



# Trio Stability - 2020 Annual Report

June 2020

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## **Contents**

<b>1. Purpose .....</b>	<b>2</b>
<b>2. Objectives .....</b>	<b>2</b>
<b>3. Location, depth, height and volume of stopes (c. 16a) .....</b>	<b>2</b>
<b>4. Backfilling and compaction of each stope (c. 16b) .....</b>	<b>4</b>
<b>5. Ground conditions revealed by mine excavation (c. 16c) .....</b>	<b>4</b>
<b>6. Measures and outcomes managing the risks of surface instability (c. 16d) .....</b>	<b>5</b>
<b>7. Conclusion .....</b>	<b>5</b>

## 1. PURPOSE

The purpose of the OceanaGold NZ Ltd (Waihi Operations) Trio Stability Annual Report is to comply with Condition 16 of Hauraki District Council (HDC) LUC RC-15774 and confirm that appropriate measures are being undertaken to minimise the risk of surface instability.

## 2. OBJECTIVES

As required by Condition 16 of RC 15774, Waihi Operations must submit an annual stability report for the Trio operation:

16. *The consent holder shall provide to the Hauraki District Council on an annual basis (within one month of the agreed anniversary) a report:*
- a) *Describing the location, depth and height of completed filled stopes, and unfilled stopes;*
  - b) *Describing the backfilling and compaction associated with each stope; and*
  - c) *Ground conditions revealed by the mine excavations*
  - d) *Describing the measures undertaken to manage the risks of surface instability, particularly as provided for in Condition 15 and the outcomes of such measures.*

## 3. LOCATION, DEPTH, HEIGHT AND VOLUME OF STOPES (c. 16a)

Mining of the three main Trio vein systems was completed in 2015: Union, Trio and Amaranth have been mined and backfilled. The uppermost level is 972<sup>1</sup> and fill has been pushed up to within 1 m of the backs. All stopes are backfilled and on completion of stoping the 972 development drive was also backfilled with lime-dosed waste rock. Development drives and accesses to Trio have also been backfilled by paddock dumping to within 2 m of the backs.

The only accesses that have remained open are for access to the Correnso Underground Mine; the Union 972, 953 and 844. On each of these levels, the accesses to Trio and Amaranth have been filled as far as the tipples on each level.

Development activities during the reporting period consisted of the completion of an exploration spiral decline and associated drives below the completed Trio works to facilitate access to 'Trio Deeps'. Figures 1 and 2 show the existing Trio 792 level in yellow, Trio Deeps exploration drives (blue) and Trio Deeps stoping (dark blue).

Figure 3 shows blasting locations in the Trio Deeps area during the reporting period. Stopes in the Trio Deeps area extended between the 782 and 752 levels. Stoping began in October 2019 and was completed in February 2020. All stopes have now been backfilled and mining in the Trio Project area is completed.

Figures 4a-4d show completed long sections for all Trio veins mined.

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<sup>1</sup> *Mining level nomenclature throughout this document has been abbreviated for ease of reading (it would normally have an mRL suffix).*

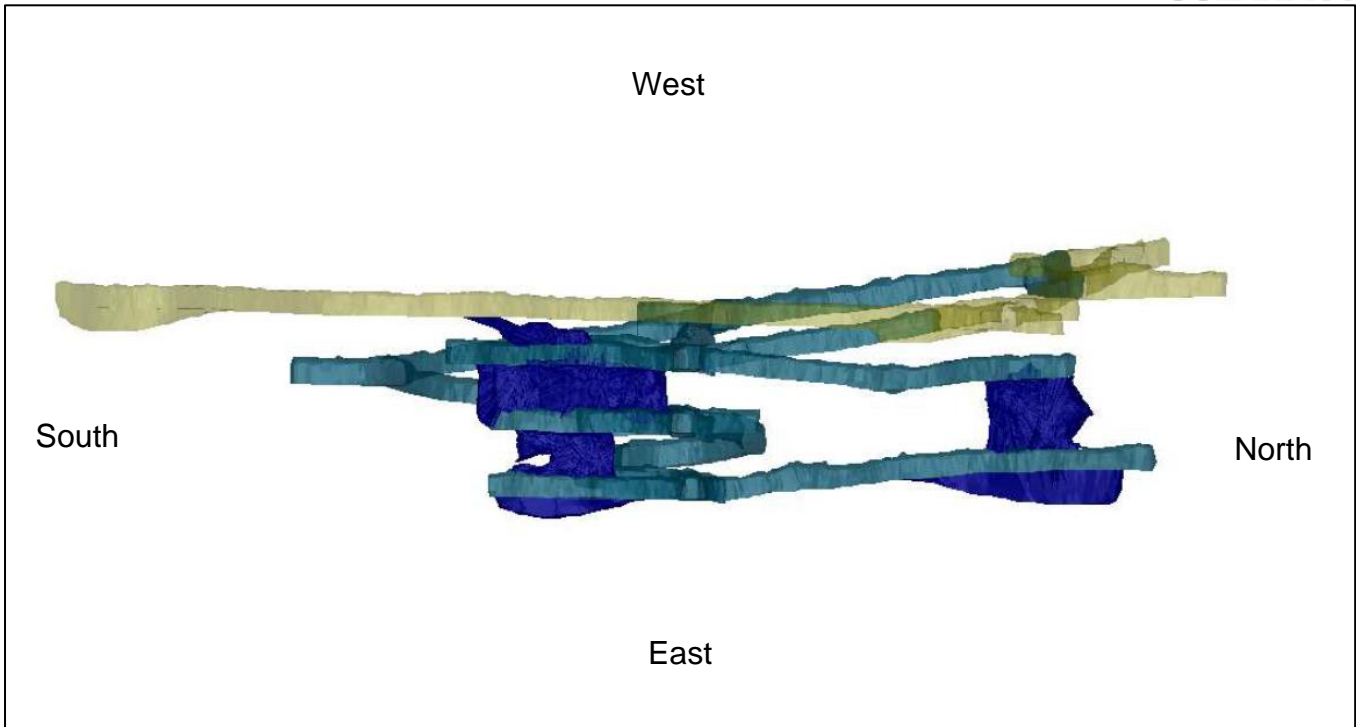


Figure 1: 2020 section view of Trio Deeps exploration drives (blue), stoping (dark blue) and existing Trio development drives (yellow)

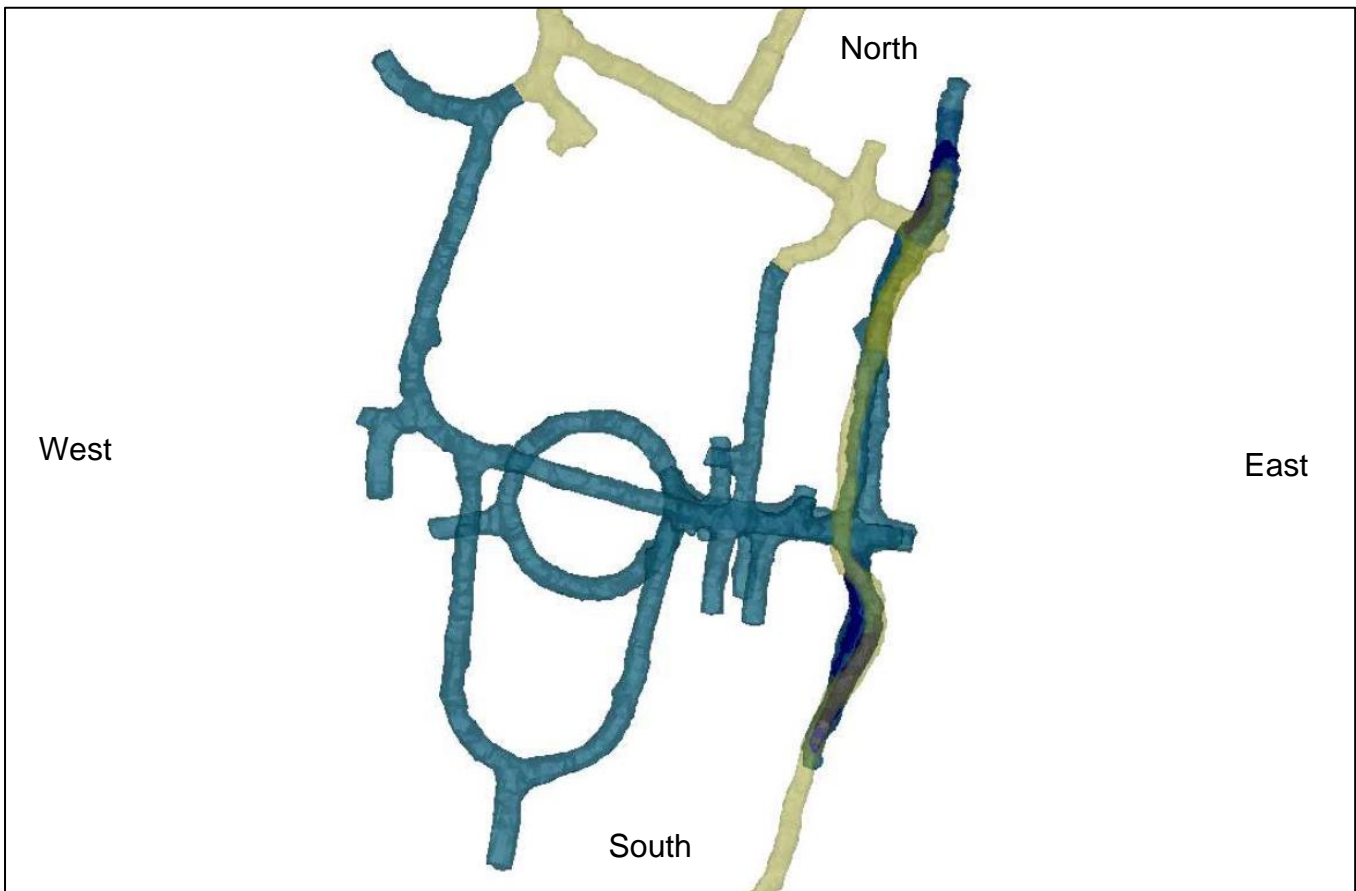


Figure 2: 2020 plan view of Trio Deeps Exploration drives (blue), stoping (dark blue) and existing Trio development drives (yellow).

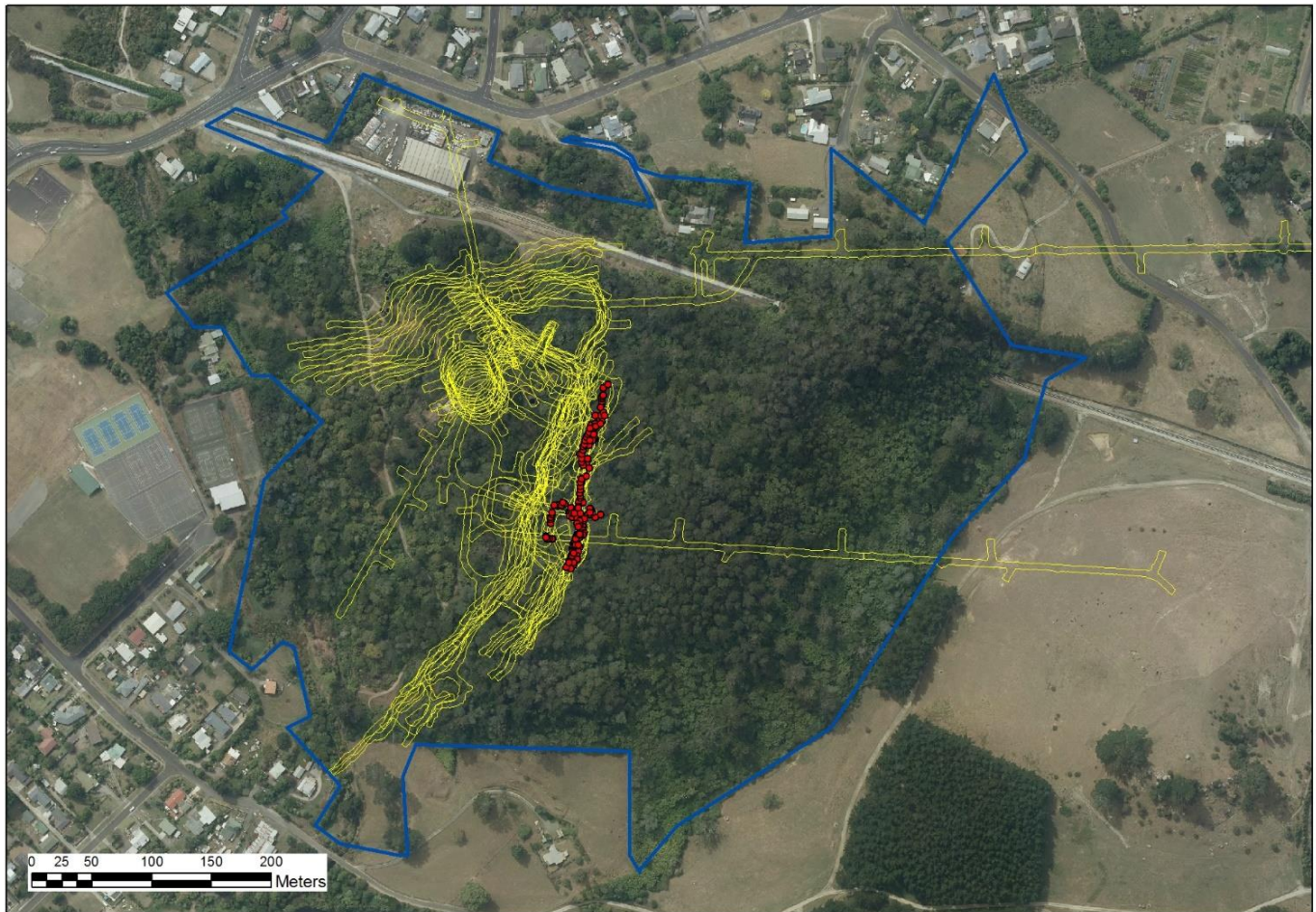


Figure 3: 2019-20 Trio Blasting (red dots indicate blast locations)

#### 4. BACKFILLING AND COMPACTION OF EACH STOPE (*c. 16b*)

Backfilling of the Union, Trio and Amaranth was completed in previous reporting periods. Stopes mined in the Trio Deeps during this reporting period have now also been backfilled.

#### 5. GROUND CONDITIONS REVEALED BY MINE EXCAVATION (*c. 16c*)

Rock mass conditions encountered during development were variable and some secondary support (shotcrete) was locally required. No additional reinforcement was needed apart from cable bolts for turn-outs as is standard practice throughout the mine. Refer to the previous Trio Stability Annual Reports for details of past activity.

Trio Deeps describes the deeper extensions to the Amaranth Vein, which was previously mined as part of the Waihi Underground between 2012 – 2015. Ground conditions encountered were highly variable. The poorest ground was due to intersecting vein structures including weak late-stage quartz-calcite veins and associated breccias. Secondary support – mostly shotcrete - was locally required. The veining is however sub-vertical, and stoping (and backfilling) occurred with no stability issues.

## **6. MEASURES AND OUTCOMES MANAGING THE RISKS OF SURFACE INSTABILITY (c. 16d)**

Minor rehabilitation of the Trio Deeps decline was carried out due to localised corrosion of ground support. No other rehabilitation has been necessary. None of the activities during the reporting period will have any impact on surface stability. Drive dimensions are of the order of 5 m high and 5 m wide and are more than 300 m below surface.

In relation to Condition 15 requirements:

- Only stopes in “Trio Deeps” were extracted. Most of the stoping utilised the Avoca Mining Method with progressive backfill. A section of the deepest level was floor-benched. A small section of the crown pillar between the lowest level of Trio mined circa 2012, and the Trio Deeps stopes (2019) was extracted by up-holes.
- The depth of the workings (which are more than 300 m below the surface), prompt backfilling, and the limited dimensions of the workings means there is no credible risk of any surface impacts.
- There were no instances during the period when close proximity to old workings was considered an issue.

## **7. CONCLUSION**

Waihi Operations believes it has fully complied with Condition 16 of HDC LUC RC-15774 (and Condition 15 as Condition 16 relates to it) and that the risk of ground surface instability is extremely low due to the geology of the area and best practice underground mining methodologies which have been employed. Current mining in the Trio project area is now complete.

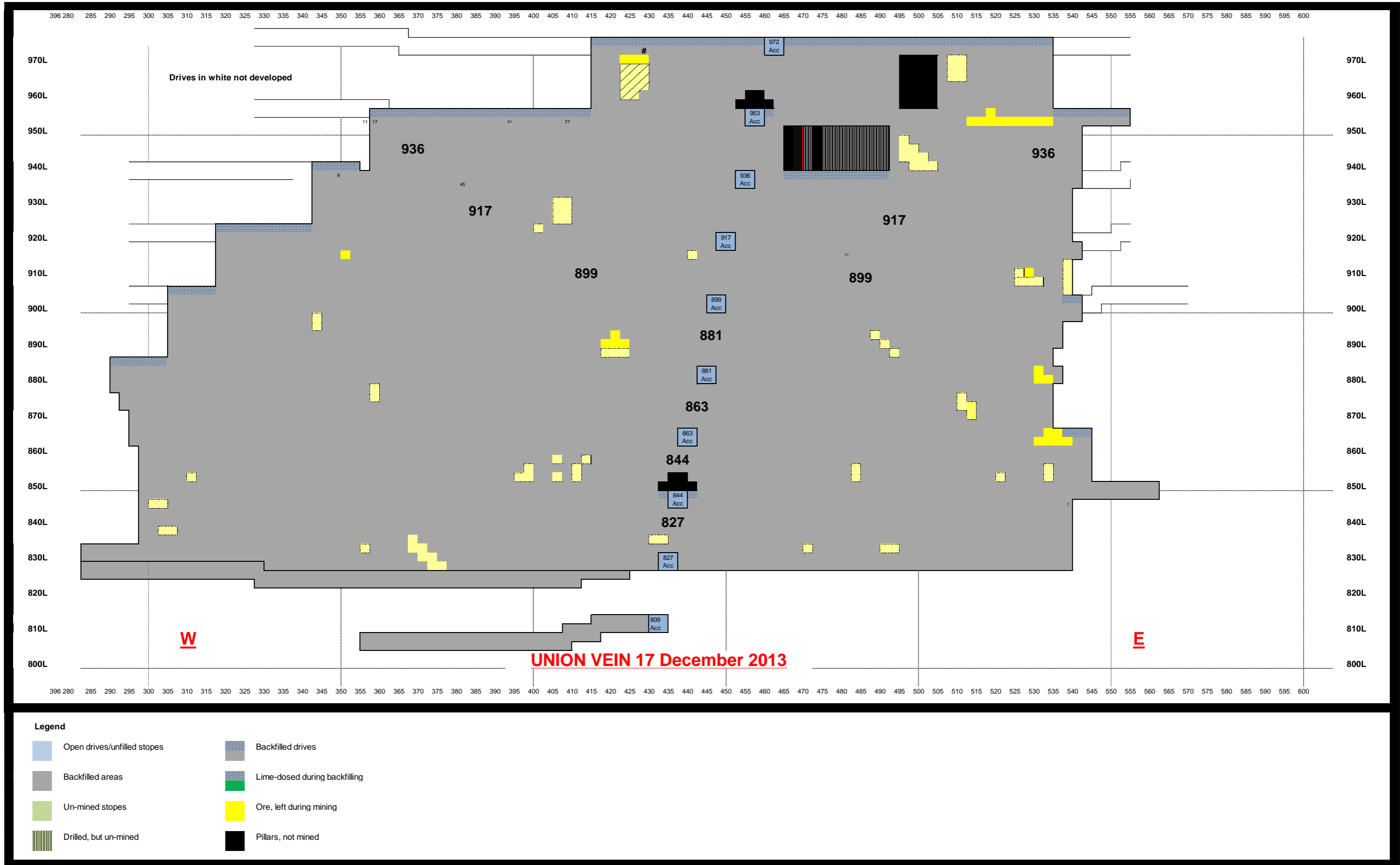


Figure 4a: Long view of Union Vein

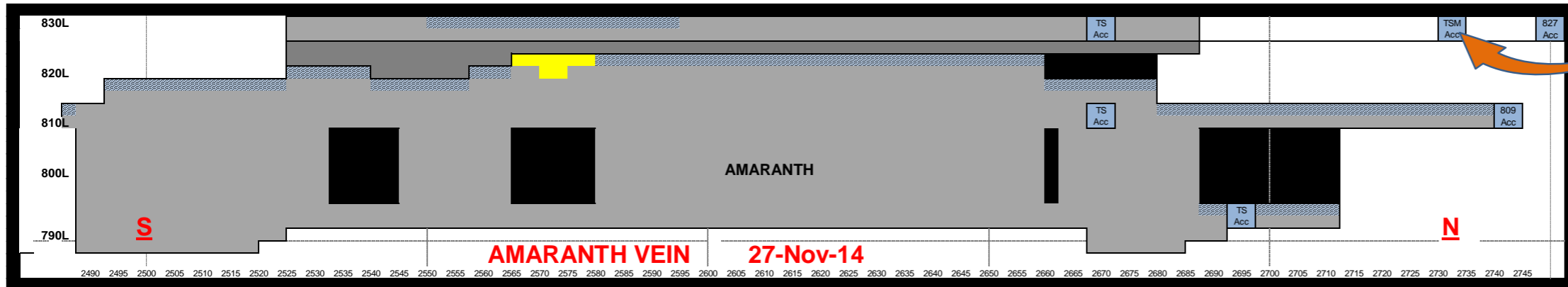
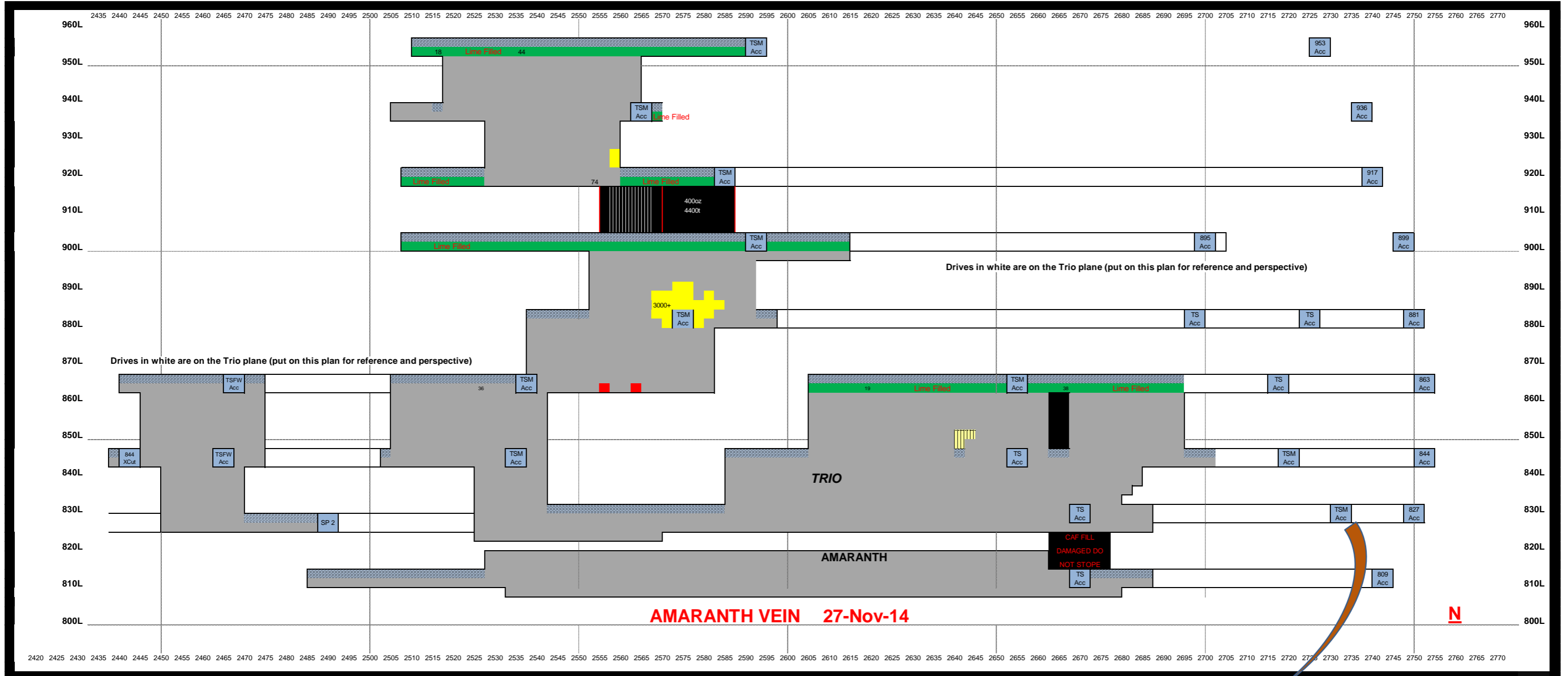


Figure 4b: Long view of Amaranth Vein



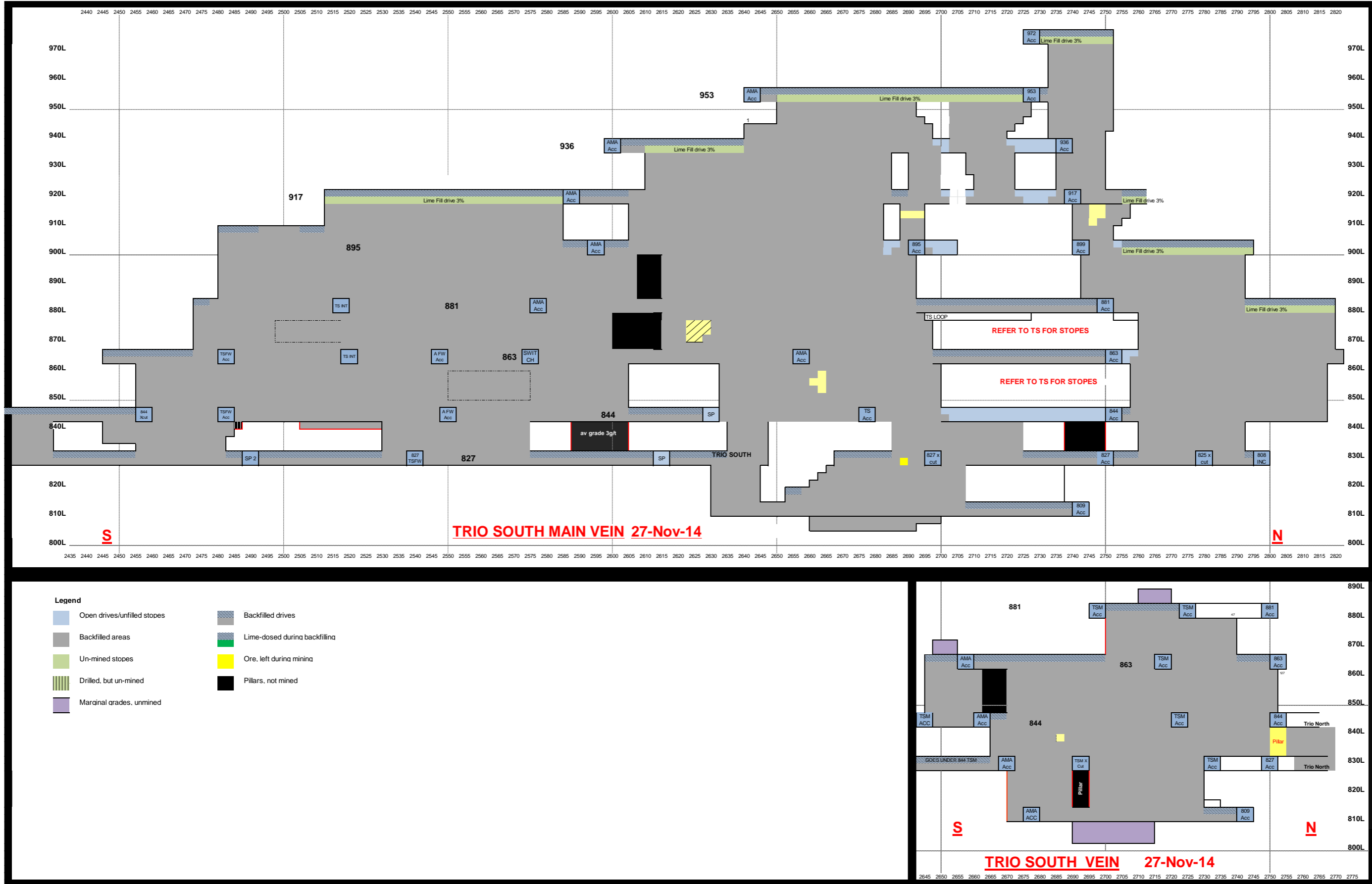


Figure 4c: Long view of Trio Mine

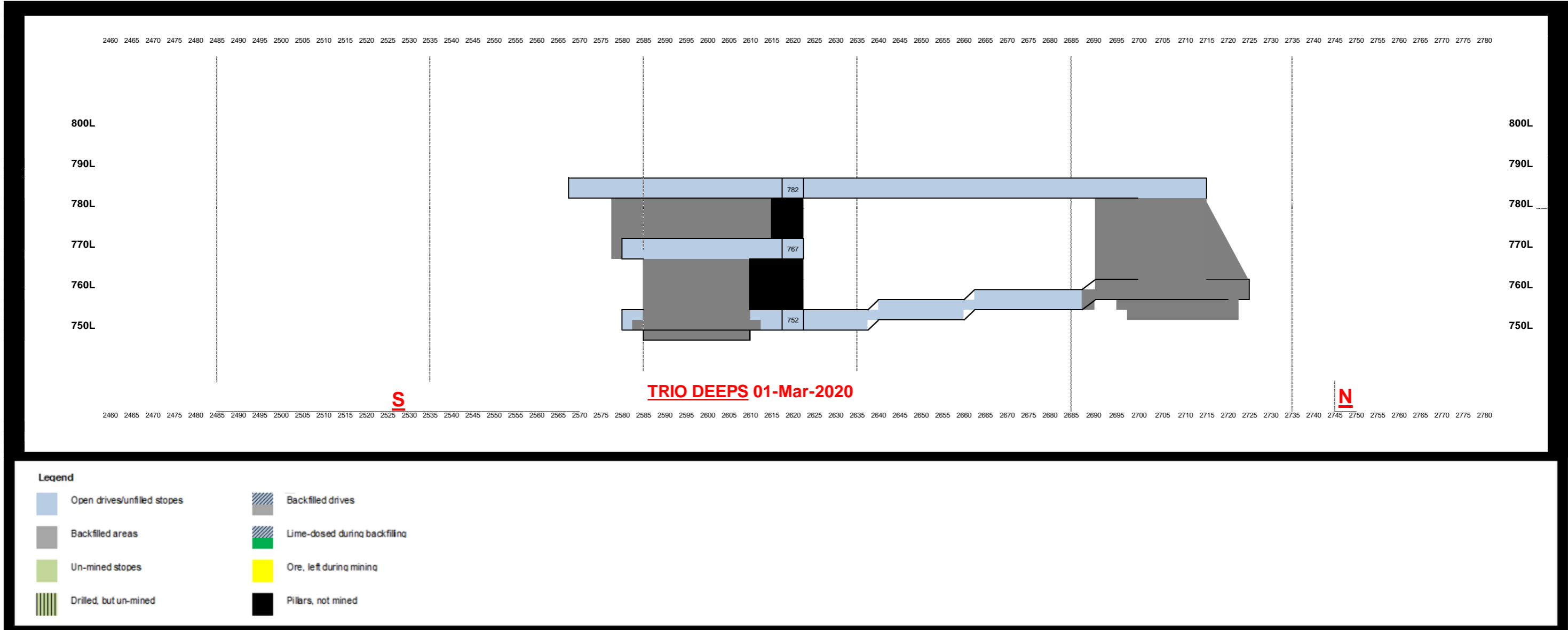


Figure 4d: Long view of Trio Deeps Mine