

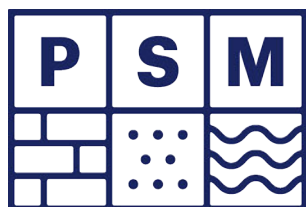


Macraes Phase Four Project

Open Pit Extensions - Geotechnical Stability

PSM71-363R

21 August 2026



Executive Summary

The Macraes Phase Four expansion proposes to extend the life of OceanaGold's Macraes Operation in East Otago until at least 2039. The Project, which will enable ongoing gold production at a rate of approximately 130,000 ounces per annum, is identified as a Listed Project in Schedule 2 of the Fast-track Approvals Act 2024 as a project of national significance.

This report presents a geotechnical assessment of the proposed open pit extensions to inform the Assessment of Environmental Effects. This report documents the geotechnical model, slope performance, and global stability of the proposed open pit extensions. It includes an assessment of end-of-mine life and long term (post closure) stability plus potential interactions with in-pit backfills, ex-pit waste rock stacks, public roads, consent boundaries and pit lake development for the following areas:

- Coronation North Stage 6
- Coronation Stages 6 to 8
- Innes Mills Stages 11 to 13
- Golden Bar Stages 2 and 3.

PSM has undertaken detailed geotechnical assessment for each of the proposed open pit extensions in order to identify key geotechnical hazards, potential failure modes and mitigation strategies. 2D limited equilibrium analyses and 3D numerical modelling were completed to assess end-of-mine-life and long-term (post closure) stability, including pit lake filling where appropriate, for both static and seismic scenarios. Analysis sections were selected to represent the most adverse geometry and rock mass conditions that would be influenced by the proposed cutbacks.

Slope stability evaluation nominated Factor of Safety (FoS) which were considered appropriate for the consenting design stage based on the established model understanding (confidence) and associated consequence. These values are consistent with the previous Macraes open pit stability consent conditions:

- Static – minimum FoS of 1.2 for all pit slopes, increasing to a minimum of 1.5 where there is potential interaction with, or impacts on ex-pit infrastructure
- Pseudo-static (seismic):
 - Operating Basis Earthquake (1:150 years AEP) – minimum Factor of Safety of 1.0; and
 - Maximum Design Earthquake (1:2,500 years AEP) – minimum Factor of Safety of 1.0, or with satisfactory performance in terms of settlement and slope deformation.

The outcome of the stability assessment is summarised in the following points:

- Under static conditions
 - High wall stability is assessed to have a FoS greater than 1.2 for the baseline scenarios without the presence of adverse faults or shears;
 - Where proposed pit crests interact with the toe of an established WRS, an inter-ramp angle of 33° is recommended within backfill material;
 - Proposed in-pit backfills with an optimised bench face angle of 33° typically achieves a FoS >1.3.
- Under seismic conditions:
 - Operational seismic loads of OBE equivalence did not have a significant impact on FoS for typical geotechnical conditions without adverse geological structures
 - Under 1:2,500 year MDE loading, the post pit lake filling FoS condition for high wall slopes is greater than 1.0
 - Operational and closure seismic loads for Coronation North southwest footwall did not achieve a FoS of 1.0. This result is consistent with the observed post-mining behaviour of the slope following completion of the Stage 4 cutback. The FF forms the basal sliding plane and therefore defines the maximum potential extent of deformation southwest of the pit crest, where the FF daylight at the surface. Continued deformation is likely to continue until the slope reaches a state of equilibrium; however, deformation is expected to remain confined within the existing surface mine disturbance boundary.

- Where west wall deformation is expected during mining and in-pit backfills have been designed to manage displacements at closure of Coronation North, Coronation and Innes Mills. During closure, the hydrostatic pressure of water within the pit lakes generally improves wall stability.

Proposed public road realignments around Innes Mills, and the 50 m offset of Golden Bar Road from the eastern crest of Golden Bar Stage 3, provide separation from pit crests based on the current geotechnical model. An operational Ground Control Management Plan (GCMP) will be developed to manage stability of Golden Bar Pit and Road during Stage 3 detailed design.

On this basis, PSM considers that the proposed open pit extensions can achieve satisfactory geotechnical stability during operations and post closure, subject to implementation of the recommended monitoring, in-pit backfills, road offsets and post-closure exclusion zones.

Table of Contents

1. Introduction	10
1.1 Project Scope	10
1.2 Site Location and Description	11
1.3 Project Overview	13
1.4 Project Datum	15
1.5 Data	15
2. Proposed Open Pit Extensions	15
2.1 Coronation North - Stage 6	15
2.2 Coronation - Stages 6 to 8	16
2.3 Innes Mills - Stages 11 to 13	16
2.4 Golden Bar - Stages 2 and 3	17
3. Geotechnical Model	17
3.1 Geology	17
3.1.1 Regional	17
3.2 Geological Structure	19
3.2.1 Geological Faults	19
3.2.1.1 Footwall Fault	20
3.3 Rock Mass Model	20
3.3.1 General	20
3.3.2 Deposit Specific Observations	21
3.3.2.1 Coronation and Innes Mills Mining Area	21
3.3.2.2 Golden Bar	22
3.4 Design Parameters	22
3.4.1 Rock Mass	22
3.4.2 Defect Shear Strengths	23
3.5 Groundwater – Pit Slope Interactions	23
3.5.1 Climate Change	23
4. Slope Design Precedent and Performance	24
4.1 Coronation	24
4.1.1 Pit Design and Slope Performance	24
4.2 Coronation North	26
4.2.1 Pit Slope Design	26
4.2.2 Observed Slope Performance	27
4.2.2.1 Southeast Wall	27
4.2.2.2 Southwest Wall	27
4.2.2.3 Northeast Wall	29
4.2.3 Stage 5 and 6	30
4.3 Southern Pit	31
4.3.1 East Wall Wedge Instabilities	31
4.4 Innes Mills	32
4.4.1 Pit Slope Design	32



4.4.2	Observed Slope Performance.....	33
4.4.2.1	Stage 7 West Wall	33
4.4.2.2	Macraes Road Deformation.....	34
4.4.2.3	Stage 8 East Wall	35
4.5	Golden Bar	36
4.5.1	Pit Slope Design.....	36
4.5.2	Observed Slope Performance.....	37
5.	Geotechnical Stability Analysis	40
5.1	Introduction.....	40
5.2	Failure Mechanisms	40
5.3	Section Locations	41
5.4	Material Properties	42
5.5	Design Cases	42
5.5.1	Groundwater Scenarios	42
5.5.2	Pit Lakes	43
5.5.3	Seismic Loading.....	43
5.6	Results.....	44
5.6.1	General	44
5.6.2	Coronation North.....	45
5.6.3	Coronation.....	46
5.6.4	Innes Mills West Wall.....	46
5.6.5	Golden Bar	47
6.	Geotechnical Considerations.....	55
6.1	Coronation North	55
6.1.1	Pit Slope Stability	55
6.1.1.1	CN6 Northeast Wall.....	55
6.1.1.2	CN6 Southwest Wall.....	56
6.1.2	In-Pit Backfills.....	56
6.1.3	Pit Lake	56
6.2	Coronation	56
6.2.1	Pit Slope Stability	56
6.2.2	In-Pit Backfills.....	56
6.3	Innes Mills.....	56
6.3.1	Stage 11.....	56
6.3.2	Stage 12.....	57
6.3.3	Stage 13.....	58
6.3.3.1	East Wall.....	58
6.3.3.2	North Wall	59
6.3.3.3	West Wall.....	59
6.3.4	In-Pit Backfills.....	59
6.3.5	Open Pit Workshop	59
6.4	Golden Bar	59
6.4.1	Golden Bar Road	59

7. Conclusions	60
References.....	63

List of Tables

Table 1 – Summary of Rock Mass Classes within the Macraes Operation	21
Table 2 – Material Strength Parameters.....	23
Table 3 – Slope Design Parameters for Coronation North Stages 1 to 4	26
Table 4 – Recommended Slope Design Parameters for IM7/8.....	33
Table 5 – Design Recommendations for Golden Bar Stage 1	37
Table 6 – Performance of Golden Bar Stage 1	37
Table 7 – Slope Stability Evaluation	40
Table 8 – Macraes Open Pit Critical Failure Mechanisms	41
Table 9 – Stability Model Material Properties	42
Table 10 – Comparison of PGA for Earthquakes at Macraes	43
Table 11 – 2D Limit Equilibrium Results Summary	44
Table 12 – Summary of West Wall 3DEC Model Staging	46
Table 13 – Summary of Coronation North Static Stability Results	48
Table 14 – Summary of Coronation North Seismic Stability Results Under Saturated Conditions.....	49
Table 15 – Summary of Coronation Static Stability Results.....	50
Table 16 – Summary of Coronation Seismic Stability Results Under Saturated Conditions.....	51
Table 17 – Summary of Innes Mills Static Stability Results Under Saturated Conditions.....	52
Table 18 – Summary of Innes Mills Seismic Stability Results Under Saturated Conditions	53
Table 19 – Summary of Golden Bar Static Stability Results	54
Table 20 – Summary of Golden Bar Seismic Stability Results Under Saturated Conditions.....	54

List of Insets

Inset 1:	Existing site layout of the Macraes Operation (July 2026).....	12
Inset 2:	MP4 Overview Plan.....	14
Inset 3:	Plan of the Macraes Operation showing various pits and deposits and the HMSZ (Reference 2).....	18
Inset 4:	Stereographs illustrating the typical geological structure trends at Macraes.....	19
Inset 5:	Example of the FF surface condition as exposed in the upper Frasers West headscarp. The sliding surface is described as slickensided and undulous, comprising high plasticity moist firm clay.....	20
Inset 6:	Schematic cross-section through the deposit showing the position of high- and low-grade mineralisation relative to the FF and HWS (Reference 3).....	21
Inset 7:	Schematic cross section through typical rock mass at Coronation North facing north.....	22
Inset 8:	Schematic cross section through typical rock mass at Golden Bar facing north.	22
Inset 9:	South-eastern wall of Coronation Pit Stage 1, 2015. Wedge failures and cracking formed along north-south trending, westerly dipping faults.	25

Inset 10:	Coronation Pit Stage 2 – eastern wall immediately south of the ‘fish bowl’. Westerly dipping faults can be seen outcropping at 270°.	25
Inset 11:	Coronation Pit Stage 2 – eastern wall of the ‘southern limb’. The 22.5 m high batters have not performed well in this rock mass.	26
Inset 12:	Condition of the Stage 4 East Wall in February 2025.	27
Inset 13:	Deformed intra shear pelite rock mass within the lower southwest wall of CN4. Persistent foliation shears are variably spaced as highlighted by yellow lines. Photograph looking southwest.	28
Inset 14:	Radar monitoring “heatmap” of the CN4 south west wall illustrating the extents of slope movements.	28
Inset 15:	Current northeast / east wall conditions as of March 2026.	29
Inset 16:	Northeast wall instability during mining of Stage 4.	30
Inset 17:	Photos of northeast wall instability. Left: Lizard and East Block. Right: slumping of northeast wall below the ramp.	30
Inset 18:	Location and structural representation of Southern Pit east wall instabilities developed and managed during open pit mining.	32
Inset 19:	IM7 West Wall - 12-month time history prism monitoring data for longitudinal displacement.	34
Inset 20:	Longitudinal profile along the Macraes Road slope displacement profile relative to underlying ground conditions.	35
Inset 21:	Left: IDS slope radar plot highlighting block displacements - bound by Innes Mills, Dozer and Holiday Faults (1) MFZ (2). Right: Plan view of IM8 east wall illustrating extent of tension cracking (purple) within pit crest to the north of the MFZ.	36
Inset 22:	View of IM8 east wall. 430 mRL step off highlighted in orange. The extent of the southern instability highlighted in white.	36
Inset 23:	View of north-east wall taken July 2005. Notice the depth of weathering, the prominent quartz veins, and the very good performance of the slopes in fresh rock.	38
Inset 24:	North-east wall of Stage 1 in 2005 taken from base of ramp.	38
Inset 25:	January 2009 - east wall taken from crest facing south. Berms are relatively clean.	39
Inset 26:	January 2009 – north wall. Photo taken from crest looking west. Pre-split 75° batters. Note joint bound wedges.	39
Inset 27:	Schematic section of geotechnical model and failure mechanisms at Macraes.	41
Inset 28:	Coronation North southwest wall under static conditions summarising the mitigation in failure path due to the development of CNBF3 and lake filling.	45
Inset 29:	Maximum shear strain at the end of Phase 3, Option 3 along section IM_OPE_Section 7. Displacement is bound by the FF.	47
Inset 30:	Fault intersections with the potential to form wedge failure in the north-east wall of CN6 (similar location to Lizard Block).	55
Inset 31:	Extent of IM13 west wall (pink) included in consent application west of CCP2 boundary.	57
Inset 32:	Offset distance for Stage 1 and 2 realignments of Macraes-Dunback and Golden Bar Roads relative to IM12 pit crest.	58
Inset 33:	Plan of GB3 crest illustrating offset to Golden Bar Road and modelled Fault B with a dip of 70° towards the west.	60

List of Figures

- Figure 1: Coronation North Cross Section Location Plan
- Figure 2: Coronation Cross Section Location Plan
- Figure 3: Innes Mills Cross Section Location Plan
- Figure 4: Innes Mills In-Pit Backfills and Cross Section Location Plan
- Figure 5: Golden Bar Cross Section Location Plan

List of Appendices

- Appendix A OGNZL Data Summary
- Appendix B Coronation North Limited Equilibrium Outputs
- Appendix C Coronation Limited Equilibrium Outputs
- Appendix D Innes Mills Limited Equilibrium Outputs
- Appendix E Golden Bar Limited Equilibrium Outputs

This document has been produced for New Zealand consenting purposes only. Information contained herein must not be relied on for investment purposes.

List of Abbreviations

Abbreviation	Description	Abbreviation	Description
AEE	Assessment of Environmental Effects	IMBF1	Innes Mills Backfill 1
AEP	Annual Exceedance Probability	IMBF2	Innes Mills Backfill 2
BFA	Batter Face Angle	IMBF3	Innes Mills Backfill 3
BRWRS	Back Road Waste Rock Stack	IMBE	Innes Mills Backfill Embankment
CCP2	Continuity Consents Project Stage 2	IRA	Inter Ramp Angle
CO6	Coronation Stage 6	LE	Limited Equilibrium
CO7	Coronation Stage 7	LOM	Life of Mine
CO8	Coronation Stage 8	mbgl	Meters Below Ground Level
DCC	Dunedin City Council	MDE	Maximum Design Earthquake
FF	Footwall Fault	MEEA	Murphys Ecological Enhancement Area
FoS	Factor of Safety	MFZ	Macraes Fault Zone
FRBF	Frasers Backfill Embankment	MGPG	Macraes Gold Project Grid
FRIM	Frasers-Innes Mills Open Pit	MWMS	Macraes Mine Water Management System
FTAA	Fast Track Approvals Act 2024	MP4	Macraes Phase Four Project
FWWRS	Frasers West Waste Rock Stack	MTI	Mixed Tailings Impoundment
GB1	Golden Bar Stage 1	Mt	Million Tonnes
GB2	Golden Bar Stage 2	NZTM	New Zealand Transverse Mercator 2000
GB3	Golden Bar Stage 3	OBE	Operational Basis Earthquake
GPUG	Golden Point Underground mine	OGNZL	OceanaGold New Zealand Limited
GSI	Geological Strength Index	PGA	Peak Ground Acceleration
HMSZ	Hyde-Macraes Shear Zone	RL	Reduced Level
HWS	Hanging Wall Shear	SPBF	Southern Pit Backfill
IMOP	Innes Mills Open Pit	SP10	Southern Pit Option 10 Tailings Storage Facility
IM7	Innes Mills Stage 7	SP11	Southern Pit Option 11A Tailings Storage Facility
IM8	Innes Mills Stage 8	TARP	Trigger Action Response Plan
IM10	Innes Mills Stage 10	TSF	Tailings Storage Facility
IM11	Innes Mills Stage 11	VWP	Vibrating Wire Piezometer
IM12	Innes Mills Stage 12	WDC	Waitaki District Council
IM13	Innes Mills Stage 13	WRS	Waste Rock Stack

1. Introduction

OceanaGold (New Zealand) Limited (OGNZL) currently undertakes open pit and underground gold mining operations at the Macraes Operation located at Golden Point Road, Macraes Flat, East Otago. As part of their ongoing operations, OGNZL continually review the remaining life of the Macraes Operation in light of updated knowledge of the gold resource and the economics of mining.

Reflecting recent exploration success and optimisation work, together with higher gold prices, the Macraes Phase Four Project (MP4 or the Project) seeks to extend the life of mining at the Macraes Operation until at least 2039. The Project, which will enable ongoing gold production at a rate of approximately 130,000 ounces per annum, is identified as a Listed Project in Schedule 2 of the Fast-track Approvals Act 2024 (FTAA) as a project providing significant national or regional benefits.

To support the development of the substantive application for the Project, OGNZL has engaged PSM to provide an assessment of the Project's effects on geotechnical aspects of the proposed Open Pit Extensions (OPE) and, to the extent required, identify any necessary management and operation measures to address any such effects.

1.1 Project Scope

This report documents the site geotechnical model and assesses global stability of proposed pit shells. The objective is to ensure end-of-mine life and long term (post closure) stability including potential interactions with in-pit backfills, ex-pit waste rock stacks (WRS), public roads and nominated consent boundaries for the following deposits:

- Coronation North Stage 6
- Coronation Stages 6 to 8
- Innes Mills Stages 11 to 13; and
- Golden Bar Stages 2 and 3.

Specific details of our scope are summarised as follows:

- Refine existing geotechnical models for each mining area based on:
 - Available data, including borehole logs, geomechanical testing, facing mapping, existing slope performance and survey monitoring (deformation and settlement);
 - OGNZL geological model;
 - Modelled fault structures based on historical mapping and drillholes;
 - PSM's previous experience including:
 - o Slope performance of previous cutbacks at each site and waste rock stacks; and
 - o Back analyses of geotechnical parameters for rock mass and fault shear strengths.
 - Groundwater level and pore pressure estimates, and field observations provided by OGNZL personnel.
- Inter-ramp stability analysis based on a review of kinematic failure mechanisms followed by a statistical probability of undercutting analysis on relevant aspects of each proposed pit shell;
- Completion of geotechnical stability modelling including:
 - Two-dimensional (2D) limit equilibrium (LE) stability analyses along critical sections of the proposed final pit shells and in-pit backfill slopes, with the focus on end-of-mine-life and long-term (post closure) stability including pit lake filling where appropriate for both static and dynamic (seismic) scenarios; and
 - Three-dimensional (3D) numerical modelling uses a "distinct element method" to represent the rock mass as an assemblage of discrete blocks separated by discontinuities. This approach allows for realistic simulation of block interactions, joint movements, and failure mechanisms under various loading and boundary conditions.
- Document assessment findings for inclusion in the Assessment of Environmental Effects (AEE) to support Resource Consent and Wildlife Permit applications for the wider MP4 Project. This also includes provision for ongoing site investigations and verification requirements, design modifications and management strategies to account for geotechnical variability while minimising the potential for adverse effects that may be encountered during mining.

As part of a broader FTAA study, PSM has completed geotechnical assessments for associated site elements which are captured under separate covers:

- Golden Point Underground Mine Subsidence Assessment – PSM71-373R;
- Ex-pit Waste Rock Stack Geotechnical Assessment – PSM71-375R; and
- Open Pit Stability Assessment for Frasers TSF Stage 3 – PSM71-376R.

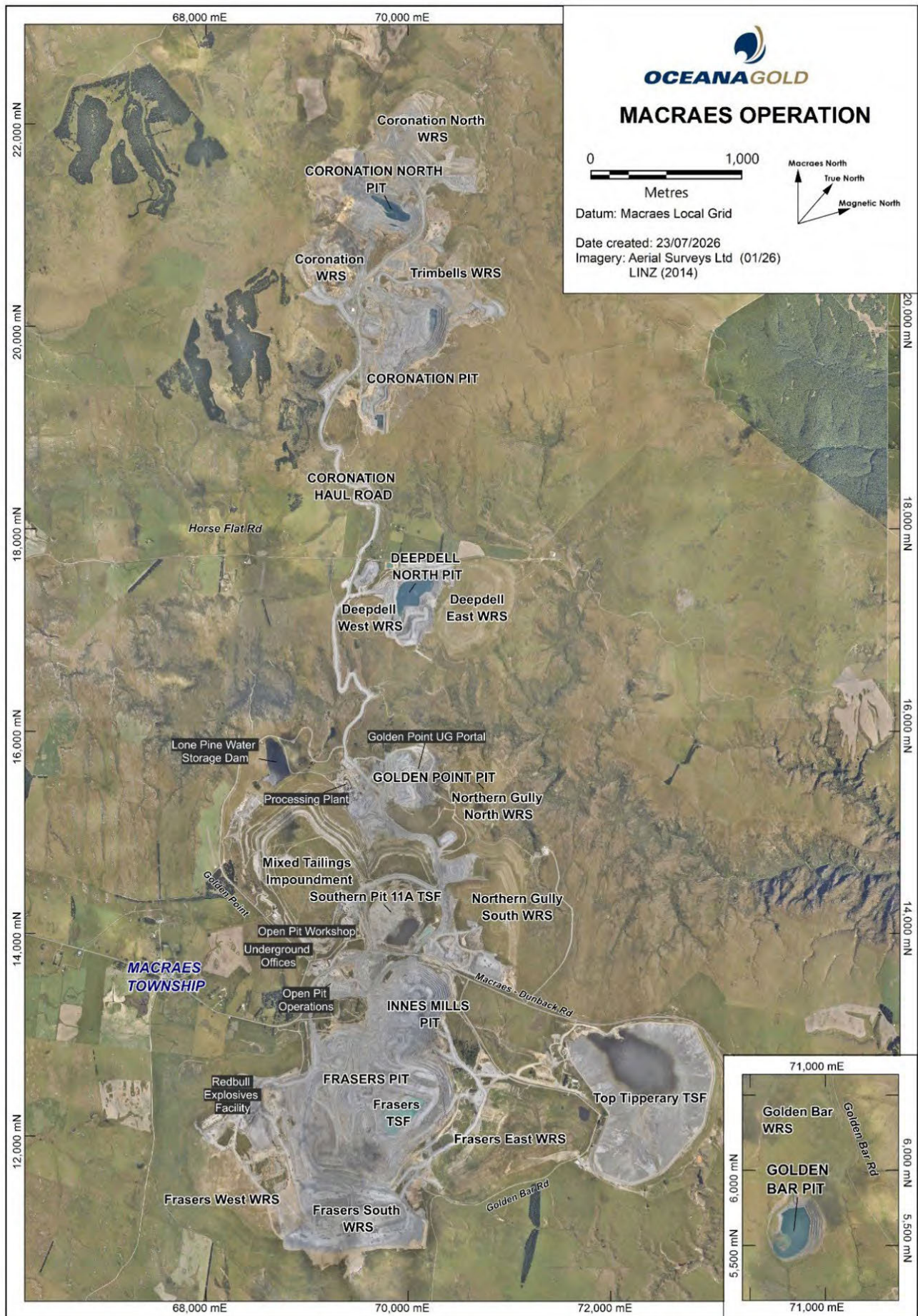
1.2 Site Location and Description

OGNZL owns and operates the Macraes Operation at Macraes Flat, approximately 30 km northwest of Palmerston in the Otago Region. The Macraes Operation is the largest gold mine in New Zealand and, since commissioning in 1990, has produced more than 6 million ounces of gold.

Macraes Flat is situated on an elevated plateau at approximately 500 m above sea level. The plateau is flanked by the Taieri Ridge to the northwest, Shag Valley and Horse Range to the east, and the coastal hills and extinct volcanic cones of Palmerston and Waikouaiti to the southeast. Macraes Road provides access to Macraes Flat and the Macraes Operation, connecting to State Highway 85 to the east and State Highway 87 (SH87, the Middlemarch–Hyde Road) to the west.

The environment within and surrounding the Macraes Operation has been shaped by historic and current mining activities. Inset 1 shows the arrangement of the major mine features at the Macraes Operation. In summary, the current components of the Macraes Operation include:

- Numerous open pits (both operational and non-operational);
- Two underground mines (Frasers, now closed, and Golden Point, which is actively mined);
- Waste rock stacks at various stages of operation and rehabilitation;
- A network of haul roads and general mine service tracks;
- A Processing Plant;
- Five tailings storage facilities (three inactive, one active but nearing capacity, and one under construction and currently receiving tailings);
- An extensive network of water management infrastructure, including diversion drains, silt ponds, sumps, pit lakes, and freshwater storage reservoirs;
- Two consented but not yet constructed water storage reservoirs (Camp Creek Dam and Coal Creek Dam); and
- Associated infrastructure supporting ongoing operations, including district roads, powerlines, workshops, offices, and associated water and amenity facilities.



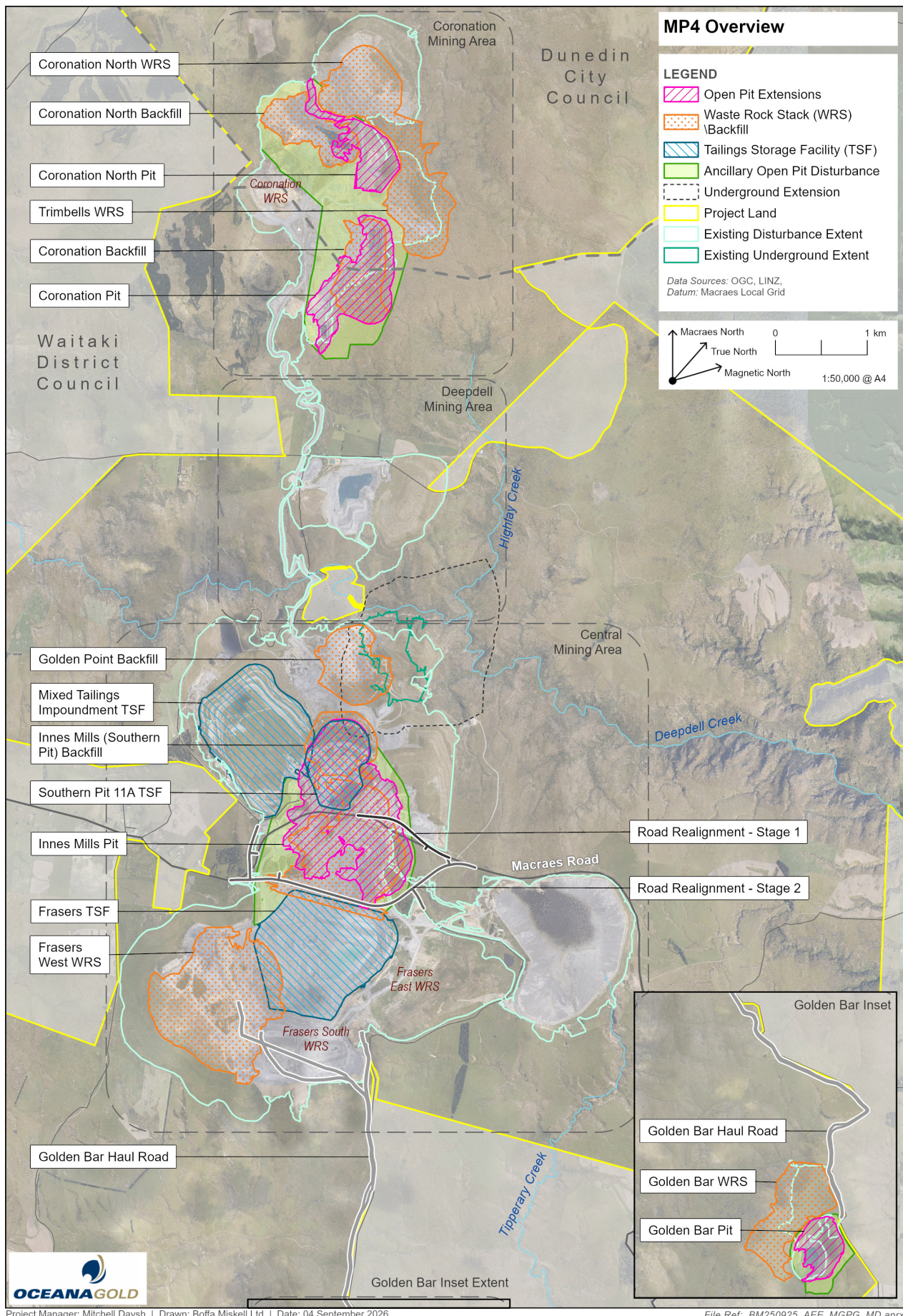
Inset 1: Existing site layout of the Macraes Operation (July 2026).

1.3 Project Overview

The Project is made up of the following proposed key activities:

- Open pit extensions at Coronation, Coronation North, Innes Mills, and Golden Bar.
- Underground mine expansion through further development of the Golden Point Underground mine (GPUG).
- Tailings management, including:
 - Construction of the Frasers Tailings Storage Facility (FTSF) Stage 3 to accommodate a total tailings storage of up to 153 Mt; and
 - Hydraulic mining and relocation of tailings from the Mixed Tailings Impoundment (MTI), Southern Pit Option 10 TSF (SP10), and Southern Pit Option 11A TSF (SP11) to FTSF.
- Waste rock disposal, including increased storage capacity within open pits and at existing waste rock stacks at Coronation, Coronation North, Innes Mills, Golden Bar, Golden Point, and Frasers.
- Water management infrastructure and operations, including:
 - Construction of Camp Creek and Coal Creek water storage dams for flow and water quality management;
 - Construction, operation and maintenance of a Water Treatment Plant; and
 - Ongoing operation and maintenance of the Mine Water Management System (MWMS).
- Infrastructure and roading works, including:
 - Realignment of Macraes Road in two stages; and
 - Relocation of the Open Pit Mining Workshop.
- Ecological enhancements, including establishment of:
 - Murphys Ecological Enhancement Area (MEEA) near Murphys Creek, including predator fencing, access tracks, and site facilities;
 - Mt Highlay restoration area;
 - Cranky Jims Link shrubland enhancement area;
 - Murphys Link tussock protection area; and
 - Additional offset and compensation measures for residual ecological impacts.
- Mine closure and rehabilitation activities, including rehabilitation of mining landforms, creation of pit lakes, dry capping of tailings storage facilities, and revegetation in accordance with closure objectives.

An overview of the proposed activities which make up the Project is shown Inset 2 below.



Inset 2: MP4 Overview Plan

1.4 Project Datum

The following datums are used for all work undertaken as part of this assessment:

- Horizontal datum: Macraes Gold Project Grid (MGPG) which is rotated approximately 45° west of true north
- The magnetic declination at Macraes (45.38°S, 170.43°E) is approximately +25° east of True North; and
- Elevation is shown as metres RL per NZ vertical datum (NZVD) (2016).

1.5 Data

Data provided by OGNZL to inform this assessment includes the following, a detailed breakdown is provided in Appendix A.

- Current topographic surface aerial LiDAR
- Pre-mining topographic surfaces
- As mined and as-built surfaces
- Proposed pit shells
- Proposed and previously consented WRS's
- Proposed consent boundaries
- Proposed road realignments and Open Pit Workshop location
- OGNZL developed fault models; and
- Site wide diamond drillhole database.

2. Proposed Open Pit Extensions

The following sections summarise the details for the proposed MP4 open pit extensions assessed in the report. Inset 2 presents the proposed open pit boundaries and overall disturbance area for mining. The project is not being progressed in stages. Rather, all activities that comprise the MP4 project are included in this substantive application. Those activities are anticipated to occur across a period of 13 years, with OGNZL proposing to commence the MP4 project as soon as the necessary approvals are obtained

2.1 Coronation North - Stage 6

Key elements of the proposed Coronation North pit expansion are summarised below and shown in Figure 1:

- The expansion will extend 205 m to the southeast with mining to occur from Year 1 to Year 2 and then from Year 7 to Year 10
- The expansion footprint expands over predominantly tussock grassland and the existing Trimbells WRS (TWRS1)
- The proposed extension will result in an overall increase to the pit footprint of approximately 17 hectares (ha), increasing the total pit footprint to approximately 57 ha – an increase of 29%
- 35.3 Mt is expected to be mined with waste rock disposed as in-pit backfill or placed on existing surrounding WRS's
- Maximum height of southeast highwall – 235 m. This includes the upper 70 m constructed in the as-built TRWRS1
- Pit lake overflow channel at 562.5 mRL proposed towards the northwest:
 - Allows for natural drainage into surrounding tributaries
 - Designed to keep maximum pit lake level below the base of surrounding WRS's; and
 - Channel separates Coronation North WRS 2 (CNWRS2) and Coronation Backfill 2 (CNBF2).
- Minimum offset of 35 m to the Footwall Fault (FF) at the pit floor
- In-pit backfills:
 - CNBF2 – backfill of the western area of currently mined-out pit, maximum height of 670 mRL; and
 - CNBF3 – backfill of the western mined out CN5 pit to absorb re-handled waste from the drainage channel area. Adds buttress support to CN6 northeast wall at closure.

- Proposed Trimbells WRS extension (TWRS2) to 740 mRL adjacent to southeast wall.

2.2 Coronation - Stages 6 to 8

Key elements of the proposed Coronation pit expansion are summarised below and shown in Figure 2:

- The expansion will extend 560 m to the southeast with mining to occur from Year 2 to Year 6;
- The expansion footprint expands over predominantly tussock land;
- The proposed extension will result in an overall increase to the pit footprint of approximately 40 ha, increasing the total pit footprint to approximately 125 ha – an increase of 32%;
- 112.9 Mt is expected to be mined with waste rock disposed as in-pit backfill or placed on existing surrounding WRS's;
- Maximum height of eastern highwall – 165 m;
- Pit lake overflow channel at 625 mRL towards the southwest:
 - Allows for natural drainage into Deepdell Creek;
 - Design to keep pit lake level below the base of surrounding WRS's; and
 - Channel is adjacent to COBF1 western slope.
- Minimum offset of 55 m to the FF at the pit floor;
- In-pit backfills:
 - COBF1 – Backfill at southeastern area of mined-out CO6 and CO7 pits, designed to allow in-pit water to flow south once CO8 is mined-out ;
 - COBF2 – Backfill up to 605 mRL of mined out CO8 pit for CN6 waste; and
 - COBF3 – Backfill up to 710 mRL of mined out CO8 pit for CN6 waste.
- Proposed Trimbells extension to 740 m adjacent the northern end of CO8.

2.3 Innes Mills - Stages 11 to 13

Key elements of the proposed Innes Mills open pit (IMOP) expansion are summarised below and shown in Figures 3 and 4:

- The expansion will extend IMOP north, east and west into the Southern Pit area resulting in a north-south strike length of 1.35 km, spanning from the SP11 embankment in the north to FRBF in the south;
- The proposed extension will result in an overall increase to the pit footprint of approximately 119 ha increasing the total pit footprint to approximately 192 ha – an increase of 63%;
- The key activities required to facilitate the full mining of IM13 are as follows:
 - Relocation of tailings from SP11 and MTI from Year 6 to Year 12:
 - o Mining of SP11 tailings – approximately 26 Mt of tailings to be mined and disposed in FTSF;
 - o Mining of the MTI upstream embankment lifts down to 515 mRL and tailings to 512 mRL adjacent to IMOP;
 - Rerouting of powerlines and pipelines;
 - Relocation of the Open Pit Workshop;
 - Two realignments of Macraes Road:
 - i. Make way for IM12 expansion by moving road east of the bridge by approximately 160 m to the north; and
 - ii. Make way for the IM13 and will include a total diversion of the road to the south over the FTSF embankment.
- Maximum height of eastern highwall – 300 m;
- Minimum offset to the FF at pit floor – 45 m;
- Pit overflow channel in the north at 473 mRL;
- Waste is to be placed primarily on proposed extension of Frasers West WRS (FRWRS2);

- In-pit backfills:
 - IMBF1 – becomes the upstream side of FTSTF embankment with maximum height of 520 mRL;
 - IMBF2 – backfill from mining the southern end of IM13 placed in the northern SP11 void to help stabilise the MTI embankment during mining; and
 - IMBF3 – Southern end backfill buttressing IM13 west wall. Embankment material coming from the remined upstream lifts of the MTI and rehandled from IMBF2 to allow for mining of northern IM13.
- Maximum pit lake level for closure to 473 mRL.

2.4 Golden Bar - Stages 2 and 3

Key elements of the proposed Golden Bar pit expansion are summarised below and shown in Figure 4:

- The extension consists of an approximate 340 m expansion to the east and northeast over two stages, GB2 and GB3, mining from Year 2 to Year 6;
- Maximum height of eastern highwall – 165 m;
- The proposed extension will result in an overall increase to the pit footprint of approximately 15.2 ha, increasing the total pit footprint to approximately 29.2 ha – an increase of 109%;
- GB3 northeast wall crest will be within 50 m of Golden Bar Road;
- 34.8 Mt is expected to be mined with waste rock disposed on proposed Golden Bar WRS extension (GBWRS2), which extends to the northwest of the proposed open pit; and
- Ore will be stockpiled adjacent to the WRS and hauled to the processing plant utilising the previously used private haul road developed during the mining of GB1.

3. Geotechnical Model

The following section describes the geotechnical model adopted in this assessment. The model is based on existing site investigations, site visit observations, and PSM's experience working at Macraes since 1993. The section is sub-divided into:

- A broad overview of the regional geology;
- Summary of the local structural geology model including the site scale FF;
- Local rock mass models and parameters for the following mining areas:
 - Coronation and Innes Mills; and
 - Golden Bar.
- Groundwater condition.

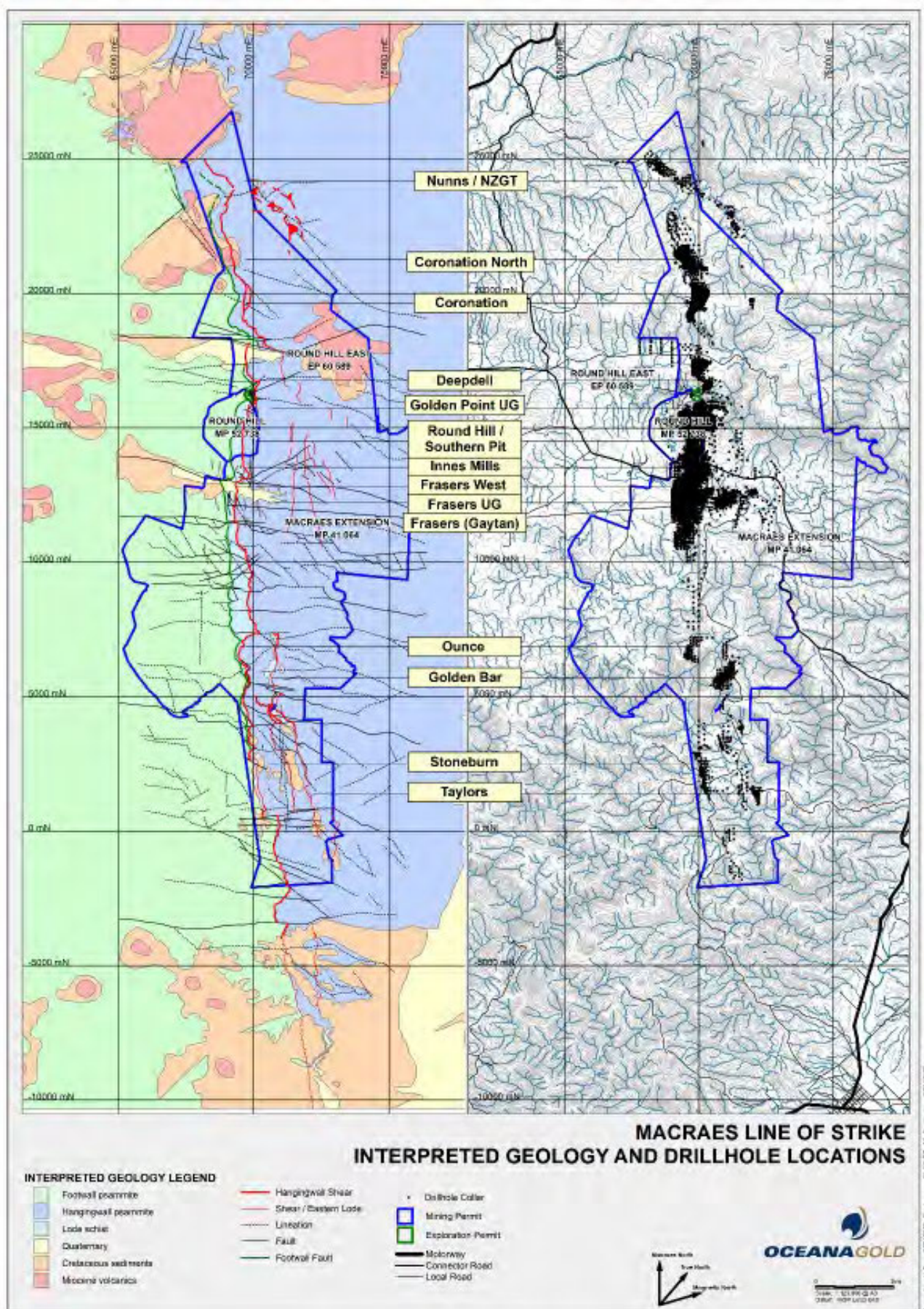
3.1 Geology

3.1.1 Regional

The Macraes Flat area is within the extensively deformed and moderately metamorphosed Otago-Haast Schist Belt. The schist comprises a sequence of gradational psammitic and pelitic lithologies derived by metamorphism of Mesozoic aged sandstone and mudstone. The rocks are strongly foliated and depending on the origins are either light grey, quartz rich and laminated (psammite) or dark grey to green, micaceous, and finely laminated (< 5 mm thick) (pelite).

Mineralisation occurs within the north-south trending Hyde-Macraes Shear Zone (HMSZ) which has a lateral strike length of at over 40 km. Mineralisation within the HMSZ is hosted within lower greenschist facies metamorphosed, pelitic to psammitic sediments that are variably altered, deformed, and mineralized. This package of schist, known as the Intra-shear Schist, is bounded above by the Hanging Wall Shear (HWS), and below by the FF, and can be up to 150 m thick. Its tectonic displacement has been inferred to be hundreds of metres. The strain associated with tectonic displacement was probably concentrated within the intra-shear pelite due to its finer grained composition compared to the coarse-grained psammite above and below the HMSZ. The structural geology of the area is dominated by two main orthogonal fault sets, striking to the north and east.

The Shear Zone dips gently to the east from Stoneburn in the south to Coronation in the north but displays a broad bend at Nunns, turning to dip to the northeast, Inset 3.



Inset 3: Plan of the Macraes Operation showing various pits and deposits and the HMSZ (Reference 2).

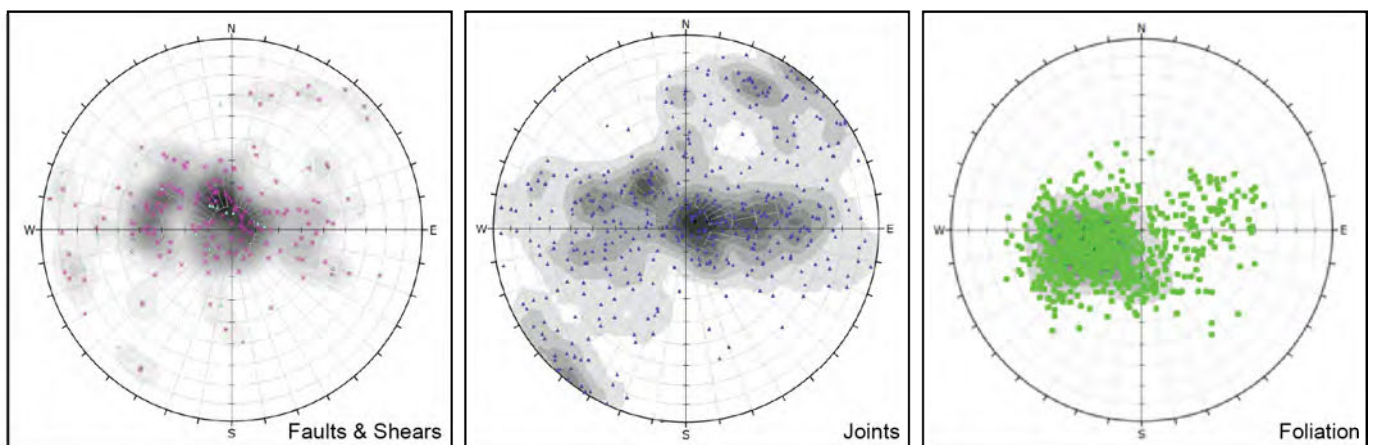
3.2 Geological Structure

The typical geological structural model at the Macraes Operation is summarised below with a stereographic representation presented in Inset 4:

- Foliation showing a broad range of dips from flat to moderately dipping towards the east (average 15 to 45/100°). The set parallels the FF and HWS;
- Mine and regional scale faults dip moderately to steeply towards the east. These faults are often infilled with clay or breccia to 100 mm thick. This fault set includes both the “Northern Gully” and “Boomgate” faults;
- Batter and mine scale faults and shears present a broad range of dips from flat to moderately dipping towards the west.
 - This fault set includes the shallow dipping “Ramp Shears” which in combination with the FF, control block type failures on the west wall; and
 - Discontinuities of this orientation typically control highway stability when they are located behind the slope and dip sub-parallel to the inter-ramp angle. These faults occasionally daylight in the slope or near the toe driving planar sliding into the pit.
- Less dominant joints and faults dip moderately to steeply towards the north and south. These faults include the Contractors and Workshop Faults and have the potential to impact north and south pit walls;
- Joints are either:
 - Flat to steeply dipping towards the west with a conjugate set dipping towards the east;
 - Moderately to steeply dipping to the north-east with a conjugate set dipping to the south-west; and
 - See centre stereographic projection, Inset 4.

This information is incorporated into the stability modelling as follows:

- Faults (mine to regional scale) are included in the models based on the location and orientation of individual faults included in fault models developed by OGNZL, refer to Section 3.2.1 for further discussion.



Inset 4: Stereographs illustrating the typical geological structure trends at Macraes.

3.2.1 Geological Faults

As part of this assessment, PSM reviewed the potential stability impacts due to known and inferred geological faults within the slopes of each open pit. Fault traces were incorporated into stability models to assess whether their presence may affect the global stability. Details of the modelled inclusions are as follows:

- Fault traces adopt locations and orientations as identified and interpreted from OGNZL;
- The typical fault geometry is modelled as a 0.5 m wide zone of fault material with a 5 m wide halo of Class C material above and below; and
- Where the FF is present, a 0.5 m wide basal zone of low strength faulted material is inferred with a 5 m wide zone of Class C above.

3.2.1.1 Footwall Fault

The FF is a north-south trending regional scale fault typically dipping between 10° and 20° towards the east and delineates the base of the mineralised zone at the Macraes Operation. Geological studies completed in the late 1990s highlight the Deepdell Creek landforms as an ancient landslide with the FF as its basal plane. This provided precedent for slope movement along the FF predating mining activity.

All mining across the Macraes Operation occurs down dip of the FF, except for Golden Bar open pit, and each pit has experienced varying level of west wall deformation relative to pit size, depth and final offset to the FF. Displacement is directly related to scale of active mining at the toe and has been managed successfully for 30 years through monitoring and operational controls.

The condition of the sliding surface, Inset 5, results in a very low friction angle, creating a highly sensitive structure that responds to small changes in pore pressure and loading. The FF is expected to control west wall stability of all open pits in the Coronation and Innes Mills mining areas.



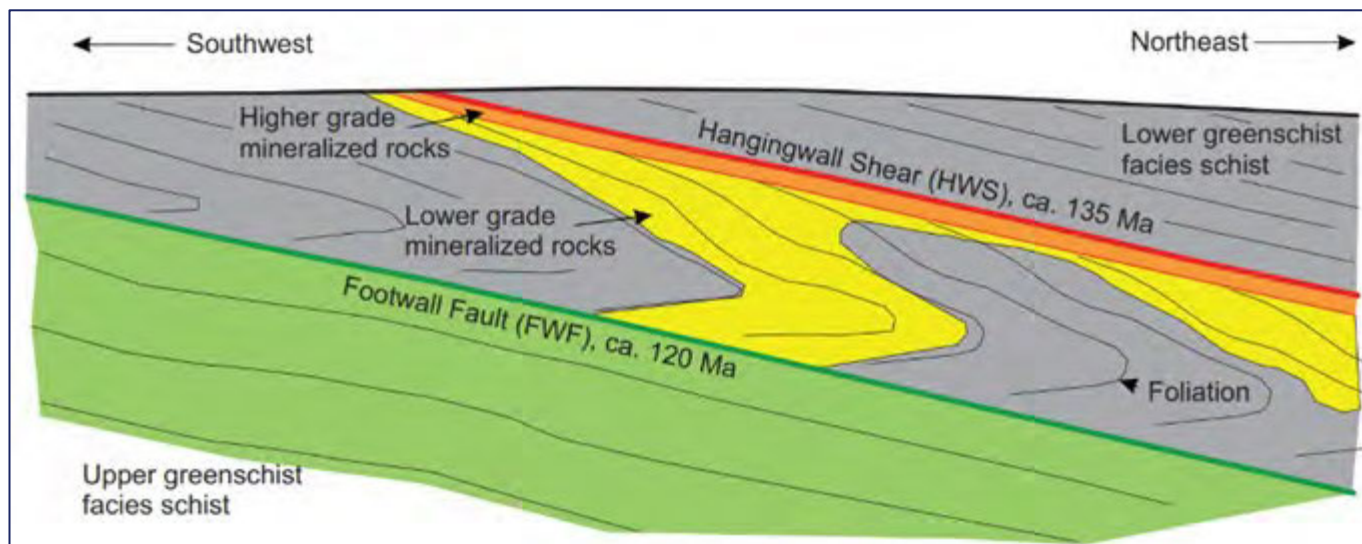
Inset 5: Example of the FF surface condition as exposed in the upper Frasers West headscarp. The sliding surface is described as slickensided and undulous, comprising high plasticity moist firm clay.

3.3 Rock Mass Model

3.3.1 General

The rock mass conditions for the proposed cutbacks are expected to align with those typically exposed at Macraes and are summarised as follows:

- Historic pit backfills and ex-pit waste rock stacks (where present) typically comprise loosely to moderately compacted, well-graded rock fill;
- The surficial portion of the in-situ schist rock displays a weathering profile up to 30 m deep and could be expected to be locally shallower around gully drainage lines due to incision and downcutting;
- The highly foliated schist rock mass is dominated by semi-psammite with small amounts of psammite and semi-pelite schist;
- The schist surrounding faults and shears is fractured to fragmented with frequent shearing. Generally, very poor to poor quality with low to medium intact strength (Class C);
- The mainly pelitic schist within the HMSZ is of fair to good quality with low to medium intact strength and hosts the targeted mineralisation, Inset 6;
- The semi-psammitic schist 10 to 50 m above the HWS, is of fair to good quality with medium to high intact strength (Class B); and
- The psammitic schist below the FF is good to very good quality with medium to high intact strength (Class A).



Inset 6: Schematic cross-section through the deposit showing the position of high- and low-grade mineralisation relative to the FF and HWS (Reference 3).

3.3.2 Deposit Specific Observations

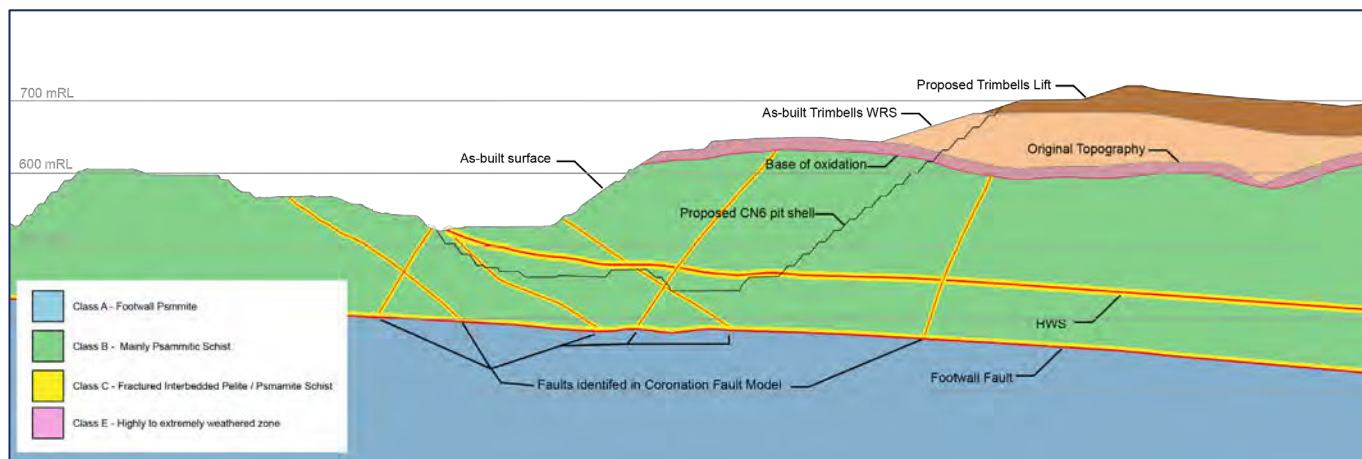
3.3.2.1 Coronation and Innes Mills Mining Area

Review of slope performance and localised drillhole data for Coronation Stage 6 and Innes Mills Stage 9 to 10 confirm exposure of typical rock mass characteristics presented in Table 1. A schematic representation of typical rock mass distribution is shown in Inset 7.

Table 1 – Summary of Rock Mass Classes within the Macraes Operation

Class	Rock Mass	Description	Estimated Rock Strength	RQD	Typical Occurrence
A	Footwall Psammite	Lithified rock with frequent defects and rare shearing	Medium to high	Good: 75 – 90%	Below FF
B	Hanging Wall - Mainly Psammitic Schist	Fractured rock with frequent defects and some shearing	Low to high	Fair: 60 – 70%	Above HWS
C	Fractured Pelite/Psammite schist	Fractured to fragmented rock with frequent shearing	Low to medium	Poor to fair: 40 – 60% with zones of very poor: 0 – 10%	Halo up to 5 m wide associated with regional faults
D	Fault Zones	Fault Zones	Extremely low to very low	Very poor: <15%	Include FF and zone of poor rock mass above
E	Weathered Schist	High to extremely weathered zone	Extremely low to soil	Very poor: 10 – 20%	Ranges between 30 – 70 m below surface

Based on the intensity of major faults and shears within the shear zone of Innes Mills, an additional rock mass was developed bound by the HWS and FF called the “Ramp Shear Zone”. To capture the uncertainty regarding the position of potential ramp shears, an anisotropic function was adopted. The rock mass component of the function adopts a Mohr-Coulomb shear strength based on the Class C Generalised Hoek-Brown parameters equivalent to a normal stress of about 500 kPa. The anisotropic material replaces Class’s B and C between these two major structures.



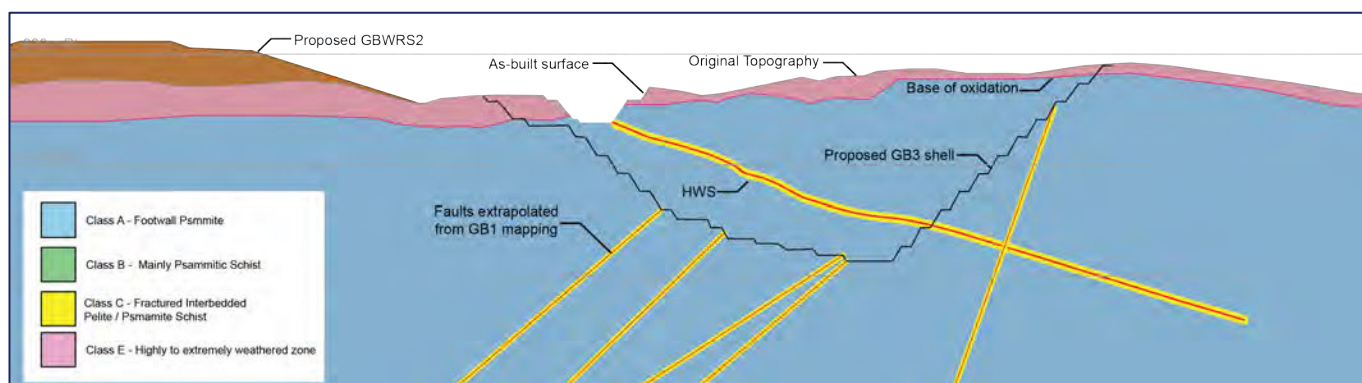
Inset 7: Schematic cross section through typical rock mass at Coronation North facing north.

3.3.2.2 Golden Bar

The Golden Bar pit targets the Eastern Lode ore zone which is positioned approximately 400 m stratigraphically above the FF and mainly a psammite rock mass. Site investigation beyond the pit extents is limited to drilling completed prior to mining of Golden Bar Stage 1 (GB1), which targeted the HWS. Experience from previous mining at Golden Bar suggests that the rock mass is good quality with favourable as-built slope performance. This is reflected in the geotechnical model for the pit as equivalent to a “Class A” rock mass (refer Table 1), as illustrated in Inset 8.

The general rock mass observed after mining of Stage 1 is summarised below and is expected to continue east based on outcrops of psammite in the area:

- Rock mass is typically more massive with a higher intact strength than encountered in other pits constituting an upper bound GSI classification relative to other Class B rock mass at Macraes;
- Large quartz veins are prominent along the wall;
- Foliation dips shallowly toward the southeast averaging 20/125°;
- Jointing is well defined, steeply dipping to the northeast and southwest; and
- Weathering extends to at least 70 m below surface as evidenced by oxide staining along the joints.



Inset 8: Schematic cross section through typical rock mass at Golden Bar facing north.

3.4 Design Parameters

3.4.1 Rock Mass

The adopted Hoek-Brown rock mass strength parameters given in Table 2 have been used for slope stability analysis. The mean values are based on geotechnical logging, geomechanical lab testing, and PSM's vast experience of multiple pit designs and slope behaviour observations at the Macraes Operation over the past 30 years.

The GSI / Hoek-Brown methodology is empirically derived and requires:

1. An evaluation of the intact strength (UCS) - Intact strength is typically anisotropic due to influence of foliation, as highlighted by a large database of point load testing results. Laboratory UCS testing results have been used to calibrate a large suite of intact rock estimates from exploration and geotechnical logging across the mine site.
2. An assessment of GSI; and
3. An empirical constant (m_i) which is taken from engineering experience.

Table 2 – Material Strength Parameters

Class	Unit Weight (kN/m ³)	Generalised Hoek-Brown Parameters		
		UCS (MPa)	GSI	m_i
Class A	27	40	65	12
Class B	27	40	55	12
Class C	27	35	45	12

3.4.2 Defect Shear Strengths

The following defect shear strengths have been adopted for design:

- Cohesion, $c' = 0$ and friction angle, $\phi' = 9^\circ$ for the FF;
- For major faults, like those included in the OGNZL fault models, which comprise thick structures mixed with rock fragments, rock flour and puggy clay zones, $c' = 50$ kPa and $\phi' = 20^\circ$;
- $c' = 0$ and $\phi' = 30^\circ$ for foliation; and
- $c' = 0$ and $\phi' = 40^\circ$ for joints.

The adopted defect shear strengths are consistent with those used in previous design and back-analysis work completed by PSM at Macraes.

3.5 Groundwater – Pit Slope Interactions

The interaction and influence of groundwater at Macraes is well understood in relation to slope instabilities. Slope failures at batter and inter-ramp scale have typically occurred following periods of heavy or sustained rainfall. As part of the MP4 study, specific groundwater modelling is being completed by GHD.

The estimated groundwater surface is based on demonstrated experience at Macraes where horizontal drains intercepted groundwater high in the slope profile and passive depressurisation at the face. Therefore, the groundwater surface during mining is assumed to be close to the surface, i.e., 5 m back from the face and 5 m from the ground surface to simulate adverse groundwater conditions.

A series of Vibrating Wire Piezometers (VWP) installed within the east wall of Innes Mill Stage 8 (IM8) informed the analytical groundwater surface developed against real-time mining. This surface is approximately 50 m behind the face.

At the completion of mining, groundwater levels will gradually rebound to reflect their equilibrium state. OGNZL's proposed closure configuration includes drainage channels in Coronation North, Coronation and Innes Mills pits to maintain maximum pit lake levels below the base of adjacent ex-pit WRS.

3.5.1 Climate Change

The implications of climate change to long-term slope stability have been raised as a potential risk item as part of the wider project review. This particularly relates to high intensity rain events and a sudden increase in water levels in cut and fill slopes. To address these risks as part of the analytical design cases the following points are noted:

- The character of the WRS and in-pit backfill material is typically coarse, granular and highly permeable. Rainfall will be dissipated relatively quickly, leaving minimum accumulation of internal pore pressure that may affect global stability.
- Multiple groundwater scenarios have been adopted for the current stability analysis (as outlined above) covering a range of pit wall conditions (including filling of final pit lakes).

4. Slope Design Precedent and Performance

The slope designs at Coronation North, Coronation, Golden Bar and Innes Mills have evolved with each cutback and review of real-time slope performance and monitoring data. General slope performance observations can be summarised as follows:

- Large faults and associated elevated groundwater pressures typically govern stability at bench, inter-ramp and overall slope scale of the open pits at Macraes;
- The western footwall slopes of some pits have a history of creep and deformation resulting from down dip sliding along the FF towards the active mining area. Creep typically begins once a slope is greater than 60 m high and changes in displacement rates depend on:
 - Offset distance from pit floor to the FF, including presence of potential “ramp structures” dipping back into the slope that can promote floor heave;
 - Weight of overburden rock mass acting on the FF;
 - Strike length exposure; and
 - Mining rate at the toe of the slope.
- The stability of eastern highwalls is generally controlled by moderately to steeply dipping faults towards the west;
- The northern and southern highwalls are generally the best performing pit slopes unless they are locally affected by large east-west trending faults; and
- High groundwater pressures impact slope stability of the eastern and western walls. Horizontal drains have been successfully used to reduce localised groundwater pressure if they target known structures.

The following sections provide specific observations of historic performance for each of the proposed MP4 pit extensions and the forward application of geotechnical learnings where applicable. While the proposed MP4 pits do not extend westward, historic performance of footwall slopes has been included to highlight the influence of the FF as offset from this shallow dipping structure often drives design to the east.

4.1 Coronation

4.1.1 Pit Design and Slope Performance

Coronation pit was mined between 2013 and mid-2020 in a series of five cutbacks, reaching a depth of 135 m with the pit floor at 555 mRL with a FF offset of 25 m.

Following a site wide initiative to reduce waste rock volumes, a general slope design recommendation was made in the 2012 Life of Mine (LOM) study to increase batter height to 22.5 m and berm width to 11.25 m, allowing the recommended inter-ramp angles to remain unchanged. This revised geometry was adopted in most areas of Coronation Stages 1, 2 and 3 design.

During mining of Stage 1, continuous north-south trending, westerly dipping faults caused cracking along the eastern highwall crest and bench scale failures as shown in Inset 9. It was recommended that these structures be mapped and projected for further cutback designs to better orientate the wall.

The performance of the Stage 2 eastern wall was reviewed in July 2017. A ‘nose’ oriented towards 270° at approximately 19,700 mN south of the ‘fish bowl’ performed poorly with 22.5 m batters due to outcropping north-south trending, westerly dipping faults, Inset 10. The southern limb of the slope, south of the ‘nose’ also performed poorly in this rock mass, Inset 11.



Inset 9: South-eastern wall of Coronation Pit Stage 1, 2015. Wedge failures and cracking formed along north-south trending, westerly dipping faults.



Inset 10: Coronation Pit Stage 2 – eastern wall immediately south of the ‘fish bowl’. Westerly dipping faults can be seen outcropping at 270°.



Inset 11: Coronation Pit Stage 2 – eastern wall of the ‘southern limb’. The 22.5 m high batters have not performed well in this rock mass.

In 2015 a performance review of the 22.5 m benches was carried out. Key observations are summarised below:

- Success to achieve design is based largely on lithology and blasting techniques;
- Psammite and pelite respond differently to blasting often resulting in over-steepening in the pelite and over-hangs in the psammite;
- Blasting techniques at the time were successful in the northern wall, partially successful on the eastern wall, with mixed results along the southern wall;
- Failure to excavate to the toe design often results in loss of berm width; and
- Operational limitations were encountered relating to practicality of accessing and maintaining “triple” benches.

Following the performance review slope design geometries were subsequently revised to 15 m high benches with 7.5 m berms. This configuration has since been maintained as the baseline throughout the Macraes Operation and is incorporated in the proposed MP4 pit designs.

4.2 Coronation North

4.2.1 Pit Slope Design

Between 2016 and 2021 Coronation North has been mined in four stages. Based on the slope performance observed elsewhere on site, the design parameters presented in Table 3 were applied to all four stages.

Table 3 – Slope Design Parameters for Coronation North Stages 1 to 4

Rock Mass	Slope	BFA (°)	Bench Height (m)	Berm Width (m)	IRA (°) ⁽¹⁾
Basalt, sediments and weathered schist	All	50	15	7.5	37
Fresh schist	West and East	60	15	7.5	43
	North	70			49
	South	75			55

Notes:

(1) Inter-ramp angle measurement toe to toe

Rock mass conditions within Coronation North are unique within the wider Macraes Operation. This is due to lithological variability and localised structural deformation, thought to be associated with the adjacent volcanics, visible at surface as the “Sister Peaks”. A profile of marine sediments (greensands) and volcanoclastic material that had undergone multiple episodes of folding creating a complex geotechnical environment with instabilities on multiple walls during mining. These were encountered within mining Stages 1 to 3 but not expected to intersect subsequent pit geometries.

The proposed MP4 expansion of Coronation North Stage 6 to the east is expected to more closely reflect the typical stratigraphic profile across the remainder of the site.

4.2.2 Observed Slope Performance

Reviewing performance of the Coronation North Stage 4 (CN4) pit slopes is the most representative previous mining stage to inform the proposed Stage 6 design due to similarities in orientation, extent and scale. The following sections describe geotechnical conditions for the respective wall aspects.

4.2.2.1 Southeast Wall

The Coronation North southeast wall continues to perform well since the completion of CN4 mining. The rock mass is competent with limited large-scale structure intersected. As-built slope geometry closely resembles the design profile with remnants of some localised bench scale kinematic block sliding visible, which occurred during mining, Inset 12. OGNZL further developed the structural geology model as part of a Stage 5 geotechnical risk review which has been used to inform the assessment of the proposed Stage 6 MP4 pit geometry.



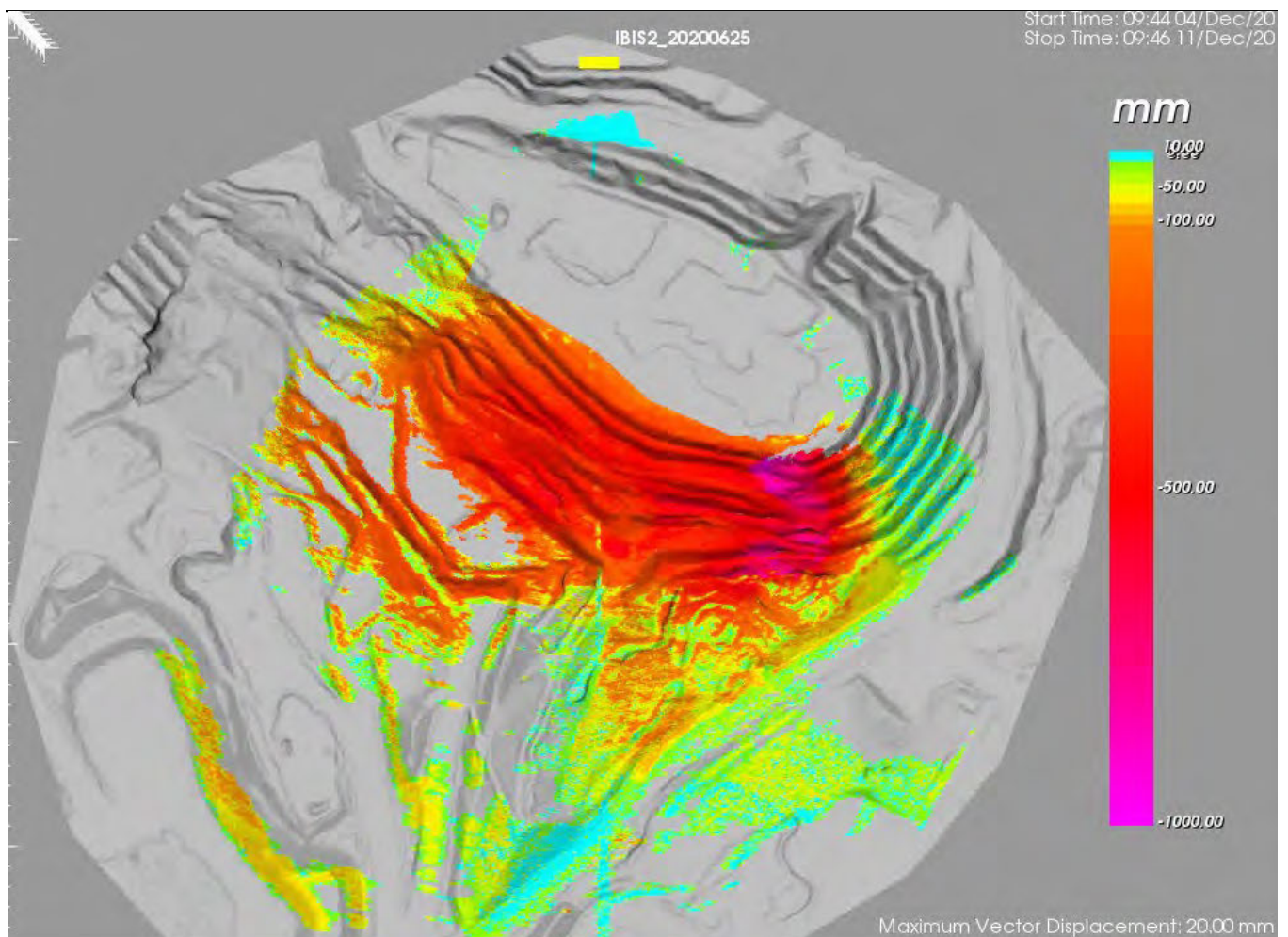
Inset 12: Condition of the Stage 4 East Wall in February 2025.

4.2.2.2 Southwest Wall

Excavation of the CN4 southwest footwall exposed a series of persistent foliation parallel shears, which are interpreted to be associated with geological emplacement. These structures dip moderate to steeply to the northeast and act to reduce the integrity of the intra-shear rock mass. When combined with basal sliding on the FF, the stability of the broader footwall slope remained marginal throughout CN4 mining, Inset 13 and Inset 14.



Inset 13: Deformed intra shear pelite rock mass within the lower southwest wall of CN4. Persistent foliation shears are variably spaced as highlighted by yellow lines. Photograph looking southwest.



Inset 14: Radar monitoring “heatmap” of the CN4 south west wall illustrating the extents of slope movements.

The following summarises the geotechnical implications of foliation parallel shearing and slope movements along the underlying FF. The final depth of CN4 was approximately 470 mRL, approximately 50 m above the FF, noted that this is a larger offset than typically achieved within the Macraes Operation. Since the completion of CN4, the footwall slope has continued to creep, totalling approximately 10 m of displacement over the last three years. Groundwater levels rebounded and a pit lake formed to 510 mRL, Inset 15.

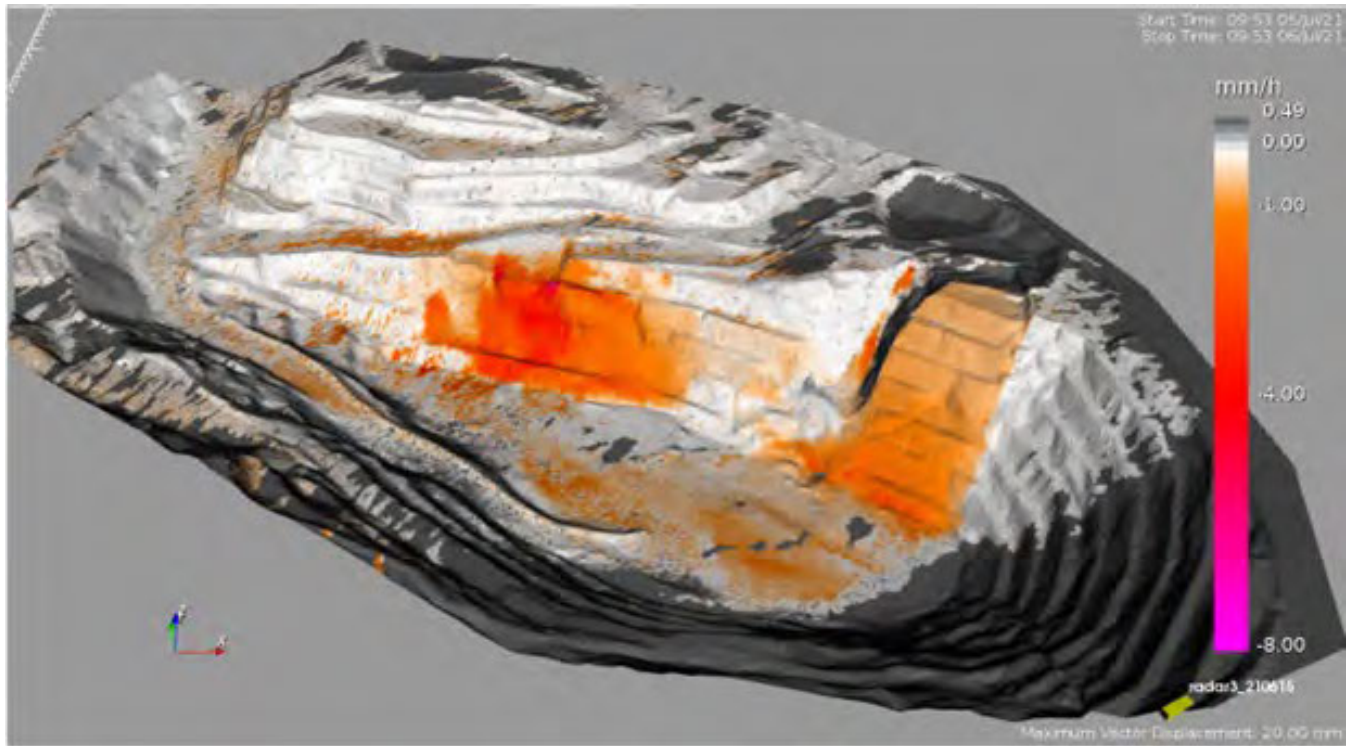


Inset 15: Current northeast / east wall conditions as of March 2026.

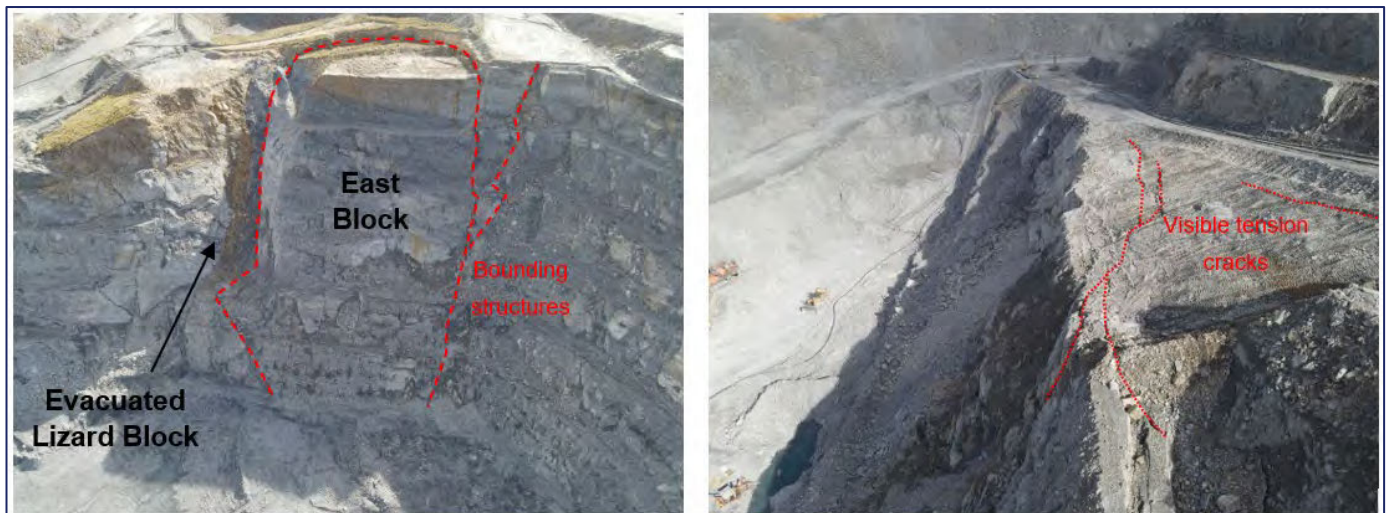
4.2.2.3 Northeast Wall

Two slope instabilities were managed within the northeast wall during mining of CN4 as summarised below and presented in Inset 16.

1. Slumping and dilation of the rock mass occurred along an approximately 400 m section of the Northeast wall below the ramp, see Inset 17. This was likely controlled by a steeply dipping fault running sub-parallel with the wall, internal dilation of the block formed by this fault attributed to discrete steeply dipping faults and shears.
2. Discrete fault-controlled wedges in the northeast corner of the pit – intersecting faults have created two multi-bench scale wedges on the North wall, the Lizard and East Blocks, see Inset 17:
 - a. The Lizard Block was removed during mining while the East Block was left in-situ and monitored until mining ceased; and
 - b. The East Block continued to creep during mining but was successfully managed by OGNZL operationally. Slope movements were inferred to be caused by high groundwater pressure allowing the base of the wedge to slide along the HWS (or intra-shear foliation shears) even though these structures dip into the wall. The remainder of the East Block will be mined during the Stage 5 cutback (CN5).



Inset 16: Northeast wall instability during mining of Stage 4.



Inset 17: Photos of northeast wall instability. Left: Lizard and East Block. Right: slumping of northeast wall below the ramp.

4.2.3 Stage 5 and 6

Initial mining of the CN5 east wall cutback commenced in early 2026 and limited pit wall exposures are currently available at the time of writing. As such, only limited additional data is available to refine the site-specific geotechnical model.

As part of a geotechnical risk review undertaken by OGNZL and PSM in preparing the Stage 5 design a number of mitigation measures were introduced to manage known slope movement mechanisms, including:

- Positioning of the northeastern pit crest to mine out known structural blocks (e.g. east block);
- Incorporation of in-pit backfills to provide substantial buttress support within the existing mining area. This will act to minimise the volume of rock that can be mobilised by reducing the length of FF exposure within the pit floor. This is a proven geotechnical management strategy, successfully executed within Frasers and subsequent Gay Tan pits (Stages 1 to 5);

- Construction of the final haul road within the eastern end of the in-pit back fill and continuing down the CN5 footwall slope to reduce the overall footwall slope angle to more closely resemble the as-built geometry achieved in Stage 4; and
- Provisions for horizontal drain holes to be drilled in northeast and southeast slopes to manage pore pressures as well as vertical pumping wells to draw down groundwater levels interacting with the FF.

4.3 Southern Pit

Southern Pit was mined from the mid 1990's to early 2000's as a series of four cutbacks towards the east. The final open pit reached a maximum depth of 415 mRL with a FF offset of 50 m. Post mining, the pit void was utilised as a tailings storage facility (TSF), constructed and filled in two stages:

1. SP10 – southern half of void to 14,400 mN.
2. SP11 – full length of void and embankment crest raised to 544 mRL.

During excavation the rock mass conditions were described as “good to very good” with only 10% batter scale failure for the section of wall oriented 240° to 300°. West-dipping faults were identified as key control slope stability however; the impact was less than that expected during mining.

A visual estimate of slope performance within the Stage 4 east wall noted 10 to 25% of benches had experienced instabilities, mostly due to the occurrence of the Northern Gully Fault (70/090°) and associated shears but otherwise the 15 m high, 60° batters with 7.5 m berms were performing well.

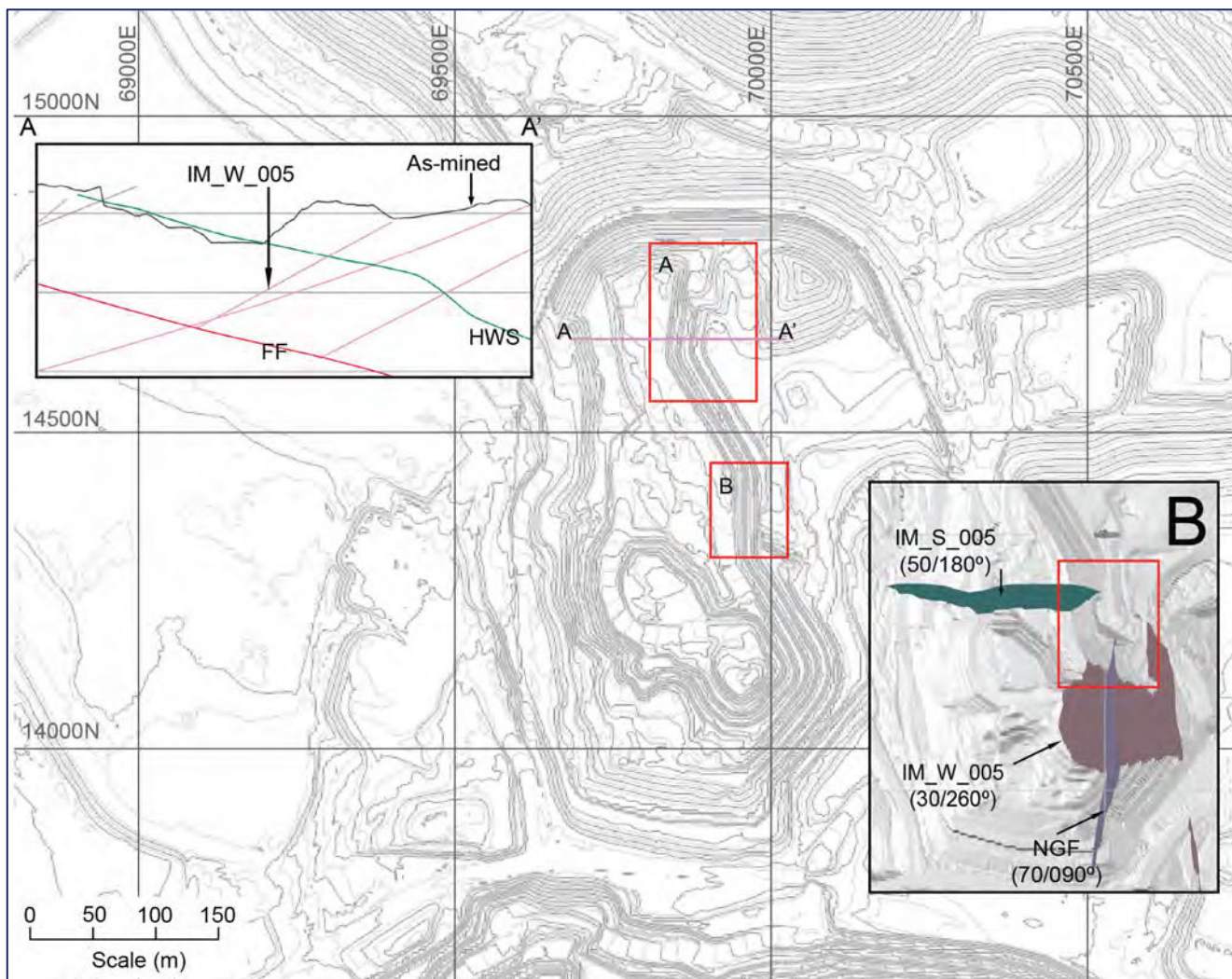
Though not documented at the time of mining, it is assumed that the west wall was experiencing mining induced creep during this period relating to FF interactions.

The performance of Stage 4 slopes provides valuable insight into expected slope behaviour during the proposed relocation of SP11 tailings as part of the IM13 construction plan.

4.3.1 East Wall Wedge Instabilities

Stage 4 east wall experienced two notable wedge instabilities controlled by westerly dipping faults between 14,550 to 14,800 mN and 14,300 to 14,450 mN along north-south orientated slopes (aspect 270°), demarked A and B respectively in Inset 18 and summarised below:

- Zone A – controlled by a north-south striking, westerly dipping fault. The fault did not daylight in the slope but acted as the basal sliding surface as the slope increased in height. A passive wedge at the toe of the wall is formed by two additional fault structures, which dip back into the wall resulting in floor heave. Inset 18 includes a cross-section through this area showing the IM13 fault model surfaces, presenting a representation of these fault orientations as the exact failure surfaces were not available to include.
- Zone B – controlled by the interaction of the Northern Gully, IM_S_005 and IM_W_005 faults, all included in the IM13 fault model.
- Both wedge instabilities were managed by operations during mining and did not experience additional movement once mining ceased. No remedial work was completed on the east wall before tailings were placed in pit void.



Inset 18: Location and structural representation of Southern Pit east wall instabilities developed and managed during open pit mining.

4.4 Innes Mills

Mining of the IMOP commenced in 1995 and has progressed through multiple campaigns, including a period of complete backfilling to surface. Individual stages are summarised below:

- Stages 1 to 4 – four cutbacks towards the east between 1995 and 2003;
- Backfilling of IMOP void with waste from FRIM, Frasers and Frasers South pits;
- Stage 5 and 6 – rehandling of void waste, 2023 – 2024;
- Stage 7 – mining of in-situ rock early 2024 to 2025; and
- Stage 8 – active mining phase, began early 2025.

This assessment focusses on observations and slope performance relating to development of the IM Stages 7 and 8 pits (IM7 and IM8). Recent mining experience provides a direct correlation to the proposed MP4 open pit expansions including management of active pit slope movement mechanisms and considerations that relate to the consenting application.

4.4.1 Pit Slope Design

PSM completed a geotechnical slope design study for IM7 and IM8 pit in 2024. The adopted slope design parameters are summarised in Table 4.

Table 4 – Recommended Slope Design Parameters for IM7/8

Rock Mass	Wall		Slope Aspect (°) ⁽¹⁾	IRA (°) ⁽²⁾	BFA (°)	Berm Width (m)	Bench Height (m)
Backfill, without ramp	All		All	37	50	7.5	15
Macraes Fault Zone							
Backfill with ramp	All		All	34	50	9.5	
Fresh Schist	North		150 to 210	44	65	8.5	
	Northeast		210 to 270	46	65	7.5	
	East and South	Above HWS IM8	270 to 040	43	60	7.5	
		Below HWS and IM7	270 to 040	47	65	7	
	West		040 to 150	43	60	7.5	

Notes:

(1) Slope aspect is the azimuth to which the slope is orientated, for example, 090° is a slope facing east

(2) Measured toe to toe

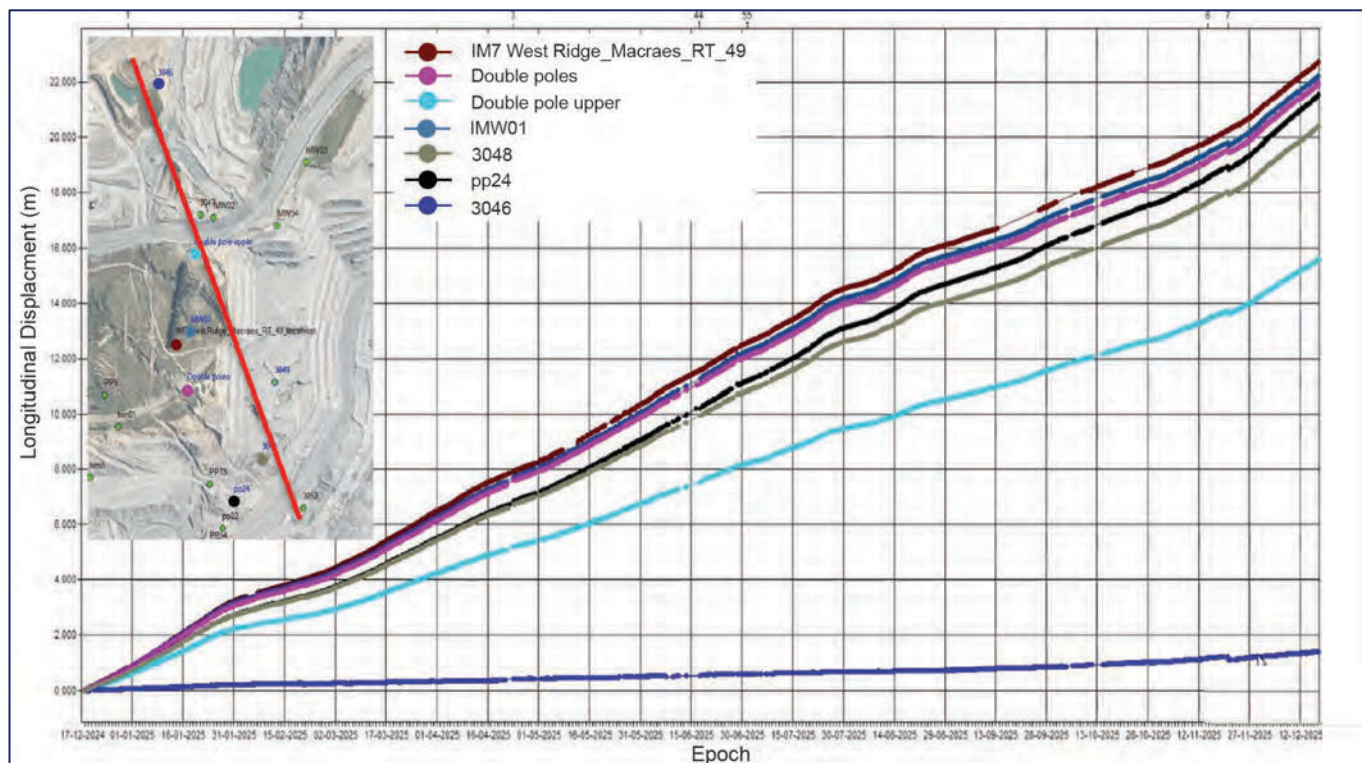
4.4.2 Observed Slope Performance

The IMOP has been successfully redeveloped over the past two years with rapid mining of IM7 and IM8 with cutbacks to the east and north. For a period, OGNZL were operating the IMOP as the single source of ore for open pit extraction leading to an unprecedented mining rate not seen elsewhere across the Macraes Operation.

4.4.2.1 Stage 7 West Wall

During July 2024, mining activities within IM7 reactivated a pre-existing slope movement mechanism on the western side of the pit that previously affected the “old” Macraes Road alignment that was used between 2005 and 2019 before being realigned to its current location. As excavation has advanced, the extent of this movement has spread further north to incorporate the current Macraes Road, mobilising a large wedge of ground as far north as the Open Pit Workshop beyond Contractors Hill. The translational sliding mechanism is structurally controlled and underlain by the FF and obliquely orientated “Big Greasy Fault” which is contained within the broader Macraes Fault Zone (MFZ). The FF interacts with a series of cross cutting, second order faults and shears to create a complex block sliding scenario which is sensitive to the removal of buttress support from the base of the slope during mining. The broader slope movement mechanism is interpreted to be moving as a series of blocks rather than a single planar slide mass.

Slope movement velocities across the broader west wall are highest at the base of the slope with metre scale displacements visible along persistent fault structures throughout the lower slope. Slope movements taper toward the crest and can be described as slow to very slow, (Reference 4), large-scale slope-creep with an average subsidence rate in the order of 10 - 100 mm/day in the main movement areas and 1 - 2 mm/day around the fringes including Macraes Road. This behaviour is captured in survey prism slope monitoring data presented for a representative cross section through the IM7 west wall in Inset 19.

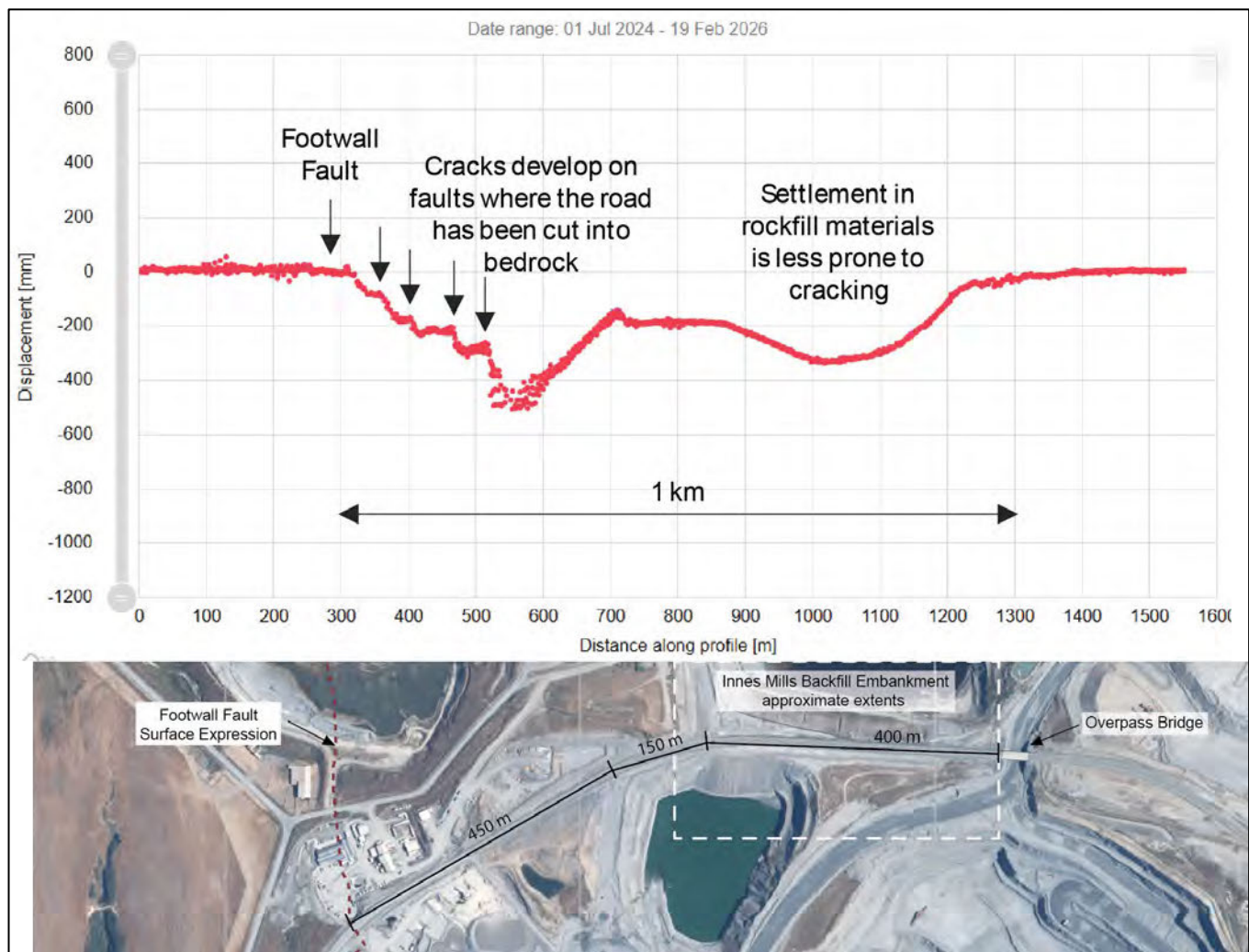


Inset 19: IM7 West Wall - 12-month time history prism monitoring data for longitudinal displacement.

4.4.2.2 Macraes Road Deformation

The Macraes Road currently traverses around the head of the IM7 West and IM8 North walls respectively. In response to IM7 west wall slope movements, pavement deformations in the Macraes Road were first observed in late 2024. Over the last six months, the movement boundary and zone of cracking has regressed west toward the FF outcrop, and north along FF strike. Offsets and cracks on the ground surface have developed along the FF outcrop, and on secondary fault structures within the displaced rock mass. Fault-bounded blocks beneath Macraes Road and north toward the Open Pit Workshop have gradually become incorporated into the zone of fringe relaxation around the main movement zone. Surface expression varies along the length of affected pavement and Inset 20 presents a longitudinal profile of the Macraes Road which are characterised as follows:

- Rock at surface - In locations where in-situ rock is exposed at the surface deformations propagate along geological fault or shear surfaces, generating a “saw tooth” profile. This is expressed as a stepped profile with pavement cracking
- Placed fill or man-made ground - The Innes Mills Backfill Embankment (IMBE) (immediately west of the overpass bridge) comprises rockfill extending to depths of up to 70 m beneath the road. This was a pit backfill placed by OGNZL following completion of Southern Pit and early IMOP stages. Deformation of this material is expressed as surface settlement resulting in a more subtle “bowl” or depression in the road surface which is more difficult to detect visually.



Inset 20: Longitudinal profile along the Macraes Road slope displacement profile relative to underlying ground conditions.

4.4.2.3 Stage 8 East Wall

Two zones within the IM8 east wall have experienced multi-bench instabilities and are controlled by adversely dipping faults, typical of eastern pit walls at Macraes, Inset 21. The following provides a summary of the instabilities and design mitigations used to manage the respective operational risks, Inset 22.

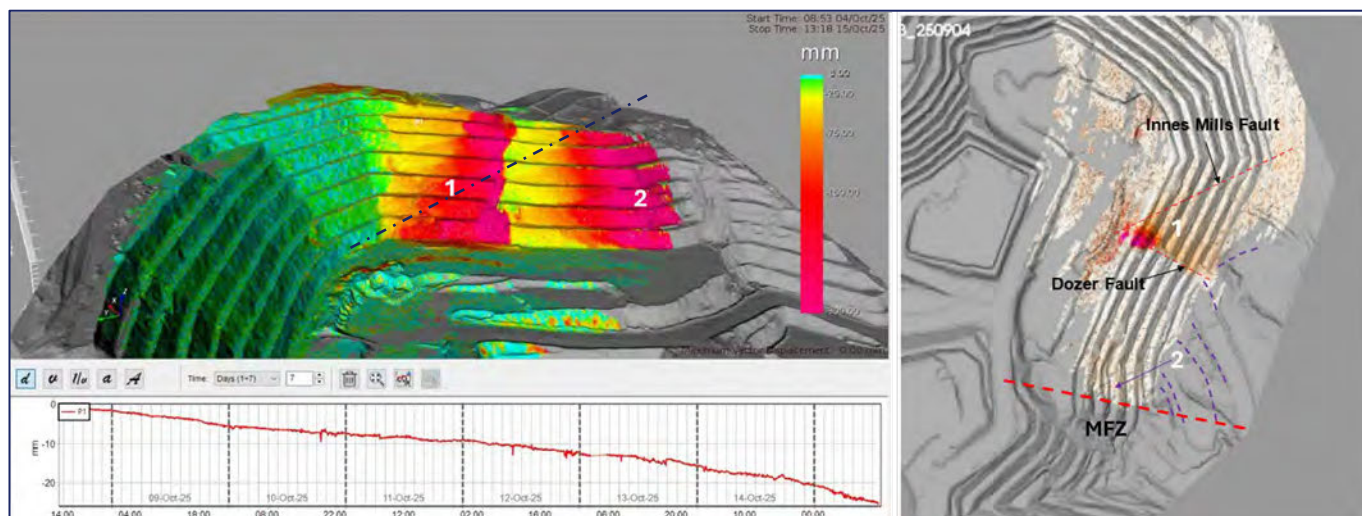
Central Zone – Holiday Fault

- Deep seated block movement in the northern extent of the wall bound by the intersection of the Holiday (50/280°) and Dozers Faults (58/005°);
- The block is intersected by a series of moderately dipping foliation parallel shears;
- The lower portion of the slope has exposed a disturbed and weak pelite rock mass associated with increased shearing from the 440 mRL and extending for 10 m vertically;
- The slope demonstrated an increasing sensitivity to blasting and mining activity at the toe;
- Surface deformation, expressed as minor tension cracking is observed up to 50 m behind the pit crest; and
- East wall instabilities have been successfully managed through the established TARP-based monitoring and Ground Control Management Plan (GCMP) processes, along with some minor pit slope modifications and localised step-outs to buttress specific fault-release structures as required.

Southern Zone

- At the southern end of the IM8 east wall, adjacent to the MFZ contact, the slope has produced a series of unstable blocks throughout its height;

- Tension cracking is observed behind the pit crest indicating a deep-seated block movement. Movement vectors have been recorded with an azimuth of approximately 250° relative to MGPG; and
- The rock mass includes a series of low angle east dipping foliation shears spaced approximately 10 m vertically. These structures created numerous blocks that have rotated and disintegrated over time with progressive deformation.



Inset 21: Left: IDS slope radar plot highlighting block displacements - bound by Innes Mills, Dozer and Holiday Faults (1) MFZ (2). Right: Plan view of IM8 east wall illustrating extent of tension cracking (purple) within pit crest to the north of the MFZ.



Inset 22: View of IM8 east wall. 430 mRL step off highlighted in orange. The extent of the southern instability highlighted in white.

Localised block displacement controlled by similar orientated intersecting faults are expected to occur during mining of IM11, IM12 and IM13 based on fault projection within the OGNZL fault model. These faults have been extrapolated from open pit mapping and borehole intersections, therefore providing a guide to the likely occurrence and exposure of adversely dipping faults. This enables targeted identification and management during mining with similar migration measures expected to be applied.

4.5 Golden Bar

4.5.1 Pit Slope Design

The Golden Bar pit was mined from 2004 to 2006 and has been partially rehabilitated to form a pit lake that currently feeds a tributary of Murphys Creek at the southern end of the pit void, locally known as Golden Bar Creek.

The slope design for Golden Bar Stage 1 (GB1) was completed internally by Macraes in 2003 (Reference 5) under the guidance of PSM with recommended slope design parameters summarised in Table 5.

Table 5 – Design Recommendations for Golden Bar Stage 1

Slope	Slope Aspect (°) ⁽¹⁾	BFA (°)	Bench Height (m)	Berm Width (m)	IRA (°) ⁽²⁾	Comments
North	130 – 245	75	15	7.5	52.5	BFA based on 10 – 30% chance of localised failures.
East and South	245 – 350	60	15	7.5	42.9	
West	025 – 130	No specific data available – design governed by HWS			35	-

Notes:

(1) Slope aspect is the azimuth to which the slope is orientated, for example, 090° is a slope facing east

(2) Measured toe to toe

A geotechnical drilling program has not been completed at Golden Bar. The initial slope design was based on the following data outlined in OGNZL's design report:

- Mapping of four geotechnical trenches along the north and east walls;
- Logs of four fully cored and 32 partially cored exploration drillholes, primarily targeting the HWS;
- Aerial photography review; and
- Interpretation of the HWS and major faulting completed by the OGNZL's exploration group.

The key findings from the OGNZL's design report are summarised below:

- Estimated intact rock strength is medium for rock mass above and below the HWS;
- Defect shear strengths are based on historical results
 - Friction angle for joints = 40°; and
 - Friction angle for faults = 16°.
- Summary of trench mappings:
 - Foliation consistently dipped shallow to the east and southeast between 112° and 145°; and
 - Fault orientation is not listed in the text, rather identified in a figure which was not provided with the report document.

4.5.2 Observed Slope Performance

A slope performance review for GB1 was completed in 2009 and summarised in Table 6, supported by a photogrammetry review of the final pit in July 2022 (Inset 23 to Inset 26). The 2022 review supports the observations summarised in Table 6 and little has changed with respect to ongoing slope performance since mining ceased in 2006.

Table 6 – Performance of Golden Bar Stage 1

Pit Wall	Bench Geometry	Slope Aspect (°) ⁽¹⁾	Overall		Length (m)	Instabilities
			Height (m)	IRA (°)		
North	15 m high, 60° & 75° (pre-spilt) BFA, 5 to 7.5 m berms	175	90	53	80	Loss of crest, joint bounded wedges – 10% of benches
East	15 m high, 60° BFA, 5 to 7.5 m berms	325	45	44 to 47	100	Loss of crest, joint bounded wedges mainly within the weathered zone – 10% of benches
		300	90		50	Nil Observed
		275	100		130	Nil Observed
		255	100		100	Wedge failure along weathered joints in upper benches – 30% of benches

Notes:

(1) Slope aspect is the azimuth to which the slope is orientated, for example, 090° is a slope facing east



Inset 23: View of north-east wall taken July 2005. Notice the depth of weathering, the prominent quartz veins, and the very good performance of the slopes in fresh rock.



Inset 24: North-east wall of Stage 1 in 2005 taken from base of ramp.



Inset 25: January 2009 - east wall taken from crest facing south. Berms are relatively clean.



Inset 26: January 2009 – north wall. Photo taken from crest looking west. Pre-split 75° batters. Note joint bound wedges.

PSM presented the following design recommendations for a Stage 2 cutback based on mined slope performance and site experience:

- East wall
 - Due to deep weathering profile to approximately 70 m depth, benches between 30 and 60 m depth are recommended to be battered at 60°; and
 - Below 60 m, adopt 75° benches.
- North Wall
 - Top two 15 m high benches are expected to be in weathered rock mass and recommended to be battered at 50°;
 - The two benches between 30 and 60 m are recommended to be battered at 75°; and
 - Below 60 m depth, adopt vertical batters.

The proposed Stage 2 and 3 pit shells are aligned with typical design geometry for other pits across the Macraes Operation with a 60° bench face and 43° inter-ramp angle. This design is well within the capacity of the favourable rock mass conditions at Golden Bar.

5. Geotechnical Stability Analysis

5.1 Introduction

The stability assessment presented herein provides OGNZL with an understanding of the expected LOM and closure stability for the proposed pit geometries based on the slope stability evaluation summarised in Table 7. These analyses are not considered to be at the level of a detailed design study but rather to provide confidence to both OGNZL and the consenting authority that:

- The proposed design pit shells can be successfully mined within the consented boundaries;
- Operations safety can be maintained throughout the mining life;
- Resource extraction is achievable based on the proposed design geometries; and
- Long-term stability of final landforms and zones of potential deformation are understood.

The nominated Factor of Safety (FoS) are considered appropriate for the consenting design stage based on the established model understanding (confidence) and associated consequence. These values are consistent with the previous Macraes open pit stability consent conditions.

Table 7 – Slope Stability Evaluation

Project Element	Slope	Minimum Factor of Safety	
		Static	Pseudo-Static
Open Pit Extensions	Highwall	1.2 - 1.5 ⁽¹⁾	1.0
	Footwall ⁽²⁾	1.2	1.0
	In-pit backfill	1.3	1.0

Notes:

(1) Consideration for interaction with ex pit infrastructure or property

(2) Footwall instability is typically limited in extent through exposure of Footwall Fault at surface.

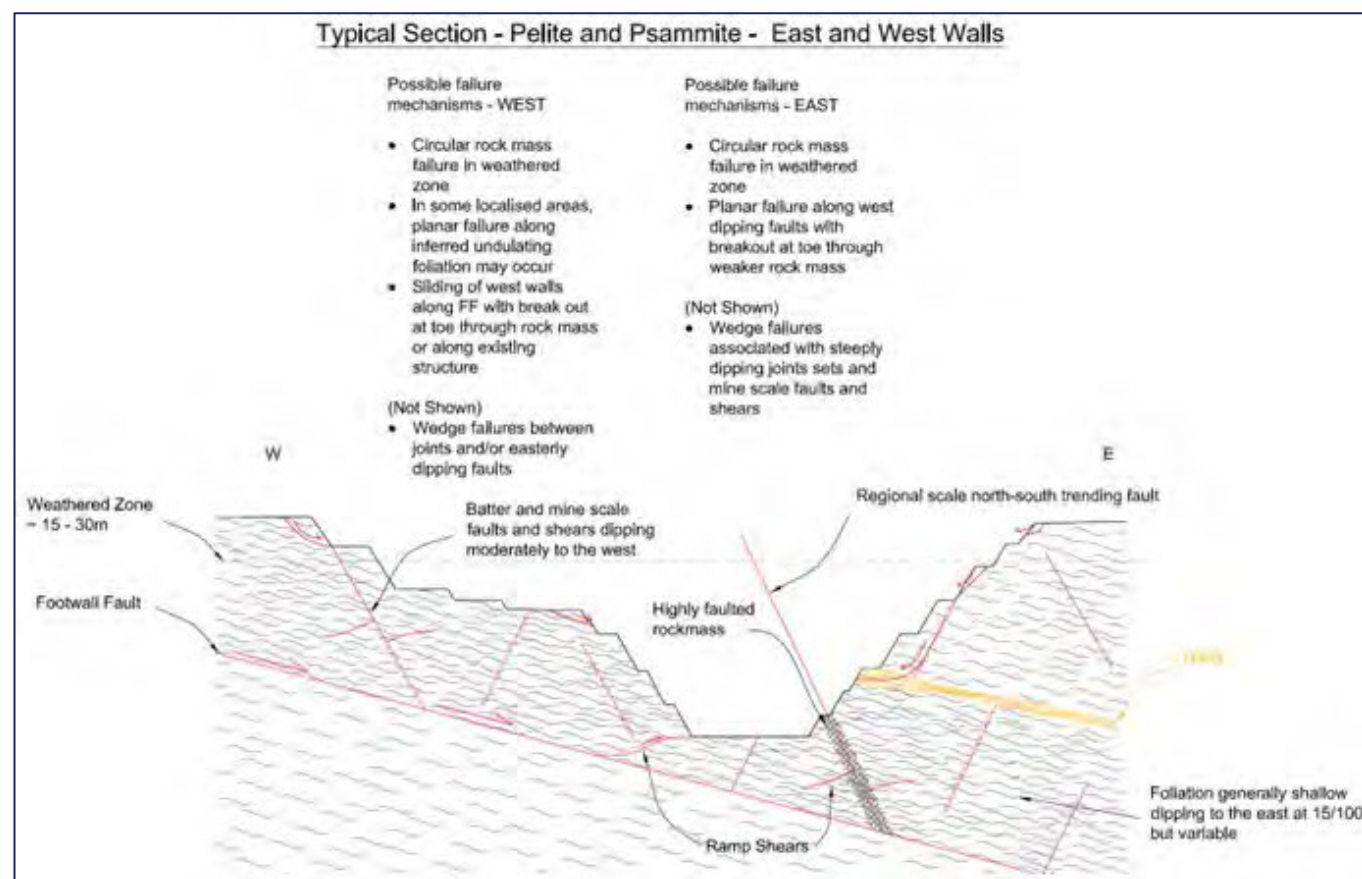
2D limit equilibrium (LE) slope stability analyses have been completed using the RocScience software program *Slide2D* adopting the GLE-Morgenstern-Price method for analyses of circular and non-circular failure mechanisms. Where applicable, three-dimensional (3D) discrete element models developed in Itasca's 3DEC software for Innes Mills Stage 11 Prefeasibility geotechnical study has been utilised to inform this assessment.

5.2 Failure Mechanisms

The critical failure mechanisms outlined in Table 8 and illustrated in Inset 27 are considered likely to control stability of individual and multiple batter slopes for the proposed pits based on the geotechnical model and past slope experience.

Table 8 – Macraes Open Pit Critical Failure Mechanisms

Pit Wall	Scale	Critical Failure Mechanism
North and South	Bench and overall	Planar and wedge defined by faults, shears and joints dipping towards the north/south, east and west
East	Bench and overall	Planar sliding along faults and shears dipping towards the west. Orthogonal faults, shears and joints may define boundaries. In some cases, influenced by basal sliding on the HWS.
West	Bench	Wedge failure defined by shears and joints dipping towards the east and south
	Overall	Planar sliding along the FF
NE, SE, SW, and NW	Bench and overall	Wedge formed between faults, shears and joints



Inset 27: Schematic section of geotechnical model and failure mechanisms across the Macraes Operation.

5.3 Section Locations

Twenty-three (23) representative cross-sections were developed across the proposed MP4 open pit extensions with locations presented on Figures 1 to 5:

- **Coronation North** – five cross sections targeting CN6 final pit shell including in-pit backfills CNBF2 and CNBF3 at closure height (Figure 1);
- **Coronation** – five cross sections targeting the final CO6, CO7 and CO8 pit shells including in-pit backfills COBF1 and COBF3 at closure height (Figure 2);
- **Innes Mills** – eight cross sections targeting the final IM11, IM12, IM13 pit shells including in-pit backfills IMBF1, IMBF2 and IMBF3 at closure height (Figures 3 and 4); and
- **Golden Bar** – four cross sections targeting GB3 final pit shell (Figure 5).

Stability analyses were completed to assess long term stability and potential geotechnical interaction between final design pit shells with the following:

- Ex-pit waste rock stacks:

- Existing as-built stacks; and
- Proposed MP4 extensions.
- Public roads:
 - Macraes Road
 - o Proposed Stage 1 and 2 realignments.
 - Golden Bar Road
 - o Existing location at Golden Bar; and
 - o Proposed realignment east of Innes Mills.
- MTI;
- Proposed in-pit backfills;
- SP11 embankment;
- Pit lakes, and
- Adjacent workshops (current and proposed relocation).

5.4 Material Properties

The rock mass strength parameters adopted for this analysis are based on extensive review of geotechnical logging, geomechanical lab testing, and experience with similar rock masses at Macraes as discussed in Section 3. Table 9 summarises the material properties adopted for the 2D LE stability analyses.

Table 9 – Stability Model Material Properties

Material Type	Unit Weight (kN/m³)	Generalised Hoek-Brown			Mohr-Coulomb	
		UCS (MPa)	GSI	<i>m</i> _i	Cohesion (kPa)	Friction Angle (°)
Class A	27	40	65	12	NA	
Class B		40	55			
Class C		35	45			
Weathered Rock	25	NA			100	38
Rockfill	20				0	40
Failed Psammite	25				180	40
HWS	20				50	20
FF					0	9
All modelled faults					50	20
Ramp Shear Zone ⁽¹⁾					180	48

Notes:

(1) Relevant to IMOP west wall analyses only.

5.5 Design Cases

5.5.1 Groundwater Scenarios

The following groundwater assumptions are included in the stability assessment. These are consistent with long term monitoring data and operational slope performance precedent at a pit scale.

- A regional groundwater table with far field recharge located approximately 30 mbgl and assumed to gradually descend with mining before levelling out at the pit floor. The following two scenarios are adopted for analysis:
 - Partially saturated condition (passive) - $H_u = 0.6$ assumed as the typical case based on the adopted groundwater level; and
 - Saturated condition - $H_u = 1.0$ is assumed as an adverse case to reflect pore pressure at the pit wall below the water table e.g. where pit lakes are beginning to fill. Passive depressurisation near the surface of the pit wall is applied above the lake filling surface.

- In-pit backfills are analyses with saturated toes as natural groundwater recharge is expected to occur once mining ceases and backfill placement begins.

5.5.2 Pit Lakes

Water balance modelling undertaken by GHD (Reference 6) indicate the following maximum pit lake levels for the proposed MP4 open pits :

- Coronation North – 562.5 mRL
 - Defined by proposed spill point on northeast wall of CN6 at 562.5 mRL
 - Current pit lake within CN4 void at approximately 502 mRL due to rebound since mining of CN4 ceased
- Coronation – 625 mRL
 - Defined by proposed spill point in northeast corner of CO8 at 625 mRL
- Innes Mills – 473 mRL
 - Defined by the closure spillway cut into rock beneath the SP11A embankment at the northern end of the pit (Reference 7)
- Golden Bar – 500 mRL
 - Maximum height in-situ ground at the southern end of pit.

5.5.3 Seismic Loading

Seismic loading scenarios for the Macraes Operation reference the National Seismic Hazard Model, GNS (2022). Vs30 values are informed from a previous site-specific seismic hazard analysis completed for the Macraes Operation by Bradley Seismic Ltd (Reference 8) which included Vs30 measurements by Southern Geophysical Ltd (Reference 9).

Table 10 summarises the project stages and associated Peak Ground Acceleration (PGA) for each. To assess loading sensitivities, two horizontal seismic coefficients have been applied for each pseudo-static analysis.

- $K_h = 0.5$ PGA
- $K_h = 0.8$ PGA.

The following groundwater scenarios are applied for the seismic stability:

- Partially saturated: $H_u = 0.6$ applied for operational seismic load
- Saturated condition for the lake filling and closure seismic load:
 - Below lake level: $H_u = 1.0$
 - Above lake level, below water table: $H_u = 0.6$.
- Combined conditions for Innes Mills based real time VWP data from within IM8 east wall
 - Below water table: $H_u = 1.0$
 - Above water table: dry.

Table 10 – Comparison of PGA for Earthquakes at Macraes

Project Stage	Annual Exceedance Probability (AEP)	Equivalence	Peak Ground Acceleration (g) ⁽¹⁾ - Maximum Component Vs30=1500m/s
Operational	1:150	Operational Basis Earthquake (OBE)	0.081
Lake Filling	1:500	-	0.150
Post Closure	1:2500	Maximum Design Earthquake (MDE)	0.330

Notes:

- (1) Horizontal Seismic Coefficients ($k_h = 0.5$ PGA) have been used for limit equilibrium pseudo static analysis herein. A sensitivity of $k_h=0.8$ was completed as a sensitivity when FoS was near the minimum FoS outlined in Table 7.

Seismic loading has only been applied to critical stability sections for each pit. This typically includes sections and sliding surfaces with the lowest static Factor of Safety (FoS) for any given location.

5.6 Results

This section discusses results of the 2D LE stability analyses completed for the respective MP4 open pit expansions and associated in pit backfills for the various design cases. Where assessed pit slope stability conditions align with typical geotechnical failure mechanisms for the Macraes Operation (as described in Section 5.2) the results are summarised generally, individual departures are listed in subsequent sections for each pit.

Table 11 outlines the tabulated 2D LE stability results for each pit within the report. Under seismic scenarios, reported results are based on the Horizontal Seismic Coefficient $k_h = 0.5$ PGA.

Table 11 – 2D Limit Equilibrium Results Summary

Pit	Static Results	Pseudo Static Results	Graphic Outputs
Coronation North	Table 13	Table 14	Appendix A
Coronation	Table 15	Table 16	Appendix B
Innes Mills	Table 17	Table 18	Appendix C
Golden Bar	Table 19	Table 20	Appendix D

5.6.1 General

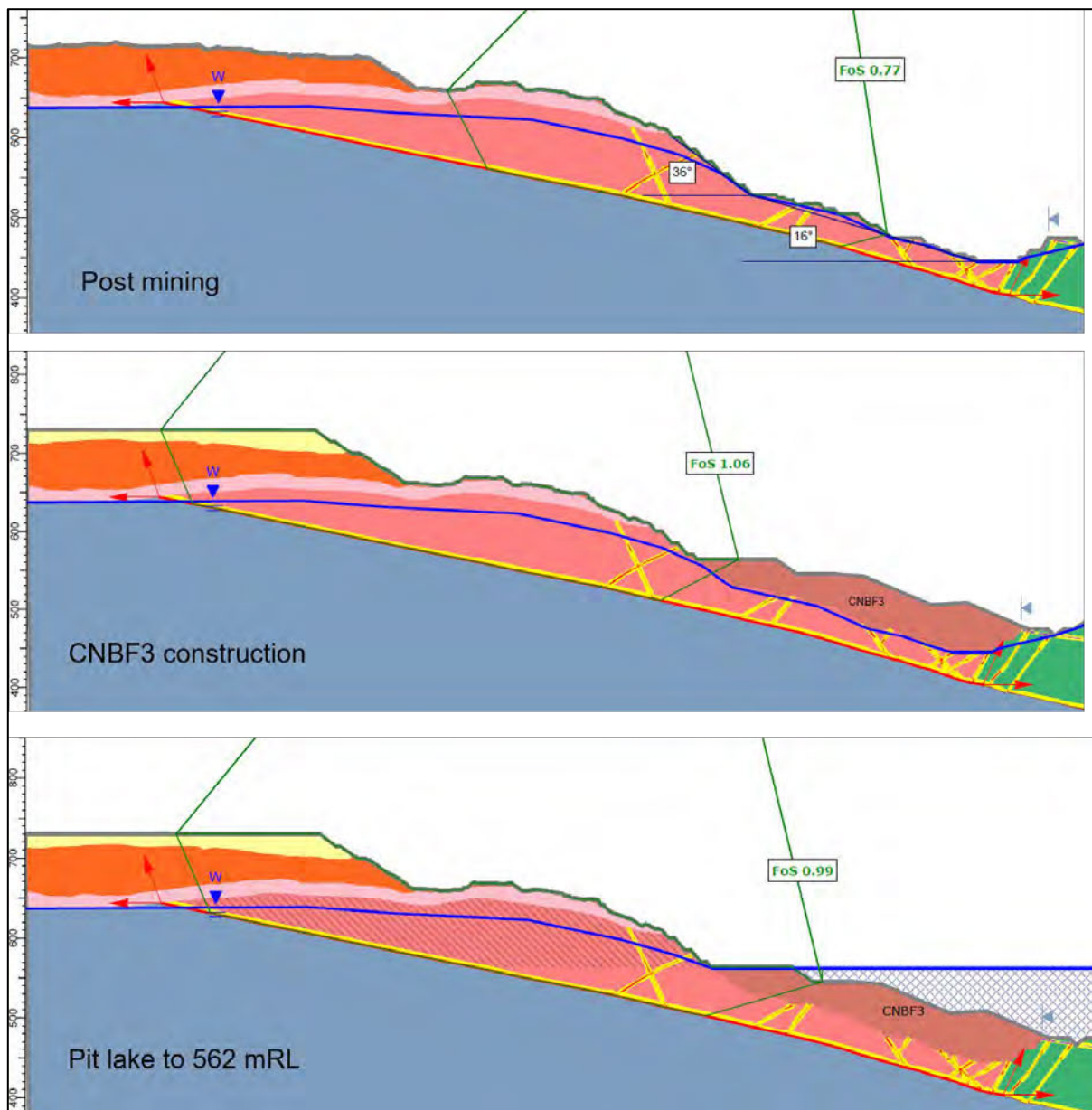
The following points outline the stability analysis outcomes common to each of the proposed MP4 open pit expansions:

- Under static conditions
 - High wall stability is assessed to have a FoS greater than 1.2 for the baseline scenarios without the presence of adverse faults or shears under partially saturated and pit lake conditions.
 - Where the OGNZL fault model does not include adversely dipping structural features, analyses reflect the stability condition based on the adopted rock mass strength parameters.
 - IM_OPE_Section 5 provides an example of a stability condition where shallow, westerly dipping faults intersect eastern wall. Should these structures exist, they can create potential release planes for block sliding instabilities into the pit:
 - o Such instabilities are not dissimilar to the style of slope deformation that most recently developed and was successfully managed by local slope design modifications in IM8.
 - Where proposed pit crests interact with the toe of an established WRS, an inter-ramp angle of 33° is recommended within backfill material to prevent potential multi bench scale deformations of the WRS toe.
 - o This applies to CN6 southeast, CO8 northeast and IM13 east walls adjacent to established WRS.
 - Proposed in-pit backfills currently designed with a bench face of 37° do not achieve a FoS >1.3. The optimised bench face angle of 33° typically achieves a FoS >1.3, noting ongoing potential for superficial shallow instabilities of limited length along the bench. Such stability conditions are considered acceptable for an in-pit backfill closure scenario with a pit lake. Should any localised instabilities develop they have no exposure beyond the pit that could impact adjacent project elements.
 - During lake fill and closure conditions, the hydrostatic pressure of water in the pit lake increases the eastern highwall stability where planar sliding along westerly dipping faults control stability.
- Under pseudo static seismic scenarios:
 - Operational seismic loads of OBE equivalence did not have a significant impact on FoS for typical geological conditions without adverse geological structures; the assessed reduction in FoS from the static case was negligible.
 - Under 1:2,500 year MDE loading, the post pit lake filling FoS condition for highwall slopes is greater than 1.0 based on a basal sliding mechanism along the HWS where no adversely orientated geological structures are present.
 - Rapid large-scale pit wall failures are not expected during closure due to the ductile nature of rock mass failures. Any movement would be creep style events and therefore the likelihood of a seiche events for in-pit lakes is low.

5.6.2 Coronation North

In addition to site wide results presented in Section 5.6.1, the following points summarise pit specific results for CN6:

- Under static conditions:
 - The southwest pit slope underlain by the FF has experienced ongoing creep since the completion of Stage 4 mining. This behaviour is expected to continue during mining of CN6, which is represented by FoS of 0.77 under partially depressurised conditions. The inclusion of CNBF3 provides buttress support but does not raise the slope's FoS greater than 1.2 as the modelled sliding surfaces shifts higher up the slope with toe break out near the top of CNBF3, Inset 28;
 - During closure conditions, the hydrostatic pressure of water in the pit lake combined with CNBF3 increases the walls' stability as the base of the slope becomes saturated.
- Under seismic scenarios:
 - Operational and closure seismic loads for Coronation North southwest footwall did not achieve a FoS of 1.0. Continued deformation is likely to continue until the slope reaches a state of equilibrium; however, deformation is expected to remain confined within the existing surface mine disturbance boundary.



Inset 28: Coronation North southwest wall under static conditions summarising the mitigation in failure path due to the development of CNBF3 and lake filling.

5.6.3 Coronation

In addition to site wide results presented in Section 5.6.1, the following points summarise pit specific results for the C08:

- Under static conditions the post closure pit lake has the potential to maintain a maximum depth of five metres above COBF3 due to the southern drainage channel, therefore has a negligible impact to stability at closure.

5.6.4 Innes Mills West Wall

Three-dimensional stability modelling was completed for the IM west wall of the proposed IM13 pit to assess potential displacement of the MTI eastern abutment should mine induced planar sliding occur along the FF. A block model was built using Itasca's 3DEC software which is designed to simulate the mechanical behaviour of discontinuous media, such as faulted rock masses, in three dimensions.

Unlike traditional 2D stability modelling tools, which simplify complex geological conditions into planar representations, 3DEC uses a distinct element method (DEM) to represent rock as an assemblage of discrete blocks separated by discontinuities. This approach allows for more realistic simulation of block interactions, joint movements, and failure mechanisms under various loading and boundary conditions.

Initial modelling was completed with the MTI maximum elevation at 548 mRL using a multi-phase mining approach outlined in Table 12. Two options were reviewed under modelling Phase 3 to quantify MTI displacement during a staged mining approach to the SP11 void area.

A third option, (Phase 3, Option 3) assessed predicated displacement based on the gradual unloading of the upper 30 m of tailings adjacent to the Southern Pit void. and indicates the following:

- Predicted magnitude displacements within the eastern and northern edges of the MTI are about 1.5 m - approximately 50% less than the previous predictions for Phase 3, Option 2.
- Sensitivity analysis for reduced fault strengths indicated negligible difference in magnitude and extents of the deformation of the MTI northern embankment.

For each Phase or Option, material removal was stimulated in three sequential excavation stages, each comprising a vertical excavation increment of approximately one-third of the final pit shell height. The exception to this method was for Phase 2, where removal of SP11 tailings was undertaken in a single stage.

Table 12 – Summary of West Wall 3DEC Model Staging

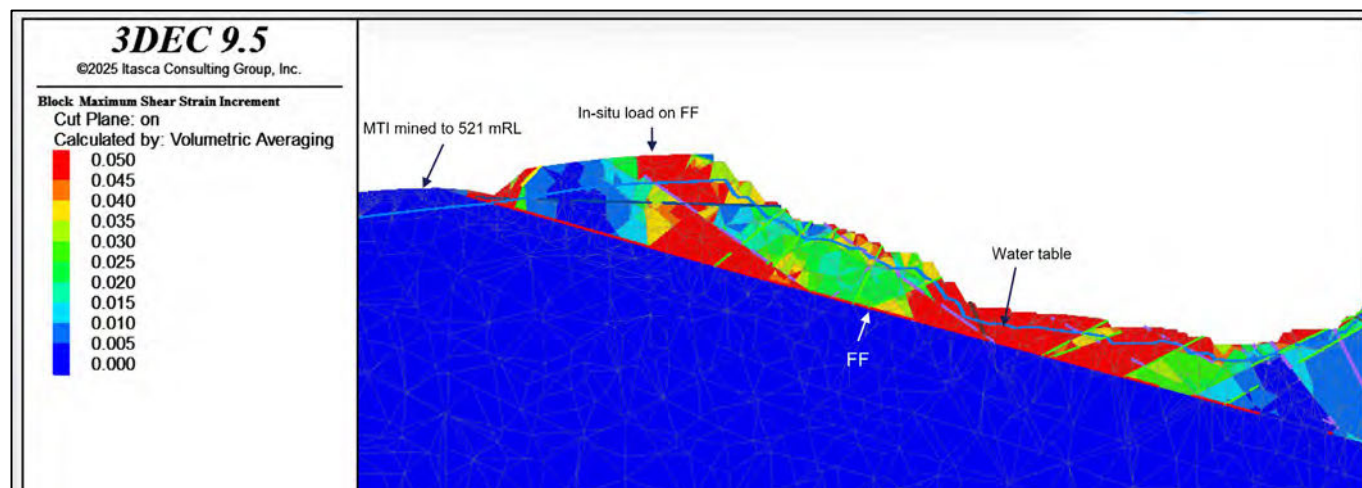
MTI Height	Analysis Staging	Action	Objective
548 mRL	Phase 1	Mining of IM10 and IM11	Aim to quantify displacement of southern and south-east MTI abutment (area already under strain from IM7/8 mining)
	Phase 2	Removal of SP10 embankment and tailings; and the upstream lifts of SP11A	Aim to quantify MTI displacement post tailing buttress removal
	Phase 3, Option 1	Mining of IM13_South only, backfilling north of 14,300 mN of Southern Pit void to 530 mRL	Aim to quantify MTI displacement relative to mining south of IM13 Northern Limit (14,300 mN) while being buttressed in the north
	Phase 3, Option 2, Stage 1	Mining of IM13_North to 390 mRL	Aim to quantify MTI displacement post mining north of 14,300 mN to maximum IM13 pit depth
	Phase 3, Option 2, Stage 2	Mining IM13_South, backfilling north of 14,300 mN to 530 mRL	Aim to quantify MTI displacement post mining and backfilling of the ultimate IM13 pit
Staged decrease in elevation, final target 521 mRL	Phase 3, Option 3	Mining IM13_North in 4 sub-stages at the same time as removing 7.5 m of the MTI at each stage	Aim to quantify MTI displacement post mining and backfilling of the ultimate IM13 pit with final reduced MTI elevation of 521 mRL

Results indicated a potential displacement in the magnitude of several meters of the eastern MTI abutment adjacent to IM13 west wall. The displacement predicted by 3DEC modelling is not considered to be precise, but rather provides an indicator to assess the deformation trends and to identify locations of relatively higher displacement which can be cross referenced with distribution of maximum shear strain (discussed below) within the model to assess predicted stability for respective design scenarios.

We note that the analyses do not simulate the construction of the Stage 3 IM backfill (IMBF3) as it was not confirmed at the time of modelling. The bulk of the proposed backfill sits adjacent to the east wall providing buttress support at the toe of the west wall without adding additional load above the FF. At final construction, IMBF3 will act as a northern extension of IMBF1 improving post closure footwall stability.

Comparing PSM's numerical modelling experience to observed slope performance at Macraes suggests a shear strain of 0.5% approximately matches rock mass yielding. Based on the observed movement at Innes Mills, it is apparent that greater shear strains have already been experienced. Hence, a 5% shear strain contour was selected to highlight areas within the forward analysis of expected extensive damage and large-scale fracturing. The value of 5% shear strain is in keeping with literature (e.g. Hoek, et al 2002).

Maximum shear strain along IM_OPE_Section 7 (Inset 29) illustrates basal sliding along the FF coupled with breakout along westerly dipping ramp shears, the known failure mechanism acting on the Innes Mills footwall. The distribution of strain across the slope indicates how block translation occurs within the overall deforming mass, whereby discrete blocks move along internal discontinuities independent of the primary surface.



Inset 29: Maximum shear strain at the end of Phase 3, Option 3 along section IM_OPE_Section 7. Displacement is bound by the FF.

The modelled deformations are based on the adopted geotechnical model. The presence of north-south striking faults within the model limit deformation at the MTI. Sensitivity modelling indicates that if those faults are not present, or have different geometries, deformation could extend further back into MTI impoundment (i.e. to the FF sub-crop). This potential situation should be considered as part of TSF dam safety evaluations being undertaken separately by EGL.

5.6.5 Golden Bar

No specific non-conformances were identified for the final GB3 pit by 2D LE analyses.

Table 13 – Summary of Coronation North Static Stability Results

Wall	Section	Mechanism	Geometry	Groundwater Scenario	Minimum FoS	Comment
CN6 Southeast	CN_OPE_Section 1	Circular	Final CN6 pit	Passive	1.20	Multi-bench sliding surface postulated through upper two benches within WRS material
		Non-circular	Final CN6 pit	Passive	1.89	-
			Pit lake at 520 mRL	Saturated	1.86	
			Maximum pit lake at 562.5 mRL	Saturated	2.07	
CN6 Northeast	CN_OPE_Section 2	Non-circular	Final CN6 pit	Passive	2.51	-
			Pit lake at 520 mRL	Saturated	2.64	
			Maximum pit lake at 562.5 mRL	Saturated	2.93	
	CN_OPE_Section 3	Non-circular	Final CN6 pit	Passive	2.94	-
			Pit lake at 520 mRL. Final CNBF3	Saturated	4.05	
			Maximum pit lake at 562.5 mRL. Final CNBF3	Saturated	4.71	
CN6 Northwest	CN_OPE_Section 4	Non-circular	Final CN6 pit	Passive	1.67	-
			Pit lake at 520 mRL. Final CNBF3	Saturated	1.63	
			Maximum pit lake at 562.5 mRL. Final CNBF3	Saturated	1.72	
		Circular ⁽¹⁾	CNBF2 and CNBF3 at full capacity	Passive	1.13	Potential sliding surfaces remain dry during lake filling, no change in results. BFA 37°. BFA of 33° achieves FoS > 1.30
CN5 / CN6 Southwest	CN_OPE_Section 5	Non-circular	Final CN6 pit	Passive	0.77	Stability conditions continue from CN4 slope performance
			CNBF3 at full capacity	Passive	1.06	Modelled sliding surfaces migrate within the slope following placement of COWRS1 and pit lake filling influencing pore pressure profiles.
			Pit lake at 520 mRL. Final CNBF3	Saturated	1.12	
			Maximum pit lake at 562.5 mRL. Final CNBF3	Saturated	0.99	

Notes:

(1) In-pit backfill only

(2) Highlighted FoS do not meet Slope Stability Evaluation Criteria, red indicates FoS <1.0

Table 14 – Summary of Coronation North Seismic Stability Results Under Saturated Conditions

Wall	Section	Mechanism	Geometry	Seismic Load	Minimum FoS	Comment
CN6 Southeast	CN_OPE_Section 2	Non-circular	Final CN6 pit	OBE – 1:150	1.73	-
			Pit lake at 520 mRL	OBE – 1:500	1.54	
			Maximum pit lake at 562.5 mRL	OBE – 1:500	1.70	
				MDE – 1:2500	1.33	
CN6 Northeast	CN_OPE_Section 2	Non-circular	Final CN6 pit	OBE – 1:150	2.33	-
			Pit lake at 520 mRL	OBE – 1:500	2.24	
			Maximum pit lake at 562.5 mRL	OBE – 1:500	2.41	
				MDE – 1:2500	1.92	
	CN_OPE_Section 3	Non-circular	Final CN6 pit	OBE – 1:150	2.77	-
			Pit lake at 520 mRL. Final CNBF3	OBE – 1:500	3.07	
			Maximum pit lake at 562.5 mRL. Final CNBF3	OBE – 1:500	3.20	
				MDE – 1:2500	2.28	
CN6 Northwest	CN_OPE_Section 4	Non-circular	Final CN6 pit	OBE – 1:150	1.31	-
			Pit lake at 520 mRL. Final CNBF3	OBE – 1:500	1.19	
			Maximum pit lake at 562.5 mRL. Final CNBF3	OBE – 1:500	1.22	
				MDE – 1:2500	0.92	Planar sliding along FF with toe break-out along a shears at base of slope.
		Circular ⁽¹⁾	CNBF2 and CNBF3 at full capacity	OBE – 1:150	1.04	-
CN5 / CN6 Southwest	CN_OPE_Section 5	Non-circular	Final CN6 pit	OBE – 1:150	0.65	Stability conditions continue from CN4 slope performance
			CNBF3 at full capacity	OBE – 1:150	0.94	Modelled sliding surfaces migrate within the slope following placement of COWRS1 and pit lake filling influencing pore pressure profiles.
				OBE – 1:500	0.88	
			Pit lake at 520 mRL. Final CNBF3	OBE – 1:500	0.78	
			Maximum pit lake at 562.5 mRL. Final CNBF3	MDE – 1:2500	0.60	

Notes:

(1) In-pit backfill only

(2) Highlighted FoS do not meet Slope Stability Evaluation Criteria, red indicates FoS <1.0

Table 15 – Summary of Coronation Static Stability Results

Wall	Section	Mechanism	Geometry	Groundwater Scenario	Minimum FoS	Comment
CO6 / CO7 West	CO_OPE_Section 1	Non-circular	Final open pit	Passive	1.62	-
			Final open pit, COBF1 final		2.75	
			Maximum pit lake at 625 mRL, COBF1 final	Saturated	2.62	Slide path shortens and daylights at highest point of COBF1
		Circular ⁽²⁾	Maximum pit lake at 625 mRL, COBF1 final (37° BFA)	Saturated	1.13	-
			Maximum pit lake at 625 mRL, COBF1 final (33° BFA)	Saturated	1.30	Optimised COBF1 slope to BFA 33°
CO7 South	CO_OPE_Section 2	Non-circular	Final open pit	Passive	1.81	-
		Circular ⁽²⁾	COBF1 – COBF3 final surface	Passive	1.20	Shallow batter face failure path in lower bench of COBF1, above COBF3
				Saturated	1.20	
CO7 East	CO_OPE_Section 3	Non-circular	Final open pit ⁽¹⁾	Passive	2.11	-
CO8 East	CO_OPE_Section 4	Non-circular	Final CO8 open pit	Passive	2.11	-
			COBF3 final surface	Passive	3.14	
			Maximum pit lake at 625 mRL, COBF3 final surface	Saturated	3.21	
		Circular ⁽²⁾	COBF3 final surface	Passive	2.13	-
	CO_OPE_Section 5	Non-circular	Final CO8 pit, maximum pit lake to 625 mRL	Passive	2.18	-
				Saturated	4.21	
		Circular	Final CO8 pit, maximum pit lake to 625 mRL	Passive	1.20	Upper two benches of Trimbells WRS. Dry, BFA of 37°. BFA of 33° achieves FoS > 1.30
				Saturated	1.20	

Notes:

- (1) COBF1 fully buttresses slope. Circular stability of backfill assessed in CO_OPE_Section 1
- (2) In-pit backfill only
- (3) Highlighted FoS do not meet Slope Stability Evaluation Criteria

Table 16 – Summary of Coronation Seismic Stability Results Under Saturated Conditions

Wall	Section	Mechanism	Geometry	Seismic Load	Minimum FoS	Comment
CO6 / CO7 West	CO_OPE_Section 1	Non-circular	Final open pit	OBE – 1:150	1.64	-
			Maximum pit lake at 625 mRL, COBF1 final	OBE – 1:150	2.32	-
				OBE – 1:500	2.04	
				MDE – 1:2500	1.63	
		Circular ⁽¹⁾	Maximum pit lake at 625 mRL, COBF1 final (37° BFA)	OBE – 1:150	1.04	-
				OBE – 1:500	0.97	Partial shallow failure. Full bench is Fos 1.00
				MDE – 1:2500	1.13	-
			Maximum pit lake at 625 mRL, COBF1 final (33° BFA)	OBE – 1:150	1.18	Optimised COBF1 slope to BFA 33°
				OBE – 1:500	1.10	
				MDE – 1:2500	0.92	
CO7 South	CO_OPE_Section 2	Non-circular	Final open pit	OBE – 1:150	1.00	Superficial failure at toe of lower face FoS 0.89
		Circular ⁽¹⁾	COBF1 – COBF3 at full capacity	OBE – 1:150	1.04	Superficial failure on backfill face
				OBE – 1:500	1.00	
				MDE – 1:2500	1.00	
CO7 East	CO_OPE_Section 3	Non-circular	Final open pit ⁽²⁾	OBE – 1:150	1.95	-
CO8 East	CO_OPE_Section 4	Non-circular	Final open pit	OBE – 1:150	1.97	-
		Non-circular	COBF3 final surface	OBE – 1:150	2.76	
			Maximum pit lake at 625 mRL, COBF3 final surface	OBE – 1:500	2.50	
				MDE – 1:2500	1.89	
		Circular ⁽¹⁾	COBF3 final surface	OBE – 1:150	2.31	-
	CO_OPE_Section 5	Non-circular	Final CO8 pit	OBE – 1:150	2.01	-
			Maximum pit lake at 625 mRL, COBF3 final surface	OBE – 1:500	3.08	
				MDE – 1:2500	2.25	
		Circular	Final CO8 pit	OBE – 1:150	1.01	Upper two benches of Trimbells WRS. Dry
				MDE – 1:2500	1.00	

(1) In-pit backfill only

(2) COBF1 fully buttresses slope. Circular stability of backfill assessed in CO_OPE_Section 1

(3) Highlighted FoS do not meet Slope Stability Evaluation Criteria, red indicates FoS <1.0

Table 17 – Summary of Innes Mills Static Stability Results Under Saturated Conditions

Wall	Section	Mechanism	Geometry	Minimum FoS	Comment
IM12 East	IM_OPE_Section 1	Non-circular	Final IM12 open pit	2.24	Golden Bar Road satisfies FoS >1.5 at 125 m offset, Stage 1 Macraes Road at 230 m
			Maximum pit lake 473 mRL, IMBF1 and IMBF3 final surface	5.92	
	IM_OPE_Section 2	Non-circular	Final IM12 open pit	1.97	Stage 1 Macraes Road satisfies FoS >1.5 at 125 m offset
			Maximum pit lake at 473 mRL, IMBF1 and IMBF3 final surface	5.19	
IM12 North	IM_OPE_Section 3	Circular	Final IM12 open pit	1.79	Failure mechanism contained to weathered schist
		Non-circular	Final IM12 open pit	1.32	-
IM13 East	IM_OPE_Section 4	Non-circular	Final IM13 open pit	1.58	-
		Circular	Final IM13 open pit	1.16	Upper two benches of BRWRS, slope at 37°. BFA of 33° achieves FoS > 1.30
			IMBF3 final surface, maximum pit lake at 473 mRL	1.10	
IMBF3 West	IM_OPE_Section 4	Circular ⁽¹⁾	IMBF3 final surface	1.18	Western slope is 37°, dry. BFA of 33° achieves FoS > 1.30
			IMBF3 final surface, maximum pit lake at 473 mRL	1.14	
IM13 Northeast	IM_OPE_Section 5	Non-circular	Final IM13 open pit	0.91 ⁽⁴⁾	Planar sliding along a westerly dipping fault. Faults parallel or shallower than IRA typically produce FoS <1.2 and will be operationally managed during active mining
			Pit lake at 450 mRL, IMBF2 final surface	1.87	
			Maximum pit lake at 473 mRL, IMBF2 final surface	1.76	
	IM_OPE_Section 6	Non-circular	Final IM13 open pit	1.72	-
		Circular ⁽¹⁾	Final IM13 open pit	1.13	Shallow batter failure along top bench
			Maximum pit lake at 473 mRL, IMBF2 final surface	1.18	-

Notes:

- (1) In-pit backfill only
- (2) Highlighted FoS do not meet Slope Stability Evaluation Criteria; red indicates FoS <1.0
- (3) IM_OPE_Section 1 and IM_OPE_Section 2 require FoS>1.5 to meet Slope Stability Evaluation Criteria
- (4) Section represents the influence of adversely dipping major structures on the eastern highwall

Table 18 – Summary of Innes Mills Seismic Stability Results Under Saturated Conditions

Wall	Section	Mechanism	Geometry	Seismic Load	Minimum FoS	Comment
IM12 East	IM_OPE_Section 1	Non-circular	Final IM12 open pit	OBE - 1:150	2.10	-
			Maximum pit lake at 473 mRL, IMBF1 and IMBF3 final surface	OBE - 1:500	4.32	
				MDE - 1:2500	3.19	
	IM_OPE_Section 2	Non-circular	Final IM12 open pit	OBE - 1:150	1.86	-
			Maximum pit lake at 473 mRL, IMBF1 and IMBF3 final surface	OBE - 1:500	3.88	
				MDE - 1:2500	2.87	
IM12 North	IM_OPE_Section 3	Circular	Final IM12 open pit	OBE - 1:150	1.68	Failure mechanism contained to weathered schist
		Non-circular	Final IM12 open pit	OBE - 1:150	1.14	-
IM13 East	IM_OPE_Section 4	Non-circular	Final IM12 open pit	OBE - 1:150	1.47	Westerly dipping faults control planar sliding. Faults parallel or shallower than IRA typically produce FoS <1.2
			Maximum pit lake at 473 mRL, IMBF3 final surface	OBE - 1:500	0.99	
				MDE - 1:2500	0.71	
		Circular	Final IM13 open pit	OBE - 1:150	1.08	Upper two benches of BRWRS, slope at 37°
			IMBF3 final surface, pit lake at 473 mRL	OBE - 1:500	1.06	
				MDE 1:2500	0.81 ⁽⁴⁾	
IMBF3 West	IM_OPE_Section 4	Circular ⁽¹⁾	IMBF3 final surface	OBE - 1:150	1.11	Shallow failure of slope at 37°
			IMBF3 final surface, maximum pit lake at 473 mRL	OBE - 1:500	0.99	
				MDE - 1:2500	0.71	
IM13 Northeast	IM_OPE_Section 5	Non-circular	Final IM13 open pit	OBE - 1:150	0.86 ⁽³⁾	Planar sliding along a westerly dipping fault. Faults parallel or shallower than IRA typically produce FoS <1.2
			Pit lake at 450 mRL, IMBF2 final surface	OBE - 1:500	1.57	
			Maximum pit lake at 473 mRL, IMBF2 final surface	OBE - 1:500	1.46	
				MDE - 1:2500	1.14	
	IM_OPE_Section 6	Non-circular	Final IM13 open pit	OBE - 1:150	1.41	-
			Pit lake at 473 mRL, IMBF2 final surface	OBE - 1:150	1.12	Shallow batter instability along top bench
		Circular ⁽¹⁾	Maximum pit lake at 473 mRL, IMBF2 final surface	OBE - 1:500	1.01	
				MDE - 1:2500	0.98 ⁽⁴⁾	

(1) In-pit backfill only

(2) Highlighted FoS do not meet Slope Stability Evaluation Criteria; red indicates FoS <1.0 for global stability of slope

(3) Section represents the influence of adversely orientated major structures on the eastern highwall

(4) Localised instability FoS <1.0 at the face of WRS only

Table 19 – Summary of Golden Bar Static Stability Results

Wall	Section	Geometry	Groundwater Scenario	Minimum FoS	Comment
GB3 East	GB_OPE_Section 1	Final GB3 open pit	Passive	3.00	-
		Pit lake at 470 mRL	Saturated	3.42	
		Maximum pit lake at 500 mRL	Saturated	3.54	
	GB_OPE_Section 2	Final GB3 open pit	Passive	3.06	-
		Pit lake at 470 mRL	Saturated	3.08	
		Maximum pit lake at 500 mRL	Saturated	3.48	
GB3 North	GB_OPE_Section 3	Final GB3 open pit	Passive	2.46	-
		Pit lake at 470 mRL	Saturated	2.83	
		Maximum pit lake at 500 mRL	Saturated	3.22	
GB3 West	GB_OPE_Section 4	Final GB3 open pit	Passive	4.00	-
		Pit lake at 470 mRL	Saturated	4.15	
		Maximum pit lake at 500 mRL	Saturated	4.59	

Notes:

(1) GB_OPE_Section 1 and GB_OPE_Section 2 require FoS>1.5 to meet Slope Stability Evaluation Criteria

Table 20 – Summary of Golden Bar Seismic Stability Results Under Saturated Conditions

Wall	Section	Geometry	Seismic Load	Minimum FoS	Comment
GB3 East	GB_OPE_Section 1	Final GB3 open pit	OBE - 1:150	2.83	-
		Pit lake at 470 mRL	OBE - 1:500	2.78	
		Maximum pit lake at 500 mRL	OBE - 1:500	3.07	
			MDE - 1:2500	2.62	
	GB_OPE_Section 2	Final GB3 open pit	OBE - 1:150	2.49	-
		Pit lake at 470 mRL	OBE - 1:500	2.58	
		Maximum pit lake at 500 mRL	OBE - 1:500	3.09	
			MDE - 1:2500	2.63	
GB3 North	GB_OPE_Section 3	Final GB3 open pit	OBE - 1:150	2.61	-
		Pit lake at 470 mRL	OBE - 1:500	2.55	
		Maximum pit lake at 500 mRL	OBE - 1:500	2.84	
			MDE - 1:2500	2.44	
GB3 West	GB_OPE_Section 4	Final GB3 open pit	OBE - 1:150	3.66	-
		Pit lake at 470 mRL	OBE - 1:500	3.51	
		Maximum pit lake at 500 mRL	OBE - 1:500	3.77	
			MDE - 1:2500	3.06	

6. Geotechnical Considerations

The following sections summarise the implications of the operational and long-term slope stability assessment completed for the proposed MP4 open pit extensions.

6.1 Coronation North

6.1.1 Pit Slope Stability

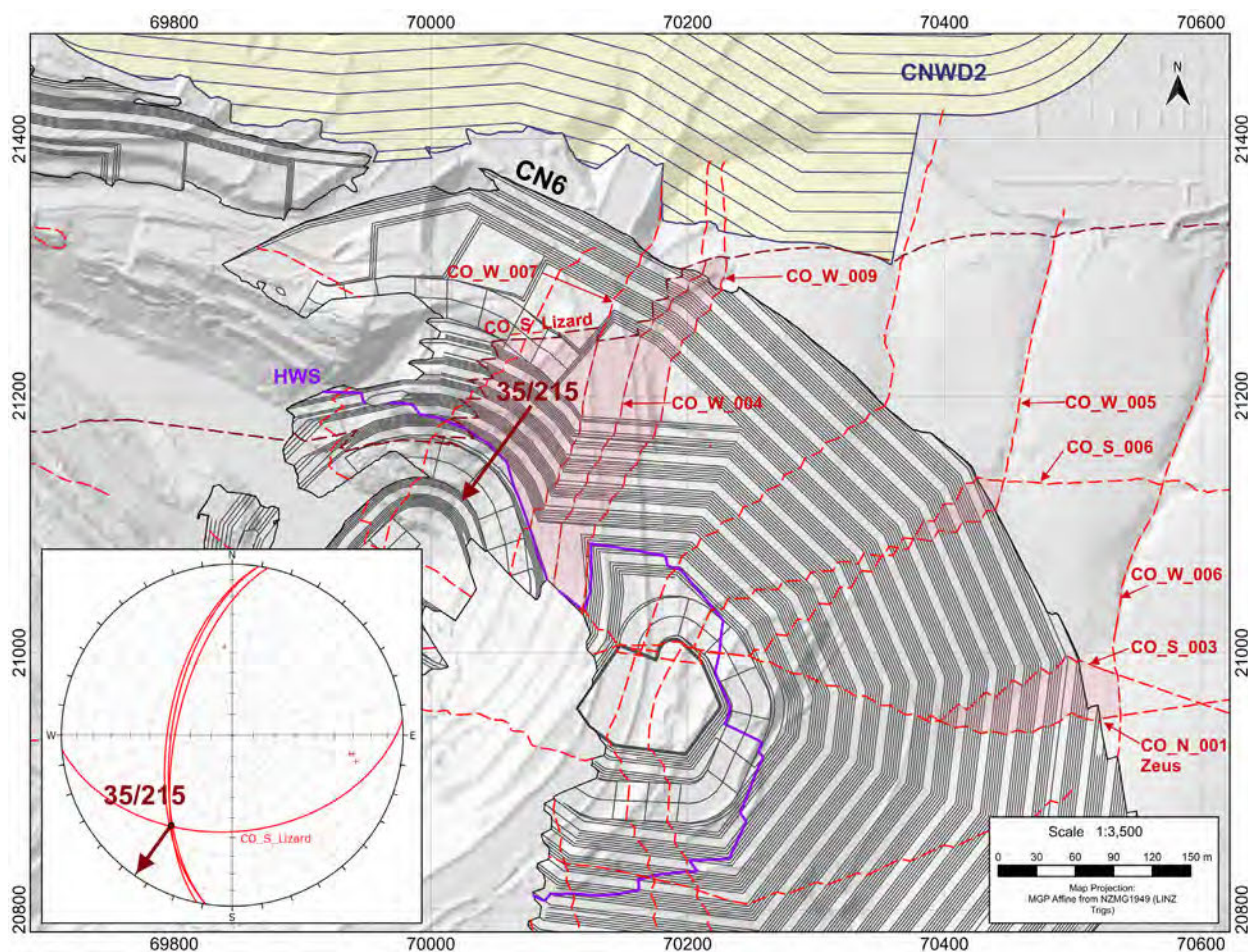
6.1.1.1 CN6 Northeast Wall

Historically, slopes constructed at similar slope aspect to the proposed CN6 northeast wall have experienced large scale wedge instabilities controlled by intersection faults and shears, the Lizard Fault being the controlling structure behind the CN4 northeast wall instability. This resulted in a zone of crest regression and deformation that extended up to 60 m behind the design crest. Inset 30 presents a kinematic summary based on the OGNZL fault model of potential intersections of major faults or shears with the proposed CN6 northeast wall. This summary highlights several potential wedge instabilities extending up to 30 m behind the proposed pit crest, but do not encroach on the proposed CNWRS2 footprint.

Proposed WRS locations are typically offset 60 m or more from the pit crest. This limits adverse loading of slope crests while providing redundancy should instability occur.

Based on actual slope performance during mining of CN6, additional step-in's and catch berms can be incorporated in the design to provide operational flexibility and post closure slope stability. This may also include scaling and/or removal of potential rockfall material while still in excavator reach.

The inclusion of CNBF3 at the toe of the pit and hydrostatic pressure from the pit lake will continue to add buttress support should this slopes stability be structurally controlled.



Inset 30: Fault intersections with the potential to form wedge failure in the north-east wall of CN6 (similar location to Lizard Block).

6.1.1.2 CN6 Southwest Wall

The southwest wall does not achieve the minimum FoS under static conditions through to closure under operational or seismic loading, similar to slope performance observed and managed during mining of CN4. Instability continues to be controlled by the inter-sheared rock mass and basal sliding on the FF. Mining of CN6 extends the slope strike by approximately 110 m to the southeast beyond that exposed during mining CN5, with an additional 12 m of depth at the northwestern extent. Mining mitigations implemented during CN5 will have a positive impact on how the slope responds to this extension.

The stability of the wall should be closely monitored and managed during mining (as per normal operating practice at the Macraes Operation), this includes the time at which point the FoS will be lowest. The placing of in-pit backfills provides buttress support for this slope and displacement is expected to arrest post closure.

At the completion of mining, potential slope movement on the southwest wall will be bound by the physical extent of the FF relative to the point at which it intersects the ground surface. For this reason, an exclusion zone by way of peer reviewed geotechnical assessment at completion of mining is considered an appropriate long term control measure.

6.1.2 In-Pit Backfills

CNBF2 and CNBF3 will be constructed within the CN6 pit void post mining, relocating waste from CNWRS1, to allow for the northern drainage channel and from Coronation open pit. Based on LE analyses results and site experience, backfill slopes need to be 33° or flatter to maintain long term stability.

6.1.3 Pit Lake

The post closure pit lake level is controlled by the northwest drainage channel to be developed during mining of CN6. Slope stability associated with CNBF2 adjacent to the channel is presented in supporting document PSM71-375R (Reference 10). Lake filling to this level has a positive effect on slope stability as the lake rises.

6.2 Coronation

6.2.1 Pit Slope Stability

In absence of adversely dipping major structures, long term slope stability at Coronation open pit is controlled by rock mass shear strength, which historically performs well in fresh schist. The stability of the pit walls will be closely monitored and managed during mining, as per normal operating practice at the Macraes Operation.

To maintain the northeast crest of CO8 at the base of Trimbells WRS, an inter-ramp of 33° is suggested within the backfill material to prevent batter deformation.

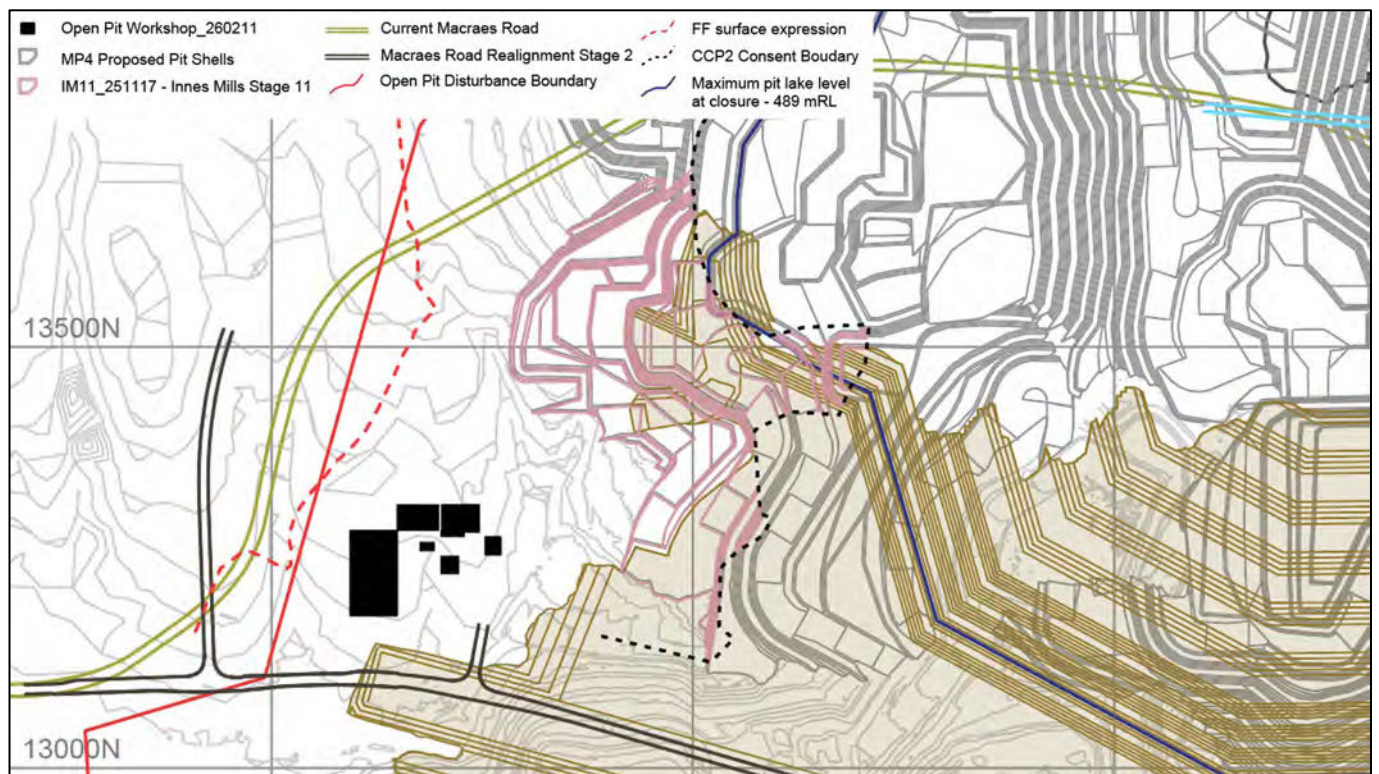
6.2.2 In-Pit Backfills

COBF1 is proposed to backfill the southern half of the Coronation pit void with the final elevation aligning with the southern pit crest at 705 mRL. The western toe is adjacent to the southern drainage channel with minimum offset of 18 m. To achieve long term stability and maintain a FoS greater than 1.2, the western slope is required to be laid back to 33°.

6.3 Innes Mills

6.3.1 Stage 11

The western extent of the proposed IM11 pit extends 140 m beyond the current open pit consent boundary, Inset 31. This area of the west wall is expected to deform in a similar magnitude typical of previously mined Innes Mills west walls. IMBF1 is proposed to buttress along this section of west wall, reaching 520 m at its maximum height providing long-term support post closure.



Inset 31: Extent of IM13 west wall (pink) included in consent application west of CCP2 boundary.

Prior to Stage 2 realignment of Macraes Road, the western crest of IM11 will have an offset of 65 m from the current Macraes Road. It will require OGNZL to maintain the robust Ground Control Management Plan (GCMP) and TARP-based monitoring-management currently in place to manage Macraes Road stability, as part of existing CCP2 consent conditions.

The development of cracking in the road occurs very slowly and is preceded by deformation within the mining area closer to the pit. The multi layered monitoring system outlined in the surface GCMP, combined with the slow-creep mechanism allows OGNZL to employ the available management controls to mitigate rapid changes in the road surface.

Reference to interactions with Macraes Road was assessed in relation to potential risks associated with the MP4 pit designs. PSM consider it prudent that the current, robust geotechnical management approach being utilised for the Macraes Road is maintained to mitigate potential effects of west wall movement throughout the life of the Innes Mills pit. These controls should remain in place until it can be demonstrated that any ongoing effects to the public road will be negligible, or until the road is realigned.

6.3.2 Stage 12

Long-term stability of the proposed IM12 eastern extension was assessed in LE analysis sections IM_OPE_Section 1 and IM_OPE_Section 2. To accommodate IMOP extensions to the east and north, two separate realignments of the Macraes Road are proposed to maintain the flow of public traffic past the Macraes Operation. Inset 32 presents offset distances for the realignments relative to IM12 pit crest and LE sections that captures the minimum step off distance:

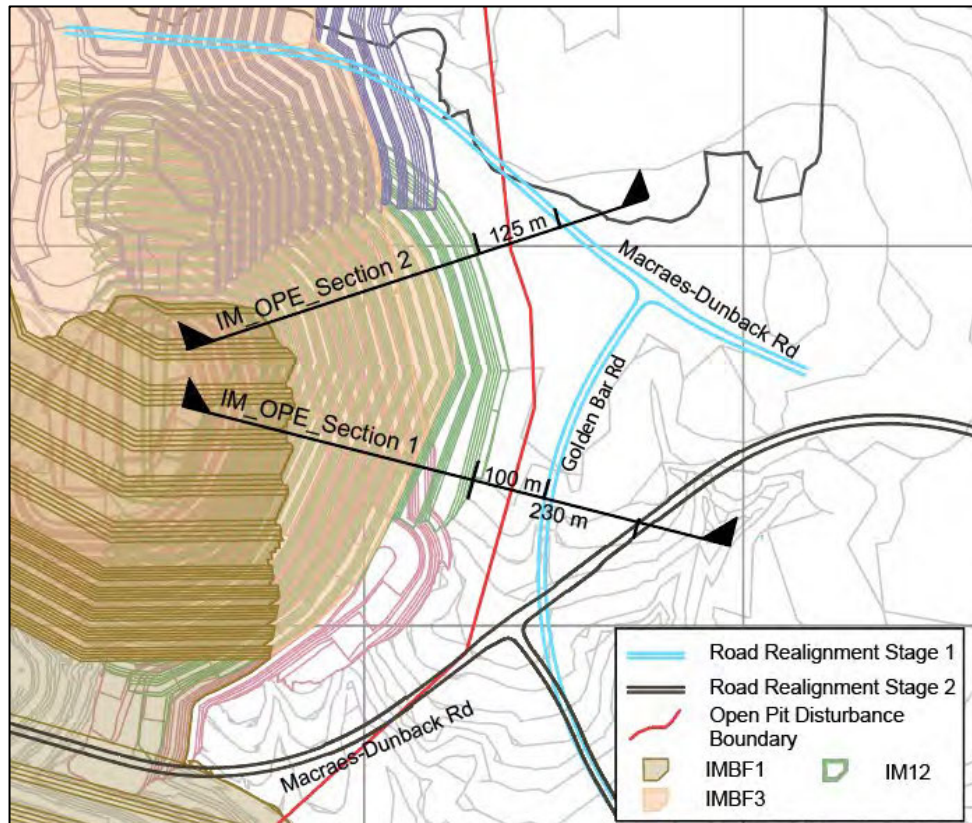
- Stage 1:
 - 125 m to Macraes Road
 - 100 m to Golden Bar Road.
- Stage 2:
 - 230 m to Macraes Road.

Based on the available fault model and an IRA of 43°, the east wall achieves a FoS greater than 1.5 under static and pseudo-static conditions for operational and post-closure conditions.

As part of the mining plan of IM13, IMBF2 will be constructed adjacent to the IM12 east wall to a maximum elevation of 520 mRL, providing long term slope buttressing. The maximum height of the post-closure pit lake is 473 mRL, resulting in no water ponding in front of the IM12 final slope.

The stability of the pit walls will be closely monitored and managed during mining, as per normal operating practice at the Macraes Operation to identify localised adversely dipping structures, currently not included in the OGNZL fault model.

Stage 2 realignment of Macraes Road will see the road corridor established along the crest of the completed FRBF at approximately 520 mRL. Stability and settlement of the road corridor was assessed by EGL and presented in their Macraes Road Technical Report (Reference 12).



Inset 32: Offset distance for Stage 1 and 2 realignments of Macraes-Dunback and Golden Bar Roads relative to IM12 pit crest.

6.3.3 Stage 13

6.3.3.1 East Wall

The IM13 eastern extension will result in a 300 m tall highwall with a crest offset to the proposed consent boundary ranging between 30 to 150 m. Operational stability of this slope will be structurally controlled by adversely orientated persistent faults and shears as presented in LE results of IM_OPE_Section 5. We note that the current OGNZL fault models have been extrapolated across much of this wall based on historic pit exposures and borehole intersections. However, given the inherent variability of geological conditions, their exact locations are uncertain and should be considered low to moderate confidence for targeted 2D LE analyses.

Operational management of this wall should be aligned with current practices at the Macraes Operation with the ability to allow for flexibility in slope design when adversely oriented structures are exposed:

- Allow for wider geotechnical berms at targeted depths to catch potential rockfall material;
- Maintain lateral confinement by shortening north-south exposure length;
- Allowance for a 20 m geotechnical 'step-in' every 100 m vertically to provide geotechnical design flexibility for the inclusion of in-situ toe buttress support;
- Allow for multiple campaigns of horizontal drainhole installation targeting perched water behind faults; and

- Staged mining to allow for deformation to abate where applicable.

Post closure stability of this slope will be supported by the in-pit backfills proposed to fill most the IMOP void.

6.3.3.2 North Wall

The proposed crest of the north wall will maintain a 50 m offset from the SP11 embankment toe following removal of tails. No structural controlled stability mechanisms have been identified for this wall based on the current fault model and long-term stability will be fully supported by the in-pit backfill IMBF2 to the maximum height of 530 mRL.

6.3.3.3 West Wall

Expected west wall deformation and mine staging was discussed in Section 5.6.4. OGNZL's proposed mine staging will limit the FF's strike length exposure through progressive backfilling to provide buttress support. Unloading of the MTI by removing tailings to 512 mRL and the associated upstream embankments to 515 mRL is considered a prudent geotechnical management strategy for the following reasons:

- It reduces modelled displacement and strain driven by planar sliding along the FF by approximately 50% but does not eliminate displacement all together; and
- It removes stored tailings from the head of the slope that could otherwise be mobilised should the integrity of the of the MTI be compromised.

OGNZL should continue to include flexibility within the mine plan for the inclusion of geotechnical step offs and periods of start-stop mining to manage slope deformation during mining adjacent to the MTI.

6.3.4 In-Pit Backfills

The majority of the IMOP void will be backfilled in three stages to provide buttress support to all slopes and as part of the FTSF embankment. Similar to the final landform discussed in Sections 6.1.2 and 6.2.2, slopes need to be 33° to achieve the slope stability evaluation standard outlined in Table 7.

6.3.5 Open Pit Workshop

As part of the Project, the Open Pit Workshop will be re-located from Contractors Hill to west of FTSF embankment (IMBF1) and within the current mining permit, Inset 31. The proposed workshop location is east the FF surface expression and adjacent to the Macraes Fault Zone. The workshop's foundations are within the IMOP west wall deformation zone and are expected to include zones of variable rock mass quality due to past shearing. The IMBF1 will be constructed down slope to 520 mRL and will provide long term buttress support, all but eliminating the potential for west wall movement in this area. Based on the proposed location, no geotechnical constraints are envisaged relevant to the consenting application.

6.4 Golden Bar

As with most pit slopes in the Macraes Operation, if stability only relied on rock mass conditions, then GB3 meets the evaluated FoS for all slopes under static and pseudo-static scenarios. However, adversely oriented geological structure is the primary influence on slope instability at Macraes. Should such faults or shears be present within rock mass between the pit wall and public road reserve, a FoS of 1.5 may not be achieved.

Allowances should be made within the mine plan for the inclusion of geotechnical step offs or localised buttressing should adverse slope performance develop to maintain stability of the pit crest within the consented boundaries.

6.4.1 Golden Bar Road

The proposed 170 m high eastern pit wall of GB3 has an offset of 50 m from the Golden Bar Road (an unsealed public road). Experience from previous Golden Bar mining suggests that the rock mass is good quality with favourable as-built slope performance. In saying this, the Golden Bar fault model is limited to extrapolated faults from GB1 face mapping. That mapping suggests there are no adversely dipping faults in the vicinity of Golden Bar Road.

PSM has reviewed the LiDAR topography and aerial imagery and identified two lineaments in the vicinity of the east and north walls. Their surface traces relative to the proposed east wall are shown in Inset 33. To date, no site investigation (trenching or drilling) has been undertaken in this area, therefore dip/dip direction and character of the



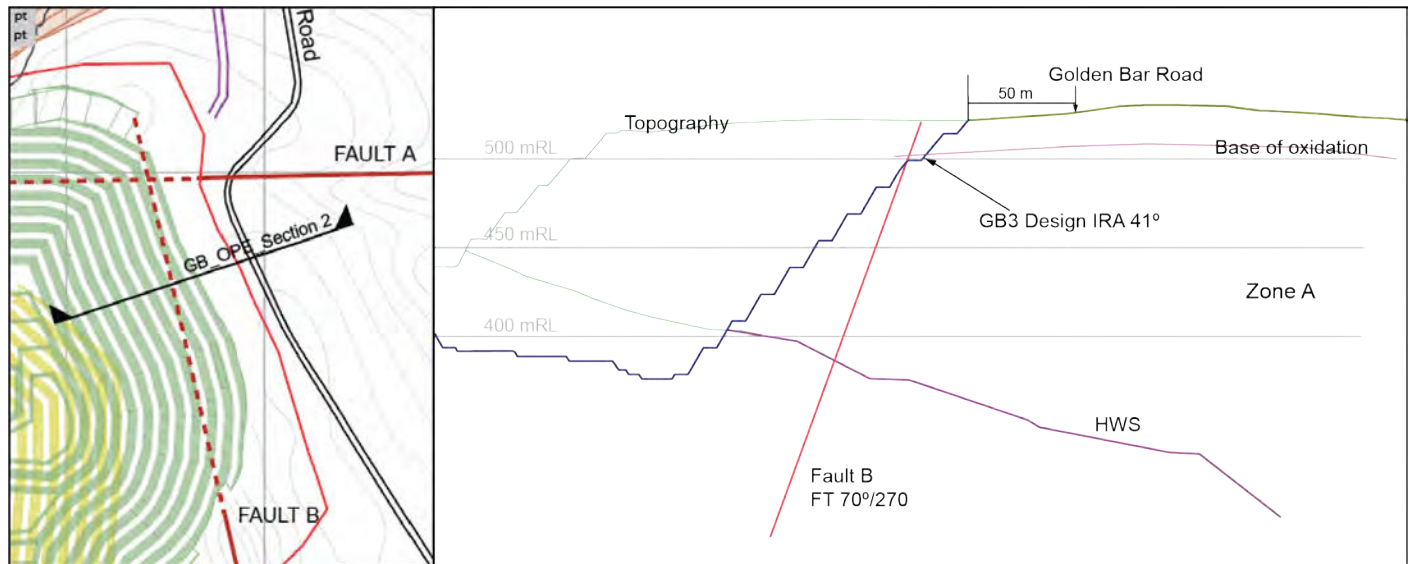
inferred faults are unknown. For the purpose of this review, we have conservatively assumed a westerly dip direction 70°, similar to the typical highwall fault geometries mapped and observed elsewhere at Macraes.

When assessing potential crests offset from the road, both bench scale kinematic block sliding and inter ramp scale failure mechanisms have been considered.

The 50 m offset of the east wall and Golden Bar Road allows for the following:

- Sufficient space to construct a safety bund between road and pit crest; and
- Allowance for batter scale instabilities that rapidly develop about the pit crest during or immediately preceding mining.

Management of the highwall and road corridor stability using a robust geotechnical monitoring and management approach.



Inset 33: Plan of GB3 crest illustrating offset to Golden Bar Road and modelled Fault B with a dip of 70° towards the west.

PSM recommend that OGNZL implement a robust GCMP to manage the stability of Golden Bar Pit and Road in a similar manner to that required by CCP2 consent conditions for Macraes Road. This includes establishing a suite of operational controls during mining of GB3 including:

- Active slope monitoring including InSAR, slope radar, prism, GNSS and EOM topography surveys;
- Regular geotechnical mapping of pit faces to assess and verify encountered geotechnical conditions;
- Groundwater management provisions including:
 - Installation of VWP around the pit crest;
 - Dewatering/pumping wells to lower pit lake levels ahead of mining; and/or
 - Horizontal drainage holes to locally drawdown groundwater and pore pressures within the slope should highwall depressurisation be required.
- Develop and maintain dedicated TARP controls for both pit slope management and the public road as currently employed for other pits in the operation.

7. Conclusions

The following points summarise our overarching conclusions from this assessment:

- The MP4 project includes cutback extensions to existing open pits at Coronation, Coronation North, Innes Mills and Golden Bar. After more than 30 years of open pit mining across the site, OGNZL have a detailed record of performance precedent for the type of ground conditions and range of potential geotechnical pit-slope failure modes that could be encountered within the proposed pit expansions.

- Highwall mapping and slope performance monitoring of previous pit stages and cutbacks has provided a level of geotechnical data and understanding that far exceeds the available information for an equivalent greenfield project. In addition, the Macraes Operation has been supported by PSM throughout the aforementioned mining history. This has informed the development of a suite of pit slope monitoring and management processes, as documented in the surface GCMP (Reference 12) that have facilitated ongoing safe and productive open pit mining in an often challenging geotechnical environment.
- PSM has undertaken an appropriate level of detailed geotechnical assessment for each of the proposed open pit extensions in order to identify the key geotechnical hazards, potential failure modes and appropriate mitigation strategies. All pits are expected to offer further geotechnical challenges, and the development of large-scale pit slope creep is almost inevitable in some domains. However, the predicted slope movement mechanisms are expected to be similar to those previously encountered. This provides a high level of confidence in the mining feasibility and established suite of pit slope management strategies available to mitigate safety and environmental risks.
- Environmental effects of potential pit slope movement are generally limited to potential back-break, cracking and movement beyond the pit crests. Like previous mining stages, risks will be managed and mitigated by robust slope design, operational management, backfilling (in some locations), pit lake filling, and closure assessments that will define areas behind the pit crest that may experience risk of longer-term deformation.

The following points list our specific concluding comments based on the assessment undertaken:

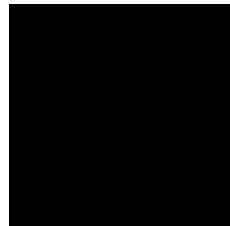
- The indicated FoS for highwalls (both open pit extensions and those being backfilled against) are generally more than 1.5, except where adversely orientated geological structures are present and bench to inter ramp scale instabilities may be expected during mining.
- In areas where proposed pit crests are developed within existing WRS, an inter ramp angle of 33° is recommended to prevent bench deformation within the backfill material.
- In locations where west wall deformation may be expected to occur during mining, inpit backfills have been designed to manage displacements at closure.
- Proposed locations of road realignments around IMOP provide offset from pit crests based on the assessed failure mechanisms.
- The offset of GB3 highwall from Golden Bar Road provides separation to execute the proposed mine plan. Should adversely orientated geological structures be identified during detailed design site investigations or initial mining geotechnical step offs or inpit buttresses can be incorporated within the mine plan to maintain stability of the pit crest relative to Golden Bar Road.
- Where potential highwall instabilities have been identified, the failure extents are contained within the immediate bounds of the respective pits. They do not present a risk to the wider consent boundaries at closure.
- Operational 1:150 year seismic loading does not have a significant impact on FoS or reduction in highwall stability for the typical geological conditions without adverse geological structures.
- During closure conditions, the hydrostatic pressure of water in the pit lakes generally improves the walls' stability.
- Some co-seismic slope movement of highwalls is anticipated under a 1:2,500 maximum design earthquake (low probability strong ground shaking) loading condition for closure. There is potential for failure scarps to extend behind the design pit crest in some locations. It should be noted that there are likely to be many natural slopes in the surrounding area that will also deform at this level of shaking.
- Rapid large-scale pit wall failures are not expected during closure due to the ductile nature of rock mass failures and the lack of initiating factors. Movements are expected to be creep style events and therefore the likelihood of a seiche event within closure pit lakes is low.
- Some ongoing deformation (tension cracking, slumping, subsidence) could occur behind various pit crest post-closure. PSM recommends defining a strip of land/zone of influence around the crest of the combined pits to isolate hazards associated with ground movement and falling from height. Based on a FoS of 1.5, an exclusion zone of approximately 100 m from the pit crest may be suitable based on pit slope stability where other mitigating options are not already employed (e.g. in pit buttresses or geotechnical step offs). Further geotechnical assessment is recommended following mining to better define the zone of influence.

- The implications of climate change to long-term slope stability have been raised as a potential risk item as part of the wider project review. This particularly relates to high intensity rain events and a sudden increase in groundwater levels in cut and fill slopes formed in materials susceptible to erosion such as weathered rock and soil profiles. Final slopes and drainage provisions around the pit perimeters should be reviewed during detailed design to manage potential surface water runoff from extreme meteorological events.
- 2D LE stability modelling indicates no potential interaction between IM12 east and southeast wall with either Stage 1 or 2 realignments of Macraes Road and Golden Bar Road. Based on the available fault model and an IRA of 43°, the east wall achieves a FoS greater than 1.5 under static and pseudo-static conditions for operational and post-closure conditions.
- PSM consider it prudent that the current, robust geotechnical management approach being utilised for the Macraes Road is maintained to mitigate potential effects of west wall movement throughout the life of the Innes Mills pit. These controls should remain in place until it can be demonstrated that any ongoing effects to the public road will be negligible. Long term, the affected part of Macraes Road will be realigned.
- The proposed 50 m offset of the GB3 east wall and Golden Bar Road allows for the following within this specific setting:
 - Sufficient space to construct a safety bund between the road and pit crest;
 - Allowance for potential batter scale instabilities that rapidly develop about the pit crest during or immediately after mining; and
 - Management of the highwall and road corridor stability using a robust geotechnical monitoring and management approach.
- The relocation of the Open Pit Workshop is not expected to have any adverse geotechnical implications.

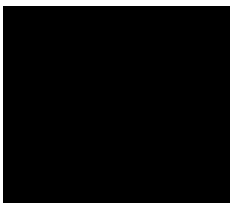
Yours Sincerely



KELLY HORROCKS
ASSOCIATE ENGINEERING GEOLOGIST



RICHARD BREHAUT
PRINCIPAL ENGINEERING GEOLOGIST



ROBERT BERTUZZI
PRINCIPAL

References

1. OceanaGold (2025) “Macraes Phase Four Project Description – Fast Track Approvals Act 2024” dated 21 November 2025
2. OceanaGold NZ Ltd (2024) “NI 43-101 Technical Report Macraes Gold Mine, Otago, New Zealand” dated 28 March 2024
3. Allibone, A. Jones, P. Blakemore, H. Craw, D. Mackenzie, D. Moore, J. Structural Setting of Gold Mineralisation within the Hyde-Macraes Shear Zone, Southern New Zealand. Society of Economic Geologists Inc. Economic Geology v 113, No 2, pp 347-375. 2018.
4. Cruden, D.M and Varnes, D.J (1996) “Landslide Types and Processes” Transportation Research Board, U.S. National Academy of Science, Special Report, 247: 36-75.
5. OceanaGold (2003) “Golden Bar Slope Design Report” dated August 2003
6. GHD (2026) “Macraes Phase 4 FTA, Surface and Groundwater Assessment” dated 6 August 2026
7. EGL (2026) “OceanaGold (New Zealand) Limited, Macraes Operation, Macraes Phase 4, MTI and SP11A Technical Report” dated 7 August 2026. EGL Ref:10092
8. Bradley Seismic Limited (2021). Probabilistic Seismic Hazard Analysis for Macraes, New Zealand.
9. Southern Geophysical Ltd (2021) Geophysical Site Investigations: Downhole Shear-wave Velocity Tests, Macraes Gold Operation.
10. PSM (2026) “Macraes Phase 4 Project: Waste Rock Stacks – Geotechnical Stability” dated 18 August 2026. Doc no: PSM71-375R
11. EGL (2026) – “OceanaGold (New Zealand) Limited, Macraes Operation, Macraes Phase 4, Macraes Road Realignment Stage 2 Technical Report” dated 29 July 2026. EGL Ref:10092
12. OceanaGold NZ Ltd (2026) “Ground Control Management Plan – Macraes Surface Mining Operations” dated July 2026. Document ID: MAC-350-PRO-000

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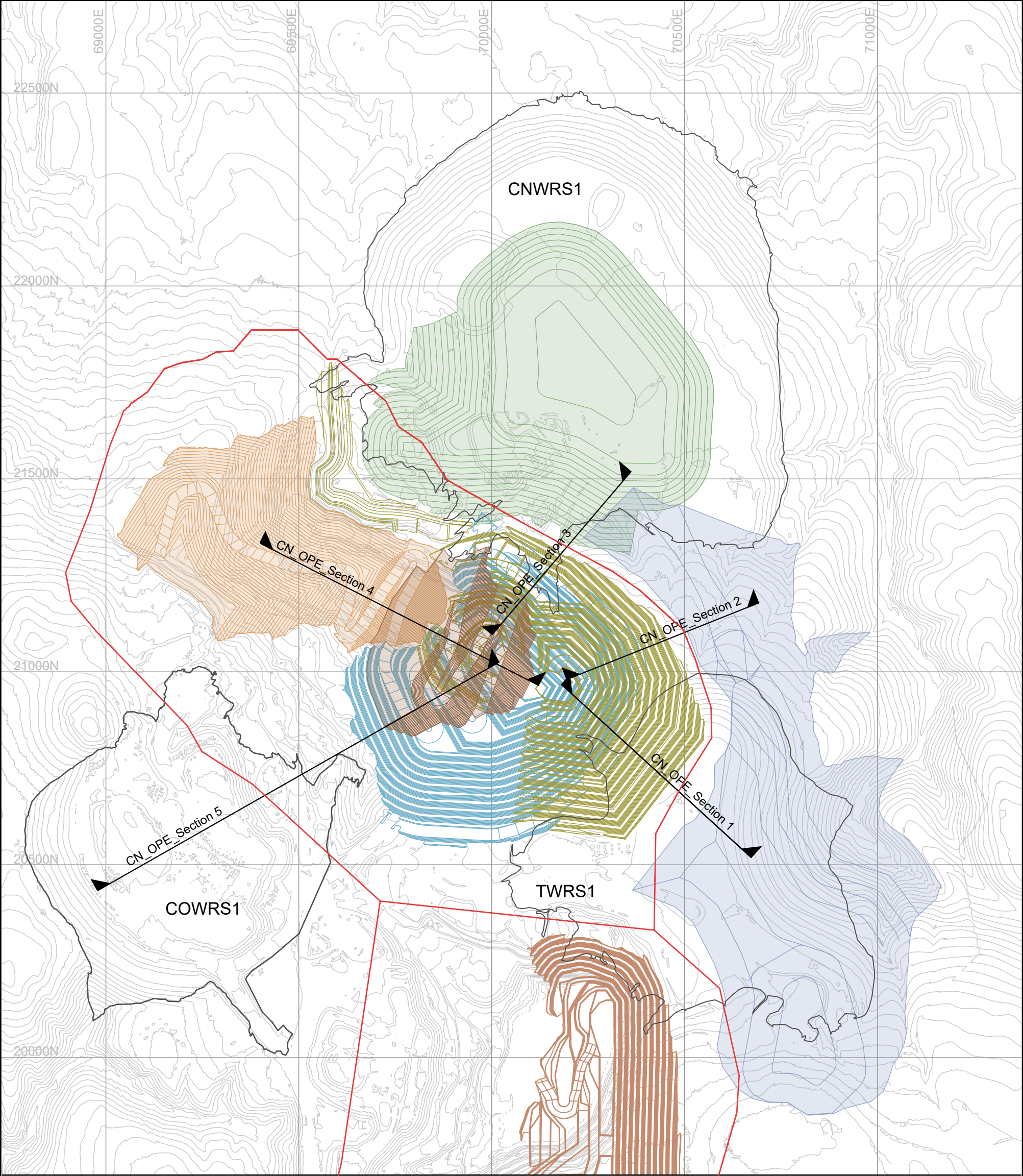
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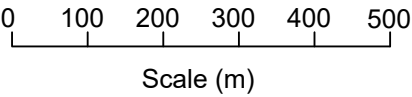
Figures





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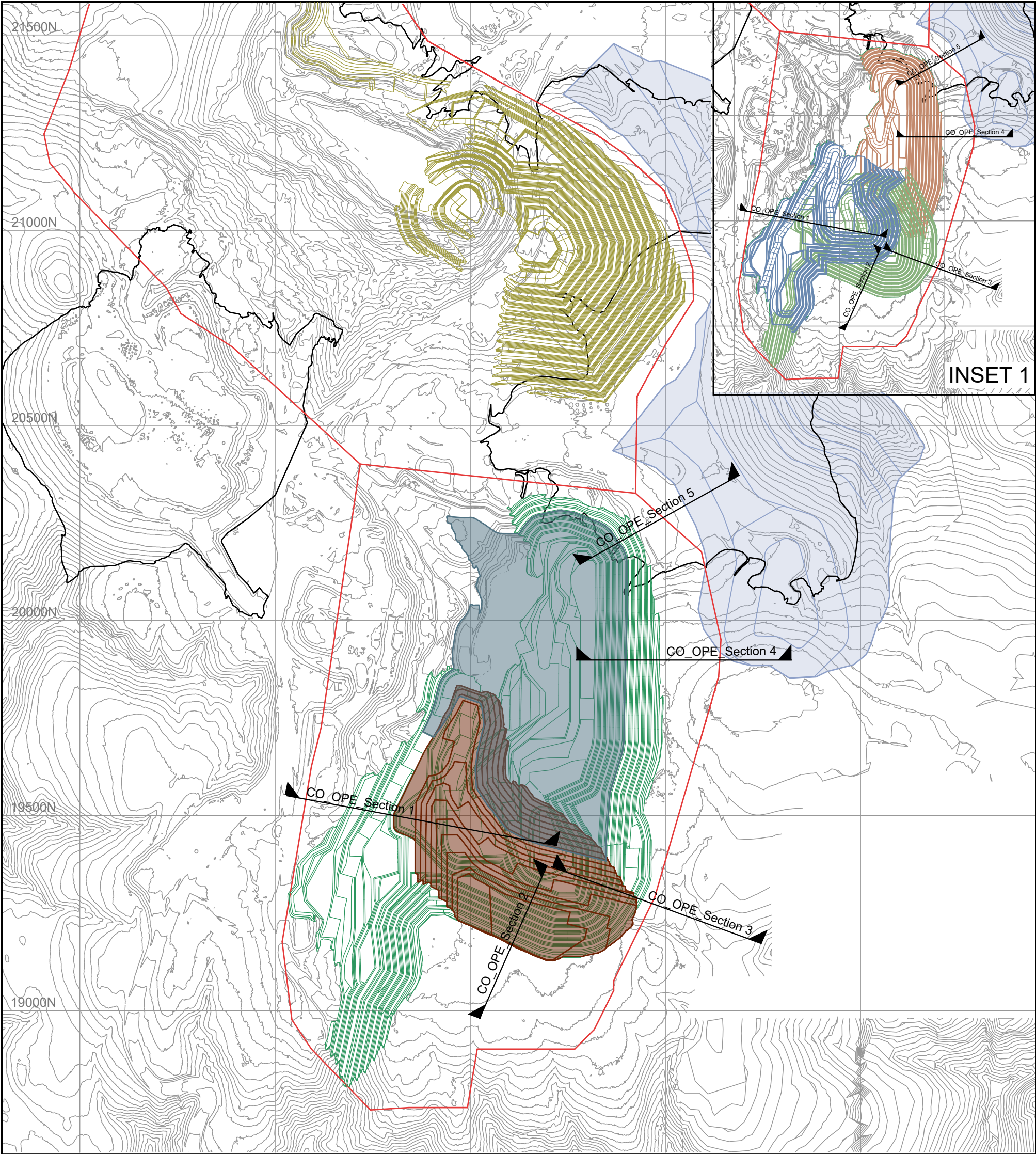
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|  Coronation North Stage 5 (<i>CN5_250924</i>) |  Stability Cross Section |
|  Coronation North Stage 6 (<i>CN6_with_Drain_260216</i>) |  Open Pit Disturbance Boundary (<i>250818_CNCO_PIT_MP4FAST_POLYGON</i>) |
|  Coronation North Backfill 2 (<i>CNBF2_design_260216</i>) | |
|  Coronation North Backfill 3 (<i>CNBF3_design_260216</i>) | |
|  Coronation North Waste Rock Stack 2 (<i>CNWD2_design_260216</i>) | |
|  Trimbells Waste Rock Stack (<i>TWRS_design_251119</i>) | |
|  Coronation Stage 8 (<i>CO8_250731</i>) | |



OceanaGold (New Zealand) Limited
Macraes Phase Four Project
Open Pit Extensions
CORONATION NORTH
CROSS SECTION LOCATIONS

PSM71-363R

Figure 1



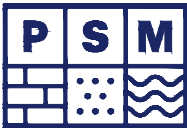
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|  Coronation North Stage 6 (<i>CN6_260216</i>) |  Stability Cross Section |
|  Coronation Stage 6 - 8 Final Pit Shell |  Open Pit Disturbance Boundary (<i>250818_CNCO_PIT_MP4FAST_POLYGON</i>) |
|  Coronation Backfill 1 (<i>COBF1_260122</i>) | |
|  Coronation Backfill 3 (<i>COBF3_260216</i>) | |
|  Trimbells Waste Rock Stack (<i>TWRS2_251119</i>) | |

INSET 1

- | |
|---|
|  Coronation Stage 6 (<i>CO6_250603</i>) |
|  Coronation Stage 7 (<i>CO7_with_Drain_260216</i>) |
|  Coronation Stage 8 (<i>CO8_250731</i>) |

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Scale (m)

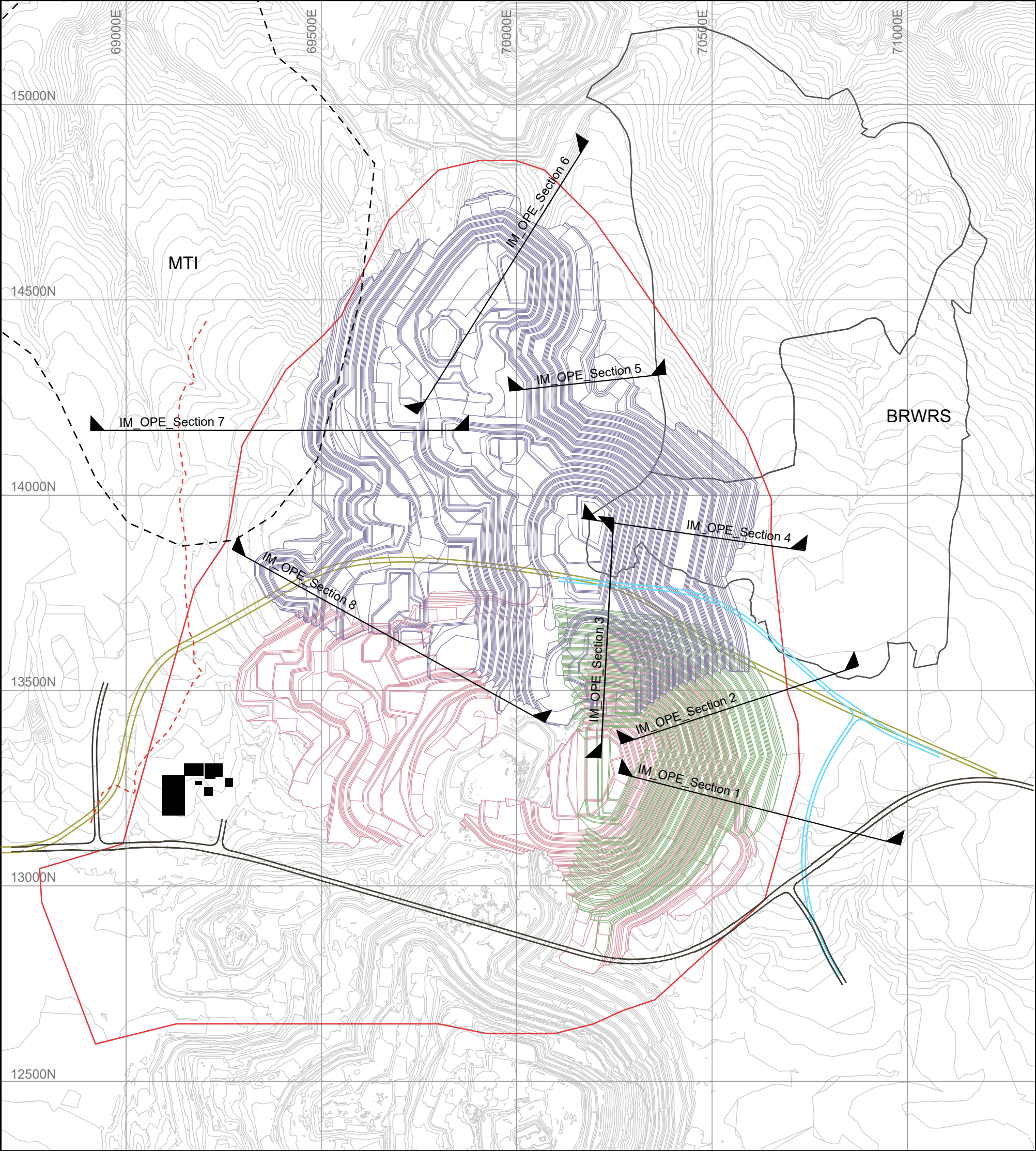


OceanaGold (New Zealand) Limited
Macraes Phase Four Project
Open Pit Extensions

CORONATION
CROSS SECTION LOCATIONS

PSM71-363R

Figure 2



LEGEND

-  As-mined Surface (*site_as_mined_251106*)

 Open Pit Workshop (*260211_Workshop_Buildings*)

 Innes Mills Stage 11 (*IM11_251117*)

 Innes Mills Stage 12 (*IM12_250505*)

 Innes Mills Stage 13 (*IM13_260302*)
-  As-built Waste Rock Stack Footprint (*Feb_2024*)

 Mixed Tailings Impoundment Boundary

 Stability Cross Svection

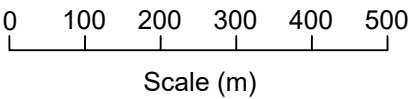
 Current Macraes Road

 Macraes Road Realignment Stage 1 (*STAGE 1 3D STRINGS AND SURFACE*)

 Macraes Road Realignment Stage 2 (*3D DESIGN STAGE 2*)

 Open Pit Disturbance Boundary (*250811_IM_MP4FAST_PIT_POLYGON_2025_LINE*)
-  FF surface expression

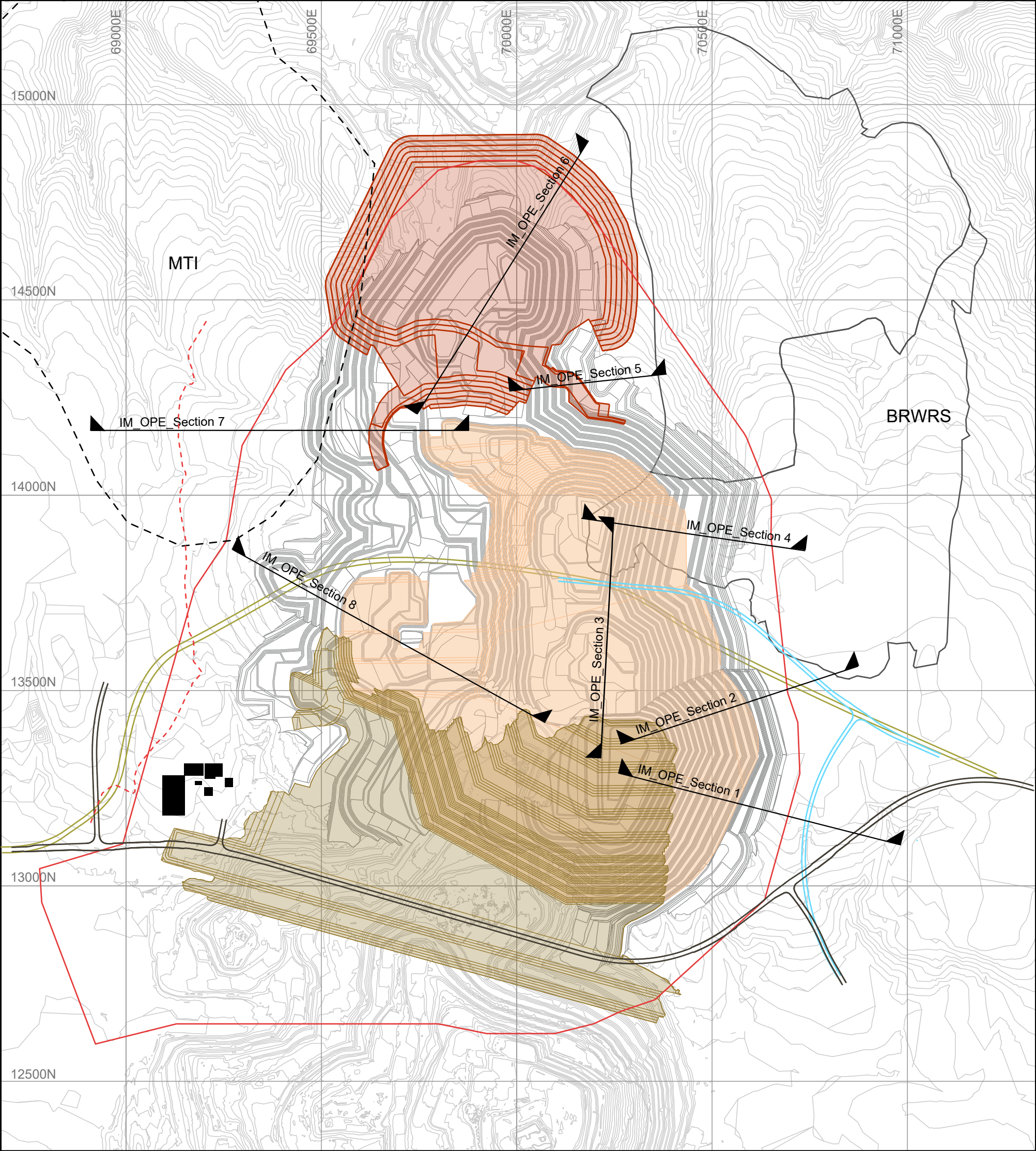
 Maximum pit lake level at closure - 489 mRL



OceanaGold (New Zealand) Limited
Macraes Phase Four Project
Open Pit Extensions
INNES MILLS
CROSS SECTION LOCATIONS

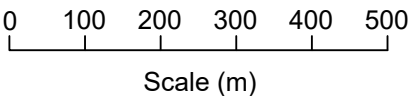
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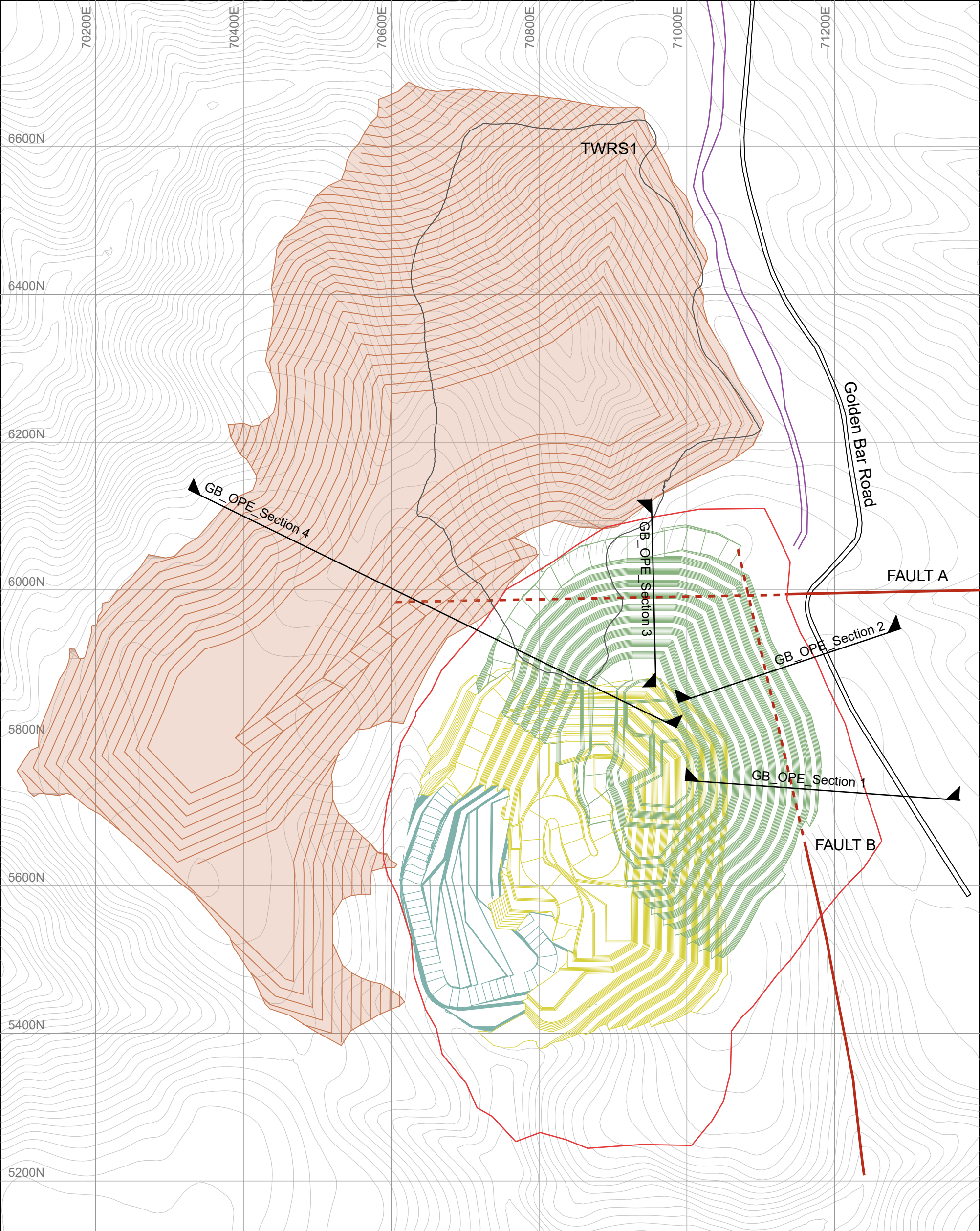
Figure 3



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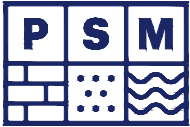
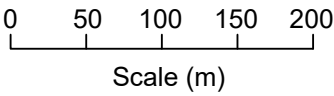
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|  As-mined Surface (<i>site_as_mined_251106</i>) |  As-built Waste Rock Stack Footprint (<i>Feb_2024</i>) |  FF surface expression |
|  Open Pit Workshop (<i>260211_Workshop_Buildings</i>) |  Mixed Tailings Impoundment Boundary |  Maximum pit lake level at closure - 489 mRL |
|  MP4 Proposed Pit Shells |  Stability Cross Svection | |
|  Innes Mills Backfill 1 (<i>IMBF1_260205</i>) |  Current Macraes Road | |
|  Innes Mills Backfill 2 (<i>IMBF2_251202</i>) |  Macraes Road Realignment Stage 1 (<i>STAGE 1 3D STRINGS AND SURFACE</i>) | |
|  Innes Mills Backfill 3 (<i>IMBF3_251202</i>) |  Macraes Road Realignment Stage 2 (<i>3D DESIGN STAGE 2</i>) | |
| |  Open Pit Disturbance Boundary (<i>250811_IM_MP4FAST_PIT_POLYGON_2025_LINE</i>) | |





LEGEND

- | | |
|--|---|
|  As-mined Surface (<i>GB topo_2003</i>) |  Open Pit Disturbance Boundary (<i>251108_GB_MP4FAST_PIT_POLYGON_2025</i>) |
|  Golden Bar Stage 1 (<i>GB1_design</i>) |  As-built Waste Rock Stack Footprint (<i>Feb 2024</i>) |
|  Golden Bar Stage 2 (<i>GB2_240510</i>) |  Stability Cross Section |
|  Golden Bar Stage 3 (<i>GB3_260330</i>) |  Surface Lineament |
|  Golden Bar Waste Rock Stack 2 (<i>GBWRS2_251119</i>) |  Golden Bar Haul Road (<i>GB_Haul_Road_MGPG_20250827</i>) |



OceanaGold (New Zealand) Limited
Macraes Phase Four Project
Open Pit Extensions

GOLDEN BAR
CROSS SECTION LOCATIONS

PSM71-363R

Figure 5

Appendix A
OGNZL Data Summary



1. Site Wide Data

- Pre-mining topographic surface (*DEM-MacaesFullSite_1970s_MGPG_9m.dxf*)
- Site wide drillhole database (*DH_251204surface.csv*)
- LiDAR (*Aerial_surveys_Ltd_LiDAR_2026-01-08*)

2. Design Surfaces

2.1 Coronation

The following points list the data provided by OGNZL for the assessment of the Coronation mining area:

- Proposed Coronation North pit shells:
 - Coronation North Stage 5 (*CN5_250924.dxf*)
 - Coronation North Stage 6 (*CN6_with_Drain_260216.dxf*)
- Proposed Coronation pit shells:
 - Coronation Stage 6 (*CO6_250603.dxf*)
 - Coronation Stage 7 (*CO7_with_Drain_260216*)
 - Coronation Stage 8 (*CO8_250731*)
- Proposed WRS extensions and in-pit backfills:
 - Coronation North Backfill Stage 2 (*CNBF2_design_260216.dxf*)
 - Coronation North Backfill Stage 3 (*CNBF3_Design_260216.dxf*)
 - Coronation North West Dump Stage 2 (*CNWD2_design_260216.dxf*)
 - Trimbells Stage 2 (*TWRS2_design_251119.dxf*)
 - Coronation Backfill Stage 1 (*COBF1_260122.dxf*)
 - Coronation Backfill Stage 2 (*COBF2_260122.dxf*)
 - Coronation Backfill Stage 3 (*COBF3_Design_260216.dxf*)
- Proposed consent boundary (*250818_CNCO_PIT_MP4FAST_POLYGON*)
- MP3 consented WRS boundaries:
 - Coronation North West Dump Stage 1 (*CNWRS_170808.dxf*)
 - Coronation Waste Rock Stack (*COWRS_cut_surface.dxf*)
 - Trimbells Stage 1 (*TWRS_250610.dxf*)
- Topographic surfaces:
 - As-mined surface (*Coro_as-mined_220330*)
 - As-built Site surface (*Coro_site_surface_250725*)
- OGNZL fault and geology model - 25 surfaces, dated 3 December, 2025.

2.2 Innes Mills / Frasers TSF

The following points list the data provided by OGNZL for the assessment of the Innes Mills mining and Frasers TSF impoundment area:

- Proposed Innes Mills pit shell:
 - Innes Mills Stage 11 (*IM11_251218.dxf*)
 - Innes Mills Stage 12 (*IM12_260120.dxf*)
 - Innes Mills Stage 13 (*IM13_260302_clipped.dxf*)
- Proposed WRS extensions and in-pit backfills:
 - Innes Mills Backfill Stage 1 / FTSF embankment to 520 mRL (*IMBF1_260205.dxf*)

- Innes Mills Backfill Stage 2 (*IMBF2_251202.dxf*)
- Innes Mills Backfill Stage 3 (*IMBF3_251202.dxf*)
- Frasers West Waste Dump Stage 2 (*FWWD2_design.dxf*)
- Frasers West Backfill (*FWBF_221215.dxf*)
- Proposed TSF surfaces:
 - Frasers TSF Stage 3 Closure (*FTSF_Stage3_Closure_lines_20260205_MGPG*)
 - MTI after tailings rehandled to 512mRL (*260210_MTI_Tails_512mRL_Surface.dxf*)
- Proposed consent boundary (*250811_IM_MP4FAST_PIT_POLYGON_2025_LINE*)
- CCP2 consented surfaces:
 - Innes Mills Stage 9 (*IM9_251208.dxf*)
 - Innes Mills Stage 10 (*IM10_251217.dxf*)
 - Frasers TSF Stage 2 (*FRBF_Stage2_contours_20260204.dxf*)
- MP3 consented WRS boundaries:
 - Frasers South Backfill Stage 2 (*FSBF2_231108_clipped_surf.dxf*)
 - Frasers West Waste Dump (*FWWD_120829.dxf*)
- Frasers east wall buttress (*Buttress 430mRL v2.dxf*)
- Topographic surfaces:
 - As-mined surface (*Site_as-mined_251106*)
 - As-built Site surface (*Site_surface_251130*)
- OGNZL fault and geology model:
 - Innes Mills_251203 – 72 surfaces
 - FRUG faults – 195 surfaces and point data
 - Frasers – 9 surfaces
- Infrastructure:
 - Macraes-Dunback public road Stage 1 (*260208_Macraes-Dunback_Road_Stage 1.dxf*)
 - o Included Golden Bar public road relocation
 - Macraes-Dunback public road Stage 2 (*260208_Macraes-Dunback_Road_Stage 2.dxf*)
 - Propose Open Pit Workshop building (*260211_Workshop_Buildings.dxf*)

2.3 Golden Bar

The following points list the data provided by OGNZL for the assessment of the Golden Bar mining area:

- Proposed Pit shells:
 - Golden Bar Stage 2 (*GB2_240510.dxf*)
 - Golden Bar Stage 3 (*GB3_260330.dxf*)
- Proposed Golden Bar Waste Rock Stack Stage 2 (*GBWRS_design.dxf*)
- Proposed consent boundary (*251108_GB_MP4FAST_PIT_POLYGON_2025*)
- Topographic surfaces:
 - As-built surface (*GB_topo_2017_without_water.dxf*)
- Fault model
 - Hanging wall shear (*GOLDEN BAR-OUNCE_TOPSURF_280821_3D.dxf*)
 - Top of oxidation (*GOLDEN BAR-OUNCE_OXIDE SURF_3D.dxf*)
 - Golden Bar Stage 1 highwall mapping of faults (2005)
- Acquire borehole database:
 - 24 partially logged exploration boreholes totalling 1365.7 m

- Core photos for relevant diamond core
- Infrastructure:
 - Golden Bar Haul Road (*GB_Haul_Road_MGPG_20250827.dxf*).

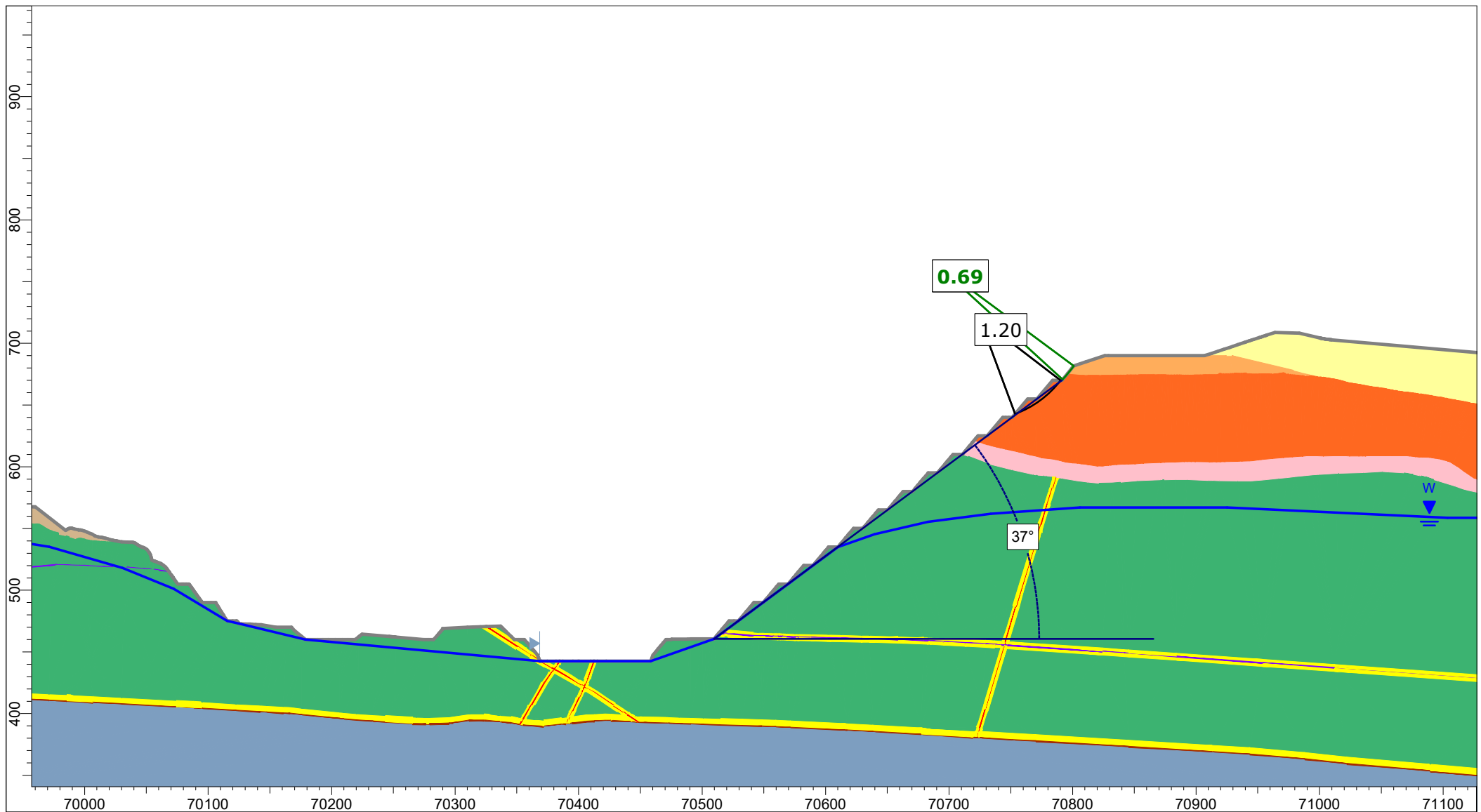
Appendix B
Coronation North Limited Equilibrium Outputs



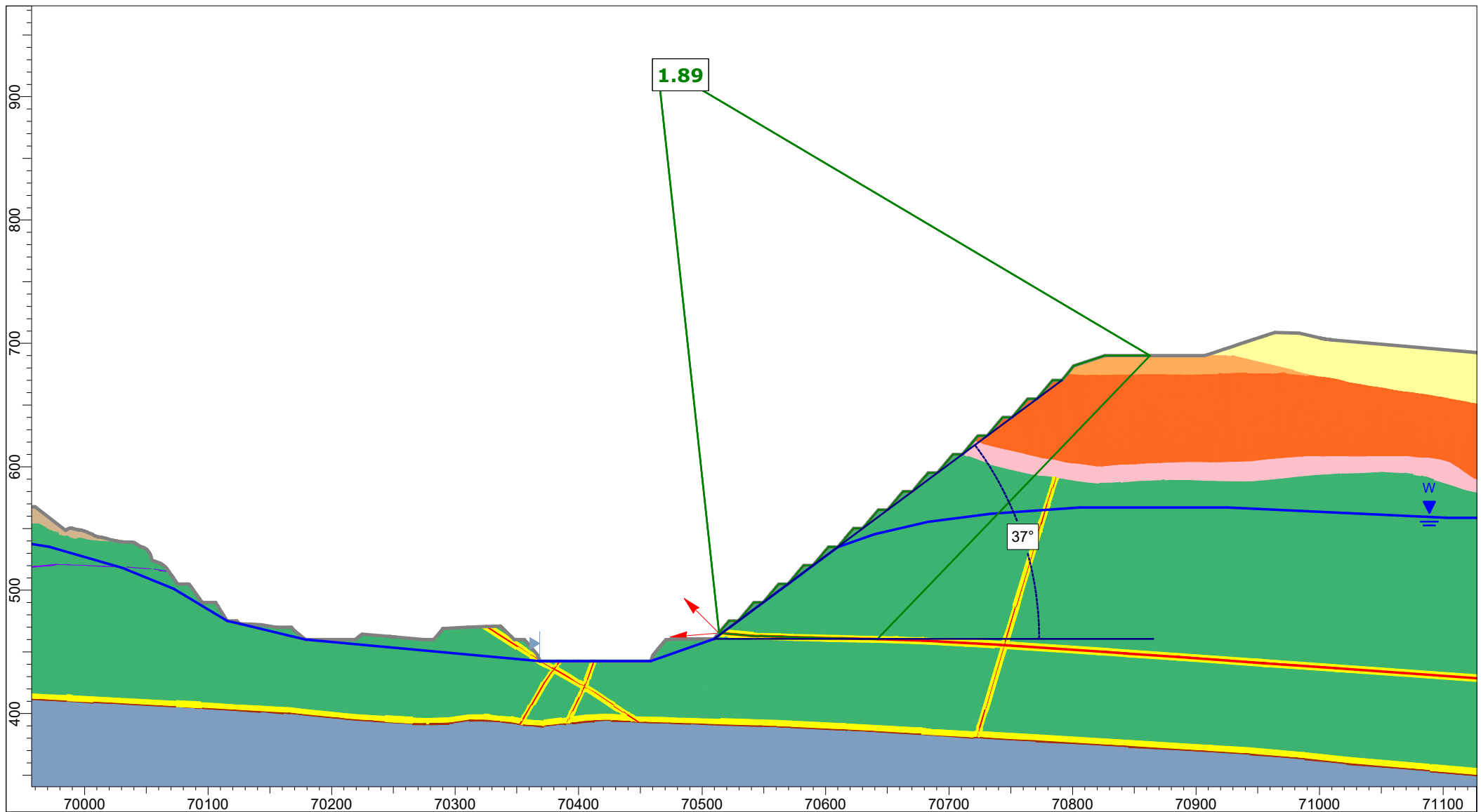
Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (°)	UCS (intact) (kPa)	Parameters vary with depth	GSI	mi	D	Water Surface
Class A		27	Generalized Hoek-Brown			40000	No	65	12	0	Water Table
Class B		27	Generalized Hoek-Brown			40000	No	55	12	0	Water Table
Class C		27	Generalized Hoek-Brown			35000	No	45	12	0	Water Table
Weathered Zone		25	Mohr-Coulomb	100	38						Water Table
Failed Psammite		20	Mohr-Coulomb	1	35						Water Table
Rockfill		20	Mohr-Coulomb	0	40						Water Table
Other Faults		20	Mohr-Coulomb	50	20						Water Table
Hanging Wall Shear		20	Mohr-Coulomb	50	20						Water Table
Footwall Fault		20	Mohr-Coulomb	0	9						Water Table
WRS - As-built		20	Mohr-Coulomb	0	40						Water Table
WRS - Consented		20	Mohr-Coulomb	0	40						Water Table
WRS - FTA Proposed		20	Mohr-Coulomb	0	40						Water Table
In-Pit Backfill		20	Mohr-Coulomb	1	35						Water Table

Pit Lake Filling

Class B - Hu=0.6		27	Generalized Hoek-Brown			40000	No	55	12	0	Water Table
Class C - Hu=0.6		27	Generalized Hoek-Brown			35000	No	45	12	0	Water Table
Other Faults - Hu=0.6		20	Mohr-Coulomb	50	20						Water Table
Footwall Fault - Hu=0.6		20	Mohr-Coulomb	0	9						Water Table
In-pit Backfill - Hu=0.6		20	Mohr-Coulomb	1	35						Water Table
Failed Psammite - Hu=0.6		20	Mohr-Coulomb	1	35						Water Table



Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 1	
Case:	Mining Hu=0.6, Circular	
Date:	25/03/2026	GLE / Morgenstern-Price



Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 1	
Case:	Mining Hu=0.6, Block	
Date:	25/03/2026	GLE / Morgenstern-Price



OceanaGold (New Zealand) Limited

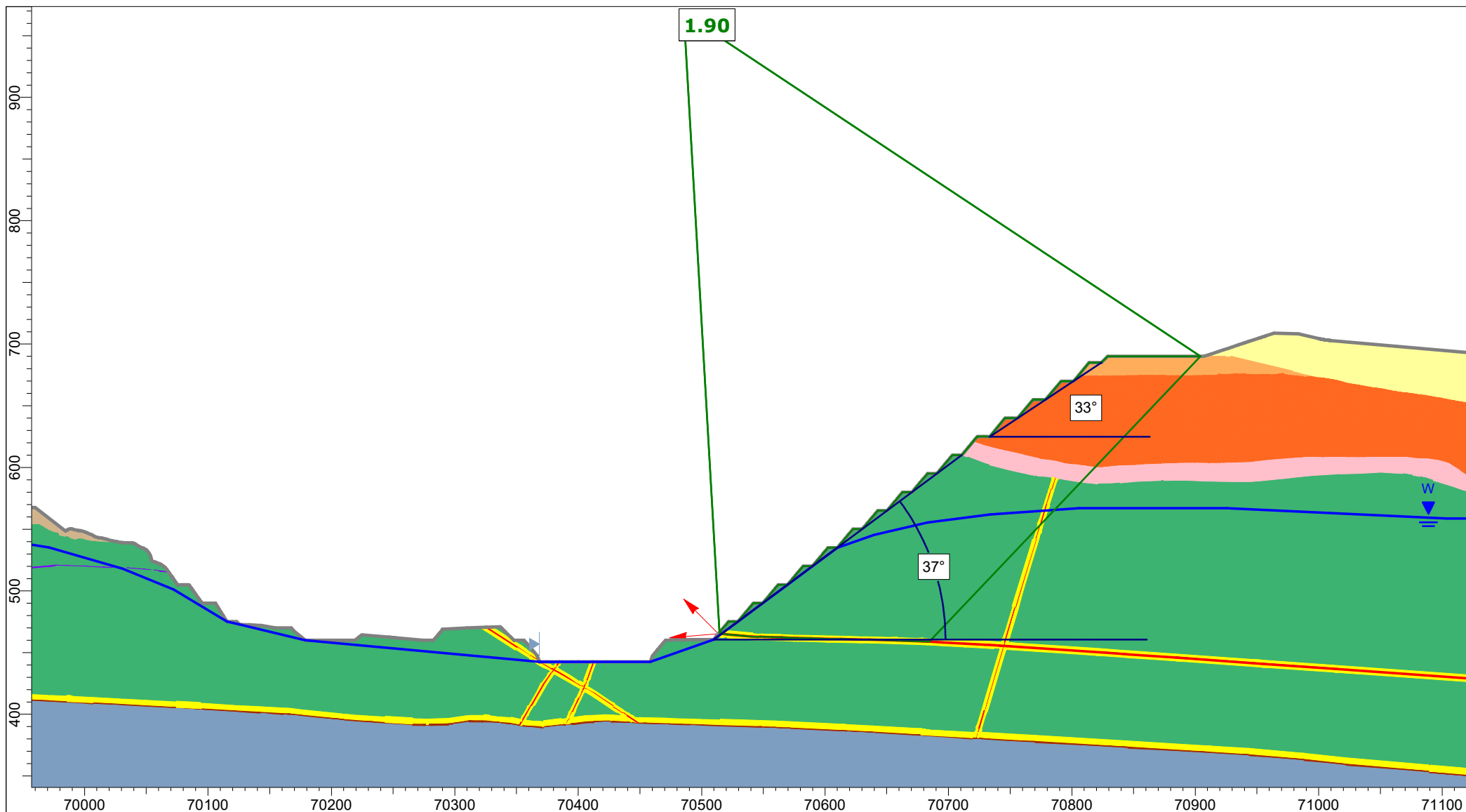
Macraes Phase Four - FTAA, Open Pit Extensions

CN_OPE_Section 1

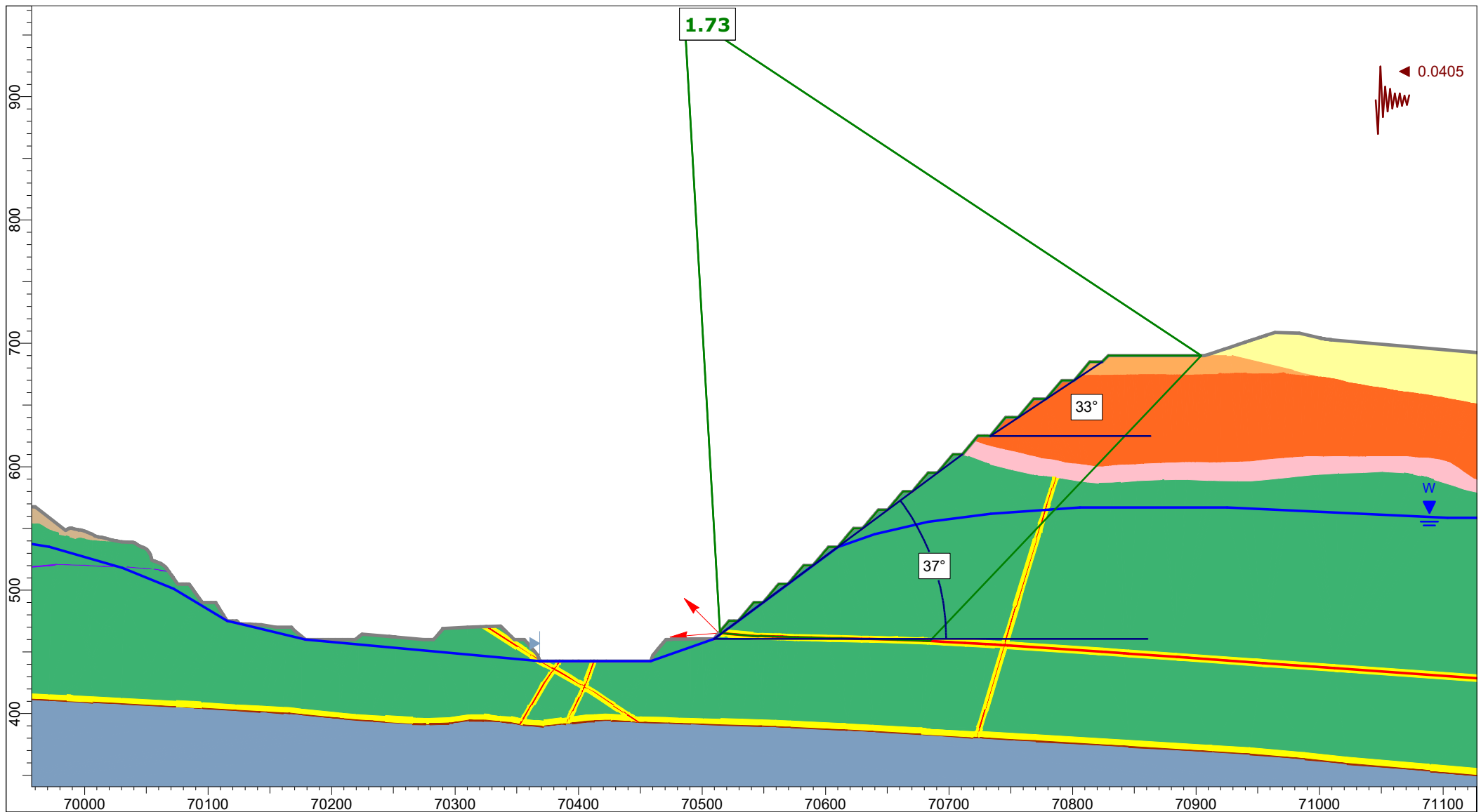
Mining Hu=0.6 - Modified WRS Geometry, Circular

25/03/2026

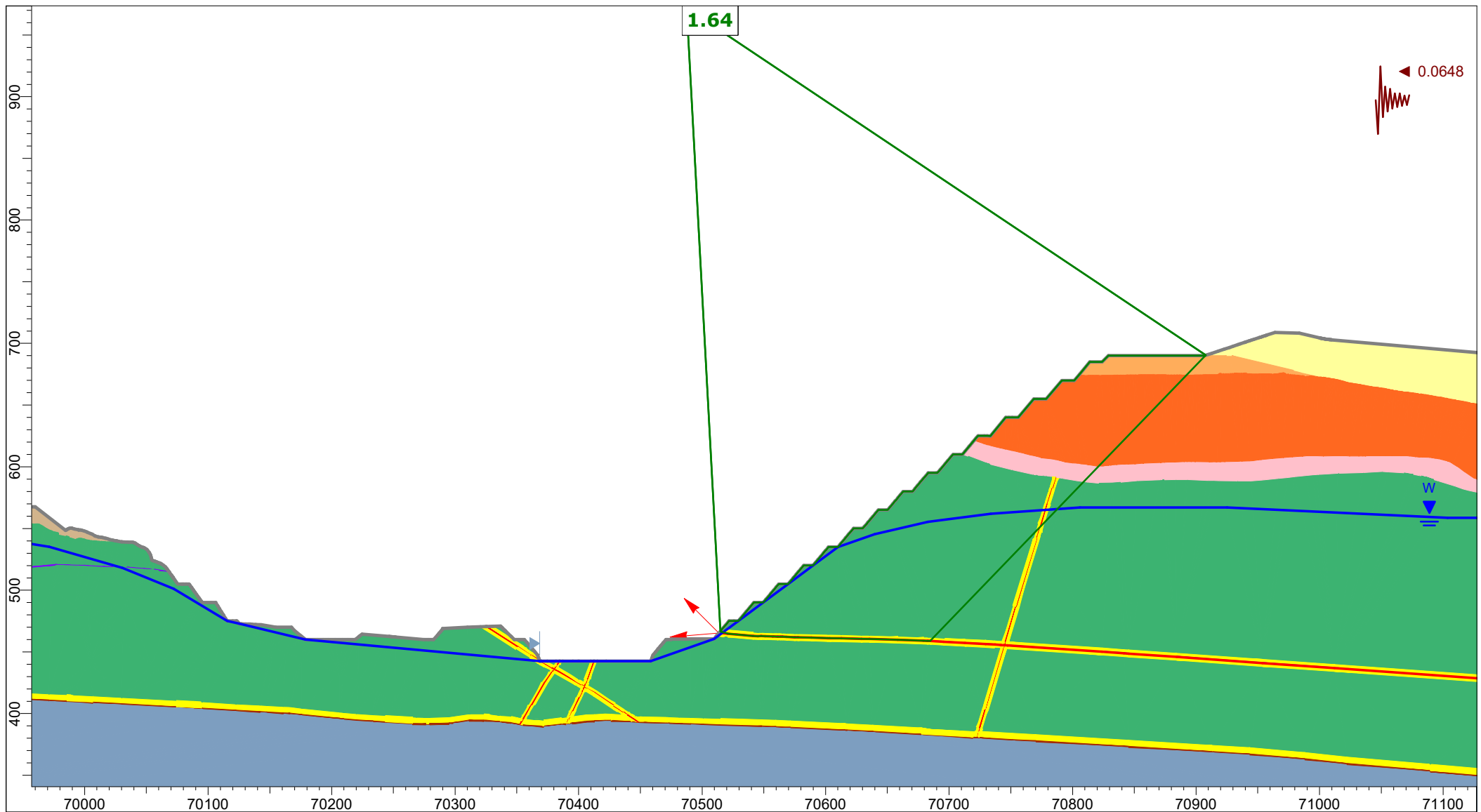
GLE / Morgenstern-Price



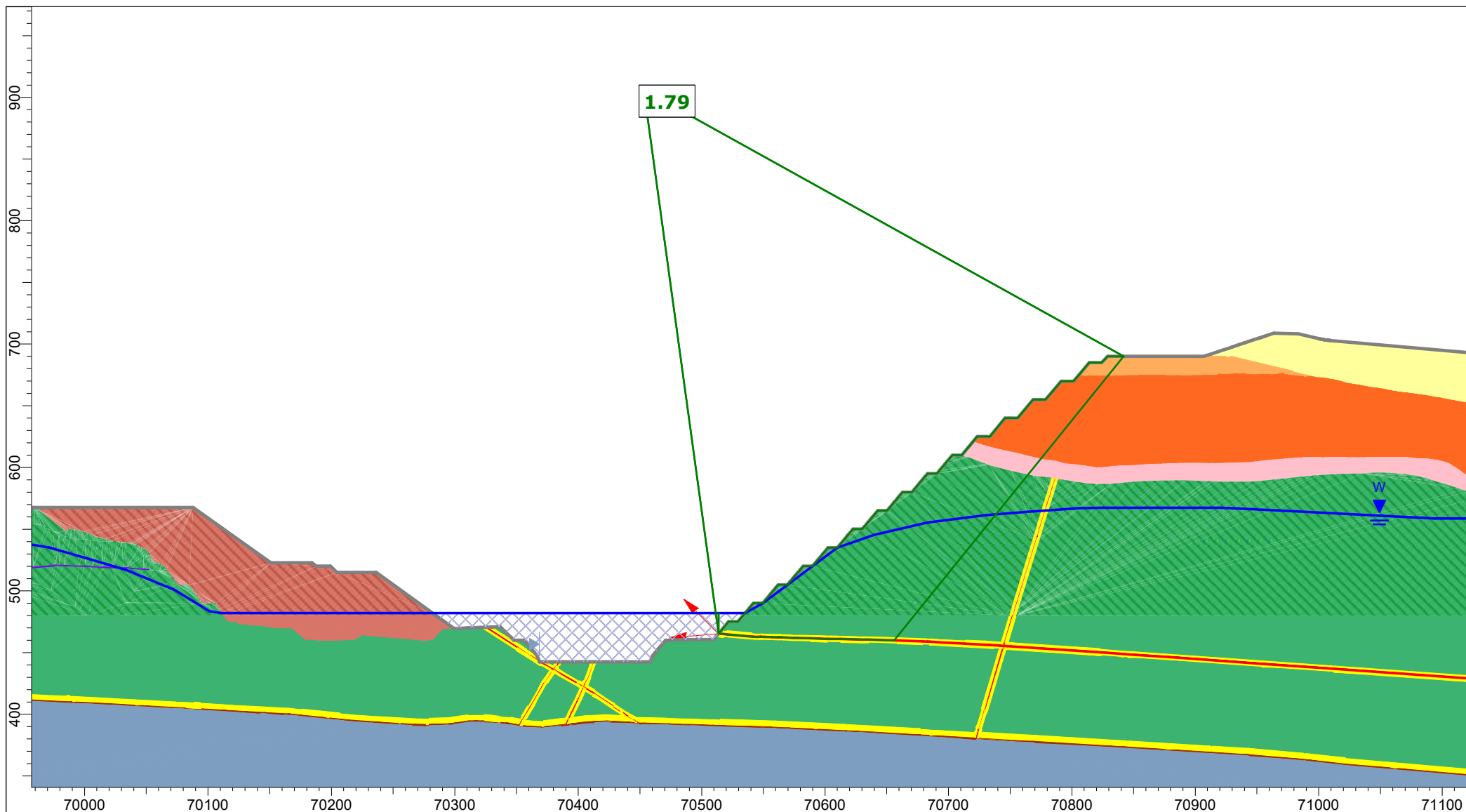
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Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 1	
Case:	Mining Hu=0.6 - Modified WRS Geometry, Block	
Date:	25/03/2026	GLE / Morgenstern-Price



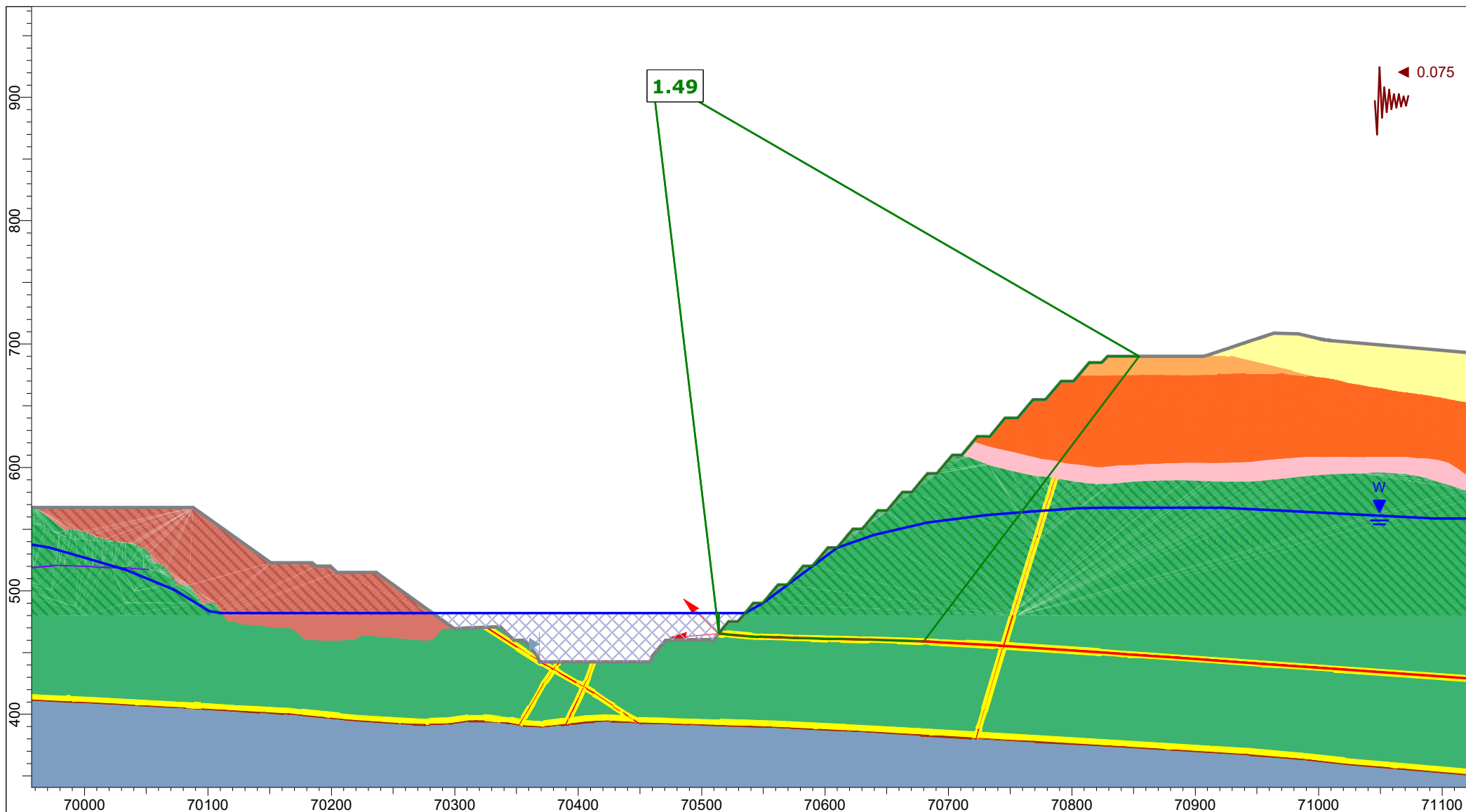
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Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 1	
Case:	Mining Hu=0.6, Operational Kh=0.5 PGA, Block	
Date:	25/03/2026	GLE / Morgenstern-Price



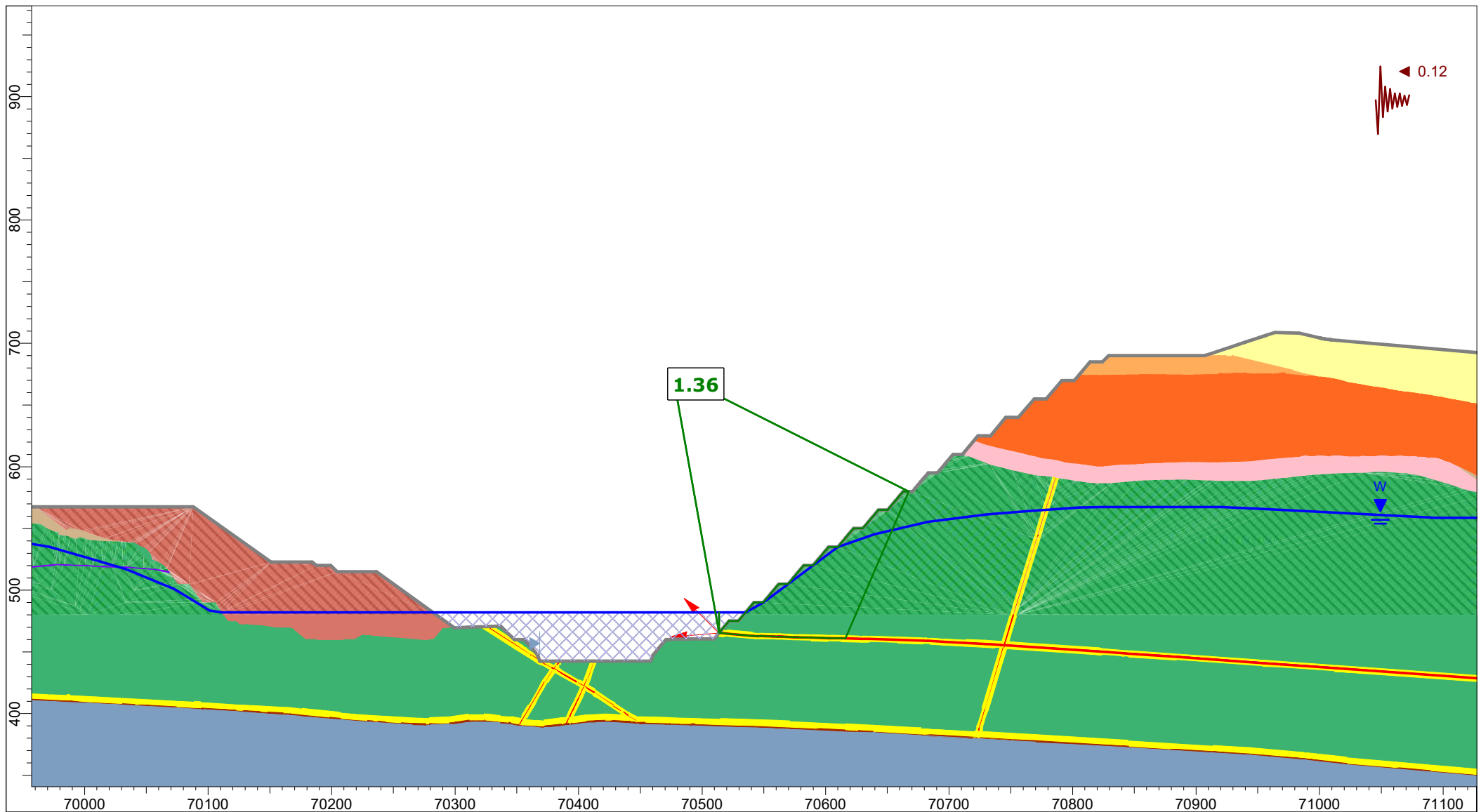
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 1	
Case:	Mining Hu=0.6, Operational Kh=0.8 PGA, Block	
Date:	25/03/2026	GLE / Morgenstern-Price



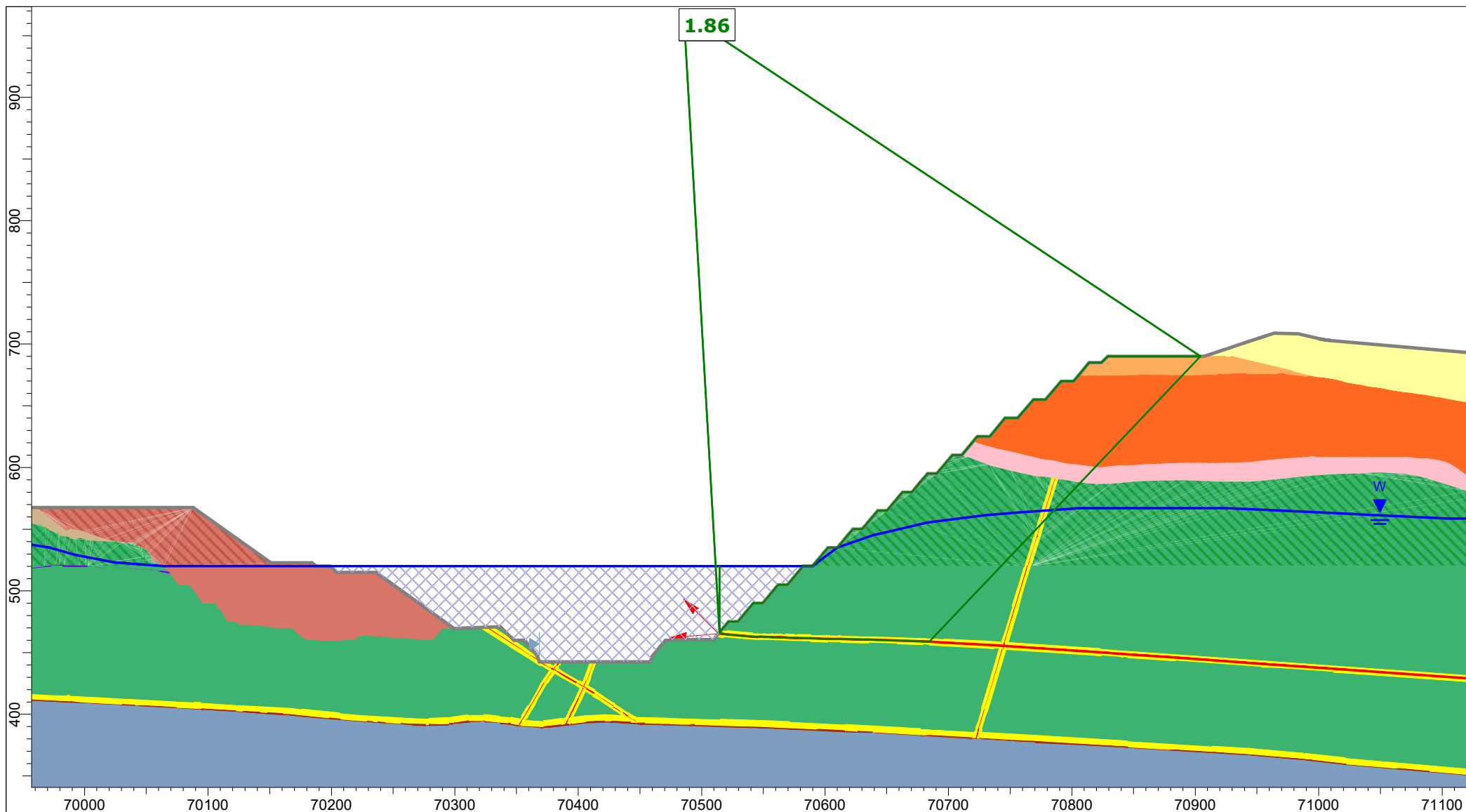
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 1	
Case:	Lake Filling (480 mRL) - Static, Block	
Date:	25/03/2026	GLE / Morgenstern-Price



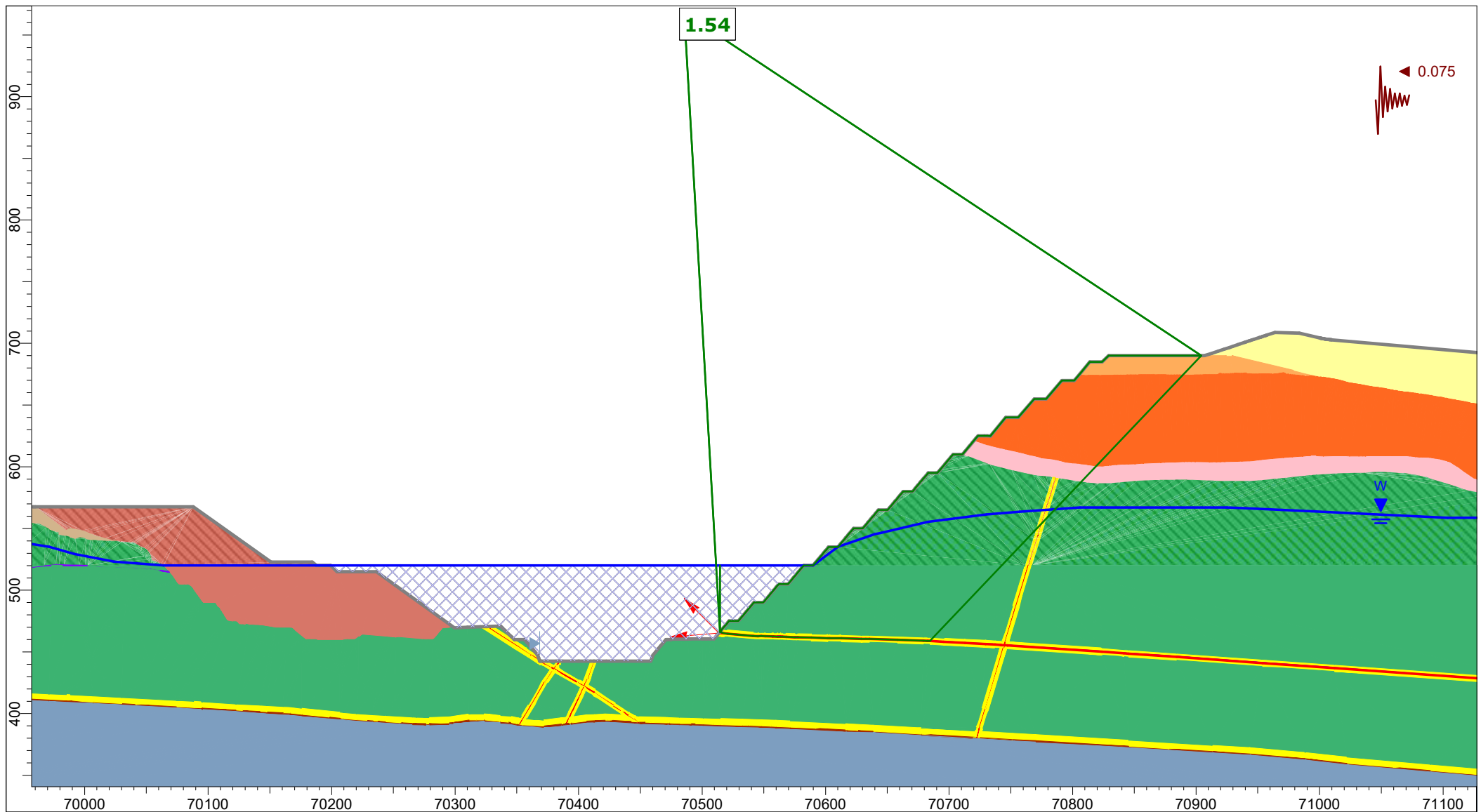
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 1	
Case:	Lake Filling (480 mRL) - AEP=1:500, Kh=0.5 PGA, Block	
Date:	25/03/2026	GLE / Morgenstern-Price



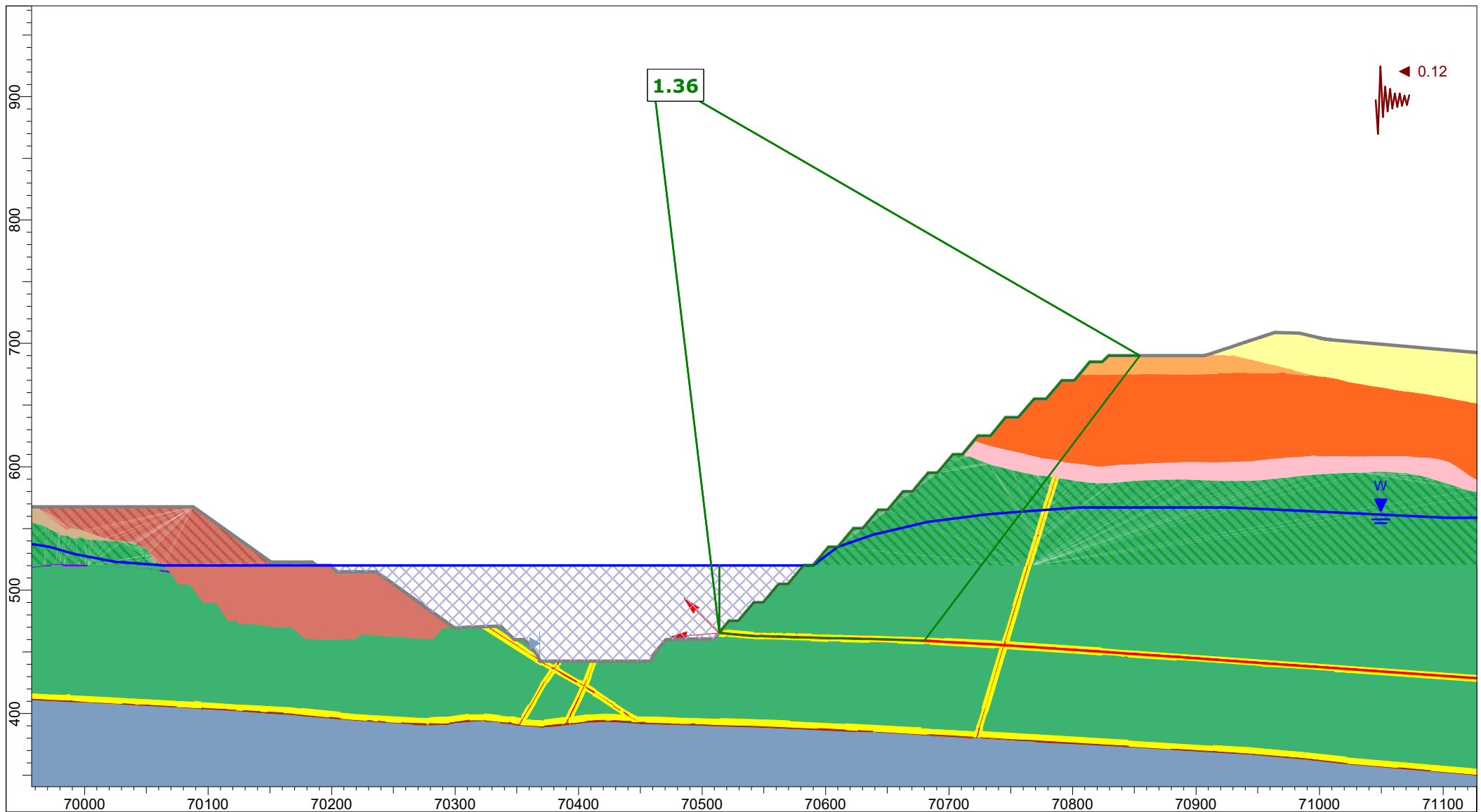
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 1	
Case:	Lake Filling (480 mRL) - AEP=1:500, Kh=0.8 PGA, Block	
Date:	25/03/2026	GLE / Morgenstern-Price



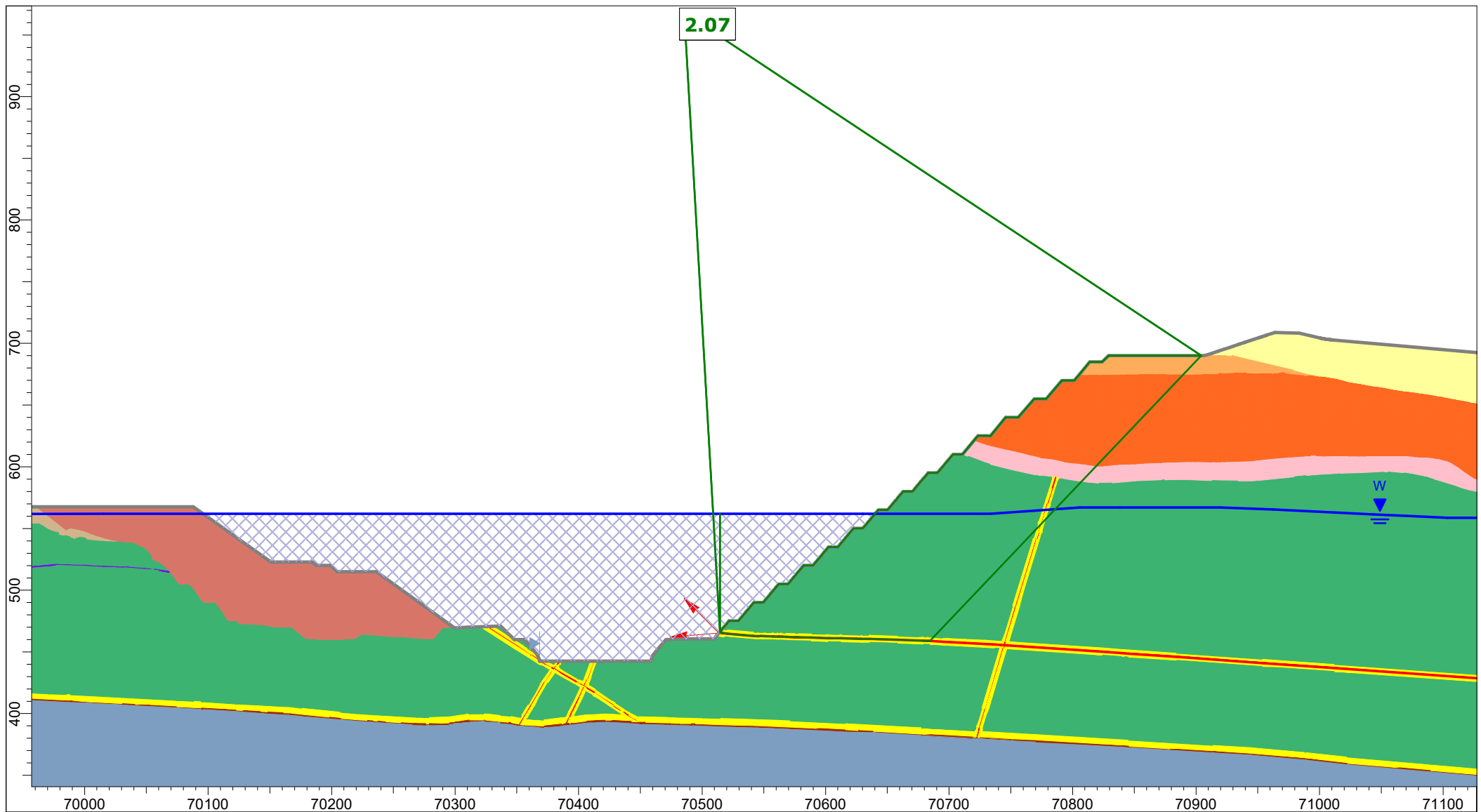
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 1	
Case:	Lake Filling (520 mRL) - Static, Block	
Date:	25/03/2026	GLE / Morgenstern-Price



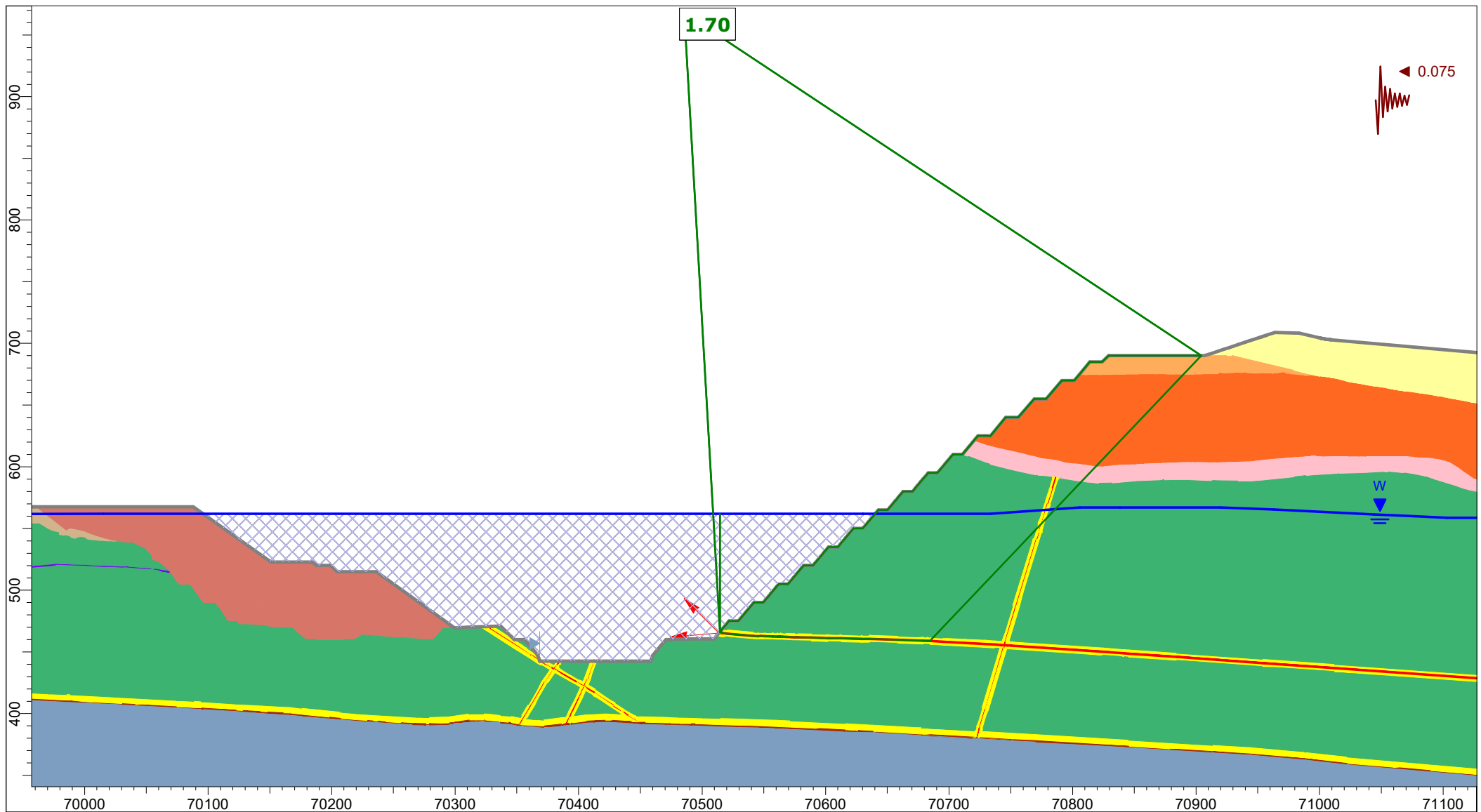
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Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 1	
Case:	Lake Filling (520 mRL) - AEP=1:500, Kh=0.5 PGA, Block	
Date:	25/03/2026	GLE / Morgenstern-Price



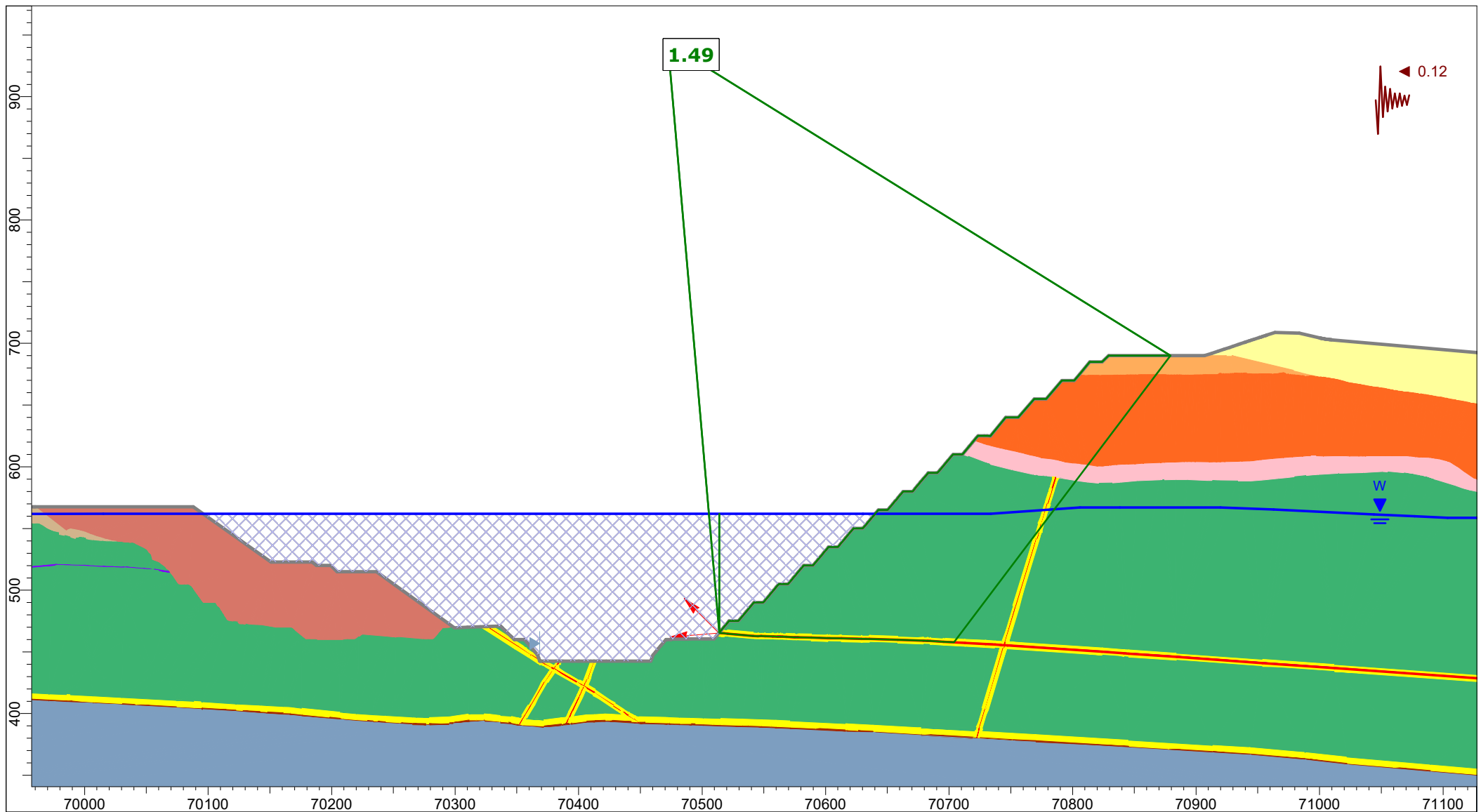
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 1	
Case:	Lake Filling (520 mRL) - AEP=1:500, Kh=0.8 PGA, Block	
Date:	25/03/2026	GLE / Morgenstern-Price



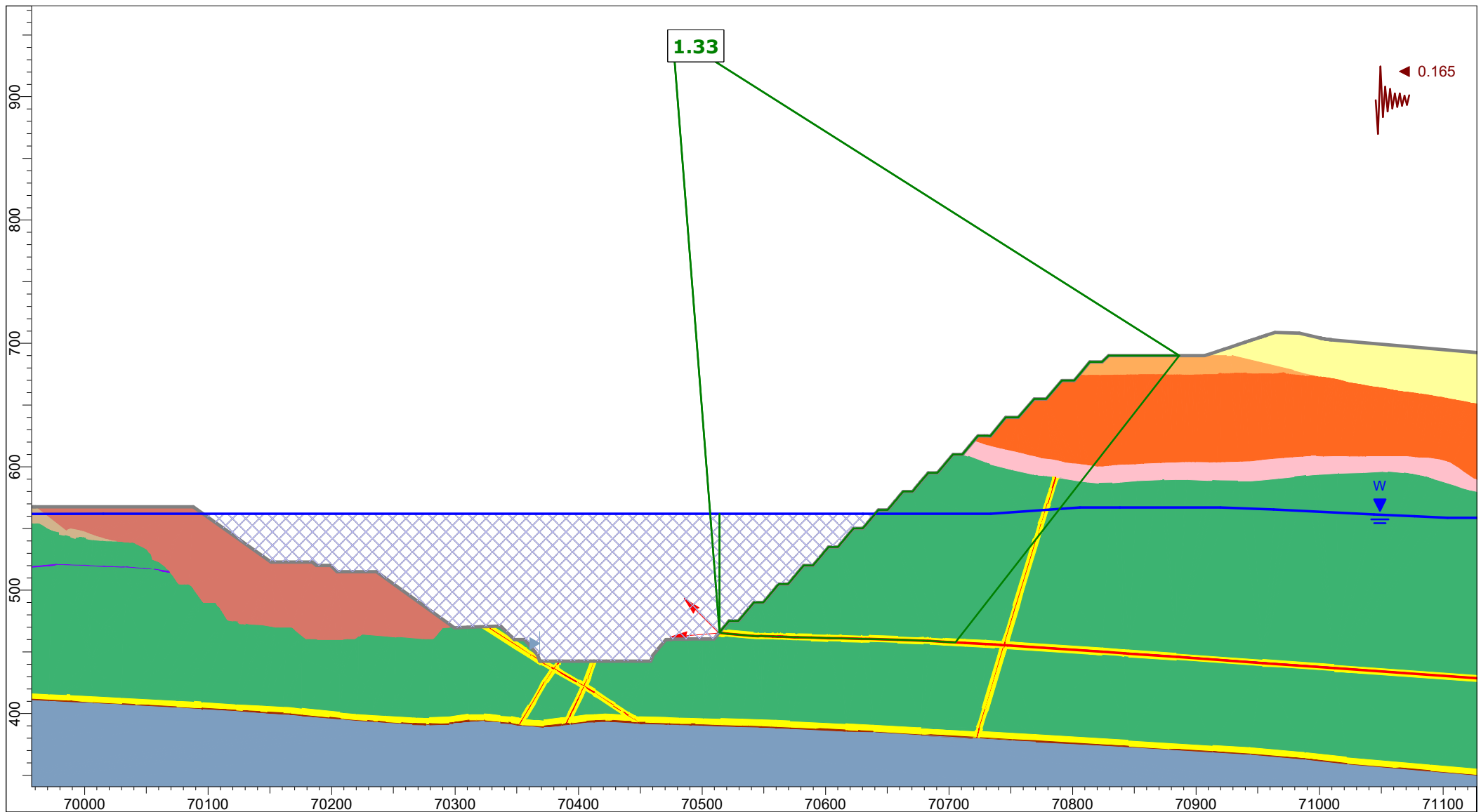
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 1	
Case:	Lake Filling (562 mRL) - Static, Block	
Date:	25/03/2026	GLE / Morgenstern-Price



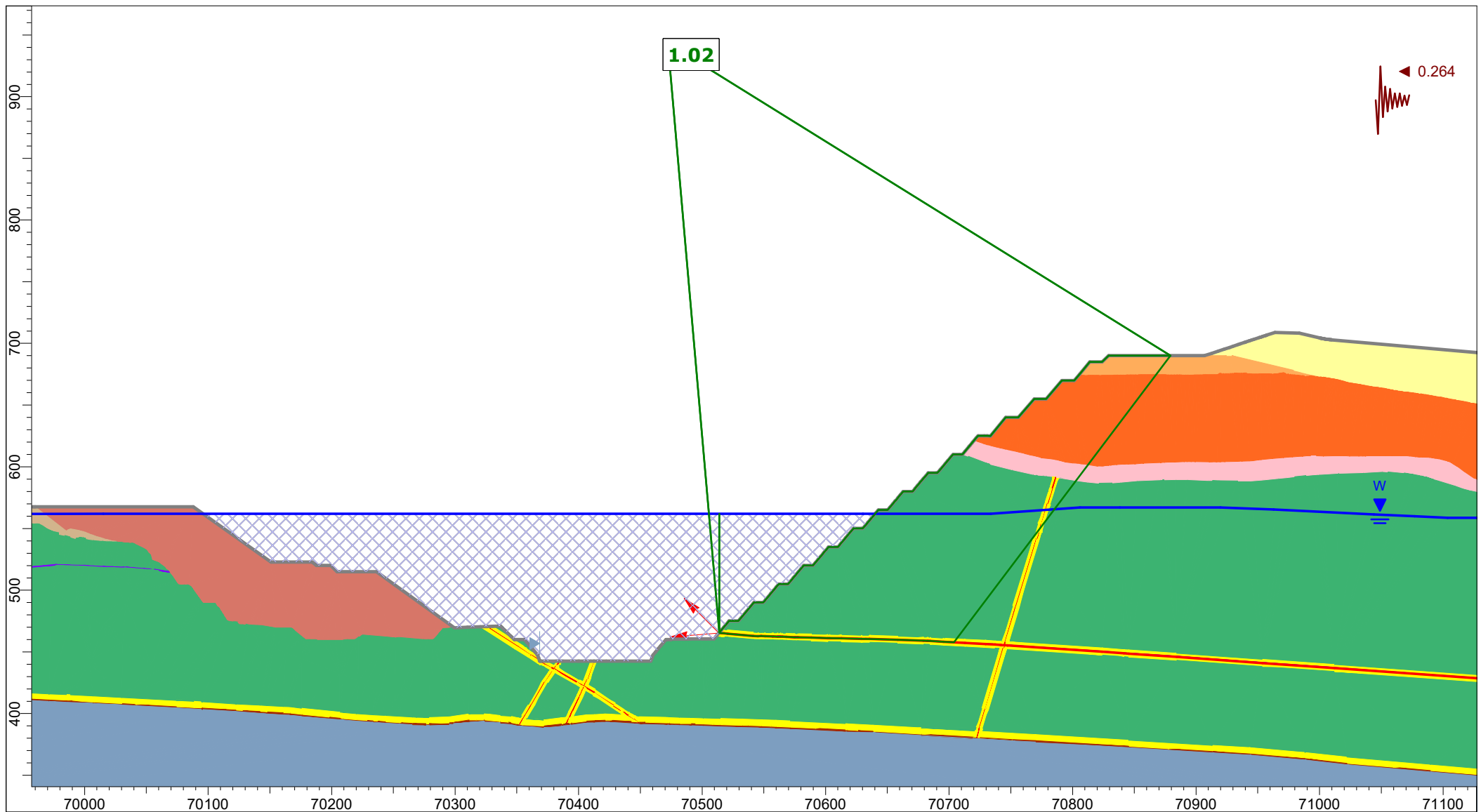
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Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 1	
Case:	Lake Filling (562 mRL) - AEP=1:500, Kh=0.5 PGA, Block	
Date:	25/03/2026	GLE / Morgenstern-Price



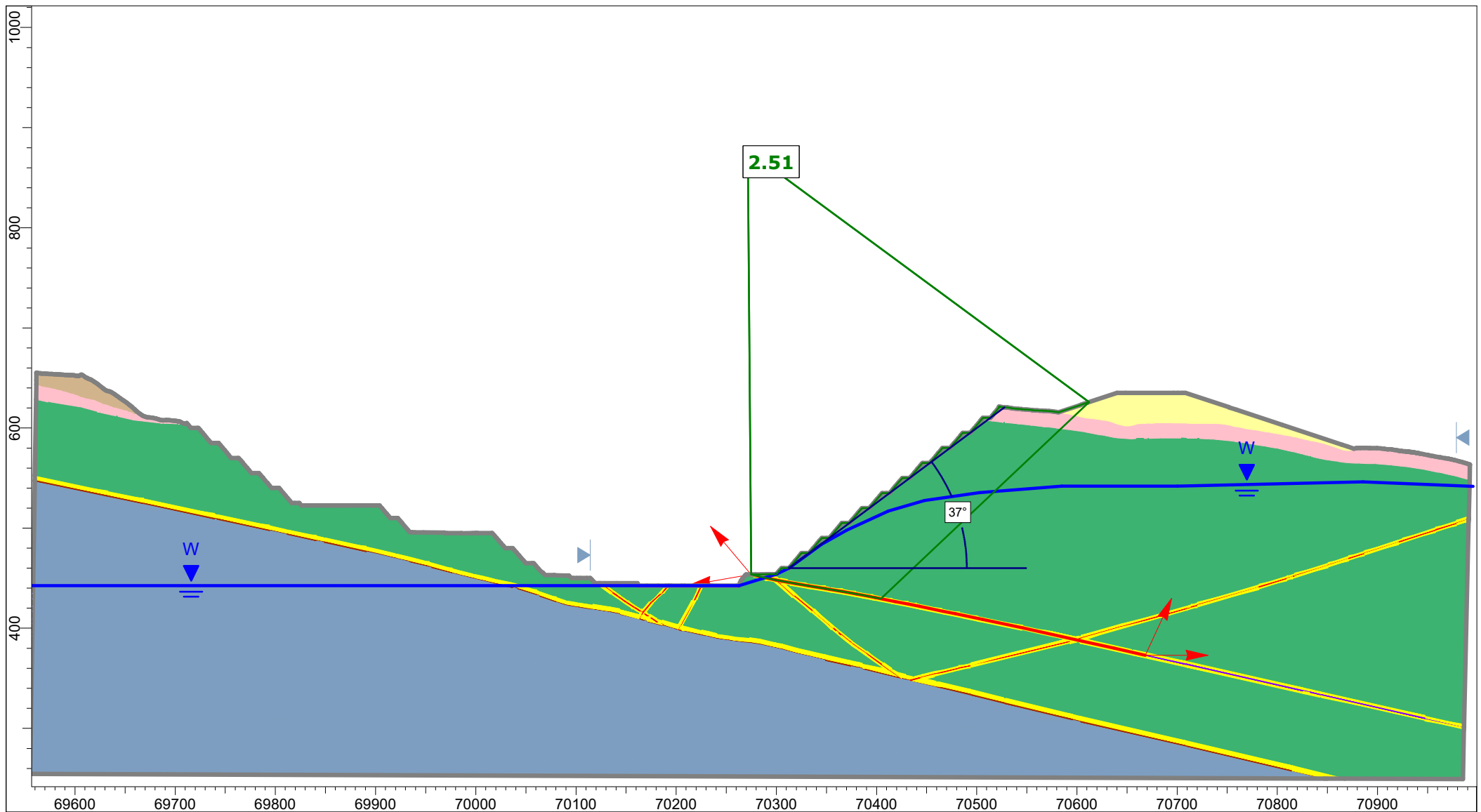
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Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 1	
Case:	Lake Filling (562 mRL) - AEP=1:500, Kh=0.8 PGA, Block	
Date:	25/03/2026	GLE / Morgenstern-Price



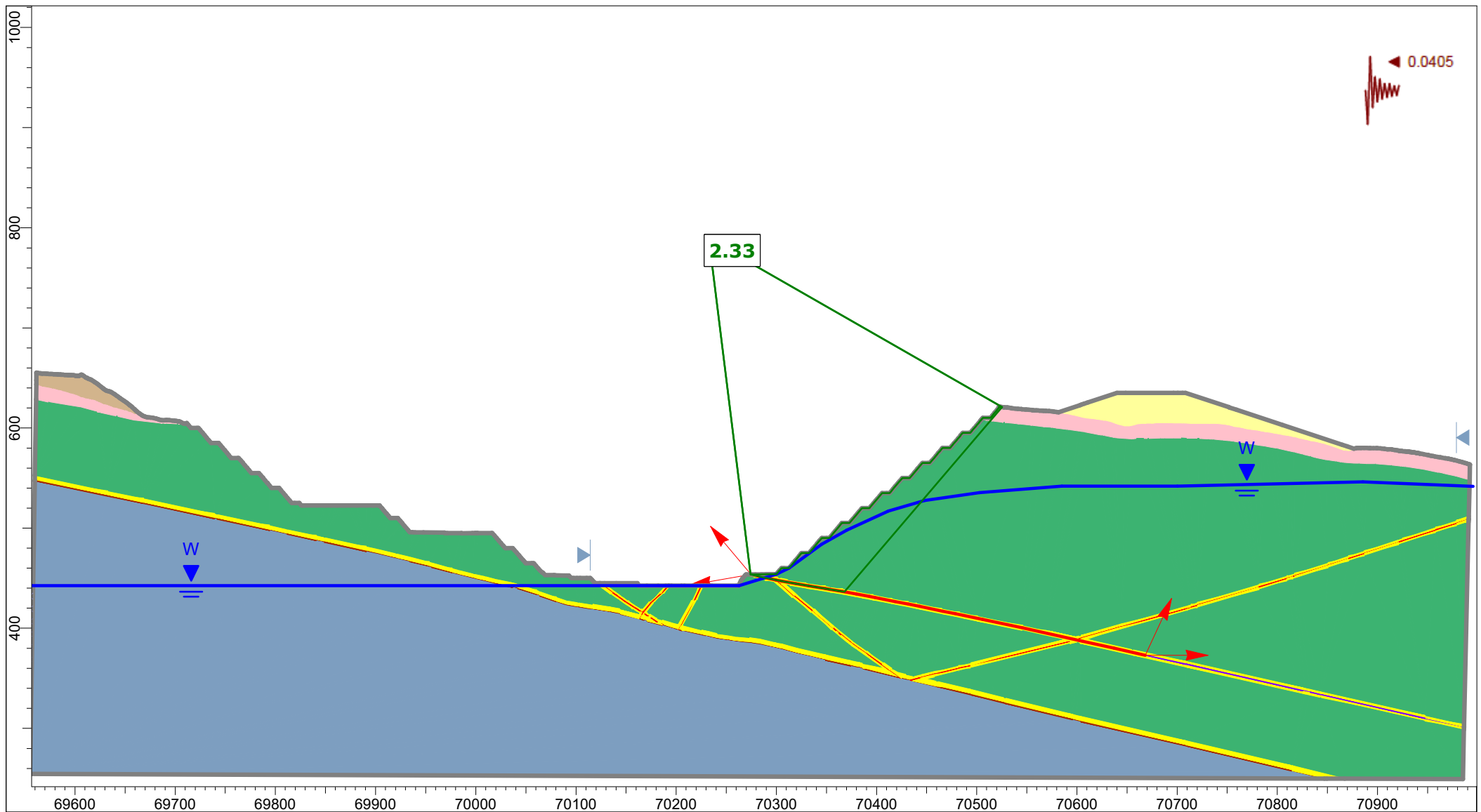
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 1	
Case:	Closure - MDE Kh=0.5 PGA, Block	
Date:	25/03/2026	GLE / Morgenstern-Price



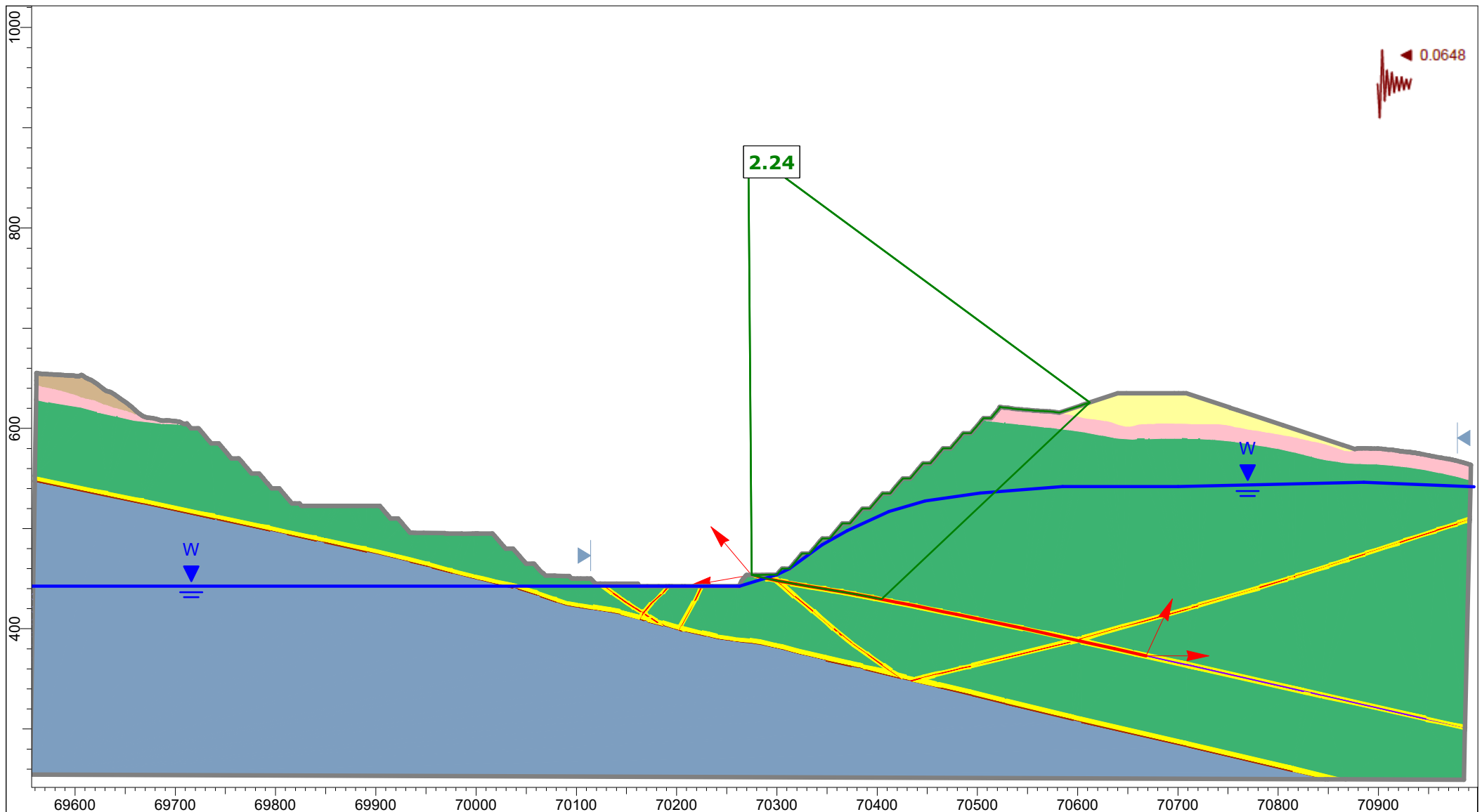
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Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 1	
Case:	Closure - MDE Kh=0.8 PGA, Block	
Date:	25/03/2026	GLE / Morgenstern-Price



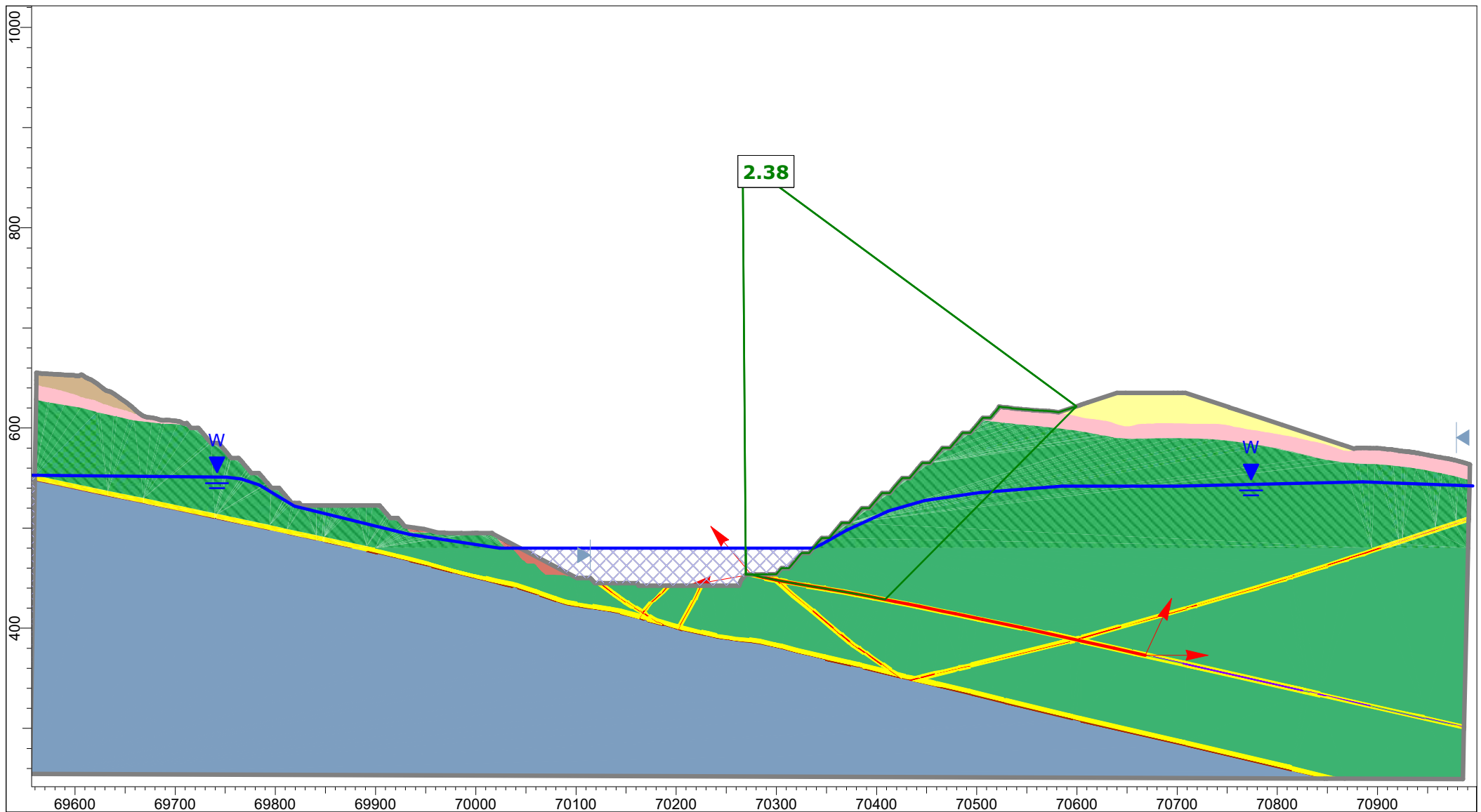
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 2	
Case:	Mining Hu=0.6, Block, Static	
Date:	24/02/2026	GLE / Morgenstern-Price



Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 2	
Case:	Mining Hu=0.6, Operational Kh=0.5 PGA, Block	
Date:	24/02/2026	GLE / Morgenstern-Price



Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 2	
Case:	Mining Hu=0.6, Operational Kh=0.8 PGA, Block	
Date:	24/02/2026	GLE / Morgenstern-Price



Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 2	
Case:	Lake Filling 480 mRL - Static, Block	
Date:	24/02/2026	GLE / Morgenstern-Price



OceanaGold (New Zealand) Limited

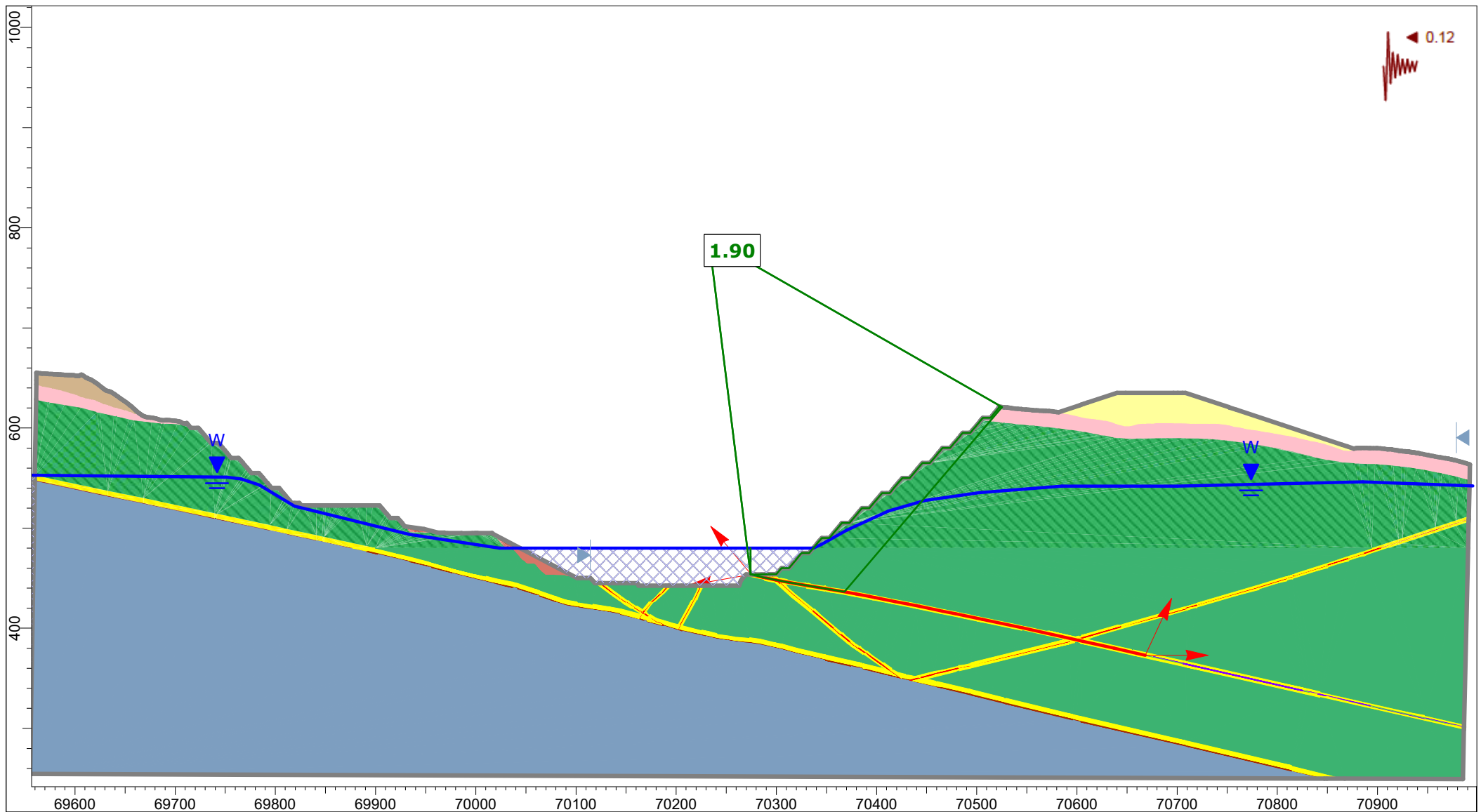
Macraes Phase Four - FTAA, Open Pit Extensions

CN_OPE_Section 2

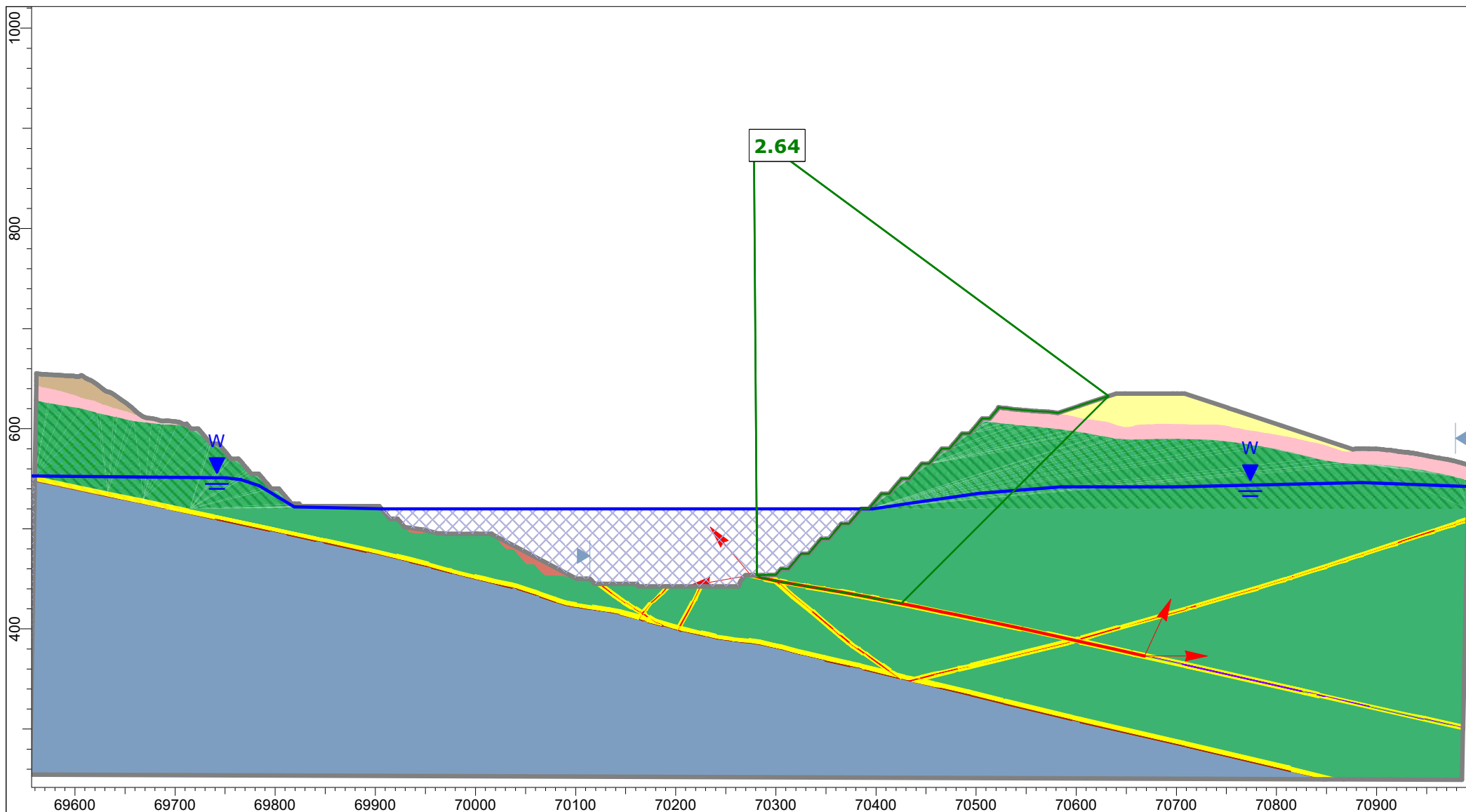
Lake Filling 480 mRL - AEP=1:500, Kh=0.5 PGA, Block

24/02/2026

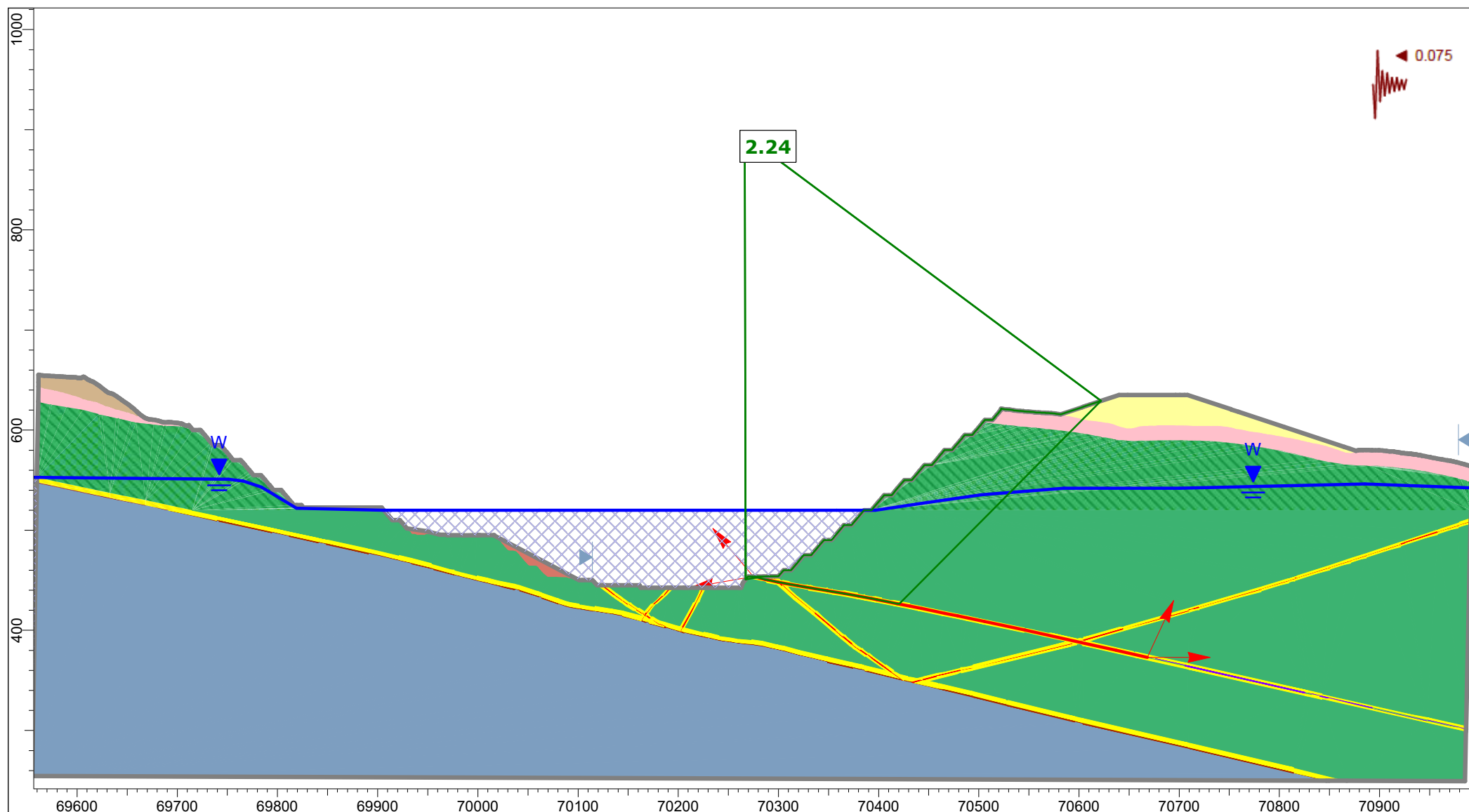
GLE / Morgenstern-Price



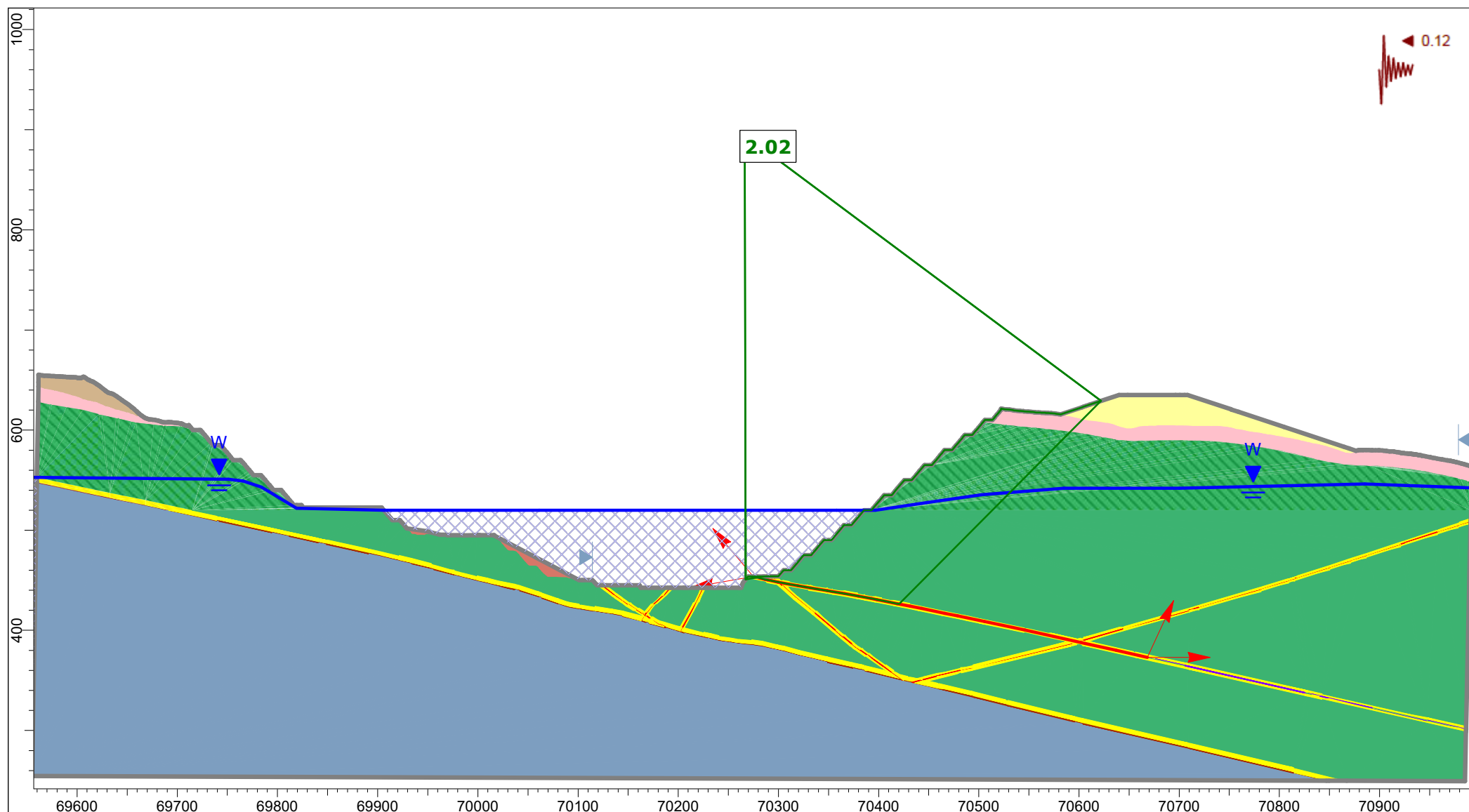
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 2	
Case:	Lake Filling 480 mRL - AEP=1:500, Kh=0.8 PGA, Block	
Date:	24/02/2026	GLE / Morgenstern-Price

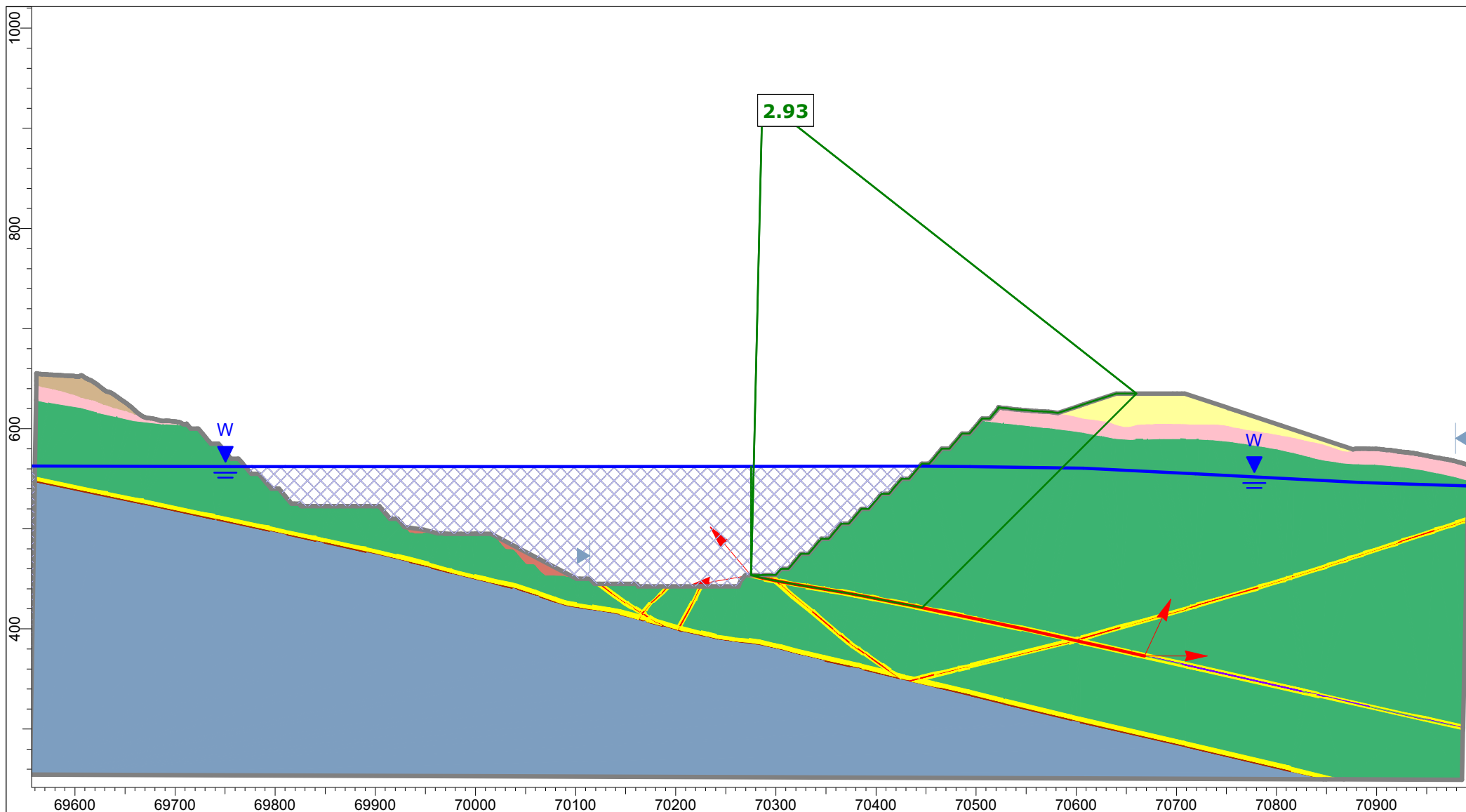


Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 2	
Case:	Lake Filling 520 mRL - Static, Block	
Date:	24/02/2026	GLE / Morgenstern-Price

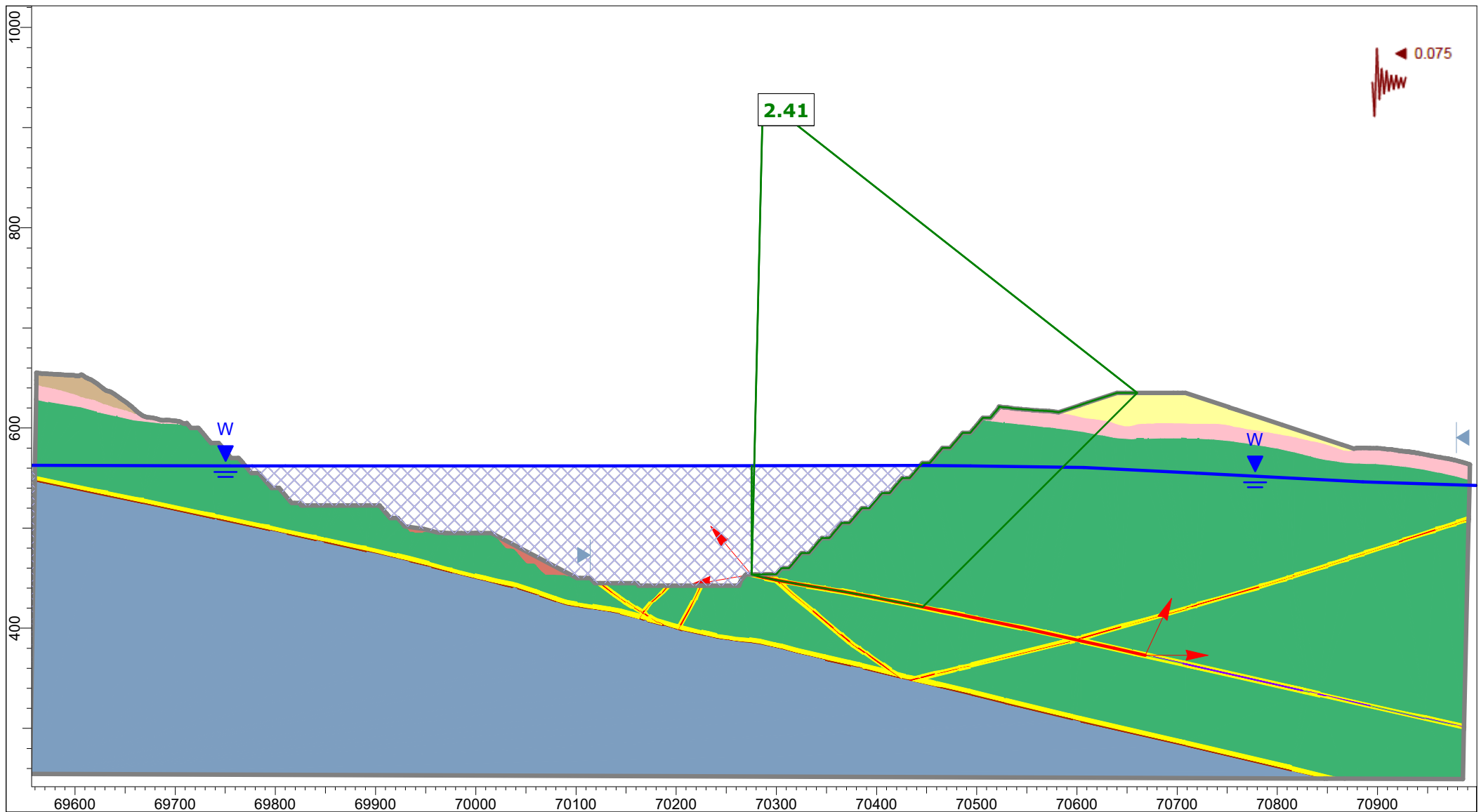


GLE / Morgenstern-Price

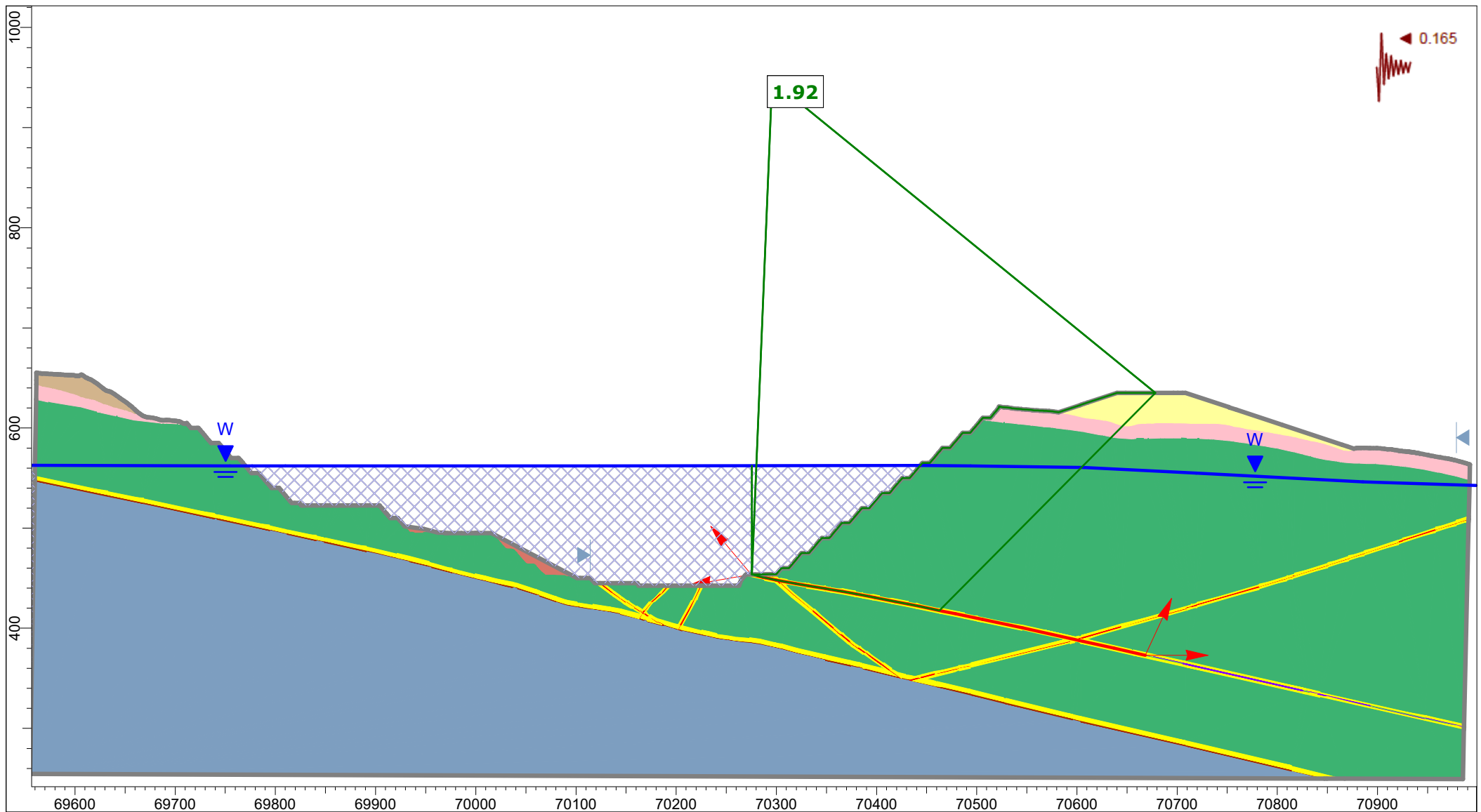




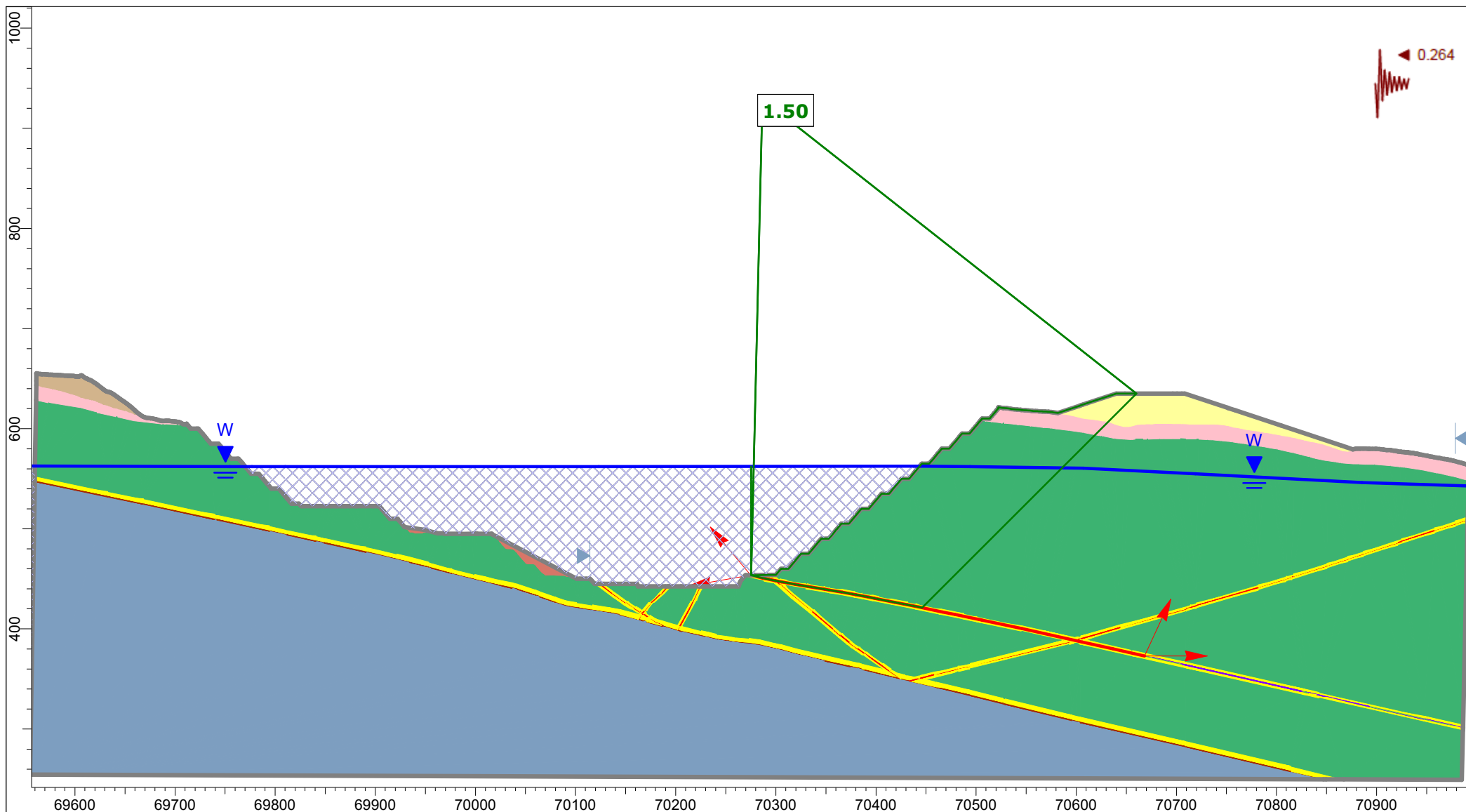
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 2	
Case:	Lake Filling 562 mRL - Static, Block	
Date:	24/02/2026	GLE / Morgenstern-Price



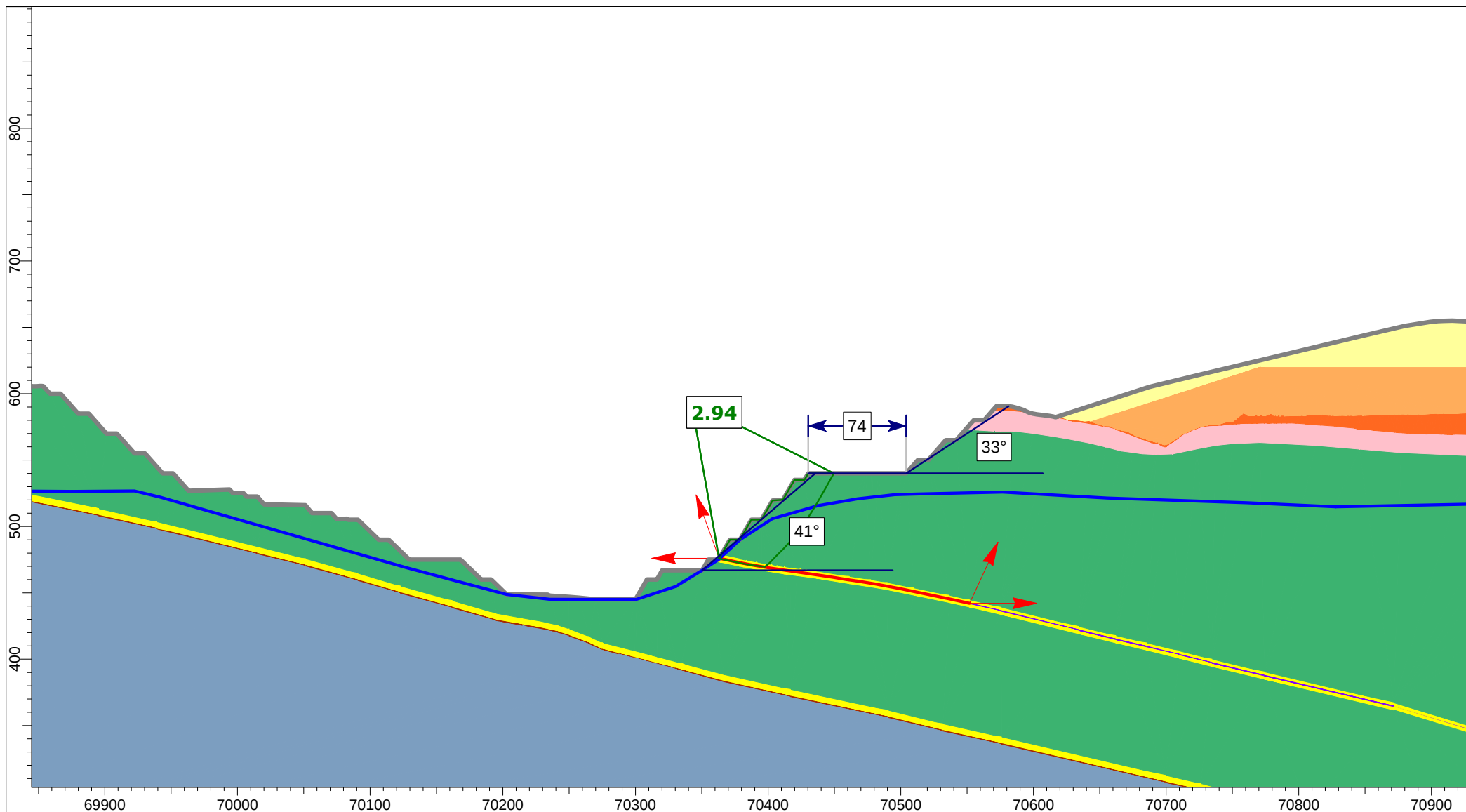
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 2	
Case:	Lake Filling 562 mRL - AEP=1:500, Kh=0.5 PGA, Block	
Date:	24/02/2026	GLE / Morgenstern-Price



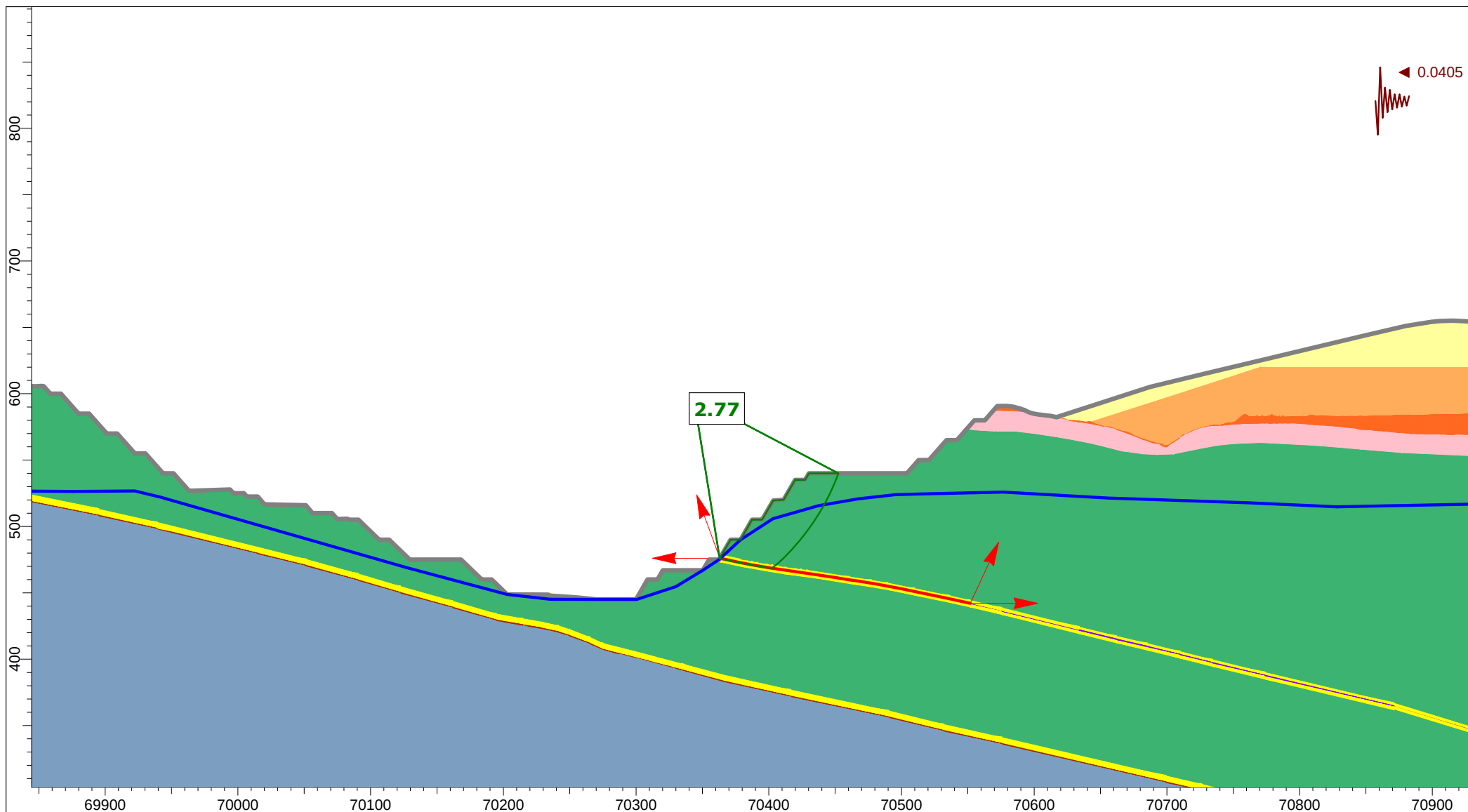
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 2	
Case:	Closure - MDE Kh=0.5 PGA, Block	
Date:	24/02/2026	GLE / Morgenstern-Price



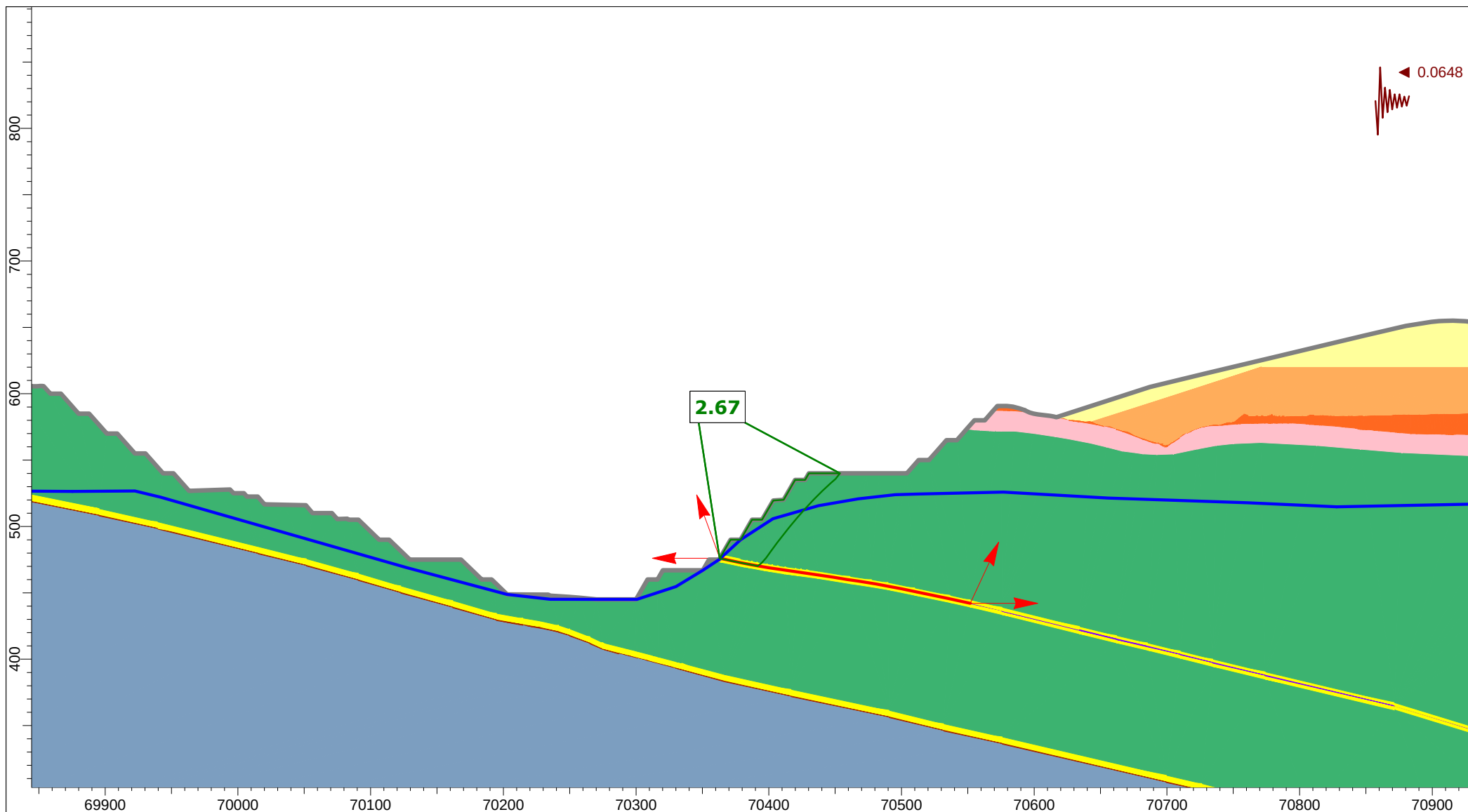
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 2	
Case:	Closure - MDE Kh=0.8 PGA, Block	
Date:	24/02/2026	GLE / Morgenstern-Price



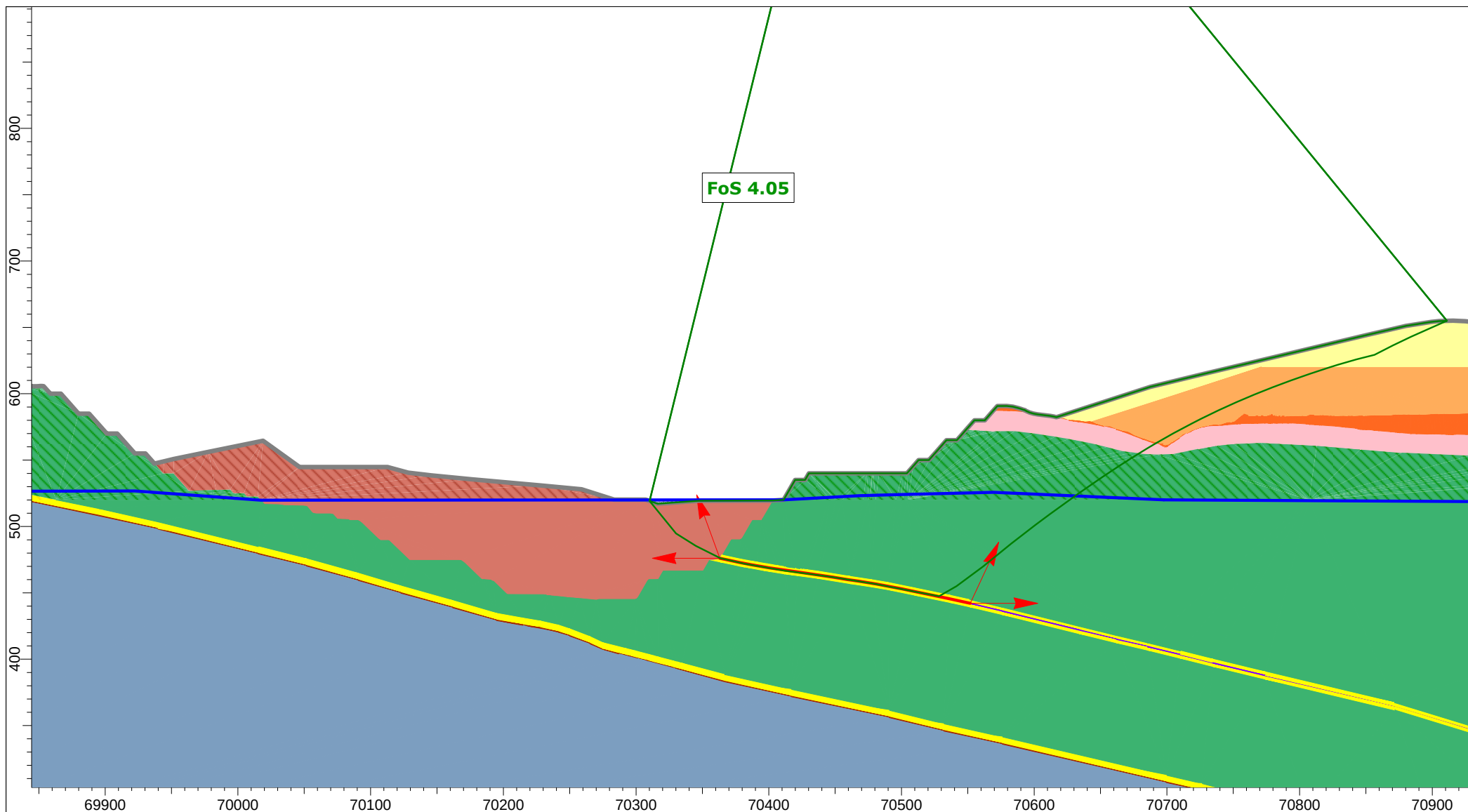
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 3	
Case:	Mining Hu=0.6 - Static, Block	
Date:	25/03/2026	GLE / Morgenstern-Price



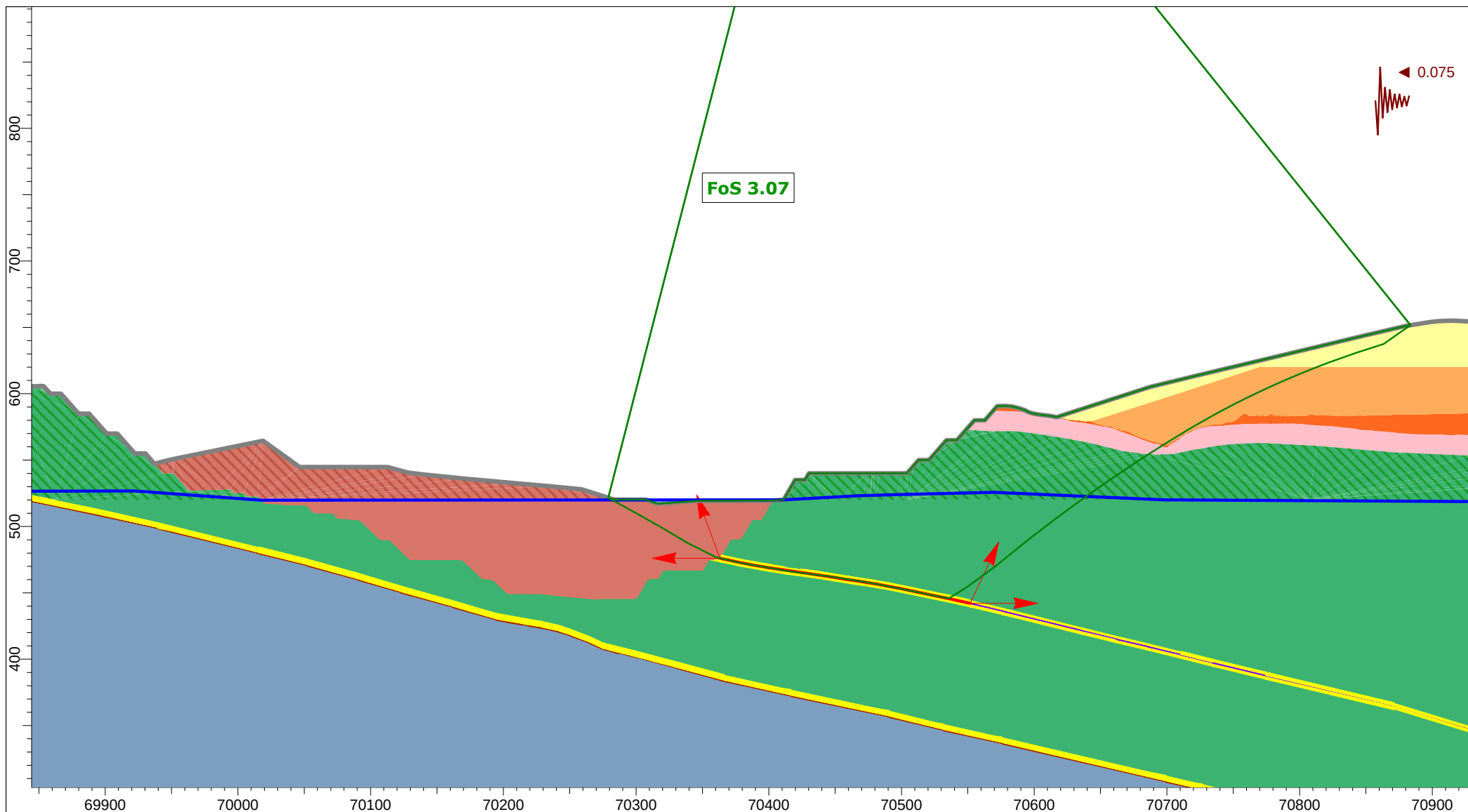
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 3	
Case:	Mining Hu=0.6 - OBE Kh=0.5 PGA, Block	
Date:	25/03/2026	GLE / Morgenstern-Price



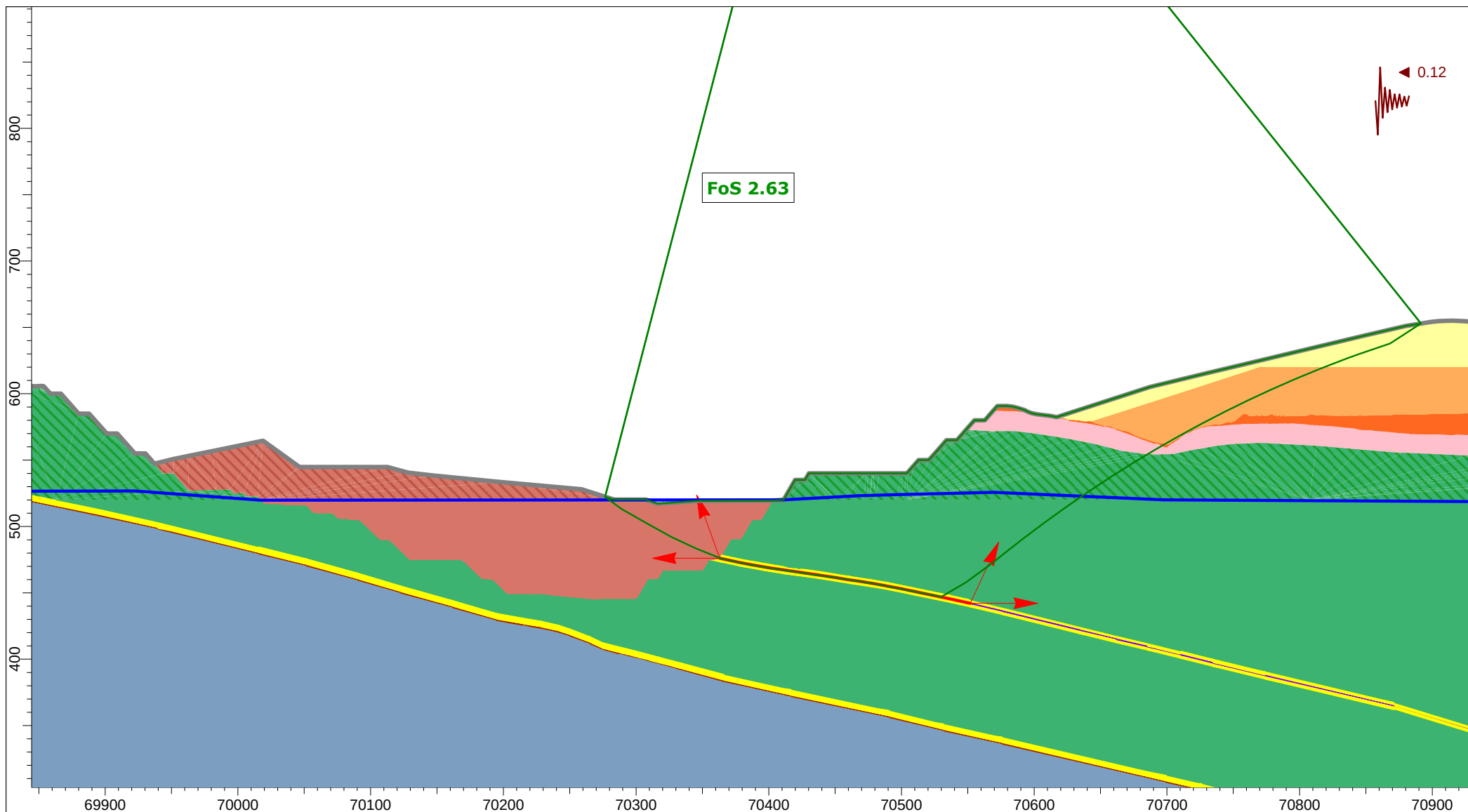
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 3	
Case:	Mining Hu=0.6 - OBE Kh=0.8 PGA, Block	
Date:	25/03/2026	GLE / Morgenstern-Price



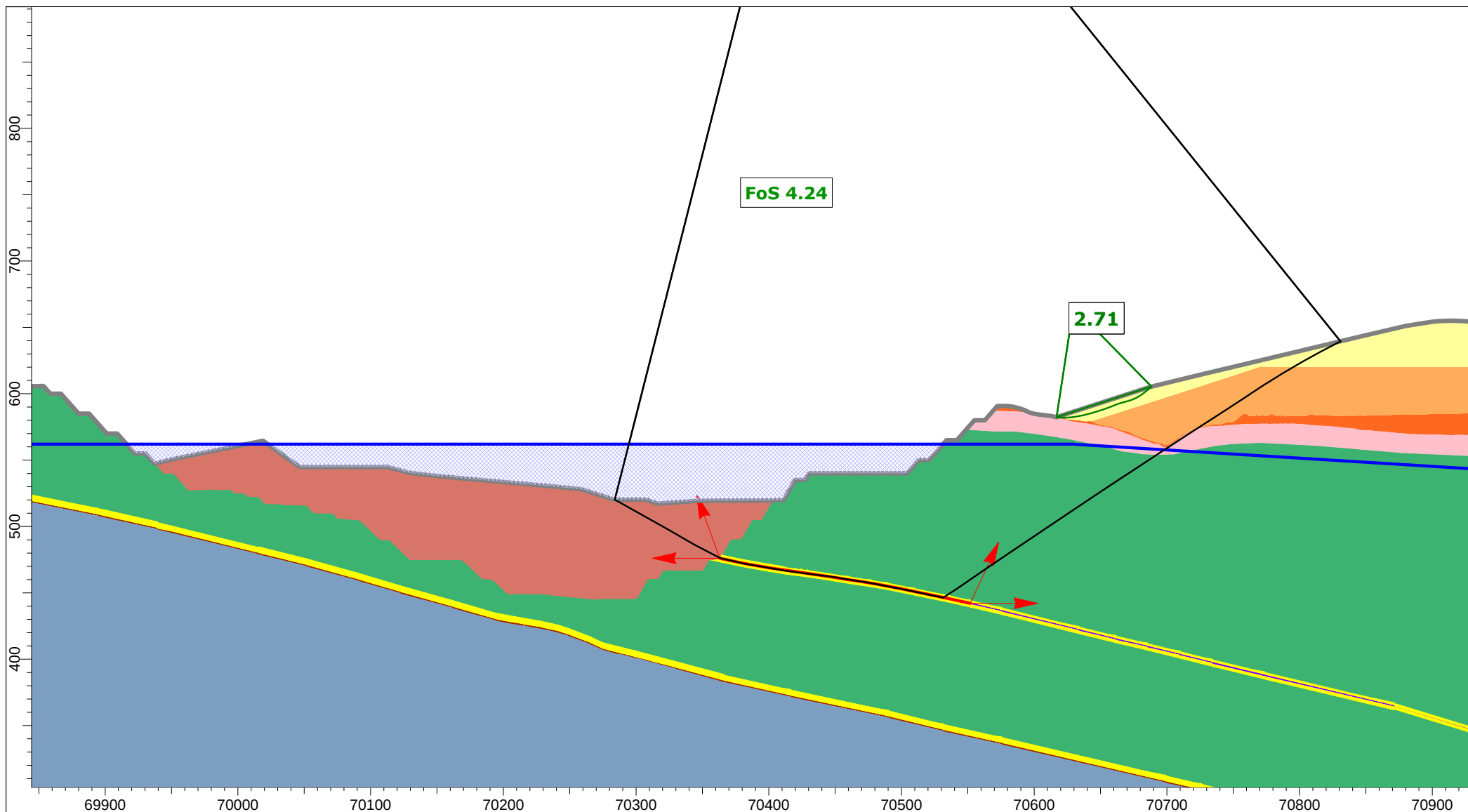
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 3	
Case:	Lake Filling 520 mRL - Static, Block	
Date:	25/03/2026	GLE / Morgenstern-Price



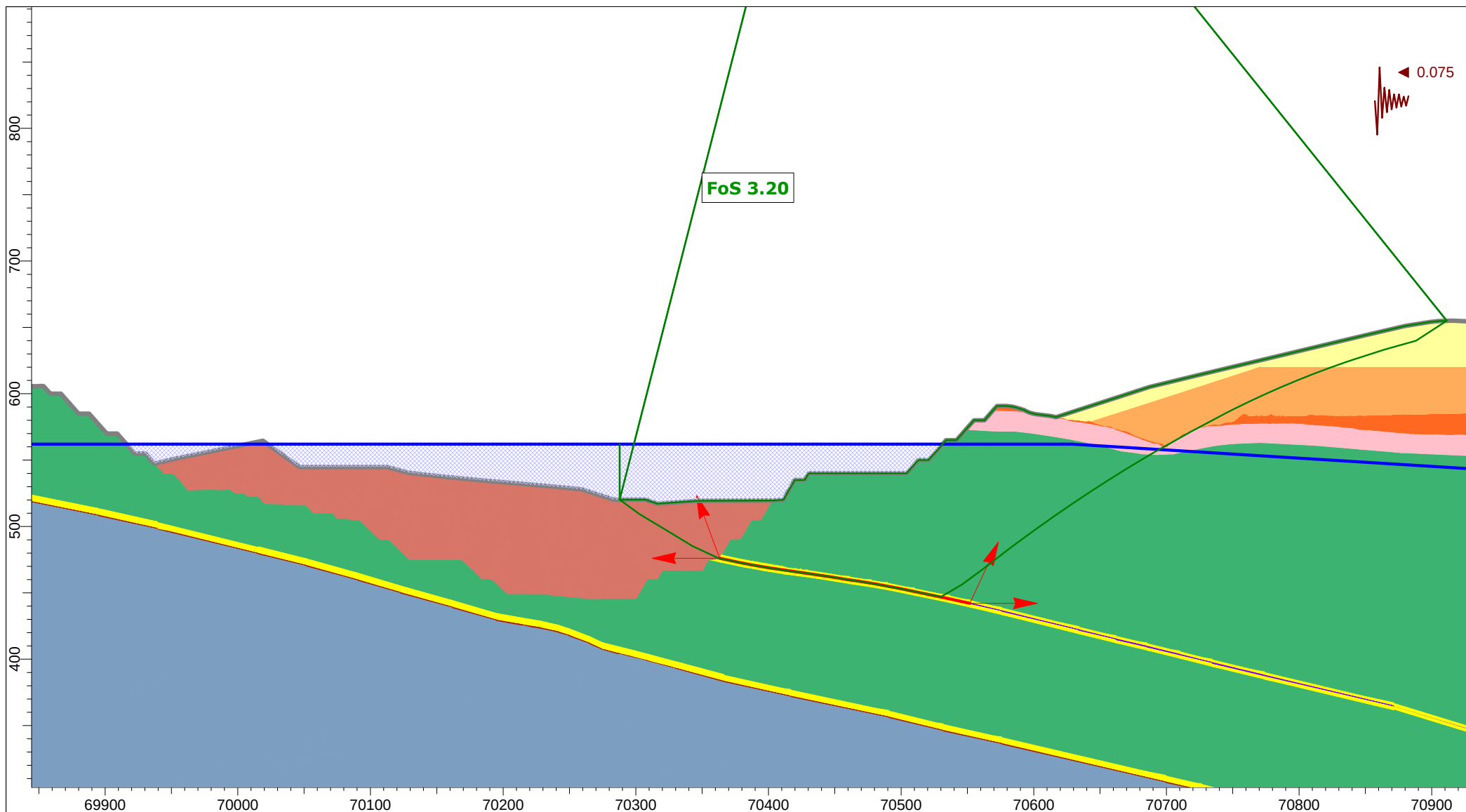
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 3	
Case:	Lake Filling 520 mRL - AEP=1:500, Kh=0.5 PGA, Block	
Date:	25/03/2026	GLE / Morgenstern-Price



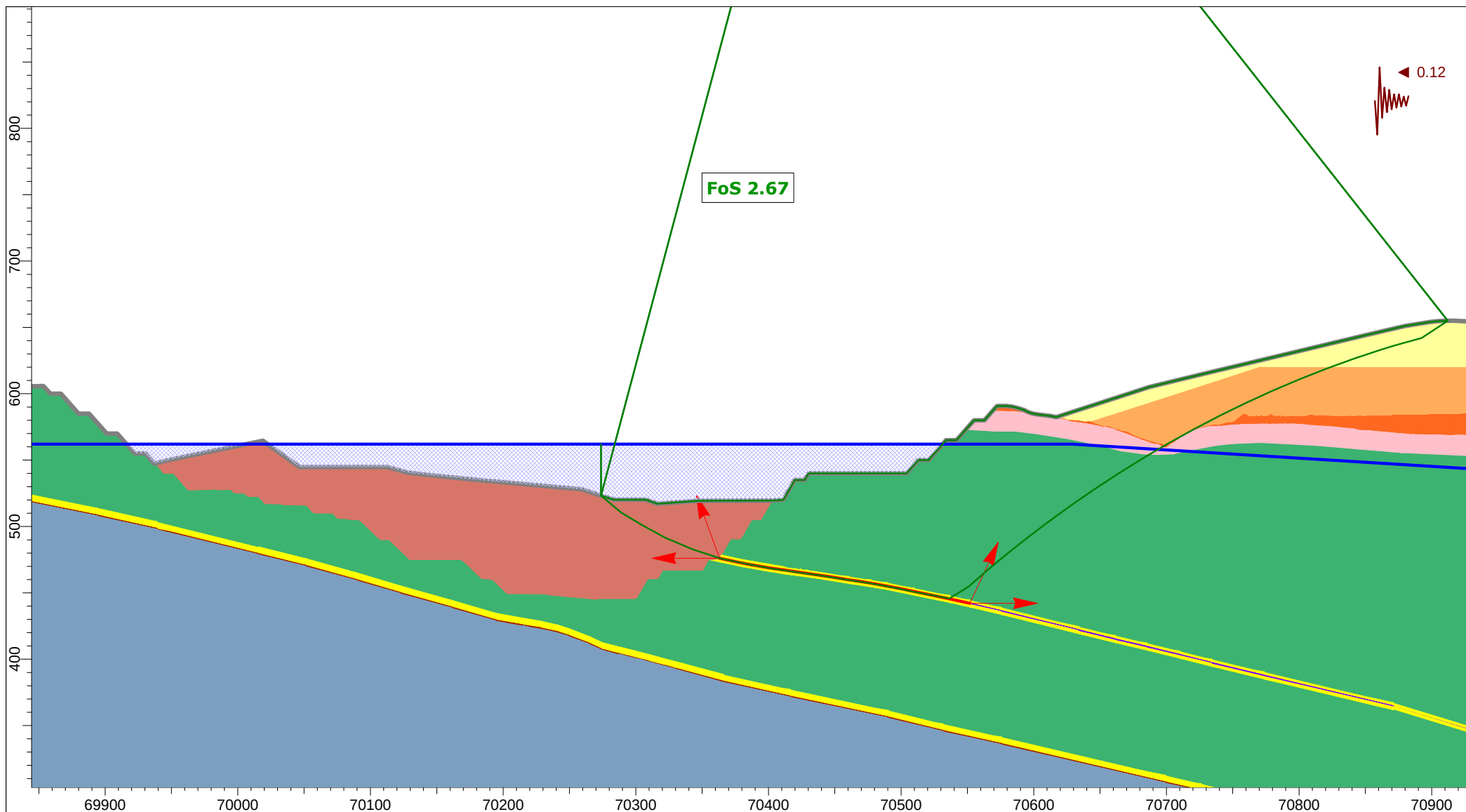
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Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 3	
Case:	Lake Filling 520 mRL - AEP=1:500, Kh=0.8 PGA, Block	
Date:	25/03/2026	GLE / Morgenstern-Price



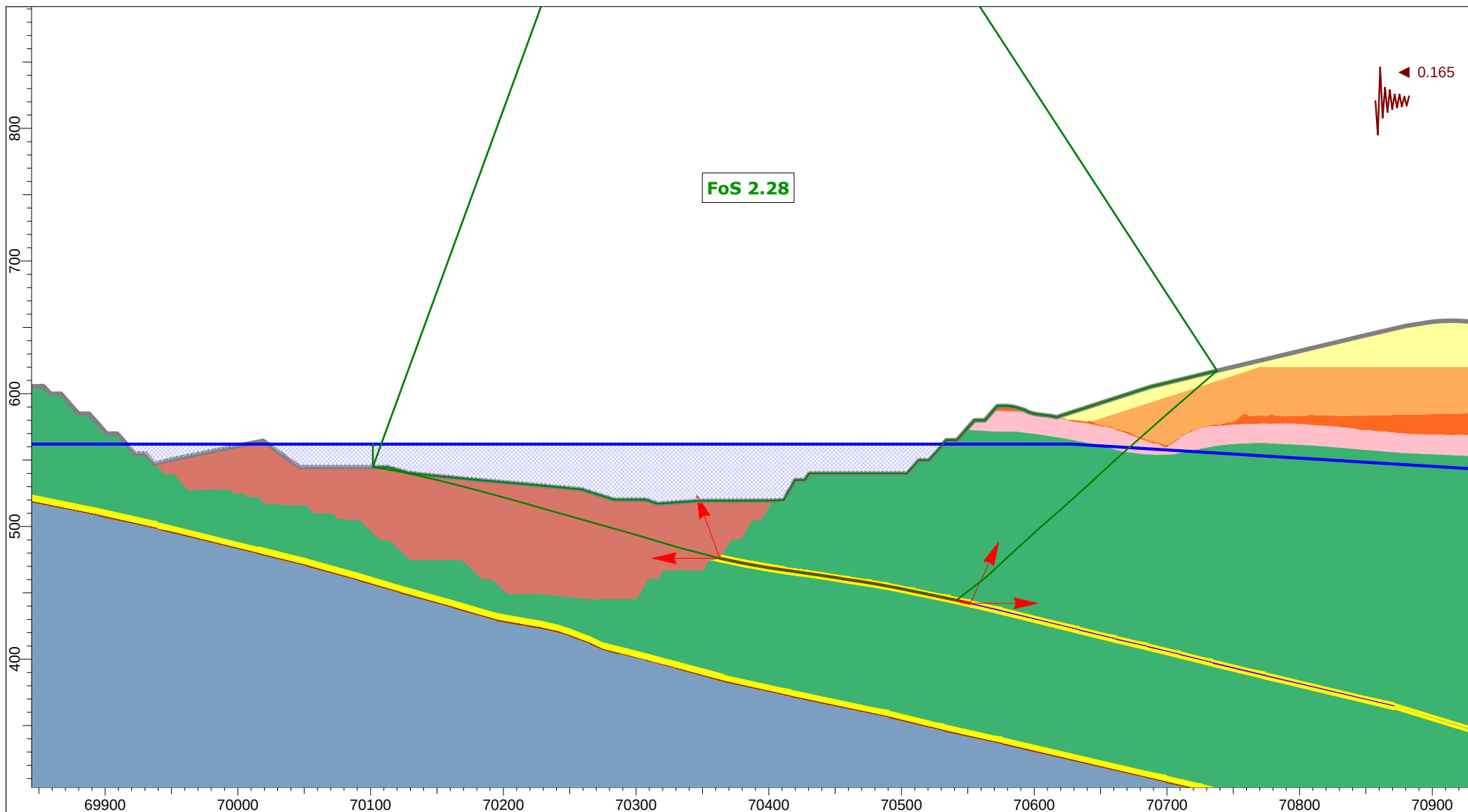
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 3	
Case:	Lake Filling 562 mRL - Static, Block	
Date:	25/03/2026	GLE / Morgenstern-Price



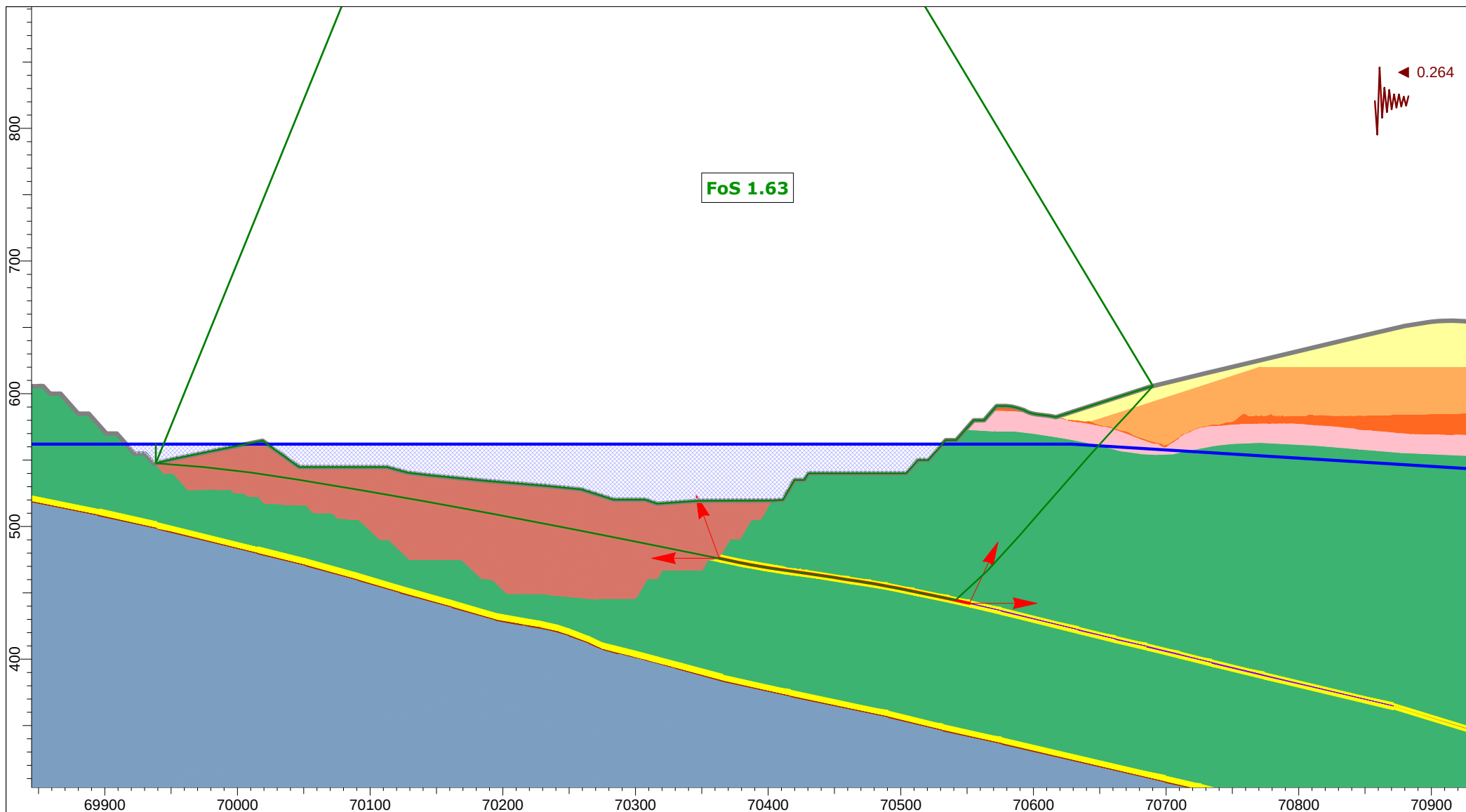
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 3	
Case:	Lake Filling 562 mRL - AEP=1:500, Kh=0.5 PGA, Block	
Date:	25/03/2026	GLE / Morgenstern-Price



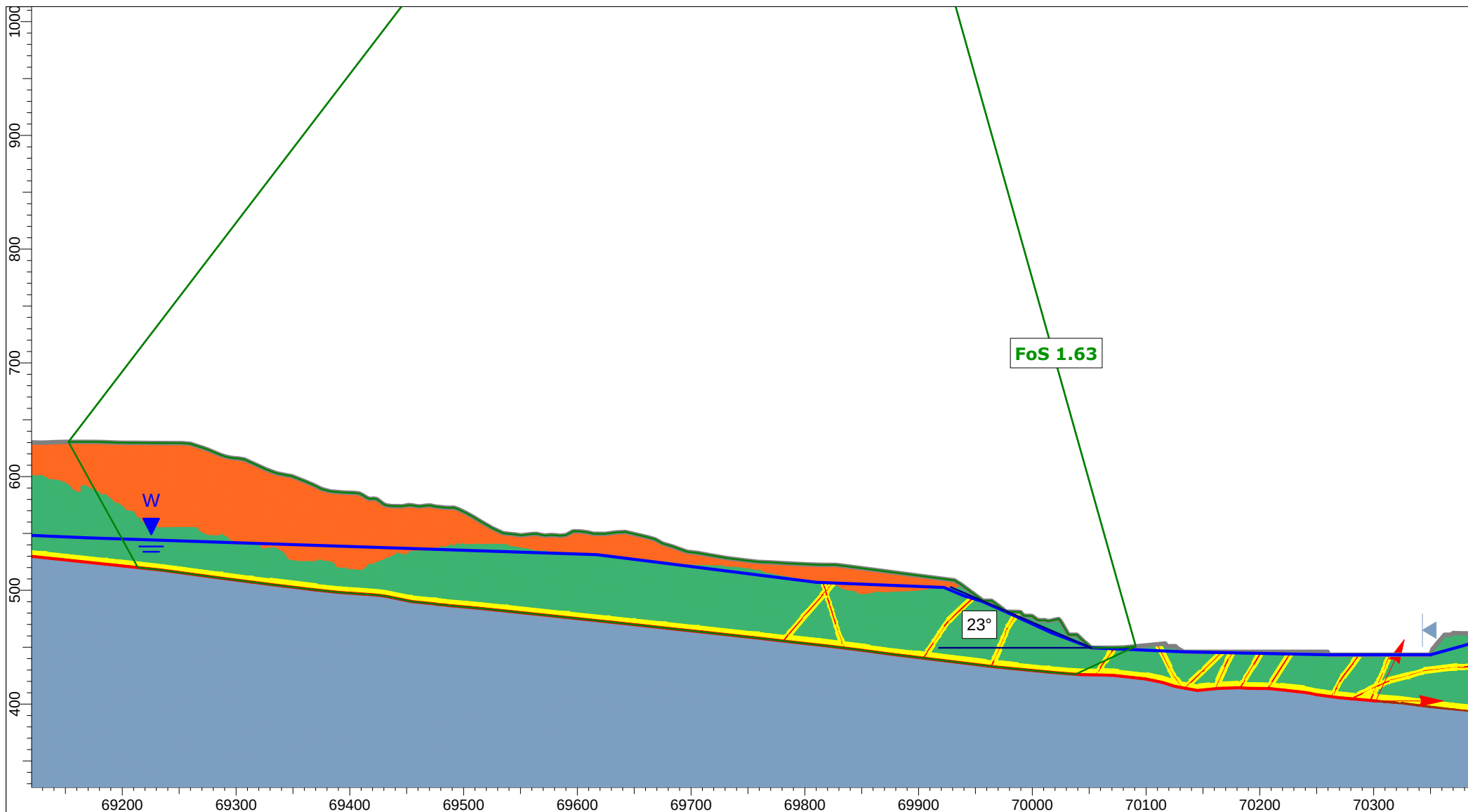
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Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 3	
Case:	Lake Filling 562 mRL - AEP=1:500, Kh=0.8 PGA, Block	
Date:	25/03/2026	GLE / Morgenstern-Price



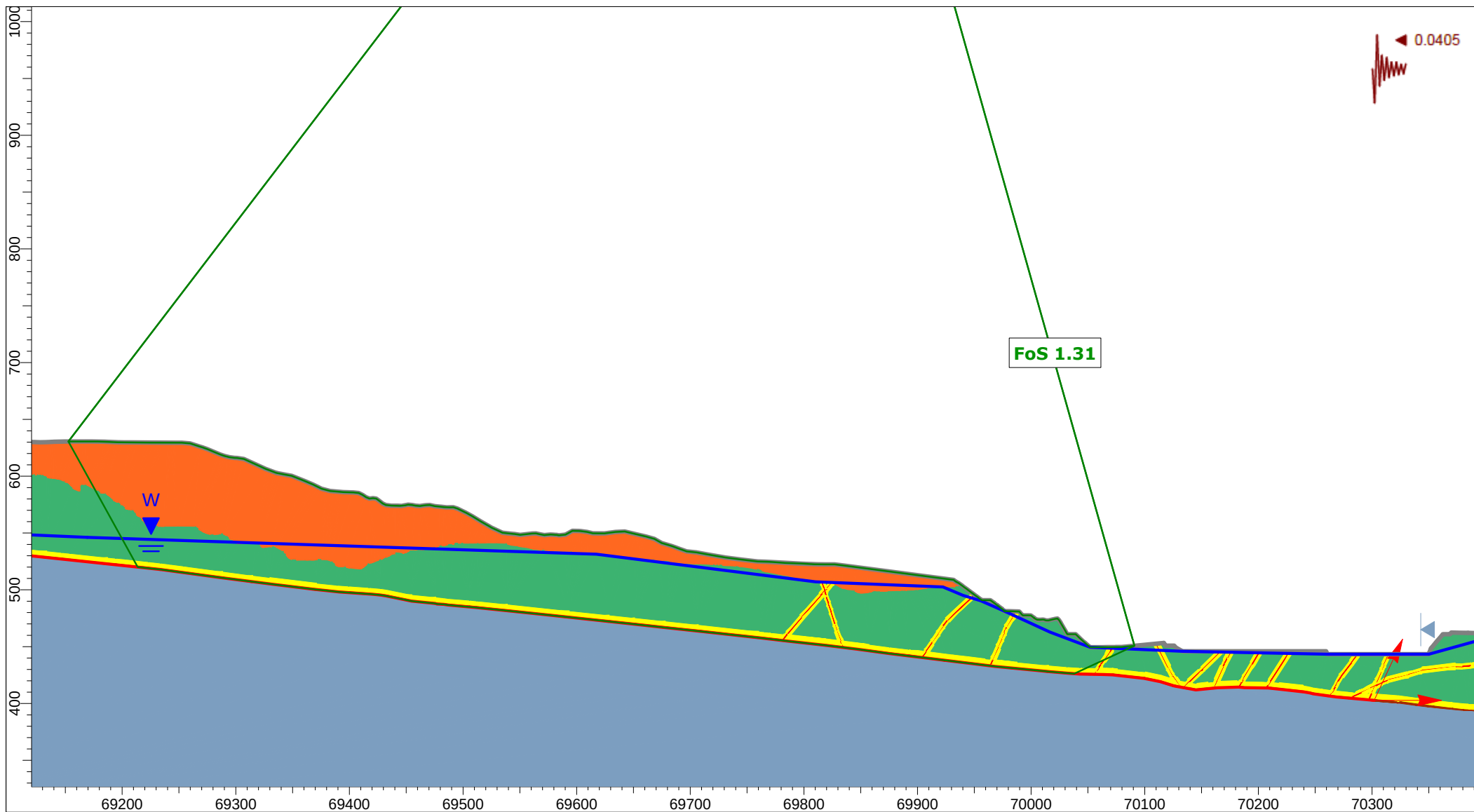
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 3	
Case:	Closure - MDE Kh=0.5 PGA, Block	
Date:	25/03/2026	GLE / Morgenstern-Price



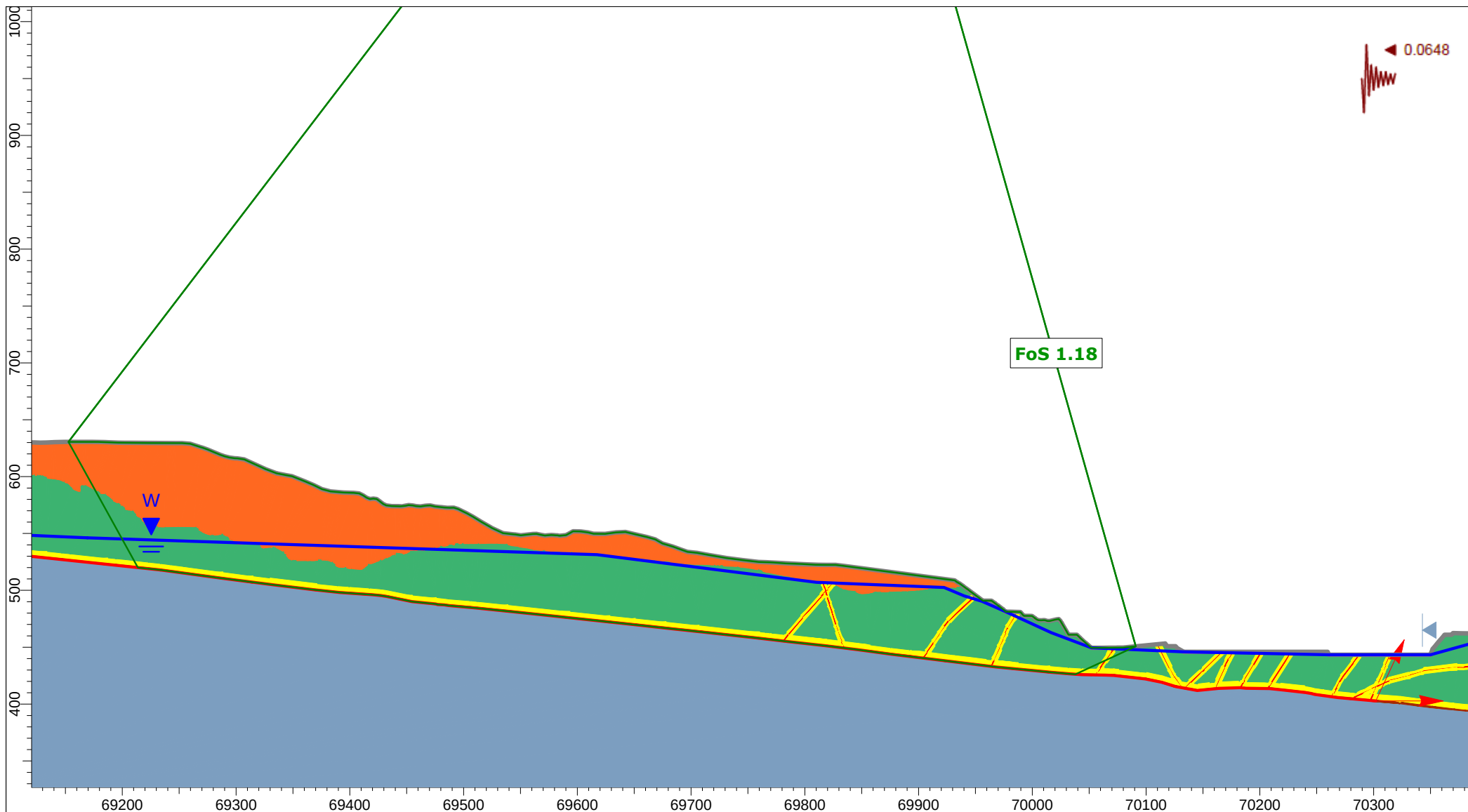
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Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 3	
Case:	Closure - MDE Kh=0.5 PGA, Block	
Date:	25/03/2026	GLE / Morgenstern-Price



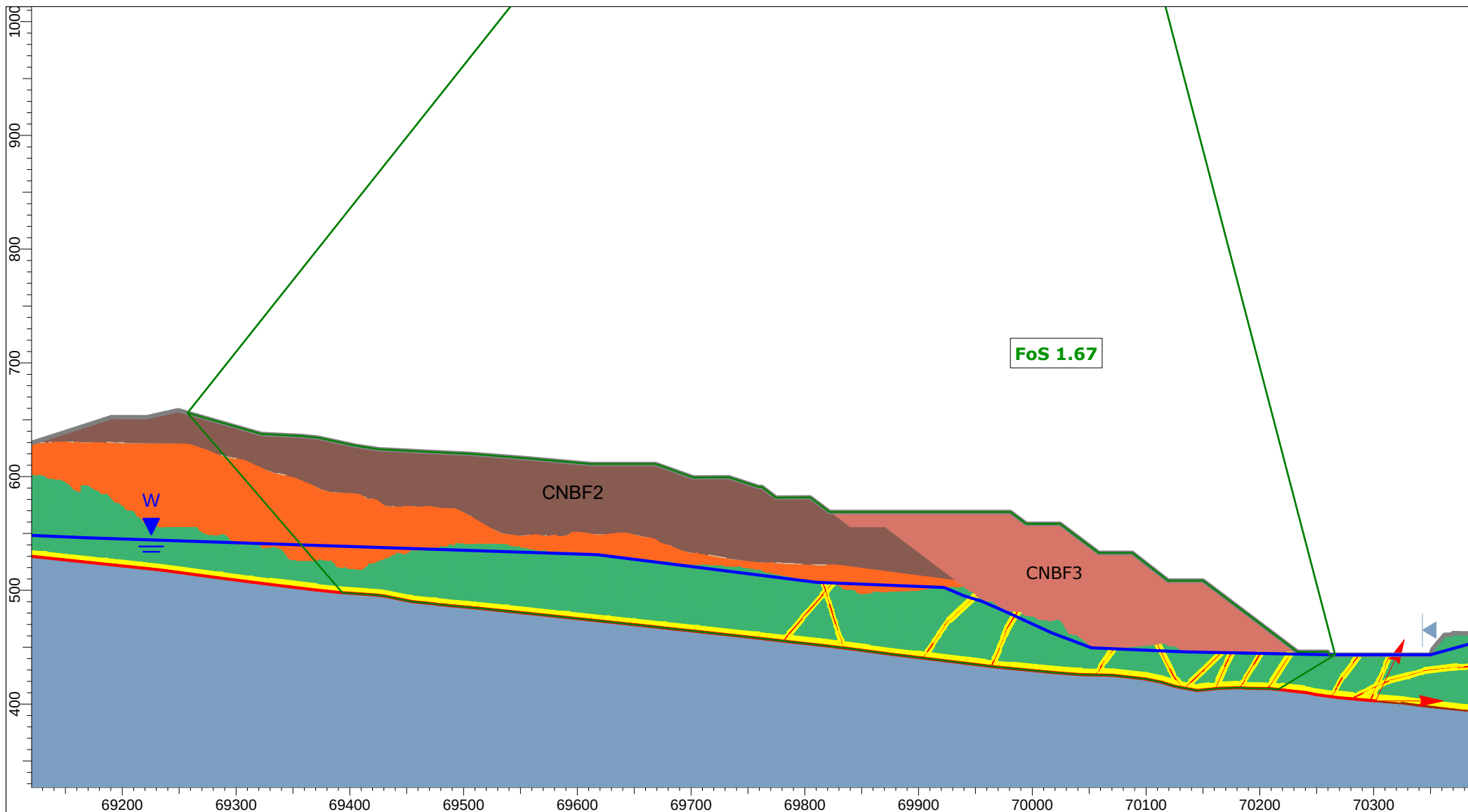
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 4	
Case:	Mining Hu = 0.6 - Static, Block	
Date:	25/03/2026	GLE / Morgenstern-Price



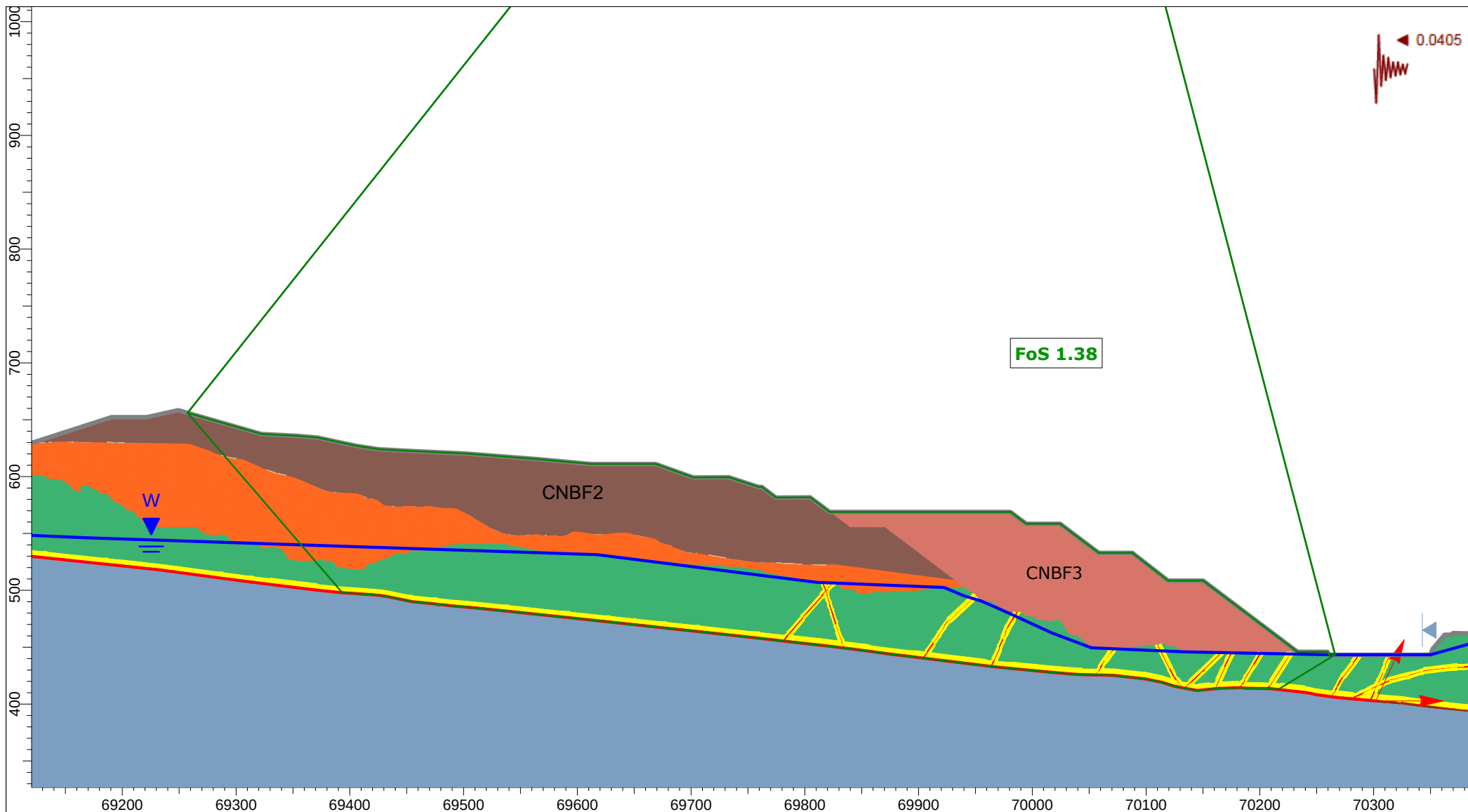
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 4	
Case:	Mining Hu = 0.6 - OBE Kh=0.5 PGA, Block	
Date:	25/03/2026	GLE / Morgenstern-Price



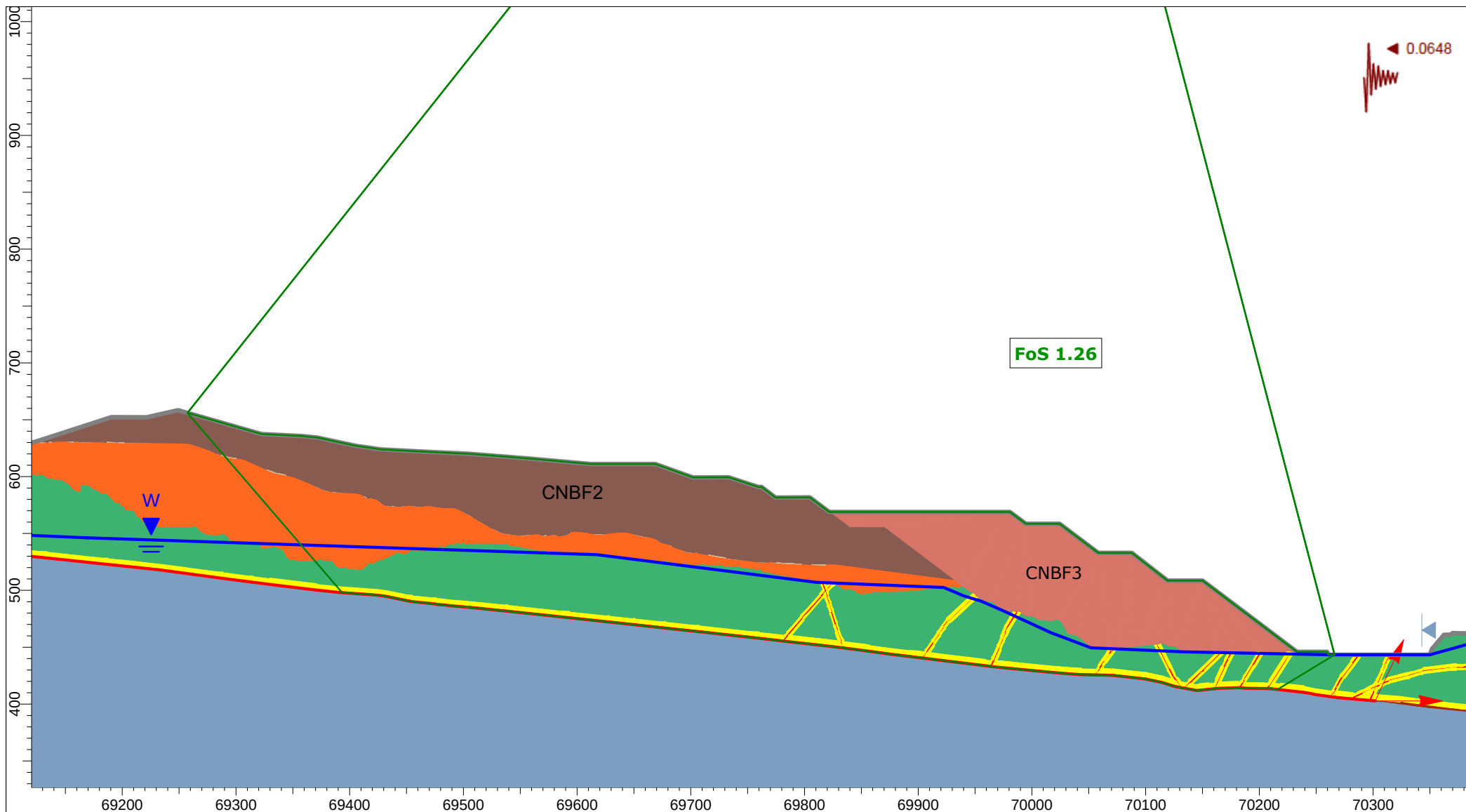
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 4	
Case:	Mining Hu = 0.6 - OBE Kh=0.8 PGA, Block	
Date:	25/03/2026	GLE / Morgenstern-Price



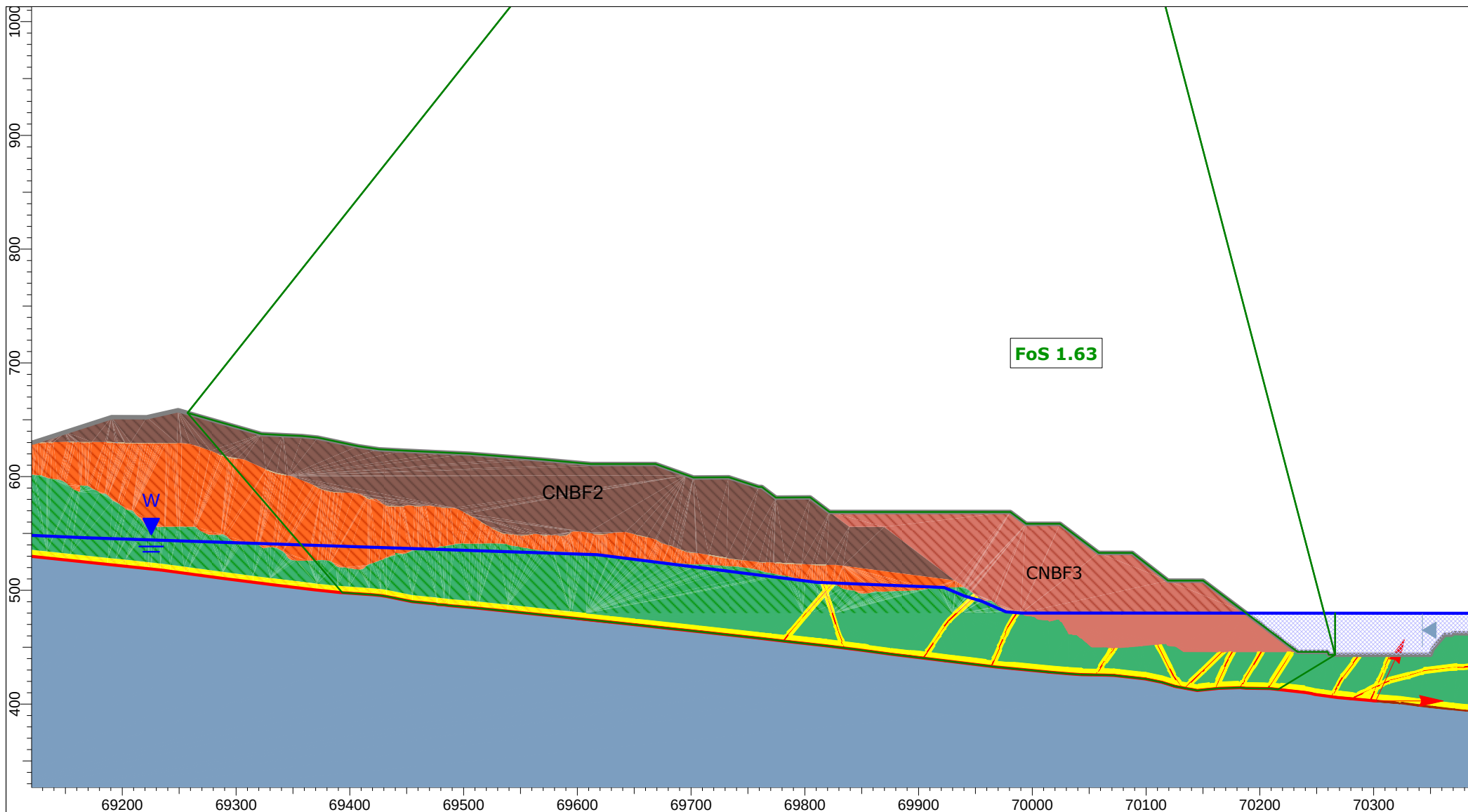
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 4	
Case:	Mining (CNBF2+CNBF3) - Static, Block	
Date:	25/03/2026	GLE / Morgenstern-Price



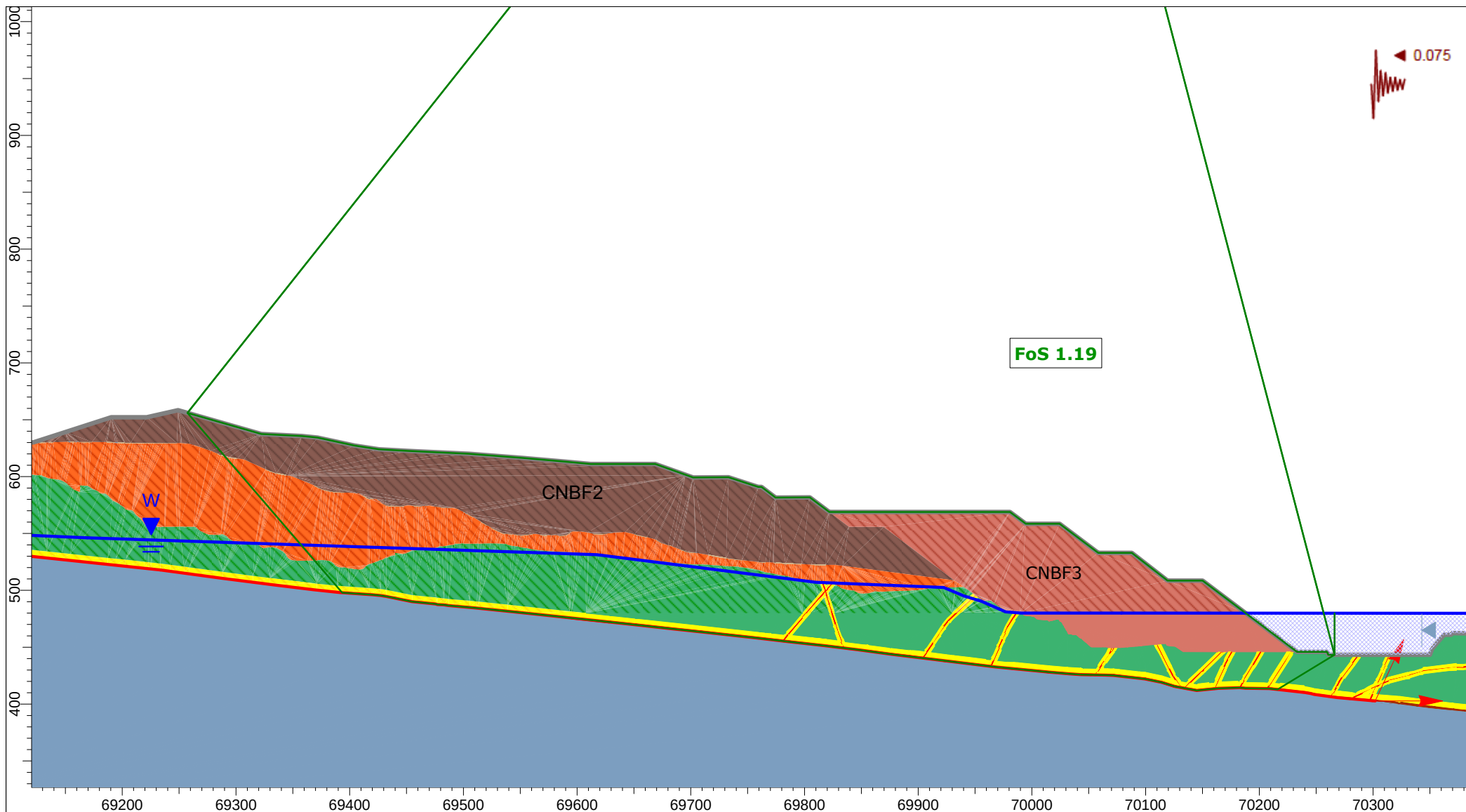
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 4	
Case:	Mining (CNBF2+CNBF3) - OBE Kh=0.5 PGA, Block	
Date:	25/03/2026	GLE / Morgenstern-Price



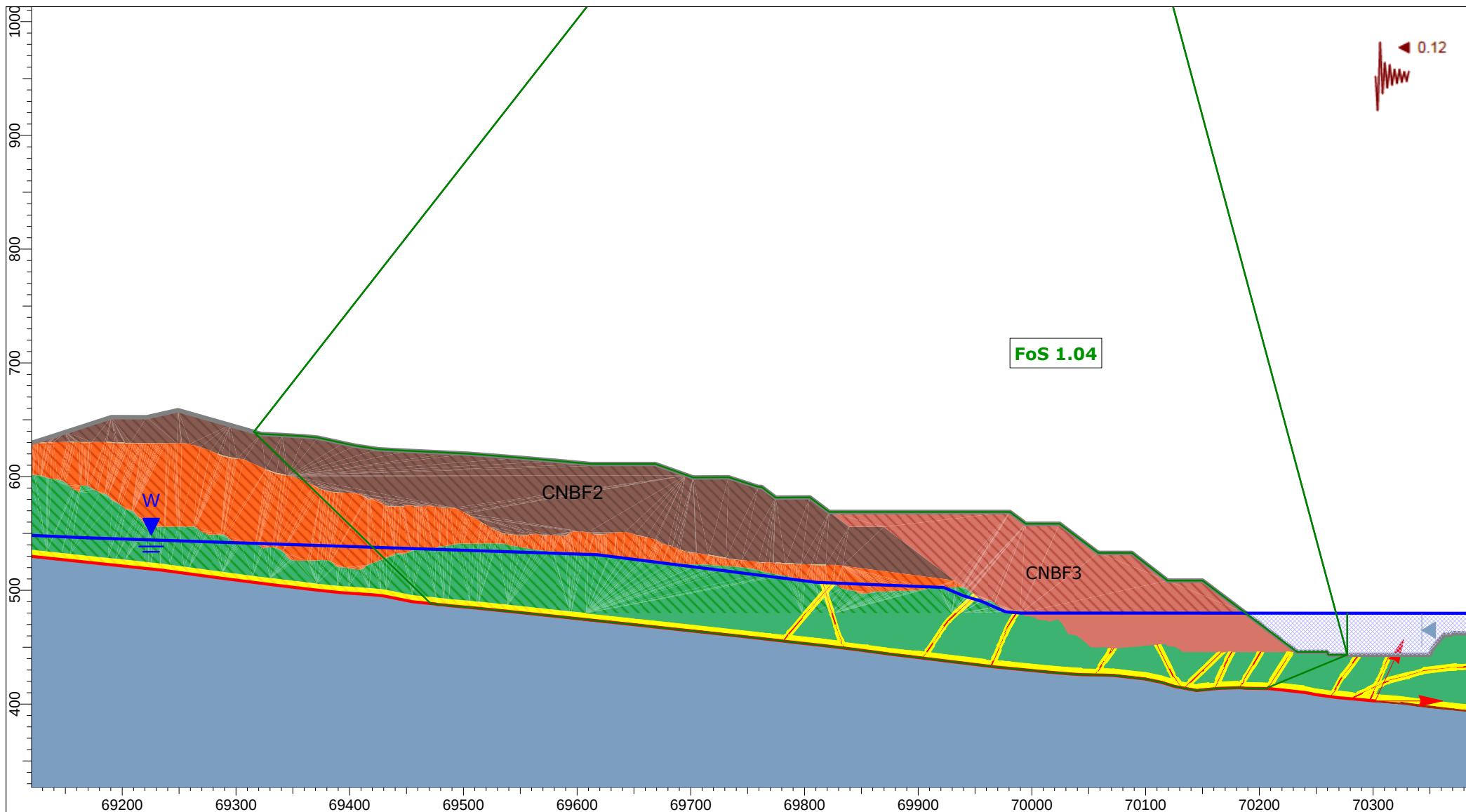
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 4	
Case:	Mining (CNBF2+CNBF3) - OBE Kh=0.8 PGA, Block	
Date:	25/03/2026	GLE / Morgenstern-Price



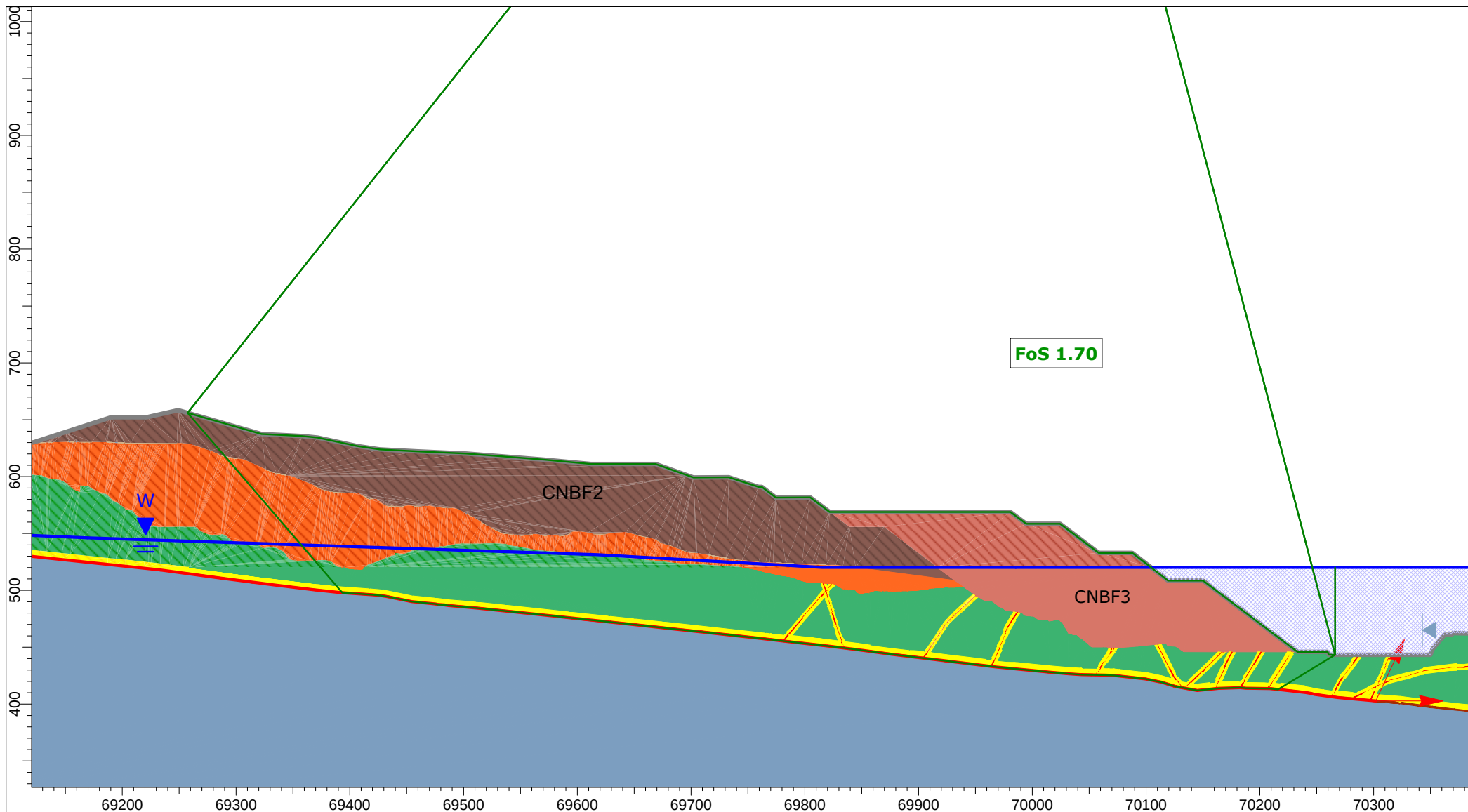
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 4	
Case:	Lake Filling 480 mRL - Static, Block	
Date:	25/03/2026	GLE / Morgenstern-Price



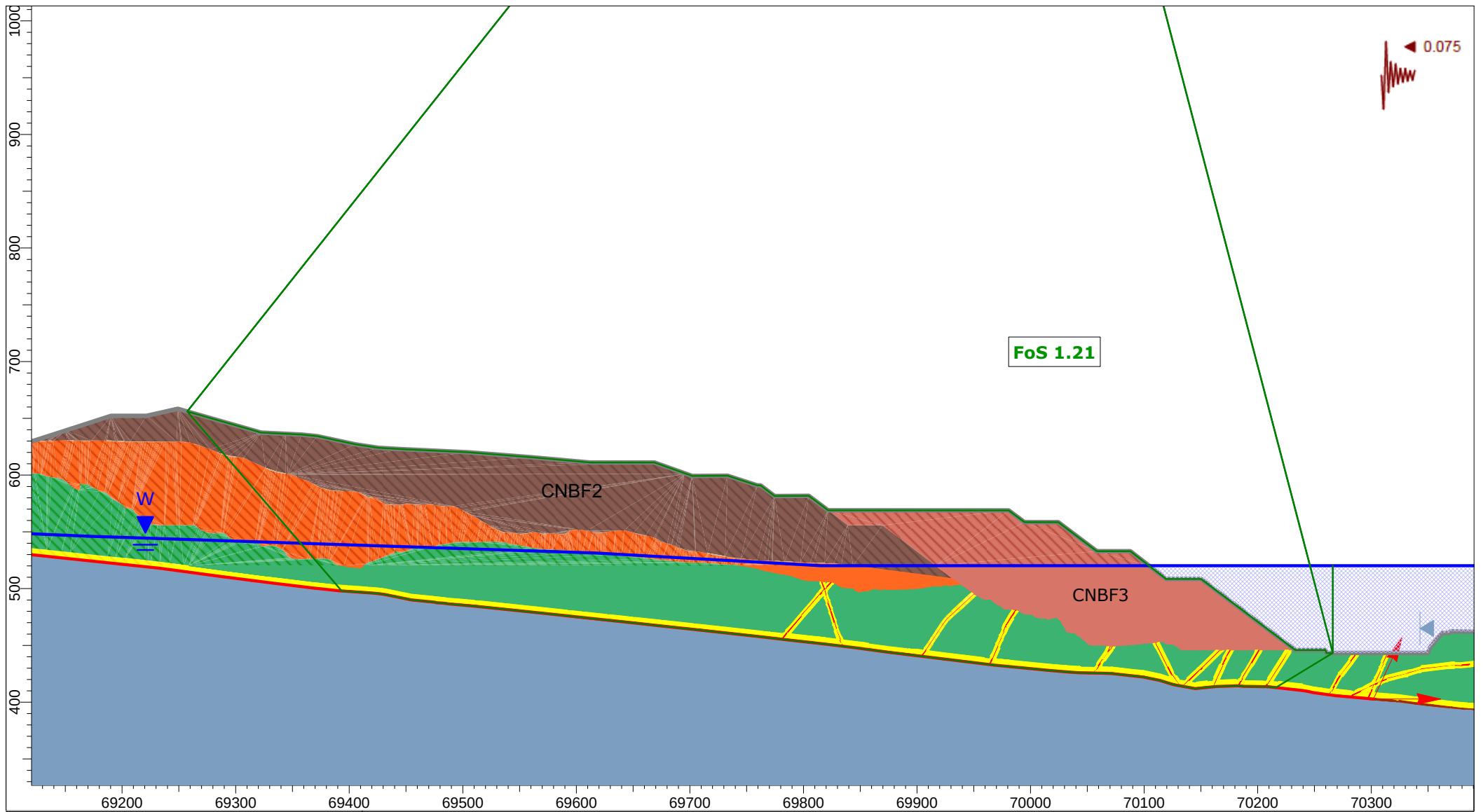
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 4	
Case:	Lake Filling 480 mRL - AEP=1:500, Kh=0.5 PGA, Block	
Date:	25/03/2026	GLE / Morgenstern-Price



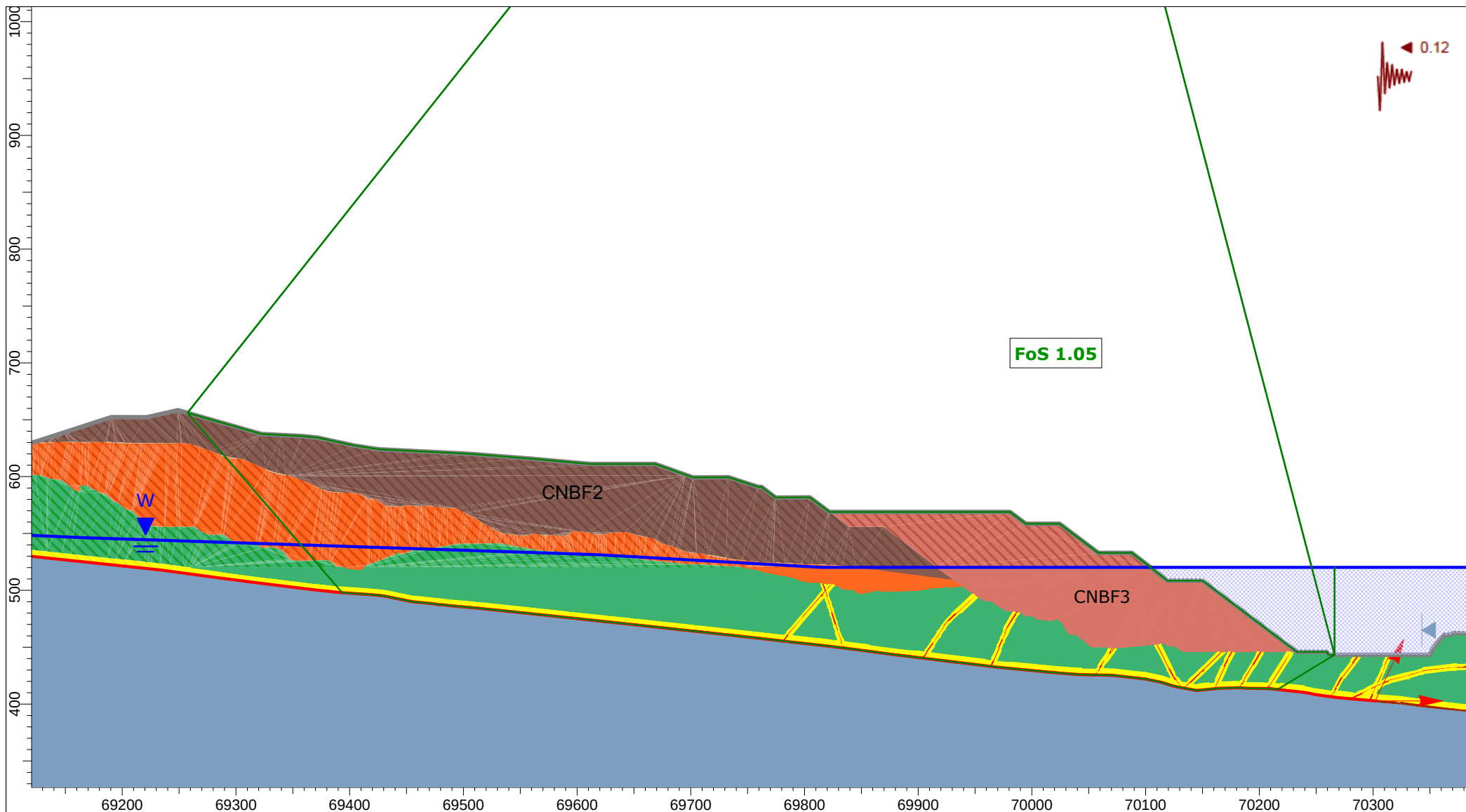
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 4	
Case:	Lake Filling 480 mRL - AEP=1:500, Kh=0.8 PGA, Block	
Date:	25/03/2026	GLE / Morgenstern-Price



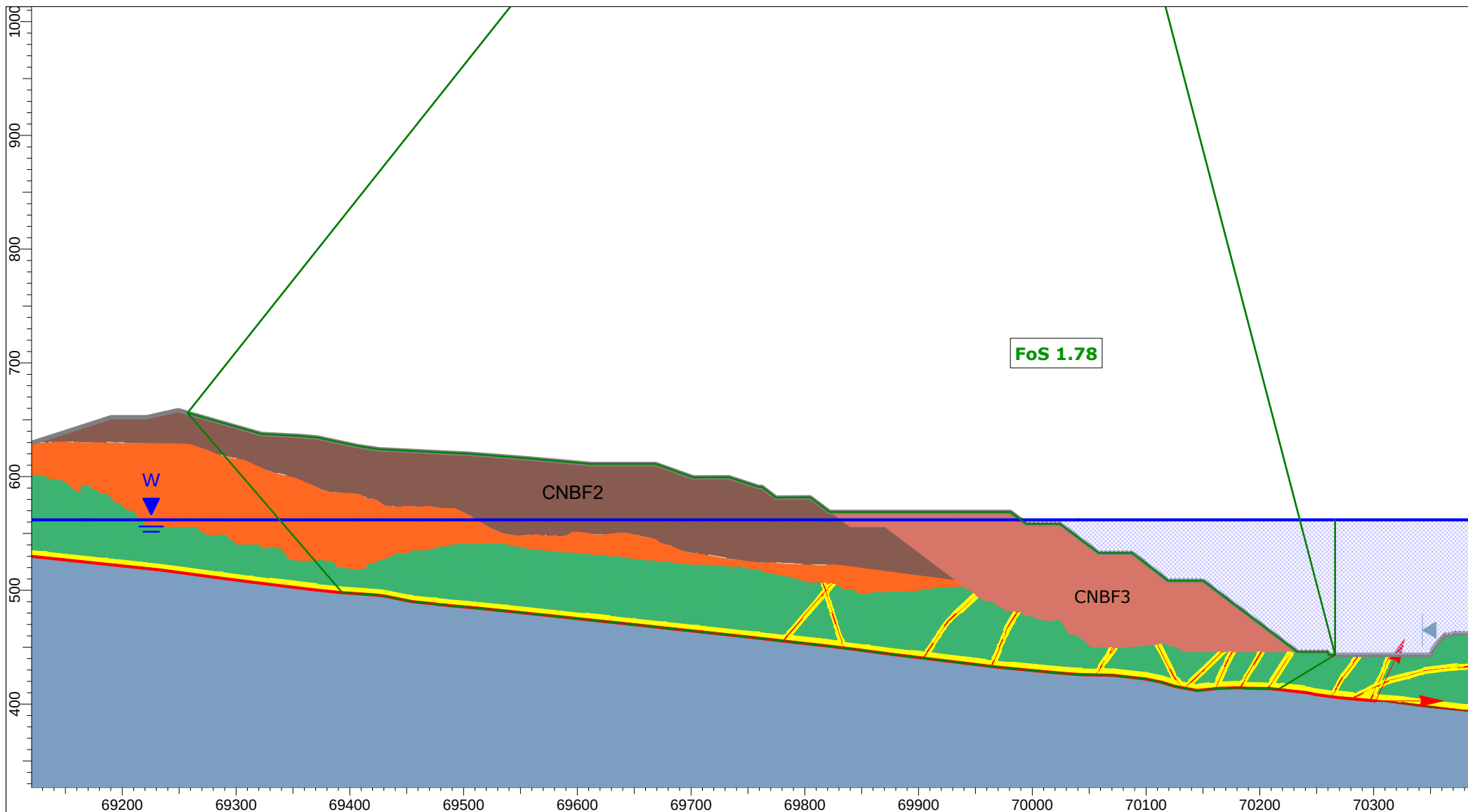
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 4	
Case:	Lake Filling 520 mRL - Static, Block	
Date:	25/03/2026	GLE / Morgenstern-Price



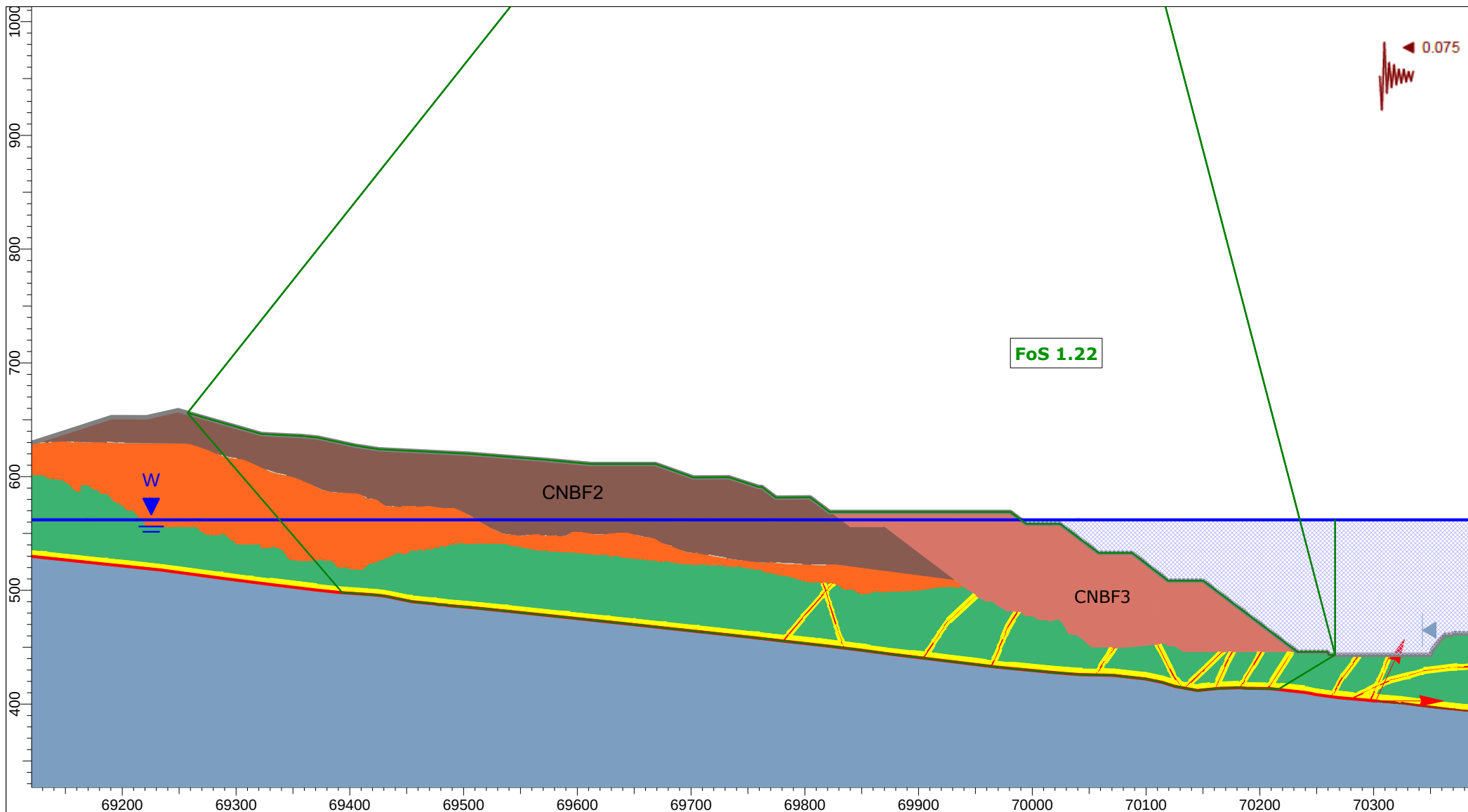
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Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 4	
Case:	Lake Filling 520 mRL - AEP=1:500, Kh=0.5 PGA, Block	
Date:	25/03/2026	GLE / Morgenstern-Price



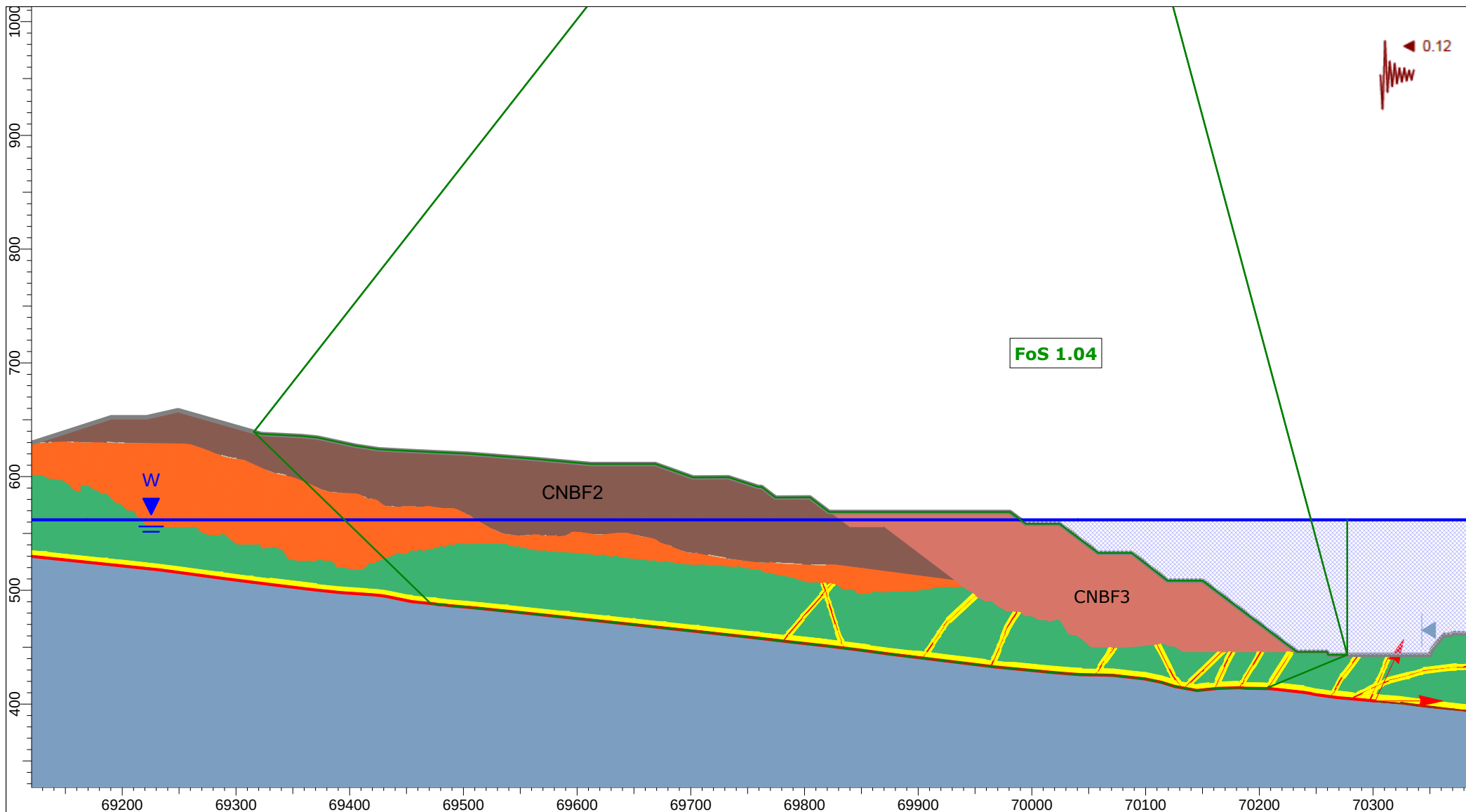
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 4	
Case:	Lake Filling 520 mRL - AEP=1:500, Kh=0.8 PGA, Block	
Date:	25/03/2026	GLE / Morgenstern-Price



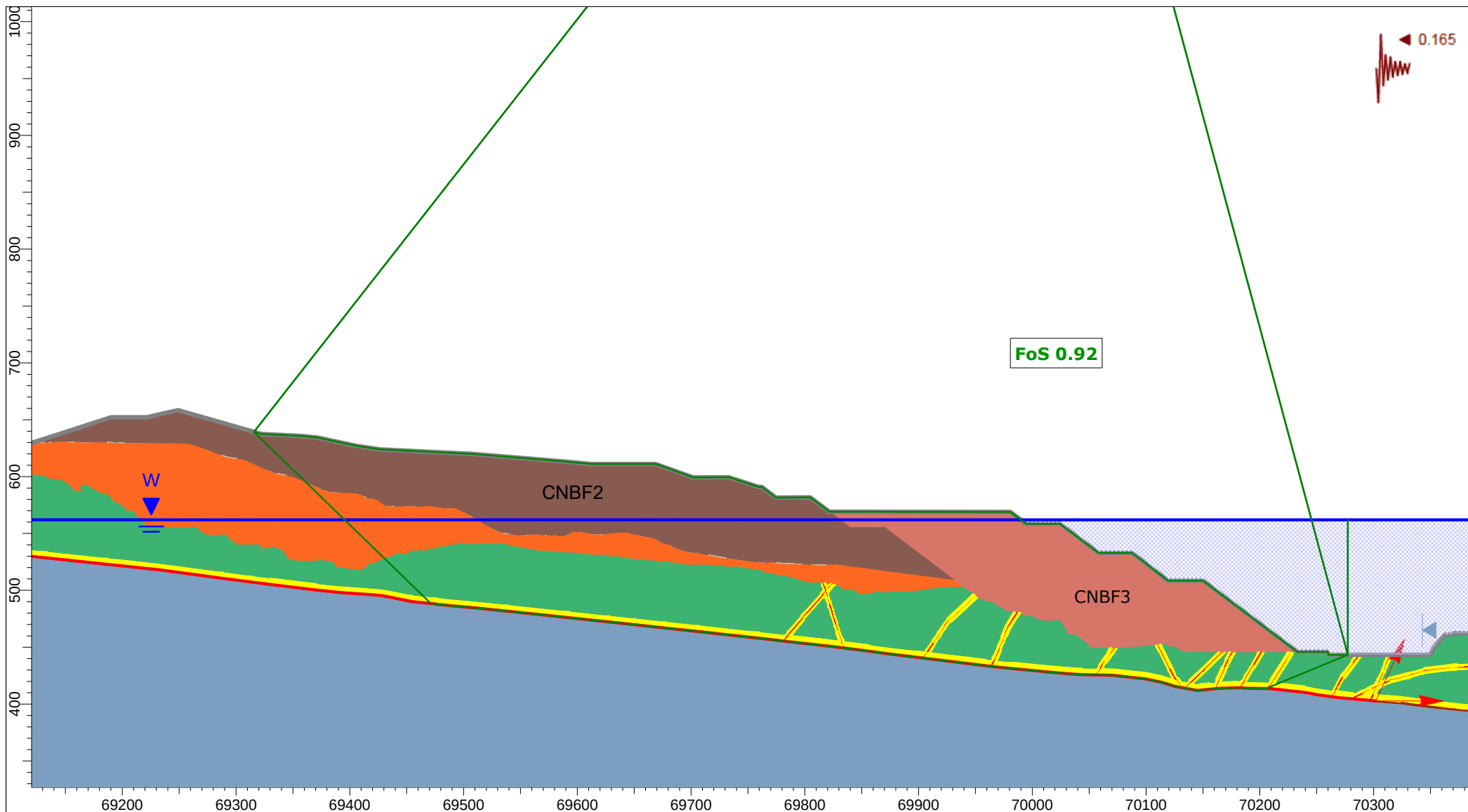
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 4	
Case:	Lake Filling 562 mRL - Static, Block	
Date:	25/03/2026	GLE / Morgenstern-Price



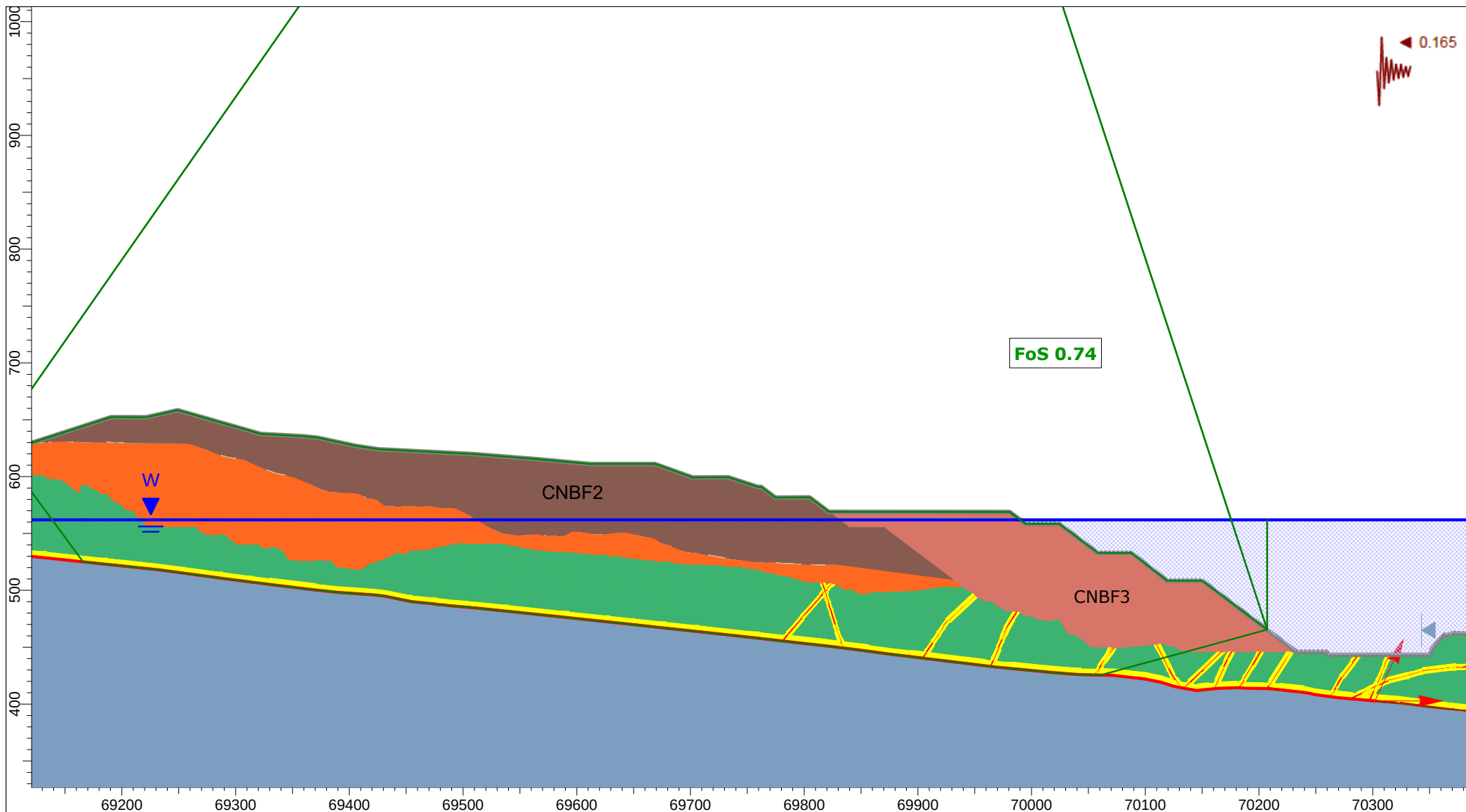
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 4	
Case:	Lake Filling 562 mRL - AEP=1:500, Kh=0.5 PGA, Block	
Date:	25/03/2026	GLE / Morgenstern-Price



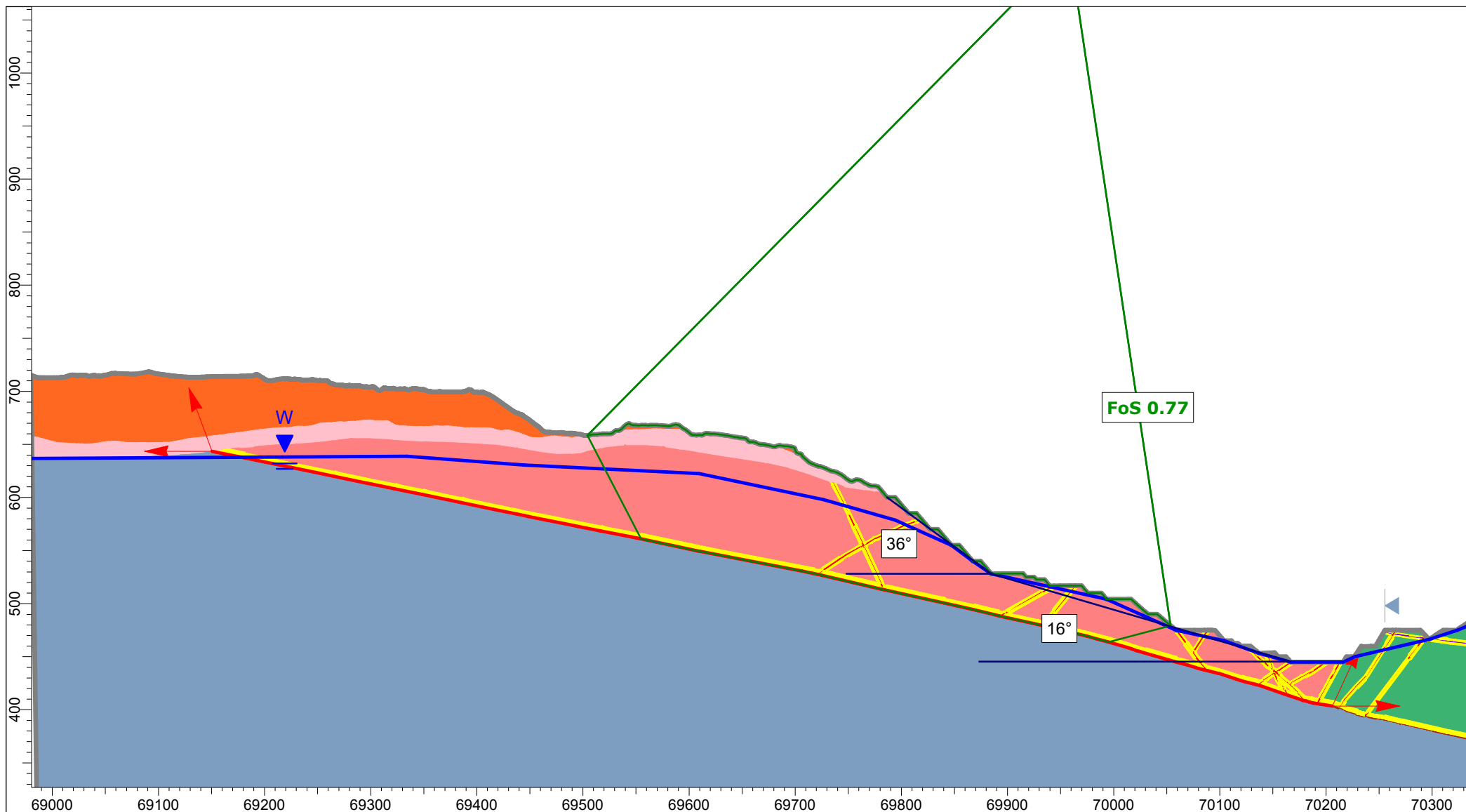
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 4	
Case:	Lake Filling 562 mRL - AEP=1:500, Kh=0.8 PGA, Block	
Date:	25/03/2026	GLE / Morgenstern-Price



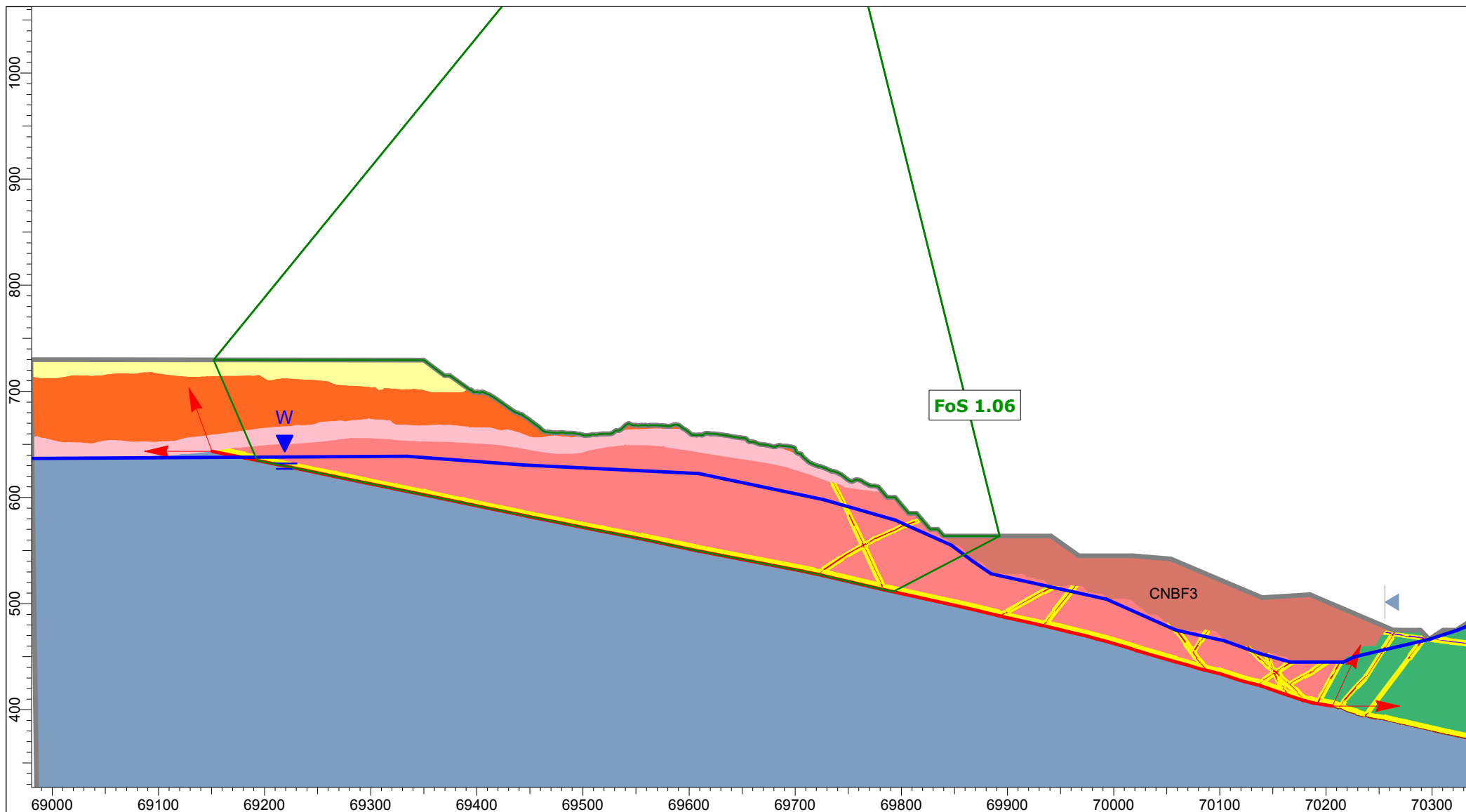
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 4	
Case:	Closure - MDE Kh=0.5 PGA, Block	
Date:	25/03/2026	GLE / Morgenstern-Price



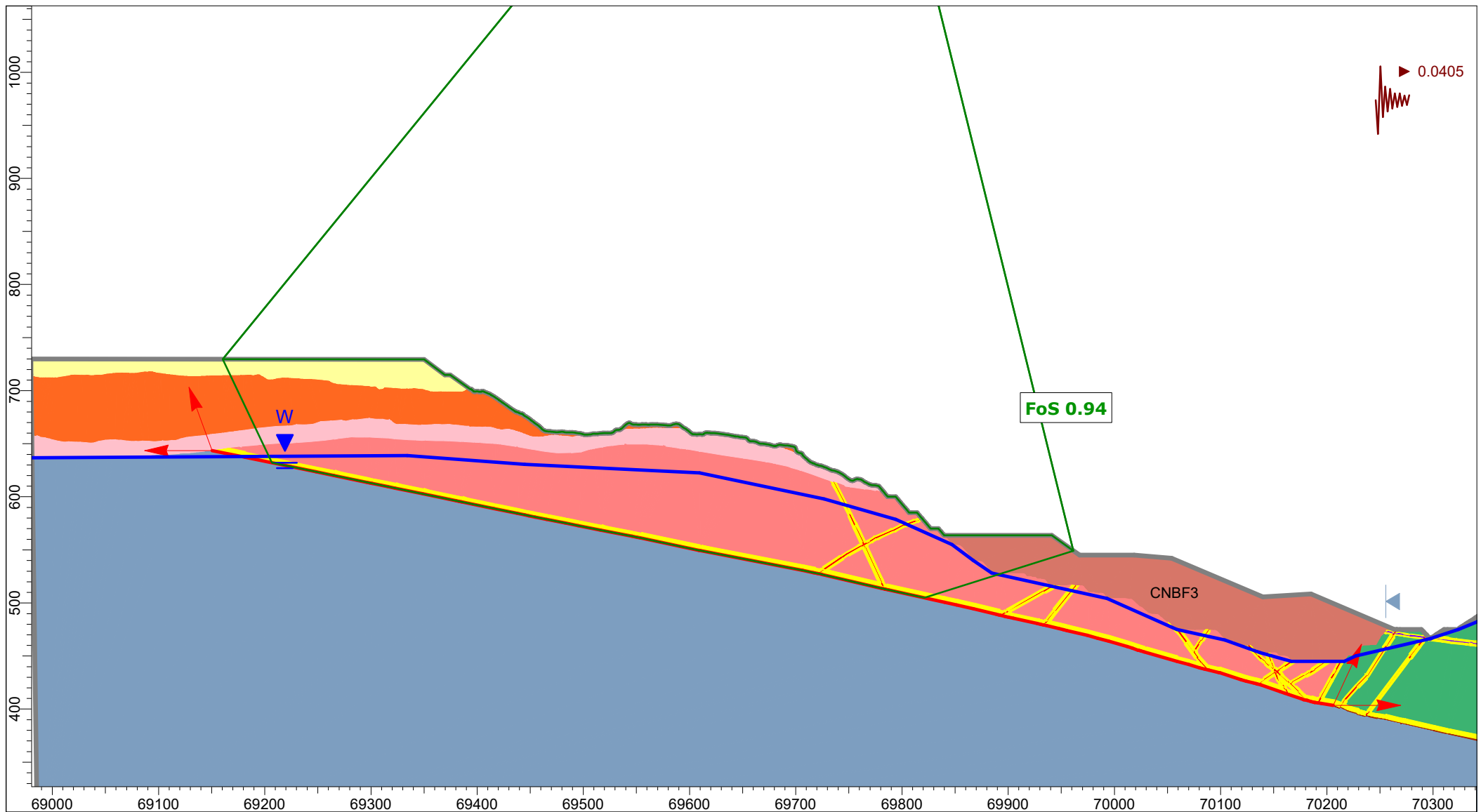
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Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 4	
Case:	Closure - MDE Kh=0.8 PGA, Block	
Date:	25/03/2026	GLE / Morgenstern-Price



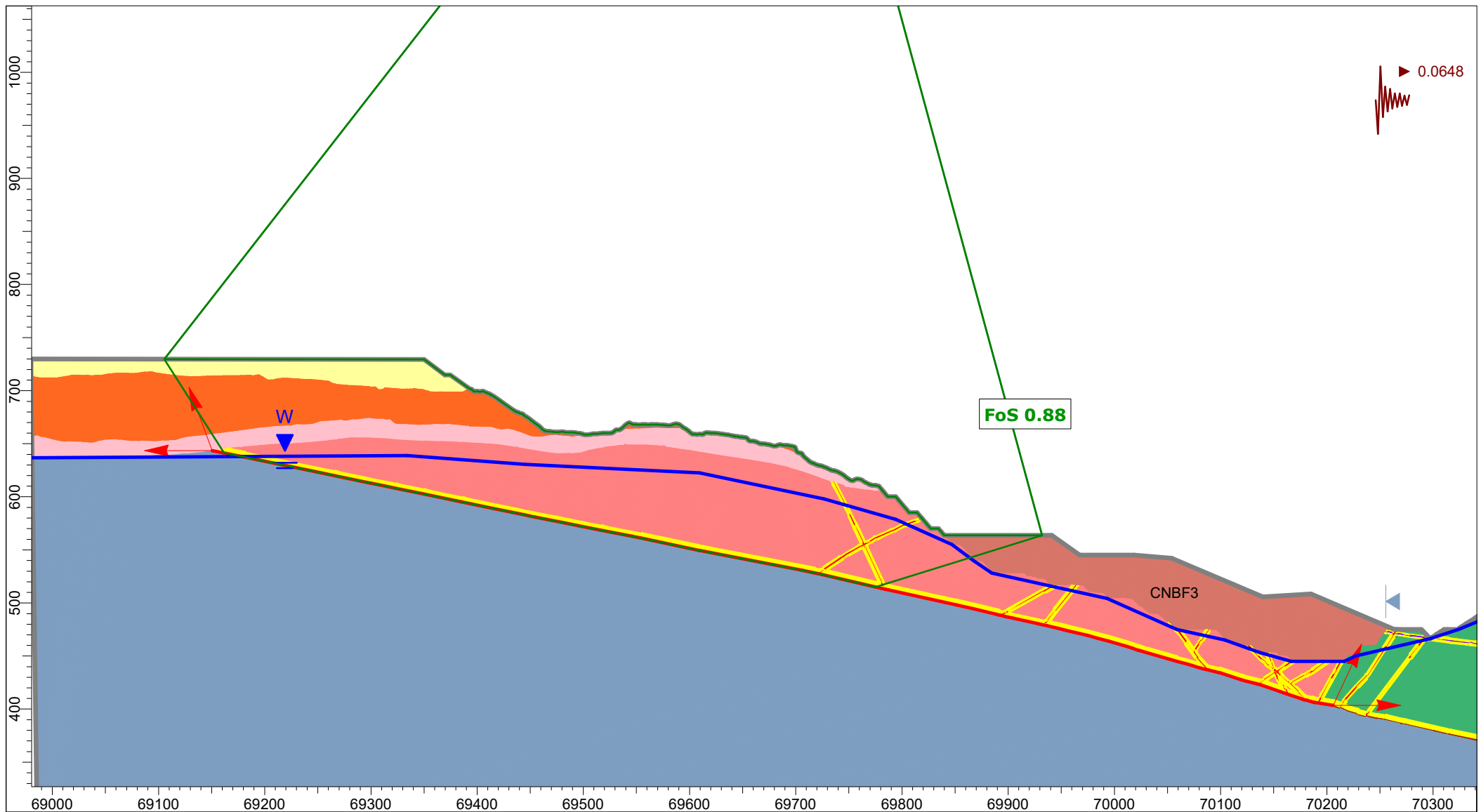
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 5	
Case:	Mining Hu = 0.6 - Static, Block	
Date:	26/03/2026	GLE / Morgenstern-Price



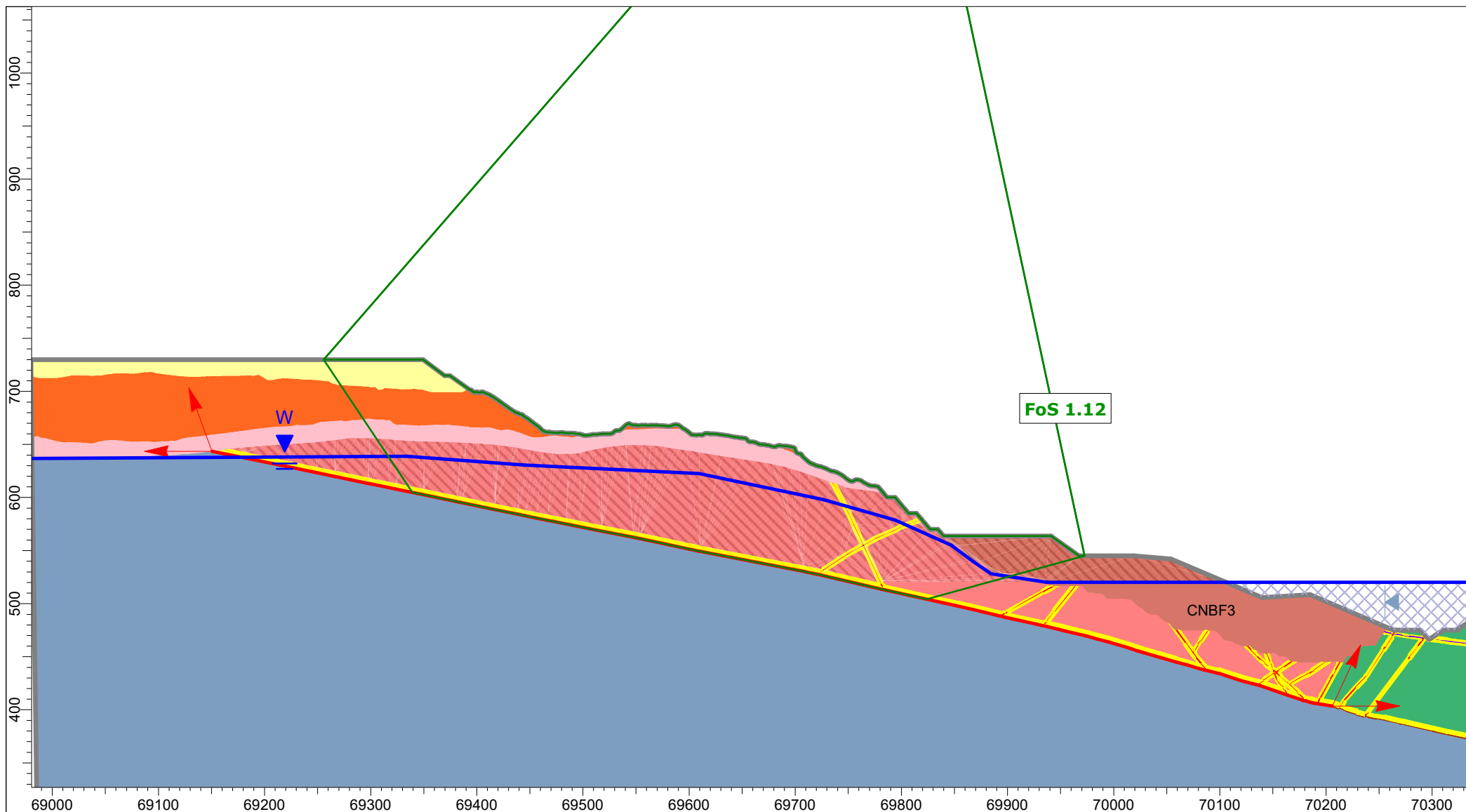
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 5	
Case:	Mining CNBF3 - Static, Block	
Date:	26/03/2026	GLE / Morgenstern-Price



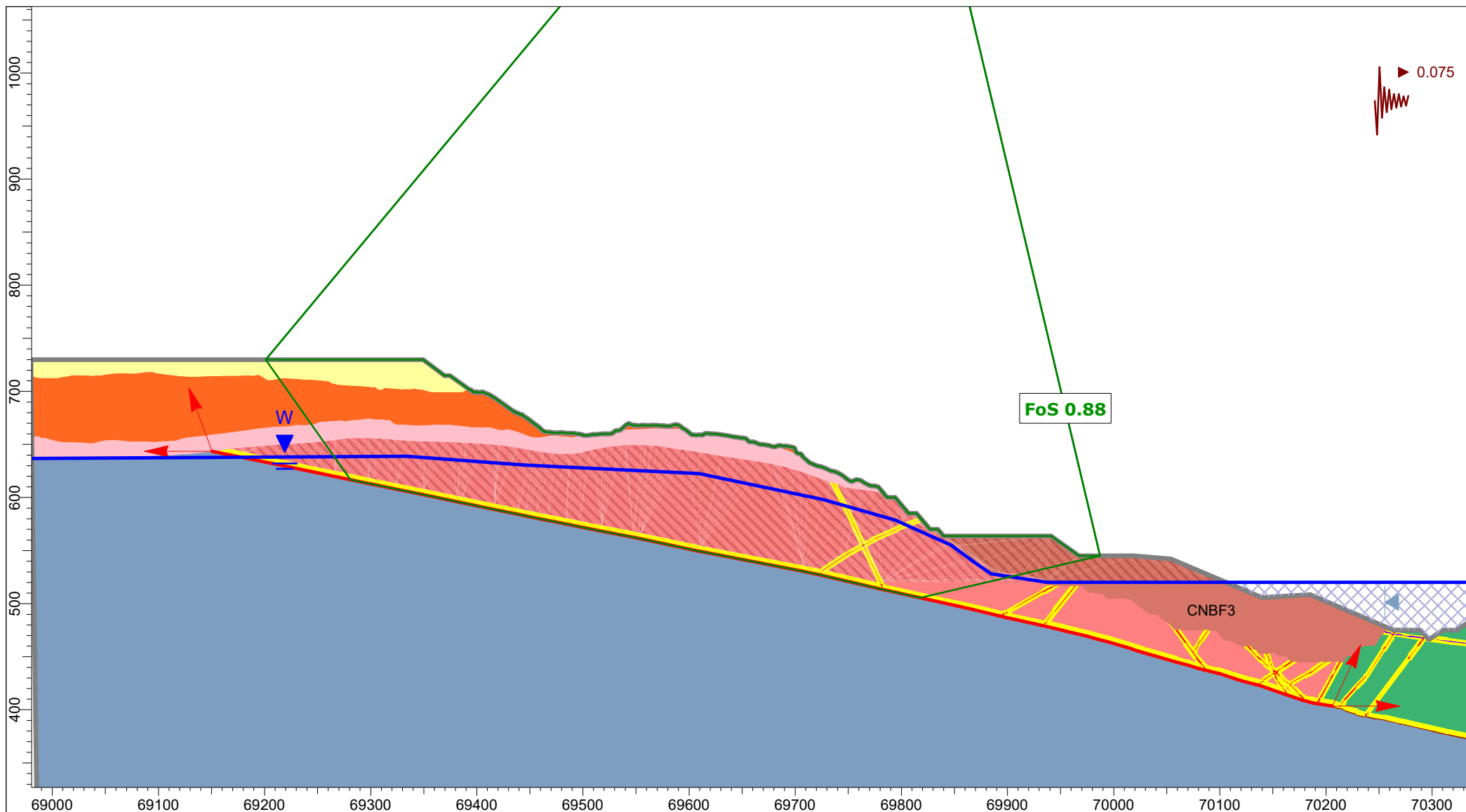
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 5	
Case:	Mining CNBF3 - OBE Kh=0.5 PGA, Block	
Date:	26/03/2026	GLE / Morgenstern-Price



Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 5	
Case:	Mining CNBF3 - OBE Kh=0.8 PGA, Block	
Date:	26/03/2026	GLE / Morgenstern-Price



Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 5	
Case:	Lake Filling 520 mRL - Static, Block	
Date:	26/03/2026	GLE / Morgenstern-Price



Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CN_OPE_Section 5	
Case:	Lake Filling 520 mRL - AEP=1:500, Kh=0.5 PGA, Block	
Date:	26/03/2026	GLE / Morgenstern-Price

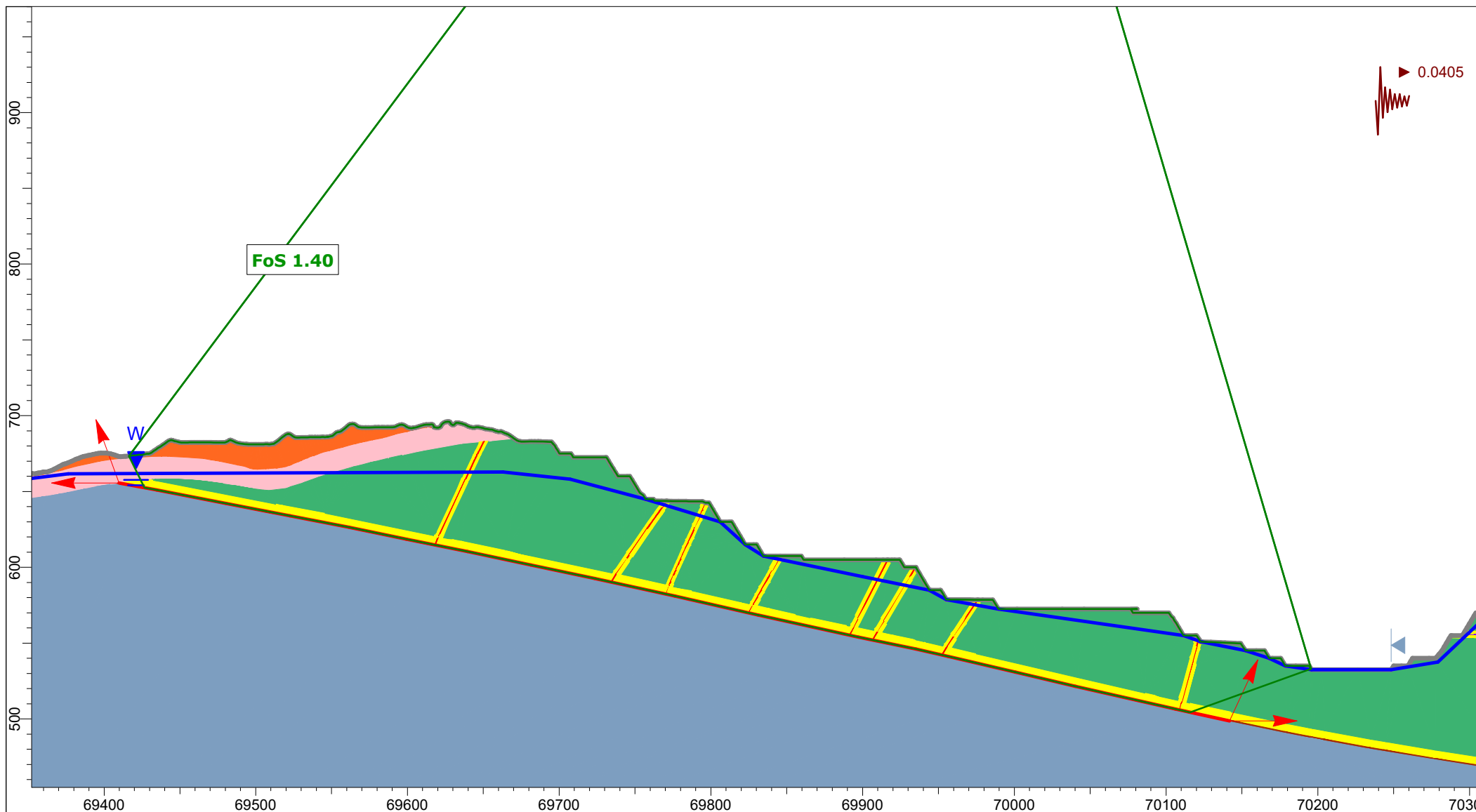
Appendix C
Coronation Limited Equilibrium Outputs



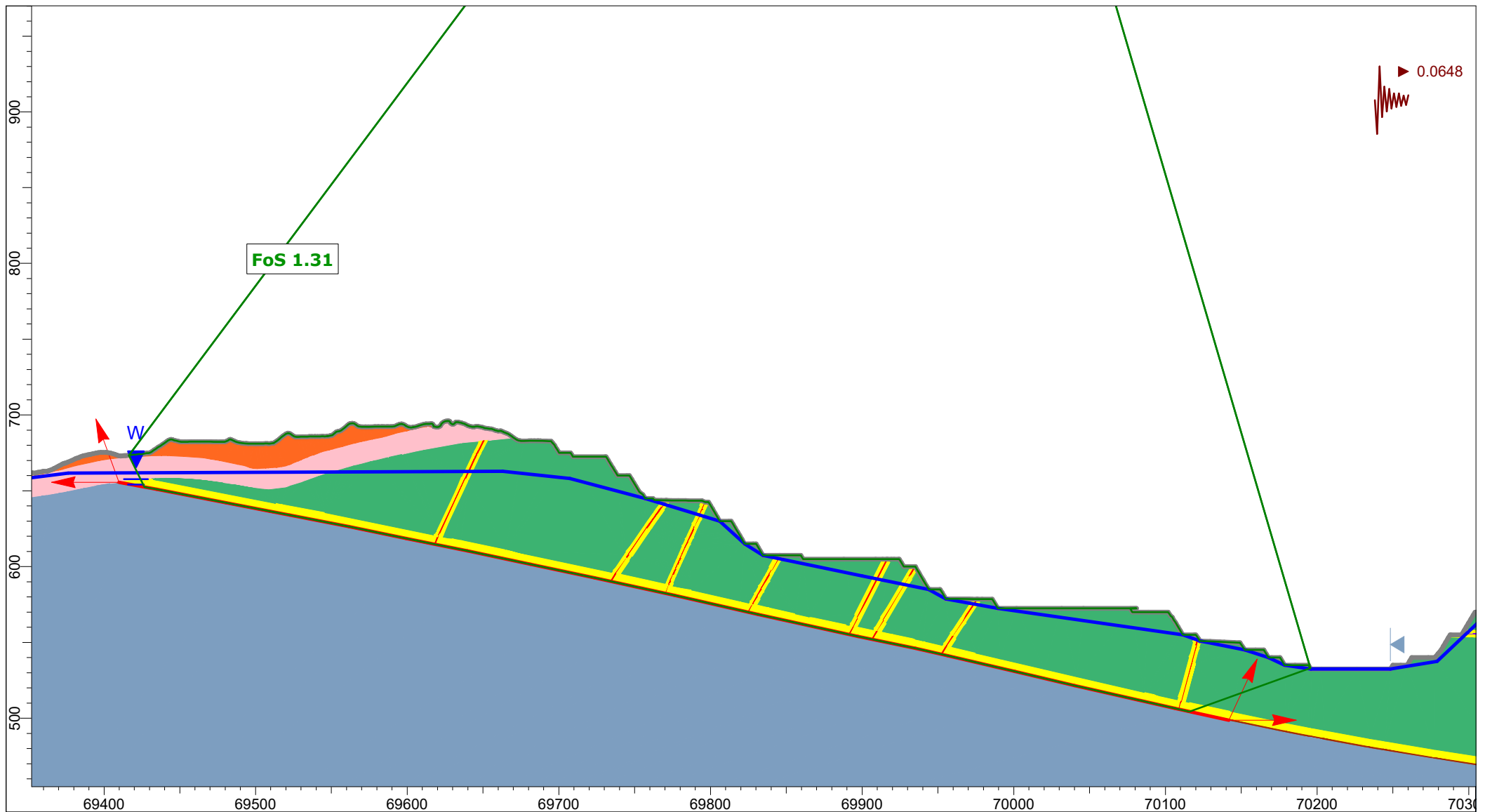
Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (°)	UCS (intact) (kPa)	Parameters vary with depth	GSI	mi	D	Water Surface
Class A		27	Generalized Hoek-Brown			40000	No	65	12	0	Water Table
Class B		27	Generalized Hoek-Brown			40000	No	55	12	0	Water Table
Class C		27	Generalized Hoek-Brown			35000	No	45	12	0	Water Table
Weathered Zone		25	Mohr-Coulomb	100	38						Water Table
Failed Psammite		20	Mohr-Coulomb	1	35						Water Table
Rockfill		20	Mohr-Coulomb	0	40						Water Table
Other Faults		20	Mohr-Coulomb	50	20						Water Table
Hanging Wall Shear		20	Mohr-Coulomb	50	20						Water Table
Footwall Fault		20	Mohr-Coulomb	0	9						Water Table
WRS - As-built		20	Mohr-Coulomb	0	40						Water Table
WRS - Consented		20	Mohr-Coulomb	0	40						Water Table
WRS - FTA Proposed		20	Mohr-Coulomb	0	40						Water Table
In-Pit Backfill		20	Mohr-Coulomb	1	35						Water Table

Pit Lake Filling

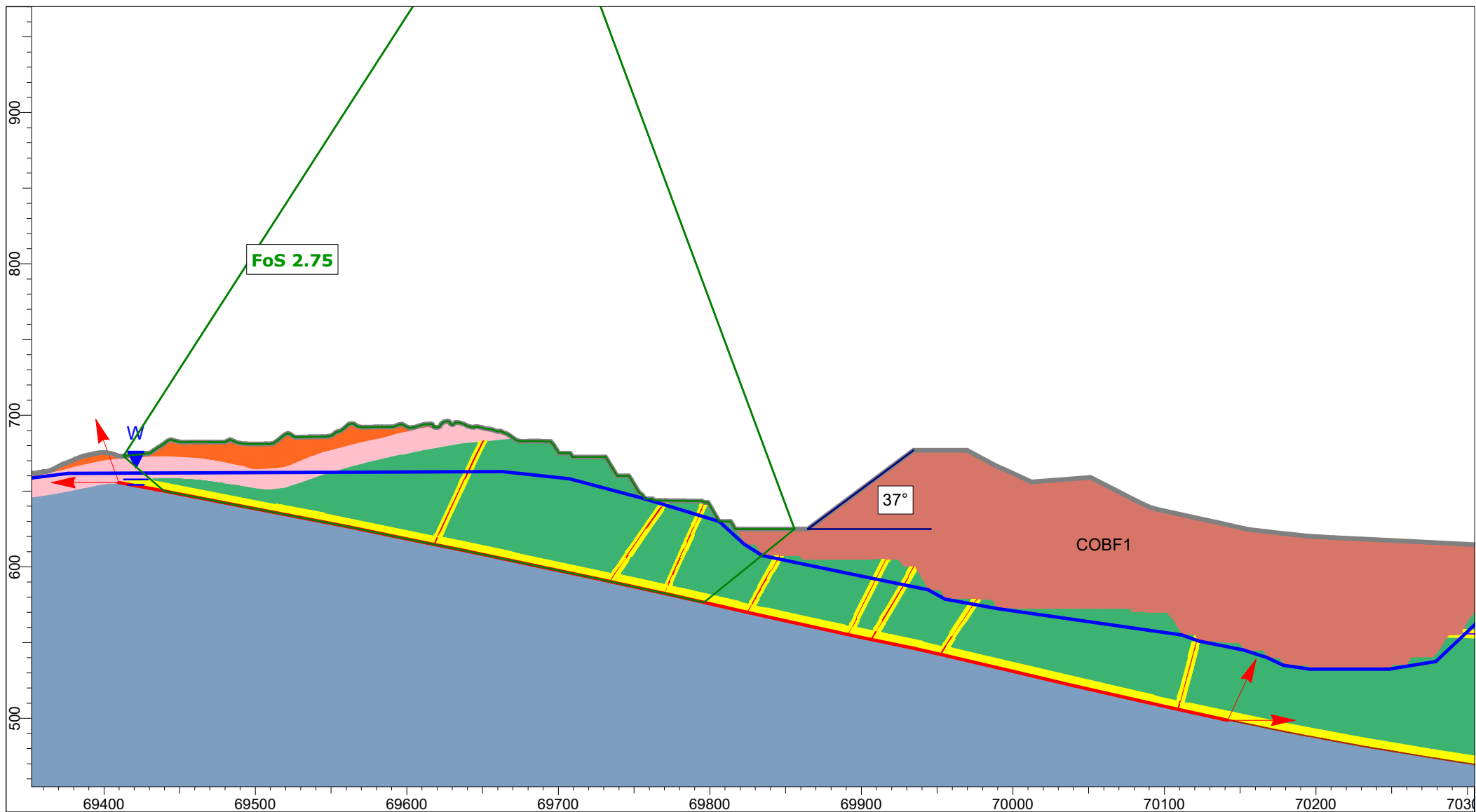
Class B - Hu=0.6		27	Generalized Hoek-Brown			40000	No	55	12	0	Water Table
Class C - Hu=0.6		27	Generalized Hoek-Brown			35000	No	45	12	0	Water Table
Other Faults - Hu=0.6		20	Mohr-Coulomb	50	20						Water Table
Footwall Fault - Hu=0.6		20	Mohr-Coulomb	0	9						Water Table
In-pit Backfill - Hu=0.6		20	Mohr-Coulomb	1	35						Water Table
Failed Psammite - Hu=0.6		20	Mohr-Coulomb	1	35						Water Table



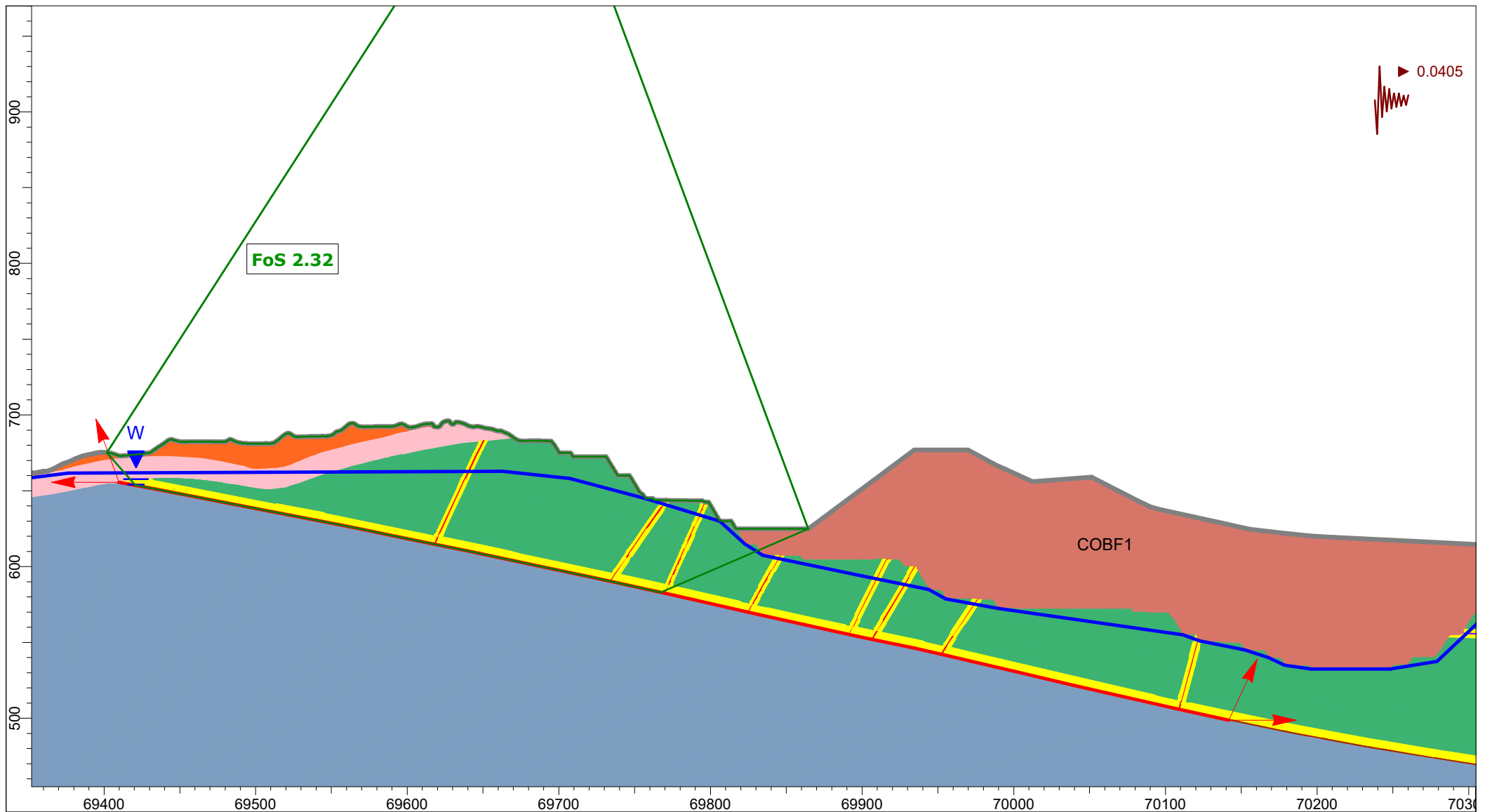
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four Project Open Pit Extensions	
Section:	CO_OPE_Section 1	
Case:	Mining Hu=0.6 - OBE Kh=0.5 PGA, Block	
Date:	25/03/2026	GLE / Morgenstern-Price



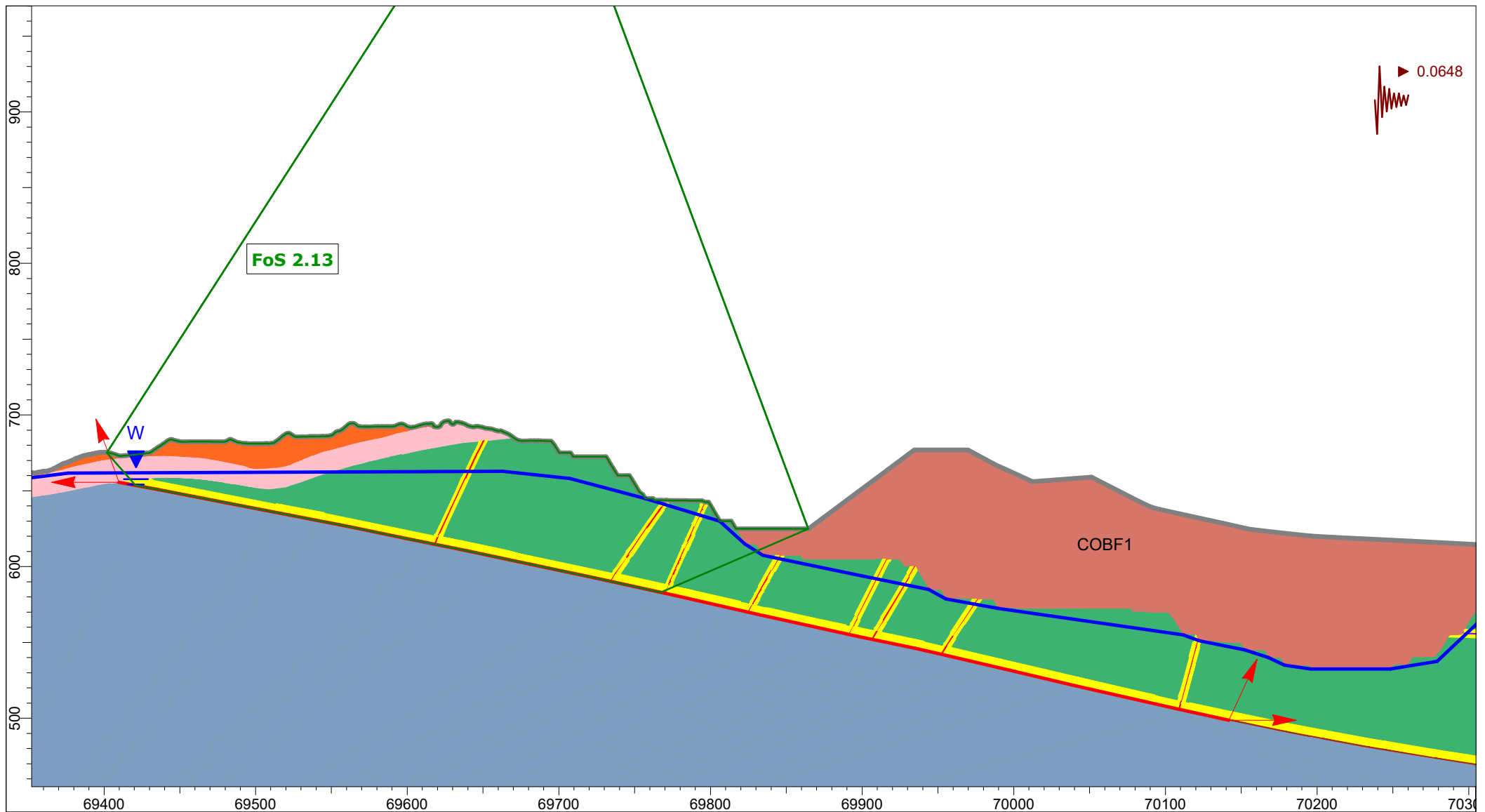
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four Project Open Pit Extensions	
Section:	CO_OPE_Section 1	
Case:	Mining Hu=0.6 - OBE Kh=0.8 PGA, Block	
Date:	25/03/2026	GLE / Morgenstern-Price



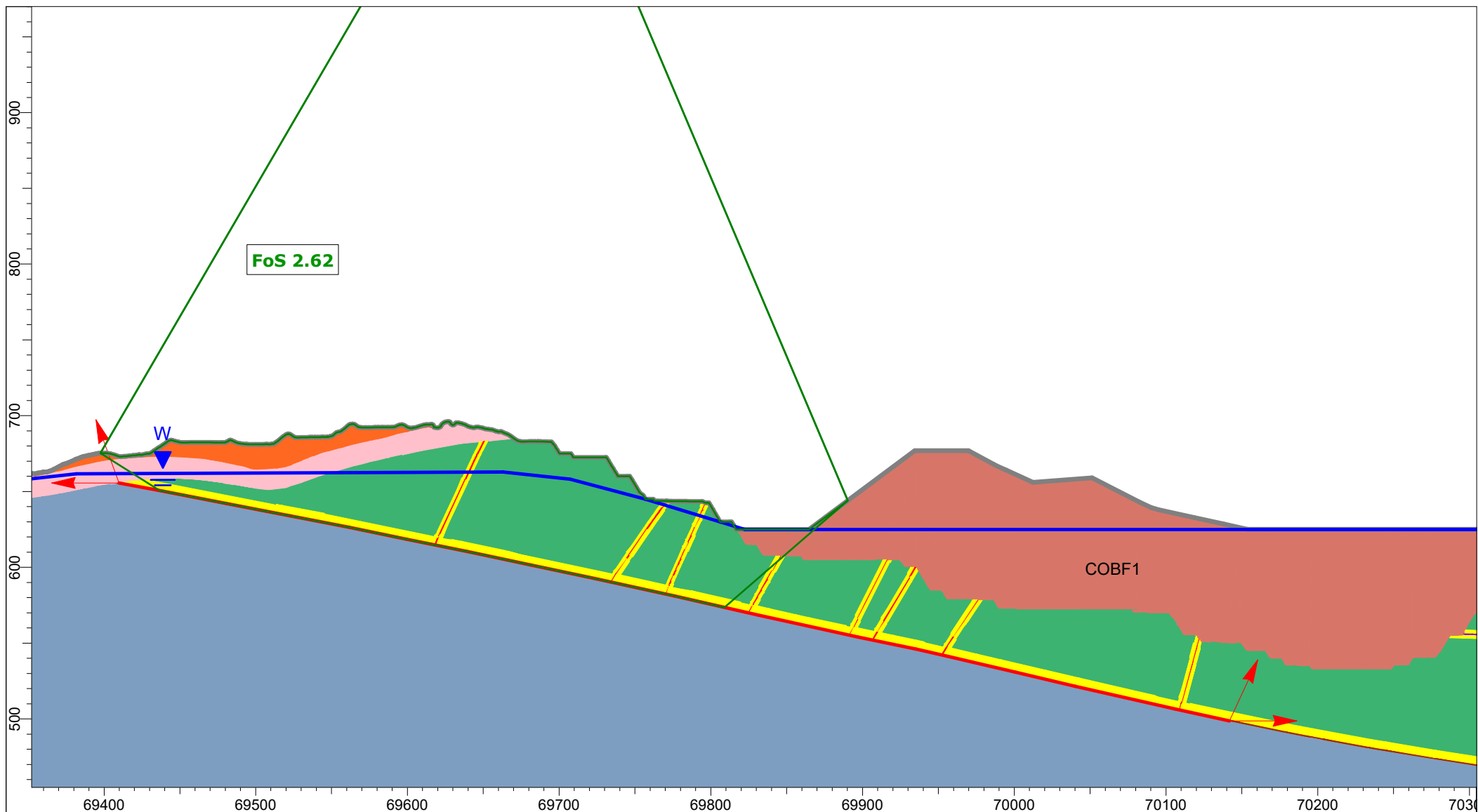
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four Project Open Pit Extensions	
Section:	CO_OPE_Section 1	
Case:	Mining (COBF1) - Static, Block	
Date:	25/03/2026	GLE / Morgenstern-Price



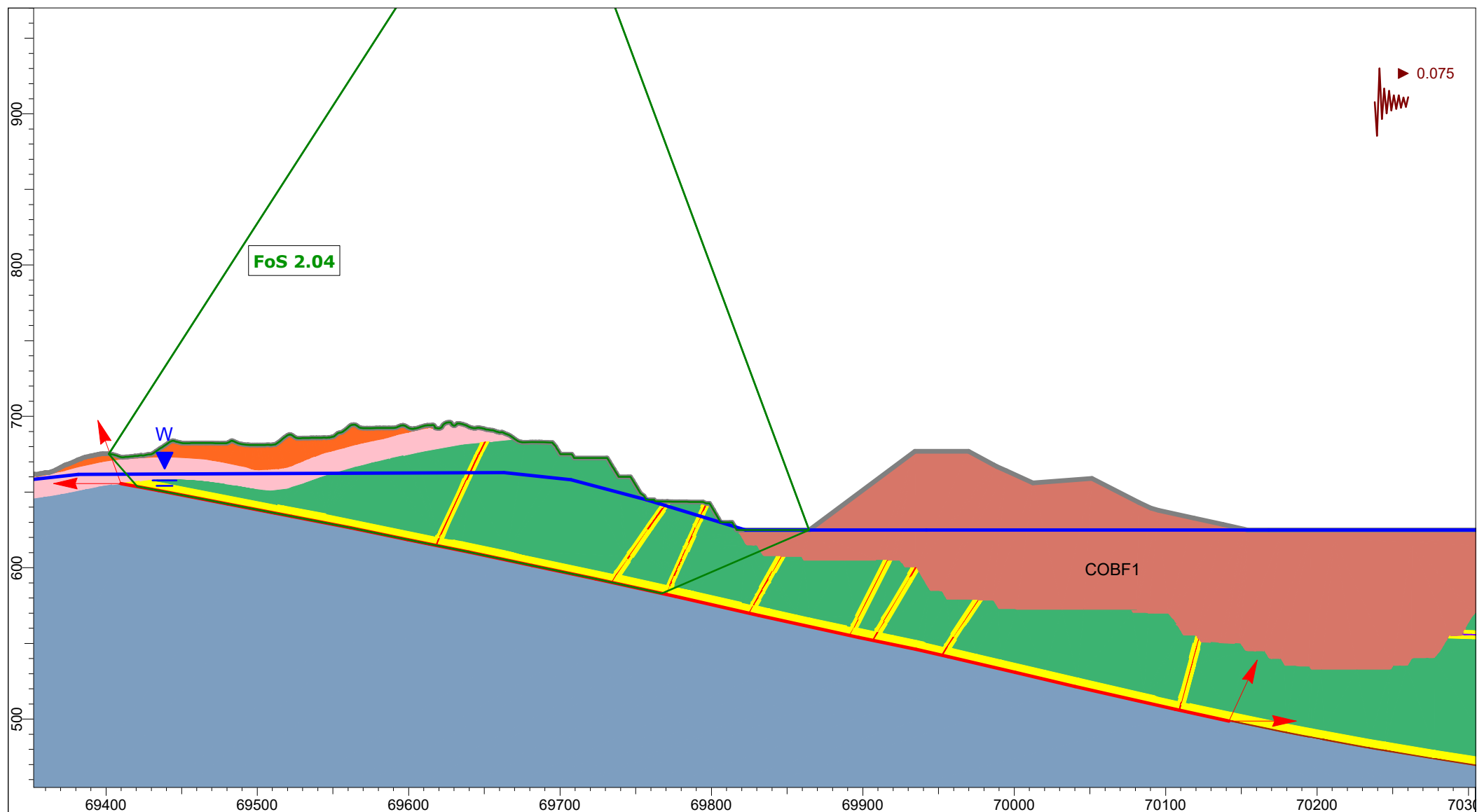
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four Project Open Pit Extensions	
Section:	CO_OPE_Section 1	
Case:	Mining (COBF1) - OBE Kh=0.5 PGA, Block	
Date:	25/03/2026	GLE / Morgenstern-Price



Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four Project, Open Pit Extensions	
Section:	CO_OPE_Section 1	
Case:	Mining (COBF1) - OBE Kh=0.8 PGA, Block	
Date:	25/03/2026	GLE / Morgenstern-Price



Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four Project Open Pit Extensions	
Section:	CO_OPE_Section 1	
Case:	Lake Filling 625 mRL - Static, Block	
Date:	25/03/2026	GLE / Morgenstern-Price



Client:

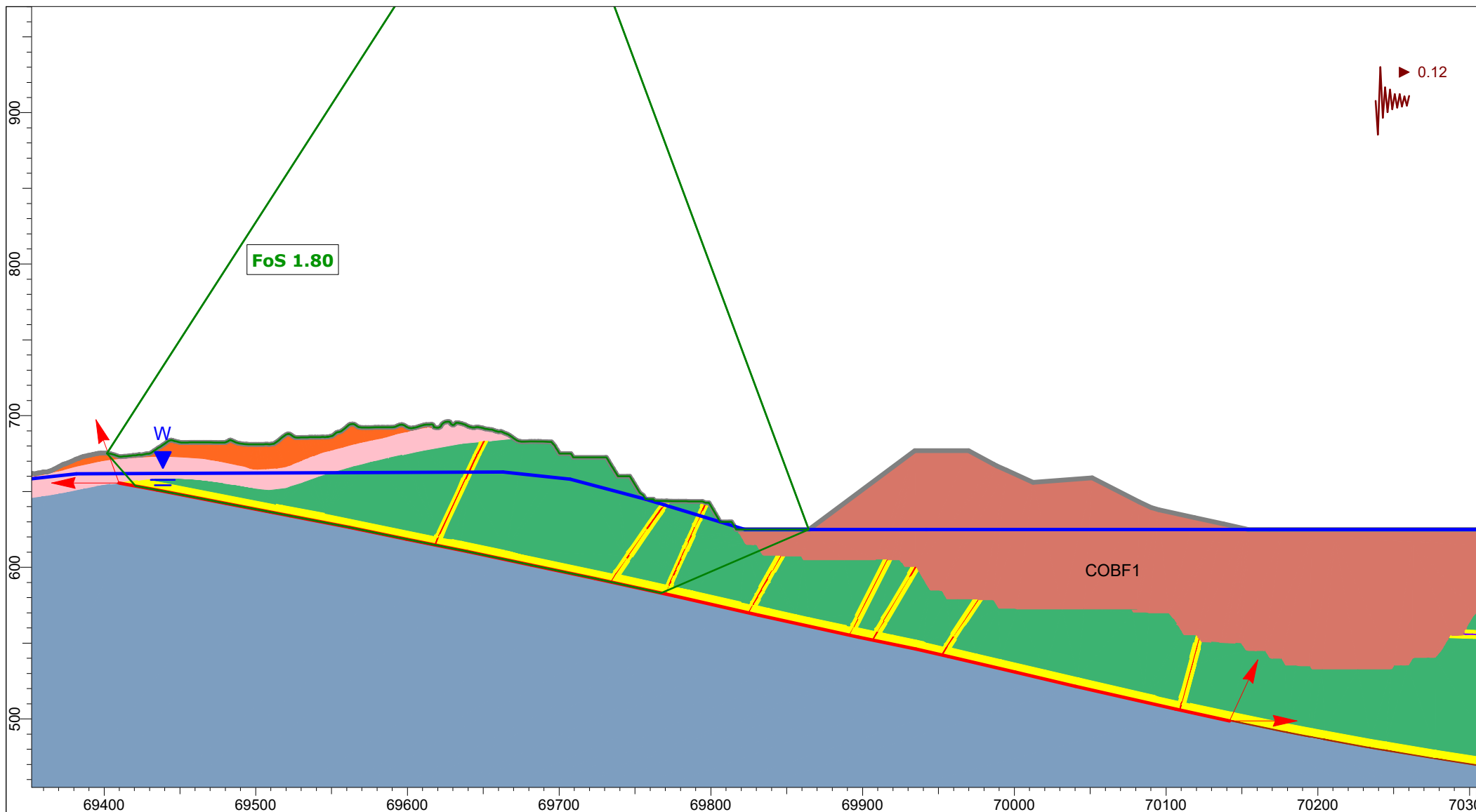
Project:

Section:

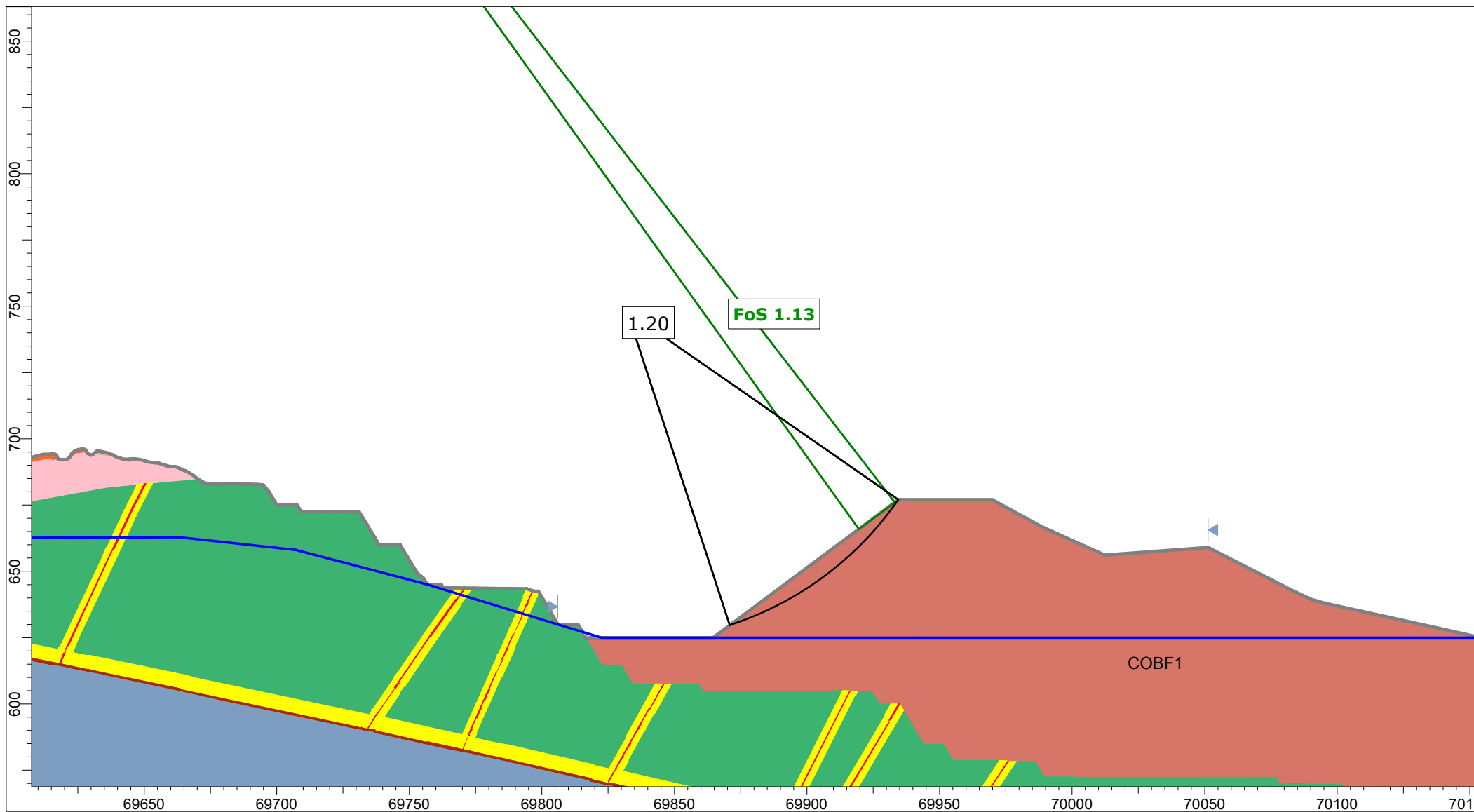
Case:

Date:

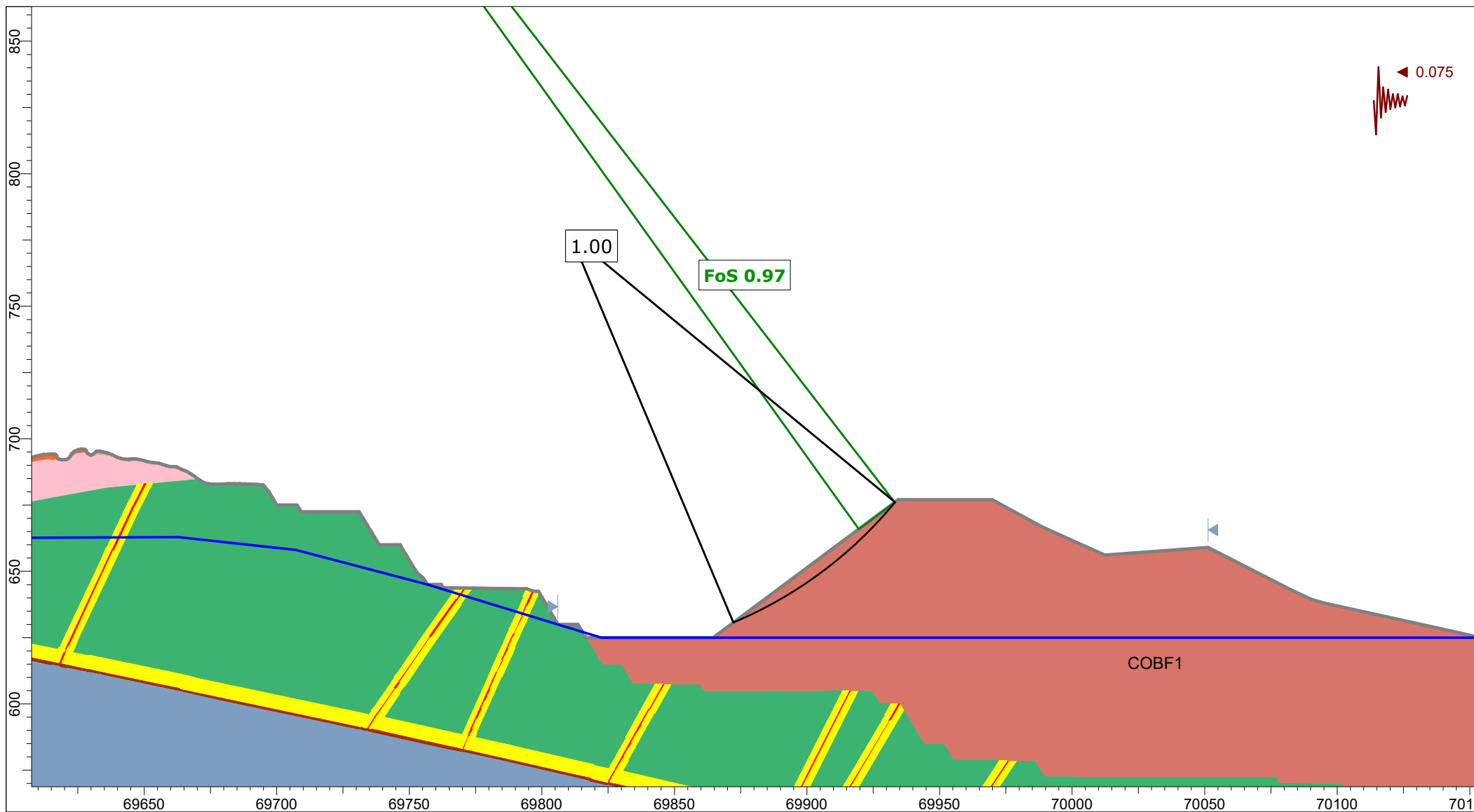
GLE / Morgenstern-Price



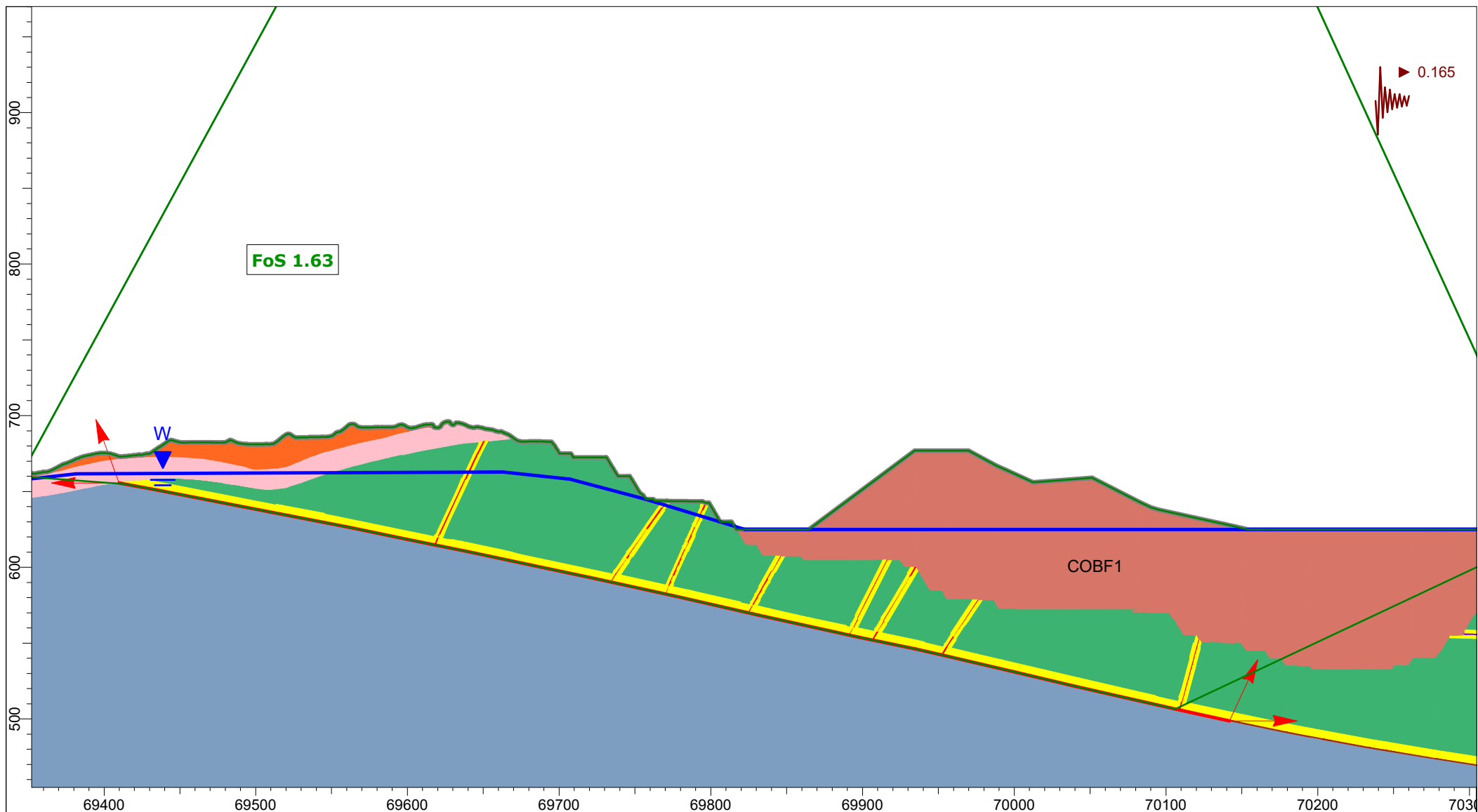
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four Project, Open Pit Extensions	
Section:	CO_OPE_Section 1	
Case:	Lake Filling 625 mRL - AEP=1:500, Kh=0.8 PGA, Block	
Date:	25/03/2026	GLE / Morgenstern-Price



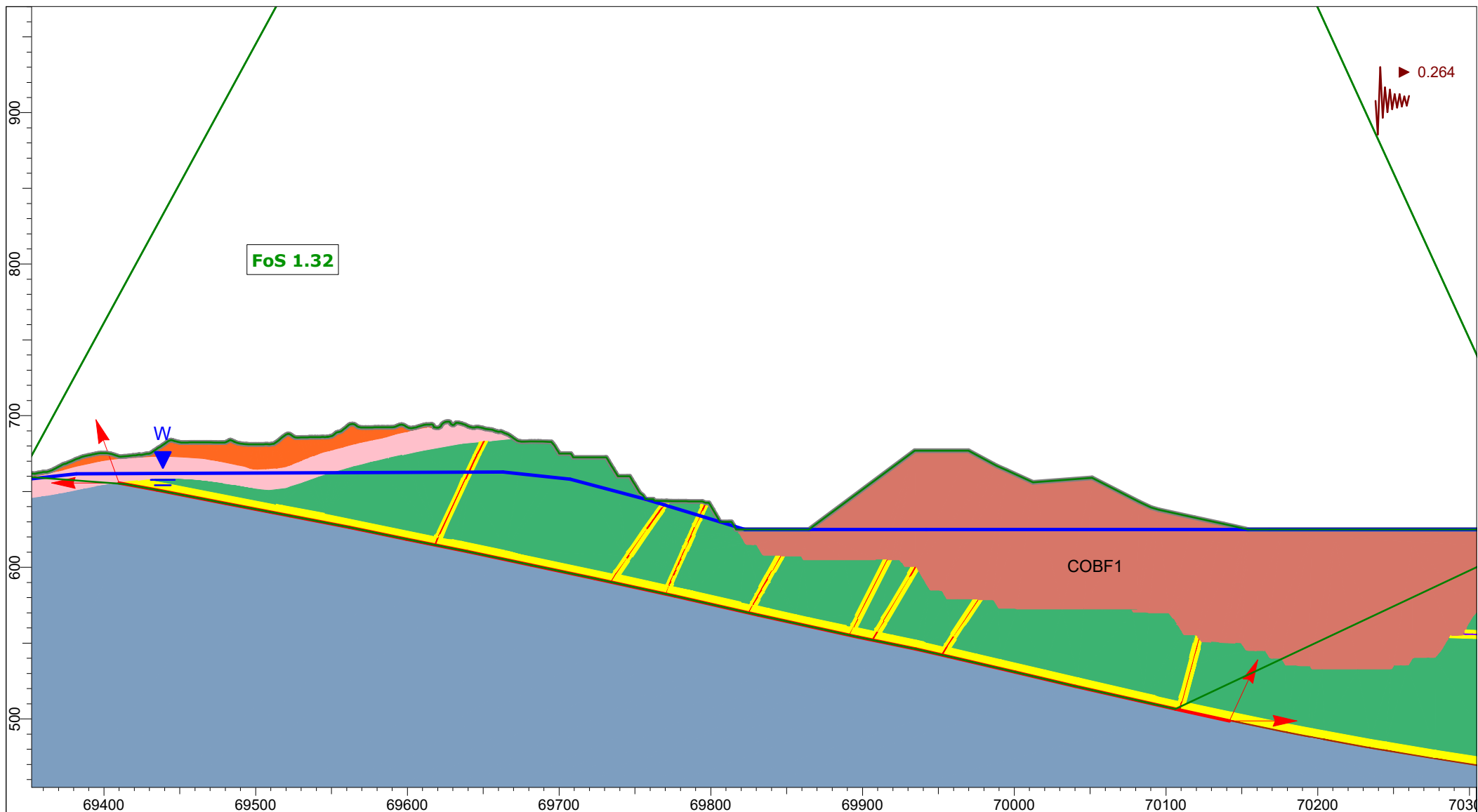
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four Project Open Pit Extensions	
Section:	CO_OPE_Section 1	
Case:	Lake Filling 625 mRL - Static, Circular	
Date:	26/03/2026	GLE / Morgenstern-Price



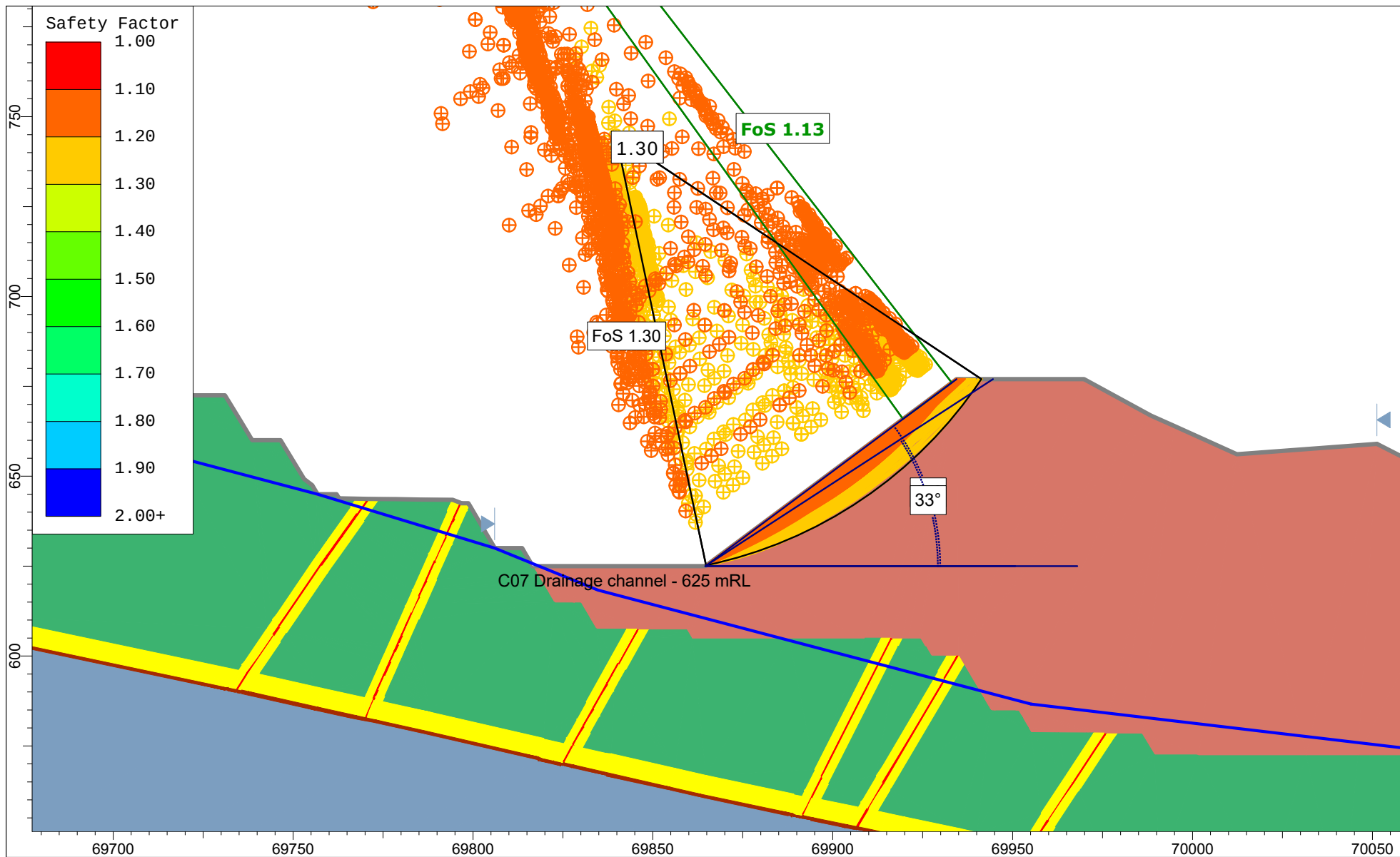
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four Project Open Pit Extensions	
Section:	CO_OPE_Section 1	
Case:	Lake Filling 625 mRL - AEP=1:500, Kh=0.5 PGA, Circular	
Date:	26/03/2026	GLE / Morgenstern-Price



Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four Project, Open Pit Extensions	
Section:	CO_OPE_Section 1	
Case:	Closure - MDE Kh=0.5 PGA, Block	
Date:	25/03/2026	GLE / Morgenstern-Price

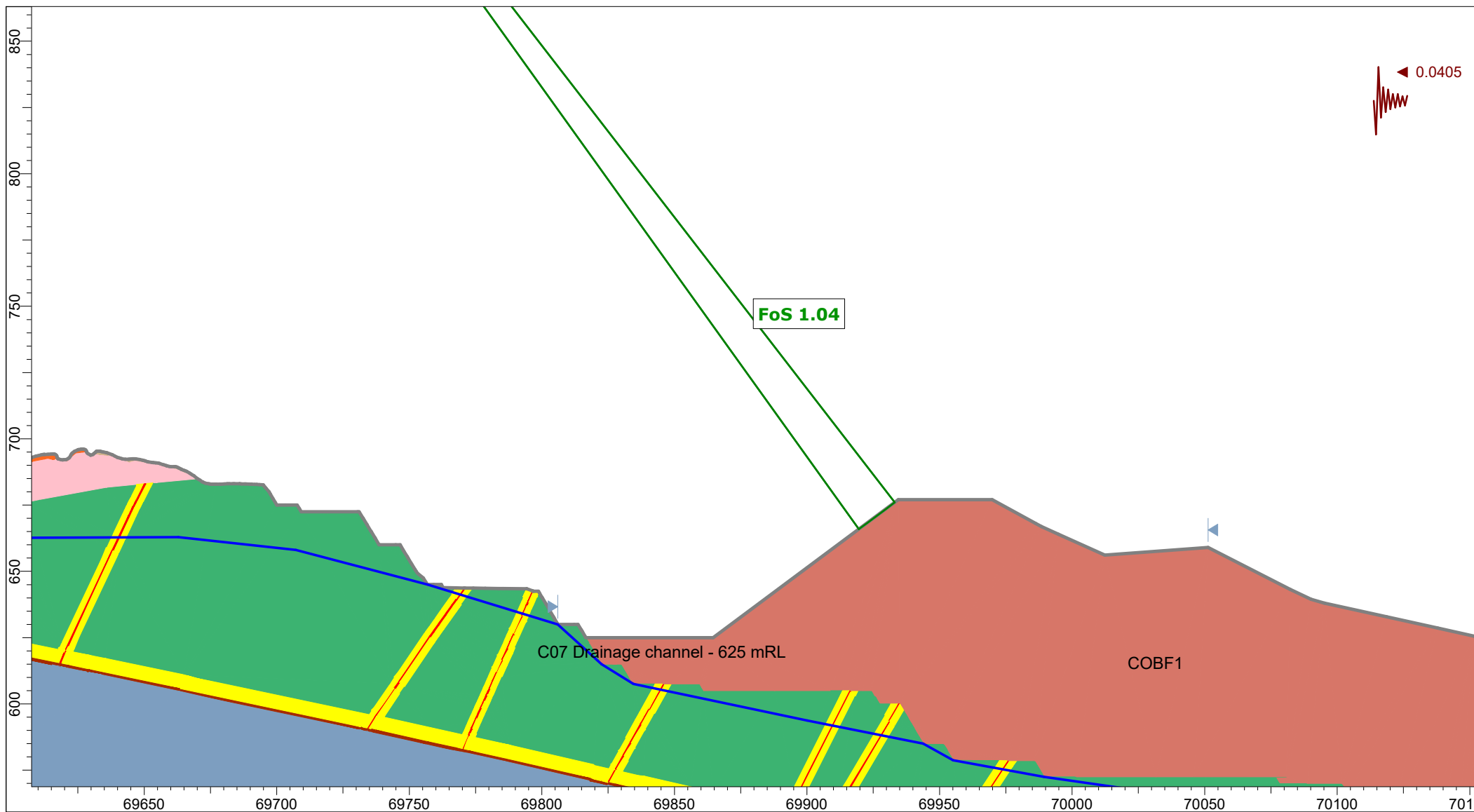


Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four Project, Open Pit Extensions	
Section:	CO_OPE_Section 1	
Case:	Closure - MDE Kh=0.8 PGA, Block	
Date:	25/03/2026	GLE / Morgenstern-Price

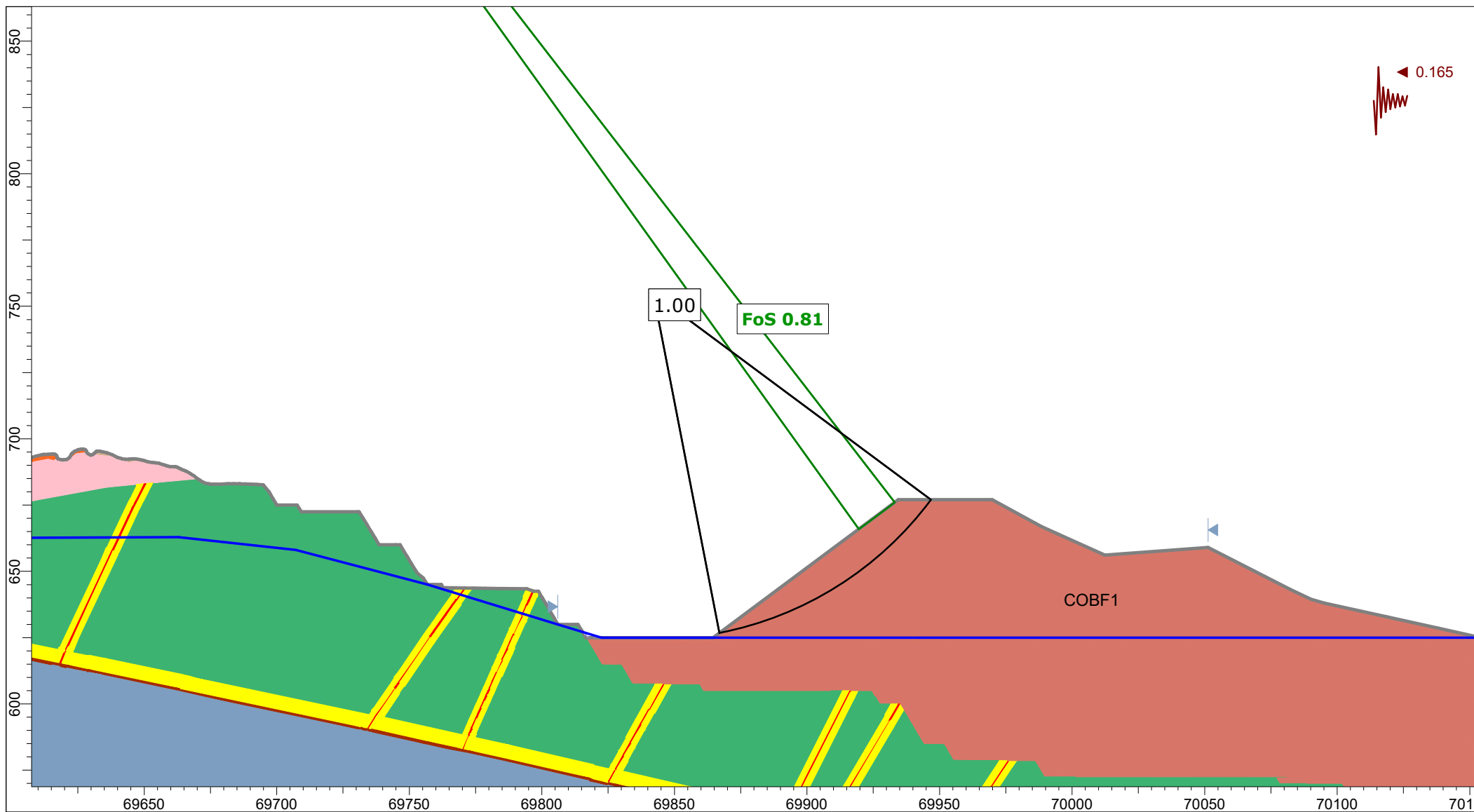


SLIDEINTERPRET 9.041

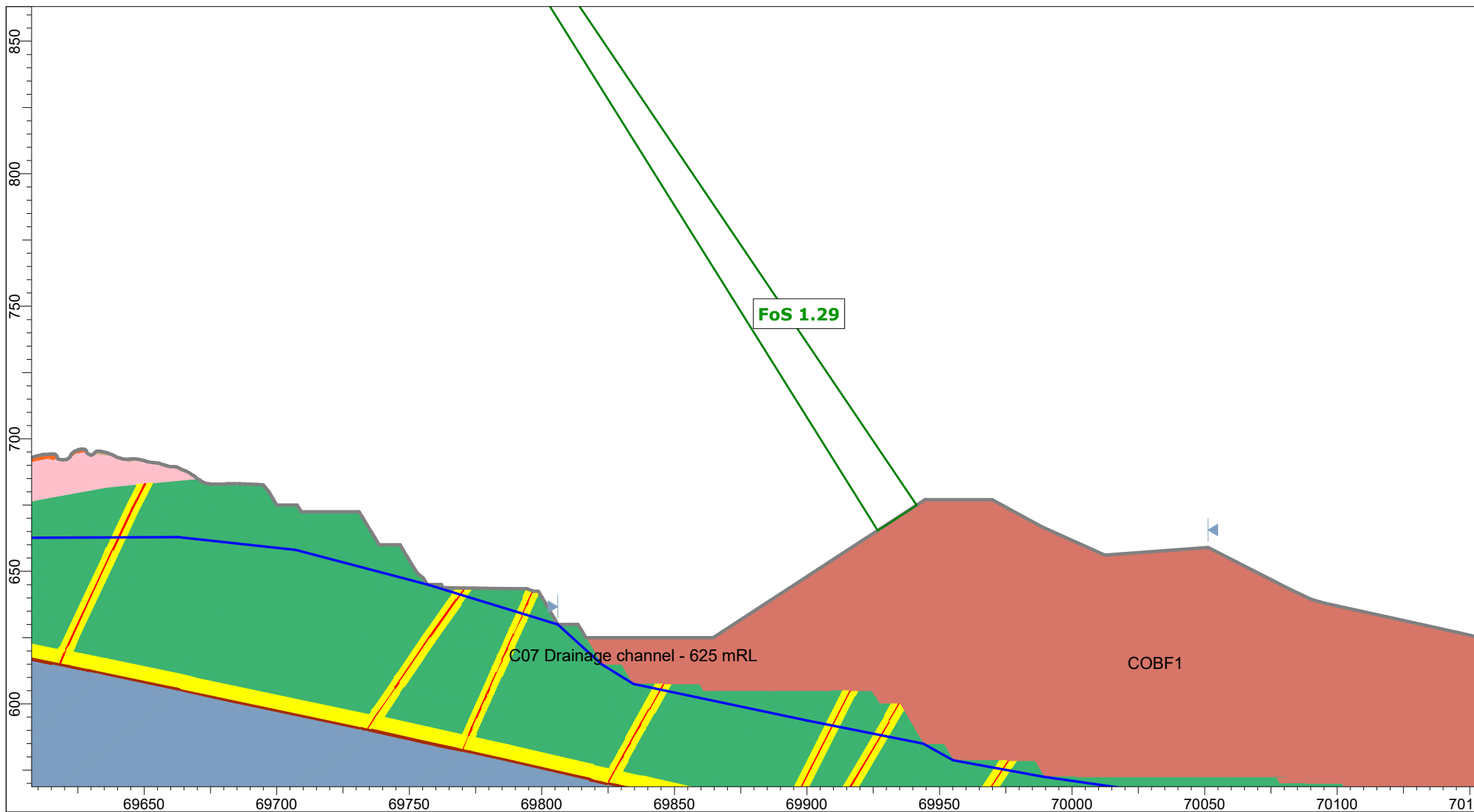
Client:			OceanaGold (New Zealand) Limited		
Project:			Macraes Phase Four Project, Open Pit Extensions		
Section:			CO_OPE_Section 1		
Case:			Mining (COBF1) - Static		
Date:		6/05/2026	Scale:	1:1500	Method:
					GLE / Morgenstern-Price



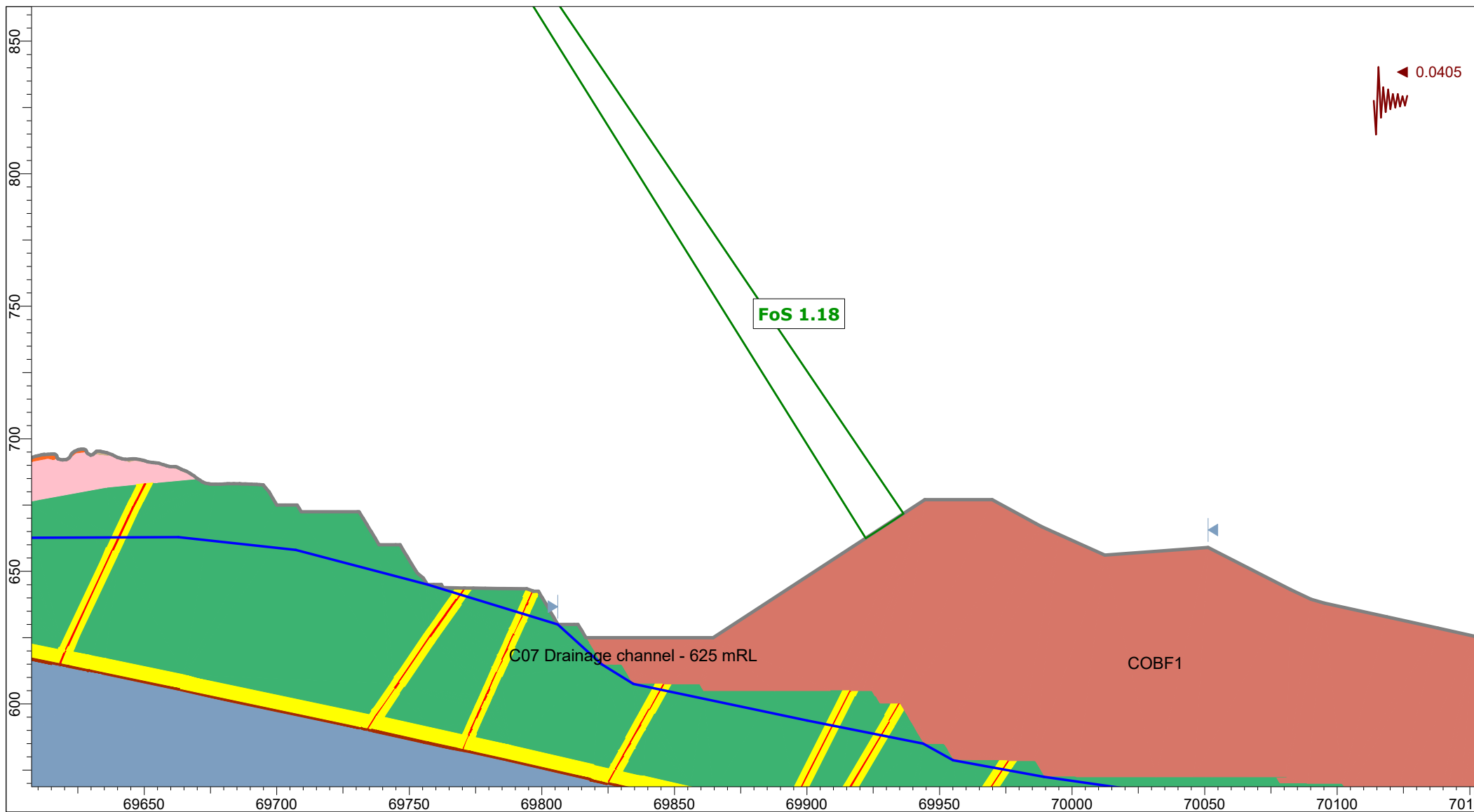
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four Project, Open Pit Extensions	
Section:	CO_OPE_Section 1	
Case:	Mining (COBF1) - OBE Kh=0.5 PGA, Circular	
Date:	26/03/2026	GLE / Morgenstern-Price



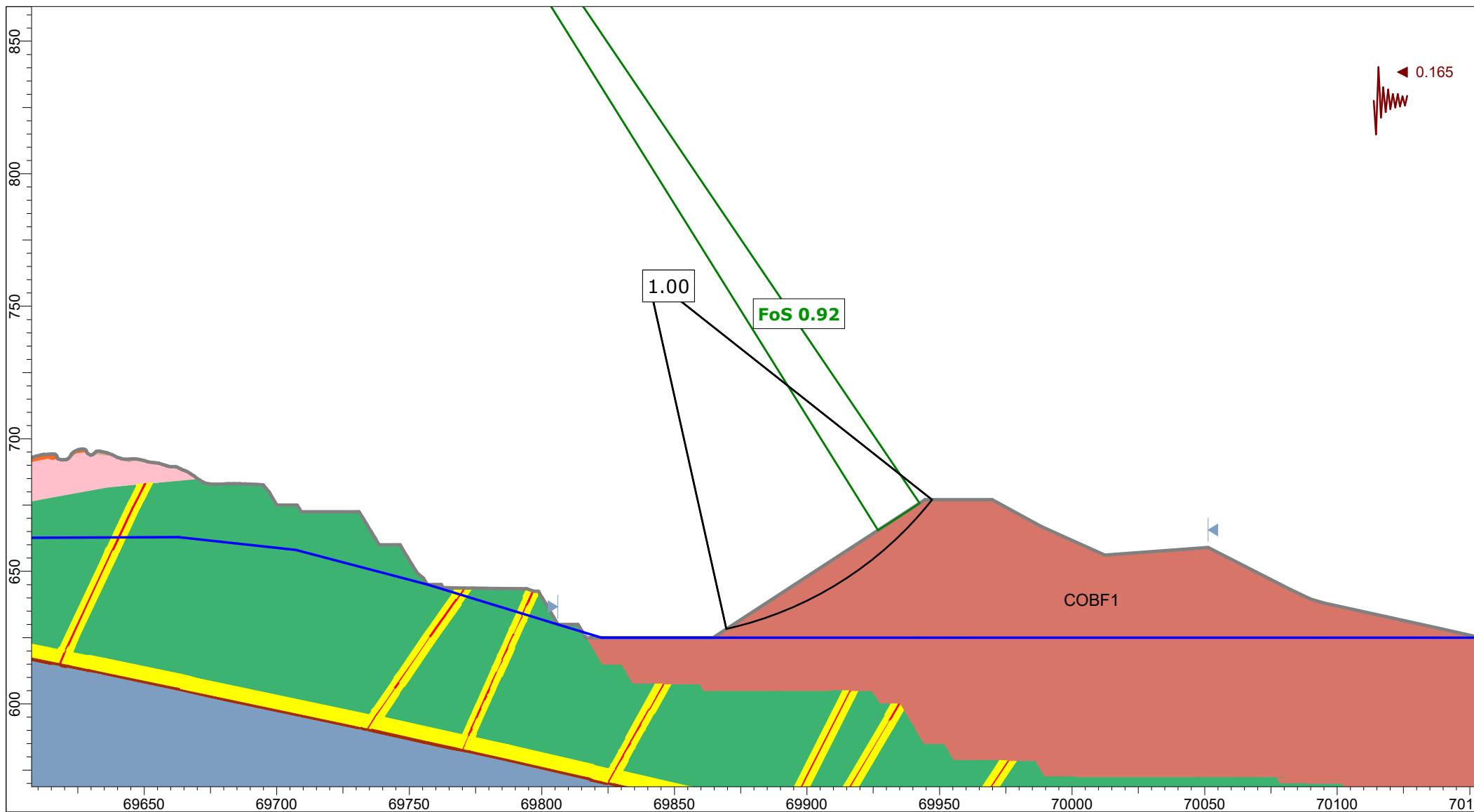
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four Project, Open Pit Extensions	
Section:	CO_OPE_Section 1	
Case:	Closure - MDE Kh=0.5 PGA, Circular, 37 degrees	
Date:	26/03/2026	GLE / Morgenstern-Price



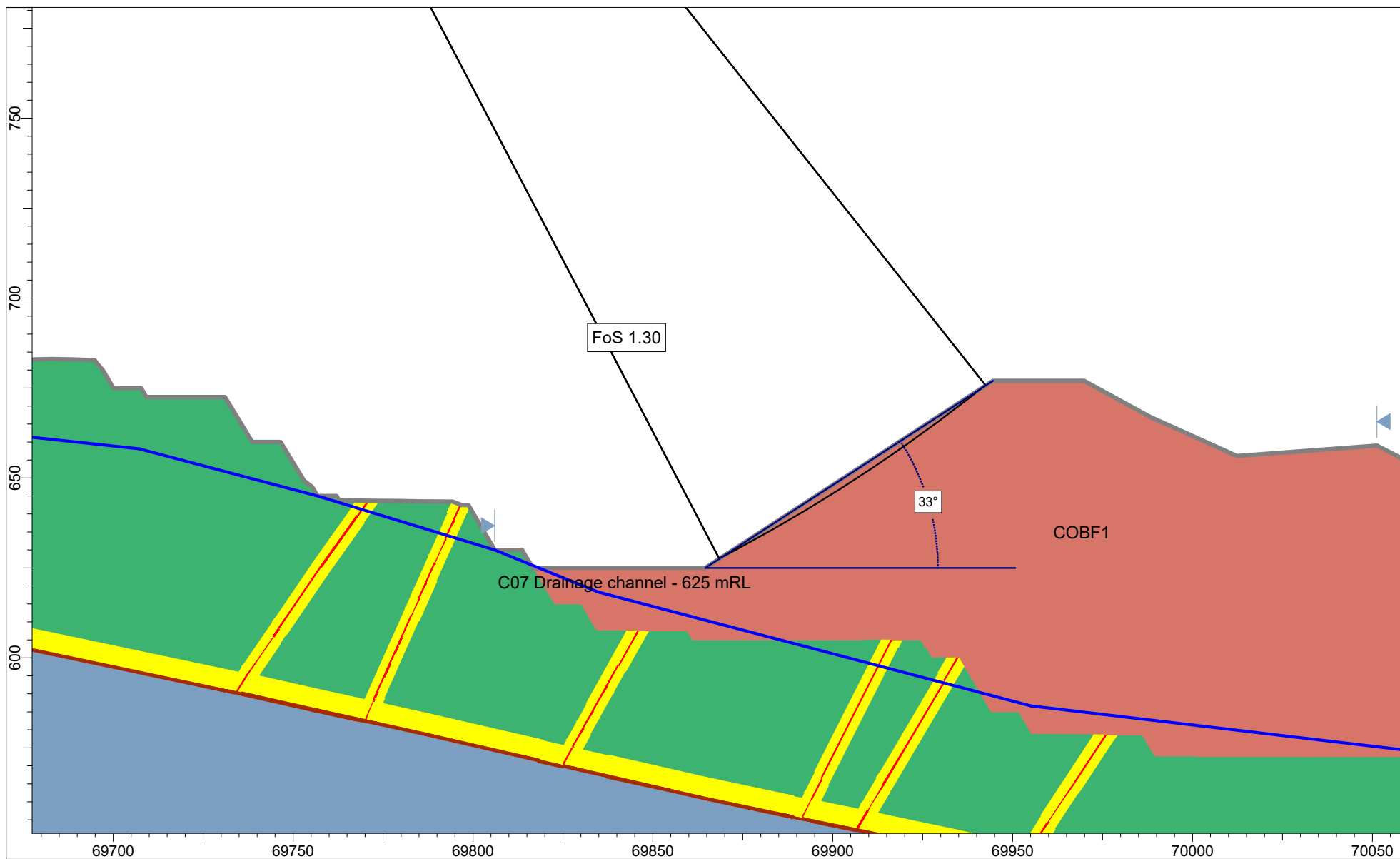
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four Project, Open Pit Extensions	
Section:	CO_OPE_Section 1	
Case:	Mining (COBF1, IRA=33 degrees) - Static, Circular	
Date:	26/03/2026	GLE / Morgenstern-Price



Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four Project, Open Pit Extensions	
Section:	CO_OPE_Section 1	
Case:	Mining (COBF1, IRA=33 degrees) - OBE Kh=0.5 PGA, Circular	
Date:	26/03/2026	Bishop simplified

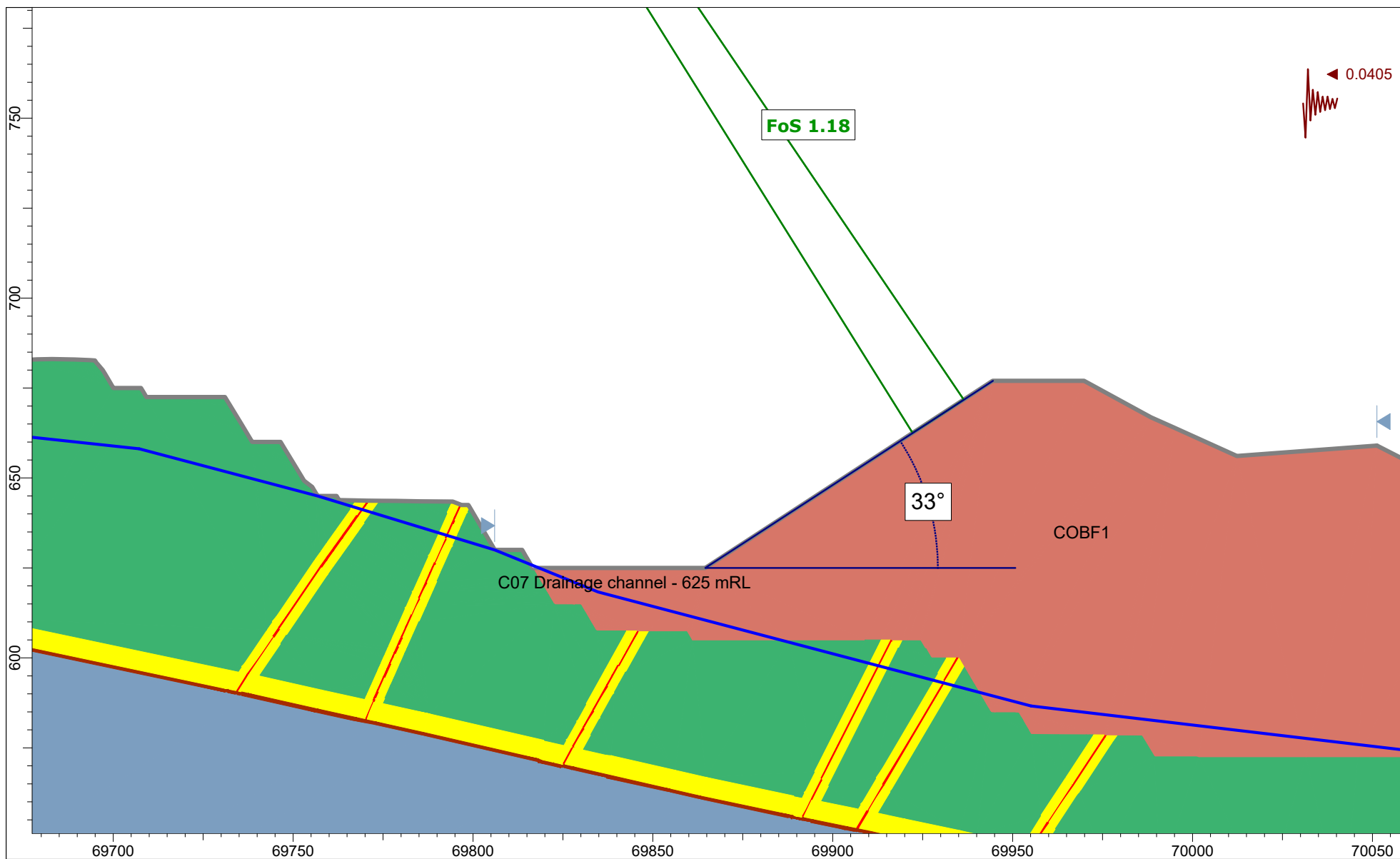


Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four Project Open Pit Extensions	
Section:	CO_OPE_Section 1	
Case:	Closure (COBF1, IRA 33 degrees) - MDE Kh=0.5 PGA, Circular	
Date:	26/03/2026	GLE / Morgenstern-Price



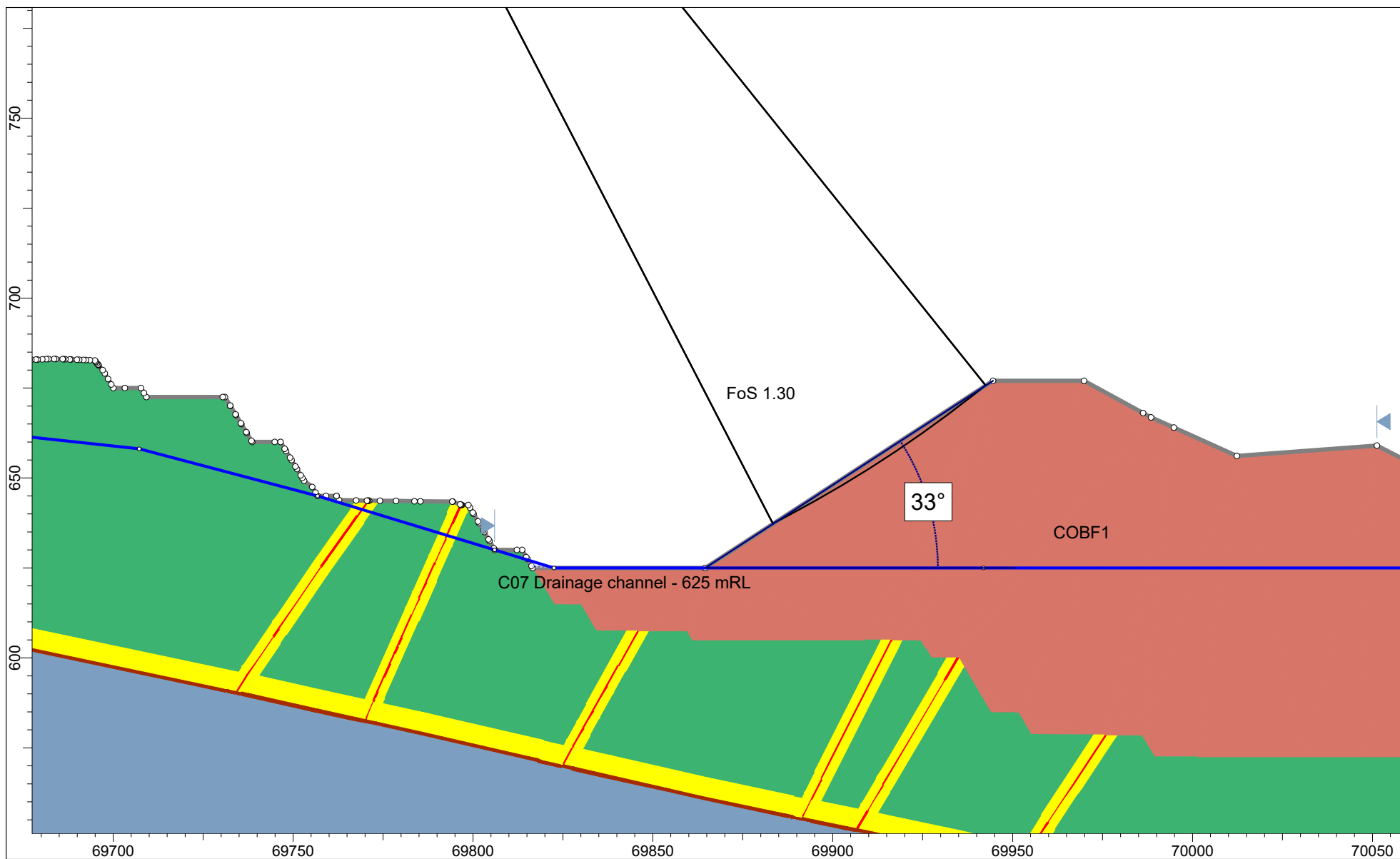
SLIDEINTERPRET 9.041

Client:	OceanaGold (New Zealand) Limited		
Project:	Macraes Phase Four Project, Open Pit Extensions		
Section:	CO_OPE_Section 1		
Case:	Mining (COBF1, IRA=33 degrees) - Static		
Date:	6/05/2026	Scale:	1:1500
		Method:	GLE / Morgenstern-Price



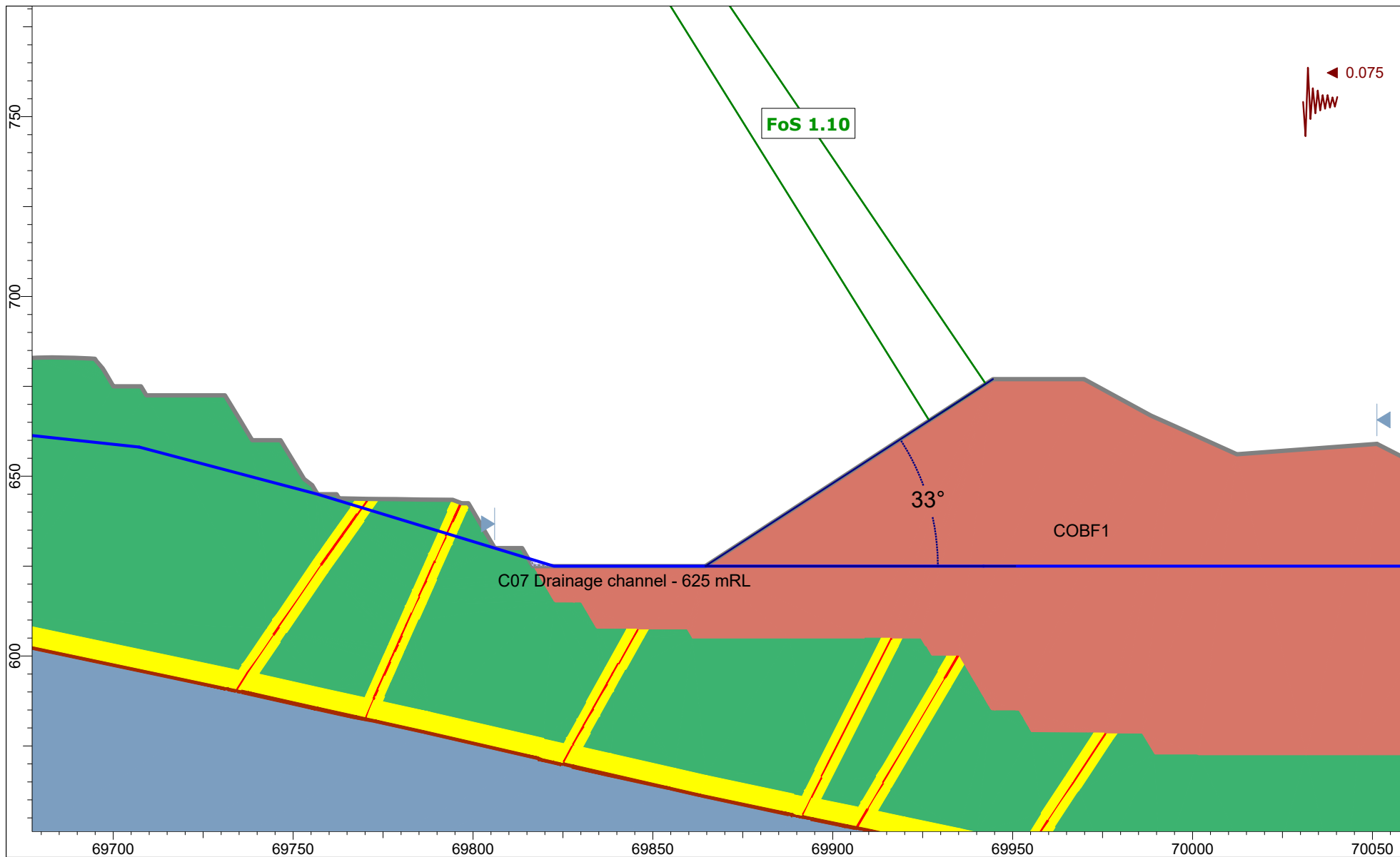
SLIDEINTERPRET 9.041

Client:	OceanaGold (New Zealand) Limited		
Project:	Macraes Phase Four Project, Open Pit Extensions		
Section:	CO_OPE_Section 1		
Case:	Mining (COBF1, IRA=33 degrees) - OBE Kh=0.5 PGA		
Date:	6/05/2026	Scale:	1:1500
		Method:	GLE / Morgenstern-Price



SLIDEINTERPRET 9.041

Client:	OceanaGold (New Zealand) Limited		
Project:	Macraes Phase Four Project, Open Pit Extensions		
Section:	CO_OPE_Section 1		
Case:	Lake Filling 625 mRL (COBF1, IRA 33 degrees) Static		
Date:	6/05/2026	Scale:	1:1500
		Method:	Bishop simplified



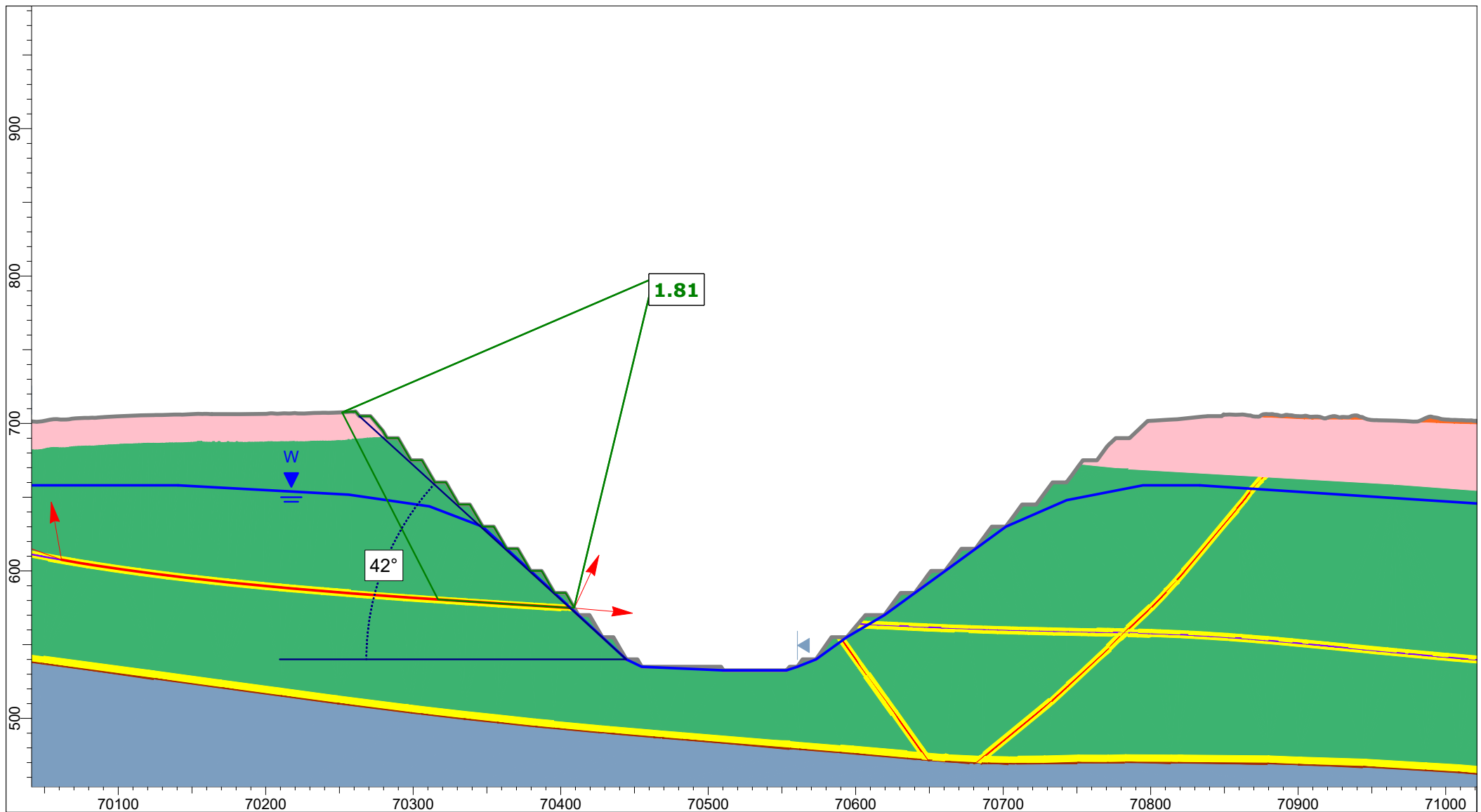
SLIDEINTERPRET 9.041

Client:	OceanaGold (New Zealand) Limited		
Project:	Macraes Phase Four Project, Open Pit Extensions		
Section:	CO_OPE_Section 1		
Case:	Lake Filling 625 mRL (COBF1, IRA 33 degrees) - AEP=1:500, Kh=0.5 PGA		
Date:	6/05/2026	Scale:	1:1500
		Method:	GLE / Morgenstern-Price

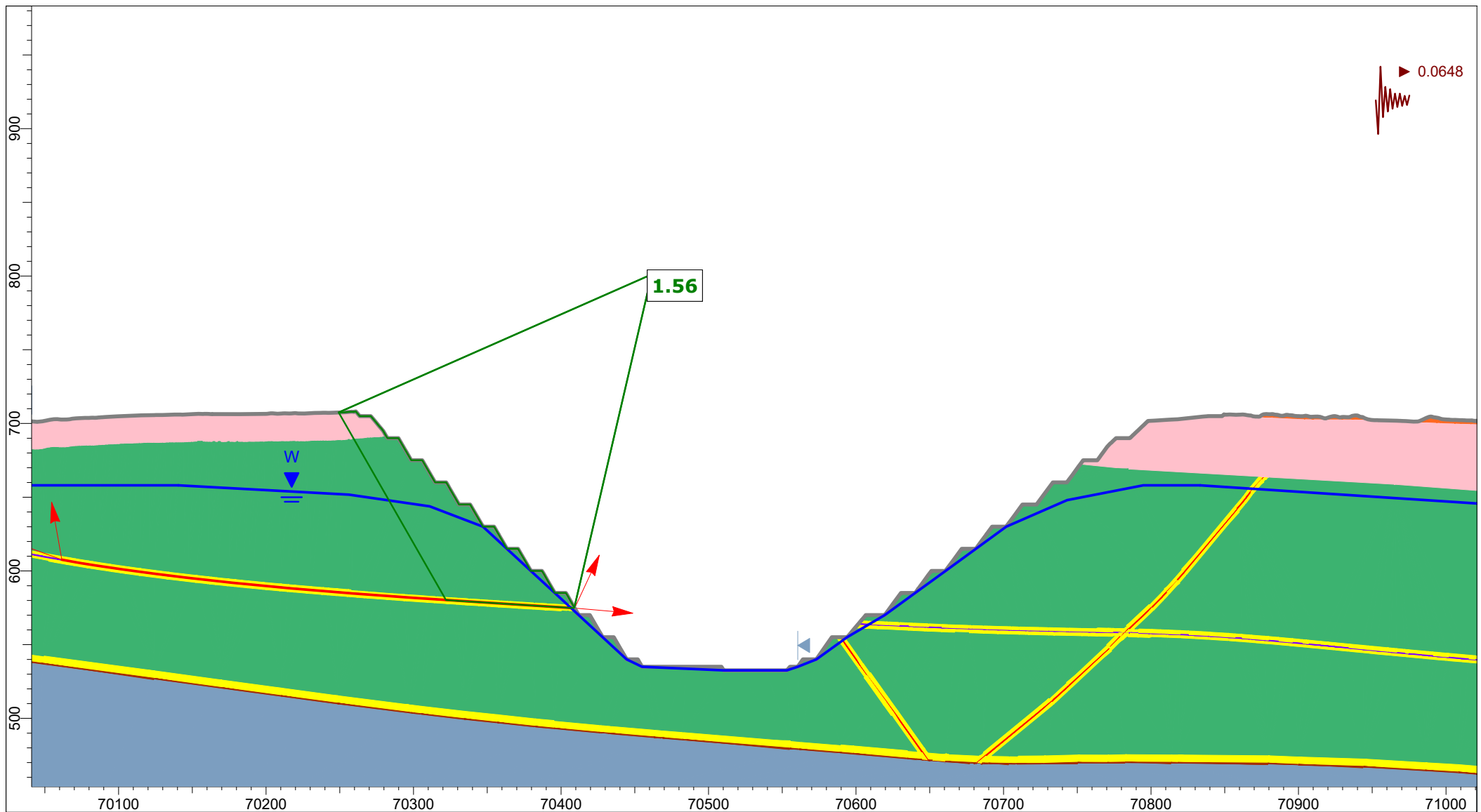


SLIDEINTERPRET 9.041

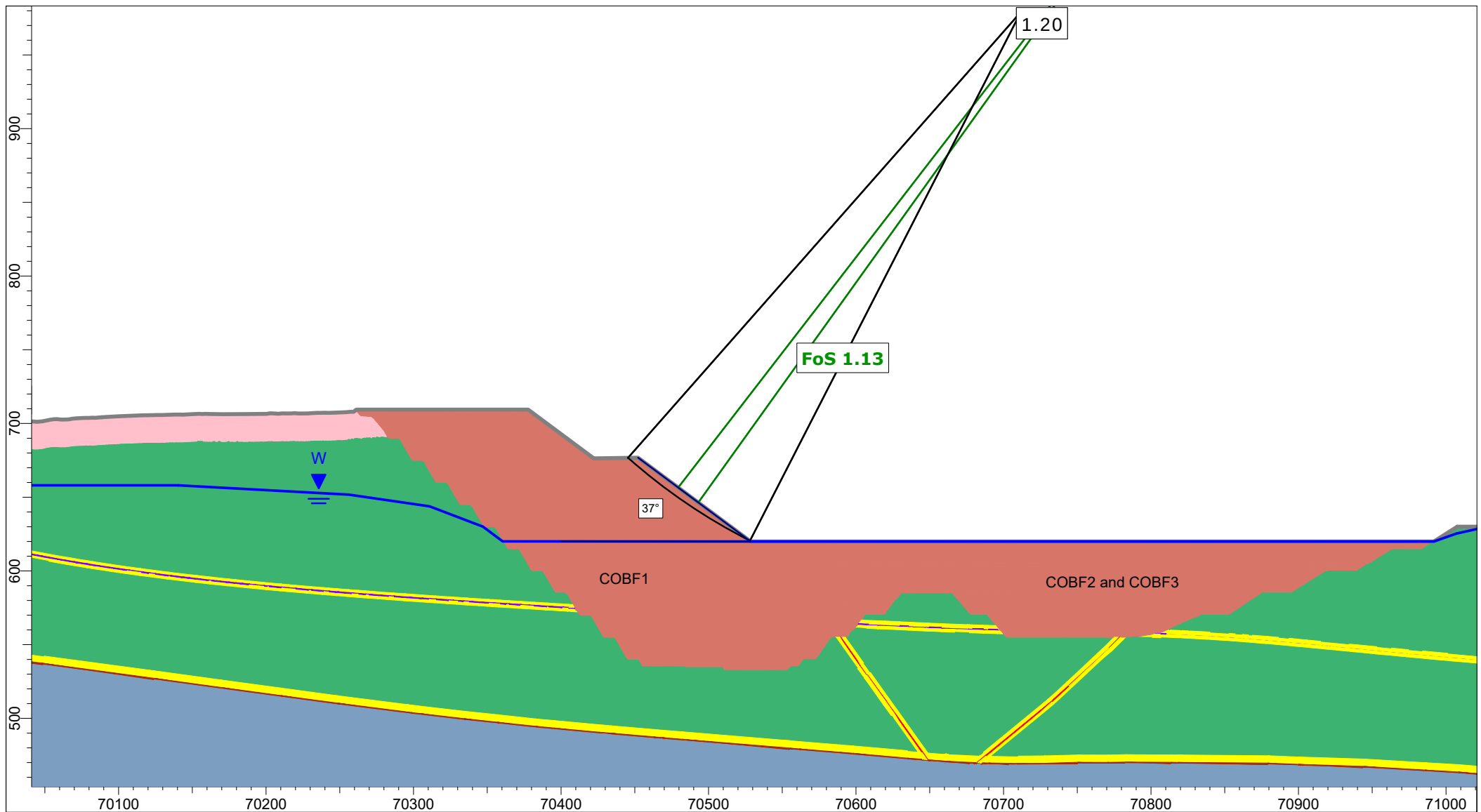
Client:	OceanaGold (New Zealand) Limited		
Project:	Macraes Phase Four Project, Open Pit Extensions		
Section:	CO_OPE_Section 1		
Case:	Closure (COBF1, IRA 33 degrees) - MDE Kh=0.5 PGA		
Date:	6/05/2026	Scale:	1:1500
		Method:	GLE / Morgenstern-Price



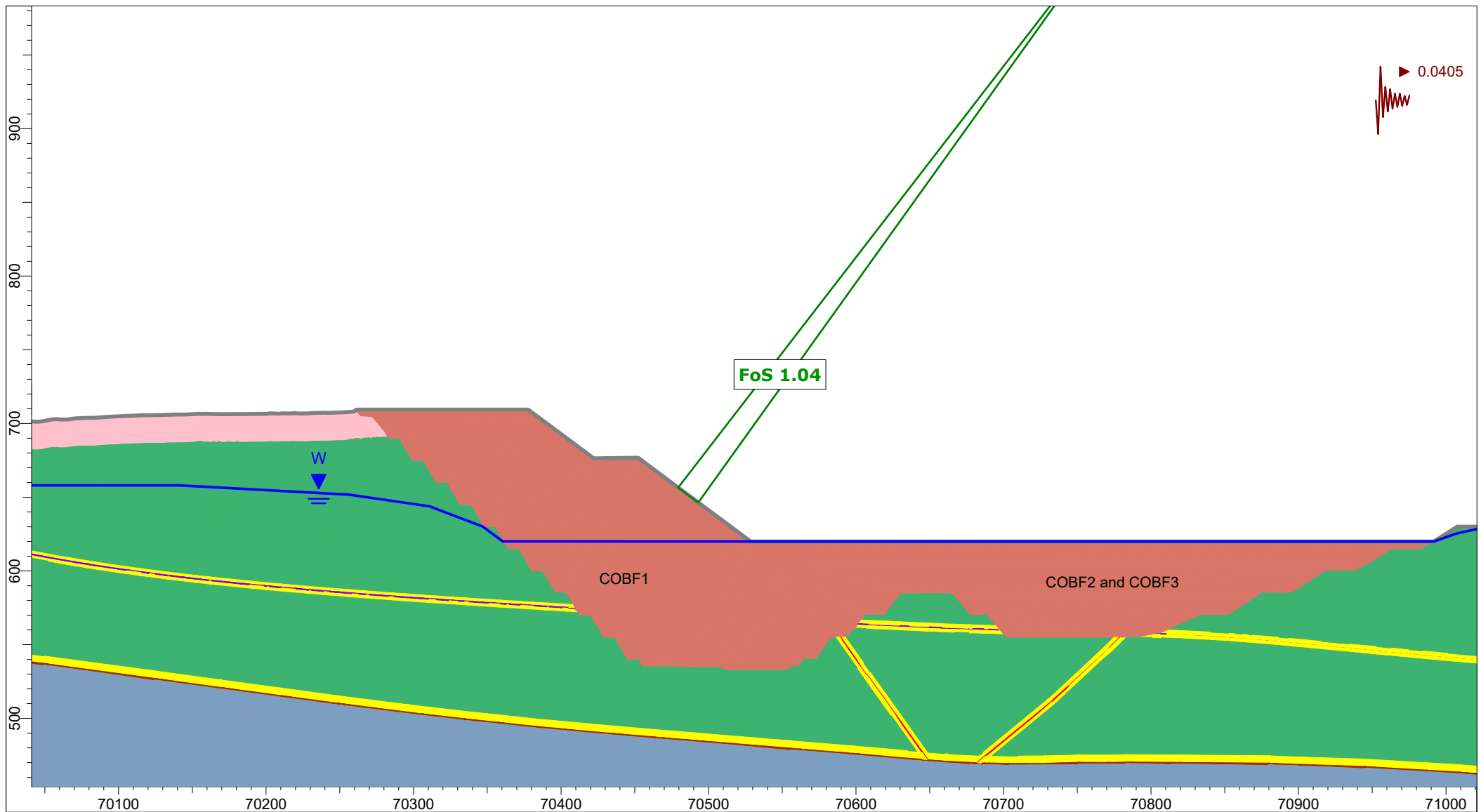
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four, Project Open Pit Extensions	
Section:	CO_OPE_Section 2	
Case:	Mining Hu=0.6 - Static, Block	
Date:	26/03/2026	GLE / Morgenstern-Price



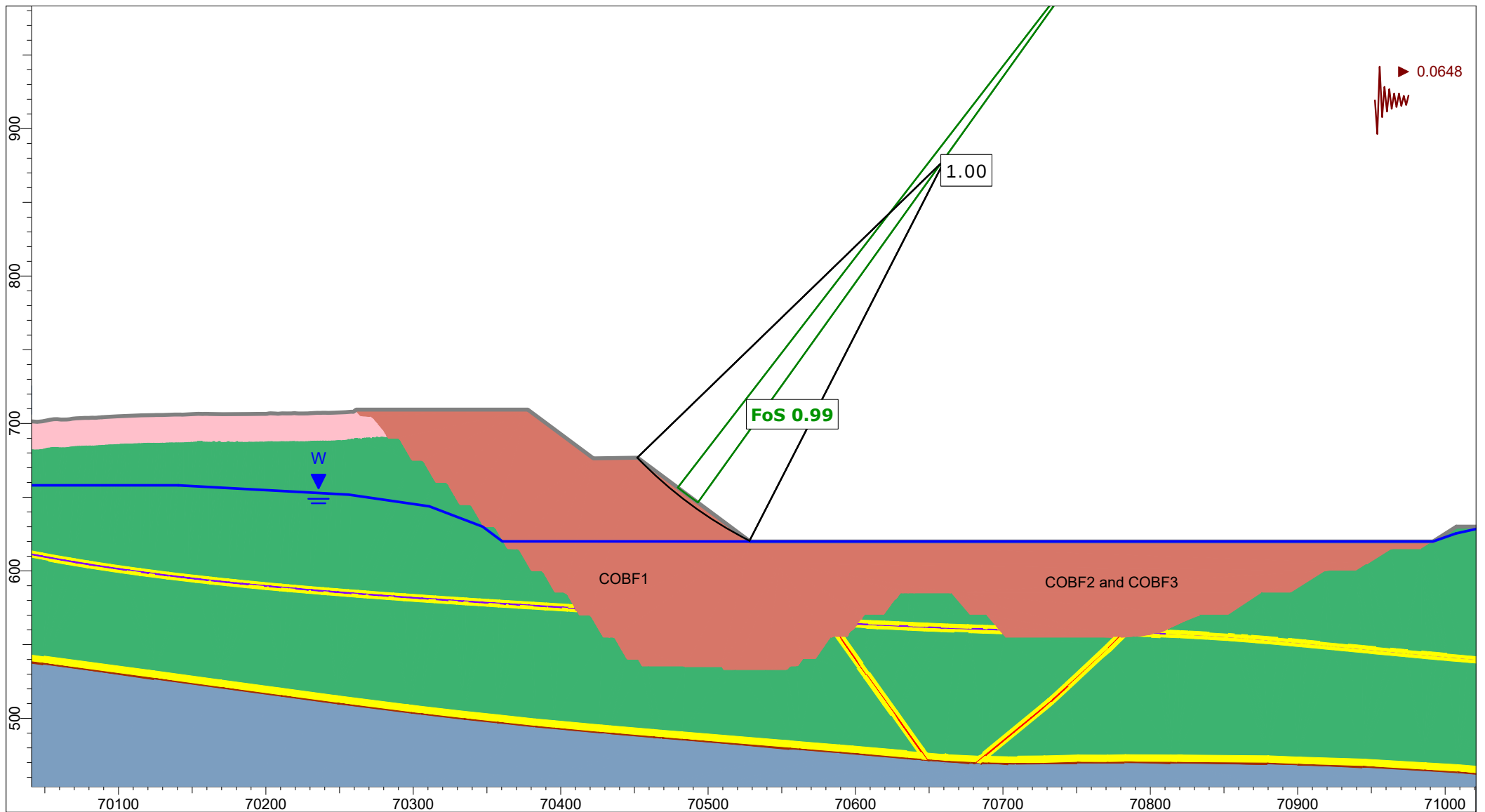
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Project:	Macraes Phase Four Project Open Pit Extensions	
Section:	CO_OPE_Section 2	
Case:	Mining Hu=0.6 - OBE Kh=0.5 PGA, Block	
Date:	26/03/2026	GLE / Morgenstern-Price



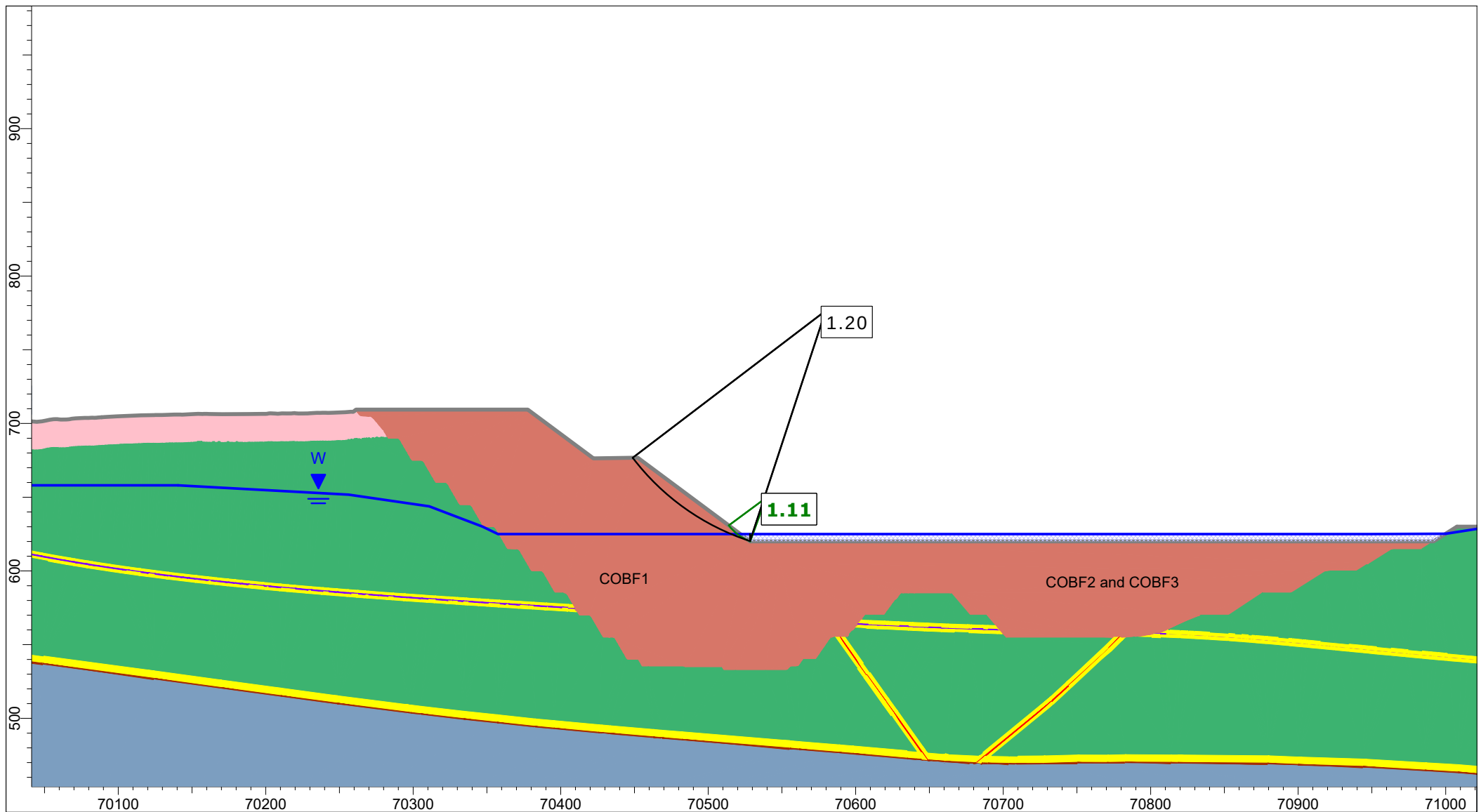
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Project:	Macraes Phase Four Project, Open Pit Extensions	
Section:	CO_OPE_Section 2	
Case:	Mining COBF3 - Static, Circular	
Date:	26/03/2026	GLE / Morgenstern-Price



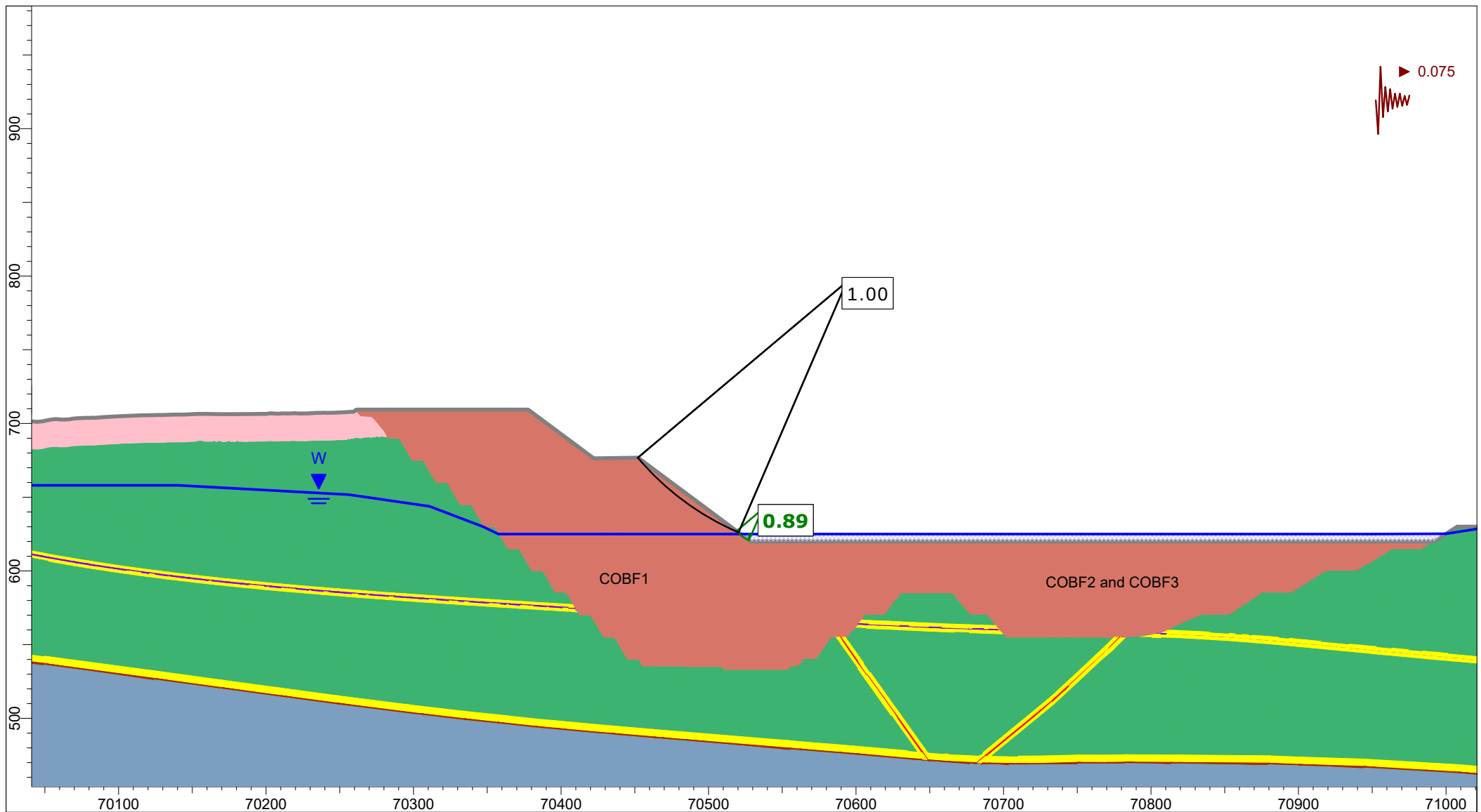
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four Project, Open Pit Extensions	
Section:	CO_OPE_Section 2	
Case:	Mining COBF3 - OBE Kh=0.5 PGA, Circular	
Date:	26/03/2026	GLE / Morgenstern-Price



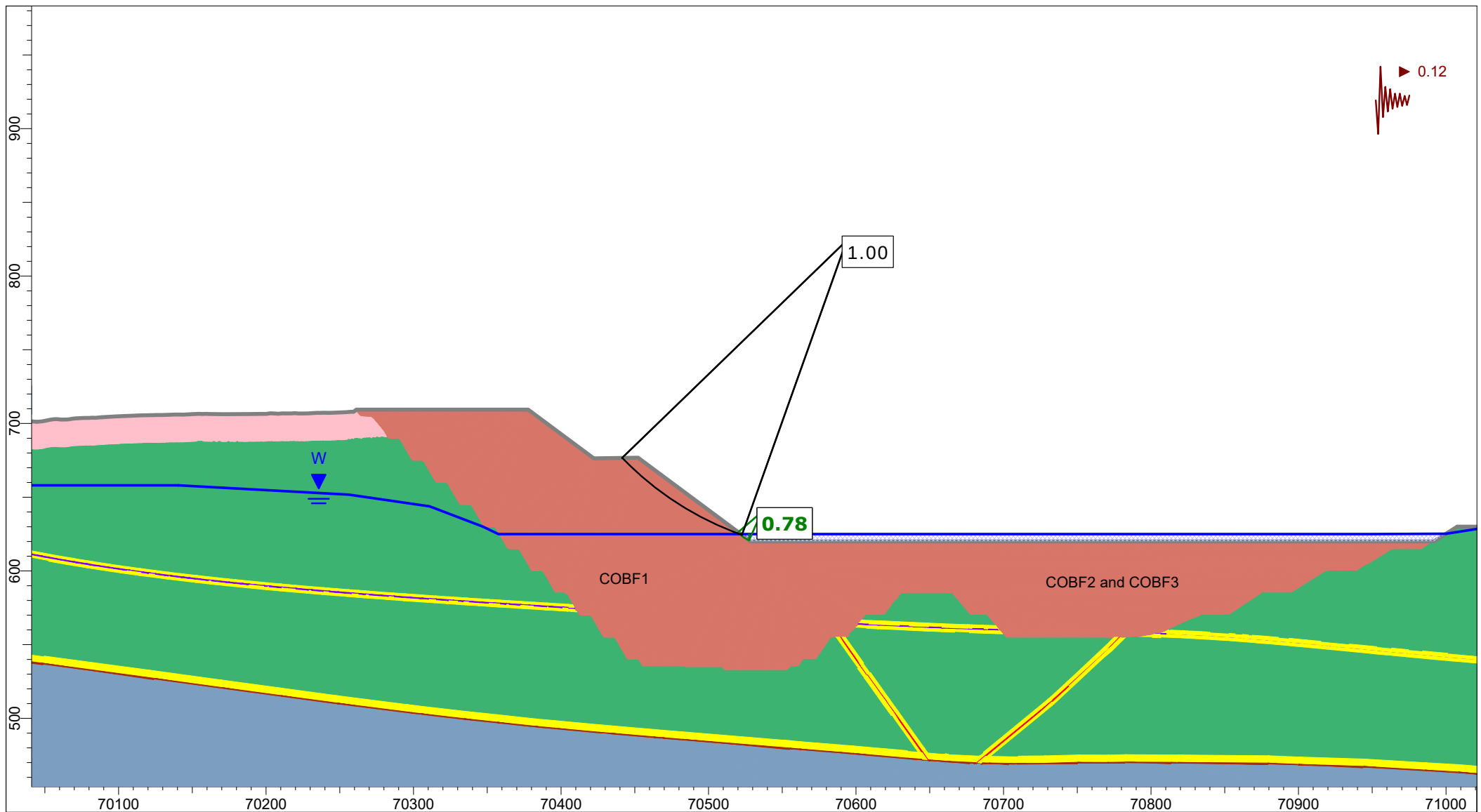
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four Project, Open Pit Extensions	
Section:	CO_OPE_Section 2	
Case:	Mining COBF3 - OBE Kh=0.8 PGA, Circular	
Date:	26/03/2026	GLE / Morgenstern-Price



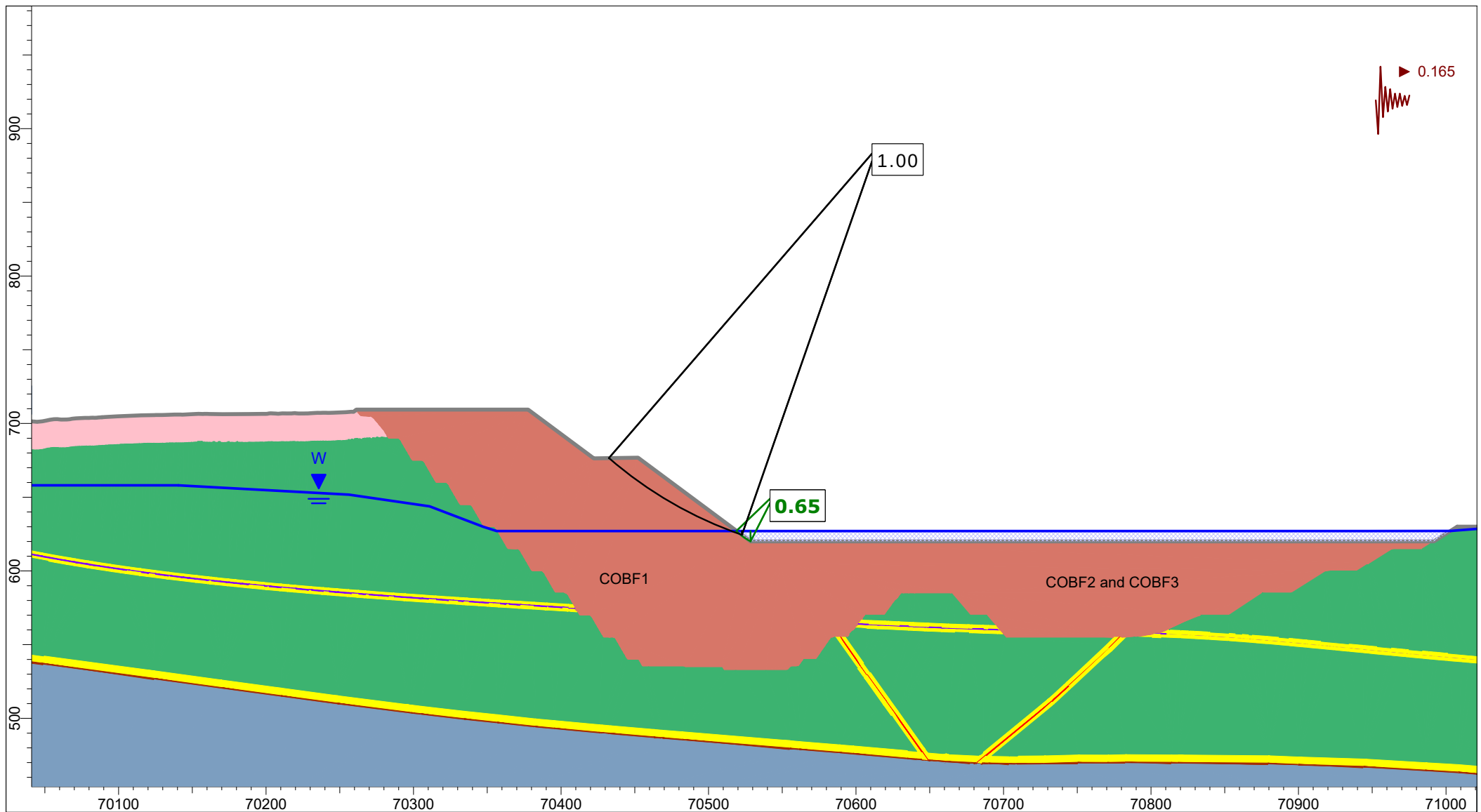
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four Project, Open Pit Extensions	
Section:	CO_OPE_Section 2	
Case:	Lake Filling 625 mRL - Static, Circular	
Date:	26/03/2026	GLE / Morgenstern-Price



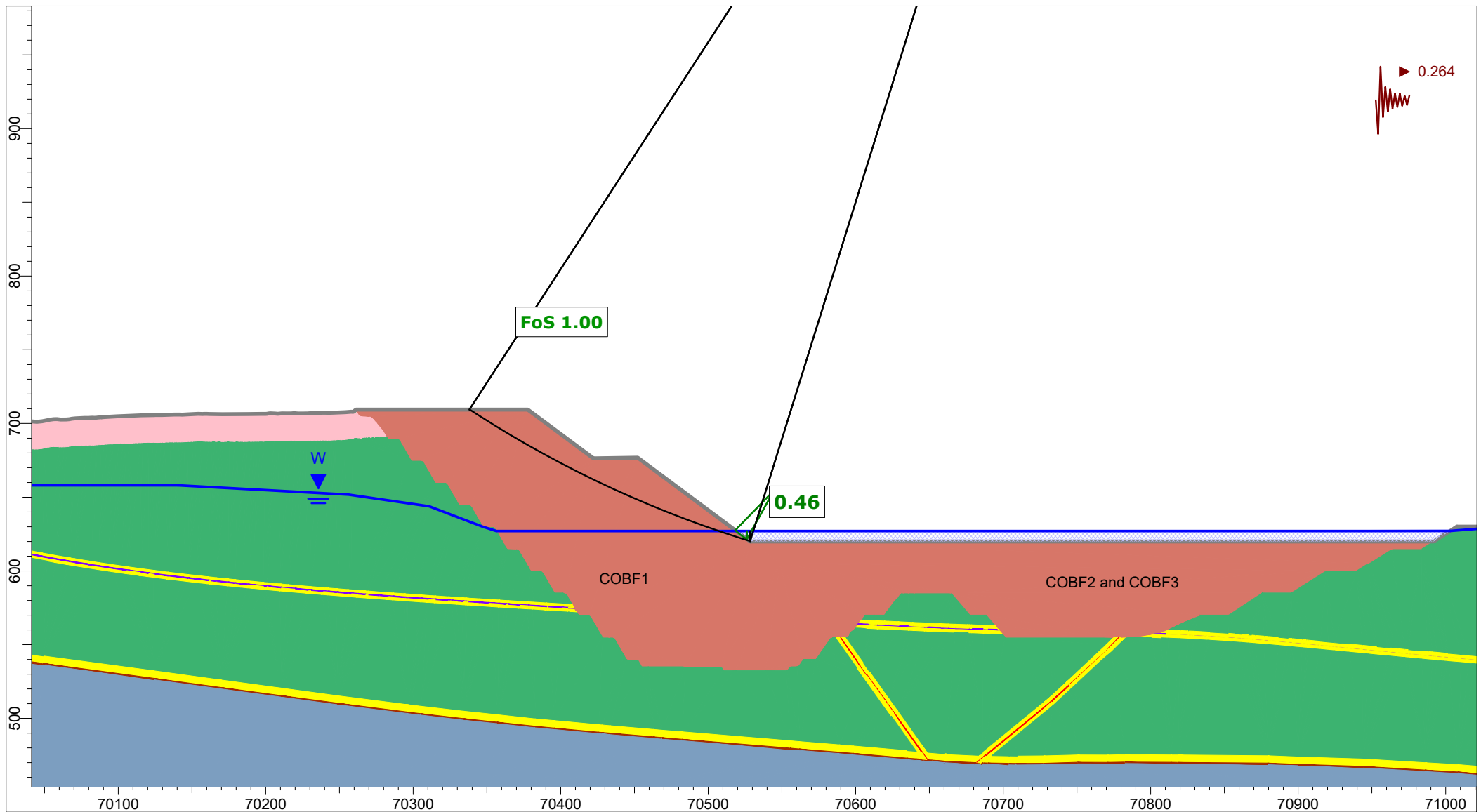
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four Project, Open Pit Extensions	
Section:	CO_OPE_Section 2	
Case:	Lake Filling 625 mRL - AEP=1:500, Kh=0.5 PGA, Circular	
Date:	26/03/2026	GLE / Morgenstern-Price



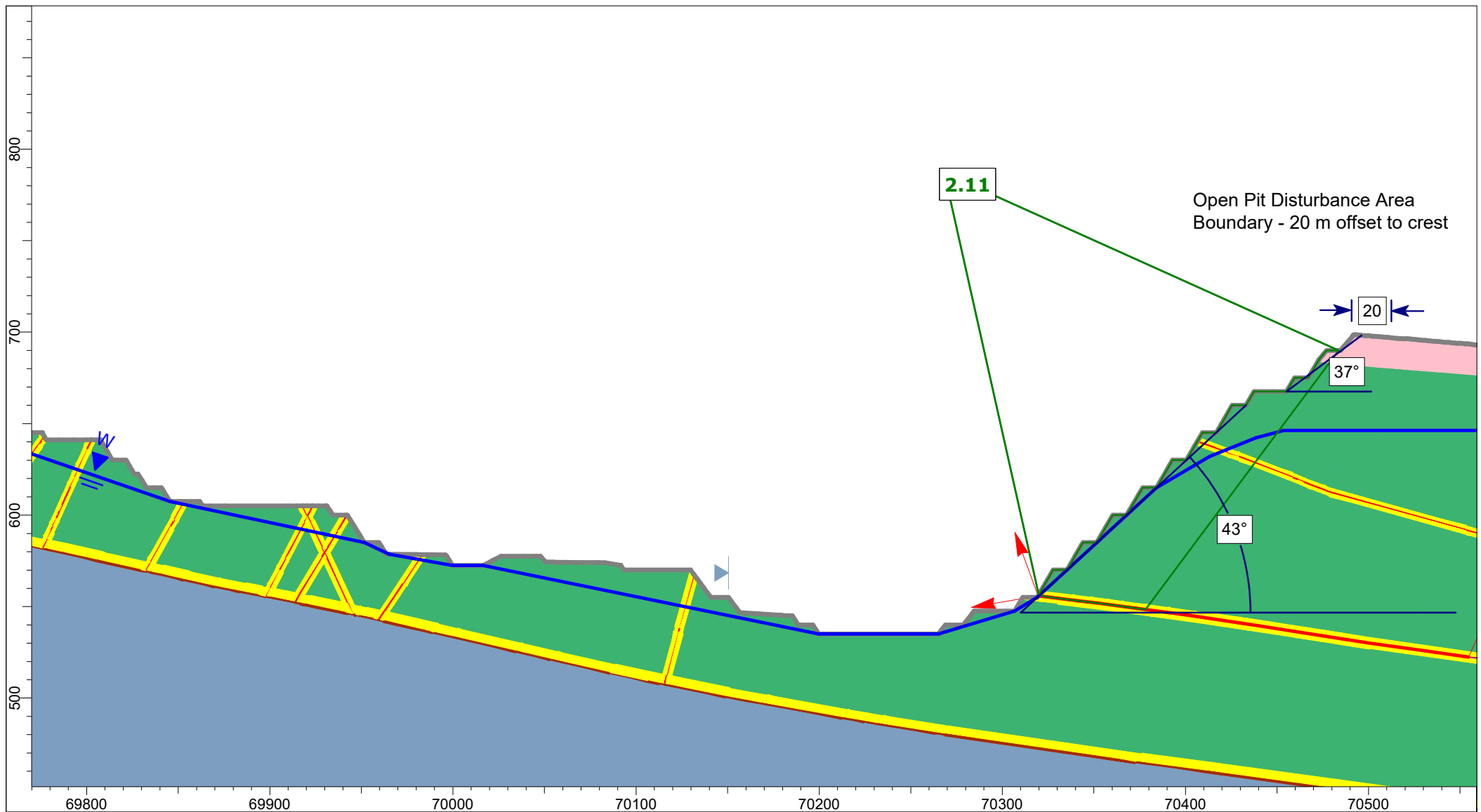
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four Project, Open Pit Extensions	
Section:	CO_OPE_Section 2	
Case:	Lake Filling 625 mRL - AEP=1:500, Kh=0.8 PGA, Circular	
Date:	26/03/2026	GLE / Morgenstern-Price



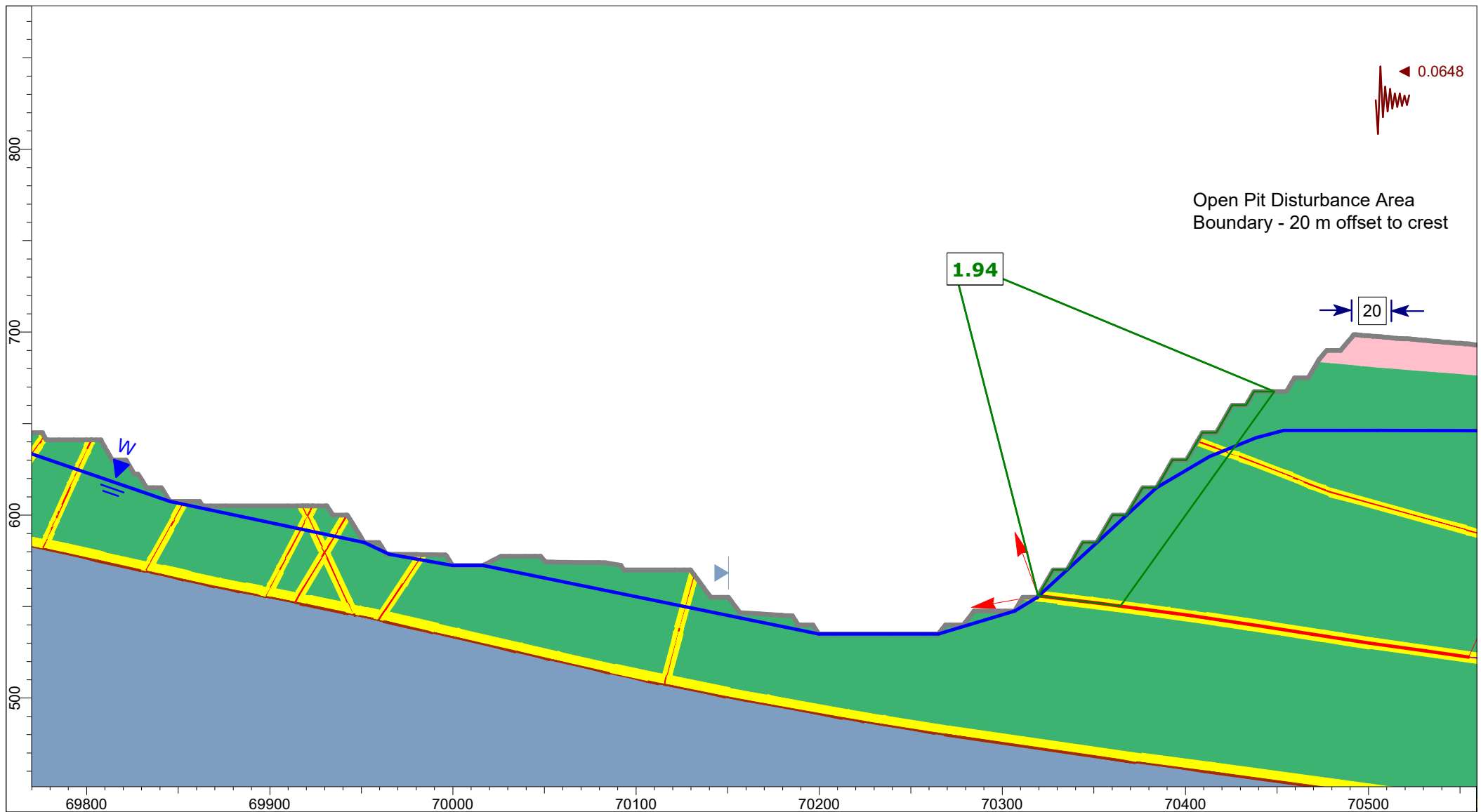
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four Project, Open Pit Extensions	
Section:	CO_OPE_Section 2	
Case:	Closure - MDE Kh=0.5 PGA, Circular	
Date:	26/03/2026	GLE / Morgenstern-Price



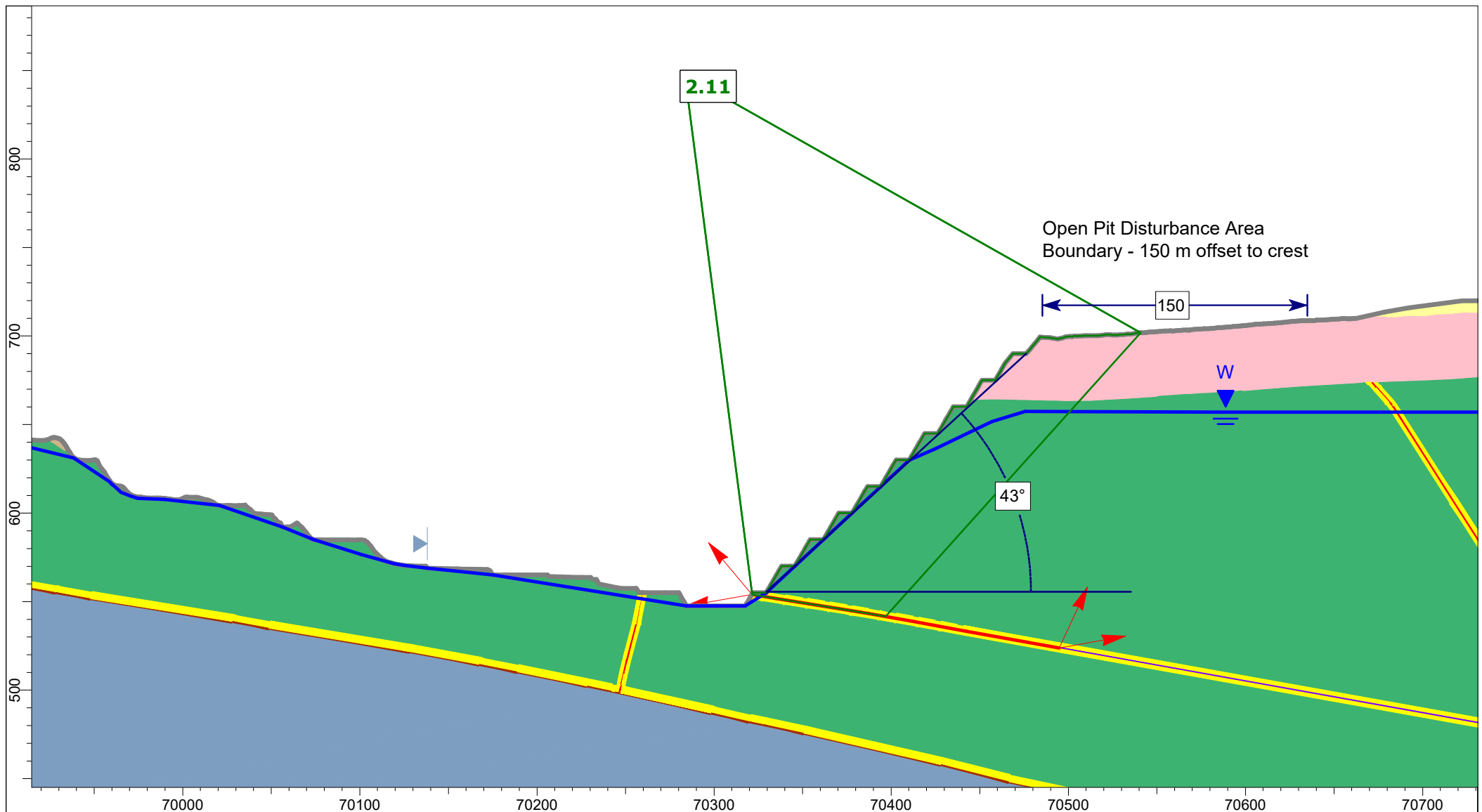
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four Project, Open Pit Extensions	
Section:	CO_OPE_Section 2	
Case:	Closure - MDE Kh=0.8 PGA, Circular	
Date:	26/03/2026	GLE / Morgenstern-Price



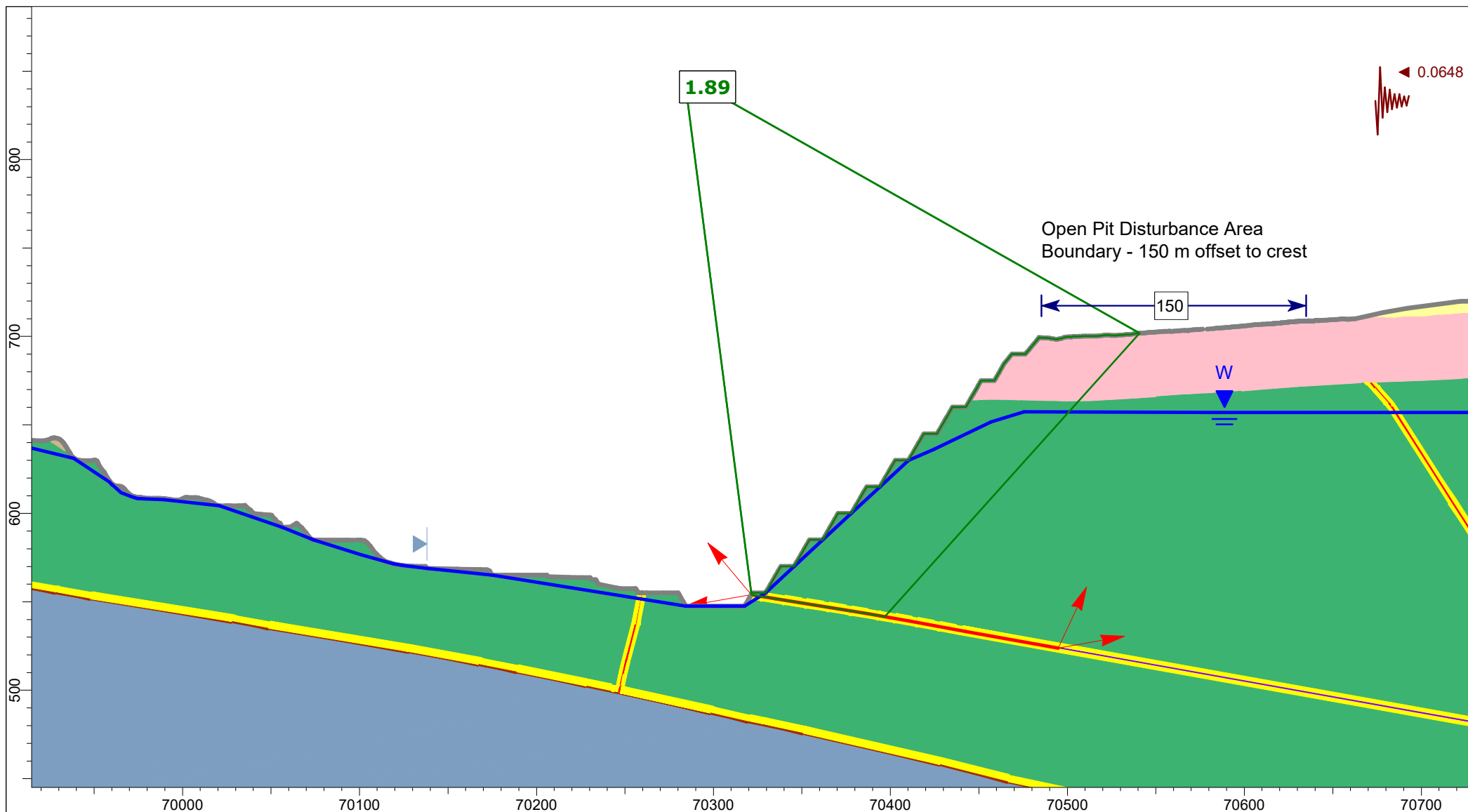
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four Project, Open Pit Extensions	
Section:	CO_OPE_Section 3	
Case:	Mining Hu=0.6 - Static, Block	
Date:	26/03/2026	GLE / Morgenstern-Price



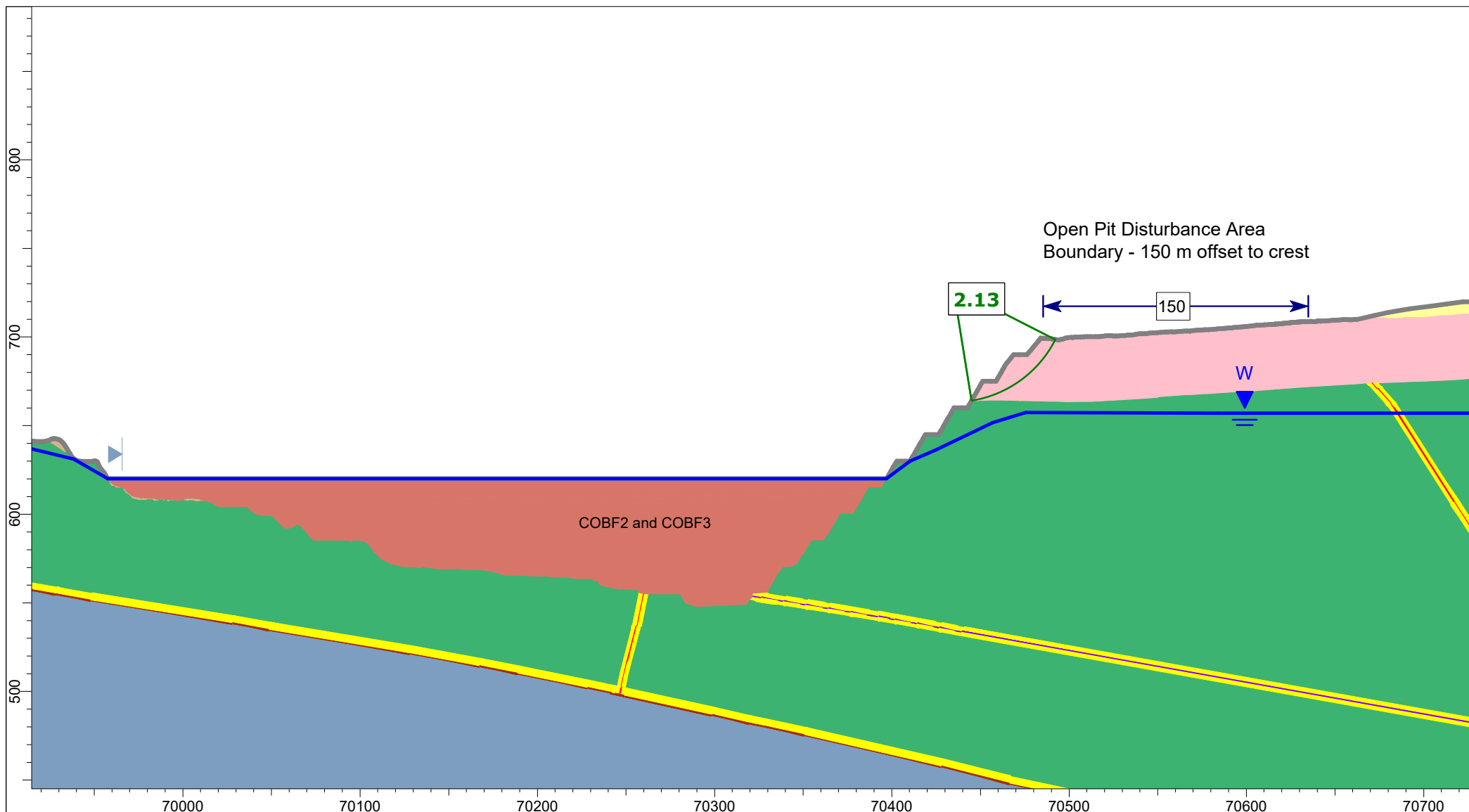
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four Project, Open Pit Extensions	
Section:	CO_OPE_Section 3	
Case:	Mining Hu=0.6 - OBE Kh=0.8 PGA, Block	
Date:	26/03/2026	GLE / Morgenstern-Price



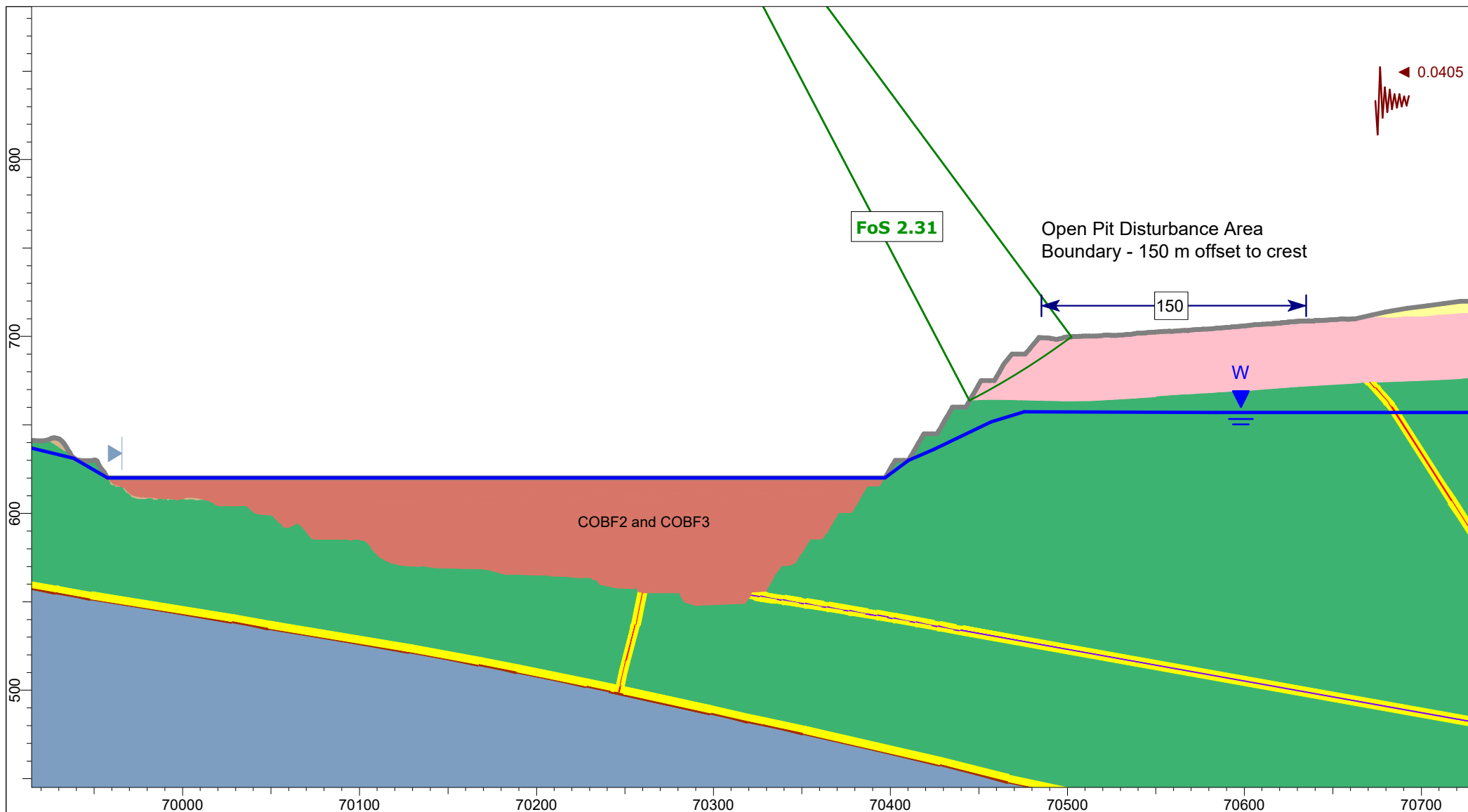
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four Project, Open Pit Extensions	
Section:	CO_OPE_Section 4	
Case:	Mining Hu=0.6 - Static, Block	
Date:	26/03/2026	GLE / Morgenstern-Price



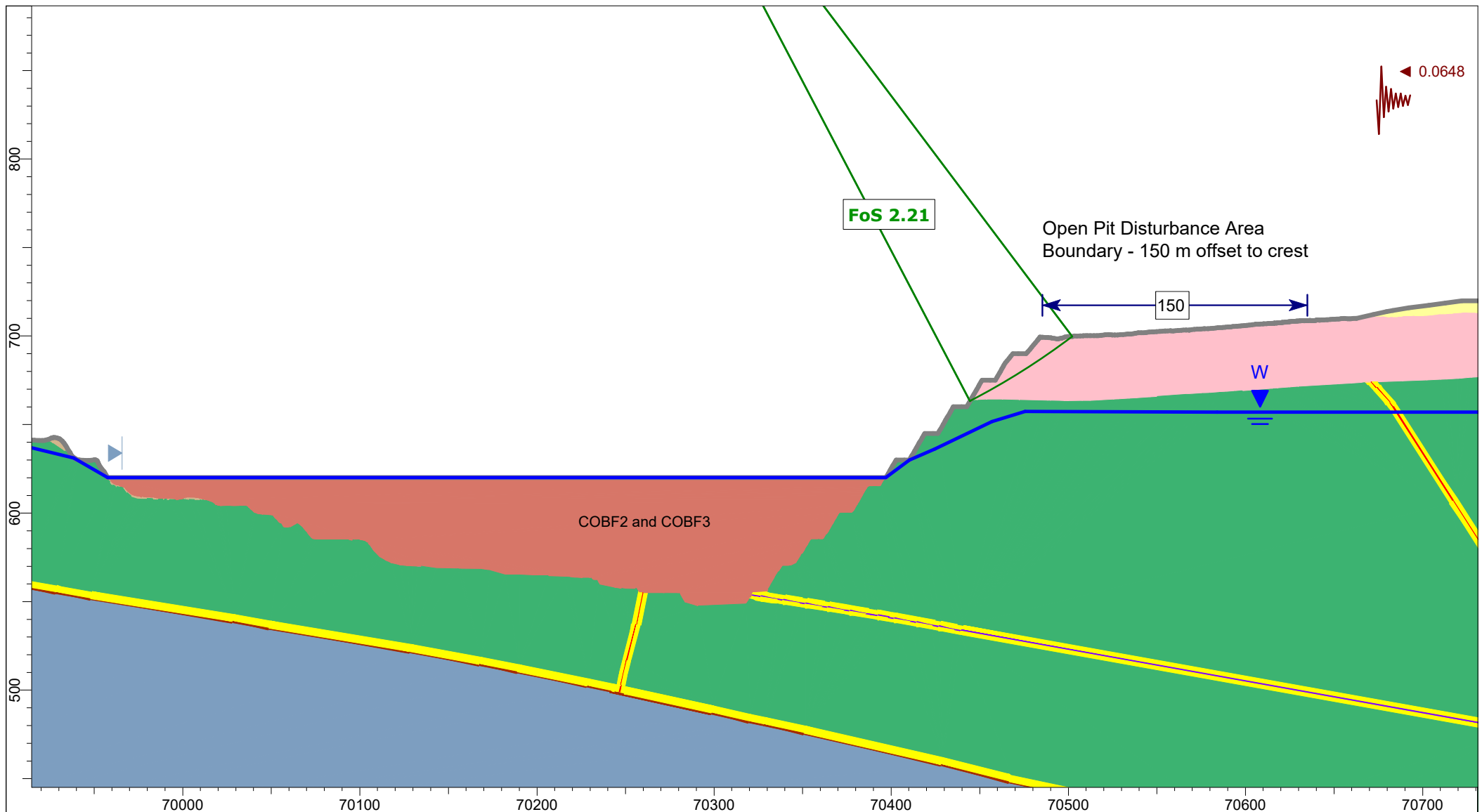
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four Project, Open Pit Extensions	
Section:	CO_OPE_Section 4	
Case:	Mining Hu=0.6 - OBE Kh=0.8 PGA, Block	
Date:	26/03/2026	GLE / Morgenstern-Price



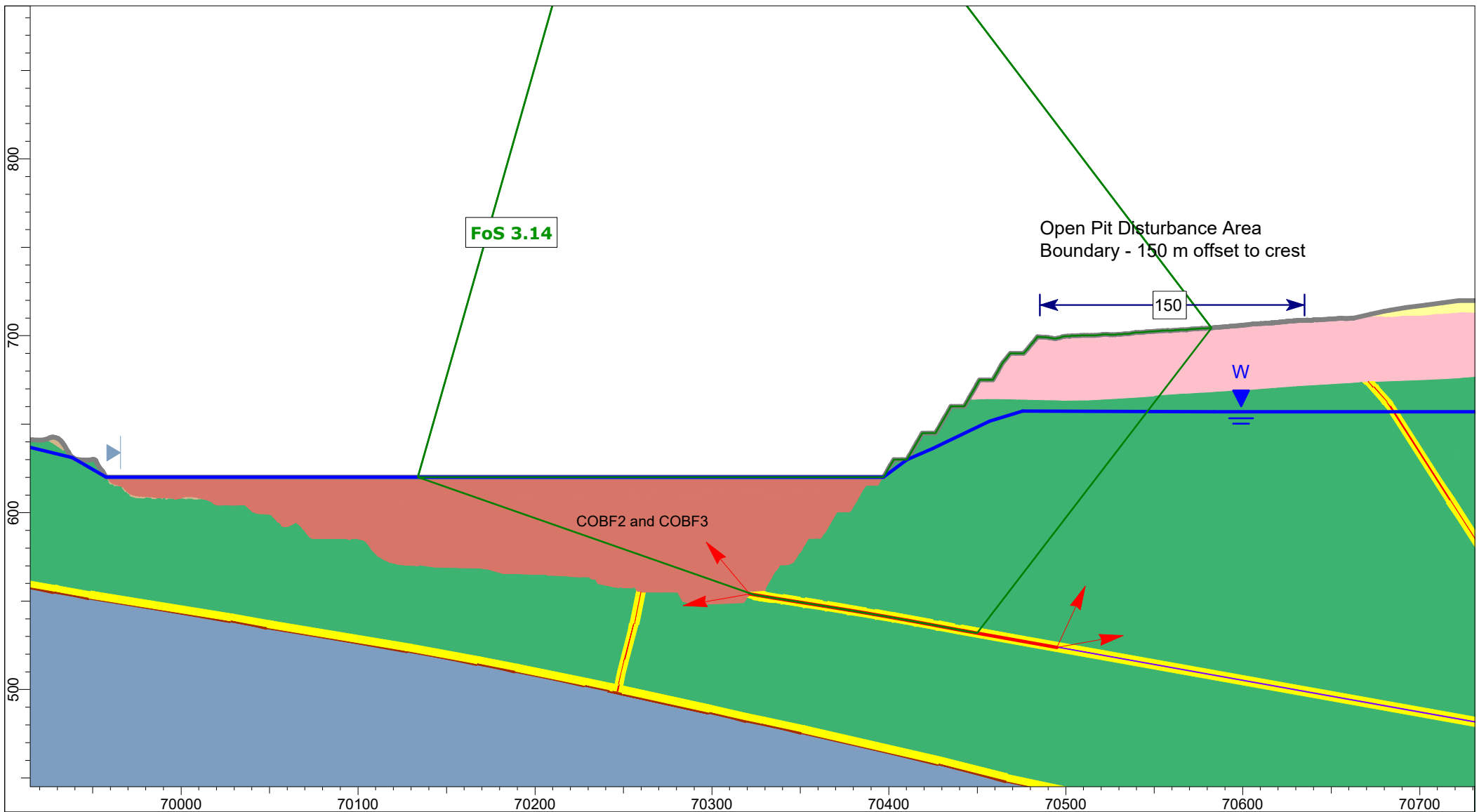
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four Project, Open Pit Extensions	
Section:	CO_OPE_Section 4	
Case:	Mining + COBF3 - Static, Circular	
Date:	26/03/2026	GLE / Morgenstern-Price



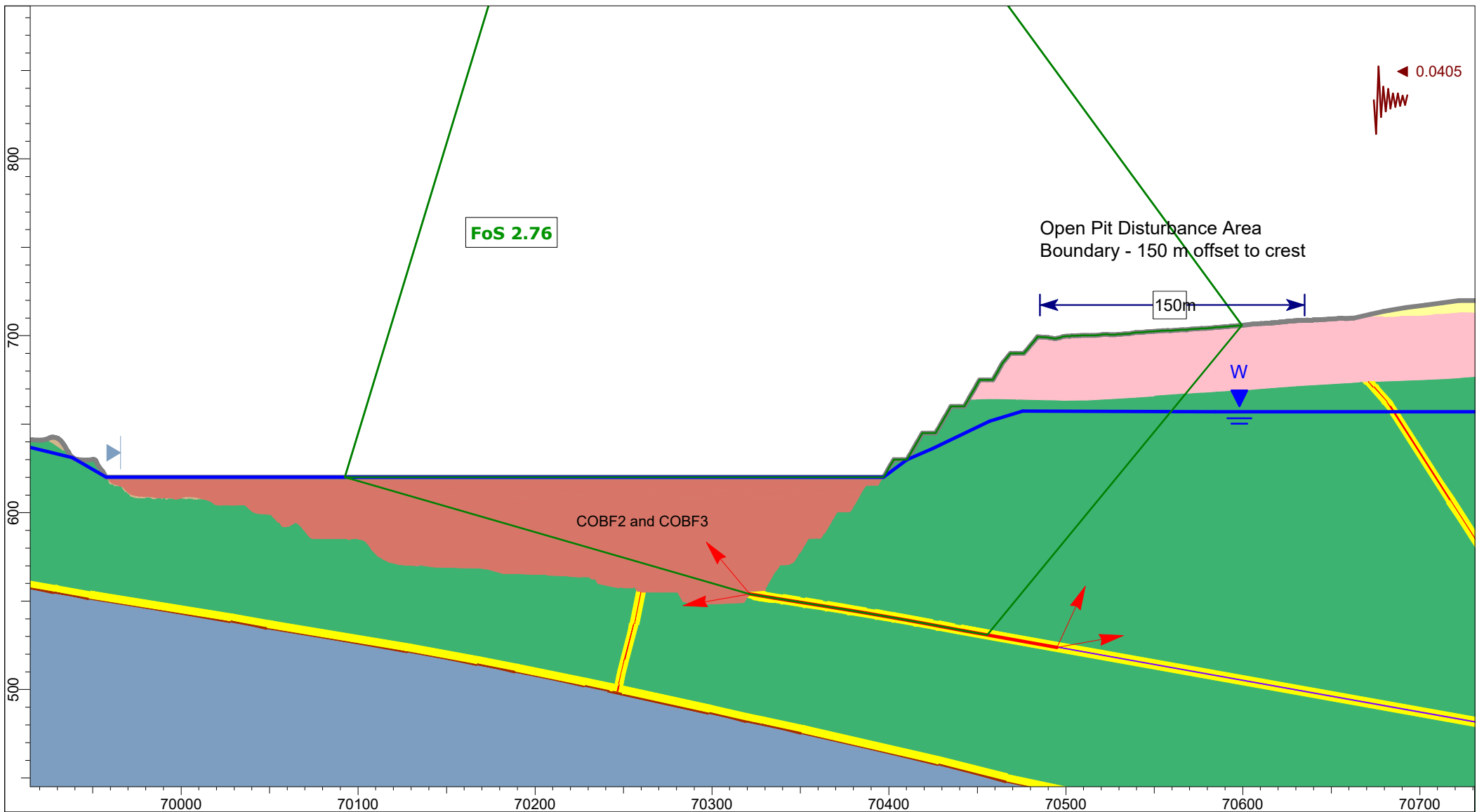
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four Project, Open Pit Extensions	
Section:	CO_OPE_Section 4	
Case:	Mining + COBF3 - OBE Kh=0.5 PGA, Circular	
Date:	26/03/2026	GLE / Morgenstern-Price



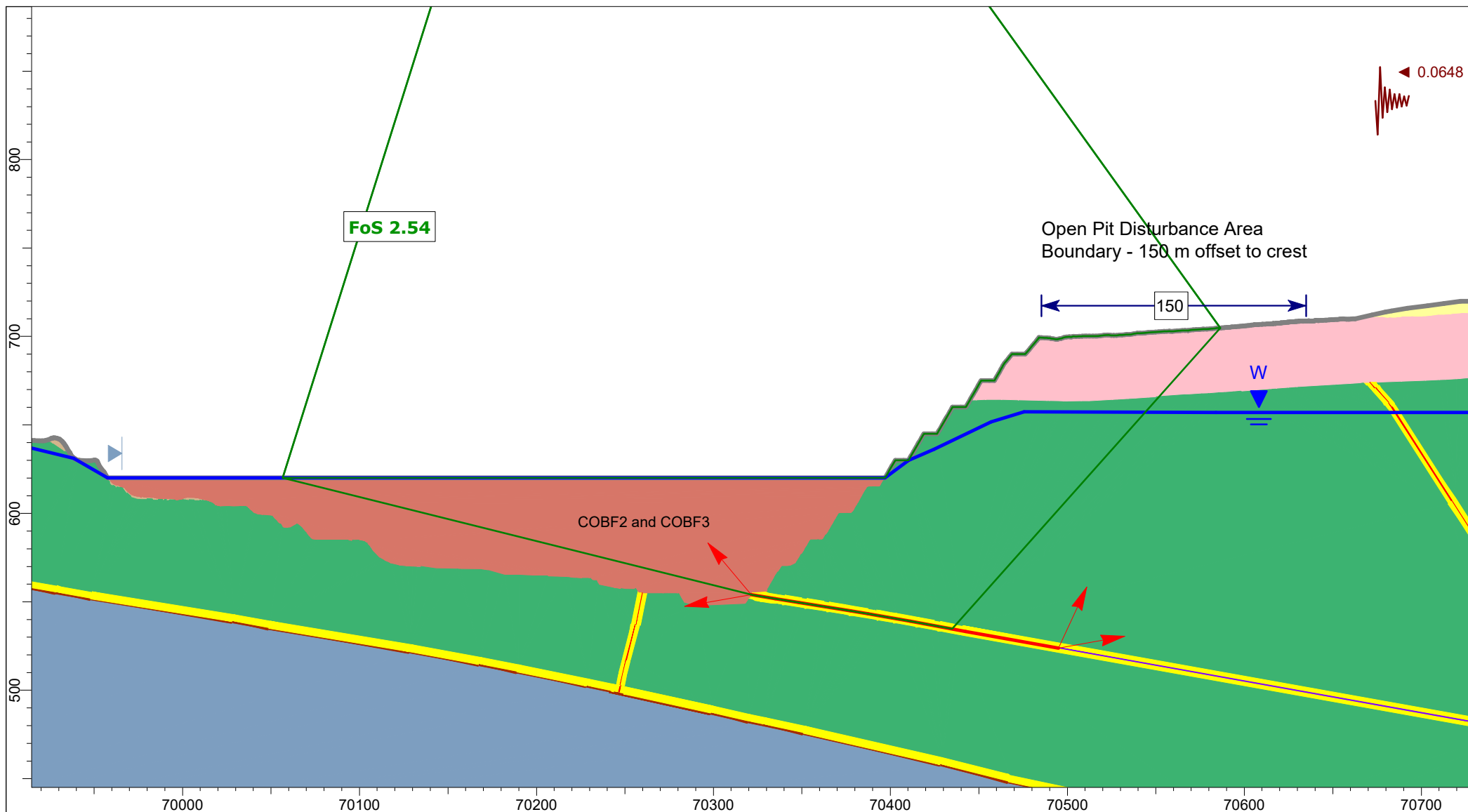
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Project:	Macraes Phase Four Project, Open Pit Extensions	
Section:	CO_OPE_Section 4	
Case:	Mining + COBF3 - OBE Kh=0.8 PGA, Circular	
Date:	26/03/2026	GLE / Morgenstern-Price



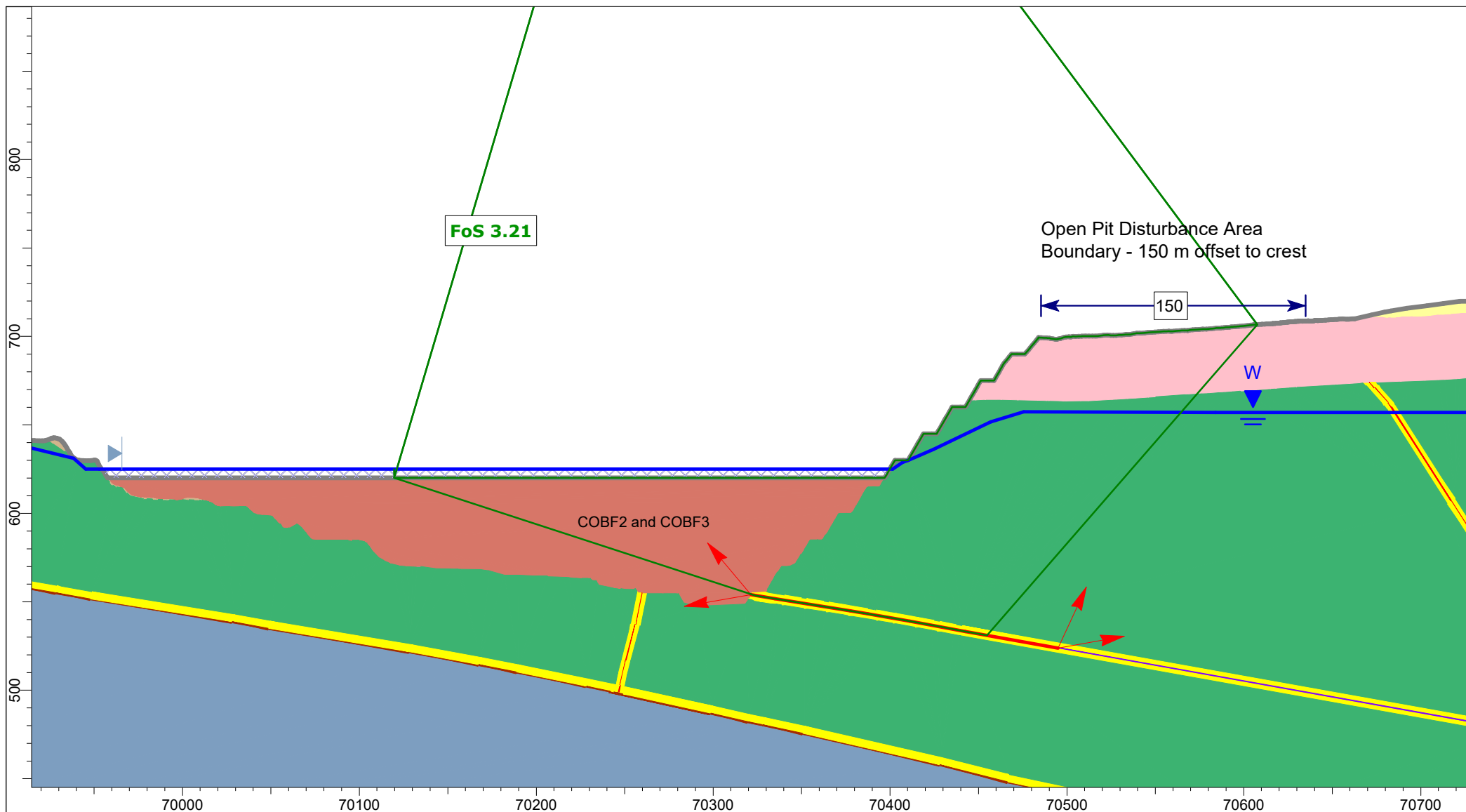
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Project:	Macraes Phase Four Project, Open Pit Extensions	
Section:	CO_OPE_Section 4	
Case:	Mining + COBF3 - Static, Block	
Date:	26/03/2026	GLE / Morgenstern-Price



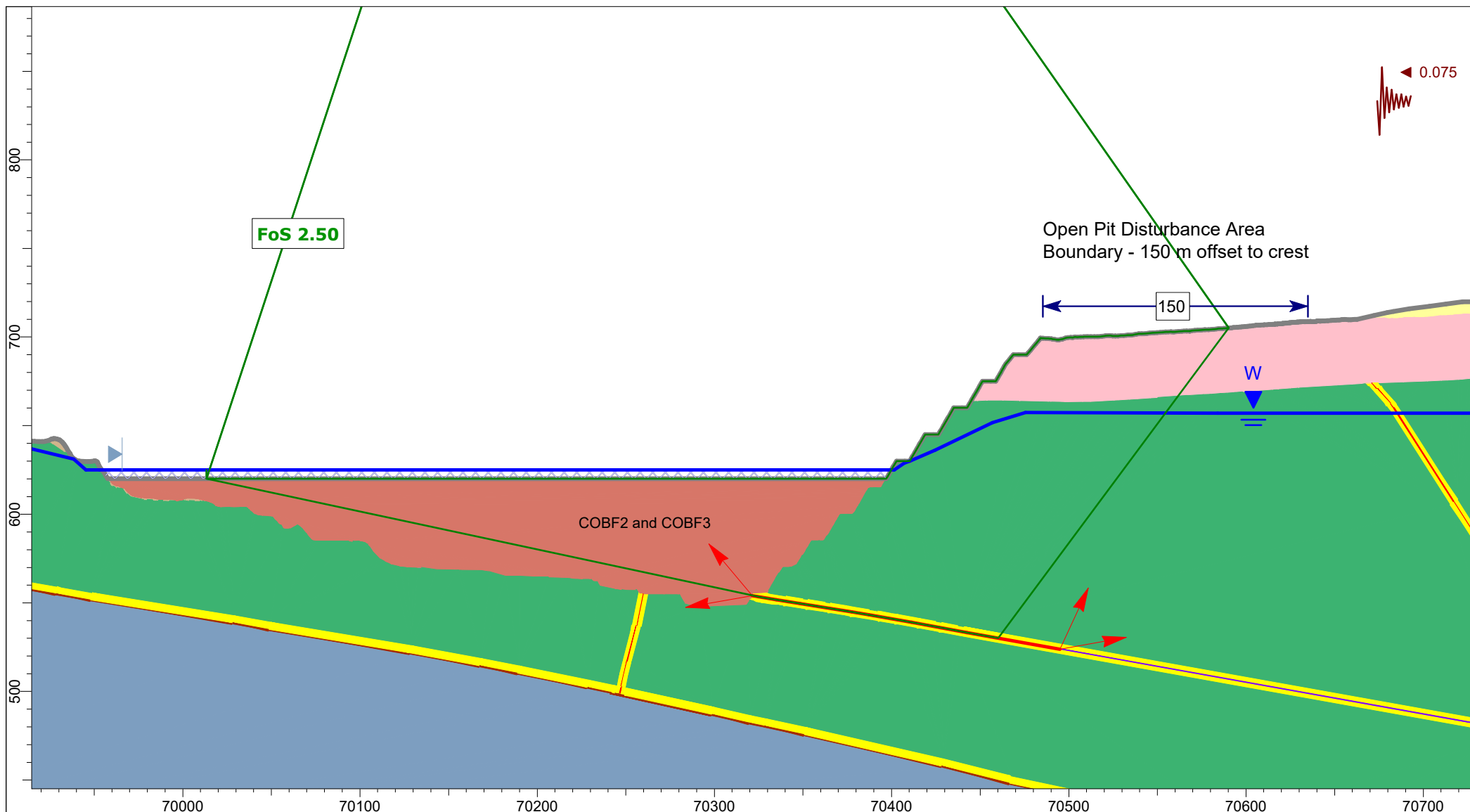
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Project:	Macraes Phase Four Project, Open Pit Extensions	
Section:	CO_OPE_Section 4	
Case:	Mining + COBF3 - OBE Kh=0.5 PGA, Block	
Date:	26/03/2026	GLE / Morgenstern-Price



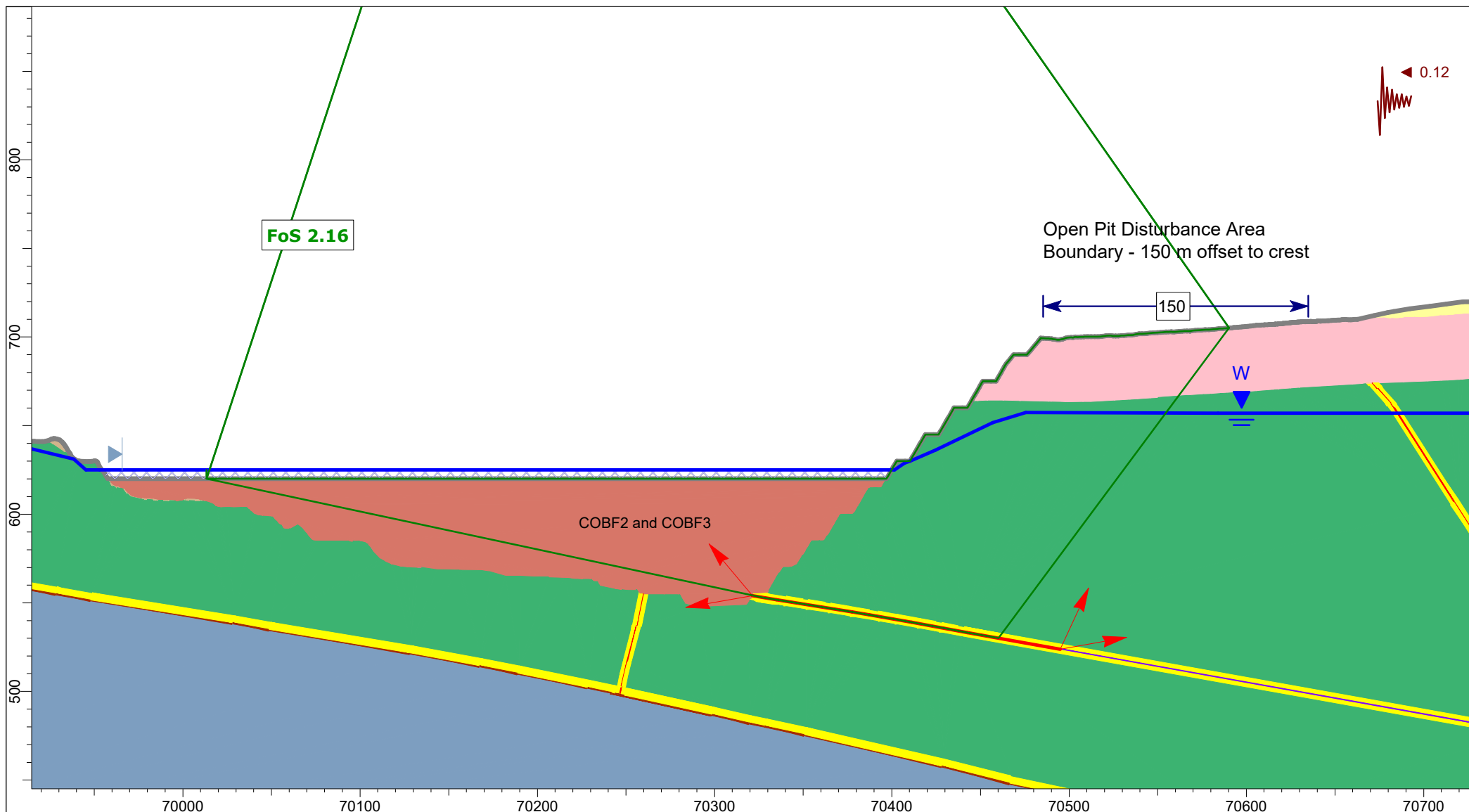
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Project:	Macraes Phase Four Project, Open Pit Extensions	
Section:	CO_OPE_Section 4	
Case:	Mining + COBF3 - OBE Kh=0.8 PGA, Block	
Date:	26/03/2026	GLE / Morgenstern-Price



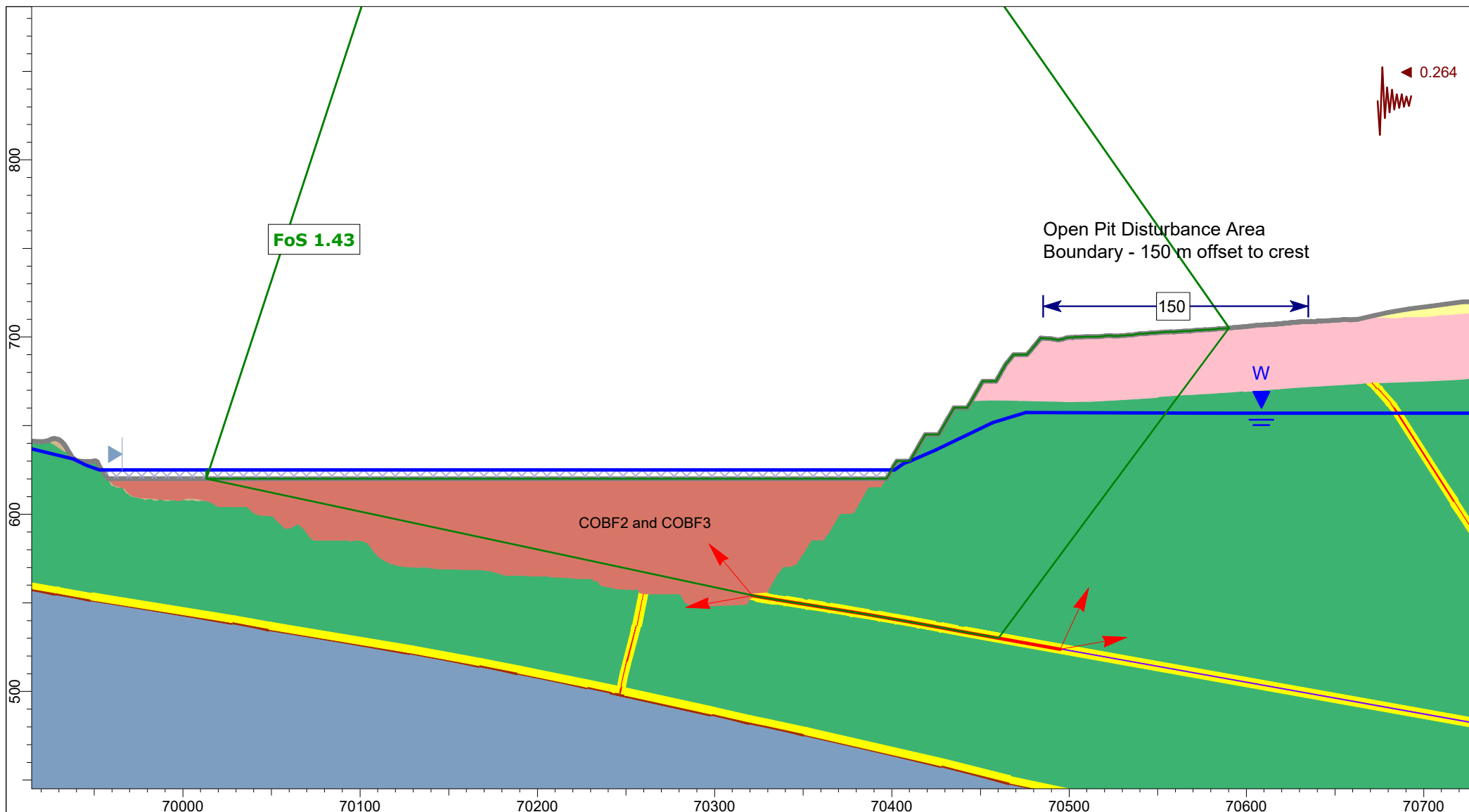
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four Project, Open Pit Extensions	
Section:	CO_OPE_Section 4	
Case:	Lake Filling 625 mRL - Static, Block	
Date:	26/03/2026	GLE / Morgenstern-Price



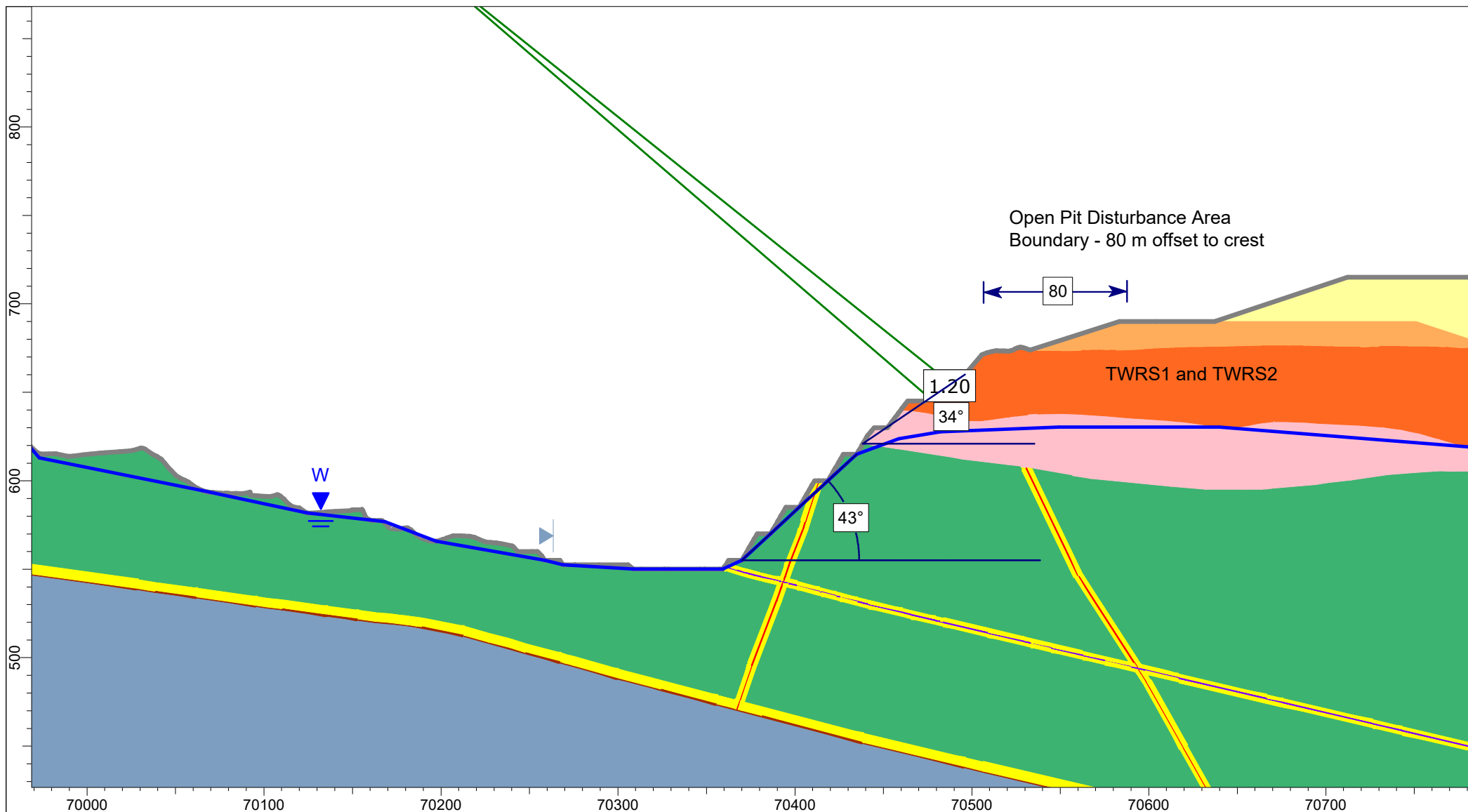
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four Project, Open Pit Extensions	
Section:	CO_OPE_Section 4	
Case:	Lake Filling 625 mRL - AEP=1:500, Kh=0.5 PGA, Block	
Date:	26/03/2026	GLE / Morgenstern-Price



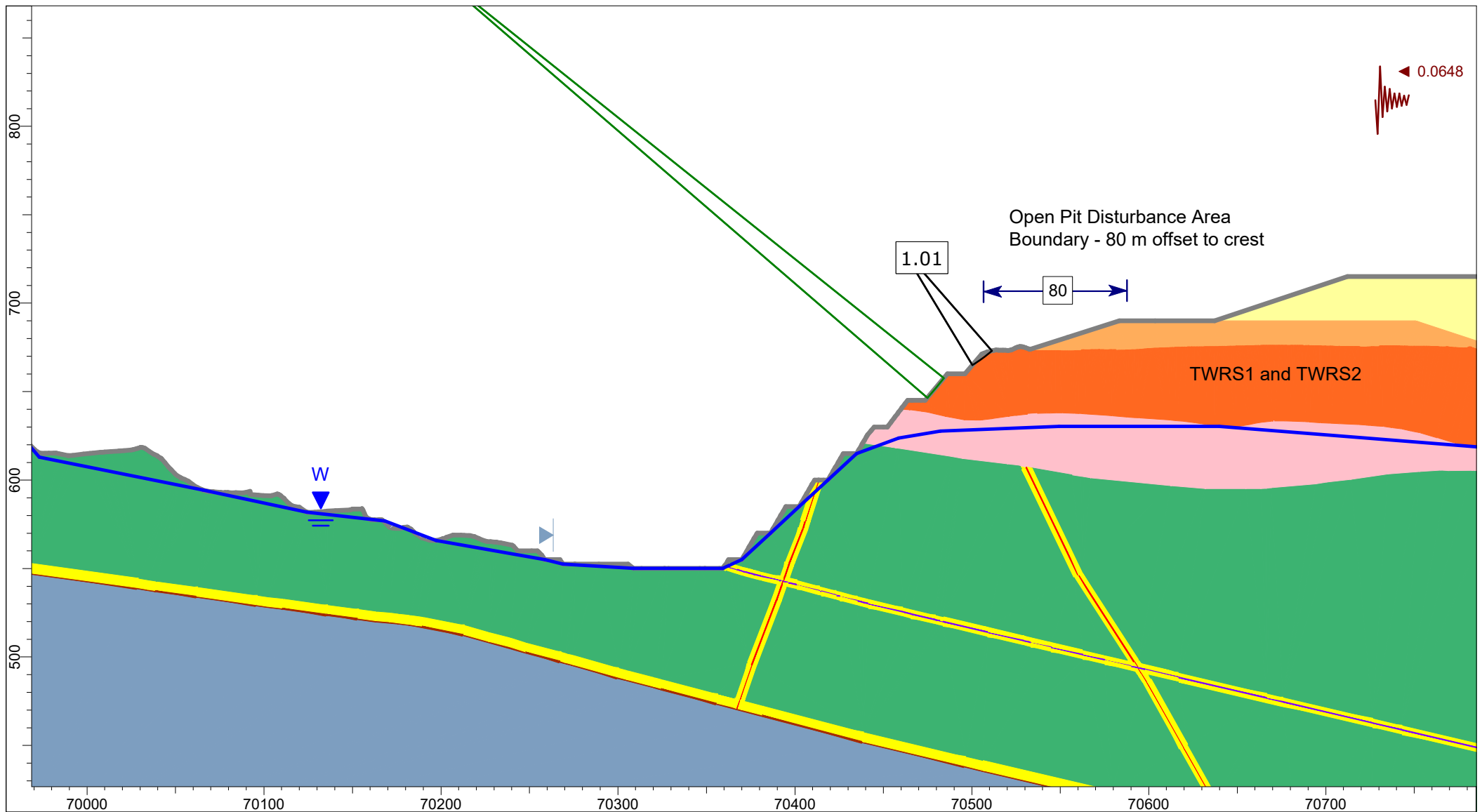
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Project:	Macraes Phase Four Project, Open Pit Extensions	
Section:	CO_OPE_Section 4	
Case:	Lake Filling 625 mRL - AEP=1:500, Kh=0.8 PGA, Block	
Date:	26/03/2026	GLE / Morgenstern-Price



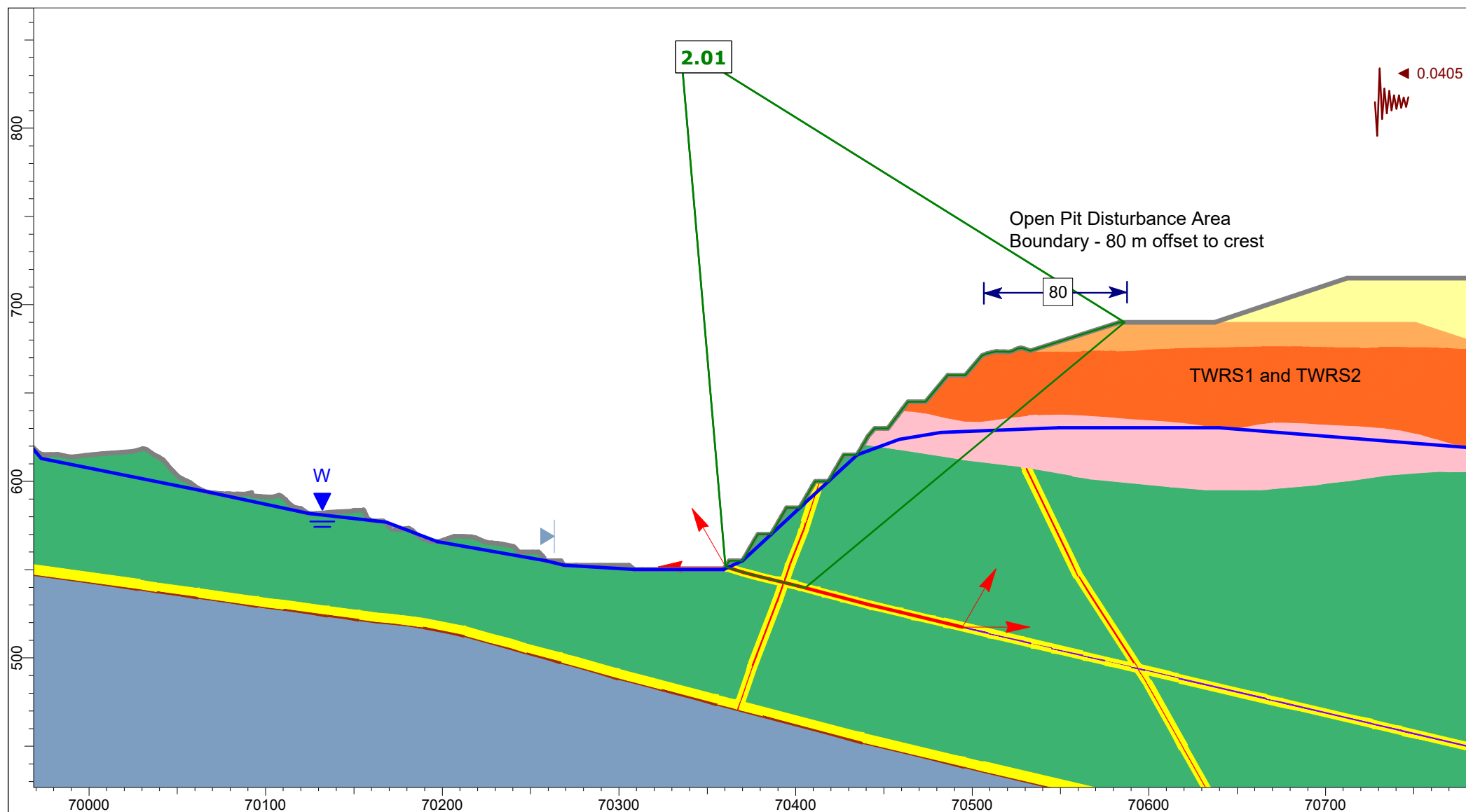
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Project:	Macraes Phase Four Project, Open Pit Extensions	
Section:	CO_OPE_Section 4	
Case:	Closure - MDE Kh=0.8 PGA, Block	
Date:	26/03/2026	GLE / Morgenstern-Price



Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four Project, Open Pit Extensions	
Section:	CO_OPE_Section 5	
Case:	Mining_Trimbells lift - Static, Circular	
Date:	26/03/2026	GLE / Morgenstern-Price



Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	CO_OPE_Section 5	
Case:	Mining_Trimbells lift - OBE Kh=0.8 PGA, Circular	
Date:	26/03/2026	GLE / Morgenstern-Price



Client:

Project:

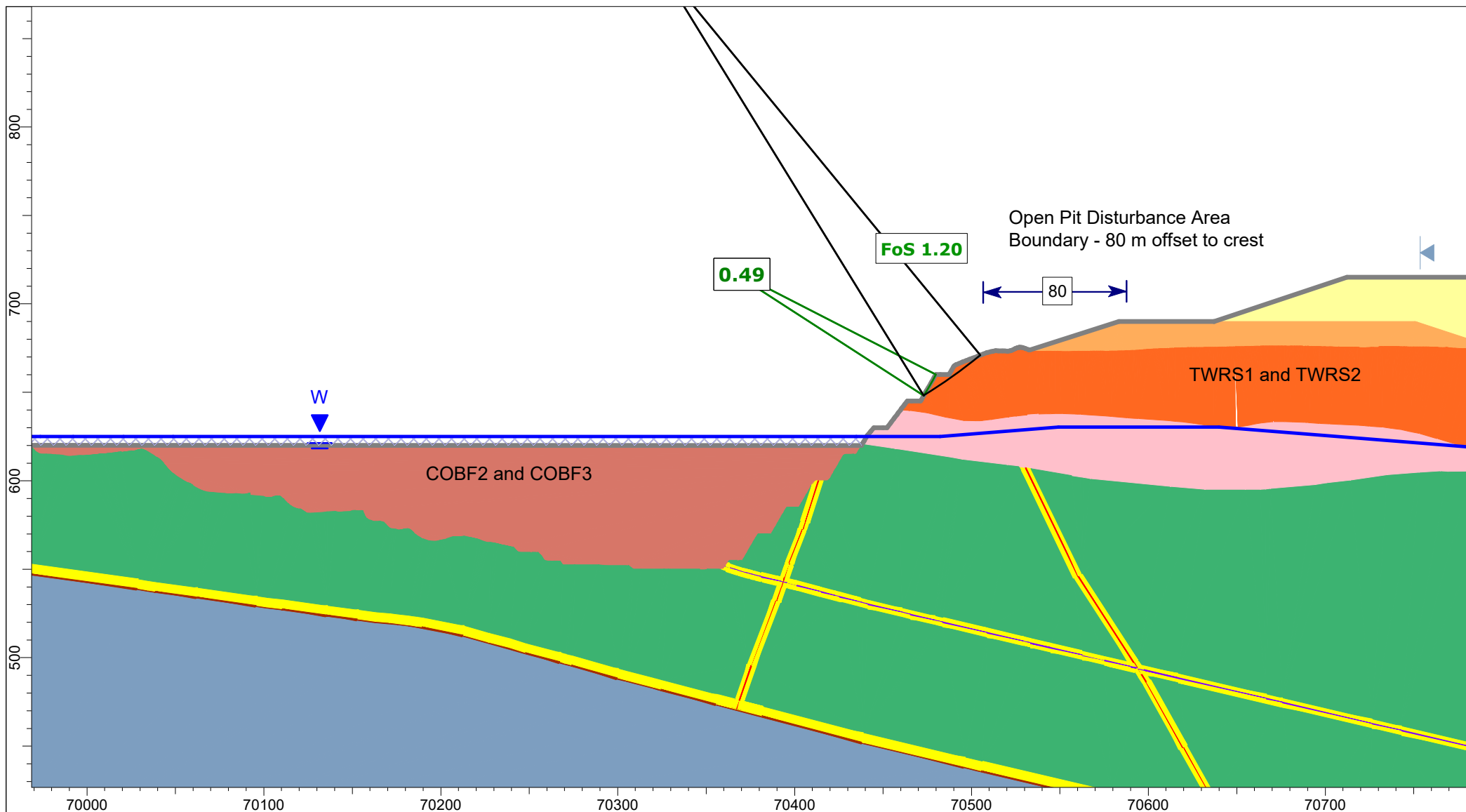
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Case:

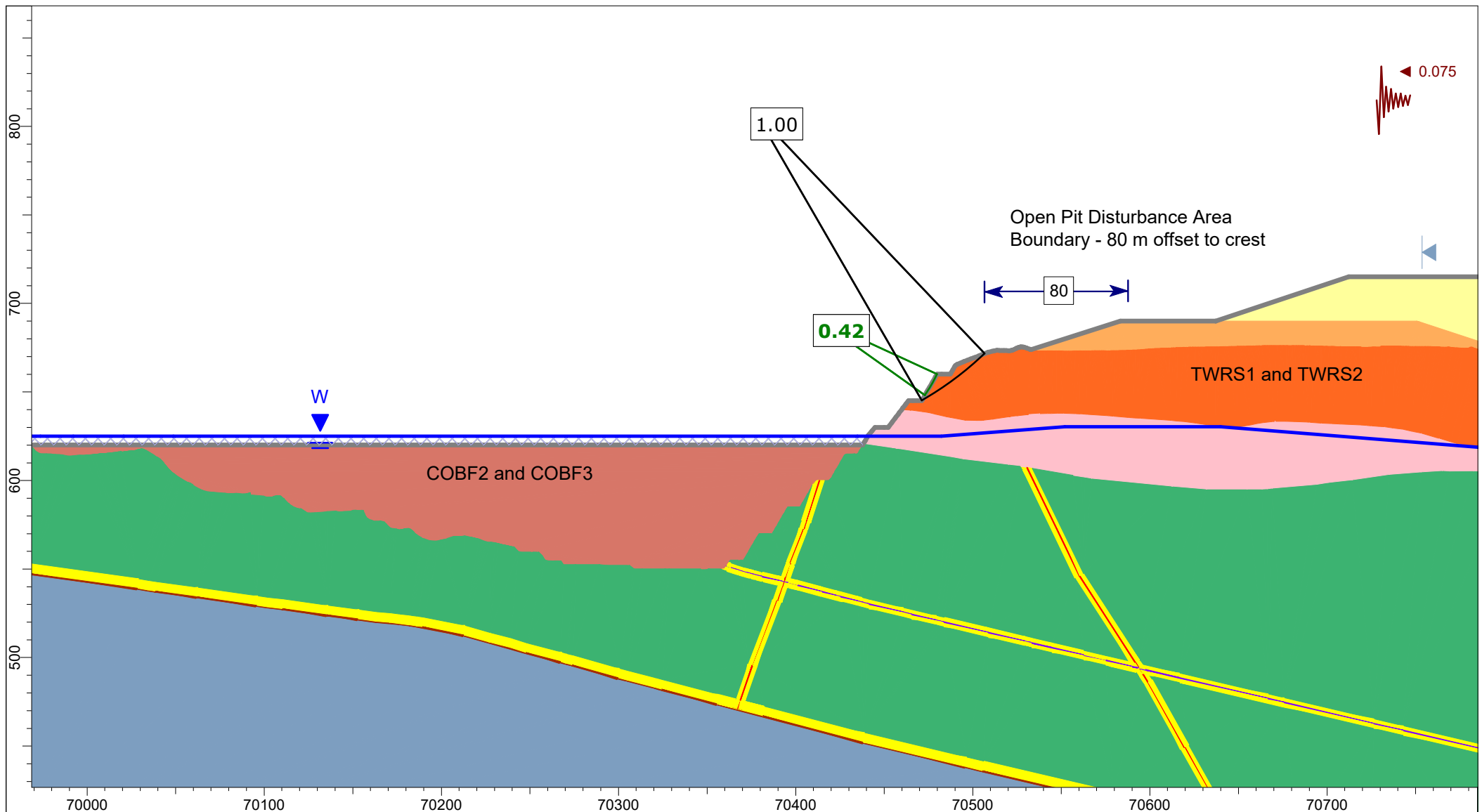
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26/03/2026

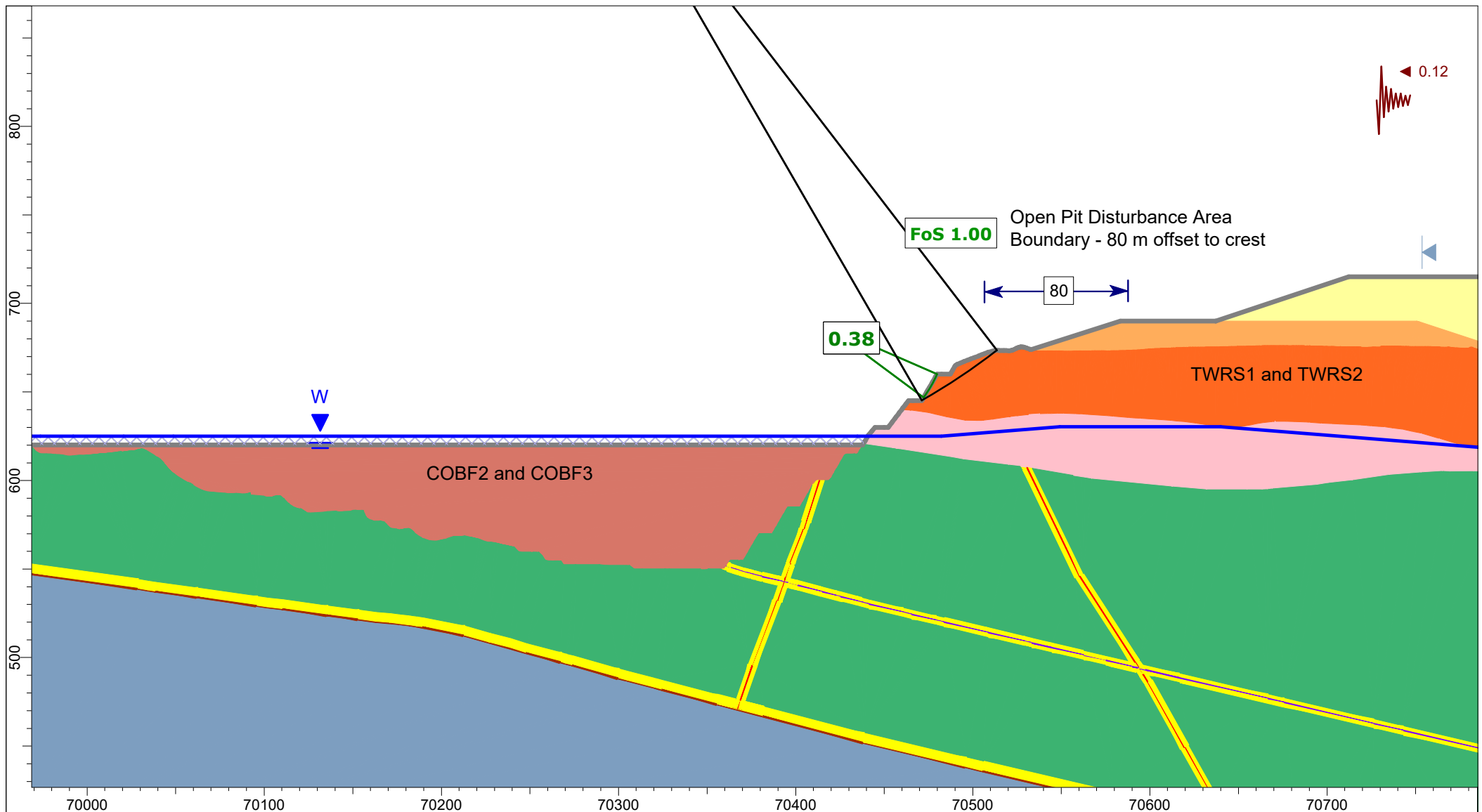
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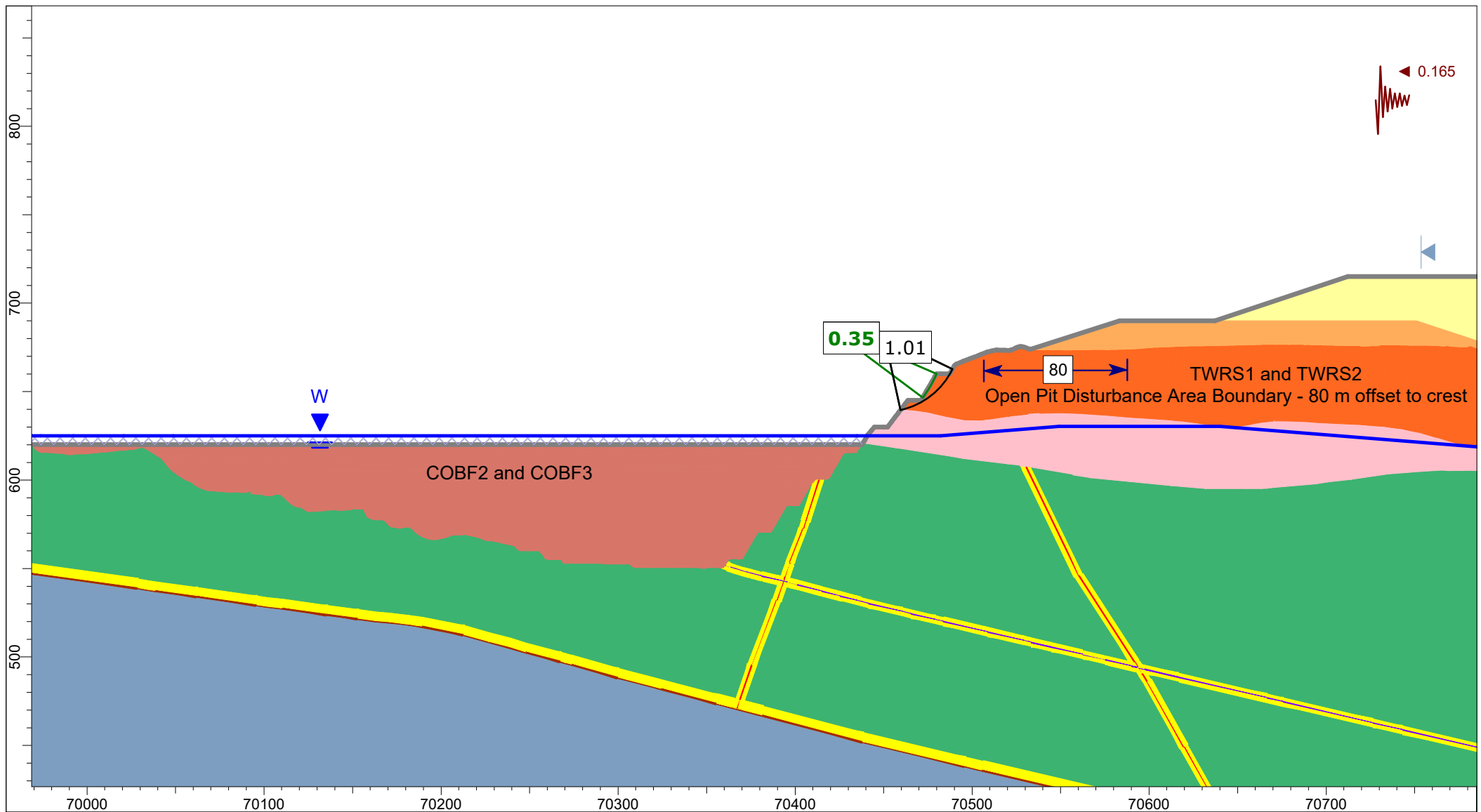
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Project:	Macraes Phase Four Project, Open Pit Extensions	
Section:	CO_OPE_Section 5	
Case:	Lake Filling 625 mRL - Static, Circular	
Date:	26/03/2026	GLE / Morgenstern-Price



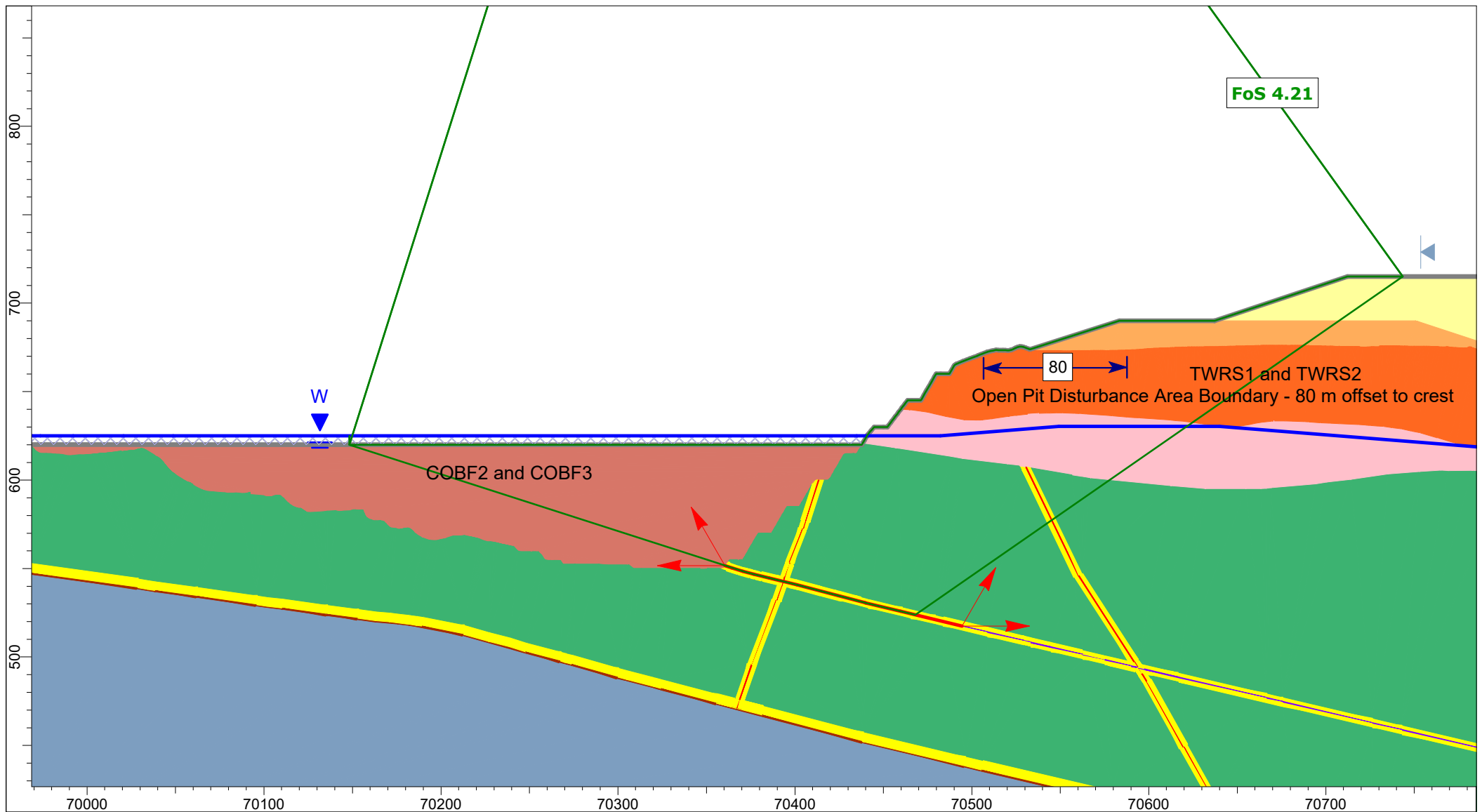
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four Project, Open Pit Extensions	
Section:	CO_OPE_Section 5	
Case:	Lake Filling 625 mRL - AEP=1:500, Kh=0.5 PGA, Circular	
Date:	26/03/2026	GLE / Morgenstern-Price



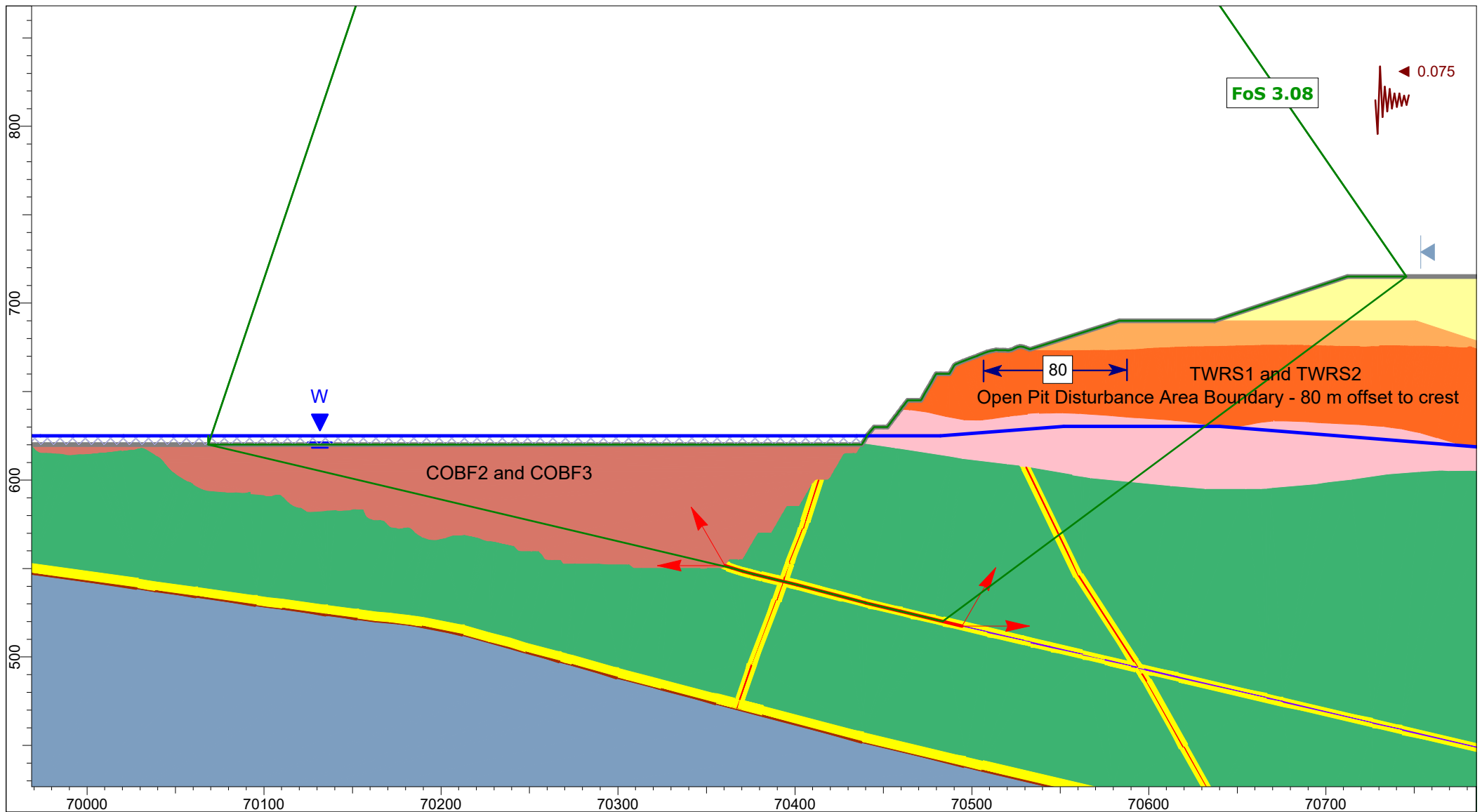
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Project:	Macraes Phase Four Project, Open Pit Extensions	
Section:	CO_OPE_Section 5	
Case:	Lake Filling 625 mRL - AEP=1:500, Kh=0.8 PGA, Circular	
Date:	26/03/2026	GLE / Morgenstern-Price



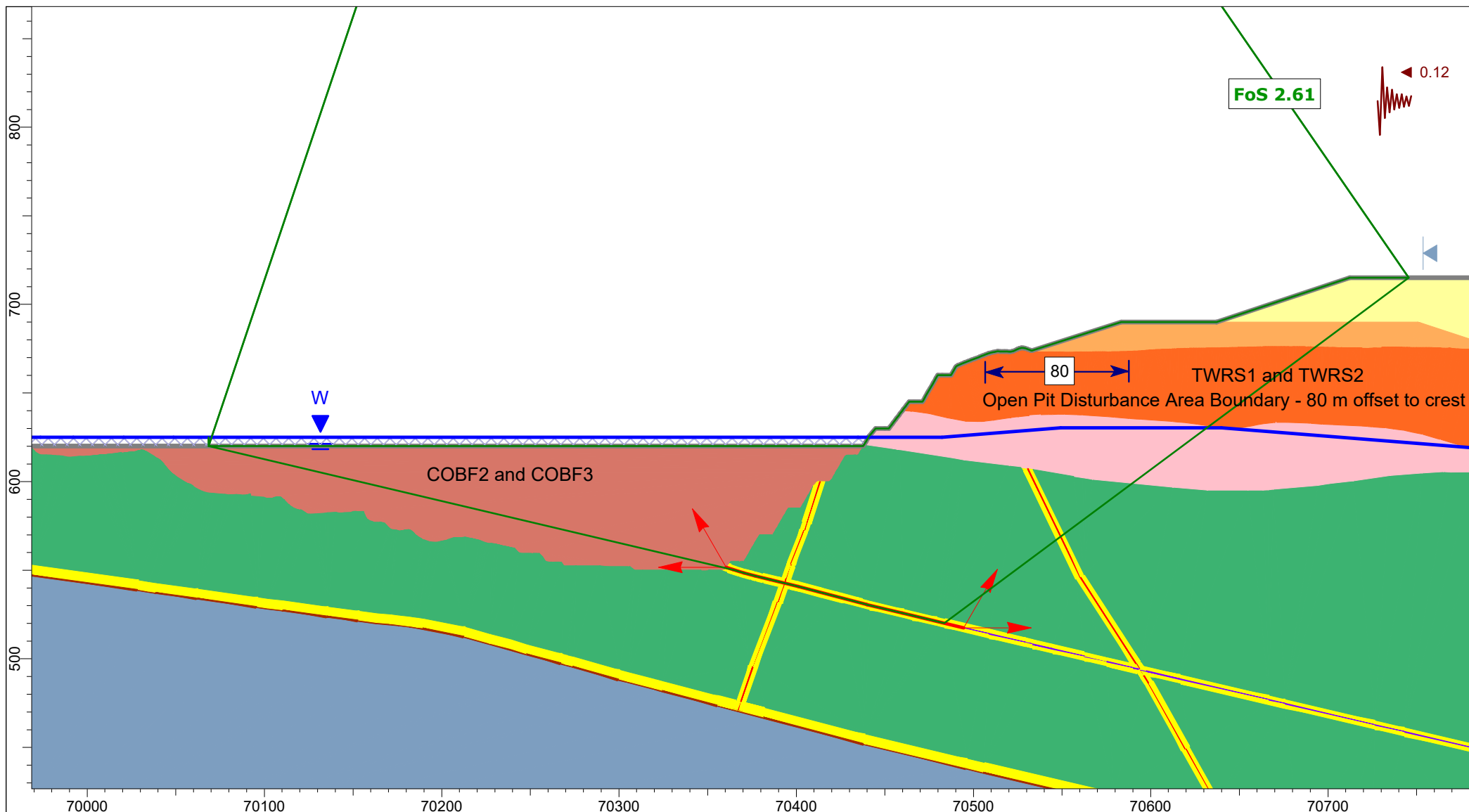
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Project:	Macraes Phase Four Project, Open Pit Extensions	
Section:	CO_OPE_Section 5	
Case:	Closure - MDE Kh=0.5 PGA, Circular	
Date:	26/03/2026	GLE / Morgenstern-Price



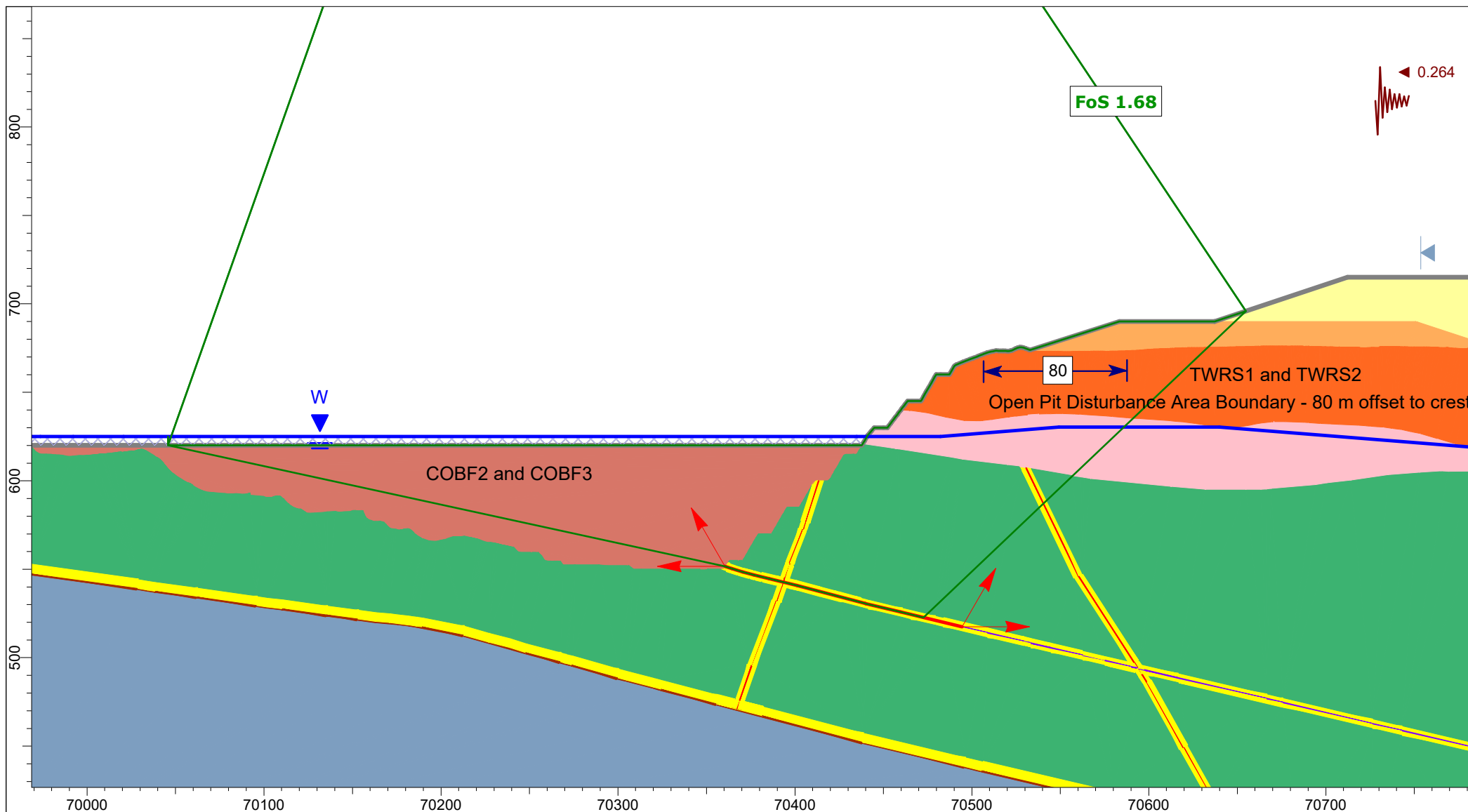
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Project:	Macraes Phase Four Project, Open Pit Extensions	
Section:	CO_OPE_Section 5	
Case:	Lake Filling 625 mRL - Static, Block	
Date:	26/03/2026	GLE / Morgenstern-Price



Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four Project, Open Pit Extensions	
Section:	CO_OPE_Section 5	
Case:	Lake Filling 625 mRL - AEP=1:500, Kh=0.5 PGA, Block	
Date:	26/03/2026	GLE / Morgenstern-Price



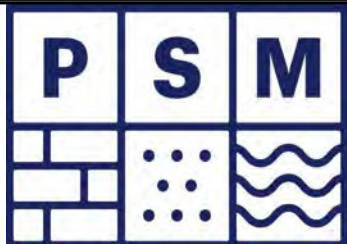
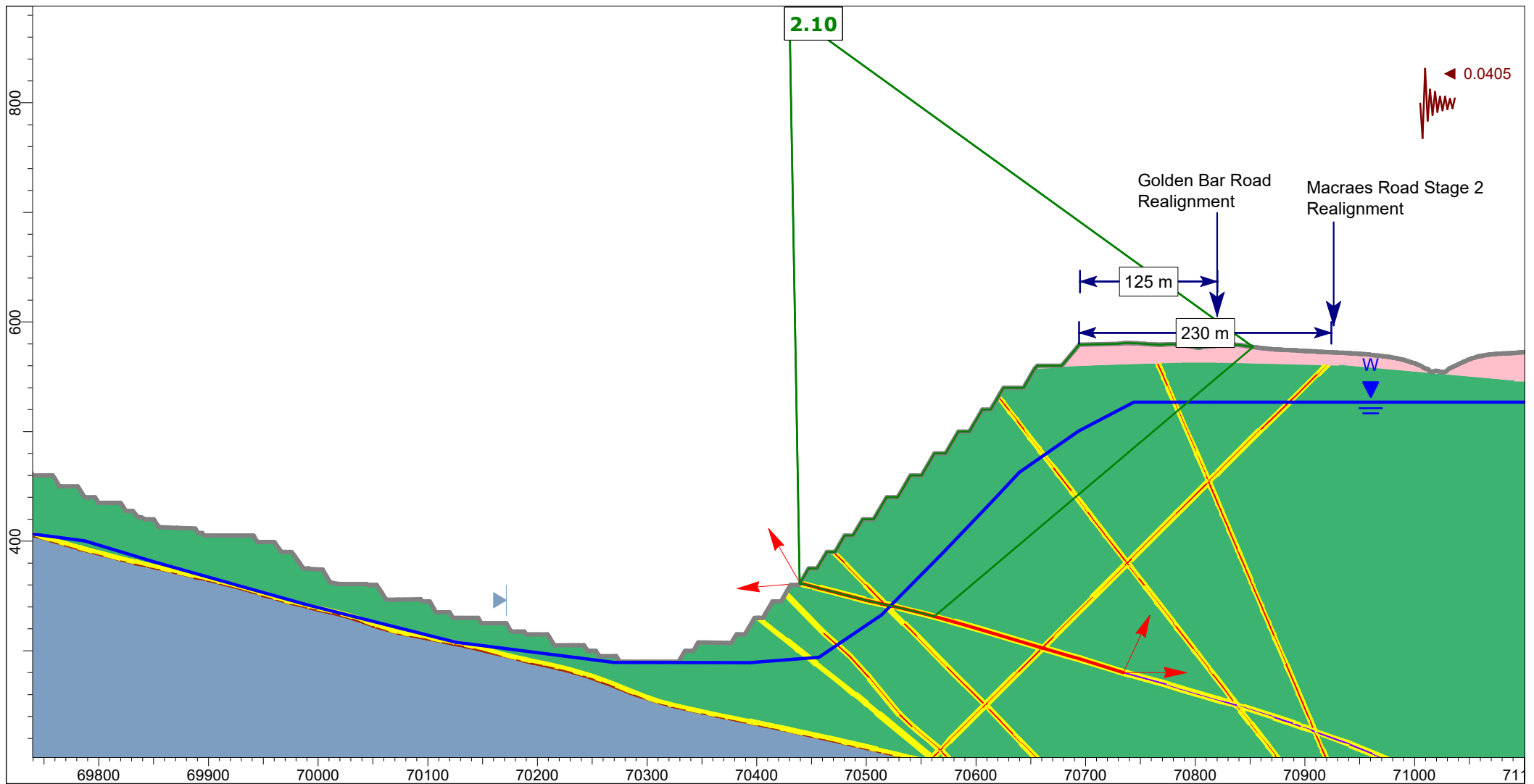
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Project:	Macraes Phase Four Project, Open Pit Extensions	
Section:	CO_OPE_Section 5	
Case:	Lake Filling 625 mRL - AEP=1:500, Kh=0.8 PGA, Block	
Date:	26/03/2026	GLE / Morgenstern-Price



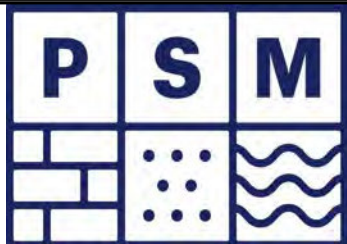
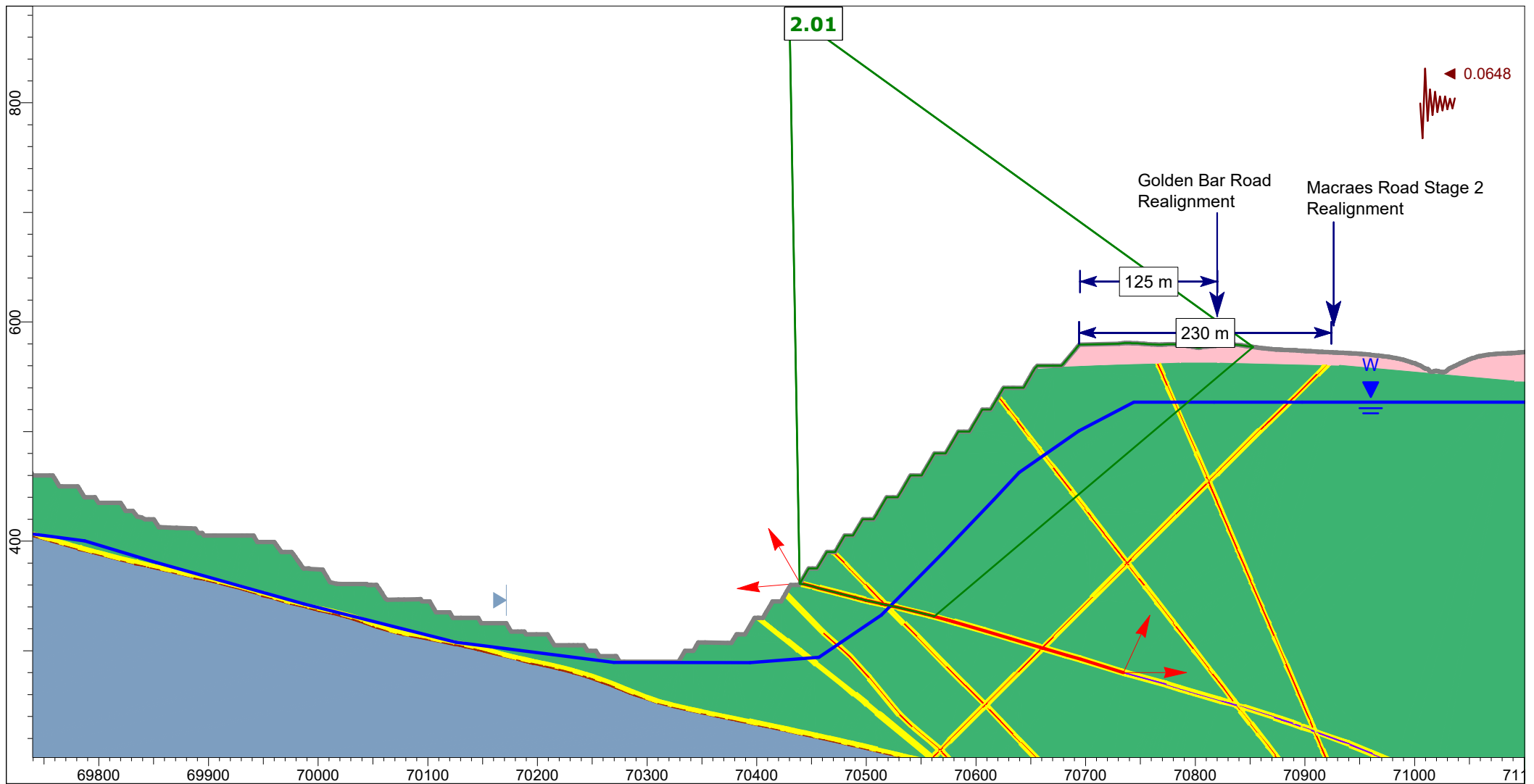
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four Project, Open Pit Extensions	
Section:	CO_OPE_Section 5	
Case:	Closure - MDE Kh=0.8 PGA, Block	
Date:	26/03/2026	GLE / Morgenstern-Price

Appendix D
Innes Mills Limited Equilibrium Outputs

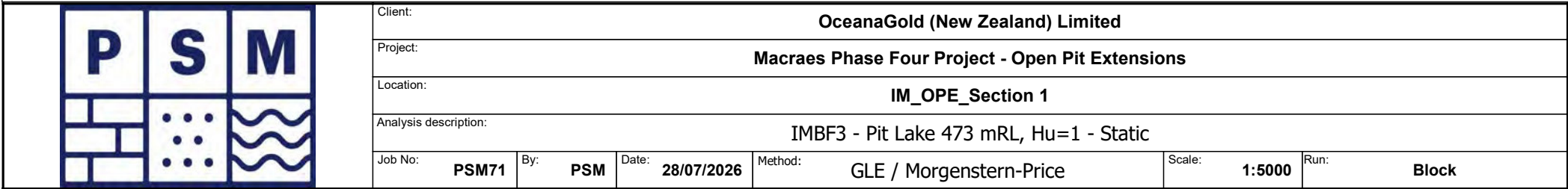


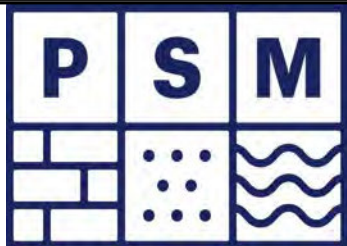
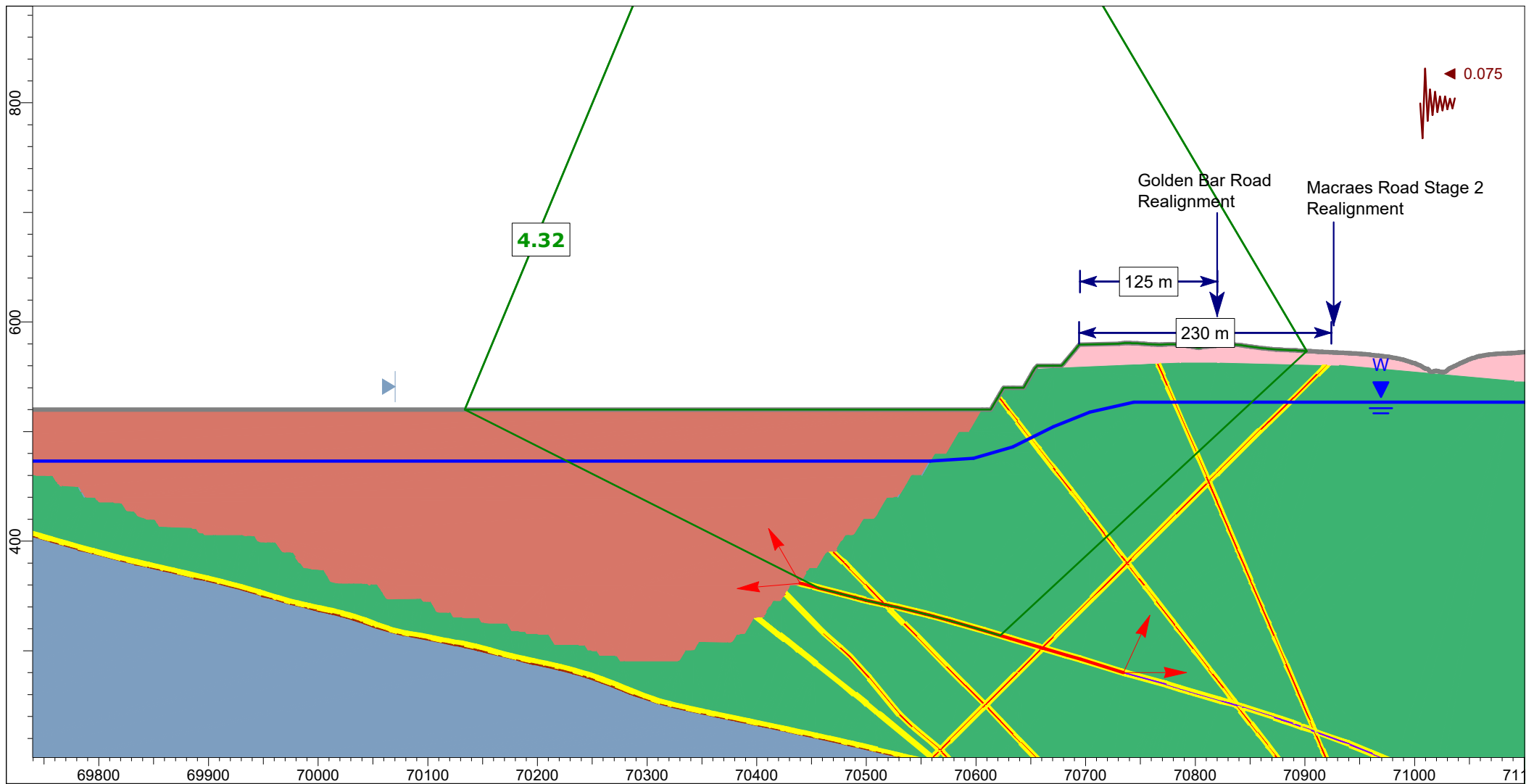


Client:				OceanaGold (New Zealand) Limited			
Project:				Macraes Phase Four Project - Open Pit Extensions			
Location:				IM_OPE_Section 1			
Analysis description:				Mining Hu=1 - OBE Kh=0.5 PGA			
Job No:	PSM71	By:	PSM	Date:	28/07/2026	Method:	GLE / Morgenstern-Price
Scale:		1:5000		Run:		Block	

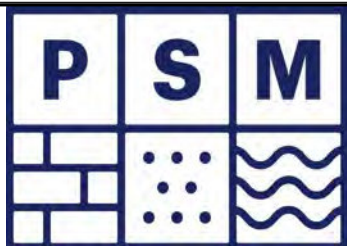
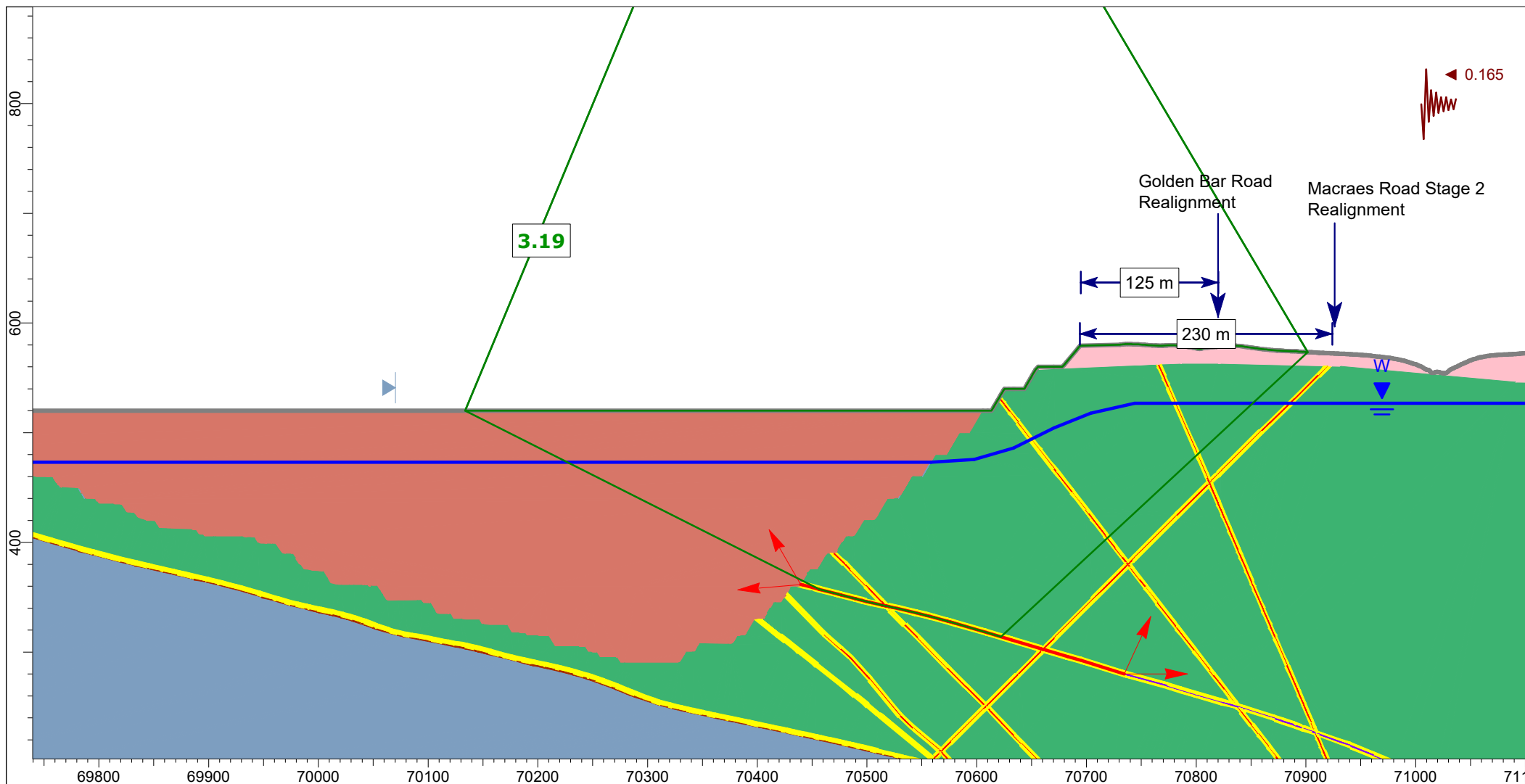


Client:				OceanaGold (New Zealand) Limited			
Project:				Macraes Phase Four Project - Open Pit Extensions			
Location:				IM_OPE_Section 1			
Analysis description:				Mining Hu=1 - OBE Kh=0.8 PGA			
Job No:	PSM71	By:	PSM	Date:	28/07/2026	Method:	GLE / Morgenstern-Price
Scale:		1:5000		Run:		Block	

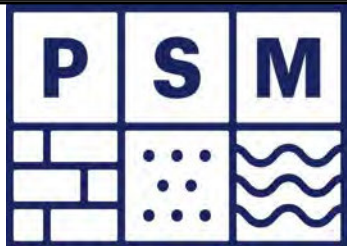
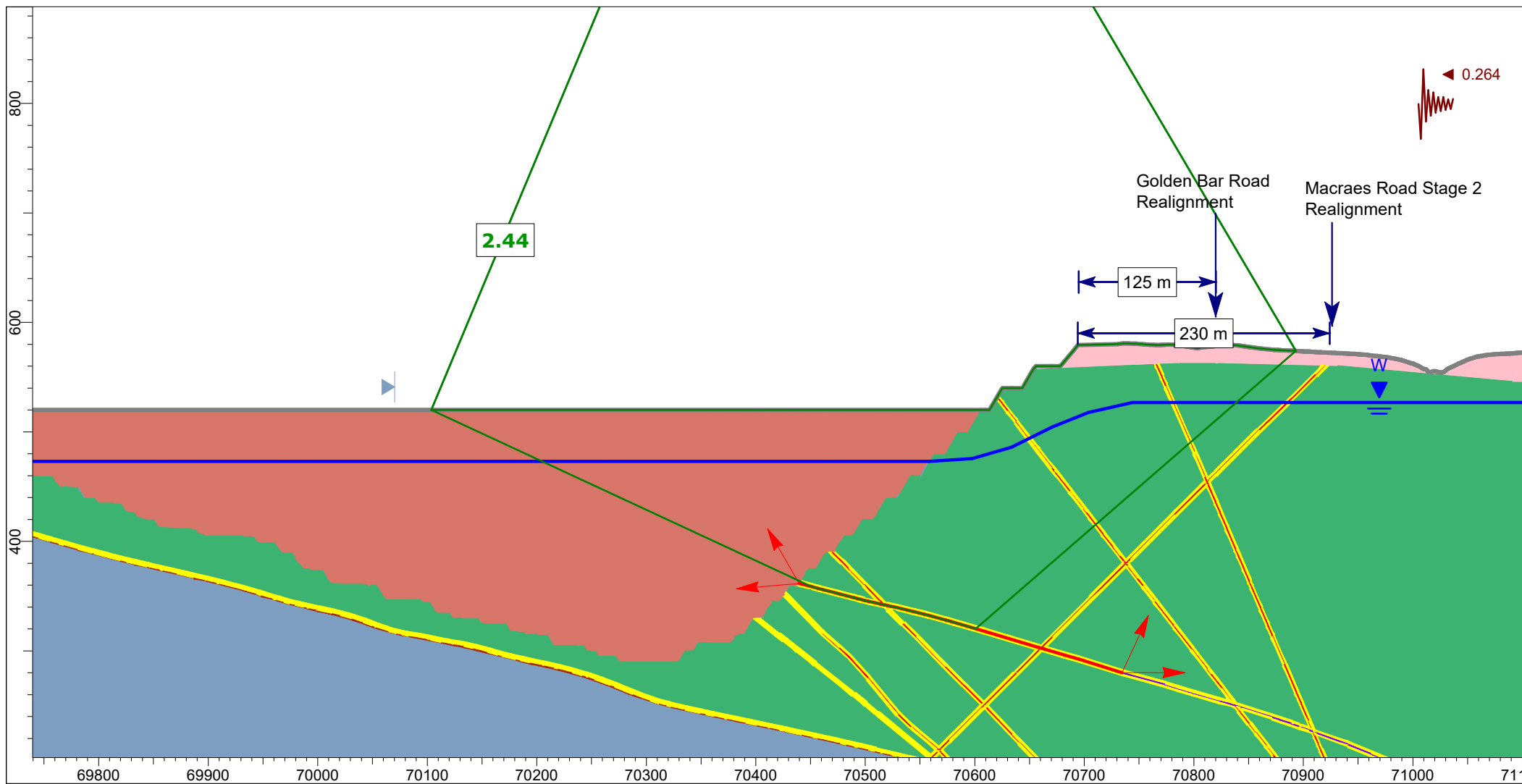




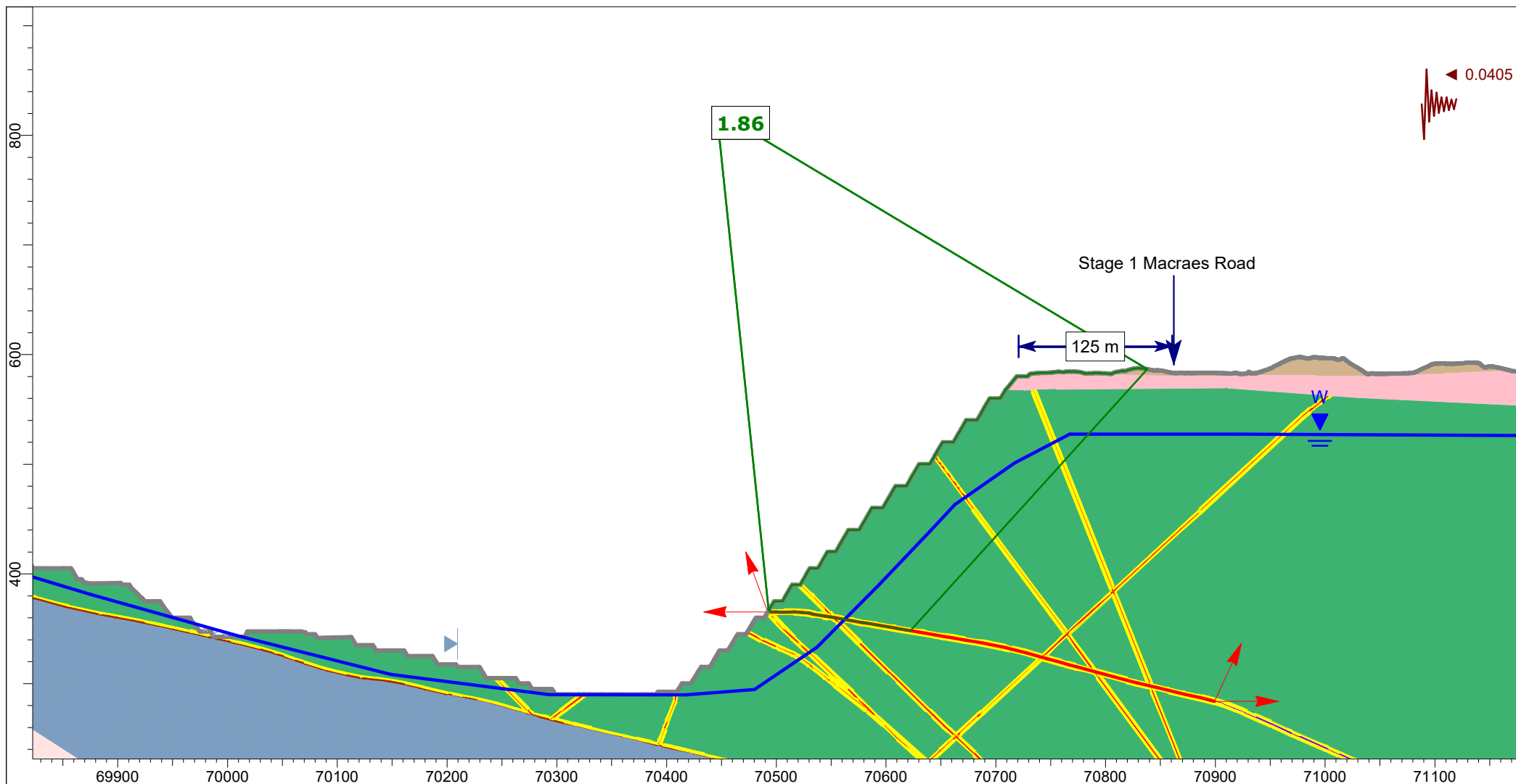
Client:		OceanaGold (New Zealand) Limited			
Project:		Macraes Phase Four Project - Open Pit Extensions			
Location:		IM_OPE_Section 1			
Analysis description:		IMBF3 - Pit Lake 473 mRL, Hu=1 - AEP=1:500, Kh=0.5 PGA			
Job No:	PSM71	By:	PSM	Date:	28/07/2026
Method:		GLE / Morgenstern-Price		Scale:	1:5000
Run:		Block			



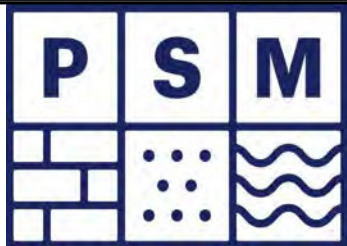
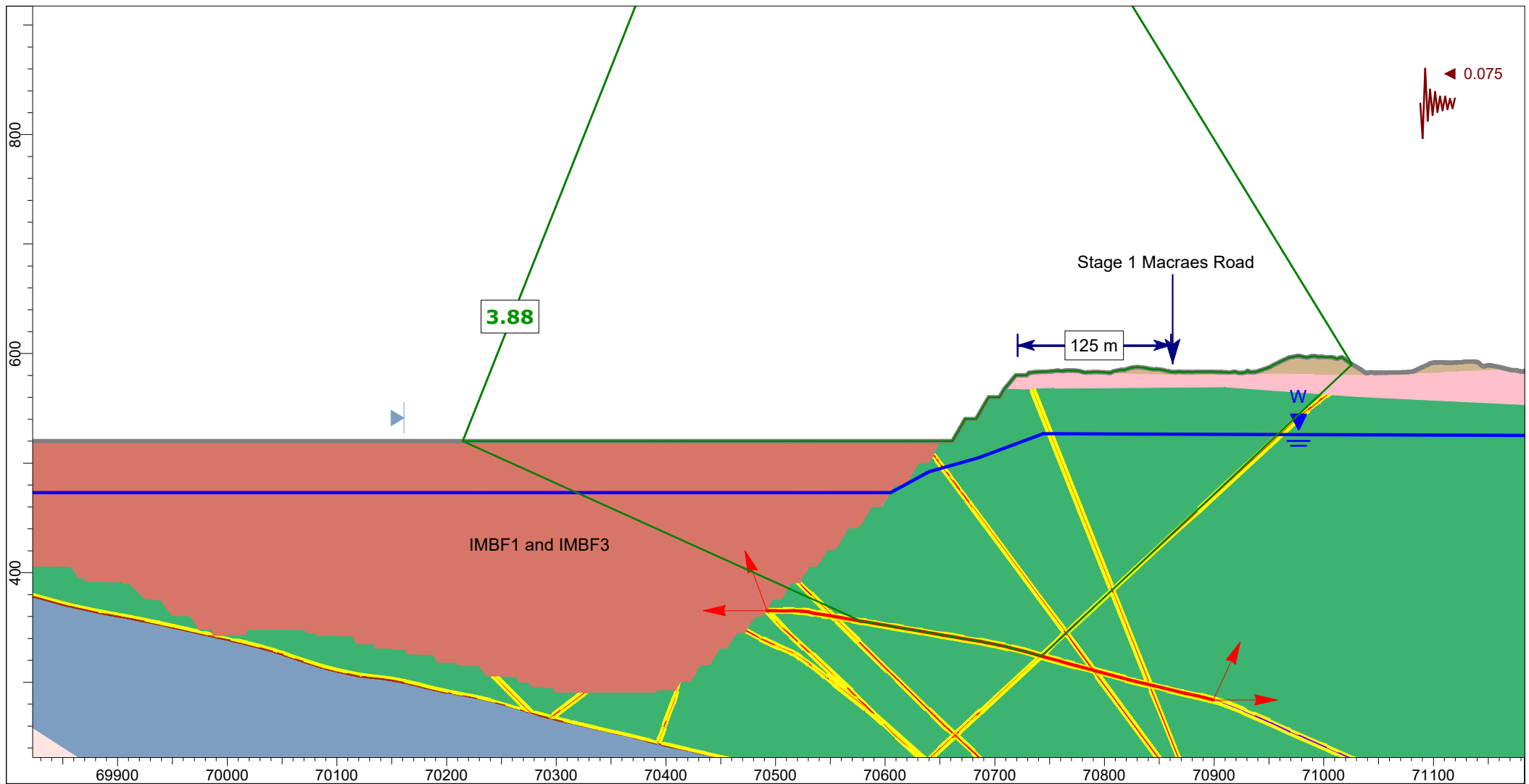
Client:		OceanaGold (New Zealand) Limited			
Project:		Macraes Phase Four Project - Open Pit Extensions			
Location:		IM_OPE_Section 1			
Analysis description:		Closure - Pit Lake 473 mRL, Hu=1 - MDE Kh=0.5 PGA			
Job No:	PSM71	By:	PSM	Date:	28/07/2026
Method:		GLE / Morgenstern-Price		Scale:	1:5000
Run:		Block			



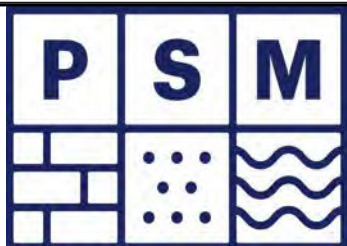
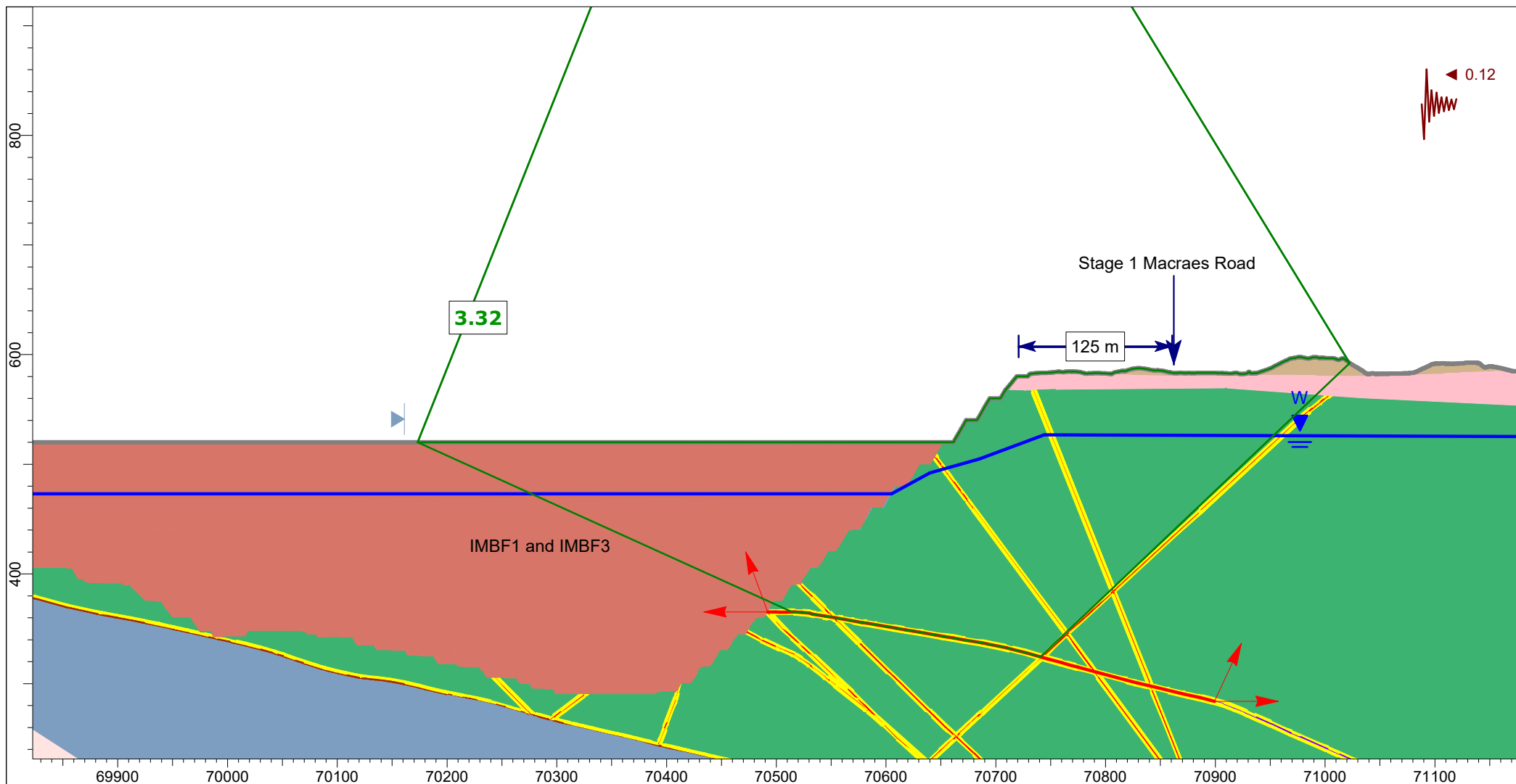
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Project:		Macraes Phase Four Project - Open Pit Extensions			
Location:		IM_OPE_Section 1			
Analysis description:		Closure - Pit Lake 473 mRL, Hu=1 - MDE Kh=0.8 PGA			
Job No:	PSM71	By:	PSM	Date:	28/07/2026
Method:		GLE / Morgenstern-Price		Scale:	1:5000
Run:		Block			



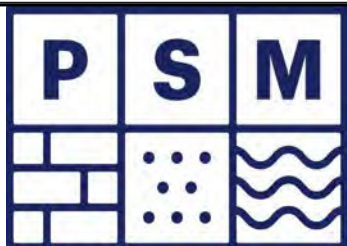
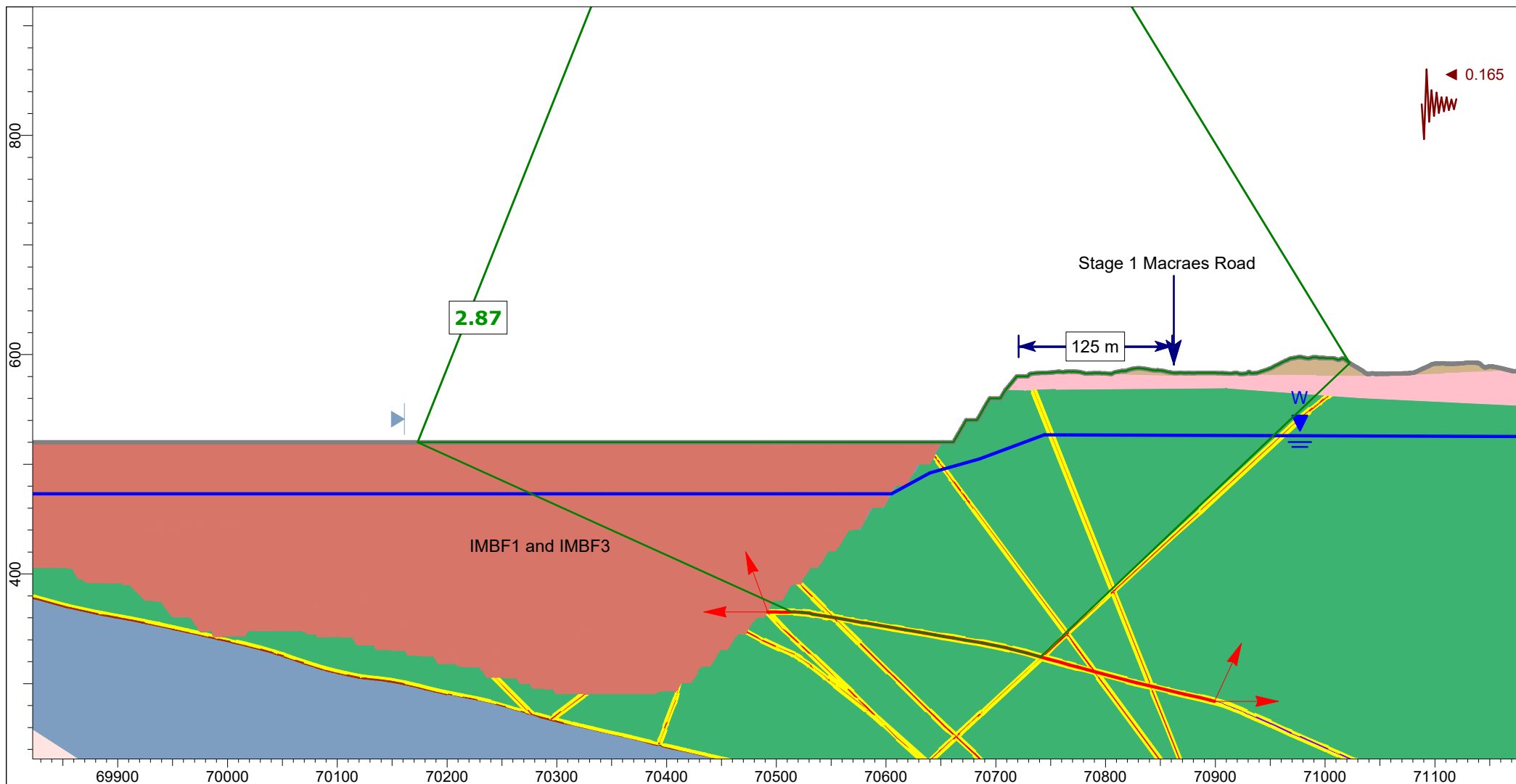
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	Project: Macraes Phase Four Project, Open Pit Extensions										
	Location: IM_OPE_Section 2										
	Analysis description: Mining, Hu=1 - OBE Kh=0.5 PGA										
	Job No:	PSM71	By:	PSM	Date:	28/07/2026	Method:	GLE / Morgenstern-Price	Scale:	1:5000	Run:



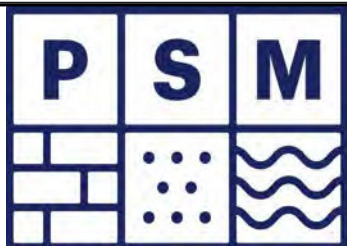
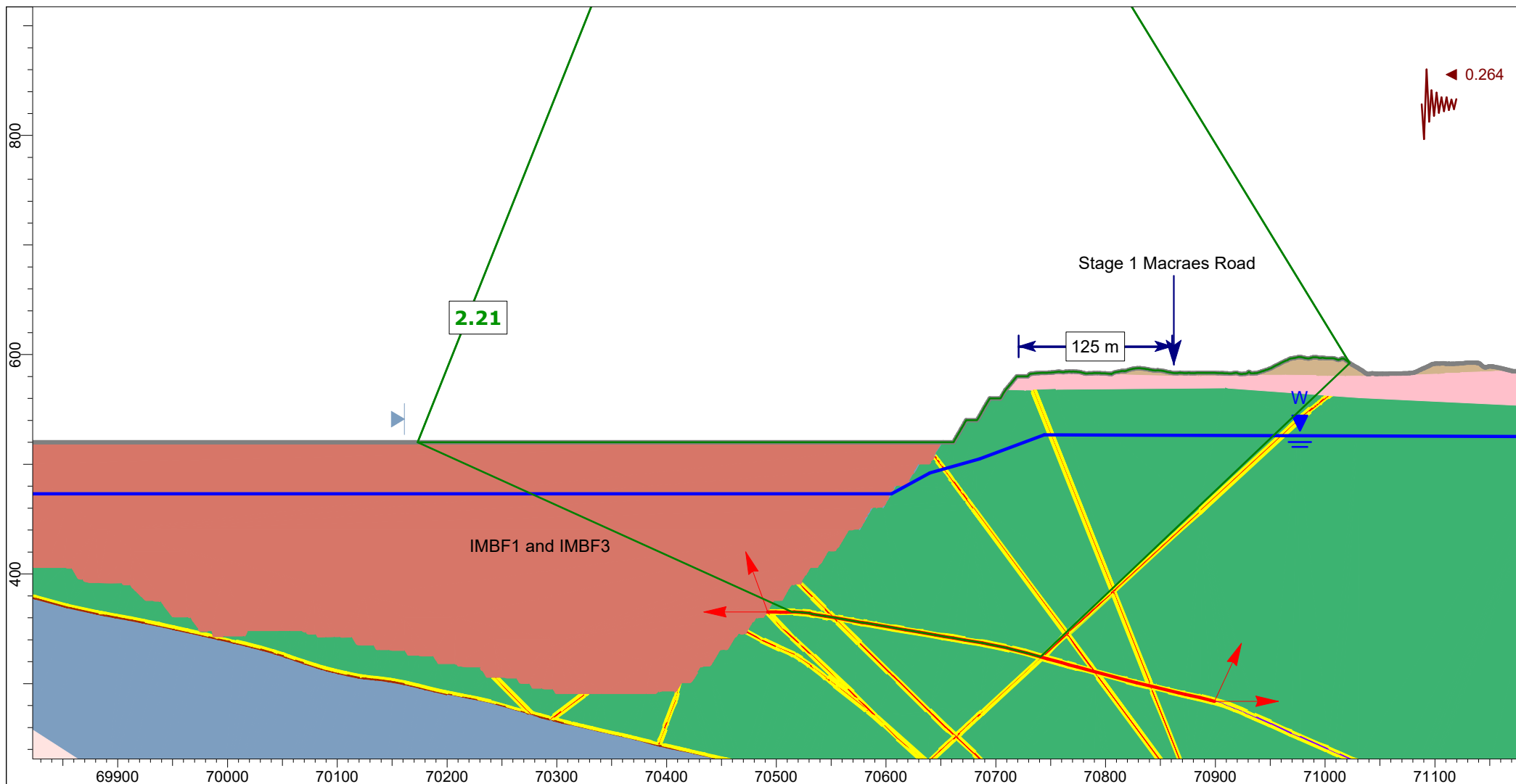
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Project:		Macraes Phase Four Project, Open Pit Extensions			
Location:		IM_OPE_Section 2			
Analysis description:		IMBF3 - Pit Lake 473 mRL, Hu=1 - AEP=1:500, Kh=0.5 PGA			
Job No:	PSM71	By:	PSM	Date:	28/07/2026
Method:		GLE / Morgenstern-Price		Scale:	1:5000
Run:		Block			



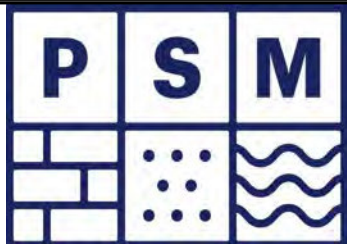
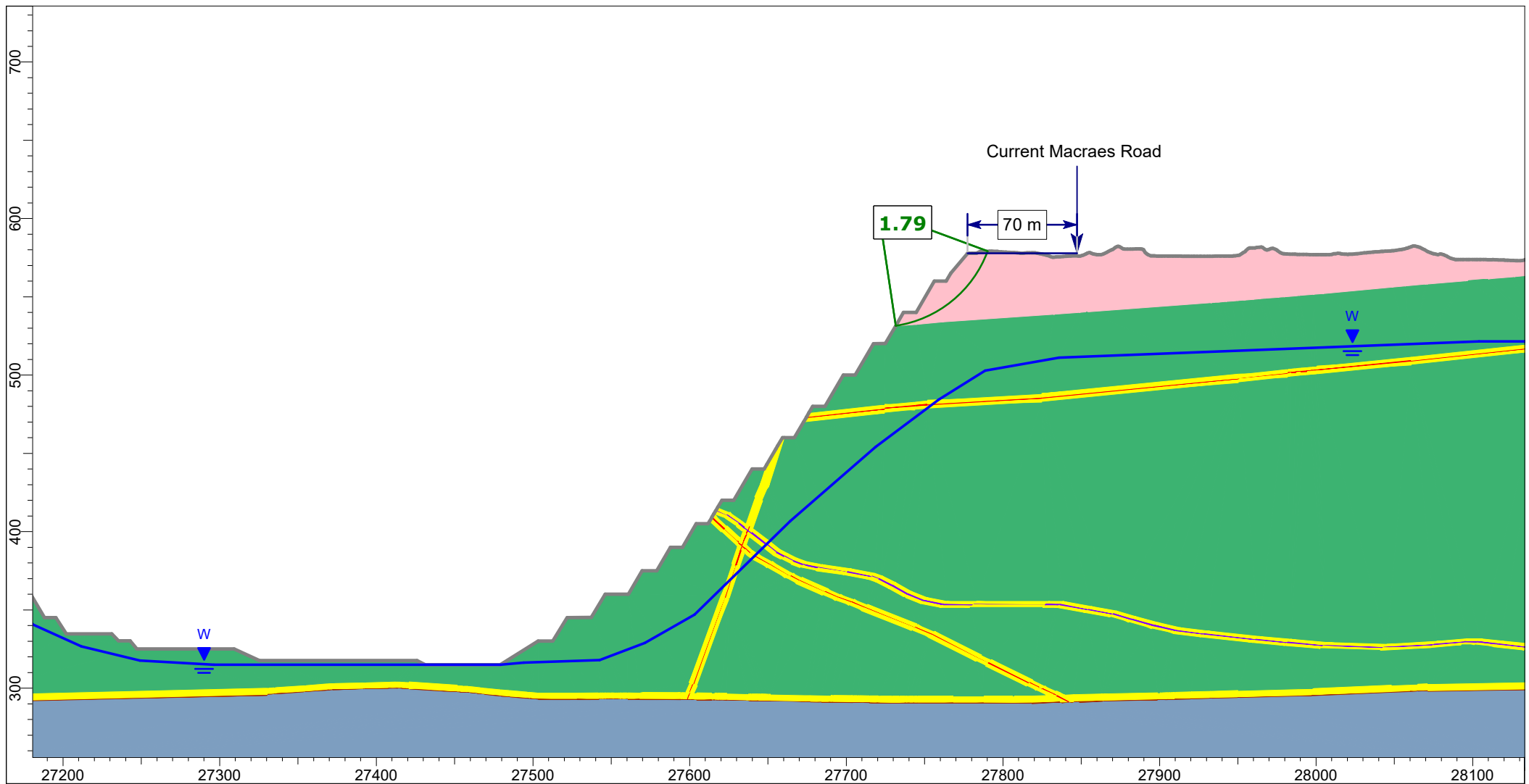
Client:		OceanaGold (New Zealand) Limited			
Project:		Macraes Phase Four Project, Open Pit Extensions			
Location:		IM_OPE_Section 2			
Analysis description:		IMBF3 - Pit Lake 473 mRL, Hu=1 - AEP=1:500, Kh=0.8 PGA			
Job No:	PSM71	By:	PSM	Date:	28/07/2026
Method:		GLE / Morgenstern-Price		Scale:	1:5000
Run:		Block			



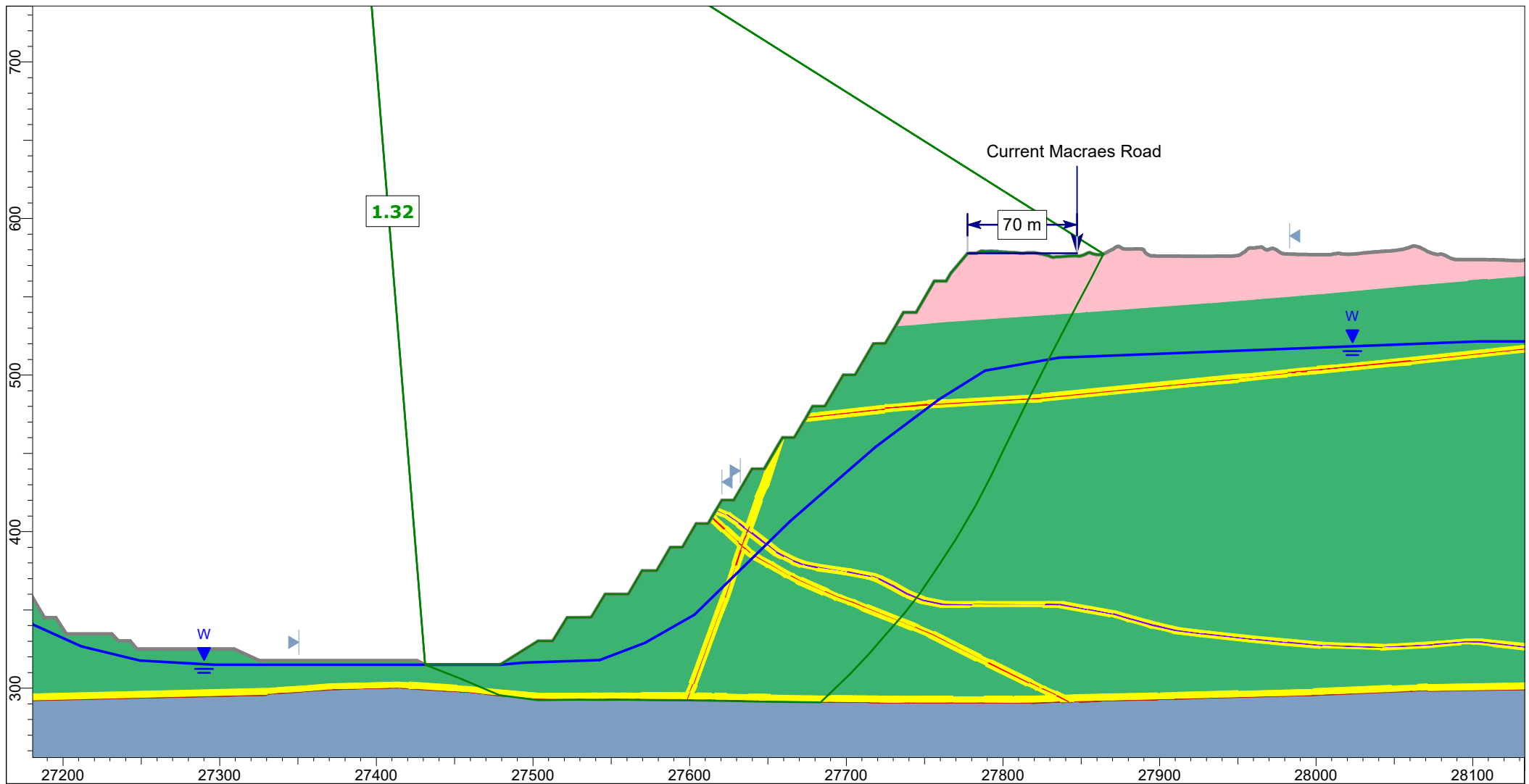
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Project:				Macraes Phase Four Project, Open Pit Extensions			
Location:				IM_OPE_Section 2			
Analysis description:				Closure - Pit Lake 473 mRL - MDE Kh=0.5 PGA			
Job No:	PSM71	By:	PSM	Date:	28/07/2026	Method:	GLE / Morgenstern-Price
Scale:		1:5000		Run:		Block	



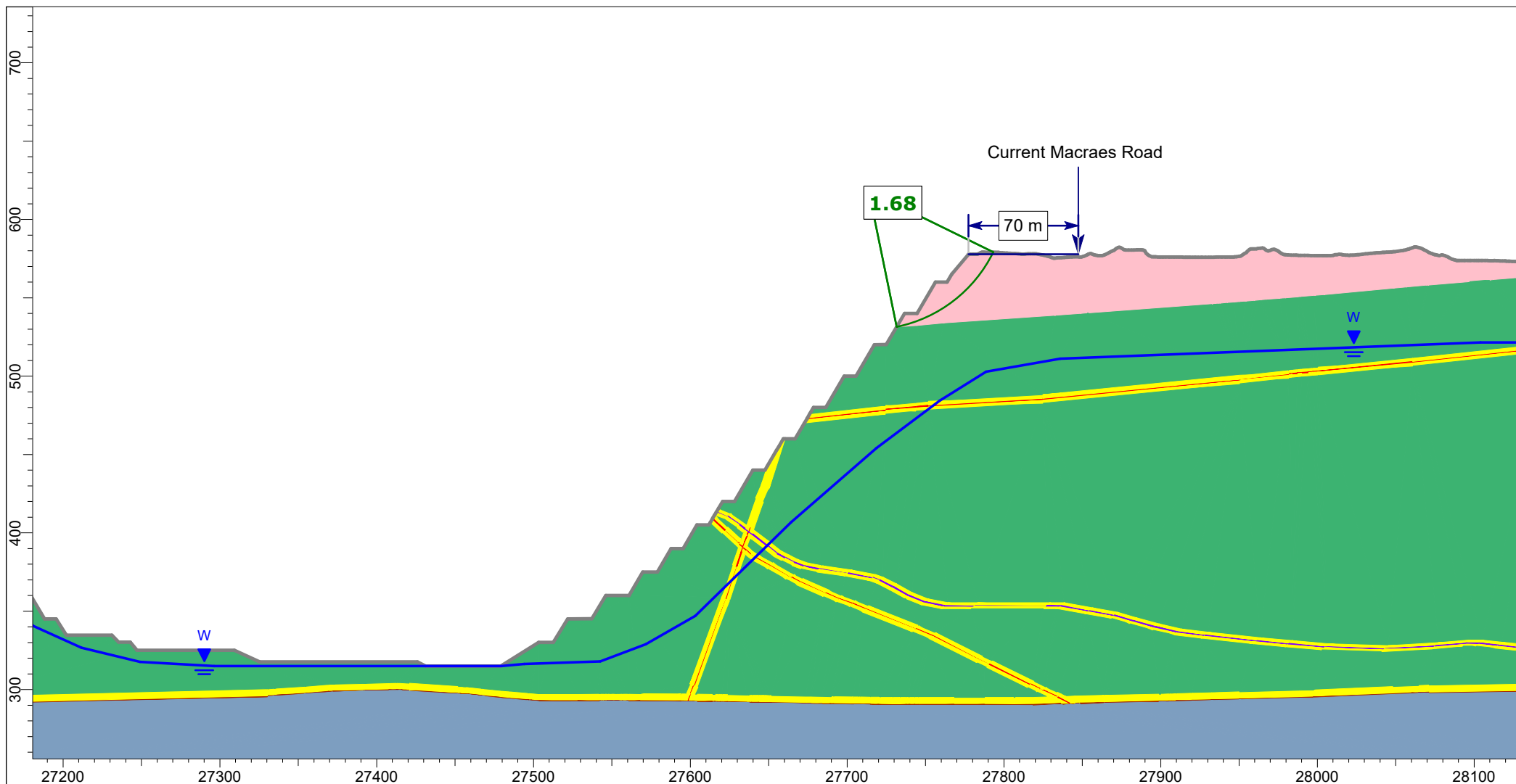
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Project:		Macraes Phase Four Project, Open Pit Extensions			
Location:		IM_OPE_Section 2			
Analysis description:		Closure - Pit Lake 473 mRL - MDE Kh=0.8 PGA			
Job No:	PSM71	By:	PSM	Date:	28/07/2026
Method:		GLE / Morgenstern-Price		Scale:	1:5000
Run:		Block			



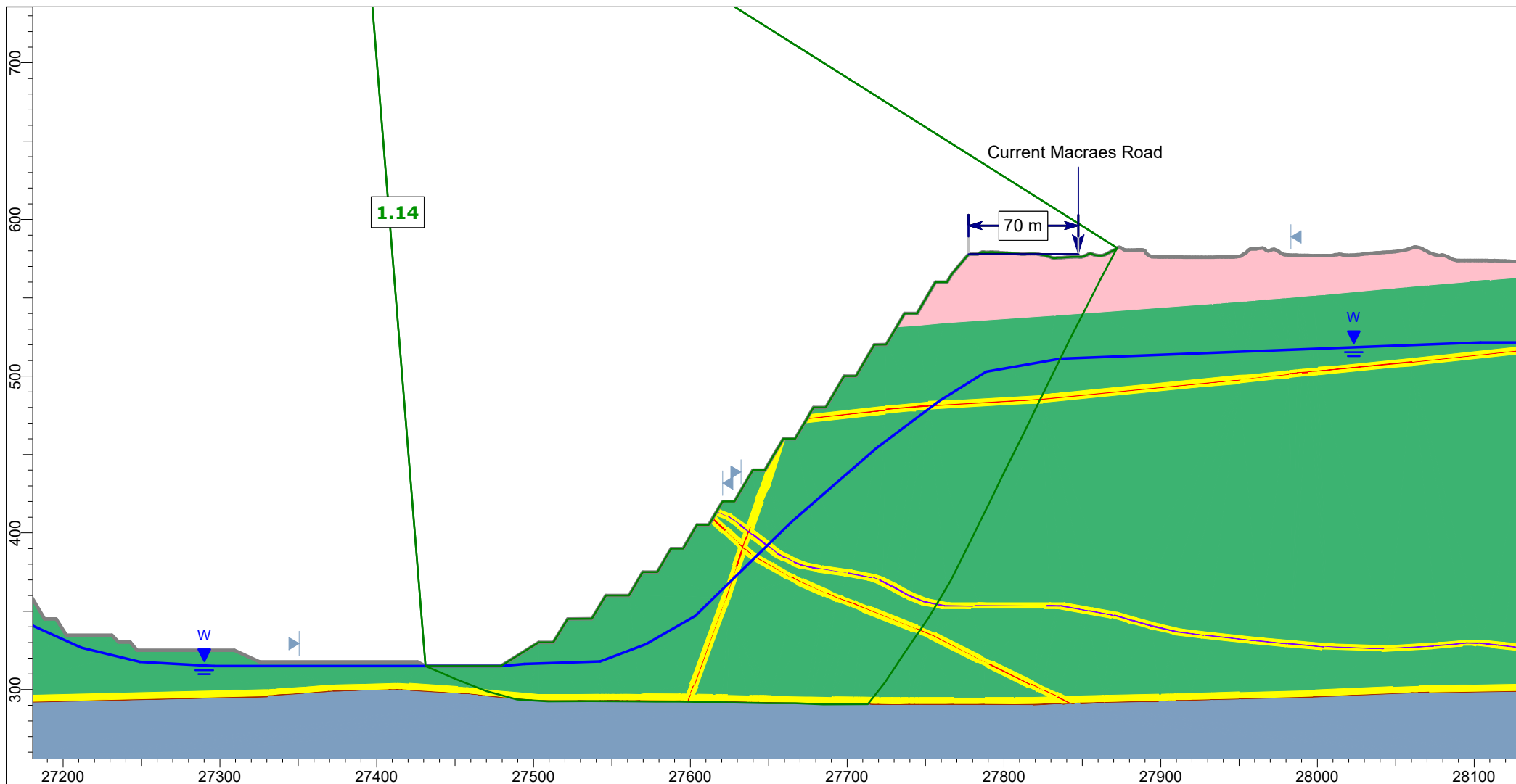
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Project:		Macraes Phase Four Projcet, Open Pit Extensions			
Location:		IM_OPE_Section 3			
Analysis description:		IM12 Mining Hu=1.0 - Static			
Job No:	PSM71	By:	PSM	Date:	28/07/2026
Method:		GLE / Morgenstern-Price		Scale:	1:3500
Run:		Circular			



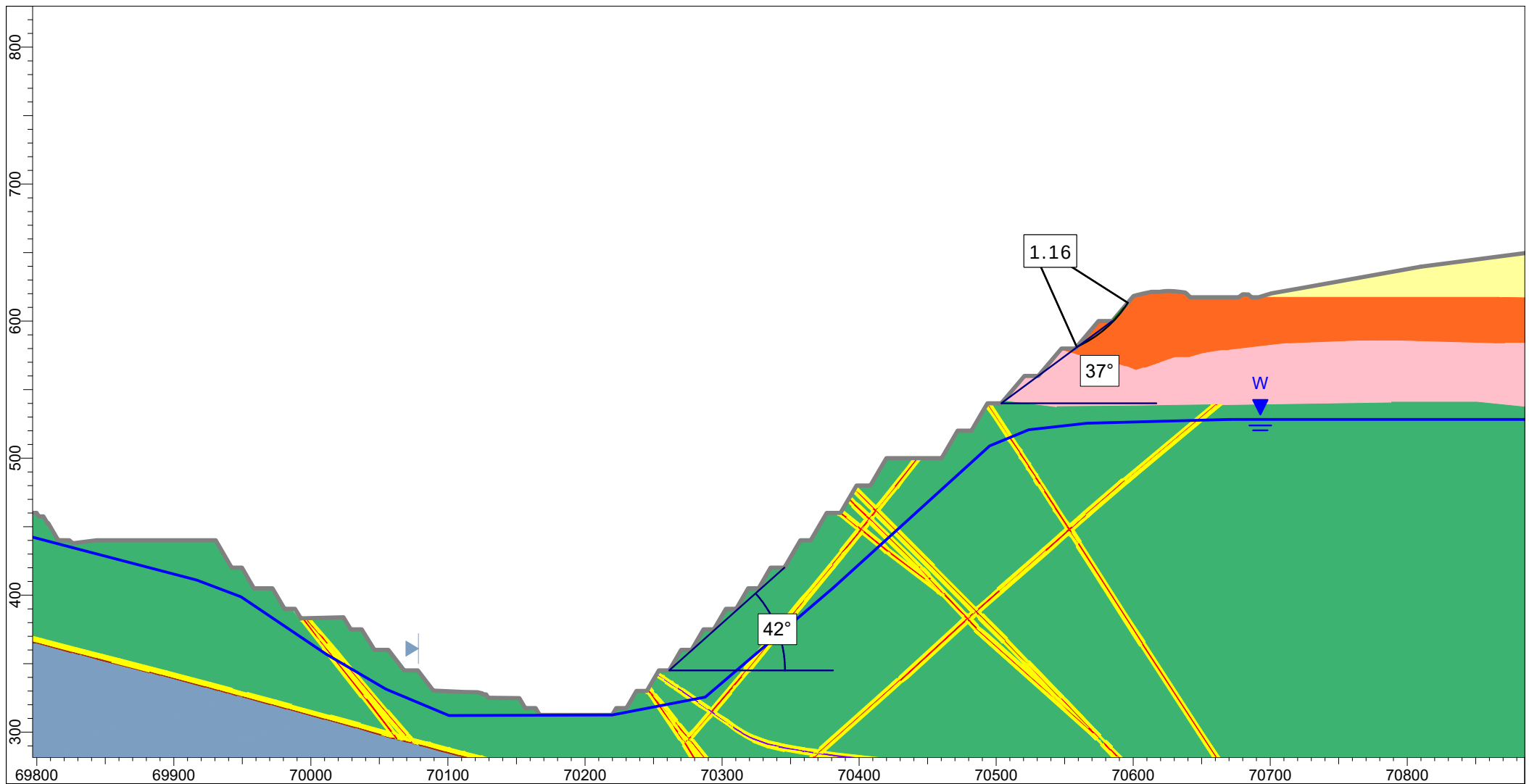
P S M	Client: OceanaGold (New Zealand) Limited					
	Project: Macraes Phase Four Projcet, Open Pit Extensions					
	Location: IM_OPE_Section 3					
	Analysis description: IM12 Mining Hu=1.0 - Static					
	Job No: PSM71	By: PSM	Date: 28/07/2026	Method: GLE / Morgenstern-Price	Scale: 1:3500	Run: Auto Refine, Non-circular



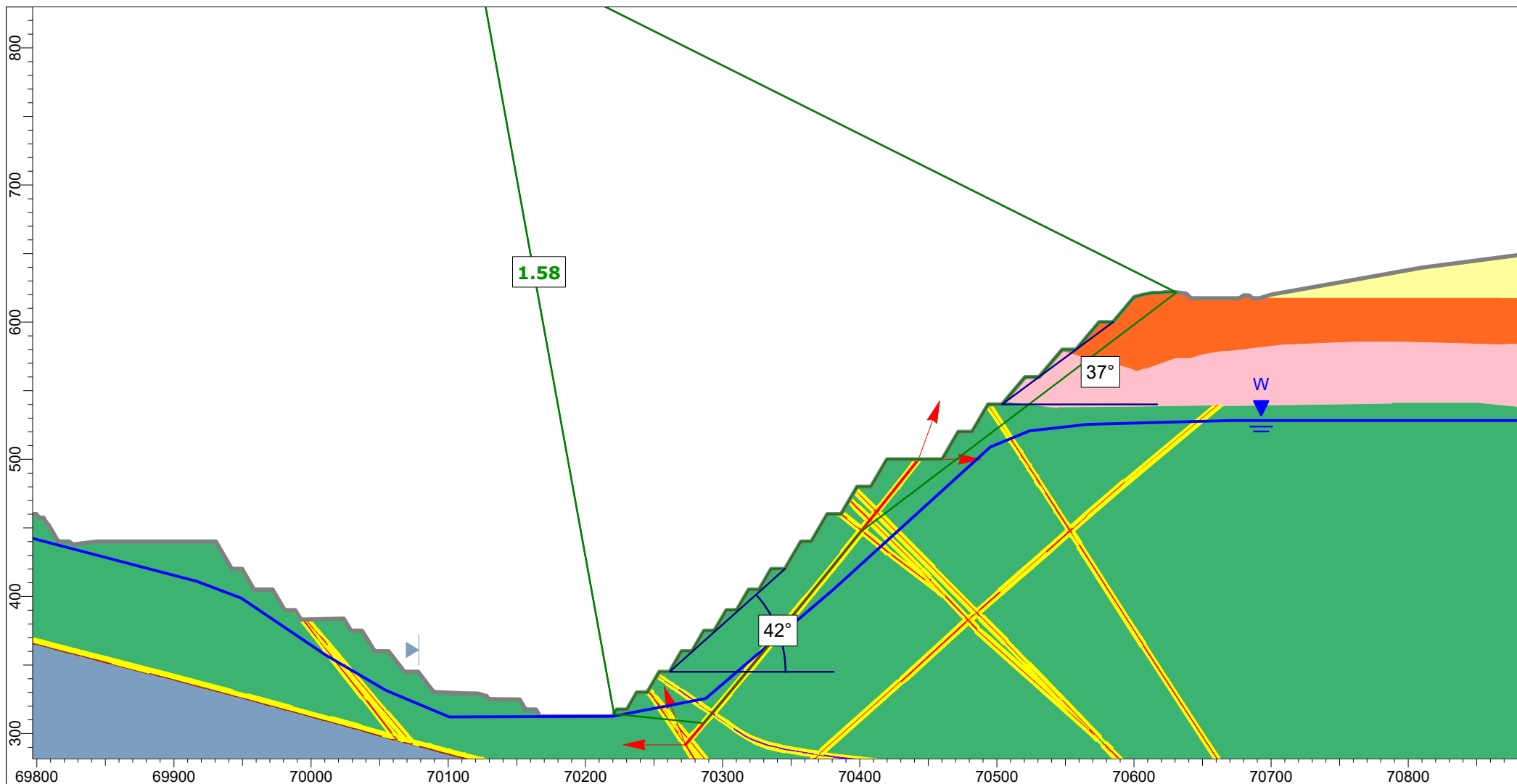
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	Project: Macraes Phase Four Projcet, Open Pit Extensions					
	Location: IM_OPE_Section 3					
	Analysis description: IM12 Mining Hu=1.0, OBE Kh=0.5 PGA					
	Job No: PSM71	By: PSM	Date: 28/07/2026	Method: GLE / Morgenstern-Price	Scale: 1:3500	Run: Circular



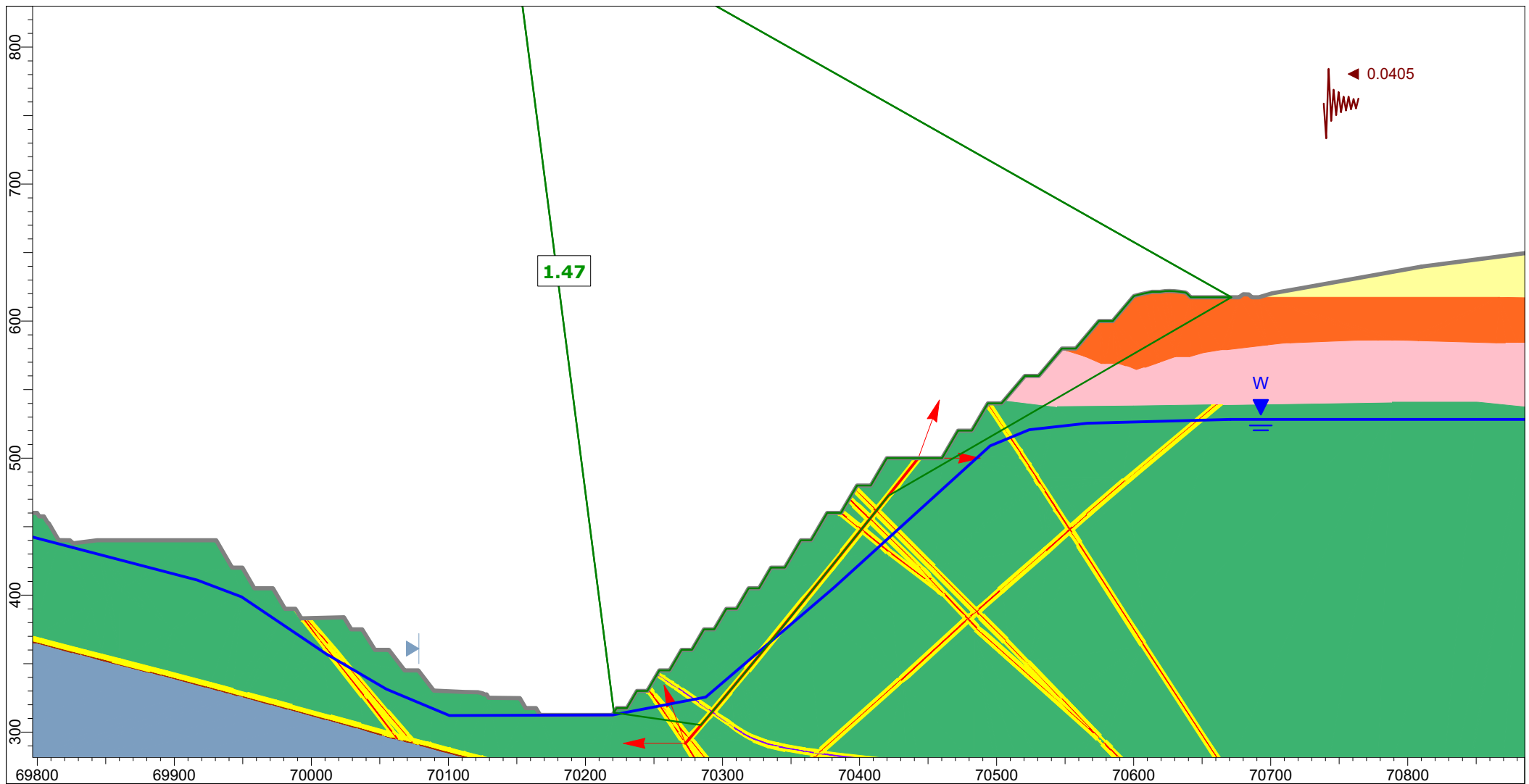
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	Project: Macraes Phase Four Projcet, Open Pit Extensions					
	Location: IM_OPE_Section 3					
	Analysis description: IM12 Mining Hu=1.0, OBE Kh=0.5 PGA					
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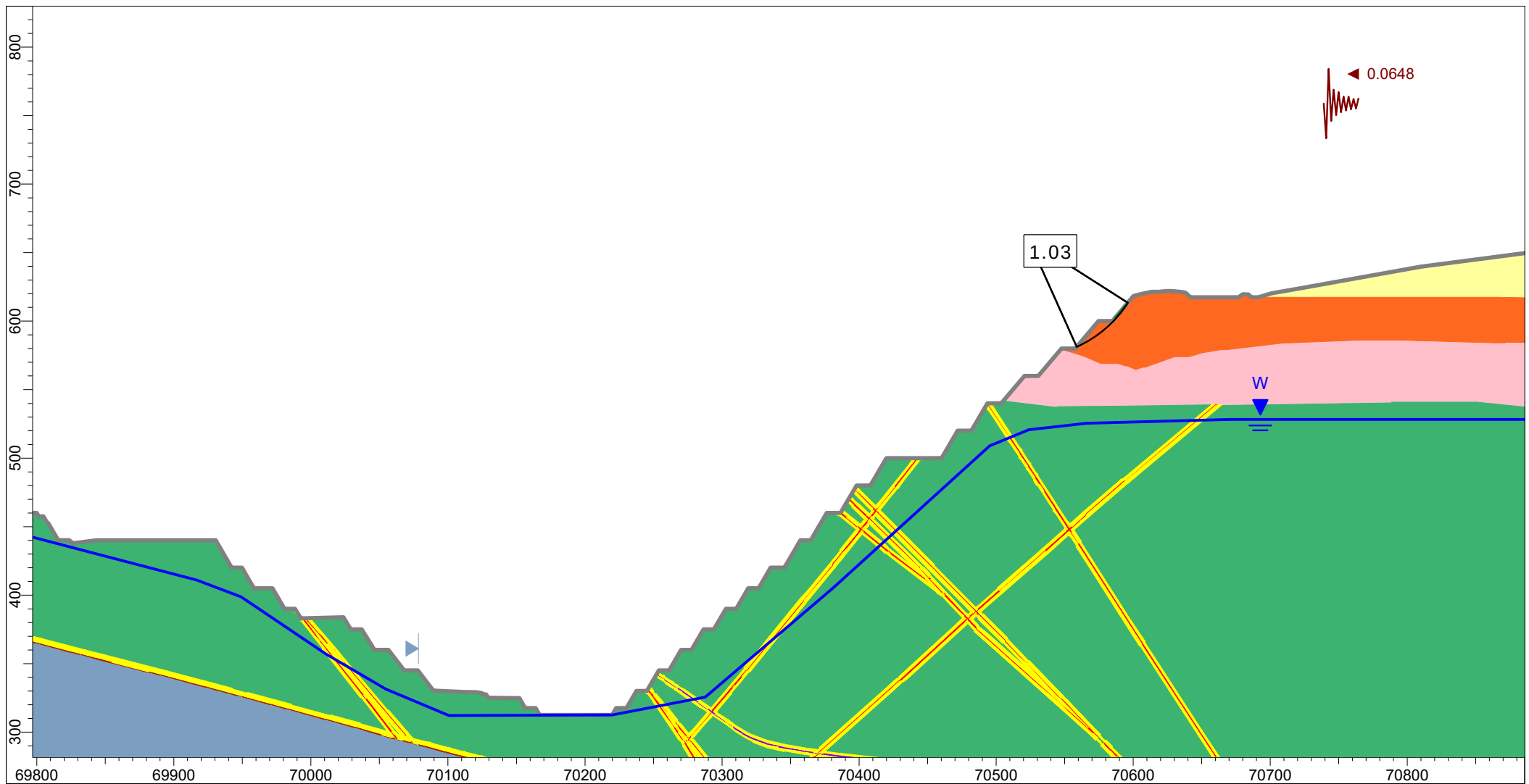
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	Location: IM_OPE_Section 4					
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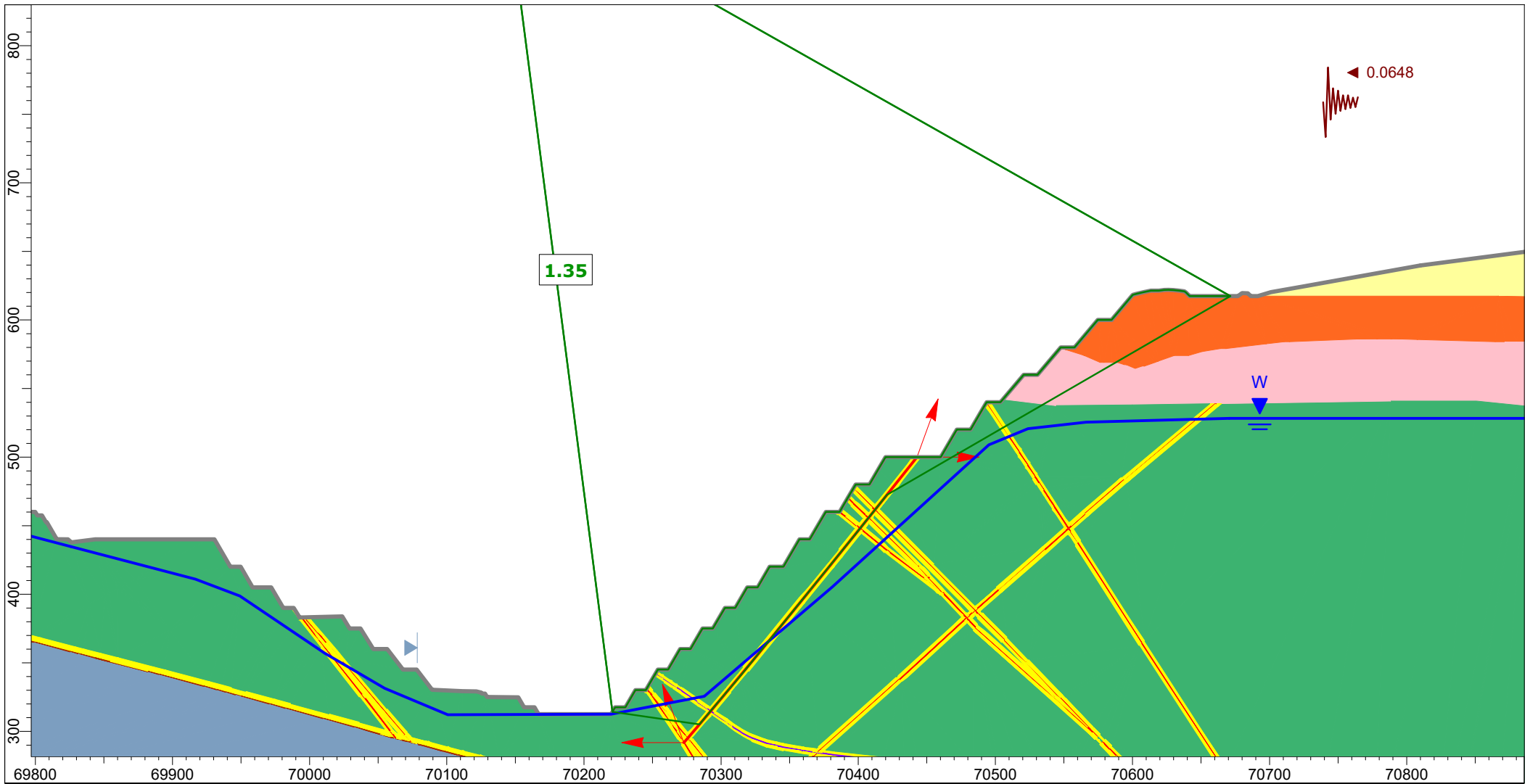
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	Project: Macraes Phase Four Project, Open Pit Extensions					
	Location: IM_OPE_Section 4					
	Analysis description: Mining Hu=1.0 - Static					
	Job No: PSM71	By: PSM	Date: 28/07/2026	Method: GLE / Morgenstern-Price	Scale: 1:4000	Run: Block



P S M	Client: OceanaGold (New Zealand) Limited					
	Project: Macraes Phase Four Project, Open Pit Extensions					
	Location: IM_OPE_Section 4					
	Analysis description: Mining Hu=1.0 - OBE Kh=0.5 PGA					
	Job No: PSM71	By: PSM	Date: 28/07/2026	Method: GLE / Morgenstern-Price	Scale: 1:4000	Run: Block



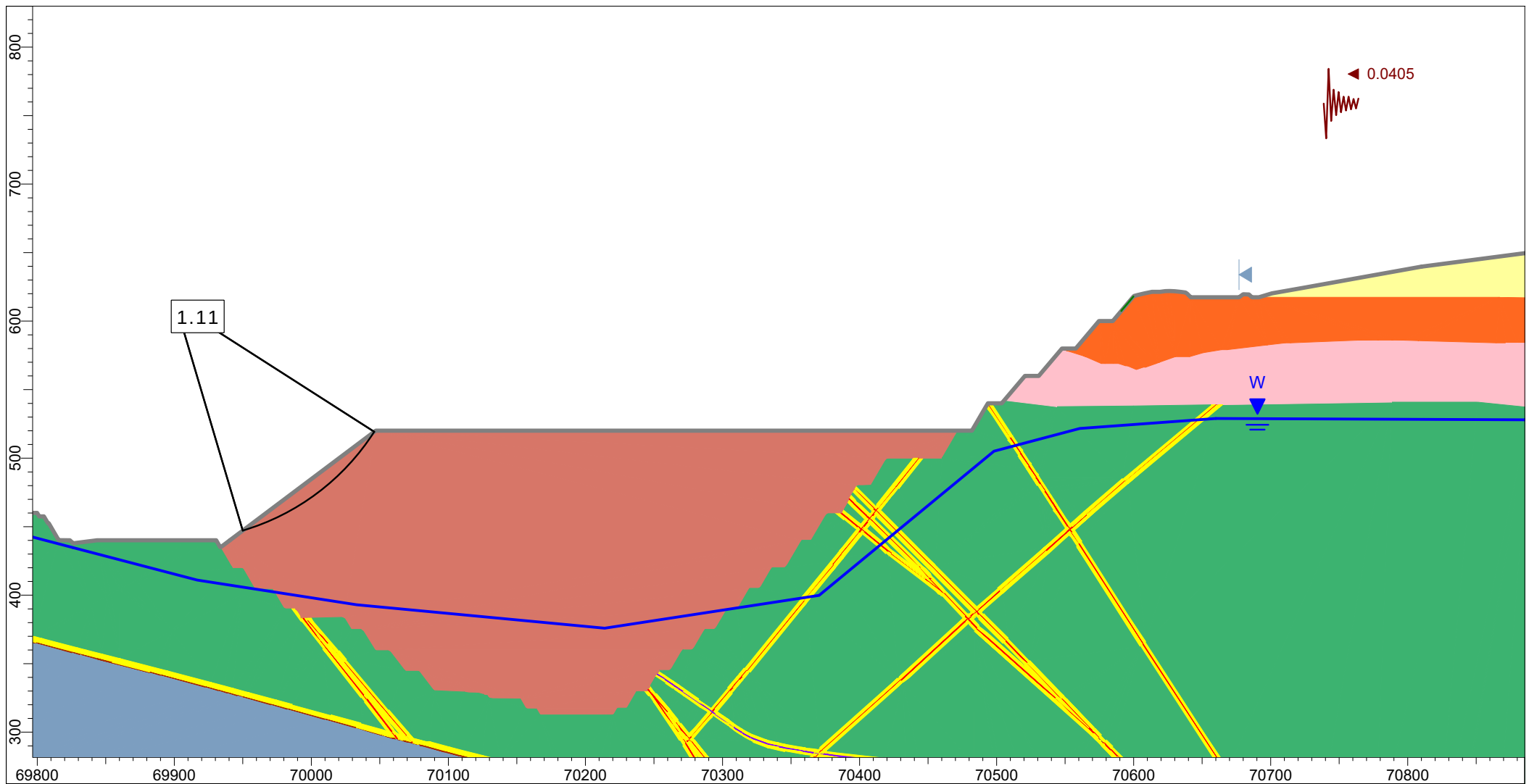
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			Project: Macraes Phase Four Project, Open Pit Extensions					
			Location: IM_OPE_Section 4					
			Analysis description: Mining Hu=1.0 - OBE Kh=0.8 PGA					
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			Method: GLE / Morgenstern-Price				Scale:	1:4000
							Run:	Circular



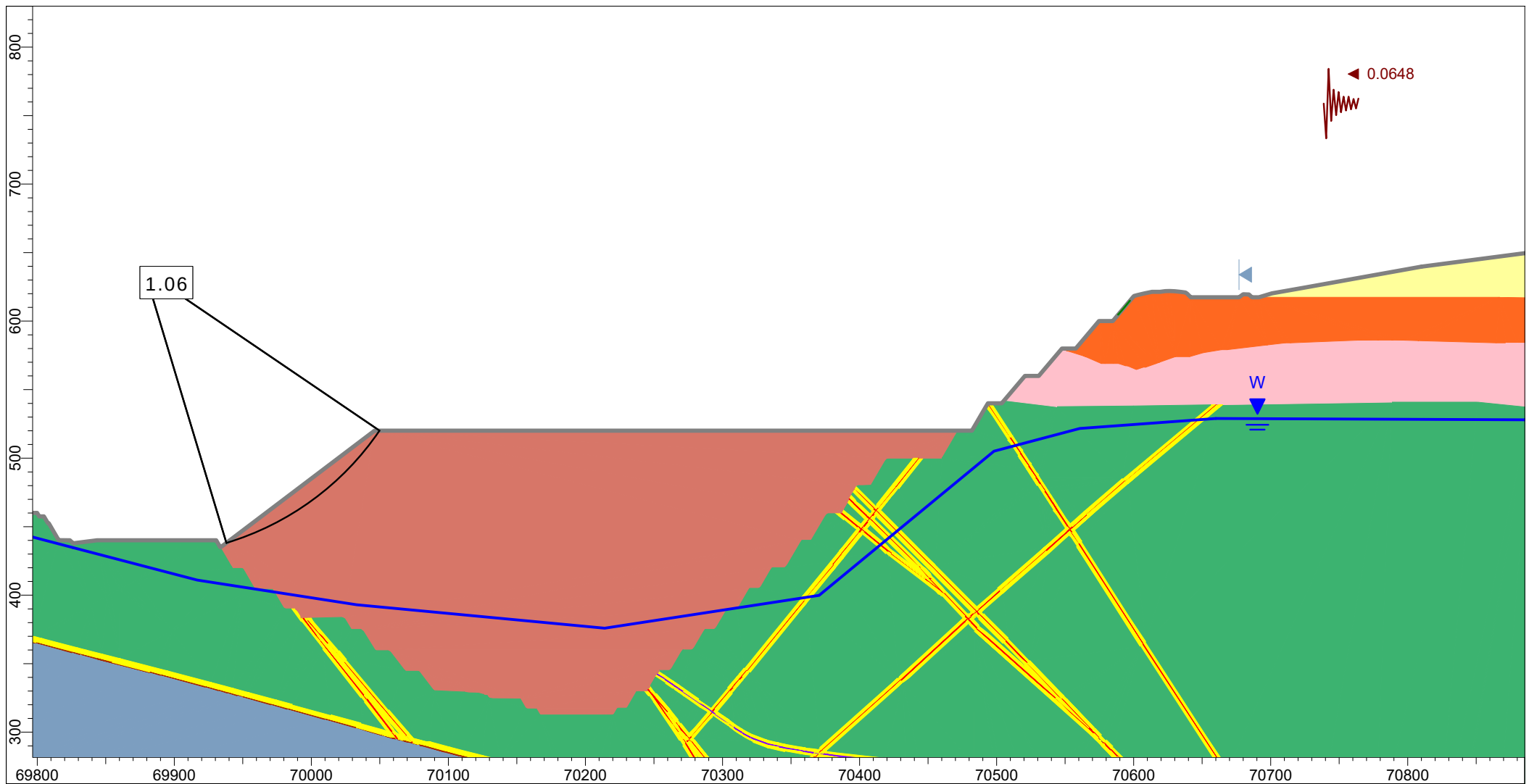
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	Project: Macraes Phase Four Project, Open Pit Extensions										
	Location: IM_OPE_Section 4										
	Analysis description: Mining Hu=1.0 - OBE Kh=0.8 PGA										
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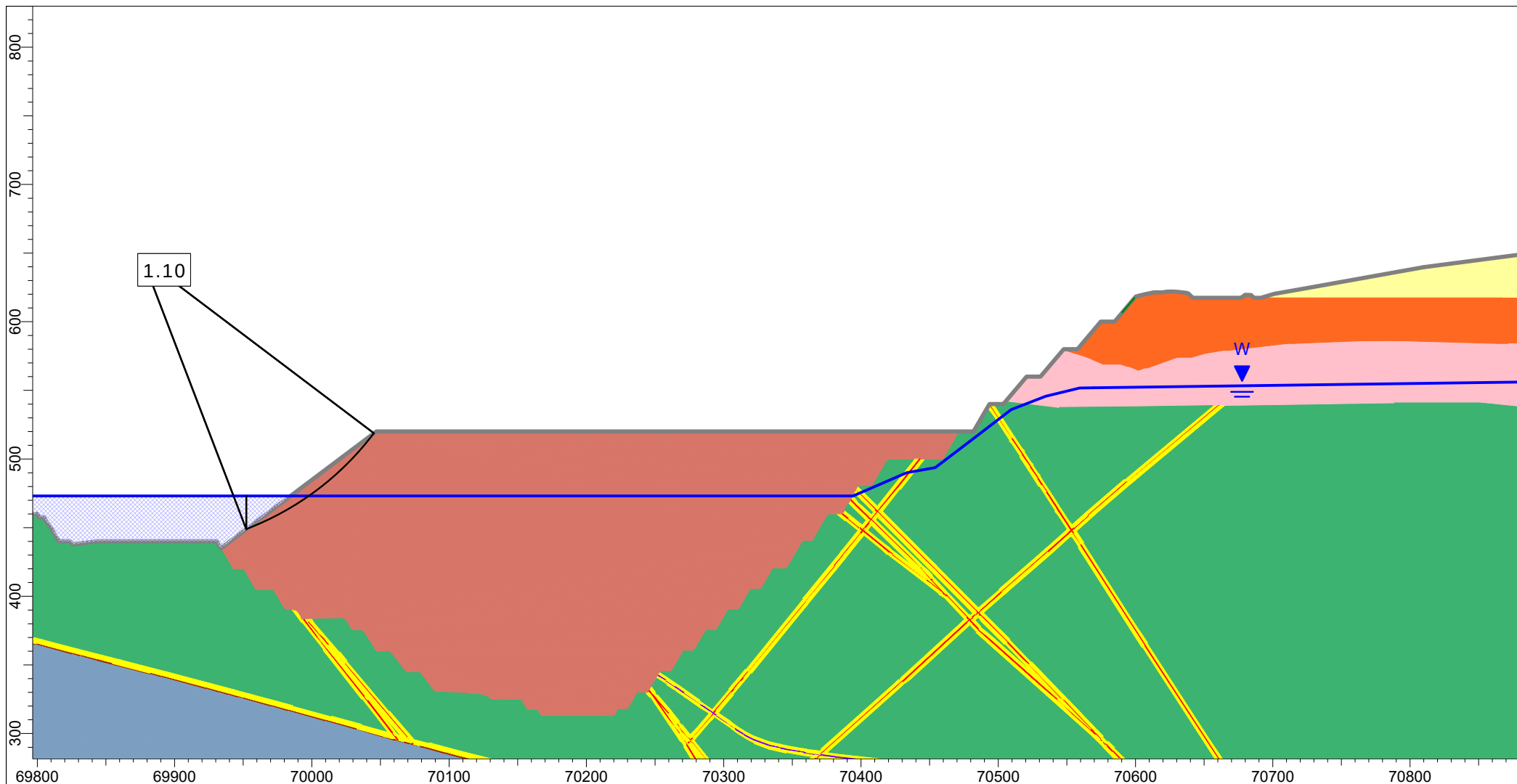
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	Project: Macraes Phase Four Project, Open Pit Extensions										
	Location: IM_OPE_Section 4										
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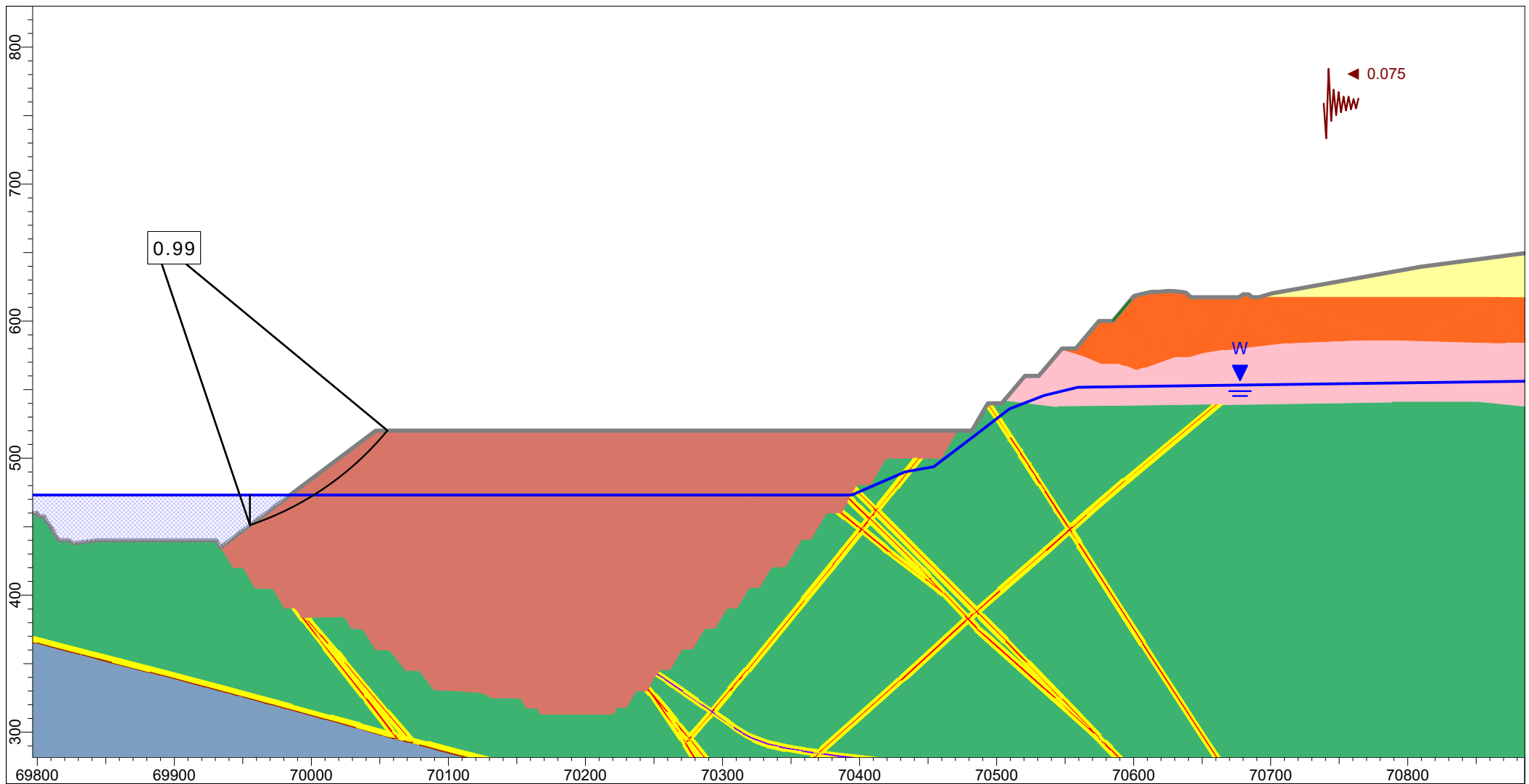
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	Project: Macraes Phase Four Project, Open Pit Extensions					
	Location: IM_OPE_Section 4					
	Analysis description: Mining IMBF3 Hu=1.0 - OBE Kh=0.5 PGA					
	Job No: PSM71	By: PSM	Date: 28/07/2026	Method: GLE / Morgenstern-Price	Scale: 1:4000	Run: Circular



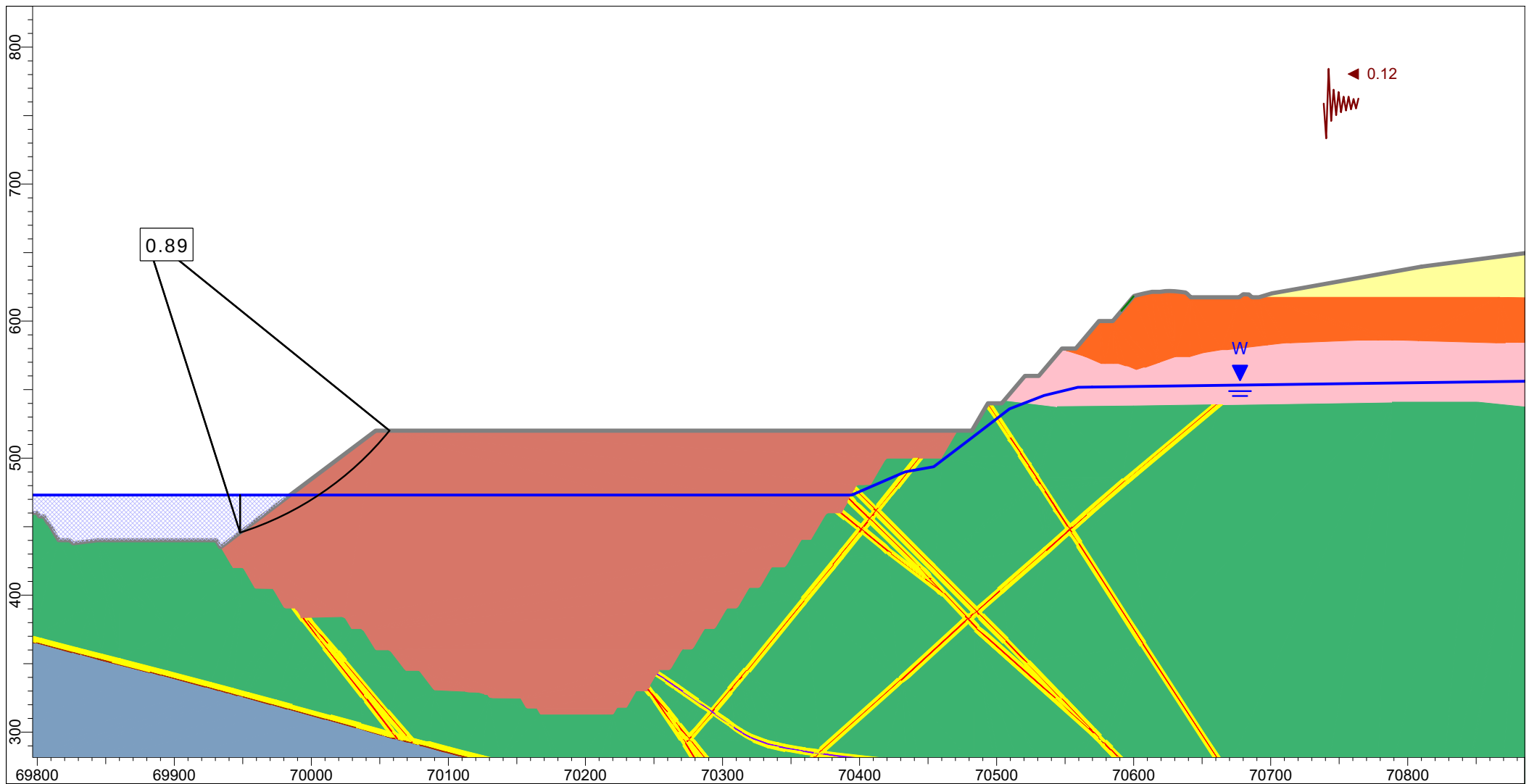
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	Location: IM_OPE_Section 4					
	Analysis description: Mining IMBF3 Hu=1.0 - OBE Kh=0.8 PGA					
	Job No: PSM71	By: PSM	Date: 28/07/2026	Method: GLE / Morgenstern-Price	Scale: 1:4000	Run: Circular



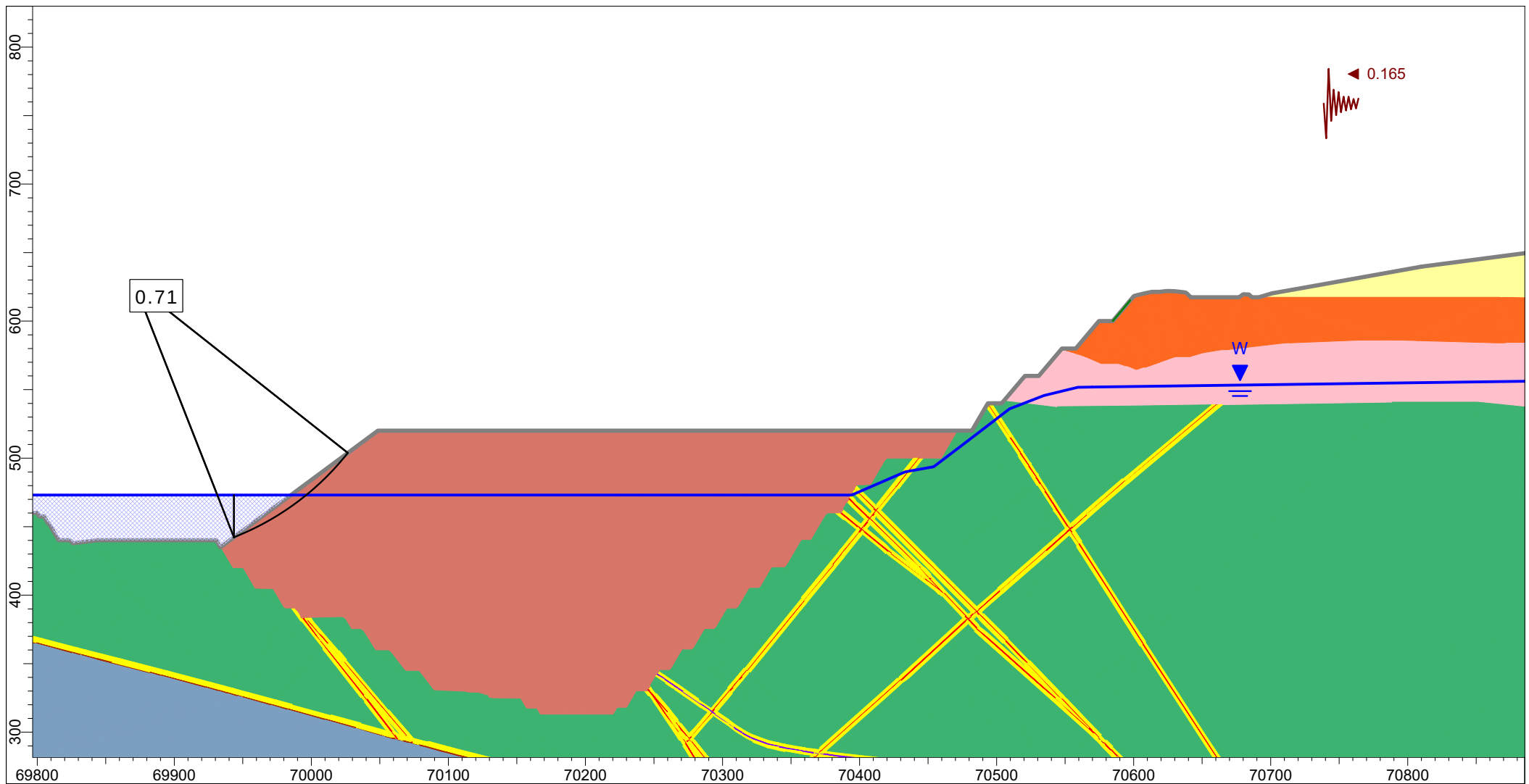
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	Project: Macraes Phase Four Project, Open Pit Extensions						
	Location: IM_OPE_Section 4						
	Analysis description: Lake Filling 473 mRL - Static						
	Job No: PSM71	By: PSM	Date: 28/07/2026	Method: GLE / Morgenstern-Price	Scale: 1:4000	Run: Circular	



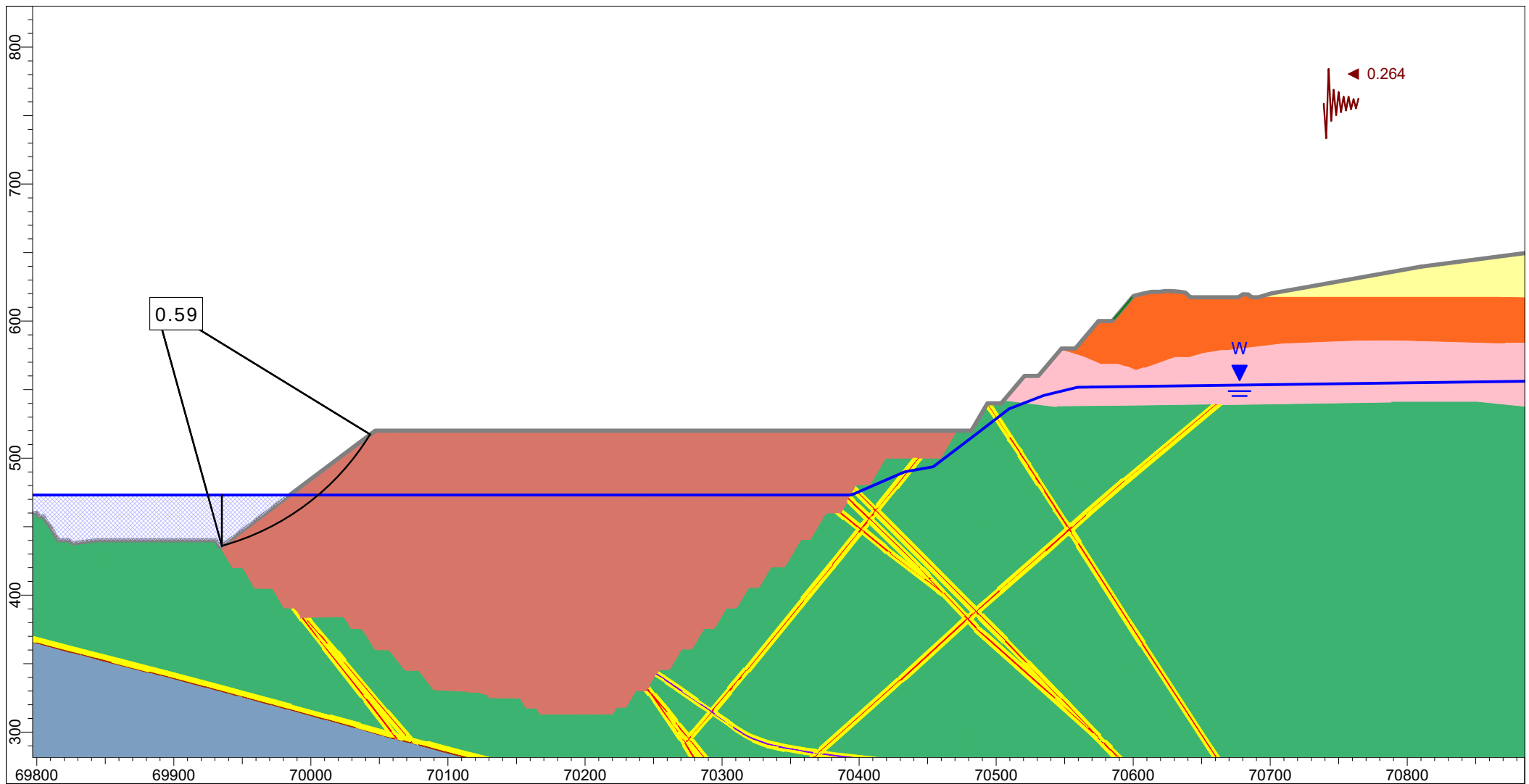
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	Project: Macraes Phase Four Project, Open Pit Extensions						
	Location: IM_OPE_Section 4						
	Analysis description: Lake Filling 473 mRL - AEP=1:500, Kh=0.5 PGA						
	Job No: PSM71	By: PSM	Date: 28/07/2026	Method: GLE / Morgenstern-Price	Scale: 1:4000	Run: Circular	



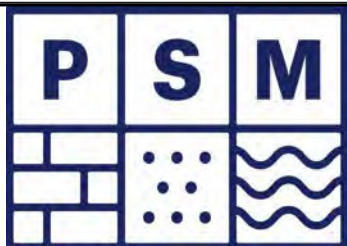
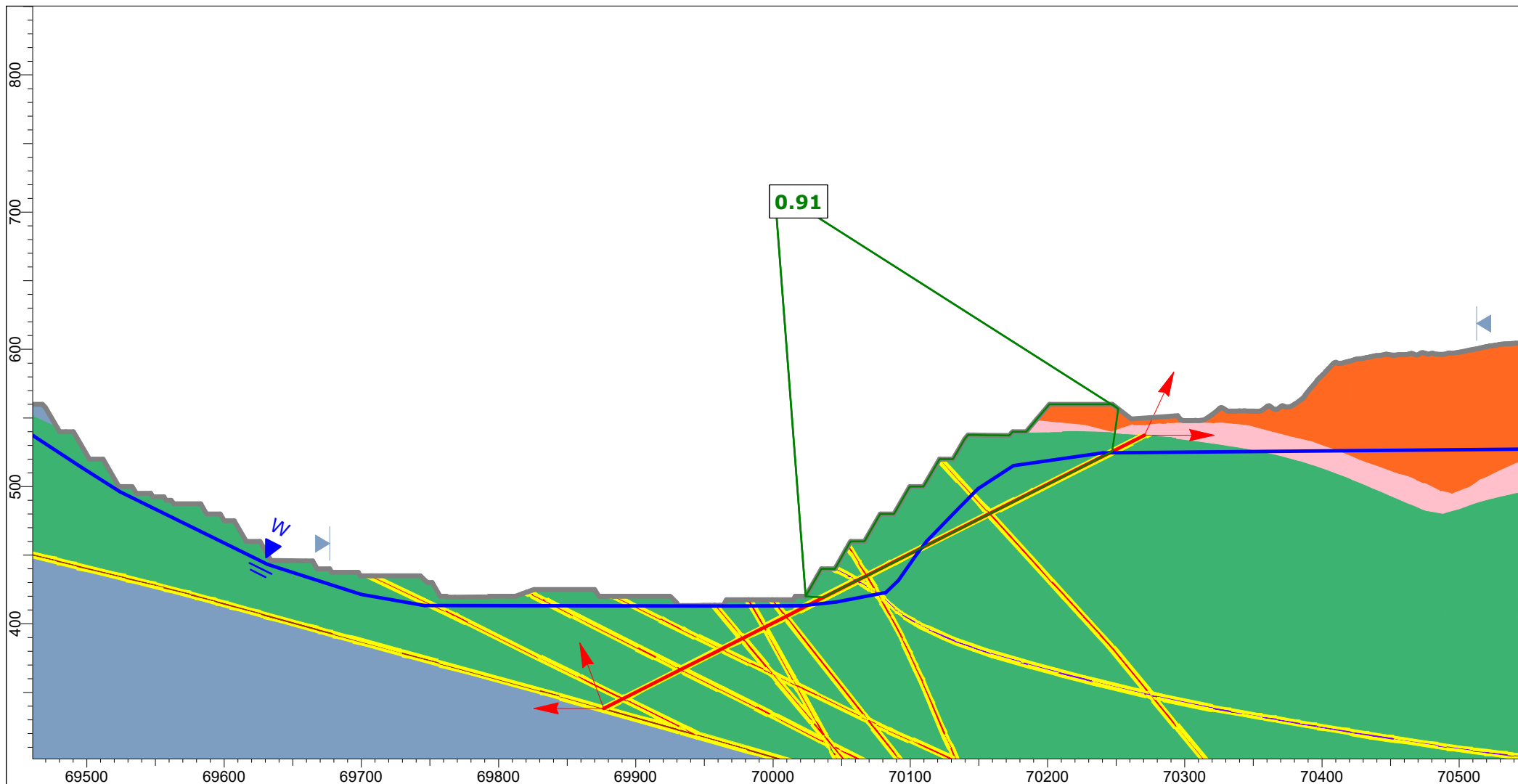
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	Project: Macraes Phase Four Project, Open Pit Extensions						
	Location: IM_OPE_Section 4						
	Analysis description: Lake Filling 473 mRL - AEP=1:500, Kh=0.8 PGA						
	Job No: PSM71	By: PSM	Date: 28/07/2026	Method: GLE / Morgenstern-Price	Scale: 1:4000	Run: Circular	



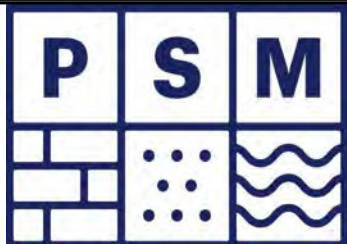
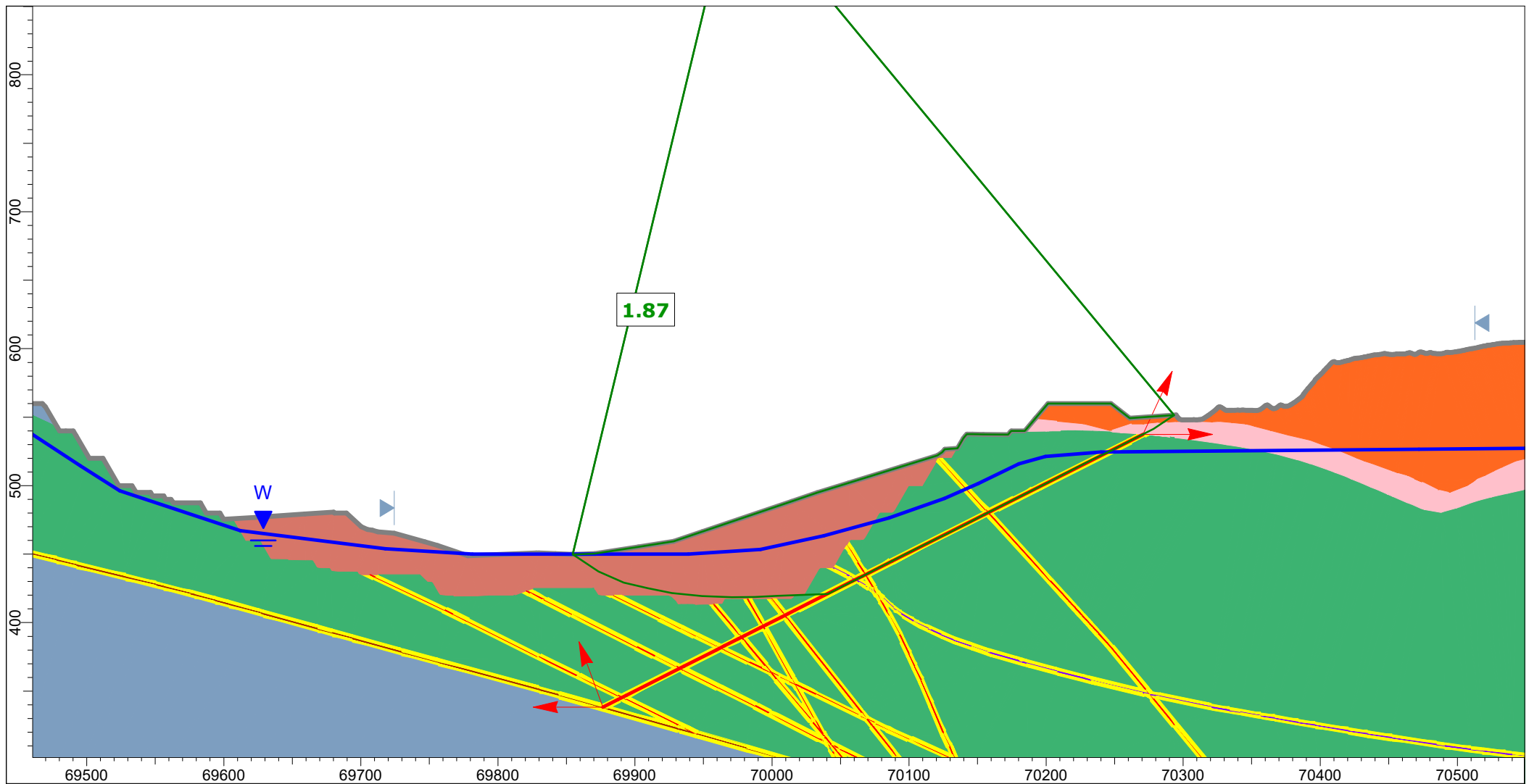
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	Project: Macraes Phase Four Project, Open Pit Extensions						
	Location: IM_OPE_Section 4						
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	Job No: PSM71	By: PSM	Date: 28/07/2026	Method: GLE / Morgenstern-Price	Scale: 1:4000	Run: Circular	



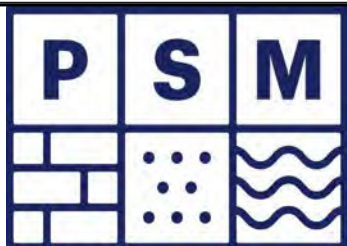
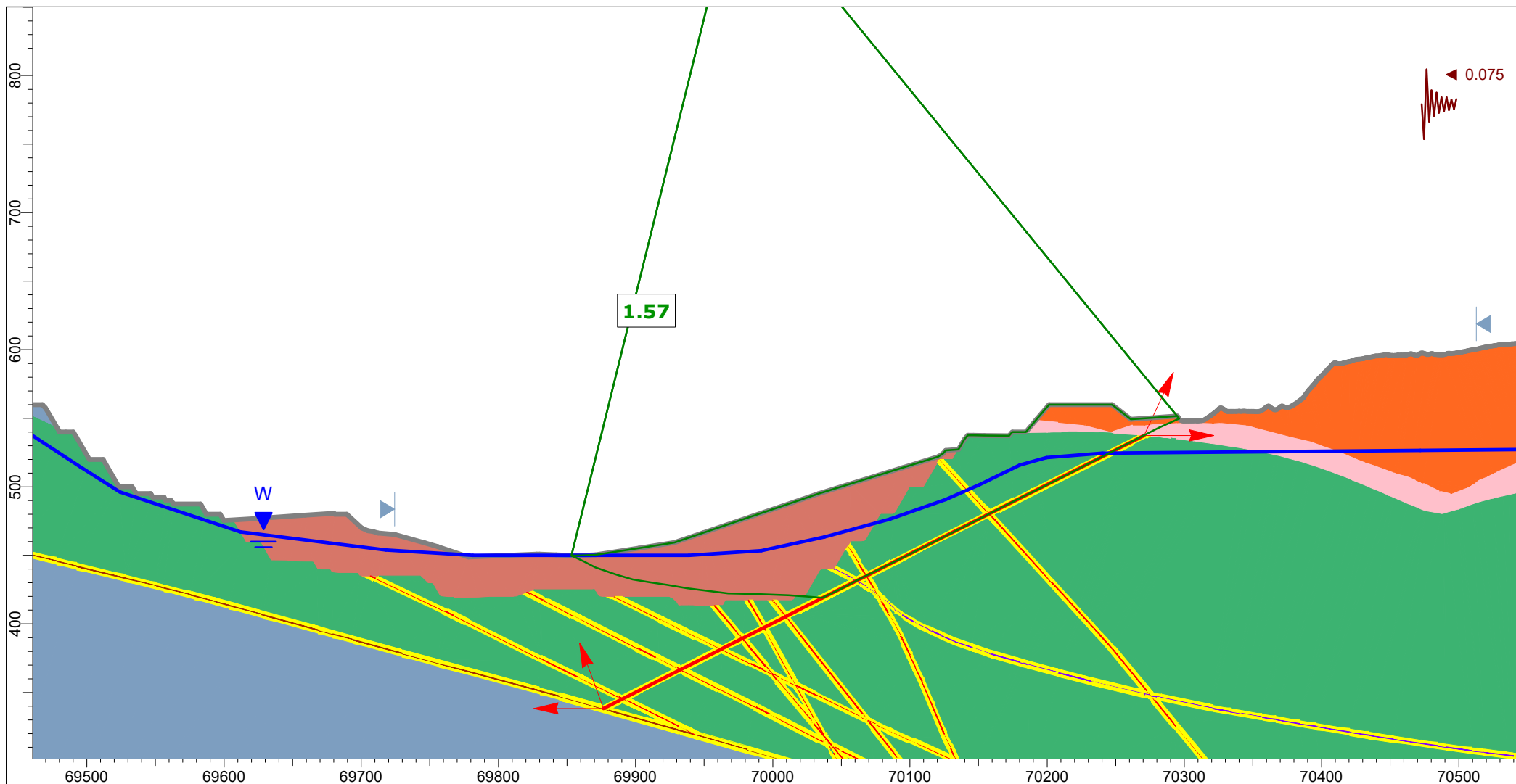
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	Project: Macraes Phase Four Project, Open Pit Extensions					
	Location: IM_OPE_Section 4					
	Analysis description: Closure - Lake Level 473 mRL - MDE Kh=0.8 PGA					
	Job No: PSM71	By: PSM	Date: 28/07/2026	Method: GLE / Morgenstern-Price	Scale: 1:4000	Run: Circular



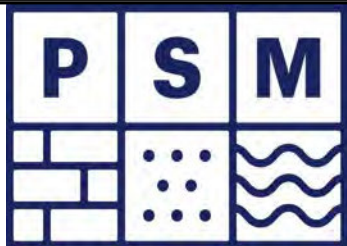
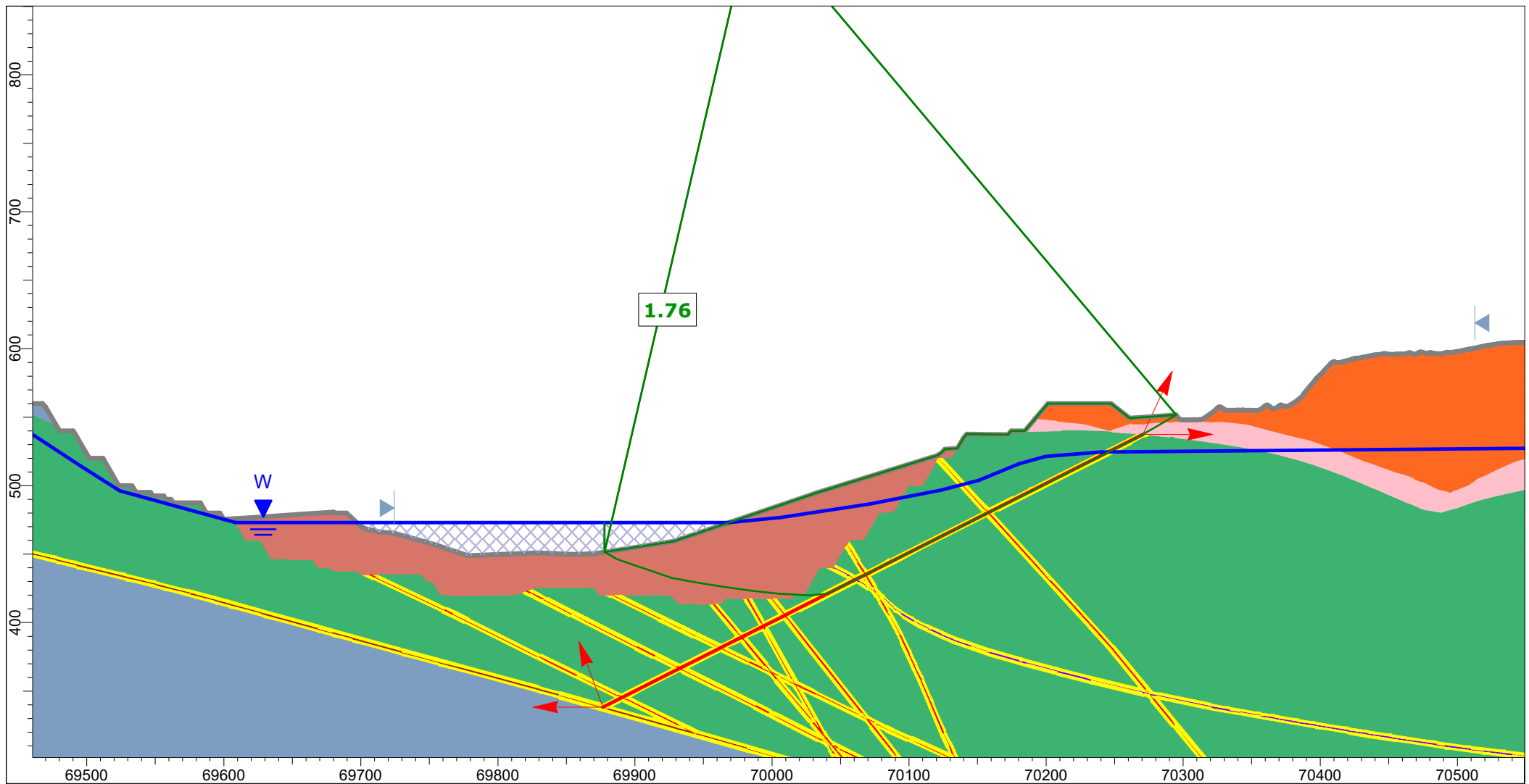
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OceanaGold (New Zealand) Limited					
Project:					
Macraes Phase Four Project - Open Pit Extensions					
Location:					
IM_OPE_Section 5					
Analysis description:					
Mining Hu=1.0 - Static					
Job No:	PSM71	By:	PSM	Date:	16/06/2026
Method:	GLE / Morgenstern-Price			Scale:	1:4000
Run:	Block				



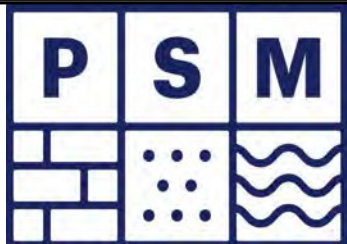
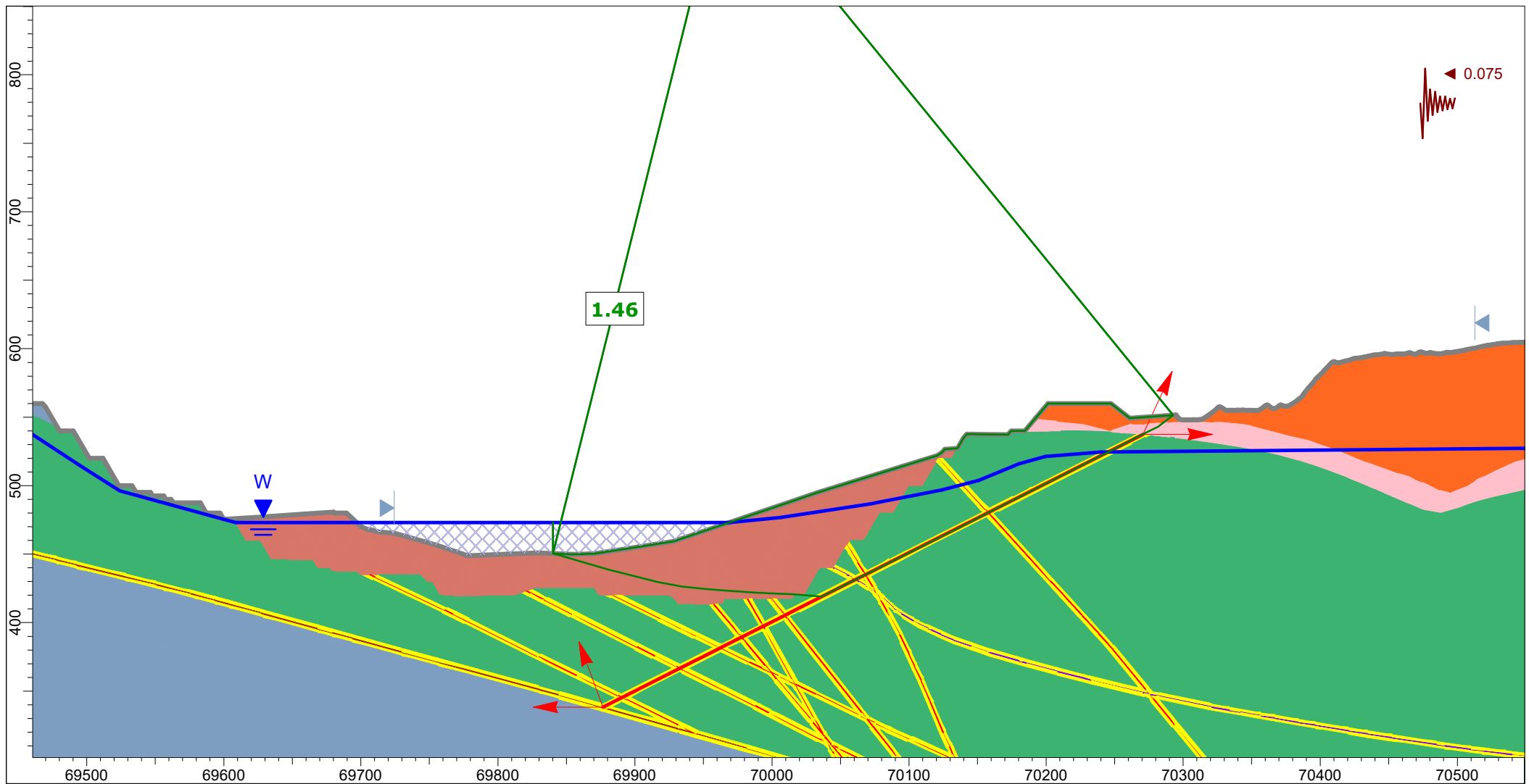
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Project:		Macraes Phase Four Project - Open Pit Extensions									
Location:		IM_OPE_Section 5									
Analysis description:		Lake Filling 450 mRL - Static									
Job No:	PSM71	By:	PSM	Date:	16/06/2026	Method:	GLE / Morgenstern-Price	Scale:	1:4000	Run:	Block



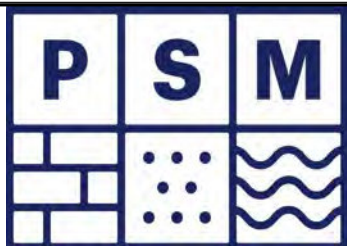
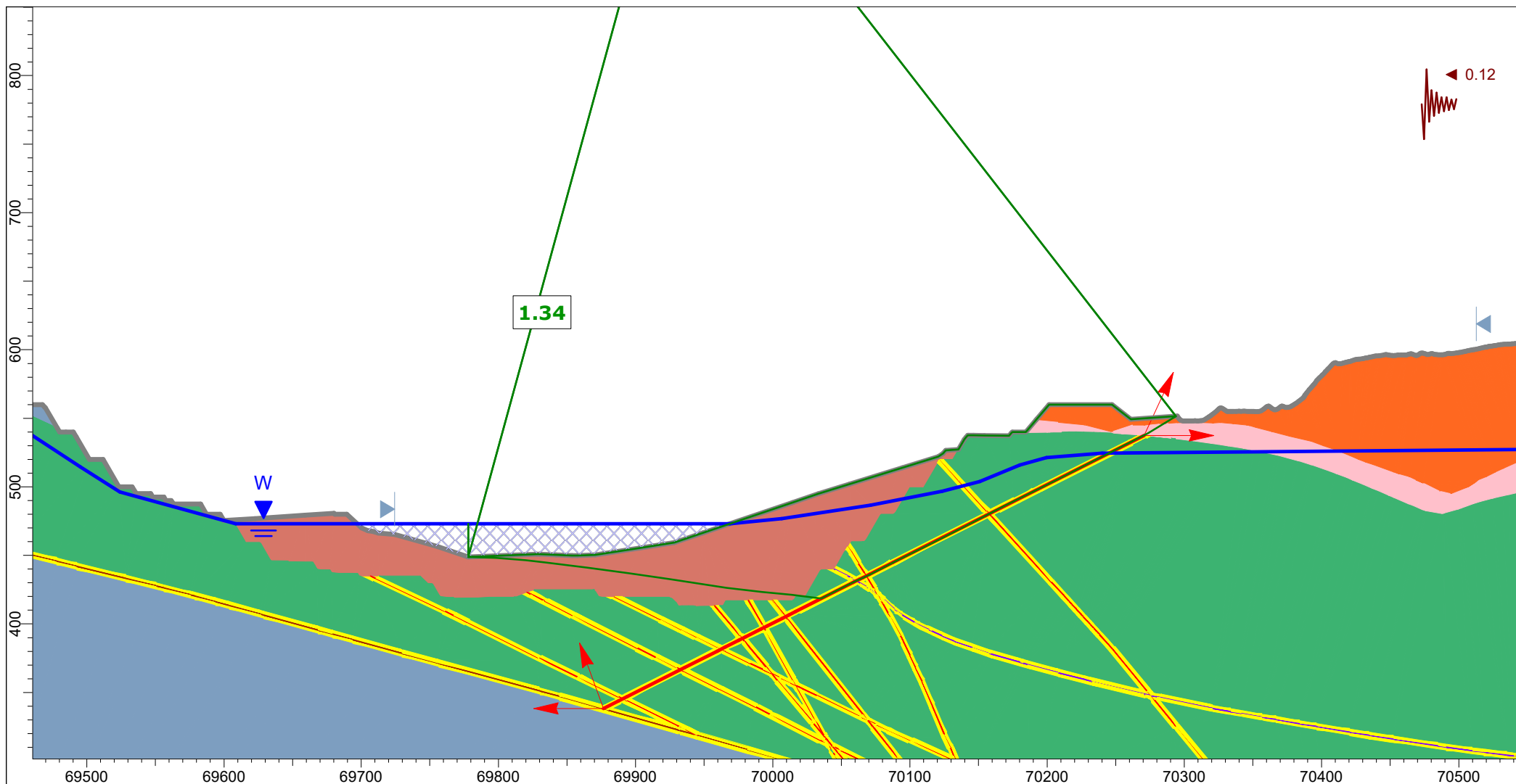
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Project:		Macraes Phase Four Project - Open Pit Extensions			
Location:		IM_OPE_Section 5			
Analysis description:		Lake Filling 450 mRL - AEP=1:500, Kh=0.5 PGA			
Job No:	PSM71	By:	PSM	Date:	16/06/2026
Method:		GLE / Morgenstern-Price		Scale:	1:4000
Run:		Block			



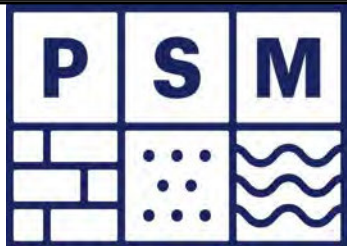
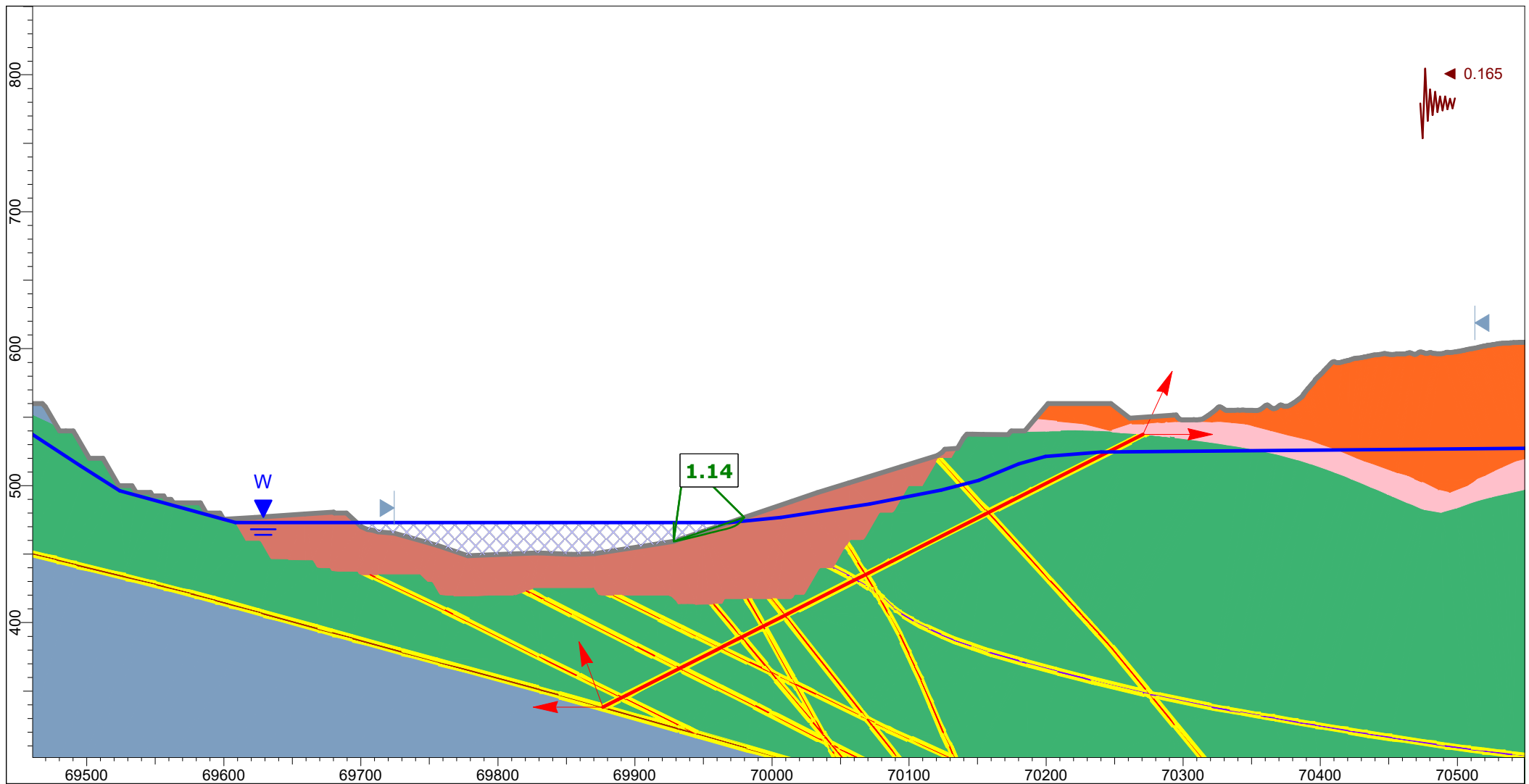
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Project:		Macraes Phase Four Project - Open Pit Extensions			
Location:		IM_OPE_Section 5			
Analysis description:		Lake Filling 473 mRL - Static			
Job No:	PSM71	By:	PSM	Date:	16/06/2026
Method:		GLE / Morgenstern-Price		Scale:	1:4000
Run:		Block			



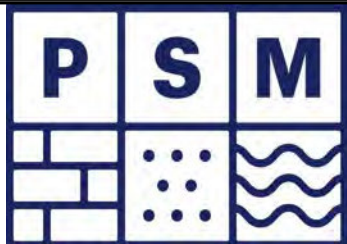
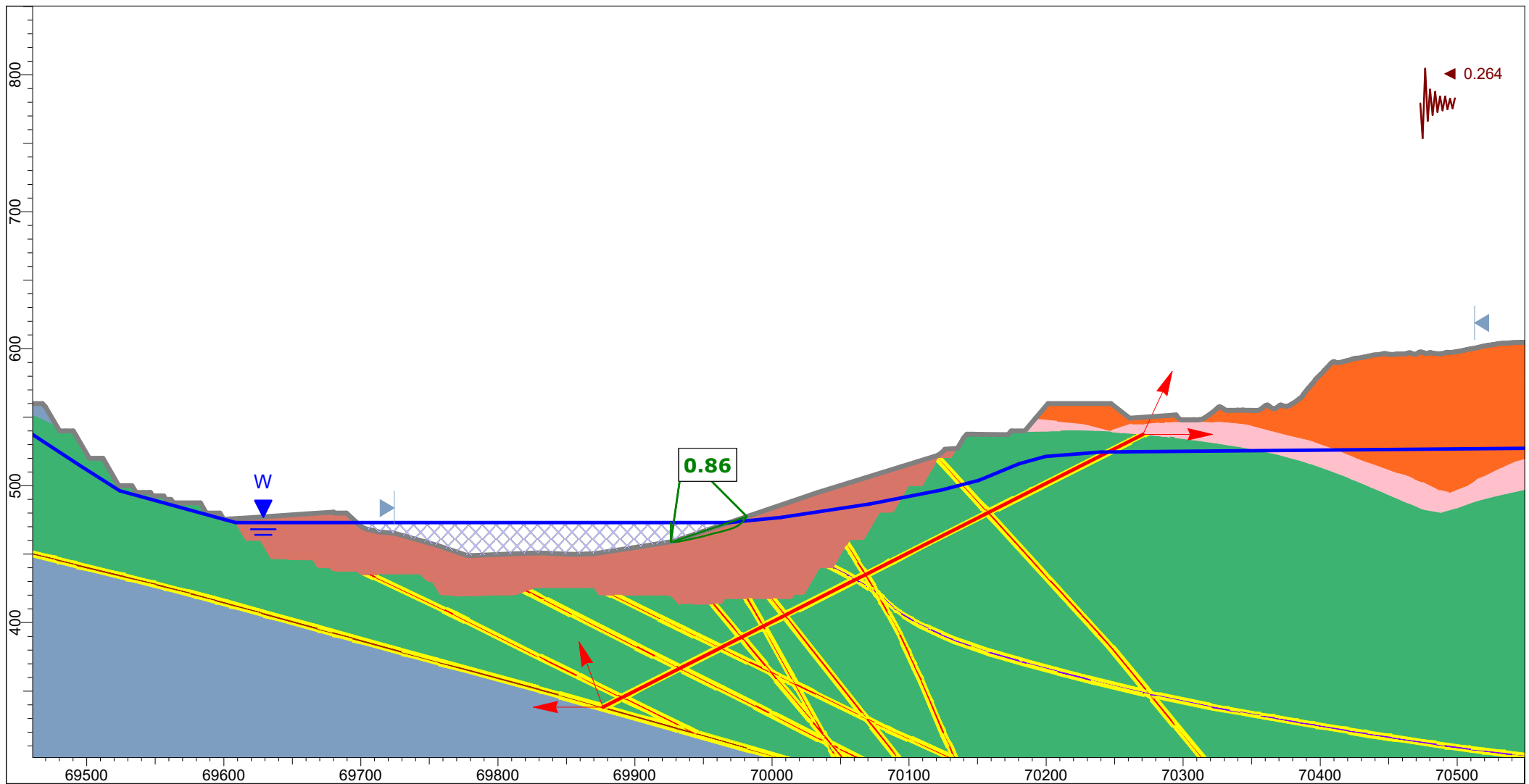
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Project:		Macraes Phase Four Project - Open Pit Extensions			
Location:		IM_OPE_Section 5			
Analysis description:		Lake Filling 473 mRL - AEP=1:500, Kh=0.5 PGA			
Job No:	PSM71	By:	PSM	Date:	16/06/2026
Method:		GLE / Morgenstern-Price		Scale:	1:4000
Run:		Block			



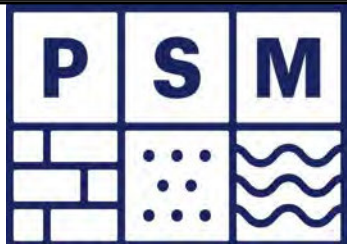
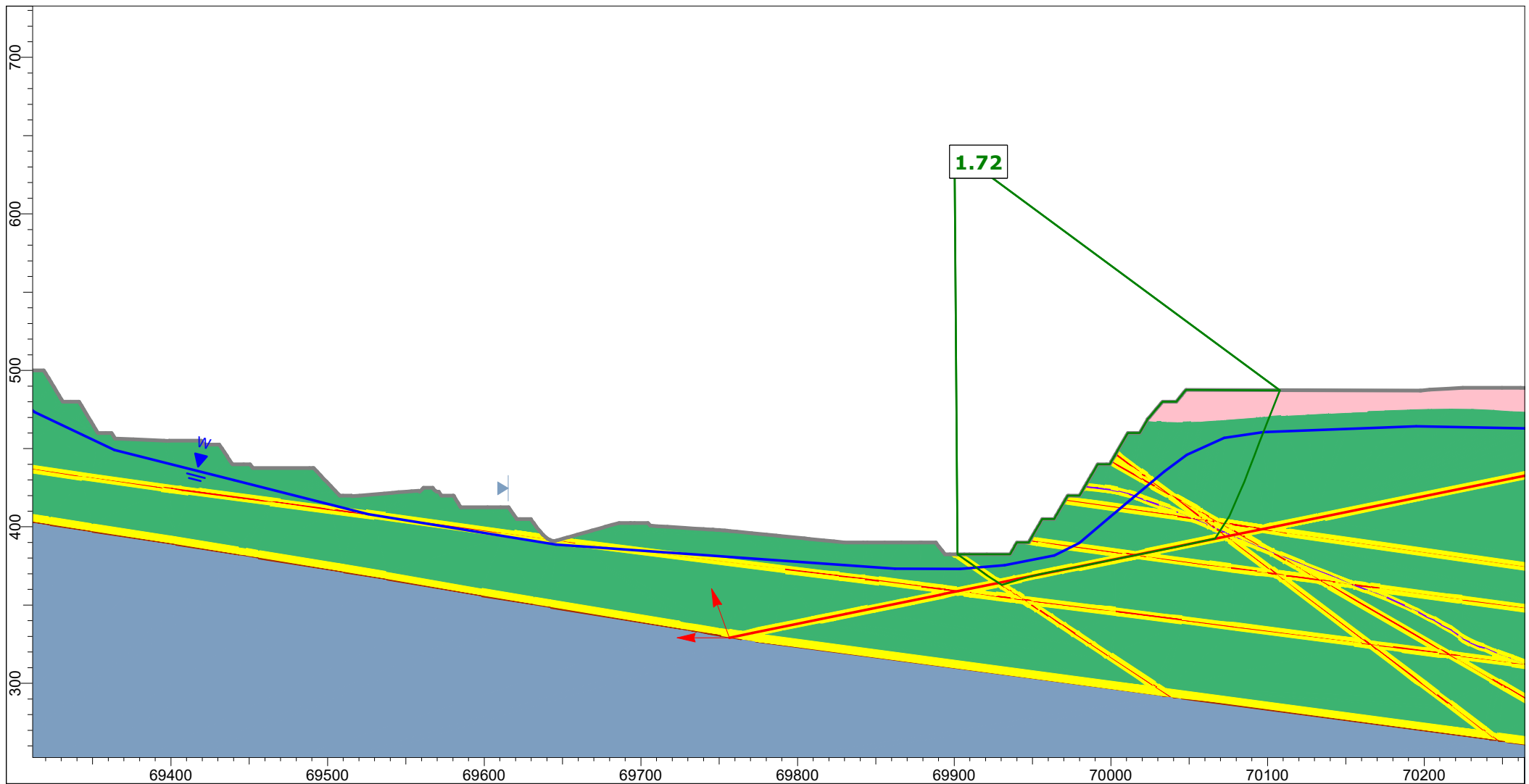
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Project:		Macraes Phase Four Project - Open Pit Extensions			
Location:		IM_OPE_Section 5			
Analysis description:		Lake Filling 473 mRL - AEP=1:500, Kh=0.8 PGA			
Job No:	PSM71	By:	PSM	Date:	16/06/2026
Method:		GLE / Morgenstern-Price		Scale:	1:4000
Run:		Block			



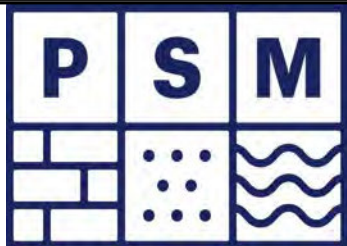
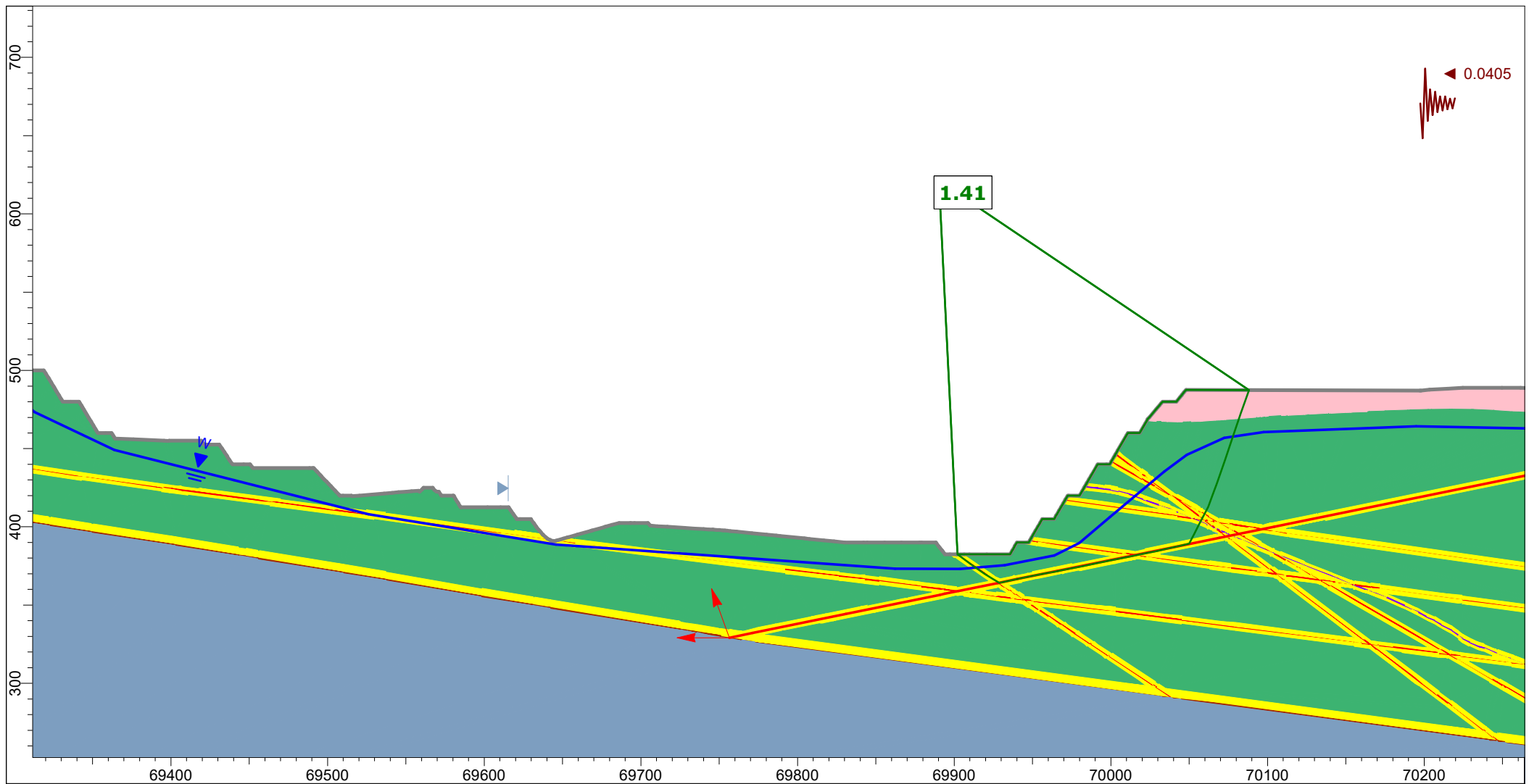
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Project:		Macraes Phase Four Project - Open Pit Extensions			
Location:		IM_OPE_Section 5			
Analysis description:		Closure - Lake Level 473 mRL, MDE Kh=0.5 PGA			
Job No:	PSM71	By:	PSM	Date:	16/06/2026
Method:		GLE / Morgenstern-Price		Scale:	1:4000
Run:		Block			



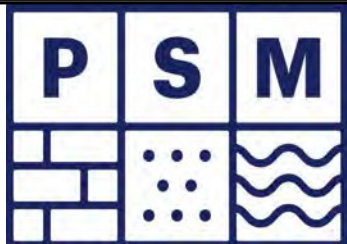
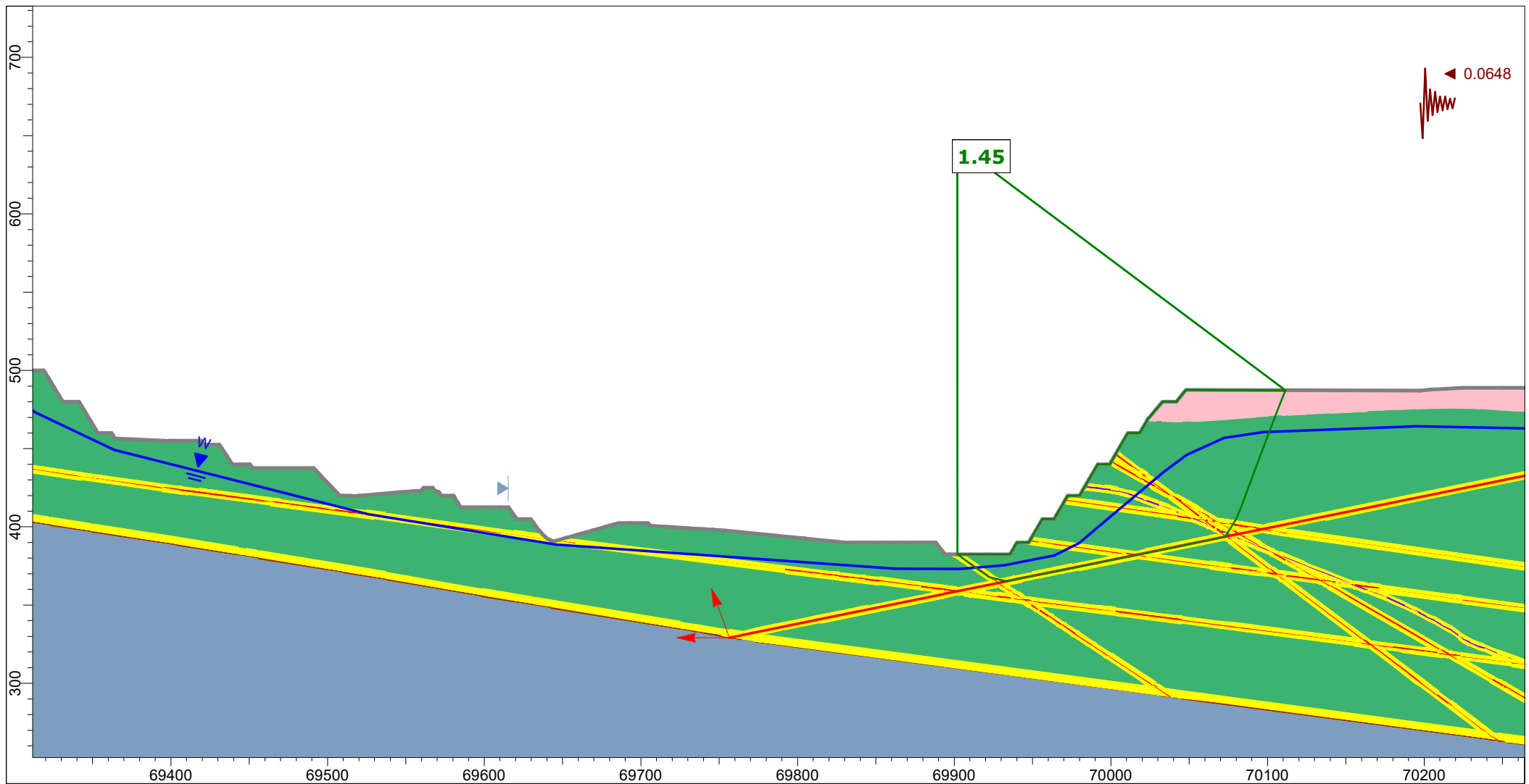
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Project:		Macraes Phase Four Project - Open Pit Extensions			
Location:		IM_OPE_Section 5			
Analysis description:		Closure - Lake Level 473 mRL, MDE Kh=0.8 PGA			
Job No:	PSM71	By:	PSM	Date:	16/06/2026
Method:		GLE / Morgenstern-Price		Scale:	1:4000
Run:		Block			



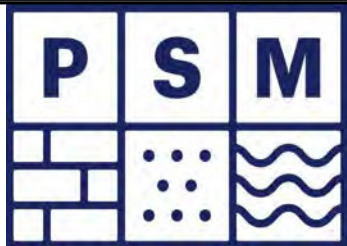
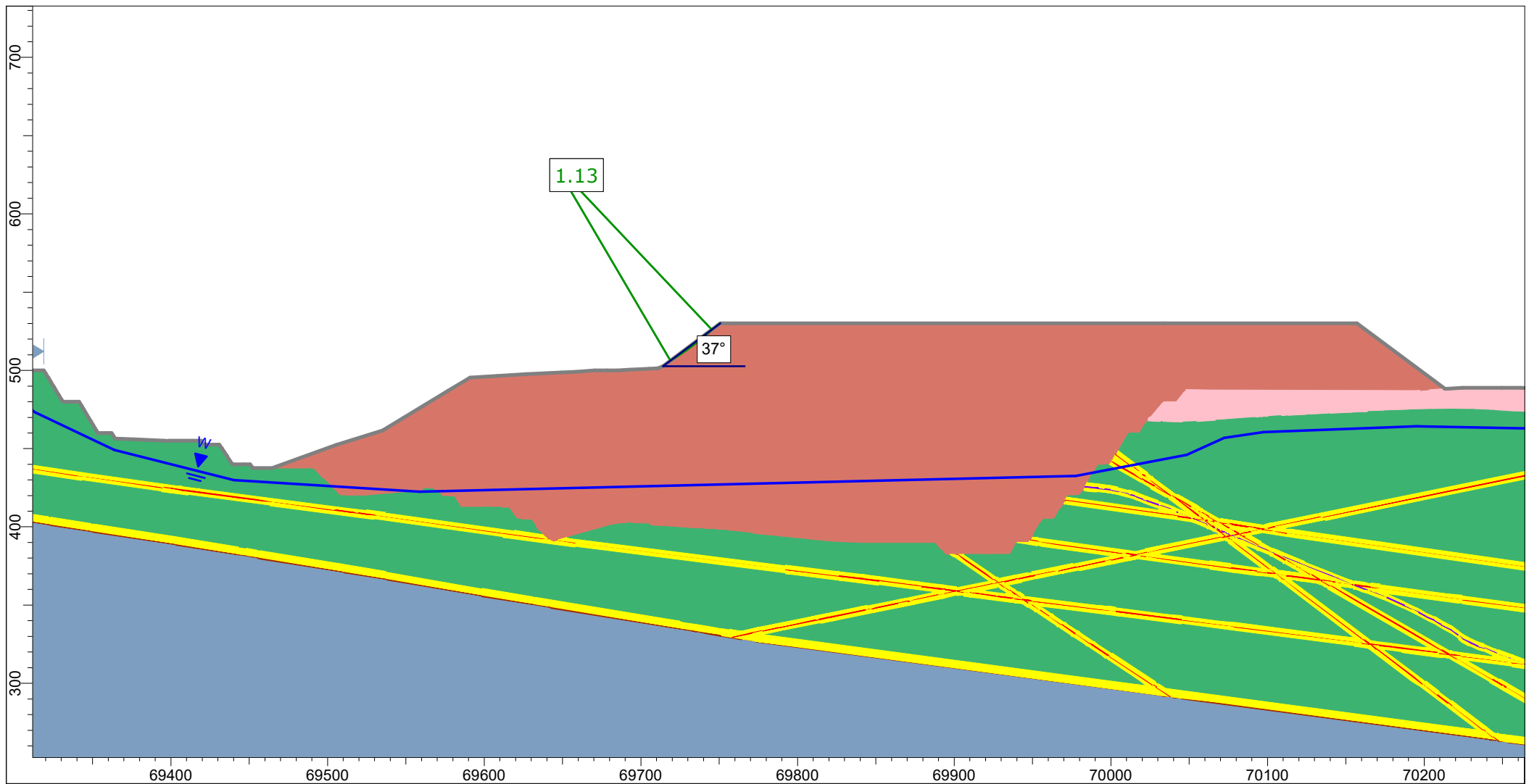
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Project:				Macraes Phase Four Project, Open Pit Extensions			
Location:				IM_OPE_Section 6			
Analysis description:				Mining Hu=1.0 - Static			
Job No:	PSM71	By:	PSM	Date:	12/06/2026	Method:	GLE / Morgenstern-Price
Scale:		1:3500		Run:		Block	



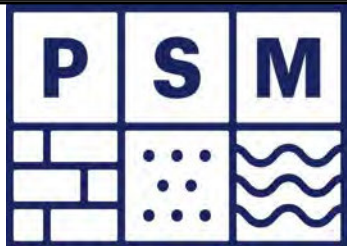
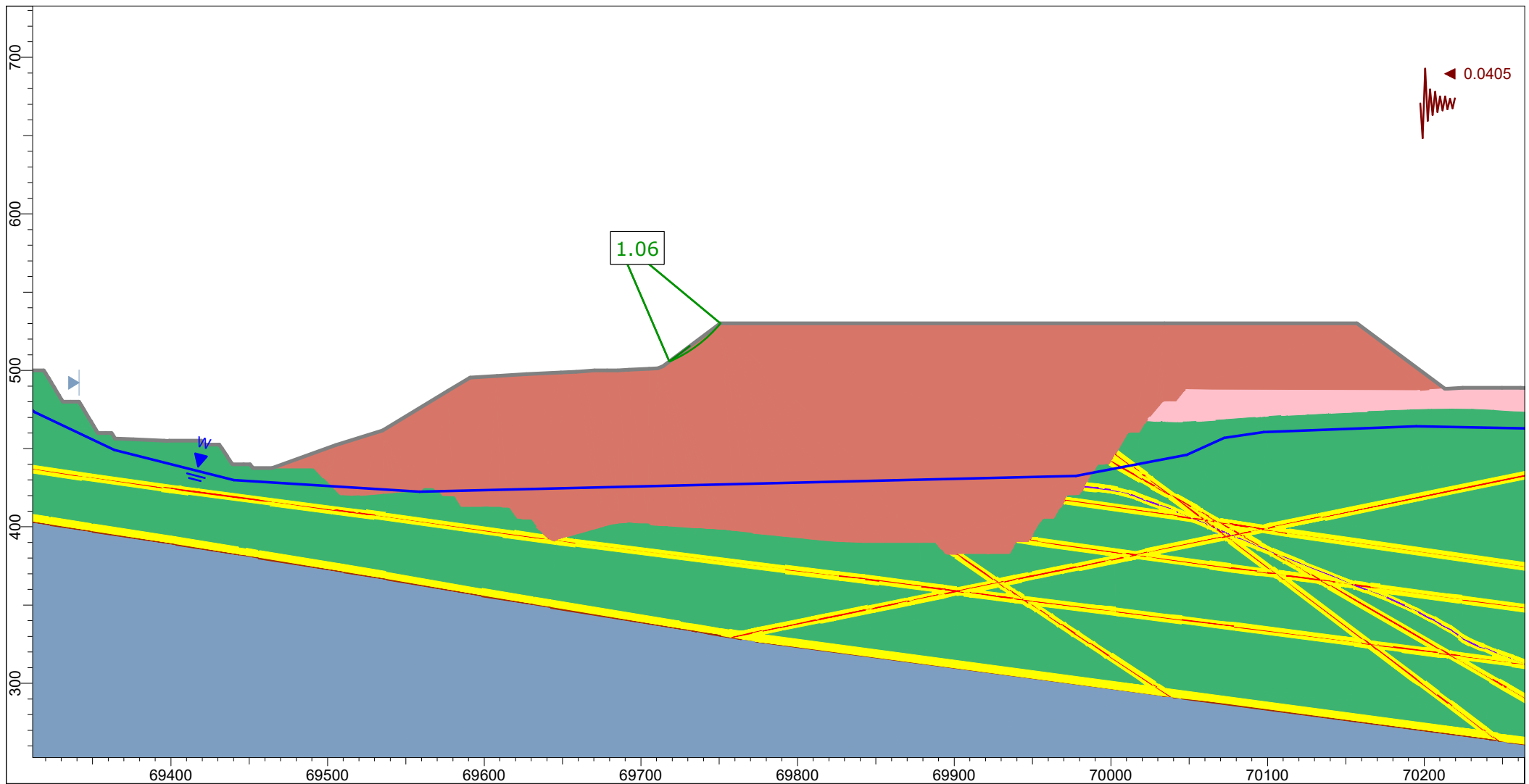
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Project:		Macraes Phase Four Project, Open Pit Extensions									
Location:		IM_OPE_Section 6									
Analysis description:		Mining Hu=1.0 - OBE Kh=0.5 PGA									
Job No:	PSM71	By:	PSM	Date:	12/06/2026	Method:	GLE / Morgenstern-Price	Scale:	1:3500	Run:	Block



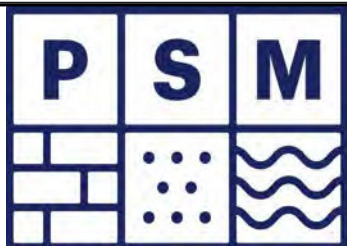
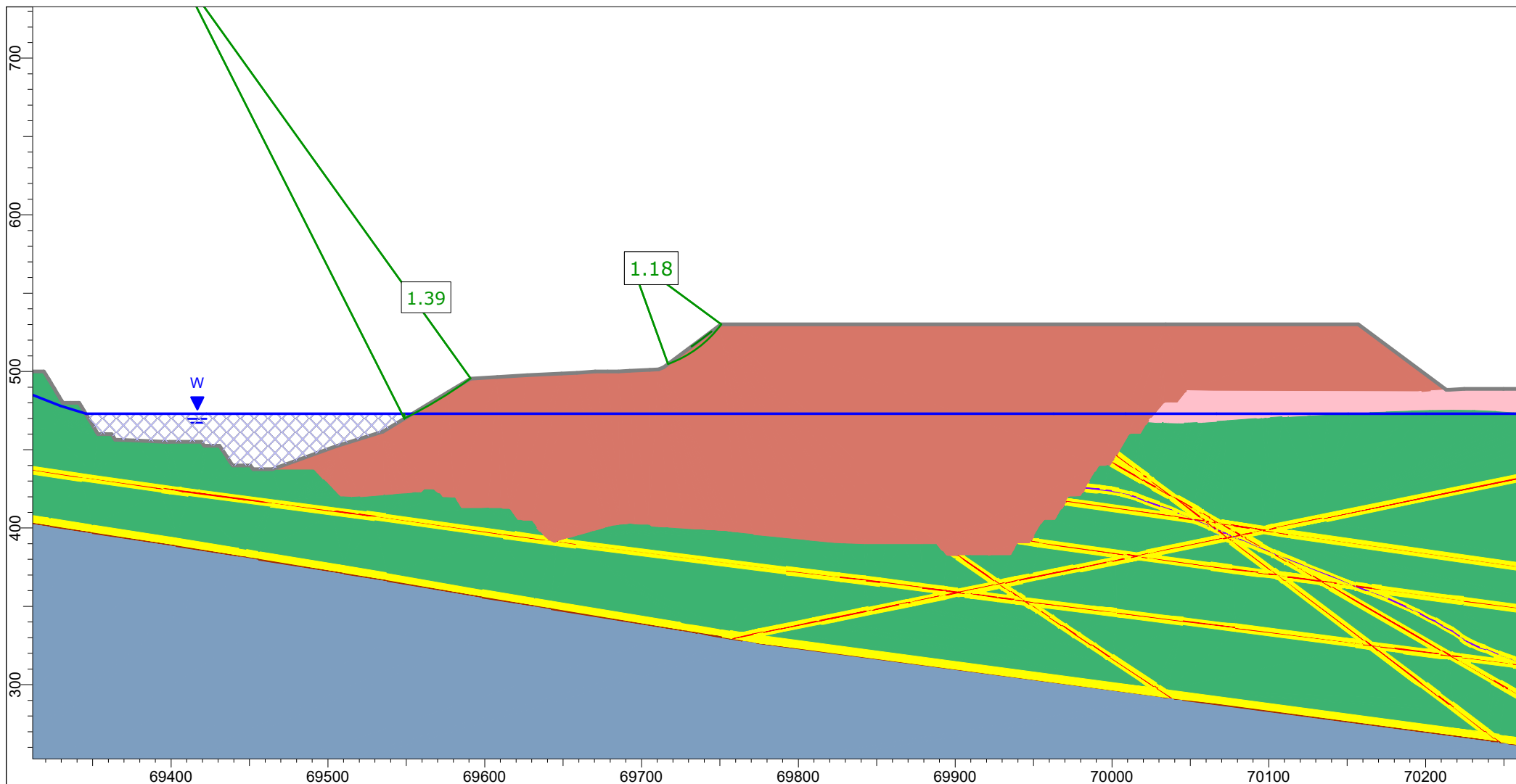
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Project:				Macraes Phase Four Project, Open Pit Extensions			
Location:				IM_OPE_Section 6			
Analysis description:				Mining Hu=1.0 - OBE Kh=0.8 PGA			
Job No:	PSM71	By:	PSM	Date:	12/06/2026	Method:	GLE / Morgenstern-Price
Scale:		1:3500		Run:		Block	



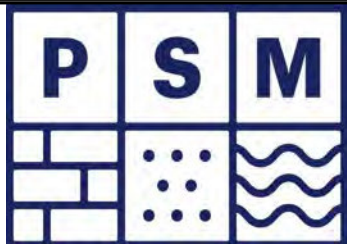
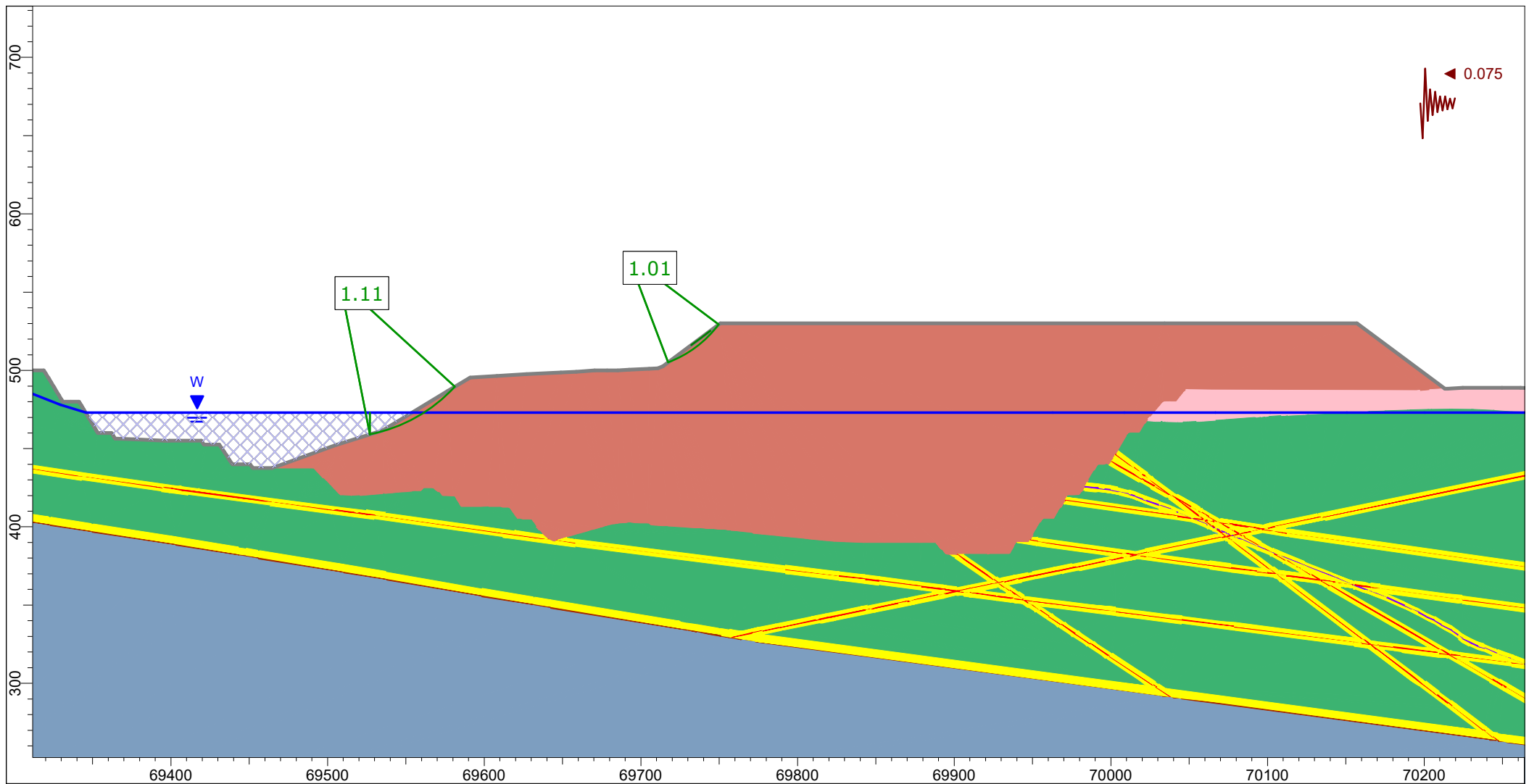
Client:		OceanaGold (New Zealand) Limited			
Project:		Macraes Phase Four Project, Open Pit Extensions			
Location:		IM_OPE_Section 6			
Analysis description:		Mining IMBF2 - Static			
Job No:	PSM71	By:	PSM	Date:	12/06/2026
Method:		GLE / Morgenstern-Price		Scale:	1:3500
Run:		Circular			



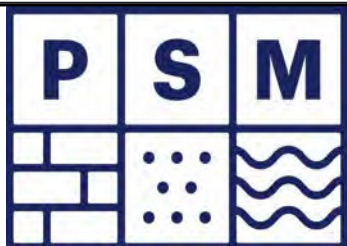
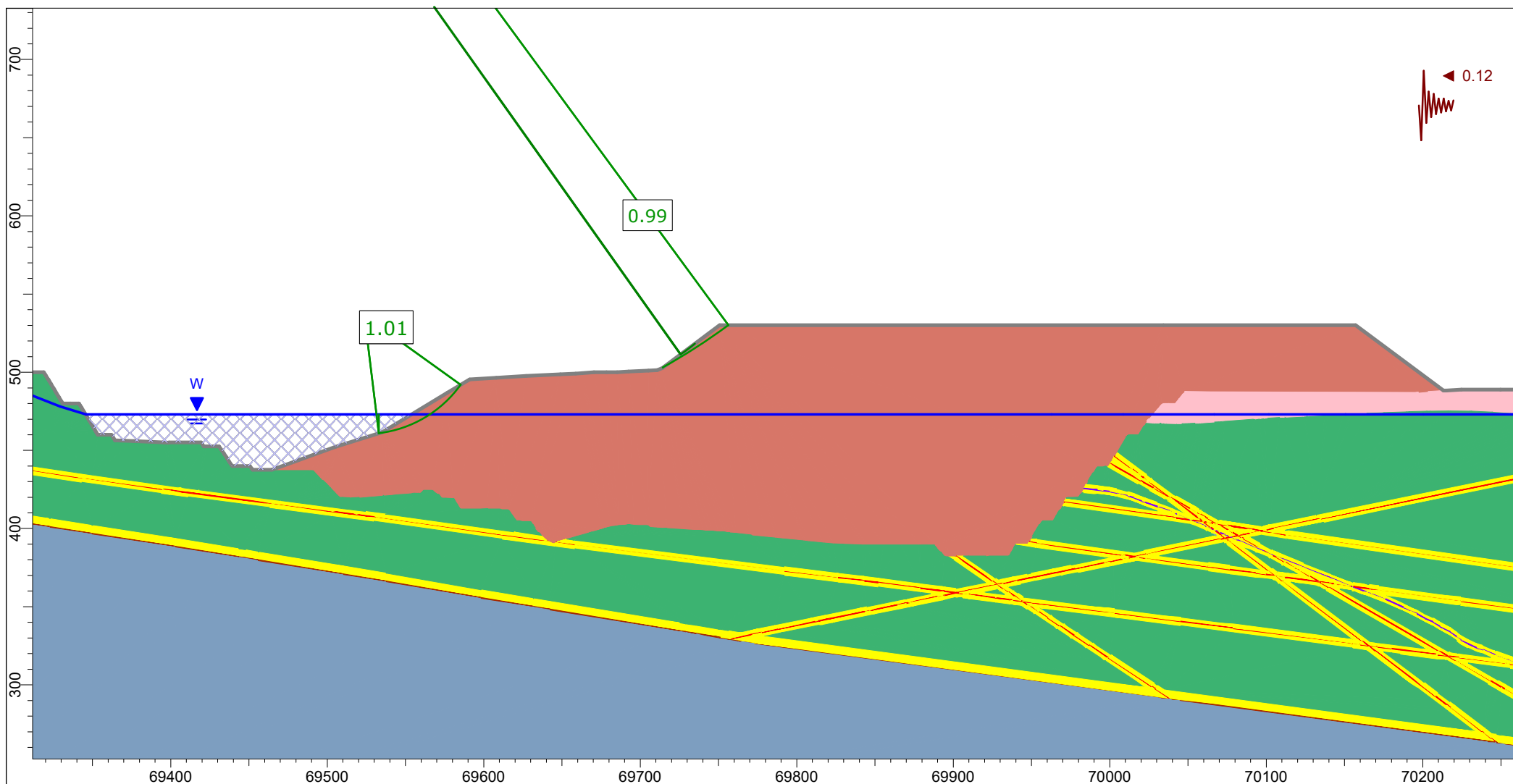
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Project:		Macraes Phase Four Project, Open Pit Extensions										
Location:		IM_OPE_Section 6										
Analysis description:		Mining IMBF2 - OBE Kh=0.5 PGA										
Job No:	PSM71	By:	PSM	Date:	12/06/2026	Method:	GLE / Morgenstern-Price		Scale:	1:3500	Run:	Circular



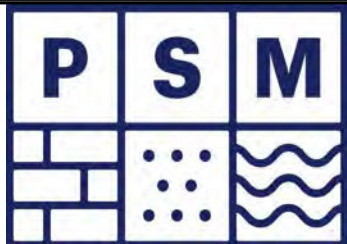
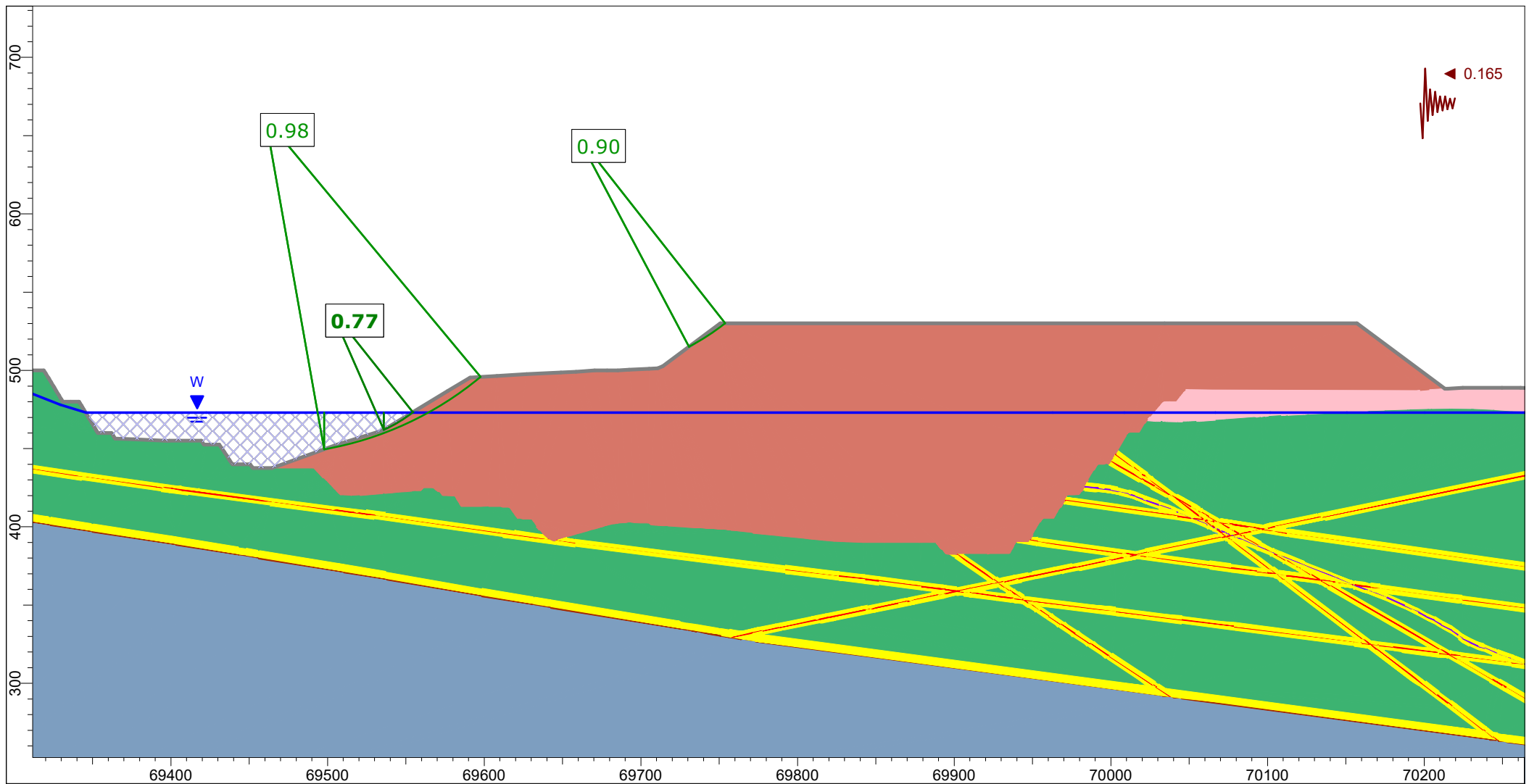
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Project:		Macraes Phase Four Project, Open Pit Extensions			
Location:		IM_OPE_Section 6			
Analysis description:		Lake Filling 473 mRL - Static			
Job No:	PSM71	By:	PSM	Date:	12/06/2026
Method:		GLE / Morgenstern-Price		Scale:	1:3500
Run:		Circular			



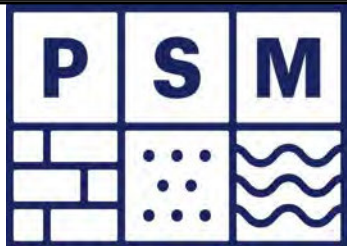
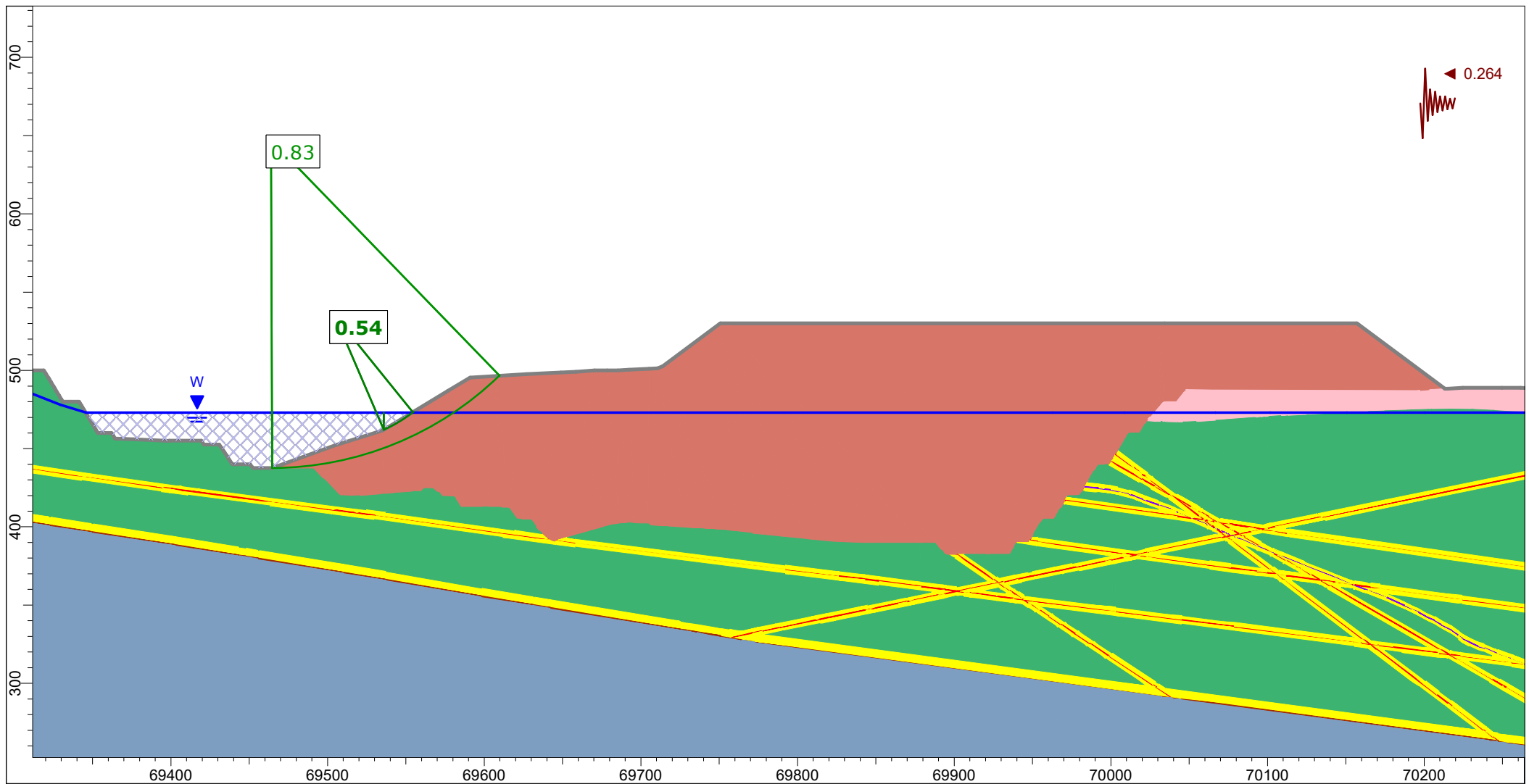
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Project:		Macraes Phase Four Project, Open Pit Extensions			
Location:		IM_OPE_Section 6			
Analysis description:		Lake Filling 473 mRL - AEP 1:500, Kh=0.5 PGA			
Job No:	PSM71	By:	PSM	Date:	12/06/2026
Method:		GLE / Morgenstern-Price		Scale:	1:3500
Run:		Circular			



Client:		OceanaGold (New Zealand) Limited										
Project:		Macraes Phase Four Project, Open Pit Extensions										
Location:		IM_OPE_Section 6										
Analysis description:		Lake Filling 473 mRL - AEP 1:500, Kh=0.8 PGA										
Job No:	PSM71	By:	PSM	Date:	12/06/2026	Method:	GLE / Morgenstern-Price		Scale:	1:3500	Run:	Circular



Client:		OceanaGold (New Zealand) Limited			
Project:		Macraes Phase Four Project, Open Pit Extensions			
Location:		IM_OPE_Section 6			
Analysis description:		Closure - Lake Level 473 mRL - MDE Kh=0.5 PGA			
Job No:	PSM71	By:	PSM	Date:	12/06/2026
Method:		GLE / Morgenstern-Price		Scale:	1:3500
Run:		Circular			



Client:		OceanaGold (New Zealand) Limited			
Project:		Macraes Phase Four Project, Open Pit Extensions			
Location:		IM_OPE_Section 6			
Analysis description:		Closure - Lake Level 473 mRL - MDE Kh=0.8 PGA			
Job No:	PSM71	By:	PSM	Date:	12/06/2026
Method:		GLE / Morgenstern-Price		Scale:	1:3500
Run:		Circular			

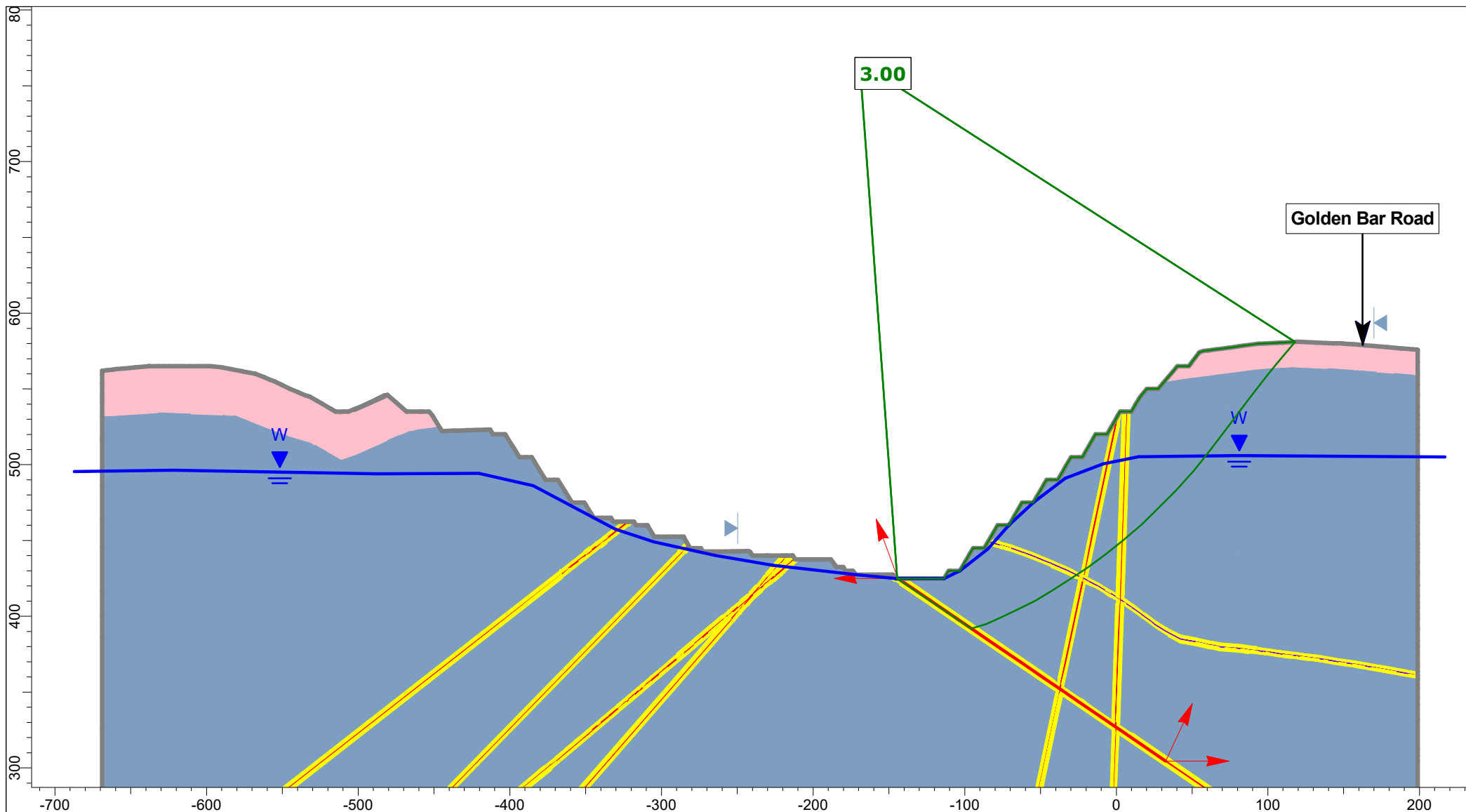
Appendix E
Golden Bar Limited Equilibrium Outputs



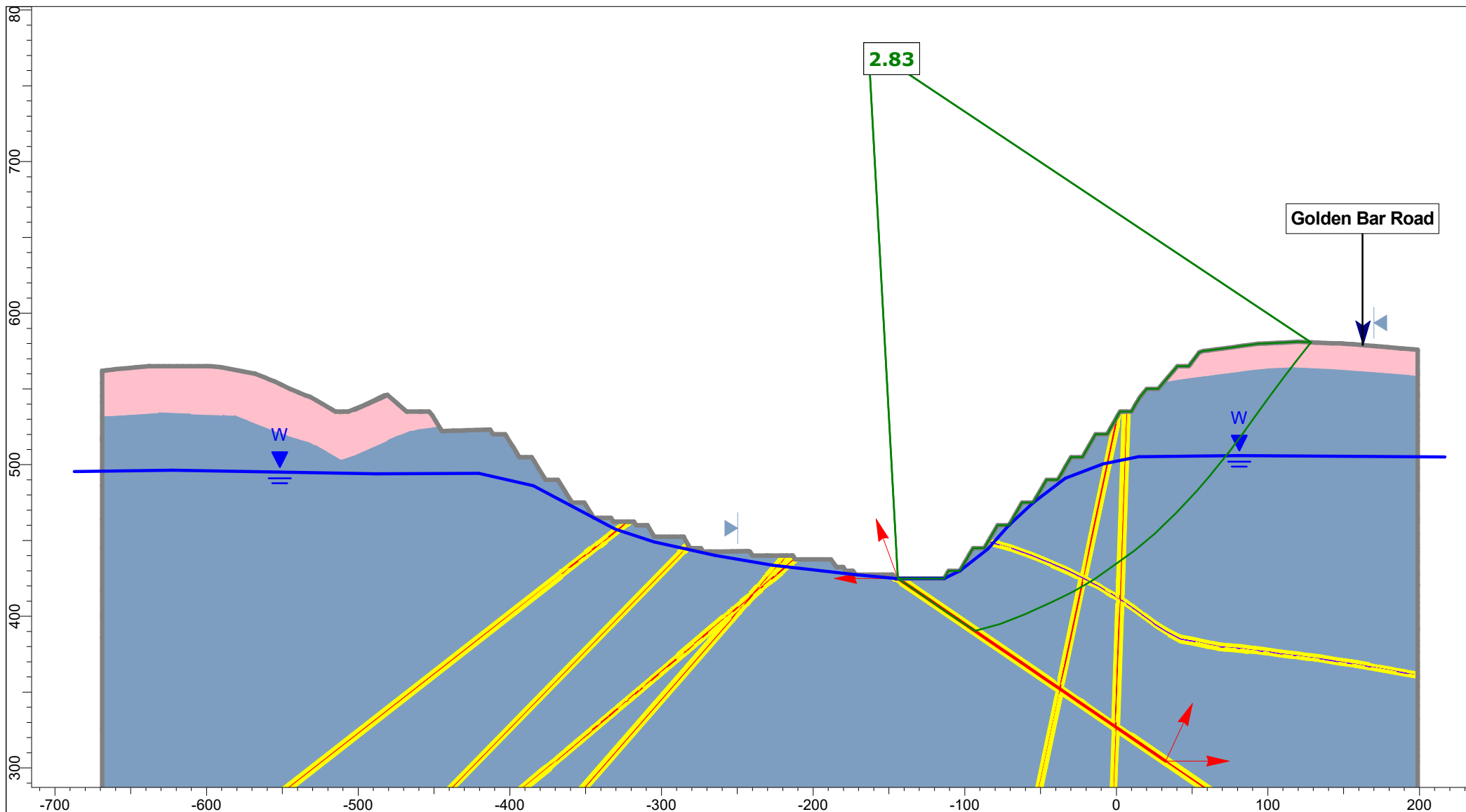
Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (°)	UCS (intact) (kPa)	Parameters vary with depth	GSI	mi	D	Water Surface
Class A		27	Generalized Hoek-Brown			40000	No	65	12	0	Water Table
Class B		27	Generalized Hoek-Brown			40000	No	55	12	0	Water Table
Class C		27	Generalized Hoek-Brown			35000	No	45	12	0	Water Table
Weathered Zone		25	Mohr-Coulomb	100	38						Water Table
Failed Psammite		20	Mohr-Coulomb	1	35						Water Table
Rockfill		20	Mohr-Coulomb	0	40						Water Table
Other Faults		20	Mohr-Coulomb	50	20						Water Table
Hanging Wall Shear		20	Mohr-Coulomb	50	20						Water Table
Footwall Fault		20	Mohr-Coulomb	0	9						Water Table
WRS - As-built		20	Mohr-Coulomb	0	40						Water Table
WRS - Consented		20	Mohr-Coulomb	0	40						Water Table
WRS - FTA Proposed		20	Mohr-Coulomb	0	40						Water Table
In-Pit Backfill		20	Mohr-Coulomb	1	35						Water Table

Pit Lake Filling

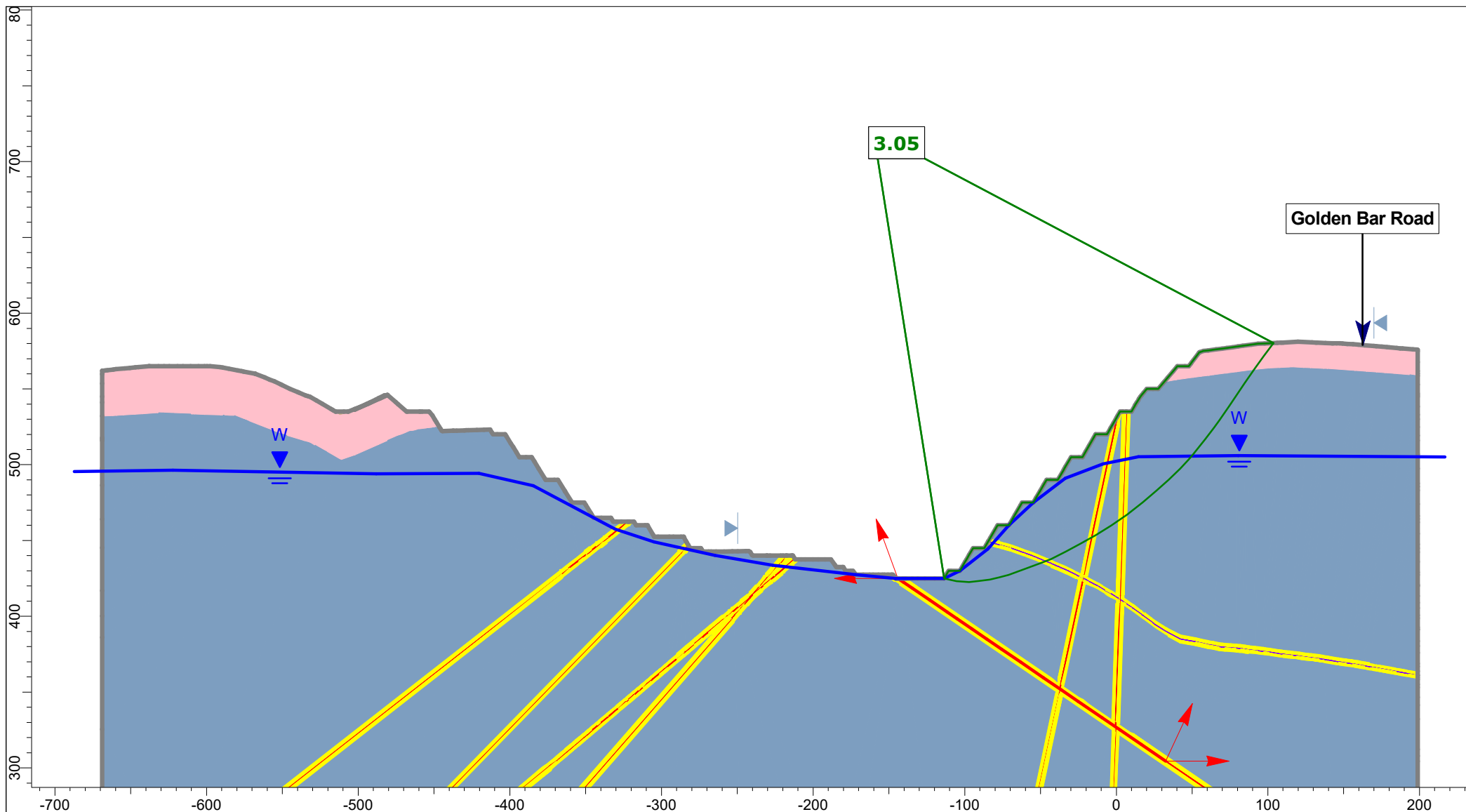
Class B - Hu=0.6		27	Generalized Hoek-Brown			40000	No	55	12	0	Water Table
Class C - Hu=0.6		27	Generalized Hoek-Brown			35000	No	45	12	0	Water Table
Other Faults - Hu=0.6		20	Mohr-Coulomb	50	20						Water Table
Footwall Fault - Hu=0.6		20	Mohr-Coulomb	0	9						Water Table
In-pit Backfill - Hu=0.6		20	Mohr-Coulomb	1	35						Water Table
Failed Psammite - Hu=0.6		20	Mohr-Coulomb	1	35						Water Table



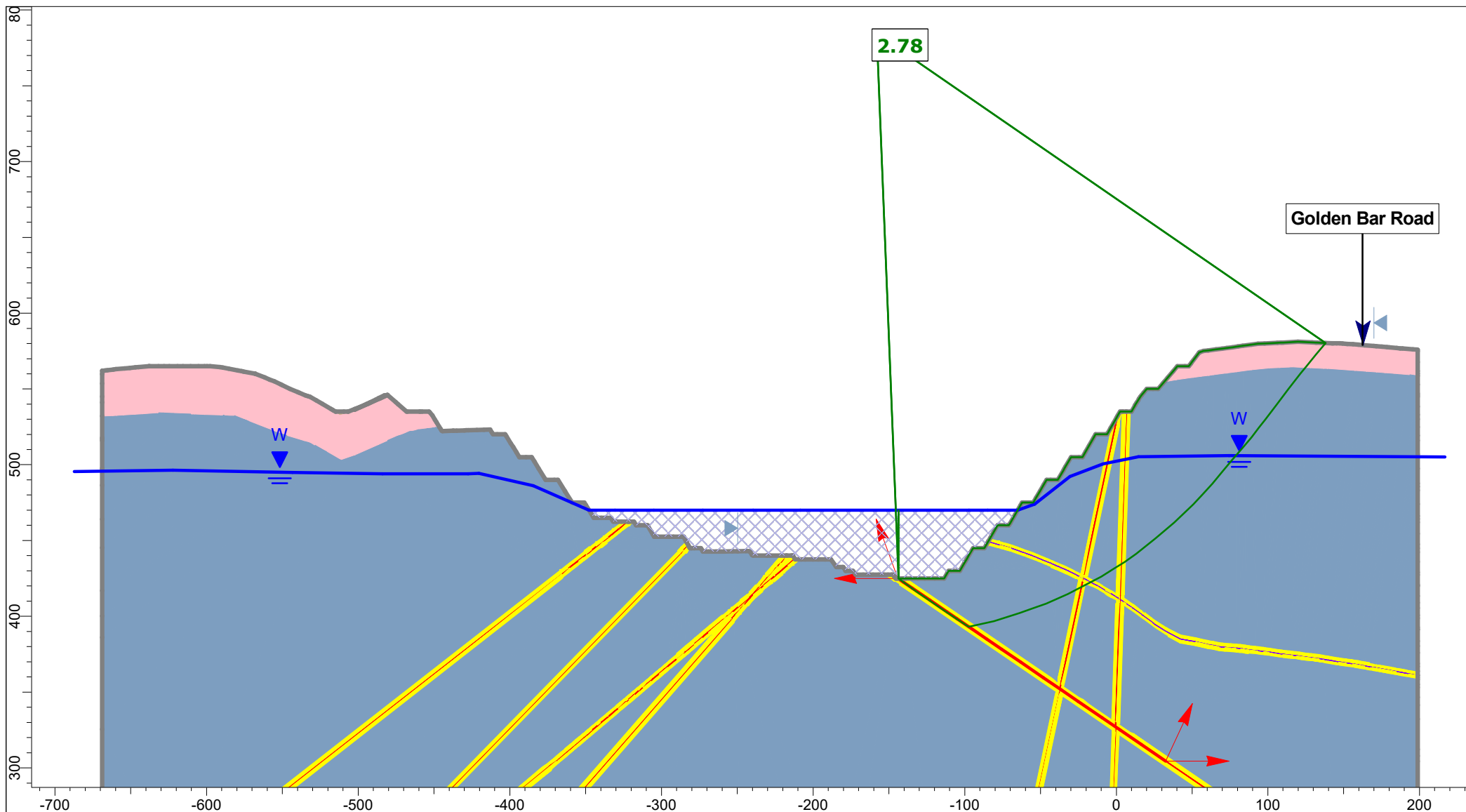
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Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	GB_OPE_Section 1	
Case:	Mining Hu=0.6 - Static, Block	
Date:	17/03/2026	GLE / Morgenstern-Price



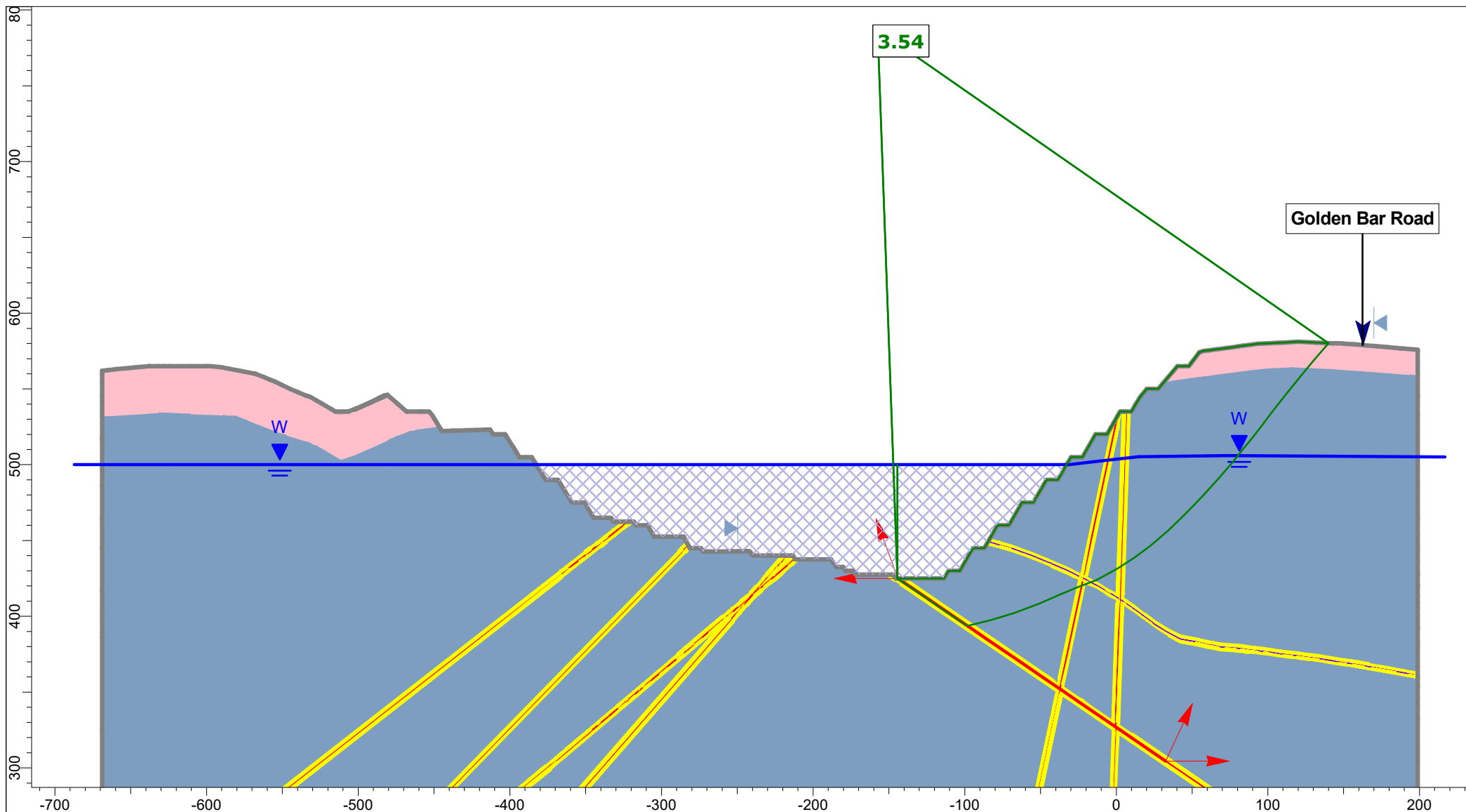
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	GB_OPE_Section 1	
Case:	Mining Hu=0.6 - OBE Kh=0.5 PGA, Block	
Date:	17/03/2026	GLE / Morgenstern-Price



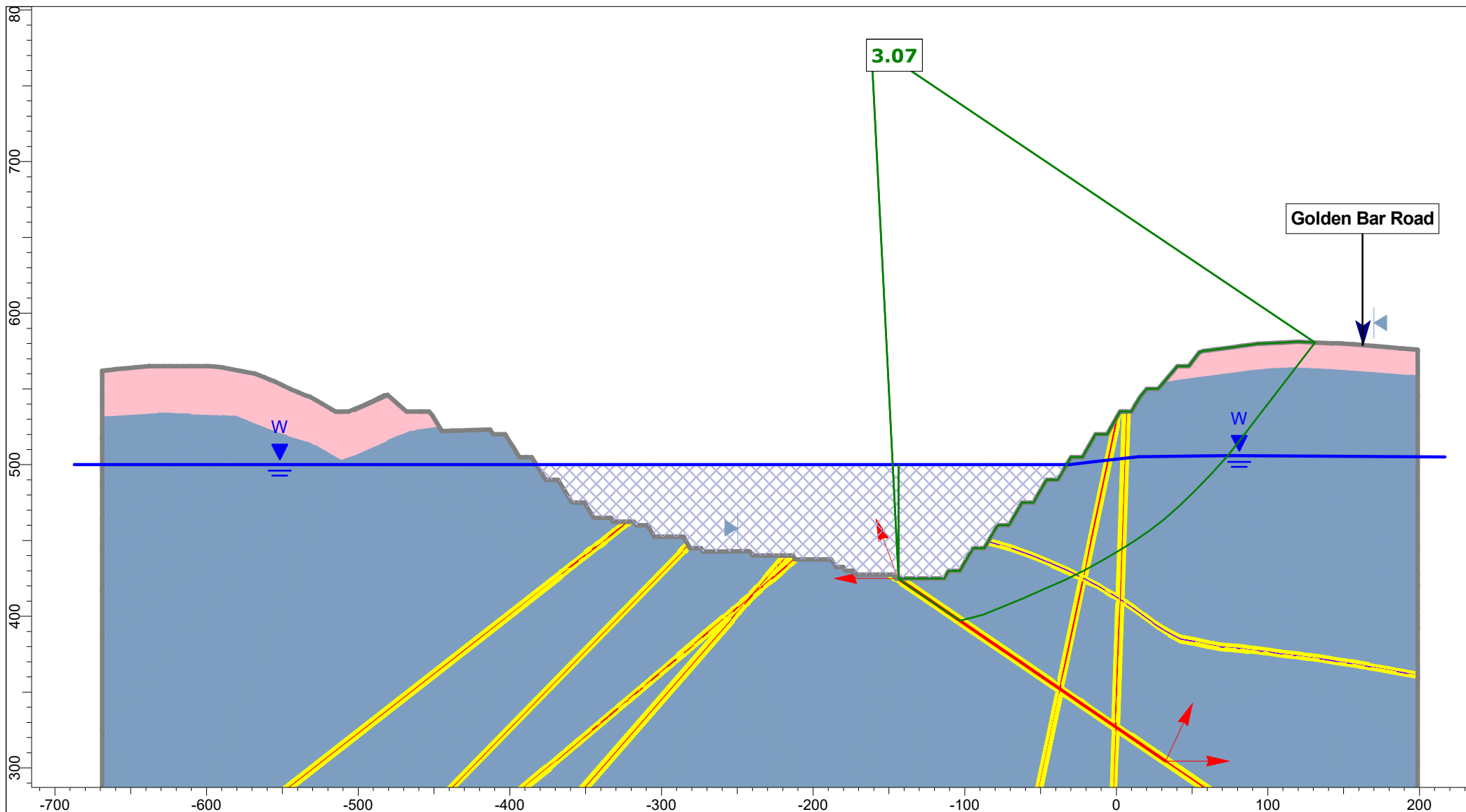
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	GB_OPE_Section 1	
Case:	Mining Hu=0.6 - OBE Kh=0.8 PGA, Block	
Date:	17/03/2026	GLE / Morgenstern-Price



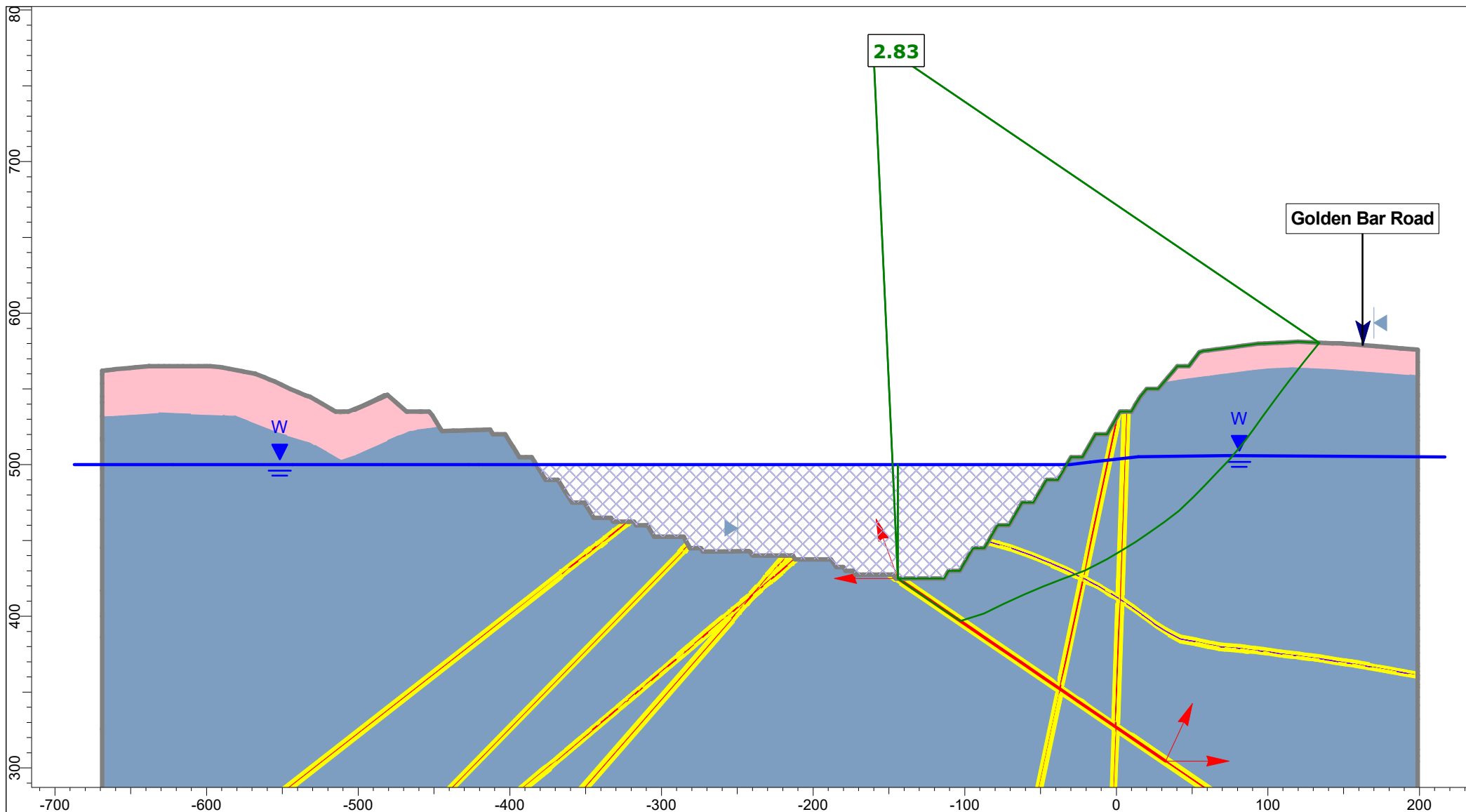
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	GB_OPE_Section 1	
Case:	Lake Filling 470 mRL - AEP=1:500, OBE Kh=0.5 PGA, Block	
Date:	17/03/2026	GLE / Morgenstern-Price



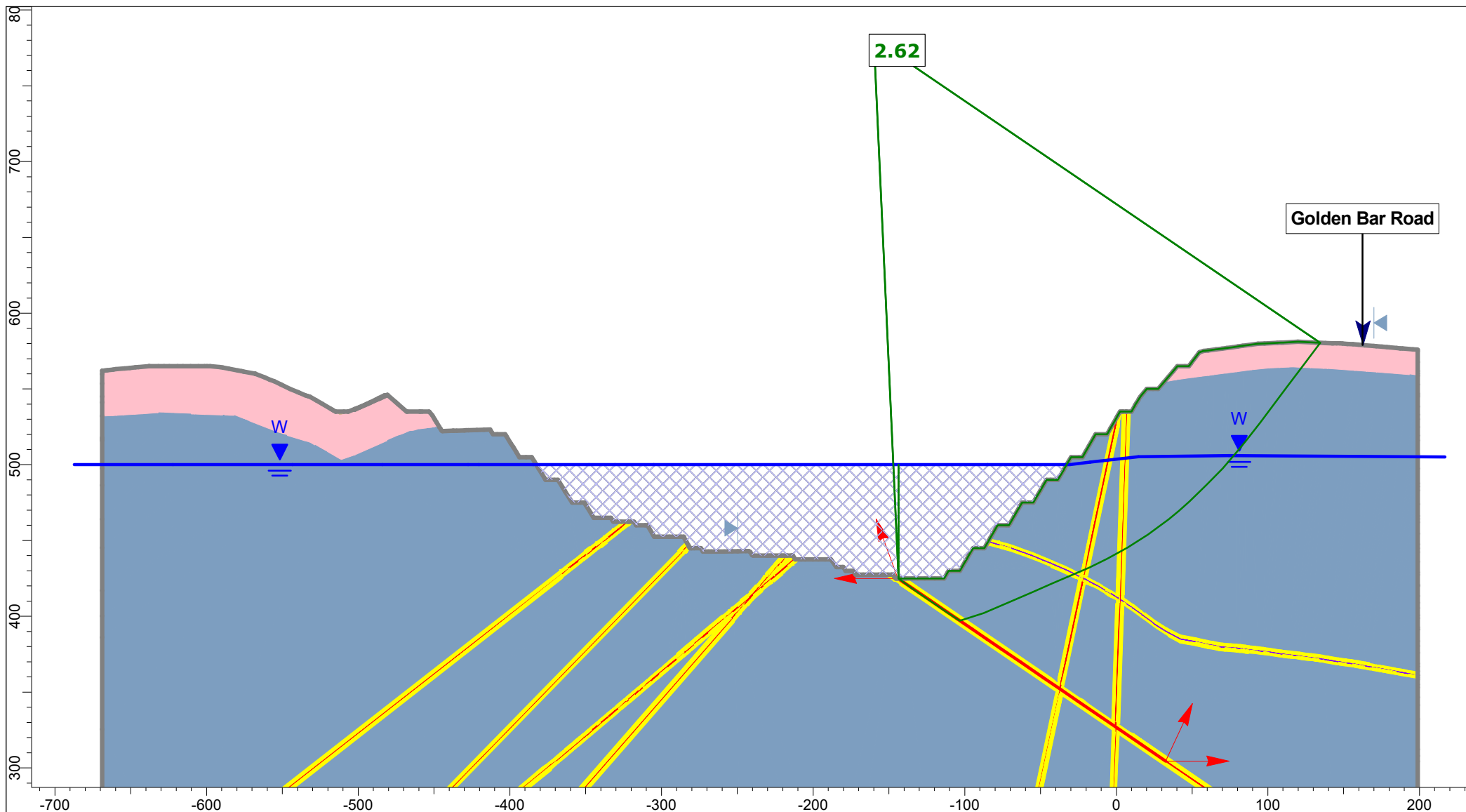
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	GB_OPE_Section 1	
Case:	Lake Filling 500 mRL - Static, Block	
Date:	17/03/2026	GLE / Morgenstern-Price



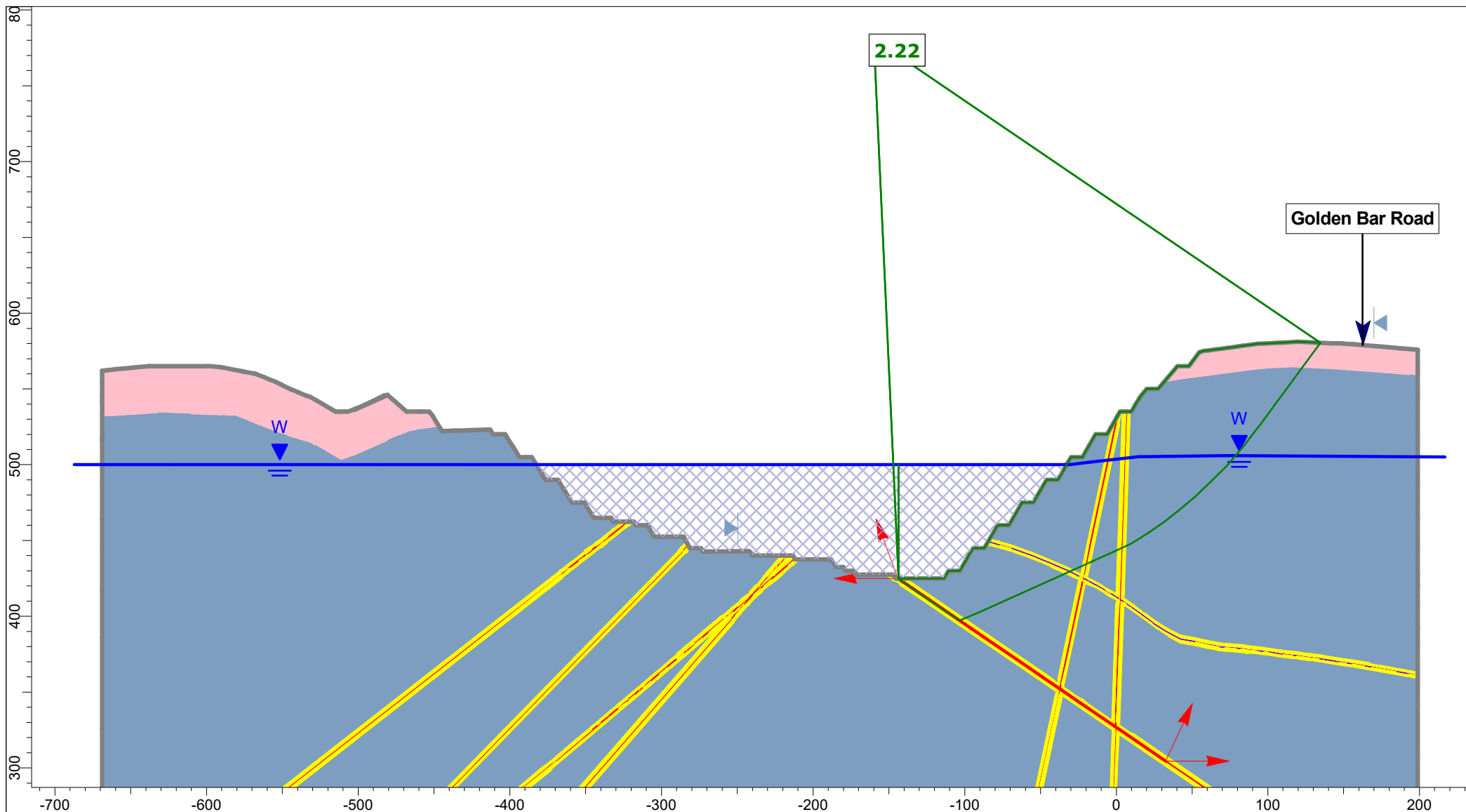
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	GB_OPE_Section 1	
Case:	Lake Filling 500 mRL - AEP=1:500, OBE Kh=0.5 PGA, Block	
Date:	17/03/2026	GLE / Morgenstern-Price



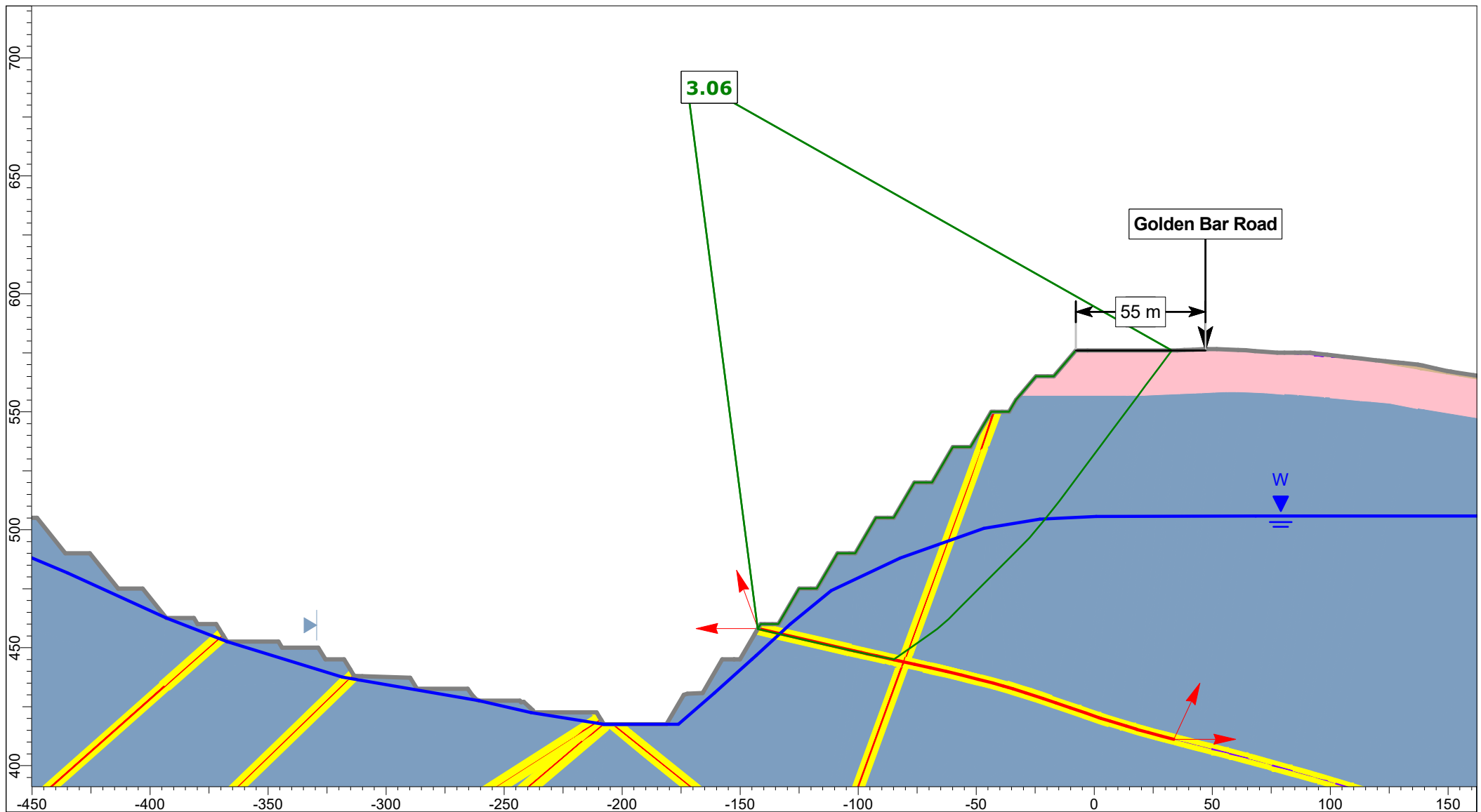
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	GB_OPE_Section 1	
Case:	Lake Filling 500 mRL - AEP=1:500, OBE Kh=0.8 PGA, Block	
Date:	17/03/2026	GLE / Morgenstern-Price



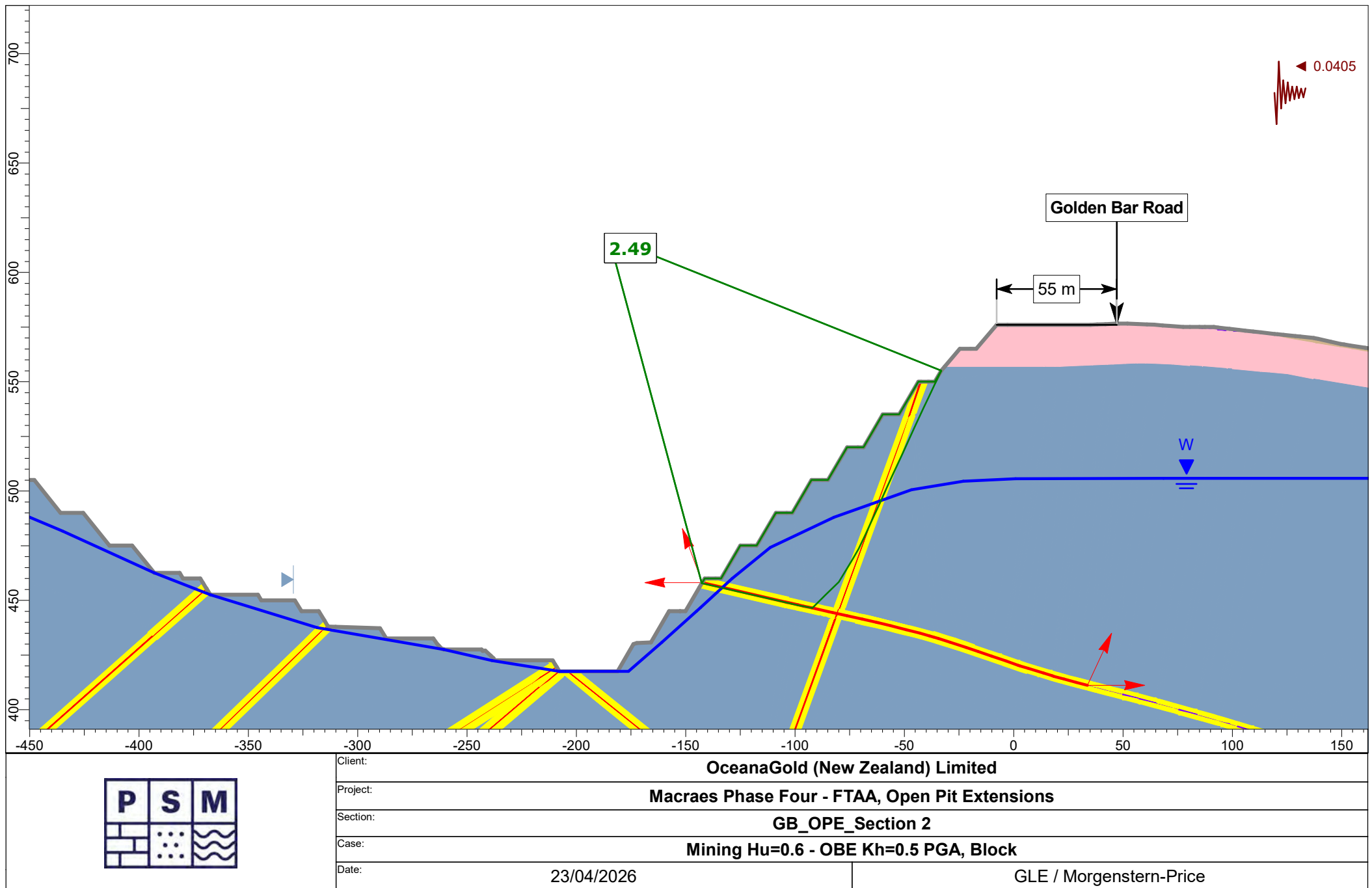
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	GB_OPE_Section 1	
Case:	Closure - MDE Kh=0.5 PGA, Block	
Date:	17/03/2026	GLE / Morgenstern-Price

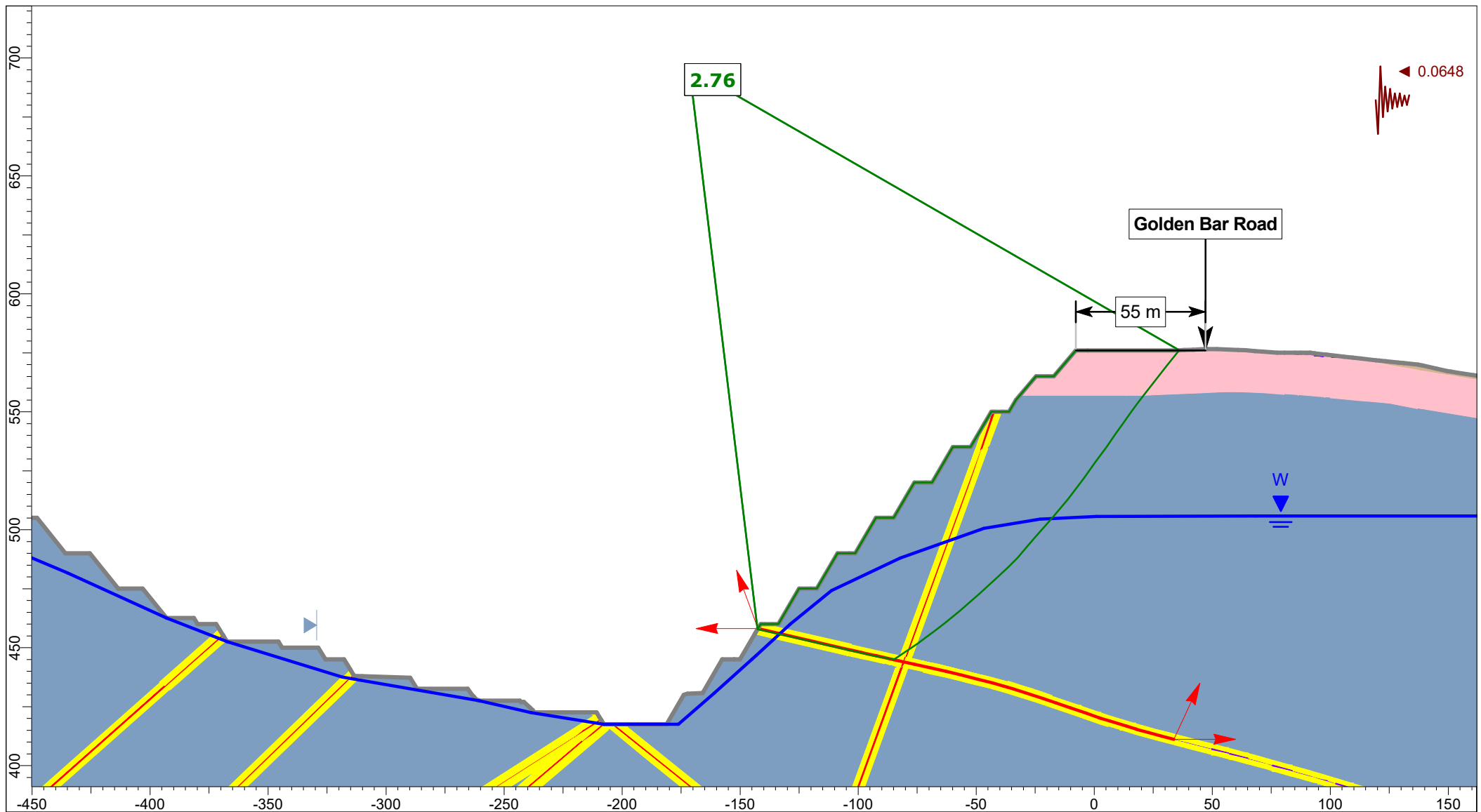


Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	GB_OPE_Section 1	
Case:	Closure - MDE Kh=0.8 PGA, Block	
Date:	17/03/2026	GLE / Morgenstern-Price

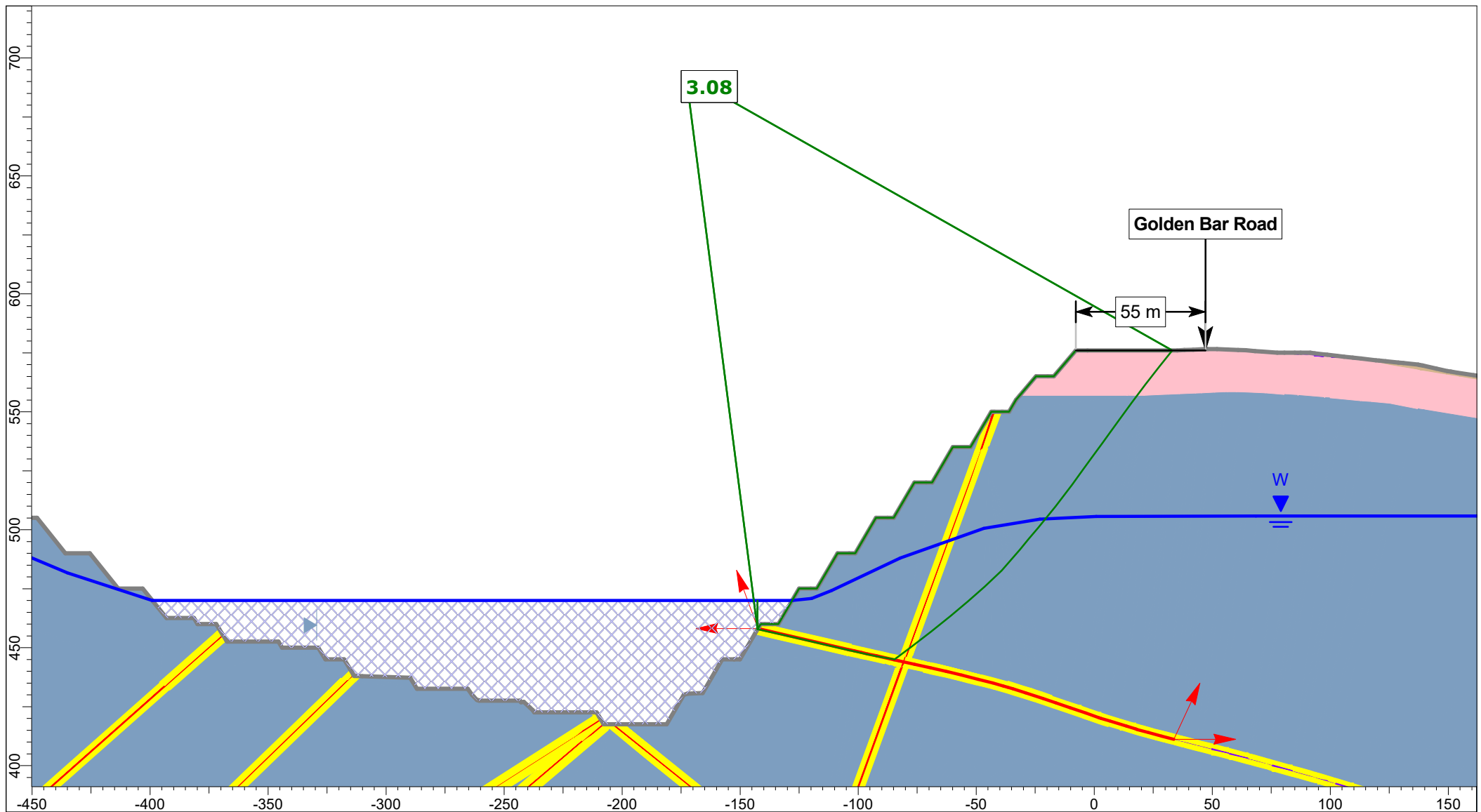


Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	GB_OPE_Section 2	
Case:	Mining Hu=0.6 - Static, Block	
Date:	23/04/2026	GLE / Morgenstern-Price

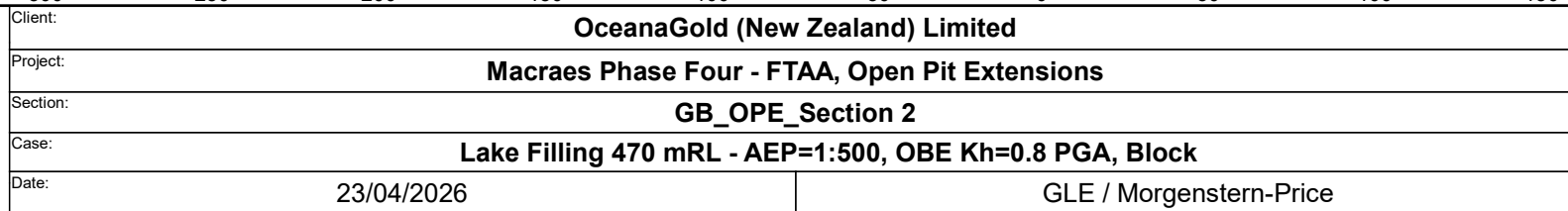


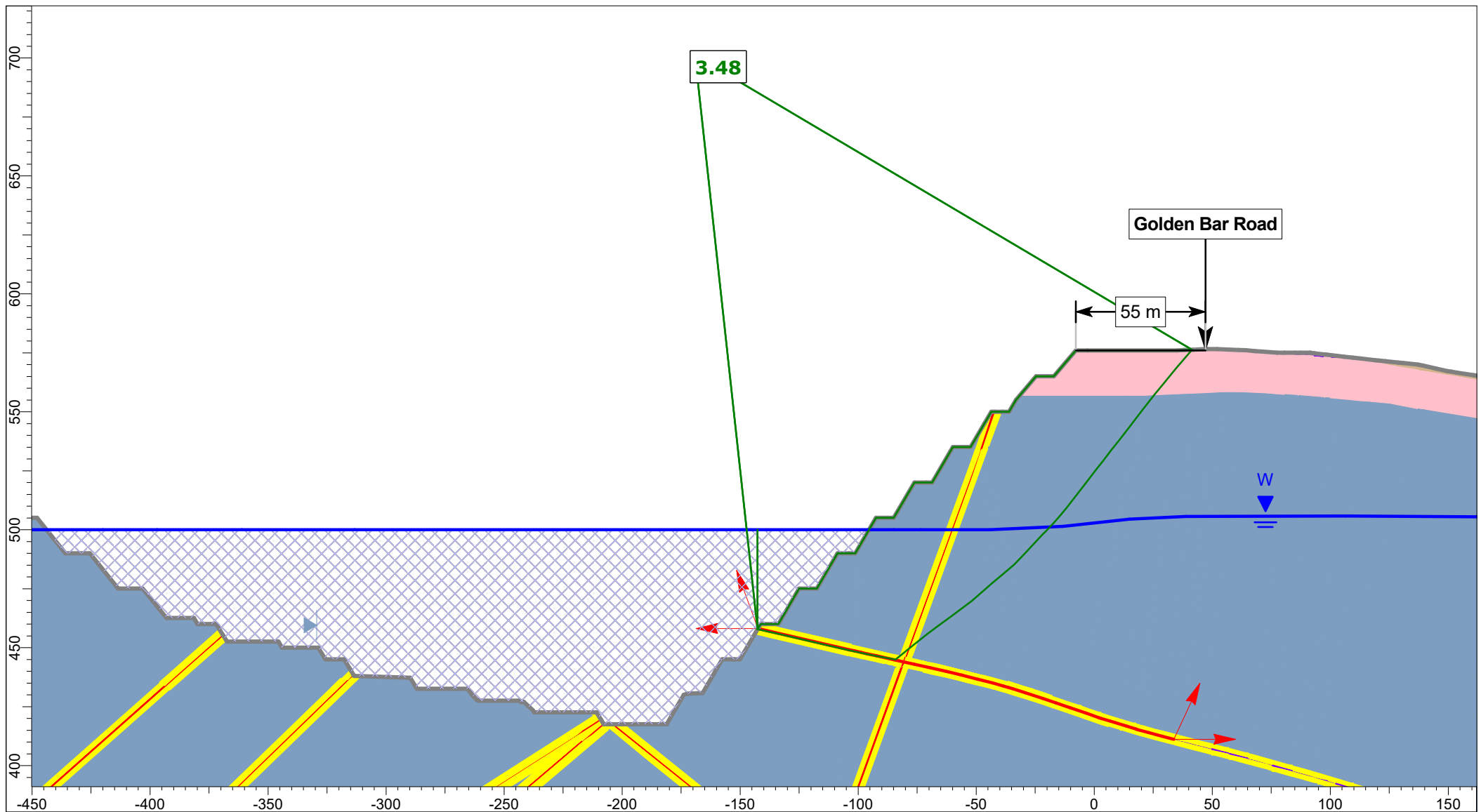


Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	GB_OPE_Section 2	
Case:	Mining Hu=0.6 - OBE Kh=0.8 PGA, Block	
Date:	23/04/2026	GLE / Morgenstern-Price

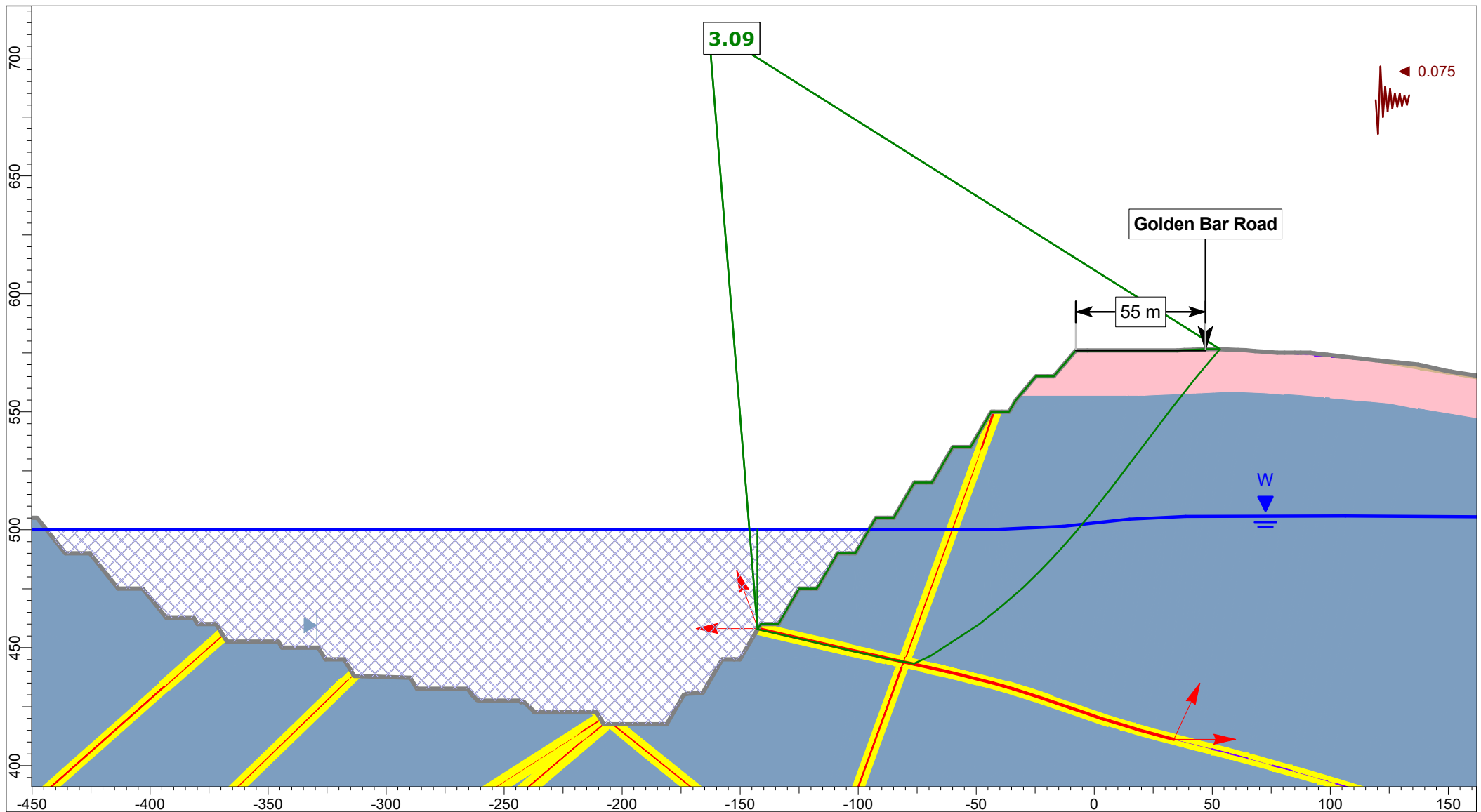


Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	GB_OPE_Section 2	
Case:	Lake Filling 470 mRL - Static, Block	
Date:	23/04/2026	GLE / Morgenstern-Price





Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	GB_OPE_Section 2	
Case:	Lake Filling 500 mRL - Static, Block	
Date:	23/04/2026	GLE / Morgenstern-Price



Client:

OceanaGold (New Zealand) Limited

Project:

Macraes Phase Four - FTAA, Open Pit Extensions

Section:

GB_OPE_Section 2

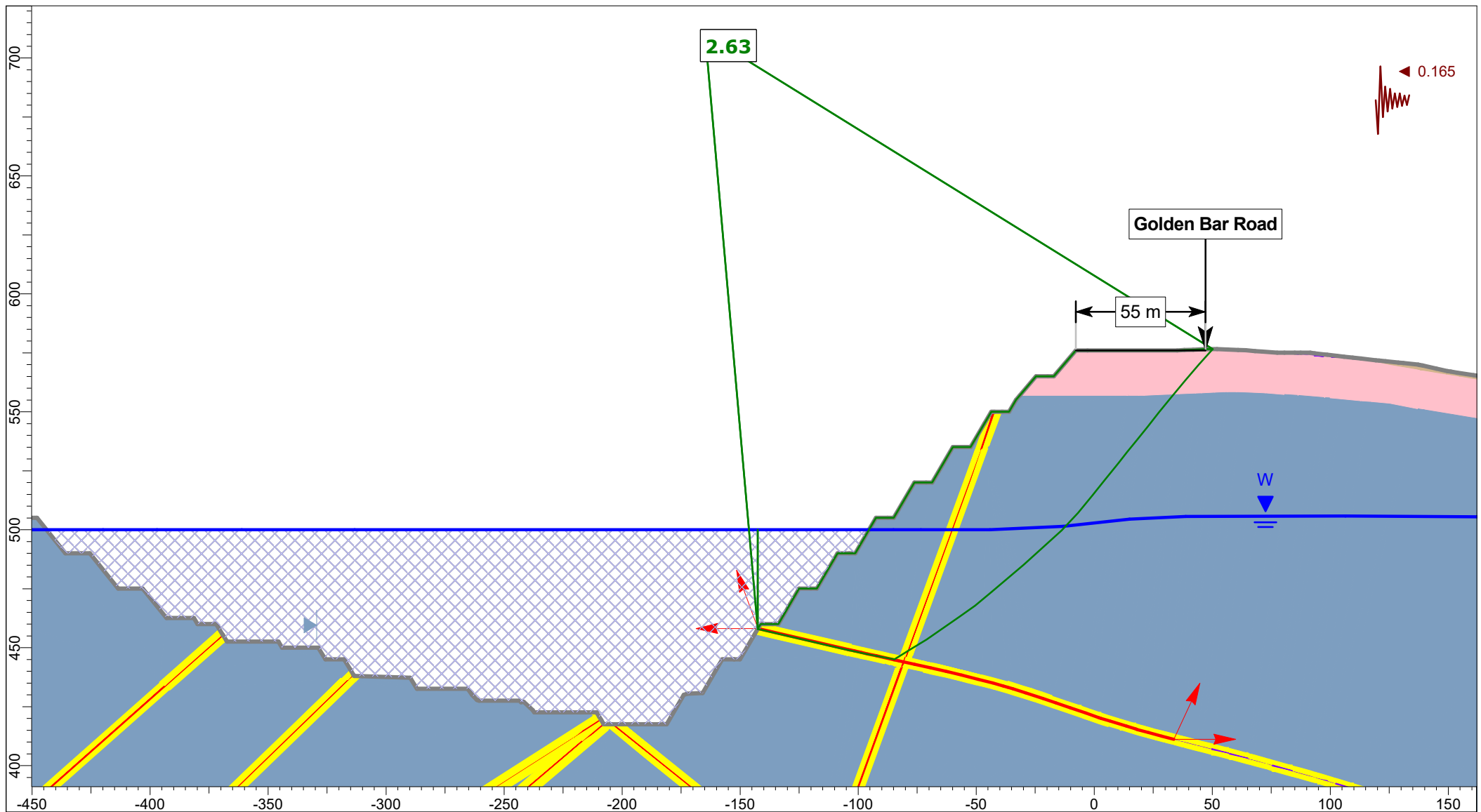
Case:

Lake Filling 500 mRL - AEP=1:500, OBE Kh=0.5 PGA, Block

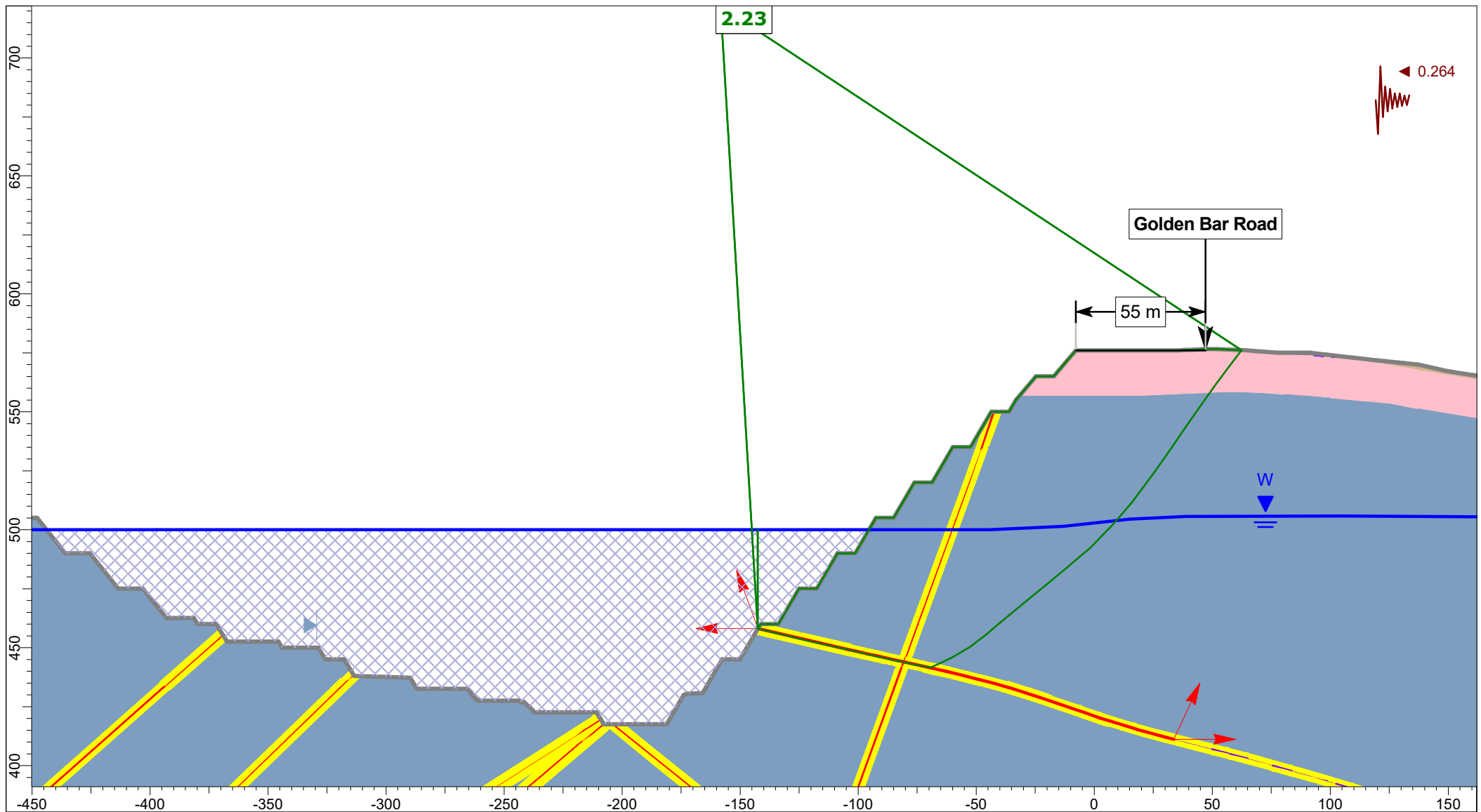
Date:

23/04/2026

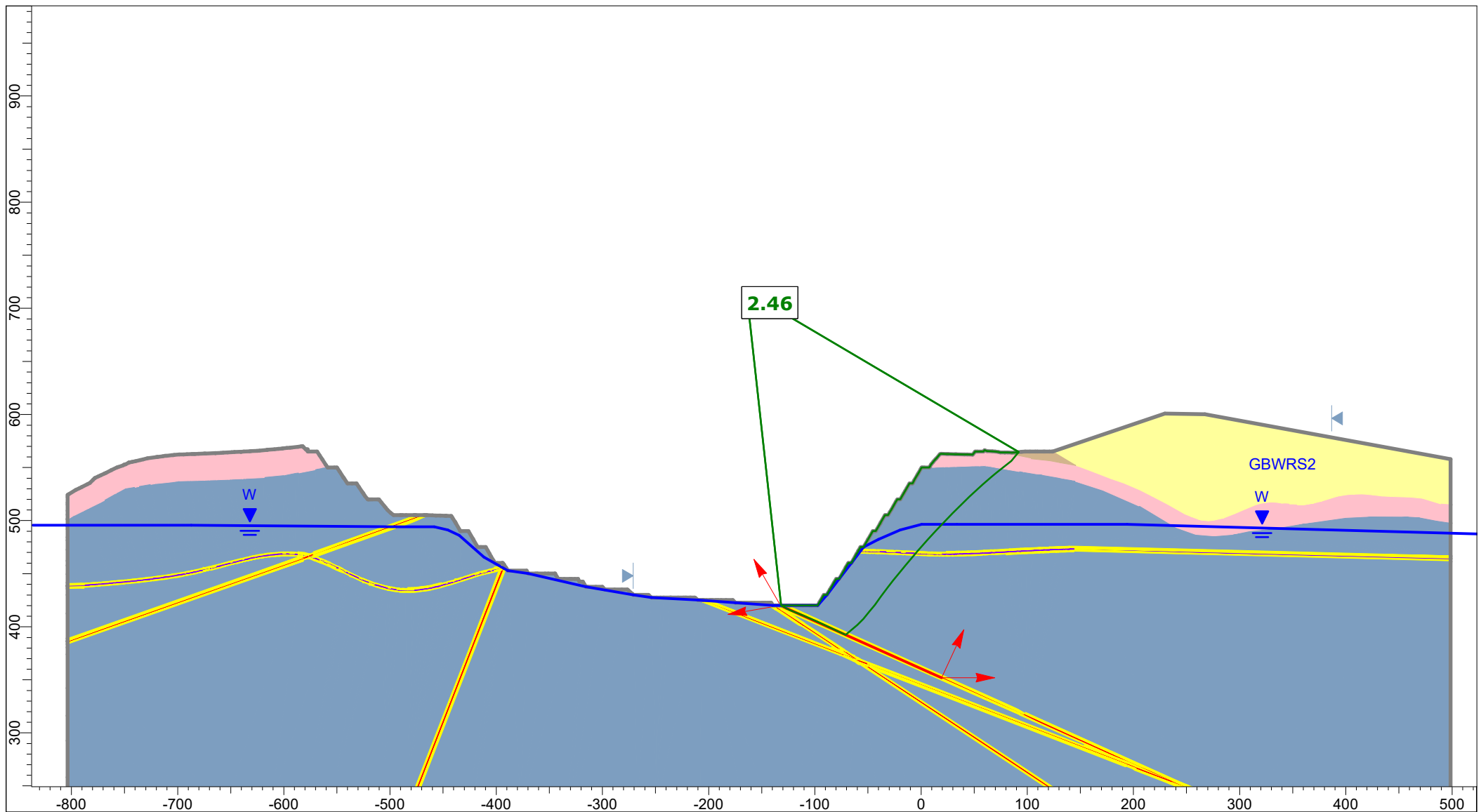
GLE / Morgenstern-Price



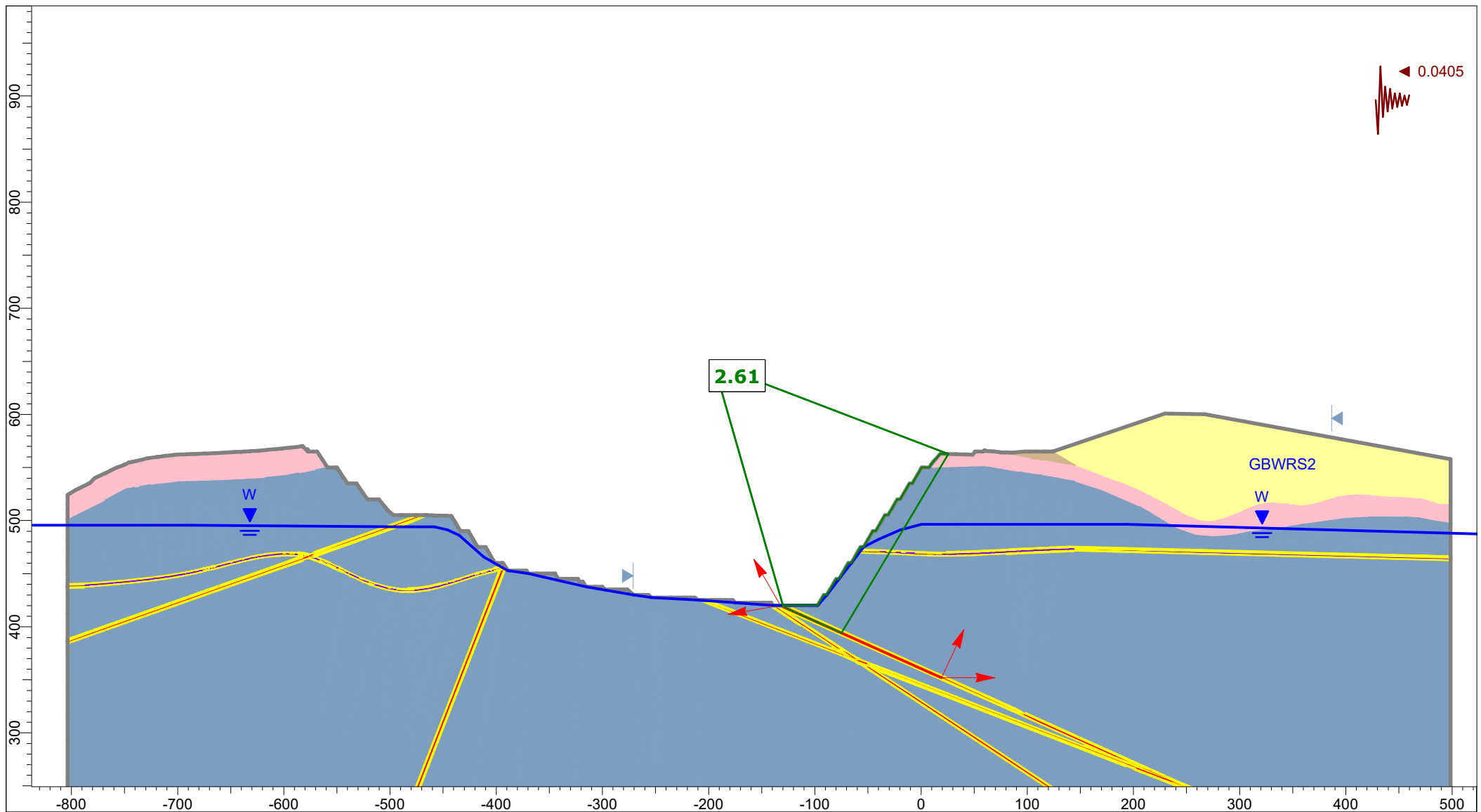
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	GB_OPE_Section 2	
Case:	Closure - MDE Kh=0.5 PGA, Block	
Date:	23/04/2026	GLE / Morgenstern-Price



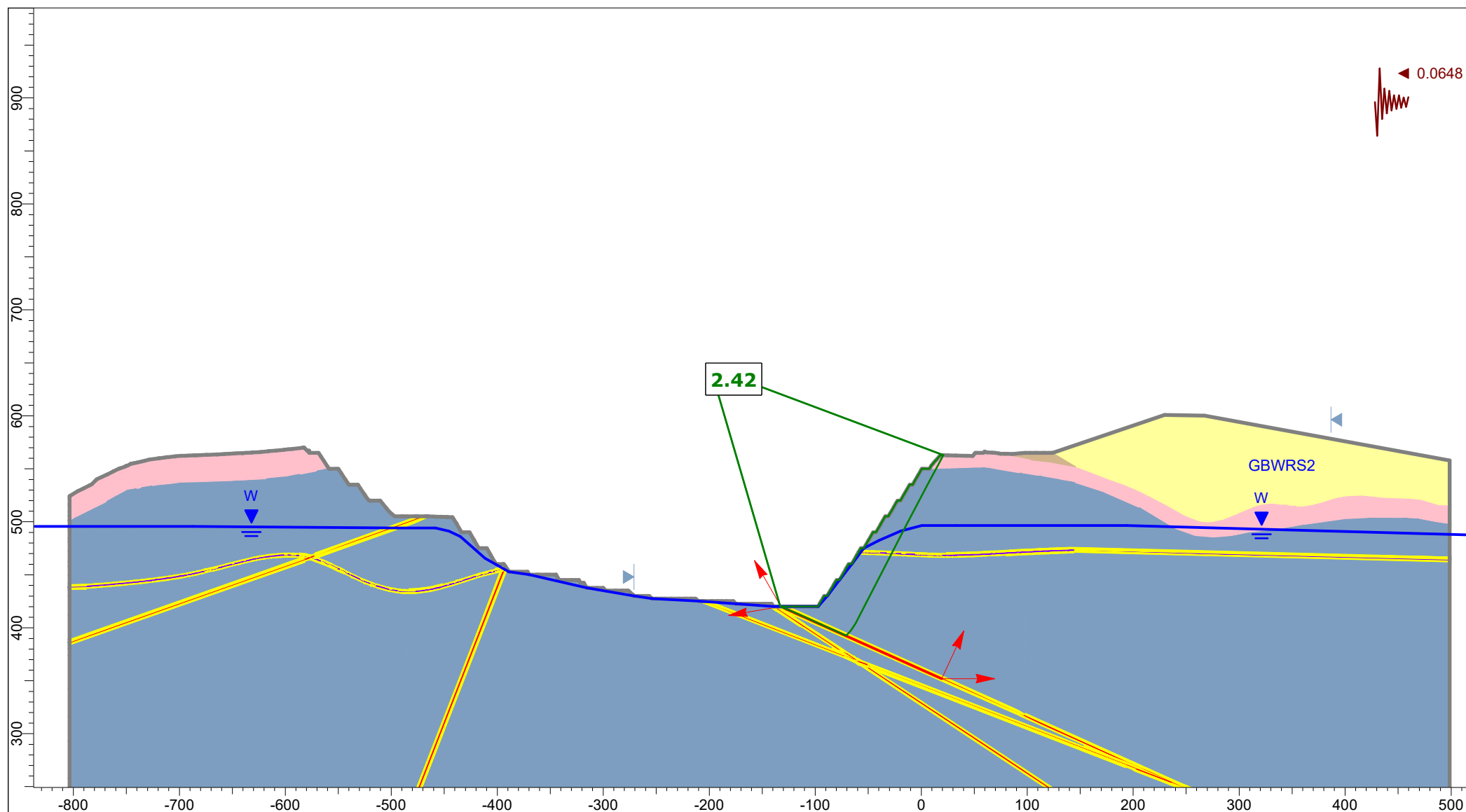
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	GB_OPE_Section 2	
Case:	Closure - MDE Kh=0.8 PGA, Block	
Date:	23/04/2026	GLE / Morgenstern-Price

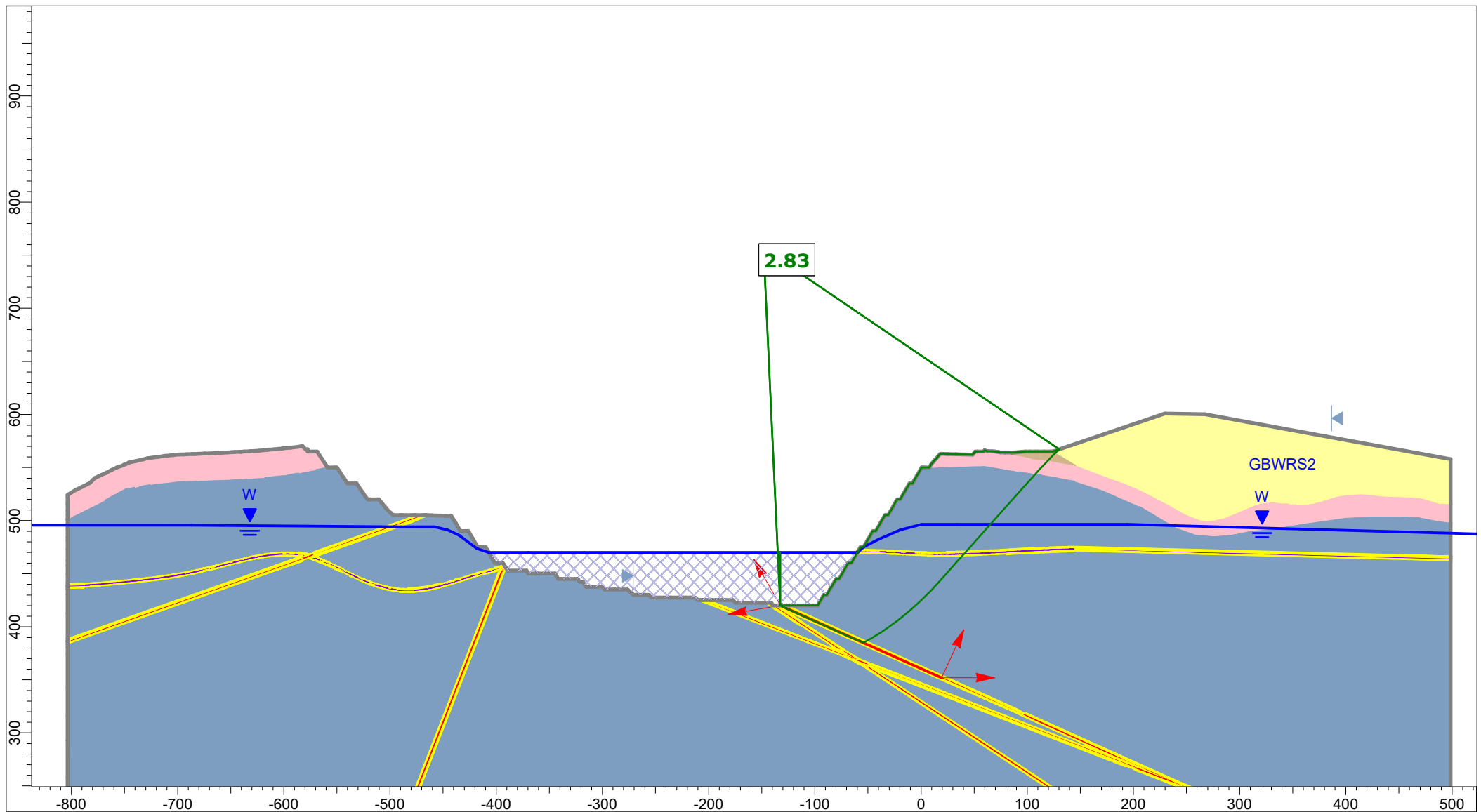


Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	GB_OPE_Section 3	
Case:	Mining Hu=0.6 - Static, Block	
Date:	17/03/2026	GLE / Morgenstern-Price

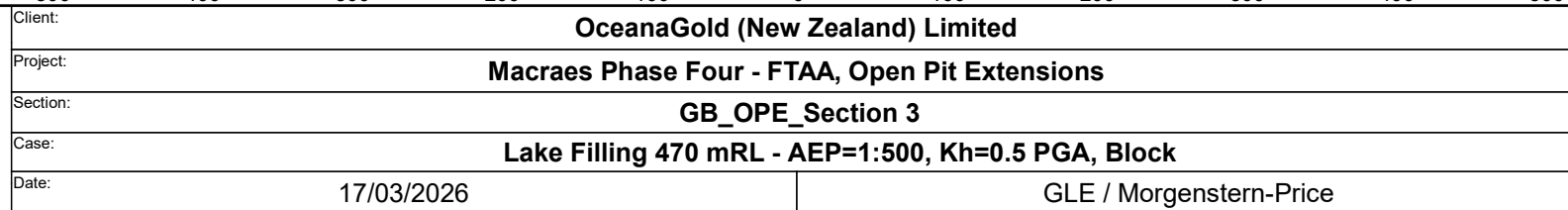
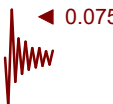


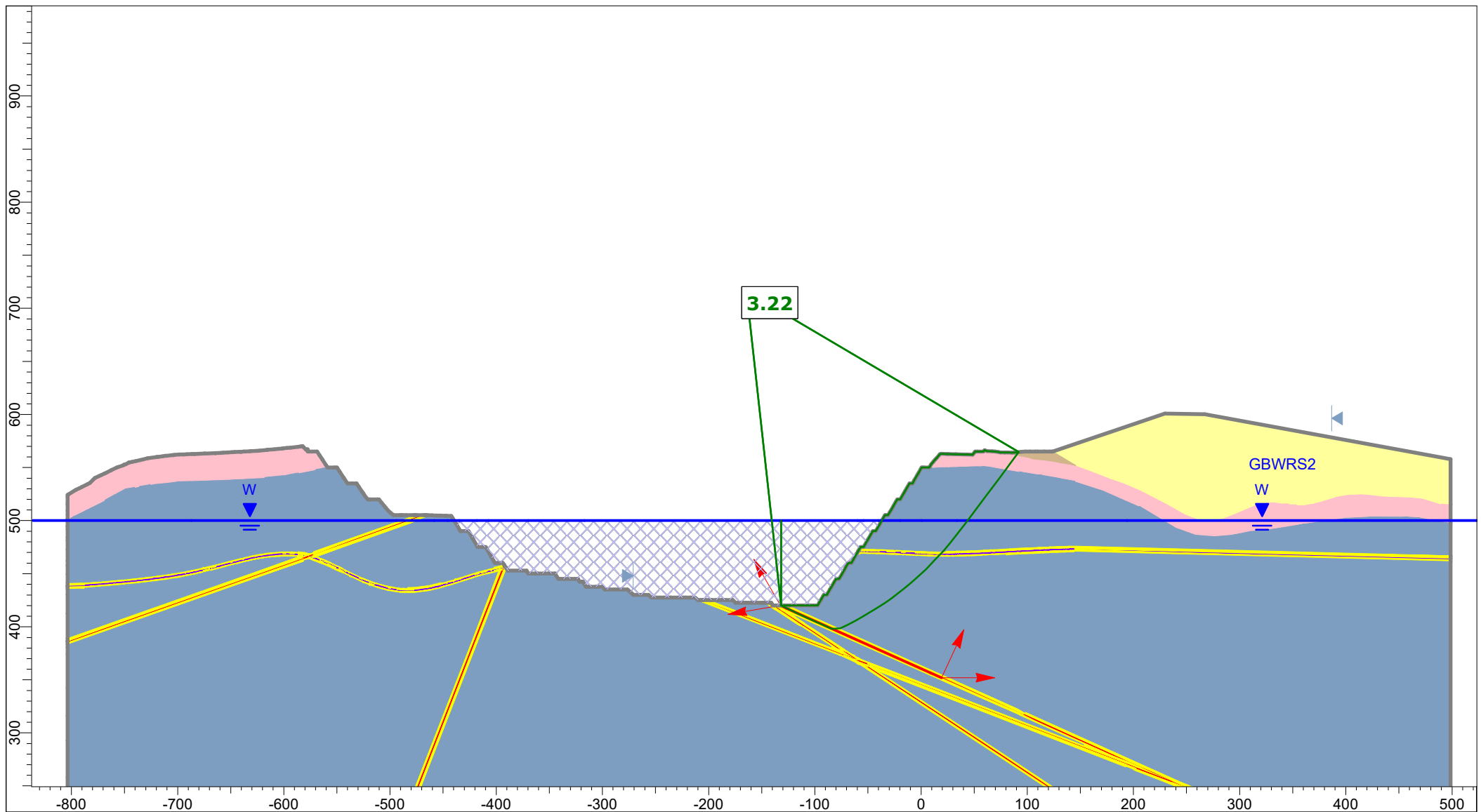
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	GB_OPE_Section 3	
Case:	Mining Hu=0.6 - OBE Kh=0.5 PGA, Block	
Date:	17/03/2026	GLE / Morgenstern-Price



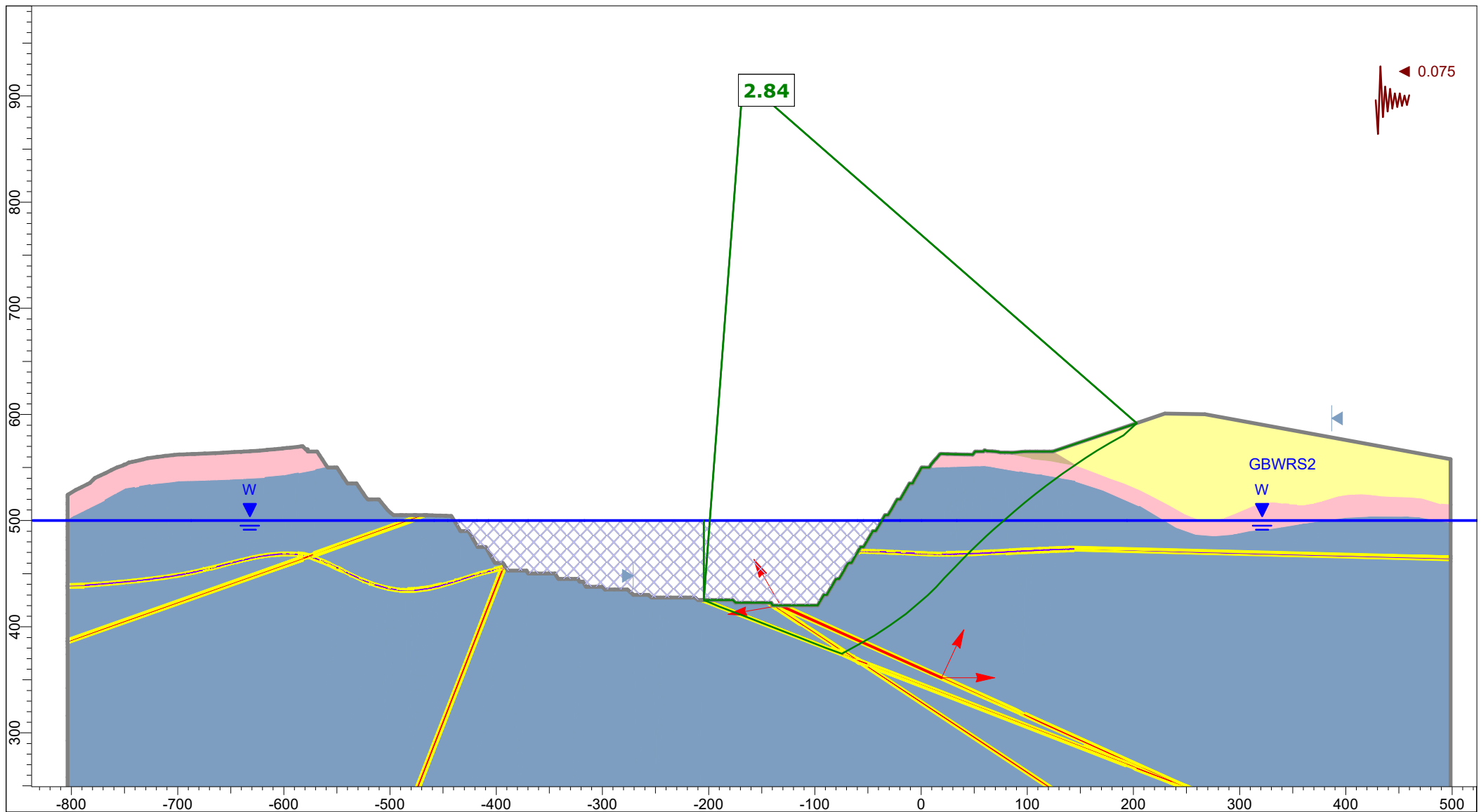


Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	GB_OPE_Section 3	
Case:	Lake Filling 470 mRL - Static, Block	
Date:	17/03/2026	GLE / Morgenstern-Price

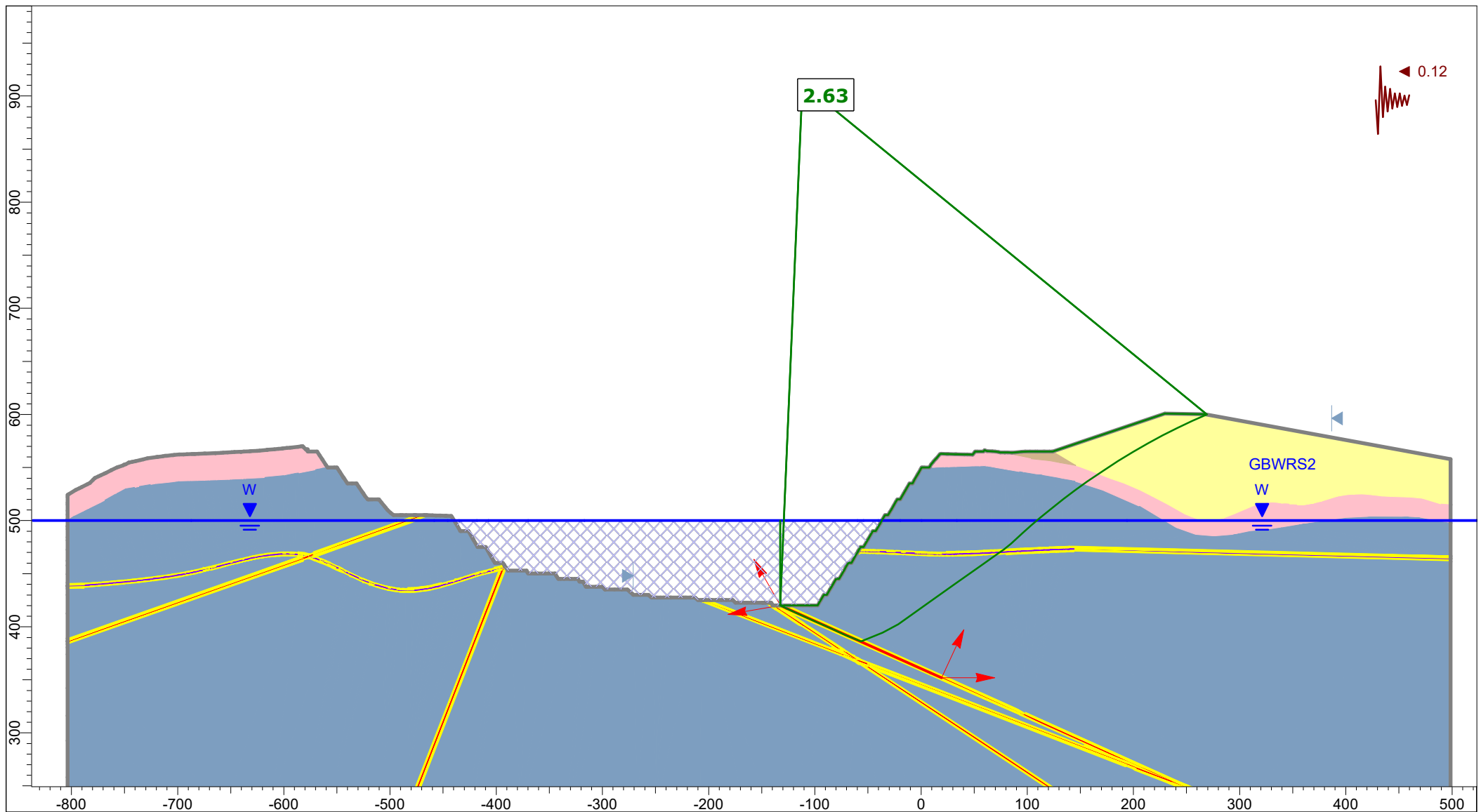




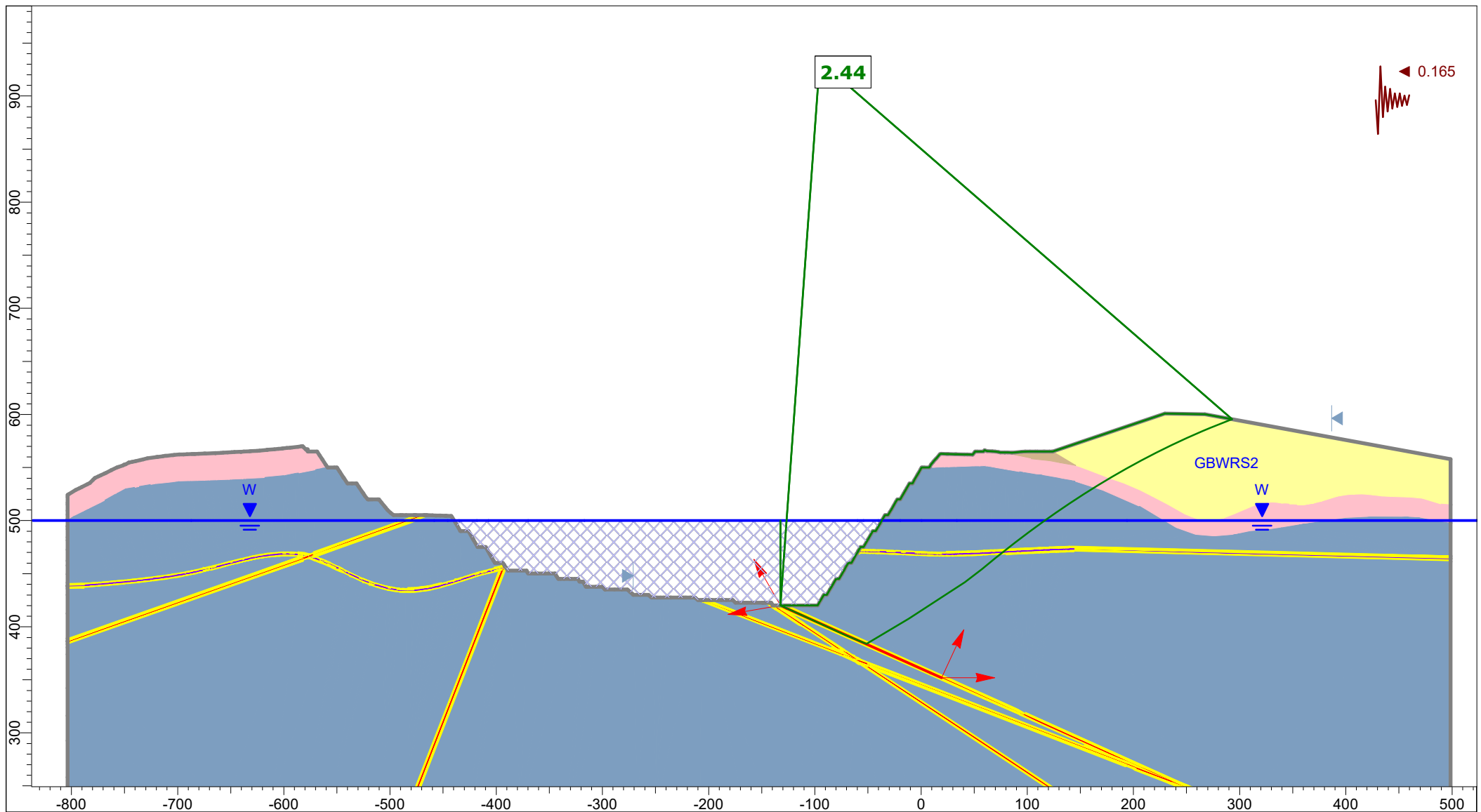
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	GB_OPE_Section 3	
Case:	Lake Filling 500 mRL - Static, Block	
Date:	17/03/2026	GLE / Morgenstern-Price



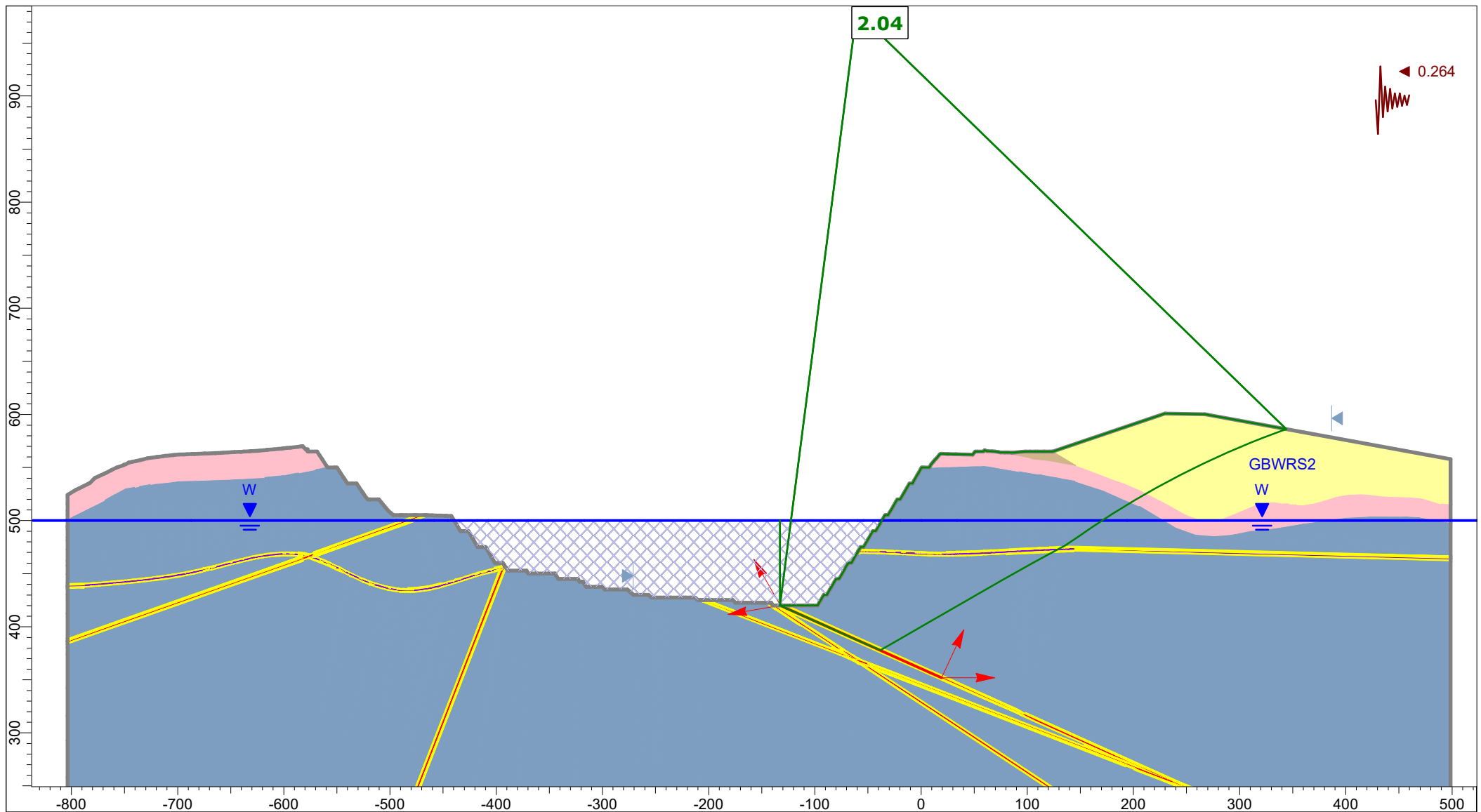
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	GB_OPE_Section 3	
Case:	Lake Filling 500 mRL - AEP=1:500, Kh=0.5 PGA, Block	
Date:	17/03/2026	GLE / Morgenstern-Price



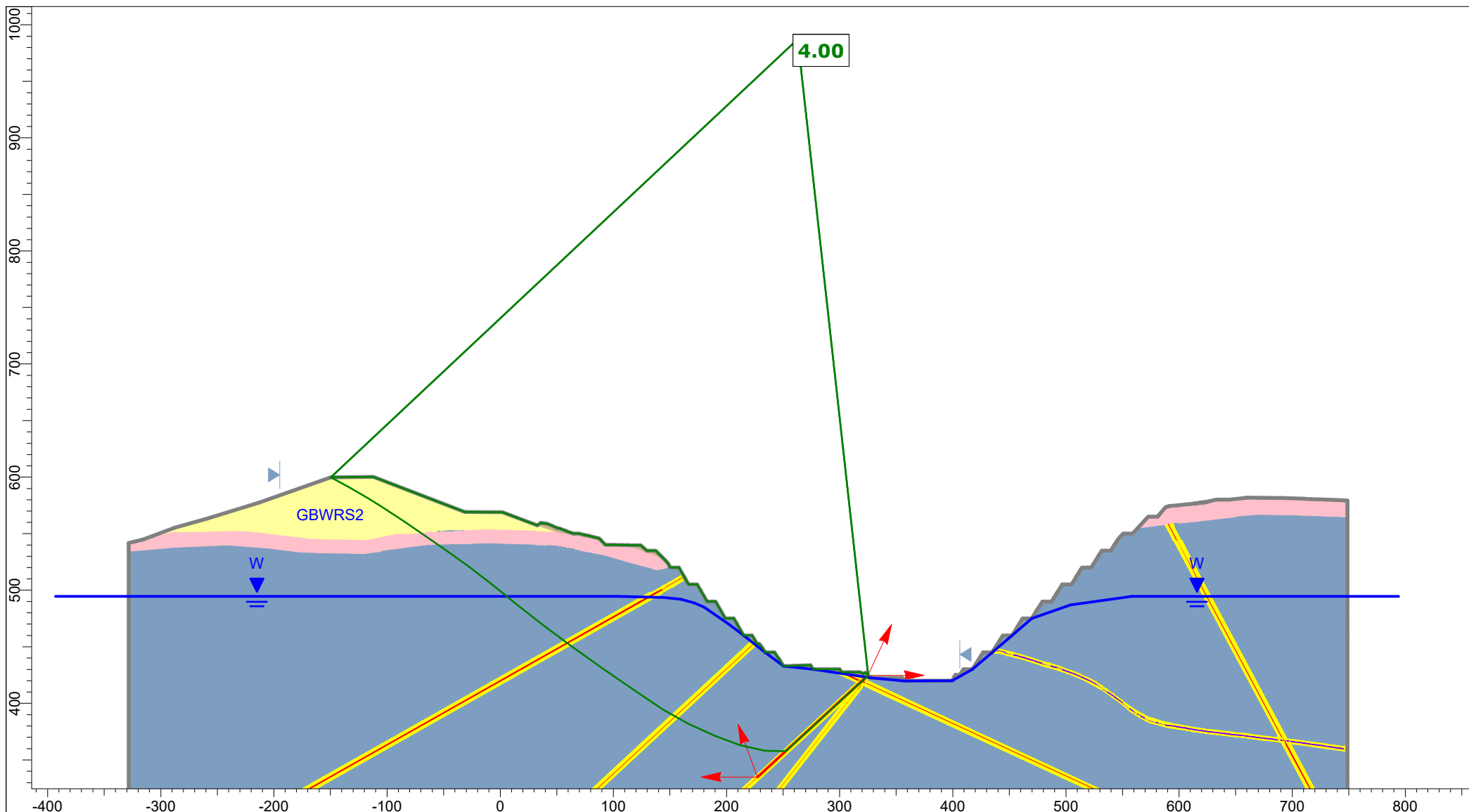
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	GB_OPE_Section 3	
Case:	Lake Filling 500 mRL - AEP=1:500, Kh=0.8 PGA, Block	
Date:	17/03/2026	GLE / Morgenstern-Price



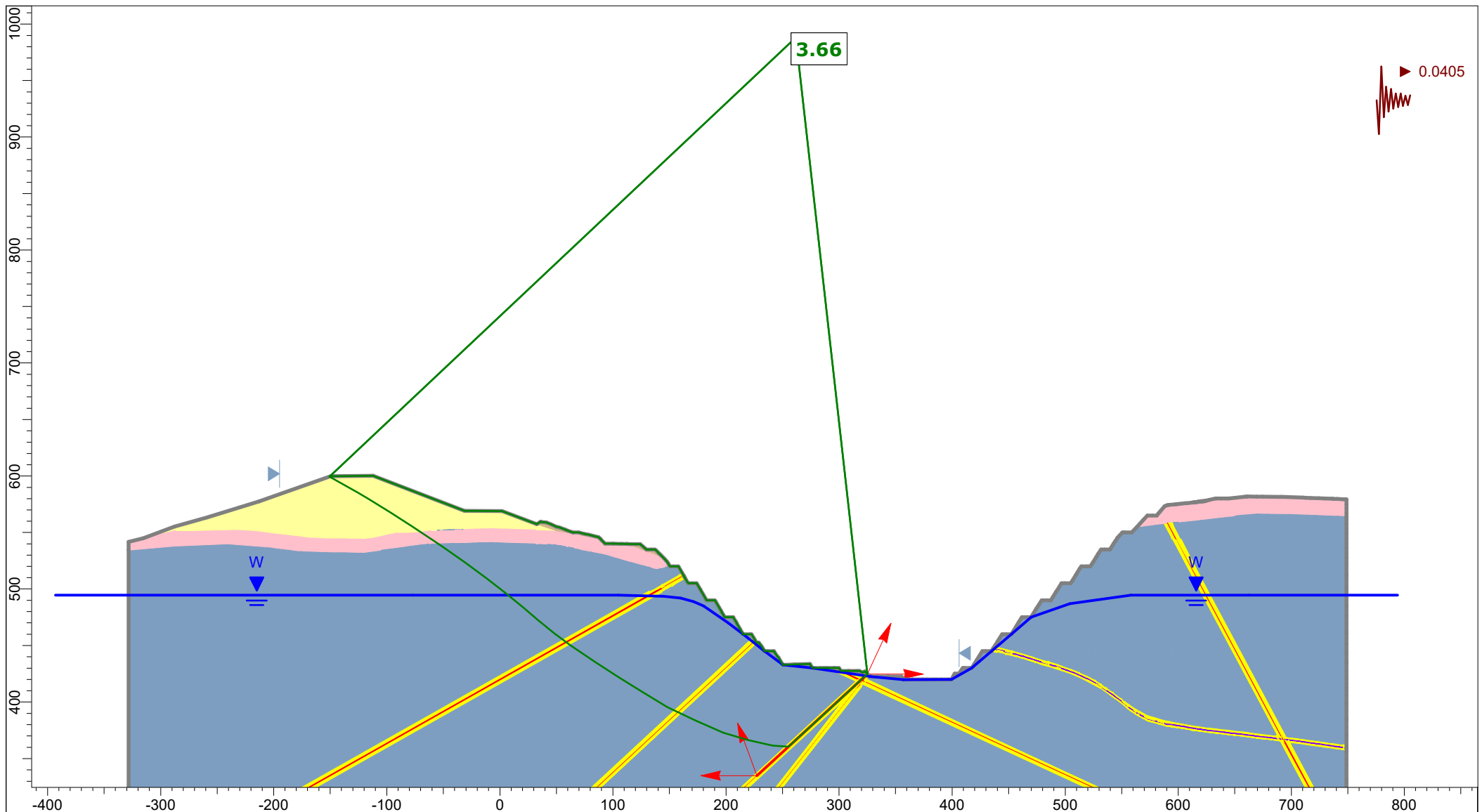
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	GB_OPE_Section 3	
Case:	Closure - MDE Kh=0.5 PGA, Block	
Date:	17/03/2026	GLE / Morgenstern-Price



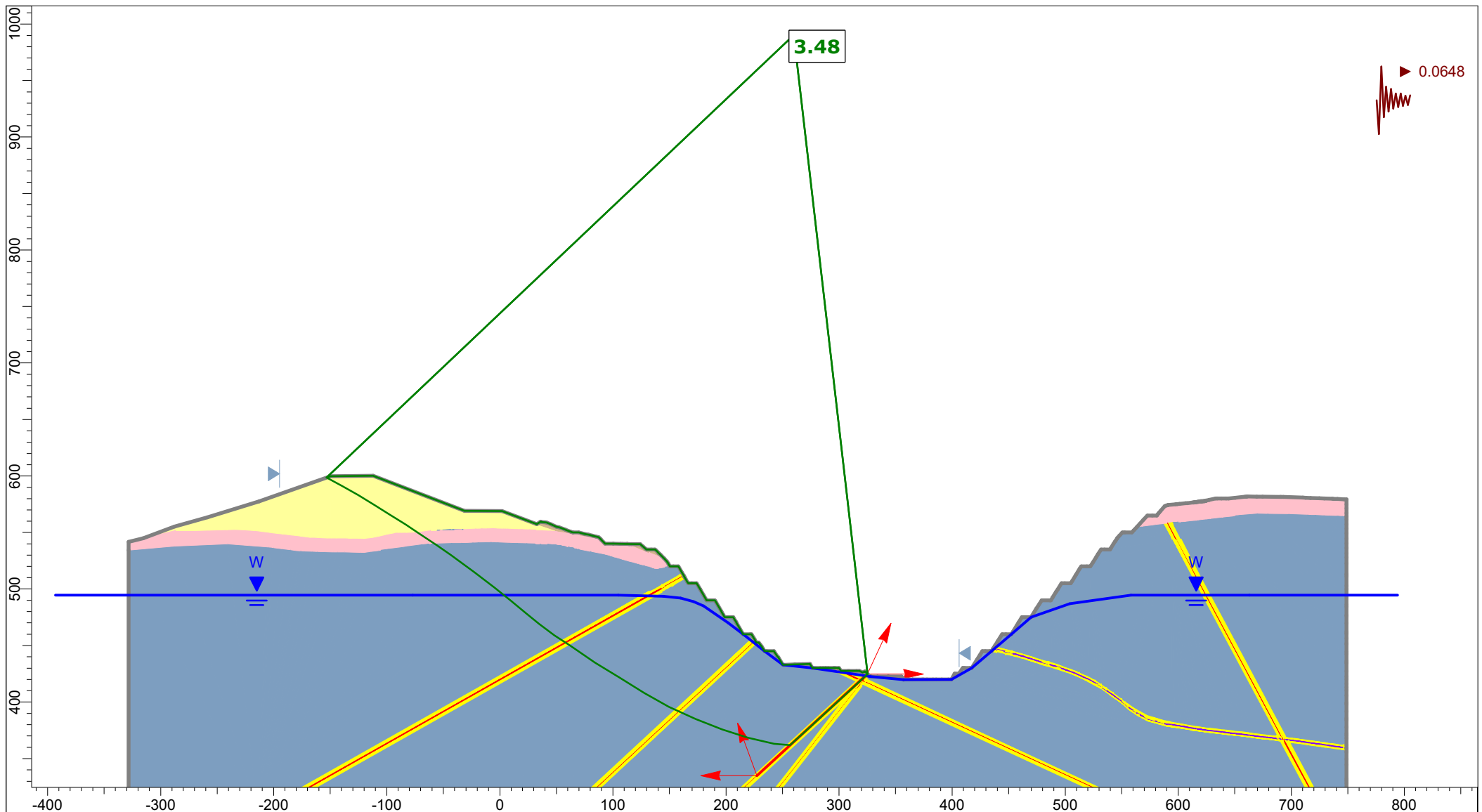
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	GB_OPE_Section 3	
Case:	Closure - MDE Kh=0.8 PGA, Block	
Date:	17/03/2026	GLE / Morgenstern-Price



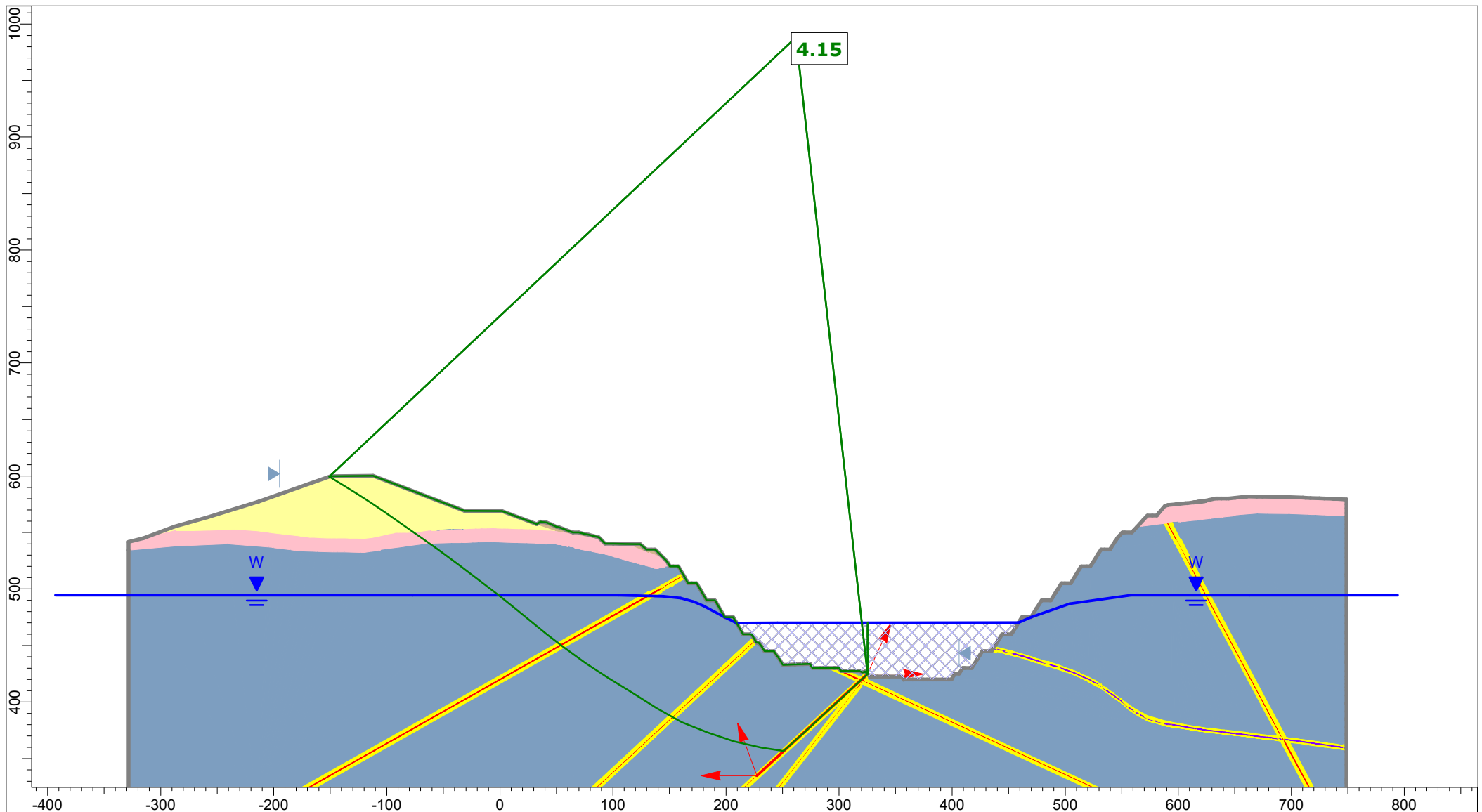
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	GB_OPE_Section 4	
Case:	Mining Hu=0.6 - Static, Block	
Date:	17/03/2026	GLE / Morgenstern-Price



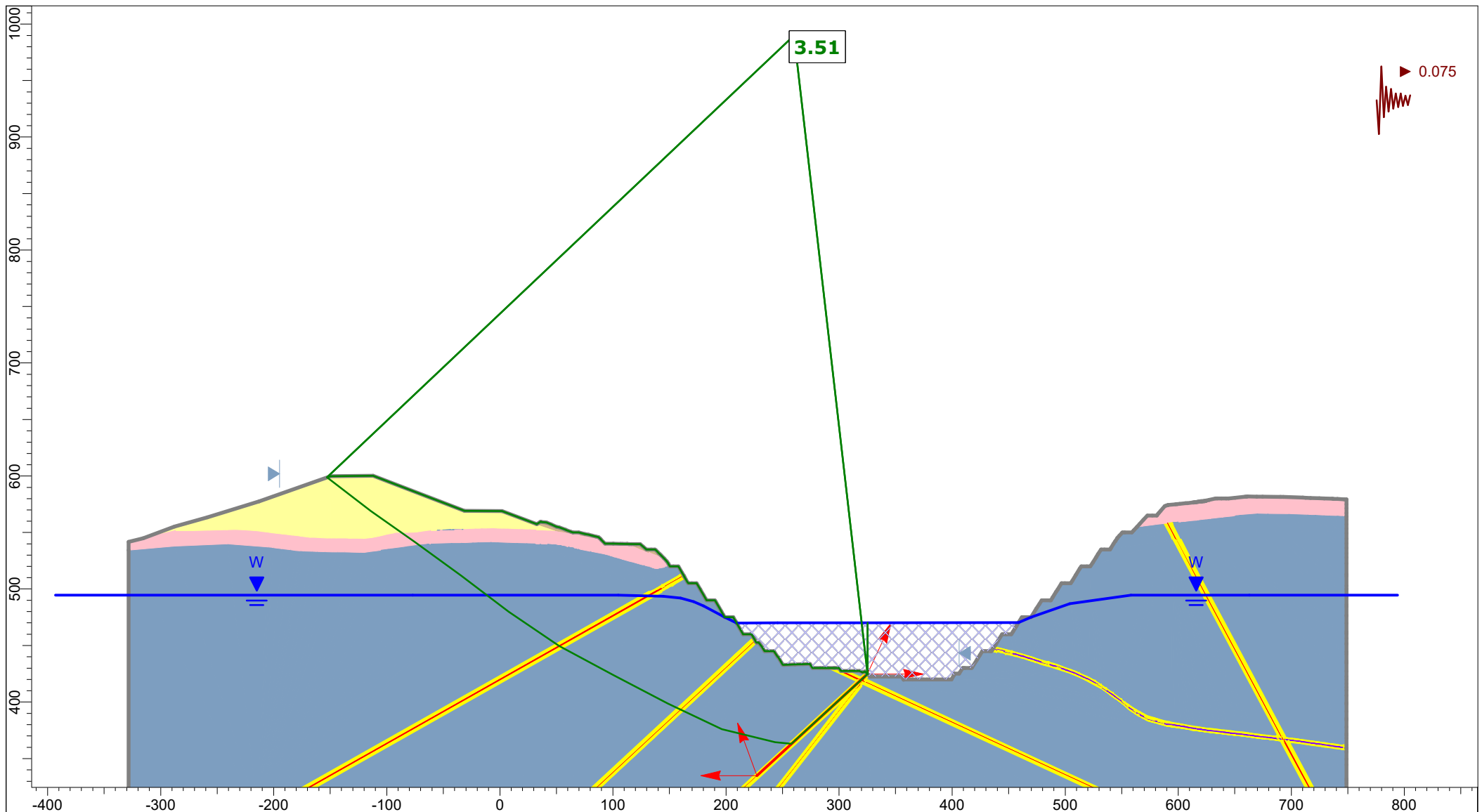
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	GB_OPE_Section 4	
Case:	Mining Hu=0.6 - OBE Kh=0.5 PGA, Block	
Date:	17/03/2026	GLE / Morgenstern-Price



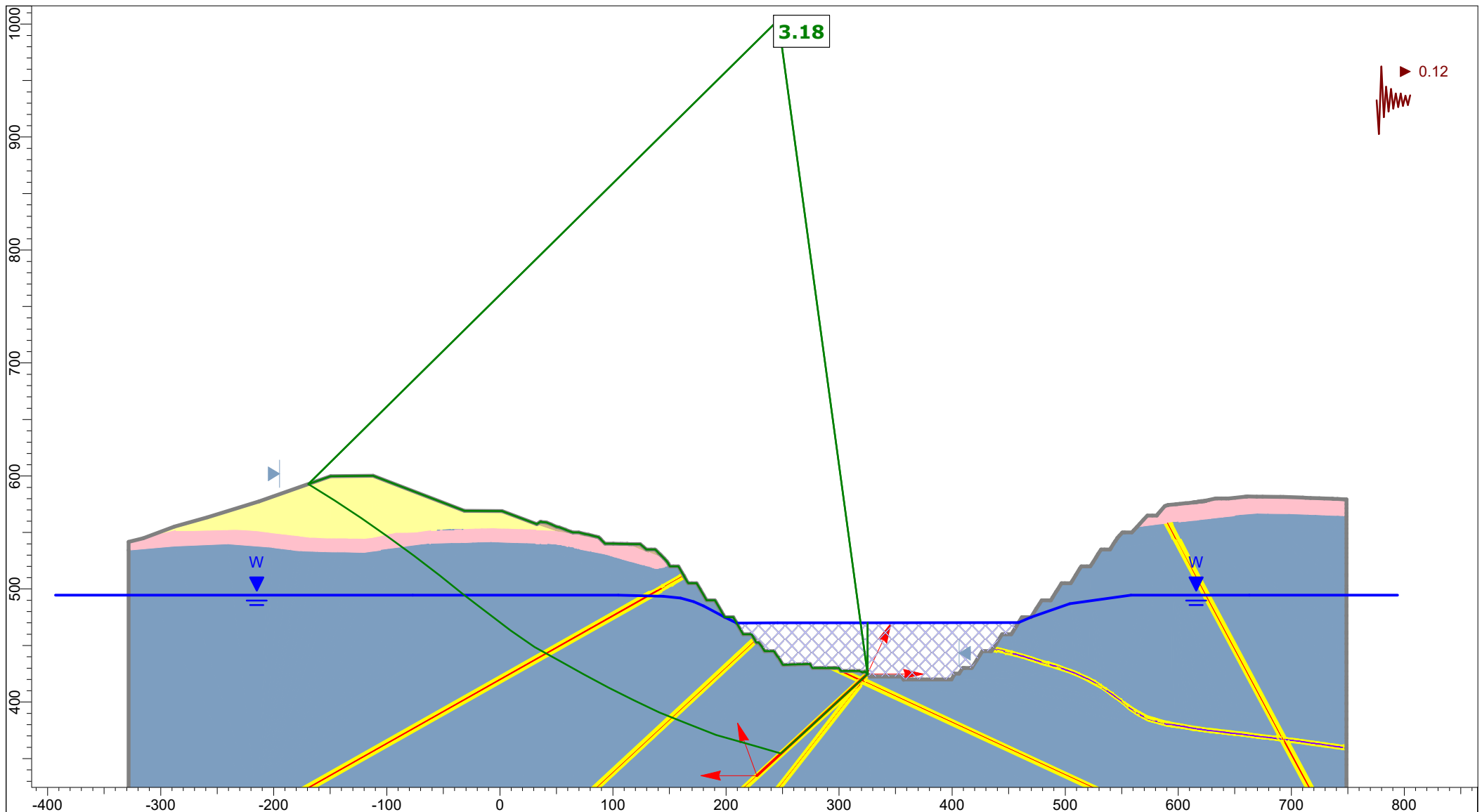
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	GB_OPE_Section 4	
Case:	Mining Hu=0.6 - OBE Kh=0.8 PGA, Block	
Date:	17/03/2026	GLE / Morgenstern-Price



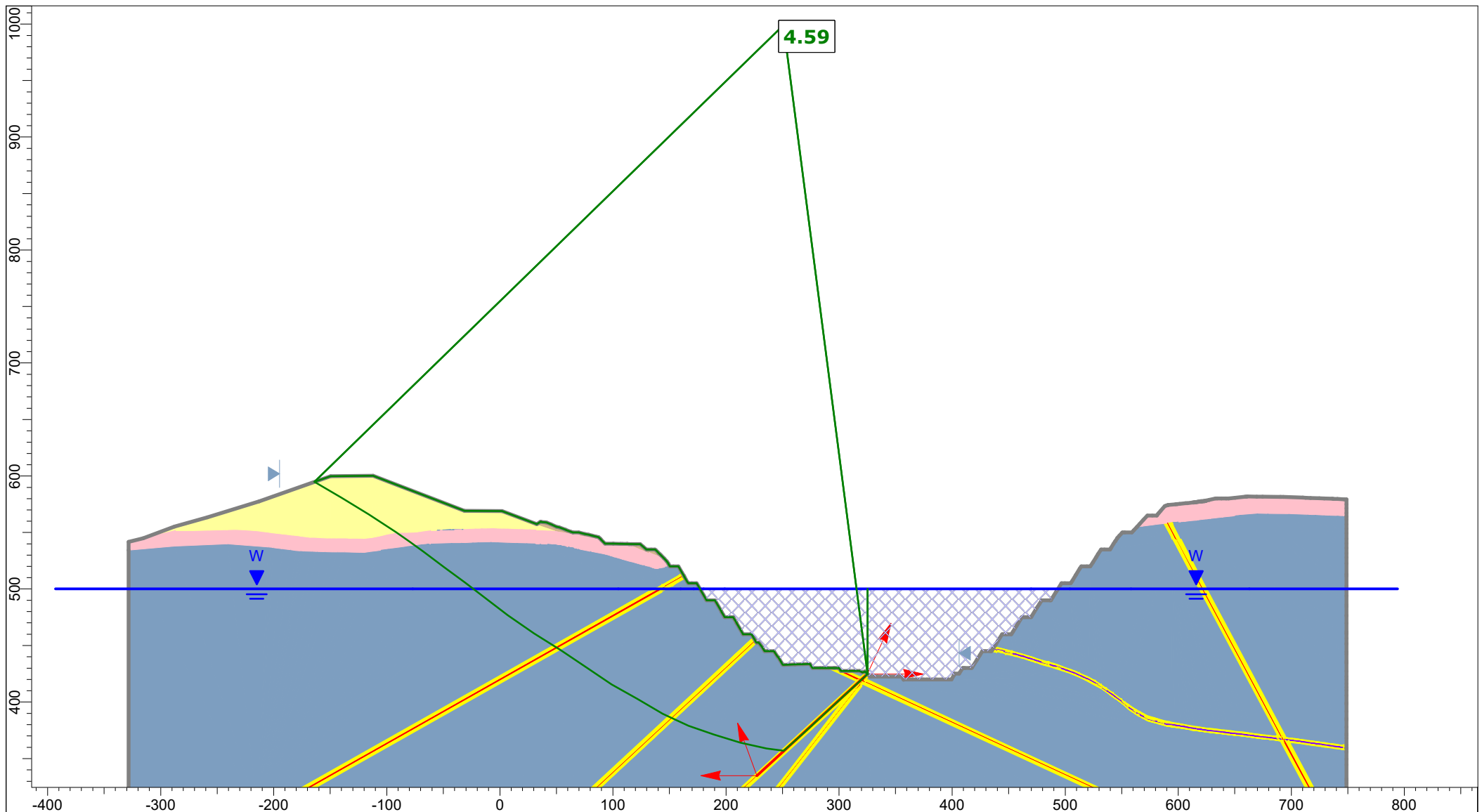
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	GB_OPE_Section 4	
Case:	Lake Filling 470 mRL - Static, Block	
Date:	17/03/2026	GLE / Morgenstern-Price



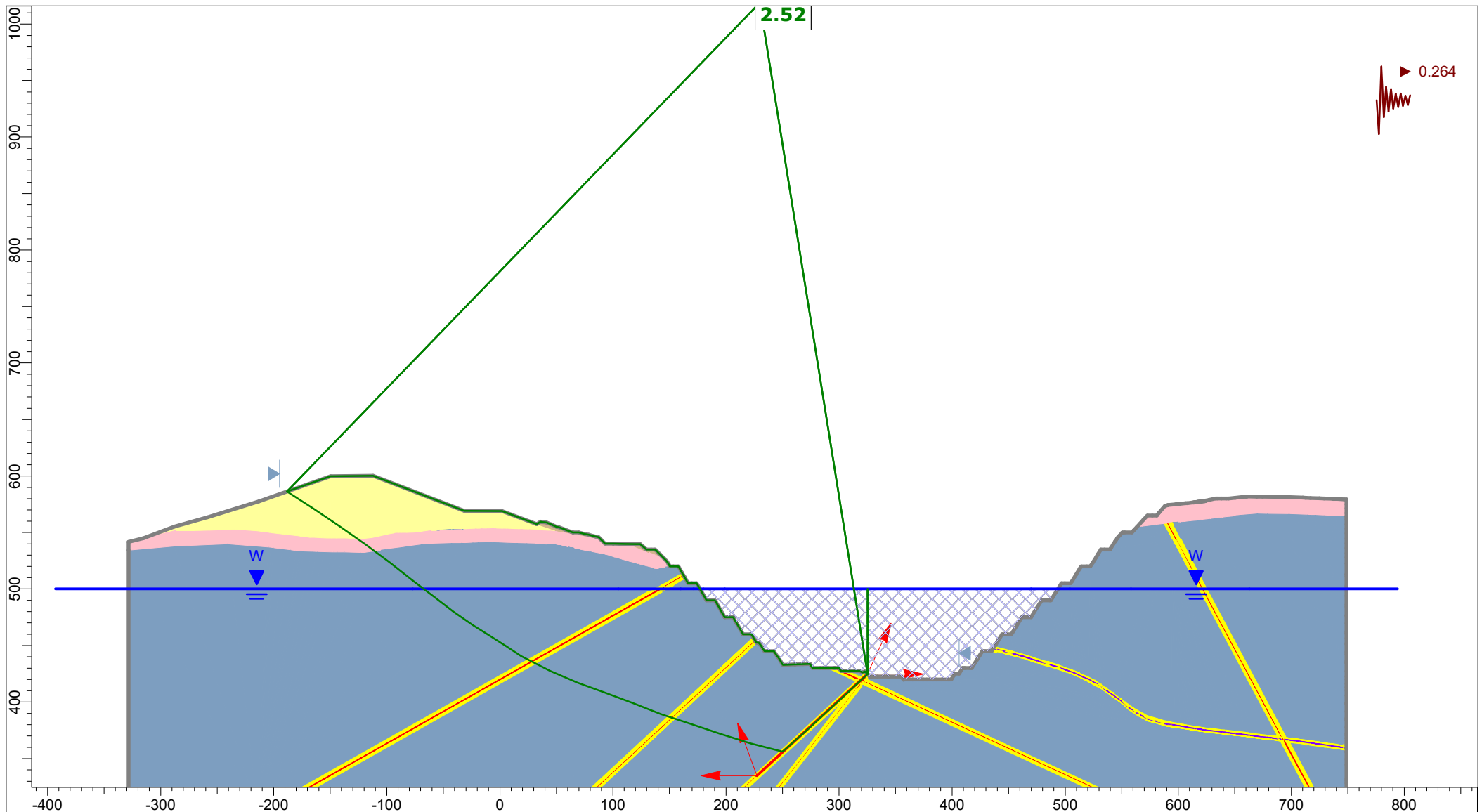
Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	GB_OPE_Section 4	
Case:	Lake Filling 470 mRL - AEP=1:500, Kh=0.5 PGA, Block	
Date:	17/03/2026	GLE / Morgenstern-Price



Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	GB_OPE_Section 4	
Case:	Lake Filling 470 mRL - AEP=1:500, Kh=0.8 PGA, Block	
Date:	17/03/2026	GLE / Morgenstern-Price



Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	GB_OPE_Section 4	
Case:	Lake Filling 500 mRL - Static, Block	
Date:	17/03/2026	GLE / Morgenstern-Price



Client:	OceanaGold (New Zealand) Limited	
Project:	Macraes Phase Four - FTAA, Open Pit Extensions	
Section:	GB_OPE_Section 4	
Case:	Closure - MDE Kh=0.8 PGA, Block	
Date:	17/03/2026	GLE / Morgenstern-Price