

DEVELOPING THE HIGH-GRADE WORLD CLASS WINDFALL GOLD DEPOSIT IN QUÉBEC

September 2021



Cautionary Statements



CAUTIONARY STATEMENT REGARDING FORWARD-LOOKING INFORMATION

This presentation (the "Presentation") of Osisko Mining Inc. ("Osisko" or the "Corporation") contains "forward-looking information" within the meaning of the applicable Canadian securities legislation that is based on expectations, estimates, projections and interpretations as at the date of this news release. Any statement that involves predictions, expectations, interpretations, beliefs, plans, projections, objectives, assumptions, future events or performance (often, but not always, using phrases such as "expects", or "does not expect", "is expected", "interpreted", "management's view", "anticipates" or "does not anticipate", "plans", "budget", "scheduled", "forecasts", "estimates", "potential", "feasibility", "believes" or "intends" or variations of such words and phrases or stating that certain actions, events or results "may" or "could", "would", "might" or "will" be taken to occur or be achieved) are not statements of historical fact and may be forward-looking information and are intended to identify forward-looking information.

In this Presentation, forward-looking information pertaining to, among other things: estimates and assumptions underlying the PEA; projected production; after-tax IRR; pre-tax IRR; after tax NPV; after-tax NPV; pre-tax NPV; life of mine estimates; after-tax free cash flows; AISC and break-even cost estimates; capex estimates; NPV/capex ratios; tpd milling operations at the Windfall mill; processing estimates; average recovery; projected gross revenue and taxes; job creation estimates; the profitability of Windfall; future drilling results; Osisko's ability to convert additional inferred resource ounces into measured and indicated categories; timing for production (if at all); mining and processing infrastructure; environmental assessment and closure plans matters; stakeholder engagement and relationships; the significance of the results disclosed in this news release; the PEA providing a robust base case analysis; the viability of ramp-access to the underground deposit; the advancement of the ramp; Osisko's ability to convert additional high-grade mineral resources; the timing and ability to publish a DFS, including in H1 2022 (or at all); the key assumptions, parameters and methods used to estimate the mineral resource estimate in the Windfall MRE (2021) and PEA; the Windfall gold deposit being one of the highest-grade resource-stage gold projects in Canada and having world-class scale; the prospects, if any, of the Windfall gold deposit; the timing and ability of Osisko, if at all, to publish the DFS; the amount and type of drilling to be completed and the timing to complete such drilling; the focus of the remaining infill drilling; the trend of grade increase; the Lynx zone remaining open to expansion down plunge; upgrading a inferred mineral resource to a measured mineral resource or indicated mineral resource category; future drilling at the Windfall gold deposit; the significance of historic exploration activities and results.

Such factors include, among others, risks relating to the ability of exploration activities (including drill results) to accurately predict mineralization; errors in management's geological modelling; the ability of Osisko to complete further exploration activities, including (infill) drilling; property and royalty interests in the Windfall gold deposit; key assumptions, parameters or methods used to estimate the mineral resource estimate in the Windfall MRE (2021) or PEA becoming untrue or unachievable; the ability of the Corporation to obtain required approvals; the results of exploration activities; title deficiencies; risks relating to mining activities; the global economic climate; metal prices; dilution; environmental risks; and community and non-governmental actions.

Risks and uncertainties about Osisko's business are more fully discussed in the disclosure materials filed with the securities regulatory authorities in Canada, which are available on SEDAR (www.sedar.com) under Osisko's issuer profile. Readers are urged to read these materials and should not place undue reliance on any forward-looking statement and information contained in this Presentation.

Although the forward-looking statements contained in this Presentation is based upon what management believes, or believed at the time, to be reasonable assumptions, Osisko cannot assure shareholders and prospective purchasers of securities of the Corporation that actual results will be consistent with such forward-looking statements, as there may be other factors that cause results not to be as anticipated, estimated or intended, and neither Osisko nor any other person assumes responsibility for the accuracy and completeness of any such forward-looking statements. Osisko does not undertake, and assumes no obligation, to update or revise any such forward-looking statements contained herein to reflect new events or circumstances, except as may be required by law.

Unless otherwise noted, this Presentation has been prepared based on information available as of September 14, 2021.



Cautionary Statements



MINERAL RESOURCE ESTIMATE

This Presentation contains information regarding the updated mineral resource estimate for Osisko's 100% owned Windfall lake gold deposit, located in the Abitibi greenstone belt, Urban Township, Eeyou Istchee James Bay, Québec, as disclosed in the news release of Osisko dated February 17, 2021 (entitled "Osisko Mining updates Windfall Mineral Resource Estimate"), a copy of which is available on SEDAR (www.sedar.com) under Osisko's issuer profile.

The key assumptions, parameters and methods used in the mineral resource estimate disclosed in this Presentation, certain of which are described in this Presentation, are fully described in the technical report entitled "Mineral Resource Estimate Update for the Windfall Project, Eeyou Istchee James Bay, Québec, Canada" (with an effective date of November 30, 2020), and is available, in accordance with National Instrument 43-101 – Standards of Disclosure for Mineral Projects ("NI 43-101"), on SEDAR (www.sedar.com) under Osisko's issuer profile.

CAUTIONARY STATEMENT REGARDING MINERAL RESOURCE ESTIMATES

This Presentation uses the terms measured, indicated and inferred mineral resources as a relative measure of the level of confidence in the resource estimate. Readers are cautioned that mineral resources are not mineral reserves and that the economic viability of resources that are not mineral reserves has not been demonstrated. The mineral resource estimate disclosed in this Presentation may be materially affected by geology, environmental, permitting, legal, title, socio-political, marketing or other relevant issues. It cannot be assumed that all or any part of an inferred mineral resource will ever be upgraded to an indicated or measured mineral resource category, however, it is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration. The mineral resource estimate is classified in accordance with the Canadian Institute of Mining, Metallurgy and Petroleum's "CIM Definition Standards on Mineral Resources and Mineral Reserves" incorporated by reference into NI 43-101. Under NI 43-101, estimates of inferred mineral resources may not form the basis of feasibility or pre-feasibility studies or economic studies except for preliminary economic assessments. Readers are cautioned not to assume that further work on the stated resources will lead to mineral reserves that can be mined economically.

QUALIFIED PERSON

The PEA was prepared for Osisko and reviewed and approved by BBA Inc. and other industry consultants, with each being a "qualified person" under NI 43-101, including the following who are independent for the purposes of NI 43-101: Nicolas St-Onge, P.Eng. (A2GC), Colin Hardie, P.Eng., Martin Houde, P.Eng., Pierre-Luc Richard, P. Geo., Charlotte Athurion, P. Geo. (BBA), Patrick Langlais, P.Eng. (Entech Mining), Yves Boulianne, P. Eng., Michel Mailloux, P. Eng. (Golder), Eric Poirier, P. Eng., Isabelle Larouche, P.Eng., Simon Latulippe, P.Eng. (WSP), and Marie-Claude Dion St-Pierre, P. Eng. (GCM Consultants)

The Windfall mineral resource estimate, with an effective date of November 30, 2020 was (i) prepared by Judith St-Laurent, P.Geo (OGQ #1023), B.Sc., Director of Resources Evaluation at Osisko, and (ii) reviewed and approved by Pierre-Luc Richard, P.Geo.(OGQ#1119), each of whom is a "qualified person" within the meaning of NI 43-101. Mr. Richard is an employee of BBA Inc. and is considered to be "independent" of Osisko for purposes of section 1.5 of NI 43-101. The scientific and technical content in Presentation has been reviewed and approved by Mr. Mathieu Savard, P.Geo (OGQ #510), President of Osisko, who is a "qualified person" within the meaning of NI 43-101.



A robust base case assessment for developing the Windfall Deposit as an underground dual ramp-access mine





Windfall Mineral Resource Estimate (February 17, 2021)

Based on drilling completed as of Sept. 2020

Windfall Gold Deposit Mineral Resource Estimate (3.5 g/t Au cut-off)

Cut-off Grade (g/t Au)	Measured + Indicated			Inferred		
	Tonnes (000 t)	Grade Au (g/t)	Ounces Au (000 oz)	Tonnes (000 t)	Grade Au (g/t)	Ounces Au (000 oz)
3.5	6,023	9.6	1,857	16,401	8	4,244

Notes: ¹ The MRE uses a cut-off grade of 3.5 g/t Au.

Lynx Mineral Resource Estimate from MRE (3.5 g/tAu cut-off)

Area	Measured			Indicated			Inferred		
	Tonnes ¹ (000 t)	Grade Au (g/t)	Ounces Au ¹ (000 oz)	Tonnes ¹ (000 t)	Grade Au (g/t)	Ounces Au ¹ (000 oz)	Tonnes ¹ (000 t)	Grade Au (g/t)	Ounces Au ¹ (000 oz)
Lynx ²	521	11.3	189	3,075	11	1,088	7,418	9.9	2,355
Total	521	11.3	189	3,075	11	1,088	7,418	9.9	2,355

Notes: ¹ Values are rounded to nearest thousand which may cause apparent discrepancies.

²Lynx area includes: Lynx Main, Lynx HW, Lynx SW and Lynx 4, Triple Lynx See Windfall Gold Deposit Mineral Resource Estimate Tables and Notes further below.



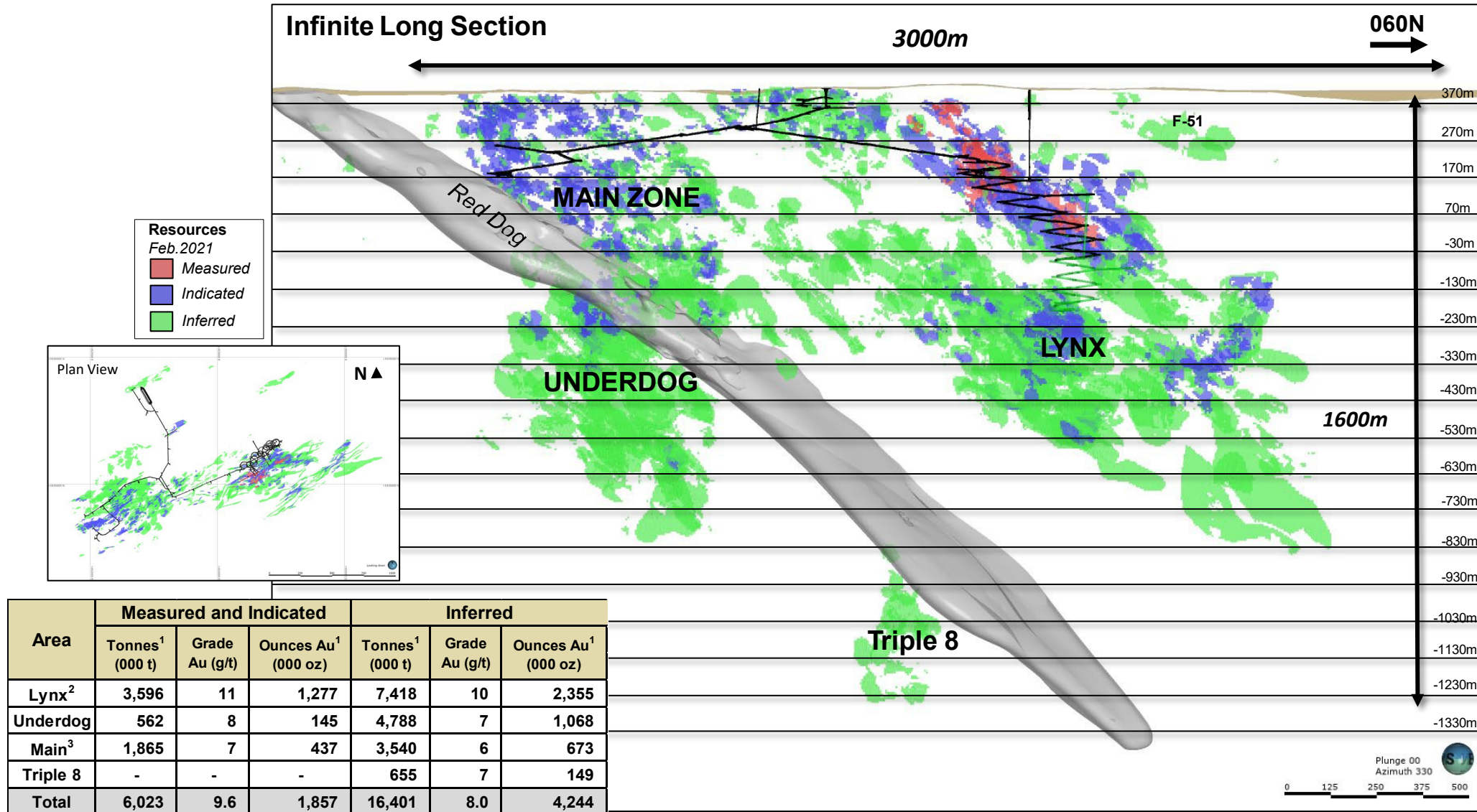
Preliminary Economic Assessment Update (Based on February 2021 MRE)

Base Case (**US\$1,500/oz Au**, US\$17.00/oz Ag, Exchange rate C\$1.00 = US\$0.77, 5% discount rate)

IRR after taxes and mining duties	39.4%
NPV after taxes and mining duties	C\$1.534 Billion
Pre-Production Construction costs <i>(including 94 km power line and C\$55M contingency)</i>	C\$544 Million
Average payable production first 7 years (LOM 238,000 oz)	300,000 oz
Peak-year payable production	328,000 oz (year 6)
Average diluted gold grade	8.1 g/t Au
Life of mine (LOM)	18 years
Contained gold in mined resource	4,401,000 oz
Payable gold LOM	4,173,000 oz
All-in Sustaining Costs net of by-product credits and royalties over LOM	US\$610.10/oz
Total unit operating cost	C\$121.76/ tonne milled
Mine start-up/Full production	2024/2025

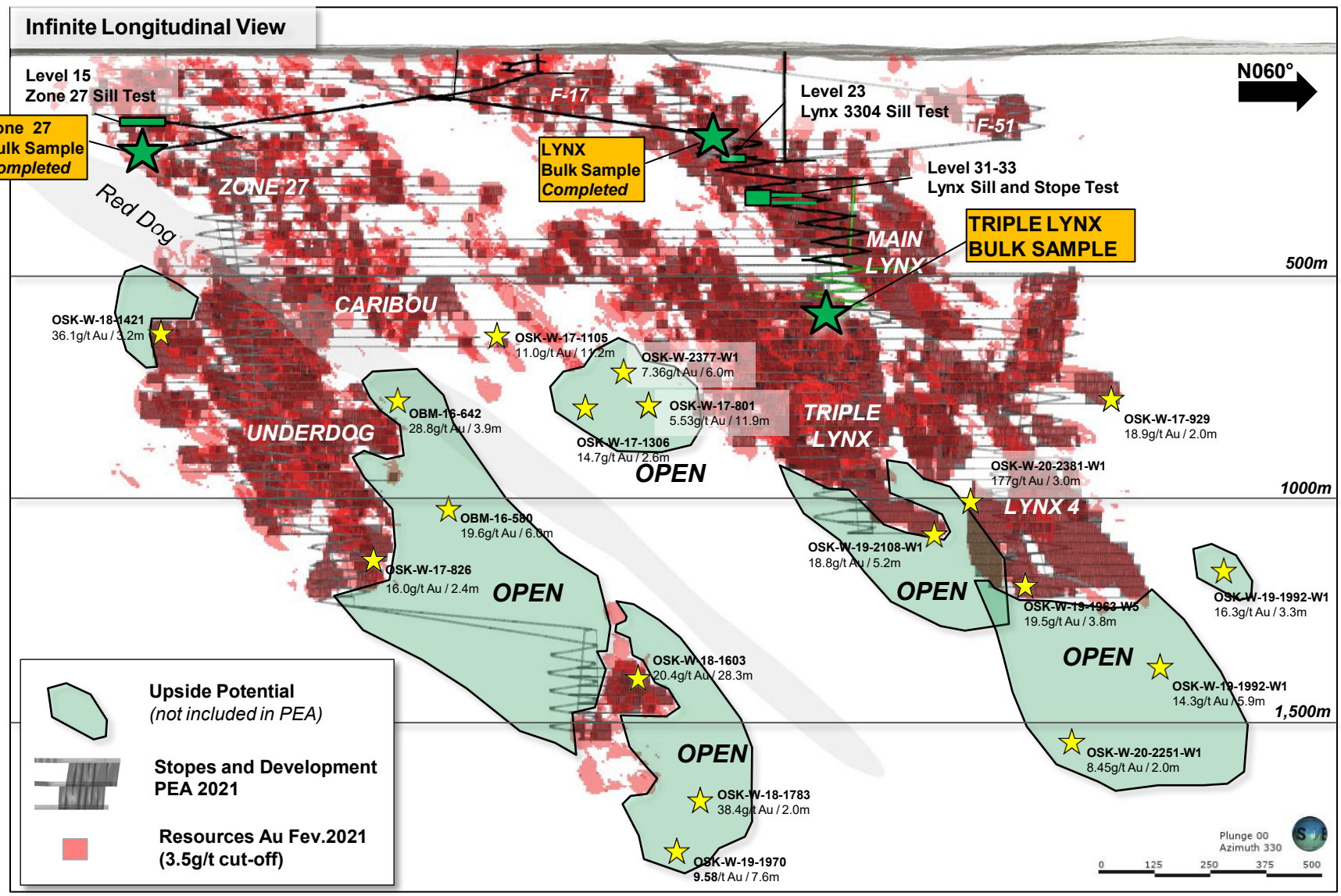


Windfall MRE Footprint February 2021 (3.5 g/t Au Cut-Off)



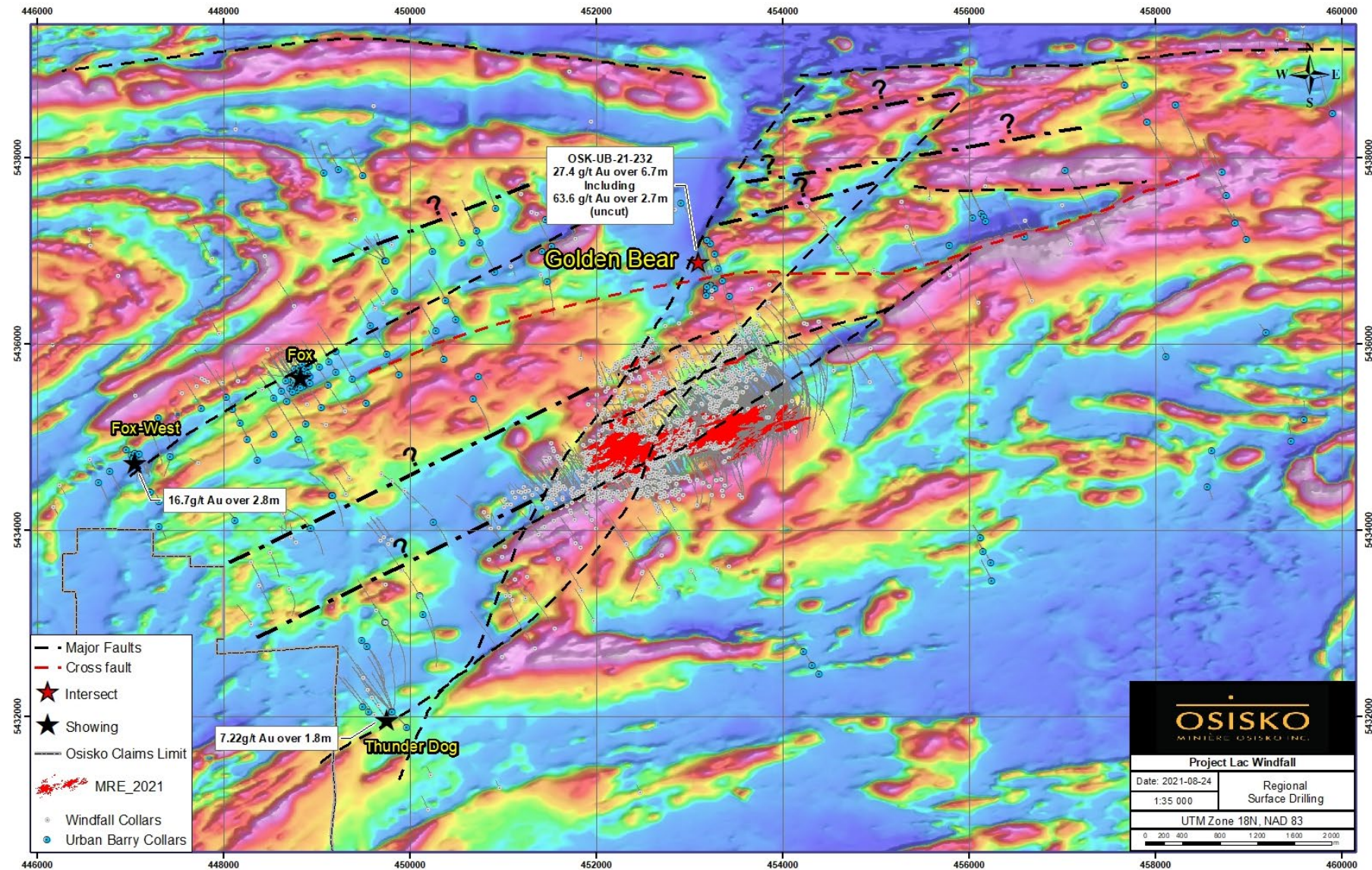


Windfall Deposit PEA Mining Blocks and Upside Potential



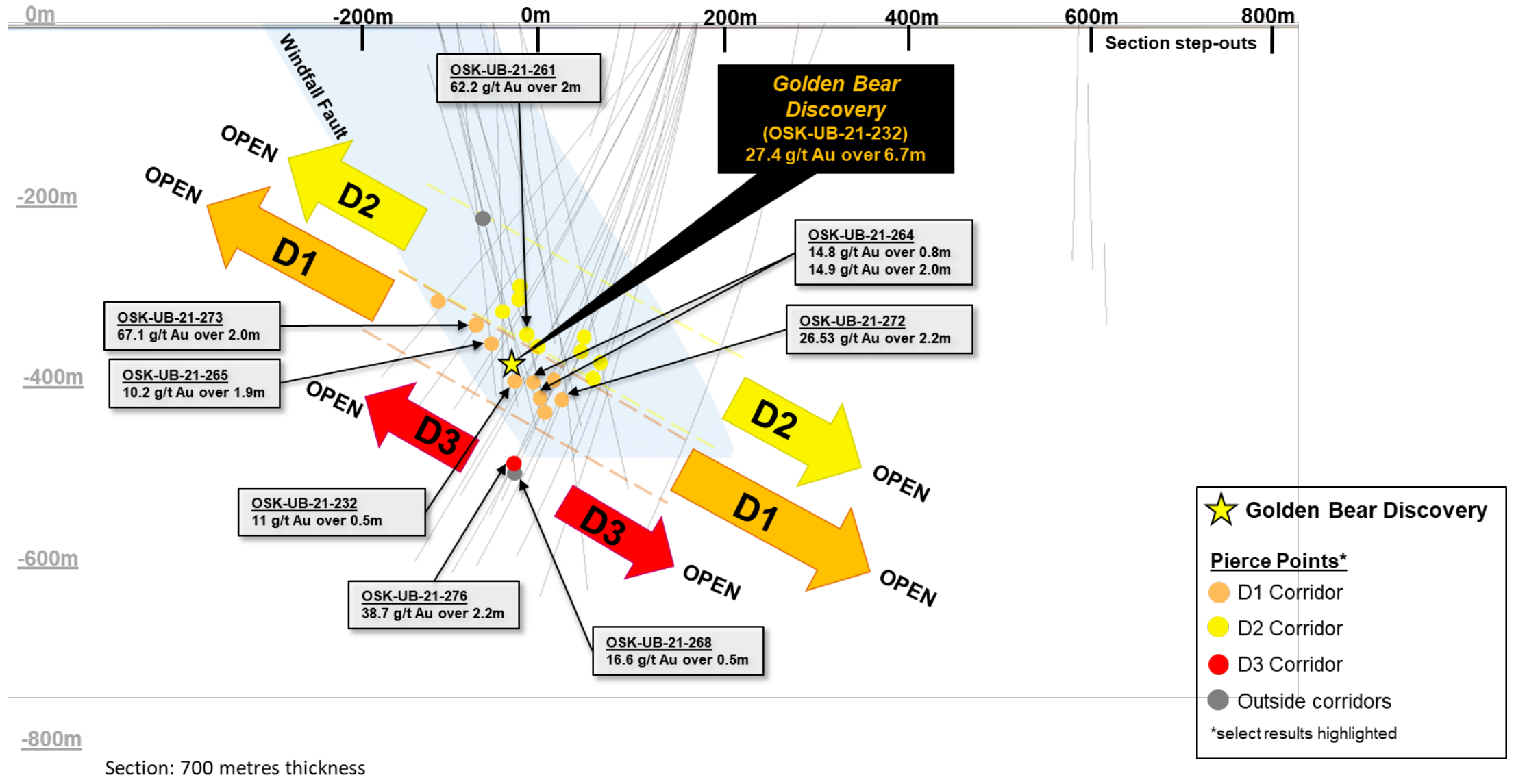


Golden Bear Discovery and Regional Upside Potential





Golden Bear Composite Long Section – September 2021





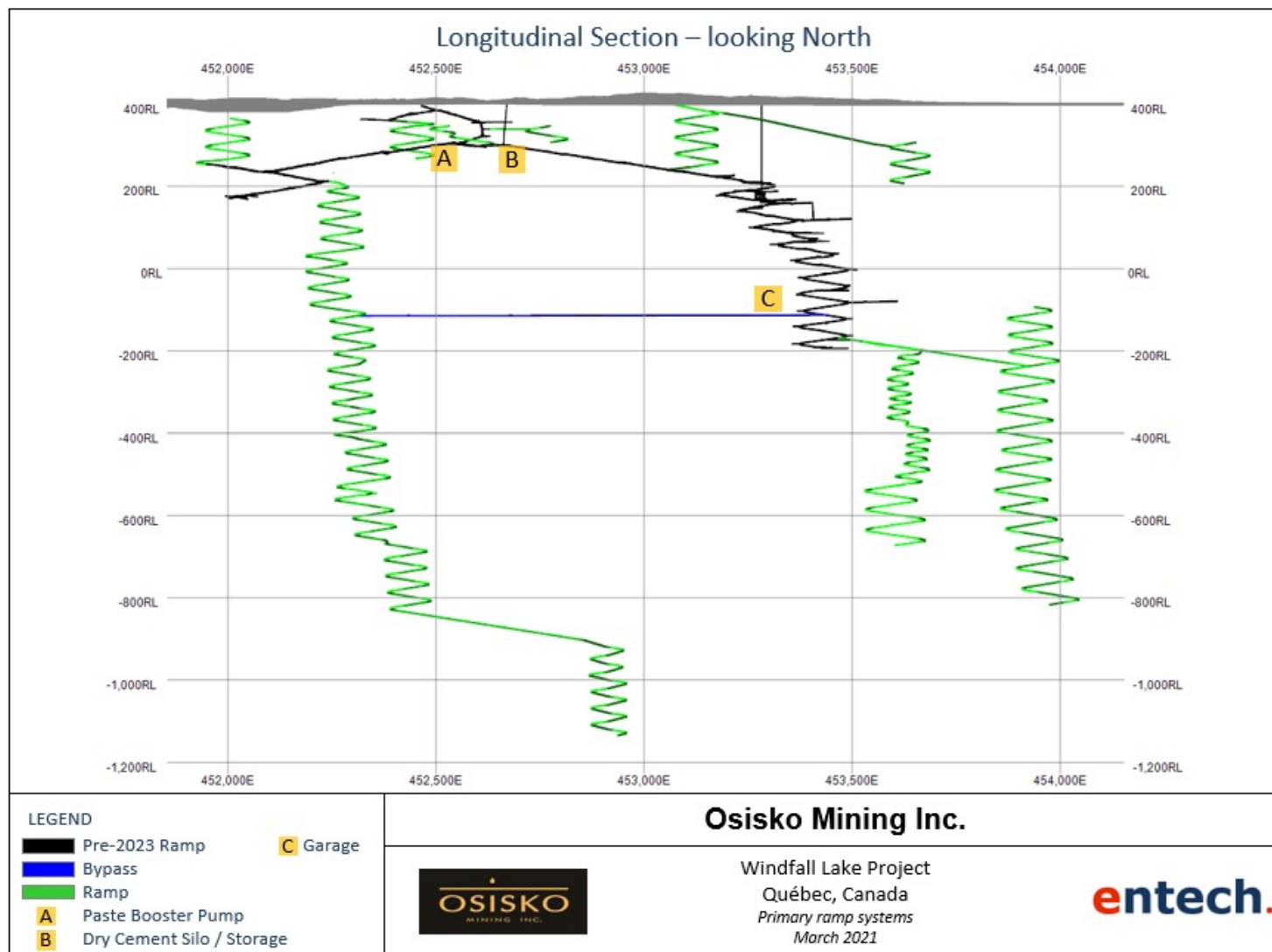
Windfall in Production Would Rank Among the Top 10 of Canadian & US Producers

Rank	Mine	Location	Owner/Operator	2020 output (oz Au)
1	Canadian Malartic	Quebec	Yamana/Agnico Eagle	569,000
2	Detour Lake	Ontario	Kirkland Lake	517,000
3	LaRonde	Quebec	Agnico Eagle	350,000
4	Brucejack	BC	Pretium	348,000
5	Porcupine	Ontario	Newmont	319,000
6	Meliadine	Nunavut	Agnico Eagle	312,000
7	Rainy River	Ontario	New Gold	229,000
8	Hemlo	Ontario	Barrick	223,000
9	Meadowbank	Nunavut	Agnico Eagle	209,000
10	Macassa	Ontario	Kirkland Lake	183,000
Rank	Mine	Location	Owner/Operator	2020 Au output (Oz)
1	Carlin	Nevada	Barrick/Newmont	1,666,000
2	Cortez	Nevada	Barrick/Newmont	799,000
3	Turquoise Ridge	Nevada	Barrick/Newmont	537,000
4	Round Mountain	Nevada	Kinross	324,000
5	Cripple Creek & Victor	Colorado	Newmont	272,000
6	Long Canyon	Nevada	Barrick/Newmont	261,000
7	Fort Knox	Alaska	Kinross	238,000
8	Marigold	Nevada	SSR Mining	234,000
9	Phoenix	Nevada	Barrick/Newmont	205,000
10	Bald Mountain	Nevada	Kinross	191,000





PEA – Mining Primary Infrastructure



Mining Method:

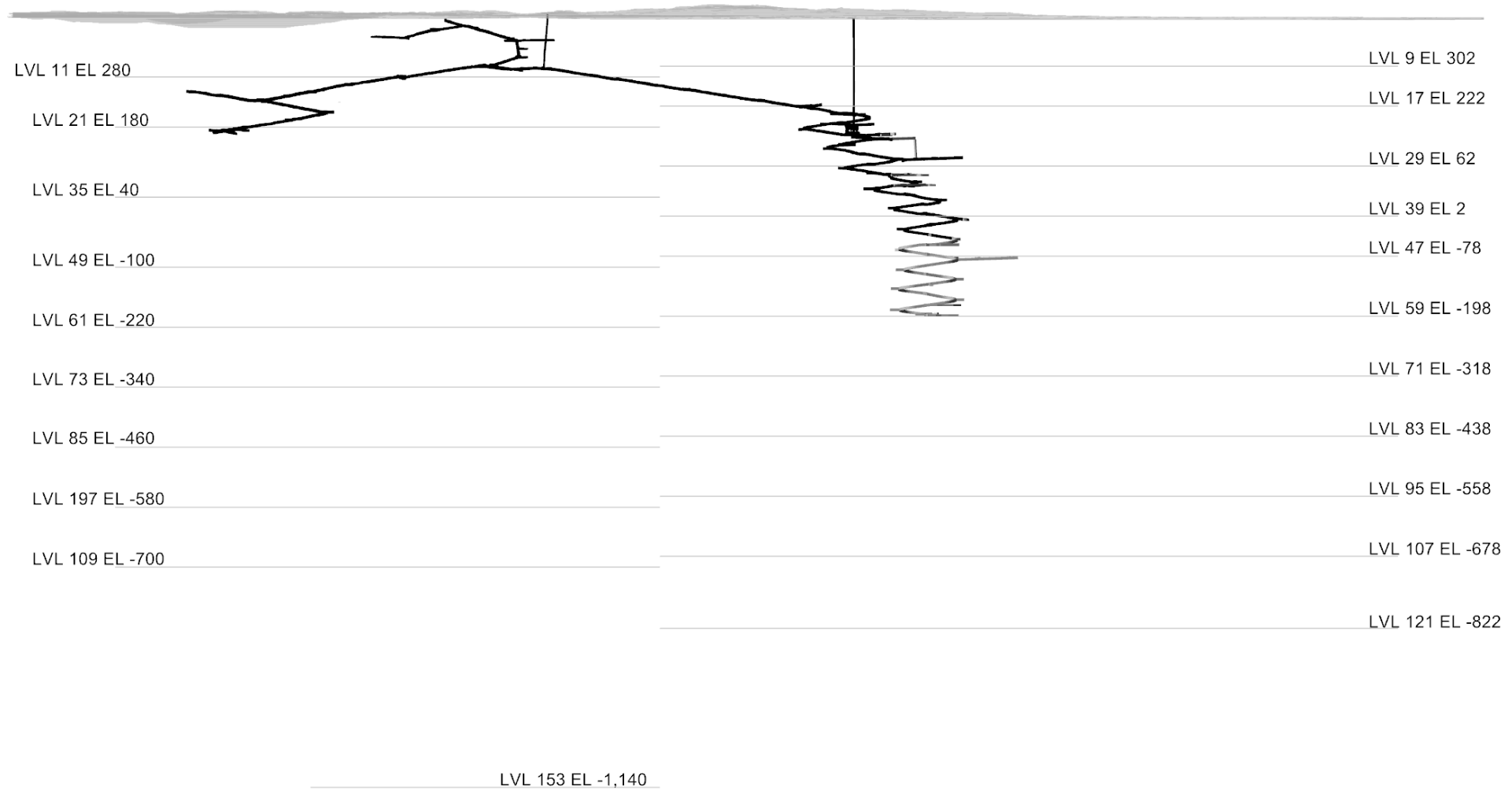
Longitudinal Longhole with Backfill

Primary underground infrastructure

- Garage and its component (C)
- Cement silo (B)
- Storage area
- Paste backfill booster pump (A)
- Fuel bays
- Refuge stations
- Explosives magazines
- Material bays
- Pumping stations

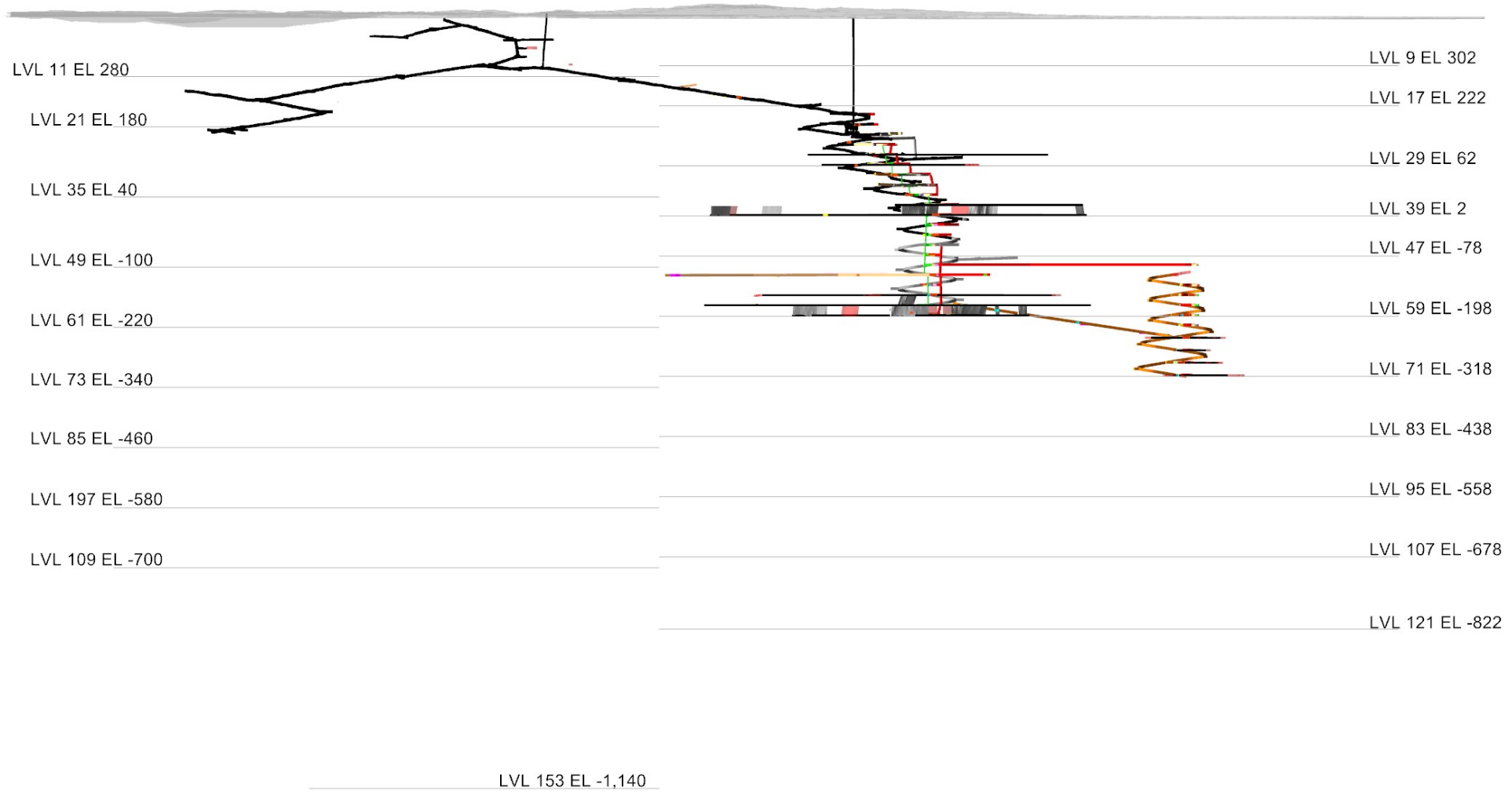


Existing Infrastructure 2022



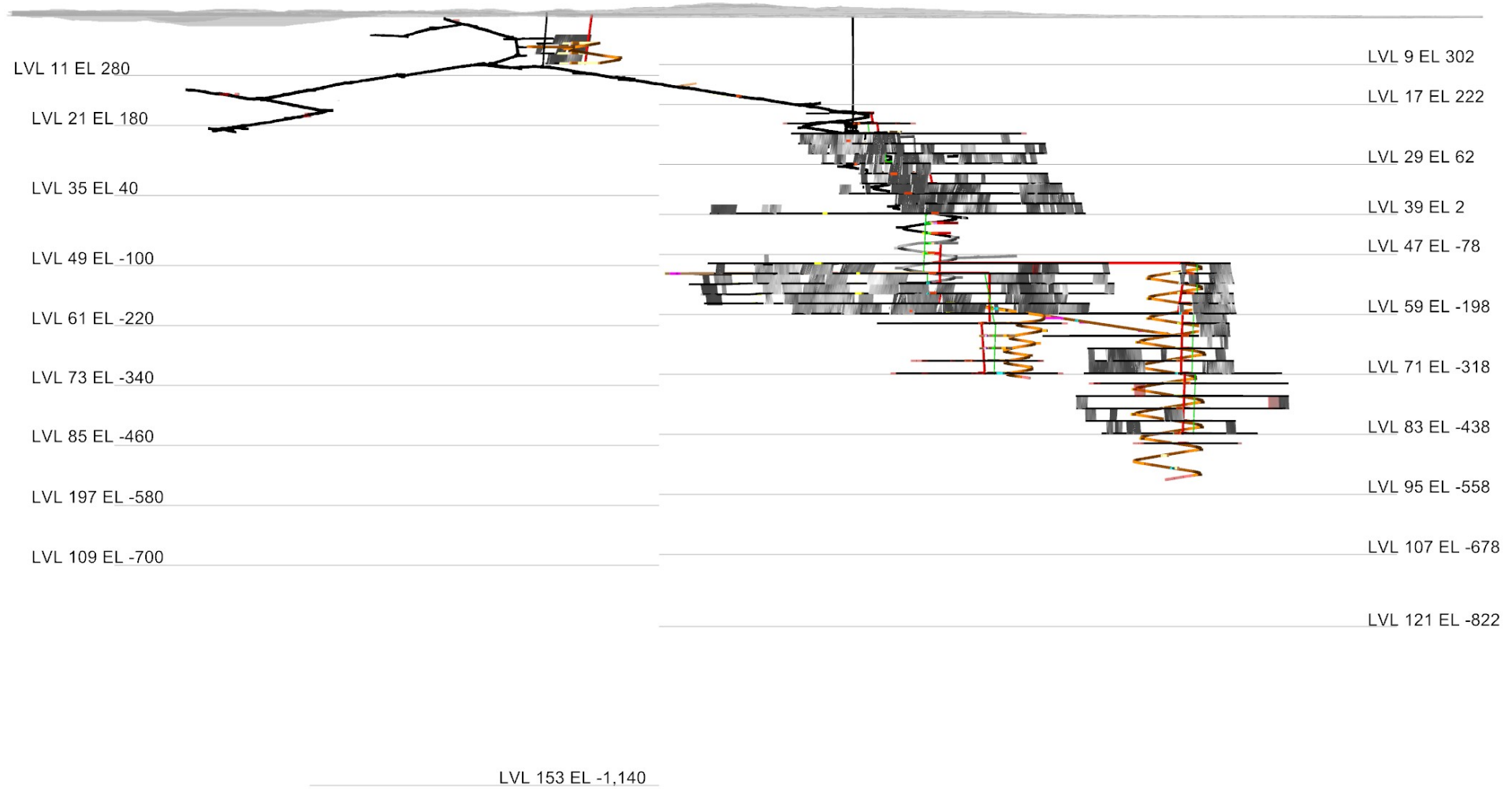


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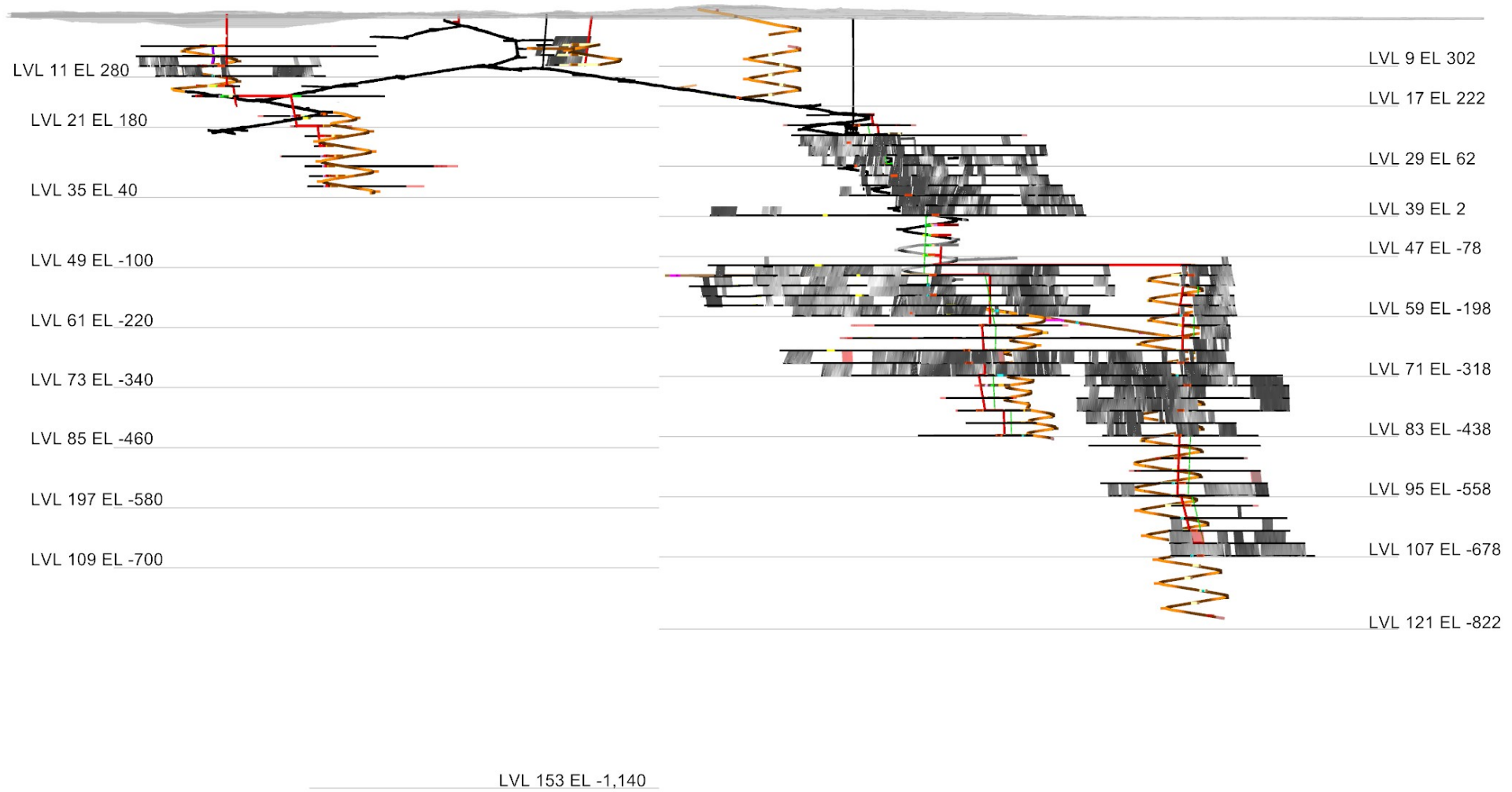


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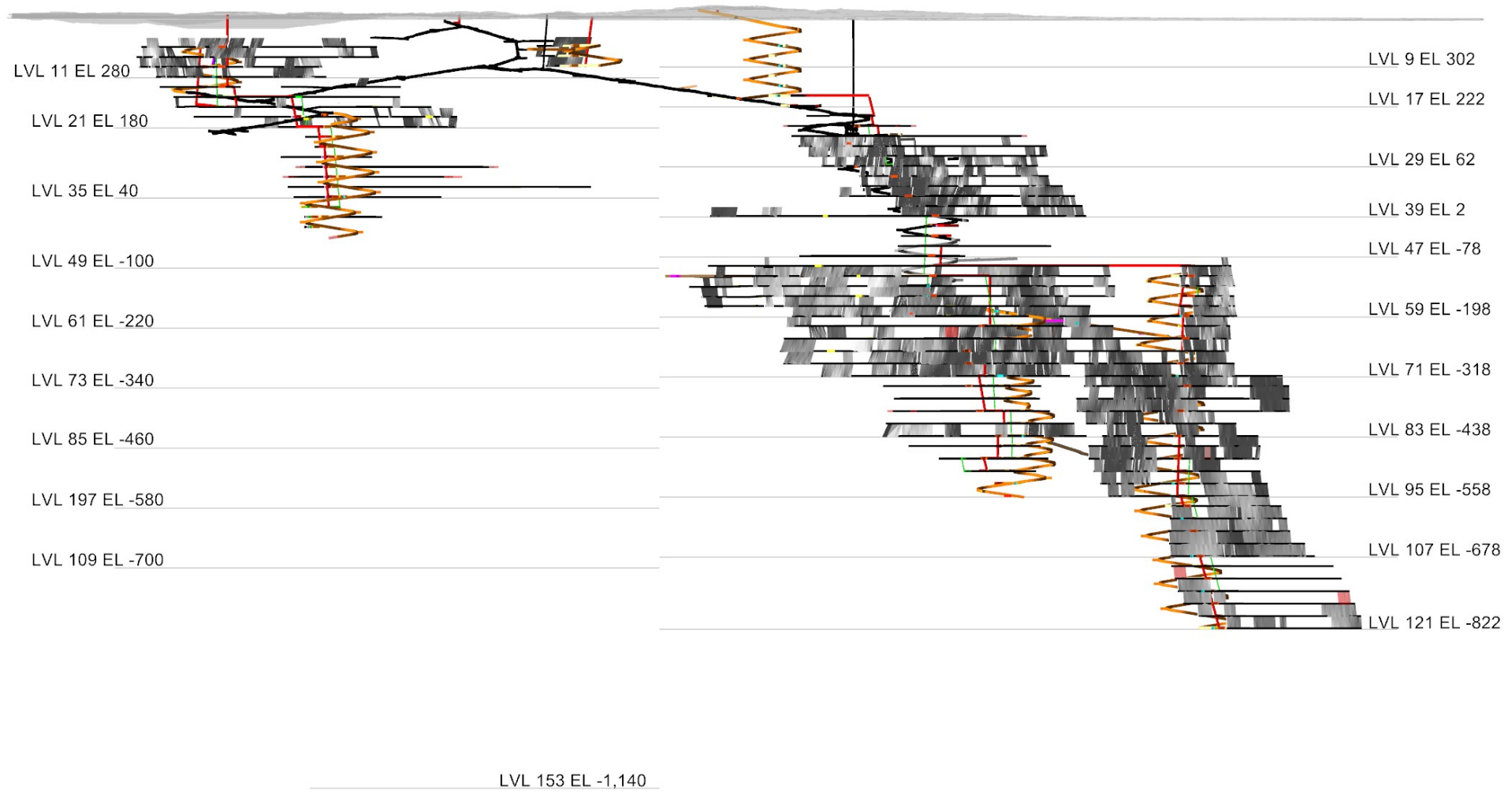


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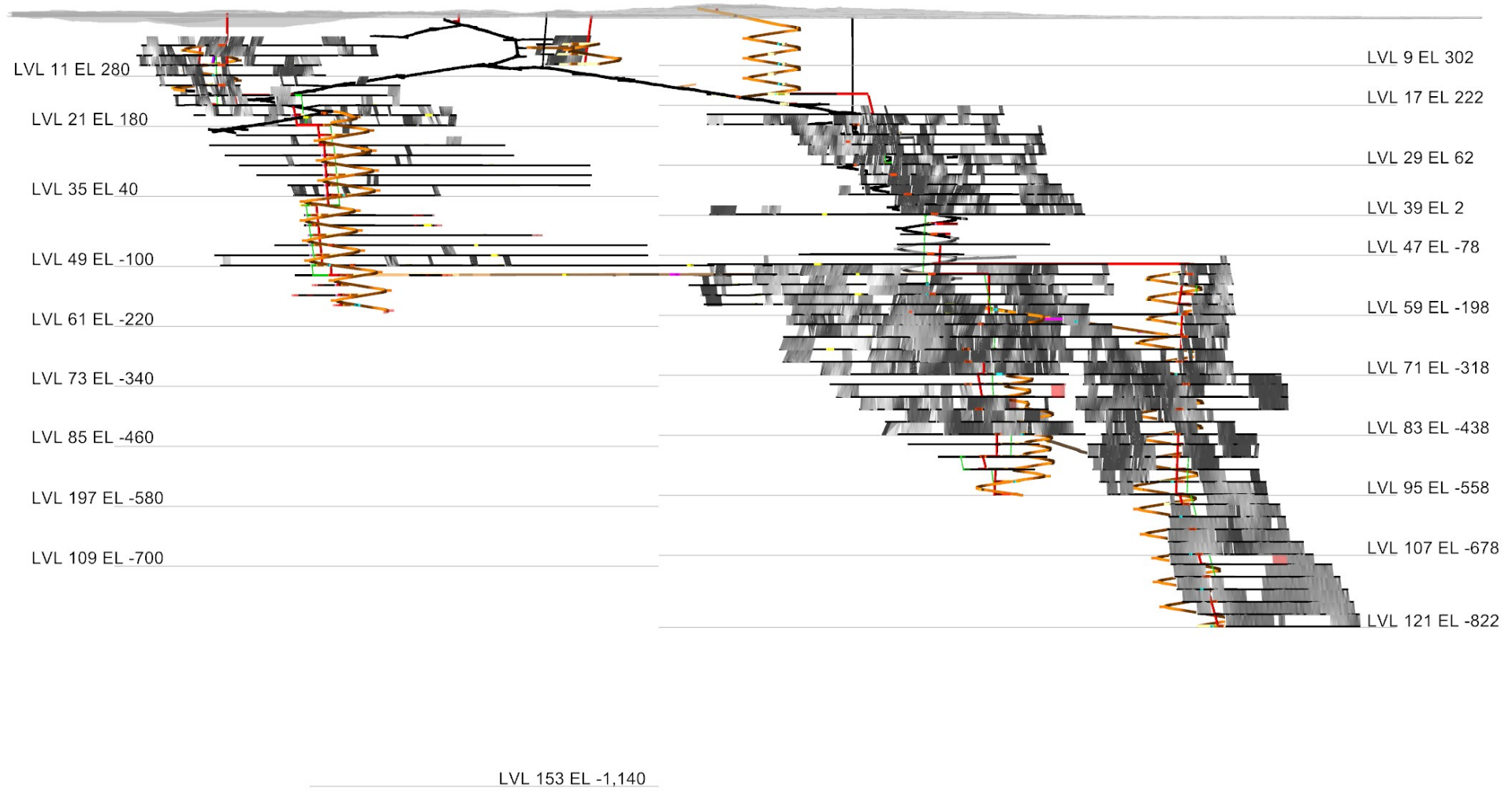


2030 – Peak Production (Year 6)



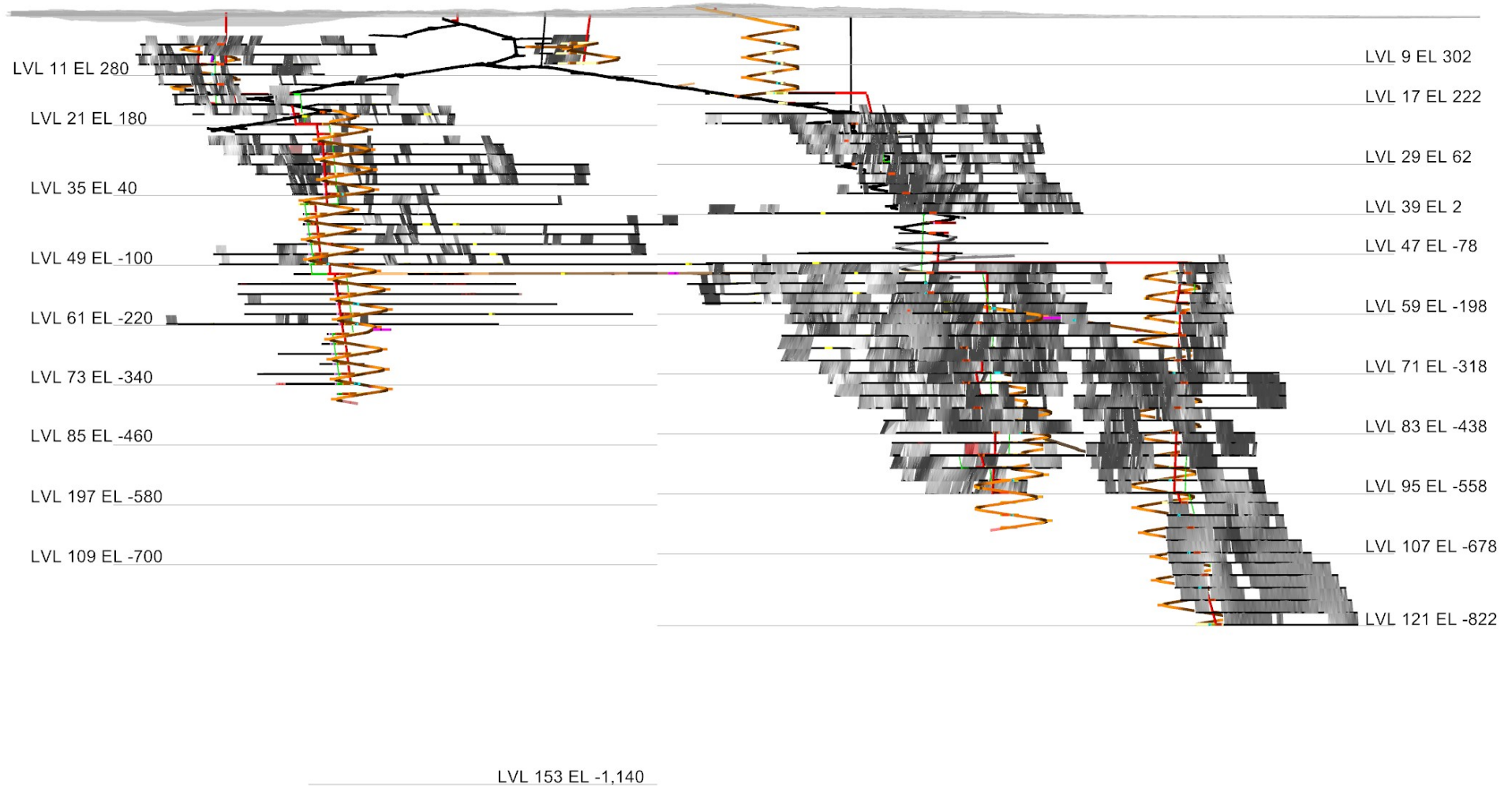


2033



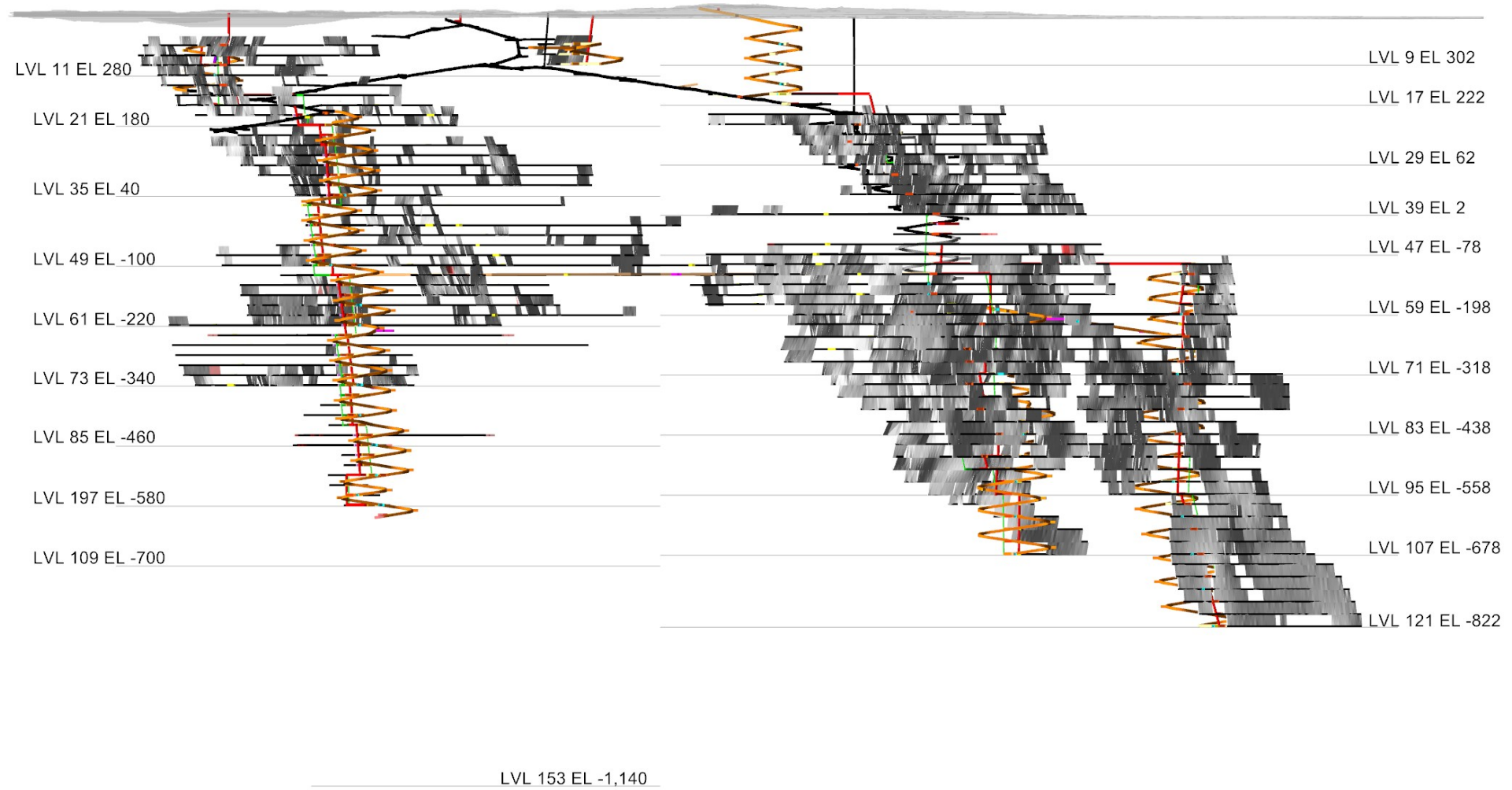


2035



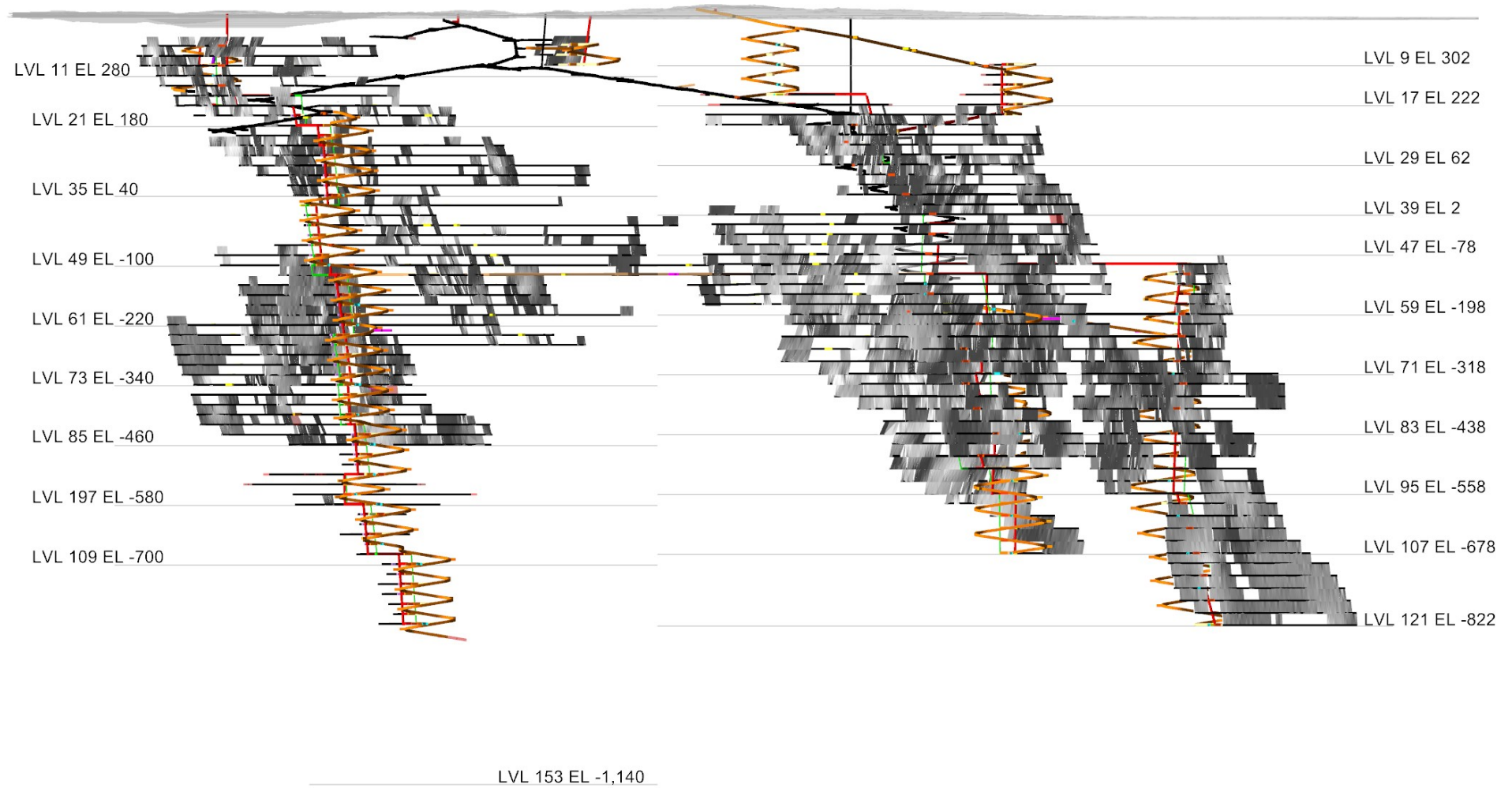


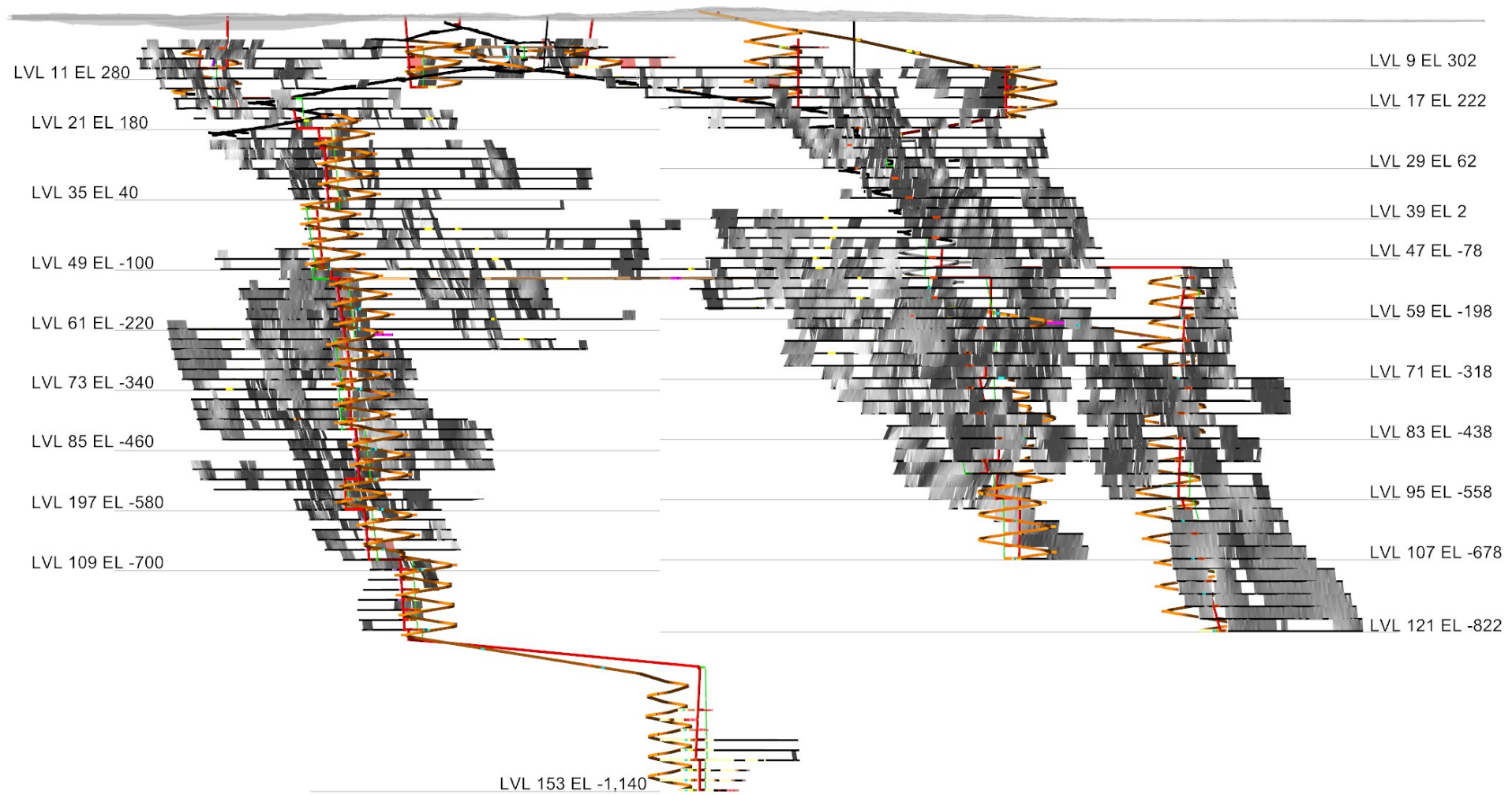
2037

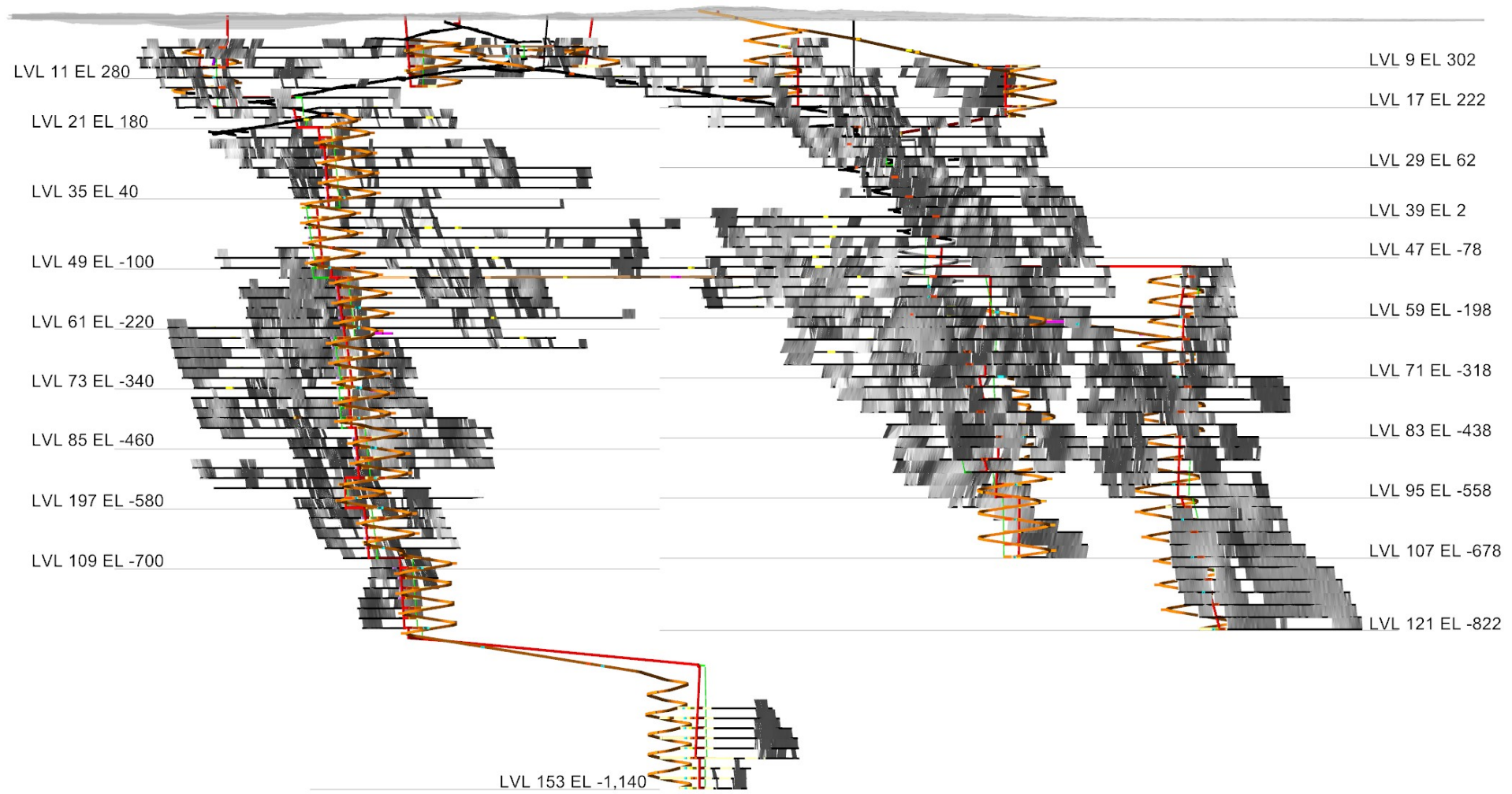




2039



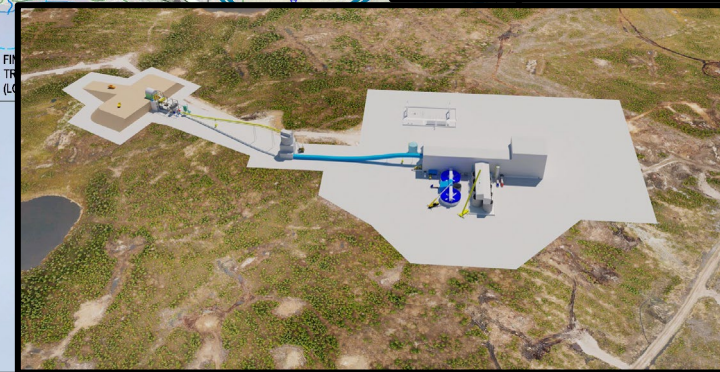
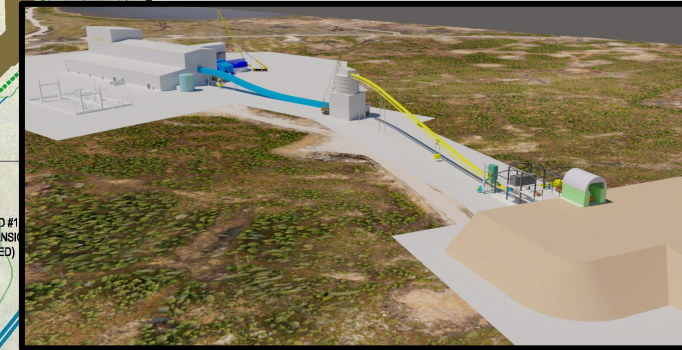
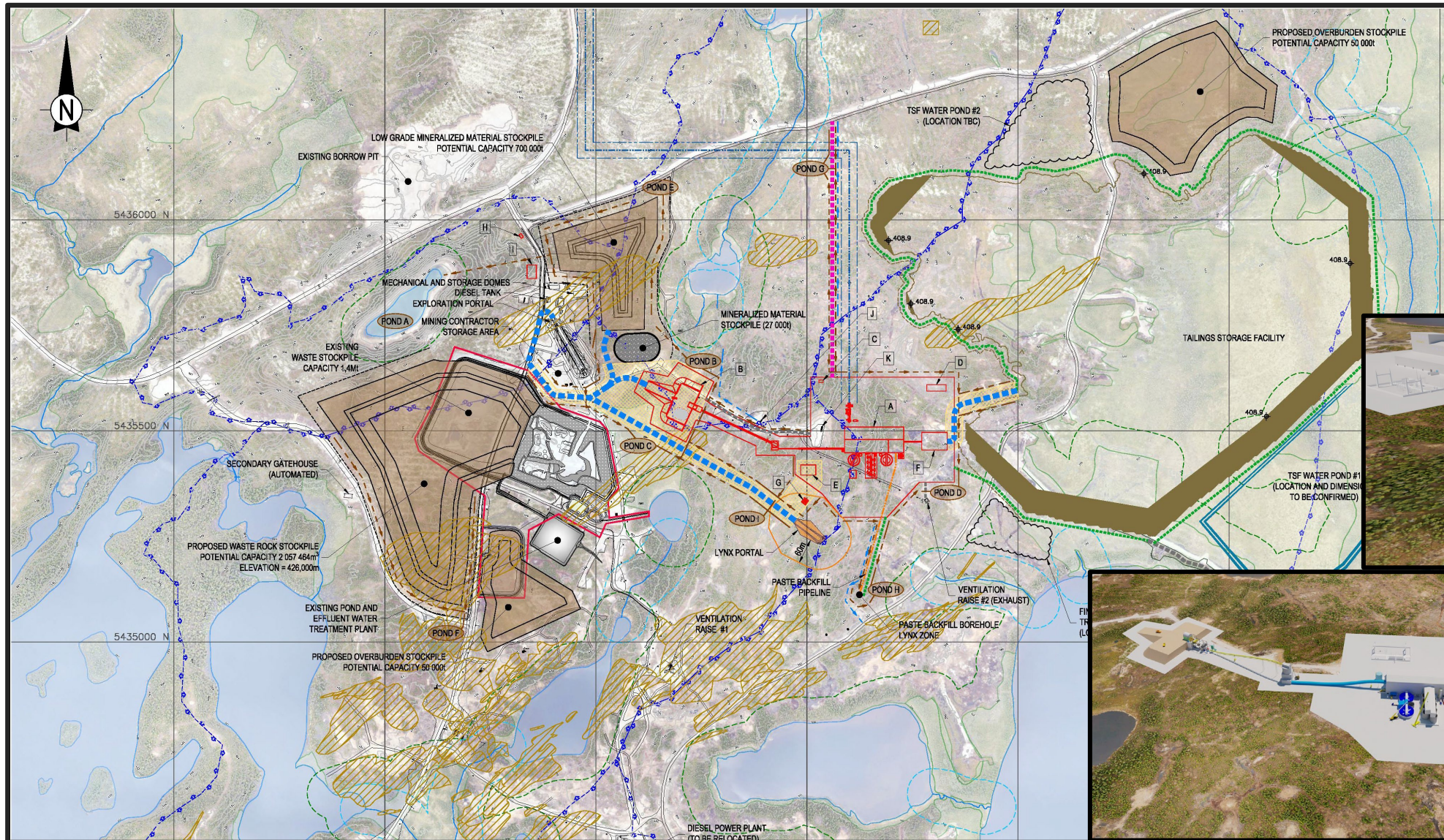






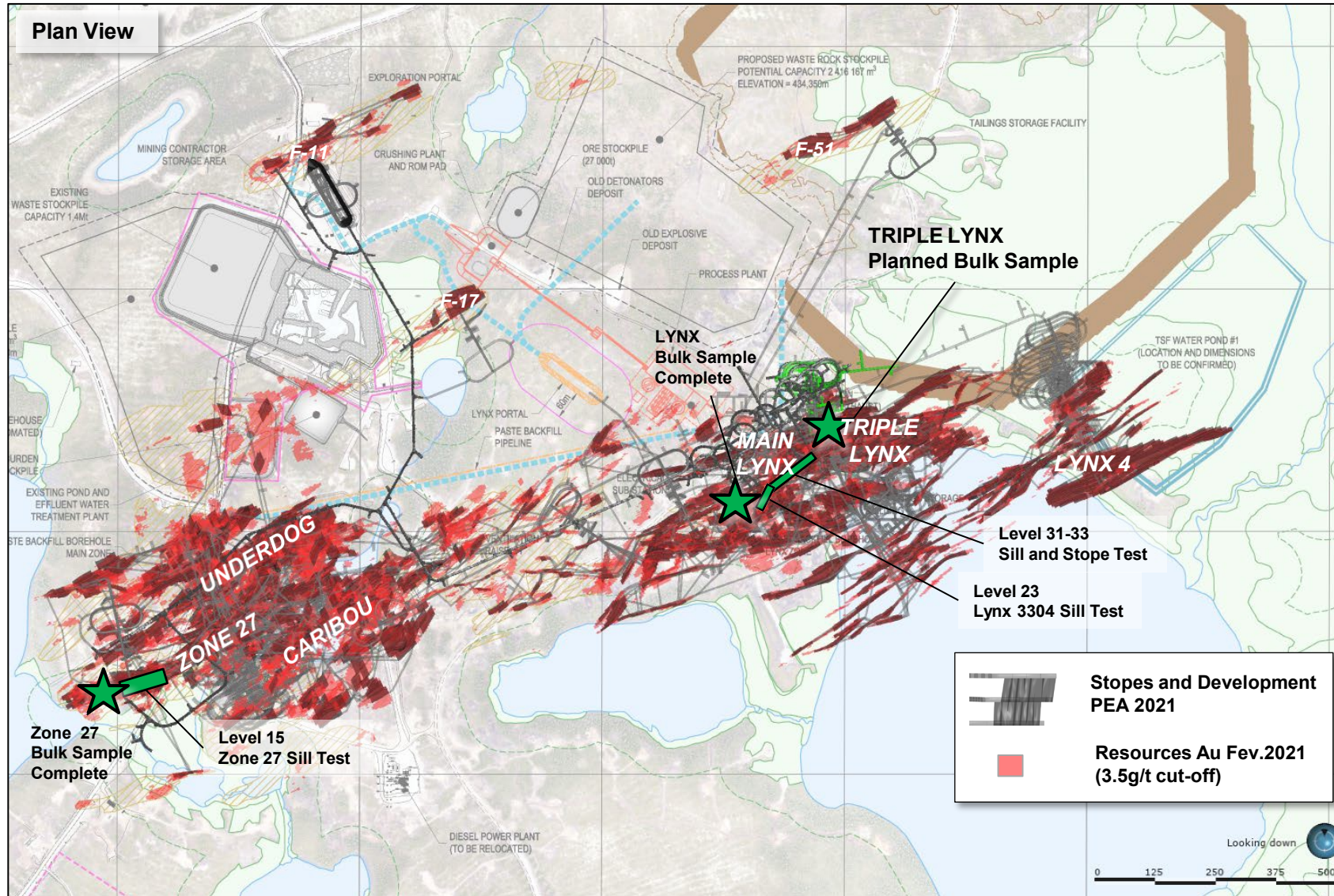


Surface Infrastructure – Preliminary Mine Layout





Surface Infrastructure – Preliminary Mine Layout



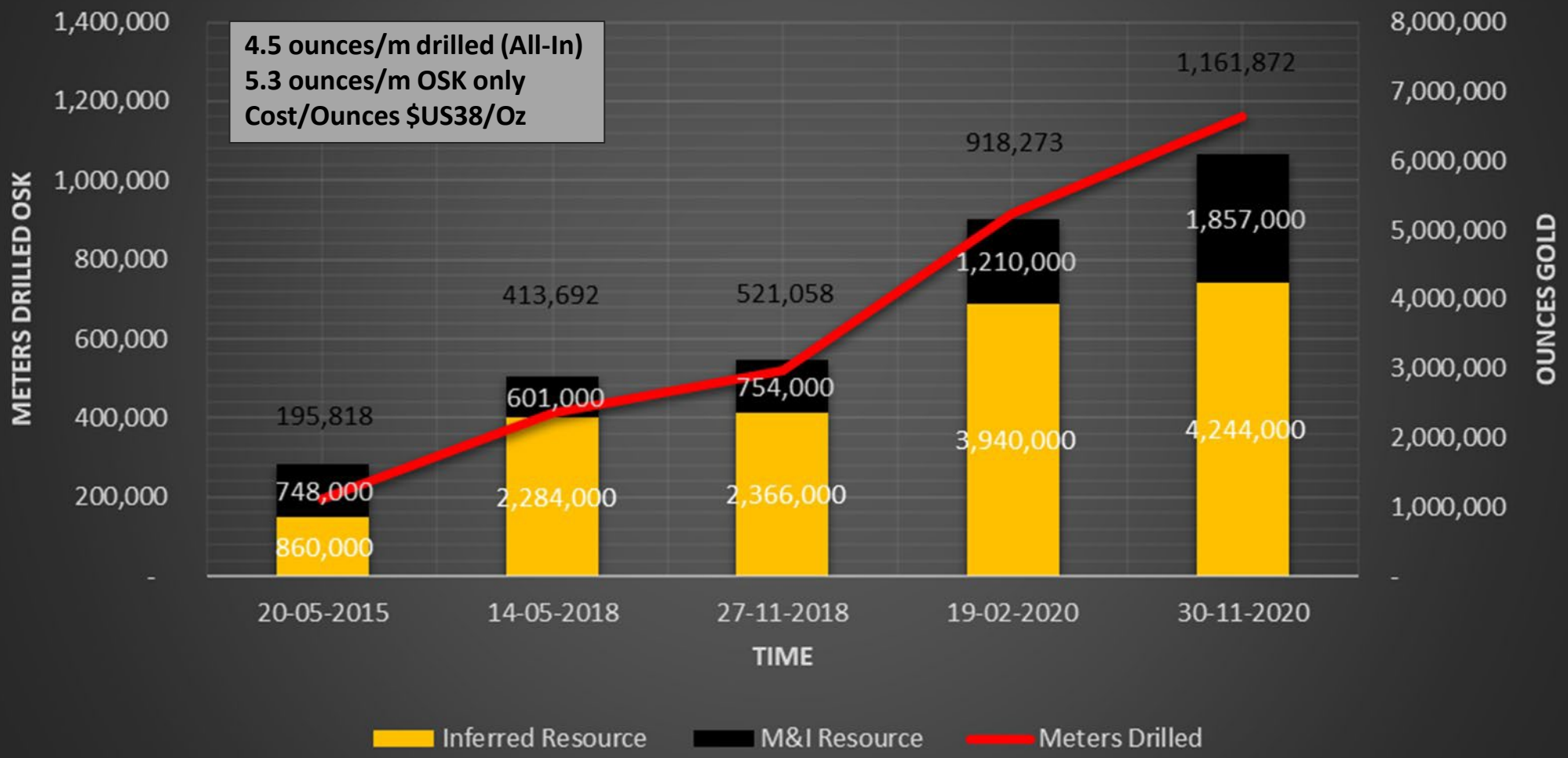


Significant Room to Grow



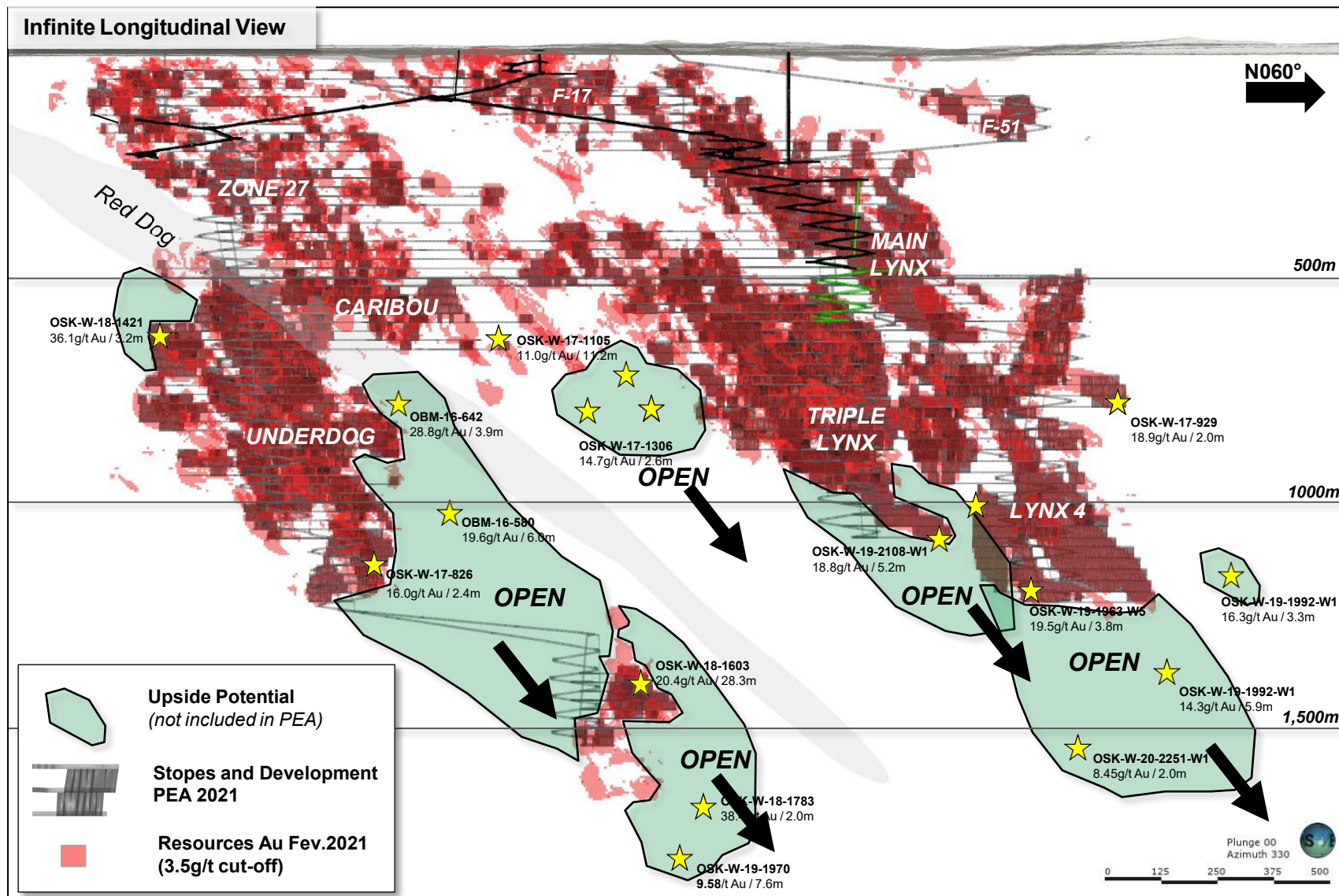
Drilling and Resource Growth: Lynx Adding Significant Ounces

Osisko's Windfall Resource Progression





Upside Potential





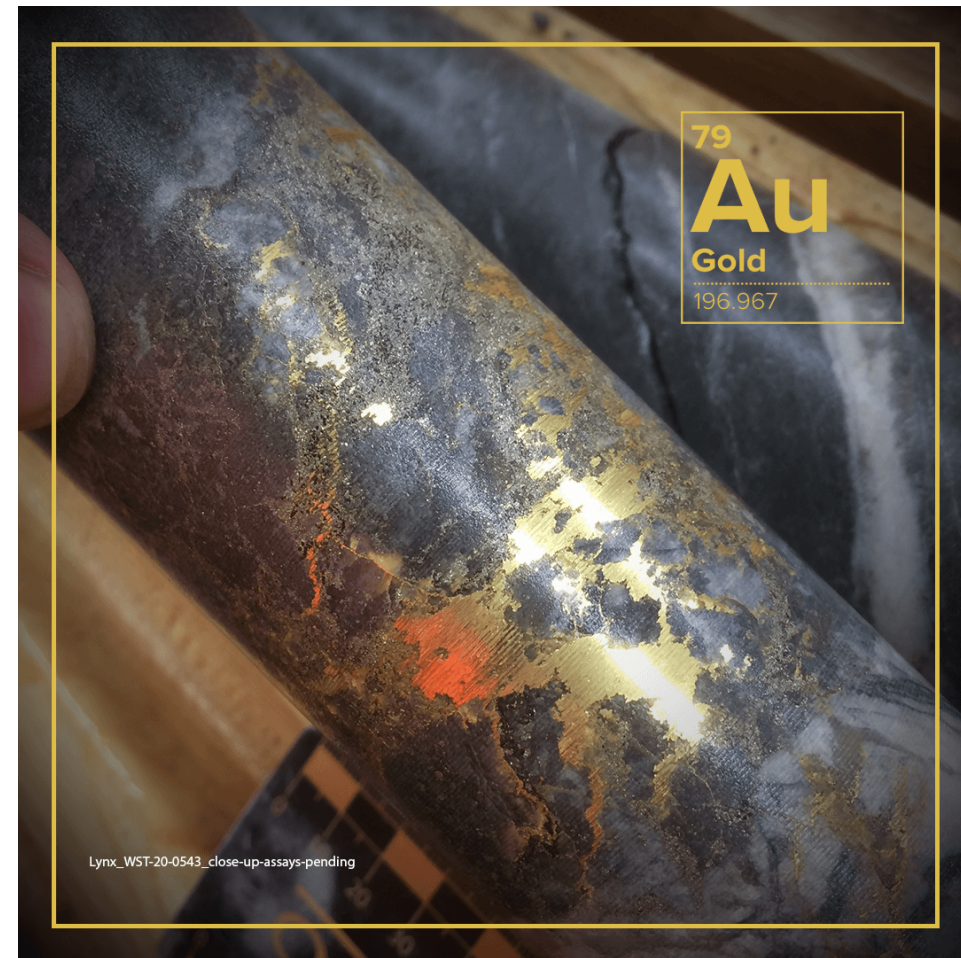
- ✓ Windfall is world-class in scale and grade and continues to grow
- ✓ M&I ounces average 9.6 g/t Au and have increased by 54% to 1.87M oz
- ✓ Year end MRE targeting +7M oz with +3M oz M&I
- ✓ Lynx: 11.3 g/t Au Measured; 11.0 g/t Au Indicated; 9.9 g/t Au Inferred (60% of MRE)
- ✓ Discovery Cost \$US38/oz¹, 4.5 oz defined per metre drilled
- ✓ Bulk samples have reconciled with higher grade (126% - 189%)
- ✓ Exploration ramp continues towards Triple Lynx bulk sample and test stoping in progress

¹ Non-audited estimation using actual exploration expenditures as of December 31st, 2020 (excluding exploration ramp expenditures), the amount of meters drilled by Osisko since 2015 and considering Quebec Tax Exploration Credit returns divided by global ounces. This is considered a non-GAAP number.



Catalysts for 2021

- ✓ Powerline Update
- ✓ Completion of Infill Program
- ✓ DFS MRE Q4 2021
- ✓ Feasibility Study H1 2022
- ✓ Triple Lynx Bulk Sample and Test Stopes
- ✓ 50,000m of Drilling at Golden Bear
- ✓ Well Financed





Appendix





Windfall Mineral Resource Estimate (February 17, 2021)

Windfall Gold Deposit Mineral Resource Estimate Sensitivity Table

Cut-off Grade (g/t Au)	Measured + Indicated					Inferred				
	Tonnes (000 t)	Grade Au (g/t)	Grade Ag (g/t)	Ounces Au (000 oz)	Ounces Ag (000 oz)	Tonnes (000 t)	Grade Au (g/t)	Grade Ag (g/t)	Ounces Au (000 oz)	Ounces Ag (000 oz)
5	4,214	11.9	6.8	1,614	918	10,525	10.2	3.3	3,454	1,133
4.5	4,721	11.1	6.5	1,692	981	12,090	9.5	3.1	3,693	1,215
4	5,304	10.4	6.2	1,771	1,059	14,045	8.8	2.9	3,960	1,319
3.5	6,023	9.6	5.9	1,857	1,149	16,401	8	2.7	4,244	1,446
3	6,882	8.8	5.7	1,947	1,257	19,561	7.3	2.6	4,574	1,604
2.5	7,971	8	5.4	2,043	1,381	23,676	6.5	2.4	4,937	1,806

Notes: ¹ The MRE uses a cut-off grade of 3.5 g/t Au.

Windfall Gold Deposit Mineral Resource Estimate by Area (3.5 g/t Au cut-off)

Area	Measured					Indicated					Inferred				
	Tonnes ¹ (000 t)	Grade Au (g/t)	Grade Ag (g/t)	Ounces Au ¹ (000 oz)	Ounces Ag ¹ (000 oz)	Tonnes ¹ (000 t)	Grade Au (g/t)	Grade Ag (g/t)	Ounces Au ¹ (000 oz)	Ounces Ag ¹ (000 oz)	Tonnes ¹ (000 t)	Grade Au (g/t)	Grade Ag (g/t)	Ounces Au ¹ (000 oz)	Ounces Ag ¹ (000 oz)
Lynx ²	521	11.3	8.1	189	135	3 075	11	6.6	1 088	655	7 418	9.9	3.5	2 355	833
Underd o	-	-	-	-	-	562	8	1.1	145	20	4 788	6.9	0.9	1 068	139
Main ³	-	-	-	-	-	1 865	7.3	5.7	436	339	3 540	5.9	3.3	673	375
Triple 8	-	-	-	-	-	-	-	-	-	-	655	7.1	4.7	149	99
Total	521	11.3	8.1	189	135	5 502	9.4	5.7	1 668	1 013	16 401	8.0	2.7	4 244	1 446

Notes: ¹ Values are rounded to nearest thousand which may cause apparent discrepancies. ² Lynx area includes: Lynx Main, Lynx HW, Lynx SW and Lynx 4, Triple Lynx. ³ Main area includes: Zone 27, Caribou, Mallard, Windfall Nord and F-Zones. See Windfall Gold Deposit Mineral Resource Estimate Notes further below.



Notes on the Mineral Resource Estimation of Windfall

1. The independent qualified person for the 2021 MRE, as defined by NI 43-101 guidelines, is Pierre-Luc Richard, P.Geo.(OGQ#1119), of BBA Inc. The effective date of the estimate is November 30, 2020. The Windfall mineral resource estimate is compliant with the November 29, 2019 CIM Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines.
2. These mineral resources are not mineral reserves as they have not demonstrated economic viability. The quantity and grade of reported Inferred mineral resources in this news release are uncertain in nature and there has been insufficient exploration to define these resources as Indicated or Measured; however, it is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.
3. Resources are presented undiluted and in situ and are considered to have reasonable prospects for economic extraction. Isolated and discontinuous blocks above the stated cut-off grade are excluded from the mineral resource estimate. Must-take material, i.e. isolated blocks below cut-off grade located within a potentially mineable volume, was included in the mineral resource estimate.
4. As of November 30, 2020, the database comprises a total of 3,612 drill holes for 1,343,593 metres of drilling in the area extent of the mineral resource estimate, of which 2,959 drill holes (1,161,872 metres) were completed and assayed by Osisko. The drill hole grid spacing is approximately 12.5 metre x 12.5 metre for definition drilling, 25 metre x 25 metre for infill drilling and larger for extension drilling.
5. All core assays reported by Osisko were obtained by analytical methods described below under "Quality Control and Reporting Protocols".
6. Geological interpretation of the deposit is based on lithologies, mineralization style, alteration and structural features. Most mineralization envelopes are subvertical, striking NE-SW and plunging approximately 40 degrees towards the North-East. The 3D wireframing was generated in Leapfrog Geo, a modelling software, from hand selections of mineralization intervals. The mineral resource estimate includes a total of 374 tabular, mostly sub-vertical domains defined by individual wireframes with a minimum true thickness of 2.0 metres.
7. Assays were composited within the mineralization domains into 2.0 metres length composites. A value of 0.00125 g/t Au and 0.0025 g/t Ag (¼ of the detection limit) was applied to unassayed core intervals.
8. High-grade composites were capped. Cappings were determined in each area from statistical studies on groups of zones sharing similar mineralization characteristics. Cappings vary from 10 g/t Au to 200 g/t Au and from 5 g/t Ag to 150 g/t Ag. A multiple capping strategy defined by capping values decreasing as interpolation search distances increase was used in the grade estimations.
9. Block models were produced using Datamine™ Studio RM Software. The models are defined by parent cell sizes of 5 metres NE, 2 metres NW and 5 metres height, and sublocked to minimum subcell sizes of 1.25 metres NE, 0.5 metres NW and 1.25 metres height.
10. Ordinary Kriging (OK) based interpolations were produced for gold estimations in each area of the Windfall deposit, while silver grade estimations were produced using Ordinary Kriging (OK) or Inverse Distance Squared (ID²) interpolations. Gold estimation parameters are based on composite variography analyses. The gold estimation parameters were used for the silver estimation.
11. Density values of 2.8 were applied to the mineralized zones.
12. The Windfall mineral resource estimate is categorized as measured, indicated and inferred mineral resource as follows:
 - a. The measured mineral resource category is manually defined and encloses areas where:
 - i. drill spacing is less than 12.5 metres,
 - ii. blocks are informed by a minimum of four drill holes,
 - iii. geological evidence is sufficient to confirm geological and grade continuity.
 - iv. zones have been accessed by underground workings.
 - b. The indicated mineral resource category is manually defined and encloses areas where:
 - i. drill spacing is generally less than 25 metres,
 - ii. blocks are informed by a minimum of two drill holes,
 - iii. geological evidence is sufficient to assume geological and grade continuity. The
 - c. inferred mineral resource category is manually defined and encloses areas where:
 - i. drill spacing is less than 100 metres,
 - ii. blocks are informed by a minimum of two drill holes,
 - iii. geological evidence is sufficient to imply, but not verify geological and grade continuity.
13. The mineral resource is reported at 3.5 g/t Au cut-off. The cut-off grade is based on the following economic parameters: gold price at 1,485 USD/oz, exchange rate at 1.30 USD/CAD, 94% mill recovery; payability of 99.95%; selling cost at 5 USD/oz, 2% NSR royalties, mining cost at 100 C\$/t milled, G&A cost at 30 C\$/t milled, processing cost at 40 C\$/t, transportation cost at 2 C\$/t considering mill at site, and environment cost at 10 C\$/t. A cut-off grade of 3.5 g/t Au was selected over the calculated cut-off grade of 3.2 g/t Au to better reflect a realistic mining cut-off.
14. Estimates use metric units (metres, tonnes and g/t). Metal contents are presented in troy ounces (metric tonne x grade / 31.10348).
15. The independent qualified person is not aware of any known environmental, permitting, legal, title-related, taxation, socio-political or marketing issues, or any other relevant issue, that could materially affect the mineral resource estimate.
16. Values in tonnes and ounces are rounded to nearest thousand which may cause apparent discrepancies.



Contributors to Technical Studies

