Almonty releases updated JORC Technical Report for the Sangdong Mine

TORONTO – **July 11, 2025** – Almonty Industries Inc. ("**Almonty**" or the "**Company**") (TSX: AII) (ASX: AII) (OTCQX: ALMTF) (Frankfurt: ALI1), a leading global producer of tungsten concentrate, is pleased to announce an updated technical report (the "**Technical Report**") for its Sangdong Tungsten Mine (the "**Sangdong Mine**") prepared in accordance with the *Australasian Code for Reporting of Exploration Results, Minerals Resources and Ore Reserves* (2012) (the "**JORC Code**").

The Technical Report is entitled "NI 43-101 and JORC Code (2012) Technical Report on the Mineral Resources and Reserves of the Sangdong Project, South Korea", dated **July 9**, **2025** and effective February 28, 2025, and has been authored by Adam Wheeler, B.Sc, M.Sc, C. Eng. (the "**Competent Person**"), a "Competent Person" within the meaning of the JORC Code. The Technical Report was prepared to update the technical report previously prepared in accordance with the JORC Code dated 31 December 2020, which was included in the Company's Australian initial public offering prospectus dated 8 June 2021, and reflects recent developments at the Sangdong Mine, including with regards to mine development. The Technical Report was originally prepared in accordance with National Instrument 43-101 – Standards of Disclosure for Mineral Projects (**NI 43-101**), which was filed by the Company on SEDAR+ on 3 July 2025 and can be accessed under the Company's profile at www.sedarplus.ca and on the Company's website. The Company advises there is no material change between the Technical Report and the technical report filed on 3 July 2025.

The Technical Report is included as Annexure A of this announcement. A JORC Table 1 is included as Appendix F of the Technical Report.

As detailed in the Technical Report, the current mine and processing plant construction of Phase I of the Sangdong Mine is expected to begin production in the second half of 2025. Once fully operational, the targeted ore throughput capacity is expected to reach around 640,000 tons per year. The Company expects to increase its throughput capacity up to 1.2 million tons through the Phase II planned expansion. This expansion is fully permitted under existing Phase I approvals, and during the development of Phase I, some components have been built which may support a higher throughput or expansion. It is expected that, subject to positive operating results from Phase I and prevailing market conditions, Phase II could be advanced as early as 2026. This would involve initiating detailed engineering and permitting activities, followed by potential construction and commissioning. If Phase II is advanced in 2026, it is expected that first ore production under Phase II could commence in 2027. The Phase II expansion is expected to unlock economies of scale and support margin enhancement. Advancement to Phase II is contingent upon a formal decision following the evaluation of Phase I performance.

The Company has also conducted a reassessment of its mining portfolio and has concluded that, on the basis of its current strategy, including management's focus and the deployment of resources on the Sangdong Mine and the expected economic importance to the Company of the expected production at the Phase I relative to its other properties, as well as the expected timing and significant potential production increase of Phase II, the Sangdong Mine is the only mineral project on a property that is material to the Company for the purposes of NI 43-101. The Company remains engaged in the operation and development of other mineral properties, including the Panasqueira Mine (Portugal) and the Sangdong Molybdenum Project (South Korea).

For more details about the Sangdong Mine, shareholders should carefully review the Technical Report.

ASX Listing Rules 5.8 and 5.9

For the purposes of Listing Rule 5.8, the Company confirms that estimates of Mineral Resources in relation to the Sangdong Project have not materially changed from estimates of Mineral Resources included in the technical report previously prepared in accordance with the JORC Code dated 31 December 2020, which was included in the Company's Australian initial public offering prospectus dated 8 June 2021.

For the purposes of Listing Rule 5.9.1, the below is a fair and balanced representation of the information contained in the Technical Report (prepared in accordance with Listing Rule 5.9.2) including a summary of all information material to understanding the reported estimates of ore reserves in relation to the following matters:

Material Assumptions and Outcomes from the Feasibility Study

The study referred to in the Technical Report has been completed at a Feasibility Study (FS) level.

Mineral resources stated in the Technical Report have been used in the development of a mine plan. To start the mine operations, the blocked-out stopes have enabled a reserve evaluation to be made, as summarised in the table below.

Sangdong – Mineral Reserves

As of 28th February, 2025

	Probable Mineral Reserves		
	Tonnes	**WO3**	**WO3 Content**
	Kt	**%**	**t**
HW	3,674	0.42	15,410
Main_F1	1,212	0.42	5,070
F2	1,732	0.45	7,750
Halo	261	0.39	1,020
F3	1,700	0.41	6,890
Total	**8,579**	**0.42**	**36,140**

Notes:

1. CIM Definitions were followed for mineral reserve estimate, also consistent with JORC Guidelines.
2. Reserve used full 3D design of development and stopes, using a minimum mining thickness of 3m.
3. The cut-off grades used for mine planning and reserve evaluation purposes were as follows:
   - HW zone stopes 0.16% WO_3
   - FW/Main zone stopes 0.17% WO_3
   - Development 0.18% WO_3
4. Cut-off grades are supported by an APT price of USD 450/MTU WO_3, a processing recovery of 85%, and operating costs reflecting different orebodies and mining methods.
5. Rounding may result in apparent summation differences between tonnes, grades and metal content; not considered material.

Criteria used for classification, including the classification of mineral resources on which the ore reserves are based and the confidence in the modifying factors applied

The Ore Reserve estimate considers only Indicated Resources, which inside the defined mining blocks have been converted into Probable Ore Reserves. Carried over from the resource model, the principal control on the resource categories, and consequently reserve categories, are the spacings of diamond drillhole intersections.

Key drillhole section spacing limits have been established which are used as a guide in the assignment of resource categories.

Mining Method and Other Mining Assumptions (including mining recovery factors and mining dilution factors)

The majority of the ore zones to be mined are relatively shallow dipping, with dips between 20° and 30°, so ore will not naturally flow by gravity on the footwall. In the A-Z Feasibility Study, the methods proposed were inclined panel (IP) mining, to be applied in thick orebody areas, with panels that would be mined in different sections; and up-dip panel mining (UP), which would be applied in narrow areas with slushers and hand-held drilling equipment.

For study in the Technical Report, it was decided not to rely on hand-held drilling equipment and slushers. Instead, methods applied would be planned for the use of mechanized mobile diesel powered mining equipment in all areas. Based on this requirement and the latest understanding of the orebody geometry and mining areas, and evaluation of the resources, including in-situ thickness variations, it was decided to apply two proposed mining methods, as summarised below:

- Stepped Drift and fill – (DAF) – applied to F2, Halo, F3 and Main zones.
- Post-pillar cut-and-fill (PP-CAF) – applied to HW zone, generally greater than 6 metres thick.

A mine plan was developed, based on the application of these stoping methods. The majority of the mine planning work was done using the Datamine mining software system. In general, most stope blocks were limited to a maximum of 100m along strike. In the current mine plan, only Indicated resources have been utilized in the evaluation of Reserves.

All newly stoped areas will be backfilled with cemented paste backfill. In the HW zones, where PP-CAF stoping has been applied, non-recoverable pillars of 5m x 5m and mined panels of 6m width have lead to overall mining recoveries of approximately 85%. In the FW and Main zones, the Stepped DAF mining method results in a higher overall mining recovery of approximately 97%.

Maps of maximum span distances were previously prepared in a geotechnical study by Turner Mining and Geotechnical Pty Ltd (TMG) in 2014. These maximum span properties were superimposed onto the laid-out stopes in each skarn zone, so as to consider higher cut-offs applicable to those zones requiring higher support costs.

Additional level development has been laid out so as to enable access to the identified potential reserve areas, and to allow truck haulage from these new stoping areas. Main access to the underground mine will use the Alfonse portal on the Sangdong level, as well as the new Monty B portal below the -1 level, which will enable ore haulage out from the mine directly into the valley, on approximately the same elevation as the mill, which is now in construction.

Processing Method and other processing assumptions (including the recovery factors applied and the allowances made for deleterious elements)

Processing will utilize crushing, grinding (SAG and ball mills) and flotation for scheelite concentration. The processing plant will treat the run-of-mine (ROM) ore from underground at a nominal feed rate of 1,920 tpd. A new processing plant is currently being constructed, in the valley, to the south of the Monty-B adit entrance.

A marketable tungsten concentrate grade of 65% WO3 will be produced. The processing plant WO3 recovery, based on metallurgical testwork, including pilot plant test work at Sangdong as well as in Portugal, are estimated to average 85%. The main process steps for treating the Sangdong ore are primary, secondary and tertiary crushing and stockpiling; grinding; flotation divided into two (2) sub-circuits (sulphide flotation and tungsten flotation); thickening; filtration and packaging section; a waste water treatment facility; and services section.

The processing plant will require a manpower complement of 36 personnel of which 8 are management, technical staff and supervision.

The plant design will encompass crushing, grinding and flotation for scheelite concentration. In the future, test work will also investigate the recovery of molybdenum into a sulphide flotation concentrate, ahead of the scheelite flotation circuit.

Cut-off Grades or quality parameters applied

The cut-off grades used for mine planning and reserve evaluation purposes were as follows: HW zone stopes 0.16% WO_3; FW/Main zone stopes 0.17% WO_3; Development 0.18% WO_3.

Estimation Methodology

The estimation employed a three-dimensional block modelling approach, using Datamine software. For all zones, primary grades were estimated using ordinary kriging (OK).

Material Modifying Factors (including the status of environmental approvals, mining tenements and approvals, other governmental factors and infrastructure requirements for selected mining methods and for transportation to market)

Modifying factors have been considered and have been built into the mine design process. The mining recoveries range from 85% to 97%. The mining dilution ranges from 4% to 24%.

All baseline environmental studies have been completed and no endangered species of flora or fauna identified, which could adversely affect development of the project.

All environmental approvals for project construction and operation have been successfully completed. Overall construction permits have already been granted. Permits and approvals as required to construct specific facilities will be applied for and received as a routine part of ongoing construction activities.

As a past-producing mine, Sangdong already has significant infrastructure on-site. Additional surface and underground infrastructure necessary for the reopening of the mine has been started and is nearing completion. This includes mine surface infrastructure, site access, power supply, underground services and infrastructure and water supply.

ASX Listing Rules 5.16 and 5.17

Information required for the purposes of Listing Rules 5.16 and 5.17 in relation to production targets included in the Technical Report is summarised below.

ASX Listing Rule	Disclosure/Technical Report Reference
5.16.1 - All material assumptions on which the production target is based. If the economic assumptions are commercially sensitive to the mining entity, an explanation of the methodology used to determine the assumptions rather than the actual figure can be reported.	Refer to Chapter 22 of the Technical Report for more information about the life-of-mine production scheduling and economic analysis on which the production targets are based.
5.16.2 - A statement that the estimated ore reserves and/or mineral resources underpinning the production target has been prepared by a competent person or persons in accordance with the requirements of in Appendix 5A (JORC Code).	Estimated ore reserves and/or mineral resources underpinning the production target have been prepared by a competent person or persons in accordance with the requirements of in Appendix 5A (JORC Code)
5.16.3 - The relevant proportions of: • Probable ore reserves and proved ore reserves; • Inferred mineral resources, indicated mineral resources and measured mineral resources; • An exploration target; and • Qualifying foreign estimates, underpinning the production target.	The production targets are based solely on probable ore reserves.

ASX Listing Rule	Disclosure/Technical Report Reference
5.17.1 - All material assumptions on which the forecast financial information is based. If the economic assumptions are commercially sensitive to the mining entity, an explanation of the methodology used to determine the assumptions rather than the actual figure can be reported.	Refer to Chapter 22 for more information about the main assumptions used in generating forecast financial information contained in the Technical Report.
5.17.2 - The production target from which the forecast financial information is derived (including all the information contained in rule 5.16).	Refer to Chapter 16 (in particular, section 16.5) of the Technical Report for more information on the production targets from which the forecast financial information contained in the Technical Report are derived.

Competent Person Statement (Listing Rule 5.22)

The information in this announcement and the Technical Report that relates to Exploration Results, Mineral Resources and Ore Reserves for the Sangdong Project is based on and fairly represents information compiled by Mr Adam Wheeler, who is an independent self-employed mining consultant and is not a permanent employee of Almonty. Mr Wheeler is a Fellow of the Institute of Materials, Minerals and Mining (a Recognised Professional Organisation included in a list promulgated from time to time) and has sufficient experience, which is relevant to the style of mineralisation and type of deposit under consideration, and to the activity being undertaken, to qualify as a Competent Person as defined in the JORC Code.

Mr Wheeler consents to the inclusion in this announcement and the Technical Report of the matters based on the information in the form and context in which it appears.

JORC Code 2012 and NI 43-101 Standards of Disclosure Commentary

Mineral Resource and Ore Reserve classification in the JORC Code and Canadian NI 43-101 and CIM Definitions Standards are substantially the same, however there are differences in terminology from the JORC Code compared to the CIM Definition Standards. The term “Ore Reserves” in the JORC Code is substantially equivalent to “Mineral Reserves” using the CIM Definition Standards, and the term “Proved Ore Reserves” in the JORC Code is substantially equivalent to “Proven Mineral Reserves” using the CIM Definition Standards. Qualified Persons (NI 43-101) are also analogous to Competent Persons (JORC).

The Technical Report primarily uses the NI 43-101 and CIM Definition Standards.

The only relevant reporting differences are that NI 43-101 reporting requirements require each category of Mineral Reserves (Ore Reserves under the JORC Code) and Mineral Resources to be reported separately, and do not permit Inferred Mineral Resources to be added to other Mineral Resource categories. Consequently, Measured and Indicated Mineral Resources have been reported separately from Inferred Mineral Resources. Ore Reserves reported in the Technical Report are classified in a manner consistent with the requirements of the JORC Code.

The JORC Code differs from NI 43-101 and the CIM in that it permits Ore Reserves to be estimated as inclusive of marginally economic material and diluting material (including Inferred) delivered for treatment or dispatched from the mine without treatment, and on the basis that such material does not materially contribute to the economic assessment of any study. It should be noted that Ore Reserves for the Sangdong project do not include any Inferred Mineral Resources.

About Almonty

Almonty is a diversified and experienced global producer of tungsten concentrate in conflict-free regions. The Company is currently mining, processing and shipping tungsten concentrate from its Panasqueira Mine in Portugal. Its Sangdong Mine in Gangwon Province, South Korea is currently under construction. The Sangdong Mine was historically one of the largest tungsten mines in the world and one of the few long-life, high-grade tungsten deposits outside of China. Almonty also has a significant molybdenum resource on a separate property adjacent to the tungsten orebody at the Sangdong Mine. Additional development projects include the Valtreixal Project in northwestern Spain and Los Santos Mine in western Spain. Further information about Almonty's activities may be found at www.almonty.com and under Almonty's profile at www.sedarplus.ca and www.asx.com.au.

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Cautionary Note Regarding Forward-Looking Information

This news release contains "forward-looking statements" and "forward-looking information" within the meaning of applicable securities laws.

All statements, other than statements of present or historical facts are forward-looking statements. Forward-looking statements involve known and unknown risks, uncertainties and assumptions and accordingly, actual results could differ materially from those expressed or implied in such statements. You are hence cautioned not to place undue reliance on forward-looking statements. Forward-looking statements are typically identified by words such as "plan", "development", "growth", "continued", "intentions", "expectations", "emerging", "evolving", "strategy", "opportunities", "anticipated", "trends", "potential", "outlook", "ability", "additional", "on track", "prospects", "viability", "estimated", "reaches", "enhancing", "strengthen", "target", "believes", "next steps" or variations of such words and phrases or statements that certain actions, events or results "may", "could", "would", "might" or "will" be taken, occur or be achieved. Forward-looking statements include, but are not limited to, statements concerning the Sangdong Mine, including the expected beginning of production at the Sangdong Mine, the throughput capacity during Phase I and Phase II, and the potential commissioning and development of Phase II, as well as its potential benefits for Almonty.

Forward-looking statements are based upon certain assumptions and other important factors that, if untrue, could cause actual results to be materially different from future results expressed or implied by such statements. There can be no assurance that forward-looking statements will prove to be accurate. Key assumptions upon which the Company's forward-looking information is based include, without limitation, the absence of material adverse changes in its industry or the global economy, including interest rate fluctuations, inflationary pressures, supply chain disruptions, and commodity market volatility, trends in its industry and markets, including the competitive environment, the ability of the Company to maintain its interests in its mineral projects, including with respect to title, access, and permitting matters, the Company's ability to manage risks normally incidental to the exploration, development and operation of mineral properties, the Company's ability to maintain good business relationships with key stakeholders, including customers, suppliers, lenders, regulators, and local communities, the Company's ability to manage potential uncertainties in the interpretation of geological data, drill results and market data, including data related to pricing trends, demand forecasts, and competitive positioning, the Company's ability to manage the possibility that future exploration, development or mining results may not be consistent with its expectations, the accuracy of the Company's mineral resource and reserve estimates and their underlying assumptions, including with respect to cut-off grades, recovery rates, and long-term commodity prices, the adequacy and availability of infrastructure (including power, water, roads, and processing capacity) at or near the mineral properties, the timely receipt and maintenance of necessary governmental and third-party approvals, permits, licenses, authorizations and regulatory compliance obligations, the Company's ability to comply with current and future environmental, health and safety, and other regulatory requirements and to timely obtain and maintain required regulatory approvals, licenses and permits, the Company's expectation that its operations will not be significantly disrupted as a result of political instability, pandemics and communicable diseases, nationalization, terrorism, sabotage, social or political activism, breakdown, natural disasters, governmental or political actions, litigation or arbitration proceedings, equipment or infrastructure failure, labour shortages, transportation disruptions or accidents, or other development or exploration risks, the Company's ability to execute construction and development activities on schedule and within budget, the Company's ability to recruit, retain and engage qualified personnel and contractors in all required jurisdictions, the Company's ability to raise sufficient debt or equity financing to support its continued growth, the Company's ability to continue to have sufficient working capital to fund its operations, the performance of counterparties under offtake agreements, supply arrangements, financing agreements, and other material contracts, that input costs, including energy, labor, equipment, and materials, will not increase materially beyond current expectations, that the price of tungsten and other metals and commodities will not decline significantly or for a protracted period of time, that the global financial markets and general economic conditions (including trade and monetary policies, currency exchange rates and rates of inflation) will be stable and conducive to business in the future, the Company's ability to maintain the security and integrity of its information technology systems and mitigate the impact of any potential cybersecurity threats and the Company's ability to meet increasing expectations regarding environmental, social and governance (ESG) matters from regulators, investors, and other stakeholders.

Forward-looking statements are also subject to risks and uncertainties facing the Company's business, any of which could have a material adverse effect on the Company's business, financial condition, results of operations and growth prospects. Readers should consider reviewing the detailed risk discussion in the Company's most recent Annual Information Form and the Company's Amended Management's Discussion and Analysis for the three months ended March 31, 2025 filed on SEDAR+, for a fuller understanding of the risks and uncertainties that affect the Company's business and operations.

Although Almonty has attempted to identify important factors that could cause actual results, level of activity, performance or achievements to differ materially from those contained in forward-looking statements, there may be other factors that cause results, level of activity, performance or achievements not to be as anticipated, estimated or intended. There can be no assurance that forward-looking statements will prove to be accurate and even if events or results described in the forward-looking statements are realized or substantially realized, there can be no assurance that they will have the expected consequences to, or effects on, Almonty. Accordingly, readers should not place undue reliance on forward-looking statements and are cautioned that actual outcomes may vary.

Investors are cautioned against attributing undue certainty to forward-looking statements. Almonty cautions that the foregoing list of material factors is not exhaustive. When relying on Almonty's forward-looking statements and information to make decisions, investors and others should carefully consider the foregoing factors and other uncertainties and potential events. Almonty has also assumed that material factors will not cause any forward-looking statements and information to differ materially from actual results or events. However, the list of these factors is not exhaustive and is subject to change and there can be no assurance that such assumptions will reflect the actual outcome of such items or factors.

THE FORWARD-LOOKING INFORMATION CONTAINED IN THIS PRESS RELEASE REPRESENTS THE EXPECTATIONS OF ALMONTY AS OF THE DATE OF THIS PRESS RELEASE AND, ACCORDINGLY, IS SUBJECT TO CHANGE AFTER SUCH DATE. READERS SHOULD NOT PLACE UNDUE IMPORTANCE ON FORWARD- LOOKING INFORMATION AND SHOULD NOT RELY UPON THIS INFORMATION AS OF ANY OTHER DATE. WHILE ALMONTY MAY ELECT TO, IT DOES NOT UNDERTAKE TO UPDATE THIS INFORMATION AT ANY PARTICULAR TIME, WHETHER AS A RESULT OF NEW INFORMATION, FUTURE EVENTS OR OTHERWISE, EXCEPT AS REQUIRED IN ACCORDANCE WITH APPLICABLE LAWS.

Annexure A – Technical Report

NI 43-101 and JORC (2012)

TECHNICAL REPORT ON THE

MINERAL RESOURCES AND RESERVES OF THE

SANGDONG PROJECT, SOUTH KOREA

Prepared for

Almonty Industries

by

Qualified Person and Competent Person:
Adam Wheeler, B.Sc, M.Sc, C. Eng.

Effective Date of Resources and Reserves:	**28th February 2025**
Effective Date of Report:	**9th July, 2025**

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QUALIFIED PERSONS CERTIFICATES

Certificate Of Author

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As the author of this report on the Sangdong Project, I, A. Wheeler do hereby certify that:-

1. I am an independent mining consultant, based at, Cambrose Farm, Redruth, Cornwall, TR16 4HT, England.

2. I hold the following academic qualifications:-

B.Sc. (Mining)	Camborne School of Mines	1981
M.Sc. (Mining Engineering)	Queen's University (Canada)	1982

3. I am a registered Chartered Engineer (C. Eng and Eur. Ing) with the Engineering Council (UK). Reg. no. 371572.

4. I am a professional fellow (FIMMM) in good standing of the Institute of Materials, Minerals and Mining.

5. I have worked as a mining engineer in the minerals industry for over 40 years. I have worked on over 50 different projects involving geological modelling, exploration drillhole layout, resource and reserve estimation. These projects have covered 35 different countries, and 25 of them have involved me as a QP for either 43-101 or JORC reports. I have been working on the Sangdong project since 2014.

6. I have read NI 43-101 and the technical report, which is the subject of this certificate, has been prepared in compliance with NI 43-101. By reason of my education, experience and professional registration, I fulfil the requirements of a "qualified person" as defined by NI 43-101. My work experience includes 5 years at an underground gold mine, 7 years as a mining engineer in the development and application of mining and geological software, and 31 years as an independent mining consultant, involved with evaluation and planning projects for both open pit and underground mines.

7. I am responsible for the preparation of the technical report titled "Technical Report on the Mineral Resource and Reserves of the Sangdong Project" and dated July 9th, 2025. I visited the mine site on August 24th – 26th, 2015, October 17th – 28th, 2016 as well as from April 1st – April 4th, 2025.

8. I have had prior involvement with the Sangdong property, having authored a previous NI 43-101 technical report on the project titled "Technical Report on the Sangdong Property," with an effective date of July 31st, 2016, including site visits and evaluations conducted in support of that report.

9. As of the date July 9th 2025 hereof, to the best of the my knowledge, information and belief, the technical report, which is the subject of this certificate, contains all scientific and technical information that is required to be disclosed to make such technical report not misleading.

10. I am independent of Almonty Industries Inc., pursuant to section 1.5 of the Instrument.

11. I have read the National Instrument and Form 43-101F1 (the "Form") and the Technical Report has been prepared in compliance with the Instrument and the Form.

12. I consent to the filing of the report with any Canadian stock exchange or securities regulatory authority, and any publication by them of the report.

DATE AND SIGNATURES PAGE

Herewith, my report entitled "Technical Report on the Mineral Resource and Reserves of the Sangdong Project", dated July 9th , 2025, effective 28th February 2025.

"signed"

A. Wheeler, C.Eng., Eur. Ing.

Dated the 9th of July 2025

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APPENDICES

1 SUMMARY

1.1 Introduction and Overview

This report was prepared to provide a Technical Report compliant with the provisions of National Instrument 43-101 - Standards of Disclosure for Mineral Projects, ("NI 43-101") and the Australasian Code for Reporting of Exploration Results, Minerals Resources and Ore Reserves (2012) ("JORC Code") and comprises a review and summary of a Resource and Reserve Estimation for the Sangdong project, as of the end of February 2025. The report has also been prepared in accordance with the 2015 edition of the Australasian Code for Public Reporting of Technical Assessments and Valuations of Mineral Assets ("VALMIN Code").

The Sangdong deposit is an underground operation in advanced stage of construction, and is located in the Gangwon Region of South Korea. The principal potential products are tungsten and molybdenum. Credits for bismuth and gold are also expected.

This report was prepared by Adam Wheeler, at the request of Mr. N. Alves, Almonty Industries ("Almonty"). Almonty is the issuer of this 43-101 report, for whom the report has been prepared. Assistance and technical detail were supplied by the technical personnel of the Sangdong Mining Corp. Adam Wheeler visited the Sangdong site on August 24th- 26th, 2015, October 17th– 28th , 2016 and April 2nd – 4th, 2025 along with other Almonty technical personnel.

Previous underground mining at Sangdong took place at various times since the original discovery in 1916. The last main operation was from 1952 to closure in 1992.

This document describes an update to the previous NI 43-101 technical report in respect of the Sangdong project completed in July 2016 and the previous JORC technical report in respect of the Sangdong projected completed in December 2020. There has been no further diamond drilling since 2016. The updated disclosure described herein did not trigger the requirement to file an updated NI 43-101 technical report. However, Almonty is voluntarily filing this technical report to provide the public with updated information on the Sangdong project.

The information in this report that relates to Exploration Results, Mineral Resources and Ore Reserves for the Sangdong Project is based on information compiled by Mr Adam Wheeler, who is an independent self-employed mining consultant and is not a permanent employee of Almonty. Mr Wheeler is a Fellow of the Institute of Materials, Minerals and Mining (a Recognised Professional Organisation included in a list promulgated from time to time) and has sufficient experience, which is relevant to the style of mineralisation and type of deposit under consideration, and to the activity being undertaken, to qualify as a Competent Person as defined in the 'Australasian Code for Reporting of Exploration Results, *Mineral Resources and Ore Reserves; (JORC Code 2012 Edition). Mr Wheeler consents to the inclusion in this report of the matters based on his information in the form and context in which it appears.*

1.2 JORC Code 2012 and NI 43-101 Standards of Disclosure Commentary

Mineral Resource and Ore Reserve classification in the JORC Code and CIM Definitions Standards are substantially the same, however there are differences in terminology from the JORC Code compared to the CIM Definition Standards. The term “Ore Reserves” in the JORC Code is substantially equivalent to “Mineral Reserves” using the CIM Definition Standards, and the term “Proved Ore Reserves” in the JORC Code is substantially equivalent to “Proven Mineral Reserves” using the CIM Definition Standards. Qualified Persons (NI 43-101) are also analogous to Competent Persons (JORC).
This report primarily uses the NI 43-101 and CIM Definition Standards.

The only relevant reporting differences are that National Instrument 43-101 – Standards of Disclosure for Mineral Projects reporting requirements require each category of Mineral Reserves (Ore Reserves) and Mineral Resources to be reported separately, and do not permit Inferred Mineral Resources to be added to other Mineral Resource categories. Consequently, Measured and Indicated Mineral Resources have been reported separately from Inferred Mineral Resources. Ore Reserves reported herein are classified in a manner consistent with the requirements of the JORC Code.

The JORC Code differs from CIM in that it permits Ore Reserves to be estimated as inclusive of marginally economic material and diluting material (including Inferred) delivered for treatment or dispatched from the mine without treatment, and on the basis that such material does not materially contribute to the economic assessment of any study. It should be noted that Ore Reserves for the Sangdong project do not include any Inferred Mineral Resources.

While NI 43-101 restricts the inclusion of inferred material in an economic analysis it does permit for Resources and Reserves to be classified and reported in accordance with acceptable foreign standards, including the JORC Code.

1.3 Ownership

Almonty Industries Inc (“Almonty”), is a corporation governed by the Canada Business Corporations Act (the “CBCA”). Almonty trades on the Toronto Stock Exchange (“TSX”) under the symbol “AII”, the Australian Securities Exchange (“ASX”) under the symbol “AII”, as well as the Frankfurt Stock Exchange and the OTCQX market.

Almonty acquired a 100% ownership interest in Woulfe Mining Corp. on September 10, 2015 by way of a Plan of Arrangement. Woulfe Mining Corp., through its wholly owned subsidiary, Almonty Korea

Tungsten Corporation (“AKTC”) [formerly Sangdong Mining Corporation], owns a 100% interest in the Sangdong mine.

On 27th February, 2025, Almonty announced that the holders of common shares in the capital of the Company have overwhelmingly voted to approve Almonty’s proposed continuance from Canada to the State of Delaware, USA (the “US Domestication”); https://almonty.com/shareholder-approval-of-proposed-us-domestication.

1.4 Geology and Mineralisation

The Korean Peninsula is situated on the eastern margin of the North China-Korea Platform, that corresponds to a craton composed of three blocks: Archean metamorphic rocks, the Nangrim-Pyeongnam Block and the Gyeonggi and the Yeongnam Massifs. These blocks are separated by the northeast-trending Imjingang and Okcheon mobile belts of Phanerozoic age. The Property is located within the northern sector of the Okcheon Fold Belt, occupying the Cambro-Ordovician Joseon Supergroup of the Taebaek Basin.

The Sangdong Project is situated on the gently dipping southern limb of the east-west orientated Triassic age Hambaek Syncline. This structure consists of a thick sequence of sedimentary rocks of the Taebaek Series, composed of Cambro-Ordovician interlayered limestones, shales and quartzites of the Joseon System. This sequence is unconformably overlying the Pre-Cambrian schist and gneiss basement of the Yulri Group of the Yeongnam massif. The stratigraphy in the Sangdong area is mainly composed of the basal Jangsan quartzite, Myobong slate and the overlying Pungchon limestone formations with Cambrian age, which belong to the Joseon Supergroup.

The tungsten mineralisation of the Sangdong deposit is contained in several tabular, bedding-conformable skarns in the Myobong Shale formation. The ore deposit is strata-bound, with the strike and dip of the hosting formations. These skarns have been interpreted as comprising carbonate-bearing horizons that were hydrothermally altered and mineralised by fluids ascending from the underlying Sangdong Granite.

From uppermost to lowermost, the mineralised horizons are termed as Hangingwall, Main, and Footwall horizons. The Footwall and Main horizons have thicknesses that typically range from 1 to 4 m. As well as the main mineralisation on these beds, there are often thin calc-silicate layers developed on the upper and lower contacts of the Main and Footwall horizons.

The Hangingwall horizon is located near the upper contact of the Myobong shale and varies in thickness from approximately 5.0 to 30.0m because of the irregular boundary of the shale with the overlying Pungchon Limestone. This zone has a strike length of about 600m and a down-dip extent of about 800m. Above the most highly-altered portion of the Main horizon, the Hangingwall horizon is not tabular, but extends steeply and irregularly into the overlying limestone. The base of the Hangingwall horizon is approximately 14m above the upper contact of the Main horizon.

The Main horizon strikes about 100° and dips northerly between 15° and 30°. The strike length is in excess of 1,300m and thickness varies from 5.0-6.0m. Hydrothermal alteration (skarnification) within the Main horizon forms three concentric, roughly circular zones: the inner biotite-muscovite-quartz zone, the intermediate biotite-hornblende-quartz zone and the marginal garnet-diopside zone.

The Footwall horizons comprise multiple layers: Footwall Zone 1 (F1) normally occurs 1m below the Main horizon and can be approximately 2m thick; Footwall Zones 2 and 3 (F2, F3) are situated approximately 35 to 40 m below the Main horizon and average thicknesses from 3 to 4 m. Furthermore, usually smaller, Footwall Zones have been identified beyond F3 and are collectively referred to as F4 and F5, both situated not far from the contact with the underlying Jangsan quartzite formation.

The Oriental Minerals ownership period started in 2006. The total number of drillholes (surface and underground) and total metres drilled at Sangdong before and after 2006 comprise 870/84,014m and 507/42,730m respectively.

1.5 Database and Resource Estimation

The sample database, in the form of an Excel spreadsheet, is comprised of data from all available surface and underground drillholes, over recent and historical drilling campaigns. This database has separate tables for drillhole collars, survey data, assay data, RQD, lithology data, drillhole recovery, geotechnical logging, density measurements, structural orientation and mineralised intersections.

The resultant spacing of samples with these different historical campaigns has ended up being fairly sporadic, with sections spaced at distances from 30m to 100m. Most of the surface holes are vertical, as are the very deep underground holes. Most of the underground holes are angled up or down so as to give good intersections with the overall mineralised structures, which generally dip at approximately 25^{o}.

The database also included physical string and wireframe data, for previous interpretations, mined-out limits, surface and underground topography. This data was also augmented by information from the different resource estimation studies over the last four years: primarily from the Tetra-Tech and AMC consultancy companies.

An updated mineral resource estimation was completed, during July 2016, by the Qualified Person and was reported in accordance with JORC during December 2020. This estimation employed a three-dimensional block modelling approach, using CAE Datamine software. Two main resource blocks models were developed. The relatively thick hanging wall (HW) zone was modelled using a conventional block model structure. All of the other skarn zones were modelled using the initial generation of 3D digital terrain models (DTMs) for the zone centre-points, onto which thicknesses and grade-accumulations were estimated, using ordinary kriging. This enabled a 3D block model of all these zones to be developed – with columnar sub-blocks representing the vertical in-situ thickness of the mineralised skarn bodies. Density values were also estimated from sample measurements.

The models generated were derived from the interpretation of skarn zones, as generated by SMC geologists, with additional intersection checks and refinements by the QP. The defined skarn intersections have been based on a lithological skarn identification, as well as 0.1% WO_3 cut-off grade. Additional mined-out limits for the principal skarn structures were applied, as well as a 50m remnant surface pillar below the surface topography.

In the resource estimation, a minimum thickness of 2.2m was applied, such that thinner blocks were diluted to 2.2m.

Resource class categories were set, such that indicated resources, for the Main and F beds, only used assay data from drillholes after 2006, along with drilling grid criteria.

1.6 Mine Planning

The majority of the ore zones to be mined are relatively shallow dipping, with dips between 20° and 30°, so ore will not naturally flow by gravity on the footwall. In the A-Z Feasibility Study, the methods proposed were inclined panel (IP) mining, to be applied in thick orebody areas, with panels that would be mined in different sections; and up-dip panel mining (UP), which would be applied in narrow areas with slushers and hand-held drilling equipment.

For this present study, it was decided not to rely on hand-held drilling equipment and slushers. Instead, methods applied would be planned for the use of mechanized mobile diesel powered mining equipment in all areas. Based on this requirement and the latest understanding of the orebody geometry and mining areas, and evaluation of the resources, including in-situ thickness variations, it was decided to apply two proposed mining methods, as summarised below:

- Stepped Drift and fill – (DAF) – applied to F2, Halo, F3 and Main zones.
- Post-pillar cut-and-fill (PP-CAF) – applied to HW zone, generally greater than 6 metres thick.

A mine plan was developed, based on the application of these stoping methods. The majority of the mine planning work was done using the Datamine mining software system. In general, most stope blocks were limited to a maximum of 100m along strike. In the current mine plan, only Indicated resources have been utilized in the evaluation of Reserves.

All newly stoped areas will be backfilled with cemented paste backfill. In the HW zones, where PP-CAF stoping has been applied, non-recoverable pillars of 5m x 5m and mined panels of 6m width have lead to overall mining recoveries of approximately 85%. In the FW and Main zones, the Stepped DAF mining method results in a higher overall mining recovery of approximately 97%.

Maps of maximum span distances have previously been prepared in a geotechnical study by Turner Mining and Geotechnical Pty Ltd (TMG) in 2014. These maximum span properties were superimposed onto the laid-out stopes in each skarn zone, so as to consider higher cut-offs applicable to those zones requiring higher support costs.

Additional level development has been laid out so as to enable access to the identified potential reserve areas, and to allow truck haulage from these new stoping areas. Main access to the underground mine will use the Alfonse portal on the Sangdong level, as well as the new Monty B portal below the -1 level, which will enable ore haulage out from the mine directly into the valley, on approximately the same elevation as the mill, which is now in construction.

1.7 Mineral Processing

Processing will utilize crushing, grinding (SAG and ball mills) and flotation for scheelite concentration. The processing plant will treat the run-of-mine (ROM) ore from underground at a nominal feed rate of 1,920 tpd. A new processing plant is currently being constructed, in the valley, to the south of the Monty-B adit entrance.

A marketable tungsten concentrate grade of 65% WO_3 will be produced. The processing plant WO_3 recovery, based on metallurgical testwork, including pilot plant test work at Sangdong as well as in Portugal, are estimated to average 85%. The main process steps for treating the Sangdong ore are primary, secondary and tertiary crushing and stockpiling; grinding; flotation divided into two (2) sub-circuits (sulphide flotation and tungsten flotation); thickening; filtration and packaging section; a waste water treatment facility; and services section.

The processing plant will require a manpower complement of 36 personnel of which 8 are management, technical staff and supervision.

The plant design will encompass crushing, grinding and flotation for scheelite concentration. In the future, test work will also investigate the recovery of molybdenum into a sulphide flotation concentrate, ahead of the scheelite flotation circuit.

1.8 Infrastructure

The Korea Tungsten Mining Company Ltd ("KTMC") operated the Sangdong mine from 1949 to 1994. Existing infrastructure from KTMC, as well as other public infrastructure which can still be used, includes the access road to site; site roads; powerline and stepdown sub-station, potable water supply and communications and internet service. It also includes some old KTMC buildings that will be reused and the KTMC slope support at the zone of the plant and water treatment plant.

In the mine, there is an extensive infrastructure that can be reused which includes:

- **West Ventilation Shaft.** This connects the surface to all mine levels until the -10 Level and then through raises down to the -16 level. This shaft has 2 top openings (1 inclined and another vertical) and all them are ventilating. This shaft was inspected from surface to the -1 level and is in perfect condition.
- **Old Vertical Extraction Shaft**. This concrete lined shaft, of 4m diameter, is currently being used for ventilation in between the Baegun and -1 levels. It gives access to the water stored in the mine down to the -16 level. This shaft is in very good condition and could be considered for hoisting use in the latter phases of the mine exploitation.
- **Gallery Network**. An extensive network of old base galleries can be used for multiple purposes, which include escape routes, ventilation and drainage.

- **Mined Stopes**. Extensive mined stopes can be used for backfill storage.
- **Drainage system**, on the -1 level.
- **Ramp System.** This connects Sangdong level with the -16 level. Dependant of its conditions below the -1 level, and following mine dewatering, this could allow access to the lower levels for exploration drilling access.

To return the mine to operation the existing Sangdong infrastructure will be reconfigured and supplemented by new facilities as required. To accommodate the new waste storage facility the former buildings at the Sangdong portal level were demolished to allow for placement of waste from mine development. New site infrastructure is being built in the valley, on the footprint of old KTMC installations. This infrastructure will include a new assay laboratory, warehouse, maintenance shop, recreational facilities for employees, fuel storage, water reticulation system . The mine backfill plant will be placed at Taebaek Terrace, along with a geotechnical laboratory.

A new mine/administration office complex has now already been set up in the centre of the Sangdong village. This is an old post office which has been totally refurbished by AKTC.

1.9 Historical Legacy

Other aspects of KTMC's heritage, that are not material, but are still considered of enormous value, include:

Social Acceptance. Korea Tungsten was the central basis of the region's wealth and for some time during the 1970s, it was responsible for more than 50% of the S. Korean exports. Its nickname was: "The Pride of Korea". It was included in school manuals which the entire S. Korean population studied. This results in an social acceptance rarely seen in recent times, where the population is demanding the re-opening of the Sangdong mine as soon as possible. There is also big acceptance and collaboration with the local and regional authorities.

Technical Knowledge Base. There is vast accumulated knowledge available in written reports and detailed maps of the mine, as well as numerous rigorous technical reports covering many aspects of the mine's former operations, and a vast exploration drilling database.

Physical Evidence of Previous Solutions. Many examples can be seen at the site of what technical solutions were working better in terms of ventilation, ground support and many other aspects. It is possible to determine from old mined areas how the different lithologies have behaved with time, as well as the effect of different gallery shapes and dimensions and the effectiveness of different types of geotechnical support (shotcrete definitively working very well). Many different mining methods were used in KTMC's mining era, such as sub-level caving, cut-and-fill, room-and-pillar, longwall and top-slicing. Evidence and information from these different methods can still be learnt from, to assist with developing mining strategies for the future.

The Sangdong mine was operated to a high standard, with evidence of excellent work. The very long period, big size and available technology of the mining operations allowed KTMC to test many different sorted of technical solutions, which further evolved over decades. This knowledge and experience, associated to historical rigorous reporting, are very important for ongoing mine development. Some technicians and mine workers, who formerly worked for KTMC, have collaborated with AKTC in the past and the present. This is also an invaluable contribution to the project, with their specific knowledge.

1.10 Recent Project Development

Almonty Industries secured adequate financing to support construction and operational activities in 2020, by finalizing a US$75.1 million project finance loan with KfW IPEX-Bank, a renowned German financial institution. Following this, key phases and milestones in Sangdong's development have included:

2020 – Pre-construction and Engineering.

- A revised 15-year offtake agreement was signed, with a minimum revenue floor to CAD 750M.
- Metso Corporation ("Metso")completed delivery of the basic engineering package for the crushing and grinding circuit.
- A Memorandum of Understanding(MOU) was finalized with the Gangwon Provincial Government and Yeongwol County.
- Backfill plant design and location finalized at 730m elevation for gravity-based tailings pumping.
- Long-lead items such as flotation cells and mill components specified for procurement.

2021 – Formal Start of Construction

- Concrete batch plant completed on-site to support all civil works and underground construction.
- Renovation of the Sangdong town administration office into a local headquarters.
- Major cost optimization achieved by bundling site leveling, road building, and drainage diversion.
- Groundbreaking ceremony held, marking the official start of surface construction.
- Preparatory works and mobilization continue; engineering design for portals and haulage.

2022 – Ramp-up of Equipment Procurement and Civil Works

- Completion of several conditions necessary for the project finance agreement.
- MOU signed with Korean Mine Rehabilitation and Resource Corp. ("KOMIR")and Hannae For T, Ltd for rare-metal recycling and processing.
- First and second disbursements received to fund civil works and equipment orders.
- Procurement of SAG mill, ball mill, protection screens, reclaim feeders, and other equipment.
- Basic and detailed engineering finalized for site-wide process layout and backfill plant.
- Drawings and schematics reviewed and approved.
- Underground development work begins, focusing on ramp access and portal clearance.

2023 – Structural Construction, Power, and Underground Access

- Fourth project finance drawdown received; cumulative investment surpasses US$32 million.
- Powerline upgrade completed and tied into the national grid.
- Delivery of ball mill, flotation cells, and other critical path equipment to site.
- Installation of foundations for crushing and grinding building begins.
- Drawdowns 5 and 6 support above-ground construction and final procurement.
- Delivery of flotation systems and pastefill support structures.
- Guest accommodations and logistics base finalized to host rotating personnel.

2024-2025 – Transition Toward Commissioning

- Early earthworks for processing plant commence; steel and mechanical installation begin.
- Ore development begins underground, initially targeting stope areas .
- Safety protocols integrated in partnership with KT Telecom, with AI-based safety monitoring.
- Surface infrastructure near completion; final installation of mechanical components.
- Integration of electrical and automation systems begins.
- Dry commissioning of processing plant expected.
- Final drawdown received in January 2025, confirming full funding allocation.

1.11 Mineral Resource and Reserve Estimates

The evaluation work was carried out and prepared in compliance with Canadian National Instrument 43-101, and the mineral resources in this estimate were calculated using the Canadian Institute of Mining, Metallurgy and Petroleum (CIM), CIM Standards on Mineral Resources and Reserves, Definitions and Guidelines prepared by the CIM Standing Committee on Reserve Definitions and adopted by CIM Council May, 2014. June 2011 (the Instrument) and the classifications adopted by Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Council in December 2011. Furthermore, the resource classification is also consistent with the Australasian Code for the Reporting of Mineral Resources and Ore Reserves of December 2012 (the Code) as prepared by the Joint Ore Reserves Committee (JORC) of the Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Mineral Council of Australia.

Although “mineral reserves” are referred to in this report, they are analogous to “ore reserves” as described in the JORC Code. Qualified Persons (NI 43-101) are analogous to Competent Persons (JORC).

The current in-situ resource estimation is shown in Table 1-1.

Table 1-1. Sangdong – Mineral Resources
As of 28th February, 2025

WO_3 Cut-Off	Resource Class	Tonnes Kt	WO_3 %	MoS_2 %
0.15%	**Indicated**	8,029	0.51	0.06
	Inferred	50,686	0.43	0.05

Notes:

1. **CIM Definitions followed for resource estimate, also consistent with JORC Guidelines.**
2. **Resource figures includes dilution of narrower beds to a minimum thickness of 2.2 m.**
3. **Resources shown are inclusive of reserves.**
4. **Density values estimated from density measurements.**
5. **50m surface pillar material removed.**
6. **Indicated HW material based on all samples, with a maximum search of 35m x 50m (along-strike x down-dip).**
7. **Indicated material in all other beds are based on PO-P6 samples, on a grid of at least 50m.**
8. **Inferred material based on all samples, up to a maximum search of 105 m x 150 m in HW and 100 m x 100 m in all other beds.**
9. **The applied cut-off grade of 0.15% WO_3 is based on an APT price of USD 450/mtu WO_3, a processing recovery of 85% and an assumed total operating cost of approximately USD 45.8/t ore.**
10. **Rounding may result in apparent summation differences between tonnes, grades and metal content; not considered material.**
11. **Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability.**

These resources have been used in the development of a mine plan. To start the mine operations, the blocked-out stopes have enabled a reserve evaluation to be made, as summarised in the table below.

Table 1-2. Sangdong – Mineral Reserves
As of 28th February, 2025

	Probable Mineral Reserves		
	Tonnes Kt	WO3 %	WO3 Content t
HW	3,674	0.42	15,410
Main_F1	1,212	0.42	5,070
F2	1,732	0.45	7,750
Halo	261	0.39	1,020
F3	1,700	0.41	6,890
Total	**8,579**	**0.42**	**36,140**

Notes:

1. **CIM Definitions were followed for mineral reserve estimate, also consistent with JORC Guidelines.**
2. **Reserve used full 3D design of development and stopes, using a minimum mining thickness of 3m.**
3. **The cut-off grades used for mine planning and reserve evaluation purposes were as follows:**
   - **HW zone stopes** **0.16% WO_3**
   - **FW/Main zone stopes** **0.17% WO_3**
   - **Development** **0.18% WO_3**
4. **Cut-off grades are supported by an APT price of USD 450/MTU WO_3, a processing recovery of 85%, and operating costs reflecting different orebodies and mining methods.**
5. **Rounding may result in apparent summation differences between tonnes, grades and metal content; not considered material.**

Details of data collection and resource and reserve estimation techniques, methodology and material assumptions are provided in the JORC Table 1 checklist set out in Appendix F.

1.12 Conclusions

The following conclusions have been reached:

a) The Phase 7 drilling completed in 2016, which was focussed on the HW zone, has helped to verify the old KTMC data available in the HW zone. This has helped to support the use of both KTMC and Phase 0 – Phase 7 drillhole data for the estimation of indicated HW resources.

b) The updated mine planning calculations have identified Probable Reserves of approximately 8.6 Mt, which with an assumed mill capacity of 640 ktpa will sustain a mining operation for approximately 14 years.

c) Based on the forecast operating parameters and capital and operating costs estimates for the Sangdong project, the returns from the project are very positive and the project economics are extremely robust to potential reasonably expected variances from the base case assumptions. The mine will employ 201 people, including mine contractors.

d) The very large inferred resource base represents a very large source of potential future reserves, as more exploration drilling can be completed.

e) There are more areas of the deposit down-dip and north-east which have not been currently evaluated.

f) Most of the deposit has not yet been delineated off at depth.

1.13 Recommendations

In order to enhance the resource and reserve base, the following steps are recommended:

- **Phase 2.** The current mine and mill construction is on track to begin production in the latter part of 2025, aimed at an ore production rate of 640 Ktpa. This strategy has been assigned as 'Phase 1'. Many aspects of the infrastructure have been designed with the provision for future mine and mill expansion to a much higher production rate approaching 1.2 Mtpa. This scenario has been assigned as 'Phase 2'. In particular this will produce a much higher amount and proportion of ore from the HW zone.

- **Tungsten Oxide Plant**. Another potentially very important project for AKTC is to build and operate a Tungsten Oxide (TO) plant, which would receive and further process concentrates from Sangdong. Tungsten Oxide material is especially important to the South Korean economy. A potential plant site has been identified in Sansol. 22 Km away from Sangdong. A technical feasibility study and basic engineering study have recently been finished, and are progressing onto further studies.

2 INTRODUCTION

2.1 Introduction

This Technical report was prepared in compliance with the provisions of National Instrument 43-101 - Standards of Disclosure for Mineral Projects, (“NI 43-101”), and comprises a Resource and Reserve estimate for the Sangdong project, as of the end of February 2025. It represents an update to the previous NI 43-101 technical report in respect of the Sangdong project completed in July 2016 and the previous JORC technical report in respect of the Sangdong projected completed in December 2020.

This Technical report was prepared in compliance with the provisions of National Instrument 43-101 - Standards of Disclosure for Mineral Projects, (“NI 43-101”) and the Australasian Code for Reporting of Exploration Results, Minerals Resources and Ore Reserves (2012) (“JORC Code”) and comprises a r Resource and Reserve estimate for the Sangdong project, as of the end of February 2025. The report has also been prepared in accordance with the 2015 edition of the Australasian Code for Public Reporting of Technical Assessments and Valuations of Mineral Assets (“VALMIN Code”).

This report was prepared by Adam Wheeler, at the request of Mr. N. Alves, of Almonty Industries. Assistance and technical detail were supplied by the technical personnel at Sangdong, which is a wholly owned by Almonty Korea Tungsten Corp (AKTC), and in which Almonty has a 100% ownership interest. Adam Wheeler visited the Sangdong site from August 24th - 26th, 2015, October 17th – 28th, 2016 as well as from April 1st – April 4th, 2025.

2.2 Terms of Reference

The resource and reserve estimation work was commissioned by Almonty Industries, and completed by Adam Wheeler, an independent mining consultant.

Adam Wheeler was retained by Almonty to provide an independent Technical Report on the Mineral Resources and Reserves at Sangdong, and is considered current as of February 28th, 2025. This Technical Report has been prepared to be compliant with the provisions of National Instrument 43-101 - Standards of Disclosure for Mineral Projects (“NI 43-101”). The purpose of the current report is to provide an independent Technical Report and update of the resources and reserves for the Sangdong project, in conformance with the standards required by NI 43-101 and Form 43-101F1 and the JORC Code. The estimate of Mineral Resources and Mineral Reserves contained in this report conforms to the CIM Mineral Resource and Mineral Reserve definitions (May 2014) referred to in NI 43-101.

This report has also been prepared in accordance with the ‘Code for the Technical Assessment and Valuation of Mineral and Petroleum Assets and Securities for Independent Expert Reports’ of 2015 (the “Valmin Code”) as adopted by the Australasian Institute of Mining and Metallurgy (AusIMM), and is consistent with the ‘Australasian Code for Reporting of Mineral Resources and Ore Reserves’ of 2012 (the “JORC Code”), as prepared by the Joint Ore Reserves Committee of the Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia (JORC). The satisfaction of requirements under both the JORC and Valmin Codes is binding upon the author as a Fellow of the Institute of Materials, Minerals and Mining.

The Qualified Person responsible for the preparation of this report is Adam Wheeler (C. Eng, Eur.Ing), an independent mining consultant. In addition to a site visit, Adam Wheeler carried out a study of all relevant parts of the available literature and documented results concerning the project and held discussions with technical personnel of Sangdong, who have been doing project development work at Sangdong since 2012.

2.3 Sources of Information

In conducting this study, Adam Wheeler has relied on reports and information connected with the Sangdong project. The information on which this report is based includes the references shown in Section 27.

Adam Wheeler has made all reasonable enquiries to establish the completeness and authenticity of the information provided, and a final draft of this report was provided to Almonty, along with a written request to identify any material errors or omissions prior to finalisation.

2.4 Units and Currency

All measurement units used in this report are metric, and currency is expressed in US Dollars unless stated otherwise. Costs derived from Republic of Korea Won were converted at a rate of USD 1 = Won 1,467.

3 RELIANCE ON OTHER EXPERTS

Adam Wheeler, the “Author” has reviewed and analysed data provided by Almonty and has drawn his own conclusions therefrom. The Author has not performed any independent exploration work, drilled any holes or carried out any sampling and assaying.

While exercising all reasonable diligence in checking and confirmation, Adam Wheeler has relied upon the data presented by Almonty, and previous reports on the property in formulating his opinions.

Title to the mineral lands for the Sangdong property has not been confirmed by Adam Wheeler and the Author offers no opinion as to the validity of the exploration or mineral title claimed. The Author has relied upon the information presented to him by AKTC, with respect to Sangdong property and license data. This affects the report contents in Chapters 4 and 20.

The Author has relied on Almonty for guidance on applicable taxes, royalties, and other government levies or interests, applicable to revenue or income from the Project. The affected the cashflow calculations reported in Chapter 22.

4 PROPERTY DESCRIPTION AND LOCATION

The deposit is located at Sangdong in the south-eastern Korean Peninsula, about 170km east south east of the capital city of Seoul, 25 km southwest of Taebaek and 55 km south east of Wonju, in Yeongwol County of Kangwon-Do Province (37°08'N Latitude and 128°50'E Longitude) as shown in Figures 4.1 and 4.2. The main adit is at the head of a short, south-flowing tributary of the Oktong-ch'on (river).

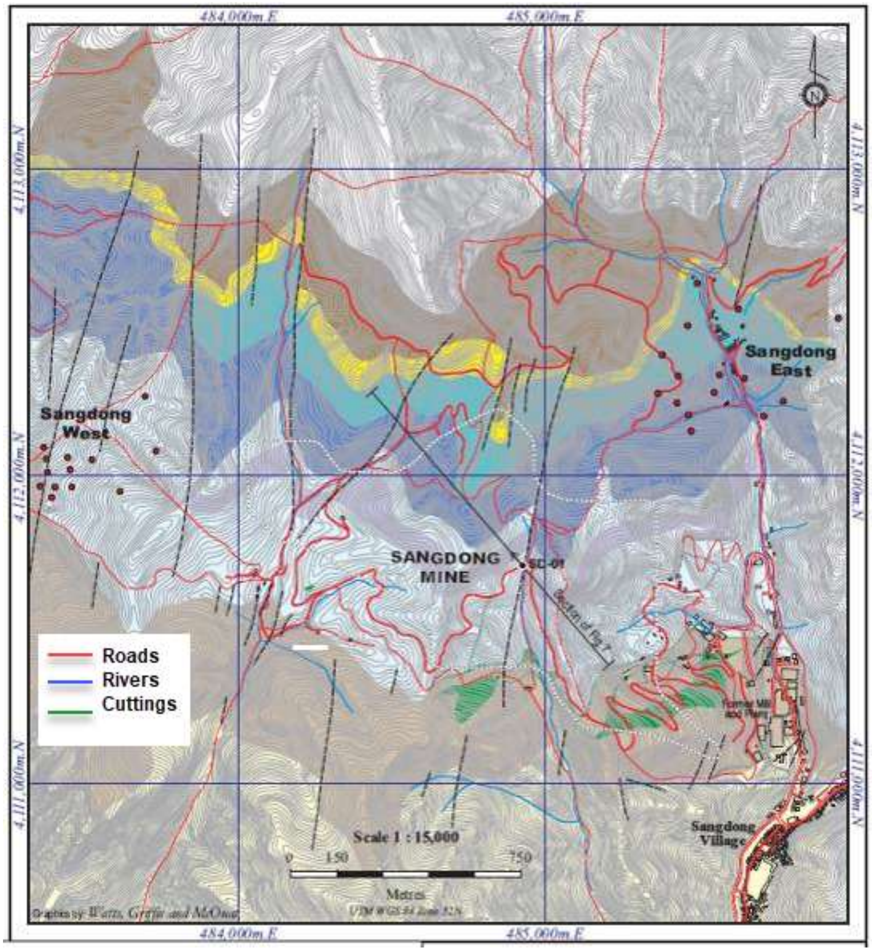
Figure 4-1. Sangdong Project Location Map

[Date: 2025, Source: AKTC]

Figure 4-2. Sangdong Mine Area

Showing Sangdong East and West Deposits and Infrastructure

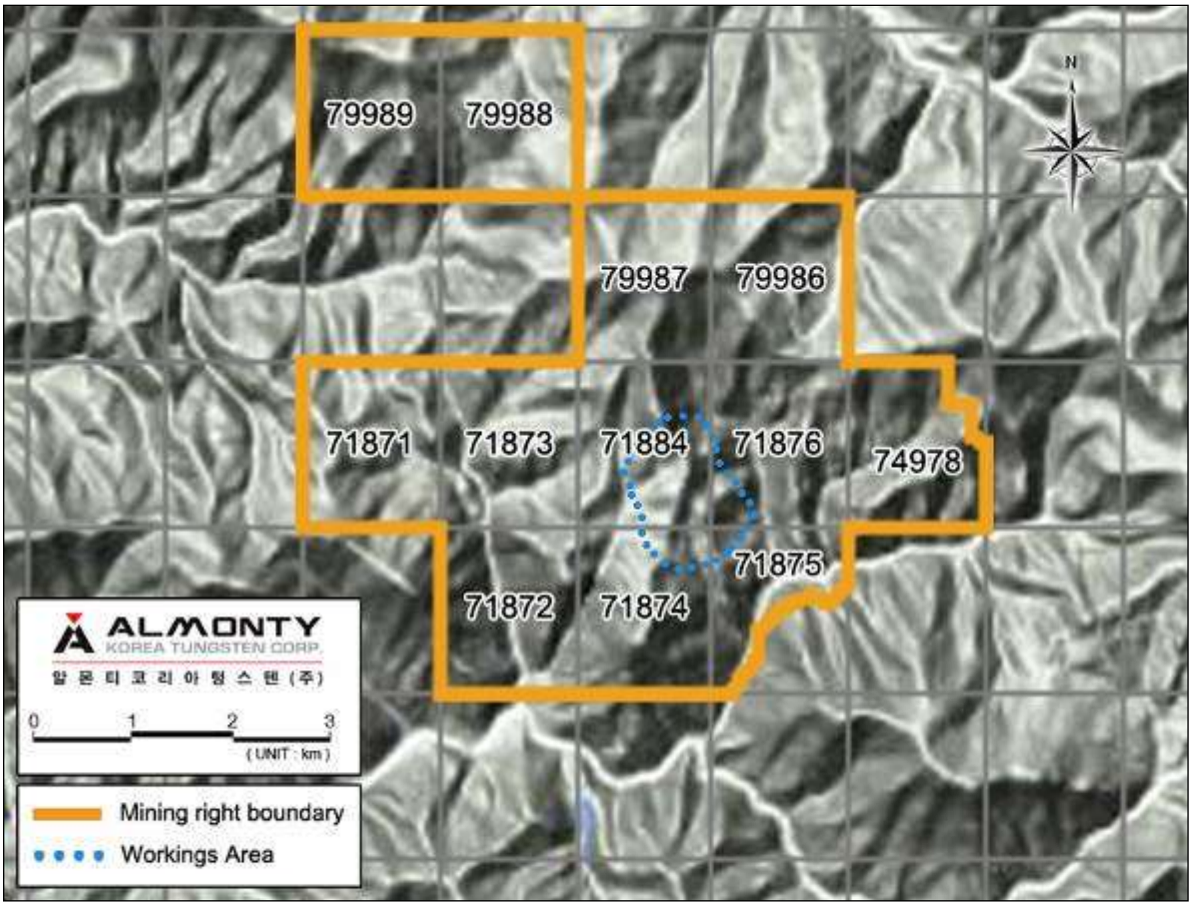
[Date: 2006; Source: Watts, Griffis and McQuat]



The Property comprises 12 Mining Rights with an aggregate area of 3,173 ha, held in the name of AKTC. The Mining Rights' areas are shown in Figure 4.3 and details of the licences in Table 4.1.

Figure 4-3. Sangdong Project: Mining Rights Areas

[Date: 2016; Source: AKTC]



The existing exploration and mining permits cover all the active exploration and mining areas discussed in this Technical Report. The exploration permits provide the right to carry out all contemplated exploration activities with no additional permitting required. Exploration permits are subject to exploration rights usage fees (a fixed annual charge), and applicable taxes. Mining permits are subject to mining-right usage fees (a fixed annual charge), mineral resource compensation fees, and applicable mineral resource taxes. The renewal of mining permits and extending mining depth and boundaries occur in the ordinary course of business as long as mineral resources exist, are defined, the required documentation is submitted, and the government resources royalties are paid.

Table 4-1. Sangdong Project – Mining Rights' Details

Registration No.	Location	Mining Block No.	Minerals	Area (ha)	Mining Rights Duration
71871	Yeongwol County	Seobyeok 121	W, Mo, Au, Ag, Cu, Pb, Zn, Bi, Silica	274	June 2, 2021 ~ June 1, 2031
71872	Yeongwol County	Seobyeok 112	W, Mo, Au, Ag, Cu, Pb, Zn, Bi, Silica	274	June 2, 2021 ~ June 1, 2031
71873	Yeongwol County	Seobyeok 111	W, Mo, Au, Ag, Cu, Pb, Zn, Bi, Silica	274	June 2, 2021 ~ June 1, 2031
71874	Yeongwol County	Seobyeok 102	W, Mo, Au, Ag, Cu, Pb, Zn, Bi, Silica	274	June 2, 2021 ~ June 1, 2031
71875	Yeongwol County	Seobyeok 92	W, Mo, Au, Ag, Cu, Pb, Zn, Bi, Silica	185	June 2, 2021 ~ June 1, 2031
71876	Yeongwol County Jeongseon County	Seobyeok 91	W, Mo, Au, Ag, Cu, Pb, Zn, Bi	274	June 2, 2021 ~ June 1, 2031
71884	Yeongwol County	Seobyeok 101	W, Mo, Au, Ag, Cu, Pb, Zn, Bi	274	June 9, 2021 ~ June 8, 2031
74978	Yeongwol County Jeongseon County	Seobyeok 81	W, Mo, Au, Ag, Cu, Pb, Zn	248	Oct. 1, 2005 ~ Sep. 30, 2025 **Oct. 1, 2025 ~ Sep. 30, 2045***
79986	Jeongseon County Yeongwol County	Homyeong 100	W, Mo, Au, Ag, Cu, Pb, Zn	274	Nov. 23, 2011 ~ Nov. 22, 2031
79987	Yeongwol County Jeongseon County	Homyeong 110	W, Mo, Au, Ag, Cu, Pb, Zn	274	Nov. 23, 2011 ~ Nov. 22, 2031
79988	Yeongwol County Jeongseon County	Homyeong 119	W, Mo, Au, Ag, Cu, Pb, Zn	274	Nov. 23, 2011 ~ Nov. 22, 2031
79989	Yeongwol County Jeongseon County	Homyeong 129	W, Mo, Au, Ag, Cu, Pb, Zn	273	Nov. 23, 2011 ~ Nov. 22, 2031
Total		12 Blocks		3172	

Note:

- **AKTC received a 20-year extension for License No. 74978 on May 13th 2025.**

The mining permits give the right to carry out full mining and mineral processing operations in conjunction with safety and environmental certificates. Approval for installation of mining facilities (Sangdong Portal, Woulfe Portal, Taebaek Portal, Baegun Portal and nearby quartzite mine) have been issued by East Mine Registration Office of the Ministry of Trade, Industry & Energy. Environmental certificates (Temporary Forest Land Use) have been issued by the Department of Environmental Forest of Yeongwol County. There are no known or recognized environmental issues that might preclude or inhibit a mining operation in this area.

Surface rights for mining purposes are not included in the permits but AKTC have leased some of the land used for mining and processing plant activities by effecting payment of a purchase fee based on the appraised value of the land. The rest of the necessary lands for mining, waste disposal and processing plant activities (processing plant, offices and accommodations etc.) were guaranteed by Yeongwol County, through written official documentation. There are no significant factors and risks that may affect access, title, or the right or ability to perform work on the Property known at this time. A plan of the lease areas is shown in Figure 4-4, with details of the lease areas summarised in Table 4-2. The 'Total Area' refers to the area registered in the real estate register, and 'Lease Area' refers to the area that AKTC is renting.

The expiration date of the site leased from Yeongwol County in Table 4-2 is December 31, 2025, and it is expected to be extended by approximately 3 to 5 years.

Figure 4-4. Plan of Lease Areas

[Date: January, 2025; Source: AKTC]

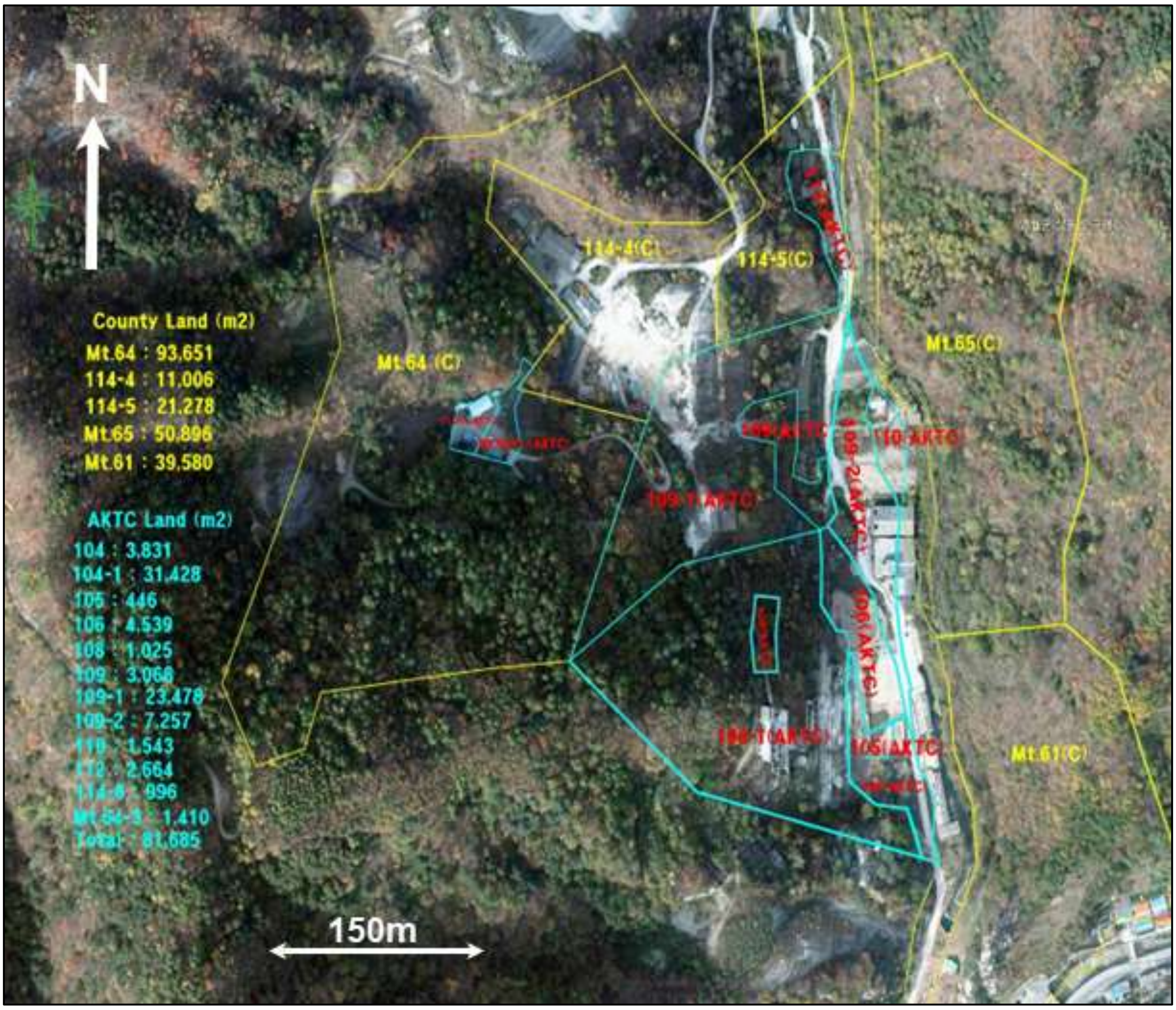


Table 4-2. Summary of Lease Areas

[YWC = Yeongwol County]

Landowner	Plot No.	Land Category	Total Area (㎡)	Lease Area (㎡)	Remarks
YWC (Yellow line)	Mt.64	Forest	93,651	30,686	100% Rent Reduction
	114-4	Forest	11,006	21,278	
	114-5	Forest	21,278	3,894	
	Mt.65	Forest	50,896	-	
	Mt.61	Forest	39,580	-	
	112-1	Building Site	424	90	
	Mt.65-1	Forest	625	625	
	Mt.65-2	Forest	148	148	
Sub total			**217,608**	**56,721**	
AKTC (Blue line)	104	Building Site	3,831		Plant
	104-1	Plant Site	31,428		Plant
	105	Building Site	446		Plant
	106	Building Site	4,539		Plant
	108	Plant Site	1,025		
	109	Building Site	3,068		Plant
	109-1	Plant Site	23,478		Plant
	109-2	Plant Site	7,257		Plant
	110	Building Site	1,543		Plant
	112	Building Site	2,664		Adit & Plant
	114-6	Building Site	996		Backfill
	Mt64-3	Forest	1,410		Backfill
Sub total			**81,685**		

South Korea has an established Mining Industry Act which defines the mining rights guaranteed by the government of South Korea.

South Korea applies a 10% Value Added Tax (VAT) on domestic sales of goods and services, including the sale of concentrates and imports. However, exports of concentrates are zero-rated for VAT purposes, meaning no VAT is charged and input VAT may be recoverable. The standard corporate income tax rate is 21%, with an additional local surtax of 10% on the national tax, resulting in a combined effective rate of approximately 23.1%. In addition, a 0.5% local resource and facility tax is levied on the value of mined minerals and paid to the local government. There is no VAT surtax on sales.

Except for relatively small areas in the south in the main river valley and a few small areas of vegetable farms, the Sangdong property is on government land. On government (i.e. non private) land, an environmental security bond must be lodged. On private land, access must be negotiated with the individual landowner(s). In the case of mining, there is no formal mediated process for land disturbance, and the purchase or lease of the surface rights would have to be negotiated with the landowner(s).

Environmental certificates have been issued by the Department of Environmental Forest of Yeongwol County and there are no known or recognized environmental issues that might preclude or inhibit a mining operation in this area. There are no significant factors and risks that may affect access, title, or the right or ability to perform work on the Property known at this time.

There are no Royalties imposed on minerals by government agencies in South Korea. The 2% net smelter royalty (NSR) retained on the Project in South Korea from the vendor, Se Woo Mining Co.Ltd. (Se Woo), as part of the Sangdong Acquisition Agreement with Oriental Minerals Inc. was purchased for CAD 3.5M.

5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE, PHYSIOGRAPHY

5.1 Topography, Elevation and Vegetation

The Sangdong area is in the central portion of the most rugged part of the Taebaek-san in one of the deep valleys running north-south on the southern slopes of Baegun Mountain (Baegun-san 1,428m amsl). The highest outcrop of the Sangdong orebodies is about 800 m amsl, the main adit is at about 650m amsl, and the new mill is located on the floor of the valley at 550 m amsl.

Many peaks in the Sangdong area, e.g. Sunkyeong-san (1,152 mamsl), Maebong-san (1,282 mamsl) to the SE and Jang-san (1,408 mamsl) consist of Jangsan Quartzite and form long narrow ridges paralleling the axis of the Baegun-san Syncline. These peaks are separated by V shaped valleys in general, forming a dendritic pattern. However, the dominant trend of the valleys in the Sangdong mine area is north-south.

Despite the terrain, access is well developed countrywide and a new paved road passes along the mill site and forestry roads traverse the Property. The highest local peak in the range is Taebaek-san, about 8km southeast of the Property.

Vegetation in the Taebaek district is dominated by dwarf pines. Thick dense undergrowth, consisting of scrubby thorny vegetation develops in April, after the snowmelt, making access very difficult off walking tracks. The scrub browns and dies out rapidly in October-November at the onset of winter.

5.2 Accessibility

The Sangdong Project is located approximately 175 km east-southeast of Seoul, in Yeongwol County of Kangwon-Do Province on the eastern side of South Korea. Sangdong is easily reached by paved roads from all directions and is a 3.5hr drive from Seoul. The project is well served by the Yeondong Expressway 50 from Seoul, the Jungang Expressway 55 from Wonju, Highway 38 from Jechon to Yeongwol then Highway 31 to Sangdong. The road journey takes approximately 3.5hrs. A bus journey from Dong Seoul Bus Terminal typically takes 4hrs to Taebaek. Taebaek (population of over 50,000) is located 25 km to the east of Sangdong by paved road and is an established coal mining town with most modern facilities, including good accommodation facilities and some mining equipment support

Access throughout the Sangdong Project area is generally very good, with sealed roads forming a network throughout the district, together with numerous unsealed farm tracks up the river valleys. Sangdong, a small rural village with a population of approximately 600, is situated 2 km to the south of the mine.

The national rail network system services the region. The train journey takes 4.5 hrs to Taebaek from Seoul Station. The closest railhead is situated at Yemi 5 km north of Sangdong.

5.3 Climate

The Meteorological weather station nearest to the Project site is Yeongwol Weather Station. The Project experiences seasonal climatic conditions and at Yeongwol can be described as cloudy with a distinct hot wet season followed by a cold dry season during the winter.

The wet season from June to August, is hot and humid and 75% of the annual rainfall occurs during this period. Daily temperatures average 27°C and rise to a maximum of approximately 30°C. Daily thunderstorms are common in August and the occasional “typhoon” may occur in coastal areas.

During September to October, the climate becomes cooler, with daily temperatures reaching 20°C. The winter “dry” season lasts from October to March, with snow falling from December to February. Freezing temperatures occur during this time, occasionally reaching as low as -30°C. Mild temperatures in the spring produce slush and muddy conditions on unsealed roads from March to April.

The average relative humidity is 68.10%, the maximum relative humidity is approximately 80.81% in July and the minimum relative humidity approximately 55.46% in April.

The average annual rainfall at the Yeongwol Weather Station is 1,262 mm. The most rainfall is concentrated in the rainy season between June and August with approximately 905 mm of precipitation. The maximum monthly average rainfall is approximately 310.3 mm occurring in July. Snow accumulations can be as much as 1m between December and February.

The annual average wind velocity is 1.46 m/sec and the range of the monthly average wind velocity is 1.20-1.95 m/sec according to the observation data for a recent 10-year interval (1997-2006) in the Yeongwol area. The maximum average wind velocity is 2.34 m/sec when the main wind direction is south-westerly.

The average monthly daylight hours in the Yeongwol area are 175.5. The average daylight hours for the month of March are 209.7 hours, representing the maximum daylight hours in the year.

On average there are 129 freezing days each year, 112 days of rainfall and 106 frost days. Of these days, on average, each year there are 105 overcast days, 92 clear days, 29 foggy days, 26 snow days and 19 thunderstorm days.

5.4 Local Resources

There is a nearby (300m away) underground limestone mine, 300m from Sangdong, and run by the company OMYA. This has a similar capacity to Sanding (600 K tpa), and is almost exclusively operated with local labour. The Handuk iron mine is located 16 Km down the road to Yeong. (https://www.smhanduk.co.kr/manufacturing/stone/p_information). On the road to Taebaek there are two underground mines. One is an iron mine (Cheolgwangsan, 5 km away) and the other is a limestone mine (Cheongsan, 7 km away). Workers with the required skills and provided training would be available locally and from elsewhere within South Korea. In the times of KTMC, Sangdong was having a population of 30,000 inhabitants. A large number of persons born in Sangdong or with familiar relations to Sangdong would be willing to work in Sangdong. There are many underground contract workers of Sangdong origins who would accept favourably a return to Sangdong. There is a small mine contractor in Sangdong and also one exploration drilling contractor.

Sources of surface run-off water supply for mining and milling operations exist in local streams and rivers. There are also reasonable sources of groundwater contained in the limestones overlying the tungsten skarn and inside the old stopes of the mine.

Sites adequate for the waste rock disposal exist within the Property in the immediate area west and east of the mine.

There is no local logging industry within the property. The forest is administered by the Youngwol Forest Service. There is a seasonal agriculture also permitted in the mountain area for local residents to grow crops, mostly cabbage, in forest clearings where there is road access.

5.5 Infrastructure

A power line passes within several kilometres of the Property and two high tension power lines cross over the Property Mining Rights boundary, servicing Sangdong village and the Kangwon High Golf and Ski Resorts, situated to the north of the Sangdong Project. 20MVA of electrical supply capacity is now available through a new power line. The old power line (0.9 MW) and all its transformers are also available if required for the Sangdong Project mining and milling operation. The Uljin nuclear power station facility is situated nearby on the coast and would be capable of providing a reliable, long-term and low cost Several windmill parks have been also established in recent years between Sangdong and Taebaek. energy supply for the mine. Power distribution in South Korea is well developed and reliable.

The rail network (Figure 5.1) is used for passenger service but also the transport of bulk cargoes, including cement, limestone and aggregates, mineral concentrates, sulphuric acid tankers, refrigerated goods and fuel cells.

Uljin is the closest port facility for the Sangdong Project, situated 50km east of Sangdong on the east coast whilst Donghae, an additional port facility is situated 56 km northeast of Sangdong. Donghae is a port mainly used for the export of cement clinker. It also has ferry connections to Russia and Japan

Figure 5.1: Rail network in the Yeongwol-Taebaek area.

Sangdong is situated 5km south of the Yemi railhead

(Scale 1:1,300,000 approx - N Vertical Lines)

6 PROJECT HISTORY

6.1 Operations 1916-1949

Tungsten mineralisation was discovered on the Property in 1916 and mining took place at two locations: the Doyeop Mine and the Sungyeong Mine for several years, but then ceased. Tungsten grades at the Doyeop mine averaged 3.3% WO_3 and ranged from 0.8% to 5.86% WO_3. Tungsten grades at the Sungyeong mine averaged 7.55% WO_3 and ranged from 2.50% to 17.12% WO_3.

Operations at both locations recommenced in 1933 and the main Sangdong deposit was discovered during the period 1939 to 1940. In 1941 the company Kobayashi Mining Corporation bought both mines, and integrated operations into the overall Sangdong mine. The Sungyeong mine owners, in order of succession, were Ogama Fusajiro, Kondo Shinjiro, Shibuya Yoshihide and then the Kobayashi Corp. Apart from acquiring both Sangdong mines, Kobayashi also expanded the mining rights area for Sangdong, as well as to include tungsten, bismuth and molybdenite. The smelting plant for Kobayashi was in Seoul.

The Sangdong Mine was operated during World War II by Sorim Resources Co. and during the period 1946 to 1949, under the jurisdiction of the United States military government office. With the end of the Second World War in 1945, all property owned by Japanese nationals in Korea was taken over by the United States Army Military Government in Korea (USAMGIK), including Kobayashi Corp.'s mines. Along with 5-6 Japanese employees, Kobayashi's president stayed for some time as an advisor to USAMGIK for tungsten mining development but soon returned to Japan in October 1945.

In 1946, the US army restarted the tungsten mining operations for export to the US. In 1947 Korea's tungsten ore was exported for the first time to the world market, branded with the name of the Republic of Korea. The tungsten concentrate, which was first exported through exchanges between the Korean and U.S. governments.

On November 1, 1947, Sangdong mine suffered a fire caused by an electrical leak at the processing site, which had just begun operation. The processing plant got completely burned down, which seriously hindered production. Despite that, Sangdong mine produced 939 tonnes of tungsten during that year. The operation of the processing site in Sangdong restarted in November, 1948.

6.2 Korea Tungsten Mining Company Ltd. (KTMC) 1949 - 1994

In 1948 the USAGMIK control system then ended, and a governance system of company presidents started, with Kim Hyun Gyung being appointed as the first president of the Korea Tungsten Mining Company.

In 1949 the Korean Tungsten Mining Company, a government agency, assumed control and operated the mine until 1951. In 1952, the Korean Tungsten Mining Company changed its name to Korea Tungsten Mining Co. Ltd. (KTMC) and resumed mining, producing tungsten and scheelite, bismuth, and molybdenum concentrates. There were various disruptions with the Korean war from 1950-1951, including being occupied for some of that time by North Korea. In 1951, 639 tonnes of tungsten concentrate were produced, with a monthly production rate of approximately 10,000 tonnes of ore, at a grade of 1.2 – 1.7% WO_3.

In 1953 mechanised equipment was installed, including slushers, loaders and mining cars. In 1954 mechanization of mine transportation started with tram operations, as well as 3 underground compressors. In 1957 the mining operations were downsized, going from 1,567 to 400 people at the mine site. A chemical treatment plant was started in 1959. Other significant milestones included:

- 1960: Sangdong Grinding Ball Mill Expansion and Increase of Processing Capacity to 1,200 tpd.
- 1961: Establishment of a research laboratory, and construction of a metal smelting plant in Sangdong for production of Metal Bismuth (M-Bi).
- 1962: Completion of Sangdong Processing plant storage facility
- 1962: Installation of Rotary Kiln in Sangdong Processing plant
- 1962: APT manufacturing technology (factory scale) secured.
- 1965: Completion of Seoul Refinery. Production of Bi Metal. Alloy steel plant start-up.
- 1965: Installation of the transport tunnel for the Baegun level.
- 1965: Soda ash plant construction plan.
- 1966: Sandfilling construction experiment started;
- 1966: Production of Bismuth Subnitrale Bi-Salt products.
- 1967: Start of pit works. Increased grinding capacity, to allow processing capacity of 1,400 tpd.
- 1968: Construction of Sangdong Water Management Facility; Molybdenum Oxide Production.
- 1970: Increased the capacity of the crushing and processing facility equipment to 1,500 tpd. Converted to direct operation of open-pit crushing operation using conventional methods.
- 1972: Start of APT factory construction.
- 1973: Development of technology for producing ammonium para tungstate APT.
- 1976: Expansion of APT facilities

The mine operated until 1994, with annual rates of production of up to 750,200 t of ore. By the time of closure, the mine had been developed on 20 levels, between the elevations of 242 and 755masl, with a cumulative length of 20km of workings in addition to six inclines totalling 3.8 km, a ventilation incline and a 450m vertical shaft (Lee, 2001). The mine had tracked haulage ways.

Historical mining employed underground room and pillar methods, and concentrated on four main tungsten horizons: the Upper (H1), Main (M1), Lower II (F2), and Lower III (F3) listed in stratigraphic order. Mining occurred mostly on the M1 horizon, with lesser operations on H1, and only very minor workings on F2 and F3.

Production figures over the life of the mine are not available for every year, having either been lost or having never been fully documented. During the period 1952 to 1987, annual production of tungsten concentrate varied between 994t (1955) and 3,268t (1961) and total production was 74,911t. There are indications that in the period between 1987 and 1992 mine production was limited and concentrate production was derived from toll treatment. Various quantities of ammonium paratungstate (APT), tungsten metal and tungsten steel were also produced

Between 1961 and 1987, 2,930t of bismuth were recovered. Also 2,725t of paramolybdate or molybdenum oxide were produced during the period 1967 to 1987. Gold and silver were also recovered, with maximum annual production rates of 37kg of gold (1987) and 531kg of silver (1974), apparently from the bismuth concentrate.

Based on tabulated data on longitudinal sections from the beginning of 1981 to the end of 1988, it is evident that the great proportion of the ore-grade mineralisation was produced from the 3.5m to 5m thick Main horizon: 3.918Mt. During the same period of time, about 2.041Mt were mined from the Hangingwall (Upper) horizon in widely spaced stopes as deep as the -8 level. Data suggest that little, if any, production came from the horizon prior to that period.

In 1981-1988, about 88,000 t came from the Footwall (Lower) II horizon, mostly in the upper three levels, and 167,000t from the Footwall (Lower) III horizon, also mostly in the three upper levels of the mine.

Although no statistics are available for production from the various individual horizons, it is evident from the 1989 longitudinal sections that there appear to be only pillars remaining at most levels in the core of the mine area, to at least the -15 level. Most of the remaining resources at that time were in peripheral, and probably lower grade, parts of the deposit, and in the Main East orebody.

Statistics for the period from 1987 to the mine’s closure in 1992 are unavailable; however there are indications that mine production was limited and concentrate production was derived from toll treatment. Various quantities of APT, tungsten metal, and tungsten steel were also produced.

In 1959, a synthetic scheelite plant began operation, improving the grade and recovery of concentrates. In 1961, a bismuth refining plant was opened, producing 99.9% bismuth metal. The following year, a plant to produce tungsten metal was commissioned and in 1972, an ammonium paratungstate ("APT") plant was built.

Towards the end of the 1960s, it was clear to KTMC that it was become increasingly difficult to maintain the production of extremely rich (plus 1.5% WO_3) grades from the Main zone, forcing them to make important changes to the company's operations:

1. **Downstreaming**. In addition to KTMC's operations in the Sangdong area, installations were set up in Daegu for multiple downstream tungsten products, as well as products of bismuth and gold.

2. **Mining Infrastructure.** These changes included exploitation of lower grade zones, as well as increasing the mine's production rate. A new vertical shaft was developed, as shown in Figure 6-3 with its inauguration. The shaft enabled cheaper and faster transport of ore and waste from the deeper levels. The shaft was also used for the fast transportation of the miners.

3. **Mining Methods.** Cut-and-fill mining with cemented sandfill was applied to the Hangingwall and Main zones. The cemented sandfill material also used tailings from the processing plant.

4. **Processing Installations.** The existing Chemical plant was already producing SS (synthetic scheelite) and leaching the concentrates with acid, to improve concentrate quality and grade. A new APT plant was constructed and inaugurated on 22th Dec 1972, with a capacity of 1715 tonnes/year. Figure 6-4 shows a photo of the inauguration, with the president of the republic. Later on, the APT plant also produced tungsten oxide (WO3), essentially in the form of Yellow Oxide. The APT plant allowed less restrictions on the concentrate specifications.

5. **Molybdenum**. A molybdenum roaster was also constructed on the Sangdong terrace, for the conversion of molybdenite to molydenum oxide.

6. **Acid**. A sulphuric acid plant was also set up, to help with the large consumption of sulfuric acid during processing.

From 1974 to 1987, up to 1,182t of APT was produced annually, totalling 10,624t, but between 1978 and 1987, less than 170t of tungsten metal and steels were produced. The drop in tungsten prices in the mid-1980's caused the mine to reduce production and eventually shut down in 1992. The Korea Tungsten Mining Co Ltd was finally dissolved in 1998.

Mr Jae Youl Sim (Se Woo Mining Co.Ltd) acquired 23 Mining Rights over the Sangdong deposit in June 2001.

During production over the whole period from 1916 to 1998 a number of different mining methods were applied, as summarised in Table 6-1.

Table 6-1. Summary of Mining Methods Applied at Sangdong

Period	Mining Method	Location	Mining Recovery
1916~1940	Manual excavation by Gophering	Above Sangdong Level	40%
1941~1952	Sub level	Above Sangdong Level	45%
1954~1994	Room & Pillar	Main vein under Sangdong Level and Footwall structures	55~60%
1960~1994	Sub level Caving	Re-excavation of Main vein from Sangdong until -5 levels	70%
1967~1980	1-stage long wall	Excavation of lower part of -6 level of the Main vein	80%
1967~1969	Top slicing	Re-excavation of Jangsan, Baegun level	65%
1981~1994	Cut & fill	Excavation of Hanging Wall	80%

Photographs relating to the KTMC ownership era of Sangdong are shown in Figure 6-1 to Figure 6-4.

An overall summary of mine production from 1960 to 1992 is shown in Table 6-2.

Table 6-2. Summary of Mine Production 1960 - 1992

	Ore Production	
Year	Tonnes Kt	WO_3 %
1960	352	1.21
1961	417	1.20
1962	351	1.22
1963	272	1.36
1964	315	1.15
1965	312	0.96
1966	354	0.89
1967	363	0.81
1968	400	0.75
1969	420	0.71
1970	436	0.69
1971	462	0.70
1972	434	0.70
1973	512	0.70
1974	570	0.68
1975	592	0.67
1976	632	0.67
1977	634	0.66
1978	631	0.62
1979	648	0.60

	Ore Production	
Year	Tonnes Kt	WO_3 %
1980	685	0.58
1981	708	0.56
1982	701	0.55
1983	721	0.54
1984	752	0.54
1985	709	0.54
1986	696	0.53
1987	684	0.53
1988	483	0.53
1989	405	0.53
1990	324	0.53
1991	186	0.53
1992	59	0.53
Total	**16,219**	**0.73**

Figure 6-1. Example Photos of Underground Workings from KTMC Era

[From Top: Slusher/Locomotive, Workers Transportation, Extraction Shaft,]

Figure 6-2. Photographs from Processing – KTMC Era

[From Top: WO3 Concentrate Bags, APT Tungsten Oxide Plant Processing]

Figure 6-3. Inauguration Extraction Shaft, 1970

Figure 6-4. Inauguration APT Plant, 1972

6.3 Woulfe Mining Corporation (Oriental Minerals Inc) 2006-2015

On October 19, 2006, Oriental Minerals Inc. entered into an agreement with Se Woo Mining Co. Ltd. ("Se Woo"), a private company based in Seoul, Republic of Korea, whereby Oriental could earn up to 100% interest in 23 Mining Rights with a total area of 5,924ha (59.24 km^2).

Ownership of the 23 Mining Rights was transferred to Oriental Minerals Inc., a 100%-owned Korean subsidiary of Oriental Hard Metals Korea Co., Ltd. upon closing of Sangdong Purchase Agreement and acceptance by the TSX-V on 7 January 2007.

The terms of Oriental's Sangdong Acquisition Agreement were as follows:

- On the basis of a previous memorandum of understanding, Oriental paid Se Woo US$8,000, and a further US$16,000 on January 8, 2007.
- Oriental, as operator of the project, earned a 51% interest in the Properties by:
- Paying Se Woo US$80,000 upon execution of the Agreement;
- Paying Se Woo upon Closing, US$720,000 cash and $800,000 in any combination of cash or Oriental shares (by February 28, 2007);
- Paying Se Woo US$2,400,000 in cash and US$800,000 in any combination of Oriental common shares and cash at six months after closing; the same amounts was to be paid again 18 months and 30 months after closing;
- Spending a minimum of US$800,000 on exploration and related activities in each of first and second years; and
- Spending US$2,400,000 on exploration and related activities during each of the third, fourth and fifth years after closing on the Sangdong properties or any other properties of Se Woo; and spending at least US$16,000,000 if undertaking commercial production.
- Oriental could earn an additional 19% interest by the completion of a pre-feasibility study within five years of closing, and a final 30% interest in the property by delivering an independent feasibility study by the fifth anniversary after closing; that period could be extended for up to 18 months without Orientals' loss of any rights.
- A 2% net smelter return royalty was payable to Se Woo on all production.

["Closing" is defined as being subject to regulatory and shareholder approval, as well as other conditions].

On the 25 February 2010, Oriental Minerals Inc. changed its name to Woulfe Mining Corp. This was a re-branding exercise and it appears that no other changes occurred in the company at this time.

Subsequently the project area was reduced to 12 Mining Rights with an aggregate area of 3,173ha. In November 2011 Woulfe gained 100% interest in the property. The 2% net smelter royalty retained on the Sangdong tungsten-molybdenum project in South Korea from the vendor, Se Woo Mining Co. Ltd., was purchased for CDN $3.5M, of which CDN$500,000 was paid on execution of the agreement and the balance of which was payable by December 19, 2011. In addition, the Company negotiated an amendment to the acquisition agreement originally dated October 9, 2006 in respect of the Sangdong project, such that the final outstanding 30% interest in the mining titles vested to the Company immediately as part of the completion of the payments noted above.

6.4 Sangdong Project Development, AKTC 2015 - 2024

Almonty acquired a 100% ownership interest in Woulfe Mining Corp. on September 11th, 2015 by way of a Plan of Arrangement. Woulfe Mining Corp., through its wholly owned subsidiary, Almonty Korea Tungsten Corporation (AKTC) [formerly Sangdong Mining Corporation], owns a 100% interest in the Sangdong mine.

6.4.1 Securing Financing and Offtake Agreements

A critical milestone in the redevelopment of the Sangdong Mine was securing adequate financing to support construction and operational activities. In 2020, Almonty achieved this by finalizing a US$75.1 million project finance loan with KfW IPEX-Bank, a renowned German financial institution.

6.4.2 Construction and Development Phases (Expanded)

Following the approval of project financing in early 2020, Almonty Industries initiated a multi-year, meticulously planned construction and development program at the Sangdong Tungsten Mine. The program reflects a combination of engineering precision, ESG-aligned project management, and a commitment to building the largest non-Chinese source of tungsten globally. Below is a detailed breakdown of the key phases and milestones in Sangdong's development:

2020 – Pre-construction and Engineering

- January 2020: Binding commitment for project financing secured for US$75.1 million.
- February 2020: Revised 15-year offtake agreement signed, increasing minimum revenue floor to CAD 750 million.
- May 2020:
  - Metso completes delivery of the basic engineering package for the crushing and grinding circuit.
  - Collaboration with the Gangwon Provincial Government and Yeongwol County formalized through an MOU, confirming local support, infrastructure provisioning, and regulatory facilitation.
- July–September 2020:
  - Backfill plant design and location finalized at 730m elevation for gravity-based tailings pumping.
  - Long-lead items such as flotation cells and mill components specified for procurement.

2021 – Formal Start of Construction

- Q1 2021: Concrete batch plant completed on-site to support all civil works and underground construction.
- Q2 2021:
  - Renovation of the Sangdong town administration office into a local headquarters and community contact point.
  - Major cost optimization achieved by bundling site leveling, road building, and drainage diversion.
- May 2021: Groundbreaking ceremony held at the Sangdong site, marking the official start of surface construction.

- Q3–Q4 2021: Preparatory works and mobilization continue; underground engineering and design for portals and haulage confirmed.

2022 – Ramp-up of Equipment Procurement and Civil Works

- January–June 2022:
    - Completion of several conditions precedent for the project finance agreement.
    - MOU signed with KOMIR and Hannae For T, Ltd for rare-metal recycling and value-add processing in Korea.
- Q3 2022:
    - First and second disbursements received to fund civil works and equipment orders.
    - Procurement of SAG mill, ball mill, protection screens, reclaim feeders, and other processing equipment.
    - Basic and detailed engineering finalized for site-wide process layout and backfill plant.
- July–September 2022:
    - Drawings and schematics reviewed and approved.
    - Underground development work begins, focusing on ramp access and portal clearance.

2023 – Structural Construction, Power, and Underground Access

- April 2023: Fourth project finance drawdown received; cumulative investment surpasses US$32 million.
- Q2–Q3 2023:
    - Powerline upgrade completed and tied into the national grid.
    - Delivery of ball mill, flotation cells, and other critical path equipment to site.
    - Installation of foundations for crushing and grinding building begins.
- July–November 2023:
    - Drawdowns 5 and 6 support above-ground construction and final procurement.
    - Delivery of flotation systems and pastefill support structures.
    - Guest accommodations and logistics base finalized to host rotating personnel.

2024-2025 – Transition Toward Commissioning

- Q1–Q2 2024:
    - Early earthworks for processing plant commence; steel and mechanical installation begin.
    - Ore development begins underground, initially targeting stope areas validated by prior drilling campaigns.
    - Safety protocols integrated in partnership with KT Telecom, introducing AI-based safety monitoring (Mine Safety DX).
- Q3 2024:
    - Surface infrastructure near completion; final installation of mechanical components.
    - Integration of electrical and automation systems begins.
- Q1 2025:
    - Final drawdown received in January 2025, confirming full funding allocation.
    - Substantial progress of underground mine development and advancement of processing plant construction to support production readiness.

6.4.3 Environmental, Social, and Governance (ESG) Initiatives

Almonty has placed a strong emphasis on integrating ESG principles into the Sangdong Mine's redevelopment. In collaboration with local and provincial governments, Almonty signed an MOU in May 2020, outlining commitments to environmental protection, community development, and sustainable practices. The company has also prioritized the use of renewable energy sources, aiming to achieve carbon neutrality in its operations.

Furthermore, Almonty has engaged with local communities to ensure that the redevelopment benefits the region economically and socially. This includes initiatives such as local employment opportunities, infrastructure improvements, and support for local businesses. The company's commitment to ESG has not only enhanced its reputation but also ensured compliance with international standards, facilitating smoother operations and fostering goodwill among stakeholders.

6.5 Historical Resource Estimates

6.5.1 KTMC historical estimates

Two historic tungsten mineral resource estimates (Table 6.1) were prepared for the Sangdong Mine, in 1985 and 1989. The 1985 estimate, prepared by the mine staff, contained a total of about 20Mt at a grade of 0.5% WO_3. The 1989 estimate, prepared by Korea Resources Corp., contained about 18.8Mt at an average grade of 0.5% WO_3.

The second estimate includes about 1.4Mt attributed to the Sangdong East deposit and therefore the difference between the two estimates does not represent the tonnage mined in the interim. These were polygonal estimates and used a relative density of 2.9. Tungsten mineralisation in Sangdong East is lower-grade than in the main mine area. Drillhole data indicated that the Hangingwall (Upper) horizon typically ranges from approximately 1.5 m – 11 m in thickness and from 0.01 to 0.24% WO_3 in grade. The partially mined Main horizon is approximately 1 m to 8.8m in thickness and contains 0.01-0.65% WO_3. Low-molybdenum, blue-fluorescent scheelite is dominant.

Table 6-3. Historic Resource Estimates, Sangdong Mine

Ore Body	Sangdong Exploration 1985		Korea Resources Co. 1989	
	Reserves (t)	WO_3 (%)	Reserves (t)	WO_3 (%)
Main	5,588,042	0.54	4,616,010	0.57
Lower II	2,284,752	0.57	2,339,980	0.57
Lower III	2,218,252	0.54	2,064,830	0.53
Upper	9,853,034	0.45	9,803,610	0.43
Total	**19,944,080**	**0.50**	**18,824,430**	**0.50**

West (W) Sangdong was estimated to contain 2.3Mt at an average grade of 0.5% WO_3 but no details of the estimation process or the number of holes employed in the estimate are known. It is unknown on how many drillholes this was based, but because of the wide spacing of the drillholes (200m or more), the resource could at best be considered *Inferred* under currently accepted resource evaluation methodologies.

These historical estimates are relevant for historical context but do not meet current CIM Definition Standards or JORC Guidelines. The Qualified Person has not done sufficient work to classify the historical estimates as current mineral resources or mineral reserves, and Almonty is not treating the historical estimates as current mineral resources or mineral reserves.

As reported by Lee, drill intercepts in the Main horizon varied from 0.24-0.8% WO_3 across 0.8-2.8m. Other intersections included 0.11-0.28% WO_3 across 2.3-6.8m in the Upper vein; and 0.1-3.0% WO_3 across 0.6-2.0m in the Lower vein. In drillhole 86-6 in the Hwajeolchi area, a roughly 15m interval in the Hangingwall (Upper) horizon of interlayered limestone and calc-silicate rock (about 50% each) was intersected, with one 3.5m interval containing 0.32% WO_3.

A large molybdenite-quartz vein stockwork (“Molybdenum Stockwork”) deposit located above a granitic intrusion was identified and drilled between 1980 and 1987 (22 vertical holes; 12,390m core drilling).

Up to 1987, all Mineral Resource or Mineral Reserve estimates pre-date both NI 43-101 and WMC’s involvement in the Sangdong Property, and should not be considered to be material.

6.5.2 Woulfe Mining Corporation

6.5.2.1 Tetra Tech (Wardrop) (2012)

The 2012 global resource (Table 6.2) estimated by Tetra Tech (TT) focused on the data acquired from the 2006-2008 drilling programmes, completed by Woulfe, as well as the compilation of historical data for the upper quarter of the known dip length of the mine i.e. the section from surface to just below the water level.

The historical drilling data used in the Tetra Tech (Wardrop)/Woulfe April 2010 scoping study was not used for the 2012 estimate, meaning that any down dip extension of the mineralised zones was not represented as a Resource. The classification conformed to the CIM Definition Standards for Mineral Resources and Mineral Reserves (2010). The Resource was split into two sections by elevation, representing the down dip potential of the deposit below current waterline.

Table 6-4. Sangdong, 2012 Global Resource Estimate

Reporting Cut-off 0.15% WO_3*

Resource Category	Mineralised Zone	Tonnes	Density	WO_3 (%)	MoS_2 (%)	MTU
'Indicated'	F2	2,298,000	2.98	0.63	0.04	1,448,000
'Indicated'	F3	2,604,000	2.96	0.56	0.05	1,458,000
'Indicated'	HALO	5,576,000	2.91	0.27	0.03	1,505,000
'Indicated'	MAIN	5,952,000	3.25	0.50	0.03	2,976,000
Ind Total		**16,431,000**	**3.04**	**0.45**	**0.04**	**7,387,000**
'Inferred'	F2	2,680,000	2.91	0.50	0.03	1,340,000
'Inferred'	F3	2,712,000	2.90	0.49	0.03	1,329,000
'Inferred'	HALO	6,523,000	2.88	0.23	0.02	1,500,000
'Inferred'	HW	7,191,000	2.96	0.58	0.08	4,171,000
'Inferred'	MAIN	259,000	2.92	0.52	0.02	135,000
Total Inferred		**19,368,000**	**2.92**	**0.44**	**0.05**	**8,475,000**
'Inferred'	F2	4,097,000	2.85	0.60	0.07	2,458,000
'Inferred'	F3	4,315,000	2.85	0.57	0.06	2,460,000
'Inferred'	HALO	5,973,000	2.85	0.21	0.06	1,254,000
'Inferred'	HW	15,924,000	2.84	0.69	0.11	10,988,000
'Inferred'	MAIN	4,208,000	2.85	0.60	0.03	2,525,000
Total Inferred Down Dip		**34,519,000**	**2.85**	0.47	0.07	**19,685,000**

**Figures may not reconcile as a consequence of rounding*

- *A Metric Tonne Unit ("MTU") is equal to ten kilograms per metric tonne and is the standard weight measure of tungsten. Tungsten prices are generally quoted as US dollars per MTU of tungsten trioxide (WO_3). Theoretically pure scheelite concentrate can contain 80.5% tungsten metal, but in practice the grade of concentrate products acceptable for sale ranges from about 62% WO_3 to about 72% WO_3.*

The previous estimate in the Wardrop 2010 scoping study was made on a very different basis to the 2012 estimate, the former relying on the holes drilled underground by KTMC and on a coarse geological interpretation of the mineralised zones; the 2010 Resource was classified as *Inferred*.

The 2012 estimate relied entirely on the more recent drilling programmes with associated sample quality control; however, it only covered approximately the upper quarter of the known dip length of the mineralised zones, and therefore comparison of the two estimates would be unreliable.

In order to estimate the down-dip resource potential at the Sangdong mine (Table 6.2 above), Tetratech (Wardrop) completed a separate estimation of the down-dip resource using all available samples, including those samples which could not be included in the up dip *'Indicated'* Resource. Due to the unreliability of the historic data described above the Resource was classified as *'Inferred'* but was included in order to reconcile the 2010 and 2012 estimates.

6.5.2.2 AMC Consultants Pty Ltd (AMC) 2014

Resources were estimated using a block modelling approach, with three dimensional (3D) ordinary kriging and Datamine's™ dynamic anisotropy application being employed.

Table 6.3 shows the Mineral Resource estimate and metal content for the Property as of 15 September 2014. The cut-off grade of 0.4% WO_3 was provided by WMC and was based on an assumed mining method, production rate, metallurgical recovery and metal prices. AMC reviewed these assumptions and considered that they met the requirement of reasonable prospects of eventual economic extraction. It appears that AMC used some results from the pre-2006 drilling in the Resource estimation.

Table 6-5. AMC 2014 Mineral Resource Estimate

Resource Category	Mineralized Zone	Mtonnes	Density (t/m^3)	WO_3 (%)	MoS_2 (%)	Contained WO_3 metal (Mt)
Measured	Main	0.55	3.19	0.61	0.066	0.33
	F2	0.86	3.01	0.56	0.057	0.48
	F3	0.74	3.06	0.55	0.057	0.41
Measured Total		**2.15**	**3.07**	**0.57**	**0.059**	**1.22**
Indicated	HW	0.19	2.90	0.46	0.095	0.09
	Main	0.31	3.19	0.62	0.031	0.19
	F2	0.58	2.96	0.55	0.029	0.32
	F3	0.57	2.97	0.53	0.026	0.31
Indicated Total		**1.66**	**3.00**	**0.55**	**0.036**	**0.91**
Measured + Indicated		**3.81**	**3.04**	**0.56**	**0.049**	**2.12**
Inferred	HW	7.93	2.90	0.68	0.089	5.38
	Main	0.34	2.93	0.74	0.047	0.26
	F2	0.93	2.91	0.53	0.073	0.49
	F3	0.76	2.91	0.48	0.047	0.37
	F4	1.31	2.92	0.52	0.053	0.69
Inferred Total		**11.28**	**2.90**	**0.64**	**0.080**	**7.18**

Changes that occurred between the 2012 and the 2014 resource estimates included:

- 11,348m additional Resource definition drilling.
- Change in the estimation method from modelling the volume and geometry of mineralisation using the underground development surveys (TT), to using the actual drillhole intersections (AMC).
- Change in the estimation method from assigning grades to each mineralisation zone using the mineralisation coding in the database (TT), to using the spatially referenced drillhole intersections in 3D to estimate grade for each mineralisation zone (AMC).

- Change in the estimation method from a single mineralisation grade threshold of 0.15% WO_3 (TT), to splitting the mineralisation into three grade thresholds and estimating each independently (AMC).
- Using the interpreted faults to constrain the Mineral Resource estimate.
- Significant additional underground mapping carried out and incorporation of these data in the Mineral Resource estimate.
- Change in the definition of the Mineral Resource categories.

Table 6.4 compares the TT 2012 estimate with the AMC 2014 estimate. Both estimates are reported at 0.15 % WO_3 cut-off grade in this table for comparison purposes.

The following observations were made from the comparison table:

- Approximately half of the *Indicated* tonnes in the previous estimate were converted to *Measured* Mineral Resources due to the increased drilling and improved understanding of the geology gained through underground mapping.
- *Measured* plus *Indicated* tonnes increased by 12% overall, while the *Inferred* tonnes increased by 5% overall between the two estimates.
- The change in density is not significant.
- *Measured* plus *Indicated* grades decreased by 46%, while *Inferred* grades decreased by between 68% between the two estimates.
- The net result in the *Measured* plus *Indicated* categories was a decrease in the contained tungsten metal of 29%.
- The net result in the *Inferred* category represents a decrease in the contained tungsten metal of 59%.

AMC considered that the decrease in grades was mainly due to the previous method (TT) of creating the mineralisation volumes from the underground development surveys, and then estimating grade into those volumes from the coded intersections in the database. The coding in the database is not based on a 3D interpretation but is interpreted on a drillhole-by-drillhole basis.

Table 6-6. Comparison of 2012 and 2014 Mineral Resource Estimates

Resource Category	Mineralized Zone	Mtonnes TT12	Mtonnes AMC14	% Difference	Density TT12 (t/cm3)	Density AMC14 (t/cm3)	% Difference	WO3 TT12 (%)	WO3 AMC14 (%)	% Difference	Contained WO3 metal TT12 (Mt)	Contained WO3 metal AMC14 (Mt)	% Difference
Measured	Main		1.84			3.20			0.36			0.66	
	F2		3.49			3.01			0.33			1.14	
	F3		3.11			3.04			0.32			0.99	
Measured Total			**8.44**			**3.06**			**0.33**			**2.79**	
Indicated	HW		1.65			2.90			0.28			0.46	100%
	Main	5.95	1.72	-247%	3.25	3.16	-3%	0.50	0.31	-61%	2.98	0.53	-460%
	F2	2.30	3.22	29%	2.98	2.97	0%	0.63	0.29	-115%	1.45	0.94	-54%
	F3	2.60	3.57	27%	2.96	2.94	-1%	0.56	0.28	-100%	1.46	1.00	-46%
	Halo	5.58			2.91			0.27			1.51		
Indicated Total		**16.43**	**10.15**	**-62%**	**3.04**	**2.98**	**-2%**	**0.45**	**0.29**	**-56%**	**7.39**	**2.93**	**-153%**
Measured + Indicated		**16.43**	**18.59**	**12%**	**3.04**	**3.02**	**-1%**	**0.45**	**0.31**	**-46%**	**7.39**	**5.72**	**-29%**
Inferred	HW	23.12	30.74	25%	2.88	2.90	1%	0.66	0.35	-87%	15.16	10.76	-41%
	Main	4.47	1.75	-155%	2.85	2.95	3%	0.60	0.31	-90%	2.66	0.55	-384%
	F2	6.78	3.65	-86%	2.87	2.91	1%	0.56	0.31	-82%	3.80	1.12	-239%
	F3	7.03	8.53	18%	2.87	2.91	1%	0.54	0.25	-115%	3.79	2.14	-77%
	Halo	12.50			2.87			0.22			2.75		
	F4		12.21			2.92			0.25			3.09	
Inferred Total		**53.88**	**56.87**	**5%**	**2.87**	**2.91**	**1%**	**0.52**	**0.31**	**-68%**	**28.16**	**17.66**	**-59%**

6.5.2.3 A-Z Mining Professionals Ltd./Tetratech (Wardrop) Feasibility Study June 2015

1. Mineral Resources

In 2014, AMC Consultants Pty. Ltd. was commissioned by Woulfe Mining Corp. to develop a resource block model completely independent of the Tetra Tech geology block models. On an A-Z Mining review of the completed AMC model, A-Z Mining and Woulfe decided not to retain the AMC resource model due to the technical methodology employed.

The Feasibility Study relied on the Tetra Tech 2015 updated resource block model, which included the 2013 Phase 4 drilling programme (7,200m of additional definition drilling to significantly increase confidence in the resources). The Tetra Tech 2015 model was not used in the current resource estimation work.

The *Indicated* Mineral Resource in the Tetra Tech phase 4 updated model is shown in Table 6.5 reported at 0.15% WO_3 cut-off grade above 600mrl. The resource is only reported above -3 level (600mrl).

The Tetra-Tech reported resources were limited to the -3 level (594mRL).

Table 6-7. Tetra Tech Sangdong Resources, June 2015

At 0.15% WO_3 Cut-off Grade,

Resources shown are above 600mrl

Resource Category	Mineralised Zone	Tonnes	Density	WO_3 (%)	MoS_2 (%)
Indicated	F2	2,140,000	3.06	0.62	0.04
Indicated	F3	2,040,000	3.08	0.62	0.04
Indicated	Main	5,120,000	3.33	0.46	0.05
Total Indicated		**9,300,000**	**3.21**	**0.53**	**0.04**
Inferred	F2	900,000	3.06	0.45	0.04
Inferred	F3	800,000	3.01	0.45	0.03
Inferred	Halo	8,300,000	3.01	0.28	0.04
Inferred	Hangingwall	24,700,000	3.12	0.42	0.05
Total Inferred		**34,700,000**	**3.09**	**0.39**	**0.05**

The phase 4 Mineral Resource Estimate update included changes from previous estimates, specifically the 2012 Tetra Tech Feasibility Estimate.

- The hangingwall ground conditions were better understood up-dip, so a greater proportion of the hangingwall was reclassified in *Inferred,* rather than just the bottom 3 levels above the current waterline.

- The *Halo* mineralisation surrounding the Footwall Zone had reduced in importance with better definition of the Footwall 2 and Footwall 3 zones from the phase 4 drilling and this is reflected in the resource categories.

- The *Indicated* Main and Footwall zones' resources were largely unchanged from the previous estimate as the Phase 4 infill programme had not changed the results significantly.

2. Mineral Reserves

The Mineral Reserves (derived from the Mineral Resource block model *Measured* and *Indicated* Mineral Resources) were identified as being economically extractable, incorporating mining loses and the addition of mining dilution, by A-Z Consultants. *Measured* and *Indicated* Resources were outlined from the -2 to Taebaek levels (Refer to Figure 10.3 below – Section 10 Drilling) as almost all resources below -2 Level were *Inferred*. The *Measured* and *Indicated* Resources were further separated into the F2/F3 and Main Zones. The resources in a 50m surface pillar allowance were subsequently removed.

Using an average processing plant recovery of 81%, a concentrate quality of 65% WO_3 and revenue per tonne of concentrate of USD15000, a cut-off grade of 0.275% WO_3 was determined.

Mining recoveries of 100% in primary (rock walls, floor and back) stopes and 95% in secondary stopes (backfill on both sides of stope) were assigned, based on industry norms and experience in mining in these types of conditions.

Dilution for the stopes included waste inside the stope outlines in the stopes, and backfill sloughing from primary stopes in the secondary stopes. Backfill dilution was included at 5% at a 0% WO_3 grade. Development ore was not separated from stoping ore in the reserves.

The *Proven* and *Probable* Reserves in the combined F2 and F3 Zones were estimated to be 3.9Mt with a grade of 0.610% WO_3. The *Proven* and *Probable* Reserves in the Main Zone were 2.0Mt at a grade of 0.492% WO_3.

6.5.3 AKTC

Adam Wheeler Feasibility Study – Sangdong Project - Update December 2015

The A-Z feasibility Study was updated during 2015, with a 43-101 report produced by Adam Wheeler in December 2015. At a 0.15% WO_3 cut-off grade, indicated resources of 5.18Mt were reported, along with inferred resources of 52.8Mt. Mineral reserves were determined of 4.7Mt, at a grade of 0.42% WO_3.

Adam Wheeler - Sangdong Project Updated 43-101 July 2016

Adam Wheeler produced an updated 43-101 report for the end of July 2016. At a 0.15% WO_3 cut-off grade, Indicated resources of 8.0 Mt were reported, at a grade of 0.51% WO_3, along with inferred resources of 50.7 Mt, at a grade of 0.43% WO_3. Mineral reserves were determined of 7.9Mt, at a grade of 0.45% WO_3. The work involved in the 2015 and 2016 studies has now been further developed, for the mineral resources and mineral reserves presented in the current study. These results were also reported also reported according to JORC Guidelines, dated 31st December, 2020.

Adam Wheeler - Sangdong Molybdenum Stockwork Project - 43-101 May 2022

Adam Wheeler produced an Resources-only 43-101 report, related to the Molybdenum Stockwork, for the end of May 2022. At a 0.19% MoS_2 cut-off grade, Inferred resources of 21.5 Mt were reported, at a grade of 0.26% MoS_2. These results were also reported also reported according to JORC Guidelines, dated 31st May, 2022.

7 GEOLOGICAL SETTING AND MINERALISATION

7.1 Regional Geology

The Korean Peninsula is situated on the eastern margin of the North China-Korea Platform, a craton composed of three blocks of Archean age, the Nangrim-Pyeongnam Block and the Gyeonggi and the Yeongnam Massifs that are separated by the northeast-trending Imjingang and Okcheon mobile belts of Phanerozoic age. The amalgamation of the massifs occurred during the Early Triassic. The Sangdong deposit is located in the Taebaeksan Basin, within the northeastern part of the Okcheon Metamorphic Belt (Figure 7.1).

The Okcheon Belt is a fold-and-thrust belt sandwiched between the Gyeonggi massif to the northwest and the Yeongnam massif to the southeast. The Belt has been divided into the southern Okcheon and northern Taebaeksan Basins.

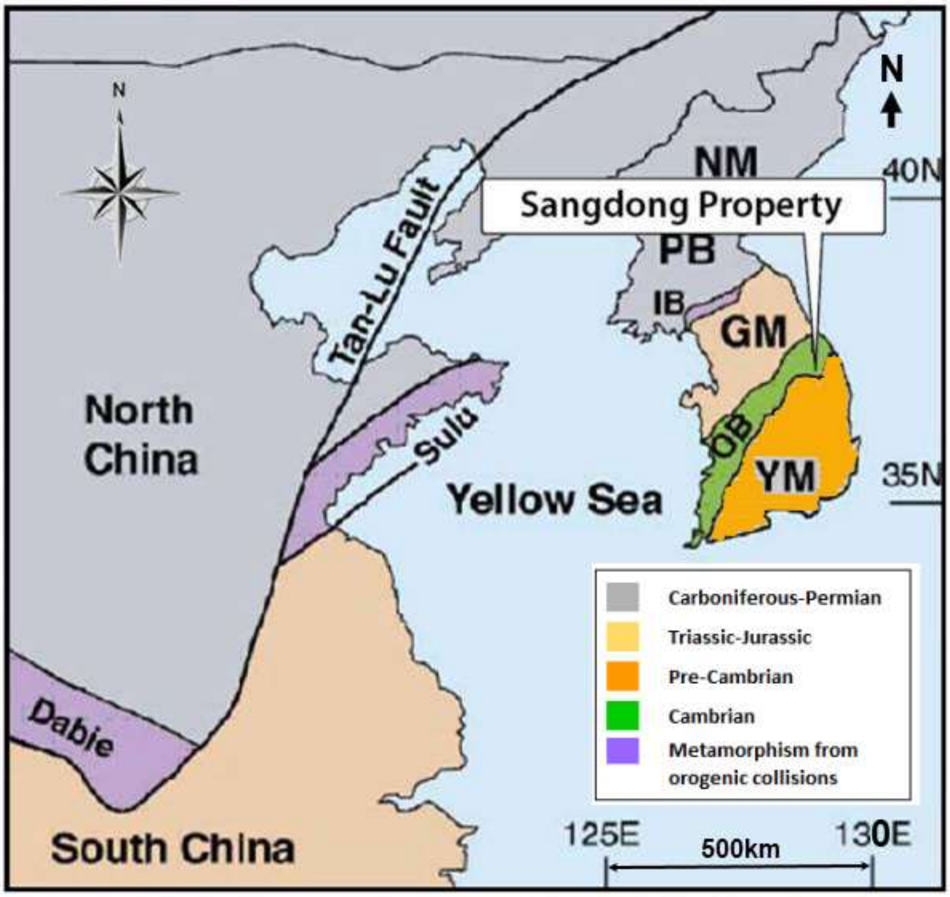
The Okcheon Beltis composed of low to medium-grade metasedimentary and metavolcanic rocks from Cambrian to Ordovician age. The Taebaeksan Zone, in which the Property is located, contains weakly-metamorphosed shallow-marine Paleozoic sedimentary rocks and marginal-marine to non-marine Early Mesozoic, sedimentary rocks that contain economically important coal measures. This rock sequence rests unconformably upon Precambrian gneiss and metasedimentary rocks of the Yulri Group of the Yeongnam massif.

In the Sangdong area, the Cambro-Ordovician strata belong to the Joseon System that is divided into the lower Yangdeok and overlying Great Limestone Series. The Yangdeok Series is composed of two formations, the basal Jangsan and overlying Myobong. The Great Limestone Series is subdivided into six formations, from oldest to youngest, the Pungcheon, Sesong, Hwajeol, Dongjeom, Dumugol and Makgol Formations.

Plutonism occurred in the region during two main phases: primarily during the Middle Proterozoic, affecting the rocks of the Yulri Group and later, in the Jurassic and Cretaceous Periods, with most intrusions composed of biotite granite

Figure 7-1. Regional Geology

[Date: 2016, Source: AKTC]



Note: Crustal Blocks and massifs of the Korean Peninsula and adjacent northeast Asia: Nangrim massif (NM); Pyeongnam basin (PB); Imjingang Belt (IB); Gyeonggi massif (GM); Okcheon Belt (OB); Yeongnam massif (YM).

7.2 Property Geology

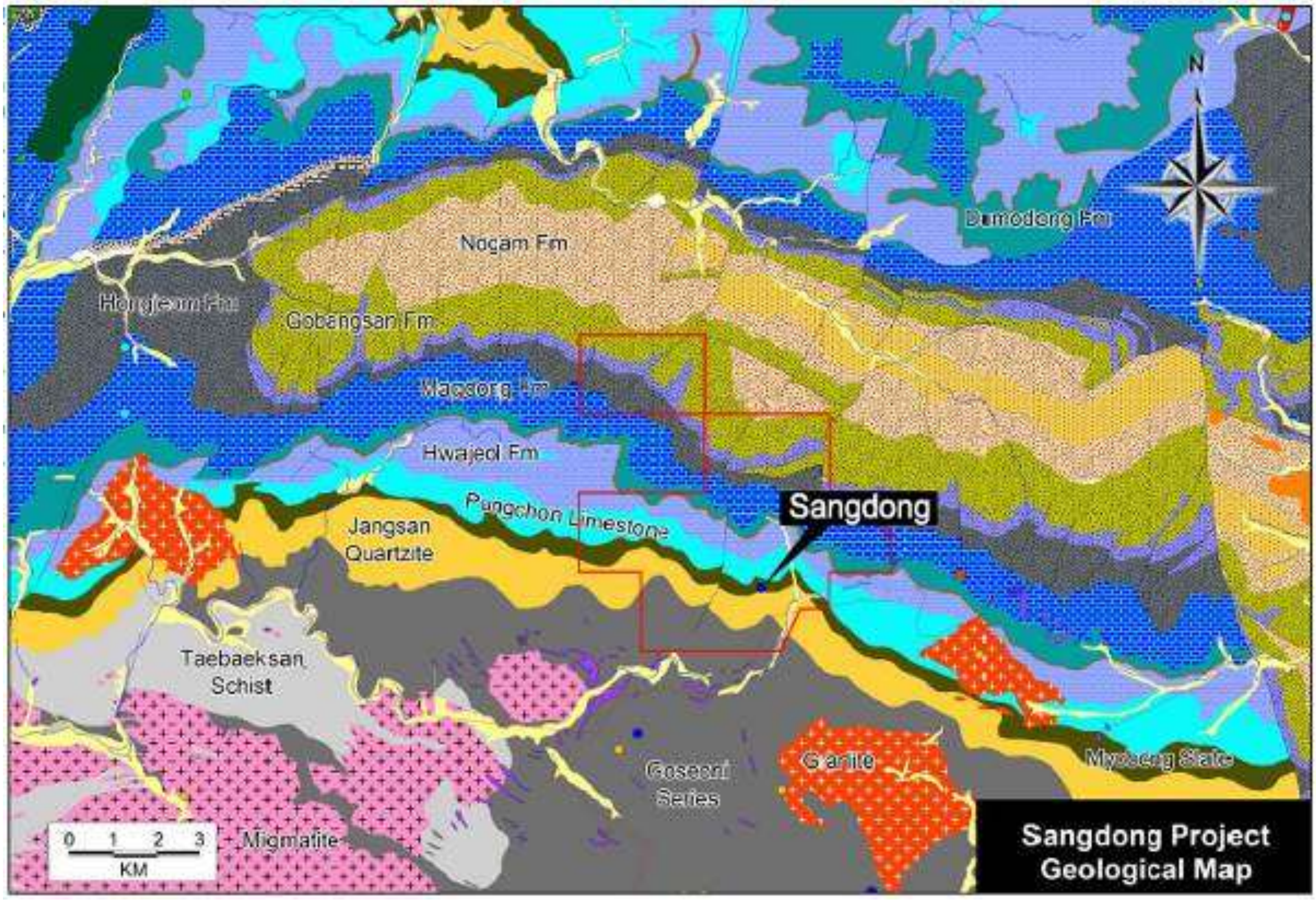
The Sangdong Project is situated on the southern limb of the east-west orientated Triassic age Baekunsan (Hambaek) Syncline. Cambro-Ordovician limestone, shale, and quartzite of the Chosun System unconformably overlie the Pre-Cambrian schist and the gneiss of the Yulri Series.

The Property area is underlain by metasedimentary rocks belonging to the Yangdok and Great Limestone Series that are situated on the south limb of the asymmetrical Hambaek syncline that plunges gently to the southeast; with a strata strike of approximately 110° and dip to the north-northeast at 20° to 30° (Figure 7.2).

The local geology is summarised in Figure 7-3, with a brief description of each formation in ascending stratigraphic order in Table 7.1.

Figure 7-2. Sangdong Project Area – Geological Map ***(TN - vertical grid lines)***

[Date: 2016, Source: AKTC]



(The area outlined in red represents the original 23 Mining Rights areas)

Figure 7-3. Sangdong Project: Local Geology (Scale 1:30,000) ***(TN - vertical grid lines)***

[Date: 2016; Source: AKTC]

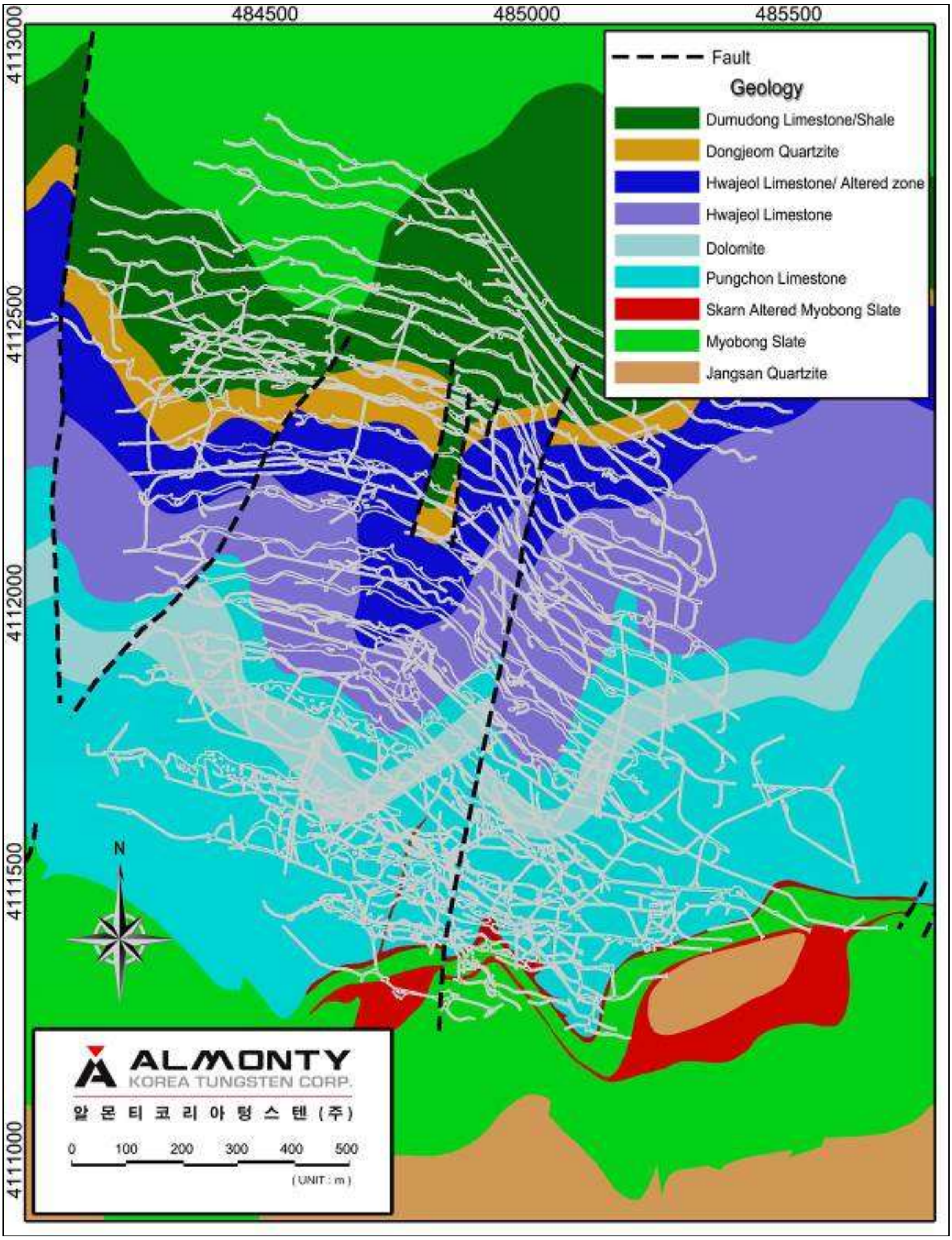


Table 7-1. Stratigraphy of the Sangdong Project Area

Geologic Era	Period	System		Formation	Thickness	Remarks
Mesozoic	Cretaceous			Imog Granite		94 M. A.
				Eopyong Granodiorite		107 M. A.
				Sangdong Granite		85 M. A.
	Jurassic					
	Triassic	Pyungan		Nogam Sandstone	1,000±	
Paleozoic	Permian			Kobansan Sandstone	500±	
	Carboniferous			Sadong Sandstone	200±	Interbedded coal
				Hongjeom Shale	300±	
	Devonian					
	Silurian					
	Ordovician	Chosun	Great Limestone Series	Makdon Limestone	300±	
				Dumudong Limestone	200±	
				Dongieom Quartzite	30±	
	Cambrian			Hwajeol Limestone	200±	
				Seson Shale	80±	
				Pungchon Limestone	300±	
			Yangduk Series	Myobong Slate	150±	Mineralized W, Mo, Bi
				Jangsan Quartzite	250	Mineralized Mo
Pre-Cambrian		Taebaeksan		Schist		
				Naeduk Granite		
				Nonggeori Granite		

7.2.1 Taebaeksan Series (Yulri Group)

The Sangdong Project area is situated in the northeastern region of the Sobaeksan Massif, a Precambrian basement complex. The Taebaeksan region of this massif has been subdivided into the Taebaeksan Gneiss, Taebaeksan Schist, and Goseoni Series according to metamorphic episodes, and the Naeduk and Nonggeori Precambrian granite complexes. At least three episodes of regional metamorphism are recognised.

The Precambrian strata of the Taebeksan Series (Yulri Group) consist of interbedded biotite schist, sericite schist, quartzite, crystalline limestone, hornfels and hornblende schist, occupying most of the area to the south and overlain unconformably by Paleozoic metasediments and early Mesozoic sediments (Moon, 1983).

Migmatization, anatexis and potassic metasomatism due to partial melting of the Precambrian basement formed the Naeduk and Nonggeori Granite Complexes. The K-Ar age rangeof muscovite from Nonggeori Granite is 1.767 ± 36 to 1.802 ± 36 Ma: Middle Proterozoic age (in Kim et al, 1989).

7.2.2 Yangdok Series

7.2.2.1 Jangsan Quartzite

The basal unit of the Yangdok Series of the Joseon System is the Jangsan Quartzite, which unconformably overlies the Taebaeksan Schist (Yulri Group) and is about 200m thick. The Jangsan Quartzite consists of mainly grey, white cream coloured, coarse grained quartzites, which form hard, well jointed resistant outcrops and prominent cliffs and bluffs. The quartzite bedding is well defined and cross bedded, with some beds containing well rounded pebbles.

Quartz-molybdenite veins are mainly developed in the Jangsan Quartzite and host the “Deep Moly” deposit, situated below the tungsten skarn, with some veins intersecting the Footwall layers of the Myobong Slate . Recrystalization and intense brecciation within the quartzite has occurred in this area below the tungsten skarn ore body hosted in Myobong Slate. It is possible the “Deep Moly” deposit forms a “breccia pipe” like feature above a granite intrusion.

7.2.2.2 Myobong Slate

A marine transgression occurred following the deposition of the Jangsan Quartzite, represented by the Myobong slate. The Myobong Slate consists of a 150m thick sequence comprising black, dark greenish gray, brownish gray shales with some 7-8 thin limestone beds. These limestone beds have been altered to skarn with accompanying tungsten skarn mineralisation in the Sangdong Project area.

Fossils assemblages identified include microfossils, trilobites, brachipods and a cephalopod. On the basis of this palaeontological evidence, the Myobong Slate is dated as Early-Middle Cambrian.

The depositional environment of the Myobong Slate is uncertain, with several settings proposed, including a littoral shelf environment or an unstable shelf - deep marine miogeosynclinal basin environment.

This formation is about 150 to 200m thick in the Property area and is the host of all significant tungsten mineralisation there.

7.2.3 Great Limestone Series

The Great Limestone Series, of Cambrian to Ordovician age, is composed of six formations that have a cumulative thickness in excess of 1,000m. These formations are largely composed of limestone and dolomite with interbedded shale, quartzite, calcareous shale, and sandstone. They comprise the following:

7.2.3.1 Pungchon Limestone

The Pungchon Limestone is the basal unit of the Great Limestone Series. It conformably overlies the Myobong Slate and consists of white-gray massive limestones and dolomites, with occasional intraformational limebreccia, shale and marl. Thickness of the Pungchon Limestone is estimated to be 150-300m.

Palaeontological evidence indicates a Middle Cambrian age for the formation.

The limestone is generally poorly bedded and mostly pure in composition. It is considered to have been deposited in a deep miogeosynclinal setting, although a shallow lagoonal environment is proposed for the dolomitic limestone members.

7.2.3.2 Sesong Shale

The Sesong Shale conformably overlies the Pungchon Limestone and consists mainly of bluish gray to dark gray shales, marls and arenaceous shales, with intercalations of thin bedded fine grained sandstones and white-light pink limestones. Some graded bedding is observed. Thickness of the shale varies from 10m to 30m in the vicinity of Sangdong Project.

The interbedded limestones are partly altered to skarn in the vicinity of the tungsten mineralisation.

7.2.3.3 Hwajeol Limestone

The Sesong Shale grades into the vermicular limestone of the Hwajeol Limestone. Interbedded gray to dark gray shales are found near the bottom of the unit, with several quartzite beds (Hwajeol Quartzite) observed in the middle of the formation. Thickness of the lower part of the formation varies from 200-260m.

The Hwajeol Limestone is characterised by vermicular structure, a so called “worm-eaten” surface weathering feature. Diagnostic fauna, Cruziana-like trails and rain drop features have been identified, suggesting a shallow water miogeosynclinal depositional environment.

Local skarn alteration minerals are observed near the Sangdong Project.

7.2.3.4 Dongjeum Quartzite

Conformably overlying the Hwajeol Limestone, the Dongjeum Quartzite consists of light-dark gray and dark green medium grained quartzites. Interbedded black shale is present at the base, with thin bedded siliceous limestone in places. Thickness of the formation is 10-50m.

The dark grey quartzite contains some hematite crystals and some calcareous components in the matrix. The formation is interpreted to be wind-blown aeolian sediment deposited in shallow water. The age is Ordovician (Tremadocian).

7.2.3.5 Dumugol Limestone

The Dumugol Limestone conformably overlies the Dongjeom Quartzite and consists of light brown calcareous shale, dark gray shale, and light gray limestone. The formation is estimated to be 150-200m thick.

Conodont microfossils have been recorded from the formation, together with trilobites, brachiopods, mollusks and echinoderms. Depositional environment was deeper than the Dongjeom Quartzite, but mud cracks indicate it was uplifted and exposed in some places. This formation is correlated with the “Arenigian” in Europe (Moon, 1983).

The Dumogol Limestone displays weak skarn alteration minerals near the Sangdong Project.

7.2.3.6 Makgol Limestone:

The Makgol Limestone forms the uppermost unit of the Great Limestone Series and is Ordovician in age. It conformably overlies the Dumugol Limestone and consists mainly of dark-light gray limestone, with light brown calcareous shale, intraformational breccia, limestone breccia (Yemi Lime Breccia) and black shale interbedded with each other. The Makgol Limestone is estimated to be 300-400m thick.
In the immediate area of the Sangdong deposit, the Myobong, Pungchon and several overlying formations have been affected by thermal metamorphism

7.2.4 Magmatic Intrusions

Several granitoid intrusions occur around the Sangdong mine:

- Pre-Cambrian Nonggeori Granite (4km to the south), intruded the metasediments of Yulri Series.
- Pre-Cambrian Naeduk Granite (5km to the south), intruded the metasediments of Yulri Series.
- Cretaceous Imok Granite (94Ma, 12km to the west) intruded Pre-Cambrian schist and gneiss (Yulri Series).

• Cretaceous Eopyung Granodiorite (111Ma, 4km to the east) intruded Cambro-Ordovician Chosun System.
• Sangdong Granite (87.5Ma) bearing scheelite, molybdenite, and bismuthinite is directly 700m below main ore body of the Sangdong Mine.

The Sangdong Granite was intersected by drillholes 83-2 and 84-2 (drilling by KTMC). This rock corresponds to a medium-grained highly evolved S-type granite presenting potassic alteration and striking ESE-WNW, which trends consistently with the fault zones within the Taebaeksan Basin (Kang et al., 2022). A petrological study refers to a granitic rock composed of quartz, potassic feldspar and plagioclase and minor muscovite. This granite was emplaced during the Upper Cretaceous and indicates an age of 87.5±4.5 Ma (Kim, 1986).

Drilling by Oriental Minerals (subsequently Woulfe Mining Corporation Ltd) intersected a flow banded endoskarn quartz porphyry intrusive body. Although the endoskarn alteration is intense (comprising garnet-epidote-fluorite assemblage), quartz eyes are intact, suggesting a rhyolitic affinity. This intrusion is most probably a porphyry molybdenum phase of the Sangdong Granite.

The occurrence of intrusive dyke rocks is referred by Moon (1983). He describes a number of intrusive dykes inside and outside of the Sangdong Mine. These dykes correspond to felsic rocks (keratophyres), dolerites and basalts. The felsic dykes can locally contain mineralisation of Cu, Fe and Mo and probably formed after the tungsten main event. The mafic dykes are older and are affected by metamorphism associated with the skarn formation.

Pegmatite veins related to the Precambrian granitoids occur within the Taebaeksan Series (Yulri Series), 4km to the south-southeast from the Sangdong Mine. These veins contain a significant tin resource of Soonkyoung Pegmatites (2Mt @ 0.10% Sn, or 1Mt @0.35% SnO_2 undiluted) and are most probably related to the Naedeogni Granite, based on spatial evidence. The pegmatites and the Naedeogni Granite are bounded gradationally (Kim et al., 1989)..

7.2.5 Structure

In the upper mine levels, pre-mineralisation bedding plane thrusts were developed within the Main mineralised zone. In addition, pre-mineralisation shear zones striking approximately NE-SW caused local upwarping or folding of the Myobong slate and Pungchon Limestone. These shear zones caused large strike changes in the orientation of the mineralisation.

The dominant post-mineralisation structures strike approximately NE-SW and are near vertical. Horizontal displacement on these structures is commonly observed from mapping to be >2 m but rarely >10 m. Vertical displacement is not well documented.

7.3 Mineralisation

The **Sangdong deposit** is a stratabound W-Mo ore deposit. The tungsten mineralisation is contained in several tabular, bedding conformable skarns in the Myobong Shale; these skarns have been interpreted as comprising carbonate-bearing horizons that were altered and mineralised and derived from the metasomatism produced by hydrothermal fluids ascending from the underlying Sangdong Granite. Kang et al (2022) referred to a consistent association of the Sangdong granite with W-Mo mineralization. This granitic rock shows S-type characteristics and the Rb and Sr contents fall in the domain of the giant reduced W skarn deposits. Moon (1987) referred to W content up to 62 ppm and Mo content up to 20 ppm, for the Sangdong Granite.

The skarn formation can be subdivided into prograde (stages I and II) and retrograde (stages I and II) skarn stages, based on their mineral assemblages, and followed by the vein stages. The mineral assemblage associated with the prograde stage contains clinopyroxene, garnet and wollastonite, with accessory mineral phases such as scheelite, fluorite and titanite and occurs in the margins of the skarn orebodies. The mineral assemblage related with the retrograde stage is located between the margins and the center of the orebodies and their mineral assemblage comprises amphibole and biotite with minor scheelite, fluorite, apatite, epidote, vesuvianite, magnetite and disseminated sulphides (Kang et al., 2022).

From uppermost to lowermost, these skarn horizons are termed the Hangingwall, Main, and Footwall horizons, as shown in Figure 7-4 and Figure 7-5 below. Calc-silicate layers from 0.50-1.0m in thickness have developed on the upper and lower contacts of the Main and Footwall horizons.

The **Hangingwall** horizon is located near the upper contact of the Myobong Shale and varies in thickness from approximately 5.0 to 30.0m because of the irregular boundary of the shale with the overlying Pungchon Limestone. The maximum thickness is over 100m and occurs near the center of the deposit (Moon, 1991). This zone has a strike length of about 600m and a down-dip extent of about 800m. Above the most highly-altered portion of the Main horizon, the Hangingwall horizon is not tabular, but extends steeply and irregularly into the overlying limestone. The Hangingwall horizon contains diopside, garnet, fluorite, zoisite, quartz, hornblende, wollastonite and up to 50% calcite and although there is some zonal variation in mineral assemblages (diopside-, hornblende- and quartz- rich zones) the zonation is not as well-developed as in the underlying Main horizon. The tungsten values show some zonation and decrease in value up-dip. The base of the Hangingwall horizon is approximately 14m above the upper contact of the Main horizon.

The **Main** horizon strikes about 100° and dips northerly between 15° and 30°. The strike length is in excess of 1,300m and thickness varies from 5.0 – 6.0m. Hydrothermal alteration (skarnification) within the Main horizon forms three concentric, roughly circular zones. A central quartz-rich zone, consisting of muscovite, biotite, quartz and minor chlorite, is about 350m in diameter, plunging down the Main horizon at N05°W and is coincident with the higher tungsten grade portion of the deposit. The central zone is succeeded outward by a hornblende-rich zone containing diopside, hornblende or tremolite, chlorite, fluorite and calcite. A diopside-rich zone occurs both horizontally beyond and stratigraphically above the hornblende-rich zone and contains garnet, diopside, quartz, fluorite, zoisite and plagioclase. The diopside zone is typically poorly-mineralised. Boundaries between these zones are diffuse and transitional.

The **Footwall** horizons comprise multiple layers: Footwall Zone 1 (F1) occurs 1m below the Main horizon and is approximately 2m thick; Footwall Zones 2 and 3 (F2, F3) are situated approximately 35.0 to 40.0m below the Main horizon typically 3-4m thick. Further Footwall Zones have been identified below F3 and are collectively referred to as F4 and F5. Lateral dimensions of these horizons and the zonal distribution of calc-silicate minerals in them are similar to those of the Main horizon. The F1 zone has sometimes been mined with extraction of the Main Zone. Some parts of F2 and F3 have been mined in the upper section of the mine (with the exception of the section between Taebaek and -1 mine levels).

Age determinations of metapelites beneath the footwall of the Main horizon gave K-Ar ages of 81.2 and 84.0Ma, consistent with the age (Late Cretaceous) of the underlying Sangdong Granite and implying that this intrusive was responsible for the alteration and mineralisation (Farrar et al., 1978; in Lee 2001). Recently, muscovite ^{39}Ar-^{39}Ar ages of 86.6±0.2 and 87.2±0.3 Ma were obtained from the M1 and F2 skarn orebodies, respectively (Seo et al., 2017).

The Sangdong deposit contains scheelite, minor wolframite, molybdenite, bismuthinite and native bismuth. Molybdenum also occurs in substitution with scheelite and about 30% of the molybdenum produced at Sangdong was scheelite-related. Gold and silver occur in association with bismuthinite and native bismuth and were recovered from the bismuth concentrate. Tellurides, arsenopyrite, pyrite, chalcopyrite and sphalerite also occur.

The veins crosscut both prograde and retrograde skarn zones and are sub-divided: early W-bearing vein stage (scheelite-wolframite quartz veins) and late Mo-bearing vein stage (molybdenite-quartz veins) (Kang et al., 2022). Mineralisation is largely associated with swarms of quartz veins within those horizons, with the exception of the central portion of the Hangingwall horizon. Quartz veins are most abundant within a central, quartz-rich portion of the deposit, parallel to and discordant with the calc-silicate layering. Veining ranges from one to a few tens of centimetres in width and is best developed in the lower portions of the mineralized horizons.

The abundance of scheelite within the mined portion of the Main horizon is concentrically zoned, increasing with alteration intensity, depending on temperature and on the oxidation conditions. Scheelite abundance in the Hangingwall horizon is more variable and less clearly concentrated in zones.

Molybdenum and bismuth are concentrically zoned in a similar pattern to tungsten in the Main horizon. Lee (2001) states that the mineralisation is hydrothermal in nature and that there were two stages of mineral deposition; the first molybdenum-poor scheelite mineralisation was related to skarn alteration (prograde and retrograde stages with multiple episodes of fluid flows), which was followed by quartz-scheelite-molybdenite-bismuthinite vein emplacement stages.

The area is cut by steeply north dipping reverse and normal faults which have resulted in offsets of the mineralised horizons by as much as 50-100m.

Sangdong East (“East WO_3 Orebody") is located about 1km to the east from the Main deposit. It is essentially an extension of the main mine area, and stratigraphy and lithologies are similar. In contrast, however, the Hangingwall (Upper) horizon, Main horizon, and Footwall (Lower) horizons are thinner, and have a lower frequency of quartz veins. The constituent minerals are pyroxene and garnet with accessory plagioclase, quartz, apatite, hornblende and wollastonite.

In the **Sangdong West** area (“West WO_3 Orebody"), mineralisation and stratigraphy are similar to the main Sangdong Mine, but skarn horizons are thinner, and there is a lower frequency of quartz veining than in the Main horizon. The vein width and grade of tungsten mineralisation do, however, increase northward to the Hwajeolchi area. Scheelite and molybdenite occur together in quartz veins, which, according to Lee (2001), is rare in the Myobong Shale.

Figure 7-4. Schematic Section of the Sangdong Deposit

(*looking at 245*°**)**

[Date: 2016; Source AKTC]

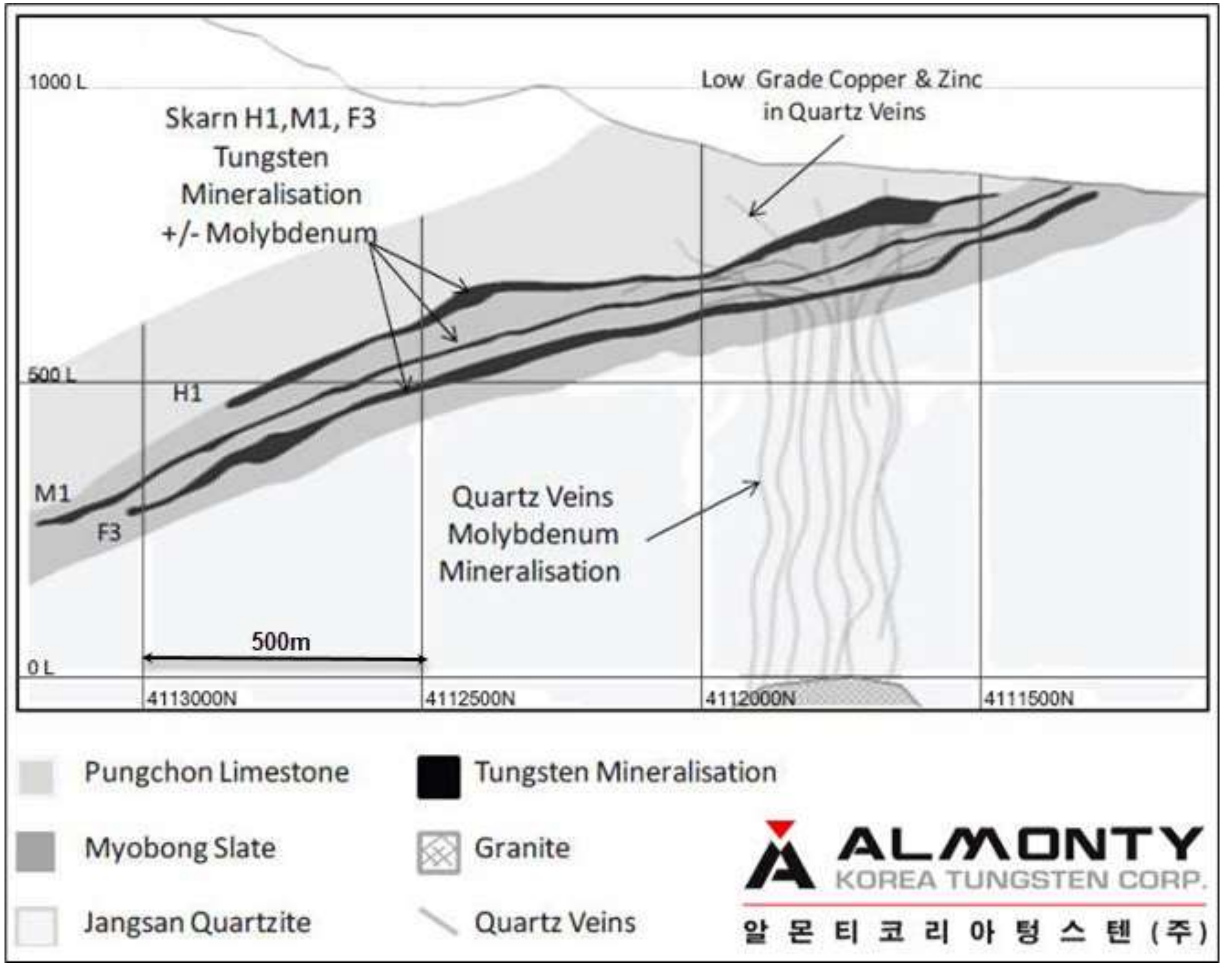
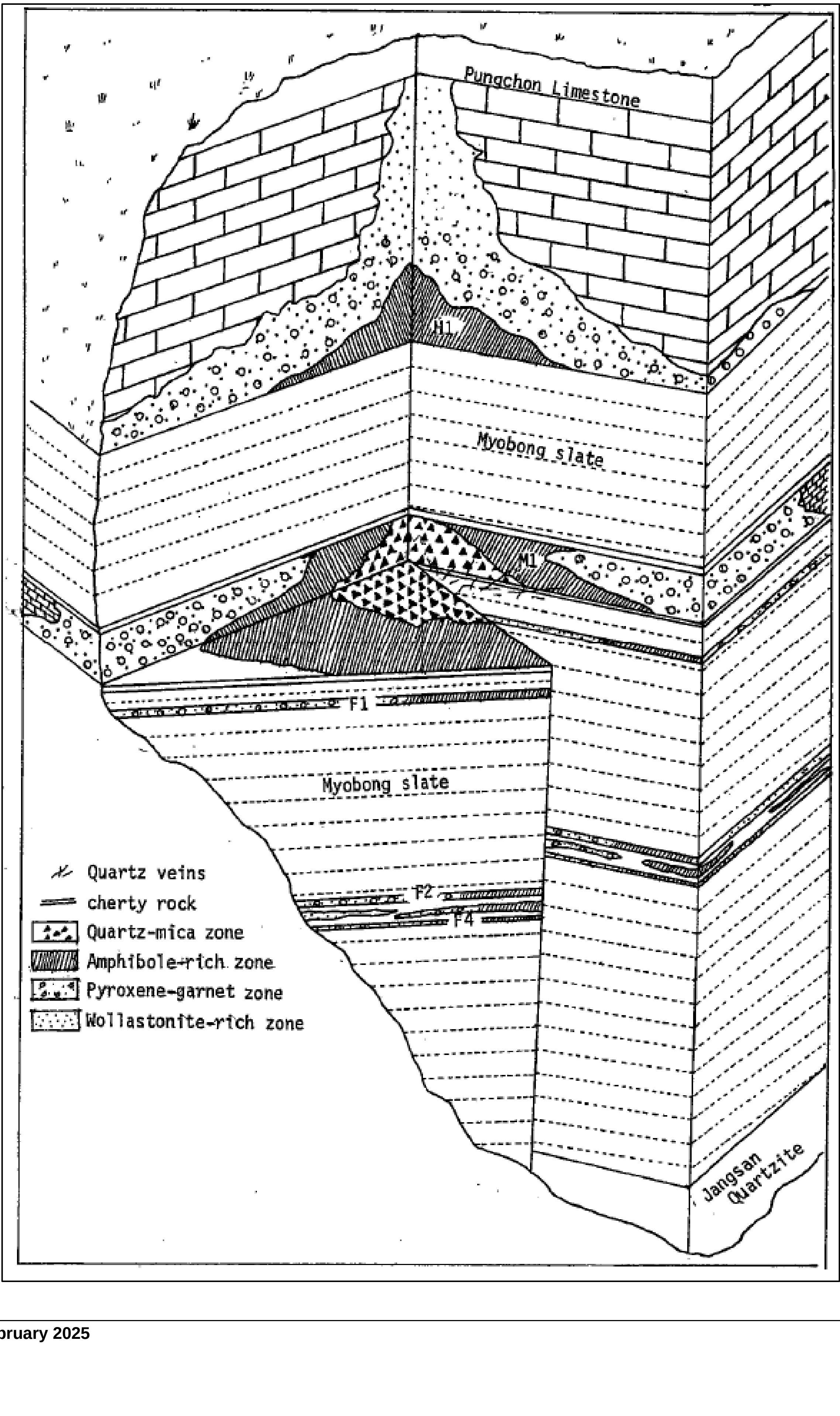


Figure 7-5. Schematic View of the Property Lithology

[Date: 1984; Source K. J. Moon]



8 DEPOSIT TYPES

8.1 Tungsten Skarns

The Property contains a tungsten skarn deposit; skarns are contact metasomatic deposits, exploited for tungsten, with accessory molybdenum, copper, tin and zinc. They typically form in continental marginal settings, associated with syn-orogenic plutons that intrude and metamorphose deeply buried sequences of carbonate-shale sedimentary sequences. Skarn mineralisation is typically hosted by pure and impure limestones, calcareous to carbonaceous pelites.

Due to their contact metamorphic nature, mineralisation has a close spatial association with calc-alkaline granitic intrusives (tonalite, granodiorite, quartz monzonite and granites). Skarn deposits form stratiform, tabular and lens-like deposits, which can be continuous for hundreds of metres along intrusive contacts.

Principal and subordinate mineralogy comprises scheelite ± molybdenite ± chalcopyrite ±pyrrhotite ± sphalerite ± arsenopyrite ± pyrite ± powellite. Traces of wolframite, fluorite, cassiterite, galena, marcasite and bornite also occur. Reduced types are characterised by pyrrhotite, magnetite, bismuthinite, native bismuth and high pyrrhotite:pyrite ratios. Variable amounts of quartz-veining (with local molybdenite) can cut both the exo- and endoskarn.

Exoskarns occur at, and outside the granite which produced them, and comprise alterations of wall rocks. Endoskarns, including greisens, form within the granite mass itself, usually late in the intrusive emplacement and consist of cross-cutting stockworks, cooling joints and around the margins and uppermost sections of the granite itself.

Exoskarns display the following alteration zonation:

- an innermost zone of massive quartz may be present.
- an inner zone of diopside-hedenbergite ± grossular-andradite ± biotite ± vesuvianite.
- an outer barren wollastonite-bearing zone.

There is commonly a late-stage alteration assemblage, comprising spessartine ± almandine ±biotite ±amphibole ± plagioclase ± phlogopite ± epidote ± fluorite ± sphene. Reduced types are characterised by hedenbergitic pyroxene, iron-rich biotite, fluorite, vesuvianite, scapolite, and low garnet: pyroxene ratios, whereas oxidised types are characterised by salitic pyroxene, epidote and andraditic garnet and high garnet: pyroxene ratios. The exoskarn envelope can be associated with extensive areas of biotite hornfels.

Endoskarn alteration exhibits the following:

- pyroxene ± garnet ± biotite ± epidote ± amphibole ± muscovite ± plagioclase ± pyrite ±pyrrhotite ± trace tourmaline and scapolite.
- local greisen developed.

The location of mineralisation is usually controlled by:

- the presence of carbonate rocks in extensive thermal aureoles of intrusions.
- gently-inclined bedding and intrusive contacts.
- structural and/or stratigraphic traps in sedimentary rocks and irregular parts of the pluton/country rock contacts.

8.2 Granite Related Molybdenum

Due to the paucity of information about the molybdenum-mineralised system beneath the Sangdong underground workings, it is difficult to characterise a model for this mineralisation. However, important molybdenum mineralisation falls into two classes: porphyry-type and granite-related molybdenum-tungsten-tin systems. There is some overlap between the two.

The tungsten mineralisation of the Sangdong Deposit is contained within a series of tabular skarn horizons within the Myobong Slate. Calcium carbonate horizons within the slate have undergone metasomatic replacement to mineralised skarn by hydrothermal fluids. The source of these fluids is thought to be the underlying Sangdong Granite. K-Ar age determination of phyllites within the Myobong Formation are consistent with the age of the granite below.

Swarms of quartz veins have ascended upward through the Jangsan Quartzite into the Myobong Formation where they can be seen to follow the bedding planes and also crosscut the formation (Moon, 1984). There is a correlation between the presence of quartz veins and the grade of mineralisation.

Although hydrothermal alteration (skarn formation) is widespread in the Sangdong area from Sangdong West to Sangdong East and beyond, there is no evidence of a pervasive porphyry-style alteration system. Country rock above the Sangdong granite is hornfelsed, but not pervasively altered.

Vein- and greisen-type hydrothermal molybdenum-tungsten or tin-tungsten mineralisation is connected with shallow-seated, highly differentiated, relatively K-rich granites (Cerny et al, 2005). Regional zoning of tin, tungsten and molybdenum may be apparent. Where greisen is absent, mineralisation may be within a sheeted or stockwork system contained within the apical portion of a granite body, or in overlying country rocks. Veins may vary from subhorizontal to vertical, and replacement (skarn) bodies may be present in the wallrocks. Fluorine is an important constituent, and bismuth minerals may also be present. There is no recorded alteration system (i.e. greisen) at Sangdong, and therefore the deep molybdenum mineralisation is likely to comprise a system of sheeted or stockwork veins.

9 EXPLORATION

It was stated by Klepper (1947) that exploration in 1939 and 1940 led to the discovery of the Sangdong scheelite body although no further details are available.

Mineral Resource definition drilling is the only form of exploration that has been completed by WMC and AKTC on the Sangdong Property since becoming operators in 2006, and there is no record of exploration other than drilling by previous operators.

An aeromagnetic map of the area was reproduced in a scoping report by Sennitt (2007), but the origin is unknown.

10 DRILLING

10.1 KTMC Drilling

A summary of the different KTMC drilling campaigns is shown in Table 10-1. Between 1980 and 1985, 15 holes (8,940 aggregate metres) were drilled to investigate the East Tungsten mineralized zone, now referred to as Sangdong East, approximately 1km to the east of the main Sangdong Mine and the deposit was further investigated with a drift approximately 1km long. About 100,000t were mined here in 1990. No additional work has been completed in this area to date.

Between 1979 and 1989, 18 holes (16,502 aggregate metres) were drilled in the West Tungsten mineralised zone, now referred to as Sangdong West, approximately 2 km northwest of the Sangdong Mine area. This zone has not been further explored. Between 1980 and 1987, 22 vertical holes (12,390 aggregate metres) were drilled underground from the Sangdong Mine workings to investigate the extent of molybdenum mineralisation in the quartzite unit that underlies the main skarn zone. No additional work has been completed in this area to date.

During an unknown period, about 780 holes with an aggregate length of 30,000m were drilled underground to explore the mineralised zones. These historical holes were used in the 2010 scoping study (Wardrop 2010).

This data set does not have associated quality assurance/quality control information for the assay results, nor is the collar or downhole survey information adequately documented. Comparison of grade values in pre-WMC drillholes with nearby WMC drillholes showed significant differences that were considered (by AMC in 2014) as unlikely to be a result of natural variability only. Therefore, the results suggested that the pre-WMC location information and/or grade values were inaccurate.

AMC used the KTMC drillholes in their Mineral Resource estimate to determine the grade and tonnes below -3 level (594mRL) only where WMC had not completed any drilling (refer Figure 10.2). This uncertainty in the location and/or grade below -3 level is reflected in the current Mineral Resource classification.

Table 10-1. KTMC Drillhole Summary

Drillhole series	Target	Drilled from
F_ xx	Drilling for FW Zone	Underground
H_xx	Drilling for HW Zone	Underground
M_xx	Drilling for MAIN Zone	Underground
90_03	Drilled in 1990, 3rd Hole for either Moly Resource, West Potential or East MAIN Zone	Surface and Underground
DLE_xx	Drilling for East MAIN Zone	Underground
EM_x	Drilling for East MAIN Zone	Underground

This data set does not have associated quality assurance/quality control information for the assay results, nor is the collar or downhole survey information adequately documented. Comparison of grade values in pre-WMC drillholes with nearby WMC drillholes showed significant differences that were considered (AMC) as unlikely to be a result of natural variability only. Therefore, the results suggested that the pre-WMC location information and/or grade values were suspect.

AMC used the KTMC drillholes in their Mineral Resource estimate to estimate grade and tonnes below -3 level (594mRL) **only** where WMC had not completed any drilling (Refer Figure 10.2). The uncertainty in the location and/or grade below -3 level is reflected in the Mineral Resource classification.

10.2 Woulfe Mining Corporation

The exploration work undertaken by Woulfe at the Sangdong Property was the surface drilling programme completed between November 2006 and July 2008. From June 2010 an underground resource definition drilling programme was designed and the first phase completed.

10.2.1 2006-2008 Drilling Programme

Woulfe (as Oriental Minerals) conducted a drill programme on the Sangdong Property between November 2006 and July 2008. Ninety HQ/NQ surface core holes were completed, with an aggregate length of 22,800m. HQ and NQ cores are nominally 63.5mm and 47.6mm in diameter respectively.

The holes were largely drilled within the area of the former underground Sangdong tungsten deposit. Analyses for WO_3, MoS_2, bismuth and other minerals were completed and this dataset comprises some 20,355 analyses.

The holes were all drilled in the south-eastern portion of the deposit, where the mineralisation occurs near surface or is outcropping, on a bearing of 135°, parallel or nearly so, to geological strike; about 30% were drilled on the opposite bearing of 315°.

The majority were drilled at a dip of 70°, although several were vertical or at a dip of about 80°. The holes were designed to test all three principal horizons of mineralisation and, with several accidental exceptions, almost all penetrated well into the Jangsan Quartzite that underlies the host Myobong Formation. Difficulty was often experienced in penetrating the lower horizons due to the mined out areas of the skarn mineralisation.

The drill hole collar locations were surveyed by global positioning survey (GPS – sub 0.2m accuracy) and the down-hole positions of the holes were measured at 50 m intervals when possible. There were some uncertainties with regard to the collar elevations and Woulfe subsequently undertook additional surveying work to resolve the situation and consolidate the survey of the site in general.

Holes drilled on bearings of both 135° and 315° intersected strata and mineralisation obliquely, the intersected thickness of mineralisation being about a 30% greater than the true thickness.

10.2.2 2009 – 2014 Drilling Programmes

Once access was gained to the underground workings WMC began a programme of infill and resource definition drilling. The drilling was largely completed from the underground workings supplemented by additional surface holes where underground access was not possible.

Underground drilling was either NQ core from a Sandvik Onram 1000 wireline rig, or BQ core from 3 Kempe pneumatic screwdrive open hole core rigs. Orientations vary based on access and the need to intersect all three ore horizons. Conical drilling patterns are common as a result of fanning out in all directions from the underground drilling platforms. Collar locations were surveyed using a Leica 1203 (total station with sub-decimetre accuracy). Downhole surveys were conducted approximately at the end of hole, as the majority of holes are less than 30 m in length. A Camteq™ multiple shot camera was used, with a stated accuracy of ± 0.5° on azimuth and ± 0.2° on dip. The downhole camera was routinely calibrated to ensure maximum performance, using a purpose designed jig.

10.3 AKTC 2016 Drilling Programme

AKTC have completed a Phase 7 underground drilling campaign in 2016. This was focussed in improving the resource categorisation of the HW Zone (allowing some conversion of Inferred to Indicated Resources), and consisted of 20 holes, drilling just over a 1,000m in total.

The results from the Phase 7 drilling, and its effects on subsequent resource classification, are discussed in more detail in Section 14.

10.4 Drilling Summary

All of the recorded drillholes at Sangdong are summarised in Table 10.2 and graphically represented in Figure 10-1.

Table 10-2. Summary of Sangdong Drilling

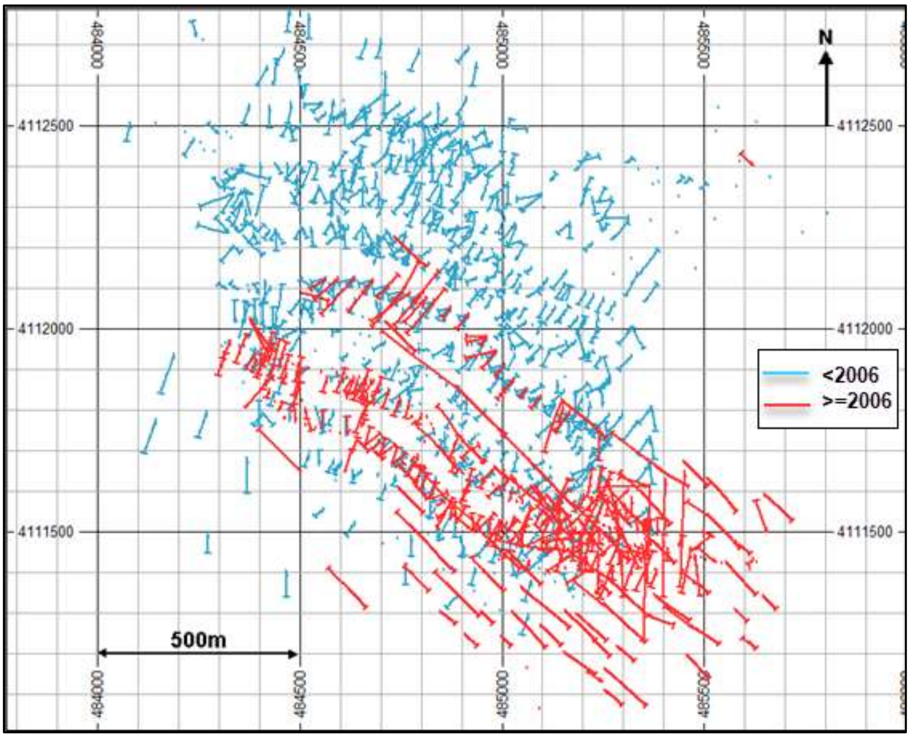
[Date: 2016, Source: A. Wheeler]

			Surface Holes			Underground Holes			All Holes		
Company	Years	Code/ Campaign	Holes	Length (m)	Average Length / Hole (m)	Holes	Length m	Average Length / Hole m	Holes	Length m	Average Length / Hole m
Korea Resource Corp	1989	KORE	7	1,185	169				7	1,185	169
Korea Tunsten Mining Corp	pre-2006	KTMC	51	38,970	764	812	43,859	54	863	82,829	96
Oriental Minerals	2006-2008	P0	91	22,801	251				91	22,801	251
Woulfe Mining Corp	2010-2011	P1	9	1,744	194	29	2,521	87	38	4,265	112
	2011	P2				51	3,673	72	51	3,673	72
	2011-2012	P3				93	4,049	44	93	4,049	44
	2013-2013	P4				103	4,214	47	103	4,214	41
	2014	P5				121	3,084	25	121	3,084	25
	2014	P6				10	643	64	10	643	64
AKT	2016	P7				20	1,004	50	20	1,004	50
Total			**158**	**64,700**	**409**	**1,239**	**63,048**	**51**	**1,397**	**127,748**	**91**

Figure 10-1 shows a drillhole plan and Figure 10.2 shows a SW – NE reference section through the deposit, clearly demonstrating the absence of deeper borehole intersections from the more recent drilling programmes.

Figure 10-1. Drillhole Plan Plot

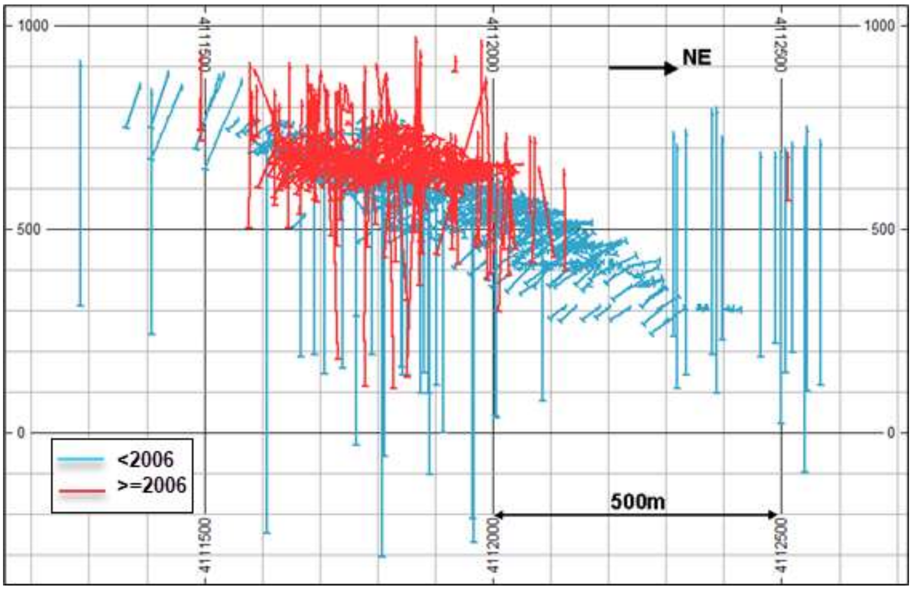
[Date: 2016, Source: A. Wheeler]



Red Traces – Modern WMC Drilling; Blue Traces – Historical KTC Drilling

Figure 10-2. SW – NE Reference Section

[Date: 2016, Source: A. Wheeler]

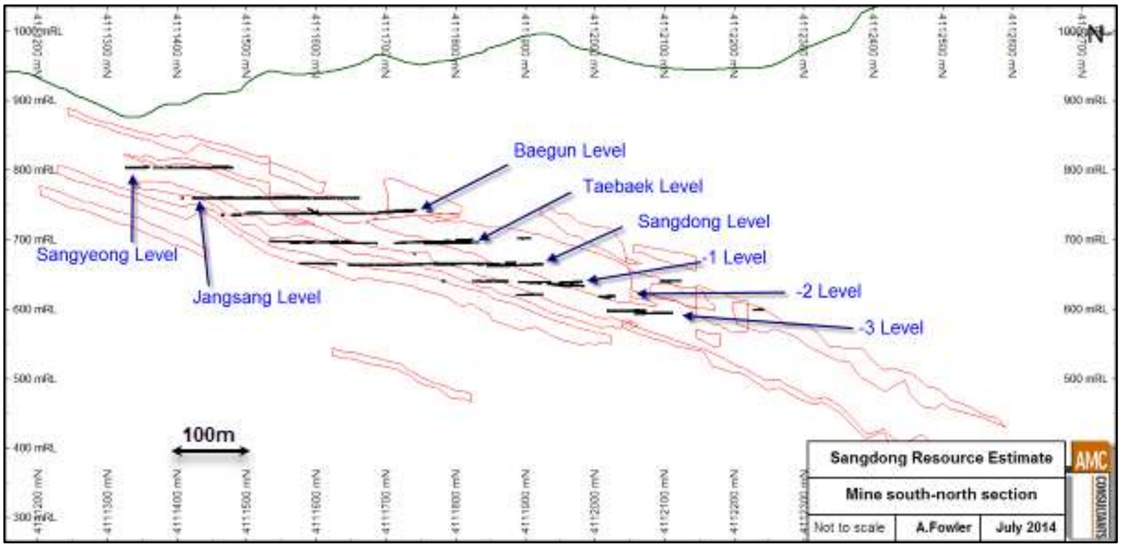


10.5 Drilling Results

Outlines of >0.1% WO_3 and development levels are shown in Figure 10.3.

Figure 10-3. Mine South-North Reference Section

[Date: 2014; Source: AMC]



Note: Mineralisation interpretation >0.1 % WO_3 is shown as red outlines; mine levels are shown as black line; surface topography is shown as a green line.

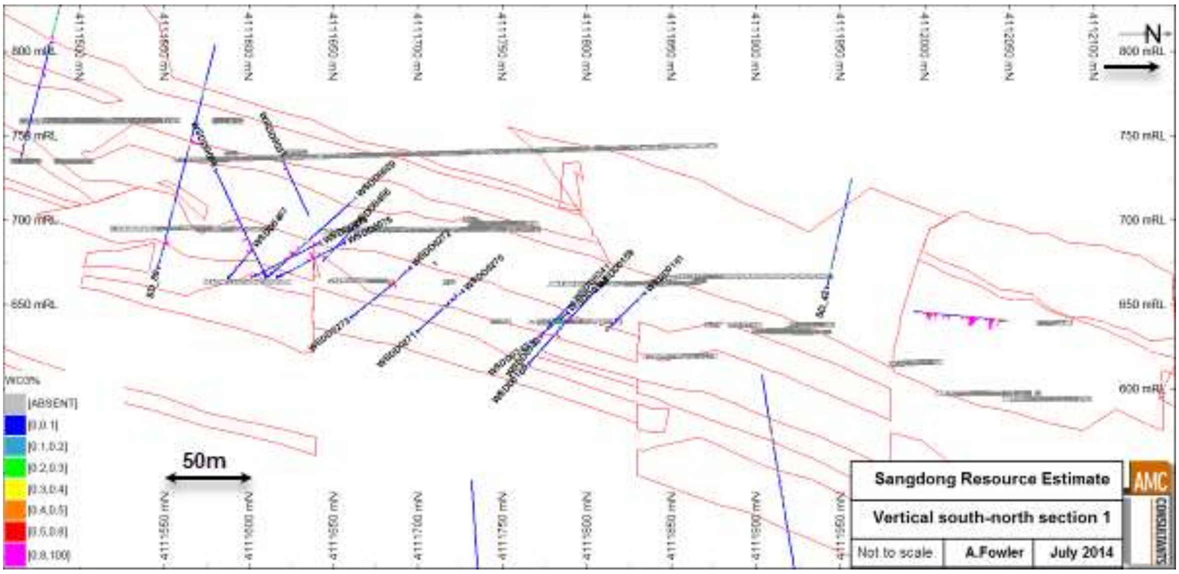
Table 10-3 summarises the mineralised intersections from the drilling programmes completed between 2012 and 2014. Figure 10.4 shows a representative section with mineralisation thickness and grades for each intersection referenced in Table 10.5.

Table 10-3. Summary of Mineralised Intersections from Drilling 2012 - 2014

Mineralized zone	Mine level	Number of intersections	Downhole thickness (m)	True thickness (m)	WO3 %
Hangingwall	1 level	4	5.75	5.40	0.35
	Sangdong	7	2.93	2.79	0.47
	Baegun	20	4.44	3.59	0.39
Hangingwall Total		**31**	**4.27**	**3.64**	**0.40**
Main	1 level	15	4.98	4.25	0.62
	Sangdong	31	4.21	2.91	0.61
	Taebaek	8	4.19	2.96	0.71
	Baegun	14	3.63	1.60	0.41
Main Total		**68**	**4.26**	**2.94**	**0.58**
F1	1 level	14	1.34	1.16	0.66
	Sangdong	20	1.84	1.28	0.85
	Taebaek	3	1.67	1.33	0.64
	Baegun	4	1.25	0.73	1.20
F1 Total		**41**	**1.60**	**1.19**	**0.81**
F2	1 level	59	1.96	1.66	0.64
	Sangdong	73	2.29	1.97	0.83
	Taebaek	14	2.75	2.29	0.75
F2 Total		**146**	**2.20**	**1.88**	**0.75**
F3	1 level	56	2.33	2.00	0.73
	Sangdong	69	2.00	1.70	0.62
	Taebaek	15	1.95	1.48	0.75
F3 Total		**140**	**2.13**	**1.79**	**0.68**

Figure 10-4. Example vertical section showing drillholes relative to mineralisation

[Date: 2014; Source: AMC]



Drillholes displaying WO_3 % grade (legend displayed); red lines are >0.1 % WO_3 mineralisation interpretation; grey wireframes represent underground development levels.

Table 10-4. Significant Intersections for Drillholes Displayed in Figure 10.4

Hole No.	Collar Easting (m)	Collar Northing (m)	Collar Elevation (m)	From (m)	To (m)	Interval (m)	true width (m)	WO3%	Lode	Level	Azi/Dip (0)
WSDD0075	484784	4E+06	665.59	22.5	27.5	5.0	3.77	0.77	F3	Sangdong	29.77/24.4
WSDD0075	484784	4E+06	665.59	32.0	33.0	1.0	0.75	0.82	F2	Sangdong	29.77/24.4
WSDD0076	484798	4E+06	665.56	14.0	15.5	1.5	1.14	0.41	F3	Sangdong	27.75/24.6
WSDD0076	484798	4E+06	665.56	24.5	26.0	1.5	1.14	0.58	F2	Sangdong	27.75/24.6
WSDD0159	484803	4E+06	639.61	0.5	2.5	2.0	1.88	0.55	F2	1 level	20.25/45.4
WSDD0160	484802	4E+06	637.55	7.0	8.5	1.5	1.41	1.20	F3	1 level	204/-45.7
WSDD0161	484773	4E+06	639.99	2.5	3.5	1.0	0.93	1.19	F2	1 level	12.55/44
WSDD0270	484811	4E+06	651.99	2.0	4.5	2.5	2.25	0.61	F2	1 level	21.08/39.2
WSDD0271	484810	4E+06	650.12	2.0	4.0	2.0	1.81	0.28	F3	1 level	200.83/-40
WSDD0272	484794	4E+06	663.69	5.5	6.5	1.0	0.91	0.93	F2	1 level	22.03/40.2
WSDD0273	484794	4E+06	662.42	0.0	2.5	2.5	2.21	1.09	F3	1 level	198.82/-37
WSDD0340	484778	4E+06	637.85	No significant intersections						1 level	202/-47.1
WSDD0341	484779	4E+06	640.09	8.0	9.0	1.0	0.94	0.46	F2	1 level	19.53/45
WSDD0342	484816	4E+06	637.43	9.0	12.0	3.0	2.63	0.84	F3	1 level	196/-36.5
WSDD0406	484766	4E+06	665.22	17.0	18.8	1.8	1.66	0.56	F3	Sangdong	29.5/43.1
WSDD0407	484813	4E+06	665.38	7.0	9.0	2.0	1.87	0.66	F3	Sangdong	32.5/45.5
WSDD0407	484813	4E+06	665.38	17.0	21.0	4.0	3.74	0.62	F2	Sangdong	32.5/45.5

10.6 Sampling and Logging Procedures

The drill core was collected from the drill site by AKTC personnel on a daily basis and brought to a core logging facility beside the AKTC field office. Core was measured for recovery and rock quality designation (RQD) and logged geologically, including the following characteristics:

- Lithology
- Weathering
- Alteration
- Structural features, and orientations were the core is orientated
- UV fluorescence
- Geotechnical parameters:, Fracture frequency, planarity, roughness, infill, rock strength.

The UV fluorescence was logged in a semi-quantitative way, on an intensity scale from one to five, and by colour (i.e. yellow or blue) and the core marked up for sampling. Samples were collected continuously at one metre increments from the collar or from the uppermost practical limit of bedrock and did not cross geological boundaries.

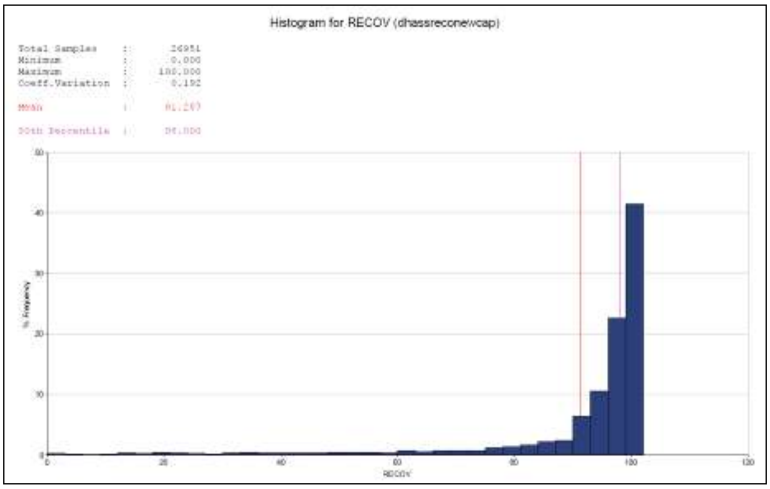
Core was photographed wet and dry and scanned with an ultraviolet lamp to detect the presence of scheelite. The abundance of scheelite was logged in a semi-quantitative way, on an intensity scale from one to five. The AMC representative (2014) observed the logging process which related to all the logging undertaken by AKTC and Oriental.

10.7 Core Recovery

The mean core recovery for the AKTC drilling was 91%, while the median value was 98% (Refer Figure 10.5). The recovery was considered to be suitable to support a Mineral Resource Estimate.

Figure 10-5. Core Recovery Histogram

[Date: 2016; Source: A. Wheeler]



10.8 Bulk Density

Density measurements were routinely determined every 20m using the volume displacement method in a purpose designed tubular jig. Sample lengths for density measurements were approximately between 0.10 and 0.30m. This is considered to be an appropriate method considering the generally solid nature of the core proximal to the ore zones within Sangdong.

In the current resource estimation work, density values (t/m^3) have been estimated from the measurements taken. Blocks without estimated density values after the second estimation pass were assigned average zone density values.

11 SAMPLE PREPARATION, ANALYSES AND SECURITY

11.1 Sample Preparation

An overall summary of quality control samples taken during the drilling campaigns from 2010 onwards is shown in Table 11-1.

Table 11-1. Summary of Quality Control Samples

[Phases 1-6 WMC; Phase 7 AKTC]

		Phase#1	Phase#2	Phase#3	Phase#4	Phase#5	Phase#6	Phase #7	Phases #1 - #7	
Period(Drilled)		Nov. 2010 ~ May 2011	June 2011 ~ Oct. 2011	Nov. 2011 ~ Apr. 2012	May 2012 ~ Apr. 2013	Apr. 2014 ~ June 2014	Nov. 2014 ~ Dec. 2014	~ Jan 2016 Jun 2016		
Batch		#1 ~ #9	#13 ~ #23	#25 ~ #34	#35 ~ #36	#38 ~ #43	#44 ~ #45	#47		
		Number	Number	Number	Number	Number	Number	Number	Number	Prop %
No. of total Samples		4,448	5,556	6,508	6,442	5,010	1,054	1,203	29,018	
No. of core half Samples		3,867	4,830	5,655	5,599	4,359	912	906	25,222	
No. of Repeat		193	243	284	280	217	46	52	1,263	5.0%
No. of Standard	Sum	194	240	285	280	217	46	52	1,262	5.0%
	W-1	52	61	77	78	55	11	13	334	1.3%
	W-2	57	63	76	79	56	12	13	343	1.4%
	W-3	47	61	84	75	47	12	13	326	1.3%
	W-4	-	-	-	-	59	11	13	70	0.3%
	MoS-1	38	55	48	48	-	-	-	189	0.7%
No. of Blanks		194	243	284	283	217	50	53	1,271	5.0%
									Total	20.1%

Sample preparation from core to pulps for analysis is completed on-site. Core is sawn in half, half placed in a plastic sample bag and half replaced in the core box for archival storage. Sample tags are placed in the core box and in the sample bag and the sample number is written on the sample bag as well. Standards are placed into the sample stream at this point in the sampling process, in accordance with a sample list that has been drawn up by the geologist responsible for logging the hole.

Core samples are dried, split, crushed and pulverized on-site by WMC personnel in a preparation lab that was purchased as a modular unit from Marc Technologies in Perth, Australia. Equipment is cleaned by brushing and the use of compressed air between each sample. WMC staff employed in the sample preparation facility have been trained by SGS Australia Pty Ltd. (SGS Australia), Perth, Australia.

An approximately 50 g split portion of the pulverized sample is sent to SGS Australia in Perth, Australia for analysis. Blanks are inserted one in every twenty samples to ensure there is no contamination (see Section 11.4).

11.2 Analyses

From 2006 to 2008 samples were analysed at the ALS laboratory in Brisbane, Australia, by inductively coupled plasma mass spectrometry (ICP- MS) for 41 elements and for ore grade quantities of specific elements by *aqua regia* or four-acid digestion followed by ICP analysis. ALS Laboratory is completely independent of both Almonty Industries Inc. and AKTC.

From 2010, molybdenum, tin and tungsten were analysed at the SGS laboratory in Perth, Australia, by X-ray fluorescence (XRF). The sample is fused in a platinum crucible using lithium metaborate/tetraborate flux and the resultant glass bead is irradiated with X-rays and the elements of interest quantified. All quantities are reported in parts per million (ppm). XRF detections limits are given in Table 11-2.

Table 11-2. SGS XRF Detection Limits

Fe2O3	0.01 – 100%	SiO2	0.01 – 100%	Al2O3	0.01 – 100%	CaO	0.01 – 40%
Cr2O3	0.01 – 60%	K2O	0.01 – 70%	MgO	0.01 – 60%	MnO	0.01 – 100%
P2O5	0.01 – 20%	SO3	0.01 – 60%	TiO2	0.01 – 100%	V2O5	0.01 – 10%
Mo	0.01 – 15%	W	0.01 – 65%	Bi	0.01 – 10%	Cu	0.01 – 20%
Pb	0.01 – 10%	Zn	0.01 – 10%	As	0.01 – 10%	Ce	0.01 – 15%
Co	0.01 – 10%	Hf	0.01 – 10%	La2O3	0.01 – 20%	Na	0.01 – 20%
Nb	0.01 – 35%	Nd	0.01 – 15%	Ni	0.01 – 10%	Sb	0.01 – 10%
Sn	0.01 – 65%	Sr	0.01 – 10%	Ta	0.01 – 40%	Th	0.01 – 10%
U	0.01 – 10%	Zr	0.01 – 60%				

Both ALS Laboratory (Brisbane, Australia) and SGS Laboratory (Perth, Australa) are independent of the Issuer and of Almonty Korea Tungsten Corporation (“AKTC”).
ALS and SGS are internationally recognized and accredited laboratories. At the time of analysis, both laboratories were certified to ISO/IEC 17025 standards for the relevant analytical procedures described in this report.
ALS Brisbane and SGS Perth were accredited by the National Association of Testing Authorities (NATA), Australia.

11.3 Sample Security and Chain of Custody

The sample preparation facility comprised a fenced area beside the WMC accommodation facility. Sample tags are placed in the sample bag and the sample number is written on the sample bag as well. A split portion of the pulp from each sample and coarse rejects is retained in a locked facility at the project site. The pulps are placed in brown paper envelopes by the sample preparation manager, then packed in cardboard boxes, sealed and sent by DHL courier to SGS Australia in Perth by a WMC geologist.

11.4 Quality Assurance/Quality Control

The QA/QC protocol included the insertion of the following control samples in the assay batches:

- Pulp duplicates (one in 50, or 2%), consisting of second splits of the pulverized samples that are submitted to the primary laboratory for analysis in the same batches as the original samples, but with different numbers.
- Certified reference materials (CRMs, three in 50, or 6%).
- Coarse blanks (one in 50, or 2%) and fine blanks (one in 50, or 2 %), consisting of coarse (approximately 1” diameter) and pulverized material, respectively, whose blank character was demonstrated by analysis conducted at SGS Laboratories Australia. Initially ground glass was used as blank for Phases #1 to #4 drilling, but was subsequently changed to coarse crystalline feldspar for Phase #5 drilling.
- Check samples (two in 50, or 4%), collected from pulps that were previously assayed at the primary laboratory, are resubmitted to Bureau Veritas (BV) Laboratory in Perth Australia (BV) for external control. The check sample batch includes an appropriate proportion of control samples (pulp duplicates, CRMs and fine blanks).
- In addition, the QA/QC protocol includes independent granulometric checks on crushed and pulverized samples (1 in 20 for each type, or 5% each) that are conducted by geological personnel.

Table 11-3 summarises the QA/QC sample submission rates.

Table 11-3. QA/QC Sample Submission Rates

QA / QC Sample type	Frequency of submission	Measure	Error
Internal lab duplicate	1 in 50	Precision	Crushing/splitter performance, sample mix up.
External lab duplicate	1 in 200	Precision	Analytical bias and precision
CRM (standard)	3 in 50	Accuracy	Analytical bias.
Blank	1 in 20	Procedures	Contamination and sample mix up.

11.4.1 Precision

Precision is the measure of variability or repeatability of an assay result. Knowing the precision of a set of assays allows for correction to any bias or accuracy problems that may occur. A lack of precision may be the result of the sample collection process, laboratory preparation process, and/or the analytical process, influencing negatively the Mineral Resource estimation.

11.4.1.1 Internal Laboratory Duplicate Results

Internal laboratory duplicates are two split pulps of the same pulverized sample. These laboratory duplicates are considered to demonstrate good precision if the absolute relative paired difference (RPD) is < 10%, 90% of the time. Internal laboratory duplicates quantify the precision of the chain of laboratory sample preparation and analytical procedures.

During the Jan 2012- Sept 2014 reporting period, 819 samples were re-assayed. Tungsten internal laboratory duplicate summary statistics are presented in Table 11-4. Molybdenum internal laboratory duplicate summary statistics are presented in Table 11-5.

Table 11-4. Tungsten Laboratory Duplicate Summary

Statistic	Original	Duplicate
Number of samples	819	819
Mean	1295.82	1307.55
Maximum	29800.00	29800.00
Minimum	1.00	1.00
Pop Std Dev.	3022.11	3049.06
CV	2.33	2.33
Bias	-0.91%	
Cor Coeff	1.00	
Percent Samples <10% RPD	98.05	

Table 11-5. Molybdenum Laboratory Duplicate Samples

Statistic	Original	Duplicate
Number of samples	819	819
Mean	254.08	252.75
Maximum	10400.00	10300.00
Minimum	1.00	1.00
Pop Std Dev.	823.57	816.34
CV	3.24	3.23
Bias	0.52%	
Cor Coeff	1.00	
Percent Samples <10% RPD	86.21	

- The correlation coefficient for both tungsten and molybdenum show excellent agreement between the original and duplicate assays.
- The tungsten RPD results also show excellent agreement between the original and duplicate assays with 98% of samples below the 10% RPD threshold.
- The molybdenum RPD results show poorer agreement between the original and duplicate assays with 86% of samples below the 10% RPD threshold. This is less than the 90% threshold.
- The scatterplots show three outliers in the tungsten results and one outlier in the molybdenum results.

Tetra-Tech considered that the outliers were not material to the Mineral Resource estimation and that the duplicate results demonstrate the precision of the tungsten assay results and that they supported the use of the SGS results in Mineral Resource estimation.

11.4.1.2 External Laboratory Duplicate Results

Independent re-assaying of selected pulps from the primary sample by a second laboratory provided a measure of both precision and accuracy. WMC sent 133 samples previously assayed by SGS Perth to BV Perth, Australia, as an external laboratory check. These external laboratory duplicates are considered to demonstrate good precision if the absolute relative paired difference (RPD) is < 20%, 90% of the time.

BV Perth is independent of the Issuer and of Almonty Korea Tungsten Corporation ("AKTC"). The laboratory is internationally recognized and was certified to ISO/IEC 17025:2017 for mineral and ore analytical testing at the time of analysis. BV Perth's accreditation was issued by the National Association of Testing Authorities (NATA), Australia (Site No. 14517, Accreditation No. 626).

Tungsten duplicate summary statistics, for the Jan 2012- Sept 2014 reporting period, are presented in Table 11-6.

Table 11-6. Tungsten External Laboratory Duplicate Summary

Statistic	Original	Duplicate
Number of samples	133	133
Mean	0.55	0.55
Maximum	2.60	2.61
Minimum	0.16	0.16
Pop Std Dev.	0.52	0.52
CV	0.94	0.94
Bias	-0.65%	
Cor Coeff	1.00	
Percent Samples <20% RPD	99.25	

- The correlation coefficient shows excellent agreement between the two laboratories.
- The RPD results also show excellent agreement between the two laboratories with 99% of samples below the 20% RPD threshold.
- The scatterplot shows one outlier.

The outliers are not considered material for the Mineral Resource estimate.

The BV results demonstrate the precision and accuracy of the SGS assay results and that they support the use of the SGS results in Mineral Resource estimation.

11.4.2 Accuracy

Accuracy is the measure of how close the assay is to the actual sample grade. Poor accuracy can be caused by various sampling or analytical problems, including issues with analytical equipment or procedures such as machine calibrations. These situations can occur at any time. Accuracy of the analytical process must be quantified on a batch by batch basis to enable samples to be re-assayed over time periods by inserting assay Certified Reference Material (CRM) standards into each batch of samples and monitoring the results.

A CRM is a standard sample that has been manufactured by a certified company, and is itself certified. The manufacturing process creates a homogenized sample that has undergone an extensive and rigorous certification process. This process generates an expected value and acceptable limits for all elements in the sample.

Laboratories use CRMs to ensure that their analytical processes are accurate between calibrations of the machines. Where drift is observed, it is normal procedure for a machine to be recalibrated. It is possible for internal laboratory CRM assay results to be altered and it is now industry standard for laboratory clients to submit their own CRM samples, in order to be able to monitor the accuracy of the laboratory.

11.4.2.1 Certified Reference Material Results

Four certified reference materials (CRM) for tungsten and one for molybdenum are in use by WMC. These, along with a blank and a re-split coarse duplicate are inserted routinely at every 20th sample interval. The CRM's were produced by CDN Resource Laboratories, Canada. A summary of the CRM's is given in Table 11-6. Note that CRM values are reported here as W% or Mo ppm not WO_3 or MoS_2%. If a CRM falls outside the 1SD range, re-analyses of 10 samples before and 10 samples after the failed CRM sample are requested from SGS Labs.

Table 11-7. CRM Summary

CRM	Variable	Expected value	2 Std Dev.
CDN-W-1	W (%)	1.04	0.1
CDN-W-2	W (%)	2.78	0.39
CDN-W-3	W (%)	1.73	0.19
CDN-W-4	W (%)	0.366	0.024
MoS-1	Mo (%)	0.065	0.008

Figures 11-1 to 11-5 show the CRM results for the reporting period (30 01 2012 – 15 09 2014).

Figure 11-1. CRM Results – Tungsten Standard CDN-W1

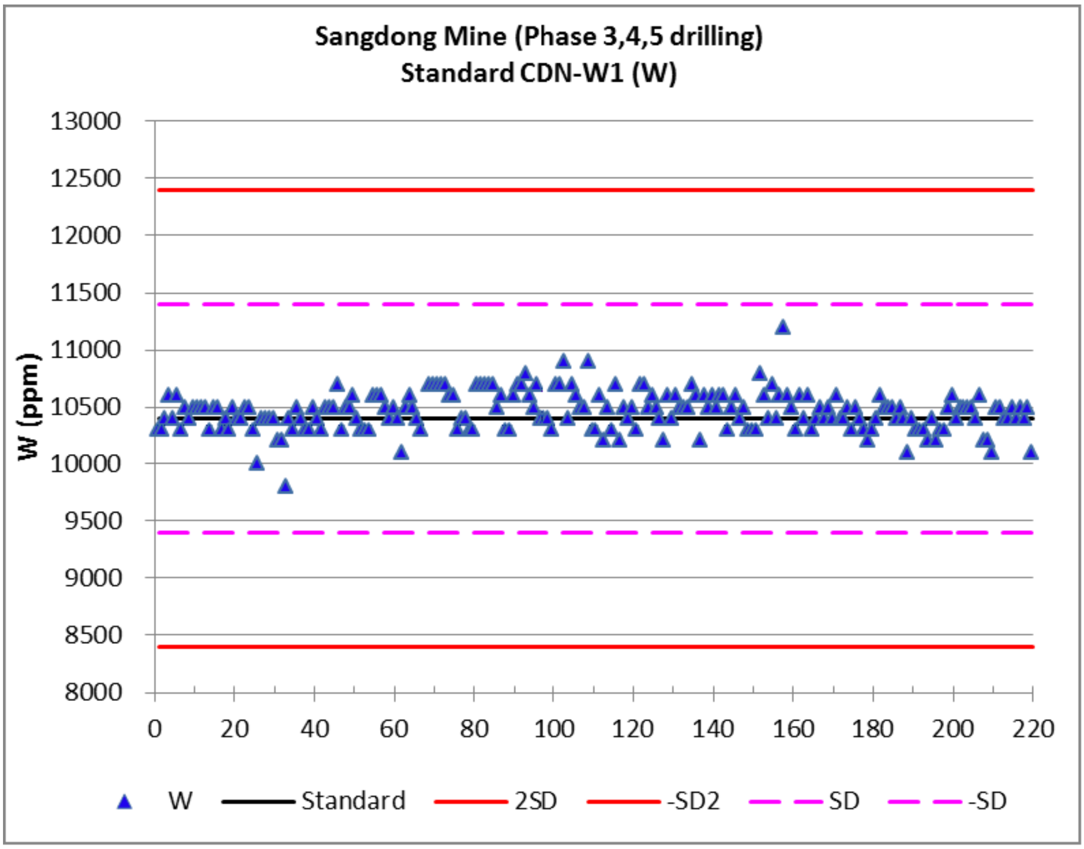


Figure 11-2. CRM Results – Tungsten Standard CDN-W2

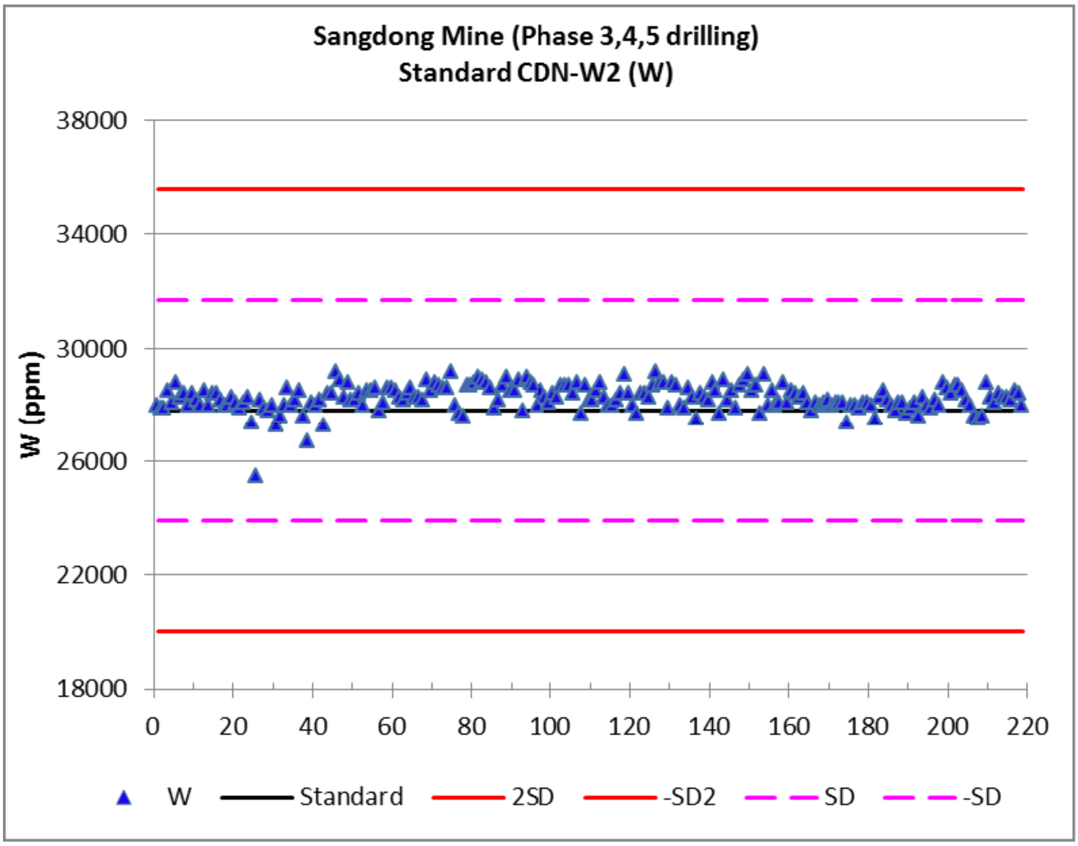


Figure 11-3. CRM Results – Tungsten Standard CDN-W3

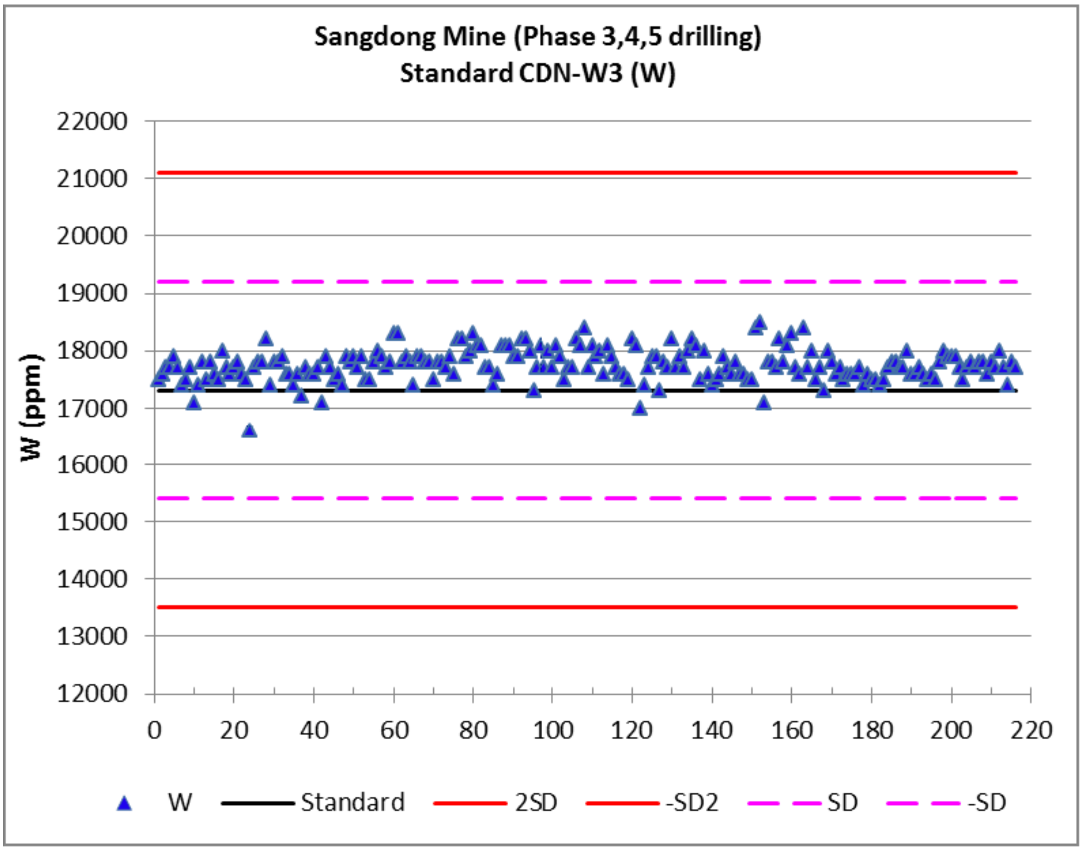


Figure 11-4. CRM Results – Tungsten Standard CDN-W4

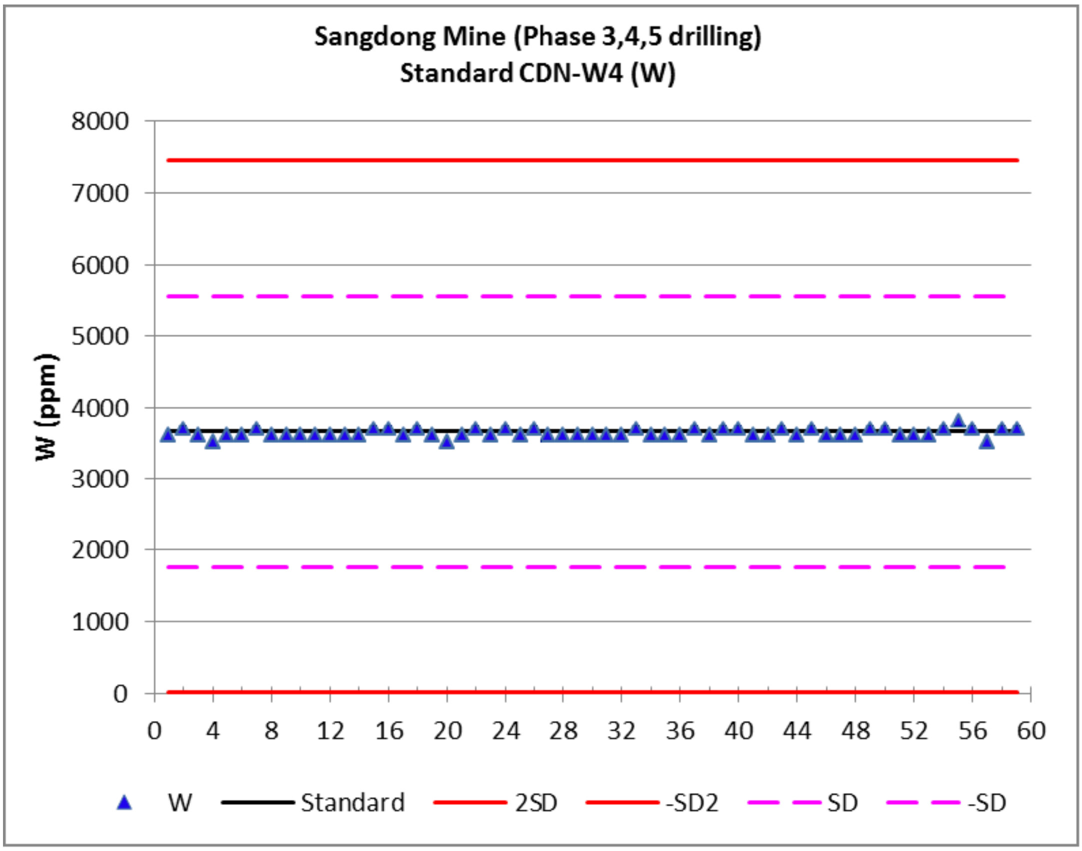
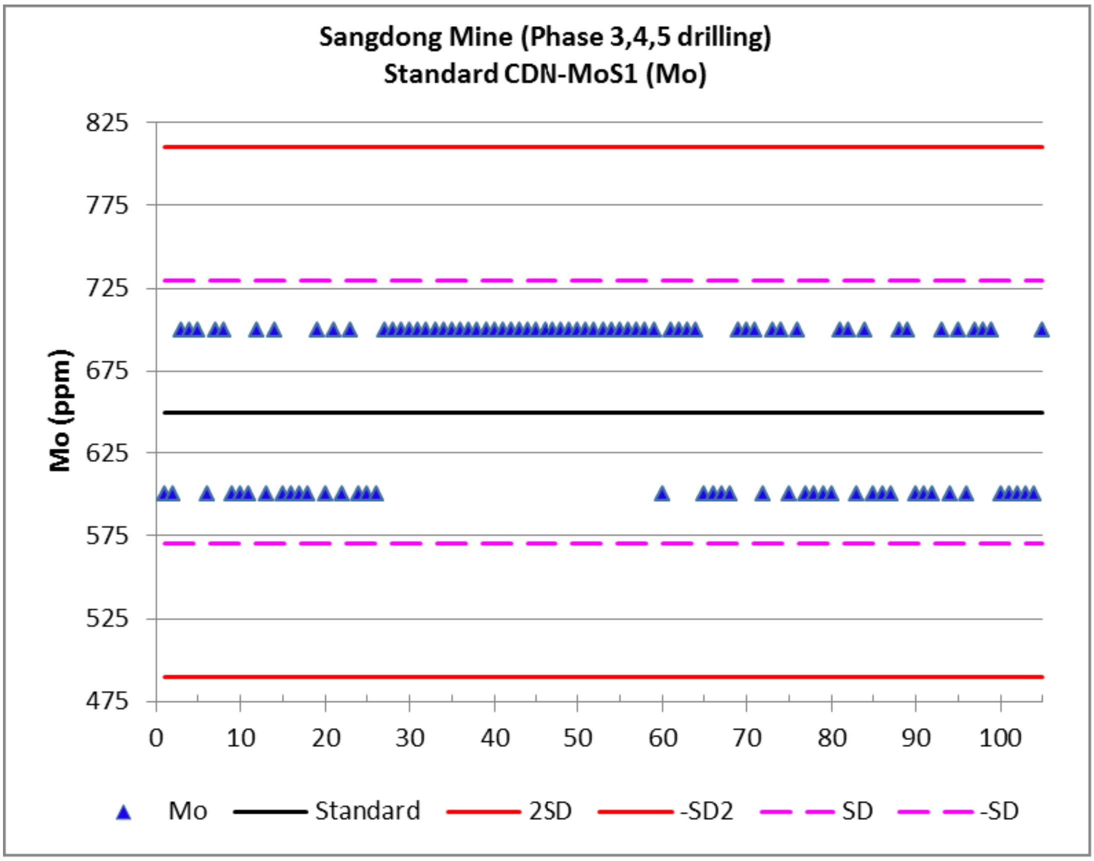


Figure 11-5. CRM Results – Molybdenum Standard CDN-MoS1

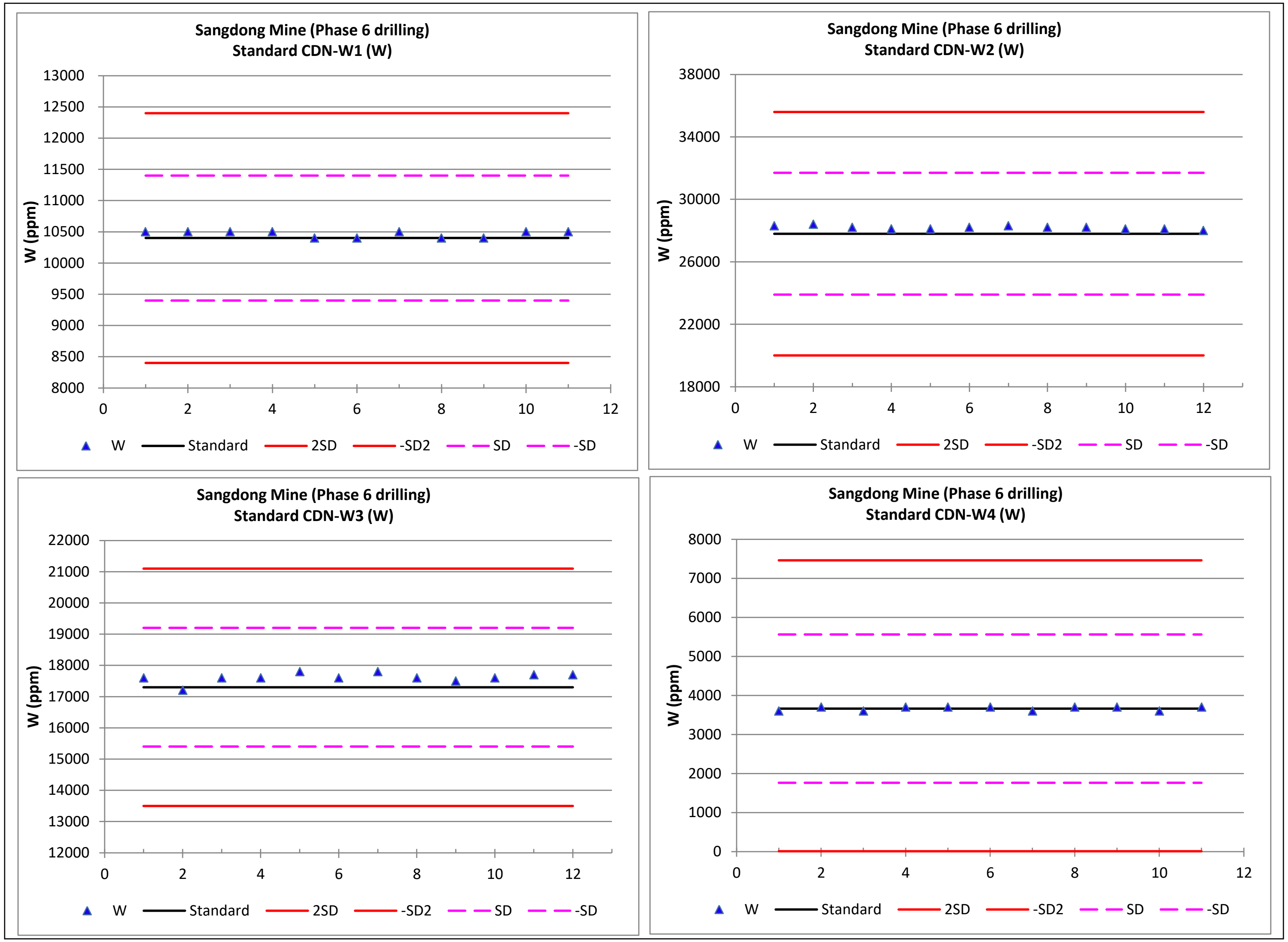


- The CRMs show good compliance for the reporting period.
- The CRMs CDN-W1, CDN-W2 and CDN-W3 display a slight high bias in the middle third of the reporting period of up to approximately 5 % but still well under 1 standard deviation of the lab mean.
- No significant bias is observed for the rest of the reporting period or for the other CRMs.
- The molybdenum CRM is too close to the detection limit to be a useful CRM for the Project.

Tetra Tech considered that the bias observed in the CRM plots is not material for the Mineral Resource Estimate, but recommended continuous monitoring of CRM performance by batch. The results demonstrated the accuracy of the assay results and support their use in Mineral Resource estimation.

Tungsten standard results for Phase 6 are shown in Figure 11-6. The QP, after also checking the Phase 7 results, considers these results to be demonstrating the same accuracy as previously, which therefore supports their use in Mineral Resource Estimation.

Figure 11-6. CRM Results – Tungsten Standards, Phase 6



11.4.3 Blank Results

Blanks are required to be inserted into the sample sequence by both the laboratory and the laboratory client. Laboratory blanks are usually flux or pure silica and are a test for cleanliness within the laboratory, where poor cleaning of equipment may result in sample contamination.

The coarse crystalline feldspar blank material used by WMC during the period to test for contamination during the sample preparation was certified to contain no metal. Tetra Tech considered assays of blank material to be acceptable if they were less than three times the practical detection limit of the laboratory.

Figure 11-7 and Figure 11-8 show the blank results for the Jan 2012- Sept 2014 reporting period. The tungsten results show three blank values out of 822 that are above the acceptable limits while the molybdenum results show two blank values out of 822 that are above the acceptable limits. Tetra Tech considers that the blank value results are acceptable and demonstrate adequate care is taken by WMC staff during sample preparation and the lab employs correct cleanliness procedures. There were also no unacceptable blank values for the Phase 6 blank results.

The QP considers that the sample preparation, security, analytical procedures and supporting QA/QC results that were used to inform the Sangdong Property block model estimate were collected in line with industry good practice as defined in the CIM Exploration Best Practice Guidelines and the CIM Mineral Resource, Mineral Reserve Best Practice Guidelines. The QP also considers that the QA/QC results demonstrate compliance under JORC.

Figure 11-7. Tungsten Blank Results

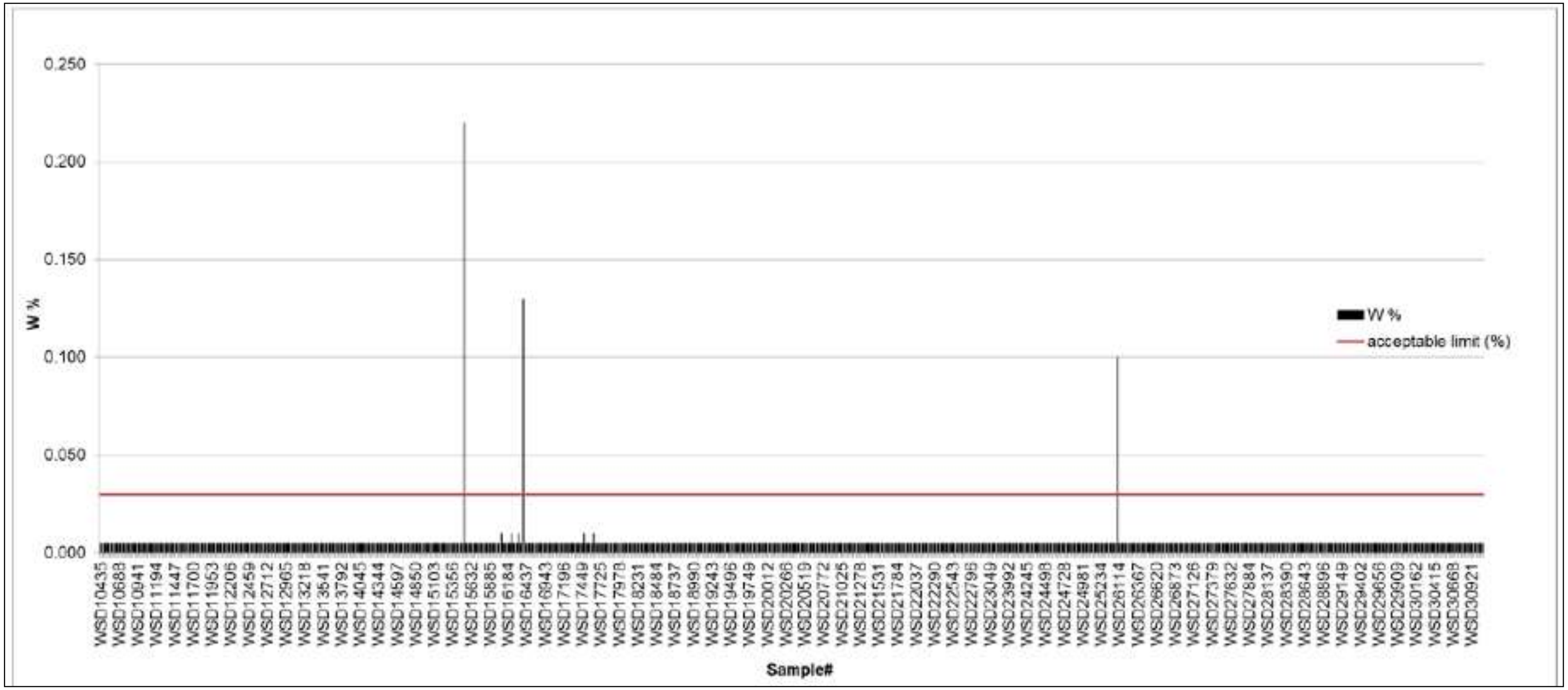
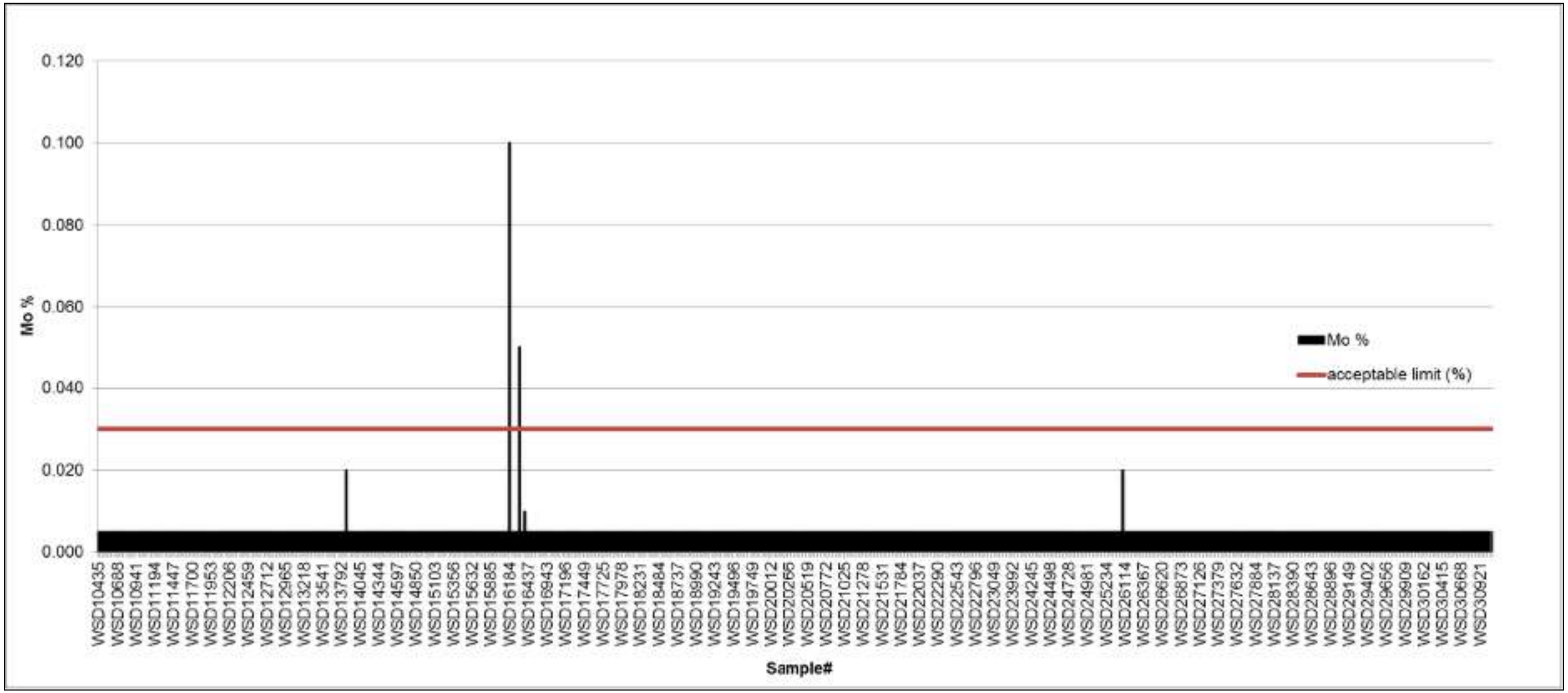


Figure 11-8. Molybdenum Blank Results



12 DATA VERIFICATION

The data verification procedures applied by various qualified persons at the Sangdong Project since 2006 are summarised below. In the Competent Person's opinion, the geological data stemming from drilling data after 2006 were collected in line with good industry practice, allowing the results to be reported according to the guidelines of the JORC Code, and to be potentially used to support the estimation of Indicated resources.

12.1 Watts, Griffis and McQuat 2006

12.1.1 Sampling and Analytical Procedures

The Sangdong Mine underground workings were either inaccessible or, if open, of unknown condition. This restricted WGM's independent sampling to low-grade outcrops and waste dump material. Given the long documented record of tungsten production at the mine, the sampling done during WGM's site visit on November 20, 2006, was clearly not intended to be definitive, rather simply to independently confirm that economically significant grades of tungsten, in particular, were present.

All samples were put into bags and closed with uniquely numbered, locking plastic ties; they remained under lock and key or in WGM's possession during their representative's time in Korea. They were taken as personal baggage to Mississauga, Ontario, and shipped by courier to SGS Mineral Services ("SGS") in Lakefield, Ontario. Samples were assayed for tungsten (reported as %WO_3) and molybdenum.

SGS normally inserted one blank per batch of 100 (maximum) samples, one duplicate per 20 samples, and one reference standard every 20 samples.

After drying, if necessary, the samples were crushed to 75% passing 9 mesh (2mm), and riffle split to produce a reject portion and a smaller portion which was pulverized to 85% passing 200 mesh (74µm). A 0.2g charge of each pulverized sample was roasted for 20 minutes and mixed with 5g of potassium pyrosulphate. The mixture was then fused, ground and pressed into a disk. Samples were analysed by the wavelength dispersion X-ray fluorescence (WD-XRF) method having detection limits of 0.05% for each of W and Mo. The XRF method was chosen because normal ICP methods have an upper detection limit of 1% W, and it was suspected that at least two of the Sangdong samples contained appreciably more than this amount of tungsten.

12.1.2 Discussion of Results

Analytical results for the independent WGM samples, together with location and sample descriptions, are presented in Table 12.1.

Table 12-1. Analytical Results from Independent WGM Sampling

Sample	Location	Description	%Mo	$\%WO_3$
72117	484816E/4111601N Forestry road south of drillhole SD-1	1 m chip sample; part of 8 m wide steeply dipping (65°) structural zone with quartz veins (see photo w CS)	<0.05	0.07
72118	485320E/4111401N Outcrop of skarn east of adit above main adit	Composite sample, mostly of subhorizontal quartz veins (up to 10 cm), with some skarn. Minor scheelite.	<0.05	<0.05
72119	Dump near main adit	Composite grab. Scheelite-bearing skarn	<0.05	2.27
72120	Upper adit dump	Grab sample. Fine-grained skarn. Minor quartz-carbonate veinlets and abundant irregularly distributed scheelite.	<0.05	9.16
72121	Upper adit dump	Grab sample. Fine-grained skarn with 1 cm quartz veinlet and molybdenite coating on fracture surface. Very minor scheelite.	0.12	0.21

Significant amounts of blue-white-fluorescing scheelite were observed in two dump samples from the upper and main adit levels (72119 and 72120) and lesser amounts from a third (72121), confirmed upon analysis. All samples were of compact, fine-grained dark green (amphibole-rich) skarn. The coarse character of the scheelite in sample 72120 is noteworthy.

The outcrop sampled near the upper adit portal consists of diopside-garnet skarn with subhorizontal quartz veins. There was a minor amount of local scheelite.

The most surprising result of 0.07% WO_3 was from an 8m wide, steeply dipping (about -65°) structural zone, with multiple quartz veins, in Myobong Shale on the forestry road. Mineralised quartz veins cutting across skarn-type mineralisation are documented in the Sangdong Mine, but apparently at not such a steep inclination. Other similar structural (fault or shear) zones were observed by WGM on the forestry road south of the set-up for drillhole SD-1. Oriental (WMC) had planned to sample this area in some detail.

12.2 Sennitt 2007

The Sangdong Project database, residing in MS ACCESS database files, includes all drill collar location, assay, quality assurance and geological data, as well as core recovery, visual estimates of key minerals and bulk density data.

The collar, assay, geological (rock type codes only) and core recovery data were extracted and input into the GEMCOM® modelling software system.

As a test of data integrity, checking of 10% of the data was made against original assay certificates. Collar coordinates were checked against the original survey forms. Results from the data checks showed zero error rate. It was concluded that the assay and survey database used for the mineral resource update was sufficiently free of error to be adequate for resource estimation.

12.3 Tetra Tech/Wardrop 2012

Verification activities conducted during the site visit included:

- Multiple site visits to the Sangdong Property, the last in October 2011, inspection of the exposed host skarn, veining and associated lithologies. The skarn and quartz veining are illustrated in Figure 12.1 and Figure 12.2. Mineralisation in hand specimen is shown in Figure 12.3.

Figure 12-1. Gently Dipping Skarn at Sangdong

Figure 12-2. Concordant Quartz Veining at Sangdong

Figure 12-3. Hand Specimen of Mineralisation at Sangdong

- Core logging (lithology, mineralisation) of selected Sangdong diamond drill holes from the latest drilling programme, at the Sangdong facilities.
- Observation and review of core storage, core logging, core sampling, core cutting and sample preparation procedures, standard reference sample and reject sample storage facilities at the Sangdong facilities.
- Detailed discussion with Woulfe staff was undertaken during the visit to the Sangdong facilities.

Verification activities subsequent to the site visit included:

- Selection of between 5% and 10% of the Sangdong drill holes for verification of handwritten geological logs, original field sample sheets and original ALS assay certificates against corresponding records in the Sangdong database supplied. Copies and scans of original data were supplied by Woulfe in order to carry out the verification exercise off-site.

Very minor discrepancies and errors were encountered during these processes and referred to Woulfe for clarification or correction.

Overall it was concluded by Tetra Tech/Wardrop that appropriate care and attention in data entry, validation and QA/QC procedures had been applied by Woulfe and that analytical issues were identified and appropriate remedial action taken. A possible exception is related to downhole surveys of relatively short drillholes, but otherwise industry standard practices had been followed and the quality of the Sangdong database meets NI 43-101 standards and Canadian Institute of Mining, Metallurgy and Petroleum (CIM) best practice guidelines.

Tetra Tech/Wardrop concluded that the combination of the latest sampling and understanding derived from the wealth of historical mining data provided adequate information for the purpose of their resource estimation and Technical Report.

Tetra Tech/Wardrop did not complete any independent exploration work, drill any holes or perform any programme of sampling and assaying on the property. During the field visit (October 2011) Wardrop did not collect any samples from the Sangdong project but was satisfied from visual inspection of the presence of mineralisation at Sangdong.

12.4 Tetra Tech/A-Z Mining Professionals 2013 Report

From the *17th of August 2013 to the 1st of September 2013 inclusive*, Tetra Tech full-time employee and Qualified Person Mr. Joe Hirst made a personal inspection of the Sangdong Property and undertook the following data verification steps:

Discussions with site geologists regarding:

- Sample collection
- Sample preparation
- Sample storage
- QA/QC
- Data validation procedures
- Underground mapping procedures

- Survey procedures
- Geological interpretation
- Exploration strategy
- A review of underground back and wall mapping (drifts and rises).
- An inspection of the core sheds and some recent drill core intersections from the Property.
- 100 random cross-checks of the mineralised assay results in the database with original assay results from the reporting period.

Tetra-Tech made the following observations:

- Site geologists are appropriately trained and are conscious of the specific sampling requirements of disseminated mineralisation with high grade lenses.
- Cross-checking the database with the original assay results did not uncover any errors.

12.5 AMC 2014

Between the *5th and 15th of August 2014,* AMC full-time employee and QP Dr A P Fowler visited the Sangdong Property; the data verification steps and conclusions were identical to those summarised in the Tetra Tech 2013 section above.

12.6 Adam Wheeler Site Visits

Adam Wheeler visited the Sangdong site during August 24th - 26th, 2015, October 17th – 28th, 2016 as well as from April 1st – April 4th, 2025. These visits included discussion with site geologists all aspects of sample collection, preparation and storage, as well as visiting the core storage and sample preparation areas. The updated sample database was also reviewed in 2015 and 2016, and during the resource estimation process, many aspects of the drillhole data were checked by communication with the Sangdong geologists.

In the QP's opinion, the geological data used to inform the Sangdong Property block model estimates were collected in line with industry good practice as defined in the CIM Guidelines as well as JORC Guidelines, and were suitable for use in the estimation of Mineral Resources.

13 MINERAL PROCESSING AND METALLURGICAL TESTING

13.1 Beneficiation of Scheelite Ore from The Sangdong Mine.

[Korea (US Department of the Interior 1954)]

From the test work on the Sangdong scheelite ore, the following conclusions were drawn:

- By crushing and grinding through 28-mesh in equipment selected to produce a minimum of fines, enough scheelite can be liberated to warrant concentration by shaking tables. Removal of the scheelite from the circuit in as coarse a size as possible reduces grinding and subsequent slime loss. Gravity concentration allows direct recovery of approximately 40% of the total tungsten values. Such a gravity concentrate is readily cleaned to market grade, whereas a flotation concentrate (the alternative) is not. The table concentrate can be cleaned simply by sulphide flotation and magnetic separation. It was demonstrated that the sulphur, bismuth, and molybdenum contents of the scheelite table concentrate were effectively removed by sulphide flotation.
- A bismuth-bearing by-product could be made by cleaning the scheelite table concentrate and selectively floating the table tails.
- After proper grinding (90 to 95% minus 200 mesh) a scavenger flotation operation recovered a major portion of the sulphide minerals and the remaining scheelite in 2 selective concentrates. The tungsten flotation concentrate was of low grade (approximately 14% tungsten trioxide); however, such a concentrate is suitable for beneficiation by hydrometallurgical methods.
- The scheelite in the ore submitted was locked with the gangue to the extent of 50% in the minus 20 mesh plus 200 mesh fraction, and 100% in the plus 20 mesh fraction. The grind for flotation work demonstrated good liberation of scheelite below 200 mesh.

The test work on the Sangdong low-grade scheelite concentrate indicated the feasibility of a soda-ash roast-leach extraction of sodium tungstate to precipitate an artificial scheelite product. The product made from the first part of this calcium chloride precipitation met market specifications in both tungstic oxide content and maximum molybdenum content allowable. The subsequent precipitation products were high in molybdenum, even though the minimum grade for tungstic oxide was met.

Separation of the molybdenum from the tungsten in the pregnant solution was not attempted, as it was beyond the scope of the investigation. However, a process was used by U.S. Vanadium Co. to make this molybdenum tungsten-separation.

A calculated combination of the results of these two beneficiation procedures was made. This calculation was made to demonstrate the results possibly obtainable if a sample of the Sangdong scheelite ore were treated by tabling, flotation, magnetic separation, and roasting and leaching of low·grade scheelite concentrates for reprecipitation of artificial scheelite products, as indicated by the test work. The hypothetical results indicated that the following marketable products might be prepared:

- A combined natural and artificial scheelite of 63.4% tungstic oxide and 0.65% molybdenum, accounting for 73.6% of the tungstic oxide;
- A bismuth by-product of 11.1% bismuth and 0.57 and 2.8oz/t of gold and silver, respectively, with recovery of 46.3%.

Further detailed beneficiation study probably would improve the overall metallurgical results. This applies particularly to the scavenger flotation circuit where 18.9% of the tungsten was lost in a tailing containing 0.23% tungstic oxide. It is also probable that cleaning of the table concentrate by sulphide flotation would yield a final tungsten product acceptably free of molybdenum, bismuth and sulphides and at the same time increase the bismuth recovery in the bismuth by-product.

Part of the molybdenum should be recoverable from the sulphide flotation concentrates. The portion entering the pregnant solution may be precipitated with sodium sulphide solution and filtered off before tungsten precipitates. Neither of these steps was attempted, since they were not part of existing metallurgical technology; the latter technique has been applied to Korean concentrates, and it was therefore simply assumed that these methods would apply to this ore. These conjectures point to the possibility of better metallurgical results; however, the beneficiation work done has demonstrated that the Sangdong scheelite ore, as approximated by the sample submitted for beneficiation, is amenable to concentration into marketable grade products by a combination of tabling, flotation, magnetic separation, and chemical treatment.

13.2 Tetra Tech/Woulfe Mining Corporation (2010 Scoping Study)

The following is a summary, extracted from the Mineral Resource Estimate (TT/WMC 2012), of the mineral processing and metallurgical testing completed during the 2010 Scoping Study.

Mineralogical studies and preliminary metallurgical test work have been conducted on four composite core samples taken from the Sangdong deposit by SGS Mineral Services Europe (SGS). The samples represented the four historical mineralised horizons, namely A,B,C and D+E combined (*although not stated the horizons are assumed to correspond to the Hangingwall, Main and Footwall (F1, F2 and F3*) *horizons*.

The key points arising from SGS test work were:

- The primary economic minerals in the ore are scheelite and molybdenite.
- The sample average head grades were 0.22% WO_3 and 0.03% MoS_2.

- Fluorite, rhenium, gold, silver, copper and bismuth are present but at sub-economic levels.
- The bond work index was determined as 18.7kW/h/t and the ore is classified as medium hard
- Scheelite becomes increasingly liberated below 500µm with ultimate liberation at approximately 50µm.
- Scheelite is not associated with molybdenite or bismuthinite. Provided the ore minerals are sufficiently liberated from the host rock silicates then separation should be relatively straightforward.
- The relative density of the ore falls between 2.87 and 3.03 and averages 2.90.
- Preconcentration by gravity has been shown to give recoveries of 63% for tungsten and 55% for molybdenum.

Although theoretical grade and recovery curves were established as part of the quantitative mineralogical programme, process grade and recovery data remained to be established.

13.3 A-Z Mining Professionals Ltd./WMC

13.3.1 Metallurgical Testing 2012

During 2012, various bench scale and pilot plant tests were completed, as summarised below in Table 13-1.

Table 13-1. Metallurgical Testing Summary 2012

				Test Material		
Date	**Company**	**Summary**	**Material Source**	**Tonnes t**	**WO3 %**	**Mo %**
Jul-12	BGRIMM	Bench-Scale Tests on separate Main, FW and HW Samples	HW	9	0.40	0.088
			Main	9	0.24	0.024
			FW	9	0.96	0.009
Sep-12	GRINFM	Pilot Plant Test on Separate Main and FW Samples	Main	15	0.49	0.036
			FW	7	0.46	0.011
Oct-12	BGRIMM	Pilot Plant Test on Mixed Main/FW Sample	Main/FW (1:1)	14	0.58	0.015

Notes

BRGIMM = Beijing General Research Institute of Mining and Metallurgy
GRINFM = Guangzhou Research Institute of Non-Ferrous Metals

13.3.2 Results Summary

The results of GRINFM pilot plant testwork are summarised below:

- Though the grade of the sample processed was lower than that used in bench scale testing, comprehensive recovery can still be achieved. All products can be separated into saleable products by processing or hydrometallurgy.

- The strong magnetic minerals in the ore should be removed to prevent adverse effects on scheelite concentrate grade.

- The advised grinding fineness was recommended to be 78-80% -75µm for the Main Zone and 90% -75µm for the FW Zone.

- The pilot plant testwork on the Main Zone used a 78.5% -75µm grind and a molybdenum flotation-sulphide flotation-scheelite rougher flotation. The scheelite concentrate using rougher flotation and heated floatation is produced with a mass yield of 9.13% assaying 65.26% WO_3 with an overall recovery of 81.13%. FW Zone testwork used a 95% -75µm grind and a molybdenum flotation-sulphide flotation-scheelite rougher flotation. The scheelite concentrate using rougher flotation and heated flotation is produced with a mass yield of 8.95% assaying 66.07% WO_3 with an overall recovery of 78.81%.

- Main and FW Zones mineralogy are similar with the same flowsheet recommended for the two ore types.

The overall conclusion from the pilot plant testwork was that the flowsheet proposed by Tetra Tech in the 2012 Feasibility Study and technological conditions provided by the pilot plant test could be used as the design basis for the processing plant.

13.3.3 Chinese Collector Alternative

In the pilot plant testwork by the Guangzhou Research Institute of Non-ferrous Metals in China,a proprietary Chinese collector, GYWA, was used in the plant. Because of security of supply concerns an alternative to this collector was sourced and tested. The conclusions from testing the R3-3F unit from South Africa were:

- Scouting tests showed each collector capable of producing high grade (circa 20% WO_3) WO_3 rougher concentrates, albeit at non-optimised recoveries.
- Overall better rougher flotation results were achieved with the R3-3F collector than with GYWA, probably due to the reagent dosages selected.
- Heated cleaner flotation tests had yet to be conducted; however, rougher WO_3 grades are approximately double those achieved in China.

- Mo and Bi recoveries to the Mo and sulphide concentrates (which are independent of the WO_3 collector used) were low at 17.3 to 19.6% Mo and 29.2 to 32.0%Bi recovery. Mo and sulphide flotation requires optimisation. Losses of WO_3 to these concentrates were correspondingly low at 0.5 to 0.8% of the WO_3, although these losses will increase slightly when these circuits are optimised.
- Future work will proceed to optimise the Mo and sulphide circuits ahead of maximising WO_3 recovery into the WO_3 rougher concentrate.
- Heated cleaner flotation will follow to achieve sales grade WO_3 concentrates and confirm this can be achieved with the Chinese collector and the South African collector.

The validity of the Tetra Tech flowsheet and the projected tungsten recovery were confirmed by the pilot plant and collector alternative testwork, in addition to the original metallurgical testwork presented in the Tetra Tech report.

The testwork also de-risked the processing plant flowsheet and reagents used.

13.4 AKTC 2016 Onwards

13.4.1 Metallurgical Test Sampling

Continuing the de-risking strategy from the beginning of 2016, in terms of the plant flowsheet and reagents used, Almonty Industries signed an agreement with the Korean Institute of Geoscience and Mineral Resources (KIGAM) to jointly develop a suitable method to recover the scheelite at Sangdong. This method should provide results not inferior to those reported in 2012 by the Guangzhou Research Institute of Non-ferrous Metals.

Since this agreement has been signed, a very significant number of metallurgical tests have been done on Sangdong mineralised material, especially on the footwall lodes. Multiple stage cleaning tests have been done in very different conditions: control tests with tap water and laboratory reagents, tests with softened mine water, tests with industrial grade reagents, tests including in the feed a portion of backfill material. To arrive at a metallurgical projection, locked cycle tests were made. For the purpose of the process guaranties, granted by Metso , pilot plant trials have also been completed. In general, all these tests present results that are not inferior to those reported by the Guangzhou Research Institute of Non-ferrous Metals.

Until 2019, laboratory-based tests were done: multiple stage cleaning tests and locked cycle tests. KIGAM laboratories were used for this purpose. After 2021, the laboratorial tests were conducted at the Tungsten Technological Centre (TTC), in Portugal, at Panasqueira Mine. The pilot plant trials, concluded in 2023, took place at the Laboratório Nacional de Energia e Geologia (“LNEG”) installations, also in Portugal, in Porto.

The principal metallurgical tests done by Almonty at Sangdong are described in the following sections. The material for these tests mostly came from two sampling exercises, as summarised in. When all the material had arrived in Portugal, it was mixed into different lots for testing, with an average grade of approximately 0.4% WO_3, so as to be similar to expected mill feed grade. The majority of this material was originally taken from broken material in active development headings, with most of it coming from the F3 bed, near the centre of the deposit. FW material makes up over 75% of the ore feed over the first 5 years of schedule production.

A summary of the material used in the principal metallurgical tests from 2016 onwards is shown in Table 13-2 and Table 13-3.

Table 13-2. Summary of Mill Test Material Taken at Sangdong 2020-2022

Year	Material	Tonnes t	WO_3 %
2020	High Grade	10.48	0.41
	Medium Grade	7.04	0.33
	Low Grade	8.03	0.25
	FW Sub-Total	**25.55**	**0.34**
2022	FW	10.49	1.17
	Main	1.75	1.31
	Sub-Total	**12.24**	**1.19**
	Total	**37.79**	**0.61**

Table 13-3. Summary of Feed Samples for Main Metallurgical Tests After 2016

Category	Type	Weight kg	WO_3 %
Bulk Sulphide Flotation Test	KIGAM 2019	4.07	0.62
Bulk Sulphide Flotation Test	Industrial Grade Reagents TTC 2025	4.05	*
Multiple-stage cleaning test	KIGAM 2019	4.08	0.68
Multiple-stage cleaning test	Tap Water - control Test	4.06	0.44
Multiple-stage cleaning test	Softened mine water	4.06	0.433
Multiple-stage cleaning test	Laboratory reagents	4.08	1.3
Multiple-stage cleaning test	Industrial Grade Reagents TTC 2025	4.09	1.4
Locked cycle test no. 1	KIGAM 2019	28.60	0.6
Locked cycle test no. 2	KIGAM 2019	24.49	0.38
Pilot Plant trial	LNEG 2023 - Day 1	493.26	0.457
Pilot Plant trial	LNEG 2023 - Day 2	464.70	0.448
Pilot Plant trial	LNEG 2023 - Day 3	462.48	0.45
Pilot Plant trial	LNEG 2023 - Day 4	506.28	0.5
Total		**2,008.30**	

It is considered that the metallurgical samples taken in this period, as well as in 2012, as summarised in Table 13-1 and, have provided reasonable quantities of material from the three different beds systems at Sangdong, and as such they are representative of the mineralisation and the mineral deposit as a whole.

The principal deleterious component of mineralised material at Sangdong is Mo in the form of oxide, which forms a solid solution of scheelite-powellite. This problem is more prevalent in HW material, and some parts of the Main zone. This does not decrease tungsten recovery, but can cause some contamination of W concentrates with Mo.

For HW material, the higher proportions of limestone in the feed can also adversely affect W concentrate grades.

Radioactive elements are not present at Sangdong.

13.4.2 Bulk Sulphide Flotation

Prior to flotation of scheelite, it is necessary to remove sulphides, also by flotation, into a bulk concentrate. In Table 13-4 and Table 13-5 the results of two bulk sulphide flotation tests are given. The rougher sulphide concentrate was cleaned in two stages (see Figure 13-1), in order to reduce the losses in WO_3 to the final sulphide concentrate, as demonstrated by the results Table 13-4. The conditions selected to float the sulphides ensure good recoveries in Mo, Bi and Cu. The head grades presented in Table 13-4 are typical of most of the samples that were tested. The much higher head grades presented in Table 13-5 are an exception. Laboratorial metallurgical tests for the possible recovery of Mo and Bi, and also of Au and Ag, are scheduled for 2025 at the TTC.

Figure 13-1. Bulk Sulphide Flotation Tests' Sequence

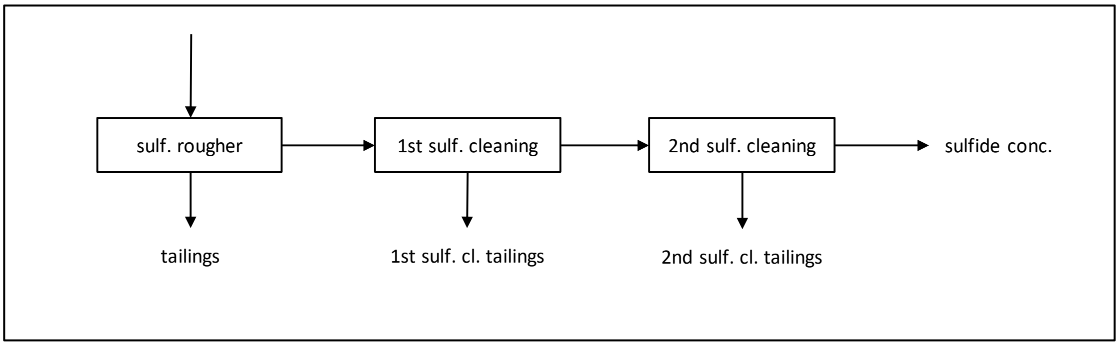


Table 13-4. Bulk sulphide Flotation Test – KIGAM (2019)

product	Weight	weight	WO_3	Mo	Bi	Cu	distribution WO_3	distribution Mo	distribution Bi	distribution Cu
	G	%	%	%	%	%	%	%	%	%
sulfide rougher conc.	181.6	4.5	0.36	0.20	0.51	0.28	2.6	65.5	70.5	72.3
sulfide 1st clean. conc.	55.8	1.4	0.25	0.65	1.62	0.89	0.6	63.9	68.6	70.7
sulfide 1st clean. tail	125.8	3.1	0.40	0.01	0.02	0.01	2.0	1.6	1.9	1.6
sulfide 2nd clean. conc.	31.7	0.8	0.18	1.13	2.74	1.52	0.2	63.3	65.8	68.4
sulfide 2nd clean. tail	24.1	0.6	0.34	0.02	0.15	0.07	0.3	0.6	2.7	2.3
tailings	3891.6	95.5	0.63	0.01	0.01	0.01	97.4	34.5	29.5	27.7
head (calc.)	4073.2	100.0	0.62	0.01	0.03	0.02	100.0	100.0	100.0	100.0

Table 13-5. Bulk sulphide Flotation Test – Industrial Grade Reagents – TTC (2025)

product	Weight	weight	WO_3	Mo	Bi	Cu	distribution WO_3	distribution Mo	distribution Bi	distribution Cu
	G	%	%	%	%	%	%	%	%	%
sulfide rougher conc.	206.6	5.1	-	0.66	2.3	0.38	-	76.2	86.1	78.0
sulfide 1st clean. conc.	79.1	2.0	-	1.7	5.6	0.93	-	74.2	80.0	73.4
sulfide 1st clean. tail	127.5	3.2	-	0.029	0.26	0.037	-	2.1	6.0	4.7
sulfide 2nd clean. conc.	35.8	0.9	-	3.5	10.0	1.8	-	70.7	64.8	65.2
sulfide 2nd clean. tail	43.3	1.1	-	0.14	1.94	0.19	-	3.5	15.2	8.2
tailings	3840.3	94.9	-	0.011	0.020	0.0039	-	23.8	13.9	14.8
head (calc.)	4046.9	100.0	-	0.044	0.137	0.023	-	100.0	100.0	92.8

13.4.3 Multiple Stage Cleaning Tests

Presented here are five multiple stage cleaning tests done in different phases of the project development. In Figure 13-2 the sequence of flotation steps for these tests is given. In Table 13-6 a test is presented that was used as preparation for the locked cycle tests (see section 13.4.3). This achieved 78.6% WO_3 in the final scheelite concentrate, confirming that the production of high-grade tungsten concentrates is possible. In Table 13-7 and Table 13-8 are presented the results of two tests that were done in the context of establishing the compatibility between the flotation process and the lime-soda process for softening water. It can be concluded that both processes are compatible. In this way, groundwater and river water, collected near Sangdong, can be used in flotation after softening. In Table 13-9 and Table 13-10 are given the results of two tests done in the context of selecting industrial grade reagents to replace the laboratory reagents (sodium carbonate, sodium silicate, etc.). It can be concluded that the chemical industry (outside China) can produce, in quality and quantity, the reagents needed to operate the Sangdong plant.

Bearing in mind the main purpose of a multiple stage cleaning test, from the five tests that were presented, we can conclude that a high-grade tungsten concentrate can be produced with the proposed flotation regime, being the stage recoveries of the cleaning process always very high. Multiple stage cleaning tests were also done to measure the tolerance of sulphide and scheelite flotation to the presence of backfill material in the feed. Tests have been conducted with backfill percentages ranging from a few percent to 10%. For the lower percentages of backfill, it was concluded that neither the sulphide flotation nor the scheelite flotation suffered an impact. Only near to the upper limit was noticed some impact on sulphide flotation, characterized by an increase in mass pull.

The flotation regime applied in the multiple stage cleaning tests, and, in general, applied in the locked cycle tests and pilot plant trials, is well-known in the mining industry. It is based on the use of sodium carbonate as pH regulator, sodium silicate as depressor, and TOFA as the main scheelite collector, conducting the flotation in lukewarm water. Grinding to 80% below 65 µm seems suitable for Sangdong ore, independently from its origin in the mine.

Figure 13-2. Sequence of Multiple Stage Flotation Tests

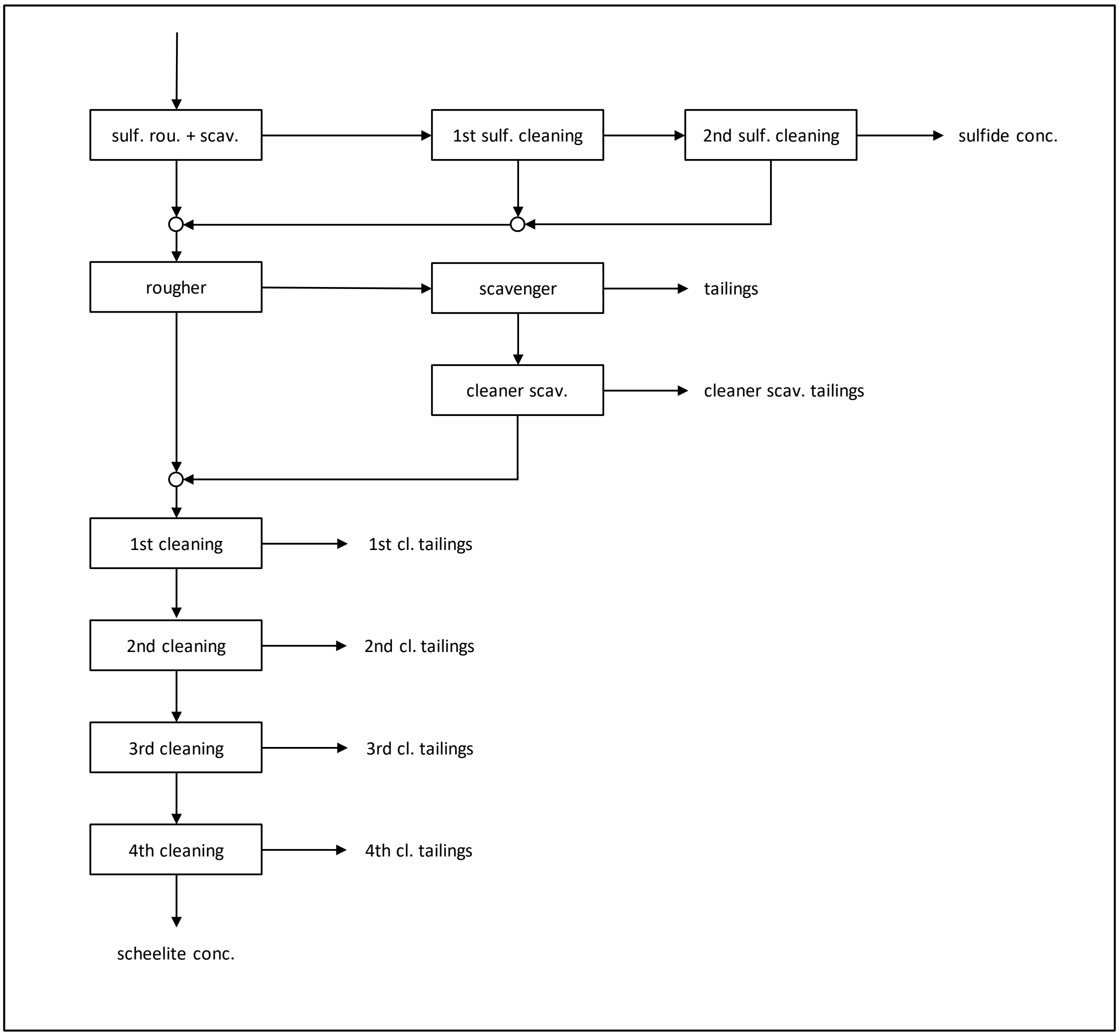


Table 13-6. Multiple-Stage Cleaning Test – KIGAM (2019)

Product	weight	Weight	% solids	WO_3	Mo	WO_3 dist.	Mo dist.	stage recovery	enrich. ratio
	G	%	w/w	%	%	%	%	%	
sulf. conc.	32.7	0.8	8.9	0.22	0.24	0.26	52.2		
scheelite rou. + clean. scav. conc.	140.7	3.4	8.4	16.8	0.04	85.1	40.9	85.3	24.69
scheelite clean. scav. tail.	145.5	3.6		0.58	0.01	3.0	6.9		
Tailings	3764.5	92.2		0.086	<0.005	11.6	0		
head (calc.)	4083.4	100.0		0.68	0.004	100.0	100.0		
scheelite 1st clean. conc.	44.4	1.1	4.2	50.9	0.11	81.3	34.4	95.6	3.03
scheelite 1st clean. tail.	96.3	2.4		1.1	0.01	3.7	6.5		
scheelite 2nd clean. conc.	32.7	0.8	4.2	68.2	0.15	80.3	33.2	98.7	1.34
scheelite 2nd clean. tail.	11.7	0.3		2.5	0.02	1.1	1.2		
scheelite 3rd clean. conc.	28.6	0.7	6.4	76.3	0.17	78.6	32.1	97.9	1.12
scheelite 3rd clean. tail.	4.1	0.1		11.2	0.04	1.7	1.1		
scheelite 4th clean. conc.	27.4	0.7	15.1	78.6	0.17	77.5	31.5	98.6	1.03
scheelite 4th clean. tail.	1.2	0.03		25.0	0.08	1.1	0.6		

Table 13-7. Multiple-Stage Cleaning Test – Tap Water Control Test – TTC (2021)

Product	weight G	weight %	WO_3 %	WO_3 dist. %	stage recovery	enrich. ratio
sulfide conc.	59.7	1.5	0.084	0.3		
sulfide tail	4002.5	98.5	0.446	99.7		
rough. + scav. conc.	120.7	3.0	12.3	82.8	83.0	27.52
clean. scav. tail	80.1	2.0	0.559	2.5		
Tailings	3801.7	93.6	0.068	14.5		
head (calc.)	4062.2	100.0	0.440	100.0		
1st clean. conc.	36.3	0.9	38.9	79.0	95.5	3.17
1st clean. tail	84.4	2.1	0.795	3.8		
2nd clean. conc.	20.5	0.5	66.6	76.4	96.7	1.71
2nd clean. tail	15.8	0.4	2.91	2.6		
4th clean. conc.	18.0	0.4	74.4	75.0	98.1	1.12
3rd and 4th clean. tail	2.5	0.1	10.6	1.5		

Table 13-8. Multiple-Stage Cleaning Test – Softened Mine Water – TTC (2021)

Product	weight G	weight %	WO_3 %	WO_3 dist. %	stage recovery	enrich. ratio
sulfide conc.	67.6	1.7	0.086	0.3		
sulfide tail	3992.5	98.3	0.439	99.7		
rough. + scav. conc.	112.6	2.8	13.0	83.6	83.9	29.74
clean. scav. tail	110.5	2.7	0.437	2.7		
Tailings	3769.4	92.8	0.062	13.3		
head (calc.)	4060.1	100.0	0.433	100.0		
1st clean. conc.	36.0	0.9	39.2	80.3	96.0	3.00
1st clean. tail	76.6	1.9	0.759	3.3		
2nd clean. conc.	21.1	0.5	64.5	77.7	96.7	1.65
2nd clean. tail	14.9	0.4	3.13	2.7		
4th clean. conc.	18.2	0.4	74.1	76.9	99.0	1.15
3rd and 4th clean. tail	2.9	0.1	4.51	0.7		

Table 13-9. Multiple-Stage Control Test – Laboratory Reagents – TTC (2025)

Product	weight G	weight %	WO_3 %	WO_3 dist. %	stage recovery	enrich. ratio
sulfide conc.	101.0	2.5	0.47	0.9		
sulfide tail	3976.7	97.5	1.4	99.1		
rough. + scav. conc.	416.0	10.2	11.5	88.0	88.7	8.48
clean. scav. tail	99.0	2.4	1.1	2.0		
Tailings	3560.7	87.3	0.17	11.2		
head (calc.)	4077.7	100.0	1.3	100.0		
1st clean. conc.	118.7	2.9	37.4	81.7	95.1	2.54
1st clean. tail	198.3	4.9	1.2	4.2		
2nd clean. conc.	71.3	1.7	60.2	79.0	96.6	1.61
2nd clean. tail	47.4	1.2	3.1	2.7		
3rd clean. conc.	55.6	1.4	74.1	75.9	96.1	1.23
3rd clean. tail (*)	15.7	0.39	10.7	3.1		
4th clean. conc.	54.2	1.3	75.8	75.6	99.6	1.02
4th clean tail (*)	1.4	0.03	10.7	0.3		

(*) assayed together

Table 13-10. Multiple-Stage Cleaning Test – Industrial Grade Reagents – TTC (2025)

Product	weight G	weight %	WO_3 %	WO_3 dist. %	stage recovery	enrich. ratio
sulfide conc.	107.9	2.6	0.47	0.9		
sulfide tail	3978.6	97.4	1.4	99.1		
rough. + scav. conc.	434.9	10.6	11.4	89.6	90.4	8.27
clean. scav. tail	128.7	3.1	0.74	1.7		
Tailings	3543.7	86.7	0.15	9.5		
head (calc.)	4086.5	100.0	1.4	100.0		
1st clean. conc.	100.3	2.5	46.4	84.1	95.7	2.92
1st clean. tail	205.9	5.0	1.0	3.8		
2nd clean. conc.	64.6	1.6	70.0	81.6	97.1	1.51
2nd clean. tail	35.7	0.9	3.8	2.4		
3rd clean. conc.	59.6	1.5	74.1	79.7	97.7	1.06
3rd clean. tail (*)	5.0	0.1	21.1	1.9		
4th clean. conc.	58.0	1.4	75.6	79.1	99.2	1.02
4th clean tail (*)	1.6	0.04	21.1	0.6		

(*) assayed together

13.4.4 Locked Cycle Tests

This section presents two locked cycle tests (LCT), which were made at KIGAM, that allow us to make a first metallurgical projection, that is, to estimate the value of the recovery and concentrate grade, with all the internal fluxes recycling (see Figure 13-3). For both tests are presented the weights and assays of each product that does not recycle (Table 13-11 and Table 13-15), the cycle-by-cycle balance for each complete cycle of the test (Table 13-12 and Table 13-16), and, finally, the metallurgical projection, based on the last two cycles of each test, following two different procedures (Table 13-13, Table 13-14, Table 13-17 and Table 13-18). Table 13-11 and Table 13-15 show the assays of other elements: Mo, Cu and P.

As mentioned previously, two different procedures were used in the metallurgical projection. In the first procedure, the two concentrates and the two tailings are projected as the average weights and assays for these products in cycles E and F. The feed for the test is then calculated as the sum of the products. For test no. 1, the first procedure gives a recovery of 83.7% for a final concentrate grade of 73.2% WO_3. For test no. 2, this first procedure gives a recovery of 85.4% for a final concentrate grade of 62.4% WO_3.

In the second procedure, the final concentrates are projected in the same way. However, the total tailings are then calculated as the difference between the feed and the final concentrates. In this case, the average feed is computed based on all the products presented in Table 13-11 and Table 13-15. For test no. 1, of the second procedure, the recovery is 83.6% for a final concentrate grade of 73.2% WO_3. For test no. 2, also for these second procedure, the recovery is 85.0% for a final concentrate grade of 62.4% WO_3. The similarity between the results of both procedures ensures the quality of the projections.

Figure 13-3. Sequence of Flotation Steps for the Locked Cycle Tests

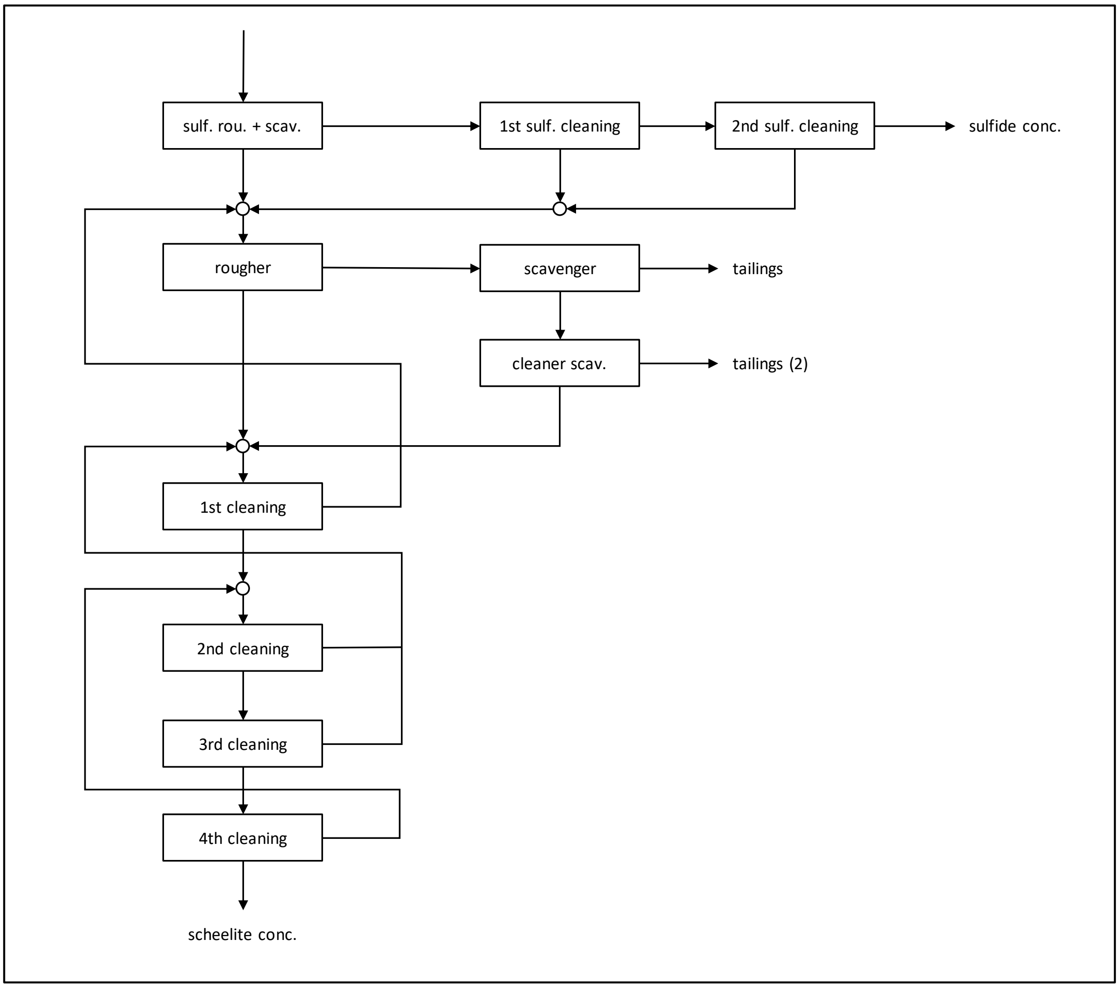


Table 13-11. Results of LCT no. 1 – KIGAM (2019)

Product	weight	weight	WO_3	Mo	Cu	P	WO_3 dist.
	g	%	%	%	%	%	%
sulfide conc. A	32.7	0.11	0.18	0.87	1.5		0.04
sulfide conc. B	29.5	0.10	0.18	1.1	1.8		0.03
sulfide conc. C	26.0	0.09	0.17	1.2	1.9		0.03
sulfide conc. D	24.5	0.09	0.18	1.3	2.0		0.03
sulfide conc. E	24.3	0.08	0.16	1.3	2.1		0.02
sulfide conc. F	28.1	0.10	0.23	1.1	1.8		0.04
sulfide conc. G	27.9	0.10	0.17	1.1	1.9		0.03
scheelite conc. A	25.44	0.09	76.9	0.19	0.01	0.35	11.47
scheelite conc. B	26.78	0.09	74.1	0.19	0.02	0.49	11.64
scheelite conc. C	26.74	0.09	74.8	0.17	0.02	0.48	11.72
scheelite conc. D	27.43	0.10	73.8	0.17	0.02	0.61	11.87
scheelite conc. E	27.83	0.10	73.1	0.17	0.02	0.47	11.94
scheelite conc. F	27.85	0.10	73.3	0.18	0.02	0.45	11.96
rougher conc. G	103.1	0.36	15.5				9.38
clean. scav. conc. G	42.1	0.15	19.8				4.89
tailings A	3801.2	13.29	0.061				1.35
tailings B	3880.7	13.57	0.075				1.71
tailings C	3886.3	13.59	0.076				1.72
tailings D	3843.3	13.44	0.071				1.59
tailings E	3884.9	13.58	0.081				1.84
tailings F	3881.8	13.57	0.074				1.69
tailings G	3838.5	13.42	0.066				1.48
clean. scav. tail. A	134.3	0.47	0.49				0.39
clean. scav. tail. B	144.5	0.51	0.59				0.50
clean. scav. tail. C	145.2	0.51	0.63				0.53
clean. scav. tail. D	167.5	0.59	0.51				0.50
clean. scav. tail. E	156.4	0.55	0.57				0.53
clean. scav. tail. F	153.3	0.54	0.59				0.53
clean. scav. tail. G	179.5	0.63	0.54				0.57
head (calc.)	28597.7	100.00	0.60				100.00

Table 13-12. Cycle by Cycle Mass Balance for LCT no. 1 – KIGAM (2019)

Product	weight, g	WO_3, %	weight dist., %	WO_3 dist., %
cycle A				
scheelite conc.	25.44	76.9	0.62	80.3
sulfide conc.	32.7	0.18	0.80	0.2
Tailings	3801.2	0.061	93.0	9.4
clean. scav. tail.	134.3	0.49	3.3	2.7
Total	3993.6	0.57	97.8	92.7
circulating load (calc.)	91.7	1.9	2.2	7.3
cycle B				
scheelite conc.	26.78	74.1	0.66	81.5
sulfide conc.	29.5	0.18	0.72	0.2
Tailings	3880.7	0.075	95.0	11.9
clean. scav. tail.	144.5	0.59	3.5	3.5
Total	4081.5	0.58	99.9	97.2
circulating load (calc.)	95.6	2.6	2.3	10.1
cycle C				
scheelite conc.	26.74	74.8	0.65	82.1
sulfide conc.	26.0	0.17	0.64	0.2
Tailings	3886.3	0.076	95.1	12.1
clean. scav. tail.	145.2	0.63	3.6	3.7
Total	4084.2	0.58	100.0	98.1
circulating load (calc.)	96.8	3.0	2.4	12.1
cycle D				
scheelite conc.	27.43	73.8	0.67	83.1
sulfide conc.	24.5	0.18	0.60	0.2
Tailings	3843.3	0.071	94.1	11.1
clean. scav. tail.	167.5	0.51	4.1	3.5
Total	4062.7	0.59	99.4	97.9
circulating load (calc.)	119.4	2.9	2.9	14.2
cycle E				
scheelite conc.	27.83	73.1	0.68	83.5
sulfide conc.	24.3	0.16	0.59	0.2
Tailings	3884.9	0.081	95.1	12.9
clean. scav. tail.	156.4	0.57	3.8	3.7
Total	4093.4	0.60	100.2	100.3
circulating load (calc.)	111.4	3.0	2.7	13.9
cycle F				
scheelite conc.	27.85	73.3	0.68	86.1
sulfide conc.	28.1	0.23	0.69	0.3
Tailings	3881.8	0.074	95.0	11.9
clean. scav. tail.	153.3	0.59	3.8	3.7
Total	4091.1	0.59	100.1	99.6
circulating load (calc.)	105.7	3.3	2.6	14.4

Table 13-13. Metallurgical Projection – LCT 1/ Procedure 1 – KIGAM (2019)

Product	weight G	weight %	WO_3 %	WO_3 dist. %
feed (calc.)	4092.2	100.0	0.59	100.0
scheelite conc.	27.8	0.7	73.2	83.7
sulfide conc.	26.2	0.6	0.20	0.2
Tailings	3883.4	94.9	0.078	12.4
clean. scav. tail.	154.9	3.8	0.58	3.7
total tailings	4038.2	98.7	0.10	16.1

Table 13-14. Metallurgical Projection – LCT 1/ Procedure 2 – KIGAM (2019)

Product	weight G	weight %	WO_3 %	WO_3 dist. %
feed (aver.)	4085.4	100.0	0.60	100.0
scheelite conc.	27.8	0.7	73.2	83.6
sulfide conc.	26.2	0.6	0.20	0.2
total tailings (calc.)	4031.3	98.7	0.10	16.1

Table 13-15. Results of locked cycle test no. 2 – KIGAM (2019)

Product	weight	weight	WO_3	Mo	P	WO_3 dist.
	g	%	%	%	%	%
sulfide conc. A	30.7	0.13	0.35	0.62		0.11
sulfide conc. B	29.8	0.12	0.32	0.68		0.10
sulfide conc. C	31.2	0.13	0.30	0.65		0.10
sulfide conc. D	30.9	0.13	0.30	0.61		0.10
sulfide conc. E	27.2	0.11	0.27	0.71		0.08
sulfide conc. F	28.8	0.12	0.27	0.66		0.08
scheelite conc. A	17.14	0.07	71.5	0.44	1.0	13.09
scheelite conc. B	19.24	0.08	68.2	0.42	1.3	14.02
scheelite conc. C	20.69	0.08	60.8	0.40	2.0	13.43
scheelite conc. D	20.37	0.08	63.3	0.40	1.8	13.78
scheelite conc. E	21.13	0.09	62.0	0.39	1.8	14.00
scheelite conc. F	21.35	0.09	62.8	0.39	1.9	14.32
scheelite 1st clean. tail. F	169.3	0.69	0.41			0.74
scheelite 2nd clean. tail. F	27.2	0.11	1.4			0.41
scheelite 3rd clean. tail. F	11.2	0.05	5.2			0.62
scheelite 4th clean. tail. F	4.5	0.02	12.7			0.61
tailings A	3660.2	14.94	0.037			1.43
tailings B	3736.1	15.25	0.053			2.11
tailings C	3723.6	15.20	0.053			2.11
tailings D	3753.3	15.32	0.050			2.02
tailings E	3704.6	15.12	0.052			2.05
tailings F	3722.8	15.20	0.040			1.60
clean. scav. tail. A	226.9	0.93	0.17			0.42
clean. scav. tail. B	283.7	1.16	0.19			0.57
clean. scav. tail. C	284.3	1.16	0.18			0.54
clean. scav. tail. D	276.2	1.13	0.18			0.52
clean. scav. tail. E	309.3	1.26	0.15			0.48
clean. scav. tail. F	302.7	1.24	0.17			0.54
head (calc.)	24494.4	100.00	0.38			100.00

Table 13-16. Cycle by Cycle Mass Balance for LCT no. 2 – KIGAM (2019)

Product	weight, g	WO_3, %	weight dist., %	WO_3 dist., %
cycle A				
scheelite conc.	17.14	71.5	0.42	78.6
sulfide conc.	30.7	0.35	0.75	0.7
Tailings	3660.2	0.037	89.7	8.6
clean. scav. tail.	226.9	0.17	5.6	2.5
Total	3934.9	0.36	96.4	90.3
circulating load (calc.)	147.5	1.0	3.6	9.7
cycle B				
scheelite conc.	19.24	68.2	0.47	84.1
sulfide conc.	29.8	0.32	0.73	0.6
Tailings	3736.1	0.053	91.5	12.7
clean. scav. tail.	283.7	0.19	6.9	3.4
Total	4068.8	0.39	99.7	100.8
circulating load (calc.)	161.0	0.86	3.9	8.9
cycle C				
scheelite conc.	20.69	60.8	0.51	80.6
sulfide conc.	31.2	0.30	0.76	0.6
Tailings	3723.6	0.053	91.2	12.6
clean. scav. tail.	284.3	0.18	7.0	3.2
Total	4059.8	0.37	99.4	97.1
circulating load (calc.)	183.6	1.0	4.5	11.8
cycle D				
scheelite conc.	20.37	63.3	0.50	82.7
sulfide conc.	30.9	0.30	0.76	0.6
Tailings	3753.3	0.050	91.9	12.1
clean. scav. tail.	276.2	0.18	6.8	3.1
Total	4080.8	0.38	100.0	98.5
circulating load (calc.)	185.3	1.1	4.5	13.3
cycle E				
scheelite conc.	21.13	62.0	0.52	84.0
sulfide conc.	27.2	0.27	0.67	0.5
Tailings	3704.6	0.052	90.7	12.3
clean. scav. tail.	309.3	0.15	7.6	2.9
Total	4062.2	0.38	99.5	99.7
circulating load (calc.)	205.4	1.0	5.0	13.6
cycle F				
scheelite conc.	21.35	62.8	0.52	85.9
sulfide conc.	28.8	0.27	0.71	0.5
Tailings	3722.8	0.040	91.2	9.6
clean. scav. tail.	302.7	0.17	7.4	3.2
Total	4075.7	0.38	99.8	99.3
scheelite 1st clean. tail.	169.3	0.41	4.1	44.4
scheelite 2nd clean. tail.	27.2	1.4	0.7	2.5
scheelite 3rd clean. tail.	11.2	5.2	0.3	3.7
scheelite 4th clean. tail.	4.5	12.7	0.1	3.7
circulating load (meas.)	212.2	1.1	5.2	14.3

Table 13-17. Metallurgical Projection for LCT no. 2 – Procedure 1

Product	weight	weight	WO_3	WO_3 dist.
	G	%	%	%
feed (calc.)	4068.9	100.0	0.38	100.0
scheelite conc.	21.2	0.5	62.4	85.4
sulfide conc.	28.0	0.7	0.27	0.5
Tailings	3713.7	91.3	0.046	11.0
clean. scav. tail.	306.0	7.5	0.16	3.1
total tailings	4019.7	98.8	0.054	14.1

Table 13-18. Metallurgical Projection for LCT no. 2 – Procedure 2

Product	weight	weight	WO_3	WO_3 dist.
	G	%	%	%
feed (aver.)	4082.4	100.0	0.38	100.0
scheelite conc.	21.2	0.5	62.4	85.0
sulfide conc.	28.0	0.7	0.27	0.5
total tailings (calc.)	4033.2	98.8	0.056	14.5

13.4.5 Pilot plant trials

In order to have a metallurgical projection in conditions more similar to those that will be found in practice in the future plant, and as a demand to get the process guaranties from Metso/Outotec, several pilot plant trials were completed at the laboratories of LNEG in Porto, Portugal. For these particular campaigns, the ore was blasted in a development mine gallery in the F3 zone of the footwall of Sangdong Mine. Due to practical constraints, connected with the minimum volume for a pilot plant flotation cell, it was only possible to do four cleaning stages.

This section presents the results of the last pilot plant trials done in LNEG, in September 2023, based on which the process guaranties were granted. These last trials had a duration of 4 days, operating the pilot plant for a period of approximately 10 hours each day. Timed samples of the feed, sulphide concentrate, scheelite concentrate, and tailings were collected on an hourly basis. During the last hour of operation, samples of all internal streams were carefully collected, so as not to disturb the circuit. All these samples were assayed in WO_3 at the TTC (see the list of streams in Table 13-19). Based on these assays, and on the flowrates estimated from the timed samples, it was possible, by writing the equations of mass balance, to compute the complete mass balance in terms of total mass and mass of WO_3. In Table 13-20 are given the mass balances for each day of operation. It is clear that during these four days the results here are very similar, with a slight tendency to get better in terms of recovery and concentrate grade, as the days passed. For day 1, the complete mass balance gave a recovery of 81.8% for a concentrate grade of 62.40% WO_3; for day 2, a recovery of 82.4% and a concentrate grade of

61.70% WO_3; for day 3, a recovery of 82.4% and a concentrate grade of 64.48% WO_3; and, finally, for day 4, a recovery of 82.5% and a concentrate grade of 67.46% WO_3.

The pilot plant trial results indicate that the metallurgical projection is slightly worse than that from the locked cycle tests. However, we must take into consideration the practical limitations imposed by LNEG's pilot plant. Not only was the number of cleaning stages only four instead of five, which limited the final concentrate grade, but the aeration rate of the rougher and scavenger banks was deficient, which limited the recovery. The cells of these banks were old Denver no. 7 cells, of sub-A type, without the possibility of increasing the speed of the rotors. In this way, the metallurgical projection based on the locked cycle tests is considered more accurate and should be used in defining the economic model.

During 2025, as mentioned above, LNEG's pilot plant is scheduled to explore the possibility of producing by-product concentrates of Mo and Bi/Au/Ag. It will also be given continuity to the effort of de-risking, by exploring other collectors recognized as suitable for scheelite flotation.

Table 13-19. List of streams for the pilot plant – LNEG (2023)

stream no.	name	from	to
1	rougher concentrate	rougher bank	1st cleaner
2	cleaner scavenger concentrate	scavenger cleaner	1st cleaner
3	1st cleaner concentrate	1st cleaner	2nd cleaner
4	2nd cleaner concentrate	2nd cleaner	3rd cleaner
5	3rd cleaner concentrate	3rd cleaner	outside
6	scavenger 1 concentrate	scavenger 1 bank	scavenger cleaner
6A	scavenger 2 concentrate	scavenger 2 bank	scavenger cleaner
7	3rd cleaner tails	3rd cleaner	2nd cleaner
8	2nd cleaner tails	2nd cleaner	1st cleaner
9	1st cleaner tails	1st cleaner	scavenger cleaner
10	scavenger cleaner tails	scavenger cleaner	TOFA conditioner
11	rougher tails	rougher bank	scavenger 1 bank
11A	scavenger 1 tails	scavenger 1 bank	scavenger 2 bank
12	scavenger 2 tails	scavenger 2 bank	outside
13	sulfide flotation tails	sulfide flotation bank	rougher bank
14	sulfide flotation feed	grinding circuit	sulfide flotation bank
15	sulfide flotation concentrate	sulfide flotation bank	outside

Table 13-20. Mass Balance for Plant Trials – Days 1 - 4 – LNEG (2023)

flux no.	material	Day 1				Day 2				Day 3				Day 4			
		WO_3 %	flow rate g/min.	units	dist.	WO_3 %	flow rate g/min	units	dist.	WO_3 %	flow rate g/min	units	dist.	WO_3 %	flow rate g/min	units	dist.
1	rougher concentrate	14.02	29.5			18.19	16.6			26.56	12.6			28.05	15.7		
2	cleaner scavenger concentrate	19.22	6.6			16.31	9.9			20.35	9.6			23.39	8.7		
3	1st cleaner concentrate	43.89	13.3			43.03	10.7			43.03	17.8			44.05	24.2		
4	2nd cleaner concentrate	59.92	5.5			58.91	5.2			59.04	6.9			63.46	6.8		
5	3rd cleaner concentrate	62.40	4.9	307.5	81.8	61.70	4.6	285.9	82.4	64.48	4.4	285.8	82.4	67.46	5.2	348.2	82.5
6	scavenger 1 concentrate	3.31	12.4			4.13	10.5			2.98	8.4			3.48	10.7		
6A	scavenger 2 concentrate	1.34	3.0			1.56	2.8			0.981	3.0			1.05	2.9		
7	3rd cleaner tails	37.73	0.6			36.88	0.6			49.07	2.4			51.09	1.7		
8	2nd cleaner tails	32.96	8.4			33.84	6.0			35.89	13.3			37.72	19.1		
9	1st cleaner tails	7.45	31.2			8.13	21.9			13.78	17.8			15.38	19.2		
10	scavenger cleaner tails	3.78	40.1			2.54	25.3			3.98	19.7			5.51	24.2		
11	rougher tails	0.128	820.7			0.136	770.7			0.111	765.9			0.131	840.4		
11A	scavenger 1 tails	0.079	808.3			0.081	760.2			0.079	757.4			0.088	829.8		
12	scavenger 2 tails	0.076	805.3	60.9	16.2	0.076	757.4	57.2	16.5	0.075	754.4	56.9	16.4	0.085	826.8	69.9	16.6
13	sulfide flotation tails	0.459	810.2			0.450	762.1			0.452	758.8			0.503	832.0		
14	sulfide flotation feed	0.457	822.1	376.1	100.0	0.448	774.5	347.2	100.0	0.450	770.8	346.9	100.0	0.500	843.8	422.2	100.0
15	sulfide flotation concentrate	0.344	11.9	4.1	1.1	0.325	12.5	4.0	1.2	0.350	12.0	4.2	1.2	0.347	11.8	4.1	1.0

13.4.6 Conclusion

Considering the results of all tests, it can be concluded that mill recovery will likely range from 83.6% to 85.4% and the final concentrate grade, considering the average between test no. 1 and test no. 2, will be around 67-68% WO_3.

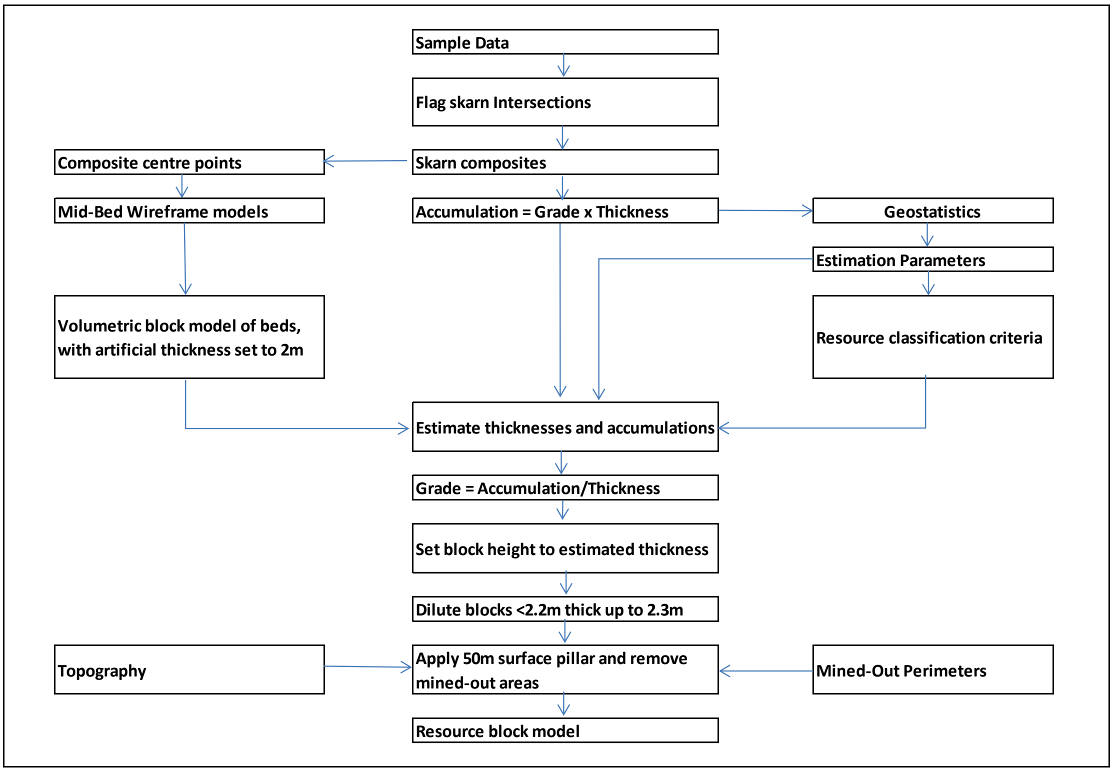
For the current study, AKTC has decided to assume an overall global mill recovery of 85%, along with a concentrate grade of 65% WO_3.

14 MINERAL RESOURCE ESTIMATES

14.1 General Methodology

An updated mineral resource estimation was completed, during June-July 2016, by the Qualified Person. This estimation employed a three-dimensional block modelling approach, using CAE Datamine software. Two main resource blocks models were developed. The relatively thick hanging-wall (HW) zone was modelled using a conventional block model structure. All of the other bed-like skarn zones were modelled using the initial generation of 3D digital terrain models (DTMs) for the zone centre-points, onto which thicknesses and grade-accumulations were estimated. This general methodology is described in the flowsheet in Figure 14-1.

Figure 14-1. Block Modelling Methodology – Thin Skarn Zones



The interpretation of skarn zones has been generated by SMC geologists, with additional intersection checks and refinements by the QP. The defined skarn intersections have been based on a lithological skarn identification, as well as 0.1% WO_3 cut-off grade. Additional mined-out limits for the principal skarn structures were applied, as well as a 50m remnant surface pillar below the surface topography.

14.2 Sample Database

The sample database, in the form of an Excel spreadsheet, is comprised of data from a number of surface and underground drillholes, over a number of recent and historical drilling campaigns. A summary of the available sample data is shown in Table 14-1. Plans of all these sample data are shown in Figure 14-2, colour-coded by sampling campaign, and in Figure 14-3, colour-coded by drillhole type – surface or underground. Overlain on these plots are outlines of the mineralised zones.

The different tables in supplied database include:

- Drillhole collars.
- Drillhole survey data.
- Assay data, generally for tungsten, molybdenum, zinc lead, copper, bismuth and gold. Tungsten and molybdenum assays were converted into WO_3 and MoS_2 grades.
- RQD and fracture spacing.
- Lithology data and weathering index.
- Drillhole recovery.
- Geotechnical logging, including codes and description of joint infilling.
- Density measurements.
- Structure orientation and width data for mapped fault structures.
- Mineralised intersections.

As can be seen from the plan plots, the resultant spacing of samples with these different historical campaigns has ended up being fairly sporadic, with sections spaced at distances from 30m to 100m. Most of the surface holes are vertical, as are the very deep underground holes. Most of the underground holes are angled up or down so as give good intersections with the overall mineralised structures, dipping at approximately 25^{o}. The lithology codes assigned during logging are summarised in Table 14-1.

Table 14-1. Exploration Drillhole Lithology Codes

CODE	DESCRIPTION
CSC	Colluvium
DUG	Underground Disturbance
DUS	Mine Stope / Cavity
DUV	Natural Cavity / Vugh
FLT	Fault
FMS	Felsic Schist
QTZ	Quartz
SCL	Limestone
SMK	Skarn
SMQ	Quartzite (Leptite)
SMS	Slate

Drillhole recoveries were not consistently good. In the recorded recovery data, with over 75% of the holes having a recovery of over 90%.

Table 14-2. Summary of Sample Database

		Surface Holes			Underground Holes			All Holes			WO_3		MoS_2	
Company	Code	Holes	Length m	Average Length / Hole m	Holes	Length m	Average Length / Hole m	Holes	Length m	Average Length / Hole m	Samples	Holes With Samples	Samples	Holes With Samples
Korea Resource Corp	KORE	7	1,185	169				7	1,185	169	795	7	672	7
Korea Tunsten Mining Corp	KTMC	51	38,970	764	812	43,859	54	863	82,829	96	7,758	752	4,961	660
Oriental Minerals	P0	91	22,801	251				91	22,801	251	21,111	91	8,226	88
Woulfe Mining Corp	P1	9	1,744	194	29	2,521	87	38	4,265	112	3,867	32	3,867	32
	P2				51	3,673	72	51	3,673	72	4,830	48	4,830	48
	P3				93	4,049	44	93	4,049	44	5,655	91	5,655	91
	P4				103	4,214	47	103	4,214	41	5,599	101	5,599	101
	P5				121	3,084	25	121	3,084	25	4,359	121	4,359	121
	P6				10	643	64	10	643	64	912	7	912	7
AKT	P7				20	1,004	50	20	1,004	50	905	20	905	20
Total		**158**	**64,700**	**409**	**1,239**	**63,048**	**51**	**1,397**	**127,748**	**91**	**55,791**	**1,270**	**39,986**	**1,175**

Figure 14-2. Plan of Exploration Sample Data – By Campaign

[Date: 2016; Source: A. Wheeler]

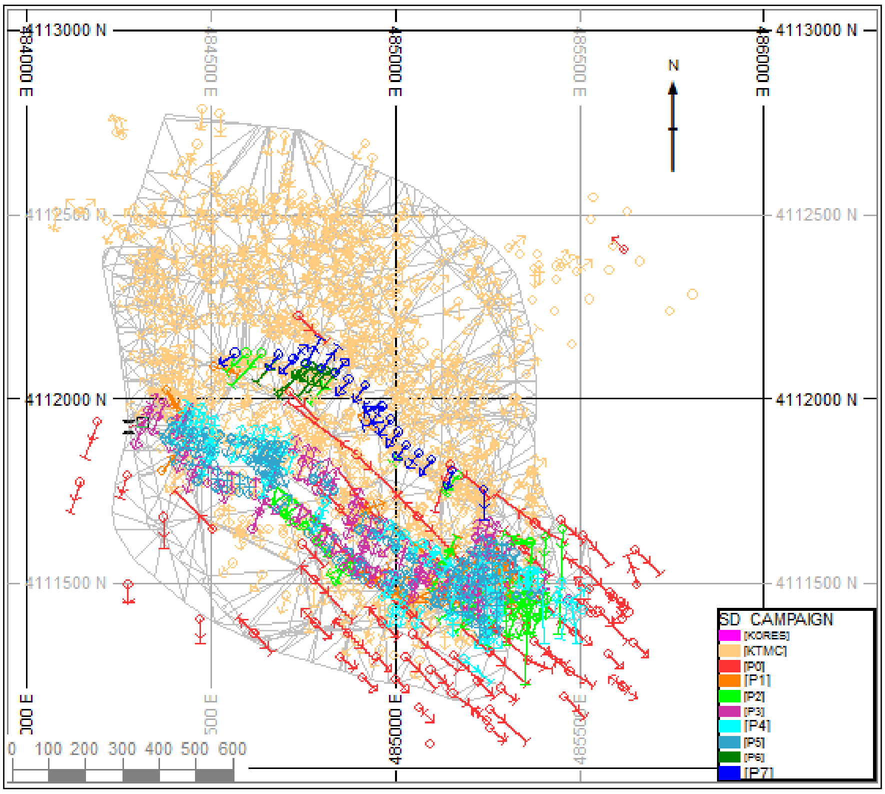
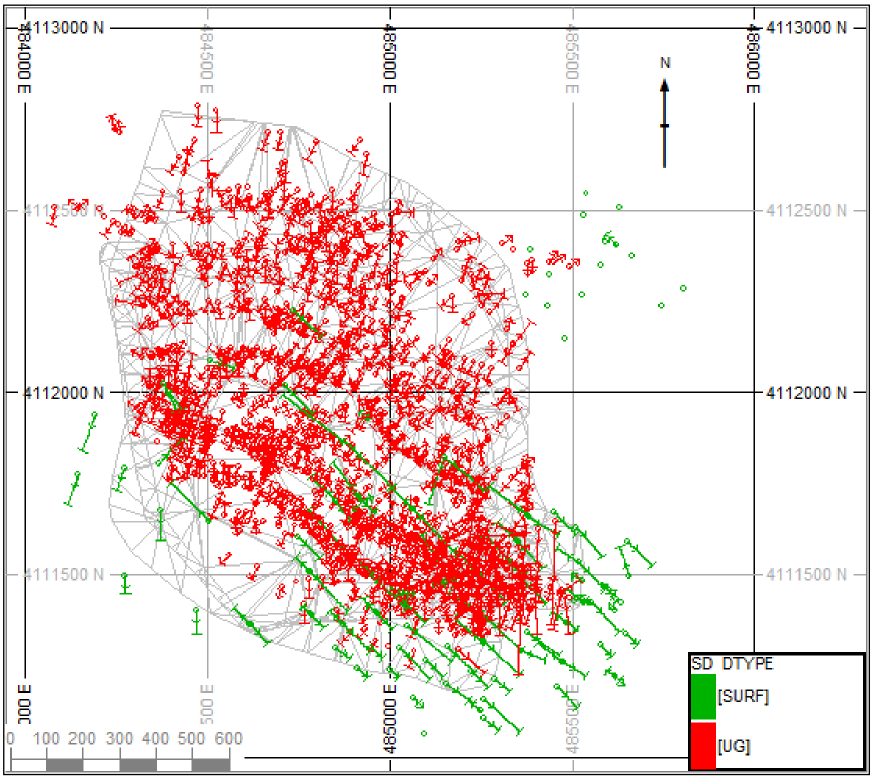


Figure 14-3. Plan of Exploration Sample Data – By Drillhole Type

[Date: 2016; Source: A. Wheeler]



14.3 Interpretation

The tungsten and molybdenum mineralisation is principally contained within tabular calc-silicate horizons, that are the product of skarn alteration of calcareous layers within the Myobong Shale. These horizons dip at approximately 25º, and have a dip direction of approximately 025º. The underlying Jangsan Quartzite also contain molybdenum mineralisation related to quartz veining and stockwork development (described in to 2010 Wardrop scoping study). The current estimate work is only focused on the tungsten mineralised skarn horizons. The updated interpretation has been built up using the following procedure:

1. The initial zone intersections recorded by SMC geologists have been taken, and used to demarcate the different primary mineralised intersections in each hole.

2. On importing the data into Datamine, checks have made for any illogical sequencing of intersections, according to the basic top to bottom zone sequence shown below. Any errors found were corrected. Communication with Sangdong geologists was also very important in this process.

   Zone Sequence
   HW
   MAIN
   F1
   F2
   HALO
   F3
   F4
   F5

3. For the HW zone, those relatively older holes (marked with H- prefix) holes were those generally drilled into or near the HW zone. For those holes which did not have any specific identifications flagged, HW intersections were automatically generated based on a cut-off of 0.2%WO_3. For the all of the HW data, the top-most and bottom-most intersections were then flagged in each hole. Between these extreme points, 5m composites were created in each flagged hole. Points of the hanging-wall and foot wall contacts for the HW zone were created, and DTMs of these surfaces were generated.

4. For all the other zones, the mineralised intersections were converted into three-dimensional composites. The centre-points of these composites were used to generate central DTMs for each zone. In this DTM generation process, limiting edge perimeters were also created for each zone.

5. The DTMs generated by the steps above were then used to test for any errors or intersections. Sections throughout the deposit were also examined. This process enabled many errors to be corrected, along with communication and checking by SMC geologists, after which steps 2-4 were repeated again.

In this error checking process, particular types of intersections were also flagged for the HW zone, marking valid intersections, but which are not representing footwall and or hanging wall contacts. An example of the final intersections is shown in Figure 14-5, corresponding with data for the same holes summarised in Table 14-4. Assay data for the surface hole SD_63 is also shown in Table 14-5.

There are a number of post-mineralisation faults. These are generally steep and oriented from north to 040º. The overall deposit is approximately bounded by major faults to the west and east of the deposit. Within the deposit there areas of smaller faults, typically spaced at 50m apart. The vertical throw of these faults is typically 1-4m. These faulted structures have not been specifically built into the current resource model. However, the DTMs generated directly from the drillhole intersections do have sharp angular deviations, reflecting the overall displacements produced by intersected faults.

An overall summary of the interpreted mineralised zones is shown in Table 14-3. As can be seen from this table, the individual beds below the HW structure generally have an average thickness from 1 to 4 m. Most of these beds also outcrop. The overall thickness of the entire mineralised tungsten suite of skarn bodies is approximately 130 m.

These beds can also be seen in the old workings, such are Main and F1 beds in Figure 14-4.

Table 14-3. Overall Mineralisation Dimensions

Zone	Strike Length m	Dip Length m	Vertical Limits: Minimum Base Elevation m RL	Vertical Limits: Maximum Elevation m RL	Vertical Limits: Max. depth m	True Width: Max m	True Width: Average m	Dip Range (°)	Average Dip (°)
HW	1,300	1,430	330	900	740	73.0	17.4	0-45	25
MAIN	1,600	1,410	300	870	580	14.9	4.7	16-40	24
F1	1,300	740	555	850	370	5.2	1.3	14-36	24
F2	1,540	1,070	435	870	510	8.4	3.5	17-32	25
HALO	820	450	570	760	185	3.3	1.1	15-45	25
F3	1,300	960	430	815	550	9.2	2.6	7-39	23
F4	1,220	980	386	800	580	5.7	2.7	10	24
F5	1,020	580	535	780	420	4.5	2.5	15-36	24
Overall Mineralisation	1,770	1,500	300	900	740	150	130	10-45	25

Figure 14-4. Photograph of Historical Development on Main and F1 Beds

Figure 14-5. Example Cross-Section of Interpretation

[Date: 2016; Source: A. Wheeler]

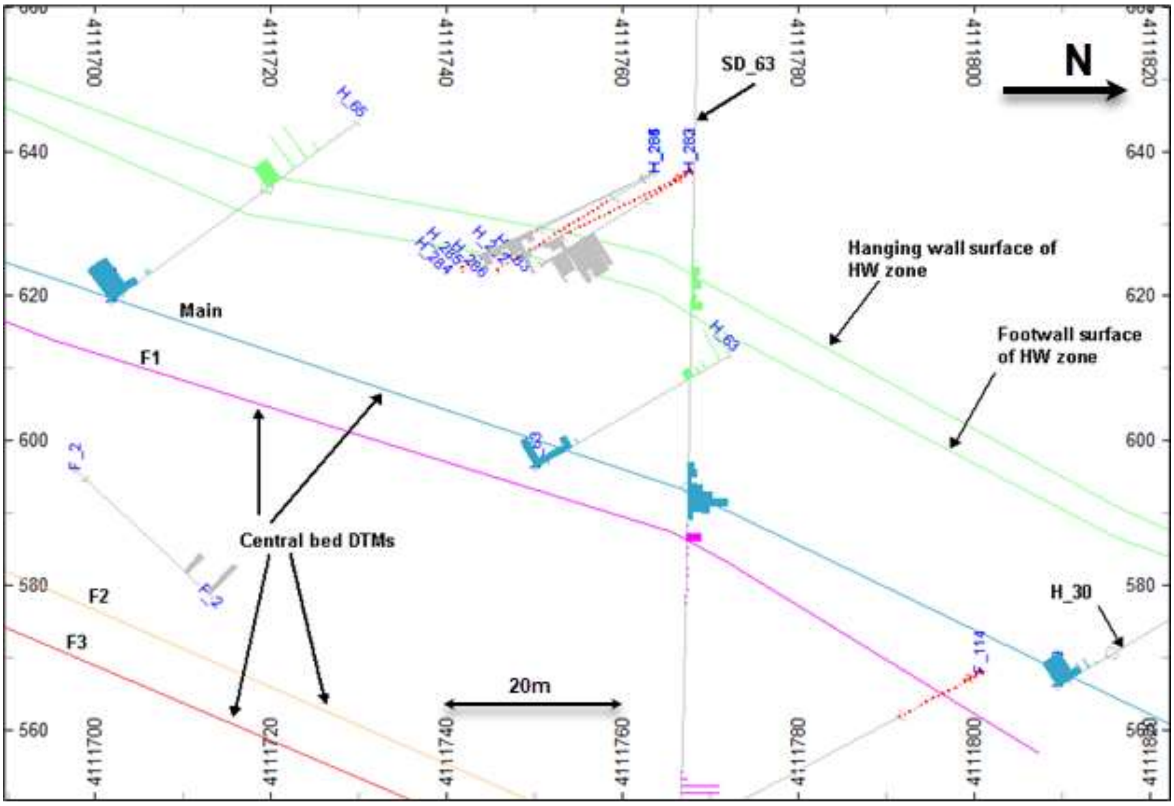


Table 14-4. Example Mineralised Zone Intersections

HOLE_ID	FROM	TO	AZONE
SD_63	257.0	263.0	HW
SD_63	285.0	293.0	MAIN
SD_63	295.0	296.0	F1
SD_63	339.0	342.0	F2
SD_63	345.0	349.0	F3
SD_63	388.0	391.0	F4
H_65	0.0	4.5	MAIN
H_65	26.7	29.0	HW
H_63	0.0	5.8	MAIN
H_63	24.1	25.1	HW
H_30	0.0	4.7	MAIN
H_30	33.7	39.4	HW

Table 14-5. Example of Assays in Hole SD_63

HOLE_ID	SAMP_ID	FROM	TO	WO3 %	
SD_63	18200	252	253	0.05	
SD_63	18201	253	254	0.03	
SD_63	18202	254	255	0.04	
SD_63	18203	255	256	0.05	
SD_63	18205	256	257	0.11	
SD_63	18206	257	258	0.19	↑
SD_63	18207	258	259	0.13	
SD_63	18208	259	260	0.22	HW
SD_63	18209	260	261	0.04	
SD_63	18210	261	262	0.13	
SD_63	18211	262	263	0.29	↓
SD_63	18212	263	264	0.13	
SD_63	18213	264	265	0.05	
SD_63	18214	265	266	0.01	
SD_63	18215	266	267	0.00	
SD_63	18216	267	268	0.00	
SD_63	18217	268	269	0.00	
SD_63	18218	269	270	0.00	
SD_63	18219	270	271	0.00	
SD_63	18220	271	272	0.00	
SD_63	18221	272	273	0.00	
SD_63	18222	273	274	0.01	
SD_63	18223	276	277	0.00	
SD_63	18225	277	278	0.01	
SD_63	18226	278	279	0.00	
SD_63	18227	279	280	0.00	
SD_63	18228	280	281	0.00	
SD_63	18229	281	282	0.00	
SD_63	18230	282	283	0.00	
SD_63	18231	283	284	0.00	
SD_63	18232	284	285	0.01	
SD_63	18233	285	286	0.15	
SD_63	18235	286	287	0.25	↑
SD_63	18236	287	288	0.09	
SD_63	18237	288	289	0.37	MAIN
SD_63	18238	289	290	0.61	
SD_63	18239	290	291	2.36	
SD_63	18240	291	292	0.54	↓
SD_63	18241	292	293	0.13	
SD_63	18242	293	294	0.07	
SD_63	18243	294	295	0.02	
SD_63	18245	295	296	0.38	↕F1
SD_63	18246	296	297	0.00	
SD_63	18247	297	298	0.06	
SD_63	18248	298	299	0.01	

14.4 Sample Selection and Compositing

As described in the previous section, samples were selected by two methods:

1. For the HW zone, samples were initially selected as those marked as HW intersections in the SMC database. For the relatively older holes (marked with an H- prefix), as well as all Phase 6 holes, which did not have any specific identifications flagged, HW intersections were also automatically generated based on a cut-off of 0.2% WO_3. For all of the HW data, the top-most and bottom-most intersections were then flagged in each hole. Those unflagged samples between these contacts were flagged as waste samples (AZONE=WAST). In addition to this, a customised set of HW contact point exceptions was created, where flagged HW samples were not to be used for upper or lower contacts.

2. For all the other skarn MAIN and F- beds, samples were selected based on those sampled flagged as such by SMC geologists, as well as additional corrections applied by the QP. The original selection criteria by SMC geologists were based on a combination of logged lithologies, as well as a cut-off of 0.1% WO_3 for continuity.

Based on this selection process, a separate selected sample file was created, as summarised in Table 14-6. In this table, the information has also been broken down between the older KTMC/KORES era of sampling, as compared with the more recent sampling associated with Oriental Minerals and WMC.

A histogram of sample lengths is shown in Figure 14-6. It can be seen from this that the two most common sample lengths are 0.5 m and 1 m.

Figure 14-6. Histogram of Sample Lengths

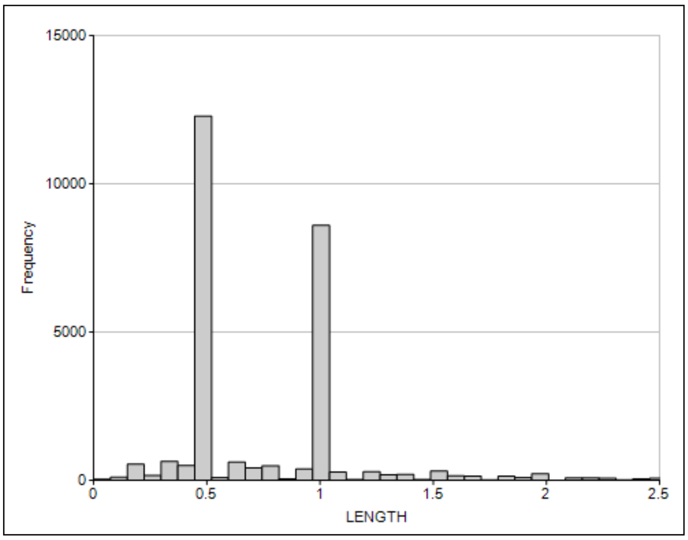


Table 14-6. Selected Sample Summary

		Holes			WO_3		MoS2	
Campaigns	Code	Holes	Length m	Average Length / Hole m	Samples	Holes With Samples	Samples	Holes With Samples
KTMC / KORES	HW	294	3,289	11.2	2,328	835	1,681	606
	MAIN	63	444	7.0	331	63	168	49
	F1	6	6	1.1	10	6	7	4
	F2	2	6	2.8	4	2	2	2
	F3	2	2	1.2	3	2	2	2
	F4	1	5	4.5	9	1	9	1
Oriental Minerals/ WMC	HW	97	1,259	13.0	1,825	252	1,786	249
	MAIN	151	1,007	6.7	1,583	150	1,524	147
	F1	119	224	1.9	374	119	367	112
	F2	246	1,035	4.2	1,704	246	1,616	240
	HALO	118	175	1.5	308	118	299	111
	F3	236	836	3.5	1,402	236	1,308	223
	F4	92	263	2.9	375	92	301	84
	F5	41	117	2.8	155	41	118	38
AKT	HW	19	287	15.1	276	64	276	64
All	HW	410	4,836	11.8	4,429	1,151	3,743	919
	MAIN	214	1,451	6.8	1,914	213	1,692	196
	F1	125	230	1.8	384	125	374	116
	F2	248	1,040	4.2	1,708	248	1,618	242
	HALO	118	175	1.5	308	118	299	111
	F3	238	838	3.5	1,405	238	1,310	225
	F4	93	267	2.9	384	93	310	85
	F5	41	117	2.8	155	41	118	38

Notes:

KORE	Korea Resource Corp
KTMC	Korea Tunsten Mining Corp
WMC	Woulfe Mining Corporation
AKT	Almonty Korea Tungsten Corporation

For the generation of composites from the selected sample sets, the presence of grade outliers was also tested, to determine if top-cut levels should be applied. This outlier analysis included:

- Observations from log-probability plots
- Decile analyses
- Coefficient of variation (CV) analyses.

The results of all three tests were considered in the selection of appropriate threshold limits for applying top-cuts. The coefficient of variation (CV) is calculated as follows:

$$CV = \text{Standard deviation} \quad / \quad \text{Mean}$$

In CV analysis, CV values are calculated above progressively higher lower-most grade values of each main zone and grade field. A graph is then plotted of the CV values against its ranking in the CV list. Marked breaks in this variation index indicate particular thresholds at which marked changes in the grade population occur. A similar procedure was repeated for all the principal zones. These threshold levels were then applied during the compositing process, so as to top-cut any outlier values above these top-cut levels. Because of the variable sample lengths, the top-cut levels were applied before the composites were created.

Log probability plots for WO_3 grades in the selected samples are shown in Figure 14-7. Example CV plots of WO_3 grades for the HW and MAIN zones are shown in Figure 14-8, with the selected top-cut levels, and example decile analysis results for the HW and MAIN zones are shown in Table 14-8. Using these methods of analysis, the top-cut levels in Table 14-7 were selected. Log-probability plots, CV plots and decile analyses for all zones are shown in Appendix A.

Table 14-7. Top-Cut Levels

AZONE	WO_3	MoS_2
	%	%
HW	4.0	1
MAIN	4.0	1
F1	3.2	1
F2	3.4	1
HALO	1.6	2
F3	4.1	1.5
F4	1.6	0.7
F5	1.4	0.8

Figure 14-7. Log Probability Plot for WO3 Grades in Selected Samples

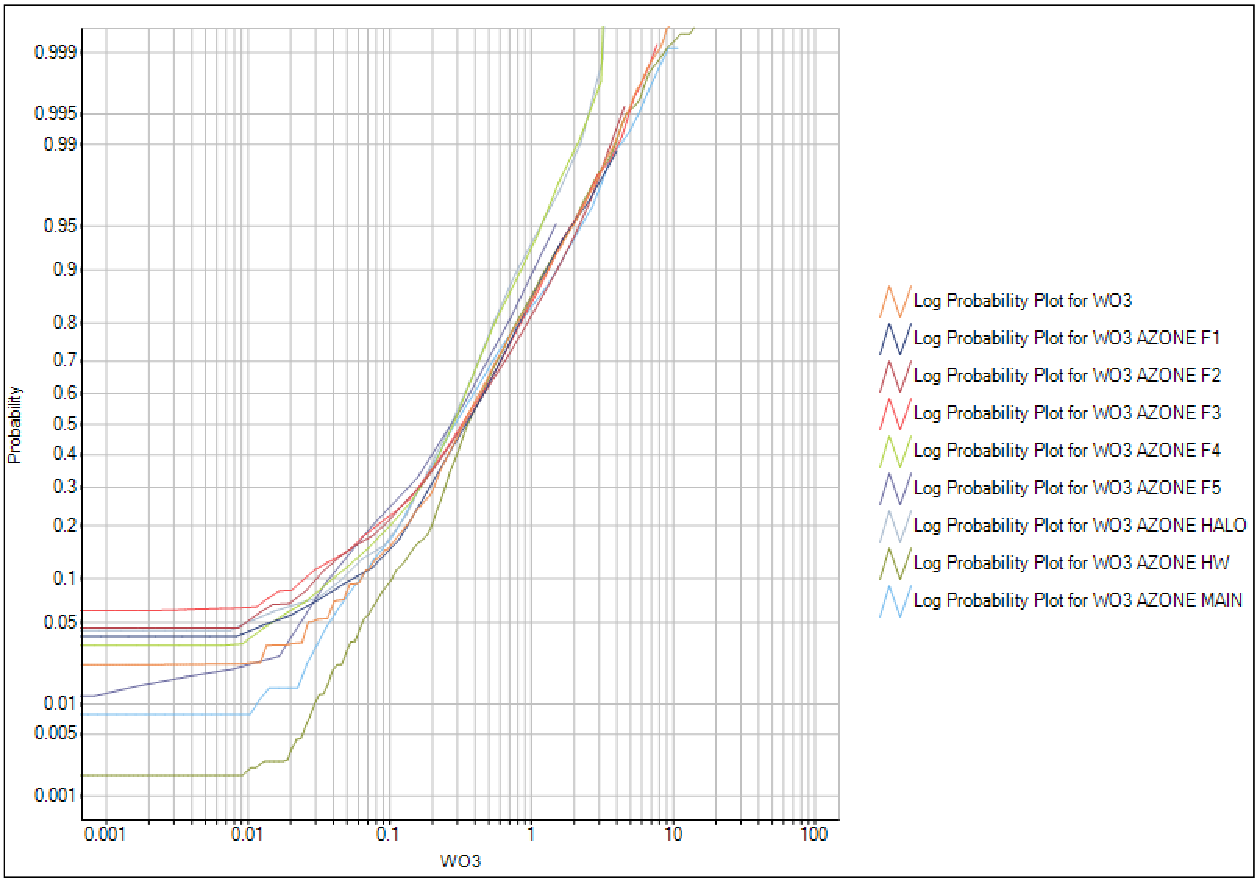


Figure 14-8. Example Coefficient of Variation Plots

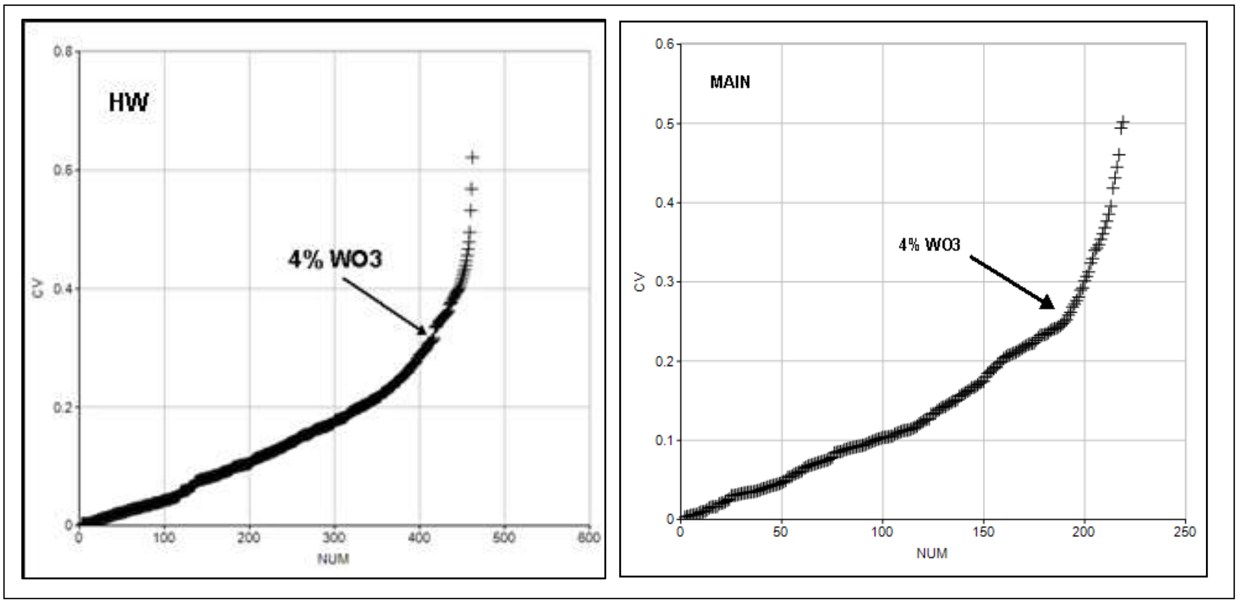


Table 14-8. Decile Analyses of WO3 Sample Grades in HW and MAIN Zones

AZONE	Q%_FROM	Q%_TO	NUMBER	MEAN	MINIMUM	MAXIMUM	METAL	METAL%
MAIN	0	10	258	0.05	0.01	0.08	6.37	0.8
	10	20	195	0.10	0.08	0.12	13.09	1.7
	20	30	217	0.15	0.12	0.17	19.81	2.5
	30	40	237	0.20	0.17	0.23	26.82	3.4
	40	50	188	0.25	0.23	0.28	33.91	4.3
	50	60	217	0.33	0.28	0.38	45.25	5.7
	60	70	234	0.44	0.38	0.51	59.82	7.6
	70	80	221	0.64	0.51	0.81	85.90	10.9
	80	90	233	1.07	0.81	1.46	145.07	18.4
	90	100	233	2.59	1.46	11.63	351.40	44.6
	90	91	29	1.51	1.46	1.57	20.41	2.6
	91	92	25	1.65	1.59	1.70	22.05	2.8
	92	93	20	1.79	1.70	1.85	23.45	3.0
	93	94	15	1.92	1.86	1.96	26.10	3.3
	94	95	20	2.04	1.97	2.12	28.29	3.6
	95	96	27	2.28	2.13	2.42	31.86	4.0
	96	97	20	2.59	2.46	2.66	34.66	4.4
	97	98	26	2.95	2.67	3.13	39.76	5.0
	98	99	26	3.40	3.14	3.96	46.59	5.9
	99	100	25	5.69	4.06	11.63	78.22	9.9
	0	100	2233	0.58	0.01	11.63	787.44	100.0
HW	0	10	730	0.08	0.01	0.14	40.17	1.5
	10	20	489	0.19	0.14	0.22	91.67	3.5
	20	30	471	0.24	0.22	0.26	113.35	4.3
	30	40	455	0.28	0.26	0.30	133.36	5.1
	40	50	436	0.33	0.30	0.36	158.23	6.0
	50	60	450	0.40	0.36	0.44	189.48	7.2
	60	70	432	0.49	0.44	0.54	231.74	8.8
	70	80	484	0.62	0.54	0.72	296.00	11.3
	80	90	515	0.88	0.72	1.11	419.00	16.0
	90	100	613	2.00	1.11	18.10	950.37	36.2
	90	91	55	1.13	1.11	1.16	52.57	2.0
	91	92	48	1.20	1.17	1.24	55.37	2.1
	92	93	53	1.28	1.24	1.33	63.49	2.4
	93	94	54	1.38	1.33	1.43	65.04	2.5
	94	95	61	1.52	1.44	1.61	71.90	2.7
	95	96	63	1.71	1.62	1.80	80.50	3.1
	96	97	66	1.95	1.80	2.10	92.45	3.5
	97	98	66	2.25	2.10	2.42	107.72	4.1
	98	99	70	2.76	2.43	3.29	130.00	5.0
	99	100	77	4.84	3.35	18.10	231.34	8.8
	0	100	5075	0.55	0.01	18.10	2623.37	100.0

The selected and top-cut samples were then composited. For the samples in the HW zone intersections, the following composite controls were applied :

1. Based on samples being flagged as either WASTE or HW within each overall intersection, zonal control was applied, such that separate waste and mineralised composites were created, split on the original sample division.

2. Composite length 5m. This compositing length was applied as slightly variable, such that an equal composite length of approximately 5m was applied across each intersection. This length was chosen to represent vertical selectivity with respect to subsequent underground mining.

3. Minimum composite length = 0.3 m.

4. Minimum/maximum gap length = 1 m / 2 m.

For the samples in the MAIN and footwall zones, the following composite controls were applied :

1. Complete intersection composites were created, across each skarn body defined by its AZONE identifier.

2. Minimum composite length = 0.3 m.

3. Minimum/maximum gap length = 1 m / 2 m.

4. Based on the central DTM of each skarn zone, local dip and dip directions were assigned to all of the composites. Stemming from these dip variables, the intersected composite lengths were used to calculate true thickness and vertical thickness values for each intersection composite.

5. For all of the MAIN and F- skarn composites, grade accumulations were calculated, for subsequent analysis and estimation purposes. These accumulations were calculated as follows, using the calculated vertical thickness of each intersection.

   WO3ACC = WO3 * VERTHK
   MOS2ACC = MOS2 * VERTHK

14.5 HW Analysis

With the new results available from the Phase 7 drilling campaign, there is now much more recent (P0-P7) data available for the HW zone, than there has been previously. This has enabled a much more thorough analysis of these more recent P0-P7 HW samples, as a means of potentially verifying the older historical KTMC data for the HW zone.

Summary statistics of selected samples and 5m composites, for the HW zone, are shown in Table 14-9. Separate statistics have also been calculated for the older KTMC data, as compared with the more recent PO-P7 data. It can be seen that these statistical parameters compare very closely for the different sample sources.

Table 14-9. Summary Statistics – HW Samples and Composites

Samples

FIELD	CODE	NUMBER	MINIMUM	MAXIMUM	MEAN	VARIANCE	STANDDEV	CV
WO3	K	2,506	0.00	4.61	0.57	0.29	0.54	0.9
WO3	P	2,578	0.00	18.10	0.50	0.79	0.89	1.8
WO3	All	5,084	0.00	18.10	0.55	0.45	0.67	1.2
MOS2	K	1,988	0.00	2.51	0.08	0.03	0.17	2.3
MOS2	P	2,539	0.00	4.32	0.10	0.04	0.19	2.0
MOS2	All	4,527	0.00	4.32	0.08	0.03	0.18	2.2
DENSITY	P	82	2.50	3.73	3.28	0.06	0.25	0.1

Composites

FIELD	AZONE	NUMBER	MINIMUM	MAXIMUM	MEAN	VARIANCE	STANDDEV	CV
WO3	K	1,027	0.15	3.82	0.54	0.14	0.37	0.7
WO3	P	358	0.15	2.55	0.51	0.15	0.39	0.8
WO3	All	1,385	0.15	3.82	0.53	0.14	0.37	0.7
MOS2	K	824	0.00	1.00	0.07	0.01	0.10	1.4
MOS2	P	355	0.00	0.49	0.10	0.01	0.09	0.9
MOS2	All	1,179	0.00	1.00	0.08	0.01	0.10	1.2
DENSITY	p	60	2.50	3.73	3.24	0.07	0.27	0.1

Notes

- . All statistics length-weighted
- . K = KTMC/KORE campaigns
- . P = P0-P7 campaigns
- . CV = Coefficient of variation

Comparative log-probability plots for the different sample groups are shown in Figure 14-9. These show very similar grade populations between the KTMC and P0-P7 sample groups. Pairs of intersections were selected where the P0-P7 intersection is very close to an existing KTMC drillhole i.e. effectively a twin sample. Sections of these paired intersections were examined, and generally showed good correspondence, as shown in the example in Figure 14-10, for both samples and composites.

Figure 14-9. HW Zone – Comparative WO_3 Log-Probability Plots

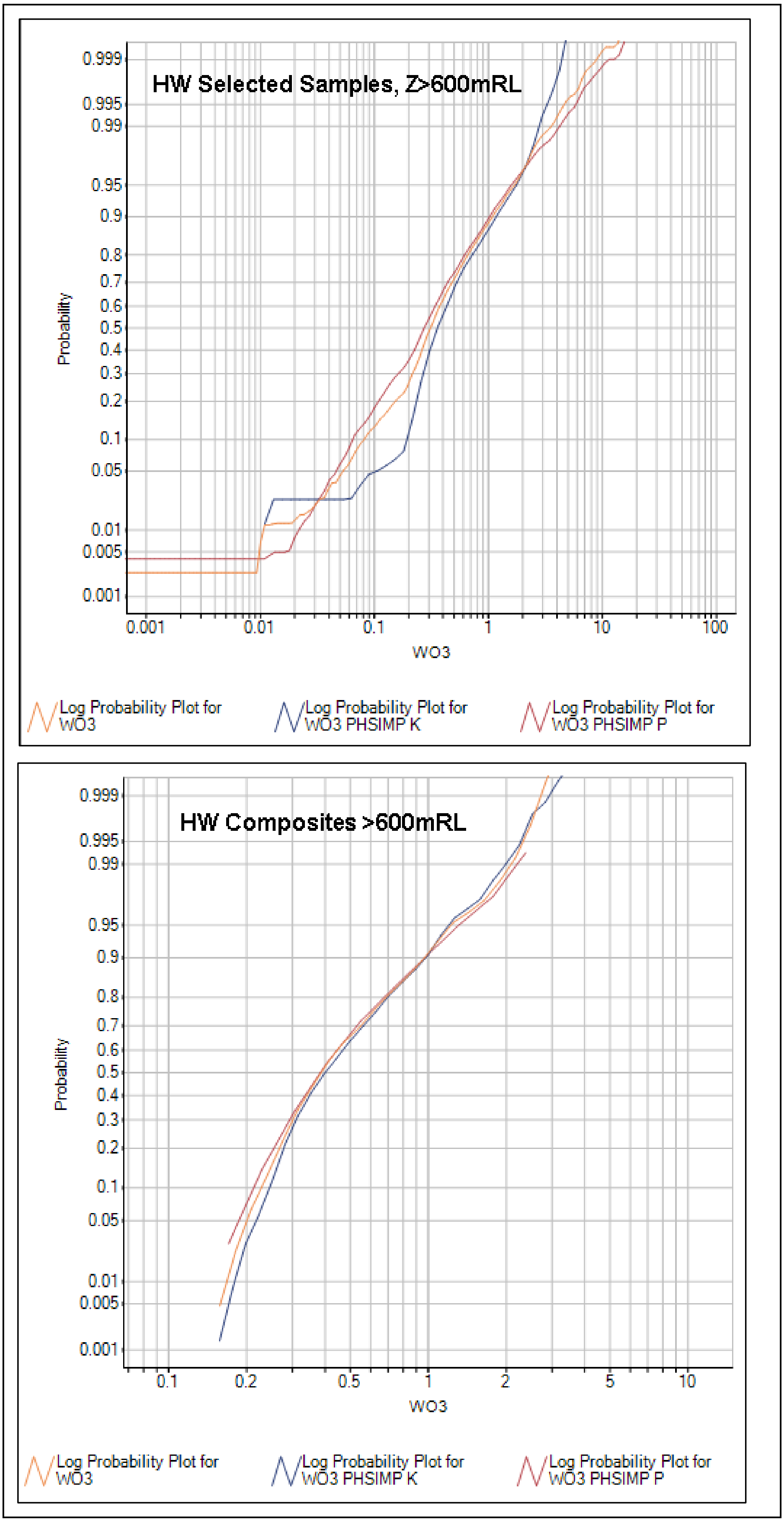
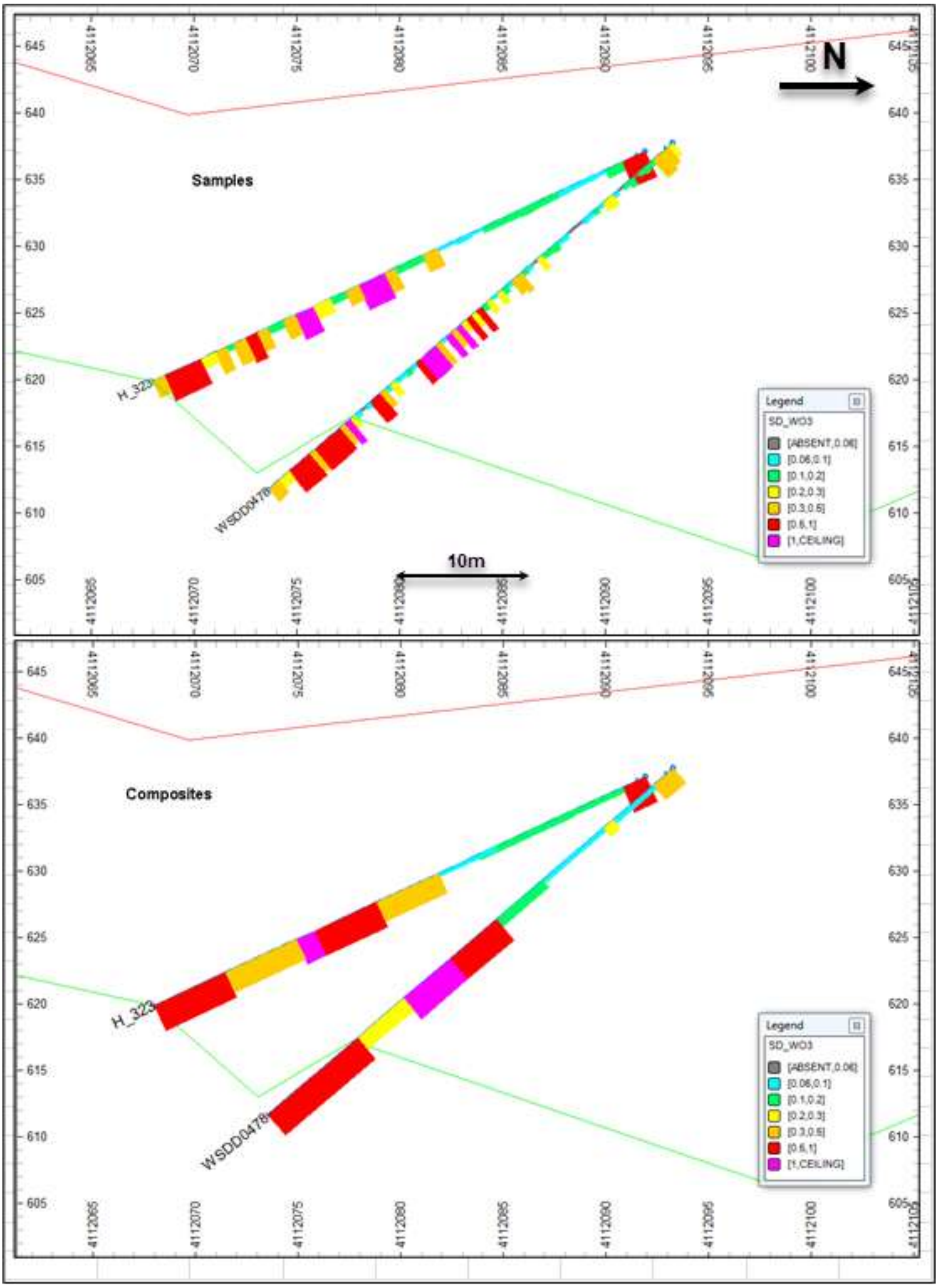


Figure 14-10. Twin Holes: H_323 and WSDD0478

[Date: 2016; Source: A. Wheeler]



The phase 7 drilling includes results from 20 drillholes, covering 1,004m. The QAQC measures taken as previously have been applied, and the results are acceptable. There is now a high proportion of P0-P7 data available for the HW zone (>25% of all the HW samples), along with a very good correspondence obtained with statistical parameters, grade distributions and twin-holes, when comparing the P0-P7 data with the older KTMC data.

The quantity and coverage of the new Phase 7 drilling results have now enabled a much improved analysis between the more recent (PO-P7) drilling results and the older KTMC data. This statistical analysis, along with a comparison of specific twin-hole pairs, has supported the validity of the older KTMC data. Given this evidence, it is the opinion of the QP that the KTMC data for the HW zone has now been effectively verified. The KTMC data may therefore be used for the estimation of the HW zone, without any restrictions.

All of the available data has therefore been used for the estimation of both indicated and inferred HW resources. This has therefore enabled a substantial increase in the proportion of indicated resources, for the HW zone.

14.6 Geostatistics

A statistical summary of the selected samples is shown in Table 14-10. These statistics are divided by zone assignment. It can be seen that all of the coefficient of variation (CV) values for WO_3 are generally just over 1.

Table 14-10. Summary Statistics of Selected Samples

FIELD	AZONE	NUMBER	MINIMUM	MAXIMUM	MEAN	VARIANCE	STANDDEV	SKEWNESS	LOGESTMN	COEFF OF VARIATION
WO_3	HW	5,084	0.00	18.10	0.55	0.45	0.67	7.13	0.56	1.2
	MAIN	2,269	0.00	11.63	0.57	0.68	0.83	4.12	0.68	1.5
	F1	514	0.00	4.96	0.52	0.43	0.65	3.24	1.32	1.3
	F2	2,185	0.00	5.19	0.52	0.44	0.67	2.66	1.78	1.3
	HALO	415	0.00	3.80	0.36	0.16	0.40	3.56	0.94	1.1
	F3	1,880	0.00	8.46	0.49	0.47	0.68	3.84	2.58	1.4
	F4	454	0.00	3.67	0.35	0.13	0.37	3.62	0.63	1.1
	F5	167	0.00	2.16	0.38	0.14	0.37	1.87	0.53	1.0
MoS_2	HW	4,527	0.00	4.32	0.083	0.032	0.18	8.69	0.17	2.2
	MAIN	2,070	0.00	4.20	0.046	0.023	0.15	16.25	0.25	3.3
	F1	503	0.00	0.83	0.043	0.010	0.10	5.44	0.23	2.3
	F2	2,095	0.00	3.75	0.045	0.038	0.20	11.19	0.14	4.4
	HALO	406	0.00	3.50	0.042	0.061	0.25	11.45	0.05	5.9
	F3	1,786	0.00	2.30	0.034	0.024	0.15	10.28	0.07	4.5
	F4	380	0.00	2.12	0.040	0.027	0.16	8.53	0.16	4.1
	F5	130	0.00	1.47	0.033	0.016	0.13	8.30	0.13	3.9
DENSITY	HW	82	2.50	3.73	3.28	0.06	0.25	-1.13	3.28	0.1
	MAIN	97	2.57	3.68	3.25	0.07	0.26	-0.25	3.25	0.1
	F1	32	2.71	3.39	3.02	0.03	0.17	0.02	3.02	0.1
	F2	129	2.46	3.48	3.02	0.02	0.14	0.50	3.02	0.0
	HALO	25	2.73	3.22	2.97	0.01	0.11	0.00	2.97	0.0
	F3	129	2.49	3.50	3.05	0.03	0.17	0.06	3.05	0.1
	F4	19	2.84	3.57	3.05	0.03	0.18	0.98	3.05	0.1
	F5	1	3.12	3.12	3.12					

A statistical summary of the generated composites is shown in Table 14-11, with corresponding log-probability plots from Figure 14-11 and Figure 14-12. It can be seen from Table 14-11 that the coefficient of variation values for WO_3 have been reduced to well below 1.0, by the effect of compositing and top-cut application. Individually the zones' grade populations show very clear log-normal populations.

Table 14-11. Summary Statistics of Composites

FIELD	AZONE	NUMBER	MINIMUM	MAXIMUM	MEAN	VARIANCE	STANDDEV	SKEWNESS	LOGESTMN	COEFF OF VARIATION
WO_3	HW	1,385	0.15	3.82	0.53	0.14	0.37	2.82	0.52	0.7
	MAIN	213	0.09	3.87	0.54	0.09	0.30	2.42	0.54	0.6
	F1	125	0.02	2.46	0.51	0.13	0.36	1.86	0.51	0.7
	F2	248	0.05	1.79	0.52	0.07	0.27	1.56	0.52	0.5
	HALO	118	0.04	1.60	0.35	0.06	0.25	3.16	0.34	0.7
	F3	238	0.15	1.69	0.49	0.07	0.26	2.05	0.49	0.5
	F4	93	0.01	1.60	0.34	0.02	0.14	3.16	0.35	0.4
	F5	41	0.19	1.40	0.37	0.02	0.15	1.91	0.36	0.4
MoS_2	HW	1,179	0	1.00	0.077	0.009	0.10	4.03	0.09	1.2
	MAIN	196	0.00	0.34	0.042	0.002	0.04	3.00	0.05	1.1
	F1	116	0.00	0.31	0.044	0.003	0.06	2.51	0.11	1.3
	F2	242	0.00	0.55	0.038	0.003	0.05	4.04	0.05	1.5
	HALO	111	0.00	0.58	0.037	0.007	0.08	3.64	0.10	2.3
	F3	225	0.00	0.76	0.033	0.004	0.06	5.54	0.06	1.9
	F4	85	0.00	0.47	0.034	0.004	0.06	3.95	0.04	1.9
	F5	38	0.00	0.80	0.030	0.004	0.06	8.18	0.05	2.1
TRUETHK	F1	125	0.18	7.49	1.39	1.34	1.16	2.59	1.37	0.8
	F2	248	0.13	10.92	3.16	4.36	2.09	1.31	3.24	0.7
	F3	238	0.09	9.30	2.74	3.13	1.77	1.41	2.79	0.6
	F4	93	0.46	7.00	2.44	2.14	1.46	0.72	2.52	0.6
	F5	41	0.24	5.32	2.45	2.07	1.44	0.27	2.59	0.6
	HALO	118	0.02	4.70	1.11	1.02	1.01	1.72	1.12	0.9
	MAIN	214	0.05	24.44	4.77	12.95	3.60	2.04	5.24	0.8

Notes

. TRUETHK = True thickness

. Statistics for WO_3 and MoS_2 weighted by true thickness

Experimental variograms were generated for the generated composite data sets. Consistent with the estimation of variable thicknesses of the skarn beds, variograms were generated for grade accumulations, as well as thickness values. Example experimental and model variograms are shown in Figure 14-13 and Figure 14-14. In general, for the non-HW zones there was no particular directional anisotropy observed. Most of these skarn bed variograms have ranges of influence from 50-100 m. For the HW zone, the WO_3 variograms range of influence is longer down-dip (50 m) as compared to along-strike (35 m). All of the modelled variogram parameters are summarised in Table 14-12.

Figure 14-11. Log Histogram – WO_3 – Composites

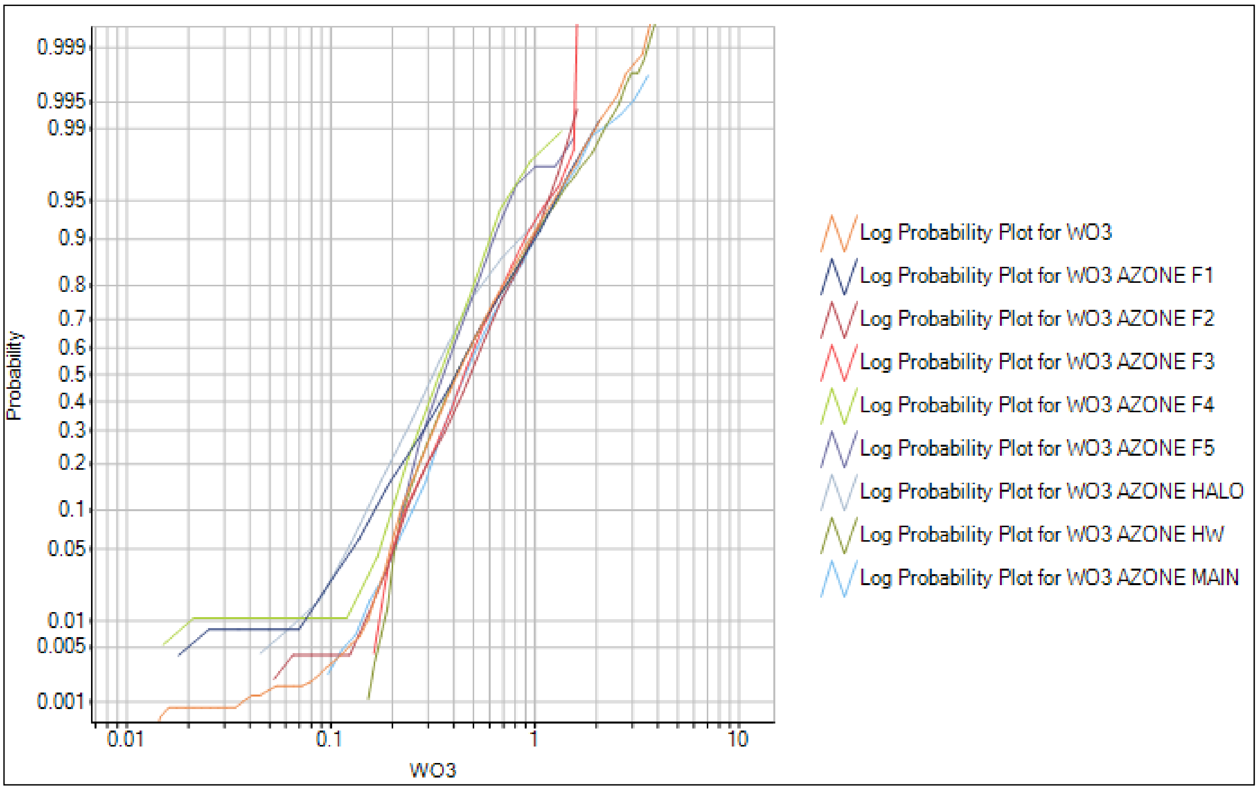


Figure 14-12. Log-Probability Plot – MoS_2 – Composites

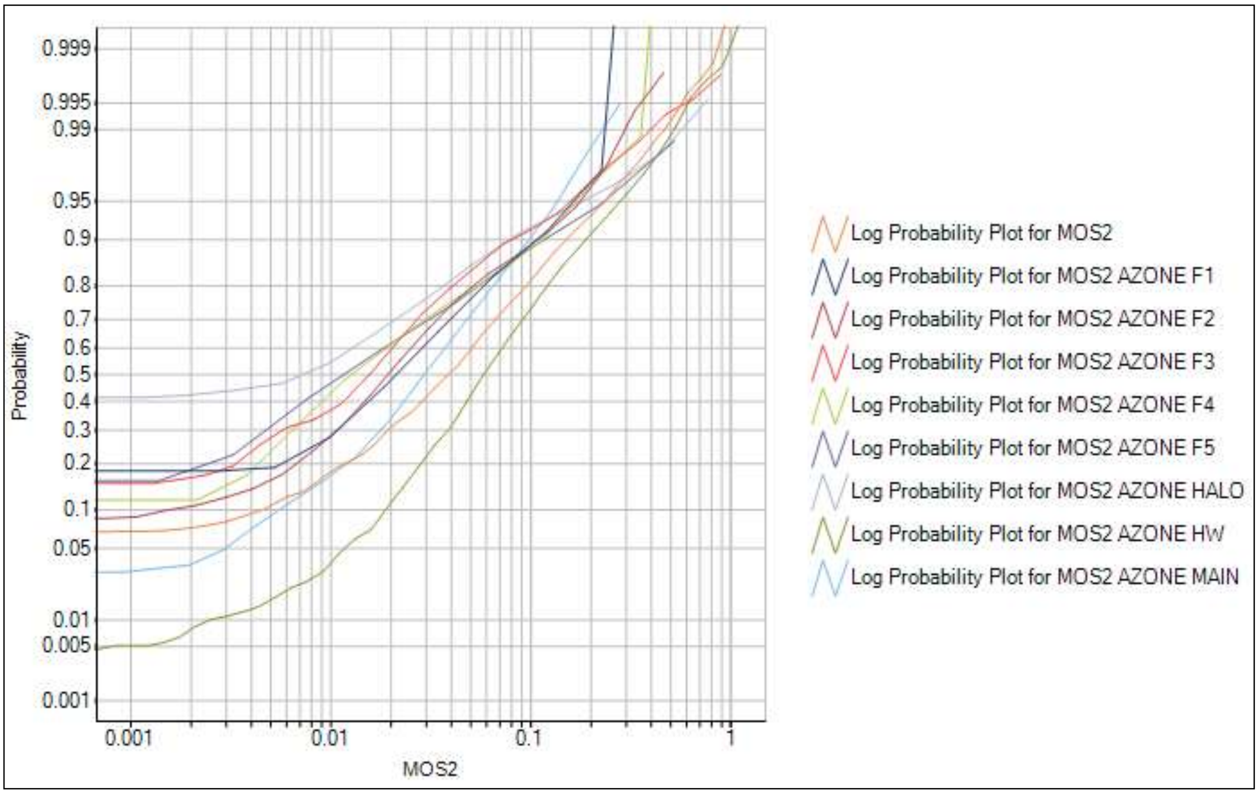


Figure 14-13. Experimental and Model Variograms – WO3 Accumulation - MAIN

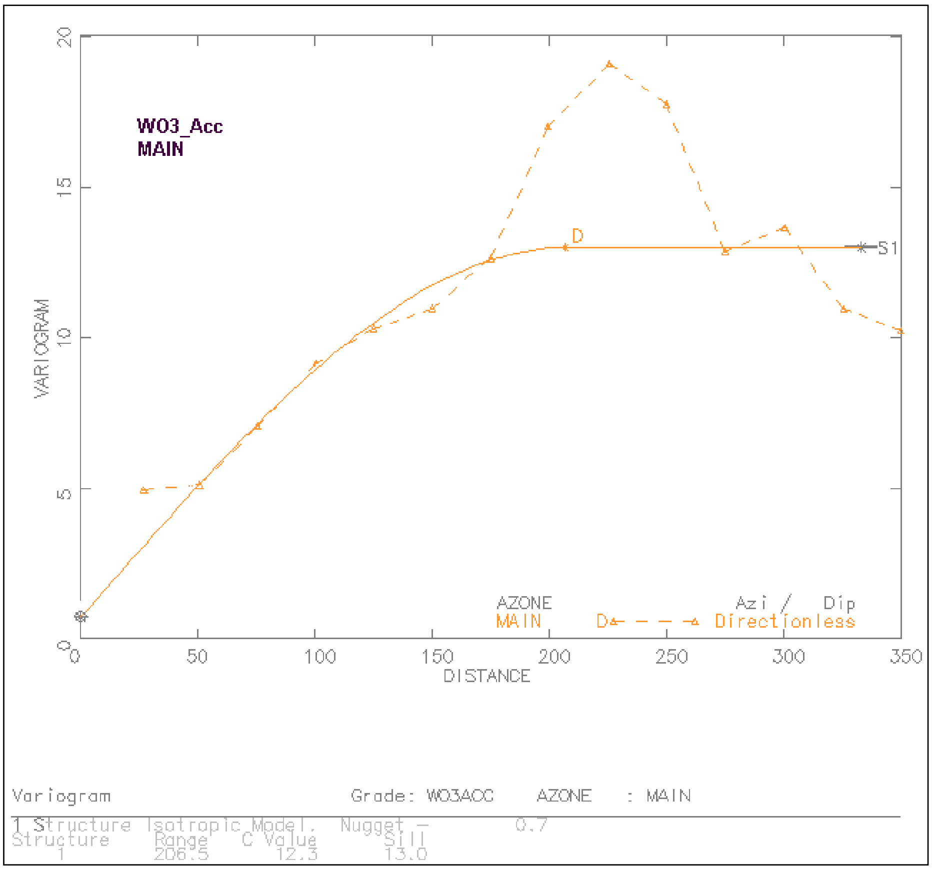


Figure 14-14. Experimental and Model Variograms – WO_3 – HW

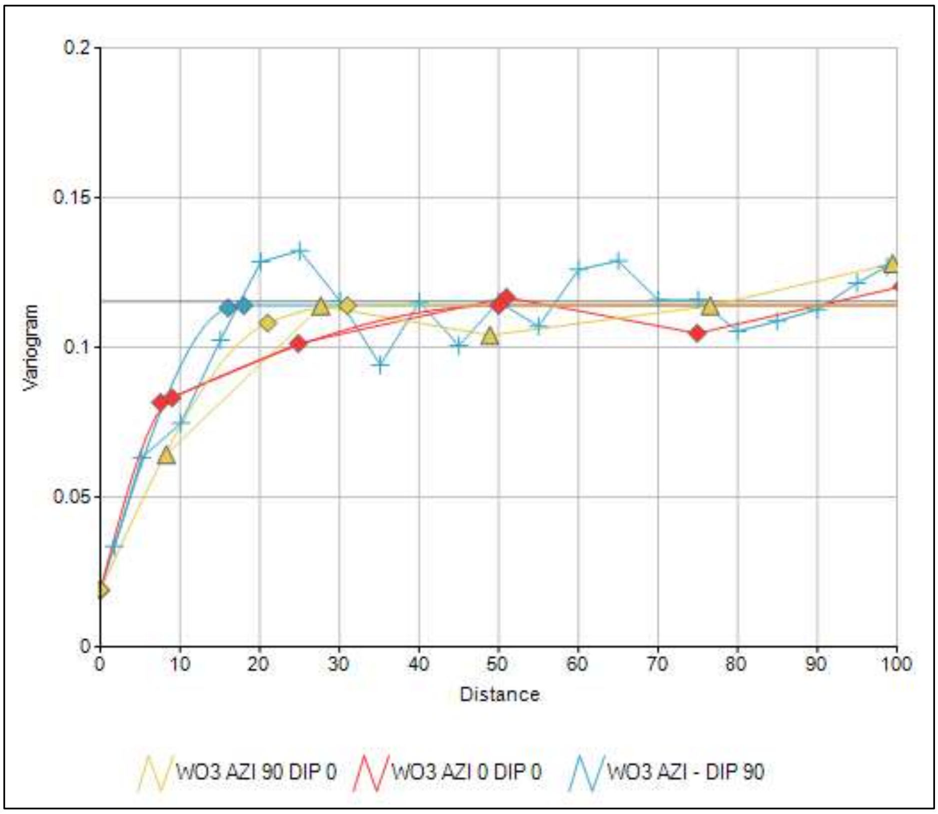


Table 14-12. Model Variogram Parameters

VREFNUM	AZONE	FIELD	TYPE	NUGGET	Range 1 (m)			C1	Range 2 (m)			C2
					1	2	3		1	2	3	
1	MAIN	WO_3	Accum	0.733	206.5	206.5	206.5	12.261	-	-	-	-
2	F1	WO_3	Accum	0.066	84.5	84.5	84.5	0.983	121.8	121.8	121.8	0.530
3	F2	WO_3	Accum	1.057	325.2	325.2	325.2	1.146	-	-	-	-
4	F3	WO_3	Accum	0.913	84.8	84.8	84.8	0.472	-	-	-	-
5	MAIN	WO_3	Thickness	3.761	181.1	181.1	181.1	17.834	-	-	-	-
6	F1	WO_3	Thickness	0.892	90.5	90.5	90.5	1.128	-	-	-	-
7	F2	WO_3	Thickness	3.002	257.5	257.5	257.5	3.123	-	-	-	-
8	F3	WO_3	Thickness	1.798	39.2	39.2	39.2	1.861	75.1	75.1	75.1	0.841
9	MAIN	MoS_2	Accum	0.065	134.5	134.5	134.5	0.097	-	-	-	-
10	F1	MoS_2	Accum	0.001	72.0	72.0	72.0	0.022	-	-	-	-
11	F2	MoS_2	Accum	0.015	112.1	112.1	112.1	0.028	-	-	-	-
12	F3	MoS_2	Accum	0.006	61.7	61.7	61.7	0.033	-	-	-	-
13	HW	WO_3	Grade	0.019	21.0	9.0	16.0	0.053	31.0	50.0	18.0	0.042
14	HW	MoS_2	Grade	0.009	39.2	39.2	39.2	0.008	-	-	-	-

Notes:

HW anisotropy directions:

1	**Along-strike**
2	**Down-dip**
3	**Cross-strike**

14.7 Volumetric Modelling

Two separate resource models were generated: one with a parent block structure of 10 m x 10 m x 10 m blocks (for the HW zone), and the other with a columnar block structure for all the other skarn zones. In the columnar block structure used, parent blocks were sized 10 m x 10 m, and in the vertical dimension single sub-blocks were generated, with a height equivalent to the vertical height of the skarn structure being modelled. In both models, sub-blocks were also generated down to 5 m x 5 m in the XY directions. Both model structures were orthogonal – no rotation was applied. A summary of the model prototypes is shown in Table 14-13.

Table 14-13. Resource Model Prototypes

[All dimensions in metres]

				HW		MAIN+F Beds	
	Minimum	**Maximum**	**Range**	**Size**	**Number**	**Size**	**Number**
X	483,900	486,000	2,100	10	210	10	210
Y	4,110,900	4,113,000	2,100	10	210	10	210
Z	0	1,000	1,000	5	200	1000	1

Physical controls used, during the generation of the volumetric block models, included:

- Natural topography wireframe model.
- Top and bottom contact DTMs for the HW zone.
- The central skarn bed DTMs, for the MAIN and F- beds.
- Perimeters demarcating the extent of previous mining for the HW, MAIN, F2 and F3.

For the MAIN and F- beds, an artificial vertical thickness of 2m was set onto model blocks. The vertical thickness of these blocks was subsequently estimated on these blocks and then used for the actual bed thickness.

Attribute fields set into the volumetric block models included:

AZONE Mineralised zone identifier
MINED Mined flag code (0 = unmined, 1 = mined)

14.8 Densities

Density measurements have been made during the recent WMC and AKTC campaigns, as summarised in Table 14-14. A histograms of the skarn density measurements is shown in Figure 14-16. Histograms for each skarn zone are shown in Appendix A. There does not appear to be particular relationship between density and WO_3 grade values, as shown in Table 14-14. The approach taken in this study was to estimate density values from the sample measurements, using inverse-distance weighting, up to a maximum within-bed distance of 100m. Beyond this distance, where no density samples were available, the average values shown in Table 14-14 were applied.

Table 14-14. Summary of Density Measurements

AZONE	Number of measurements	Average Density t/m^3
HW	82	3.28
MAIN	97	3.25
F1	32	3.02
F2	129	3.02
HALO	25	2.97
F3	129	3.05
F4	19	3.05
F5	1	3.12
Waste	564	2.87
Total	1078	

Figure 14-15. Density vs WO_3 Scatterplot

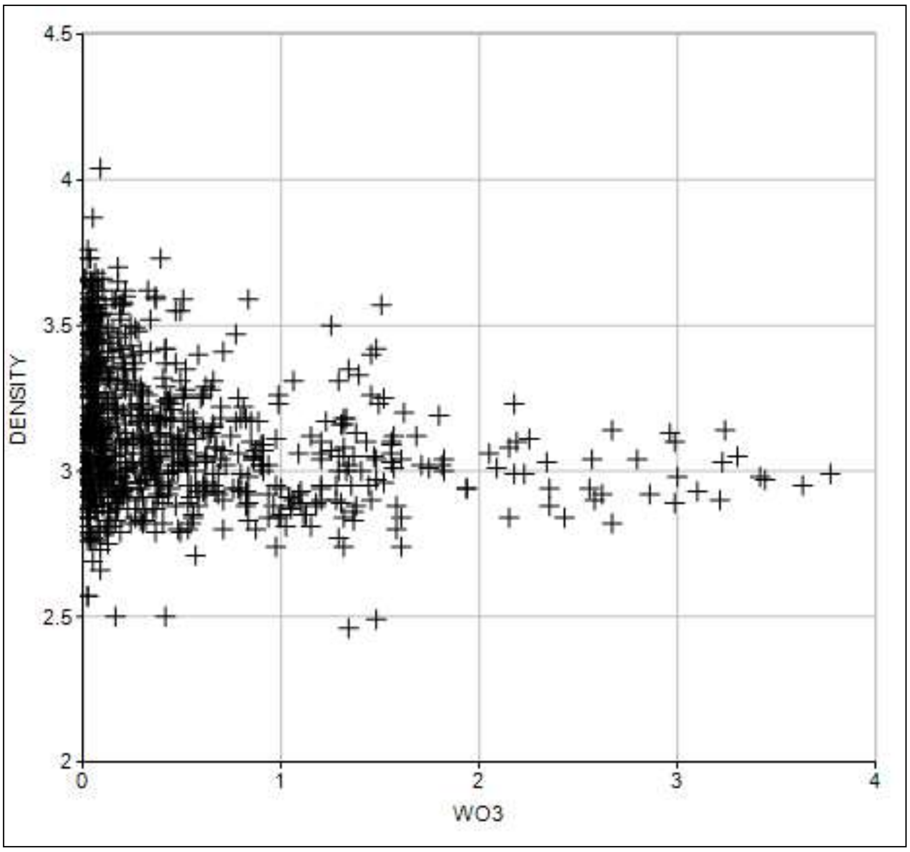
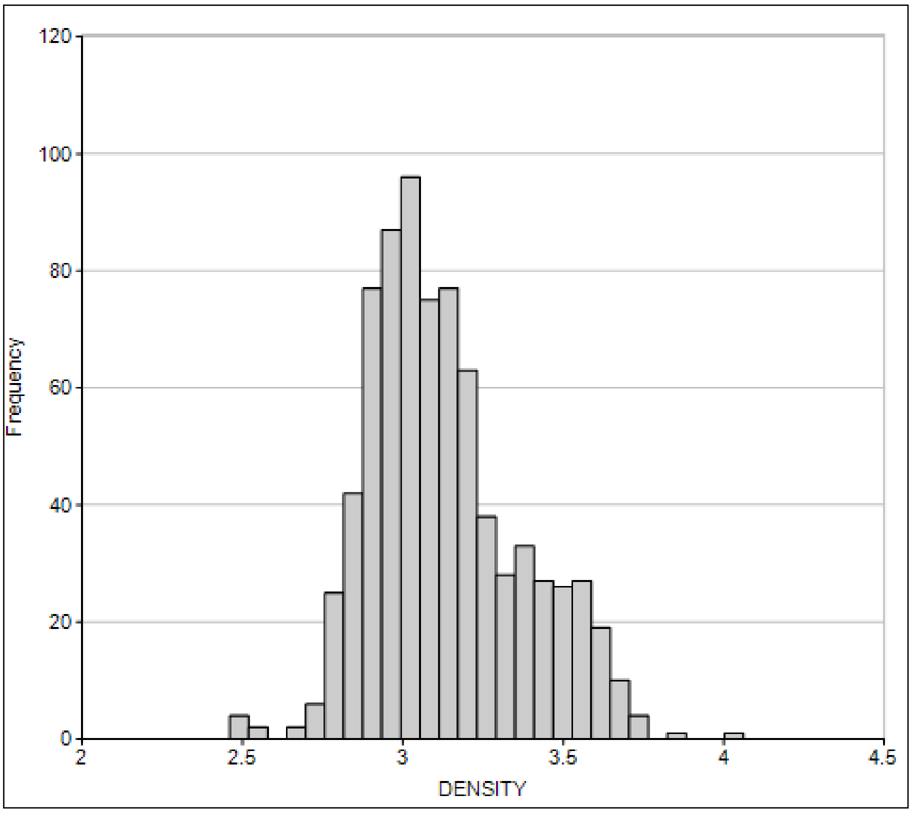


Figure 14-16. Histogram of Skarn Density Values



14.9 Grade Estimation

For the HW zone, composites were first flagged with indicator (0/1) values, according to whether they were proper mineralised HW composites (IND=1), or if they were representing internal waste within the overall limits of the HW structure (IND=0). These indicator values were then estimated into the HW volumetric block model, thus flagging blocks as either mineralised or waste. WO_3 and MoS_2 grades were then estimated, using the corresponding mineralised/waste composites for each block. Progressive search distances were applied, so that if the initial search criterial were not met, another search was then applied with bigger search distances and/or more relaxed parameters. The process was repeated until all mineralised blocks received estimated grades. The initial search applied for the HW zone was 35m x 35m x 5m, oriented parallel with the HW zone. Dynamic anisotropy was applied so that the search orientation varied according to the actual HW zone structure.

For the MAIN and F skarn beds, vertical thicknesses and grade-accumulations were estimated into the volumetric block model, both using ordinary kriging (OK). The estimated vertical thicknesses were then used to set the actual vertical thicknesses of the model blocks. Grades were then back-calculated from the estimated accumulations, such that:

Grade = Accumulation / Thickness

Progressive searches were also applied for estimation in the MAIN/F beds, starting off with a horizontal distance of 50 m . This is equivalent to a vertical search distance of 24m, which is generally less than the 30 m level interval. An octant search was also applied, so that initial searches were only successful if composites were encountered in at least 3 octants.

For all zones, primary grades were estimated using ordinary kriging (OK). For validation purposes, alternative grades were also estimated using inverse-distance weighting (ID) and nearest neighbour (NN) methods. The grade estimation parameters are summarised in Table 14-15.

Example plans of the WO_3 and thickness variation in the MAIN zone are shown in Figure 14-17 and Figure 14-18, respectively. Plans depicting grade and thickness variations in all zones are shown in Appendix B.

Table 14-15. Grade Estimation Parameters

	MAIN/F Beds				HW Zone			
Search No.	**Distance (m) X Y**	**Min. No. of Composites**	**Min. No. of Drillholes**	**Octant Control**	**Distance (m) X Y Z**	**Min. No. of Composites**	**Min. No. of Drillholes**	**Octant Control**
1	50 x 50	3	3	Yes	35 x 50 x 5	7	3	Yes
2	100 x 100	3	3	Yes	70 x 100 x 10	7	3	Yes
3	100 x 100	1	1	Yes	70 x 100 x 10	1	1	Yes
4	50 x 50	1	1	No	70 x 100 x 5	1	1	No
5	100 x 100	1	1	No	105 x 150 x 7.5	1	1	No
6	200 x 200	1	1	No	140 x 200 x 10	1	1	No
Composites	**Complete bed composites**				**5m downhole composites**			
Primary estimated variables	**. Accumulations: WO3ACC and MOS2ACC** **. Vertical thickness: VERTHK**				**. WO_3** **. MoS_2**			
Subsequent Calculation	**. WO_3 = WO3ACC / VERTHK** **. MoS_2 = MOS2ACC / VERTHK** **. Model ZINC = VERTHK**							

Notes:

. Dynamic anisotropy used to orient searches such that:

X = along-strike

Y = down-dip

Z = cross-strike

. Maximum no. of composites used:

MAIN/F 24

HW 15

. WO3 Grades interpolated using Ordinary Kriging (OK)

. MoS2 Grades interpolated using ID for HW, OK for all other beds

. Alternative grades also determined for validation:

- Inverse-Distance (^2) weighting (ID)

- Nearest neighbour (NN)

. Octant control:

. Min. number of composites per octant = 1

. Max. number of composites per octant = 3

. Minimum octants = 3

. Density values also estimated by ID

Figure 14-17. Plan of MAIN Zone – Resource Model WO_3

[Date: 2015; Source: A. Wheeler]

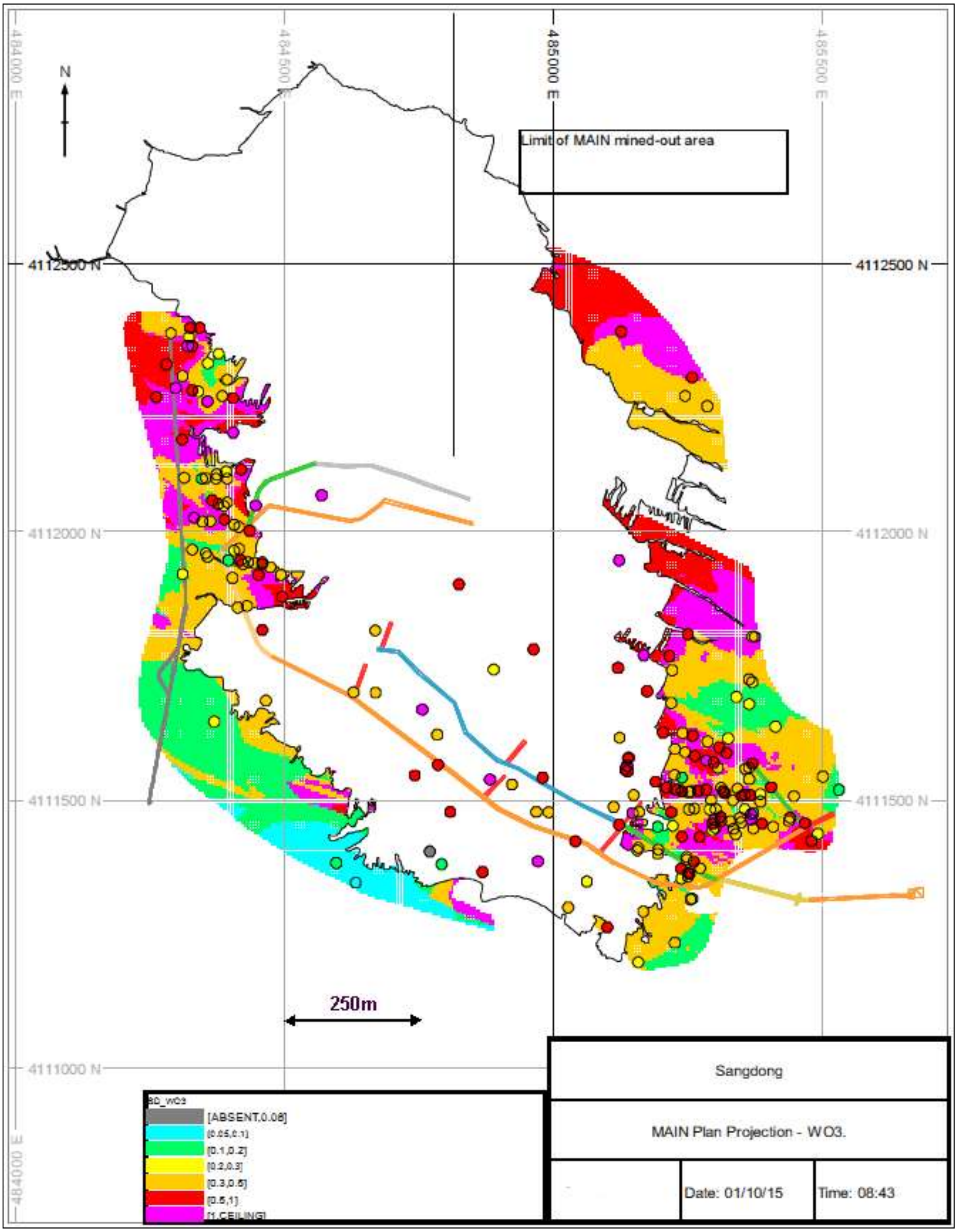
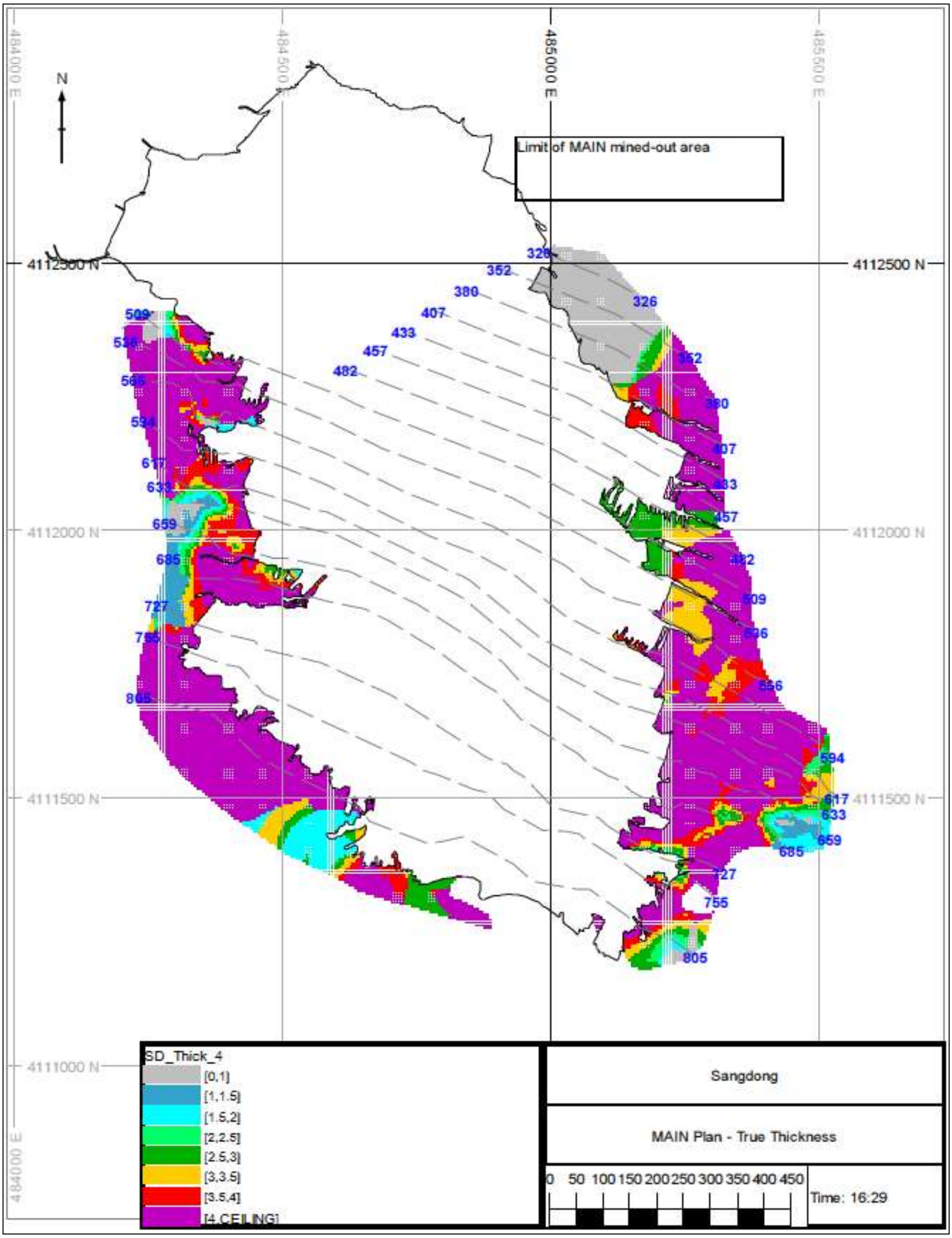


Figure 14-18. Plan of MAIN Zone – True Thickness

[Date: 2015; Source: A. Wheeler]



14.10 Mineral Resource Classification

It is considered that none of the resources at the current time should be classified as measured resources, owing to the lack of detailed fault modelling. The resource classification applied are summarised in Table 14-16. As compared to the previous resource estimation in December 2015, the HW zone criteria have been updated with respect the verification of KTMC data, as described in Section 14.5.

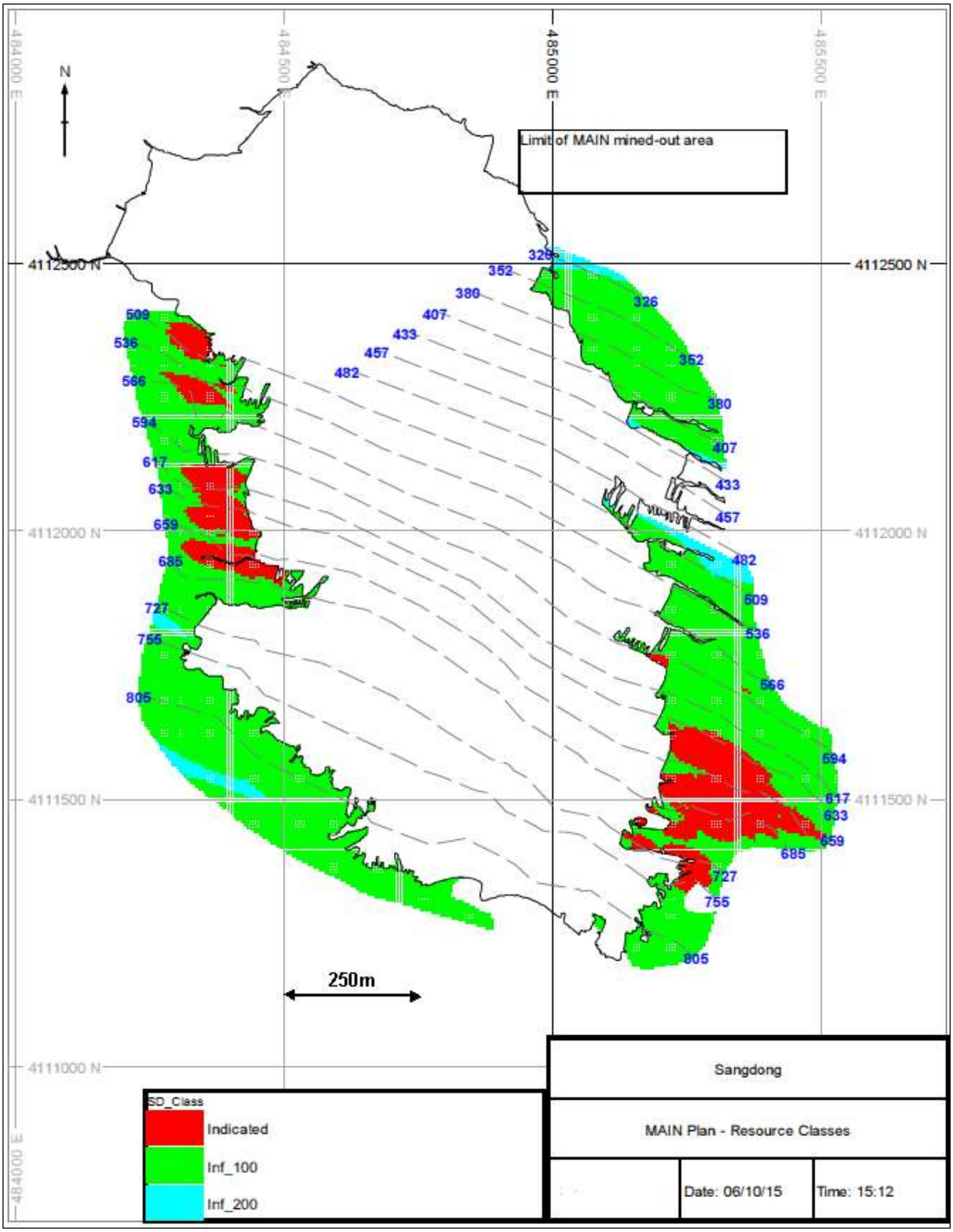
Table 14-16. Resource Classification Criteria

Category	MAIN and F Zones	HW Zone
Measured	(No material currently classified as measured)	(No material currently classified as measured)
Indicated	At least 3 full intersection composites, within at least 3 octants, with a search of 50m (along-strike) x 50m (down-dip).	At least 7 composites, within at least 3 octants, from at least 3 drillholes, with a search of 35m (along-strike) x 50m (down-dip) x 5m (cross-strike).
	Based on drilling from Oriental Minerals and WMC only.	Based on all available drilling.
		Also delineated within defined perimeters, to ensure areas clearly covered by drilling grids.
Inferred	Based on all available drilling.	Based on all available drilling.
	Maximum extrapolation of 200m, no octant control.	Maximum extrapolation of 105 x 150m, no octant control.

The distances applied for indicated resources stem from the variographic analysis, and generally correspond to the range or less. The 50 m applied for the MAIN and F beds is equivalent to a vertical interval of approximately 24 m. A plan depicting the resource classification for the MAIN zone is shown in Figure 14-19. Resource classification plans for all of the zones are shown in Appendix B.

Figure 14-19. Plan of MAIN Zone – Resource Classification

[Date: 2015; Source: A. Wheeler]



14.11 Model Validation

14.11.1 Visual Comparisons

Plan projection and sections were created from the resource block model, and compared with the sample composites used in grade estimation. Example plans of grade and thickness for the MAIN zones are shown in Figure 14-17 and Figure 14-18, respectively. Corresponding plans for the HW zone are shown in Figure 14-20 and Figure 14-21. Sections were also produced over the whole deposit, based on the mine section reference system shown in Figure 14-22. All of the sections are shown in Appendix B. In general, these plans and sections show a fairly good correspondence between estimated and composited sample grades.

Figure 14-20. Plan of HW Zone – WO3 Grades

[Date: 2016; Source: A. Wheeler]

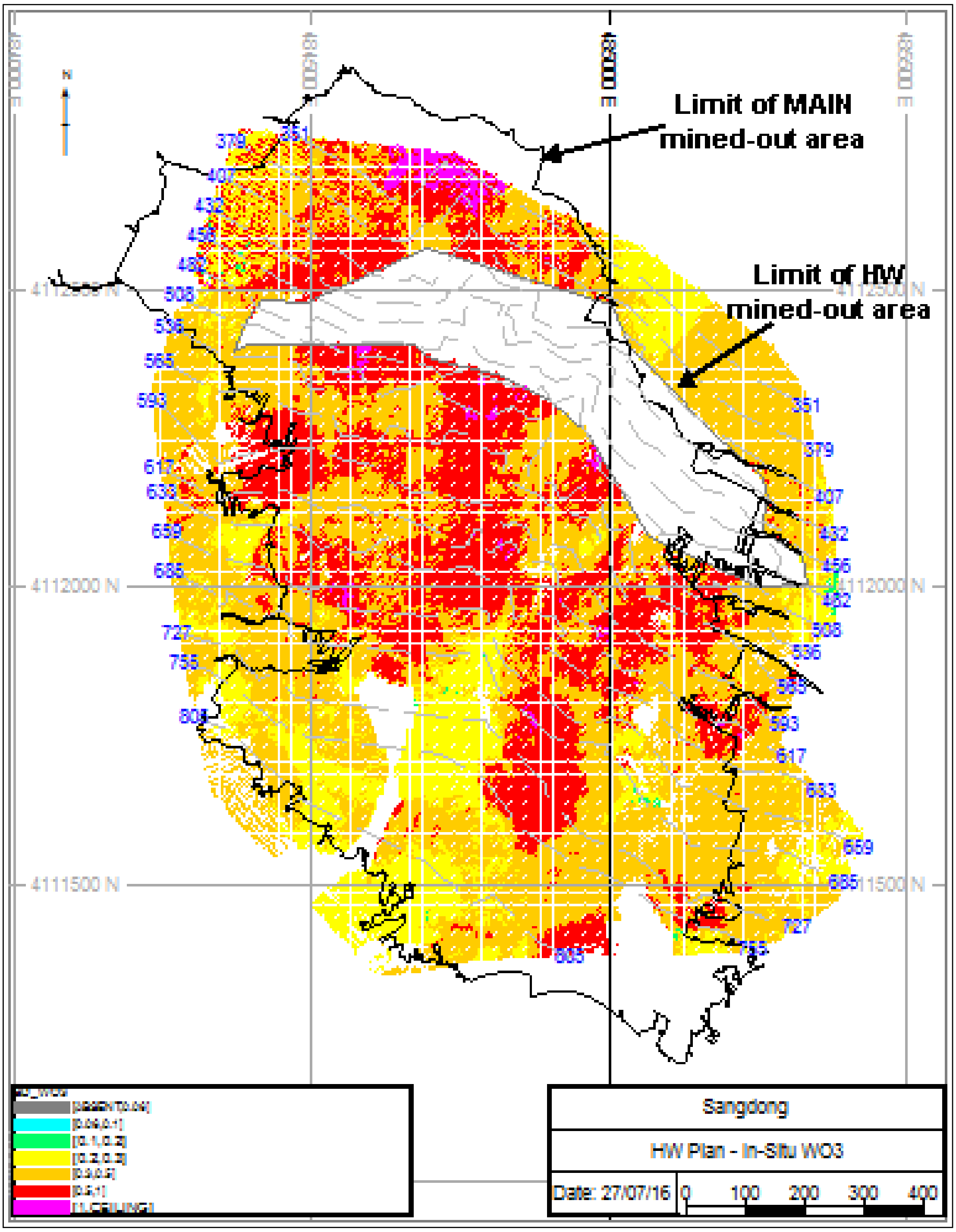


Figure 14-21. Plan of HW Zone – Vertical Thickness

[Date: 2016; Source: A. Wheeler]

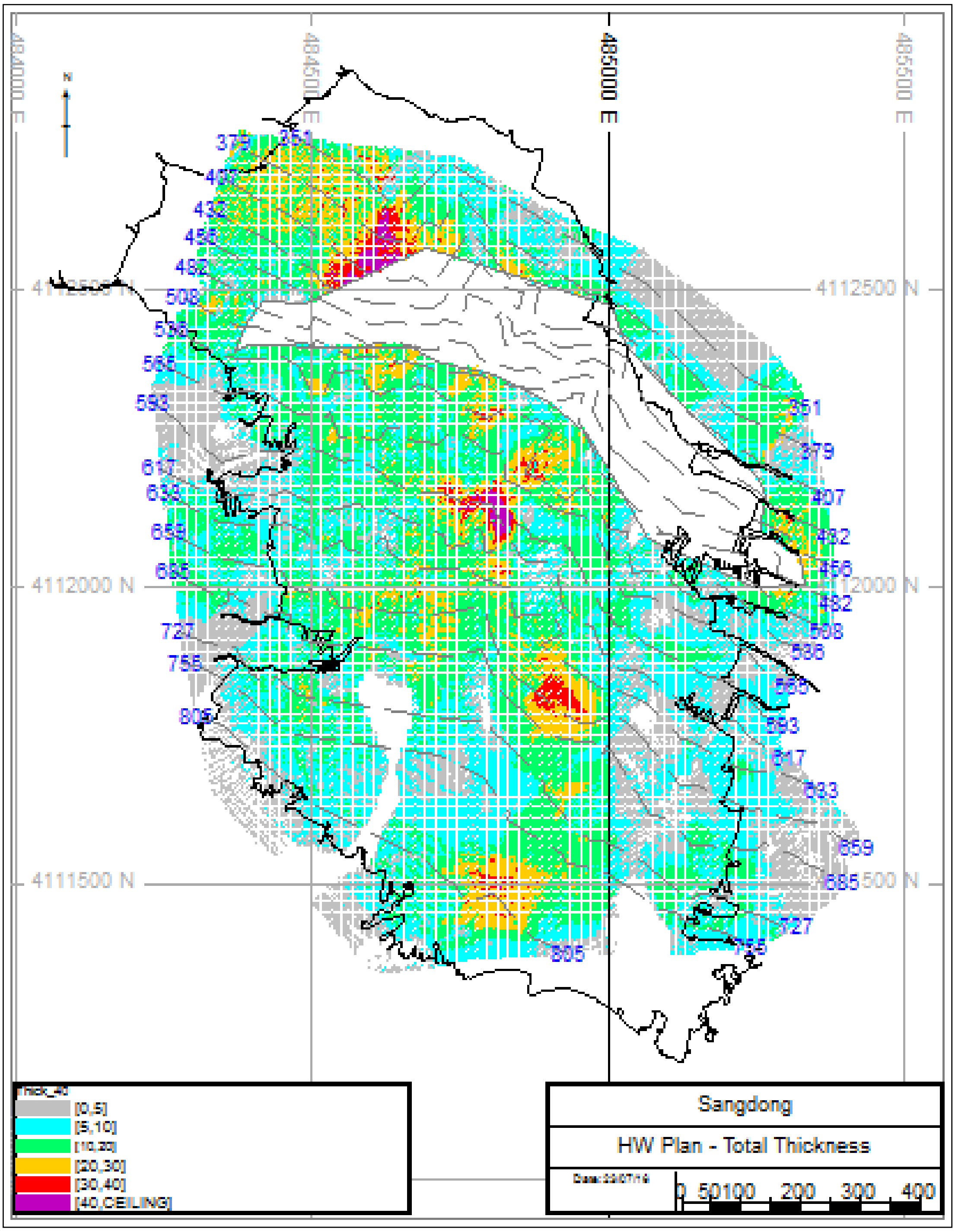


Figure 14-22. Plan of Section Reference System

[Date: 2015; Source: A. Wheeler]

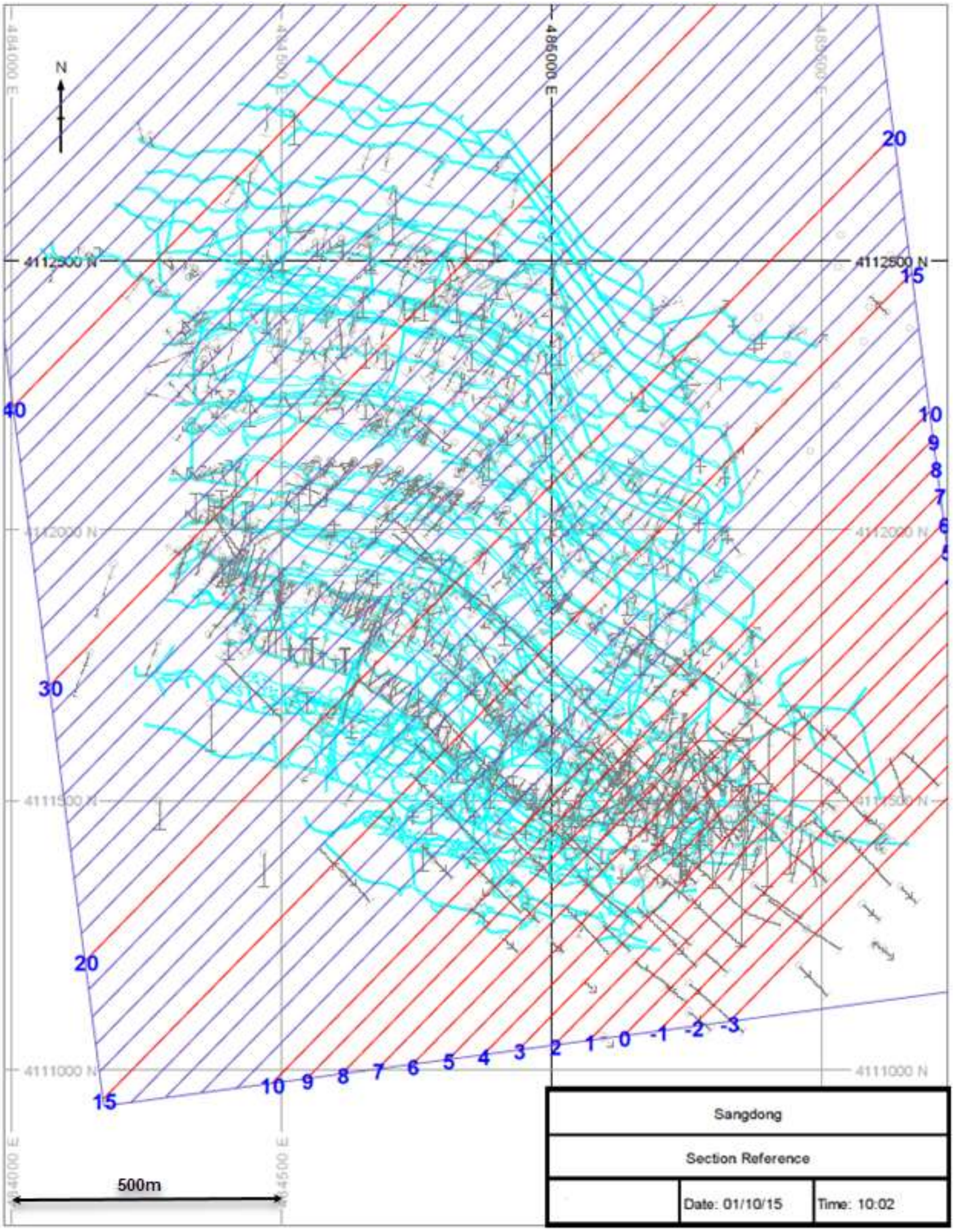
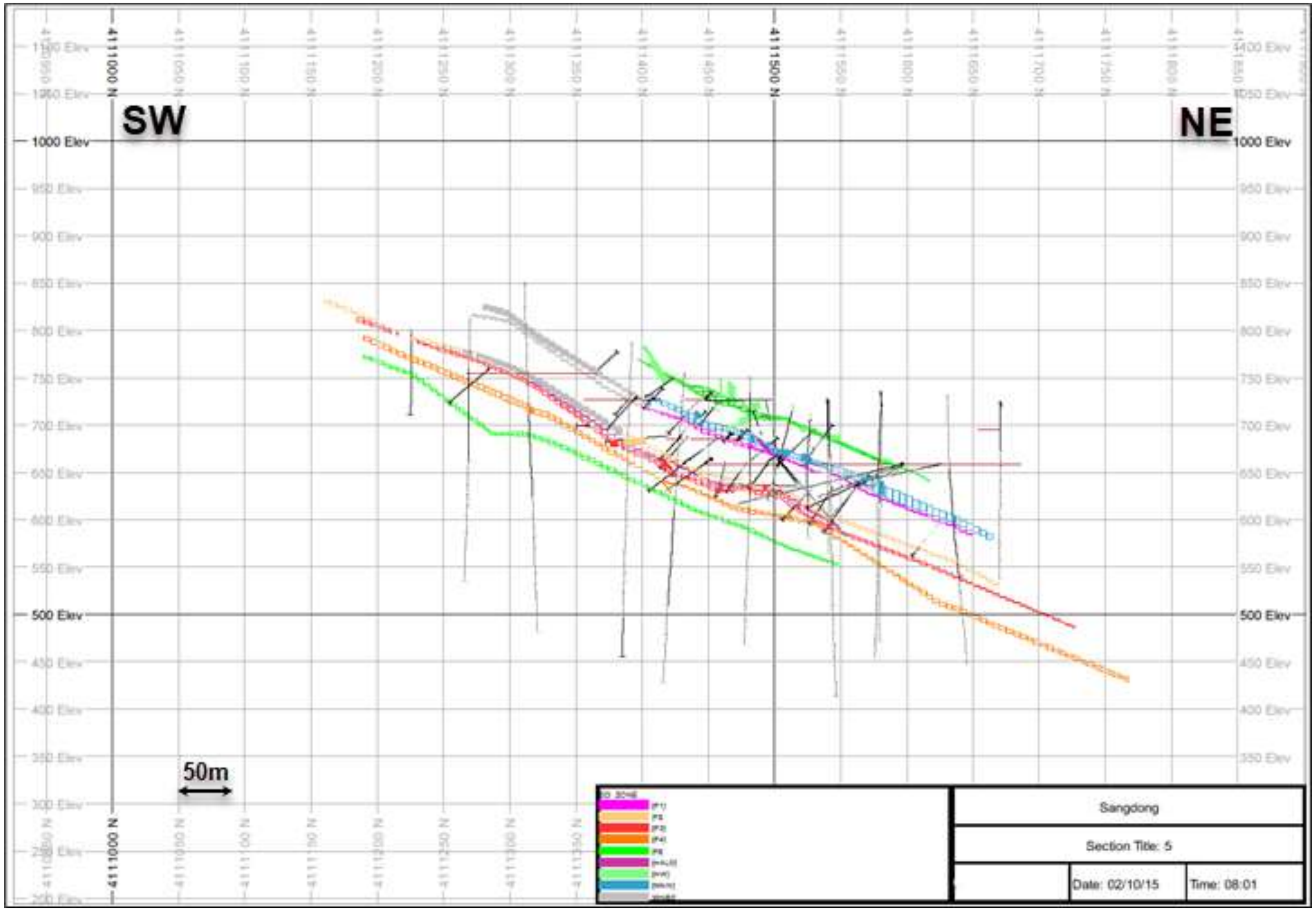


Figure 14-23. Section 5, Showing Block Model Structure

[Date: 2015; Source: A. Wheeler]



14.11.2 Comparison of Global Average Grades

Comparison of global grade averages for each separate bed, as derived from samples, composites and the resource block model. For validation purposes, alternative block model grades derived from nearest neighbour (NN) and inverse-distance (ID) estimates were also used in this comparison. The comparison was also done with alternative model estimates: one with all samples, and one with both samples data and model pertaining just to the Oriental Minerals and WMC campaigns. These results are shown in Table 14-17, and display acceptable comparisons.

Table 14-17. Comparison of Global Grade Averages

Data Associated With All Campaigns

	WO_3 Average Grades					MoS_2 Average Grades				
	Samples	Composites	OK	NN	ID	Samples	Composites	OK	NN	ID
HW	0.55	0.53	0.49	0.49	0.49	0.08	0.08	0.06	0.06	0.06
MAIN	0.57	0.54	0.57	0.57	0.57	0.05	0.04	0.04	0.04	0.04
F1	0.52	0.51	0.48	0.48	0.48	0.04	0.04	0.05	0.05	0.05
HALO	0.36	0.35	0.33	0.34	0.33	0.04	0.04	0.03	0.03	0.03
F2	0.52	0.52	0.44	0.45	0.44	0.04	0.04	0.04	0.04	0.04
F3	0.49	0.49	0.43	0.43	0.43	0.03	0.03	0.03	0.03	0.03
F4	0.35	0.34	0.34	0.34	0.34	0.04	0.03	0.03	0.03	0.03
F5	0.38	0.37	0.35	0.35	0.35	0.03	0.03	0.03	0.03	0.03

Data Only From P0+ Campaigns - Oriental Minerals and WMC

	WO_3 Average Grades					MoS_2 Average Grades				
	Samples	Composites	OK	NN	ID	Samples	Composites	OK	NN	ID
HW	0.52	0.48	0.41	0.38	0.41	0.10	0.10	0.09	0.09	0.09
MAIN	0.57	0.55	0.56	0.56	0.57	0.05	0.04	0.03	0.03	0.04
F1	0.51	0.50	0.47	0.47	0.47	0.04	0.04	0.04	0.04	0.04
HALO	0.36	0.35	0.33	0.34	0.33	0.04	0.04	0.02	0.03	0.03
F2	0.52	0.51	0.47	0.48	0.47	0.04	0.04	0.04	0.04	0.04
F3	0.49	0.49	0.47	0.47	0.47	0.03	0.03	0.04	0.04	0.03
F4	0.35	0.34	0.33	0.33	0.33	0.04	0.03	0.04	0.04	0.04
F5	0.38	0.37	0.40	0.40	0.40	0.03	0.03	0.03	0.03	0.03

Notes

. All grades in %
. OK = model grades from ordinary kriging
. NN = model grades from nearest neighbour estimation
. ID = model grades from inverse-distance weighting

14.11.3 Historical Comparison

The current resource estimate was compared with principal estimates completed during the past four years, as summarised in Table 14-18. It can be seen from this comparison that different approaches have been applied to resource classification, the current one being the more conservative. However, the total resource figure compares closely the total resources estimated earlier in 2015 by Tetra-Tech.

Table 14-18. Historical Comparison

			Indicated Resources			Inferred Resources			Total		
		Cut-Off WO_3 %	Tonnes Mt	WO3 %	MoS2 %	Tonnes Mt	WO3 %	MoS2 %	Tonnes Mt	WO3 %	MoS2 %
Tetra Tech	**Jun-12**	0.15	16.43	0.45	0.03	19.37	0.44	0.05	35.80	0.44	0.04
AMC *	**Feb-15**	0.40	3.80	0.56	0.05	11.27	0.64	0.08	15.07	0.62	0.07
Tetra Tech	**Jun-15**	0.15	9.30	0.53	0.05	34.70	0.39	0.05	44.00	0.42	0.05
Wheeler	**Oct-15**	0.15	5.12	0.49	0.04	35.24	0.40	0.06	40.37	0.41	0.06
Wheeler	**Jul-16**	0.15	7.06	0.51	0.06	29.43	0.41	0.05	36.49	0.43	0.05

Notes

. All evaluations limited in depth to above -3 level (594mRL), so as to be comparable with previous reports

. Totals shown for comparative purposes only

*** The AMC indicated resource figure above comprises 56% measured resources**

Table 14-19. Derivation of Resource Cut-Off Grade

Description		Unit	Values
Prices			
	APT Price	*USD/mtu WO3*	450
	Received Price factor		78%
	Metal Price - Received	*USD/mtu WO3*	351
	Conc grade	*%WO3*	65%
	Price per t of concentrate		25,350
	Metal Price	*USD/t WO3*	35,100
Stoping Costs			
	Contract Mining Cost	*USD/t ore*	8.61
	Stope preparation	*USD/t ore*	2.97
	Backfill	*USD/t ore*	5.52
	Support	*USD/t ore*	1.10
	Fuel, explosives, drilling steel and other consumables	*USD/t ore*	2.91
	Power	*USD/t ore*	1.38
	Underground Supervision	*USD/t ore*	1.97
	Technical services	*USD/t ore*	0.78
	Sub-Total Stoping Cost	***USD/t ore***	**25.23**
Processing			
	Processing Cost	*USD/t ore*	15.55
	Processing Recovery		85%
G&A	General & Administration Costs	*USD/t ore*	5.02
Total	Applied Ore Cost = Processing+G&A+Stoping	*USD/t ore*	45.80
Cut-Off			
	Breakeven Economic Cut-Off	*% WO_3*	**0.15%**

14.12 Mineral Resource Reporting

A summary of the Mineral Resources is shown in Table 14-20, relating to a cut-off grade of 0.15% WO_3 cut-off grade, for areas above 594 mrl. These resources are inclusive of reserves. The derivation of this cut-off is described in Table 14-20. The long-term assumed price of USD 500/MTU WO_3 stems from the information shown in Section 19.2. The average costs applied in the cut-off calculation stem from data described in Section 21.5.

Table 14-20. Mineral Resource Estimation Summary
As of February 28th, 2025

Resource Category	Mineralised Zone	Tonnes Kt	WO_3 %	MoS_2 %
Indicated Mineral Resource	**HW**	3,121	0.55	0.10
	MAIN	854	0.49	0.04
	F1	295	0.44	0.04
	F2	1,554	0.52	0.04
	HALO	311	0.22	0.02
	F3	1,578	0.51	0.03
	F4	253	0.33	0.04
	F5	63	0.36	0.02
	Total	**8,029**	**0.51**	**0.06**
Inferred Mineral Resource	**HW**	29,208	0.46	0.06
	MAIN	4,235	0.47	0.02
	F1	467	0.27	0.02
	F2	3,935	0.41	0.04
	HALO	104	0.20	0.01
	F3	4,386	0.39	0.03
	F4	5,800	0.32	0.03
	F5	2,552	0.33	0.03
	Total	**50,686**	**0.43**	**0.05**

Notes

- **Cut-off grade = 0.15% WO_3.**
- **Bed models diluted to a minimum thickness of 2.2m.**
- **Mineral Resources shown are inclusive of Reserves.**
- **50m surface pillar material removed.**
- **Indicated HW mineral resources based on all samples with a maximum search of 35m x 50m (along-strike x down-dip).**
- **Indicated mineral resources in all other beds are based on only PO-P6 samples, with a maximum search of 50m, and sample grid required.**
- **Inferred mineral resources based on all samples, up to a maximum search of:**
  105m x 150m in HW
  100m x 100m in all other beds

Other than discussed herein, the Author is not aware of any known environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors that could materially affect the mineral resource estimates. There are no known mining, metallurgical, infrastructure, or other factors that materially affect the Mineral Resource estimate, at this time.

The resources summarised for different cut-offs are shown in Table 14-21. Grade-tonnage tables, and associated curves are shown in Table 14-22. A resource breakdown by level is shown in. Level-Zone breakdowns are shown in Tables 14-23 to 14-25, for cut-offs of 0.15, 0.20 and 0.30 % WO_3, respectively.

Table 14-21. Resource Summaries At Different Cut-Offs

WO_3 Cut-Off	Mineral Resources Class	Tonnes Kt	WO_3 %	MoS_2 %
0.15%	**Indicated**	8,029	0.51	0.06
	Inferred	50,686	0.43	0.05
0.20%	**Indicated**	7,864	0.51	0.06
	Inferred	47,630	0.44	0.05
0.30%	**Indicated**	7,316	0.53	0.06
	Inferred	36,466	0.50	0.06

Notes

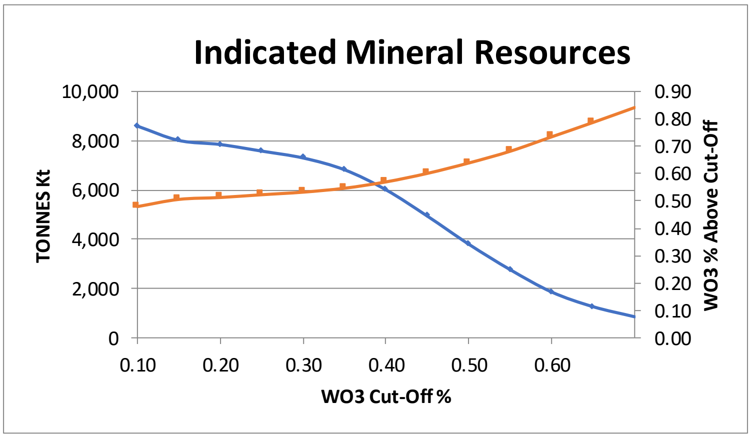
- **Bed models diluted to a minimum thickness of 2.2m.**
- **Mineral Resources shown are inclusive of Reserves.**
- **50m surface pillar material removed.**
- **Indicated HW mineral resources based on all samples with a maximum search of 35m x 50m (along-strike x down-dip).**
- **Indicated mineral resources in all other beds are based on only PO-P6 samples, with a maximum search of 50m, and sample grid required.**
- **Inferred mineral resources based on all samples, up to a maximum search of:**

  105m x 150m in HW

  100m x 100m in all other beds

Table 14-22. Resource – Grade-Tonnage Tables

WO3 Cut_off %	Tonnes Kt	WO3 %
0.10	8,611	0.48
0.15	8,029	0.51
0.20	7,864	0.51
0.25	7,596	0.52
0.30	7,316	0.53
0.35	6,836	0.55
0.40	6,022	0.57
0.45	4,952	0.60
0.50	3,811	0.64
0.55	2,777	0.68
0.60	1,871	0.74
0.65	1,275	0.79
0.70	868	0.84



WO3 Cut_off %	Tonnes Kt	WO3 %
0.10	54,889	0.40
0.15	50,686	0.43
0.20	47,630	0.44
0.25	42,667	0.47
0.30	36,466	0.50
0.35	29,945	0.54
0.40	24,645	0.58
0.45	19,209	0.62
0.50	14,661	0.67
0.55	10,725	0.72
0.60	7,700	0.77
0.65	5,516	0.83
0.70	3,874	0.90

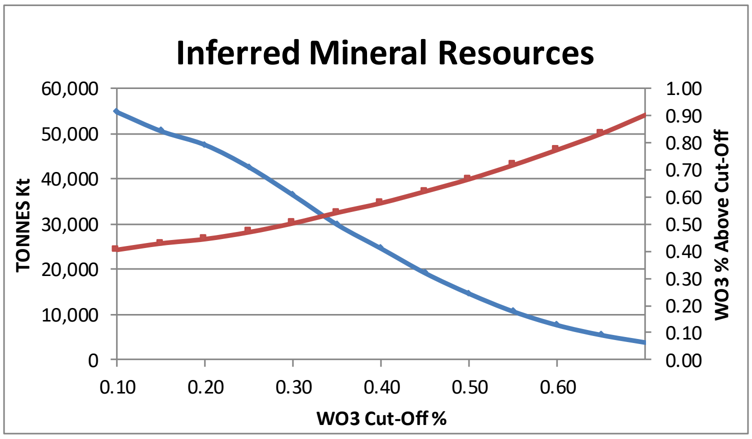


Table 14-23. Mineral Resource Breakdown By Level

WO_3 Cut-Off %	Level	CLASS					
		Indicated			Inferred		
		Tonnes Kt	WO_3 %	MoS_2	Tonnes Kt	WO_3 %	MoS_2
0.15	Sungyeong_805	-			1,966	0.28	0.03
	Jangsan_755	38	0.40	0.01	4,483	0.34	0.04
	Baegun_727	98	0.44	0.09	3,210	0.38	0.03
	Taebak_685	718	0.45	0.05	5,701	0.39	0.05
	Sangdong_659	1,758	0.50	0.04	4,251	0.45	0.06
	-1_633	2,234	0.53	0.06	4,107	0.45	0.06
	-2_617	1,554	0.53	0.08	2,277	0.42	0.06
	-3_594	654	0.47	0.05	4,156	0.44	0.06
	-4_566	374	0.53	0.06	4,906	0.45	0.06
	-5_536	479	0.49	0.08	4,926	0.49	0.05
	-6_509	121	0.50	0.06	2,582	0.48	0.03
	-7_482	-			1,023	0.39	0.03
	-8_457	-			1,156	0.41	0.04
	-9_433	-			1,393	0.46	0.04
	-10_407	-			2,299	0.48	0.05
	-11_380	-			1,584	0.50	0.03
	-12_352	-			600	0.47	0.02
	-13_326	-			66	0.35	0.02
	TOTAL	**8,029**	**0.51**	**0.06**	**50,686**	**0.43**	**0.05**

WO_3 Cut-Off %	Level	CLASS					
		Indicated			Inferred		
		Tonnes Kt	WO_3 %	MoS_2	Tonnes Kt	WO_3 %	MoS_2
0.20	Sungyeong_805	-			1,759	0.29	0.04
	Jangsan_755	38	0.40	0.01	4,065	0.36	0.04
	Baegun_727	98	0.44	0.09	2,771	0.41	0.04
	Taebak_685	704	0.46	0.05	5,212	0.41	0.06
	Sangdong_659	1,683	0.51	0.04	4,099	0.46	0.06
	-1_633	2,193	0.54	0.06	3,931	0.46	0.07
	-2_617	1,542	0.53	0.08	2,184	0.43	0.06
	-3_594	642	0.47	0.05	4,040	0.45	0.06
	-4_566	372	0.53	0.06	4,746	0.46	0.06
	-5_536	472	0.50	0.08	4,742	0.50	0.05
	-6_509	119	0.51	0.06	2,371	0.51	0.03
	-7_482	-			930	0.41	0.03
	-8_457	-			1,030	0.44	0.04
	-9_433	-			1,321	0.48	0.05
	-10_407	-			2,192	0.49	0.05
	-11_380	-			1,571	0.50	0.03
	-12_352	-			600	0.47	0.02
	-13_326	-			66	0.35	0.02
	TOTAL	**7,864**	**0.51**	**0.06**	**47,630**	**0.44**	**0.05**

WO_3 Cut-Off %	Level	CLASS					
		Indicated			Inferred		
		Tonnes Kt	WO_3 %	MoS_2	Tonnes Kt	WO_3 %	MoS_2
0.30	Sungyeong_805	-			510	0.45	0.05
	Jangsan_755	28	0.45	0.01	2,446	0.43	0.05
	Baegun_727	85	0.47	0.10	2,023	0.46	0.04
	Taebak_685	651	0.47	0.06	4,001	0.46	0.06
	Sangdong_659	1,533	0.54	0.04	3,350	0.51	0.07
	-1_633	2,042	0.56	0.06	3,357	0.50	0.07
	-2_617	1,470	0.54	0.08	1,903	0.46	0.06
	-3_594	563	0.50	0.06	3,384	0.48	0.06
	-4_566	356	0.54	0.06	4,033	0.49	0.06
	-5_536	472	0.50	0.08	4,157	0.54	0.05
	-6_509	118	0.51	0.06	1,859	0.58	0.04
	-7_482	-			417	0.63	0.06
	-8_457	-			500	0.64	0.08
	-9_433	-			1,023	0.54	0.06
	-10_407	-			1,774	0.55	0.06
	-11_380	-			1,237	0.58	0.04
	-12_352	-			471	0.53	0.02
	-13_326	-			23	0.55	0.02
	TOTAL	**7,316**	**0.53**	**0.06**	**36,466**	**0.50**	**0.06**

Table 14-24. Mineral Resource Level- Zone Breakdown, at a 0.15%WO_3 Cut-Off

CLASS	Indicated																	
LEVEL	AZONE																	
	HW		MAIN		F1		F2		HALO		F3		F4		F5		TOTAL	
	Kt	WO_3%	Kt	WO_3%	Kt	WO_3%	Kt	WO_3%	Kt	WO_3%	Kt	WO_3%	Kt	WO_3%	Kt	WO_3%	Kt	WO_3%
Sungyeong_805	-		-		-		-		-		-		-		-		-	
Jangsan_755	-		-		-		10	0.41	-		14	0.30	14	0.48	0	0.26	38	0.40
Baegun_727	69	0.48	3	0.44	1	0.22	4	0.29	0	0.19	5	0.27	9	0.40	7	0.35	98	0.44
Taebak_685	186	0.40	214	0.48	65	0.45	172	0.49	15	0.18	64	0.46	-		2	0.38	718	0.45
Sangdong_659	8	0.59	326	0.47	146	0.51	675	0.54	159	0.23	442	0.54	2	0.29	-		1,758	0.50
-1_633	633	0.62	273	0.54	72	0.31	491	0.56	113	0.24	596	0.52	49	0.31	7	0.55	2,234	0.53
-2_617	1,041	0.58	37	0.52	11	0.27	117	0.41	8	0.17	254	0.46	66	0.32	20	0.37	1,554	0.53
-3_594	270	0.57	-		0	0.26	74	0.31	12	0.18	173	0.48	98	0.34	27	0.31	654	0.47
-4_566	315	0.55	-		-		11	0.34	4	0.22	30	0.47	15	0.27	-		374	0.53
-5_536	479	0.49	-		-		-		-		-		-		-		479	0.49
-6_509	121	0.50	-		-		-		-		-		-		-		121	0.50
-7_482	-		-		-		-		-		-		-		-		-	
-8_457	-		-		-		-		-		-		-		-		-	
-9_433	-		-		-		-		-		-		-		-		-	
-10_407	-		-		-		-		-		-		-		-		-	
-11_380	-		-		-		-		-		-		-		-		-	
-12_352	-		-		-		-		-		-		-		-		-	
-13_326	-		-		-		-		-		-		-		-		-	
TOTAL	3,121	0.55	854	0.49	295	0.44	1,554	0.52	311	0.22	1,578	0.51	253	0.33	63	0.36	8,029	0.51

CLASS	Inferred																	
LEVEL	AZONE																	
	HW		MAIN		F1		F2		HALO		F3		F4		F5		TOTAL	
	Kt	WO_3%	Kt	WO_3%	Kt	WO_3%	Kt	WO_3%	Kt	WO_3%	Kt	WO_3%	Kt	WO_3%	Kt	WO_3%	Kt	WO_3%
Sungyeong_805	1,284	0.28	375	0.20	9	0.18	198	0.40	-		101	0.41	-		-		1,966	0.28
Jangsan_755	2,339	0.37	469	0.28	77	0.19	502	0.34	0	0.15	543	0.33	499	0.32	54	0.27	4,483	0.34
Baegun_727	1,657	0.40	30	0.38	7	0.22	300	0.49	31	0.21	426	0.34	469	0.30	289	0.29	3,210	0.38
Taebak_685	3,114	0.41	165	0.45	73	0.27	434	0.53	50	0.18	618	0.37	796	0.32	452	0.35	5,701	0.39
Sangdong_659	2,682	0.48	93	0.44	38	0.29	250	0.54	15	0.24	210	0.49	579	0.33	385	0.38	4,251	0.45
-1_633	2,422	0.49	185	0.51	32	0.33	187	0.52	4	0.22	258	0.52	602	0.30	416	0.33	4,107	0.45
-2_617	920	0.48	242	0.47	43	0.30	123	0.44	0	0.18	210	0.50	445	0.31	294	0.32	2,277	0.42
-3_594	1,680	0.53	548	0.43	104	0.29	394	0.34	2	0.20	523	0.47	463	0.32	442	0.35	4,156	0.44
-4_566	2,356	0.50	524	0.54	75	0.25	627	0.37	2	0.17	599	0.44	556	0.32	166	0.28	4,906	0.45
-5_536	2,475	0.55	677	0.65	8	0.18	717	0.36	-		541	0.36	454	0.37	54	0.26	4,926	0.49
-6_509	1,288	0.55	368	0.65	-		187	0.31	-		281	0.23	457	0.36	-		2,582	0.48
-7_482	511	0.43	106	0.72	-		17	0.36	-		76	0.19	313	0.28	-		1,023	0.39
-8_457	993	0.44	-		-		-		-		-		164	0.25	-		1,156	0.41
-9_433	1,391	0.46	-		-		-		-		-		2	0.26	-		1,393	0.46
-10_407	2,202	0.49	98	0.34	-		-		-		-		-		-		2,299	0.48
-11_380	1,360	0.52	224	0.36	-		-		-		-		-		-		1,584	0.50
-12_352	488	0.45	112	0.53	-		-		-		-		-		-		600	0.47
-13_326	48	0.26	18	0.59	-		-		-		-		-		-		66	0.35
TOTAL	29,208	0.46	4,235	0.47	467	0.27	3,935	0.41	104	0.20	4,386	0.39	5,800	0.32	2,552	0.33	50,686	0.43

Table 14-25. Mineral Resource Level- Zone Breakdown, at a 0.2%WO_3 Cut-Off

CLASS	Indicated																	
	AZONE																	
LEVEL	HW		MAIN		F1		F2		HALO		F3		F4		F5		TOTAL	
	Kt	WO_3%	Kt	WO_3%	Kt	WO_3%	Kt	WO_3%	Kt	WO_3%	Kt	WO_3%	Kt	WO_3%	Kt	WO_3%	Kt	WO_3%
Sungyeong_805	-		-		-		-		-		-		-		-		-	
Jangsan_755	-		-		-		10	0.41	-		14	0.30	14	0.48	0	0.26	38	0.40
Baegun_727	69	0.48	3	0.44	1	0.22	4	0.29	-		5	0.27	9	0.40	7	0.35	98	0.44
Taebak_685	186	0.40	214	0.48	63	0.46	172	0.49	3	0.22	64	0.46	-		2	0.38	704	0.46
Sangdong_659	8	0.59	326	0.47	132	0.55	675	0.54	99	0.26	442	0.54	2	0.29	-		1,683	0.51
-1_633	633	0.62	273	0.54	55	0.35	491	0.56	89	0.25	596	0.52	48	0.31	7	0.55	2,193	0.54
-2_617	1,041	0.58	37	0.52	10	0.28	117	0.41	1	0.20	254	0.46	65	0.32	18	0.40	1,542	0.53
-3_594	269	0.58	-		0	0.26	74	0.31	2	0.22	173	0.48	97	0.34	26	0.31	642	0.47
-4_566	315	0.55	-		-		11	0.34	3	0.23	30	0.47	14	0.27	-		372	0.53
-5_536	472	0.50	-		-		-		-		-		-		-		472	0.50
-6_509	119	0.51	-		-		-		-		-		-		-		119	0.51
-7_482	-		-		-		-		-		-		-		-		-	
-8_457	-		-		-		-		-		-		-		-		-	
-9_433	-		-		-		-		-		-		-		-		-	
-10_407	-		-		-		-		-		-		-		-		-	
-11_380	-		-		-		-		-		-		-		-		-	
-12_352	-		-		-		-		-		-		-		-		-	
-13_326	-		-		-		-		-		-		-		-		-	
TOTAL	3,112	0.56	854	0.49	261	0.47	1,554	0.52	197	0.25	1,578	0.51	248	0.34	60	0.37	7,864	0.51

CLASS	Inferred																	
	AZONE																	
LEVEL	HW		MAIN		F1		F2		HALO		F3		F4		F5		TOTAL	
	Kt	WO_3%	Kt	WO_3%	Kt	WO_3%	Kt	WO_3%	Kt	WO_3%	Kt	WO_3%	Kt	WO_3%	Kt	WO_3%	Kt	WO_3%
Sungyeong_805	1,196	0.28	320	0.21	-		146	0.49	-		97	0.42	-		-		1,759	0.29
Jangsan_755	2,216	0.38	469	0.28	29	0.21	402	0.38	-		516	0.34	378	0.37	54	0.27	4,065	0.36
Baegun_727	1,406	0.44	19	0.49	4	0.27	296	0.50	15	0.24	396	0.36	347	0.34	289	0.29	2,771	0.41
Taebak_685	2,737	0.44	140	0.50	50	0.31	434	0.53	10	0.21	605	0.38	785	0.33	452	0.35	5,212	0.41
Sangdong_659	2,562	0.50	92	0.44	30	0.32	248	0.54	12	0.25	208	0.49	579	0.33	369	0.38	4,099	0.46
-1_633	2,331	0.50	184	0.51	25	0.38	187	0.52	4	0.22	258	0.52	600	0.30	342	0.36	3,931	0.46
-2_617	920	0.48	241	0.48	33	0.34	120	0.45	0	0.25	210	0.50	440	0.32	221	0.37	2,184	0.43
-3_594	1,679	0.53	548	0.43	88	0.31	361	0.36	1	0.22	516	0.48	447	0.32	399	0.37	4,040	0.45
-4_566	2,339	0.50	524	0.54	47	0.30	606	0.37	-		577	0.45	502	0.34	152	0.30	4,746	0.46
-5_536	2,430	0.55	677	0.65	1	0.25	678	0.37	-		496	0.37	408	0.39	54	0.26	4,742	0.50
-6_509	1,235	0.56	368	0.65	-		129	0.36	-		182	0.26	457	0.36	-		2,371	0.51
-7_482	458	0.45	106	0.72	-		12	0.42	-		40	0.21	313	0.28	-		930	0.41
-8_457	867	0.48	-		-		-		-		-		164	0.25	-		1,030	0.44
-9_433	1,319	0.48	-		-		-		-		-		2	0.26	-		1,321	0.48
-10_407	2,094	0.50	98	0.34	-		-		-		-		-		-		2,192	0.49
-11_380	1,347	0.53	223	0.36	-		-		-		-		-		-		1,571	0.50
-12_352	488	0.45	112	0.53	-		-		-		-		-		-		600	0.47
-13_326	48	0.26	18	0.59	-		-		-		-		-		-		66	0.35
TOTAL	27,672	0.48	4,137	0.48	306	0.31	3,620	0.43	41	0.23	4,100	0.41	5,422	0.33	2,332	0.35	47,630	0.44

Table 14-26. Mineral Resource Level- Zone Breakdown, at a 0.3%WO_3 Cut-Off

CLASS: Indicated

LEVEL	AZONE																	
	HW		MAIN		F1		F2		HALO		F3		F4		F5		TOTAL	
	Kt	WO_3 %	Kt	WO_3 %	Kt	WO_3 %	Kt	WO_3 %	Kt	WO_3 %	Kt	WO_3 %	Kt	WO_3 %	Kt	WO_3 %	Kt	WO_3 %
Sungyeong_805	-		-		-		-		-		-		-		-		-	
Jangsan_755	-		-		-		10	0.41	-		5	0.39	14	0.49	-		28	0.45
Baegun_727	65	0.49	3	0.47	-		2	0.34	-		0	0.31	9	0.40	6	0.37	85	0.47
Taebak_685	186	0.40	193	0.50	48	0.52	162	0.50	-		61	0.47	-		2	0.38	651	0.47
Sangdong_659	8	0.59	319	0.47	78	0.76	675	0.54	20	0.34	432	0.55	0	0.30	-		1,533	0.54
-1_633	630	0.62	269	0.55	31	0.42	475	0.57	12	0.34	590	0.53	29	0.35	7	0.55	2,042	0.56
-2_617	1,029	0.58	37	0.52	4	0.35	94	0.45	-		252	0.46	38	0.36	17	0.41	1,470	0.54
-3_594	269	0.58	-		-		45	0.35	-		173	0.48	62	0.39	14	0.36	563	0.50
-4_566	313	0.55	-		-		9	0.34	-		30	0.47	3	0.33	-		356	0.54
-5_536	472	0.50	-		-		-		-		-		-		-		472	0.50
-6_509	118	0.51	-		-		-		-		-		-		-		118	0.51
-7_482	-		-		-		-		-		-		-		-		-	
-8_457	-		-		-		-		-		-		-		-		-	
-9_433	-		-		-		-		-		-		-		-		-	
-10_407	-		-		-		-		-		-		-		-		-	
-11_380	-		-		-		-		-		-		-		-		-	
-12_352	-		-		-		-		-		-		-		-		-	
-13_326	-		-		-		-		-		-		-		-		-	
TOTAL	**3,090**	**0.56**	**821**	**0.50**	**161**	**0.61**	**1,470**	**0.53**	**32**	**0.34**	**1,542**	**0.51**	**154**	**0.38**	**45**	**0.41**	**7,316**	**0.53**

CLASS: Inferred

LEVEL	AZONE																	
	HW		MAIN		F1		F2		HALO		F3		F4		F5		TOTAL	
	Kt	WO_3 %	Kt	WO_3 %	Kt	WO_3 %	Kt	WO_3 %	Kt	WO_3 %	Kt	WO_3 %	Kt	WO_3 %	Kt	WO_3 %	Kt	WO_3 %
Sungyeong_805	323	0.40	3	0.30	-		132	0.51	-		51	0.58	-		-		510	0.45
Jangsan_755	1,460	0.44	195	0.38	-		335	0.41	-		219	0.45	234	0.42	4	0.34	2,446	0.43
Baegun_727	1,097	0.49	19	0.49	0	0.48	271	0.52	2	0.32	297	0.38	220	0.38	117	0.35	2,023	0.46
Taebak_685	2,167	0.49	138	0.50	15	0.49	405	0.55	-		525	0.39	500	0.36	251	0.42	4,001	0.46
Sangdong_659	2,131	0.55	81	0.47	11	0.48	242	0.55	2	0.32	190	0.51	394	0.37	298	0.42	3,350	0.51
-1_633	2,160	0.52	174	0.52	18	0.43	177	0.53	-		256	0.53	331	0.34	242	0.41	3,357	0.50
-2_617	899	0.48	217	0.50	22	0.39	100	0.49	-		210	0.50	279	0.34	177	0.40	1,903	0.46
-3_594	1,661	0.53	428	0.47	56	0.34	207	0.43	-		480	0.49	263	0.36	289	0.41	3,384	0.48
-4_566	2,275	0.51	435	0.59	25	0.34	418	0.43	-		527	0.47	310	0.38	44	0.42	4,033	0.49
-5_536	2,358	0.56	676	0.65	-		502	0.41	-		319	0.45	302	0.43	-		4,157	0.54
-6_509	1,107	0.60	363	0.66	-		81	0.42	-		31	0.41	276	0.45	-		1,859	0.58
-7_482	240	0.65	100	0.75	-		12	0.42	-		-		64	0.43	-		417	0.63
-8_457	500	0.64	-		-		-		-		-		-		-		500	0.64
-9_433	1,023	0.54	-		-		-		-		-		-		-		1,023	0.54
-10_407	1,676	0.56	98	0.34	-		-		-		-		-		-		1,774	0.55
-11_380	1,014	0.62	223	0.36	-		-		-		-		-		-		1,237	0.58
-12_352	359	0.53	112	0.53	-		-		-		-		-		-		471	0.53
-13_326	6	0.42	18	0.59	-		-		-		-		-		-		23	0.55
TOTAL	**22,457**	**0.53**	**3,279**	**0.54**	**147**	**0.39**	**2,882**	**0.47**	**3**	**0.32**	**3,104**	**0.46**	**3,173**	**0.38**	**1,422**	**0.41**	**36,466**	**0.50**

15 MINERAL RESERVE ESTIMATES

The Mineral Reserves were derived from the Mineral Resource block model described in Section 14.0. The Mineral Reserves are those Indicated Mineral Resources (there are no Measured Resources in the current estimate) that have been identified as being economically extractable and which incorporate mining losses and the addition of mining dilution. The Mineral Reserves form the basis for the mine plan presented in Section 16.0.

15.1 Cut-Offs

Reference breakeven cut-off grades were derived, for reference during stope planning, as summarised in Table 15-1. The base case reserve price of USD 450/MTU WO3 stems from the information presented in Section 19.2. Different cut-offs were derived for different stope heading sizes and different support requirements. The development cut-off relates to waste development, for headings which need to be mined regardless of whether or not they are economic as ore. The development mining cost is therefore not applied in the development cut-off calculation.

The applied reserve cut-offs are higher than the derived breakeven cut-off grades, due to additional mill feed grade requirements.

Table 15-1. Mineral Reserve Cut-Off Grades

			Half-Panel Support		Full Panel Support		
Description		***Unit***	**FW/Main: DAF**	**HW: PP-CAF**	**FW/Main: DAF**	**HW: PP-CAF**	**Development**
Prices							
	APT Price	*USD/mtu WO_3*	450	450	450	450	450
	Received Price factor		78%	78%	78%	78%	78%
	Metal Price - received	*USD/mtu WO_3*	351	351	351	351	351
	Conc grade	*% WO_3*	65%	65%	65%	65%	65%
Stoping Costs							
	Heading Size	*m x m*	4.5 x 4.5	6 x 6	4.5 x 4.5	6 x 6	4.5 x 4.5
	Contract Mining Cost	*USD/t ore*	9.42	7.54	9.42	7.54	-
	Stope preparation	*USD/t ore*	2.97	2.97	2.97	2.97	
	Backfill	*USD/t ore*	5.52	5.52	5.52	5.52	-
	Support	*USD/t ore*	0.95	0.95	1.89	1.89	1.10
	Fuel, explosives, drilling steel, other consumables	*USD/t ore*	2.91	2.91	2.91	2.91	2.91
	Power	*USD/t ore*	1.38	1.38	1.38	1.38	1.38
	Underground Supervision	*USD/t ore*	1.97	1.97	1.97	1.97	1.97
	Technical services	*USD/t ore*	0.78	0.78	0.78	0.78	0.78
	Total Mining Cost	***USD/t ore***	**25.89**	**24.01**	**26.84**	**24.95**	**8.13**
Processing							
	Processing Cost	*USD/t ore*	15.55	15.55	15.55	15.55	15.55
	Processing Recovery		85%	85%	85%	85%	84%
G&A	General & Administration Costs	*USD/t ore*	5.02	5.02	5.02	5.02	5.02
Total	Applied Ore Cost = Processing+G&A+Stoping	*USD/t ore*	46.46	44.58	47.41	45.52	28.70
Cut-Offs							
	Breakeven Economic Cut-Off	*% WO_3*	0.156%	0.149%	0.159%	0.153%	0.10%
	Cut-Off Applied	***% WO_3***	**0.17%**	**0.16%**	**0.17%**	**0.16%**	**0.18%**

15.2 Block Model Preparation

The steps taken in block model (and other data) preparation for stope planning included:

1. **Mining Spans**. Maps of maximum span distances, that had previously been prepared in a geotechnical study by Turner Mining and Geotechnical Pty Ltd (TMG) in 2014, were used to create perimeters pertaining to maximum span limits of 3, 6 and 10 m. These were used to assess areas where additional support costs are required.

2. **Bed Combination Tests**. Because of the close proximity of the different narrow skarn zones, alternative test block models were created with combinations of an upper bed, the intermediate waste and the underlying bed. These combined models were created, so as to test the feasibility of mining thicker bed systems with lower mining cost. All possible different bed combinations were tested. After this analysis, the only combined set which was selected for subsequent for mine planning was the MAIN-F1 combination.

3. **Detailed Sub-Celling**. For all of the southern (non-HW) zones, the resource models were converted from a 5 m x 5 m block structure to a 0.5 m x 0.5 m structure, so as to enable much more detailed mine planning work. These models conformed much more strictly to the modelled footwall and hanging wall surfaces, without changing the modelled resource quantities.

4. **HW Model Preparation for PP-CAF stoping.** Parts of the HW block model were prepared by overlaying a grid of 5m post-pillars, in between 6m panels, so as to reflect potential pillar positions for PP_CAF stoping. This enables easier evaluation with the pillars already flagged. The post-pillar material was flagged as unmineable, with zero density. For parts of the orebody near the edges or top/bottom surfaces, the proportion of ore material within each complete full block was determined, and densities were reduced in the full blocks to reflect just the material which is mineable.

5. **Geotechnical Codes.** Maps of maximum span distances, that had previously been prepared in a geotechnical study were used to create perimeters pertaining to maximum span limits of 3, 6 and 10 m. These were used to assess the perimeters pertaining to 3 m and 6 m spans were used to code those parts of the block model, with a GEOTEC code attribute. This coding system was subsequently used for additional support cost application.

15.3 Stope Design

For all of the development and stope design work, a colour convention was set up for each different aspect of the design, as summarised in Table 15-2. Key design parameters are summarised in Table 15-3.

Table 15-2. Design Attributes

Stoping Method	Drive Type	Drive Dimensions (m) Width	x	Height	Max Gradient	COLOUR	
General Development	Level galleries	4.5	x	4.5		5	
	Stope access drifts	4.5	x	4.5		11	
	Additional access/ cuddies	4		4		18	
	Old drives for stripping/refurb	4.5	x	4.5		24	
	Main ramps	4.5	x	4.5	15%	4	
PP-CAF	External Stope Ramps	4.5	x	4.5	15%	2	
	Stope ramp slashing	4.5	x	4.5		21	
	CAF stope panels	6	x	6		8	
DAF Thin	Transverse stope access drifts	4.5	x	4.5		17	
	Internal stope ramps	4.5	x	4.5	13%	7	
	Primary stope panels	3-6	x	3-6		9	
	Secondary stope panels	3-6	x	3-6		10	
	Additional stope panels	3-6	x	3-6		23	
	Temporary pillars	3+		Up to 6		26	
	Inferred panels	3-6	x	3.5-6		20	

Table 15-3. Stope Design Parameters

Stepped DAF Stopes (F2, F3, Halo, Main)		
Minimum width	*m*	3
Maximum width	*m*	6
Minimum vertical height	*m*	3
Maximum mid-panel vertical height	*m*	8.5
Minimum panel area	m^2	20
Design length stope heading	*m*	100
Max length single stope heading	*m*	125
PP-CAF (HW)		
Stope drive width	*m*	6
Stope drive height	*m*	6
Post-pillar width	*m*	5
Average Mining recovery (applied where pillars not actually laid out)	*m*	85%
Minimum panel height for selective mining	*m*	3
Stope block along-strike (nominal) length	*m*	100
Maximum (temporary) stope ramp gradient		15%

15.3.1 Stepped Drift-and-Fill

The Stepped DAF stoping method is described in detail in Section 16.3. This method has been applied to the Main/F1, F2, Halo and F3 beds, as these zones are generally less than 6m in thickness. The design process for the Stepped DAF stopes was as follows:

1. **Planning DTMs**. Starting from the resource block model, planning digital terrain models (DTMs) were generated first from the direct footwall and hanging wall surfaces, and then the footwall surface was modified so as to represent the stepped drift floors, ensuring the following conditions are met:
   - A minimum mid-stope vertical height of 3 m.
   - A minimum 2.5 m minimum height on the lower side of 4 m -6 m wide DAF panels.

2. **Set Up Data for Design Work**. All relevant data was then loaded up into the mine planning software, for subsequent interactive design work:
   - Resource block model.
   - Planning roof and floor DTMs from the step described above.
   - Surveyed as-built data – strings and wireframes.

   Legends and templates were organised so that either WO_3, or THICK fields could be quickly colour-coded.

3. **Blocking Out.** Corresponding to the ramp and stope cross-cut design, stopes were blocked out in plan view, so as to represent typically three adjacent DAF panels on consecutive 2 m stepped lifts, on either the west or east side of the access cross-cuts. Each stope block was assigned a unique STINDEX reference number. This is shown in the example in Figure 15-1 for the Halo bed. For the lower part of the Main East orebody, individual stope panels were blocked out, as shown in the cross-section in Figure 15-2.

An overall 3D view of the planned DAF regions is shown in Figure 15-3.

Figure 15-1. Example of Blocked-Out Stope Panels – Halo Bed

[Date: 2022; Source: A. Wheeler]

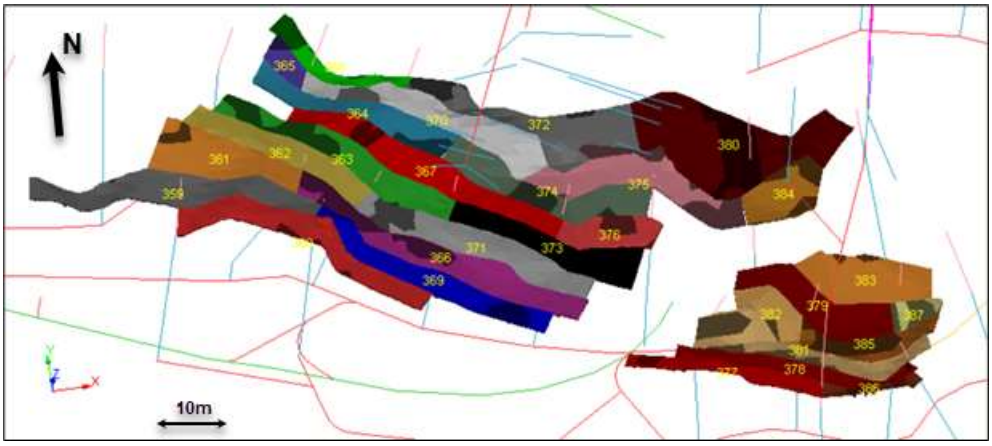


Figure 15-2. Example Cross-Section of Main-East Stope DAF Panels

[Date: 2022; Source: A. Wheeler]

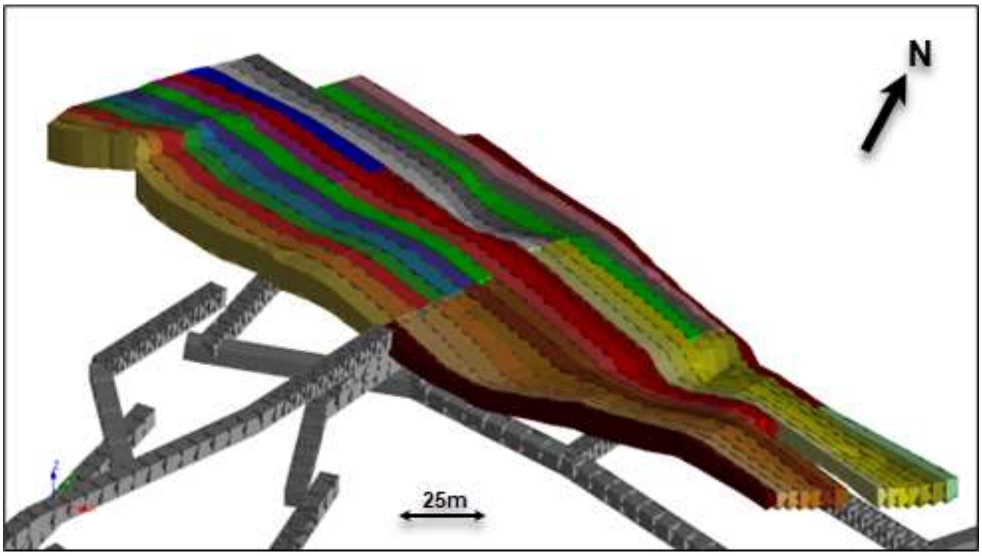
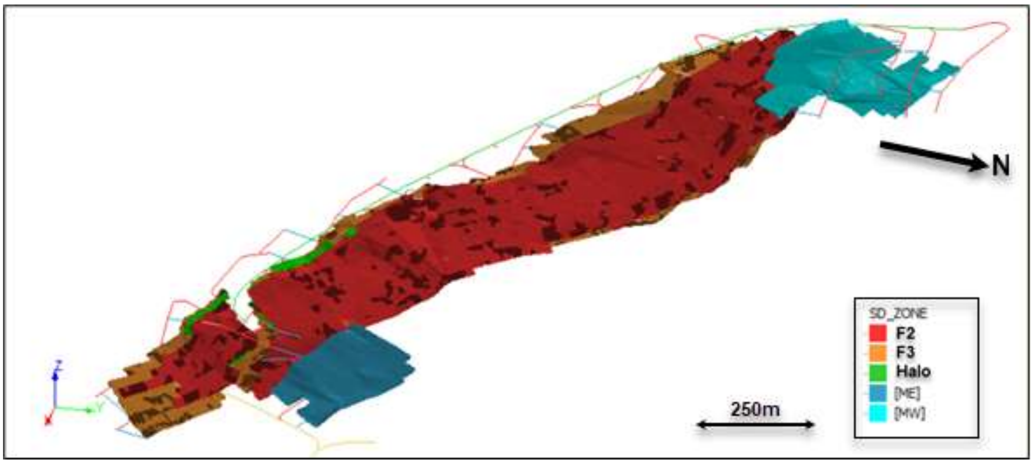


Figure 15-3. 3D View of Stepped DAF Stoping Regions

[Date: 2022; Source: A. Wheeler; View looking South-West]



15.3.2 Post-Pillar Cut-and-Fill

The Post-Pillar Cut-and-Fill (PP-CAF) method has been applied in all the HW zone areas, as these zones generally have a vertical thickness greater than 5 m. Broadly, these zones will be mined from the bottom-up in 6 m vertical lifts. Each lift will be mined out according to a regular mine-wide grid of 6 m wide stoping panels, leaving irrecoverable 5 m x 5 m post-pillars. The panels on the bottom-most lift of each stope block will require a higher cement backfill, so as to provide a stable roof when stopes in the future are mined up from below.

The design process for the PP-CAF method was as follows:

1. **Block Model Preparation.** Parts of the resource model were prepared, such that the blocks were regularised onto the same 6 m lift, 6 m room and 5 m pillar system required for PP-CAF stoping. The resultant blocks were then set as being mineable (PILLAR=0) or unmineable pillars (PILLAR=1). Blocks were also assigned to the overall mine grid system, break up the HW zone into potential stoping blocks, approximately 100 m in length along strike. For parts of the orebody near the edges or top/bottom surfaces, the proportion of ore material within each complete full block was determined. The nominal mining recovery based on 6 m panels and 5 m pillars is 79%. However, the actual overall mining recovery is higher than this, as complete panels can often be located at the panel edges, as shown in the example in Figure 15-4. An example cross-section through one lift is shown in Figure 15-5. An actual overall recovery of 85% was calculated from example stope layouts, and this was applied to those HW stopes which were evaluated from overall panel extents. For HW stopes between the -1 and Taebek levels, pillars were accounted for by assignment within the prepared block model.

Figure 15-4. Example HW PP-CAF Stope Layout

[Date: 2022; Source: Adam Wheeler]

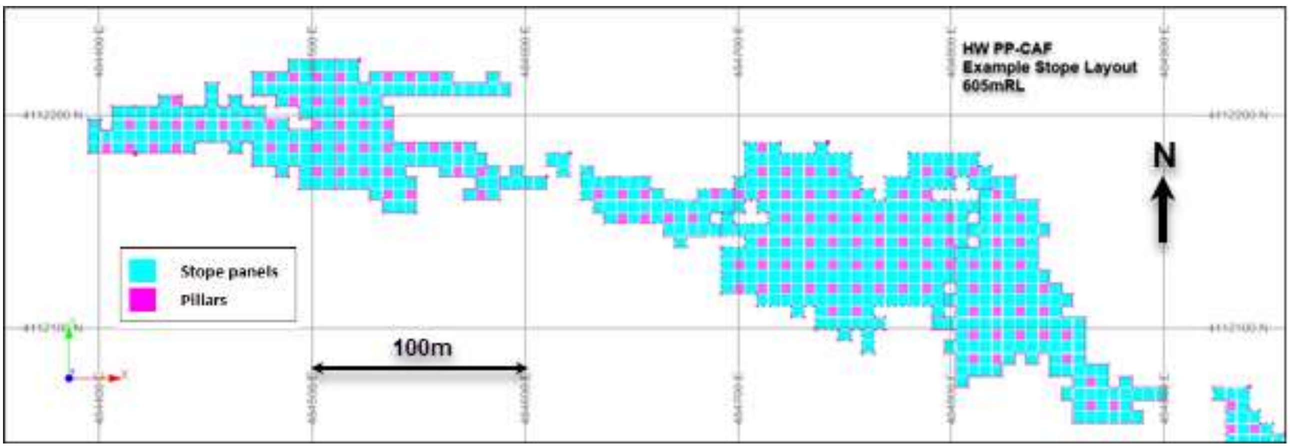
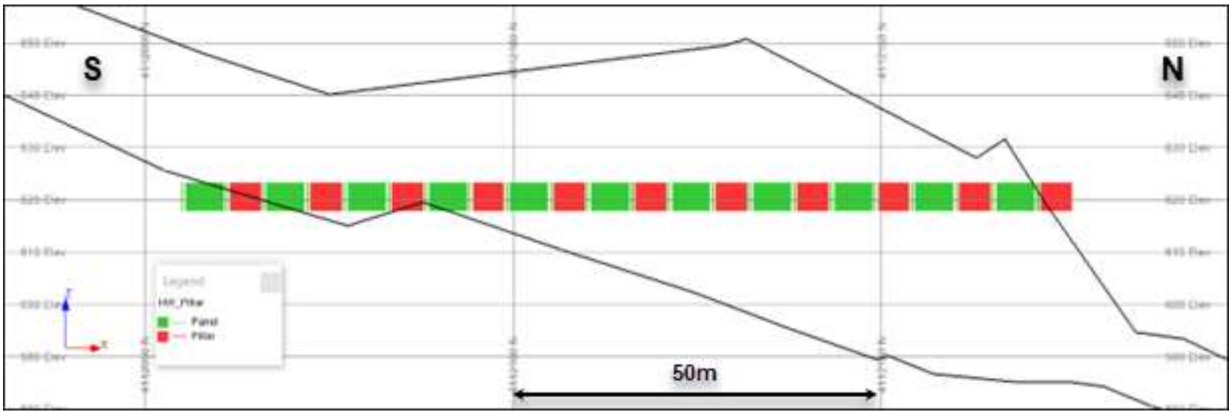


Figure 15-5. Example Cross-Section of HW PP-CAF Stope Lift

[Date: 2022; Source: Adam Wheeler]



2. **Cut-Off Grade Analysis**. A breakeven cut-off grade of 0.15% WO_3 has been calculated, as shown in Table 15-1. However, after testing of cut-offs with respect to resulting stopes grades, it was decided to apply an HW planning cut-off of 0.168% WO_3**.**

3. **Mining Panel Layout.** Using these allocated cut-off grades, perimeters were automatically generated or defined at the centre height of each mining lift, around the ore blocks, taking into account the post-pillar grid system. For the orebody edges, if the ore proportion was lower than 25%, the blocks were rejected. If the ore proportion was greater than 75%, it was assumed that the full block would be mined.

4. **Stope Ramp Accesses** were then designed to the base of each 6m lift, accessible from the mine levels, at a maximum ramp gradient of 15%. With the general dip of the orebody, this will typically provide 3-4 lift accesses from each level, and then typically the 2nd and 3rd ramps will be slashed out from the existing ramps below. These ramps and HW primary development were situated on the hanging wall (north) side of the HW orebody, due to poorer geotechnical conditions on the footwall side.

5. **Mining Panel Outlines.** The perimeters produced from the layout process were reviewed, and combined into logical larger mining block outlines. Excessively small and isolated blocks were removed, and sometimes perimeters were allocated to neighbouring stoping blocks if that appeared more practical. For the HW stoping blocks, overall mining block outlines were created for each lift. In the evaluation and scheduling of these blocks, internal pillars were allocated by setting zero densities into the block model.

6. **Additional Waste Drive Connections.** Sometimes there are separates stoping areas on the same lift of a particular stoping block. In this case separate waste drive connections were designed as drive centrelines.

7. **Design String Attributes.** Attributes fields were set on the design strings, so as to enable a logical stope ID system, which is a combination of the level name, the geological zone (AZONE), and a grid numbering system based on the stoping block, in approximately 100 m increments west to east across the mine. The level referencing system is summarised in Table 16-1. These and other attributes set onto the stope design strings were:

LEVNAME	Level name e.g. SD.
AZONE	Orebody, e.g. HW, F2
NUMGRID	Grid number, e.g. 8, 9B, 11W
STINDEX	Unique numeric identifier for each individual panel.
LIFT	Elevation of base of each cut-and-fill lift.

8. **Processing of Panel Outlines.** The strings were then processed in the Datamine UG mining software system, so as to check for duplicate strings, crossovers, extreme angle changes etc.

9. **Final Link-Up of all PP-CAF Designs.** Wireframe models were generated from the stope panel outlines. These wireframe models were then evaluated against the geological block model, producing data for the evaluation of each individual CAF panel outline.

A plan view of PP-CAF stope designs for an initial lift in the HW zones is shown Figure 15-7. A 3D view of some of the PP-CAF test designs in the HW zone is shown in Figure 15-8.

For the earlier mine production detailed test 3D designs were made, reflecting selective mining at the orebody edges. Features of this design included shanty-backs against the hanging wall contacts. Evaluation of these layouts, as compared to evaluation of panel perimeter layouts, showed that additional mining factors for 4% dilution and 4% ore losses need to be applied.

An overall 3D view of the HW planned stopes is shown in Figure 15-9, with a corresponding example cross-section, is shown in Figure 15-10.

A typical cross-section of the HW zone, displaying the current resource classification, is shown in Figure 15-6.

Figure 15-6. Example HW Cross-Section, Showing Resource Classification

[Date: 2022; Source: Adam Wheeler]

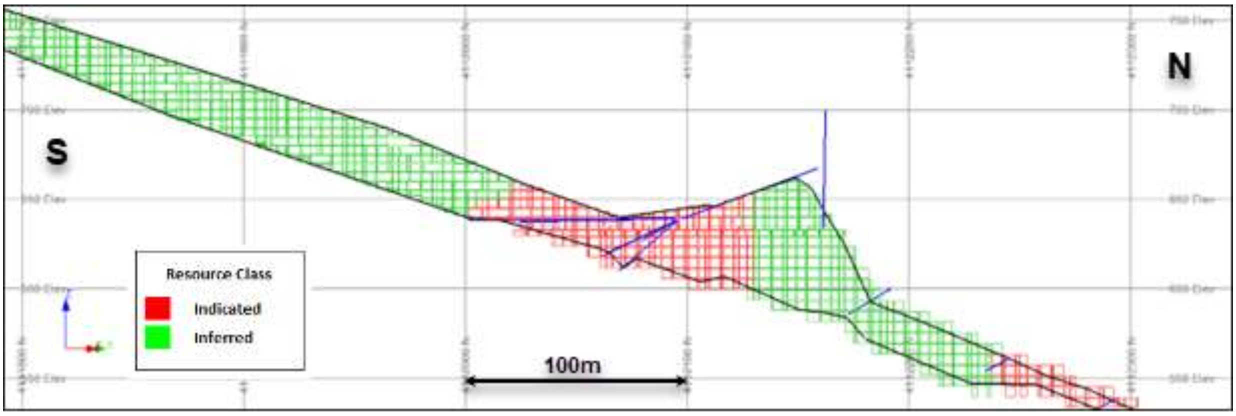


Figure 15-7. PP-CAF Panels On One Lift

[Date: 2022; Source: Adam Wheeler]

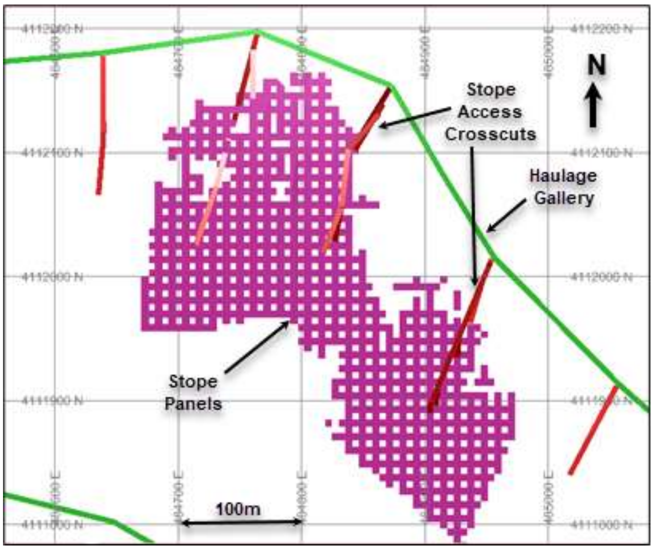


Figure 15-8. 3D View of PP_CAF Layout for First Lift

[Date: 2022; Source: Adam Wheeler]

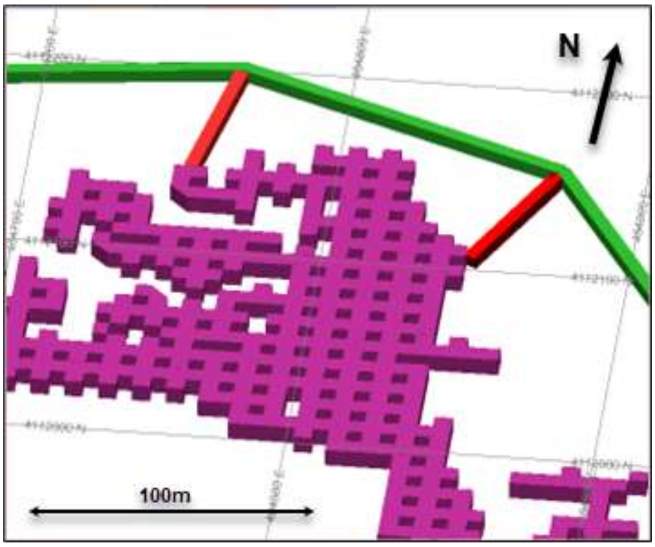


Figure 15-9. 3D Overall View of HW Planned Stopes

[Date: 2022; Source: Adam Wheeler]

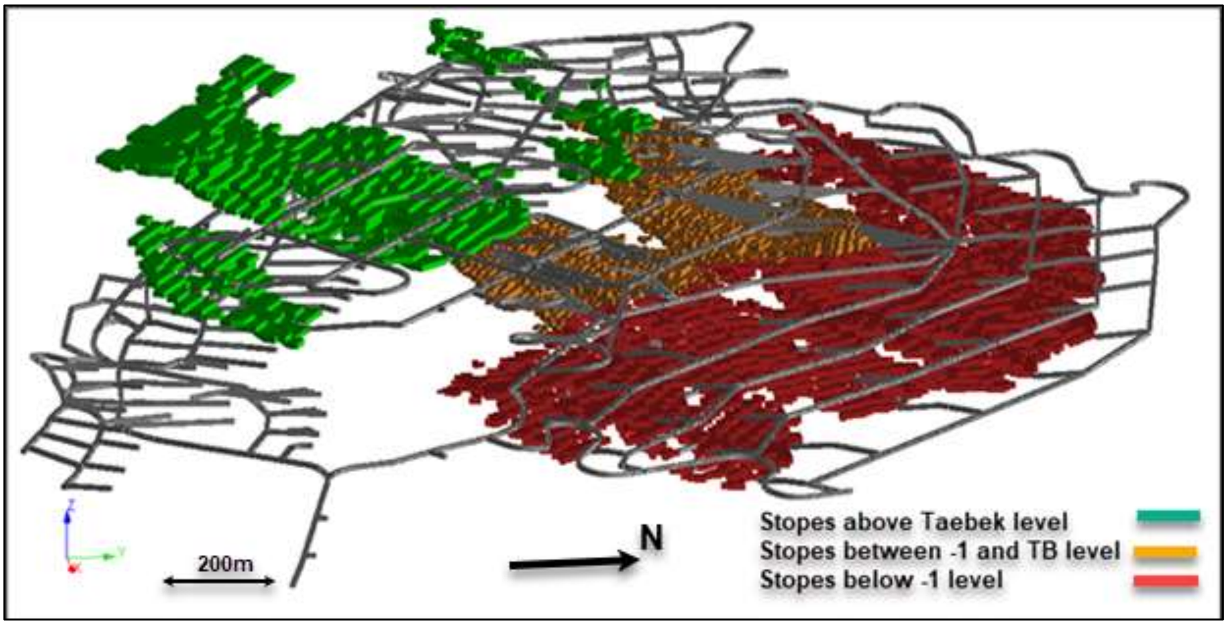
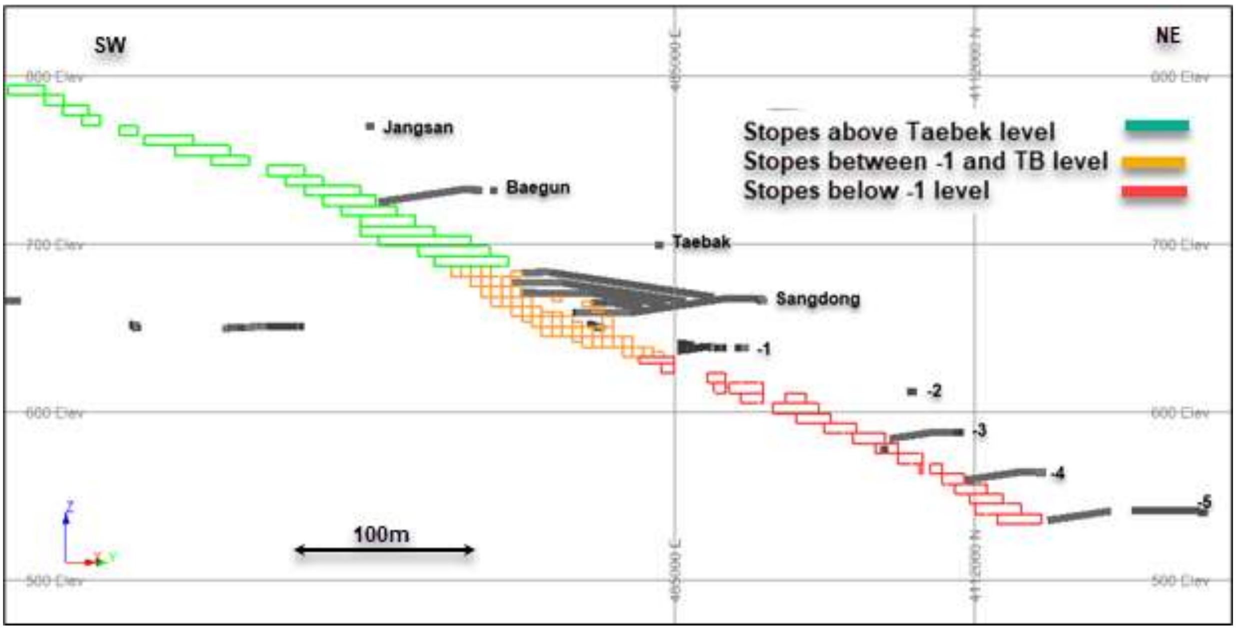


Figure 15-10. Cross-Section Through HW Planned Stopes

[Date: 2022; Source: Adam Wheeler]



15.4 Mineral Reserve Reporting

All of the design data from the PP-CAF and DAFN stope design work was loaded into the Datamine Studio 5D Planner ("Planner") software. All of the stope wireframe models were in the form of wireframe models. A number of validation steps were completed in the Planner system, on both the imported strings and wireframe data.

The geological resource models were prepared using the steps outlined in Section 15.2, prior to linking them with the Planner system. The mining factors that were applied in the potential reserve estimation, either as a consequence of the model preparation, planning designs, or by direct application of factors in the scheduling software (EWS), are summarised in Table 15-4. The high mining recovery in the Stepped DAF is possible because of the external stope ramp system and near total extraction of panels progressively as the stopes are mined out, without any non-recoverable pillars.

Table 15-4. Mining Factors

Method	Regions	Factor Effect	Method of Application	Dilution	Mining Recovery
Stepped DAF	**All Main and F2/F3**	Panels' Design	Inherent in design	24%	97%
PP-CAF	**HW Lower**	Post-pillars	Pillars in block model		85%
	HW Lower	Losses at Orebody Edges	EWS parameters	4%	96%
	HW Upper	Post-pillars	EWS parameters		85%

Using the wireframe models imported or generated in the Planner system, the prepared block models, and these mining factors, the mining reserves were evaluated. These potential reserves are composed of the Indicated and Inferred Resources which are captured within the stope designs.

A cut-off of 0.17% WO_3 was applied to all the Main/F2/Halo/F3 areas. A cut-off of 0.16% WO_3 has also been applied to the HW zones, and a cut-off of 0.18% WO_3 has been applied to material mined during development. A grade-tonnage table of the reserves is shown in Table 15-7. A breakdown by level is shown in Table 15-6.

For the DAFN potential ore, the mining units evaluated were complete stope blocks (as evaluated from the Stope Blocks DTMs). For the PP-CAF potential ore, the mining units evaluated were individual groups of designed stoping panels for the lower part of the HW, and overall CAF lifts for the upper part. With the use of grade control samples and/or testing for fluorescence indicating the presence or absence of scheelite, this will help with localised ore/waste decisions. If any waste headings have to be mined for access purposes, such rounds can be mined and subsequently dumped underground.

Table 15-5. Mineral Reserves Summary
As of 28th February, 2025

	Probable Reserves		
	Tonnes	WO3	Content
	Kt	%	t
HW	3,674	0.42	15,410
Main_F1	1,212	0.42	5,070
F2	1,732	0.45	7,750
Halo	261	0.39	1,020
F3	1,700	0.41	6,890
Total	**8,579**	**0.42**	**36,140**

Table 15-6. Mineral Reserve Breakdown By Level

	ZONE											
	HW		Main_F1		F2		Halo		F3		Total	
Level_Elevation	Tonnes	WO3	Tonnes	WO3	Tonnes	WO3	Tonnes	WO3	Tonnes	WO3	Tonnes	WO3
	Kt	%	Kt	%	Kt	%	Kt	%	Kt	%	Kt	%
Jangsan_755	36	0.35	-	-	-	-	-	-	-	-	36	0.35
Baegun_727	334	0.39	22	0.32	-	-	-	-	-	-	356	0.39
Taebek_685	359	0.32	162	0.40	-	-	-	-	-	-	522	0.35
Sangdong_659	2	0.29	585	0.40	901	0.46	113	0.36	688	0.39	2,288	0.42
-1_633	995	0.48	380	0.46	831	0.44	149	0.41	1,013	0.42	3,367	0.45
-2_617	1,013	0.42	62	0.41	-	-	-	-	-	-	1,075	0.42
-3_594	368	0.42	2	0.25	-	-	-	-	-	-	370	0.42
-4_566	94	0.33	-	-	-	-	-	-	-	-	94	0.33
-5_509	472	0.39	-	-	-	-	-	-	-	-	472	0.39
TOTAL	**3,674**	**0.42**	**1,212**	**0.42**	**1,732**	**0.45**	**261**	**0.39**	**1,700**	**0.41**	**8,579**	**0.42**

Notes:

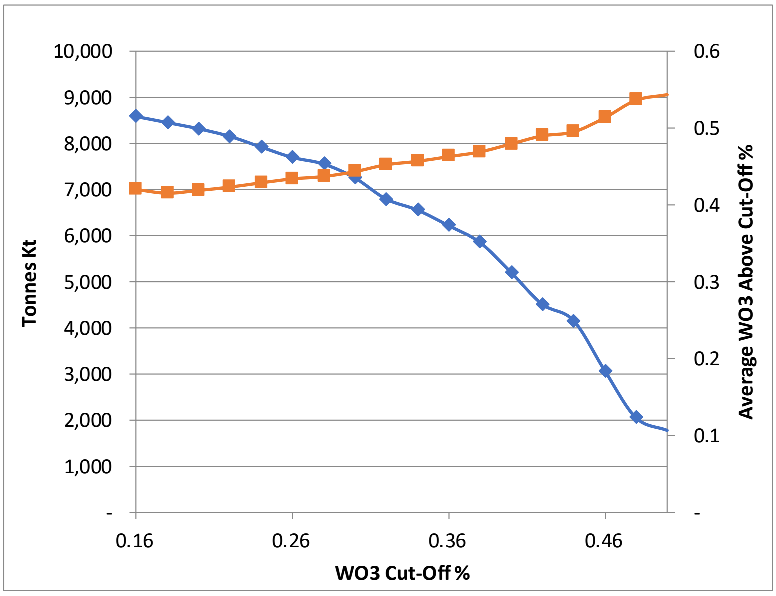
1. **CIM Definitions were followed for reserve estimate.**
2. **Reserves used full 3D design of development and stopes, using a minimum mining thickness of 3m.**
3. **The cut-off grades used for mine planning and reserve evaluation purposes were as follows:**
   - **HW zone stopes** **0.16% WO_3**
   - **FW/Main zone stopes** **0.17% WO_3**
   - **Development** **0.18% WO_3**
4. **Cut-off grades are supported by an APT price of USD 450/MTU WO_3, a processing recovery of 85%, and operating costs reflecting different orebodies and mining methods.**
5. **Rounding may result in apparent summation differences between tonnes, grades and metal content; not considered material.**

Other than discussed herein, the Author is not aware of any mining, metallurgical, infrastructure, permitting, and other relevant factors that could materially affect the mineral reserve estimate.

The Author is not aware of any known environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors that could materially affect the mineral reserve estimates, other than discussed herein. There are no known mining, metallurgical, infrastructure, or other factors that materially affect the Mineral Reserve estimate, at this time.

Table 15-7. Grade-Tonnage Table of Mineral Reserves

WO3 Cut-Off %	Tonnes Kt	WO3 %
0.16	8,579	0.42
0.18	8,448	0.42
0.20	8,313	0.42
0.22	8,148	0.42
0.24	7,916	0.43
0.26	7,691	0.43
0.28	7,547	0.44
0.30	7,247	0.44
0.32	6,787	0.45
0.34	6,548	0.46
0.36	6,210	0.46
0.38	5,846	0.47
0.40	5,195	0.48
0.42	4,501	0.49
0.44	4,148	0.49
0.46	3,060	0.51
0.48	2,035	0.54
0.50	1,758	0.54



16 MINING METHODS

16.1 Existing Mine Infrastructure

Extensive mining has taken place within the Sangdong Mine property and at the time of its closure, the mine had been developed on more than 20 levels, between the elevations of 242 and 755 masl, with a total length of 20 km of development. The mine is flooded to -1 level (633 mRL) where a tunnel and trench, situated at the level floor elevation, drains water out to a valley in the mountainside. The level reference system is summarised in Table 16-1.

The mine is located on a mountainside, with two old and one new entry portal situated on the Sangdong level. Old entry portals are also located on the Taebaek, Baegun, Jangsang and Sunyeong levels. A ramp from the Sangdong accesses the -1 level at the eastern end of the level. There are several inclined shafts and vertical shafts that were used to access lower levels. A plan of all existing underground levels is shown in Figure 16-3.

A significant portion of the opening accessing the Main zone, where it was mined, has caved in but can be rehabilitated if required.

The old ventilation incline located at the west end of mine is in good condition and may be used as the main exhaust air shaft and a secondary egress. Its collar is at 856 mRL. Various level connections to this ventilation system have been planned, as described in Section 16.4.1.

The mine operations and geology buildings are located on surface on a plateau near the Sangdong portals. Quite a lot of the old mine infrastructure is still in quite good condition.

Figure 16-1. Recent Photo of Old Extraction Shaft

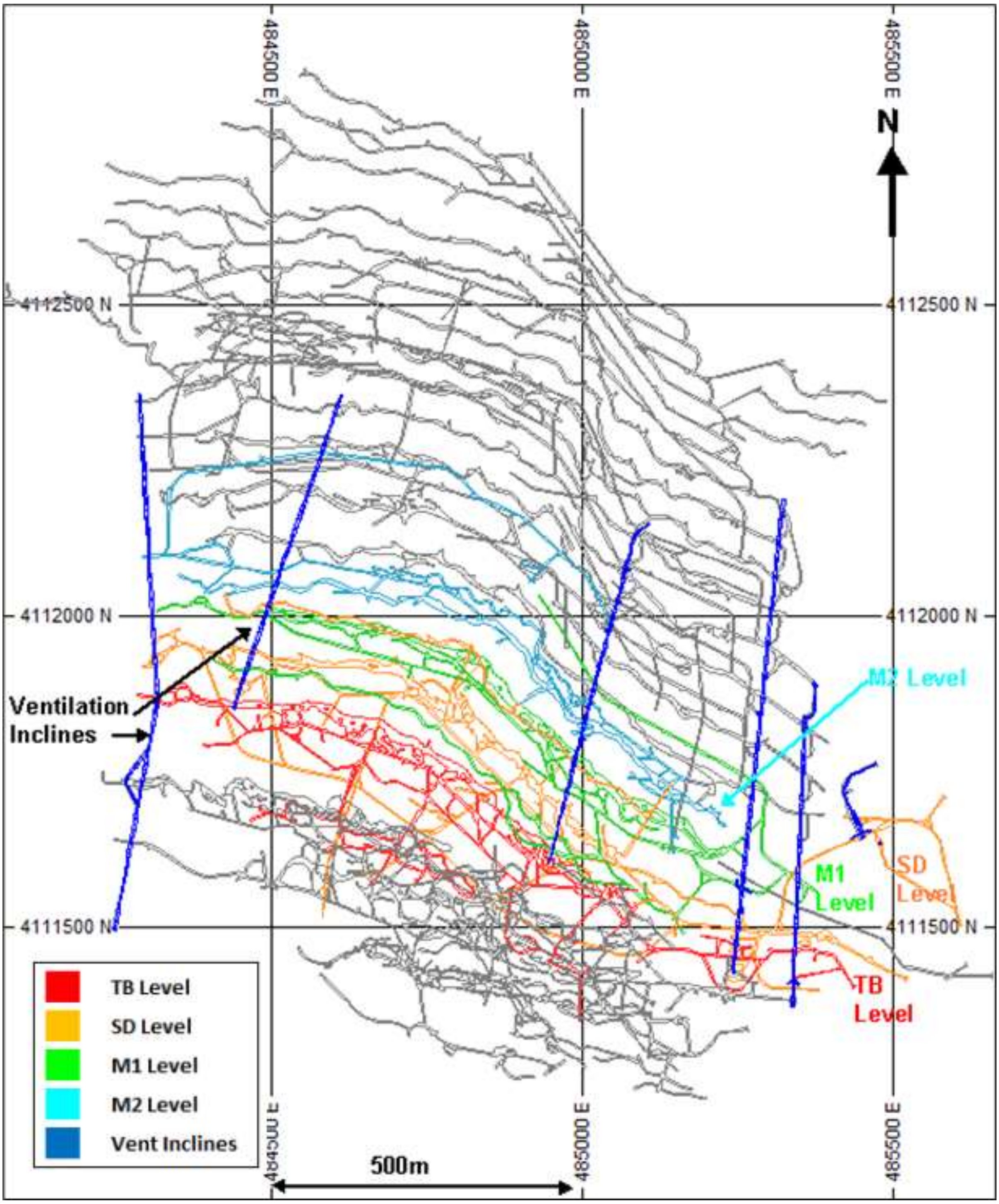
Figure 16-2. Recent Photo of Access Raise Between SD and BG Levels

Table 16-1. Level Reference System

Level Name	Elevation (mRL)
Ventilation	856.0
Sungyeong	804.7
Jangsan	751.5
Baegun	724.0
Shaft	725.0
Taebak	683.6
Sangdong	656.8
2nd Sangdong	655.8
Woulfe	656.3
-1	632.6
Drainage	629.0
-2	617.5
-3	593.8
-4	565.8
-5	536.3
-6	508.6
-7	482.1
-8	456.8
-9	432.6
-10	407.4
-11	379.7
-12	351.8
-13	325.5
-14	298.2
-15	269.5
-16	242.6
-17	224.0

Figure 16-3. Plan of Historical Underground Development

[Date: 2016; Source: A. Wheeler]



16.2 Geotechnical Parameters

16.2.1 Rock Quality Assessment

A geotechnical study was completed by Turner Mining and Geotechnical Pty Ltd in 2014, which comprised:

- an appraisal of current underground conditions
- analysis and interpretation of diamond drill core logging data
- analysis of laboratory test results
- analysis of underground mapping
- assessment of suitable mining methods
- generating support designs and standards
- generation of maximum stoping span guidelines.

The current proposed mining area extends from -5 Level to Sangdong and Taebaek Levels on the HW, Main, F1, F2, F3 and F4 Zones. The geotechnical study was focussed on the HW, Main, F2 and F3 zones.

Intact rock tests were undertaken by Geomechanics Co. Ltd., in Kangwon-Do. The results of these tests are summarised in Table 16-2.

Table 16-2. Laboratory Rock Test Summary

Rock Type	Uniaxial Compressive Strength (MPa)	Young's Modulus (GPa)	Poisson's Ratio	Number of tests accepted/rejected
Slate	173	63.9	0.25	18/5
Skarn	154	76.3	0.20	16/11
Limestone	116	78.3	0.31	1/1
Halo	155	94.5 (too high)	0.20	1/0

There were no records found of stress measurements having been undertaken at Sangdong. The stress regime used for stability analyses has therefore been estimated from the weight of overburden and from visual assessment of conditions relative to other mines. Virgin stress magnitudes vary considerably under hilly terrain and a reasonably conservative depth of 350m has been assumed. The hangingwall stress assumed for the stability analysis has a stress concentration factor of 1.5. The assumptions leading to the representative virgin stress of 10 MPa and hangingwall stoping stress of 15 MPa are shown in Table 16-3.

Table 16-3. Stress Assumptions

Depth	350.0
Density	2900.0
Gravity	9.81
Virgin Stress (Pa)	9957150.0
concentration factor	1.5
Stress (Pa)	14935725.0
Stress (MPa)	**15**

The Q-system (Barton, Lien and Lunde, 1974) was used to determine the rockmass strength. Q is the preferred method for assessing rock mass strength due to its accepted use in the Stability Graph Method for determining stable stope span limits and for empirical relationships between Q and excavation support requirements. The rockmass strength was calculated for the hangingwall domains of each of the zones, for the zones themselves and for the footwall of the F3 Zone (where permanent access would be located).

Table 16-4 shows the parameters and results for Q′ and Q for the main domains. The results for Q are all in the 'poor' and 'fair' categories (Table 16-5, Barton, 1974).

Table 16-4. Representative Q Parameters

Domain	Location	RQD	Jn	Jr	Ja	Q′	Jw	SRF	Q
Hangingwall Lode	Hangingwall	39	10.1	2.0	2.7	2.9	1	1	**2.9**
	Orebody	31	11	1.8	2.9	1.7	1	1	**1.7**
Main Lode	Hangingwall	39	10.1	1.6	2.5	2.6	1	1	**2.6**
	Orebody	49	9.2	2.0	2.2	4.7	1	1	**4.7**
F2 Lode	Hangingwall	52	9.2	1.4	2.3	3.4	1	1	**3.4**
	Orebody	64	8.5	1.7	2.2	6.0	1	1	**6.0**
F3 Lode	Hangingwall	67	7.9	1.7	2.2	6.5	1	1	**6.5**
	Orebody	61	8.4	1.9	2.3	6.0	1	1	**6.0**
	Footwall	59	8.8	1.4	2.3	4.2	1	1	**4.2**

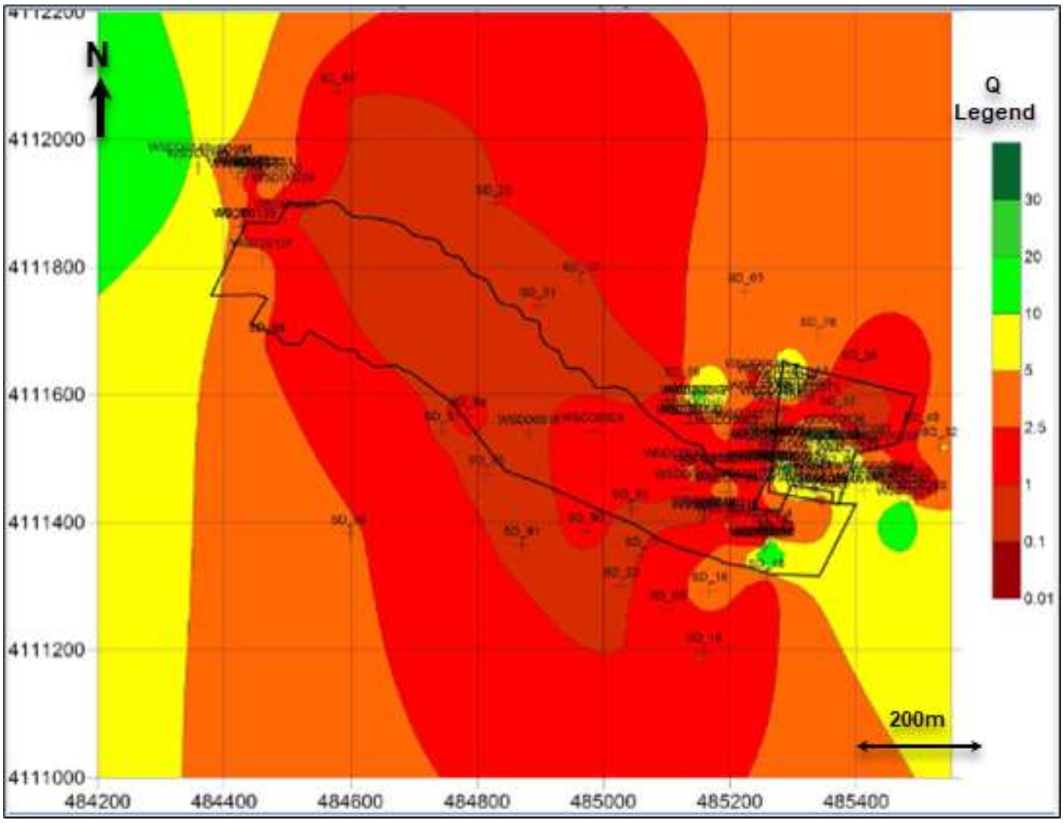
Table 16-5. Rock Quality Parameters (Barton, 1974)

Description	Rock Quality (Q)
Exceptionally poor	0.001 to .01
Extremely poor	.01 to .1
Very poor	.1 to 1
Poor	**1 to 4**
Fair	**4 to 10**
Good	10 to 40
Very good	40 to 100
Extremely good	100 to 400
Exceptionally good	400 to 1000

RQD and Q values have been contoured using the Surfer software, for each studied zone across the mine, as shown in the example in Figure 16-4.

Figure 16-4. Plan of Main Lode Hanging Wall Q

[Date: 2016; Source: A. Wheeler]



16.2.2 Support Recommendations

All non-caving mining methods require the determination of maximum spans to ensure extraction is maximised whilst at the same time minimising the risk of collapse and loss of reserves. Two empirical methods have been used to determine the maximum spans:

- Stability graph method
- Maximum unsupported span (MUS)

Data has been related to the Stability Graph, as shown in Figure 16-5. Data and estimates of the critical hydraulic spans calculated are shown in the last column in Table 16-6. The A, B and C stability factors are based on current mine designs, estimated strengths and stresses, core logging data and calculated joint dips.

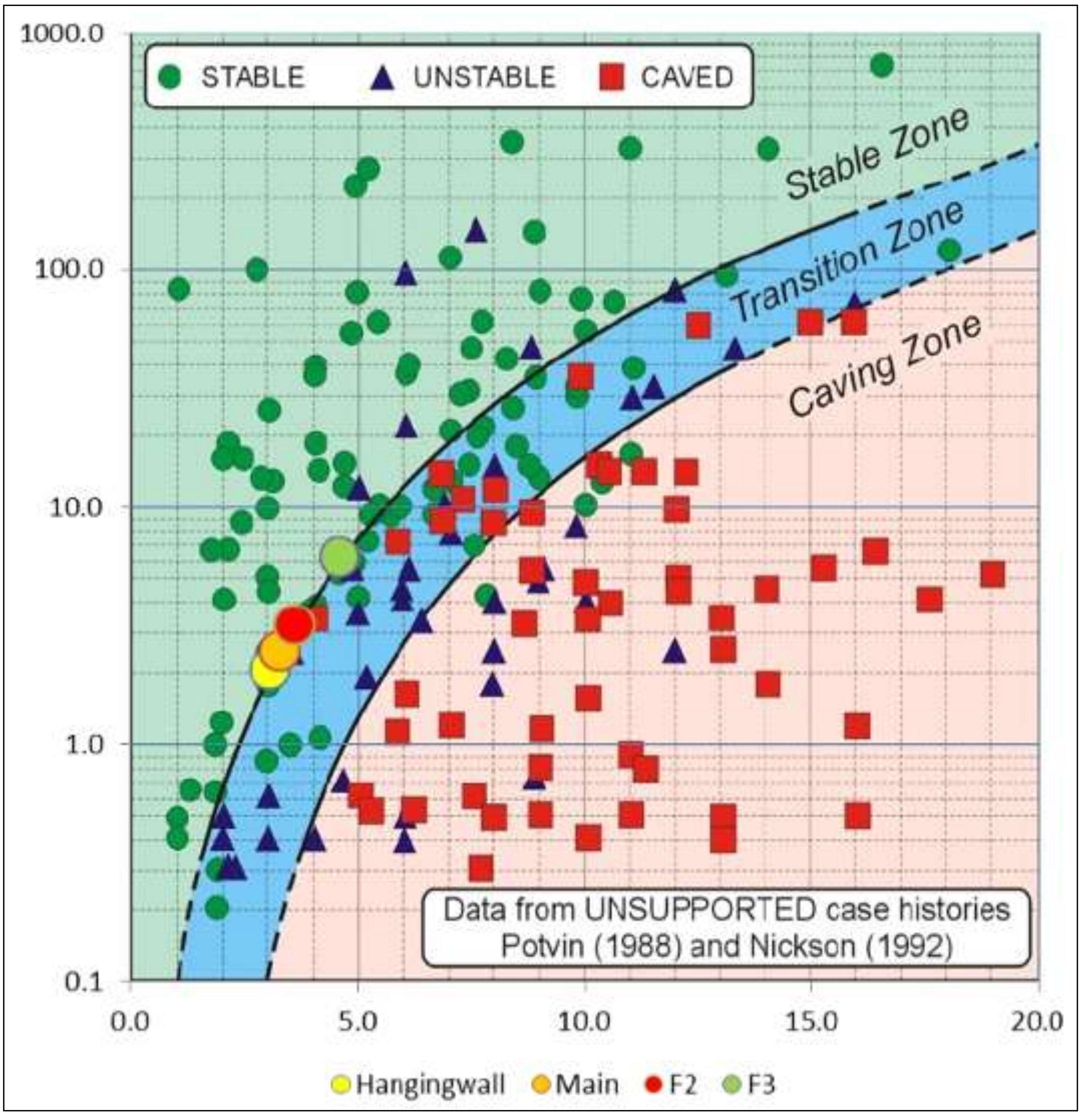
This method does not consider instabilities caused by individual wedges and the rises will still need to be supported with rockbolts.

Table 16-6. Stability Number Summary

Orebody	Factor A	Factor B	Factor C	Q' Rating	N'	HR	Span for 100m length
Hangingwall Lode	0.7	0.2	4.3	2.9	2.0	3.1	6.6
Main Lode	1	0.2	4.3	2.6	2.5	3.3	7.1
FW2 Lode	1	0.2	4.3	3.4	3.6	3.6	7.8
FW3 Lode	1	0.2	4.3	6.5	4.6	4.6	10

Maximum unsupported span variations were also determined for each zone, and contoured maps prepared. These were overlain on plans for the reserve blocking-out process in the current study (Section 15).

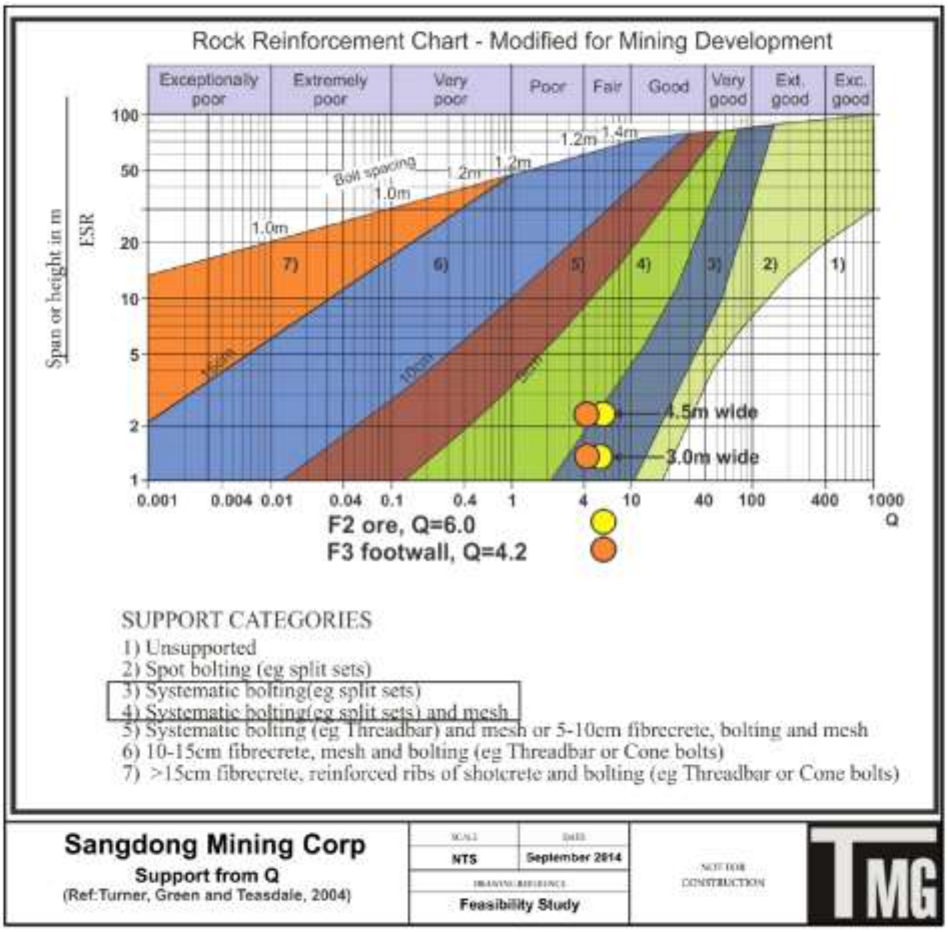
Figure 16-5. Stability Graph



Support requirements have been estimated from core logging data using empirical analysis based on RQD, Q and from observations of exposed rock mass. The modified rock reinforcement chart (Turner, Green and Teasdale, 2006), as shown in Figure 16-6, was used for the rockmass quality Q = 6 (SRF=1, 'medium stress, favourable stress conditions' assuming no mining induced stresses).

Figure 16-6. Modified Rock Reinforcement Chart

(Turner, Teasdale and Green)



Small-sized development would require Category 3 support, i.e. 'systematic bolting ' and jumbo development would require Category 4 support i.e. 'systematic bolting and mesh'.

In current underground excavations, falls of ground in development and stopes are generally located at the intersection of faults and fault-associated jointing. These sections of poor ground are generally supported with timber sets which have deteriorated and require re-supporting.

Very poor ground towards the hangingwall of the shale unit required concrete arches for permanent stability but this appears to improve towards the far west. Old rockbolts and timber support should be assumed to have lost all load-bearing capacity. Old concrete that has not cracked will generally be stable, as will most steel and concrete sets.

Areas sprayed with old shotcrete appear to have maintained their integrity, with small rocks supported. The old shotcrete was only 5-10mm thick and is not capable of supporting 0.5m thick blocks.

Current development primarily requires check-scaling to remove smaller loose rocks and to determine which areas need supporting. Area requiring rehabilitation would involve the removal of all timber sets and steel sets (where the timber lagging is non-functioning). The most effective support of poor ground sections will be achieved with rockbolting and shotcrete.

New areas of jumbo development should be supported with mesh or shotcrete plus rockbolts over the backs and shoulders. Wall support will be required where steep jointing is likely to create slabs, especially in areas close to stoping and in ore drives adjacent to pillars. Mesh should be galvanised weldmesh, 5.6mm wire thickness, 100mm x 100mm apertures, with sheet size chosen to suit drive size and optimise bolting. Bolt spacing will be designed to pin the mesh sheets with 0.2m overlaps.

Where shotcrete is used it should be sprayed after loading, watering down and scaling. Hydraulic scaling is recommended with high-pressure pump attached to the shotcrete sprayer Bolting should be undertaken once the shotcrete has cured sufficiently to prevent fall-off during bolting (1MPa strength at 1 hour required).

Wide spans in stopes will be more susceptible to wedge block failure than in development and the use of split sets is not recommended. Resin grouted bolts are far more effective in supporting large blocks. Rises should be supported with 2.0m solid steel Threadbar rockbolts installed with resin on a 1.5m pattern. Shorter bolts would require closer spacings.

Five geophones were installed in 2024 on the Sangdong level, in the central zone of the deposit. This was done in order to monitor local rock behaviour to mine blasting as well as to other activities outside of the mine.

16.2.3 Earthquakes

The seismic hazard data for the Sangdong area has been assessed from the Global Seismic Hazard Assessment Program data (GSHAP, 1999). The data indicated a 10% probability of exceeding between 0.2 and 0.8 m/s^2 peak ground acceleration over 50 years (based on a 475 year return period). This falls in the low-hazard category and increased acceleration has not been considered in any design analysis.

16.3 Mining Methods

The current mine plan has primarily focussed on the following stoping methods:

1. **Stepped DAF – Thinner Zones** (DAF). In the F2, Halo, F3 and Main zones.

2. **Post-Pillar Cut-and-Fill – Thick Zones** (PP-CAF). For the majority of the HW zone.

16.3.1 Stepped Drift-and-Fill

Previous DAF designs made for the FW zones (January 2018) used internal stope ramps, which were developed on apparent dip within each bed. However, this design test work made clear various disadvantages:

a) High dilution with the internal stope ramp itself, as shown in Figure 16-7.
b) High losses with pillar wall next to stope ramp, as shown in Figure 16-8.
c) Very difficult drive intersections with stope ramp, in areas of lower dip, as shown in Figure 16-8.

In the stepped drift-and-fill method, single drift-and-fill headings will be extended along strike, close to horizontal, with inclined shanty backs so as to reduce dilution at the hanging wall contact. DAF headings will be developed with width from 3m to 6m. DAF panel lifts will be stepped up in approximately 2m vertical intervals, which corresponds with the average 22^{o} degree dip of the F2, F3 and Main beds.

The method will use external stope ramps, located on the footwall side of the ore zones, approximately 20m below the bottom bed. Due to the low orebody dip this means at any particular elevation, the ramp will be approximately 70m horizontally to the south of the F3 bed. At the bottom level elevation, a stope crosscut will be developed from the ramp, going northwards until it intersects the first ore horizon (generally the F3). For the F2/F3 area, the stope crosscut can be approximately horizontal, and will then normally be extended on to also intersect the F2 bed. This will often allow 4 production faces, which can be developed along the F2 and F3 beds at that elevation. The stope drives will need to be of a variable width, from 3m to 6m, so as to have the floor of the next (higher) stope drive located approximately 2m higher.

In most cases, with the average 22^{o} degree dip of the ore zones, one drive heading of 5m width can be made at the design elevation, and the next lift will then be 2m higher. However, there is likely to be local variations in dip. If the orebody dip falls below 18^{o}, then 2 or more drive headings may be required at the same elevation, before stepping up to the next 2m lift. This is demonstrated in the example cross-sections shown in Figure 16-9.

The stope drives will be developed along strike in both the NW and SE directions, to a designed extent, generally approximately a maximum of 100m, the limit of forced duct ventilation. The total stoping length, with 2 faces on the same bed and same elevation, will generally be approximately 200m.

Figure 16-7. Example Cross-Section of Former Internal Stope Ramps

[Date: 2022; Source: A. Wheeler]

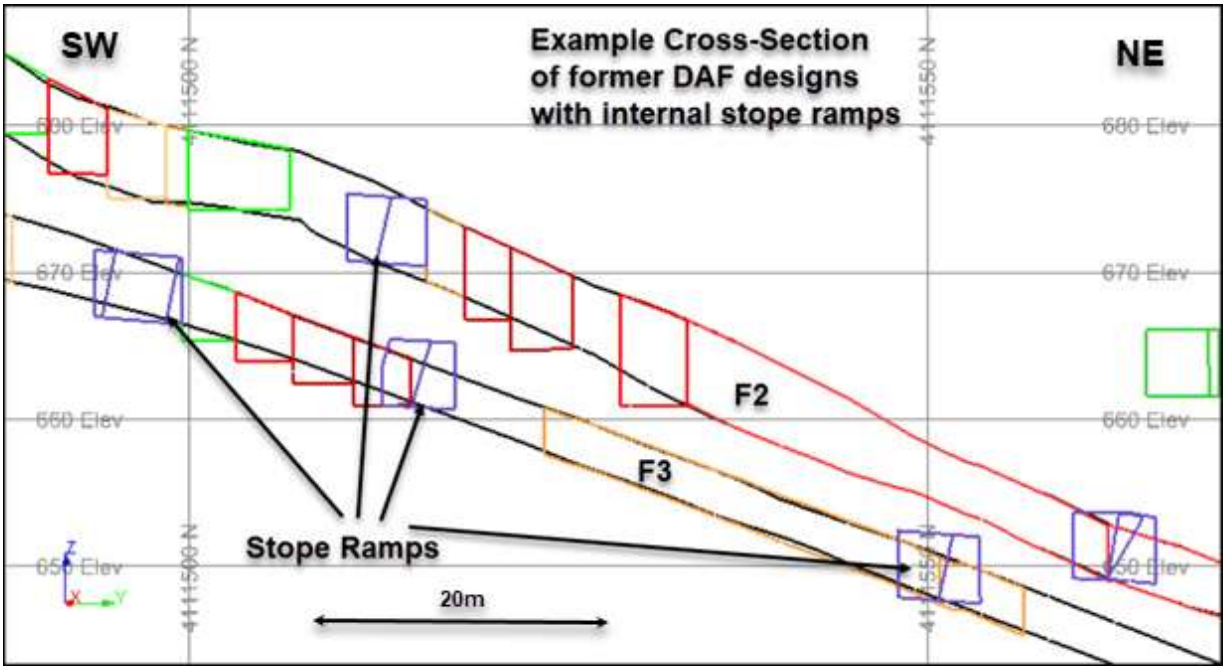


Figure 16-8. 3D View of Former DAF Design with Internal Stope Ramps

[Date: 2016, Source: A. Wheeler]

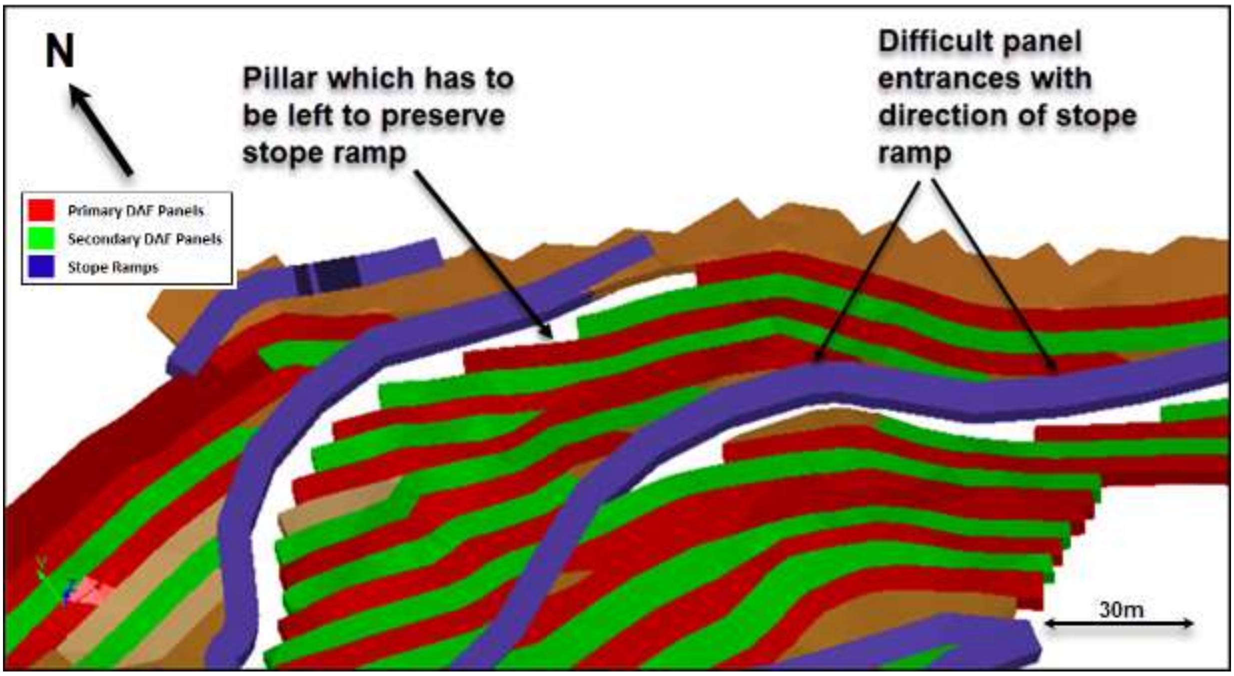
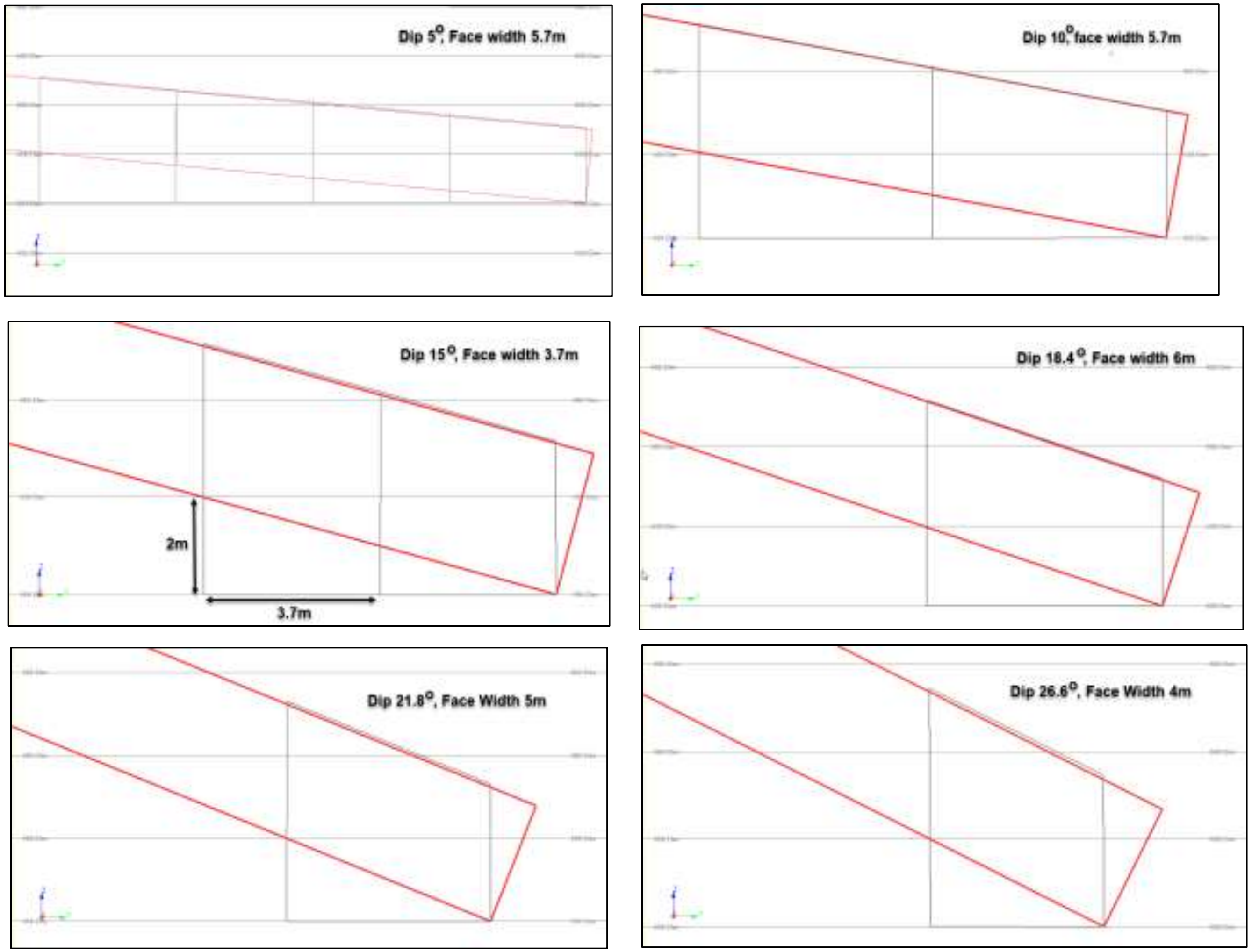


Figure 16-9. DAF Face Widths for Different Orebody Dips

[Date: 2022, Source: A. Wheeler]

Dip	Total Width for 2m step	No. of Faces	Face Width
5	22.9	4	5.7
7.5	15.2	3	5.1
10	11.3	2	5.7
12.5	9.0	2	4.5
15	7.5	2	3.7
18.4	6.0	1	6.0
21.8	5.0	1	5.0
26.6	4.0	1	4.0
33.7	3.0	1	3.0



The mined stope drives will then be backfilled with paste fill. This will first require removal of any infrastructure from the mined stope drives, and then installation of backfilling piping. Backfilling barricades will then need to be built at the start of each stope drive. This filling operation will need to be tight-filled as much as possible. The planned cement content for different stoping situations is summarised below. The emplaced backfill will need a minimum of 4 days' curing time, before mining operations can continue.

- Old stopes 1%
- Active stopes 3.5%
- Any undercut stopes 7%

The end of the stope access crosscut with then need to be elevated, by a limited slashing of the back leaving enough waste to make a new ramp floor over a small length, so as to provide a new stope access approximately 2m higher than previously. The next stope drives can then be developed, with one sidewall being ore, and the other sidewall being the backfill from the mining of the previous lift.

For the F2/F3 stoping areas, this stoping cycle will be repeated for generally three lifts from the same stope access crosscut. For the next lift, a new stope access crosscut will be developed from the stope ramp, approximately 35m along-strike from the previous crosscut. This development and stoping sequence is depicted in Figure 16-10. In areas of the south zone, when the Halo zone also occurs between the F2 and F3 zones, this can give up to 6 available faces on the same stope lift, as shown in Figure 16-11.

For the Main East zone, which has a much more limited strike extent, of approximately 215m, different stope ramps have been designed to provide stope access crosscuts into the central area of the stoping zone. These stope access crosscuts have often been designed with a downward gradient, to a maximum of 13%. This will allow repetitive roof slashing of the stope ramps, so as to provide more stope access on progressive 2m lifts, as shown in Figure 16-13. As a reference a comparison in considering an alternative PP-CAF stopes for the Main East, Figure 16-14 shows a section of PP-CAF stopes panels. These two plots clearly show the much better recoveries attainable by using Stepped DAF in the Main East zone. The advantages of this Stepped DAF mining method include:

- High mining recoveries (minimal loss in ore pillars).
- High productivities, as multiple primary panels can be accessed simultaneously.
- Flexibility, with changes possible in panels due to variations in orebody geometry or faulting.

A typical example resultant cross-section of planned stope panels, over 3 lifts, is shown in Figure 16-12. In some very few localised areas the bed thickness can be more than 6m, particularly in the Main East zone, and occasionally up to 8m. In these parts the first lower part of these panels can be mined out with a 3m height, and then backfilled. Short stope ramps will then be created longitudinally, and upper panels will then be mined out with inclined roofs at top orebody contact.

Figure 16-10. Stepped Drift-and-Fill Stoping Sequence

[Date: 2022; Source: A. Wheeler]

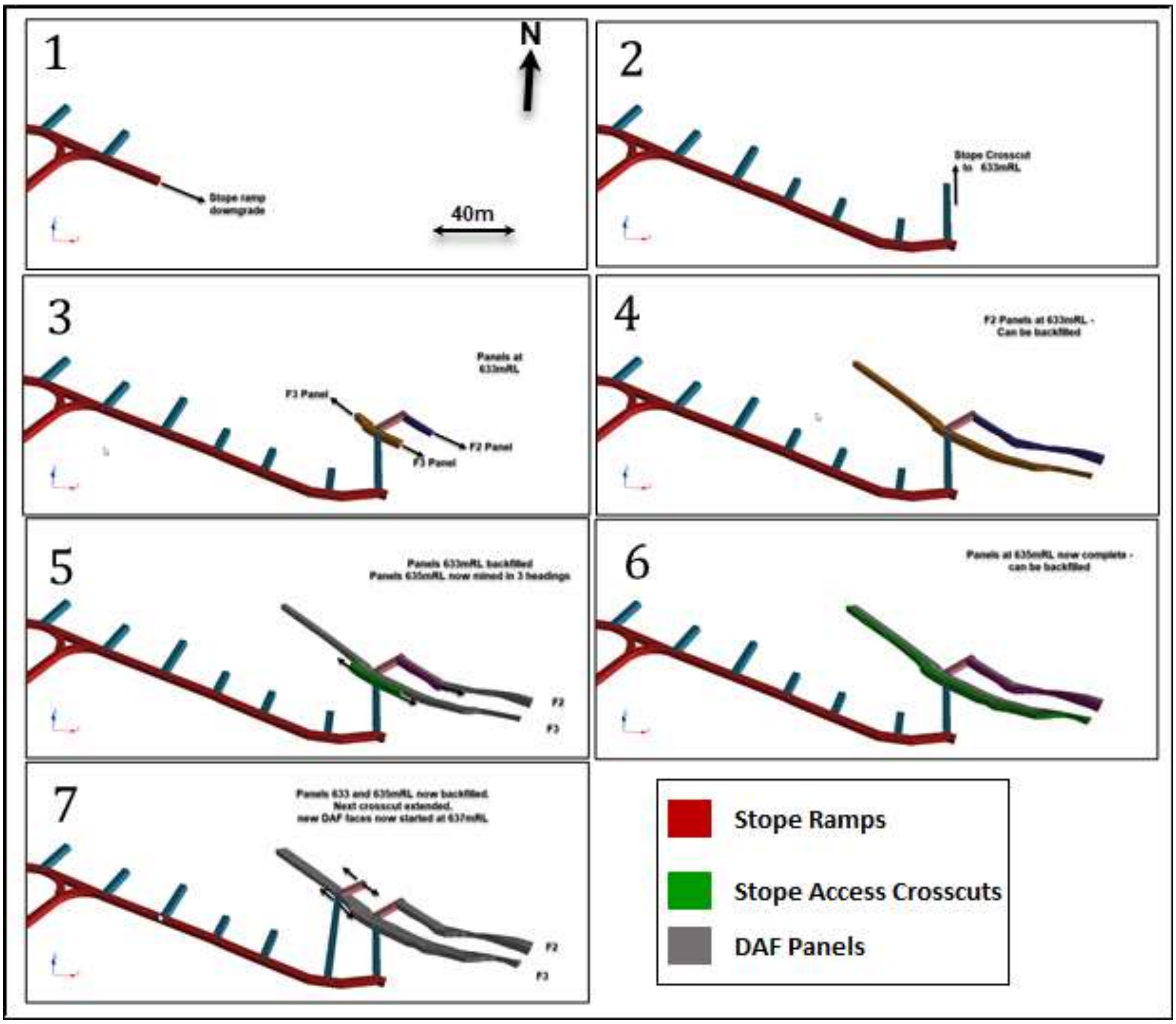


Figure 16-11. Example Plan of Available Faces with Stepped DAF in FW South Zone

[Date: 2022; Source: A. Wheeler]

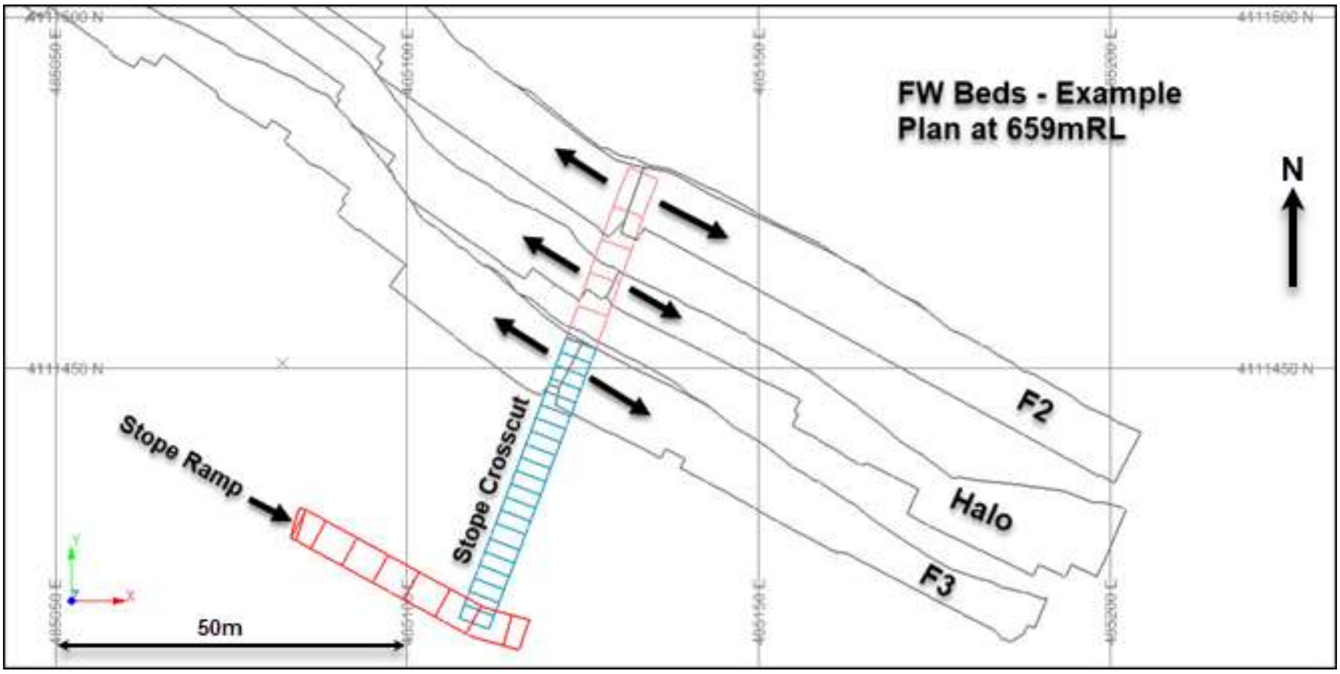


Figure 16-12. Example Cross-Section of Stepped DAF Stope Panels over 3 Lifts

[Date: 2022; Source: A. Wheeler]

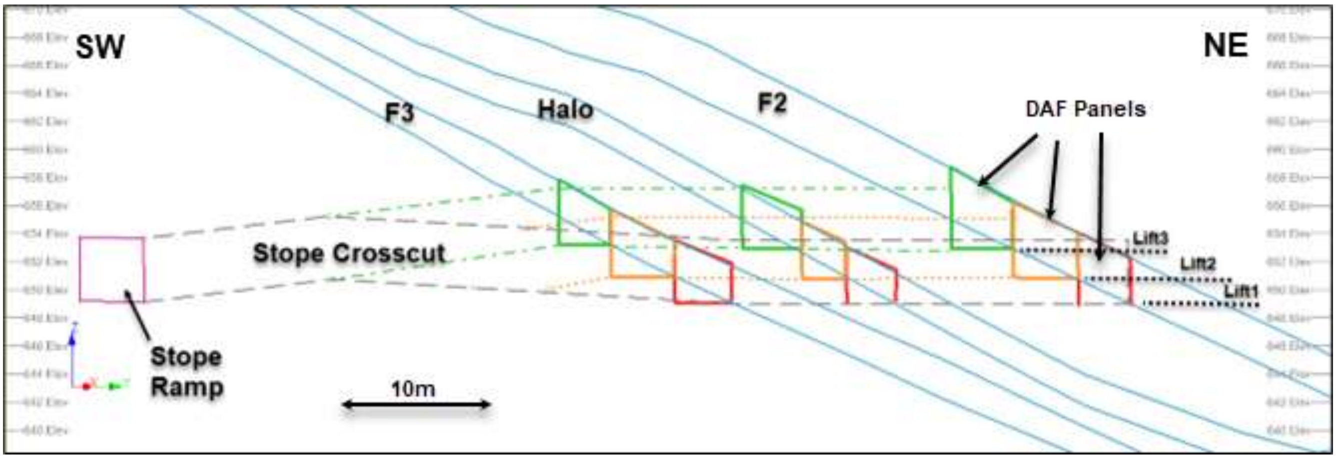


Figure 16-13. Example Cross-Section of Main-East - Stepped DAF Panels

[Date: 2022; Source: A. Wheeler]

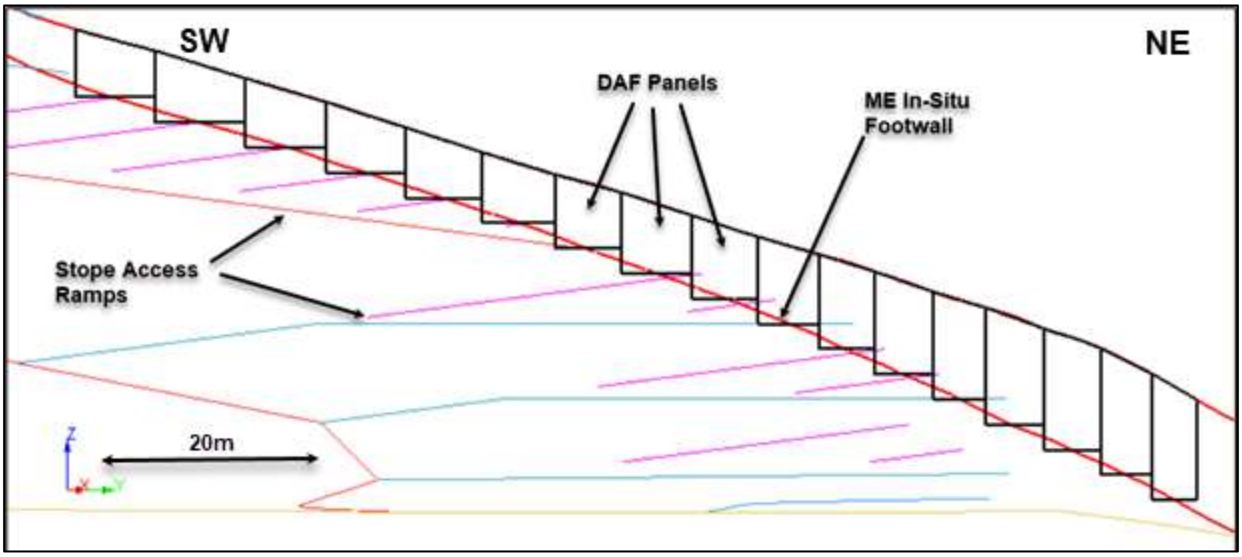
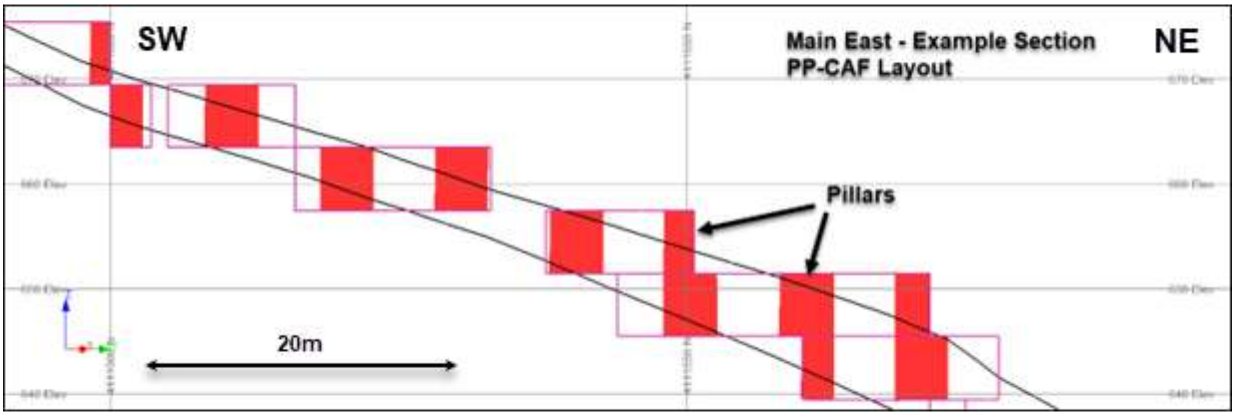


Figure 16-14. Example Cross-Section of Main-East – PP-CAF Panels

[Date: 2018; Source: A. Wheeler; As designed previously in January 2018 Study]



16.3.2 Post-Pillar Cut-and-Fill

This method has been designed in those areas which generally have a vertical thickness greater than 5m, which is the majority of the HW zone. Broadly these zones will be mined from the bottom-up in 6m vertical lifts. Each lift will be mined out according to a regular mine-wide grid of 6m wide stoping panels, leaving non-recoverable 5m x 5m post-pillars. The panels on the bottom-most lift of each stope block will require a higher cement backfill, so as to provide a stable roof when stopes in the future are mined up from below.

Although the HW zone is well-mineralised, there are erratic patches on internal waste. Based on this criteria, and previous studies involving the application of drift-and fill (DAF), it was decided to apply a post-pillar cut-and-fil (PP-CAF) method, with relatively large (6m x 6m) stope headings, around a regular pattern of 5m x 5m non-recoverable post-pillars. This PP-CAF method offers the following advantages:

- Minimal mining of internal waste.
- High productivity with a basic large 6m x 6m round size, and many faces available at any time.
- The method is well-suited to the overall dimensions of orebody.
- Improved mining recovery near orebody contacts, with shanty-backs and mining floor adjustments.
- Good overall support provided by post-pillars.
- Backfill placement operations can be done on a much larger scale and with many fewer fill fences.

The 6m wide rooms and 5m post-pillar have been recommended by Turner Mining and Geotechnical Pty Ltd.

Access to each stope will be via inclined ramps generally going down from the level galleries in the hanging wall. These ramps will allow access to the lower-most 6m lift of each stope block. The initial stope panels will then generally be developed from the hanging wall contact to the footwall contact. A number of panel faces may then be started and mined simultaneously, providing many faces for drilling and blasting. Backfill placement operations will be done as logical mined sections can be easily partitioned off.

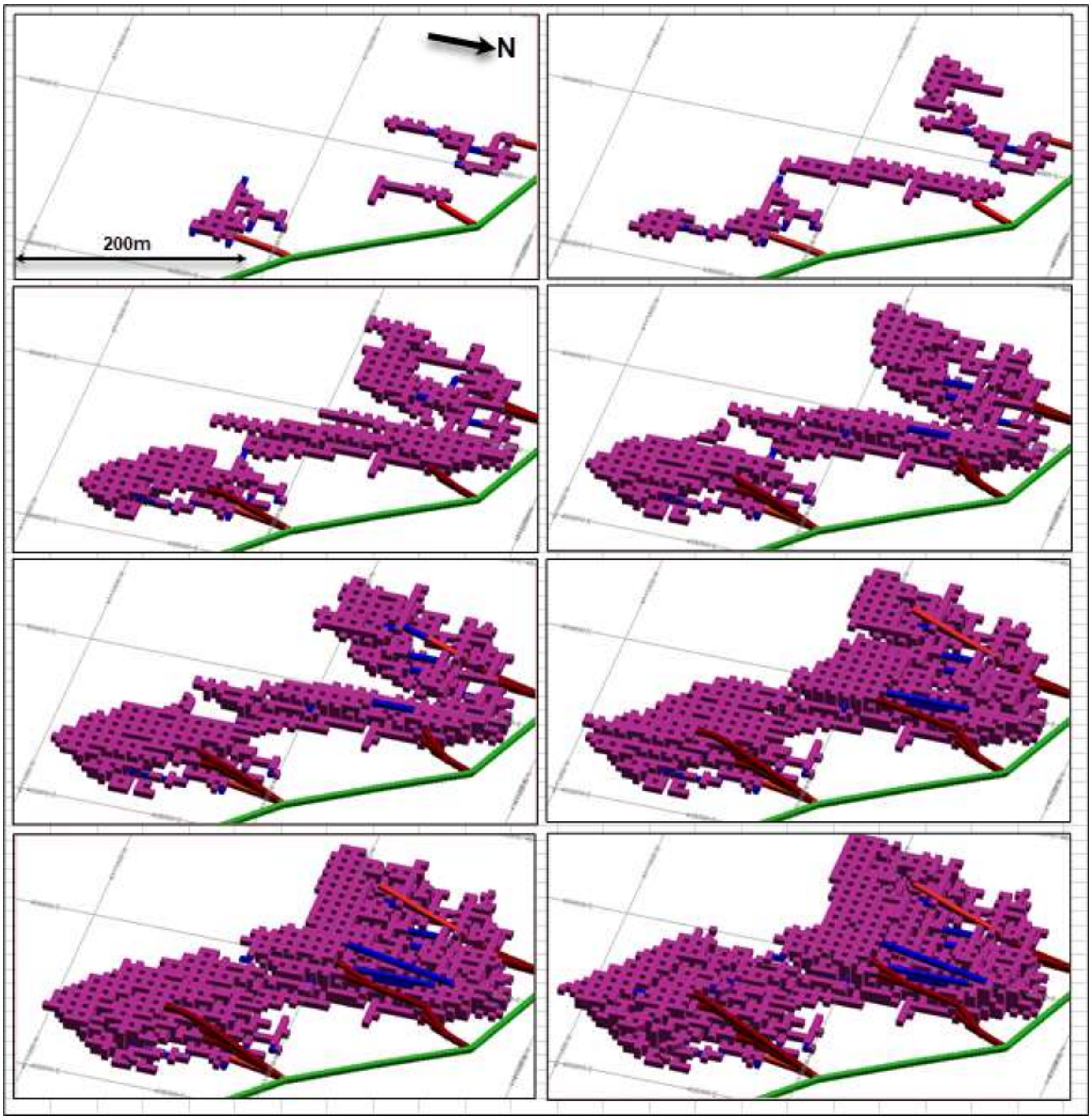
Once all the PP-CAF panels have been mined and backfilled for an entire lift, the stope ramp access can then be back-slashed, so as to provide access to the next 6m lift above. This sequence can then be repeated lift-by-lift. Generally, 3-4 6m lifts can be accessed from the same original level crosscut access.

This stoping sequence is depicted in Figure 16-15 for the designed PP-CAF stopes in the HW zone, for three of the initial stope blocks off the -1 level.

Figure 16-15. Post-Pillar CAF Stoping Sequence

[Example below shows some of the HW PP-CAF stopes off the -1 Level]

[Date: 2022; Source: A. Wheeler]



Level galleries	
External Stope Ramps	
Primary stope panels	
Stope access drifts	
Stope ramp slashing	

16.4 Mine Design

16.4.1 Development Layout

Additional level development has been laid out so as to enable access to the identified potential ore areas, and to allow truck haulage from these new stoping areas. Main access to the underground mine will use the Alfonse portal on the Sangdong level, as well as the Monty B portal on the -1 level (Figure 16-16), that will enable ore haulage out from the mine directly into the valley, on approximately the same elevation as the mill position. A plan of all the updated planned primary development is shown in Figure 16-17. More detailed plans of the Sangdong and -1 levels are shown in Figure 16-18 and Figure 16-19. Some drifts are shown along the line of old workings, meaning stripping and refurbishment of these old drives is required, to obtain a final 4.5m x 4.5m drift size. Ramps have been put in at a maximum gradient of 15%, generally for level connections at the extreme west and east ends of the mine. In general, level drives have been inclined at approximately 1% to allow for water drainage to the east side of the mine. They have also been designed so as to coincide with the elevations of the old mine galleries.

For access to the new HW stopes, a new galleries were designed for the -1, -2, -3, -4 and -5 levels. These are all positioned to be in the hanging wall of the HW zone, for transverse stope access ramps. The -1 level access to the HW zone will also provide access to the eastern Main/F1 stopes. On each level, the new drifts have been extended to reach the existing western ventilation raises.

The new Sangdong level gallery is to provide access on the foot wall side of the new stopes in the F2 and F3 bed, above the Sangdong level elevation (approx. 657mRL). For access to the new F2/F3 stopes below the Sangdong level, a series of stope ramps will be developed down grade from the Sangdong level. These stope ramps will spaced approximately 300m along strike, and these will provide access to the Stepped DAF stoping areas. It is not possible to make a new gallery on the hanging wall side, owing to the previously mined out areas.

A small separate ramp system will also be required for the upper parts of the western Main/F1 stope block.

With this development layout, a well-defined ventilation circuit is also created, along with flexibility for the use of equipment among the different zones of the mine, as well as access to escape routes.

Figure 16-16. New Adit Portal, For -1 Level

Figure 16-17. Planned Main Development

[Date: 2022; Source: A. Wheeler]

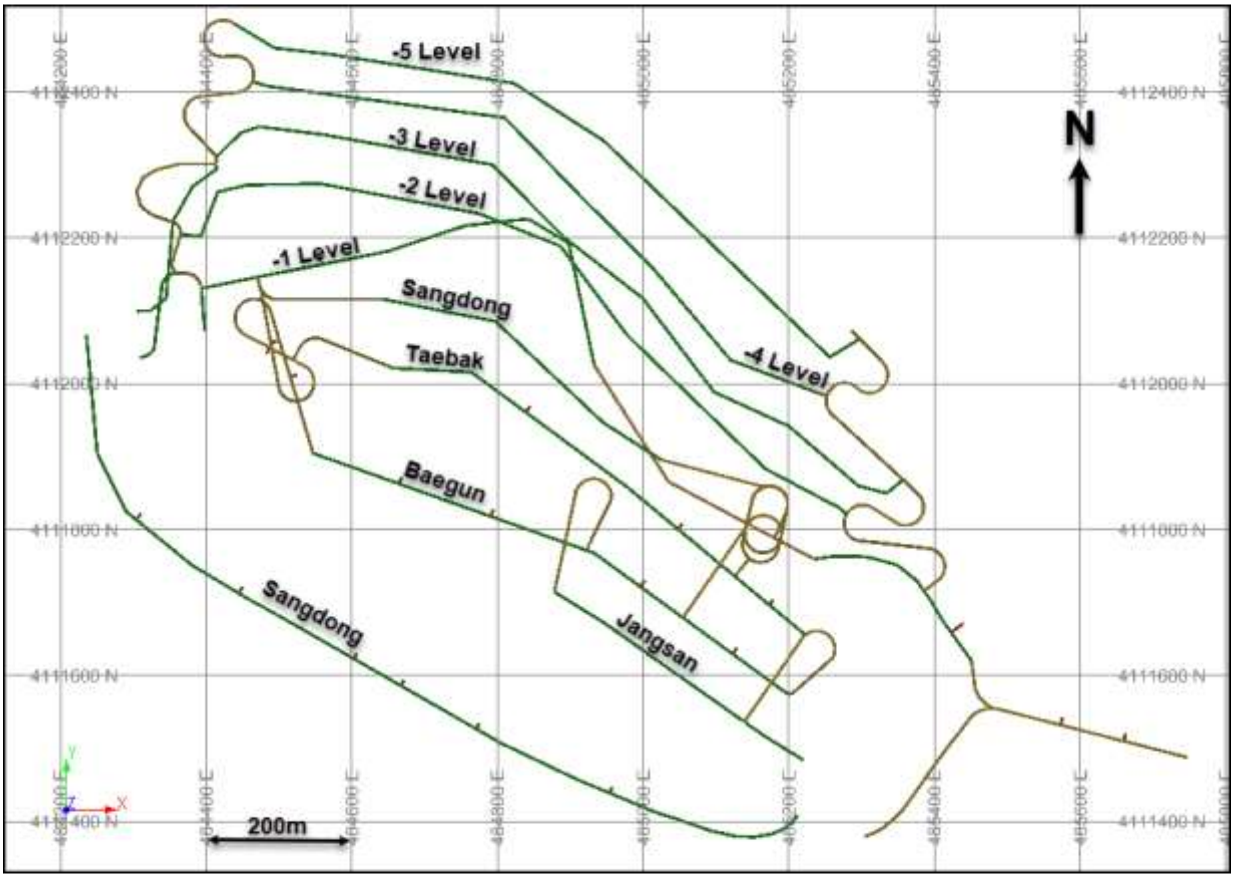


Figure 16-18. Sangdong Level – Planned and Actual Development

[Date: 2022; Source: A. Wheeler]

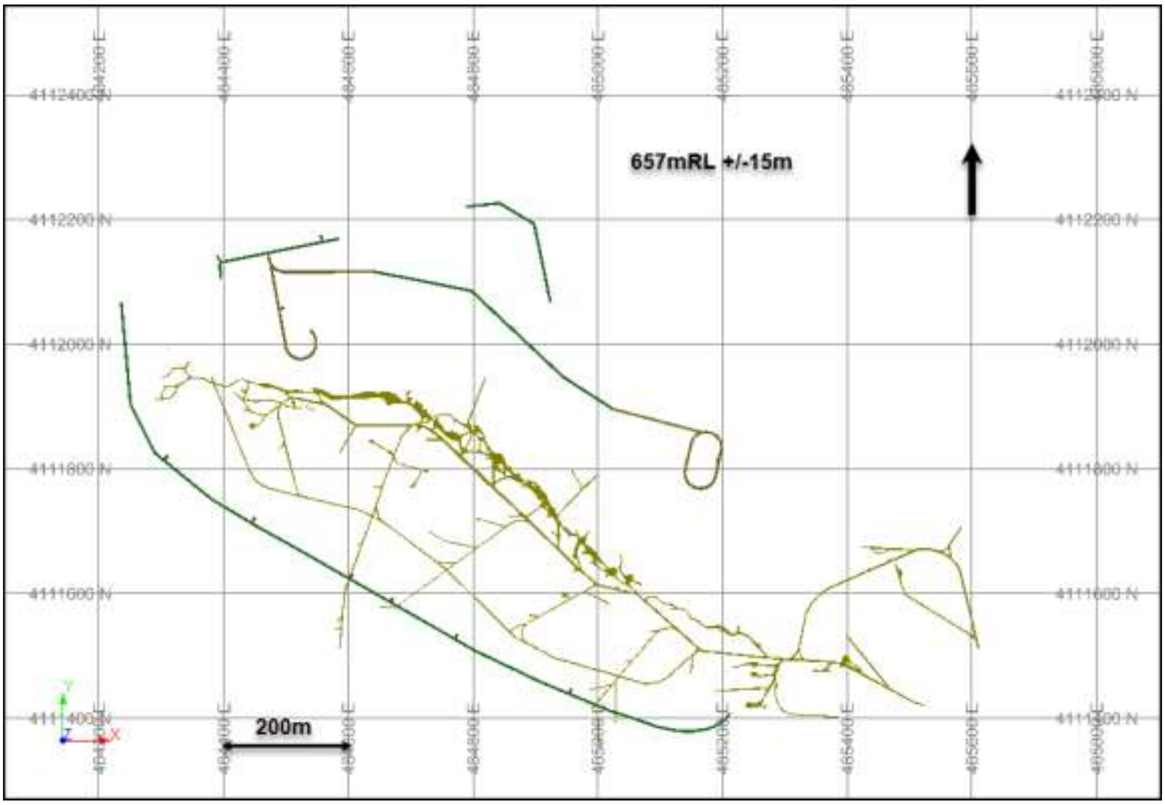
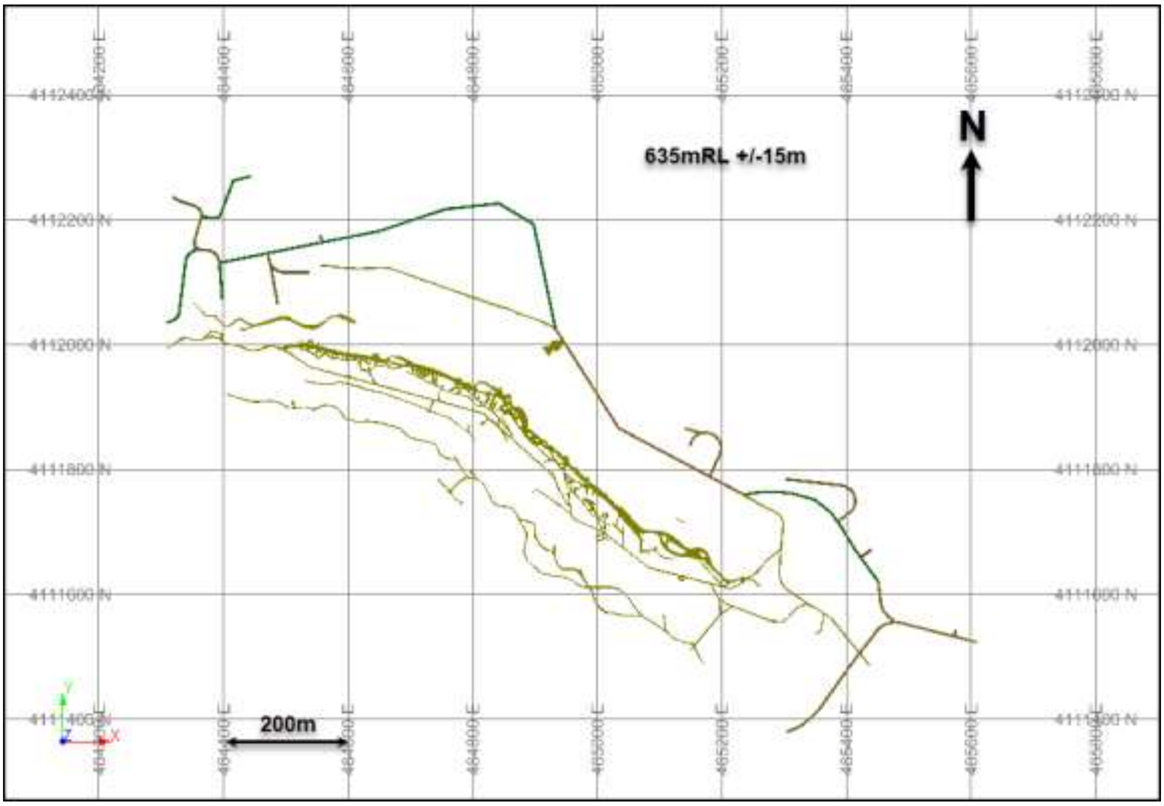


Figure 16-19. -1 Level - Planned and Actual Development

[Date: 2022; Source: A. Wheeler]

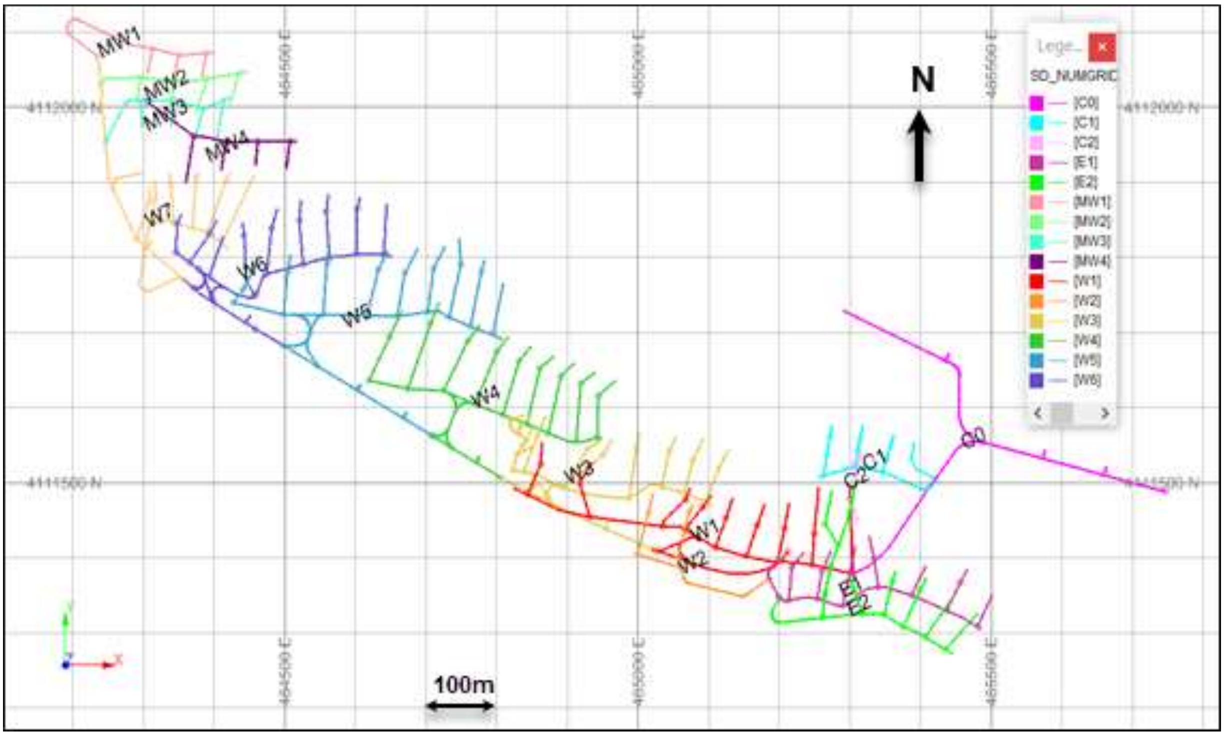


16.4.2 Stepped DAF Stoping Areas

The design method for Stepped DAF stopes is described in Section 16.3.1, was applied to the F2/Halo/F3 and Main/F1 zones. All of these areas are on the south side of the mine. A plan view of the different stope ramps and planned stope access crosscuts in shown in Figure 16-20. The different stope ramps break the mine up into logical different sectors, whose IDS are also shown on the same plan.

Figure 16-20. Plan View of Stope Ramps and Crosscuts for Main/FW Access

[Date: 2022; Source: A. Wheeler]



Plan, 3D view and an example cross-section of the development and stoping south areas are shown in Figure 16-21 to Figure 16-23. In Figure 16-21 and Figure 16-22, the stope models are shown as transparent. In the F2/F3 and Main East areas– the stope ramps are underneath the stoping areas, in the footwall.

For the western Main/F1 zone, separate ramp accesses from the hanging wall side have been designed coming in from the east. A separate ramp system also allows access to higher levels in this area.

For the eastern Main/F1 zone, an access ramp system has been designed off the end of the new Sangdong level drive, and off the western ramp that goes down to the -1 level.

Figure 16-21. Plan View of Southern Part of Mine – Planned Stopes and Development

[Date: 2022; Source: A. Wheeler]

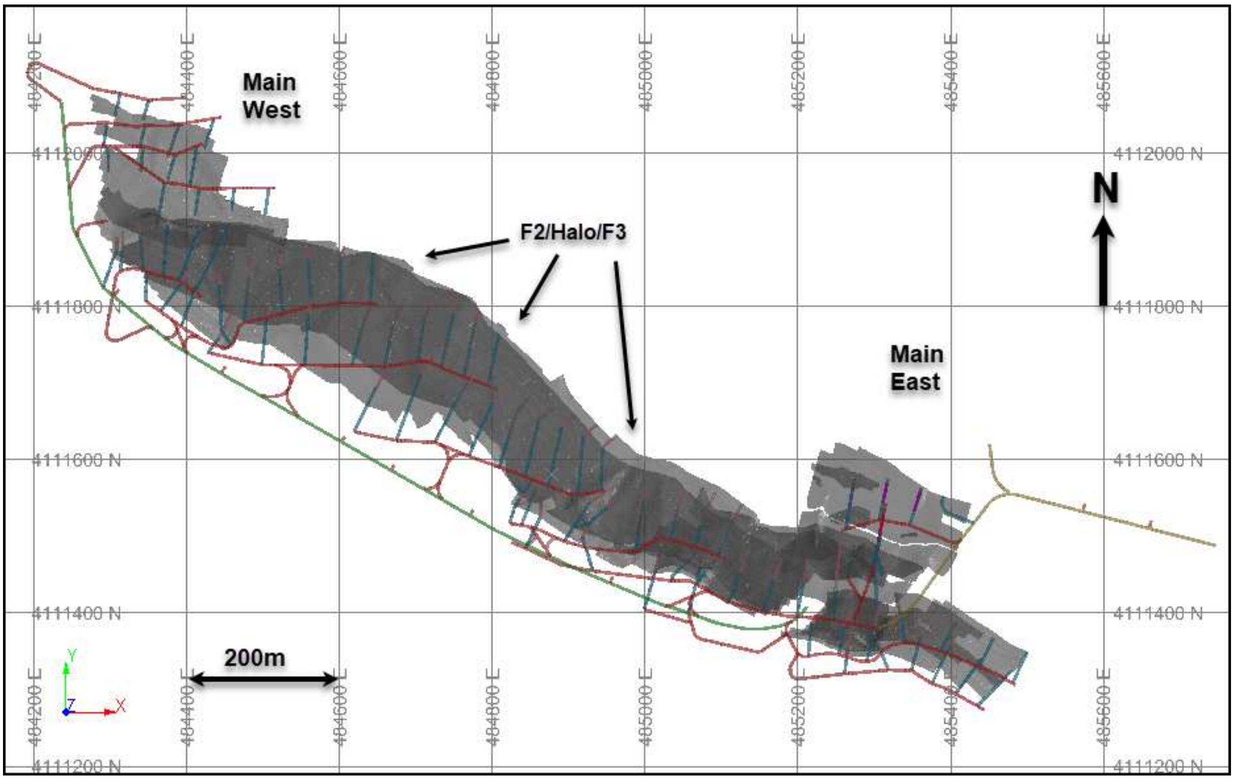


Figure 16-22. 3D View of Southern Part of Mine – Planned Stopes and Development

[Date: 2022; Source: A. Wheeler]

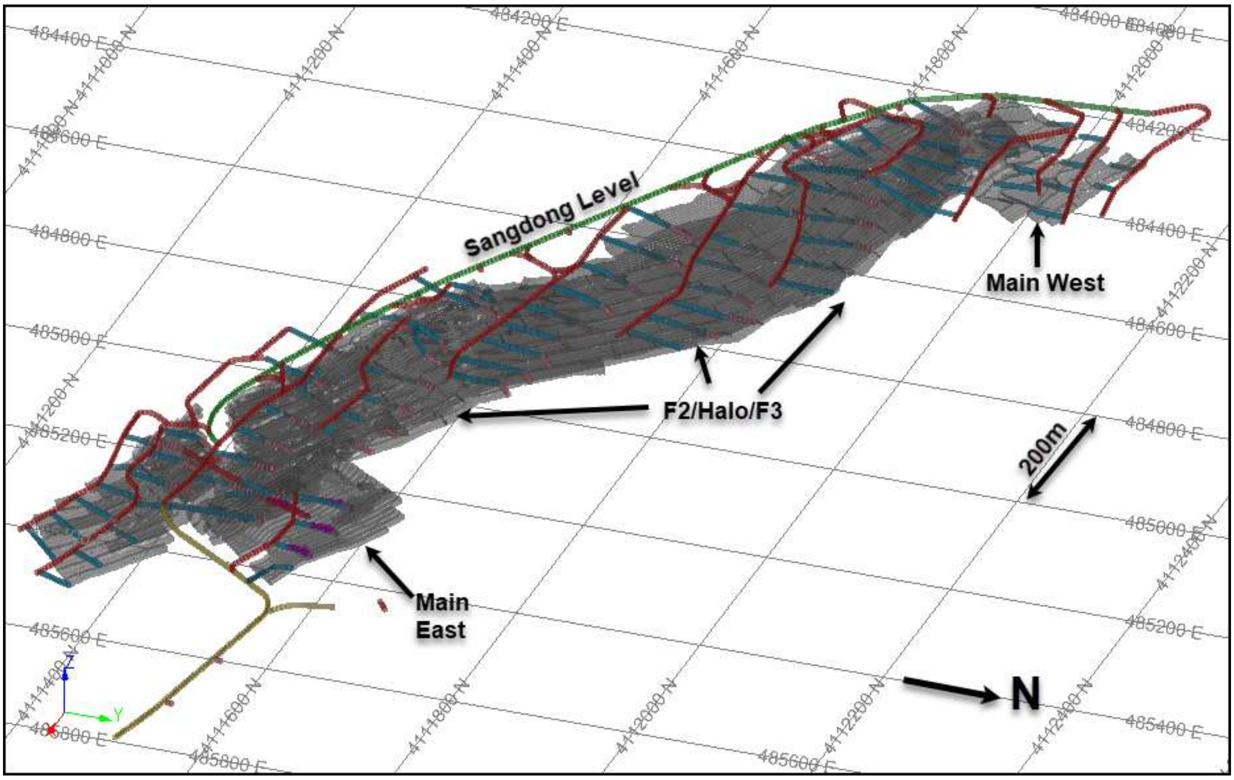
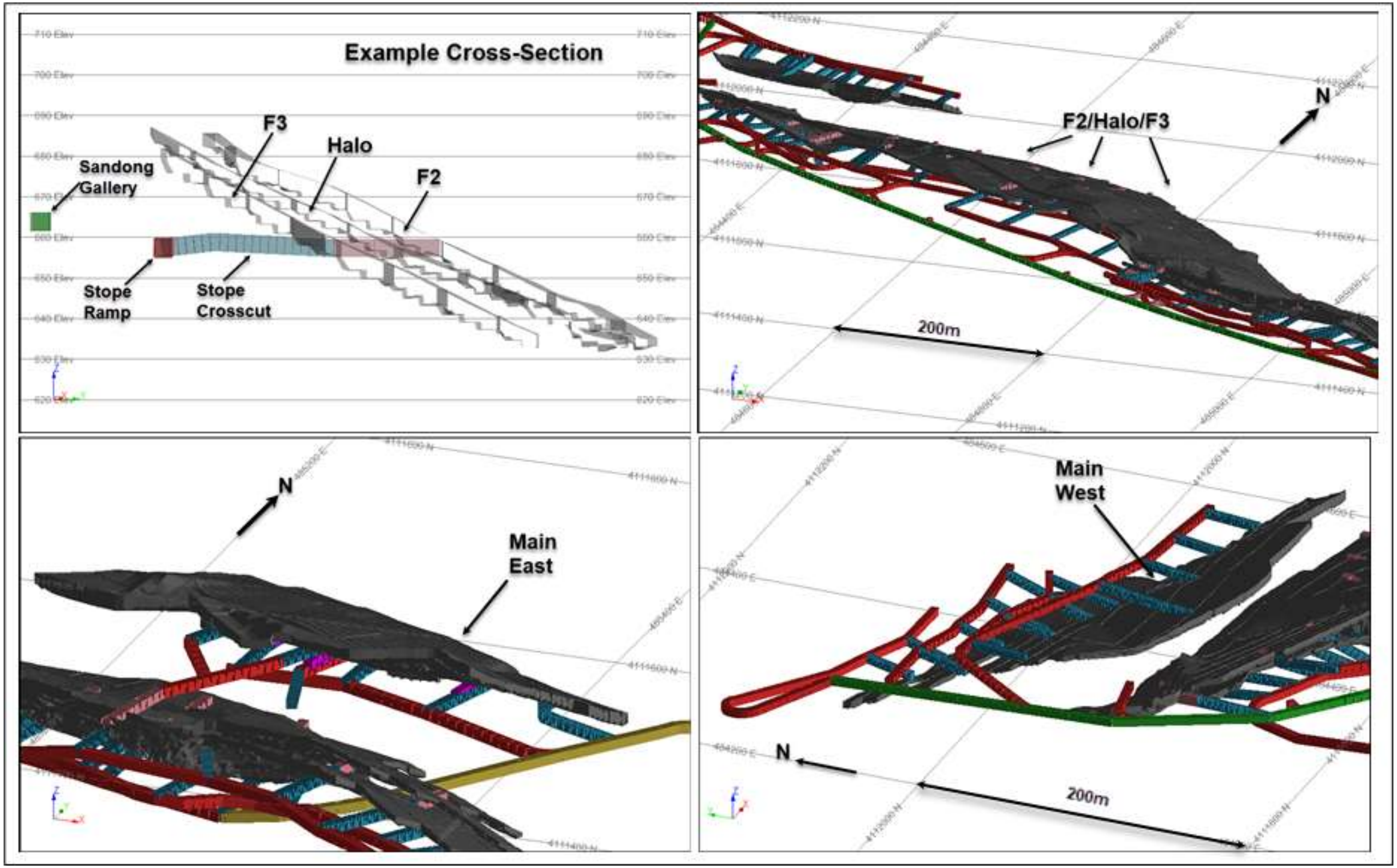


Figure 16-23. More Detailed Plots of Stepped DAF Layout

[Date: 2022; Source: A. Wheeler]



16.4.3 PP-CAF Stoping Areas

The design method for PP-CAF stopes is described in 15.3.2, was applied to the HW zone stoping areas. A plan and 3D view of all the PP-CAF stopes and planned development are shown in Figure 16-24 and Figure 16-25. Generally, for the HW stopes, the galleries are at a horizontal distance of 50m – 60m from the HW stopes. This provides enough space to allow access to four 6m lifts from each access point off the main level. The stope blocks have generally been designed so they are approximately 100m long along-strike. Each stope block has been designed with connections to one specific ramp system, so that each stope may be scheduled and mined independently.

A typical vertical section through the HW stopes is shown in Figure 16-26. Because the HW zone's low dip, there can be quite a variation in the orebody contact within the same 6m lift. Figure 16-27 shows an example horizontal section at the mid-height of one of the mining lifts.

Figure 16-24. Plan of HW Stopes and Planned Development

[Date: 2022; Source: A. Wheeler]

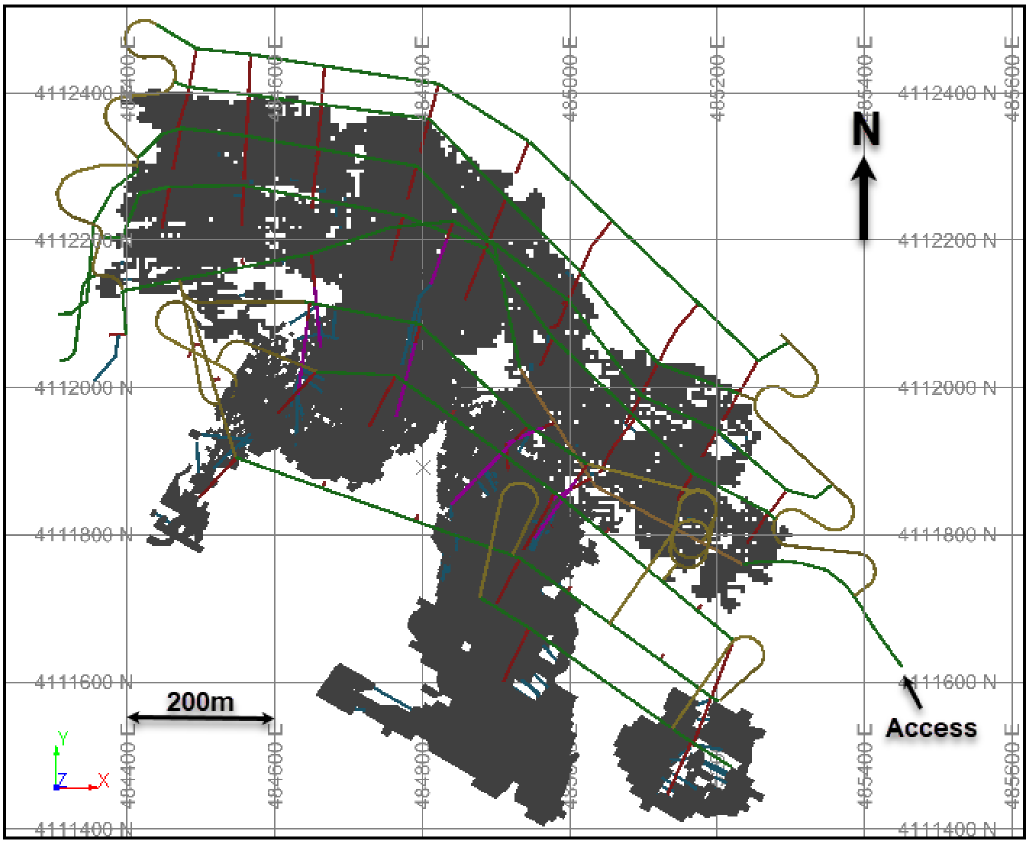


Figure 16-25. 3D View of HW Stopes and Planned Development

[Date: 2022; Source: A. Wheeler]

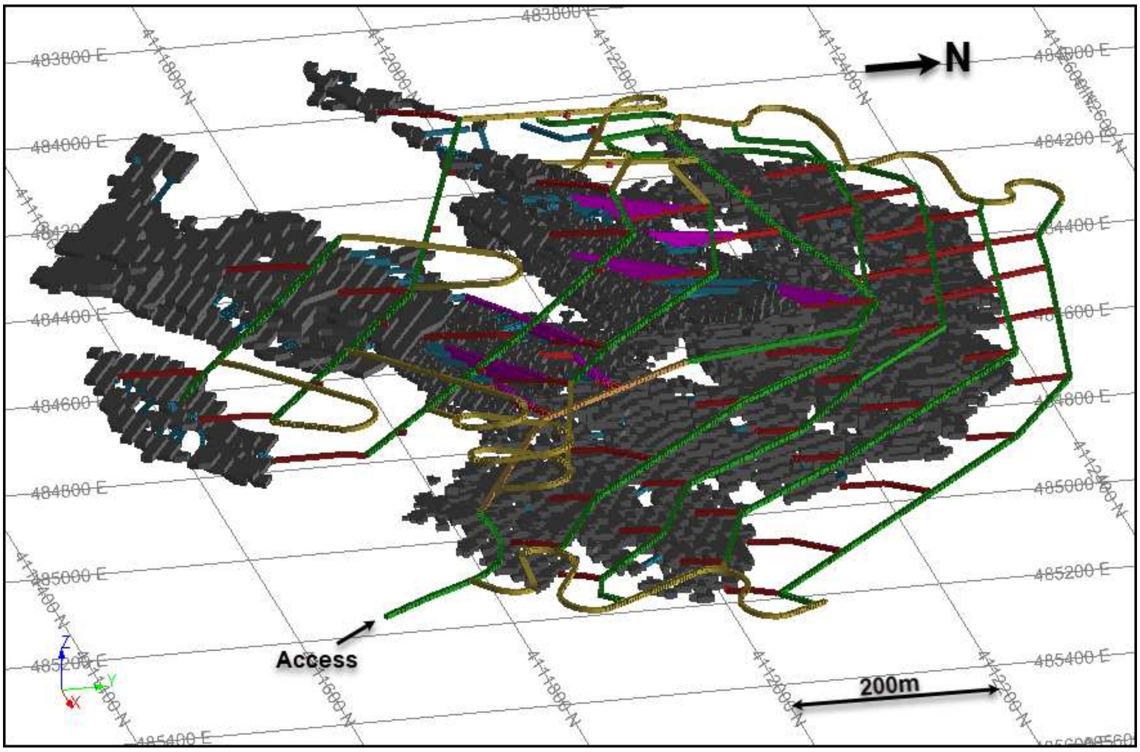


Figure 16-26. Example Cross-Section Through HW – PP-CAF Design

[Date: 2022; Source: A. Wheeler]

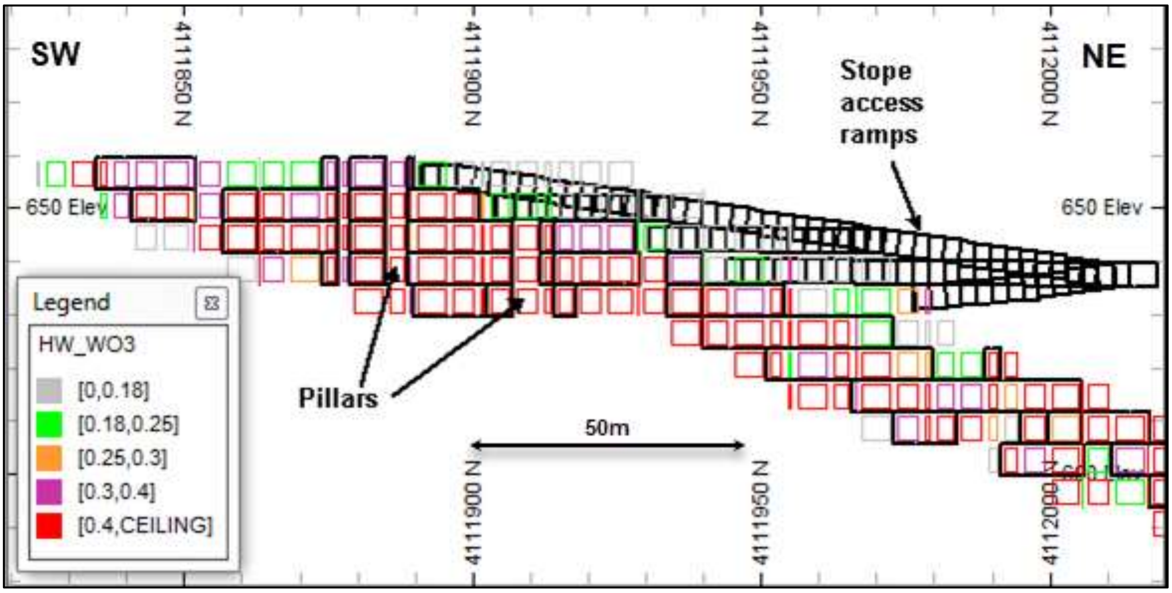
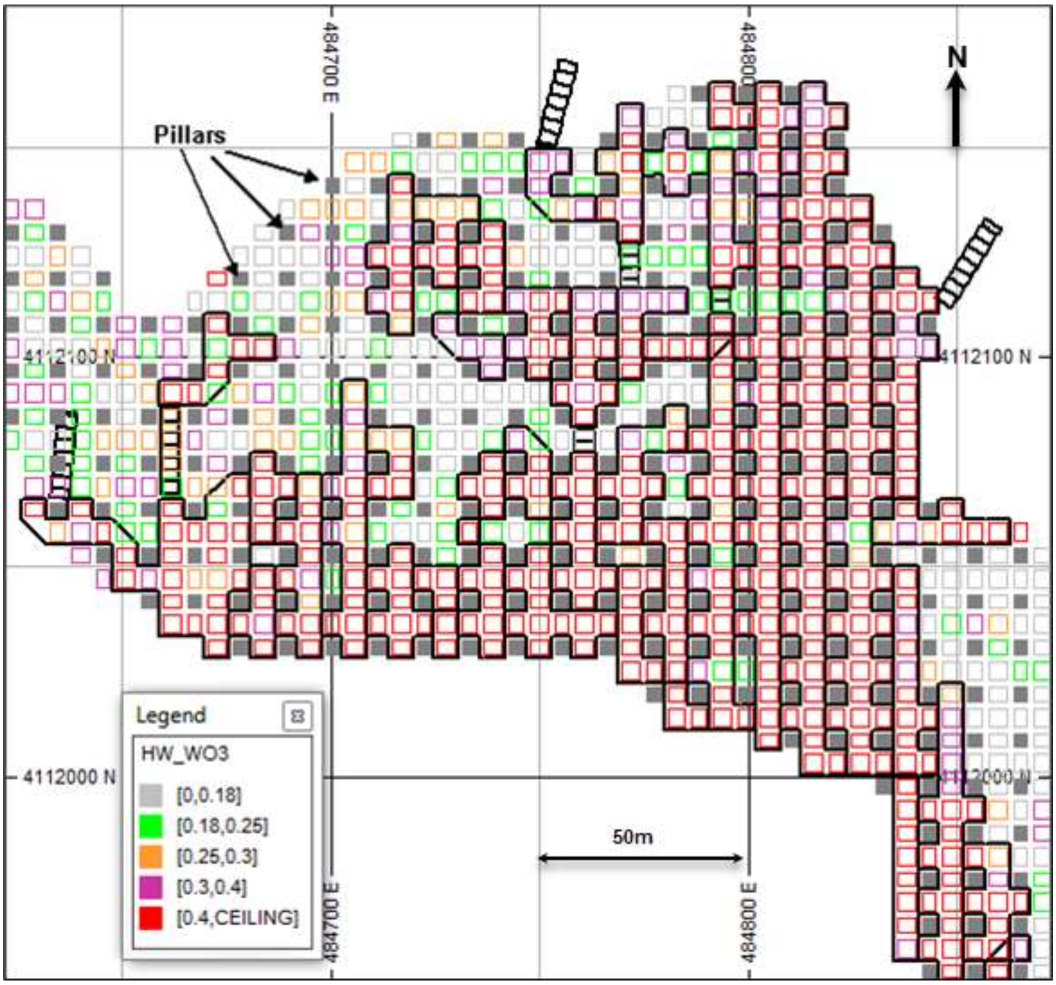


Figure 16-27. Example PP-CAF Horizontal Section – Mid-Lift - Elevation 632.5mRL

[Date: 2022; Source: A. Wheeler]



16.5 Mining Schedule

The mining schedule has been developed using the Datamine Studio UG Planning software and the accompanying program Enhanced Production Scheduler (EPS). The scheduling process required the following steps:

1. **Validation of Design Data.** All of the supplied design data from each of the zones were validated, so any errors encountered could be rectified. The types of errors reported included duplicate strings, abrupt angle changes or excessively small segment lengths.

2. **Wireframe Data.** For the design data supplied as drive centrelines (development and DAF panel centreline designs), wireframe models were generated by breaking up the designs into 5m segments. Wall strings were also automatically generated as part of this process. Complete overall panel wireframes were also generated for large areas intended for Stepped DAF stoping. For the PP-CAF designs, the stope panel outlines were also converted into wireframe models (PP-CAF designs), based on the lift height of 6m. In this way, complete and validated wireframes were obtained for all designed stopes and drives, covering the whole mine.

3. **Dependencies.** For all drive and stope segments, inter-dependencies were defined in the form of 2-point string vectors, so as to impose a logical and practical mining sequence. An example of these dependencies, for one lift of the PP-CAF stopes, is shown in Figure 16-28. Types of dependencies that were defined include:

    a) Drive connections e.g. drive segments to the start of stope access crosscuts.
    b) For PP-CAF stopes, one stope panel to another stope panel.
    c) For PP-CAF stopes, setting dependencies so that a whole lift must be mined, before the ramp can start mining of the next lift above.
    d) For Stepped-DAF stopes, stope access crosscuts off stope ramps.
    e) For Stepped-DAF stopes, DAF panels off stope crosscuts.

4. **Backfilling Delays.** For each stope panel, an estimate has been made for the number of days required for fence construction, backfill placement time, and curing time (7 days assumed), as summarised for example 100m panels in Table 16-7, This typically leads to overall backfilling delays of 9-11 days for DAFN stopes and 10-14 days for PP-CAF stopes. These delays were assigned onto the dependency strings, according to the different panel lengths.

5. **Production Rates.** Nominal production rates were determined for the different mining methods. In the case of Stepped-DAF stopes, different rates were also determined for different bed heights. These rates were assigned in the form of tonnes/month for stoping operations, and in the form of m/month for development outside of stopes. The derivation of these rates used is summarised in

Table 16-7. These rates all stem from recently derived contractor information. These rates also take into account the time required for backfilling, including fence construction, backfill placement time, and curing time. The production rates for overall stoping areas is higher for PP-CAF stopes, chiefly because many more faces are available for drilling and blasting.

6. **Calendar Set-Up.** In EPS the calendar units do not directly affect the schedule. It is primarily a viewing control, defining how the schedule data is displayed. The schedule can be viewed in either months or years. For this study, the final schedule tables have been broken down annually.

7. **Priorities.** In order to increase earlier cashflows, priorities were set on specific tasks according to:

   a) Ease of access – to prevent deeper levels being opened too early.
   b) To give higher priorities to higher stope grades, particularly with respect to the different stope ramp areas in the F2/F3 beds.

8. **Production/Development Control.** Other specific tasks and parameters were then set so as to control the schedule in the following ways:

   a) To consider the first two years (year -2 and year -1) as primarily development-only, and to allow approximately 2,800m of main level/ramp development per year in this period.
   b) To mine approximately 16Kt of ore over the 2 year pre-production period, so as to have this ore ready for commissioning of the plant at the start of year 1.
   c) To mine an overall a total of approximately 440Kt of ore during year 1, and 640Ktpa of ore thereafter. During year 1, controls were used to drive a ramp-up of production of monthly production from 25 tpm up to approximately 53 tpm.
   d) Crew availabilities and stope priorities were adjusted so as to aim get a schedule with ore production as follows:
      - Mainly ore just from the south (F2/F3/Main) for Years 1 - 5.
      - A ratio of approximately 60:40 between HW and South ore for Years 6 - 11.
      - When the south ore has been exhausted, ore mainly from HW for Years 12+.

9. **Task Levelling.** This procedure then effectively recalculates the whole schedule, using all of the parameters which have been defined (and summarised above). The results were then viewed, and the parameters modified so as to drive the schedule as required. The key variables being changed were the crew availabilities year by year, and the priorities set by stoping areas.

The final schedule produced is shown in the annual breakdown in Table 16-8. A depiction of the schedule is shown in Appendix E.

Figure 16-28. Example of Dependencies - PP-CAF Stope

Lift Shown is for 632.5mRL – one lift

[Date: 2022; Source: A. Wheeler]

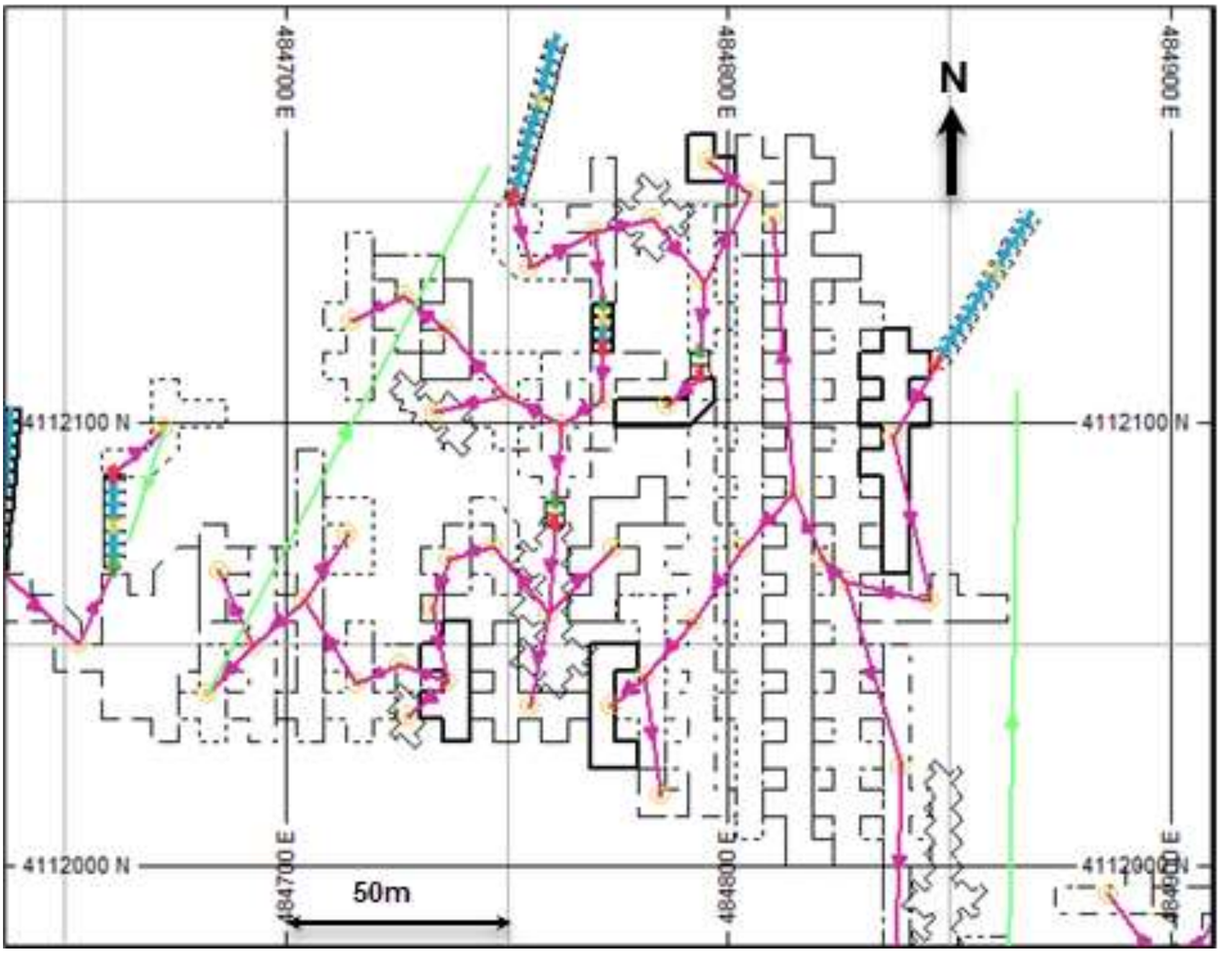


Table 16-7. Derivation of Stope Production Rates

Face Advance Rate

Face advance	*m/day*	**2.9**	Contractor figure
Days/week		**6**	
Days/month		**24**	
Advance/month	*m/month*	70	
Average ramp slash length	*m*	**15**	
Average ramp slashing rate	*m/day*	9.6	

Fill Placement rate

Ore Milling Rate	tpa	**640,000**
Working days plant/ year	*dpa*	**350**
Daily Milling Rate	tpd	1,829
Emplaced Density		1.9
Volume of Pastefill Produced/day	m3/day	962

Derivation of Stoping Rate

		Stepped DAF Rates by Thickness				PP-CAF	
		F2/F3/Halo			Main	(a)	(b)
Thickness Range	*m*	**3-4**	**4-5**	**5+**	**6+**	**6**	**6**
Height	*m*	**3.3**	**4.4**	**6.0**	**6.0**	**6.0**	**6.0**
Average Width	*m*	**4.5**	**5.2**	**6.0**	**6.0**	**6.0**	**6.0**
Density	*t/m^3*	**3.00**	**3.00**	**3.00**	**3.15**	**3.15**	**3.15**
Average Length	*m*	**100**	**100**	**100**	**100**	**35**	**35**
No. of panels in one example mining scenario		**4**	**4**	**4**	**4**	**5**	**5**
Volume	*m3*	5,940	9,152	14,400	14,400	6,300	6,300
Tonnes	*t*	17,820	27,456	43,200	45,360	19,845	19,845
Mining Rate	*t/mo*	12,403	19,109	30,067	31,571	39,463	39,463
Mining time	*days*	34	34	34	34	12	12
Backfill and barricade set-up	*days*	5	5	5	5	5	5
Backfill placement time	*days*	6	10	15	15	7	7
Curing time	*days*	4	4	4	4	4	4
Backfill clean-up and slashing for next lift	*days*	2	2	2	1	1	3
Total time of mining cycle	*days*	51	55	60	59	29	31
Overall Stope Mining Rate	*t/mo*	8,307	11,877	17,142	18,302	16,384	15,330
Overall Mining Rate/Panel	*t/mo*	2,077	2,969	4,286	4,575	8,192	7,665
Rate Applied In Scheduling	***t/mo***	**2,100**	**3,000**	**4,300**	**4,600**	**8,200**	**7,700**

Notes

(a) is where the stope ramp slashes have all been designed and scheduled separately.
(b) is where the stope ramp slashes have not been designed and scheduled separately.
. The derived production rates for Stepped DAF are per panel heading.
. The derived production rates for PP-CAF are per stoping area.

Table 16-8. Annual Schedule – Life-of-Mine

Name		Total	Previously	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Dev Haul	m	**6,731**	-	77	1,277	548	1,527	1,074	922	908	304	94	-	-	-	-		
Dev Main Ramp	m	**3,363**	-	-	345	597	833	-	-	-	1,374	214	-	-	-	-		
Dev Cuddy	m	**73**	-	-	27	3	-	-	-	-	43	-	-	-	-	-		
Dev Stope Access	m	**5,232**	-	935	664	1,116	487	658	300	299	134	192	62	197	188	-		
Dev Stope Ramp	m	**5,247**	-	1,275	733	1,438	729	584	58	194	158	78	-	-	-	-		
Dev Transverse	m	**1,301**	-	135	256	147	200	255	192	90	26	-	-	-	-	-		
Ramp Slash	m	**628**	-	-	35	35	35	33	38	326	4	12	44	66	-	-		
Dev Refurb	m	**416**	-	-	416	-	-	-	-	-	-	-	-	-	-	-		
Dev Total	m	**22,991**	-	2,423	3,754	3,883	3,811	2,603	1,510	1,817	2,042	591	106	263	188	-		
Dev HW Ore	m	**179**	-	-	34	48	-	2	26	33	20	2	2	2	10	-		
Dev South Ore	m	**1,319**	-	248	225	229	216	227	113	52	10	-	-	-	-	-		
Dev Ore Sub-Total	m	**1,498**	-	248	258	276	216	229	139	86	30	2	2	2	10	-		
Dev HW Waste	m	**18,847**	-	-	2,457	1,020	2,738	1,359	1,155	2,102	4,029	1,916	104	261	383	568	567	188
Dev South Waste	m	**9,065**	-	2,255	1,187	2,601	897	1,120	417	210	64	22	-	-	75	75	75	66
Dev Waste Sub-Total	m	**23,051**	-	1,914	3,496	3,607	3,595	2,374	1,371	1,731	2,012	589	104	261	458	643	642	254
Dev Ramp Sub-Total	m	**8,610**	-	1,275	1,078	2,035	1,562	584	58	194	1,532	292	-	-	-	-		
Dev Drifting Waste Sub-Total	m	**14,441**	-	639	2,418	1,572	2,033	1,790	1,313	1,537	480	297	104	261	458	643	642	254
Ore_ME	t	**838,436**	-	-	151,585	184,276	81,682	78,267	51,631	-	-	-	-	-	75,000	75,000	75,000	65,995
ME_WO3	*% WO3*	**0.44**	-	-	0.49	0.44	0.51	0.43	0.45	-	-	-	-	-	0.39	0.39	0.39	0.39
Ore_MW	t	**356,723**	-	-	-	-	28,372	777	110,912	66,225	136,933	13,504	-	-	-	-		
MW_WO3	*% WO3*	**0.38**	-	-	-	-	0.39	0.31	0.41	0.37	0.38	0.31	-	-	-	-		
Ore_F2	t	**1,700,031**	-	-	181,566	288,678	296,274	290,134	229,139	90,527	83,499	70,428	77,246	25,486	67,054	-		
F2_WO3	*% WO3*	**0.46**	-	-	0.50	0.50	0.48	0.47	0.46	0.47	0.40	0.32	0.37	0.35	0.37	-		
Ore_F3	t	**1,668,094**	-	-	165,371	143,099	193,448	235,513	206,406	70,469	43,467	135,813	157,496	198,614	118,398	-		
F3_WO3	*% WO3*	**0.42**	-	-	0.48	0.48	0.48	0.47	0.46	0.48	0.32	0.31	0.35	0.33	0.37	-		
Ore_Halo	t	**256,242**	-	-	42,920	13,892	34,546	22,251	37,844	26	1,837	37,150	21,037	39,525	5,214	-		
Halo_WO3	*% WO3*	**0.40**	-	-	0.46	0.41	0.39	0.44	0.37	0.47	0.37	0.39	0.41	0.36	0.38	-		
Ore_HW	t	**3,663,110**	-	-	-	-	-	-	-	414,510	377,770	389,824	389,108	385,496	382,799	568,474	566,670	188,459
HW_WO3	*% WO3*	**0.41**	-	-	-	-	-	-	-	0.48	0.48	0.46	0.50	0.45	0.41	0.34	0.30	0.28
Ore_Dev_HW	t	**11,636**	-	-	2,180	3,091	-	143	1,709	2,174	1,316	118	130	125	650	-		
Dev_HW_WO3	*% WO3*	**0.26**	-	-	0.24	0.25	-	0.22	0.29	0.27	0.30	0.25	0.32	0.21	0.30	-		
Ore_Dev_South	t	**85,743**	5,835	10,272	14,621	14,870	14,014	14,743	7,352	3,396	640	-	-	-	-	-		
Dev_South_WO3	*% WO3*	**0.32**	0.34	0.33	0.30	0.31	0.34	0.31	0.30	0.27	0.18	-	-	-	-	-		
Ore Tonnes Total	***Kt***	**8,579**			**574.3**	**647.9**	**648.3**	**641.8**	**644.9**	**647.3**	**645.4**	**646.8**	**645.0**	**649.2**	**649.1**	**643.4**	**641.6**	**254.4**
WO3	***%***	**0.42**			**0.48**	**0.47**	**0.47**	**0.46**	**0.44**	**0.46**	**0.43**	**0.40**	**0.44**	**0.40**	**0.40**	**0.35**	**0.32**	**0.31**

Development has been scheduled to support both mining methods' requirements. Development crews, in 4.5 m x 4.5 m headings, will generally have multiple faces available. For development in the pre-production period, two crews will be required, to give an advance of 3,300 m over two years prior to mill start-up production. In addition to this, the crews will also develop the necessary passing bays, cut-outs and loading points. This pre-production development will allow stoping operations to start in both the Mina East, F2 and F3 zones at the start of mine production.

The principal existing and planned pre-production development is shown in Figure 16-29. This plan also includes backfill piping, electrical distribution system, water pumping system and ventilation fans.

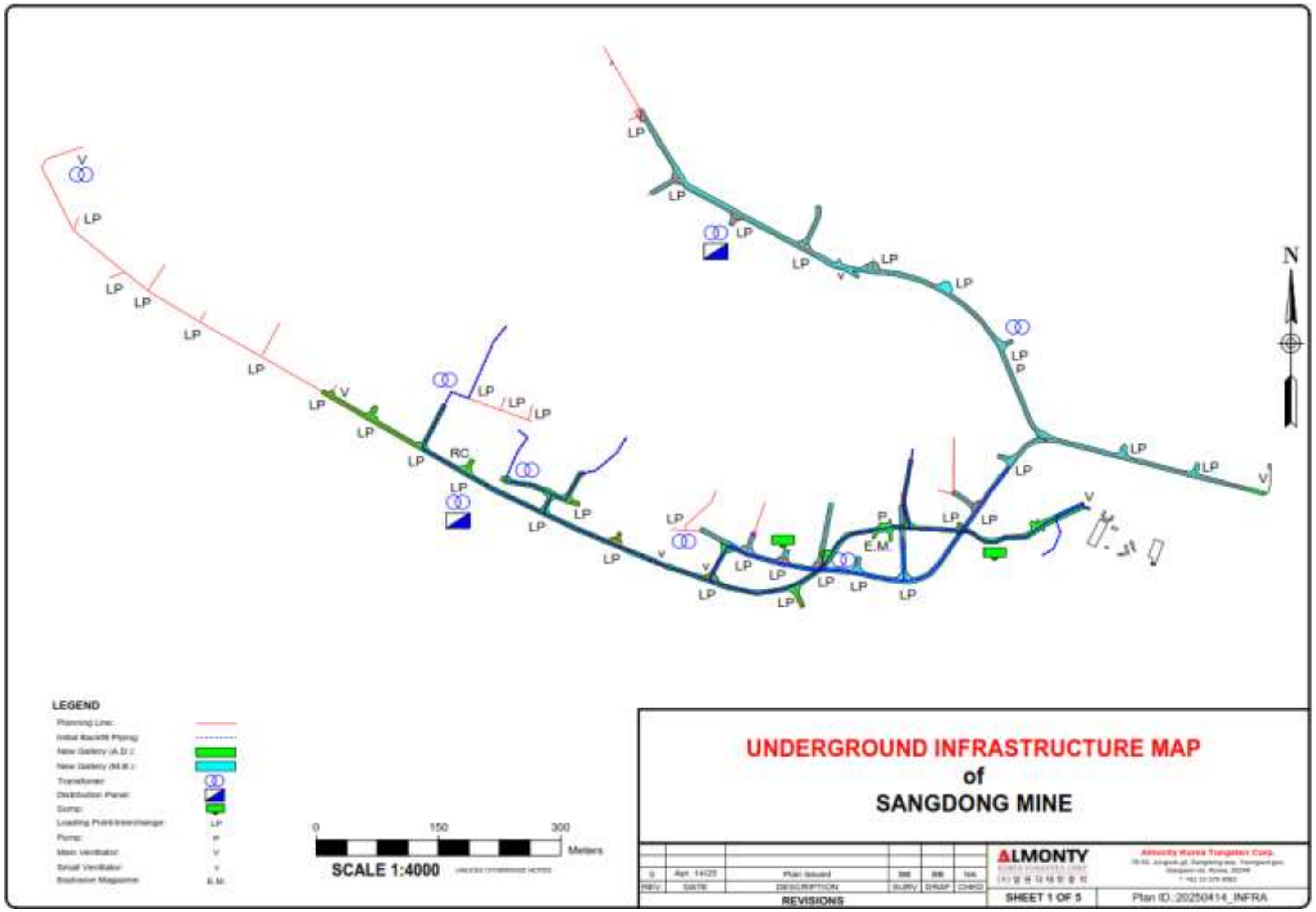
The pre-production development program is based on starting with 2 work faces: one developing the ramp between Sangdong and -1 Levels, and another continuing a new gallery through Sangdong Level. After finishing the development of the ramp, the new portal can be started on -1 level from the surface and its connection to the -1 Level.

The Sangdong Level development will continue through a new gallery, to link to the ventilation shaft in the west sector of the mine. Preparation will also start for the stopes that will be accessed from Sangdong Level. One of these stope ramps will also connect up with the new portal on the -1 level. This will link the -1 Level with the Sangdong Level, and will provide ventilation for the entire exploitable areas accessible from -1 Level.

Initial mining will focus on F2/F3/Main ore from the -1 Level and Sangdong levels.

Figure 16-29. Principal Mine Development and Infrastructure

[Date: April 2025; Source: AKTC]



16.6 Stoping Operations

In PP-CAF stoping, drilling will be done with 2 boom electric-hydraulic jumbos. Drill steels will be 3.5m, allowing an effective advance/blast of 2.9m in drifting. For a 6m x 6m face, 69 holes will be required, 3 of which will be reamed in a burn cut. A crew of 13 miners will able to drill, blast and muck 2 blasts a day. 3.5m^3 scooptrams will be used to load the broken material into 15 t dump trucks. If the material is ore, then it hauled to surface via the new portal, and dumped at the mill. If the material is waste, then it can be dumped underground into old workings.

In Stepped-DAF stoping, drilling will be done with 2 or 1 boom electric-hydraulic jumbo, depending on the size of the panels being mined. Drill steels will be 3.5m, allowing an effective advance/blast of 2.9m in drifting. For a 4m x 4m face, 55 holes will be required, 3 of which will be reamed in a burn cut. A crew of 13 miners will able to drill, blast and muck 2 blasts a day. Again, 3.5m^3 scooptrams will be used to load the broken material into 15 t dump trucks. These trucks will be loaded in the internal stope ramps, after the scooptrams have reversed out from the stope panel being mined. The same stope crews will also develop the external stope ramps, which have 4.5m x 4.5m faces, generally on a 13% gradient.

In zones of the mine which are well drained, production drillholes will be blasted with ANFO. If there are wet zones, drillholes will be blasted with cartridge emulsions. All explosives will be initiated using non-electric caps, initiated by two electric caps connected to a central blasting system.

Mucking and drilling operations will run 2 shifts, with the 3rd shift for blasting and ventilation. As the operation would be using two mining methods with multiple faces scattered along a big area, explosive gases will be quite extensive throughout the mine, so a full shift is warranted for ventilation and safety inspection, before the 1st shift of the following day.

The stope crews will be installing resin grouted rockbolts and fibre shotcrete, in all stope panel areas. It is currently assumed that in average to good ground, half the panel roof areas will require support. In areas with poorer ground, then all of the panel roof areas will require support.

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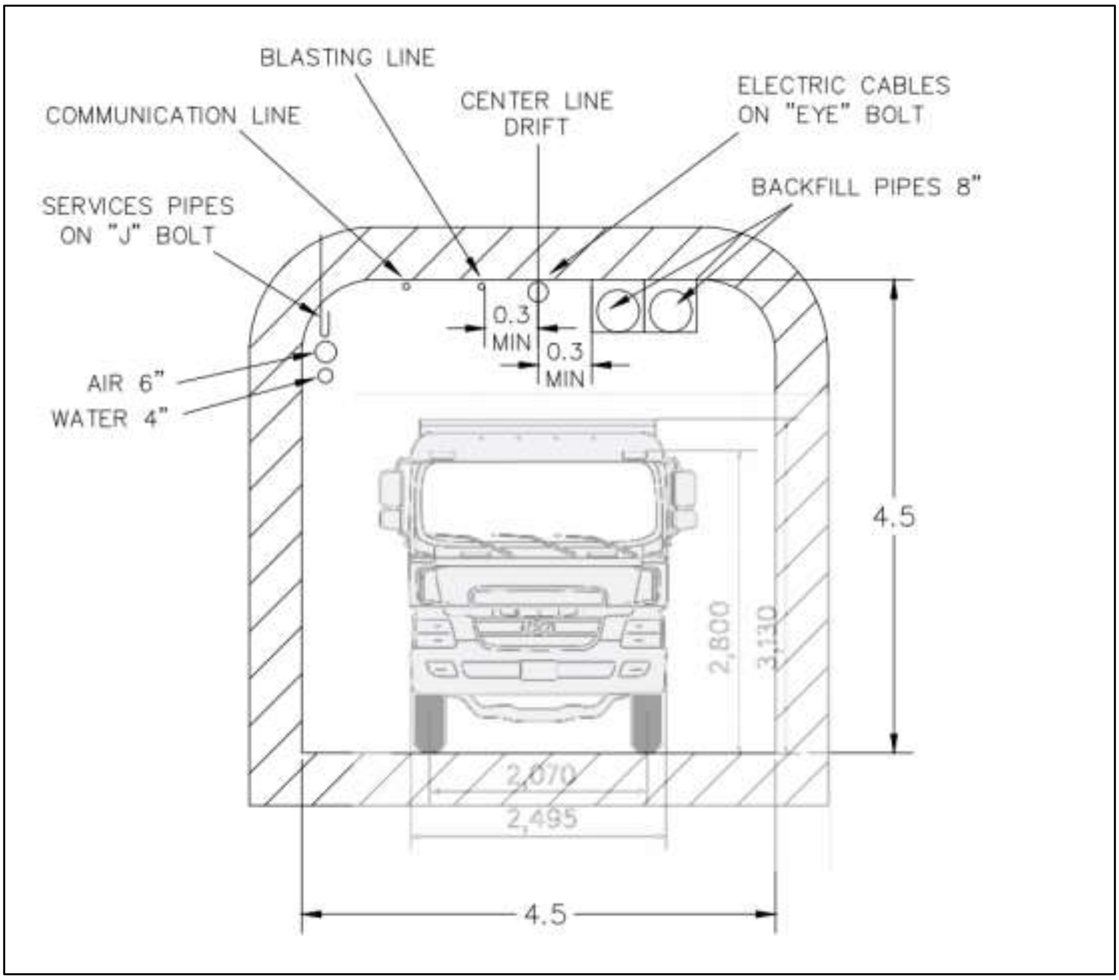
16.7 Development Operations

New development headings will be drilled off using 44 mm diameter drill holes. For these 4.5m x 4.5m sized headings, 65 holes per round will be required, with 3 cut holes reamed. Headings will be blasted using a combination of ANFO, stick emulsion for the lifters, perimeter blasting products for the wall and back holes and nonel caps, initiated by electric caps. A typical drift cross-section is shown in Figure 16-30.

Figure 16-30. Drift Configuration

[With 15 t truck overlaid]



Rockbolts will not be required in very good or good ground. Rockbolts will be required in fractured or bad quality ground, consisting of 1.8 metres long resin grouted rebar, installed on a 1.2 m by 1.2 m pattern. Steel arches will be required in very bad ground.

Services installed in these drifts and ramps will include a 152 mm service waterline, a 152 mm discharge water line, 500 MCM power cable, 6.6 Kv and 400 volt cables, 48-fibre fibre optic data and communication cable and a central blasting line.

Haulage drifts, main access drifts and stope cross-cuts are being supported with steel-fibre shotcrete, with rockbolts when required. The thickness of the shotcrete applied is also varied according to the observed rock quality, as shown in Table 16-9. All support drilling will be drilled with jumbo and installed from scissor lift trucks in the trackless development headings or from the floor and muckpiles.

Table 16-9. Shotcrete Requirements By Rock Quality

					Shotcrete Requirements		
Rock Quaility Code	**Rock Mass Quaility - Q Code**	**Advance (m)**	**Span (m)**	**Height (m)**	**Wall Coverage**	**Celling Thickness (cm)**	**Wall Thickness (cm)**
RQ1	4 - 1000	3.3	5	5	50%	2.5	2.5
RQ2	2 - 4	3.3	5	5	50%	5	2.5
RQ3	0.8 - 2	3.3	5	5	100%	5	3.75
RQ4	0.5 - 0.8	3.3	5	5	100%	7.5	5
RQ4A	0.25 - 0.5	3.3	5	5	100%	7.5	7.5
RQ4B	0.1 - 0.25	3.3	5	5	100%	10	10
RQ5A	0.025 - 0.1	3.3	5	5	100%	15	15
RQ5B	0.001 - 0.025	3.3	5	5	100%	15	15

16.8 Mining Equipment

The equipment required for pre-production mine development is summarised in Table 16-10, and are depicted in Figure 16-31.

Table 16-10. Equipment for Pre-Production Mine Development

Machine	Type	Size/Capacity	Units	Remark	Figure
Jumbo Drill	Atlas M2D	2 Boom	2	Total length = 13m with booms folded	(1)
Loader	Volvo 120F	3.0 m2	2	3.2m3 per bucket, L8.75m x W2.8m	(2)
Excavator	Volve 6W	13.6 Ton	2	L8.2m x W2.5m	(3)
Anfo Charger	HD3.5CP	15 Ton	2	180 kg	(4)
Dump Truck	Samsung	15 Ton	4	L7.7m x W2.5m	(5)
Small Truck	Kia, SM520	1.5 Ton	2		(6)
Mini Van	Kia, Sorento	-	2		
	Total		**16**		

Figure 16-31. Equipment for Pre-Production Mine Development

The equipment list for typical mine production is summarised in Table 16-11.

Figure 16-32. 15t Mine Truck

Table 16-11. Mine Equipment

				Pre-Production	Production				
	Machine	Type	Size/Capacity	Development	Development	Stoping	Services	Maintenance	Staff
Contractors	Jumbo Drill	Atlas M2D	2 Boom	2	1	4			
	Anfo Charger	HD3.5CP	15 Ton	2	1	2			
	Loader		3.5 m^3			2			
	Loader	Volvo 120F	3.0 m^3	2	1	2			
	Excavator	Volvo 6W	0.6m^3	2	1	4			
	Dump Truck	Samsung	15 Ton	4	2	8			
	Man carrier			1	1	1			
	Shotcrete Machine			1	1	1			
	Concrete Mixer		6.0 m^3	1	1	1			
	Scissor Lift			1			1		
	Small Truck	Kia, SM520	1.5 Ton	2	1	1			
Owner-Operated	Mini Van	Kia, Sorento	-	2		2	2	1	2
	Light service vehicle							1	

The mine services group will take care of:

- Backfilling.
- Some surface infrastructure maintenance.
- Almonty Korean Tungsten (AKTC) owned fixed equipment e.g. fans, compressors.
- Underground infrastructure.

The mine services group will also assist the safety department when needed. Services will have 1 lift truck, for the backfill pipes installation and maintenance, and one light truck for the transportation of materials, equipment and backfill pipes.

Maintenance of the mine equipments will be the responsibility of the contractor. For these activities, the contractor will have 1 light vehicle, available at all times during the two production shifts.

Mine staff, engineering and geology will require two light utility vehicles.

The dump trucks used or ore and waste haulage are not normal mine trucks, but reinforced road trucks as used in Korea for tunneling and underground limestone quarries, as shown in Figure 16-32.

Underground operations and maintenance personnel will be transported to their working places in personnel carriers. During the shift, workers will travel around the mine in light utility vehicles with bench seats. Service vehicles for materials and parts will consist of flat bed or pickup trucks with boxes for palletized, containerized or individual items.

16.9 Backfilling

All stopes will be backfilled with cemented paste backfill, which will also minimize surface tailings management. The paste backfill will consist of unclassified mill tailings. The remaining portion of backfill not placed in active mining voids will be backfilled on voids below Sangdong level. The old Main Zone mining areas, are also available to store excess tailings. It may be possible to transport some of tailings material to cement factories, receiving some discount on the transportation cost.

Paste backfill will be delivered at approximately 75-78% solids by weight, at a rate of 100 tph. It will be a classical paste plant with an EIMCO disc filter and Arcen mixer and an Abel 60 bar piston pump. The pumps from the thickener in the Sangdong Level will be Abel diaphragm pumps (duplicated). The Paste plant is also being left with spare space for one extra filter and one extra piston pump, for potential mine expansion.

Paterson & Cooke (P&C) carried out backfill testing for the Sangdong project in 2011 for Tetra Tech as part of their Feasibility Study. The backfill testing program pertained to paste fill and tested tailings size distribution, rheology, and strength with various binder content. The tailings were found to be medium grained with D80, D50, and D10 sizes of 100, 33, and 10 microns, respectively. They were also found to have rheology characteristics adequate for paste backfill. Strength gains over 7 and 28 days curing time were found to be adequate.

Several samples of tailings were analyzed for environmental purposes confirming that they were classified as non hazardous under the S. Korean classification and could therefore be pumped to underground.

Several rheology and compression tests were performed to assess the percentages of cement and resistance values for the several situations

Metallurgical tests have verified that mine dilution with backfill would not have any type of negative influence on plant recovery.

By the time of its closure, the mine had been developed and mined on more than 20 levels, between the elevations of 242 and 755 mRL. Most of the mining was carried out in the Main Zone. The primary mining method used was inclined room-and-pillar. Plans of the old workings indicate that many of the pillars were left intact to support the stope roofs and that extensive voids remain within the Main Zone. The other significant area of voids is in the F2 subzone of the Footwall Zone. This void is estimated to extend from 484500E to 485000E (i.e. approximately 500 m along strike). The backfilling of the Main and FW Zones stopes should also ensure that these areas will not cave, as mining in the HW zone progresses.

Paste backfill will be delivered to the top of the stopes by the paste backfill pipelines. The backfill would be pumped from the backfill plant, on the Sangdong level terrace, in an 8 inch steel pipeline. This pipe would be API 5L X42 Schedule 80 and 40, grooved for Victaulic couplings, in 3 metre length pipes. The distribution line will initially go along the surface from the pastefill plant, to the Sangdong adit portal. The pipeline will then enter through the Sangdong base level gallery until the last stope access ramp of F2 and F3 mineralized structures. This backfilling line will also be used later also for the west part of the Main reserves.

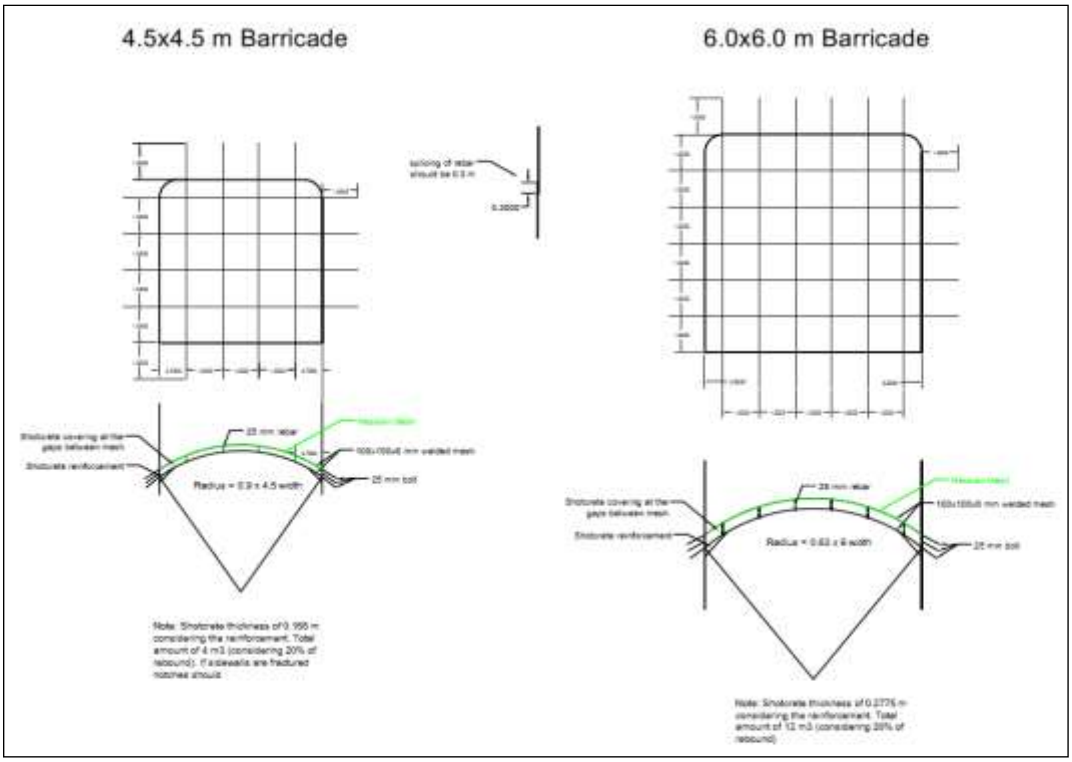
The PP-CAF stopes in the HW mineralized structure will be backfilled through a backfilling line that will descend to the -1 level through the east ramp and will go along the -1 HW base gallery until the PP_CAF stopes. The backfill line will enter the stopes through the access ramps to these stopes. The access to east zone of the main ore zone reserves will be through the east ramp between -1 and Sangdong levels.

The backfill plant will be on the TB (Taebaek) terrace, where there is enough space to build the plant and accessory infrastructure. The emergency storage will be at the thickener and a tank below the thickener. There will be an independent line to Jangzang level stopes for longer emergency storage. The site of the backfill plant will also allow the circulation and loading of the trucks for external placement.

Fill fences will be constructed in the form of shotcrete arch barricades, at the stope entrances of DAF and PP-CAF stope panels. Notches would be created in the sidewalls, along with dowels (20mm rebar in 1m lengths). The shotcrete frame would be built of wire mesh backed by a hessian cloth to retain the shotcrete, as shown in Figure 16-13. It may be necessary to support the frame with dowels into the floor or roof to form the circular shape and to retain its shape during application of shotcrete. For Stepped-DAF panels (approximately 4.5 m x 4.5 m), a minimum shotcrete thickness of 165mm is recommended. For PP-CAF panels (6 m x 6 m), a minimum shotcrete thickness of 276mm is recommended. The Stepped DAF method will allow muck barricades to be considered as an alternative in the backfilling. This alternative would be cheaper and faster than fill fences, but will require onsite tests to be considered as the preferential barricade method.

When it is necessary to tight fill paste, as is the case for most of the primary panels, the paste line would be installed near the top of the barricade. Perforated drainage pipes would be installed to collect water from the paste fill and transport it to the other side of the fence lowering the pressure on the fence. Backfill would be delivered to the high point in the stope, via a HDPE pipe hanging at the back of the stope. Backfill pressure will be monitored and filling would be interrupted if pressure reached a safety limit. In both Stepped DAF and PP-CAF methods, larger areas encompassing several mined out connected panels could be backfilled in a combined fill operation with a single backfill barricade.

Figure 16-33. Shotcrete Arch Barricades



These voids could also be partly filled with development waste and internal waste encountered in stopes.

Different cement contents would be applied to the Pastefill, depending on the function of the panel being backfilled, as summarised in Table 16-12. For costing purposes, an average cement content of 3% has been assumed.

Table 16-12. Pastefill Cement Content

Situation		Cement Content
If stope to be undermined*		7.0%
If adjacent mining to the side, with curing of at least 7 days		4.5%
If adjacent mining to the side, with curing of at least 28 days		2.5%
If subsequent mining above only		2.0%
If no adjacent mining		1.0%
Notes		
	*** 3m thick sill, span of 4m, UCS 1Mpa**	

16.10 Ventilation

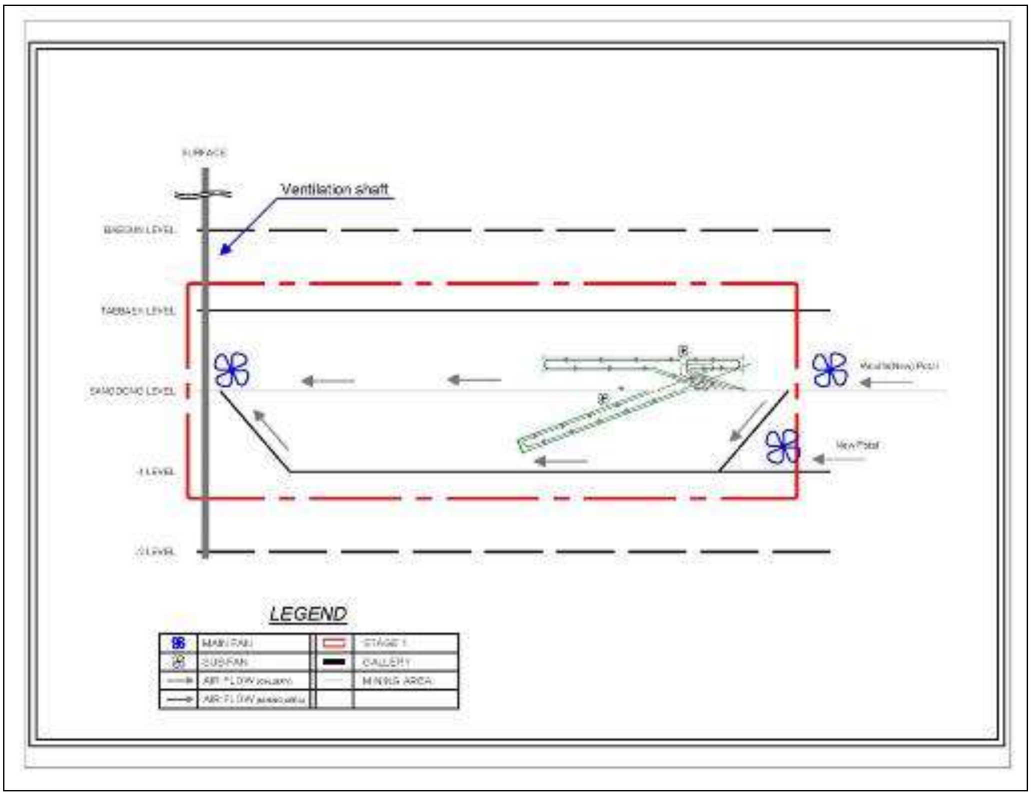
The ventilation system at Sangdong is designed to adequately dilute the exhaust gases produced by diesel equipment. The required air volume was calculated as 0.05 cubic metres per second (100 cubic feet per minute) per brake horsepower of diesel equipment. The horsepower rating of the underground equipment was determined, and utilization factors were applied to estimate the total amount of air required (see Table 16-13). At full production a total air volume of 185 m^3/s (390,000 cfm), including losses and miscellaneous usage areas, is required.

Two independent systems are planned; one for the Sangdong level and the south side of the mine, and one for the -1 level and the HW part of the mine. Figure 16-34 shows a mine ventilation schematic, with main intakes and exhaust air routings. The main high pressure fans will be the exhaust fans installed on each level at the existing inclined ventilation shaft, located at the west end of the mine. Fresh air will be pulled through the portal on each level. Air will travel in the main drifts and through the access cross-cuts to the ore haulage drifts. The air will be distributed to stopes from the haulage drifts. Exhaust air from the stopes will re-enter the haulage drifts and travelways, in the opposite direction to the fresh air flow, to access cross-cuts and out to the main drifts. Air will flow in the main drifts and exhaust to the existing west inclined (shaft) exhaust ventilation raise and up the raise to surface.

Table 16-13. Ventilation Required for Mine Equipment

Diesel Equipment	HP	Air Volume required	Usage	Number of pieces	Total Air Volume required
		cfm	*%*		*cfm*
Jumbo	78	7,800	25%	6	11,700
1.2 cu. m. LHD	45	4,500	50%	4	9,000
4.6 cu. . m. LHD -D	270	27,000	75%	4	81,000
20 Tonne Truck	322	32,200	75%	6	144,900
Scissorlift	101	10,100	25%	2	5,050
Anfo Loader	101	10,100	25%	2	5,050
Boom Truck	101	10,100	25%	2	5,050
Front End Loader	107	10,700	25%	1	2,675
Grader	101	10,100	25%	1	2,525
Light Service V.	95	9,500	50%	6	28,500
Man Carrier	138	13,800	25%	2	6,900
Total					**302,350**

Figure 16-34. Ventilation Schematic Diagram



All exhaust fans installations will be located underground (to avoid surface disturbance and noise in a forestry area) at the West Exhaust Ventilation Raise. On the Sangdong and -1 Levels, 2-60-30-1500RPM, type 2000, 250/300 HP fans with a capacity of approximately 80 m^3/s (170,000 cfm) with maximum operating head pressure capacity of approximately 2.5 to 2.9 kPa will be installed, where most of the equipment will initially be operating. As levels below -1 Level are brought into production, 250/300 HP fans of the same capacity as those on the Sangdong and -1 Levels will be installed on the levels (or moved from a level where the main exhaust fan is no longer required). Fans will be variable speed to facilitate adjusting air volume delivery to working areas, as required.

Fresh air delivery to the stopes will be controlled using auxiliary ventilation fans and ducting. Ventilation regulators, doors, and bulkheads will also be used to control the airflow in the mine.

The ramp development will use 150 hp fans. Other lateral development will use a combination of 100 HP and 150 HP fans depending on the heading length. Development headings are sized to accommodate large ducting (107 mm), to reduce head losses.

Auxiliary ventilation delivery to stopes will typically use 75 or 100 hp fans, with 914 mm (36 in) flexible ducting. In DAF stopes, internal stope ramps will also be developed through to connect with existing mine workings, so as to provide fresh air flow between levels in these ramps.

17 RECOVERY METHODS

The current process flowsheet and plant design are based on comprehensive Basic Engineering conducted by Metso Outotec in February 2022. These designs reflect current production goals and operational efficiencies. Extensive testing, simulations, and industry best practices have informed these updated configurations.

17.1 Process Design

The optimised flowsheet for effectively recovering scheelite from Sangdong ore relies on a structured flotation processes. The goal of this process is to produce a high-quality final concentrate containing approximately 65% WO_3. Pilot plant testing supports an overall average tungsten recovery rate of approximately 85%. The processing facility has been designed to operate at a nominal feed rate of 80 tph, with provisions allowing a design capacity extension up to 100 tph.

The processing plant was designed by Metso, along with AKTC technical personnel and external consultants. Process design criteria stemmed from Metso engineering data. The details of the process design criteria are summarised in Table 17-1. The 'One-Line' parameters relate to the current mill construction and corresponding plant capacity of 1,920 tpd. The 'Two-Line' parameters relate to potential expansion in the future.

Table 17-1. Process Design Criteria

Area	One Line	Two Lines	Unit
MINE			
Operating Schedule			
Shifts / Day	2	2	-
Hours / Shift	8	8	-
Days / Week	5	5	-
CRUSHING PLANT			
General			
Design Capacity	270	270	dmt/h
Crushing stages	1	1	-
Primary Crusher Type	Jaw Crusher	Jaw Crusher	-
Operating Schedule			
Shifts / Day	1	2	-
Hours / Shift	12	12	-
Days / Week	6	6	-
Days/ Year	310	310	-
Availability / Utilization			
Crusher Utilization	75	75	% overall
PEBBLE CRUSHING PLANT			
General			
Design Capacity	70	70	Dmt/h
Crushing stages	1	1	-
Primary Crusher Type	Cone Crusher	Cone Crusher	-
Availability / Utilization			
Crusher availability	80	80	% overall
GRINDING PLANT			
General			
Design Capacity	100	200	dmt/h
Grinding stages	2	2	-
Operating Schedule			
Operating Shifts / Day	2	2	-
Operating Hours / Shift	12	12	-
Operating Days / Year	336	336	-
Availability / Utilization			
Overall Plant Utilization	90	90	%
FLOTATION PLANT			
General			
Design Capacity	100	200	dmt/h
Operating Schedule			
Operating Shifts / Day	2	2	-
Operating Hours / Shift	12	12	-
Operating Days / Year	336	336	-
Availability / Utilization			
Overall Plant Utilization	90	90	%

17.2 Overall Process Summary

The main process steps for treating the Sangdong ore are primary, secondary and tertiary crushing and stockpiling; grinding; flotation divided into two (2) sub-circuits (sulphide flotation and tungsten flotation); thickening; filtration and packaging section; a waste water treatment facility; and services section. Further details of these sections include:

- Primary crushing and ore stockpiling, ensuring a steady feed to subsequent processes.
- Cone crushing for SAG oversize, for +25mm material.
- Two-stage grinding utilizing Semi-Autogenous (SAG) and Ball milling (SABC), ensuring precise particle size control.

- A comprehensive flotation section, divided into sulphide flotation for gangue mineral removal and scheelite flotation for tungsten recovery.
- Dedicated scheelite concentrate thickening and filtration facilities.
- Robust tailings thickening management.
- Advanced wastewater treatment facilities.
- Comprehensive reagent preparation, handling, and distribution systems.
- Fully integrated general plant services to support overall plant operations.

17.3 Crushing and Stockpiling

Run-of-mine (ROM) ore, initially delivered by 15 tonne trucks. Ore will be either directly fed into the primary crushing system or placed onto a blending stockpile, aimed at a consistent feed quality. There is a second ROM stockpile area of 7,000 t capacity about 250m north of the crushing area, as we as a reinforced stockpile area, also having a capacity of 7,000 tonnes, which is next to the crusher feed and immediately next to the Monty B mine portal. A plan of the different stockpile areas is shown in Figure 17-1.

Ore from the mine will be dumped into a feed hopper. The ore will be extracted from the feed hopper by an apron feeder down to an inclined 600 mm square opening grizzly. A rock breaker will be used to bring the grizzly oversize down to 600 mm. The blended ore, nominally sized at -400mm, will undergo primary crushing through a jaw crusher.

Scalping through precision vibrating screens will control the crushed size distribution. Crushed ore will be monitored and conveyed underneath magnets and metal detectors, to remove metallic fragments. The crushing plant is designed to process ore at rates of up to 270 dmt/h, producing a product with a nominal p80 of 100mm. Dust suppression and collection systems will be installed to minimize environmental impact and maintain occupational health standards. Ultimately, crushed ore will be transported via conveyor systems to a covered coarse ore stockpile, with a capacity of 10,000 dmt, for sustained feed to downstream operations.

The crushing and grinding flowsheet is shown in Figure 17-2.

Figure 17-1. Plan of Surface Stockpile Areas

[Date: April 2025; Source: AKTC]

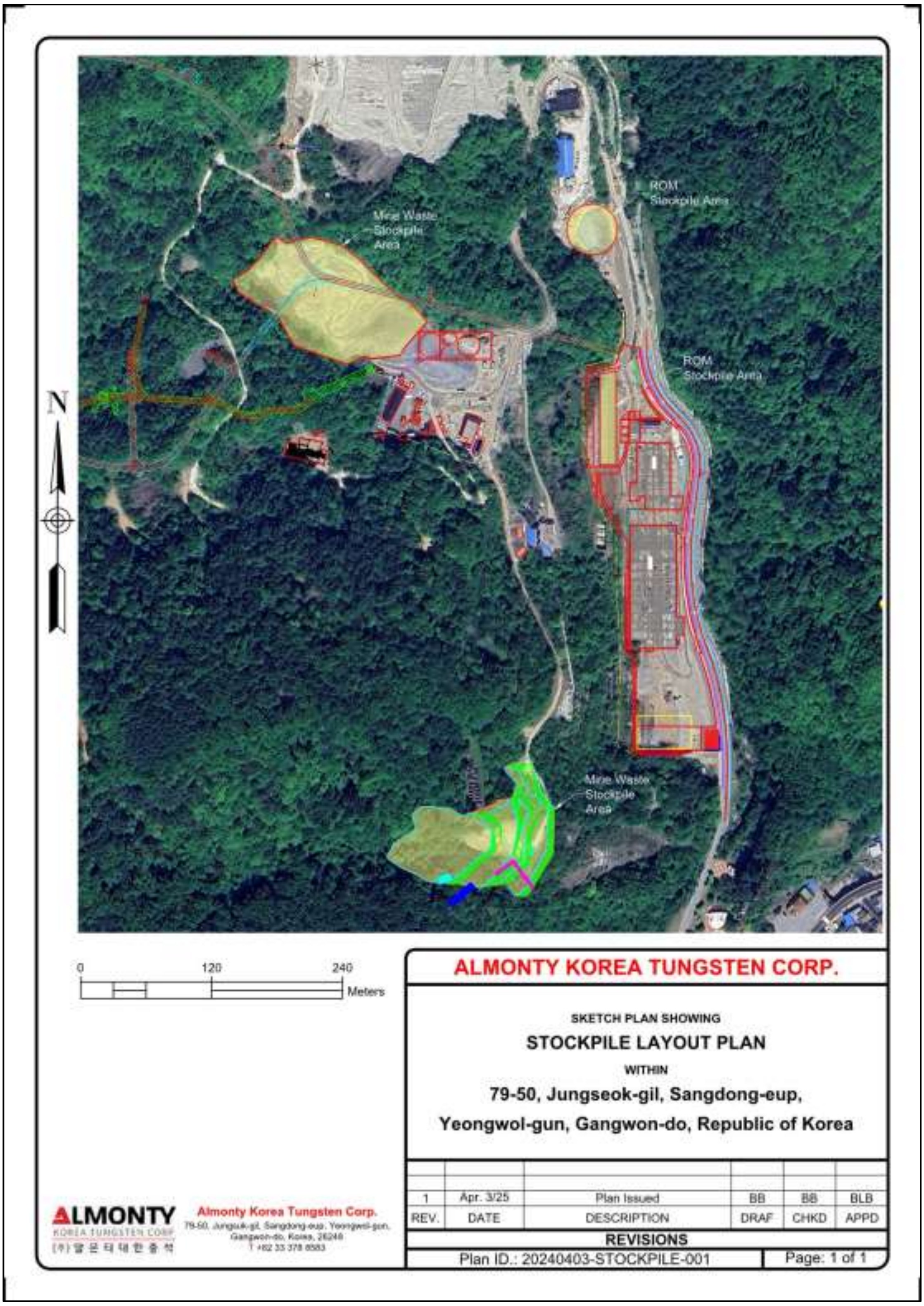


Figure 17-2. Crushing and Grinding Flowsheet

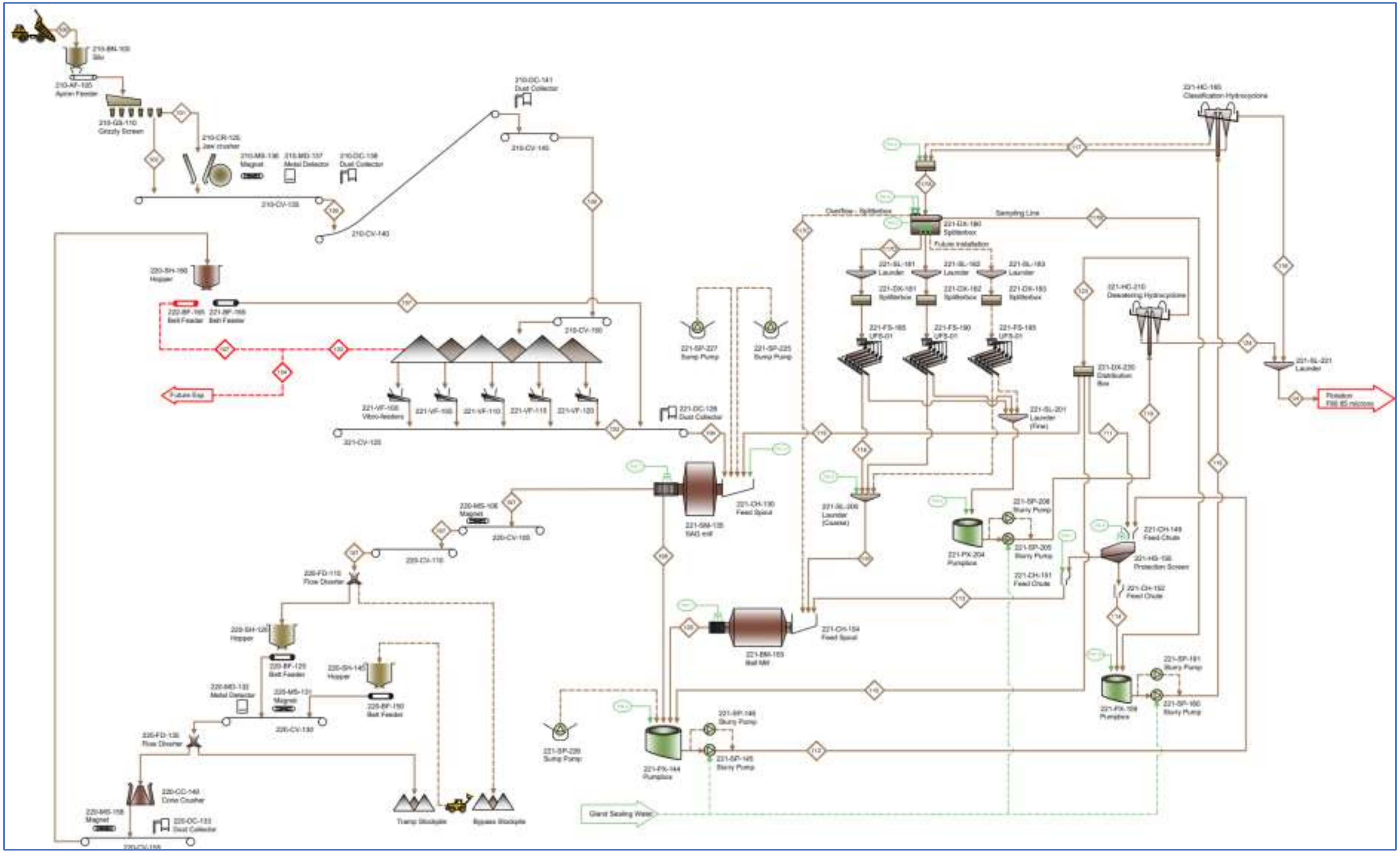


Figure 17-3. Photographs of Plant During Construction

17.4 Grinding

Ore from the coarse stockpile will be reclaimed using variable-speed reclaim feeders and fed into the grinding circuit. There is a two-stage grinding configuration, consisting of Semi-Autogenous Grinding (SAG) mills and ball mills. SAG mill oversize material will be crushed in a cone (pebble) crusher and recirculated. Precision controls will include belt scales and automated water addition. The particle size target will be a P80 of 65 microns to meet the scheelite flotation criteria. Classification systems utilizing cyclones and ultrafine screens are aimed at preventing overgrinding.

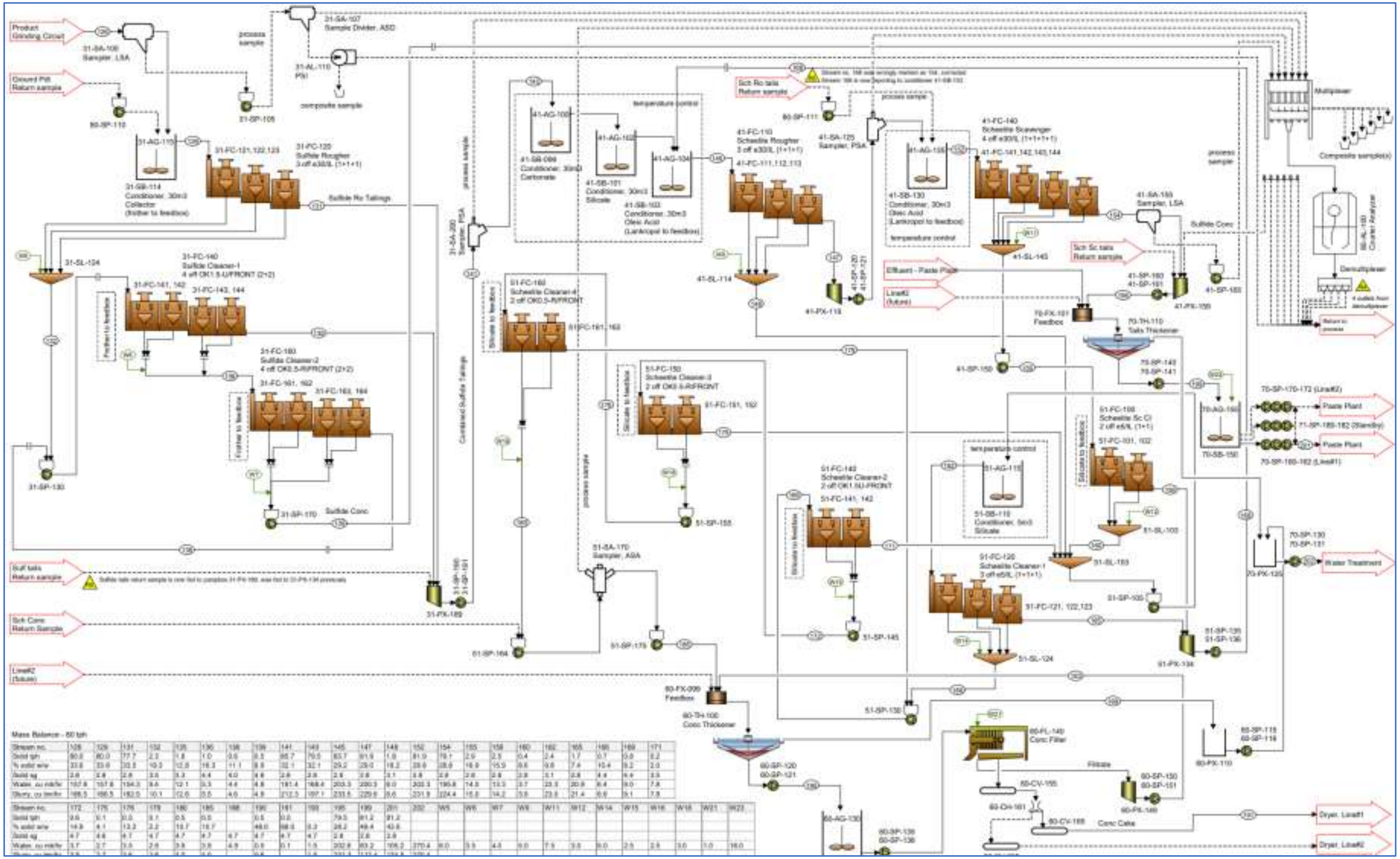
17.5 Flotation

The flotation flowsheet is shown in Figure 17-4

17.5.1 Sulphide Flotation Circuit

The sulphide flotation circuit consists of a rougher flotation stage followed by two cleaner flotation stages, designed for removal of sulphide. Initially, ground pulp will be conditioned in a dedicated tank for about seven minutes, where Aero 3473 collector and MIBC frother will be introduced to enhance sulphide mineral attachment to bubbles. Subsequently, the pulp will be pumped to a bank of three 30 m^3 flotation cells, configured sequentially to improve sulphide recovery. Rougher concentrate from these cells will then be pumped to the first cleaner flotation cells (four OK1.5 cells), where additional purification occurs. The concentrate from the first cleaner will then progress to the second cleaner flotation stage, utilizing four smaller OK0.5 flotation cells. Cleaner concentrate, after this two-stage cleaning process, will be directed to the final tailings pump box. Inline samplers will allow continuous sampling for analytical quality control

Figure 17-4. Flotation Flowsheet



17.5.2 Scheelite Rougher Circuit

The scheelite rougher flotation circuit will receive conditioned pulp following the sulphide flotation stage. The circuit consists of two sequential conditioning tanks, each designed to provide mixing and contact time of approximately 11 minutes. The first conditioning tank adjusts pulp pH and introduces critical flotation reagents such as sodium carbonate and sodium silicate, while the second tank dilutes pulp density to around 35% solids. Following conditioning, pulp will be transferred to a scheelite rougher flotation bank consisting of four 30 m^3 flotation cells. Reagents, specifically TOFA as a primary collector, will be added to promote efficient scheelite mineral attachment. Rougher concentrate will proceed to the cleaner flotation circuit, while rougher tailings will be directed to scavenger flotation cells for further recovery.

17.5.3 Scheelite Scavenger Circuit

Tailings from the scheelite rougher flotation circuit will be pumped to the scavenger circuit, consisting of two separate banks of four 30 m^3 flotation cells each. Before entering the scavenger flotation cells, the pulp will undergo additional conditioning where reagents, primarily TOFA, will be reintroduced to improve flotation effectiveness. The scavenger flotation stage is designed to capture scheelite particles that were not recovered in the initial rougher stage, to enhance overall tungsten recovery. Scavenger tailings, after passing through an inline sampler for continuous monitoring, will be considered final tailings and pumped to the tailings thickener for dewatering and disposal. The scavenger circuit is very important in minimizing tungsten losses.

17.5.4 Scheelite Cleaning Circuit

The scheelite cleaning circuit provides a multi-stage flotation process for the final upgrading of scheelite concentrates derived from rougher and scavenger flotation stages. This circuit comprises four sequential cleaning stages. Cleaner stage 1 consists of three 5 m^3 flotation cells, while cleaner stage 2 utilizes two OK1.5 flotation cells. The final two cleaning stages (cleaner stages 3 and 4) will each utilize two OK0.5 flotation cells arranged sequentially. Throughout the cleaner stages, sodium silicate will be continually dosed as a depressant to prevent unwanted mineral flotation, to produce high purity scheelite concentrate. Temperature-controlled conditions (approximately 30-32.5°C) will be maintained using a heated water system to assist flotation performance. Concentration from the final cleaner stage, after upgrading, is directed towards concentrate thickening and filtration processes, in order to achieve the required market specifications of approximately 65% WO3.

17.6 Final Tails Management

The final tailings from the concentrator plant, along with effluent from the paste plant, will be collected into a feedbox, for a 20 m diameter High-Rate Thickener (HRT). The thickener feedwell will be equipped with auto-dilution capabilities to adjust feed slurry density from around 20% solids to an optimum 12%. Overflow from the thickener will be directed to an overflow tank and subsequently pumped to the water treatment plant. The thickener underflow, with approximately 50% solids, will be transferred to a buffer tank.. A diaphragm pumping system, with an additional standby set, will move tailings to the paste plant. Coagulants and flocculants will be added into the thickener to enhance settling and clarity of the overflow. Spillage around the thickener area will be collected and pumped back to the thickener feedbox

17.7 Fresh Water Quality

Fresh water will be provided to critical points within the flotation and reagent preparation areas of the plant. Heated fresh water from the water heating system will be provided for reagent mixing, related to flotation and thickener reagents. Unheated fresh water will be provided to the flotation section for analyzer and multiplexer operation, for process monitoring. Service water will also provided for hose-down and cleaning purposes within the flotation and dewatering sections. All water inputs, including fresh water, heated fresh water, and service water, will be centrally controlled and monitored via the plant Distributed Control System (DCS). The heated fresh water supply will support critical processes, maintaining optimal temperatures for flotation and reagent effectiveness.

17.8 Waste Water Treatment

Waste water from the plant will primarily consist of flotation chemical residues and tailings thickener overflow. This water will be directed to dedicated water treatment facilities designed within Almonty's operational scope. Mechanical aeration processes in constructed lagoons will provide aeration to effectively reduce organic contaminants. The thickener overflow, containing residual reagents and suspended solids, will gravitate to an overflow tank and be subsequently pumped for further treatment.

Water quality will be managed to comply with the environmental discharge standards. Although mechanical aeration will significantly reduce organic compounds, sodium ions introduced by flotation chemicals will remain relatively unchanged. Regular monitoring will be used to ensure the treated water quality meets environmental regulatory requirements before discharge.

17.9 Equipment and Energy Consumption

Major plant equipment includes primary crushers, grinding mills (SAG and Ball Mills), flotation cells (TankCells and OK cells), thickeners, filters, and comprehensive water and slurry handling systems. Total installed power within the plant is calculated as being approximately 4006 kW, reflecting enhancements in flotation cell sizing and energy-efficient equipment integration. Energy management strategies incorporate variable speed drives and high-efficiency motors, significantly improving the plant’s overall energy efficiency. Advanced automation and control systems will further support energy utilization throughout plant operations.

A summary of all the major processing plant equipment, mostly sourced form Metso Outotec, is shown in Table 17-2.

Table 17-2. Summary of Main Processing Equipment

Equipment	Metso Model No. or Specification	Qty	Capacity of Dimension
Crushing & Ore Shed			
Feed Hopper	Steel Platework	1	70 ton
Apron Feeder	AF5-1219MN-6100	1	1,219mm * 6,100mm
Grizzly Screen	VG540-3V	1	1,300mm * 4,000mm
Primary Crusher	Sandvik JM-1208	1	2,932mm * 2,336mm
Maintenance Hoist		1	5 Ton
Crusher Product Conveyor	Belt Conveyor, 800mm	1	Wide * 25.9m
Metal Detector	Suspended	1	
Dust Collector	AAF F-P M 6-84-300	3	
Stockpile Feed Conveyor	Belt Conveyor, 800mm	1	Wide * 41.0m
Stockpile Transfer Conveyor	Belt Conveyor, 800mm	1	Wide * 22.0m
Stockpile Shuttle Conveyor	Belt Conveyor, 800mm	1	Wide * 33.0m
Pebble Crusher	HP100	1	70 Dmt/h
Pebble Reload Feeder	speed belt feeder	1	0.8m * 2.5m
Crushed Pebble Conveyor	Belt Conveyor, 400mm	1	Wide * 20.0m
Reclaim Feeder 1~5	TKP8-17	5	800mm * 1,750mm
Grinding			
SAG Mill	Metso 16' x 10'	1	4.88m * 3.05m
Ball Mill	Metso 14' x 23'	1	4.27m * 7.01m
Protection Screen	ACVL1848	1	960/min
Ultrafine Screen	UFS 10	2	Screen 10 decks
Cyclones	MHC100	2	12-way cyclone manifold
Sulfide Flotation			
Sulphide Rougher Cell	TCe30	3	30 m^3
Sulphide Cleaner 1 Cell	OK1.5U	4	1.5 m^3
Sulphide Cleaner 2 Cell	OK0.5R	4	0.5 m^3
Scheelite Flotation			
Scheelite Rougher Conditioner	3300-B-D1400	3	30 m^3
Scheelite Rougher Cell	TCe30	3	30 m^3
Scheelite Scavenger Conditioner	3300-B-D1400	1	30 m^3
Scheelite Scavenger Cell	TCe30	4	30 m^3
Scheelite Cleaner Conditioner	3300-B-D1400	1	5 m^3
Scheelite Cleaner 1 Cell	TCe5	3	5 m^3
Scheelite Cleaner 2 Cell	OK1.5U	2	1.5 m^3
Scheelite Cleaner 3 Cell	OK0.5R	2	0.5 m^3
Scheelite Cleaner 4 Cell	OK0.5R	2	0.5 m^3
Concentrate Thickener	Metso Outotec 4m	1	
Courier Analyser	Courier 6X SL	1	XRF Analyser
Tailing			
Tailings Thickener	Metso Outotec 20m	1	
Tailings Thickener Underflow Pump	HR150 FNR-D C4	2	

17.10 Other Services

Ancillary services will support continuous plant operation, including two large fresh water storage tanks (each 15 meters in diameter and 10 meters high), to provide reliable water supply. Dedicated compressor units supply air for plant operations, with a 150 HP unit designated for general use and a 50 HP compressor specifically for instrumentation air. A blower system rated at 210 HP will supply air to flotation cells. Additionally, the plant will include reagent and flocculant preparation facilities for precise reagent dosing. A dedicated steam boiler system equipped with a water treatment setup will provides the heated water necessary for flotation conditioning and concentrate drying operation.

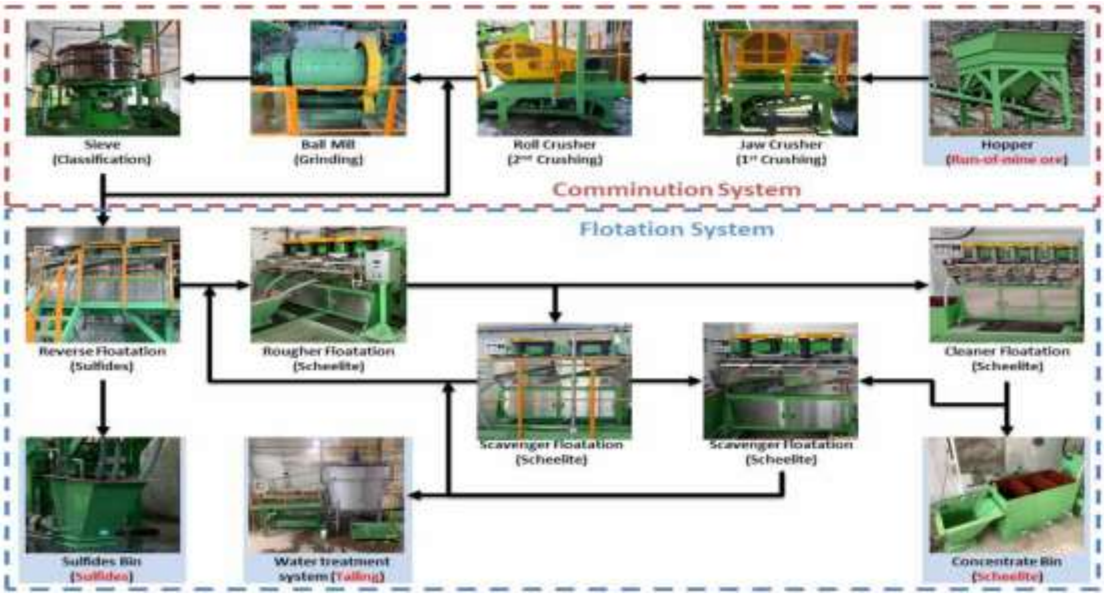
17.11 Manpower

The concentrator plant's staffing strategy will involve approximately 36 personnel in total. Of these, 28 will be hourly operational employees responsible for routine plant operation, equipment monitoring, and basic maintenance duties. Additionally, the plant will employ eight salaried staff members, including supervisors, process engineers, and maintenance managers. The operational workforce will be supported by a structured training program aimed at maintaining safety, operational proficiency, and productivity.

17.12 Pilot Plant

A pilot plan has been constructed on site, with a maximum processing capacity of 3 tonnes/hour. This has a jaw crusher, reducing rock size to below 100 mm, followed by a secondary crusher, a roll crusher, further reducing particle size to below 5 mm. A ball mill then grinds the material down to -200 mesh. As with the processing plant, there follows separate flotation equipment for removal of sulphide minerals and concentration of scheelite. This plant has already been used for metallurgical test work and will be available in the future for mill test work as required, as depicted in Figure 17-5.

Figure 17-5. Photographs of On-Site Pilot Plant



18 PROJECT INFRASTRUCTURE

18.1 Existing Infrastructure

Sangdong, as a past-producing mine, has significant infrastructure on site, which includes:

- Access road to site
- Site roads
- Powerline and stepdown substation
- Potable water, with a 2 km pipeline connection to the Sangdong town water supply
- Office/changehouse complex
- 63 metre long concrete lined adit
- Townsite within approximately 2 kilometres distance
- Communications and internet service
- Security building

To return to operation, the existing Sangdong infrastructure is in the process of being reconfigured and supplemented by new facilities as required.

18.2 Mine Surface Infrastructure

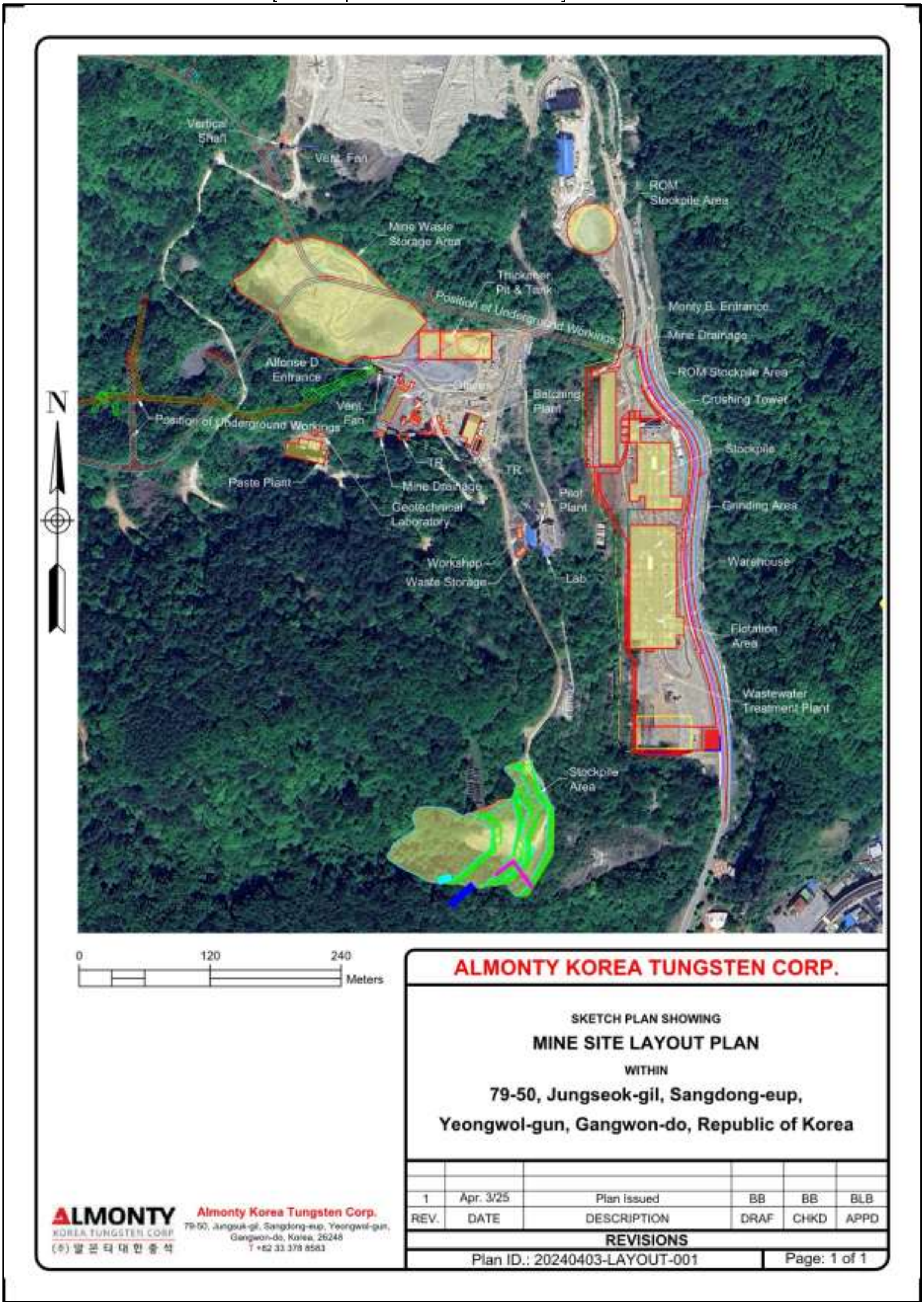
To accommodate the new waste disposal facility, the existing buildings at the Sangdong portal level were demolished to allow for reconfiguration of the space. New site infrastructure will include a new mine/administration building, a warehouse, maintenance shop, processing plant, thickeners, pumping station to the Taebaek backfill plant, process water supply and water and sewage treatment facilities.

Other surface facilities will generally be located outside of the -1 Portal in the footprint of old KTMC installations, as shown in Figure 18-1. Exceptions will be the backfilling plant (on the Taebaek Terrace) and the waste storage area (Small Valley), that will be located at the elevation of Sangdong portal but in a side valley, approximately 300m away.

An on-site explosives magazine is not required, and removes the need for additional guards and security. All mines in Korea use a daily supply from explosives companies, and this has proven to be reliable. This system has worked very well during the last 3 years of underground development work at Sangdong.

Figure 18-1. Plan of Main Surface Installations

[Date: April 2025; Source: AKTC]



18.2.1 Surface Installations

Mine/Administration Office Complex. This already exists in the center of the Sangdong village, as shown in Figure 18-2. This is an old post office which has been totally refurbished by AKTC. It is a two story building with: meeting rooms, sanitary installations, open space working stations, individual offices, IT room, safe, entrance hall and storage rooms.

Figure 18-2. Photograph of Mine Administration Office

In the plant area there will be a smaller office with one meeting/training room, workstations and individual offices plus a coffee area and sanitary installations

In the mine area, the existing on-site office (the so called Blue House) will need to work as it is during the construction period and the commissioning. It is composed of a meeting room, workstations, individual offices, storage areas and sanitary installations. The contractor has its own installations on containers. After the commissioning it is forecasted to demolish the blue house and build a better 3 story office.

Figure 18-3. Current On-Site Mine Offices (Blue House)

Pilot plant.

The pilot plant, as described in Section 17.12, was installed in the lower part of the KTMC primary crushing installations. The building was repaired and reconditioned in 2020. The access road was widened.

Geotechnical laboratory. This will be set up for the control of the paste-filling quality. This will be containerized and installed on the Taebaek terrace by the paste plant.

Additional ROM storage pad. There is a primary 7,000t ROM storage area close to Monty B mine mouth and jaw crusher, as shown in Figure 18-4. In addition there is a secondary 7,000 t ROM storage pad north of the plant area.

Figure 18-4. ROM Stockpile Area Next to Monty-B Portal.

Storage pads and warehouses. In addition to the several storage installations on the Sangdong terrace, for smaller mine equipment and materials; there are numerous materials and equipment stored underground for protection from the severe Korean weather. Outside of the mine site, there are also several other storage areas being used, as the infrastructure construction requires a vast amount of materials and equipment to be stored in advance. These are summarised in Table 18-1.

Table 18-1. Summary of Off-Site Storage Areas

Storage area	Area – m^2	Distance to the Processing plant	Characteristics
School yard (Naedeok Closed School)	3027	5 Km	Open yard - Fenced and unfenced
CU land	10945	2 Km	Open yard - Fenced and unfenced
Jangsan	10256	10 Km	Open yard. Not fenced
Mungok	825	45 Km	Covered storage area + Open yard - Fenced

Batch plant

A batch plant was installed in 2020 (Figure 18-5) to allow savings in the shotcrete operation and at the same time to guarantee a stable quality of the shotcrete as well as the minimum supply timing, which is especially important with the very low winter temperatures. It was originally a tent style structure and in 2025 was refurbished to be covered by sandwich panel to allow a better management during winter. It is a batch plant of $1m^3$ batch capacity, consisting of 2 cement silos, each of 75 t. Three aggregate bays are used, along with the capacity to add metallic fibers and plasticizer. The capacity of this plant is $60m^3/h$ for normal concrete/shotcrete or 18-24 m^3/h with fibers addition.

Figure 18-5. Surface Batch Plant

Seoul Office

AKTC has an office in the center of Seoul, in the Korea Chamber of Commerce & Industry (39, Sejong-daero, Jung-gu, Seoul, Republic of Korea), as shown in Figure 18-6. In this office, there are 7 rooms: Meeting room, CEO office, CFO office, CEO Office team's office, BSP team's office, CEO Office Manager's office, Finance team's office.

Figure 18-6. Block Containing AKTC Seoul Office

Gas Station

Within a 20 minute drive radius from the mine site there is only one gas station, that closed in 2024 following the death of its owner. To guarantee that this service remains open for the population, AKTC acquired this gas station (Figure 18-7), that has 1 tank of 20,000 l for diesel and 3 tanks of 10,000 l for diesel, gasoline and kerosene. The delivery of the fuel from the gas station to the mining operations is done by 2 AKTC-owned gas trucks.

Figure 18-7. AKTC Gas Station

Cafeteria

AKTC acquired a building in the main street of Sangdong that is being reconverted to be a cafeteria. This cafeteria will serve breakfast, lunch and dinner to the workers lodged in Sangdong, as well as the remaining ones during the work time. It is a 2 story building with a kitchen on the 1st floor and a dining room on the 2nd floor.

Lodgings

Lodgings currently consist of :

- Several apartments rented in the neighbouring cities and along Sangdong valley.
- Pine Pension, outside of the Sangdong village (4 apartments).
- A block of 8 apartments (Figure 18-8) nearby the Sangdong administrative office.
- 12 room building (Former Sangdong Hostel) with kitchen and other facilities.
- Containers rooms for 12 people (the containers that were formerly on the Taebaek terrace.

Additional lodgings that will be built in the near future include:

- 30 units on land below the gas station.
- 100 units on land close to the school yard

Figure 18-8. Sangdong Apartment Block

Mine Office Complex.

An new change house for mining, processing and surface services employees will be integrated with the existing Mine Office (Blue House), Plant installations and Mine contractors containers to create a new industrial complex. This will comprise:

- Mine department management offices
- Laboratory
- Shift foreman offices
- Crew lineup area including 1 meeting room
- Change house for mining, processing and surface services employees
- Engineering and geology offices and bullpen
- Processing plant department offices
- Mine general management offices
- Administration staff offices
- 1 conference room
- Communications / IT room
- First aid room

- Reception area
- Kitchen area
- Washrooms

There will be 6 mine offices and a crew line-up area comprising 6 wickets for informing miners of their daily work instructions. The engineering and geology departments will require 6 offices and an area divided into 6 to 8 workstations. The administration personnel will require 10 offices, including a couple of spare offices for visitors/consultants to use. The offices will be located mainly on the outside walls of the office complex and look into the open areas for engineering, geology and other personnel located at workstations.

18.2.2 Maintenance Shop/Warehouse

The surface maintenance shop will be constructed, in a new regular building, next to the old KTMC primary crusher in Sangdong terrace. The building will be a steel framed or brick structure clad with roof and wall sheeting.

The main shop area will be 20 metres long and 15 metres wide, with offices and storage areas inside. This facility will perform major and preventative maintenance servicing on all, surface mobile and small equipment (such as pumps, etc.). It will also be available, for necessary maintenance of underground mobile trackless equipment. The shop will be divided into sections for mobile equipment maintenance, and the electrical and instrumentation group.

The maintenance shop will be equipped with an overhead bridge crane. Shielded bays will allow welding to be carried out without affecting activities in the main shop area. Offices for the maintenance staff will be located off of the main shop area and include a conference room, lunchroom, washrooms and small parts storage areas.

Attached to the maintenance shop will be a drill repair shop, along with bit sharpening facilities. Additional facilities will include a small electrical shop, as well as a self-contained area for mine rescue facilities.

The warehouse will have attached a fenced yard area for storage of large bulky items that do not require weather protection or secure storage. The building will be a steel framed or brick structure clad with roof and wall sheeting.

The interior of the warehouse building will be equipped with pallet shelving shelves and racking. Separate small stores will be provided for oxygen and acetylene bottle storage, paints, solvents and rubber lining, a cool store and a safe storage area for small tools and valuables. An office area will be provided for purchasing and stores administration functions.

The warehouse for mine items only would be a combination of pallet (large or bulk items) and shelved (smaller items) storage. Valuable items would be placed in a locked storage area.

The warehouse for the mine will be built at the expense of the contractor, who will be doing development and mining works. Small items concerning backfilling and others from AKTC will be stored at the main warehouse at the refurbished APT KTMC plant.

A provisional residual material storage shed, with 4 compartments, has been built contiguous to the SD terrace workshop. Later on a definitive one will be built in the ROM stockpile N2 zone that will serve mine and plant.

18.2.3 Assay Laboratory

A purpose-built laboratory will provide analytical, investigational and quality assurance services to the production operation. The laboratory is presently in containers at SD terrace and the Xray analyzer is in one room of the Blue House. The definitive laboratory is being built in the back of the pilot plant and will work integrated with the pilot plant. It will comprise: sample preparation room, room for the X- ray analyzer, drying room and one shed for the reception of samples.

18.2.4 Backfill Plant

The processing plant will produce a tailings slurry with approximately 20% solids. It will be pumped to a 20m diameter thickener on the Sangdong terrace. The thickener will produces clarified water that goes to the Water Treatment Plant but also industrial water that is used in the Backfill Plant as industrial water. This industrial water will be used in the paste plant for two main purposes:

- Cleaning. The residue will fall onto the waterproof concrete base of the Paste Plant. This base has an inclination to the direction of the sump that has a pump that returns the water to the thickener.
- Mixing with cement, to create a cement grout that is easier to handle and to mix in the paste mixer.

The 50% solids slurry that will be produced by the thickener will go to a slurry storage tant and then pumped to the paste plant (using an Abel diaphragm pump) which has a slurry receiving tank. It will then progress onto an Eimco 14 elements disk filter, where it will be dewatered to a 78% solids. This thickened paste will go onto an Arcen paste mixer, where it is mixed with the cement grout and, when necessary, with plasticizer. Then the cemented paste will be pumped to active or old stopes. The cement proportion will vary between 1% and 7%, (Table 16-12) depending on underground requirements.

Figure 18-9. Flowsheet for Backfill Plant

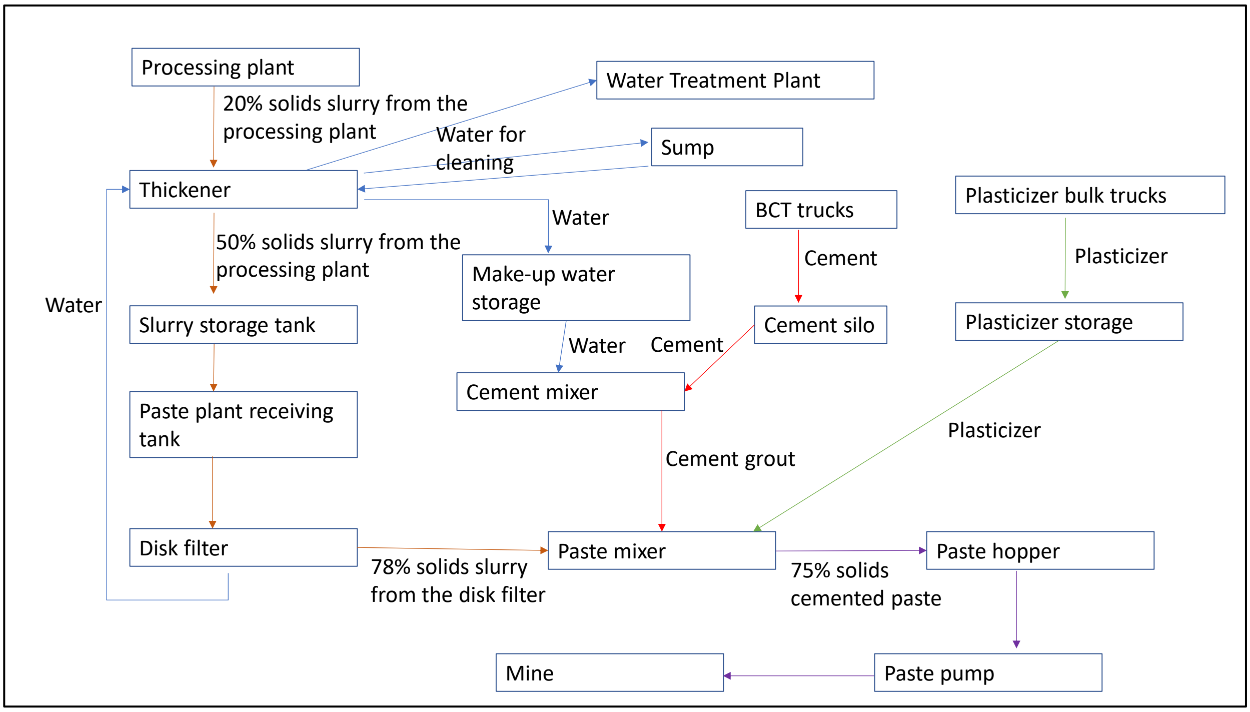
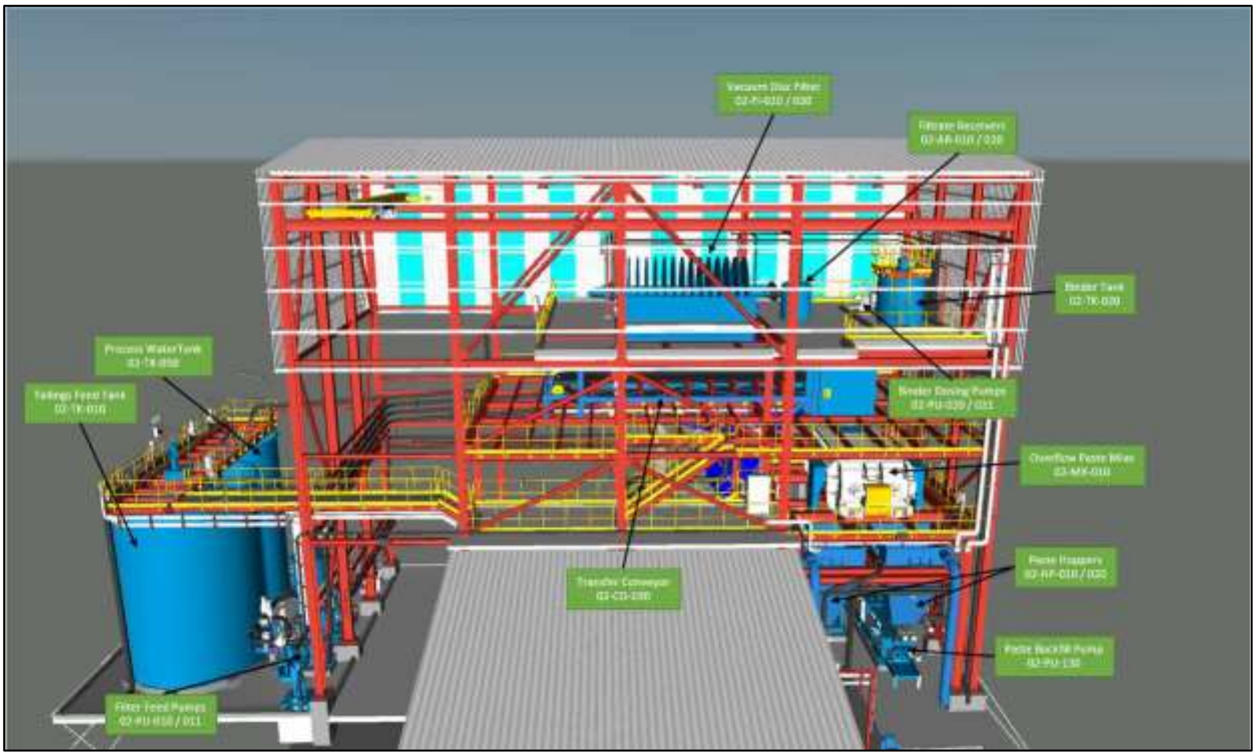


Figure 18-10. Schematic View of Backfill Plant



18.2.5 Other Facilities

Mine water meets discharge criteria. As explained in Section 17.8, if some mine water is needed for use in the Process Plant, it can be softened to lower the Ca and Mn content. All water that is not needed for the plant can be discharged to the river.

A fully equipped mine rescue station will be installed on the property. The mine rescue station will be equipped with all necessary equipment, including self-contained breathing apparatus, flame lamps, gas testing equipment, rescue equipment, etc. and supplies and chemicals required to operate the station. There will be enough emergency equipment to have 3 five person mine rescue teams operating or on standby at any one time.

Sewage will be connected to the local Sangdong sewage treatment distribution system. Sewerage piping to the town Sangdong Sewage Treatment Plant was installed parallel to the access road.

Garbage disposal will be at off-site disposal at the Sangdong landfill facility. Fire water will be provided by electric and diesel driven fire-water pumps from the town water supply.

Staff and visitors to the mine will be housed in village apartments, as described in Section 18.2.1. Employees and contractors (totalling approximately 170 people) will be housed in the local communities, as well as in AKTC's own units. All hourly employees will be provided with a meal in mid-shift from the catering facilities. A catering facility providing meals for all employees on the 3 shifts will include refrigerated foods storage. non-perishable food storage, kitchen, food serving, eating, and dish washing areas. Recreational facilities will include common lounging areas with comfortable chairs and couches, large screen TV rooms indoor games such as darts, ping pong, etc. and outdoor facilities for basketball soccer, etc.

18.3 Site Access

The mine site has existing road access from the village of Sangdong. The main road that runs up the valley to the site is a public road (National Road No. 31) which has recently been repaved. The Taebaek to Naedeok Road runs adjacent to the Sangdong mine site. This two lane bitumen road can accommodate trucks carrying heavy equipment and road haulage transport trucks. The present route for this road runs right next to the Processing Plant area.

In the years 2016 and 2017 all legacy infrastructure (processing plant, water deposits, fuel deposits, ore bins, warehouses, APT plant, etc) that were in the valley were demolished with the exception of some retaining walls. This included buried structures that were not originally visible, but have now been removed. During this time the available land was divided by the river that was running through the middle of the valley. The river was covered for most of length in the plant area. In addition to the river, there was the old road that was also subdividing the space. Both the road and the river have now been moved to the east side of the valley, in order to create the necessary contiguous space for the processing plant and related infrastructure. In this way the old sinuous 1 lane road could be changed to a 2 lane road with sidewalks on both sides and the river has now been uncovered and renaturalized, running in between the new road and the slope of the mountain on the east side. The rebuilt road and river length covers approximately 500m.

18.4 Power Supply and Distribution

The project will be powered by one 22.9 KV overhead line, which was installed in 2020, and which supplies 2 main substations. One will be installed in the immediate vicinity of the plant and the other at the Sangdong terrace. The substations will mainly be composed of step-down transformers of 10 MVA for the plant and another of 4MVA for the mine (22.9/6.6 kV input). One substation will supply power to the mine and non-processing plant facilities while the second will be dedicated to providing power to the processing plant.

18.4.1 Medium Voltage Network

The Medium Voltage (MV) network will be designed in such a way that each main substation can power the entire load normally fed by the other main-substation in case of outage of the other main-substation. Such as configuration will avoid the installation of an expensive, diesel generator based, emergency power supply.

As much as possible, all the MV switchgear will be installed in the same MV-Substation within the process plant. Dry step-down transformers will be used to feed the LV-Switchgears and MCCs. Inside the mine, transportable skids mounted substations and switchgear will be used. All the Medium voltage cables will be preferably trenched cables. Figure 16-29 indicates the location of the underground transformers.

18.4.2 Low Voltage Network

As much as possible, all the LV-Switchgears and MCCs will be installed in a dedicated LV-Substation within the process plant. The low voltage network will be 440V/220V-60Hz. Given the existing plant and the other components' foot-print, the trenches will be developed for the LV cables routing.

18.4.3 **Connected Load**

The following table shows the connected loads of the Main-Substations, based on a production rate of 80 tph of ore.

Table 18-2. Summary of Connected Load

	Load	*kW*
Main-Substation-1	Mining	2,000
	Backfill	1,000
	Total 1	***3 000***
Main-Substation-2	Process plant	2,212
	Crushing	480
	Grinding	2,172
	Camp	400
	Total 2	***5,264***

18.4.4 Energy Consumption

The estimate for energy consumption for the project was calculated according to the design criteria associated with the planned plant capacity, as summarised in Table 18-3.

Table 18-3. Energy Consumption Summary

Designation	**Installed Power** ***kW***	**Energy Consumption** ***MWh***
Plant	4,000	26,313
Mine	2,000	5,395
Backfill	1,000	7,995
Camp	400	2,453

18.4.5 Standby Power

In the event of a power interruption in the KEPCO power supply the plant will shut down. For operational and safety reasons, emergency power will be supplied to essential services, which include the backfill plant agitators, thickener rakes, and underground mine main ventilation fans.

The emergency power supply will be supplied by one 1.75 MVA generator located near and terminating in the KEPCO HV Substation South. An alternative to the standby power generators, which will be evaluated in the future, will be to analyse a possible switched interconnection between the two incoming lines.

18.5 Underground Services and Infrastructure

The underground development completed over the past 3 years by AKTC totals approximately 3 km, mostly on the Sangdong level to the south, to access the FW zones and on the -1 Level on the north, in order to access the HW zone. A plan depicting these recent developments is shown in Figure 18-11.

Figure 18-11. Plan of As-Built AKTC Development

Actual Development shown up to End-Feb 2025

[Date: April, 2025, Source: A. Wheeler]

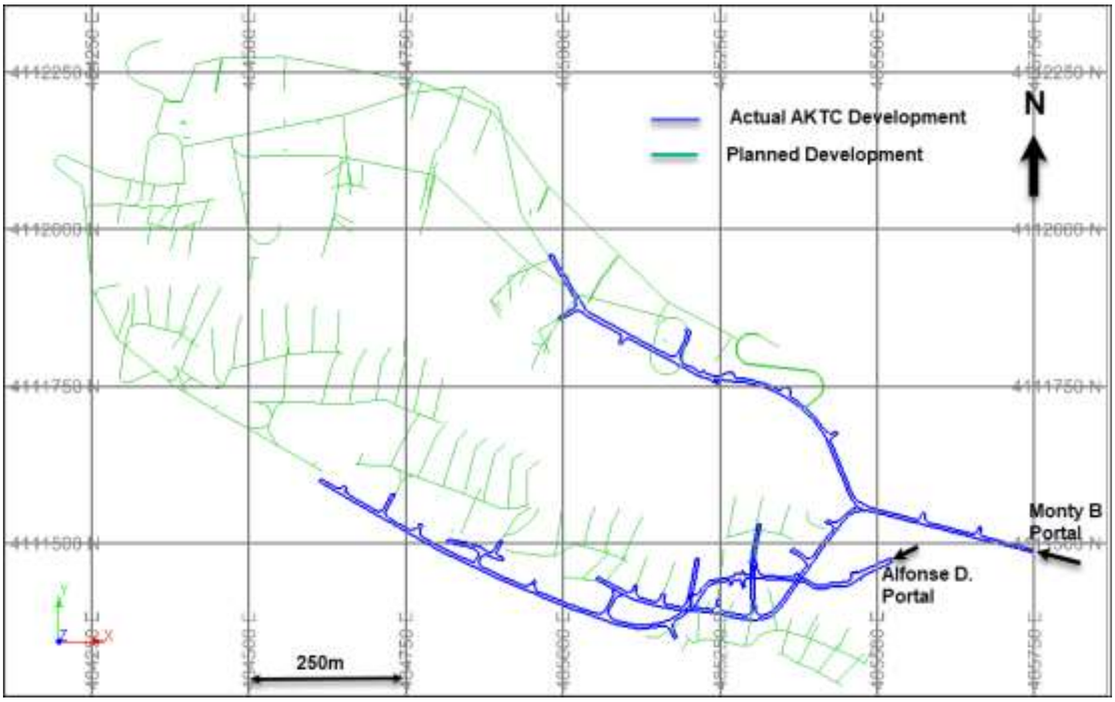


Figure 18-12. Drilling Operations in current Development Headings

The majority of underground infrastructure will be located in development on the Sangdong or -1 levels, as shown in Figure 16-29.

18.5.1 Rock Handling

In all stoping areas, trucks will be loaded with ore directly from the stopes by LHDs. Primary stope entrances have been configured to allow loading of trucks. The trucks will haul ore out of the ore zones directly to surface.

On surface, the underground haul trucks will haul ore to a crusher dump located at the processing plant. The dump will be equipped with a grizzly and rockbreaker, to size underground ore to minus 0.6 metres before crushing. Low grade ore (mineralization which must be mined as part of a stope, but is below the mining cut-off grade, but above the grade where revenue equals processing and general and administration costs) will be trucked on surface to a low grade stockpile for processing at the end of mine life, or when excess milling capacity is available.

Waste rock will be placed in mined out stopes or trucked to a surface waste rock stockpile for sale to construction companies.

18.5.2 Electrical Distribution

The supply to the mine will come from the KEPCO Yeongwol 22.9 Kv power supply line that reaches the SD terrace 4 MW 6.6 Kv transformer, (Figure 18-13). The surface distribution panel controls the power distribution to several areas at surface (Mine Office, Backfilling Plant, Ventilators, Batch Plant, Workshop, etc) and for the mine.

Figure 18-13. Transformer on Sangdong Terrace

The supply to the underground mine will be through 3 high voltage lines:

- .The Main East SD power line that supplies the Main East stopes in the SD level zone, plus the ramp that will give access to the upper levels in the FW/Main zone through a 400V transformer at that zone.
- The Sangdong Level power line enters in the mine through the Alphonse Portal. It goes along the SD level main gallery until the SD level main power distribution panel. This panel distributes the power in 6.6 Kv until the several transformers that feeds the individual stopes and main ventilators in underground.
- The Monty B power line goes in aerial until Sangdong N2 mine portal and then through that old gallery until the vertical shaft where there is a 400 V transformer that supplies the Main East stopes in -1 Level plus the future pumps (back up for water supply) and the ventilator at the vertical shaft mouth. The power line continues through the vertical shaft and along the -1 L HW base gallery to supply the stopes of that zone and the ongoing and future mine development faces.

Total meterage of HV power lines is approximately 2 Km. That network is a combination of buried, in tray and aerial systems on surface and supported on hangers along the mine drifts and ramps. Underground cables and substations fixed in mined "cubbies" will be protected, as required by mining law.

The old 0.9 MW (3 Kv) power line and all related infrastructure will be kept on stand-by.

18.5.3 Compressed Air

Compressed air will be supplied by individual mobile compressors, placed where necessary for shotcreting, ANFO charging or other necessary purposes.

18.5.4 Service Water

Service water consumption for drilling and other purposes (not including backfill water) in the mine is estimated to be 67,300 cubic metres per year. Water will be delivered in 102 mm HDPE pipes in the haulage drifts and 50 mm HDPE pipes in access drifts to stopes.

18.5.5 Mine Dewatering

Water flows out of the mine by gravity at the -1 level, via a tunnel/trench excavated from the Main zone old stopes floor elevation, shown in Figure 18-14. This drain is located near the bottom of the access ramp out to the mountainside, and can be seen in Figure 18-15.

Figure 18-14. Underground Drainage Gallery

Figure 18-15. Mine Drainage Exit

Initially, very little pumping will be required to keep the mining operations dewatered. During development of the ore haulage drifts, some pumping may be required to dewater the advancing faces. Water will be directed to sumps, and drainage holes will be drilled to the level below. All water will be collected on the -1 and Sangdong levels.

There is significant water flow in current excavations al year around but especially during the rainy season. Water inflow will be directed to the flooded portion of the mine, while dewatering of the flooded workings is taking place, and then diverted as much as possible when all workings have been dewatered.

It is planned to utilize the existing water from the levels above Sangdong. for process plant water. The water will be treated where necessary. Mine water will be pumped to the storage areas on the Sangdong level (for the underground stoping water), and to a surface process water pond for the processing plant. All water will need to be pumped out of the mine once working areas progress below the -1 level elevation.

Pumping out the flooded mine workings water will take place from -1 Level using the Vertical Shaft to the -14 Level. A submersible pump will be placed in the vertical shaft and water pumped out to the drainage gallery . As the pump descends during pumping, the pipeline in the shaft will be extended downwards. A total of approximately 400 metres of pipeline will be required to reach the bottom developed level, -8 Level.

18.5.6 Maintenance Shop

The maintenance shop will be the responsibility of the mine contracting company. Enough space for this purpose will be left in the surface infrastructure arrangement on the Sangdong terrace.

It will contain a wash bay and will be built at a 2% slope, with an integrated centre grated trench, to facilitate water flow towards a sump at the back of the wash bay.

The fuel is trucked in from the Sangdong gas station.

18.5.7 Meeting Rooms

After the development phase, the most convenient underground loading points will be adapted into meeting points.

The meeting rooms will be equipped with wooden benches and tables and those informal mine offices will be equipped with 4 workstations connected to the mine information management system.

18.5.8 Refuge Stations

Refuge stations will be located initially on the Sangdong, and -1 Levels of the mine. As the mine progresses, they will be transferred to the main operating levels. The refuge stations will be constructed in old excavations at suitable areas, or in loading points transformed for that purpose. The refuge stations walls and backs will be supported with 1.8 metre resin rebar installed on a 1.2 metre by 1.2 metre pattern.

The stations will have a door in a concrete wall at one end. A 1% sloped concrete floor (towards the entrance) will be poured in the refuge station to allow gravity drainage of water to a sump outside the refuge station. The refuge station will include a main area for the mine workers, containing wooden benches and tables for the crew, hand washing station and other equipment and supplies. The refuge station will be equipped with safety and rescue equipment such as a fire extinguisher, eyewash station, first aid kit, emergency food and drink rations and stretcher. Compressed air and water lines will be connected from the mines supply system to the inside of the refuge station. The refuge station will also be fitted with an electric heater unit and will be vented through intake and exhaust ventilation ducts to the outside.

During the mine development phase a Mine Arc refuge chamber of 6 persons (72h authonomy) was installed in the center of the zone with the bigger work load (presently Sangdong level).

18.5.9 Underground Magazines

Left-over explosives will be stored in an underground magazine, constructed in existing excavations on the Sangdong level. They will be stored in accordance with Korean regulations. Only holders of South Korean blasting licenses will supervise the transportation and initiation of explosives.

The current underground explosives magazine accomplishes all S. Korean regulations and is an old infrastructure from KTMC times that was reconditioned to fulfil the present regulations.

The Detonator magazine is located on the Sangdong Level.

Explosives and detonators will be transported directly to magazines. An explosion proof red light will be installed outside the magazine to indicate its location. The detonator magazines will also be equipped with sufficient auxiliary ventilation to remove any chemical fumes.

18.5.10 Mine Communications and Controls System

A newly developed Underground Communication System has been installed at the Sangdong Mine. It utilizes numerous cameras installed underground, along with the internet, to monitor the location of all underground workers. It also enables cellphone wireless communication between workers, management and technical personnel.

The system will also allow in the future:

- Filling of forms directly onto smartphones, for such things as machine control and authorisations, which are immediately shared on the management system.
- Operation of autonomous mining equipment, such as jumbos, LHDs and dump trucks.

18.5.11 Backfill Distribution

The paste backfill plant will be located on surface at the Sangdong elevation. All stopes will be backfilled.

Paste backfill will be delivered to the top of the stopes by the paste backfill pipelines. The backfill will be pumped from the backfill plant, on the Sangdong level terrace, in an 8 inch steel pipeline. This pipe will be API 5L X42 Schedule 80 and 40, grooved for Victaulic couplings, in 3 metre length pipes. The distribution line will initially go along the surface from the pastefill plant, to the Sangdong adit portal.

The pipeline will then enter through the Alfonse portal and then continue through the Sangdong base level gallery until the last stope access ramp of F2 and F3 mineralized structures. This backfilling line will also be used later also for the west part of the Main reserves. The PP-CAF stopes in the HW mineralized structure will be backfilled through a backfilling line that will descend to the -1 level through the east ramp and will go along the -1 HW base gallery until the PP_CAF stopes. The backfill line will enter the stopes through the access ramps to these stopes. The access to east zone of the main ore zone reserves will be through the east ramp between -1 and Sangdong levels.

18.5.12 Ventilation Shaft

The existing ventilation shaft, at the extreme west end of the mine, has two exit points: One is through a vertical shaft and the other is through an inclined shaft. These exit points on surface are shown in Figure 18-16.

Figure 18-16. Ventilation Shaft Surface Openings

[Left: Vertical Shaft Exit; Right: Inclined Shaft Exit – now covered]

18.6 Water Supply

18.6.1 Potable Water

The Project will require approximately 40,000 m^3 per year of potable water which will be supplied from the local town water supply. The site is already connected to the Sangdong town water supply.

18.6.2 Process Water

The process water supply will come from the local town water supply and meanwhile the full capacity is not accomplished, also from local water springs.

Clean service water for uses such as gland water for pumps, fire-fighting, cooling circuits, etc. will be supplied from town water and recycled water. The main losses of water will occur from water which is not recycled, dust suppression on site roads and evaporation.

18.6.3 Water Treatment

The underground water run-off has been tested exhaustively and accomplishes all discharge criteria.

With exception of the caudal that comes from Sangdong base galleries N1 and N2, that go to a sedimentation basin in Sangdong terrace, all remaining mine water comes from the drainage gallery. One small exception is a small caudal that runs off from Monty B mine mouth that after decantation, joins the water from the drainage gallery.

The overall conceptual water balance is shown in Figure 18-17. Water storage at the site will be designed for either water which is potentially chemically contaminated (e.g. process water) or waters which have a low potential of containing chemical contaminants (e.g. surface runoff).

Water collected on site will comprise run-off water from rainfall and snow, process water from the processing plant and contaminated potable water. The site water collection systems are designed to minimize the contact of run-off water with water used in mining, processing and associated activities. All water, except for diverted run-off water will be treated in a water treatment plant prior to re-use or release to the local environment.

Figure 18-17. Overall Conceptual Water Balance

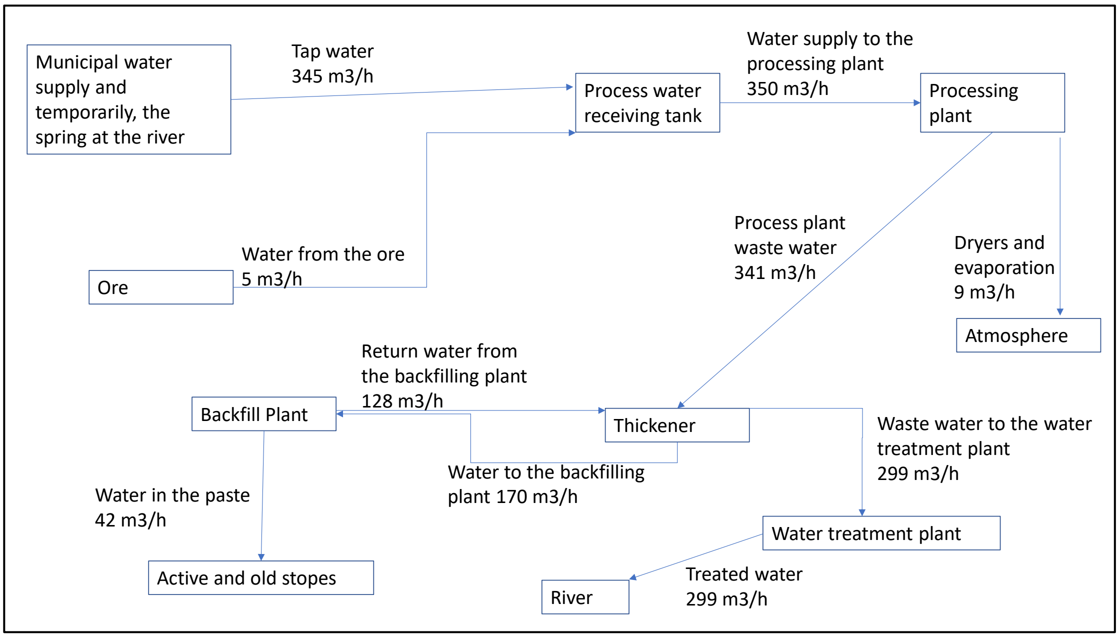
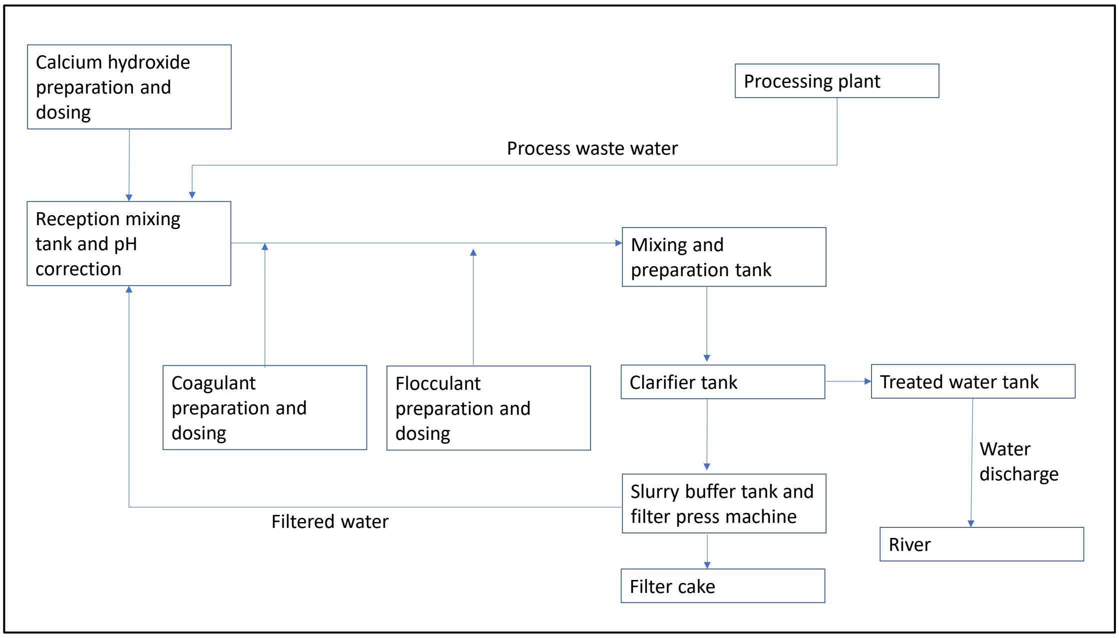


Figure 18-18. Flowsheet of Water Treatment Plant



Storm and snow melt runoff water will be diverted around the site, where possible, and directed to sediment ponds where suspended solids will settle out, before water is released. The sediment ponds and dams will be located downstream of all infrastructure. Each sediment pond will comprise a small embankment with a water decant system to drain water after the water sediment load has achieved acceptable standards. Each sediment pond will also have an overflow spillway to safely pass large storms that exceed the capacity of the reservoir.

Adjacent to the processing plant will be the process water pond which will store return water pumped from the tailings management area, the underground mine dewatering programme, ROM rock storage pad pond(s) and other minor water sumps around the site. This pond will be lined with a single 1.0mm HDPE liner. This pond will also supply firefighting water for the processing plant.

19 MARKET STUDIES AND CONTRACTS

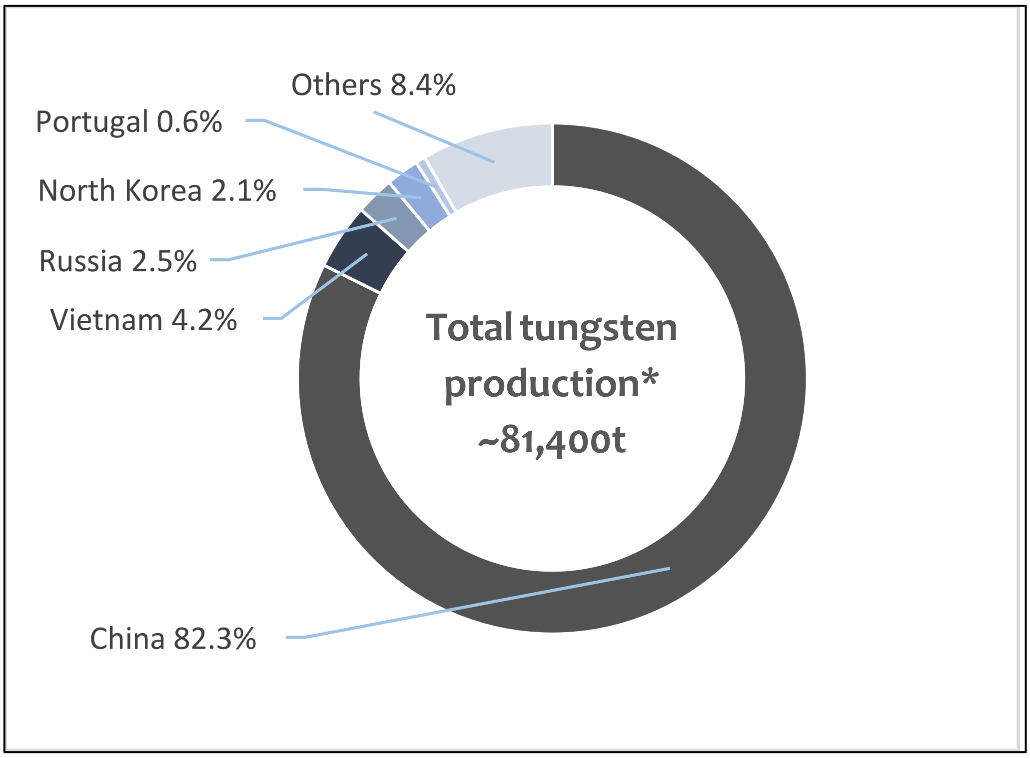
19.1 Global Primary Tungsten Production Overview

A chart depicting the 2024 global tungsten production is shown in Figure 19-1.

Figure 19-1. Estimated Mine Production 2024

[Quantities relate to metallic tungsten (W). For conversion, 79.3% of WO_3 contains W.]

[Source: U.S. Geological Survey, Mineral Commodity Summaries, January 2025]



According to publicly available data, global primary tungsten mine production is estimated at approximately 81,000 tonnes for the year 2024, compared to an estimated 79,500 tonnes in 2023. The majority of global supply is sourced from a limited number of countries, with the People's Republic of China remaining the dominant producer. Chinese mine production is estimated at 67,000 tonnes in 2024, representing over 80% of global output. Global production figures are shown in Table 19-1.

Other significant producing countries include Vietnam and the Russian Federation, with estimated 2024 production volumes of approximately 3,400 tonnes and 2,000 tonnes, respectively. Together, these three jurisdictions account for the majority of global primary tungsten supply.

Additional contributions are reported from Bolivia, North Korea, Austria, Rwanda, Spain, Portugal, and Australia, with individual country production ranging from several hundred to approximately 1,600 metric tonnes annually. The United States is not currently engaged in primary tungsten mine production.

This production data reflects reported or estimated mine output and does not account for potential contributions from recycled or secondary tungsten sources. All figures are subject to revision based on updated reporting by relevant national or international agencies.

Table 19-1. Global Tungsten Production 2023-204

[All number shown in tonnes]

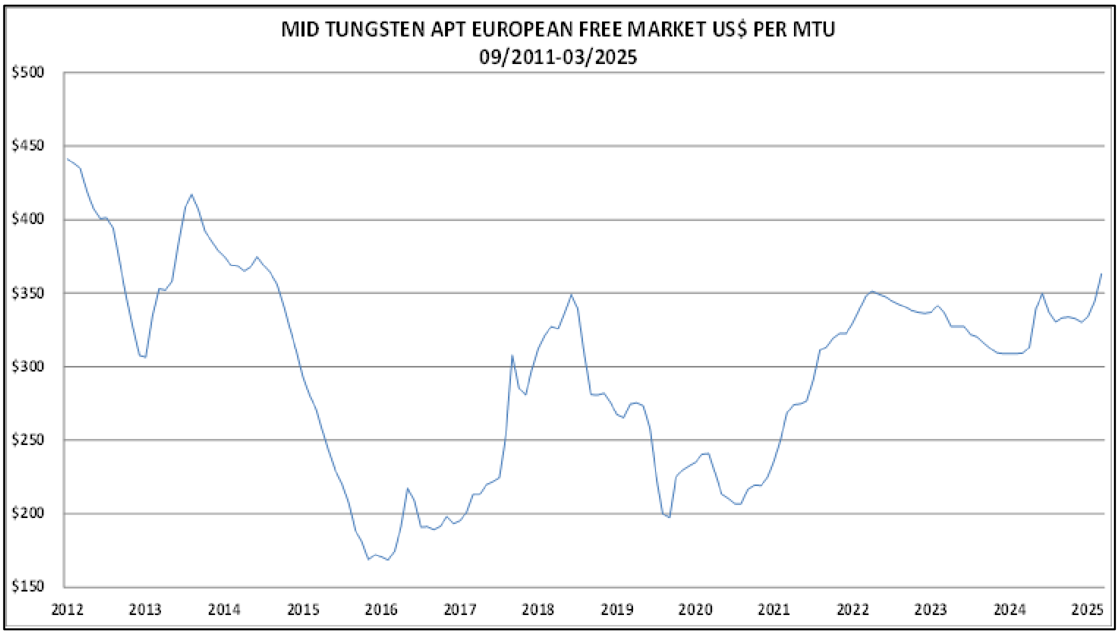
	Mine production[e]	
	2023	2024
United States	—	—
Australia	430	1,000
Austria	850	800
Bolivia	1,500	1,600
China	66,000	67,000
Korea, North	1,600	1,700
Portugal	450	500
Russia	2,000	2,000
Rwanda	1,200	1,200
Spain	650	700
Vietnam	3,500	3,400
Other countries	1,320	1,500
World total (rounded)	79,500	81,000

19.2 Tungsten Price – History & Forecast

Tungsten prices over the last 13 years are depicted in Table 19-2.

Table 19-2. Historic Monthly APT prices, September 2011 to March 2025

[Y-axis: APT Price in USD per MTU]



Ammonium Paratungstate (APT) is the primary intermediate product used as a benchmark for tungsten pricing in the global market. Based on data published by independent price reporting agencies including Argus Media and Fastmarkets (formerly London Metal Bulletin, LMB), APT prices have experienced significant volatility over the past decade.

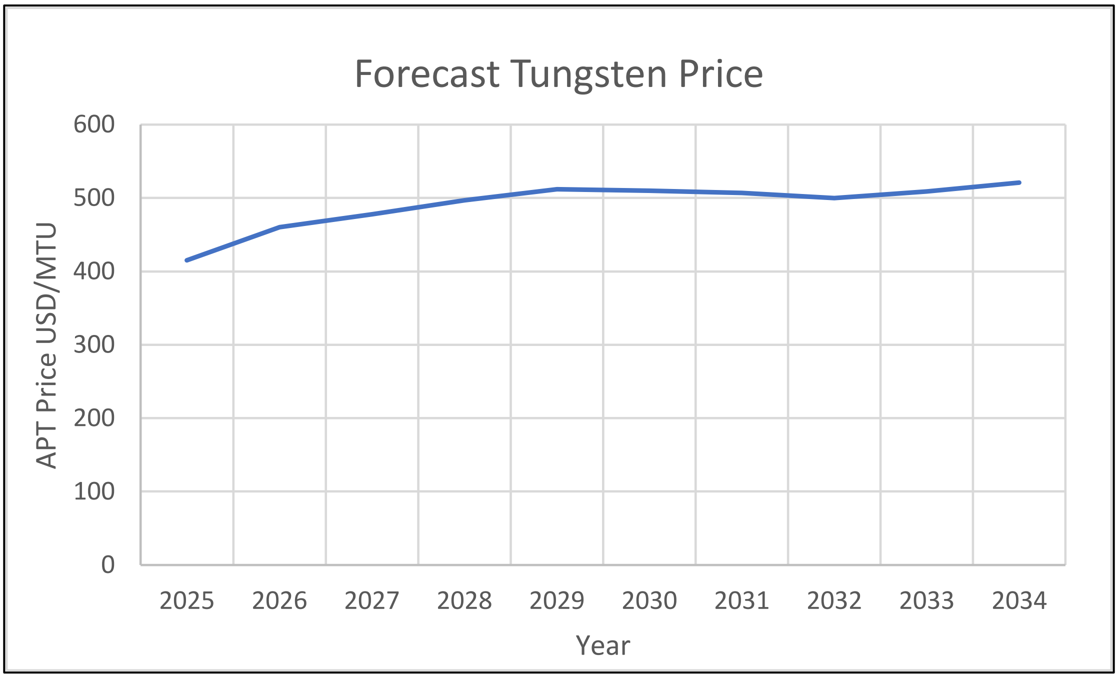
In 2012, APT prices were reported above US$430 per metric ton unit (MTU), followed by a decline to approximately US$300/MTU in 2013. A brief recovery in 2014 brought prices above US$400/MTU, but this was followed by a multi-year downturn, with prices reaching a low of approximately US$175/MTU by early 2016.
Between 2016 and 2018, APT prices increased steadily to around US$350/MTU, supported by improved market conditions. A subsequent decline occurred in 2019 and 2020, with prices falling below US$220/MTU. From 2021 onward, pricing began to recover, reaching approximately US$360/MTU by mid-2022.

Throughout 2023 and 2024, APT prices remained relatively stable within the range of US$330–US$360/MTU, followed by a moderate increase in early 2025 to levels above US$360/MTU.
These price trends are based on published data from Argus APT and LMB APT, which the Qualified Person has reviewed but not independently verified. Historical pricing is provided for contextual purposes and does not represent a forecast.

Forecasted prices for Ammonium Paratungstate (APT), a key reference product for the tungsten market, have been published by Merchant Research & Consulting (MRC) and provide an indicative outlook on global APT pricing trends through 2034. According to MRC, APT prices are projected to increase from US$415/MTU in 2025 to US$521/MTU by 2034, representing a gradual upward trend over the forecast period, as depicted in Figure 19-2.

Figure 19-2. Forecast Tungsten Prices

[APT Price in USD/ MTU; Source: Merchant Research & Consulting (MRC)]



These forecast values were obtained from a proprietary market study by Merchant Research & Consulting (MRC). The Qualified Person has reviewed the information as part of the preparation of this report, but the source is not publicly accessible and may require a commercial subscription or license for full access.

The QP considers the MRC forecast reasonable for use in the context of this report and notes that the forecast aligns with broader market expectations of continued tight supply and growing demand for tungsten-based products. However, the QP has not independently verified the forecast methodology used by MRC. The Qualified Person confirms that the results of the MRC forecast support the assumptions used in the mine plan summarized in Table 22-6 of this Technical Report.

According to Merchant Research & Consulting (MRC), global tungsten demand is projected to increase from 91,970 tonnes in 2025 to 126,400 tonnes by 2034, with annual growth rates ranging from 3.1% to 3.9%. Over the same period, global mine production is forecast to rise from 86,400 tonnes to 126,700 tonnes, reflecting steady capacity increases. A supply deficit is expected in the near term, with demand exceeding production by approximately 5,570 tonnes in 2025 and 2,330 tonnes in 2026, before the market rebalances around 2029 and shows slight annual surpluses thereafter.

APT prices are forecast to rise from US$415/MTU in 2025 to US$521/MTU by 2034, supported by increasing industrial demand and tightening short-term supply. These projections are based on data from MRC, which have been reviewed by the Qualified Person.

From this information, in the current study the assumed long-term average base case APT prices are USD 500/MTU WO_3 for resource estimation purposes and USD 450/MTU WO_3 for reserve estimation purposes.

19.3 Offtake Agreement

Almonty has entered into a long-term offtake agreement with Global Tungsten & Powders Corp. ("GTP"), a U.S.-based tungsten processing company. The agreement has a term of 15 years and , where market prices drop below a certain floor, GTP must pay a support premium to ensure AKTC's pricing does not fall below the baseline of US$183 per MTU of tungsten concentrate payable. This baseline corresponds to an APT reference price of US$235 per MTU. Under the terms of the agreement, Almonty will supply tungsten concentrate grading approximately 65% WO_3, which will be delivered to GTP's processing facility located in Pennsylvania, United States.

The GTP offtake agreement represents a significant long-term commercial arrangement for the Sangdong Mine. In the view of the Qualified Person, the agreement provides pricing stability through a floor price mechanism, while allowing for full participation in upside market pricing. The contract structure offers downside protection over a 15-year term without imposing a cap on sales prices, which contributes to supporting the long-term viability of the Sangdong Mine under a range of tungsten market conditions. While the Qualified Person is not commenting on the relative scale of this agreement compared to other tungsten contracts, the volume and duration are considered substantial within the industry context, and consistent with the mine plan and development strategy.

20 ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL IMPACT

In 2011 Woulfe initiated environmental baseline studies for the project including water sources and quality, climate, flora and fauna, air quality, noise, heritage, land use and water quality.

As well as providing information for the Feasibility Study the studies provided the comprehensive environmental information required in preparing the Environmental Impact Assessment (EIA) Report.

The proposed operations (i.e. preferred alternatives) were selected based on technical and economic viability, as well as minimisation of potential environmental and social impacts.

20.1 Environmental Baseline Studies

20.1.1 Surface Water

Several permanent streams run thoughout the site. These streams drain to Okdong Creek, which flows through the town of Sangdong. The water is generally of good quality, based on the analytical results for “Living Environment” items (pH, biochemical oxygen demand, suspended solids, dissolved oxygen). Water quality is classified as first grade at all sampling points except at one site where results for pH and suspended solids exceed the standards.

However, analytical results for total coliforms (an indicator of potential human and animal waste present in water) were high 10-22,000 total coliforms/100ml. In accordance with these results, water quality is classified as fourth grade for the “Living Environment” standards. It is assumed that slash-and-burn-fields around the stream contribute substantially to total coliforms concentrations.

Strategies to prevent degradation of the surface waters of the Project site include:

- sediment settling dams to reduce the volume of sediment, derived from mined and disturbed land, from entering the natural river systems of the area;
- storm water will be diverted around mining operations as much as practicable, and where contact occurs with disturbed areas, water will be collected, monitored, and treated as appropriate;
- all spills of chemicals or fuels will be cleaned up immediately and contaminated areas remediated in accordance with the relevant guidelines and standards;
- any potentially acid forming material will be blended or encapsulated in the waste rock storage facility to prevent possible contamination.

20.1.2 Groundwater

Groundwater is expressed as springs where there is contact between the limestone and either skarn or shale. For example, there are three springs, near the old mine buildings where there is a limestone outcrop with a strike of approximately 300° and a dip of 80° north. Elsewhere to the west of the site, springs occur where there is contact between limestone and shale. Flows from the springs are in the order of 2 to 20l/s.

Ground water varied in quality. Total coliforms were above the established quality criteria. Nitrates were also found in concentrations above the Korean drinking water standards. Exhaustive testing for arsenic in water during 2014 was performed and concentrations were found to be well within those for Korean drinking water standards. Elevated nitrate concentrations are likely to be a result of the application of nitrogenous fertilisers both for forestry and agriculture, while the heavily mineralised region around Sangdong will lead to elevated concentrations of arsenic in ground waters.

Potential groundwater quality impacts from Project activities may include contamination of groundwater by process water spillage and chemical spills on site. Based upon a review of the water quality of the existing tailings dams, leachate from tails is expected to be of good quality. It should be noted that Sangdong does not own or have any liability for the old tailings dams.

Mitigation strategies to minimise impacts on groundwater include:

- monitoring of groundwater levels and quality at springs/established bores around infrastructure areas and the waste rock storage facility to determine background water quality and any change in quality that may be due to the Project operations;
- clean-up of any process water or chemical spills immediately;
- all areas will be bunded to prevent any spills within the plant.

20.1.3 Flora and Fauna

Two flora and fauna surveys were completed in the spring and summer of 2007. One hundred and eighty three species of fauna were identified. No endangered or endemic species were found.

A total of 73 families, 165 genus, 183 species, 30 varieties, and 3 forma were identified from the site investigation in the project area and surrounding area. No endangered species and endemic species designated by Ministry of Environment (MOE) or protection species were found.

Eleven mammal species were identified including mice, rats, and wild cats. A total of 5 orders, 10 families, and 11 species of mammals were confirmed through direct field investigation and the survey questionnaire. Footprints and excrement of elk were found in several spots in the investigation area. The presence of elk in the project area was also confirmed through the survey questionnaire.

The Serbian weasel and the racoon dog in addition to two species of deer were identified. Feral goats, mice and cats were also present. Wild boar, the Serbian chipmunk and the red squirrel were found across the site and surrounds.

No mammals of conservation significance or precious natural treasure as designated by the Ministry of Environment were observed on the Project Site during the survey periods. A combined total of 41 bird species and 218 individuals were recorded on the Project Site during the two surveys. The most frequently observed species of birds identified on site were the Vinous-throated Parrot Bill, a small granivorous (seed eating) bird which occurs from northern Vietnam to southern Manchuria, and occupies a wide range of habitats across its range. The Spot-billed Duck (Anas poecilorhyncha) was recorded in large numbers. Large numbers of magpies and egrets were also sighted across the site.

Three birds of conservation significance were recorded across the site. They were the Kestrel, Chinese Sparrow Hawk and the Common Buzzard. These species have become vulnerable as a result of habitat disturbance from changes in land use. As the footprint of the proposed development requires very little additional clearing or habitat disturbance it is not expected that the development will have any impacts on these regional species.

A total of 5 families, 6 genus and 11 species of amphibians were found. Bombina orientalis (toad) was the most frequently observed species. No amphibians of conservation significance or precious natural treasure as designated by the Ministry of Environment were observed on the Project Site during the survey periods.

A total of 4 families, 6 genus, and 10 species of reptiles were recorded. Eight species were confirmed from site investigation and two species were confirmed by use of a questionnaire survey. No reptiles of conservation significance and precious natural treasures as designated by the Ministry of Environment were observed on the Project Site during the surveys.

A total of 301 fish of 11 different species were collected during the first round of sampling. In the second round of sampling, 279 fish of 9 different species were collected. Nine species of fish were caught at a one site and 11 species were caught at the second site, none are protected. One hundred and forty two insect species were found, with one dead insect classified as an endangered species.

Based on this review, the flora and fauna are common in Korea. There were two natural monument and two endangered species found; however it is considered that mining impacts would not be significant on these species because of the underground nature of the mine and small surface disturbance.

A number of levels of conservation zones are designated in South Korea. A review of these conservation zones showed that these areas are a substantial distance from the mining tenure areas and will be not be impacted by the mining activities.

The land affected by the Project is not likely to become part of a protected area estate or subject to any treaty. In making this statement, consideration has been given to national parks, conservation parks, fish habitat areas, wilderness areas, aquatic reserves, national estates, world heritage listings and sites covered by international treaties or agreements (e.g. RAMSAR, KAMBA), and scientific reserves.

The Ecological Nature Maps for Korea were developed by the Ministry of Environment. Grade one areas are set aside for conservation and restoration of the natural environment whilst Grade two basically restricts development with small scale development approved for exceptional cases.

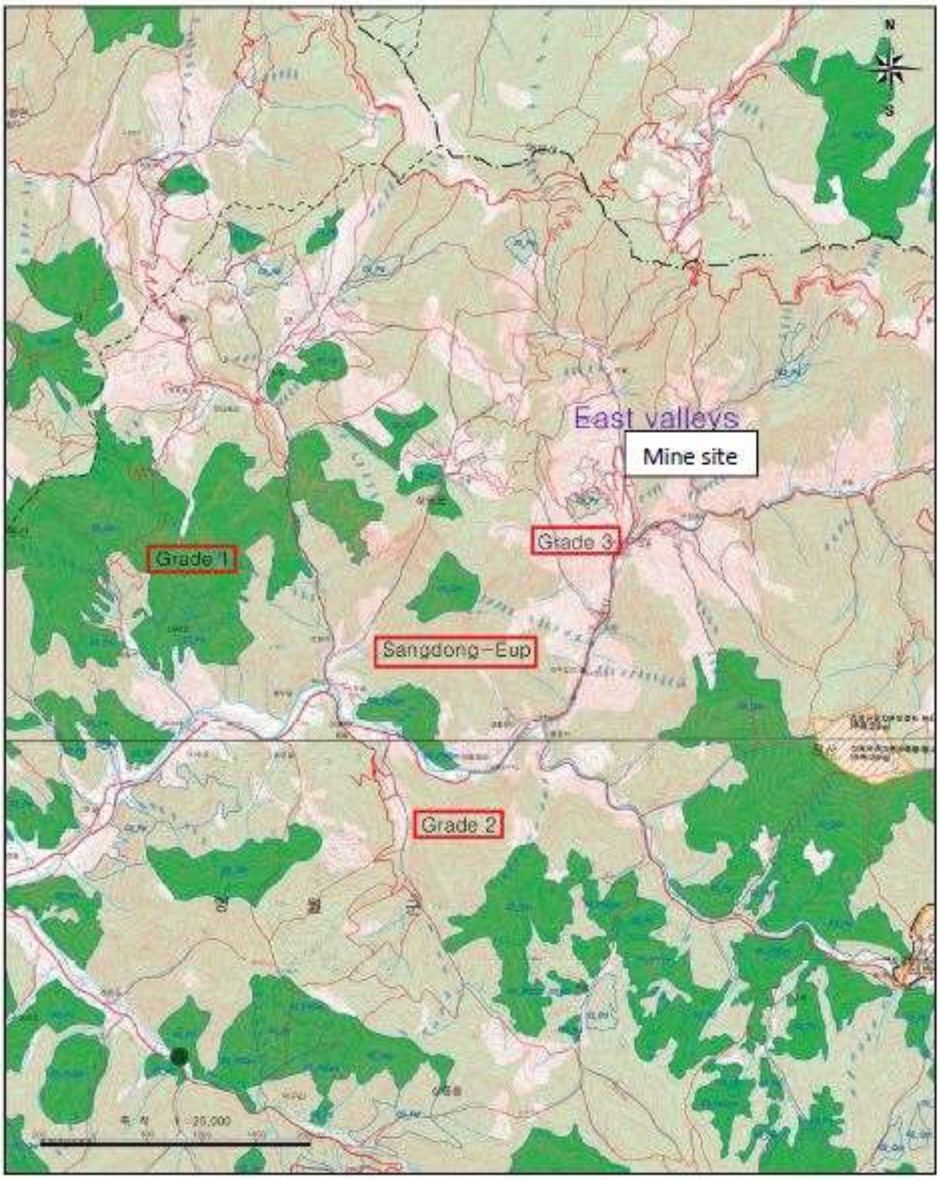
The different Grades are:

1st grade	Development is not permitted as a prior conservation area.
2nd grade	Basically restricts development, small scale development approved for exceptional case.
3rd grade	Conditional approval through the environmental review process.
4th grade	Environmental friendly development based on the demands for development.
5th grade	Planned usage with full consideration for environment.

These areas have been identified to the west of the mine site (Figure 20.1). The mine will have no impact on these or any other conservation areas.

Figure 20.1; Ecological Nature Map of the Area West of Sangdong Mine

[Date: 2025, Source: AKTC]



A number of levels of conservation zones are designated in South Korea. A review of these conservation zones showed that these areas were a substantial distance from the mining tenure areas and will not be impacted by the mining activities.

The nearest designated wildlife protection zone is located on Hwaam-Riin Dongmyun, Jeonseon-Gun,Kangwon-Dow which is more than 15kms from the project site. No impacts on these sites from the project are expected.

There are 30 designated ecosystem conservation areas in Korea. Among these are ten sites designated by the Ministry of Environment (MOE) and four sites designated by the Ministry of Marine Affairs and Fisheries. The remaining sixteen sites are designated by provincial and county entities. Keumdaebong in Daeduck Mountain, is designated as a rare wildlife habitat, and is located approximately 8 km from the project area. No impacts on these sites from the project are expected.

There is no protection zone for ecology and scenery in the project area.

There are no wetland protection areas in the vicinity of the Project.

Natural parks are classified either as national, provincial, or county natural parks. As of 2007 there were 20 national, 23 provincial, and 33 county natural parks in Korea. Taebaek Provincial Park is situated 8km from the Project site. No impacts on these sites are expected from the Project.

In summary, there are no areas requiring special protection or significant natural environmental resources or wildlife habitats in the area surrounding the Project site.

20.2 Air Quality

The area surrounding the proposed mine is predominantly forestry and agricultural land. The main sources of ambient dust in the region are likely to be due to grass seeds, pollens and wind erosion of exposed soil surfaces particular during tree harvesting.

Modelling of dust from the site originating from the waste rock storage facility, processing, and truck movements showed that dust increases were minimal in the community and will meet Korean air quality standards.

Air quality issues associated with this Project include:

- dust emissions associated with clearing vegetation, extracting and transporting small quantities of waste rock and ore, blasting and stockpiles;
- dust emissions associated with the transport of ore via conveyor and stockpiling;
- dust emissions associated with the crushing and milling processes at the ore processing plant;
- windblown dust from erosion of disturbed and cleared areas on the Project site.

Mitigation strategies to minimise impacts of air emissions include:

- truck watering operations;
- minimisation of vegetation disturbance;
- covers over conveyors and dust control as required.

20.3 Noise

Several households at Sangdong are considered to be sensitive receptors that may be impacted upon by mine operations. Households located adjacent to the road network had noise readings 12 to 15dBa higher than rural areas during the day and 6dBa higher at night.

Noise modelling of truck movements and the milling and processing activities showed a small increase in noise at the nearest community receptors, while still meeting Korean noise standards. The mountainous terrain surrounding the mine acts as a significant barrier to noise propagation, assisting in noise reduction from the site.

The following mitigation strategies will be adopted by the Project to minimise noise from operations:

- purchase mining equipment which favours noise reduction in the design;
- mine vehicles to be maintained in good condition to prevent unnecessary noise;
- maintain diesel generators, lights, and other equipment in proper working order to prevent unnecessary noise being emitted.

The following mitigation strategies will be adopted to minimise impacts from blasting on the Project:

- blasting will be underground;
- a blasting strategy will be maintained to meet vibration regulatory requirements.

20.4 Waste Material

The major sources of waste generation from the Project are:

- waste rock;
- tailings;
- process/storm water;
- solid and liquid wastes (e.g. waste oil, tyres, batteries and plastics).

A waste management plan was developed prior to the commencement of mining. The waste management strategy of the Project follows a four tiered waste management strategy according to practicalities and available markets, in preferential order:

- waste minimisation;
- waste reuse and/or recycling;
- waste treatments, and
- waste disposal.

20.5 Waste Rock

Waste rock material will be stacked in two waste rock stockpiles at the site. Over a 12-year period, 950,000 t of waste rock will be produced, the majority of which will be accumulated in the early phase of mining. There may be the opportunity to backfill waste in the historic underground workings and it is expected that a relevant portion may be used as a building material. The remaining waste rock will be stored on-site in two waste rock storage facilities: one next to the Sangdong Portal and the other in a small valley, approximately 300m to the south, as shown in Figure 17-1.

Some waste material from internal dilution control with UV lamp can be stored inside the mine in neighbouring active stopes and mixed with backfill. The pre-production amount of waste will be approximately 100,000 t, that will be stored in the secondary valley, as shown in Figure 20-1. This zone has a reduced thickness of topsoil and will require the transportation of topsoil from other zones in the final restoration of this area. The final waste dump planned at Sangdong Terrace in the same valley, but at a higher elevation, up to the Baegun level (Figure 17-1).

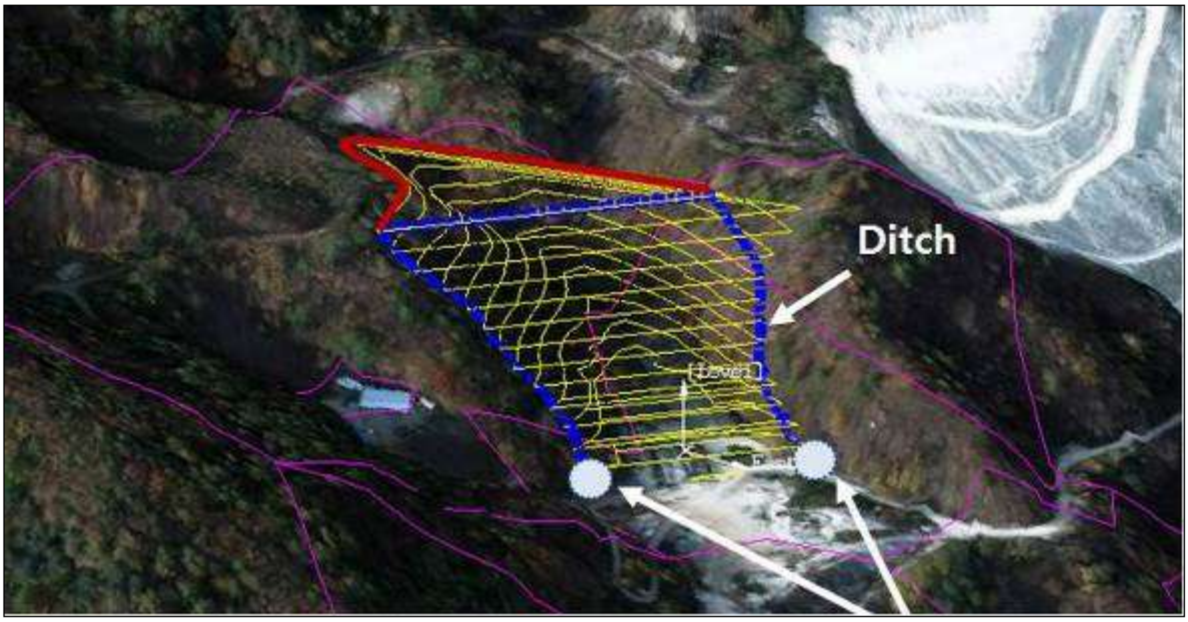
Sixty-eight waste rock samples were collected to determine the potential for acid rock drainage. The samples were sourced from core samples across the ore body and are representative of all profiles of all geological units encountered in the deposit.

Acid-base and net acid generation testing indicated that 61 samples were classified as non-acid forming and 7 of the samples were potentially acid forming.

The results of the waste rock assessment indicate the proportion of material which will be potentially acid forming is relatively small at approximately 10% of the total waste volume.

Historically, there has been no acid rock drainage from the existing well vegetated waste rock storage facility on site, or from the existing tailings dams. This trend is expected to continue. However, during operations continuing assessment of all waste rock will be conducted to confirm if any potentially acid forming material is present and if required, this material will be encapsulated to reduce the likelihood of acid rock drainage.

Figure 20-1. Maximum Coverage of Waste Dump on Sangdong Terrace



20.6 Cultural Resources

A cultural property survey was conducted during July 2007 by ERM.

According to previous investigations undertaken for a cultural property survey, no state designated cultural properties exist in Sangdong-eup area.

Five historical sites were reviewed according to the Cultural Asset Map Book. Of these sites, two were natural caves, one is a historical temple ruin, one is a significant fossil discovery, and one is a Monument of Loyalty and Filial Piety. All are described below:

- Geukgol Cave – shut to public a few years earlier and not accessible;
- Beophwasa Temple Site – now used as a cabbage patch, remains have been excavated here including some pottery;
- Bat Cave – close to the mining site, no products come from this cave and it was inaccessible due to overgrowth and high water levels. It is said bats are found in the cave;
- Palaeozoic Cephalopod – fossil found 35km from the mine site;
- Monument of Loyalty and Filial Piety – 5 km southwest of the mine site.

20.7 Environmental Management and Monitoring

Project operations will be in accordance with an International Organization for Standardisation (ISO) 14001 compliant environmental management system.

Environmental monitoring of various aspects of the Project including rehabilitation success, surface water quality, groundwater quality, dust deposition, and noise will occur in accordance with the Korean Environmental Authority requirements. Requirements and plans for waste and tailings disposal, site monitoring, and water management both during operations and post mine closure will also be specified and implemented.

Environmental management plans will be developed to address the environmental requirements for monitoring the management of wastes both during operations and post mine closure including:

- solid waste from the site; and
- potential acid rock material and storage in the waste rock storage facility and tailings disposal underground with particular emphasis on leachate water quality monitoring and management.

Water quality monitoring will be undertaken to meet relevant statutory guidelines for ecological and drinking water quality. Water quality monitoring will include:

- surface water quality at established baseline sites upstream and downstream of the mine site;
- ground water quality and depth at established baseline sites upstream and downstream of the mine site; and
- surface water flows at selected springs adjacent to the mine site at established baseline sites.

Monitoring of noise and dust will be undertaken at baseline sites within the community on a regular basis.

20.8 Social Environment

The town of Sangdong is located 2km from the mine site. The population of the town is approximately 500 people. Sangdong was once a regional centre for the district’s agricultural and mining industries, when the mine was operable, with mining supporting 40,000 inhabitants (thereby acquiring the title Sangdong-eup).

Sangdong has elementary and high schools, supermarkets, shops, service station, post office, police station, fire station, bank agency, snow clearing centre, community centre, churches, restaurants road and transport links. It is planned to house the 95 AKTC full time employees in the town and the surrounding region, except for staff who will live in a camp on site.

A community consultation programme was undertaken and included discussions with landholders, government departments, and other stakeholders. There is overwhelming favourable support for the mine from the community.

20.9 Economic Environment

The economic flow-on benefits to Sangdong and the towns and cities of the county include increases in the following service industries:

- fuel supply and transport;
- supply and transport services for mining supplies, reagents, and machinery;
- light vehicle servicing;
- bus and air services;
- training and personnel management services;
- plant maintenance and fabrication services;
- hospitality, accommodation, and domestic supplies.

The Project currently has a maximum of 300 people working during the construction phase, reducing to approximately 200 people during operations, as shown in Table 20-1.

Table 20-1. Planned Manpower During Mine Production

		Workers	
G&A	AKTC	27	
Mine	AKTC	32	
	Contractor	106	
Plant	AKTC	36	
		201	Total

The number of current AKTC employees is shown in Table 20-2. Of these, 8 are working in Seoul and 43 in the Sangdong area.

Table 20-2. Number of Current AKTC Employees

Office	Mine and Plant	Total
20	41	61

The flow-on benefits in terms of employment vary between three to four people for each permanent employee, so the direct employment benefits are in the order of another 600 - 800 people.

During the initial phase, the mine concentrate product will be transported by road to one of the neighbouring harbours for export to the USA and potentially a few years later, to a newly built Tungsten Oxide plant which will be located 22 km from the mine.

The local county and Sangdong regions have predominantly elderly populations, which in general are declining. The re-opening of the mine will provide a number of employment opportunities for both unskilled and skilled trades, with resulting economic benefits locally, regionally and nationally.

20.10 Relevant Legislation and Policy Requirements

Legislation identified as affecting the Sangdong project is summarised below:

20.10.1 Clean Air Conservation Act No.20852, Mar 25,2025

The purpose of the Act is to prevent air pollution which causes harm to people and the environment and manage and preserve the atmospheric environment in a proper and sustainable manner, thereby enabling all people to live in a healthy and comfortable environment. The dust emissions from the mine operations comply with guidelines established under this Act for a rural area and will not have any significant detrimental effects on surrounding air quality.

20.10.2 Water Quality and Ecosystem Conservation Act, No. 20116, Jan 23, 2024

The purpose of the Act is to prevent harm to citizens' health and environmental hazards due to water pollution and to appropriately manage and conserve the water environments of public waters, including rivers, lakes and marshes, to enable citizens to enjoy benefits accruing from such endeavours, and to leave such benefits to future generations. The mine project is consistent with this purpose in that there will be no untreated waste water discharged to the natural environment, best practice storm water management techniques will be used and water recycling will take where possible.

20.10.3 Noise and Vibration Control Act, No. 19468, Jun. 13, 2023

The purpose of the Act is to enable all citizens to live in a calm and tranquil environment by preventing any damage due to noises and vibrations generated in factories, construction work fields, roads, railroads, etc. and by properly controlling such noise and vibration. Analysis of the noise impacts of the mine operation on the rural community has shown it will comply with the guidelines developed under the Act.

20.10.4 Wastes Control Act No. 8789, No. 20859, Mar. 25, 2025

The purpose of the Act is to contribute to environmental conservation and the enhancement of people's quality of life by reducing the generation of wastes to the maximum extent possible and treating generated wastes in an environment-friendly manner. It does so by establishing a preferred waste management hierarchy and various principles as the basis for waste management. The waste control hierarchy moves from the most preferred – waste avoidance, to re-use, recycling and energy receiver, through to waste disposal, the least preferred. The mine generates a significant waste tailings stream which is to be disposed of in underground voids. All other wastes are generally of much smaller nature and will be recycled where possible.

20.10.5 Soil Environment Conservation Act, No. 19090, Dec 13, 2022

The purpose of this Act is to prevent any risk to public health and the environment to be caused by soil contamination, to conserve the soil ecosystem by properly maintaining and conserving soil including remediation, etc. of contaminated soil, to enhance the value of soil as a resource, and to enable all citizens to live in a healthy and comfortable environment. The mine will capture all contaminated material and restore as per the Act. Rehabilitation as part of the mine closure plan will also focus on restoring any contaminated land.

20.10.6 Natural Environment Conservation Act, No.20821, Mar 18, 2025

The purpose of the Act is to seek sustainable utilisation of the natural environment and to allow people to lead a leisurely and healthy life in a comfortable natural environment by systematically conserving and managing the natural environment, such as protection of the natural environment from artificial damage, conservation of the ecosystem, natural scenery, etc. The mine plan has recognised these values and will be managed to meet the purpose of the Act.

Other relevant acts are:

- Act on the Promotion of Saving and Recycling of Resources, No. 19311, March 28, 2023;
- Framework Act on Environmental Policy, Act No. 20626, Dec 31, 2024;
- Management of Drinking Water Act, No. 20332, Feb 20, 2024;
- Natural Environment Conservation Act, No. 20821, Mar 18, 2025

20.11 Project Permitting Requirements and Status of Permit Applications

A number of permits have been granted. These include approvals for:

- Exclusive use of a mountain area. The period of the mountain area temporary use permit and the lease period of the Yeongwol County land have been continuously extended and currently expire at the end of December 2025. AKTC plans to apply for an extension of the mountain area temporary use permit and the lease period of the Yeongwol County land by about 3 years around the fourth quarter of 2025.

- The term of AKTC's mining plan is related to the Temporary use period of a mountain area. AKTC has continuously extended the use of a mountain area , which currently expires December 31, 2025. AKTC will keep extending the term of the permit for the temporaryuse of a mountain area as required.

- Approval for construction of an installation for a mining facility, to build the Sangdong adit, on July 09 2011, by the Eastern Mining Safety Office.

- Approval for construction of an installation for a mining facility, to build the Alfonse (Woulfe) adit, on Nov. 13 2012, by the Eastern Mining Safety Office.

- Approval for construction of and installation for a mining facility, to build Taebaek and Baegun adits, on Sep. 29 2014, by the Eastern Mining Safety Office.

- Approval for construction of and installation for a mining facility, to build Monty B adit, on July 20 2018, by the Eastern Mining Safety Office and received approval for the change on Sep. 25 2020.

- Approval for construction of and installation for a mining facility, to install the crushing facilities, on Aug 07 2024, by the Eastern Mining Safety Office.

- Approval for construction of and installation for a mining facility, to install the flotation facilities, on Aug 08 2024, by the Eastern Mining Safety Office.

The following permits/approvals will be required for construction:

Permits related to construction are summarised in Table 20-3.

Table 20-3. Summary of Construction Permits

[YWC = Yeongwol County; EMSO = Eastern Mine Safety Office]

Permits	Status	Note
Long term land lease or land purchase	Purchased plant site land Leased mine site land	YWC
Approval of the building construction of the processing plant	Obtained building permit	YWC
Approval of the measures to protect the national heritage in the manufacturing site	Confirmed no national heritage	YWC
Approval of the construction of a manufacturing facility.	Approved for installation of mining facility	EMSO
Approval of the development activities	Obtained permit	YWC
Approval of the conversion of Mt. district	Obtained permit	YWC
Approval of riverside road occupancy	Obtained permit	YWC
Preliminary research on the impact of potential disaster	Completed	YWC
Deliberation by urban planning committee	Completed	YWC
Approval/report on discharging facilities installation (air, water, noise)	HSSET in progress	YWC
Prior report on specified construction works	Report completed	YWC

20.12 Sangdong Community Relations

The relationship between Almonty Korea and the Sangdong community is strong. AKTC has been an active member of the Sangdong community since 2009. Because of these strong local connections, public consultation has been undertaken both informally and formally, particularly with the local Sangdong Township and Yeongwol County. Again because many members of the workforce are locally based, there is a high degree of awareness and anticipation of the project coming to fruition.

The site manager has strong contacts within the Sangdong community and site visits are encouraged for local community members. There has been widespread support for the project to date. There has been good local consultation with government staff related to day to day issues with the exploration programme at the AKTC tungsten project. The relationship with the surrounding land holders is good.

Discussions between AKTC and the Town are extremely positive, particularly in view of the fact, that the operation will be community based and the mine can help support and improve local services. This strategy by AKTC supports Sangdong Town and Yeongwol County in establishing long-term regional development plans, with a focus on reversing population decline, increasing employment opportunities, revitalizing the local economy, and providing appropriate support services.

In order to promote co-prosperity with the local community and implement sustainable ESG management, AKTC is holding regular public information sessions in Sangdong throughout the mine development planning process. These sessions are intended to enhance the local residents' understanding of the project and serve as a channel for continuous communication. To foster long-term relationships, AKTC has signed a memorandum of understanding (MOU) with high schools in the Yeongwol area to provide employment opportunities for graduates. In addition, AKTC has been actively engaged in various community activities, including providing annual financial support for the Sangdong High School baseball team, which was established to prevent the school’s closure. Through these efforts, AKTC continues to build a united and harmonious relationship with the Sangdong community.

20.13 Closure Plan

The following rehabilitation procedures will be implemented for each disturbance area.

20.13.1 Contouring

The preparation of disturbed areas prior to the establishment of vegetation will involve surface contouring to minimise erosion and maximise beneficial land use.

20.13.2 Ripping

Following surface contouring, ripping of the surface is required. The design criteria for ripping operations are detailed in Table 20-1. The spacing between rip lines which acts to reduce soil erosion and increase plant establishment rates, is determined by the slope of the land. Where soils are particularly compacted, a more suitable ripping depth of 300mm would be employed.

Table 20-1 Design of Ripping Operations for Post-disturbance Surface Preparation

Slope	Ripping Depth*	Rip Line Spacing
>10%	200mm	<1.5m
5-10%	200mm	<2.5m
<5%	200mm	<5.0m

**Soils which are severely compacted are to be ripped to a depth of 300mm.*

20.13.3 Topsoil Management

All clearing will be conducted in accordance with AKTC's Permit to Clear procedure. Construction activities will be limited to designated construction areas unless approved by AKTC's General Manager. The total area to be cleared will be restricted to the minimal area required. Prior to clearing, the boundary of the area authorised to be cleared will be identified and clearly marked to ensure construction vehicles do not impact on adjacent undisturbed areas. Prior to clearing, a clearing pattern will be determined that will allow fauna adequate opportunity for dispersal into adjacent habitats.

Cleared vegetation will be pushed into a series of windrows within the disturbed areas and generally chipped for reuse. Vegetation identified as potentially valuable habitat e.g. hollow logs may be stockpiled for use in erosion and sediment control works or on site rehabilitation.

Topsoil clearing up to 300mm (terrain allowing) is encouraged. The top 50-100mm of soil contains the seed bank and is generally higher in organic matter, microbial activity and nutrient content. The subsoil located below the topsoil is a source of bulk growth material; whilst not as biologically active as topsoil, combined with seeding it is suitable as a topsoil alternative.

The topsoil stockpiles will be no higher than 1.5 - 2m; clearly signposted in the field identified on a site plan. These soils low in organic matter, <1.5%, when stockpiled will need to be managed so that the loss of organic carbon is minimised.

20.13.4 Topsoil Spreading

Spreading of topsoil will be to an average depth of 0.2 – 0.3m. Erosion control measures will be implemented where required.

20.13.5 Re-vegetation Procedures

After appropriate surface preparation has occurred as outlined above, disturbed land will be revegetated as follows:

- Prepare area with fertilisers and other ameliorates, if required, based upon soil testing;
- Re-vegetation undertaken using a combination of direct and hand seeding;
- Species to be used in the re-vegetation program will be a mixture of endemic woody, herbaceous and grassy species in a ratio that reflects the existing natural species density;
- A weed management plan created to identify local weed species and control methods for implementation until wanted species re-vegetation is well established.

20.13.6 Rehabilitation Management of Individual Disturbance Areas

The final landform design and method of rehabilitation for each type of disturbance associated with the Project is described below.

20.13.6.1 Waste Rock Dump

The waste rock dumps will be rehabilitated by leaving a berm of at least 10m between each lift once the dump faces have been dozed down to act as a water control structure preventing erosion of the lower waste dump face. Waste rock dumps will be progressively rehabilitated throughout the life of mine, as areas become available. The berm between the two lifts of the dump will be graded to slope back towards the dump to act as a water control structure for any storm water flowing off the lift above. The top of the waste rock dump will be graded towards the centre and a drain or bund installed back from the edge to prevent any overtopping of water from the top of the dump over the face of the dump. The slopes and top of the waste rock dumps will be covered with topsoil where possible and deep ripped. Native local grass and tree species, and an appropriate fertiliser if required, will be directly seeded on to the topsoil cover of the dump.

20.13.6.2 Water Dams and Sediment Ponds

Dams and sediment ponds across the site may be left for future use by the landholder.

20.13.6.3 Buildings and Infrastructure

The rehabilitation of building and infrastructure across the site will involve:

- Landholder discussions with regard to leaving structures to be left on-site including liability issues;
- Removal of buildings and building materials from site and disposal of waste materials in an appropriate licensed landfill; and
- Ripping, covering with topsoil, contouring and re-vegetation of these disturbed areas.

20.13.6.4 Roads

Roads will only remain at the request of the community. After decommissioning the haul roads will be deep-ripped to 0.3m, overlaid with topsoil, if available then seeded.

20.13.6.5 Waste Storage Areas

All recyclable/reusable materials (machinery, scrap metal, used drums, etc.) will be removed from the site by the recycling contractors or removed to the local landfill. The landfill areas on site will be covered, contoured and revegetated.

20.13.6.6 Exploration Areas

Dependent on site condition and surrounding landscape, it may be necessary to conduct earthworks to stabilise and reshape the site. The site should be rehabilitated to as near original condition after completion of drilling operations. Ground which has become compacted by the use of heavy machinery and traffic should be ripped along contour to loosen soil to aid revegetation and minimise erosion. As much as is possible of the earth and overburden that was excavated from the pads and benches should be pushed, raked or pulled back over. The stockpiled topsoil and vegetation should be re-spread over the site.

All sample bags and waste materials will be removed from site and disposed of in an appropriate manner.

The drill cuttings should be dispersed around the site or returned to the drill hole or sump.

Drill sumps should be backfilled with the excavated material and covered with stored topsoil. Tracks constructed to access the drill site should be rehabilitated as per haul roads.

20.13.7 Rehabilitation Schedule

All areas disturbed on the Project site will be subject to rehabilitation works that will, at the completion of the project, result in a stable vegetated landscape, supporting the preferred land use where possible and having minimal impact on the surrounding environment. Rehabilitation of the project site will be on a progressive basis as disturbed areas become available. Exploration areas will be rehabilitated on an ongoing basis if not part of the main mine activity.

20.13.8 Monitoring of Rehabilitation

20.13.8.1 Monitoring Standards

Monitoring for performance of rehabilitation of land resources and attainment of post-mining land suitability targets includes monitoring of the following:

- Compatibility with agreed post mining land use e.g. monitoring of trends of vegetation structure, richness and cover;
- Low risk to biota e.g. surface water quality meets water quality standards or appropriate mitigation in place to minimise risk;
- Contaminated areas to be removed or remediated;
- Revegetation monitoring will be conducted annually after commencement of rehabilitation. Should monitoring reveal that successful rehabilitation is not being achieved then maintenance will be performed to promote acceptable cover or to repair failed areas. If rehabilitation targets have been met for an agreed number of consecutive years, rehabilitation will be considered successful.

20.13.8.2 Monitoring Procedures

Monitoring of rehabilitation will be conducted in the following manner:

- A stable landform will be characterised by the lack erosion and presence of vegetation cover to be measured by visual interpretation and ground data;
- Monitoring of vegetation structure, richness and cover *via* aerial photographic data and fieldwork; and
- Existing drainage supports the post mining land use.

20.13.9 Final Rehabilitation Report

Prior to the surrender of the mining leases, a Final Rehabilitation Report will be compiled which involves a site investigation, risk assessment and a site management plan, as well as details regarding the rehabilitation status of all disturbed areas.

20.14 Requirements to Post Reclamation Bonds

Should forestry land be used, which is currently not the case, the use of forest land for the Project, would require the lodgement of surety bonds for asset retirement liability.

20.15 Remediation and Reclamation Requirements and Costs

The following rehabilitation principles will support mine closure at Sangdong. These include:

- the preparation of a decommissioning and rehabilitation plan within 12 months following the commencement of operations, with 3 yearly reviews;
- progressively rehabilitating the site as much as practicable in accordance with operational plans;
- preventing the introduction of noxious weeds and pests;
- reshaping disturbed land so that it is stable, adequately drained, and suitable for the desired long-term land use;
- minimising the long-term visual impacts where feasible and appropriate by creating landforms that are compatible with the surrounding landscape;
- minimising the potential for erosion by wind and water;
- re-vegetating the area with plant species consistent with the approved post operational land use;
- meeting all statutory, state, and county requirements;
- making the area safe by removal of all plant, machinery, structures, facilities and equipment from the site unless agreed otherwise with key stakeholders;
- environmentally sound waste disposal at the site including any radioactive material;
- monitoring and managing rehabilitated areas until the vegetation is self- sustaining and meets the requirements of the landowner or land manager, or until their management can be integrated into the management of the surrounding area.

A consultation and communication strategy will include:

- providing copies of a closure and rehabilitation plan to, and discussing it with key stakeholders;
- maintaining a line of communication with the key stakeholders by providing annual updates of Almonty Korea’s environmental and business plans, including rehabilitation plans and progress through the company website and annual reports;

- providing opportunities to comment on and provide input to the decommissioning and rehabilitation plan to be provided to relevant parties at least 12 months prior to closure of the operation.

The mine closure plan will focus on the following major environmental aspects:

- AMD minimisation
- portal and underground mine disestablishment
- groundwater contamination
- surface water management
- surface subsidence expression
- long term management and stability of the tailings dam
- effective environmental management or removal of all facilities
- recycling or reuse of usable assets
- identification and remediation of contaminated soils
- decontamination and rehabilitation of all utilised areas
- maintenance of site security for on-going term during rehabilitation
- maintenance of the site's weeds free status during the rehabilitation and validation periods
- consideration given to the local community for public access to farming and social activities in the region.

The costs of rehabilitation of the additional equipment, plant, and facilities associated with the SMP including the portal, underground workings, crushing, processing plant and associated facilities and miscellaneous site re-vegetation based on estimates of labour, plants seeds, etc., has been estimated at US$2,000,000.

20.16 Summary

All baseline environmental studies have been completed and no endangered species of flora or fauna identified, which could adversely affect development of the project.

All environmental approvals for project construction and operation have been successfully completed. Overall construction permits have already been granted. Permits and approvals as required to construct specific facilities will be applied for and received as a routine part of ongoing construction activities.

21 CAPITAL AND OPERATING COSTS

The cost estimates in the current study include:

- Mine development and rehabilitation, mining equipment mobile and fixed and associated consumables and maintenance parts for development and infrastructure.
- Direct costs of new equipment for the processing facilities.
- Project infrastructure equipment and materials.
- Construction materials
- Labour.
- Temporary buildings and services.
- Construction support services.
- Spare parts.
- Initial fills (inventory).
- Freight.
- Vendor Supervision.
- Owner's cost.
- Engineering, Procurement and Construction Management.
- Commissioning and start up.
- Contingency.

21.1 Direct Costs

Direct costs have been allocated as all costs associated with permanent facilities. These include mine development openings, equipment and material costs, as well as construction and installation costs.

Mine infrastructure costs are those associated with maintenance shops, mine dewatering, refuge stations, etc. Wherever possible, equipment and materials' quotes and contractor installation costs have been used.

Other major equipment expenditure estimates are based on quotes obtained from suppliers and installation costs estimated as part of this study.

During the pre-production and sustaining development periods, all materials and equipment pricing have been based on quotes obtained from local Republic of Korea suppliers or European and international suppliers, where Republic of Korea suppliers do not exist. Processing plant equipment pricing is based on the equipment list, specifications and process flow diagrams. Budgetary prices were obtained from Vendors of major equipment and in-house data was used from similar projects for items not quoted. Estimated costs for plate work were based on local data, associated with remaining equipment: tanks, bins and chutes. Costs for installation of equipment are based on unit man-hour requirements.

All major equipment expenditures include freight only. Applicable taxes and duties have not been included in the capital expenditure estimates.

Other direct costs are based on actual local costs:

- Earthwork / site work
- Concrete
- Structural steel
- Buildings and architectural
- Electrical
- Instrumentation and controls
- Piping.

Commodity pricing for earthwork, concrete, steel, architectural and piping were provided by local contractors based in The Republic of Korea. Labour rates and equipment usage rates used throughout the estimate were provided by the same source as the commodity prices. It was assumed that rock required for site preparation and the tailings will be provided at no cost during the preproduction stage. Only costs for placement have been allowed for in estimates.

Labour rates generally reflect industry-wide Republic of Korea and international levels for the types of work performed, and in some cases adjusted for locally applied rates. The mine labour costs are based on three types of estimates:

- Quoted contractor prices for undertaking the tasks associated with constructing a specific installation;
- Average industry rates a contractor would be expected to charge for performing specific tasks;
- Lateral and raise development rates, developed and based on expected productivity and labour, materials and equipment costs for such an underground development program.

All labour costs include local Republic of Korea government mandated contributions and the costs for company provided benefits.

21.2 Indirect Costs

The indirect costs cover all the costs associated with temporary construction facilities and services, construction support, freight, vendor representatives, spare parts, initial fills and inventory, Owner's costs, EPCM, commissioning and start-up assistance.

The costs for construction facilities include all temporary facilities, services and operation, site office operations, security buildings and services, construction warehousing and material management, construction power and utilities, site transportation, medical facilities and services, garbage collection and disposal, and surveying.

The costs for spare parts have been factored in, based on equipment costs where Vendors did not provide cost for spares needed for the first year of operations.

The estimated cost for initial fills of reagents is based on 3 months of operating requirements. Budget quotations were obtained for reagent pricing.

The freight costs were either provided by Vendors or estimated based on weights and typically include for containerised and break-bulk shipping, and each are respectively divided into ocean freight and inland freight. For imported equipment, the cost of freight and export packing, ex-works to a local port, is included with the cost of the equipment. Freight insurance is included in the Owner's cost.

The requirement for Vendor representatives to supervise the installation of equipment or to conduct a checkout of the equipment prior to start-up of the equipment as deemed necessary for equipment guarantees or warranties has been included in the estimate. Typically, the cost for this item is inclusive of salary and travel.

Taxes and duties have been excluded.

Engineering, Procurement and Construction Management (EPCM) costs have been calculated based on AKTC Project managing development and construction, using consultants for processing plant and some aspects of mining and infrastructure design.

21.3 Capital Exclusions

Capital expenditures estimates exclude:

- Sunk costs
- Taxes and Duties
- Deferred capital
- Financing and interest during construction
- Additional exploration drilling
- Escalation
- Corporate withholding taxes
- Legal costs
- Metallurgical testing costs
- Condemnation testing.

21.4 Capital Costs

The cost estimates are to Feasibility Study level accuracy. All expenditure estimates are in 2025 constant US Dollars. Costs derived from Republic of Korea Won (KRW) figures have been converted at a rate of USD 1 = KRW 1,467.

21.4.1 Capital Costs

All pre-production capital expenditures, up to the end of August 2025, are summarised in Table 21-1. Beyond August 2025, the major capital costs incurred are waste development costs, which have been determined from current contractor rates, which are summarised in Section 21.5.

Table 21-1. Summary of Pre-Production Capital Expenditure

	Actual					Forecast	
Component	**Pre-2022**	**2022**	**2023**	**2024**	**Jan25 - Feb 25**	**Mar25 - Aug25**	**Total**
Mine development and definition drilling	1,412	828	977	1,858	156	1,206	6,437
Mine infrastructure & Services	-	-	1,180	654	31	781	2,646
Processing plant Capex	6,501	12,138	9,301	10,822	2,927	7,455	49,145
Surface infrastructure & mobile equipment	-	-	659	653	-	14	1,326
Owners costs	2,204	2,191	7,531	8,625	1,734	4,084	26,369
Insurance	265	-	105	-	-	41	412
Backfill Plant	80	136	1,451	717	27	315	2,726
Pilot Plant	-	16	-	22	3	-	41
Totals	**10,462**	**15,309**	**21,204**	**23,351**	**4,879**	**13,895**	**89,101**

Notes

All figures expressed in '000 USD

In the current cashflow calculations, shown in Section 22, a 5% contingency has been added onto all capital expenditure after March 2025.

Mining

All mining development work has been and is being executed by local contractors, with some materials supplied by AKTC. Mine capital expenditures are primarily related to underground infrastructure, stope development and mine services. As existing development can be extensively utilized, the underground development costs are relatively low. The development costs are also lower due to the large number of mining contractors in South Korea and the competition between them.

Mine capital expenditures do not include closure expenses, as it is not expected the project to be restricted to the actual reserves. They also do not include the value(s) of existing assets.

Processing Plant

The processing plant capital expenditures are based on actual costs incurred as well as expected equipment costs from Metso (a major processing equipment supplier), who has provided all major processing equipment except for conveyors and thickeners. These capital estimates cover all remaining aspects of the processing plant building and installations.

Infrastructure and Support

Major expenditure components are for power distribution, an office/shop/warehouse complex, camp and catering facilities and water supply and treatment.

Project Indirect and Owners' Costs

Project indirect procurement and construction management and owners' costs also include manpower recruitment and training during the pre-production period and all equivalent General and Administration costs that have and will be incurred during the construction phase.

21.4.2 Working Capital

A working capital allowance, in addition to capital expenditures, of USD 2.17 Million has been included in the cashflow model. This represents 1 to 2 months of operating costs which would be incurred before the first revenue is realized. The working capital requirement is less than would normally be expected, as payment for the mine product is expected immediately after concentrate has been shipped.

21.4.3 Sustaining Capital

Additional sustaining capital of approximately USD 5M for each of the first 3 years has also been allowed for in the overall cashflow model.. This is for ongoing primary development and continuation of the Sangdong gallery, as well as extension of the mine’s underground

21.5 Operating Costs

21.5.1 Basis for Cost Estimation

Project operating costs are based on efficiencies and productivities that have been achieved within actual mine development work as well as using parameters considered generally achievable in The Republic of Korea. The overall performance objectives are conservative by European standards.

Project departmental operating costs were divided into two components: consumables/maintenance parts and labour. The consumables component includes all materials and parts needed for mining, processing and surface facilities and the operation and maintenance of equipment for these areas. Costs for consumables were obtained from multiple sources in Korea and Europe and international suppliers. Costs for maintenance parts and consumables are based on prices provided by Republic of Korea based and international equipment suppliers. The total mine labour force complements and salaries were calculated on a total yearly basis. The labour component was combined with the materials component, to produce the yearly departmental operating cost estimates.

The General and Administration (G&A) cost components include the materials and supplies used by the administration and surface services groups. These costs comprise office supplies, computer supplies and computer and software upgrades, light vehicle and surface equipment operating and maintenance consumables, camp accommodation operational costs, business travel inside the Republic of Korea and internationally, fees for consultants and communications costs.

Labour costs and salaries for all services labour and mine staff have been estimated on a yearly total cost basis.

Critical operating cost components are based on the following long-term base case costs:

- The diesel fuel price is assumed to be USD 1.011 / litre.
- The electrical power cost is assumed to be USD 113.8 per MW.

Labour costs for the operating period are based on the manpower schedules presented for each department and the associated labour costs. The costs include a burden component of approximately 35 percent. Labour rates are based on local rates where available and/or contractor costs in the region and country, for similar types of work. Where costs were not available, costs from other similar projects were used. The rates used include all cost and profit components payable to contractors. All costs are quoted in constant 2025 US Dollars.

21.5.2 Mine Development

The unit mine development cost is summarised in Table 21-2.

Table 21-2. Mine Development Unit Cost

2025 Total Development Cost	USD/m
for 4.5m x 4.5m headings, horizontal and inclined	1,384

This total development rate corresponds well with the actual costs during the last two months, and includes the costs of explosives, reinforcement, fuel, drill steel and other consumables.

21.5.3 Stoping

Individual costs for mining have been estimated for manpower, equipment operating, maintenance and materials consumptions, based on a mining contractor developing and operating the mine. The average stope mining unit cost has been estimated as USD 25.36 per tonne of ore, as summarised in Table 21-3.

Table 21-3. Stope Operating Costs

Stoping costs	Unit	Half-Panel Support		Full Panel Support		Average
Size reference	m x m	4.5 x 4.5	6 x 6	4.5 x 4.5	6 x 6	
Contract Mining Cost	$/t	9.42	7.54	9.42	7.54	8.61
Stope Preparation	$/t	2.97	2.97	2.97	2.97	2.97
Backfill	$/t	5.52	5.52	5.52	5.52	5.52
Support	$/t	0.95	0.95	1.89	1.89	1.10
Fuel, explosives, drilling steel and other consumables	$/t	2.91	2.91	2.91	2.91	2.91
Power	$/t	1.38	1.38	1.38	1.38	1.38
Technical services	$/t	1.97	1.97	1.97	1.97	1.97
Underground Supervision	$/t	0.78	0.78	0.78	0.78	0.78
Unit Stoping Operating Cost	**$/t**	25.89	24.01	26.84	24.95	**25.23**

Notes

	4.5m x4.5m	6m x 6m
. Proportion of Stope Heading Areas:	**57%**	**43%**

	Half-Panel	Full-Panel
. Proportion of Half-Panel Support:	**84%**	**16%**

Mine services and overheads costs include all other non-direct stoping costs for the mine. Mine services operating costs are associated with maintaining underground facilities and services (power, water supply, etc.), operating and maintaining ventilations fans, supplies for safety and training, including personal protective equipment and mine rescue, and operating and maintaining all support mobile and track haulage equipment used in the mine.

The DAF stoping method will mostly employ approximately 4.5m x 4.5m headings, whereas the PP-CAF stopes in the HW zone will mostly employ 6m x 6m headings. The proportions applied in the averaging process reflect the applied stoping methods for the current reserves.

The proportions of half versus full panel support requirements stem from the geotechnical information described in Section 16.2.2.

21.5.4 Processing

The total processing plant and tailings operating cost is estimated to be approximately USD 15.55 per tonne of ore, as shown in Table 21-4. These costs have been derived from the updated processing configuration and corresponding estimates of reagents and power consumption, maintenance and unit costs reflecting 2025 USD.

Table 21-4. Processing Plant and Tailings Operating Costs

Item	Unit Cost USD/t
Consumable Parts	1.79
Reagents	6.31
Maintenance parts	0.18
Power	4.68
Manpower	2.60
Total Processing and Tailings Costs	**15.55**

21.5.5 General & Administration Costs

The estimates for G&A costs encompass all operating costs associated with operating the offices and providing materials and supplies for staff functions. Administration operating costs include costs and taxes for maintaining the property in good standing, land taxes, and resource usage fees (water, etc.).

The total yearly G&A costs are estimated to be approximately USD 3.2M, as summarised in Table 21-5. Employee burdens account for approximately 35% of the total salary for each employee.

Annualized site G&A costs, at an annual production rate of 640,000 tonnes per year of ore, are estimated at USD 5.02 per tonne (including environmental costs) of ore.

The mine management and administration components of G&A contemplate with the employment of 27 people in this area, most of which would be staff positions. They would be responsible for the management, administration, personnel, accounting, purchasing needs, and distribution of material to the operation, site security, health and safety, and environmental issues.

Table 21-5. Breakdown of G&A Costs

Component	Planned Annual Cost *'000 USD*
Office Rent	247.20
Salaries & Overhead	2,110.80
Camp Costs incl. Maintanance	330.75
Light Vehicles Operation	55.00
Service/Garbage Truck	31.80
Roads and Yards Maintenance	7.00
Utilities	33.75
Training	22.50
Medical, Health & Safety	10.00
Security Supplies	27.00
Office Supplies	12.50
Computer Supplies	12.00
Shipping, Courier and light freight	10.00
Communications	32.40
Government & Community Relations	60.00
Insurances, Legal, Auditing & Consultants	210.00
Total G&A costs	**3,212.70**

Mill Throughput	**640**	*Ktpa*
Total G&A Cost	**5.02**	*USD/t*

21.5.6 Total Operating Costs

The estimated total average operating cost, over the life of mine, to produce a 65% WO_3 concentrate from the mine is approximately USD 47.51 per tonne of ore, as summarised in Table 21-6.

Table 21-6. Project Operating Cost Summary

Item	Unit Cost USD/t
Mining	25.23
Processing & Tailings	15.55
G&A	5.02
Total Operating Cost	**45.80**

For the purpose of this study, value added taxes and other taxes, along with import duty costs, have not been included. Exploration costs and all costs associated with areas beyond the property limits have also not been included.

22 ECONOMIC ANALYSIS

The economic analysis (prepared in accordance with the JORC Code) presented here is based on a cashflow forecast on an annual basis using the current mineral reserves and corresponding annual production schedule for the life of the project. A summary of the LOM Plan parameters is shown in Table 22-1. The main assumed parameters for the economic analysis are summarised in Table 22-2.

22.1 Assumptions

All costs and economic results are reported in US dollars (USD), unless otherwise noted. APT pricing is also reported in US dollars.

Table 22-1. LOM Plan Summary

Parameter	Unit	Value
Mine Life	*Years*	14
Total Ore	*Mt*	8.6
Processing Rate (Average*)	*Kt per year*	645.2
Average WO_3 Head grade	*%*	0.42%
Recovery Rate	*%*	85
WO_3 Recovered	*LOM MTU*	3,071,900
	Average MTU/year*	231,200

*Excluding Year 14

Other economic factors used in the economic analysis include the following:

- Discount rate of 5% (sensitivity using an 8% discount rates has been calculated);
- No inflation;
- Numbers are presented on a 100% ownership basis and do not include management fees or financing costs;
- Revenues, costs and taxes are calculated for each period in which they occur rather than actual outgoing/incoming payments;
- Exclusion of all pre-development and sunk costs (i.e. exploration and resource definition costs, engineering fieldwork and studies costs, environmental baseline studies, etc.)
- An exchange rate of 1,467 KRW per 1 USD has been applied to convert the relevant operating and capital cost items into US dollar.

Table 22-2. Assumed Parameters for Economic Analysis

Description		Unit	Base Case Values	Sensitivity Lower	Sensitivity Upper
Prices					
	APT Price	*USD/mtu WO_3*	450	370	510
	Received Price factor		78%		
Stoping Costs					
	Average Mining Cost	*USD/t ore*	25.23		
Processing					
	Processing Cost	*USD/t ore*	15.55		
	Processing Recovery		85%		
	Mill Capacity	*Ktpa*	640		
G&A	General & Administration Costs	*USD/t ore*	5.02		
Development					
	Ramping Cost	*USD/m*	1,384		
	Drifting Cost	*USD/m*	1,384		
Contingency on Capital Costs			5%		
Tax					
	Direct Tax on cashflow		23.1%		
	Tax on Revenue		0.5%		

22.2 Taxes & Royalties

A Corporate Income Tax rate of 21% has been applied, along with a Local Income Tax rate of 2.1%, which gives a total rate of 23.1%. These are applied to the total cashflow. An additional revenue tax has also been applied of 0.5%. AKTC incurred approximately USD15.34 million in capital expenditures in the year prior to production (Year -1). In addition, AKTC has recognized approximately USD 4 million in tax loss carry-forwards and anticipates generating an additional USD 3 million in tax loss carry-forwards during the 2025 fiscal year, subject to final tax filings and regulatory confirmation.

There are neither Royalties imposed on minerals by government agencies in South Korea nor by Third Parties.

22.3 Results

The overall results from the financial analysis have been evaluated in the form of NPV, IRR and Payback values, as shown in Table 22-3. The NPVs have also been determined for the whole project, starting from project commencement in 2021, as well for part of the project from 2025 onwards only, i.e. excluding capital payments prior to 2025.

The whole project is economically viable with an after-tax internal rate of revenue (IRR) of 49.5% and a net present value at 5% ($NPV_{5\%}$) of US$271.3.7m. The Onwards-Only scenario is economically viable with a net present value at 5% ($NPV_{5\%}$) of U$343.7m. Figure 22-1 shows the projected cash flows resulting from the economic analysis. Table 22-3 shows the detailed results of this evaluation.

Figure 22-1. Annual and Cumulative After-Tax Cash Flows; Onwards Only

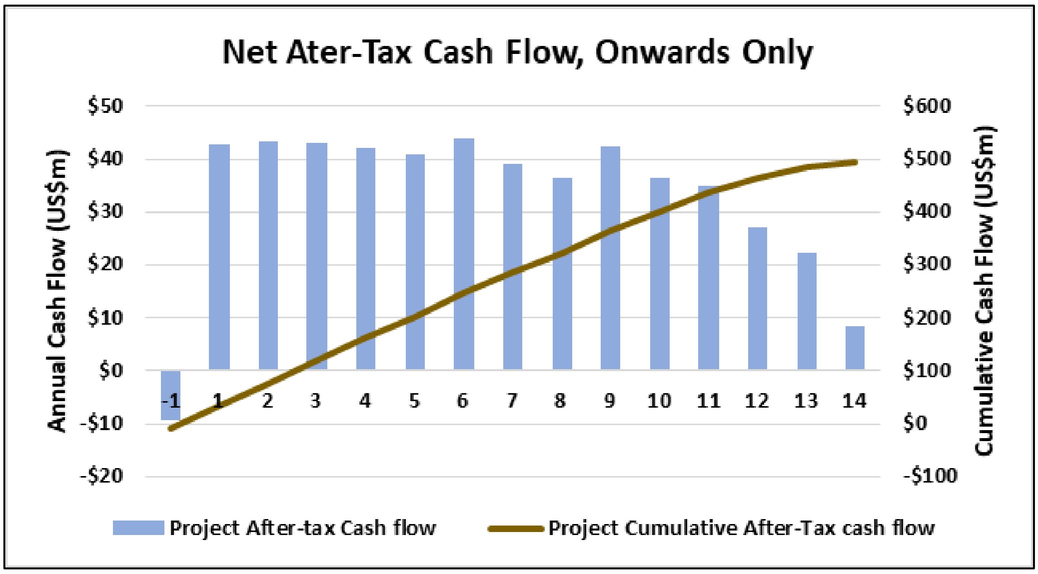


Table 22-3. Summary of Sangdong Project Economic Results

Category	Unit	Value
Net Revenues	USD Million	1,078.2
Operating Costs	USD Million	389.5
Cash Flow from Operations***	USD Million	688.7
Cash Costs****	USD/MTU	126.8
All-in Sustaining Costs*****	USD/MTU	136.3
Pre-Tax Project Cash Flows*	USD Million	643.8
Pre-Tax $NPV_{5\%}$*	USD Million	447.4
Pre-Tax IRR**	%	62.5
After-Tax Project Cash Flows*	USD Million	493.6
After-Tax $NPV_{5\%}$*	USD Million	343.7
After-Tax IRR**	%	49.5
After-Tax Payback*	Years	1.77

*Onwards Only
**Whole project
*** Cash Flow from Operations Formula: (Revenue – Operating Costs)
****Cash Cost Formula: Operating Cost / Recovered MTUs
***** All-In Sustaining Cost Formula: (Operating Costs + Sustaining Capex (= Capex Y1-14)) / Recovered MTUs

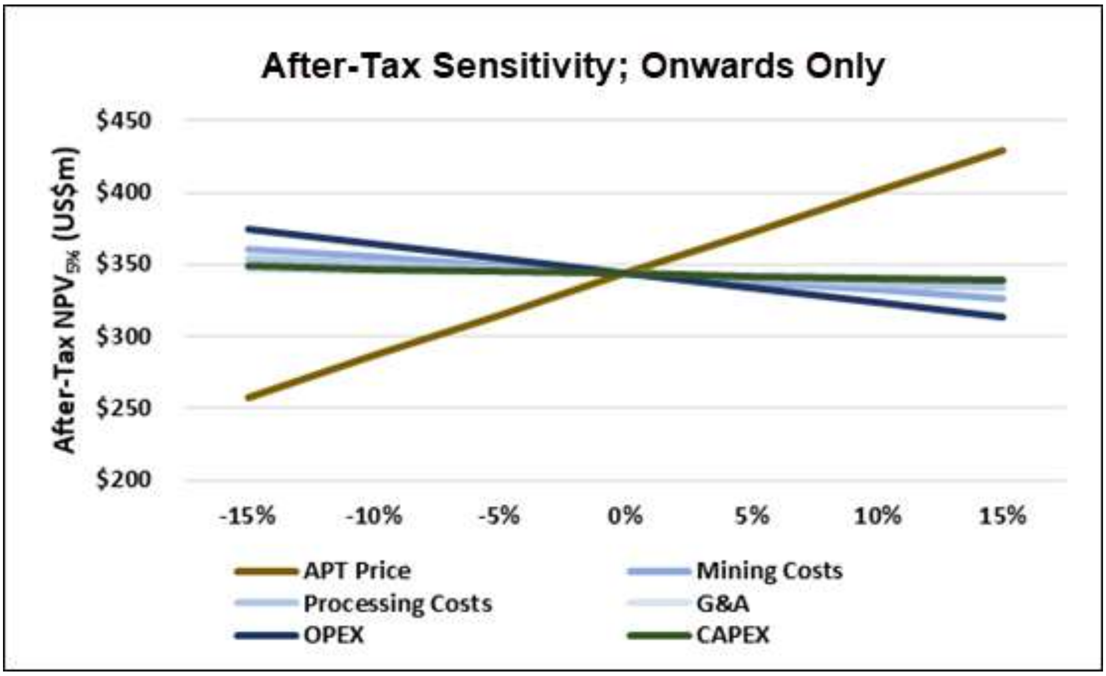
22.4 Sensitivities

A sensitivity analysis was performed to test the Onwards Only project value drivers on the project's NPV using a 5% discount rate. The result of this analysis are demonstrated in Table 22-4 and can be visualized in Figure 22-2. The project proved to be most sensitive to changes in the APT price, followed by the combined Opex (Mining Costs, Processing Costs as well as G&A) followed by the individual Opex costs as well as the Capex.

Table 22-4. After-tax $NPV_{5\%}$ Sensitivity Results (Onward Only)

After-Tax $NPV_{5\%}$ (Onwards-Only) in USD Million							
Variation	**-15%**	**-10%**	**-5%**	**0%**	**5%**	**10%**	**15%**
APT Price	258	286	315	344	372	401	430
Mining Costs	361	355	349	344	338	333	327
Processing Costs	354	351	347	344	340	337	334
G&A	347	346	345	344	343	341	340
OPEX	374	364	354	344	334	323	313
CAPEX	349	347	345	344	342	340	339

Figure 22-2. After-Tax $NPV_{5\%}$ Sensitivity (Onward Only)



The base case results (stemming from the assumptions shown in Table 22-2), as well as sensitivity results for different WO_3 prices, of the derived project NPVs, are shown in Table 22-5. The lowest price used was USD 370 /MTU APT (comparable to the original base case price in the Technical Report 2016) and the highest price was USD 510 /MTU APT.

Key aspects of these results include:

- The results for prices for 450 USD/MTU APT, as compared to 370 USD/MTU, show an overall increase in the After-Tax NPV_5% of approximately 60%, and increase in the After-Tax IRR from 35 to 49%.

- The results for prices for 510 USD/MTU APT, as compared to 450 USD/MTU, show an overall increase in the After-Tax NPV_5% of approximately 28%, and increase in the after-IRR from 49 to 60%.

- For base case price of 450 USS/MTU APT, the post-tax NPV rises by approximately 22% in going from an 8% to a 5% discount rate. The Payback period is approximately 2 years.

Table 22-5. Sensitivities - NPVs Calculated at Different APT Prices

[NPV Units are in USD million]

		Discount Rate	WO_3 APT Price USD/MTU 370	450	510
Whole Project 2021-2037	Pre-Tax Net Present Value	5%	242.7	375.8	475.6
		8%	188.5	297.9	379.9
	After-Tax Net Present Value	5%	169.7	271.3	347.6
		8%	128.8	212.3	275.0
	Pre-tax IRR		44%	63%	76%
	After-Tax IRR		35%	50%	60%
	After-Tax Payback (years)		2.7	2.0	1.7
NPVs 2025-2037	Pre-Tax Net Present Value	5%	314.3	447.4	547.2
		8%	258.1	367.5	449.5
	After-Tax Net Present Value	5%	241.9	343.7	420.0
		8%	199.0	282.7	345.4

22.5 Life-of-Mine Cash Flow Summary

The base case APT price used was USD 450/MTU, forecasted from the information shown in Section 19. The discounted cashflow analysis has been based on 2025 Constant US Dollar values. The production schedule is based on processing approximately 570 kt for Year 1 (effectively 2026), increasing to a steady state rate of 640 ktpa from Year 2 onwards, as summarised in Section 16.5. The economic model results for the base case scenario are shown in Table 22-6.

Table 22-6. Economic Analysis – Base Case Price USD 450/MTU WO_3

		Unit	Total	Year															
				Previously	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Production	**Ore Tonnes Total**	***Kt***	**8,579**			**574.3**	**647.9**	**648.3**	**641.8**	**644.9**	**647.3**	**645.4**	**646.8**	**645.0**	**649.2**	**649.1**	**643.4**	**641.6**	**254.4**
	WO3	***%***	**0.42**			**0.48**	**0.47**	**0.47**	**0.46**	**0.44**	**0.46**	**0.43**	**0.40**	**0.44**	**0.40**	**0.40**	**0.35**	**0.32**	**0.31**
	Contained t WO3	*t WO3*	**36,140**	-	-	2,750	3,050	3,060	2,950	2,850	3,000	2,800	2,610	2,860	2,610	2,570	2,230	2,020	780
	Plant recovery					85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%
	Recovered t WO3	*t WO3*	**30,719**			2,338	2,593	2,601	2,508	2,423	2,550	2,380	2,219	2,431	2,219	2,185	1,896	1,717	663
	Recovered MTUs		**3,071,900**			233,750	259,250	260,100	250,750	242,250	255,000	238,000	221,850	243,100	221,850	218,450	189,550	171,700	66,300
	Concentrate grade	*%*				67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%
	T of concentrate / year	*t/year*				3,489	3,869	3,882	3,743	3,616	3,806	3,552	3,311	3,628	3,311	3,260	2,829	2,563	990
	T of concentrate / month	*t/month*				291	322	324	312	301	317	296	276	302	276	272	236	214	82
	Containers / month					15	16	16	16	15	16	15	14	15	14	14	12	11	4
Revenue	**Revenue**	*USD M*	**1,078**			**82.05**	**91.00**	**91.30**	**88.01**	**85.03**	**89.51**	**83.54**	**77.87**	**85.33**	**77.87**	**76.68**	**66.53**	**60.27**	**23.27**
Costs	Mine	*USD M*	**216.47**			14.49	16.35	16.36	16.19	16.27	16.33	16.29	16.32	16.27	16.38	16.38	16.23	16.19	6.42
	Plant	*USD M*	**129.98**			8.70	9.82	9.82	9.72	9.77	9.81	9.78	9.80	9.77	9.84	9.83	9.75	9.72	3.85
	G&A	*USD M*	**43.07**			2.88	3.25	3.25	3.22	3.24	3.25	3.24	3.25	3.24	3.26	3.26	3.23	3.22	1.28
	Total OPEX	*USD M*	**389.52**			**26.07**	**29.41**	**29.43**	**29.14**	**29.28**	**29.39**	**29.30**	**29.37**	**29.28**	**29.47**	**29.47**	**29.21**	**29.13**	**11.55**
Capital	Mine waste development	*USD M*	**37.13**	5.23	2.65	4.84	4.99	4.98	3.29	1.90	2.40	2.78	0.82	0.14	0.36	0.63	0.89	0.89	0.35
	Mine infrastructure & Services Cap. I	*USD M*	**2.65**	1.87	0.78														
	Processing plant Capex	*USD M*	**49.15**	41.69	7.46														
	Surface infrastructure & mobile equi	*USD M*	**1.33**	1.31	0.01														
	Owners costs	*USD M*	**26.37**	22.29	4.08														
	Insurance	*USD M*	**0.41**	0.37	0.04														
	Backfill Plant	*USD M*	**2.72**	2.40	0.32														
	Pilot Plant	*USD M*	**0.04**	0.04	0.00														
	Capex Sub-Total	*USD M*	**119.80**	**75.20**	**15.34**	**4.84**	**4.99**	**4.98**	**3.29**	**1.90**	**2.40**	**2.78**	**0.82**	**0.14**	**0.36**	**0.63**	**0.89**	**0.89**	**0.35**
	Contingency @5%	*USD M*	**2.23**		0.77	0.24	0.25	0.25	0.16	0.09	0.12	0.14	0.04	0.01	0.02	0.03	0.04	0.04	0.02
	Working Capital	*USD M*	**2.17**			2.17													
	Contingency + Working Capital				**0.77**	**2.42**	**0.25**	**0.25**	**0.16**	**0.09**	**0.12**	**0.14**	**0.04**	**0.01**	**0.02**	**0.03**	**0.04**	**0.04**	**0.02**
Cash flow Whole Project	**Total Capex**	*USD M*	**126.97**	-	91.32	7.25	5.24	5.22	3.45	1.99	2.52	2.92	0.86	0.15	0.38	1.30	1.83	1.82	0.72
	Subsidy	*USD M*	**6.82**																
	Project Pre-tax Cash flow	*USD M*	**568.56**	-	- 84.50	48.72	56.34	56.64	55.42	53.76	57.60	51.31	47.65	55.89	48.02	45.91	35.49	29.32	11.00
	Project Cumulative cash flow	*USD M*		-	- 84.50	- 35.78	20.56	77.20	132.62	186.38	243.98	295.29	342.94	398.83	446.85	492.76	528.25	557.57	568.56
	Tax	*USD M*	**145.70**			6.09	13.01	13.08	12.80	12.42	13.31	11.85	11.01	12.91	11.09	10.60	8.20	6.77	2.54
	Revenue-Tax	*USD M*	**5.39**			0.41	0.45	0.46	0.44	0.43	0.45	0.42	0.39	0.43	0.39	0.38	0.33	0.30	0.12
	Project After-tax Cash flow	*USD M*	**417.48**	-	- 84.50	42.22	42.87	43.10	42.18	40.91	43.85	39.04	36.25	42.56	36.53	34.92	26.96	22.24	8.34
	Project Cumulative After-Tax cash fl	*USD M*		-	- 84.50	- 42.28	0.59	43.68	85.87	126.78	170.63	209.67	245.92	288.48	325.01	359.93	386.89	409.13	417.48
Cash flow Onwards Only	**Total Capex**	*USD M*	**51.77**		16.11	7.25	5.24	5.22	3.45	1.99	2.52	2.92	0.86	0.15	0.38	1.30	1.83	1.82	0.72
	Subsidy	*USD M*			6.82														
	Project Pre-tax Cash flow	*USD M*	**643.77**		- 9.29	48.72	56.34	56.64	55.42	53.76	57.60	51.31	47.65	55.89	48.02	45.91	35.49	29.32	11.00
	Project Cumulative cash flow	*USD M*			- 9.29	39.42	95.77	152.40	207.83	261.58	319.19	370.50	418.14	474.04	522.05	567.96	603.45	632.77	643.77
	Tax (calculated using 23.1%)	*USD M*	**145.70**			6.09	13.01	13.08	12.80	12.42	13.31	11.85	11.01	12.91	11.09	10.60	8.20	6.77	2.54
	Revenue-Tax (0.5%)	*USD M*	**5.39**			0.41	0.45	0.46	0.44	0.43	0.45	0.42	0.39	0.43	0.39	0.38	0.33	0.30	0.12
	Project After-tax Cash flow	*USD M*	**493.55**		- 9.29	42.63	43.33	43.10	42.18	40.91	43.85	39.04	36.25	42.56	36.53	34.92	26.96	22.24	8.34
	Project Cumulative After-Tax cash fl	*USD M*			- 9.29	33.33	76.66	119.75	161.94	202.85	246.70	285.74	321.99	364.55	401.08	436.00	462.96	485.20	493.55

23 ADJACENT PROPERTIES

The International company Omya holds the mining rights for limestone on part of the Property (coincident with the Se Woo Mining Right 71875) and are currently extracting the Pungchon limestone by underground mining. This horizon sits approximately 200 m above the Sangdong deposit which is hosted within the Myobong slate.

The Omya limestone mine adit entrance is approximately 260 m northeast of the Sangdong adit and the workings are in the Hangingwall Pungchon Limestone situated above the northeast corner of the Sangdong Mine old Main orebodies mine workings. They also have an adit entrance further the north. Omya's closest mine workings are approximately 250 m away from the Sangdong Hangingwall orebody (Figure 23.1).

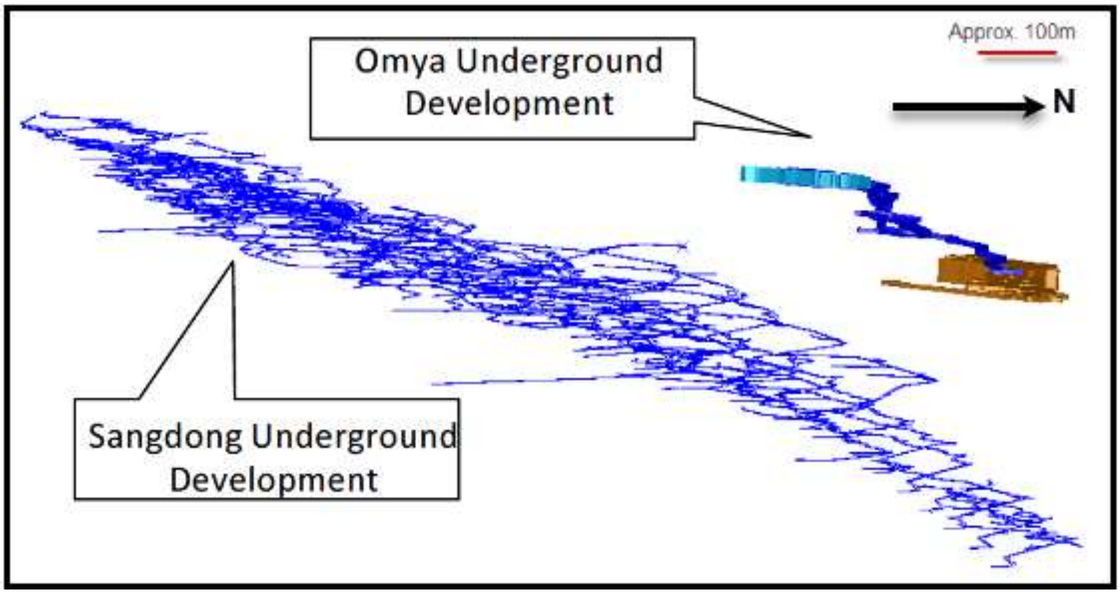
Current Omya mining is taking place between 600 and 663 masl using room and pillar and cut-and-fill mining methods. Omya's future plans are to continue mining down dip in the Pungchon Limestone at a rate of 600,000 tpa. This information has been provided by Omya.

At the moment there is no protocol between the two mines regarding safety precautions to be taken during blasting times, but during the last 3 years this has not created any problems.

The Author has not verified the information regarding the adjacent mineral deposits described above, that are outside the immediate area of the Sangdong Project. The information contained in this section of the report, which was partially provided by Omya, is not necessarily indicative of the mineralization at the Sangdong Project.

Figure 23-1. View of Omya Mine Limestone Workings Relative to Sangdong Old Mine

[Date: 2025, Source: AKTC]



24 OTHER RELEVANT INFORMATION

The mine will be technically supported by geology and engineering departments. The geology department will be responsible for mapping and interpretation, sampling of production drill holes, grade control, geotechnical base data and ore reserve estimations. There will be a separate exploration group to undertake exploration work on the property and to prove up new mineral resources for potential mining. The engineering department will be responsible for mine planning, production scheduling, surveying, geotechnical design, collecting and reporting performance statistics for the mine and any other technical requirements that support the operation.

25 INTERPRETATION AND CONCLUSIONS

The evaluation work was carried out and prepared in compliance with Canadian National Instrument 43-101, and the mineral resources in this estimate were calculated using the Canadian Institute of Mining, Metallurgy and Petroleum (CIM), CIM Standards on Mineral Resources and Reserves, Definitions and Guidelines prepared by the CIM Standing Committee on Reserve Definitions and adopted by CIM Council May, 2014. The updated resource estimation is shown in Table 25-1. Updated reserves are shown in Table 25-2. Furthermore, the resource classification is also consistent with the Australasian Code for the Reporting of Mineral Resources and Ore Reserves of December 2012 (the Code) as prepared by the Joint Ore Reserves Committee (JORC) of the Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Mineral Council of Australia. The current in-situ resource estimation is shown in Table 1-1.

Table 25-1. Sangdong – Mineral Resources

As of 28th February, 2025

WO_3 Cut-Off	Resource Class	Tonnes Kt	WO_3 %	MoS_2 %
0.15%	**Indicated**	8,029	0.51	0.06
	Inferred	50,686	0.43	0.05

Notes:

1. **CIM Definitions followed for resource estimate, also consistent with JORC Guidelines.**
2. **Resource figures includes dilution of narrower beds to a minimum thickness of 2.2 m.**
3. **Resources shown are inclusive of reserves.**
4. **Density values estimated from density measurements.**
5. **50m surface pillar material removed.**
6. **Indicated HW material based on all samples, with a maximum search of 35m x 50m (along-strike x down-dip).**
7. **Indicated material in all other beds are based on PO-P6 samples, on a grid of at least 50m.**
8. **Inferred material based on all samples, up to a maximum search of 105 m x 150 m in HW and 100 m x 100 m in all other beds.**
9. **The applied cut-off grade of 0.15% WO_3 is based on an APT price of USD 450/mtu WO_3, a processing recovery of 85% and an assumed total operating cost of approximately USD 45.8/t ore.**
10. **Rounding may result in apparent summation differences between tonnes, grades and metal content; not considered material.**
11. **Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability.**

Table 25-2. Reserves Summary
As of 28th February, 2025

	Probable Reserves		
	Tonnes	WO3	WO3 Content
	Kt	%	t
HW	3,674	0.42	15,410
Main_F1	1,212	0.42	5,070
F2	1,732	0.45	7,750
Halo	261	0.39	1,020
F3	1,700	0.41	6,890
Total	**8,579**	**0.42**	**36,140**

Notes:

1. **CIM Definitions were followed for reserve estimate, also consistent with JORC Guidelines.**
2. **Reserve used full 3D design of development and stopes, using a minimum mining thickness of 3m.**
3. **The cut-off grades used for mine planning and reserve evaluation purposes were as follows:**
   - **HW zone stopes 0.16% WO_3**
   - **FW/Main zone stopes 0.17% WO_3**
   - **Development 0.18% WO_3**
4. **Cut-off grades are supported by an APT price of USD 450/MTU WO_3, a processing recovery of 85%, and operating costs reflecting different orebodies and mining methods.**
5. **Rounding may result in apparent summation differences between tonnes, grades and metal content; not considered material.**

This Reserve will sustain a mining operation for approximately 14 years, at an annual processing capacity of 640 kt of ore.

Based on the forecast operating parameters and capital and operating costs estimates, for the Sangdong project, the returns from the project are very positive and project economics are extremely robust to potential reasonably expected variances from the base case assumptions.

The following sections describe summarize the risk and opportunities for different areas of investigation:

25.1 Geology

25.1.1 Risks

The mineral resource models are primarily based on underground and surface drillhole data, at a spacing of 50m or less for classification of Indicated resources. For the HW zone a minimum spacing of 35m along-strike and 50m down-dip is required for Indicated resources. From observations of mineralised exposures in the mine workings, as well as some drillhole intersections, there is likely to be some small scale faulting, which has not been possible to model from the available drillhole data. This is not likely to cause major changes to the resource estimation. However, there is a risk associated with complications during mining, particularly for the narrower beds. Potential impacts therefore include disruption to production scheduling and the need for additional drilling to assist with geological modelling.

This risk has been mitigated by :

- **DAF Stoping Method**. The selection and design of the DAF stoping method for the Main and FW beds, along with the location of stope access development in the footwall of the main orebodies. The DAF stoping methods is progressed round by round with DAF panels which can follow small scale changes in orebody geometry.

- **Short-Term Planning**. As the stope access crosscuts are developed nearer the stope boundaries, allowing geological face and roof mapping, and access if needs be for in-fill drilling, which will allow more localised and detailed short-term geological models to be developed. This approach has already been successful during mine redevelopment, with modifications to the development layout as fault modelling and extra geological information have been applied as development progresses.

- **Pillar Design**. Substantial pillar thicknesses have been applied in the development layout, to ensure stability of primary development and stope access drives. Horizontal pillars of at least 40m have been left between the Sangdong gallery and the stope ramps, and vertical pillars of at least 15m have been left above the stope ramps up to the base of the F3 bed. These pillar distances allow flexibility in stope and access layouts if faults are encountered during stope mining.

25.1.2 Opportunities

In general, recent mine development has so far exposed more mineralisation than was previously delineated from diamond drilling alone. This suggests that it may be possible to identify more resources as the mine develops further.

25.2 Underground Mining

25.2.1 Risks

The amount of dilution and losses in the mining of the FW and Main beds with DAF stoping will be dependent on how accurately the stope faces' geometry can follow the generally inclined mineralised beds. It also depends on the minimum size that can be mined out in DAF panels where the beds may be quite narrow. It will also depend on minimal excavation of backfill from previous backfilled panels. This risk, however, is considered low, particularly with respect to the results which have now been obtained during mine development. The potential impact of this risk includes higher dilution and losses that have currently been applied in reserve estimation.

The management and control of the contractor's mining activities, accurate survey monitoring and control and efficient application of steel-fibre reinforced shotcrete have all been achieved to a high standard.

The geology department has gained significant experience during the mine development phase in terms of geotechnical control, face mapping and grade control. In particular, the variations observed in the mineralized structures, with development advance, have provided very useful experience and information, to help prepare for the stoping phase.

25.2.2 Opportunities

There may well be opportunities for more potential mineralised material being excavated in and around the main beds during stope development. The F4 and F5 beds, are currently not included in the reserves. Some of this material, along with other adjacent mineralisation, has already been intersected by stope access development. With short term grade control, some of the material can be identified and will possibly provide additional material that can be economically treated in the mill.

The planned stope access development can used to explore and exploit parts of the F4 and F5 mineralized structures. The current intersections have supported the grades and thicknesses of these modelled resources.

25.3 Backfill System

The efficient and continuous placement of good quality backfill is very important element of both stoping operations as well as tailings disposal. Any long interruption of the backfill plant operation will also stop mill production.

25.3.1 Risks

Good Quality Equipment. There is a risk with equipment breakdown in the backfill plant. This risk, however, is considered low, and is mitigated by AKTC's purchases of proven paste equipment manufacturers who have equipment in other cemented paste plants worldwide. It is also very important that the availability and timing of strong technical service and quality parts close to the mine should be confirmed with each vendor to ensure quick support, knowing that the paste plant must run to achieve mine production targets.

Backup Equipment and Systems. In the event of any equipment breakages, secondary support or switching over to standby units can help minimising any time delays with stoppages of the backfill system.

Tailings Storage. The stope voids are currently delineated from mine plans showing the mined out workings. There is a risk in the voids volume calculations, due to possible inaccuracies with the older data. This risk can be mitigated by more detailed surveys of the old voids.

Mining Cycle. The mining cycle is extremely dependent on the timely placement of backfill in mined out DAF panels. To help mitigate this risk, initial mine production is being scheduled so as to have over 20 DAF mining faces in operation at any time. This should allow sufficient headings for drilling, blasting, mucking and backfill placement operations in all underground working shifts. This risk is also being mitigated by the installation of an additional emergency tailings line into the mine, which goes down older mine inclines and raises to the Jangsan level. This line can be used in the event of any problems with the main tailing line which goes down the Sangdong gallery.

Paste Piping. The effective life span of the planned paste fill pipelines is very important, and will need to be monitored through mine operation. There is also a risk associated with the event of any failure of the main paste pump. To mitigate this risk, along with other benefits, a high pressure flush pump on emergency power will be installed, which can be used to clear the line of cemented paste before the backfill solidifies. It can also help clear the paste pipeline and save the main paste pump from wear and tear.

25.4 Processing

25.4.1 Risks

Recent metallurgical process test work has focussed on the predominant ore type that will be processed during the first 5 years of production: material from the FW beds. Processing of HW bed material will start in year 5. There is a risk associated with the HW material, in that it may have different processing characteristics to those being currently assumed. The potential impact of this risk can be mitigated by doing more pilot plant test work in the coming years, that includes HW material in similar proportions to that being scheduled for production. There is a pilot plant already set up on site.

26 RECOMMENDATIONS

In order to enhance the resource and reserve base, the following steps are recommended:

- The current mine and mill construction is on track to begin production in the latter part of 2025, aimed at an ore production rate of 640 Ktpa. This strategy has been assigned as 'Phase 1'. Many aspects of the infrastructure have been designed with the provision for future mine and mill expansion to a much higher production rate approaching 1.2 Mtpa. This scenario has been assigned as 'Phase 2'. In particular this will produce a much higher amount and proportion of ore from the HW zone.

- Another potentially very important project for AKTC is to build and operate a Tungsten Oxide (TO) plant, which would receive and further process concentrates from Sangdong. Tungsten Oxide material is especially important to the South Korean economy. A potential plant site has been identified in Sansol. 22 Km away from Sangdong. A technical feasibility study and basic engineering study have recently been finished, and are progressing onto further studies.

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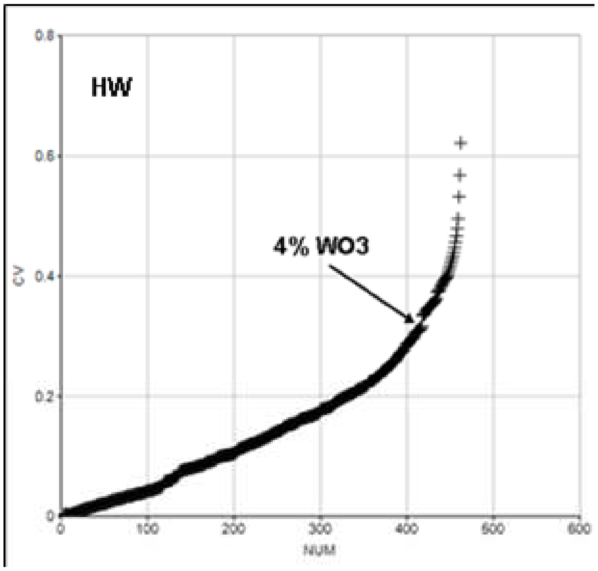
SANGDONG 43-101

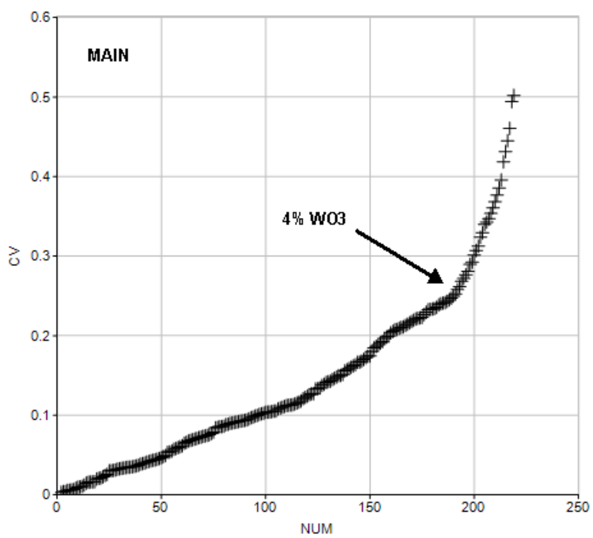
APPENDIX A:

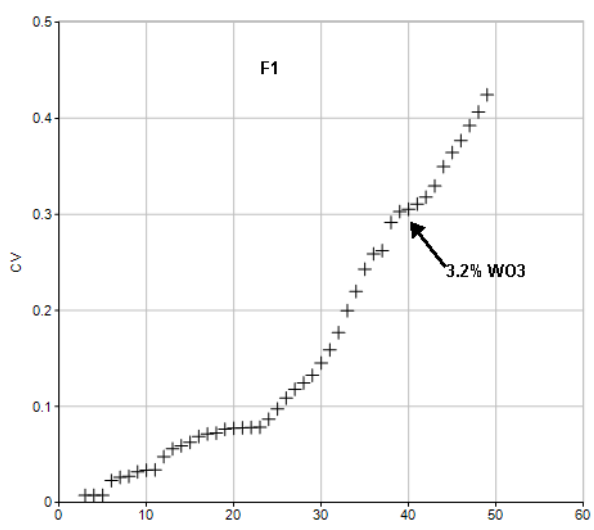
Geostatistical Plots

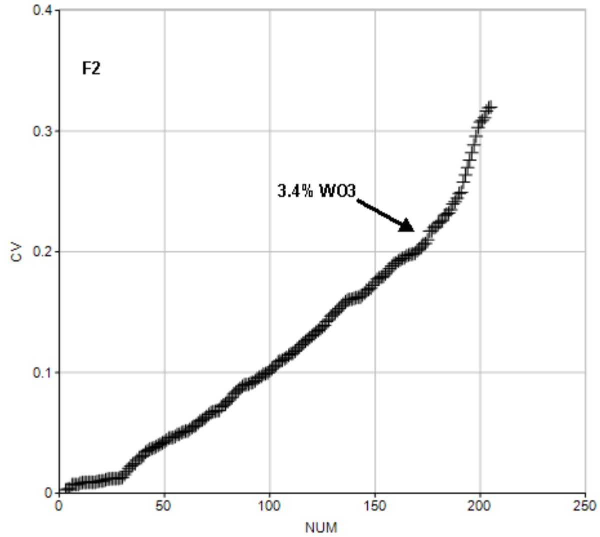
February 2025

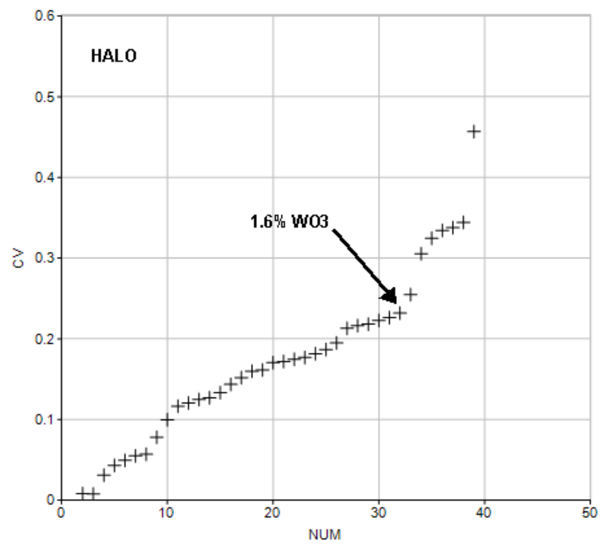
Coefficient of Variation Plots

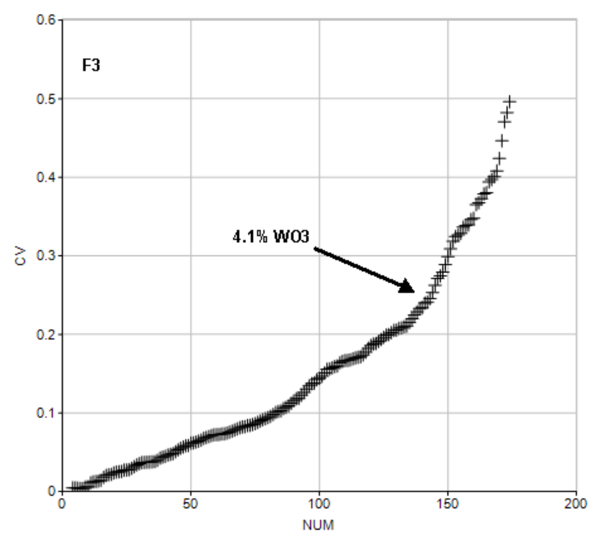


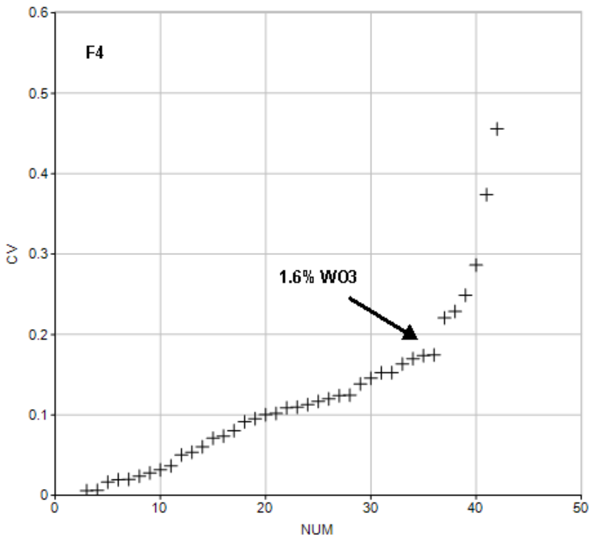








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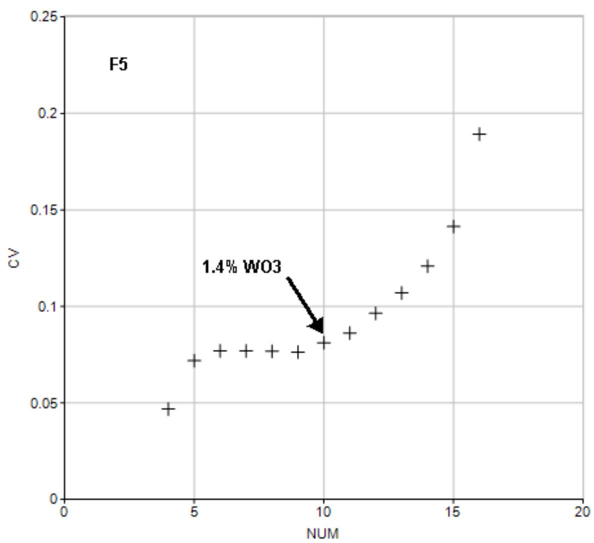
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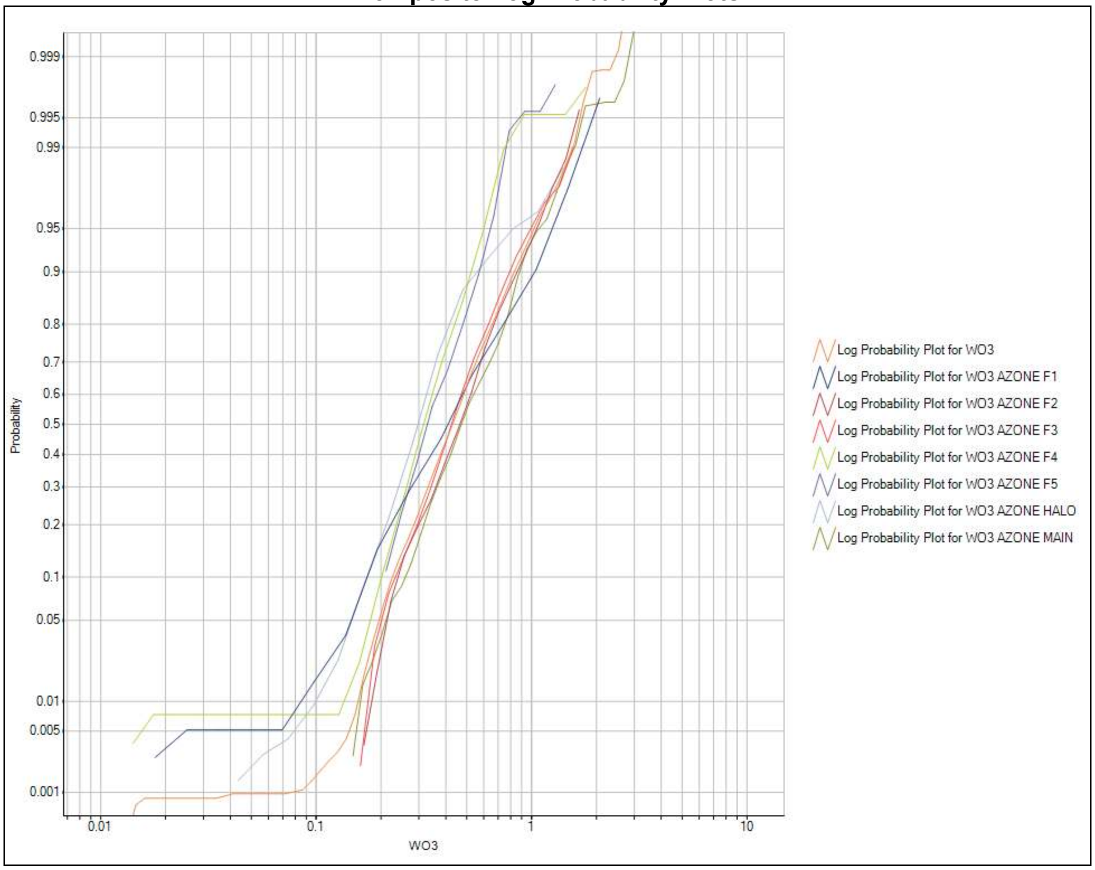
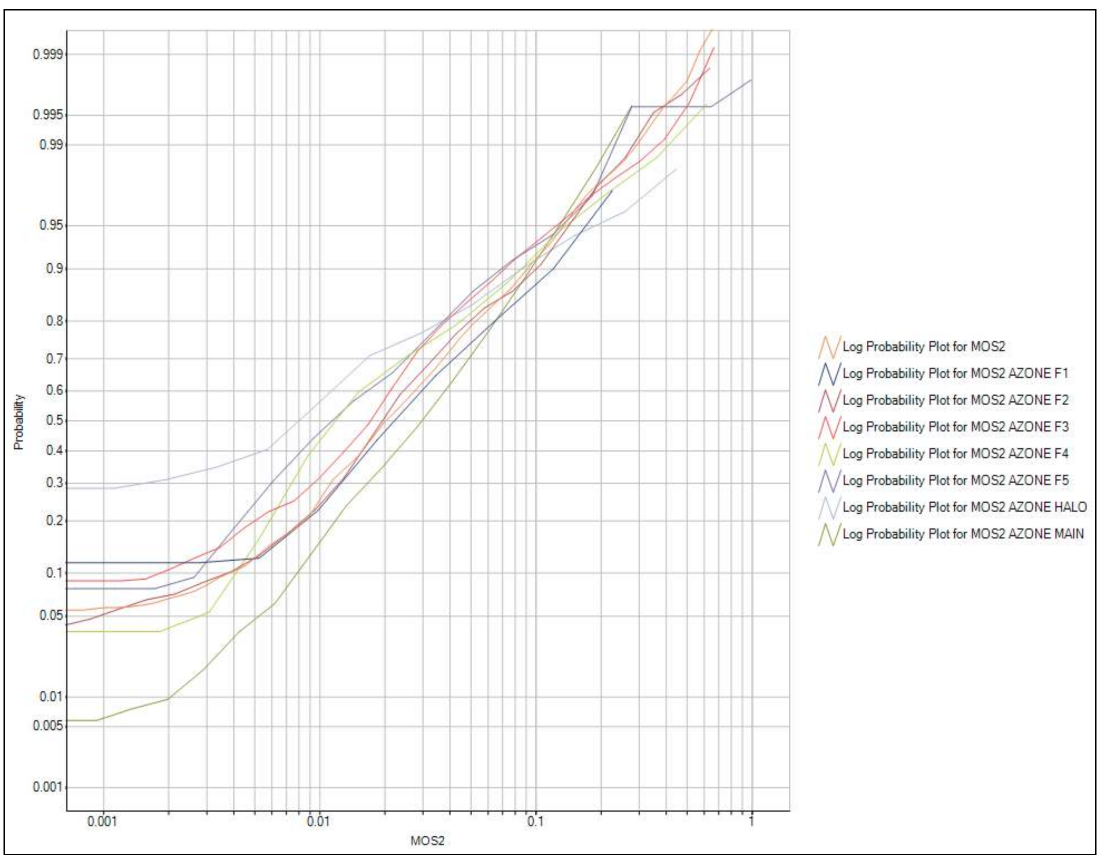
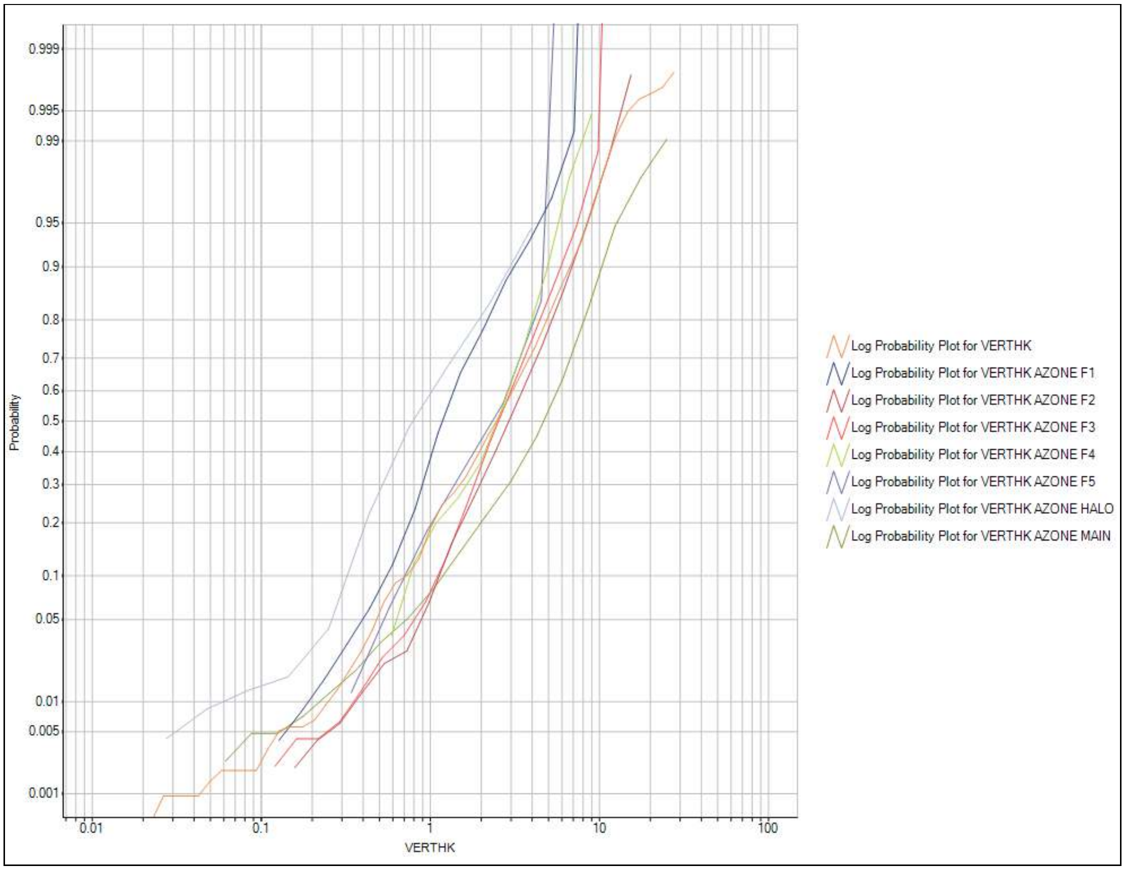
Composite Log Probability Plots



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VERTHK
Log Probability Plot for VERTHK
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Log Probability Plot for VERTHK AZONE F3
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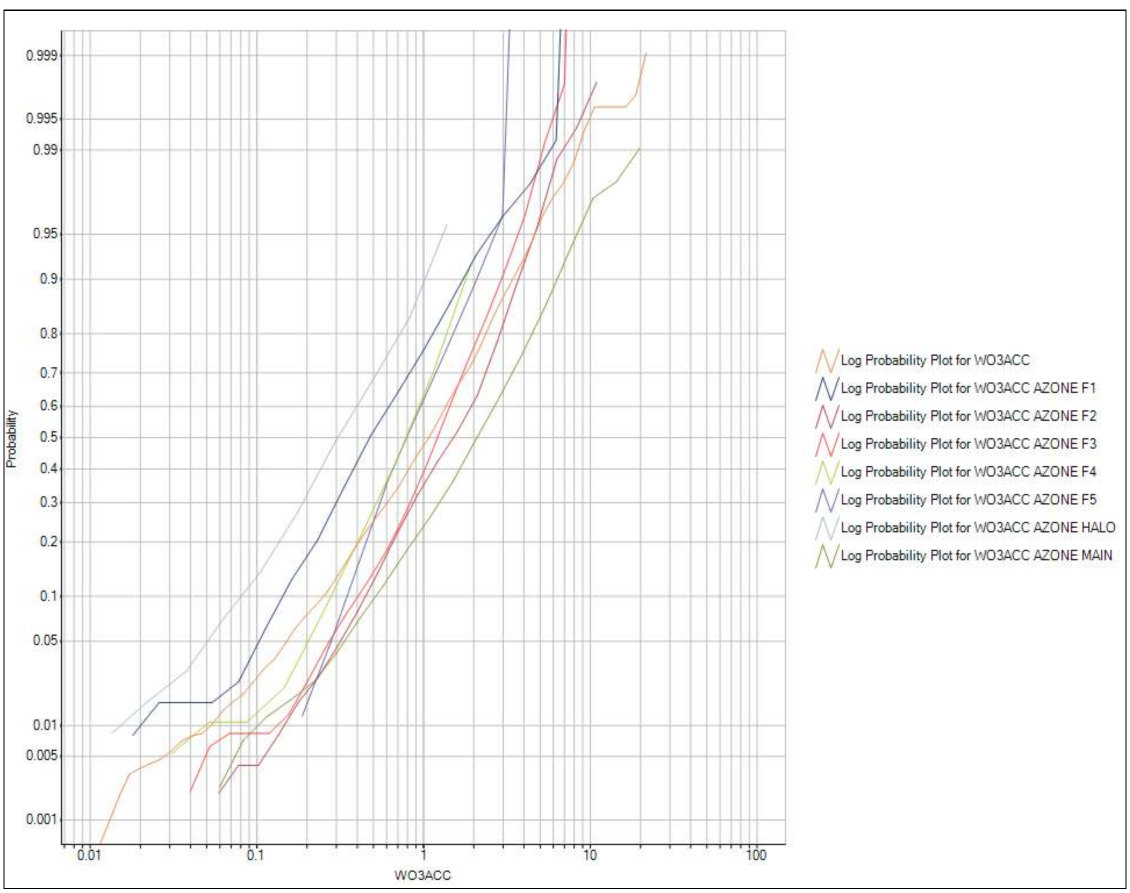
Log Probability Plot for VERTHK AZONE MAIN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WO3ACC
Log Probability Plot for WO3ACC
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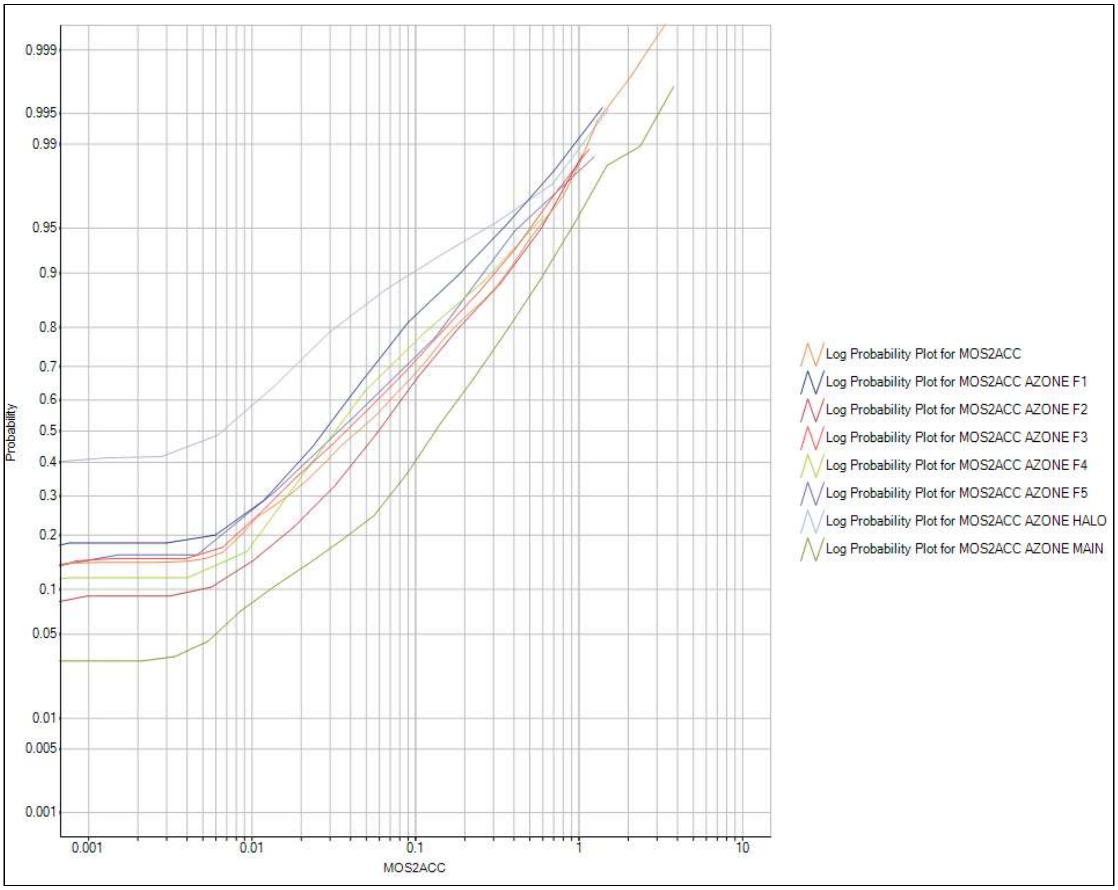
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Log Probability Plot for MOS2ACC
Log Probability Plot for MOS2ACC AZONE F1
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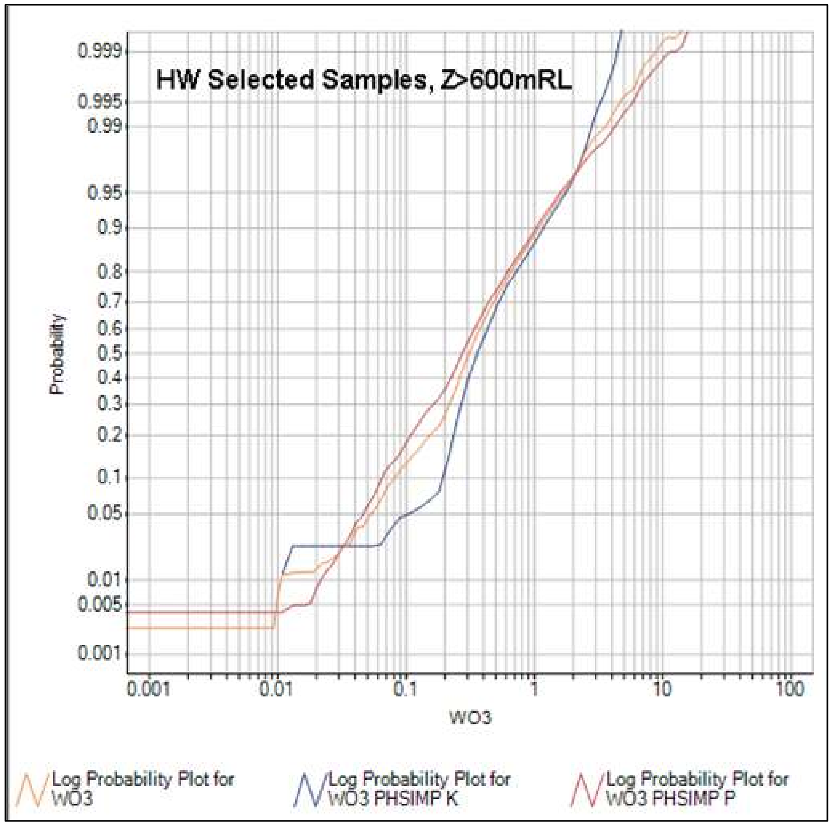
HW Selected Samples, Z>600mRL
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WO3
Log Probability Plot for WO3
Log Probability Plot for WO3 PHSIMP K
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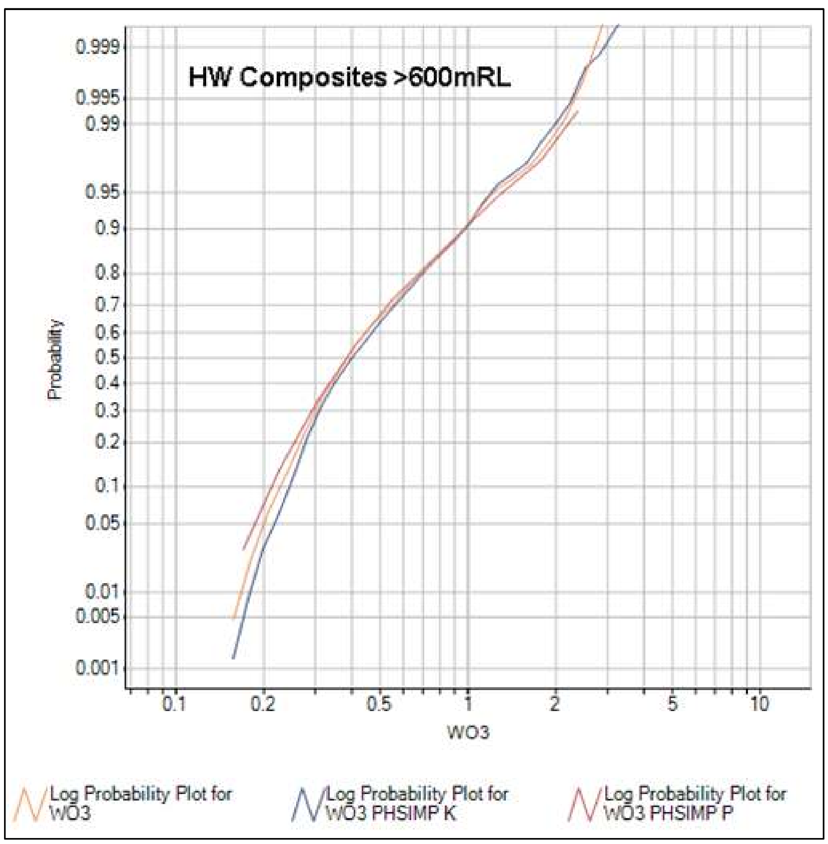
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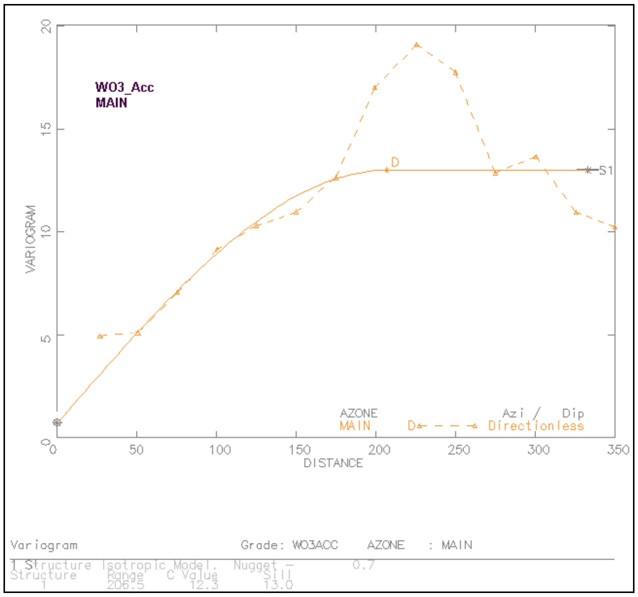
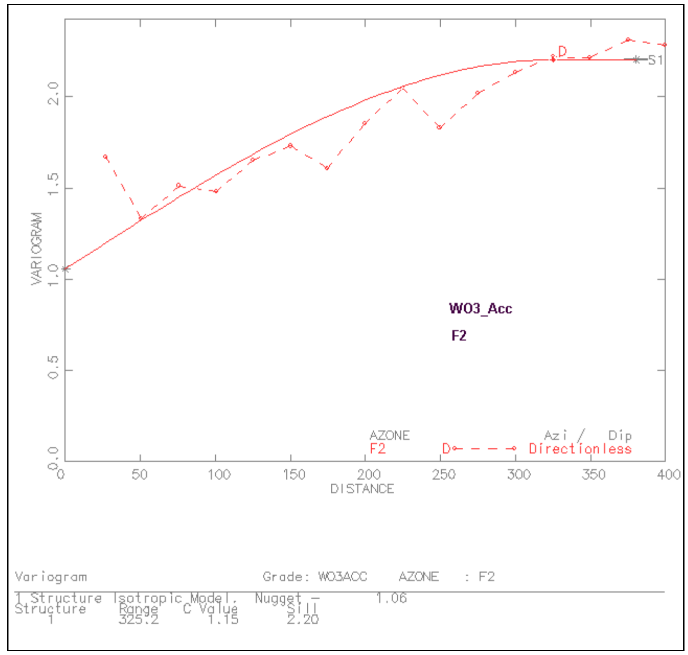
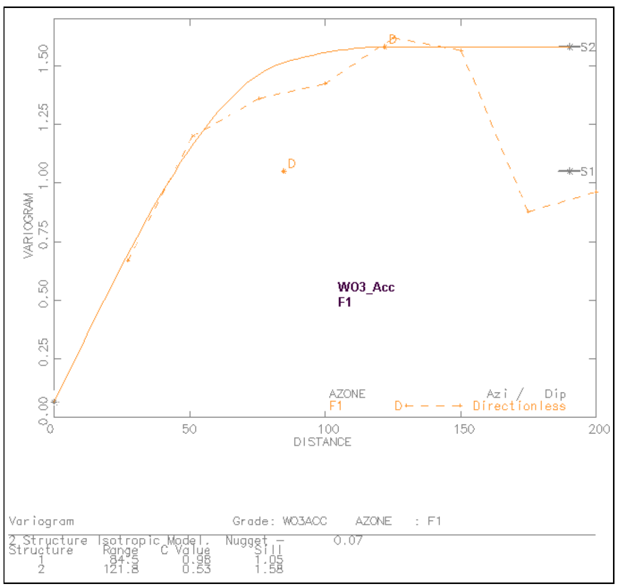
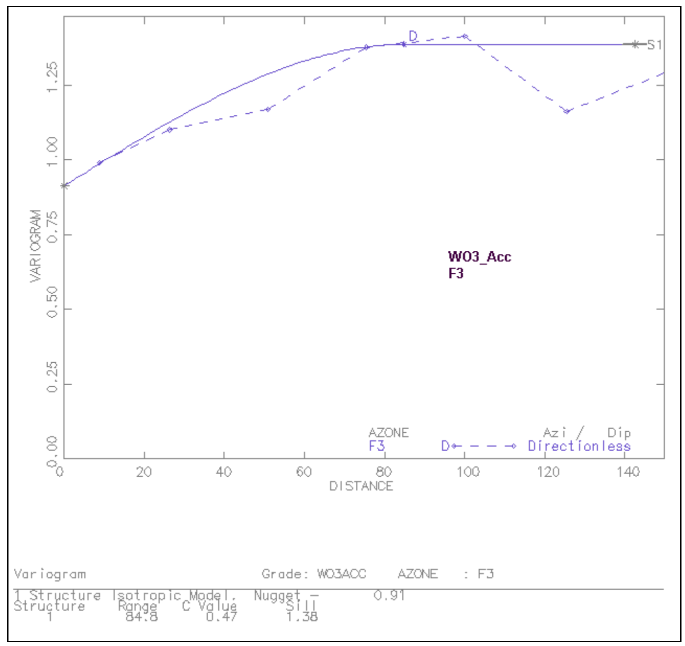
WO3
Log Probability Plot for WO3
Log Probability Plot for WO3 PHSIMP K
Log Probability Plot for WO3 PHSIMP P

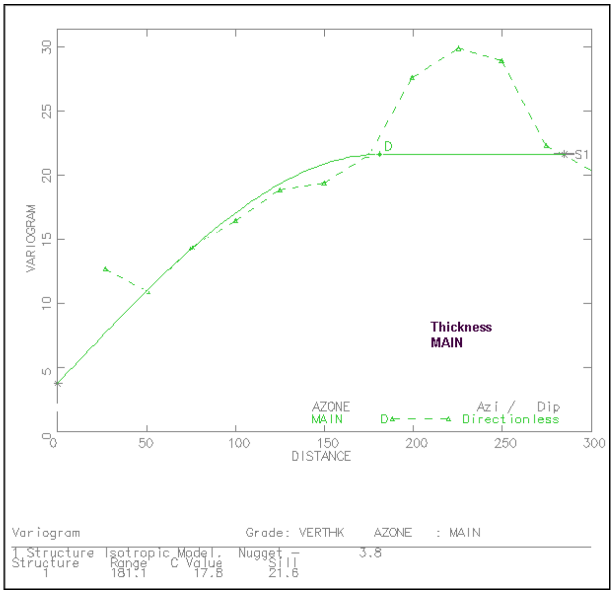
Variogram Plots










Thickness
MAIN
VARIOGRAM
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MAIN
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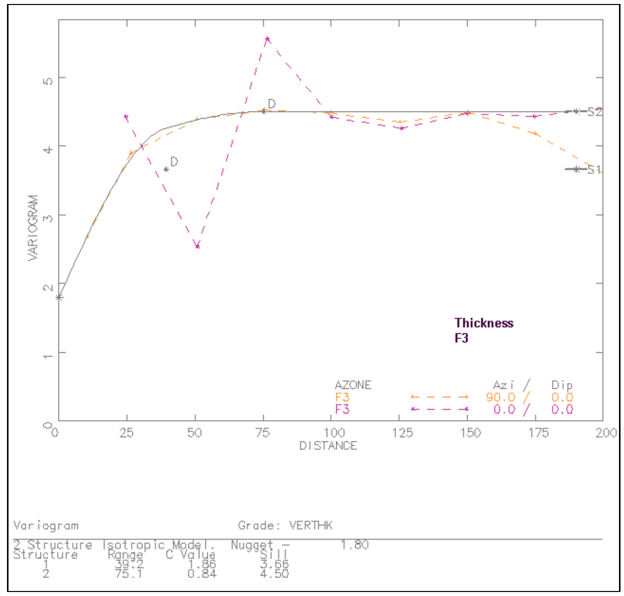
Variogram Grade: VERTHK AZONE : MAIN
1 Structure Isotropic Model. Nugget = 3.8
Structure Range C Value Sill
1 181.1 17.8 21.6


Thickness
F3
VARIOGRAM
DISTANCE
AZONE Azi / Dip
F3 90.0 / 0.0
F3 0.0 / 0.0
Variogram Grade: VERTHK
2 Structure Isotropic Model. Nugget = 1.80
Structure Range C Value Sill
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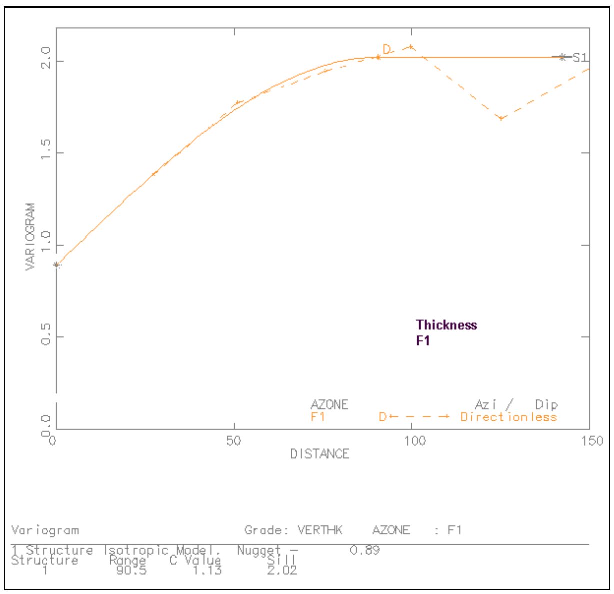
2 75.1 0.84 4.50


Thickness
F1
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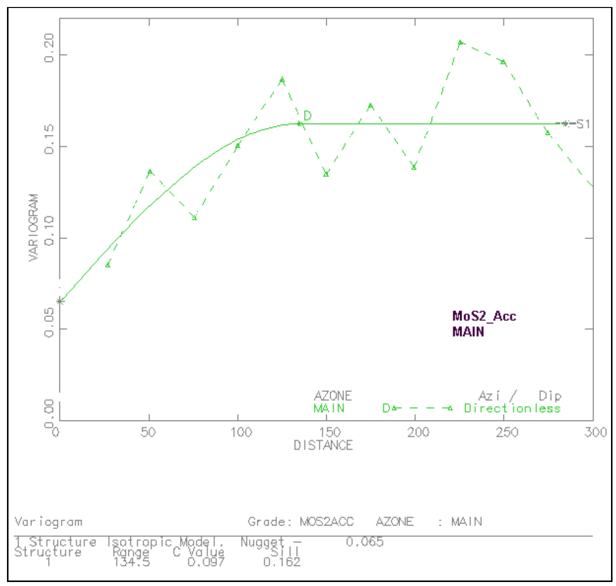
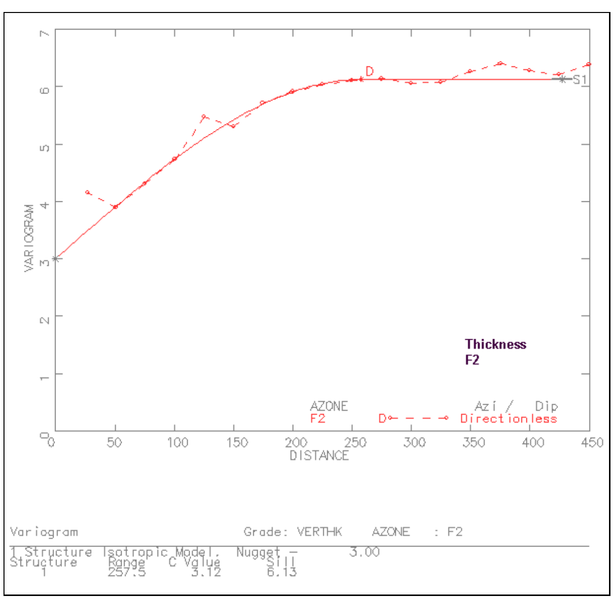
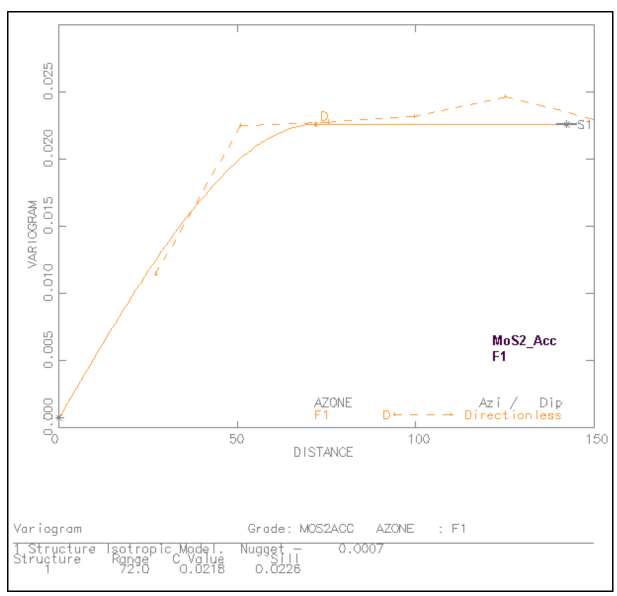
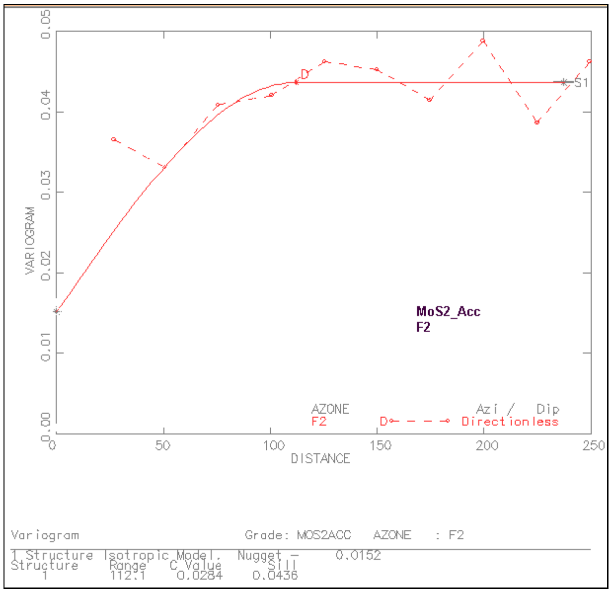
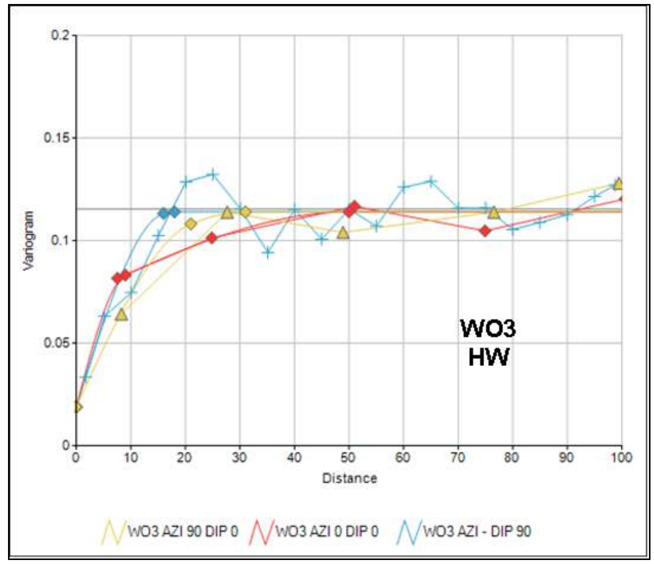
1 Structure Isotropic Model. Nugget = 0.89
Structure Range C Value Sill
1 90.5 1.13 2.02

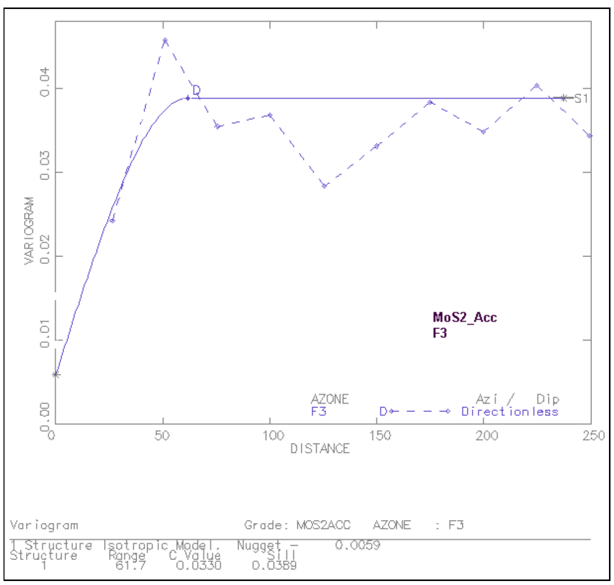

MoS2_Acc
MAIN
VARIOGRAM
DISTANCE
AZONE
MAIN
Azi / Dip
Directionless
Variogram Grade: MOS2ACC AZONE : MAIN
1 Structure Isotropic Model. Nugget = 0.065
Structure Range C Value Sill
1 134.5 0.097 0.162

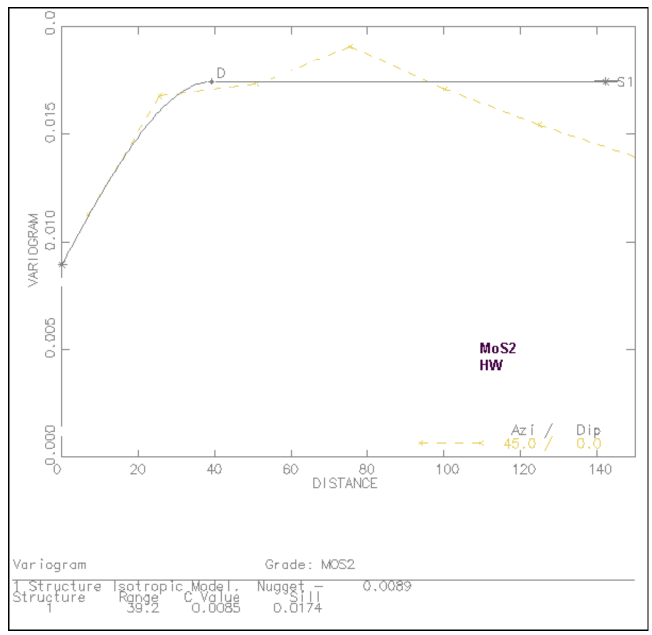

Thickness
F2
VARIOGRAM
DISTANCE
AZONE
F2
Azi / Dip
Directionless
Variogram Grade: VERTHK AZONE : F2
1 Structure Isotropic Model. Nugget = 3.00
Structure Range C Value Sill
1 257.5 3.12 6.13


MoS2_Acc
F1
VARIOGRAM
DISTANCE
AZONE
F1
Azi / Dip
Directionless
Variogram Grade: MOS2ACC AZONE : F1
1 Structure Isotropic Model. Nugget = 0.0007
Structure Range C Value Sill
1 72.0 0.0218 0.0226


VARIOGRAM
DISTANCE
MoS2_Acc
F2
AZONE
F2
Azi / Dip
Directionless
S1
Variogram Grade: MOS2ACC AZONE : F2
1 Structure Isotropic Model. Nugget – 0.0152
Structure Range C Value Sill
1 112.1 0.0284 0.0436


Variogram
Distance
WO3
HW
WO3 AZI 90 DIP 0
WO3 AZI 0 DIP 0
WO3 AZI - DIP 90


VARIOGRAM
DISTANCE
MoS2_Acc
F3
AZONE
F3
Azi / Dip
Directionless
S1
Variogram Grade: MOS2ACC AZONE : F3
1 Structure Isotropic Model. Nugget – 0.0059
Structure Range C Value Sill
1 61.7 0.0330 0.0389

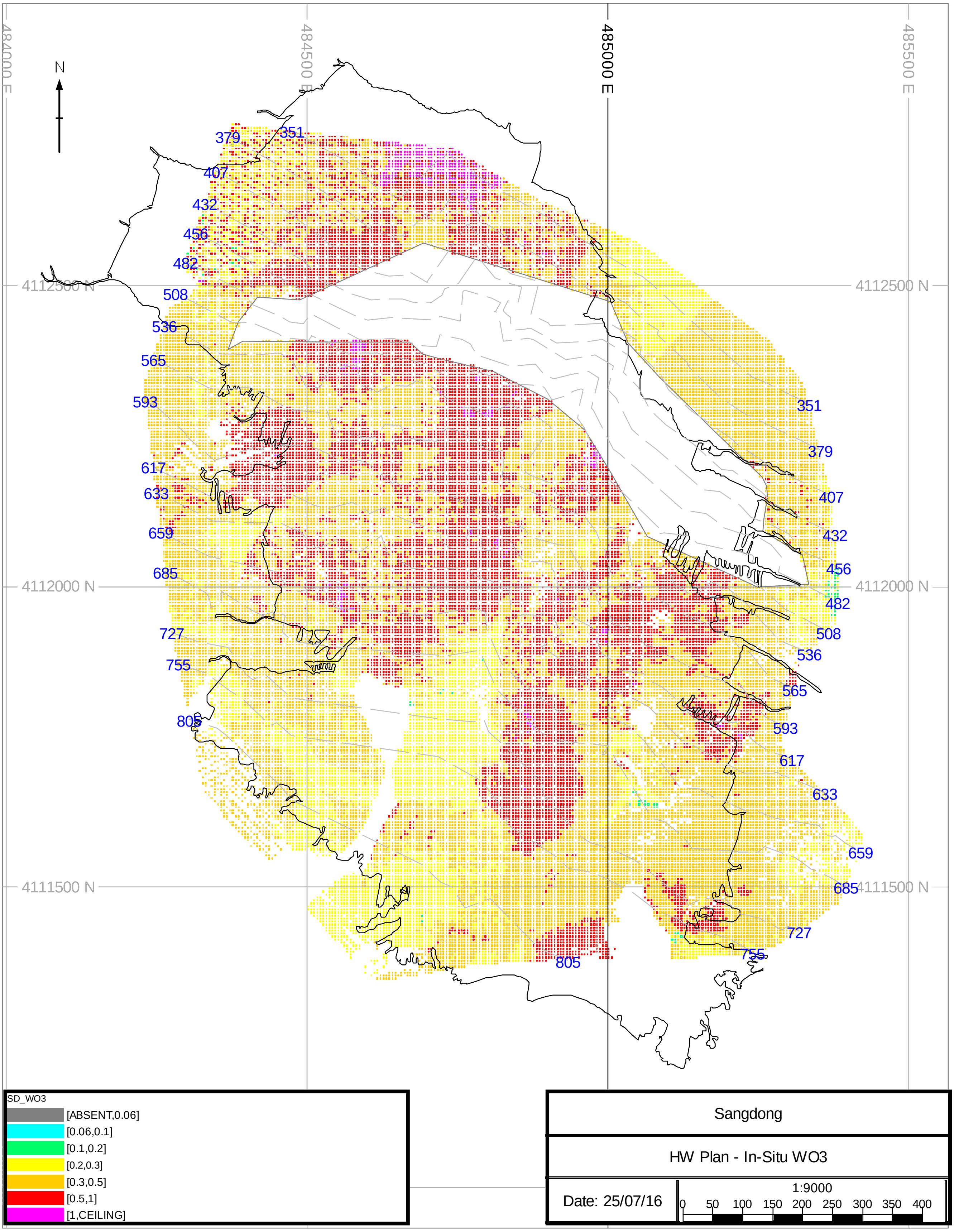

VARIOGRAM
DISTANCE
MoS2
HW
Azi / Dip
45.0 / 0.0
S1
Variogram Grade: MOS2
1 Structure Isotropic Model. Nugget – 0.0089
Structure Range C Value Sill
1 39.2 0.0085 0.0174

SANGDONG 43-101

APPENDIX B:

Resource Model Plans

February 2025



SD_WO3

	[ABSENT,0.06]
	[0.06,0.1]
	[0.1,0.2]
	[0.2,0.3]
	[0.3,0.5]
	[0.5,1]
	[1,CEILING]

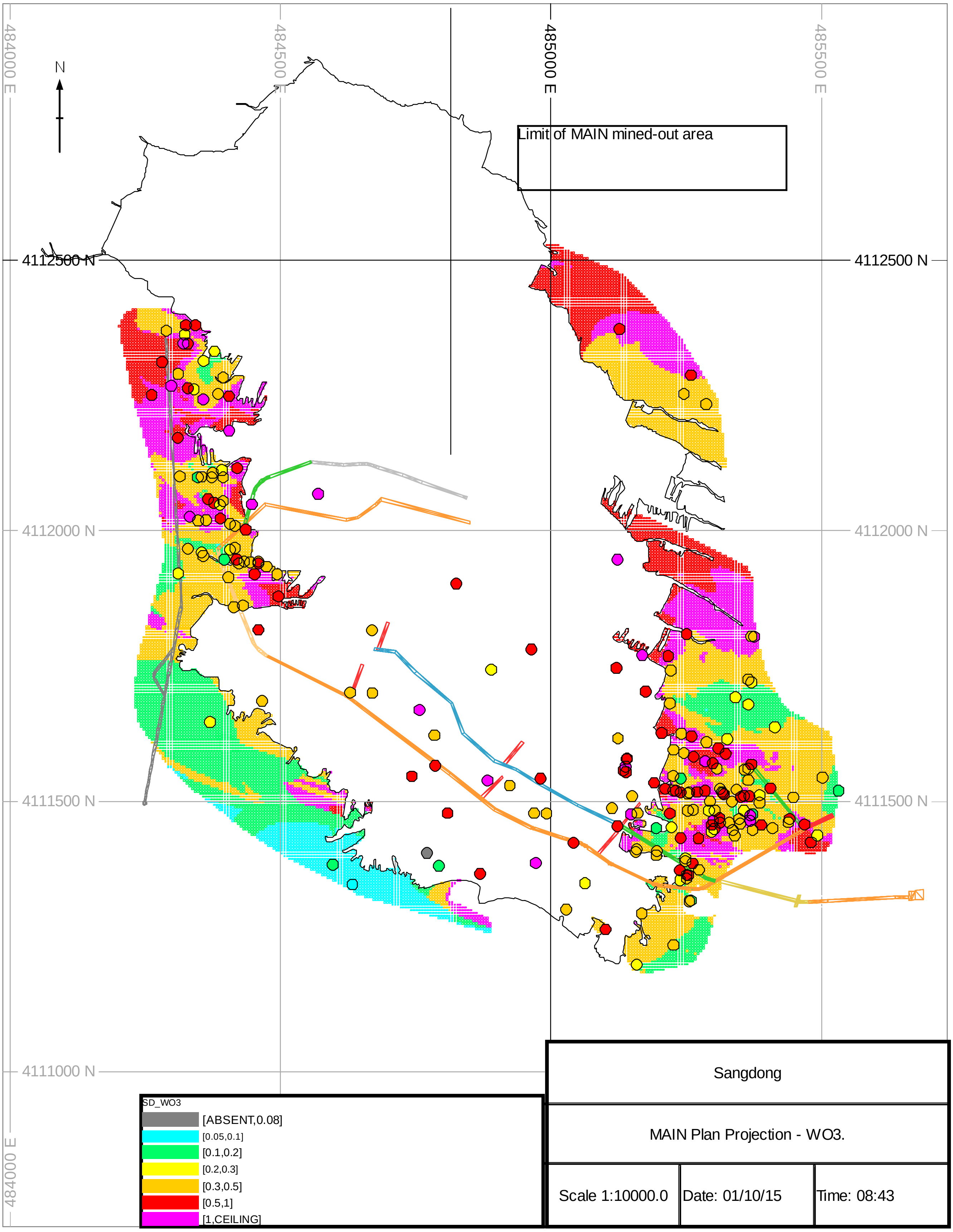
Sangdong

HW Plan - In-Situ WO3

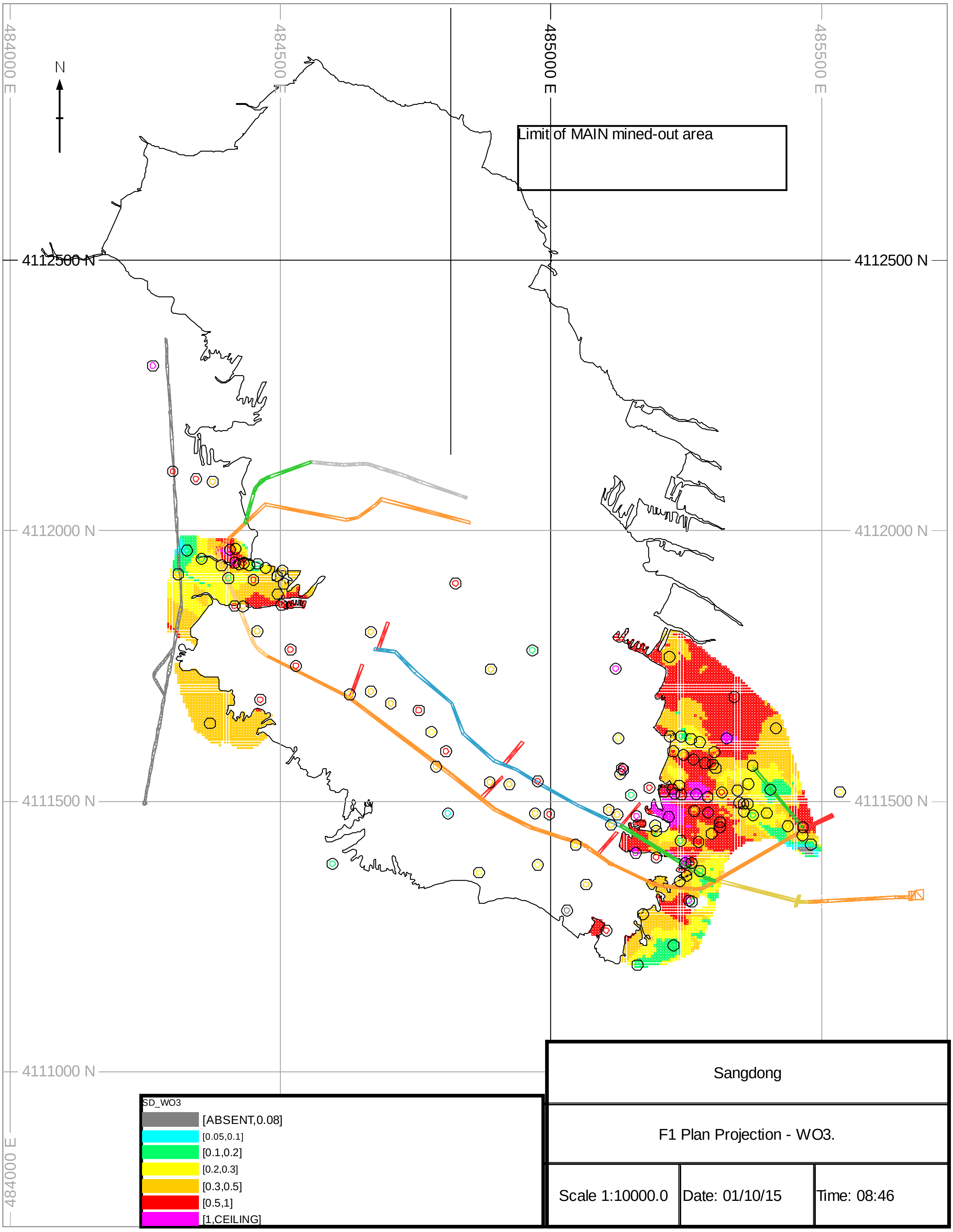
Date: 25/07/16

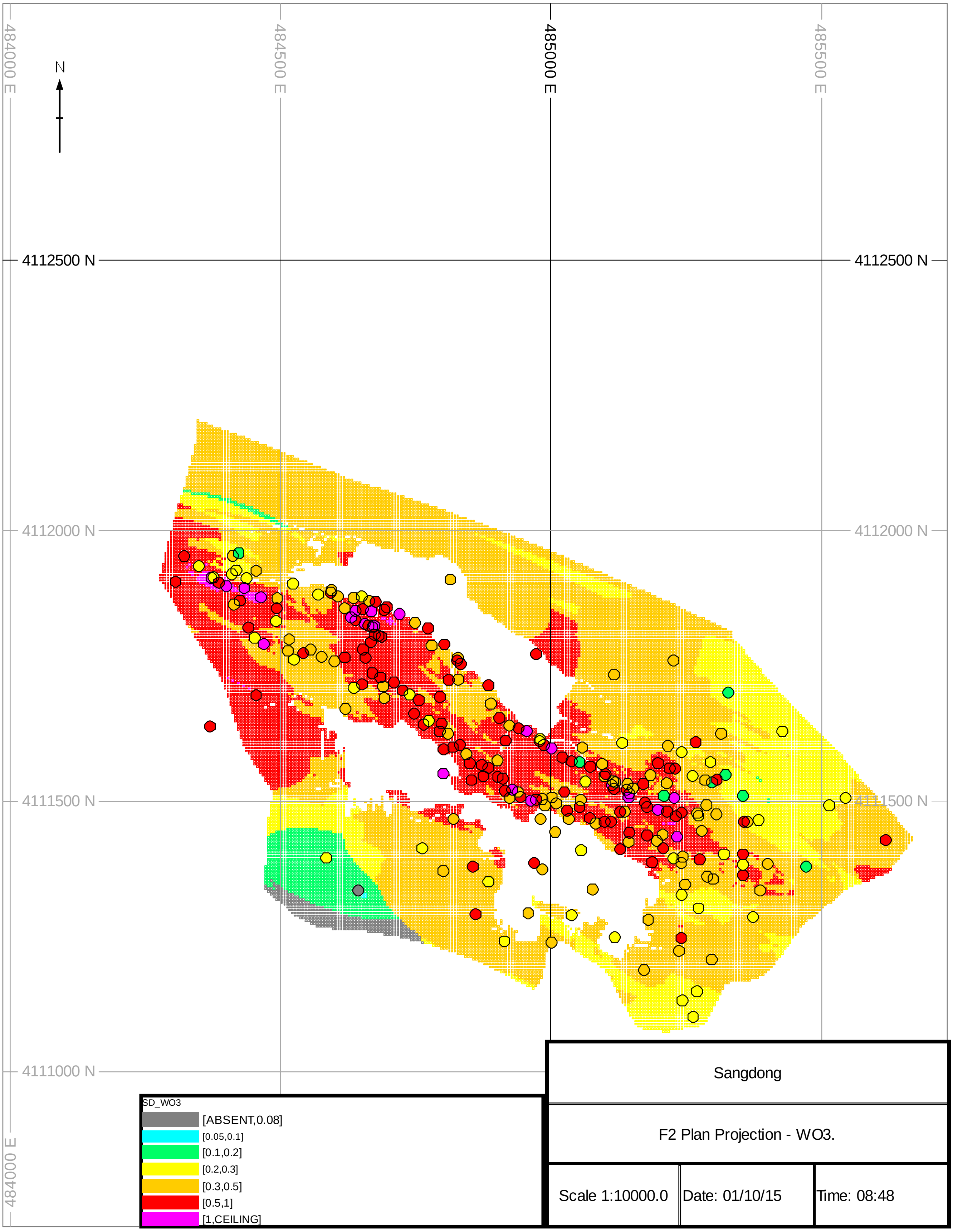
1:9000

0 50 100 150 200 250 300 350 400

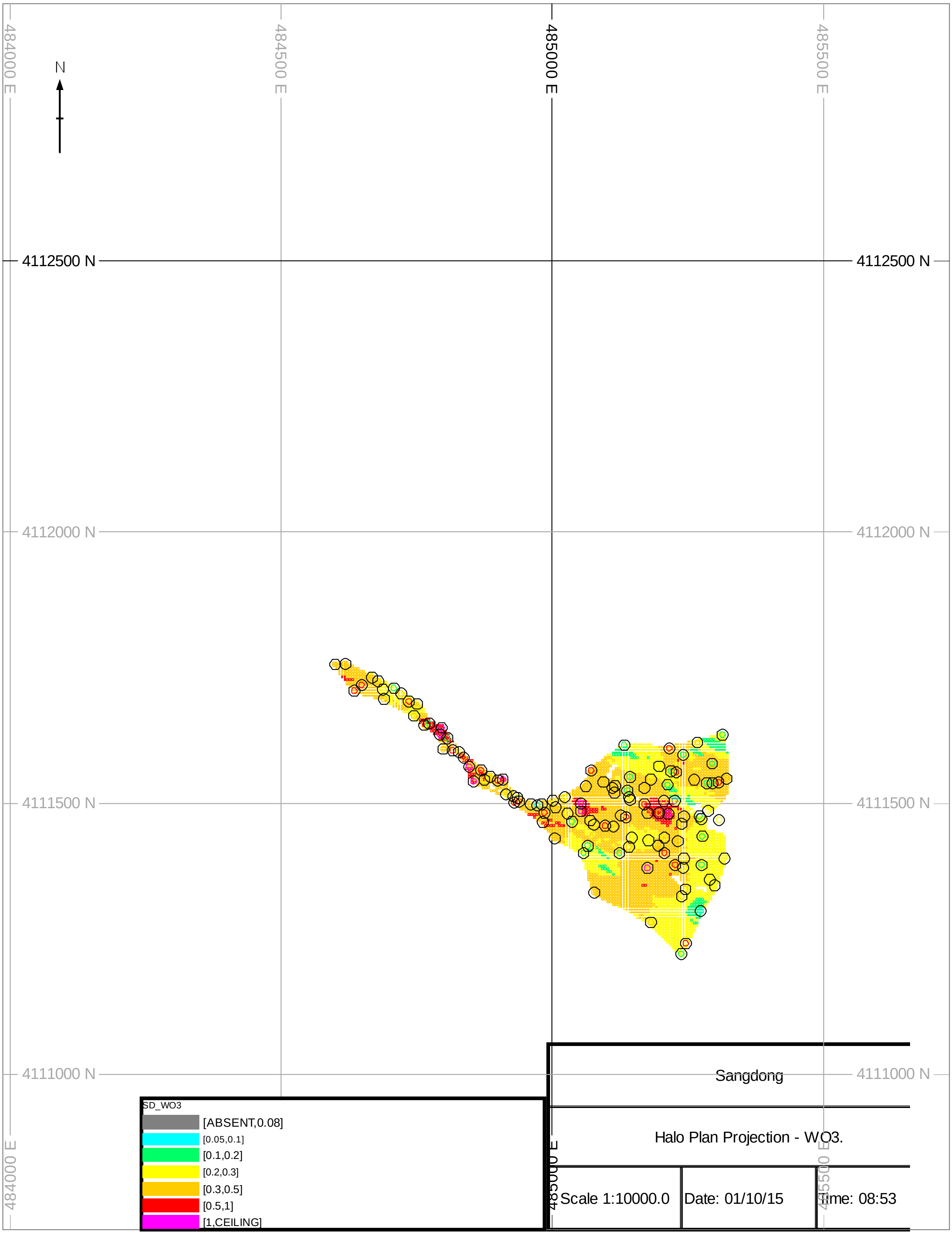


N
484000 E
484500 E
485000 E
485500 E
4112500 N
4112000 N
4111500 N
4111000 N
Limit of MAIN mined-out area
SD_WO3
[ABSENT,0.08]
[0.05,0.1]
[0.1,0.2]
[0.2,0.3]
[0.3,0.5]
[0.5,1]
[1,CEILING]
Sangdong
MAIN Plan Projection - WO3.
Scale 1:10000.0
Date: 01/10/15
Time: 08:43

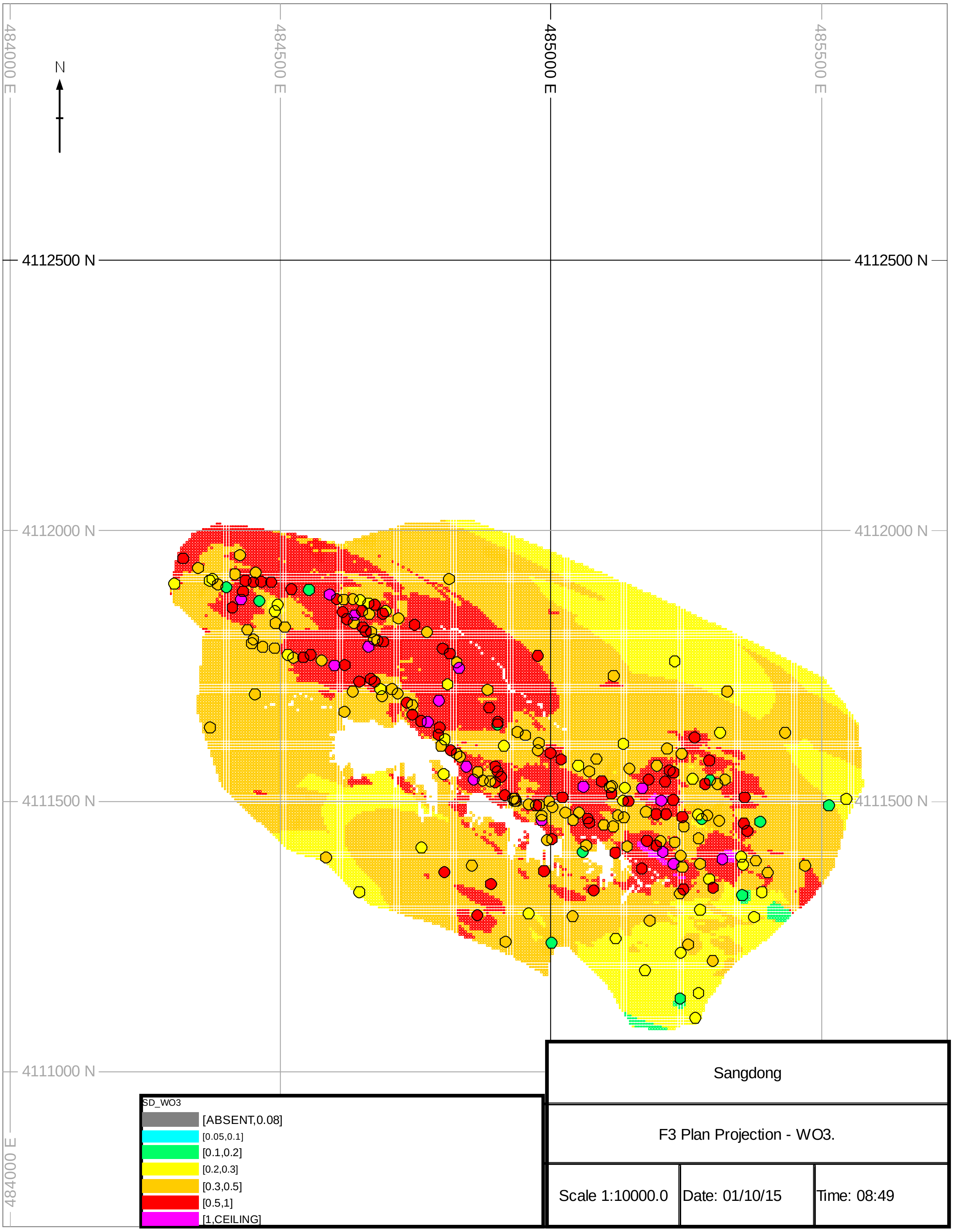

N
484000 E
484500 E
485000 E
485500 E
4112500 N
4112000 N
4111500 N
4111000 N
Limit of MAIN mined-out area
SD_WO3
[ABSENT,0.08]
[0.05,0.1]
[0.1,0.2]
[0.2,0.3]
[0.3,0.5]
[0.5,1]
[1,CEILING]
Sangdong
F1 Plan Projection - WO3.
Scale 1:10000.0
Date: 01/10/15
Time: 08:46



Sangdong		
F2 Plan Projection - WO3.		
Scale 1:10000.0	Date: 01/10/15	Time: 08:48



N
484000 E
484500 E
485000 E
485500 E
4112500 N
4112000 N
4111500 N
4111000 N
SD_WO3
[ABSENT,0.08]
[0.05,0.1]
[0.1,0.2]
[0.2,0.3]
[0.3,0.5]
[0.5,1]
[1,CEILING]
Sangdong
Halo Plan Projection - WO3.
Scale 1:10000.0
Date: 01/10/15
Time: 08:53



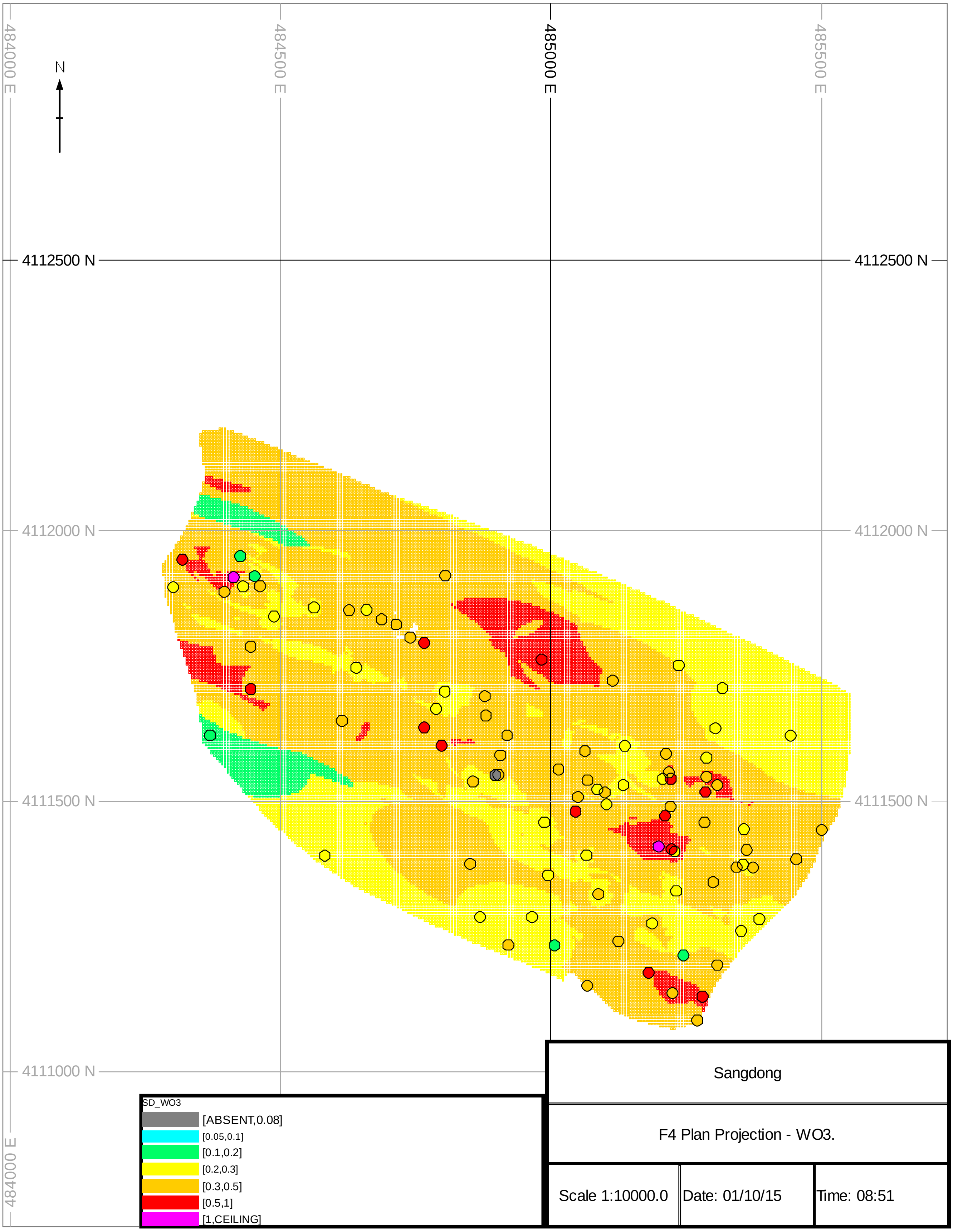
SD_WO3

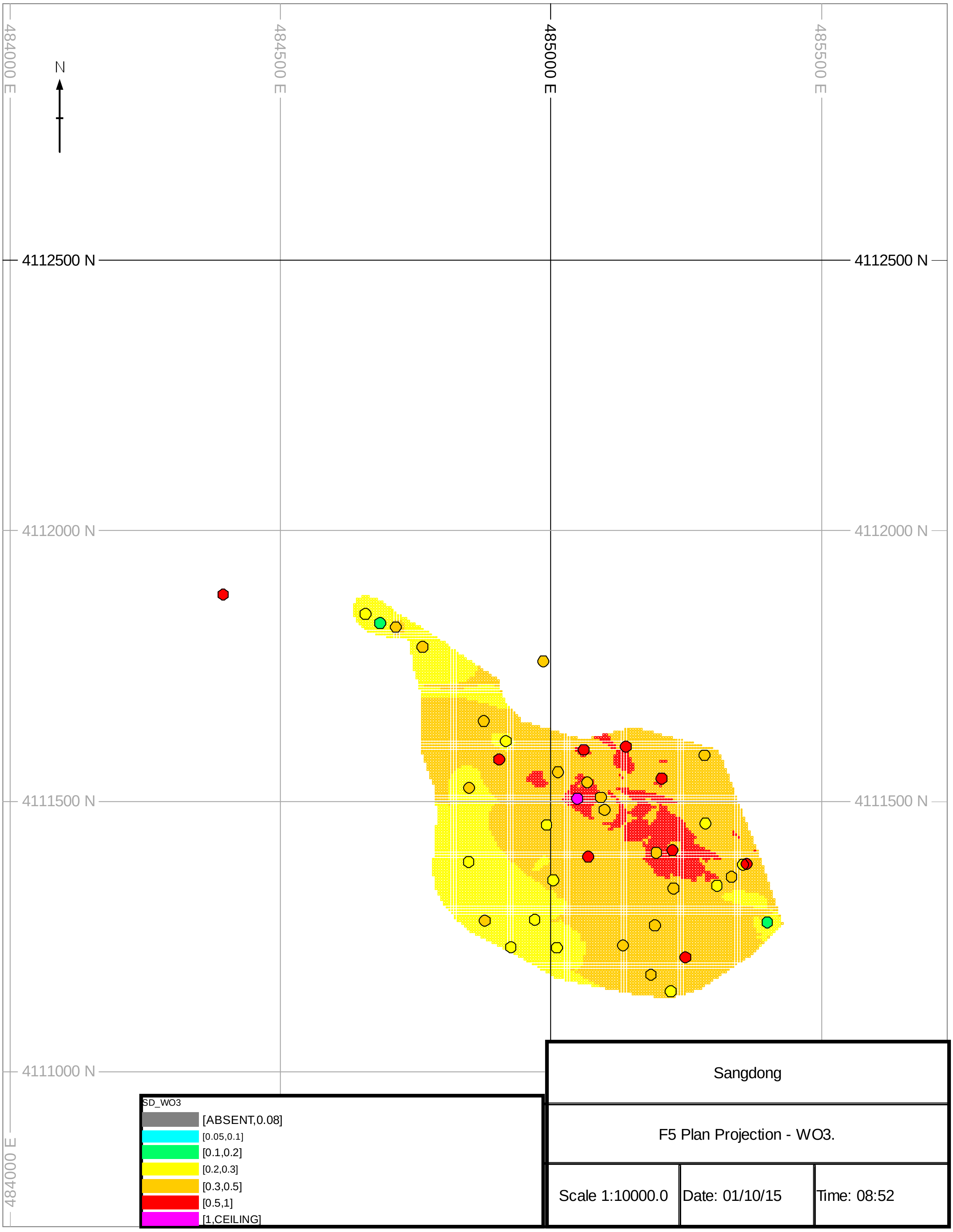
- [ABSENT,0.08]
- [0.05,0.1]
- [0.1,0.2]
- [0.2,0.3]
- [0.3,0.5]
- [0.5,1]
- [1,CEILING]

Sangdong

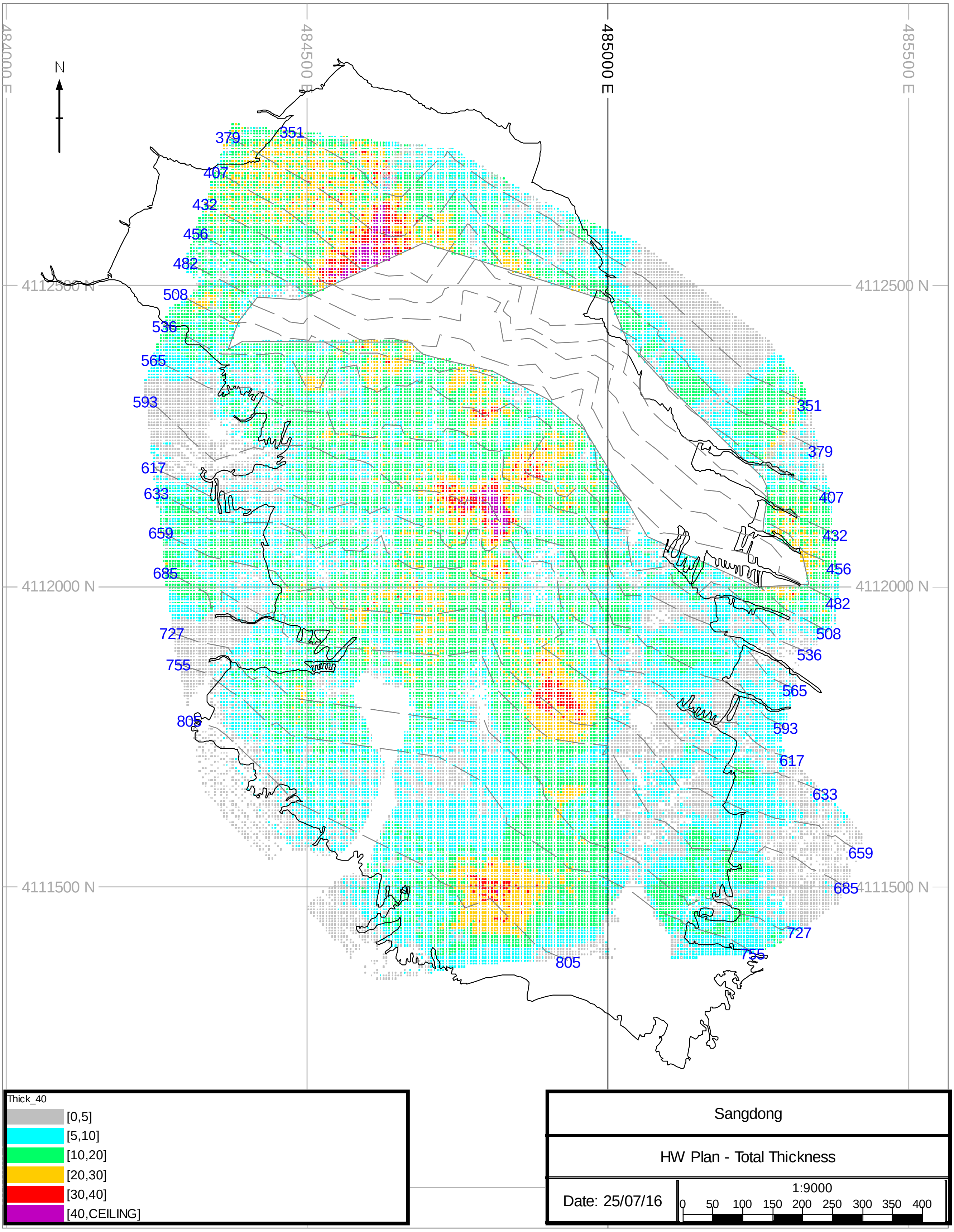
F3 Plan Projection - WO3.

Scale 1:10000.0	Date: 01/10/15	Time: 08:49

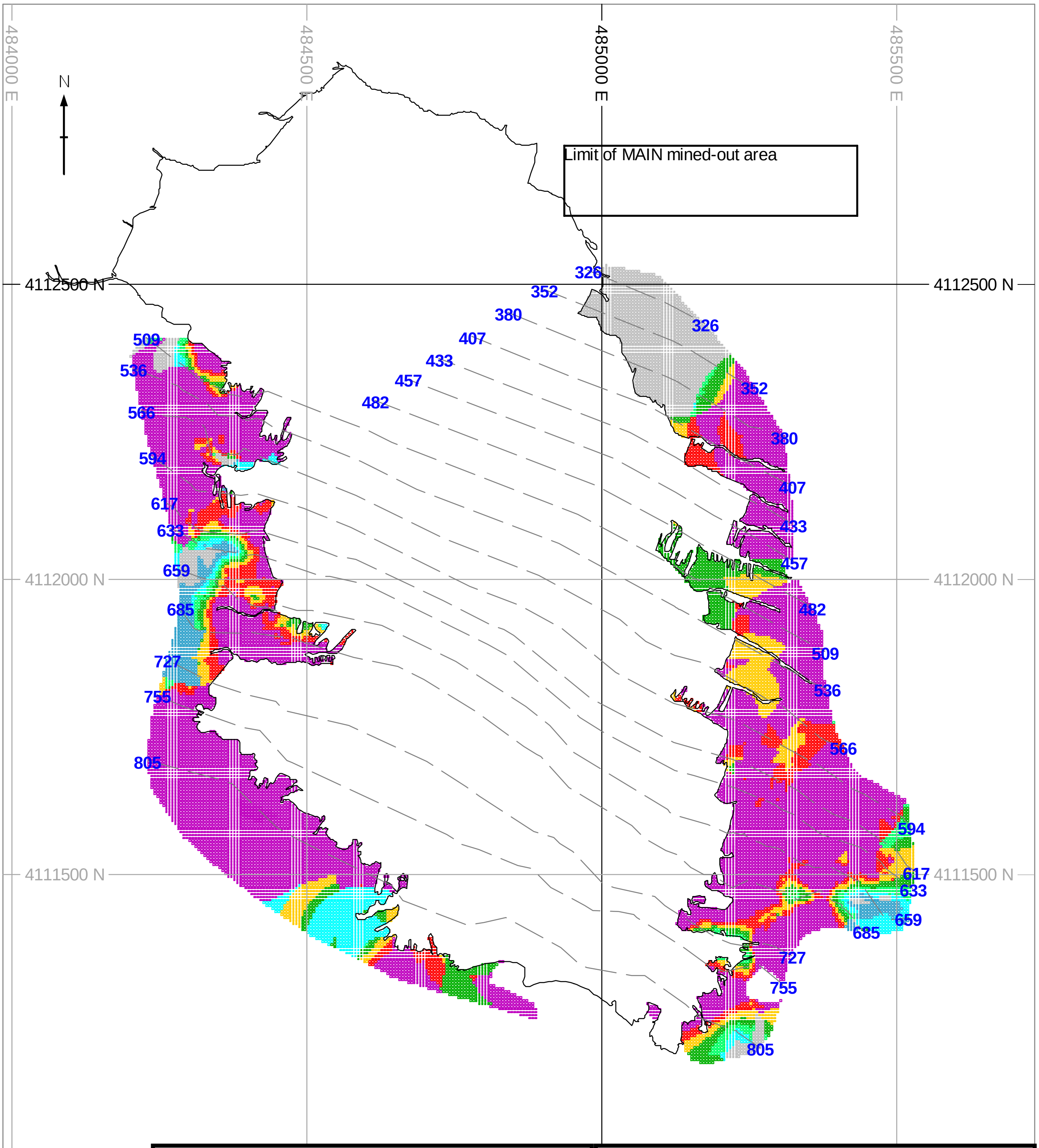

484000 E
484500 E
485000 E
485500 E
N
4112500 N
4112000 N
4111500 N
4111000 N
SD_WO3
[ABSENT,0.08]
[0.05,0.1]
[0.1,0.2]
[0.2,0.3]
[0.3,0.5]
[0.5,1]
[1,CEILING]
Sangdong
F4 Plan Projection - WO3.
Scale 1:10000.0
Date: 01/10/15
Time: 08:51



484000 E
484500 E
485000 E
485500 E
N
4112500 N
4112000 N
4111500 N
4111000 N
SD_WO3
[ABSENT,0.08]
[0.05,0.1]
[0.1,0.2]
[0.2,0.3]
[0.3,0.5]
[0.5,1]
[1,CEILING]
Sangdong
F5 Plan Projection - WO3.
Scale 1:10000.0
Date: 01/10/15
Time: 08:52



484000 E
484500 E
485000 E
485500 E
N
4112500 N
4112000 N
4111500 N
351
379
407
432
456
482
508
536
565
593
617
633
659
685
727
755
805
Thick_40
[0,5]
[5,10]
[10,20]
[20,30]
[30,40]
[40,CEILING]
Sangdong
HW Plan - Total Thickness
Date: 25/07/16
1:9000
0 50 100 150 200 250 300 350 400



SD_Thick_4

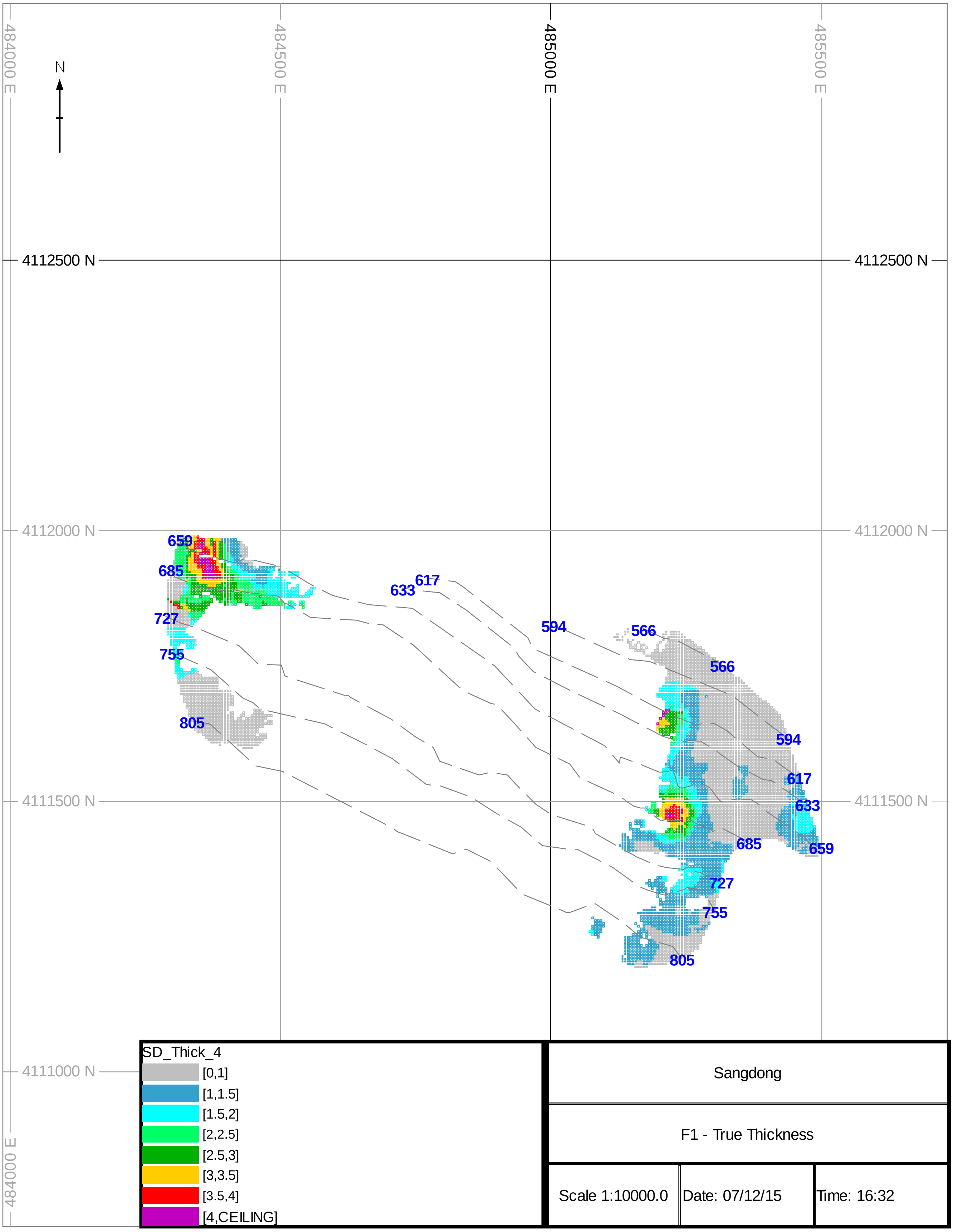
- [0,1]
- [1,1.5]
- [1.5,2]
- [2,2.5]
- [2.5,3]
- [3,3.5]
- [3.5,4]
- [4,CEILING]

Sangdong

MAIN Plan - True Thickness

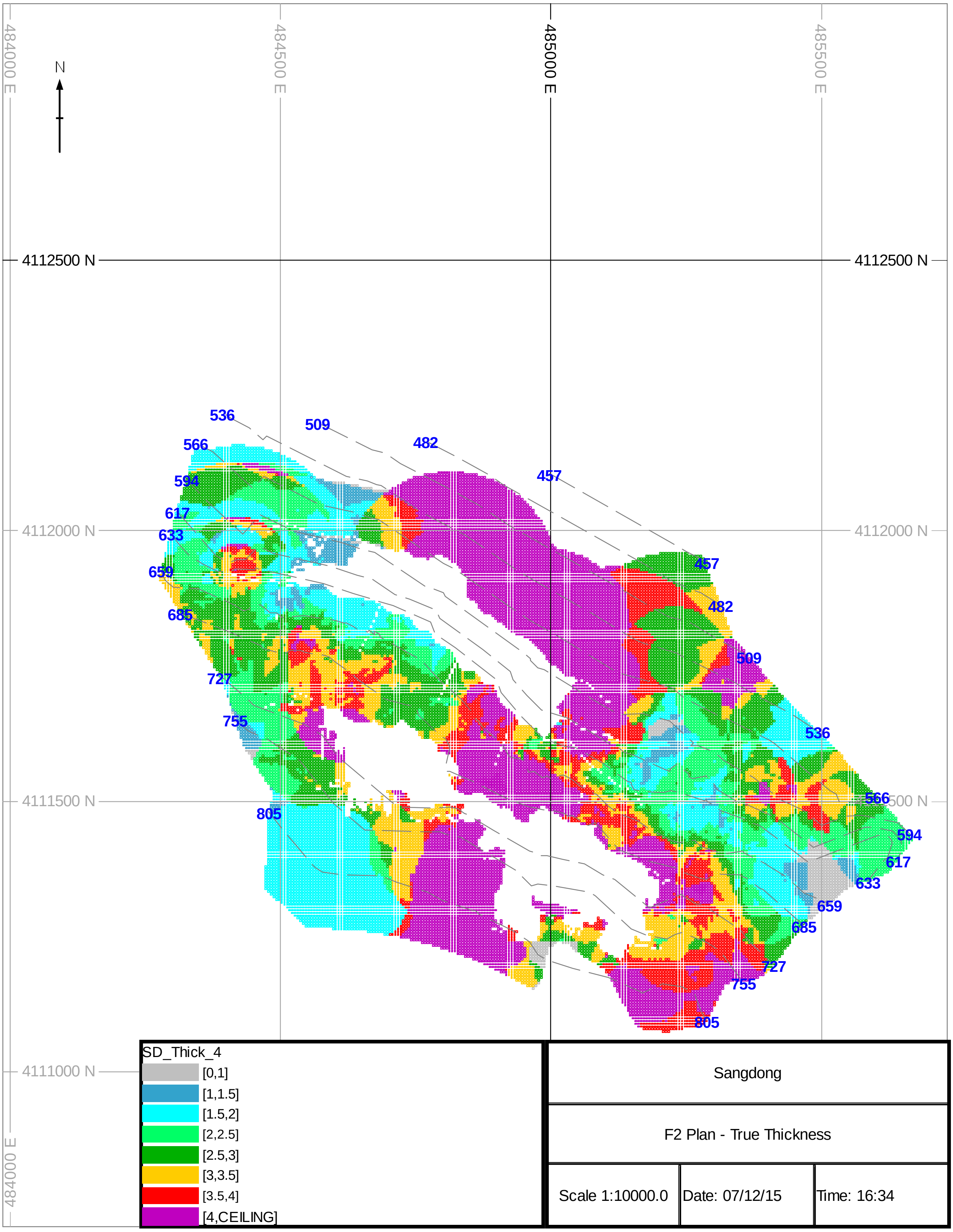
0 50 100 150 200 250 300 350 400 450

Time: 16:29

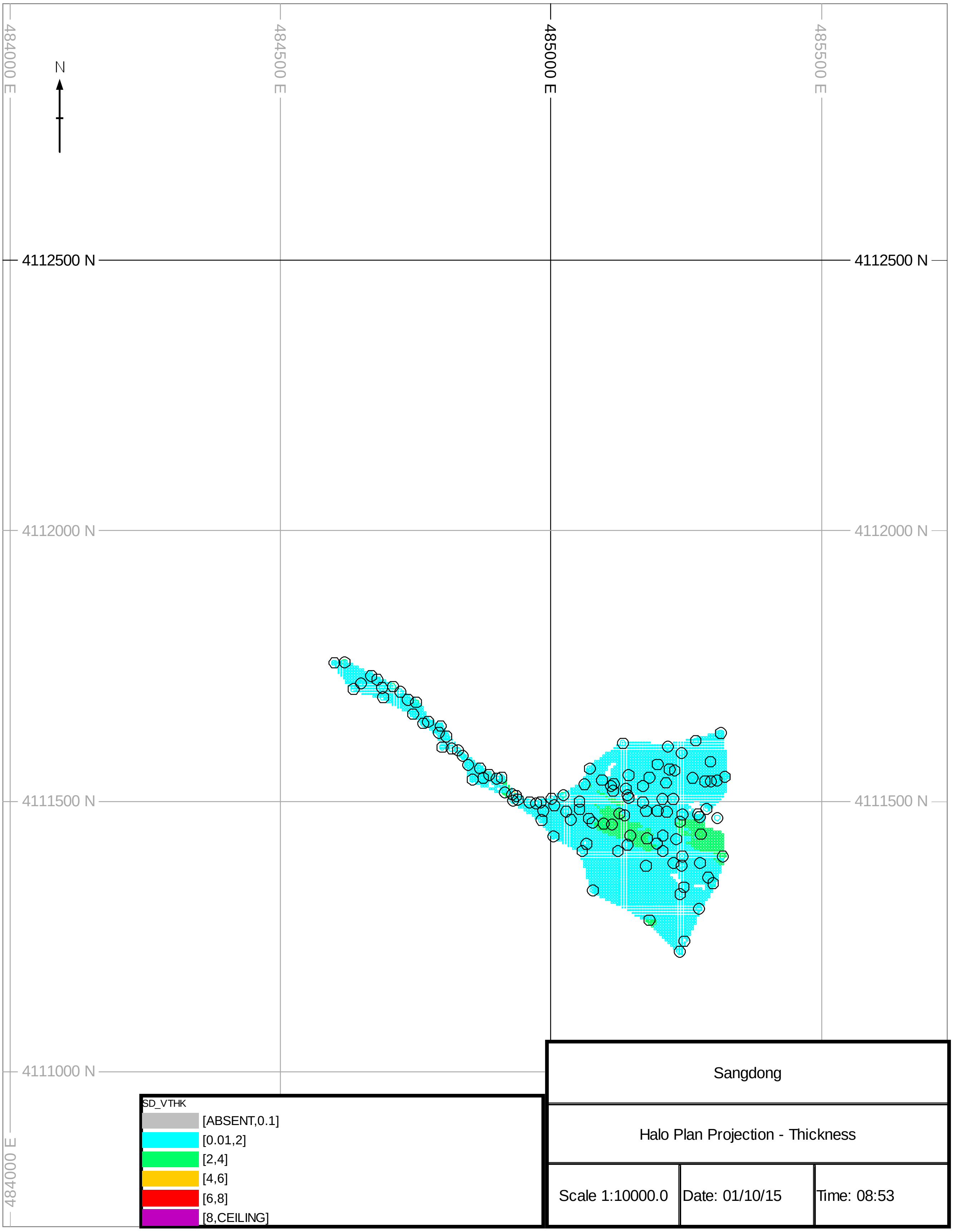


SD_Thick_4
[0,1]
[1,1.5]
[1.5,2]
[2,2.5]
[2.5,3]
[3,3.5]
[3.5,4]
[4,CEILING]

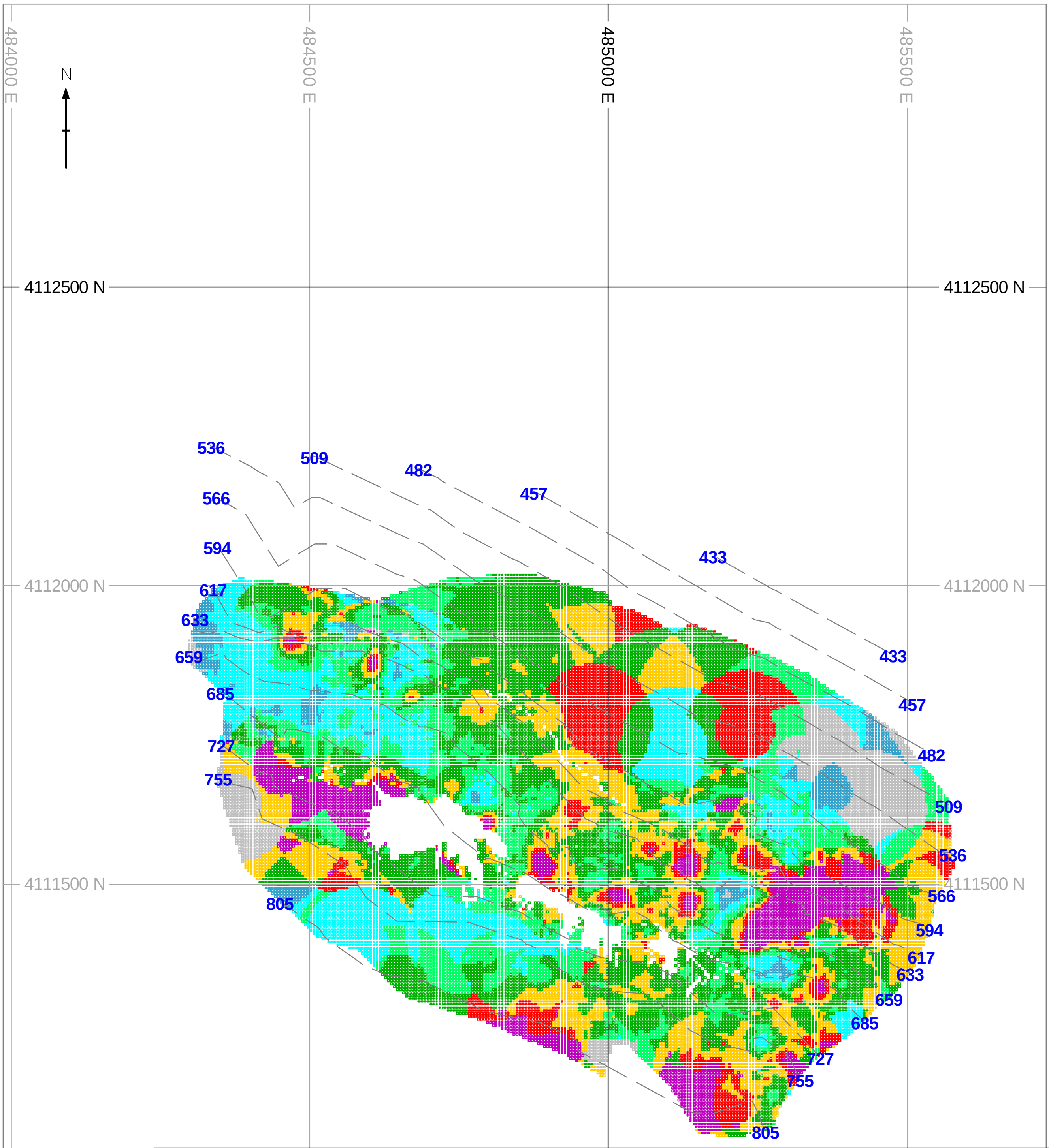
Sangdong		
F1 - True Thickness		
Scale 1:10000.0	Date: 07/12/15	Time: 16:32



Sangdong		
F2 Plan - True Thickness		
Scale 1:10000.0	Date: 07/12/15	Time: 16:34



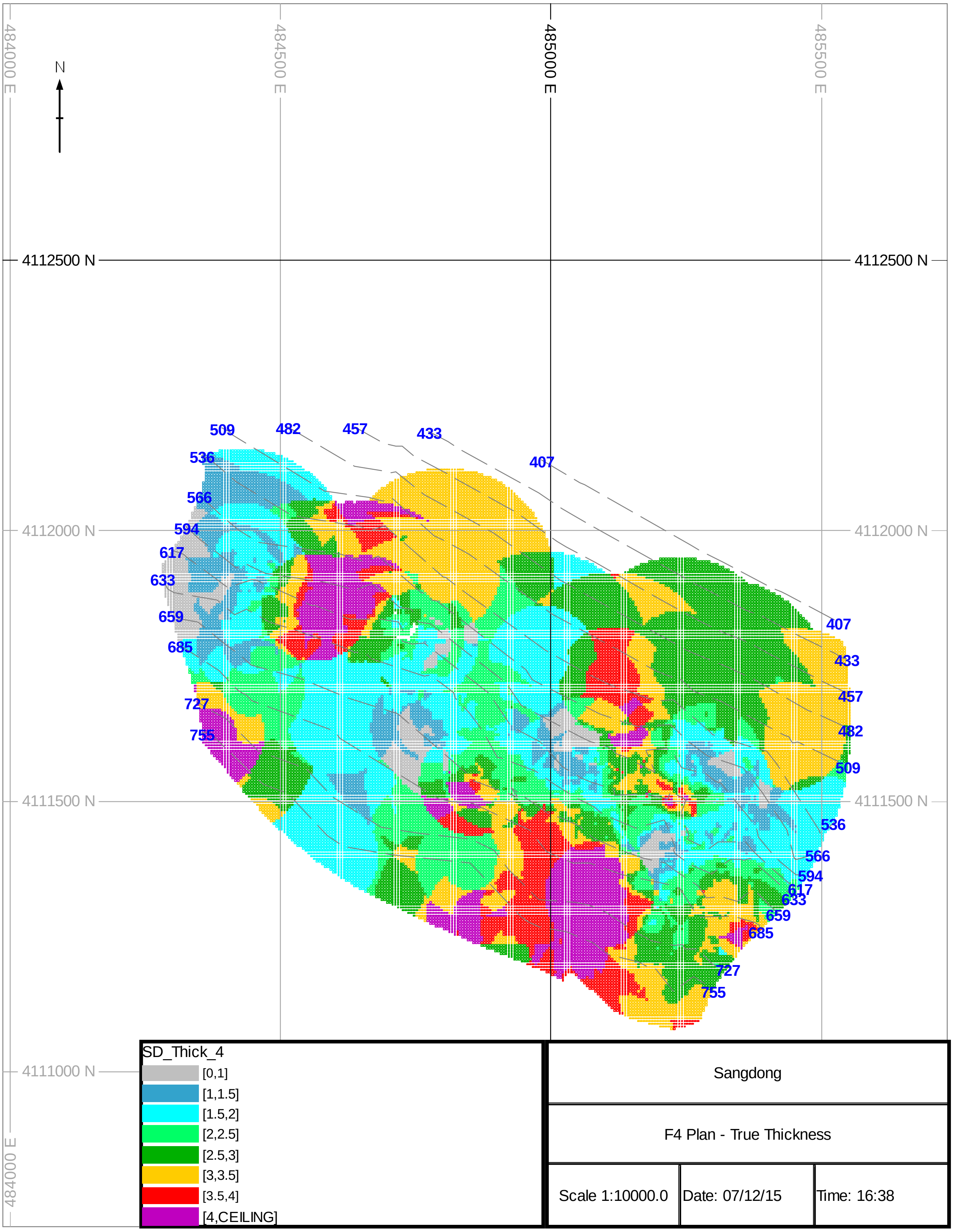
Sangdong		
Halo Plan Projection - Thickness		
Scale 1:10000.0	Date: 01/10/15	Time: 08:53



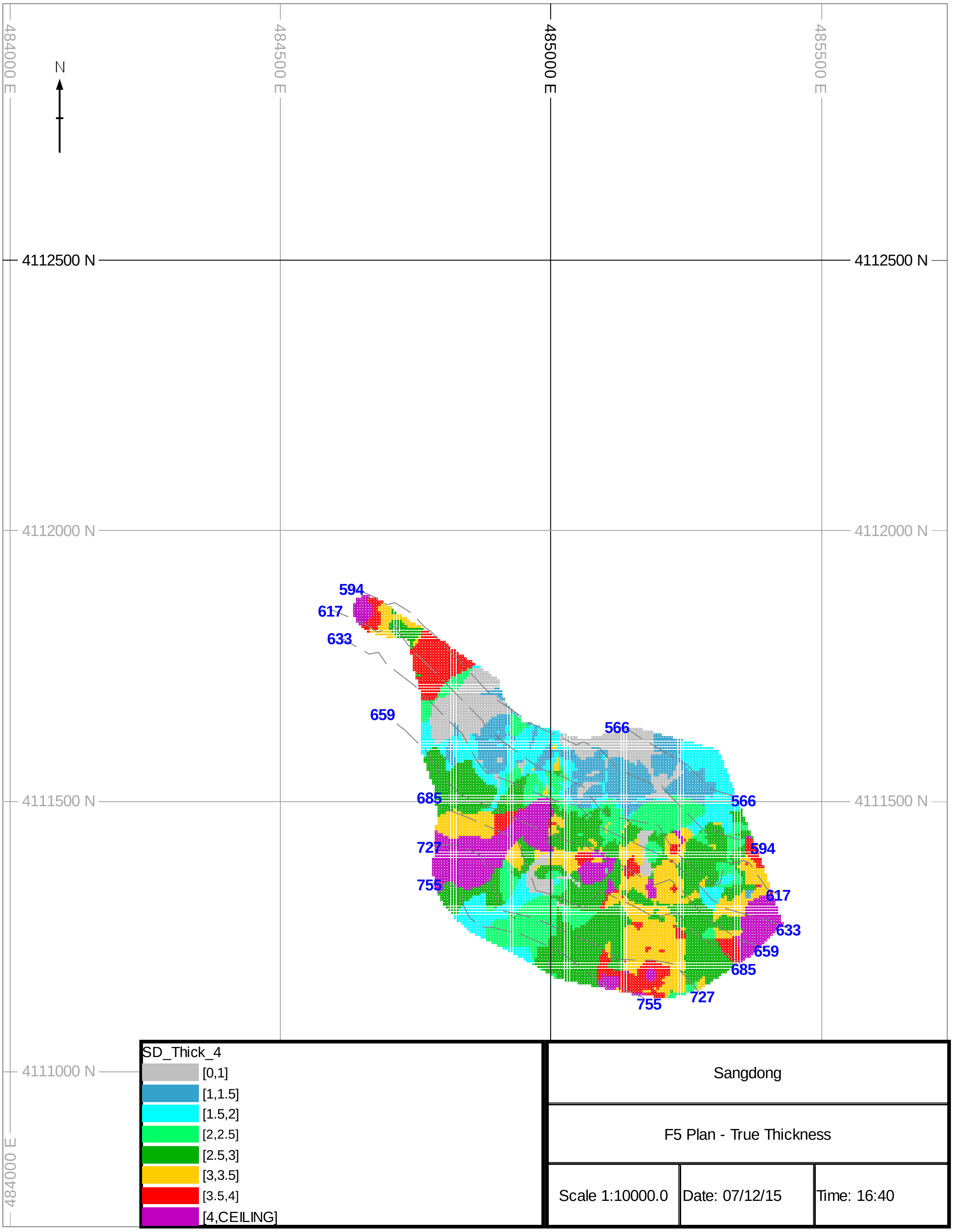
SD_Thick_4

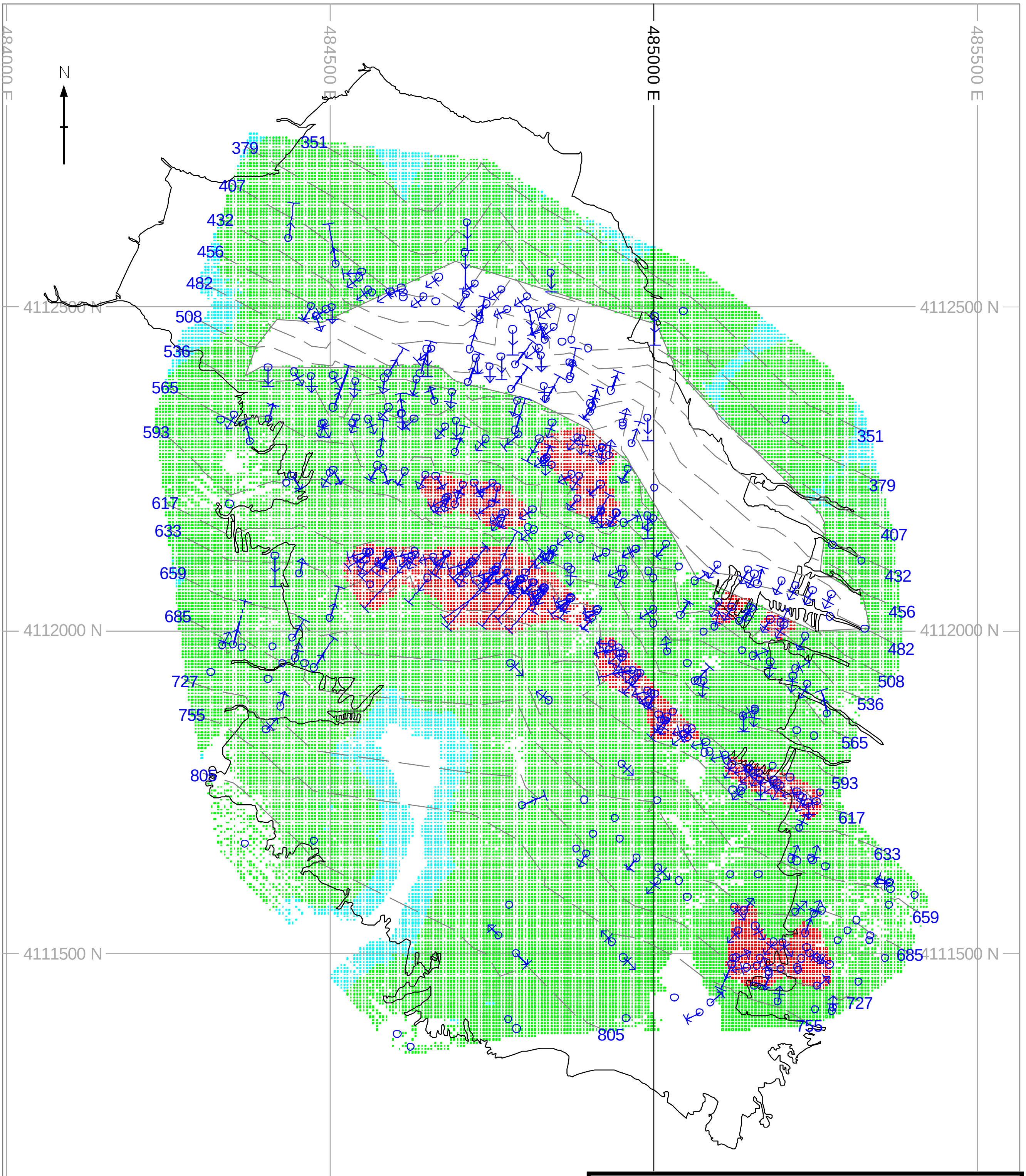
(grey)	[0,1]
(blue)	[1,1.5]
(cyan)	[1.5,2]
(light green)	[2,2.5]
(green)	[2.5,3]
(yellow)	[3,3.5]
(red)	[3.5,4]
(purple)	[4,CEILING]

Sangdong		
F3 Plan - True Thickness		
Scale 1:10000.0	Date: 07/12/15	Time: 16:36



N
484000 E
484500 E
485000 E
485500 E
4112500 N
4112000 N
4111500 N
4111000 N
509
482
457
433
407
536
566
594
617
633
659
685
727
755
SD_Thick_4
[0,1]
[1,1.5]
[1.5,2]
[2,2.5]
[2.5,3]
[3,3.5]
[3.5,4]
[4,CEILING]
Sangdong
F4 Plan - True Thickness
Scale 1:10000.0
Date: 07/12/15
Time: 16:38


484000 E
484500 E
485000 E
485500 E
N
4112500 N
4112000 N
4111500 N
4111000 N
594
617
633
659
685
727
755
566
566
594
617
633
659
685
727
755
SD_Thick_4
[0,1]
[1,1.5]
[1.5,2]
[2,2.5]
[2.5,3]
[3,3.5]
[3.5,4]
[4,CEILING]
Sangdong
F5 Plan - True Thickness
Scale 1:10000.0
Date: 07/12/15
Time: 16:40



HW_Class

- Indicated
- Inferred
- Pot 200

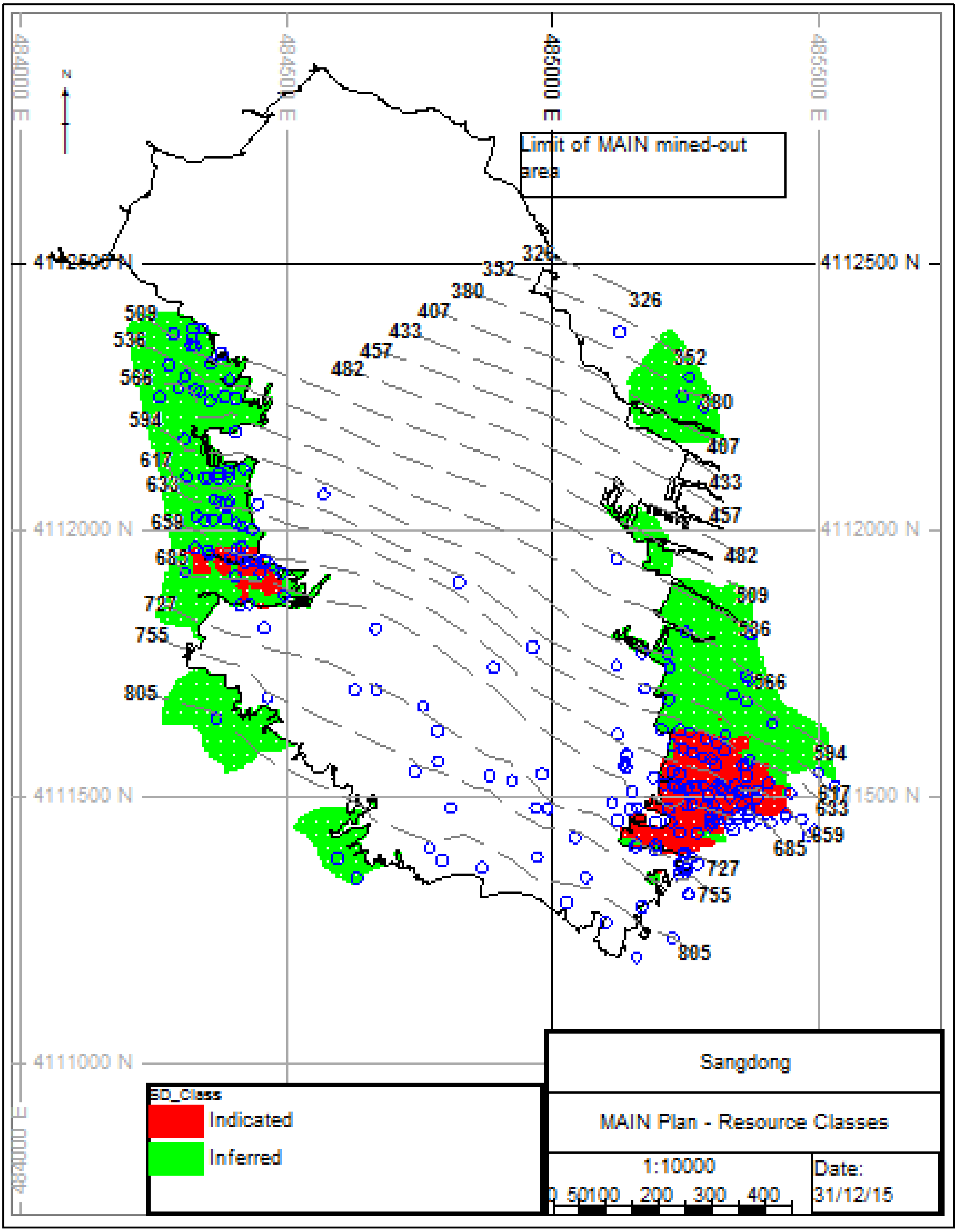
Sangdong

HW Plan - Resource Classification

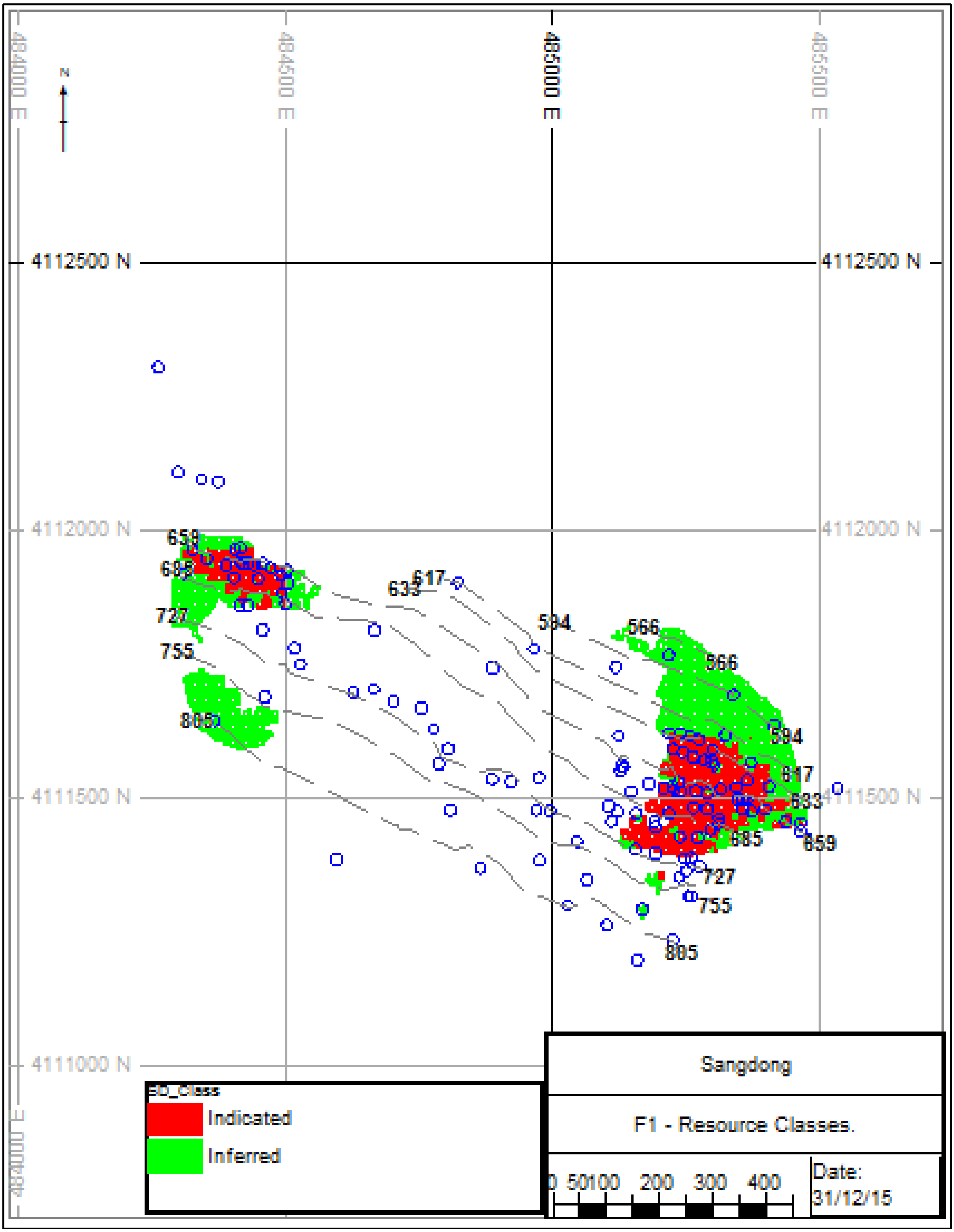
Date: 25/07/16

1:9000

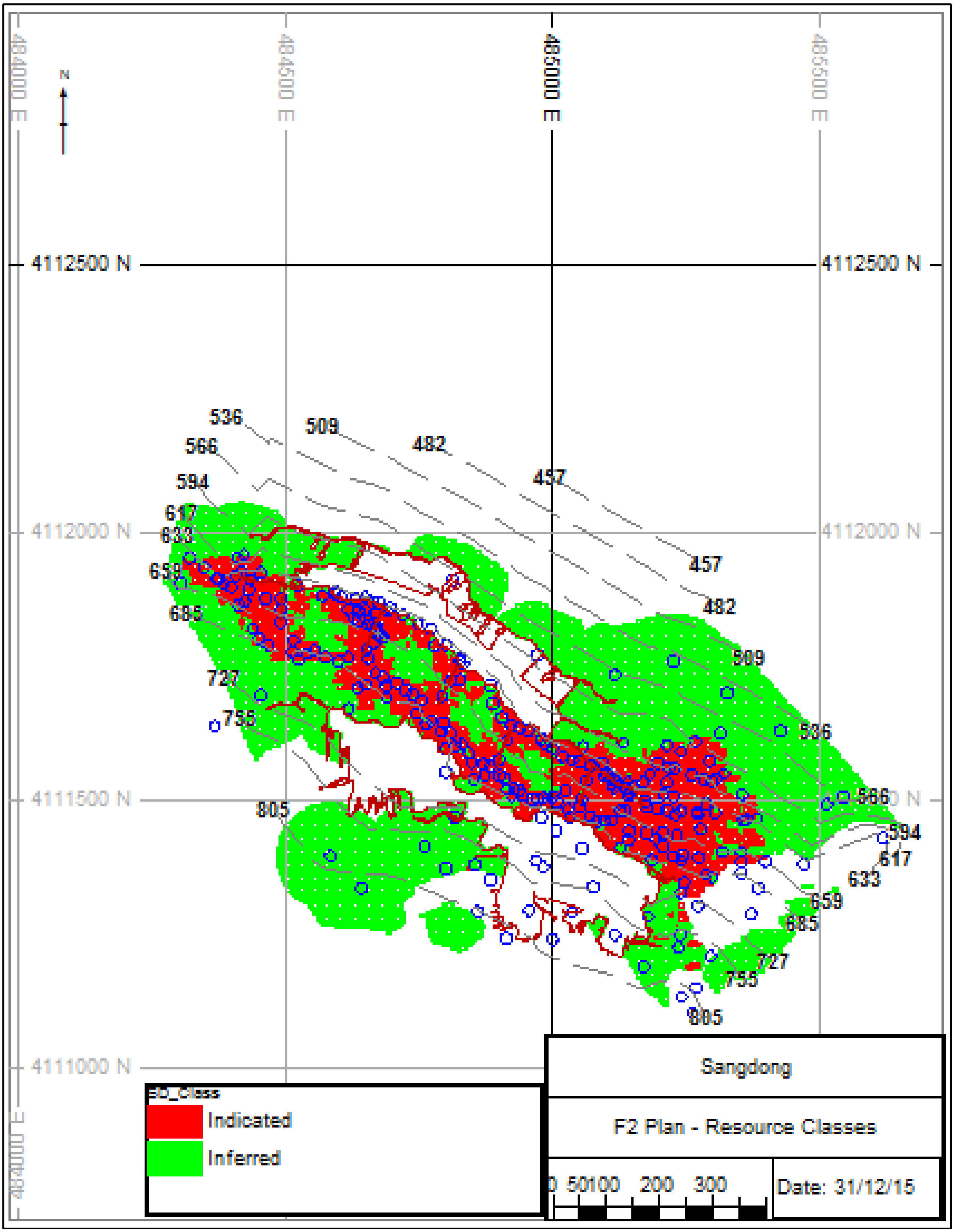
0 50 100 150 200 250 300 350 400



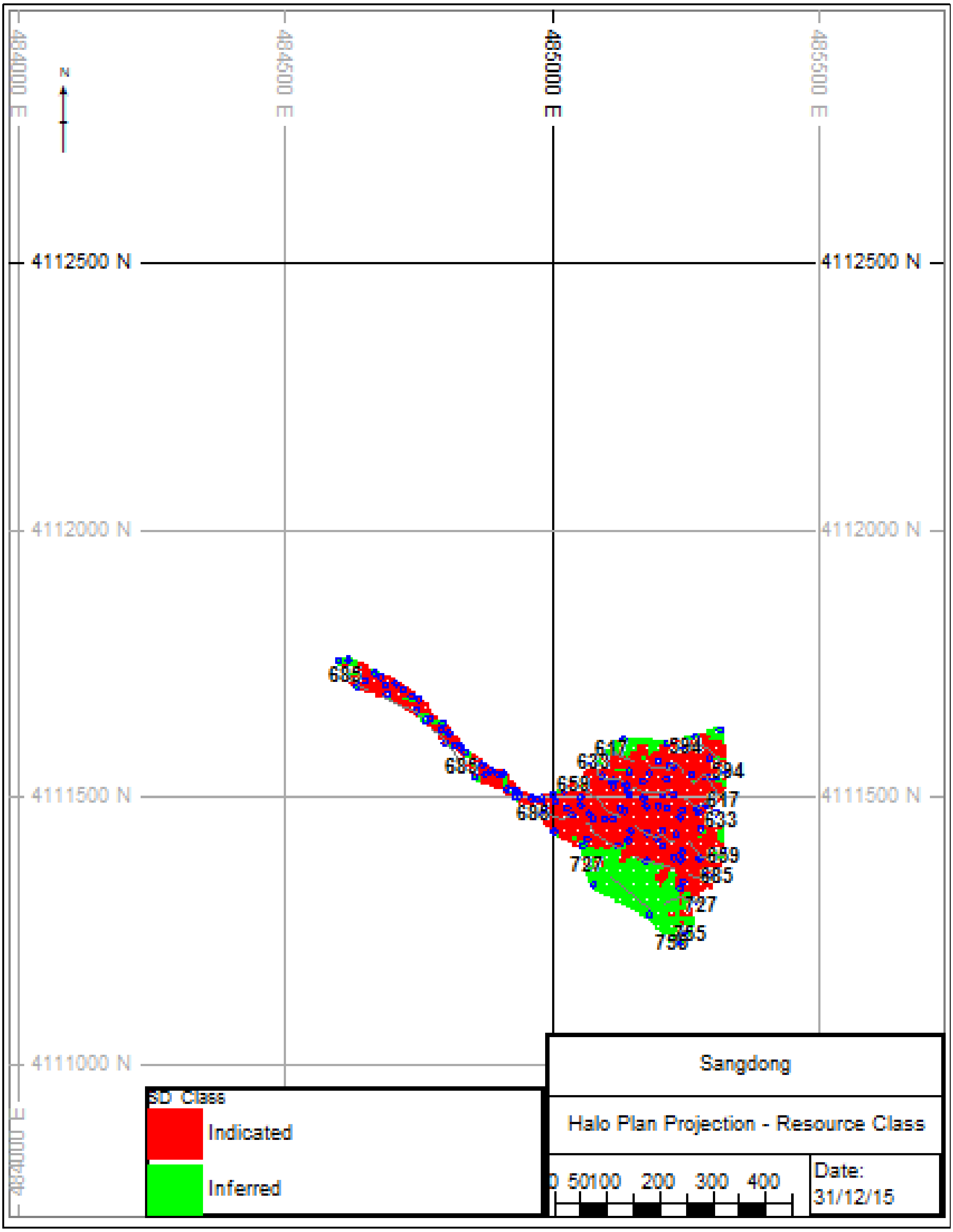
484000 E
484500 E
485000 E
485500 E
N
Limit of MAIN mined-out area
4112500 N
4112000 N
4111500 N
4111000 N
326
352
380
407
433
457
482
509
536
566
594
617
633
659
685
727
755
805
ED_Class
Indicated
Inferred
Sangdong
MAIN Plan - Resource Classes
1:10000
0 50100 200 300 400
Date:
31/12/15



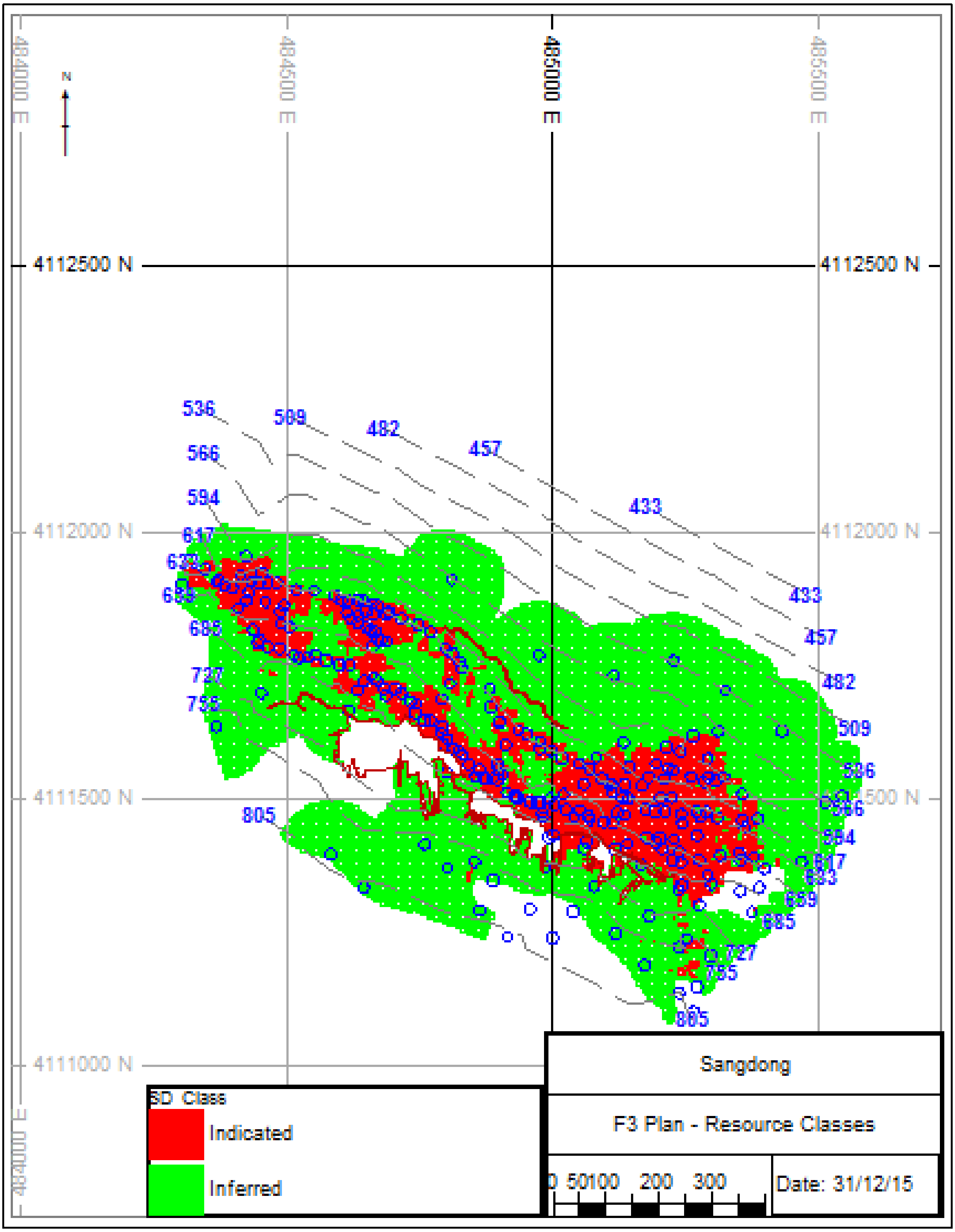
484000 E
484500 E
485000 E
485500 E
N
4112500 N
4112000 N
4111500 N
4111000 N
659
685
727
755
805
617
633
594
566
566
594
617
633
685
659
727
755
805
3D_Class
Indicated
Inferred
Sangdong
F1 - Resource Classes.
0 50100 200 300 400
Date:
31/12/15



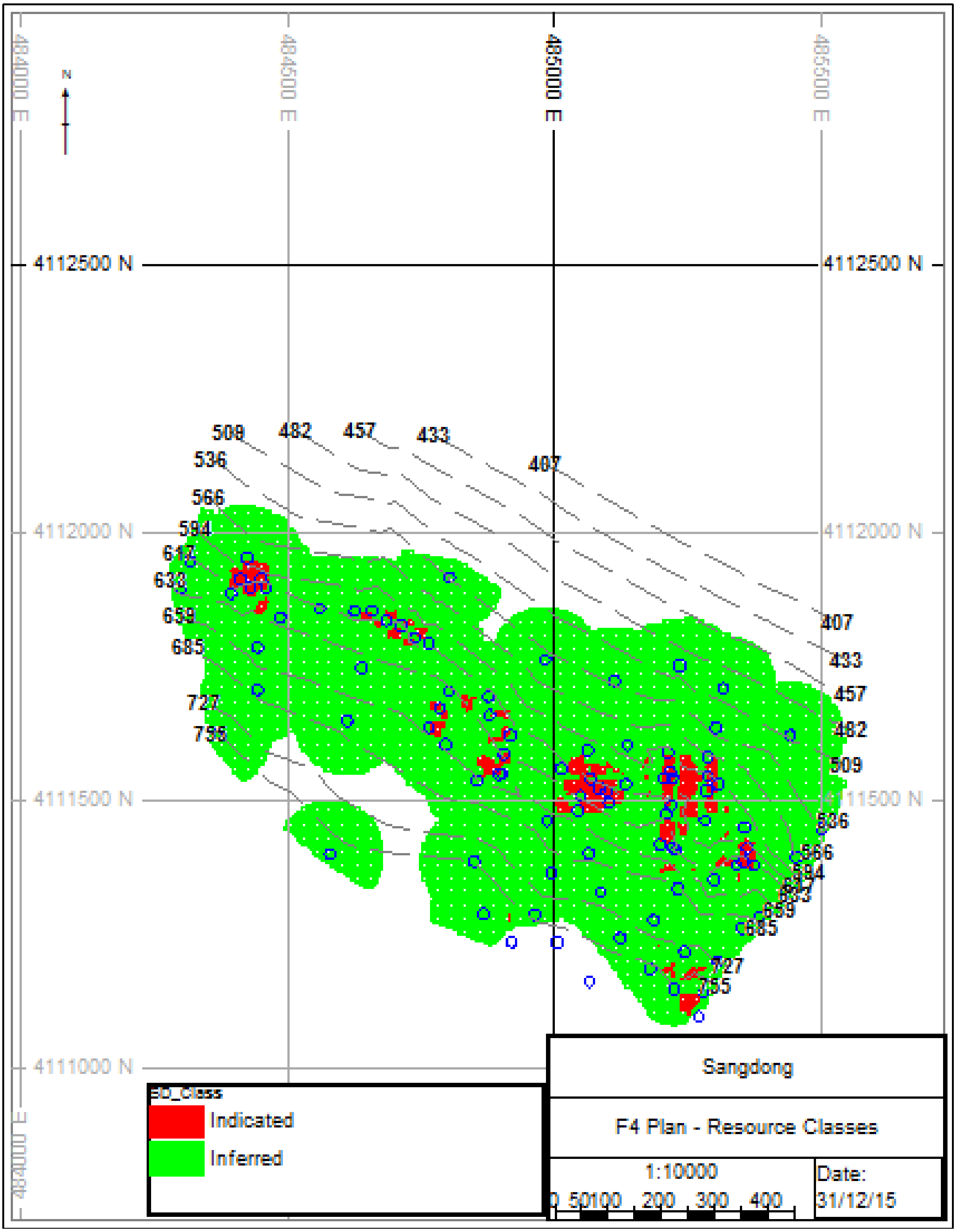
484000 E
484500 E
485000 E
485500 E
N
4112500 N
4112000 N
4111500 N
4111000 N
536
509
482
457
566
594
617
633
659
685
727
755
805
SD_Class
Indicated
Inferred
Sangdong
F2 Plan - Resource Classes
0 50100 200 300
Date: 31/12/15



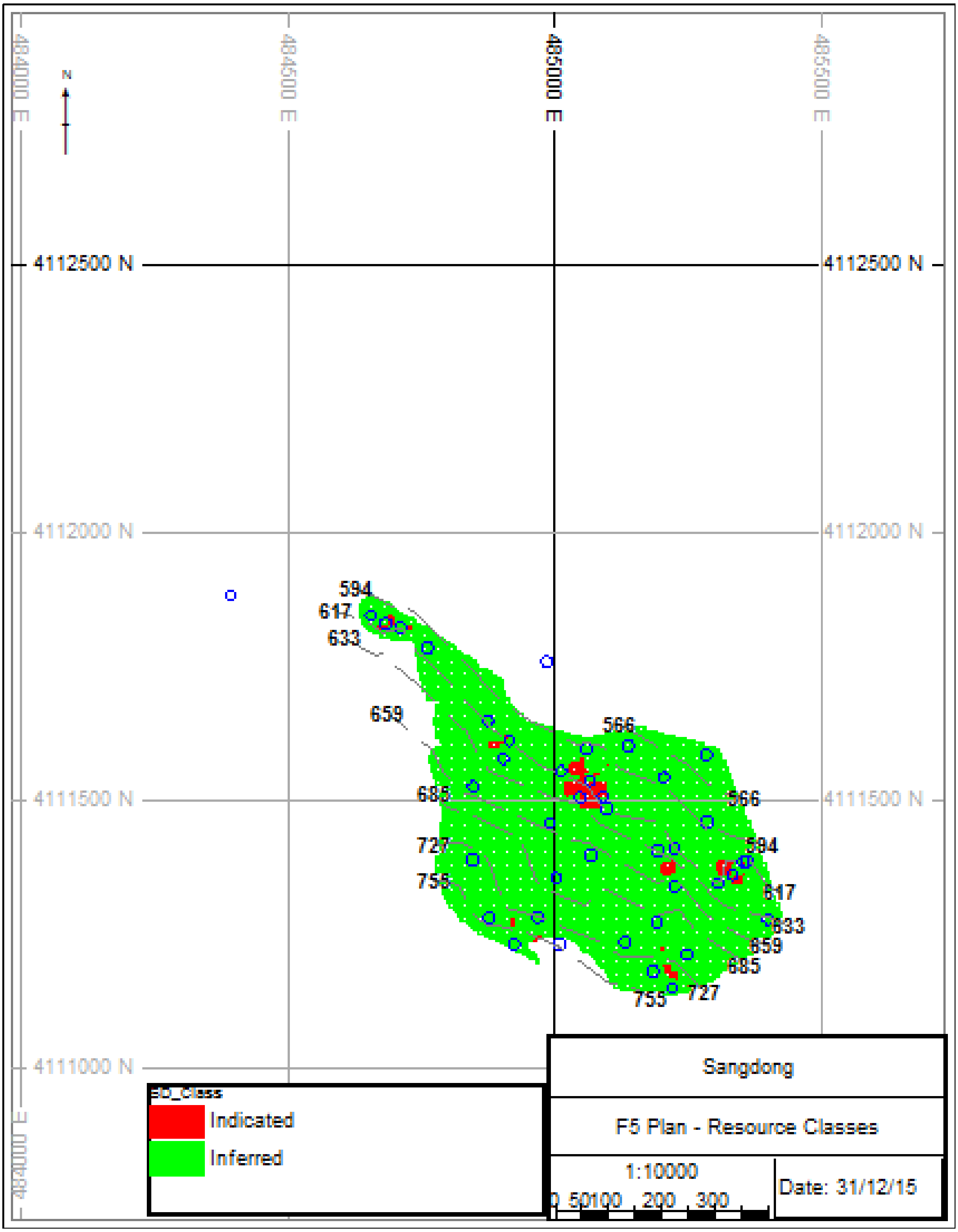
484000 E
484500 E
485000 E
485500 E
N
4112500 N
4112000 N
4111500 N
4111000 N
Sangdong
Halo Plan Projection - Resource Class
0 50100 200 300 400
Date:
31/12/15
SD_Class
Indicated
Inferred



484000 E
484500 E
485000 E
485500 E
4112500 N
4112000 N
4111500 N
4111000 N
536
509
482
457
566
594
433
617
805
727
755
685
Sangdong
F3 Plan - Resource Classes
0 50100 200 300
Date: 31/12/15
SD Class
Indicated
Inferred



484000 E
484500 E
485000 E
485500 E
4112500 N
4112000 N
4111500 N
4111000 N
509
482
457
433
536
407
566
594
617
633
659
685
727
755
SD_Class
Indicated
Inferred
Sangdong
F4 Plan - Resource Classes
1:10000
0 50100 200 300 400
Date:
31/12/15

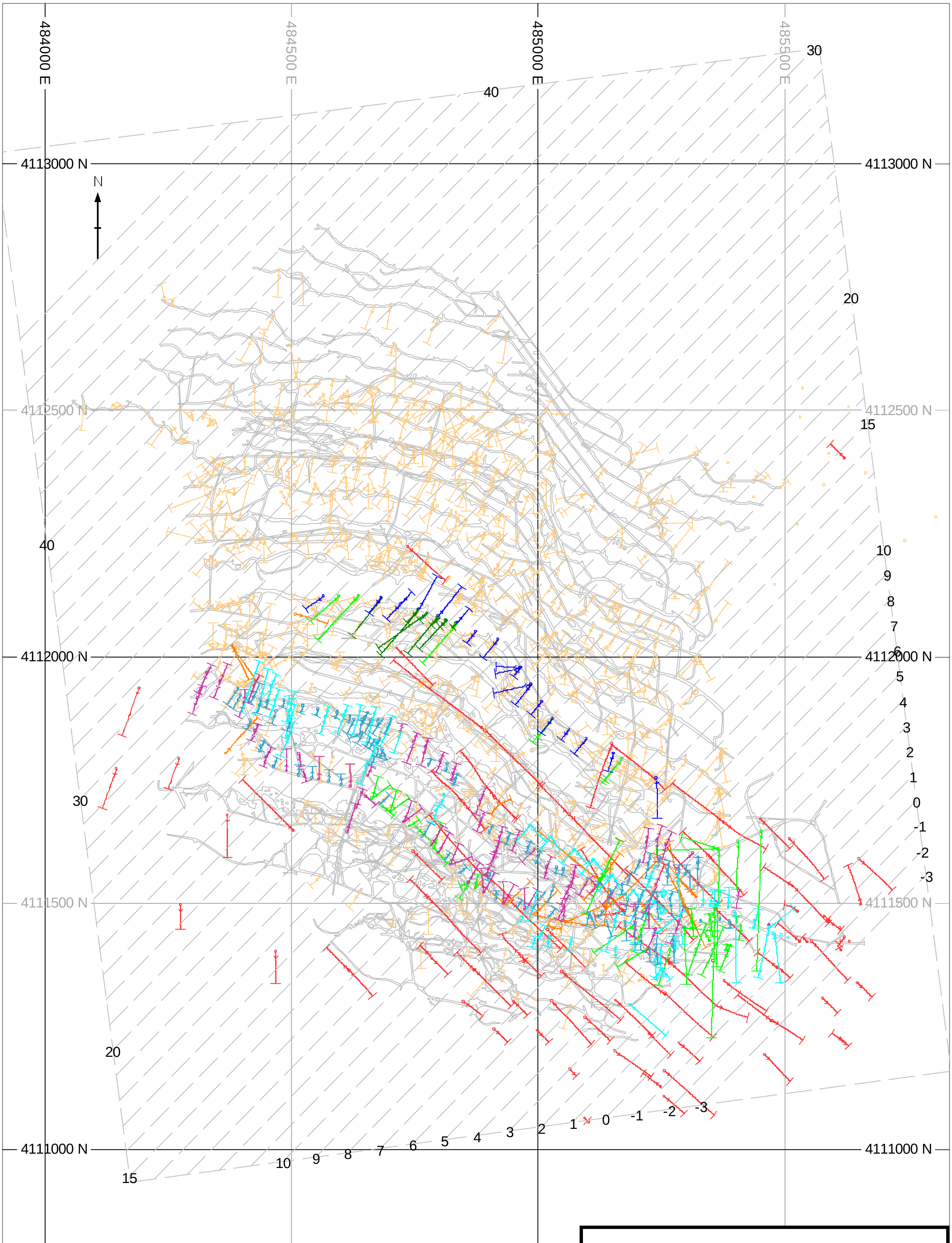

484000 E
484500 E
485000 E
485500 E
N
4112500 N
4112000 N
4111500 N
4111000 N
594
617
633
659
685
727
755
566
566
594
617
633
659
685
755
727
SD_Class
Indicated
Inferred
Sangdong
F5 Plan - Resource Classes
1:10000
0 50100 200 300
Date: 31/12/15

SANGDONG 43-101

APPENDIX C:

Resource Model Sections

February 2025



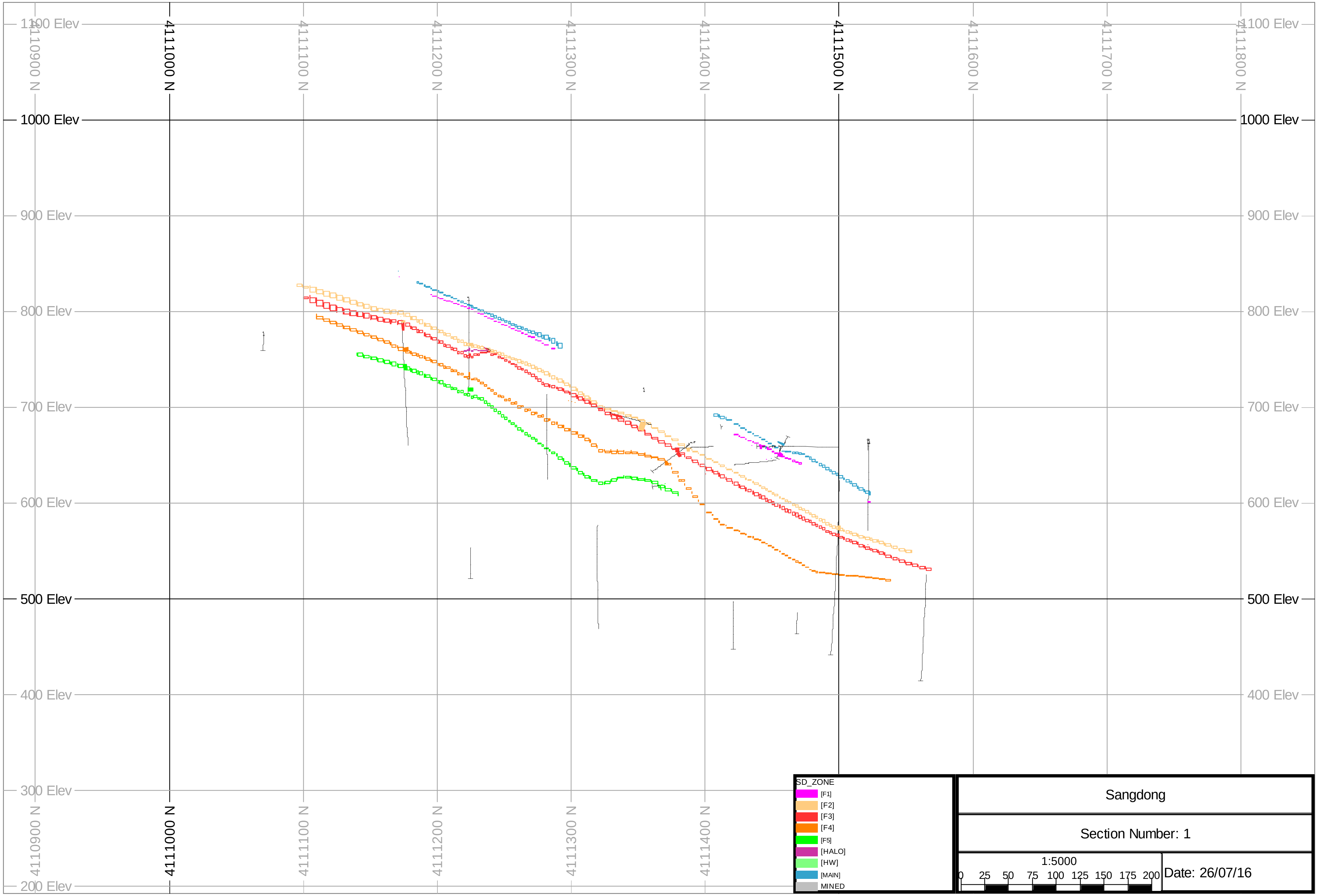
SD_CAMPAIGN
[KORES]
[KTMC]
[P0]
[P1]
[P2]
[P3]
[P4]
[P5]
[P6]
[P7]

485000 E

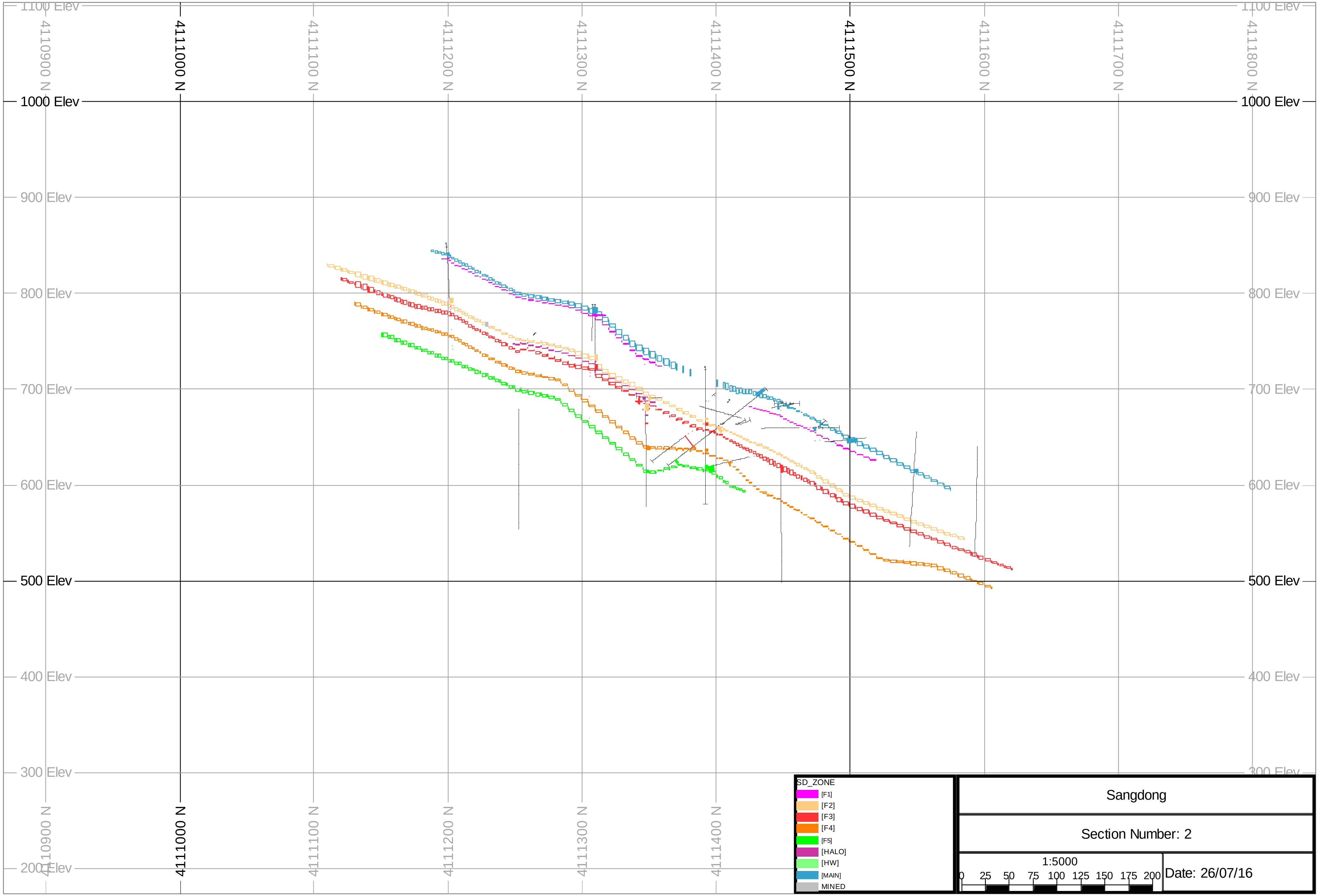
Sangdong - Section Reference Lines and Samples By Campaign

Plan

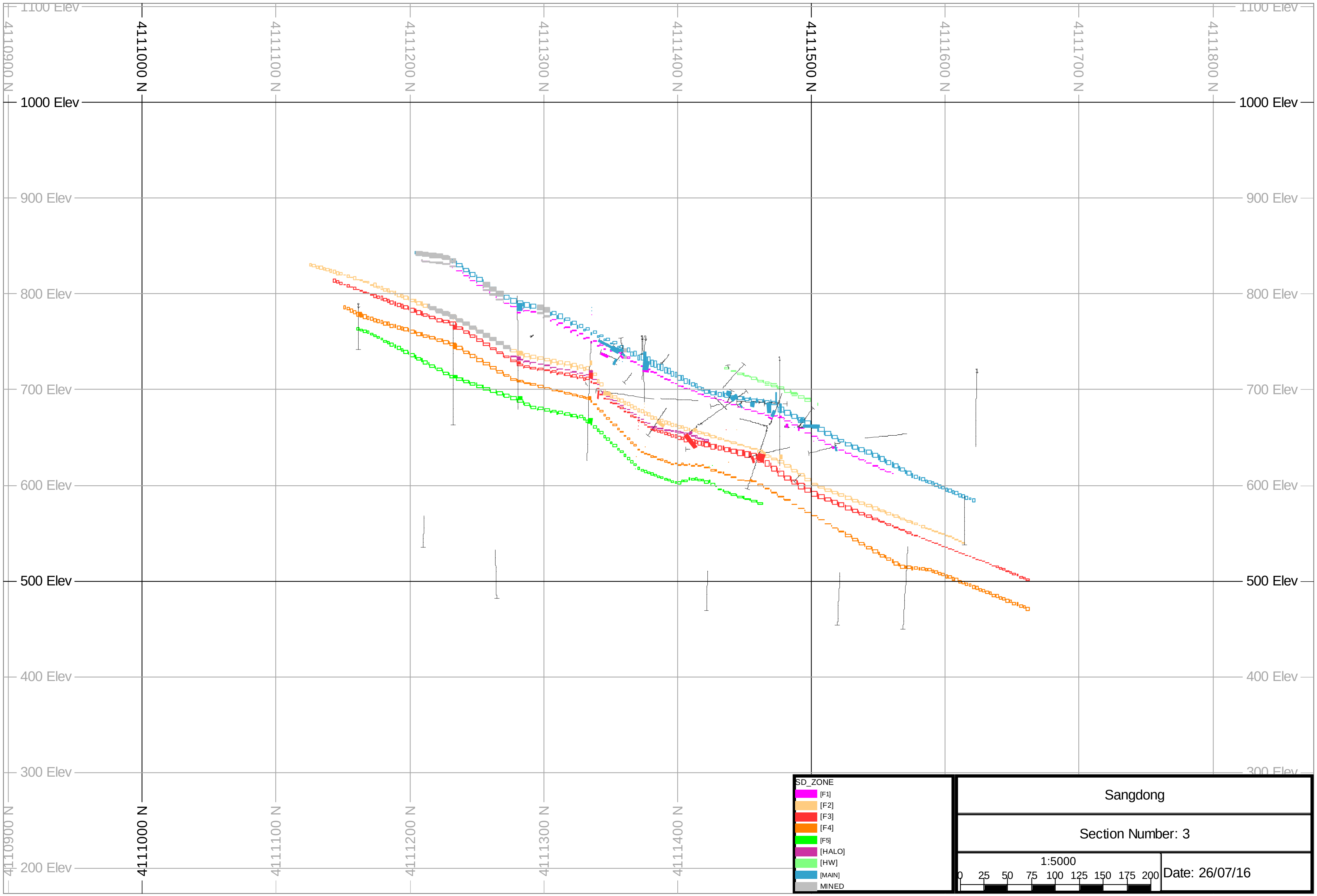
Scale 1:10000.0	Date: 26/07/16	Time: 17:03

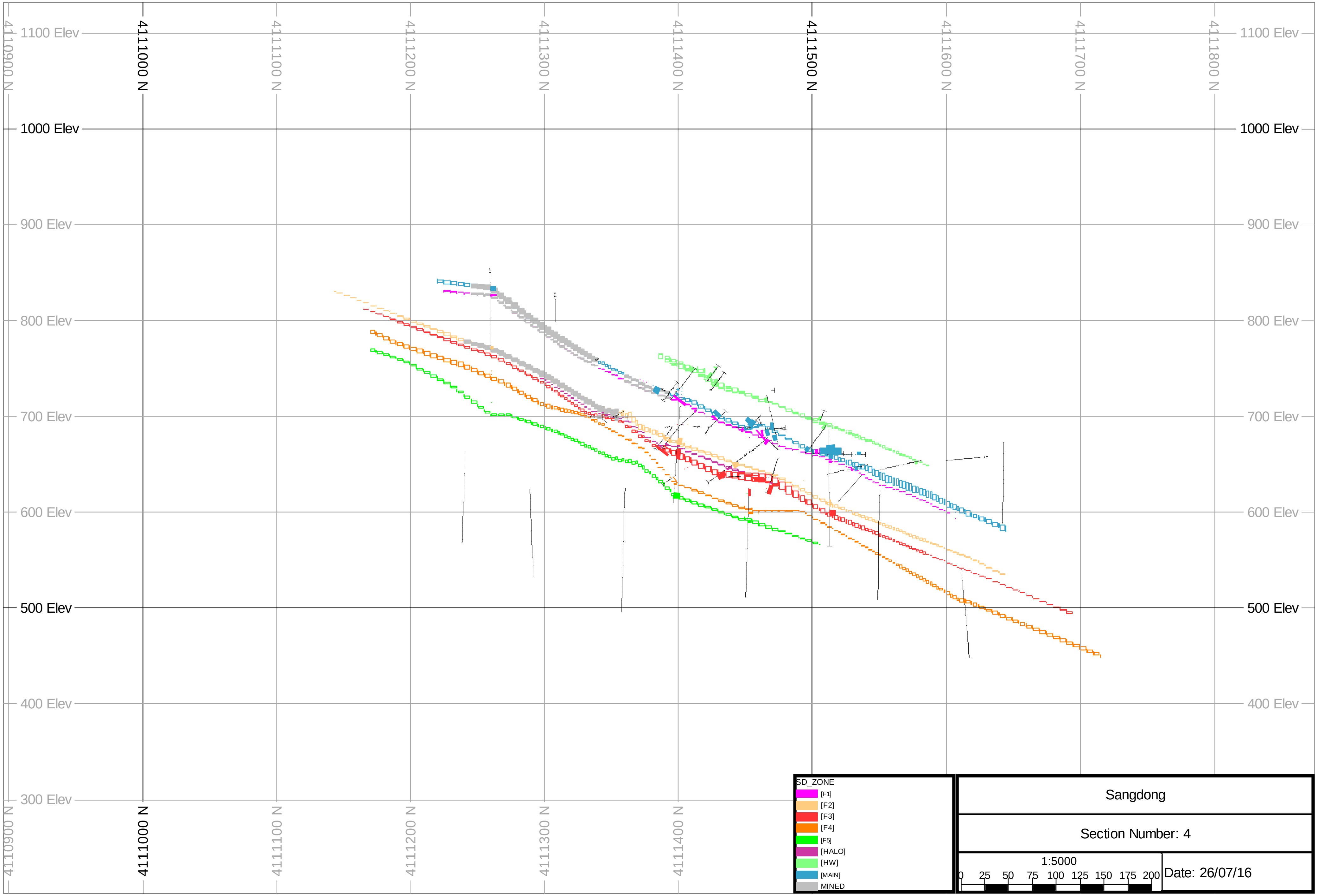


1100 Elev
1000 Elev
900 Elev
800 Elev
700 Elev
600 Elev
500 Elev
400 Elev
300 Elev
200 Elev
4110900 N
4111000 N
4111100 N
4111200 N
4111300 N
4111400 N
4111500 N
4111600 N
4111700 N
4111800 N
SD_ZONE
[F1]
[F2]
[F3]
[F4]
[F5]
[HALO]
[HW]
[MAIN]
MINED
Sangdong
Section Number: 1
1:5000
0 25 50 75 100 125 150 175 200
Date: 26/07/16



Sangdong
Section Number: 2
1:5000 — 0 25 50 75 100 125 150 175 200 — Date: 26/07/16


1100 Elev
1000 Elev
900 Elev
800 Elev
700 Elev
600 Elev
500 Elev
400 Elev
300 Elev
200 Elev
4110900 N
4111000 N
4111100 N
4111200 N
4111300 N
4111400 N
4111500 N
4111600 N
4111700 N
4111800 N
SD_ZONE
[F1]
[F2]
[F3]
[F4]
[F5]
[HALO]
[HW]
[MAIN]
MINED
Sangdong
Section Number: 3
1:5000
0 25 50 75 100 125 150 175 200
Date: 26/07/16



1100 Elev
1000 Elev
900 Elev
800 Elev
700 Elev
600 Elev
500 Elev
400 Elev
300 Elev
4110900 N
4111000 N
4111100 N
4111200 N
4111300 N
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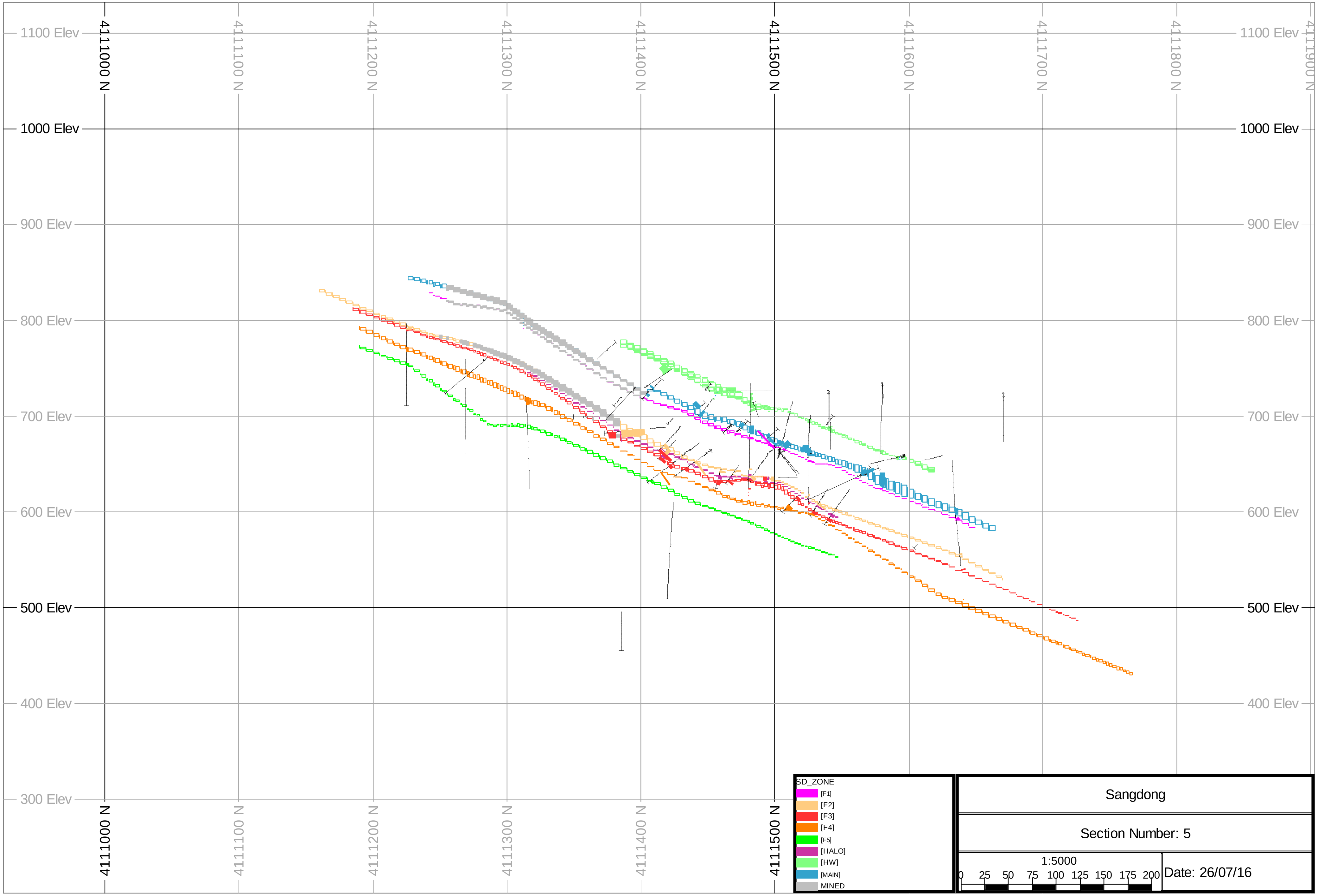
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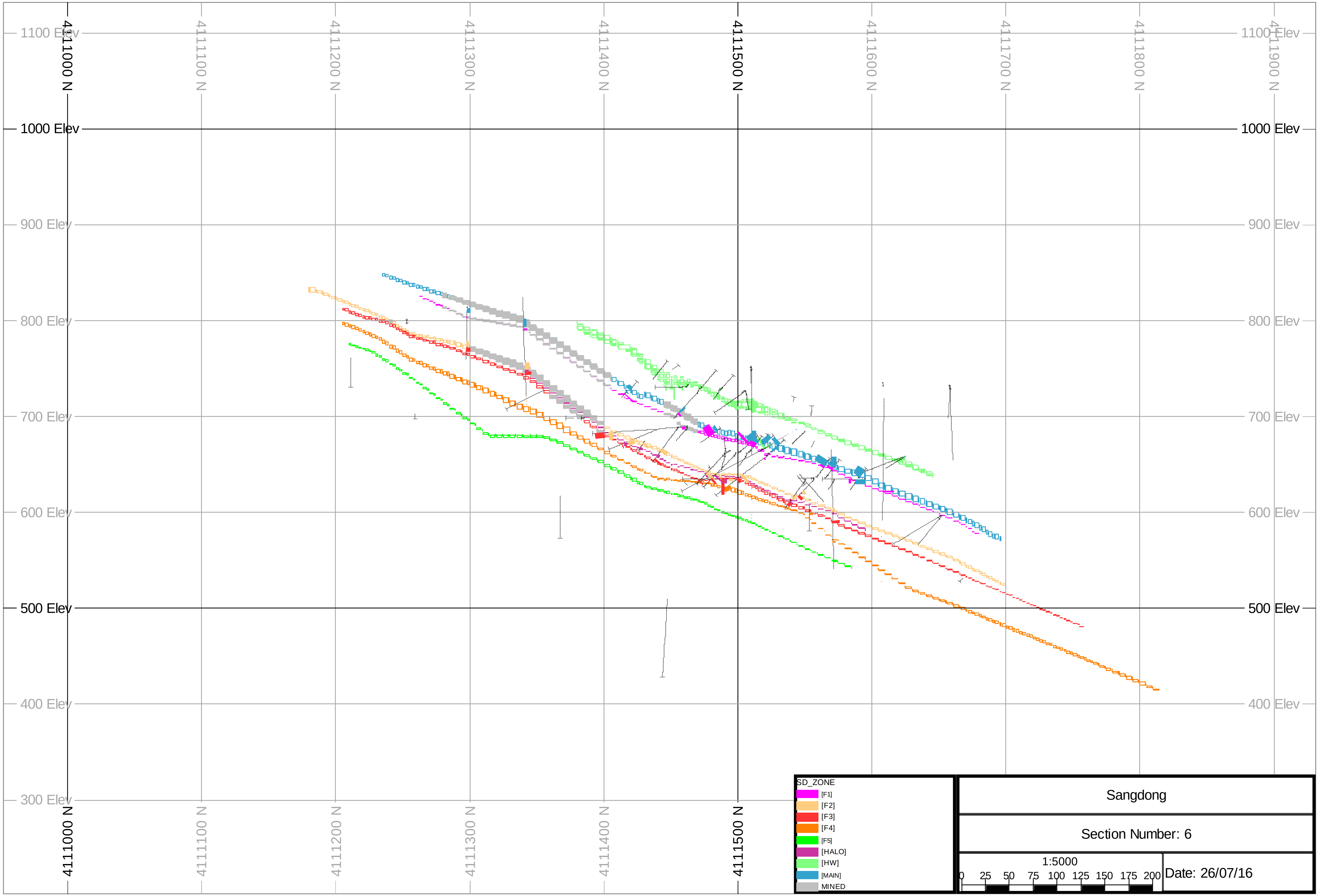

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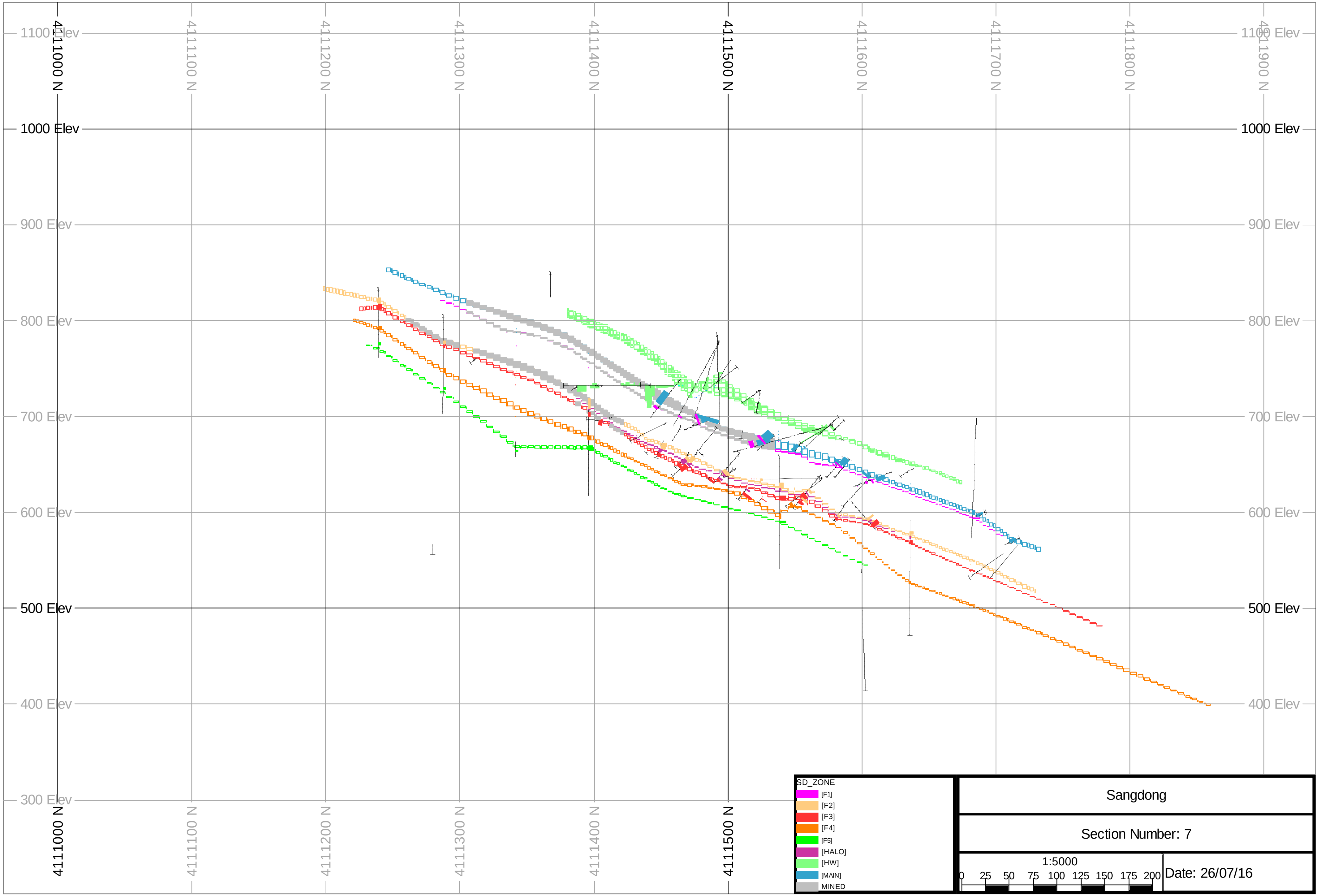
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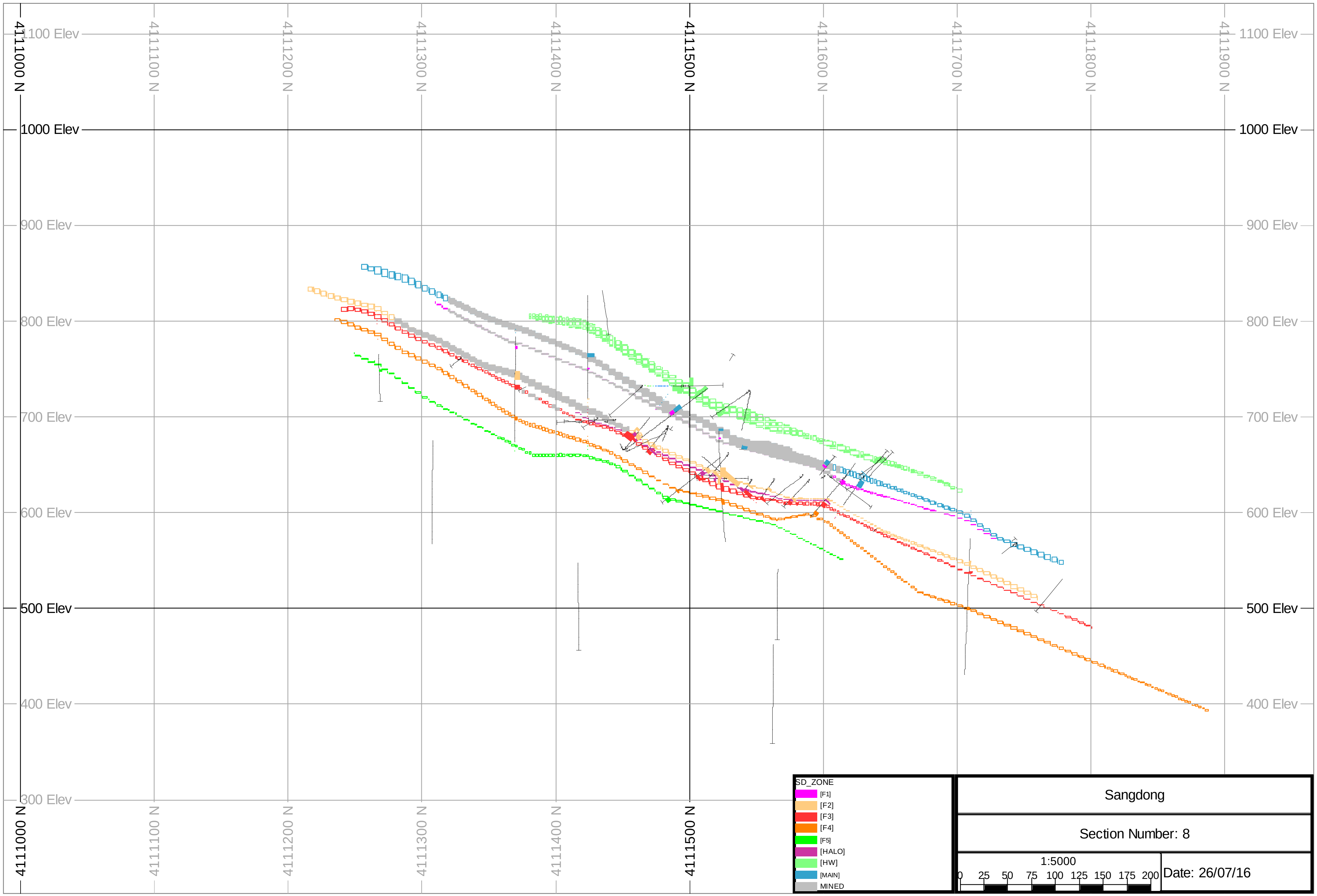
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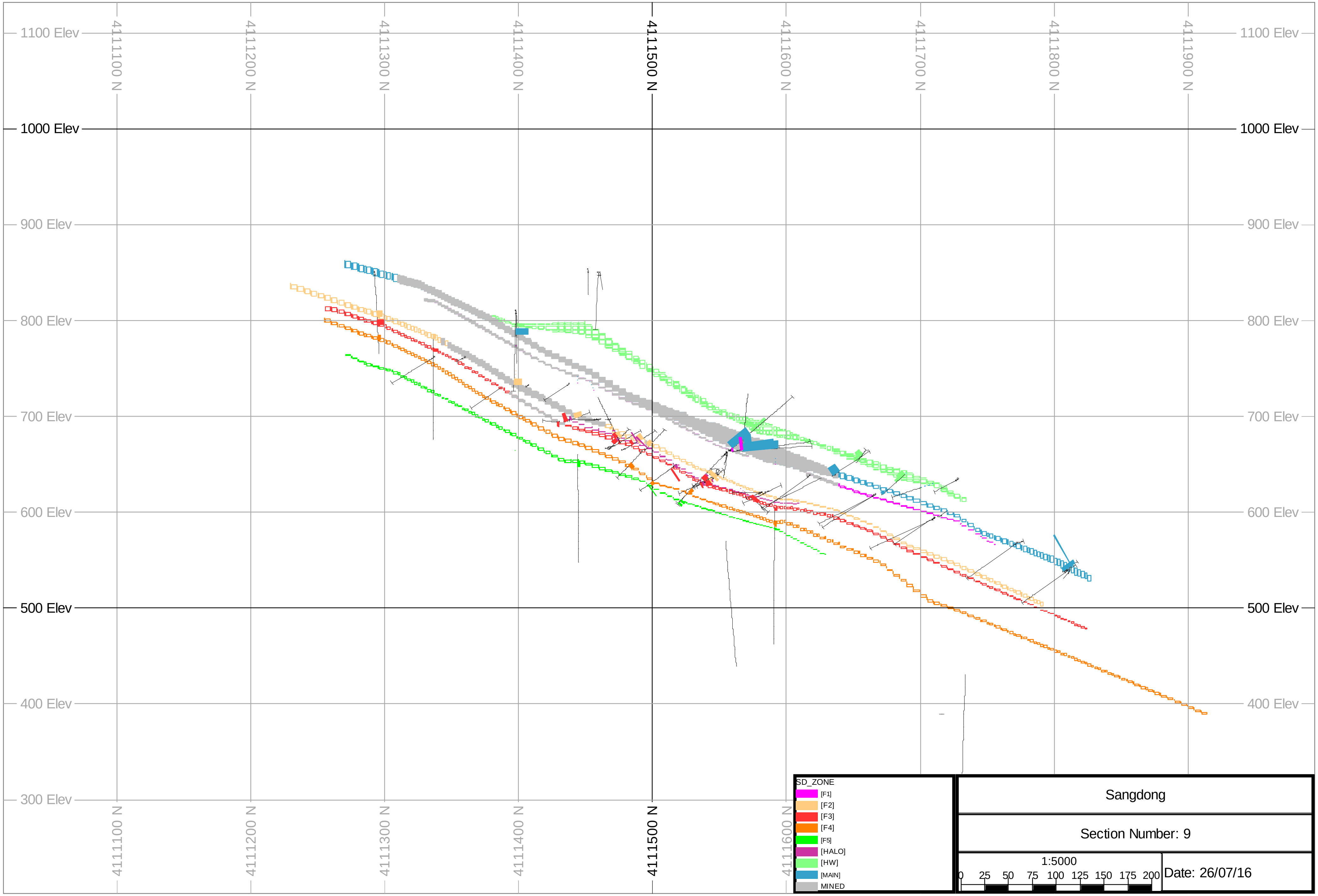
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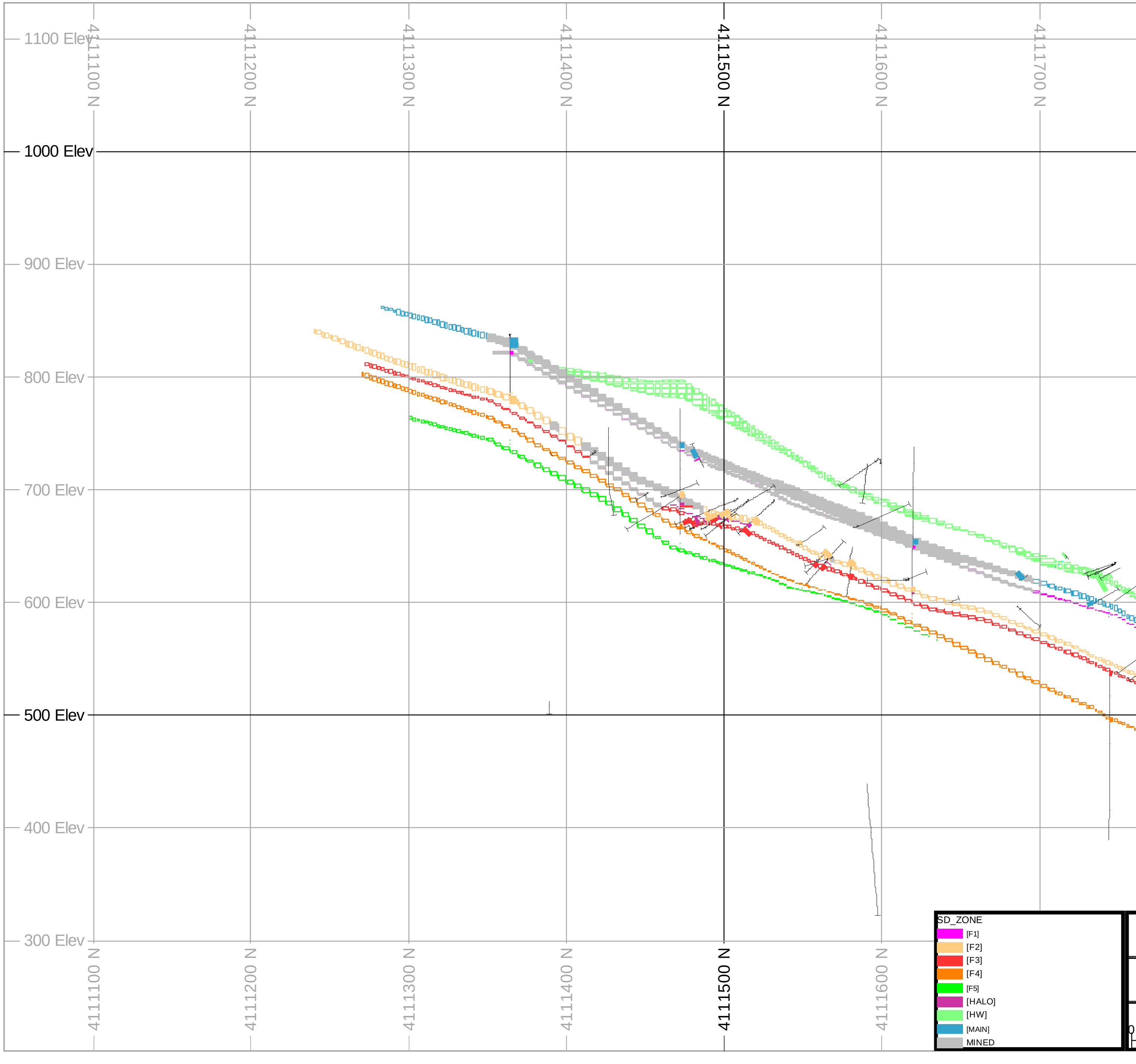
Date: 26/07/16



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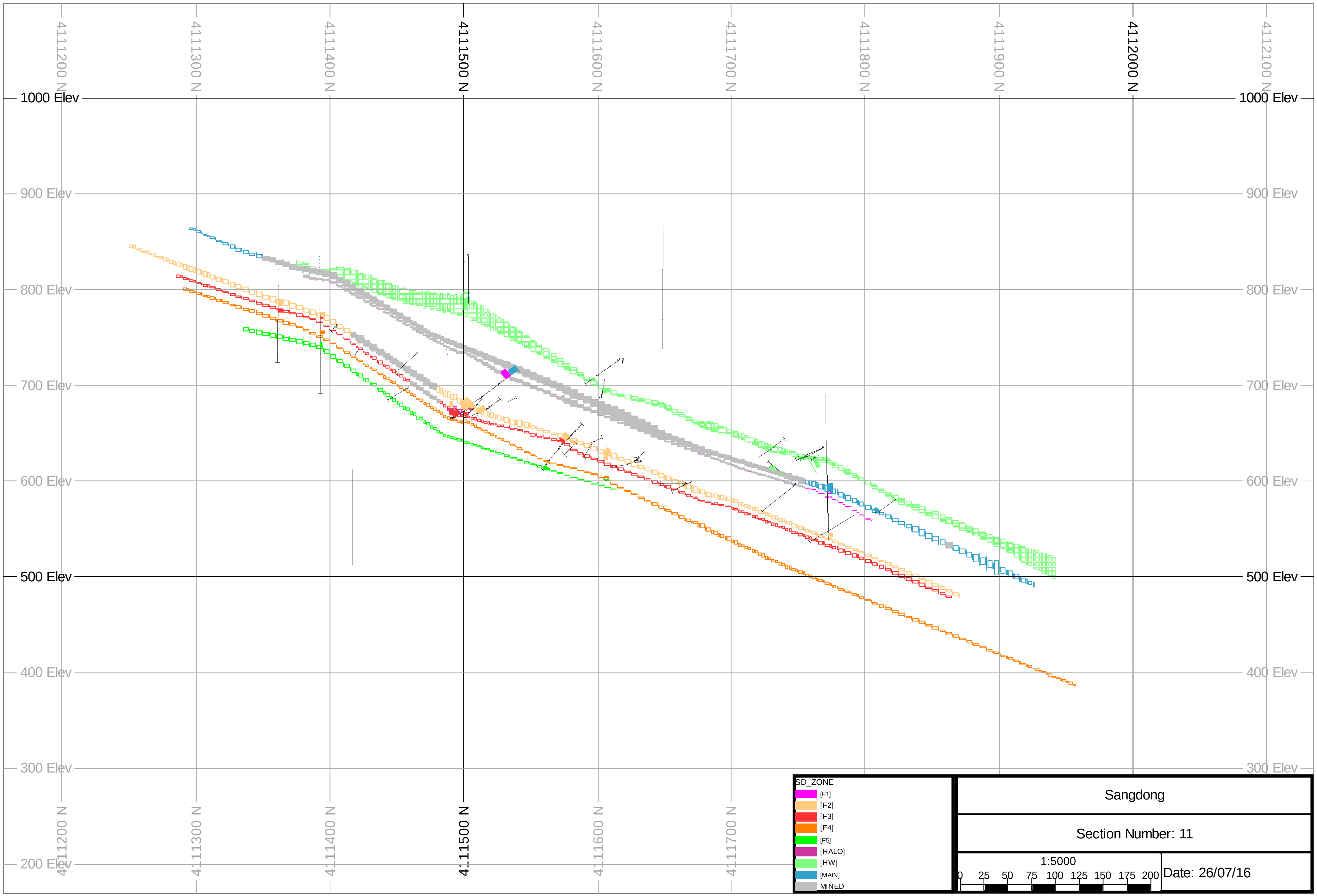

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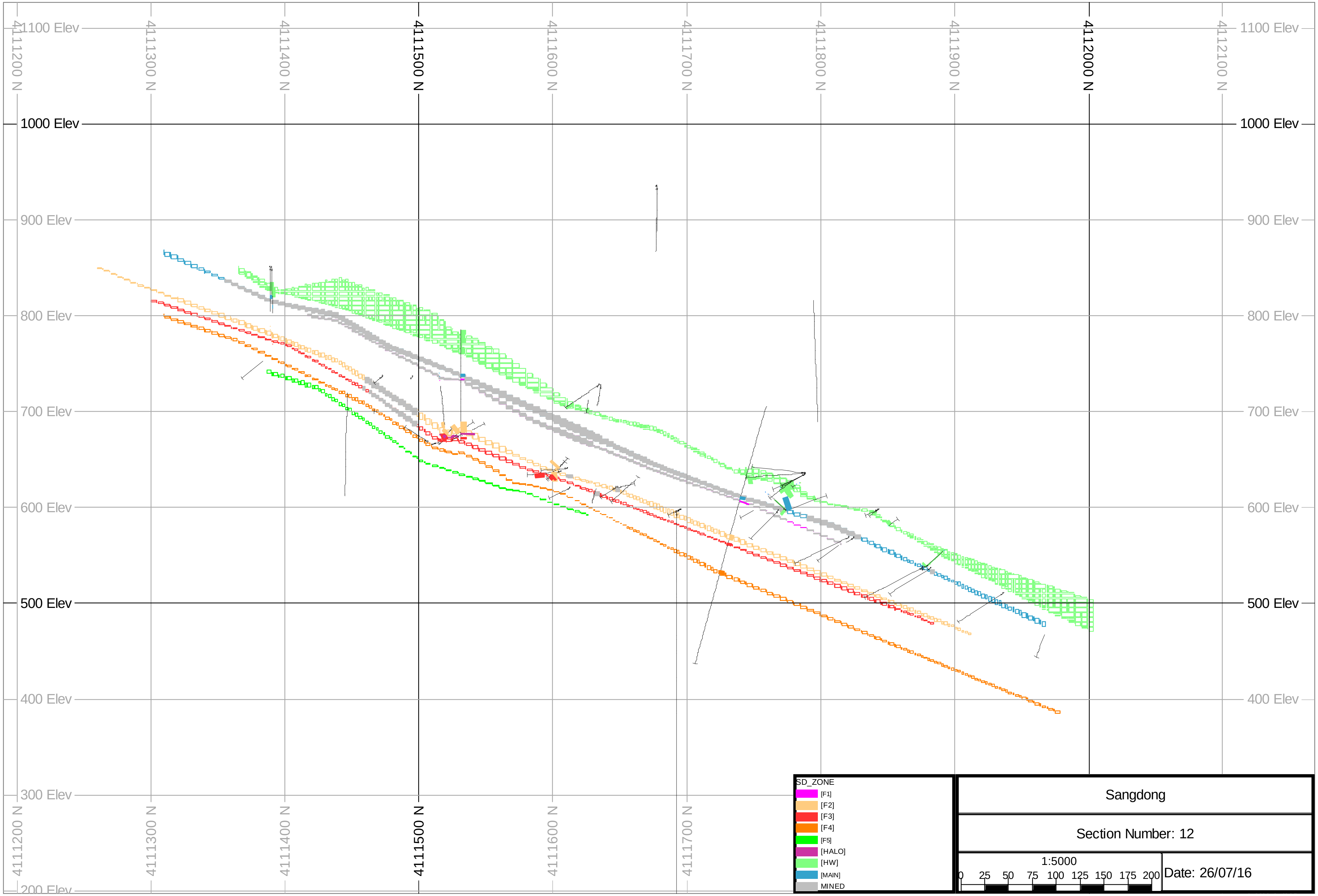

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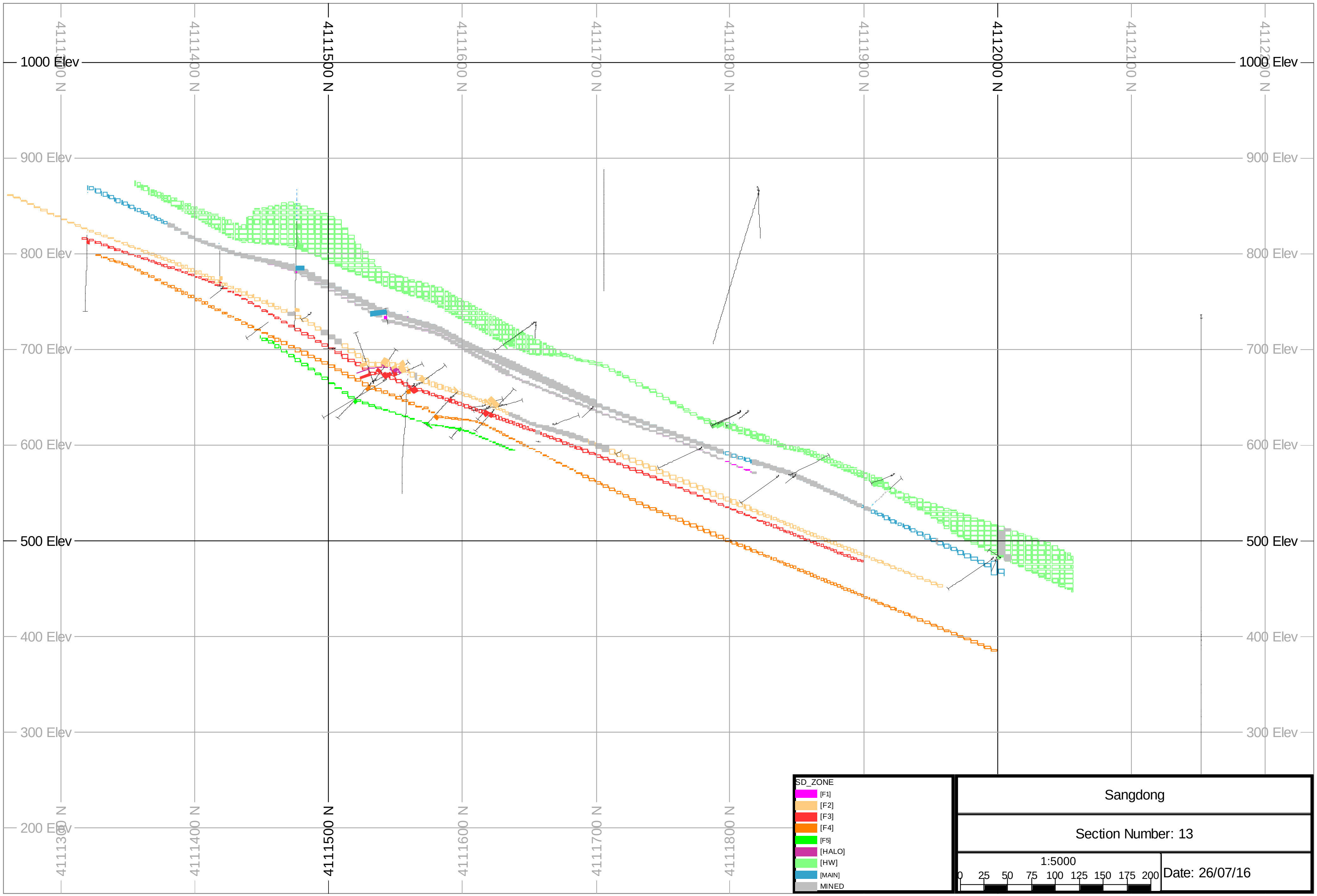

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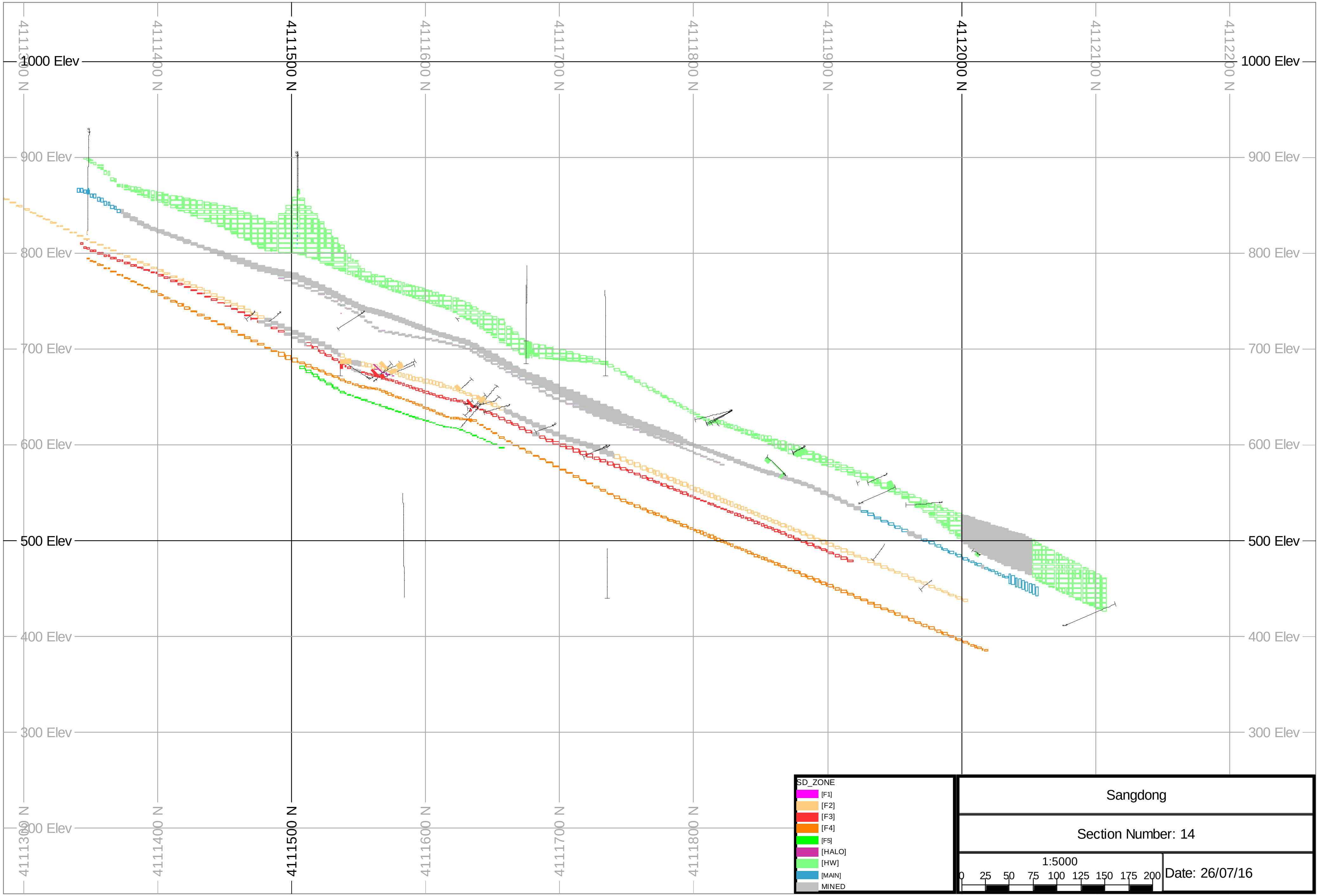
Date: 26/07/16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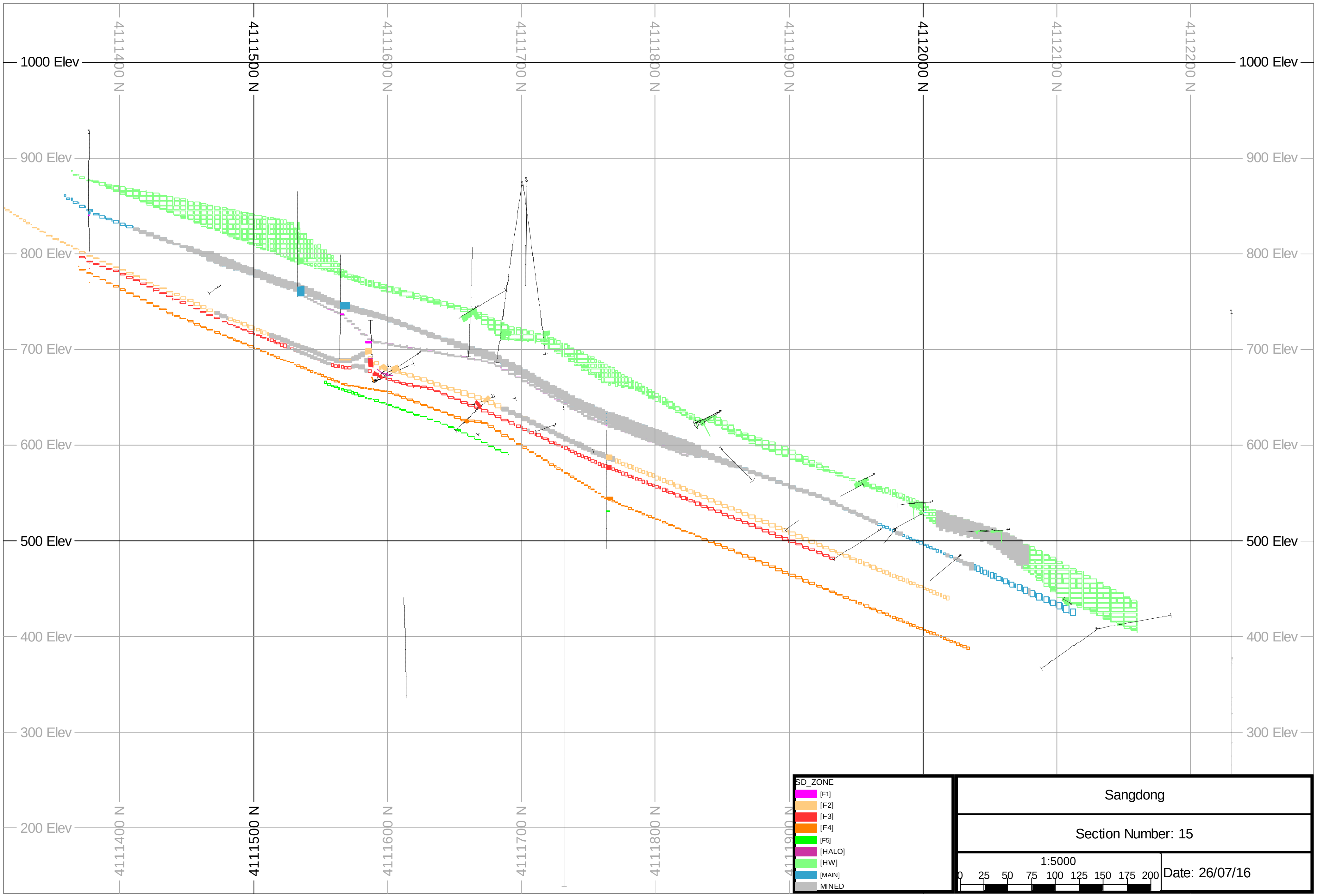
Date: 26/07/16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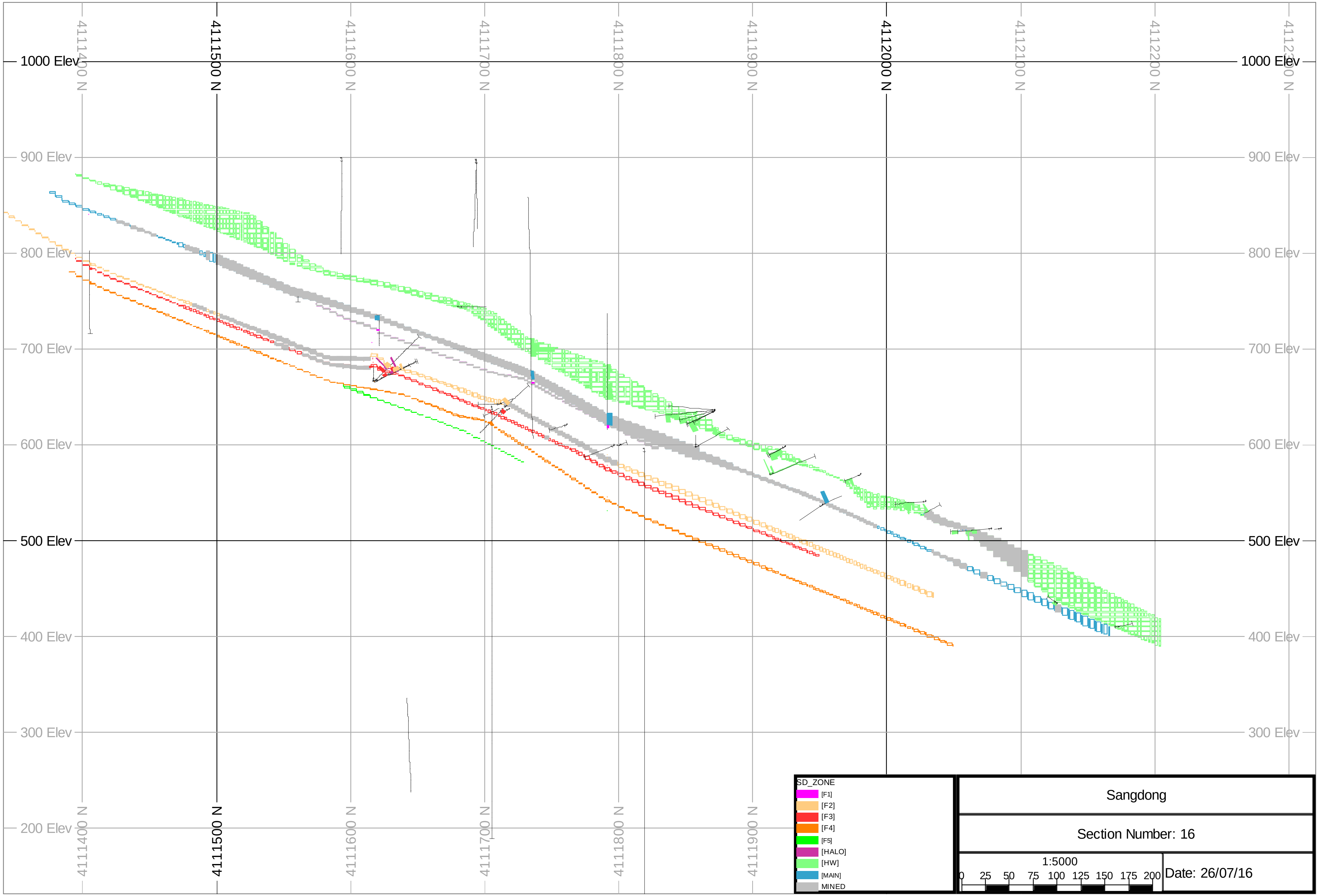
Date: 26/07/16



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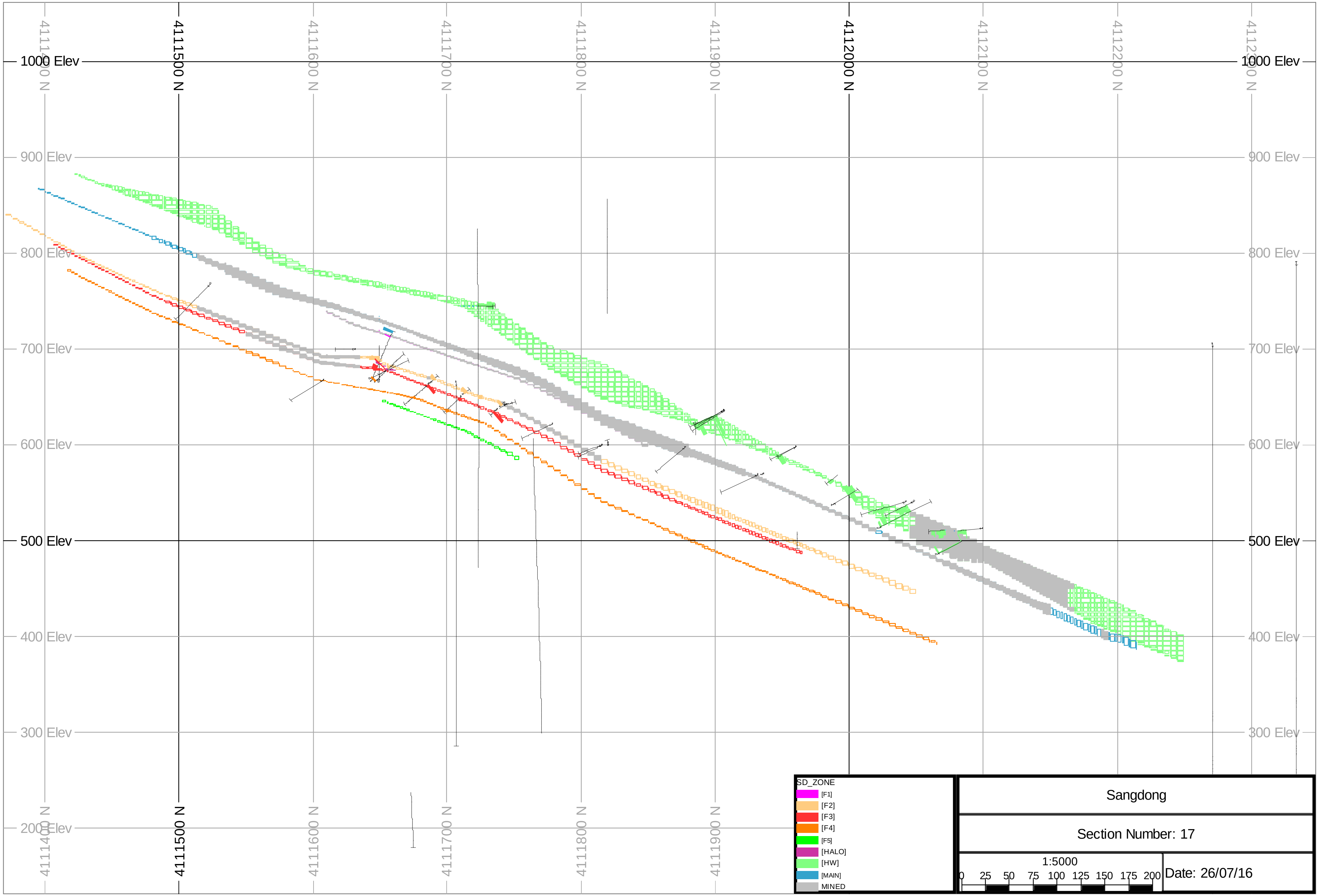

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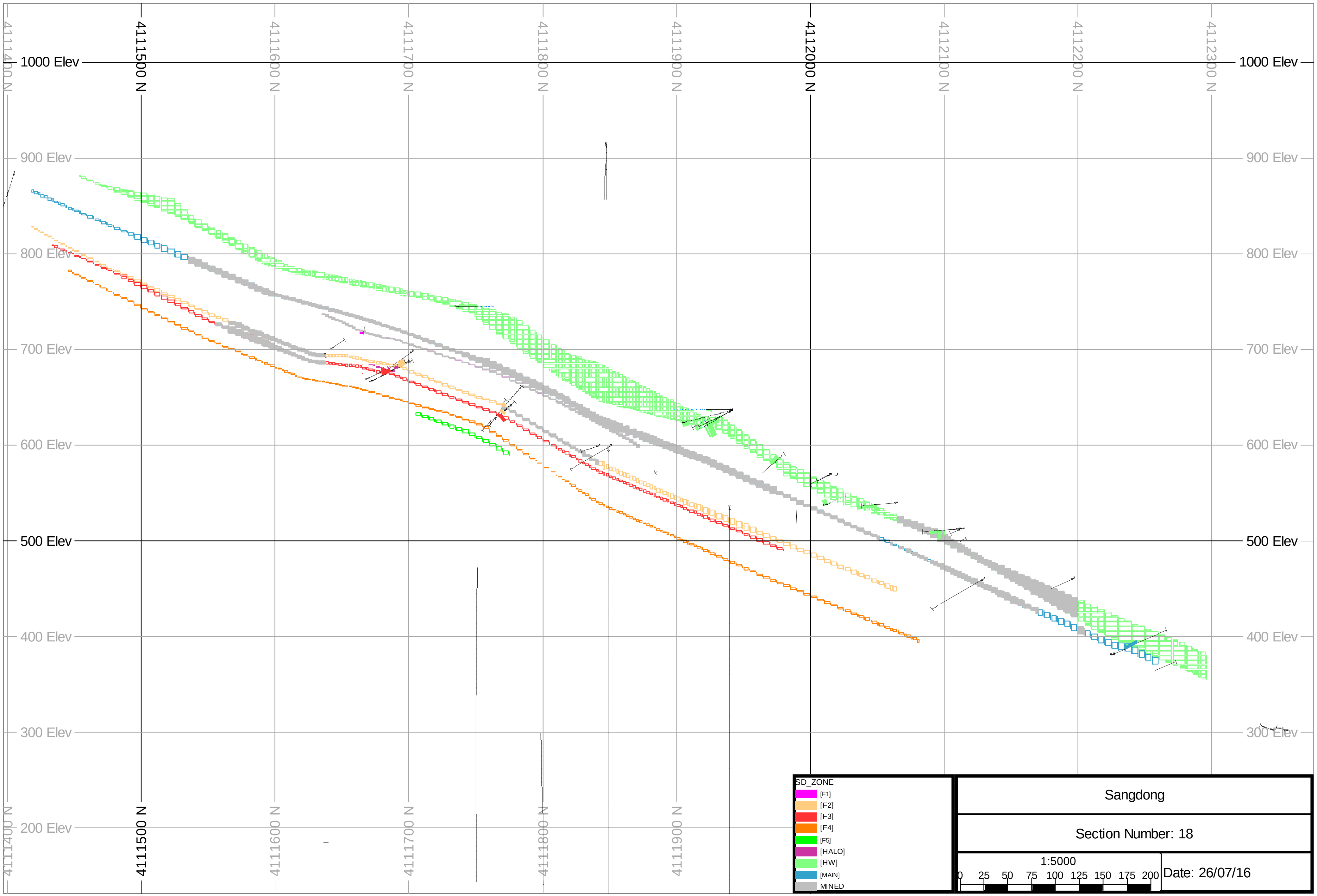
Date: 26/07/16



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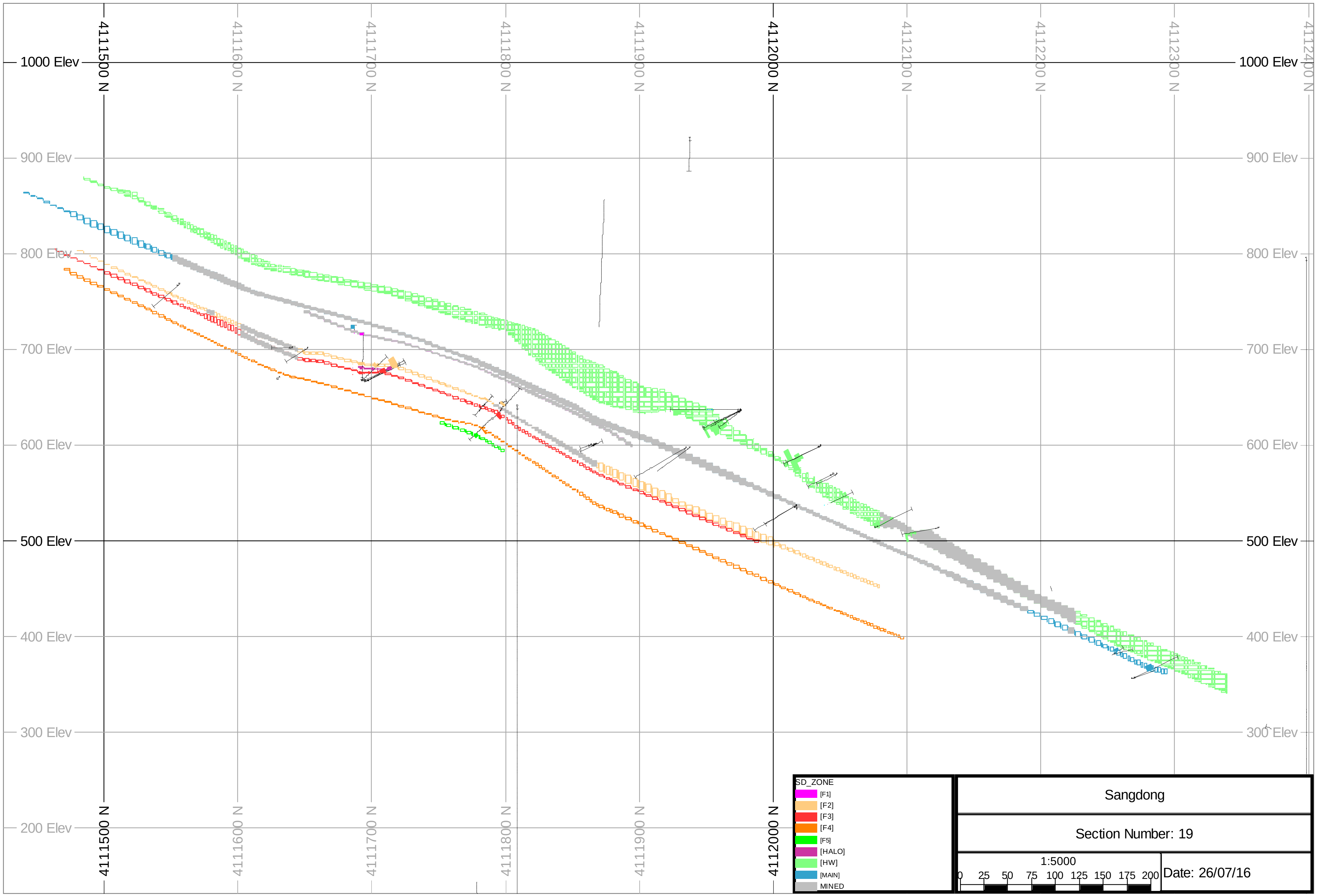

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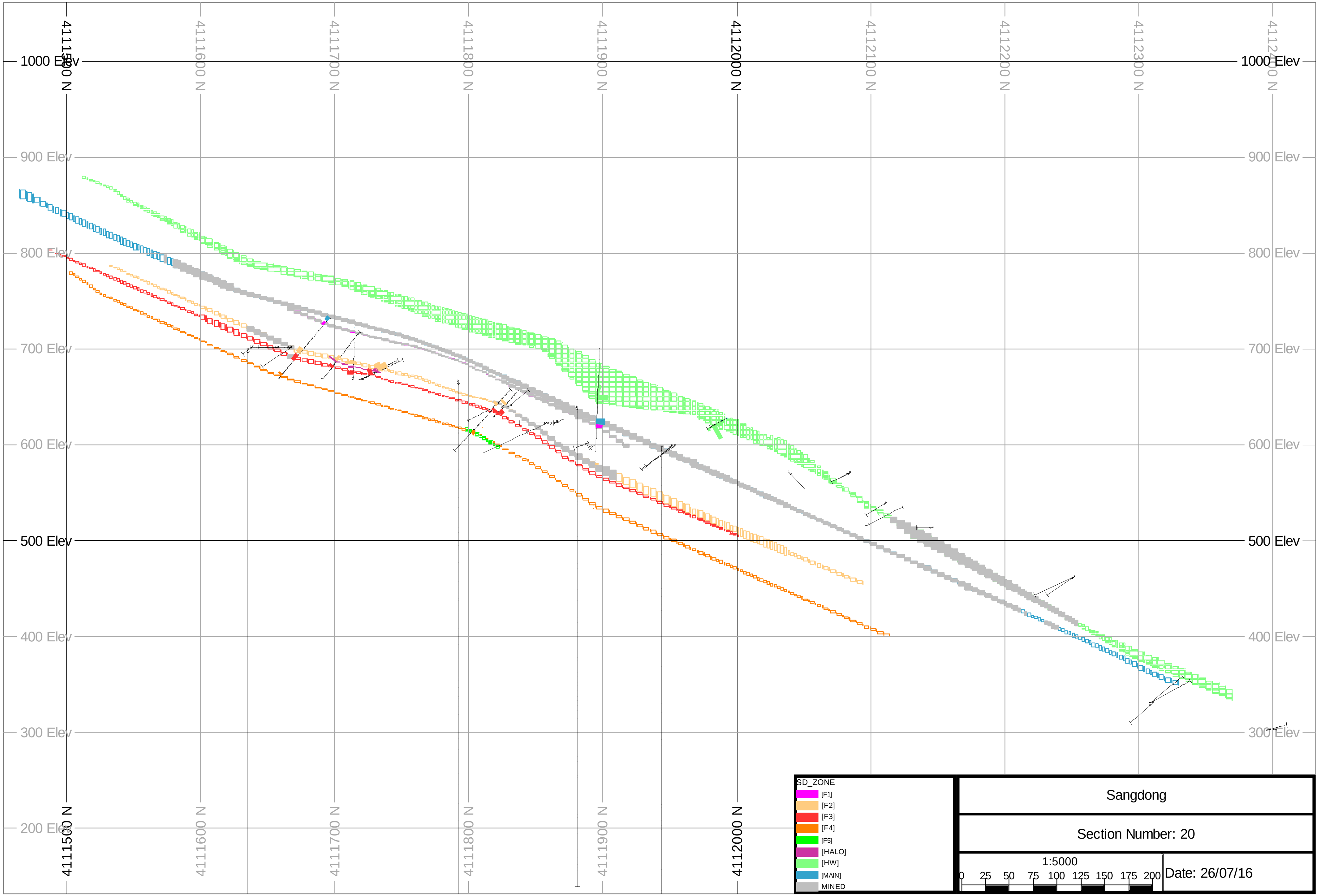
Date: 26/07/16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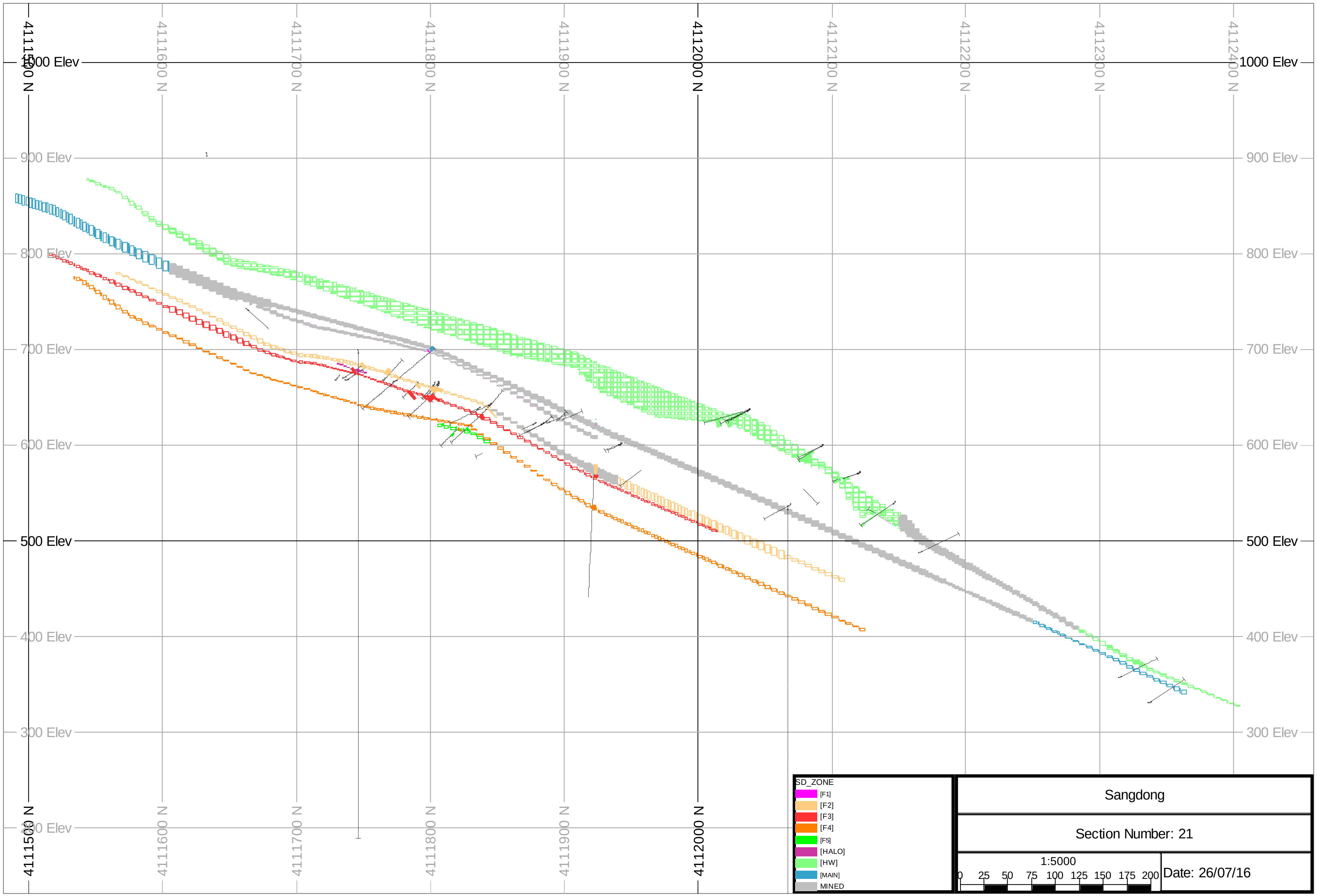
Date: 26/07/16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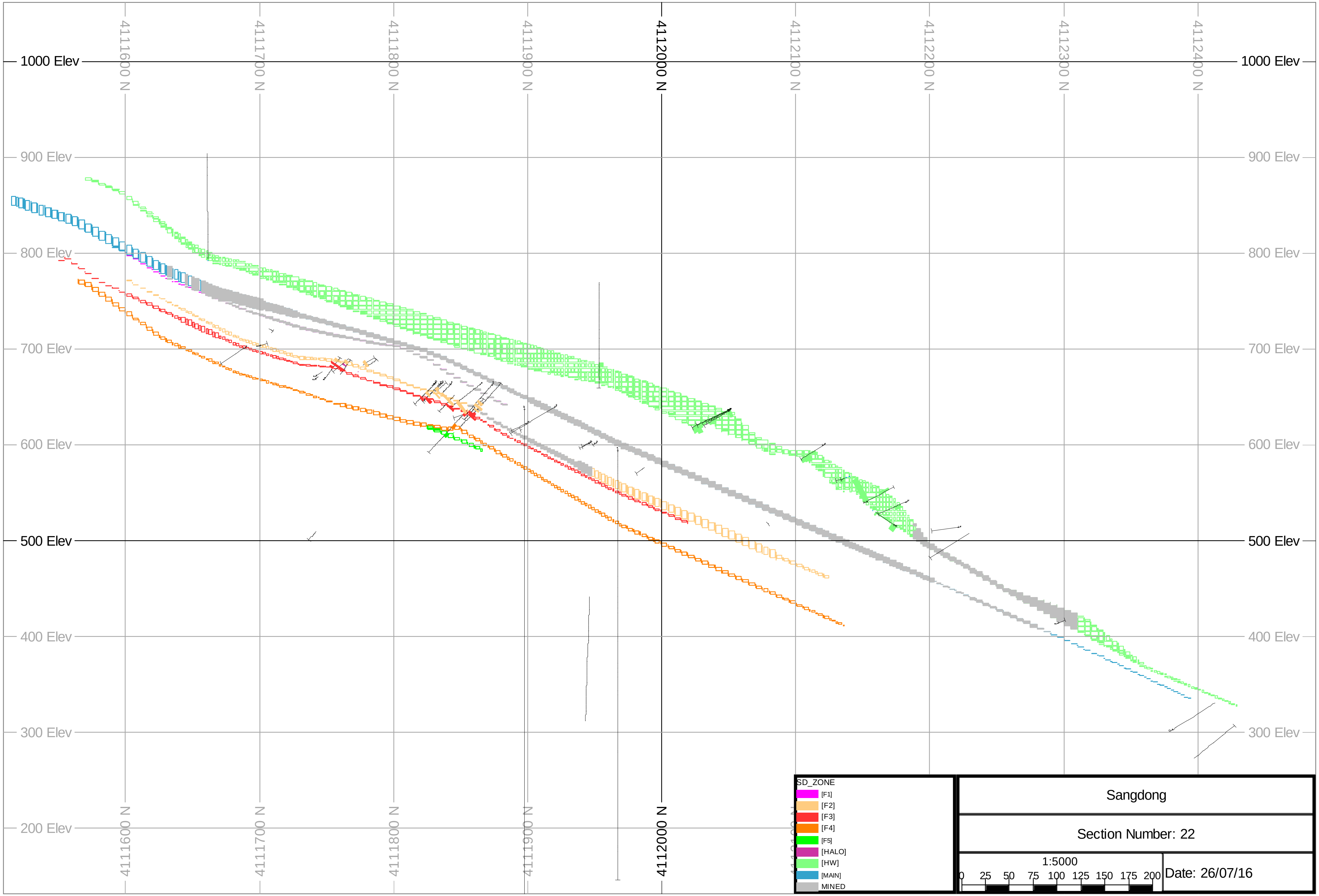
Date: 26/07/16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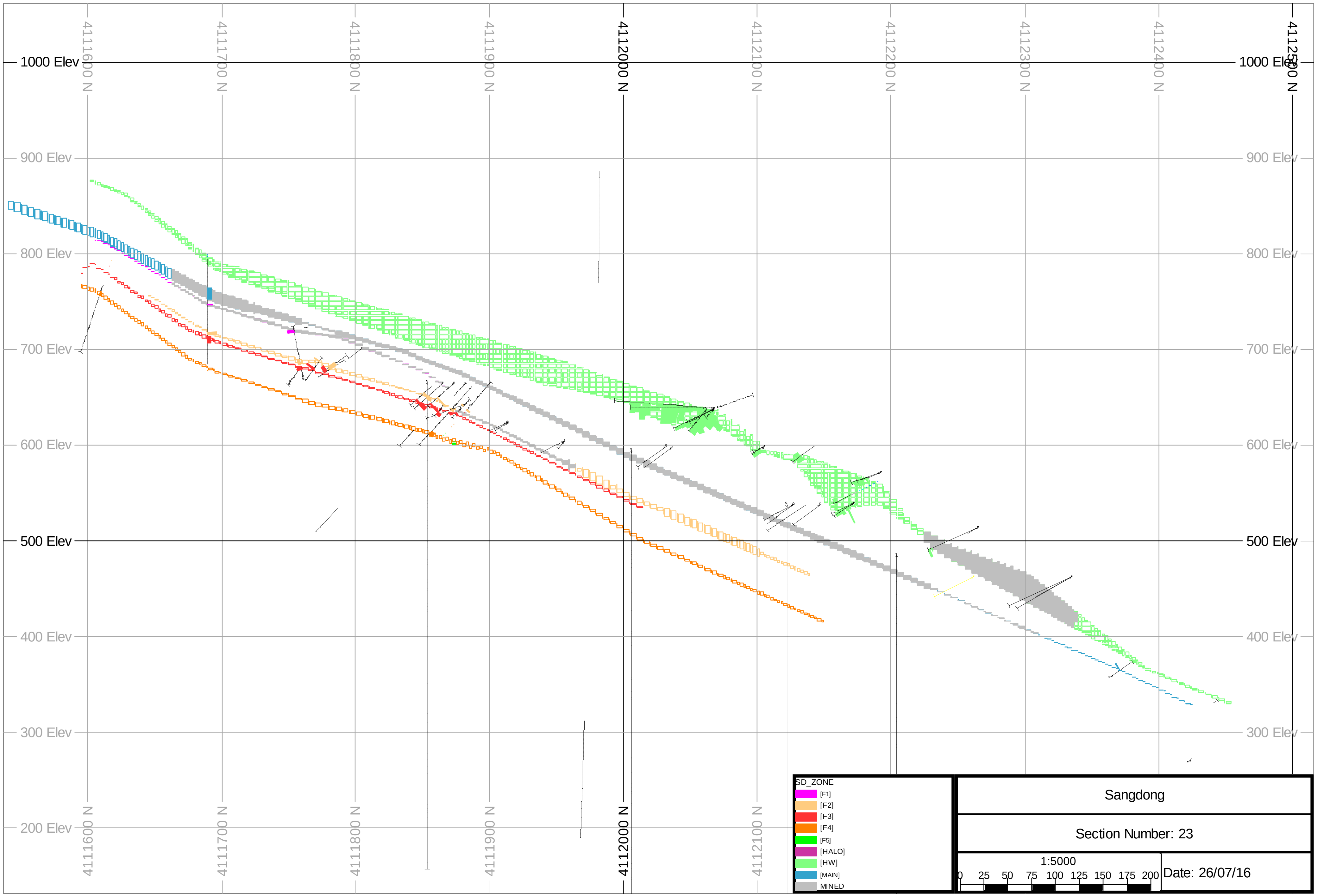
Date: 26/07/16



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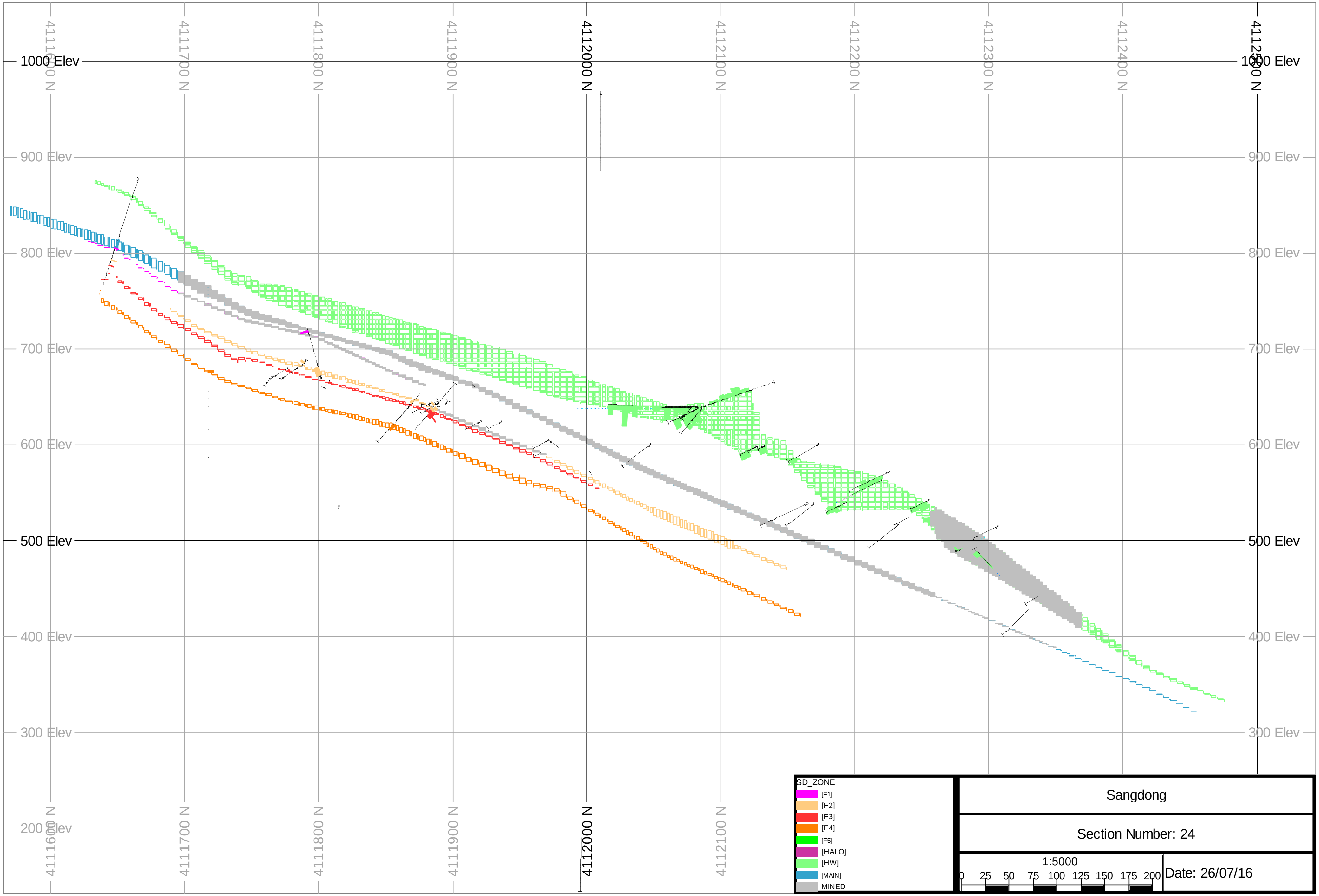
Date: 26/07/16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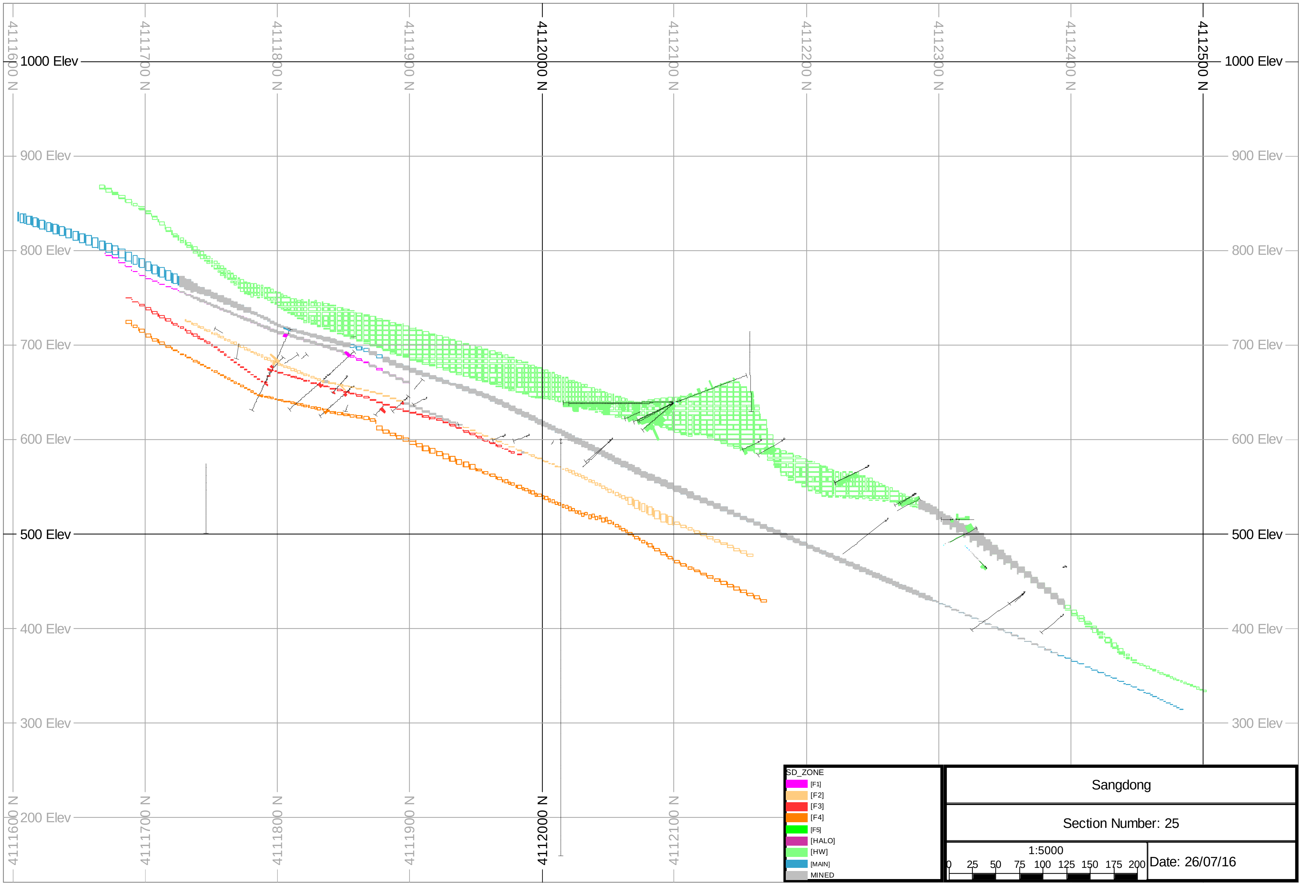
Date: 26/07/16



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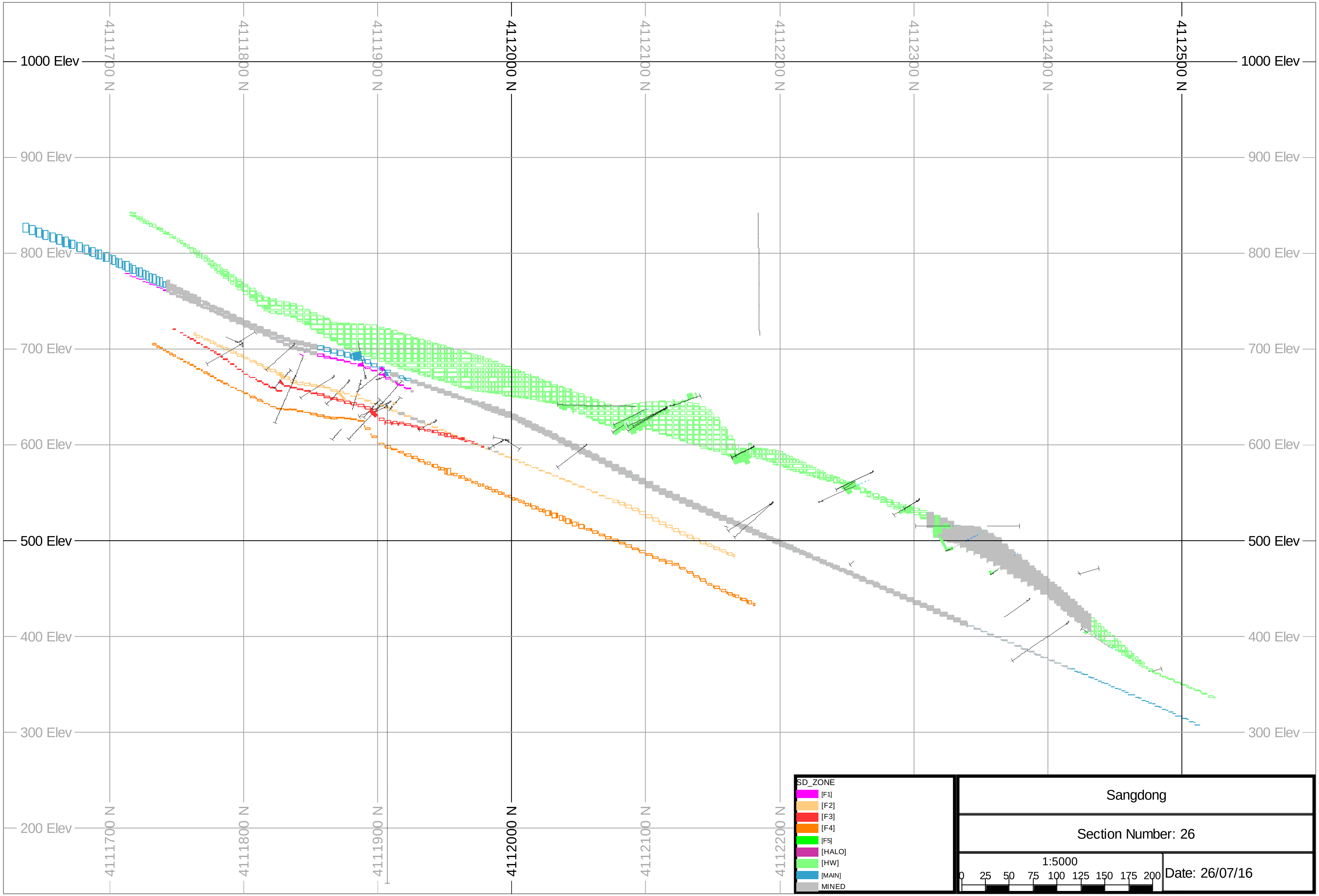
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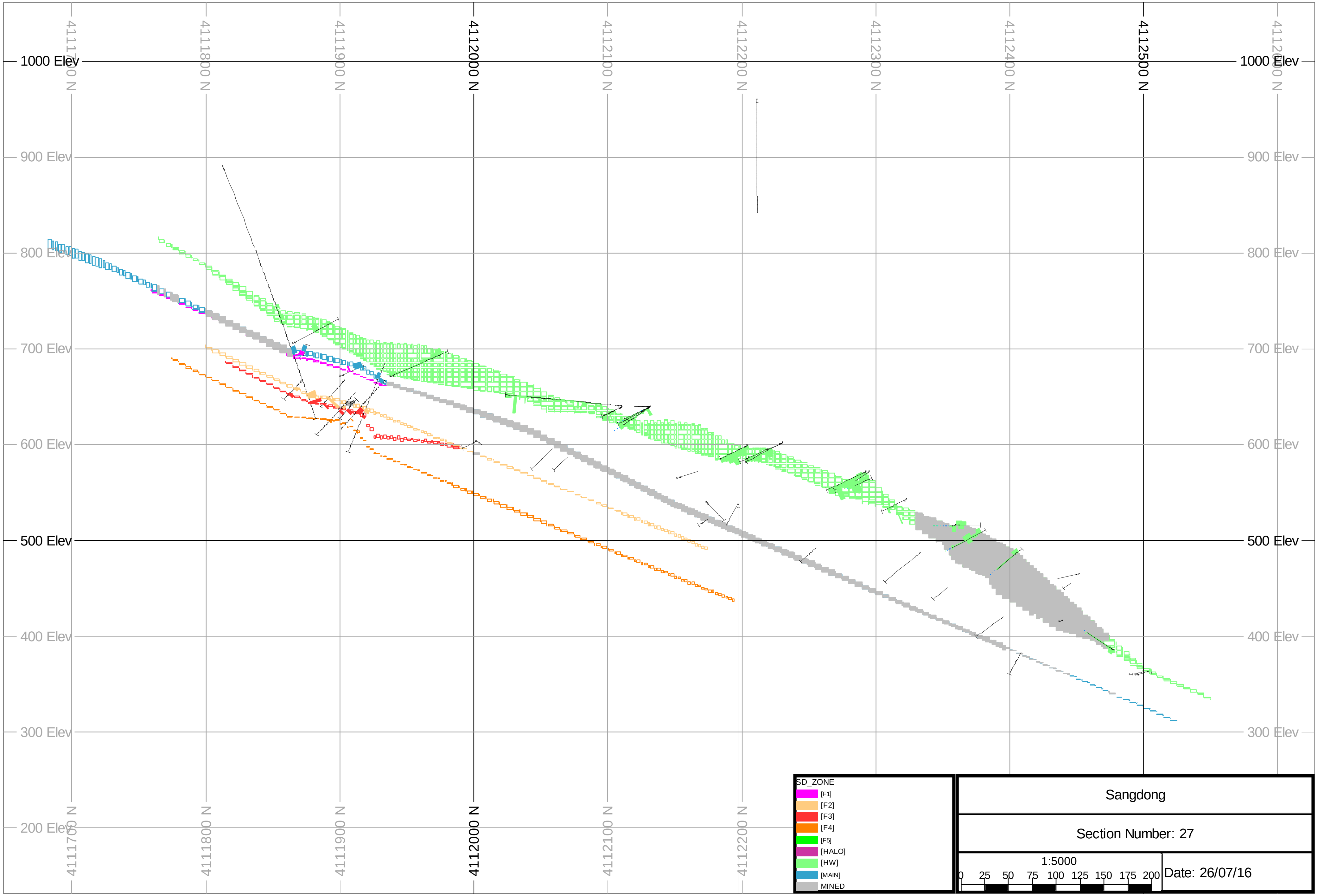

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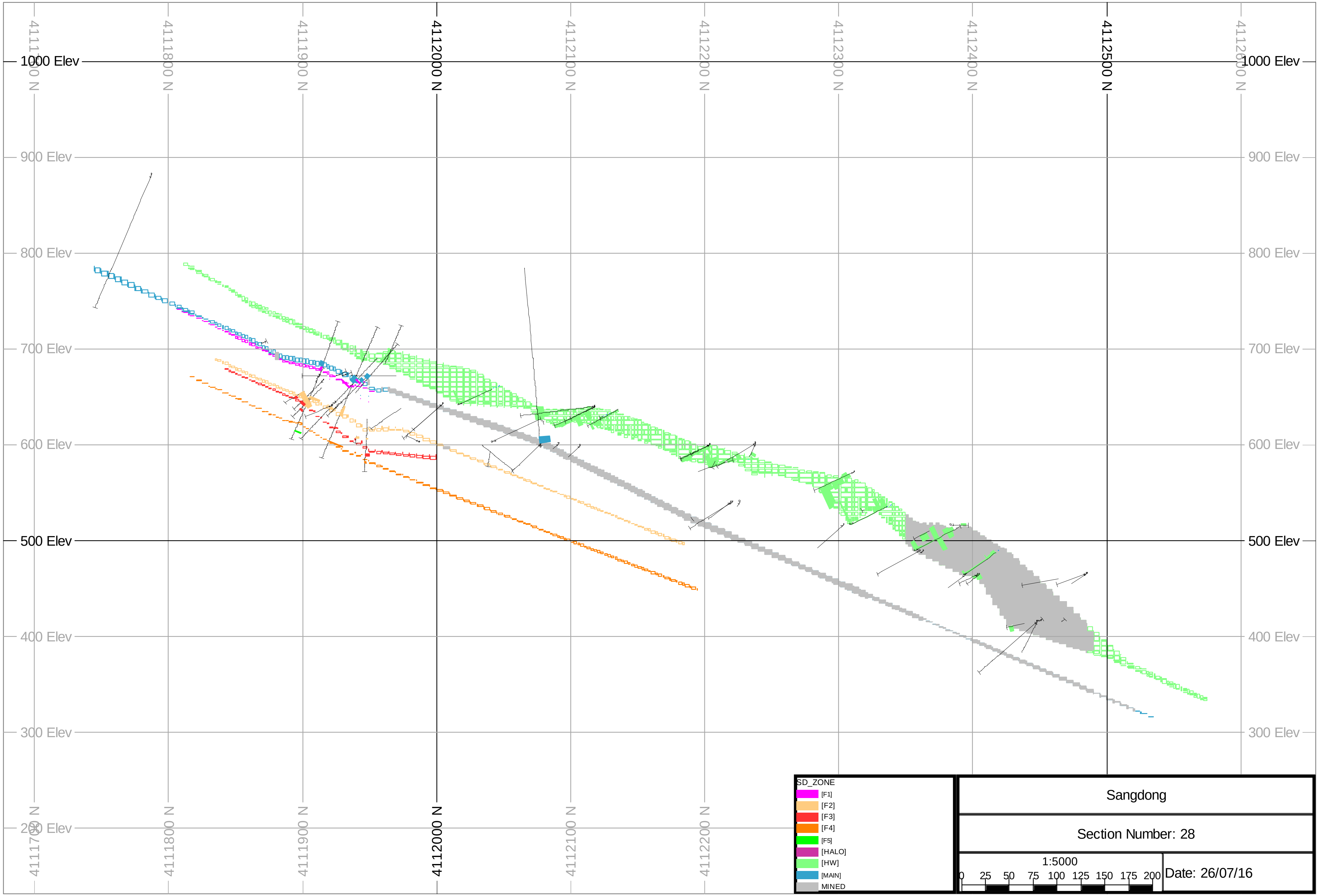

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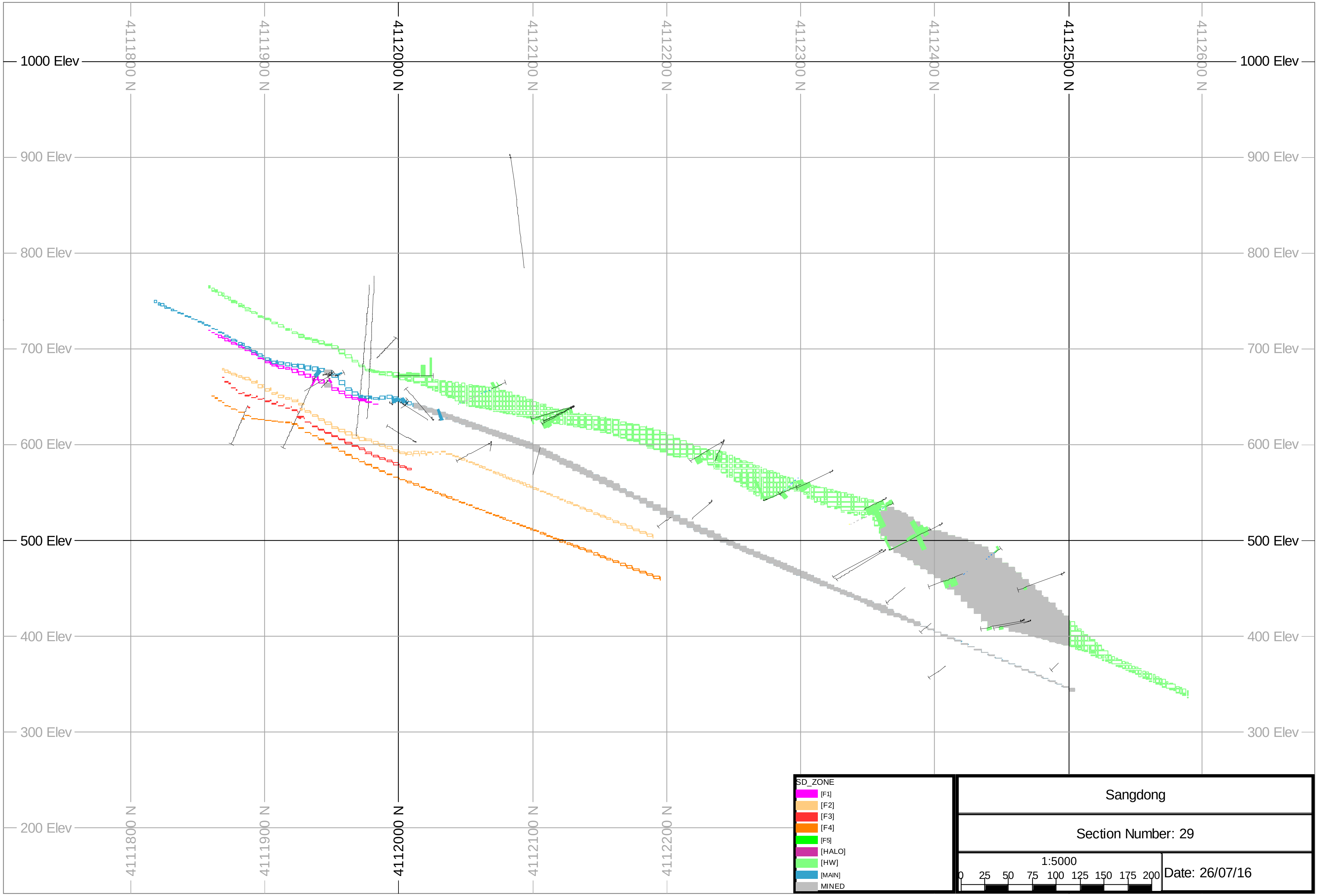

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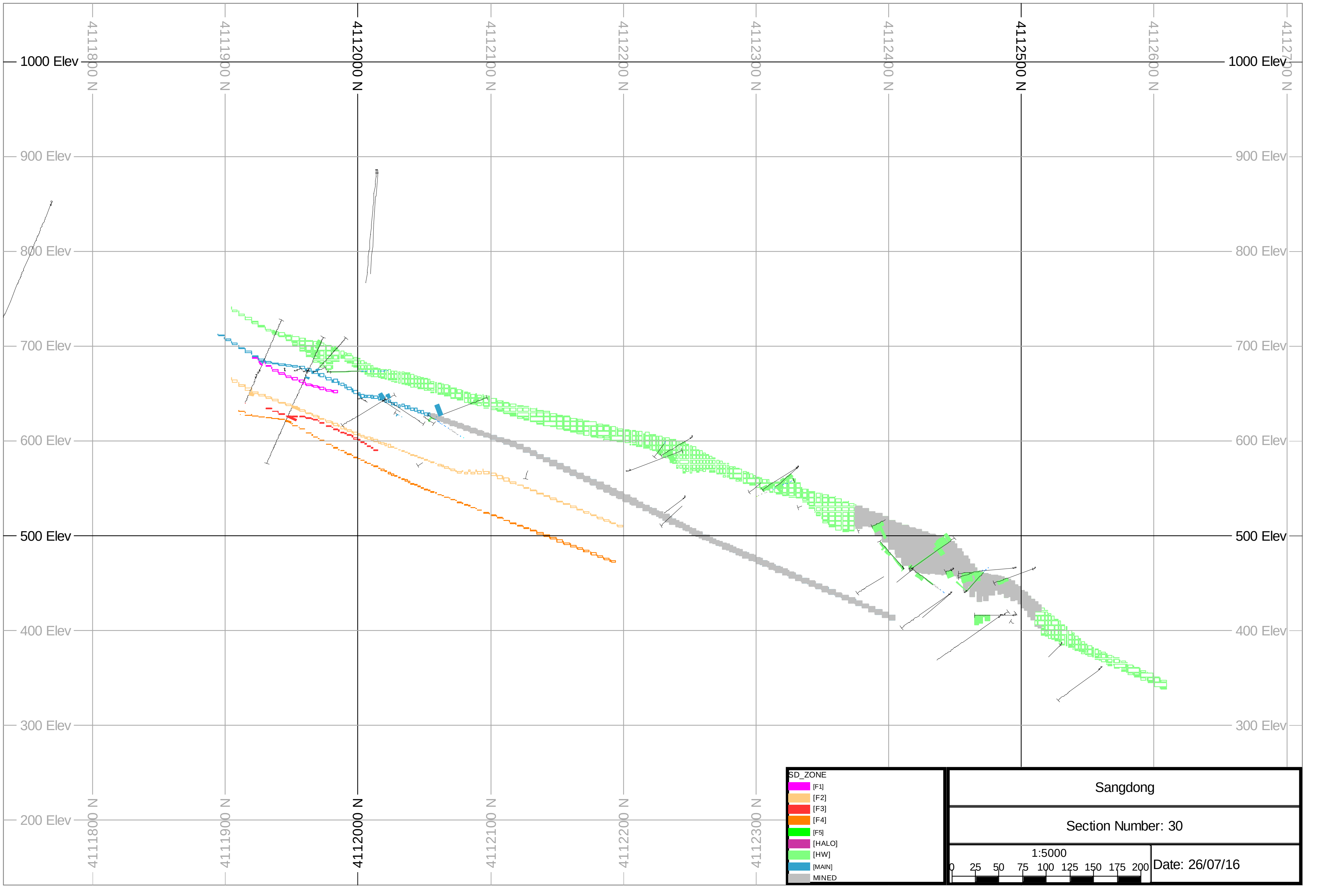
Date: 26/07/16



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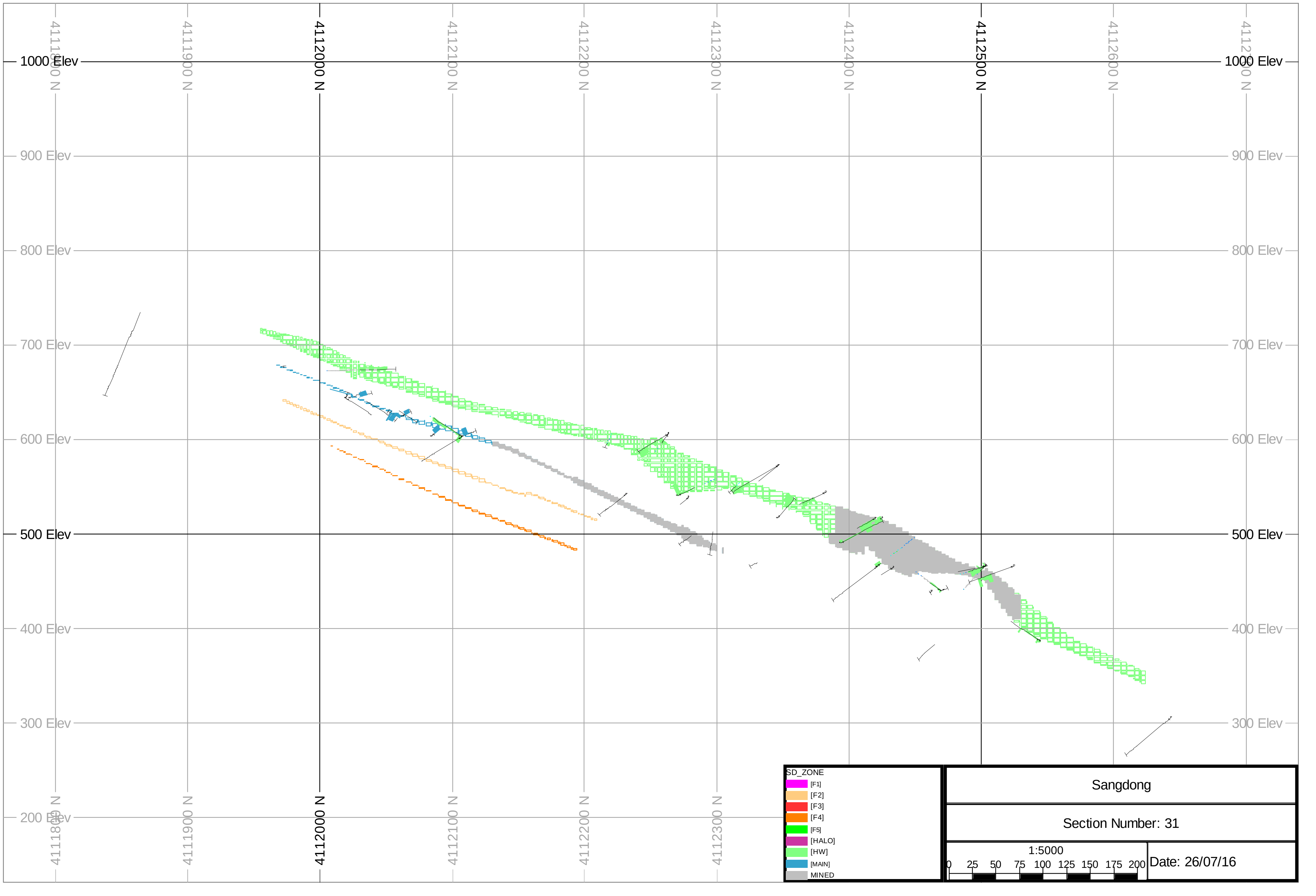

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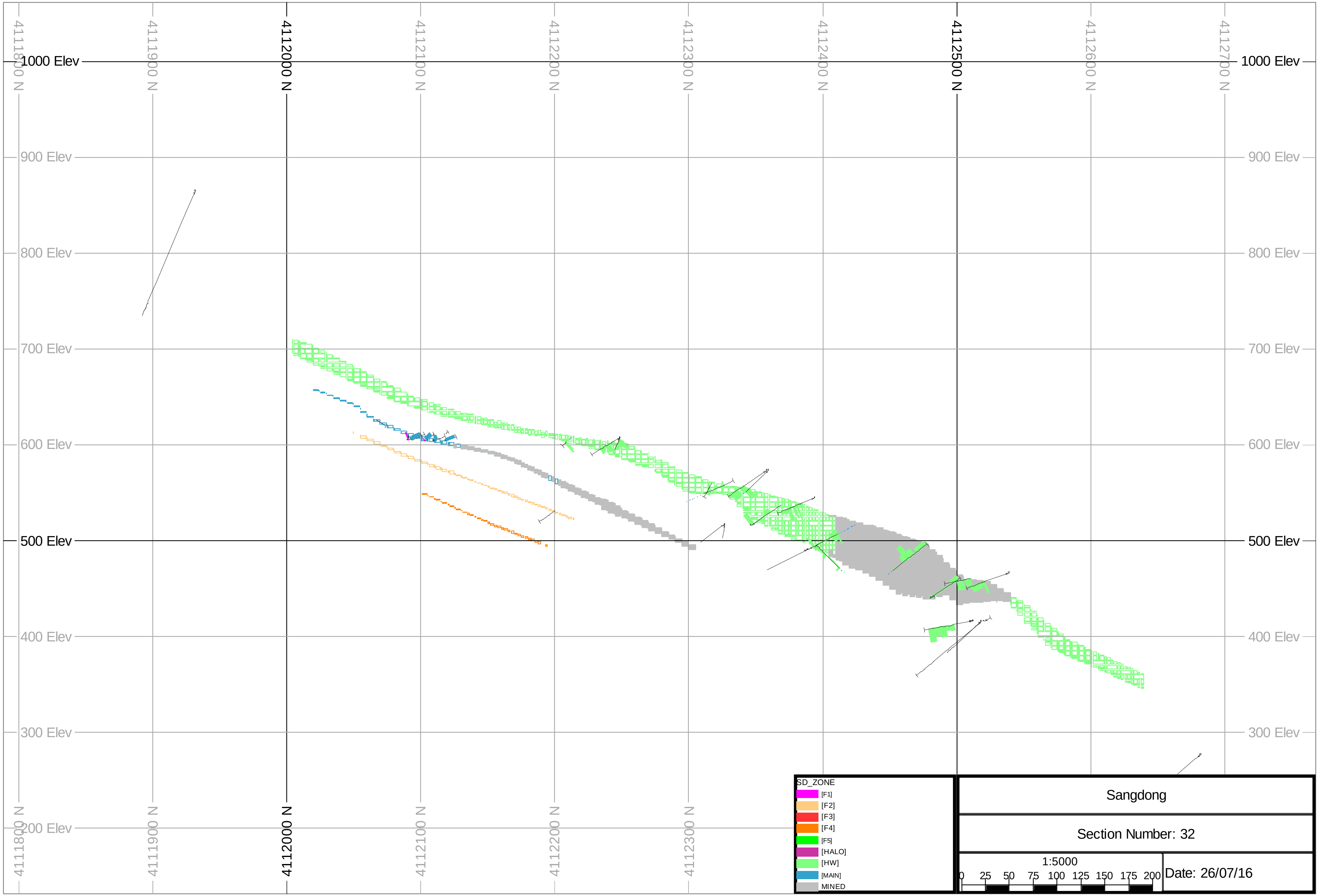
Date: 26/07/16



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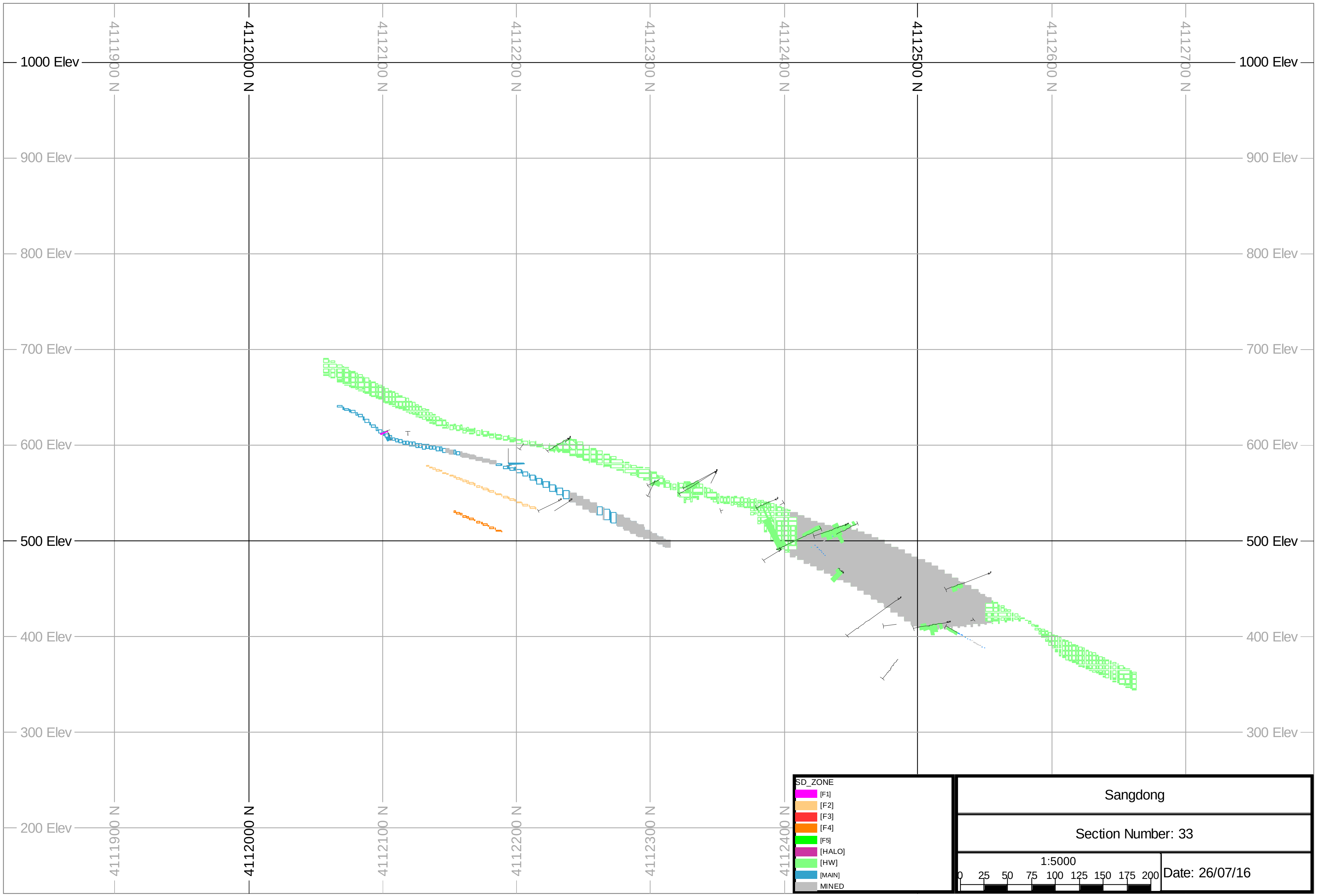

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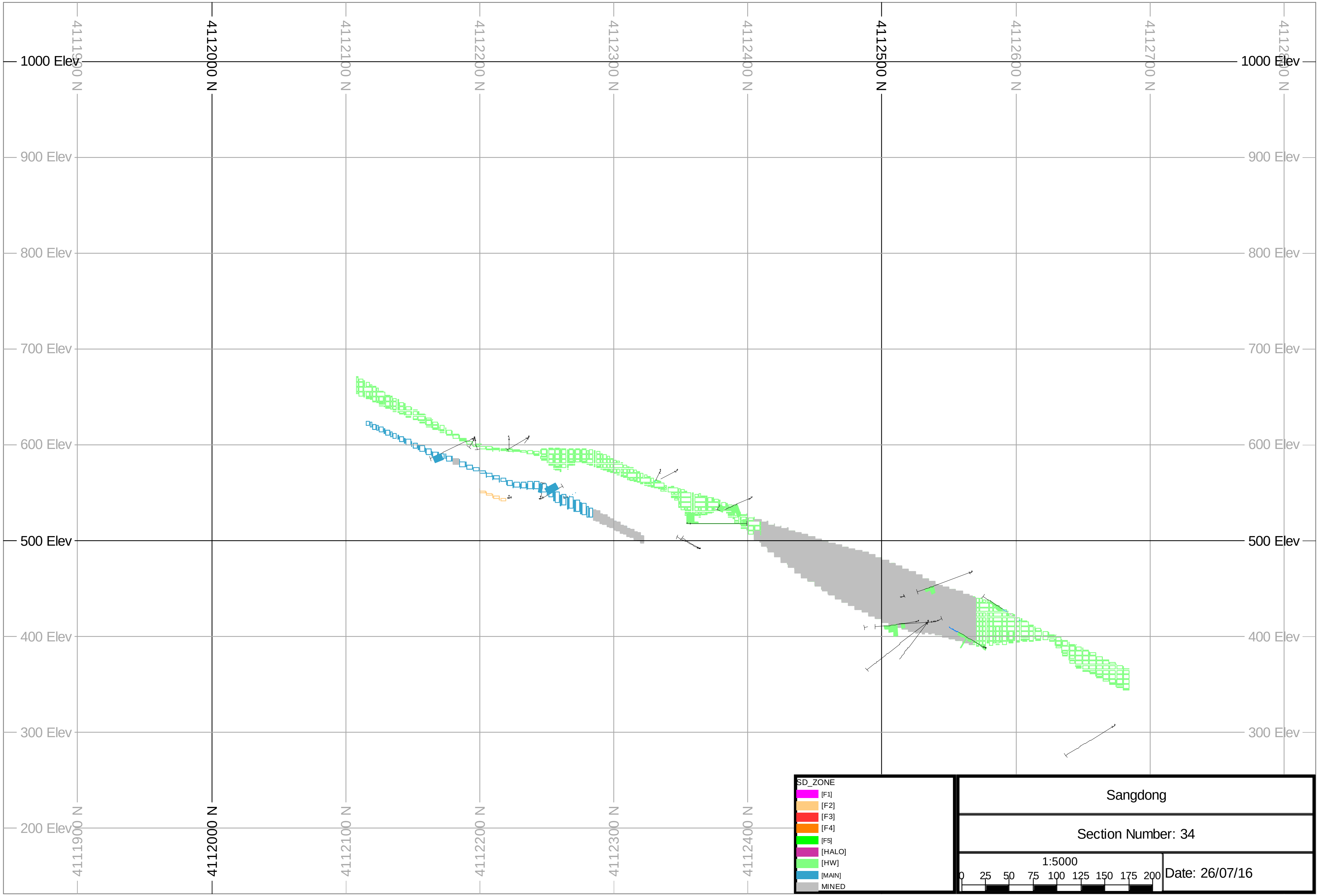
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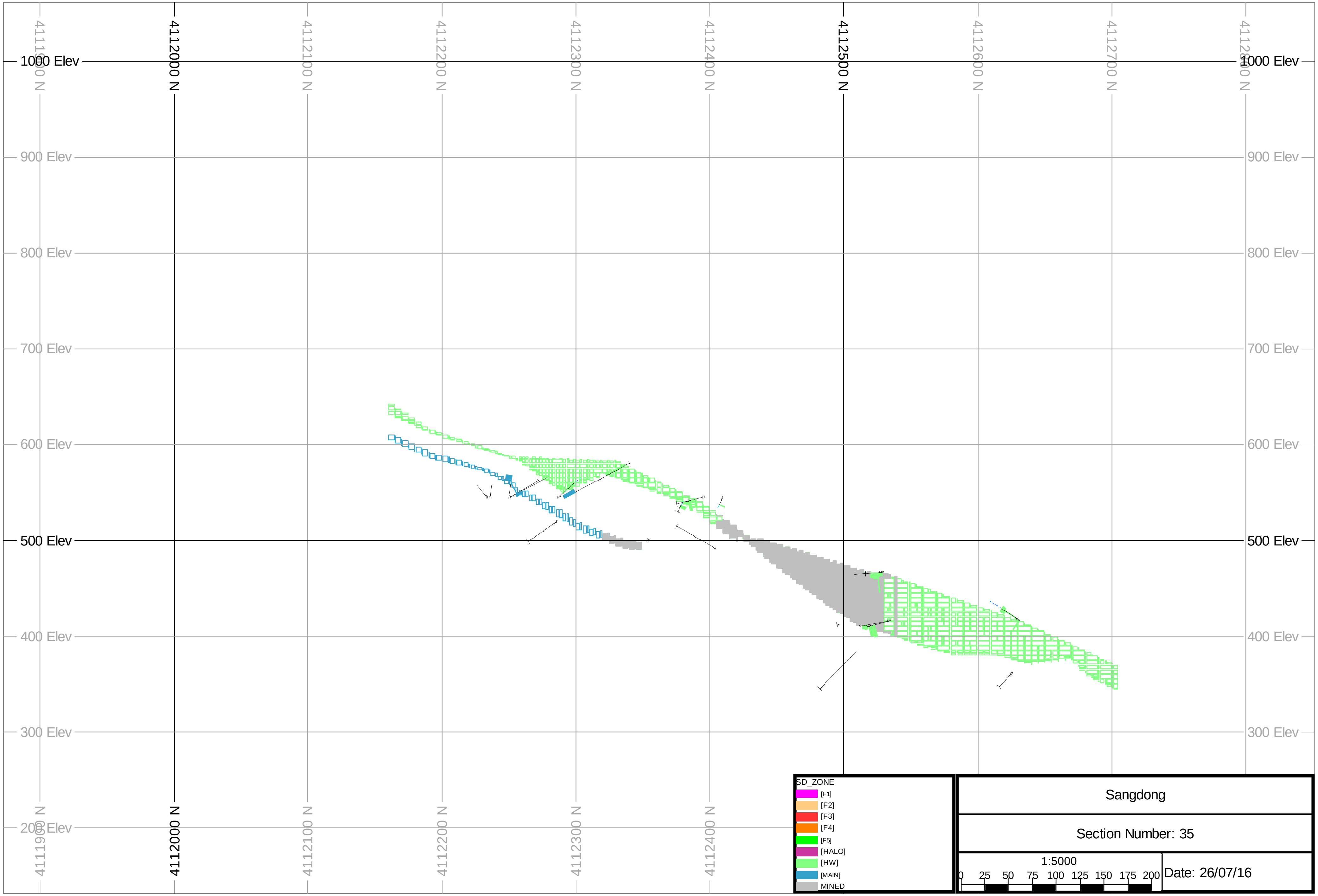

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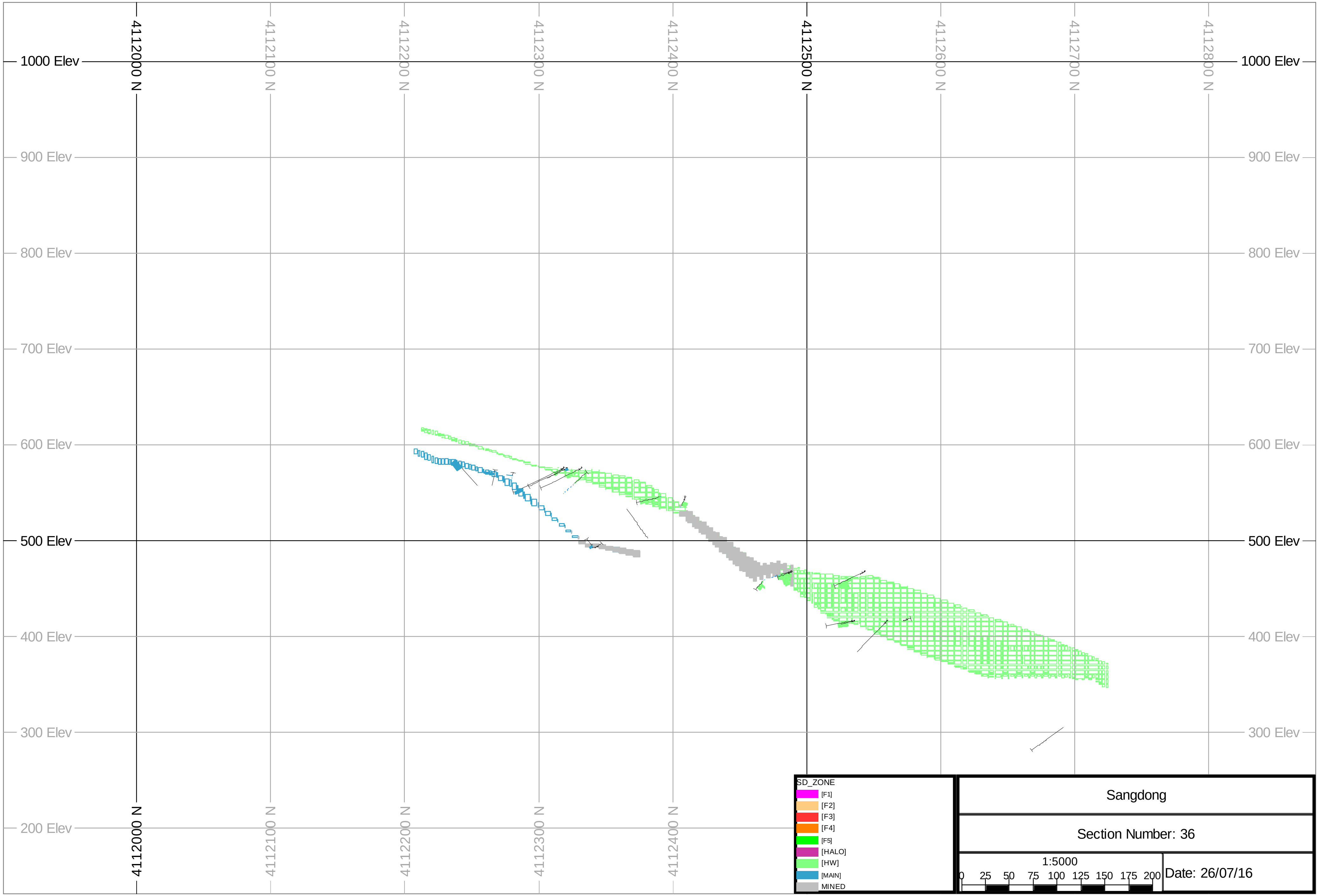
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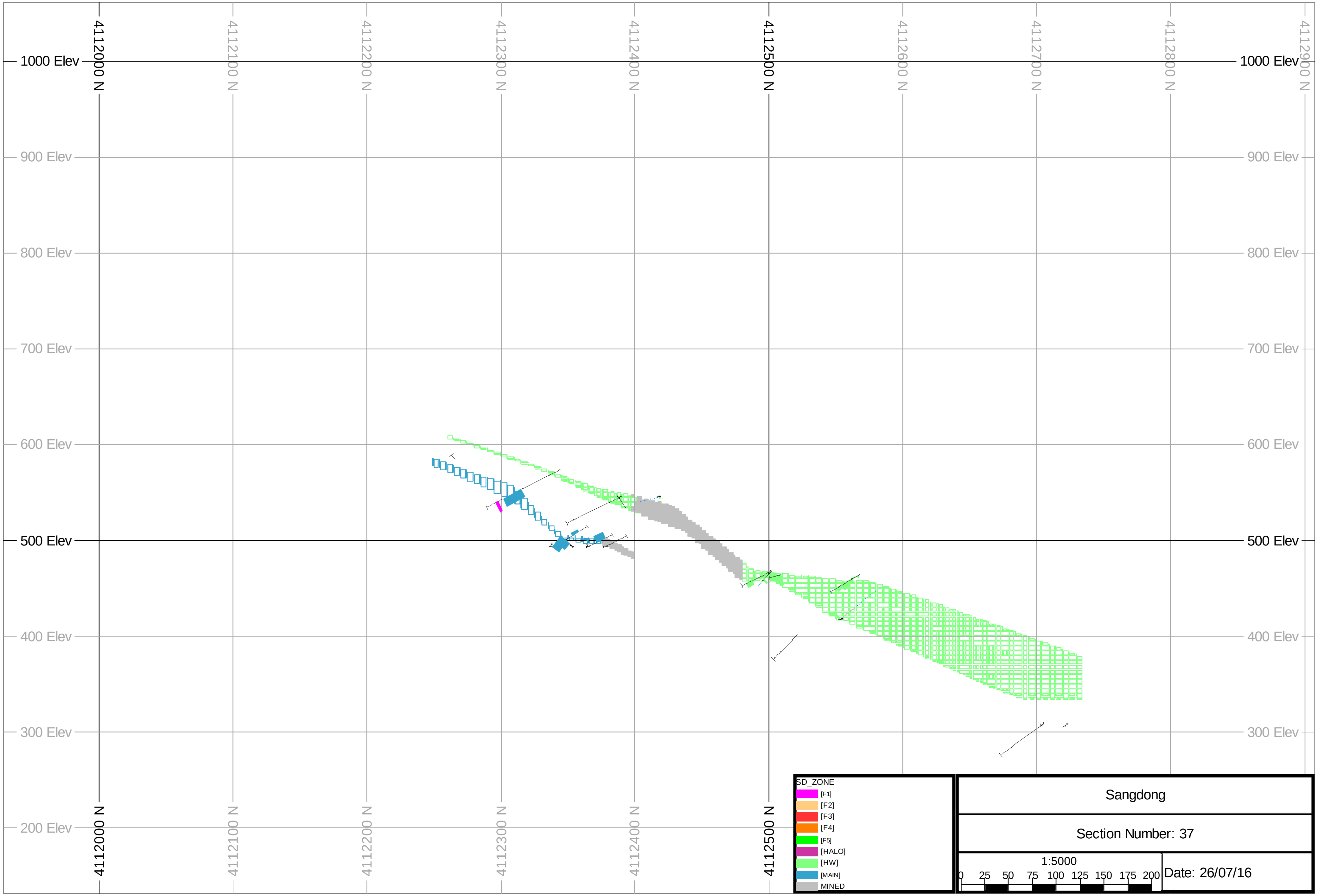

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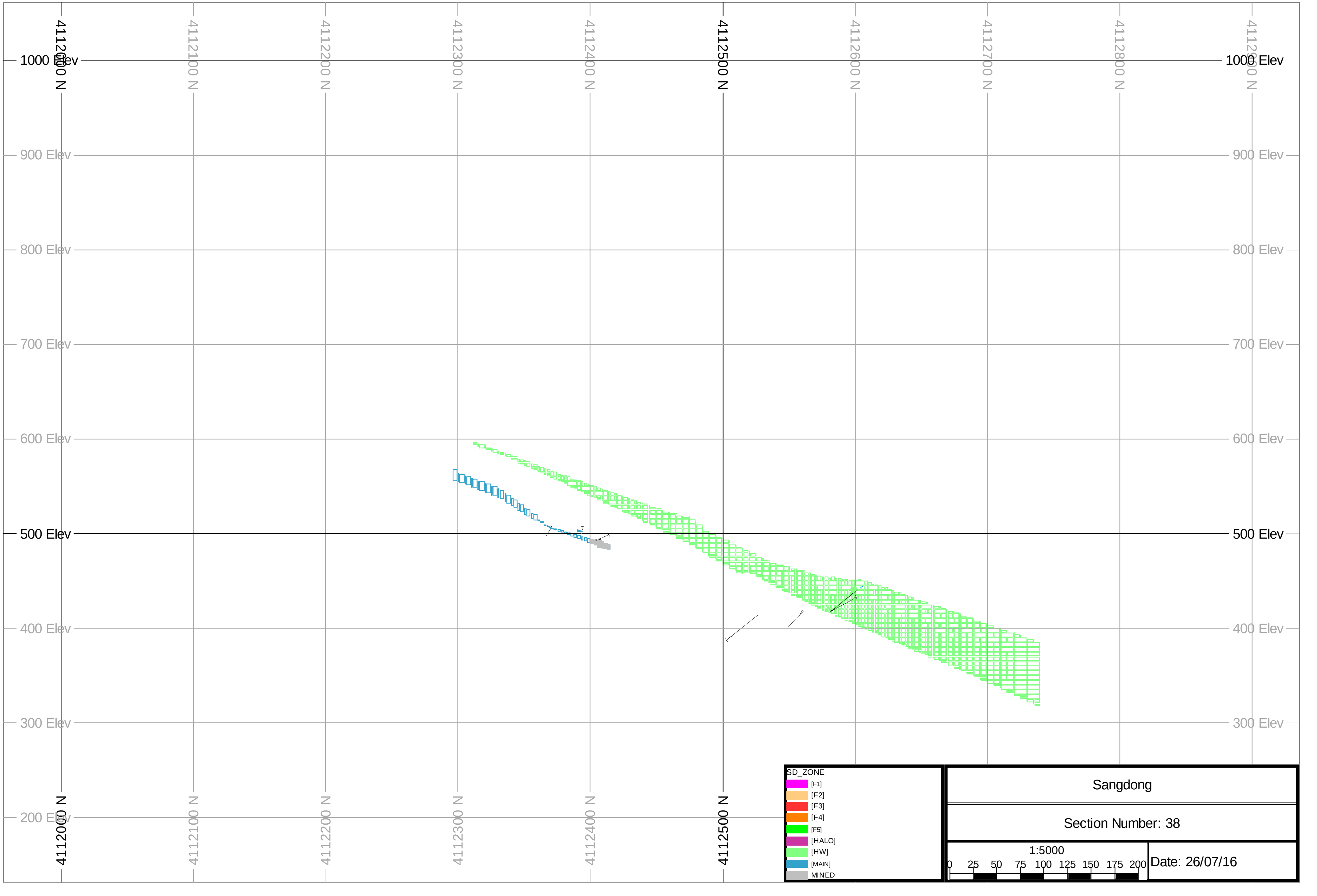
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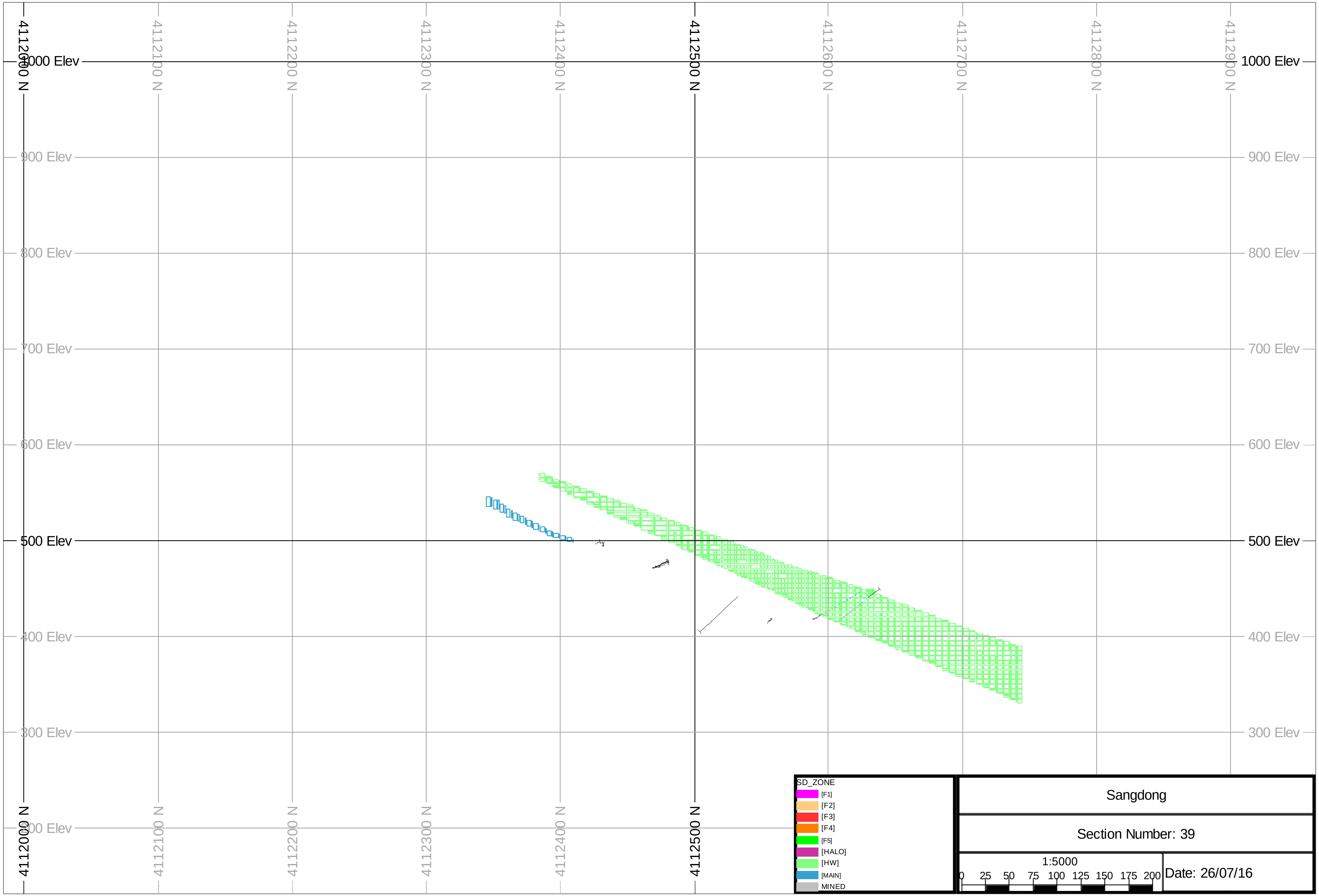

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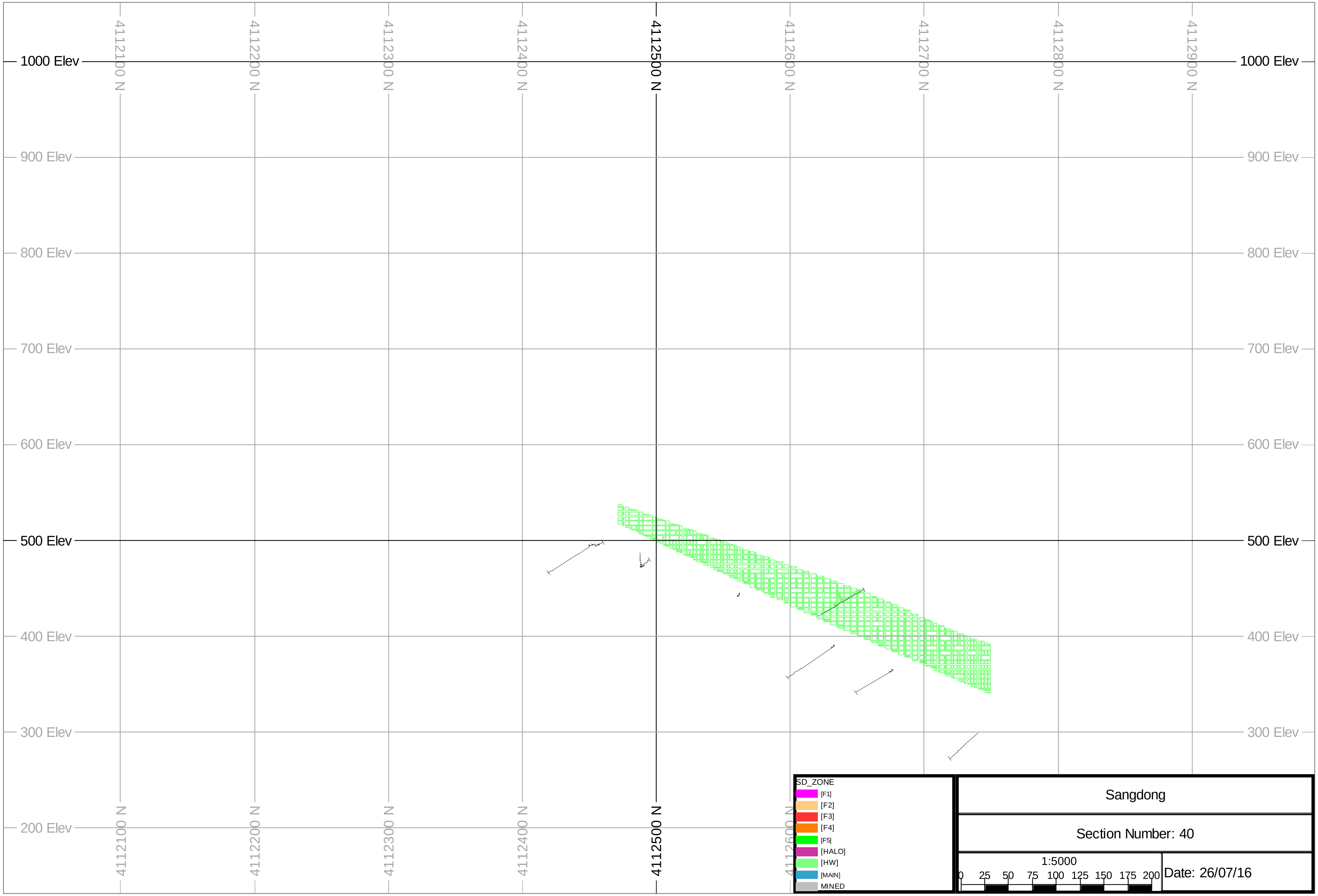

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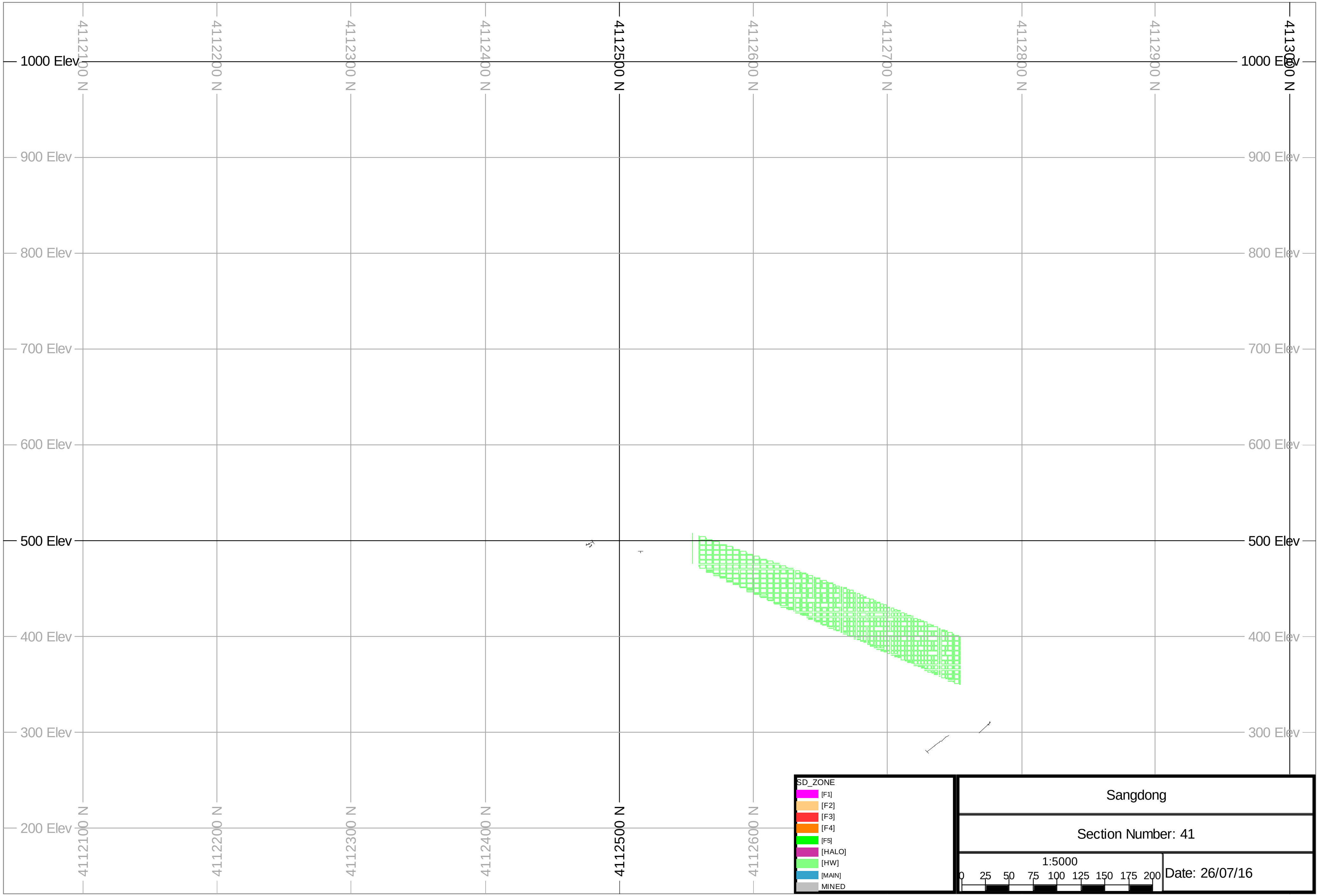
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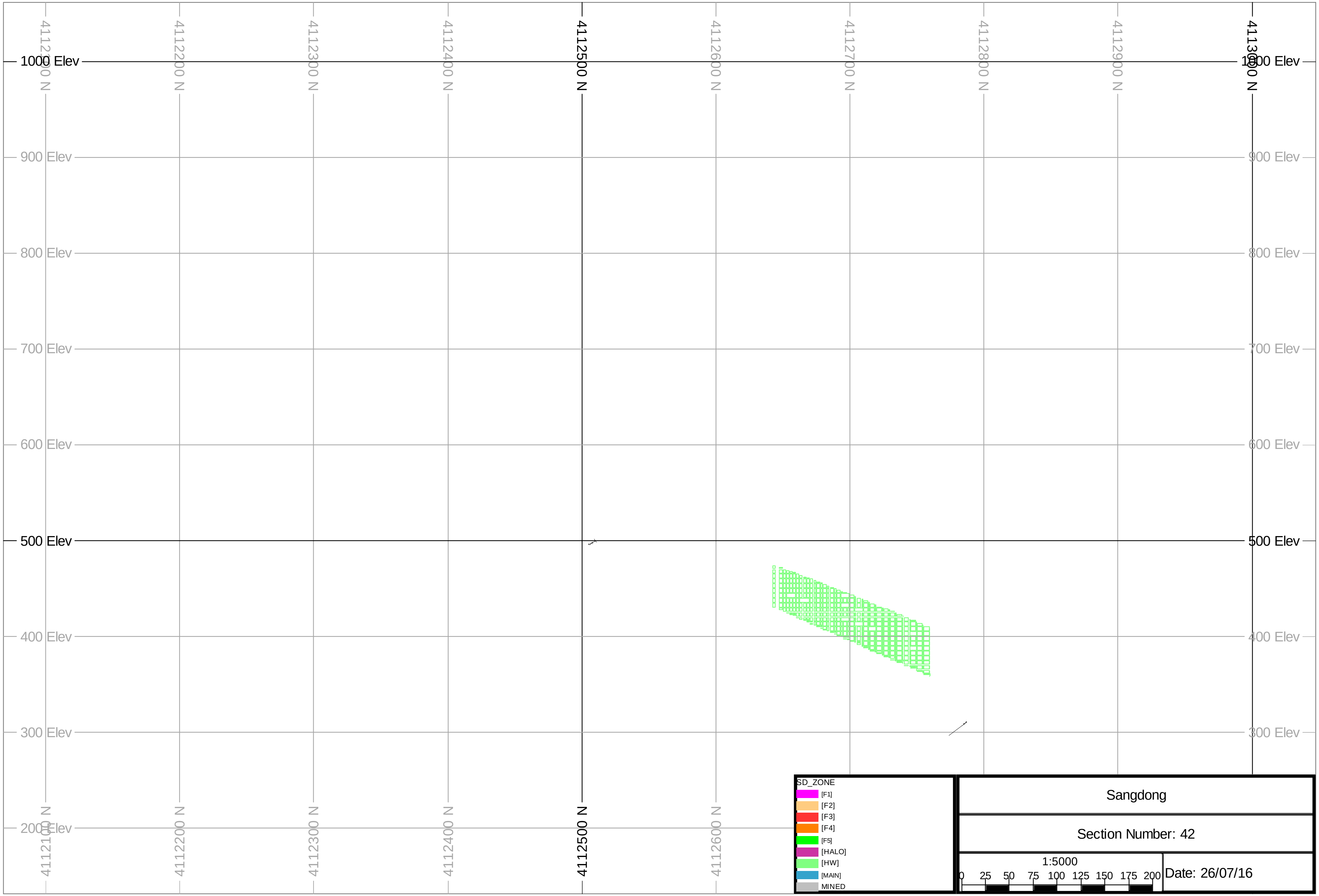
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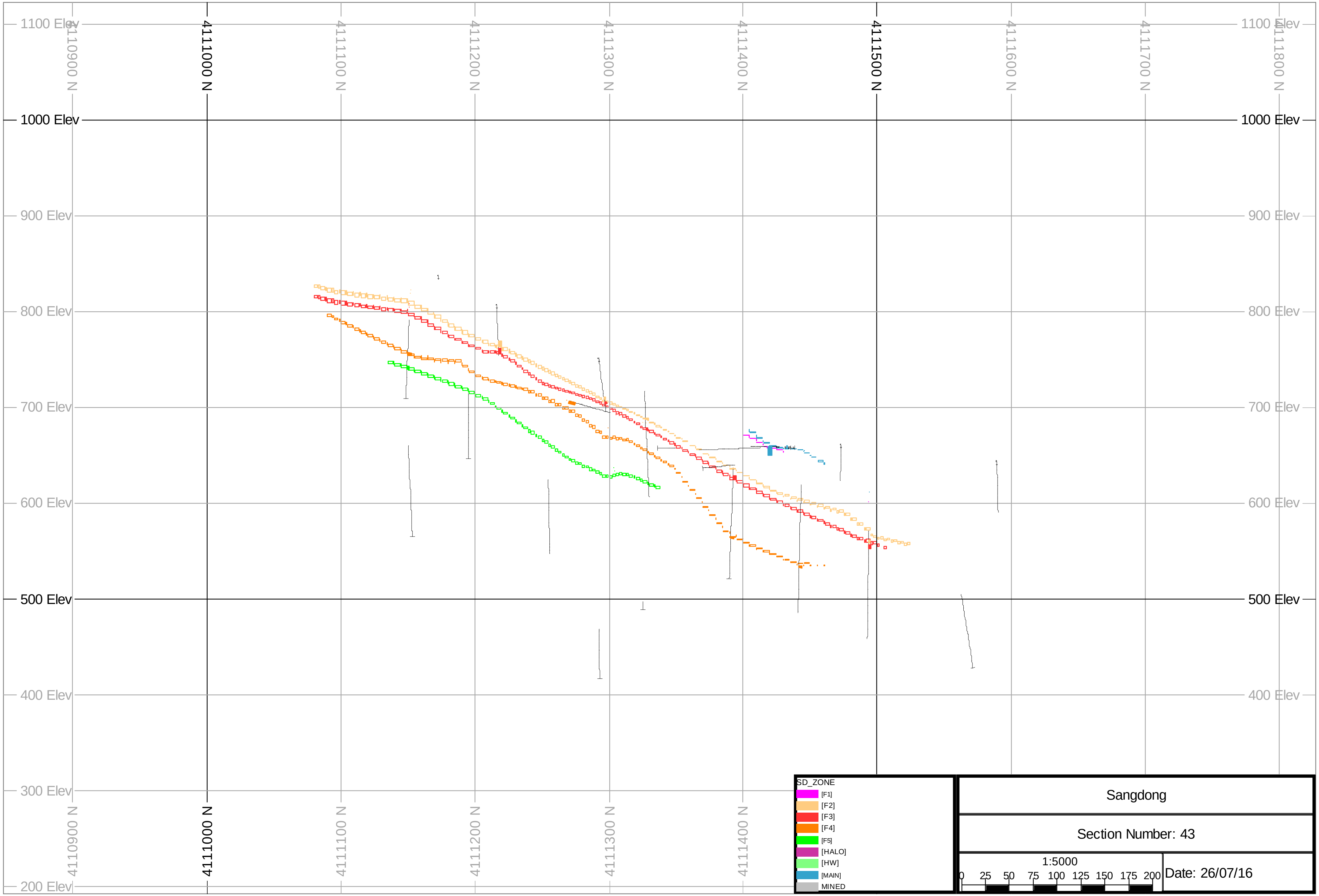

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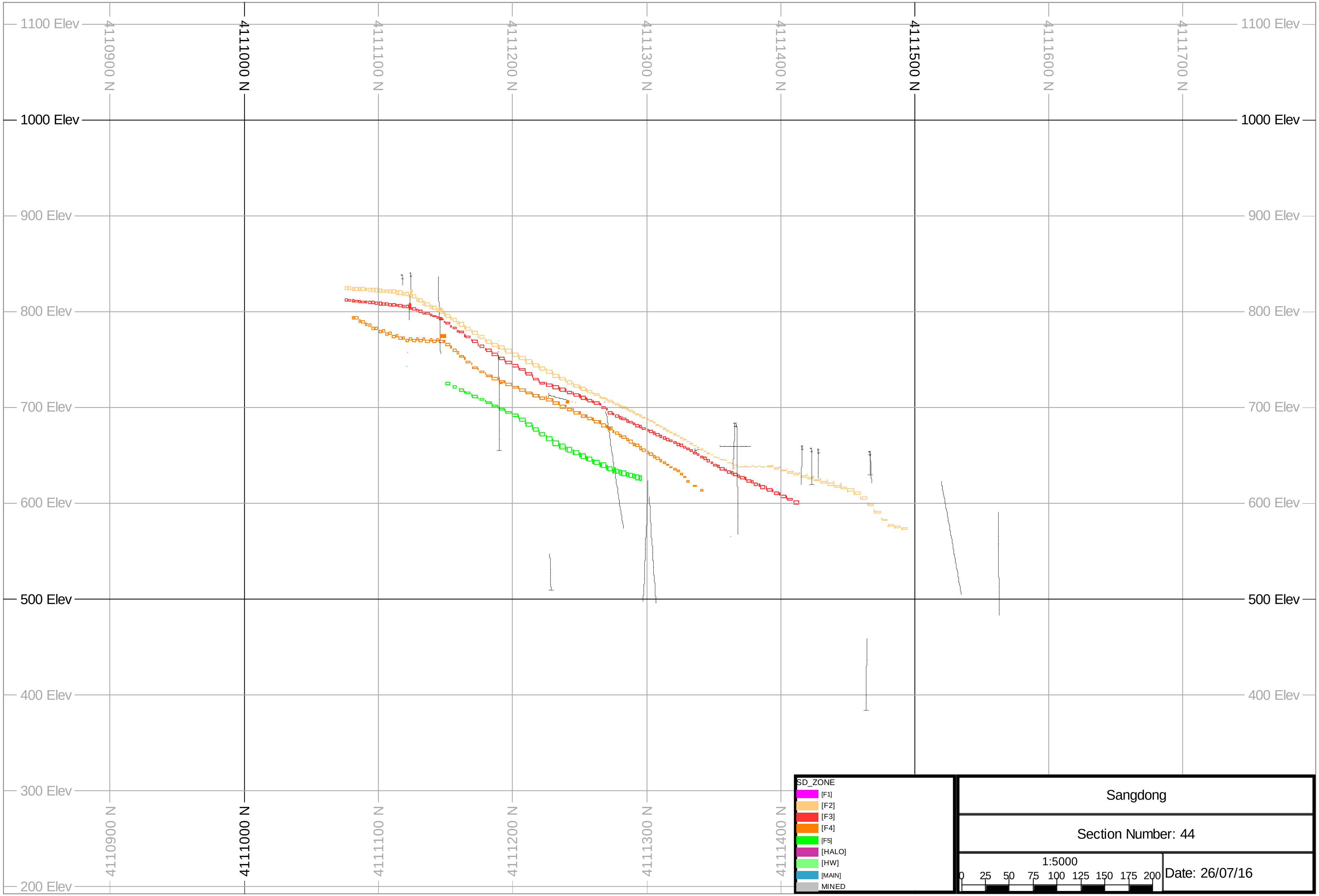

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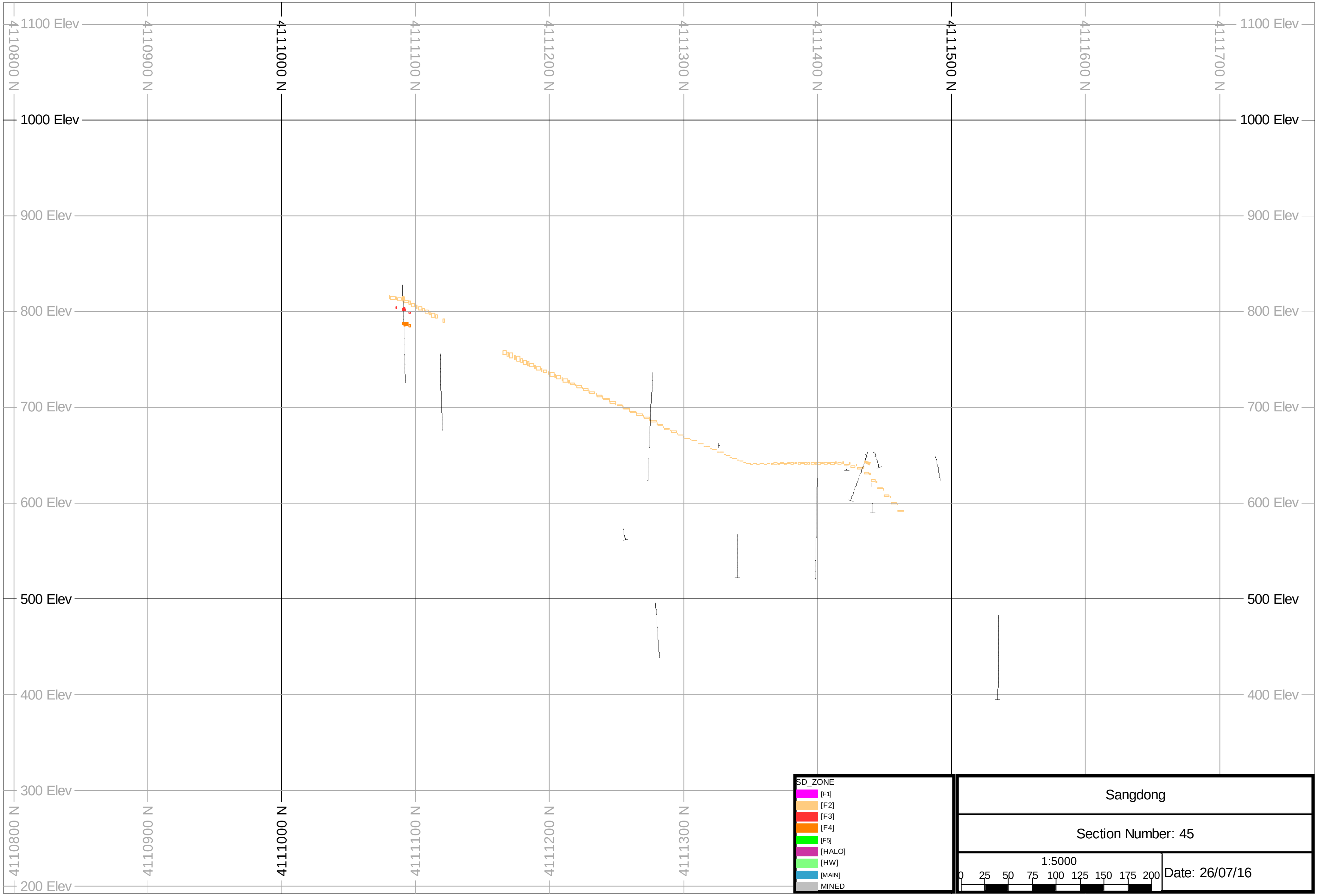
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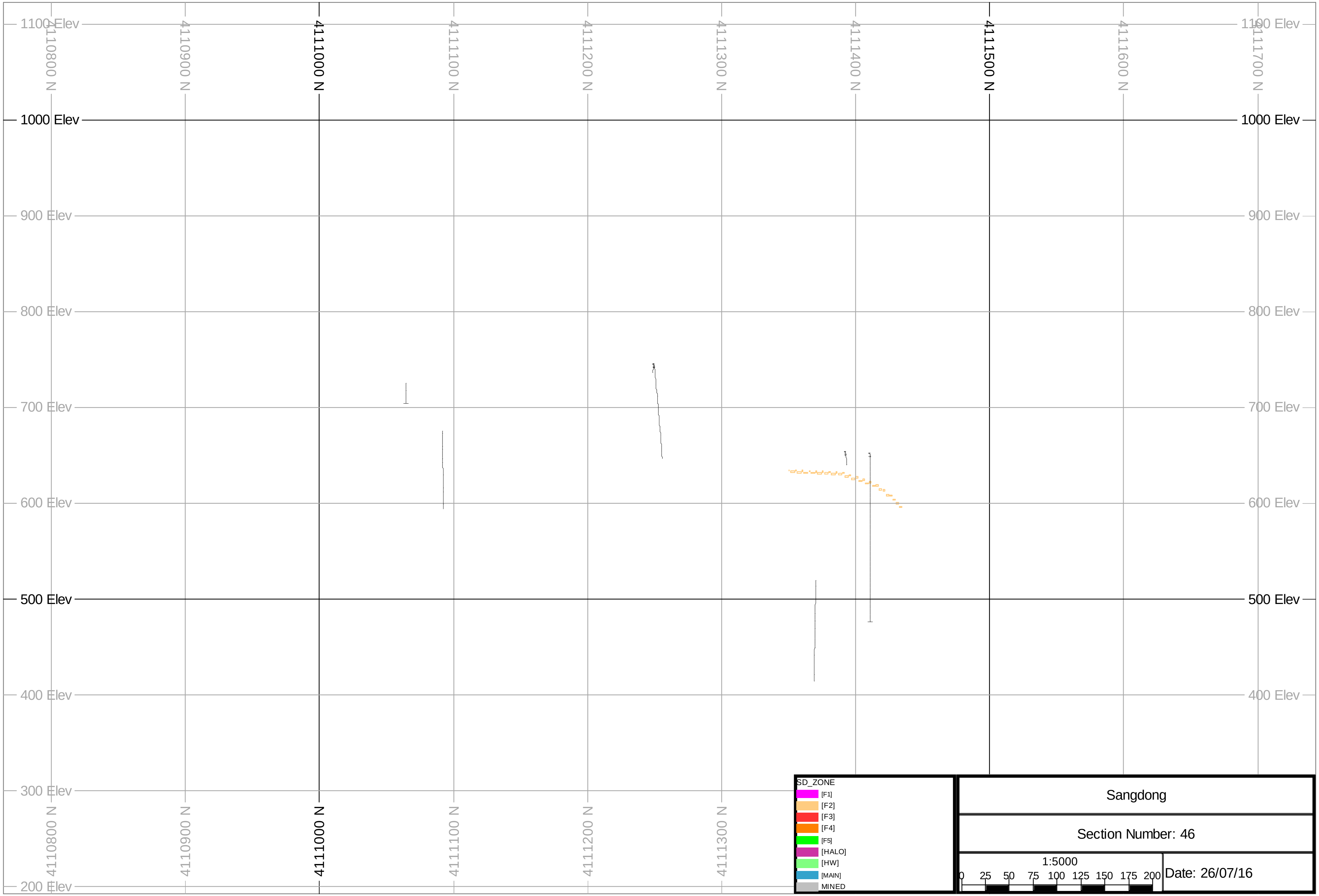
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APPENDIX D:

Glossary of Terms

February 2025

UNITS OF MEASURE AND ABBREVIATIONS

AKTC	Almonty Korea Tungsten Corporation
amsl	Above mean sea level
CAD	Canadian Dollars
CAF	Cut-and-fill mining
CIM	Canadian Institute of Mining, Metallurgy and Petroleum
dmt	dry metric tonne
ha	hectares
JORC Code	The Australian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves which become effective 20th December 2012 and mandatory from 1st December 2013. The JORC Code is the accepted reporting standard for the ASX andthe NZX.
ktpa	Kilo-tonnes per annum
LNEG	Laboratório Nacional de Energia e Geologia
km	Kilometers
kt	Tonnes x 1,000
KOMIR	Korean Mine Rehabilitation and Resource Corp
KRW	Republic of Korea Won
KTMC	Korea Tungsten Mining Company Ltd
m	meters
m/h	meters per hour
mtu	metric tonne unit
	1 mtu = 10kg = 0.01t
MOU	Memorandum of Understanding

m^3	cubic meter
m^3/h	cubic meters per hour
M	million
MIP	Mechanised Inclined Panel mining
Mt	Tonnes x 1,000,000
NI	National Instrument (43-101)
NSR	Net smelter return
ppb	Parts per billion
ppm	Parts per million
QA/QC	Quality assurance/ quality control
ROM	Run of Mine
t	Tonne (1,000 kg)
tph	Tonnes per hour
tpa	Tonnes per annum/year
3D	Three-dimensional
USD	US dollars
UTM	Universal Transverse Mercator
WMC	Woulfe Mining Corporation
XRF	X-ray fluorescence

APT Pricing

Mined tungsten concentrates are priced by reference to the price of Ammonium Paratungstate (APT), an intermediate product in the production of tungsten metal, powder, tungsten carbide or other end use tungsten products. Prices are quoted “per metric tonne unit” (mtu) which is equivalent to 10 kg of product. An equivalent price per tonne is therefore the price on an mtu basis multiplied by 100. The price received for concentrate sales are typically subject to a discount to the APT price to cover the cost of converting mined concentrate to APT as in the case of TC/RC charges for base metals.

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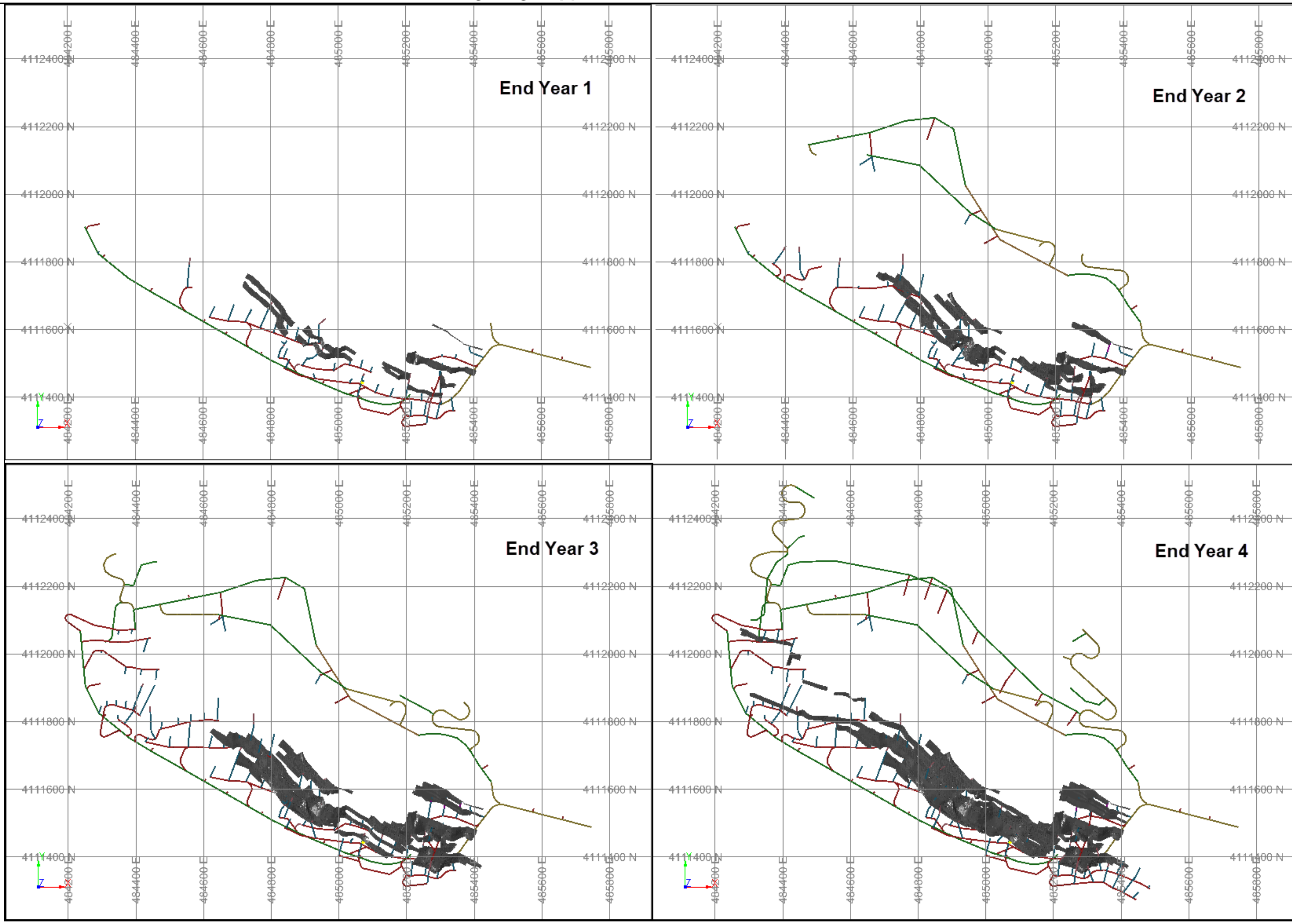
APPENDIX E:

Mine Schedule Plans

February 2025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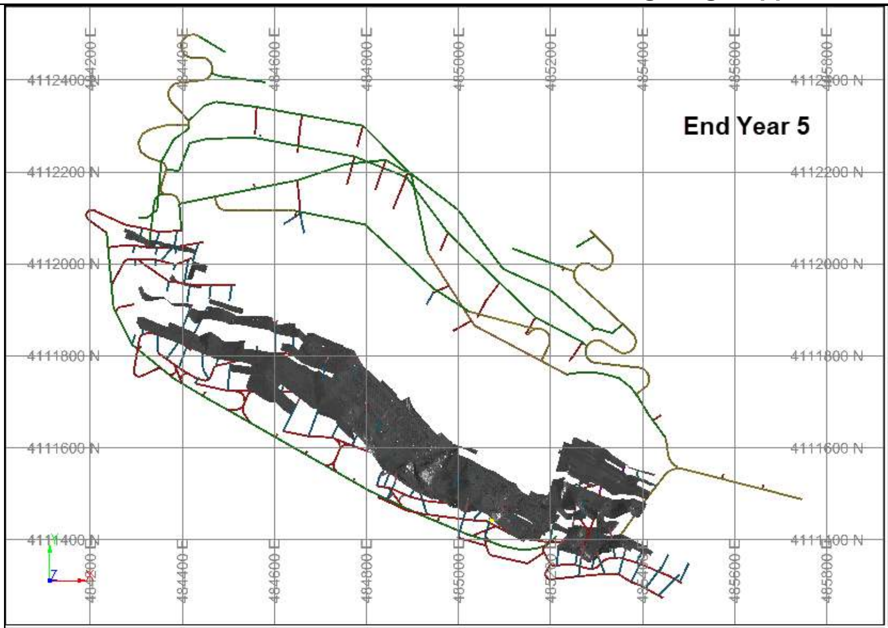
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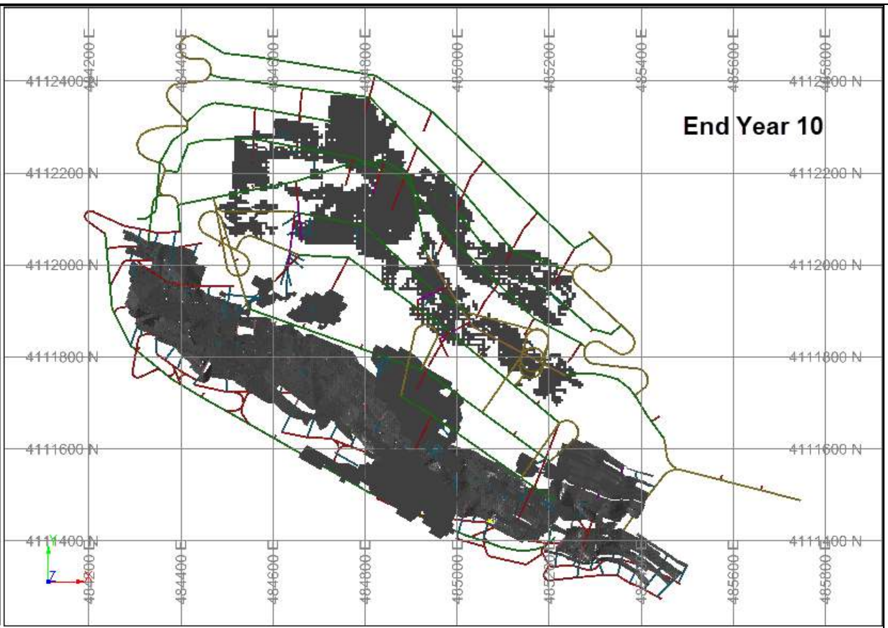
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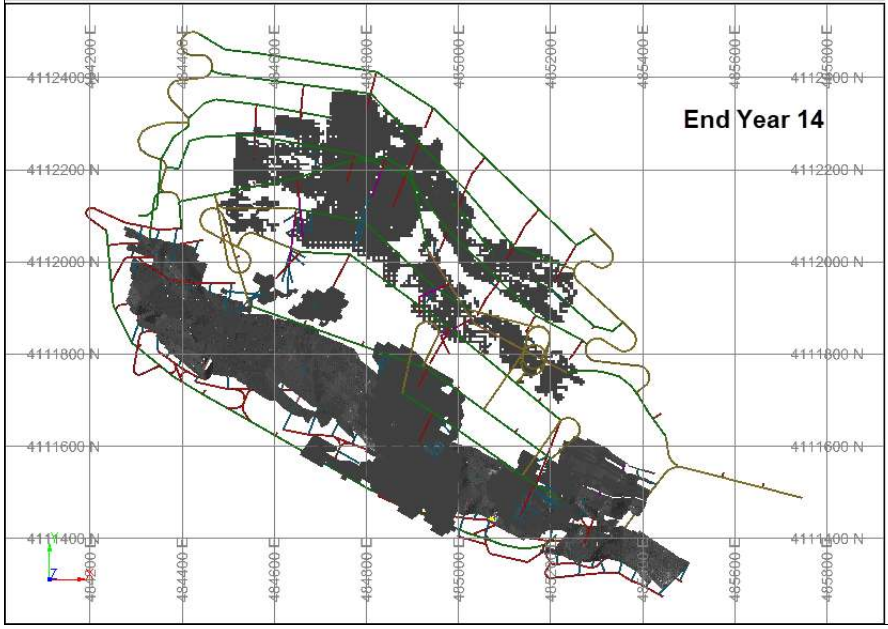
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APPENDIX F:

JORC Table 1

February 2025

Appendix F: JORC Code, 2012 Edition – Table 1

Section 1. Sampling Techniques and Data

Criteria	JORC Explanation	Commentary
Sampling techniques	Sampling overview	The types of sampling consisted of diamond drillhole core, surface and underground.
	Measures for representivity and calibration of tools/systems	Drilling was oriented so as to be as near to perpendicular as possible with the mineralised structures, in order to achieve a good sampling representivity. Other holes were drilled on bearings of both 135° and 315° and intersected strata and mineralization obliquely. In these cases, the true thickness of the mineralisation was approximately 66% of the total intersected thickness.
	Determination of mineralisation	Lithological changes, assisted by ultra-violet (uv) detection of scheelite, augmented by assay measurements.
	Sampling details; non-standard aspects	Since 2009, diamond drillhole cores have been cut in half, and these cut samples were sent then prepared as samples on site, producing 50g pulverized samples. This preparation was done in a modular unit from an engineering firm in Perth, Australia. Split portions of the pulverized samples were sent to ALS Chemex (ALS) in Brisbane, Australia for analysis.
Drilling techniques	Drill type and details.	90 HQ/NQ (63.5mm/47.6mm) surface core holes were completed between November 2006 and July 2008. Drilling between 2009–2014 was largely completed from underground, supplemented by additional surface holes where underground access was not possible. Underground drilling was either NQ core or BQ core, the machines used were a Sandvik Onram 1000 wireline rig and 3 Kempe pneumatic core rigs. All of the 2016 drilling was from underground, producing NQ core.
Drill sample recovery	Method of measurement and recording drill recovery	Recovery derived from measured lengths. The mean core recovery for the WMC drilling was 91%, while the median value was 98%. The recovery was considered to be suitable to support a Mineral Resource Estimate. The overall core recovery, including historical drilling in the database, were not consistently good in the recorded recovery data. However; >75% of the holes had a recovery of over 90%.
	Measures for recovery and representivity	Recovery monitored during campaigns.
	Relationship between sample recovery and grade	There was no evidence of sample bias or any relationship between sample recovery and grade.
Logging	Geological and geotechnical logging details.	The drill core was collected from the drill site on a daily basis and brought to an on-site core logging facility. It was logged to a level of detail sufficient for the Mineral Resource Estimation (MRE).
	Logging qualitative or quantitative, core photography	Logging both qualitative and quantitative. Core was measured for recovery and rock quality designation (RQD) and logged geologically, including the following characteristics: lithology, weathering, alteration, structural features, and orientations where the core is orientated, uv fluorescence, fracture frequency, planarity, roughness, infill, rock strength: for the calculation of geotech parameters. Core was photographed wet and dry.
	Total length and % of relevant intersections logged	In the current overall drillhole database, 106,159m have lithological log, representing 83% of the total drilled length.
Sub-sampling techniques and sample preparation	Core sawing details	Core was sawn in half, half placed in a plastic sample bag and half replaced in the core box for archival storage. Sample tags are placed in the core box and in the sample bag and the sample number is written on the sample bag as well.
	Non-core sample splitting details	No non-core sampling.
	Nature and quality of sample preparation	Sampling method appropriate for type of estimation being done.
	Quality Control (QC) procedures, for max representivity	All QC procedures described in Section 11.
	Measures to ensure sampling representative of material	Drilling sample information also assessed with regard to underground exposures of scheelite skarn.
	Samples sizes information	It is considered that the sample sizes used are appropriate for the mineralisation at Sangdong.
Quality of assay data and lab tests	Assaying and laboratory procedures	The assaying techniques used have given total assays. From 2006 to 2008 samples were analysed by inductively coupled plasma mass spectrometry (ICP- MS) for 41 elements and for ore grade quantities of specific elements by aqua regia or four-acid digestion followed by ICP analysis. From 2010, molybdenum, tin and tungsten were analysed by X-ray fluorescence (XRF). The sample is fused in a platinum crucible using lithium metaborate/tetraborate flux and the resulting glass bead is irradiated with X-rays and the elements of interest quantified.

Criteria	JORC Explanation	Commentary
	Parameters, models for geophysical or other instruments.	No other instruments used other than laboratory techniques described in note above.
	QC procedures, related to accuracy (lack of bias) and precision	Results associated with all QC procedures are described in Section 11.4. These results showed acceptable precision and lack of bias.
Verification of sampling and assaying	Verification of key intersections - independent personnel	The Competent Person discussed with site geologists all aspects of sample collection, preparation and storage, as well as visiting the core storage and sample preparation areas. The sample database was also reviewed and during the resource estimation, many aspects of the drillhole data were checked by communication with the Sangdong geologists.
	Use of twinned holes	Pairs of intersections were selected where the P0-P7 intersections were very close to existing historical drillholes i.e. effectively a twin sample. Sections of these paired intersections were examined, and generally showed good correspondence, as shown in the example in Figure 14-10, for both samples and composites.
	Documentation of primary data, and entry procedures	Primary data has been entered and maintained in an Excel database. Any problems encountered during the hole data, combination and desurveying process have been resolved with the Sangdong geologists.
	Adjustments to assay data	The only adjustment made to assay were applied top-cuts during the compositing process.
Location of data points	Accuracy and quality of drillhole and workings' surveys	The collar and downhole survey information from the historical drilling programmes are not adequately documented. Comparison of grade values in pre-WMC drillholes with nearby WMC drillholes showed significant differences. The drill hole collar locations in the 2006 – 2008 programme were surveyed by global positioning survey (GPS – sub 0.2m accuracy) and the down-hole positions of the holes were measured at 50m intervals. There were some uncertainties with regard to the collar elevations and WMC subsequently undertook additional surveying work to resolve the situation and consolidate the survey of the site in general. Collar locations of the U/G holes in the 2009 – 2016 programmes were surveyed using a Leica 1203 total station with sub-decimetre accuracy.
	Specification of grid system	The grid system now being used is the Universal Transverse Mercator (UTM) 52 system.
	Quality and adequacy of topographic control	The lack of survey information associated with the historical drilling data is one of the reasons that these data have not been used for the estimation of Indicated Resources in the non-HW mineralised zones. The 2016 drilling data has enabled a verification of the historical data used in the estimation of the HW zone. The data associated with post-2006 data is considered to be adequate for use in the estimation of Indicated Resources.
Data spacing and distribution	Spacing for reporting of Exploration Results	The sample database, in the form of an Excel spreadsheet file, comprises data from all available surface and underground drillholes, over recent and historical drilling campaigns. The resultant spacing of samples with these different historical campaigns has ended up being fairly sporadic, with sections spaced at distances from 30m to 100m. Most of the surface holes are vertical, as are the very deep underground holes.
	Assessment of data spacing and distribution	It is considered that the spacing of samples used is sufficient for the Mineral Resources evaluated in the current study.
	Sample compositing	Sample compositing was applied: complete bed composites for the lower Main and F Beds, and 5m composites for the HW zone.
Orientation of data in relation to geological structure	Sampling orientation	The holes from the 2006 – 2008 programme were all drilled in the south eastern portion of the deposit, where the mineralisation occurs near surface or is outcropping, on a bearing of 135°, parallel or nearly so, to geological strike; about 30% were drilled on the opposite bearing of 315°. The majority of these holes were drilled at a dip of 70°, although several were vertical or at a dip of about 80°. In the 2009 – 2014 programme, orientations vary based on access and the need to intersect all three ore horizons. In the 2016 campaign holes were sometimes fanned vertically and horizontally so as to provide 2-3 HW intersections along strike from each drilling set-up.
	Assessment of orientation	It is not considered that the drilling orientations have introduced any sampling bias.
Sample security	Measures for sample security	The sample preparation facility is in a separate fenced area. Sample tags are placed in the sample bag and the sample number is written on the sample bag as well. A split portion of the pulp from each sample and coarse rejects is retained in a locked facility at the project site. The pulps were placed in brown paper envelopes by the sample preparation manager, then packed in cardboard boxes, sealed and sent by courier to the laboratory in Australia.
Audits or reviews	Results of any audits or reviews	The Competent Person has reviewed the sampling techniques and data and considers them adequate for resource/reserve estimation.

Section 2. Reporting of Exploration Results

Criteria	JORC Explanation	Commentary
Mineral Tenement and Land Tenure Status	License information and data, including royalties	Described in Section 4, along with information in Figure 4 3, Figure 4 4 and Table 4 1
	Security of tenure	Described in Section 4.
Exploration Done by Other Parties	Other parties	Exploration in 1939 and 1940 led to the discovery of the Sangdong scheelite body. Mineral Resource definition drilling is the only form of exploration that has been completed on the Sangdong Property since 2006, and there is no record of exploration other than drilling by previous operators. An aeromagnetic map of the area was reproduced in a scoping report by Sennitt (2007).
Geology	Deposit type, setting and mineralisation	Described in Sections 7 and 8.
Drillhole Information	Drillhole Information	The number of boreholes drilled, and total metres, at Sangdong comprise: 158 holes/64,700m from surface and 1,239 holes/63,048m from underground. The database has separate tables for drillhole collars, survey data, assay data, RQD, lithology data, drillhole recovery, geotechnical logging, density measurements, structural orientation and mineralised intersections. The database is also summarised in Table 10-2.
	Explain any excluded data	No information has been excluded.
Data Aggregation Methods	Averaging techniques/truncations	Exploration results not being reported.
	Aggregation methods	Drillhole composited (as described in Section 14.4) and from these 3D block models were developed.
	Assumptions for any metal equivalents	Metal Equivalents not used
Relationship between mineralisation widths and intercept lengths	Geometry of mineralisation with respect to drilling	Holes inclined so as to get as near to perpendicular intersections as possible.
	Statement related to true width	No downhole lengths or individual intersections being reported.
Diagrams	Maps/sections - discoveries, collars	Refer to Refer to Figure 10 1 and Figure 10 2.
Balanced Reporting	High/low grades and widths	Exploration results not being reported.
Other Substantive Exploration Data	Other exploration data.	No meaningful and material exploration data, apart from the borehole database sampling results, have been included in the report.
Further Work	Planned further work	The very large Inferred resource base represents a significant location of future exploration drilling. There are more areas of the deposit down-dip and north-east which have not been currently evaluated. Most of the deposit has not yet been delineated at depth.
	Diagrams of extensions, interpretations and future drilling	No specific campaign is currently planned, following the completion of Phase 7 in 2016.

Note: The Sangdong Project is the only mineral project material to this Table 1 disclosure. Other Almonty properties—namely, the Panasqueira Mine (Portugal) and the Sangdong Molybdenum Project (South Korea)—remain under development but are not material to the resource and reserve estimates reported herein.

Section 3. Estimation and Reporting of Mineral Resources

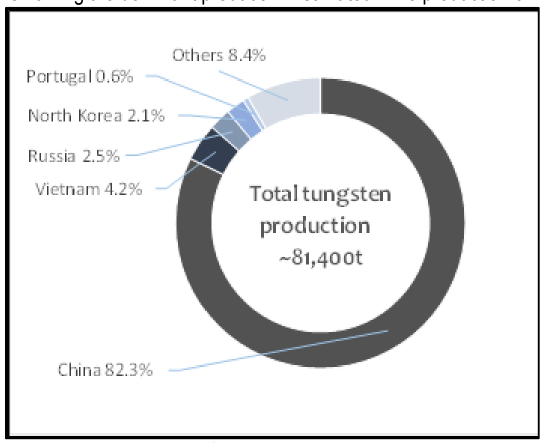
Criteria	JORC Explanation	Information Required
Database integrity	Measures for error reduction/removal between collection and use for MRE	10% of the data in 2007 was checked against original assay certificates. Collar coordinates were checked against the original survey forms. Results from the data checks showed zero error rate. It was concluded that the assay and survey database used for the mineral resource update was sufficiently free of error to be adequate for resource estimation. Between 5% and 10% of the Sangdong drill holes were selected in 2012 and 2013, for verification of handwritten geological logs, original field sample sheets and original assay certificates against corresponding records in the Sangdong database supplied, and 100 random cross-checks of the mineralised assay results in the database with original assay results from the reporting period. Overall it was concluded that appropriate care and attention in data entry, validation and QA/QC procedures had been applied and that analytical issues were identified and appropriate remedial action taken. Industry standard practices had been followed and the quality of the Sangdong database meets good practice guidelines
	Validation procedures	Checks during import, combination and desurveying of data. Check sections and plans also produced.
Site Visits	Visit details	Adam Wheeler visited the Sangdong site on August 24th- 26th, 2015, October 17th– 28th , 2016 and April 2nd – 4th, 2025
	Explanation if no visit	Not relevant
Geological interpretation	Confidence in geological interpretation	The geologic model is considered robust, with information available from 519 diamond drillholes (2006 – 2016), 863 diamond drillholes (pre-2006) and a total of 780 underground holes from an unspecified period.
	Nature of data, assumptions	Only the post 2006 drillholes were used in the definition of Indicated Resources in F and MAIN beds. For the HW Zones, all drillholes were used, as the pre-2006 data for the HW zone has been verified by the 2016 drilling campaign results.
	Effect of alternative interpretations on MRE	Effects of alternative geologic models were not tested.
	Use of geology in controlling MRE	The impact of geology on mineralization has been applied through the use of dynamic anisotropy controlling search envelopes during grade estimation.
	Factors affecting continuity of grade and geology	The main factors affecting continuity and grade are the parent skarn structures for each zone.
Dimensions	Extent and variability	Summarised in Table 14-3. The Hangingwall horizon is located near the upper contact of the Myobong shale and varies in thickness from approximately 5m - 30m because of the irregular boundary of the shale with the overlying Pungchon Limestone. The Main horizon varies in thickness from 5-6m. The Footwall horizons comprise multiple layers: Footwall Zone 1 (F1) normally occurs 1m below the Main horizon and is approximately 2m thick; Footwall Zones F2 and F3 are situated approximately 35m to 40m below the Main horizon and each of these zones has average thickness of approximately 3m. Further Footwall Zones have also been identified below F3.
Estimation and modelling techniques	Estimation techniques: assumptions, software, parameters	The estimation employed a three-dimensional block modelling approach, using Datamine software. Two main resource blocks models were developed. The relatively thick hanging-wall (HW) zone was modelled using a conventional block model structure. All of the other bed-like skarn zones were modelled using the initial generation of 3D digital terrain models (DTMs) for the zone centre-points, onto which thicknesses and grade-accumulations were estimated using ordinary kriging. This enabled a 3D block model of all these zones to be developed – with columnar sub-blocks representing the vertical thickness of the mineralised skarn bodies. Density values were also estimated from sample measurements. Block model structures were orthogonal – no rotation was applied.
	Check/previous estimates	Check estimates against production data was not possible, as such production data was not available. Check estimates were compared with available historical estimates.
	Assumption with respect to recovery of by-products	The only potential by-product is MoS2. This has been included in the resource estimation. However, no processing recovery of MoS_2 has been considered in the current study, so MoS2 has been excluded from the reserve estimation. Credits for bismuth and gold are also expected.
	Deleterious elements	No particular elements exist, and have therefore not been estimated.
	Block size with respect to sample spacing	Two separate resource models were generated: one with a parent block structure of 10m x 10m x 10m blocks (for the HW zone), and the other with a columnar block structure for all the skarn zones. In the columnar block structure used, parent blocks were sized 10m x 10m, and in the vertical dimension single sub-blocks were generated, with a height equivalent to the vertical height of the skarn structure being modelled. In both models, sub-blocks were also generated down to 5m x 5m in the XY directions. The resultant spacing

Criteria	JORC Explanation	Information Required
		of samples with these different historical campaigns has ended up being fairly sporadic, with sections spaced at distances from 30m to 100m. Details of the progressive search distances used are shown in Table 14-15..
	Assumption with respect to selective mining units	In the modelling the HW zone, waste zones had been extrapolated with a minimum width and height of 5m, based on the approximate smallest size of an underground drift.
	Correlation between variables	No assumptions have been made about the correlation between any variables.
	How geology interpretation used to control resource estimates	The interpretation of beds intersections has subsequently controlled bed composites, and then the resource block models. The other principal interpretation control have been perimeters limiting the lateral extent of each zone, which were defined based on the drillhole data and previous underground workings.
	Grade capping	Grade capping was applied, so as to prevent outlier high grade values from over-estimation of grades, as described in Section 14.4.
	Validation process	Model validation steps are described in Section 14.**11.**
Moisture	Method of determination	Tonnages are estimated on a dry basis
Cut-off parameters	Basis and parameters	The main cut-off used for resource estimation was 0.15% WO_3. This was selected as being potentially applicable to underground mining cut-off grade, as demonstrated by the parameters the derived cut-off of 0.15% WO_3 shown in Table 14-19.
Mining factors/assumptions	Mining methods: dimensions, assumptions extraction prospects	A minimum thickness of 2.2m was applied in the resource estimation, as being a realistic minimum height for underground mining.
Metallurgical factors/assumptions	Assumptions re processes and parameters	Previous production of several decades clearly demonstrates that metallurgically tungsten concentrates can be produced. More recent testwork supporting the intended milling process is summarised in Section 13.
Environmental factors/assumptions	Status of potential environmental impacts	There are no areas requiring special protection or significant natural environmental resources or wildlife habitats in the area surrounding the Project site. Waste rock material will be stacked in a single waste rock stockpile at the site, comprising 950,000t over an eight-year period. There may be the opportunity to backfill waste in the historic underground workings and it is expected that some may be used locally as a building material. The remaining waste rock will be stored on- site in two waste rock storage facilities: one next to the Sangdong Portal and the other in a small valley, approximately 300m to the south.
Bulk Density	Basis and application	Density measurements were routinely determined from core samples, using the volume displacement method in a purpose designed tubular jig. Sample lengths for density measurements were approximately between 0.10 and 0.30m. This is considered to be an appropriate method considering the generally solid nature of the core proximal to the ore zones at Sangdong. In the current resource estimation work, density values (t/m3) have been estimated from the measurements taken. Blocks without estimated density values after the second estimation pass were assigned average zone density values.
	Void spaces	It is considered that the density measurements take adequate account of void spaces, which are minimal.
	Assumptions with respect to the evaluation process	There does not appear to be particular relationship between density and WO_3 grade values; the approach taken in this study was to estimate density values from the sample measurements, using inverse-distance weighting, up to a maximum within-bed distance of 100m; beyond this distance, where no density samples were available, the average values shown in Table 14-14 were applied.
Classification	Basis for MRE, with varying confidence categories	The basis for resource classification criteria have been described in Section Error! Reference source not found.**.**
	Factors: tonnes, grades, input data, geology; quality, quantity and distribution	The resource classification criteria have taken into account all relevant factors, as summarised in Table 14-16.
	Results reflect CP's view	The resource estimation results reflect the Competent Person's view of the deposit.
Audits/reviews	Results of any previous reviews	No audit or review of the Mineral Resource estimates has been completed by an independent external individual or company. The Competent Person has conducted an internal review of all available data.
Discussion of relative accuracy/confidence	Statement re relative accuracy and confidence level	The relative accuracy of the Mineral Resource estimate is reflected in the reporting of the Mineral Resources as per the guidelines of the 2012 JORC code.
	Specifics for global and local estimates, relevant to technical and economic evaluation.	The resource statement relates to global estimates of tonnes and grade, by bed.
	Comparison with production data, where available	Production figures are largely undocumented, so a comparison of the estimate with production data is not possible.

Section 4. Estimation and Reporting of Ore Reserves

<table>
<tr><th>Criteria</th><th>JORC Explanation</th><th>Information Required</th></tr>
<tr><td rowspan="2">MRE conversion to Ore Reserves (OR)</td><td>Description of MRE</td><td>Stated in Error! Reference source not found..</td></tr>
<tr><td>MRE - inclusive of, or additional to, OR</td><td>The Mineral Resources are reported inclusive of the Ore Reserves.</td></tr>
<tr><td rowspan="2">Site Visit</td><td>Comment re CP visit</td><td>Adam Wheeler visited the Sangdong site on August 24^{th}- 26^{th}, 2015, October 17^{th}– 28^{th} , 2016 and April 2^{nd} – 4^{th}, 2025</td></tr>
<tr><td>If not, why not.</td><td>Not relevant.</td></tr>
<tr><td rowspan="2">Study status</td><td>Type and level of study undertaken</td><td>This study has been completed at a Feasibility Study (FS) level.</td></tr>
<tr><td>At least PFS level required; has a viable mine plan been determined</td><td>A viable mine plan has been determined, as described in Section Error! Reference source not found..</td></tr>
<tr><td>Cut-off parameters</td><td>Basis and parameters</td><td>Using the updated mining costs, and operating parameters, and an APT WO_3 price of USD450/mtu, a reserve cut-off of 0.16% WO_3 was determined for the mining of the HW zones, and 0.17% WO_3 for the FW/Main zones. The slightly different cut-off levels reflect the different mining methods intended for the different zones.</td></tr>
<tr><td rowspan="9">Mining Factors/Assumptions</td><td>Methods and assumptions</td><td>For the mining considered in the present study, it was decided not to rely on hand-held drilling equipment and slushers. Instead, methods applied are based on the use of mechanized mobile diesel-powered mining equipment in all areas.</td></tr>
<tr><td>Choice of mining methods and parameters</td><td>Based on the mineralised zone geometry in the different mining areas, and evaluation of the resources, including in-situ thickness variations, it was decided to apply two proposed mining methods:
• Stepped Drift and fill – (DAF) – applied to F2, Halo, F3 and Main zones.
• Post-pillar cut-and-fill (PP-CAF) – applied to HW zone, generally greater than 6 metres thick.</td></tr>
<tr><td>Assumptions for geotechnics, grade control and pre-production drilling</td><td>Geotechnical parameters are described in Section 14.2.</td></tr>
<tr><td>Major assumptions used in pit/stope optimisation</td><td>No stope optimisation was applied. However, studies were completed to test the potential combination of different MAIN and F- beds during mining.</td></tr>
<tr><td>Mining dilution factors</td><td>The mining factors that were applied in the potential reserve estimation, either as a consequence of the model preparation, planning designs, or by direct application of factors in the scheduling software (EWS), are summarised in the table below:
<table>
<tr><th>Method</th><th>Regions</th><th>Factor Effect</th><th>Method of Application</th><th>Dilution</th><th>Mining Recovery</th></tr>
<tr><td>Stepped DAF</td><td>All Main and F2/F3</td><td>Panels' Design</td><td>Inherent in design</td><td>24%</td><td>97%</td></tr>
<tr><td rowspan="3">PP-CAF</td><td>HW Lower</td><td>Post-pillars</td><td>Pillars in block model</td><td></td><td>85%</td></tr>
<tr><td>HW Lower</td><td>Losses at Orebody Edges</td><td>EWS parameters</td><td>4%</td><td>96%</td></tr>
<tr><td>HW Upper</td><td>Post-pillars</td><td>EWS parameters</td><td></td><td>85%</td></tr>
</table></td></tr>
<tr><td>Mining recovery factors</td><td>As shown in the table above, mining recoveries range from 85% to 97%.</td></tr>
<tr><td>Minimum mining widths</td><td>Individual stope panels have been laid out with widths ranging from 4m to 6m. A minimum mid-panel vertical height of 3m has been applied.</td></tr>
<tr><td>Use of inferred mineral resources in mining studies</td><td>Any inferred resources within stope outlines were treated as mineralised waste dilution, with grades capped at the average grades of waste composites for each zone, which vary from 0.03% WO_3 to 0.07% WO_3 for the FW zones and average 0.1% WO_3 for the HW zone. This effect is very small, however, due the low proportion of Inferred material within the stope outlines. Typically the effective increase in average ore grades due to this waste grade contribution is between 0.01 and 0.02% WO_3.</td></tr>
<tr><td>Infrastructure requirements</td><td>As a past-producing mine, Sangdong already has significant infrastructure on-site. Additional surface and underground infrastructure necessary for the reopening of the mine has been started and is nearing completion. This includes mine surface infrastructure, site access, power supply, underground services and infrastructure and water supply.</td></tr>
<tr><td rowspan="2">Metallurgical factors/assumptions</td><td>Met. Process proposed: appropriateness for mineralisation</td><td>Processing will utilise crushing, grinding (rod and ball mills) and flotation for scheelite concentration. The processing plant will treat the run-of-mine (ROM) ore from underground at a nominal feed rate of 1,920 tpd.</td></tr>
<tr><td>Whether met. process is well tested.</td><td>The metallurgical process will use well-tested technology.</td></tr>
</table>

Criteria	JORC Explanation	Information Required
	Nature of met test work	Metallurgical testwork is described in Section 13. The testwork has included bulk flotation testing, multi-stage cleaning tests, locked cycle tests and pilot plant trials. A flowsheet has been developed for the recovery of scheelite through flotation, producing a final concentrate grading approximately 65% WO_3. Based on test results, the estimated tungsten overall recovery will be 85%. The processing plant will have a capacity of 1,920m/t per day.
	Assumptions made for deleterious elements	The principal deleterious component of mineralised material at Sangdong is Mo in the form of oxide, which forms a solid solution of scheelite-powellite. This problem is more prevalent in HW material, and some parts of the Main/F2/F3 zones. This does not decrease tungsten recovery, but can cause some contamination of W concentrates with Mo.
	Bulk sample/pilot test > orebody representivity	In 2012, 60t of test material was used for a series of metallurgical tests. Since 2000, 37.8 t of mineralised material were collected for metallurgical testwork. These samples were taken from the different mineralised horizons: HW, MAIN and F beds, and have provided reasonable quantities of material to be considered as being representative of the mineralisation and the mineral deposit as a whole.
	OR based on appropriate mineralogy	The ore reserve estimation has been completed on beds with appropriate mineralogy, corresponding with the proposed metallurgical processing.
Environmental	EI studies. Waste rock characterisation. Residue storage, waste dumps.	68 waste rock samples were collected to determine the potential for acid rock drainage. The samples were sourced from core samples across the ore body and are representative of all profiles of all geological units encountered in the deposit. Acid-base and net acid generation testing indicated that 61 samples were classified as non-acid forming and 7 of the samples were potentially acid forming. The results of the waste rock assessment indicate the proportion of material which will be potentially acid forming is relatively small at approximately 10% of the total waste volume. Historically, there has been no acid rock drainage from the existing well vegetated waste rock storage facility on site, or from the existing tailings dams. This trend is expected to continue. However, during operations continuing assessment of all waste rock will be conducted to confirm if any potentially acid forming material is present and if required, this material will be encapsulated to reduce the likelihood of acid rock drainage.
Infrastructure	Existing land for development, power, water, transportation, labour.	Sangdong, as a past-producing mine, has significant infrastructure on site, which includes: access road to site, site roads, powerline and stepdown substation, potable water, with a 2km pipeline connection to the Sangdong town water supply, office/changehouse complex, 63m long concrete lined adit, town site within approximately 2km distance, communications and internet service, security building. To return to operation, the existing Sangdong infrastructure is being reconfigured and supplemented by new facilities as required, as described in Section 8.
Costs	Derivation of capital costs.	Approximately 85% of the Capital Costs for mine start-up have already been paid. The remaining Capital Costs have been determined from current contractor rates.
	Methodology for operating costs.	Project operating costs are based on actual mine development work as well as using parameters considered generally achievable in The Republic of Korea. The consumables component includes all materials and parts needed for mining, processing and surface facilities and the operation and maintenance of equipment for these areas. Costs for maintenance parts and consumables are based on prices provided by Republic of Korea based and international equipment suppliers. The total mine labour force complements and salaries were calculated on a total yearly basis. Other details are described in Section 19.
	Allowances for deleterious elements.	There are no particular deleterious elements expected in the concentrate which will necessitate penalties.
	Source of exchange rates.	Costs derived from Republic of Korea Won were converted at a rate of USD 1 = Won 1,467. This is based on current rates.
	Derivation of transport charges.	Concentrate transportation costs are covered by an 78% received price factor. This figure comes from experience with Almonty's other operating tungsten mines.
	Basis for treatment and refining costs, penalties.	Similarly, the 78% received price factor, applied to the base case APT price of USD450/MTU, also covers treatment costs, refining costs and other penalties associated with the post-processing of WO_3 concentrate leaving the site.
	Allowances for royalties.	There are no Royalties imposed on minerals by government agencies in South Korea. A 2% net smelter return (NSR) royalty, formerly retained on the Project by a vendor in South Korea, was acquired by WMC/AKTC.
Revenue Factors	Assumptions for head grades, exchange rates and other charges.	The base case APT price used was USD450/MTU, with an assumed received price of 78%x 450 = USD351/t. This is based on Almonty's experience with other producing mines within the Almonty group. For Sangdong the assumed final concentrate grade is 65% WO_3.
	Assumptions for metal prices.	The base case price level is based on Almonty' s industrial experience, as well as forecast prices for APT published by Merchant Research & Consulting

Criteria	JORC Explanation	Information Required
		(MRC), which provide an indicative outlook on global APT pricing trends through to 2034. According to MRC, APT prices are projected to increase from USD415/MTU in 2025 to above USD500/MTU from 2028 onwards.
Market Assessment	Demand, supply and stock situation	Almonty has entered into a 15 year long-term offtake agreement with Global Tungsten & Powders Corp. ("GTP"). The agreement provides pricing stability through a floor price mechanism, while allowing for full participation in upside market pricing.
	Customer analysis, market windows.	According to publicly available data, global primary tungsten mine production is estimated at approximately 81,000 tonnes for the year 2024, compared to an estimated 79,500 tonnes in 2023. The majority of global supply is sourced from a limited number of countries, with the People's Republic of China remaining the dominant producer. Estimated mine production of metallic tungsten (W) during 2024 is depicted below. 
	Price and volume forecasts.	The APT price levels used in this study represent the current long term expectations of USD450/MTU WO_3.
	For industrial minerals: specification, testing and acceptance requirements.	Not relevant.
Economic	Inputs for NPV in study. Source and confidence of economic inputs.	The discounted cashflow analysis has been based on 2025 Constant USD values. The derivation of the project NPV is described in Section 22.
	NPV ranges and sensitivities.	The NPV sensitivity results are summarised in Section 22.3.
Social	Status of agreements with key stakeholders, for social license to operate.	Discussions between AKTC and the Town are extremely positive, particularly in view of the fact that the operation will be community based and the mine can help support and improve local services. This strategy by AKTC supports Sangdong Town and Yeongwol County in establishing long-term regional development plans, with a focus on reversing population decline, increasing employment opportunities, revitalizing the local economy, and providing appropriate support services. In order to promote co-prosperity with the local community and implement sustainable ESG management, AKTC is holding regular public information sessions in Sangdong throughout the mine development process. AKTC has signed a memorandum of understanding (MOU) with high schools in the Yeongwol area to provide employment opportunities for graduates.
Other	Impact of identified material risks.	Identified risks and opportunities are described in Section 25.
	Status of legal agreements and marketing arrangements.	South Korea applies a 10% Value Added Tax (VAT) on domestic sales of goods and services, including the sale of concentrates and imports. However, exports of concentrates are zero-rated for VAT purposes, meaning no VAT is charged and input VAT may be recoverable. The standard corporate income tax rate is 21%, with an additional local surtax of 10% on the national tax, resulting in a combined effective rate of approximately 23.1%. In

<table>
<tr><th>Criteria</th><th>JORC Explanation</th><th>Information Required</th></tr>
<tr><td rowspan="2"></td><td></td><td>addition, a 0.5% local resource and facility tax is levied on the value of mined minerals and paid to the local government. There is no VAT surtax on sales.</td></tr>
<tr><td>Status of government agreements and approvals.</td><td>The mining permits give the right to carry out full mining and mineral processing operations in conjunction with safety and environmental certificates. Approval for installation of mining facilities (Sangdong Portal, Woulfe Portal, Taebaek Portal, Baegun Portal and nearby quartzite mine) have been issued by East Mine Registration Office of the Ministry of Trade, Industry & Energy. Environmental certificates (Temporary Forest Land Use) have been issued by the Department of Environmental Forest of Yeongwol County. There are no known or recognized environmental issues that might preclude or inhibit a mining operation in this area.
The current status of construction permits is summarised below. [YWC = Yeongwol County; EMSO = Eastern Mine Safety Office]
<table>
<tr><th>Permits</th><th>Status</th><th>Note</th></tr>
<tr><td>Long term land lease or land purchase</td><td>Purchased plant site land
Leased mine site land</td><td>YWC</td></tr>
<tr><td>Approval of the building construction of the processing plant</td><td>Obtained building permit</td><td>YWC</td></tr>
<tr><td>Approval of the measures to protect the national heritage in the manufacturing site</td><td>Confirmed no national heritage</td><td>YWC</td></tr>
<tr><td>Approval of the construction of a manufacturing facility.</td><td>Approved for installation of mining facility</td><td>EMSO</td></tr>
<tr><td>Approval of the development activities</td><td>Obtained permit</td><td>YWC</td></tr>
<tr><td>Approval of the conversion of Mt. district</td><td>Obtained permit</td><td>YWC</td></tr>
<tr><td>Approval of riverside road occupancy</td><td>Obtained permit</td><td>YWC</td></tr>
<tr><td>Preliminary research on the impact of potential disaster</td><td>Completed</td><td>YWC</td></tr>
<tr><td>Deliberation by urban planning committee</td><td>Completed</td><td>YWC</td></tr>
<tr><td>Approval/report on discharging facilities installation (air, water, noise)</td><td>HSSET in progress</td><td>YWC</td></tr>
<tr><td>Prior report on specified construction works</td><td>Report completed</td><td>YWC</td></tr>
</table></td></tr>
<tr><td rowspan="3">Classification</td><td>Basis for classification of OR, into varying confidence categories.</td><td>The Ore Reserve estimate considers only Indicated Resources, which inside the defined mining blocks have been converted into Probable Ore Reserves.</td></tr>
<tr><td>Whether results reflect CP’s view.</td><td>The results do reflect the Competent Person’s view of the deposit.</td></tr>
<tr><td>Proportion of Probable Ore Reserves derived from Measured Mineral Resources.</td><td>There are no Measured Mineral Resources.</td></tr>
<tr><td>Audits or reviews</td><td>Results of any audits/reviews on OR estimates.</td><td>No audit or review of the Ore Reserve estimates has been completed by an independent external individual or company.</td></tr>
<tr><td rowspan="4">Discussion of relative accuracy/confidence</td><td>Statement of relative accuracy in the OR estimates, or if not appropriate, qualitative discussion.</td><td>Carried over from the resource model, the principal control on the resource categories, and consequently reserve categories, are the spacings of diamond drillhole intersections. Key drillhole section spacing limits have been established which are used as a guide in the assignment of resource categories, as described in Section 14.10.</td></tr>
<tr><td>Relation to global or local estimates.</td><td>The Ore Reserve statement relates to global estimates of tonnes and grade, by mineralised zone.</td></tr>
<tr><td>Accuracy discussion with respect to any Modifying Factors.</td><td>The Ore Reserve estimations are described in Section 15.</td></tr>
<tr><td>Where possible, comparison with production data.</td><td>Not applicable.</td></tr>
</table>