Bendigo-Ophir Gold Project

Integrated Transport Assessment

Prepared for:
Matakanui Gold Limited

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Executive Summary

This report provides an Integrated Transport Assessment for the Bendigo-Ophir Gold Project (BOGP). A primary access route is proposed from State Highway 8 (SH8) to the project site via Ardgour Road and Thomson Gorge Road. Currently these existing local roads experience a range of movements from less than 100 vehicle movements per day (vpd) to approximately 300vpd. The project is expected to generate approximately 400 vpd during construction, dropping to 250 vpd during operations. A range of transport mitigation improvements are proposed to support the project traffic, including safety improvements at the SH8 / Ardgour Road intersection, and upgrading Thomson Gorge Road. In addition, a new alternative local road route via Ardgour Station will be implemented at the time the project site results in the need to close part of Thomson Gorge Road. Together with a Project Traffic Management Plan, it is concluded that these mitigation measures will result in an acceptable outcome from a transport perspective.

Matakanui Gold Limited is proposing to establish the BOGP which comprises a new gold mine, ancillary facilities and environmental mitigation measures on Bendigo and Ardgour Stations in the Dunstan Mountains of Central Otago. The Project site is located approximately 20 km north of Cromwell.

The Project site will be accessed from the north, via State Highway 8 (SH8), Ardgour Road, and Thomson Gorge Road. Since the footprint of the mining areas will overlap part of Thomson Gorge Road, which forms part of the existing public road network connecting Bendigo and the Manuherikia Valley over the Dunstan Mountains, it is proposed to close part of the road. An alternative public road route will be formed via Ardgour Station to maintain public access.

The construction works associated with establishing the mine are expected to generate up to 400 vpd over a two year period with a high proportion of these being heavy vehicles early in construction.

Once the mine becomes operational, it is expected to generate approximately 250 vpd. This will primarily comprise staff travel which will be a mix of bus and private vehicles.

Substantial improvements are proposed to the road network connecting to SH8 to support the increased traffic volumes. These comprise safety improvements at the SH8 / Ardgour Road intersection and widening of Thomson Gorge Road. Although these improvements to the road network are proposed as part of the site establishment works to mitigate the effects of the additional vehicle movements on the road network, it is recommended that the improvements are required as conditions of consent.

A Project Traffic Management Plan will be required to manage the construction traffic effects as the site is established and it is recommended that the preparation and implementation of this is required as a condition of consent. It is also recommended that the Traffic Management Plan addresses the subsequent production stage to set out the framework for monitoring and managing any traffic effects that may arise.

Overall, it has been concluded that the transport related effects of the Bendigo-Ophir Gold Project can be appropriately managed subject to conditions of consent requiring:

1. Safety improvements at the SH8 / Ardgour Road intersection that:
    a. provide a right turn bay from SH8 into Ardgour Road to NZTA design requirements;
    b. ensure that two-way movement of trucks turning in and out of Ardgour Road can be accommodated;
    c. provide for consequential change to roadside infrastructure including the likes of roadside barrier changes, flag lighting, and signage as determined through detailed design processes.
2. Safety management / maintenance measures on Ardgour Road from SH8 to Thomson Gorge Road to include:
    a. edgeline delineation at the curve 1.45km south of SH8,
    b. curve advisory signage assessment (and implementation of any signage that meets NZTA Traffic Control Devices Manual warrants).
3. Widening of Thomson Gorge Road for 1.6 km south of Ardgour Road to a new site access road access, to provide a minimum sealed carriageway width of 6.5 m;
4. Construction of an alternate vehicle route to Thomson Gorge Road for public access to the Dunstan Mountains to the east of the Project site, to ensure there is a satisfactory alternative public route bypassing the affected area when Thomson Gorge Road has to be closed because of mining activity;
5. Implementation of a Project Traffic Management Plan.

    The purpose of the Project traffic management plan is to set out the methodology for managing traffic movements during the construction and production phases. The plan will include:

    - Route restrictions;
    - Operating hours;
    - Any necessary road improvements;
    - Any necessary traffic management signage;
    - Driver code of conduct;
    - Staff Travel Plan;
    - Complaints procedures;
    - Project contact details.

Abbreviations

ADT	Average Daily Traffic Volume
BOGP	Bendigo-Ophir Gold Project
CODC	Central Otago District Council
HPMV	High Productivity Motor Vehicle
MGL	Matakanui Gold Limited
PTMP	Project Traffic Management Plan
vpd	Vehicle movements per day
vph	Vehicle movements per hour

1 Introduction

1.1 Project Overview

Matakanui Gold Limited ("MGL") is proposing to establish the Bendigo-Ophir Gold Project ("BOGP" or "Project"), which comprises a new gold mine, ancillary facilities and environmental mitigation measures on Bendigo and Ardgour Stations in the Dunstan Mountains of Central Otago. The Project site is located approximately 20 km north of Cromwell.

The BOGP involves mining four identified gold deposits referred to as Rise and Shine ("**RAS**"), Come in Time ("**CIT**"), Srex ("**SRX**") and Srex East ("**SRE**"). The resources will be mined by open pit methods at each deposit within the Project site, with underground mining methods also proposed to be utilised at RAS to access the deeper gold deposits. The majority of the mining activities, ancillary facilities and associated infrastructure will be located in the Shepherds Valley. This will include a conventional gold processing plant and water treatment plant, a tailing storing facility, two engineered landforms, internal haul roads, topsoil stockpiles, water pipelines, underground utilities and electrical supply. There will be some non-operational infrastructure located on the adjoining Ardgour Terrace.

The Project site will be accessed from the north, via State Highway 8 ("SH8"), Ardgour Road, and Thomson Gorge Road. Some access via Bendigo Loop Road and Matilda Rise may be necessary during the initial Project phases. Since the BOGP footprint overlaps part of Thomson Gorge Road, which forms part of the existing public road network connecting Bendigo and the Manuherikia Valley over the Dunstan Mountains, it is proposed to close part of the road and form an alternative route via Ardgour Station to maintain public access.

The BOGP broadly comprises two phases: site establishment phase; and the operational phase. The establishment phase involves:

- High levels of heavy vehicle generation associated with importing building and construction materials, particularly for the mine infrastructure, access, machinery, and heavy equipment. These may include short and long-distance hauls. There will be some over-weight / over-dimension vehicles.
- Staff movement by light vehicles and contractor / operator buses, including external contractors and those employed directly by MGL / Santana Minerals.

The operational phase involves:

- High levels of staff related movement associated with those working on site, which may be managed with contractor / operator provided transport.
- Heavy vehicle movement associated with consumables delivery, equipment delivery, and mine product.

The construction and operation of the Project site will result in increased usage of the road network, including along Central Otago District Council ("CODC") roads, and connecting to and along SH8. This report provides an Integrated Transportation Assessment of the effects of the BOGP on the transport environment and identifies appropriate mitigation of the effects. The report has been structured to provide:

- Description of the transport network;
- Description of traffic volumes on the surrounding transport network;
- Assessment of road safety;
- Assessment of expected traffic generation of the BOGP;
- Assessment of expected effects and mitigation; and
- Assessment of compliance with the CODC District Plan.

1.2 Site Context

Figure 1-1 shows the BOGP location with respect to the state highway network in the surrounding area. The Project site will be located east of SH8 which is the primary state highway providing access to the Bendigo area. It connects coastal Otago, central Otago, the Mackenzie Country, and coastal Canterbury. West of the Project site, SH8 passes alongside Lake Dunstan and continues through the Cromwell Gorge to the south, and the Lindis Pass to the north.

State Highway 8A ("SH8A") connects SH8 at Tarras to State Highway 6 ("SH6") at Luggate. State Highway 8B ("SH8B") connects SH8 at Cromwell to SH6 at Cromwell. SH6 connects Southland, central Otago (including Wanaka and Queenstown), and the West Coast.

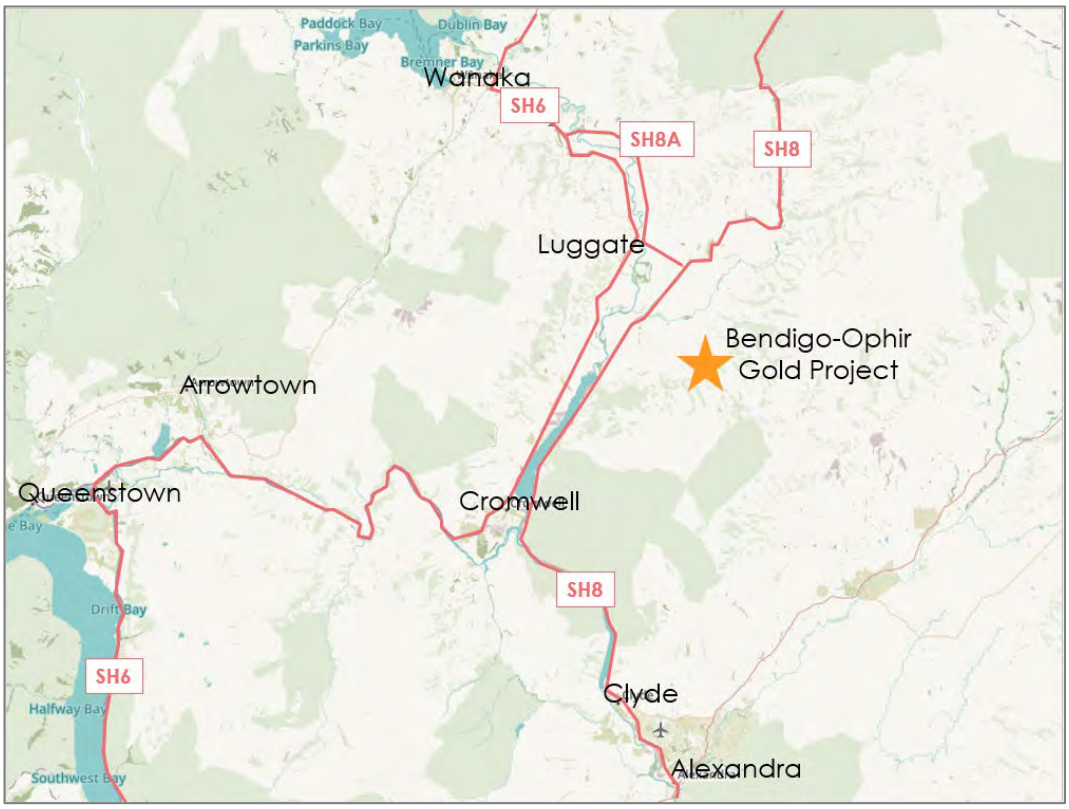


Figure 1-1: Site Location in Central Otago

There are several towns within about 55 km of the site. Distances from the Project site to the main towns as well as Queenstown Airport are approximately:

- 25 km from Cromwell (SH8 and SH8B);
- 45 km from both Wanaka (SH8, SH8B, SH6);
- 45 km from Clyde (SH8), and 54 km from Alexandra (SH8);
- 79 km from Queenstown Airport (SH8, SH8B, SH6).

Figure 1-2 shows the BOGP in the context of the local road network. Access to the BOGP is proposed from SH8 via Ardgour Road and Thomson Gorge Road. The entrance to the Project site will be from Thomson Gorge Road about 6km south of Ardgour Road. The proposed new road to replace the section of Thomson Gorge Road through the mining area will follow an alignment east of the Project site before rejoining Thomson Gorge Road further south.

Figure 1-3 shows the Project site layout with the offices and processing plant at the northern end of the site with the mine pits to the south.

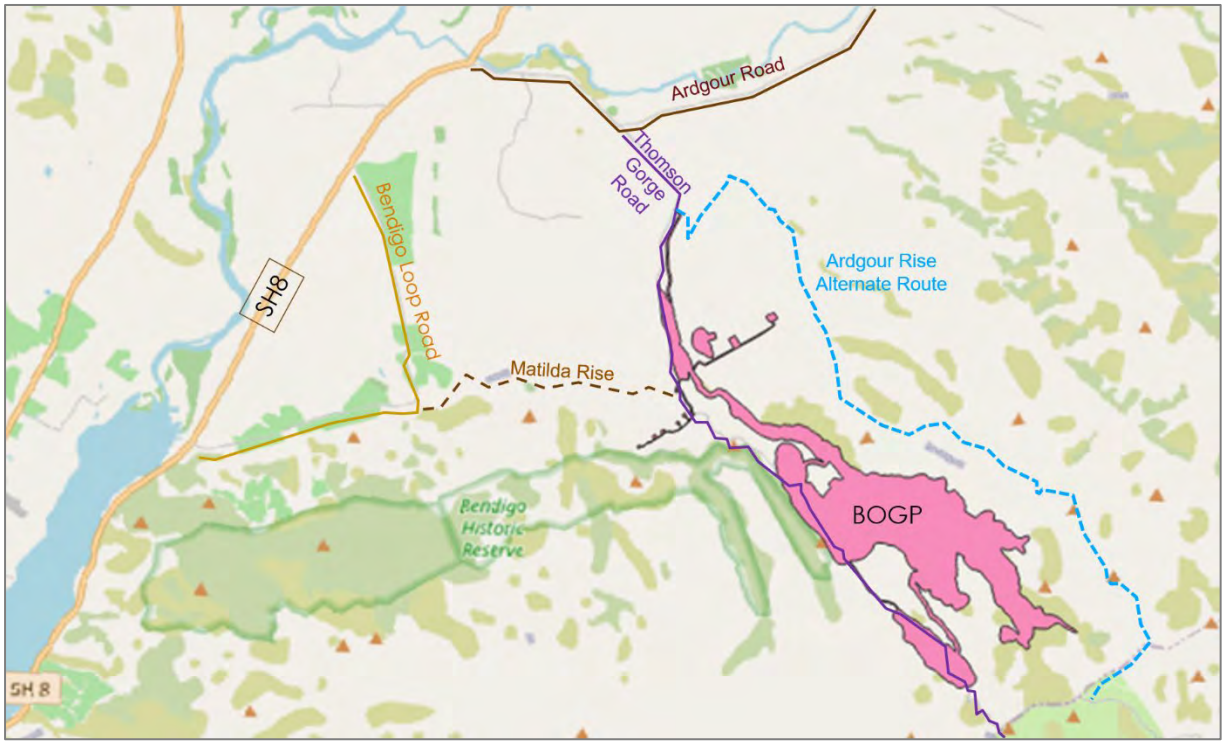


Figure 1-2: Site Context

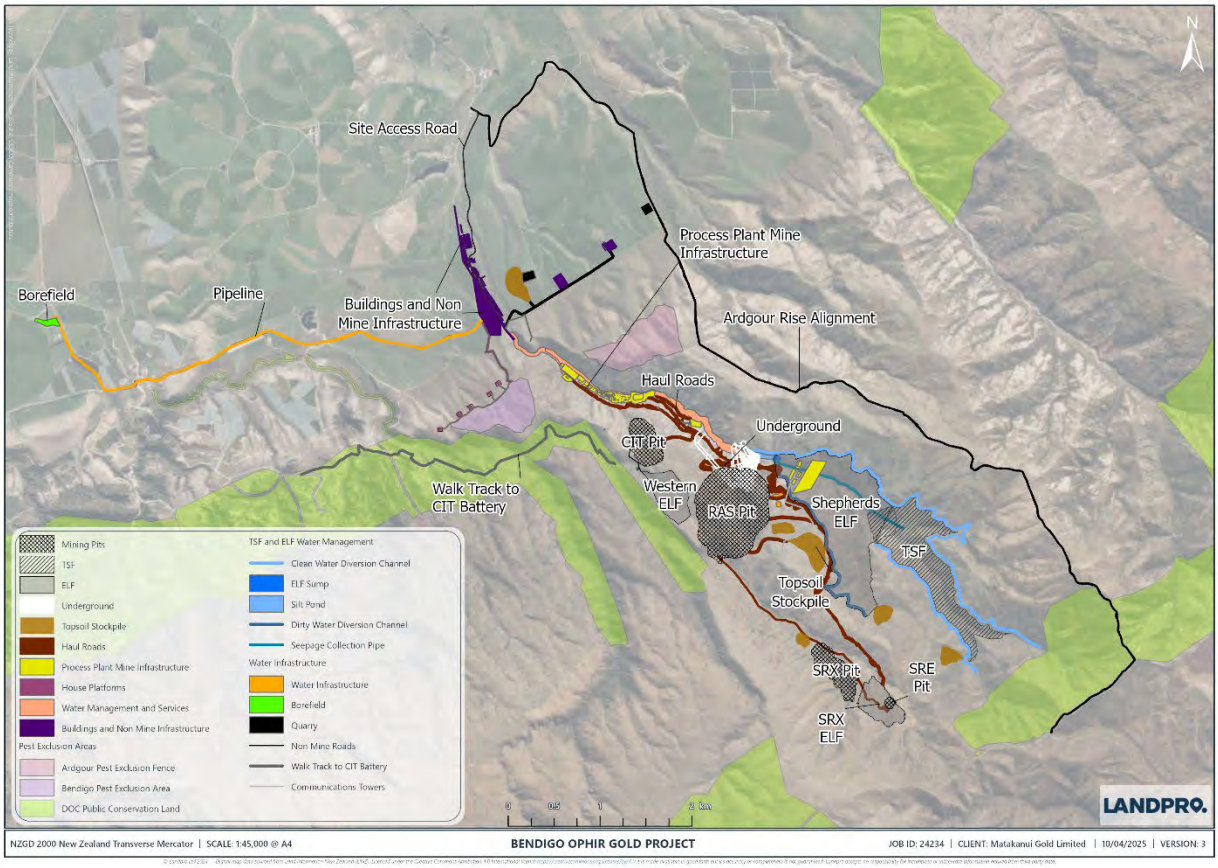


Figure 1-3: Project site layout (Larger figure in Appendix A)

2 State Highway Network

2.1 State Highway Characteristics

The state highway network in Central Otago can generally be categorised as having a rolling and curving alignment, with two lane roads, narrow shoulders, and operating with open road 100 km/h speed limits. Typical photographs of SH8 which provides the primary connection to the site are shown in Figure 2-1.


SH8 12km north of SH8A


SH8 6km north of SH8A


SH8 south of SH8A


SH8 next to Lake Dunstan North of Cromwell


SH8 adjacent to Lake Dunstan South of Cromwell

Figure 2-1: SH8 Typical Photographs

Passing lanes are available at infrequent intervals within the SH6 Kawarau Gorge between Cromwell and Queenstown. Some parts of the highway network have roadside safety protection, particularly alongside Lake Dunstan and the Kawarau Gorge. The state highway network includes two single- lane bridges near the Project site; a single lane bridge on SH8 across the Lindis River (south of Tarras) and

a steel truss single lane bridge, the “Red Bridge”, on SH8A across the Clutha River (west of Tarras). The latter has recently been signalised.

The resilience of the state highway network has been assessed by the New Zealand Transport Agency Waka Kotahi (“NZTA”). Figure 2-2 shows the assessed disruption risk to the state network for all hazards. The section of SH8 between Cromwell and Clyde has the greatest risk. Sections of SH6 within the Kawarau Gorge have severe and extreme risk ratings. In both cases, the ratings reflect the risks landslides and rockfalls either due to storm events or earthquakes. No specific risk areas have been identified for SH8 (Cromwell to Tarras), SH8A or SH8B.

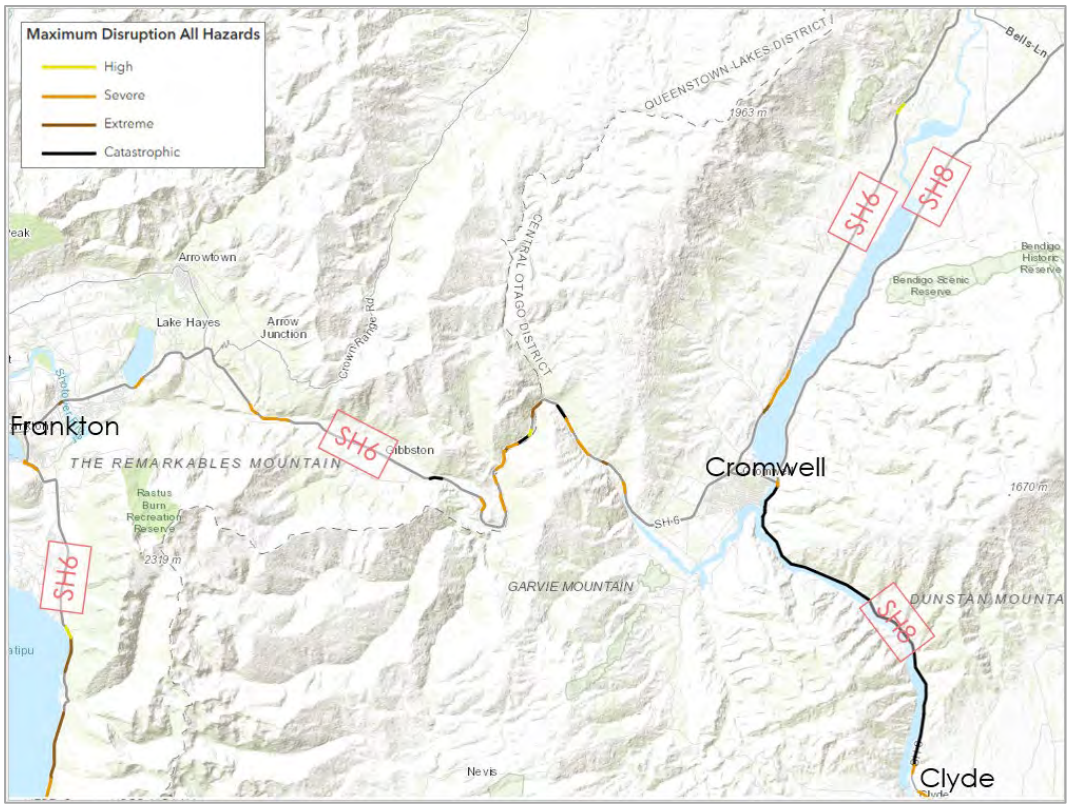


Figure 2-2:Disruption Risk - All Hazards (Source: NZTA Maps)

Much of the state highway network, with the exception of SH6 to the West Coast, accommodates high productivity motor vehicles (“HPMV”), which are trucks that have a permit for length and weight that exceeds the standard heavy vehicle limits. Only SH6 to and from the West Coast does not form part of the HPMV route network.

Over-dimension routes are also provided to enable movement of much larger loads under a permit system. These routes would enable over-dimension loads to access the location of the proposed mine, although there are some constraints including at the SH8A Red Bridge east of Luggate, SH8 at Alexandra, and SH6 at Lake Hāwea.

2.2 Regional Traffic Volumes

The state highway routes between the major centres in central Otago typically carry traffic volumes of between 2,000 vpd and approximately 6,000 vpd. The daily traffic volumes near the proposed Bendigo Mine are currently low, at approximately 2,000 vpd to 2,500 vpd on SH8 between Cromwell and the Lindis Pass. The highest traffic volumes occur in the Wakatipu Basin network where traffic volumes on SH6 can exceed 20,000 vpd and reach to 30,000 vpd on State Highway 6A to Queenstown. Highway traffic volumes in Wanaka are substantially lower.

2.3 State Highway 8 Traffic Patterns

2.3.1 Daily Traffic Volumes

Figure 2-3 shows the annual traffic volumes recorded at the NZTA count site on SH8 in Bendigo (00800278) about 8 km south of the Lindis River bridge and Ardgour Road intersection. The annual average daily traffic volume was about 1,900 vpd over the 2018 to 2022 period and increased to 2,300 vpd in 2023 and 2,360 vpd in 2024. Traffic volumes in the busiest five weeks of the year represented by the 90th percentile volumes exceeded 3,000 vpd in 2024. In the busiest two weeks of the year represented by the 98th percentile, traffic volumes exceeded 4,200 vpd.

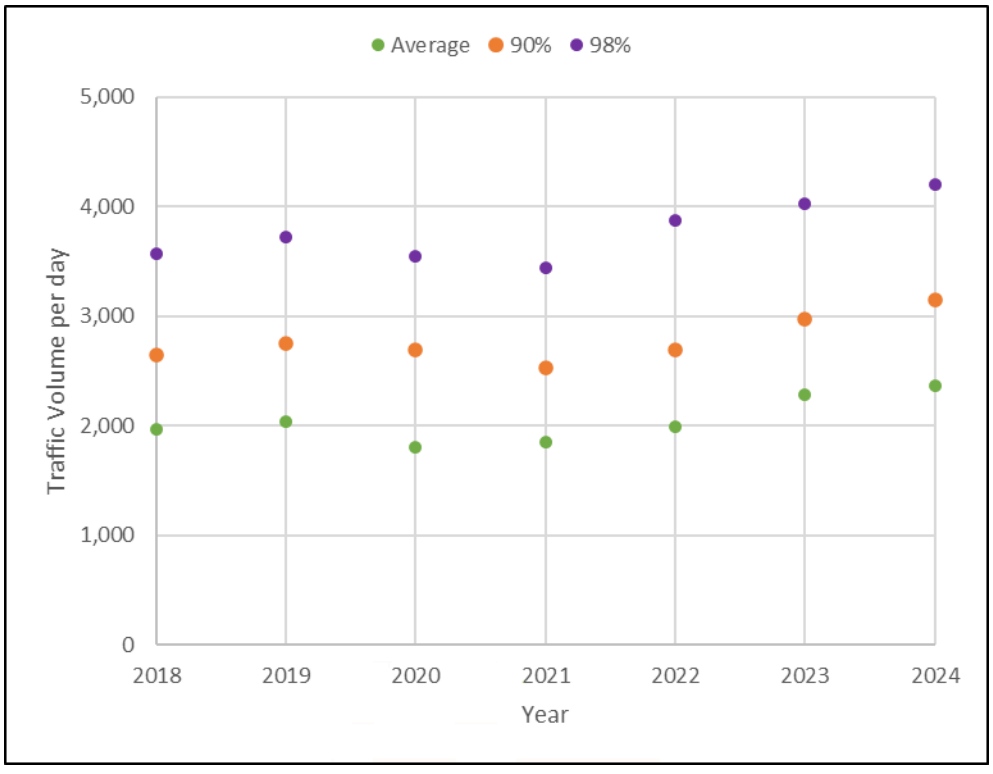


Figure 2-3: Annual Average Daily Traffic Volumes on SH8 Bendigo

2.3.2 Seasonal Variations

Figure 2-4 shows the seasonal variation in daily traffic volumes on SH8 in Bendigo in 2024. Typical daily volumes of about 2,500 vpd to 3,500 vpd were recorded during the summer months, January to March, but there is a wide variation with some days exceeding 4,000 vpd. The lowest volumes were recorded during the middle of the year, May to August, with volumes typically in the range 1,500 vpd to 2,000 vpd.

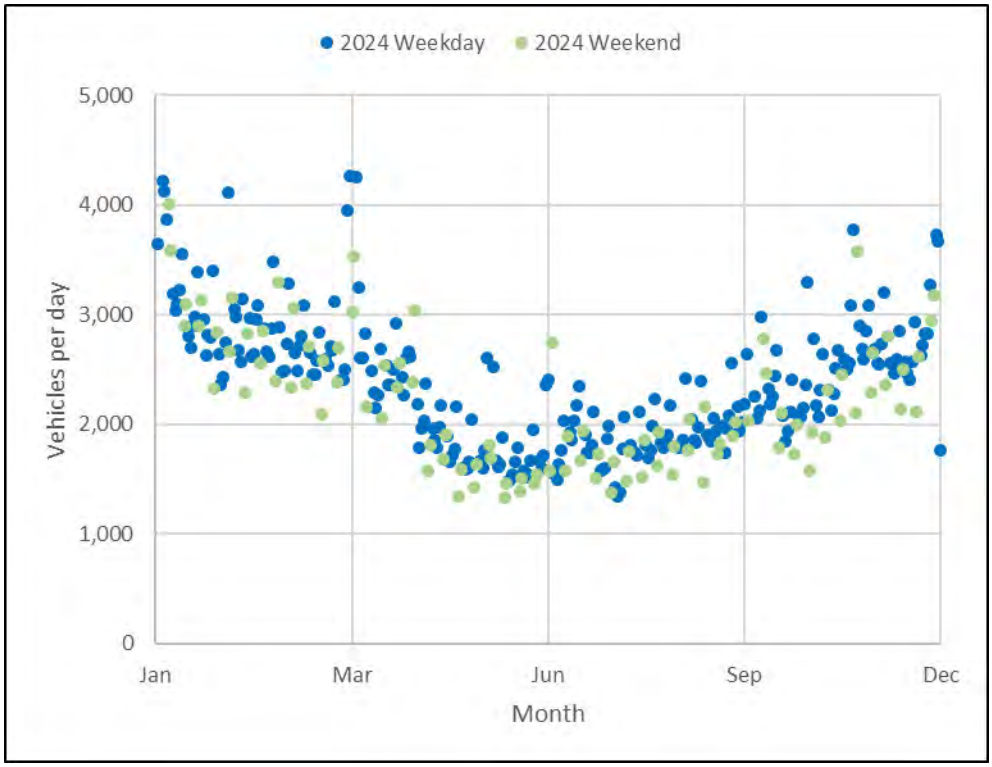


Figure 2-4: Daily Traffic Volumes, SH8 Bendigo, 2024

For design and assessment purposes, a 90th percentile volume has been adopted. In 2024, the 90th percentile daily volume on SH8 through Bendigo was about 3,100 vpd. Volumes of this level were most common through the summer period.

2.3.3 Hourly Traffic Volumes

Figure 2-5 shows the hourly variation in two-way volumes on SH8 in Bendigo recorded in late February 2024 (week starting 26 February) with Figure 2-6 showing the directional flows on an average weekday (Monday to Thursday).

On weekdays, the traffic volumes before 9:00 AM are up to 130 vehicles per hour ("vph") and then rise through the morning to about 245 vph by 10:00 AM to 11:00 AM and slowly decline until 6:00 PM at which time volumes are again below 130 vph. The traffic flows are more northbound in the morning and more southbound in the afternoon.

Friday and Sunday have higher hourly traffic volumes of between 300 vph and 325 vph, indicative of higher levels of inter-regional travel occurring on those days. Review of other weeks of data show

similar patterns, albeit with variability in peak Friday and Sunday traffic volumes compared to an average weekday.

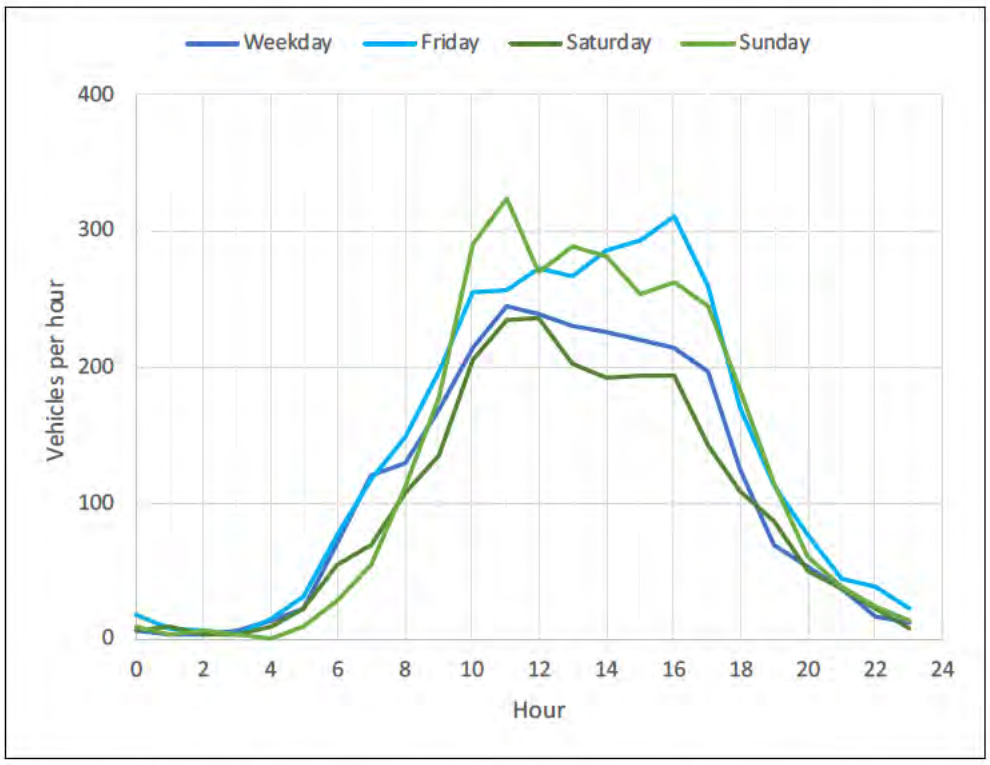


Figure 2-5: Two-way Volumes on SH8 in Bendigo – Late February / Early March 2024

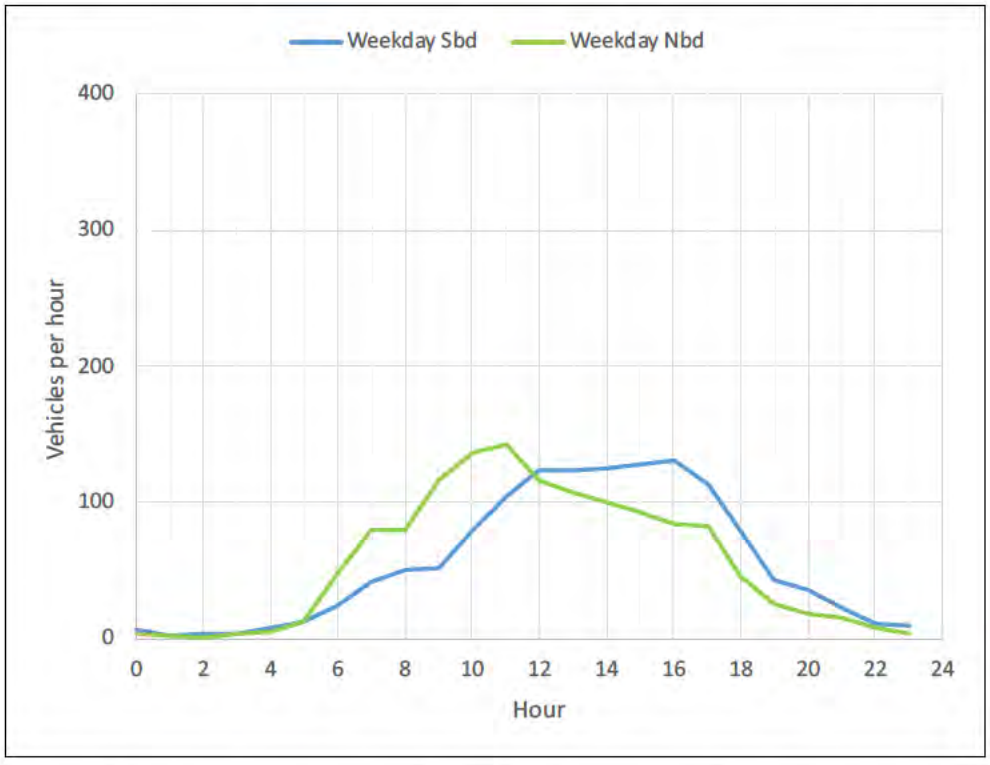


Figure 2-6: Directional Volumes on SH8 in Bendigo – Late February / Early March 2024

2.4 Road Safety

Road safety risk mapping indicates that SH8 between Tarras and Cromwell has the following risk classifications:

- Medium Infrastructure Risk (predictive assessment of the road infrastructure characteristics)
- Low Collective Risk (crash density at a network level)
- Low Personal Risk (crash exposure to each individual vehicle travelling along a corridor)

Although this section of the highway currently has a sign posted speed limit of 100 km/h, the assessed Safe and Appropriate Speed (SAAS) is 80 km/h due to the narrow sealed shoulders and road side hazards. The mean operating speed reported by NZTA is 95 km/h.

The NZTA Crash Analysis System has been used to review the nature and location of crashes that have been reported in the Bendigo area since 2015. Figure 2-7 shows the locations and injury severity for reported injury crashes in the region. A high proportion of the crashes involved a single vehicle only when the driver has lost control of their vehicle Features that could contribute to those types of crash are out of context curves, speed, and narrow road shoulders. Roadside environment and crash protection measures can contribute to reducing severity.

The SH8 Lindis River single lane bridge has had regular crashes (reported at an average rate of approximately 1.8 crashes per year), although most are non-injury. The crashes broadly fall into three groups. Four crashes involved a single vehicle only and were the result of a loss of control which was attributed to excess speed for the road geometry or conditions. Three crashes involved head-on collisions at the bridge. The other crashes were largely related to queues at the bridge with drivers not reacting to slowing vehicles. Overall, it is likely that the change in speed environment on the approaches to the bridge and extent of queuing are the most significant factors contributing to the crashes.

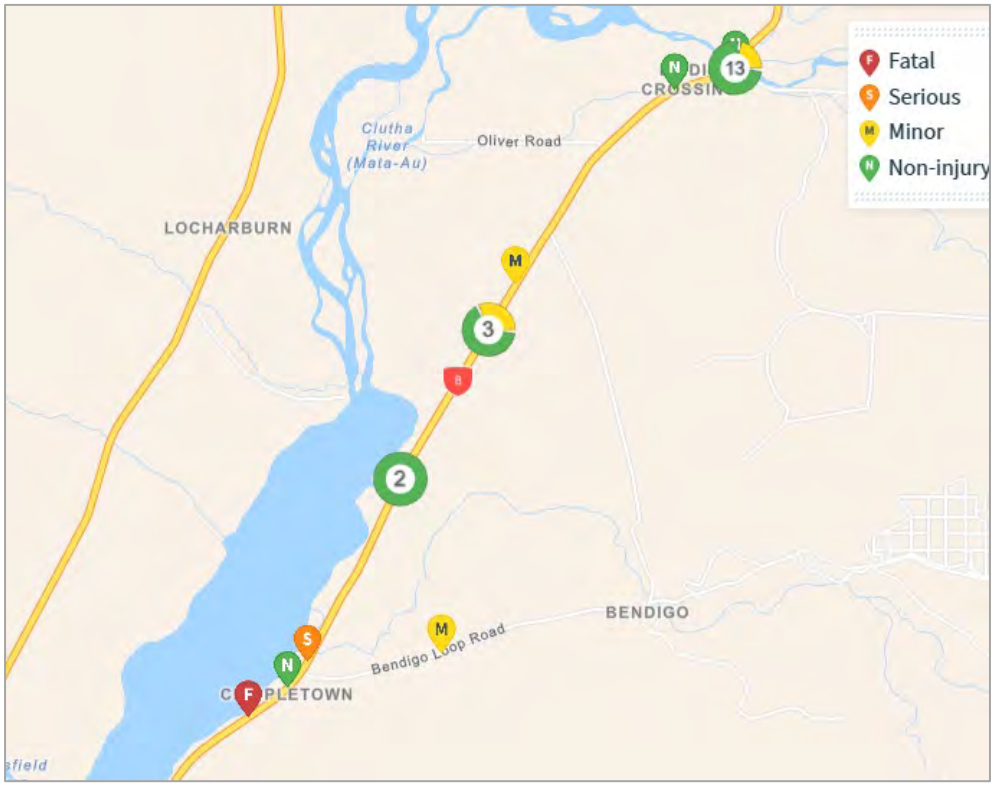


Figure 2-7: Crash Locations and Severity 2015--2024

3 Local Road Network

3.1 Ardgour Road

Ardgour Road is a two-lane sealed road, with a width of seal approximately 5.5 m wide, with some additional widening at curves to approximately 6.0m width, as shown in the photos in Figure 3-1 and Figure 3-3. Between SH8 and Thomson Gorge Road, the road is generally level with a gentle curving horizontal alignment south of SH8 before becoming straight with occasional curves. Road delineation includes a marked centreline, and edge marker posts along the route.

There is a curve 0.4km south of SH8 that has some restrictions to the forward visibility on the inside of the curve due to the presence of willow trees. The other notable curve 1.45km south of SH8 has clear sightlines through the curve. Roadside features include the presence of willow trees (east) and a steep bank (west) over the northern 0.7km, and power poles generally along the southern section.

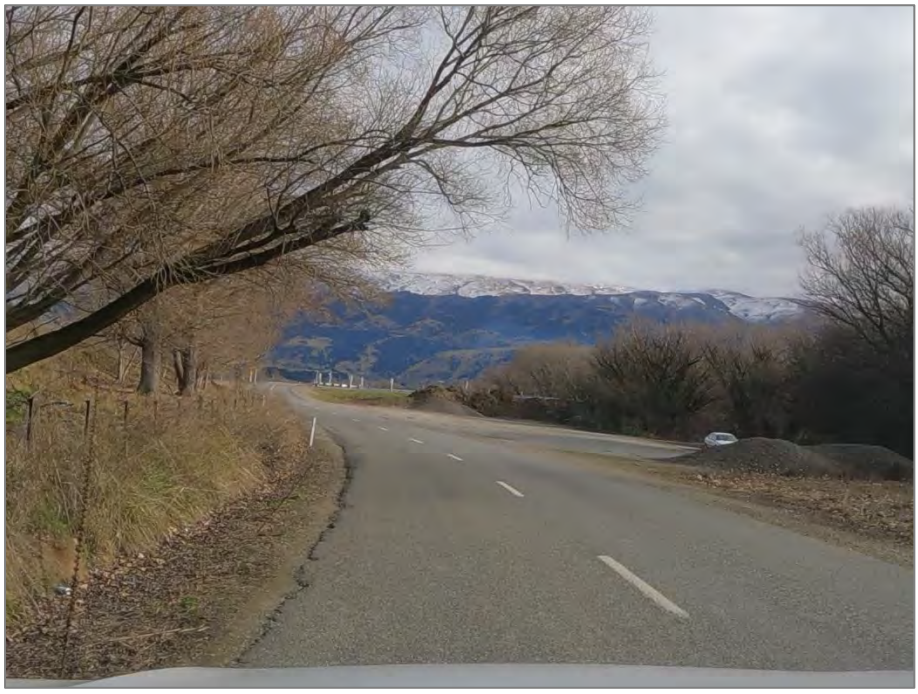


Figure 3-1: Ardgour Road west of SH8 - View West

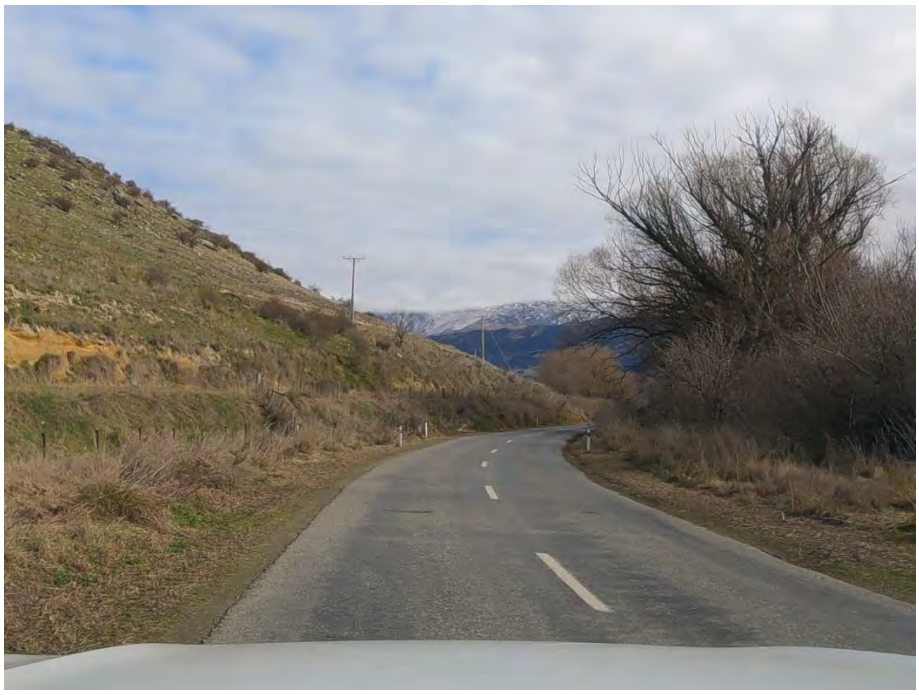


Figure 3-2: Ardgour Road – Curve 0.4km South of SH8

Figure 3-3: Ardgour Road

Figure 3-4: Ardgour Road Bend at 1.45km South of SH8

Figure 3-5: Ardgour Road North of Thomson Gorge Road

Road surfacing is somewhat old, typically older than 25 years. It appears some maintenance occurs as indicated by a recent patch south of SH8. The surface adjacent to the Lindis River section has some pavement defects such as bleeding and spots of alligator cracking, whereas the section to the south does not have such defects. Localised sections of edge break are present, although there is no indication this has become a problem of significance with minimal repairs identified.

Traffic counts commissioned by Stantec on Ardgour Road 500m south east of SH8 in November 2024 recorded daily volumes of 230 vpd to 300 vpd during the week with 270 vpd on Saturday and less than 180 vpd on Sunday, with an average daily volume of 260 vpd across the week. Figure 3-6 shows the typical weekday hourly traffic pattern. There were peak hourly flows of 25 vph to 30 vph in the early morning and mid-afternoon. Heavy vehicles accounted for about 20% of all movements. Daily traffic volumes are below 150 vpd east of Thomson Gorge Road.

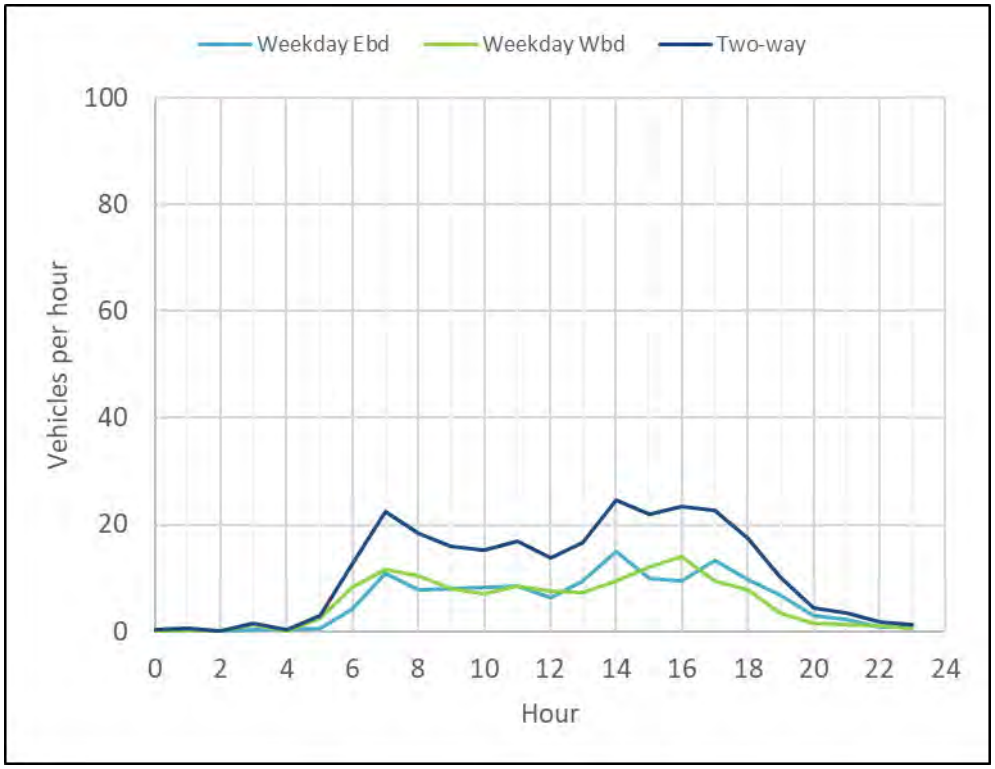


Figure 3-6: Ardgour Road Weekday Hourly Traffic Counts

The 85th percentile (operating) speeds recorded on Ardgour Road between SH8 and Thomson Gorge Road in both directions as 92 km/h to 93 km/h with an average of 82 km/h to 85 km/h. The traffic count data indicates speeds reduce closer to SH8, with 85th percentile speeds of 86 km/h to 89 km/h and mean speeds of 73 km/h to 75 km/h.

Ardgour Road meets SH8 on the outside of a curve at a priority intersection a short distance south of the Lindis River single lane bridge as shown in Figure 3-7. There are 45 km/h speed advisories on the curves on the northern approach to the bridge, a vehicle activated speed warning sign, and warning signs for the one lane bridge indicating that northbound traffic has priority. On the southern approach, there are permanent warning signings to alert drivers to the need to slow down for the reverse curves in the road with a 45 km/h advisory speed in advance of the narrow bridge sign. There is no pavement widening at the intersection to allow through traffic to pass any vehicle that needs to stop within the traffic lane to give way to southbound traffic before turning into Ardgour Road.

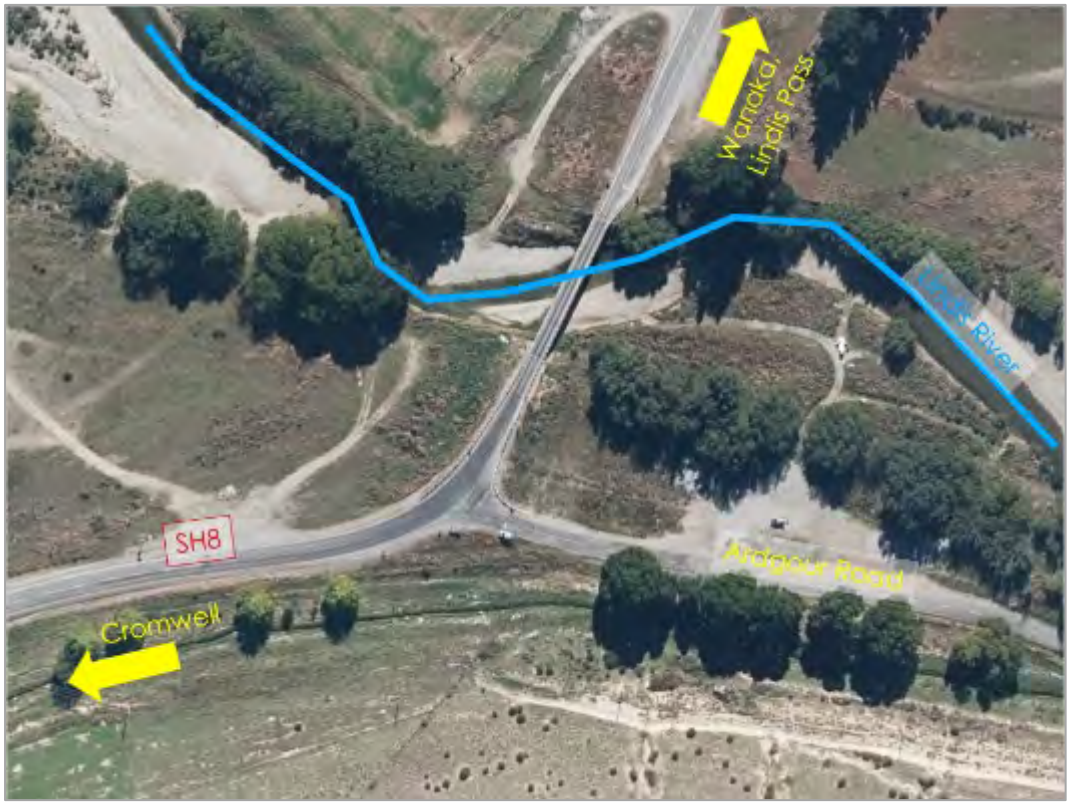


Figure 3-7: SH8 / Ardgour Road Intersection

Sightlines at the northbound yield zone for the bridge and right turn into Ardgour Road are partially constrained by safety barriers on the bridge and its approaches as shown in Figure 3-8.

Figure 3-8: SH8 / Ardgour Road Sightlines

Southbound speeds on the SH8 Lindis River Bridge were obtained from the TomTom GPS navigation systems database, and indicate an average speed of 47 km/h, and an operating speed of 64 km/h. On the northbound approach to the Ardgour Road intersection, the average speed was 75 km/h with an operating speed of 86 km/h.

3.2 Thomson Gorge Road – North of Matilda Rise

Thompson Gorge Road north of the Project site has been formed as single lane unsealed road, with occasional sections of Otta seal for dust suppression purposes near dwellings. The typical formation is shown in Figure 3-9**.**

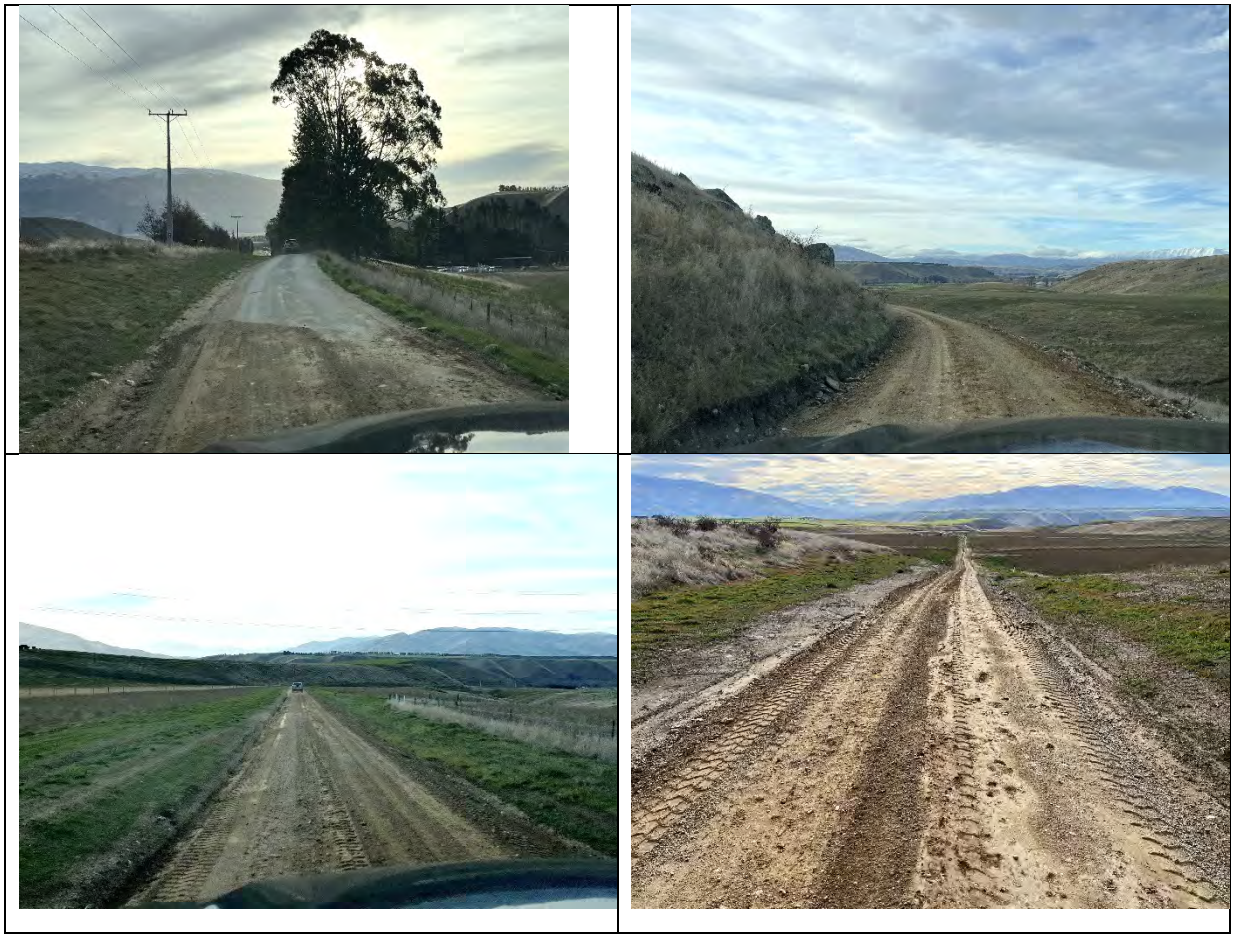


Figure 3-9: Thomson Gorge Road (Ardgour Road to Matilda Rise)

Weekday volumes of 100-125 vpd were recorded on Thomson Gorge Road south of the Ardgour Road intersection with volumes of less than 100 vpd being recorded at the weekend. Over the week about 20% of all vehicle movements involved heavy vehicles.

The operating speed of vehicles south of Ardgour Road as recorded by the traffic counter and TomTom data was about 65 km/h (average speed was 55 km/h) which reflects the unsealed nature of the road.

Thomson Gorge Road meets Ardgour Road on the outside of a curve at an uncontrolled intersection. Sightlines from the intersection to the east are partially obstructed by trees but a sight distance more than 200 m is available.

Photograph 3-1: Ardgour Road / Thomson Gorge Road

The northern sections of Thomson Gorge Road generally comprise sections of road with straight alignments linked by small radius curves. Speeds reduce to an operating speed of approximately 42 km/h, with average speed of 35 km/h.

Figure 3-10 shows that there are[1] multiple sections of Thomson Gorge Road that have been formed outside of the legal road boundaries, at approximate distances measured from Ardgour Road:

- 1.3 km - 1.7 km (left image, partially within road reserve)
- 1.7 km – 2.2 km (middle image)
- 2.9 km – 3.5 km (right image)

[1] Where the road alignment is close to the edge of the formed boundary, differences may be related to inaccuracy in either the aerial imagery, or the boundary line data. Any discrepancies would require further investigation by a surveyor.

Figure 3-10: Legal Road Alignment and Formed Road (Source: CODC GIS)

3.3 Thomson Gorge Road – South of Matilda Rise

South of Matilda Rise, the alignment of Thomson Gorge Road becomes more tortuous with more variable grades as it rises into the Dunstan Mountains. The road formation is only suitable for 4WD vehicles and is signposted as “Road not Suitable for General Vehicles Self Recovery Required”.

Figure 3-11: Warning signage on Thomson Gorge Road

Some minor improvements have been made to the lower sections of road to support the mine drilling investigations. The road generally has an approximately 3 m wide gravel road surface within an approximate 5 m formed width. Figure 3-12 shows photos of the existing route as it climbs from Matilda Rise to the DOC reserve about 7 km to the south. Average speeds of about 20 km/h have been recorded with the 85th percentile speeds being the range 25 km/h to 30 km/h.

The average daily traffic volume recorded on the road was approximately 30 vpd near the end of November 2024.

Figure 3-12: Thomson Gorge Road Matilda Rise to DOC Reserve

The road has a wide range of grades with some sections being steeper than 12.5%. Near the top of the road, exposure increases and there is minimal delineation. The road also provides an important Chorus Fibre connection.

3.4 Bendigo Loop Road (South)

The section of Bendigo Loop Road (south) from SH8 to Matilda Rise is a low volume rural local road. It has until recently been unsealed along its length. The first 0.4 km from SH8 remains unsealed, and the remaining 3 km section to Matilda Rise has a low-cost seal (Otta seal) which is understood to primarily

be for the purpose of dust suppression, and has a short pavement life. Typical photos are shown in Figure 3-13.

Figure 3-13: Bendigo Loop Road (south) Photos

3.5 Bendigo Loop Road (North)

Bendigo Loop Road from SH8 to Matilda Rise generally consists of a straight with connecting curves, and nearer Matilda Rise it has a tighter S-bend section. The first 250 m is sealed, and there are two locations with Otta seal for dust suppression purposes. Typical photos are shown in Figure 3-14.

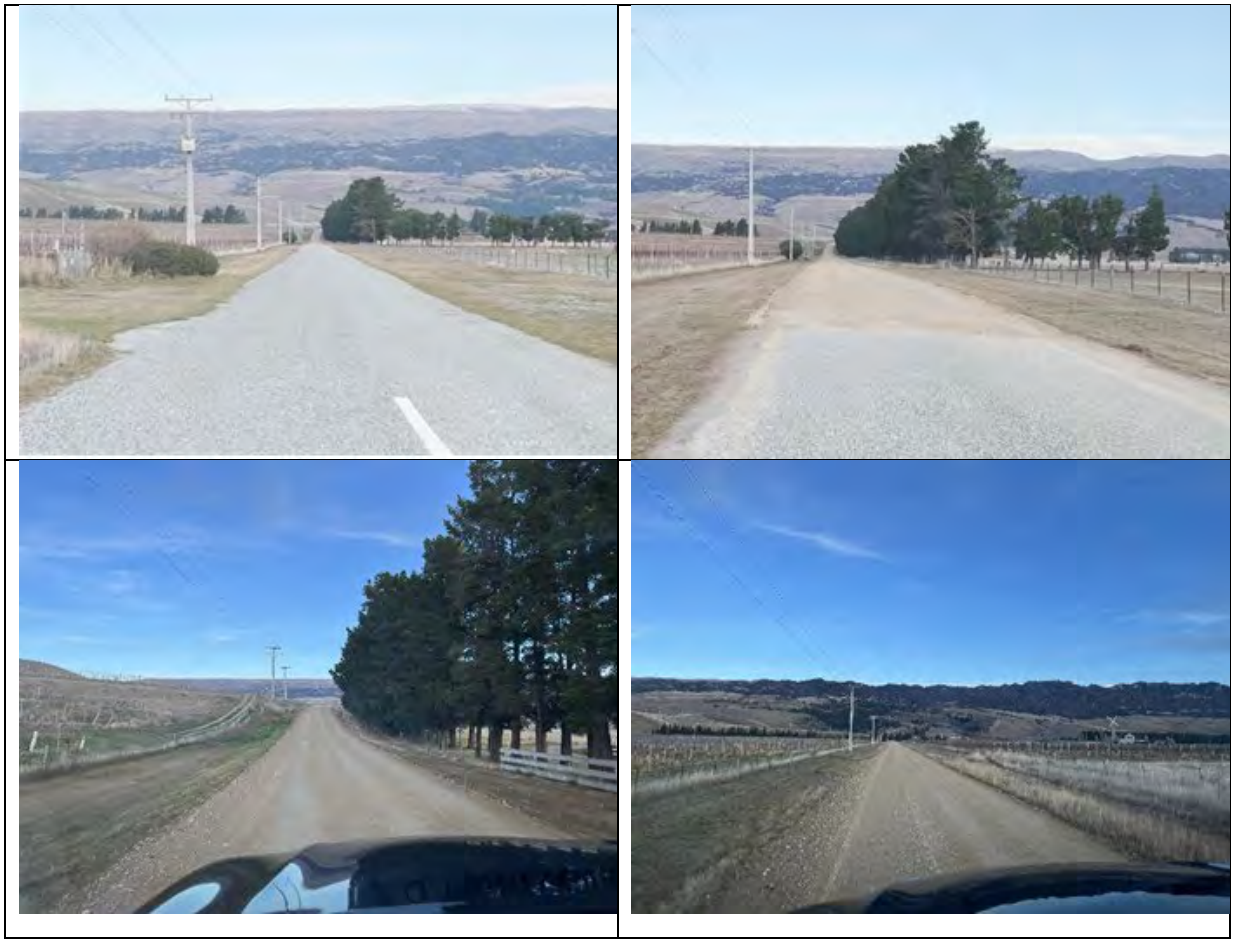


Figure 3-14: Bendigo Loop Road (north) Photos

3.6 Matilda Rise

Matilda Rise is formed to a low standard with a primary role of providing an access function. It is unsealed along its length, and includes sections that are steep and narrow, as well as some sections that are along flat open terrain. A couple of alignments are currently formed; one is a public route and the other is private track through Bendigo Station property but able to be used by the public.

Figure 3-15: Matilda Rise and Link Road (Bendigo Loop Road to Thomson Gorge Road)

3.7 School Bus Services

Figure 3 shows current published school bus service routes for the Tarras and Bendigo area. The bus service for Tarras School uses SH8 and Ardgour Road. The morning service operates from about 7:45 AM to 8:30 AM with the afternoon bus leaving the school at about 3:00 PM.

The service for Mt Aspiring College departs from Tarras at 7:25 AM and arrives in Wanaka at about 8:30 AM. The return bus reaches Tarras soon after 4:00 PM.

There are no school bus services operating between Cromwell and either Bendigo or Tarras.

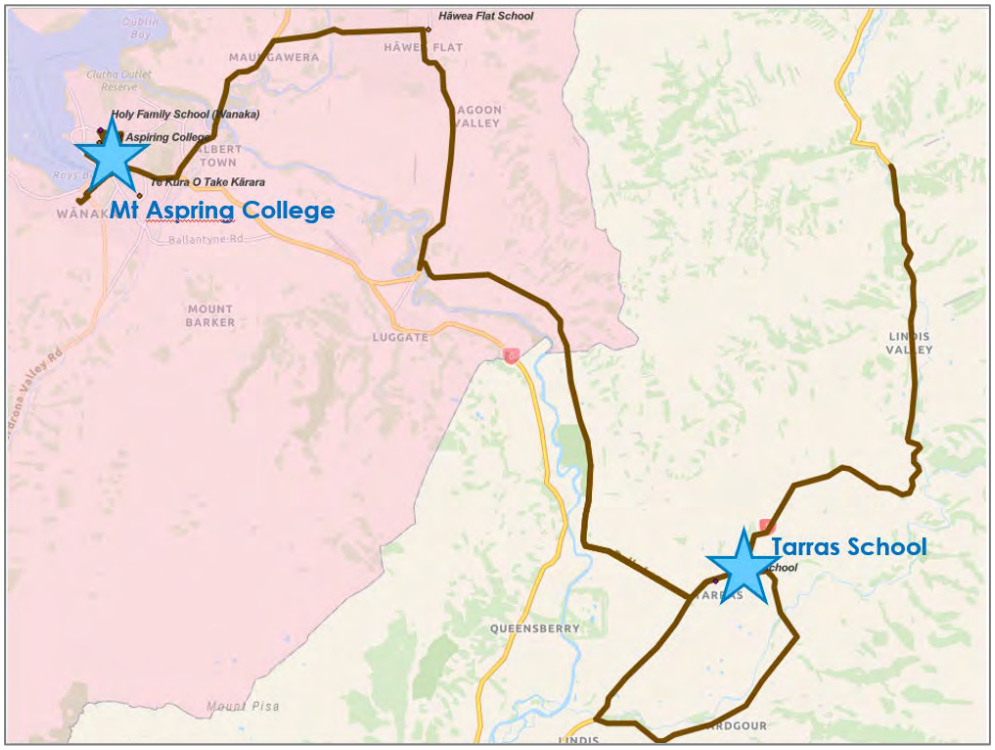


Figure 3-16: School Bus Service Routes (Source: Ministry of Education)

4 Bendigo-Ophir Gold Project

4.1 Mine Infrastructure Works

The establishment phase will comprise construction of the site infrastructure including:

- The establishment of the RAS Open Pit and Underground Mine and SRX Open Pit;
- The establishment of the CIT Open Pit;
- The establishment of the SRE Open Pit;
- A conventional hard rock gold processing plant and water treatment plant in the lower reach of Shepherds Valley, along with associated processing infrastructure and ancillary activities, including mine offices, carparking, workshops and equipment servicing infrastructure, a goods warehouse and a fuel depot. The establishment of this mining operations area will also include the realignment of Shepherds Creek;
- The establishment of a water storage tank near to the processing plant;
- The establishment of a Tailings Storage Facility in the upper reach of Shepherds Valley (including clean water diversion drains);
- The establishment of engineered landforms in the Shepherds Valley and Rise and Shine Valley to permanently store overburden waste rock;
- The establishment of temporary and permanent topsoil stockpiles and biological rehabilitation resource storage areas around the Project site;
- The taking of groundwater from the Bendigo Aquifer for use in mining-related activities, which will be conveyed to the processing plant via a pipeline over a distance of approximately 6.5 km;
- The establishment of supporting infrastructure / activities within the Project site, such as the upgrade of Thomson Gorge Road and a new site access road to provide improved access to the BOGP, internal mine access and haul roads, water pipelines and underground utilities, and electricity supply to the Project site from Lindis Crossing via a new 66kV overhead powerline that will follow the existing road reserve corridor;
- The realignment of Thomson Gorge Road, via Ardgour Station, to provide continued public access through to the Manuherikia Valley;
- Main explosives magazines and emulsion mixing facilities (located outside the Project site on Ardgour Station); and,
- The establishment of non-operational infrastructure associated with the BOGP on the Ardgour Terrace, including an administration office, high voltage substation and temporary construction workers accommodation.

The proposed locations for the mine infrastructure are shown in the drawings in **Appendix A.** The primary transport related works include improvements to the SH8 / Ardgour Road intersection and Thomson Gorge Road to create a safe and efficient access to the Project site. A section of Thomson Gorge Road will also be realigned through Ardgour Station to maintain a public access route through to the Manuherikia Valley.

4.2 Site Access

Access to the BOGP site is proposed via Ardgour Road and Thomson Gorge Road from SH8. This route was determined through a feasibility assessment that also considered alternative options for developing primary access across Matilda Rise from Bendigo Loop Road. The preferred option was selected as it involved a route that was achievable within existing road corridors, would be safest for road users, and was comparably efficient from a time and distance perspective.

Since the BOGP will increase traffic volumes on these routes, the Project includes the following key improvements to the public road network:

1. Widening and sealing of 1.6 km of Thomson Gorge Road south of Ardgour Road to provide a 6.5 m wide sealed carriageway.
2. Safety improvements at the SH8 / Ardgour Road intersection. This includes the formation of a right turn bay on SH8 and minor realignment of safety barriers to improve sightlines.
3. Construction of a new private road from Thomson Gorge Road through the “neck” of the lower Shepherds Gorge into the processing plant area; and
4. Development of a new 13.3 km road enabling a replacement /realignment of a portion of Thomson Gorge Road through Ardgour Station, and through an existing easement in the DOC reserve that then re-joins with the existing road at Thomsons Saddle. The new road will be formed to a standard supporting public access and vesting to CODC.

4.3 Thomson Gorge Road

The proposed Site Access road is positioned on Thomson Gorge Road approximately 1.6km south of Ardgour Road. That will also be the location of the connection to the future Ardgour Station road replacement of Thomson Gorge Road that will be impacted by Site activities. Further south the formed alignment of Thomson Gorge Road between Ardgour Road and Matilda Rise does not follow the legal road alignment (Figure 3-10) along its entire length, with up to 1.5 km of the existing road potentially being outside the road reserve. This has contributed to the positioning of the access.

The formed section of road between Ardgour Road and the proposed Site Access is likely (based on available property boundary and aerial photos) within the legal road reserve and can be widened to 6.5 m. As part of the detailed design, some minor realignment of the road centre line is anticipated to bring this closer to the centre line of the road reserve and support safer road geometry.

At the north end, the upgrade works are proposed to alter the priority of the Thomson Gorge Road / Ardgour Road intersection so that Ardgour Road east approach is controlled at a Stop sign. At the south end, it is likely that Thomson Gorge Road will be tied back into the existing formation immediately south of the new access road, which may receive priority when the new Ardgour Station road is provided.

A typical road cross-section is shown in Figure 4-1, with details to be confirmed through engineering design processes. It shows that all works will be located within the road reserve, and where necessary existing fence lines will be relocated to align with the road reserve. The works will essentially rebuild the road to adjust horizontal alignment, provide a consistent vertical alignment including changes to existing road levels, and ensure it is able to support the project traffic volumes.

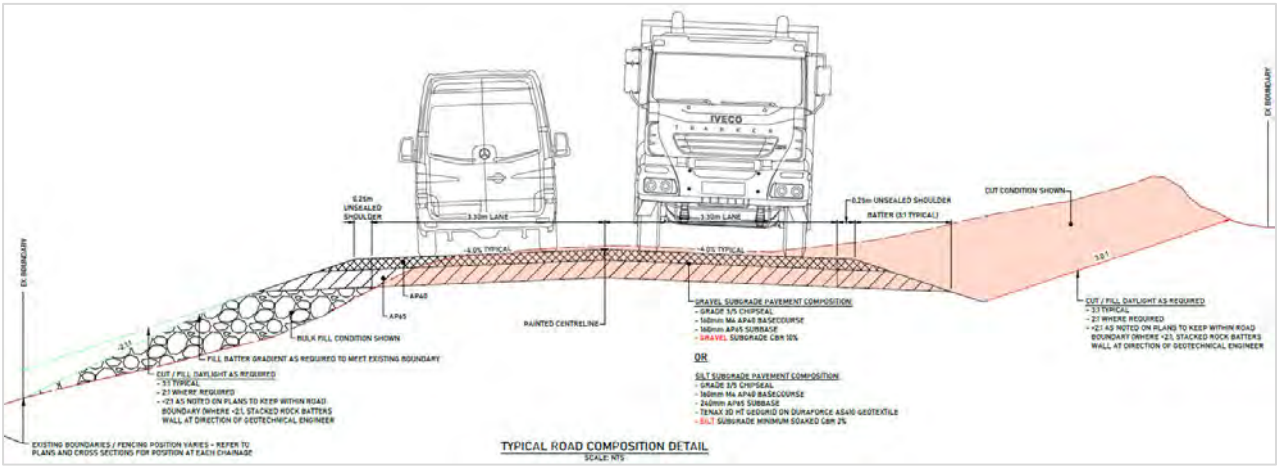


Figure 4-1: Indicative Thomson Gorge Road Cross-Section (Bonisch Consultants)

Appendix B shows the extent of the project works associated with the Thomson Gorge Road upgrade as part of enabling works for the mine.

4.4 SH8 / Ardgour Road

Since the BOGP will increase turning movements at the SH8 / Ardgour Road intersection which is immediately south of the Lindis River bridge and a location with a poor safety record, it is proposed that some safety improvements are undertaken at the intersection. A range of options have been considered, including doing nothing. The following options have been considered:

- Do nothing;
- Do minimum with minor seal widening and installation of additional warning signage;
- Construct a right turn bay on SH8; and
- Install signals to control the bridge and Ardgour Road intersection.

Do Nothing:

Since the BOGP will generate low levels of traffic during the day once it is operational (when traffic volumes on SH8 are greatest), it may not contribute to adverse safety effects at that stage and there may be little need for safety improvements in the longer term to address mine-related traffic. However, during the site establishment phase, there will be an increased volume of heavy vehicle movements and a more significant increase in turning movements at the intersection during the day, which will increase the risk of crashes. On that basis and combined with the existing safety deficiencies at the bridge, the option of doing nothing is not supported.

Do Minimum:

Additional warning signage will be necessary during the site establishment phase because of the high volume of heavy vehicle movements that will be generated (which represents a material change to the environment that would need to be managed). Minor improvements such as widening of shoulders and widening of Ardgour Road at the intersection with SH8 to accommodate two-way movement of turning trucks would contribute to improving safety. This option represents the minimum level of intersection

improvements required for the Project but is unlikely to address existing safety deficiencies at the bridge. Whilst a reduced speed limit consistent with the design speed environment would be beneficial, it is understood from discussion with NZTA that such a measure would not be considered.

Right Turn Bay:

The formation of a right turn bay at the intersection would enable right turning vehicles to stop clear of northbound through-traffic and alterations to the safety barrier alignments would increase sight distances from Ardgour Road. The provision of a right turn bay would reduce the likelihood of tail-end collisions on the northbound approach which also exist as a result of the bridge alignment and operation. Feasibility design for the improvements is included in **Appendix C.**

Signal Controls:

Installation of traffic signals to control movements across the bridge and from Ardgour Road to minimise the risk of conflicts between all movements would address some of the existing safety issues at the bridge. Traffic signals would be out of context in a rural high speed environment although in this case the single lane bridge is also out of context. However, since this level of control may be desirable during the site establishment phase, implementation of a permanent signalised solution may be appropriate.

Preferred Option:

A preliminary safe system assessment of the design options is included in **Appendix D**. The safe system scores are as follows:

- Existing (no Project): 100 / 448
- Do-nothing: 118 / 448
- Do-minimum: 106 -112 / 448 (approx.)
- Right Turn Bay: 100 / 448
- Signal Controls: 86 / 448

This suggests that the various changes have a modest change in safe system scoring, and indicates that Project will not have a significant effect on safety at the intersection (resulting in a 4% change in the safe system score).

The right turn bay option with the Project related increases in activity achieves the same safe system score as the existing configuration, and as such mitigates any effect. Following consultation with NZTA, this has been agreed as the preferred upgrade response to address Project related effects.

Whilst a signalised solution could provide the greatest safety benefits overall, it has operational considerations that do not align as well with NZTA operational objectives (being traffic signals in an open road speed environment) and would instead be a consideration for the future if NZTA choose to address safety and / or efficiency performance of the bridge, unrelated to the BOGP.

4.5 Ardgour Station Route

The proposed Ardgour Station public road to replace the existing Thomson Gorge Road section impacted by the Project site, will have a route that passes through Ardgour Station to Department of Conservation land and then rejoins Thomson Gorge Road at its high point.

The lower section of the new road will be on a new road alignment in the valley to the east of the Project site. The alignment has been informed by a range of matters including visual and ecological impacts, access rights, constructability, and separation from mining activities.

On upper sections of the road, it will generally follow the alignment of a farm track along the ridgeline through Ardgour Station and the Department of Conservation land. The existing farm track is narrow and a variety of hazards including off-camber sections, steep drop-offs and steep grades. Photos of the terrain and existing track are shown in Figure 4-2.

Figure 4-2: Valley for Lower Road Section (top left), Ardgour Station Farm Track and DOC Reserve (last photo)

Figure 1-3 presented previously shows the indicative route through Ardgour Station.

As the road will be provided to achieve enable closure of the Thomson Gorge Road through the Project site, it will need to be of sufficient standard to enable public access and vesting to CODC. Details of the design will be worked through with CODC to ensure that the route achieves acceptable design features for its low use function (broadly comparable to Thomson Gorge Road).

It is expected that the design process leading to a road suitable for public access and vesting will consider road surfacing and width, design speed, gradient, road reserve, signage, safety features, and future maintenance requirements.

5 Traffic Generating Activity

5.1 Construction Phase

The construction workforce will be approximately 150 people spread over the 12-month construction period. At peak construction there will be some 150 people working on site each day. Construction will generally be day shift, however it is understood that mine pre-strip operations may operate 24 hours per day over two shifts. A temporary construction camp for approximately 50 people will be established at the Ardgour Terrace Site (at Thomson Gorge Road) for the duration of the construction phase to accommodate some staff during construction.

An indication of the expected number of two-way vehicle movements on Thomson Gorge Road has been prepared based on information supplied by MGL, covering from the start of the site establishment works through to the operational phase. These movements are expected to utilise Thomson Gorge Road and Ardgour Road, before dispersing in both directions on SH8.

Figure 5-1 provides the relative contribution of forecast vehicle movements for different activities from the early construction works through to the operational phase with Figure 5-2 shows the expected volumes by vehicle type.

Key assumptions include:

- Resourcing levels on site each day, by phase;
- Buses being provided between the Project site and larger residential centres for worker travel;
- Servicing and deliveries using heavy vehicles; and,
- Establishment of a worker accommodation camp on Thomson Gorge Road.

Vehicle movement volumes are expected to rise rapidly to about 200 vpd in the first few months of construction (estimated to be from late 2025) and then climb more slowly to a peak of about 400 vpd by the end of 2026. Movement volumes will then fall to about 250 vpd once the site infrastructure works are completed and the operational phase begins (estimated to be in mid-2027).

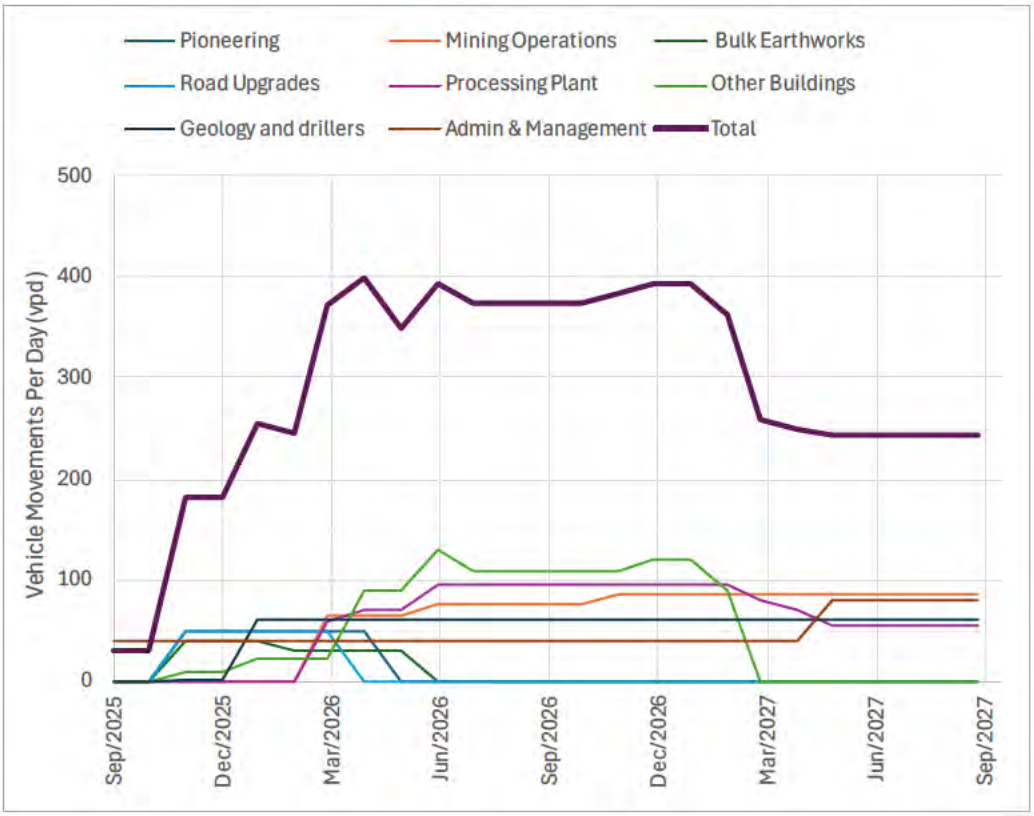


Figure 5-1: Forecast Vehicle Movement Volumes by Construction / Operation Phase

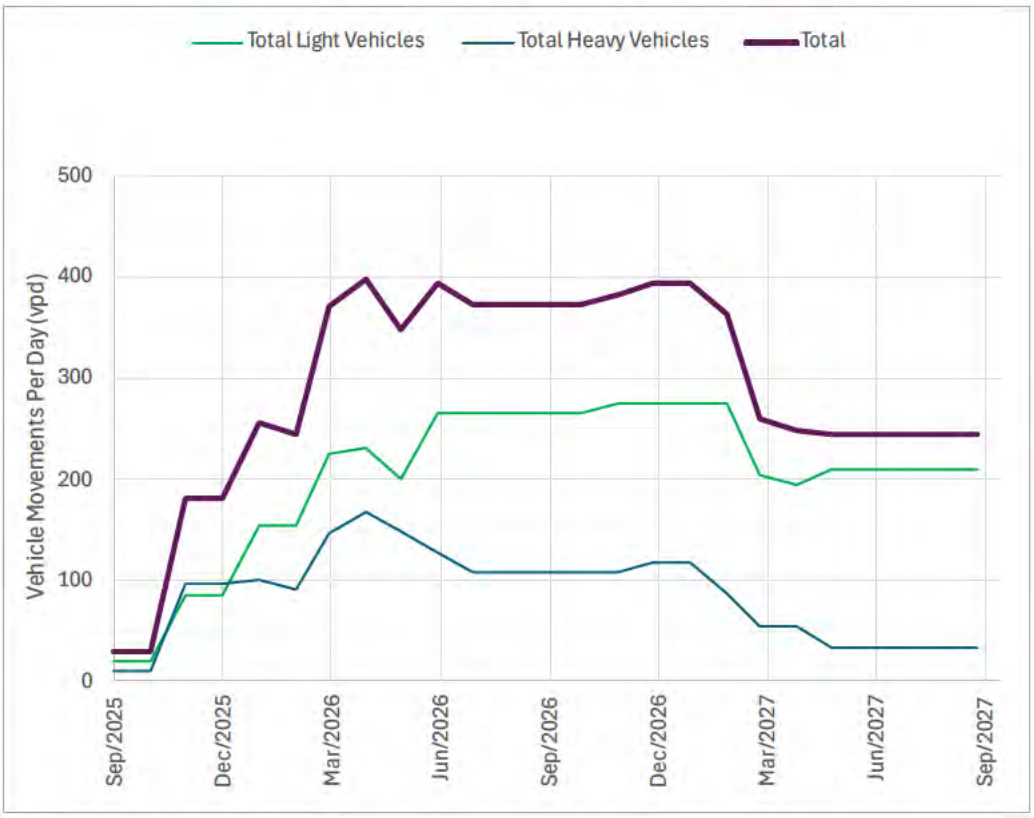


Figure 5-2: Forecast Vehicle Movement Volumes by Vehicle Type

Heavy vehicle volumes are expected to reach a peak of about 150 vpd to 170 vpd in Q2 2026 and then fall to about 100 vpd to 120 vpd through to the end of 2026. As the construction works are completed, heavy vehicle volumes will fall further to about 40 vpd once the mine becomes fully operational. The daily volume of light vehicles is expected to increase steadily through the construction phase to a peak of about 275 vpd in mid-2026 before reducing to about 210 vpd when the mine is operational.

5.2 Operational Phase

The operational mine work force will be approximately 250 –350 full time employees, the majority of which will be shift workers. During the operational phase, the mine will primarily operate with two 12-hour shifts, seven days a week. Some additional general and administration staff will work a standard 40-hour week.

Table 5-1 provides an indication of how staff numbers will be distributed across the day and night-time shifts at the Project site at one time based on a work force of 300 employees with 225 of these being shift workers (75 per shift).

Table 5-1: Indicative Employee Numbers – Operational Phase

Activity	Day Shift		Day / Night Shift	
	8:00am- 5:00pm 5 days a week	**6:00am – 6:00pm 7 days a week**	**Day 6:00am – 6:00pm[2] 7 days a week**	**Night 6:00pm – 6:00am 7 days a week**
General and Administration	25			
Open Pit Mining		40	60	60
Processing		10	15	15
Total	**25**	**50**	**75**	**75**

The majority of vehicle movements for the operational stage will relate to employee travel. If all employees travelled independently in a private vehicle, the Project could generate about 450 vpd during the week. MGL proposes to operate buses between the larger towns (Wānaka, Cromwell and Alexandra) to reduce the Project travel demands. The volume of light vehicles will depend upon the number of workers that choose to use the buses. The overall effect is that light vehicle volumes are expected to be about 210 vpd on a weekday.

The peak periods of travel demand will be 5:30 AM to 6:30 AM and 5:30 PM to 6:30 PM as shift workers arrive and depart. Broadly that would be in the order of 100 vph, with a dominant movement of about 50 vehicles into the Project site ahead of shift changeover, and a similar volume of vehicles departing from the site following shift changeover.

[2] Based on equal numbers of staff on the day and night shift, and an off shift (not shown in table).

Heavy vehicle movements will be required primarily for deliveries of consumable materials such as fuel.

The total daily volume of movements is expected to be about 250 vpd inclusive of buses and other heavy vehicles.

6 Local Road Transportation Effects

6.1 Local Road Changes in Traffic Volumes

During the site establishment phase, the construction works are expected to increase traffic volumes on Ardgour Road and Thomson Gorge Road, initially by approximately 200 vpd, then increasing to up to 400 vpd.

The number and types of heavy vehicle travelling to the Project site will vary from day to day depending upon the works being undertaken. For example, any aggregates required from off-site or steel would normally be transported using truck and trailer and articulated trucks, whereas concrete would be transported in rigid trucks. The peak volume of heavy vehicles is expected to be about 170 vpd with the movements spread across the working day (nominally 10 hours for deliveries). This means that the average hourly heavy vehicle volumes of about 15 vph to 20 vph can be expected. In practice, there will be variations through the day and peak hourly volumes of about 30 vph could be expected.

Light vehicle movements will be associated predominantly with worker travel to and from the Project site. This will create short duration peaks in travel demand towards the Project site early in the morning (5:30 AM to 6:30 AM) and away from the Project site in the late afternoon / early evening (5:30 PM to 6:30 PM).

Since Ardgour Road and Thomson Gorge Road currently carry very low traffic volumes, 260 vpd and 100 vpd respectively, the changes in traffic volumes particularly during the construction works are substantial.

Changes in traffic volume associated with the mine operation will continue for a longer period, and whilst of a lower scale than construction (at approximately 250 vpd), are still a high volume compared with existing traffic volumes on Thomson Gorge Road and Ardgour Road.

6.2 Thomson Gorge Road - Site to Ardgour Road

Based on the forecast peak levels of activity during the construction phase of the BOGP, and ongoing operational levels of traffic associated with the operation of the Project, it is considered that the existing unsealed and single carriageway formation of Thomson Gorge Road is unsuitable to accommodate two-way vehicle movement safely.

Temporary traffic management is often adopted for construction projects to manage changes in traffic patterns where the road may not be able to accommodate construction traffic safely under normal operating conditions. Measures can include temporary speed limits, single lane operation of two-way sections of road (through the use of temporary traffic signals), full or directional detours, and partial or full road closures. In this location there is a limited availability of alternative routes in and out of the area to support road closure and detours, and there will be Project inefficiency created by long signal controlled one-way movement over the construction period. There is also the need to have a resilient road access in the short and long term.

To address these matters, it is proposed that the primary response to increased traffic volumes will be to upgrade the road in the construction phase to establish a two way sealed carriageway from the

Ardgour Road / Thomson Gorge Road intersection to the Project site. This will support the long-term use of the road as an access to the mine.

The road improvements will be substantial and will involve carriageway widening, minor realignments, pavement strengthening, drainage, and safety features.

Based on the anticipated daily volumes during the operational phase of approximately 350 vpd (including existing traffic), a 6.5 m wide sealed carriageway with metalled shoulders is proposed which is a width consistent with the CODC rural local road standards[3] for a new road carrying between 300 vpd to 500 vpd. The proposed upgrades to the road will be sufficient to accommodate the forecast volumes of construction traffic.

The NZTA RTS 5 "Guidelines for rural road marking and delineation" recommends that a road with the proposed traffic volume characteristics should have a road centreline, and isolated sections of edge making and edge marker posts. From a road safety perspective, it is recommended that the road design includes comprehensive edge delineation due to the staff travel times.

Prior to the completion of the improvement works, some temporary traffic management controls (Stop/Go controls or signals) will be required on some sections of the road to ensure that the road can operate safely. It is recommended that the upgrade to Thomson Gorge Road forms a condition of consent.

6.3 Ardgour Road

Ardgour Road is a two-way sealed road that carries low traffic volumes with heavy vehicles representing approximately 18% of the traffic volume of approximately 250 vpd. No major upgrade is proposed as part of the project.

The Project construction works will increase the traffic volumes on the road generally, particularly at the start and end of the work day, as well as the likelihood of an instance of two-way movement of heavy vehicles on Ardgour Road. Traffic volumes at up to approximately 650 vpd during construction, and 550 vpd during operation remain low volumes for a rural road.

Efficiency of the road will be largely unaffected, ie. road users will have negligible change in their ability to travel freely along the road. However, the increase in traffic volumes has the potential to affect road safety, and road pavement performance. These matters have been considered further in the following section of this report.

[3] CODC Addendum to NZS4404: 2004 Engineering and Subdivision Standards

6.3.1 Road Safety Assessment

The road safety performance of the section of Ardgour Road between SH8 and Thomson Gorge Road has been considered in the following ways:

- Review of existing reported crash history;
- Determination of forecast crashes from theoretical assessment based on standard methods used for road assessment;
- Assessment of safety risk metrics against the 'Safe System' approach and treatment philosophy.

The existing road safety reported crashes in the area have not identified any reported crashes over the last 10 year period.

Whilst no crashes have been reported, the location means that under-reporting may have occurred, or road safety risks have not been borne out because of low traffic volumes. To address this, an analysis of road safety metrics based on standardised forecasting models has been carried out.

The first method utilises models in the NZTA Monetised Cost and Benefits Manual which is used for transport project assessment. The models consider typical crash rates for roads with characteristics defined by road alignment, carriageway and shoulder width, and specific out of context curves. A five year analysis period has been assessed, with Ardgour Road divided into three sections of road type (straight, curved, and the 120m radius curve at 1.45km). Traffic volumes are input, and the number of "deaths and serious injury" (DSI) metric is output, being the primary road safety metric in a safe system assessment.

The Safe System 'Treatment Philosophy' promotes different kinds of treatments based on both Collective risk and Personal risk. Collective risk (also known as crash density) is a measure of the number of high-severity (fatal and serious injury) crashes that is forecast to occur along a section of road per year. Personal risk (or crash rate) is a measure of the number of high-severity (fatal and serious) crashes that are predicted per 100 million vehicle kilometres of travel on the road. Personal risk is in effect a measure of the likelihood of an individual road user being involved in a crash as they travel along a road or through an intersection. It is effectively the collective risk divided by a measure of the traffic volume exposure.

The second method is the Infrastructure Risk Rating method. That inputs details about the road type, traffic environment, landuse environment, carriageway characteristics, access and intersection density, and roadside hazards to also generate a DSI forecast and an Infrastructure Risk Rating (IRR). Collective and Personal risk can then be calculated from the IRR by using a mathematical model.

For the combined 2.5km section of road, the following is identified for the existing road formation:

Table 6-1: Safety Risk Assessment - Existing Ardgour Road Formation

Measure	Existing (No Project)	With Project Yr 0 to Yr 5 (First 5 years 2yrs Construction, 3 years Operation)	With Project (Operation Yr 3 +)
Average Traffic Volume	250	530	500
MCBM Crash Rate Method			
5 Year DSI	0.080	0.170	0.160
Collective Risk	Low (0.007)	Low (0.014)	Low (0.013)
Personal Risk	Medium - High (7.157)	Medium - High (7.157)	Medium - High (7.157)
Infrastructure Risk Rating Method			
5 Year DSI	0.071	0.151	0.143
Collective Risk	Low (0.006)	Low (0.012)	Low (0.011)
Personal Risk	Medium (6.393)	Medium (6.393)	Medium (6.393)

The assessment, which includes the physical characterises of the existing road, indicates that the return period of a DSI crash is currently approximately every 70-76 years, and that could reduce to every 33-38 years with the project. Collective Risk, representing the overall likelihood of crashes on that section of road is classified as “Low”. The Personal Risk representing the likelihood of an individual driver having a serious crash, is Medium to Medium-High, depending on the model adopted.

Under the Safe System ‘Treatment Philosophy’, the combination of Low Collective Risk with Medium to Medium-High Personal Risk fits within the Safety Maintenance or Safety Management band, as indicated by Figure 6-1. Safety management treatments are lower-cost measures and are most appropriate on lower volume roads, including skid resistance on roads, warning signs with electronic display components, and managing vegetation to address hazards. Within the safety maintenance treatment category, treatments typically include the likes of signs and markings, skid resistance management, and prioritisation of maintenance.

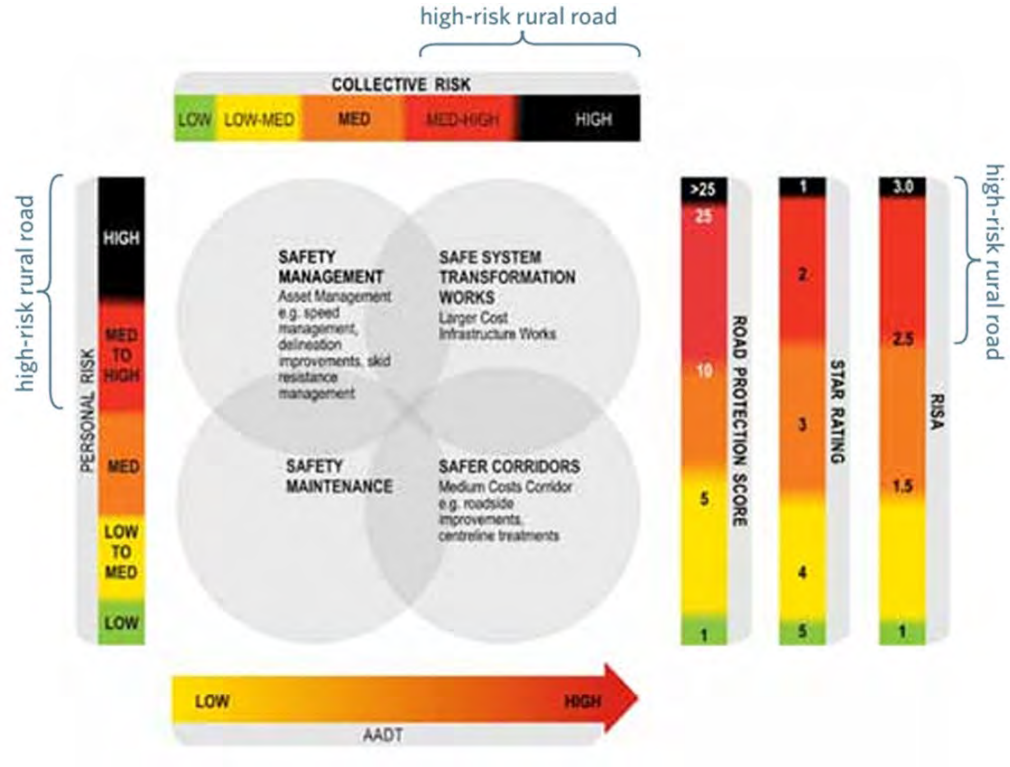


Figure 6-1: Safe System Treatment Philosophy (NZTA High Risk Rural Roads Guide)

These types of treatments are discussed as follows. As noted earlier, the existing road already has delineation that is suitable for the existing and forecast traffic volumes. Road edgelines can be considered on isolated sections of road with traffic volume between 250vpd and 750vpd as a measure to reduce road safety risk, although those are typically only implemented on roads 6.0m or wider under current guidance. In that respect, the existing 120m radius bend 1.4km south of SH8 would have sufficient width to warrant edgeline treatment, and is likely a higher risk part of the road network being isolated between straights. Subject to CODC approval, this road marking could be carried out ahead of construction.

Currently there are Willow trees adjacent to the road over the northern section of Ardgour Road. Management and potential removal of some of those trees could maximise forward visibility, minimise frost effects, and reduce roadside hazard which would support a safer road environment. That is a matter for CODC to consider, and can be further investigated between MGL and CODC in the future.

A detailed assessment of the need for curve advisory speeds at the bends 0.4 km and 1.4 km south of SH8 has not been carried out. If those curves, with estimated design speed of approximately 60km/h were identified as benefiting from curve advisory speeds, chevrons on the corners will further assist with delineation. It is recommended that prior to construction commencing, a curve advisory review in accordance with the Traffic Control Devices Manual is carried out, and supplied to CODC. If requested by CODC, MGL should support safety improvement by installing signs where warranted.

The existing road surface does not appear to have been resealed for many years, mostly more than 25 years ago. That indicates that the road has been able to accommodate the existing heavy vehicle traffic mix over that period without significant intervention. Based on observations, it is likely that resealing will need to be considered in the short-medium term under existing conditions, and that would further

support skid resistance on the road in the future. As an existing matter, it is considered responsibility for that falls to CODC under standard road maintenance processes. As the BOGP is established, monitoring of pavement condition and maintenance is recommended by the MGL.

In the longer term, as part of CODC general network improvements road widening could be contemplated to bring the road width up to a wider standard that would generally be expected for a **new** road under their current practice. An additional widening of 1.0m up to 6.5m has been investigated, and the following road safety metrics determined.

Table 6-2: Safety Risk Assessment – Future Widened Ardgour Road Formation (6.5m seal)

Measure	Existing (No Project)	With Project Yr 0 to Yr 5 (First 5 years 2yrs Construction, 3 years Operation)	With Project (Operation Yr 3 +)
Average Traffic Volume	250	530	500
MCBM Crash Rate Method			
5 Year DSI	0.071	0.152	0.143
Collective Risk	Low (0.007)	Low (0.012)	Low (0.012)
Personal Risk	Medium (6.393)	Medium (6.393)	Medium (6.393)
Infrastructure Risk Rating Method			
5 Year DSI	0.066	0.140	0.13
Collective Risk	Low (0.005)	Low (0.011)	Low (0.011)
Personal Risk	Medium (5.902)	Medium (5.902)	Medium (5.902)

Whilst these metrics show slight reductions in DSI, approximately 9% to 10% reductions, there is no material change in the Collective and Personal Risk bands. The existing formed width scenario did not show a frequent injury DSI crash return period and there has been no reported history of crashes. This highlights the safety maintenance and management approach, and higher cost improvements is not justified on a safety basis. A sensitivity analysis allowing for safety benefits of road edge lines and curve chevrons with existing pavement formation and under the MBCM methods could result in a comparable reduction in DSI, highlighting the effectiveness of low cost maintenance and management measures at the low volumes that will continue to exist on the road.

6.3.2 Pavement Maintenance

The road width of 5.5 m will potentially result in passing heavy vehicles traversing the unsealed shoulder when passing and over time can contribute to edge break. The existing road already carries heavy vehicles and edge break does not appear to have been a significant concern along most of the road, with minimal evidence of edge break repairs.

At 5.5m, trucks can pass in the carriageway, albeit with low clearance where slower speeds are desirable. The images below indicate the truck driver slightly shying away from their more central tracking ahead of passing an opposing vehicle. The images indicate the wheels of the truck and trailer remain on the sealed surface, although at the edge of the seal.

Figure 6-2: Approaching Truck Shying Away from Typical Central Tracking

Figure 6-3: Trailer Wheels on Sealed Surface Whilst Passing

Such manoeuvres place localised stress on the pavement edge, albeit over a short distance. A probability analysis indicates that even at peak times of construction (with assumption of a two way total 50 vph, including an additional 10 heavy vph and 5 light vph in each direction from existing):

- over the length of Ardgour Road from SH8 to Thomson Gorge Road, a truck is likely to pass another car or truck in the opposing direction **1 in 4** times (compared to 1 in 43 times under existing conditions), and
- on any specific 100m section of Ardgour Road, a truck is likely to pass another vehicle in the opposing direction **1 in 1,319** times (compared to 1 in 21,925 times under existing conditions).
- on any specific 100m section of Ardgour Road, a truck is likely to pass another truck in the opposing direction **1 in 4,400** times (compared to almost never under existing conditions). This represents approximately 1 to 2 occurrences on an specific 100m section of road in the peak few months of construction.

Whilst the probability of vehicles passing on the road indicate the passing events will occur more regularly, overall traffic volumes are still low. With the short construction duration, it is considered that the likelihood of damage to specific sections of the road will also be low.

It is also noted that at the tightest curve at 1.45 km south of Ardgour Road (where a total 6.0m sealed width is available) swept path analysis indicates a design sized articulated truck has a tracking width of 3.0m, leaving 3.0m in the opposing lane.

Nevertheless, the safety and performance of the road can be monitored and maintained through the construction works, with implementation of a Project Traffic Management Plan, which will be developed for the Project.

Edge break and road pavement performance will need to be monitored as part of the Project Traffic Management Plan actions. Where monitoring identifies pavement changes as a result of the change in traffic, carriageway repairs will need to be implemented as necessary to maintain safety. This is a typical response for a large construction project utilising rural roads. The post construction pavement review and repair/rehabilitation will also support safety of the road for the operational phase.

During the operational phase, two-way movement of heavy vehicles will be infrequent because of the tidal nature of bus movements and low volumes of servicing movements.

6.3.3 School Bus

The existing school bus route travels on Ardgour Road, and currently includes some stopping over the section between SH8 and Thomson Gorge Road. School bus routes and bus stops vary over time, and the route will be based on demand, efficiency, and safety considerations. At this stage it is not expected that there will be demand in the short term to change the route to include Thomson Gorge Road (as 4 or more children need to be picked up to warrant a change of route).

It is noted that much of the New Zealand rural road network can be expected to have a school bus route on it at some stage, with a wide range of conditions and this location and project traffic patterns is not particularly unusual for a rural school bus route.

Given the nature of change associated with school bus stop locations on rural roads, facilities for children at bus stops (eg shelter well clear of the road) are typically the responsibility of families of school bus users.

Road user rules (Land Transport (Road User) Rule 2004) exist around passing of stationary school buses in either direction, with drivers required to slow to a maximum speed of 20 km/h, and drive with

due care for the safety of children. Adherence to this by BOGP related drivers can be encouraged through driver code of conduct processes in the Project Traffic Management Plan.

6.4 SH8 Efficiency and Safety

The change in traffic volumes of SH8 will depend on the distribution of movements between the north and south. In practice, it is likely that the bulk of the movements will be from the south and volumes on SH8 south of Ardgour Road could increase by up to 300 vpd (assuming approximately 75% of generated traffic heads south) during the peak of construction.

That will reduce to an increase of approximately 180 vpd during operation, with much of the traffic occurring in the early morning and early evening when state highway traffic volumes are low.

Although the SH8 traffic volumes can seasonally vary between 1,500 vpd and 4,500 vpd, the changes during both construction and operation phases will readily be accommodated by the state highway network. As such, SH8 is considered to remain within its safe traffic carrying capacity.

6.5 SH8 / Ardgour Road Upgrade

The primary effect of the increased vehicle movements associated with the BOGP will be on the Ardgour Road intersection. The BOGP proposal includes improvements to the intersection to mitigate this and it is recommended that the improvements are required as a condition of consent with the detail to be confirmed through design approval processes with NZTA. The form of improvement agreed through consultation with NZTA (refer **Appendix E** for correspondence) as being most suitable involves construction of a right turn bay from the SH8 southwest approach to the intersection, and consequential changes to the Ardgour Road approach.

NZTA have indicated that as part of the detailed design process a Safe System Audit will be required.

NZTA have also indicated that as part of the detailed design of upgrades, consideration will be given to the need for flag lighting at the intersection. Further, at that time consideration can be given to installation of new advanced signage for the mine site on the SH8 approaches with directional signage at the intersection.

During the construction works, there will also be a need for temporary signage to alert drivers to the increased number of trucks. The number and locations of signs will be established as part of the safety risk assessment required by the TMP.

6.6 Matilda Rise and Bendigo Loop Road

Some of the exploration drilling and investigation operations have utilised a property on Bendigo Loop Road as a base. Travel to the Project site uses Matilda Rise. Since the volume of additional traffic is very low, it is considered that this will have negligible effect on existing road users.

The BOGP includes the establishment of an improved access to the Project site via Ardgour Road and Thomson Gorge Road that does not require use of Bendigo Loop Road or Matilda Rise. Once that

access route has been upgraded, there should be no or very limited need for use of Matilda Rise for access.

It is recommended that a driver code of practice is adopted that requires all vehicles travelling to and from the Project site to use Ardgour Road and Thomson Gorge Road. This may require some additional signage at each end of Matilda Rise. Any use of Matida Rise should be by exception only and detailed in the Project Traffic Management Plan.

6.7 Thomson Gorge Road (South of Matilda Rise)

South of Matilda Rise, Thomson Gorge Road follows an alignment that traverses the areas of the Project site that are proposed to be mined. Since it is not possible to ensure safe movement of private vehicles along the road in conjunction with mine traffic, MGL proposes to form a new road through Ardgour Station to maintain a public access route through the wider area but completely clear of the mining areas. This was described in Section 4.5.

The existing Thomson Gorge Road is a constrained, low volume, mountainous road with warning signs relating to the hazards presented by the road. It does provide a road with some importance for resilience of the area, being an alternative to Cromwell Gorge (in case of an emergency).

As the mining areas are developed, it will be necessary to prevent public access to parts of Thomson Gorge Road. The proposed alternate route through Ardgour Station is considered to represent a practical option for maintaining public access and it is recommended that construction of this road forms a condition of consent.

The new replacement road will be designed to enable to provide a comparable level of public access to the Dunstan Mountains (albeit on a different alignment) and vesting with CODC.

The expected alignment of the new road will have a length of approximately 13.3 km, comprising:

- 12.0 km of new road through Ardgour Station
- 1.3 km of road through Department of Conservation land

This 13.3 km new road compares with the existing route length (between the start and end points of the new road) via Thomson Gorge Road of approximately 12.1 km.

The timing for construction of the new road will depend on when the new mine pit operations will disrupt the safe through function of the Thomson Gorge Road.

7 Project Traffic Management Plan

7.1 Purpose

A Project Traffic Management Plan (PTMP) forms a key component for managing the traffic effects of a major project of this nature. It will need to be prepared with input from MGL in consultation with stakeholders, CODC and NZTA. The focus of the PTMP will evolve as the Project moves through the construction works into the production phase. For the construction works, the PTMP will have a greater focus on road improvement works that are required for the BOGP whereas for the production phase there will be a greater focus on monitoring and maintenance of the affected road network.

7.2 Approvals

Any physical works on the transport network required by the Project will need to have design and corridor access (for construction) approvals from the relevant road controlling authority, either NZTA or CODC, before they begin.

Copies of the PTMP will be made public to keep stakeholders including residents close to the Project site vehicle access routes fully informed of how the BOGP will affect the roads they use. This document will be maintained in electronic form as it is a live document and will be updated to incorporate changes such as variations to the Project schedule. It is recommended that a community liaison group is established so that the community can provide feedback on the effectiveness of the PTMP and identify any potential alterations to reduce effects on the community. Updates on Project progress and planned works that will affect the community should be provided on a regular basis.

7.3 Outline Traffic Management Plan

7.3.1 Content Overview

The PTMP will provide stakeholders with a clear understanding of the construction programme, expected traffic volumes during each stage including the need for transporting over-weight or over-dimension loads, any road improvements to be undertaken, and the traffic management measures being implemented such as temporary or mobile road closures to manage the safety risks associated with the BOGP vehicle movements, particularly trucks.

The PTMP will address:

a) Potential traffic safety risks arising from the BOGP;

b) Proposed mitigation measures, including;

- site access arrangements;
- travel route restrictions, e.g. use of Matilda Rise is by exception only;
- construction programme and construction activity time restrictions;

- traffic volumes;
- management plan for oversize loads (numbers and transport times);
- driver protocols;
- road improvements;
- pavement maintenance;
- staff travel plan.

c) monitoring; and

d) communication / complaints arrangements.

Details of the anticipated content is described below:

7.3.2 Site Access Points and Travel Routes

The first part of the PTMP will provide details of the wider transport network surrounding the Project site, the vehicle access locations to the site and the routes that will be taken by construction and Project vehicles. This would normally comprise a more succinct version of information contained in this transportation assessment report.

7.3.3 Traffic Volumes

The PTMP will provide details of the expected volumes of traffic on the various parts of the transportation network and also times of movements for all stages of the Project from construction through to full production. It will provide the detailed schedule of the various work stages as the Project proceeds. From this, the various parties will be able to confirm and understand the type and frequency of vehicles to expect on each portion of route at any time.

7.3.4 Over-weight and Over-dimension Loads

The establishment of the mine will require a variety of large vehicles which will need to be transported to the site via the Thomson Gorge Road. Although the vehicles will be broken down for transport, the loads will still likely represent over-weight and over-dimension loads which creates very specific transport management requirements which should be addressed separately from the general construction traffic movements.

Although it is anticipated that specialist contractors will be engaged to transport the over-weight and over-dimension loads and that they would operate under specific permits for the BOGP, the PTMP should outline what could be expected. This would typically include.

a) transport routes;

b) confirmation of the times and locations when movement is prohibited, for example peak hours in townships with high levels of activity, and an indication of the times of day when deliveries are anticipated;

c) operating restrictions for any bridge crossings;

d) piloting procedures;

e) contingency plans for breakdowns, bridge or pavement failures, severe weather conditions, accidents, or roadworks;

f) provisions for co-ordination with other parties, including emergency services; and

g) provisions for communication with school bus drivers if any day-time transport of over-weight or over-dimension loads is required.

Including these details in the CTMP will assist regular road users in knowing how to respond to the presence of piloted oversize loads.

7.3.5 Driver Protocols

In addition to the driving standards required by law, all drivers involved in the Project will be subject to additional protocols when travelling along the district roads. This could include:

a) giving way to school buses at all times, and passing in accordance with Road user rules (Land Transport (Road User) Rule 2004);

b) travel speeds on unsealed roads; and,

c) restrictions on traffic movements to reduce effects on recreational users of Thomson Gorge Road.

These protocols will be strictly enforced by the consent holder in addition to all other aspects of on-site health and safety.

7.3.6 Road Improvements

Since some localised improvement works at intersections will be required to accommodate the higher volumes of heavy vehicle movements, it will be necessary for MGL to prepare and submit to the relevant Road Controlling Authority an appropriately detailed schedule describing the works and the temporary traffic management provisions to be put in place during construction. It is noted that, in this regard the Local Government Act prohibits anyone from making improvements to a road without the express approval of the Road Controlling Authority (RCA), either the relevant District Council for council roads or NZTA for works on the state highways.

Thomson Gorge Road does not have sufficient width to allow for two-way movement of trucks and widening of the road is proposed as part of the construction and site establishment works. For any initial enabling works ahead of the Thomson Gorge Road upgrade (which is programmed at the outset in any case), the PTMP will establish the preferred approach for managing vehicle movements on the road while the construction works are underway. This will involve a risk based assessment to determine the level of traffic management control necessary to maintain safety for all road users. The primary hazard will relate to the higher volumes of heavy vehicles because crashes with heavy vehicles are more likely to result in serious or fatal injuries.

The design process will include any geotechnical investigations that are necessary to satisfy the RCA that batters will remain stable. Once the designs have been approved by the RCA, they will be incorporated into the overall PTMP, with details of:

a) the physical extent and nature of the works;

b) an accompanying schedule of start and finish dates;

c) details for sourcing materials and disposal of spoil;

d) provisions for advisory signage;

e) arrangements for temporary traffic management and supervision;

f) clean-up and overnight arrangements, and,

g) contact telephone numbers.

Depending on the timing of these works relative to the overall Project, this component of the PTMP may be prepared and circulated in advance of the rest.

7.3.7 Pavement Maintenance

The PTMP will describe the methodology that will be adopted in relation to pavement maintenance of Ardgour Road and Thomson Gorge Road during operation of the mine to ensure that the road pavements are safe. The methodology will outline the mechanisms for staff, truck drivers or the general public to report concerns such as potholes and the actions to restore the pavement to a safe condition.

During the construction and early operation phases, the focus of maintenance and repair work will involve maintaining and if necessary restoring the road to a safe condition and may involve temporary rather than permanent works. Permanent pavement rehabilitation may be required in some locations following the completion of construction works.

7.3.8 Staff Travel Plan

The PTMP will describe the measures to be adopted to minimise private vehicle travel to the Site. This will include a focus on responding to demand for staff bus and ride share arrangements.

7.3.9 Monitoring

The PTMP will describe how construction vehicle movements on the public road network will be monitored and could include:

a) collecting actual traffic volumes in and out of the site on Thomson Gorge Road;

b) ensuring safe pavement conditions are maintained, e.g. response and actions taken following reports of damage;

c) compliance with temporary traffic management plans; and

d) collating submissions from the general public or Community Liaison Group.

The monitoring results will be reported to Council on a quarterly basis during construction whilst Project generated heavy vehicle volumes exceed 50 vehicle movements per day, reducing to an annual basis thereafter.

7.3.10 Communication Protocols

Communication protocols are fundamental to the success of the PTMP. The names and contact details for the site manager(s) will be clearly recorded as the point of contact for all road users.

Provision will be made for the timing of oversize load movements or temporary road closures to be advertised through local media, enabling drivers to avoid them if they so choose.

A copy of the PTMP will be available on the Project website and will record a list of people and organisations that will be notified electronically of updates to the PTMP. This is expected to include:

a) community groups in Bendigo and Tarras;

b) NZTA; and

c) Central Otago District Council.

All amendments and updates to the PTMP, as approved by Council, will then be forwarded to those named on the list.

8 CODC District Plan

8.1 District Wide Rules

8.1.1 Objective 12.3.1 – Transportation Network

To promote the safe and efficient operation of the District's roading network.

The BOGP site establishment works includes a range of road improvements to enable the transport network to operate safely and efficiently. The proposed works at the SH8 / Ardgour Road and on Thomson Gorge Road are largely confined to the existing road corridors and will maintain the existing amenity values of the roads.

Since Thomson Gorge Road south of Matilda Rise traverses the proposed mining areas, a new road will be constructed around the mine site to provide a similar level of public access through the Dunstan Mountains as Thomson Gorge Road has provided.

8.1.2 Policy 12.4.1 Parking Loading and Manoeuvring

To avoid, remedy or mitigate adverse effects on the safe and efficient operation of the roading network by requiring:

a) Safe and efficient access points to the roading network, and

b) Off-road loading and manoeuvring space and facilities, and

c) Off-street parking,

where these are appropriate.

The site establishment works involve widening and sealing of Thomson Gorge Road along with the formation of new access points to the Project infrastructure. There are no physical constraints that will prevent the Project accesses being designed in accordance with best practice guidelines.

The size of the Project site means that there is ample space to accommodate all of the parking and loading requirements of the Project.

8.1.3 Rule 12.7.1 Access Standards from Roads

8.1.3.1 Construction and Maintenance

Thomson Gorge Road between Ardgour Road and the site entrance will be widened and sealed as part of the Project construction works which will enable it to be used in all weather conditions. Access ways within the Project site will also be sealed for a minimum distance of 30 m from the road boundary to reduce the potential for detritus to be carried onto the road.

There are no reasons why the site access cannot be formed so that it intersects the road reserve boundary within 15 degrees of a right angle.

8.1.3.2 Sight Distances

The proposed new access road from Thomson Gorge Road is located approximately 300m south of a curve which will be upgraded as part of the project and provides a partial sight distance constraint, and approximately 165m north of a curve on the existing road that will not be upgraded and therefore has a slow speed. It is considered that the speed environment based District Plan sight distance requirements can be met (noting the highest sight distance of 160m applies to a 100km/h operating speed, well above existing speeds).

8.1.3.3 Access to Rural State Highways and Arterial Roads

Not applicable; The Project site does not have access to any rural state highway or arterial road.

8.1.3.4 Access to Rural Collector Roads

Not applicable; The Project site does not have access to any rural collector road.

8.1.3.5 Access to Rural Local Roads

The location of the BOGP site entrance will be more than 60 m from the nearest intersection

8.1.3.6 Access to Urban State Highways and Urban Arterial Roads

Not applicable; The Project site does not have access to any urban state highway or arterial road.

8.1.3.7 Access to Urban Local Roads

Not applicable; The Project site does not have access to any urban local road.

8.1.4 Rule 12.7.2 Parking

8.1.4.1 Supply of Parking

Although parking is not required to be provided, there is sufficient space within the site to form parking areas with capacity to meet all anticipated parking demands for the Project.

8.1.4.2 Layout and construction

Where parking is provided, it is will meet the dimensional requirements for the size of parking bays and aisles. However, given the rural location of the Project site, the parking areas may not be sealed or formally marked. Although this does not comply with the District Plan rule, it will not contribute to any dust or lighting effects on neighbouring properties or the transfer of aggregates onto the public road because of the distance between any parking area and the public road.

The size of the site will ensure that the District Plan queuing space requirements can be met.

8.1.5 Rule 12.7.5 Signs

Transport related directional and warning signs for the Project are expected to include:

1. Fingerboard signs at the SH8 / Ardgour Road and Ardgour Road / Thomson Gorge Road intersections to provide directional signage to the Project site.
2. Truck warning signage on SH8, Ardgour Road and Thomson Gorge Road
3. Hazard signage and public safety signage on Thomson Gorge Road and Ardgour Station Road.

All signage of this type will conform to national guidelines and be installed within the road reserve.

8.2 Infrastructure, Energy and Utilities

8.2.1 Objective 13.3.1 – Transportation Network

To enable the safe and efficient operation and development of the transportation network while ensuring that amenity values and environmental quality is maintained or enhanced.

The BOGP site establishment works includes a range of road improvements to enable the transport network to operate safely and efficiently. The proposed works at the SH8 / Ardgour Road and on Thomson Gorge Road are confined to the existing road corridors and will maintain the existing amenity values of the roads.

A new public road will be constructed around the mine site to provide a similar level of public access through the Matakanui range to Thomson Gorge Road. This will require partial closure of Thomson Gorge Road to enable the mining works to proceed safely.

8.2.2 Policy 13.4.2 – Managing the development of the Transport Network

To ensure that the design, location and operation of the transportation network recognises and provides for the following matters:

a. *The avoidance, remedying or mitigation of any significant adverse effects on the environment resulting from the generation of noise, vibration, glare, light spill and dust emissions.*

b. *The avoidance, remedying or mitigation of adverse effects on the on-going operation of activities that are permitted on adjacent land in terms of the plan's provisions.*

c. *The avoidance, remedying or mitigation of adverse effects on the landscape.*

d. *The protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna and statutorily managed sports fish and game, water bodies and their margins.*

e. *The protection of the integrity of significant heritage and cultural values.*

f. *The protection of the integrity of values of importance to Kai Tahu ki Otago.*

g. *Public safety.*

h. *The potential for material damage from erosion, subsidence, slippage, inundation or other natural hazard events and the likelihood that the exacerbation of any of these processes, is avoided, remedied or mitigated.*

i. *The intended level and type of traffic usage, and any foreseeable future demands.*

j. *The promotion of efficient energy use.*

k. *The maintenance of the safe and efficient operation of existing infrastructure and utilities including integration with the existing transportation network.*

The proposed alterations to the road network are being designed to generally comply with CODC engineering standards and meet the transport demands of the proposed BOGP. This will enable the safe and efficient operation of the network while the mitigating any transport effects of the Project. Overall, it is considered that the proposed works are consistent with this policy.

8.2.3 Transport Rules

8.2.3.1 Rule 13.7.2.i – Existing Roads

The proposed improvements to Thomson Gorge Road would represent permitted activities under the District Plan in so far as they do not involve forming a heavy vehicle bypass route or new state highway. However, while much of the proposed works can be completed within the existing road reserve, since there are sections of the road that are outside of the legal road reserve, any works will require approvals from CODC and landowners.

8.2.3.2 Rule 13.7.2.ii – Encroachment beyond Existing Road Reserve

There are multiple locations where the formed alignment of Thomson Gorge Road does not follow the legal road alignment. The feasibility design for the widening works is based on the existing alignment and therefore, will involve some works outside the road reserve. It is anticipated that all required works can otherwise be implemented in accordance with the intent of the requirements of this rule.

8.2.3.3 Rule 13.7.2.iii – New Roads

The construction of the alternate access road to the east of the mine site to maintain public access through the Matakanui range represents a Discretionary Activity. A road alignment has been identified

that follows existing farm tracks where possible. To be a suitable alternative road to the affected part of Thomson Gorge Road enabled closure of part of Thomson Gorge Road, the standard of road will provide a generally comparable standard, with some non-compliance with gradient anticipated, as is also the case with Thomson Gorge Road.

9 Conclusions

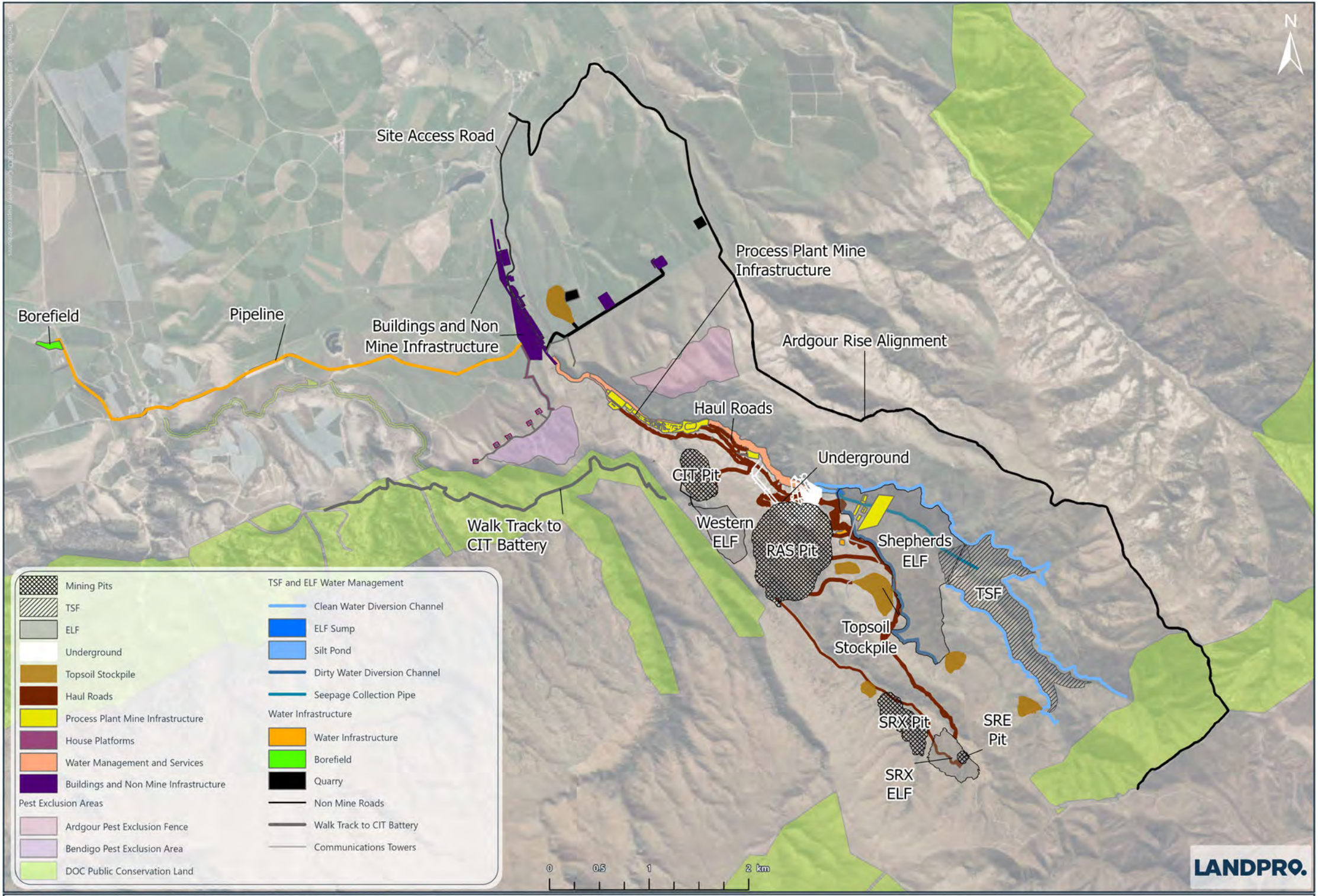
The BOGP will increase traffic volumes on SH8, Ardgour Road and Thomson Gorge Road. Although improvements to these are proposed as part of the Project, it is recommended that the improvements are required as conditions of consent. A PTMP will be required to manage the construction traffic effects as the Project site is established and it is recommended that the preparation and implementation of this is required as a condition of consent.

Overall, it has been concluded that the transport related effects of the BOGP can be managed subject to conditions of consent requiring:

1. Safety improvements at the SH8 / Ardgour Road intersection that:
    a. provide a right turn bay on SH8 from the southwest into Ardgour Road to NZTA design requirements;
    b. ensure that two-way movement of trucks turning in and out of Ardgour Road can be accommodated;
    c. provide for consequential change to roadside infrastructure including the likes of roadside barrier changes, flag lighting, and signage as determined through detailed design processes;
2. Safety management / maintenance measures on Ardgour Road from SH8 to Thomson Gorge Road to include:
    a. edge line delineation at the curve 1.45km south of SH8,
    b. curve advisory signage assessment (and implementation of any signage that meets NZTA Traffic Control Devices Manual warrants)
3. Widening of Thomson Gorge Road for approximately 1.6km to the south of Ardgour Road to provide a minimum sealed carriageway width of 6.5 m;
4. Construction of an alternate vehicle route to Thomson Gorge Road for public access to the Dunstan Mountains to the east of the Project site, to ensure there is a satisfactory alternative public route bypassing the affected area when Thomson Gorge Road has to be closed because of mining activity;
5. Implementation of a Project Traffic Management Plan.

Appendices

Appendix A Site Infrastructure Plan



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BENDIGO OPHIR GOLD PROJECT

JOB ID: 24234 | CLIENT: Matakanui Gold Limited | 10/04/2025 | VERSION: 3

Appendix B Thomson Gorge Road

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BENDIGO-OPHIR GOLD PROJECT, BENDIGO & ARDGOUR STATIONS, CENTRAL OTAGO

CIVIL ROAD DESIGN

REVISION G - FOR APPROVAL

MATAKANUI GOLD LIMITED

Sheet List Table

SCOPE:

1. THE PLANS ARE FOR THE PURPOSE OF DETAILING THE BELOW SCOPE OF WORKS:
   CIVIL INFRASTRUCTURE FOR THE PROPOSED ROADING UPGRADE INCLUDING DEMOLITION, EROSION AND SEDIMENT CONTROL, 3 WATERS, ASSOCIATED CABLE TRENCHING, EARTHWORKS AND ROADING WORKS.
2. THE BELOW ASSOCIATED PLAN-SETS SHALL BE READ IN CONJUNCTION WITH THE BONISCH PLANSET:
   - ELECTRICAL AND TELECOMMUNICATION DESIGN DRAWINGS.
3. THE BELOW ELEMENTS ARE EXCLUDED FROM THIS PLAN-SETS SCOPE
   - PRIVATE INFRASTRUCTURE WITHIN PRIVATE PROPERTY OTHER THAN SPECIFICALLY DETAILED WITHIN THE PLANSET. EXCLUDED ITEMS INCLUDE BUILDING DRAINAGE, FOOTPATHS, DRIVEWAYS, BUILDINGS AND FOUNDATIONS.

GENERAL:

1. ALL WORKS AND MATERIALS TO BE IN ACCORDANCE WITH:
   - CENTRAL OTAGO DISTRICT COUNCIL STANDARDS, SPECIFICATIONS, CODE OF PRACTICES AND BYLAWS RELATING TO LAND DEVELOPMENT AND INFRASTRUCTURE INCLUDING STANDARD DETAILS AND DRAWINGS
   - MANUFACTURERS SPECIFICATIONS
   - ASSOCIATED RESOURCE AND BUILDING CONSENTS
   - CONTRACT REQUIREMENTS AND SPECIFICATIONS
   - APPLICABLE NZ STANDARDS (E.G. NZS4404)
2. SURVEY
   - THE PRIMARY TOPOGRAPHICAL SOURCE WAS COMPLETED BY LANDPRO, DATE AND COORDINATES UNKNOWN. THE EXISTING SURFACE USED FOR DESIGN IS BASED ON DRONE LiDAR FLOWN BY LANDPRO, DATE UNKNOWN.
   - SUPPLEMENTARY TOPOGRAPHICAL SURVEY COMPLETED BY BONISCH.
     - COORDINATES ARE IN TERMS OF NZTM2000 AND TRANSFORMED IN 12d SOFTWARE FROM SURVEY DATA CAPTURED IN NZGD200, LINDIS PEAK MERIDONAL CIRCUIT
     - COORDINATE ORIGIN OIT III SO 24599
       LINDIS PEAK N: 782829.50 | E: 393239.70
       NZTM N: 5022956.32 | E: 1314291.70
     - ELEVATIONS ARE MEAN SEA LEVEL - IN TERMS OF NZVD16
     - ORIGIN OF LEVELS OIB 130 SO 24641 RL: 356.32m
     - RAW OBSERVATION HEIGHTS HAVE BEEN TRANSLATED +0.45m TO BRING IN TERMS OF THE ABOVE MARK
     - GPS OBSERVATIONS HAVE NZ GEOD16 APPLIED
     - THE BOUNDARIES OF THOMSON GORGE ROAD FROM ARDGOUR/THOMSON GORGE ROAD INTERSECTION THROUGH TO THE NEW INTERSECTION HAVE BEEN CALCULATED USING DP's 26517, 30095, SO 24599 & OLD MARKS FOUND ON SITE
     - SURVEY COMPLETED 04/06/2025
   - ALL OTHER BOUNDARY DATA IS SOURCED FROM LAND INFORMATION NEW ZEALAND LINZ DATA SERVICE AND IS INDICATIVE ONLY.
   - AERIAL IMAGERY HAS BEEN SOURCED AS BELOW AND IS INDICATIVE ONLY.
     - PRIMARY AERIAL IMAGERY HAS BEEN SOURCED FROM LANDPRO VIA DRONE SURVEY, DATE UNKNOWN.
     - SECONDARY (UNDERLYING) IMAGERY HAS BEEN SOURCED FROM THE LINZ DATA SERVICE.
3. EXISTING SERVICES
   - EXISTING SERVICES SHOWN ARE INDICATIVE ONLY. THE CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING AND PROTECTING ALL EXISTING SERVICES AND COMPLYING WITH UTILITY OWNER REQUIREMENTS INCLUDING ANY EXCLUSION ZONES AND STANDOVERS.
   - THE DEPTH OF EXISTING SERVICES IS NOT KNOWN. WHERE ASSET DATA IS AVAILABLE THIS HAS BEEN USED TO ASSUME DEPTH. ALL DEPTHS OF EXISTING SERVICES SHOWN ON THE DRAWING ARE INDICATIVE ONLY UNLESS STATED AS BUILT
   - POWER SERVICES HAVE BEEN SOURCED FROM LANDPRO SURVEY AND SUPPLEMENTED / VERIFIED FROM PDF PLANS OBTAINED THROUGH BEFOREUDIG
   - CHORUS SERVICES HAVE BEEN TRACED FROM PDF PLANS OBTAINED THROUGH BEFOREUDIG
4. MODELLING NOTES
   - WHILST ALL CARE HAS BEEN TAKEN TO ACCURATELY MODEL THE FINISHED GROUND SURFACE IT SHOULD STILL BE CONSIDERED INDICATIVE. CRITICAL HEIGHTS HAVE BEEN LABELLED WHERE NECESSARY ON THE RELATIVE DRAWINGS. CONSTRUCTION SHOULD BE COMPLETED WITH REFERENCE TO THE FULL CONSTRUCTION DOCUMENTATION PACKAGE. WHERE CLARIFICATION IS REQUIRED, PLEASE CONTACT BONISCH
   - THE FINISHED GROUND SURFACE EXCLUDES VERTICAL SURFACE FEATURES (WALLS / GARDEN RECESSIONS) AND HAS BEEN BUILT TO REPRESENT THE DESIGN GROUND PLANE.
5. GEOTECHNICAL
   - ALL EARTHWORKS SHALL BE COMPLETED UNDER THE SUPERVISION OF A GEOTECHNICAL ENGINEER AND IN ACCORDANCE WITH THE DESIGN PS1 TO FACILITATE THE COMPLETION OF A PS4 CERTIFICATE UPON COMPLETION
   - DURING CONSTRUCTION THE DESIGN BATTER SLOPE TRANSITIONS BETWEEN KEY POINTS MAY BE MODIFIED UNDER THE SUPERVISION OF A GEOTECHNICAL ENGINEER BASED ON THE ENCOUNTERED STRATIGRAPHY

ROADING AND EARTHWORKS NOTES:

1. SUBGRADE:
   - SUBGRADE SHALL BE TESTED PRIOR TO FILLING TO CONFIRM PAVEMENT DESIGN IN ACCORDANCE WITH SPECIFICATION.
   - SUBGRADE SHALL BE PROOF ROLLED BEFORE FILLING UNLESS THIS WILL NEGATIVELY IMPACT SUBGRADE STRENGTH.
   - THE CONTRACTOR SHALL ENSURE NO CONSTRUCTION IS COMPLETED OVER TOPSOIL. TOPSOIL SHALL BE REMOVED AND SUBGRADE EXPOSED BEFORE FILLING
2. EARTHWORKS:
   - TOPSOIL TO BE STRIPPED (200mm DEPTH), STOCKPILED AND RE-USED ON SITE MINIMUM DEPTH 200mm. SURPLUS TOP-SOIL SHALL BE REMOVED TO WASTE AT THE ENGINEERS INSTRUCTION.
   - BULK FILL UNDER ROADS, BUILDINGS AND OTHER HARDSTAND AREAS TO BE APPROVED MATERIAL. TYPICALLY IMPORTED AP65 IS REQUIRED UNLESS SITE SPECIFIC GEOTECHNICAL TESTING AND APPROVAL IS PROVIDED FOR CUT-TO-FILL MATERIALS. BULK FILL IN BERM AREAS TO BE CUT TO FILL.
3. KERBS:
   - KERB PROFILES TO BE AS PER COUNCIL STANDARDS AS DETAILED. KERB TO BE INSTALLED VIA SLIP FORM EXTRUSION METHODOLOGY. KERB TO BE SAW-CUT WITHIN 24 HOURS OR GUILLOTINED DURING INSTALLATION AT 5m MAX INTERVALS TO PREVENT UNCONTROLLED CRACKING
   - KERB STRINGS TO BE LEVEL CHECKED PRIOR TO KERBING INSTALL WITH FOCUS ON DESIGN LOW AND HIGH POINT TRANSITIONS, AND CONSISTENCY OF ALIGNMENT AND GRADE TO IDENTIFY FLAT SPOTS AND OTHER SETOUT ERRORS. IN ADDITION SETOUT RELATIVITY BETWEEN EXISTING SURFACE SHALL BE CHECKED TO ENSURE DESIGN CROSSFALLS ARE ACHIEVED.
   - KERB DROPS AND CROSSINGS TO BE INSTALLED AS DETAILED AND DIRECTED ON SITE BY ENGINEER
4. CONCRETE PAVEMENTS
   - ALL JOINTING / CONTROL SAW CUTTING SHALL BE COMPLETED AS SOON AFTER PLACING CONCRETE AS PRACTICAL (MAX 24 HOURS) TO PREVENT UNCONTROLLED CRACKING.
   - ALL SLAB PENETRATIONS OR SERVICES / SURFACE FEATURES OR FIXINGS SHALL BE ISOLATED FROM THE SURROUNDING SLAB AND HAVE ADDITIONAL DIAGONAL TIE BARS AS SPECIFIED BY THE ENGINEER.
5. SURFACING:
   - SERVICE COVERS TO BE RAISED TO FINAL LEVEL PRIOR TO SURFACING.
   - SURFACE FINISHES TO BE AS DETAILED WITHIN THE PLANS AND SPECIFICATION

SERVICE TRENCHING NOTES:

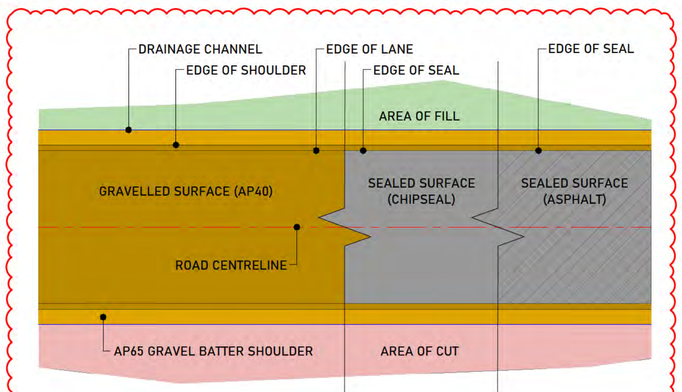
1. MATERIALS:
   - SUPPLY AND INSTALLATION OF CABLES AND WARNING TAPES / MAGSLABS FOR POWER AND TELECOMMUNICATION ARE TO BE PROVIDED BY OTHERS
   - THE CONTRACTOR IS RESPONSIBLE FOR SUPPLY OF TRENCHING AND BACKFILL MATERIALS. BEDDING MATERIAL USED AROUND CABLE INSTALLATIONS SHALL BE APPROVED BY THE RELEVANT UTILITY OPERATOR AND BE IN ACCORDANCE WITH THE SPECIFICATION.
2. INSTALLATION:
   - THE CONTRACTOR SHALL LIAISE WITH CABLE INSTALLERS TO TIME AND FACILITATE CABLE INSTALLATION. THE CONTRACTOR SHALL COMPLETE ALL TRENCHING, PROTECTION AND BACKFILLING OF TRENCHES TO UTILITY OPERATORS' REQUIREMENTS.
   - CABLE INSTALLATION WILL BE COMPLETED BY OTHERS.
   - TRENCHING WILL VARY IN DEPTH BELOW THE MINIMUM DEPTH REQUIREMENT AS NEEDED TO ACHIEVE VERTICAL CLEARANCE FROM OTHER SERVICES. CLEARANCES SHALL MEET UTILITY OPERATORS AND NZS4404 REQUIREMENTS.

GRAVITY DRAINAGE NETWORK NOTES:

1. PIPE MATERIALS:
   - MAIN PIPES 150Ø - 375Ø TO BE uPVC SN16 SERIES 1 RUBBER RING JOINTED.
   - MAIN PIPES ≥450Ø TO BE REINFORCED CONCRETE RUBBER RING JOINTED CLASS 4.
   - SUMP CONNECTIONS/LATERALS TO BE 225Ø uPVC SN16 SERIES 1 RUBBER RING JOINTED WITH BENDS/FITTINGS SOLVENT CEMENT JOINTED UNLESS NOTED OTHERWISE
   - PROPERTY CONNECTIONS/LATERALS TO BE 100Ø uPVC SN16 SERIES 1 RUBBER RING JOINTED WITH BENDS/FITTINGS SOLVENT CEMENT JOINTED UNLESS NOTED OTHERWISE.
   - SUB-SOIL DRAINS TO BE DRAINFLO / DRAINCOIL DN110Ø WITH FILTER SOCK UNLESS NOTED OTHERWISE
   - ALTERNATIVE MATERIALS SHALL NOT BE USED WITHOUT WRITTEN APPROVAL FROM THE ENGINEER
2. PIPELINE STRUCTURES / FITTINGS:
   - MANHOLES TO BE PRECAST REINFORCED CONCRETE 1050Ø (UNLESS NOTED OTHERWISE) RATED TO HN-HO-72. MANHOLES TO BE HAUNCHED/BENCHED, UNLESS NOTED AS SUMP MANHOLES WHERE NO BENCHING IS REQUIRED
   - INSTALLATION OF NEW AND MODIFICATION OF EXISTING MANHOLES SHALL CONFORM TO MANUFACTURERS SPECIFICATIONS WITH REGARD TO MANHOLE DIAMETER RELATIVE TO PROTRUSION SIZE AND LOCATION. MANHOLES MAY BE INSTALLED OFF-CENTRE TO MAXIMISE THE CLEARANCE BETWEEN PROTRUSIONS.
   - MANHOLES SHALL INCLUDE A FLANGED BASE, AND USE THE MINIMUM NUMBER OF RISERS TO REACH THE DESIRED DEPTH
   - HEADWALLS SHALL BE PRE-CAST OF APPROPRIATE SIZE FOR THE MAIN AND HAVE GALVANISED GRATES ON ALL MAINS >225Ø PREVENTING ACCESS.
   - SUMPS AND GRATES TO BE AS PER COUNCIL STANDARDS WITH REAR ENTRY LOCKABLE LID.
   - PIPE CONNECTIONS TO MANHOLES TO BE COMPLETED AS PER COUNCIL STANDARDS AND USE PROPRIETARY MANHOLE CONNECTOR WITH WATER SEAL AND EPOXY ON BOTH SIDES OF ANY CUT HOLES. CONCRETE CORBEL IS REQUIRED WITH A FLEXIBLE JOINT WITHIN 1m OF THE MANHOLE RISER (RRJ OR GIBAULT).
   - SERVICE COVERS SHALL COMPLY WITH AS3996 CLASS D, AND HAVE A CLEAR OPENING OF NOT LESS THAN 600mm. COVERS SHALL BE HINGED FOR ALL MANHOLES. WHEN INSTALLED IN ROADS THE HINGE SHALL BE LOCATED ON THE SIDE NEAREST TO ONCOMING TRAFFIC.
   - uPVC CONNECTION / LATERAL JOINT TO uPVC AND CONCRETE MAINS TO BE VIA APPROVED EXTRUDED uPVC SADDLE OR Y FITTING TO COUNCIL STANDARDS.
3. INSTALLATION
   - THE DESIGN HAS BEEN COMPLETED ON THE BASIS OF AN OPEN TRENCH INSTALLATION METHODOLOGY.
   - CONNECTIONS / LATERALS SHALL BE EXTENDED 1m INSIDE PROPERTY BOUNDARY, DRY CAPPED AND HAVE A MARKER STAKE INSTALLED FOR IDENTIFICATION.
   - CONNECTIONS / LATERALS SHALL BE LAID AT 1.65% GRADE MINIMUM UNLESS NOTED OTHERWISE.
   - TRENCH BACKFILL FROM TOP OF BEDDING TO DESIGN SUBGRADE IN ROADING/HARDSTAND AREAS TO BE IMPORTED APPROVED AP65. BACKFILL IN BERM AREAS TO BE CUT TO FILL
   - TRENCH STOPS ARE REQUIRED FOR ALL PIPES BETWEEN 5-14% GRADE, SPACING SHALL BE BASED S=100/GRADE(%). FOR GRADES ABOVE 14% CONCRETE BULKHEADS ARE REQUIRED.
   - THE CONTRACTOR SHALL CONFIRM THE DOWNSTREAM INVERT OF THE MAIN PRIOR TO COMMENCING INSTALLATION
4. CLEARANCES TO EXISTING SERVICES
   - CLEARANCE TO EXISTING SERVICES IN THE FIRST INSTANCE SHALL BE AS PER TABLE 5.6 AND 6.4 NZS4404:2010. WHERE THIS IS NOT POSSIBLE AND APPROVAL IS PROVIDED BY THE ENGINEER CLEARANCES SHALL BE AS PER CCC IDS PART 9 TABLE 1 AND 2
5. REINSTATEMENT
   - TRENCH BACKFILL FROM TOP OF BEDDING TO DESIGN SUBGRADE IN ROADING/HARDSTAND AREAS TO BE IMPORTED APPROVED AP65. BACKFILL IN BERM AREAS TO BE CUT TO FILL
   - SURFACE REINSTATEMENT SHALL BE AS BELOW (WHERE NOT WITHIN ROAD CONSTRUCTION FOOTPRINT):
   - CARRIAGEWAY SHALL BE 40mm ASPHALT DG10 WITH MEMBRANE SEAL OVER 150mm AP40 M4 BASECOURSE. JOINT CUTTING, OVERLAP, 1m RULE AND PMB JOINT SEAL SHALL BE COMPLETED AS PER SPECIFICATION
   - FOOTPATH SHALL BE 100mm 25MPa CONCRETE OVER 150mm AP40 M4 BASECOURSE OR 30mm DG7 ASPHALT OVER 150mm AP40 M4 BASECOURSE TO ALIGN WITH EXISTING FOOTPATH MATERIAL.
   - BERM SHALL BE GRASS SEED IN 100mm MIN SCREENED TOPSOIL

LEGEND

- E OH - EXISTING OVERHEAD POWER
- EXISTING POWER POLE
- EXISTING ROAD EXTENTS
- TELE - EXISTING TELECOM (INDICATIVE)
- EXISTING FENCE
- EXISTING FENCE TO BE REMOVED
- EXISTING GATE
- EXISTING GATE TO BE REMOVED
- EXISTING SIGN
- EXISTING ROAD TO BE REMOVED
- NEW SIGN
- NEW FENCE
- NEW GATE
- NEW SERVICES TRENCH
- SW - NEW STORMWATER PIPE
- NEW GRADE 3/5 CHIPSEAL
- NEW DG10 ASPHALT SEAL
- NEW AP40 SURFACING
- NEW ROADSIDE SHOULDER
- NEW STABILISED SURFACING



TYPICAL ROAD PRESENTATION

(NOTE SURFACINGS, SHAPING AND CROSSFALLS VARY AND ARE AS NOTED ON EACH SECTION RESPECTIVELY)

FOR APPROVAL

CLIENT: MATAKANUI GOLD LIMITED

PROJECT: BENDIGO-OPHIR GOLD PROJECT, BENDIGO & ARDGOUR STATIONS, CENTRAL OTAGO

bonisch

SHEET TITLE: NOTES

REV	REVISION DETAILS	DATE
C	FOR APPROVAL	24/06/2025
D	FOR COUNCIL APPROVAL	4/07/2025
E	FOR COUNCIL APPROVAL	9/07/2025
F	FOR INTERNAL APPROVAL - CATTLE YARD CURVE AND PRIORITY CHANGE	24/07/2025
G	FOR COUNCIL APPROVAL - SEALED ROAD, INTERSECTION (TGR11) ADDED	7/08/2025

SURVEYED:			
DESIGNED:	CHM	23/03/2025	
DRAWN:			
DRAWING CHECK:			
DESIGN CHECK:	JJR	24/06/2025	
APPROVED:	JJR	24/06/2025	

JOB NUMBER 8755

SHEET GEN001

SCALE (@ A1) N/A

REVISION G

REVISION DATE 07/08/2025

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FOR APPROVAL

CLIENT: MATAKANUI GOLD LIMITED

PROJECT: BENDIGO-OPHIR GOLD PROJECT, BENDIGO & ARDGOUR STATIONS, CENTRAL OTAGO

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SHEET TITLE: SITE LOCALITY PLAN

REV	REVISION DETAILS	DATE
C	FOR APPROVAL	24/06/2025
D	FOR COUNCIL APPROVAL	4/07/2025
E	FOR COUNCIL APPROVAL	9/07/2025
F	FOR INTERNAL APPROVAL - CATTLE YARD CURVE AND PRIORITY CHANGE	24/07/2025
G	FOR COUNCIL APPROVAL - SEALED ROAD, INTERSECTION (TGR11) ADDED	7/08/2025

SURVEYED:		
DESIGNED:	CHM	23/03/2025
DRAWN:		
DRAWING CHECK:		
DESIGN CHECK:	JJR	24/06/2025
APPROVED:	JJR	24/06/2025

JOB NUMBER 8755

SHEET GEN002

SCALE (@ A1) 1:5,000

REVISION G

REVISION DATE 07/08/2025

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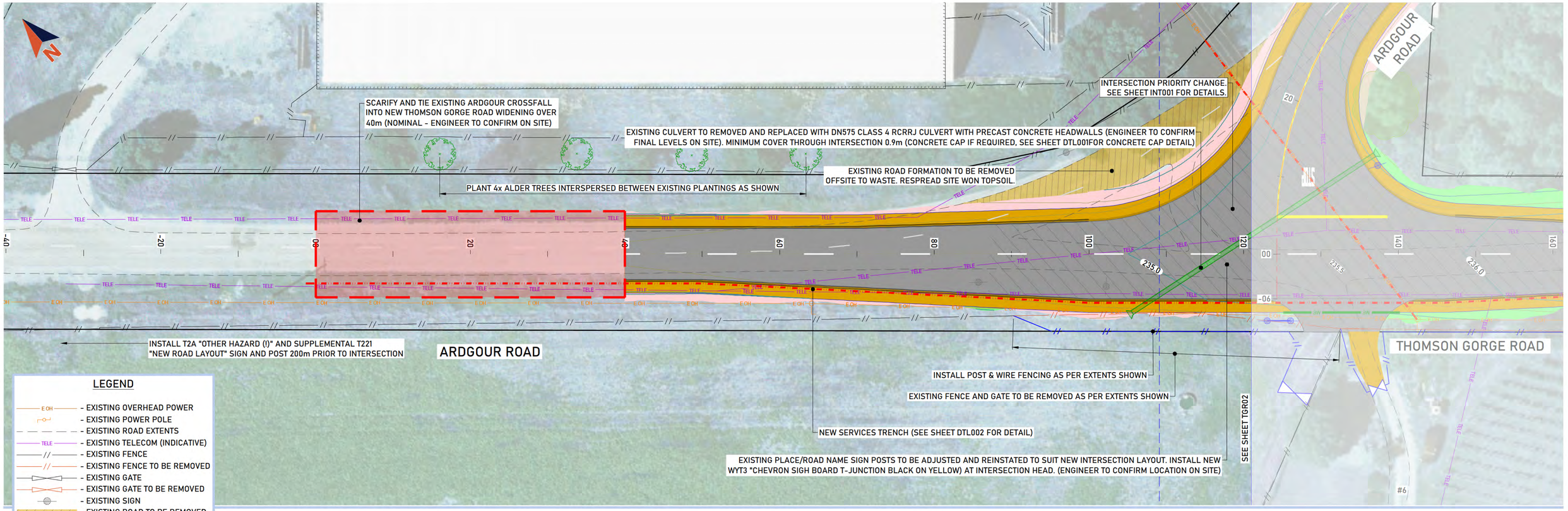
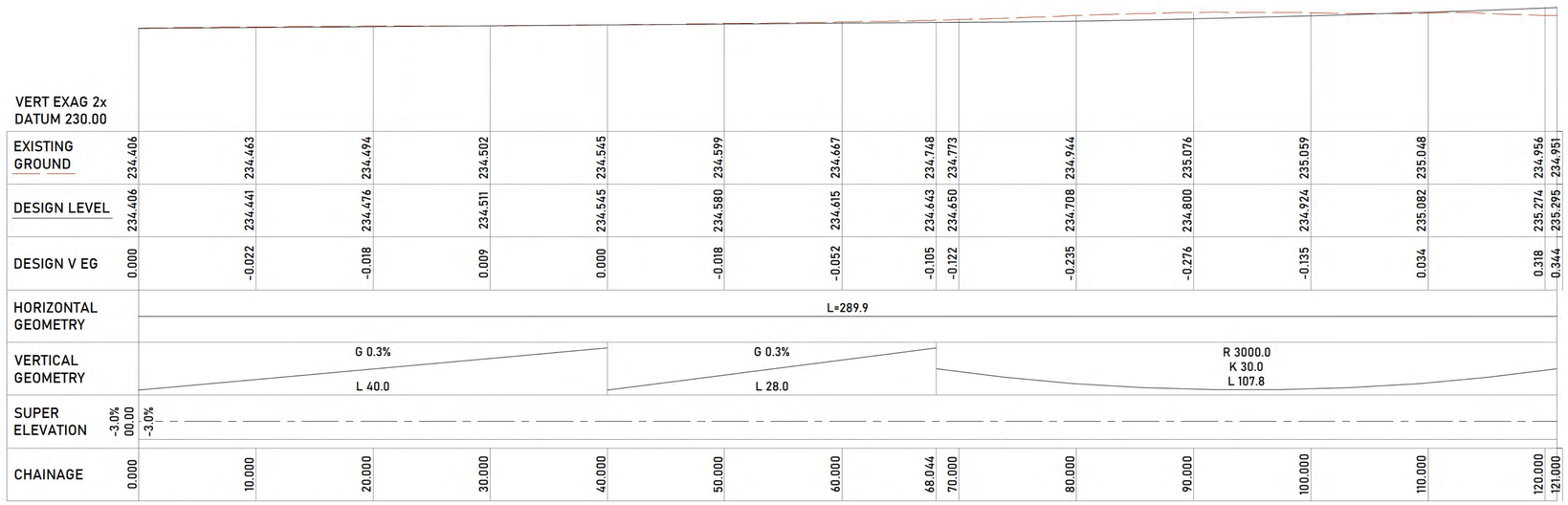


LEGEND

- EOH – EXISTING OVERHEAD POWER
- – EXISTING POWER POLE
- – EXISTING ROAD EXTENTS
- TELE – EXISTING TELECOM (INDICATIVE)
- – EXISTING FENCE
- – EXISTING FENCE TO BE REMOVED
- – EXISTING GATE
- – EXISTING GATE TO BE REMOVED
- – EXISTING SIGN
- – EXISTING ROAD TO BE REMOVED
- – NEW SIGN
- – NEW FENCE
- – NEW GATE
- – NEW SERVICES TRENCH
- SW – NEW STORMWATER PIPE
- – NEW GRADE 3/5 CHIPSEAL
- – NEW DG10 ASPHALT SEAL
- – NEW AP40 SURFACING
- – NEW ROADSIDE SHOULDER
- – NEW STABILISED SURFACING



TGR LONG SECTION

FOR APPROVAL

CLIENT: MATAKANUI GOLD LIMITED	PROJECT: BENDIGO-OPHIR GOLD PROJECT, BENDIGO & ARDGOUR STATIONS, CENTRAL OTAGO		SHEET TITLE: THOMSON GORGE ROAD PLAN & PROFILE CH 0-121		

REV	REVISION DETAILS	DATE	SURVEYED:		
C	FOR APPROVAL	24/06/2025	DESIGNED:	CHM	23/03/2025
D	FOR COUNCIL APPROVAL	4/07/2025	DRAWN:		
E	FOR COUNCIL APPROVAL	9/07/2025	DRAWING CHECK:		
F	FOR INTERNAL APPROVAL - CATTLE YARD CURVE AND PRIORITY CHANGE	24/07/2025	DESIGN CHECK:	JJR	24/06/2025
G	FOR COUNCIL APPROVAL - SEALED ROAD, INTERSECTION (TGR11) ADDED	7/08/2025	APPROVED:	JJR	24/06/2025

JOB NUMBER 8755 | SCALE (@ A1) 1:250 | SHEET TGR01 | REVISION G | REVISION DATE 07/08/2025

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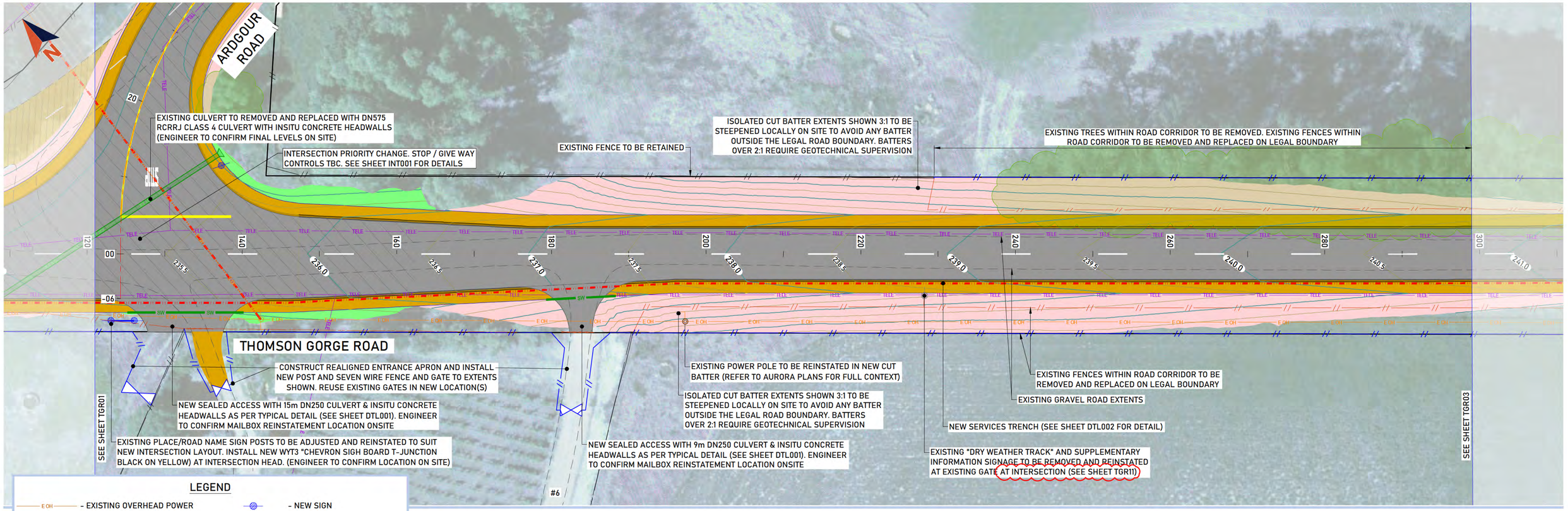

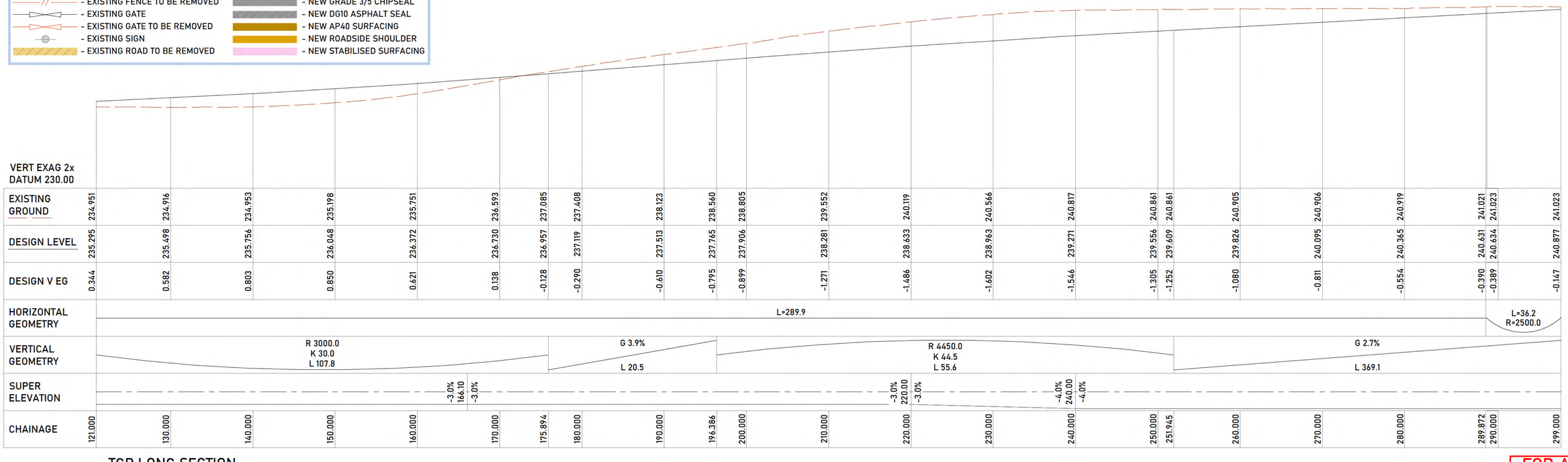

TGR LONG SECTION

FOR APPROVAL

CLIENT: MATAKANUI GOLD LIMITED

PROJECT: BENDIGO-OPHIR GOLD PROJECT, BENDIGO & ARDGOUR STATIONS, CENTRAL OTAGO

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SHEET TITLE: THOMSON GORGE ROAD PLAN & PROFILE CH 121-299

REV	REVISION DETAILS	DATE	SURVEYED:		
C	FOR APPROVAL	24/06/2025	DESIGNED:	CHM	23/03/2025
D	FOR COUNCIL APPROVAL	4/07/2025	DRAWN:		
E	FOR COUNCIL APPROVAL	9/07/2025	DRAWING CHECK:		
F	FOR INTERNAL APPROVAL - CATTLE YARD CURVE AND PRIORITY CHANGE	24/07/2025	DESIGN CHECK:	JJR	24/06/2025
G	FOR COUNCIL APPROVAL - SEALED ROAD, INTERSECTION (TGR11) ADDED	7/08/2025	APPROVED:	JJR	24/06/2025

JOB NUMBER 8755
SHEET TGR02
SCALE (@ A1) 1:250
REVISION G
REVISION DATE 07/08/2025

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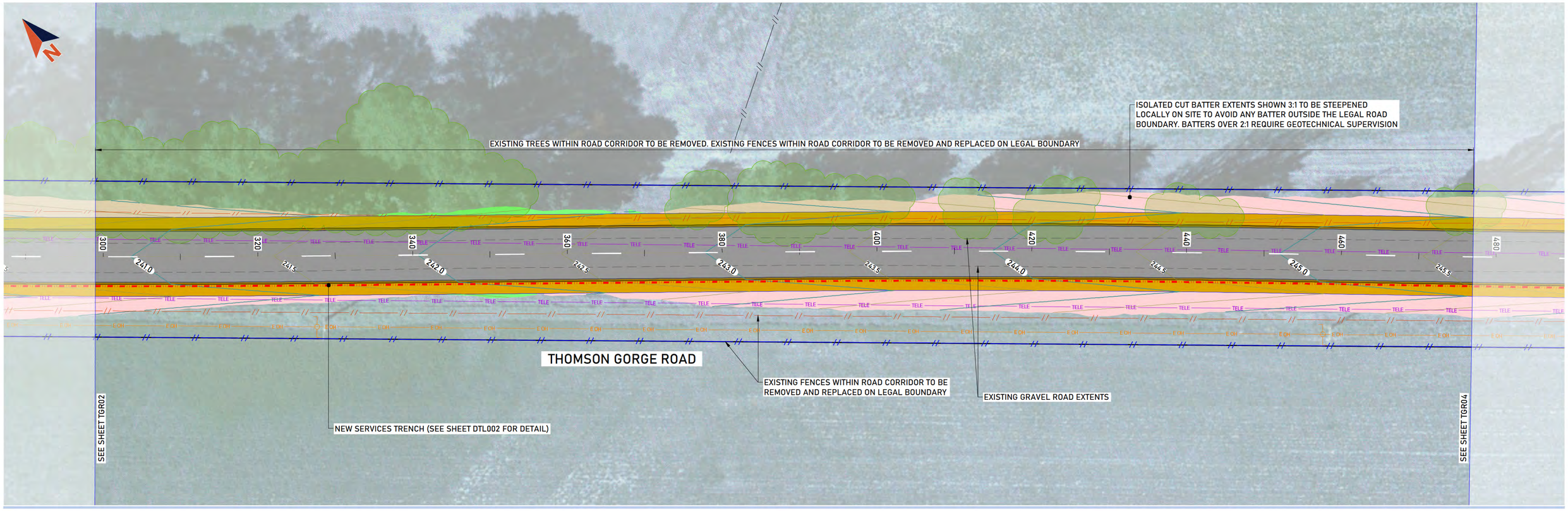

LEGEND

- E OH - EXISTING OVERHEAD POWER
- EXISTING POWER POLE
- EXISTING ROAD EXTENTS
- TELE - EXISTING TELECOM (INDICATIVE)
- EXISTING FENCE
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- NEW SERVICES TRENCH
- SW - NEW STORMWATER PIPE
- NEW GRADE 3/5 CHIPSEAL
- NEW DG10 ASPHALT SEAL
- NEW AP40 SURFACING
- NEW ROADSIDE SHOULDER
- NEW STABILISED SURFACING

VERT EXAG 2x
DATUM 240.00

EXISTING GROUND	241.023	241.051	241.031	241.151	241.209	241.253	241.421	241.627	241.848	242.090	242.354	242.603	242.703	243.060	243.509	243.958	244.297	244.598	244.846	244.845	245.139	245.437	245.626	
DESIGN LEVEL	240.877	240.904	241.173	241.442	241.606	241.712	241.981	242.251	242.520	242.790	243.059	243.270	243.329	243.598	243.868	244.137	244.406	244.676	244.945	244.947	245.215	245.484	245.673	
DESIGN V EG	-0.147	-0.148	0.143	0.291	0.397	0.459	0.561	0.624	0.673	0.700	0.705	0.667	0.626	0.538	0.358	0.179	0.110	0.078	0.099	0.102	0.076	0.047	0.047	
HORIZONTAL GEOMETRY			L=36.2 R=2500.0				L=61.8									L=62.3 R=2500.0					L=198.1			
VERTICAL GEOMETRY												G 2.7%												
												L 369.1												
SUPER ELEVATION																								
CHAINAGE	299.000	300.000	310.000	320.000	326.062	330.000	340.000	350.000	360.000	370.000	380.000	387.817	390.000	400.000	410.000	420.000	430.000	440.000	450.000	450.078	460.000	470.000	477.000	

TGR LONG SECTION

FOR APPROVAL

CLIENT: MATAKANUI GOLD LIMITED

PROJECT: BENDIGO-OPHIR GOLD PROJECT, BENDIGO & ARDGOUR STATIONS, CENTRAL OTAGO

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SHEET TITLE: THOMSON GORGE ROAD PLAN & PROFILE CH 299-477

REV	REVISION DETAILS	DATE
C	FOR APPROVAL	24/06/2025
D	FOR COUNCIL APPROVAL	4/07/2025
E	FOR COUNCIL APPROVAL	9/07/2025
F	FOR INTERNAL APPROVAL - CATTLE YARD CURVE AND PRIORITY CHANGE	24/07/2025
G	FOR COUNCIL APPROVAL - SEALED ROAD, INTERSECTION (TGR11) ADDED	7/08/2025

SURVEYED:			
DESIGNED:	CHM	23/03/2025	
DRAWN:			
DRAWING CHECK:			
DESIGN CHECK:	JJR	24/06/2025	
APPROVED:	JJR	24/06/2025	

JOB NUMBER 8755
SHEET TGR03
SCALE (@ A1) 1:250
REVISION G
REVISION DATE 07/08/2025

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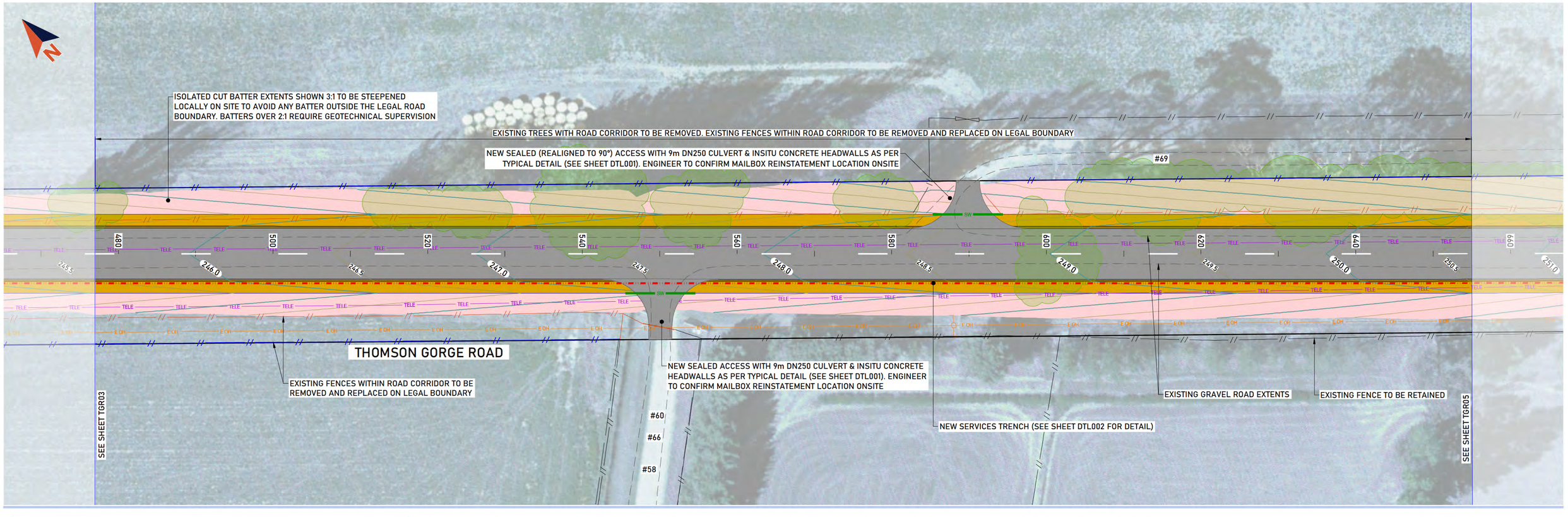

LEGEND

- E OH – EXISTING OVERHEAD POWER
- – EXISTING POWER POLE
- – EXISTING ROAD EXTENTS
- TELE – EXISTING TELECOM (INDICATIVE)
- – EXISTING FENCE
- – EXISTING FENCE TO BE REMOVED
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- – EXISTING SIGN
- – EXISTING ROAD TO BE REMOVED
- – NEW SIGN
- – NEW FENCE
- – NEW GATE
- – NEW SERVICES TRENCH
- SW – NEW STORMWATER PIPE
- – NEW GRADE 3/5 CHIPSEAL
- – NEW DG10 ASPHALT SEAL
- – NEW AP40 SURFACING
- – NEW ROADSIDE SHOULDER
- – NEW STABILISED SURFACING

VERT EXAG 2x
DATUM 245.00

EXISTING GROUND	245.626	245.700	245.970	246.278	246.607	246.929	247.177	247.492	247.815	248.162	248.503	248.790	249.111	249.441	249.755	250.021	250.070	250.376	250.745	251.036	251.105	251.275				
DESIGN LEVEL	245.673	245.754	246.023	246.293	246.562	246.831	247.101	247.370	247.640	247.909	248.179	248.448	248.718	248.987	249.256	249.526	249.555	249.808	250.123	250.405	250.470	250.656				
DESIGN V EG	0.047	0.053	0.053	0.015	-0.045	-0.097	-0.076	-0.122	-0.175	-0.253	-0.324	-0.342	-0.393	-0.454	-0.498	-0.495	-0.515	-0.567	-0.622	-0.631	-0.635	-0.619				
HORIZONTAL GEOMETRY		L=198.1																			L=35.9 R=2500.0					
VERTICAL GEOMETRY		G 2.7%																		R 3085.8 K 30.9 L 164.1						
		L 369.1																								
SUPER ELEVATION																										
CHAINAGE	477.000	480.000	490.000	500.000	510.000	520.000	530.000	540.000	550.000	560.000	570.000	580.000	590.000	600.000	610.000	620.000	621.071	630.000	640.000	648.206	650.000	655.000				

TGR LONG SECTION

FOR APPROVAL

CLIENT: MATAKANUI GOLD LIMITED

PROJECT: BENDIGO-OPHIR GOLD PROJECT, BENDIGO & ARDGOUR STATIONS, CENTRAL OTAGO

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SHEET TITLE: THOMSON GORGE ROAD PLAN & PROFILE CH 477-655

REV	REVISION DETAILS	DATE
C	FOR APPROVAL	24/06/2025
D	FOR COUNCIL APPROVAL	4/07/2025
E	FOR COUNCIL APPROVAL	9/07/2025
F	FOR INTERNAL APPROVAL - CATTLE YARD CURVE AND PRIORITY CHANGE	24/07/2025
G	FOR COUNCIL APPROVAL - SEALED ROAD, INTERSECTION (TGR11) ADDED	7/08/2025

SURVEYED:			
DESIGNED:	CHM	23/03/2025	
DRAWN:			
DRAWING CHECK:			
DESIGN CHECK:	JJR	24/06/2025	
APPROVED:	JJR	24/06/2025	

JOB NUMBER 8755
SHEET TGR04
SCALE (@ A1) 1:250
REVISION G
REVISION DATE 07/08/2025

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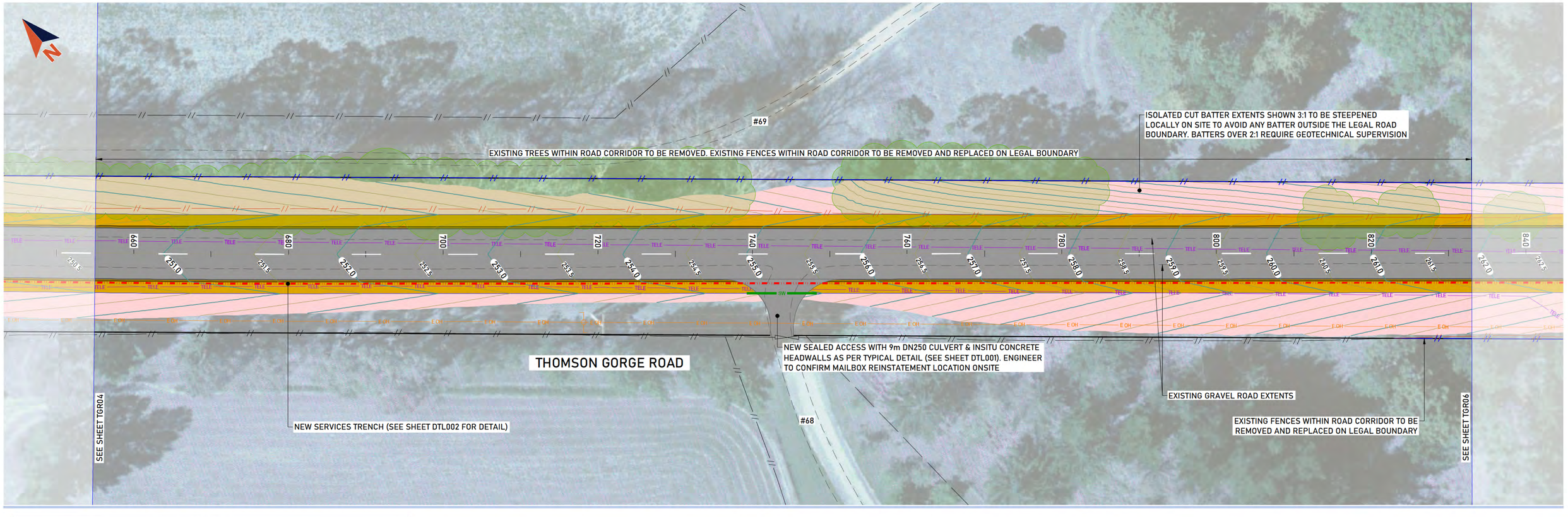

LEGEND

- EXISTING OVERHEAD POWER
- EXISTING POWER POLE
- EXISTING ROAD EXTENTS
- EXISTING TELECOM (INDICATIVE)
- EXISTING FENCE
- EXISTING FENCE TO BE REMOVED
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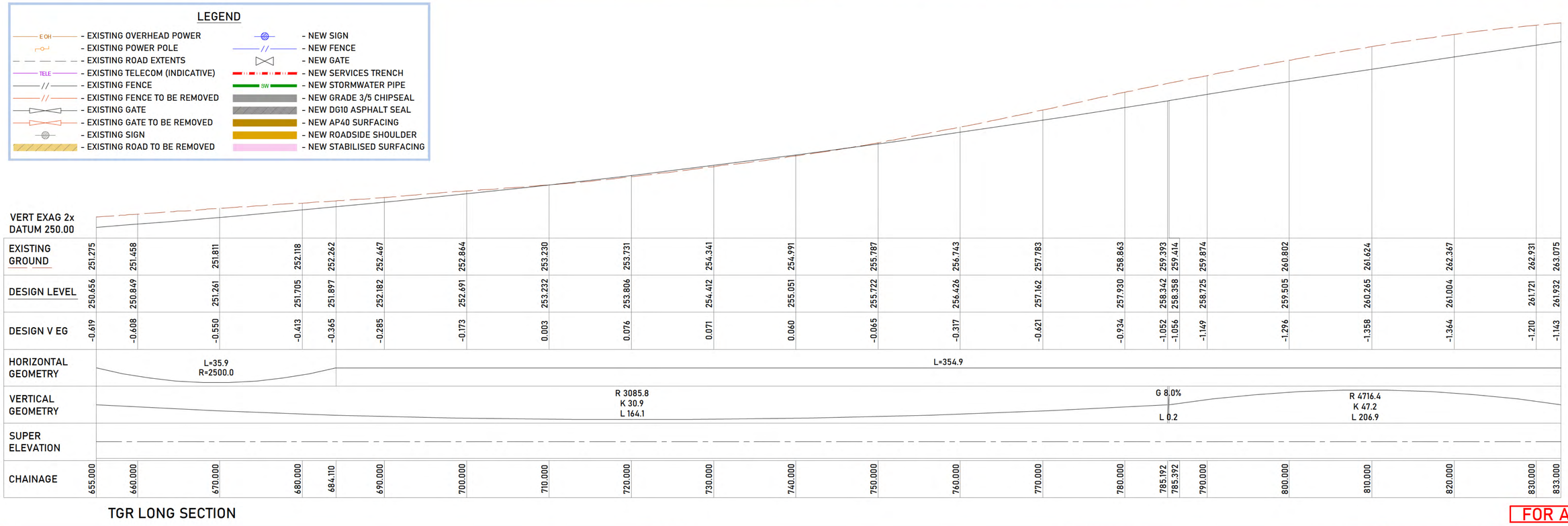
- NEW SERVICES TRENCH
- NEW STORMWATER PIPE
- NEW GRADE 3/5 CHIPSEAL
- NEW DG10 ASPHALT SEAL
- NEW AP40 SURFACING
- NEW ROADSIDE SHOULDER
- NEW STABILISED SURFACING



CHAINAGE	655.000	660.000	670.000	680.000	684.110	690.000	700.000	710.000	720.000	730.000	740.000	750.000	760.000	770.000	780.000	785.192	785.392	790.000	800.000	810.000	820.000	830.000	833.000
EXISTING GROUND	251.275	251.458	251.811	252.118	252.262	252.467	252.864	253.230	253.731	254.341	254.991	255.787	256.743	257.783	258.863	259.393	259.414	259.874	260.802	261.624	262.367	262.931	263.075
DESIGN LEVEL	250.656	250.849	251.261	251.705	251.897	252.182	252.691	253.232	253.806	254.412	255.051	255.722	256.426	257.162	257.930	258.342	258.358	258.725	259.505	260.265	261.004	261.721	261.932
DESIGN V EG	-0.619	-0.608	-0.550	-0.413	-0.365	-0.285	-0.173	0.003	0.076	0.071	0.060	-0.065	-0.317	-0.621	-0.934	-1.052	-1.056	-1.149	-1.296	-1.358	-1.364	-1.210	-1.143
HORIZONTAL GEOMETRY			L=35.9 R=2500.0												L=354.9								
VERTICAL GEOMETRY									R 3085.8 K 30.9 L 164.1							G 8.0% L 0.2				R 4716.4 K 47.2 L 206.9			
SUPER ELEVATION																							

TGR LONG SECTION

FOR APPROVAL

CLIENT:	PROJECT:	SHEET TITLE:
MATAKANUI GOLD LIMITED	BENDIGO-OPHIR GOLD PROJECT, BENDIGO & ARDGOUR STATIONS, CENTRAL OTAGO	THOMSON GORGE ROAD PLAN & PROFILE CH 655-833

REV	REVISION DETAILS	DATE
C	FOR APPROVAL	24/06/2025
D	FOR COUNCIL APPROVAL	4/07/2025
E	FOR COUNCIL APPROVAL	9/07/2025
F	FOR INTERNAL APPROVAL - CATTLE YARD CURVE AND PRIORITY CHANGE	24/07/2025
G	FOR COUNCIL APPROVAL - SEALED ROAD, INTERSECTION (TGR11) ADDED	7/08/2025

SURVEYED:			
DESIGNED:	CHM	23/03/2025	
DRAWN:			
DRAWING CHECK:			
DESIGN CHECK:	JJR	24/06/2025	
APPROVED:	JJR	24/06/2025	

JOB NUMBER	SCALE (@ A1)
8755	1:250
SHEET	REVISION
TGR05	G
	REVISION DATE
	07/08/2025

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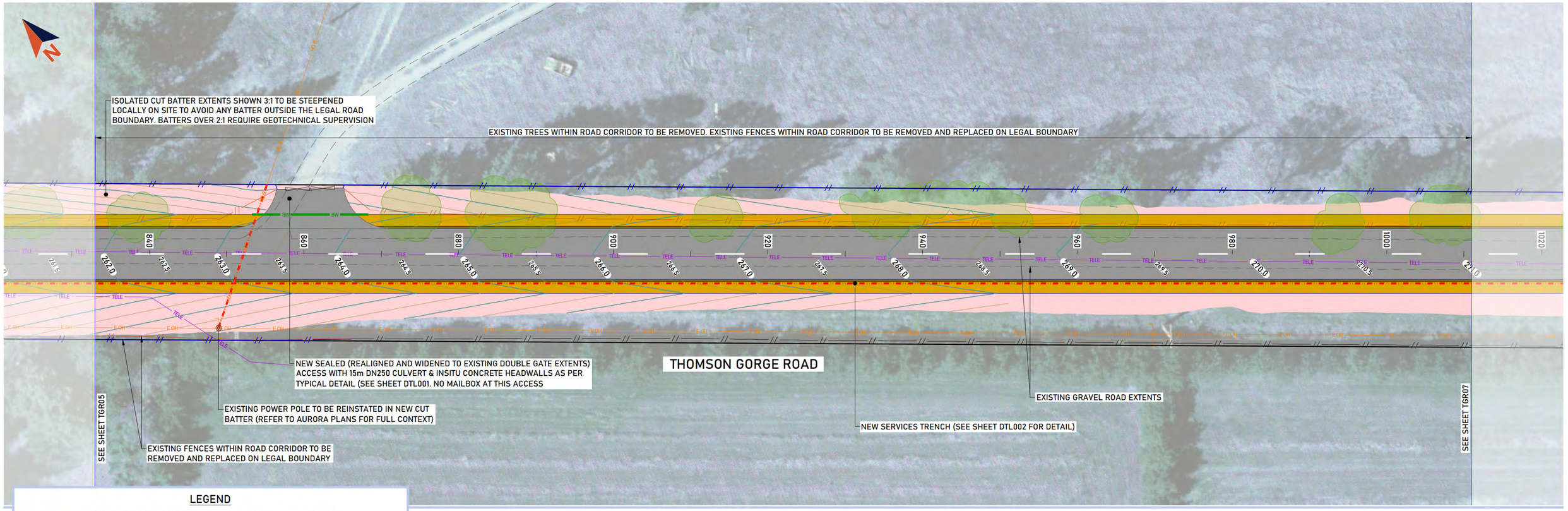

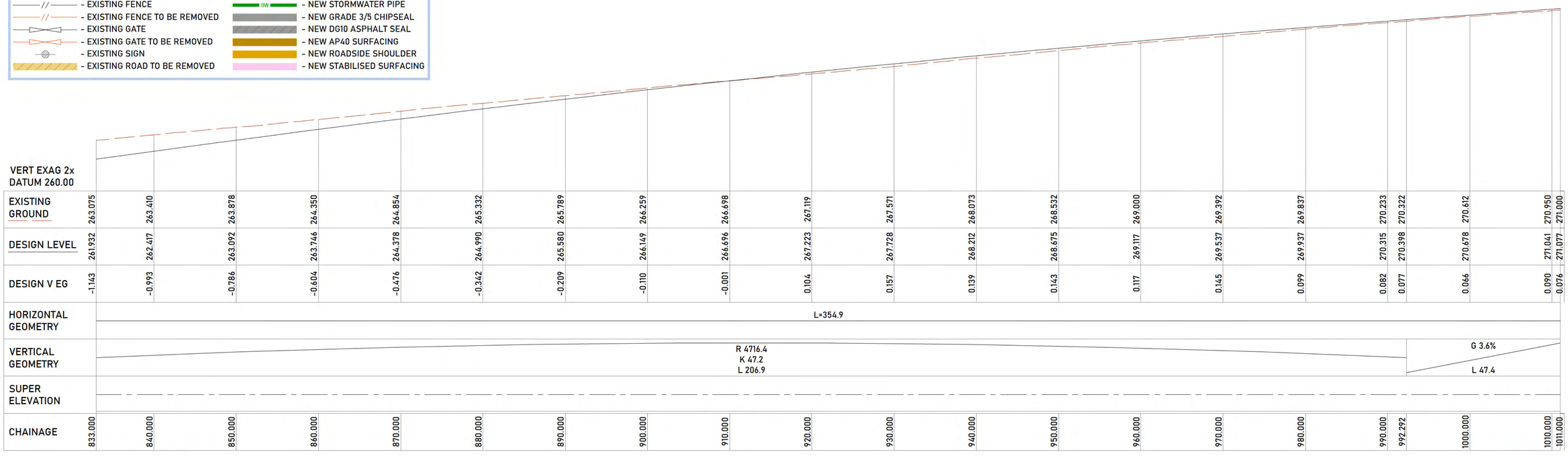

TGR LONG SECTION

FOR APPROVAL

CLIENT: MATAKANUI GOLD LIMITED

PROJECT: BENDIGO-OPHIR GOLD PROJECT, BENDIGO & ARDGOUR STATIONS, CENTRAL OTAGO

bonisch

SHEET TITLE: THOMSON GORGE ROAD PLAN & PROFILE CH 833-1011

REV	REVISION DETAILS	DATE
C	FOR APPROVAL	24/06/2025
D	FOR COUNCIL APPROVAL	4/07/2025
E	FOR COUNCIL APPROVAL	9/07/2025
F	FOR INTERNAL APPROVAL - CATTLE YARD CURVE AND PRIORITY CHANGE	24/07/2025
G	FOR COUNCIL APPROVAL - SEALED ROAD, INTERSECTION (TGR11) ADDED	7/08/2025

SURVEYED:			
DESIGNED:	CHM	23/03/2025	
DRAWN:			
DRAWING CHECK:			
DESIGN CHECK:	JJR	24/06/2025	
APPROVED:	JJR	24/06/2025	

JOB NUMBER 8755
SHEET TGR06
SCALE (@ A1) 1:250
REVISION G
REVISION DATE 07/08/2025

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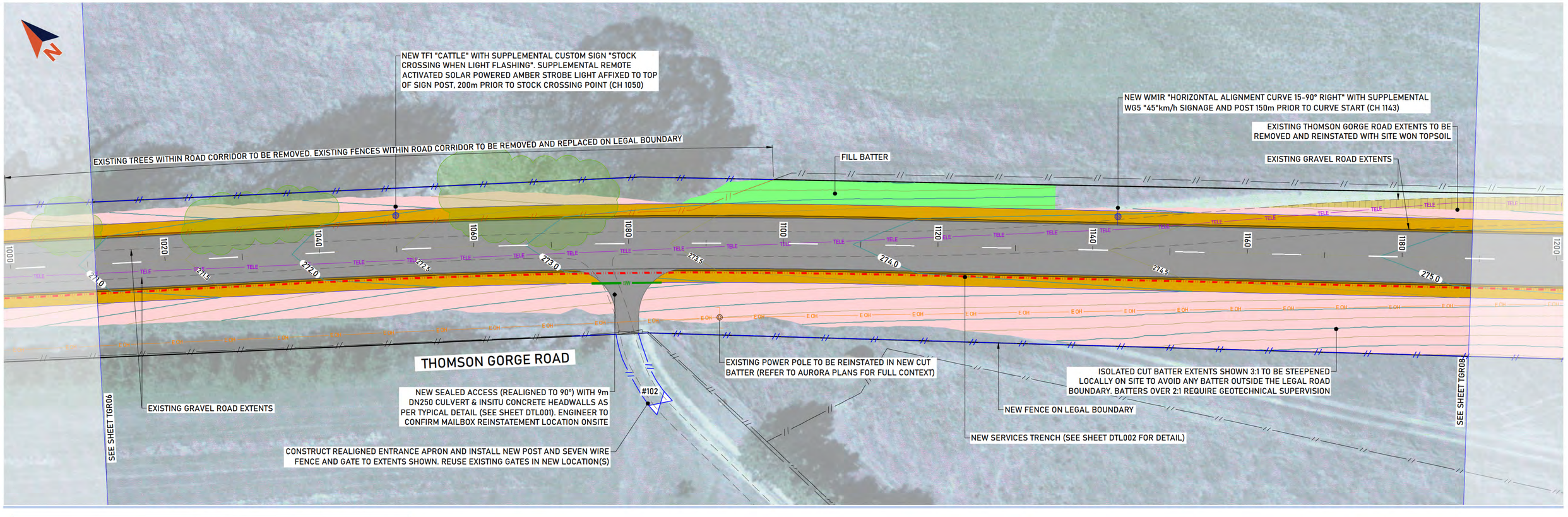


NEW TF1 "CATTLE" WITH SUPPLEMENTAL CUSTOM SIGN "STOCK CROSSING WHEN LIGHT FLASHING". SUPPLEMENTAL REMOTE ACTIVATED SOLAR POWERED AMBER STROBE LIGHT AFFIXED TO TOP OF SIGN POST, 200m PRIOR TO STOCK CROSSING POINT (CH 1050)

NEW WM1R "HORIZONTAL ALIGNMENT CURVE 15-90° RIGHT" WITH SUPPLEMENTAL WG5 "45"km/h SIGNAGE AND POST 150m PRIOR TO CURVE START (CH 1143)

EXISTING THOMSON GORGE ROAD EXTENTS TO BE REMOVED AND REINSTATED WITH SITE WON TOPSOIL

EXISTING TREES WITHIN ROAD CORRIDOR TO BE REMOVED. EXISTING FENCES WITHIN ROAD CORRIDOR TO BE REMOVED AND REPLACED ON LEGAL BOUNDARY

NEW SEALED ACCESS (REALIGNED TO 90°) WITH 9m DN250 CULVERT & INSITU CONCRETE HEADWALLS AS PER TYPICAL DETAIL (SEE SHEET DTL001). ENGINEER TO CONFIRM MAILBOX REINSTATEMENT LOCATION ONSITE

CONSTRUCT REALIGNED ENTRANCE APRON AND INSTALL NEW POST AND SEVEN WIRE FENCE AND GATE TO EXTENTS SHOWN. REUSE EXISTING GATES IN NEW LOCATION(S)

EXISTING POWER POLE TO BE REINSTATED IN NEW CUT BATTER (REFER TO AURORA PLANS FOR FULL CONTEXT)

ISOLATED CUT BATTER EXTENTS SHOWN 3:1 TO BE STEEPENED LOCALLY ON SITE TO AVOID ANY BATTER OUTSIDE THE LEGAL ROAD BOUNDARY. BATTERS OVER 2:1 REQUIRE GEOTECHNICAL SUPERVISION

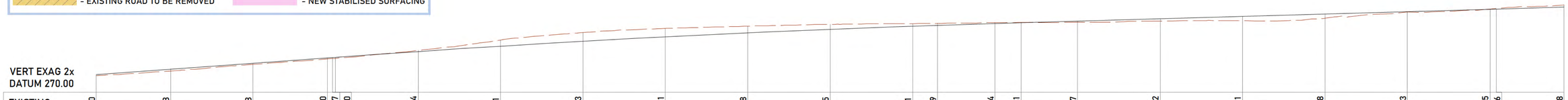
NEW FENCE ON LEGAL BOUNDARY

NEW SERVICES TRENCH (SEE SHEET DTL002 FOR DETAIL)

LEGEND

—E OH—	- EXISTING OVERHEAD POWER	⊕	- NEW SIGN
○	- EXISTING POWER POLE	—//—	- NEW FENCE
- - -	- EXISTING ROAD EXTENTS	⋈	- NEW GATE
—TELE—	- EXISTING TELECOM (INDICATIVE)	-·-·-	- NEW SERVICES TRENCH
—//—	- EXISTING FENCE	—SW—	- NEW STORMWATER PIPE
—//—	- EXISTING FENCE TO BE REMOVED	■	- NEW GRADE 3/5 CHIPSEAL
⋈	- EXISTING GATE	▨	- NEW DG10 ASPHALT SEAL
⋈	- EXISTING GATE TO BE REMOVED	■	- NEW AP40 SURFACING
⊕	- EXISTING SIGN	■	- NEW ROADSIDE SHOULDER
▨	- EXISTING ROAD TO BE REMOVED	■	- NEW STABILISED SURFACING

VERT EXAG 2x
DATUM 270.00



EXISTING GROUND	271.000	271.298	271.698	272.020	272.047	272.060	272.544	273.171	273.633	273.881	274.018	274.125
DESIGN LEVEL	271.077	271.403	271.766	272.093	272.116	272.128	272.477	272.799	273.095	273.365	273.609	273.826
DESIGN V EG	0.076	0.105	0.068	0.073	0.069	0.068	-0.067	-0.372	-0.538	-0.516	-0.410	-0.299
HORIZONTAL GEOMETRY	L=354.9				L=74.0 R=1000.0							
VERTICAL GEOMETRY	G 3.6% L 47.4					R 3805.1 K 38.1 L 83.5						
SUPER ELEVATION												
CHAINAGE	1011.000	1020.000	1030.000	1039.032	1039.665	1040.000	1050.000	1060.000	1070.000	1080.000	1090.000	1100.000

EXISTING GROUND	274.171	274.189	274.224	274.241	274.267	274.332	274.351	274.498	274.883	275.045	275.096	275.308
DESIGN LEVEL	274.017	274.069	274.181	274.228	274.326	274.469	274.612	274.756	274.899	275.042	275.053	275.179
DESIGN V EG	-0.154	-0.119	-0.042	-0.014	0.059	0.137	0.262	0.257	0.016	-0.003	-0.043	-0.129
HORIZONTAL GEOMETRY		L=180.1										
VERTICAL GEOMETRY				G 1.4% L 57.6							R 4043.7 K 40.4 L 111.1	
SUPER ELEVATION												
CHAINAGE	1110.000	1113.025	1120.000	1123.155	1130.000	1140.000	1150.000	1160.000	1170.000	1180.000	1180.767	1189.000

TGR LONG SECTION

FOR APPROVAL

CLIENT:
MATAKANUI GOLD LIMITED

PROJECT:
BENDIGO-OPHIR GOLD PROJECT, BENDIGO & ARDGOUR STATIONS, CENTRAL OTAGO

bonisch

SHEET TITLE:
THOMSON GORGE ROAD PLAN & PROFILE CH 1011-1189

REV	REVISION DETAILS	DATE
C	FOR APPROVAL	24/06/2025
D	FOR COUNCIL APPROVAL	4/07/2025
E	FOR COUNCIL APPROVAL	9/07/2025
F	FOR INTERNAL APPROVAL - CATTLE YARD CURVE AND PRIORITY CHANGE	24/07/2025
G	FOR COUNCIL APPROVAL - SEALED ROAD, INTERSECTION (TGR11) ADDED	7/08/2025

SURVEYED:		
DESIGNED:	CHM	23/03/2025
DRAWN:		
DRAWING CHECK:		
DESIGN CHECK:	JJR	24/06/2025
APPROVED:	JJR	24/06/2025

JOB NUMBER
8755

SCALE (@ A1)
1:250

REVISION
G

SHEET
TGR07

REVISION DATE
07/08/2025

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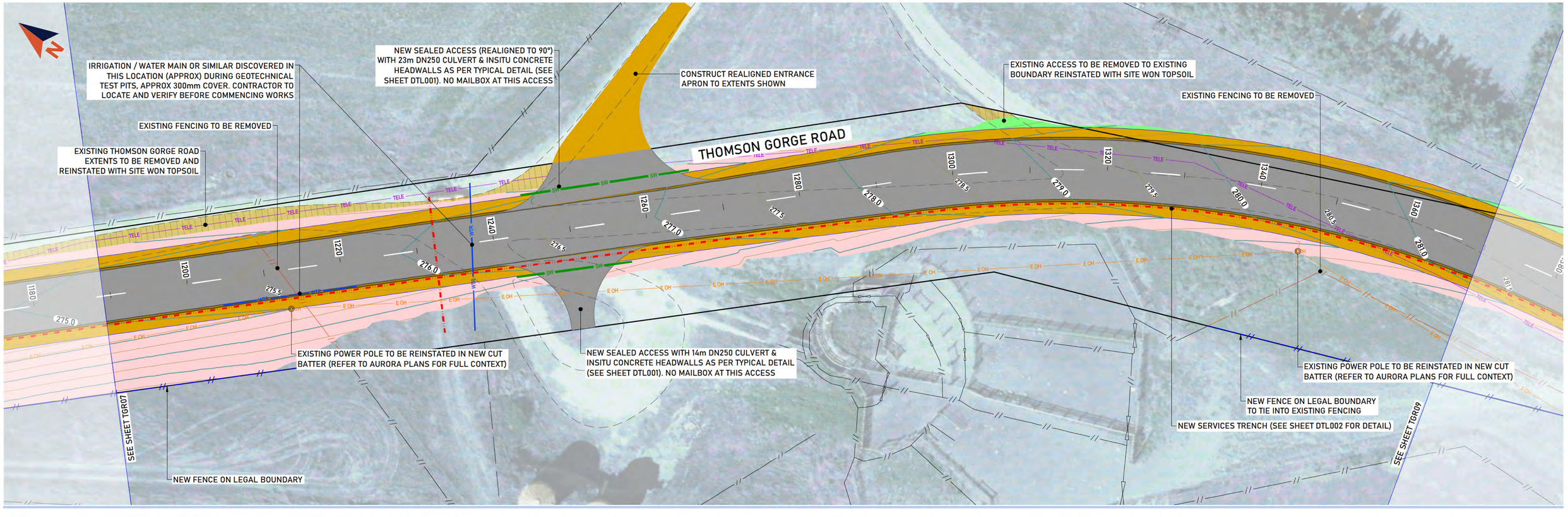

LEGEND

- E OH - EXISTING OVERHEAD POWER
- - EXISTING POWER POLE
- - EXISTING ROAD EXTENTS
- TELE - EXISTING TELECOM (INDICATIVE)
- // - EXISTING FENCE
- // - EXISTING FENCE TO BE REMOVED
- - EXISTING GATE
- - EXISTING GATE TO BE REMOVED
- - EXISTING SIGN
- - EXISTING ROAD TO BE REMOVED
- - NEW SIGN
- // - NEW FENCE
- - NEW GATE
- - NEW SERVICES TRENCH
- SW - NEW STORMWATER PIPE
- - NEW GRADE 3/5 CHIPSEAL
- - NEW DG10 ASPHALT SEAL
- - NEW AP40 SURFACING
- - NEW ROADSIDE SHOULDER
- - NEW STABILISED SURFACING

VERT EXAG 2x
DATUM 275.00

CHAINAGE	EXISTING GROUND	DESIGN LEVEL	DESIGN V EG
1189.000	275.308	275.179	-0.129
1190.000	275.364	275.196	-0.168
1200.000	275.300	275.374	0.074
1210.000	275.542	275.577	0.035
1220.000	275.568	275.805	0.237
1230.000	275.659	276.058	0.399
1240.000	276.156	276.335	0.179
1250.000	276.547	276.637	0.090
1260.000	276.882	276.964	0.082
1270.000	277.213	277.315	0.103
1280.000	277.579	277.692	0.112
1290.000	277.988	278.093	0.104
1291.845	278.050	278.169	0.119
1293.169	278.080	278.225	0.144
1300.000	278.271	278.510	0.239
1310.000	278.638	278.928	0.290
1320.000	278.818	279.346	0.528
1330.000	279.496	279.764	0.268
1340.000	279.940	280.182	0.241
1350.000	280.413	280.600	0.187
1360.000	280.777	281.017	0.240
1367.000	281.073	281.310	0.237

HORIZONTAL GEOMETRY: L=180.1; L=147.0 R=150.0

VERTICAL GEOMETRY: R 4043.7 K 40.4 L 111.1; G 4.2% L 94.9

SUPER ELEVATION: -4.0% 1253.17 -4.0%; 4.0% 1293.17 -4.0%

TGR LONG SECTION

FOR APPROVAL

CLIENT: MATAKANUI GOLD LIMITED

PROJECT: BENDIGO-OPHIR GOLD PROJECT, BENDIGO & ARDGOUR STATIONS, CENTRAL OTAGO

bonisch

SHEET TITLE: THOMSON GORGE ROAD PLAN & PROFILE CH 1189-1367

REV	REVISION DETAILS	DATE
C	FOR APPROVAL	24/06/2025
D	FOR COUNCIL APPROVAL	4/07/2025
E	FOR COUNCIL APPROVAL	9/07/2025
F	FOR INTERNAL APPROVAL - CATTLE YARD CURVE AND PRIORITY CHANGE	24/07/2025
G	FOR COUNCIL APPROVAL - SEALED ROAD, INTERSECTION (TGR11) ADDED	7/08/2025

SURVEYED:			
DESIGNED:	CHM	23/03/2025	
DRAWN:			
DRAWING CHECK:			
DESIGN CHECK:	JJR	24/06/2025	
APPROVED:	JJR	24/06/2025	

JOB NUMBER 8755 | SCALE (@ A1) 1:250 | SHEET TGR08 | REVISION G | REVISION DATE 07/08/2025

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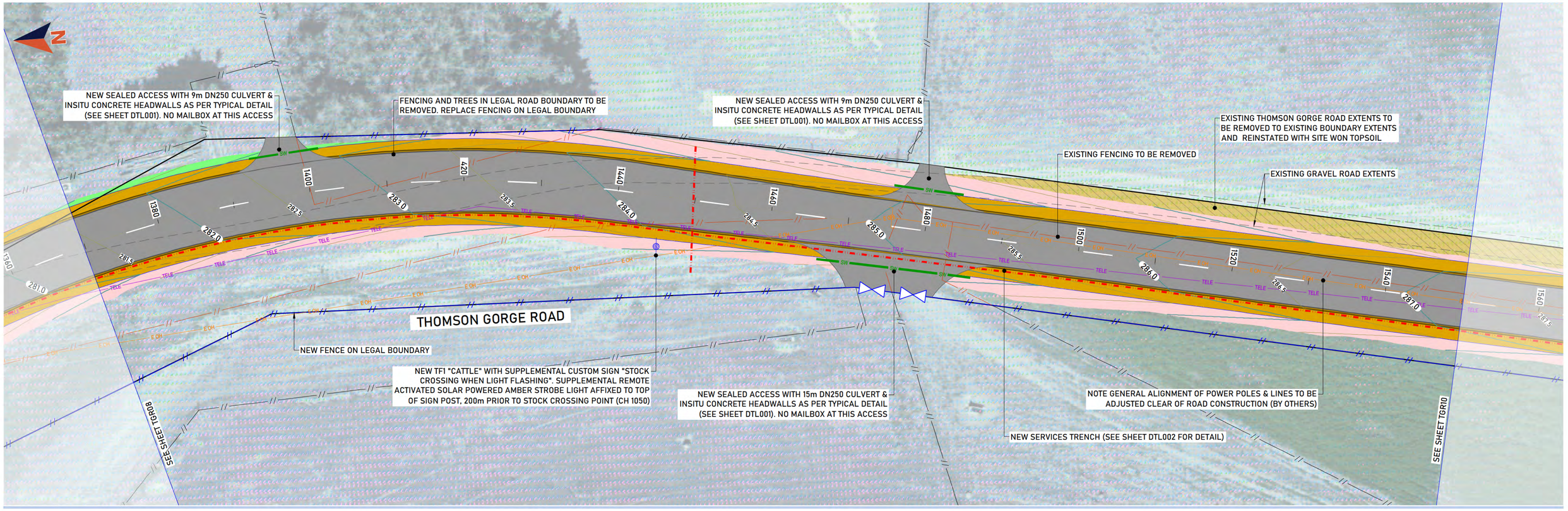

LEGEND

E OH – EXISTING OVERHEAD POWER	– NEW SIGN
– EXISTING POWER POLE	– NEW FENCE
– EXISTING ROAD EXTENTS	– NEW GATE
TELE – EXISTING TELECOM (INDICATIVE)	– NEW SERVICES TRENCH
– EXISTING FENCE	SW – NEW STORMWATER PIPE
– EXISTING FENCE TO BE REMOVED	– NEW GRADE 3/5 CHIPSEAL
– EXISTING GATE	– NEW DG10 ASPHALT SEAL
– EXISTING GATE TO BE REMOVED	– NEW AP40 SURFACING
– EXISTING SIGN	– NEW ROADSIDE SHOULDER
– EXISTING ROAD TO BE REMOVED	– NEW STABILISED SURFACING

VERT EXAG 2x
DATUM 280.00

CHAINAGE	EXISTING GROUND	DESIGN LEVEL	DESIGN V EG
1367.000	281.073	281.310	0.237
1370.000	281.218	281.435	0.218
1380.000	281.648	281.853	0.205
1386.737	281.884	282.135	0.251
1390.000	282.031	282.270	0.239
1400.000	282.357	282.670	0.313
1410.000	282.828	283.048	0.220
1420.000	283.298	283.405	0.107
1430.000	283.830	283.740	-0.090
1440.000	284.122	284.053	-0.069
1440.215	284.130	284.059	-0.070
1446.737	284.501	284.252	-0.250
1450.000	284.652	284.346	-0.307
1460.000	284.857	284.633	-0.224
1470.000	285.114	284.921	-0.193
1480.000	285.444	285.209	-0.235
1490.000	285.844	285.497	-0.348
1500.000	286.025	285.784	-0.240
1510.000	286.216	286.072	-0.144
1520.000	286.533	286.360	-0.173
1530.000	286.728	286.648	-0.080
1540.000	286.919	286.935	0.016
1545.000	287.023	287.079	0.056

HORIZONTAL GEOMETRY: L=147.0, R=150.0; L=224.2

VERTICAL GEOMETRY: G 4.2%, L 94.9; R 4610.1, K 46.1, L 60.0; G 2.9%, L 429.4

SUPER ELEVATION: 4.0% 1440.22, -4.0%; -4.0% 1480.22, -4.0%

TGR LONG SECTION

FOR APPROVAL

CLIENT:	MATAKANUI GOLD LIMITED
PROJECT:	BENDIGO-OPHIR GOLD PROJECT, BENDIGO & ARDGOUR STATIONS, CENTRAL OTAGO
SHEET TITLE:	THOMSON GORGE ROAD PLAN & PROFILE CH 1367-1545

REV	REVISION DETAILS	DATE
C	FOR APPROVAL	24/06/2025
D	FOR COUNCIL APPROVAL	4/07/2025
E	FOR COUNCIL APPROVAL	9/07/2025
F	FOR INTERNAL APPROVAL - CATTLE YARD CURVE AND PRIORITY CHANGE	24/07/2025
G	FOR COUNCIL APPROVAL - SEALED ROAD, INTERSECTION (TGR11) ADDED	7/08/2025

SURVEYED:			
DESIGNED:	CHM	23/03/2025	
DRAWN:			
DRAWING CHECK:			
DESIGN CHECK:	JJR	24/06/2025	
APPROVED:	JJR	24/06/2025	

JOB NUMBER	8755
SHEET	TGR09
SCALE (@ A1)	1:250
REVISION	G
REVISION DATE	07/08/2025

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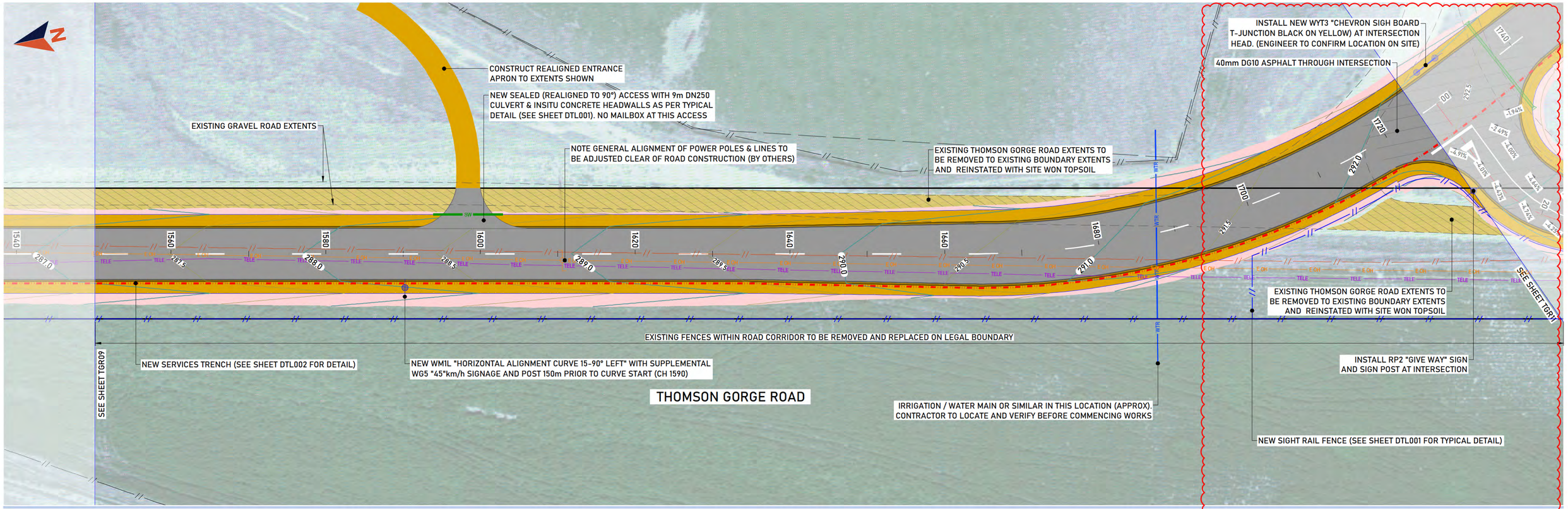
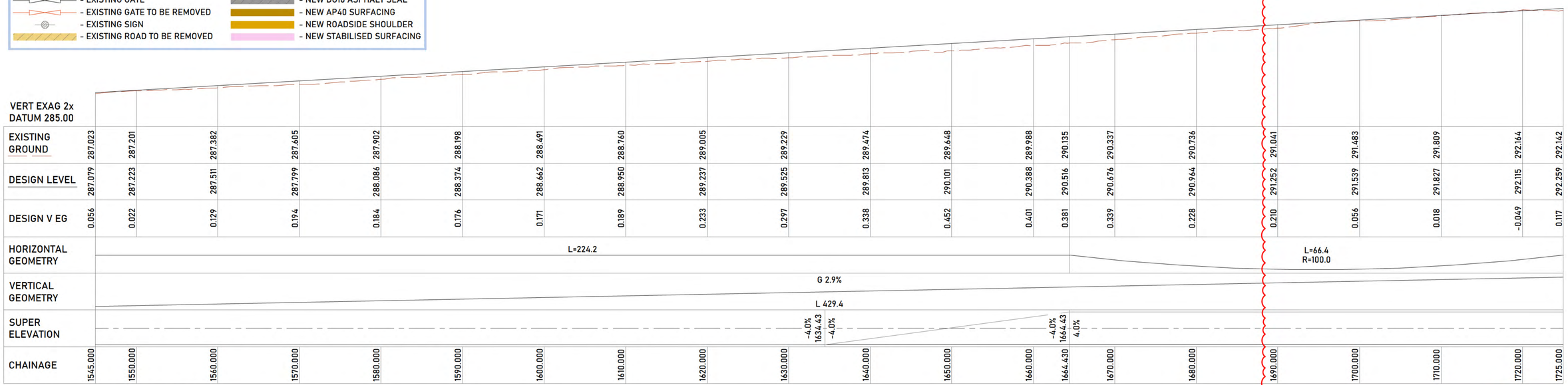


LEGEND

- E OH - EXISTING OVERHEAD POWER
- EXISTING POWER POLE
- EXISTING ROAD EXTENTS
- TELE - EXISTING TELECOM (INDICATIVE)
- EXISTING FENCE
- EXISTING FENCE TO BE REMOVED
- EXISTING GATE
- EXISTING GATE TO BE REMOVED
- EXISTING SIGN
- EXISTING ROAD TO BE REMOVED
- NEW SIGN
- NEW FENCE
- NEW GATE
- NEW SERVICES TRENCH
- SW - NEW STORMWATER PIPE
- NEW GRADE 3/5 CHIPSEAL
- NEW DG10 ASPHALT SEAL
- NEW AP40 SURFACING
- NEW ROADSIDE SHOULDER
- NEW STABILISED SURFACING



TGR LONG SECTION

FOR APPROVAL

CLIENT: MATAKANUI GOLD LIMITED	PROJECT: BENDIGO-OPHIR GOLD PROJECT, BENDIGO & ARDGOUR STATIONS, CENTRAL OTAGO	bonisch	SHEET TITLE: THOMSON GORGE ROAD PLAN & PROFILE CH 1545-1725	JOB NUMBER 8755	SCALE (@ A1) 1:250
				SHEET TGR10	REVISION G
					REVISION DATE 07/08/2025

REV	REVISION DETAILS	DATE	SURVEYED:		
C	FOR APPROVAL	24/06/2025	DESIGNED:	CHM	23/03/2025
D	FOR COUNCIL APPROVAL	4/07/2025	DRAWN:		
E	FOR COUNCIL APPROVAL	9/07/2025	DRAWING CHECK:		
F	FOR INTERNAL APPROVAL - CATTLE YARD CURVE AND PRIORITY CHANGE	24/07/2025	DESIGN CHECK:	JJR	24/06/2025
G	FOR COUNCIL APPROVAL - SEALED ROAD, INTERSECTION (TGR11) ADDED	7/08/2025	APPROVED:	JJR	24/06/2025

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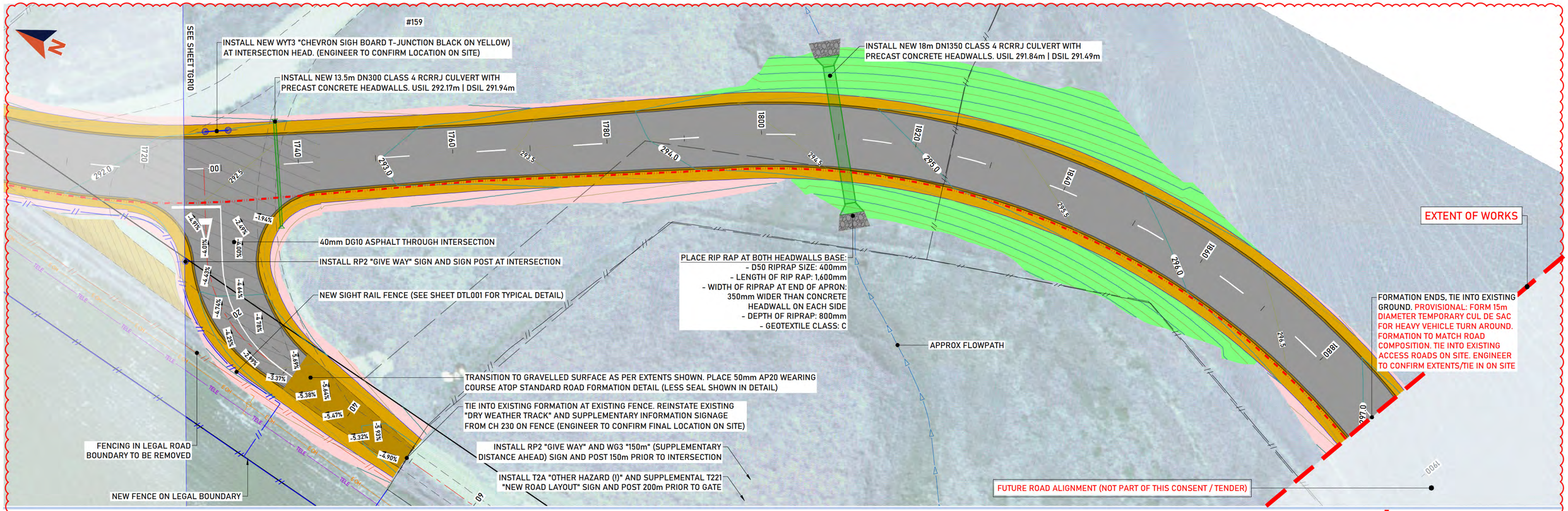
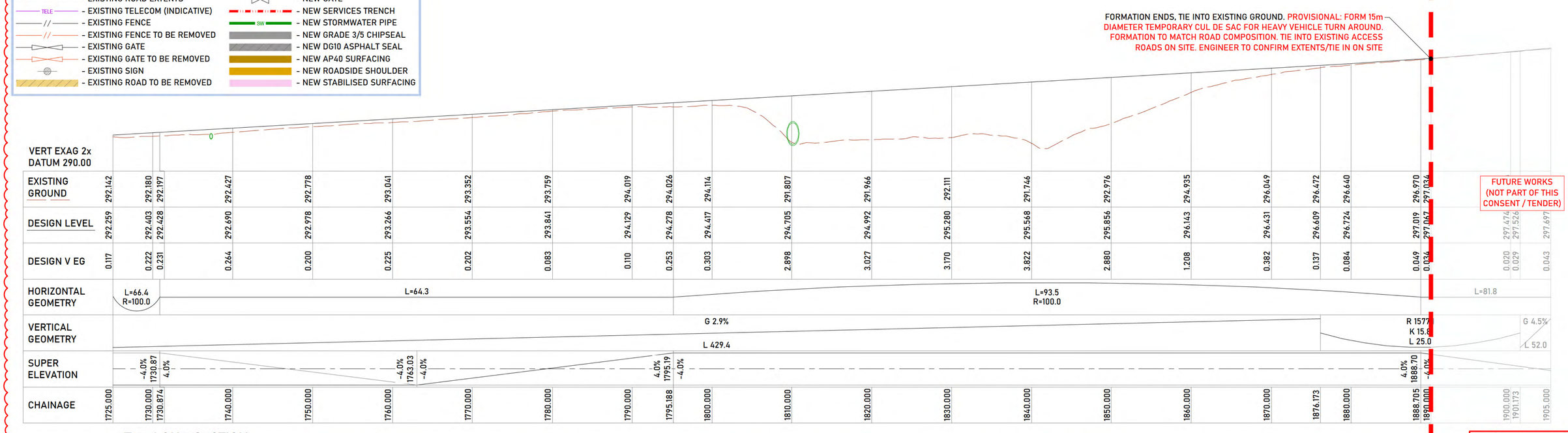


LEGEND

- EXISTING OVERHEAD POWER
- EXISTING POWER POLE
- EXISTING ROAD EXTENTS
- EXISTING TELECOM (INDICATIVE)
- EXISTING FENCE
- EXISTING FENCE TO BE REMOVED
- EXISTING GATE
- EXISTING GATE TO BE REMOVED
- EXISTING SIGN
- EXISTING ROAD TO BE REMOVED
- NEW SIGN
- NEW FENCE
- NEW GATE
- NEW SERVICES TRENCH
- NEW STORMWATER PIPE
- NEW GRADE 3/5 CHIPSEAL
- NEW DG10 ASPHALT SEAL
- NEW AP40 SURFACING
- NEW ROADSIDE SHOULDER
- NEW STABILISED SURFACING



TGR LONG SECTION

FOR APPROVAL

CLIENT: MATAKANUI GOLD LIMITED

PROJECT: BENDIGO-OPHIR GOLD PROJECT, BENDIGO & ARDGOUR STATIONS, CENTRAL OTAGO

bonisch

SHEET TITLE: THOMSON GORGE ROAD PLAN & PROFILE CH 1725-1890

REV	REVISION DETAILS	DATE	SURVEYED:		
C	FOR APPROVAL	24/06/2025	DESIGNED:	CHM	23/03/2025
D	FOR COUNCIL APPROVAL	4/07/2025	DRAWN:		
E	FOR COUNCIL APPROVAL	9/07/2025	DRAWING CHECK:		
F	FOR INTERNAL APPROVAL - CATTLE YARD CURVE AND PRIORITY CHANGE	24/07/2025	DESIGN CHECK:	JJR	24/06/2025
G	FOR COUNCIL APPROVAL - SEALED ROAD, INTERSECTION (TGR11) ADDED	7/08/2025	APPROVED:	JJR	24/06/2025

JOB NUMBER 8755

SHEET TGR11

SCALE (@ A1) 1:250

REVISION G

REVISION DATE 07/08/2025

Last Edited by: Chris on 7/08/2025 4:17:47 pm C:\Bonisch\Bonisch Consultants\Bonisch Consultants Team Site - JOB\8700 - 8799\8755 Bendigo-Ophir Gold Project\04 CAD\02 Prin\8755 - ROADING.dwg (TGRP-11)

ARDGOUR ROAD
(TO SH8 LINDIS CROSSING)

INSTALL T2A "OTHER HAZARD (!)" AND SUPPLEMENTAL T221
"NEW ROAD LAYOUT" SIGN AND POST 200m PRIOR TO INTERSECTION

EXISTING ROAD FORMATION TO BE REMOVED
OFFSITE TO WASTE. RESPREAD SITE WON TOPSOIL

SCARIFY AND TIE EXISTING ARDGOUR CROSSFALL INTO NEW
INTERSECTION OVER 40m (NOMINAL - ENGINEER TO CONFIRM ON SITE)

ARDGOUR ROAD

40mm DG10 ASPHALT THROUGH INTERSECTION

INSTALL RP1 "STOP" AND WG3 "150m"
(SUPPLEMENTARY DISTANCE AHEAD) SIGN
AND POST 150m PRIOR TO INTERSECTION

INSTALL T2A "OTHER HAZARD (!)" AND SUPPLEMENTAL T221
"NEW ROAD LAYOUT" SIGN AND POST 200m PRIOR TO INTERSECTION

PROTECT EXISTING TREE IF POSSIBLE. ENGINEER TO CONFIRM ON SITE IF TREE REMOVAL IS REQUIRED

INSTALL RP1 "STOP" SIGN AND SIGN POST AT INTERSECTION

EXISTING CULVERT TO REMOVED AND REPLACED WITH DN575 CLASS 4 RCRRJ CULVERT WITH PRECAST
CONCRETE HEADWALLS (ENGINEER TO CONFIRM FINAL LEVELS ON SITE). MINIMUM COVER THROUGH
INTERSECTION 0.9m (CONCRETE CAP IF REQUIRED, SEE SHEET DTL001FOR CONCRETE CAP DETAIL)

EXISTING PLACE/ROAD NAME SIGN POSTS TO BE ADJUSTED AND REINSTATED TO SUIT NEW INTERSECTION LAYOUT. INSTALL NEW
WYT3 "CHEVRON SIGH BOARD T-JUNCTION BLACK ON YELLOW) AT INTERSECTION HEAD. (ENGINEER TO CONFIRM LOCATION ON SITE)

CONSTRUCT REALIGNED ENTRANCE APRON AND INSTALL NEW POST AND SEVEN WIRE
FENCE AND GATE TO EXTENTS SHOWN. REUSE EXISTING GATES IN NEW LOCATION(S)

NEW SEALED ACCESS WITH 15m DN250 CULVERT & INSITU CONCRETE HEADWALLS AS PER TYPICAL
DETAIL (SEE SHEET DTL001). ENGINEER TO CONFIRM MAILBOX REINSTATEMENT LOCATION ONSITE

THOMSON GORGE ROAD

LEGEND

- E OH - EXISTING OVERHEAD POWER
- EXISTING POWER POLE
- EXISTING ROAD EXTENTS
- TELE - EXISTING TELECOM (INDICATIVE)
- EXISTING FENCE
- EXISTING FENCE TO BE REMOVED
- EXISTING GATE
- EXISTING GATE TO BE REMOVED
- EXISTING SIGN
- EXISTING ROAD TO BE REMOVED
- NEW SIGN
- NEW FENCE
- NEW GATE
- NEW SERVICES TRENCH
- SW - NEW STORMWATER PIPE
- NEW GRADE 3/5 CHIPSEAL
- NEW DG10 ASPHALT SEAL
- NEW AP40 SURFACING
- NEW ROADSIDE SHOULDER
- NEW STABILISED SURFACING

FOR APPROVAL

CLIENT: MATAKANUI GOLD LIMITED

PROJECT: BENDIGO-OPHIR GOLD PROJECT, BENDIGO & ARDGOUR STATIONS, CENTRAL OTAGO

bonisch

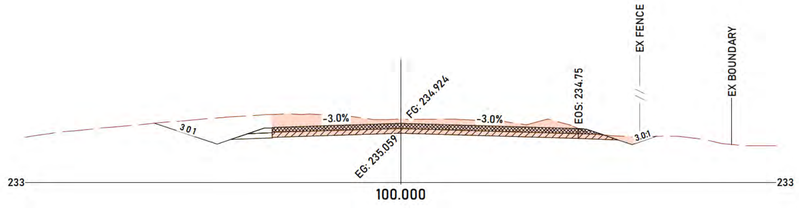
SHEET TITLE: INTERSECTION LAYOUT (ARDGOUR RD-THOMSON GORGE RD)

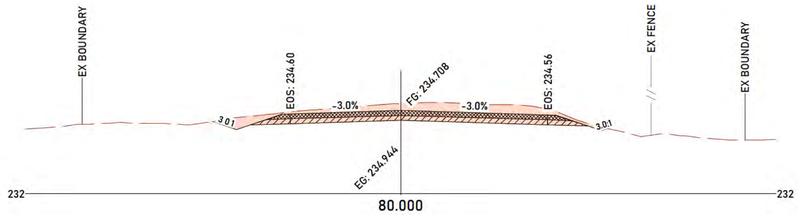
REV	REVISION DETAILS	DATE
C	FOR APPROVAL	24/06/2025
D	FOR COUNCIL APPROVAL	4/07/2025
E	FOR COUNCIL APPROVAL	9/07/2025
F	FOR INTERNAL APPROVAL - CATTLE YARD CURVE AND PRIORITY CHANGE	24/07/2025
G	FOR COUNCIL APPROVAL - SEALED ROAD, INTERSECTION (TGR11) ADDED	7/08/2025

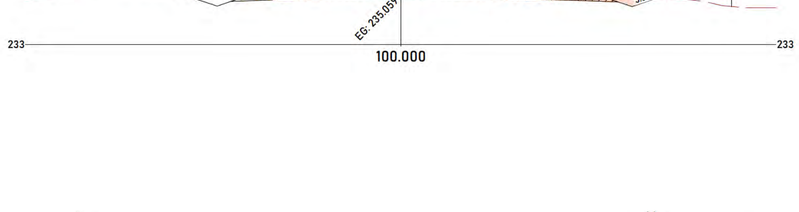
SURVEYED:		
DESIGNED:	CHM	23/03/2025
DRAWN:		
DRAWING CHECK:		
DESIGN CHECK:	JJR	24/06/2025
APPROVED:	JJR	24/06/2025

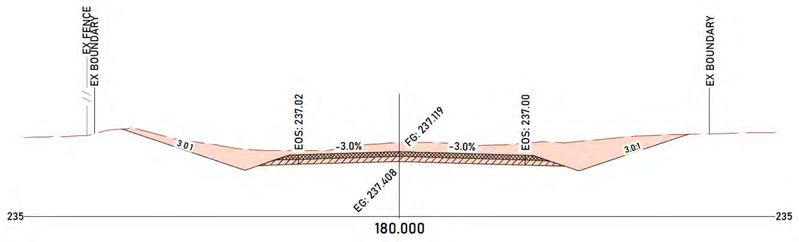
JOB NUMBER 8755
SHEET INT001
SCALE (@ A1) 1:150
REVISION G
REVISION DATE 07/08/2025

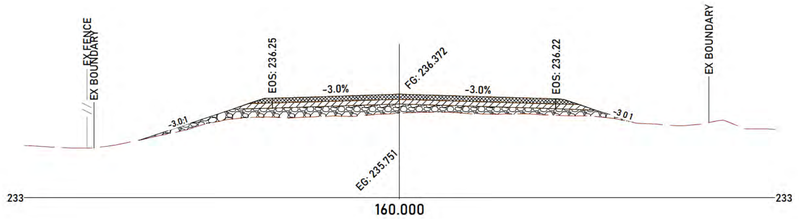
Last Edited by: Chris on 7/08/2025 4:17:47 pm C:\Bonisch\Bonisch Consultants\Bonisch Consultants Team Site - JOBS\8700 - 8799\8755 Bendigo-Ophir Gold Project\06 CAD\02 Print\8755 - ROADING.dwg (INT-ARD_TGR)

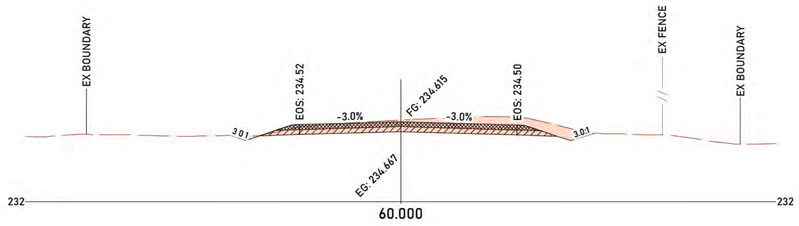


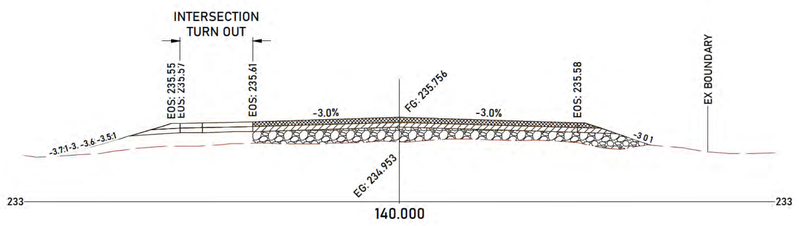


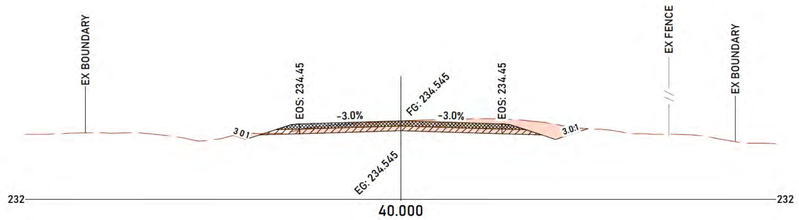


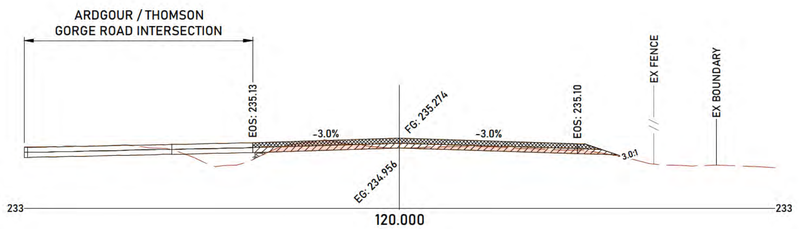












FOR APPROVAL

CLIENT: MATAKANUI GOLD LIMITED

PROJECT: BENDIGO-OPHIR GOLD PROJECT, BENDIGO & ARDGOUR STATIONS, CENTRAL OTAGO

bonisch

SHEET TITLE: THOMSON GORGE ROAD CROSS SECTION CH 40-180

REV	REVISION DETAILS	DATE	SURVEYED:		
C	FOR APPROVAL	24/06/2025	DESIGNED:	CHM	23/03/2025
D	FOR COUNCIL APPROVAL	4/07/2025	DRAWN:		
E	FOR COUNCIL APPROVAL	9/07/2025	DRAWING CHECK:		
F	FOR INTERNAL APPROVAL - CATTLE YARD CURVE AND PRIORITY CHANGE	24/07/2025	DESIGN CHECK:	JJR	24/06/2025
G	FOR COUNCIL APPROVAL - SEALED ROAD, INTERSECTION (TGR11) ADDED	7/08/2025	APPROVED:	JJR	24/06/2025

JOB NUMBER 8755

SHEET XS001

SCALE (@ A1) 1:100

REVISION G

REVISION DATE 07/08/2025

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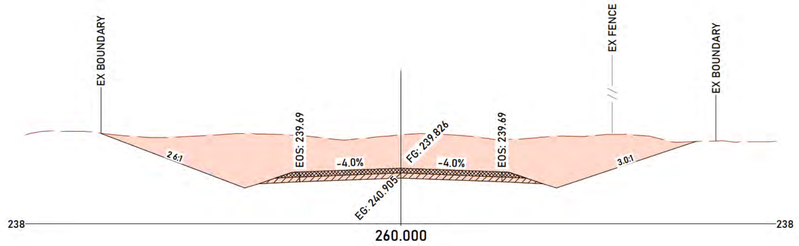

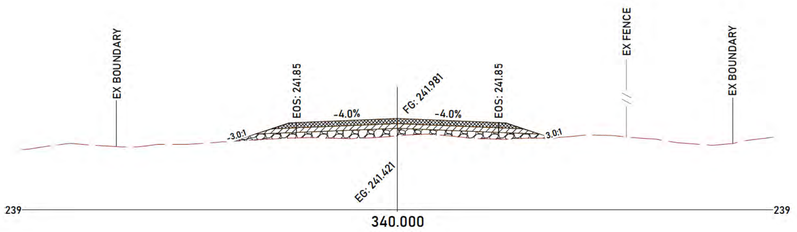

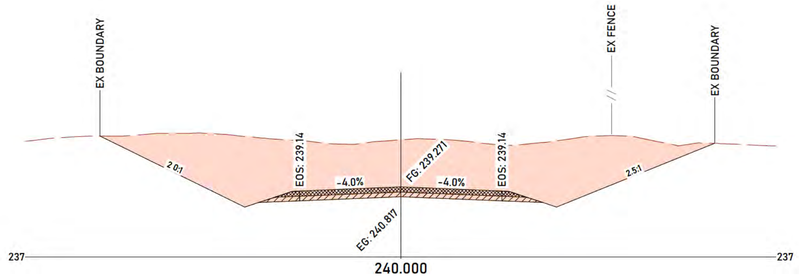

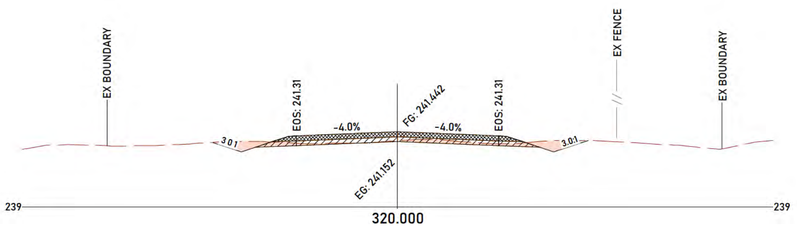

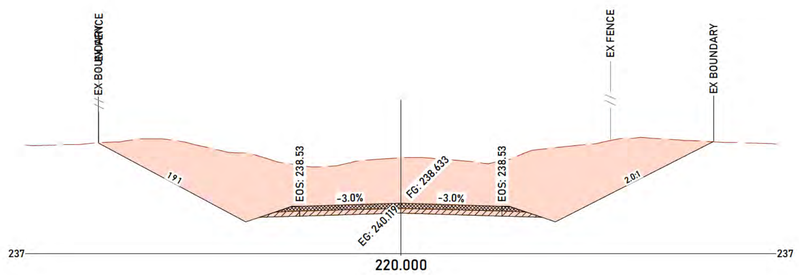

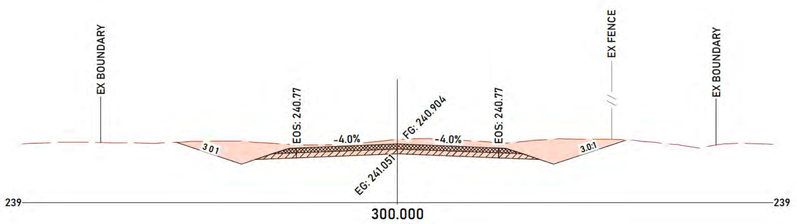

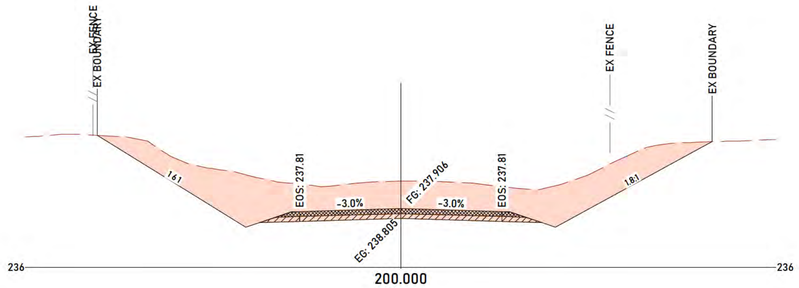

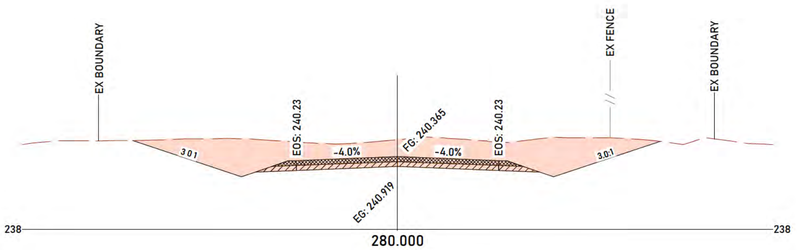

FOR APPROVAL

CLIENT: MATAKANUI GOLD LIMITED

PROJECT: BENDIGO-OPHIR GOLD PROJECT, BENDIGO & ARDGOUR STATIONS, CENTRAL OTAGO

bonisch

SHEET TITLE: THOMSON GORGE ROAD CROSS SECTION CH 200-340

REV	REVISION DETAILS	DATE
C	FOR APPROVAL	24/06/2025
D	FOR COUNCIL APPROVAL	4/07/2025
E	FOR COUNCIL APPROVAL	9/07/2025
F	FOR INTERNAL APPROVAL - CATTLE YARD CURVE AND PRIORITY CHANGE	24/07/2025
G	FOR COUNCIL APPROVAL - SEALED ROAD, INTERSECTION (TGR11) ADDED	7/08/2025

SURVEYED:			
DESIGNED:	CHM	23/03/2025	
DRAWN:			
DRAWING CHECK:			
DESIGN CHECK:	JJR	24/06/2025	
APPROVED:	JJR	24/06/2025	

JOB NUMBER 8755

SHEET XS002

SCALE (@ A1) 1:100

REVISION G

REVISION DATE 07/08/2025

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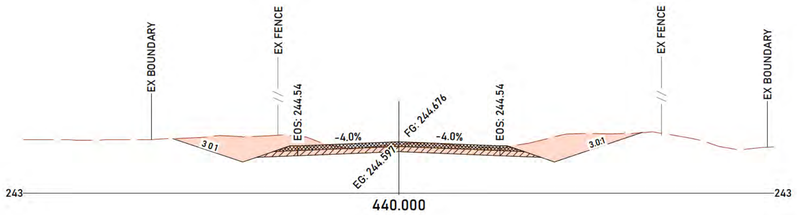

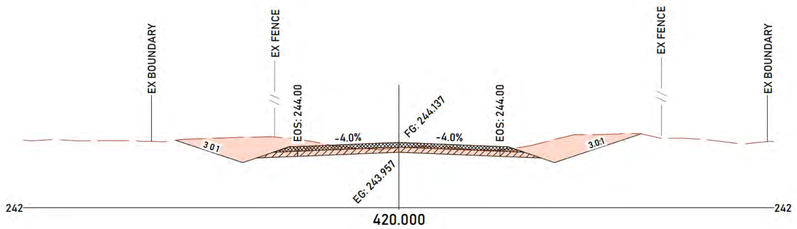

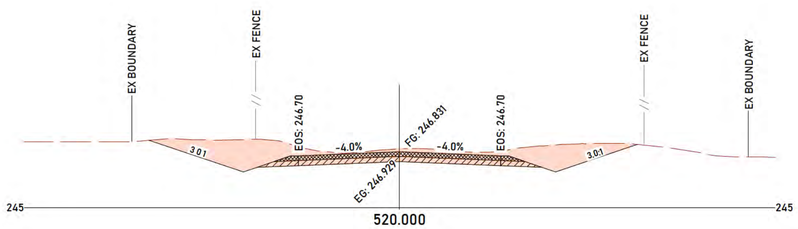

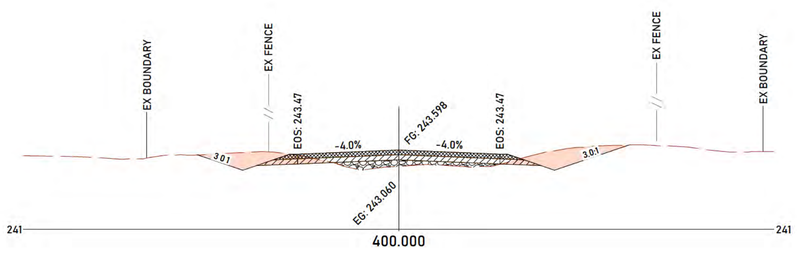

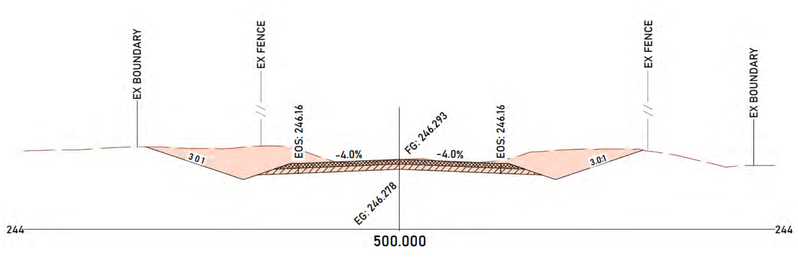

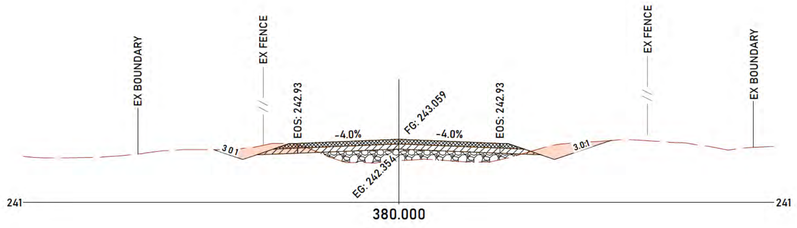

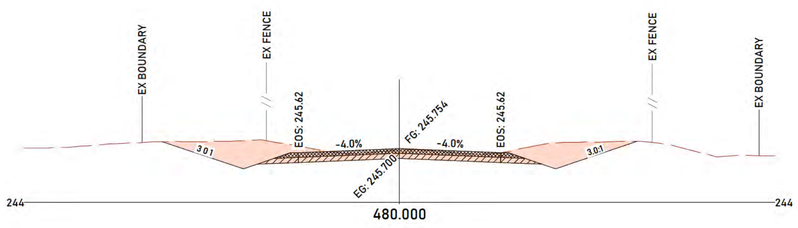

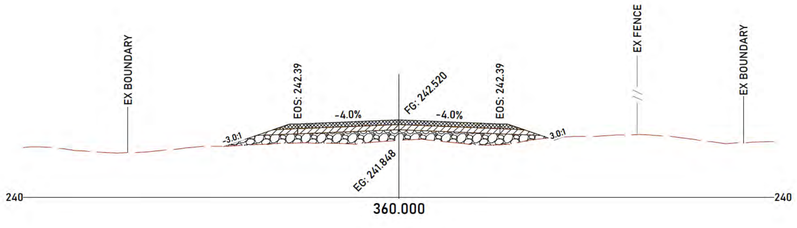

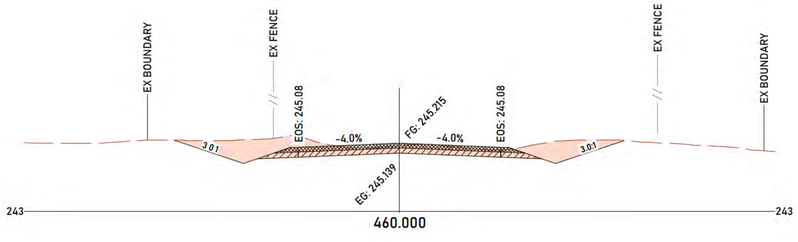

FOR APPROVAL

CLIENT: MATAKANUI GOLD LIMITED

PROJECT: BENDIGO-OPHIR GOLD PROJECT, BENDIGO & ARDGOUR STATIONS, CENTRAL OTAGO

bonisch

SHEET TITLE: THOMSON GORGE ROAD CROSS SECTION CH 360-540

REV	REVISION DETAILS	DATE
C	FOR APPROVAL	24/06/2025
D	FOR COUNCIL APPROVAL	4/07/2025
E	FOR COUNCIL APPROVAL	9/07/2025
F	FOR INTERNAL APPROVAL - CATTLE YARD CURVE AND PRIORITY CHANGE	24/07/2025
G	FOR COUNCIL APPROVAL - SEALED ROAD, INTERSECTION (TGR11) ADDED	7/08/2025

SURVEYED:			
DESIGNED:	CHM	23/03/2025	
DRAWN:			
DRAWING CHECK:			
DESIGN CHECK:	JJR	24/06/2025	
APPROVED:	JJR	24/06/2025	

JOB NUMBER 8755

SHEET XS003

SCALE (@ A1) 1:100

REVISION G

REVISION DATE 07/08/2025

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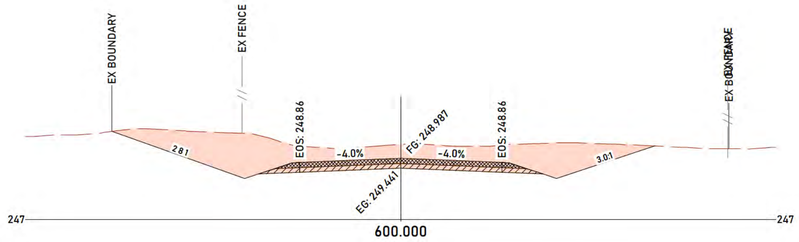

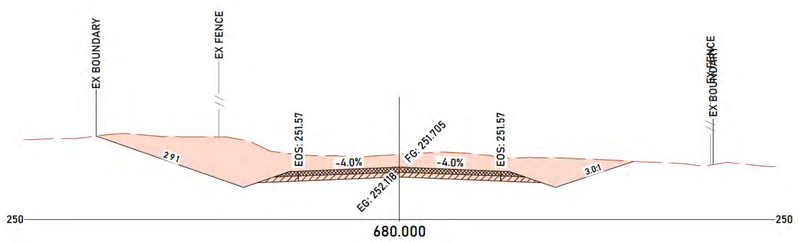

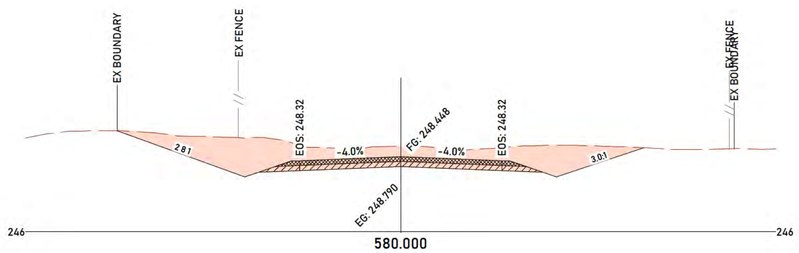

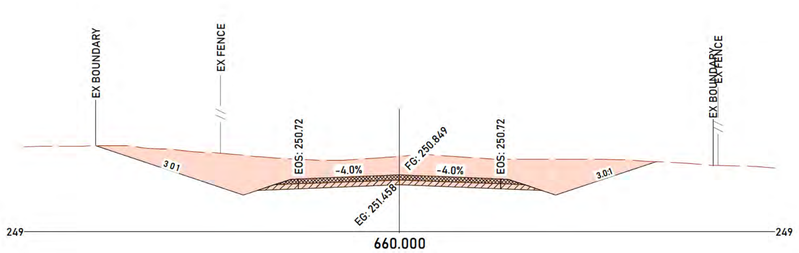

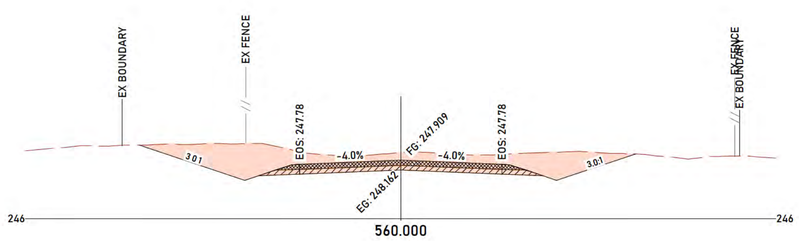

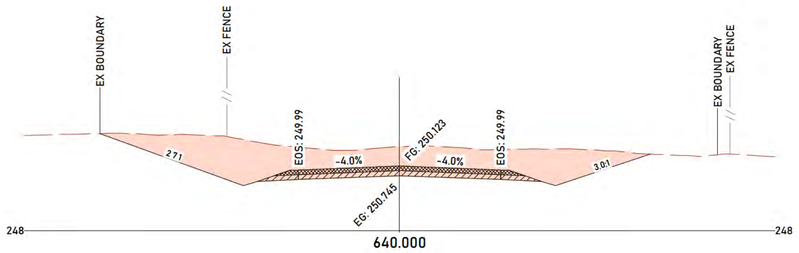

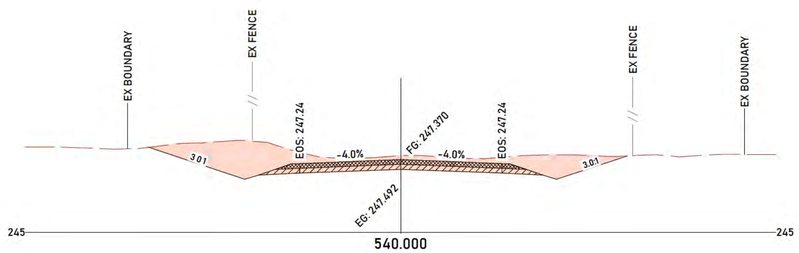

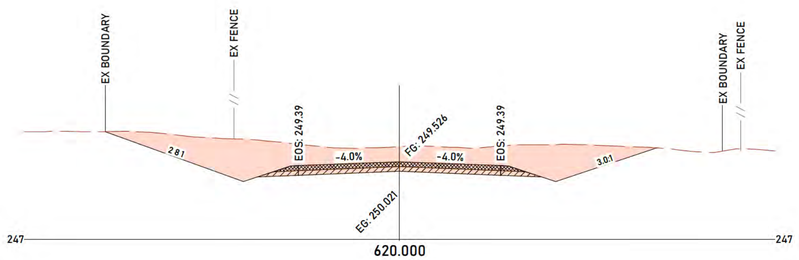

FOR APPROVAL

CLIENT: MATAKANUI GOLD LIMITED	PROJECT: BENDIGO-OPHIR GOLD PROJECT, BENDIGO & ARDGOUR STATIONS, CENTRAL OTAGO	bonisch	SHEET TITLE: THOMSON GORGE ROAD CROSS SECTION CH 560-700	JOB NUMBER: 8755	SCALE (@ A1): 1:100
				SHEET: XS004	REVISION: G
					REVISION DATE: 07/08/2025

REV	REVISION DETAILS	DATE	SURVEYED:		
C	FOR APPROVAL	24/06/2025	DESIGNED:	CHM	23/03/2025
D	FOR COUNCIL APPROVAL	4/07/2025	DRAWN:		
E	FOR COUNCIL APPROVAL	9/07/2025	DRAWING CHECK:		
F	FOR INTERNAL APPROVAL - CATTLE YARD CURVE AND PRIORITY CHANGE	24/07/2025	DESIGN CHECK:	JJR	24/06/2025
G	FOR COUNCIL APPROVAL - SEALED ROAD, INTERSECTION (TGR11) ADDED	7/08/2025	APPROVED:	JJR	24/06/2025

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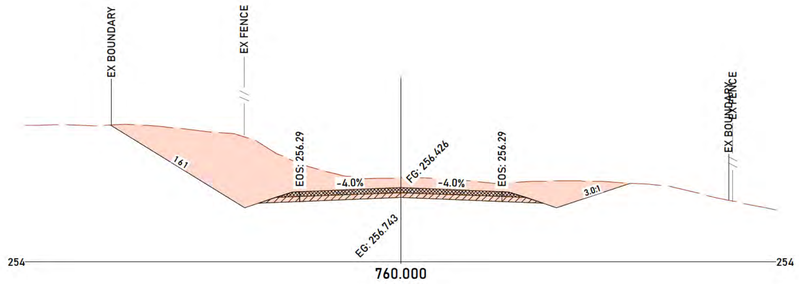

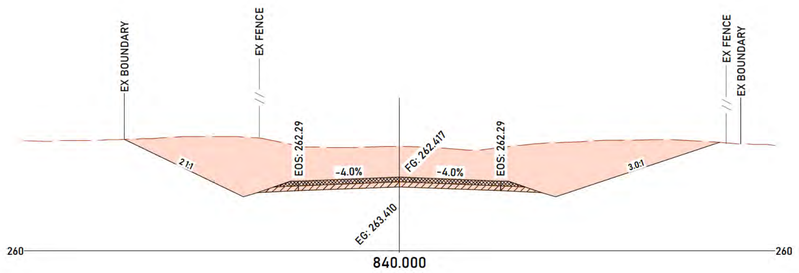

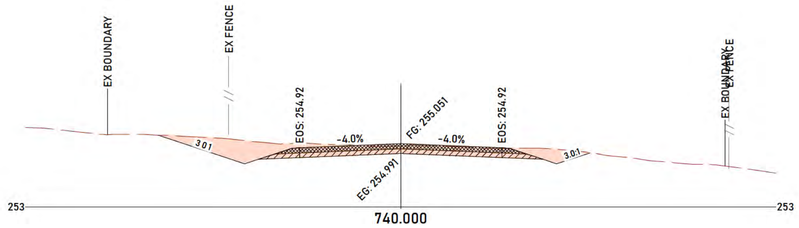

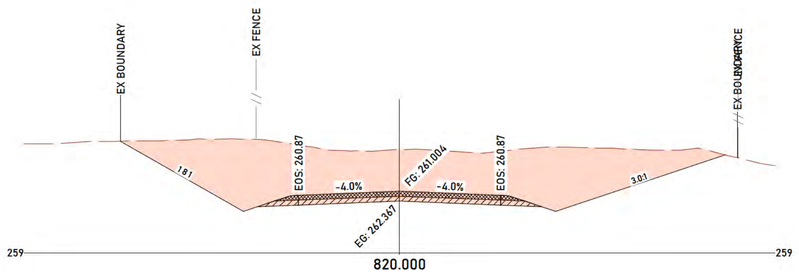

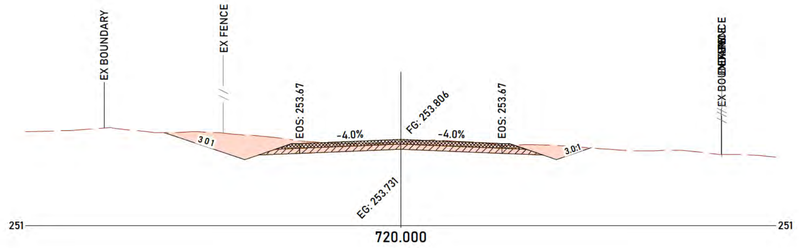

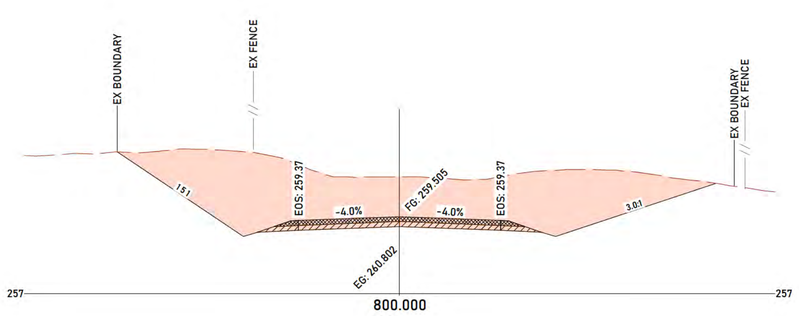

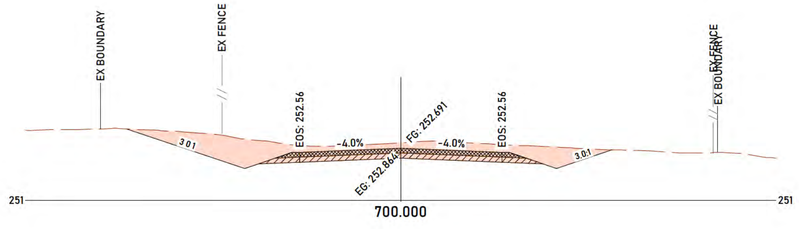

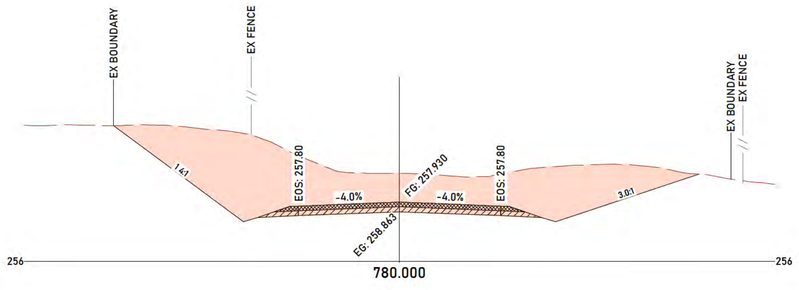

FOR APPROVAL

CLIENT: MATAKANUI GOLD LIMITED	PROJECT: BENDIGO-OPHIR GOLD PROJECT, BENDIGO & ARDGOUR STATIONS, CENTRAL OTAGO	bonisch	SHEET TITLE: THOMSON GORGE ROAD CROSS SECTION CH 720-860	JOB NUMBER: 8755	SCALE (@ A1): 1:100
				SHEET: XS005	REVISION: G
					REVISION DATE: 07/08/2025

REV	REVISION DETAILS	DATE			
C	FOR APPROVAL	24/06/2025	SURVEYED:		
D	FOR COUNCIL APPROVAL	4/07/2025	DESIGNED:	CHM	23/03/2025
E	FOR COUNCIL APPROVAL	9/07/2025	DRAWN:		
F	FOR INTERNAL APPROVAL - CATTLE YARD CURVE AND PRIORITY CHANGE	24/07/2025	DRAWING CHECK:		
G	FOR COUNCIL APPROVAL - SEALED ROAD, INTERSECTION (TGR11) ADDED	7/08/2025	DESIGN CHECK:	JJR	24/06/2025
			APPROVED:	JJR	24/06/2025

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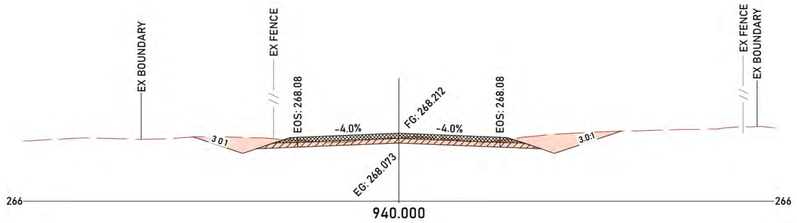

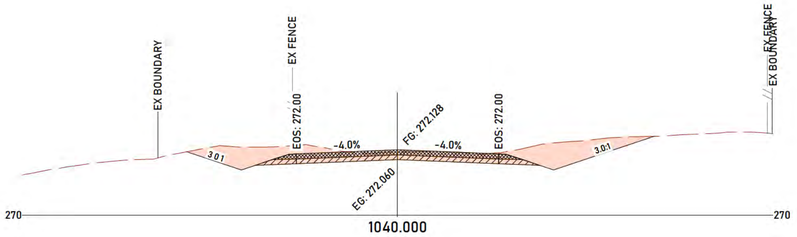

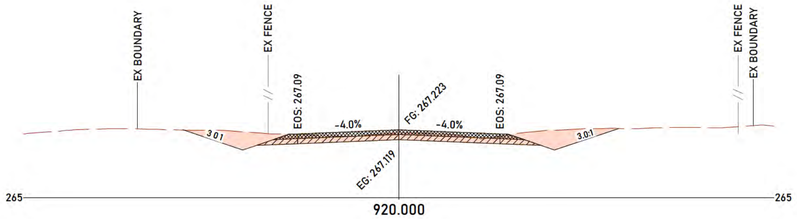

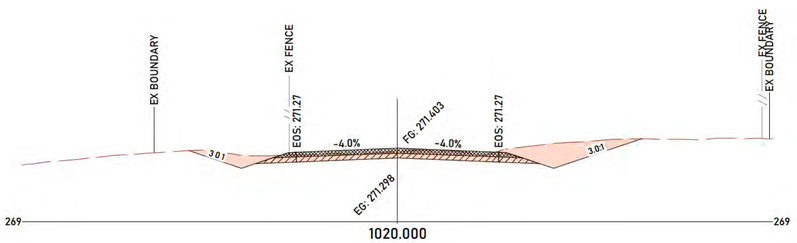

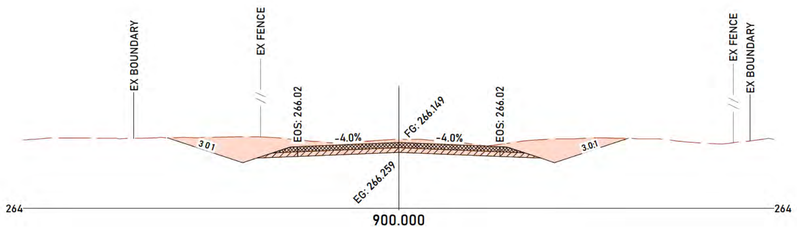

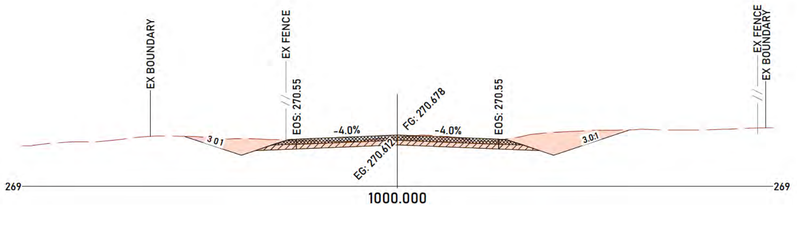

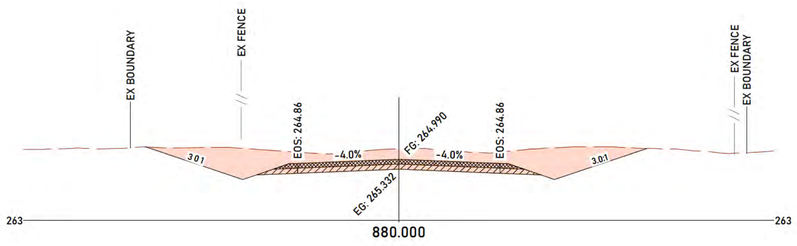

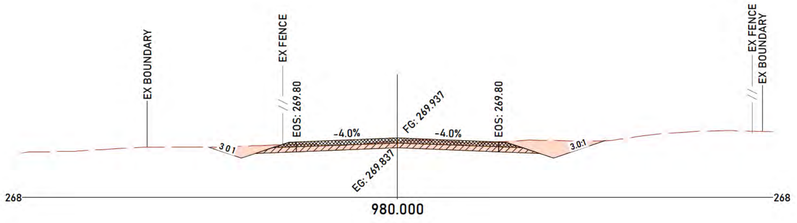

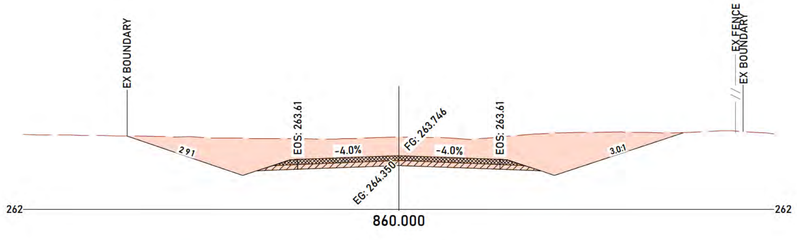

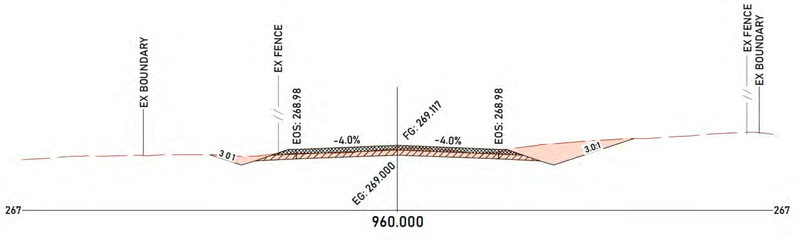

FOR APPROVAL

CLIENT: MATAKANUI GOLD LIMITED	PROJECT: BENDIGO-OPHIR GOLD PROJECT, BENDIGO & ARDGOUR STATIONS, CENTRAL OTAGO	bonisch	SHEET TITLE: THOMSON GORGE ROAD CROSS SECTION CH 880-1040				

REV	REVISION DETAILS	DATE	SURVEYED:			JOB NUMBER	SCALE (@ A1)
C	FOR APPROVAL	24/06/2025	DESIGNED:	CHM	23/03/2025	8755	1:100
D	FOR COUNCIL APPROVAL	4/07/2025	DRAWN:				REVISION
E	FOR COUNCIL APPROVAL	9/07/2025	DRAWING CHECK:			SHEET	G
F	FOR INTERNAL APPROVAL - CATTLE YARD CURVE AND PRIORITY CHANGE	24/07/2025	DESIGN CHECK:	JJR	24/06/2025	XS006	REVISION DATE
G	FOR COUNCIL APPROVAL - SEALED ROAD, INTERSECTION (TGR11) ADDED	7/08/2025	APPROVED:	JJR	24/06/2025		07/08/2025

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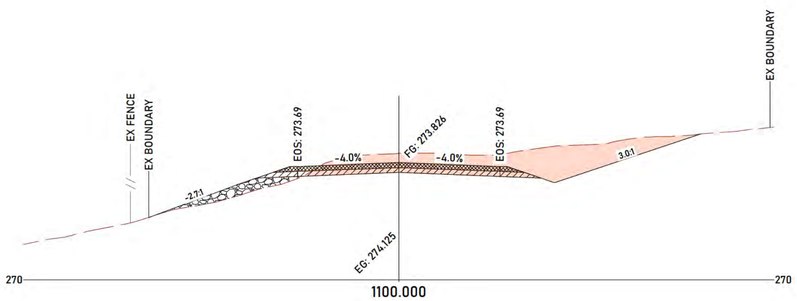

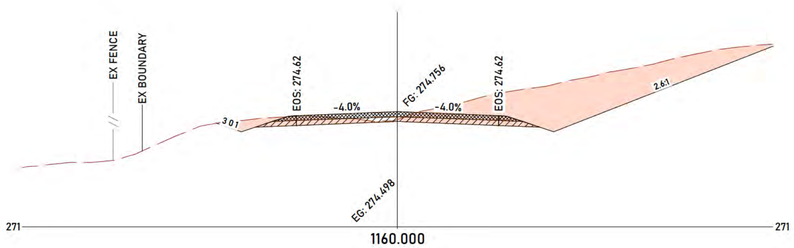

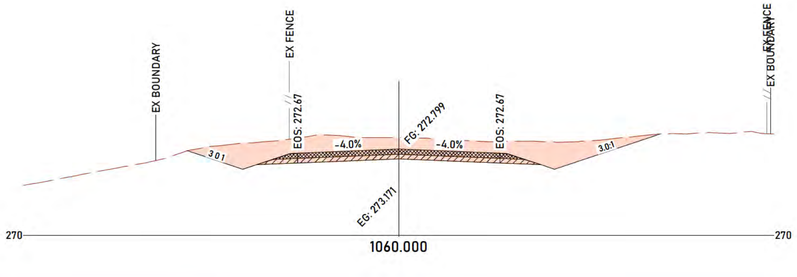

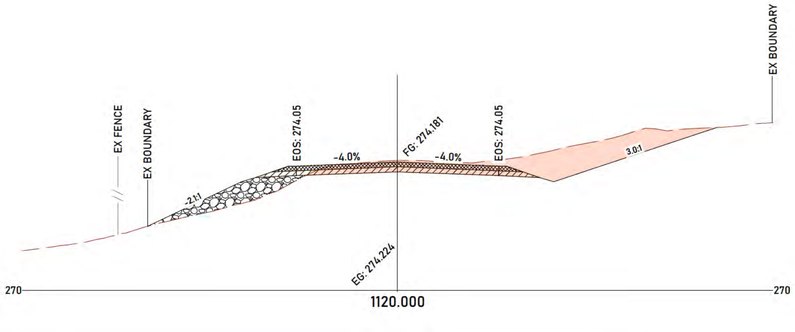

FOR APPROVAL

CLIENT: MATAKANUI GOLD LIMITED

PROJECT: BENDIGO-OPHIR GOLD PROJECT, BENDIGO & ARDGOUR STATIONS, CENTRAL OTAGO

bonisch

SHEET TITLE: THOMSON GORGE ROAD CROSS SECTION CH 1060-1160

REV	REVISION DETAILS	DATE
C	FOR APPROVAL	24/06/2025
D	FOR COUNCIL APPROVAL	4/07/2025
E	FOR COUNCIL APPROVAL	9/07/2025
F	FOR INTERNAL APPROVAL - CATTLE YARD CURVE AND PRIORITY CHANGE	24/07/2025
G	FOR COUNCIL APPROVAL - SEALED ROAD, INTERSECTION (TGR11) ADDED	7/08/2025

SURVEYED:			
DESIGNED:	CHM	23/03/2025	
DRAWN:			
DRAWING CHECK:			
DESIGN CHECK:	JJR	24/06/2025	
APPROVED:	JJR	24/06/2025	

JOB NUMBER 8755

SHEET XS007

SCALE (@ A1) 1:100

REVISION G

REVISION DATE 07/08/2025

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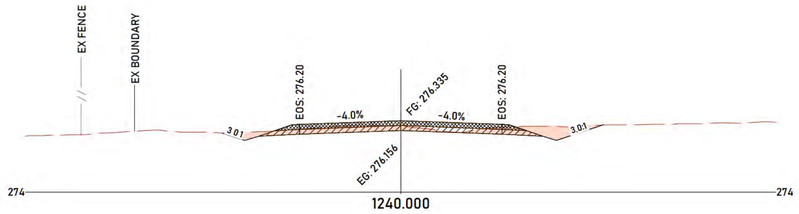

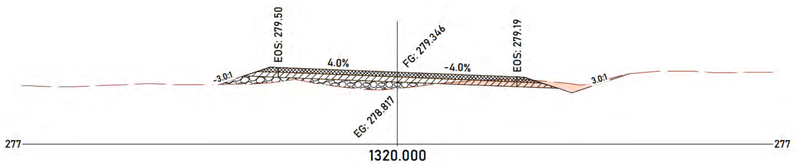

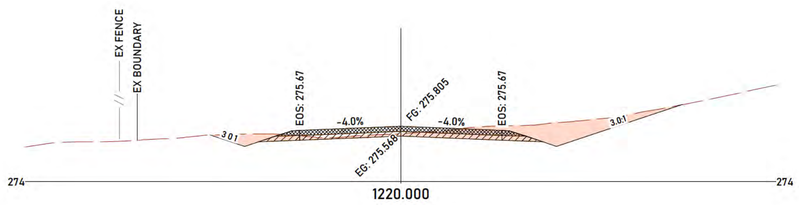

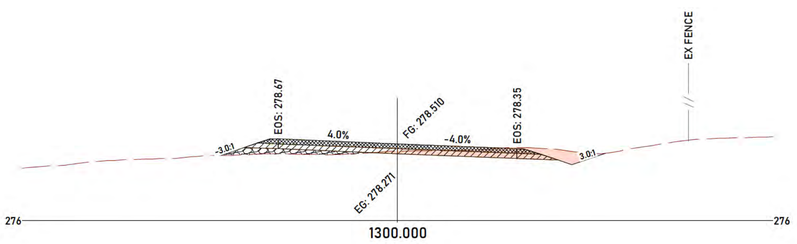

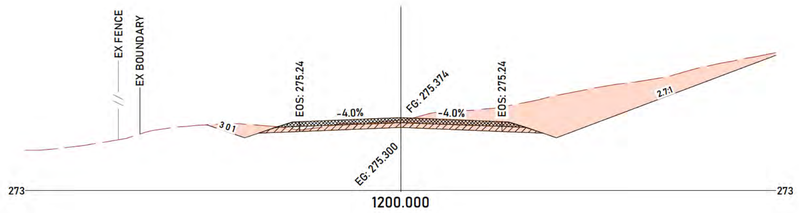

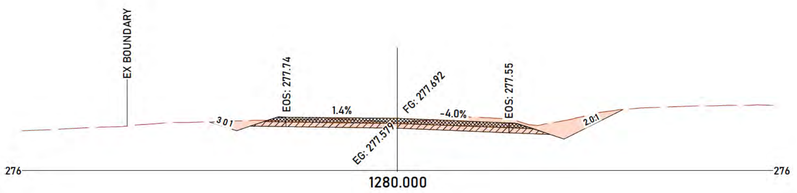

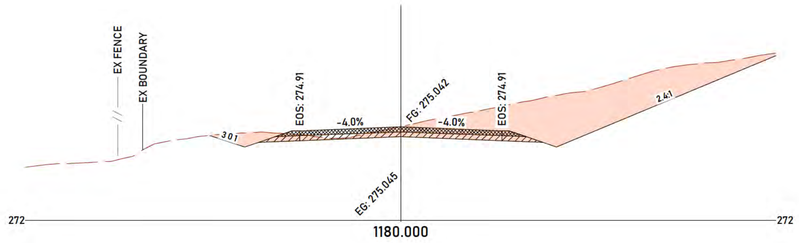

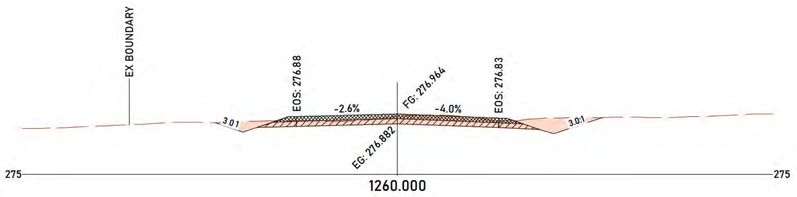

FOR APPROVAL

CLIENT: MATAKANUI GOLD LIMITED

PROJECT: BENDIGO-OPHIR GOLD PROJECT, BENDIGO & ARDGOUR STATIONS, CENTRAL OTAGO

bonisch

SHEET TITLE: THOMSON GORGE ROAD CROSS SECTION CH 1180-1320

REV	REVISION DETAILS	DATE	SURVEYED:		
C	FOR APPROVAL	24/06/2025	DESIGNED:	CHM	23/03/2025
D	FOR COUNCIL APPROVAL	4/07/2025	DRAWN:		
E	FOR COUNCIL APPROVAL	9/07/2025	DRAWING CHECK:		
F	FOR INTERNAL APPROVAL - CATTLE YARD CURVE AND PRIORITY CHANGE	24/07/2025	DESIGN CHECK:	JJR	24/06/2025
G	FOR COUNCIL APPROVAL - SEALED ROAD, INTERSECTION (TGR11) ADDED	7/08/2025	APPROVED:	JJR	24/06/2025

JOB NUMBER 8755

SHEET XS008

SCALE (@ A1) 1:100

REVISION G

REVISION DATE 07/08/2025

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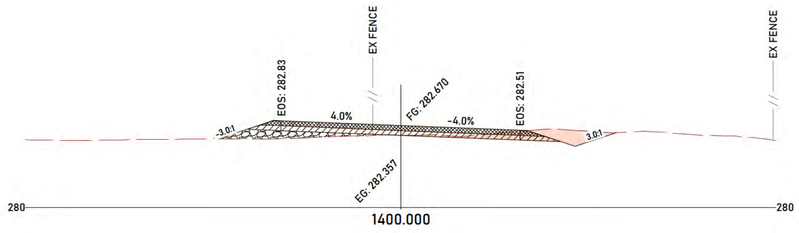

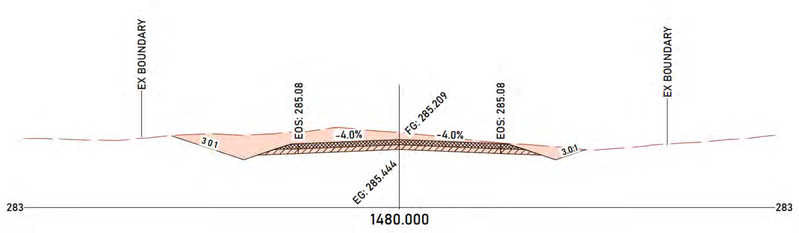

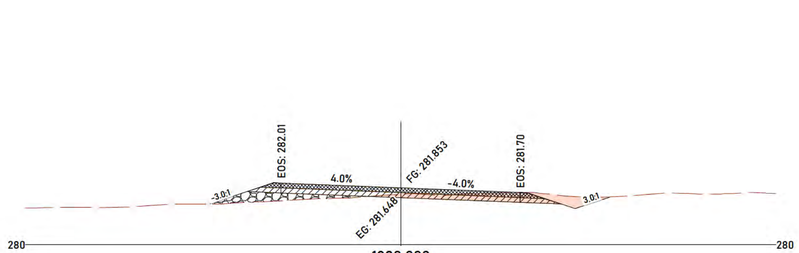

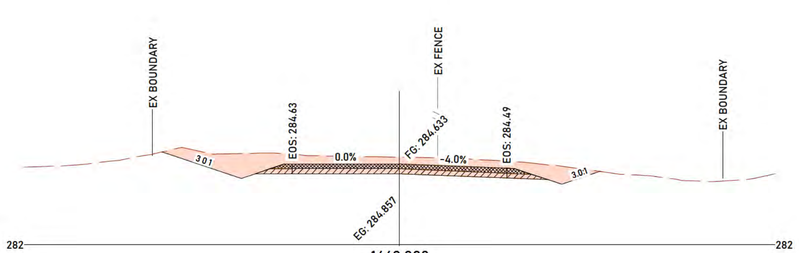

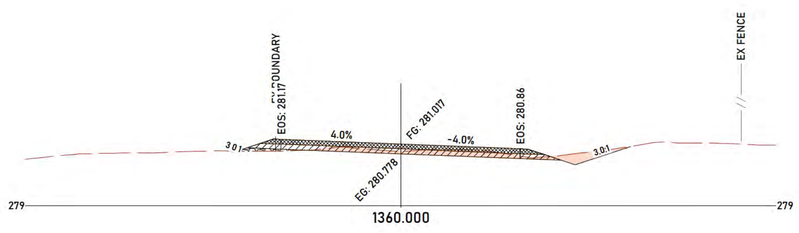

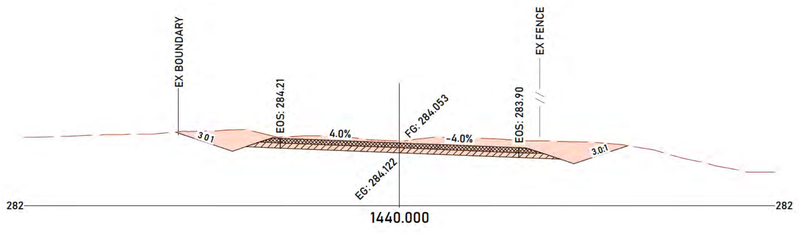

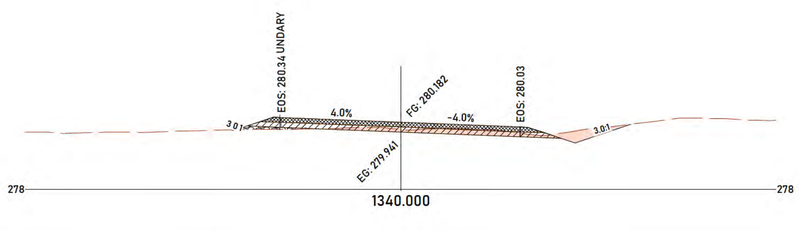

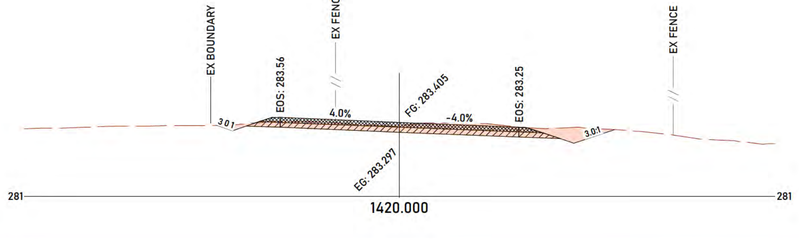

FOR APPROVAL

CLIENT: MATAKANUI GOLD LIMITED	PROJECT: BENDIGO-OPHIR GOLD PROJECT, BENDIGO & ARDGOUR STATIONS, CENTRAL OTAGO	bonisch	SHEET TITLE: THOMSON GORGE ROAD CROSS SECTION CH 1340-1480	JOB NUMBER: 8755	SCALE (@ A1): 1:100
				SHEET: XS009	REVISION: G
					REVISION DATE: 07/08/2025

REV	REVISION DETAILS	DATE	SURVEYED:		
C	FOR APPROVAL	24/06/2025	DESIGNED:	CHM	23/03/2025
D	FOR COUNCIL APPROVAL	4/07/2025	DRAWN:		
E	FOR COUNCIL APPROVAL	9/07/2025	DRAWING CHECK:		
F	FOR INTERNAL APPROVAL - CATTLE YARD CURVE AND PRIORITY CHANGE	24/07/2025	DESIGN CHECK:	JJR	24/06/2025
G	FOR COUNCIL APPROVAL - SEALED ROAD, INTERSECTION (TGR11) ADDED	7/08/2025	APPROVED:	JJR	24/06/2025

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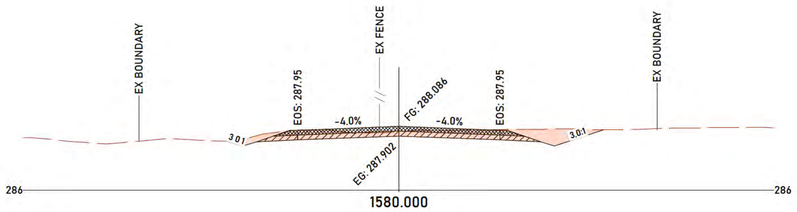

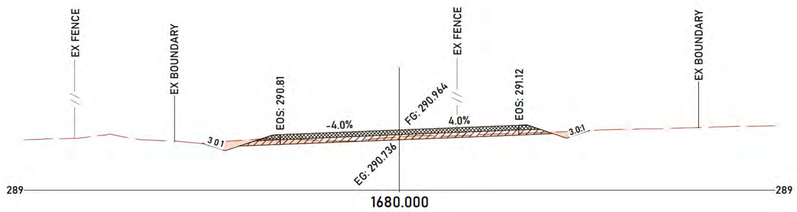

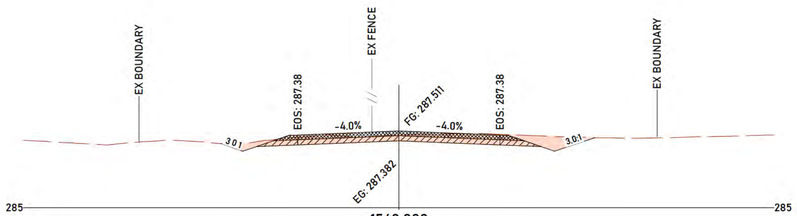

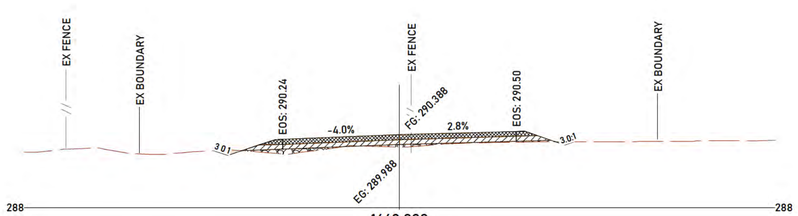

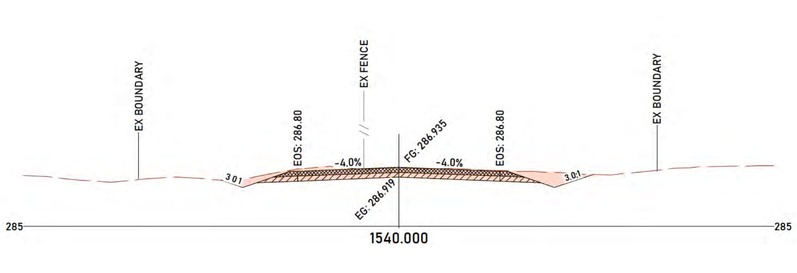

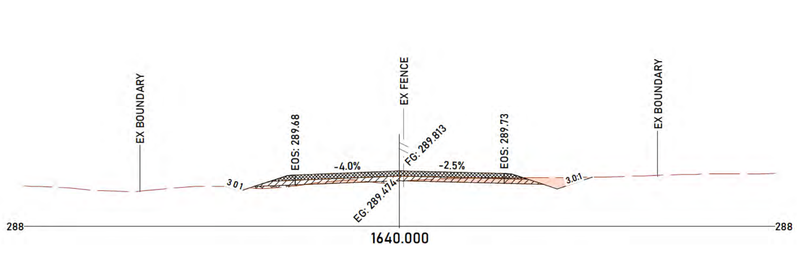

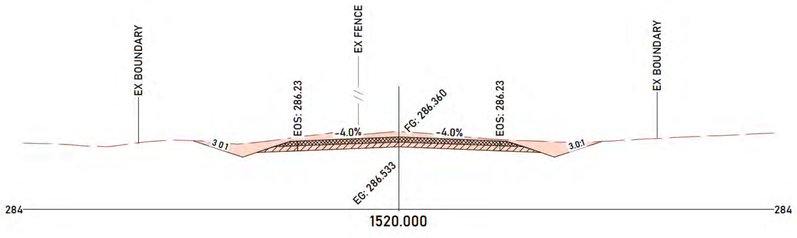

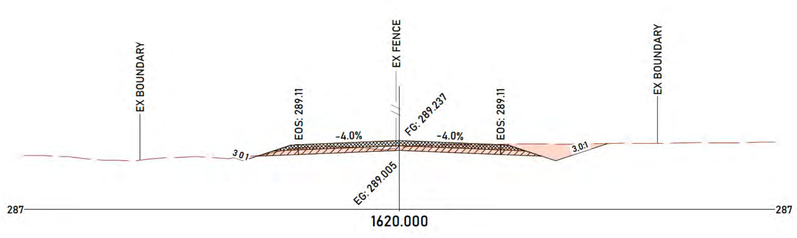

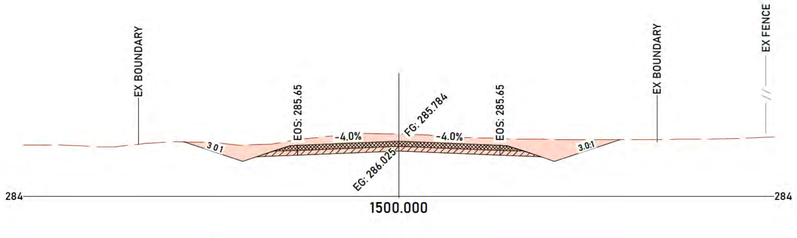

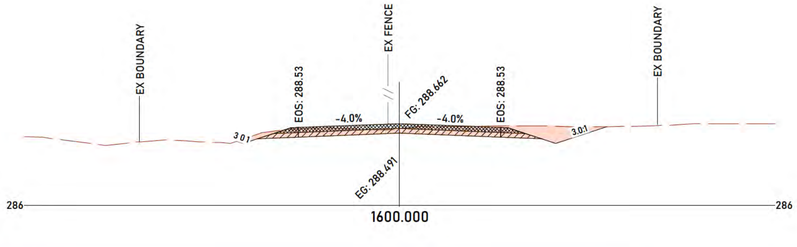

FOR APPROVAL

CLIENT: MATAKANUI GOLD LIMITED	PROJECT: BENDIGO-OPHIR GOLD PROJECT, BENDIGO & ARDGOUR STATIONS, CENTRAL OTAGO	bonisch	SHEET TITLE: THOMSON GORGE ROAD CROSS SECTION CH 1500-1680

REV	REVISION DETAILS	DATE	SURVEYED:		
C	FOR APPROVAL	24/06/2025	DESIGNED:	CHM	23/03/2025
D	FOR COUNCIL APPROVAL	4/07/2025	DRAWN:		
E	FOR COUNCIL APPROVAL	9/07/2025	DRAWING CHECK:		
F	FOR INTERNAL APPROVAL - CATTLE YARD CURVE AND PRIORITY CHANGE	24/07/2025	DESIGN CHECK:	JJR	24/06/2025
G	FOR COUNCIL APPROVAL - SEALED ROAD, INTERSECTION (TGR11) ADDED	7/08/2025	APPROVED:	JJR	24/06/2025

JOB NUMBER 8755 | SCALE (@ A1) 1:100 | REVISION G | SHEET XS010 | REVISION DATE 07/08/2025

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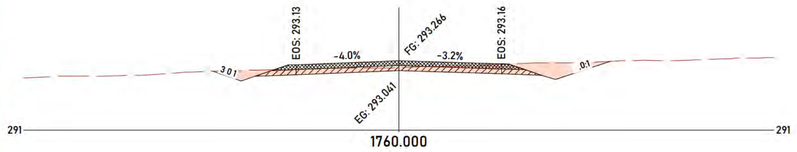

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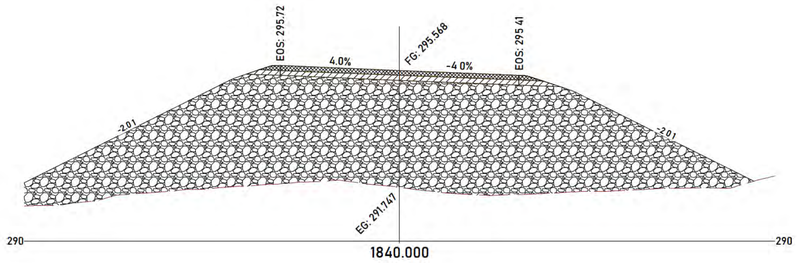

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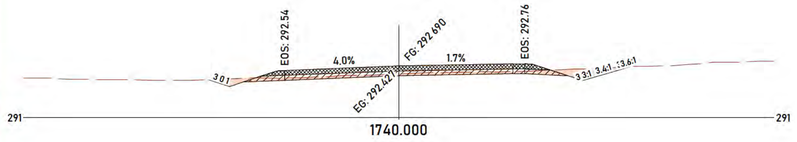

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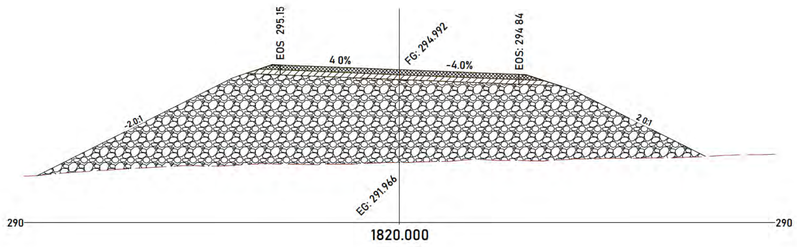

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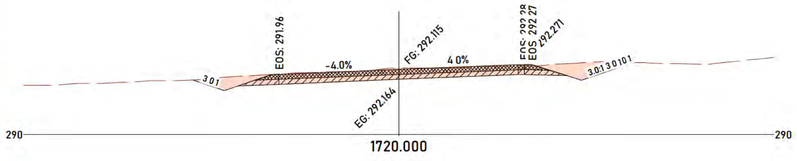

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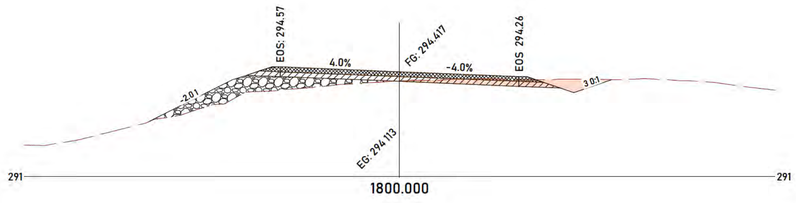

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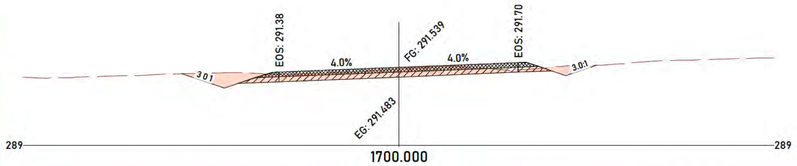

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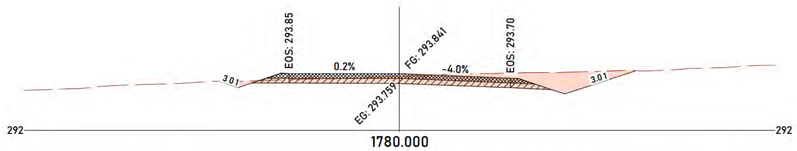


1780.000

FOR APPROVAL

CLIENT: MATAKANUI GOLD LIMITED

PROJECT: BENDIGO-OPHIR GOLD PROJECT, BENDIGO & ARDGOUR STATIONS, CENTRAL OTAGO

bonisch

SHEET TITLE: THOMSON GORGE ROAD CROSS SECTION CH 1700-1840

REV	REVISION DETAILS	DATE	SURVEYED:		
C	FOR APPROVAL	24/06/2025	DESIGNED:	CHM	23/03/2025
D	FOR COUNCIL APPROVAL	4/07/2025	DRAWN:		
E	FOR COUNCIL APPROVAL	9/07/2025	DRAWING CHECK:		
F	FOR INTERNAL APPROVAL - CATTLE YARD CURVE AND PRIORITY CHANGE	24/07/2025	DESIGN CHECK:	JJR	24/06/2025
G	FOR COUNCIL APPROVAL - SEALED ROAD, INTERSECTION (TGR11) ADDED	7/08/2025	APPROVED:	JJR	24/06/2025

JOB NUMBER 8755

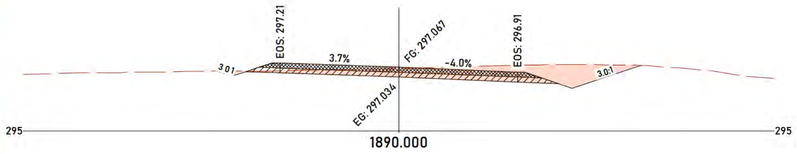
SHEET XS011

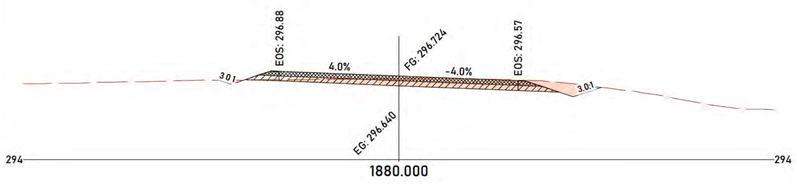
SCALE (@ A1) 1:100

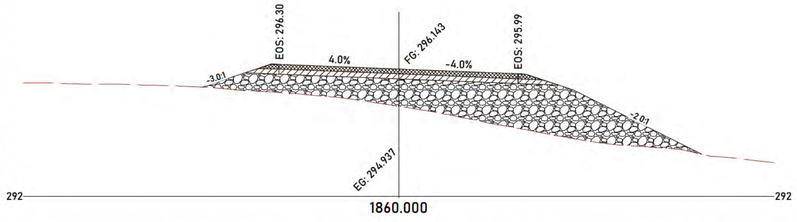
REVISION G

REVISION DATE 07/08/2025

Last Edited by: Chris on 7/08/2025 2:19:55 pm C:\Bonisch\Bonisch Consultants\Bonisch Consultants Team Site - Jobs\8700 - 8799\8755 Bendigo-Ophir Gold Project\04 CAD\02 Print\8755 - ROADING XSEC.dwg (TGR-XS_11)







FOR APPROVAL

CLIENT: MATAKANUI GOLD LIMITED

PROJECT: BENDIGO-OPHIR GOLD PROJECT, BENDIGO & ARDGOUR STATIONS, CENTRAL OTAGO

bonisch

SHEET TITLE: THOMSON GORGE ROAD CROSS SECTION CH 1840-1890

REV	REVISION DETAILS	DATE
C	FOR APPROVAL	24/06/2025
D	FOR COUNCIL APPROVAL	4/07/2025
E	FOR COUNCIL APPROVAL	9/07/2025
F	FOR INTERNAL APPROVAL - CATTLE YARD CURVE AND PRIORITY CHANGE	24/07/2025
G	FOR COUNCIL APPROVAL - SEALED ROAD, INTERSECTION (TGR11) ADDED	7/08/2025

SURVEYED:		
DESIGNED:	CHM	23/03/2025
DRAWN:		
DRAWING CHECK:		
DESIGN CHECK:	JJR	24/06/2025
APPROVED:	JJR	24/06/2025

JOB NUMBER 8755

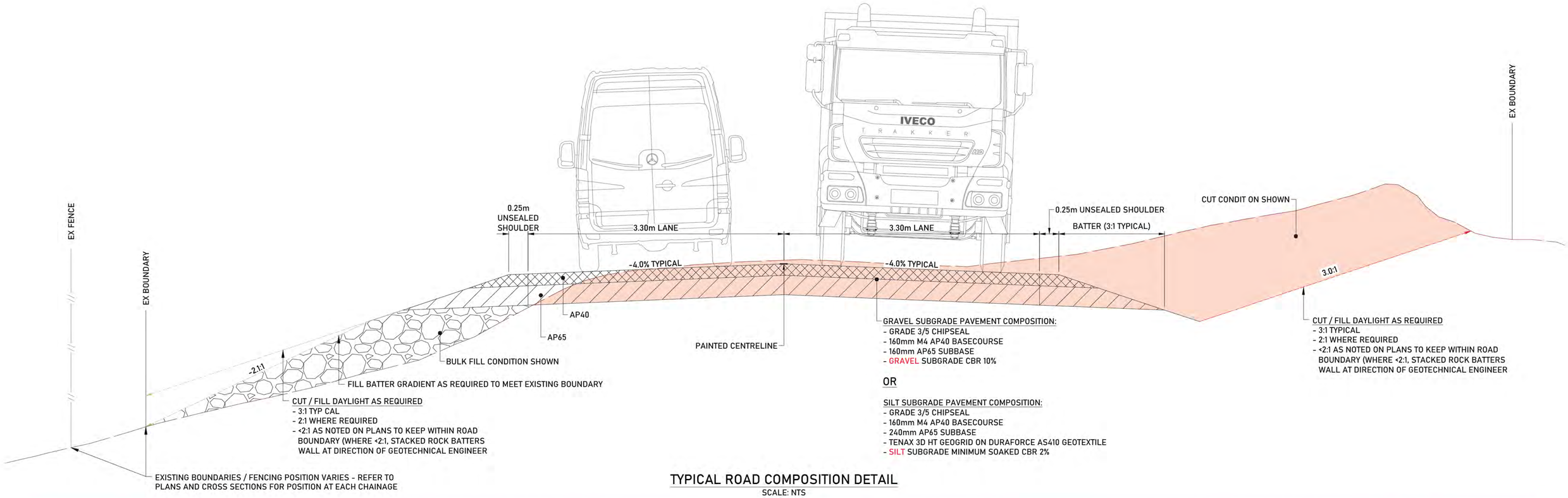
SHEET XS012

SCALE (@ A1) 1:100

REVISION G

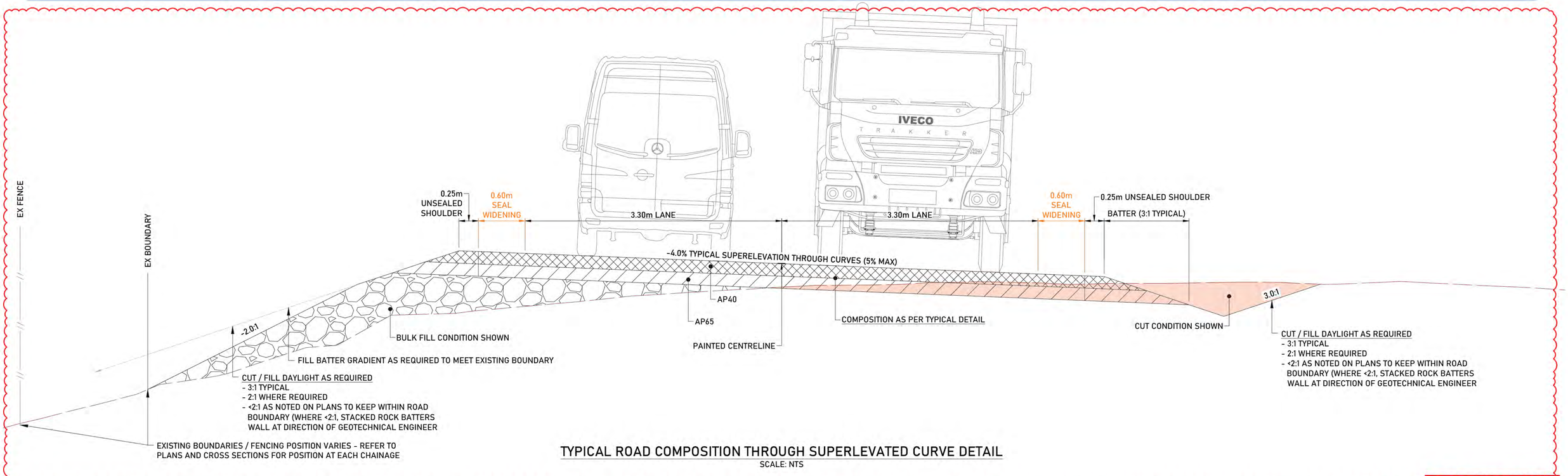
REVISION DATE 07/08/2025

Last Edited by: Chris on 7/08/2025 2:19:55 pm C:\Bonisch\Bonisch Consultants\Bonisch Consultants Team Site - JOBS\8700 - 8799\8755 Bendigo-Ophir Gold Project\04 CAD\02 Print\8755 - ROADING XSEC.dwg (TGR-XS_12)



TYPICAL ROAD COMPOSITION DETAIL

SCALE: NTS



TYPICAL ROAD COMPOSITION THROUGH SUPERLEVATED CURVE DETAIL

SCALE: NTS

FOR APPROVAL

CLIENT: MATAKANUI GOLD LIMITED

PROJECT: BENDIGO-OPHIR GOLD PROJECT, BENDIGO & ARDGOUR STATIONS, CENTRAL OTAGO

bonisch

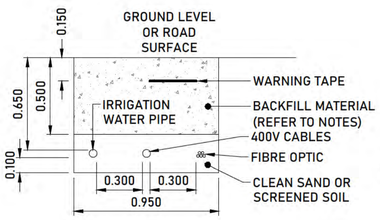
SHEET TITLE: TYPICAL DETAILS

REV	REVISION DETAILS	DATE
C	FOR APPROVAL	24/06/2025
D	FOR COUNCIL APPROVAL	4/07/2025
E	FOR COUNCIL APPROVAL	9/07/2025
F	FOR INTERNAL APPROVAL - CATTLE YARD CURVE AND PRIORITY CHANGE	24/07/2025
G	FOR COUNCIL APPROVAL - SEALED ROAD, INTERSECTION (TGR11) ADDED	7/08/2025

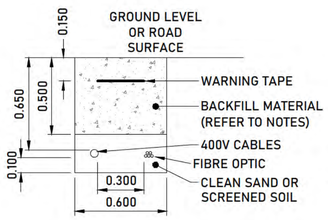
SURVEYED:			
DESIGNED:	CHM	23/03/2025	
DRAWN:			
DRAWING CHECK:			
DESIGN CHECK:	JJR	24/06/2025	
APPROVED:	JJR	24/06/2025	

JOB NUMBER 8755 | SCALE (@ A1) NTS | REVISION G | SHEET DTL001 | REVISION DATE 07/08/2025

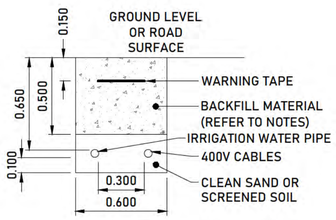
Last Edited by: Chris on 7/08/2025 2:11:52 pm C:\Bonisch\Bonisch Consultants\Bonisch Consultants Team Site - JOB\8700 - 8799\8755 Bendigo-Ophir Gold Project\06 CAD\02 Prin\8755 - ROADING DTL.dwg (DTL)



IRRIGATION, POWER & TELECOM



POWER & TELECOM



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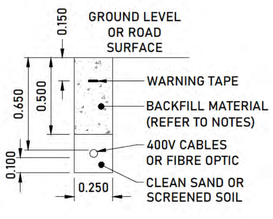
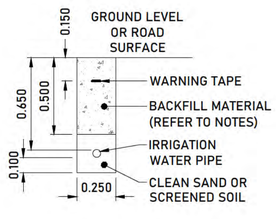
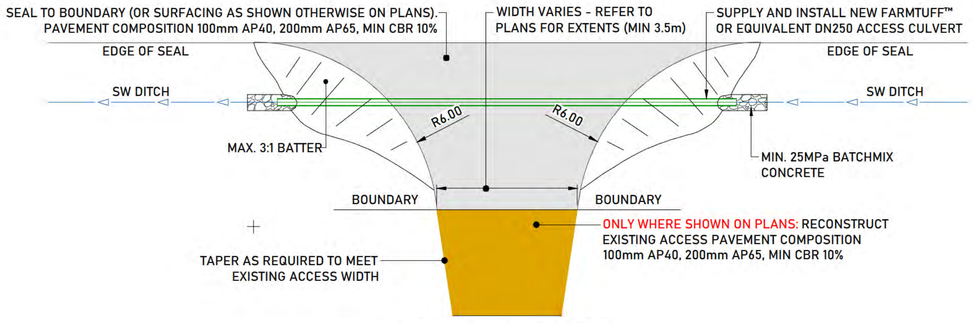


LV OR TELECOM ONLY

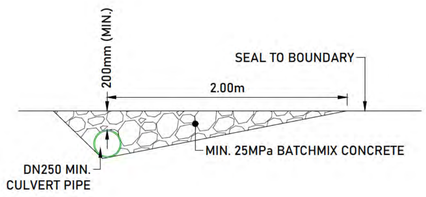


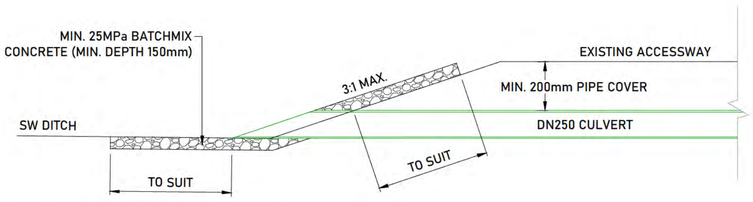
IRRIGATION ONLY

DETAIL TBC UPON CONFIRMATION OF REQUIRED SERVICING

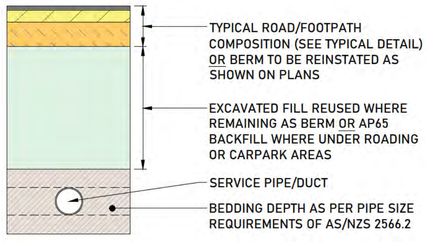


TYPICAL ACCESS DETAIL
SCALE: NTS



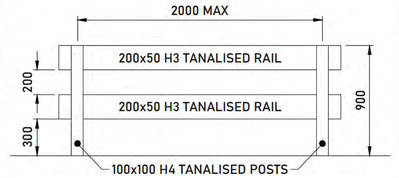


TYPICAL ACCESS HEAD WALL DETAIL
SCALE: NTS



BEDDING AND BACKFILLING
TYPICAL DETAIL
NTS

SIGHT RAIL DETAIL NOTES:
- ALL DIMENSIONS SHOWN IN mm
- ALL TIMBER TO BE PAINTED WHITE
- POSTS TO BE SET 600mm (MIN) INTO GROUND



SIGHT RAIL TYPICAL DETAIL
NTS

FOR APPROVAL

CLIENT: MATAKANUI GOLD LIMITED	PROJECT: BENDIGO-OPHIR GOLD PROJECT, BENDIGO & ARDGOUR STATIONS, CENTRAL OTAGO	bonisch	SHEET TITLE: TYPICAL DETAILS (CONTINUED)	JOB NUMBER 8755	SCALE (@ A1) NTS
				SHEET DTL002	REVISION G
					REVISION DATE 07/08/2025

REV	REVISION DETAILS	DATE	SURVEYED:		
C	FOR APPROVAL	24/06/2025	DESIGNED:	CHM	23/03/2025
D	FOR COUNCIL APPROVAL	4/07/2025	DRAWN:		
E	FOR COUNCIL APPROVAL	9/07/2025	DRAWING CHECK:		
F	FOR INTERNAL APPROVAL - CATTLE YARD CURVE AND PRIORITY CHANGE	24/07/2025	DESIGN CHECK:	JJR	24/06/2025
G	FOR COUNCIL APPROVAL - SEALED ROAD, INTERSECTION (TGR11) ADDED	7/08/2025	APPROVED:	JJR	24/06/2025

Last Edited by: Chris on 7/08/2025 2:11:52 pm C:\Bonisch\Bonisch Consultants\Bonisch Consultants Team Site - JOB\8700 - 8799\8755 Bendigo-Ophir Gold Project\06 CAD\02 Print\8755 - ROADING DTL.dwg (DTL2)

Appendix C SH8 / Ardgour Road

DO NOT SCALE - IF IN DOUBT, ASK

ORIGINAL SIZE A1

1. DO NOT SCALE THIS DRAWING
2. FEASIBILITY DESIGN DRA ING - LAYOUT SUBJECT TO DESIGN REFINEMENT AND NZTA APPROVAL
3. PROPERTY BOUNDARIES HAVE BEEN OBTAINED FROM LINZ INFORMATION
4. EXTENT OF ANY EARTHWORKS RELATING TO ROAD WIDENING TO BE DETERMINED
5. NOMINAL 1.5m WIDE ROAD SHOULDER TO EDGE OF SEAL IS SHOWN ALONG EXTENT OF WORKS

NOT FOR CONSTRUCTION

REV	REVISIONS	DRN	CHK	APP	DATE
A	FOR CONSENT	AKJ	CR	AM	04.25

SURVEYED		
DESIGNED	A Metherell	04.25
DRAWN	A Jagodzinski	04.25
CAD REVIEW		
DESIGN CHECK		
DESIGN REVIEW	C Rossiter	04.25
APPROVED	A Metherell	04.25
PROF REGISTRATION:		

Stantec

Client: MATAKANUI GOLD LIMITED

BENDIGO - OPHIR GOLD PROJECT

SH8 INTERSECTION TREATMENT
RIGHT TURN BAY - FEASIBILITY DESIGN

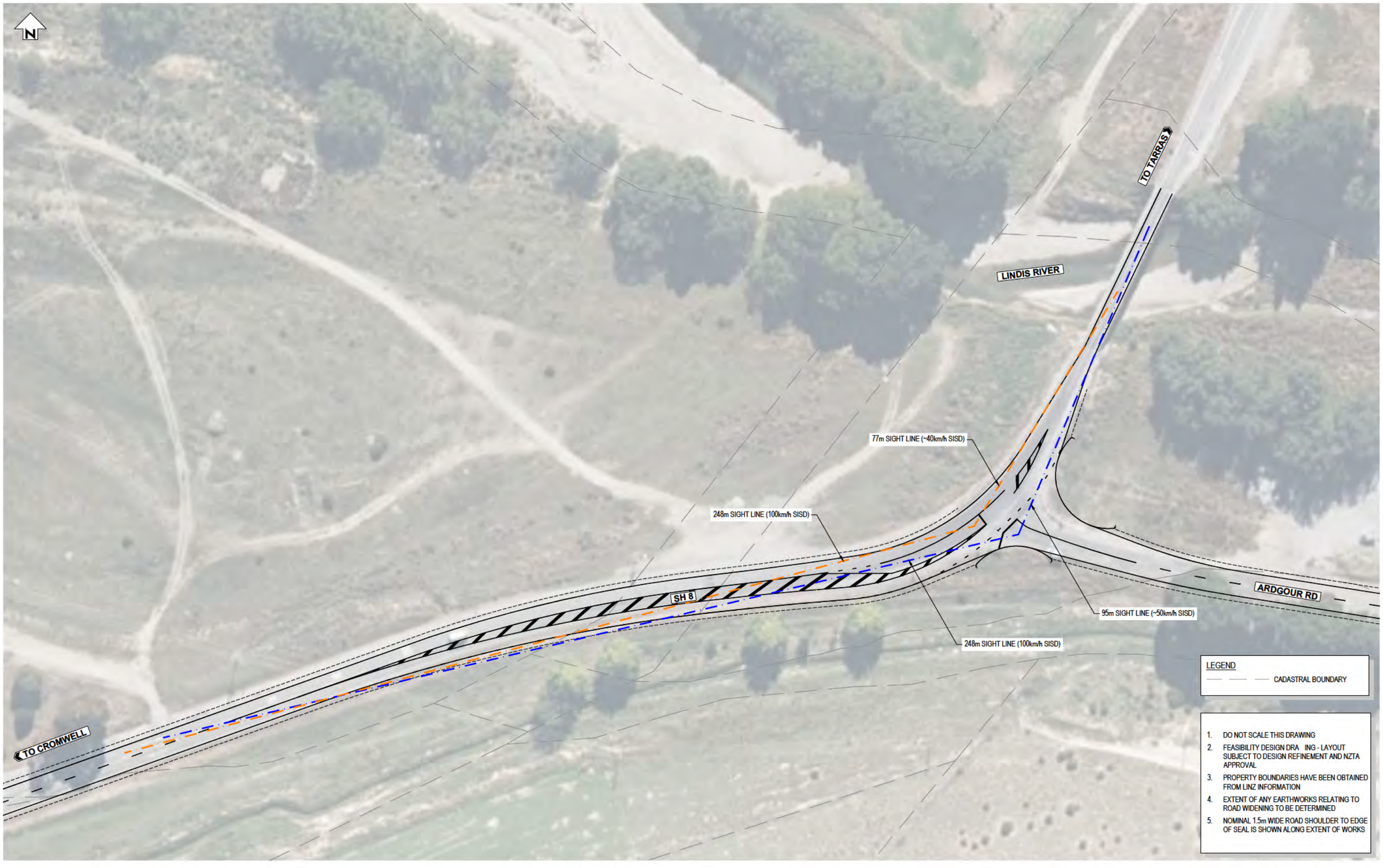
Status Stamp: **FOR INFORMATION**

Date Stamp: **08.04.2025**

Scales: 1:1000@A1 1:2000@A3

Drawing No.: 310206156-01-001-C030

Rev.: A



1. DO NOT SCALE THIS DRAWING
2. FEASIBILITY DESIGN DRA ING - LAYOUT SUBJECT TO DESIGN REFINEMENT AND NZTA APPROVAL
3. PROPERTY BOUNDARIES HAVE BEEN OBTAINED FROM LINZ INFORMATION
4. EXTENT OF ANY EARTHWORKS RELATING TO ROAD WIDENING TO BE DETERMINED
5. NOMINAL 1.5m WIDE ROAD SHOULDER TO EDGE OF SEAL IS SHOWN ALONG EXTENT OF WORKS

DO NOT SCALE - IF IN DOUBT, ASK

ORIGINAL SIZE A1

NOT FOR CONSTRUCTION

REV	REVISIONS	DRN	CHK	APP	DATE
A	FOR CONSENT	AKJ	CR	AM	04.25

SURVEYED		
DESIGNED	A Metherell	04.25
DRAWN	A Jagodzinski	04.25
CAD REVIEW		
DESIGN CHECK		
DESIGN REVIEW	C Rossiter	04.25
APPROVED	A Metherell	04.25
PROF REGISTRATION:		

Stantec

Client: MATAKANUI GOLD LIMITED

BENDIGO - OPHIR GOLD PROJECT

SH8 INTERSECTION TREATMENT
RIGHT TURN BAY - FEASIBILITY DESIGN - SIGHTLINES

Status Stamp: **FOR INFORMATION**

Date Stamp: **08.04.2025**

Scales: 1:1000@A1 1:2000@A3

Drawing No.: 310206156-01-001-C031

Rev.: A

LTNZ-19ST-125R (19.0M SEMI TRAILER)

	meters		meters
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 24.1
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

LEGEND

CADASTRAL BOUNDARY

1. DO NOT SCALE THIS DRAWING
2. FEASIBILITY DESIGN DRA ING - LAYOUT SUBJECT TO DESIGN REFINEMENT AND NZTA APPROVAL
3. PROPERTY BOUNDARIES HAVE BEEN OBTAINED FROM LINZ INFORMATION
4. EXTENT OF ANY EARTHWORKS RELATING TO ROAD WIDENING TO BE DETERMINED
5. NOMINAL 1.5m WIDE ROAD SHOULDER TO EDGE OF SEAL IS SHOWN ALONG EXTENT OF WORKS

DO NOT SCALE - IF IN DOUBT, ASK

ORIGINAL SIZE A1

NOT FOR CONSTRUCTION

REV	REVISIONS	DRN	CHK	APP	DATE
A	FOR CONSENT	AKJ	CR	AM	04.25

SURVEYED		
DESIGNED	A Metherell	04.25
DRAWN	A Jagodzinski	04.25
CAD REVIEW		
DESIGN CHECK		
DESIGN REVIEW	C Rossiter	04.25
APPROVED	A Metherell	04.25
PROF REGISTRATION:		

Stantec

Client: MATAKANUI GOLD LIMITED

BENDIGO - OPHIR GOLD PROJECT

SH8 INTERSECTION TREATMENT
RIGHT TURN BAY - FEASIBILITY DESIGN - VEHICLE TRACKING ANALYSIS

Status Stamp: **FOR INFORMATION**

Date Stamp: **08.04.2025**

Scales: 1:200@A1 1:400@A3

Drawing No.: 310206156-01-001-C032

Rev.: A

Appendix D SH8 / Ardgour Road Preliminary Safety Assessment

Table D-1: Existing Situation

	Run-off road	Head-on	Intersection	Other	Pedestrian	Cyclist	Motorcyclists
Exposure Comments:	SH8: 3,100 vpd Ardgour Road: 250 vpd	SH8: 3,100 vpd Ardgour Road: 250 vpd	SH8: 3,100 vpd Ardgour Road: 250 vpd	SH8: 3,100 vpd Ardgour Road: 250 vpd	No footpaths or trails present	Expected to be very low volume	SH8: < 30 vpd (1% of all traffic)
Exposure Score:	2/4	2/4	2/4	2/4	0/4	1/4	2/4
Likelihood Comments:	Factors that increase the likelihood include: • High speed environment • Narrow shoulders • Curve radii • Reverse curves • Faded edge lines	Factors that increase the likelihood include: • High speed environment • Reverse curves • Single lane bridge • Forward visibility to queues • Visibility across the bridge	Factors that increase the likelihood include: • High speed environment • Obstructed sightlines • Proximity to bridge • No channelisation or seal widening • Narrow carriageway	Factors that increase the likelihood include: • Unfamiliar drivers (High seasonal flows) • Fatigue • Adverse weather • Sun strike	Factors that increase the likelihood include: • No footpaths over bridge	Factors that increase the likelihood include: • High speed environment • Single lane bridge	Factors that increase the likelihood include: • High speed environment • Single lane bridge
	Factors that decrease the likelihood include: • Barriers on bridge and approaches • Gated warning signs • Edge lines (faded) • Chevron boards • Reflector posts • Shallow, recoverable berms	Factors that decrease the likelihood include: • Centre line marking • Gated warning signs • Speed advisory signs	Factors that decrease the likelihood include: • Give-way controls	Factors that decrease the likelihood include: •	Factors that decrease the likelihood include: • Very low demand	Factors that decrease the likelihood include: •	Factors that decrease the likelihood include: •
Likelihood Score:	3/4	3/4	3/4	3/4	0/4	1/4	3/4
Severity Comments:	Factors that increase the severity include: • High speed environment •	Factors that increase the severity include: • High speed environment •	Factors that increase the severity include: • High speed environment • Side impact crashes	Factors that increase the severity include: • High speed environment •	Factors that increase the severity include: • High speed environment • Vulnerable road user	Factors that increase the severity include: • High speed environment • Vulnerable road user	Factors that increase the severity include: • High speed environment •
	Factors that decrease the severity include: • Speeds moderated by advisories • Roadside hazards set back from carriageway	Factors that decrease the severity include: • Speeds moderated by advisories	Factors that decrease the severity include: • Speeds moderated by advisories	Factors that decrease the severity include: • Speeds moderated by advisories	Factors that decrease the severity include: • Speeds moderated by advisories	Factors that decrease the severity include: • Speeds moderated by advisories	Factors that decrease the severity include: • Speeds moderated by advisories
Severity Score:	3/4	3/4	3/4	3/4	4/4	4/4	4/4
Product **(multiply scores above for crash type)**	**18/64**	**18/64**	**18/64**	**18/64**	**0/64**	**4/64**	**24/64**
						TOTAL	**100/448**

Table D-2: BODG (Construction / Operational Phase) - Existing Road Environment

	Run-off road	Head-on	Intersection	Other	Pedestrian	Cyclist	Motorcyclists
Exposure Comments:	SH8: 3,400 vpd Ardgour Road: 600 vpd	SH8: 3,400 vpd Ardgour Road: 600 vpd	SH8: 3,400 vpd Ardgour Road: 600 vpd	SH8: 3,400 vpd Ardgour Road: 600 vpd	No footpaths or trails present	Expected to be very low volume	SH8: < 30 vpd (1% of all traffic)
Exposure Score:	2/4	2/4	2/4	2/4	0/4	1/4	2/4
Likelihood Comments:	Factors that increase the likelihood include: • High speed environment • Narrow shoulders • Curve radii • Reverse curves • Faded edge lines	Factors that increase the likelihood include: • High speed environment • Reverse curves • Single lane bridge • Forward visibility to queues • Visibility across the bridge	Factors that increase the likelihood include: • High speed environment • Obstructed sightlines • Proximity to bridge • No channelisation or seal widening • Narrow carriageway • Higher turning volumes • Slow moving heavy vehicles	Factors that increase the likelihood include: • Unfamiliar drivers (High seasonal flows) • Fatigue • Adverse weather • Sun strike	Factors that increase the likelihood include: • No footpaths over bridge •	Factors that increase the likelihood include: • High speed environment Single lane bridge	Factors that increase the likelihood include: • High speed environment • Single lane bridge
	Factors that decrease the likelihood include: • Barriers on bridge and approaches • Gated warning signs • Edge lines (faded) • Chevron boards • Reflector posts • Shallow, recoverable berms	Factors that decrease the likelihood include: • Centre line marking • Gated warning signs • Speed advisory signs	Factors that decrease the likelihood include: • Give-way controls •	Factors that decrease the likelihood include: • •	Factors that decrease the likelihood include: • Very low demand	Factors that decrease the likelihood include: •	Factors that decrease the likelihood include: •
Likelihood Score:	3/4	3/4	4/4	3/4	0/4	1/4	3/4
Severity Comments:	Factors that increase the severity include: • High speed environment • Heavy Vehicles	Factors that increase the severity include: • High speed environment • Heavy Vehicles	Factors that increase the severity include: • High speed environment • Side impact crashes • Heavy Vehicles	Factors that increase the severity include: • High speed environment • Heavy Vehicles	Factors that increase the severity include: • High speed environment • Vulnerable road user • Heavy Vehicles	Factors that increase the severity include: • High speed environment • Vulnerable road user • Heavy Vehicles	Factors that increase the severity include: • High speed environment • Heavy Vehicles
	Factors that decrease the severity include: • Speeds moderated by advisories • Roadside hazards set back from carriageway	Factors that decrease the severity include: • Speeds moderated by advisories	Factors that decrease the severity include: • Speeds moderated by advisories	Factors that decrease the severity include: • Speeds moderated by advisories	Factors that decrease the severity include: • Speeds moderated by advisories	Factors that decrease the severity include: • Speeds moderated by advisories	Factors that decrease the severity include: • Speeds moderated by advisories
Severity Score:	4/4	4/4	3/4	3/4	4/4	4/4	4/4
Product **(multiply scores above for crash type)**	**24/64**	**24/64**	**24/64**	**18/64**	**0/64**	**4/64**	**24/64**
						TOTAL	**118/448**

Table D-3: BODG (Construction / Operational Phase) – Do Minimum

	Run-off road	Head-on	Intersection	Other	Pedestrian	Cyclist	Motorcyclists
Exposure Comments:	SH8: 3,400 vpd Ardgour Road: 600 vpd	SH8: 3,400 vpd Ardgour Road: 600 vpd	SH8: 3,400 vpd Ardgour Road: 600 vpd	SH8: 3,400 vpd Ardgour Road: 600 vpd	No footpaths or trails present	Expected to be very low volume	SH8: < 30 vpd (1% of all traffic)
Exposure Score:	2/4	2/4	2/4	2/4	0/4	1/4	2/4
Likelihood Comments:	Factors that increase the likelihood include: • High speed environment • Narrow shoulders • Curve radii • Reverse curves • ~~Faded edge lines~~	Factors that increase the likelihood include: • High speed environment • Reverse curves • Single lane bridge • Forward visibility to queues • Visibility across the bridge	Factors that increase the likelihood include: • High speed environment • Obstructed sightlines • Proximity to bridge • No channelisation or seal widening • Narrow carriageway • Higher turning volumes • Slow moving heavy vehicles	Factors that increase the likelihood include: • Unfamiliar drivers (High seasonal flows) • Fatigue • Adverse weather • Sun strike	Factors that increase the likelihood include: • No footpaths over bridge •	Factors that increase the likelihood include: • High speed environment Single lane bridge	Factors that increase the likelihood include: • High speed environment • Single lane bridge
	Factors that decrease the likelihood include: • Barriers on bridge and approaches • Gated warning signs • Edge lines • Chevron boards • Reflector posts • Shallow, recoverable berms	Factors that decrease the likelihood include: • Centre line marking • Gated warning signs • Speed advisory signs	Factors that decrease the likelihood include: • Give-way controls • Increased sight distances	Factors that decrease the likelihood include: • •	Factors that decrease the likelihood include: • Very low demand	Factors that decrease the likelihood include: •	Factors that decrease the likelihood include: •
Likelihood Score:	3/4	3/4	3/4	3/4	0/4	1/4	3/4
Severity Comments:	Factors that increase the severity include: • High speed environment • Heavy Vehicles	Factors that increase the severity include: • High speed environment • Heavy Vehicles	Factors that increase the severity include: • High speed environment • Side impact crashes • Heavy Vehicles	Factors that increase the severity include: • High speed environment • Heavy Vehicles	Factors that increase the severity include: • High speed environment • Vulnerable road user • Heavy Vehicles	Factors that increase the severity include: • High speed environment • Vulnerable road user • Heavy Vehicles	Factors that increase the severity include: • High speed environment • Heavy Vehicles
	Factors that decrease the severity include: • Speeds moderated by advisories • Roadside hazards set back from carriageway	Factors that decrease the severity include: • Speeds moderated by advisories	Factors that decrease the severity include: • Speeds moderated by advisories	Factors that decrease the severity include: • Speeds moderated by advisories	Factors that decrease the severity include: • Speeds moderated by advisories	Factors that decrease the severity include: • Speeds moderated by advisories	Factors that decrease the severity include: • Speeds moderated by advisories
Severity Score:	4/4	4/4	3/4	3/4	4/4	4/4	4/4
Product **(multiply scores above for crash type)**	**24/64**	**24/64**	**18/64**	**18/64**	**0/64**	**4/64**	**24/64**
						TOTAL	**112/448**

Table D-4: BODG (Construction / Operational Phase) - Right Turn Bay

	Run-off road	Head-on	Intersection	Other	Pedestrian	Cyclist	Motorcyclists
Exposure Comments:	SH8: 3,400 vpd Ardgour Road: 600 vpd	SH8: 3,400 vpd Ardgour Road: 600 vpd	SH8: 3,400 vpd Ardgour Road: 600 vpd	SH8: 3,400 vpd Ardgour Road: 600 vpd	No footpaths or trails present	Expected to be very low volume	SH8: < 30 vpd (1% of all traffic)
Exposure Score:	2/4	2/4	2/4	2/4	0/4	1/4	2/4
Likelihood Comments:	Factors that increase the likelihood include: • High speed environment • Narrow shoulders • Curve radii • Reverse curves • Faded edge lines	Factors that increase the likelihood include: • High speed environment • Reverse curves • Single lane bridge • Forward visibility to queues • Visibility across the bridge	Factors that increase the likelihood include: • High speed environment • ~~Obstructed sightlines~~ • Proximity to bridge • ~~No channelisation or seal widening~~ • ~~Narrow carriageway~~ • Slow moving trucks	Factors that increase the likelihood include: • Unfamiliar drivers (High seasonal flows) • Fatigue • Adverse weather • Sun strike	Factors that increase the likelihood include: • No footpaths over bridge •	Factors that increase the likelihood include: • High speed environment Single lane bridge	Factors that increase the likelihood include: • High speed environment • Single lane bridge
	Factors that decrease the likelihood include: • Barriers on bridge and approaches • Gated warning signs • Edge lines ~~(faded)~~ • Chevron boards • Reflector posts • Shallow, recoverable berms	Factors that decrease the likelihood include: • Centre line marking • Gated warning signs • Speed advisory signs	Factors that decrease the likelihood include: • Give-way controls • Channelised Turn Bay • Increased sight distances	Factors that decrease the likelihood include: •	Factors that decrease the likelihood include: • Very low demand	Factors that decrease the likelihood include: •	Factors that decrease the likelihood include: •
Likelihood Score:	3/4	3/4	2/4	3/4	0/4	1/4	3/4
Severity Comments:	Factors that increase the severity include: • High speed environment • Heavy Vehicles	Factors that increase the severity include: • High speed environment • Heavy Vehicles	Factors that increase the severity include: • High speed environment • Side impact crashes • Heavy Vehicles	Factors that increase the severity include: • High speed environment • Heavy Vehicles	Factors that increase the severity include: • High speed environment • Vulnerable road user • Heavy Vehicles	Factors that increase the severity include: • High speed environment • Vulnerable road user • Heavy Vehicles	Factors that increase the severity include: • High speed environment • Heavy Vehicles
	Factors that decrease the severity include: • Speeds moderated by advisories • Roadside hazards set back from carriageway	Factors that decrease the severity include: • Speeds moderated by advisories	Factors that decrease the severity include: • Speeds moderated by advisories	Factors that decrease the severity include: • Speeds moderated by advisories	Factors that decrease the severity include: • Speeds moderated by advisories	Factors that decrease the severity include: • Speeds moderated by advisories	Factors that decrease the severity include: • Speeds moderated by advisories
Severity Score:	4/4	3/4	3/4	3/4	4/4	4/4	4/4
Product **(multiply scores above for crash type)**	**24/64**	**18/64**	**12/64**	**18/64**	**0/64**	**4/64**	**24/64**
						TOTAL	**100/448**

Table D-5: BODG (Construction / Operational Phase) - Signal Control

	Run-off road	Head-on	Intersection	Other	Pedestrian	Cyclist	Motorcyclists
Exposure Comments:	SH8: 3,400 vpd Ardgour Road: 600 - 1,000 vpd	SH8: 3,400 vpd Ardgour Road: 600 - 1,000 vpd	SH8: 3,400 vpd Ardgour Road: 600 - 1,000 vpd	SH8: 3,400 vpd Ardgour Road: 600 - 1,000 vpd	No footpaths or trails present	Expected to be very low volume	SH8: < 30 vpd (1% of all traffic)
Exposure Score:	2/4	2/4	2/4	2/4	0/4	1/4	2/4
Likelihood Comments:	Factors that increase the likelihood include: • High speed environment • Narrow shoulders • Curve radii • Reverse curves • Faded edge lines	Factors that increase the likelihood include: • ~~High speed environment~~ • Reverse curves • Single lane bridge • Forward visibility to queues • ~~Visibility across the bridge~~ • Signals out of context in rural location	Factors that increase the likelihood include: • ~~High speed environment~~ • ~~Obstructed sightlines~~ • ~~Proximity to bridge~~ • ~~No channelisation or seal widening~~ • ~~Narrow carriageway~~ • Slow turning trucks	Factors that increase the likelihood include: • Unfamiliar drivers (High seasonal flows) • Fatigue • Adverse weather • Sun strike • Signals out of context in rural location	Factors that increase the likelihood include: • No footpaths over bridge •	Factors that increase the likelihood include: • High speed environment Single lane bridge	Factors that increase the likelihood include: • High speed environment • Single lane bridge
	Factors that decrease the likelihood include: • Barriers on bridge and approaches • Gated warning signs • Edge lines ~~(faded)~~ • Chevron boards • Reflector posts • Shallow, recoverable berms	Factors that decrease the likelihood include: • Centre line marking • Gated warning signs • Speed advisory signs • Signalised controls • Removes opposing movements	Factors that decrease the likelihood include: • ~~Give way controls~~ • Signalised controls • Removes opposing movements	Factors that decrease the likelihood include: • Signalised controls • Removes opposing movements	Factors that decrease the likelihood include: • Very low demand	Factors that decrease the likelihood include: •	Factors that decrease the likelihood include: • Signalised controls • Removes opposing movements
Likelihood Score:	3/4	2/4	2/4	3/4	0/4	1/4	2/4
Severity Comments:	Factors that increase the severity include: • High speed environment • Heavy Vehicles	Factors that increase the severity include: • High speed environment • Heavy Vehicles	Factors that increase the severity include: • High speed environment • Side impact crashes • Heavy Vehicles	Factors that increase the severity include: • High speed environment • Heavy Vehicles	Factors that increase the severity include: • High speed environment • Vulnerable road user • Heavy Vehicles	Factors that increase the severity include: • High speed environment • Vulnerable road user • Heavy Vehicles	Factors that increase the severity include: • High speed environment • Heavy Vehicles
	Factors that decrease the severity include: • Speeds moderated by advisories • Roadside hazards set back from carriageway	Factors that decrease the severity include: • Speeds moderated by advisories	Factors that decrease the severity include: • Speeds moderated by advisories	Factors that decrease the severity include: • Speeds moderated by advisories	Factors that decrease the severity include: • Speeds moderated by advisories	Factors that decrease the severity include: • Speeds moderated by advisories	Factors that decrease the severity include: • Speeds moderated by advisories
Severity Score:	4/4	3/4	3/4	3/4	4/4	4/4	4/4
Product **(multiply scores above for crash type)**	**24/64**	**12/64**	**12/64**	**18/64**	**0/64**	**4/64**	**16/64**
						TOTAL	**86/448**

Appendix E NZTA Consultation Outcome

From: [redacted]
To:
Cc:
Subject: RE: Ardgour Road/SH8 - Bendigo Ophir Gold Project
Date: Monday, 26 May 2025 11:44:41 am
Attachments: image001.png

Kia ora Andrew,

Thank you for sending through the updated Integrated Traffic Assessment for our review. I can confirm that our safety engineer has reviewed the ITA and the findings are acceptable. As per the ITA, NZTA agree that the following measures are necessary to mitigate the potential adverse effects on the safe and efficient operation of State Highway 8 at the Ardgour Road intersection:

- Construction of a right-turn bay from SH8 into Ardgour Road;
- Widening of Ardgour Road to ensure two-way movements of trucks can take place;
- Roadside barrier changes, flag lighting and signage to be determined through detailed design and in consultation with NZTA.
- Implementation of a Project Traffic Management Plan.

A safe system audit will be required as part of the proposed upgrades to the Ardgour Road intersection.

I understand that the applicant intends on submitting a substantive application for the proposed mine under the Fast-track Approvals Act 2024. While NZTA has not reviewed a full copy of the application, I am happy for you to provide evidence of our correspondence as part of your application demonstrating consultation with NZTA. Provided that the upgrades detailed in the ITA are proposed as part of the substantive application then NZTA has no further concerns with the proposed mine and will continue to work with the applicant to approve detailed designs for the proposed intersection upgrade and associated works.

If NZTA is requested to comment on the substantive application through the FTA process, then provided the application has not changed substantially then our comments should reflect those above.

Many thanks,
Gemma

Gemma Kean (she/her)
Principal Planner
Poutiaki Taiao | Environmental Planning, Te Toki Tārai - System Design
Email: [redacted]
Phone: [redacted]
Cell: [redacted]
NZ Transport Agency Waka Kotahi
Christchurch, Level 1, BNZ Centre,
120 Hereford Street
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WAKA KOTAHI NZ TRANSPORT AGENCY www.nzta.govt.nz

Please note I work a 9 day fortnight, for anything urgent on a Friday please contact environmentalplanning@nzta.govt.nz

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From: Metherell, Andrew <[redacted]>
Sent: Friday, 2 May 2025 9:47 am
To: Gemma Kean [redacted]>
Cc: Al Snow <[redacted]>
Subject: RE: Ardgour Road/SH8 - Bendigo Ophir Gold Project

Hi Gemma

I have attached the final draft of our report for the Matakanui Gold Ltd mine development we discussed last month.

Apologies for the delay in getting the revised report through, as there were a few internal review adjustments particularly relating to other parts of the document which were best addressed for completeness.

Broadly there are no material changes to the site access proposal, although we have clarified in the report that the NZTA preferred right turn bay option from SH8 into Ardgour Road is proposed, which we seek the agreement of NZTA.

Can you please consider how best to formalise the approval of the feasibility design to incorporate a right turn bay as a project mitigation, and as a basis for input to the Fast Track Application and future design processes.

We look for to hearing back from you, and would be happy to discuss further.

Regards

Andrew Metherell
Christchurch Traffic Engineering Team Lead
Stantec New Zealand

Direct: [redacted]
Mobile: [redacted]

Appendix F CODC Information Request Response

Following review of a draft Integrated Transport Assessment, CODC provided a further information request. The responses are addressed within the report and the table below.

	CODC Information Request	Response to Information Request
SH8 / Ardgour Road	1. Provide details of consultation with NZTA relating to the potential Ardgour Road/SH8 intersection upgrade. Details should include any recommended conditions requested by NZTA to ensure that the safety and efficiency of the transport network is maintained. NB: It is recommended that as part of any detailed design of the intersection, consideration is given to whether the existing curve advisory of 45km/h would remain appropriate with the proposed adjusted geometry for southbound highway traffic, and whether the current give way control signage and markings continue to be appropriate.	The proposed mitigation works have been addressed in Section 5.4 and 7.5 of this report, and the email response from NZTA including matters they expect will be required to mitigate adverse effects are now included in Appendix E. The key matter NZTA identified is reproduced below: *"As per the ITA, NZTA agree that the following measures are necessary to mitigate the potential adverse effects on the safe and efficient operation of State Highway 8 at the Ardgour Road intersection:* - *Construction of a right-turn bay from SH8 into Ardgour Road;* - *Widening of Ardgour Road to ensure two-way movements of trucks can take place;* - *Roadside barrier changes, flag lighting and signage to be determined through detailed design and in consultation with NZTA.* - *Implementation of a Project Traffic Management Plan.* *A safe system audit will be required as part of the proposed upgrades to the Ardgour Road intersection."*
Ardgour Road	2. Provide details of any consideration given to widening of Ardgour Road in line with the standards currently proposed for the amended Thomson Gorge Road corridor. Consideration should include safety improvements especially in respect of the hours of darkness.	The reporting has further addressed the safety assessment and pavement maintenance matters in Section 7.3 of the ITA. Additional recommendations for edgeline delineation at the curve 1.45km south of Ardgour Road, curve advisory speed review of the road are included.
School Bus	3. Provide an assessment of any impacts of the works on the current school bus pick up and drop off areas on Ardgour Road and identification of any required mitigation.	Additional commentary has been provided in Section 7.3.3 of the ITA, with reference to the Road user rules (Land Transport (Road User) Rule 2004) which require drivers when passing of stationary school buses in either direction, with to slow to a maximum speed of 20 km/h, and drive with due care for the safety of children.
Thomson Gorge Road Design	4. Please provide swept-path analysis for the proposed upgrade to Thomson Gorge Road. This analysis should be of an adequate standard to confirm the design is sufficient to safely accommodate the potential vehicles expected to use it, particularly on horizontal curves.	This detail will be provided within detailed design plans being supplied to CODC for engineering approval, in future stages of design development. Any extra widening is minor and will readily fit in the road corridor.
Thomson Gorge Road Design	5. Please provide details in respect of the proposed treatment (sealing) of existing accesses, given that it is proposed to upgrade Thomson Gorge Road to a sealed surface.	Access will be sealed back to the boundary as per CODC requirements. This matter will also form part of the detailed design development.
Staff Bus Service	6. Please provide details in respect of the continuity of bus services during the proposed operational phase and how the uptake of these services will be monitored to ensure that traffic generation is not greater than that stated in the documentation provided.	The traffic forecasts are based on a proportion of staff accessing the site via a consent holder supplied bus service. The use of staff buses is a typical provision for mine work sites remote to residential catchments of workers. It is now proposed to include this matter as part of a Staff Travel Plan as referenced in Section 7.3.8 of this report.
Site Access	7. Please confirm the preferred approach for the Thomson Gorge Road realignment/upgrade, including details of the site accesses (proposed to be a northern one from Ardgour Rise and a southern one approx. 500m north of Matilda Rise and the public/private road interface (including location and design treatments). Please include details of any consultation held with CODC Roading	It is understood this matter related to some inconsistency in an earlier version of the ITA. The site is proposed to be accessed via Thomson Gorge Road 1.6km south of Ardgour Road, and an internal haul road is proposed so that travel within the different areas of the mine is on the private road network. A second access further south is planned from the site compound area but will involve a locked gate and will be used by exception only. As a result of the position of the access, and at the direction of MGL, all travel should be on internal roads unless that is impractical (ie use of Thomson Gorge Road south of the site access by exception only).

Stantec

Stantec is a global leader in sustainable engineering, architecture, and environmental consulting. The diverse perspectives of our partners and interested parties drive us to think beyond what's previously been done on critical issues like climate change, digital transformation, and future-proofing our cities and infrastructure. We innovate at the intersection of community, creativity, and client relationships to advance communities everywhere, so that together we can redefine what's possible.