.69) + (Pd\ g/t\ x\ 58.63) + (Pt\ g/t\ x\ 28.54)\ -3.37$$

Industry standard validation checks were carried out on the databases and minor corrections were made where necessary. The mineral resource database was validated by checking for inconsistencies in naming conventions or analytical units, duplicate entries, interval, length or distance, values less than or equal to zero, blank or zero-value assay results, out-of-sequence intervals, intervals or distances greater than the reported drill hole length, inappropriate collar locations, missing interval and coordinate fields, and down-hole survey information beyond normal expected deviation.

No significant errors were noted in the provided databases. The drill hole database supplied is suitable for mineral resource estimation. The drill hole data were imported into Datamine Studio RM.

14.2.1 Economic Considerations

Based on knowledge of similar projects, review of available historical data, and consideration of potential mining scenarios for the Marathon deposit, the economic parameters listed in Table 14-2 were deemed appropriate for the Mineral Resource Estimate. Metal prices are based on the approximate three-year trailing average and consensus metal prices as of November 1, 2024. Process recovery factors are based on information from previous technical reports on the property. Mining and processing costs are based on similar projects.

Table 14-2: Economic Parameters

Input Parameters					
Exchange Rate			CAD:USD	1.35	
Diesel Fuel Price Delivered			$/L	1.10	
Electricity Cost			$/kWh	0.07	
Processing Inputs					
Nominal Milling Rate			Mt/a	12	
Concentrate Grade			% Cu	Variable (See Section 13)	
Concentrate Treatment Charge			US$/dmt	79	
Concentrate Transport & Logistics			US$/dmt	125	
Metal	**Copper**	**Palladium**	**Platinum**	**Gold**	**Silver**
Metal Prices (US$)	$4.25/lb	$1,550/oz	$1,100/oz	$2,300/oz	$27/oz
Refining Charges (US$)	$0.08/lb	$25/oz	$25/oz	$5.00/oz	$0.50/oz
Payable Rates (%)	96.5	95	93	93.5	93.5
Concentrator Recovery (%)	Variable (see recovery curves in Section 13)				
Mineralized Material -Based Costs					
Average Incremental Ore Mining Cost			$/t processed	0.20	
Processing Cost (incl. Power)			$/t processed	8.27	
General and Administration			$/t processed	2.53	
Rehabilitation and Closure			$/t processed	0.60	
Sustaining Capital			$/t processed	2.00	
Total Mineralized Material-Based Cost			**$/t processed**	**13.60**	
Mining Inputs					
Mining Dilution			%	0%	
Mining Loss			%	0%	
Total Minin g Reference Cost			$/t mined	2.9	
Incremental Bench Cost ($ /10 m bench)			$/t mined	0.05	
Overall Slope Angle in Fresh Rock			degrees	50	

14.2.2 Geology Model

Based on fault interpretations developed by Gen Mining, the Marathon deposit area was divided into 10 fault blocks (Figure 14-1). Within each fault block, the metabasalt, gabbro, troctolite, melagabbro, dyke and basement lithologies were modelled in Leapfrog based on drill hole lithological logging (Figure 14-2). The resulting lithological units were used for modelling bulk density.

Figure 14-1: Fault Blocks

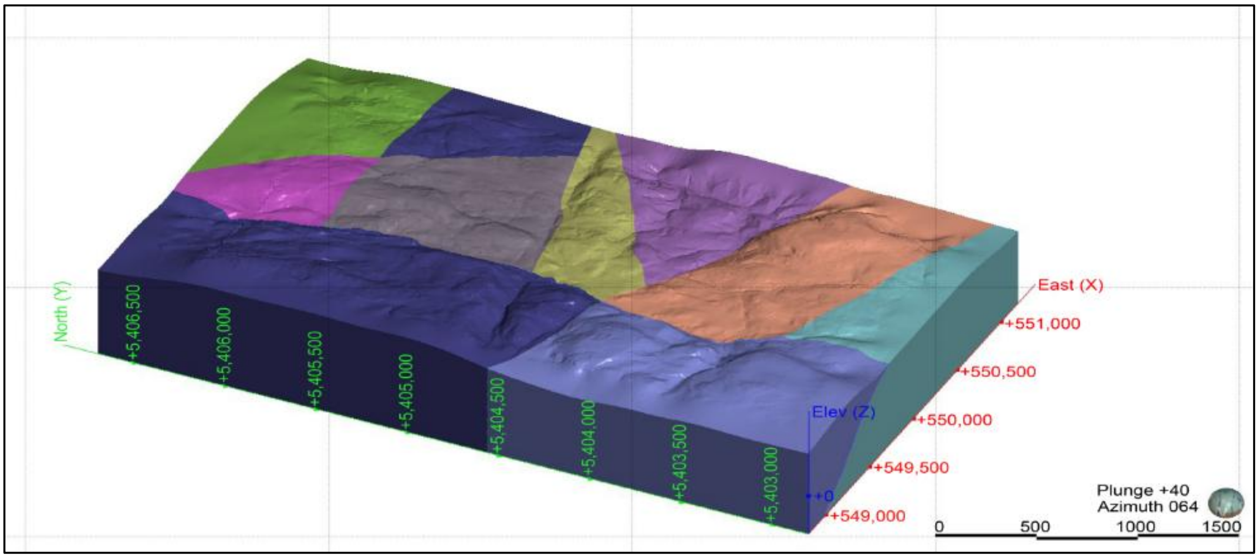
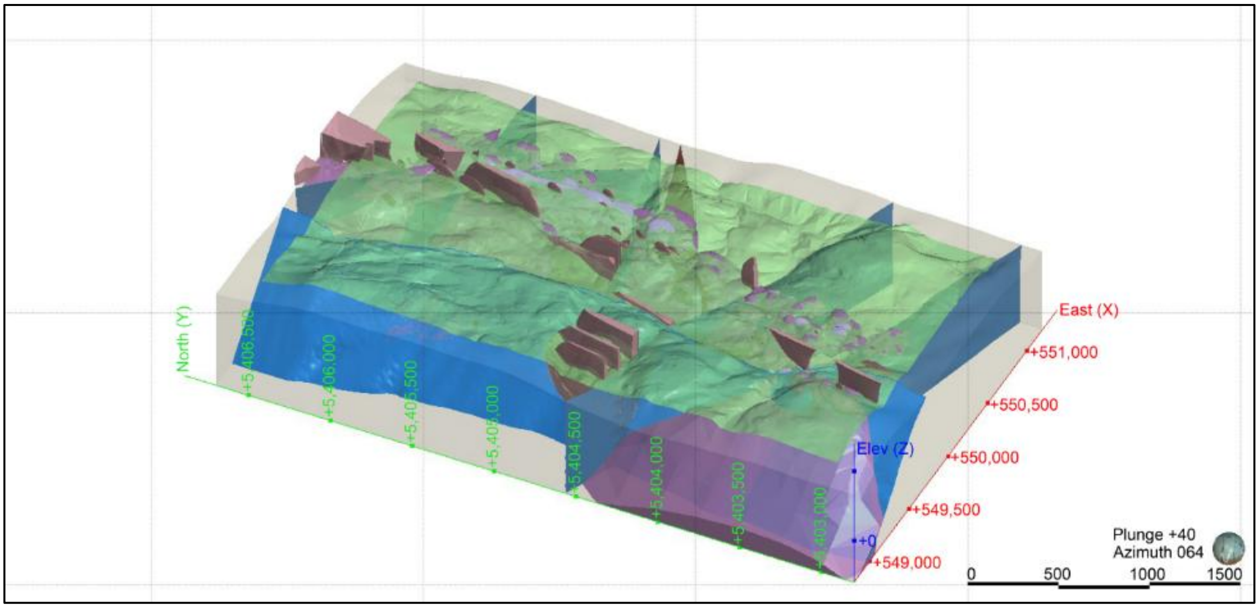


Figure 14-2: Lithology Model



14.2.3 Mineralized Domains

The updated Mineral Resource Estimate is based on 19 mineralized domains with a total volume on the order of 96 Mm^3 (Figure 14-3). The mineralized domains have been based on zones developed by Dr. David Good, P. Geo., previously Vice President Exploration for Stillwater Canada. Mineralization domains are further broadly grouped into two areas: 1) the northern domains where mineralization is dominated by paleo-topographic controls; and 2) the remaining southern domains. The domains are further split into the identified fault blocks. Of the 19 domains modelled, the North Main (DOM 90) and Walford Zone (DOM 80) include approximately 66% of the total mineral resource by volume (Figure 14-3 and Figure 14-4).

The mineralized domains were based on NSR drill hole assay values ≥$13 per tonne within the identified zones and with observed continuity downhole along strike and down dip. Drill hole intercepts were only used to define the mineralized domains and surface channel sample intervals were excluded from the process. The selected intervals include lower grade intervals or un-sampled intervals, where necessary, and were used to maintain continuity between drill holes. Three-dimensional wireframes linking drill hole sections were subsequently constructed using the Leapfrog Radial Basis Vein Function with hanging wall and footwall surfaces snapped directly to the selected drill hole intercepts within each fault block. The domain wireframes were used to back-tag the block model, bulk density, and composite tables with unique rock codes (Table 14-3).

Figure 14-3: Mineralized Domains

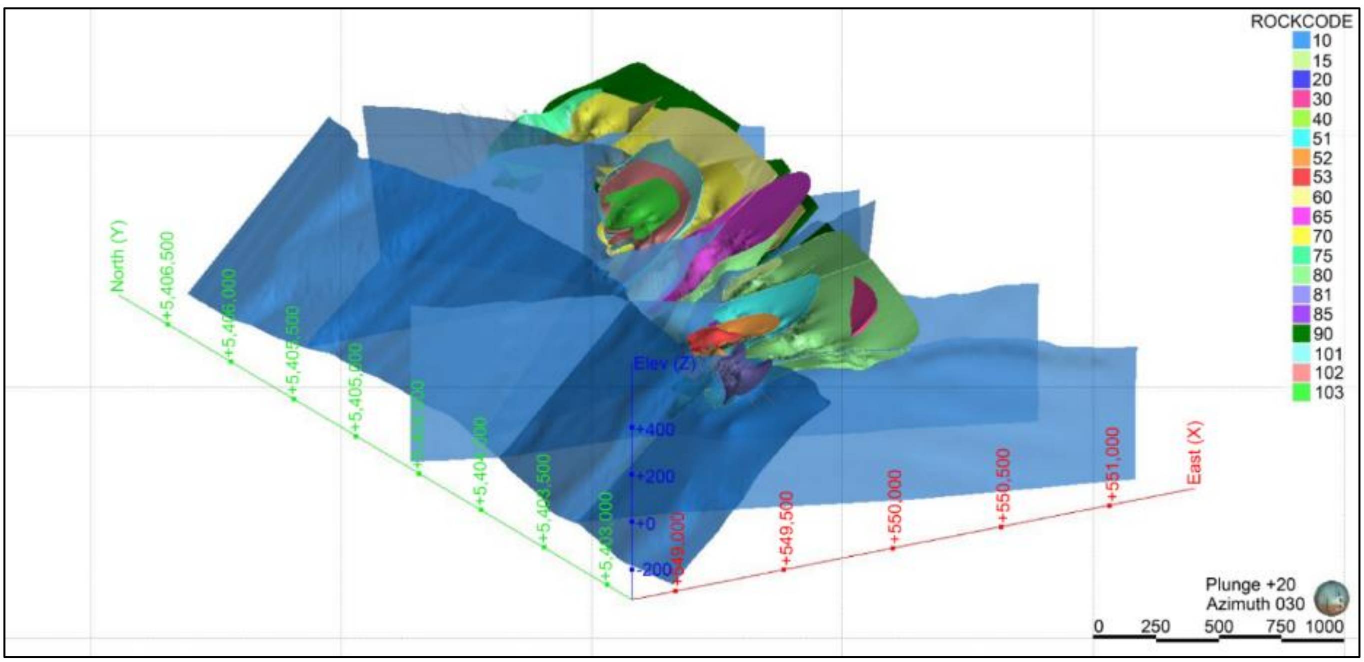


Figure 14-4: North Main and Walford Mineralized Domains

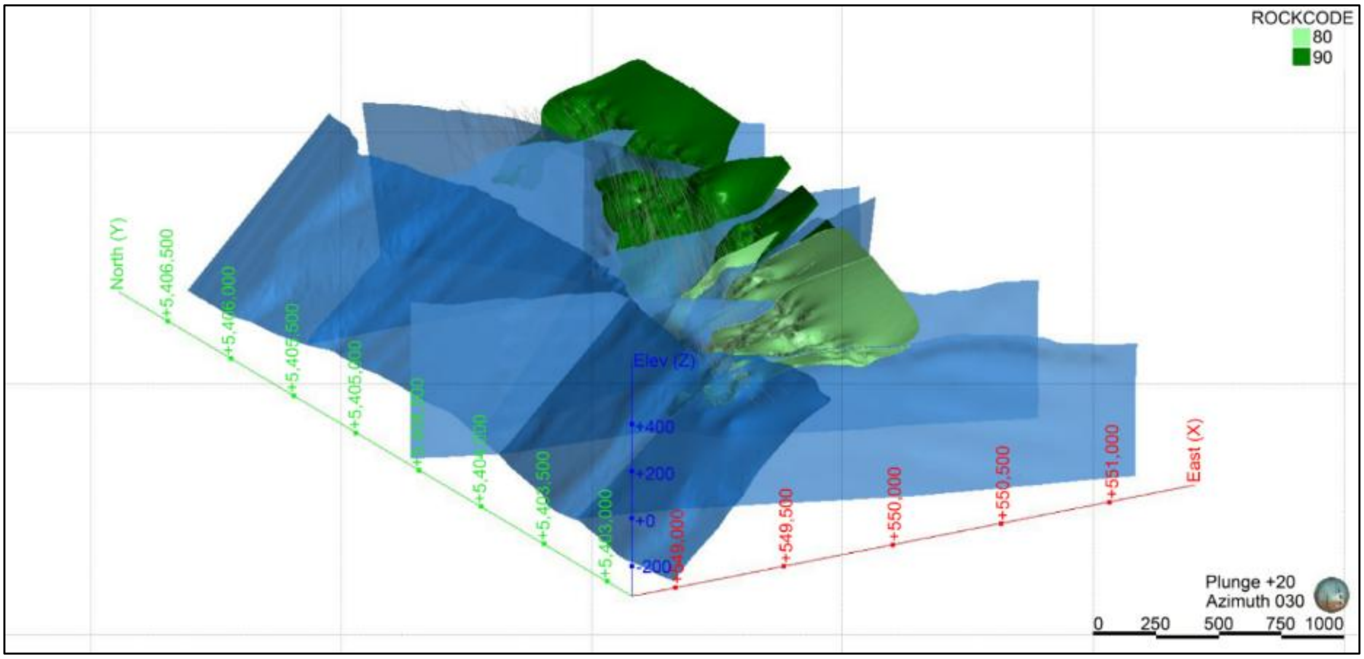


Table 14-3: Mineralized Domain Rock Codes

Domain	Rock Code	Volume (k m^3)
DOM 10	10	345
DOM 15	15	93
DOM 20	20	7,998
DOM 30	30	3,808
DOM 40	40	3,250
DOM 51	51	1,097
DOM 52	52	644
DOM 53	53	320
DOM 60	60	6,246
DOM 65	65	1,183
DOM 70	70	2,310
DOM 75	75	704
DOM 80	80	11,712
DOM 81	81	1,121
DOM 85	85	79
DOM 90	90	52,551
DOM 101	101	1,668
DOM 102	102	611
DOM 103	103	200
Total		**95,940**

14.2.4 Exploratory Data Analysis

A strong overall correlation between Pd and Pt as well as with Au, Pd, and Pt is observed. A strong correlation between Cu with Pd and Pt is observed in the northern area (Table 14-4).

Table 14-4: Assay Correlation Table (Pearson Correlation Coefficient)

Total	Ag	Au	Cu	Pd	Pt
Ag	1	0.18	0.32	0.16	0.11
Au	0.18	1	0.32	0.5	0.37
Cu	0.41	0.32	1	0.18	0.18
Pd	0.16	0.5	0.32	1	0.85
Pt	0.16	0.37	0.18	0.85	1
WZONE 80	**Ag**	**Au**	**Cu**	**Pd**	**Pt**
Ag	1	0.1	0.21	0.08	0.06
Au	0.1	1	0.31	0.55	0.4
Cu	0.21	0.31	1	0.23	0.13
Pd	0.08	0.55	0.23	1	0.87
Pt	0.06	0.4	0.13	0.87	1
NMAIN 90	**Ag**	**Au**	**Cu**	**Pd**	**Pt**
Ag	1	0.37	0.62	0.44	0.36
Au	0.37	1	0.51	0.62	0.50
Cu	0.62	0.51	1	0.68	0.52
Pd	0.44	0.63	0.68	1	0.71
Pt	0.36	0.50	0.52	0.71	1

Summary statistics for the domain coded assay data (drill hole and trench channel samples) are listed in Table 14-5.

Gen Mining supplied the database that contained 9,475 bulk density measurements with values ranging from 1.075 to 4.307 t/m^3 (Table 14-6). The average bulk density measured is 3.01 t/m^3. Bulk density measurements were backtagged to the lithology model.

Table 14-5: Assay Summary Statistics

Domain	Count	Ag g/t					Au g/t					Cu %					Pd g/t					Pt g/t				
		Mean	Std Dev	CoV	Min	Max	Mean	Std Dev	CoV	Min	Max	Mean	Std Dev	CoV	Min	Max	Mean	Std Dev	CoV	Min	Max	Mean	Std Dev	CoV	Min	Max
10	68	1.602	1.007	0.63	0.2	6	0.07	0.121	1.73	0.003	0.7	0.118	0.101	0.86	0.009	0.5	0.39	0.413	1.06	0.015	2.1	0.149	0.106	0.71	0.007	0.4
15	45	1.635	1.159	0.71	0.1	5	0.049	0.072	1.47	0.001	0.4	0.042	0.113	2.69	0.004	0.7	0.512	0.762	1.49	0.003	4.0	0.258	0.247	0.96	0.016	1.1
20	2056	1.73	1.845	1.07	0.1	44	0.057	0.083	1.46	0.001	1.2	0.25	0.215	0.86	0.001	3.3	0.461	0.625	1.36	0.001	14.9	0.132	0.16	1.21	0.002	2.2
30	1147	1.728	1.532	0.89	0.1	19	0.085	0.266	3.13	0.001	8.1	0.113	0.123	1.09	0.000	1.0	0.572	1.283	2.24	0.001	18.6	0.238	0.453	1.90	0.001	8.7
40	698	1.735	1.773	1.02	0.1	33	0.055	0.056	1.02	0.001	0.5	0.123	0.105	0.85	0.001	0.9	0.27	0.349	1.29	0.001	3.4	0.116	0.118	1.02	0.003	1.0
51	298	2.421	2.119	0.88	0.1	24	0.055	0.098	1.78	0.001	0.8	0.068	0.073	1.07	0.002	0.5	0.328	0.923	2.81	0.005	10.5	0.139	0.342	2.46	0.003	4.2
52	155	2.433	2.396	0.98	0.1	25	0.051	0.048	0.94	0.002	0.5	0.108	0.065	0.6	0.003	0.3	0.225	0.261	1.16	0.005	1.6	0.096	0.109	1.14	0.003	0.8
53	68	1.902	1.236	0.65	0.1	5.6	0.061	0.06	0.98	0.003	0.3	0.105	0.085	0.81	0.006	0.3	0.282	0.350	1.24	0.005	2.1	0.116	0.092	0.79	0.007	0.5
60	1308	1.492	2.183	1.46	0.1	38	0.056	0.068	1.21	0.001	0.8	0.13	0.138	1.06	0.002	1.4	0.436	0.594	1.36	0.001	7.1	0.16	0.229	1.43	0.002	3.0
65	239	1.923	1.189	0.62	0.1	9.1	0.073	0.099	1.36	0.003	0.7	0.121	0.133	1.10	0.005	1.0	0.356	0.684	1.92	0.005	7.2	0.182	0.245	1.35	0.006	2.1
70	553	1.592	3.624	2.28	0.1	73	0.044	0.05	1.14	0.001	0.5	0.089	0.077	0.87	0.003	0.5	0.279	0.266	0.95	0.004	1.9	0.126	0.119	0.94	0.002	0.7
75	219	2.485	2.366	0.95	0.1	29.3	0.068	0.073	1.07	0.003	0.4	0.191	0.169	0.88	0.004	0.8	0.578	0.686	1.19	0.005	4.9	0.193	0.235	1.22	0.007	2.3
80	3572	1.722	2.251	1.31	0.1	68	0.078	0.196	2.51	0.001	7.2	0.103	0.123	1.19	0.000	1.5	0.800	2.752	3.44	0.001	70.0	0.317	1.186	3.74	0.002	39.1
81	553	1.929	1.307	0.68	0.1	12.9	0.057	0.08	1.40	0.001	0.8	0.167	0.169	1.01	0.003	1.0	0.426	0.82	1.92	0.001	9.5	0.174	0.34	1.95	0.003	4.6
85	30	0.922	1.153	1.25	0.1	3.5	0.032	0.029	0.91	0.002	0.1	0.066	0.087	1.32	0.004	0.4	0.251	0.173	0.69	0.031	0.8	0.078	0.046	0.59	0.015	0.2
90	9499	1.849	1.393	0.75	0.1	17	0.07	0.096	1.37	0.001	2.6	0.244	0.2	0.82	0.000	2.4	0.607	0.76	1.25	0.001	15.7	0.182	0.256	1.41	0.002	8.2
101	283	1.387	1.287	0.93	0.1	9	0.047	0.045	0.96	0.001	0.3	0.074	0.073	0.99	0.001	0.3	0.383	0.388	1.01	0.001	1.7	0.108	0.094	0.87	0.003	0.6
102	109	1.962	1.215	0.62	0.1	6	0.072	0.126	1.75	0.001	0.9	0.091	0.064	0.70	0.003	0.3	0.312	0.336	1.08	0.001	1.6	0.101	0.073	0.72	0.007	0.4
103	72	2.430	1.602	0.66	0.1	8	0.051	0.051	1.00	0.001	0.2	0.108	0.112	1.04	0.001	0.7	0.16	0.266	1.66	0.001	1.2	0.083	0.071	0.86	0.003	0.3

Table 14-6: Bulk Density Summary Statistics (t/m³)

Lithology	Count	Average	Minimum	Maximum	Std Dev
Basement	4,349	3.065	2.9	3.4	0.149
Gabbro	2,694	2.974	1.175	4.37	0.178
Melagabbro	94	3.15	2.645	3.8	0.259
Metabasalt	1,099	2.876	2.074	4.37	0.205
Troctolite	25	3.102	2.9	3.4	0.149
Other	1,214	2.975	1.1	4	0.247
Total	**9,475**	**3.006**	**1.057**	**4.37**	**0.236**

14.2.5 Compositing

Constrained assay sample lengths range from 0.05 m to 269.3 m with an average sample length of 2.21 m and a sample length mode of 2.00 m. A total of 98% of the assay samples have a length of 2.00 m.

All constrained assay samples were therefore composited to the dominant sample length of 2.00 m. Length-weighted composites were calculated for all metals within the defined mineralized domains. Missing sample intervals in the data were assigned a nominal background grade of 0.001 g/t or 0.001%. The compositing process started at the first point of intersection between the drill hole and the domain intersected and halted upon exit from the domain wireframe.

Channel samples that were intersected by the domain wireframes were also included in the compositing process. Residual composites that were less than half of the compositing length were discarded to prevent a short sample bias from being introduced into the estimation process. The wireframes that represent the interpreted mineralized domains were used to back-tag a rock code identifier into the composite workspace. The composite data were visually validated against the domain wireframes and then exported for analysis and estimation.

A summary of uncapped composite statistics is tabulated in Table 14-7.

14.2.6 Treatment of Extreme Values

Grade capping analyses were conducted on the domain-coded and composited grade sample data to evaluate the potential influence of extreme values during estimation. Capping thresholds were determined by the decomposition of the domain composite log-probability distributions (Figure 14-5).

Where possible, the observed correlations between elements were also maintained when determining appropriate capping levels. Potential outliers are not markedly clustered in localized high-grade areas and sub-domaining is therefore not warranted. Composites are capped to the defined threshold prior to estimation (Table 14-8).

Table 14-7: Composite Summary Statistics

Domain	Count	Ag g/t					Au g/t					Cu %					Pd g/t					Pt g/t				
		Mean	Std Dev	CoV	Min	Max	Mean	Std Dev	CoV	Min	Max	Mean	Std Dev	CoV	Min	Max	Mean	Std Dev	CoV	Min	Max	Mean	Std Dev	CoV	Min	Max
10	94	0.932	1.088	1.17	0.001	6	0.037	0.079	2.14	0.001	0.7	0.07	0.092	1.31	0.001	0.4	0.224	0.351	1.57	0.001	1.6	0.086	0.106	1.23	0.001	0.4
15	39	1.552	1.196	0.77	0.1	5	0.053	0.075	1.42	0.001	0.4	0.044	0.119	2.7	0.004	0.7	0.507	0.772	1.52	0.003	4	0.254	0.251	0.99	0.016	1.1
20	1,950	1.526	1.815	1.19	0.001	44	0.052	0.08	1.54	0.001	1.2	0.226	0.203	0.9	0.001	3.3	0.417	0.573	1.37	0.001	14.9	0.12	0.139	1.16	0.001	1.8
30	1,073	1.536	1.568	1.02	0.001	19	0.082	0.272	3.32	0.001	8.1	0.108	0.124	1.15	0	1	0.537	1.205	2.24	0.001	18.6	0.227	0.444	1.96	0.001	8.7
40	652	1.579	1.814	1.15	0.001	33	0.05	0.056	1.12	0.001	0.5	0.115	0.107	0.93	0.001	0.9	0.245	0.346	1.41	0.001	3.4	0.106	0.118	1.11	0.001	1
51	288	1.898	2.174	1.15	0.001	24	0.043	0.083	1.93	0.001	0.8	0.055	0.07	1.27	0.001	0.4	0.276	0.895	3.24	0.001	10.5	0.116	0.332	2.86	0.001	4.2
52	145	1.965	2.472	1.26	0.001	25	0.042	0.048	1.14	0.001	0.5	0.087	0.069	0.79	0.001	0.3	0.178	0.233	1.31	0.001	1.6	0.078	0.089	1.14	0.001	0.8
53	55	1.873	1.272	0.68	0.001	5.6	0.062	0.064	1.03	0.001	0.3	0.104	0.09	0.87	0.001	0.3	0.281	0.381	1.36	0.001	2.1	0.115	0.098	0.85	0.001	0.5
60	1,276	1.28	2.148	1.68	0.001	38	0.047	0.059	1.26	0.001	0.6	0.112	0.126	1.13	0.001	0.9	0.363	0.513	1.41	0.001	5.7	0.134	0.208	1.55	0.001	3
65	247	1.485	1.314	0.88	0.001	9.1	0.062	0.095	1.53	0.001	0.7	0.109	0.134	1.23	0.001	1	0.27	0.53	1.96	0.001	6.3	0.145	0.227	1.57	0.001	2.1
70	581	1.233	3.372	2.73	0.001	73	0.036	0.046	1.28	0.001	0.5	0.076	0.074	0.97	0.001	0.5	0.229	0.251	1.1	0.001	1.9	0.106	0.12	1.13	0.001	0.7
75	180	2.207	2.508	1.14	0.001	29.3	0.068	0.071	1.04	0.001	0.4	0.192	0.169	0.88	0.004	0.8	0.579	0.667	1.15	0.001	4.9	0.192	0.228	1.19	0.001	2.3
80	3,244	1.479	1.896	1.28	0.001	68	0.077	0.195	2.53	0.001	7.2	0.099	0.116	1.17	0	1.2	0.785	2.767	3.52	0.001	70	0.309	1.173	3.8	0.001	39.1
81	488	1.11	1.379	1.24	0.001	12.9	0.054	0.074	1.37	0.001	0.8	0.149	0.169	1.13	0.001	1	0.406	0.772	1.9	0.001	9.5	0.161	0.29	1.8	0.001	3.1
85	24	0.787	1.082	1.37	0.001	3.5	0.029	0.029	1	0.001	0.1	0.068	0.096	1.41	0.001	0.4	0.242	0.192	0.79	0.001	0.8	0.074	0.05	0.68	0.001	0.2
90	8,999	1.66	1.41	0.85	0.001	17	0.067	0.091	1.36	0.001	2.6	0.228	0.194	0.85	0	2.2	0.581	0.731	1.26	0.001	15.7	0.173	0.247	1.43	0.001	8.2
101	274	1.058	1.297	1.23	0.001	9	0.037	0.044	1.19	0.001	0.3	0.058	0.068	1.17	0.001	0.3	0.305	0.369	1.21	0.001	1.7	0.085	0.092	1.08	0.001	0.6
102	99	1.545	1.341	0.87	0.001	6	0.057	0.095	1.67	0.001	0.9	0.078	0.063	0.81	0.001	0.3	0.281	0.329	1.17	0.001	1.6	0.091	0.078	0.86	0.001	0.4
103	77	1.337	1.564	1.17	0.001	8	0.032	0.045	1.41	0.001	0.2	0.069	0.106	1.54	0.001	0.7	0.089	0.172	1.93	0.001	1	0.048	0.063	1.31	0.001	0.2

Figure 14-5: Grade Capping Selection for Domain 80 and 90 (Pd g/t and Cu %)

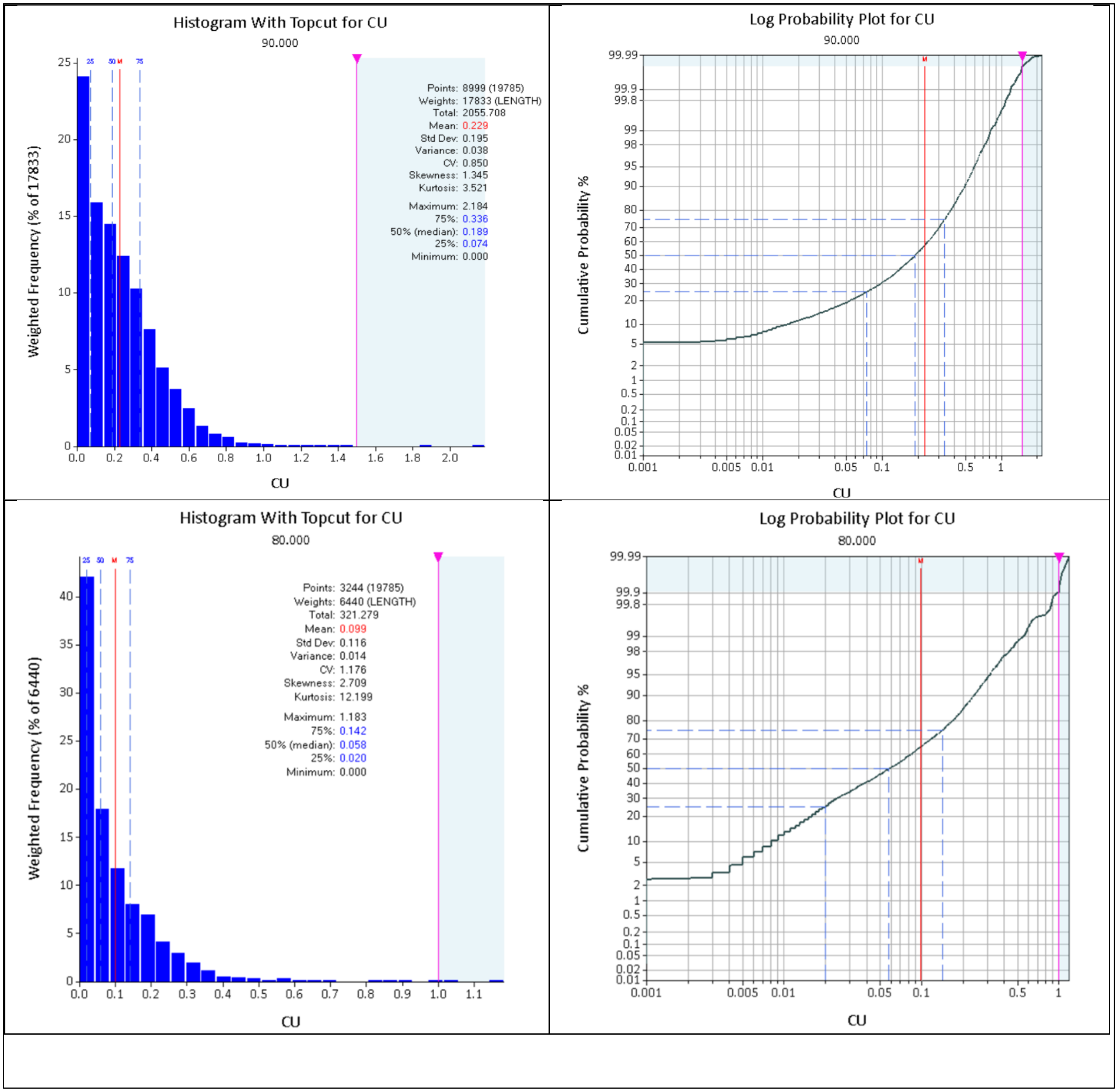


Table 14-8: Capping Thresholds

Domain	Count	Ag g/t					Au g/t					Cu %					Pd g/t					Pt g/t				
		Threshold	Avg Ag g/t Uncapped	Number Capped	Avg Ag g/t	Change	Threshold	Avg Au g/t Uncapped	Number Capped	Avg Au g/t	Change	Threshold	Avg Cu % Uncapped	Number Capped	Avg Cu % Capped	Change	Threshold	Avg Pd g/t	Number Capped	Avg Pd g/t	Change	Threshold	Avg Pt g/t	Number Capped	Avg Pt g/t Capped	Change
10	94	4	0.93	1	0.91	-2.2%	0.2	0.04	2	0.03	-25.0%	0.26	0.07	8	0.07	0.0%	1.23	0.22	5	0.21	-4.5%	0.26	0.09	9	0.08	-11.1%
15	39	9,999	1.5	0	1.5	0.0%	0.3	0.05	1	0.05	0.0%	0.22	0.04	1	0.03	-25.0%	2	0.52	2	0.44	-15.4%	1	0.25	1	0.25	0.0%
20	1,950	14	1.54	5	1.51	-1.9%	0.84	0.05	5	0.05	0.0%	1.3	0.23	3	0.22	-4.3%	2.5	0.42	15	0.4	-4.8%	1.1	0.12	7	0.12	0.0%
30	1,073	10	1.54	2	1.53	-0.6%	0.9	0.08	4	0.07	-12.5%	0.8	0.11	3	0.11	0.0%	6	0.54	8	0.5	-7.4%	2	0.23	9	0.21	-8.7%
40	652	10	1.59	1	1.56	-1.9%	9,999	0.05	0	0.05	0.0%	0.6	0.12	3	0.11	-8.3%	2	0.25	5	0.24	-4.0%	1	0.11	1	0.11	0.0%
51	288	10	1.95	1	1.9	-2.6%	0.38	0.04	4	0.04	0.0%	0.3	0.06	7	0.06	0.0%	1.5	0.28	3	0.21	-25.0%	0.6	0.12	6	0.09	-25.0%
52	145	7	2.04	3	1.91	-6.4%	0.15	0.04	2	0.04	0.0%	0.2	0.09	7	0.09	0.0%	0.6	0.18	4	0.17	-5.6%	0.3	0.3	2	0.3	0.0%
53	55	6	1.9	0	1.9	0.0%	0.2	0.06	0	0.06	0.0%	0.3	0.1	3	0.1	0.0%	1.5	0.29	2	0.27	-6.9%	0.4	0.12	1	0.12	0.0%
60	1,276	7	1.3	9	1.2	-7.7%	0.4	0.05	5	0.05	0.0%	0.7	0.11	7	0.11	0.0%	2.5	0.36	11	0.35	-2.8%	0.7	0.14	24	0.12	-14.3%
65	247	9,999	1.5	0	1.5	0.0%	0.4	0.06	4	0.06	0.0%	0.4	0.11	8	0.1	-9.1%	1.6	0.27	8	0.24	-11.1%	0.7	0.14	8	0.13	-7.1%
70	581	6	1.25	7	1.09	-12.8%	0.2	0.04	4	0.03	-25.0%	0.4	0.08	2	0.08	0.0%	1.2	0.23	6	0.23	0.0%	0.4	0.11	20	0.1	-9.1%
75	180	7	2.25	2	2.11	-6.2%	0.3	0.07	3	0.07	0.0%	0.7	0.19	1	0.19	0.0%	2.6	0.59	3	0.57	-3.4%	0.8	0.19	2	0.18	-5.3%
80	3,244	10	1.48	5	1.45	-2.0%	2	0.08	3	0.07	-12.5%	1	0.1	4	0.1	0.0%	19	0.79	11	0.73	-7.6%	10	0.31	5	0.29	-6.5%
81	488	5	1.11	5	1.09	-1.8%	0.4	0.05	3	0.05	0.0%	0.8	0.15	5	0.15	0.0%	4	0.41	4	0.39	-4.9%	2	0.16	3	0.16	0.0%
85	24	9,999	0.8	0	0.8	0.0%	9,999	0.03	0	0.03	0.0%	9,999	0.07	0	0.07	0.0%	9,999	0.25	0	0.25	0.0%	9,999	0.08	0	0.08	0.0%
90	8,999	10	1.67	10	1.66	-0.6%	1	0.07	7	0.07	0.0%	1.5	0.23	2	0.23	0.0%	7	0.58	7	0.58	0.0%	1.8	0.17	13	0.17	0.0%
101	274	6	1.08	2	1.07	-0.9%	0.2	0.04	2	0.04	0.0%	0.23	0.06	8	0.06	0.0%	1.7	0.31	3	0.31	0.0%	0.4	0.09	2	0.09	0.0%
102	99	4	1.54	6	1.5	-2.6%	0.14	0.06	2	0.05	-16.7%	0.25	0.08	1	0.08	0.0%	9,999	0.28	0	0.28	0.0%	9,999	0.09	0	0.09	0.0%
103	77	5	1.4	2	1.35	-3.6%	0.12	0.03	3	0.03	0.0%	0.3	0.07	1	0.06	-14.3%	0.55	0.09	3	0.09	0.0%	0.16	0.05	6	0.05	0.0%

14.2.7 Continuity Analysis

Variogram parameters have remained unchanged from the previous mineral resource estimate. Variography was reviewed considering the new drilling information and the below variograms were deemed appropriate to retain for the classification of the mineral resource.

Three-dimensional continuity analyses (variography) were conducted on the domain-coded uncapped composite data. The down-hole variogram was viewed at a 2.00 m lag spacing (equivalent to the composite length) to assess the nugget variance contribution. Standardized directional spherical models were used to model the experimental semi-variograms.

Back-transformed experimental semi-variograms were used to define appropriate ranges for mineral resource classification (Table 14-9). Based on the results of the variography, as well as the observed geological continuity and the existing drill hole pattern, a measured classification range was defined as 70 m, and an indicated classification range was defined as 120 m.

Table 14-9: Experimental Semi-Variograms

Walford Zone 80							
Pd				Pt			
Variance	Direction 1	Direction 2	Direction 3	Variance	Direction 1	Direction 2	Direction 3
C	-25 > 290	0 > 200	65 > 290	C	-25 > 290	0 > 200	65 > 290
0.47	0 m	0 m	0 m	0.53	0 m	0 m	0 m
0.38	48 m	60 m	8 m	0.32	34 m	45 m	8 m
0.15	100 m	75 m	70 m	0.16	100 m	75 m	50 m
North Main Zone 90							
Pd				Pt			
Variance	Direction 1	Direction 2	Direction 3	Variance	Direction 1	Direction 2	Direction 3
C	-40 > 275	0 > 185	50 > 275	C	-40 > 275	0 > 185	50 > 275
0.11	0 m	0 m	0 m	0.21	0 m	0 m	0 m
0.55	40 m	26 m	17 m	0.5	38 m	11 m	11 m
0.34	100 m	70 m	60 m	0.29	70 m	30 m	80 m

14.2.8 Block Model

The modelled Marathon mineralized domains extend along a corridor of 2,000 m wide and 3,500 m in length. An orthogonal block model was established with the block model limits selected to cover the extent of the mineralized structures, the proposed open pit design, and to reflect the general nature of the mineralized domains (Table 14-10). The block model consists of separate variables for estimated grades, rock codes, volume percent, bulk density, and classification attributes. A sub-cell model, with a minimum cell-size of 0.1 m x 0.1 m x 0.1 m, was used to accurately represent the volume and tonnage contained within the constraining mineralized domains. The sub-celled model was regularized to the parent-size of 5.0 m x 10.0 m x 5.0 m for the reporting of the mineral resource.

A dynamic anisotropy (DA) model was also generated. This is a model of estimated dip and dip direction. Each block in the model has an estimated dip and dip direction value that is used to optimize the alignment of the search ellipse during the estimation process. Dip and dip directions were generated by digitizing strings that follow the orientation of the mineralized domains. The strings are then conditioned to 20 m points. The points are then tagged with the mineralized domains, and then estimation of dip and dip direction is performed in Datamine. Blocks that do not have an estimated dip and dip direction will use the default search parameters for grade estimation. The default search parameters have remained unchanged from the 2020 Mineral Resource Estimate. The implementation of the DA model provides a better representation of the local grade estimate by honouring the variations of dip and dip direction of the mineralization.

Table 14-10: Block Model Setup

Description	Origin	Block Size (m)	Number of Blocks
Easting (X)	549,001.68	5.0	400
Northing (Y)	5,403,224.5	10.0	350
Elevation (max Z)	-340	5.0	168
Rotation	0		

14.2.9 Grade Estimation & Classification

Bulk density was modelled using inverse distance squared (ID^2) linear weighting of between one and five bulk density samples with a maximum of one sample per drill hole. Bulk density estimates were constrained by lithological domains that form hard boundaries between the respective bulk density samples.

The Mineral Resource Estimate was constrained by mineralized domains that form hard boundaries between the respective composite samples. Block grades were estimated in a single pass with inverse distance cubed (ID^3) interpolation using a minimum of four and a maximum of 12 composites with a maximum of three samples per drill hole.

Composited samples were selected within a 200 m x 200 m x 50 m diameter search envelope oriented along the dip and strike of the mineralized domains. This was achieved by using the Datamine. For the DA process, the blocks that do not contain an estimated DA field used the default search parameters which are aligned to the overall orientation of the mineralized domains. For each grade element, a NN was also generated using the same search parameters. An NSR block model was subsequently calculated from the estimated block grades.

Blocks were classified algorithmically based on the local drill hole spacing within each domain. All blocks within 70 m of four or more drill holes were classified as measured and blocks within 120 m of four or more drill holes were classified as indicated. All additional estimated blocks were classified as inferred.

The average number of drill holes used and composite samples per block for grade estimation was as follows:

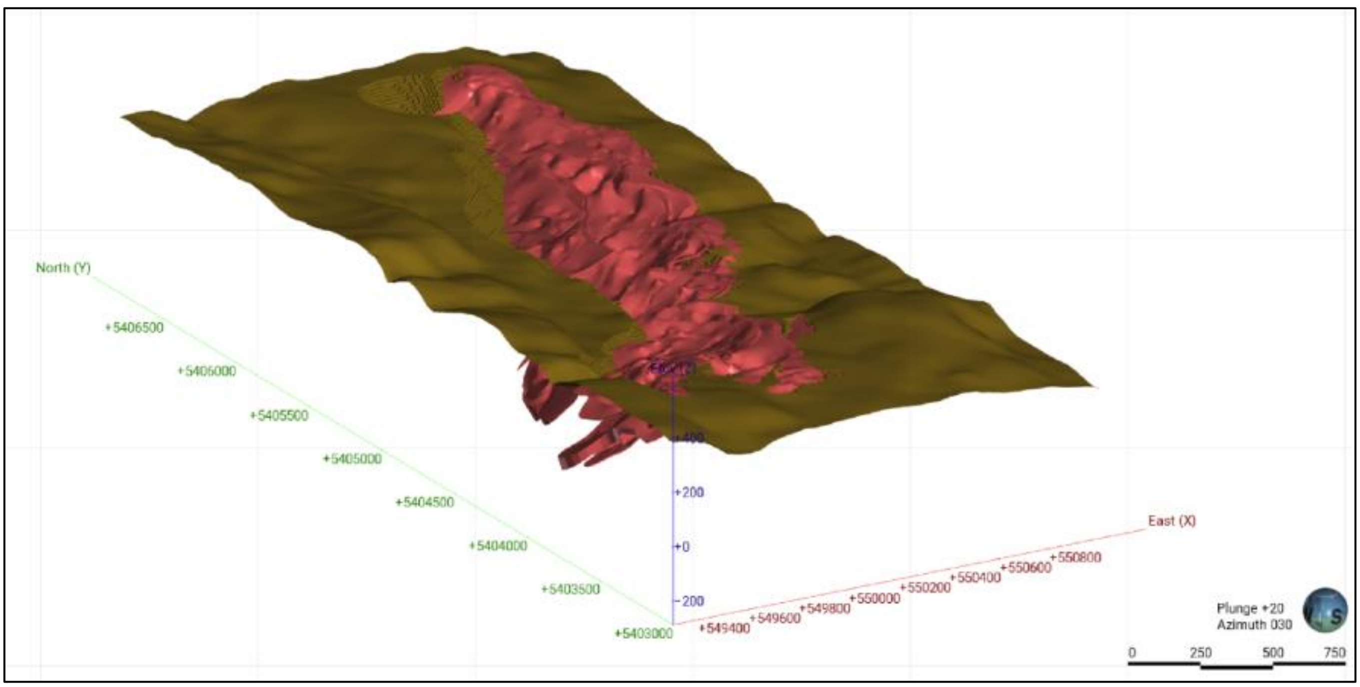
- Measured: 4.8 drill holes and 11.5 composite samples within 70 m
- Indicated: 3.3 drill holes and 8.1 composite samples within 120 m
- Inferred: 2.6 drill holes and 6.9 composite samples within 200 m.

The block model was then visually inspected to determine if a manual adjustment was required to remove any isolated (spotted dog effect) blocks. It was determined that this was not required.

14.2.10 Mineral Resource Estimate

Mineral resources reported herein have been constrained within an optimized pit shell (Figure 14-6). The results within the constraining pit shell (Table 14-11) are used solely for the purpose of reporting mineral resources and include measured, indicated, and inferred mineral resources. Pit-constrained mineral resources are reported using a NSR cut-off value of $13.60/t. A table summarizing the mineral resources at different cut-off grades is presented in Table 14-12.

Figure 14-6: Isometric View of the Optimized Pit Shell



Source: P&E (2024.

Table 14-11: Pit Constrained Mineral Resource Estimate for the Marathon Deposit (1-7)

Classification	Tonnes (k)	Pd (g/t)	Pt (g/t)	Cu (%)	Au (g/t)	Ag (g/t)	Pd (koz)	Pt (koz)	Cu (Mlbs)	Au (koz)	Ag (koz)
Measured	163,976	0.56	0.18	0.20	0.07	1.72	2,973	970	712	358	9,089
Indicated	38,055	0.39	0.13	0.18	0.06	1.55	476	159	153	71	1,896
Total M+I	**202,031**	**0.53**	**0.17**	**0.19**	**0.07**	**1.69**	**3,449**	**1,129**	**865**	**429**	**10,985**
Inferred	2,906	0.36	0.13	0.16	0.06	1.20	34	12	10	6	112

Notes: **1.** Mineral resources that are not mineral reserves do not have demonstrated economic viability. The estimate of mineral resources may be materially affected by environmental, permitting, legal, marketing, or other relevant issues. **2.** Mineral resources were estimated using the Canadian Institute of Mining, Metallurgy and Petroleum (CIM), CIM Standards on Mineral Resources and Reserves, Definitions (2014) and Best Practices Guidelines (2019) prepared by the CIM Standing Committee on Reserve Definitions and adopted by CIM Council. **3.** The inferred mineral resource in this estimate has a lower level of confidence than that applied to an indicated mineral resource and must not be converted to a mineral reserve. It is reasonably expected that the majority of the inferred mineral resource could be upgraded to an indicated mineral resource with continued exploration. **4.** Contained metal totals may differ due to rounding. **5.** Mineral resources are reported within a constraining pit shell at a NSR cut-off value of $15/t. **6.** NSR C$/t = (Cu % x 88.72111.49) + (Ag g/t x 0.4773) + (Au g/t x 44.6980.18) + (Pd g/t x 58.6356.02) + (Pt g/t x 28.54) - 3.3736.49) – 2.66. **7.** Mineral resource estimate was based on metal prices of US$1,550/oz Pd, US$4.25/lb Cu, US$1,100/oz Pt, US$2,300/oz Au and US$27/oz Ag, and an exchange rate of 1.35 CAD to 1 USD.

The sensitivity of the Mineral Resource Estimate to NSR cut-off value (CAD) was also calculated across a range of potentially economic NSR cut-off values for measured and indicated mineral resources (Table 14-12).

Table 14-12: Pit Constrained Measured and Indicated Mineral Resources Cut-off Sensitivities

NSR Cut-Off C$/t	Tonnes (k)	Pd (g/t)	Pt (g/t)	Cu (%)	Au (g/t)	Ag (g/t)	Pd (koz)	Pt (koz)	Cu (Mlbs)	Au (koz)	Ag (koz)
20	189,660	0.56	0.18	0.20	0.07	1.73	3,396	1,104	849	415	10,573
19	192,010	0.55	0.18	0.20	0.07	1.73	3,408	1,111	851	420	10,661
18	194,263	0.55	0.18	0.20	0.07	1.72	3,423	1,112	857	425	10,736
17	196,327	0.54	0.18	0.20	0.07	1.71	3,427	1,117	857	423	10,806
16	198,113	0.54	0.18	0.20	0.07	1.71	3,433	1,121	860	427	10,866
15	199,791	0.54	0.18	0.20	0.07	1.70	3,443	1,124	863	424	10,920
14	201,424	0.53	0.17	0.20	0.07	1.69	3,445	1,127	866	427	10,970
13.60	**202,031**	**0.53**	**0.17**	**0.19**	**0.07**	**1.69**	**3,449**	**1,130**	**864**	**429**	**10,984**
13	202,877	0.53	0.17	0.19	0.07	1.69	3,450	1,128	868	430	11,010
12	204,192	0.53	0.17	0.19	0.07	1.68	3,460	1,129	869	427	11,042
11	205,350	0.52	0.17	0.19	0.07	1.68	3,460	1,136	869	429	11,072

14.2.11 Validation

The block model was validated visually by the inspection of successive section lines to confirm that the block models correctly reflect the distribution of high-grade and low-grade values for Ag, Au, Cu, Pd and Pt.

The average estimated block grades were compared to the average NN block estimate at a zero cut-off grade (Table 14-14 on the following page). The results fall within acceptable limits for linear grade estimation.

An additional validation check was completed by comparing the average grade of the uncapped composites in a block to the associated model block grade estimate. The results fall within acceptable limits for linear grade estimation. The volume estimated was also checked against the reported volume of the individual mineralized domains (Table 14-13). Estimated volumes are based on the sub-blocked model.

Table 14-13: Volume Comparison

Domain	Volume Estimated (m^3)	Model Volume (m^3)
10	335	345
15	93	93
20	7,926	7,998
30	3,801	3,808
40	3,124	3,250
51	1,046	1,097
52	629	644
53	320	320
60	6,113	6,246
65	1,135	1,183
70	2,214	2,310
75	704	704
80	11,651	11,712
81	1,115	1,121
85	77	79
90	51,602	52,551
101	1,587	1,668
102	598	611
103	180	200
Total	**94,250**	**95,940**

A check for local estimation bias was completed by plotting vertical swath plots of the estimated block grade and the NN grade combining measured and indicated blocks. The swath plots demonstrate a reasonable level of smoothing for the block grade estimate and fall within acceptable limits for linear estimation.

Table 14-14: Comparison Between Block Estimated Grades and NN Grades

	Average Block Grades (NSR>0)					Average NN Grades (NSR>0)					Ratio of Estimated Block Grade and NN Grade (NSR>0)				
Mineralized Domain	Pd (g/t)	Pt (g/t)	Cu (%)	Au (g/t)	Ag (g/t)	Pd (g/t)	Pt (g/t)	Cu (%)	Au (g/t)	Ag (g/t)	Pd (g/t)	Pt (g/t)	Cu (%)	Au (g/t)	Ag (g/t)
10	1.53	0.05	0.10	0.28	0.11	1.53	0.04	0.10	0.26	0.12	100%	112%	103%	109%	96%
15	1.67	0.05	0.03	0.50	0.28	1.68	0.04	0.01	0.37	0.30	99%	126%	231%	136%	95%
20	1.52	0.05	0.21	0.38	0.11	1.49	0.05	0.21	0.38	0.11	102%	103%	101%	102%	101%
30	1.54	0.08	0.10	0.47	0.21	1.55	0.07	0.09	0.43	0.21	99%	115%	105%	110%	103%
40	1.38	0.05	0.11	0.26	0.12	1.34	0.05	0.11	0.25	0.11	103%	103%	96%	101%	105%
51	1.94	0.04	0.06	0.22	0.09	1.87	0.04	0.06	0.22	0.09	104%	98%	102%	101%	101%
52	1.89	0.05	0.10	0.19	0.09	1.79	0.05	0.10	0.20	0.10	105%	113%	104%	96%	96%
53	2.01	0.06	0.11	0.26	0.11	1.95	0.06	0.09	0.24	0.10	103%	106%	116%	110%	109%
60	1.31	0.06	0.11	0.40	0.14	1.31	0.06	0.12	0.41	0.14	100%	95%	97%	98%	99%
65	1.64	0.06	0.10	0.25	0.14	1.69	0.06	0.09	0.21	0.12	97%	106%	108%	118%	112%
70	1.21	0.04	0.08	0.25	0.11	1.21	0.04	0.08	0.27	0.11	100%	95%	97%	96%	98%
75	2.14	0.07	0.18	0.57	0.19	2.01	0.06	0.17	0.56	0.19	107%	106%	110%	103%	102%
80	1.41	0.07	0.09	0.62	0.26	1.39	0.07	0.09	0.57	0.25	**102%**	**100%**	**102%**	**107%**	**102%**
81	1.15	0.05	0.14	0.34	0.14	1.18	0.05	0.14	0.34	0.14	97%	99%	103%	101%	101%
85	0.74	0.03	0.06	0.23	0.07	0.78	0.04	0.07	0.27	0.07	95%	77%	81%	86%	106%
90	1.60	0.06	0.21	0.49	0.15	1.58	0.06	0.21	0.48	0.15	**101%**	**100%**	**102%**	**103%**	**102%**
101	1.07	0.04	0.07	0.36	0.10	1.00	0.05	0.08	0.36	0.10	107%	95%	91%	99%	98%
102	1.54	0.06	0.10	0.27	0.09	1.53	0.06	0.10	0.25	0.09	101%	90%	93%	106%	101%
103	1.89	0.04	0.11	0.08	0.06	2.04	0.04	0.12	0.07	0.06	93%	99%	91%	112%	95%
Total	**1.53**	**0.06**	**0.17**	**0.46**	**0.16**	**1.51**	**0.06**	**0.17**	**0.45**	**0.16**	**101%**	**101%**	**102%**	**104%**	**102%**

14.2.12 Suitability of the Mineral Resource Estimate

Fred Brown, P. Geo., and Eugene Puritch, P. Eng., FEC, CET, have reviewed the Mineral Resource Estimate provided by Gen Mining for the Marathon deposit and consider that the block model Mineral Resource Estimates and mineral resource classification reported by Gen Mining represent a reasonable estimation of the global mineral resources for the Marathon Project with regard to compliance with generally accepted industry standards and guidelines, the methodology used for estimation, the classification criteria used and the actual implementation of the methodology in terms of mineral resource estimation and reporting. The mineral resources reported by Gen Mining have been estimated in conformity with the requirements of the CIM "Estimation of Mineral Resource and Mineral Reserves Best Practices" guidelines (2019) as required by the Canadian Securities Administrators' National Instrument 43-101 (2014). Mineral resources are not mineral reserves and do not have demonstrated economic viability.

14.3 Geordie and Sally Mineral Resource Estimates

14.3.1 Introduction

The Geordie and Sally Mineral Resource Estimates have remained unchanged from the 2020 mineral resource statement.

Mineral resource estimates were prepared by the QPs for the Geordie and Sally deposits. The methodologies to create the block models were like those used for the Marathon deposit. All drilling and assay data were provided in the form of Excel data files by Gen Mining. The GEOVIA GEMS™ V6.8.2 database for the Geordie deposit Mineral Resource Estimate, compiled by the QPs, consisted of 61 drill holes totalling 9,647 m, of which a total of 57 drill holes intersected the mineralized wireframes used for the Mineral Resource Estimate. For the Sally deposit, the database consisted of 82 drill holes totalling 16,975 m and 371 surface channels totalling 1,871 m, of which a total of 47 drill holes and 162 channels intersected the mineralized wireframes used for the Mineral Resource Estimate.

The resulting pit constrained Mineral Resource Estimates for the Geordie and Sally deposits, at an NSR C$13/t cut-off, as of the effective date of this Mineral Resource Estimate, are tabulated in Table 14-15 and Table 14-16, respectively. the QPs consider the mineralization of Geordie and Sally to be potentially amenable to open pit economic extraction. Respective Geordie and Sally surface drill plans, 3D domains and constraining pit shells are shown in Figure 14-7 to Figure 14-12.

14.3.2 Grade Estimation and Classification

The Cu, Pd, Pt, Au and Ag grade blocks were interpolated with ID2. Multiple passes were executed for the grade interpolation to progressively capture the sample points to avoid over-smoothing and preserve local grade variability. Search ranges were based on the variograms and search directions which were aligned with the strike and dip directions of each domain accordingly. The block size assumed for the models is 5 m L x 5 m W x 6 m H.

Table 14-15: Geordie Pit Constrained Mineral Resource Estimate (Effective June 30, 2020)

Classification	kt	Pd (g/t)	Pt (g/t)	Cu (%)	Au (g/t)	Ag (g/t)	Pd (koz)	Pt (koz)	Cu (Mlbs)	Au (koz)	Ag (koz)
Indicated	17,268	0.56	0.04	0.35	0.05	2.4	312	20	133	25	1,351
Inferred	12,899	0.51	0.03	0.28	0.03	2.4	212	12	80	14	982

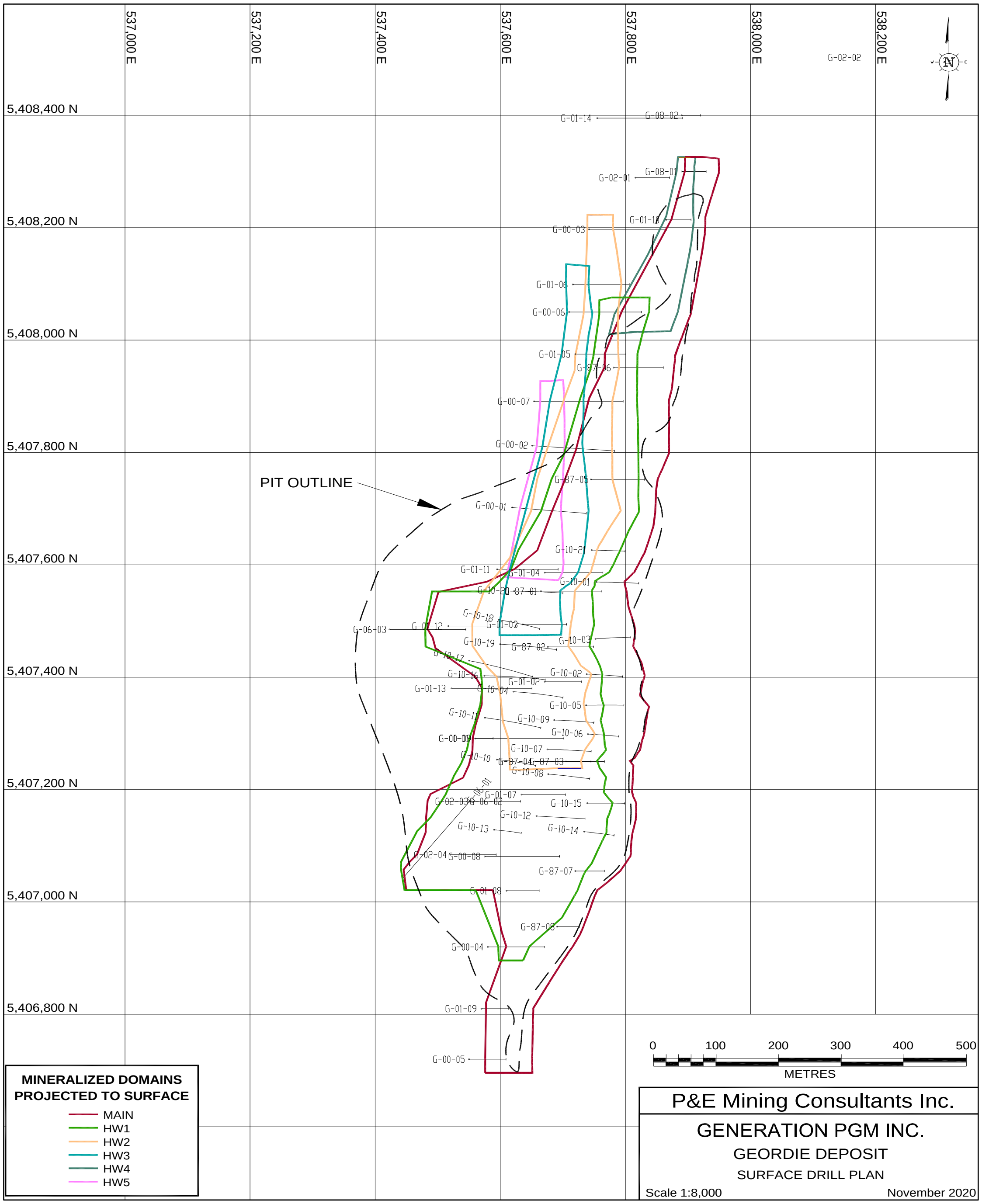
Notes: **1.** Mineral resources which are not Mineral Reserves do not have demonstrated economic viability. **2.** The estimate of mineral resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues. **3.** The inferred mineral resource in this estimate has a lower level of confidence than that applied to an indicated mineral resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of the inferred mineral resource could be upgraded to an indicated mineral resource with continued exploration. **4.** The mineral resources in this report were estimated using the Canadian Institute of Mining, Metallurgy and Petroleum (CIM), CIM Standards on Mineral Resources and Reserves, Definitions (2014) and Best Practices Guidelines (2019) prepared by the CIM Standing Committee on Reserve Definitions and adopted by the CIM Council. **5.** The mineral resource Estimate was based on metal prices of US$1,600/oz Pd, US$3.00/lb Cu, US$900/oz Pt, US$1,500/oz Au and US$18/oz Ag and an NSR cut-off value of $13/t, and a CAD:USD exchange rate of C$1.30 to US$1.00.

Table 14-16: Sally Pit Constrained Mineral Resource Estimate (Effective June 30, 2020)

Classification	kt	Pd (g/t)	Pt (g/t)	Cu (%)	Au (g/t)	Ag (g/t)	Pd (koz)	Pt (koz)	Cu (Mlbs)	Au (koz)	Ag (koz)
Indicated	24,801	0.35	0.2	0.17	0.07	0.7	278	160	93	56	567
Inferred	14,019	0.28	0.15	0.19	0.05	0.6	124	70	57	24	280

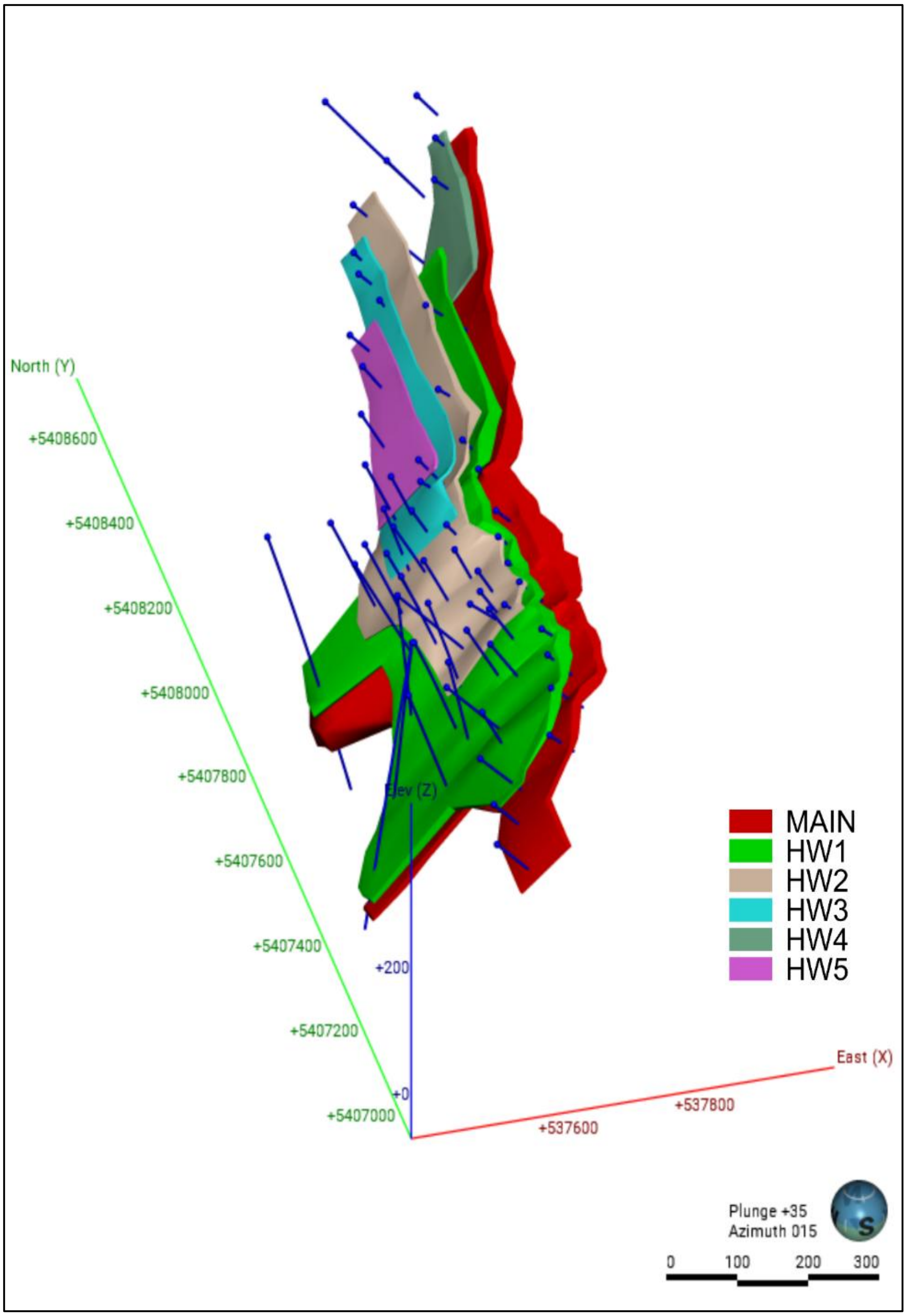
Notes: **1.** Mineral resources which are not Mineral Reserves do not have demonstrated economic viability. **2.** The estimate of mineral resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues. **3.** The inferred mineral resource in this estimate has a lower level of confidence than that applied to an indicated mineral resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of the inferred mineral resource could be upgraded to an Indicated mineral resource with continued exploration. **4.** The mineral resources in this report were estimated using the Canadian Institute of Mining, Metallurgy and Petroleum (CIM), CIM Standards on Mineral Resources and Reserves, Definitions (2014) and Best Practices Guidelines (2019) prepared by the CIM Standing Committee on Reserve Definitions and adopted by the CIM Council. **5.** The mineral resource Estimate was based on metal prices of US$1,600/oz Pd, US$3.00/lb Cu, US$900/oz Pt, US$1,500/oz Au and US$18/oz Ag and an NSR cut-off value of $13/t., and CAD:USD exchange rate of C$1.30 to US$1.00.

Figure 14-7: Geordie Deposit Surface Drill Plan



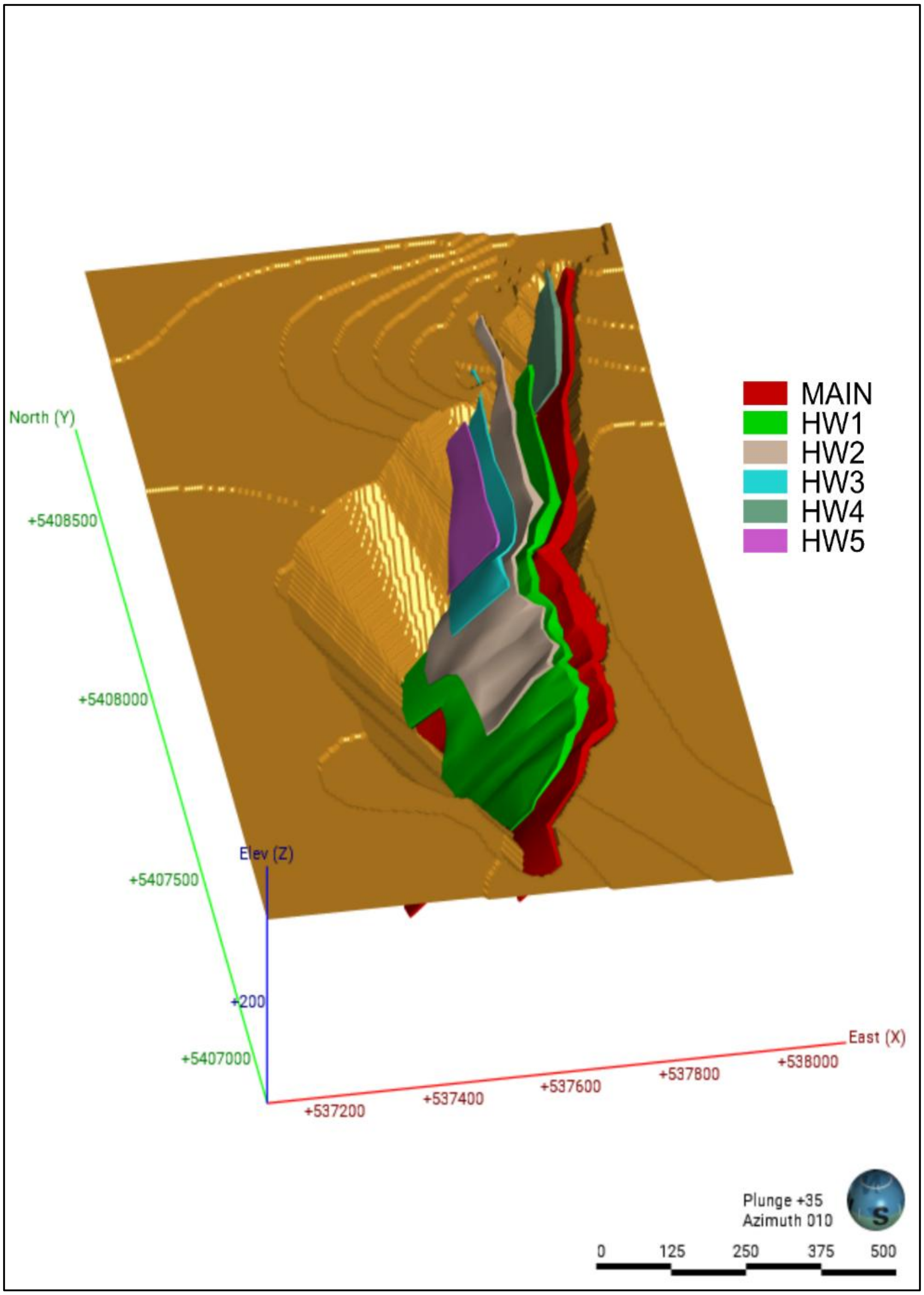
Source: P&E (2020).

Figure 14-8: Geordie Deposit 3D Domains Isometric View



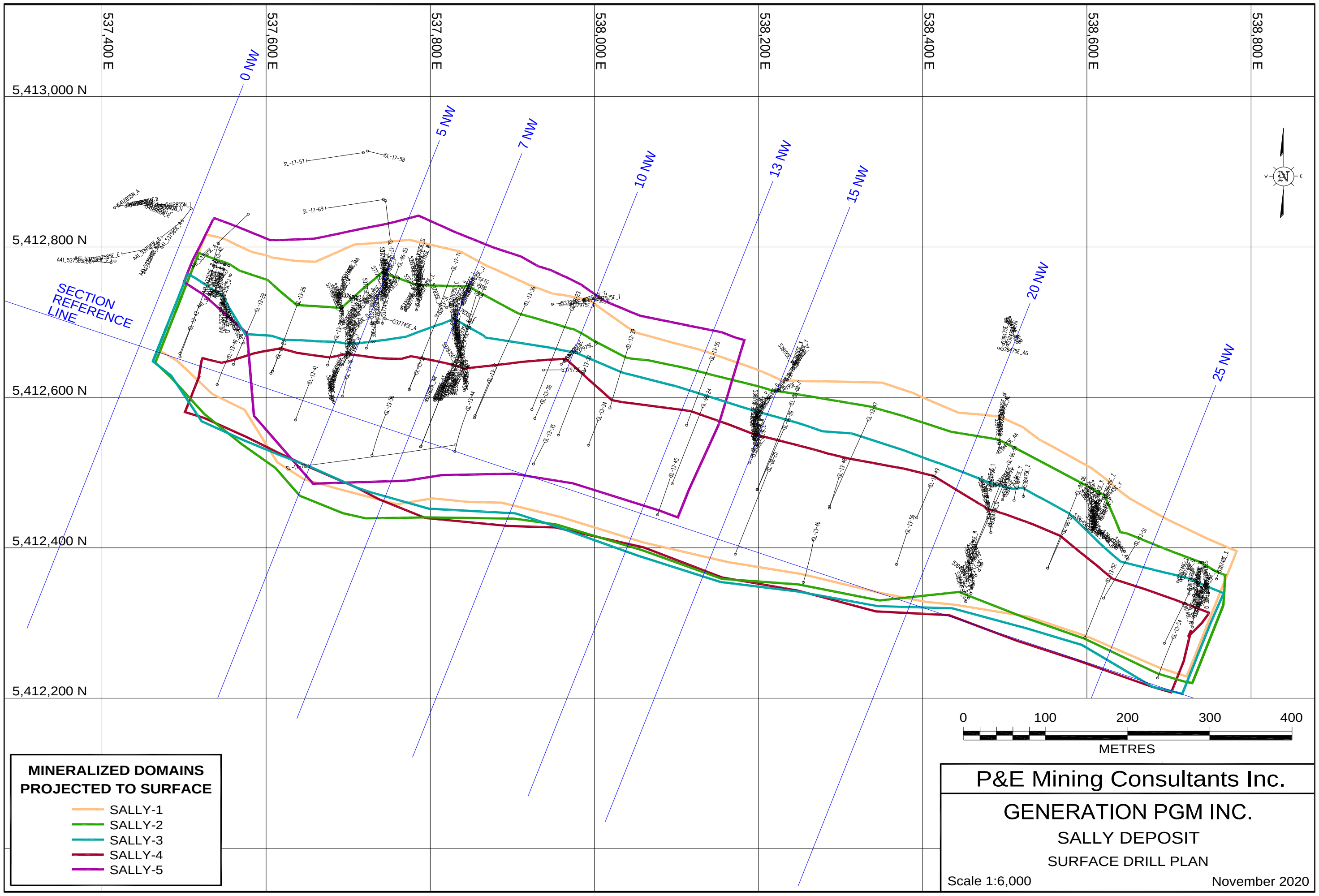
Source: Gen Mining (2022).

Figure 14-9: Geordie Deposit Constraining Pit Shell Isometric View



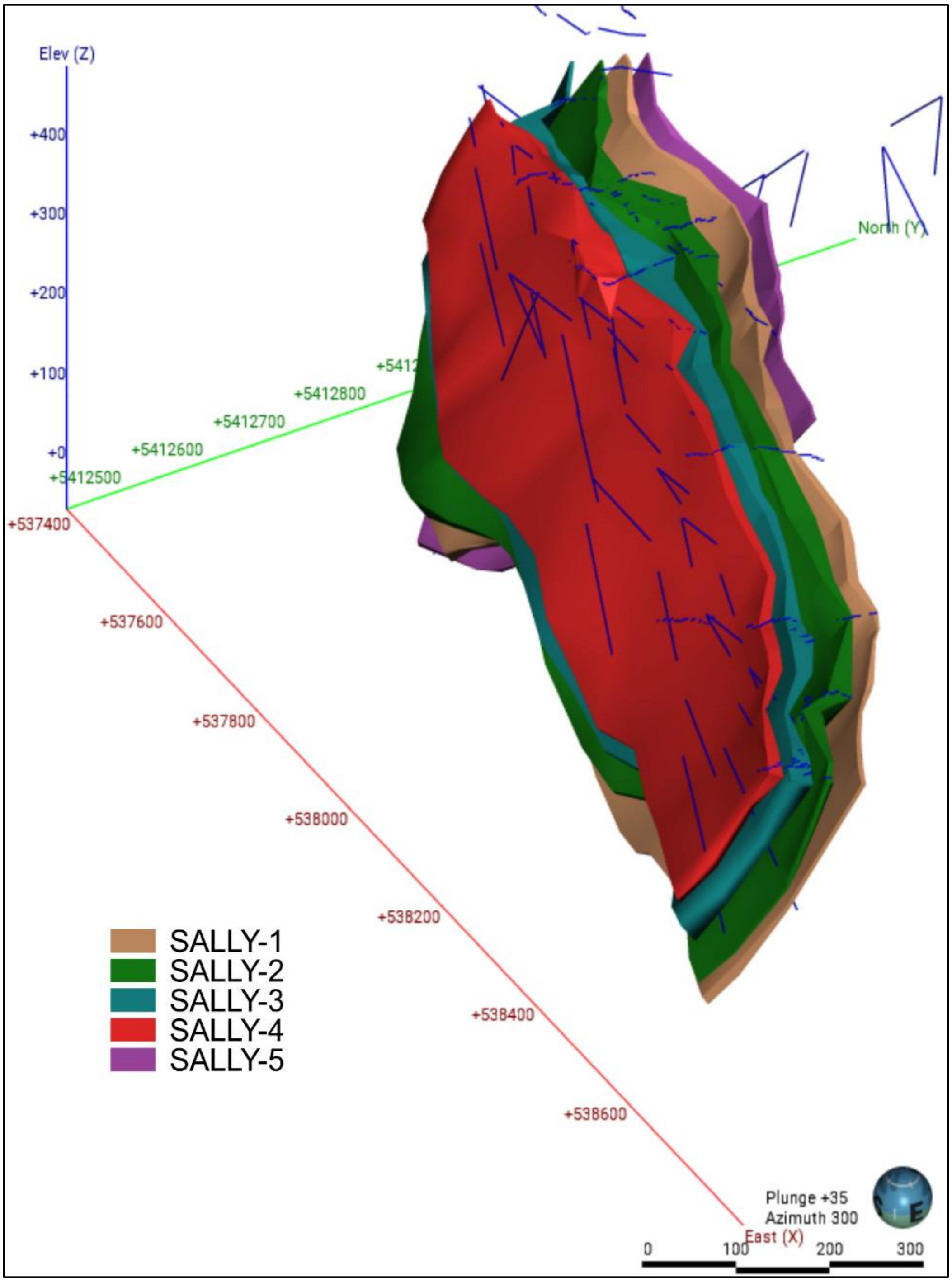
Source: Gen Mining (2022).

Figure 14-10: Sally Deposit Surface Drill Plan



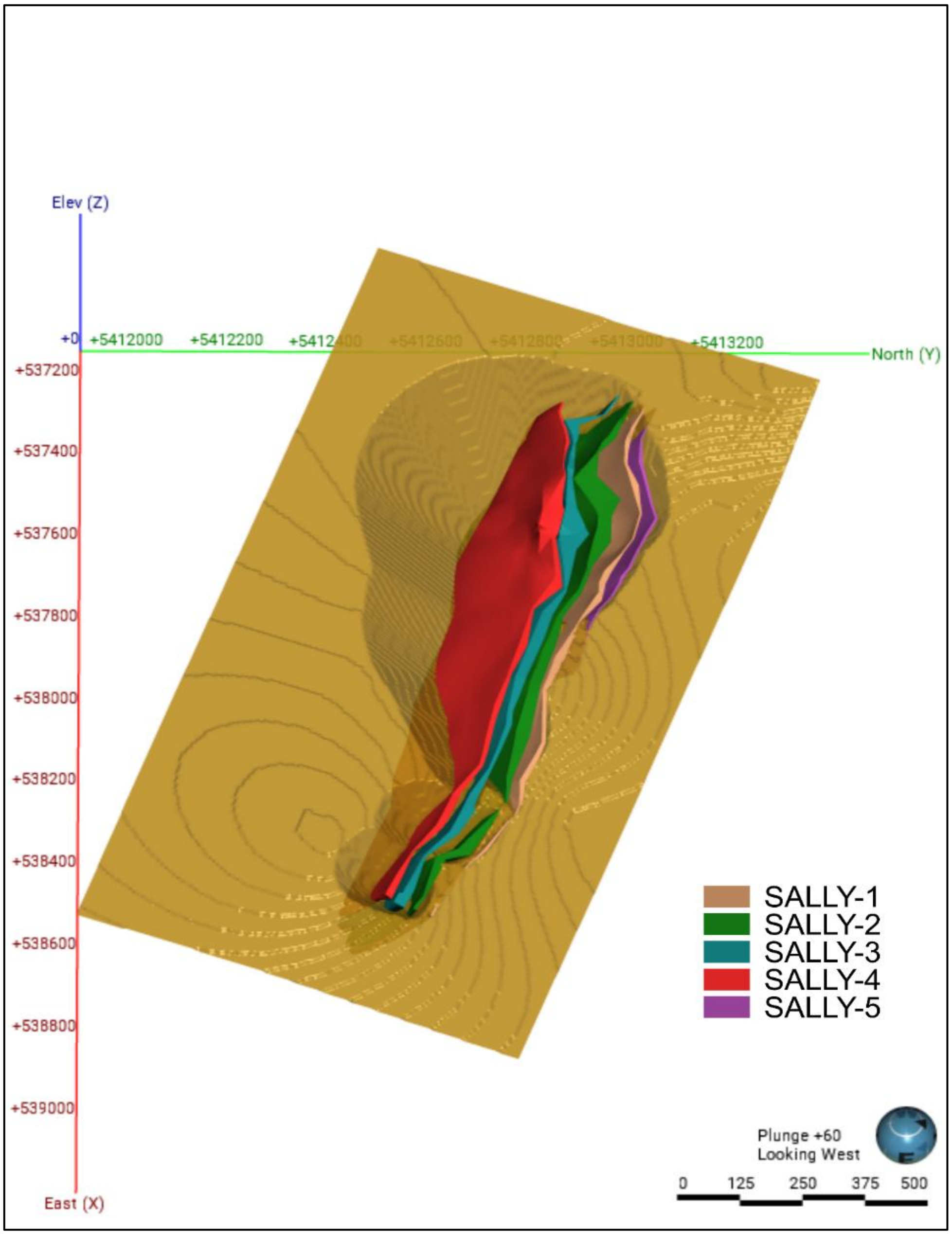
Source: P&E (2020).

Figure 14-11: Sally Deposit 3D Domains Isometric View



Source: Gen Mining (2022).

Figure 14-12: Sally Deposit Constraining Pit Shell Isometric View



Source: Gen Mining (2022).

14.4 Mineral Resource Estimates for the Property

Mineral resource estimates for the property are summarized in Table 14-17.

Table 14-17: Pit-Constrained Mineral Resource Estimate for the Marathon, Geordie, and Sally Deposits (Effective date November 1, 2024)[1-10]

Mineral Resource Classification	Tonnage	Pd		Cu		Pt		Au		Ag	
	(kt)	(g/t)	(koz)	(%)	(Mlbs)	(g/t)	(koz)	(g/t)	(koz)	(g/t)	(koz)
Marathon Deposit											
Measured	163,976	0.56	2,973	0.20	712	0.18	970	0.07	358	1.7	9,089
Indicated	38,055	0.39	476	0.18	153	0.13	159	0.06	71	1.6	1,896
Measured + Indicated	**202,031**	**0.53**	**3,449**	**0.19**	**865**	**0.17**	**1,129**	**0.07**	**429**	**1.7**	**10,985**
Inferred	2,906	0.36	34	0.16	10	0.13	12	0.06	6	1.2	112
Geordie Deposit											
Indicated	17,268	0.56	312	0.35	133	0.04	20	0.05	25	2.4	1,351
Inferred	12,899	0.51	212	0.28	80	0.03	12	0.03	14	2.4	982
Sally Deposit											
Indicated	24,801	0.35	278	0.17	93	0.2	160	0.07	56	0.7	567
Inferred	14,019	0.28	124	0.19	57	0.15	70	0.05	24	0.6	280
Total Project											
Measured	163,976	0.56	2,973	0.20	712	0.18	970	0.07	358	1.7	9,089
Indicated	80,124	0.41	1,066	0.21	379	0.13	339	0.06	152	1.5	3,814
Measured + Indicated	**244,100**	**0.51**	**4,039**	**0.20**	**1,091**	**0.17**	**1,309**	**0.06**	**510**	**1.6**	**12,903**
Inferred	29,824	0.39	370	0.22	147	0.10	94	0.05	44	1.4	1,374

Notes: **1.** Mineral resources were estimated using the Canadian Institute of Mining, Metallurgy and Petroleum (CIM), CIM Standards on Mineral Resources and Reserves, Definitions (2014) and Best Practices Guidelines (2019) prepared by the CIM Standing Committee on Reserve Definitions and adopted by CIM Council. **2.** Mineral resources that are not Mineral Reserves do not have demonstrated economic viability. The estimate of mineral resources may be materially affected by environmental, permitting, legal, marketing, or other relevant issues. **3**. The inferred mineral resource in this estimate has a lower level of confidence that that applied to an indicated mineral resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of the inferred mineral resource could be upgraded to an indicated mineral resource with continued exploration. **4.** The Marathon mineral resource is reported within a constrained pit shell at a NSR cut-off value of C$13.6/t. **5.** Marathon NSR (C$/t) = (Cu % x 111.49) + (Ag g/t x 0.73) + (Au g/t x 80.18) + (Pd g/t x 56.02) +(Pt g/t x 36.49) – 2.66 . 6**.** The Marathon Mineral Resource Estimate was based on metal prices of US$1,550/oz Pd, US$4.250/lb Cu, US$1,100/oz Pt, US$2,300/oz Au and US$27/oz Ag, and a CAD:USD exchange rate of C$1.35 to US$1.00. **7.** The Sally and Geordie mineral resources are reported within a constraining pit shell at a NSR cut-off value of C$13/t. **8.** Sally and Geordie NSR (C$/t) = (Ag g/t x 0.48) + (Au g/t x 42.14) + (Cu % x 73.27) + (Pd g/t x 50.50) + (Pt g/t x 25.07) – 2.62. **9.** The Sally and Geordie Mineral Resource Estimate was based on metal prices ofUS$1,600/oz Pd, US$3.00/lb Cu, US$900/oz Pt, US$1,500/oz Au and US$18/oz Ag, and a CAD:USD exchange rate of 1.30 C$ to 1.00 US$. **10.** Contained metal totals may differ due to rounding.

14.5 Factors that May Affect the Mineral Resource Estimate

The Mineral Resource Estimate may be affected by the following parameters:

- assay compositing
- grade capping
- grade estimation method
- bulk density determination
- metal prices
- USD:CAD exchange rate
- process plant metallurgical recovery
- concentrate freight costs
- smelter treatment and refining charges
- smelter payables
- mining, processing, and G&A costs
- pit slopes.

15 MINERAL RESERVE ESTIMATES

15.1 Introduction

The mineral reserves for the Marathon Project are a subset of the measured and indicated mineral resources, described in Section 14, as supported by the open pit life-of-mine plan described in Section 16.

Proven and probable mineral reserves are modified from measured and indicated mineral resources. Inferred mineral resources are set to waste.

15.2 Mineral Reserves Statement

Mineral reserves are estimated using the CIM 2019 Best Practices Guidelines and are classified using the 2014 CIM Definition Standards. Mineral reserves are reported at the point of delivery to the primary crusher and have an effective date of November 1, 2024.

The qualified person for the estimate is Mr. Marc Schulte, P.Eng., a member of Moose Mountain Technical Services.

Proven and probable mineral reserves are summarized in Table 15-1.

Table 15-1: Marathon Project Open Pit Mineral Reserve Estimates (Effective Date of November 1, 2024)[1-7]

Mineral Reserves	Tonnage	Pd		Cu		Pt		Au		Ag	
	Mt	g/t	koz	%	Mlbs	g/t	koz	g/t	koz	g/t	koz
Proven	115.5	0.66	2,434	0.22	549	0.20	754	0.07	264	1.7	6,242
Probable	12.7	0.47	193	0.20	56	0.15	61	0.06	26	1.6	635
Total Proven & Probable	**128.3**	**0.64**	**2,627**	**0.21**	**605**	**0.20**	**815**	**0.07**	**291**	**1.7**	**6,877**

Notes: **1**. The Mineral Reserves estimate were prepared by Marc Schulte, P.Eng., who is also an independent Qualified Person, reported using the 2014 CIM Definition Standards, and have an effective date of November 1, 2024. **2**. Mineral Reserves are a subset of the measured and indicated mineral resources estimate that has an effective date of November 1, 2024. Inferred class resources are treated as waste. **3**. Mineral Reserves are based on the 2024 Marathon Project Feasibility Study Update mine plan. **4**. Mineral Reserves are mined tonnes and grade; the reference point is the mill feed at the primary crusher. Mill feed tonnes and grade include consideration of mining operational dilution and recovery. **5**. Mineral Reserves are reported at a cutoff grade of $16/t NSR. The NSR cut-off assumes Pd Price of US$1,525/oz, Cu price of US$4.00/lb, Pt Price of US$950/oz, Au price of US$2,000/oz, Ag price of US$24/oz, at an exchange rate of 0.74 US dollar per 1.00 Canadian dollar; payable percentages of 95% for Pd, 96.5% for Cu, 93% for Pt, 93.5% for Au, 93.5% for Ag; refining charges of US$24.5/oz for Pd, US$0.079/lb for Cu, US$24.5/oz for Pt, US$0.50/oz for Ag; minimum deductions of 2.875 g/t for Pd, 1.1% for Cu, 2.875 g/t for Pt, 1.0 g/t for Au, 30 g/t for Ag; treatment charges of US$79/t and transport and off-site costs of US$125/t concentrates, concentrate ratio of 90.9%; metallurgical recoveries are based on variable grade dependent metallurgical recovery curves (See Section 13). **6**. The NSR cut-off grade covers processing costs of $8.27/t, general and administrative (G&A) costs of $2.63/t, sustaining and closure costs of $3.13/t, ore mining differential costs of $0.57/t, and stockpile rehandle costs of $1.40/t. **7**. Numbers have been rounded, which may result in summation differences.

The mine plan open pit is based on the results of Pseudoflow sensitivity analysis, and then designed into detailed pit phases for production scheduling purposes. The mineral reserves by pit phase are shown in Table 15-2.

Additional details on the key assumptions, parameters and methods used to convert mineral resources to mineral reserves is presented in Section 16.

Table 15-2: Mineral Reserves within Designed Pit Phases

Pit Phase	Pit Name	Mill Feed (Mt)	Pd Grade (g/t)	Cu Grade (%)	Pt Grade (g/t)	Au Grade (g/t)	Ag Grade (g/t)	Waste (Mt)	Strip Ratio (t/t)
North Pit, Starter Phase	N1 2024 R2	28.9	0.78	0.26	0.20	0.07	1.41	38.9	1.3
North Pit, West Pushback 1	N2 2024 R3	17.1	0.61	0.24	0.17	0.07	1.66	47.9	2.8
North Pit, West Pushback 2	N3 2024 R2	17.2	0.52	0.21	0.16	0.07	1.76	63.5	3.7
North Pit, West Pushback 3	N4 2024 R3	37.3	0.52	0.22	0.16	0.07	1.94	128.9	3.5
Central Pit	C1 2024 R7	7.0	0.51	0.21	0.15	0.06	1.56	13.0	1.9
South Pit, Starter Phase	S1 2024 R1	11.3	0.94	0.11	0.35	0.09	1.48	46.9	4.2
South Pit, East Pushback	S2 2024 R3.2	9.5	0.63	0.11	0.26	0.08	1.54	20.9	2.2
Total North Pits		100.6	0.61	0.24	0.18	0.07	1.71	279.2	2.8
Total Central Pit		7.0	0.51	0.21	0.15	0.06	1.56	13.0	1.9
Total South Pits		20.7	0.80	0.11	0.31	0.09	1.51	67.8	3.3
Total Pits		**128.3**	**0.64**	**0.21**	**0.20**	**0.07**	**1.67**	**360.0**	**2.8**

Note: An NSR cut-off of $16.0/t is applied. Mined tonnes and grade include operational modifying factors such as loss and dilution. Mineral reserves in this table are not additive to the mineral reserves in Table 15-1. Footnotes to Table 15-1 also apply to this table.

15.3 Factors That May Affect the Mineral Reserves

Mineral reserves are based on the engineering and economic analysis described in Sections 16 to 22 of this report. Changes in the following factors and assumptions may affect the mineral reserve estimate:

- metal prices and foreign exchange rates
- interpretations of mineralization geometry and continuity of mineralization zones
- geotechnical and hydrogeological assumptions
- changes to pit designs from those currently envisaged
- ability of the mining operation to meet the annual production rate
- changes to operating and capital cost assumptions
- mining and process plant recoveries
- ability to meet and maintain permitting and environmental license conditions and the ability to maintain the social license to operate.

The mineral reserve estimates are based on the most current knowledge, permit status, and engineering constraints. The QP is of the opinion that the mineral reserves were estimated using industry-accepted practices.

16 MINING METHODS

The mineral reserves stated in Section 15 are supported by the open pit mine plan summarized in this section.

Open pit mine designs, mine production schedules, and mine capital and operating costs were developed for the Marathon deposit at a feasibility study level of engineering.

16.1 Key Mine Design Criteria

The following mine planning design inputs were used:

- Topography is based on a LiDAR survey of the region.
- The resource model was produced as a sub-blocked model in Datamine™ Studio RM software. For mine planning purposes, the model was regularized to a standard SMU block size of 5 m x 10 m x 5 m, with whole block diluted metals grades, densities, and resource classifications.
- Inferred mineral resources are treated as waste rock with no economic value.
- Open pits, stockpiles, and haul roads are planned to fall within existing permitted disturbance areas.

16.1.1 Net Smelter Price, Net Smelter Return and Cut-off Grade

Net smelter return (NSR) is defined as the dollar value in a block in dollars per tonne ($/t), available to the local operation (i.e., inside the property gates). The NSR value accounts for in situ grades, process recoveries and the net smelter price (NSP).

The NSPs are based on the market price for the metals and deducting all off-site costs (Table 16-1). A copper-palladium concentrate will be sent to a smelter for smelting and refining to produce saleable metals. Indicative terms have been used to calculate the NSR for the concentrate and for the ore itself.

The NSR in Canadian dollars per tonne (C$/t) of each block in the block model provides net revenue to the Marathon mine economics to cover the mining, processing, and any other attributed costs from the operation. The NSR in each block of the model is calculated using the following formula:

$$\text{NSR} = \text{NSP Metal} * \text{Metal Grade} * \text{Metal Process Recovery (\%)}$$

The following metallurgical process recoveries are utilized for the mine plan NSR calculation:

$$\text{Pd Metal Recovery} = 89.14*(\text{Pd Grade g/t}^{\wedge 0.0203})/100)\text{, max. 90\%}$$
$$\text{Pt Metal Recovery} = 104.51*(\text{Pt Grade g/t}^{\wedge 0.2034})/100)\text{, max. 84\%}$$
$$\text{Cu Metal Recovery} = 97.55*(\text{Cu Grade \%}^{\wedge 0.0239})/100)\text{, max. 94\%}$$
$$\text{Au Metal Recovery} = 116.51*(\text{Au Grade g/t}^{\wedge 0.1822})/100)\text{, max. 86\%}$$
$$\text{Ag Metal Recovery} = 50.82*(\text{Ag Grade g/t}^{\wedge 0.609})/100)\text{, max. 68\%.}$$

Table 16-1: Net Smelter Price Inputs

Metal	Copper	Palladium	Platinum	Gold	Silver
Metal Prices (US$)	$4.00/lb	$1,525/oz	$950/oz	$2,000/oz	$24/oz
Refining Charges (US$)	$0.079/lb	$24.5/oz	$24.5/oz	$5/oz	$0.50/oz
Payable Rates (%)	96.5	95	93	93.5	93.5
Minimum Deductions	1.00%	2.625 g/t	2.625 g/t	1 g/t	30 g/t
USD:CAD Exchange Rate	0.74 USD:CAD				
Concentrate Treatment Charge	US$79/t				
Concentrate Transportation and Logistics	US$125/t				
Royalty	4% applied to mineral reserves in Lease 109766				

With the NSR value calculated for each mineralized block in the 3D block model, the pit benches, sub-benches, or individual blocks are examined for their contribution to positive cash flow.

The economic cut-off is based on the calculated NSR. Low-grade resource blocks, internal in the pit design, must be mined to expose higher-grade blocks below them; therefore, they can still contribute to a positive cash flow if they have an in-situ grade value that is greater than the incremental operating cost.

Since the operating cost of mining from the pit is covered if the block needs to be mined as waste, if the NSR value is greater than the process and administrative costs, as well as additional coverage for sustaining capital and closure costs, and an incremental cost for economic margin, the block can contribute positively on an incremental basis to the cash flow (Table 16-2).

Table 16-2: Ore-Based Cost Assumption

Ore-Based Cost Assumptions	$/t
Average Incremental Ore Mining Cost	0.57
Processing (including Power)	8.27
G&A	2.63
Sustaining Capital and Closure Cost Provision	3.13
Stockpile Rehandle Provision	1.4
Total Ore-Based Cost	**16.00**

An economic mine planning NSR cut-off of C$16.00/t was selected. This cut-off covers the incremental production costs of processing and administration, with additional consideration for sustaining capital and closure.

16.1.2 Pit Slope Geotechnical Assessment

Knight Piésold Ltd. (KP) has produced a feasibility-level pit slope analysis to support the mine designs. The conclusions of this analysis have been used as an input to the pit optimization and design process.

The pit area is divided into sectors based on the data collected from the oriented core drill holes. In general, the pit area is controlled by bench geometry. The Central West (upper and lower), Central South and South Northwest sectors are controlled by bench-scale failures and have different recommended slope geometry.

The open pit will be developed in relatively consistent rock mass quality. The rock mass is generally of good quality with small zones of reduced rock mass quality associated with large-scale structures (faults, shears, lineaments, etc.).

The rock mass characteristics for each domain as depicted by KP are as follows:

- Hanging Wall – Average uniaxial compressive strength (UCS) value of 140 MPa and a Mi value of 11. It is classified as good quality rock with a RMR89 design value of 70.
- Ore Zone Gabbro – Average UCS value of 115 MPa and a Mi value of 9. It is classified as good quality rock with a RMR89 design value of 70.
- Footwall – Average UCS value of 180 MPa and a Mi value of 11. It is classified as good quality rock with a RMR89 design value of 65.

KP has identified 18 design sectors based on the pit geometry and geomechanical domains. Slope analyses have been performed on each sector to establish achievable slope configurations. Based on the stability analyses and precedent practice, the recommended geometries are slightly aggressive but reasonable and appropriate when controlled blasting, proactive geotechnical monitoring, and operational geomechanical analyses will be executed.

The rock mass has a moderate to low permeability. The measured hydrogeotechnical characteristics suggest that the pre-mining groundwater surface ranges from 4 to 18 m below the ground surface. Groundwater depressurization will not strongly influence overall slope stability. However, the phreatic surface water that develops behind the pit walls should be monitored and depressurized as needed.

A slope monitoring program is recommended for all stages of pit development. It should include geotechnical and tension crack mapping and a surface displacement monitoring program using surface prisms.

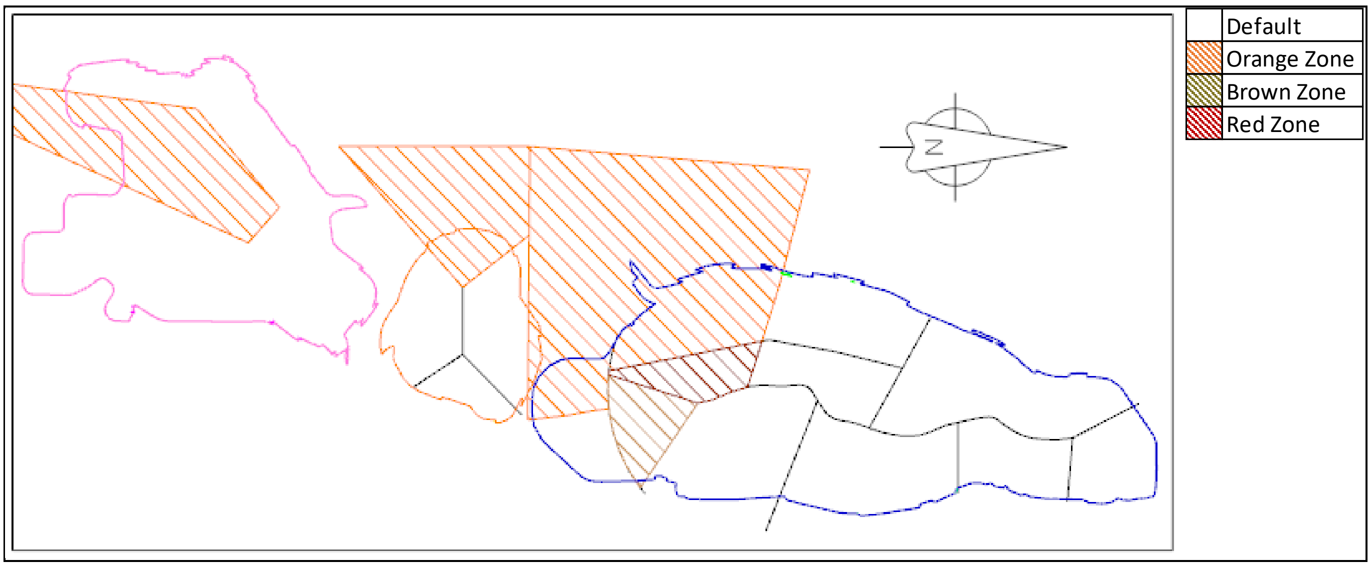
The slope configuration options are presented in Table 16-3. The final pit is designed using a double-benching configuration to a final height of 20 m. A geotechnical catch-bench of 15 m is integrated in the ultimate pit designs at elevation 170 m. Overburden is not considered in the domain definition process and analyses because it is expected to form only a minor part of the proposed pit slopes (0.3 to 1 m typical thickness). Where overburden thicknesses are more significant, adjustments to the pit geometry will be completed as part of ongoing operational risk assessments and mine planning.

Table 16-3: Marathon Final Wall Geotechnical Recommendations

Design Sector	Default	Orange Zone	Brown Zone	Red Zone
Final Vertical Bench Height (m)	20	20	20	20
Bench Face Angle	75	75	70	65
Average Catch Berm Width (m)	8.7	10.0	8.7	8.7
Inter-Ramp Angle (crest to crest)	55	52	51	48

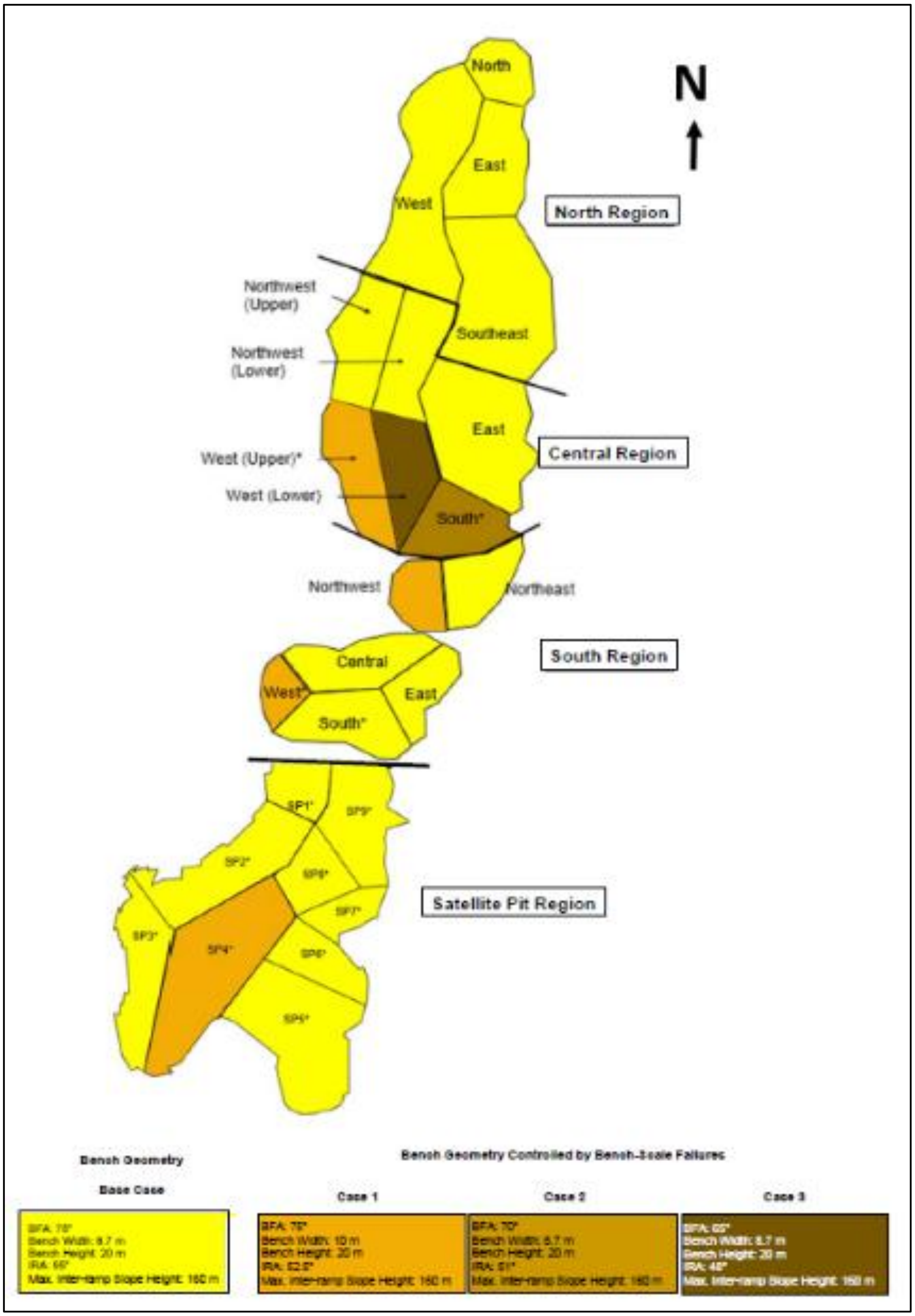
Figure 16-1 outlines the geotechnical zones overlaying the mine designs with parameters summarized in a geotechnical assessment report (KP, 2020) in Figure 16-2. Temporary walls between phases are assumed to have the same parameters as final walls as pre-split is planned for all mining.

Figure 16-1: Application of Geotechnical Zones



Source: G Mining (2023).

Figure 16-2: Open Pit Geotechnical Recommendations



Source: KP (2020).

16.1.3 Mining Dilution and Ore Loss

For mine planning, the resource model has been regularized to a standard SMU block size of 5 m x 10 m x 5 m with whole block diluted metals grades, densities, and resource classifications. The effects of this whole block diluting are minimal, with <1% effect on tonnages and ounces contained in the open pit.

An additional mining loss and dilution assessment has been made by counting the number of contacts for blocks above an economic cut-off grade. The block contacts are then used to build a dilution skin around ore blocks to estimate an expected dilution during mining.

External block-to-block dilution is calculated by taking the ore blocks and adding a 10% skin to the neighbouring waste or lower grade block(s). This dilution skin will carry the grade of the neighbouring block(s). Only measured and indicated (MI) class material is considered ore and any diluting block(s) outside these two classes are treated as having zero grade.

Any isolated ore and waste blocks, with four contacts, are completely converted as loss or dilution. Additionally, any low-grade (<$25/t NSR) blocks that are surrounded by three waste blocks are reassigned as waste, with the logic that their value is too low to chase.

The resource model was modified to be a multiple ore percent model to account for the diluting skin material. Each block carries multiple ore percent items, one for each planned grade bin that will be used in production scheduling.

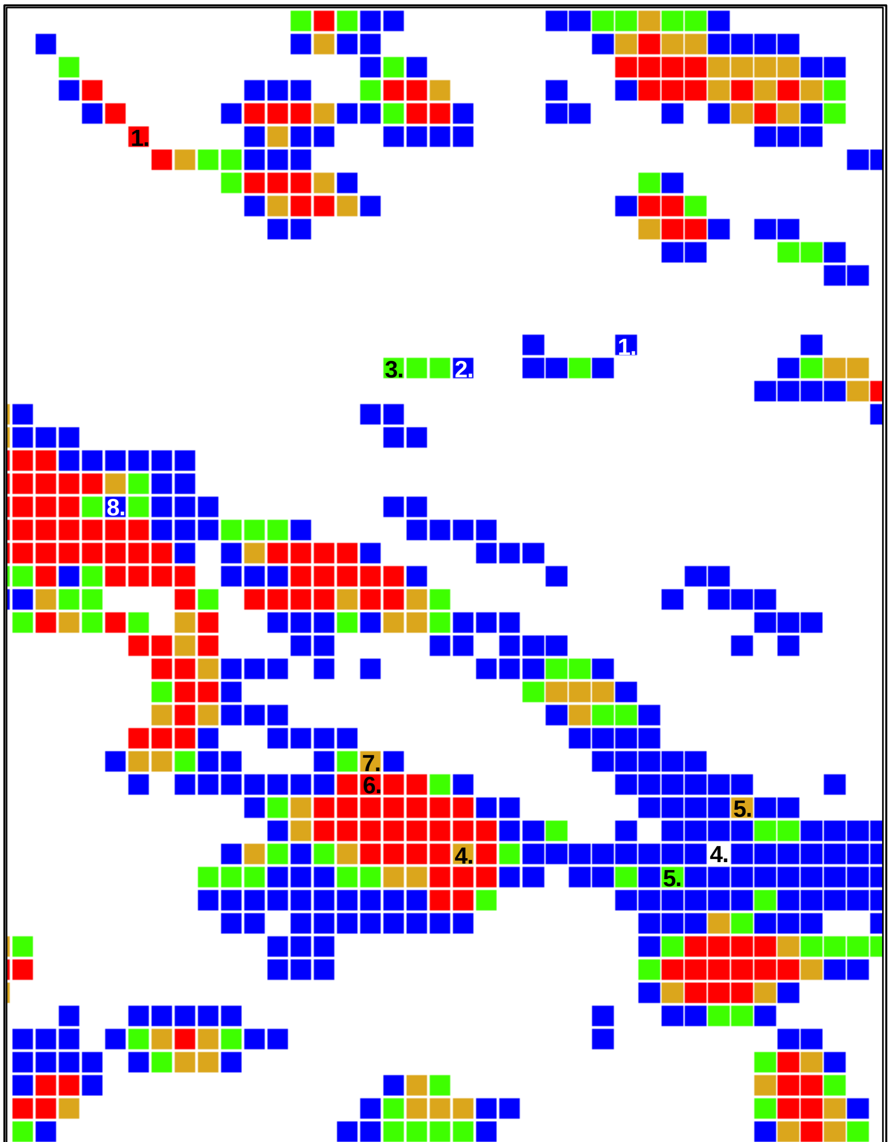
The dilution modelling process is run in a specific order so that all diluting material are categorized with the block that it is diluting. For example, a diluting block next to a high-grade block will be categorized as a high-grade block, even if it carries zero grade. This is done so that the tonnage of the dilution skin cannot be scheduled to a waste or stockpile destination and will be forced to be sent to whatever planned destination the targeted ore block is sent to.

The result is not only a dilution of sub-economic blocks into the ore, but also dilution between grade bins. The high-grade areas are diluted by the surrounding medium-grade blocks, the medium grade diluted by the low grade, etc. The goal is to produce an estimate of mining tonnages and grades that are achievable by high tonnage mining operations.

Figure 16-3 illustrates the effects on this mining loss and dilution plan on the mine planning block model.

The proven and probable mineral reserves stated in Section 15 include this mining dilution and ore loss estimation. The dilution tonnage represents 5% of the whole block ore tonnage before dilution, and the dilution grades are taken from the modelled grades of the diluting block. Loss tonnage represents 2% of the ore tonnage before loss is applied. Overall effects of the loss and dilution estimate, compared to the whole block SMU model, are an increase in tonnage of 4% and a loss in ounces of 1%.

Figure 16-3: Block Model Effects from Mining Loss and Dilution Estimation



1. 4 Waste edges- **Loss**	High-Grade
2. 3 Waste edges -**Loss**	Medium-Grade
3. 3 Waste edges - **Mill Feed**	Low-Grade
4. 1 block with 4 higher grade Mill Feed edges - **100% dilution**	Sub-Grade
5. 1 block with 4 lower grade Mill Feed edges - **surounding blocks 20% moved to higher grade ore percent.**	
6. High-Grade Block - **100% HG Ore%**	
7. Medium-Grade block with 1 High-grade edge - **20% HG Ore%, 80% MG Ore%**	
8. Sub-Grade block with one HG edge, 1 MG edge and 2 LG edges - **20% HG ore%, 20% MG Ore%, 36% LG Ore% and 24% SG Ore%**	

Source: MMTS (2025).

16.2 Open Pit Optimization

The economic pit limits are determined using the Pseudoflow algorithm. This algorithm uses the ore grades and specific gravity (SG) for each block of the 3D block model and evaluates the costs and revenues of the blocks within potential pit shells. The routine uses input economic and engineering parameters and expands downwards and outwards until the last increment is at break-even economics.

Additional cases were included in the analysis to evaluate the sensitivities of resources to strip ratio/topography and high-grade/low-grade areas of the deposit. The various cases or pit shells were generated by varying the input NSP values and comparing the resultant waste and mill feed tonnages and metal grades for each pit shell.

By varying the economic parameters while keeping inputs for metallurgical recoveries and pit slopes constant, various generated pit cases were evaluated to determine where incremental pit shells produce marginal or negative economic returns. This drop-off is due to increasing strip ratios, decreasing metal grades, increased mining costs associated with the larger or deeper pit shells, and the value of discounting costs before revenues. The economic margins from the expanded cases are evaluated on a relative basis to provide payback on capital and produce a return for the Marathon mine. At some point, additional expansion does not provide significant added value. A pit limit can then be selected that has suitable economic returns for the deposit.

Price inputs parameters used to generate a block NSR value are listed in Table 16-1. The input NSR values, which include consideration for metallurgical recoveries, are varied from 10% to 150% of base case values. The additional Pseudoflow inputs are listed in Table 16-4.

Table 16-4: Inputs into Pit Optimization Shell Runs

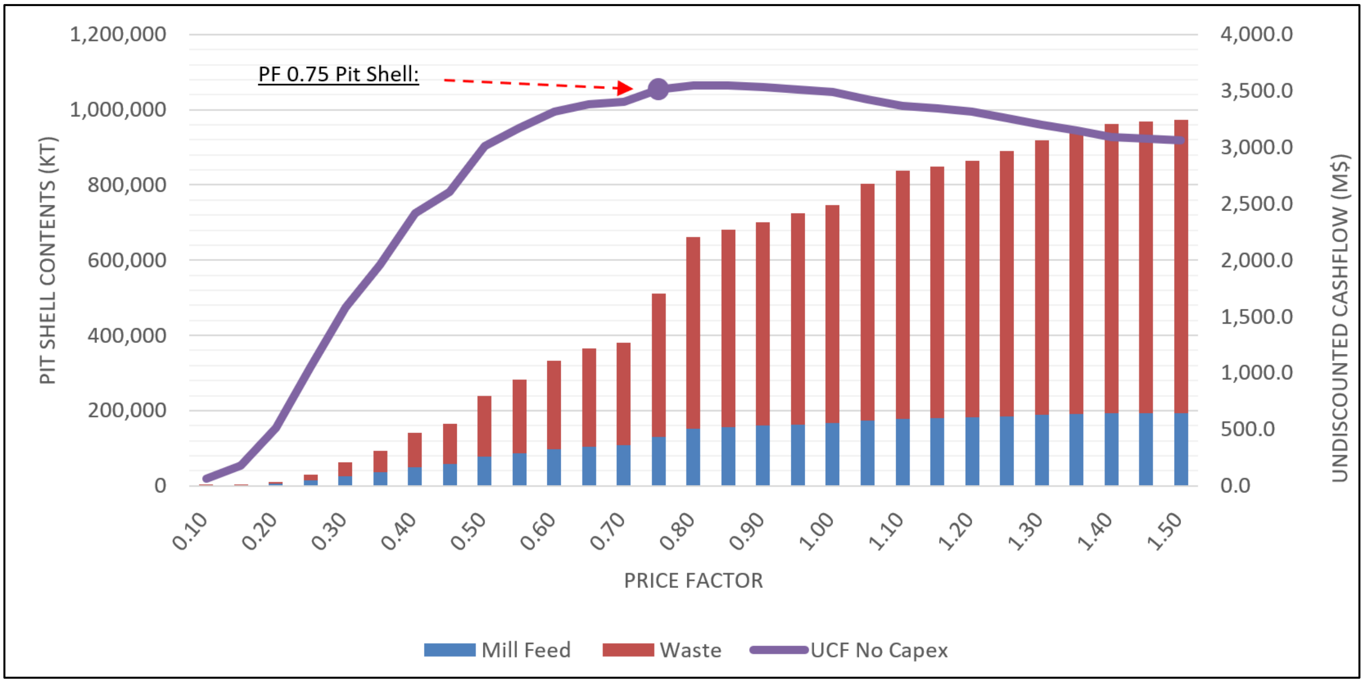
Item	Unit
Pit Rim Mining Cost	$3.00/t mined
Pit Rim	300 masl
Incremental Haulage Cost	$0.030/t added every 10 m bench below pit rim
Processing cost	$8.77/t
General/Administration Cost	$5.76/t
Overall Slope Angles	Variable, see note below

The overall slope angles are based on the inter-ramp angles listed in Table 16-3, with provisions for ramps and geotechnical berms. The overall slope angle in competent rock is 40 to 52 degrees based on a designed inter-ramp angle of 48 to 55 degrees.

For each generated pit shell, an undiscounted cash flow (UCF) is formulated based on the shell contents and the economic parameters listed in Table 16-1 and Table 16-4. The UCFs for each case are compared to reinforce the selected point at which increased pit expansions do not materially increase project value. Note that the economics are only applied for comparative purposes to assist in the selection of an optimum pit shell for further mine planning; they do not reflect the actual financial results of the mine plan.

Figure 16-4 shows the contents of the generated Pseudoflow pit shells. An inflection point can be seen in the curve of cumulative resources and UCF by pit case at price factor (PF) 0.75. This pit shell indicates the point at which larger pit limits will not produce significant increases to project value. The PF 0.75 pit shell is selected as the ultimate pit limit and is used for further mine planning as a target for detailed open pit designs with berms and ramps.

Figure 16-4: Pseudoflow Pit Shell Contents by Price Factor



Source: MMTS (2025)

16.3 Open Pit Designs

The open pit designs are established with the design criteria listed in the following subsections. The Marathon deposit is planned to be mined with three pits which are aligned along strike over approximately 3,300 m.

16.3.1 Open Pit Phasing Strategy

All phases, except for Phase 1 of the South pit, which acts as a quarry, use lower price factor pit shells to target shape and layout. The North pit area is split into three minable phases; the South pit area is split into two mineable phases; and the Central pit area is mined in one phase.

Table 16-5 lists the nomenclature of each of the designed pit phases and the shell that guides their design.

Table 16-5: Pit Shell Hierarchy

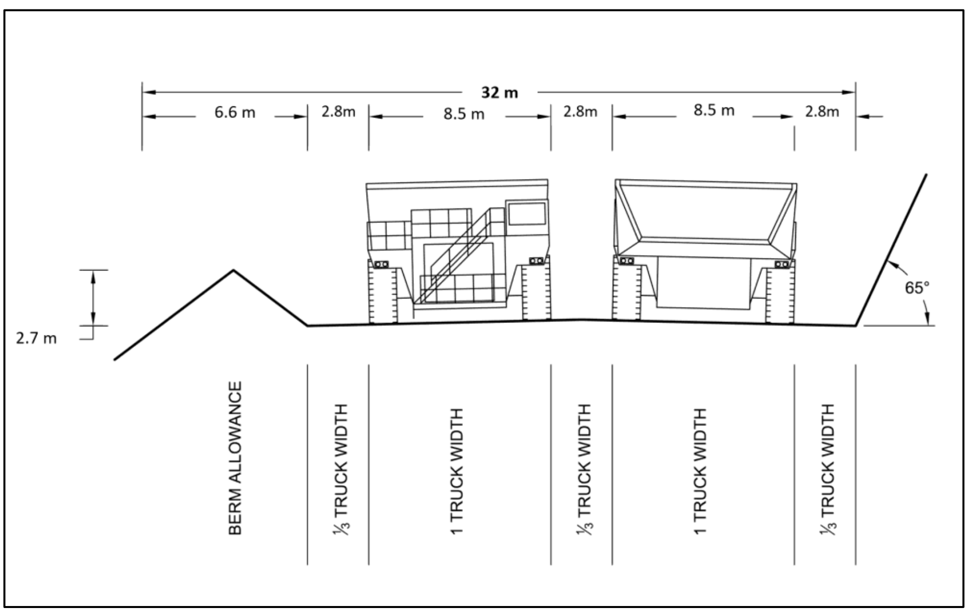
Phasing	Price Factor Pit Shell
North Pit Phase 4	0.75
- North Pit Phase 3	0.50
- North Pit Phase 2	0.45
- North Pit Phase 1	0.35
South Pit Phase 2	0.75
- South Pit Phase 1	N/A
Central Pit Phase 1	0.75

16.3.2 In-Pit Ramp and Road Design

The ramps and haul roads are designed for the largest planned hauler, which is a 246-tonne payload rigid-frame haul truck with a canopy width of 8.50 m. For double-lane traffic, industry best practice is to design a travelling surface of at least three times the width of the largest vehicle. Ramp gradients are established at a maximum of 10%.

A shoulder barrier or safety berm on the outside edge will be constructed of run-of-mine blasted rock to a height equal to three-quarters of the rolling diameter of the largest tire using the ramp, which is 3.6 m for the proposed haul truck. These shoulder barriers are required wherever a drop-off greater than 3 m exists and will be designed at 2.5H:1.0V. To facilitate drainage of the roadway, a 2% cross-slope on the ramp is planned. The in-pit, dual-lane haul road cross-section is illustrated in Figure 16-5.

Figure 16-5: Planned In-Pit, Dual-Lane Haul Road Cross-Section



Source: MMTS (2025).

The double-lane and single-lane ramp widths are 32.0 m and 22 m wide, respectively. Single-lane ramps are introduced in the pit bottom when the benches start narrowing and the mining rates are reduced.

16.3.3 Minimum Mining Width

A minimum mining width of 30 m was used when controlling the minimum width that can be safely and optimally mined between phases or at the bottom of a pit. This value is determined by the operating width of the primary shovel, the width required for a single-lane road with berm, and the area required for the haul trucks to safely complete a three-point turn.

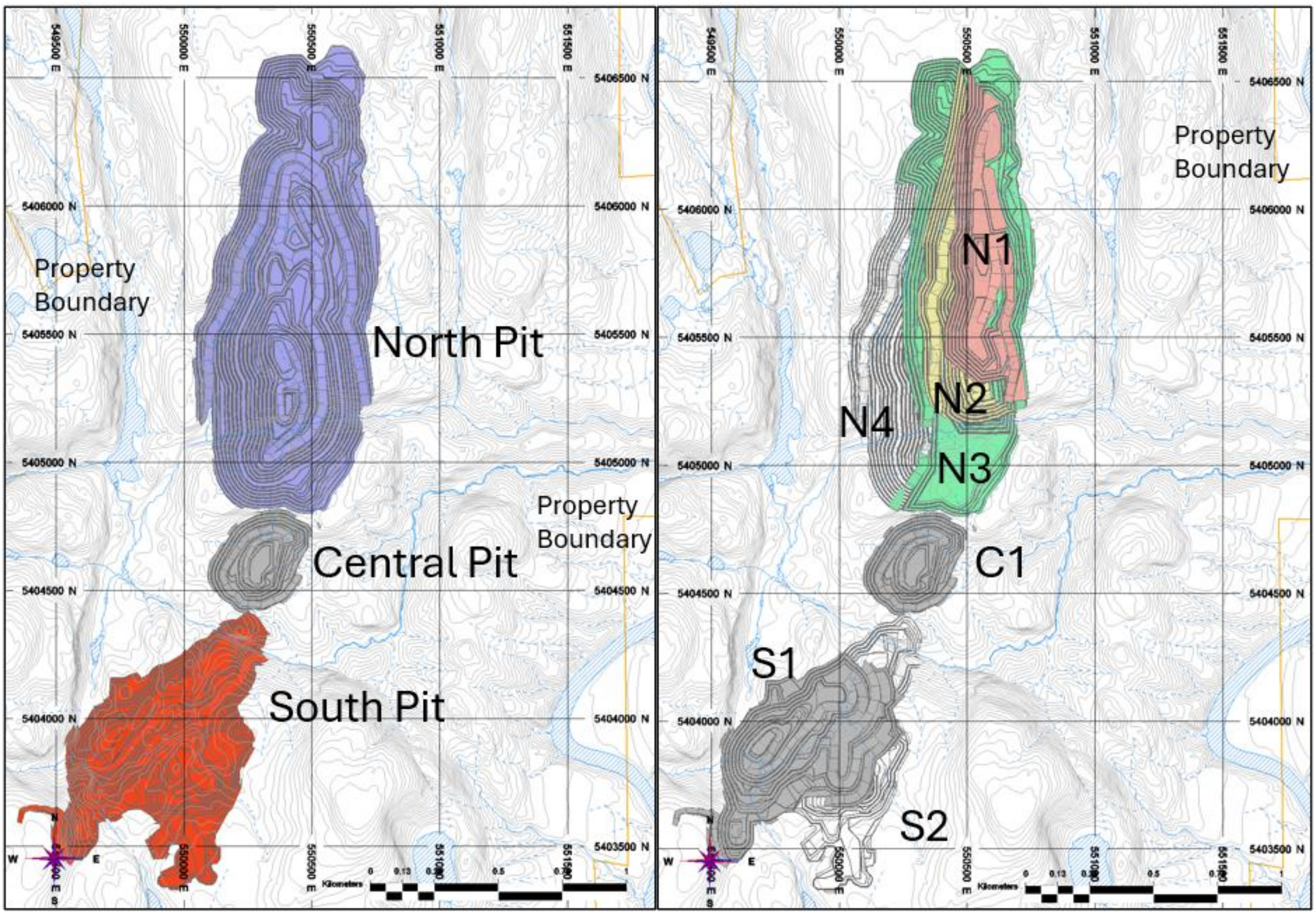
Single-lane ramps were used in the bottom approximately 60 m of the pits to reduce stripping and to capture more ore. Single-lane ramps can cause bottlenecks in the fleet productivity and this method is only used sparingly at the bottom of the pits. Reductions in productivity stemming from single-lane ramping are captured in the mine ramp in production or compensated for by mining other pits or phases. To extract additional ore at the very bottom of the pit, 5 to 10 m boxcuts are used.

16.3.4 Open Pit Designs

Final designs of the open pits are shown in Figure 16-6, along with the phase limits of each of the phases. Ramps for the pits are designed to exit either on the west or east of the pits to better access the primary waste facility and the ore crusher.

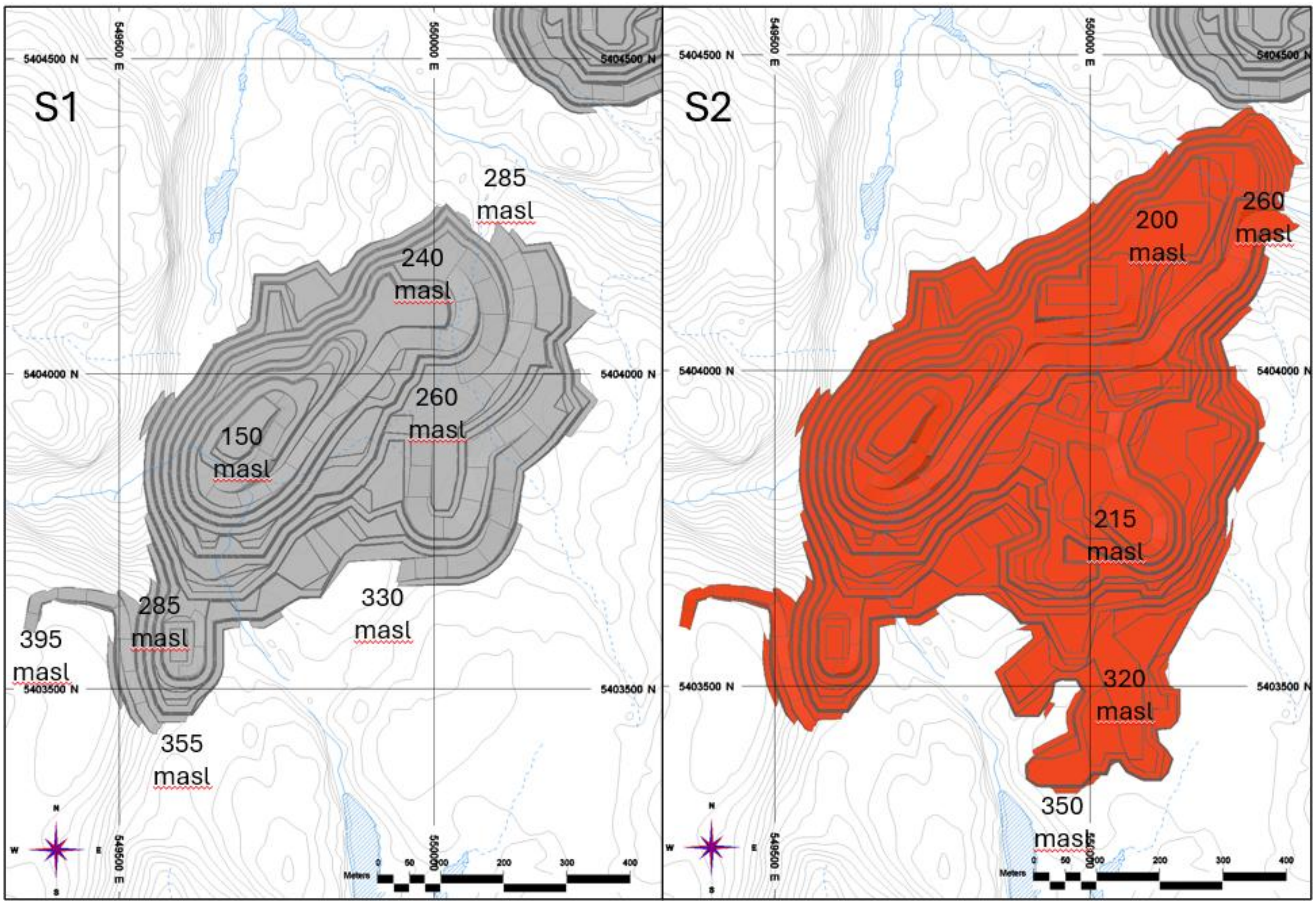
The South pit (Figure 16-7) consists of two main phases, both exiting to the north side to access the crusher and the east waste facility (the mine rock storage area or “MRSA”). Phase 1 focuses on mining the western pit bottom, whereas Phase 2 mines primarily the shallower eastern area of the pit. The final South pit has a depth of approximately 160 m, a length of 1,200 m, and a width of 750 m.

Figure 16-6: End of Mine Life Pit Layouts and Phase Limits



Source: MMTS (2025).

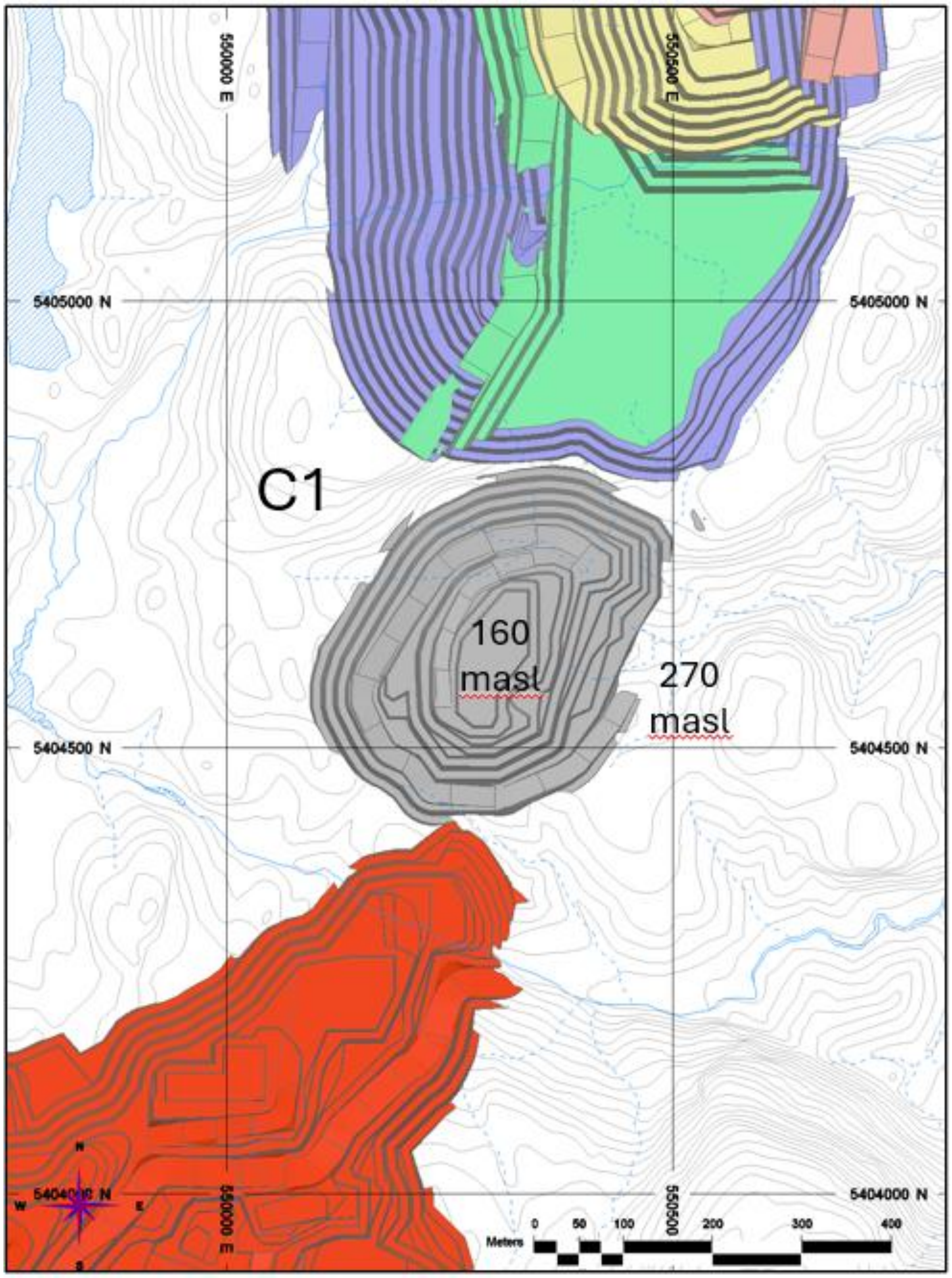
Figure 16-7: South Pit Phases 1 & 2



Source: MMTS (2025).

The Central pit (Figure 16-8) consists of one phase. The ore lays predominately on the east side dipping west. Ramping is planned to take advantage of the ore on the east wall and minimize waste mined on the west wall. The Central pit is approximately 130 m deep with a length of 400 m and a width of 350 m.

Figure 16-8: Central Pit



Source: MMTS (2025).

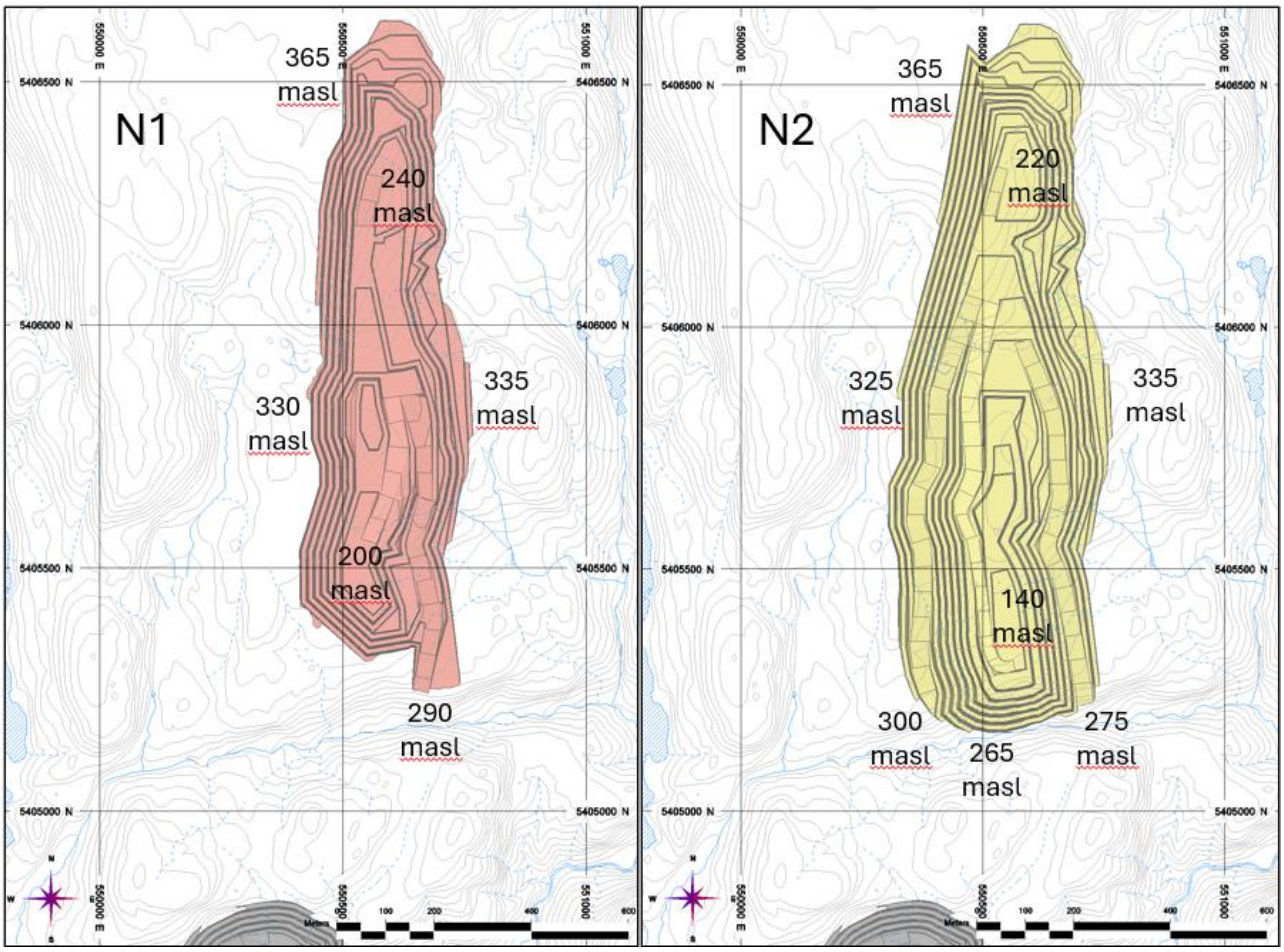
The North pit is the largest of the pits. The east wall is shared among all four phases as well as most of the east wall ramp. The four phases for developing the North pit are as follows:

- Phase 1 defines the east wall of the North pit. This Phase 1 has a depth of approximately 130 m, length of 1,300 m, and width of 300 m.
- Phase 2 establishes a portion of the final east wall ramp and adds an additional ramp that runs along the west wall. Phase 2 has a depth of approximately 180 m, length of 1,500 m, a pushback width of 125 m, and overall width of 425 m when combined with Phase 1.
- Phase 3 extends the final east wall ramp and pushes back the west side of the pit. It also involves mining the south and north walls of the pit to final limits. Once the north end of the pit is mined, in-pit dumping in the north end of the pit can begin. Phase 3 has a depth of approximately 200 m, length of 1,800 m, a pushback width of 75 m, and overall width of 500 m when combined with previous phases.
- Phase 4 is the final phase and introduces the final west wall ramp. This ramp joins the east ramp wall to merge into the final ramp that will drive to the bottom of the pit. The ultimate pit has a depth of approximately 350 m, pushback length of 1,300 m, pushback width of 200 m, and an overall width of 700 m when combined with previous phases. Several in-pit dumping opportunities become available as mining progresses through the phase.

The development of the North pit showing all four phases is depicted in Figure 16-9 and Figure 16-10.

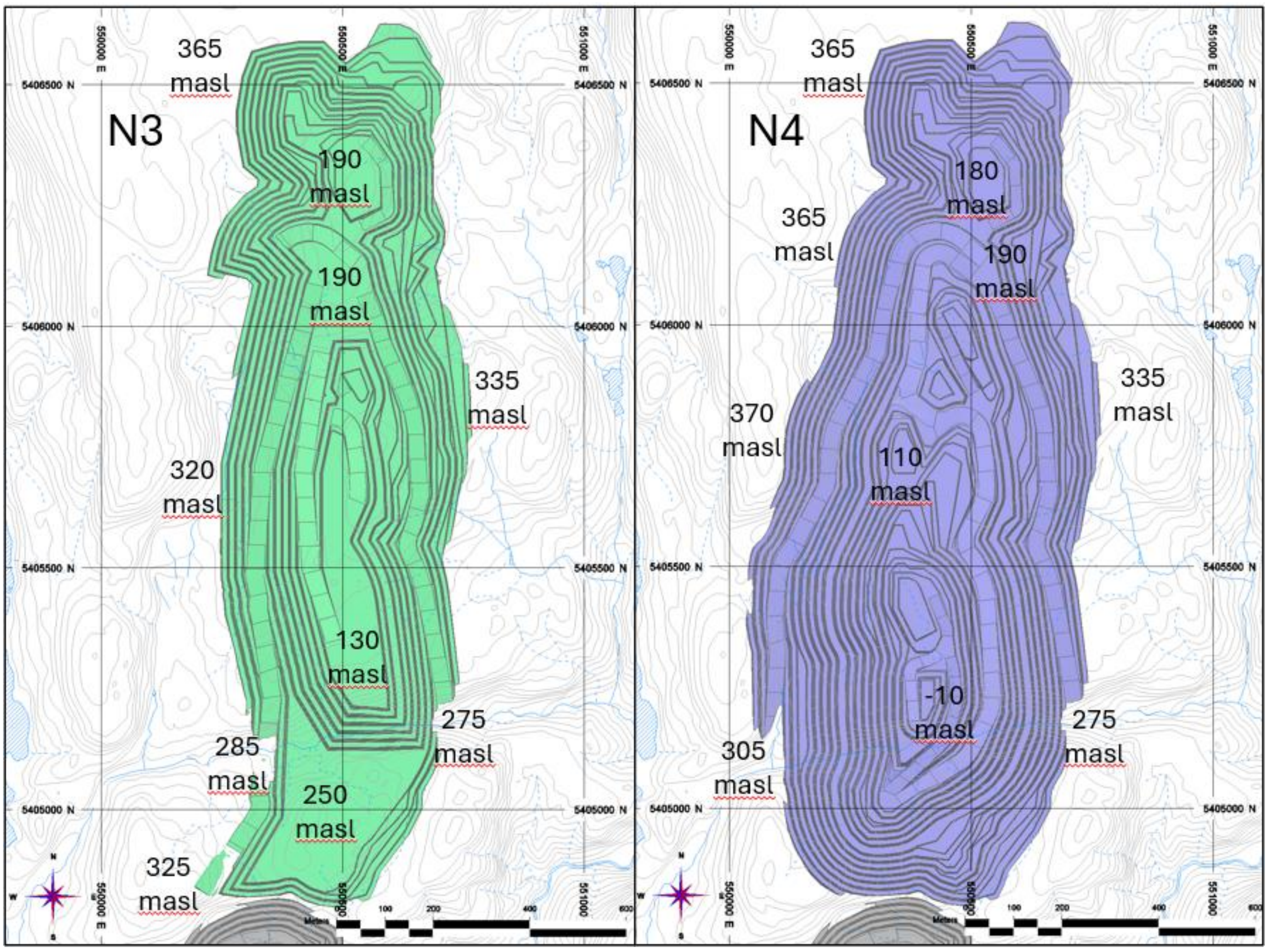
Figure 16-11 to Figure 16-15 shows representative cross sections through the pit designs, illustrating the 5 m x 10 m x 5 m SMU blocks coloured by NSR grade.

Figure 16-9: North Pit Phases 1 and 2



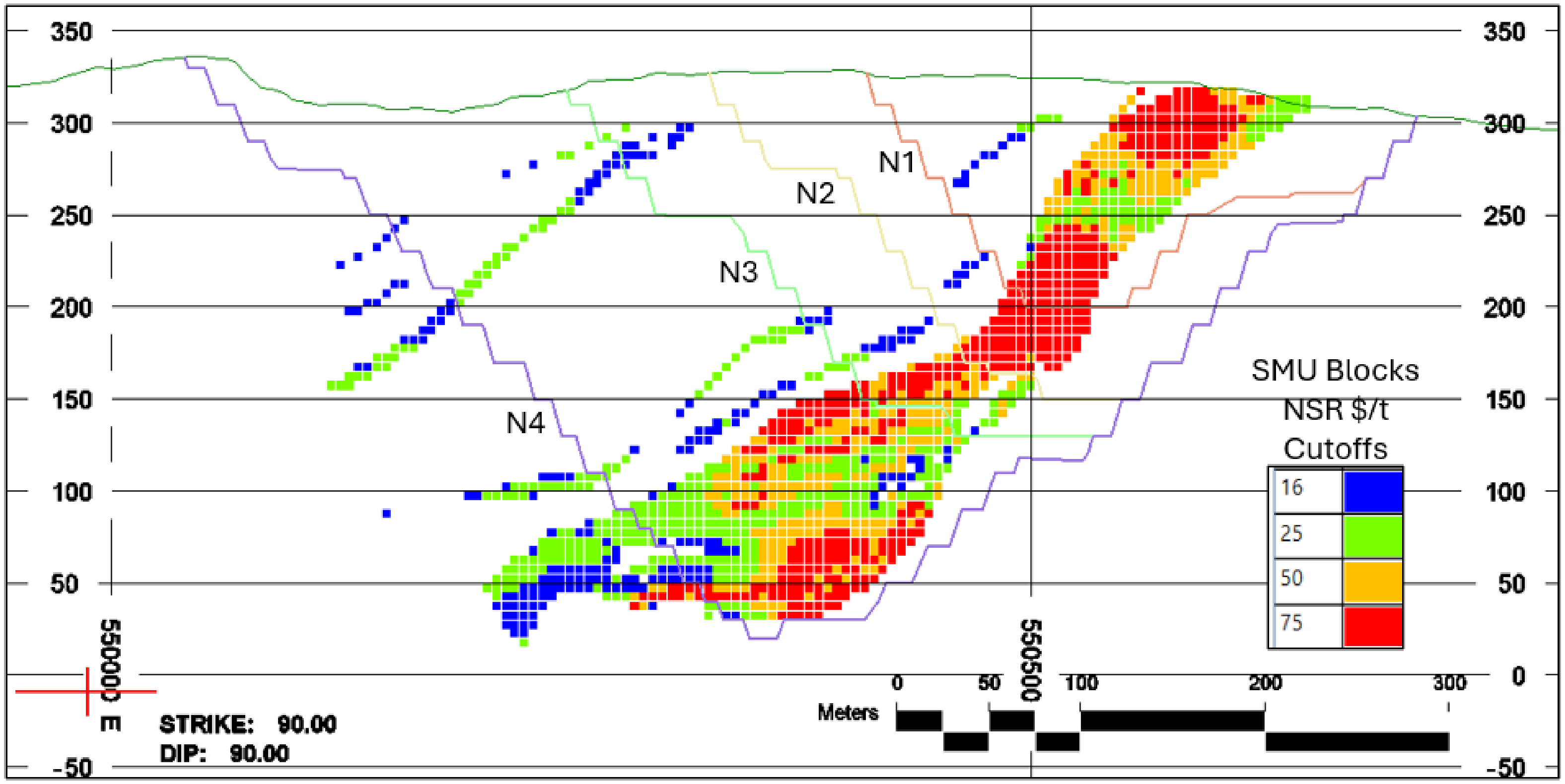
Source: MMTS (2025).

Figure 16-10: North Pit Phases 3 and 4



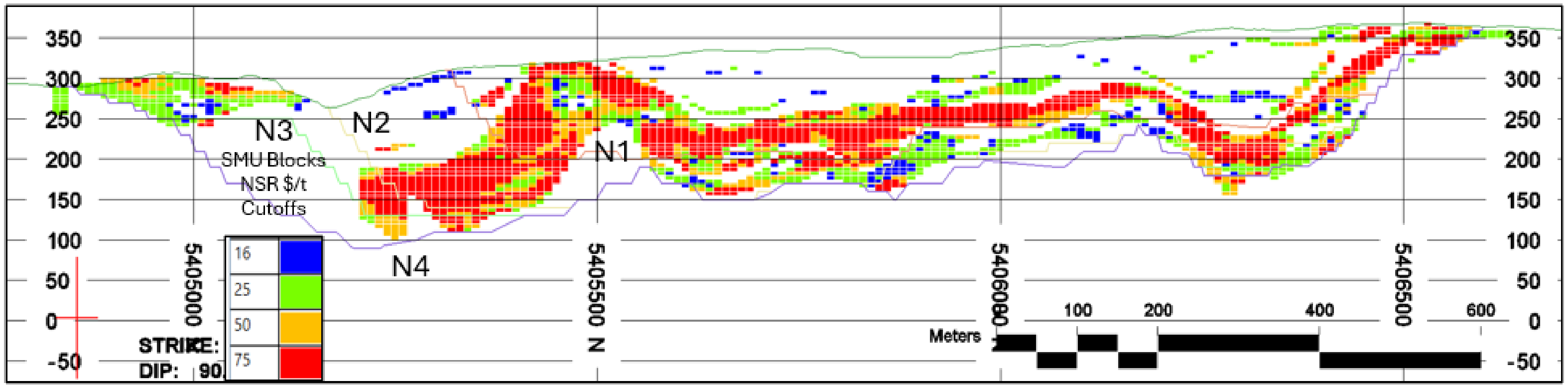
Source: MMTS (2025).

Figure 16-11: North Pit Designs: EW Section 5,405,500N



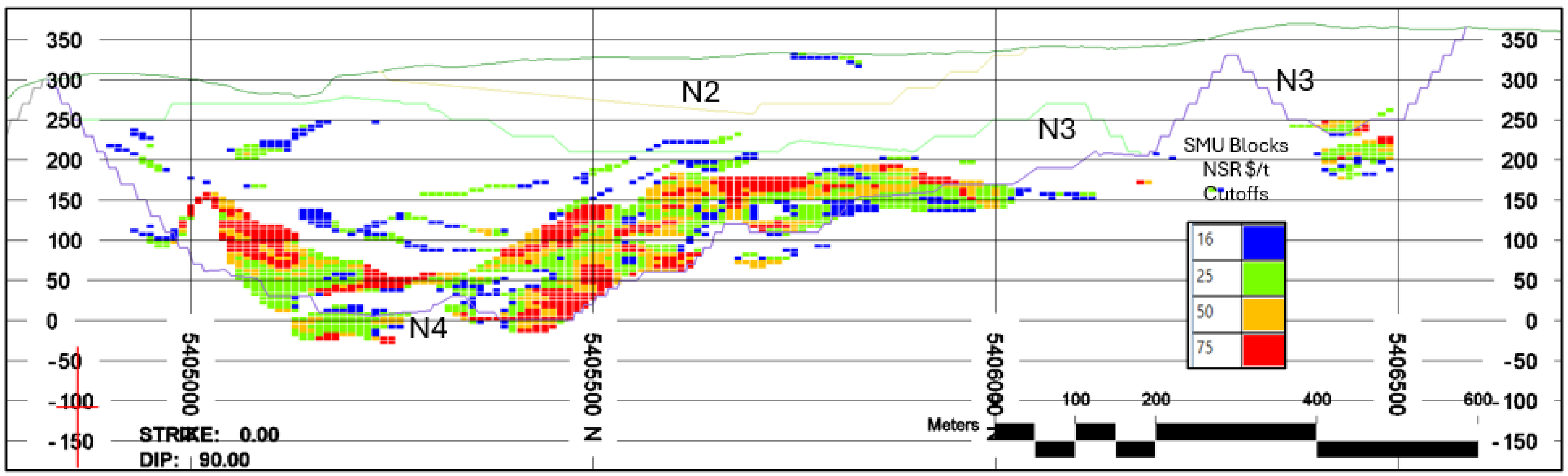
Source: MMTS (2025).

Figure 16-12: North Pit Designs: NS Section 550,560E



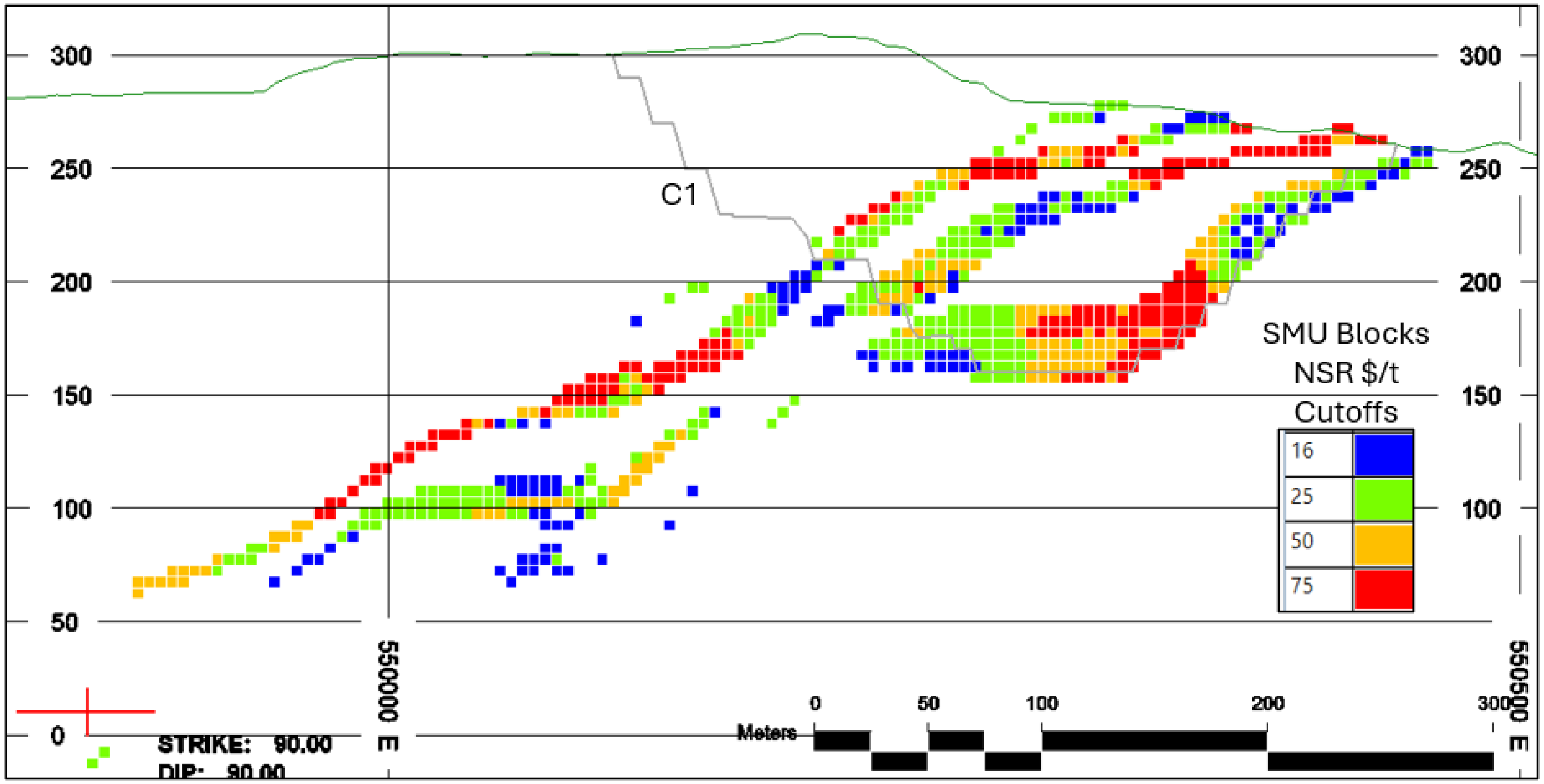
Source: MMTS (2025).

Figure 16-13: North Pit Designs: NS Section 550,365E



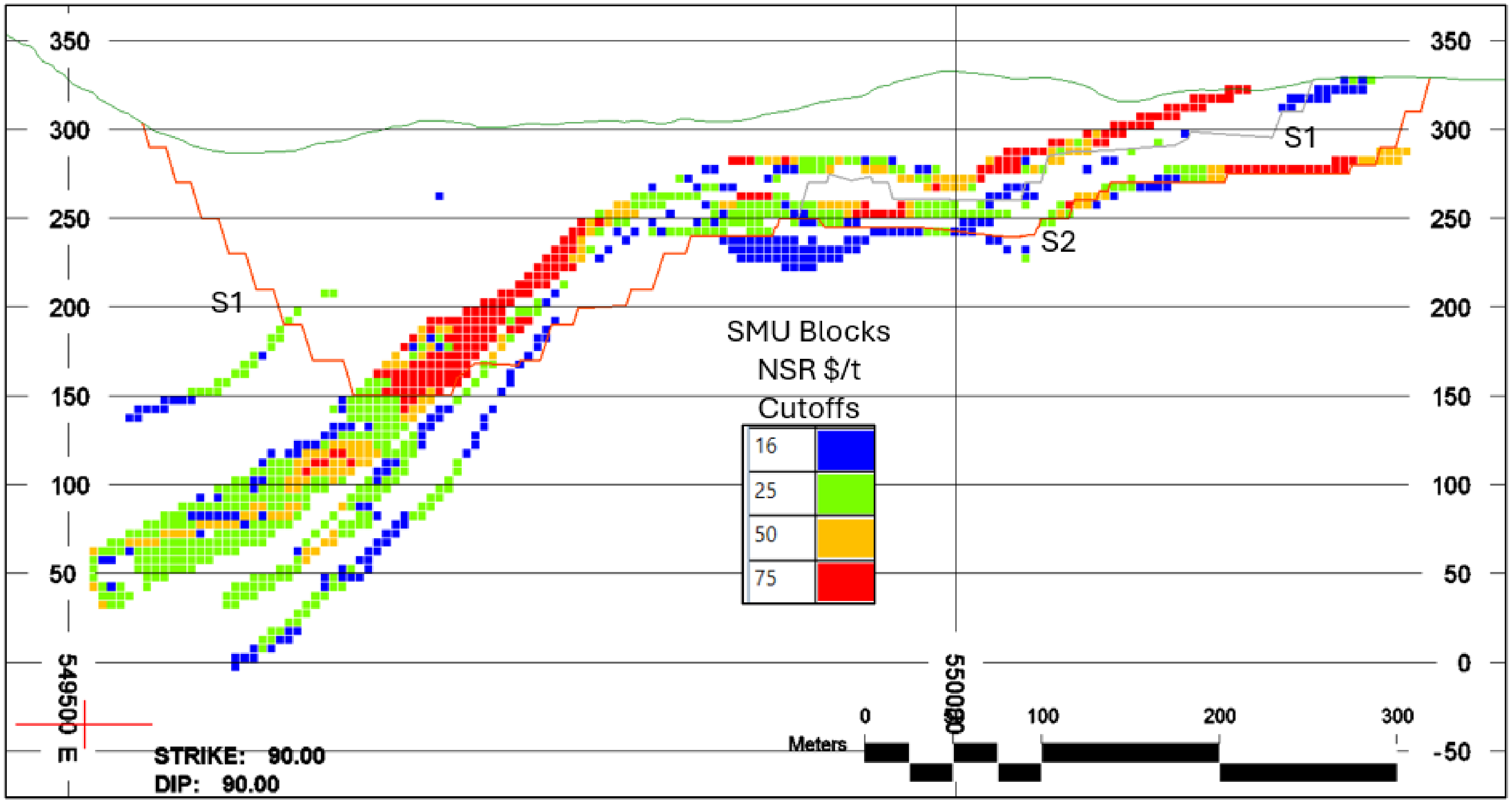
Source: MMTS (2025).

Figure 16-14: Central Pit Designs: EW Section 5,404,600N



Source: MMTS (2025).

Figure 16-15: South Pit Designs: EW Section 5,403,900N



Source: MMTS (2025).

16.4 Overburden and Waste Rock Storage

The waste materials mined over the project life are split into three management categories: potentially acid-generating (PAG) rock, non-potentially acid-generating (NAG) rock, and overburden.

Categorization of NAG and PAG waste rock is based on a sulphur model and sulphur cut-off grade of 0.18% (Ecometrix, 2021). Material with a sulphur content of less than 0.18% was selected as corresponding to a carbonate only neutralization potential to acid potential ratio (Carb-NPR) of greater than 2:1 and is used to classify material as NAG waste rock.

Each material has different dumping requirements and will have unique storage facilities. Table 16-6 lists the parameters for the waste facilities.

Table 16-6: Overburden and Waste Rock Storage Facility Design Parameters

Waste Facility	Avg. Catch Bench Width (m)	Pile Face Angle (Deg)	Overall Slope Angle (H:V)	Maximum Crest Elevation (m)	Approximate Height (m)
East Waste Facility, MRSA (NAG)	10	28.6	2.3:1	370	150
South In-Pit Facility (NAG+PAG)	N/A	N/A	N/A	300	160
South Facility Extension (NAG)	10	28.6	2.3:1	410	150
Central In-Pit Facility (NAG+PAG)	N/A	N/A	N/A	310	160
North In-Pit Facility (NAG)	N/A	N/A	N/A	365	180
Overburden Pile (OVB)	10	26	2.6:1	405	60

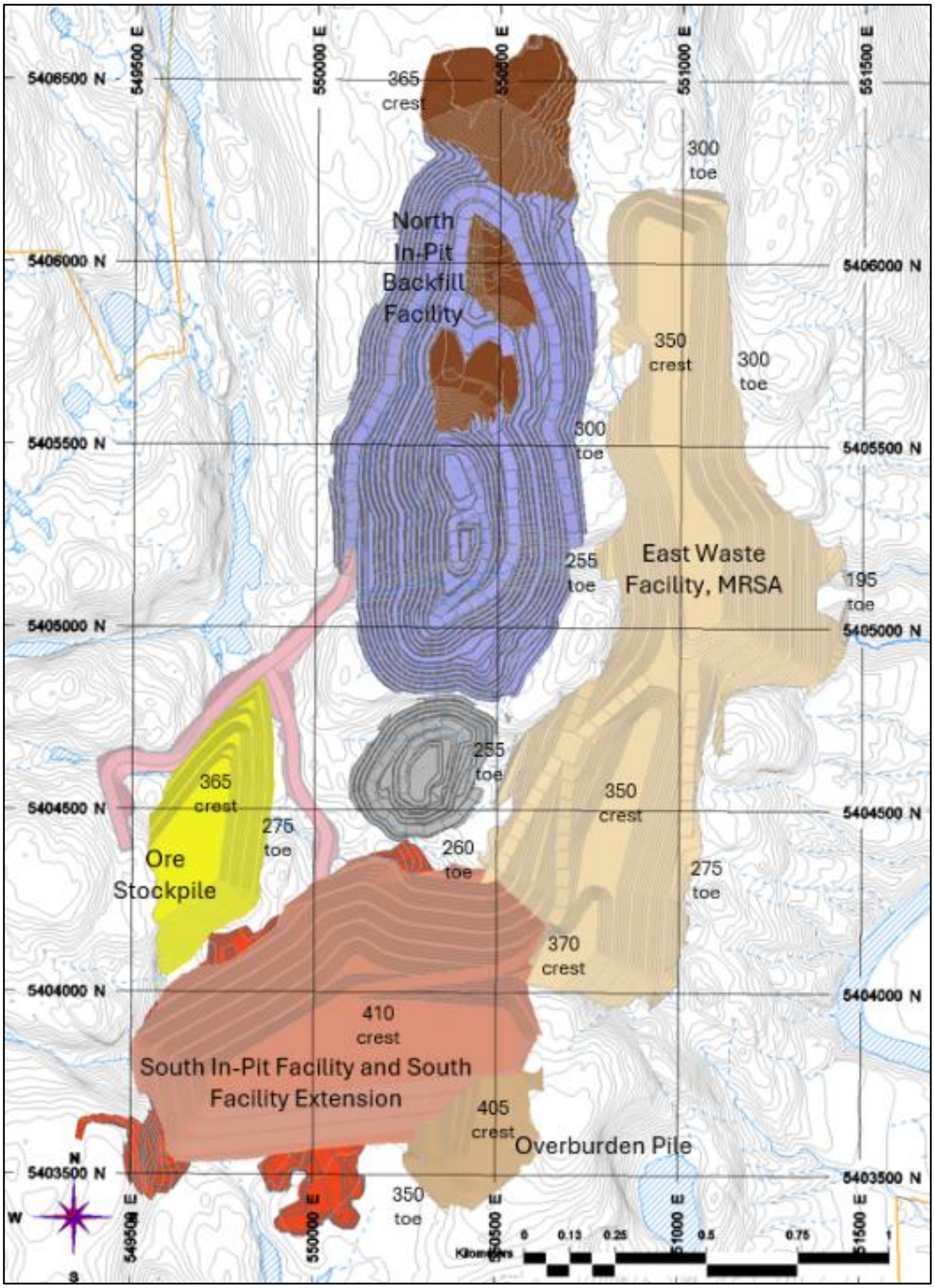
Table 16-7 describes the various facility design inventories, as well as the surface area impacts outside of the open pit limits. In parenthesis, by the name of the facility, is the type of material that the facility will accept.

Table 16-7: Waste Storage Facility Capacities

Waste Facility	Capacity (Mt)	Capacity (Mm^3)	Surface Area (ha)
East Waste Facility, MRSA (NAG)	131	55	105
South In-Pit Facility (NAG+PAG)	70	29	N/A
South Facility Extension (NAG)	81	34	68
North In-Pit Facility (NAG)	28	12	N/A
Overburden Pile (Overburden)	4	3	16
TSF Construction (NAG)	65	N/A	N/A
TSF Internal Storage (PAG)	17	N/A	N/A
Total	**396**	**133**	**189**

Figure 16-16 depicts a site view of the facilities and their nomenclature.

Figure 16-16: Mine Operations General Arrangement



Source: MMTS (2025).

The east facility (MRSA) is the largest NAG rock storage for the project and contains two accesses on the west side, one for the North pit and one for the South and Central pit. The ramp along the west side joins both entrances and acts as the primary access route between the three pits on the east side.

The explosive magazines are located further east of the east facility. To access the magazines later in the mine life, the facility must be traversed, which requires less road building then alternative access scenarios. The east facility is designed to impact only two sub-watersheds. Diversion and/or containment structures to manage water runoff will be constructed in the valley to the east.

The South, Central and North pits will be used for in-pit waste rock storage, with pit phases being back-filled after they are mined out. These facilities can be used to store PAG rock as it is anticipated that the material will be fully submerged prior to closure.

The south facility extension is an extension of the east facility that extends over the South in-pit facility and would store NAG rock. The east ramp of the south facility extension will connect with the east facility ramp to allow access from the North pit and contain a ramp on the west side to allow access from the stockpile area.

The overburden pile is located south of the east facility. The overburden material will be used for progressive reclamation and will be depleted during the final closure of the mine.

16.4.1 Ore Stockpile

The ore stockpile, shown in Figure 16-16, represents the maximum storage capacity required for the life-of-mine plan and is planned to be depleted by the end of the mine life. The stockpile will be used to store lower grade ore mined from the pit to allow for the preferential mill feed of higher-grade ore in the early years of the project. Most of the material stockpiled will be low-grade ore with some minor medium- and high-grade ore being stockpiled and depleted during the pre-production period. Different ore groupings will be stored separately within the stockpile to manage in-stockpile dilution. Table 16-8 depicts the design parameters for the stockpile.

Table 16-8: Stockpile Design Parameters and Capacities

Ore Stockpiles	Catch Bench Width (m)	Overall Slope Angle (H:V)	Maximum Crest Elevation (m)	Approximate Height (m)	Maximum Capacity (Mt)
Stockpile Capacity	10	2.3:1	365	90	21

The stockpile is accessible from the road to the South pit as well as along the crusher ramp. A front-end loader and haul trucks will rehandle the material from the stockpile up to the crusher via the crusher ramp. The peak inventory of stockpiled ore will be approximately 11 Mt and a total of 27 Mt of ore will be stored and reclaimed from the stockpile over the life of mine.

16.4.2 Surface Mine Haul and Access Roads

This section refers only to the haul and access roads accessible by mine haul trucks and heavy mine equipment.

The mine access road is the road from the open pits to the tailings area and largely parallels the conveyor gallery, as well as the crusher ramp connecting the crusher pad to the processing plant. The crusher ramp is the largest rock fill requirement for the project and consists of a ramp to the crusher located at a landing near the top of the hill west of the Central pit. The ramp climbs approximately 65 m in elevation at a 10% grade. This road also connects the North and South pits.

Ex-pit haul roads, running between the South and Central pits and connecting the center pit to the crusher ramp, are designed with berms on both sides of the road and include a drainage ditch on one side. All ex-pit roads are double lanes with a design width of 39 m.

16.5 Mine Production Schedule

Mill feed requirements by scheduled period, mine operating considerations, product prices, recoveries, destination capacities, equipment performance, haul cycle times, and operating costs are used to determine the optimal production schedule from the phased pit contents.

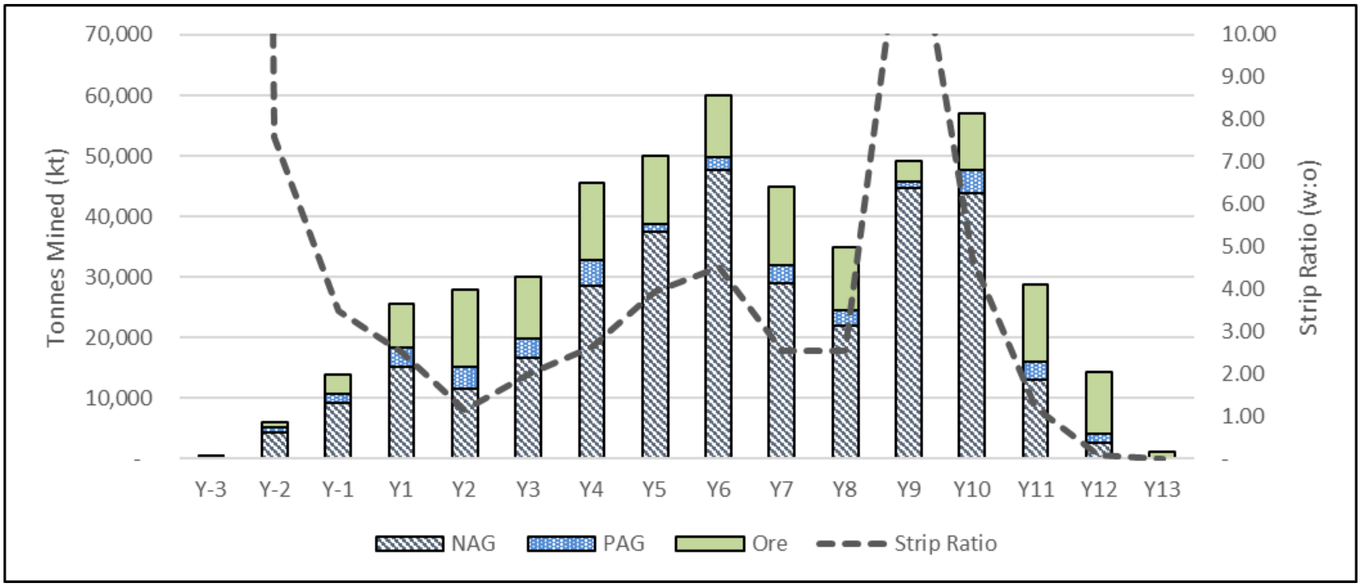
16.5.1 Mining Schedule

The project takes place over 15 years of mining, including a construction and ramp-up period of 2.5 years and 12.5 years of operations. The peak annual mining rate is 60 Mt (164,000 t/d). Figure 16-17 outlines the production schedule by material type and the stripping ratio. Minimal overburden (0 to 1 m thick) is expected to be encountered within the open pit areas and the majority is expected to be removed as part of stripping and grubbing activities. Any remaining overburden has been conservatively assumed to be at the same density as waste rock and is treated as rock in the mine production schedule.

Figure 16-18 depicts the mining in each of the pit phases. The North pit is the largest pit in the project and its four phases represent the bulk of mining. The Central pit and South pit are spread out over the mine life to fill in ore requirements during North pit stripping periods. The South pit and Central pit are available for in-pit dumping once mined out after Year 5. In-pit dumping in the North pit becomes available as N3 and N4 are mined out.

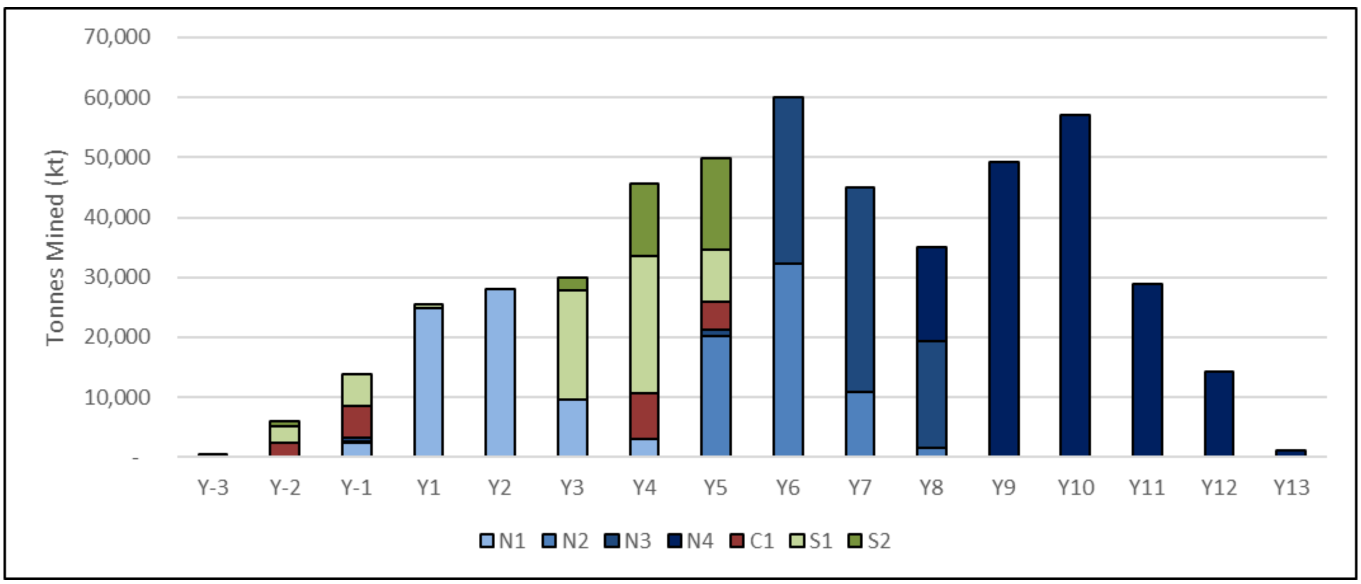
A detailed table that includes mined grades and materials can be found in Table 16-9.

Figure 16-17: Mine Production Schedule



Source: MMTS (2025).

Figure 16-18: Material Movements from Pit



Source: MMTS (2025).

Table 16-9: Detailed Mine Production Schedule

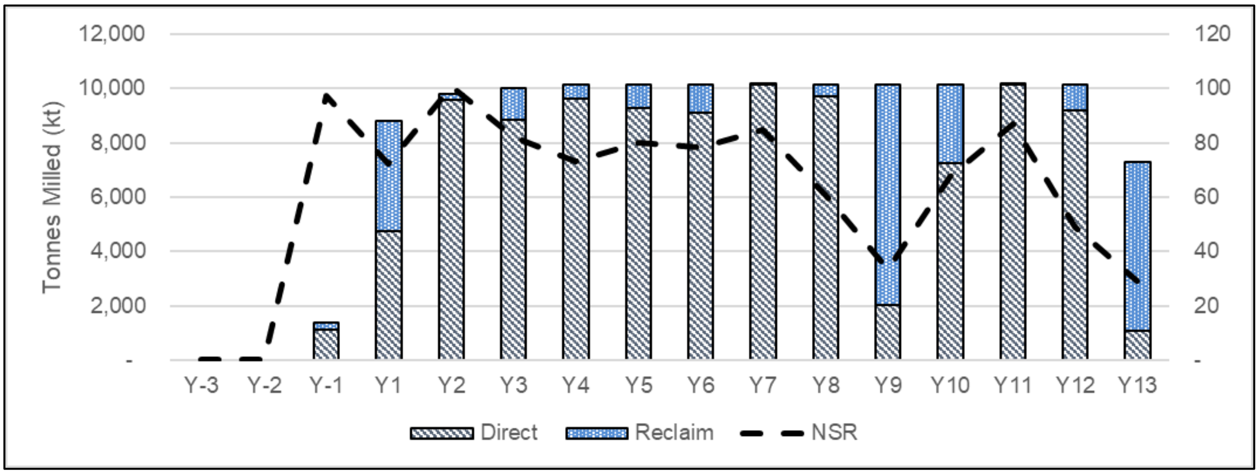
Description	Unit	Y-3	Y-2	Y-1	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	Y13	Total
Total Tonnage Mined	**Mt**	0.3	6.0	13.9	25.5	28.0	30.0	45.5	49.9	60.0	45.0	35.0	49.2	57.1	28.8	14.2	1.2	**489.7**
Waste Mined	Mt	0.3	5.3	10.8	18.3	15.3	19.8	32.8	38.9	49.8	32.0	24.5	45.7	47.7	15.9	4.2	0.1	**361.4**
NAG	Mt	0.3	4.3	9.3	15.1	11.6	16.7	28.6	37.5	47.7	29.1	22.1	44.6	43.9	13.0	2.6	0.1	**326.4**
PAG	Mt	0.0	1.0	1.5	3.2	3.7	3.1	4.2	1.3	2.1	2.9	2.4	1.1	3.8	3.0	1.6	0.1	**35.0**
Strip Ratio	W:O	--	7.3	3.5	2.5	1.2	1.9	2.6	3.5	4.9	2.5	2.3	13.2	5.1	1.2	0.4	0.1	**2.82**
Ore Tonnage Mined	Mt	0.0	0.7	3.1	7.2	12.7	10.2	12.7	11.1	10.2	13.0	10.5	3.5	9.4	12.9	10.0	1.1	**128.3**
Cu Grade	%	0.09	0.16	0.17	0.23	0.26	0.23	0.15	0.15	0.20	0.23	0.25	0.13	0.21	0.23	0.25	0.34	**0.21**
Ag Grade	g/t	0.90	1.65	1.55	1.28	1.26	1.57	1.59	1.53	1.56	1.70	1.91	1.44	1.88	2.00	2.02	2.41	**1.67**
Au Grade	g/t	0.06	0.07	0.09	0.07	0.07	0.08	0.08	0.08	0.06	0.07	0.06	0.06	0.07	0.06	0.07	0.07	**0.07**
Pt Grade	g/t	0.13	0.17	0.27	0.21	0.20	0.24	0.23	0.30	0.15	0.17	0.17	0.14	0.16	0.16	0.18	0.17	**0.20**
Pd Grade	g/t	0.36	0.44	0.86	0.75	0.76	0.79	0.65	0.82	0.52	0.60	0.59	0.42	0.52	0.53	0.51	0.52	**0.64**
Ore Direct to Mill	Mt	0.0	0.0	1.1	4.7	9.6	8.8	9.6	9.3	9.1	10.1	9.7	2.0	7.3	10.1	9.2	1.1	**101.8**
Ore to Stockpile	Mt	0.0	0.7	2.0	2.5	3.2	1.3	3.1	1.8	1.2	2.9	0.8	1.4	2.2	2.8	0.8	0.0	**26.6**
Stockpile Reclaim to Mill	Mt	0.0	0.0	0.3	4.1	0.2	1.2	0.5	0.8	1.0	0.0	0.4	8.1	2.9	0.0	0.9	6.2	**26.6**
Stockpile Balance	Mt	0.0	0.7	2.4	0.8	3.8	3.9	6.6	7.5	7.6	10.5	10.9	4.2	3.5	6.3	6.2	0.0	--
Total Moved	**Mt**	**0.3**	**6.0**	**14.1**	**29.6**	**28.2**	**31.2**	**46.1**	**50.8**	**61.0**	**45.0**	**35.4**	**57.2**	**60.0**	**28.8**	**15.2**	**7.4**	**516.3**

16.5.2 Processing Schedule

The processing life for the project is 12.5 years, along with a six-month, pre-commercial production period. The process plant capacity is 10.1 Mt/a, with a ramp-up of 8.6 Mt in the first year. Figure 16-19 outlines the process plant feed by source and the resulting NSR of material to the process plant.

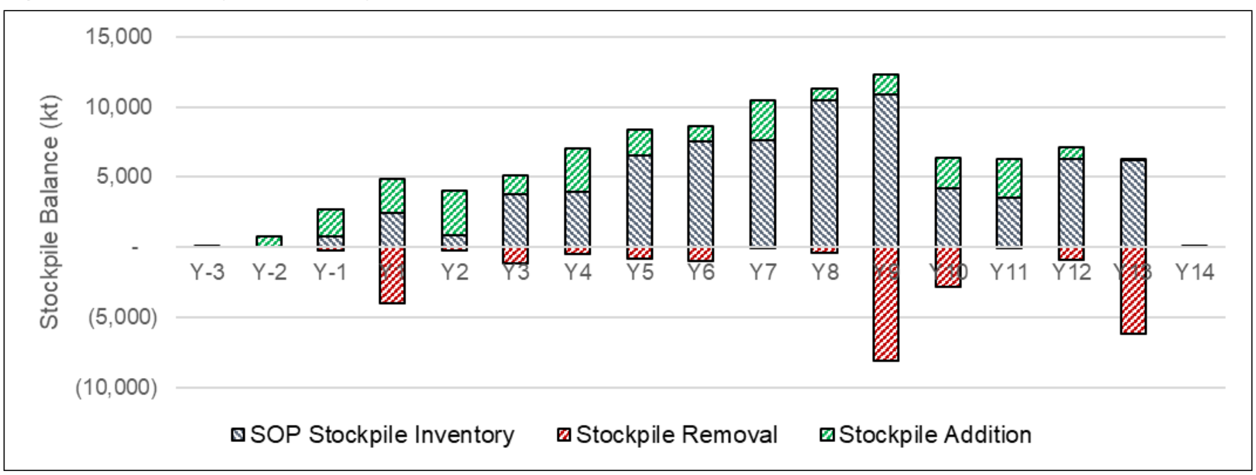
Figure 16-20 depicts the stockpile inventories by period and grade bin. High grade ore is only stockpiled during the pre-production period, is re-handled to the process plant during the first two years of processing, and will be stored in smaller piles on the run-of-mine pad.

Figure 16-19: Mill Production



Source: MMTS (2025).

Figure 16-20: Stockpile Inventory

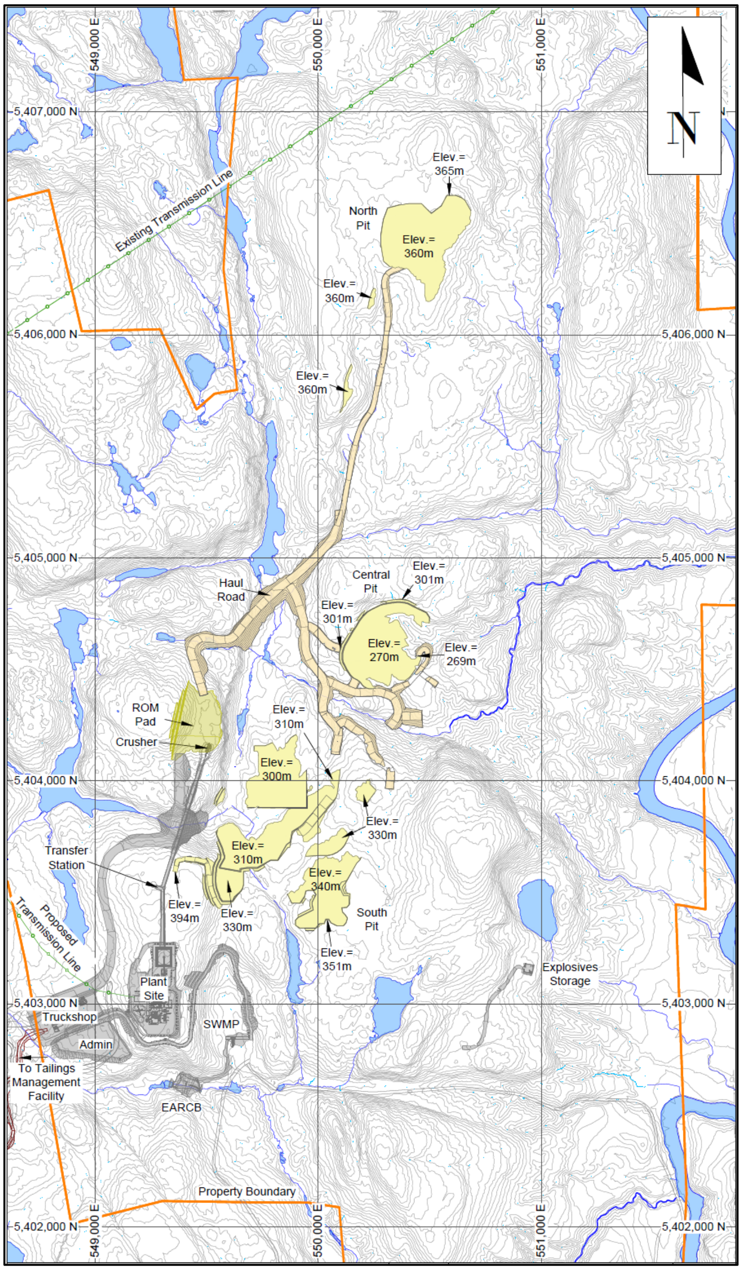


Source: MMTS (2025).

16.5.3 End-of-Period Surfaces

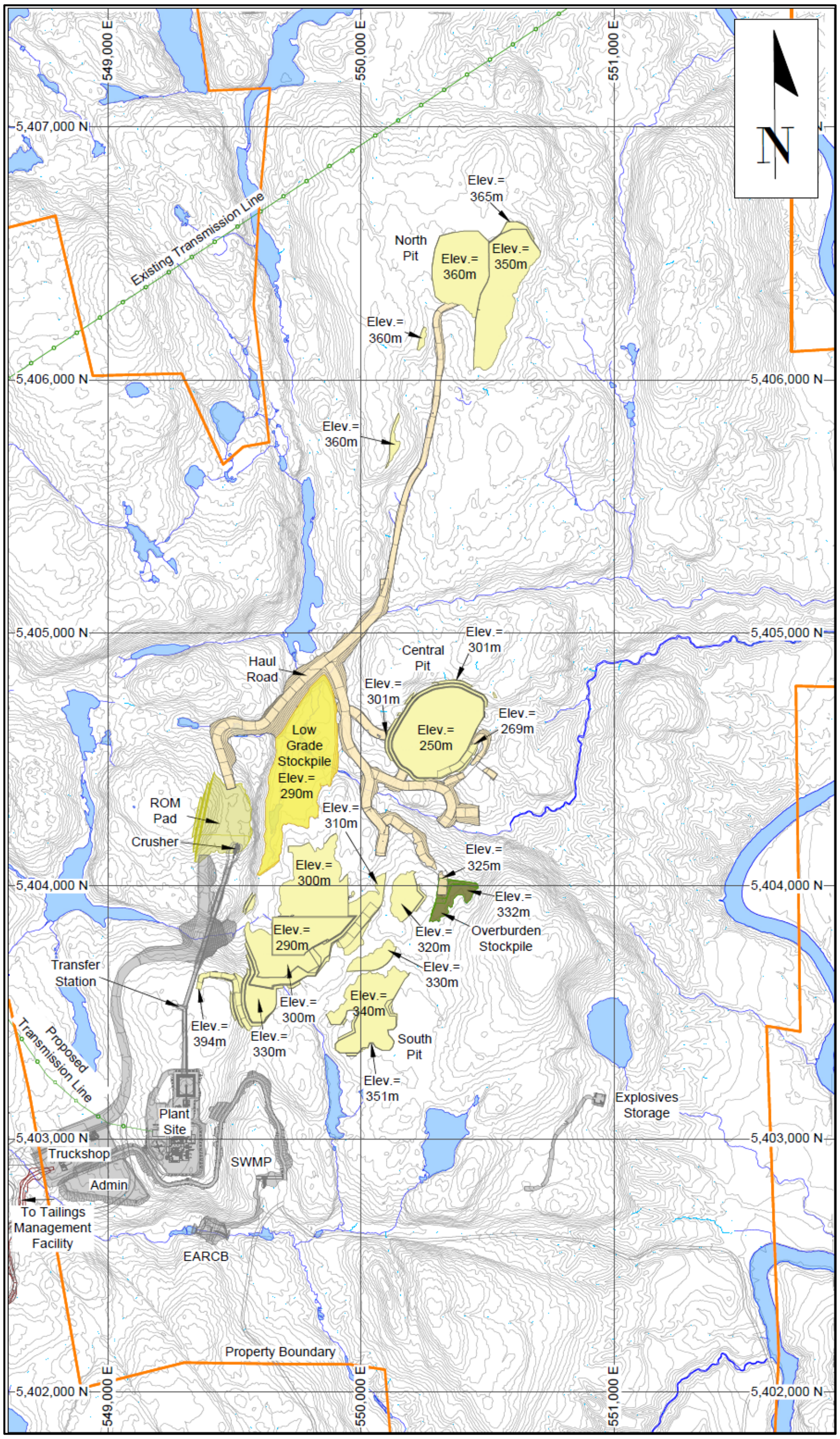
Figure 16-21 to Figure 16-26 depict the end-of-period plans for Year -2 (Construction), Year -1 (commissioning), Year 2, Year 5, Year 8, and the life of mine.

Figure 16-21: Mining End-of-Period Year -2, Construction



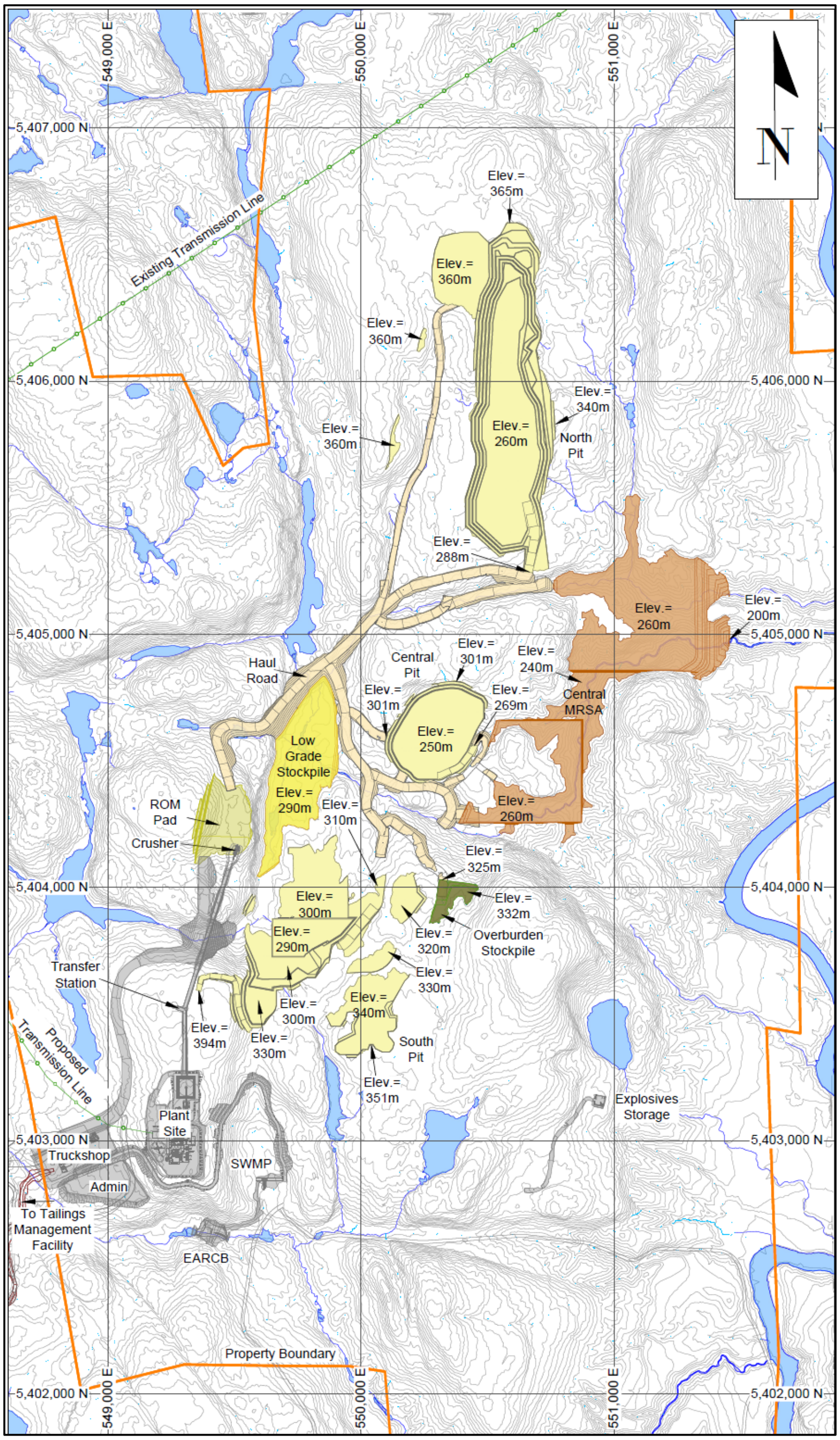
Source: MMTS (2025).

Figure 16-22: Mining End-of-Period Year -1, Commissioning



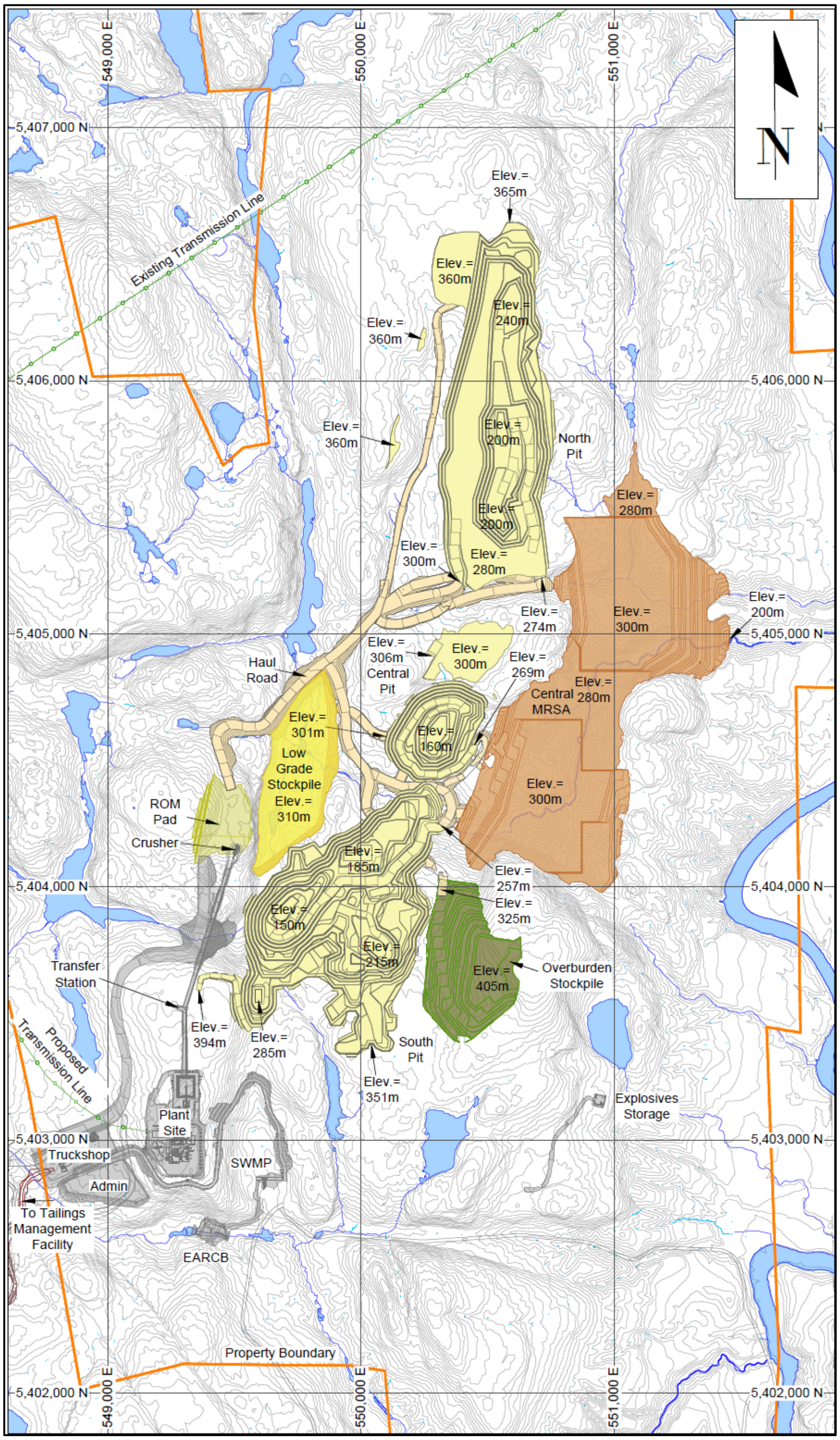
Source: MMTS (2025).

Figure 16-23: Mining End-of-Period Year 2



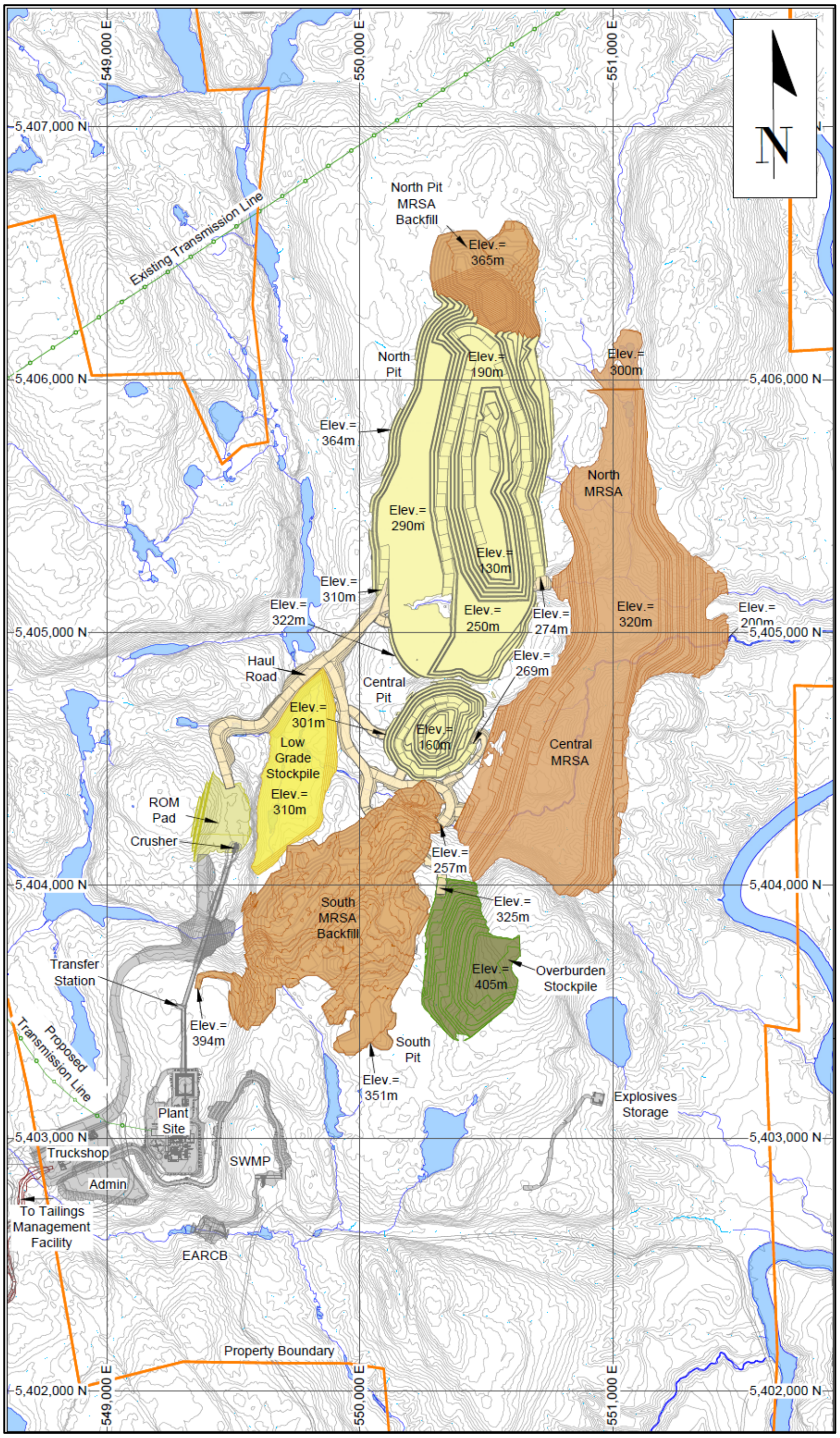
Source: MMTS (2025).

Figure 16-24: Mining End-of-Period Year 5



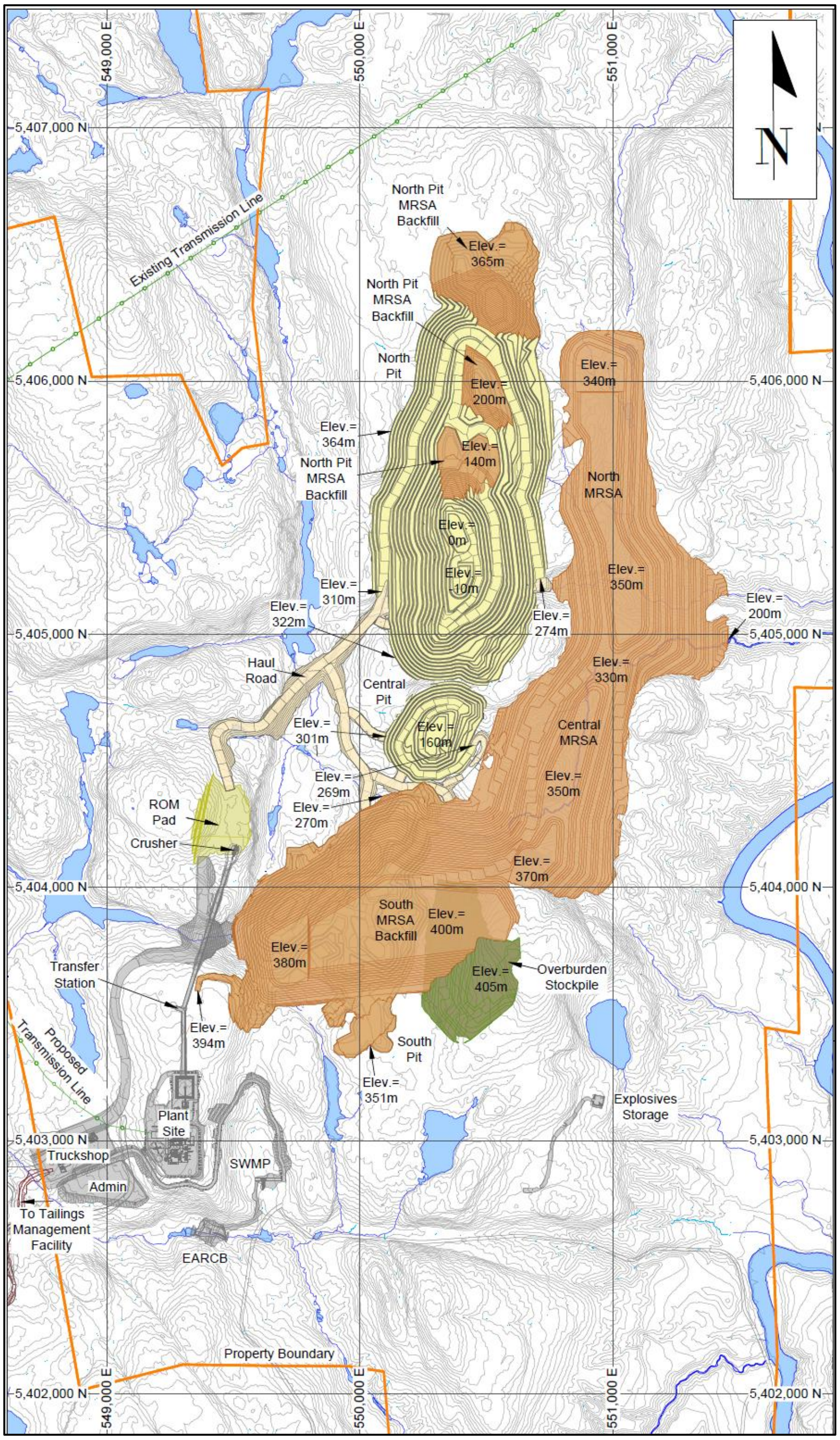
Source: MMTS (2025).

Figure 16-25: Mining End-of-Period Year 8



Source: MMTS (2025).

Figure 16-26: Mining End-of-Period Life-of-Mine



Source: MMTS (2025).

16.6 Mine Operations

The planned owner-operated mining operations will be typical of large-scale North American open pit operations in similar terrain.

In-situ rock is drilled and blasted on 10 m benches to create suitable fragmentation for efficient loading and hauling of both ore and waste rock. It is assumed that overburden material does not require drilling and blasting. Diesel-powered rotary drills are used for production drilling. Diesel-powered, down-the-hole (DTH) drills are also included for highwall geotechnical drilling, pre-shearing, or buffer blasting on the pit walls. Drill penetration studies have been completed that have informed the utilized operational set-up and estimated penetration rates for the drills. Evaluation of fully autonomous drilling systems should be considered as part of further project engineering.

Powder factors of 0.28 kg/t in ore and waste rock are proposed. The blasting activities are planned to fall under a contract service agreement with the explosive supplier. The supplier will provide the blasting materials and technology for the mine, including the blasting trucks. An explosive plant has been scoped for this project, as there are no other nearby regional plants. A mixed emulsion type of explosive is assumed. The supplier will import raw supplies and mix the explosives on site. The contractor blasting crew delivers the blasting materials, loads the holes, and performs the blasting operations. Fully electronic blasting practices are anticipated. It is recommended to conduct blast fragmentation studies on the various rock types as part of further project engineering.

Blasthole cuttings will be assayed on regular intervals, with results informing an operational grade control block model, which will influence short- to medium-range mine planning. On-board systems for the drills and shovels will allow delineation of mineralization from waste at the face based on the grade control plans from the technical services team. A post-blast movement estimation system will also be utilized. Reverse-circulation (RC) drilling has not been planned but may be required in areas of the deposit that blasthole sampling may not adequately delineate.

All ore, waste rock, and overburden require loading from the open pits into haul trucks. Diesel-powered hydraulic shovels are the primary loading units for waste and smaller hydraulic excavators are specified in ore and ore/waste contact zones. A wheel loader is also specified for re-handling material, loading overburden, pit clean-up, road construction, snow removal, or as an alternate to load trucks in the pit if periodic low shovel availability requires it. The wheel loader will also support run-of-mine pad activities, as needed.

Ore and waste materials will be hauled out of the pit to scheduled destinations with off-highway, rigid-frame, haul trucks. Several haulage profiles were digitized and simulated in Caterpillar FPC to optimize fleet usage and meet construction and site progression requirements.

Mine pit services include the following:

- haul road maintenance
- shovel face maintenance
- pit floor and ramp maintenance
- stockpile and waste storage facility maintenance
- mobile fuel and lube services

- ditching
- dewatering
- secondary blasting and rock breaking
- snow removal
- reclamation and environmental control
- lighting
- transporting personnel and operating supplies
- mine safety and rescue.

Direct mining operations and mine fleet maintenance are planned as an Owner's fleet with direct operating costs falling under mine operations. General mine expense (GME)—or indirect supervision and departmental costs for mine operations, mine maintenance, and mine technical services—also falls under mine operations.

Mining operations are based on 365 operating days per year with two 12-hour shifts per day. An allowance of five days of no production has been built into the mine schedule and operation plans to allow for adverse weather conditions.

The number of hourly mine operations personnel, including maintenance crews, peaks at 290. Due to the shift rotation, only one-quarter of full personnel complement will be on shift at a given time. Salaried personnel of approximately 40 will be required for mine operations, including the mine and maintenance supervision, mine engineering, and geology.

16.7 Open Pit Dewatering

Pits will be dewatered with conventional dewatering equipment (pit bottom submersible pumps). Daily pit inflow rates have been estimated based on direct precipitation over the pit areas and groundwater inflow rates via host rock hydraulic conductivity.

Current estimates of pit hydrogeology suggest inflow from direct precipitation and groundwater to average 10.5 Mm^3/a. Dewatering operations have been planned based on these amounts.

Pit water will be pumped from in-pit sumps to collection ponds adjacent to the pits where it will be managed according to the overall site water management plan.

16.8 Mining Equipment Selection

The mine equipment descriptions are based on typical fleet contingents utilized in other large-scale, North American open pit mine operations. It should be expected that equipment specifications and fleet sizes will be altered with further project engineering and optimization.

Production drilling will be carried out with 229 mm (9") diesel driven rotary drills. Highwall control and depressurization drilling will be carried out with 160 mm (6") down-the-hole (DTH) drills.

The primary loading fleet will consist of diesel-powered hydraulic face shovels (29 m^3 bucket). A front-end wheel loader (20 m^3 bucket) is proposed to provide additional loading flexibility and the ability to load the crusher when required.

Rigid-frame haulers (246-tonne payload) are proposed. While the current mining plan envisions a diesel-powered haul truck fleet, it is expected that at the time of a construction decision, sufficient electric alternatives will be available for purchase. It is recommended in future engineering studies to examine operational and cost trade-offs of implementing a trolley or battery/trolley system to power the hauling fleet.

A smaller loading and hauling fleet consisting of a wheel loader (7 m^3 bucket), hydraulic excavators (4.5 m^3 bucket), and rigid-frame haulers (90 tonne payload) are proposed to load and haul ore, ore and waste along contact zones, overburden tonnages, pioneering areas, and pit bottom areas, along with any narrow-thickness ore zones associated with the W-Horizon in the South pit.

Graders (5.5 m blade width) will be used to maintain the haul routes for the haul trucks and other equipment within the pits and on all routes to the various waste storage locations and the crusher. Rigid-frame haul trucks outfitted with a water tank (100,000 L) are included for dust suppression along the haul roads.

Track dozers (450 kW) are included to handle waste rock at the various waste storage locations and to support the in-pit mining activities, including cutting roadways and cleaning berms. Wheel dozers (520 kW) will support maintenance at the shovel faces and along the pit floors. Front-end wheel loaders (4 m^3 and 2 m^3 buckets) are included for general construction and pit mining support, as well as blasthole stemming management. Hydraulic excavators (2.0 m^3 bucket) are included as pit support, grade control support, and pioneer mining support. Custom fuel/lube trucks are included for mobile fuel/lube support.

Various small mobile equipment pieces are proposed to handle all other pit service and mobile equipment maintenance functions.

Owner-operated mine fleet maintenance activities are generally performed in the maintenance facilities, located on the mine service area (MSA) pad. Maintenance for the larger pieces of equipment, such as shovels and drills, is done in the field by a mobile maintenance crew.

A fleet management system will be implemented to assist management of the operation, monitor machine health, and track operational key performance indicators (KPIs). High-precision GPS systems will be installed on the drills, loading tools, and several support pieces to help with grade control and precision of mining execution. A computerized maintenance management system will monitor the updated status, service history, and maintenance needs of each machine while being a source of data for KPIs and cost-tracking purposes.

Mine fleet equipment requirements are summarized in Table 16-10 and Table 16-11. The equipment classes and number of units planned represent feasibility-level estimates; future modifications during subsequent project phases may be required.

Table 16-10: Primary Mine Fleet Schedule

Equipment Description	Y-3/ Y-2	Y-1	Y1	Y2	Y3	Y4	Y5	Y6- Y10	Y11	Y12	Y13
Drilling											
Diesel Rotary Drill 229 mm (9") Holes	1	1	2	2	2	4	4	4	3	2	-
Diesel DTH Drill 160 mm (6") Holes	1	1	1	1	1	1	1	1	1	1	1
Loading											
Diesel Hydraulic Shovel 29.0 m^3 Bucket	0	1	1	1	2	2	3	3	3	3	-
Diesel Hydraulic Excavator 4.5 m^3 Bucket	3	3	3	3	3	3	3	3	2	2	2
Wheel Loader 20.0 m^3 Bucket	0	0	1	1	1	1	1	1	1	1	1
Hauling											
Rigid-Frame Haul Truck 246 t Payload	0	3	7	7	7	11	11	14	10	6	3
Rigid-Frame Haul Truck 92 t Payload	5	5	5	5	5	5	5	5	5	5	5
Support											
Grader, 5.5 m Blade	1	2	2	2	2	3	3	3	3	2	1
Water Truck, 100,000 L	1	1	2	2	2	2	2	2	2	1	1
Track Dozer, 450 kW	3	4	4	4	4	4	4	4	4	4	2
Wheel Dozer, 370 kW	1	2	2	2	2	2	2	2	2	2	1
Wheel Loader, 7.0 m^3 Bucket	1	2	2	2	2	2	2	2	2	1	1
Hydraulic Excavator, 2.0 m^3 Bucket	1	2	2	2	2	2	2	2	2	1	-
Fuel/Lube Truck (Articulated 40 t Chassis)	1	2	2	2	2	2	2	2	1	1	1

Table 16-11: Planned Ancillary Mine Fleet

Equipment Description	# of Units
Crew Bus	4
Pickup Trucks	20
Light Plants	10
Dewatering Pumps	10
Wheel Loader, 4 m^3 bucket	1
Wheel Loader, 2 m^3 bucket	1
Flatbed and Picker Truck	1
Telehandler	1
Skid Steer	1
Emergency Response Vehicle	1
Maintenance Trucks	3
Mobile Crane	1
Float Trailer	1
Forklift and Tire Manipulator	1
Mobile Steam Cleaner	1

16.9 Risks

The process plant feed quantities, metal grades, associated waste rock quantities, and estimated costs discussed in this report are based on the following factors and assumptions:

- metal prices
- interpretations of mineralization geometry and continuity in mineralization zones
- geotechnical and hydrogeological assumptions
- geochemical assumptions for mined resource and waste materials
- ability of the mining and processing operation to meet the annual production rate and anticipated grade control standards and recoveries
- ability of the processing operation to meet the annual production rate and recoveries
- operating cost assumptions and cost creep, including impacts of potential taxes and tariffs
- ability to meet and maintain future land tenure, permitting, and environmental license conditions, and the ability to maintain the social license to develop and operate
- ability to access capital for project financing.

17 RECOVERY METHODS

17.1 Overview

The process plant design is based on the metallurgical test results completed for the feasibility study and subsequent economic analysis to determine recommended design and operating conditions. The process plant will start with 25.2 kt/d (9.2 Mt/a) and ramp up to 27.7 kt/d (10.1 Mt/a) in Year 3. The average life-of-mine feed grade is 0.21% Cu and 0.63 g/t of Pd.

The overall flowsheet design can be divided into four main areas:

1. crushing and grinding
2. flotation and regrind
3. concentrate thickening and filtration
4. tailings thickening.

The plant operating schedule and availability is based on two 12-hour shifts per day for 365 days each year. The crushing circuit will operate with an availability of 72.3%; the grinding and flotation circuits have an availability of 90.7%; and the concentrate filtration area has an availability of 83.2%.

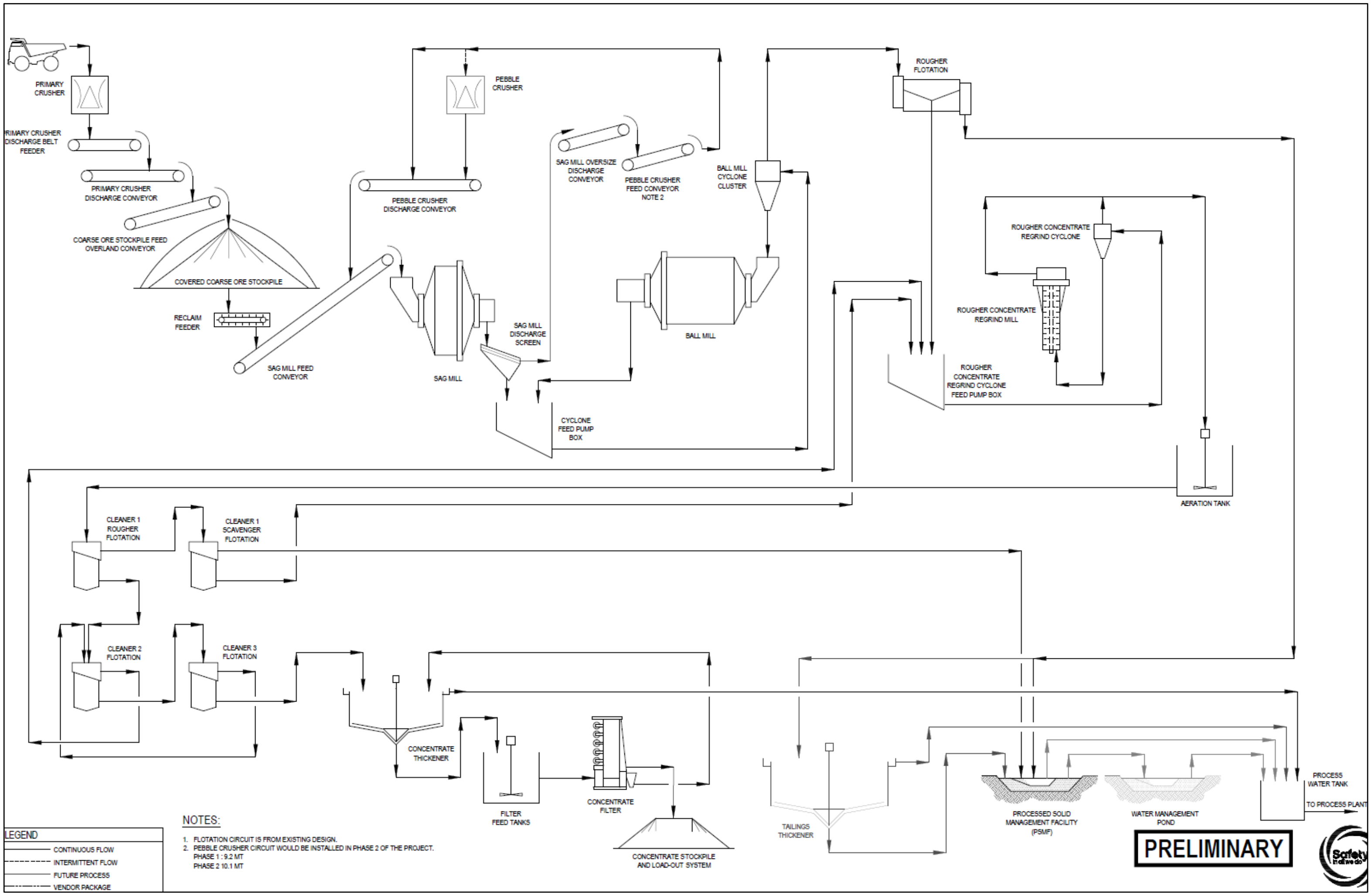
Run-of-mine ore is delivered to the primary crusher and the crushed ore is then conveyed to the crushed ore stockpile. Crushed ore is conveyed to the grinding circuit consisting of a semi-autogenous grinding (SAG) and ball mill operating in closed circuit with a cyclone cluster. A pebble crusher will be added to crush pebbles from the SAG mill after the circuit is ramped up to 27.7 kt/d.

Cyclone overflow reports to the flotation and regrind area. The flotation circuit consists of rougher flotation followed by rougher concentrate regrind and three stages of cleaner flotation. Final Cu-PGM reports to the concentrate thickener followed by filtration for dewatering to less than 12% moisture. Flotation scavenger tailings are pumped to a segregated tailings area while rougher flotation tailings are thickened (in Year 3) before being pumped to the tailings storage facility (TSF).

17.2 Process Flowsheet

The overall process plant flowsheet (Figure 17-1) shows the major unit equipment for the initial and ramped-up phases.

Figure 17-1: Simplified Overall Process Flowsheet



Source: Ausenco (2024).

The process plant includes the following unit processes and facilities:

- primary crushing
- crushed ore stockpile and reclaim
- crushed waste stockpile
- SAG mill and ball mill circuit operated in closed circuit with cyclones
- pebble crusher installed for the ramped-up tonnage (after ramp-up to 27.7 kt/d)
- flotation comprised of rougher flotation, concentrate regrind, and three stages of cleaning
- concentrate thickening and filtration
- tailings thickening (after ramp-up to 27.7 kt/d)
- reagents storage and distribution (including lime slaking, flotation reagents, water treatment, and flocculant)
- grinding media storage and addition
- water services (including fresh water, fire water, cooling water, and process water)
- compressed air for staged flotation reactor (SFR) cells, plant air, and instrument air services
- air blowers for conventional flotation cells
- process plant system and control room.

17.3 Process Design Criteria

Key design criteria used in the plant design, as well as the resulting sizing parameters of major equipment, are listed in Table 17-1.

Table 17-1: Key Process Design Criteria

Process Design Criteria	Units	Value
Plant Capacity		
Initial	Mt/a	9.2
Final	Mt/a	10.1
Plant Feed Grade, Design		
Life-of-Mine Average Feed Grade, Cu	%	0.21
Life-of-Mine Average Feed Grade, Au	g/t	0.07
Life-of-Mine Average Feed Grade, Ag	g/t	1.67
Life-of-Mine Average Feed Grade, Pt	g/t	0.20
Life-of-Mine average Feed Grade, Pd	g/t	0.64
Operating Schedule Availability		
Crusher Operating Availability	%	72.3

Process Design Criteria	Units	Value
Grinding and Flotation Operating Availability	%	90.7
Concentrate Filtration System	%	83.2
Ore Characteristics		
JK Axb (design, based on SPI value)	-	38
Bond Crushing Work Index (CWi)	(metric)	18.6
Bond Rod Work Index (BRWi) (based on BWi)	(metric)	16.5
Bond Ball Work Index (BBWi)	(metric)	17.5
Bond Abrasion Index (Ai)	g	0.35
Primary Crushing		
Primary Crusher Top Size, F_{100}	mm	1,000
Primary Crusher Feed Size, F_{80}	mm	528
Primary Crushing Product, P_{80}	mm	150
Grinding and Pebble Crushing		
Circuit Product Size, P_{80}	µm	106
Pebble Return Rate, Nominal	% new feed	22
Circulating Load, Maximum for Design	%	400
Cyclone Overflow Solids	% solids (w/w)	35
Rougher Flotation		
Flotation Feed Density, Nominal	% solids (w/w)	35
Rougher Mass Recovery	% mill feed	13.3
Residence Time Scale-Up Factor	-	2.5
Flotation Residence Time, Design	min	60
Number of Cells	-	5
Combined Rougher Concentrate Regrind		
Feed Size, F_{80}	µm	87
Product Size, P_{80}	µm	18
First Cleaner		
Mass Recovery	% mill feed	3.2
First Cleaner Scavenger		
Mass Recovery	% mill feed	2.5
Second Cleaner		
Mass Recovery	% mill feed	2.0
Third Cleaner		
Mass Recovery	% mill feed	1.5
Concentrate Thickening and Filtration		
Unit Area Thickening Rate, Design	$t/(m^2 \cdot h)$	0.15
Underflow Solids	% solids (w/w)	60
Cake Thickness	mm	25
Filter Cake Moisture	%	12
Tailings Thickening		
Unit Area Thickening Rate, Design	t/m^2-h)	0.9
Underflow Solids	% solids (w/w)	60

Note: 1. The parameter as noted does not directly apply as SFR technology does not follow the scale-up factor as is used in conventional flotation cell technology.

17.4 Primary Crushing

Run-of-mine ore is transported from the pit in 240-tonne haul trucks and dumped into a 396-tonne live capacity dump pocket above the primary gyratory crusher. The primary crusher has an availability of 72.3%, and it will crush both ore and waste rock at an hourly rate of 1,915 t/h. The crushed ore/waste from the primary crusher will pass through a crushed ore/waste transfer tower with a diverter chute to direct the crushed ore to the coarse ore stockpile and the waste to the waste stockpile.

Run-of-mine ore is fed to the primary gyratory crusher and the crushed ore is sent to a variable-speed belt feeder, which discharges onto the primary crusher sacrificial conveyor. The crushed ore is then conveyed to the crushed ore stockpile by an overland conveyor. The overland conveyor is fitted with a weightometer to measure throughput. Tramp metals are removed through a metal detector and a magnet located at the transfer chute from the sacrificial conveyor to the overland conveyor. A mobile breaker is employed to break rocks that are larger than the maximum top size of 1,000 mm. An overhead crane for maintenance is also included in the crushing area.

Major equipment in the primary crushing area includes the following:

- gyratory crusher
- rock breaker
- discharge belt feeder
- sacrificial conveyor
- primary crusher overland crane
- primary crusher dust collector.

17.4.1 Coarse Ore Stockpile and Reclaim

The crushed ore stockpile has a live storage capacity of 15,288 t, which is equivalent to 12 hours of mill feed at the nominal feed rate. Two apron feeders operate in a duty/standby arrangement to provide 1,274 t/h of mill feed. Reclaimed material from the coarse ore stockpile is transferred to the SAG mill feed conveyor which feeds the SAG mill. The SAG mill feed is controlled and recorded by the weightometer installed on the SAG mill feed conveyor.

17.4.2 Waste Stockpile

The waste rock is crushed for the construction of tailings storage facility and other site construction purposes. The annual required tonnage of 2.0 Mt will be generated by the primary crusher as needed. The waste stockpile has a live capacity of 3,792 t (equivalent of 2 hours residence time). A front-end loader will transport the crushed waste rock to areas as needed.

17.5 Grinding Circuit

The grinding circuit consists of a single SAG mill followed by a single ball mill operating in closed circuit with a primary hydrocyclone cluster. Primary cyclone overflow with a target 80% passing size (k_{80}) of 106 µm is flotation feed. The major equipment in the grinding circuit includes the following:

- one SAG mill, 10.36 m diameter (inner shell) x 6.10 m effective grinding length (EGL) with two 8.125 MW twin pinion drives and a total installed power of 16.25 MW
- one ball mill, 8.08 m diameter (inner shell) x 12.34 m EGL with two 8.125 MW twin pinion drives and a total installed power of 16.25 MW
- 14 position cyclone cluster (11 operating and 3 on standby).

The grinding circuit consists of a SAG mill followed by a ball mill in closed circuit with a cyclone cluster. The circuit processes crushed coarse ore at a k_{80} of 120 mm and produces a k_{80} of 106 µm. During the initial stage of 9.2 Mt/a, the SAG mill product is discharged through a single-deck screen where the pebbles are dewatered and recycled back to the SAG mill feed conveyor and the undersize slurry flows to the cyclone feed pumpbox. After the project ramps up to 10.1 Mt/a, the oversize pebbles will be crushed by a pebble crusher before being sent back to the SAG mill feed conveyor.

The ball mill operates in closed circuit with a cyclone cluster, equipped with fourteen 650 mm diameter cyclones. Ball mill discharge combines with SAG discharge screen undersize in the mill cyclone pumpbox and is pumped to the cyclone cluster. Cyclone underflow discharges to ball mill feed and the overflow gravitates to the flotation circuit. The ball mill discharges through a trommel and the oversize discharges to the ball mill scats bunker. The ball mill has a design circulating load of 400%.

Steel balls are added to the grinding mills with a kibble lifted by the overhead crane and discharged into a small hopper that feeds the respective feed chutes. Process water is added to the SAG mill feed to maintain target slurry density of 75%. One liner handler (shared between SAG mill and ball mill) and an overhead crane are provided for the grinding circuit for maintenance activities. An additional liner handler will be added to share the maintenance duty.

Process water is added to the ball mill cyclone feed pumpbox to maintain the required cyclone feed. Flotation reagents including collector (potassium amyl xanthate or “PAX”) and promoter Aero 3501 (sodium isoamyl di-thiophosphate) are added to the cyclone feed pumpbox.

The cyclone overflow has a discharge density of 35% solids and flows by gravity to the rougher flotation feed box. A multi-stream analyzer (MSA) sampler takes samples from the cyclone overflow to an online stream sampler (OSA) to measure copper and PGM content.

17.6 Flotation and Regrind Circuit

Ball mill cyclone overflow reports to the rougher flotation circuit feed box. The flotation circuit consists of a rougher bank of conventional tank cells, a regrind HIG mill, an aeration tank, and three stages of cleaners with SFR cells.

According to the metallurgical tests completed from 2020 to 2022, the flotation circuit requires regrind and aeration of rougher concentrate to achieve better mineral liberation and to maximize final concentrate grade.

The rougher concentrate is combined with first cleaner scavenger concentrate and second cleaner tailings in the regrind cyclone feed pumpbox. Regrind cyclones operating in open circuit classify the slurry to reject fines less than k_{80} = 18 µm. The overflow discharges to the aeration tank, and the underflow discharges to the regrind mill, which is selected to achieve a product of k_{80} = 18 µm.

The regrind mill discharges into the aeration tank. After aeration, the concentrate goes through a three-stage closed-circuit cleaner flotation to obtain the final Cu-PGM concentrate.

The major equipment in the flotation and regrind circuit is summarized as follows:

- rougher flotation cells: five 630 m^3 tank cells
- first cleaner / first cleaner scavenger feed tank: 2.5 m diameter x 6.7 m high
- pre-aeration tank (30 min)
- regrind HIG mill (2,500 kW)
- first cleaner bank: seven SFR cells (each 2.4 m diameter x 5.7 m high)
- first cleaner scavenger bank: three SFR cells (each 2.4 m diameter x 5.5 m high)
- second cleaner feed tank: 1.7 m diameter x 5.6 m high
- second cleaner bank: five SFR cells (each 1.6 m diameter x 4.6 m high)
- third cleaner feed tank: 1.6 m diameter x 5.1 m high
- third cleaner bank: five SFR cells (each cell 1.5 m diameter x 4.1 m high).

17.6.1 Rougher Flotation

The overflow from the ball mill cyclone flows to the rougher flotation feed box where reagents are added: collector (PAX, 45 g/t mill feed), promoter (Aero 3501, 22.5 g/t mill feed), and frother (MIBC, 23 g/t mill feed). The rougher flotation bank consists of five tank cells in series with a total residence time of 60 minutes.

The final rougher concentrate is sampled using an in-line launder sampler and sent to an on-stream analyzer (OSA) for analysis. A shift composite sample will also be collected to account for the shift performance.

The rougher tailings stream is sampled through a metallurgical sampler and sent to the OSA area for metallurgical accounting. The rest of the rougher tailings is pumped to the tailings thickener for thickening before being discharged to the TSF.

17.6.2 Concentrate Regrind and Aeration

Rougher concentrate, second cleaner tailings, and first cleaner scavenger concentrate are combined in the regrind cyclone feed pumpbox. The combined concentrate is classified at the regrind cyclone cluster to classify particles that are less than 18 µm through the overflow to the aeration tank.

The regrind cyclone underflow is diluted with process water to reach a slurry density of 40% to 45% before feeding the regrind mill. The regrind mill is selected to achieve a product size of k_{80} = 18 µm. The regrind mill is equipped with a media dosing system to load the ceramic grinding media into the regrind mill.

Regrind cyclone overflow slurry is aerated for 30 minutes to oxidize the iron sulphides minerals. Lime is added to the aeration tank to maintain a pH of 11. Aeration enhances the depression of pyrite and pyrrhotite in the first cleaner stage.

17.6.3 Cleaner Circuit

The cleaner circuit follows locked cycle tests developed during the metallurgical test programs. The aerated combined contrate is fed to the first cleaner feed tank with promoter (Aero 3501), collector (PAX), and frother (MIBC).

First cleaner tailings are fed to the first cleaner scavenger stage where the tailings stream is pumped directly to the sub-aerial deposition area of the TSF and the concentrate stream is pumped to the regrind cyclone pumpbox. First cleaner concentrate is fed to the second cleaner stage and then the second cleaner concentrate is fed to the third cleaner stage.

Second cleaner tails are returned to the regrind cyclone pumpbox. Third cleaner tails are recycled to the second cleaner stage. The third cleaner concentrate is the final concentrate. An in-line sampler will periodically sample final concentrate for analysis.

17.6.4 Concentrate Thickening and Filtration

Final concentrate is pumped to a 15-meter diameter concentrate thickener. Diluted flocculant solution is added to the concentrate thickener to assist with dewatering and to achieve an underflow density of 60% by weight.

Thickener overflow is returned to the process water tank. The thickened underflow is pumped to the concentrate filter feed tank. Concentrate is pumped from the feed tank to the filter press and further dewatered to reach a moisture content of less than 12% w/w. The concentrate filter is a batch-operated, vertical, plate-and-frame filter press.

Fresh water is used for filter cloth washing and the filtrate is recycled to the concentrate thickener feed. High-pressure compressed air is provided to the filter press for dewatering and drying the filter cake.

17.7 Concentrate Storage and Load Out

Filtered concentrate is discharged to the concentrate stockpile in a storage bunker. The storage bunker has a storage capacity of 7 days at nominal production rates and 4 days at design production rates. Front-end loaders are used to load the filtered cake on transport trucks for delivery to nearby railway for shipment to third-party smelters.

17.8 Tailings Thickening (Future)

In the initial phase of the project at 9.2 Mt/a, the flotation tailings are pumped directly to the tailings storage facility (TSF) where the solids will settle, and reclaim water is pumped to the process water tank. After the plant is ramped up to 10.1 Mt/a in Year 3, flotation tailings will be thickened in a 40 m diameter high-rate thickener to an underflow density of 60% w/w solids. Flocculant and coagulant are added to the thickener to enhance settling. Tailings thickener overflow is pumped to the process water tank, and the thickened underflow is pumped to the TSF.

17.9 Tailings Deposition

Tailings thickener underflow will be pumped to cell 1, cell 2A, and cell 2B of the TSF as a non-acid-generating (NAG), low-sulphide slurry. First cleaner scavenger tailings will be pumped separately to designated sub-aerial locations in cell 2A of the TSF to mitigate the potential for oxidation and acid generation from the sulphidic tailings fraction. Reclaim water pumps located at the TSF will recycle reclaim water to the process water tank.

17.10 Reagents and Consumables

Reagents used are shown in Table 17-2 based on grams per tonne of mill feed. Reagents include potassium-amyl-xanthate (PAX), isoamyl di-thiophosphate (Aero-3501), methyl isobutyl carbonol (MIBC), quicklime (CaO), flocculant, and coagulant. Reagents are prepared and stored in the reagent area and delivered by individual metering pumps or centrifugal pumps to the required dosing points.

Table 17-2: Reagent Addition Rate

Item	Addition Rate (g/t ore feed)
Collector (PAX)	45
Promoter (Aero 3501)	50
Frother (MIBC)	25
Lime	556
Coagulant (Tails Thickener, Future)	6.1
Flocculant (Tails Thickener, Future)	17.3
Flocculant (Concentrate Thickener)	0.5

17.10.1 pH Modifier (Quicklime)

Lime will be trucked to the site as quicklime in 30-tonne transportation trucks. The lime will be transferred to the lime silo using a pneumatic blower mounted on the delivery trucks. From the lime silo, the quicklime will be conveyed by a screw feeder to a lime slaker. The slaked lime slurry will be pumped to an agitated storage tank. Distribution of the lime from the storage tank to the addition points will be accomplished using a lime slurry loop. The bulk of the lime slurry will be used in the concentrate regrind circuit prior to first cleaner flotation, with the option of adding it at each of the feed tanks of the second and third cleaner flotation circuits. As indicated, lime preparation will be performed with fresh water, but there is an option to prepare it using process water in case of an emergency.

17.10.2 Collector (PAX)

PAX is supplied to the plant in 750 kg bulk bags as dry reagent. PAX will be diluted to a solution concentration of 10% w/w in an agitated mixing tank and the mixed solution will be transferred to a storage tank (30 m^3). From the storage tank, PAX solution will be sent to ball mill cyclone feed pumpbox, rougher bank, and the first stage cleaner bank through metering pumps.

PAX, which is classified as flammable in solid form and has combustible-associated vapors in liquid form, will be appropriately controlled and ventilated in the reagent mixing and distribution tanks.

17.10.3 Promoter (Cytec Aero 3501)

Aero 3501 will be delivered to site in 1,350 kg liquid totes . Aero 3501 will be added to the flotation circuit to promote the recovery of PGM. Aero 3501 does not require dilution and will be pumped to dosing points of ball mill cyclone feed pumpbox, rougher bank, and first stage cleaner bank.

Aero 3501 is not flammable or combustible in liquid form and will be stored in a vented, internal storage tank at a temperature above 5°C.

17.10.4 Frother (MIBC)

MIBC will be delivered to site in 20-tonne liquid tankers. MIBC will be dosed to the rougher and first stage cleaner banks to provide stable froth in the flotation circuit.

MIBC is a flammable liquid that will be isolated in a vented, appropriately designed and controlled, external uninsulated storage tank.

17.10.5 Depressant

Carboxymethyl cellulose (CMC) is often used in the cleaner flotation circuit to improve final concentrate grades by depressing talc. Based on metallurgical testwork, no benefit was derived from the use of CMC so it has been excluded from the process design.

17.10.6 Flocculant

Flocculant will be supplied in 750 kg bulk bags as a dry reagent. It will be mixed with fresh water to prepare a solution at a concentration of 0.5% w/v in a mixing tank and pumped to a storage tank.

Dedicated metering pumps will transfer the flocculant through in-line mixers, where the solution will be further diluted to 0.05% w/v with process water before dosing to the concentrate thickener.

After the tailings thickener is installed in Year 3, the flocculant will be dosed to the tailings thickener at the same concentration through the metering pump and in-line mixer.

17.10.7 Coagulant (Year 3 Onwards)

After the tailings thickener is installed in Year 3, coagulant will be added to the thickener to assist faster settling of solids. Coagulant will be delivered to site in 750 kg bulk bags as a dry reagent. It will be mixed with fresh water to prepare a solution at a concentration of 0.5% w/v in a mixing tank and transferred to a storage tank. Dedicated metering pumps will transfer the coagulant through in-line mixers, where the solution will be further diluted with process water to 0.05% w/v before dosing to the tailings thickener.

17.10.8 Miscellaneous Reagents

Additional miscellaneous reagents, such as antiscalant or other potential promoter-collectors for PGM flotation in the cleaner circuit, will potentially be required in small quantities in the plant. Additional reagent distribution systems that are identified as being required will be included at a later date.

17.10.9 Process Consumables

A summary of the expected key process consumable consumption rates for grinding media, mill liners, crusher consumables, and parts for regrind mill is provided in Table 17-3.

Table 17-3: Consumable Consumption Rate

Item	Unit	Consumption Rate
Primary Crusher Mantle Standard	sets/a	1.3
Primary Crusher Concaves	sets/a	1.3
Pebble Crusher Mantle Standard	sets/a	4.0
Pebble Crusher Concaves	sets/a	2.0
Screen Panel	sets/a	16.0
SAG Mill Media	t/a	6,477
SAG Mill Liner	sets/a	1.00
Ball Mill Media	t/a	5,566
Ball Mill Liner	sets/a	1.30
Regrind Mill Shell Liners and Augers	sets/a	1.00
Ceramic Regrind Media	t/a	170.5

17.11 Water Systems and Process Plant Services

17.11.1 Process Water

Process water will be supplied from concentrate thickener overflow, reclaim water from TSF, filtrate water from concentrate filter press, and freshwater make-up as required. Tailings thickener overflow will also supply process water after installation in Year 3. All process water supply streams will report to the process water tank and will be distributed through pumps to the grinding, flotation and regrind, and reagent areas as required.

The process plant will be operated in closed circuit with the TSF; reclaim water from the TSF will be recycled back to the process plant. The water balance for the process facility is net negative over the life of mine due to the entrainment of a nominal consolidated 75% w/w solids within the impounded tailings.

Make-up water to support the process facility will be provided from the water management pond at approximately 238 m^3/h. TSF reclaim water recycling accounts for 88% of process water needs; the remainder will be sourced from the water management pond. No dedicated freshwater pumping wells are planned for the project.

17.11.2 Fire Water and Fresh Water

The fire/freshwater tank has a design capacity of 1,000 m^3 and a dedicated fire water reserve of 450 m^3. Fresh make-up water will be provided to the process plant from a submersible booster pump in a transfer tower configuration at the water management pond. The freshwater tank will serve as a combined fire/freshwater tank whereby the lower section will be reserved for fire service and the remainder will provide a dedicated fresh water supply.

Fresh water will be provided for the following services:

- potable water treatment plant (including safety showers)
- filter cloth wash water
- miscellaneous equipment (e.g., on-stream analyzer)
- reagent mixing (where applicable)
- make-up water for the process water system.

17.11.3 Potable Water

Potable water services are described in Section 18.4.3.

17.11.4 Gland Seal Water

The low- and high-pressure pump gland seal water will be sourced from the fire/freshwater tank and will be distributed to all the pumps in the process plant.

17.11.5 Cooling Water

Open-circuit cooling water will be used in the SAG mill and ball mill to cool oil lubrication systems. In-line duplex filters will be used to remove fine particulate before distributing cooling water to respective mills.

17.11.6 Air Services

Compressed air will be required as follows:

- a dedicated compressor for process plant air, SFR cells air, and instrument air
- a dedicated high-pressure compressor for concentrate filter operation
- a standby high-pressure compressor as a back-up for either the process plant or concentrate filter.

The rougher flotation air supply will be provided by low-pressure air blowers.

17.11.7 Instrumentation and Monitoring

Plant instrumentation includes an OSA that will be used to continuously monitor copper as a proxy to palladium in key flotation process streams to assist with optimizing concentrate recovery and grade.

17.11.8 Process Control System

A process control system (PCS) will be included for operating and monitoring equipment (e.g., for crushing, conveying, and the process plant and water management systems). The PCS will include a distributed control system (DCS) that incorporates input signals from, and output signals to, field instrumentation, control devices, and any vendor-supplied programmable logic controllers (PLCs). A central control room in the process plant will be linked to human-machine interfaces (HMIs) and display stations that will provide the capability of local and/or remote operation and control of associated equipment.

17.11.9 Closed-Circuit Television System

A closed-circuit television (CCTV) system will be included as part of the process control system to support control room operators and allow the remote monitoring of conveyor transfer points, stockpile levels, and work areas.

17.11.10 Power Supply

Power for the process plant will be supplied from the power grid. Table 17-3 shows the installed power supply, projected maximum power demand, and projected nominal power supply.

Table 17-4: Power Supply

Installed (kW)	Maximum Demand (kW)	Nominal Demand (kW)
74,872	53,917	48,922

18 PROJECT INFRASTRUCTURE

18.1 Existing Infrastructure and Location

The Marathon Project, accessed by road from Highway 17, is located 10 km north of the Town of Marathon with a population of 3,138 (2021 census). There is no infrastructure or public services directly on site. The Town of Marathon administers the Marathon Airport located less than 3 km from the project site. The Marathon region has access to the Canadian railroad network. The railway infrastructure in Marathon is well-developed for exporting concentrate to North American ports or smelters in a timely manner.

Hydro One’s grid network is well-developed in the project area. The 115 kV powerline from Marathon to Manitouwadge (also known as the “M2W” line) is approximately 3.2 km from the planned main substation located beside the proposed process plant site. An existing transformer substation (Marathon TS) is located 10.5 km from Marathon and provides 115 kV power. The East-West Transmission Line Project completed in 2022 ties Thunder Bay to Wawa with a 230 kV transmission line and 230 kV substation adjacent to the Marathon substation.

18.2 Area 1000 Infrastructure

Figure 18-1 shows the project site general layout and the local site infrastructure, respectively.

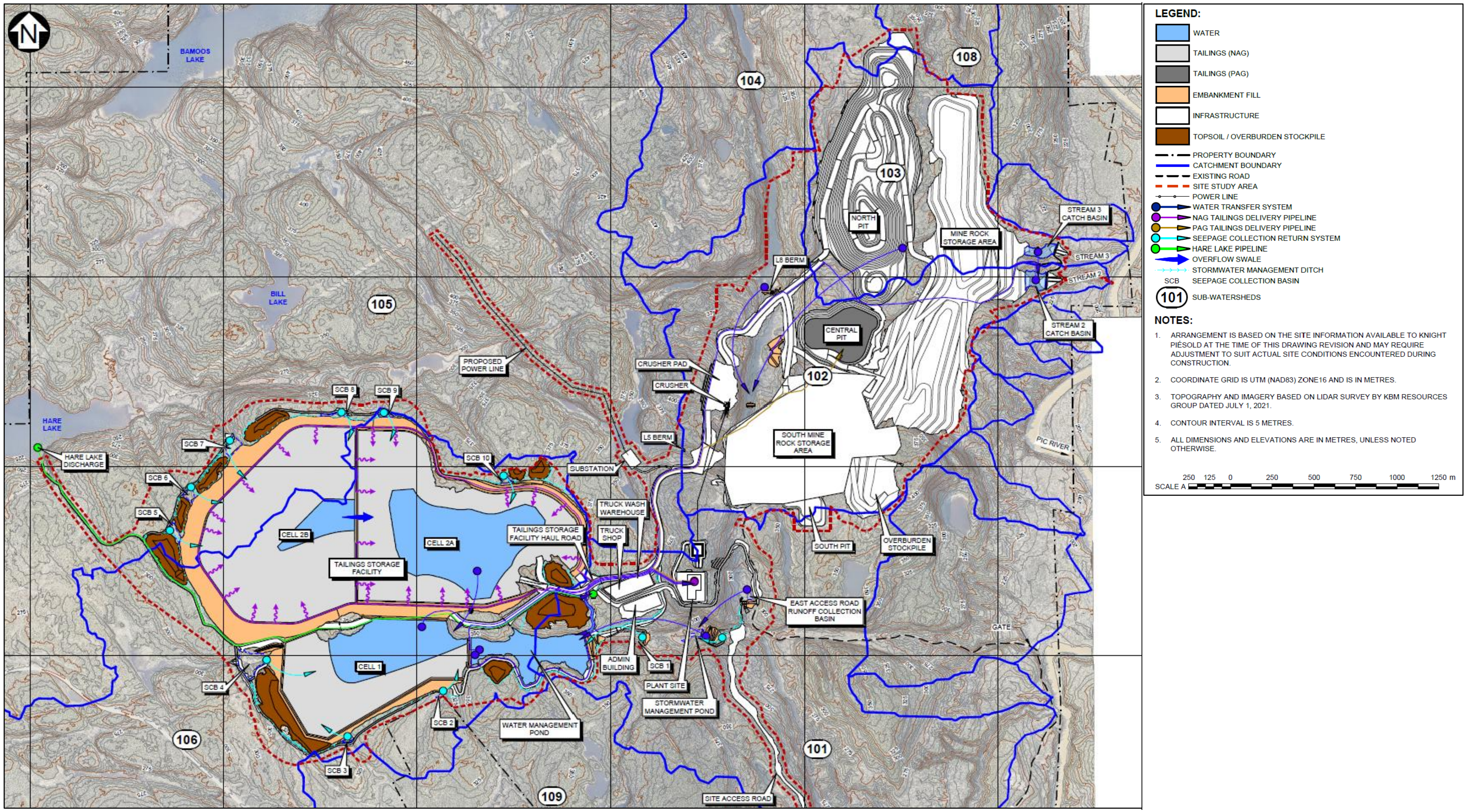
18.2.1 Area 1100 General Site Preparation

General site preparation includes the clearing for all areas: South and Central pits, process plant, mine services area, primary crusher, conveyors, ore stockpile area, laydown areas, aggregate production pad, explosives storage facility, site roads, TSF area, and related stockpile areas. It also includes loading, hauling, and the stockpiling of stripped and grubbed organic materials to the designated areas on site.

Work related to site road construction accounts for minimized drill and blast excavation, while relying more heavily on loading, hauling, and placing rockfill material produced from the main borrow sources (pits, larger infrastructure pads). This assumption is based on the shallow bedrock observed across the site. Also included is the delivery of material to the aggregate plant to produce the transition and surfacing layers, followed by loading, hauling, and placing these materials in their destination at the road structures. These layers are to be 30 cm and 15 cm in thickness, respectively.

All roads carry an allowance for drainage culverts, ditching, and safety berms that are sized appropriately to the largest vehicle size.

Figure 18-1: Marathon Project Overall Site Plan



Source: KP, (2022).

Roads are classified as follows:

- Site access road (Camp 19 & East Access Road) – 14 m total width
- Area access roads – single-lane utilizing pull-outs
  - 240 t haul truck single-lane – 23 m total width
    - 15.2 m running surface
  - 100 t haul truck single-lane – 16.4 m total width
    - 10.4 m running surface
  - 40 t haul truck single-lane – 12 m total width
    - 6.8 m running surface
- Haul roads – double-lane for mining fleet
  - 240 t haul truck double-lane – 35 m total width
    - 23 m running surface
    - additional width for pipe bench (~5 m)

18.2.2 Area 1200 Mine Infrastructure

During the construction and initial mining phase, a simple truckshop/wash bay combination will be constructed inside an 18 m x 43 m pre-engineered tent structure. Once full-scale operations mining has commenced, a larger, fit-for-purpose truckshop will be installed. The construction phase truckshop will consist of one dedicated wash bay sized to accommodate a CAT 995 sized wheel loader, and one dedicated service bay sized to accommodate a CAT 793 sized haul truck.

Overhead doors will be located at either end of the building, sized to accommodate the widest equipment (12 m wide x 9 m tall overhead doors).

The wash bay will be designed to ensure wash water is captured and treated to remove hydrocarbons and then deposited into the water management pond (WMP); a concrete slab with integral trench drain will be installed to capture and manage water contaminated by hydrocarbons for the wash bay portion of the facility. An impermeable liner system will be deployed below the service bay area for the structure to provide secondary spill containment capability.

An externally installed modular building will house the heated pressure wash system, ancillary equipment, electrical room, and mechanical room.

The truckshop will be connected to the mobile maintenance administration facility via a corridor. The administration facility will be used for mobile maintenance personnel, planners, and warehousing. It will have three to five closed door offices and 8 to 10 open workstations. In addition, the same corridor will access a washroom, lunchroom, and a dry capable of supporting 60 mobile maintenance personnel.

Adjacent to the truckshop will be a heated and insulated warehouse facility servicing the balance of the site. Due to the site's proximity to the Town of Marathon, light vehicles and associated equipment will primarily be in facilities available in town.

18.2.3 Area 1300 Support Infrastructure

18.2.3.1 Area 1310 Administration Building

The administration building is located close to the mine service building facility on the mine services area pad. It is a single-storey building that houses the human resources, general administration, mine management and operations, engineering, and geology departments. The administration building will be assembled by transporting between 15 and 20 office modules to site and connecting them to services.

To support these departments, the following infrastructure is incorporated into the administration building:

- closed offices
- open workstations
- conference rooms
- infirmary with private lavatory facility
- boot room to support operations office and field personnel
- kitchen/lunchroom
- training/orientation room
- copy/storage/filing room
- mechanical/electrical/data rooms to support administration facility loading.

18.2.3.2 Area 1320 Site Gatehouse Building

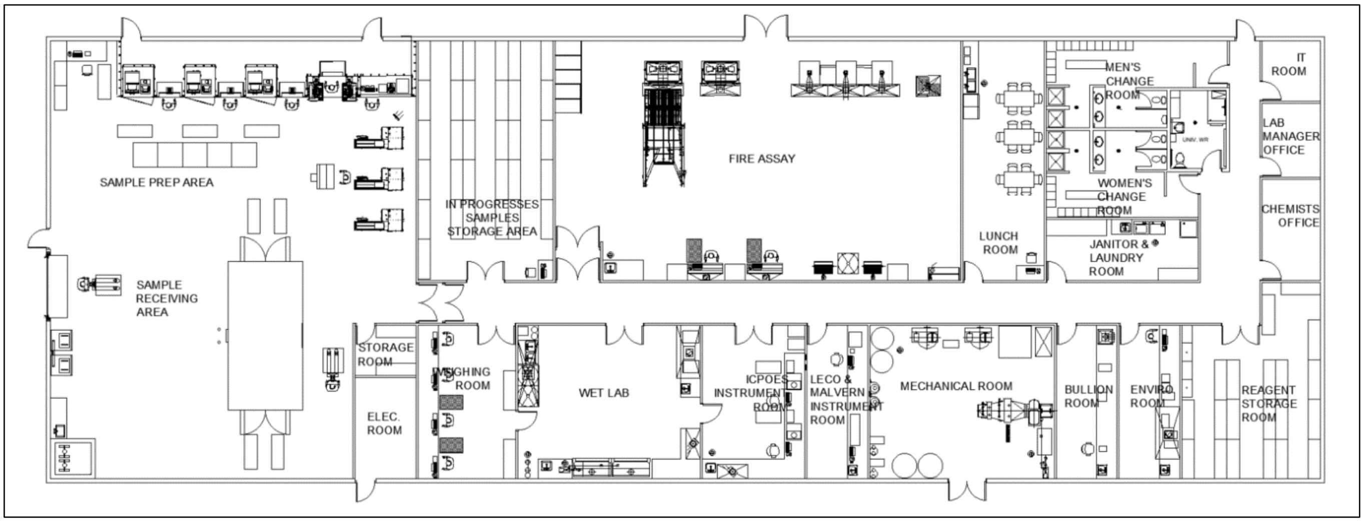
A modular gatehouse will be located close to the site entrance. The gatehouse will be sized to accommodate security personnel offices, lockers, washroom facilities, and smaller site orientations.

Site access will be controlled with an autonomous gate system and all access and egress from site will be monitored and controlled from the gatehouse.

18.2.4 Area 1500 Laboratory

The design, drawings, equipment requirements, and costs of the laboratory are based on a proposal from a major laboratory service provider for a shared regional facility located in Marathon. The laboratory design is based on a samples list and assay scope. Figure 18-2 shows a conceptual plan view of the laboratory.

Figure 18-2: Laboratory – Plan View



Source: Gen Mining (2020).

18.2.5 Area 1700 Fuel Storage

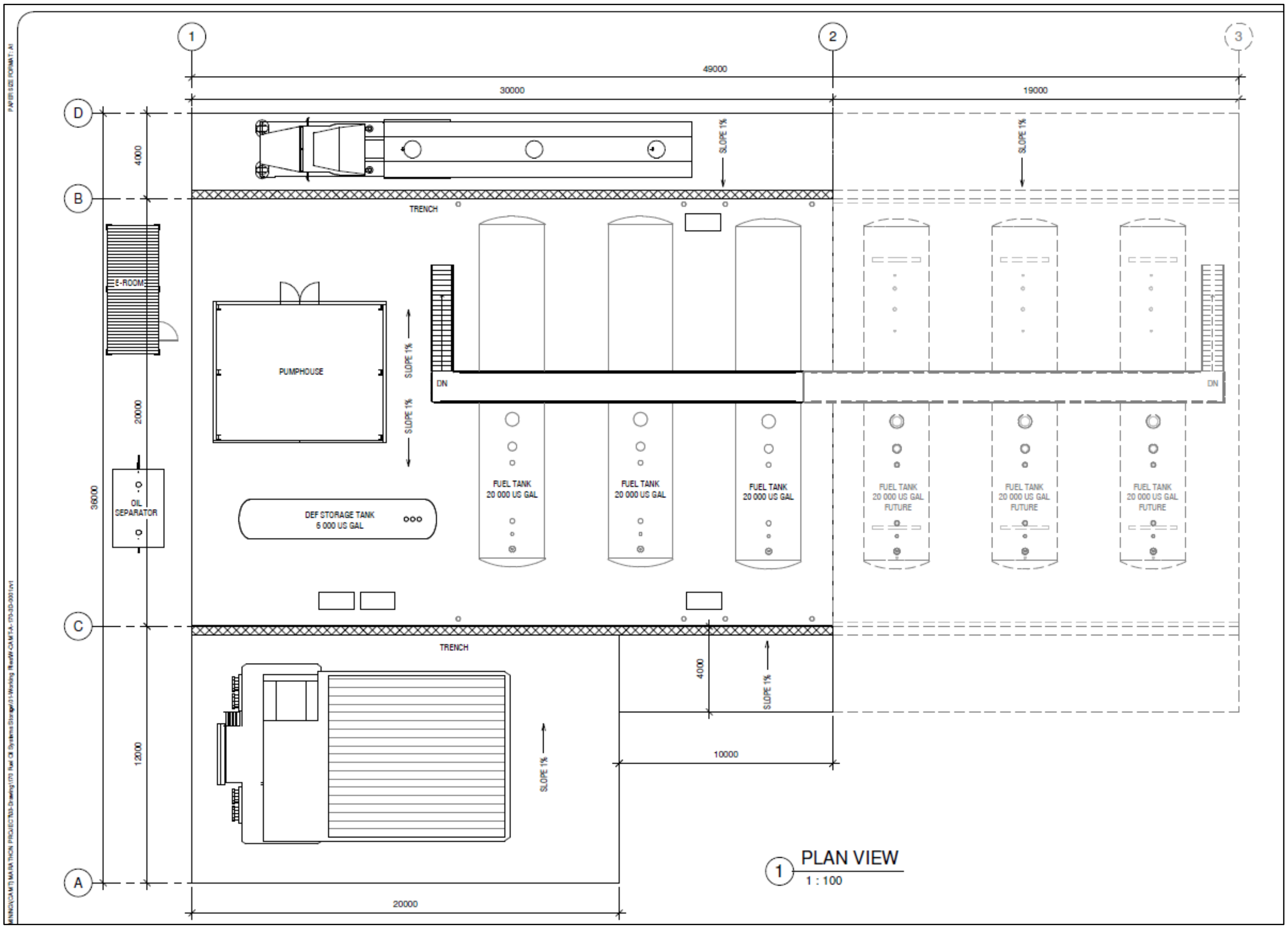
Fuel will be stored on site on the same pad as the truckshop and mine services office building. Access will be possible from both the TSF haul road and site access road. The fuel storage facility will be used to fuel both light and heavy vehicles and equipment.

The fuel tanks will be staged in such a way that they can be easily refilled with super B sized tanker trucks.

The facility will be built to contain spills, route precipitation to an oil-water separator, and pump water to the water management pond.

An expansion is planned in Year 3 to accommodate the fleet equipment increase (Figure 18-3).

Figure 18-3: Conceptual Fuel Storage with Future Expansion



Source: Gen Mining (2020).

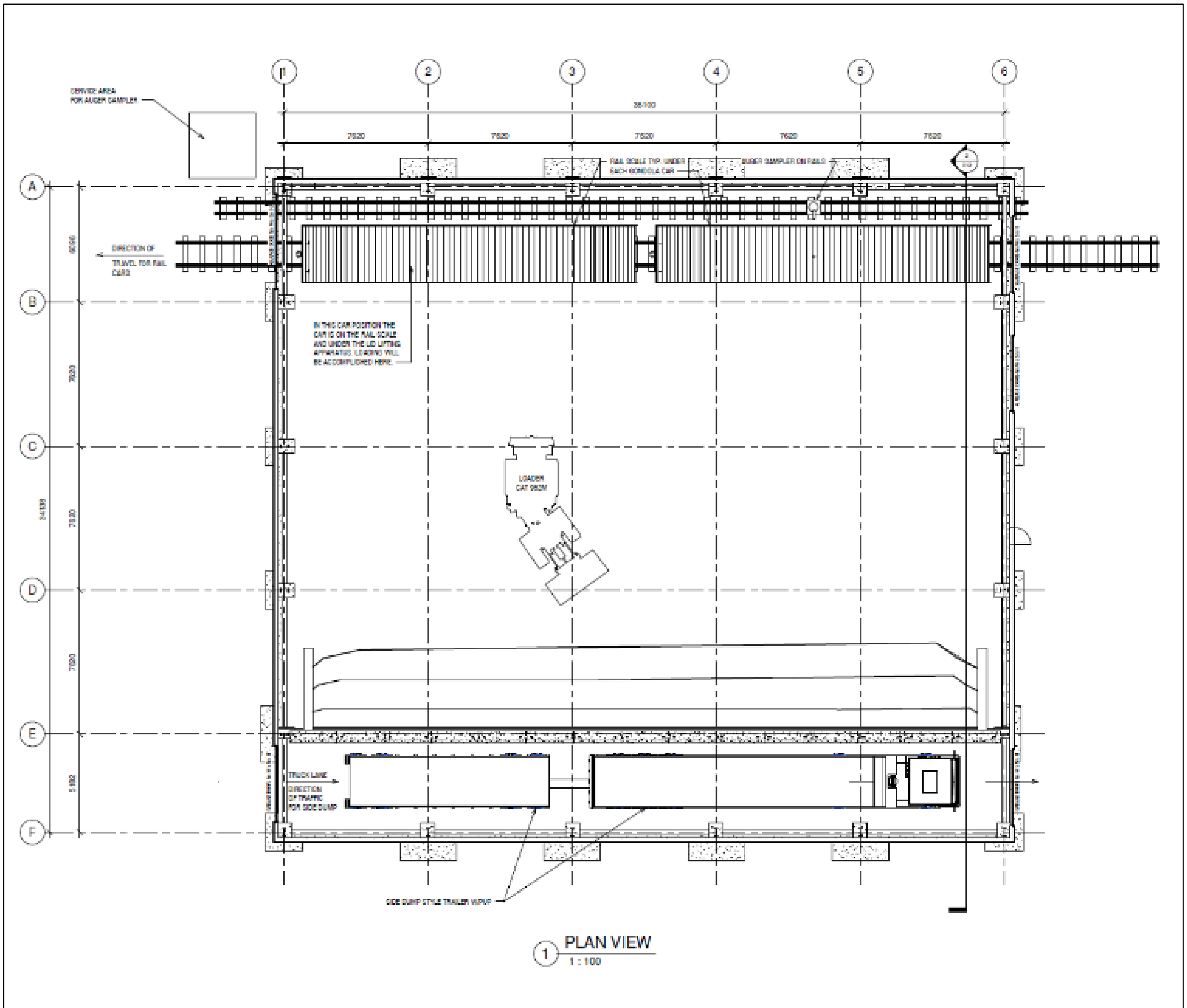
18.2.6 Area 1800 Transload Facility

Initial movement of concentrate will be trucked from site to the smelter. Construction of the transload facility will commence in Year 1 (following construction). The transload facility is planned to be located on the CPKC line at a site in the Town of Marathon or nearby.

The Canadian railway network has access to the potential Canadian smelter and ports for sea-shipping to international smelter locations. The facility (Figure 18-4) will accept concentrate shipments from site via side-dump haul trucks. Haul trucks enter the building, dump the concentrate, and exit the building. The concentrate is loaded onto rail cars using a front-end loader.

The building design will ensure adequate air quality control with sufficient air changes, as per the applicable codes and standards. Entrances and exits will have roll-up style doors to regulate airflow through the building.

Figure 18-4: (Conceptual) Transload Facility



Source: G Mining, 2023.

The on-highway trucks and trailers have a capacity of 36 to 40 t with a double tub (covered) single trailer pulled by a tractor truck (Figure 18-5 and Figure 18-6).

Figure 18-5: Example of Dual-Trailer Side-Dump Trailer with a Maximum 36 to 40 t Capacity

Source: GPDS (2022).

Figure 18-6: Example of Hard Cover Side-Dump Trailer

Source: GPDS (2022).

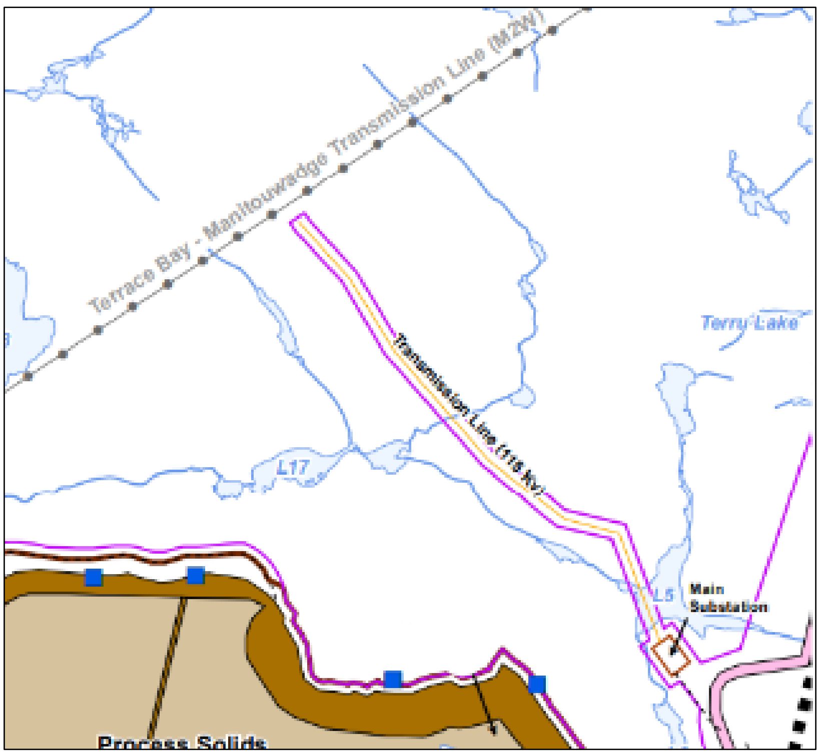
18.3 Area 2000 Power and Electrical

18.3.1 Area 2100 Main Power Generation

The power demand of the project is evaluated at 48.9 MW.

The main high voltage power source for the project site is a tie-off connection to the Hydro One 115 kV transmission circuit M2W line (Figure 18-7).

Figure 18-7: Overview of New 115 kV Tap Line Layout



Source: Gen Mining (2020).

The project substation will be equipped with two 115–25 kV power transformers and a main 25 kV switchgear, the latter will be the main power source for the entire project. Two identical transformers and a double-ended configuration of the main 25 kV switchgear ("main-tie-main" scheme) will ensure full redundancy; each transformer will be sized to provide the full power demand of the project.

The 115 kV substation will be an outdoor type with open air-insulated buswork. 25 kV switchgear will be installed in a pre-fabricated electrical room housing all necessary protection and communication equipment. The substation will allow power factor correction capacitors to be installed as required to comply with Hydro One power factor requirements.

The point of connection is located approximately 10.5 km from the Marathon transformer station. The line is approximately 3.2 km long and will be supported by wood poles. It has been designed for 85 MW load capacity. The transmission conductor is 267 kcmil ACSR Partridge and the overhead ground protection wire (OPGW) is AFL 48-fiber AC86/646. Preliminary design of the overhead line, including line layout, structure geometries, transmission corridor, pole lengths, pole class and hardware assemblies, has been completed. The design of the span supporting the point of interconnection with Hydro One line is expected to require two new additional structures with one carrying a disconnect switch.

Trees and vegetation will be cleared within the right-of-way corridor and in 20 m from the edge of the right-of-way as identified in the preliminary design. Transport Canada, the Marathon Airport Authority, and EA conditions and permit requirements will be considered to determine the requirements for any additional lighting and marker balls on the overhead line.

18.3.2 Area 2700 MV Distribution Overhead Line

The project site consists of two 25 kV overhead distribution systems. The first distribution line will be fed from the internal Marathon mine substation located in the process plant. The second distribution line will be interconnected to an existing Hydro One feeder located along Camp 19 road off Highway 17.

The first 25 kV distribution line route is estimated to have a length of approximately 1.7 km to power the proposed loads and auxiliary buildings (administration building, truckshop). This line will be fed from the main process plant main substation 25 kV switchgear.

The second 25 kV distribution line route is estimated to have a length of approximately 9.0 km and will power infrastructure pumps. This second line will be fed from the existing Hydro One line located along Camp 19 road off Highway 17. The second 25 kV distribution line will also be connected to the main 25 kV switchgear and will be used to supply standby power to plant loads in the event of loss of the main 115 kV power supply. An interlocking scheme will be implemented at the main 25 kV switchgear to prevent parallelling of power sources.

In addition to the transformers at the process plant, the electrical rooms listed in Table 18-1 are located near their service areas of the process plant.

Table 18-1: Process Plant Electrical Rooms

Location	Description
Crusher Electrical Room	Stick built electrical room with free-issue electrical equipment installed 15.6 m (L) x 4.2 m (W) x 4.0 m (H)
Stockpile Electrical Room	Stick built electrical room with free-issue electrical equipment installed 2.0 m (L) x 4.2 m (W) x 4.0 m (H)
Process Plant Electrical Building 1	Stick built electrical room with free-issue electrical equipment installed 42.0 m (L) x 16.0 m (W) x 10.5 m (H)
Process Plant Electrical Building 2	Stick built electrical room with free-issue electrical equipment installed 32.0 m (L) x 14.0 m (W) x 10.5 m (H)

18.3.3 Area 6870 Process Plant Power Distribution

The following power feeders will originate at the main 25 kV substation:

- two feeders for 25 kV overhead lines supplying power to crushing and conveying equipment and remote site facilities
- one cable feeder for SAG mill power supply via dedicated mill transformer
- one cable feeder for ball mill power supply via dedicated mill transformer
- two cable feeders for 25-4.16 kV transformers powering a 4.16 kV motor control centre dedicated to large motors of the process plant
- two cable feeders to the radial system of 25-0.6 kV transformers powering 600 V loads of the process plant.

Electrical equipment of the process plant will be free-issued by vendors and installed in stick-built electrical buildings. Each building will have a main floor with dimensions as follows:

- process plant electrical building 1: 42 m (L) x 16 m (W) – 4.16 kV MCC, SAG and ball mill drives and excitation transformers, 4.16 kV VFD, 25-0.6 kV transformers, 600 V MCC, 600 V VFD
- process plant electrical building 2: 32 m (L) x 14 m (W) – 25-0.6 kV transformers, 600 V MCC, 600 V VFD.

Electrical equipment for areas and facilities supplied via 25 kV overhead line (i.e., primary crusher, transfer tower, stockpile) will be typically installed in prefabricated electrical rooms located near the supplied facilities.

18.3.4 Area 2800 Automation Network

The infrastructure area will have wide area connectivity via an outside plant fibre optic distribution network. The fibre optic backbone will provide services to the sites requiring inter-facility communication connectivity. The various networks will be segregated by utilizing separate fibre strands within the same ADSS fibre cable installed on the 25 kV overhead line structures.

The automation network will utilize the fibre optic backbone with the objective to automate repetitive and physically tedious functions with an emphasis on the visual confirmation of operations to ensure personnel safety and equipment protection in the plant.

Operational control of the process plant will be performed from the main control room by the process control system, and local operator workstations will be considered within the process plant as required.

18.4 Area 3000 Water Management

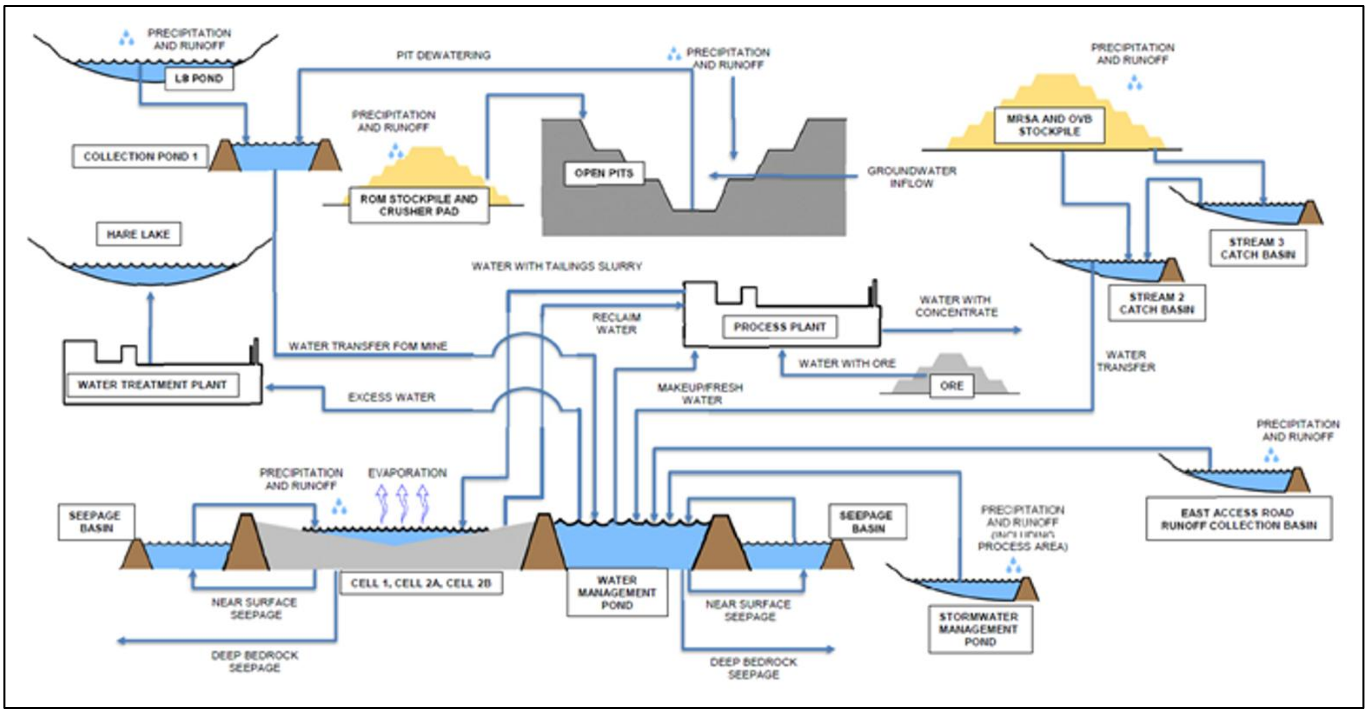
18.4.1 Area 3100 Fresh Water

During initial construction, TSF embankments will be developed for the WMP and Cell 1 storage cell. This infrastructure will be required for commissioning and processing, since the WMP is the source of fresh water for the project. There are currently no plans for wells or other fresh water sources. The WMP pond has been sized to provide sufficient capacity for operational requirements. Water will be pumped to the process plant area with a barge and pipeline system and other infrastructure as required. The reclaim water pipeline from the WMP to the process plant area will be heat-traced and insulated.

18.4.2 Area 3200 Surface Water Management

Figure 18-8 shows the site-wide water balance that supports the infrastructure for water movements on site.

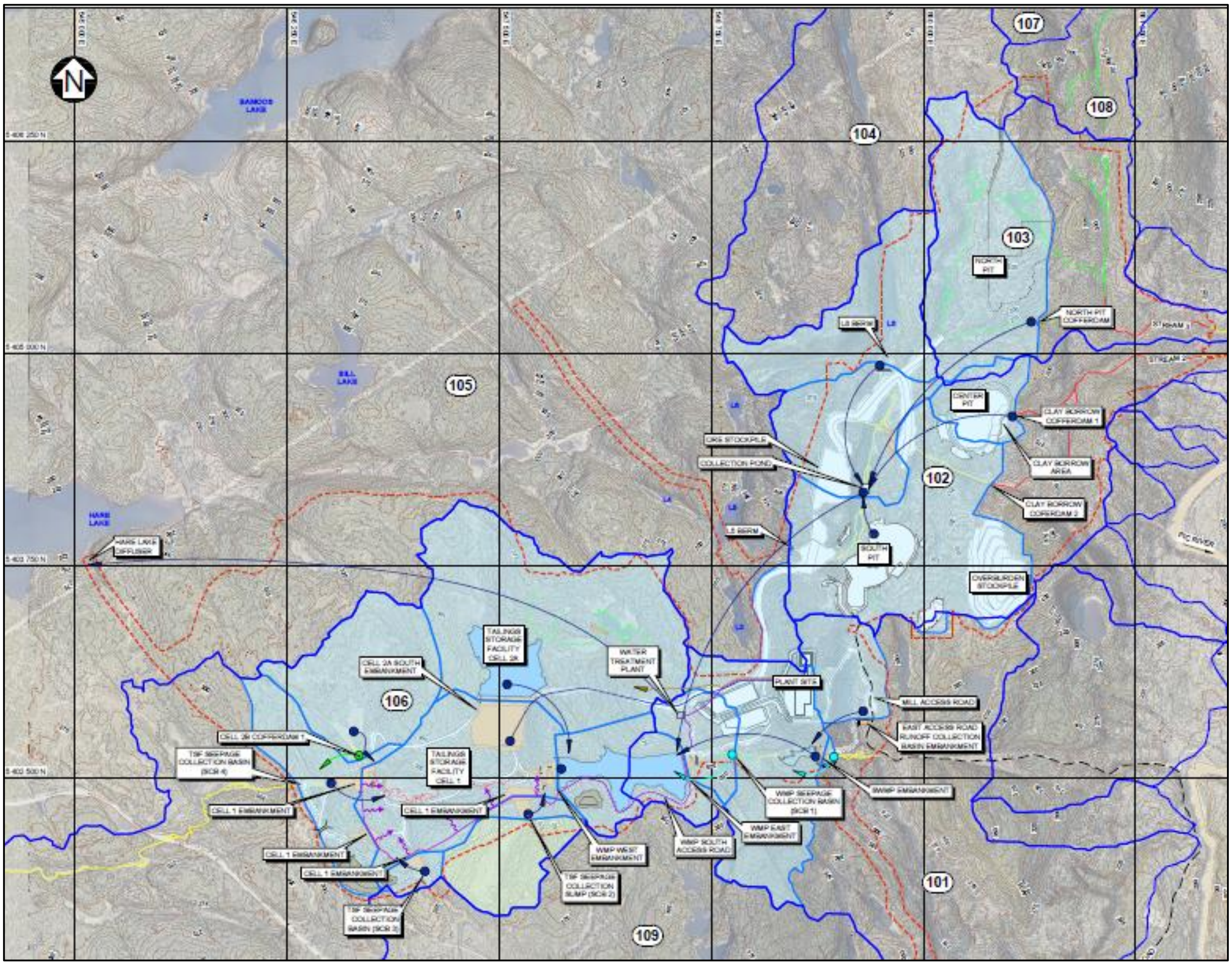
Figure 18-8: Site-Wide Water Balance (KP)



Source: KP (2023).

Figure 18-9 shows the pumps and pipelines system for surface water management. Contact surface water from the mine rock storage area catch basins, the mine surface, in-pit groundwater inflows, runoff from mining activities, and all other surface infrastructure drainage (haul road and access road ditches) will be collected and transferred to the WMP.

Figure 18-9: Surface Pipeline Network



Source: KP (2023).

It should be noted that surface drainage at the process plant area, other buildings, and access road will be collected in the SWMP and EARCB and transferred to the WMP. All surface water collected will be pumped to the WMP and either reclaimed to the process plant area for reuse in the process plant or treated and discharged to Hare Lake.

18.4.3 Area 3300 Potable Water

Potable water will be trucked to site and stored in a potable water storage tank installed outdoors next to the process plant. The tank will be heated and insulated to prevent the water from freezing during the winter months. Water from the tank will be distributed to the offices area of the plant and to the safety showers water tempering skid by a containerized pumping module located outdoors close to the storage tank. The module will be provided with heating and ventilation.

18.4.4 Area 3400 Sewage Water

Sanitary waste from washrooms, sinks, and floor drains will be collected by a buried sanitary drainage piping system and discharged into a sewage holding tank (400 bbl) used during construction.

The tank will be located outdoors above grade on the south side of the process plant at an elevation lower than the plant finished floor, allowing the sanitary system to drain by gravity and utilize lift stations if necessary.

18.4.5 Area 3500 Fire Water

The firewater system includes a firewater distribution main ring that supplies the outdoor fire hydrants and fire suppression (sprinkler and standpipe) systems inside the process plant, administration, truckshop and truckwash buildings.

Fresh water will be supplied from WMP to an outdoor heated and insulated firewater storage tank. The supply of firewater from the fire water tank to the fire main ring will be provided by two fire pumps, one electric (main fire pump) and one diesel-fired pump (backup pump). A jockey pump installed together with the fire pumps will maintain the firewater system pressure at a design set point during all times. Based on current estimates, the fire pumps are rated at 455 m^3/h and the firewater storage volume, based on two hours of continuous operation of the fire pumps, is 910 m^3/h.

18.4.6 Area 3600 Water Treatment Plant

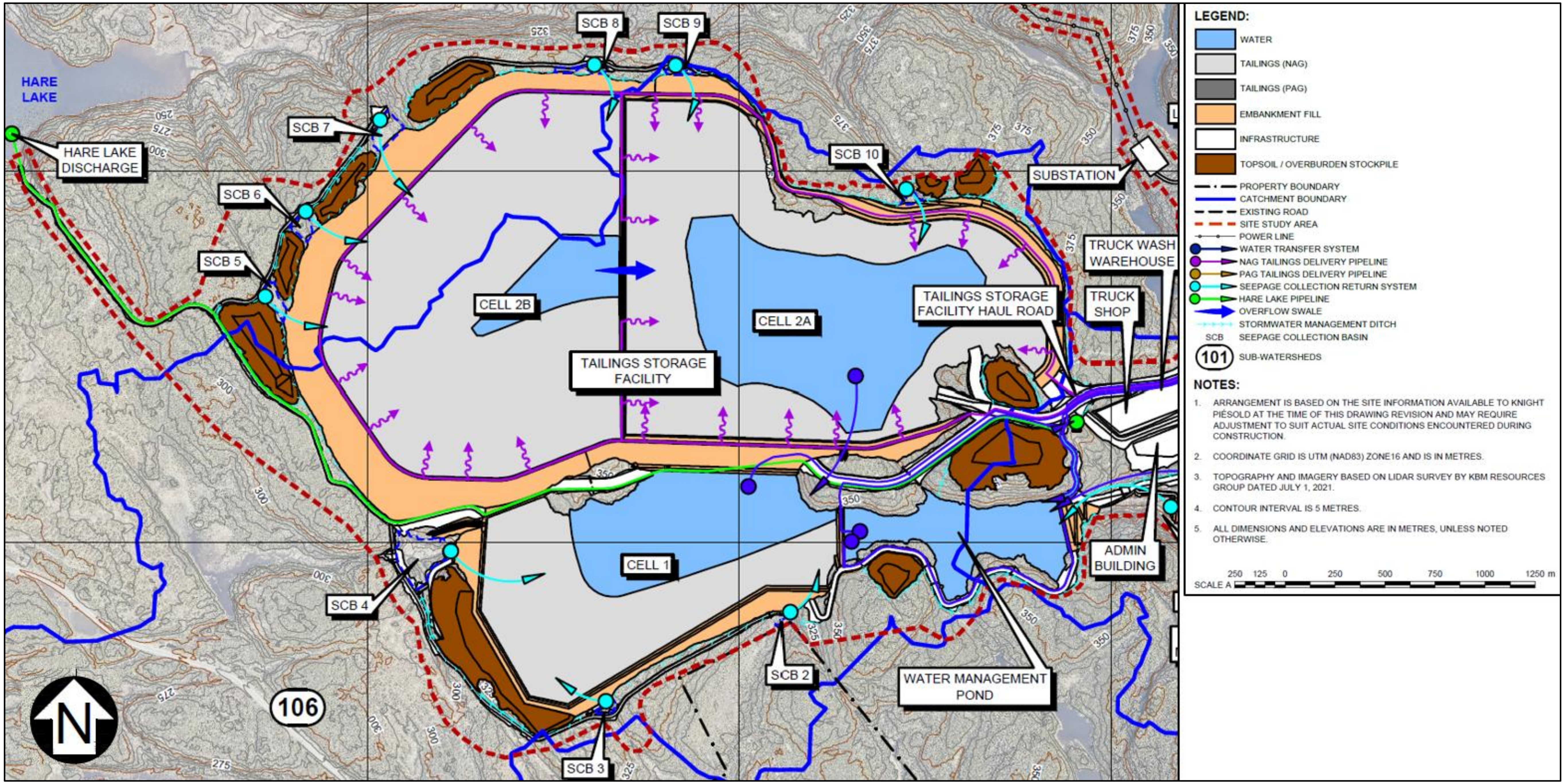
The water treatment plant will be built as required in two phases. The first phase will occur in Year 1 after commercial production with an initial capacity of 520 m^3/h. A second phase with equal capacity will be constructed during Year 3 with completion in Year 4. The design parameters and criteria currently assumed are as outlined and validated in prior studies.

18.4.7 Area 3700 Tailings Storage Facility

The process plant will produce two tailings streams. The rougher tailings are NAG and are referred to as Type 1 material. The first cleaner tailings are PAG and are referred to as Type 2 material. It is anticipated that approximately 85% of tailings will be Type 1 and approximately 15% will be Type 2. The Type 1 tailings slurry will be thickened to approximately 55% to 60% solids by weight following the installation of the primary tailing thickener. The Type 2 tailings slurry will be approximately 19% solids by weight. The Type 1 and Type 2 tailings slurries will be pumped from the process plant to the TSF via separate HDPE tailings delivery pipelines.

The TSF is located approximately 3 km west of the process plant as shown on Figure 18-10.

Figure 18-10: Process Solids Management Facility



Source: KP (2023).

During the first three years of operations, Type 1 tailings will be deposited into Cell 1 and Type 2 tailings will be deposited towards the center of Cell 2A. Starting in Year 4, Type 1 tailings will be deposited into Cell 2A and Cell 2B, with Type 2 tailings continuing to be deposited towards the center of Cell 2A. After Year 10, Type 2 tailings will be stored in the Central pit. PAG waste rock will also be placed with Cell 2A during the first seven years of operations, Type 2 tailings and waste rock in Cell 2A will be covered with Type 1 tailings during the last three years to maintain Type 2 material in a saturated state to prevent the onset of acid generation.

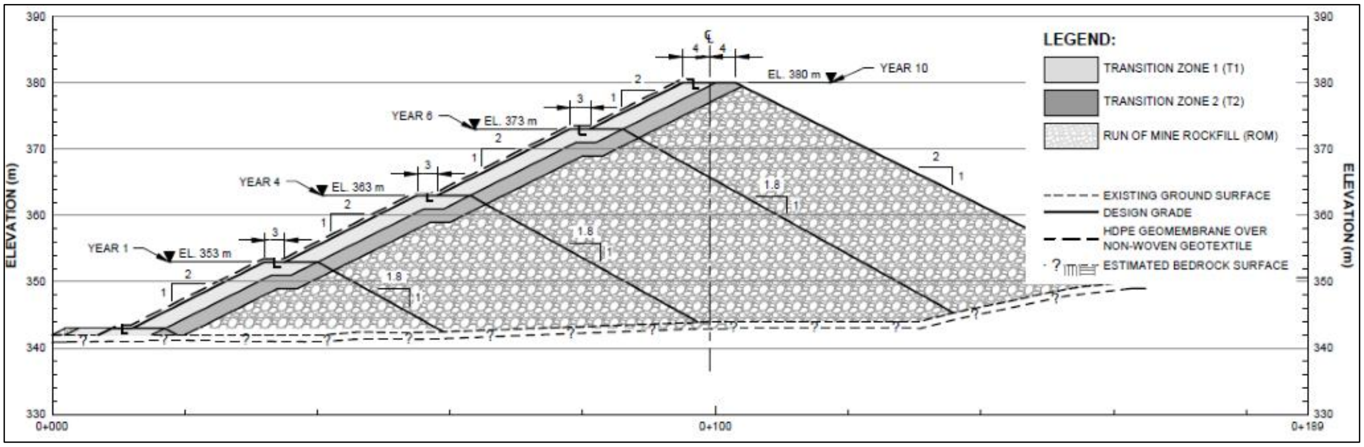
The TSF will consist of a paddock-style impoundment with three storage cells (Cell 1, Cell 2A and Cell 2B). A separate WMP will be constructed at the east side of Cell 1. The TSF perimeter embankments will be constructed using the downstream construction method with NAG mine rock sourced from the open pit. The TSF has been sized to store approximately 117 Mt of tailings and 31 Mt of PAG mine rock. During the last three years of operations, approximately 7 Mm^3 of Type 2 tailings will be deposited in the Central pit.

The TSF embankments will be raised in stages to provide sufficient storage capacity for tailings and temporary water management. The final elevation of the dams ranges from 343 masl (Cell 1) to 380 masl (Cell 2A and 2B). The TSF embankments will be constructed with upstream and downstream slopes of approximately 2H:1V and a minimum crest width of 8 m. The TSF arrangement utilizes site topography to reduce the size of the starter embankments. The final maximum embankment heights will range from approximately 43 m (Cell 1) to 80 m (Cell 2A) above the existing ground surface with foundation widths ranging from approximately 180 m to 330 m. The embankments will include specific rockfill zones with finer material towards the upstream portion of the embankment and coarser material towards the downstream portion of embankment. The embankment zones are filter-graded such that the embankments will not be susceptible to internal erosion or piping. The downstream rockfill zone consists of fun-of-mine rockfill and are resistant to downstream erosion.

The dams will include an HDPE liner on the upstream face of the embankments and the liner will be keyed into bedrock via a concrete plinth to minimize seepage from the TSF. Foundation preparation will include removal of overburden and unsuitable materials. Along the upstream toe of the embankments, below the concrete plinth, foundation preparation includes the removal of fractured bedrock, placement of slush grout on the prepared bedrock surface and / or injection grouting of deeper permeable bedrock zones to further reduce the potential for seepage from the TSF. Ten seepage collection basins will be constructed at select locations along the downstream toe of the embankments to intercept seepage. Collected seepage will be pumped back to the TSF. Monitoring locations downstream of the TSF will be established to confirm the effectiveness of the seepage collection basins.

A typical cross-section for the TSF perimeter embankments is shown in Figure 18-11.

Figure 18-11: Typical Cross-Section for TSF Perimeter Embankments



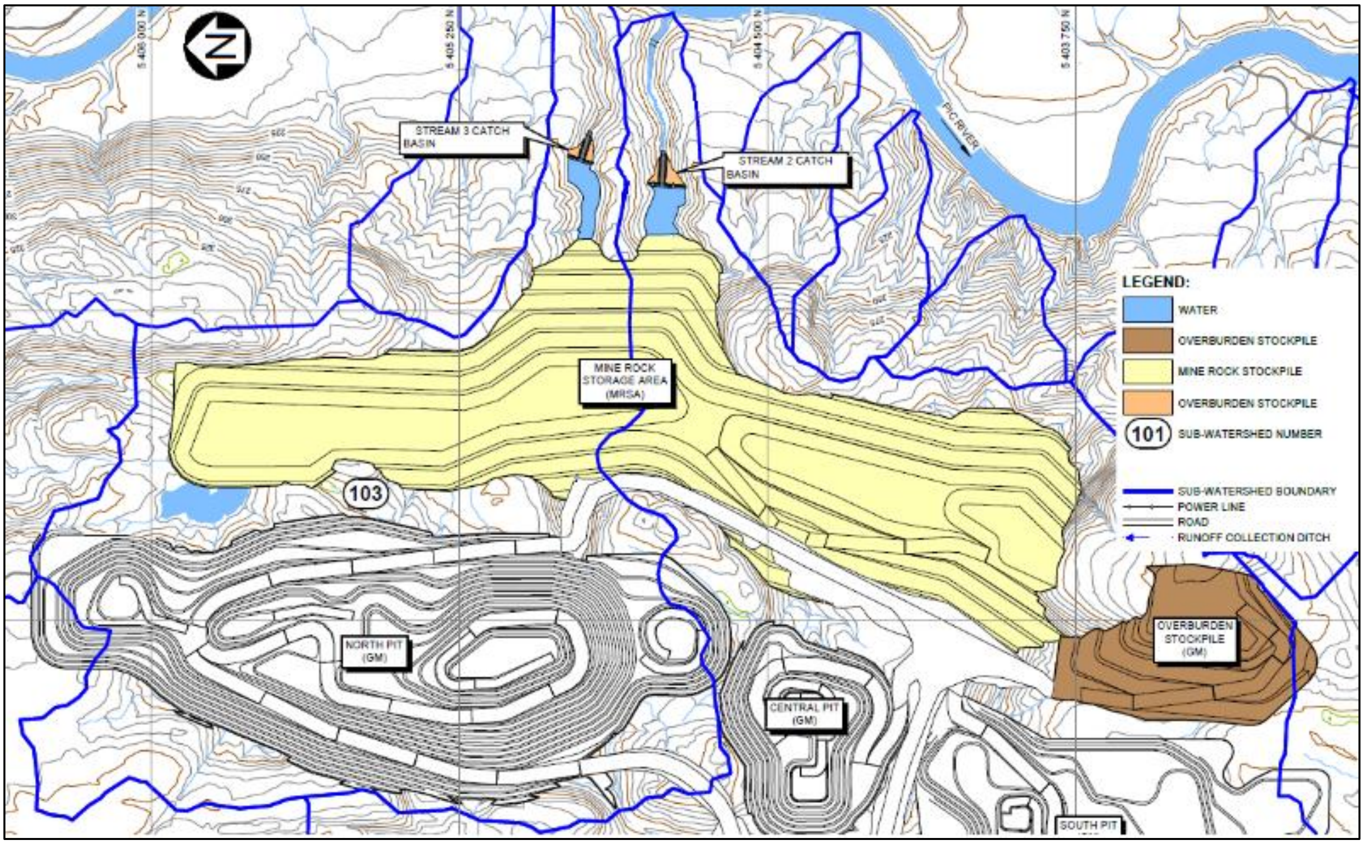
Source: KP (2023).

Supernatant water in the TSF will be reclaimed to the process plant for reuse in the process. Make-up water for the process will be drawn from the WMP and excess water in the WMP will be treated, as required, and then discharged to Hare Lake.

18.4.8 Area 3800 Mine Waste Rock Catch Basins

Runoff water and drainage from the MRSA will report to sub-watersheds 102 and 103 (Stream 2 and Stream 3) which outlet to the Pic River. Two basins (Stream 2 catch basin and Stream 3 catch basin) will be established to collect contact water from the MRSA as shown in Figure 18-12. The catch basin embankments will be constructed as clay core rockfill dams that are designed to overtop during extreme meteorological events to prevent damage to the dams.

Figure 18-12: MRSA Catch Basin Locations

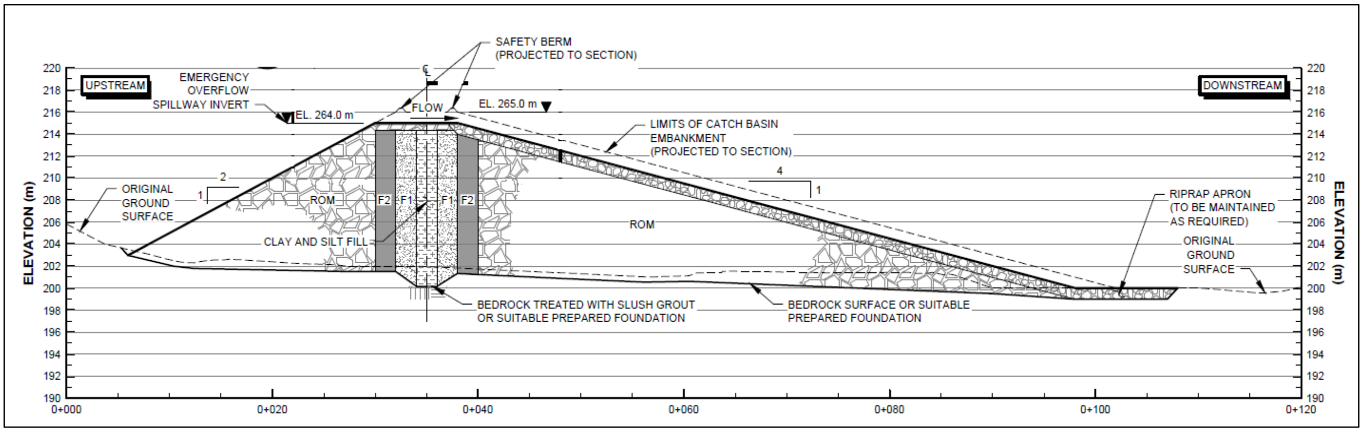


Source: KP (2023).

The catch basin embankments will be constructed using Type 1 mine rock from the open pits with a low permeability clay core and internal filter zones. The embankment materials will be sourced from the mine development, locally available borrow materials, and select processing where required. Material required for the filter zones and riprap will be produced on site by crushing and screening NAG mine rock. Silt and clay for the low permeability core will be excavated from local borrow areas within the MRSA and open pit footprint. The embankment core and shell will be founded on prepared subgrade. Foundation preparation will include the removal of organics and unsuitable materials. The embankment core will be keyed into the foundation to minimize seepage. Foundation preparation below the embankment core may include the removal of fractured bedrock and grouting to minimize seepage. Shear keys may be installed within the foundations to maintain embankment stability.

The embankments have 2H:1V upstream slopes and 4H:1V downstream slopes and a 6 m wide crest. The maximum embankment height will be approximately 21 m. An overflow spillway will be installed on the crest and downstream slope of each embankment. The spillway will be lined with riprap and will outlet to a riprap / boulder apron to dissipate energy. A typical cross-section for the MRSA dams is shown in Figure 18-13.

Figure 18-13: Typical Cross-Section for MRSA Catch Basin Dams

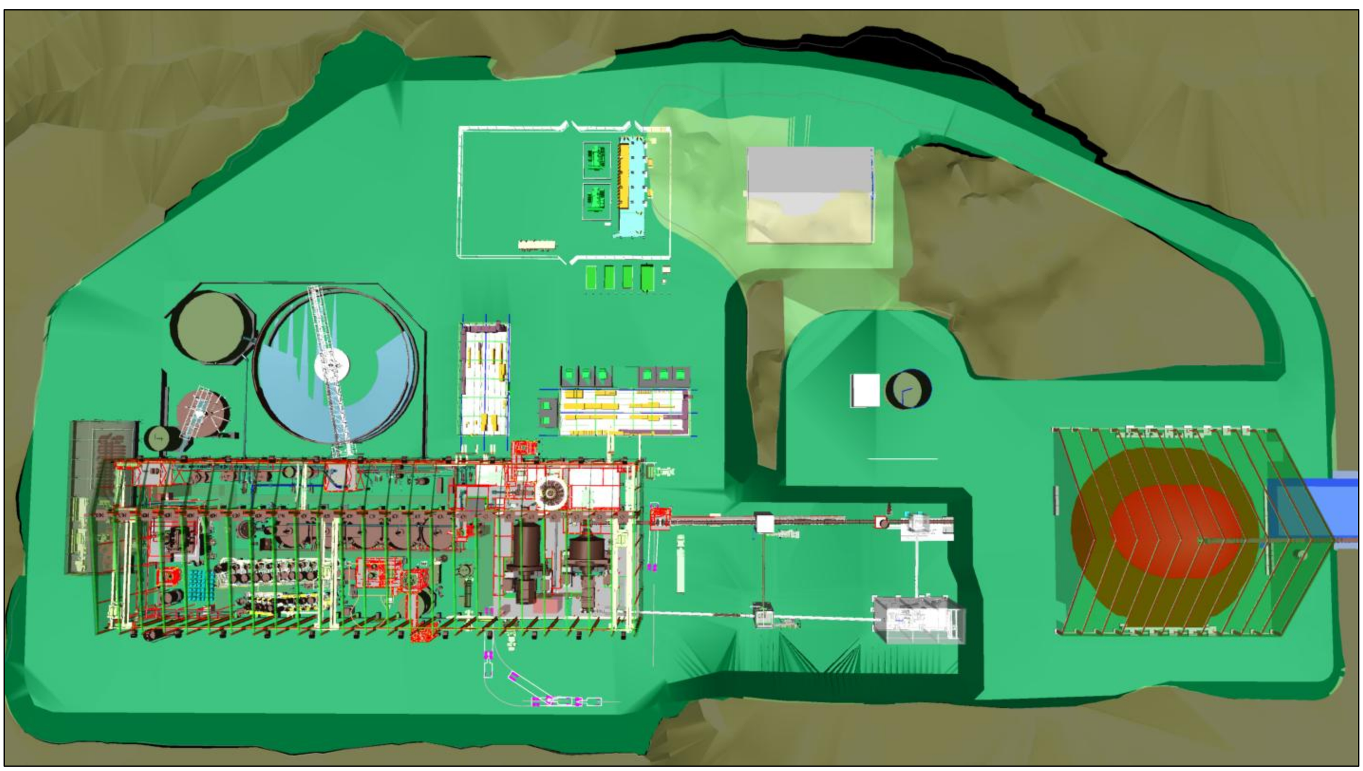


Source: KP (2023).

18.5 Area 6900 Process Plant Infrastructure

The processing area consists of the main processing building and support infrastructure, as shown in Figure 18-14.

Figure 18-14: Process Plant Site



Source: Ausenco (2024).

The process plant consists of the buildings shown in Table 18-2.

Table 18-2: Process Plant Building List

Building Description	Building Construction	Additional Description	Length (m)	Width (m)	Height (m)	Area (m^2)	Volume (m^3)
Process Building	Pre-Engineered Building	Metal Cladded	130	48.0	25.0	6,240	156,000
Concentrate Load-out Building	Fabric Building		50	20	12.0	1,000	12,000
Stockpile Cover	Pre-Engineered Building	Fabric Cladded A-frame	66	60	31.5	3960	62,370
Plant Maintenance / Warehouse	Fabric Building		25	18	6	450	2,700

The process building is composed of two aisles, which are serviced by three cranes. A 34 m wide aisle has the grinding, flotation, and filtration equipment, and is serviced by a 75 t overhead crane with a 10 t auxiliary hoist, and a 20 t overhead crane. A 16 m wide aisle includes the cyclone equipment, and is serviced by a 10 t overhead crane.

18.5.1 Area 6960 Process Plant Reagents Storage Facilities

The reagent storage facilities are located both indoors and outdoors of the main process plant building. The indoor section is located within concentrate filter area of the main process plant building aisle. Additional reagent facilities are located within the smaller process plant building aisle. Both areas are serviced by the building cranes. The feed lime bin is located at the southeast corner of the process plant building.

18.5.2 Area 6930 Process Offices and Control Room

The proposed process plant office building will have a modular construction, and will include facilities for offices, a lunchroom, and washrooms. The building has a footprint of approximately 18 m (L) x 11 m (W) x 3m (H).

The plant control room is located on the second level south of the primary cyclone platform inside the process plant building with the dimensions of 7.0 m (L) x 3.0 m (W) x 3.5 m (H).

18.6 Construction Temporary Infrastructure

18.6.1 Construction Temporary Infrastructure Summary

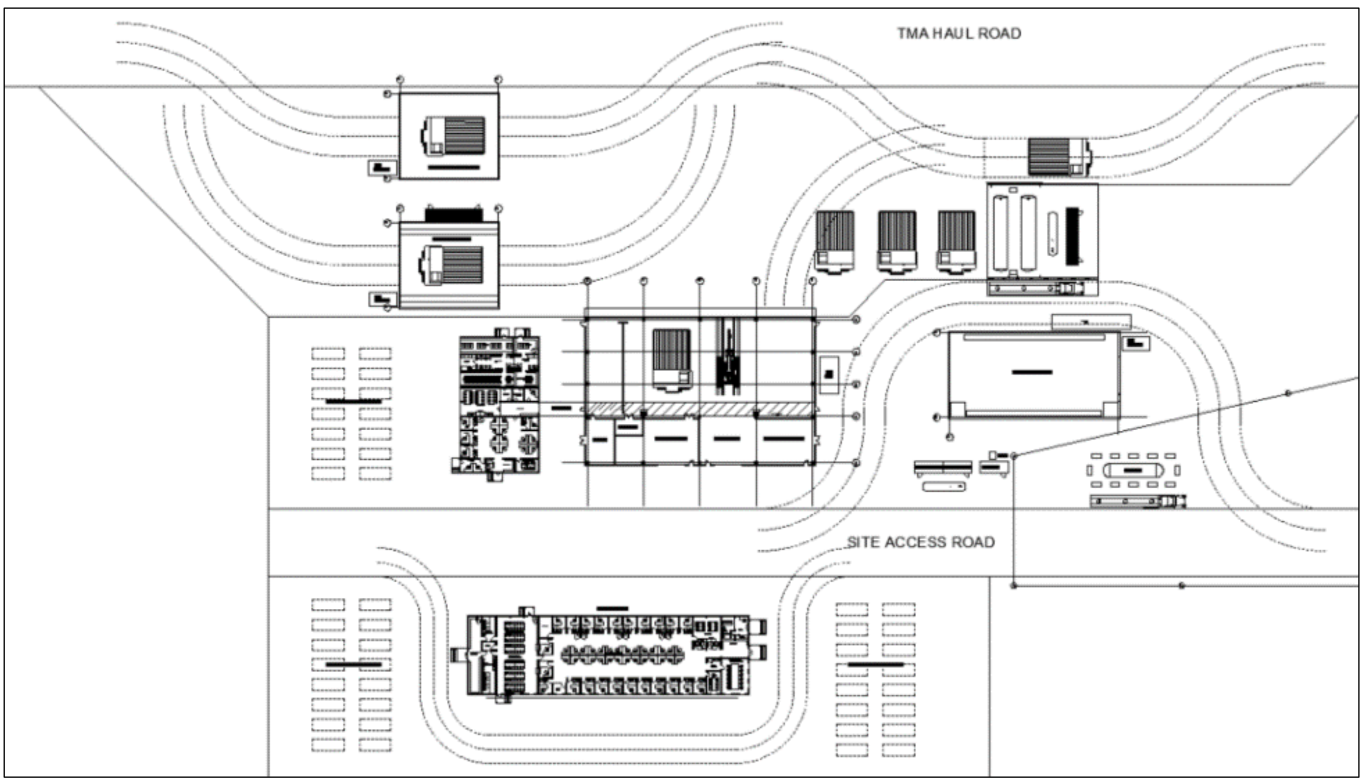
Permanent infrastructure, including pads and structures, will be utilized to support the construction phase, as practical. When permanent infrastructure is not practical, temporary modular construction offices, lunchrooms, and washroom facilities will be utilized.

Areas requiring temporary infrastructure to support construction activities include the following:

- primary crusher
- coarse ore bin, substation, transfer tower
- process plant
- mine services area pad
- aggregate production pad (crusher)
- emulsion plant area (drilling and blasting pad).

The initial site laydown pad will be located on the mine services area pad where the truckshop will be located. This pad will house construction offices and the shop/warehouse and will be the general receiving area for all construction materials (Figure 18-15).

Figure 18-15: Mine Services Area Pad



Source: JDS (2023).

18.6.2 Construction Offices

18.6.2.1 Mine Maintenance Offices

The offices for the mine maintenance department will be mobilized to site and installed near the truckshop on the mine services area pad. The offices will be constructed utilizing five to seven modular office units that will be installed and connected on site. The mine maintenance office complex will feature a combination of closed and open offices, as well as a boot room/dry for maintenance personnel usage.

The offices will be installed early in the construction phase to support the construction management team and will be utilized to support permanent mine maintenance operations.

18.6.2.2 Administration Offices

The administration building is located close to the mine service building facility on the mine services area pad. It is a single-storey modular building capable of housing 60 full-time personnel. The administration building will include several large and medium offices, meeting rooms, a lunchroom, and washroom facilities. The administration building will feature 11 modules that have been transported to site and connected to services.

18.6.2.3 Contractor Offices

Extra space for contractor or external engineering firm personnel will be set aside on the various pads near work fronts as they are established. Modular skidded offices (10 to 15), lunchrooms, and wash cars will be staged on the mine services area pad to support the various earthworks contractor operations.

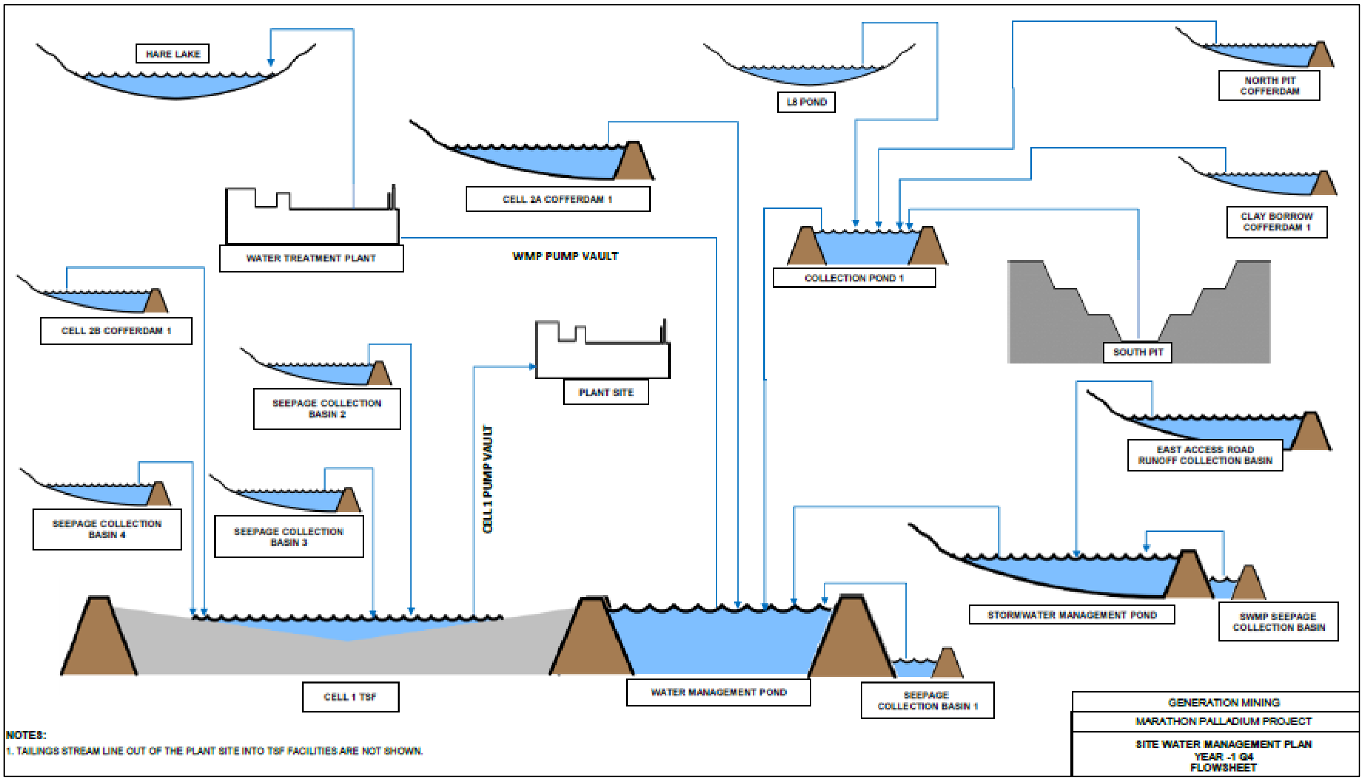
18.6.3 Construction Water Management

Contact surface water from the various construction areas for the water retention structures, access roads and haul roads, pads, borrow sources and laydowns, as well as the mining operations areas such as the South pit and MRSA, will be collected, managed as required, and discharged or otherwise controlled.

A network of pipelines and pumps will be utilized to store, move, and manage the water to ensure all contact water is contained and managed as per the applicable regulations. All collected surface water will be pumped to the WMP and either reclaimed to the process plant area for reuse in the process plant or treated and discharged to Hare Lake.

Figure 18-16 shows the pumps and pipelines system for construction surface water management.

Figure 18-16: Construction Water Management (Year -1)



Source: KP (2023).

18.6.4 Construction Camp

Gen Mining has an option to acquire the existing Valard construction camp in the town of Marathon (Figure 18-17). The Valard camp was used to house construction workers for the recently completed East-West Transmission Line Project. It has a capacity of 286 people and contains a kitchen and dining room (both will require upgrading to increased capacity), recreation facilities, laundry, and sleeping quarters that share a bathroom with the adjacent room ("Jack-and-Jill" style). Approximately 500 additional rental beds will be set up near the project site in partnership with the BN to supply the balance of the construction beds required.

Figure 18-17: Marathon Construction Camp

Source: Gen Mining (2023).

19 MARKET STUDIES AND CONTRACTS

19.1 Copper-PGM Concentrate Sales

The proposed operation will produce a copper-PGM concentrate that will be transported and sold to domestic and/or international smelters. The concentrate produced is expected to be low in deleterious elements (i.e., lead, zinc, arsenic, antimony, mercury, bismuth) commonly found in copper concentrates and is not expected to draw significant penalties. Fluorine and MgO penalties may occur in some conditions; however, this is not expected to be persistent, and ore-feed-blending is expected to meet smelter requirements.

In the 2021 metallurgical testing program, a mini-pilot plant was built and operated at SGS Lakefield (see Section 13 for details) to test representative samples from site mineralization. The mini-pilot plant produced a volume of concentrate. Samples of the concentrate were sent to international smelters and commodity traders that would be capable of receiving or processing a polymetallic copper concentrate and recovering the expected levels of PGMs.

Copper smelters recover PGMs to copper anodes with subsequent electrorefining yielding byproduct gold, silver, platinum, palladium, and other metals from refining anode slimes. Indicative term sheets were received from both domestic and international smelters with competitive treatment charges, refining charges (TC/RCs) and payability terms considerably better than those found in typical copper concentrates (typically with PGMs at trace levels). The resulting terms reflected the high value per tonne of the concentrate and the potential for higher margins than traditional copper concentrates with lower byproduct recoveries.

Final payment terms will be based on prevailing metal prices from the London Metals Exchange (copper) and the London Bullion Market Association (palladium, platinum, gold, and silver), subject to payabilities and minimum deductions. As announced in March 2023, Gen Mining finalized an offtake term sheet with Glencore International AG (Glencore) for copper concentrate. Under the term sheet, Glencore will purchase an average of 50% of the total copper concentrate to be produced from the Marathon Project. It is expected that production from the project will be treated by Glencore’s Horne smelter in Quebec, Canada. The term sheet remains subject to final documentation, including customary offtake terms and conditions. Gen Mining has also finalized an offtake term sheet with a European integrated copper group (European Smelter) which will purchase the balance of the concentrate produced. This remains subject to final documentation and approvals. The economic model assumes a 50/50 blend of TC/RCs and payability terms between Glencore and the European Smelter where the Marathon Project’s concentrate is expected to be sold in equal volumes over the life of mine. A summary of the payment terms and costs is presented in Tables 19-1 and 19-2.

Table 19-1: Payable Metals in Concentrates

Payable Element	Approximate Net Payable Rates (%)	Minimum Deductions
Palladium	95.0	2.6 g/t
Copper	96.5	1.1%
Gold	75.0	1 g/t
Platinum	77.0	2.6 g/t
Silver	75.0	30 g/t

Table 19-2: Treatment and Refining Charges

Element	Treatment Charge	Refining Charge
Palladium	-	US$24.50/oz
Copper	US$79/dmt	US$0.079/lb
Gold	-	US$5.00/oz
Platinum	-	US$24.50/oz
Silver	-	US$0.50/oz

19.2 Precious Metal Purchase Agreement

In December 2021, Gen Mining entered into the Wheaton PMPA, a definitive precious metals purchase agreement with Wheaton Precious Metals Corp. The PMPA became effective in January 2022 when Gen Mining completed the acquisition of the remaining interest in the Marathon property from Sibanye-Stillwater and held a 100% interest in the Marathon Project. The key financial terms of the PMPA were as follows:

- Wheaton pays Gen Mining $240 million, $40 million has been paid on an early deposit basis prior to construction to be used to develop the Marathon Project. The remainder is payable in four staged installments during construction, subject to various customary conditions being satisfied.
- Wheaton will purchase 100% of the payable gold production until 150,000 oz have been delivered; thereafter, Wheaton will purchase 67% of the payable gold production for the life of mine and 22% of the payable platinum production until 120,000 oz have been delivered, after which Wheaton will purchase 15% of the payable platinum for the life of mine.
- Wheaton will make ongoing payments for the gold and platinum ounces delivered equal to 18% of the spot prices ("production payment") until the value of gold and platinum delivered, less the production payment, is equal to the consideration of $240 million, at which point the production payment will increase to 22% of the spot prices.
- Gen Mining and its subsidiary Gen PGM has provided Wheaton with corporate guarantees and other security over their assets, and will be subject to certain customary penalties and/or events of default if they fail to comply with the terms of the PMPA.

The terms of the PMPA have been incorporated into the economic analysis discussion in Section 22. The impact of the PMPA on project economics is described in Section 22.10.

19.3 Commodity Price Projections

When evaluating commodity price forecast, Gen Mining and its consultants have considered multiple sources of information including, but not limited to, the following:

- recent spot price trends, as well as the 2-year, 3-year, and 5-year trailing averages
- understanding of key macro level demand drivers for palladium and copper
- understanding of existing and new mine and recycling supply sources

- understanding of key geopolitical changes and sensitivities around source of supply
- consensus forecasts where available.

The metal prices presented in Table 19-3, which were used for the base case economic model in this report, are based on the 3-year trailing average ending November 1, 2024 for each of the respective payable metals. Additional sensitivities on metal prices are provided in Section 22.14.

Table 19-3: Metal Price and FX Assumptions for Economic Analysis

Metal	Price
Palladium (oz)	$1,525
Copper (lb)	$4.00
Gold (oz)	$2,000
Platinum (oz)	$950
Silver (oz)	$24.00
CAD:USD foreign exchange rate	1.35

Note: As of November 1, 2024 the 3-year averages are as follows: Palladium - US$1,523/oz, Copper at U$4.02/lb, Platinum at US$964/oz, Gold at US$1,995/oz and Silver at US$24.02/oz. Project economic sensitivities to changes in metal prices are evaluated in Section 22. Numbers have been rounded.

19.4 Material Contracts

As of the date of this report, Gen Mining has entered into the following material contracts, all with terms and rates within industry norms, related to the development of the project:

- Wheaton PMPA
- agreement with Endeavour Financial to provide project financing advisory services
- agreement with Valard Equipment LP for the lease of an installed construction camp in Marathon, Ontario, and an option, exercisable at Gen Mining's discretion, to purchase the camp on or before the end of the lease term

Additional major engineering, procurement, and construction management contracts are envisaged as per the project execution plan described in Section 24.

Gen Mining has begun discussions with vendors, suppliers, and equipment manufacturers to support operations. The following material contracts are expected to be executed to support the proposed operations:

- EPCM services for construction
- power (electricity)
- diesel, oil, and lubricants
- process reagents

- explosives
- camp services
- mobile equipment
- transportation
- concentrate off-take.

19.5 Comments on Market Studies and Contracts

The QP is of the opinion that the marketing and commodity price information is suitable to be used in the economic analysis in this technical report.

20 ENVIRONMENTAL STUDIES, PERMITTING, AND SOCIAL OR COMMUNITY IMPACT

20.1 Regulatory Approvals

20.1.1 Regulatory Framework

The Environmental Assessment (EA) for the project was approved on November 30, 2022 in accordance with the *Canadian Environmental Assessment Act* (CEAA, 2012) and Ontario's *Environmental Assessment Act* (EA Act) through a Joint Review Panel (JRP) pursuant to the Canada-Ontario Agreement on Environmental Assessment Cooperation (2004).

As of the effective date of this technical report, the project is in the process of obtaining various federal, provincial, and municipal permits, approvals, and licenses as required to construct and operate the project.

20.1.1.1 Environmental Assessment

A prior minister of the environment referred the project to a JRP on October 7, 2010 under the CEAA. The assessment continued under the CEAA, 2012. In 2014, the EA was placed on hold by the proponent at the time (Stillwater Canada) and the JRP was disbanded. In 2020, Gen Mining resumed the EA process and the Crown appointed new members to the JRP on November 16, 2020 to continue the assessment. The JRP conducted its review in a manner that met the requirements of the CEAA, 2012 and submitted its report to the minister of environment and climate change on August 2, 2022. Following the submission of the JRP report, the federal and provincial governments independently issued decision statements that outlined specific mitigation and monitoring conditions to protect the environment and specified follow-up program and reporting requirements.

These conditions include measures to address the effects of the project on the current use of lands and resources for traditional purposes by Indigenous peoples, physical and cultural heritage and the health and socio-economic conditions of Indigenous peoples, as well as fish and fish habitat, migratory birds, and species at risk, including woodland caribou. The decision statement also requires the proponent to develop and implement a reclamation plan for restoring the project site once operations have ended and the mine has been decommissioned.

Numerous conditions include the requirement to consult with Biigtigong Nishnaabeg and other Indigenous groups with respect to the development and implementation of mitigation and monitoring plans. In some cases, the conditions also require the Company to "seek consensus" with Biigtigong Nishnaabeg. This includes, for example, the content of the final reclamation plan and its implementation.

A total of seven Indigenous groups actively participated in the EA process, including the public hearing, and informed the JRP Report. Consultation undertaken by the Crown with these groups resulted in a number of accommodation measures to address potential impacts to established or asserted rights, as recognized and affirmed by Section 35 of *The Constitution Act* (1982).

Information related to the federal and provincial processes is available as follows:

The Canadian Impact Assessment Registry file number for the project is 54755 and the current internet address for related information is:

https://iaac-aeic.gc.ca/050/evaluations/proj/54755

The provincial EA reference number is 11010 and the internet address for related information is:

https://www.ontario.ca/page/marathon-platinum-group-metals-and-copper-mine-project

20.1.2 Permits

A list of potential federal, provincial, and municipal approvals, permits, and/or authorizations required for the project to move forward beyond the EA phase is provided in Table 20-1, Table 20-2, and Table 20-3, respectively.

Table 20-1: Potential Federal Approvals, Permits and/or Authorizations for the Project

Approval / Permit / Authorization	Rationale	Timing
Fisheries Act, Paragraph 35(2)(b) Authorization Legislation: *Fisheries Act* Responsible Agency: Fisheries and Oceans Canada	Project development will result in harm to fish and fish habitat for which offsetting measures are required.	Authorization received August 2024
Metal and Diamond Mining Effluent Regulations Legislation: *Fisheries Act* – Metal and Diamond Mining Effluent Regulations Responsible Agency: Environment Canada and Climate Change	Watercourses (or portions thereof) that are frequented by fish will be used for long-term storage of process solids and/or mine rock and or the management of contact water.	Authorization received July 2024
Navigation Protection Program (NPP) Approval Legislation: *The Canadian Navigable Waters Act* Responsible Agency: Transport Canada	The development of mine-related infrastructure including the open pits, mine rock storage area, process solids management facility and site road network may require approval under the NPP.	Determination of Navigable Water received March 2023
Licence for a Factory and Magazine for Explosives Legislation: *The Explosives Act* Responsible Agency: Natural Resources Canada	The proposed development includes facilities to store and supply nitrogen-based explosives that will be used for the purpose of excavating the ore body.	Licence to be obtained prior to establishing and operating these facilities

Table 20-2: Potential Provincial Approvals, Permits and/or Authorizations for the Project

Approval / Permit / Authorization	Rationale	Timing
Closure Plan approval in accordance with Schedule 2 of O. Reg. 240/00 Legislation: *Mining Act* Responsible Agency: Ministry of Mines	An approved Schedule 2 Closure Plan is required for the project prior to starting construction.	Approval received November 2023
Domestic Processing Exemption Legislation: *Mining Act* Responsible Agency: Ministry of Mines	An exemption under Section 91 of the Mining Act would be required in the event that ore was processed outside of Canada.	Approval to be obtained prior to the start of operations
Environmental Compliance Approval (ECA) Legislation: *Environmental Protection Act* Responsible Agency: Ministry of the Environment, Conservation and Parks	An ECA is required for stationary source emissions, discharges and waste related to the project, including air emissions, noise emissions, effluent discharges to water, stormwater management and waste disposal/transportation.	ECA-Air (construction) – Approval received September 2023 ECA – Industrial Sewage Works (construction) application submitted – approval pending
Permit to Take Water (PTTW) Legislation: *Ontario Water Resources Act* Responsible Agency: Ministry of the Environment, Conservation and Parks	A PTTW is required for instances where groundwater or surface water is taken at a rate of 50,000 L/d, or more. As it pertains to the project a permit to take water will be needed for dewatering of the open pits and possibly for the development of groundwater well(s) for the supply of potable water.	PTTW application submitted – approval pending
Crown Land Work Permit Legislation: *Public Lands Act* Responsible Agency: Ministry of Natural Resources and Forestry	A work permit is required for the project related to construction on Crown land, including dams, drainage channels, roads, culverts, and bridges.	Approval to be obtained prior to the start of construction of this infrastructure
Lakes and Rivers Improvement Act Permit Legislation: *Lakes and Rivers Improvement Act* Responsible Agency: Ministry of Natural Resources and Forestry	A permit will be required for the construction of dams, water crossings, and diversion channels or enclosures.	LRIA application submitted – approval pending
Endangered Species Act Permit Legislation: *Endangered Species Act* Responsible Agency: Ministry of Environment, Conservation and Parks	A permit will be required for species at risk or its habitat that may be affected by the development of the project. The potential effect of the project on Woodland Caribou habitat has been assessed in this regard.	Permit received August 2023
Aggregate Licence or Permit Legislation: *Aggregate Resources Act* Responsible Agency: Ministry of Natural Resources and Forestry	A licence may be required for the purposes of obtaining aggregate that is needed to develop project infrastructure from borrow areas around the site study area (SSA) (project footprint). The Company has a licensed aggregate quarry adjacent to the SSA.	Licence to be obtained prior to obtaining aggregate from a new quarry
Encroachment Permit Legislation: *Public Transportation and Highway Improvement Act* Responsible Agency: Ministry of Transportation	An encroachment permit would be required for construction of a transmission line over or under a provincial highway or within the highway right-of-way. A permit would also be required for any work within the highway right-of-way, including improvements to the highway itself required for the project, specifically at the Highway 17 – site access road intersection.	Permit to be obtained prior to the start of construction of this infrastructure
Building and Land Use Permits Legislation: *Public Transportation and Highway Improvement Act* Responsible Agency: Ministry of Transportation	Permits will be required for any development or construction within 45 m of the right-of-way limit of the highway and 395 m of the centre point of the intersection of a side road (such as the site access road) with Highway 17.	Permits to be obtained prior to the start of construction of this infrastructure
Sign Permit Legislation: *Public Transportation and Highway Improvement Act* Responsible Agency: Ministry of Transportation	A permit will be required for any sign erected within 400 m of the limit of the highway.	Permit to be obtained prior to the start of construction this infrastructure
Licence to Operate a Bulk Storage Plant Legislation: *Technical Standards and Safety Act* Responsible Agency: Technical Standards and Safety Authority	A licence will be required for the purpose of operating a private bulk fuel storage and distribution system in the SSA.	Licence to be obtained prior to operating this facility
Pre-Development Review and Approval Legislation: *Occupational Health and Safety Act* Responsible Agency: Ontario Ministry of Labour	The Ministry of Labour will subject the proponent to a safety and procedures review prior to the installation of portable crushing, screening or associated washing equipment.	Approval to be obtained prior to the installation of this facility

Table 20-3: Potential Municipal Approvals, Permits and/or Authorizations for the Project

Approval / Permit / Authorization	Rationale	
Zoning By-law Amendment and Site Plan Agreement Legislation: *Planning Act* Responsible Agency: Town of Marathon	The Zoning By-law will need to be amended and a Site Plan agreement will need to be executed to permit mining operations.	Approval to be obtained prior to the start of mining operations
Sewage Treatment System Permit Legislation: *Ontario Building Code* Responsible Agency: Thunder Bay District Health Unit/ Town of Marathon	A permit to construct an on-site private septic sewage system <10,000 L/d will be required.	Permit to be obtained prior to the start of construction of this infrastructure
Building Permit Legislation: *Ontario Building Code* Responsible Agency: Town of Marathon	A permit will be required for the construction of any project buildings.	Permits to be obtained prior to the start of construction of this infrastructure

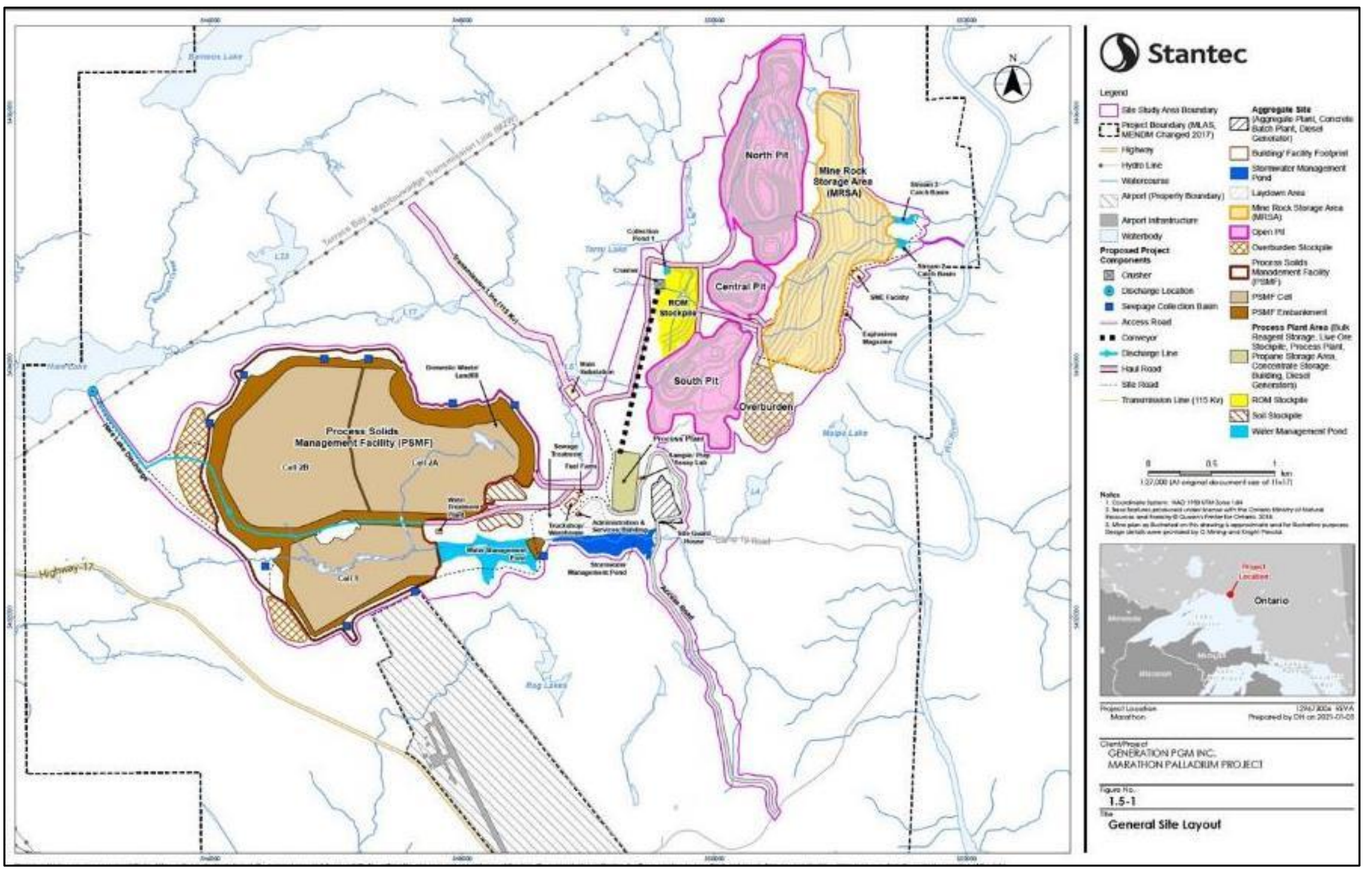
20.2 Environmental Studies

20.2.1 Background

The 2012 EA Report completed for the project included the results of extensive environmental studies that were undertaken to characterize the project site study area (Figure 20-1). In 2021, an addendum was prepared to the 2012 EA Report to verify and update the studies in the 2012 report.

The results of the updated environmental studies presented in the 2021 EA Addendum Report are summarized in subsections 20.2.2 to 20.2.12.

Figure 20-1: Marathon Project Site Study Area



Source: Stantec (2021).

20.2.2 Atmospheric Environment

20.2.2.1 Air Quality

Project activities may result in occasional short-term exceedances of some air quality guidelines and limits at the property boundary though air quality meets applicable criteria at the nearest sensitive receptor locations. Fugitive dust emissions will mainly be generated from overburden and mine rock stockpiles, open pit mining activities, and from operating heavy and light vehicles on site roads. Proposed mitigation measures include applying water and/or other dust suppressants to active mining areas and roads. Air quality monitoring will assess the accuracy of water quality predictions and identify if any additional mitigation measures are required.

20.2.2.2 Light

Increased light levels from the site could potentially be visible to offset receptors. Proposed mitigation measures include using directional lighting and mounting lights as low as possible.

20.2.2.3 Greenhouse Gas

Greenhouse gas (GHG) emissions from site activities are predicated to have a negligible contribution to provincial and national CO_2 emissions and the associated phenomenon of climate change. The project has been designed and will be operated to minimize GHG emissions to the extent possible.

20.2.3 Acoustic Environment

Noise levels, resulting from project activities, are predicted to be below the applicable provincial and federal criteria at representative noise sensitive receptors. Noise emissions will be generated by project activities such as drilling, blasting, material handling, haul trucks, light vehicles, pollution control equipment, building exhaust fans and rail traffic. Proposed mitigation measures include purchasing vehicles and equipment that meet applicable noise suppression regulations, scheduling concentrate shipments during certain periods of the day and implementing an overpressure and vibration monitoring program at the site upon commencement of blasting operations.

20.2.4 Water Quality and Quantity

Project activities are predicted to result in a permanent lowering of the groundwater table due to dewatering the open pits. Changes in groundwater levels and flow direction as well as in recharge/infiltration due to project activities are predicted to result in a change in groundwater quality relative to background concentrations. Groundwater is not used as a resource on or immediately near the mine site. Groundwater monitoring will assess the accuracy of water quality predictions and identify if any mitigation measures are required.

Project activities will result in changes to local hydrology which are predicted to result in a reduction or increase in flows and/or water levels in lakes and streams in the project area. A change in surface water quality relative to background concentrations is expected due to the changes in sub-watershed area associated with the project and management of water at the site. Mitigation measures include sediment and erosion control measures, management of Type 2 (PAG) mine rock and tailings, collection and recycling of contact water for use in the process plant, and treatment of contact water to meet applicable criteria prior to discharge. Surface water monitoring will assess the accuracy of water quality predictions and identify if any additional mitigation measures are required.

20.2.5 Fish and Fish Habitat

Project development will affect fish and fish habitat either due to the overprinting of approximately 10 ha of existing fish habitat or through a reduction in flow in streams in the project area. Mitigation measures include implementation of fish habitat offsetting measures as specified by a *Fisheries Act* authorization, adhering to minimum setback distances to mitigate effects of blasting to fish, undertaking in-water works during time periods that are protective to fish and managing contact water to prevent the release of deleterious materials into lakes and streams. Fish and fish habitat monitoring will assess the effectiveness of the mitigation and offsetting measures.

20.2.6 Terrain and Soils

Project activities may result in the potential loss of stockpiled soil/overburden or a change in soil quality. Proposed mitigation measures include limiting the size of the SSA to the extent possible to minimize the need for excavating soil/overburden, stockpiling soil and overburden materials for later use in site rehabilitation activities, ensuring appropriate slopes for soil/overburden stockpiles to prevent erosion and slide hazards, and progressively rehabilitating disturbed areas as quickly as practical.

20.2.7 Vegetation

Project activities will result in the removal of approximately 1,081 ha of forest, 21 ha of open wetlands and an additional 10 ha of sparsely vegetated open water habitat within the SSA. Proposed mitigation measures for the SSA include using stockpiled soil and overburden for reclamation activities and re-seeding with non-invasive (and native, where practicable) plant species, isolating sensitive areas until native vegetation is established through reclamation activities and transplanting provincially or regionally rare plant species at suitable receiver sites. The effectiveness of the mitigation measures will be assessed periodically during the closure phase of the project.

20.2.8 Wildlife

Project activities are predicted to result in the displacement of furbearer species, loss of actual and potential habitat for beavers, martens, moose, black bears, and forest dependent birds and the displacement of gray wolves. Wildlife habitat quality may also be affected due to dust fall deposition, spread of invasive species, increases or decreases in groundwater levels or changes to hydrology, and sensory disturbance from noise and vibration. Wildlife collisions with vehicles and wildlife collisions with project infrastructure may also occur. Forest clearing for the project will fragment wildlife habitat along the boundary of the SSA. Proposed mitigation measures include optimizing the location of project components to reduce environmental impact including the area of vegetation clearing, incorporating existing disturbed areas into the SSA to accommodate project components, using established best practices during site preparation and construction to reduce potential negative interactions with vegetation, undertaking progressive reclamation, using reflective markers on transmission lines over Canoe Lake and using directional lighting. Monitoring of wildlife habitat will be undertaken periodically during the closure phase of the project.

20.2.9 Species at Risk

Project activities will result in the loss of caribou habitat within the SSA and may result in the loss of potential bat maternity roost habitat. Proposed mitigation measures for species at risk (SAR) include conducting SAR awareness training, suspending construction activities if caribou are observed and notifying relevant regulatory agencies of the sighting, banning hunting within the SSA, using directional lighting, undertaking progressive reclamation, using native seed mixes during rehabilitation activities, providing bat boxes and rocket boxes as partial replacement for loss of potential roost trees and off-site mitigation for caribou elsewhere within the Lake Superior Coastal Range as authorized under the *Endangered Species Act*.

20.2.10 Socio-economics

Project activities are predicted to have both positive (employment, labour income, GDP and government revenue impacts, and business contracting potential) and adverse effects (loss of these positive benefits when the project transitions from operations to closure) with respect to impacts on the economy and employment. Loss of use of the SSA will also occur until reclamation activities have been completed and end-land use objectives have been achieved. Proposed mitigation measures include providing training opportunities to facilitate employment by residents within the project area (including training of local youth and Indigenous community members), implementation of workforce transition strategies during decommissioning, use of an accommodations complex during construction and operation, engagement with municipal authorities to coordinate planning of infrastructure development or upgrades, providing funding support to key community services or organizations for fitness and recreational programs for workers, establishment of a Harvester Training Fund to support annual harvester and trapline training programs, and restricting of hunting, fishing, and harvesting of wildlife on the site. In addition to restoring the habitat within the SSA for use by wildlife (including SAR) and fish, and re-establishing access for hunting, fishing, and trapping, end-land use objectives may also include other economic activities such as hydro-electric power generation.

20.2.11 Human Health

Project activities may result in occasional short-term exceedances of some air quality criteria for contaminants of potential concern (CoPC) at the property boundary. With proposed mitigation and environmental protection measures such as the use of pollution control equipment (baghouses, scrubbers, etc.) and the application of amendments on stockpiles and gravel-surfaced roads to limit fugitive dust emissions, effects on human health from changes in air quality are not expected to be significant at any time during the project.

Discharges to surface water during the project are not expected to increase constituent concentrations in surface water in excess of water quality benchmarks for human health. Proposed mitigation measures include diversion of non-contact water around operational areas, recycling of contact water for use in the process plant and treatment of contact water to meet applicable criteria prior to discharge. As such, no adverse effects on human health are expected during any phase of the project.

No adverse effects on human health are expected from groundwater affected by project-related changes to groundwater quality because no existing or foreseeable groundwater users are in the areas where groundwater quality is predicted to exceed provincial and/or federal drinking water standards. Proposed mitigation measures include minimizing the project footprint and management of seepage from various project components (TSF, water management pond, stormwater management pond, etc.).

With respect to country foods, there are minimal predicted project-related effects on CoPC concentrations in the environment that would result in changes to CoPC concentrations in country foods in the project area where country foods are likely to be harvested. Therefore, adverse effects on human health from country foods consumption are not expected from project-related air and water emissions.

The electromagnetic fields (EMFs) from the proposed 2.2 km 115 kV overhead transmission line for the project are not expected to adversely affect the health of people who visit or reside in the project area. Powerlines emit extremely low frequency EMFs (below 300 Hertz). The closest receptor to the proposed power line for the project is a cottage on Hare Lake, which is located approximately 2 to 3 km from the proposed powerline.

20.2.12 Physical and Cultural Resources

No archaeological resources have been identified that would be affected by the project. As such, no effects on archaeological resources are anticipated. Additional archaeological programs will be conducted in the project area prior to site preparation activities, as required, to verify that no archaeological resources are present. A protocol will be implemented prior to initiating site preparation activities to protect archaeological resources in the event of a chance find.

There are no potential interactions between the project and built or cultural heritage resources. Therefore, no effects on cultural heritage resources are anticipated.

20.3 Tailings, Mine Rock and Water Management

20.3.1 Tailings Management

The process plant will produce two types of tailings, referred to as Type 1 or NAG and Type 2 or PAG. These will be placed in the tailing storage facility (TSF). The TSF is located approximately 3 km west of the process plant. An estimated 128 Mt (approximately 86 Mm^3) of tailings will be generated over the life of mine. The TSF is a paddock-style impoundment with three storage cells (Cell 1, Cell 2A and Cell 2B). The TSF perimeter embankment will consist of lined rockfill embankments. Cell 2A and 2B are divided by an internal rockfill dyke to optimize tailings management and storage. Cell 1 and Cell 2 have been designed to store approximately 14 Mm^3 and 64 Mm^3 of tailings, respectively. Approximately 7 Mm^3 of Type 2 tailings will be stored in the Central pit during the last few years of operation.

Type 1 tailings are anticipated to account for approximately 85% of the tailings from the process plant and have been determined to be NAG. Type 2 tailings are estimated to account for up to 15% of the tailings from the process plant and have been determined to be PAG. Type 1 tailings slurry will initially be deposited directly into Cell 1 at approximately 36% solids content by weight; following filling of Cell 1, Type 1 tailings to be deposited in Cell 2A and 2B will be thickened to approximately 55-60% solids by weight. The Type 2 tailings slurry will be approximately 19% solids by weight. The Type 1 and Type 2 tailings slurries will be pumped from the process plant to the TSF via separate HDPE tailings delivery pipelines.

During the first three years of operation, NAG tailings will be deposited into Cell 1 and PAG tailings will be deposited into the centre of Cell 2A. Starting in Year 4, NAG tailings will be deposited into Cell 2A and Cell 2B, with PAG tailings continuing to be deposited into the centre of Cell 2A. After Year 10, PAG tailings will be stored in the Central pit as the tailings management strategy envisages NAG tailings being used as cover material for PAG tailings and mine rock to prevent the onset of acid generation during both operations and following closure. PAG material will not be deposited in Cell 1 or Cell 2B.

The TSF rockfill embankments will be developed via the downstream construction method using NAG mine rock. The dams will be raised in stages to provide sufficient storage capacity for tailings and temporary water management. The final elevation of the dams will range from 343 masl (Cell 1) to 380 masl (Cell 2A and 2B). The TSF embankments will be constructed with upstream and downstream slopes of approximately 2H:1V and a minimum crest width of 8 m. The design utilizes site topography to minimize the size of the starter embankments.

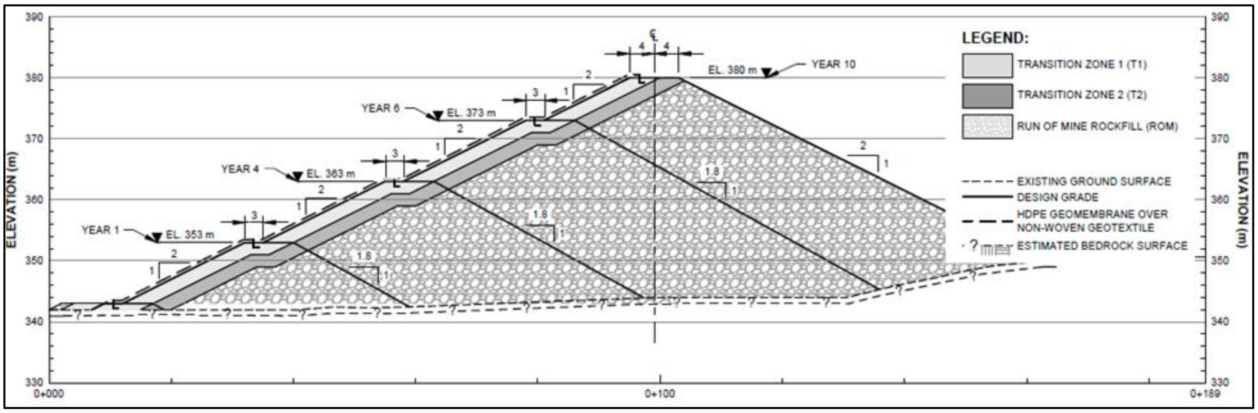
The final maximum embankment heights will vary between approximately 43 m (Cell 1) and 80 m (Cell 2A above grade and foundation widths will be between approximately 180 and 330 m. The embankments will include specific rockfill zones with finer material towards the upstream portion of the embankment and coarser material towards the downstream portion of embankment. The embankment zones will be filter graded such that the embankment will not be susceptible to internal erosion or piping. The downstream rockfill zone will consist of run-of-mine rockfill and will be resistant to downstream erosion.

The dams will include a HDPE liner keyed into bedrock via a concrete plinth (or alternative) to minimize seepage from the facility. Removal of overburden and higher permeability bedrock, placement of slush grout on the prepared bedrock surface and/or injection grouting of deeper permeable bedrock zones will be completed as required by site conditions to further reduce the potential for seepage from the facility. Seepage collection basins will be constructed along the toe of the dams to intercept seepage and pump it back to the facility. Monitoring stations located downstream of the TSF will be used to verify the effectiveness of the collection basins. A typical cross-section for the TSF dams is shown in Figure 20-2.

The TSF design will include requirements for instrumentation, monitoring, inspection, and routine maintenance to ensure the facility performs as designed. These requirements will be documented in the Operation Maintenance and Surveillance Manual for the facility. A dam breach assessment and analysis of mitigating controls and design parameters has been completed to evaluate the magnitude of impacts of a hypothetical breach of the facility. The analysis includes an assessment of the dam breach characteristics, including breach outflow volumes and the downstream hydrology during sunny day and flood induced conditions.

The TSF will have the capacity to manage stormwater runoff inflows under normal operating conditions. The environmental design storm consisting of the 1-in-100-year, 24-hour precipitation event and 30-day spring snowmelt (408 mm) will be contained within the TSF without uncontrolled discharge to the environment. Emergency overflow spillways have been included in the TSF arrangement to manage storm events greater than the environmental design storm. The TSF spillways will be sized to route the peak flow resulting from a 24-hour probable maximum precipitation (PMP) event (328 mm), which has been selected as the inflow design flood (IDF) for the TSF.

Figure 20-2: Typical Cross-Section for TSF Dams – Cell 2 Ultimate



Source: KP (2022).

Ten seepage collection basins (SCBs) will be located around the perimeter of the TSF. Near surface seepage and runoff collected in the SCBs will be pumped back to the TSF storage cells. Monitoring wells will be installed to monitor groundwater quality downgradient of the TSF.

Supernatant water in the TSF will be transferred to the water management pond (WMP) for reuse in the process to reduce accumulation of water in the storage cells. The WMP will provide water to the process plant. Excess water in the WMP will be treated, as required, and then discharged to Hare Lake.

20.3.2 Mine Rock Management

An estimated 326 Mt of mine rock will be generated over the life of mine. Mining operations will produce two types of mine rock, referred to as NAG and PAG. NAG mine rock is defined as rock with less than 0.18% sulphur (by weight), which has been predicted to be NAG. PAG mine rock is defined as mine rock with greater than 0.18% sulphur (by weight), which has been predicted to be PAG. NAG mine rock is anticipated to account for approximately 85% to 90% of the rock while PAG mine rock is anticipated to account for approximately 10% to 15% of the rock from the open pits.

NAG mine rock will primarily be stored in the MRSA, but also in the North, South, and Central pits. The MRSA is located to the east of the open pits as shown in Figure 20-1. The MRSA will be constructed with an overall slope of approximately 2.2H:1V, with 30 m tall benches with mid-slopes at 2H:1V and 10 m wide mid-slope benches. The MRSA slopes will provide long-term stability and allow for progressive reclamation. Preliminary design criteria incorporated into the MRSA included the codes and standards of *Ontario Mining Act*, Regulation 240/00 (Advanced Exploration, Mine Development and Closure). NAG mine rock will also be used for construction of the TSF, WMP, and SWMP embankments as well as a source of aggregate to build site infrastructure and roads.

During operations, PAG mine rock will either be placed in the TSF during the first six years of operations and progressively covered by Type 1 (NAG) tailings or stored in the South or Central pits. Following mine closure, all the PAG mine rock stored in the TSF will remain below the groundwater table. The PAG mine rock stored in the pits will become submerged as the pits fill with water. In both cases, the storage of PAG mine rock under saturated conditions will effectively prevent the development of acidic drainage in the long-term.

Grade control will be undertaken to identify ore from mine rock in the open pits. Samples will be taken from blast holes and analyzed at the assay laboratory to determine ore and mine rock boundaries within blasted material prior to mining. Samples of mine rock will also be analyzed for total sulphur content to determine if the rock is NAG or PAG.

An estimated 3 Mt of overburden will be generated over the life of mine. The overburden will be stored in the overburden stockpile located to the east of the South pit. The overburden will be used for the progressive reclamation and final closure of the site.

20.3.3 Water Management

A detailed site water balance was developed for the project using the GoldSim software package. The water balance considers all major components of the site, including the TSF, WMP, SWMP, open pits, and MRSA, as well as seasonal discharge requirements to Hare Lake.

The TSF will consist of three storage cells (Cell 1, Cell 2A and Cell 2B) and a separate WMP. The storage cells will provide permanent and secure storage for tailings from the process plant. Supernatant water (i.e., process water and precipitation) that accumulates in TSF storage cells will be reclaimed as the primary source of water for the process plant and routed to the WMP. The WMP will be established to the east of Cell 1 and will serve as the primary contact water pond for the site as well as the secondary water source for the process plant. The WMP will be built during the construction phase of the project along with the SWMP and will initially be utilized as a storage pond for construction water management.

Runoff from the process plant area, truck shop, warehouse area, laydown area, fuelling station, and aggregate plant areas will be collected in the SWMP. Water collected in the SWMP will be routed to the WMP or directly to the WTP via water transfer pipelines. The SMWP will also provide tertiary containment for the process plant area and associated pipelines (i.e., tailings slurry and reclaim water pipelines) and fuel farm, ensuring that sub-watershed 101 and the Pic River will be protected in the case of an unplanned event.

Surface water runoff and groundwater inflow reporting to the open pits will be transferred to collection pond 1 (CP1) located adjacent to the run-of-mine stockpile. Water collected in CP1 will be routed to the WMP via water transfer pipelines. Water levels in waterbody L-8 located to the northeast of the open pits will also be managed by pumping to CP1. Contact water from CP1 may be used for dust control on the mine haul roads.

Contact water from the MRSA located along the east side of the open pits will be collected in catch basins established in sub-watershed 102 (Stream 2 catch basin) and sub-watershed 103 (Stream 3 catch basin). The catch basins will be constructed prior to initial development of the open pits and the MRSA. Water collected in the catch basins will be collected and pumped to the SWMP and WMP via the MRSA catch basin pipelines. The collection system will be sized to manage the environmental design storm, which is based on a 1-in-100-year rainfall event. If the EDS is exceeded, water will be routed from the MRSA catch basins via the catch basin overflow spillways to the Pic River. The overflow spillways have been sized to convey the 1-in-1000-year rainfall event.

Under routine operating conditions contact water from the project site will be transferred to the WMP. Water from the TSF will be reclaimed to the process plant on a continuous basis with make-up water drawn from the WMP. The recycling of water from the TSF and WMP to the process plant will be maximized. This arrangement was designed to limit the potential requirement for fresh water from other sources and keep TSF process water separate from the contact water from other sources. Overflow from the WMP can be managed within Cell 1 of the TSF to provide additional operational flexibility, as required. Excess water will be transferred from the WMP to the WTP, treated as required, and discharged to Hare Lake.

Water treatment will be undertaken to ensure applicable receiving water quality criteria are met in Hare Lake. Under average conditions, discharge rates to Hare Lake are anticipated to range between approximately 0.9 Mm^3 to 2.4 Mm^3 per year depending on the footprint of the site.

A network of surface and groundwater quality monitoring stations will be established prior to the start of construction to verify the effectiveness of the site water management system.

20.4 Community Relations

20.4.1 Indigenous Groups

Sixteen Indigenous groups were identified by the Crown (Canada and Ontario) as having a potential interest in the project. Table 20-4 provides a list of the Indigenous groups including their approximate distance from, and their stated interest in, the project.

Of the 16 Indigenous groups shown in Table 20-4, seven groups indicated that they were interested in participating in consultation processes related to the project. As shown in Table 20-4, the seven groups are Biigtigong Nishnaabeg (BN), Pays Plat First Nation, Mitchipicoten First Nation, Ginoogaming First Nation, Superior North Shore Métis – MNO (region 2), Jackfish Métis – Ontario Coalition of Indigenous Peoples and Red Sky Métis Independent Nation. Accordingly, meaningful and informed engagement and consultation has been undertaken with these groups as part of the development of the project. In conjunction with the consultation process opportunities for Indigenous groups to benefit from the project have been identified and the project design modified to ensure impacts to the environment and Indigenous rights are minimized.

The project is situated within the geographical territory of the Robinson Superior Treaty area. It is also within lands claimed by BN as its asserted exclusive Aboriginal Title. In 2003, BN brought legal action (known as the Michano litigation) against Canada and Ontario seeking a declaration of unextinguished exclusive Aboriginal Title to an area north of Lake Superior, claiming they did not enter into the Robinson Superior Treaty in 1850 and did not adhere to the Robinson Superior Treaty after 1850. In 2016, the three parties began exploratory discussions to try to find a resolution outside of the court process. As a result of these discussions, the parties entered into formal negotiations in May 2019 and the Michano litigation was put into abeyance in December 2019. As of the effective date of the document, negotiations between BN, Ontario, and Canada are ongoing. In November 2022, a CBA was completed between BN and Gen Mining for the development of the project.

Table 20-4: Indigenous Groups

Indigenous Groups	Distance from Project (km)	Stated Interest
Animbiigoo Zaagi'igan Anishinaabek (Lake Nipigon)	150	Not Interested
Biinjitiwaabik Zaaging Anishinaabek (Rocky Bay FN)	150	Not Interested
Bingwi Neyaashi Anishinaabek (Sandpoint FN)	150	Not Interested
Fort William First Nation	225	Not Interested
Long Lake #58 First Nation	110	Not Interested
Kiashke Zaaging Anishinaabek (Gull Bay FN)	230	Not Interested
Red Rock Band	150	Not Interested
Whitesand First Nation	260	Not Interested
Pic Mobert First Nation	50	Not Interested
Biigtigong Nishnaabeg	20	Interested
Pays Plat First Nation	90	Interested
Mitchipicoten First Nation	145	Interested
Ginoogaming First Nation	100	Interested
Superior North Shore Métis – MNO (Region 2)	-	Interested
Jackfish Métis – Ontario Coalition of Indigenous Peoples (OCIP)	60	Interested
Red Sky Métis Independent Nation - RSMIN	300	Interested

20.4.2 Town of Marathon

The Town of Marathon is centrally located on TransCanada Highway (Hwy 17) between Thunder Bay and Sault Ste. Marie on the North Shore of Lake Superior in northwestern Ontario. The town is the closest population centre to the project site, located 10 km to the south. The current population of Marathon is approximately 3,200. Marathon is surrounded by the towns of Terrace Bay and Schreiber to the west, the Town of Manitouwadge to the north northwest, the Town of White River to the east, and the First Nations groups of Biigtigong Nishnaabeg, Pic Mobert, and Pays Plat.

Historically, the region was supported economically by the forestry and pulp and paper sectors, as well as the mining industry. The significant downturn in forestry and pulp and paper in the last number of years has negatively impacted local and regional groups, including the Town of Marathon, whose pulp mill closed in 2009. Barrick Gold's Hemlo Gold Camp, which includes one active mine, is the primary natural resource-based employer in the area. The project plans to continue to work in partnership with the Town of Marathon to develop the project. It is anticipated that the project will provide a significant positive economic influence on the town.

The project site lies partially within the municipal boundaries of the Town of Marathon, as well as partially within the unorganized townships of Pic, O'Neil, and McCoy. The primary zoning designation within the project site is "rural." Changes to the Town of Marathon official plan and zoning bylaw as it pertains to land-use zoning will be required to develop the mine.

It is the intention of project to work closely with the Town of Marathon to ensure that the economic benefits from the project are realized and to determine how best to address issues such as increased demand for housing and community and healthcare services.

20.5 Closure and Reclamation Planning

The progressive reclamation and closure of the project will be carried out in accordance with O. Reg. 240/00 and as described in the closure plan that has been filed and accepted by the Ministry of Mines. A closure cost of approximately $66.5 million (excluding the carrying cost of the closure bond) was estimated for the project in 2022.

The company will be responsible for providing financial assurance (expected to be in the form of a closure bond or similar approved financially acceptable mechanism) to the Province of Ontario as specified in the approved closure plan. Financial assurance will be provided in phases consistent with the timing of the start of various project activities as outlined in the closure plan.

Progressive reclamation will be undertaken during operations (as described in the closure plan) to achieve the end land use plan as soon as possible. Active closure is expected to be completed within five years following the completion of operations with monitoring of the site continuing for an estimated additional 45 years.

Site closure is proposed to be carried out in three stages as follows:

- Phase 1 – Active Closure (Years 1 to 5) – Most of the physical decommissioning, demolition, and reclamation of the site will be undertaken. The open pits will start to be filled with water from the TSF, WMP, SWMP, and MRSA catch basins. Closure-phase geotechnical and environmental monitoring programs will be implemented.
- Phase 2 – Passive Closure (Years 6 to 30) – The open pits will continue to fill with water. Runoff collected in the MRSA catch basins will be pumped to the pits. Natural drainage will be restored from the TSF, WMP, and SWMP. Closure-phase geotechnical and environmental monitoring programs continue.
- Phase 3 – Post-Closure (Years 31 to 50) – The open pits are filled with water and excess water is discharged to Hare Lake to maintain the target water level elevation. Closure-phase geotechnical and environmental monitoring programs continue. Infrastructure is maintained as required.

21 CAPITAL AND OPERATING COSTS

21.1 Summary of Capital and Operating Costs

A summary of the project capital costs and operating costs are presented in Table 21-1 to Table 21-3.

Table 21-1: High-Level Capital Costs

Capital Costs	Value ($M)
Initial Capital[1,2]	992
Pre-Production Revenue	(184)
Initial Capital (Adjusted)[1]	**809**
Life-of-Mine Sustaining Capital	565
Total Capital Cost (Adjusted)	**1,374**
Closure Costs	72

Note: 1. Lease drawdowns net of lease payment during the construction and pre-production period.

Table 21-2: Project Area Capital Cost Summary

Capital Costs	Initial ($M)	Sustaining ($M)	Total ($M)
Mining	74	272	347
Process Plant (Excluding Site Works)	280	44	325
Infrastructure	88	44	132
TSF, Water Management and Earthworks	97	204	301
EPCM and Indirects and Owner's Cost	198		198
Preproduction, Startup, Commissioning	169		169
Contingency[1]	87		87
Subtotal	**992**	**565**	**1,558**
Pre-Commercial Production Revenue, Net of Related Off-Site Costs (Transport, Smelter, and Royalties)	(184)		(184)
Total Capital Costs (Adjusted)	**809**	**565**	**1,374**
Closure & Reclamation[2]		72	72

Notes: [1] Contingency included at project sub-category basis and totals approximately 9.6%. [2] Closure cost estimate is $66.5 million and additional cost included for carrying cost of closure bond. Sums may not total due to rounding.

Table 21-3: Operating Cost Summary

Description	Units	Operating Cost

Mining[1]	$/t processed	12.93
Processing	$/t processed	8.57
General & Administration	$/t processed	2.62
Concentrate Transport Costs	$/t processed	1.96
Treatment & Refining Charges	$/t processed	2.38
Royalties	$/t processed	0.10
Total Operating Costs	$/t processed	**28.56**
Average Operating Cost	US$/oz PdEq	663
Average Operating Cost	US$/lb CuEq	1.74
Average All-in Sustaining Cost [2]	US$/oz PdEq	781
Average All-in Sustaining Cost [2]	US$/lb CuEq	2.05

Note: [1] Mining cost also noted as $3.49/t mined. [2] All-in sustaining cost excludes the impact of the Wheaton PMPA.

21.2 Basis of Estimate

21.2.1 Project Execution Strategy

Project execution will be carried out with an integrated engineering procurement and construction management and commissioning (EPCM) strategy. Engineering and procurement will be performed by various parties based on the specific work area and scope. This will result in a project management team comprised of personnel from both Gen Mining and external consulting firms that have experience in implementing projects of similar size.

21.2.2 Capital Cost Estimate Base Date

The estimate's base date is Q3 2024. The project's capital cost estimate start date is January 1, 2026. Project completion is achieved at the commercial production milestone, which is defined at the end of plant commissioning.

During the commissioning period and prior to achieving commercial production, operating costs and associated revenues will be capitalized. All non-operating costs required to complete project handover and close-out also form part of capital costs.

21.2.3 Estimate Accuracy

The accuracy of the capital cost estimate for the project meets the Association for the Advancement of Cost Engineering (AACE) Feasibility Study Class 3 guidelines and is within ±15% accuracy (note: AACE classification: low: -10% to -20% and high: +10% to +30%) for final project costs with contingency.

21.2.4 Currency and Commodity Rates

Vendors and contractors were requested to provide quotes in native currency. Pricing has been converted to the base currency of Canadian dollars using the exchange rates listed in Table 21-4.

Table 21-4: Estimate Exchange Rates

Abbreviation	Symbol	Currency	Exchange Rate
AUD	AU$	Australian Dollar	0.9174
EUR	€	Euro	1.50
USD	US$	United States Dollar	1.35
CAD	C$	Canadian Dollar	1.00

21.3 Estimate Methodology

21.3.1 Overview

Working with the consultants defined in Section 1.1, the capital and operating cost estimates were developed with a standard methodology, as follows:

- confirm the scope of work
- define the estimate base date
- define the estimate reporting currency
- define the estimate by WBS
- collect various data sets, including:
  - discipline MTOs
  - pricing from budgetary / firm price bids, budgetary / firm RFP, quotes, databases, and benchmarking
  - direct labour wages
- develop the labour rates
- determine the installed equipment and material costs
- determine the indirect costs
- determine foreign exchange content
- determine the estimate contingency value through a deterministic analysis
- complete internal reviews.

Source data that was used in the development of the estimate includes the following:

- scopes of work
- equipment lists

- material take-offs (MTOs)
- design criteria
- layouts and general arrangements
- process flow diagrams
- engineering calculations
- geotechnical investigation
- project execution plan
- equipment pricing and budget quotes
- material and labour rates, budgetary pricing
- construction installation rates
- mine plan
- plant ramp-up plan
- project schedule.

The direct cost portion of the capital cost estimate was reviewed for completeness and consistency against the project description, and indirect costs were added to the direct cost estimates to complete the estimate.

21.3.2 Work Breakdown Structure

The capital cost estimate was structured on the WBS and the cost coding structure defined for the project. The WBS was developed during the feasibility study and has been updated as required. The first three levels of the WBS are shown in Table 21-5.

Table 21-5: Work Breakdown Structure

WBS L1	WBS L2	Item
1000		Infrastructure
	1100	General Site Preparation
	1200	Mine Infrastructure
	1300	Support Infrastructure
	1400	Permanent Camp
	1500	Laboratory
	1700	Fuel / Oil Systems Storage
	1800	Transload Facility
	1900	Off-Site Facilities
2000		Power & Electrical
	2100	Main Power Source
	2200	Secondary Power Source
	2500	Mine Electrical Room
	2700	Medium-Voltage Distribution Overhead Line
	2800	Automation Network
	2900	IT Network & Fire Detection
	2950	Telecom
3000		Water
	3100	Fresh Water / Wells
	3200	Surface Water Management
	3300	Potable / Domestic Water
	3400	Sewage Water
	3500	Fire Water
	3600	Effluent Water Management
	3700	Tailings Storage Facility (TSF)
	3800	Mine Waste Rock Water Pond
4000		Surface Operations
	4100	Surface Operations Equipment
	4300	Concrete Batch Plant
	4800	Aggregate Plant
5000		Mining
	5100	Mine Development
	5400	Mine Infrastructure
	5500	Mine Equipment
	5600	Mine Dewatering
6000		Process Plant General
	6050	Process Industrial Facilities Site Development
	6100	Crushing
	6200	Grinding
	6300	Flotation & Regrind
	6400	PGM Circuit
	6500	Concentrate Dewatering and Handling
	6600	Tailings Thickening and Pumping
	6700	Reagents
	6800	Process Plant Utilities and Services
	6900	Process Facilities
7000		Construction Indirect
	7100	Engineering, Construction Management, Project Management
	7200	Construction Offices, Facilities & Services
	7300	Contractor Mobilization / Demobilization and Indirects
	7400	Construction Camp Facilities & Operation
	7500	Freight & Logistics
8000		Owner's Cost
	8100	Departments
	8200	Logistics / Taxes / Insurance
	8300	Operations Accommodations
	8400	IBA Payments
	8500	Recruitment Expenses (Miscellaneous)
9000		Pre-Production, Start-Up, Commissioning
	9100	Mine Preproduction / Commissioning
	9200	Mining Haul Roads
	9400	Spares
	9500	Process Plant Preprod / Commissioning
	9600	Operational Readiness Support
	9700	Pre-production Revenue
	9800	Sunk Costs
	9900	Contingency

21.4 Material Take-Off and Estimate Quantities

Material take-offs (MTOs) were provided in a structured and traceable manner in appropriate formats. The preparation and review of the MTOs followed standard engineering practices.

MTOs are based on neat quantities, with factors for waste and details. No design growth factor was applied to these quantities. (There is a specific provision for design growth as outlined in Section 21.5.5.10.) Before an MTO was issued to estimating, a review of the area was undertaken to ensure all scope is captured. The MTO responsibilities of the engineering consultants are as follows:

- Ausenco – Developed MTOs for the process plant and select infrastructure (except as noted in the subsequent sections)
- KP – Developed MTOs for the TSF
- JDS – Jointly developed MTOs for site bulk earthworks with Gen Mining (i.e., access roads, haul roads, etc.), and developed MTOs for the mine services area and initial construction site water management pipelines.

The final consolidated MTOs were reviewed by experienced construction personnel and validated against previous project experience.

21.5 Capital Costs

21.5.1 Direct Costs – Mining

Mine capital costs have been derived from vendor quotations and historic data collected by MMTS at other Canadian open pit mining operations, applied to the Owner-operated mine plan and feasibility study production schedule.

Pre-production mine operating costs (i.e., all mine operating costs incurred before process plant start-up) are capitalized and included in the capital cost estimate. Pre-production pit operating costs include drill and blast, load and haul, support, and GME (General Mine Expense) costs. All mine operations site development costs, such as clear and grub, topsoil stripping, haul road construction, stockpile preparation, and pit dewatering, are capitalized under this category.

The initial mine equipment mobile fleet is planned to be purchased either through financing or lease agreements with the vendors. Down payments and monthly lease payments are capitalised through the initial and sustaining periods of the project. All expansion and replacement fleet purchases made after year 2 of the project are planned as direct capital (non-lease) purchases.

The following items are also capitalized as open pit mining operations infrastructure:

- explosives mixing plant and magazine (financed via vendor)
- maintenance shop tooling and supplies

- mine rescue gear and safety supplies
- radio communications systems
- mine survey gear and supplies
- site global positioning system (GPS) and machine guidance systems
- geotechnical instrumentation
- geology, grade control, and mine planning software licenses
- mine fleet spare parts inventory
- piping for pit dewatering
- dispatch and fleet management systems.

The mining capital cost estimate is presented in Table 21-6. It is the QP's opinion that these estimates are reasonable for the location and planned mine development and can be used for a FS.

Table 21-6: Mining Capital Expenditures

WBS Description	WBS	Initial Capital Cost ($M)	Sustaining Capital Cost ($M)	Total Cost ($M)
Capitalized Mine Development	9100	112.5	0.0	112.5
Mining Equipment[1]	5500	68.9	272.7	341.6
Open Pit Mining Operations Infrastructure	5400	1.6	6.9	8.5
Total		**183.0**	**279.6**	**462.6**

Note: [1]Where possible, equipment is leased during the initial capital period. Numbers shown includes cost of downpayments and lease payments for equipment.

21.5.2 Direct Costs – Water Management and TSF

A description of the water management infrastructure, including the TSF and other installations and systems, is provided in Section 18. The TSF is built in several phases. Phase 1 costs are included in the initial capital cost; however, all other phases are planned for construction and delivery and therefore are included in sustaining expenditures (in Section 21.5.7). Capital costs include earthworks, concrete, structure steel, mechanical, electrical and instrumentation equipment, and labour.

The surface water management system will be constructed to gather all contact water generated on site. It includes ditches, pumping station, and pipelines.

KP prepared the MTOs for the TSF based on Civil 3D Models, neat-line estimates from feasibility-level drawings, and geotechnical borehole and test pit information. Quantities have been based on the feasibility-level embankment raising schedule which is based on the projected mine production. The TSF embankment raise schedule is summarized in Table 21-7.

Table 21-7: TSF Embankment Raise Schedule

Year		Embankment Crest Elevation			
Operating	Cashflow Model	WMP (m)	Cell 1 (m)	Cell 2A (m)	Cell 2B (m)
-2	2023	**344**			
-1	2024	344	**315/316**	**326**	
1	2025	344	**332/333**	**334**	
2	2026	344	**343/344**	**343**	
3	2027	344	343/344	**353**	**336**
4	2028	344	343/344	353	**343**
5	2029	344	343/344	**363**	**353**
6	2030	344	343/344	363	**363**
7	2031	344	343/344	**373**	363
8	2032	344	343/344	373	**373**
9	2033	344	343/344	373	373
10	2034	344	343/344	**380**	**380**
11	2035	344	343/344	380	380
12	2036	344	343/344	380	380
13	2037	344	343/344	380	380
14	2038	344	343/344	380	380

Notes: Embankment elevations based on end of year. Bold values indicate stage completion during the year, blue values indicate no change from the previous year.

JDS developed a first principals cost model based on a contractor-executed model to estimate the initial capital costs of water management infrastructure. Initial capital costs are based on a combination of contractor and Owner's fleet material placement based on the equipment availability and mining and construction schedules. A summary of capital expenditures for water management is presented in Table 21-8.

Table 21-8: Water Management Capital Expenditures

WBS Description	WBS	Initial Capital Cost (C$M)
Surface Water Management	3200	16.0
Process Solids Management Facility (TMF)	3700	59.9
Total		**75.9**

21.5.3 Direct Costs – Surface Operations

Capital expenditures for surface operations equipment are summarized in Table 21-9. Surface operations capital costs consist mainly of the capital required to acquire mobile equipment for site services, the concentrate load-out at the process plant, and for rehandling concentrate at the transload facility to load it into the railcars. It also includes the mobile equipment needed to support the operation and maintenance of the process plant.

A formal request for proposal (RFP) process was completed for the surface operation equipment fleet. The equipment pricing includes, when applicable, tires, transport to the project site, assembly, and commissioning.

Table 21-9: Surface Operations Equipment Capital Expenditures

WBS Description	WBS	Initial Capital Cost ($M)[1]	Sustaining Capital Cost ($M)	Total Cost ($M)
Surface Operations Equipment	4100	3.8	11.6	15.4
Total		**3.8**	**11.6**	**15.4**

Note: [1]Where possible, equipment is leased. Number shown includes cost of downpayments and lease payments for equipment.

21.5.4 Direct Costs – Process Plant and On-site Infrastructure

The process plant and on-site infrastructure capital cost estimate is summarized in Table 21-10.

Table 21-10: Capital Cost Estimate Summary – Process Plant and On-site Infrastructure

WBS Description	WBS	Initial Capital Cost ($M)	Sustaining Capital Cost ($M)	Total Cost ($M)
Main Power Source	2100	19.1	0.0	19.1
Medium-Voltage Distribution Overhead Line	2700	10.6	0.0	10.6
Crushing	6100	72.5	0.0	72.5
Grinding	6200	88.7	10.1	98.8
Flotation & Regrind	6300	54.9	0.2	55.1
Concentrate Dewatering and Handling	6500	12.8	0.0	12.8
Tailings Thickening and pumping	6600	9.1	4.0	13.1
Reagents	6700	8.0	1.6	9.6
Process Plant Utilities and Services	6800	28.5	0.0	28.5
Process Facilities	6900	23.3	0.0	23.3
Total		**327.5**	**15.9**	**343.4**

The process equipment requirements were based on process flowsheets and process design criteria, as defined in Section 17. All major equipment was sized based on the process design criteria to derive a mechanical equipment list. Mechanical scopes of work were developed and sent for budgetary pricing to equipment suppliers. For mechanical equipment costs, 85% of the value was sourced from budgetary quotes; the remainder was sourced through benchmarking against other recent North American flotation concentrator mining projects and studies.

Similarly, sizing of major electrical equipment was based on the project's equipment list. Scopes of work were developed to receive budgetary pricing from equipment suppliers. For the electrical equipment, 97% of the value was sourced from budgetary quotations. The remainder was sourced by benchmarking against other recent North American flotation concentrator mining projects and studies.

To support the major installation construction contracts, engineering for the process plant and infrastructure was completed to a feasibility study level of definition. After deriving the bulk material quantities (earthworks, concrete, steel, piping, cables, etc.) for the process plant and surface infrastructure areas, major construction contracts were formed and sent to the market for supply and installation rates.

21.5.5 Indirect Costs

Indirect costs include costs that are necessary for project completion but are not related to direct construction costs. This includes project indirect costs, Owner's costs, and provision costs, as outlined below.

Project indirect costs include the following:

- temporary construction facilities and construction services
- construction camp, accommodation and messing costs
- project delivery (EPCM) costs
- vendor representative costs during commissioning and construction
- spares
- first fills and initial charges
- contractor commissioning assistance.

Owner's costs include the following:

- Owner's execution team
- operational readiness.

Provision costs include the following:

- contingency.

Indirect costs are summarized in Table 21-11 and are described in more detail in the following sections.

Table 21-11: Indirect Costs

WBS Description	WBS	Initial Capital Cost ($M)	Sustaining Capital Cost ($M)	Total Cost ($M)
Construction Indirect	7000	176.4	7.5	183.9
Owners Cost	8000	17.3	0.0	17.3
Pre-Production, Start-up, Commissioning	9000	228.6	4.6	233.2
Total		**422.3**	**12.1**	**434.4**

21.5.5.1 Temporary Construction Facilities and Construction Services

Contractor indirect costs are related to the contractor's direct costs and include the following:

- mobilization and demobilization
- site offices and utilities
- construction equipment including mobile equipment, scaffolding, safety supplies, etc.
- head office costs/contribution
- financing charges
- insurances
- profit.

Contractors provided indirect costs as part of their pricing schedules. The total estimated cost for temporary construction facilities and construction services is $26.1 million.

21.5.5.2 Construction Camp, Accommodation and Messing

The construction camp bed count was developed using a built-up staffing histogram. The construction camp costs were developed from a blend of budgetary quotes for the purchase of a refurbished camp and the rental of an additional 500-person camp. Budgetary quotes for camp operations were also obtained.

21.5.5.3 Project Delivery (EPCM)

Engineering, procurement, and construction management (EPCM) service costs cover items such as engineering and procurement services (home-office-based), construction management services (site-based), project office facilities, IT, staff transfer expenses, field inspection and expediting, commissioning, corporate overhead, fees, and profit.

The integrated EPCM estimate has been developed by identifying resources (including employees of the Company and consulting firms) over a defined schedule. A detailed assessment of consultants and project general expenses and commissioning services are also included in the EPCM costs.

The estimated cost for EPCM services is $95.0 million.

21.5.5.4 Owner’s Costs

Initial general services are defined as operations management costs for services during the construction and commissioning period. This allows operations personnel to increase their involvement in the mine’s project activities and reduce the period of operation readiness critical for project success. It includes the salaries and other personnel-related costs for management, supply chain, human resources, environmental and sustainability, security, accounting, and information technology. In addition to the above, insurance costs and taxes are included.

21.5.5.5 Freight, Logistics, Taxes and Duties

Freight costs have been calculated from vendor quotations where available—this includes several mechanical equipment packages and freight costs per container for steel. A 10% freight cost was used for equipment coming from overseas where quoted freight numbers were not provided. An 8% freight cost was used for equipment coming from inland where quoted freight numbers were not provided. The cost for the remainder of the material and equipment has been calculated based on historical data as a percentage of the plant equipment and bulk material costs and a percentage of subcontractor’s estimate cost.

21.5.5.6 Vendor Representative Costs

Vendor representative costs have been estimated to capture costs for validating manufacturer warranties, providing on-site expertise, supervising the erection of facilities/equipment during construction, pre-commissioning testing, and commissioning work. Vendor representative costs have been estimated based on previously completed flotation concentrator mining projects.

The cost for vendor representatives and assistance is estimated to be $1.8 million.

21.5.5.7 Spare Parts

Spare parts were included based on vendor quotations and factored whenever a quote was not available. Spare parts are broken down into three categories: operational, commissioning, and capital/insurance spare parts.

Quantities for commissioning spares were recommended and priced by equipment suppliers. Where equipment pricing was not solicited from vendors, factors were applied based on standard estimating practices.

Capital spares prices for mechanical equipment are based on the prices provided by equipment vendors during the enquiry process. If vendors did not provide a cost for capital spares, a factored allowance was included based on the supply price and benchmarked against Ausenco’s in-house database of projects. Allowance factors were based on a six-month period of capital spares.

The cost for spares is estimated to be $10.4 million.

21.5.5.8 Contractor Commissioning Assistance

Contractor assistance during commissioning has been included in the cost estimate. The costs allow for construction contractors to assist the commissioning team with routine tasks during commissioning.

The cost for contractor commissioning assistance is estimated to be $0.9 million.

21.5.5.9 Contingency

Contingency accounts for the difference between the estimated and actual costs of materials and equipment. The level of contingency varies depending on the nature of the contract and the client's requirements. Due to uncertainties at the time the capital cost estimate was developed (in terms of the level of engineering definition, basis of the estimate, schedule development, etc.), it is essential that the estimate includes a provision to cover the risk from these uncertainties.

A contingency rate of 5% to 15% has been used based on the standards for a Class 3 AACE estimate and the level of definition of the project scope. To develop the contingency value, a deterministic contingency analysis was carried out during which a ranging workshop was held internally to evaluate the major cost components in terms of pricing confidence and quantity basis. The analysis provided input ranges for potential underrun/overrun that were in turn applied as percentages to the base estimate. No contingency has been included for project-specific risks (i.e., items noted in Section 21.5.6) or for management reserve.

The following contingency percentages were applied:

- Process plant and site infrastructure – 12.2%
- Mining – 5%
- Owner – 10%.

21.5.5.10 Growth

A growth allowance has been allocated to each line item in the capital cost estimate to reflect the level of design definition and pricing strategy. The allowance provides for additional costs that will be recognized in future project phases as engineering is advanced.

Estimate growth:

- intends to account for items that cannot be quantified based on current engineering status but are empirically known to appear
- represents the accuracy of quantity take-offs and engineering lists based on the level of engineering and design undertaken at a feasibility study level

- represents pricing growth for the likely increase in cost due to development and refinement of specifications as well as re-pricing after initial budget quotations and after finalization of commercial terms and conditions to be used on the project.

Growth has been calculated on a line-item level by evaluating the status of the engineering scope definition and maturity and the ratio of the various pricing sources for equipment and materials used to compile the estimate. The growth rate applied was based on guidance aligning to a Class 3 AACE estimate and the level of definition of the project scope.

21.5.6 Exclusions

The following costs and scope will be excluded from the capital cost estimate:

- taxes and duties
- environmental approvals
- special incentives (schedule, safety, or others)
- no allowance has been made for loss of productivity and/or disruption due to religious, union, social and/or cultural activities
- escalation beyond the base date Q3 2024
- costs related to additional environmental impact assessment and permitting
- future scope changes
- demolition and salvage of any existing on-site structures
- lost time due to weather, labour availability and disruption or force majeure events
- training of operations personnel
- management reserve
- tariffs
- finance charges.

21.5.7 Sustaining Capital Costs

A summary of sustaining capital costs is presented in Table 21-12. Included in the mobile equipment numbers presented in Table 21-12 are the remaining payments for the initial mobile equipment fleet.

Table 21-12: Sustaining Capital Costs

Description	Unit	Total	Years 1-5	Years 6-10
Mining	$M	**272**	214	58
TSF and Water Management	$M	**195**	111	84
Power Infrastructure and Upgrade	$M	**20**	20	
Truck Shop and Other Infrastructure	$M	**55**	55	
Off-Site Infrastructure	$M	**10**	10	
Roads and Earthworks	$M	**7**	7	
MRSA Catch Basin	$M	**2**	2	
Miscellaneous Plant Capital	$M	**3**	3	
Total Sustaining Capital Cost	$M	**565**	**423**	**142**

21.6 Closure Costs

The total closure cost (not including bonding carrying costs of $5.9 million) for the project was estimated to be approximately $66.5 million in December 2022 by WSP. This cost included the decommissioning and reclamation of the project site, site water management, and geotechnical and environmental monitoring programs. Site closure is proposed to be carried out in three stages as follows:

- Phase 1 – Active Closure (Years 1 to 5) – Most of the physical decommissioning, demolition, and reclamation of the site will be undertaken. The open pits will start to be filled with water from the TSF, WMP, SWMP, and MRSA catch basins. Closure-phase geotechnical and environmental monitoring programs will be implemented.
- Phase 2 – Passive Closure (Years 6 to 30) – The open pits will continue to fill with water. Runoff collected in the MRSA catch basins will be pumped to the pits. Natural drainage will be restored from the TSF, WMP, and SWMP. Closure-phase geotechnical and environmental monitoring programs continue.
- Phase 3 – Post-Closure (Years 31 to 50) – The open pits are filled with water and excess water is discharged to Hare Lake to maintain the target water level elevation. Closure-phase geotechnical and environmental monitoring programs continue. Infrastructure is maintained as required.

21.7 Operating Costs

21.7.1 Operating Cost Summary

Operating expenditures are summarized in Table 21-13. Operating costs are divided into three areas: mining, processing, and general and administration (G&A).

Additional royalties for concentrate transportation to smelters and smelting and refining charges have also been incorporated into the operating cost summaries. Details on treatment, refining, and concentrate transport charges are summarized in Section 19. The transportation costs and smelter conversion charges (TC/RCs) are deducted from gross smelter revenues to estimate the NSR.

Operating costs are summarized in Table 21-13.

Table 21-13: Operating Cost Summary

Operating Cost Summary	Unit	Total	Years 1-5	Years 6-10	Years 10-13
Mining	$M	**1,626**	604	802	220
Processing	$M	**1,077**	397	425	255
General & Administration	$M	**329**	96	135	98
Treatment & Refining Charges	$M	**299**	110	124	65
Concentrate Transport & Insurance	$M	**247**	95	99	53
Royalties	$M	**12**	6	6	0
Total Operation Cost	$M	**3,590**	**1,308**	**1,592**	**691**
Unit Cost	**$/t processed**	**28.56**	**26.78**	**31.46**	**25.12**

21.7.2 Mining Costs

Mine operating costs are built up from first principles and applied to the feasibility study mine production schedule. Cost inputs are derived from vendor quotations and historical data collected by MMTS. This includes cost and consumption rates for such inputs as fuel, lubes, explosives, tires, undercarriage, GET, drill bits/rods/strings, machine parts, machine major components, labour rates, and operating and maintenance labour ratios. Equipment and labour productivity inputs are estimated for the specific equipment fleet and rationalized to existing Canadian open pit mine operations. Simulated hauler cycle times from source pit benches to planned destinations are utilized to inform hauler productivities.

Annual production tonnes are taken from the feasibility study mine production schedule. Drilling, loading, and hauling hours are calculated based on the capacities and parameters of the specified equipment fleet. The production tonnes and primary fleet hours also provide the basis for blasting consumables and support fleet inputs. Site development costs cover clearing and grubbing, geotechnical dewatering, and crush rock production. General mine expense costs cover the salaries and departmental overheads for Owner-managed mine operations, mine maintenance, and technical services departments.

Estimated life-of-mine unit mining costs are shown in Table 21-14. It is the QP's opinion that the estimates are reasonable for the location and planned mine operation activities and can be utilized for a feasibility study.

Table 21-14: Mining Cost Summary

Mining Operating Cost	Unit	Total	Years 1-5	Years 6-10	Years 11-13
Drilling	$M	**125**	45	70	10
Blasting	$M	**220**	92	103	25
Loading	$M	**219**	77	114	28
Hauling	$M	**572**	193	296	83
Support	$M	**281**	111	135	35
Site Development	$M	**53**	23	21	9
General Mine Expense	$M	**156**	62	63	31
Total Mining Costs	$M	**1,626**	604	802	220
Unit Cost	**$/t mined**	**3.49**	3.45	3.26	4.97

21.7.3 Processing Costs

Process costs are estimated based on design processing rate of 10.1 Mt/a. The operating costs are separated into the categories of labour, power, reagents and consumables, maintenance, mobile equipment, and laboratory expenses. A breakdown of costs by categories and their unit costs is presented in Table 21-15.

Table 21-15: Average Annual Process Operating Cost

Cost Centre	$M	$/t Processed
Operating Labour	7.7	0.76
Maintenance Labour	6.7	0.66
Power	26.8	2.65
Maintenance	4.3	0.42
Regents and Consumables	32.7	3.23
G&A	1.3	0.13
Mobile Equipment	3.5	0.34
Laboratory (excluding Mining Samples)	1.3	0.12
Total Plant Operating Cost	**84.2**	**8.32**

21.7.3.1 Labour

Plant staffing was estimated on a zero-based headcount for operating positions with additional benchmarking against similar projects. Labour costs incorporate requirements for plant operation, such as management, metallurgy, operations, maintenance, site services, assay laboratory, and contractor allowance. Operational labour averages 99 (19 staff and 80 operational) employees, as shown in Table 21-16. Assay laboratory services are planned to be provided by contractor.

Personnel were divided by position and classified as either staff or hourly employee. The rates were estimated as overall rates, including all burden costs. The operating staff has a cost at $0.76/t at 9% of total operating cost while maintenance staff has a cost at $0.66/t at 8% of total operating cost.

Table 21-16: Process Operation and Maintenance Staffing Plan

Labour / Contractor Summary	Quantity
Process Operations	53
Process Maintenance	46
Total	**99**

21.7.3.2 Plant General Maintenance Parts, Tools, and Supplies

General maintenance costs were 5% of the total operating cost at $ 0.42/t of plant feed. Annual maintenance consumable and supply costs were factored based on a total installed mechanical capital cost by area to account for repairs to pumps, mechanical equipment, platework, piping, etc.

21.7.3.3 Power

Process power draw was based on the average power utilization of each motor on the electrical load list for the process plant and services. Power will be supplied by the Ontario Power Generation grid to the facilities at site at a price of $0.07/kWh. The total process plant power cost is $2.65/t of plant feed, representing approximately 32% of the total process operating cost estimate.

21.7.3.4 Reagents and Operating Consumables

Individual reagent consumption rates were estimated based on the metallurgical testwork results, Ausenco's in-house calculation methods, industry practice, and peer-reviewed literature. Each reagent cost was obtained through vendor quotations in Q2 2024.

Other consumables (e.g., liners for the primary crusher, SAG mill, ball mill, and ball media for the mills) were estimated using metallurgical testwork results (abrasion) and modelling simulations to forecast nominal power consumption.

Reagents and consumables represent approximately 39% of the total process operating cost at $3.23/t of plant feed, as shown in Table 21-17. After the tailings thickener is installed, the reagent and consumables costs will go up to $3.35/t with the additional usage of flocculant and coagulant.

Table 21-17: Reagent and Consumables

Area	Cost ($M/a)	Cost ($/t Processed)
Crushing Circuit	1.0	0.10
SAG Milling	12.8	1.27
Ball Milling	9.4	0.93
Reagents	7.2	0.71
Regrind Mill	2.1	0.21
Total (Initial)	32.7	3.23
Thickening (Future)	1.3	0.12
Total (Future)	33.9	3.35

21.7.3.5 Process Plant Mobile Equipment Maintenance

Other mobile equipment costs were based on a scheduled number of light vehicles and mobile equipment, including fuel, maintenance, spares, and tires, etc. These costs represent approximately 4% of the total process operating cost at $0.34/t of plant feed.

21.7.4 General and Administration

General administration and support services costs are related to the following:

- general management
- accounting and finance
- IT
- environmental and social management
- human resources
- supply chain
- camp
- surface support
- health and safety
- security
- supply chain equipment
- commitments to and agreements with Indigenous communities.

In most cases, these services represent fixed costs for the entire site. General administration costs exclude certain costs such as transporting concentrates and environmental rehabilitation costs. G&A staff was estimated on a per position basis with consideration to the positions required to support operations. There was no consideration for head-office support or supervision staff costs associated with head office employees. The average annual G&A cost is $26.1 million and $2.62/t.

22 ECONOMIC ANALYSIS

22.1 Forward-Looking Information Cautionary Statements

The results of the economic analyses discussed in this section represent forward-looking information as defined under Canadian securities law. The results depend on inputs that are subject to known and unknown risks, uncertainties, and other factors that may cause actual results to differ materially from those presented herein. Information that is forward-looking includes the following:

- mineral resource and reserve estimates
- assumptions around commodity prices and exchange rates
- proposed mine production plan
- projected mining and process recovery rates
- assumptions around mining dilution and the ability to mine in areas previously exploited using mining methods as envisaged; the timing and amount of estimated future production
- sustaining costs and proposed operating costs
- assumptions as to closure costs and closure requirements, as well as salvage value of assets at end of production
- assumptions as to environmental, permitting, and social risks.

Additional risks to the forward-looking information include the following:

- changes to costs of production from what is assumed (inflation, tariffs, exchange rates, etc.)
- unrecognized environmental risks
- unanticipated reclamation expenses
- unexpected variations in quantity of mineralized material, grade, or recovery rates
- accidents, labour disputes, and other risks of the mining industry
- geotechnical or hydrogeological conditions during mining being different from what was assumed
- failure of mining methods to operate as anticipated
- failure of plant, equipment, or processes to operate as anticipated
- changes to the assumed availability of electrical power, and the power rates used in the operating cost estimates and financial analysis
- ability to maintain the social licence to operate
- changes to interest rates
- changes to tax rates.

22.2 Introduction

This section presents the economic analysis of the Marathon Project. The elements of the economic model principally consist of metal production and revenues, royalty agreements, operating costs, capital costs, sustaining capital, closure and reclamation costs, taxation, and net project cash flow.

The economic analysis is carried out in real terms (i.e., without inflation factors) in Q4 2024 Canadian dollars without any project financing but including equipment financing, PMPA, and costs for closure bonding. The economic results are calculated as of the beginning of Q1 Year -3, which corresponds to the start of the pre-commercial production (or pre-production) capital cost period (over 13 quarters), including engineering and procurement, with all prior costs treated as sunk costs but considered for the purposes of taxation calculations. The economic results such as the NPV and IRR are calculated based on quarterly cashflows.

22.3 Assumptions

The key assumptions influencing the economics of the project include the following:

- metal prices and smelter terms stated in US dollars
- Canadian dollar to United States dollar (CAD:USD) exchange rate
- diesel price in dollars per litre ($/L) and electricity price in dollars per kilowatt-hour ($/kWh).

22.3.1 Metal Prices and Smelter Terms

The metal prices and smelter terms selected for the economic evaluation are summarized in Table 22-1. The basis of estimate for metal prices and smelter terms is described in Section 19.

Table 22-1: Metal Prices and Smelter Terms

Metal	Palladium	Copper	Platinum	Gold	Silver
Metal Price	US$1,525/oz	US$4.00/lb	US$950/oz	US$2,000/oz	US$24/oz
Refining Charges	US$24.50/oz	US$0.079/lb	US$24.50/oz	US$5.00/oz	US$0.50/oz
Payable Rate	95%	96.5%	93%	93.5%	93.5%
Minimum Deduction	2.6 g/t	1.0%	2.6 g/t	1.0 g/t	30 g/t

22.3.2 Exchange Rate

The base case exchange rate for economic evaluation is 1.35 Canadian dollar to 1.00 U.S. dollar. Most operating costs are estimated in Canadian dollars with metal revenue dominated by the U.S. dollar converted to Canadian dollars. The basis of this estimate is based on forward curve pricing.

22.3.3 Fuel and Electricity

The reference diesel fuel price for the operating cost estimate $1.10/L, representing the estimated delivered price to site for coloured diesel destined for off-road vehicles. It includes provincial and federal excise tax. The price assumption does not include a carbon tax cost assumption.

The reference electricity price used for estimating operating costs is $0.07/kWh.

22.4 Metal Production and Revenues

Process plant commissioning will take place over six months. Commercial production will be achieved when the plant reaches approximately 60% of nameplate capacity for 30 days. Ramp-up continues for an additional four months until the throughput reaches 100% of initial nameplate capacity (9.2 Mt/a). Plant commissioning starts in the Q3 of Year -1 and ramp-up continues until the end of Q3 of Year 1. Beginning in Year 3, following the installation of the pebble crusher, the plant will continue to ramp-up to 10.1 Mt/a by Q4 of Year 3.

Payable metal over the project life includes 2,161 koz of palladium, 532 Mlbs of copper, 488 koz of platinum, 160 koz of gold and 3,051 koz of silver, as presented in Table 22-2. At base case metal price assumptions, this results in an estimated gross revenue of $8,478 million. Palladium represents 52% of gross revenue followed by copper (34%), platinum (7%), gold (5%), and silver (1%). Of this amount, $184 million—net of royalties, smelter transport, and refining costs—is generated during pre-production and is credited against pre-production costs.

The annual process plant schedule and metal production is summarized in Table 22-3. In the first six years of operation, the palladium head grade (at 0.81 g/t) will be above the average head grade (at 0.64 g/t). Additional details on the production schedule are presented in Section 16.

Table 22-2: Life-of-Mine Metal Production & Revenue Summary

Metal Production	Unit	Pre-Production	Operations	Total
Tonnage Processed	kt	2,618	125,711	128,329
Concentrate Production	k dmt	30	1,478	1,507
Head Grades				
Cu	%	0.24	0.22	0.21
Ag	g/t	1.70	1.70	1.67
Au	g/t	0.10	0.07	0.07
Pt	g/t	0.28	0.20	0.20
Pd	g/t	0.97	0.64	0.64
Contained Metal				
Cu	Mlbs	14	591	605
Ag	koz	143	6,736	6,879
Au	koz	8	283	291
Pt	koz	23	792	816
Pd	koz	82	2,546	2,628
Recovered Metal				
Cu	Mlbs	12	553	565
Ag	koz	88	4,439	4,527
Au	koz	6	204	209
Pt	koz	18	600	618
Pd	koz	68	2,246	2,314
Average Recoveries				
Cu	%	87.2	93.6	93.5
Ag	%	61.6	65.9	65.8
Au	%	70.8	72.0	72.0
Pt	%	75.1	75.8	75.8
Pd	%	82.6	88.2	88.0
Payable Metals				
Cu	Mlbs	11	521	532
Ag	koz	56	2,995	3,051
Au	koz	5	155	160
Pt	koz	15	473	488
Pd	koz	63	2,097	2,161
Average Payability				
Cu	%	92.9	94.2	94.1
Ag	%	63.3	67.5	67.4
Au	%	80.9	76.2	76.4
Pt	%	82.9	78.8	78.9
Pd	%	93.5	93.4	93.4
Gross Revenue				
Cu	$M	61	2,813	2,874
Ag	$M	2	97	99
Au	$M	12	419	432
Pt	$M	19	607	625
Pd	$M	130	4,318	4,448
Total	**$M**	225	8,253	8,478

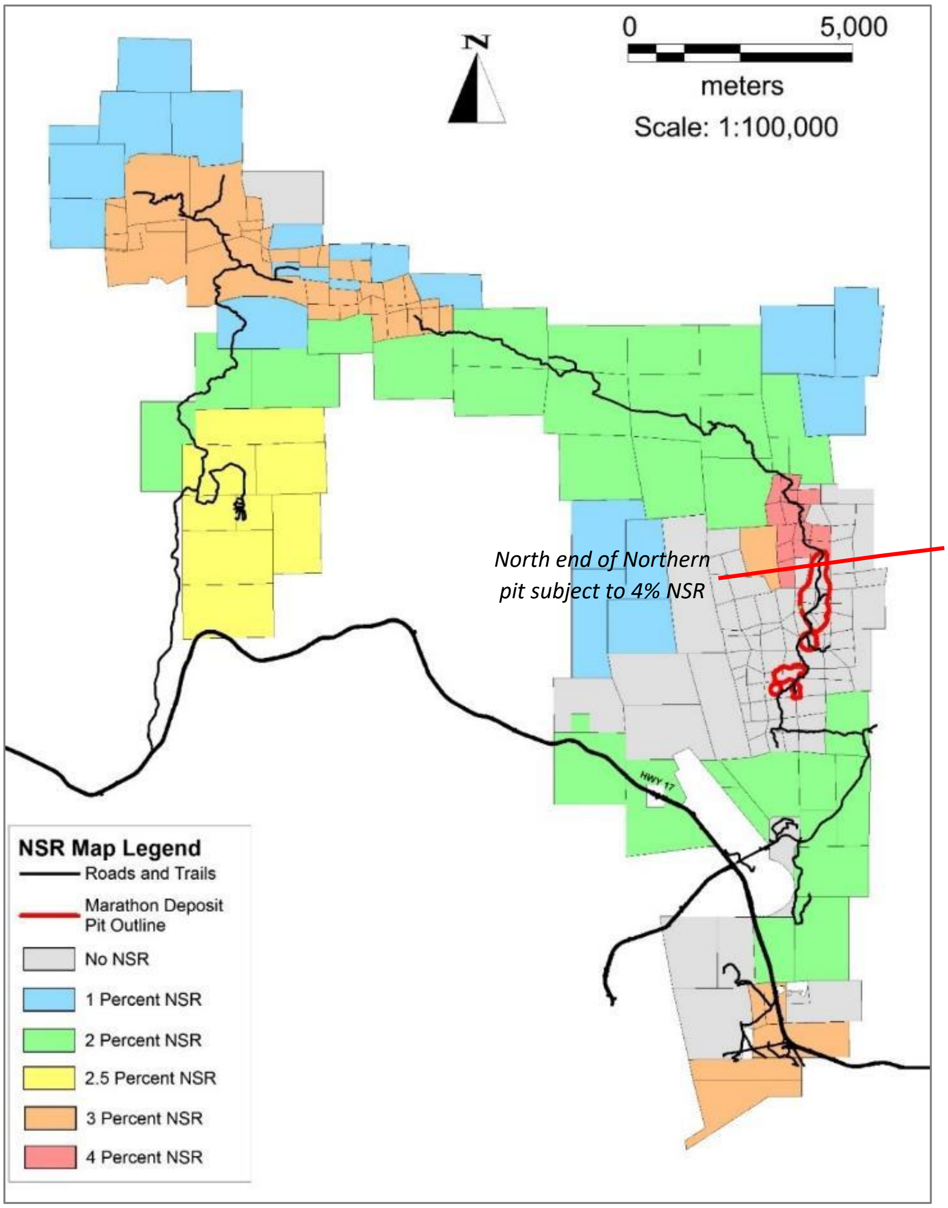
Table 22-3: Annual Metal Production – Operations Period

Physicals Summary	Unit	Total	Y-3	Y-2	Y-1	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	Y13
Operating Years	years	12.6				0.8	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.8
Tonnage Milled	Kt	125,711	0	0	0	0	7,555	9,775	10,028	10,120	10,120	10,120	10,120	10,120	10,120	10,120	10,120	10,120
Cu Con. Production	k dmt	1,450				88	147	116	100	100	126	143	118	87	122	152	110	41
Head Grades																		
Cu	%	0.21	-	-	-	0.20	0.30	0.21	0.16	0.16	0.24	0.28	0.22	0.11	0.23	0.30	0.19	0.11
Ag	g/t	1.63	-	-	-	1.15	1.49	1.53	1.64	1.57	1.79	1.88	1.76	1.15	2.01	2.28	1.77	1.25
Au	g/t	0.07	-	-	-	0.06	0.08	0.08	0.08	0.08	0.08	0.08	0.06	0.04	0.07	0.08	0.05	0.04
Pt	g/t	0.19	-	-	-	0.17	0.25	0.25	0.26	0.29	0.21	0.20	0.15	0.11	0.16	0.22	0.13	0.09
Pd	g/t	0.62	-	-	-	0.62	0.96	0.81	0.73	0.82	0.70	0.72	0.50	0.29	0.57	0.71	0.36	0.24
Contained Metal																		
Cu	Mlbs	591	-	-	-	38	66	47	35	36	54	63	48	25	51	68	43	17
Ag	koz	6,736	-	-	-	324	468	495	533	511	581	613	572	374	655	742	577	292
Au	koz	283	-	-	-	17	26	26	26	27	26	27	19	14	22	27	18	9
Pt	koz	792	-	-	-	48	78	80	85	96	69	66	48	34	54	71	43	21
Pd	koz	2,546	-	-	-	175	300	260	238	268	226	233	161	94	185	230	119	56
Recovered Metal																		
Cu	Mlbs	553	-	-	-	35	62	45	33	33	50	59	45	23	48	64	40	16
Ag	koz	4,439	-	-	-	191	299	326	362	342	395	417	389	207	445	505	392	170
Au	koz	204	-	-	-	12	19	19	19	20	19	20	13	9	16	20	12	6
Pt	koz	600	-	-	-	35	61	62	68	78	52	50	34	23	39	54	29	14
Pd	koz	2,246	-	-	-	151	267	231	211	238	200	206	142	82	163	203	104	49
Average Recoveries																		
Cu	%	93.6	-	-	-	91.3	93.8	94.0	93.3	93.4	94.0	94.0	94.0	92.6	94.0	94.0	93.8	92.5
Ag	%	65.9	-	-	-	58.9	63.8	65.9	68.0	66.9	68.0	68.0	68.0	55.3	68.0	68.0	68.0	58.2
Au	%	72.0	-	-	-	69.7	74.0	73.5	73.7	73.8	73.4	74.0	69.3	65.9	71.4	74.0	68.6	64.0
Pt	%	75.8	-	-	-	73.1	78.6	78.6	79.6	81.5	76.2	75.6	70.9	66.2	72.4	76.6	69.1	64.3
Pd	%	88.2	-	-	-	86.1	88.9	88.8	88.6	88.8	88.5	88.5	87.9	86.9	88.1	88.5	87.3	86.6
Payable Metals																		
Cu	Mlbs	521	-	-	-	32	58	42	31	31	48	56	43	21	45	61	38	15
Ag	koz	2,995	-	-	-	102	155	212	264	244	272	277	273	121	326	356	284	109
Au	koz	155	-	-	-	9	14	15	16	16	15	15	9	7	12	15	9	4
Pt	koz	473	-	-	-	27	48	52	59	69	41	38	24	15	29	42	20	9
Pd	koz	2,097	-	-	-	141	250	216	198	225	188	194	131	74	152	190	94	44
Average Payabilities																		
Cu	%	94.2	-	-	-	93.3	94.4	93.4	92.7	93.2	94.6	95.2	94.7	92.1	94.8	95.3	94.4	91.8
Ag	%	67.5	-	-	-	53.3	51.9	65.1	73.0	71.2	68.7	66.5	70.3	58.8	73.2	70.5	72.4	64.4
Au	%	76.2	-	-	-	74.6	74.9	79.7	83.0	83.1	78.1	76.5	70.5	69.7	74.8	74.9	70.4	63.9
Pt	%	78.8	-	-	-	76.5	78.3	83.2	86.8	88.6	79.0	76.0	71.1	67.9	73.8	76.5	68.6	62.6
Pd	%	93.4	-	-	-	93.5	93.7	93.7	94.1	94.4	93.9	93.8	92.7	90.7	93.4	93.4	90.7	89.1
Gross Revenue																		
Cu	$ M	2,813	-	-	-	174	313	225	165	168	257	305	232	116	244	328	206	79
Ag	$ M	97	-	-	-	3	5	7	9	8	9	9	9	4	11	12	9	4
Au	$ M	419	-	-	-	24	39	41	44	44	40	41	25	18	32	40	23	10
Pt	$ M	607	-	-	-	35	61	67	76	89	53	49	31	20	37	53	26	11
Pd	$ M	4,318	-	-	-	291	515	445	409	462	387	398	271	153	313	391	194	90
Total	**$ M**	8,253	-	-	-	526	933	784	702	772	746	802	567	310	636	823	458	193

22.5 Royalties

Mining lease 109766 at the north end of the North pit (pink block in Figure 22-1) is subject to a 4% NSR royalty, 2% of which is payable to Teck Resources; the other 2% is payable to Benton Resources. The ore tonnage mined from these claims is estimated at 5.9 Mt with an estimated NSR value of $387 million, resulting in royalty payments of $15.5 million, of which $3.2 million is associated with pre-commercial production ore.

Figure 22-1: Claims Subject to Royalties



Source: Gen Mining, 2022

22.6 Capital Cost Summary

Capital expenditures include initial capital as well as sustaining capital spent after the start of commercial production. Commercial production has been defined as achieving 60% of nameplate capacity throughput for a period of 30 days.

22.6.1 Initial Capital

Initial capital of $992 million includes all costs expected to be incurred as of the effective date of the technical report (excluding historical sunk costs) until the point where commercial production is achieved. This includes costs related to engineering, equipment and installation, process plant and mine infrastructure construction, pre-production operating costs, and any other costs associated with bringing the project into operation.

The initial capital cost includes a contingency of $87 million, which is 9.6% of the total capital cost before contingency. Additionally, pre-production ramp-up activities will generate an estimated $184 million in revenue during the pre-commercial production period, which will be credited to total capital cost of the project. Additional details regarding initial capital cost breakdowns can be found in Section 21.

The economic analysis assumes equipment financing for a large portion of the initial mobile equipment fleet. The amount included in initial project capital is limited to downpayments and leasing payments during the pre-production period.

22.6.2 Sustaining Capital Expenditures

Sustaining capital is required during operations principally for additional equipment purchases, mine civil works, TSF expansion and power infrastructure. Remaining lease payments for the initial mining fleet are also included in sustaining capital. Capital rebuilds for the mine fleet have been included in operating costs. The sustaining capital is estimated at $565 million. Additional details related to sustaining capital costs can be found in Section 21.5.7.

22.6.3 Salvage Value

Salvage value has not been estimated as part of the feasibility study update. Some salvage value could be expected for mining equipment purchased during operations that will not have been fully utilized to its useful life. A residual value is probable for some of the major process plant equipment such as grinding mills, crushers, and tank agitators.

22.6.4 Reclamation and Closure Costs

The total closure cost for the project was estimated to be approximately $66.5 million in December 2022 by WSP E&I Canada Limited (WSP). This cost included decommissioning and reclamation of the project site, managing site water, and implementing geotechnical and environmental monitoring programs. As part of the project's obligations with the province, financial assurance in an amount equal to the closure estimate must be posted with the Ministry of Mines. The model assumes this financial assurance will be posted through a typical surety bond. The total closure cost including surety bond carrying interest is $72 million.

22.7 Working Capital

Working capital is required to finance supplies in inventory. Given the accessibility of the site, the working capital requirements are considered low compared to remote operations. Additionally, working capital incorporates the benefit of an early payment option presented by the proposed off-takers, which allows for cash receipt of concentrate produced on site, effectively reducing receivables to 15 days for concentrate sales.

22.8 Operating Cost Summary

Operating costs include mining, processing, G&A (including estimated payments to Indigenous communities), concentrate treatment charges, refining charges, concentrate transportation charges, and royalties. The operating cost summary is presented in Table 22-4.

Detailed operating cost budgets have been estimated from first principles based on detailed wage scales, consumable prices, fuel prices, and productivities. For a more detailed discussion on operating costs, refer to Section 21.

The average operating cost for the life of mine is $28.56/t of ore processed.

Table 22-4: Operating Cost

Category	Total Costs ($M)	Unit Cost ($/t Processed)
Mining	1,626	12.93
Processing	1,077	8.57
G&A	329	2.62
Concentrate Transport Costs	247	1.96
Treatment & Refining Charges	299	2.38
Royalties	12	0.10
Total Operating Cost	**3,590**	**28.56**

22.9 All-In Sustaining Cost Summary

The all-in sustaining cost, which includes closure, reclamation, and sustaining capital costs but excludes the impact of the Wheaton PMPA, averages US$781/oz PdEq or US$2.05/lb CuEq over the life of mine, as presented in Table 22-5.

Table 22-5: AISC Cost Summary

Category	Total Costs ($M)
Total Operating Cost	3,590
Closure & Reclamation	72
Sustaining Capital	565
All-in Sustaining Cost (AISC)	**4,228**
All-in Sustaining Cost (AISC)	**US$781/oz PdEq**
All-in Sustaining Cost (AISC)	**US$2.05/lb CuEq**

22.10 Wheaton PMPA

The terms of the Wheaton PMPA are described in Section 19. The economic analysis includes the deposits to be received under the PMPA during the development period, and the metal delivered (net of production payments) to Wheaton under the terms of the PMPA. A comparison of project economics after-tax with and without the PMPA is presented in Table 22-6. For the purposes of this report, the PMPA is included in the economic calculations. Additional costs or penalties associated with delayed start-up as defined in the PMPA are considered a financing cost and are not included in the economic analysis.

Table 22-6: Wheaton PMPA Impact Analysis

Economic Analysis Base Case	Units	Including PMPA	Excluding PMPA
After-Tax Undiscounted Cash Flow	$M	**2,031**	2,227
After-Tax NPV6%	$M	**1,070**	1,139
After-Tax IRR	%	**27.6**	24.9
After-Tax Payback	years	**1.9**	2.2

22.11 Taxation

The after-tax results assume the project is a taxable Canadian entity that is subject to the tax rules of Ontario and Canada. The calculations reflect the benefit of any historical tax positions held by Gen PGM as of December 31, 2023. The Ontario mining tax, federal income tax, and provincial income tax during the life of mine is estimated at $977 million.

22.11.1 Ontario Mining Tax

Ontario mining tax is levied at a rate of 10% on taxable profit in excess of $0.5 million derived from a mining operation in Ontario. There are specific guidelines for calculating profit and depreciation. The Ontario mining tax for the project is estimated at $311 million over the life of mine.

22.11.2 Income Taxes

Federal and provincial income taxes have both been estimated from an identical taxable income derived by deducting Ontario mining tax and various tax depreciation allowances. The federal income tax rate is 15% while the Ontario income tax rate is 10%. The total federal income tax is estimated at $400 million and the provincial income tax at $267 million.

22.12 Economic Results

The main economic metrics used to evaluate the project consist of net undiscounted after-tax cash flow, net discounted after-tax cash flow or NPV, IRR, and payback period. The base case discount rate used to evaluate the present value of the project is 6%. A summary of the project economic results is presented in Table 22-9 and the annual project cash flows are presented in Table 22-10. The total after-tax cash flow over the life of mine is $2,031 million and after-tax $NPV_{6\%}$ is $1,070 million. The after-tax project cash flow results in a 1.9-year payback period from the start of commercial operations with an after-tax IRR of 27.6%.

Table 22-7: Base Case Project Economics

Production Summary (Life-of-Mine)Values					Values
Tonnage Mined (Mt)					489.7
Ore Processed (Mt)					128.3
Strip Ratio (W:O)					2.82
Cu Concentrate (k dmt)					1,507
Metal Production	**Cu**	**Ag**	**Au**	**Pt**	**Pd**
Head Grade (% or g/t)	0.21	1.67	0.07	0.20	0.64
Cont. Metal (Mlbs / koz)	605	6,879	291	816	2,628
Rec. Metal (Mlbs / koz)	565	4,527	209	618	2,314
Pay. Metal (Mlbs / koz)	532	3,051	160	488	2,161
Cash Flow Summary ($M)					
Gross Revenue					8,253
- Mining Costs (incl. Rehandle)					(1,626)
- Processing Costs					(1,077)
- Concentrate Transportation					(247)
- Treatment & Refining charges					(299)
- G&A Costs (incl. IBA Payments)					(329)
- Royalty Costs					(12)
Total Operating Costs					(3,590)
Operating Cash Flow Before Taxes					4,663
Initial Capital Cost					(809)
Sustaining Capital Cost					(565)
Total Capital Cost					(1,374)
Closure Costs					(72)
Stream Adjustment (Net of Production Payments and Prepayments)					(236)
Interest and Financing Expenses					0
Taxes (Mining, Provincial & Federal)					(977)
Before-Tax Results					
Before-Tax Undiscounted Cash Flow ($M)					3,009
NPV 6% Before-Tax					1,660
Project Before-Tax Payback Period					1.7
Project Before-Tax IRR					35.1%
After-Tax Results					
After-Tax Undiscounted Cash Flow					2,031
NPV 6% After-Tax					1,070
Project After-Tax Payback Period					1.9
Project After-Tax IRR					27.6%

Table 22-8: Project Cash Flow Summary ($M)

Cash Flow Summary	Total[2]	Y-3	Y-2	Y-1	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	Y13
Gross Revenue	**8,253**				526	933	784	702	772	746	802	567	310	636	823	458	193
Mining	**(1,626)**				(78)	(129)	(112)	(147)	(138)	(171)	(170)	(146)	(163)	(153)	(121)	(73)	(26)
Processing	**(1,077)**				(63)	(79)	(85)	(85)	(85)	(85)	(85)	(85)	(85)	(85)	(85)	(85)	(85)
General & Administration	**(329)**				(13)	(17)	(17)	(17)	(32)	(31)	(33)	(26)	(17)	(29)	(38)	(44)	(16)
Treatment & Refining Charges	**(299)**				(16)	(27)	(22)	(21)	(24)	(26)	(32)	(25)	(16)	(26)	(33)	(22)	(10)
Concentrate Transport & Insurance	**(247)**				(21)	(24)	(19)	(16)	(16)	(21)	(24)	(20)	(15)	(20)	(25)	(18)	(9)
Royalties	**(12)**				(4)	(2)	(0)	(0)	(0)	(1)	(3)	(0)	(1)	(0)		(0)	(0)
Total Operating Costs	**(3,590)**				(194)	(278)	(254)	(286)	(295)	(334)	(347)	(301)	(296)	(314)	(302)	(242)	(147)
EBITDA	**4,663**				332	655	530	416	476	413	456	266	14	322	521	216	46
Initial Capital	**(905)**	(146)	(443)	(284)	(33)												
Contingency	**(87)**	(9)	(58)	(20)													
Pre-Production Revenue	**184**			116	68												
Sustaining Capital	**(565)**				(84)	(65)	(118)	(92)	(64)	(46)	(40)	(26)	(10)	(20)			
Change in Working Capital	**17**	1	1	(30)	(17)	(12)	11	5	(3)	3	(2)	8	11	(14)	(9)	12	51
Closure Costs	**(72)**	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(66)								
Stream Adjustments (Net of Deposits)	**(236)**		140	60	(26)	(43)	(45)	(49)	(52)	(41)	(41)	(25)	(17)	(31)	(40)	(18)	(7)
Pre-Tax Cash Flow	**3,009**	(154)	(361)	(149)	241	534	378	278	290	329	372	224	(2)	257	471	210	91
Taxes (Mining, Provincial, Federal)	**(977)**				(33)	(125)	(120)	(87)	(109)	(88)	(105)	(52)		(61)	(130)	(45)	(22)
After-Tax Cash Flow	**2,031**	(154)	(361)	(149)	207	410	258	191	181	240	267	172	(2)	196	342	164	68

Notes: Numbers may not add due to rounding.

22.13 Sensitivity Analysis

A sensitivity analysis was performed for variations for metal price, exchange rate, operating cost, and capital cost. Each parameter was calculated independent of any correlations that may exist between variables such as for gold price and exchange rate, which tend to be negatively correlated. The project is most sensitive to metal prices and exchange rate followed by operating cost and initial capital cost. The exchange rate sensitivity is similar to metal prices.

The results of the sensitivity analysis on the $NPV_{6\%}$ and IRR are presented in Figures 22-2 and 22-3, respectively. Project after-tax sensitivities are summarized in Table 22-11.

Figure 22-2: After-Tax NPV 6% Sensitivity

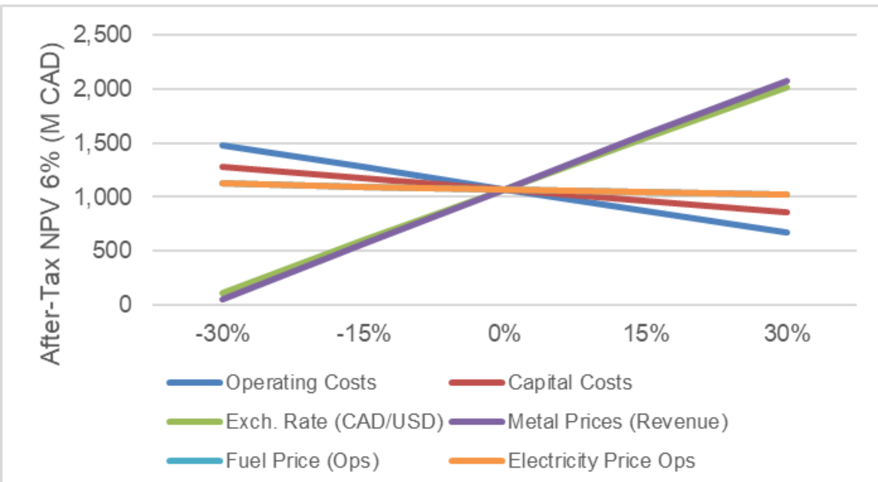
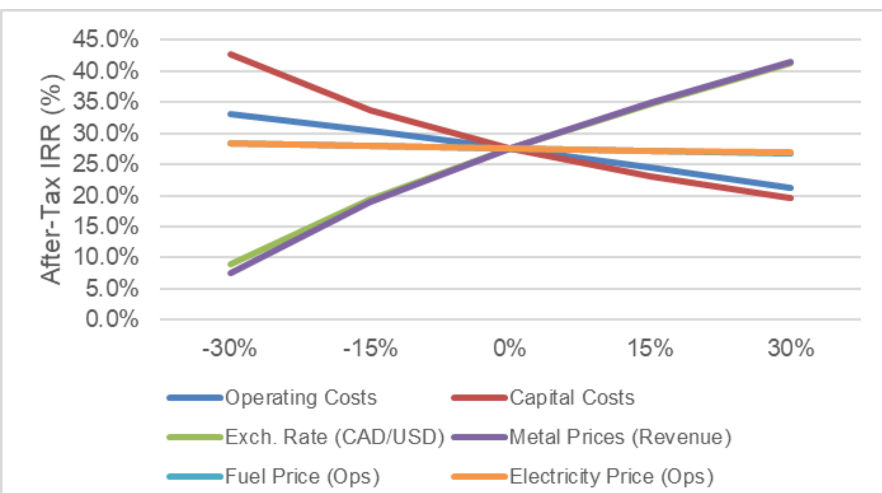


Figure 22-3: After-Tax IRR Sensitivity



Note: Exchange Rate and metal price sensitivity are very similar with overlapping lines.

Table 22-9: Project After-Tax Sensitivities

After-Tax NPV 6% Results		Palladium Price Sensitivity (US$/oz)							
		800	1,000	1,250	1,500	1,525	1,750	2,000	2,200
Copper Price Sensitivity (US$/lb)	2.50	(291)	(9)	308	612	643	916	1,214	1,466
	3.00	(120)	145	452	758	788	1,057	1,368	1,606
	3.50	41	296	598	899	929	1,211	1,509	1,746
	4.00	194	438	741	1,040	**1,070**	1,352	1,649	1,886
	4.50	337	582	883	1,195	1,225	1,492	1,788	2,023
	5.00	484	723	1,023	1,335	1,365	1,632	1,927	2,165
	5.50	625	866	1,178	1,475	1,505	1,771	2,067	2,306

After-Tax IRR Results		Palladium Price Sensitivity (US$/oz)							
		800	1,000	1,250	1,500	1,525	1,750	2,000	2,200
Copper Price Sensitivity (US$/lb)	2.50	0.0%	5.7%	13.5%	19.9%	20.5%	25.5%	30.7%	34.5%
	3.00	2.8%	9.6%	16.4%	22.4%	23.0%	27.8%	32.7%	36.4%
	3.50	7.0%	12.9%	19.2%	24.8%	25.4%	30.0%	34.7%	38.3%
	4.00	10.5%	15.8%	21.7%	27.1%	**27.6%**	32.1%	36.6%	40.1%
	4.50	13.6%	18.5%	24.1%	29.3%	29.8%	34.1%	38.5%	41.9%
	5.00	16.4%	21.0%	26.4%	31.4%	31.9%	36.0%	40.3%	43.6%
	5.50	19.0%	23.5%	28.6%	33.4%	33.8%	37.8%	42.1%	45.3%

After-Tax Results	Operating Cost Sensitivity				
	+30%	+15%	0%	-15%	-30%
NPV 6% ($M)	669	871	**1,070**	1,282	1,479
Payback (y)	2.3	2.1	**1.9**	1.8	1.6
IRR (%)	21.2%	24.6%	**27.6%**	30.5%	33.1%

After-Tax Results	Capital Cost Sensitivity				
	+30%	+15%	0%	-15%	-30%
NPV 6% ($M)	860	966	**1,070**	1,173	1,277
Payback (y)	3.0	2.3	**1.9**	1.5	1.2
IRR (%)	19.6%	23.1%	**27.6%**	33.8%	42.7%

Discount Rate Sensitivity	NPV (After-Tax) ($M)
0%	2,031
5%	1,191
6%	**1,070**
8%	862
10%	691

Foreign Exchange Rate CAD:USD	NPV (After-Tax) ($M)
1.25	840
1.30	955
1.35	**1,070**
1.40	1,199
1.45	1,313

Fuel Price Sensitivity	NPV (After-Tax) ($M)
0.90	1,097
1.00	1,083
1.10	**1,070**
1.17	1,056
1.30	1,043
1.40	1,030

Power Price Sensitivity ($/kWh)	NPV (After-Tax) ($M)
0.05	1,124
0.06	1,090
0.07	**1,070**
0.08	1,050
0.09	1,030
0.10	1,010

23 ADJACENT PROPERTIES

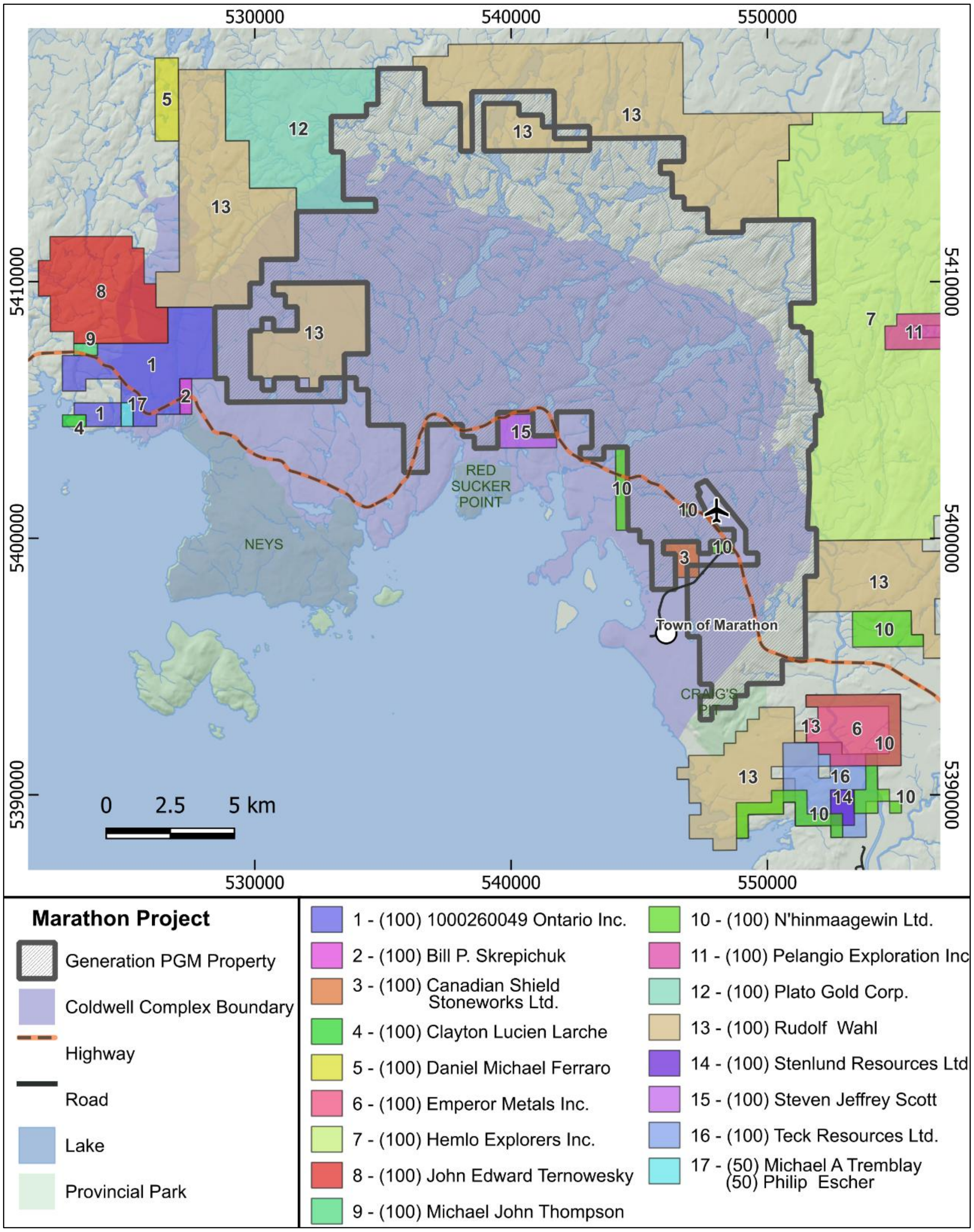
There are 17 landholders either adjacent to Gen Mining's Marathon property or covering a portion of the Coldwell Complex (Figure 23-1). The landholders are predominantly individual prospectors but also include exploration companies. There are no significant adjacent properties relating to the project. Gen Mining maintains the largest land position on the Coldwell Complex, and most of the historical mineral deposit areas are located within the boundaries of the Company's property boundary.

A historical showing called the Middleton Occurrence on the southwest boundary of the Coldwell Complex has been separately staked by Duncan Michano. The Middleton Occurrence is located approximately 0.5 km south of the mouth of Dead Horse Creek and is accessed by trail from Highway 17 east of the creek. The property was explored from 1988 to present, with the initial discovery of copper mineralization in the form of malachite precipitate coating fractures, joints, and foliation surfaces. Initial grab samples from 1989 to 1991 by prospectors and resident geologist staff returned assays results that varied from nil to 0.064 oz/t Au, nil to 4.34 oz/t Ag, 0.055 to 13.925% Cu and 0.008% to 0.019% Zn (Mckay and Pettigrew, 1997).

The land north of the property and the western portion of the Coldwell Complex has recently been staked by various companies focused on PGM exploration. These properties are not related to the Eastern Gabbro that hosts the Marathon and Sally deposits, but rather to the Western Gabbro or Archean footwall adjacent to the Coldwell Complex. To the east, Hemlo Explorers Inc. has staked land within the footwall margin of the Coldwell Complex covering the Pic Project to explore for Archean gold. A recent publication by Good et. al (2021) has suggested that the footprint of the Coldwell Complex could be much more extensive than previously thought, with potentially PGM-Cu-bearing Coldwell Complex-related intrusions extending as far as 700 km outside the rim of the Coldwell Complex. This has led to a renewed focus on PGM-Cu exploration by several adjacent landowners; however, significant discoveries have not been reported as of the effective date of this report.

The QP has been unable to independently verify the information on adjacent properties referenced above. The information is not necessarily indicative of the mineralization on the property that is the subject of the technical report and is provided for reference purposes only.

Figure 23-1: Claims Adjacent to the Marathon Property



Source: Gen Mining (2024).

24 OTHER RELEVANT DATA AND INFORMATION

24.1 Project Implementation

The project execution strategy is to employ a typical engineering, procurement, and construction management (EPCM) style system. The project will be led by an EPCM consultancy firm, using their systems and processes, through the execution and commissioning phases. Various consultancies, companies, groups, and individuals including Gen Mining will contribute to the overall EPCM team approach.

The project execution is expected to involve various areas of implementation all working within the same systems: plant scope, earthworks, on-site infrastructure, off-site infrastructure, and mining. All parties will be aligned on project goals with common standards and an integrated organization structure for all aspects of critical project functions (i.e., cost tracking, scheduling, QA/QC, etc.)

Project goals include completing the project on time and within budget without serious safety or environmental accidents.

24.2 Overall Project Management

The project management team (PMT) will be an integrated team that manages the project through the execution phase. The PMT will include the following departmental functions:

- engineering
- project services (i.e., project controls, reporting, contracts, logistics, warehousing and supply chain, and camp and travel)
- site services
- construction management
- mining
- environment, health, and safety
- human resources
- community relations.

The PMT will include personnel from the EPCM contractor, Gen Mining, and other experienced and skilled consultants within an aligned organizational structure. During the construction phase, the PMT will oversee, coordinate, and integrate contractor groups that will execute the entirety of the scope of work. It is anticipated that the lead-EPCM contractor will provide single-point accountability for the organizational structure.

Working within the PMT, the project management office will be staffed to support on-site personnel. The project management office will be located off-site, allowing for administrative functions to operate and support the project without the need for site accommodations and associated indirect costs. With current video conferencing tools, this will allow for a cost-efficient means to reduce project indirect costs without impacting efficiency.

During the project phase, the constructor-status (under the Ontario Mining Regulations and Ontario Regulations for Construction Projects) will be delegated within the PMT and will reside with the most *appropriate authority* responsible for execution of the work. Ultimate project authority lies with Gen Mining for all site project personnel.

24.3 Plant Engineering and Early Procurement

Basic and detailed engineering work associated with plant engineering and procurement will be executed by an engineering group and managed by Gen Mining. It is expected that the group carrying out the engineering and procurement effort will be the lead-consultant in the overall EPCM execution scope to ensure accountability of design and constructability.

Plant engineering work is estimated to be 5% complete with the intention of advancing to a completion necessary to define a control estimate with suitable confidence in budget and schedule success. It is anticipated engineering will be advanced to 65% to 75% for the control estimate.

Plant procurement is expected to be completed in two phases. Phase 1 will allow for certified vendor drawings and Phase 2 will allow for production slots and construction delivery commitments.

24.4 Earthworks Engineering and Geotechnical Site Investigations

The Marathon site has been mapped using light detection and ranging (LiDAR) technology. The general arrangement uses the topographic information from the LiDAR in the form of UTM coordinates in addition to other specific detailed surveys to locate infrastructure and estimate earthworks.

Significant site geotechnical studies—including drilling, test pits, and surface exposures—have previously been completed on site to inform the designs of the TSF, water management structures, buildings, roads, pads, and other infrastructure. These completed studies were completed to minimize technical and cost risks during construction. Test values for bedrock quality, permeability, soil type, strata thickness, density, and bearing capacity were sampled and tested across the site.

The overburden coverage across site and key design locations is minimal (e.g., across the site, the typical overburden coverage averages approximately 0.5 m in thickness) and the underlying rock is generally competent. Most of the major building foundations will be constructed on bedrock or competent fill overlying bedrock. Geomechanical studies have been conducted as part of the metallurgical/grinding design process, and to inform the design basis for building and infrastructure foundations and excavations.

The design and material take-off for the site and mine road networks, construction pads and laydowns, infrastructure and plant site excavations are completed to a level to allow for construction execution. Pad and road designs are based on preliminary models and will be reviewed by a geotechnical engineer during detailed engineering. These may require geotechnical engineering and drawing or specification generation prior to being designated ready for construction execution.

24.5 Tailings Storage Facilities, Water Management Structures and Associated Engineering Designs

The TSF, water management structures, and associated engineering designs have been completed to a level to allow for construction execution.

TSF and water management structures have been designed following best available practices and technologies in addition to the dam safety guidelines published by the Canadian Dam Association (CDA).

24.6 Design Standards

The project's infrastructure and equipment will be designed based on the relevant Ontario / Canadian design codes and standards using qualified and proven manufacturers.

The process plant and project infrastructure will be designed with a minimum 20-year design life.

Construction health and safety standards will comply with all relevant regional regulations, industry best practices, and Gen Mining's requirements.

Environment construction standards are defined by permit and environmental assessments conditions and other specific regulations.

24.7 Quality Management

QA/QC of all construction activities will be performed by a suitably accredited third-party engineering firm under the direct supervision of the resident engineer(s) for the various areas of the project. All QA/QC documentation will be stored in the document control system for archival and review purposes.

QA/QC of welding for critical structures (e.g., fuel tanks) will also be performed by a suitably accredited inspection firm. All QA/QC documentation will be posted to the document control system for archival and review purposes.

The process equipment will be subject to vendor verifications and factory acceptance testing programs included in the project procurement plan with consideration to an overall process equipment risk analysis.

24.8 Procurement and Contracts

Project procurement and contracts will be led by the PMT to coordinate, integrate, and align for an effective construction and project execution strategy. The procurement and contracting strategy will include consultation by Gen Mining (and PMT) with the Town of Marathon and specifically with the First Nation community of Biigtigong Nishinaabeg (BN). BN and Gen Mining have executed a Community Benefits Agreement (CBA). As a component of the CBA, there are contracting *set-asides* and defined contracting processes which the project procurement team will follow in working closely with the BN leadership.

To the extent practical and where available, goods and services will be procured locally to support and develop local businesses.

To ensure the project is completed within budget, contracting strategies will include contractor interactions to balance the distribution of Gen Mining and contractor risks. As an example, some work scopes may be completed on a turnkey or firm-price basis when conditions and scope are well-defined and a contractor can execute the work with confidence (i.e., without including contractor risk-cost); other scopes may be executed on a unit-cost basis or a time-and-material basis. The form of contracting strategy per scope of work will be managed by the PMT.

24.9 Project Controls

The strategy, approach, and outline of project controls is to provide sufficient and timely information to ensure that the project is completed to meet the goals, dates, and costs as outlined in the master schedule and approved budget.

To ensure that the project is executed successfully, the project monitoring and control approach will convey both accurate and timely information to assist management staff in making informed decisions. The goal of the project monitoring system is to allow management staff to clearly understand the following:

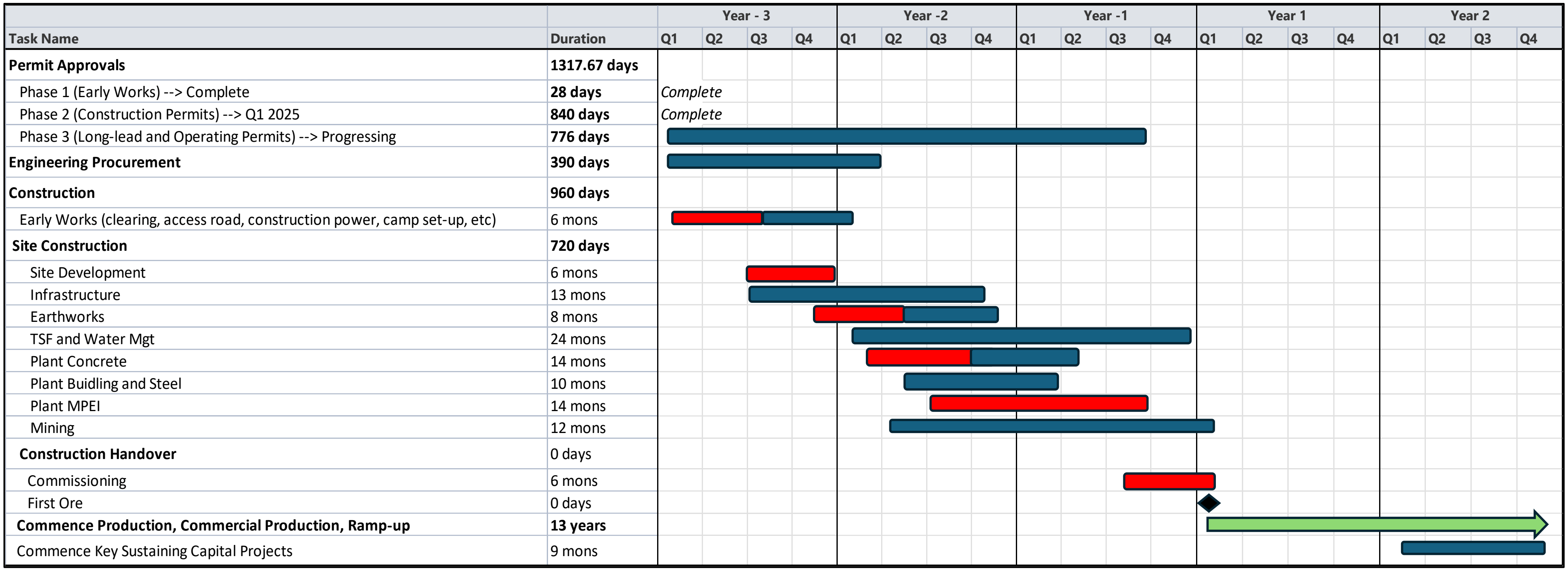
- Historical performance of the project to date on a daily, weekly, monthly, yearly, and project basis, as applicable, depending on the type of information being tracked and how it compares to the planned performance as set out in the master schedule and approved budget
- Future performance of the project to meet project goals, which will be realistic and achievable when compared to the historical data.

To maximize efficiency and transparency, the project controls approach will also be structured to guide management staff to any critical areas to allow focused discussions and decision-making while minimizing the possibility of critical variances.

24.10 Project Schedule

The construction and pre-production development schedule is approximately 24 months, consisting of three months for initial mobilization of key personnel and equipment followed by the critical path construction work leading to commissioning to pre-commercial production and ramp-up. A high-level project schedule is summarized in Figure 24-1.

Figure 24-1: High-Level Project Schedule



24.11 Commissioning

As project areas are mechanically completed, commissioning activities will begin immediately. There are three basic stages of commissioning checks: dry, wet, and ore commissioning.

Dry commissioning checks verify the correct installation of equipment and proper connections to all interfaces: electrical, instrumentation, and piping. Wet commissioning verifies the integrity of tanks and piping connections as well as proper equipment functionality. Ore commissioning is the final stage of the process plant. As ore moves through each processing area, the operating parameters, checklists, and procedures are monitored, adjusted, and documented.

Commissioning checklists are continually updated and uploaded to the document control system by the site commissioning team as commissioning progresses. The commissioning of high-value or complex process equipment will be supported by vendor representatives who will also provide specialized operations and maintenance training to the operations staff.

The automation team will be on site as process equipment installation begins to ensure that pre-assembled and bench-tested automation systems are functional to reduce commissioning time. As equipment is installed, input/output interfaces will be verified, controls will be tested, and automation drawings will be updated to as-built drawings.

Equipment technical documentation and checklists will be stored on the document control system and continually updated and reviewed for the entire plant. This will ensure that by the end of commissioning, the operation team has all the necessary information to ensure a smooth transition from construction to operations.

24.12 Operational Readiness Planning

Separate from the PMT, there will be an operational readiness team to advance the operational readiness planning for the operating phase of the mine. The operational readiness planning team (while not directly a function within the project team) will consist Gen Mining personnel and consultants led by the incoming site personnel, with team members responsible for all functions required to operate the completed project. This includes mining and processing plant departments (including engineering, planning, maintenance, and operations), infrastructure, supply chain (including warehousing and buying functions), finance, human resources, IT, environment, health and safety, and community relations. The operational readiness planning team is responsible for developing the systems to smoothly transition following the project team completing the construction scope of responsibility. The operational readiness planning team will advance in parallel to the project team with coordination increasing as the project advances towards commissioning and project handover.

24.13 Accommodation Camp(s)

Gen Mining has an agreement to own the construction camp owned by Valard Equipment LP (Valard) located in the Town of Marathon. This camp was previously used for worker accommodation during the construction of the East-West Tie 230 kV powerline Project, which was completed in 2022 by Valard. The camp has 286 fully serviced rooms, a kitchen and office trailers, along with sewer, water, power, propane, and internet connections. The camp will be used for the initial phase of the project. The camp kitchen will require upgrades or replacement for full capacity operations. It is intended to have BN operate the camp facilities with a joint venture partner (experienced in mining camp operations).

Additional camp accommodations will be needed later during construction once capacity is exceeded at the Valard camp. Location of the overflow camp will need to be validated prior to the start of construction. Currently, there are two preferred locations with one being located directly adjacent to the Valard camp and the other adjacent to the GMS[1] camp.

The current estimate for construction labour is based on an average of approximately 520 full-time equivalents over the project with a peak of approximately 800 full-time equivalent contractors and employees. The existing construction camp and overflow camp will allow for accommodations of the peak construction workforce.

24.14 Other Considerations

Other considerations related to project execution include the following:

- Weather – The seasonal weather in the project area has been well-documented in the EA baseline work. Seasonal weather has been considered in the project design and critically in the project schedule with winter conditions being an important factor regarding project costs and efficiency. Normal timing and operating conditions of the spring freshet (snow melt) have also been included in the project design. Global warming and the resulting climatic changes were also considered in the project design, but this aspect is not considered significant to construction phase timing.
- Half-Load Season – The regional roads have seasonal load capacity (half-load season), which will be considered in project logistics.
- Town of Marathon Laydown – There is a laydown area proximal to the previous Marathon mill site. This land is expected to be available as a project laydown site, which will limit the site laydown requirements. This will also conceptually allow for mobile fleet equipment to be built off-site, making commissioning more efficient for the mobile fleet.
- Marathon Port Authority – In a joint venture arrangement, the Town of Marathon and BN are developing the Marathon Port Authority. The timing for completion of this project could add additional flexibility to the logistics for incoming construction materials and equipment. The timing of the project will continue to be monitored with benefits determined on an as-available basis.
- Labour Market Strategies – Gen Mining has undertaken a strategic assessment of the building trade and skilled labour in the area. This work has been carried out by Oakbridges Labour Relations Strategists, Inc. (Oakbridges). Oakbridges has completed two of the three phases in the scope of work; the final phase will be advanced prior

[1] The GMS camp is a joint venture arrangement between BN, Pic Mobert First Nation, and the Morris group with food services being operated by a third-party group. This is located adjacent to the Trans-Canada highway within the limits of the Town of Marathon.

to project sanctioning. Phase 1 entailed a Labour Market Study that provided foundational information on mining and heavy industry regionally and in Canada, as well as building trade unions (BTUs) labour rates). Phase 2 outlined a path forward regarding negotiations of project labour terms and conditions agreements with contractors and the BTU, and provided recommended actions for the governance of labour relations standards during construction. The project labour terms and conditions agreements with contractors and the BTU will advance ahead of construction. It should be noted that 2025 is a negotiation year for the BTU in Ontario.

25 INTERPRETATION AND CONCLUSIONS

25.1 Summary

This report has confirmed the technical and economic viability of the Marathon Project based on an open pit mining operation with an initial mining rate of approximately 40 Mt/a (peaking at 60 Mt/a) and an SABC/flotation plant operating at up to 10.1 Mt/a.

The main conclusions are detailed in the subsections below.

25.2 Geology and Mineral Resources

- The understanding of the project geology, structure and mineralization, together with the deposit type, and origin of the mineralization is sufficiently well-established to support mineral resource and Mineral Reserve estimation.
- Mineral resources using a NSR cut-off value of $13.6/t within a constraining pit shell is appropriate for reporting mineral resources for the project.
- The mineral resource model is suitable and fit for the feasibility study.

25.3 Mineral Reserves

- Proven and probable Mineral Reserves were modified from measured and indicated mineral resources. Inferred mineral resources were set to waste.
- The Mineral Reserves are supported by the 2024 Feasibility Study mine plan and classified in accordance with the 2014 CIM Definition Standards.
- Marathon proven and probable Mineral Reserves total 128.3 Mt grading 0.21% Cu, 0.64 Pd, 0.20 Pt, 0.07 g/t Au and 1.7 g/t Ag ($63/t NSR).

25.4 Mining

- The mine plan supports the cash flow model and financials developed for this feasibility study.
- The mining operations will use conventional open pit mining methods and equipment.
- A reasonable open pit mine plan, mine production schedule, and mine capital and operating cost estimates were developed.
- Open pit mining operations are anticipated to run for 13 years, excluding pre-production mining. An annual process plant feed rate of 10.1 Mt is scheduled, with a two-year ramp-up from process plant commissioning. Mining will be based on a phased approach with stockpiling to bring high-grade forward and provide operational

flexibility. Low-grade ore is stockpiled over the mine life and re-handled to the crusher before the end of mine life.

- Pit layouts and planned mine operations are typical of other open pit gold operations in Canada, and the unit operations within the developed mine operating plan are proven to be effective for these other operations.

25.5 Metallurgical Testing and Mineral Processing

- The optimized process flowsheet and process design criteria were established from operational considerations and metallurgical test programs completed by Gen Mining during 2020 to 2022 and included historical rock hardness test data where appropriate.
- Industrial benchmarks along with Gen Mining, vendor and Ausenco design engineering subject matter experts have been considered and included in the project design concept.
- The process plant flowsheet includes a conventional comminution circuit consisting of a SAG mill, ball mill, and pebble crusher (SABC), which will be installed after the plant expands from 9.2 Mt/a to 10.1 Mt/a.
- The flotation portion of the process plant includes rougher flotation, concentrate regrind, and three stages of cleaning.
- The testwork completed in 2022 resulted in the removal of the PGM-scavenger circuit from the current life-of-mine plan. Further evaluation may be considered during operations as metal prices allow.
- The flotation circuit design incorporates conventional tanks cells for the rougher stage and Woodgrove SFRs for the cleaning circuit. Further evaluation of alternative technology for the cleaning circuit are to be tested in laboratory setting in the future.
- The process plant is designed to operate at an average throughput of 27,700 t/d.
- Metallurgical recovery curves were established for each element in the 2023 metallurgical test program and are representative of the expected recoveries of Cu and PGM.

25.6 Infrastructure

- The infrastructure considered for the project is appropriate to support the operation.
- The power connection to the existing M2W line is suitable for the project's power requirements. Additional power is available through a connection to the east-west tie (completed in 2022) should additional power be required or for other future electrification projects (for example, trolley assist or the electrification of the mining fleet).
- The consideration of the location and placement of roads, infrastructure, the crusher, and processing plant with regard to the sub-watersheds is appropriate and is suitably protective of the environment. A future access road may be considered and will require additional government approvals.

25.7 Tailing Storage Facility and Water Management

- The foundation conditions and TSF design make the construction designs and construction methodology appropriate for the project.
- The water management structures have been designed for the modelled conditions and anticipated variability in the weather patterns with appropriate environment and operational risks considered.

25.8 Market Studies and Concentrate Marketing

- The Cu-PGM concentrate that will be produced by the operation is highly marketable and low in deleterious elements and is not expected to incur any significant penalties.
- The Cu-PGM concentrate is marketable to Cu smelters with Cu-PGM recovery capacity.
- The supply and demand conditions of the payable metals are adequately reflected (based on the current and future market conditions) with the consideration of consensus long-term metal price for the key elements.

25.9 Environmental Studies, Permitting and Social or Community Impact

- This report presents designs and operating conditions that comply with the requirements of the federal and provincial EA decision statement conditions issued for the project.
- This report considers the anticipated requirements of other approvals, permits, and authorizations that will be issued for the project.

25.10 Project Execution

- The project execution strategy that will incorporate an integrated EPCM-style construction project.
- The mining fleet will be procured early in the project and operated by the Owner's team as part of the EPCM project management team and supervision.

25.11 Risks and Opportunities

Table 25-1 outlines the significant risks and uncertainties that could reasonably be expected to affect the reliability of confidence in the projected economic outcome for the feasibility study update.

Table 25-2 outlines the significant opportunities that could reasonably be expected to have a positive impact on improving the project economics in the future.

Table 25-1: Risks

Risk Category	Description	Potential Impact[1]
Mineral Resource Estimate	Until the operation commences, and operational grade reconciliation is undertaken, there is some level of uncertainty related to the predictability of the Mineral Resource Estimate.	▪ Reduction in mineral resources available for conversion to mineral reserves.
Environment Assessment Conditions and Permitting	There is uncertainty associated with the precise timing for the approval of permits required to build and operate the project as designed and there are EA conditions which are required to be completed prior to construction commencing.	▪ A delay to the start date for project construction. ▪ A delay to the start of operations or future operations continuity.
Project Financing	There is uncertainty with Gen Mining securing timely and/or adequate project financing.	▪ Delay (short-term or long-term) in the start date of the project.
Construction Costs	Construction costs are based on the current designs; final designs and construction methodology may change.	▪ Increased construction costs.
Operating Costs	Operating efficiency, operating time, productivity, and consumables are assumed based on provisional budgetary quotations along with similar benchmark operations; any reduction in operating efficiency or increased consumables will increase operating costs.	▪ Increased operating costs.
Processing Plant Metallurgical Recovery	The plant metallurgical recovery models are based on laboratory scale testing. Actual metallurgical recovery and mass pull of the operating plant may be different to the predicted model.	▪ Less payable metal or increase in plant operating costs.
Labour and Skilled Resources	There is a national and international shortage of unskilled, skilled, and technical expertise in mining.	▪ Increased labour costs. ▪ Increase in remote employees with an increase in camp requirements.
Metal Prices and Exchange Rates	For each payable element and the exchange rate, the economic assumptions are sensitive (both positively and negatively impacted) by metal prices and changes in CAD/USD exchange rates.	▪ Variability in economic results with changing metal prices. ▪ Strengthening of the Canadian dollar against the US dollar will negatively impact economic results.
Tariffs	The impact of US/Canadian/global tariffs could impact the cost of some of the supply cost where alternatives are not available.	▪ Increase in construction cost

Note: [1] This is not intended to outline all potential impacts, simply the impacts that could reasonably be expected to occur in the event the risk item results in an impact.

Table 25-2: Opportunities

Opportunity	Description	Potential Impact[1]
Mineral Resource Estimate	Unrealized local variability due to grade interpolation smoothing may lead to opportunities to extract somewhat more metal from fewer tonnes.	▪ Higher value per tonne of ore.
Metal Prices and Exchange Rates	For each payable element and the exchange rate, the economic assumptions are sensitive (both positively and negatively impacted) by metal prices and changes in CAD/USD exchange rates.	▪ Variability in economic results with changing metal prices. ▪ Weakening of the Canadian dollar against the US dollar will positively impact economic results.
Government Support of Critical Mineral Production	The governments of Canada and Ontario have been supportive of critical mineral industries. There is the possibility of bespoke programs and financial support that would add to the project financing.	▪ Additional bespoke government funding or tax credits schemes that would support the Project Financing.
Plant Throughput	Metallurgical tests in 2022 indicated variability in material hardness; the process design criteria have allowed for the higher-than-average material hardness.	▪ Decreased material hardness would support an increase in throughput, de-risking the production profile, and an opportunity to advance metal production and cash flow.
Exploration Success on the Property	With the conversion of the property resources to reserves or new exploration success, would be expected to increase material feed to the plant and increase either mine life beyond the 13 years or allow for increased throughput over the same operating life.	▪ Increased reserves would increase production which would imply increased value and cash flow. ▪ Increased mine life would extend employment opportunities and increase operating cash flow.
Trolley Assist or the 'Next Generation' Powered Mining Fleet	The concept of trolley assist was evaluated with equipment suppliers / dealers but was not included in the base case operating design. Trolley assist would conceptually increase up-ramp truck speed and allow for additional tonnage (with a reduced cycle time) or reduce capital requirements. Mining fleet manufactures are testing battery and fuel cell mining equipment with viable options being marketed within the life of mine of the operation.	▪ Improved operating efficiency and lower mine operating costs. ▪ Reduction in the generation of GHG from operations (reduced diesel consumption).
Contract Mining	Contract mining could be considered during the construction period and into the initial years of operations. This would reduce initial capital costs for equipment.	▪ Reduction in equipment purchase and leasing costs
Automation of the Mining Fleet	With the truck fleet being relatively small, autonomous haulage is not expected to be viable; however, the automation of drills and dozers would improve operating efficiency or reduce operating costs.	▪ Reduced operating costs on a dollar-per-tonne basis.

Note: [1] This is not intended to outline all potential benefits but those that could reasonably be expected to occur or possibly realized.

25.11.1 Further Plant and Infrastructure Optimization Opportunities

As part of the recent optimization work, Ausenco identified further plant and infrastructure optimization opportunities that require additional analysis. The opportunities relate to additional layout optimizations and adjustments that would require additional processing and metallurgical testwork. Additional work will be required to validate some of the concepts and to determine if these opportunities can be realized.

Gen Mining anticipates integrating the optimization work into the project designs and will continue to investigate additional construction efficiencies and opportunities, including working with contractors to incorporate new earthworks details and cost estimates.

25.12 Biiwobik and Regional Exploration Opportunities

The success of the 2024 exploration drilling at the Biiwobik Prospect has not been included in the evaluation. Nevertheless, with continued success, it is possible that the prospect could be added as an extension to the North pit or a small stand-alone pit. This possibility, along with additional exploration targets already known on-site, may add to the mine life.

26 RECOMMENDATIONS

26.1 Production Decision

- Under the inputs assumed in the financial modeling and given the positive results, it is recommended to progress to the next phase of project development including project financing and continuing to advance required permits to allow for the property to be developed through construction and into production.
- Once financing is secured and a production decision is made by Gen Mining, the total cost of the next phase of the project from detailed engineering, procurement, construction and up to commercial production is estimated at $992 million (including fleet leasing but excluding pre-production revenue).

26.2 Detailed Engineering Design

- Upon receiving suitable financing and decision to proceed with the project, continue to progress detailed engineering for the process plant and associated site infrastructure.

26.3 Mineral Reserves

- Upon receiving suitable financing and decision to proceed with the project, evaluate local areas in the mineral reserve that are within the first three years of production to determine if advanced grade control may be beneficial or necessary prior to operational start-up; grade control drilling would provide additional resolution for tonnes and grade, thereby increasing the confidence in metal production in the payback period.

26.4 Mine Methods

- Mid-range monthly mine planning through the construction period and first year of process plant operations. Develop physical cut plans for each month, as well as associated stockpile advancements and primary fleet equipment hour estimates.
- Further engagement with equipment vendors to secure build spots for long-lead items.
- Evaluate the financial viability of contract mining during the construction phase and into the initial years of operation.
- Determine if a mining fleet maintenance and repair contract (MARC) are viable for the construction phase and initial years of operation.
- Continue to evaluate and where financially viable, implement advanced operating technology including electrification or battery/fuel cell propulsion of open pit mining equipment; trolley assist for the future haulage fleet; autonomous haulage fleet; autonomous or tele-remote operation of drilling fleet; autonomous dozer operation; and other applications and technology that may become available.
- Evaluate fleet management system and advanced analytics for operational management.

26.5 Metallurgical Testwork

The next phase of testwork will be completed to support detailed engineering of the Marathon Project. The following tests are recommended:

- Additional flotation tests to potentially reduce rougher flotation time and improve Cu and PGM grade in final concentrate.
- Additional regrind test to include the possible variation of regrind specific energy; the current result is on the lower end of the benchmark database.
- Additional dynamic settling tests to be performed on the concentrate samples targeting k_{80} of 18 µm to achieve target underflow solids of 55% to 60% w/w.
- Additional concentrate filtration tests that are performed on the concentrate samples target k_{80} of 18 µm and achieve a target moisture level of less than 12%.
- Conduct materials handling testing on ore samples for stockpile and chute designs.

It is estimated that this program will cost $200,000.

26.6 Infrastructure

- Progress the electrical designs and confirm future power requirements to progress the Hydro One study for the power line and connection requirements as needed.
- Progress efforts to secure a long-term power contract for the operation.
- Advance designs for infrastructure facilities that are to be constructed on and off site.
- Advance designs to allow for construction and operation of camp facilities (for construction and operations phases), an assay laboratory and transload facility with third-party partners for this off-site infrastructure.

26.7 Tailings Storage Facility

- Where necessary, complete geotechnical site investigations for the TSF in specific locations that have less definition to reduce construction uncertainty.
- Progress the TSF design to “for construction” details.
- Design and procure the appropriate water treatment plant for discharge.
- Continue with implementation of an independent tailing review panel for the oversight during the TSF life cycle including a review of forecasting and scheduling for required TSF expansions.

26.8 Process Plant

- During the detailed engineering phase, final equipment selection and first fills will include consideration of commissioning and operational wear parts, consumables, and long lead time capital spares involving respective OEMs and vendors.
- Evaluate and integrate additional optimization opportunities identified by Ausenco.
- Negotiate 'vendor bundling discounts' and long-term commitments with key OEM suppliers.

The cost of this work is included in typical engineering efforts included in the capital cost of the project.

26.9 Concentrate Marketing

- Continue to optimize metallurgical recovery and mass pull during detailed engineering while balancing the resulting impacts to concentrate transport costs, concentrate marketability, and NSR terms.
- Execute off-take agreements with smelters.

26.10 Environmental Permitting

- Advance on the EA conditions as outlined by the federal and provincial agencies per the positive EA decision report.
- Progress the permitting activities to allow for construction to start as soon as financing is available.
- Advance the permitting activities to allow for operations to commence following the project construction.

26.11 Reducing the Carbon Impact

- Develop and implement an anti-idling policy for all vehicles and motorized equipment operating within the designated project area.
- Monitor fuel usage of designated project-related vehicles and mobile motorized equipment through fuel tracking policies.
- Consider the employment of trolley assist (electrical assistance for haul trucks), carbon dioxide capture in construction concrete and processed solids stream, utilization of low carbon fuels, and utilization of electric off-road vehicles.
- Monitor developing technologies that may be applicable and financially viable for reducing the carbon impact of the operation.

26.12 Indigenous Affairs

- Ensure agreements with impacted Indigenous communities are implemented.
- Continue to inform and consult with Indigenous communities on applicable matters related to the project.

26.13 Project Execution

- Operational readiness planning is to progress in parallel with project execution; this will require the staffing of necessary company employees early in the project execution phase to ensure sufficient Owner's team input and oversight to support engineering, construction and commissioning activities.
- Support the involvement as appropriate of local contractors, businesses, and community members in the project advancement and development.
- Include specific considerations to businesses associated with the BN community per the set-aside agreement and other contracts (where possible).
- Finalize the location of the extended construction camp and operations camp locations.
- Define and develop training programs for local hires as appropriate to infill suitable positions at the site.

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APPENDIX A – CLAIMS LIST

Marathon Claims Held by Generation PGM Inc.*							
Tenure ID	Tenure Type	Anniversary Date	Amount Required Per Year ($)				Work Required ($)
			2026	2027	2028	2029	
877180	Single Cell Mining Claim	2026-01-25	400				400
877181	Single Cell Mining Claim	2026-01-25	400				400
877182	Single Cell Mining Claim	2026-01-25	400				400
117129	Single Cell Mining Claim	2027-03-01		400			400
128290	Boundary Cell Mining Claim	2027-03-01		200			200
128291	Boundary Cell Mining Claim	2027-03-01		200			200
143480	Single Cell Mining Claim	2027-03-01		400			400
143481	Single Cell Mining Claim	2027-03-01		400			400
143483	Boundary Cell Mining Claim	2027-03-01		200			200
157576	Boundary Cell Mining Claim	2027-03-01		200			200
163605	Single Cell Mining Claim	2027-03-01		400			400
163606	Boundary Cell Mining Claim	2027-03-01		200			200
211484	Boundary Cell Mining Claim	2027-03-01		200			200
277497	Boundary Cell Mining Claim	2027-03-01		200			200
277498	Boundary Cell Mining Claim	2027-03-01		200			200
279024	Single Cell Mining Claim	2027-03-01		400			400
296851	Boundary Cell Mining Claim	2027-03-01		200			200
326121	Single Cell Mining Claim	2027-03-01		400			400
136480	Single Cell Mining Claim	2027-03-02		200			200
156036	Boundary Cell Mining Claim	2027-03-02		200			200
156037	Boundary Cell Mining Claim	2027-03-02		200			200
156038	Single Cell Mining Claim	2027-03-02		200			200
187736	Boundary Cell Mining Claim	2027-03-02		200			200
207242	Boundary Cell Mining Claim	2027-03-02		200			200
208679	Boundary Cell Mining Claim	2027-03-02		200			200
208680	Boundary Cell Mining Claim	2027-03-02		200			200
208681	Single Cell Mining Claim	2027-03-02		200			200
220721	Boundary Cell Mining Claim	2027-03-02		200			200
220737	Single Cell Mining Claim	2027-03-02		200			200
274675	Boundary Cell Mining Claim	2027-03-02		200			200
334400	Single Cell Mining Claim	2027-03-02		200			200

Marathon Claims Held by Generation PGM Inc.*							
Tenure ID	Tenure Type	Anniversary Date	Amount Required Per Year ($)				Work Required ($)
			2026	2027	2028	2029	
104775	Single Cell Mining Claim	2027-03-11		200			200
127909	Single Cell Mining Claim	2027-03-11		400			400
127910	Single Cell Mining Claim	2027-03-11		400			400
139377	Boundary Cell Mining Claim	2027-03-11		200			200
155918	Single Cell Mining Claim	2027-03-11		400			400
155919	Boundary Cell Mining Claim	2027-03-11		200			200
172396	Single Cell Mining Claim	2027-03-11		400			400
172397	Single Cell Mining Claim	2027-03-11		400			400
172398	Boundary Cell Mining Claim	2027-03-11		200			200
191384	Single Cell Mining Claim	2027-03-11		400			400
220680	Single Cell Mining Claim	2027-03-11		200			200
287212	Single Cell Mining Claim	2027-03-11		400			400
295847	Boundary Cell Mining Claim	2027-03-11		200			200
307953	Single Cell Mining Claim	2027-03-11		200			200
307954	Single Cell Mining Claim	2027-03-11		400			400
325122	Single Cell Mining Claim	2027-03-11		400			400
325123	Single Cell Mining Claim	2027-03-11		400			400
335573	Single Cell Mining Claim	2027-03-11		200			200
100487	Single Cell Mining Claim	2027-03-21		400			400
100488	Single Cell Mining Claim	2027-03-21		400			400
111199	Single Cell Mining Claim	2027-03-21		400			400
112617	Single Cell Mining Claim	2027-03-21		400			400
117128	Single Cell Mining Claim	2027-03-21		400			400
128288	Single Cell Mining Claim	2027-03-21		400			400
128289	Single Cell Mining Claim	2027-03-21		400			400
133075	Single Cell Mining Claim	2027-03-21		400			400
133076	Single Cell Mining Claim	2027-03-21		400			400
133879	Boundary Cell Mining Claim	2027-03-21		200			200
157575	Single Cell Mining Claim	2027-03-21		400			400
167893	Boundary Cell Mining Claim	2027-03-21		200			200
168574	Single Cell Mining Claim	2027-03-21		400			400
168575	Single Cell Mining Claim	2027-03-21		400			400
181526	Single Cell Mining Claim	2027-03-21		400			400
186414	Single Cell Mining Claim	2027-03-21		400			400

Marathon Claims Held by Generation PGM Inc.*							
Tenure ID	Tenure Type	Anniversary Date	Amount Required Per Year ($)				Work Required ($)
			2026	2027	2028	2029	
186486	Boundary Cell Mining Claim	2027-03-21		200			200
188962	Single Cell Mining Claim	2027-03-21		400			400
188963	Single Cell Mining Claim	2027-03-21		400			400
198544	Single Cell Mining Claim	2027-03-21		400			400
203391	Single Cell Mining Claim	2027-03-21		400			400
211483	Single Cell Mining Claim	2027-03-21		400			400
223525	Single Cell Mining Claim	2027-03-21		400			400
230299	Single Cell Mining Claim	2027-03-21		400			400
237633	Single Cell Mining Claim	2027-03-21		400			400
244475	Single Cell Mining Claim	2027-03-21		400			400
244476	Single Cell Mining Claim	2027-03-21		400			400
253790	Boundary Cell Mining Claim	2027-03-21		200			200
256300	Single Cell Mining Claim	2027-03-21		400			400
256301	Single Cell Mining Claim	2027-03-21		400			400
265300	Single Cell Mining Claim	2027-03-21		400			400
267767	Single Cell Mining Claim	2027-03-21		400			400
271263	Single Cell Mining Claim	2027-03-21		400			400
271336	Boundary Cell Mining Claim	2027-03-21		200			200
277495	Single Cell Mining Claim	2027-03-21		400			400
292968	Single Cell Mining Claim	2027-03-21		400			400
311684	Single Cell Mining Claim	2027-03-21		400			400
314083	Single Cell Mining Claim	2027-03-21		400			400
318485	Single Cell Mining Claim	2027-03-21		400			400
321388	Single Cell Mining Claim	2027-03-21		400			400
326119	Single Cell Mining Claim	2027-03-21		400			400
332703	Single Cell Mining Claim	2027-03-21		400			400
136344	Boundary Cell Mining Claim	2027-03-23		200			200
156527	Single Cell Mining Claim	2027-03-23		400			400
181524	Boundary Cell Mining Claim	2027-03-23		200			200
188960	Boundary Cell Mining Claim	2027-03-23		200			200
201139	Single Cell Mining Claim	2027-03-23		400			400
201140	Boundary Cell Mining Claim	2027-03-23		200			200
208479	Boundary Cell Mining Claim	2027-03-23		200			200
256297	Boundary Cell Mining Claim	2027-03-23		200			200

Marathon Claims Held by Generation PGM Inc.*							
Tenure ID	Tenure Type	Anniversary Date	Amount Required Per Year ($)				Work Required ($)
			2026	2027	2028	2029	
292966	Single Cell Mining Claim	2027-03-23		400			400
292967	Single Cell Mining Claim	2027-03-23		200			200
311680	Boundary Cell Mining Claim	2027-03-23		200			200
101842	Single Cell Mining Claim	2027-04-11		200			200
102007	Single Cell Mining Claim	2027-04-11		400			400
111128	Single Cell Mining Claim	2027-04-11		400			400
111129	Single Cell Mining Claim	2027-04-11		200			200
111130	Single Cell Mining Claim	2027-04-11		200			200
117127	Single Cell Mining Claim	2027-04-11		400			400
128316	Single Cell Mining Claim	2027-04-11		200			200
128317	Boundary Cell Mining Claim	2027-04-11		200			200
145362	Single Cell Mining Claim	2027-04-11		200			200
149084	Single Cell Mining Claim	2027-04-11		200			200
149085	Boundary Cell Mining Claim	2027-04-11		200			200
149086	Single Cell Mining Claim	2027-04-11		200			200
157598	Boundary Cell Mining Claim	2027-04-11		200			200
158264	Single Cell Mining Claim	2027-04-11		400			400
163629	Boundary Cell Mining Claim	2027-04-11		200			200
185177	Boundary Cell Mining Claim	2027-04-11		200			200
204082	Single Cell Mining Claim	2027-04-11		400			400
211500	Single Cell Mining Claim	2027-04-11		400			400
212178	Single Cell Mining Claim	2027-04-11		400			400
230971	Single Cell Mining Claim	2027-04-11		400			400
244404	Single Cell Mining Claim	2027-04-11		200			200
244405	Boundary Cell Mining Claim	2027-04-11		200			200
244406	Single Cell Mining Claim	2027-04-11		200			200
259492	Boundary Cell Mining Claim	2027-04-11		200			200
260137	Single Cell Mining Claim	2027-04-11		200			200
260138	Single Cell Mining Claim	2027-04-11		400			400
263948	Single Cell Mining Claim	2027-04-11		200			200
278189	Single Cell Mining Claim	2027-04-11		200			200
279554	Single Cell Mining Claim	2027-04-11		200			200
279713	Single Cell Mining Claim	2027-04-11		400			400
296850	Single Cell Mining Claim	2027-04-11		400			400

Marathon Claims Held by Generation PGM Inc.*							
Tenure ID	Tenure Type	Anniversary Date	Amount Required Per Year ($)				Work Required ($)
			2026	2027	2028	2029	
297005	Single Cell Mining Claim	2027-04-11		400			400
297006	Single Cell Mining Claim	2027-04-11		400			400
297007	Single Cell Mining Claim	2027-04-11		400			400
312770	Single Cell Mining Claim	2027-04-11		200			200
586300	Single Cell Mining Claim	2027-05-01		400			400
102686	Single Cell Mining Claim	2027-05-03		400			400
125045	Boundary Cell Mining Claim	2027-05-03		200			200
125046	Single Cell Mining Claim	2027-05-03		400			400
153038	Boundary Cell Mining Claim	2027-05-03		200			200
169673	Single Cell Mining Claim	2027-05-03		400			400
182470	Single Cell Mining Claim	2027-05-03		200			200
182471	Single Cell Mining Claim	2027-05-03		400			400
207624	Single Cell Mining Claim	2027-05-03		200			200
207625	Single Cell Mining Claim	2027-05-03		400			400
265583	Single Cell Mining Claim	2027-05-03		400			400
265584	Boundary Cell Mining Claim	2027-05-03		200			200
273036	Single Cell Mining Claim	2027-05-03		400			400
273037	Single Cell Mining Claim	2027-05-03		400			400
285632	Boundary Cell Mining Claim	2027-05-03		200			200
321670	Single Cell Mining Claim	2027-05-03		400			400
344056	Boundary Cell Mining Claim	2027-05-03		200			200
100469	Single Cell Mining Claim	2027-05-16		200			200
100470	Single Cell Mining Claim	2027-05-16		200			200
128266	Single Cell Mining Claim	2027-05-16		400			400
128293	Single Cell Mining Claim	2027-05-16		400			400
128294	Single Cell Mining Claim	2027-05-16		400			400
143403	Boundary Cell Mining Claim	2027-05-16		200			200
143470	Single Cell Mining Claim	2027-05-16		400			400
143471	Single Cell Mining Claim	2027-05-16		400			400
143472	Boundary Cell Mining Claim	2027-05-16		200			200
143485	Single Cell Mining Claim	2027-05-16		200			200
157561	Boundary Cell Mining Claim	2027-05-16		200			200
163521	Single Cell Mining Claim	2027-05-16		200			200
163587	Single Cell Mining Claim	2027-05-16		400			400

Marathon Claims Held by Generation PGM Inc.*							
Tenure ID	Tenure Type	Anniversary Date	Amount Required Per Year ($)				Work Required ($)
			2026	2027	2028	2029	
163588	Single Cell Mining Claim	2027-05-16		400			400
163608	Single Cell Mining Claim	2027-05-16		400			400
202813	Single Cell Mining Claim	2027-05-16		400			400
203375	Single Cell Mining Claim	2027-05-16		200			200
203376	Boundary Cell Mining Claim	2027-05-16		200			200
203392	Single Cell Mining Claim	2027-05-16		200			200
211410	Single Cell Mining Claim	2027-05-16		400			400
211411	Boundary Cell Mining Claim	2027-05-16		200			200
211460	Single Cell Mining Claim	2027-05-16		200			200
211461	Single Cell Mining Claim	2027-05-16		400			400
211485	Single Cell Mining Claim	2027-05-16		400			400
222953	Single Cell Mining Claim	2027-05-16		200			200
223004	Single Cell Mining Claim	2027-05-16		200			200
230300	Single Cell Mining Claim	2027-05-16		400			400
258876	Single Cell Mining Claim	2027-05-16		200			200
258945	Single Cell Mining Claim	2027-05-16		400			400
258946	Boundary Cell Mining Claim	2027-05-16		200			200
259470	Single Cell Mining Claim	2027-05-16		400			400
277412	Single Cell Mining Claim	2027-05-16		400			400
277477	Boundary Cell Mining Claim	2027-05-16		200			200
277478	Boundary Cell Mining Claim	2027-05-16		200			200
277499	Single Cell Mining Claim	2027-05-16		400			400
278948	Single Cell Mining Claim	2027-05-16		400			400
279008	Single Cell Mining Claim	2027-05-16		200			200
279009	Single Cell Mining Claim	2027-05-16		200			200
279026	Single Cell Mining Claim	2027-05-16		200			200
296254	Boundary Cell Mining Claim	2027-05-16		200			200
296255	Single Cell Mining Claim	2027-05-16		400			400
296854	Single Cell Mining Claim	2027-05-16		400			400
314067	Single Cell Mining Claim	2027-05-16		400			400
326105	Single Cell Mining Claim	2027-05-16		200			200
326106	Boundary Cell Mining Claim	2027-05-16		200			200
326107	Single Cell Mining Claim	2027-05-16		400			400
326123	Single Cell Mining Claim	2027-05-16		400			400

Marathon Claims Held by Generation PGM Inc.*							
Tenure ID	Tenure Type	Anniversary Date	Amount Required Per Year ($)				Work Required ($)
			2026	2027	2028	2029	
275490	Single Cell Mining Claim	2027-06-14		400			400
735544	Single Cell Mining Claim	2027-07-02		400			400
735545	Single Cell Mining Claim	2027-07-02		400			400
735546	Single Cell Mining Claim	2027-07-02		400			400
735547	Single Cell Mining Claim	2027-07-02		400			400
735548	Single Cell Mining Claim	2027-07-02		400			400
735549	Single Cell Mining Claim	2027-07-02		400			400
735550	Single Cell Mining Claim	2027-07-02		400			400
735551	Single Cell Mining Claim	2027-07-02		400			400
735552	Single Cell Mining Claim	2027-07-02		400			400
100403	Single Cell Mining Claim	2027-07-14		400			400
100404	Single Cell Mining Claim	2027-07-14		400			400
100643	Single Cell Mining Claim	2027-07-14		400			400
100644	Single Cell Mining Claim	2027-07-14		200			200
110954	Boundary Cell Mining Claim	2027-07-14		200			200
115929	Single Cell Mining Claim	2027-07-14		400			400
115930	Single Cell Mining Claim	2027-07-14		400			400
115931	Single Cell Mining Claim	2027-07-14		400			400
115932	Single Cell Mining Claim	2027-07-14		400			400
117075	Single Cell Mining Claim	2027-07-14		400			400
117088	Single Cell Mining Claim	2027-07-14		400			400
118164	Single Cell Mining Claim	2027-07-14		400			400
125598	Single Cell Mining Claim	2027-07-14		400			400
125696	Single Cell Mining Claim	2027-07-14		400			400
125697	Single Cell Mining Claim	2027-07-14		400			400
128240	Single Cell Mining Claim	2027-07-14		400			400
143407	Single Cell Mining Claim	2027-07-14		200			200
143683	Single Cell Mining Claim	2027-07-14		400			400
153675	Single Cell Mining Claim	2027-07-14		400			400
154873	Boundary Cell Mining Claim	2027-07-14		200			200
154874	Boundary Cell Mining Claim	2027-07-14		200			200
157517	Single Cell Mining Claim	2027-07-14		400			400
157518	Single Cell Mining Claim	2027-07-14		400			400
157519	Single Cell Mining Claim	2027-07-14		200			200

Marathon Claims Held by Generation PGM Inc.*							
Tenure ID	Tenure Type	Anniversary Date	Amount Required Per Year ($)				Work Required ($)
			2026	2027	2028	2029	
157554	Single Cell Mining Claim	2027-07-14		400			400
157578	Single Cell Mining Claim	2027-07-14		400			400
157579	Single Cell Mining Claim	2027-07-14		400			400
160474	Boundary Cell Mining Claim	2027-07-14		200			200
163527	Single Cell Mining Claim	2027-07-14		400			400
172128	Single Cell Mining Claim	2027-07-14		400			400
172129	Single Cell Mining Claim	2027-07-14		400			400
172130	Single Cell Mining Claim	2027-07-14		400			400
174959	Boundary Cell Mining Claim	2027-07-14		200			200
189077	Single Cell Mining Claim	2027-07-14		400			400
190289	Boundary Cell Mining Claim	2027-07-14		200			200
190290	Boundary Cell Mining Claim	2027-07-14		200			200
200189	Single Cell Mining Claim	2027-07-14		400			400
200190	Single Cell Mining Claim	2027-07-14		400			400
201362	Single Cell Mining Claim	2027-07-14		400			400
201363	Single Cell Mining Claim	2027-07-14		400			400
202469	Single Cell Mining Claim	2027-07-14		200			200
202470	Single Cell Mining Claim	2027-07-14		200			200
202816	Single Cell Mining Claim	2027-07-14		400			400
202837	Single Cell Mining Claim	2027-07-14		400			400
203358	Single Cell Mining Claim	2027-07-14		400			400
203396	Single Cell Mining Claim	2027-07-14		400			400
208218	Single Cell Mining Claim	2027-07-14		400			400
212500	Single Cell Mining Claim	2027-07-14		400			400
222987	Single Cell Mining Claim	2027-07-14		400			400
223530	Single Cell Mining Claim	2027-07-14		400			400
226446	Single Cell Mining Claim	2027-07-14		400			400
227591	Boundary Cell Mining Claim	2027-07-14		200			200
227592	Boundary Cell Mining Claim	2027-07-14		200			200
230235	Single Cell Mining Claim	2027-07-14		400			400
230273	Single Cell Mining Claim	2027-07-14		400			400
249206	Single Cell Mining Claim	2027-07-14		400			400
257104	Single Cell Mining Claim	2027-07-14		400			400
257105	Single Cell Mining Claim	2027-07-14		400			400

Marathon Claims Held by Generation PGM Inc.*							
Tenure ID	Tenure Type	Anniversary Date	Amount Required Per Year ($)				Work Required ($)
			2026	2027	2028	2029	
258497	Single Cell Mining Claim	2027-07-14		200			200
258881	Single Cell Mining Claim	2027-07-14		400			400
258882	Single Cell Mining Claim	2027-07-14		400			400
258883	Single Cell Mining Claim	2027-07-14		200			200
258907	Single Cell Mining Claim	2027-07-14		400			400
258908	Single Cell Mining Claim	2027-07-14		400			400
266224	Single Cell Mining Claim	2027-07-14		400			400
266225	Single Cell Mining Claim	2027-07-14		400			400
266814	Single Cell Mining Claim	2027-07-14		400			400
275149	Single Cell Mining Claim	2027-07-14		200			200
275150	Single Cell Mining Claim	2027-07-14		400			400
277446	Single Cell Mining Claim	2027-07-14		400			400
277447	Single Cell Mining Claim	2027-07-14		400			400
286892	Single Cell Mining Claim	2027-07-14		400			400
286893	Single Cell Mining Claim	2027-07-14		400			400
286894	Single Cell Mining Claim	2027-07-14		400			400
293073	Single Cell Mining Claim	2027-07-14		400			400
293074	Boundary Cell Mining Claim	2027-07-14		200			200
294296	Single Cell Mining Claim	2027-07-14		400			400
296262	Single Cell Mining Claim	2027-07-14		400			400
296263	Single Cell Mining Claim	2027-07-14		400			400
296264	Single Cell Mining Claim	2027-07-14		200			200
296853	Single Cell Mining Claim	2027-07-14		400			400
302678	Single Cell Mining Claim	2027-07-14		400			400
302679	Single Cell Mining Claim	2027-07-14		400			400
302680	Single Cell Mining Claim	2027-07-14		400			400
302681	Boundary Cell Mining Claim	2027-07-14		200			200
302682	Boundary Cell Mining Claim	2027-07-14		200			200
305684	Boundary Cell Mining Claim	2027-07-14		200			200
305685	Boundary Cell Mining Claim	2027-07-14		200			200
308997	Boundary Cell Mining Claim	2027-07-14		200			200
310710	Single Cell Mining Claim	2027-07-14		400			400
311393	Single Cell Mining Claim	2027-07-14		200			200
314013	Single Cell Mining Claim	2027-07-14		400			400

Marathon Claims Held by Generation PGM Inc.*							
Tenure ID	Tenure Type	Anniversary Date	Amount Required Per Year ($)				Work Required ($)
			2026	2027	2028	2029	
315704	Boundary Cell Mining Claim	2027-07-14		200			200
324110	Single Cell Mining Claim	2027-07-14		400			400
324111	Single Cell Mining Claim	2027-07-14		200			200
326124	Single Cell Mining Claim	2027-07-14		400			400
336611	Boundary Cell Mining Claim	2027-07-14		200			200
344487	Boundary Cell Mining Claim	2027-07-14		200			200
771436	Single Cell Mining Claim	2028-01-01			400		400
771437	Single Cell Mining Claim	2028-01-01			400		400
771511	Single Cell Mining Claim	2028-01-01			400		400
771512	Single Cell Mining Claim	2028-01-01			400		400
771516	Single Cell Mining Claim	2028-01-01			400		400
771517	Single Cell Mining Claim	2028-01-01			400		400
771518	Single Cell Mining Claim	2028-01-01			400		400
771519	Single Cell Mining Claim	2028-01-01			400		400
771520	Single Cell Mining Claim	2028-01-01			400		400
771522	Single Cell Mining Claim	2028-01-01			400		400
771523	Single Cell Mining Claim	2028-01-01			400		400
771526	Single Cell Mining Claim	2028-01-01			400		400
771527	Single Cell Mining Claim	2028-01-01			400		400
771528	Single Cell Mining Claim	2028-01-01			400		400
771530	Single Cell Mining Claim	2028-01-01			400		400
771531	Single Cell Mining Claim	2028-01-01			400		400
771532	Single Cell Mining Claim	2028-01-01			400		400
771535	Single Cell Mining Claim	2028-01-01			400		400
771536	Single Cell Mining Claim	2028-01-01			400		400
771537	Single Cell Mining Claim	2028-01-01			400		400
771539	Single Cell Mining Claim	2028-01-01			400		400
771540	Single Cell Mining Claim	2028-01-01			400		400
771541	Single Cell Mining Claim	2028-01-01			400		400
771542	Single Cell Mining Claim	2028-01-01			400		400
771543	Single Cell Mining Claim	2028-01-01			400		400
771545	Single Cell Mining Claim	2028-01-01			400		400
771546	Single Cell Mining Claim	2028-01-01			400		400
771547	Single Cell Mining Claim	2028-01-01			400		400

Marathon Claims Held by Generation PGM Inc.*							
Tenure ID	Tenure Type	Anniversary Date	Amount Required Per Year ($)				Work Required ($)
			2026	2027	2028	2029	
110624	Single Cell Mining Claim	2028-01-17			400		400
110625	Single Cell Mining Claim	2028-01-17			200		200
132074	Boundary Cell Mining Claim	2028-01-17			200		200
132075	Boundary Cell Mining Claim	2028-01-17			200		200
136420	Boundary Cell Mining Claim	2028-01-17			200		200
136421	Single Cell Mining Claim	2028-01-17			200		200
136423	Single Cell Mining Claim	2028-01-17			200		200
142476	Single Cell Mining Claim	2028-01-17			200		200
156595	Single Cell Mining Claim	2028-01-17			200		200
156596	Single Cell Mining Claim	2028-01-17			400		400
177294	Single Cell Mining Claim	2028-01-17			400		400
177295	Single Cell Mining Claim	2028-01-17			200		200
181593	Single Cell Mining Claim	2028-01-17			200		200
189033	Single Cell Mining Claim	2028-01-17			200		200
201721	Single Cell Mining Claim	2028-01-17			200		200
208560	Boundary Cell Mining Claim	2028-01-17			200		200
223863	Single Cell Mining Claim	2028-01-17			200		200
231905	Boundary Cell Mining Claim	2028-01-17			200		200
231906	Boundary Cell Mining Claim	2028-01-17			200		200
250880	Single Cell Mining Claim	2028-01-17			200		200
256376	Single Cell Mining Claim	2028-01-17			200		200
256377	Single Cell Mining Claim	2028-01-17			200		200
267833	Single Cell Mining Claim	2028-01-17			200		200
274443	Single Cell Mining Claim	2028-01-17			400		400
279909	Boundary Cell Mining Claim	2028-01-17			200		200
291532	Single Cell Mining Claim	2028-01-17			400		400
300157	Single Cell Mining Claim	2028-01-17			200		200
304952	Boundary Cell Mining Claim	2028-01-17			200		200
304953	Single Cell Mining Claim	2028-01-17			400		400
304954	Single Cell Mining Claim	2028-01-17			200		200
304955	Single Cell Mining Claim	2028-01-17			200		200
311766	Single Cell Mining Claim	2028-01-17			200		200
316784	Boundary Cell Mining Claim	2028-01-17			200		200
338880	Single Cell Mining Claim	2028-01-17			400		400

Marathon Claims Held by Generation PGM Inc.*							
Tenure ID	Tenure Type	Anniversary Date	Amount Required Per Year ($)				Work Required ($)
			2026	2027	2028	2029	
343752	Single Cell Mining Claim	2028-01-17			200		200
343753	Single Cell Mining Claim	2028-01-17			200		200
877183	Single Cell Mining Claim	2028-01-25			400		400
877184	Single Cell Mining Claim	2028-01-25			400		400
877185	Single Cell Mining Claim	2028-01-25			400		400
877186	Single Cell Mining Claim	2028-01-25			400		400
877187	Single Cell Mining Claim	2028-01-25			400		400
877188	Single Cell Mining Claim	2028-01-25			400		400
115328	Single Cell Mining Claim	2028-02-06			200		200
150705	Single Cell Mining Claim	2028-02-06			200		200
153442	Single Cell Mining Claim	2028-02-06			400		400
206778	Single Cell Mining Claim	2028-02-06			200		200
206779	Single Cell Mining Claim	2028-02-06			400		400
206780	Single Cell Mining Claim	2028-02-06			200		200
218902	Boundary Cell Mining Claim	2028-02-06			200		200
218903	Boundary Cell Mining Claim	2028-02-06			200		200
218904	Boundary Cell Mining Claim	2028-02-06			200		200
235550	Single Cell Mining Claim	2028-02-06			400		400
235551	Single Cell Mining Claim	2028-02-06			200		200
265367	Single Cell Mining Claim	2028-02-06			200		200
303284	Single Cell Mining Claim	2028-02-06			200		200
319367	Single Cell Mining Claim	2028-02-06			400		400
321501	Boundary Cell Mining Claim	2028-02-06			200		200
108297	Boundary Cell Mining Claim	2028-02-12			200		200
109473	Single Cell Mining Claim	2028-02-12			400		400
127089	Single Cell Mining Claim	2028-02-12			400		400
138234	Single Cell Mining Claim	2028-02-12			400		400
140276	Single Cell Mining Claim	2028-02-12			400		400
140277	Single Cell Mining Claim	2028-02-12			400		400
140278	Single Cell Mining Claim	2028-02-12			400		400
144204	Single Cell Mining Claim	2028-02-12			400		400
144205	Single Cell Mining Claim	2028-02-12			400		400
155028	Boundary Cell Mining Claim	2028-02-12			200		200
185158	Boundary Cell Mining Claim	2028-02-12			200		200

Marathon Claims Held by Generation PGM Inc.*							
Tenure ID	Tenure Type	Anniversary Date	Amount Required Per Year ($)				Work Required ($)
			2026	2027	2028	2029	
185159	Single Cell Mining Claim	2028-02-12			400		400
190214	Single Cell Mining Claim	2028-02-12			400		400
194326	Single Cell Mining Claim	2028-02-12			400		400
194327	Single Cell Mining Claim	2028-02-12			400		400
194328	Single Cell Mining Claim	2028-02-12			400		400
211039	Single Cell Mining Claim	2028-02-12			400		400
220374	Single Cell Mining Claim	2028-02-12			200		200
227844	Single Cell Mining Claim	2028-02-12			400		400
228079	Single Cell Mining Claim	2028-02-12			400		400
228080	Single Cell Mining Claim	2028-02-12			400		400
238872	Single Cell Mining Claim	2028-02-12			400		400
246869	Boundary Cell Mining Claim	2028-02-12			200		200
246870	Single Cell Mining Claim	2028-02-12			400		400
246871	Boundary Cell Mining Claim	2028-02-12			200		200
248941	Single Cell Mining Claim	2028-02-12			400		400
267593	Single Cell Mining Claim	2028-02-12			400		400
267594	Single Cell Mining Claim	2028-02-12			200		200
270652	Boundary Cell Mining Claim	2028-02-12			200		200
275572	Boundary Cell Mining Claim	2028-02-12			200		200
275573	Single Cell Mining Claim	2028-02-12			200		200
296077	Single Cell Mining Claim	2028-02-12			400		400
312953	Single Cell Mining Claim	2028-02-12			400		400
312954	Single Cell Mining Claim	2028-02-12			400		400
312955	Single Cell Mining Claim	2028-02-12			400		400
318431	Single Cell Mining Claim	2028-02-12			400		400
331123	Boundary Cell Mining Claim	2028-02-12			200		200
331141	Boundary Cell Mining Claim	2028-02-12			200		200
335995	Boundary Cell Mining Claim	2028-02-12			200		200
100400	Boundary Cell Mining Claim	2028-03-01			200		200
100401	Single Cell Mining Claim	2028-03-01			400		400
100402	Single Cell Mining Claim	2028-03-01			400		400
102006	Boundary Cell Mining Claim	2028-03-01			200		200
117130	Boundary Cell Mining Claim	2028-03-01			200		200
128992	Single Cell Mining Claim	2028-03-01			400		400

Marathon Claims Held by Generation PGM Inc.*							
Tenure ID	Tenure Type	Anniversary Date	Amount Required Per Year ($)				Work Required ($)
			2026	2027	2028	2029	
128993	Boundary Cell Mining Claim	2028-03-01			200		200
143482	Single Cell Mining Claim	2028-03-01			400		400
145505	Single Cell Mining Claim	2028-03-01			400		400
145506	Single Cell Mining Claim	2028-03-01			400		400
163522	Single Cell Mining Claim	2028-03-01			400		400
163523	Single Cell Mining Claim	2028-03-01			400		400
163524	Single Cell Mining Claim	2028-03-01			400		400
163604	Single Cell Mining Claim	2028-03-01			400		400
164285	Boundary Cell Mining Claim	2028-03-01			200		200
164286	Single Cell Mining Claim	2028-03-01			400		400
164287	Boundary Cell Mining Claim	2028-03-01			200		200
202814	Boundary Cell Mining Claim	2028-03-01			200		200
212177	Single Cell Mining Claim	2028-03-01			400		400
224203	Single Cell Mining Claim	2028-03-01			400		400
230234	Boundary Cell Mining Claim	2028-03-01			200		200
277415	Single Cell Mining Claim	2028-03-01			400		400
277416	Single Cell Mining Claim	2028-03-01			400		400
277496	Boundary Cell Mining Claim	2028-03-01			200		200
278949	Single Cell Mining Claim	2028-03-01			400		400
296258	Single Cell Mining Claim	2028-03-01			400		400
296259	Single Cell Mining Claim	2028-03-01			400		400
297004	Single Cell Mining Claim	2028-03-01			400		400
314009	Boundary Cell Mining Claim	2028-03-01			200		200
314010	Boundary Cell Mining Claim	2028-03-01			200		200
136479	Single Cell Mining Claim	2028-03-02			400		400
169276	Boundary Cell Mining Claim	2028-03-02			200		200
169277	Single Cell Mining Claim	2028-03-02			200		200
170694	Single Cell Mining Claim	2028-03-02			200		200
200673	Single Cell Mining Claim	2028-03-02			200		200
208665	Boundary Cell Mining Claim	2028-03-02			200		200
237770	Single Cell Mining Claim	2028-03-02			200		200
273230	Single Cell Mining Claim	2028-03-02			200		200
303095	Boundary Cell Mining Claim	2028-03-02			200		200
304492	Boundary Cell Mining Claim	2028-03-02			200		200

Marathon Claims Held by Generation PGM Inc.*							
Tenure ID	Tenure Type	Anniversary Date	Amount Required Per Year ($)				Work Required ($)
			2026	2027	2028	2029	
323980	Single Cell Mining Claim	2028-03-02			400		400
323981	Single Cell Mining Claim	2028-03-02			200		200
803846	Single Cell Mining Claim	2028-03-06			400		400
111266	Single Cell Mining Claim	2028-03-21			400		400
111326	Single Cell Mining Claim	2028-03-21			400		400
114818	Single Cell Mining Claim	2028-03-21			400		400
133149	Boundary Cell Mining Claim	2028-03-21			200		200
144206	Single Cell Mining Claim	2028-03-21			400		400
149742	Single Cell Mining Claim	2028-03-21			400		400
149743	Single Cell Mining Claim	2028-03-21			400		400
149744	Boundary Cell Mining Claim	2028-03-21			200		200
151994	Single Cell Mining Claim	2028-03-21			400		400
151995	Single Cell Mining Claim	2028-03-21			400		400
152718	Single Cell Mining Claim	2028-03-21			400		400
152719	Single Cell Mining Claim	2028-03-21			400		400
153966	Single Cell Mining Claim	2028-03-21			400		400
153967	Single Cell Mining Claim	2028-03-21			400		400
155570	Single Cell Mining Claim	2028-03-21			400		400
155571	Single Cell Mining Claim	2028-03-21			400		400
172155	Single Cell Mining Claim	2028-03-21			400		400
175751	Single Cell Mining Claim	2028-03-21			400		400
190215	Single Cell Mining Claim	2028-03-21			400		400
196627	Single Cell Mining Claim	2028-03-21			400		400
197295	Single Cell Mining Claim	2028-03-21			400		400
198581	Single Cell Mining Claim	2028-03-21			400		400
204589	Single Cell Mining Claim	2028-03-21			400		400
209450	Single Cell Mining Claim	2028-03-21			400		400
218108	Single Cell Mining Claim	2028-03-21			400		400
221527	Single Cell Mining Claim	2028-03-21			400		400
228285	Single Cell Mining Claim	2028-03-21			400		400
228286	Single Cell Mining Claim	2028-03-21			200		200
245049	Single Cell Mining Claim	2028-03-21			200		200
252486	Single Cell Mining Claim	2028-03-21			400		400
252487	Single Cell Mining Claim	2028-03-21			400		400

Marathon Claims Held by Generation PGM Inc.*							
Tenure ID	Tenure Type	Anniversary Date	Amount Required Per Year ($)				Work Required ($)
			2026	2027	2028	2029	
257480	Single Cell Mining Claim	2028-03-21			400		400
263843	Single Cell Mining Claim	2028-03-21			400		400
263844	Single Cell Mining Claim	2028-03-21			400		400
264613	Single Cell Mining Claim	2028-03-21			200		200
265337	Boundary Cell Mining Claim	2028-03-21			200		200
271264	Single Cell Mining Claim	2028-03-21			400		400
272575	Single Cell Mining Claim	2028-03-21			400		400
272576	Single Cell Mining Claim	2028-03-21			400		400
287592	Boundary Cell Mining Claim	2028-03-21			200		200
287593	Single Cell Mining Claim	2028-03-21			400		400
294334	Single Cell Mining Claim	2028-03-21			400		400
294335	Boundary Cell Mining Claim	2028-03-21			200		200
300505	Single Cell Mining Claim	2028-03-21			400		400
301213	Single Cell Mining Claim	2028-03-21			400		400
311416	Single Cell Mining Claim	2028-03-21			400		400
318432	Single Cell Mining Claim	2028-03-21			400		400
319050	Single Cell Mining Claim	2028-03-21			400		400
321951	Single Cell Mining Claim	2028-03-21			400		400
324139	Single Cell Mining Claim	2028-03-21			400		400
331269	Single Cell Mining Claim	2028-03-21			400		400
333334	Boundary Cell Mining Claim	2028-03-21			200		200
344937	Single Cell Mining Claim	2028-03-21			400		400
110708	Single Cell Mining Claim	2028-03-31			400		400
137000	Boundary Cell Mining Claim	2028-03-31			200		200
137001	Boundary Cell Mining Claim	2028-03-31			200		200
143049	Boundary Cell Mining Claim	2028-03-31			200		200
182191	Single Cell Mining Claim	2028-03-31			200		200
189626	Single Cell Mining Claim	2028-03-31			400		400
238266	Boundary Cell Mining Claim	2028-03-31			200		200
257853	Boundary Cell Mining Claim	2028-03-31			200		200
274532	Boundary Cell Mining Claim	2028-03-31			200		200
343821	Boundary Cell Mining Claim	2028-03-31			200		200
109766	Single Cell Mining Claim	2028-04-11			400		400
127088	Single Cell Mining Claim	2028-04-11			400		400

Marathon Claims Held by Generation PGM Inc.*							
Tenure ID	Tenure Type	Anniversary Date	Amount Required Per Year ($)				Work Required ($)
			2026	2027	2028	2029	
127090	Single Cell Mining Claim	2028-04-11			200		200
137727	Single Cell Mining Claim	2028-04-11			400		400
145363	Single Cell Mining Claim	2028-04-11			400		400
155029	Single Cell Mining Claim	2028-04-11			400		400
238984	Single Cell Mining Claim	2028-04-11			200		200
259491	Single Cell Mining Claim	2028-04-11			400		400
260139	Single Cell Mining Claim	2028-04-11			400		400
279555	Single Cell Mining Claim	2028-04-11			400		400
109585	Boundary Cell Mining Claim	2028-04-13			200		200
129383	Boundary Cell Mining Claim	2028-04-13			200		200
140916	Single Cell Mining Claim	2028-04-13			400		400
140917	Single Cell Mining Claim	2028-04-13			400		400
140918	Single Cell Mining Claim	2028-04-13			400		400
175440	Single Cell Mining Claim	2028-04-13			400		400
175441	Boundary Cell Mining Claim	2028-04-13			200		200
188413	Boundary Cell Mining Claim	2028-04-13			200		200
192910	Single Cell Mining Claim	2028-04-13			400		400
194455	Single Cell Mining Claim	2028-04-13			400		400
211645	Single Cell Mining Claim	2028-04-13			400		400
230024	Single Cell Mining Claim	2028-04-13			400		400
241554	Single Cell Mining Claim	2028-04-13			400		400
241555	Boundary Cell Mining Claim	2028-04-13			200		200
249564	Single Cell Mining Claim	2028-04-13			400		400
285633	Single Cell Mining Claim	2028-04-13			400		400
308905	Single Cell Mining Claim	2028-04-13			200		200
315645	Single Cell Mining Claim	2028-04-13			400		400
321671	Single Cell Mining Claim	2028-04-13			400		400
321672	Single Cell Mining Claim	2028-04-13			400		400
124056	Boundary Cell Mining Claim	2028-05-16			200		200
124057	Boundary Cell Mining Claim	2028-05-16			200		200
128220	Boundary Cell Mining Claim	2028-05-16			200		200
143404	Single Cell Mining Claim	2028-05-16			400		400
157516	Single Cell Mining Claim	2028-05-16			400		400
157577	Boundary Cell Mining Claim	2028-05-16			200		200

Marathon Claims Held by Generation PGM Inc.*							
Tenure ID	Tenure Type	Anniversary Date	Amount Required Per Year ($)				Work Required ($)
			2026	2027	2028	2029	
211412	Single Cell Mining Claim	2028-05-16			200		200
211413	Boundary Cell Mining Claim	2028-05-16			200		200
216734	Boundary Cell Mining Claim	2028-05-16			200		200
223527	Single Cell Mining Claim	2028-05-16			200		200
235333	Boundary Cell Mining Claim	2028-05-16			200		200
236183	Boundary Cell Mining Claim	2028-05-16			200		200
259468	Single Cell Mining Claim	2028-05-16			200		200
279025	Single Cell Mining Claim	2028-05-16			400		400
291402	Boundary Cell Mining Claim	2028-05-16			200		200
296852	Single Cell Mining Claim	2028-05-16			400		400
303512	Boundary Cell Mining Claim	2028-05-16			200		200
303513	Boundary Cell Mining Claim	2028-05-16			200		200
325555	Single Cell Mining Claim	2028-05-16			200		200
326122	Single Cell Mining Claim	2028-05-16			400		400
132483	Single Cell Mining Claim	2028-07-14			400		400
132484	Single Cell Mining Claim	2028-07-14			400		400
132485	Single Cell Mining Claim	2028-07-14			200		200
142403	Boundary Cell Mining Claim	2028-07-14			200		200
149078	Single Cell Mining Claim	2028-07-14			400		400
152066	Boundary Cell Mining Claim	2028-07-14			200		200
152067	Single Cell Mining Claim	2028-07-14			200		200
156521	Boundary Cell Mining Claim	2028-07-14			200		200
157801	Single Cell Mining Claim	2028-07-14			200		200
167251	Single Cell Mining Claim	2028-07-14			200		200
188956	Single Cell Mining Claim	2028-07-14			400		400
208477	Boundary Cell Mining Claim	2028-07-14			200		200
209781	Single Cell Mining Claim	2028-07-14			400		400
238413	Single Cell Mining Claim	2028-07-14			400		400
252422	Single Cell Mining Claim	2028-07-14			400		400
256294	Single Cell Mining Claim	2028-07-14			400		400
256295	Boundary Cell Mining Claim	2028-07-14			200		200
267762	Single Cell Mining Claim	2028-07-14			400		400
292965	Single Cell Mining Claim	2028-07-14			400		400
301081	Single Cell Mining Claim	2028-07-14			200		200

Marathon Claims Held by Generation PGM Inc.*							
Tenure ID	Tenure Type	Anniversary Date	Amount Required Per Year ($)				Work Required ($)
			2026	2027	2028	2029	
311676	Single Cell Mining Claim	2028-07-14			400		400
318427	Single Cell Mining Claim	2028-07-14			400		400
332647	Single Cell Mining Claim	2028-07-14			200		200
337992	Single Cell Mining Claim	2028-07-14			400		400
126273	Boundary Cell Mining Claim	2028-07-31			200		200
128315	Single Cell Mining Claim	2028-07-31			400		400
142801	Single Cell Mining Claim	2028-07-31			400		400
172158	Single Cell Mining Claim	2028-07-31			400		400
211415	Single Cell Mining Claim	2028-07-31			400		400
221529	Single Cell Mining Claim	2028-07-31			400		400
221530	Single Cell Mining Claim	2028-07-31			400		400
230316	Single Cell Mining Claim	2028-07-31			400		400
296265	Single Cell Mining Claim	2028-07-31			400		400
102120	Single Cell Mining Claim	2028-08-06			400		400
115085	Single Cell Mining Claim	2028-08-06			400		400
116474	Boundary Cell Mining Claim	2028-08-06			200		200
116475	Single Cell Mining Claim	2028-08-06			400		400
155573	Single Cell Mining Claim	2028-08-06			400		400
155574	Single Cell Mining Claim	2028-08-06			400		400
164907	Single Cell Mining Claim	2028-08-06			400		400
177739	Boundary Cell Mining Claim	2028-08-06			200		200
177740	Boundary Cell Mining Claim	2028-08-06			200		200
177741	Single Cell Mining Claim	2028-08-06			400		400
194148	Boundary Cell Mining Claim	2028-08-06			200		200
210762	Single Cell Mining Claim	2028-08-06			400		400
212816	Single Cell Mining Claim	2028-08-06			400		400
224325	Boundary Cell Mining Claim	2028-08-06			200		200
229575	Single Cell Mining Claim	2028-08-06			400		400
231612	Boundary Cell Mining Claim	2028-08-06			200		200
231613	Boundary Cell Mining Claim	2028-08-06			200		200
268281	Single Cell Mining Claim	2028-08-06			400		400
280334	Boundary Cell Mining Claim	2028-08-06			200		200
287595	Boundary Cell Mining Claim	2028-08-06			200		200
311420	Single Cell Mining Claim	2028-08-06			400		400

Marathon Claims Held by Generation PGM Inc.*							
Tenure ID	Tenure Type	Anniversary Date	Amount Required Per Year ($)				Work Required ($)
			2026	2027	2028	2029	
314738	Boundary Cell Mining Claim	2028-08-06			200		200
314739	Single Cell Mining Claim	2028-08-06			400		400
325426	Single Cell Mining Claim	2028-08-06			400		400
111125	Boundary Cell Mining Claim	2028-10-13			200		200
132456	Boundary Cell Mining Claim	2028-10-13			200		200
137248	Boundary Cell Mining Claim	2028-10-13			200		200
142402	Boundary Cell Mining Claim	2028-10-13			200		200
167246	Boundary Cell Mining Claim	2028-10-13			200		200
171947	Single Cell Mining Claim	2028-10-13			200		200
171948	Single Cell Mining Claim	2028-10-13			200		200
238569	Single Cell Mining Claim	2028-10-13			400		400
238570	Single Cell Mining Claim	2028-10-13			200		200
256568	Boundary Cell Mining Claim	2028-10-13			200		200
312531	Single Cell Mining Claim	2028-10-13			400		400
312532	Boundary Cell Mining Claim	2028-10-13			200		200
331128	Boundary Cell Mining Claim	2028-10-13			200		200
337986	Boundary Cell Mining Claim	2028-10-13			200		200
134699	Boundary Cell Mining Claim	2028-12-23			200		200
169483	Single Cell Mining Claim	2028-12-23			200		200
198743	Single Cell Mining Claim	2028-12-23			200		200
218871	Boundary Cell Mining Claim	2028-12-23			200		200
877100	Single Cell Mining Claim	2029-01-25				400	400
877101	Single Cell Mining Claim	2029-01-25				400	400
877102	Single Cell Mining Claim	2029-01-25				400	400
877103	Single Cell Mining Claim	2029-01-25				400	400
877104	Single Cell Mining Claim	2029-01-25				400	400
877105	Single Cell Mining Claim	2029-01-25				400	400
877106	Single Cell Mining Claim	2029-01-25				400	400
877107	Single Cell Mining Claim	2029-01-25				400	400
877108	Single Cell Mining Claim	2029-01-25				400	400
877109	Single Cell Mining Claim	2029-01-25				400	400
877110	Single Cell Mining Claim	2029-01-25				400	400
877111	Single Cell Mining Claim	2029-01-25				400	400
877112	Single Cell Mining Claim	2029-01-25				400	400

Marathon Claims Held by Generation PGM Inc.*							
Tenure ID	Tenure Type	Anniversary Date	Amount Required Per Year ($)				Work Required ($)
			2026	2027	2028	2029	
877113	Single Cell Mining Claim	2029-01-25				400	400
877114	Single Cell Mining Claim	2029-01-25				400	400
877115	Single Cell Mining Claim	2029-01-25				400	400
877116	Single Cell Mining Claim	2029-01-25				400	400
877117	Single Cell Mining Claim	2029-01-25				400	400
877118	Single Cell Mining Claim	2029-01-25				400	400
877119	Single Cell Mining Claim	2029-01-25				400	400
877120	Single Cell Mining Claim	2029-01-25				400	400
877121	Single Cell Mining Claim	2029-01-25				400	400
877122	Single Cell Mining Claim	2029-01-25				400	400
877123	Single Cell Mining Claim	2029-01-25				400	400
877124	Single Cell Mining Claim	2029-01-25				400	400
877125	Single Cell Mining Claim	2029-01-25				400	400
877126	Single Cell Mining Claim	2029-01-25				400	400
877127	Single Cell Mining Claim	2029-01-25				400	400
877128	Single Cell Mining Claim	2029-01-25				400	400
877129	Single Cell Mining Claim	2029-01-25				400	400
877130	Single Cell Mining Claim	2029-01-25				400	400
877131	Single Cell Mining Claim	2029-01-25				400	400
877132	Single Cell Mining Claim	2029-01-25				400	400
877133	Single Cell Mining Claim	2029-01-25				400	400
877134	Single Cell Mining Claim	2029-01-25				400	400
877135	Single Cell Mining Claim	2029-01-25				400	400
877136	Single Cell Mining Claim	2029-01-25				400	400
877137	Single Cell Mining Claim	2029-01-25				400	400
877138	Single Cell Mining Claim	2029-01-25				400	400
877139	Single Cell Mining Claim	2029-01-25				400	400
877140	Single Cell Mining Claim	2029-01-25				400	400
877141	Single Cell Mining Claim	2029-01-25				400	400
877142	Single Cell Mining Claim	2029-01-25				400	400
877143	Single Cell Mining Claim	2029-01-25				400	400
877144	Single Cell Mining Claim	2029-01-25				400	400
877145	Single Cell Mining Claim	2029-01-25				400	400
877146	Single Cell Mining Claim	2029-01-25				400	400

Marathon Claims Held by Generation PGM Inc.*							
Tenure ID	Tenure Type	Anniversary Date	Amount Required Per Year ($)				Work Required ($)
			2026	2027	2028	2029	
877147	Single Cell Mining Claim	2029-01-25				400	400
877148	Single Cell Mining Claim	2029-01-25				400	400
877149	Single Cell Mining Claim	2029-01-25				400	400
877150	Single Cell Mining Claim	2029-01-25				400	400
877151	Single Cell Mining Claim	2029-01-25				400	400
877152	Single Cell Mining Claim	2029-01-25				400	400
877153	Single Cell Mining Claim	2029-01-25				400	400
877154	Single Cell Mining Claim	2029-01-25				400	400
877155	Single Cell Mining Claim	2029-01-25				400	400
877156	Single Cell Mining Claim	2029-01-25				400	400
877157	Single Cell Mining Claim	2029-01-25				400	400
877158	Single Cell Mining Claim	2029-01-25				400	400
877159	Single Cell Mining Claim	2029-01-25				400	400
877160	Single Cell Mining Claim	2029-01-25				400	400
877161	Single Cell Mining Claim	2029-01-25				400	400
877162	Single Cell Mining Claim	2029-01-25				400	400
877163	Single Cell Mining Claim	2029-01-25				400	400
877164	Single Cell Mining Claim	2029-01-25				400	400
877165	Single Cell Mining Claim	2029-01-25				400	400
877166	Single Cell Mining Claim	2029-01-25				400	400
877167	Single Cell Mining Claim	2029-01-25				400	400
877168	Single Cell Mining Claim	2029-01-25				400	400
877169	Single Cell Mining Claim	2029-01-25				400	400
877170	Single Cell Mining Claim	2029-01-25				400	400
877171	Single Cell Mining Claim	2029-01-25				400	400
877172	Single Cell Mining Claim	2029-01-25				400	400
877173	Single Cell Mining Claim	2029-01-25				400	400
877174	Single Cell Mining Claim	2029-01-25				400	400
877175	Single Cell Mining Claim	2029-01-25				400	400
877176	Single Cell Mining Claim	2029-01-25				400	400
877177	Single Cell Mining Claim	2029-01-25				400	400
877178	Single Cell Mining Claim	2029-01-25				400	400
877179	Single Cell Mining Claim	2029-01-25				400	400
877212	Single Cell Mining Claim	2029-01-25				400	400

Marathon Claims Held by Generation PGM Inc.*							
Tenure ID	Tenure Type	Anniversary Date	Amount Required Per Year ($)				Work Required ($)
			2026	2027	2028	2029	
877213	Single Cell Mining Claim	2029-01-25				400	400
877214	Single Cell Mining Claim	2029-01-25				400	400
877215	Single Cell Mining Claim	2029-01-25				400	400
877216	Single Cell Mining Claim	2029-01-25				400	400
878003	Single Cell Mining Claim	2029-01-28				400	400
878167	Single Cell Mining Claim	2029-01-30				400	400
878168	Single Cell Mining Claim	2029-01-30				400	400
878169	Single Cell Mining Claim	2029-01-30				400	400
878170	Single Cell Mining Claim	2029-01-30				400	400
878171	Single Cell Mining Claim	2029-01-30				400	400
878172	Single Cell Mining Claim	2029-01-30				400	400
878173	Single Cell Mining Claim	2029-01-30				400	400
878174	Single Cell Mining Claim	2029-01-30				400	400
878175	Single Cell Mining Claim	2029-01-30				400	400
878176	Single Cell Mining Claim	2029-01-30				400	400
878177	Single Cell Mining Claim	2029-01-30				400	400
878178	Single Cell Mining Claim	2029-01-30				400	400
878179	Single Cell Mining Claim	2029-01-30				400	400
878180	Single Cell Mining Claim	2029-01-30				400	400
878181	Single Cell Mining Claim	2029-01-30				400	400
878182	Single Cell Mining Claim	2029-01-30				400	400
878183	Single Cell Mining Claim	2029-01-30				400	400
878184	Single Cell Mining Claim	2029-01-30				400	400
878185	Single Cell Mining Claim	2029-01-30				400	400
878186	Single Cell Mining Claim	2029-01-30				400	400
878187	Single Cell Mining Claim	2029-01-30				400	400
878188	Single Cell Mining Claim	2029-01-30				400	400
878189	Single Cell Mining Claim	2029-01-30				400	400
878190	Single Cell Mining Claim	2029-01-30				400	400
878191	Single Cell Mining Claim	2029-01-30				400	400
878192	Single Cell Mining Claim	2029-01-30				400	400
878193	Single Cell Mining Claim	2029-01-30				400	400
878194	Single Cell Mining Claim	2029-01-30				400	400
878195	Single Cell Mining Claim	2029-01-30				400	400

Marathon Claims Held by Generation PGM Inc.*							
Tenure ID	Tenure Type	Anniversary Date	Amount Required Per Year ($)				Work Required ($)
			2026	2027	2028	2029	
878196	Single Cell Mining Claim	2029-01-30				400	400
878197	Single Cell Mining Claim	2029-01-30				400	400
878198	Single Cell Mining Claim	2029-01-30				400	400
878199	Single Cell Mining Claim	2029-01-30				400	400
878200	Single Cell Mining Claim	2029-01-30				400	400
878201	Single Cell Mining Claim	2029-01-30				400	400
878202	Single Cell Mining Claim	2029-01-30				400	400
878203	Single Cell Mining Claim	2029-01-30				400	400
878204	Single Cell Mining Claim	2029-01-30				400	400
878205	Single Cell Mining Claim	2029-01-30				400	400
878206	Single Cell Mining Claim	2029-01-30				400	400
878207	Single Cell Mining Claim	2029-01-30				400	400
878208	Single Cell Mining Claim	2029-01-30				400	400
878209	Single Cell Mining Claim	2029-01-30				400	400
878210	Single Cell Mining Claim	2029-01-30				400	400
878211	Single Cell Mining Claim	2029-01-30				400	400
878212	Single Cell Mining Claim	2029-01-30				400	400
878213	Single Cell Mining Claim	2029-01-30				400	400
878214	Single Cell Mining Claim	2029-01-30				400	400
878215	Single Cell Mining Claim	2029-01-30				400	400
878216	Single Cell Mining Claim	2029-01-30				400	400
878219	Single Cell Mining Claim	2029-01-30				400	400
878220	Single Cell Mining Claim	2029-01-30				400	400
878221	Single Cell Mining Claim	2029-01-30				400	400
878222	Single Cell Mining Claim	2029-01-30				400	400
878223	Single Cell Mining Claim	2029-01-30				400	400
878236	Single Cell Mining Claim	2029-01-30				400	400
878237	Single Cell Mining Claim	2029-01-30				400	400
878238	Single Cell Mining Claim	2029-01-30				400	400
878239	Single Cell Mining Claim	2029-01-30				400	400
878240	Single Cell Mining Claim	2029-01-30				400	400
878241	Single Cell Mining Claim	2029-01-30				400	400
878242	Single Cell Mining Claim	2029-01-30				400	400
878243	Single Cell Mining Claim	2029-01-30				400	400

Marathon Claims Held by Generation PGM Inc.*							
Tenure ID	Tenure Type	Anniversary Date	Amount Required Per Year ($)				Work Required ($)
			2026	2027	2028	2029	
878244	Single Cell Mining Claim	2029-01-30				400	400
878245	Single Cell Mining Claim	2029-01-30				400	400
878246	Single Cell Mining Claim	2029-01-30				400	400
878247	Single Cell Mining Claim	2029-01-30				400	400
878248	Single Cell Mining Claim	2029-01-30				400	400
878249	Single Cell Mining Claim	2029-01-30				400	400
878250	Single Cell Mining Claim	2029-01-30				400	400
878251	Single Cell Mining Claim	2029-01-30				400	400
878252	Single Cell Mining Claim	2029-01-30				400	400
878253	Single Cell Mining Claim	2029-01-30				400	400
878254	Single Cell Mining Claim	2029-01-30				400	400
878255	Single Cell Mining Claim	2029-01-30				400	400
878256	Single Cell Mining Claim	2029-01-30				400	400
878257	Single Cell Mining Claim	2029-01-30				400	400
878258	Single Cell Mining Claim	2029-01-30				400	400
878259	Single Cell Mining Claim	2029-01-30				400	400
878260	Single Cell Mining Claim	2029-01-30				400	400
878261	Single Cell Mining Claim	2029-01-30				400	400
878262	Single Cell Mining Claim	2029-01-30				400	400
878263	Single Cell Mining Claim	2029-01-30				400	400
878264	Single Cell Mining Claim	2029-01-30				400	400
878265	Single Cell Mining Claim	2029-01-30				400	400
878266	Single Cell Mining Claim	2029-01-30				400	400
878267	Single Cell Mining Claim	2029-01-30				400	400
878268	Single Cell Mining Claim	2029-01-30				400	400
878269	Single Cell Mining Claim	2029-01-30				400	400
878270	Single Cell Mining Claim	2029-01-30				400	400
878271	Single Cell Mining Claim	2029-01-30				400	400
878272	Single Cell Mining Claim	2029-01-30				400	400
878273	Single Cell Mining Claim	2029-01-30				400	400
878274	Single Cell Mining Claim	2029-01-30				400	400
879153	Single Cell Mining Claim	2029-02-02				400	400
879154	Single Cell Mining Claim	2029-02-02				400	400
879155	Single Cell Mining Claim	2029-02-02				400	400

Marathon Claims Held by Generation PGM Inc.*							
Tenure ID	Tenure Type	Anniversary Date	Amount Required Per Year ($)				Work Required ($)
			2026	2027	2028	2029	
879156	Single Cell Mining Claim	2029-02-02				400	400
879157	Single Cell Mining Claim	2029-02-02				400	400
879158	Single Cell Mining Claim	2029-02-02				400	400
554561	Single Cell Mining Claim	2029-07-22				400	400
554562	Single Cell Mining Claim	2029-07-22				400	400
554563	Single Cell Mining Claim	2029-07-22				400	400
554564	Single Cell Mining Claim	2029-07-22				400	400
554565	Single Cell Mining Claim	2029-07-22				400	400
554566	Single Cell Mining Claim	2029-07-22				400	400
554567	Single Cell Mining Claim	2029-07-22				400	400
554568	Single Cell Mining Claim	2029-07-22				400	400
554569	Single Cell Mining Claim	2029-07-22				400	400
554570	Single Cell Mining Claim	2029-07-22				400	400
554571	Single Cell Mining Claim	2029-07-22				400	400
554572	Single Cell Mining Claim	2029-07-22				400	400
554573	Single Cell Mining Claim	2029-07-22				400	400
554574	Single Cell Mining Claim	2029-07-22				400	400
554575	Single Cell Mining Claim	2029-07-22				400	400
554576	Single Cell Mining Claim	2029-07-22				400	400
554577	Single Cell Mining Claim	2029-07-22				400	400
554578	Single Cell Mining Claim	2029-07-22				400	400
554579	Single Cell Mining Claim	2029-07-22				400	400
554580	Single Cell Mining Claim	2029-07-22				400	400
554581	Single Cell Mining Claim	2029-07-22				400	400
554582	Single Cell Mining Claim	2029-07-22				400	400
554583	Single Cell Mining Claim	2029-07-22				400	400
554584	Single Cell Mining Claim	2029-07-22				400	400
554585	Single Cell Mining Claim	2029-07-22				400	400
554586	Single Cell Mining Claim	2029-07-22				400	400
554587	Single Cell Mining Claim	2029-07-22				400	400
554588	Single Cell Mining Claim	2029-07-22				400	400
554589	Single Cell Mining Claim	2029-07-22				400	400
554590	Single Cell Mining Claim	2029-07-22				400	400
554591	Single Cell Mining Claim	2029-07-22				400	400

Marathon Claims Held by Generation PGM Inc.*							
Tenure ID	Tenure Type	Anniversary Date	Amount Required Per Year ($)				Work Required ($)
			2026	2027	2028	2029	
554592	Single Cell Mining Claim	2029-07-22				400	400
554593	Single Cell Mining Claim	2029-07-22				400	400
554594	Single Cell Mining Claim	2029-07-22				400	400
554595	Single Cell Mining Claim	2029-07-22				400	400
554596	Single Cell Mining Claim	2029-07-22				400	400
554597	Single Cell Mining Claim	2029-07-22				400	400
554598	Single Cell Mining Claim	2029-07-22				400	400
554599	Single Cell Mining Claim	2029-07-22				400	400
554600	Single Cell Mining Claim	2029-07-22				400	400
554601	Single Cell Mining Claim	2029-07-22				400	400
554602	Single Cell Mining Claim	2029-07-22				400	400
554603	Single Cell Mining Claim	2029-07-22				400	400
554604	Single Cell Mining Claim	2029-07-22				400	400
554605	Single Cell Mining Claim	2029-07-22				400	400
554606	Single Cell Mining Claim	2029-07-22				400	400
554607	Single Cell Mining Claim	2029-07-22				400	400
554608	Single Cell Mining Claim	2029-07-22				400	400
554609	Single Cell Mining Claim	2029-07-22				400	400
554610	Single Cell Mining Claim	2029-07-22				400	400
554611	Single Cell Mining Claim	2029-07-22				400	400
554612	Single Cell Mining Claim	2029-07-22				400	400
554613	Single Cell Mining Claim	2029-07-22				400	400
554614	Single Cell Mining Claim	2029-07-22				400	400
554615	Single Cell Mining Claim	2029-07-22				400	400
554616	Single Cell Mining Claim	2029-07-22				400	400
554617	Single Cell Mining Claim	2029-07-22				400	400
554618	Single Cell Mining Claim	2029-07-22				400	400
554619	Single Cell Mining Claim	2029-07-22				400	400
554620	Single Cell Mining Claim	2029-07-22				400	400
554621	Single Cell Mining Claim	2029-07-22				400	400
554622	Single Cell Mining Claim	2029-07-22				400	400
554623	Single Cell Mining Claim	2029-07-22				400	400
554624	Single Cell Mining Claim	2029-07-22				400	400
554625	Single Cell Mining Claim	2029-07-22				400	400

Marathon Claims Held by Generation PGM Inc.*							
Tenure ID	Tenure Type	Anniversary Date	Amount Required Per Year ($)				Work Required ($)
			2026	2027	2028	2029	
554626	Single Cell Mining Claim	2029-07-22				400	400
554627	Single Cell Mining Claim	2029-07-22				400	400
554628	Single Cell Mining Claim	2029-07-22				400	400
554629	Single Cell Mining Claim	2029-07-22				400	400
554630	Single Cell Mining Claim	2029-07-22				400	400
554631	Single Cell Mining Claim	2029-07-22				400	400
554632	Single Cell Mining Claim	2029-07-22				400	400
554633	Single Cell Mining Claim	2029-07-22				400	400
554634	Single Cell Mining Claim	2029-07-22				400	400
554635	Single Cell Mining Claim	2029-07-22				400	400
554636	Single Cell Mining Claim	2029-07-22				400	400
554637	Single Cell Mining Claim	2029-07-22				400	400
554638	Single Cell Mining Claim	2029-07-22				400	400
555293	Single Cell Mining Claim	2029-08-01				400	400
555294	Single Cell Mining Claim	2029-08-01				400	400
555295	Single Cell Mining Claim	2029-08-01				400	400
555296	Single Cell Mining Claim	2029-08-01				400	400
555297	Single Cell Mining Claim	2029-08-01				400	400
555298	Single Cell Mining Claim	2029-08-01				400	400
555299	Single Cell Mining Claim	2029-08-01				400	400
555300	Single Cell Mining Claim	2029-08-01				400	400
555301	Single Cell Mining Claim	2029-08-01				400	400
555302	Single Cell Mining Claim	2029-08-01				400	400
555303	Single Cell Mining Claim	2029-08-01				400	400
555304	Single Cell Mining Claim	2029-08-01				400	400
555305	Single Cell Mining Claim	2029-08-01				400	400
555306	Single Cell Mining Claim	2029-08-01				400	400
555307	Single Cell Mining Claim	2029-08-01				400	400
555320	Single Cell Mining Claim	2029-08-01				400	400
555321	Single Cell Mining Claim	2029-08-01				400	400
555322	Single Cell Mining Claim	2029-08-01				400	400
555323	Single Cell Mining Claim	2029-08-01				400	400
555324	Single Cell Mining Claim	2029-08-01				400	400
555325	Single Cell Mining Claim	2029-08-01				400	400

Marathon Claims Held by Generation PGM Inc.*							
Tenure ID	Tenure Type	Anniversary Date	Amount Required Per Year ($)				Work Required ($)
			2026	2027	2028	2029	
555326	Single Cell Mining Claim	2029-08-01				400	400
555327	Single Cell Mining Claim	2029-08-01				400	400
555328	Single Cell Mining Claim	2029-08-01				400	400
555329	Single Cell Mining Claim	2029-08-01				400	400
555330	Single Cell Mining Claim	2029-08-01				400	400
555331	Single Cell Mining Claim	2029-08-01				400	400
555332	Single Cell Mining Claim	2029-08-01				400	400
555333	Single Cell Mining Claim	2029-08-01				400	400
555334	Single Cell Mining Claim	2029-08-01				400	400
555335	Single Cell Mining Claim	2029-08-01				400	400
555336	Single Cell Mining Claim	2029-08-01				400	400
555337	Single Cell Mining Claim	2029-08-01				400	400
555338	Single Cell Mining Claim	2029-08-01				400	400
555339	Single Cell Mining Claim	2029-08-01				400	400
555340	Single Cell Mining Claim	2029-08-01				400	400
555341	Single Cell Mining Claim	2029-08-01				400	400
555342	Single Cell Mining Claim	2029-08-01				400	400
555343	Single Cell Mining Claim	2029-08-01				400	400
555344	Single Cell Mining Claim	2029-08-01				400	400
555345	Single Cell Mining Claim	2029-08-01				400	400
555346	Single Cell Mining Claim	2029-08-01				400	400
555347	Single Cell Mining Claim	2029-08-01				400	400
555348	Single Cell Mining Claim	2029-08-01				400	400
555349	Single Cell Mining Claim	2029-08-01				400	400
555350	Single Cell Mining Claim	2029-08-01				400	400
555351	Single Cell Mining Claim	2029-08-01				400	400
555352	Single Cell Mining Claim	2029-08-01				400	400
555353	Single Cell Mining Claim	2029-08-01				400	400
555354	Single Cell Mining Claim	2029-08-01				400	400
555355	Single Cell Mining Claim	2029-08-01				400	400
555356	Single Cell Mining Claim	2029-08-01				400	400
555357	Single Cell Mining Claim	2029-08-01				400	400
555358	Single Cell Mining Claim	2029-08-01				400	400
555359	Single Cell Mining Claim	2029-08-01				400	400

Marathon Claims Held by Generation PGM Inc.*							
Tenure ID	Tenure Type	Anniversary Date	Amount Required Per Year ($)				Work Required ($)
			2026	2027	2028	2029	
555360	Single Cell Mining Claim	2029-08-01				400	400
555361	Single Cell Mining Claim	2029-08-01				400	400
555362	Single Cell Mining Claim	2029-08-01				400	400
555363	Single Cell Mining Claim	2029-08-01				400	400
555364	Single Cell Mining Claim	2029-08-01				400	400
555365	Single Cell Mining Claim	2029-08-01				400	400
555366	Single Cell Mining Claim	2029-08-01				400	400
555367	Single Cell Mining Claim	2029-08-01				400	400
555368	Single Cell Mining Claim	2029-08-01				400	400
555369	Single Cell Mining Claim	2029-08-01				400	400
555370	Single Cell Mining Claim	2029-08-01				400	400
555371	Single Cell Mining Claim	2029-08-01				400	400
555372	Single Cell Mining Claim	2029-08-01				400	400
555373	Single Cell Mining Claim	2029-08-01				400	400
555374	Single Cell Mining Claim	2029-08-01				400	400
555375	Single Cell Mining Claim	2029-08-01				400	400
555376	Single Cell Mining Claim	2029-08-01				400	400
555377	Single Cell Mining Claim	2029-08-01				400	400
555378	Single Cell Mining Claim	2029-08-01				400	400
555379	Single Cell Mining Claim	2029-08-01				400	400
555380	Single Cell Mining Claim	2029-08-01				400	400
555381	Single Cell Mining Claim	2029-08-01				400	400
555382	Single Cell Mining Claim	2029-08-01				400	400
555383	Single Cell Mining Claim	2029-08-01				400	400
555384	Single Cell Mining Claim	2029-08-01				400	400
555385	Single Cell Mining Claim	2029-08-01				400	400
555386	Single Cell Mining Claim	2029-08-01				400	400
555387	Single Cell Mining Claim	2029-08-01				400	400
555388	Single Cell Mining Claim	2029-08-01				400	400
555389	Single Cell Mining Claim	2029-08-01				400	400
555390	Single Cell Mining Claim	2029-08-01				400	400
555391	Single Cell Mining Claim	2029-08-01				400	400
555392	Single Cell Mining Claim	2029-08-01				400	400
555393	Single Cell Mining Claim	2029-08-01				400	400

Marathon Claims Held by Generation PGM Inc.*							
Tenure ID	Tenure Type	Anniversary Date	Amount Required Per Year ($)				Work Required ($)
			2026	2027	2028	2029	
555394	Single Cell Mining Claim	2029-08-01				400	400
555395	Single Cell Mining Claim	2029-08-01				400	400
555396	Single Cell Mining Claim	2029-08-01				400	400
555397	Single Cell Mining Claim	2029-08-01				400	400
555398	Single Cell Mining Claim	2029-08-01				400	400
555399	Single Cell Mining Claim	2029-08-01				400	400
555400	Single Cell Mining Claim	2029-08-01				400	400
555401	Single Cell Mining Claim	2029-08-01				400	400
555402	Single Cell Mining Claim	2029-08-01				400	400
555403	Single Cell Mining Claim	2029-08-01				400	400
555404	Single Cell Mining Claim	2029-08-01				400	400
555405	Single Cell Mining Claim	2029-08-01				400	400
555406	Single Cell Mining Claim	2029-08-01				400	400
555407	Single Cell Mining Claim	2029-08-01				400	400
555408	Single Cell Mining Claim	2029-08-01				400	400
555409	Single Cell Mining Claim	2029-08-01				400	400
555410	Single Cell Mining Claim	2029-08-01				400	400
555411	Single Cell Mining Claim	2029-08-01				400	400
555412	Single Cell Mining Claim	2029-08-01				400	400
555413	Single Cell Mining Claim	2029-08-01				400	400
555414	Single Cell Mining Claim	2029-08-01				400	400
555415	Single Cell Mining Claim	2029-08-01				400	400
555416	Single Cell Mining Claim	2029-08-01				400	400
555417	Single Cell Mining Claim	2029-08-01				400	400
555418	Single Cell Mining Claim	2029-08-01				400	400
555419	Single Cell Mining Claim	2029-08-01				400	400
555420	Single Cell Mining Claim	2029-08-01				400	400
555421	Single Cell Mining Claim	2029-08-01				400	400
555422	Single Cell Mining Claim	2029-08-01				400	400
555423	Single Cell Mining Claim	2029-08-01				400	400
555424	Single Cell Mining Claim	2029-08-01				400	400
555425	Single Cell Mining Claim	2029-08-01				400	400
555426	Single Cell Mining Claim	2029-08-01				400	400
555427	Single Cell Mining Claim	2029-08-01				400	400

Marathon Claims Held by Generation PGM Inc.*							
Tenure ID	Tenure Type	Anniversary Date	Amount Required Per Year ($)				Work Required ($)
			2026	2027	2028	2029	
555428	Single Cell Mining Claim	2029-08-01				400	400
555429	Single Cell Mining Claim	2029-08-01				400	400
555430	Single Cell Mining Claim	2029-08-01				400	400
555431	Single Cell Mining Claim	2029-08-01				400	400
555432	Single Cell Mining Claim	2029-08-01				400	400
555433	Single Cell Mining Claim	2029-08-01				400	400
555434	Single Cell Mining Claim	2029-08-01				400	400
555435	Single Cell Mining Claim	2029-08-01				400	400
555436	Single Cell Mining Claim	2029-08-01				400	400
555437	Single Cell Mining Claim	2029-08-01				400	400
555438	Single Cell Mining Claim	2029-08-01				400	400
555439	Single Cell Mining Claim	2029-08-01				400	400
555440	Single Cell Mining Claim	2029-08-01				400	400
555441	Single Cell Mining Claim	2029-08-01				400	400
128217	Single Cell Mining Claim	2029-08-06				400	400
128218	Single Cell Mining Claim	2029-08-06				400	400
157515	Single Cell Mining Claim	2029-08-06				400	400
172157	Single Cell Mining Claim	2029-08-06				400	400
277413	Single Cell Mining Claim	2029-08-06				400	400
277414	Single Cell Mining Claim	2029-08-06				400	400
296256	Single Cell Mining Claim	2029-08-06				400	400
296257	Single Cell Mining Claim	2029-08-06				400	400
325554	Single Cell Mining Claim	2029-08-06				400	400
100427	Single Cell Mining Claim	2029-08-16				400	400
157537	Single Cell Mining Claim	2029-08-16				400	400
157538	Single Cell Mining Claim	2029-08-16				400	400
230249	Single Cell Mining Claim	2029-08-16				400	400
230250	Single Cell Mining Claim	2029-08-16				400	400
277445	Single Cell Mining Claim	2029-08-16				400	400
296295	Single Cell Mining Claim	2029-08-16				400	400
296296	Single Cell Mining Claim	2029-08-16				400	400
296297	Single Cell Mining Claim	2029-08-16				400	400
325573	Single Cell Mining Claim	2029-08-16				400	400
117047	Single Cell Mining Claim	2029-08-21				400	400

Marathon Claims Held by Generation PGM Inc.*							
Tenure ID	Tenure Type	Anniversary Date	Amount Required Per Year ($)				Work Required ($)
			2026	2027	2028	2029	
127580	Single Cell Mining Claim	2029-08-21				400	400
128219	Single Cell Mining Claim	2029-08-21				400	400
128221	Single Cell Mining Claim	2029-08-21				400	400
142802	Boundary Cell Mining Claim	2029-08-21				200	200
144771	Single Cell Mining Claim	2029-08-21				400	400
156876	Single Cell Mining Claim	2029-08-21				400	400
172159	Single Cell Mining Claim	2029-08-21				400	400
172160	Single Cell Mining Claim	2029-08-21				400	400
201400	Single Cell Mining Claim	2029-08-21				400	400
211416	Single Cell Mining Claim	2029-08-21				400	400
222317	Single Cell Mining Claim	2029-08-21				400	400
230236	Single Cell Mining Claim	2029-08-21				400	400
257483	Single Cell Mining Claim	2029-08-21				400	400
258266	Single Cell Mining Claim	2029-08-21				400	400
258877	Single Cell Mining Claim	2029-08-21				400	400
275491	Single Cell Mining Claim	2029-08-21				400	400
278950	Single Cell Mining Claim	2029-08-21				400	400
278951	Single Cell Mining Claim	2029-08-21				400	400
294340	Single Cell Mining Claim	2029-08-21				400	400
295623	Single Cell Mining Claim	2029-08-21				400	400
296266	Single Cell Mining Claim	2029-08-21				400	400
296267	Single Cell Mining Claim	2029-08-21				400	400
296268	Single Cell Mining Claim	2029-08-21				400	400
311421	Single Cell Mining Claim	2029-08-21				400	400
314014	Single Cell Mining Claim	2029-08-21				400	400
325427	Single Cell Mining Claim	2029-08-21				400	400
325557	Single Cell Mining Claim	2029-08-21				400	400
325558	Single Cell Mining Claim	2029-08-21				400	400
325559	Single Cell Mining Claim	2029-08-21				400	400
112618	Single Cell Mining Claim	2029-10-26				400	400
113254	Single Cell Mining Claim	2029-10-26				400	400
141991	Single Cell Mining Claim	2029-10-26				400	400
170727	Single Cell Mining Claim	2029-10-26				400	400
187185	Single Cell Mining Claim	2029-10-26				400	400

Marathon Claims Held by Generation PGM Inc.*							
Tenure ID	Tenure Type	Anniversary Date	Amount Required Per Year ($)				Work Required ($)
			2026	2027	2028	2029	
201200	Boundary Cell Mining Claim	2029-10-26				200	200
255852	Single Cell Mining Claim	2029-10-26				400	400
272029	Single Cell Mining Claim	2029-10-26				400	400
272535	Single Cell Mining Claim	2029-10-26				400	400
311808	Single Cell Mining Claim	2029-10-26				400	400
311809	Single Cell Mining Claim	2029-10-26				400	400
311810	Boundary Cell Mining Claim	2029-10-26				200	200
324021	Single Cell Mining Claim	2029-10-26				400	400
334438	Single Cell Mining Claim	2029-10-26				400	400
334439	Boundary Cell Mining Claim	2029-10-26				200	200
334440	Single Cell Mining Claim	2029-10-26				400	400
117044	Single Cell Mining Claim	2029-12-09				200	200
143484	Single Cell Mining Claim	2029-12-09				200	200
158913	Boundary Cell Mining Claim	2029-12-09				200	200
202812	Single Cell Mining Claim	2029-12-09				200	200
203393	Single Cell Mining Claim	2029-12-09				200	200
211408	Single Cell Mining Claim	2029-12-09				200	200
211409	Single Cell Mining Claim	2029-12-09				200	200
260281	Boundary Cell Mining Claim	2029-12-09				200	200
268282	Boundary Cell Mining Claim	2029-12-09				200	200
280335	Boundary Cell Mining Claim	2029-12-09				200	200
314084	Single Cell Mining Claim	2029-12-09				200	200
115302	Single Cell Mining Claim	2029-12-23				400	400
149843	Boundary Cell Mining Claim	2029-12-23				200	200
150675	Boundary Cell Mining Claim	2029-12-23				200	200
167991	Single Cell Mining Claim	2029-12-23				400	400
187101	Single Cell Mining Claim	2029-12-23				400	400
187102	Single Cell Mining Claim	2029-12-23				400	400
206113	Boundary Cell Mining Claim	2029-12-23				200	200
245137	Boundary Cell Mining Claim	2029-12-23				200	200
245138	Single Cell Mining Claim	2029-12-23				400	400
253177	Boundary Cell Mining Claim	2029-12-23				200	200
253178	Single Cell Mining Claim	2029-12-23				400	400
253179	Single Cell Mining Claim	2029-12-23				400	400

Marathon Claims Held by Generation PGM Inc.*							
Tenure ID	Tenure Type	Anniversary Date	Amount Required Per Year ($)				Work Required ($)
			2026	2027	2028	2029	
264685	Boundary Cell Mining Claim	2029-12-23				200	200
264686	Single Cell Mining Claim	2029-12-23				400	400
265222	Boundary Cell Mining Claim	2029-12-23				200	200
265223	Single Cell Mining Claim	2029-12-23				400	400
265224	Boundary Cell Mining Claim	2029-12-23				200	200
284250	Single Cell Mining Claim	2029-12-23				400	400
301811	Boundary Cell Mining Claim	2029-12-23				200	200
319326	Boundary Cell Mining Claim	2029-12-23				200	200
321306	Single Cell Mining Claim	2029-12-23				400	400
321307	Single Cell Mining Claim	2029-12-23				400	400
333033	Boundary Cell Mining Claim	2029-12-23				200	200
333034	Boundary Cell Mining Claim	2029-12-23				200	200
333503	Boundary Cell Mining Claim	2029-12-23				200	200

Marathon Leases Held by Generation PGM Inc.			
Tenure ID	Rights	Expiry Date	Area (Ha.)
LEA-107323**	Mining Rights only	2021-07-31	65.393
LEA-108529	Mining and Surface Rights	2031-08-31	25.301
LEA-108530	Mining Rights only	2031-08-31	23.006
LEA-108531	Mining and Surface Rights	2031-08-31	22.039
LEA-108532	Mining and Surface Rights	2031-08-31	11.627
LEA-108533	Mining and Surface Rights	2031-08-31	2.165
LEA-108534	Mining and Surface Rights	2031-08-31	9.522
LEA-108535	Mining and Surface Rights	2031-08-31	16.79
LEA-108536	Mining and Surface Rights	2031-08-31	12.052
LEA-108537	Mining and Surface Rights	2031-08-31	19.291
LEA-108538	Mining and Surface Rights	2031-08-31	29.174
LEA-108539	Mining and Surface Rights	2031-08-31	5.787
LEA-108540	Mining and Surface Rights	2031-08-31	26.369
LEA-108541	Mining and Surface Rights	2031-08-31	13.796
LEA-108542	Mining and Surface Rights	2031-08-31	3.411
LEA-108543	Mining and Surface Rights	2031-08-31	18.506
LEA-108544	Mining and Surface Rights	2031-08-31	7.62
LEA-108545	Mining and Surface Rights	2031-08-31	22.521

LEA-108546	Mining and Surface Rights	2031-08-31	16.888
LEA-108547	Mining and Surface Rights	2031-08-31	17.79
LEA-108548	Mining and Surface Rights	2031-08-31	13.472
LEA-108549	Mining and Surface Rights	2031-08-31	8.413
LEA-108550	Mining and Surface Rights	2031-08-31	19.255
LEA-108551	Mining and Surface Rights	2031-08-31	19.397
LEA-108552	Mining and Surface Rights	2031-08-31	4.435
LEA-108553	Mining and Surface Rights	2031-08-31	9.81
LEA-108554	Mining Rights only	2031-08-31	11.024
LEA-108555	Mining and Surface Rights	2031-08-31	22.889
LEA-108556	Mining and Surface Rights	2031-08-31	19.117
LEA-108557	Mining and Surface Rights	2031-08-31	8.098
LEA-108558	Mining and Surface Rights	2031-08-31	29.324
LEA-108559	Mining and Surface Rights	2031-08-31	16.527
LEA-108560	Mining and Surface Rights	2031-08-31	1.716
LEA-108561	Mining and Surface Rights	2031-08-31	15.864
LEA-108562	Mining and Surface Rights	2031-08-31	180.866
LEA-108563	Mining and Surface Rights	2031-08-31	185.014
LEA-108564	Mining and Surface Rights	2031-08-31	224.54
LEA-108565	Mining and Surface Rights	2031-08-31	271.423
LEA-109338	Mining and Surface Rights	2034-07-31	125.369
LEA-109525	Mining and Surface Rights	2035-05-31	71.698
LEA-109720	Mining and Surface Rights	2038-08-31	433.299
LEA-109764	Surface Rights only	2039-02-28	1302.612
LEA-109766	Mining Rights only	2039-02-28	216.742
LEA-109811	Mining and Surface Rights	2039-11-30	119.683
LEA-109814	Mining Rights only	2039-10-31	1110.546
LEA-110068	Mining and Surface Rights	2041-10-31	1793.575

Note: *Claims information effective December 31, 2024. **Expired July 30, 2021, but renewal in progress.