Water Resources Assessment

Proposed Bluestone Hard Rock Quarry, Springvale Road, Elderslie, NSW &
Blind Creek Road, Glendon Brook, NSW

Final Report

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1 Introduction

1.1 Overview

Martens and Associates (MA) have been engaged by Bluestone Hardrock Pty Ltd (the **Client**) to undertake a Water Resources Assessment (**WRA**) for the proposed Bluestone Hard Rock Quary (hereafter referred to as '**the Quarry'**) located at Lot 5 Springvale Road, Elderslie & Blind Creek Road, Glenbrook, NSW (the **Site**).

The WRA has been prepared to support at State Significant Development Application (**SSDA**) (SSD-76210271) to the NSW Department of Planning, Housing and Infrastructure (**DPHI**), and will form part of an Environmental Impact Study (**EIS**) to address Secretary's Environmental Assessment Requirements (**SEARs**). The WRA should be read in conjunction with the Hydrogeological Impact Assessment prepared by Martens (report reference P2410628JR06V02) (**HIA report**).

1.2 Project Development

1.2.1 Project Summary

The Project is a quarry for the extraction of hard rock and gravel to supply aggregate and conglomerate suitable for road base and concrete batching in the local region. The Project site is within the locality of Elderslie and Glendon Brook, approximately 10km northwest of the community of East Branxton, NSW. The total area of the Project site is approximately 186ha however the total disturbance area is considerably smaller comprising approximately 63.4ha.

The Project includes:

- Vegetation clearing, earthworks and installation of surface water management controls to facilitate construction of the first section of Haul Road 1 which will be a sealed road approximately 600m in length from the northern end of Springvale Road to the western end of the proposed Weighbridge and Office Area.
- Vegetation clearing, earthworks and installation of surface water management controls for the construction of the Weighbridge and Office Area. Construction works will include erection of temporary buildings and facilities, installation of a weighbridge, installation of necessary infrastructure and other supporting services to facilitate operations at the site.
- Vegetation clearing, earthworks and installation of surface water management controls to facilitate construction of the second section of Haul Road 1 which will be unsealed and will extend approximately 150m from the Weighbridge and Office Area to the Processing Area.
- Clearing of vegetation, installation of surface water management controls and overburden removal for the creation of the Processing Area. Establishment of the Processing Area may require extraction of hard rock from to achieve finished design levels. Extraction in these parts will be undertaken through a combination

of drilling and blasting with the resultant material, once processed, suitable for commercial sale.

- A mobile crusher and screening plant will be located in the Processing Area to process extracted material from within the Processing Area and ultimately the resource material from within the Pit Area. Once operations within the Pit Area are fully established the mobile crusher and screening plant will become fixed plant.
- Vegetation clearing, earthworks and installation of surface water management controls to facilitate construction of Haul Road 2, approximately 1,620m in length, from the Processing Area to a point approximately 750m within the Pit Area.
- Vegetation clearing, earthworks and installation of surface water management controls to facilitate construction of the Stockpile and Laydown Area immediately southwest of the Pit Area.
- Progressive vegetation clearing and extraction of the Pit Area with the high-quality resource being drilled, blasted and extracted, prior to transporting to the Processing Area.
- Installation of surface water management controls to manage runoff within the Pit Area and the Processing Area.
- Stripping and stockpiling of topsoil for future rehabilitation will be carried out during all stages of construction and operation. Topsoil will be stockpiled in the Stockpile Area immediately southwest of the Pit Area.
- Extraction and processing of up to 1 million tonnes of resource per annum, for 30 years.
- Transport of processed material along Springvale Road, Stanhope Road, Elderslie Road to the New England Highway, Wine Country Drive, the Hunter Expressway and the local region.
- Progressive rehabilitation works within the Pit Area.

The Project has been designed to facilitate the efficient and economically viable extraction of the identified hard rock resource, while ensuring that potential environmental and community impacts are avoided or minimised wherever practicable. In addition, the Project is expected to generate a range of socio-economic benefits that will support regional development.

The key aspects of the Project are provided in Table 1.

Table 1: Key aspects of the project.

Project Element	Summary of the project
Proposed Development	Hard Rock Quarry

Project Element	Summary of the project
Legal Property Description	• Lot 65 DP 752473, Blind Creek Road, Glendon Brook. • Lot 904 DP 1061259, Blind Creek Road, Elderslie. • Lot 903 DP 1061259, Blind Creek Road, Elderslie. • Lot 5 DP 1102521, 253 Springvale Road, Elderslie.
Resource Extraction Method	Traditional drilling and blasting
Resource	Quarry extraction of high-quality Tuff and Agglomerate from a reduced level (RL) of 215m AHD down to RL 110m AHD.
Project Site Area	186 Ha.
Disturbance Areas	Total Disturbance Area – 59.6ha, broken down as per below.
	37.8ha - Pit Area.
	4.1ha – Stockpile and Laydown Area
	12.4ha - Processing Area.
	0.7ha - Weighbridge and Office Area
	2.2ha – Haul Road 1
	2.4ha – Haul Road 2
Annual Production	Up to 1,000,000 tonnes.
Quarry Life	Up to 30 Years (under this application).
Potential Resource Life	Up to 50 years.
Hours of Operation	<u>Extraction and processing operations</u> • Monday to Friday: 7:00am to 5:00pm. • Saturday: 8:00am to 1:00pm.
	<u>Internal product transfers to stockpiles</u> • Monday to Friday: 7:00am to 5:00pm. • Saturday: 8:00am to 1:00pm.
	<u>Haulage from the development site</u> • 6:30am to 4:00pm Monday to Friday. • No haulage on Saturday, Sunday or a Public Holiday.
	<u>Drilling and Blasting activities</u> • Blasting between 9:00am to 5:00pm Monday to Friday only. On average one (1) blast per week, carried out by an external contractor.
	<u>Maintenance activities</u> • 6:00am to 6:00pm (Monday to Saturday). • No work on Sundays and Public Holidays.
Hours of Operation	<u>Construction hours</u> • 7:00am to 5:00pm (Monday to Saturday). • 8:00am to 3:00pm (Saturday). • No work on Sundays and Public Holidays.

Project Element	Summary of the project
Operational Workforce	At full operation, up to 15 full-time staff, with further support from the local and regional construction industry and associated haulage contractors.
Product Transport	• Road haulage of product via semi-trailer / truck and dog trailer.
	• On average 110 laden trucks per day in order to meet peak production.
	• Maximum of 30 laden trucks per hour at peak rates.
	• Maximum daily extraction rate of 7,000 tonnes per day.
Transport Route	• The road transport route from the site extends over approximately 13km from the site entrance to the Hunter Expressway interchange at Branxton. The road transport route incorporates Springvale Road, Stanhope Road, Elderslie Road and the New England Highway. Elderslie Road was previously used by the Great Greta Coal Mine to haul coal.
	• The road transport route includes use of the Elderslie Bridge which crosses the Hunter River. The bridge is located 600m south of the intersection of Elderslie Road and Stanhope Road and has a mass restriction of 50 tonnes.
Water Management	Erosion and sediment control devices such as catch drains, road drainage, dirty water dams and clean water dams.
Utilities	• Power supply from existing electricity network and diesel generators. • Water supply sourced from onsite dams, surface water runoff, and rainwater tanks. Potable water imported as needed
Operational Activities and Areas	• Site office and employee facilities. • Car parking. • Existing site access from Springvale Road via Haul Road 1 (sealed) to Weighbridge and Office Area. • Use of Haul Road 1 and Haul Road 2. • Workshop and fuel storage – to be initially located at the Weighbridge and Office Area. • Fuel and supply deliveries. • Equipment storage. • Waste management. • Equipment parking areas. • Processing Area including crusher and screening plant. • Raw material stockpiles. • Product stockpiles and truck loading areas. • Truck parking. • Weighbridge. • Environmental management measures including road watering, site rehabilitation, etc. • Use of ancillary plant and equipment.
Rehabilitation	Rehabilitation will initially be limited to areas of immediate disturbance such as road batters, access road construction and sediment dams. Progressive rehabilitation of the quarry benches will occur as they become available, with the majority of the rehabilitation taking place at the completion of resource extraction when the quarry floor, stockpile areas, and portions of the infrastructure areas will be rehabilitated.

1.2.2 Project Site and Disturbance Area

The Project Site covers approximately 186ha and is located north of Springvale Road, Elderslie. The Project Site is located approximately 10km north of the community of East Branxton and 16km east of Singleton, within the local government area (LGA) of Singleton in NSW.

1.3 Scope of Works

The scope of works adopted for the assessment include:

- Describe existing site features including surface water catchments, flow pathways and drainage features on and around the site.
- Provide an assessment of watercourses potentially impacted by the proposal.
- Describe the proposed surface water management system including surface water flow mitigation measures, sediment control infrastructure, drainage systems, and water treatment measures, sediment basin, culvert crossing, etc.
- Assess effectiveness of proposed stormwater quality measures and anticipated treatment train.
- Assess site water demands, water supply strategies and site water balance.
- Document preliminary flood impact assessment findings and outcomes.
- Preparation of an operations monitoring plan.

1.4 Secretary's Environmental Assessment Requirements

The SEARs which relate to water resources, including relevant report sections, are provided in Table 2.

Table 2: Secretary's Environmental Assessment Requirements.

Authority	Description / Comment	Section
Department of Planning, Housing and Infrastructure Planning	*5. Water resources impact assessment, including;*	
	a detailed site water balance, including a description of site water demands, water disposal methods (inclusive of volume and frequency of any water discharges), water supply infrastructure and water storage structures;	Sections 4, 5 and 6
	identification of any licensing requirements or other approvals under the Water Act 1912 and/or Water Management Act 2000;	Section 1.6
	demonstration that water for the construction and operation of the development can be obtained from an appropriately authorised and reliable supply in accordance with the operating rules of any relevant Water Sharing Plan (WSP);	Sections 1.6 and 6
	a description of the measures proposed to ensure the development can operate in accordance with the requirements of any relevant WSP;	Sections 1.6 and 4
	an assessment of any likely flooding impacts of the development;	Section 7

Authority	Description / Comment	Section
	an assessment of the likely impacts on the quality and quantity of existing surface and ground water resources, including a detailed assessment of proposed water discharge quantities and quality against receiving water quality and flow objectives;	Sections 4 and 6, HIA report
	an assessment of the likely impacts of the development on aquifers, watercourses, riparian land, water-related infrastructure, and other water users; and	Section 3, HIA report
	a detailed description of the proposed water management system (including sewage), water monitoring program and other measures to mitigate surface and groundwater impacts;	Sections 4 and 8
Singleton Council	*Water resources:* *The Proposed Project should consider the following matters in preparing the surface and groundwater impact assessment:*	
	The impact of runoff and erosion on downstream receptors and water users	Section 4
	The sediment and erosion control measures to be implemented to avoid and mitigate on and offsite impacts and an assessment of the effectiveness of these controls.	Sections 4 and 5
	A water balance that includes the volume and licensing requirements for the proposed project, whether there is sufficient water supply available under the relevant Water Sharing Plan and the cumulative impact of taking supply from surrounding land uses. The water balance should include consideration of water needs during construction and operation, under a climate change scenario that is consistent with AdaptNSW.	Section 6
	How the Proposed Project will ensure neighbouring forested areas are protected as essential water supply sources that recharge the surrounding landscape.	Section 5
	The surface and groundwater impact assessment should include a cumulative impact assessment with other projects	Section 5 and HIA report

1.5 Regulatory Controls

The following regulatory controls have been considered in the preparation of this report:

- *Environmental Planning and Assessment Act 1979* (NSW) (**EP&A Act**).
- *Hunter Unregulated and Alluvial Water Sources 2022 water sharing plan* (**WSP**).
- *Protection of the Environment Operations Act 1997* (NSW) (**POEO Act**).
- Singleton Development Control Plan 2014 (**SDCP**).
- Singleton Local Environmental Plan 2013 (**SLEP**).
- *State Environmental Planning Policy (Resilience and Hazards) 2021* (NSW) (**SEPPRH**).
- *Water Management Act 2000* (NSW) (**WM Act**).
- *Water Management (General) Regulation 2015* (NSW) (**WM Regulation**).

1.6 Regulatory Licence Requirements

Comments regarding water licencing requirements required for the Quarry are provided in Table 3.

Table 3: Regulatory licence requirements and water management guidelines.

Control	Requirement
Protection of the Environment Operations Act 1997	The Quarry will require an environmental projection licence (**EPL**) under Section 48 of the POEO Act as the Quarry will entail the extraction, processing and storage of more than 30,000 tpa and therefore constitutes a scheduled activity. An EPL application is to be lodged with the NSW Environmental Protection Authority (**EPA**) if the proposal is approved.
Environmental Planning and Assessment Act, 1979	Section 4.41 of the EP&A Act states state significant developments do not require specific approvals under the WM Act (refer below).
Water Management Act 2000	The Quarry will not require a water use approval under s89 of the Act, a water use approval under s89 of the Act, or a water management approval under s 90 of the Act, or a controlled activity approval (other than an aquifer interference approval, see HIA report) under s 91 of the Act per s 4.41 of the EP&A Act.
Maximum Harvestable Rights Calculator	MA understand the Water NSW harvestable rights calculator was used to determine a maximum harvestable right of 14.4ML based on a site area of approximately 240 Ha (WC, 2024).
Water Management (General) Regulation 2025	Water will be able to be legally extracted from onsite sediment basins and used for operational purposes as it will be considered exempt from a separate water use approval under cl 22(1(a) of the WM Regulation.
Water Sharing Plan	The Quarry is located in the Hunter Unregulated and Alluvial Water Sources 2022 water sharing plan (**WSP**).

2 Site Setting

2.1 General Site Details

General site details are summarised in Table 4.

Table 4: General site details.

Item	Description
Site address	Lot 5, Springvale Road, Elderslie, NSW Blind Creek Road, Glendon Brook, NSW
Legal identification	Lot 65 DP 752473, Blind Creek Road, Glendon Brook Lot 903 DP 1061259, Blind Creek Road, Elderslie Lot 904 DP 1061259, Blind Creek Road, Elderslie Lot 5 DP 1102521, 253 Springvale Road, Elderslie
Site area	Approximately 186 Ha (by calculation – SIX maps)
Local Government Area	Singleton Shire Council (**Council**)

2.2 Environmental Setting

Site environmental setting is summarised in Table 5.

Table 5: Environmental setting.

Item	Description
Site description	Rural land comprising mature woodland with cleared areas for cattle grazing and an informal vehicle access.
Surrounding land description	Environmental conservation land use to the north of the site with primary production land use at other locations. Residential property and Hunter Pet Motel land use to the south of the site.
Location	The proposed Quarry is located approximately 10 km to the north of the village of Branxton, and 16 km east of Singleton.
Topography	The proposed quarry is located on a broadly north-south aligned ridgeline. Elevation within the quarry area ranges between say 150-220 mAHD, although levels within the broader site area are as low as around 55 mAHD.
Geology	The site and surrounding area is underlain by the following geological units: • Grey andesitic and red rhyodacitic ignimbrite / tuff (pyroclastic rock) of the Breckin Ignimbrite Member (**Cgimb**) associated with the Mowbray Formation / Gilmore Volcanic Group. • Blue grey, red mottled welded andesitic ignimbrite with minor interbeds of beige to grey dacitic ignimbrite / tuff (pyroclastic rock) of the Martins Creek Ignimbrite Member (**Curim**) associated with the Isismurra Formation. • Red to purple lithic sandstone, red, purple or green siltstone, pebble conglomerate (agglomerate) with interbedded rhyolitic and rhyodacitic ignimbrite and / or tuff (siliciclastic sedimentary rock) of the Newton Formation (**Cgin**) associated with the Gilmore Volcanics Group.

2.3 Surface Water Hydrology

The site is located within the Huter River catchment. Onsite drainage occurs via a combination of direct soil infiltration (where permeability allows) and overland flow to existing dams and drainage lines.

The site flows to several mapped watercourses including northwards towards Gamblers Gully, northwest towards Blind Creek, southeast to Stanhope Creek and southwest to Stewarts Creek. All creeks eventually tributaries of Hunter River. Section 3 provides additional details and observations made for the watercourses within the study area shown on Map 1 and Map 2.

The volume and pattern of flows in the Hunter River system have been significantly altered by the construction and operation of Glenbawn and Glennies Creek dams. Large volumes of water are also taken and stored for power station use in Lake Liddell.

2.4 Water Quality

Surface water quality sampling was completed on 17 July 2025. Results are provided in Table 6, with sampling locations shown in Map 1 and Envirolab Services Pty Ltd laboratory reports provided in Appendix B . Data indicate that water quality within the local creek system is within the ranges expected for rural NSW which have been partly cleared and subject to historical grazing and other rural or farming activities.

Table 6: Surface water quality laboratory results.

Parameter	SW01	SW02	SW03
pH	6.7	6.6	6.7
Electrical Conductivity	420	270	360
Nitrogen – Total (mg/L)	0.3	0.2	0.8
Phosphorus – Total (mg/L)	<0.05	<0.05	<0.05
Arsenic – Dissolved (µg/L)	<1	<1	<1
Cadmium – Dissolved (µg/L)	<0.1	<0.1	<0.1
Chromium – Dissolved (µg/L)	<1	<1	<1
Copper – Dissolved (µg/L)	<1	<1	<1
Lead – Dissolved (µg/L)	<1	<1	<1
Mercury – Dissolved (µg/L)	<0.05	<0.05	<0.05
Nickel – Dissolved (µg/L)	<1	<1	<1
Zinc – Dissolved (µg/L)	2	4	4

2.5 Existing Water Access Licence

MA understanding there is an existing groundwater entitlement currently accessible by the proponent (WC, 2024). The existing water access licence (**WAL**) has a nominal volume of 60 ML (WAL 13856).

3 Watercourse Assessment

3.1 Overview

Site watercourses have been assessed to determine their location, condition and management requirements, and has been completed with reference to the following:

1. *Water Management Act 2000* (NSW).
2. *Controlled Activities – Guidelines for Riparian Corridors on Waterfront Land* (2025).
3. *Singleton Local Environmental Plan* (2013) (**SLEP**).
4. Strahler System for ordering watercourses.[1]

Watercourses considered herein were initially identified by hydroline mapping,[2] and with locations corrected based on review of Lidar survey and site inspections. As a general principle, identified watercourses are expected to: contain defined bed and banks; be permanent landscape features that are readily distinguishable from a drainage depression; maintain ecological systems and processes that are adapted to the watercourse; and have soils which have been formed or modified by the movement of water.

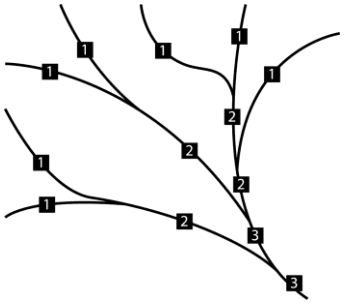
3.2 Scope

The assessment scope included:

1. Undertaking a desktop review of watercourse and riparian zone mapping.
2. Complete a visual inspection of site watercourses.
3. Assess the proposal impact on watercourses.

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[1] Strahler stream order classification scheme is described in the Water Management (General) Regulation 2025 at clause 4, and illustrated below.



[2] See Water Management (General) Regulation 2025 on-line hydroline mapping available at: https://trade.maps.arcgis.com/apps/webappviewer/index.html?id=07b967fd0bdc4b0099fc5be45b6d1392.

3.3 Watercourse Locations

Hydroline locations extracted from available on-line mapping are shown on Map 1, with 'corrected' watercourse locations shown on Map 2, this indicating that the site contains watercourses ranging between Strahler 1st, 2nd and 3rd order streams.

By reference to Map 3, only the 3rd order watercourse located in the southeastern part of the site is mapped under the SLEP.

3.4 Watercourse Inspections

Watercourse inspections were undertaken on 17 July 2025, with outcomes summarised in Table 7 and inspection photographs provided in Appendix C. Inspected watercourses were identified as watercourses A – G, which included four existing farm track crossings identified as crossings 1 – 4. Watercourse and crossing identification is shown on Map 2.

Table 7: Water course inspection observations.

Watercourse (Strahler Stream Order)	Observations / Comments
A(3)	• Located on the southern side of the study area to the east of the processing area and south of the office area. Discharging south as a tributary of Stanhope Creek. The watercourse was observed at the location of existing Crossing 4, Crossing 2 and between. • The watercourse presented with a defined channel with intermittent pools of stagnant water. The base width was approximately 0.5-2.0 m (variable) and top width 2.0-4.0 m (variable). • The channel alternated between densely vegetated with trees and shrubs on the channel bed and a rock lined base with reduced vegetation. • Water was not observed flowing during the site inspection. • Historical erosion was observed at both Crossing 4 and Crossing 2. • Surrounding vegetation comprised predominantly of trees, grasses and shrubs. • Refer to Figure 1 to Figure 11.
B(1)	• Located on the southern side of the study area east of the processing area. Discharging south as a tributary of Stanhope Creek. The watercourse was observed at the location of existing Crossing 3. • Upstream of Crossing 3 presented as a defined channel with base width approximately 0.5-1.0 m (variable) and top width approximately 1.0-3.0 m (variable). • Downstream of Crossing 3 presented as a defined channel with base width approximately 0.5 m and top width approximately 1.0 m. • The channel bed was heavily vegetated. • No water was observed during the site inspection. Surrounding vegetation comprised predominantly of trees, grasses and shrubs. • Refer to Figure 12 to Figure 14.

Watercourse (Strahler Stream Order)	Observations / Comments
C(1)	• Located on the southern side of the study area in the processing area. Discharging east as a tributary of Stanhope Creek. The watercourse was observed at the location of existing Crossing 1. • Upstream of Crossing 1 presented as a drainage depression with a steep longitudinal grade and wide batter slopes but no defined creek bed. • Downstream of Crossing 1 presented as a defined channel with base width approximately 0.5 m and top width approximately 2.0-3.0 m (variable). • No water was observed during the inspection except at the location of Crossing 1 where the unsealed track was damp. • Historical erosion were observed at the crossing location. • Surrounding vegetation comprised predominantly of trees, grasses and shrubs both upstream and downstream of Crossing 1. • Refer to Figure 15 to Figure 18.
D(1)	• Located on the western side of the study area near the southern end of the quarry footprint. Discharging northwest as a tributary of Blind Creek. • Presented as an overland flow path with likely only intermittent water flow due to rainfall. A defined channel was observed around 1.0 m wide. • No water was observed during the site inspection. • Surrounding vegetation comprised predominantly of trees, grasses and shrubs. • Refer to Figure 19 and Figure 20.
E(1)	• Located on the western side of the study area near saddle between the southern and northern crests in the Quarry footprint. Discharging west as a tributary of Blind Creek. • Presented as an overland flow path with likely intermittent flow after rain. • No defined channel bed or water was observed. • Surrounding vegetation comprised predominantly of trees, grasses and shrubs. • Refer to Figure 21.
F(1)	• Located on the western side of the study area near the centre of the northern crest in the Quarry footprint. Discharging west as a tributary of Blind Creek. • An overland flow path with likely intermittent flow after rain. • No defined channel bed or water was observed. • Surrounding vegetation comprised predominantly of trees, grasses and shrubs. • Refer to Figure 22
G(1)	• Located on the northern side of the Study Area. Discharging north as a tributary of Gamblers Gully. • Presented with as an existing dam with standing water. • No defined channel observed beyond the dam spillway. • Surrounding vegetation comprised predominantly of trees, grasses and shrubs. • Refer to Figure 23.

3.5 Riparian Zones

Recommended minimum requirements for riparian zones adjacent NSW watercourses are provided in the NSW DCCEEW (2025) *Controlled Activities – Guidelines for Riparian Corridors on Waterfront Land* (2025). These make recommendations in respect of requirements for vegetated riparian zones (**VRZ**) widths from the top of each watercourse bank based on the stream's Strahler order, with the total riparian zone width being the creek width plus two times the minimum VRZ width.

Minimum recommended VRZs and the total adopted riparian buffer zones for varying stream orders are provided in Table 8. Adopted riparian zones are plotted on Map 2 and on the concept civil plans prepared by GCA (2026) provided at Appendix G. No infrastructure is proposed riparian buffer zones other than the proposed access road with watercourse crossings (refer to Section 4.4). These crossings will be designed for the 1% AEP storm event, and in accordance with DCCEEW guidelines, incorporating incorporate appropriate energy dissipation measures to prevent erosion.

Table 8: Vegetated riparian zone widths.

Strahler Stream Order	Minimum VRZ to Each Bank	Provided Riparian Zone
1	10 m	30 m
2	20 m	50 m
3	30 m	90 m

3.6 Outcomes

The watercourse assessment outcomes are:

1. Whilst there are a number of 1st, 2nd and 3rd order watercourses within the study area, except where the internal access road requires the watercourse to be crossed, the development footprint will not interfere with natural watercourses.

2. The development footprint will not encroach into the proposed riparian corridor buffers which are in accordance with the NSW DCCEEW (2025) recommended ranges, thereby ensuring the long-term integrity of these corridors.

3. The proposed pit has been located to avoid significant adverse impacts on water quality, bed and bank stability, aquatic and riparian habitats, and ecological processes in accordance with Clause 7.6 (Riparian Land and Watercourses) of the SLEP 2013.

4 Surface Water Management Plan

4.1 Overview

Sediment and erosion control principles in accordance with Landcom (2004) *Managing Urban Stormwater: Soils and Construction* (**the Blue Book**) will be adopted by the Quarry surface water management strategy to ensure the management of water during construction and operation has minimal impact on the receiving environment. The management of water has been separated into 'dirty' and 'clean' as detailed in Table 9.

Table 9: Surface water management strategy.

Water Category	Description	Discharge
Clean	Runoff from undistributed areas,	Discharge downstream of the development area where practical.
Dirty	Runoff from disturbed areas.	Discharge at location of sediment basins into receiving environment after managed by controls outlined in the Blue Book (Volume 1 and 2E).

The following approaches have been adopted by the surface water management plan:

1. Separation of clean and dirty water to minimise runoff contamination.
2. Minimise impacts of erosion due to daily operations.
3. Minimise impacts to existing watercourses.
4. Minimise discharge of contaminated or turbid water from the Quarry through management of dirty water runoff through sediment and erosion control principles.
5. Maximise onsite reuse for Quarry operation requirements.
6. Existing watercourse crossings will be retained and upgraded as part of the proposed haul road works.

4.2 Clean Water Management

Clean water runoff upstream of the Quarry is to be managed through upstream diversion channels/bunds.

The Pit is located at the top of a catchment and does not have any upstream runoff to divert. However, remaining Quarry areas do have upstream runoff in sections where diversion channels/bund are to be included. Implementation of upstream diversion will minimise impact the volume of water required to be managed in the dirty water system and decrease impacts to the receiving environment.

Detailed locations, extents and dimensions for the proposed upstream diversion channels/bunds shall be refined at detailed design stage. Detailed design is to be completed in accordance with requirements outlined in the Blue Book and relevant approval conditions.

Indicative locations have been shown in Map 4.

4.3 Dirty Water Management

4.3.1 Sediment and Erosion Control Measures

Dirty water is to be managed through the following sediment and erosion control principles:

1. Roadside channels included along the haul roads to management road runoff.
2. Catch drains/channels included at the perimeter of the management areas to direct stormwater runoff to sediment basins.
3. Sediment basins to collect and treat runoff from the Pit, the stockpile area, the processing Area (separated into areas 'A' and 'B'), and the office area. Sediment basins will be used for water supply as outlined in Section 6. Sizing calculations are provided in the Section 4.3.2.

Refer to Map 4 for indicative channel and sedimentation basin locations.

4.3.2 Sediment Basin Sizing

Sizing for the sediment basin for the Pit has been considered at three stages (year 16, year 30 and year 50) based on the increase in surface area the basin is to service as the Quary is in operation.

The sediment basins will be constructed prior to the commencement of works in each area. This approach ensures that all contaminated water generated onsite is effectively collected and treated (refer to Section 5 for water quality modelling). Water collected in the sediment basins will be reused for process water and dust suppression during construction and operation (refer to Section 6).

Basins have been sized consistent with Section 6.1 of Managing Urban Stormwater: Soils and Construction Volume 2E Mines and Quarries. The following parameters were adopted:

1. Type D soil classification.
2. Soil hydrologic group D.
3. Erodibility (K-factor) of 0.05.

Minimum basin volumes have been sized consistent with Section 6.3.4 of Managing Urban Stormwater: Soils and Construction Volume 1. The following equations were adopted:

1. Basin volume = Settling Zone Volume + Sediment Storage Zone Volume.
2. Settling Zone volume = 10 x Volumetric Runoff Coefficient (**Cv**)[3] x Area (**A**)[4], x 5-day 95th percentile rainfall depth (**R**)[5].
3. Sediment Storage Zone volume = 50% of the Settling Zone volume.

Refer to Table 10 for the summary of values used in the sediment basin calculations and minimum design volumes in Table 11.

Table 10: Parameters and values for minimum sediment basin sizing.

Parameter	Value	Source
Volumetric runoff coefficient (Cv)	0.79	From Table F2 for soil hydrological group D and rainfall depth 61-80 mm
5-day 95th percentile rainfall depth (R)	63 mm	From Table 6.3a for Cessnock
Pit (Year 16) Area	24.84 Ha	Measured (GCA, 2026)
Pit (Year 30) Area	36.55 Ha	Measured (GCA, 2026)
Pit (Year 50) Area	37.82 Ha	Measured (GCA, 2026)
Stockpile Area	3.43 Ha	Measured (GCA, 2026)
Processing Area A	8.79 Ha	Measured (GCA, 2026)
Processing Area B	2.04 Ha	Measured (GCA, 2026)
Office Area	0.68 Ha	Measured (GCA, 2026)

Table 11: Minimum volumes for sediment basins.

Area	Settling Zone Volume (m^3)	Sediment Storage Zone Volume (m^3)	Minimum Basin Volume (ML)
Pit (Year 16)	12,363	6,181	18.5
Pit (Year 30)	18,191	9,095	27.3
Pit (Year 50)	18,823	9,412	28.2
Stockpile Area	1,707	854	2.6
Processing Area A	4,375	2,187	6.6
Processing Area B	1,015	508	1.5
Office Area	338	169	0.5

The provided basin volumes above are the minimum volumes required per the Blue Book. Assessments for water quality and site water balance have been completed based on the minimum basin sizing.

[3] Cv is the volumetric runoff coefficient defined as that proportion of rainfall that runs off as stormwater.

[4] A is the catchment area of the basins in ha.

[5] R is the 5-day total rainfall depth in mm that is not exceeded in 95% of rainfall events.

The sediment basins have been designed based on the 95th percentile design storm event therefore overflows to nearby watercourses, which would be highly diluted, would be of a very low frequency during heavy or prolonged rainfall events.

4.4 Watercourse Crossings

The four existing watercourse crossings will be retained and upgraded as part of the internal haul road design. Design of watercourse crossings will achieve the following outcomes in line with 2022 NSW Department of Planning and Environment Fact Sheet for *Controlled activities – Guidelines for Watercourse Crossings on Waterfront Lands*:

1. Maintain natural geomorphic processes
2. Maintain natural hydrological regimes.
3. Protect against scour.

An assessment was completed by GCA Engineering Solutions to determine sizing for the watercourse crossings. A summary of the culvert sizing is provided in Table 12 and with crossings located in Map 4.

Table 12: Preliminary watercourse crossing culvert sizing details.

Crossing Location	Peak 1% AEP Flow (m^3/s)	Culvert Number & Size (mm)
1	1.64	2 x ø850 RCP
2	32.50	5 x 1350 RCP
3	5.93	5 x 1500W x 600H BC
4	44.50	5 x 3000W x 1200H BC

All watercourse crossings are to include energy dissipation measures to avoid any consequent erosion in the watercourses.

5 Water Quality Assessment

5.1 Overview

The impact of the proposal on surface water quality has been assessed using water quality modelling to represent land use activities at varying times during the operations and evaluating the performance of the stormwater treatment train against key water quality criteria. The adopted water quality control criteria are derived from the SDCP, which notably does not provide water quality management criteria for rural lands, but does however provide water sensitive urban design (**WSUD**) pollutant reduction targets for urban developments, which are considered appropriate to the proposal and include:

1. Total suspended solids (**TSS**): 80% reduction of average annual load generated.
2. Total phosphorus (**TP**): 45% reduction of average annual load generated .
3. Total nitrogen (**TN**): 45% reduction of average annual load generated .
4. Gross pollutants (**GP**): 70% reduction of average annual load generated .

5.2 Modelling

5.2.1 Overview

The Model for Urban Stormwater Improvement Conceptualisation (MUSIC, Version 6.3), developed by the CRC for Catchment Hydrology, was used to assess the impact of the Quarry on the water quality.

The MUSIC model layout is provided in Appendix D.

5.2.2 Approach

The following modelling scenarios were considered in the assessment:

- **Post development (untreated)**: Developed site condition modelled without any water quality treatment devices.
- **Post development (treated)**: Developed site condition modelled with water quality treatment devices.

An iterative approach was used for post development modelling to determine appropriate types, sizes and locations of stormwater treatment devices for modelling scenarios to achieve water quality reduction targets.

5.2.3 Climate Data

The following climate data was used:

1. Daily rainfall data obtained from the Bureau of Meteorology (**BOM**) for the Elderslie climatological station (Station no. 61092) between 01/01/1995 and 31/12/2008.

2. Potential evapotranspiration data obtained from the Scientific Information for Land Owners (**SILO**) database for the Elderslie climatological station (Station no. 61092).

5.2.4 Input Parameters

All MUSIC modelling input parameters for source parameters and treatment nodes are provided in Appendix E.

Sediment basin minimum sizing requirements as calculated in Section 4.3.2 have been included as treatment nodes.

5.2.5 Catchment Areas

MUSIC modelling considered the development footprint as the extent for the water quality assessment. Catchment areas are detailed in Table 13 for year 16, Table 14 for year 30, and Table 15 for year 50, and shown in Map 5 for year 16, Map 6 for year 30, and Map 7 for year 50.

For modelling purposes, catchment areas and proposed treatment systems were grouped, based on their water reuse and treatment:

1. All quarry operational areas were combined into a single catchment node, discharging to a combined sediment basin representing all proposed basins and supplying water for non-potable Site uses.
2. The office and roof areas were modelled as a separate catchment node with runoff directed to a rainwater tank for potable water use.
3. The internal haul road was modelled separately as they bypass the treatment train.

Table 13: Water quality assessment catchment areas (Quarry at Year 16).

Area	Value (Ha)
Pit (Year 16)	24.84
Stockpile Area	3.43
Processing Area A	8.79
Processing Area B	2.04
Office Area	0.63
Roof Area	0.05
Internal Haul Road	2.21

Table 14: Water quality assessment catchment areas (Quarry at Year 30).

Variable	Variable
Pit (Year 30)	36.55
Stockpile Area	3.43
Processing Area A	8.79
Processing Area B	2.04
Office Area	0.63
Roof Area	0.05
Internal Haul Road	2.21

Table 15: Water quality assessment catchment areas (Quarry at Year 50).

Variable	Variable
Pit (Year 50)	37.82
Stockpile Area	3.43
Processing Area A	8.79
Processing Area B	2.04
Office Area	0.63
Roof Area	0.05
Internal Haul Road	2.21

5.3 Results

Stormwater runoff pollutant loads for the proposed Quarry development are presented for the Quarry at Years 16, 30, and 50 in Table 16, Table 17 and Table 18 respectively, indicating pollutant reduction targets are achieved at all development stages.

Table 16: MUSIC modelling pollutant load results (Quarry at Year 16) (Model ref: P2410628MUS04V05).

Pollutant	Source (kg/yr)	Residual Load (kg/yr)	Reduction % Achieved	SDCP Target Reduction %
Total Suspended Solids	281000	18500	93.4	80
Total Phosphorus	124	23	81.1	45
Total Nitrogen	540	226	58.2	45
Gross Pollutants	6970	359	94.8	70

Table 17: MUSIC modelling pollutant load results (Quarry at Year 30) (Model ref: P2410628MUS04V05).

Pollutant	Source (kg/yr)	Residual Load (kg/yr)	Reduction % Achieved	SDCP Target Reduction %
Total Suspended Solids	375000	19600	94.8	80
Total Phosphorus	165	30	81.5	45
Total Nitrogen	667	306	54.2	45
Gross Pollutants	8910	359	96.0	70

Table 18: MUSIC modelling pollutant load results (Quarry at Year 50) (Model ref: P2410628MUS04V05).

Pollutant	Source (kg/yr)	Residual Load (kg/yr)	Reduction % Achieved	SDCP Target Reduction %
Total Suspended Solids	386000	17900	95.40	80
Total Phosphorus	174	31	81.90	45
Total Nitrogen	700	317	54.70	45
Gross Pollutants	9120	359	96.10	70

5.4 Outcomes

The MUSIC modelling results in Table 16 to Table 18 demonstrate that the proposed stormwater treatment train achieves pollutant load reductions well above the WSUD targets at all three stages of the quarry (Years 16, 30, and a potential future 50). This confirms that stormwater treatment measures incorporated into the design are effective in managing runoff quality throughout the life of the development.

6 Water Balance Assessment

6.1 Overview

The water balance assessment has been prepared to assess the Quarry water supply needs and sources. The assessment was completed considering the following components:

1. **Water Demand:** Consideration of quarry construction and operational water demands.
2. **Water Supply:** Assessment of site water supply (surface water runoff).
3. **Water Balance**: The balance of supply and demand is assessed based on a range of climatic conditions to determine the need for additional supply or to detail the excess water released to the environment.
4. **Climate change:** An additional assessment has been prepared to consider the impact of climate change on the site's water balance.

The water balance assessment was completed using MUSIC modelling.

6.2 Water Demand

Water demands for the Quarry were provided by the Client on 28 July 2025 and include non-potable and potable end uses as follows:

1. **Non potable demands**: Dust suppression during production and for the internal haul roads.
2. **Potable demands**: Staff amenities to service 30 staff 5.5 days per week at full production.

Potable water demand for the site is estimated as 27 L/person/day (based on NSW Health (2012) guidelines for industrial use). Total annual water demands are provided in Table 19. During the construction phase, water demands are not expected to exceed operational demands.

Table 19: Summary of site water demands.

Activity	Annual Demand
Non-potable - Dust suppression	60 ML/yr
Potable - Staff amenities	0.23 ML/yr

6.3 Water Source and Supply

Non potable water supply will be sourced from reuse of stormwater runoff captured by sediment basins described in Section 4. Suitability of stormwater runoff has been assessed using MUSIC modelling for the minimum require sediment basins at each stage.

The site is not service by town water supply. Potable water therefore can be provided via collected roof water and/or water tanker delivery.

6.4 Modelling

6.4.1 Overview

The Model for Urban Stormwater Improvement Conceptualisation (MUSIC, Version 6.3), developed by the CRC for Catchment Hydrology, was used to assess the water balance of the site.

The MUSIC model layout is provided in Appendix D.

6.4.2 Climate Data

Consistent with the water quality assessment, the water balance assessment was completed using rainfall and evapotranspiration data from Elderslie climatological station (Station no. 61092).

The water balance assessment was prepared adopting a range of rainfall scenarios to assess the site water supply through the long life of the development based on the statistical rainfall values for the location. Individual years were modelled for the assessment as representative of the statistical rainfall values for each scenario. Refer to Table 20 for details.

Table 20: Dry, average and wet annual rainfall scenarios.

Scenario	Statistical Rainfall	Year Modelled	Year Modelled Rainfall
Dry (10th percentile)	474.0 mm	1957	469.8 mm
Average	724.2 mm	1960	724.0 mm
Wet (90th percentile)	999.8 mm	1989	1004.6 mm

To account for climate change, two additional scenarios were modelled using reduced average rainfall of 10.2% and 15.5%, based on AdaptNSW projections for SSP1-2.6 and SSP3-7.3 to 2050 compared with the 1990–2009 baseline. Refer to Table 21 for details.

Table 21: Average rainfall annual rainfall with climate change scenarios.

Scenario	Statistical Rainfall
SSP1-2.6	650.0 mm
SSP3-7.3	612.0 mm

6.4.3 Input parameters

Input parameters are consistent with the water quality assessment in Section 5.

6.4.4 Catchment Areas

Catchment areas are consistent with the water quality assessment in Section 5.

6.5 Results

The site water balance for the proposed Quarry for all stages summarised in Table 22 for non-potable supply and Table 23 for potable supply.

Table 22: Summary of non potable site water balance.

Stage	Climate Event	Runoff to Sediment Basin (ML/year)	Storage (evaporative & seepage) Losses (ML/year)	Balance [1] (ML/year)
1 (Year 16)	Dry	145.87	-19.91	65.96
	Average	225.03	-19.98	145.05
	Wet	335.54	-19.91	255.63
	SSP1-2.6	198.50	-19.98	118.52
	SSP3-7.3	184.72	-19.98	104.74
2 (Year 30)	Dry	188.85	-25.68	103.17
	Average	291.31	-25.78	205.53
	Wet	434.35	-25.68	348.67
	SSP1-2.6	256.96	-25.78	171.18
	SSP3-7.3	239.13	-25.78	153.35
3 (Year 50)	Dry	193.51	-26.35	107.16
	Average	298.50	-26.44	212.06
	Wet	445.06	-26.35	358.71
	SSP1-2.6	263.31	-26.44	176.87
	SSP3-7.3	245.03	-26.44	158.59

Note:

1. Positive number demotes a surplus / negative number denotes a deficit. Volumes do not account for pit groundwater inflows which are very low, varying from around 2 ML/year at year 16 to 8 ML/year at year 30, and will be largely lost to evaporation.
2. Balance was determined based on subtracting the runoff to sediment basin by storage loses and expected site water demands of 60ML/yr (dust suppression).

Table 23: Summary of potable site water balance.

Stage	Climate Event	Runoff to Rainwater Tank (ML/year)	Balance [1] (ML/year)
1 (Year 16)	Dry	0.23	0.00
	Average	0.35	0.12
	Wet	0.49	0.26
	SSP1-2.6	0.31	0.08
	SSP3-7.3	0.29	0.06
2 (Year 30)	Dry	0.23	0.00
	Average	0.35	0.12
	Wet	0.49	0.26
	SSP1-2.6	0.31	0.08
	SSP3-7.3	0.29	0.06
3 (Year 50)	Dry	0.23	0.00
	Average	0.35	0.12
	Wet	0.49	0.26
	SSP1-2.6	0.31	0.08
	SSP3-7.3	0.29	0.06

Note:

1. Positive number demotes a surplus / negative number denotes a deficit.
2. Balance was determined based on subtracting the runoff to sediment basin by storage looses and expected site water demands of 0.23 ML/yr (for Staff amenities).

6.6 Outcomes

The site water balance results in Table 22 and Table 23 show that at all three stages (year 16, year 30, and a potential year 50), the site will be provided with sufficient non-potable and potable water supply from the sediment basins and rainwater tank (supplied by roof water) under all modelled scenarios including average, dry, and wet years, as well as under climate change scenarios SSP1-2.6, and SSP3-7.3 which have been included for long-term sensitivity purposes.

On this basis, we expect that surface water collection and re-use within the site will be sufficient to meet site demands without reliance on external water tanker supply.

7 Flood Impact Assessment

7.1 Site Flood Characteristics

The site is located in the Hunter River catchment and includes a number of tributaries of Stanhope Creek, which flows southeast towards the Hunter River. BMT undertook a flood assessment for the Hunter River catchment within the Singleton floodplain on behalf of Singleton Council using the TUFLOW hydraulic modelling software, and summarised the assessment in the report *Singleton Floodplain Risk Management Study and Plan (2023)* (the **BMT flood study**). The relevant flood map of the probable maximum flood (**PMF**) event has been extracted from the BMT flood study and is provided in Appendix F with the site annotated.

The following has been summarised for the site flood characteristics:

1. The BMT flood study results show that the entire site and access roads are flood free in regional flood events up to and including the PMF.
2. The regional PMF level downstream of the site is approximately 40 mAHD, approximately 20 m below the lowest areas within the proposed site and access roads.
3. Whilst the site is not affected by flooding from the Hunter River, it is affected by overland flows from the local upstream catchment.
4. As summarised in Table 12, the local catchments upstream of the site are approximately 7 ha to 250 ha, steep, and consist entirely of undeveloped grassed and forested areas. As a result, local overland flows will be short duration, which will be largely confined to the highly channelised existing watercourses.
5. The proposed quarry pit, laydown, processing, and stockpile areas are located at the ridgeline of the local topography with minimal upstream catchments (<6 ha).
6. The proposed office and weighbridge are located downstream of the local catchment, approximately 50 m from and at least 3.5m above, the adjacent watercourse, and are therefore likely to be outside the local overland flow PMF extents.
7. The proposed roads are located primarily along ridge lines with four crossings over unnamed watercourses, as summarised in Table 12.

7.2 Impact Assessment

As the site lies entirely outside the regional flood extents, no flood behaviour impacts are anticipated on the Hunter River or its tributaries as a result of the proposed quarry and associated access roads in regional flood events.

We note the following regarding local overland flow impacts from the site:

1. The proposed quarry pit, laydown, processing, stockpile areas and most of the roads are situated along ridge lines, minimising exposure to any overland flows. Overland flows can be readily managed via stormwater infrastructure outlined in Section 4.

2. All watercourse crossings will be designed to convey the 1% AEP flood event as outlined in Section 4. As such no offsite flood impacts are expected as a result of the proposed watercourse crossings which are all contained within the site boundary.

3. The proposed office and weighbridge are offset from the adjacent flow paths with flows expected to be contained within the existing highly channelised flow paths. Further, overland flows in these areas are expected to be effectively managed through stormwater infrastructure as outlined in Section 4.

4. The surrounding land is RU1 and consists entirely of grass and forested areas with no development within 300 m of the site. Any residual flood impacts not mitigated by the proposed stormwater infrastructure are expected to be minor and limited to low risk areas.

5. The proposed development will not cause detrimental offsite flood impacts, and the site operation is materially affected by flooding.

8 Operations Monitoring Plan

8.1 Overview

An operations monitoring plan has been developed to ensure appropriate operation and functioning of the site sediment basins.

As discussed in Table 3, the Quarry operation will requires an EPL from NSW EPA. Any additional water quality monitoring requirements in excess of those included herein will be incorporated into to this monitoring plan prior to construction.

8.2 Monitoring

Sediment basins require the following monitoring to ensure appropriate operation and functioning:

Table 24: Sediment basin monitoring requirements

Type	Frequency	Activity	Who	Action
Sediment Basin Inspection	Monthly / After Significant Rain Event	Check basin structural integrity	Operator	Repair as required
		Check outlet structure condition	Operator	Repair as required
		Check sediment volume	Operator	Remove excessive sediment
		Check water level	Operator	Record observed level
Basin water sampling	Monthly	Visual inspection for surface hydrocarbons	Operator	If found, identify and remove source
	Quarterly	Collect dry weather TSS, pH and EC sample from each basin	Operator / contractor	Record observed level
	Event Based	Collect at least 3 wet-weather TSS, pH and EC samples from basin overflow	Operator / contractor	Record observed level. Compare to license requirements and rectify any identified exceedance.

8.3 Reporting

Annual water management reporting is to be completed as part of the Quarry's long term management. Reporting is to include:

1. Rainfall and evaporation conditions for the calendar year.
2. Progress of quarrying operations.
3. Any changes to the surface water management system.
4. Any sediment and erosion 'events' experiences (e.g. major storm event, bank failure, etc)
5. Records of sedimentation basin inspection, sampling testing and maintenance.
6. Comparison of records with the previous year and any long term observations or trends.
7. Revision of the stormwater management and monitoring system and any recommendations for continues operation.
8. The monitoring recommended in the HIA report referred to herein can be incorporated into the annual water management report.

9 Summary

This study has documented a water resources assessment completed for the proposed quarry located at Lot 5 Springvale Road, Elderslie & Blind Creek Road, Glendon Brook, NSW. Findings of the study are summarised as follows:

1. Regarding site watercourses:

    a. Whilst there are a number of 1st, 2nd and 3rd order watercourses within the study area, except where the internal access road requires the watercourse to be crossed, the development footprint will not interfere with natural watercourses.

    b. Watercourse crossings will be restricted to those existing under the present farm access track within the site, but will be upgraded to ensure trafficability in the 1 %AEP local catchment overland flow. All crossing designs will be in accordance with relevant guidelines and will ensure that adequate permanent erosion control measures are incorporated into the design to mitigate against any risks to bed or bank stability.

    c. The development footprint will not encroach into the proposed riparian corridor buffers which have been allocated in accordance with the NSW DCCEEW (2025) recommended ranges, thereby ensuring the long-term integrity of these corridors.

    d. The proposed pit has been located to avoid significant adverse impacts on water quality, bed and bank stability, aquatic and riparian habitats, and ecological processes.

2. In respect of surface water management:

    a. 'Clean' water runoff from undisturbed areas of the site will be diverted via channels / bunding to areas downstream of disturbed areas so as to reduce water flows within the development footprint and ensure flow continuity to downstream environments.

    b. 'Dirty' water runoff from all disturbed areas of the site will be directed via channels and drains to a series of sediment detention basins designed and managed in accordance with Volumes 1 and 2 of Landcom's Blue Book (*Managing Urban Stormwater: Soils and Construction*).

    c. Water quality modelling of the site's stormwater management infrastructure was completed using the MUSIC modelling software, which demonstrated that pollutant reduction targets for total suspended solids (TSS), total phosphorus (TP), total nitrogen (TN) and gross pollutants would be achieved for the duration of quarry operations, and potentially for a further 20 years if operations were ultimately extended from 30 to 50 years.

3. In terms of the site water balance:

    a. The site will require an annual non-potable supply of around 60 ML/year for dust suppression and around 0.23 ML/year for potable uses to service staff amenities requirements.

    b. Water balance modelling was completed using the MUSIC model under scenarios including average, dry, and wet years, as well as under climate change conditions were included for long-term sensitivity purposes. Under all scenarios there will be sufficient supply to meet site demands without reliance on external water tanker supply.

4. In terms of flooding and flood affectation:

    a. The entire site is above the regional probable maximum flood as modelled by BMT in the 2023 *Singleton Floodplain Risk Management Study and Plan*. The proposal will therefore not impact on any regional flood behaviour or be impacted by regional flooding.

    b. Parts of the site are affected by local overland flows associated with a range of minor watercourses with relatively small catchment areas. Existing crossings will be upgraded so that these are capable of being accessed during a 1% AEP local catchment flow.

    c. The proposed quarry pit, laydown, processing, stockpile areas and most of the roads are situated along ridge lines, thereby minimising exposure to any non-watercourse overland flows. Overland flows in other parts of the site can be readily managed via stormwater infrastructure.

5. An Operations Monitoring Plan (OMP) has been developed to ensure appropriate operation and functioning of the site sediment basins during quarrying activities. As the Quarry operation will requires an EPL from NSW EPA, any additional water quality monitoring requirements in excess of those included in the OMP will be incorporated into to the OMP prior to construction and in accordance with any conditions of consent. The OMP provides for an annual reporting regime which will also report on monitoring recommended in the HIA report.

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Appendix A – Maps

Legend

- Site Boundary
- Quarry Works Extent
- Study Area
- 5m Contour
- Corrected Hydroline
- Surface Water monitoring locations

225 mAHD
200 mAHD
150 mAHD
125 mAHD
175 mAHD
200 mAHD
175 mAHD
SW01
100 mAHD
75 mAHD
SW02
SW03
150 mAHD
150 mAHD
175 mAHD
150 mAHD
N

0 90 180 270 360 450 m

1:7500 @ A3

Viewport

Note:
- Aerial from Nearmap (2025).
- Contours from ELVIS Lidar (2012).
- Hydroline from NSW Spatial Services Clip and Ship (2025) with minor adjustments to suit local topography.

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Map Title / Figure:
Hydrolines and Surface Water Monitoring Locations

Map 01	Map
Springvale Road, Elderslie, NSW	Site
Bluestone Hardrock Quarry	Project
Water Resources Impact Assessment	Sub-Project
Bluestone Hardrock Pty Ltd	Client
05/12/2025	Date

Project No: P2410628 Map Set: MS04-R03 EPSG: 7856

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Legend

- Site Boundary
- Quarry Works Extent
- Study Area
- 5m Contour
- Corrected Hydroline
- Surface Water monitoring locations

225 mAHD
200 mAHD
150 mAHD
125 mAHD
175 mAHD
200 mAHD
175 mAHD
SW01
100 mAHD
75 mAHD
SW02
SW03
150 mAHD
150 mAHD
175 mAHD
150 mAHD
N

0 90 180 270 360 450 m

1:7500 @ A3

Viewport

Note:
- Aerial from Nearmap (2025).
- Contours from ELVIS Lidar (2012).
- Hydroline from NSW Spatial Services Clip and Ship (2025) with minor adjustments to suit local topography.

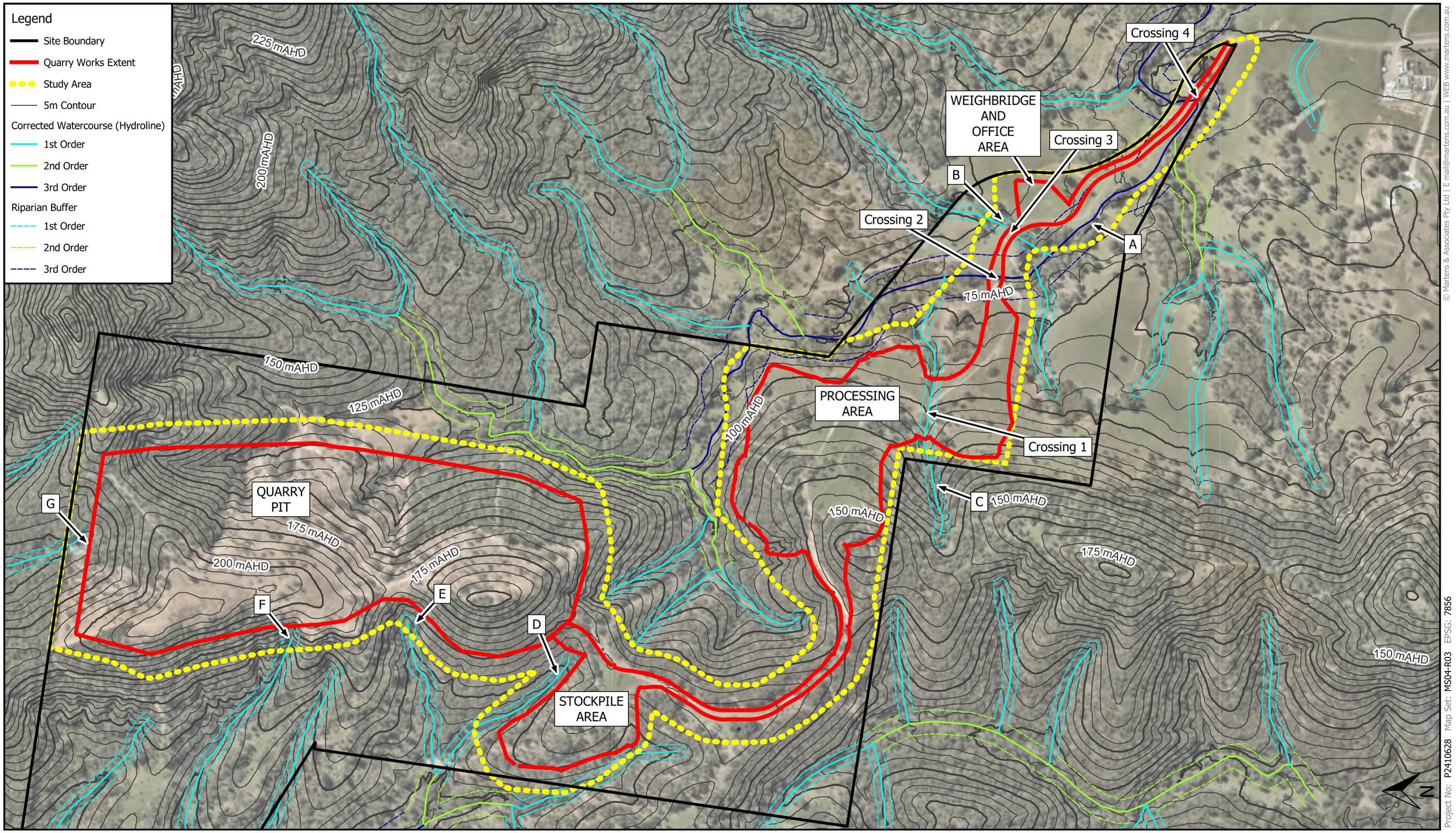
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Map Title / Figure:
Hydrolines and Surface Water Monitoring Locations

Map 01	Map
Springvale Road, Elderslie, NSW	Site
Bluestone Hardrock Quarry	Project
Water Resources Impact Assessment	Sub-Project
Bluestone Hardrock Pty Ltd	Client
05/12/2025	Date

Project No: P2410628 Map Set: MS04-R03 EPSG: 7856

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0 90 180 270 360 450 m

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Viewport

Note:
- Aerial from Nearmap (2025).
- Contours from ELVIS Lidar (2012).
- Hydroline from NSW Spatial Services Clip and Ship (2025) with minor adjustments to suit local topography.
- Provided 1st Order watercourse vegetated riparian zone = 15m.
- Provided 2nd Order watercourse vegetated riparian zone = 25m.
- Provided 3rd Order watercourse vegetated riparian zone = 45m.

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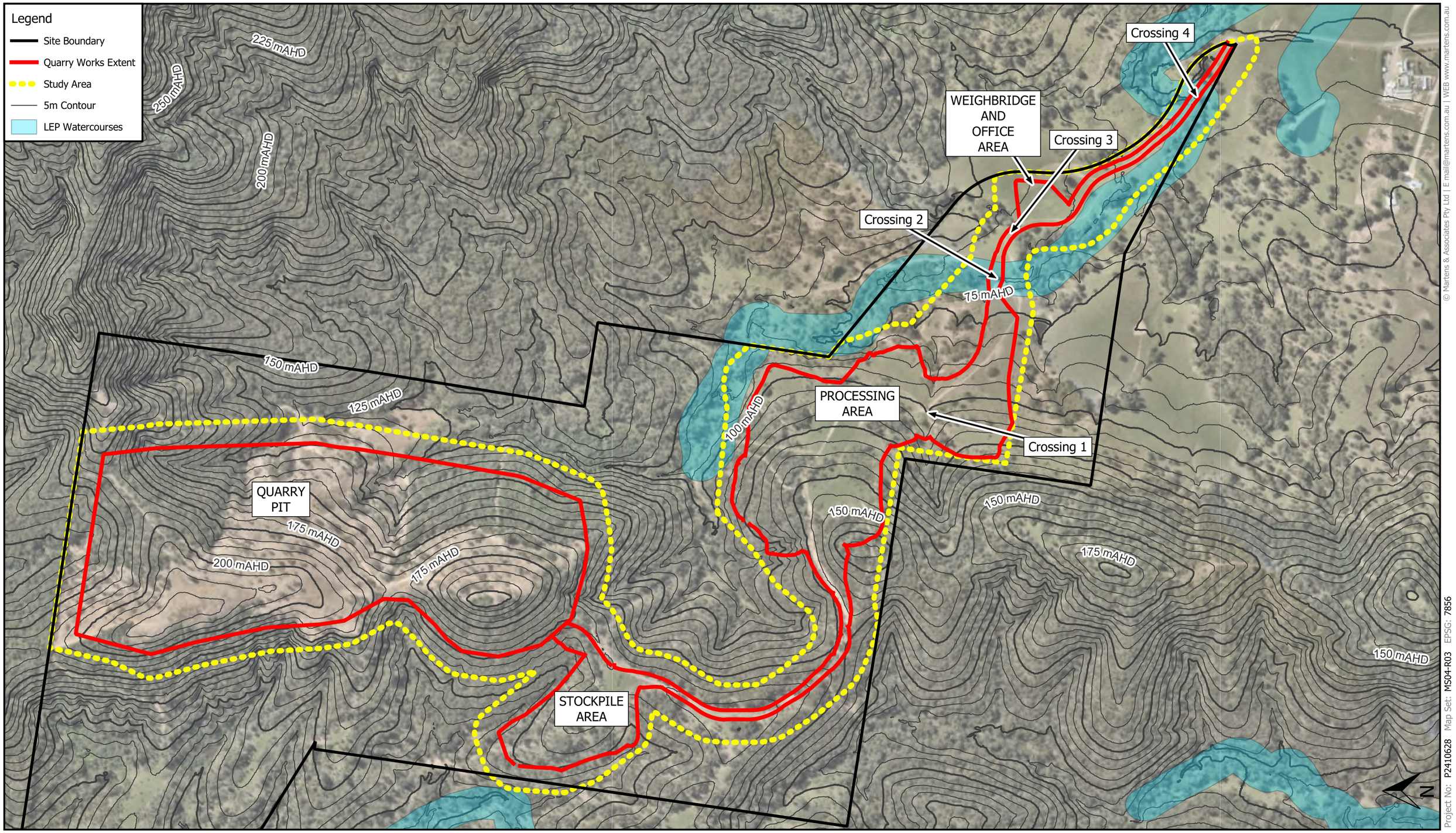
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Project No: P2410628 Map Set: MS04-R03 EPSG: 7856

Map Title / Figure:

Corrected Stream Positions and Riparian Buffers

Map 02	Map
Springvale Road, Elderslie, NSW	Site
Bluestone Hardrock Quarry	Project
Water Resources Impact Assessment	Sub-Project
Bluestone Hardrock Pty Ltd	Client
05/12/2025	Date



0 90 180 270 360 450 m

1:7500 @ A3

Viewport

Note:
- Aerial from Nearmap (2025).
- Contours from ELVIS Lidar (2012).
- Watercourses from Singleton LEP (2013).

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Map Title / Figure:

Singleton LEP Watercourse Mapping

Map 03	Map
Springvale Road, Elderslie, NSW	Site
Bluestone Hardrock Quarry	Project
Water Resources Impact Assessment	Sub-Project
Bluestone Hardrock Pty Ltd	Client
05/12/2025	Date

Project No: P2410628 Map Set: MS04-R03 EPSG: 7856

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Legend

- Site Boundary
- Quarry Works Extent
- Proposed Layout
- 5m Contour
- Corrected Hydroline
- Proposed culvert crossing
- Road side swale
- Clean water diversion swale
- Proposed sediment basin (size and location indicative only)
- Fill batter
- Cut batter

225 mAHD
200 mAHD
150 mAHD
125 mAHD
175 mAHD
200 mAHD
175 mAHD
100 mAHD
75 mAHD
150 mAHD
175 mAHD
150 mAHD

QUARRY PIT
PROCESSING AREA
STOCKPILE AREA
WEIGHBRIDGE AND OFFICE AREA

Crossing 1
Crossing 2
Crossing 3
Crossing 4

SPRINGVALE ROAD

0 90 180 270 360 450 m

1:7500 @ A3

Viewport

Note:
- Aerial from Nearmap (2025).
- Contours from ELVIS Lidar (2012).
- Hydroline from NSW Spatial Services Clip and Ship (2025) with minor adjustments to suit local topography.

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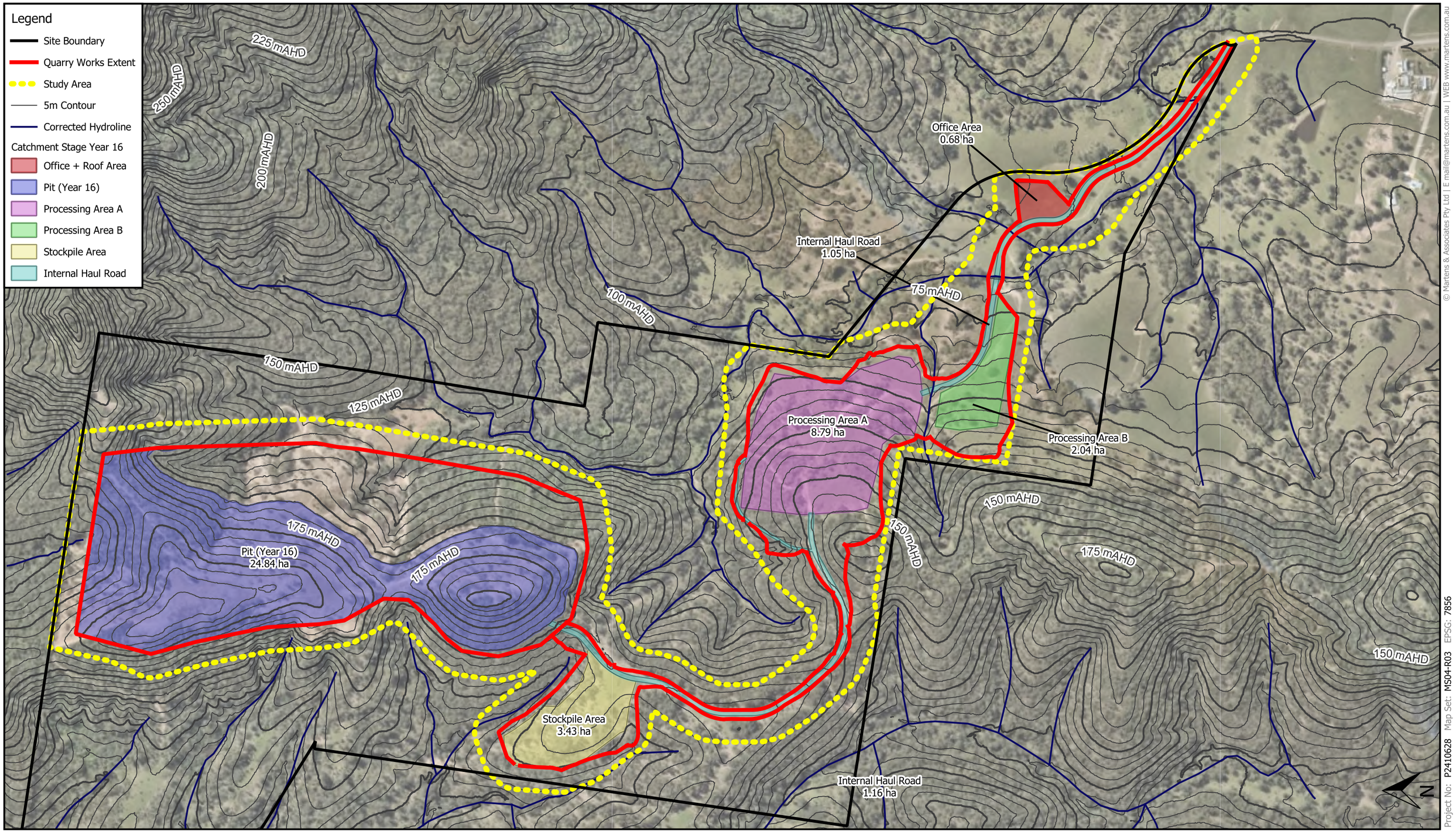
Map Title / Figure:

Concept Stormwater Management Plan

Map 04	Map
Springvale Road, Elderslie, NSW	Site
Bluestone Hardrock Quarry	Project
Water Resources Impact Assessment	Sub-Project
Bluestone Hardrock Pty Ltd	Client
05/12/2025	Date

Project No: P2410628 Map Set: MS04-R03 EPSG: 7856

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Viewport

Note:
- Aerial from Nearmap (2025).
- Contours from ELVIS Lidar (2012).
- Hydroline from NSW Spatial Services Clip and Ship (2025) with minor adjustments to suit local topography.

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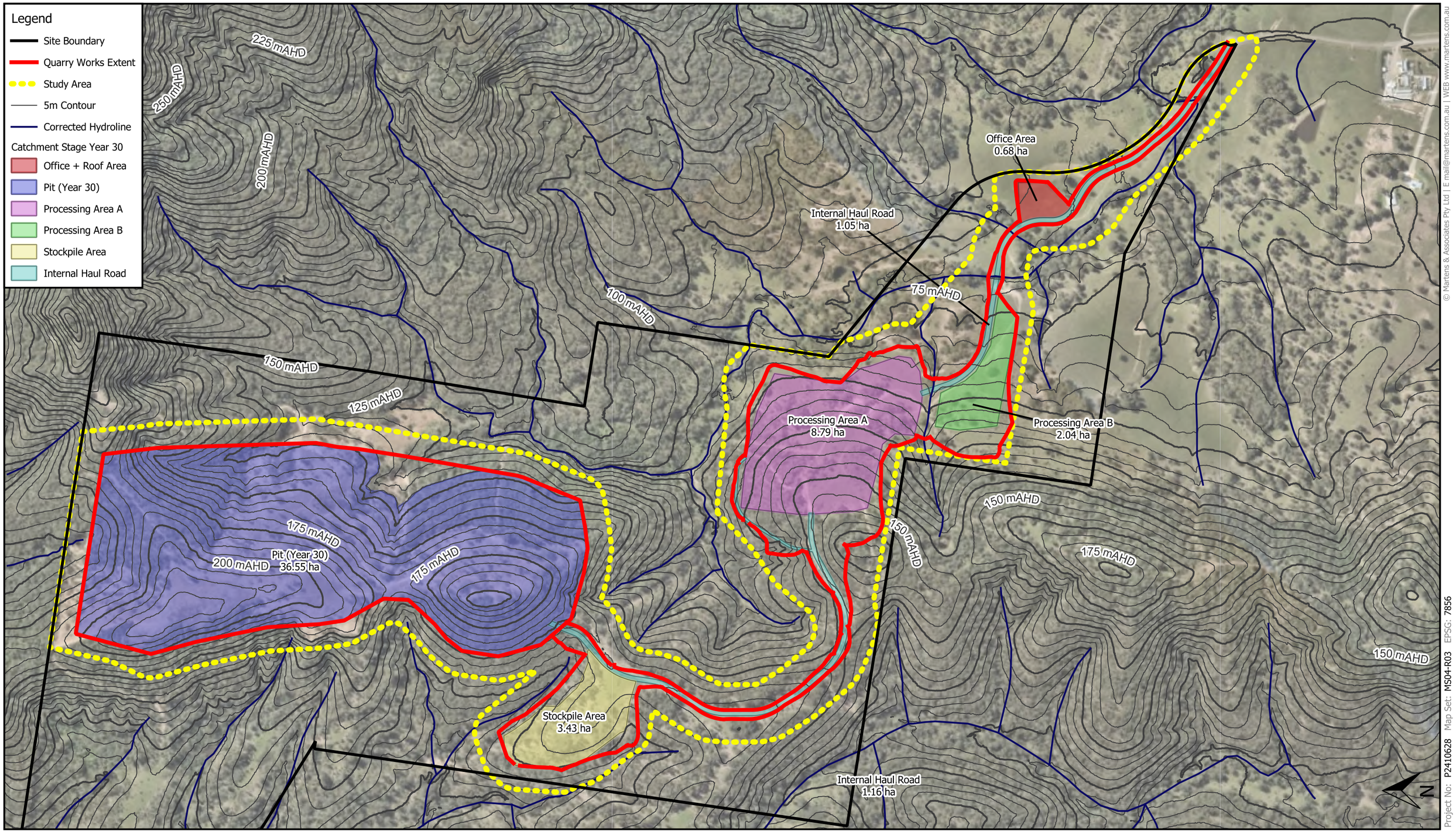
Map Title / Figure:

Catchments for Quarry at Year 16

Map 05	Map
Springvale Road, Elderslie, NSW	Site
Bluestone Hardrock Quarry	Project
Water Resources Impact Assessment	Sub-Project
Bluestone Hardrock Pty Ltd	Client
05/12/2025	Date

Project No: P2410628 Map Set: MS04-R03 EPSG: 7856

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Viewport

Note:
- Aerial from Nearmap (2025).
- Contours from ELVIS Lidar (2012).
- Hydroline from NSW Spatial Services Clip and Ship (2025) with minor adjustments to suit local topography.

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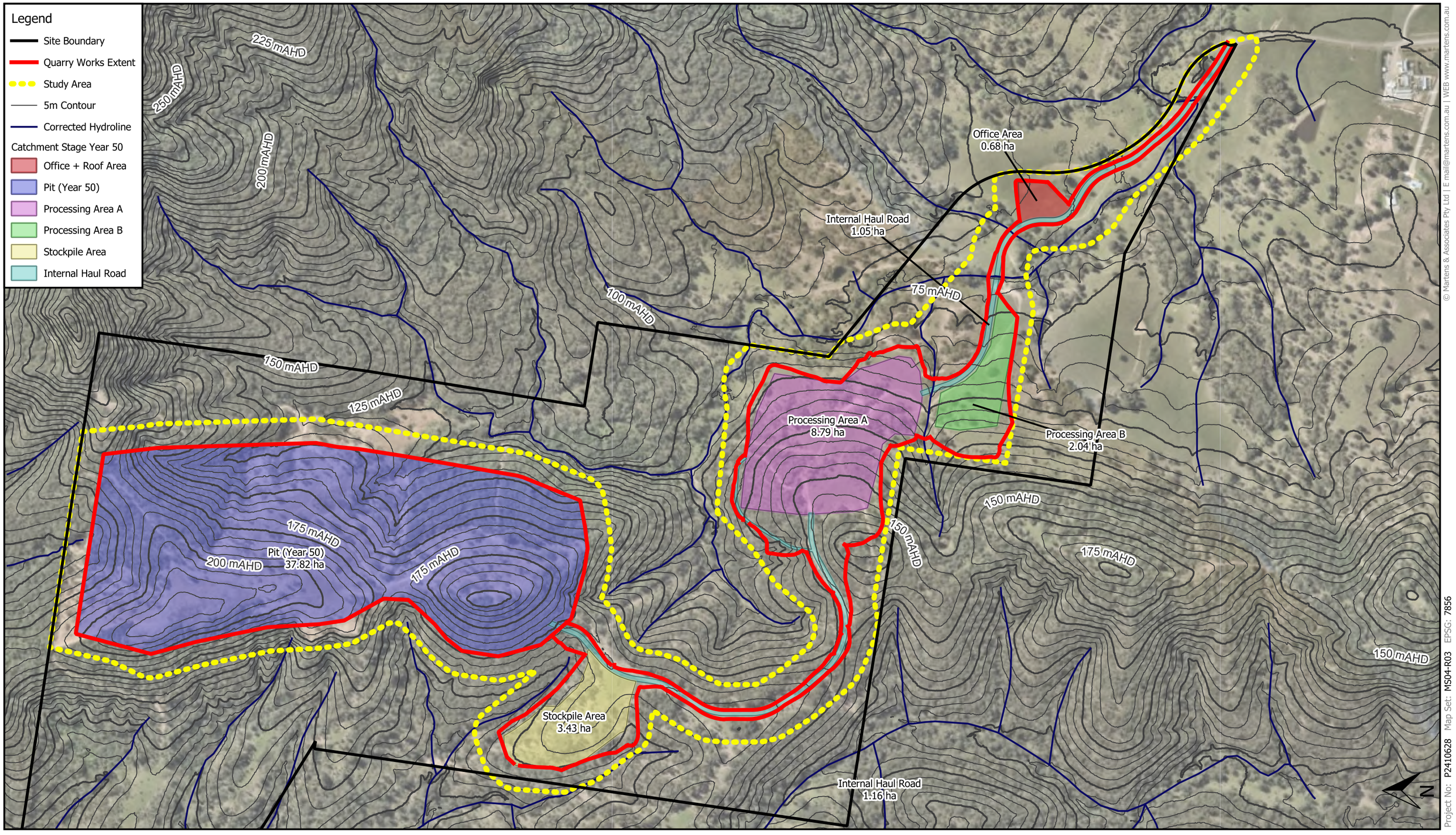
Map Title / Figure:

Catchments for Quarry at Year 30

Map 06	Map
Springvale Road, Elderslie, NSW	Site
Bluestone Hardrock Quarry	Project
Water Resources Impact Assessment	Sub-Project
Bluestone Hardrock Pty Ltd	Client
05/12/2025	Date

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Project No: P2410628 Map Set: MS04-R03 EPSG: 7856



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Project No: P2410628 Map Set: MS04-R03 EPSG: 7856

0 90 180 270 360 450 m

1:7500 @ A3

Viewport

Note:
- Aerial from Nearmap (2025).
- Contours from ELVIS Lidar (2012).
- Hydroline from NSW Spatial Services Clip and Ship (2025) with minor adjustments to suit local topography.

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Map Title / Figure:

Catchments for Quarry at Year 50

Map 07	Map
Springvale Road, Elderslie, NSW	Site
Bluestone Hardrock Quarry	Project
Water Resources Impact Assessment	Sub-Project
Bluestone Hardrock Pty Ltd	Client
05/12/2025	Date

Appendix B – Water Sampling Results

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 386255

Client Details

Client	Martens & Associates Pty Ltd
Attention	Dean Shi
Address	Suite 201, 20 George St, Hornsby, NSW, 2077

Sample Details

Your Reference	**P2410628 - Elderslie**
Number of Samples	6 Water
Date samples received	18/07/2025
Date completed instructions received	18/07/2025

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	25/07/2025
Date of Issue	24/07/2025

NATA Accreditation Number 2901. This document shall not be reproduced except in full.

Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***

Results Approved By
Giovanni Agosti, Group Technical Manager
Larry Ye, Senior Chemist
Priya Samarawickrama, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

HM in water - dissolved						
Our Reference		386255-1	386255-2	386255-3	386255-4	386255-5
Your Reference	UNITS	MW01	MW04	MW05	SW01	SW02
Date Sampled		17/07/2025	17/07/2025	17/07/2025	17/07/2025	17/07/2025
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	21/07/2025	21/07/2025	21/07/2025	21/07/2025	21/07/2025
Date analysed	-	21/07/2025	21/07/2025	21/07/2025	21/07/2025	21/07/2025
Arsenic-Dissolved	µg/L	1	<1	2	<1	<1
Cadmium-Dissolved	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium-Dissolved	µg/L	2	<1	2	<1	<1
Copper-Dissolved	µg/L	<1	9	<1	<1	<1
Lead-Dissolved	µg/L	<1	<1	<1	<1	<1
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Nickel-Dissolved	µg/L	13	21	12	<1	<1
Zinc-Dissolved	µg/L	4	270	2	2	4

HM in water - dissolved		
Our Reference		386255-6
Your Reference	UNITS	SW03
Date Sampled		17/07/2025
Type of sample		Water
Date prepared	-	21/07/2025
Date analysed	-	21/07/2025
Arsenic-Dissolved	µg/L	<1
Cadmium-Dissolved	µg/L	<0.1
Chromium-Dissolved	µg/L	<1
Copper-Dissolved	µg/L	<1
Lead-Dissolved	µg/L	<1
Mercury-Dissolved	µg/L	<0.05
Nickel-Dissolved	µg/L	<1
Zinc-Dissolved	µg/L	4

Metals in Waters - Acid extractable						
Our Reference		386255-1	386255-2	386255-3	386255-4	386255-5
Your Reference	UNITS	MW01	MW04	MW05	SW01	SW02
Date Sampled		17/07/2025	17/07/2025	17/07/2025	17/07/2025	17/07/2025
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	21/07/2025	21/07/2025	21/07/2025	21/07/2025	21/07/2025
Date analysed	-	21/07/2025	21/07/2025	21/07/2025	21/07/2025	21/07/2025
Phosphorus - Total	mg/L	0.1	0.3	<0.05	<0.05	<0.05

Metals in Waters - Acid extractable		
Our Reference		386255-6
Your Reference	UNITS	SW03
Date Sampled		17/07/2025
Type of sample		Water
Date prepared	-	21/07/2025
Date analysed	-	21/07/2025
Phosphorus - Total	mg/L	0.3

Ion Balance						
Our Reference		386255-1	386255-2	386255-3	386255-4	386255-5
Your Reference	UNITS	MW01	MW04	MW05	SW01	SW02
Date Sampled		17/07/2025	17/07/2025	17/07/2025	17/07/2025	17/07/2025
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	22/07/2025	22/07/2025	22/07/2025	22/07/2025	22/07/2025
Date analysed	-	22/07/2025	22/07/2025	22/07/2025	22/07/2025	22/07/2025
Calcium - Dissolved	mg/L	170	150	120	15	8.3
Potassium - Dissolved	mg/L	4	4	3	1	2
Sodium - Dissolved	mg/L	200	160	320	38	27
Magnesium - Dissolved	mg/L	97	63	67	10	5.7
Hardness (calc) equivalent $CaCO_3$	mg/L	830	630	570	80	44
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	<5	<5	<5	<5	<5
Bicarbonate Alkalinity as $CaCO_3$	mg/L	350	480	550	63	38
Carbonate Alkalinity as $CaCO_3$	mg/L	<5	<5	<5	<5	<5
Total Alkalinity as $CaCO_3$	mg/L	350	480	550	63	38
Sulphate, SO4	mg/L	69	66	57	26	22
Chloride, Cl	mg/L	520	280	410	66	50
Ionic Balance	%	5.0	2.0	4.0	-5.0	-11

Ion Balance		
Our Reference		386255-6
Your Reference	UNITS	SW03
Date Sampled		17/07/2025
Type of sample		Water
Date prepared	-	22/07/2025
Date analysed	-	22/07/2025
Calcium - Dissolved	mg/L	18
Potassium - Dissolved	mg/L	4
Sodium - Dissolved	mg/L	27
Magnesium - Dissolved	mg/L	10
Hardness (calc) equivalent $CaCO_3$	mg/L	88
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	<5
Bicarbonate Alkalinity as $CaCO_3$	mg/L	82
Carbonate Alkalinity as $CaCO_3$	mg/L	<5
Total Alkalinity as $CaCO_3$	mg/L	82
Sulphate, SO4	mg/L	30
Chloride, Cl	mg/L	50
Ionic Balance	%	-10

Miscellaneous Inorganics						
Our Reference		386255-1	386255-2	386255-3	386255-4	386255-5
Your Reference	UNITS	MW01	MW04	MW05	SW01	SW02
Date Sampled		17/07/2025	17/07/2025	17/07/2025	17/07/2025	17/07/2025
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	21/07/2025	21/07/2025	21/07/2025	21/07/2025	21/07/2025
Date analysed	-	21/07/2025	21/07/2025	21/07/2025	21/07/2025	21/07/2025
pH	pH Units	7.1	7.1	7.3	6.7	6.6
Electrical Conductivity	µS/cm	3,000	2,200	2,600	420	270
Ammonia as N in water	mg/L	0.11	1.4	0.05	0.084	0.05
Nitrate as N in water	mg/L	1.2	0.37	<0.005	0.007	<0.005
Nitrite as N in water	mg/L	<0.005	0.29	<0.005	<0.005	<0.005
NOx as N in water	mg/L	1.2	0.66	<0.005	0.01	0.006
Total Nitrogen in water	mg/L	1.3	2.1	0.2	0.3	0.2
TKN in water	mg/L	0.1	1.5	0.2	0.3	0.2
Phosphate as P in water	mg/L	<0.050	0.17	<0.005	<0.005	<0.005
Organic Nitrogen as N	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2

Miscellaneous Inorganics		
Our Reference		386255-6
Your Reference	UNITS	SW03
Date Sampled		17/07/2025
Type of sample		Water
Date prepared	-	21/07/2025
Date analysed	-	21/07/2025
pH	pH Units	6.7
Electrical Conductivity	µS/cm	360
Ammonia as N in water	mg/L	0.23
Nitrate as N in water	mg/L	0.006
Nitrite as N in water	mg/L	<0.005
NOx as N in water	mg/L	0.009
Total Nitrogen in water	mg/L	0.8
TKN in water	mg/L	0.8
Phosphate as P in water	mg/L	0.02
Organic Nitrogen as N	mg/L	0.5

Method ID	Methodology Summary
Inorg-001	pH - Measured using pH meter and electrode. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell.
Inorg-006	Alkalinity - determined titrimetrically in accordance with APHA latest edition, 2320-B.
Inorg-040	The concentrations of the major ions (mg/L) are converted to milliequivalents and summed. The ionic balance should be within +/- 15% ie total anions = total cations +/-15%.
Inorg-055	Nitrate - determined colourimetrically. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-055	Nitrite - determined colourimetrically based on APHA latest edition NO2- B. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-055/062/127	Total Nitrogen - Calculation sum of TKN and oxidised Nitrogen. Alternatively analysed by combustion and chemiluminescence.
Inorg-057	Ammonia - determined colourimetrically, based on APHA latest edition 4500-NH3 F. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a KCl extraction.
Inorg-060	Phosphate determined colourimetrically based on EPA365.1 and APHA latest edition 4500 P E. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-062	TKN - determined colourimetrically based on APHA latest edition 4500 Norg. Alternatively, TKN can be derived from calculation (Total N - NOx).
Inorg-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA latest edition, 4110-B. Waters samples are filtered on receipt prior to analysis. Alternatively determined by colourimetry/turbidity using Discrete Analyser.
Metals-020	Determination of various metals by ICP-AES. Total Phosphate determined stochiometrically from Phosphorus (assumed to be present as Phosphate). Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation. Submission of low masses of sample e.g. for dust samples, may result in raised PQLs.
Metals-021	Determination of Mercury by Cold Vapour AAS.

Method ID	Methodology Summary
Metals-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.

QUALITY CONTROL: HM in water - dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	386255-2
Date prepared	-			21/07/2025	1	21/07/2025	21/07/2025		21/07/2025	21/07/2025
Date analysed	-			21/07/2025	1	21/07/2025	21/07/2025		21/07/2025	21/07/2025
Arsenic-Dissolved	µg/L	1	Metals-022	<1	1	1	1	0	101	110
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	1	<0.1	<0.1	0	98	102
Chromium-Dissolved	µg/L	1	Metals-022	<1	1	2	2	0	102	106
Copper-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	101	105
Lead-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	100	88
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	1	<0.05	<0.05	0	88	84
Nickel-Dissolved	µg/L	1	Metals-022	<1	1	13	13	0	101	107
Zinc-Dissolved	µg/L	1	Metals-022	<1	1	4	4	0	101	#

QUALITY CONTROL: Metals in Waters - Acid extractable						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			21/07/2025	3	21/07/2025	21/07/2025		21/07/2025	[NT]
Date analysed	-			21/07/2025	3	21/07/2025	21/07/2025		21/07/2025	[NT]
Phosphorus - Total	mg/L	0.05	Metals-020	<0.05	3	<0.05	<0.05	0	90	[NT]

QUALITY CONTROL: Ion Balance						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	386255-2
Date prepared	-			22/07/2025	1	22/07/2025	22/07/2025		22/07/2025	22/07/2025
Date analysed	-			22/07/2025	1	22/07/2025	22/07/2025		22/07/2025	22/07/2025
Calcium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	170	[NT]		102	[NT]
Potassium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	4	[NT]		101	[NT]
Sodium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	200	[NT]		98	[NT]
Magnesium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	97	[NT]		99	[NT]
Hardness (calc) equivalent $CaCO_3$	mg/L	3	Metals-020	[NT]	1	830	[NT]		[NT]	[NT]
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	5	Inorg-006	<5	1	<5	[NT]		[NT]	[NT]
Bicarbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	1	350	[NT]		[NT]	[NT]
Carbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	1	<5	[NT]		[NT]	[NT]
Total Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	1	350	[NT]		102	[NT]
Sulphate, SO4	mg/L	1	Inorg-081	<1	1	69	[NT]		117	#
Chloride, Cl	mg/L	1	Inorg-081	<1	1	520	520	0	104	70
Ionic Balance	%		Inorg-040	[NT]	1	5.0	[NT]		[NT]	[NT]

QUALITY CONTROL: Ion Balance						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	3	22/07/2025	22/07/2025		[NT]	[NT]
Date analysed	-			[NT]	3	22/07/2025	22/07/2025		[NT]	[NT]
Calcium - Dissolved	mg/L	0.5	Metals-020	[NT]	3	120	120	0	[NT]	[NT]
Potassium - Dissolved	mg/L	0.5	Metals-020	[NT]	3	3	3	0	[NT]	[NT]
Sodium - Dissolved	mg/L	0.5	Metals-020	[NT]	3	320	320	0	[NT]	[NT]
Magnesium - Dissolved	mg/L	0.5	Metals-020	[NT]	3	67	67	0	[NT]	[NT]
Hardness (calc) equivalent $CaCO_3$	mg/L	3	Metals-020	[NT]	3	570	580	2	[NT]	[NT]
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	5	Inorg-006	[NT]	3	<5	[NT]		[NT]	[NT]
Bicarbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	[NT]	3	550	[NT]		[NT]	[NT]
Carbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	[NT]	3	<5	[NT]		[NT]	[NT]
Total Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	[NT]	3	550	[NT]		[NT]	[NT]
Sulphate, SO4	mg/L	1	Inorg-081	[NT]	3	57	[NT]		[NT]	[NT]
Chloride, Cl	mg/L	1	Inorg-081	[NT]	3	410	[NT]		[NT]	[NT]
Ionic Balance	%		Inorg-040	[NT]	3	4.0	[NT]		[NT]	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	386255-2
Date prepared	-			21/07/2025	1	21/07/2025	21/07/2025		21/07/2025	21/07/2025
Date analysed	-			21/07/2025	1	21/07/2025	21/07/2025		21/07/2025	21/07/2025
pH	pH Units		Inorg-001	[NT]	1	7.1	[NT]		98	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	<1	1	3000	[NT]		99	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	1	0.11	0.10	10	108	108
Nitrate as N in water	mg/L	0.005	Inorg-055	<0.005	1	1.2	1.1	9	87	100
Nitrite as N in water	mg/L	0.005	Inorg-055	<0.005	1	<0.005	<0.005	0	95	118
NOx as N in water	mg/L	0.005	Inorg-055	<0.005	1	1.2	1.1	9	87	100
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	<0.1	1	1.3	1.3	0	96	94
TKN in water	mg/L	0.1	Inorg-062	<0.1	1	0.1	0.2	67	[NT]	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	<0.005	1	<0.050	<0.050	0	111	128
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	<0.2	1	<0.2	<0.2	0	[NT]	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Air volumes are typically provided by customers (often as flow rate(s) and sampling time(s) and/or simply volumes) sampled or exposure times (determines 'volume' passive badges are exposed to)). Hence in such circumstances the volume measurement is inevitably not covered by Envirolab's NATA accreditation. An exception may occur where Envirolab Newcastle does the sampling where accreditation exists for certain types of sampling and hence volume determination(s). Note air volumes are often used to determine concentrations for dust and/or analyses on filters, sorbents and in impingers. For canister sampling, the air volume is covered by Envirolab's NATA accreditation.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

For Dust Deposit Gauge (DDG) analysis the sampling, sampling period and funnel exposure area do not fall under Envirolab's NATA accreditation (unless the Newcastle laboratory where responsible for the sampling), hence the annotation on the DDG units of reporting.

Urine Analysis - The BEI values listed are taken from the 2022 edition of "TLVs and BEIs Threshold Limits" by ACGIH.

Report Comments

ION_BALANCE: # Percent recovery is not applicable due to the high concentration of the analyte/s in the sample/s. However an acceptable recovery was obtained for the LCS.

Total metals: no unfiltered, preserved sample was received, therefore analysis was conducted from the unpreserved sample bottle. Note: there is a possibility some elements may be underestimated.

8 HM in water - dissolved - # Percent recovery is not applicable due to the high concentration of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

MISC_INORG: Phosphate as P in water PQL has been raised due to matrix interferences from analytes (other than those being tested) in the sample/s. Samples were diluted and reanalysed however same results were achieved.

Appendix C – Site Photos



Figure 1: Watercourse A view of existing Crossing 2.



Figure 2: Watercourse A view downstream near Crossing 2.



Figure 3: Watercourse A view downstream near Crossing 2.



Figure 4: Watercourse A view downstream between Crossing 4 and Crossing 2.



Figure 5: Watercourse A view upstream between Crossing 4 and Crossing 2.



Figure 6: Watercourse A view downstream between Crossing 4 and Crossing 2.



Figure 7: Watercourse A view upstream between Crossing 4 and Crossing 2.



Figure 8: Watercourse A view upstream between Crossing 4 and Crossing 2.



Figure 9: Watercourse A view upstream near Crossing 4.



Figure 10: Watercourse A view downstream near Crossing 4.



Figure 11: Watercourse A view at existing Crossing 4.



Figure 12: Watercourse B view upstream.



Figure 13: Watercourse B view downstream.



Figure 14: Watercourse B view at existing Crossing 3.



Figure 15: Watercourse C view upstream.



Figure 16: Watercourse C view downstream.



Figure 17: Watercourse C view at existing Crossing 1.



Figure 18: Watercourse C view at existing Crossing 1.



Figure 19: Top of Watercourse D view downstream.



Figure 20: Top of Watercourse D view upstream.



Figure 21: Top of Watercourse E view downstream.



Figure 22: Top of Watercourse F view downstream.



Figure 23: Top of Watercourse G view across.

Appendix D – MUSIC Modelling Layout

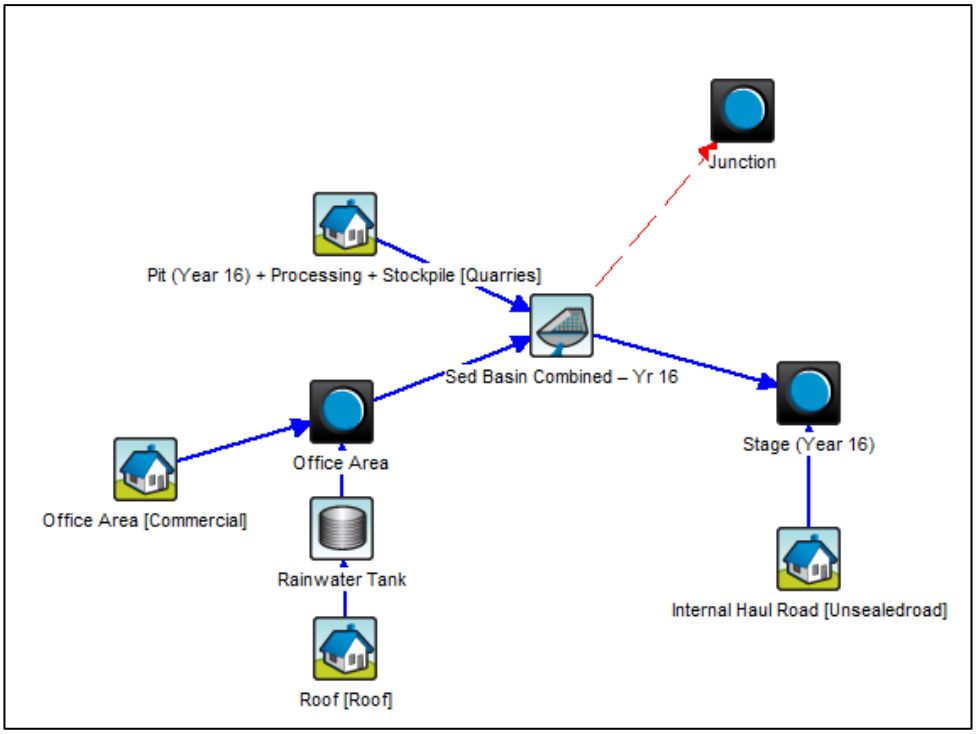


Figure 24: Quarry at Year 16 MUSIC model layout.

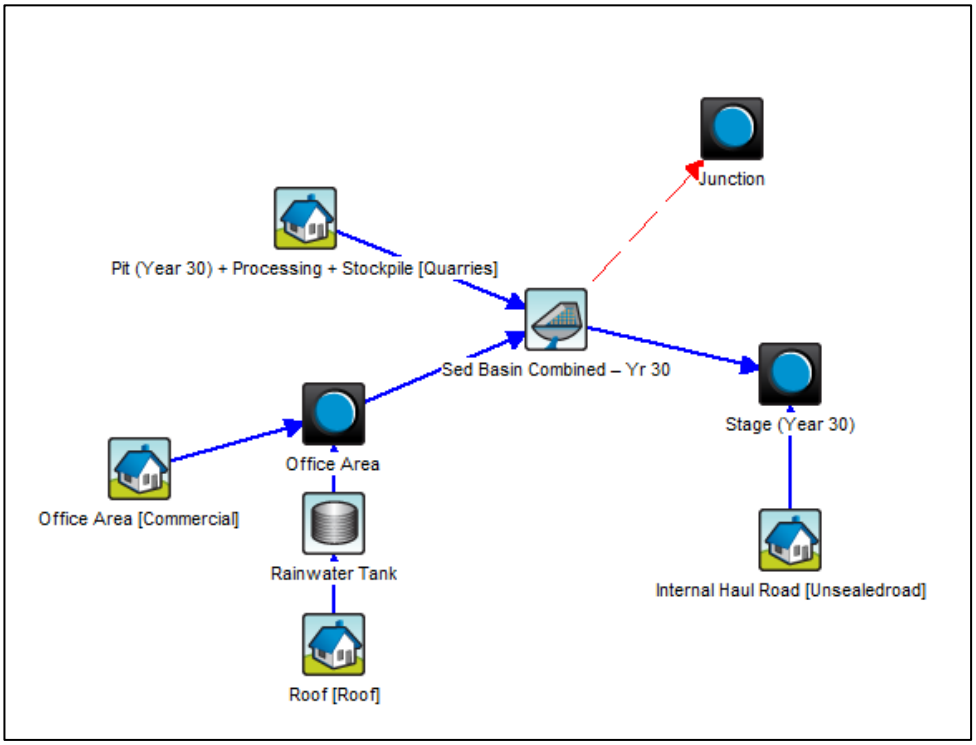


Figure 25: Quarry at Year 30 MUSIC model layout.

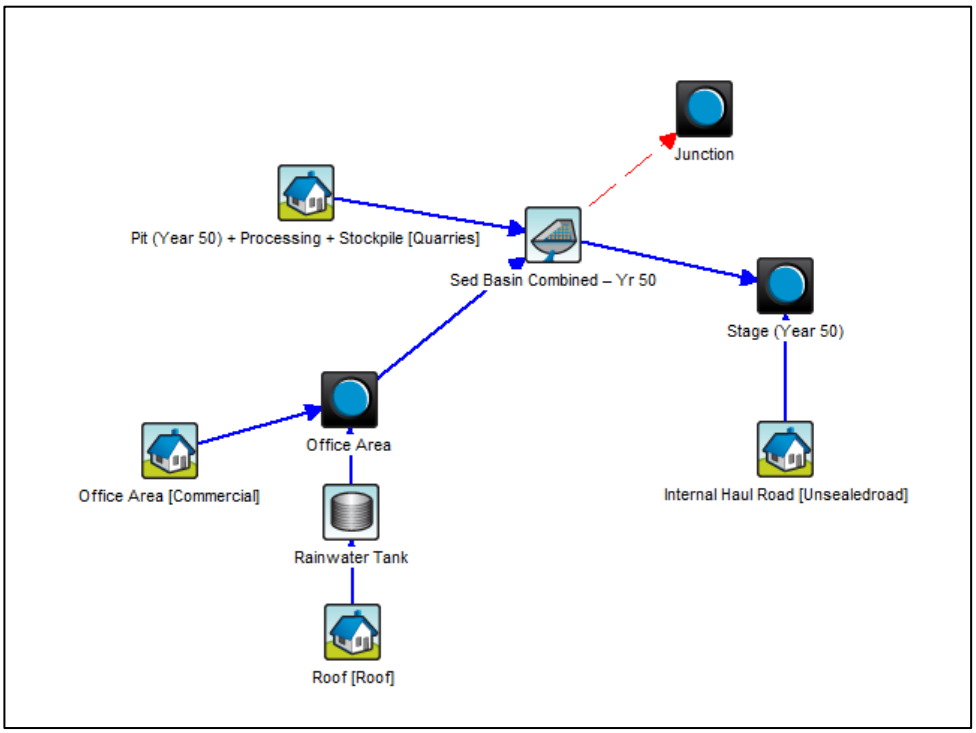
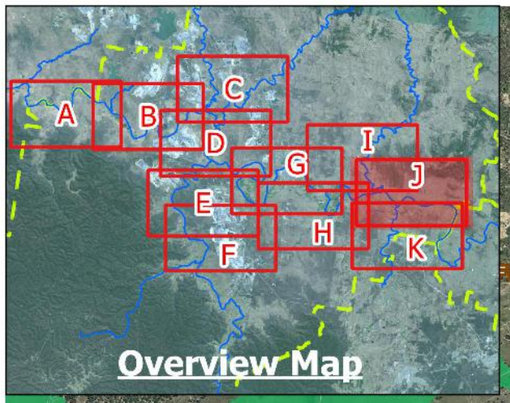


Figure 26: Quarry at Year 50 MUSIC model layout.

Appendix E – MUSIC Modelling Inputs

Parameter	Description	Input	Reference
Setup	Climate File	Rainfall data from Elderslie climatological station (Station no. 61092)	BOM and Silo
Source Nodes	Rainfall Threshold	Based on surface type specified in Table 5-4 of NSW MUSIC Modelling Guidelines	BMT WBM MUSIC Modelling Guidelines (2015)
	Rainfall Runoff Parameters	Based on 'silty clay' soil texture specified in Table 5-5 of NSW MUSIC Modelling Guidelines	BMT WBM MUSIC Modelling Guidelines (2015)
	Base & Storm flow Parameter	As per Table 5-6 & 5-7 of NSW MUSIC Modelling Guidelines	BMT WBM MUSIC Modelling Guidelines (2015)
	Estimation Method	Stochastically generated	BMT WBM MUSIC Modelling Guidelines (2015)
Sediment Basins	Low Flow By-Pass	0 m^3/s	Assumed no bypass
	High Flow By-Pass	100 m^3/s	Assumed no bypass
	Extended Detention Depth	0.01 m	Nominally zero (no detention depth modelled)
	Surface Area	15000 m^2 (Year 16) 19350 m^2 (Year 30) 19850 m^2 (Year 50)	By design, basin assumed to be approximately 2 m deep
	Permanent Volume	30000 m^3 (Year 16) 38700 m^3 (Year 30) 39700 m^3 (Year 50)	By design
	Initial Volume	30000 m^3 (Year 16) 38700 m^3 (Year 30) 39700 m^3 (Year 50)	By design
	Exfiltration Rate	0.0 mm/hr	By design
	Evaporative Loss	75 %	MUSIC default
	Equivalent Pipe Diameter	300 mm	MUSIC default
	Overflow Weir width	2 m	MUSIC default

Appendix F – PMF Map (BMT 2023)



Site

GLENDON BROOK

ELDERSLIE

STANHOPE

LAMBS VALLEY

GLENDON

GLENDON LANE

BRANXTON

DALWOOD

LECONFIELD

LOWER BELFORD

HUNTER RIVER

STANHOPE ROAD

GLENDON BROOK

BRANXTON CREEK

STEWARTS CREEK

SPRINGVALE ROAD

CRANKY CORNER ROAD

GLENALISTER ROAD

STANHOPE CREEK

LAMBS VALLEY CREEK

KILFOYLES CREEK

ELDERSLIE ROAD

BLACK CREEK

Peak Flood Level (mAHD)

- <= 15.00
- 15.00 - 20.00
- 20.00 - 25.00
- 25.00 - 30.00
- 30.00 - 35.00
- 35.00 - 40.00
- 40.00 - 45.00
- 45.00 - 50.00
- 50.00 - 55.00
- 55.00 - 60.00
- 60.00 - 65.00
- 65.00 - 70.00
- 70.00 - 75.00
- 75.00 - 80.00
- 80.00 - 85.00
- 85.00 - 90.00
- > 90.00

Legend

- LGA Boundaries
- Lot

Title:

PMF Design Event - Peak Flood Level - Elderslie

Drawing: **C-08.J**

Rev: **A**

BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.

0 0.5 1 1.5 2 km

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Filepath: S:\WATER\PROJECTS\N21030_Singleton_Modelling\MI\QGIS\220812_FRMS_MainReport_Result_Generator\02_C_Level\02_C_Level_DesignEvent.qgz

Appendix G – Development Plans

PROPOSED HAUL ROAD WORKS

SPRINGVALE ROAD, ELDERSLIE

BLUESTONE HARDROCK QUARRY

CONSENT AUTHORITY: NSW DEPARTMENT OF PLANNING

DATE: APRIL 2026

DRAWING SCHEDULE

DWG NO.	SHEET TITLE	REV
C00	COVER SHEET	10
C01	GENERAL ARRANGEMENT SHEET	8
C02	PLAN SHEET 1 OF 10	8
C03	PLAN SHEET 2 OF 10	10
C04	PLAN SHEET 3 OF 10	6
C05	PLAN SHEET 4 OF 10	6
C06	PLAN SHEET 5 OF 10	5
C07	PLAN SHEET 6 OF 10	7
C08	PLAN SHEET 7 OF 10	7
C09	PLAN SHEET 8 OF 10	7
C10	PLAN SHEET 9 OF 10	7
C11	PLAN SHEET 10 OF 10	7
C12	HAUL ROAD 1 LONGITUDINAL SECTION	8
C13	HAUL ROAD 1 CROSS SECTIONS SHEET 1 OF 7	8
C14	HAUL ROAD 1 CROSS SECTIONS SHEET 2 OF 7	8
C15	HAUL ROAD 1 CROSS SECTIONS SHEET 3 OF 7	8
C16	HAUL ROAD 1 CROSS SECTIONS SHEET 4 OF 7	8
C17	HAUL ROAD 1 CROSS SECTIONS SHEET 5 OF 7	8
C18	HAUL ROAD 1 CROSS SECTIONS SHEET 6 OF 7	8
C18A	HAUL ROAD 1 CROSS SECTIONS SHEET 7 OF 7	8
C19	HAUL ROAD 2 LONGITUDINAL SECTION SHEET 1 OF 3	5
C20	HAUL ROAD 2 LONGITUDINAL SECTION SHEET 2 OF 3	5
C21	HAUL ROAD 2 LONGITUDINAL SECTION SHEET 3 OF 3	5
C22	HAUL ROAD 2 CROSS SECTIONS SHEET 1 OF 21	5
C23	HAUL ROAD 2 CROSS SECTIONS SHEET 2 OF 21	5
C24	HAUL ROAD 2 CROSS SECTIONS SHEET 3 OF 21	7
C25	HAUL ROAD 2 CROSS SECTIONS SHEET 4 OF 21	7
C26	HAUL ROAD 2 CROSS SECTIONS SHEET 5 OF 21	7
C27	HAUL ROAD 2 CROSS SECTIONS SHEET 6 OF 21	7
C28	HAUL ROAD 2 CROSS SECTIONS SHEET 7 OF 21	7
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C30	HAUL ROAD 2 CROSS SECTIONS SHEET 9 OF 21	7
C31	HAUL ROAD 2 CROSS SECTIONS SHEET 10 OF 21	7
C32	HAUL ROAD 2 CROSS SECTIONS SHEET 11 OF 21	7
C33	HAUL ROAD 2 CROSS SECTIONS SHEET 12 OF 21	7
C34	HAUL ROAD 2 CROSS SECTIONS SHEET 13 OF 21	7
C35	HAUL ROAD 2 CROSS SECTIONS SHEET 14 OF 21	7
C36	HAUL ROAD 2 CROSS SECTIONS SHEET 15 OF 21	7
C37	HAUL ROAD 2 CROSS SECTIONS SHEET 16 OF 21	7
C38	HAUL ROAD 2 CROSS SECTIONS SHEET 17 OF 21	7
C39	HAUL ROAD 2 CROSS SECTIONS SHEET 18 OF 21	7
C40	HAUL ROAD 2 CROSS SECTIONS SHEET 19 OF 21	7
C41	HAUL ROAD 2 CROSS SECTIONS SHEET 20 OF 21	7
C42	HAUL ROAD 2 CROSS SECTIONS SHEET 21 OF 21	7
C43	PROCESSING ACCESS ROAD LONGITUDINAL SECTION	7
C44	PROCESSING ACCESS ROAD CROSS SECTIONS SHEET 1 OF 3	7
C45	PROCESSING ACCESS ROAD CROSS SECTIONS SHEET 2 OF 3	5
C46	PROCESSING ACCESS ROAD CROSS SECTIONS SHEET 3 OF 3	5
C47	TYPICAL SECTIONS	7
C48	CUT FILL SHADE PLOT	6
C49	PIT PLAN SHEET	5
C50	PIT SECTIONS	5



LOCALITY PLAN

SCALE 1:200000

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
8	CULVERT AMENDMENTS	A.M	I.H	30.10.25
7	CLIENT COMMENTS	A.M	I.H	21.07.25
6	CLIENT COMMENTS	A.M	I.H	07.07.25
4	CLIENT COMMENTS	A.M	I.H	30.06.25
3	GENERAL AMENDMENTS	A.M	I.H	26.06.25
10	LAYOUT AMENDMENTS	A.M	I.H	14.04.26
9	BERM AMENDMENTS	A.M	I.H	26.03.26

North

Scale

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Designed: AM

Scale: -

Cad Reference: 25090C C00 r10

Project Approval: IAN HILL (B.E) Consulting Civil Engineer

Client

GCA ENGINEERING SOLUTIONS

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PO BOX 3337, THORNTON NSW 2322
PHONE: (02) 4964 1811

PROPOSED HAUL ROAD WORKS
BLUESTONE HARDROCK QUARRY
SPRINGVALE ROAD, ELDERSLIE

COVER SHEET

Project No: 25090C

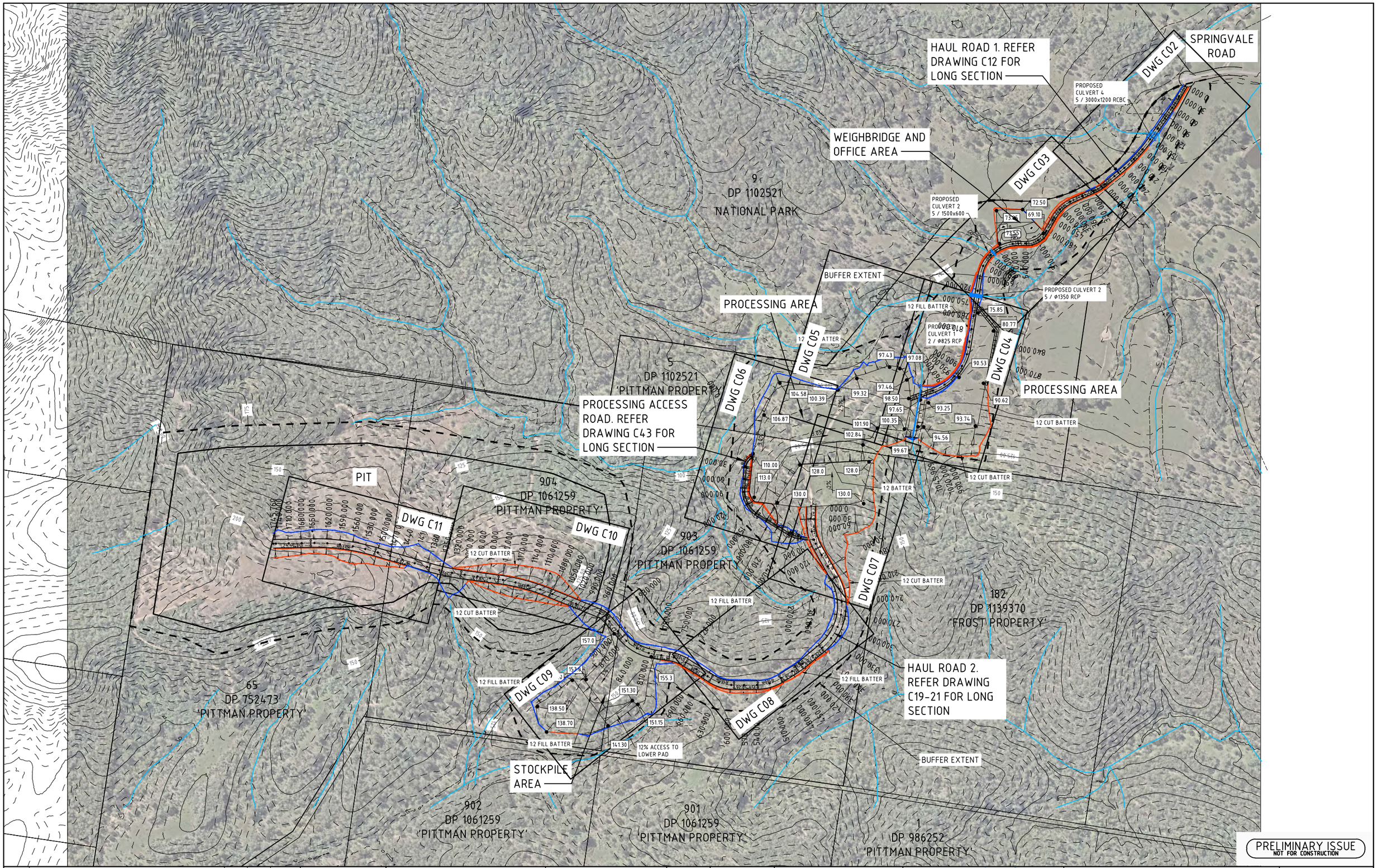
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7	CLIENT COMMENTS	A.M	I.H	21.07.25
6	CLIENT COMMENTS	A.M	I.H	07.07.25
4	CLIENT COMMENTS	A.M	I.H	30.06.25
3	GENERAL AMENDMENTS	A.M	I.H	26.06.25
2	GENERAL AMENDMENTS	A.M	I.H	12.06.25
1	ORIGINAL ISSUE	DB	I.H	04.06.25

North

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Scale 1:4000
Cad Reference 25090C C01 r8
Project Approval
IAN HILL (B.E)
Consulting Civil Engineer

Client

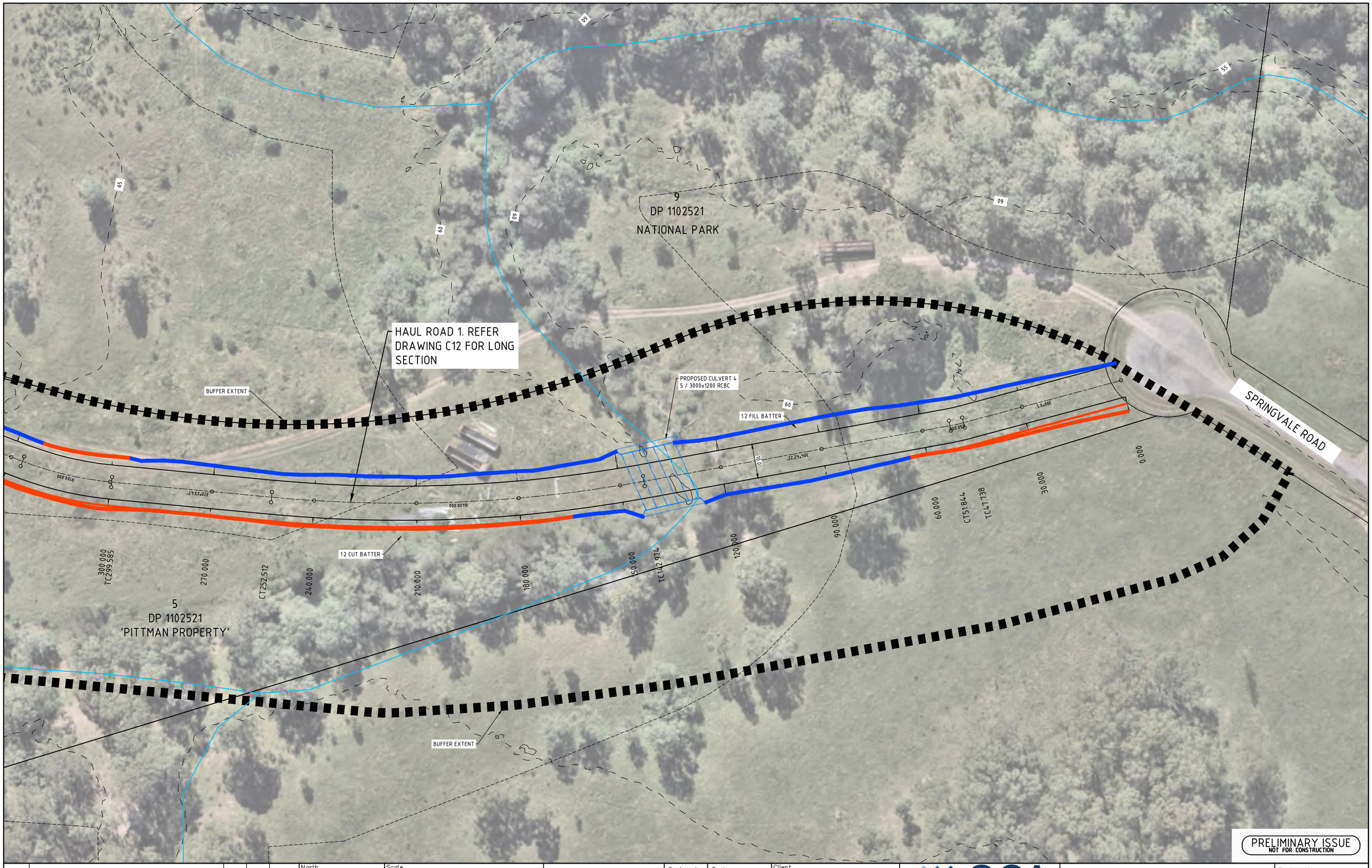
GCA ENGINEERING SOLUTIONS
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1 HARTLEY DRIVE, THORNTON NSW 2322
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PROPOSED HAUL ROAD WORKS
BLUESTONE HARDROCK QUARRY
SPRINGVALE ROAD, ELDERSLIE

GENERAL ARRANGEMENT SHEET

Project No 25090C
Drawing No C01
Revision 8
A1 SHEET

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6	CLIENT COMMENTS	A.M	I.H	08.07.25
5	ORIGINAL ISSUE	AM	IH	04.06.25

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Scale: 1:500
Cad Reference: 25090C C02 r8
Project Approval: IAN HILL (B.E) Consulting Civil Engineer

Client

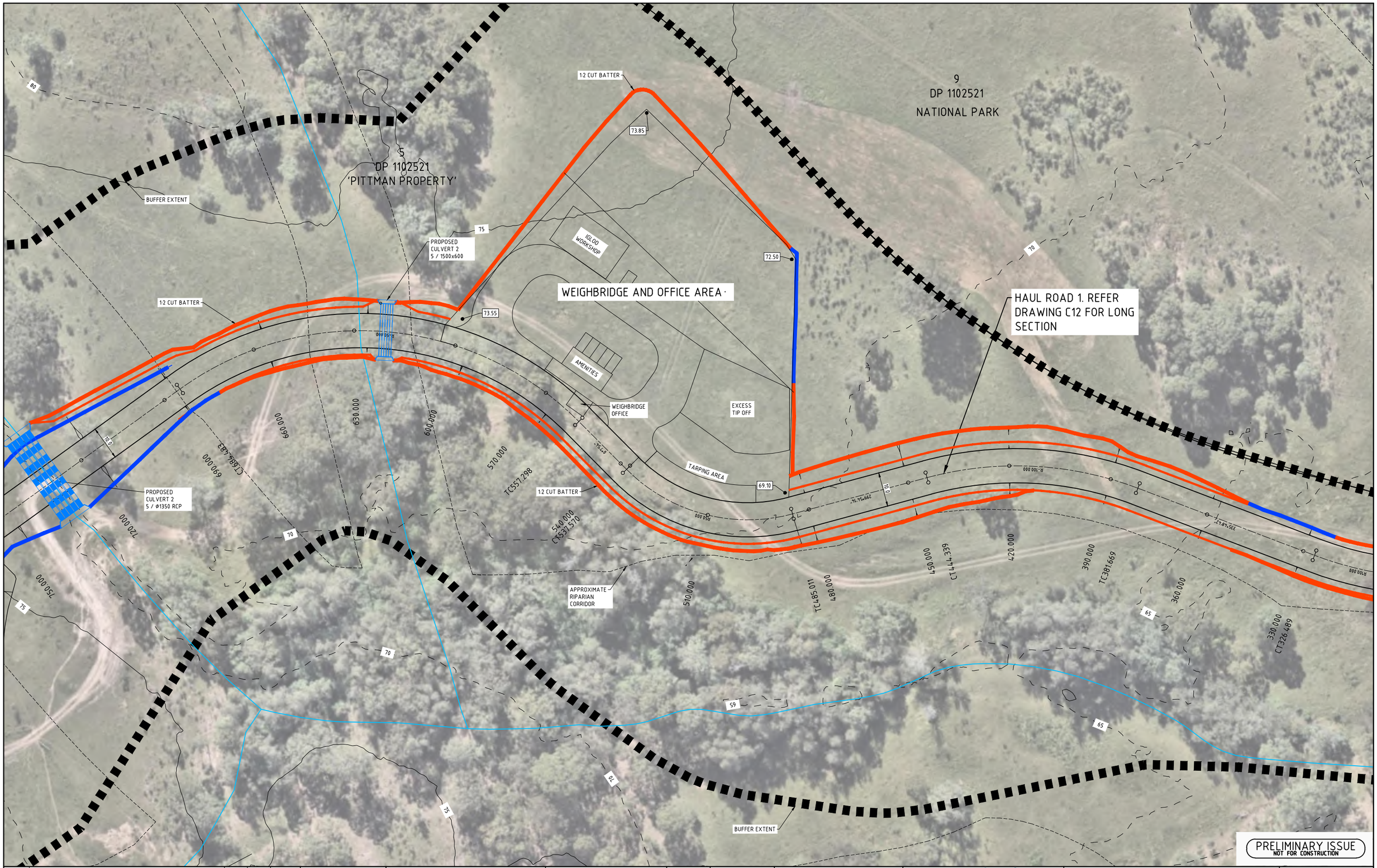
GCA ENGINEERING SOLUTIONS
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PHONE: (02) 4964 1811

PROPOSED HAUL ROAD WORKS
BLUESTONE HARDROCK QUARRY
SPRINGVALE ROAD, ELDERSLIE

PLAN SHEET 1 OF 10

Project No: 25090C
Drawing No: C02
Revision: 8
A1 SHEET

PLOT DATE: 14/04/2026 1:27:08 PM
CAD FILE: Q:\25\25090 Bluerock Quarry\02_CAD\AutoCAD\Civil\25090C C02 r8.dwg



PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
10	LAYOUT AMENDMENTS	A.M	I.H	14.04.26
8	CULVERT AMENDMENTS	A.M	I.H	30.10.25
6	CLIENT COMMENTS	A.M	I.H	08.07.25
5	ORIGINAL ISSUE	AM	IH	04.06.25

North

Scale
0 10 20 30 40m
1:500 (A1) 1:1000 (A3)

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Designed AM
Scale 1:500
Cad Reference 25090C C03 r10
Project Approval
IAN HILL (B.E)
Consulting Civil Engineer

Client

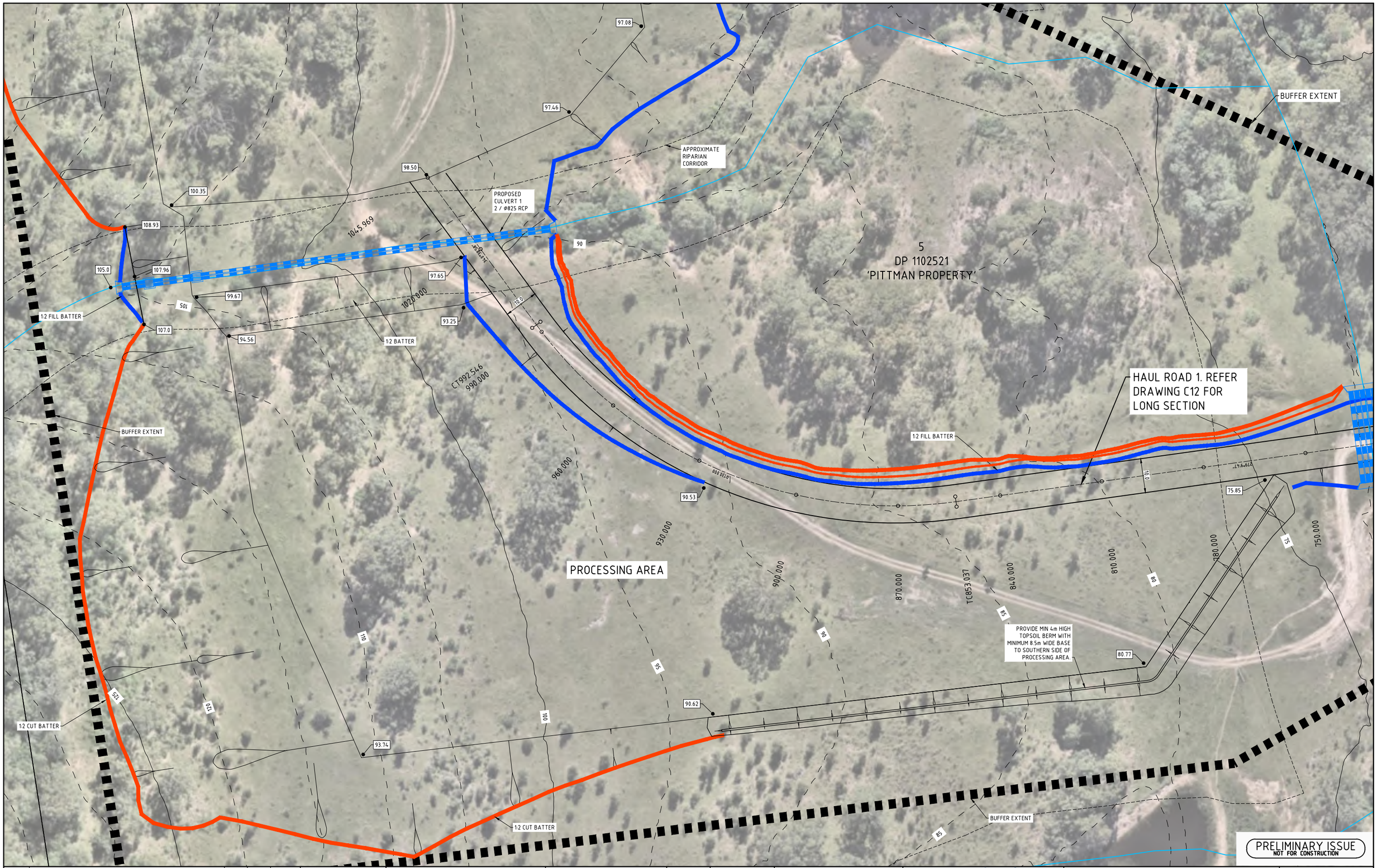
GCA ENGINEERING SOLUTIONS
A.B.N. 92 086 017 745
1 HARTLEY DRIVE, THORNTON NSW 2322
PO BOX 3337, THORNTON NSW 2322
PHONE: (02) 4964 1811

PROPOSED HAUL ROAD WORKS
BLUESTONE HARDROCK QUARRY
SPRINGVALE ROAD, ELDERSLIE

PLAN SHEET 2 OF 10

Project No 25090C
Drawing No C03
Revision 10
A1 SHEET

PLOT DATE: 14/04/2026 1:27:17 PM
CAD FILE: Q:\25\25090 Bluerock Quarry\02_CAD\AutoCAD\Civil\25090C C03 r10.dwg



REVISION	Description	Drawn	App'd	Date
9	BERM AMENDMENT	A.M	I.H	26.03.26
8	CULVERT AMENDMENTS	A.M	I.H	30.10.25
6	CLIENT COMMENTS	A.M	I.H	07.07.25
5	ORIGINAL ISSUE	AM	IH	04.06.25

North

Scale
0 10 20 30 40m
1:500 (A1) 1:1000 (A3)

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Designed: AM
Scale: 1:500
Cad Reference: 25090C C04 r9
Project Approval: IAN HILL (B.E) Consulting Civil Engineer
Client:

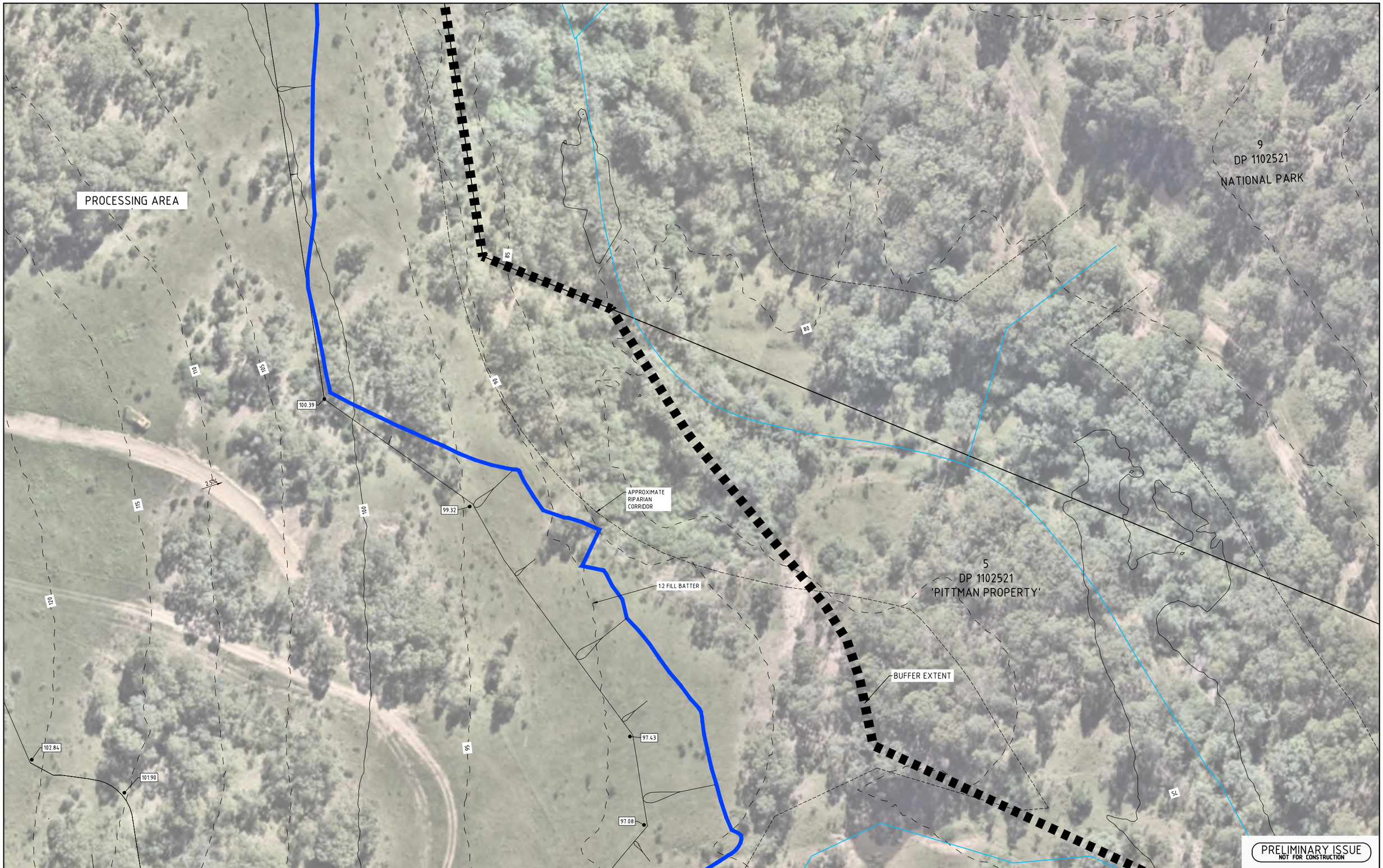
GCA ENGINEERING SOLUTIONS
A.B.N. 92 086 017 745
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PO BOX 3337, THORNTON NSW 2322
PHONE: (02) 4964 1811

PROPOSED HAUL ROAD WORKS
BLUESTONE HARDROCK QUARRY
SPRINGVALE ROAD, ELDERSLIE

PLAN SHEET 3 OF 10

Project No: 25090C
Drawing No: C04
Revision: 9
A1 SHEET

PLOT DATE: 14/04/2026 1:27:26 PM
CAD FILE: Q:\25\25090 Bluerock Quarry\02_CAD\AutoCAD\Civil\25090C C04 r9.dwg



PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
6	CLIENT COMMENTS	A.M	I.H	08.07.25
5	ORIGINAL ISSUE	AM	IH	04.06.25

North

Scale
0 10 20 30 40m
1:500 (A1) 1:1000 (A3)

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Designed AM | Scale 1:500
Cad Reference 25090C C05 r6
Project Approval
IAN HILL (B.E)
Consulting Civil Engineer

Client

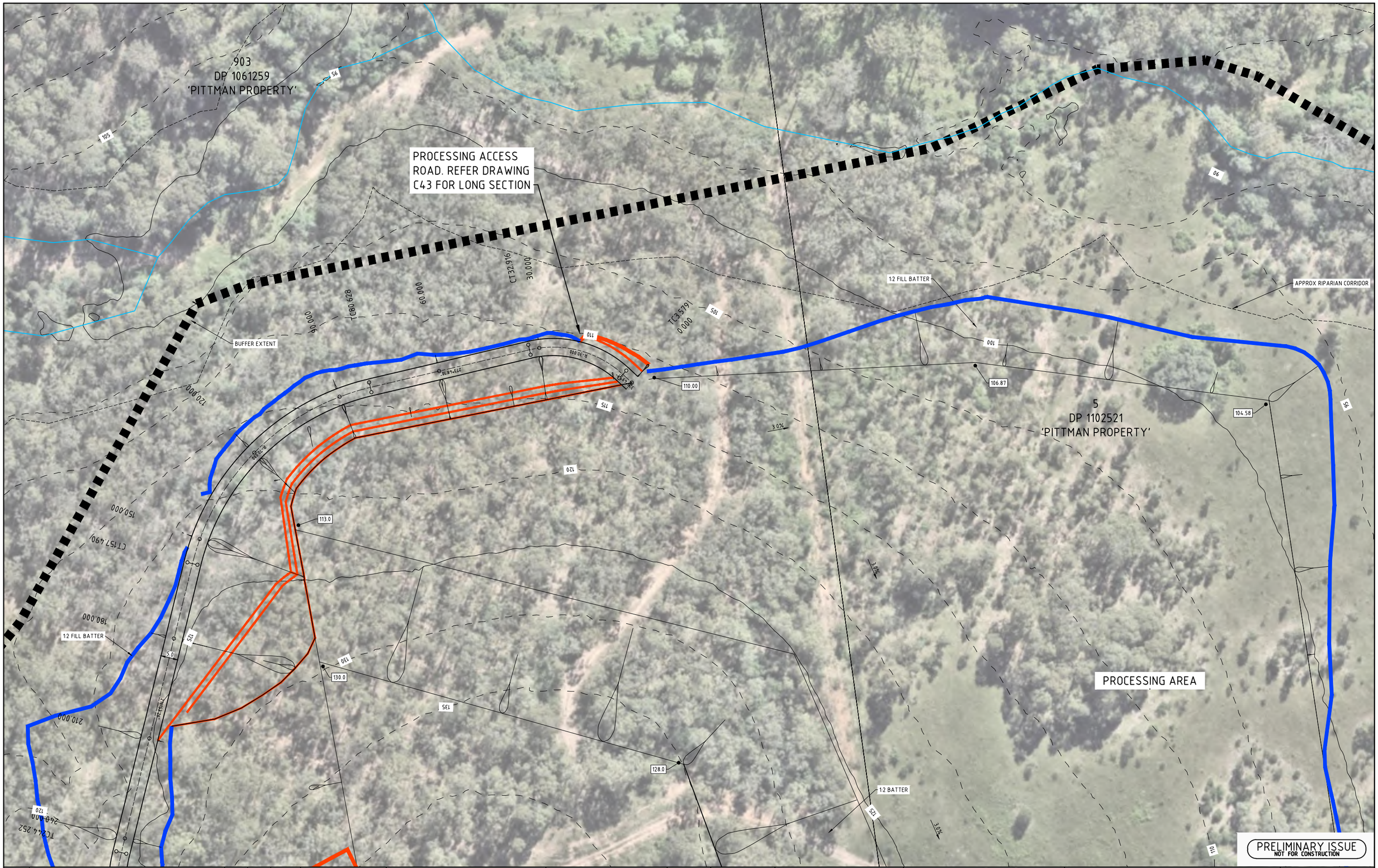
GCA ENGINEERING SOLUTIONS
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PHONE: (02) 4964 1811

PROPOSED HAUL ROAD WORKS
BLUESTONE HARDROCK QUARRY
SPRINGVALE ROAD, ELDERSLIE

PLAN SHEET 4 OF 10

Project No 25090C
Drawing No C05 | Revision 6
A1 SHEET

PLOT DATE: 14/04/2026 1:27:35 PM CAD FILE: Q:\25\25090 Bluerock Quarry\02_CAD\AutoCAD\Civil\25090C C05 r6.dwg



PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
6	CLIENT COMMENTS	A.M	I.H	08.07.25
5	ORIGINAL ISSUE	AM	IH	04.06.25

North

Scale
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1:500 (A1) 1:1000 (A3)

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Designed AM | Scale 1:500
Cad Reference 25090C C06 r6
Project Approval
IAN HILL (B.E)
Consulting Civil Engineer

Client

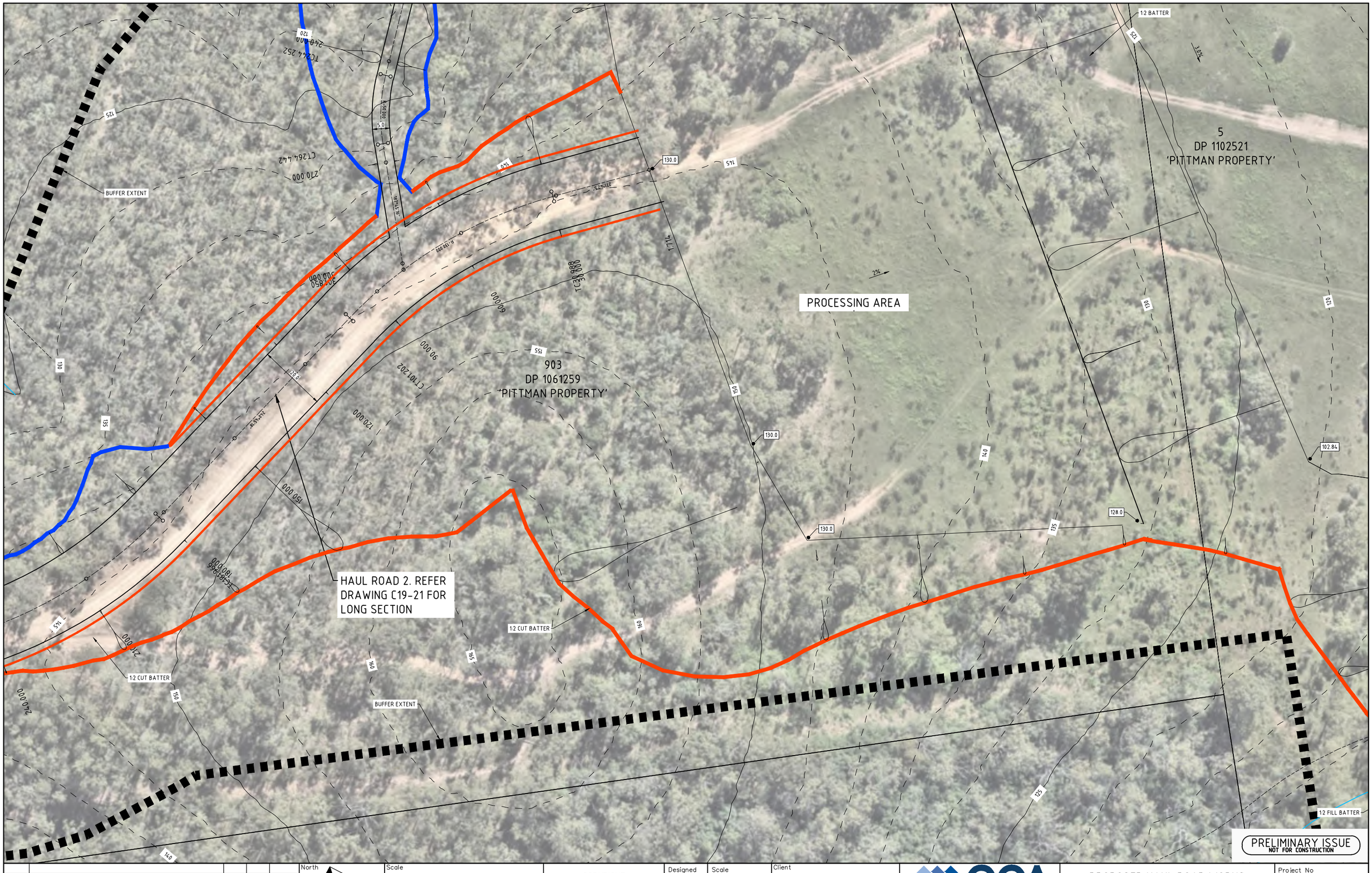
GCA ENGINEERING SOLUTIONS
A.B.N. 92 086 017 745
1 HARTLEY DRIVE, THORNTON NSW 2322
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PHONE: (02) 4964 1811

PROPOSED HAUL ROAD WORKS
BLUESTONE HARDROCK QUARRY
SPRINGVALE ROAD, ELDERSLIE

PLAN SHEET 5 OF 10

Project No 25090C
Drawing No C06 | Revision 6
A1 SHEET

PLOT DATE: 14/04/2026 1:27:44 PM
CAD FILE: Q:\25\25090 Bluerock Quarry\02_CAD\AutoCAD\Civil\25090C C06 r6.dwg



REVISION	Description	Drawn	App'd	Date
7	CLIENT COMMENTS	A.M	I.H	21.07.25
5	ORIGINAL ISSUE	AM	IH	04.06.25

North

Scale
0 10 20 30 40m
1:500 (A1) 1:1000 (A3)

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Designed AM
Scale 1:500
Cad Reference 25090C C07 r7
Project Approval
IAN HILL (B.E)
Consulting Civil Engineer

Client

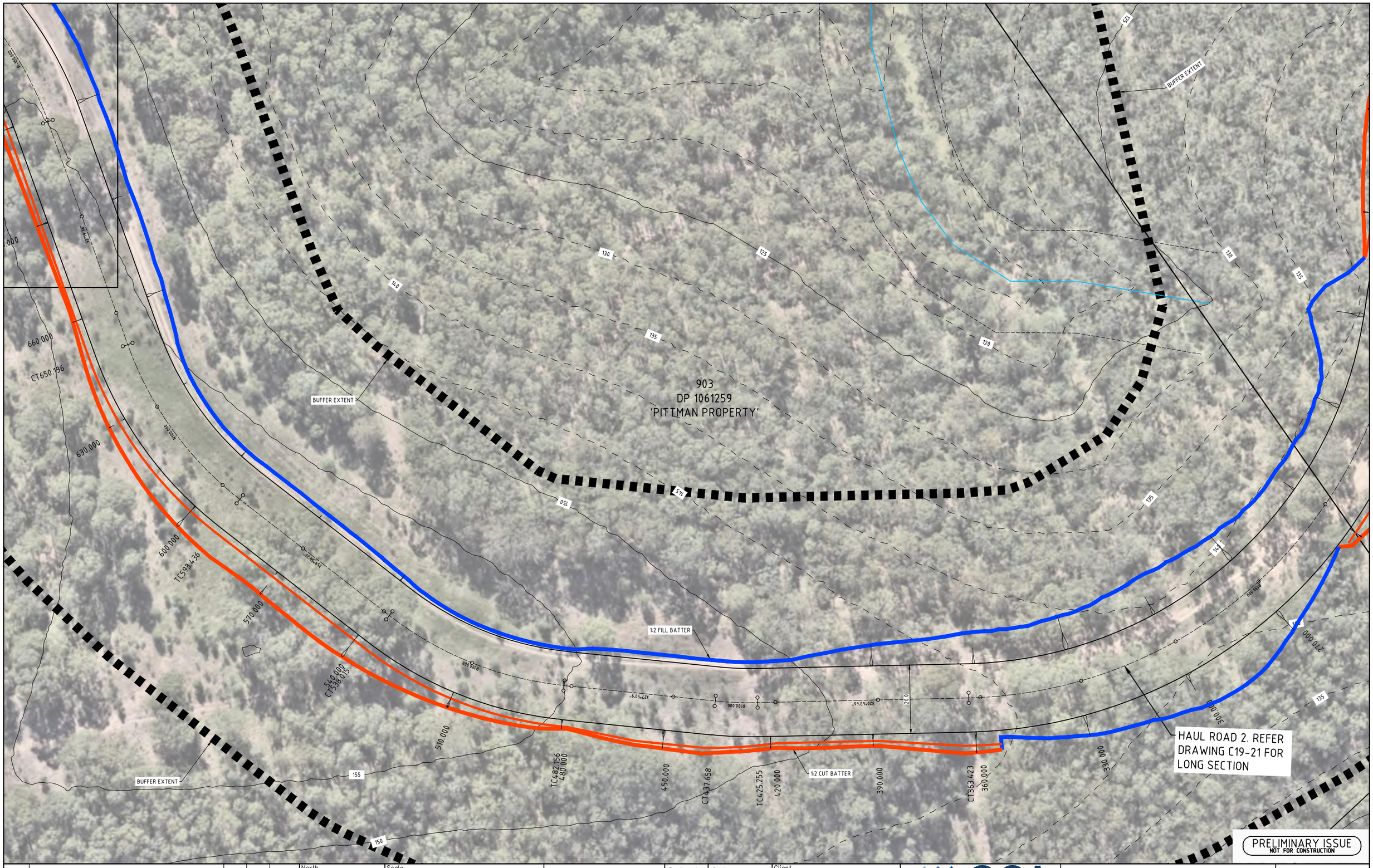
GCA ENGINEERING SOLUTIONS
A.B.N. 92 086 017 745
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PHONE: (02) 4964 1811

PROPOSED HAUL ROAD WORKS
BLUESTONE HARDROCK QUARRY
SPRINGVALE ROAD, ELDERSLIE

PLAN SHEET 6 OF 10

Project No 25090C
Drawing No C07
Revision 7
A1 SHEET

PLOT DATE: 14/04/2026 1:27:53 PM CAD FILE: Q:\25\25090 Bluerock Quarry\02_CAD\AutoCAD\Civil\25090C C07 r7.dwg



PRELIMINARY ISSUE
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REVISION	Description	Drawn	App'd	Date
7	CLIENT COMMENTS	A.M	I.H	21.07.25
5	ORIGINAL ISSUE	AM	IH	04.06.25

North

Scale
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1:500 (A1) 1:1000 (A3)

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Designed: AM
Scale: 1:500
Cad Reference: 25090C C08 r7
Project Approval: IAN HILL (B.E) Consulting Civil Engineer

Client

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PHONE: (02) 4964 1811

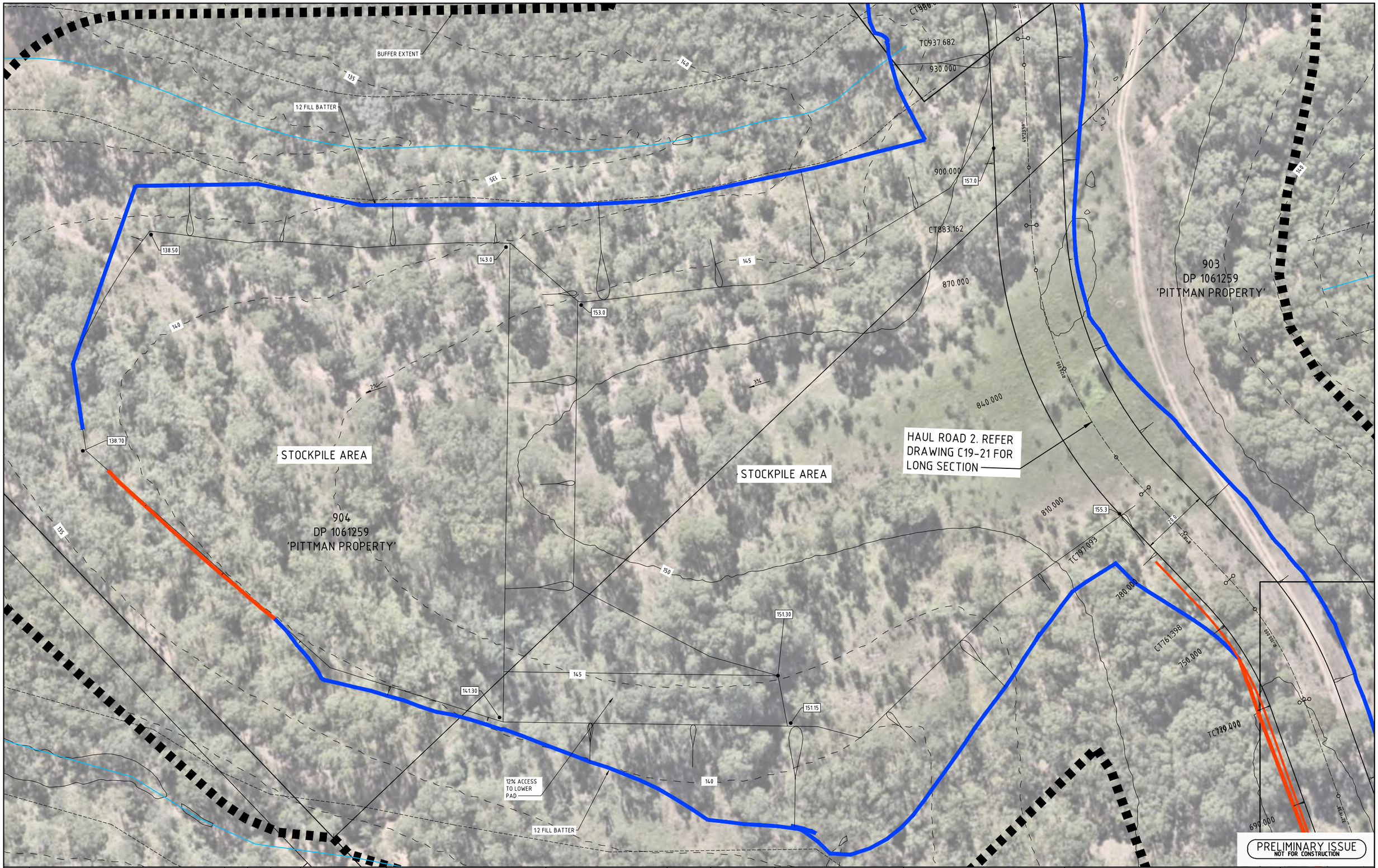
PROPOSED HAUL ROAD WORKS BLUESTONE HARDROCK QUARRY

SPRINGVALE ROAD, ELDERSLIE

PLAN SHEET 7 OF 10

Project No: 25090C
Drawing No: C08
Revision: 7
A1 SHEET

PLOT DATE: 14/04/2026 1:28:02 PM
CAD FILE: Q:\25\25090 Bluerock Quarry\02_CAD\AutoCAD\Civil\25090C C08 r7.dwg



REVISION	Description	Drawn	App'd	Date
7	CLIENT COMMENTS	A.M	I.H	21.07.25
6	CLIENT COMMENTS	A.M	I.H	08.07.25
5	ORIGINAL ISSUE	AM	IH	04.06.25

North

Scale
0 10 20 30 40m
1:500 (A1) 1:1000 (A3)

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Designed AM | Scale 1:500
Cad Reference 25090C C09 r7
Project Approval
IAN HILL (B.E)
Consulting Civil Engineer

Client

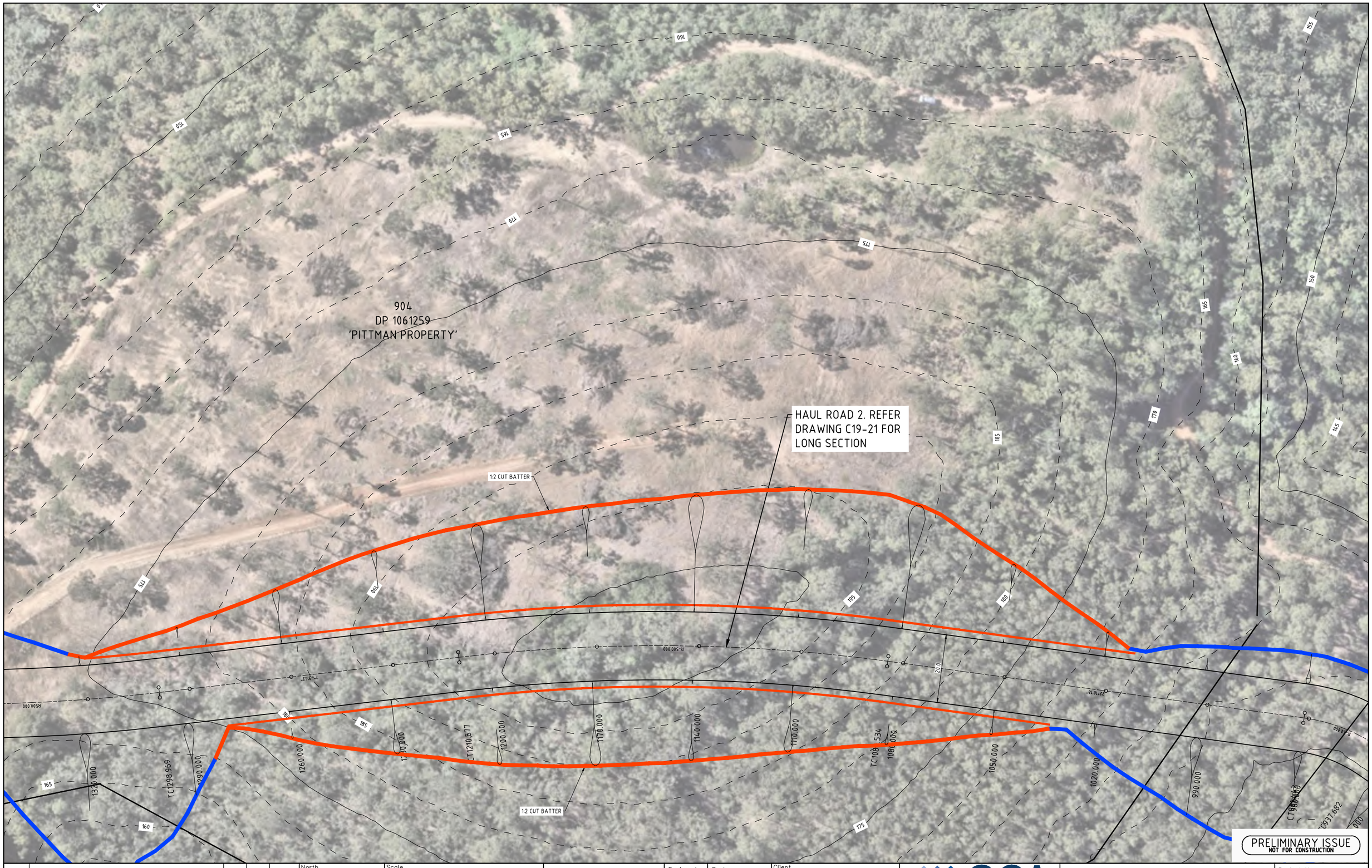
GCA ENGINEERING SOLUTIONS
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PO BOX 3337, THORNTON NSW 2322
PHONE: (02) 4964 1811

PROPOSED HAUL ROAD WORKS
BLUESTONE HARDROCK QUARRY
SPRINGVALE ROAD, ELDERSLIE

PLAN SHEET 8 OF 10

Project No 25090C
Drawing No C09 | Revision 7
A1 SHEET

PLOT DATE: 14/04/2026 1:28:12 PM CAD FILE: Q:\25\25090 Bluerock Quarry\02_CAD\AutoCAD\Civil\25090C C09 r7.dwg



REVISION	Description	Drawn	App'd	Date
7	CLIENT COMMENTS	A.M	I.H	21.07.25
5	ORIGINAL ISSUE	AM	IH	04.06.25

North

Scale
0 10 20 30 40m
1:500 (A1) 1:1000 (A3)

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Scale: 1:500
Cad Reference: 25090C C10 r7
Project Approval: IAN HILL (B.E) Consulting Civil Engineer

Client

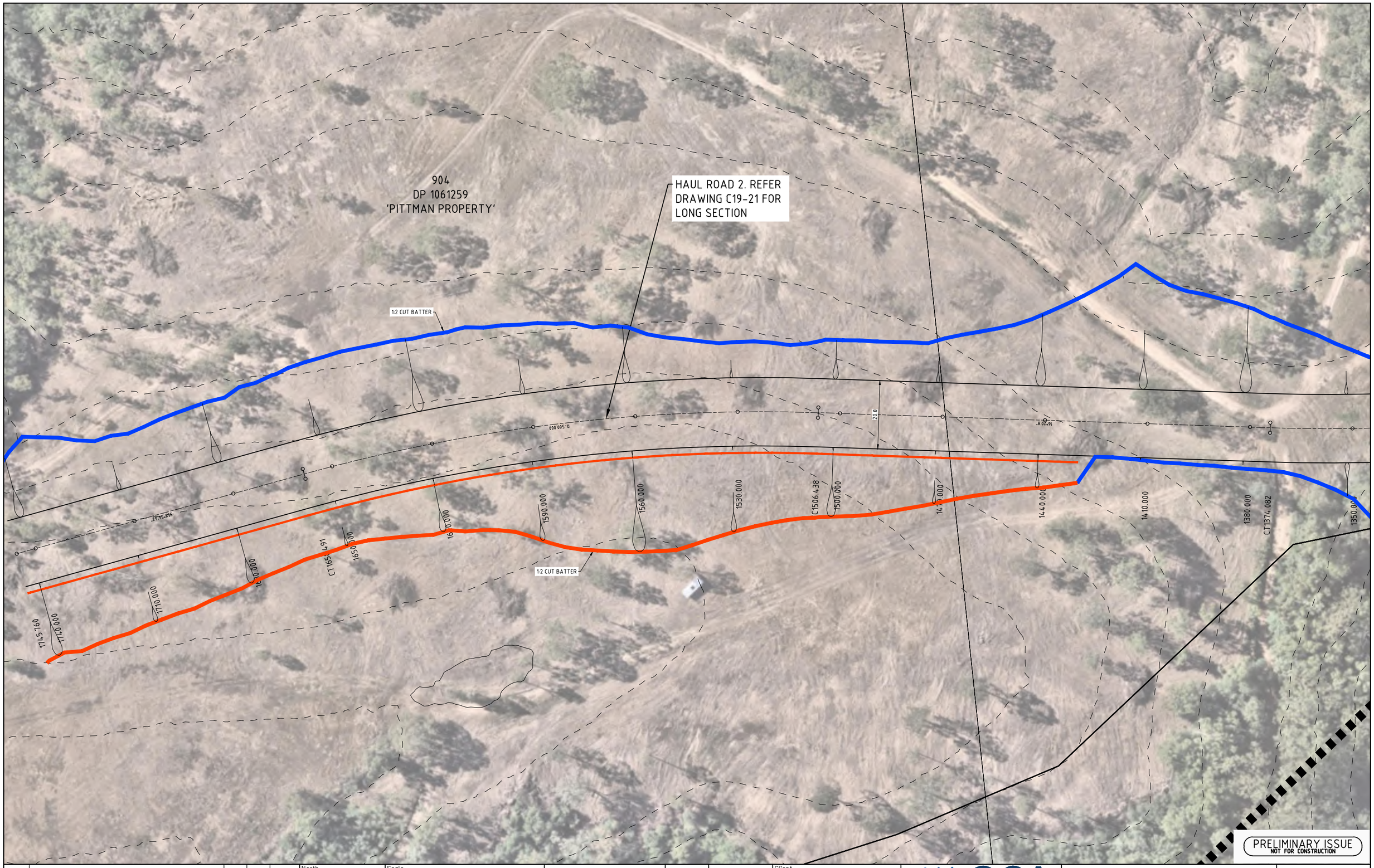
GCA ENGINEERING SOLUTIONS
A.B.N. 92 086 017 745
1 HARTLEY DRIVE, THORNTON NSW 2322
PO BOX 3337, THORNTON NSW 2322
PHONE: (02) 4964 1811

PROPOSED HAUL ROAD WORKS
BLUESTONE HARDROCK QUARRY
SPRINGVALE ROAD, ELDERSLIE

PLAN SHEET 9 OF 10

Project No: 25090C
Drawing No: C10
Revision: 7
A1 SHEET

PLOT DATE: 14/04/2026 1:28:20 PM
CAD FILE: Q:\25\25090 Bluerock Quarry\02_CAD\AutoCAD\Civil\25090C C10 r7.dwg



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REVISION	Description	Drawn	App'd	Date
7	CLIENT COMMENTS	A.M	I.H	21.07.25
5	ORIGINAL ISSUE	AM	IH	04.06.25

North

Scale
0 10 20 30 40m
1:500 (A1) 1:1000 (A3)

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Designed: AM
Scale: 1:500
Cad Reference: 25090C C11 r7
Project Approval: IAN HILL (B.E) Consulting Civil Engineer

Client

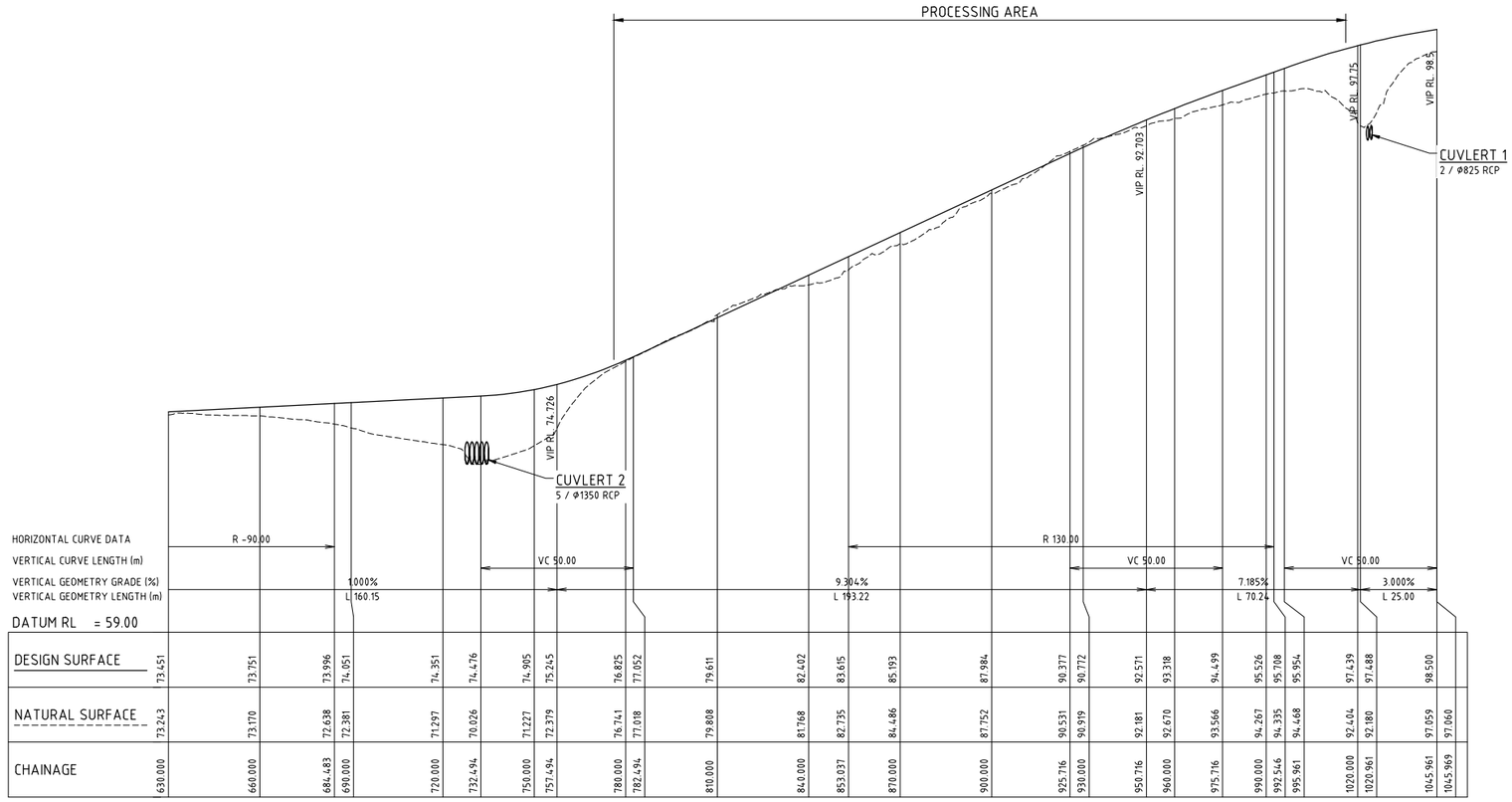
GCA ENGINEERING SOLUTIONS
A.B.N. 92 086 017 745
1 HARTLEY DRIVE, THORNTON NSW 2322
PO BOX 3337, THORNTON NSW 2322
PHONE: (02) 4964 1811

PROPOSED HAUL ROAD WORKS
BLUESTONE HARDROCK QUARRY
SPRINGVALE ROAD, ELDERSLIE

PLAN SHEET 10 OF 10

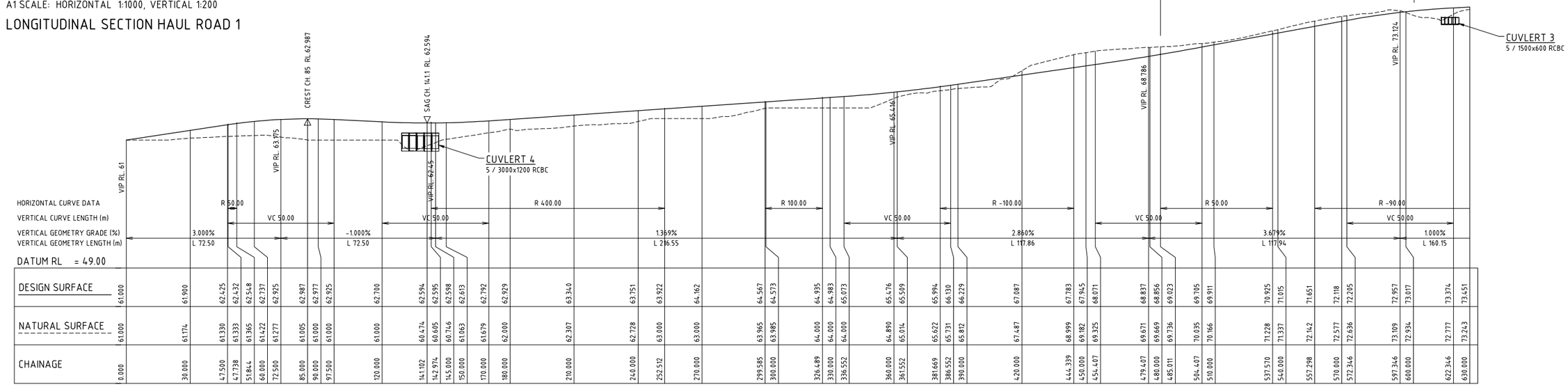
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Drawing No: C11
Revision: 7
A1 SHEET

PLOT DATE: 14/04/2026 1:28:29 PM
CAD FILE: Q:\25\25090 Bluerock Quarry\02_CAD\AutoCAD\Civil\25090C C11 r7.dwg



A1 SCALE: HORIZONTAL 1:1000, VERTICAL 1:200

LONGITUDINAL SECTION HAUL ROAD 1



A1 SCALE: HORIZONTAL 1:1000, VERTICAL 1:200

LONGITUDINAL SECTION HAUL ROAD 1

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
8	CULVERT AMENDMENTS	A.M	I.H	30.10.25
6	CLIENT COMMENTS	A.M	I.H	08.07.25
5	DRAWING NUMBER CHANGE	A.M	I.H	03.07.25
4	CLIENT COMMENTS	A.M	I.H	30.06.25
3	GENERAL AMENDMENTS	A.M	I.H	26.06.25
2	GENERAL AMENDMENTS	A.M	I.H	12.06.25
1	ORIGINAL ISSUE	DB	IH	04.06.25

North

Scale

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1:1000 (A1) 1:2000 (A3)
0 4 8 12 16m
1:200 (A1) 1:400 (A3)

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Designed AM
Scale 1:1000H / 1:200V
Cad Reference 25090C C12 r8
Project Approval
IAN HILL (B.E)
Consulting Civil Engineer

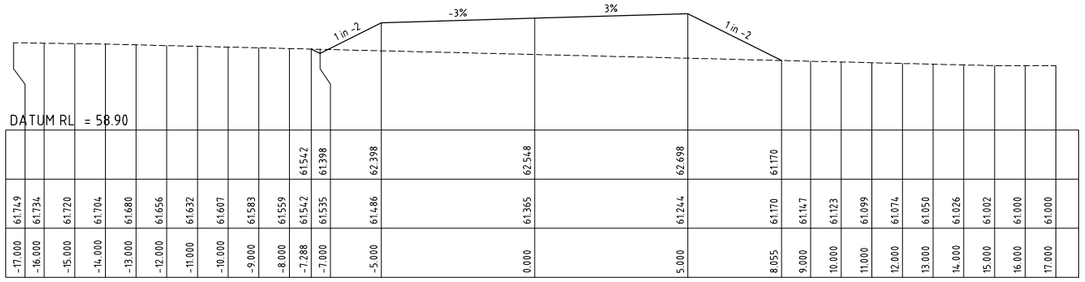
Client

GCA ENGINEERING SOLUTIONS
A.B.N. 92 086 017 745
1 HARTLEY DRIVE, THORNTON NSW 2322
PO BOX 3337, THORNTON NSW 2322
PHONE: (02) 4964 1811

PROPOSED HAUL ROAD WORKS
BLUESTONE HARDROCK QUARRY
SPRINGVALE ROAD, ELDERSLIE
HAUL ROAD 1 LONGITUDINAL SECTION

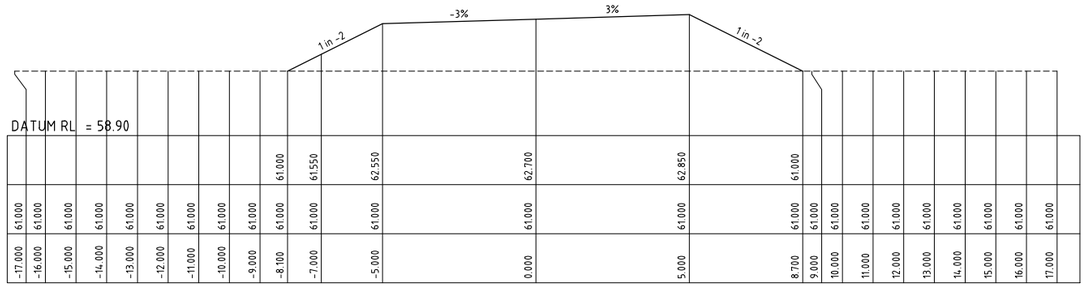
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Drawing No C12
Revision 8
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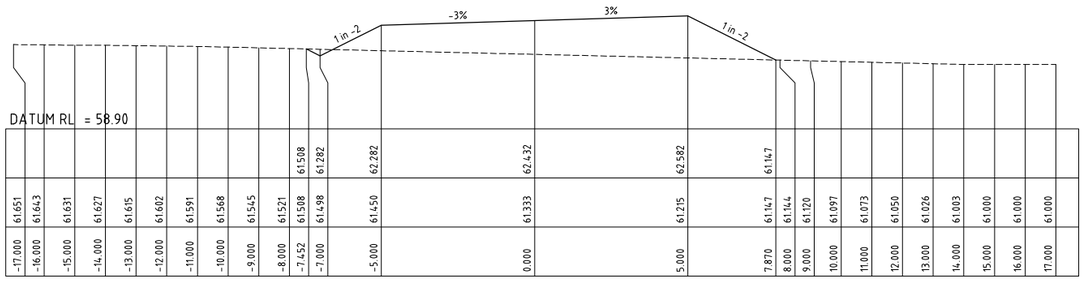
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CH 51.844



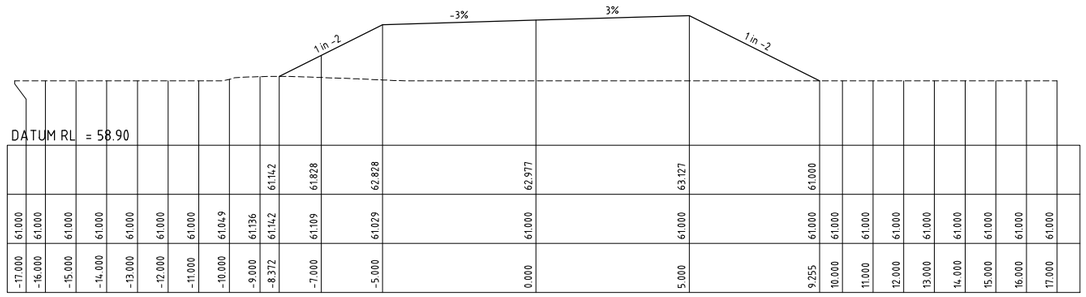
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CH 120.000



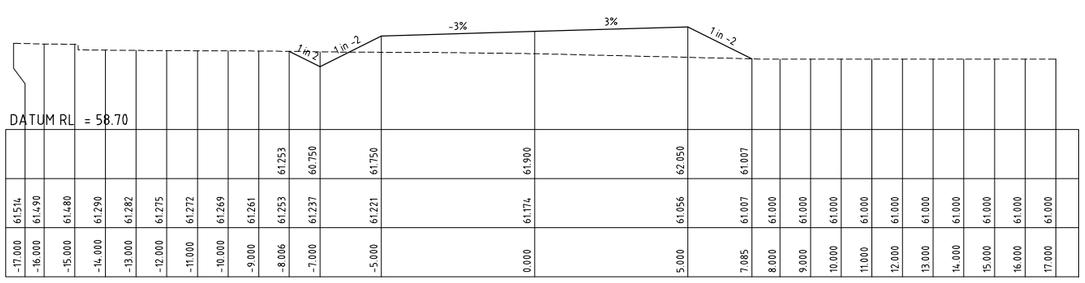
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CH 47.738



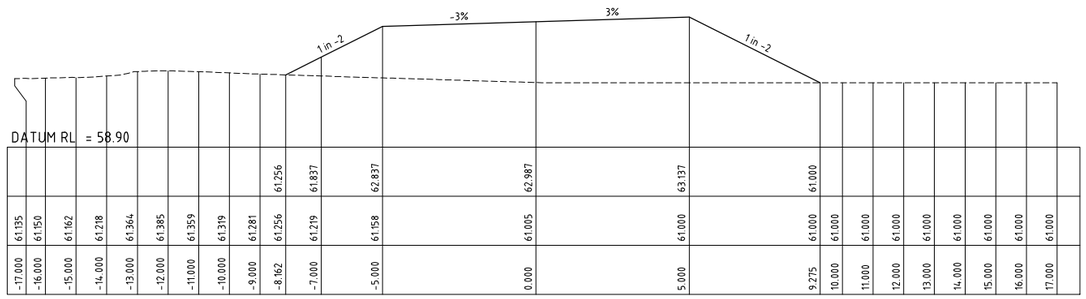
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CH 90.000



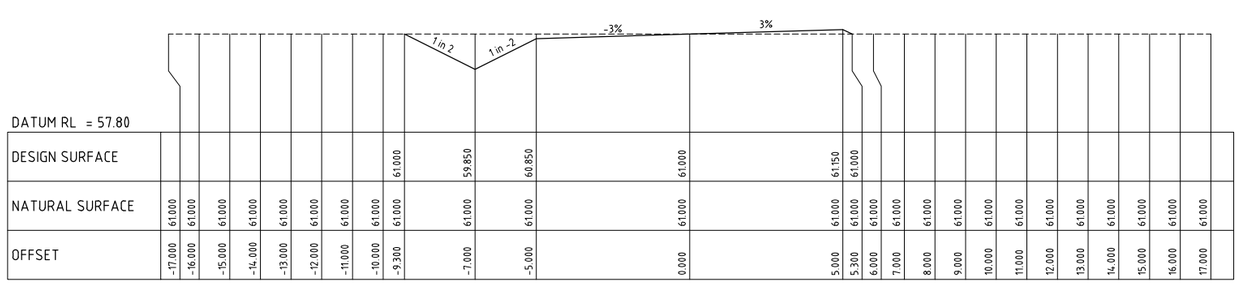
DATUM RL = 58.70																														
										61.253	60.750		61.750		61.900		62.050		61.007										
-17.000	-16.000	-15.000	-14.000	-13.000	-12.000	-11.000	-10.000	-9.000	-8.006	-7.000	-5.000	0.000	5.000	7.085	8.000	9.000	10.000	11.000	12.000	13.000	14.000	15.000	16.000	17.000						
61.514	61.490	61.480	61.290	61.282	61.275	61.272	61.269	61.261	61.253	61.237	61.221	61.174	61.056	61.007	61.000	61.000	61.000	61.000	61.000	61.000	61.000	61.000	61.000	61.000						

CH 30.000



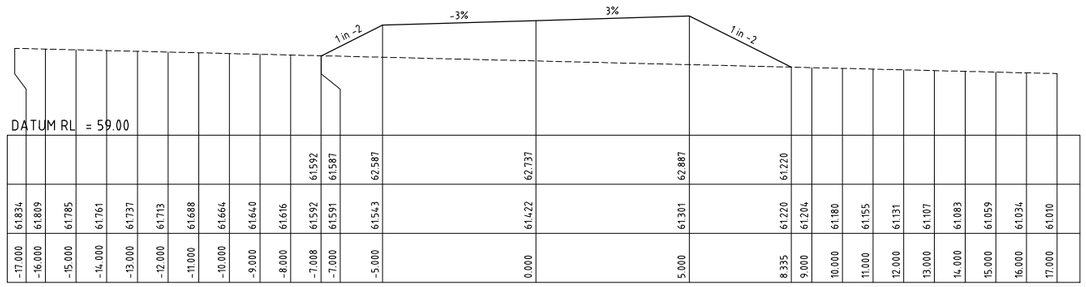
DATUM RL = 58.90																														
										61.256	61.837		62.837		62.987		63.137		61.000										
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61.135	61.150	61.162	61.218	61.364	61.385	61.359	61.319	61.281	61.256	61.219	61.158	61.005	61.000	61.000	61.000	61.000	61.000	61.000	61.000	61.000	61.000	61.000								

CH 85.000



DATUM RL = 57.80																														
DESIGN SURFACE								61.000		59.850	60.850		61.000		61.150	61.000														
NATURAL SURFACE	61.000	61.000	61.000	61.000	61.000	61.000	61.000	61.000		61.000	61.000		61.000		61.000	61.000	61.000	61.000	61.000	61.000	61.000	61.000	61.000	61.000	61.000						
OFFSET	-17.000	-16.000	-15.000	-14.000	-13.000	-12.000	-11.000	-10.000	-9.300	-7.000	-5.000		0.000		5.000	5.300	6.000	7.000	8.000	9.000	10.000	11.000	12.000	13.000	14.000	15.000	16.000	17.000			

CH 0.000



DATUM RL = 59.00																														
											61.592	61.587	62.587		62.737		62.887		61.220										
-17.000	-16.000	-15.000	-14.000	-13.000	-12.000	-11.000	-10.000	-9.000	-8.000	-7.008	-7.000	-5.000	0.000	5.000	8.335	9.000	10.000	11.000	12.000	13.000	14.000	15.000	16.000	17.000						
61.834	61.809	61.785	61.761	61.737	61.713	61.688	61.664	61.640	61.616	61.592	61.591	61.543	61.422	61.301	61.220	61.204	61.180	61.155	61.131	61.107	61.083	61.059	61.034	61.010						

CH 60.000

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
8	CULVERT AMENDMENTS	A.M	I.H	30.10.25
6	CLIENT COMMENTS	A.M	I.H	08.07.25
5	DRAWING NUMBER CHANGE	A.M	I.H	03.07.25
4	CLIENT COMMENTS	A.M	I.H	30.06.25
3	GENERAL AMENDMENTS	A.M	I.H	26.06.25
2	GENERAL AMENDMENTS	A.M	I.H	12.06.25
1	ORIGINAL ISSUE	DB	IH	04.06.25

North

Scale

0 2 4 6 8m
1:100 (A1) 1:200 (A3)

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Designed AM | Scale 1:100

Cad Reference
25090C C13 r8

Project Approval
IAN HILL (B.E)
Consulting Civil Engineer

Client

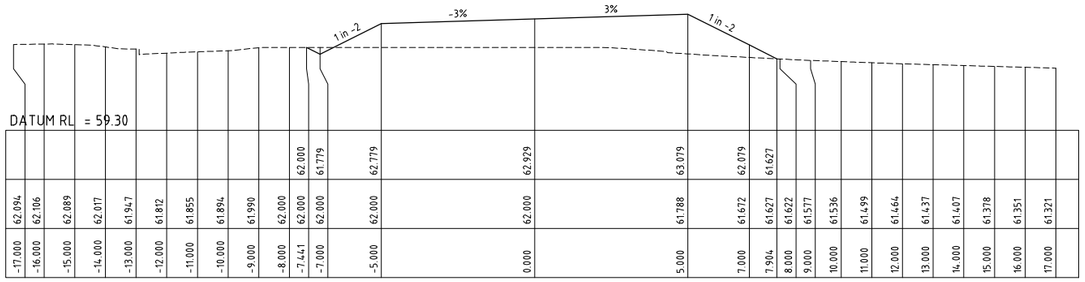
GCA ENGINEERING SOLUTIONS
A.B.N. 92 086 017 745
1 HARTLEY DRIVE, THORNTON NSW 2322
PO BOX 3337, THORNTON NSW 2322
PHONE: (02) 4964 1811

PROPOSED HAUL ROAD WORKS
BLUESTONE HARDROCK QUARRY
SPRINGVALE ROAD, ELDERSLIE

HAUL ROAD 1 CROSS SECTIONS SHEET 1 OF 7

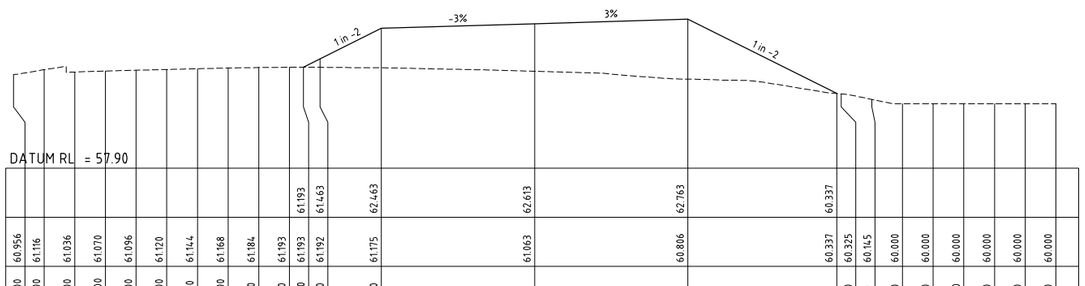
Project No 25090C
Drawing No C13
Revision 8
A1 SHEET

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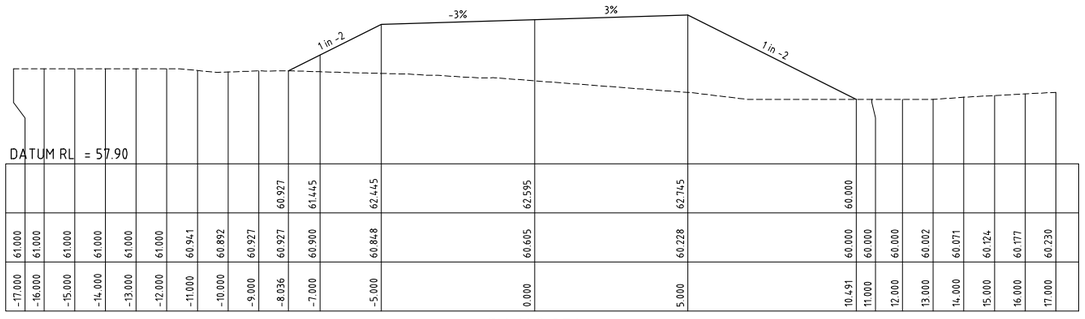
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											62.000	61.779	62.779	62.929	63.079	62.079	61.627										
	62.094	62.106	62.089	62.017	61.947	61.812	61.855	61.894	61.990	62.000	62.000	62.000	62.000	62.000	61.788	61.672	61.627	61.622	61.577	61.536	61.499	61.464	61.437	61.407	61.378	61.351	61.321

CH 180.000



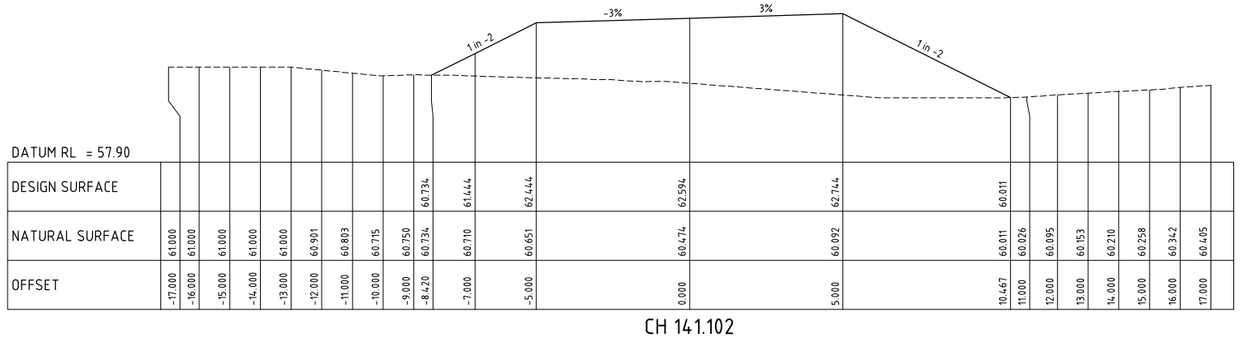
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										61.193	61.463		62.463	62.613	62.763	60.337								
	60.956	61.116	61.036	61.070	61.096	61.120	61.144	61.168	61.184	61.193	61.193	61.192	61.175	61.063	60.806	60.337	60.325	60.145	60.000	60.000	60.000	60.000	60.000	60.000

CH 150.000



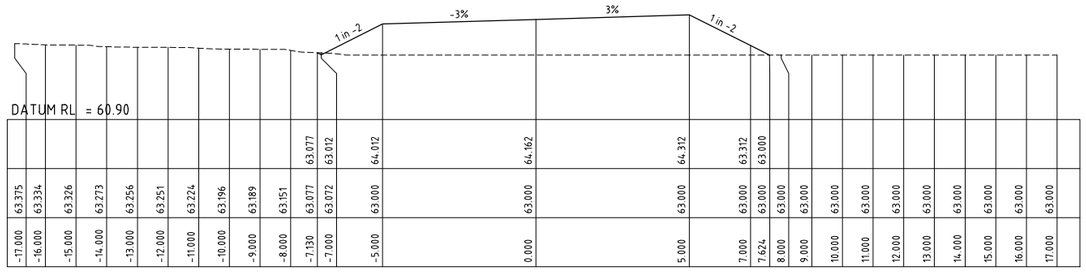
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										60.927	61.445	62.445	62.595	62.745	60.000							
	61.000	61.000	61.000	61.000	61.000	61.000	60.941	60.892	60.927	60.927	60.900	60.848	60.605	60.228	60.000	60.000	60.000	60.002	60.071	60.124	60.177	60.230

CH 142.974



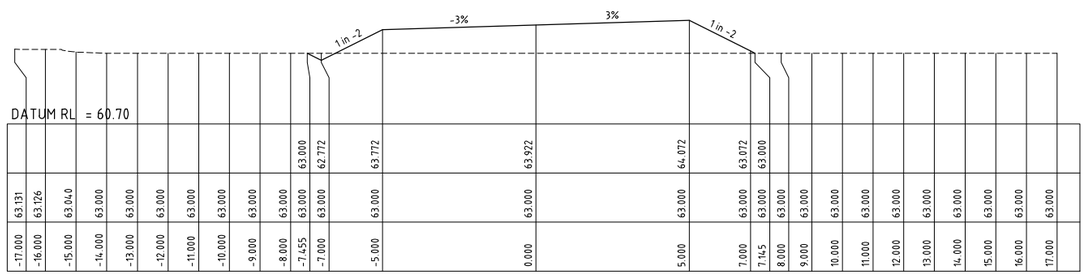
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DESIGN SURFACE										60.734	61.444	62.444	62.594	62.744	60.011							
NATURAL SURFACE	61.000	61.000	61.000	61.000	61.000	60.901	60.803	60.715	60.750	60.734	60.710	60.651	60.474	60.092	60.011	60.026	60.095	60.153	60.210	60.258	60.342	60.405
OFFSET	-17.000	-16.000	-15.000	-14.000	-13.000	-12.000	-11.000	-10.000	-9.000	-8.420	-7.000	-5.000	0.000	5.000	10.467	11.000	12.000	13.000	14.000	15.000	16.000	17.000

CH 141.102



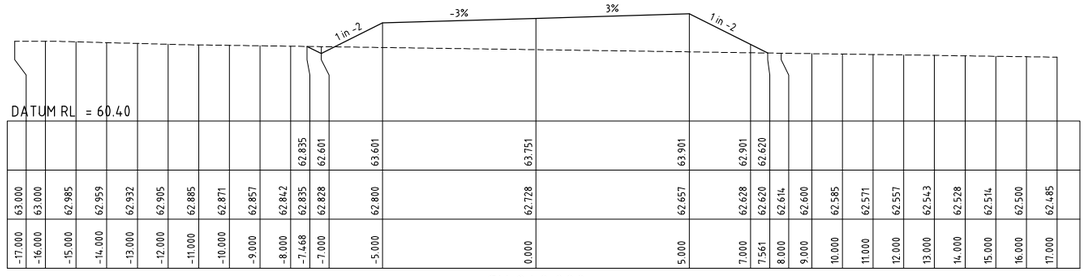
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											63.077	63.012	64.012	64.162	64.312	63.312	63.000										
	63.375	63.334	63.326	63.273	63.256	63.251	63.224	63.196	63.189	63.151	63.077	63.072	63.000	63.000	63.000	63.000	63.000	63.000	63.000	63.000	63.000	63.000	63.000	63.000	63.000	63.000	63.000

CH 270.000



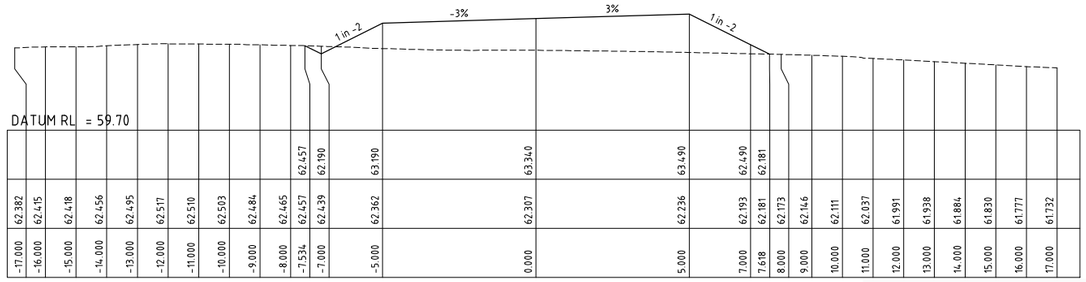
	-17.000	-16.000	-15.000	-14.000	-13.000	-12.000	-11.000	-10.000	-9.000	-8.000	-7.455	-7.000	-5.000	0.000	5.000	7.000	7.145	8.000	9.000	10.000	11.000	12.000	13.000	14.000	15.000	16.000	17.000
										63.000	62.772	63.772		63.922	64.072	63.072	63.000										
	63.131	63.126	63.040	63.000	63.000	63.000	63.000	63.000	63.000	63.000	63.000	63.000	63.000	63.000	63.000	63.000	63.000	63.000	63.000	63.000	63.000	63.000	63.000	63.000	63.000	63.000	63.000

CH 252.512



	-17.000	-16.000	-15.000	-14.000	-13.000	-12.000	-11.000	-10.000	-9.000	-8.000	-7.468	-7.000	-5.000	0.000	5.000	7.000	7.561	8.000	9.000	10.000	11.000	12.000	13.000	14.000	15.000	16.000	17.000
											62.835	62.601	63.601	63.751	63.901	62.901	62.620										
	63.000	63.000	62.985	62.959	62.932	62.905	62.885	62.871	62.857	62.842	62.835	62.828	62.800	62.728	62.657	62.628	62.620	62.614	62.600	62.585	62.571	62.557	62.543	62.528	62.514	62.500	62.485

CH 240.000



	-17.000	-16.000	-15.000	-14.000	-13.000	-12.000	-11.000	-10.000	-9.000	-8.000	-7.534	-7.000	-5.000	0.000	5.000	7.000	7.618	8.000	9.000	10.000	11.000	12.000	13.000	14.000	15.000	16.000	17.000
											62.457	62.190	63.190	63.340	63.490	62.490	62.181										
	62.382	62.415	62.418	62.456	62.495	62.517	62.510	62.503	62.484	62.465	62.457	62.439	62.362	62.307	62.236	62.193	62.181	62.173	62.146	62.111	62.037	61.991	61.938	61.884	61.830	61.777	61.732

CH 210.000

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
8	CULVERT AMENDMENTS	A.M	I.H	30.10.25
6	CLIENT COMMENTS	A.M	I.H	08.07.25
5	DRAWING NUMBER CHANGE	A.M	I.H	03.07.25
4	CLIENT COMMENTS	A.M	I.H	30.06.25
3	GENERAL AMENDMENTS	A.M	I.H	26.06.25
2	GENERAL AMENDMENTS	A.M	I.H	12.06.25
1	ORIGINAL ISSUE	DB	IH	04.06.25

North

Scale
0 2 4 6 8m
1:100 (A1) 1:200 (A3)

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Designed AM
Scale 1:100
Cad Reference 25090C C14 r8
Project Approval
IAN HILL (B.E)
Consulting Civil Engineer

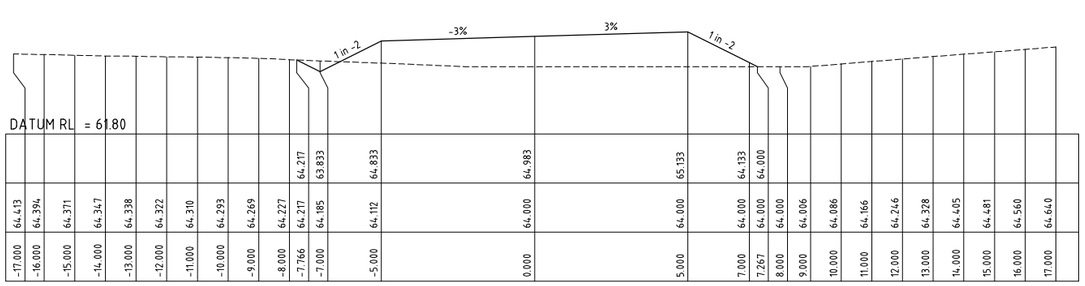
Client

GCA ENGINEERING SOLUTIONS
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1 HARTLEY DRIVE, THORNTON NSW 2322
PO BOX 3337, THORNTON NSW 2322
PHONE: (02) 4964 1811

PROPOSED HAUL ROAD WORKS
BLUESTONE HARDROCK QUARRY
SPRINGVALE ROAD, ELDERSLIE
HAUL ROAD 1 CROSS SECTIONS SHEET 2 OF 7

Project No 25090C
Drawing No C14
Revision 8
A1 SHEET

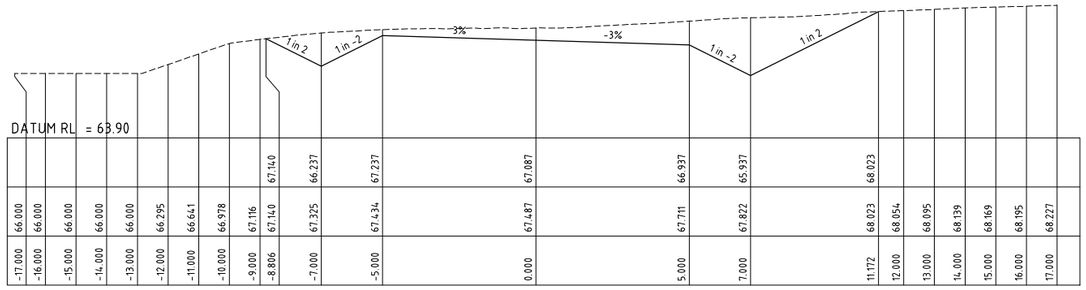
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DATUM RL = 61.80

	-17.000	-16.000	-15.000	-14.000	-13.000	-12.000	-11.000	-10.000	-9.000	-8.000	-7.766	-7.000	-5.000	0.000	5.000	7.000	7.267	8.000	9.000	10.000	11.000	12.000	13.000	14.000	15.000	16.000	17.000
											64.217	63.833	64.833	64.983	65.133	64.133	64.000										
	64.413	64.394	64.371	64.347	64.338	64.322	64.310	64.293	64.269	64.227	64.217	64.185	64.112	64.000	64.000	64.000	64.000	64.000	64.096	64.086	64.166	64.246	64.328	64.405	64.481	64.560	64.640

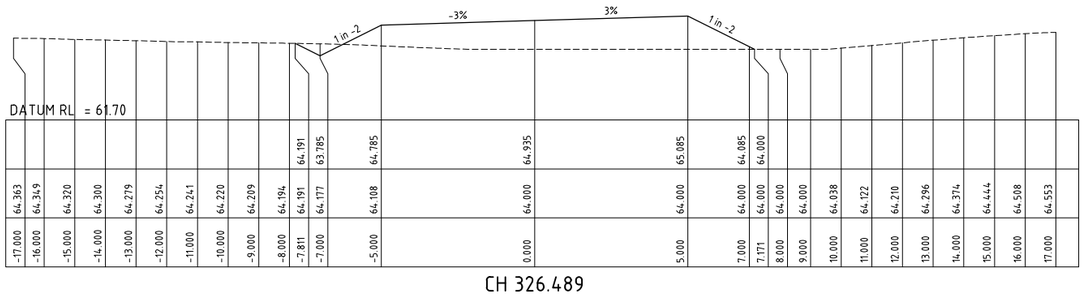
CH 330.000



DATUM RL = 63.90

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										67.140	66.237	67.237	67.087	66.937	65.937	68.023						
	66.000	66.000	66.000	66.000	66.000	66.295	66.641	66.978	67.116	67.140	67.325	67.434	67.487	67.711	67.822	68.023	68.054	68.095	68.139	68.169	68.195	68.227

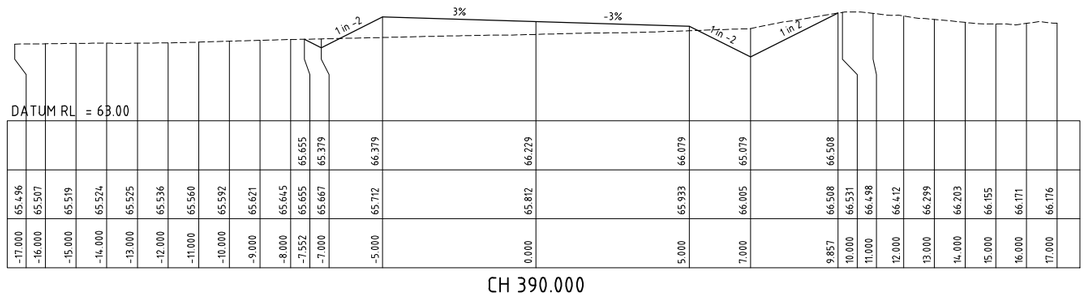
CH 420.000



DATUM RL = 61.70

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											64.191	63.785	64.785	64.935	65.085	64.085	64.000										
	64.363	64.349	64.320	64.300	64.279	64.254	64.241	64.220	64.209	64.194	64.191	64.177	64.108	64.000	64.000	64.000	64.000	64.000	64.000	64.038	64.122	64.210	64.296	64.374	64.444	64.508	64.553

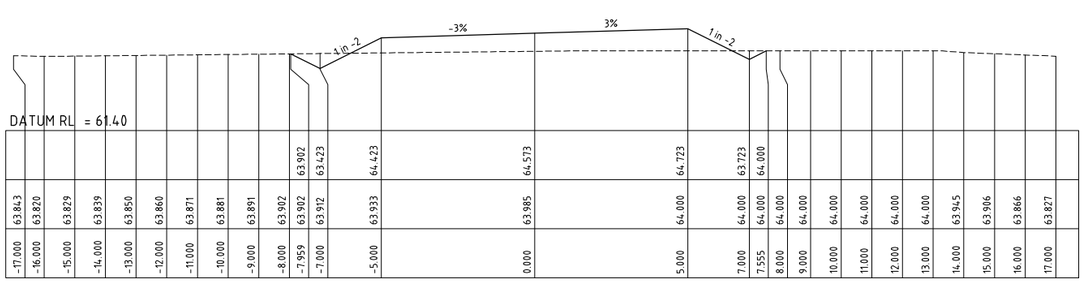
CH 326.489



DATUM RL = 63.00

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											65.655	65.379	66.379	66.229	66.079	65.079	66.508								
	65.496	65.507	65.519	65.524	65.525	65.536	65.560	65.592	65.621	65.645	65.655	65.667	65.712	65.812	65.933	66.005	66.508	66.531	66.498	66.412	66.299	66.203	66.155	66.171	66.176

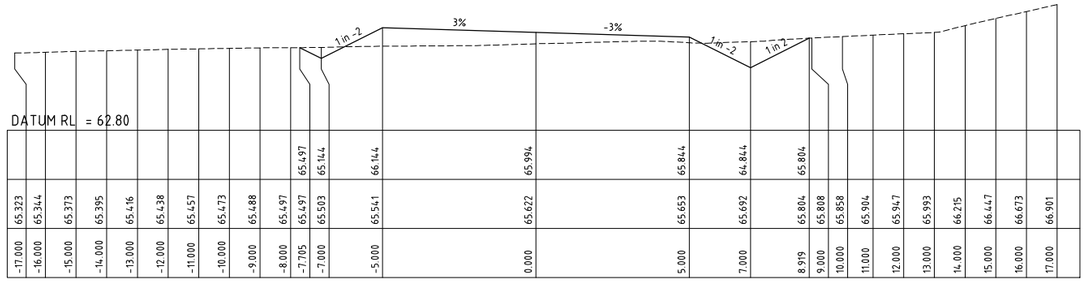
CH 390.000



DATUM RL = 61.40

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											63.902	63.423	64.423	64.573	64.723	63.723	64.000										
	63.843	63.820	63.829	63.839	63.850	63.860	63.871	63.881	63.891	63.902	63.902	63.912	63.933	63.985	64.000	64.000	64.000	64.000	64.000	64.000	64.000	64.000	63.945	63.906	63.866	63.827	

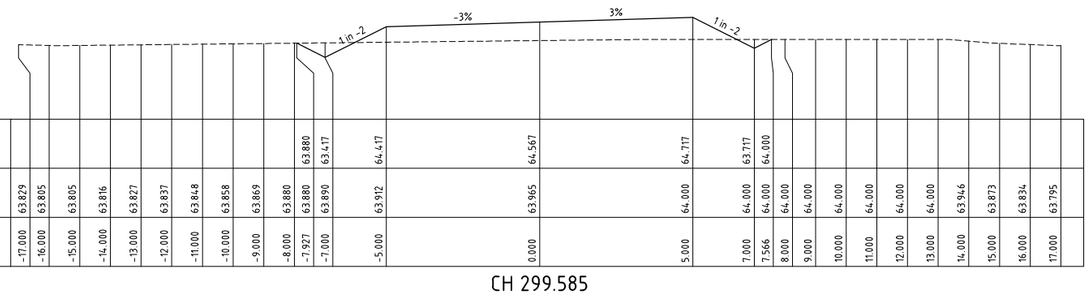
CH 300.000



DATUM RL = 62.80

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											65.497	65.144	66.144	65.994	65.844	64.844	65.804									
	65.323	65.344	65.373	65.395	65.416	65.438	65.457	65.473	65.488	65.497	65.497	65.503	65.541	65.622	65.653	65.692	65.804	65.808	65.858	65.904	65.947	65.993	66.215	66.447	66.673	66.981

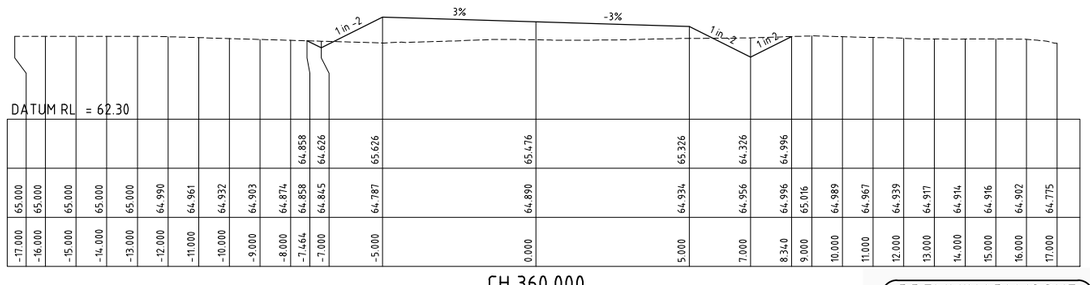
CH 381.669



DATUM RL = 61.40

	-17.000	-16.000	-15.000	-14.000	-13.000	-12.000	-11.000	-10.000	-9.000	-8.000	-7.927	-7.000	-5.000	0.000	5.000	7.000	7.566	8.000	9.000	10.000	11.000	12.000	13.000	14.000	15.000	16.000	17.000
DESIGN SURFACE											63.880	63.417	64.417	64.567	64.717	63.717	64.000										
NATURAL SURFACE	63.829	63.805	63.805	63.816	63.827	63.837	63.848	63.858	63.869	63.880	63.880	63.890	63.912	63.965	64.000	64.000	64.000	64.000	64.000	64.000	64.000	64.000	63.946	63.873	63.834	63.795	
OFFSET	-17.000	-16.000	-15.000	-14.000	-13.000	-12.000	-11.000	-10.000	-9.000	-8.000	-7.927	-7.000	-5.000	0.000	5.000	7.000	7.566	8.000	9.000	10.000	11.000	12.000	13.000	14.000	15.000	16.000	17.000

CH 299.585



DATUM RL = 62.30

	-17.000	-16.000	-15.000	-14.000	-13.000	-12.000	-11.000	-10.000	-9.000	-8.000	-7.464	-7.000	-5.000	0.000	5.000	7.000	8.340	9.000	10.000	11.000	12.000	13.000	14.000	15.000	16.000	17.000
											64.858	64.626	65.626	65.476	65.326	64.326	64.996									
	65.000	65.000	65.000	65.000	65.000	64.990	64.961	64.932	64.903	64.874	64.858	64.845	64.787	64.890	64.934	64.956	64.996	65.016	64.989	64.967	64.939	64.917	64.914	64.916	64.902	64.775

CH 360.000

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
8	CULVERT AMENDMENTS	A.M	I.H	30.10.25
6	CLIENT COMMENTS	A.M	I.H	08.07.25
5	DRAWING NUMBER CHANGE	A.M	I.H	03.07.25
4	CLIENT COMMENTS	A.M	I.H	30.06.25
3	GENERAL AMENDMENTS	A.M	I.H	26.06.25
2	GENERAL AMENDMENTS	A.M	I.H	12.06.25
1	ORIGINAL ISSUE	DB	IH	04.06.25

North

Scale
0 2 4 6 8m
1:100 (A1) 1:200 (A3)

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Designed AM
Scale 1:100
Cad Reference 25090C C15 r8
Project Approval
IAN HILL (B.E)
Consulting Civil Engineer

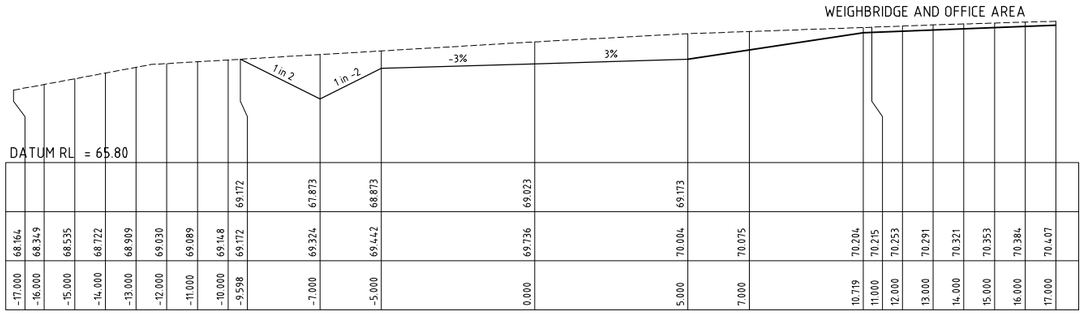
Client

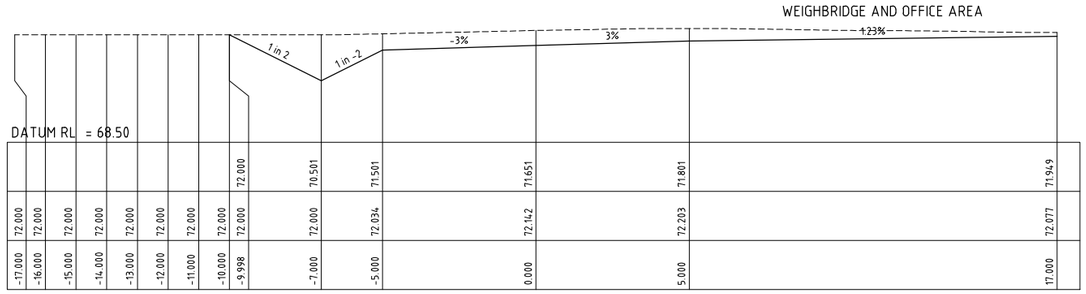
GCA ENGINEERING SOLUTIONS
A.B.N. 92 086 017 745
1 HARTLEY DRIVE, THORNTON NSW 2322
PO BOX 3337, THORNTON NSW 2322
PHONE: (02) 4964 1811

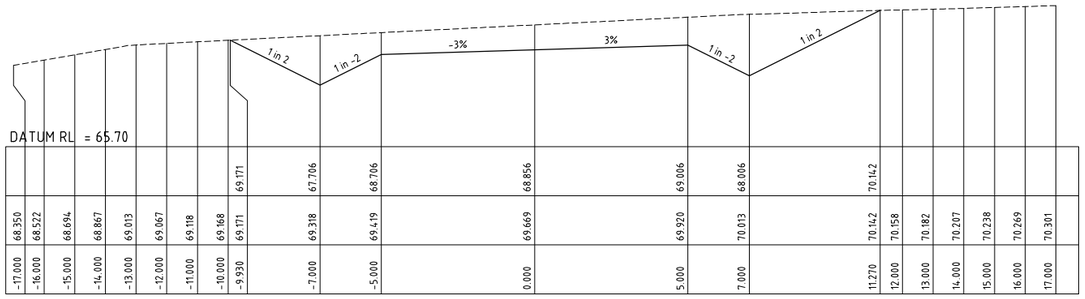
PROPOSED HAUL ROAD WORKS
BLUESTONE HARDROCK QUARRY
SPRINGVALE ROAD, ELDERSLIE
HAUL ROAD 1 CROSS SECTIONS SHEET 3 OF 7

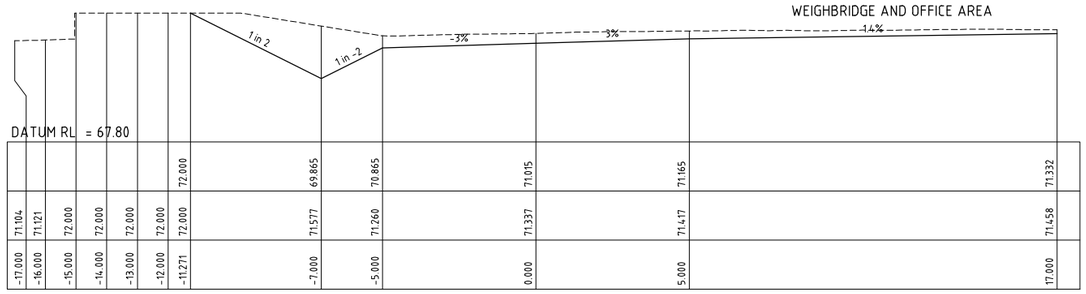
Project No 25090C
Drawing No C15
Revision 8
A1 SHEET

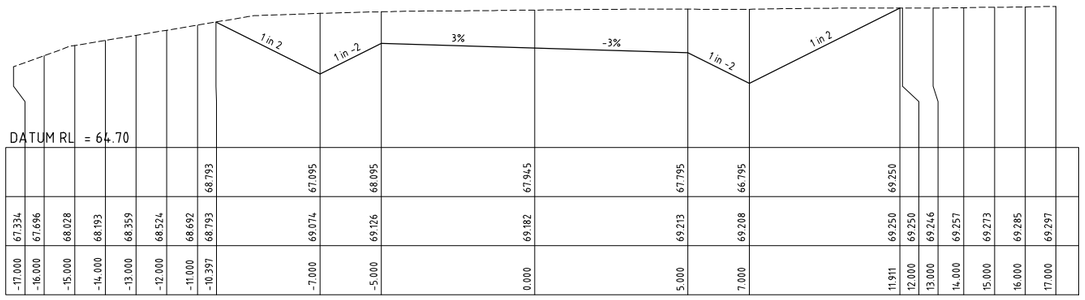
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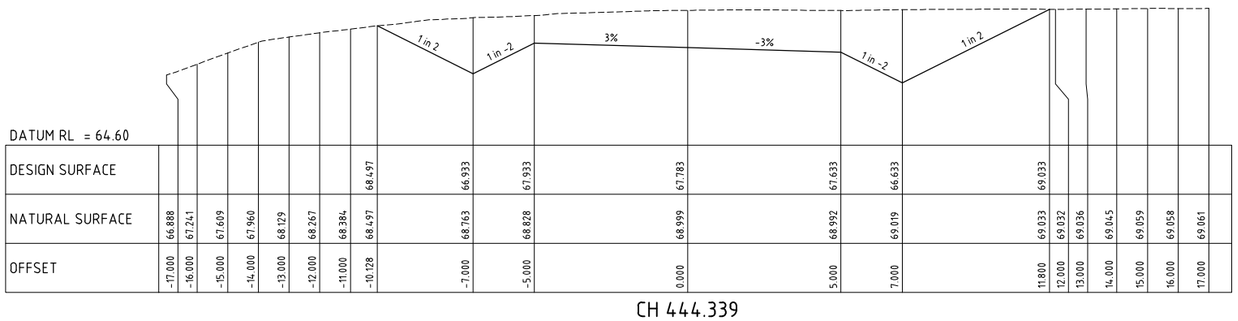


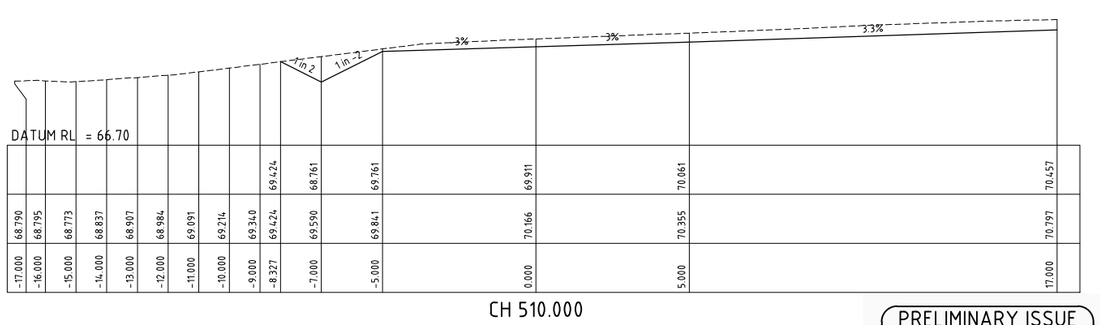












PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
8	CULVERT AMENDMENTS	A.M	I.H	30.10.25
6	CLIENT COMMENTS	A.M	I.H	08.07.25
5	DRAWING NUMBER CHANGE	A.M	I.H	03.07.25
4	CLIENT COMMENTS	A.M	I.H	30.06.25
3	GENERAL AMENDMENTS	A.M	I.H	26.06.25
2	GENERAL AMENDMENTS	A.M	I.H	12.06.25
1	ORIGINAL ISSUE	DB	IH	04.06.25

North

Scale
0 2 4 6 8m
1:100 (A1) 1:200 (A3)

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Designed AM | Scale 1:100
Cad Reference 25090C C16 r8
Project Approval
IAN HILL (B.E)
Consulting Civil Engineer

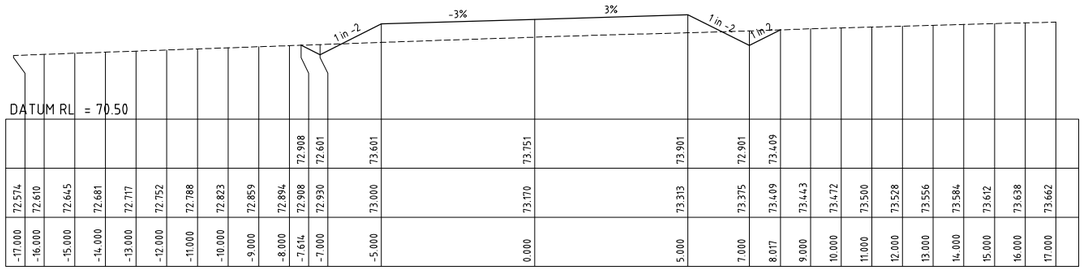
Client

GCA ENGINEERING SOLUTIONS
A.B.N. 92 086 017 745
1 HARTLEY DRIVE, THORNTON NSW 2322
PO BOX 3337, THORNTON NSW 2322
PHONE: (02) 4964 1811

PROPOSED HAUL ROAD WORKS
BLUESTONE HARDROCK QUARRY
SPRINGVALE ROAD, ELDERSLIE
HAUL ROAD 1 CROSS SECTIONS SHEET 4 OF 7

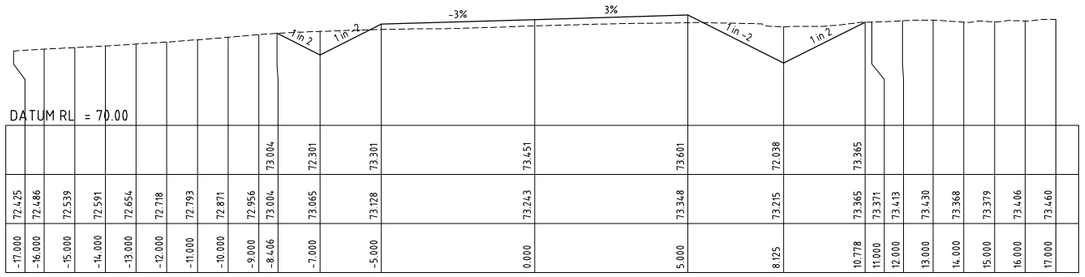
Project No 25090C
Drawing No C16 | Revision 8
A1 SHEET

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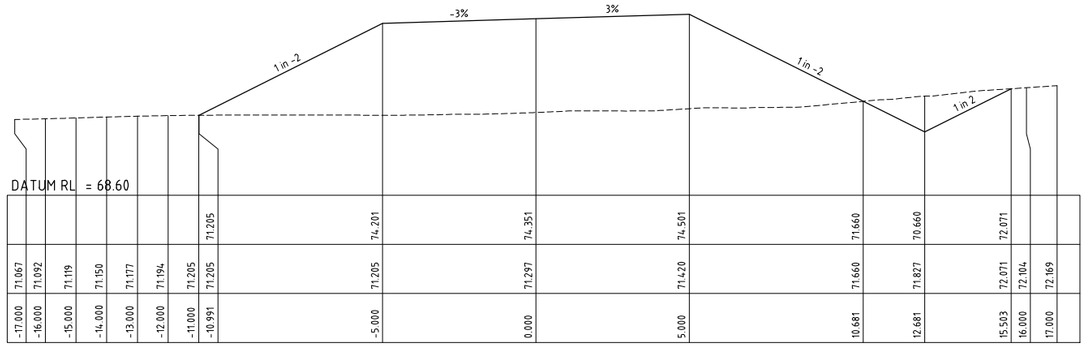
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										72.908	72.601	73.601		73.751		73.901	72.901	73.409								
	72.574	72.610	72.645	72.681	72.717	72.752	72.788	72.823	72.859	72.894	72.908	72.930	73.000	73.170	73.313	73.375	73.409	73.443	73.472	73.500	73.528	73.556	73.584	73.612	73.638	73.662

CH 660.000



	-17.000	-16.000	-15.000	-14.000	-13.000	-12.000	-11.000	-10.000	-9.000	-8.406	-7.000	-5.000	0.000	5.000	8.125	10.778	11.000	12.000	13.000	14.000	15.000	16.000	17.000
										73.004	72.301	73.301	73.451	73.601	72.038	73.365							
	72.425	72.486	72.539	72.591	72.654	72.718	72.793	72.871	72.956	73.004	73.065	73.128	73.243	73.348	73.215	73.365	73.371	73.413	73.430	73.368	73.319	73.406	73.460

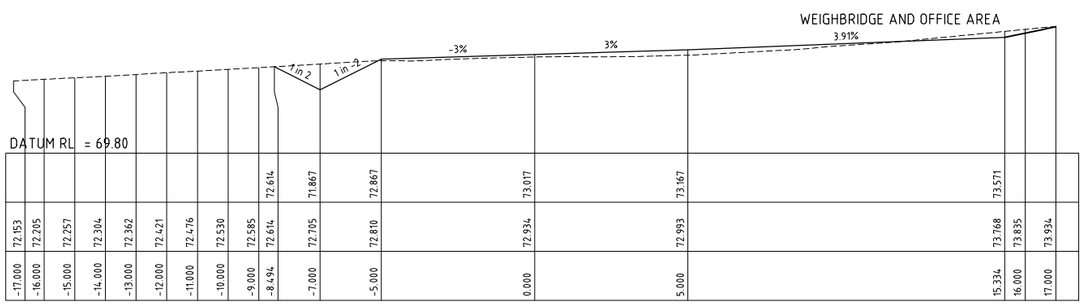
CH 630.000



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							71.205	74.201	74.351	74.501	71.660	70.660	72.071			
	71.067	71.092	71.119	71.150	71.177	71.194	71.205	71.205	71.297	71.420	71.660	71.827	72.071	72.104	72.169	

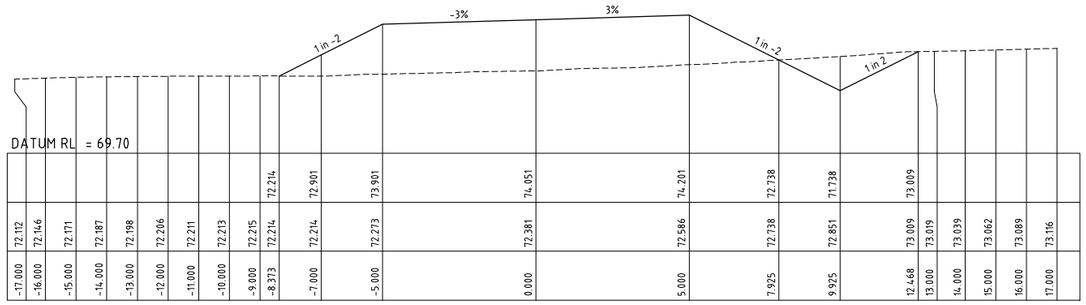
CH 720.000

WEIGHBRIDGE AND OFFICE AREA



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										72.614	71.867	72.867	73.017	73.167	73.571		
	72.153	72.205	72.257	72.304	72.362	72.421	72.476	72.530	72.585	72.614	72.705	72.810	72.934	72.993	73.768	73.835	73.934

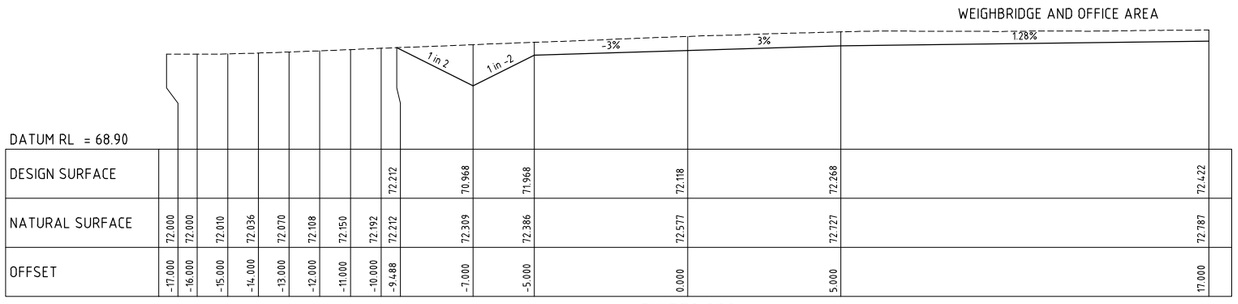
CH 600.000



	-17.000	-16.000	-15.000	-14.000	-13.000	-12.000	-11.000	-10.000	-9.000	-8.373	-7.000	-5.000	0.000	5.000	7.925	9.925	12.468	13.000	14.000	15.000	16.000	17.000
										72.214	72.901	73.901	74.051	74.201	72.738	71.738	73.009					
	72.112	72.146	72.171	72.187	72.198	72.206	72.211	72.213	72.215	72.214	72.214	72.273	72.381	72.586	72.738	72.851	73.009	73.019	73.039	73.062	73.089	73.116

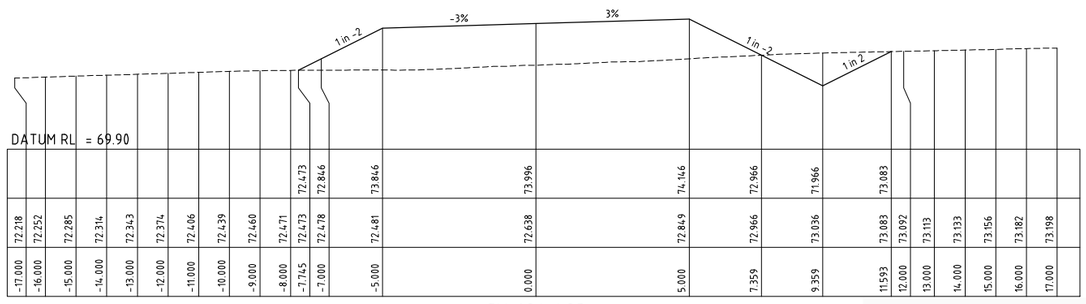
CH 690.000

WEIGHBRIDGE AND OFFICE AREA



	-17.000	-16.000	-15.000	-14.000	-13.000	-12.000	-11.000	-10.000	-9.488	-7.000	-5.000	0.000	5.000	17.000
DESIGN SURFACE									72.212	70.968	71.968	72.118	72.268	72.422
NATURAL SURFACE	72.000	72.000	72.010	72.036	72.070	72.108	72.150	72.192	72.212	72.309	72.386	72.577	72.727	72.787
OFFSET	-17.000	-16.000	-15.000	-14.000	-13.000	-12.000	-11.000	-10.000		-7.000	-5.000	0.000	5.000	17.000

CH 570.000



	-17.000	-16.000	-15.000	-14.000	-13.000	-12.000	-11.000	-10.000	-9.000	-8.000	-7.745	-7.000	-5.000	0.000	5.000	7.359	9.359	11.593	12.000	13.000	14.000	15.000	16.000	17.000
										72.473	72.846	73.846	73.996	74.146	72.966	71.966	73.083						
	72.218	72.252	72.285	72.314	72.343	72.374	72.406	72.439	72.460	72.471	72.473	72.478	72.481	72.638	72.849	72.966	73.036	73.083	73.092	73.113	73.133	73.156	73.182	73.198

CH 684.483

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
8	CULVERT AMENDMENTS	A.M	I.H	30.10.25
6	CLIENT COMMENTS	A.M	I.H	08.07.25
5	DRAWING NUMBER CHANGE	A.M	I.H	03.07.25
4	CLIENT COMMENTS	A.M	I.H	30.06.25
3	GENERAL AMENDMENTS	A.M	I.H	26.06.25
2	GENERAL AMENDMENTS	A.M	I.H	12.06.25
1	ORIGINAL ISSUE	DB	IH	04.06.25

North

Scale

0 2 4 6 8m

1:100 (A1) 1:200 (A3)

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Designed AM

Scale 1:100

Cad Reference 25090C C17 r8

Project Approval
IAN HILL (B.E)
Consulting Civil Engineer

Client

GCA ENGINEERING SOLUTIONS
A.B.N. 92 086 017 745
1 HARTLEY DRIVE, THORNTON NSW 2322
PO BOX 3337, THORNTON NSW 2322
PHONE: (02) 4964 1811

PROPOSED HAUL ROAD WORKS
BLUESTONE HARDROCK QUARRY
SPRINGVALE ROAD, ELDERSLIE

HAUL ROAD 1 CROSS SECTIONS SHEET 5 OF 7

Project No 25090C

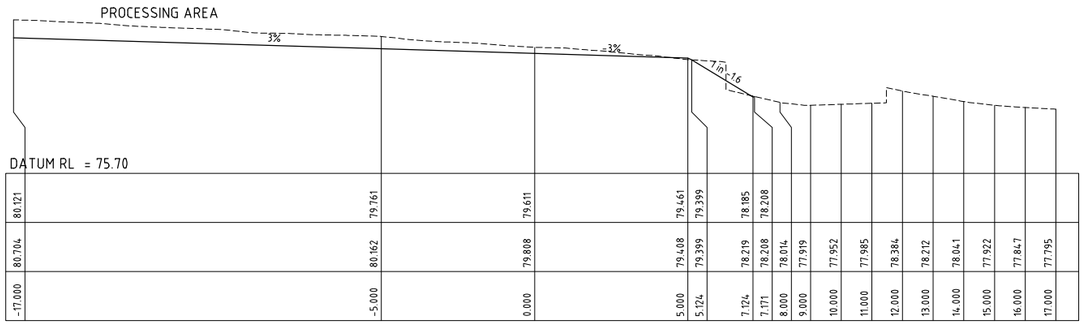
Drawing No C17

Revision 8

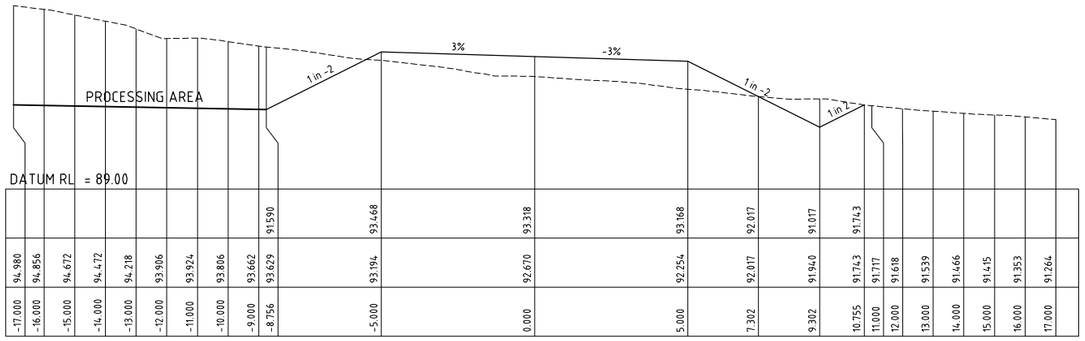
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PROCESSING AREA
3%
-3%
1 in -16
DATUM RL = 75.70

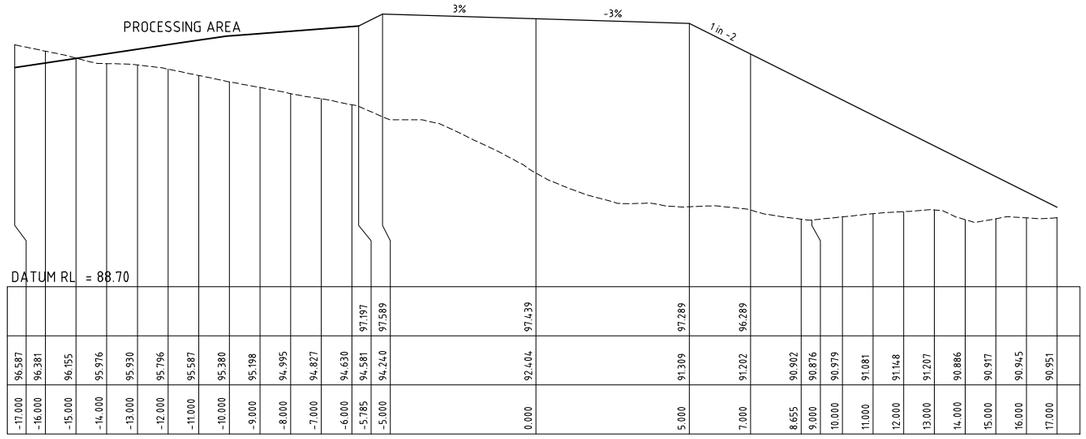
| | | |



DATUM RL = 89.00

										91.590	93.468			93.318			93.168		92.017		91.017	91.743											
94.980	94.856	94.672	94.472	94.218	93.906	93.924	93.806	93.662	93.629	93.194			92.670			92.254		92.017		91.940	91.743	91.717	91.618	91.539	91.466	91.415	91.353	91.264				
-17.000	-16.000	-15.000	-14.000	-13.000	-12.000	-11.000	-10.000	-9.000	-8.756	-5.000			0.000			5.000		7.302		9.302	10.755	11.000	12.000	13.000	14.000	15.000	16.000	17.000				

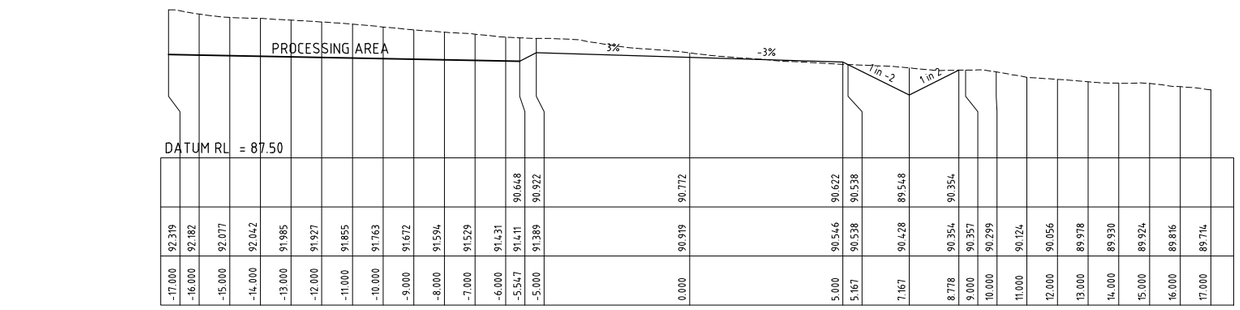
CH 960.000



DATUM RL = 88.70

																97.197	97.589		97.439			97.289		96.289								
96.587	96.381	96.155	95.976	95.930	95.796	95.587	95.380	95.198	94.995	94.827	94.630	94.581	94.240		92.404			91.309		91.202	90.902	90.876	90.979	91.081	91.148	91.207	90.886	90.917	90.945	90.951
-17.000	-16.000	-15.000	-14.000	-13.000	-12.000	-11.000	-10.000	-9.000	-8.000	-7.000	-6.000	-5.785	-5.000		0.000			5.000		7.000	8.655	9.000	10.000	11.000	12.000	13.000	14.000	15.000	16.000	17.000		

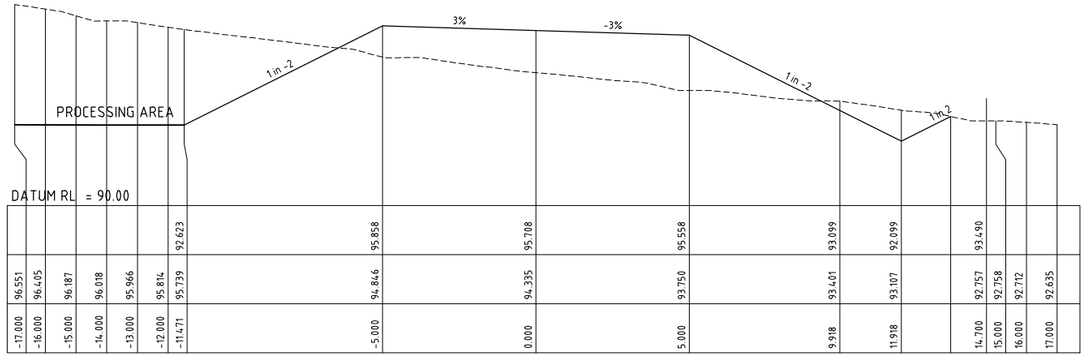
CH 1020.000



DATUM RL = 87.50

												90.648	90.922		90.772			90.622	90.538	89.548	90.354											
92.319	92.182	92.077	92.042	91.985	91.927	91.855	91.763	91.672	91.594	91.529	91.431	91.411	91.389		90.919			90.546	90.538	90.428	90.354	90.357	90.299	90.124	90.056	89.978	89.930	89.924	89.816	89.714		
-17.000	-16.000	-15.000	-14.000	-13.000	-12.000	-11.000	-10.000	-9.000	-8.000	-7.000	-6.000	-5.547	-5.000		0.000			5.000	5.167	7.167	8.778	9.000	10.000	11.000	12.000	13.000	14.000	15.000	16.000	17.000		

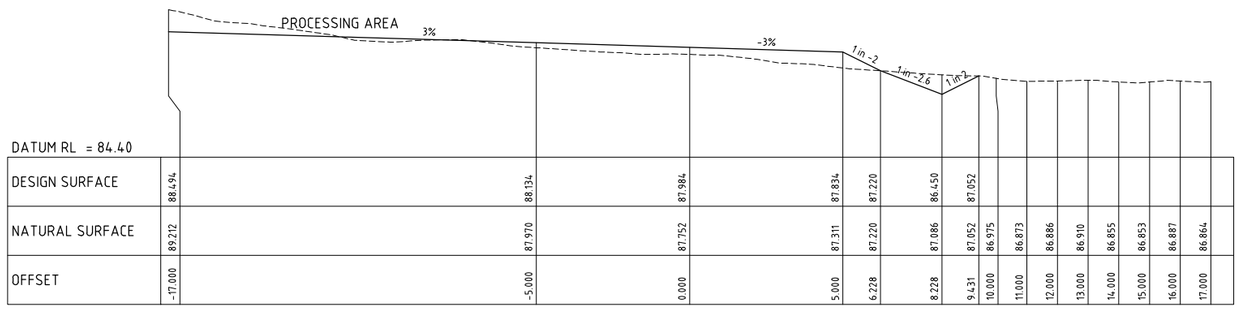
CH 930.000



DATUM RL = 90.00

						92.623					95.858			95.708			95.558			93.099	92.099		93.490								
96.551	96.405	96.187	96.018	95.966	95.814	95.739					94.846			94.335			93.750			93.401	93.107		92.757	92.758	92.712	92.635					
-17.000	-16.000	-15.000	-14.000	-13.000	-12.000	-11.471					-5.000			0.000			5.000			9.918	11.918		14.700	15.000	16.000	17.000					

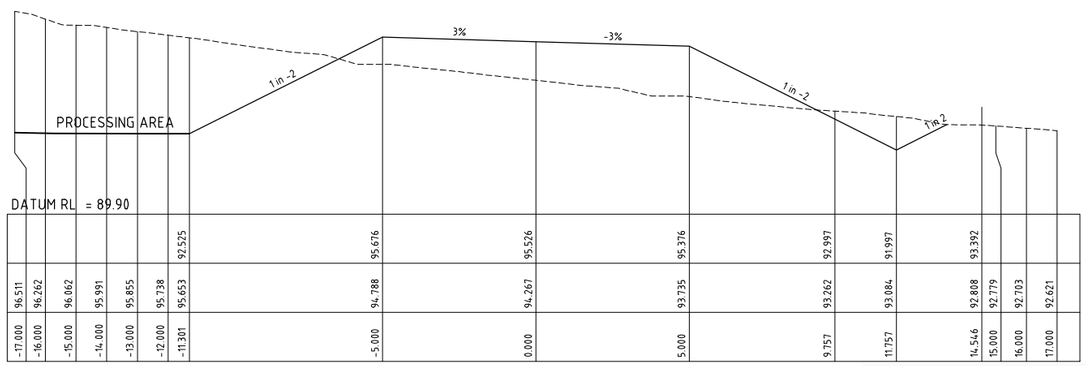
CH 992.546



DATUM RL = 84.40

DESIGN SURFACE	88.494			88.134			87.984			87.834	87.220	86.450	87.052																			
NATURAL SURFACE	89.212			87.970			87.752			87.311	87.220	87.086	87.052	86.975	86.873	86.886	86.910	86.855	86.853	86.887	86.864											
OFFSET	-17.000			-5.000			0.000			5.000	6.228	8.228	9.431	10.000	11.000	12.000	13.000	14.000	15.000	16.000	17.000											

CH 900.000



DATUM RL = 89.90

						92.525					95.676			95.526			95.376			92.997	91.997		93.392								
96.511	96.262	96.062	95.991	95.855	95.738	95.653					94.788			94.267			93.735			93.262	93.084		92.808	92.779	92.703	92.621					
-17.000	-16.000	-15.000	-14.000	-13.000	-12.000	-11.301					-5.000			0.000			5.000			9.757	11.757		14.546	15.000	16.000	17.000					

CH 990.000

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
8	CULVERT AMENDMENTS	AM	IH	30.10.25

North

Scale

0 2 4 6 8m
1:100 (A1) 1:200 (A3)

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Designed AM
Scale 1:100
Cad Reference 25090C C18A r8
Project Approval
IAN HILL (B.E)
Consulting Civil Engineer

Client

GCA ENGINEERING SOLUTIONS
A.B.N. 92 086 017 745
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PO BOX 3337, THORNTON NSW 2322
PHONE: (02) 4964 1811

PROPOSED HAUL ROAD WORKS
BLUESTONE HARDROCK QUARRY
SPRINGVALE ROAD, ELDERSLIE
HAUL ROAD 1 CROSS SECTIONS SHEET 7 OF 7

Project No 25090C
Drawing No C18A
Revision 8
A1 SHEET

PLOT DATE: 14/04/2026 1:28:50 PM
CAD FILE: Q:\25\25090 Bluerock Quarry\02_CAD\AutoCAD\Civil\25090C C18A r8.dwg



A1 SCALE: HORIZONTAL 1:1000, VERTICAL 1:200

LONGITUDINAL SECTION HAUL ROAD 2

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
5	DRAWING NUMBER CHANGE	A.M	I.H	03.07.25
4	CLIENT COMMENTS	A.M	I.H	30.06.25
3	GENERAL AMENDMENTS	A.M	I.H	26.06.25
2	GENERAL AMENDMENTS	A.M	I.H	12.06.25
1	ORIGINAL ISSUE	DB	IH	04.06.25

North

Scale

0 20 40 60 80m
1:1000 (A1) 1:2000 (A3)
0 4 8 12 16m
1:200 (A1) 1:400 (A3)

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Designed AM
Scale 1:1000H / 1:200V
Cad Reference 25090C C19 r5
Project Approval
IAN HILL (B.E)
Consulting Civil Engineer

Client

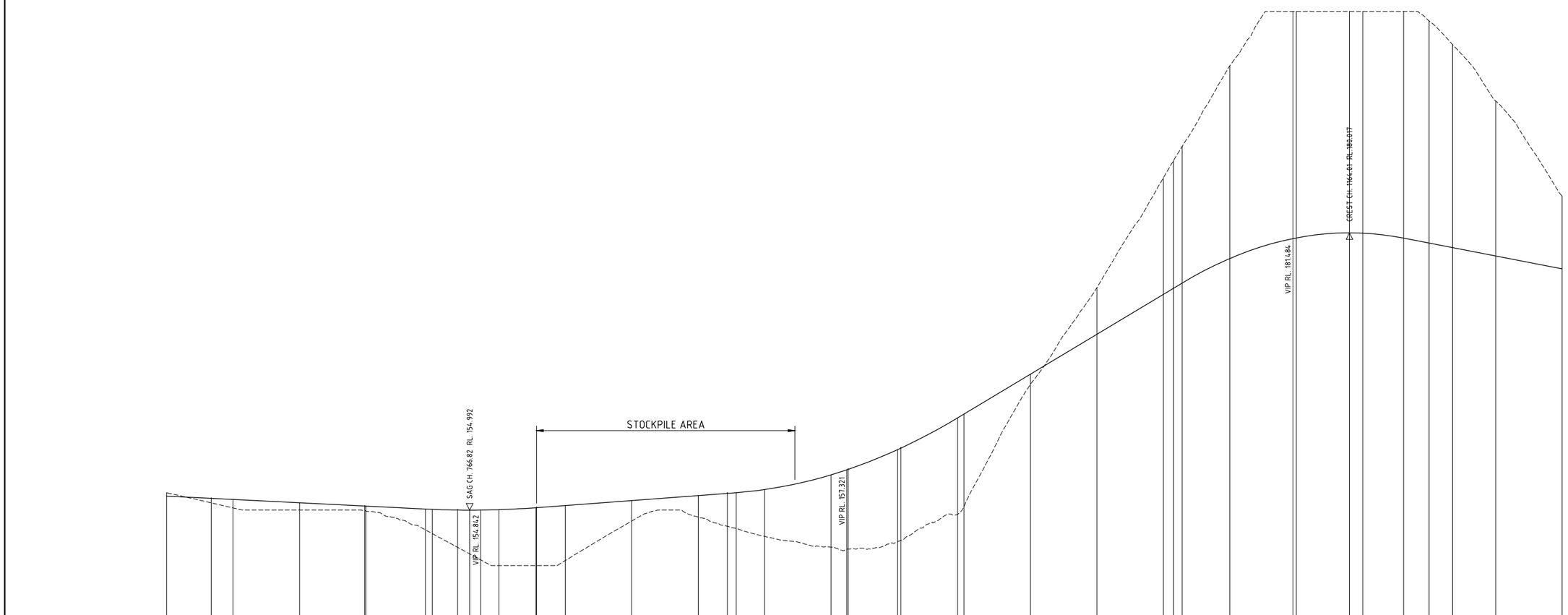
GCA ENGINEERING SOLUTIONS
A.B.N. 92 086 017 745
1 HARTLEY DRIVE, THORNTON NSW 2322
PO BOX 3337, THORNTON NSW 2322
PHONE: (02) 4964 1811

PROPOSED HAUL ROAD WORKS
BLUESTONE HARDROCK QUARRY
SPRINGVALE ROAD, ELDERSLIE

RESERVED

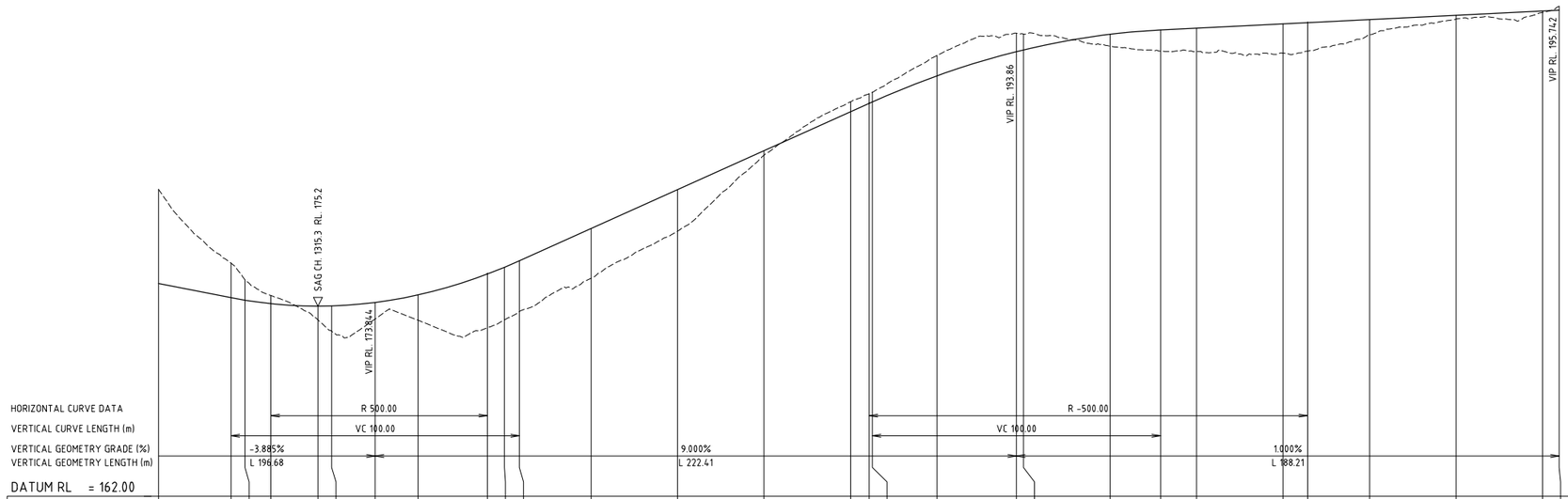
Project No 25090C
Drawing No C19
Revision 5
A1 SHEET

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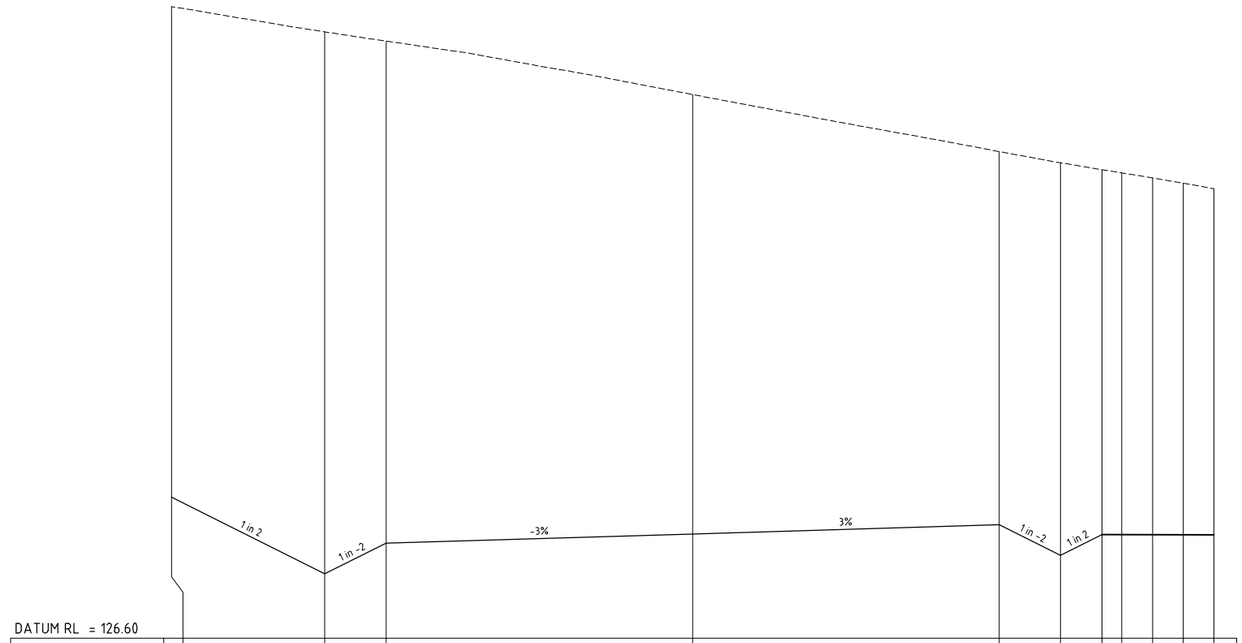


DATUM RL = 139.00

| | | |


SAG CH. 1315.3 RL. 175.2
VIP RL. 173.844
VIP RL. 193.86
VIP RL. 195.742

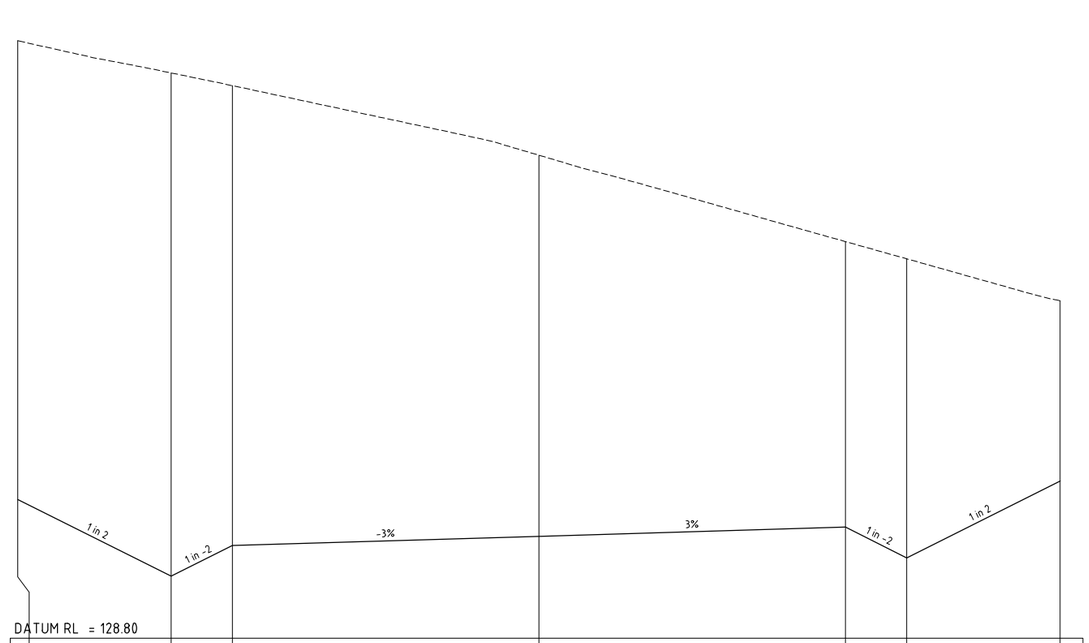
| | | |



DATUM RL = 126.60

DESIGN SURFACE	131.200	128.700	129.700	130.000	130.300	129.300	129.977				
NATURAL SURFACE	147.195	146.371	146.068	144.327	142.468	142.100	141.874	141.774	141.606	141.439	141.256
OFFSET	-17.000	-12.000	-10.000	0.000	10.000	12.000	13.354	14.000	15.000	16.000	17.000

CH 1.715



DATUM RL = 128.80

	133.321	130.821	131.821	132.121	132.421	131.421	133.921
	148.285	147.232	146.817	144.549	141.732	141.170	139.803
	-17.000	-12.000	-10.000	0.000	10.000	12.000	17.000

CH 30.000

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
5	DRAWING NUMBER CHANGE	A.M	I.H	03.07.25
4	CLIENT COMMENTS	A.M	I.H	30.06.25
3	GENERAL AMENDMENTS	A.M	I.H	26.06.25
2	GENERAL AMENDMENTS	A.M	I.H	12.06.25
1	ORIGINAL ISSUE	DB	IH	04.06.25

North

Scale
0 2 4 6 8m
1:100 (A1) 1:200 (A3)

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Designed AM | Scale 1:100
Cad Reference 25090C C22 r5
Project Approval
IAN HILL (B.E)
Consulting Civil Engineer

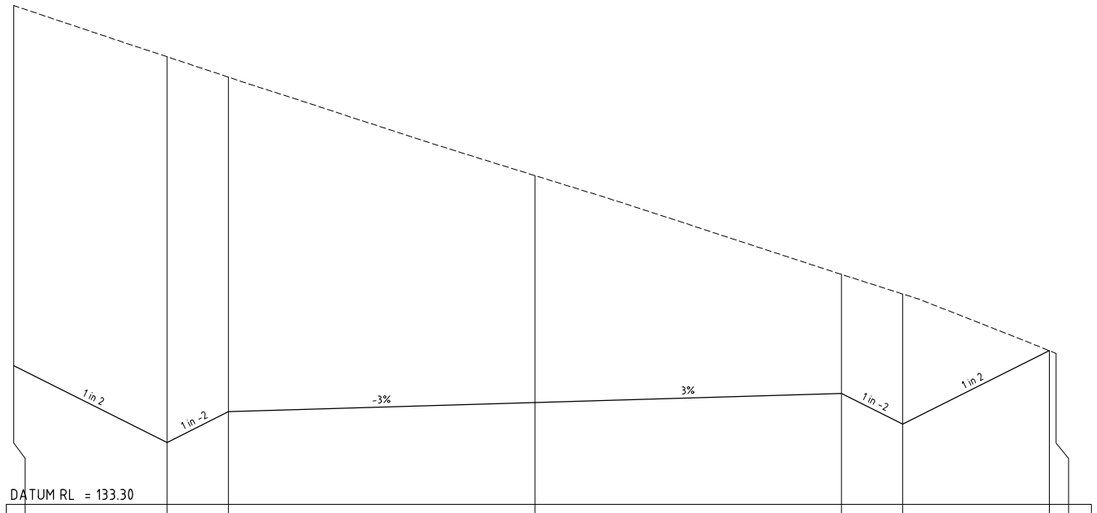
Client

GCA ENGINEERING SOLUTIONS
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1 HARTLEY DRIVE, THORNTON NSW 2322
PO BOX 3337, THORNTON NSW 2322
PHONE: (02) 4964 1811

PROPOSED HAUL ROAD WORKS
BLUESTONE HARDROCK QUARRY
SPRINGVALE ROAD, ELDERSLIE
HAUL ROAD 2 LONGITUDINAL SECTION SHEET 2 OF 3

Project No 25090C
Drawing No C22 | Revision 5
A1 SHEET

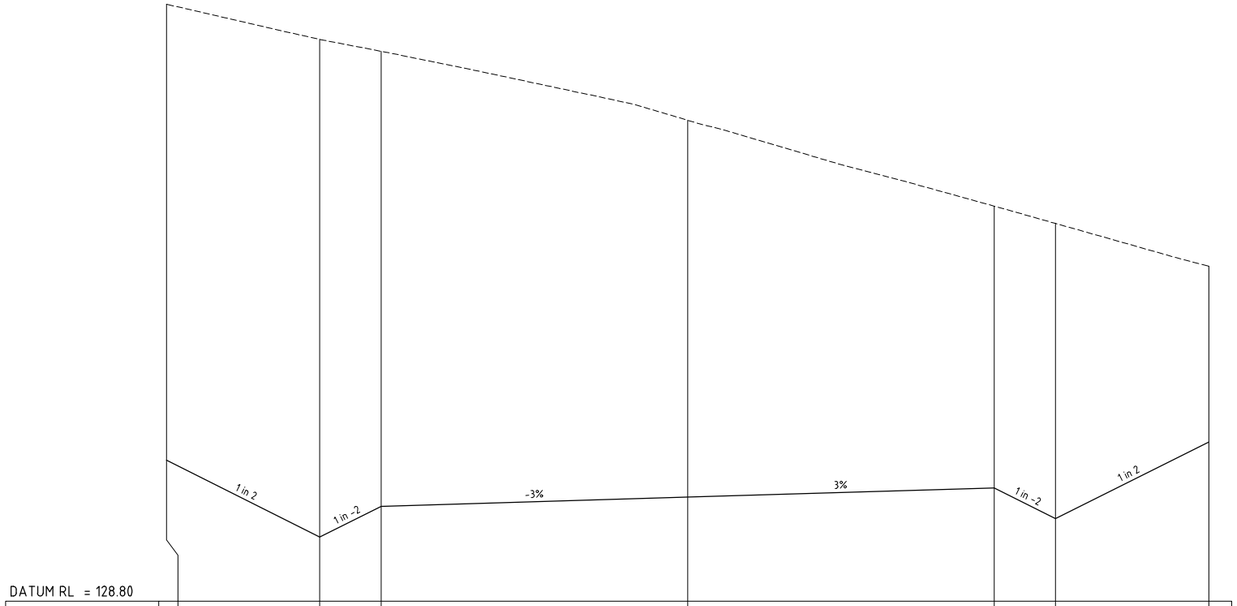
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DATUM RL = 133.30

137.821	135.321	136.321	136.621	136.921	135.921	138.311	
149.563	147.896	147.232	144.023	140.801	140.161	138.311	138.223
-17.000	-12.000	-10.000	0.000	10.000	12.000	16.780	17.000

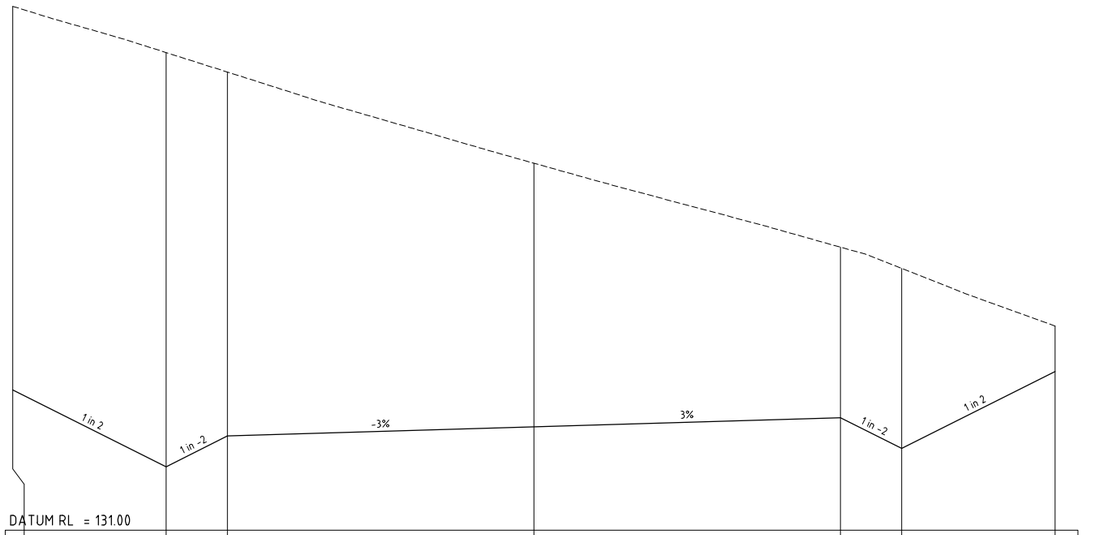
CH 90.000



DATUM RL = 128.80

DESIGN SURFACE	133.395	130.895	131.895	132.195	132.495	131.495	133.995
NATURAL SURFACE	148.264	147.120	146.731	144.481	141.681	141.118	139.727
OFFSET	-17.000	-12.000	-10.000	0.000	10.000	12.000	17.000

CH 30.988



DATUM RL = 131.00

135.571	133.071	134.071	134.371	134.671	133.671	136.171	
148.082	146.575	145.940	142.967	140.229	139.533	137.657	
-17.000	-12.000	-10.000	0.000	10.000	12.000	17.000	

CH 60.000

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
5	DRAWING NUMBER CHANGE	A.M	I.H	03.07.25
4	CLIENT COMMENTS	A.M	I.H	30.06.25
3	GENERAL AMENDMENTS	A.M	I.H	26.06.25
2	GENERAL AMENDMENTS	A.M	I.H	12.06.25
1	ORIGINAL ISSUE	DB	IH	04.06.25

North

Scale

0 2 4 6 8m

1:100 (A1) 1:200 (A3)

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Designed AM

Scale 1:100

Cad Reference 25090C C23 r5

Project Approval
IAN HILL (B.E)
Consulting Civil Engineer

Client

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PROPOSED HAUL ROAD WORKS
BLUESTONE HARDROCK QUARRY
SPRINGVALE ROAD, ELDERSLIE

HAUL ROAD 2 LONGITUDINAL SECTION SHEET 3 OF 3

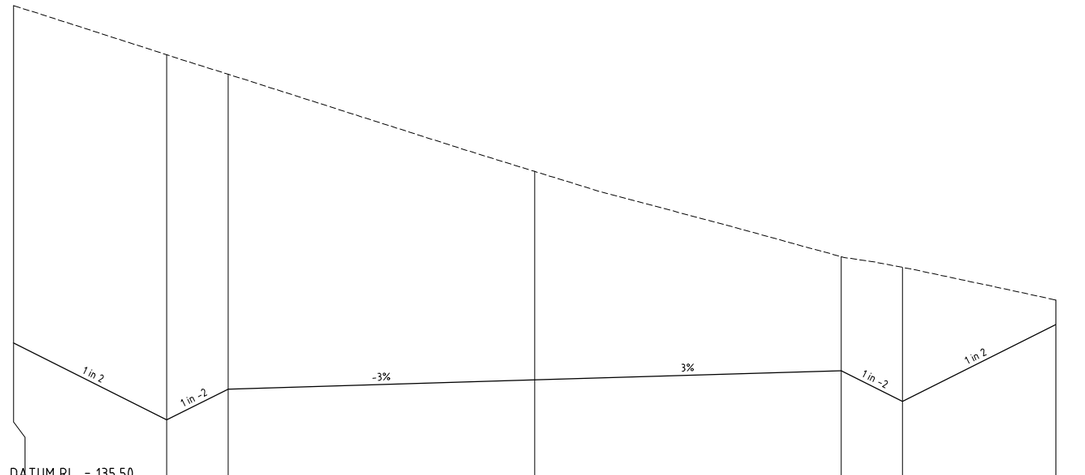
Project No 25090C

Drawing No C23

Revision 5

A1 SHEET

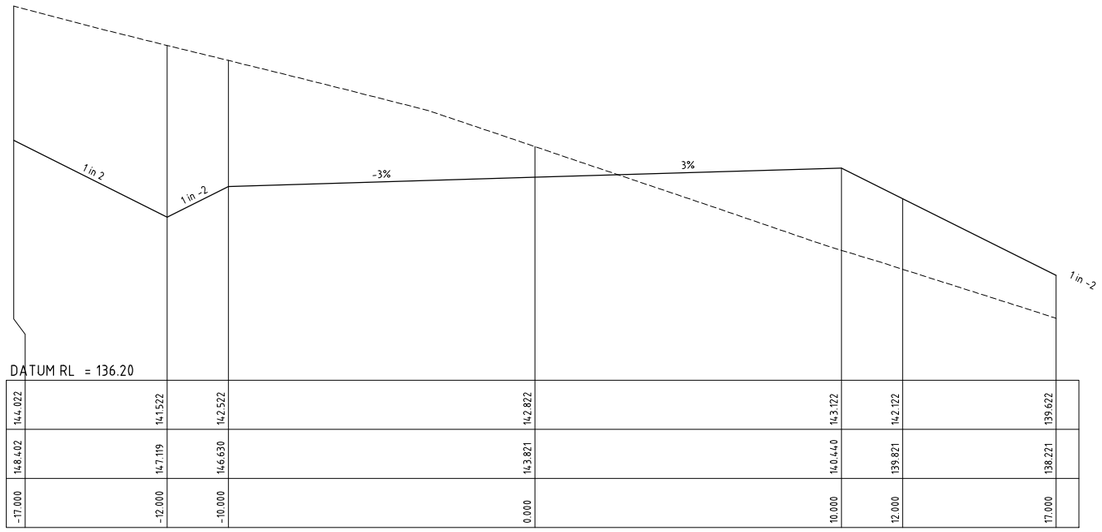
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DATUM RL = 135.50

140.071	137.571	138.571	138.871	139.171	138.171	140.671
151.075	149.470	148.836	145.668	142.889	142.539	141.471
-17.000	-12.000	-10.000	0.000	10.000	12.000	17.000

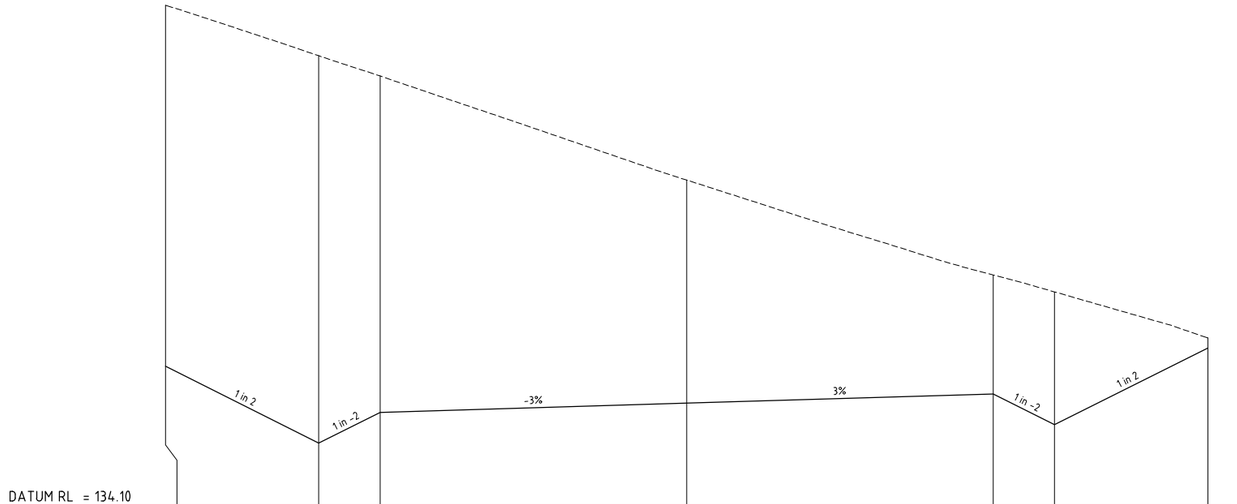
CH 120.000



DATUM RL = 136.20

144.022	141.522	142.522	142.822	143.122	142.122	139.622
148.692	147.119	146.630	143.821	140.440	139.821	138.221
-17.000	-12.000	-10.000	0.000	10.000	12.000	17.000

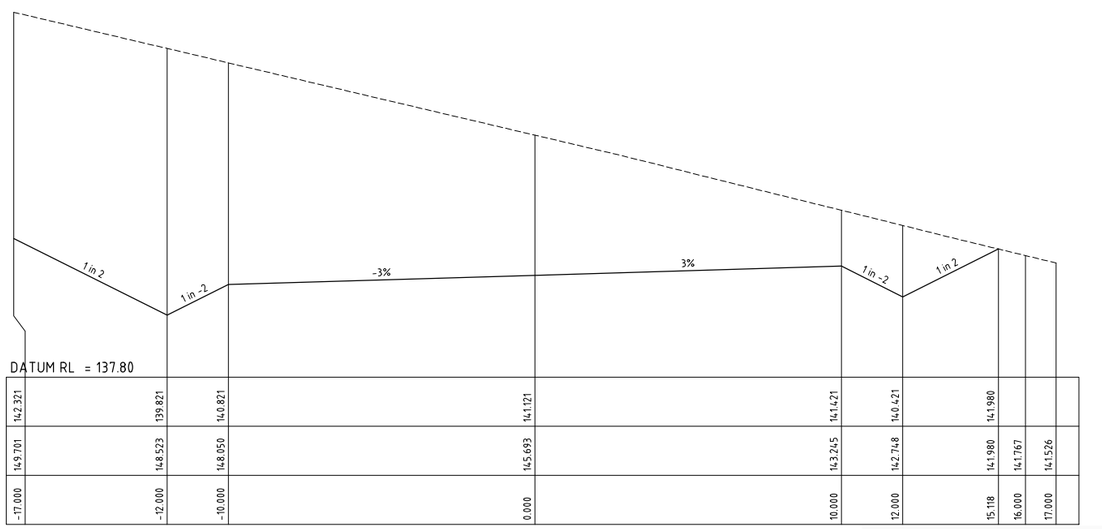
CH 180.000



DATUM RL = 134.10

DESIGN SURFACE	138.662	136.162	137.162	137.462	137.762	136.762	139.262
NATURAL SURFACE	150.437	148.788	148.128	144.734	141.638	141.089	139.586
OFFSET	-17.000	-12.000	-10.000	0.000	10.000	12.000	17.000

CH 101.202



DATUM RL = 137.80

142.321	139.821	140.821	141.121	141.421	140.421	141.980		
149.701	148.523	148.050	145.693	143.245	142.748	141.980	141.767	141.526
-17.000	-12.000	-10.000	0.000	10.000	12.000	15.118	16.000	17.000

CH 150.000

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
7	CLIENT COMMENTS	A.M	I.H	21.07.25
5	DRAWING NUMBER CHANGE	A.M	I.H	03.07.25
4	CLIENT COMMENTS	A.M	I.H	30.06.25
3	GENERAL AMENDMENTS	A.M	I.H	26.06.25
2	GENERAL AMENDMENTS	A.M	I.H	12.06.25
1	ORIGINAL ISSUE	DB	IH	04.06.25

North

Scale

0 2 4 6 8m
1:100 (A1) 1:200 (A3)

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Designed AM | Scale 1:100

Cad Reference 25090C C24 r7

Project Approval
IAN HILL (B.E)
Consulting Civil Engineer

Client

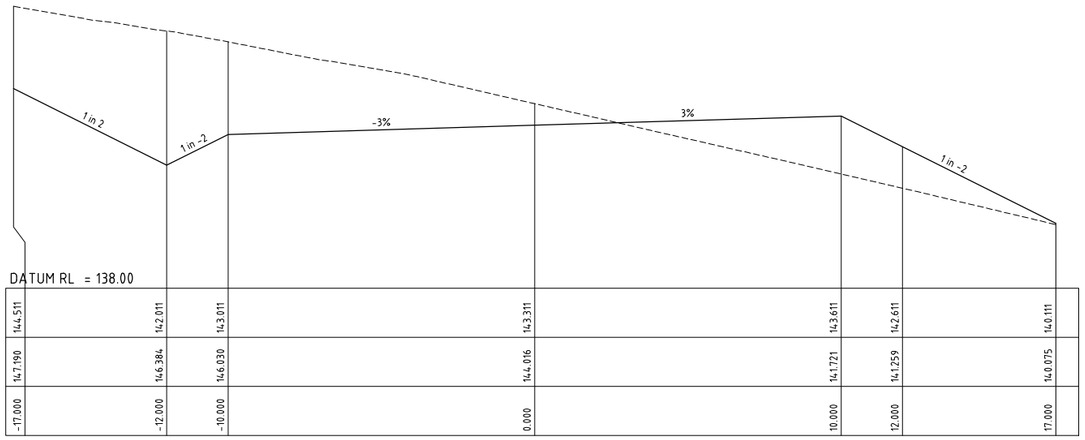
GCA ENGINEERING SOLUTIONS
A.B.N. 92 086 017 745
1 HARTLEY DRIVE, THORNTON NSW 2322
PO BOX 3337, THORNTON NSW 2322
PHONE: (02) 4964 1811

PROPOSED HAUL ROAD WORKS
BLUESTONE HARDROCK QUARRY
SPRINGVALE ROAD, ELDERSLIE

HAUL ROAD 2 CROSS SECTIONS SHEET 3 OF 21

Project No 25090C
Drawing No C24
Revision 7
A1 SHEET

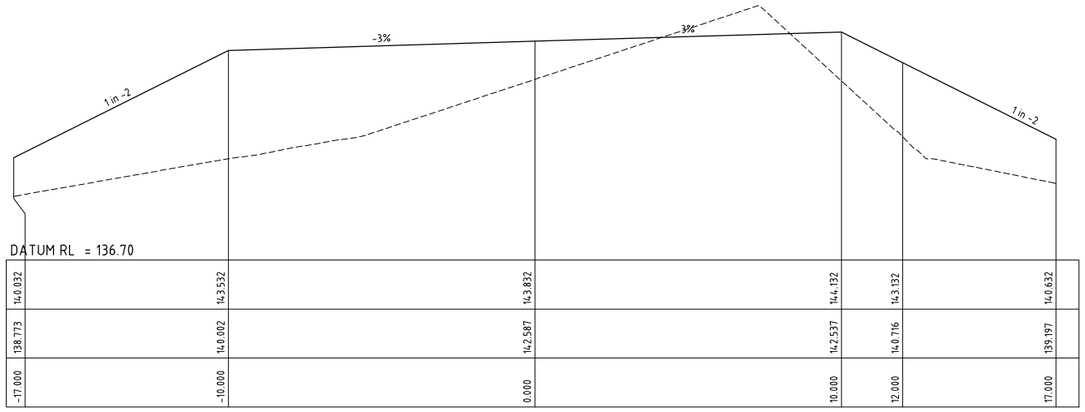
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DATUM RL = 138.00

144.511	142.011	143.011	143.311	143.611	142.611	140.111
147.190	146.384	146.030	144.016	141.721	141.259	140.075
-17.000	-12.000	-10.000	0.000	10.000	12.000	17.000

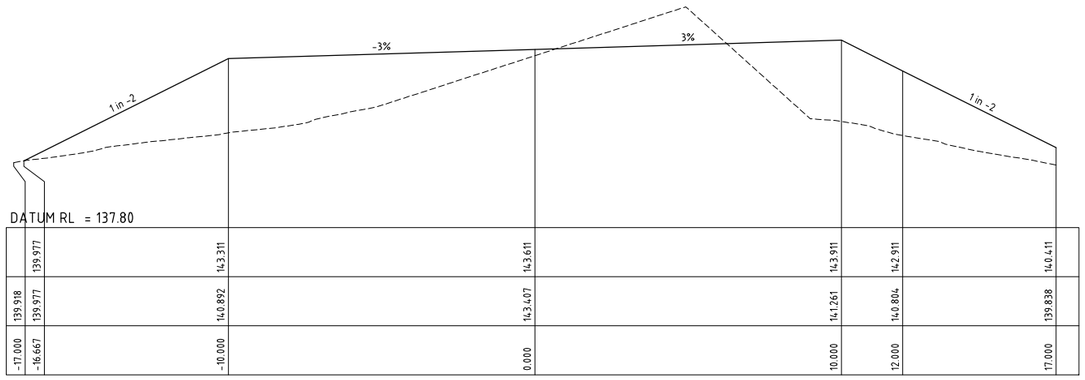
CH 210.000



DATUM RL = 136.70

140.032	143.532	143.832	144.132	143.132	140.632
138.173	140.002	142.587	142.537	140.716	139.197
-17.000	-10.000	0.000	10.000	12.000	17.000

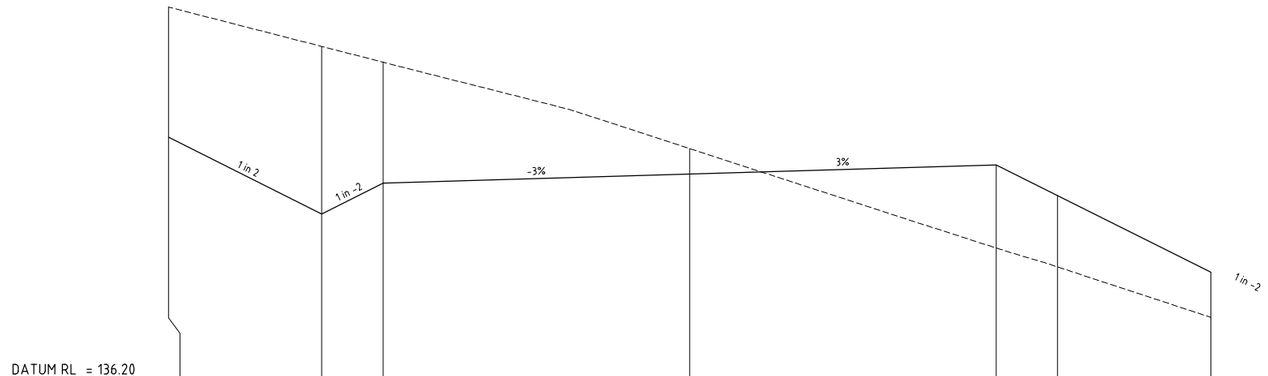
CH 300.000



DATUM RL = 137.80

	139.977	143.311	143.611	143.911	142.911	140.411
139.918	139.977	140.892	143.407	141.261	140.804	139.838
-17.000	-16.667	-10.000	0.000	10.000	12.000	17.000

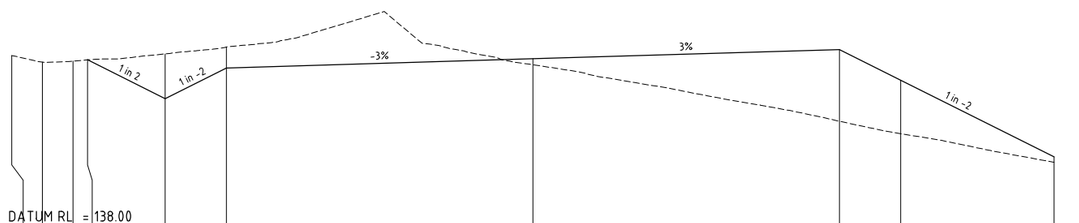
CH 270.000



DATUM RL = 136.20

DESIGN SURFACE	144.090	141.590	142.590	142.890	143.190	142.190	139.690
NATURAL SURFACE	148.334	147.050	146.537	143.720	140.479	139.862	138.219
OFFSET	-17.000	-12.000	-10.000	0.000	10.000	12.000	17.000

CH 181.966



DATUM RL = 138.00

			143.426	142.161	143.161	143.761	142.761	140.261
143.561	143.354	143.385	143.426	143.618	143.843	143.265	141.424	141.019	140.085
-17.000	-16.000	-15.000	-14.530	-12.000	-10.000	0.000	10.000	12.000	17.000

CH 240.000

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
7	CLIENT COMMENTS	A.M	I.H	21.07.25
5	DRAWING NUMBER CHANGE	A.M	I.H	03.07.25
4	CLIENT COMMENTS	A.M	I.H	30.06.25
3	GENERAL AMENDMENTS	A.M	I.H	26.06.25
2	GENERAL AMENDMENTS	A.M	I.H	12.06.25
1	ORIGINAL ISSUE	DB	IH	04.06.25

North

Scale

0 2 4 6 8m
1:100 (A1) 1:200 (A3)

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Designed AM | Scale 1:100

Cad Reference 25090C C25 r7

Project Approval
IAN HILL (B.E)
Consulting Civil Engineer

Client

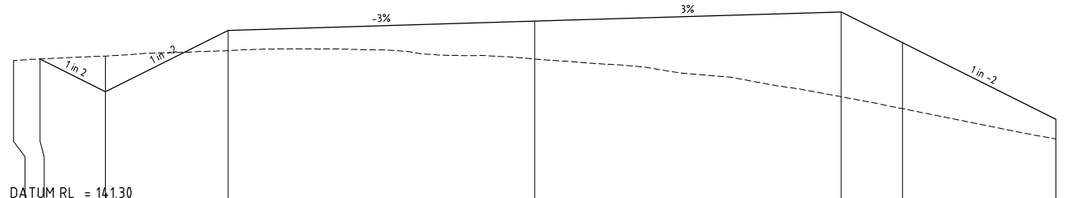
GCA ENGINEERING SOLUTIONS
A.B.N. 92 086 017 745
1 HARTLEY DRIVE, THORNTON NSW 2322
PO BOX 3337, THORNTON NSW 2322
PHONE: (02) 4964 1811

PROPOSED HAUL ROAD WORKS
BLUESTONE HARDROCK QUARRY
SPRINGVALE ROAD, ELDERSLIE

HAUL ROAD 2 CROSS SECTIONS SHEET 4 OF 21

Project No 25090C
Drawing No C25
Revision 7
A1 SHEET

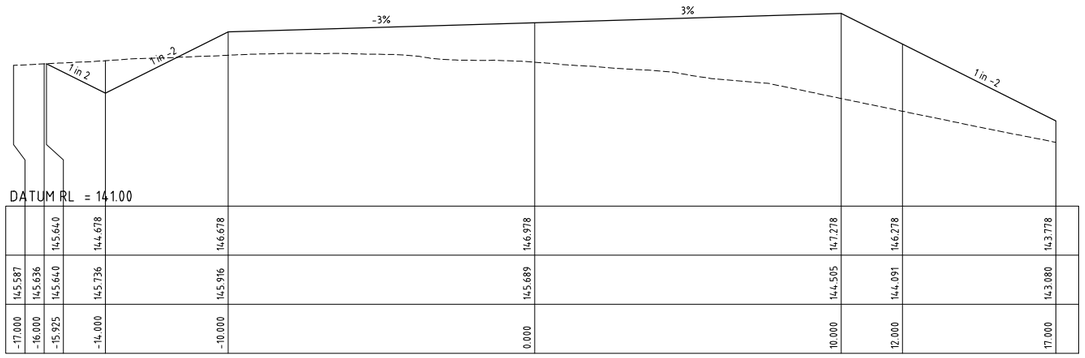
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DATUM RL = 141.30

	145.983	144.914	146.914	147.214	147.514	146.514	144.014
145.930	145.983	146.078	146.256	145.983	144.751	144.360	143.373
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CH 363.423



DATUM RL = 141.00

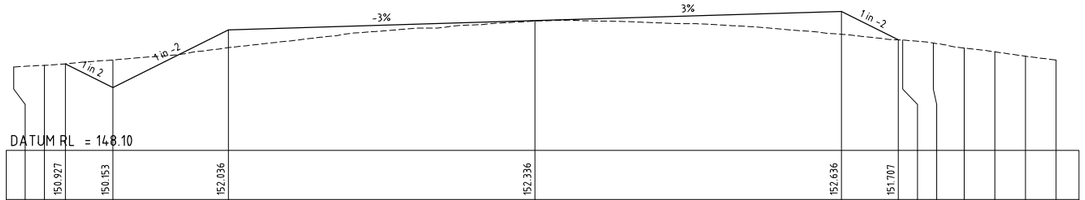
	145.640	144.678	146.678	146.978	147.278	146.278	143.778
145.587	145.636	145.640	145.736	145.916	145.689	144.091	143.080
-17.000	-16.000	-15.925	-14.000	-10.000	0.000	12.000	17.000

CH 360.000

DATUM RL = 138.70

DESIGN SURFACE	141.481	144.664	144.964	145.264	144.264	141.764
NATURAL SURFACE	141.442	141.481	142.300	144.041	141.803	141.528	140.760
OFFSET	-17.000	-16.368	-10.000	0.000	10.000	12.000	17.000

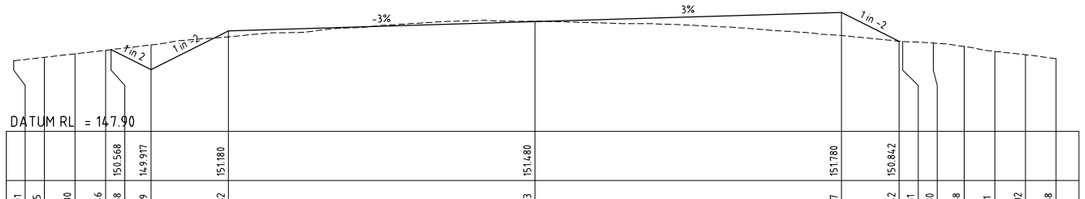
CH 330.000



DATUM RL = 148.10

		150.927	150.153	152.036	152.336	152.636	151.707						
150.822	150.878	150.927	151.954	151.453	152.320	151.892	151.707	151.700	151.604	151.441	151.319	151.174	151.052
-17.000	-16.600	-15.314	-13.766	-10.000	0.000	10.000	11.857	12.000	13.000	14.000	15.000	16.000	17.000

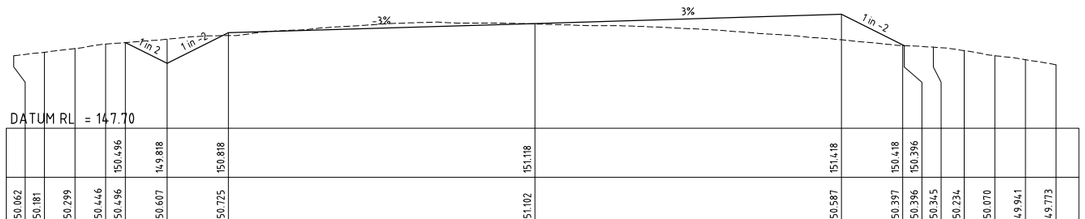
CH 437.658



DATUM RL = 147.90

				150.568	149.917	151.180	151.480	151.780	150.842				
150.201	150.315	150.430	150.546	150.568	150.719	150.982	151.493	151.027	150.842	150.831	150.780	150.668	150.511	150.402	150.268
-17.000	-16.000	-15.000	-14.000	-13.827	-12.525	-10.000	0.000	10.000	11.877	12.000	13.000	14.000	15.000	16.000	17.000

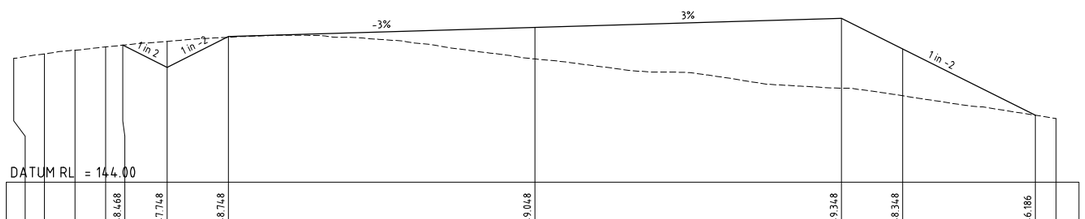
CH 425.255



DATUM RL = 147.70

				150.496	149.818	150.818	151.118	151.418	150.418	150.396					
150.062	150.181	150.299	150.446	150.496	150.607	150.725	151.102	150.587	150.397	150.396	150.345	150.234	150.070	149.941	149.773
-17.000	-16.000	-15.000	-14.000	-13.356	-12.000	-10.000	0.000	10.000	12.000	12.044	13.000	14.000	15.000	16.000	17.000

CH 420.000



DATUM RL = 144.00

				148.468	147.768	148.768	149.068	149.368	148.368		146.186		
148.037	148.185	148.308	148.414	148.468	148.593	148.724	149.020	147.068	146.820		146.186	146.080	
-17.000	-16.000	-15.000	-14.000	-13.441	-12.000	-10.000	0.000	10.000	12.000		16.322	17.000	

CH 390.000

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
7	CLIENT COMMENTS	A.M	I.H	21.07.25
5	DRAWING NUMBER CHANGE	A.M	I.H	03.07.25
4	CLIENT COMMENTS	A.M	I.H	30.06.25
3	GENERAL AMENDMENTS	A.M	I.H	26.06.25
2	GENERAL AMENDMENTS	A.M	I.H	12.06.25
1	ORIGINAL ISSUE	DB	IH	04.06.25

North

Scale
0 2 4 6 8m
1:100 (A1) 1:200 (A3)

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Designed AM | Scale 1:100
Cad Reference 25090C C26 r7
Project Approval
IAN HILL (B.E)
Consulting Civil Engineer

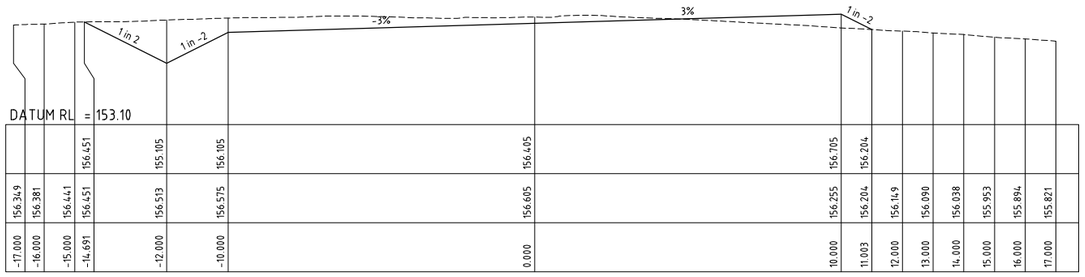
Client

GCA ENGINEERING SOLUTIONS
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PO BOX 3337, THORNTON NSW 2322
PHONE: (02) 4964 1811

PROPOSED HAUL ROAD WORKS
BLUESTONE HARDROCK QUARRY
SPRINGVALE ROAD, ELDERSLIE
HAUL ROAD 2 CROSS SECTIONS SHEET 5 OF 21

Project No 25090C
Drawing No C26 | Revision 7
A1 SHEET

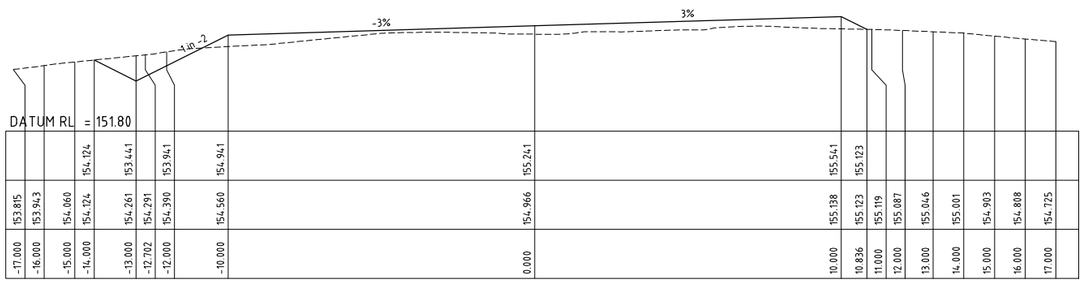
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DATUM RL = 153.10

			156.451		156.105		156.495		156.705	156.204							
156.349	156.381	156.441	156.451		156.513		156.575	156.605	156.255	156.204	156.149	156.090	156.038	155.953	155.894	155.821	
-17.000	-16.000	-15.000	-14.691		-12.000		-10.000	0.000	10.000	11.003	12.000	13.000	14.000	15.000	16.000	17.000	

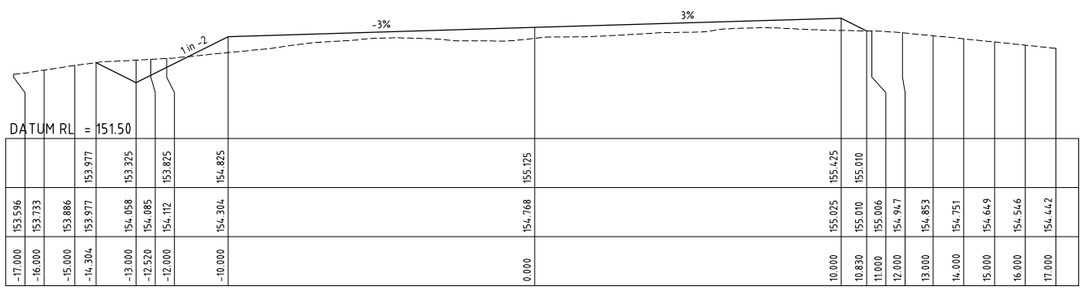
CH 510.000



DATUM RL = 151.80

			154.124		153.441		154.941	155.241		155.541	155.123						
153.815	153.943	154.060	154.124		154.261	154.291	154.390	154.560	154.966	155.138	155.123	155.119	155.087	155.046	155.001	154.903	154.808	154.725
-17.000	-16.000	-15.000	-14.000		-13.000	-12.702	-12.000	-10.000	0.000	10.000	10.836	11.000	12.000	13.000	14.000	15.000	16.000	17.000

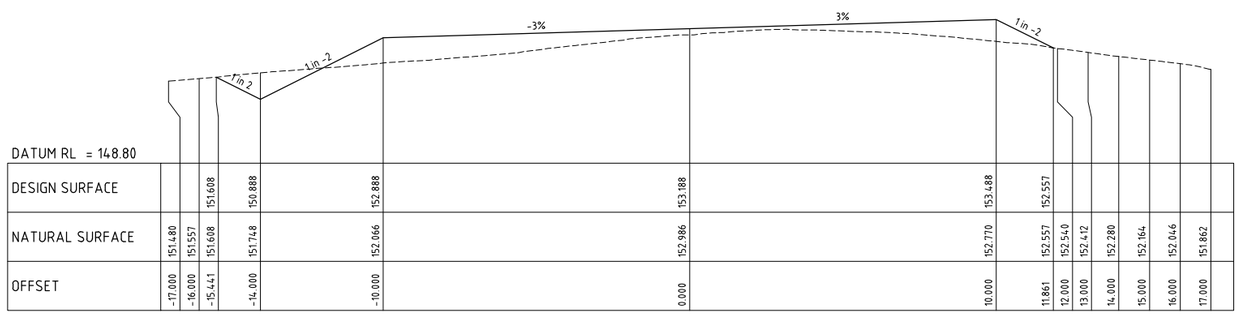
CH 482.156



DATUM RL = 151.50

			153.977	153.325		153.825	154.825	155.125		155.425	155.010						
153.596	153.733	153.886	153.977	154.058	154.085	154.112	154.304	154.768	155.025	155.010	155.006	154.947	154.853	154.751	154.649	154.546	154.442	
-17.000	-16.000	-15.000	-14.304	-13.000	-12.520	-12.000	-10.000	0.000	10.000	10.830	11.000	12.000	13.000	14.000	15.000	16.000	17.000	

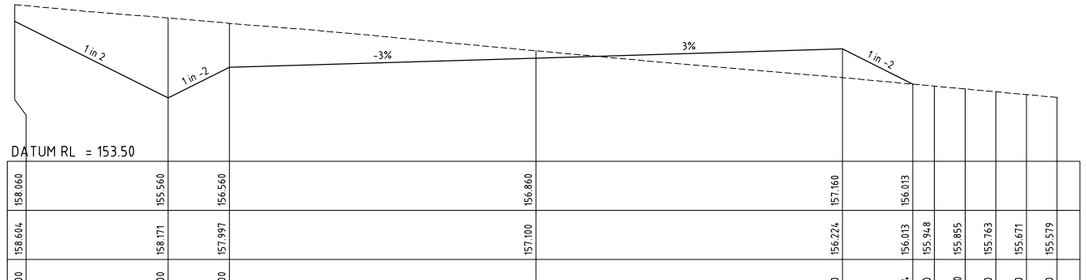
CH 480.000



DATUM RL = 148.80

DESIGN SURFACE			151.608	150.888			152.888	153.188		153.488		152.557					
NATURAL SURFACE	151.480	151.557	151.608	151.748			152.066	152.986		152.770		152.557	152.540	152.412	152.280	152.164	152.046	151.862
OFFSET	-17.000	-16.000	-15.441	-14.000			-10.000	0.000		10.000		11.861	12.000	13.000	14.000	15.000	16.000	17.000

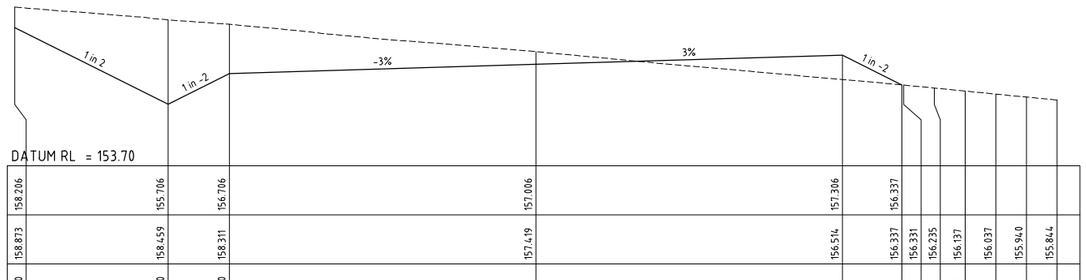
CH 450.000



DATUM RL = 153.50

158.060		155.560	156.560				156.860			157.160		156.013					
158.604	158.171		157.997				157.100			156.224		156.013	155.948	155.855	155.763	155.671	155.579
-17.000		-12.000	-10.000				0.000			10.000		12.294	13.000	14.000	15.000	16.000	17.000

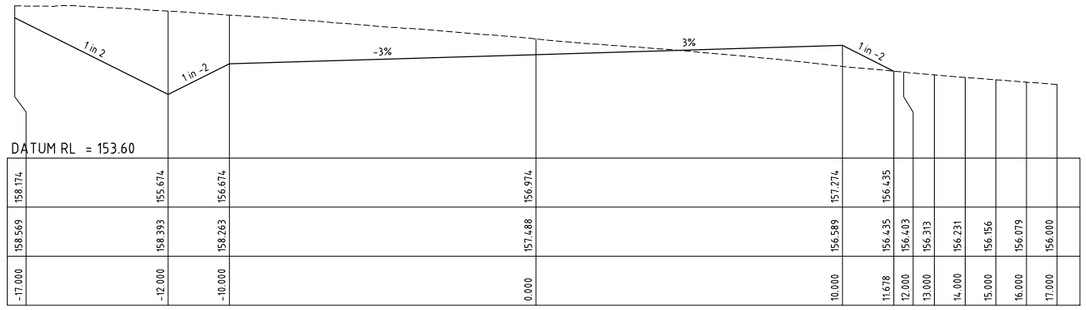
CH 570.000



DATUM RL = 153.70

158.206		155.706	156.706				157.006			157.306		156.337					
158.873	158.459		158.311				157.419			156.514		156.337	156.331	156.235	156.137		
-17.000		-12.000	-10.000				0.000			10.000		11.939	12.000	13.000	14.000	15.000	16.000	17.000

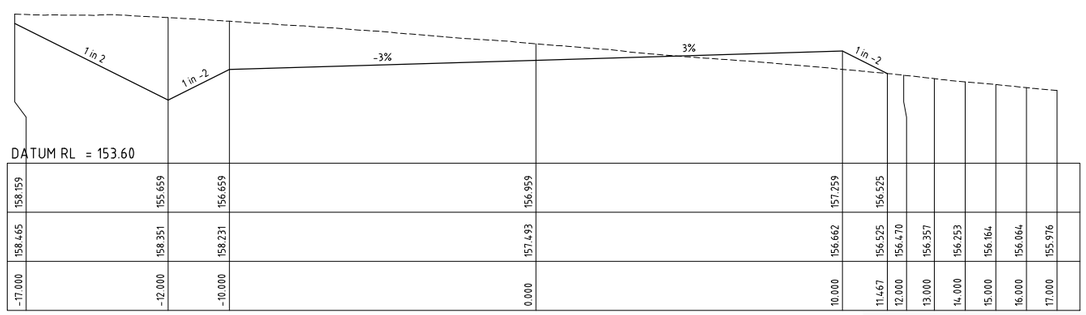
CH 549.016



DATUM RL = 153.60

158.174		155.674	156.674				156.974			157.274		156.435					
158.569	158.393		158.263				157.488			156.589		156.435	156.403	156.313	156.231	156.156	156.079	156.000
-17.000		-12.000	-10.000				0.000			10.000		11.678	12.000	13.000	14.000	15.000	16.000	17.000

CH 540.000



DATUM RL = 153.60

158.159		155.659	156.659				156.959			157.259		156.525					
158.465	158.351		158.231				157.493			156.662		156.525	156.470	156.357	156.253	156.164	156.064	155.976
-17.000		-12.000	-10.000				0.000			10.000		11.467	12.000	13.000	14.000	15.000	16.000	17.000

CH 538.015

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
7	CLIENT COMMENTS	A.M	I.H	21.07.25
5	DRAWING NUMBER CHANGE	A.M	I.H	03.07.25
4	CLIENT COMMENTS	A.M	I.H	30.06.25
3	GENERAL AMENDMENTS	A.M	I.H	26.06.25
2	GENERAL AMENDMENTS	A.M	I.H	12.06.25
1	ORIGINAL ISSUE	DB	IH	04.06.25

North

Scale

0 2 4 6 8m

1:100 (A1) 1:200 (A3)

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Designed AM

Scale 1:100

Cad Reference 25090C C27 r7

Project Approval
IAN HILL (B.E)
Consulting Civil Engineer

Client

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PHONE: (02) 4964 1811

PROPOSED HAUL ROAD WORKS BLUESTONE HARDROCK QUARRY

SPRINGVALE ROAD, ELDERSLIE

HAUL ROAD 2 CROSS SECTIONS SHEET 6 OF 21

Project No 25090C

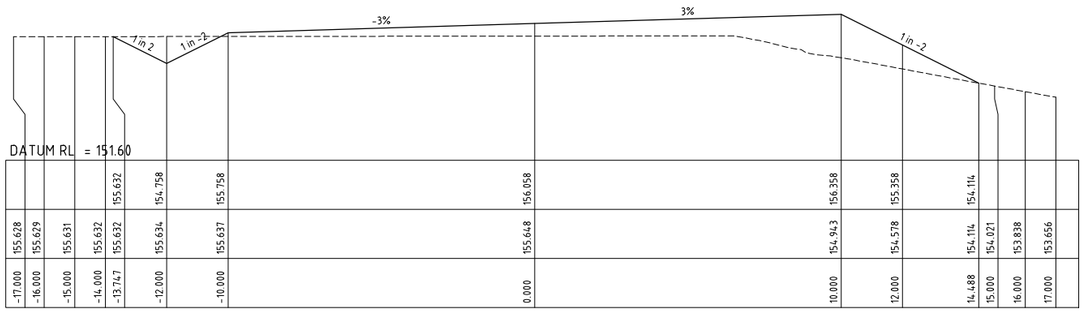
Drawing No C27

Revision 7

A1 SHEET

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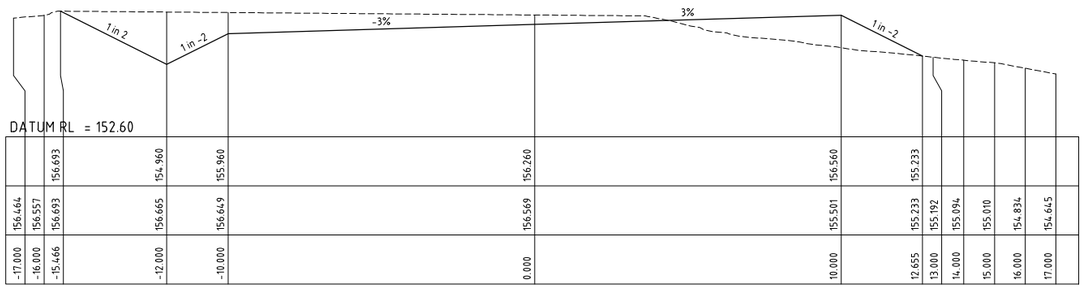
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DATUM RL = 151.60

					155.632	154.758	155.758	156.058		156.358	155.358	154.114			
-17.000	-16.000	-15.000	-14.000	-13.747	-12.000	-10.000	0.000		10.000		12.000	14.488	15.000	16.000	17.000
155.628	155.629	155.631	155.632	155.632	155.634	155.637	155.648		154.943	154.578	154.114		154.021	153.838	153.656

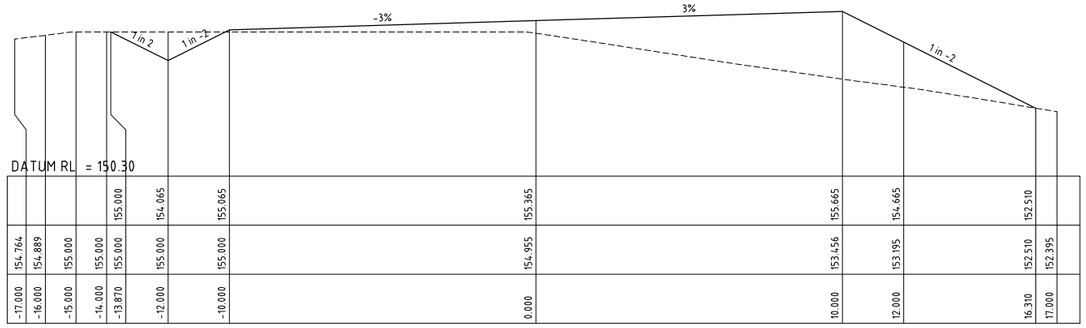
CH 650.136



DATUM RL = 152.60

		156.693		154.960	155.960		156.260		156.560		155.233				
156.464	156.557	156.693		156.665	156.649		156.569		155.501		155.233	155.192	155.094	155.010	154.834	154.645
-17.000	-16.000	-15.466		-12.000	-10.000		0.000		10.000		12.655	13.000	14.000	15.000	16.000	17.000

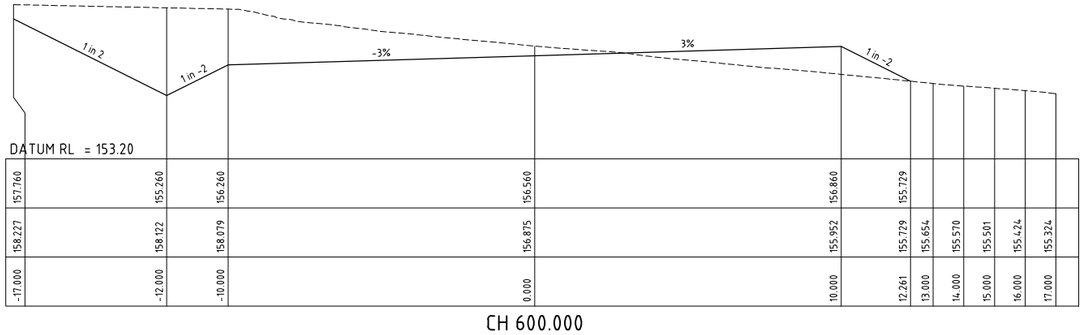
CH 630.000



DATUM RL = 150.30

					155.000	154.065	155.065		155.365			155.665		154.665	152.510
154.764	154.889	155.000		155.000	155.000	155.000	155.000		154.955			153.456		153.195	152.510	152.395
-17.000	-16.000	-15.000		-14.000	-13.870	-12.000	-10.000		0.000			10.000		12.000	16.310	17.000

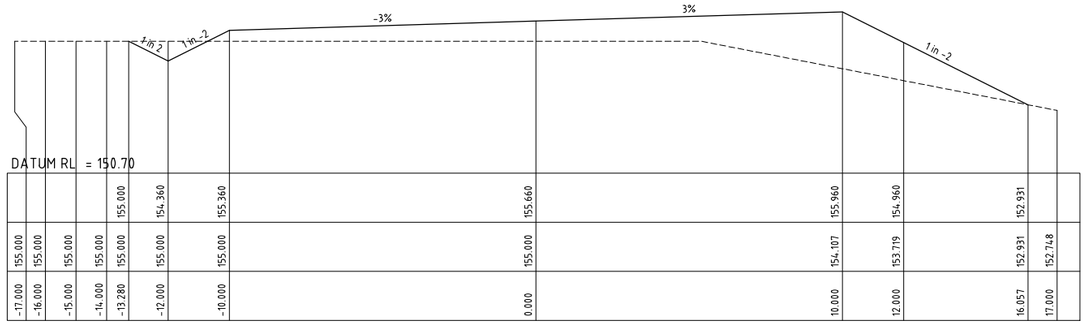
CH 719.470



DATUM RL = 153.20

157.760		155.260		156.260			156.560		156.860	155.729					
158.227		158.122		158.079			156.875		155.952	155.729	155.654	155.570	155.501	155.424	155.324
-17.000		-12.000		-10.000			0.000		10.000	12.261	13.000	14.000	15.000	16.000	17.000

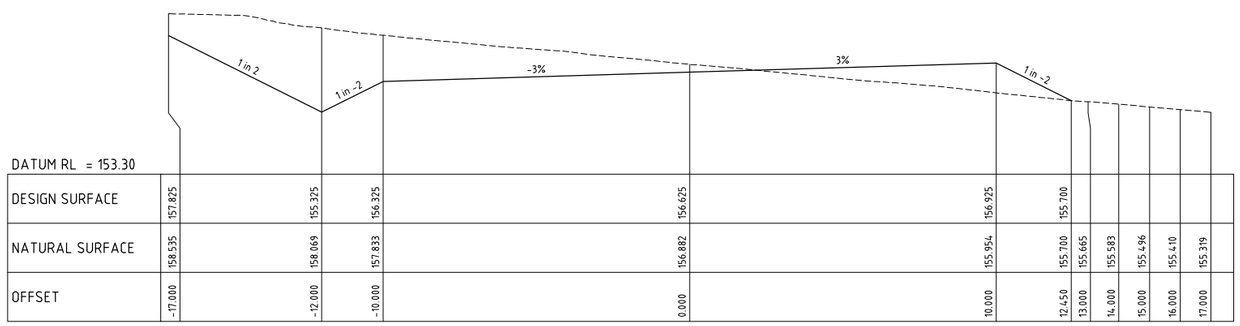
CH 600.000



DATUM RL = 150.70

					155.000	154.360	155.360		155.660			155.960		154.960	152.931
155.000	155.000	155.000		155.000	155.000	155.000	155.000		155.000			154.107		153.719	152.931	152.748
-17.000	-16.000	-15.000		-14.000	-13.280	-12.000	-10.000		0.000			10.000		12.000	16.057	17.000

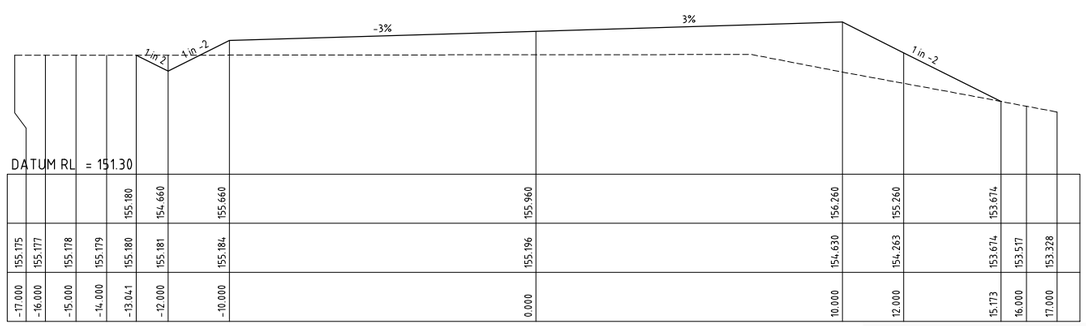
CH 690.000



DATUM RL = 153.30

DESIGN SURFACE	157.825		155.325		156.325			156.625		156.925	155.700				
NATURAL SURFACE	158.535		158.069		157.833			156.882		155.954	155.700	155.665	155.583	155.496	155.410	155.319
OFFSET	-17.000		-12.000		-10.000			0.000		10.000	12.450	13.000	14.000	15.000	16.000	17.000

CH 593.436



DATUM RL = 151.30

					155.180	154.660	155.660		155.960			156.260		155.260	153.674
155.175	155.177	155.178		155.179	155.180	155.181	155.184		155.196			154.630		154.263	153.674	153.517	153.328
-17.000	-16.000	-15.000		-14.000	-13.041	-12.000	-10.000		0.000			10.000		12.000	15.173	16.000	17.000

CH 660.000

PRELIMINARY ISSUE
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REVISION	Description	Drawn	App'd	Date
7	CLIENT COMMENTS	A.M	I.H	21.07.25
5	DRAWING NUMBER CHANGE	A.M	I.H	03.07.25
4	CLIENT COMMENTS	A.M	I.H	30.06.25
3	GENERAL AMENDMENTS	A.M	I.H	26.06.25
2	GENERAL AMENDMENTS	A.M	I.H	12.06.25
1	ORIGINAL ISSUE	DB	IH	04.06.25

North

Scale
0 2 4 6 8m
1:100 (A1) 1:200 (A3)

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Designed: AM
Scale: 1:100
Cad Reference: 25090C C28 r7
Project Approval: IAN HILL (B.E) Consulting Civil Engineer

Client

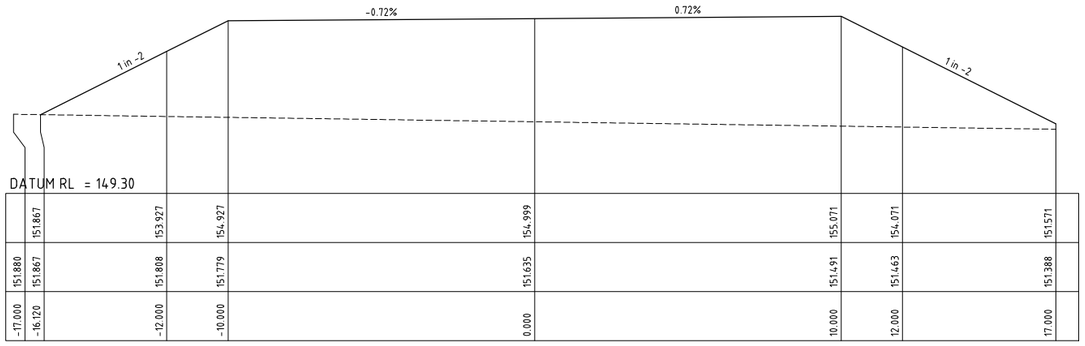
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1 HARTLEY DRIVE, THORNTON NSW 2322
PO BOX 3337, THORNTON NSW 2322
PHONE: (02) 4964 1811

PROPOSED HAUL ROAD WORKS
BLUESTONE HARDROCK QUARRY
SPRINGVALE ROAD, ELDERSLIE

HAUL ROAD 2 CROSS SECTIONS SHEET 7 OF 21

Project No: 25090C
Drawing No: C28
Revision: 7
A1 SHEET

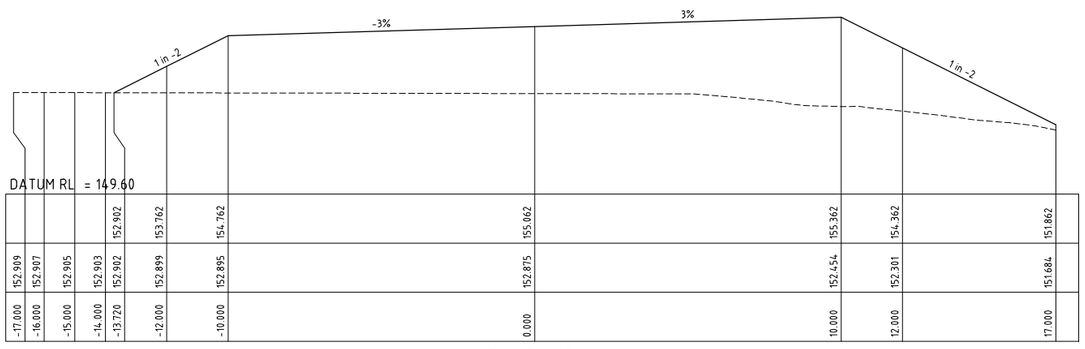
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DATUM RL = 149.30

	151.867	153.927	154.927	154.999	155.071	154.071	151.571
151.880	151.867	151.808	151.779	151.635	151.491	151.463	151.388
-17.000	-16.120	-12.000	-10.000	0.000	10.000	12.000	17.000

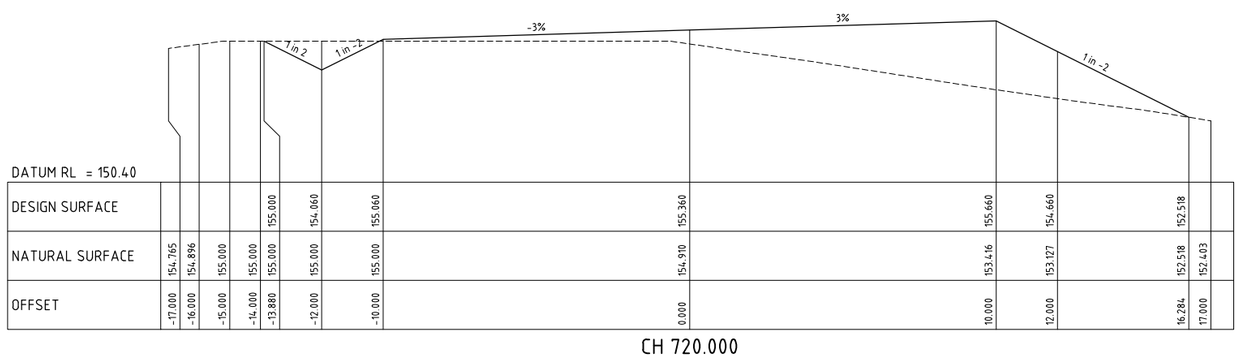
CH 761.398



DATUM RL = 149.60

				152.902	153.762	154.762	155.062	155.362	154.362	151.862
152.909	152.907	152.905	152.903	152.902	152.899	152.895	152.875	152.454	152.301	151.684
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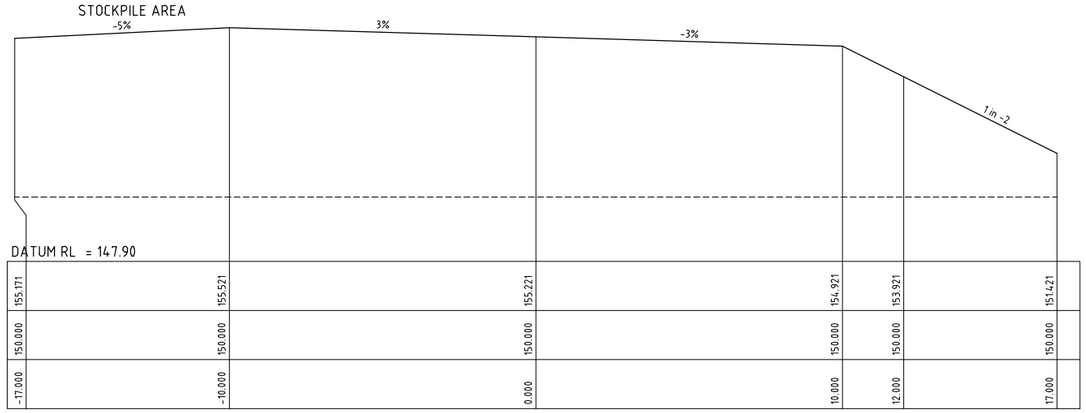
CH 750.000



DATUM RL = 150.40

DESIGN SURFACE				155.000	154.060	155.060	155.360	155.660	154.660	152.518
NATURAL SURFACE	154.765	154.896	155.000	155.000	155.000	155.000	154.910	153.416	153.127	152.518	152.403
OFFSET	-17.000	-16.000	-15.000	-14.000	-13.880	-12.000	-10.000	0.000	10.000	12.000	16.284	17.000

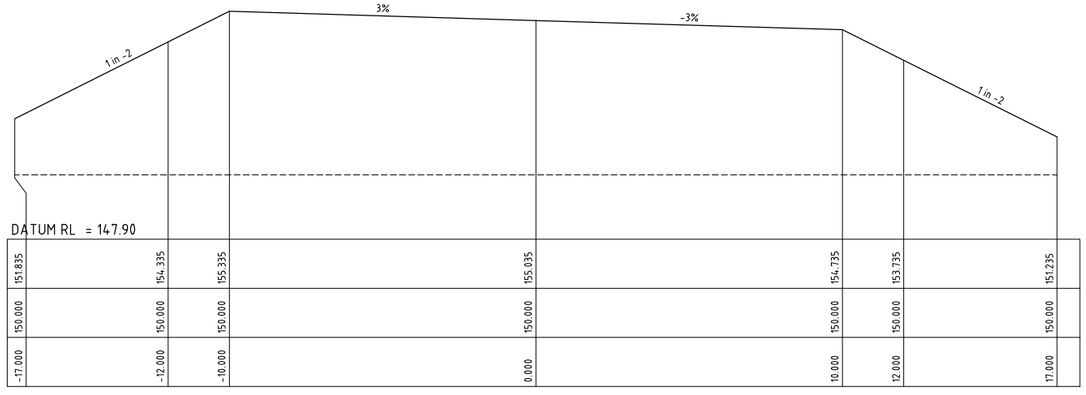
CH 720.000



DATUM RL = 147.90

155.171	155.521	155.221	154.921	153.921	151.421
150.000	150.000	150.000	150.000	150.000	150.000
-17.000	-10.000	0.000	10.000	12.000	17.000

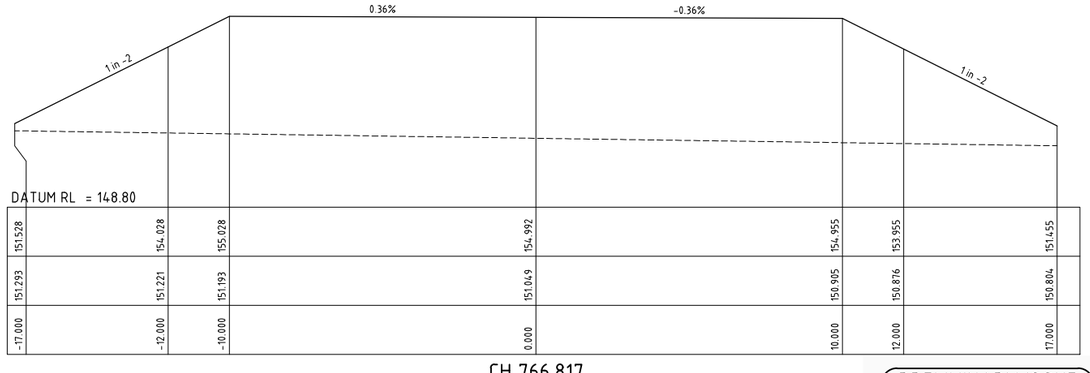
CH 797.093



DATUM RL = 147.90

151.835	154.335	155.335	155.035	154.735	153.735	151.235
150.000	150.000	150.000	150.000	150.000	150.000	150.000
-17.000	-12.000	-10.000	0.000	10.000	12.000	17.000

CH 780.000



DATUM RL = 148.80

151.528	154.028	155.028	154.992	154.955	153.955	151.455
151.293	151.221	151.193	151.049	150.905	150.876	150.804
-17.000	-12.000	-10.000	0.000	10.000	12.000	17.000

CH 766.817

PRELIMINARY ISSUE
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REVISION	Description	Drawn	App'd	Date
7	CLIENT COMMENTS	A.M	I.H	21.07.25
5	DRAWING NUMBER CHANGE	A.M	I.H	03.07.25
4	CLIENT COMMENTS	A.M	I.H	30.06.25
3	GENERAL AMENDMENTS	A.M	I.H	26.06.25
2	GENERAL AMENDMENTS	A.M	I.H	12.06.25
1	ORIGINAL ISSUE	DB	IH	04.06.25

North

Scale
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1:100 (A1) 1:200 (A3)

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Designed AM | Scale 1:100
Cad Reference 25090C C29 r7
Project Approval
IAN HILL (B.E)
Consulting Civil Engineer

Client

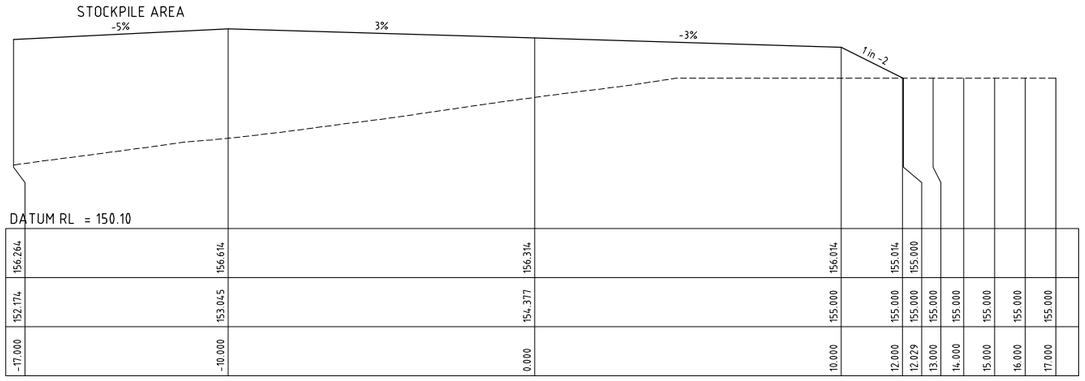
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PROPOSED HAUL ROAD WORKS
BLUESTONE HARDROCK QUARRY
SPRINGVALE ROAD, ELDERSLIE

HAUL ROAD 2 CROSS SECTIONS SHEET 8 OF 21

Project No 25090C
Drawing No C29 | Revision 7
A1 SHEET

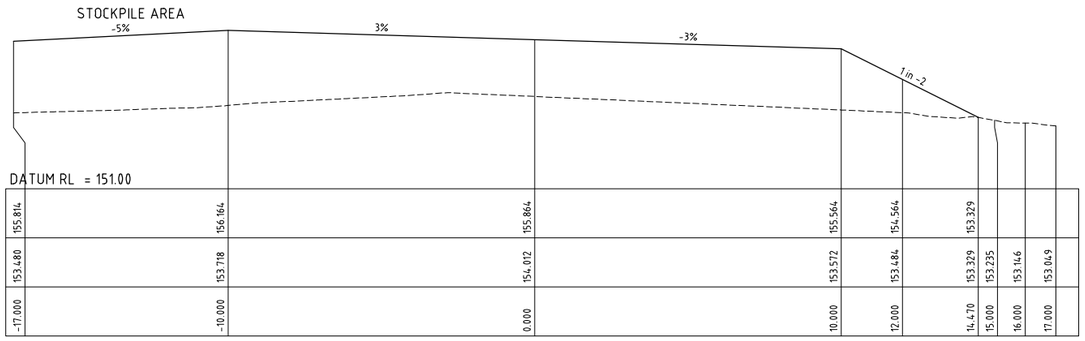
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DATUM RL = 150.10

156.264	156.614	156.314	156.014	155.014	155.000						
152.174	153.045	154.377	155.000	155.000	155.000	155.000	155.000	155.000	155.000	155.000	155.000
-17.000	-10.000	0.000	10.000	12.000	12.029	13.000	14.000	15.000	16.000	17.000	

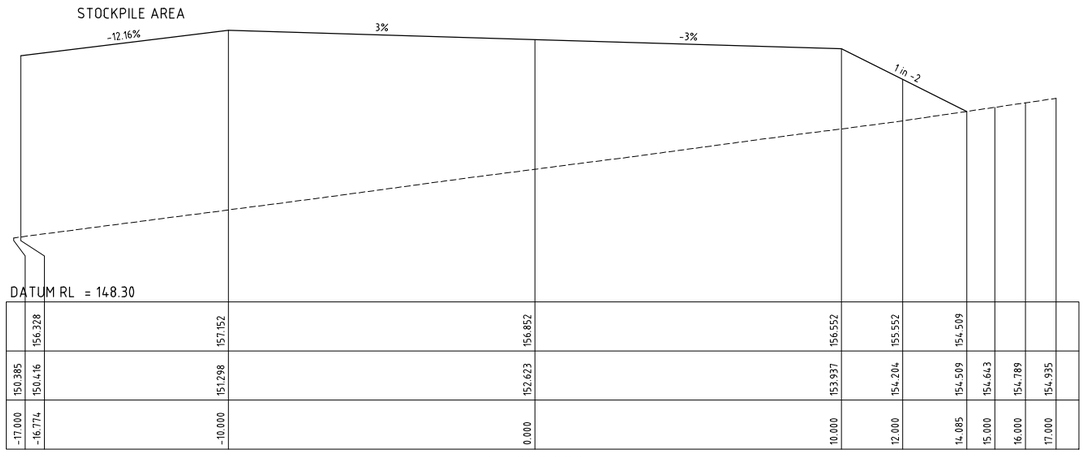
CH 870.000



DATUM RL = 151.00

155.814	156.164	155.864	155.564	154.564	153.329				
153.480	153.718	154.012	153.572	153.484	153.329	153.235	153.146	153.049	
-17.000	-10.000	0.000	10.000	12.000	14.470	15.000	16.000	17.000	

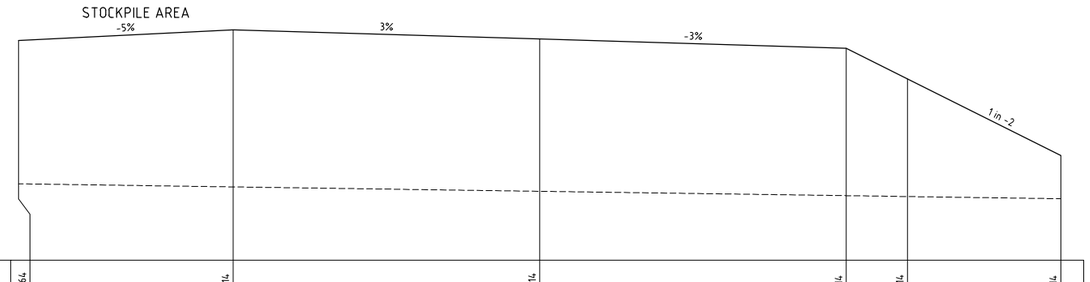
CH 840.000



DATUM RL = 148.30

	156.328	157.152	156.852	156.552	155.552	154.509			
150.385	150.416	151.298	152.623	153.937	154.204	154.509	154.643	154.789	154.935
-17.000	-16.774	-10.000	0.000	10.000	12.000	14.085	15.000	16.000	17.000

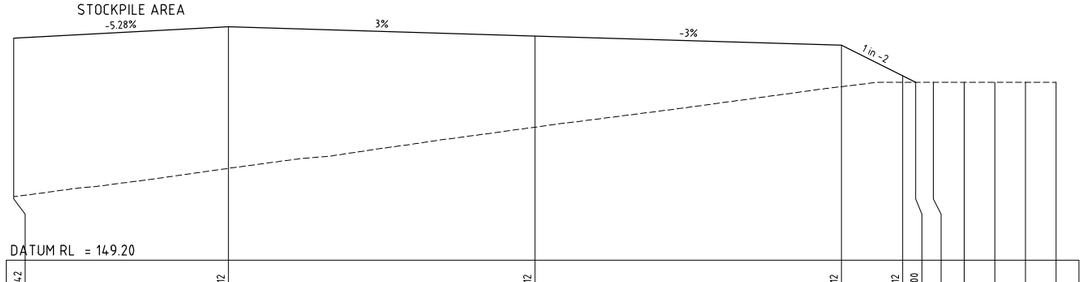
CH 900.000



DATUM RL = 148.20

DESIGN SURFACE	155.364	155.714	155.414	155.114	154.114	151.614
NATURAL SURFACE	150.691	150.591	150.448	150.305	150.277	150.205
OFFSET	-17.000	-10.000	0.000	10.000	12.000	17.000

CH 810.000



DATUM RL = 149.20

156.442	156.812	156.512	156.212	155.212	155.000						
151.272	152.195	153.540	154.859	155.000	155.000	155.000	155.000	155.000	155.000	155.000	155.000
-17.000	-10.000	0.000	10.000	12.000	12.424	13.000	14.000	15.000	16.000	17.000	

CH 883.162

PRELIMINARY ISSUE
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REVISION	Description	Drawn	App'd	Date
7	CLIENT COMMENTS	A.M	I.H	21.07.25
5	DRAWING NUMBER CHANGE	A.M	I.H	03.07.25
4	CLIENT COMMENTS	A.M	I.H	30.06.25
3	GENERAL AMENDMENTS	A.M	I.H	26.06.25
2	GENERAL AMENDMENTS	A.M	I.H	12.06.25
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North

Scale
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Designed AM | Scale 1:100
Cad Reference 25090C C30 r7
Project Approval
IAN HILL (B.E)
Consulting Civil Engineer

Client

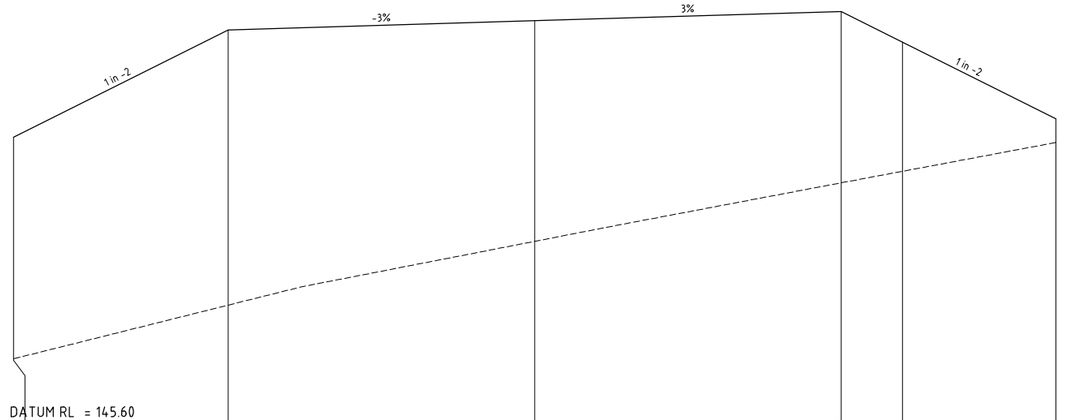
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PROPOSED HAUL ROAD WORKS
BLUESTONE HARDROCK QUARRY
SPRINGVALE ROAD, ELDERSLIE

HAUL ROAD 2 CROSS SECTIONS SHEET 9 OF 21

Project No 25090C
Drawing No C30 | Revision 7
A1 SHEET

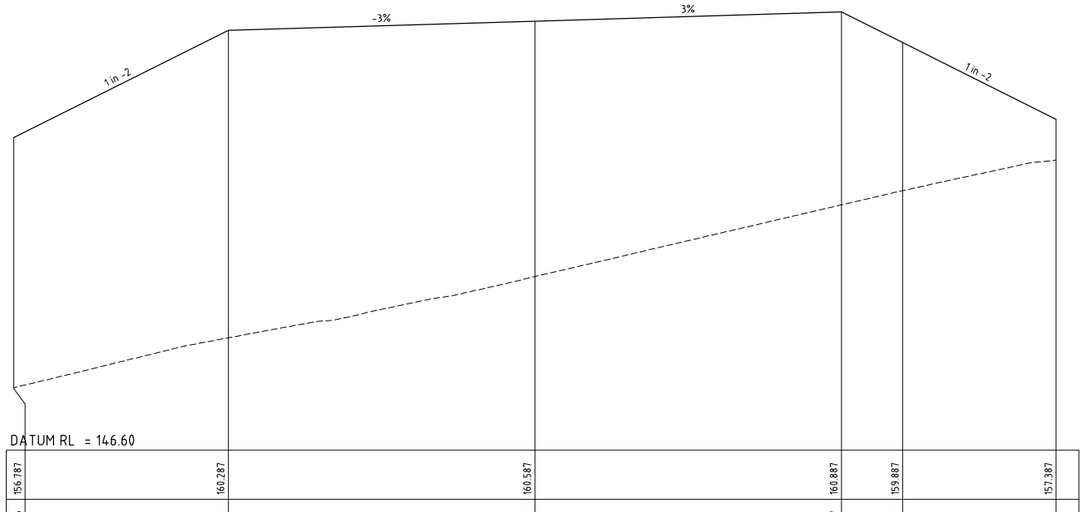
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DATUM RL = 145.60

154.872	158.372	158.672	158.972	157.972	155.472	
147.651	149.400	151.480	153.389	153.764	154.702	
-17.000	-10.000	0.000	10.000	12.000	17.000	

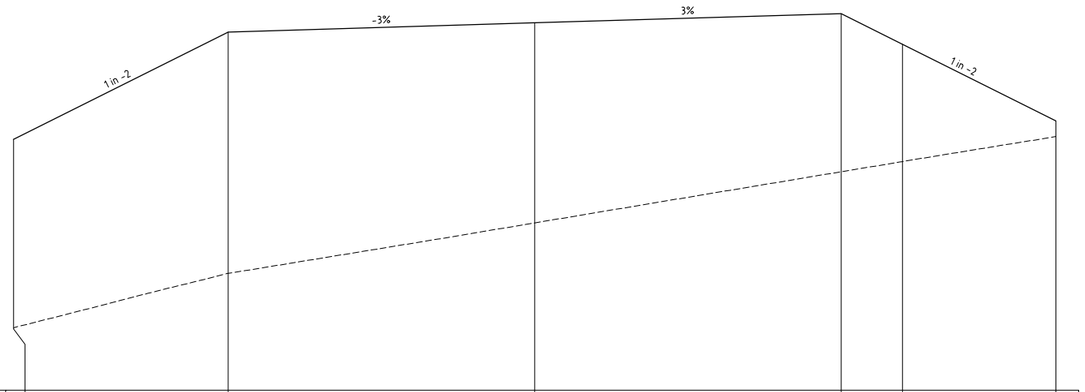
CH 937.682



DATUM RL = 146.60

156.787	160.287	160.587	160.887	159.887	157.387	
148.636	150.261	152.260	154.597	155.060	156.061	
-17.000	-10.000	0.000	10.000	12.000	17.000	

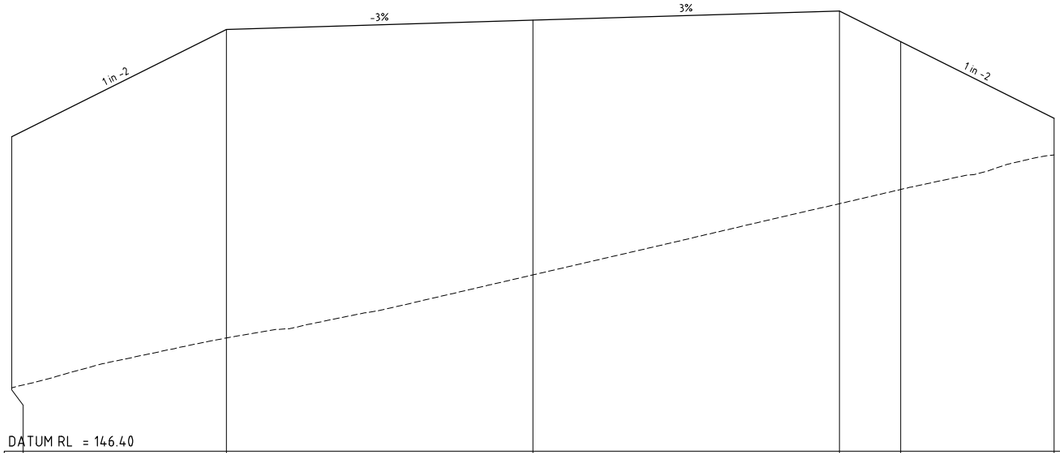
CH 961.443



DATUM RL = 146.20

DESIGN SURFACE	154.380	157.880	158.180	158.480	157.480	154.980
NATURAL SURFACE	148.238	150.008	151.656	153.324	153.656	154.471
OFFSET	-17.000	-10.000	0.000	10.000	12.000	17.000

CH 930.000



DATUM RL = 146.40

156.654	160.154	160.454	160.754	159.754	157.254	
148.470	150.091	152.469	154.473	154.935	156.064	
-17.000	-10.000	0.000	10.000	12.000	17.000	

CH 960.000

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

7	CLIENT COMMENTS	A.M	I.H	21.07.25
5	DRAWING NUMBER CHANGE	A.M	I.H	03.07.25
4	CLIENT COMMENTS	A.M	I.H	30.06.25
3	GENERAL AMENDMENTS	A.M	I.H	26.06.25
2	GENERAL AMENDMENTS	A.M	I.H	12.06.25
1	ORIGINAL ISSUE	DB	IH	04.06.25
REVISION	Description	Drawn	App'd	Date

North

Scale

0 2 4 6 8m
1:100 (A1) 1:200 (A3)

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Designed AM
Scale 1:100
Cad Reference 25090C C31 r7
Project Approval
IAN HILL (B.E)
Consulting Civil Engineer

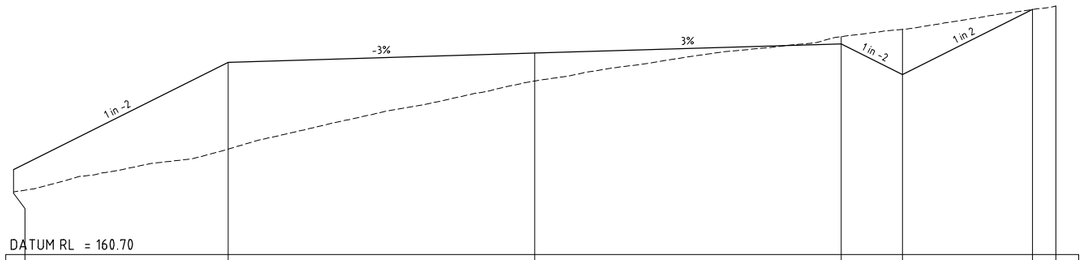
Client

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PROPOSED HAUL ROAD WORKS
BLUESTONE HARDROCK QUARRY
SPRINGVALE ROAD, ELDERSLIE
HAUL ROAD 2 CROSS SECTIONS SHEET 10 OF 21

Project No 25090C
Drawing No C31
Revision 7
A1 SHEET

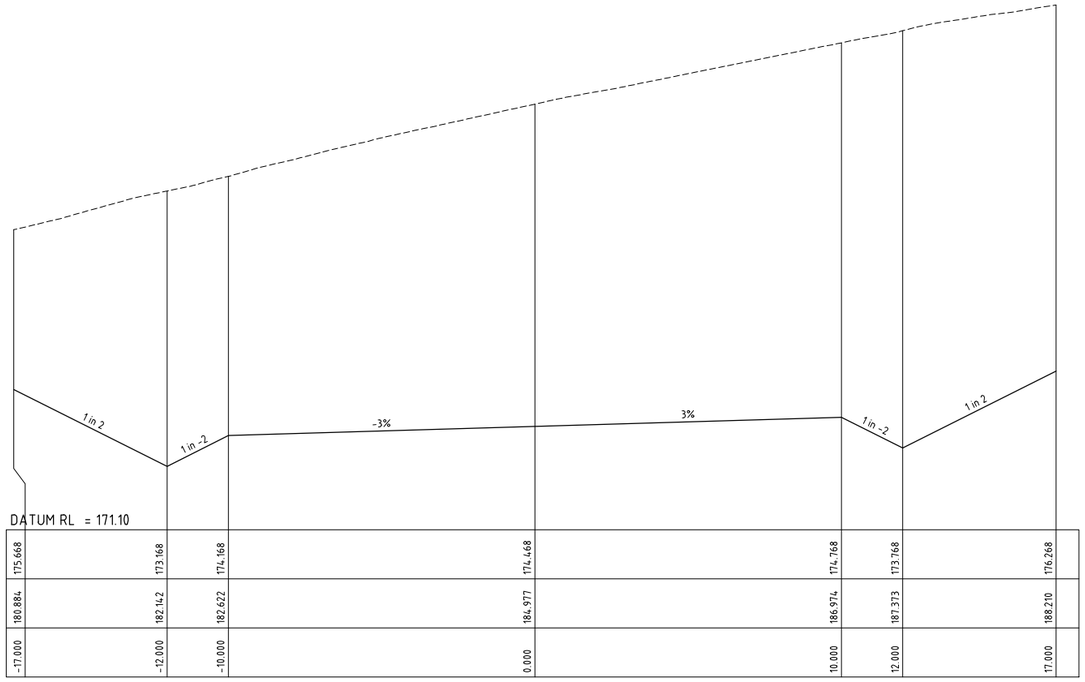
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DATUM RL = 160.70

163.468	166.968	167.268	167.568	166.568	168.687	
162.742	164.136	166.358	167.802	168.041	168.687	168.797
-17.000	-10.000	0.000	10.000	12.000	16.238	17.000

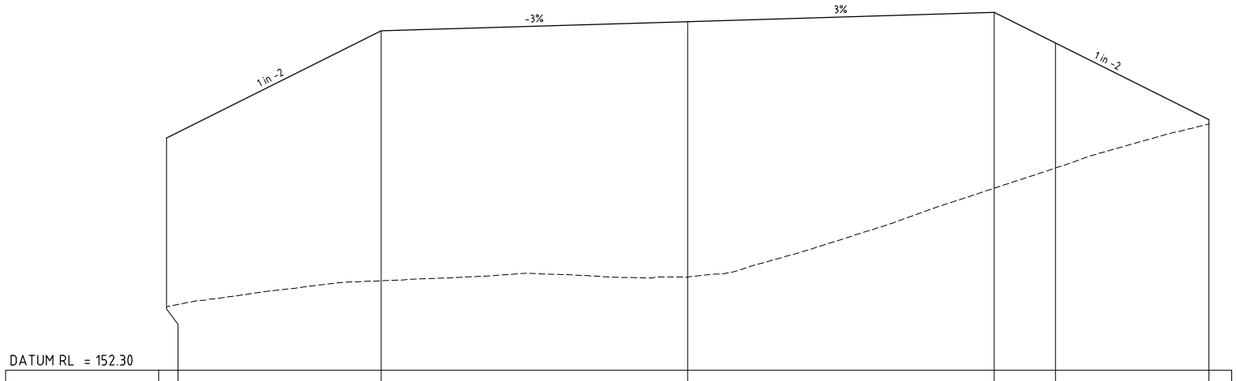
CH 1020.000



DATUM RL = 171.10

175.668	173.168	174.168	174.468	174.768	173.768	176.268
180.884	182.142	182.622	184.977	186.974	187.373	188.210
-17.000	-12.000	-10.000	0.000	10.000	12.000	17.000

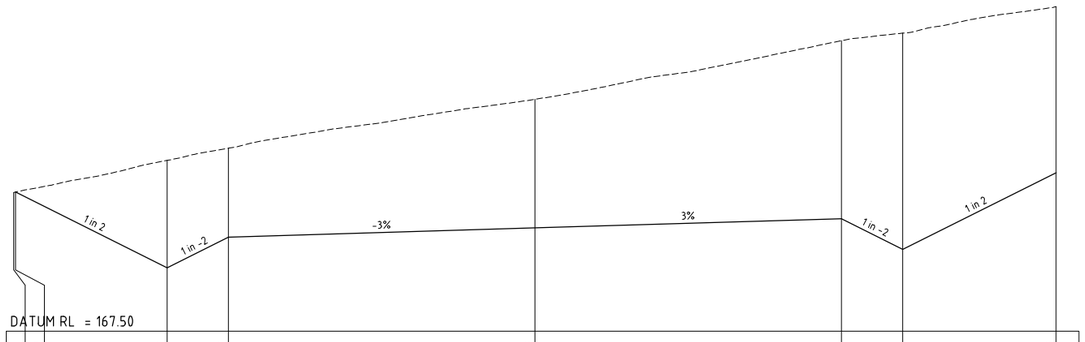
CH 1080.000



DATUM RL = 152.30

DESIGN SURFACE	159.868	163.368	163.668	163.968	162.968	160.468
NATURAL SURFACE	154.370	155.219	155.340	158.234	158.894	160.325
OFFSET	-17.000	-10.000	0.000	10.000	12.000	17.000

CH 990.000



DATUM RL = 167.50

	172.039	169.568	170.568	170.868	171.168	170.168	172.668
172.027	172.039	173.071	173.467	175.062	176.974	177.218	178.084
-17.000	-16.942	-12.000	-10.000	0.000	10.000	12.000	17.000

CH 1050.000

PRELIMINARY ISSUE
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REVISION	Description	Drawn	App'd	Date
7	CLIENT COMMENTS	A.M	I.H	21.07.25
5	DRAWING NUMBER CHANGE	A.M	I.H	03.07.25
4	CLIENT COMMENTS	A.M	I.H	30/06/25
3	GENERAL AMENDMENTS	A.M	I.H	26.06.25
2	GENERAL AMENDMENTS	A.M	I.H	12.06.25

North

Scale
0 2 4 6 8m
1:100 (A1) 1:200 (A3)

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Designed AM | Scale 1:100
Cad Reference 25090C C32 r7
Project Approval
IAN HILL (B.E)
Consulting Civil Engineer

Client

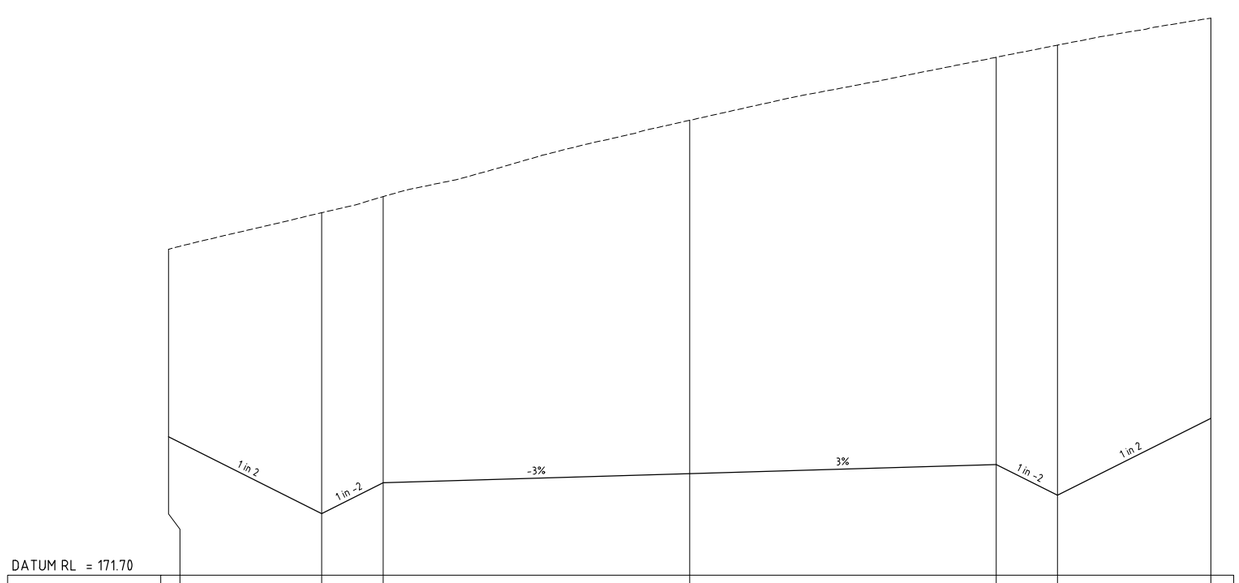
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PROPOSED HAUL ROAD WORKS
BLUESTONE HARDROCK QUARRY
SPRINGVALE ROAD, ELDERSLIE

HAUL ROAD 2 CROSS SECTIONS SHEET 11 OF 21

Project No 25090C
Drawing No C32 | Revision 7
A1 SHEET

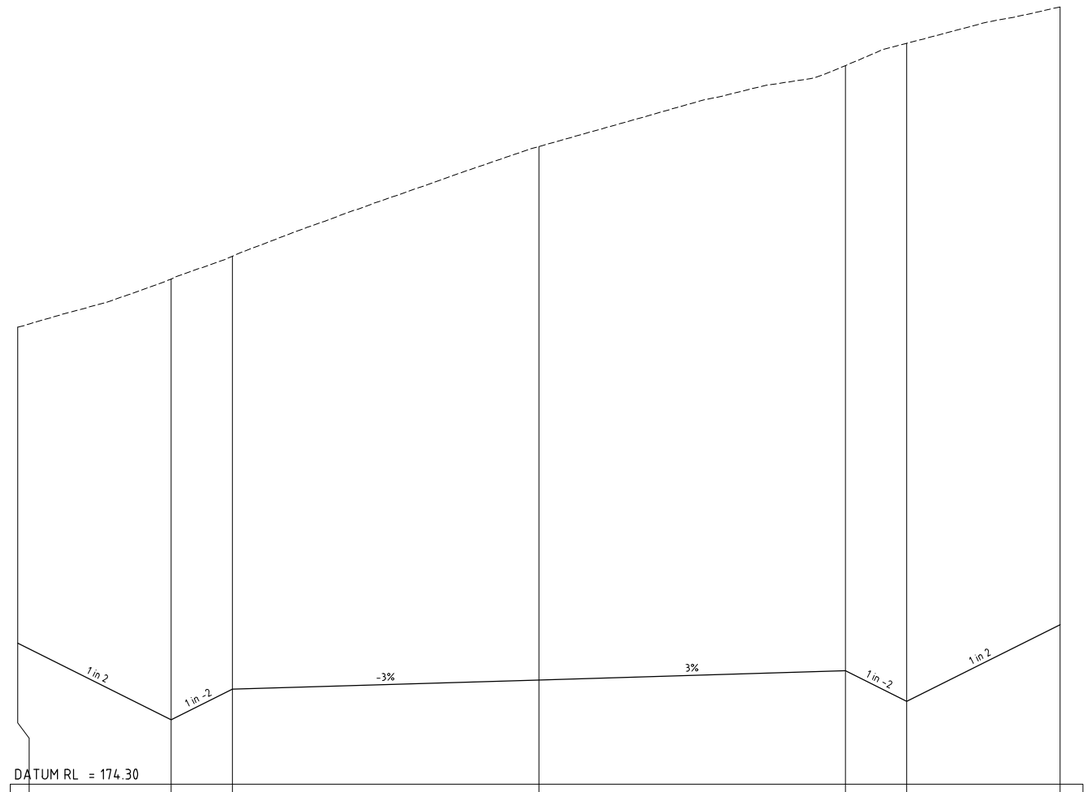
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DATUM RL = 171.70

DESIGN SURFACE	176.212	173.712	174.712	175.012	175.312	174.312	176.812
NATURAL SURFACE	182.329	183.519	184.044	186.533	188.588	188.985	189.864
OFFSET	-17.000	-12.000	-10.000	0.000	10.000	12.000	17.000

CH 1084.534



DATUM RL = 174.30

	178.900	176.400	177.400	177.700	178.000	177.000	179.500
	189.199	190.772	191.515	195.092	197.731	198.458	199.645
	-17.000	-12.000	-10.000	0.000	10.000	12.000	17.000

CH 1110.000

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
7	CLIENT COMMENTS	A.M	I.H	21.07.25
5	DRAWING NUMBER CHANGE	A.M	I.H	03.07.25
4	CLIENT COMMENTS	A.M	I.H	30/06/25
3	GENERAL AMENDMENTS	A.M	I.H	26.06.25
2	GENERAL AMENDMENTS	A.M	I.H	12.06.25

North

Scale
0 2 4 6 8m
1:100 (A1) 1:200 (A3)

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Scale 1:100
Cad Reference 25090C C33 r7
Project Approval
IAN HILL (B.E)
Consulting Civil Engineer

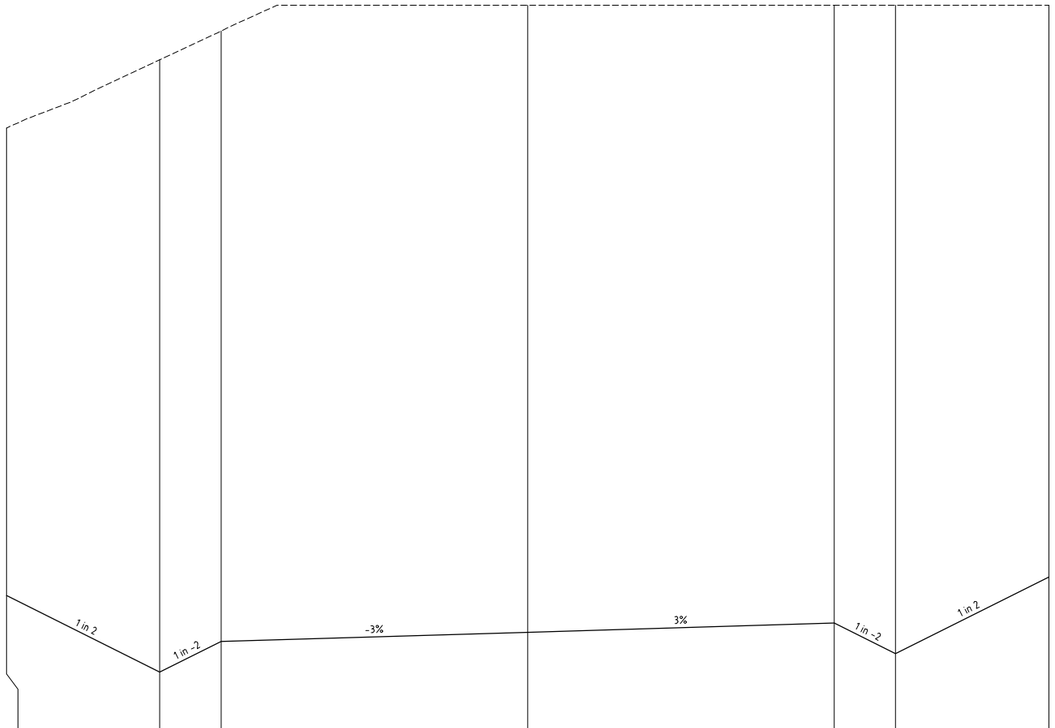
Client

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PROPOSED HAUL ROAD WORKS
BLUESTONE HARDROCK QUARRY
SPRINGVALE ROAD, ELDERSLIE
HAUL ROAD 2 CROSS SECTIONS SHEET 12 OF 21

Project No 25090C
Drawing No C33
Revision 7
A1 SHEET

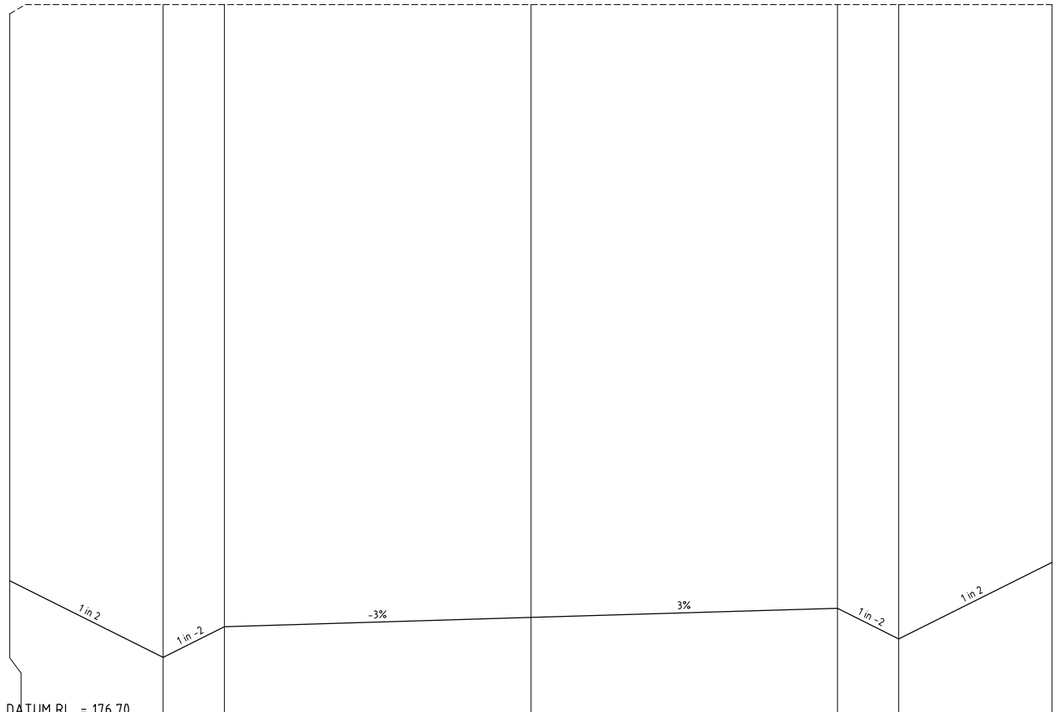
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DATUM RL = 176.20

DESIGN SURFACE	180.759	178.259	179.259	179.559	179.859	178.859	181.359
NATURAL SURFACE	195.999	198.222	199.161	200.000	200.000	200.000	200.000
OFFSET	-17.000	-12.000	-10.000	0.000	10.000	12.000	17.000

CH 1140.000



DATUM RL = 176.70

DESIGN SURFACE	181.217	178.717	179.717	180.017	180.317	179.317	181.817
NATURAL SURFACE	199.700	200.000	200.000	200.000	200.000	200.000	200.000
OFFSET	-17.000	-12.000	-10.000	0.000	10.000	12.000	17.000

CH 1164.012

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
7	CLIENT COMMENTS	A.M	I.H	21.07.25
5	DRAWING NUMBER CHANGE	A.M	I.H	03.07.25
4	CLIENT COMMENTS	A.M	I.H	30/06/25
3	GENERAL AMENDMENTS	A.M	I.H	26.06.25
2	GENERAL AMENDMENTS	A.M	I.H	12.06.25

North

Scale
0 2 4 6 8m
1:100 (A1) 1:200 (A3)

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Cad Reference 25090C C34 r7
Project Approval
IAN HILL (B.E)
Consulting Civil Engineer

Client

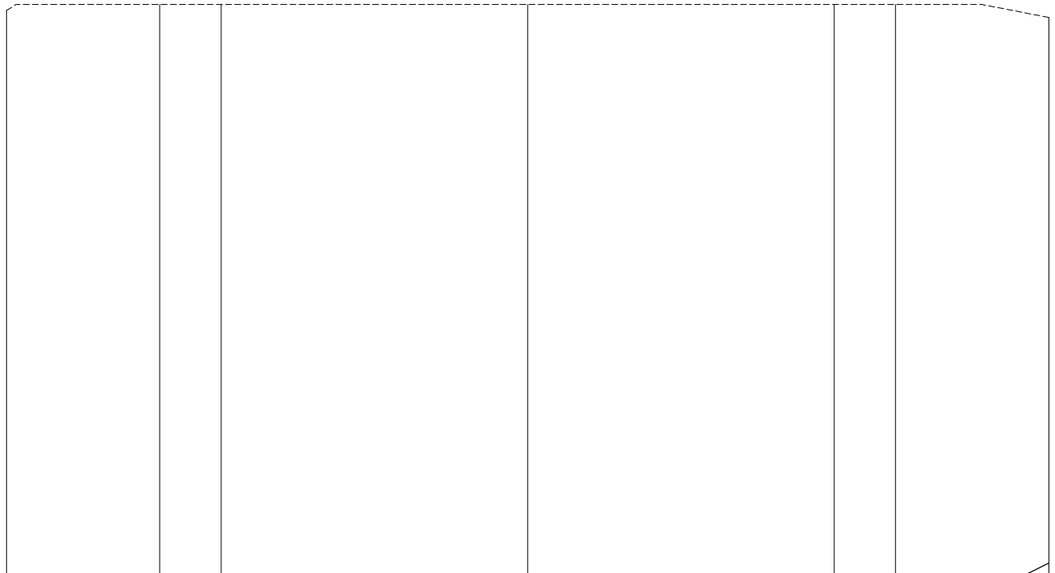
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PROPOSED HAUL ROAD WORKS
BLUESTONE HARDROCK QUARRY
SPRINGVALE ROAD, ELDERSLIE

HAUL ROAD 2 CROSS SECTIONS SHEET 13 OF 21

Project No 25090C
Drawing No C34 | Revision 7
A1 SHEET

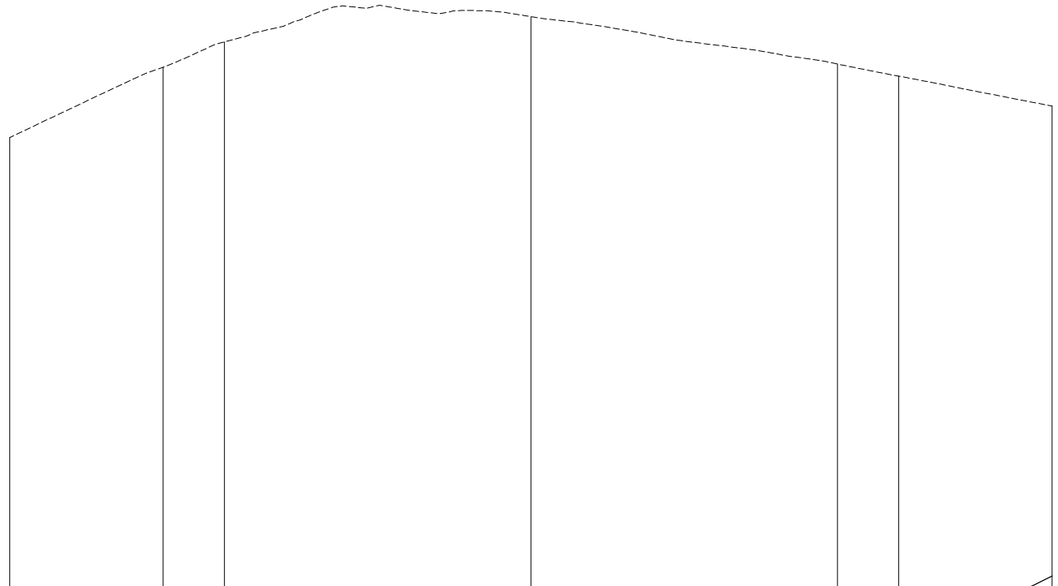
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DATUM RL = 176.60

DESIGN SURFACE	181.188	178.688	179.688	179.988	180.288	179.288	181.788
NATURAL SURFACE	199.808	200.000	200.000	200.000	200.000	200.000	199.579
OFFSET	-17.000	-12.000	-10.000	0.000	10.000	12.000	17.000

CH 1170.000



DATUM RL = 175.70

DESIGN SURFACE	180.294	177.794	178.794	179.094	179.394	178.394	180.894
NATURAL SURFACE	195.188	197.480	198.303	199.130	197.584	197.189	196.214
OFFSET	-17.000	-12.000	-10.000	0.000	10.000	12.000	17.000

CH 1200.000

PRELIMINARY ISSUE
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REVISION	Description	Drawn	App'd	Date
7	CLIENT COMMENTS	A.M	I.H	21.07.25
5	DRAWING NUMBER CHANGE	A.M	I.H	03.07.25
4	CLIENT COMMENTS	A.M	I.H	30/06/25
3	GENERAL AMENDMENTS	A.M	I.H	26.06.25
2	GENERAL AMENDMENTS	A.M	I.H	12.06.25

North

Scale
0 2 4 6 8m
1:100 (A1) 1:200 (A3)

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Designed AM | Scale 1:100
Cad Reference 25090C C35 r7
Project Approval
IAN HILL (B.E)
Consulting Civil Engineer

Client

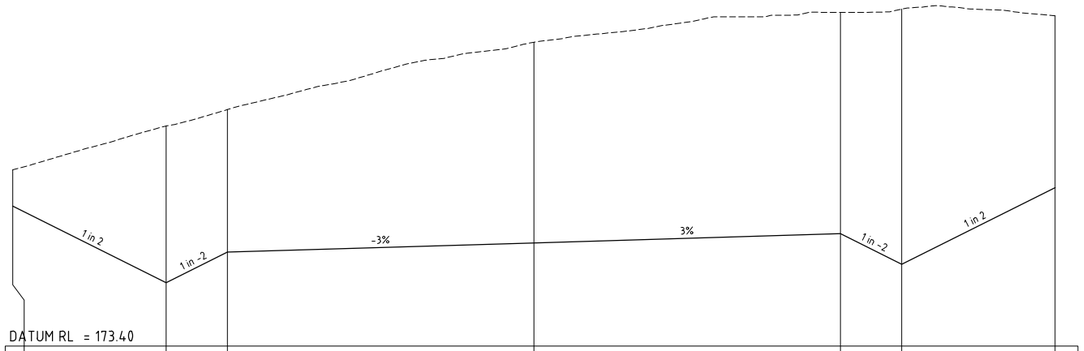
GCA ENGINEERING SOLUTIONS
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PO BOX 3337, THORNTON NSW 2322
PHONE: (02) 4964 1811

PROPOSED HAUL ROAD WORKS
BLUESTONE HARDROCK QUARRY
SPRINGVALE ROAD, ELDERSLIE

HAUL ROAD 2 CROSS SECTIONS SHEET 14 OF 21

Project No 25090C
Drawing No C35 | Revision 7
A1 SHEET

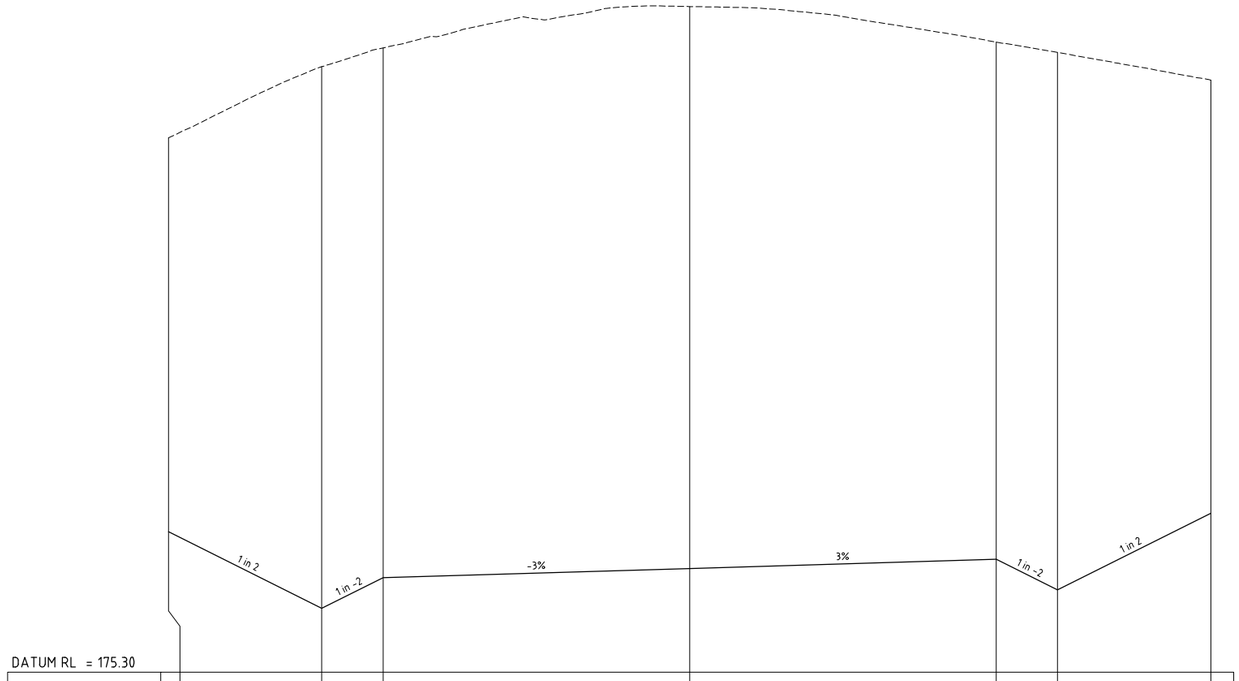
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DATUM RL = 173.40

177.963	175.463	176.463	176.763	177.063	176.063	178.563
179.148	180.577	181.110	183.309	184.279	184.389	184.168
-17.000	-12.000	-10.000	0.000	10.000	12.000	17.000

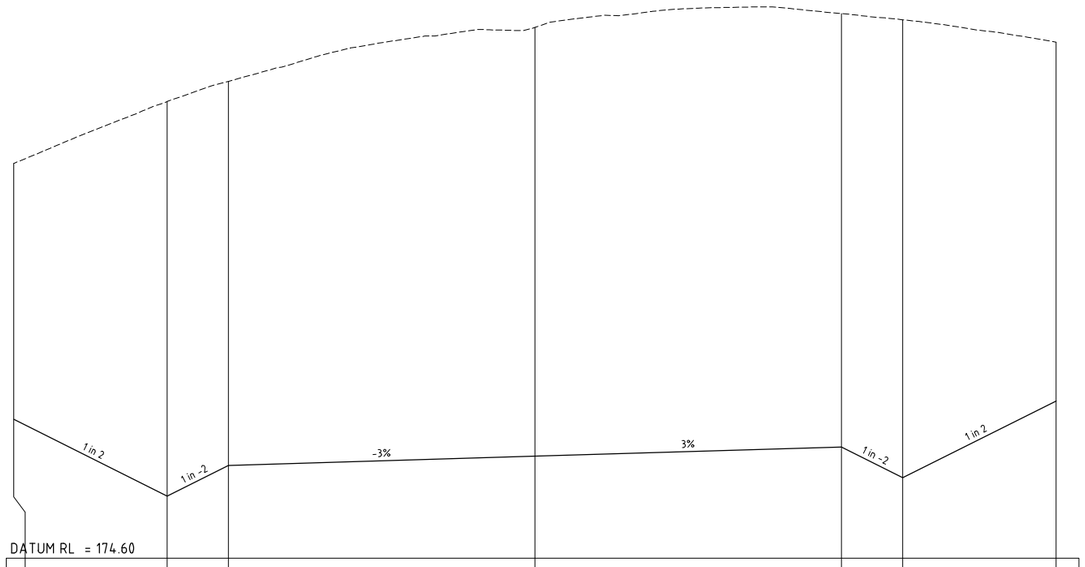
CH 1260.000



DATUM RL = 175.30

DESIGN SURFACE	179.883	177.383	178.383	178.683	178.983	177.983	180.483
NATURAL SURFACE	192.723	195.044	195.657	197.005	195.846	195.508	194.609
OFFSET	-17.000	-12.000	-10.000	0.000	10.000	12.000	17.000

CH 1210.577



DATUM RL = 174.60

179.128	176.628	177.628	177.928	178.228	177.228	179.728
187.475	189.490	190.149	191.906	192.358	192.157	191.426
-17.000	-12.000	-10.000	0.000	10.000	12.000	17.000

CH 1230.000

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
7	CLIENT COMMENTS	A.M	I.H	21.07.25
5	DRAWING NUMBER CHANGE	A.M	I.H	03.07.25
4	CLIENT COMMENTS	A.M	I.H	30/06/25
3	GENERAL AMENDMENTS	A.M	I.H	26.06.25
2	GENERAL AMENDMENTS	A.M	I.H	12.06.25

North

Scale
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Designed AM
Scale 1:100
Cad Reference 25090C C36 r7
Project Approval
IAN HILL (B.E)
Consulting Civil Engineer

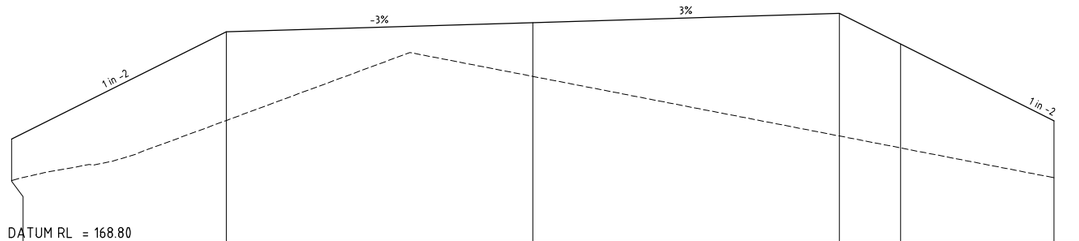
Client

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PO BOX 3337, THORNTON NSW 2322
PHONE: (02) 4964 1811

PROPOSED HAUL ROAD WORKS
BLUESTONE HARDROCK QUARRY
SPRINGVALE ROAD, ELDERSLIE
HAUL ROAD 2 CROSS SECTIONS SHEET 15 OF 21

Project No 25090C
Drawing No C36
Revision 7
A1 SHEET

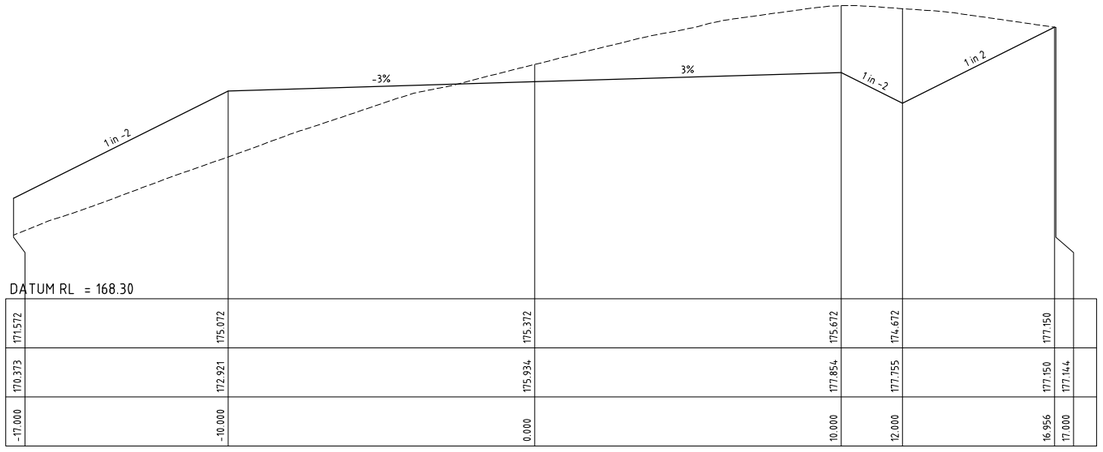
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DATUM RL = 168.80

172.176	175.676	175.976	176.276	175.276	172.776	
170.823	172.783	174.222	172.279	171.890	170.919	
-17.000	-10.000	0.000	10.000	12.000	17.000	

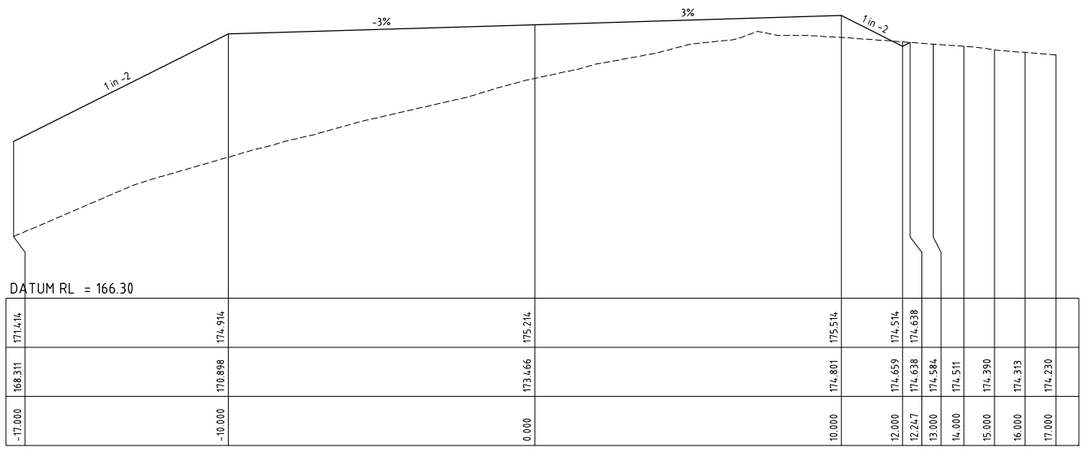
CH 1350.000



DATUM RL = 168.30

171.572	175.072	175.372	175.672	174.672	177.150	
170.373	172.921	175.934	177.854	177.755	177.150	177.144
-17.000	-10.000	0.000	10.000	12.000	16.956	17.000

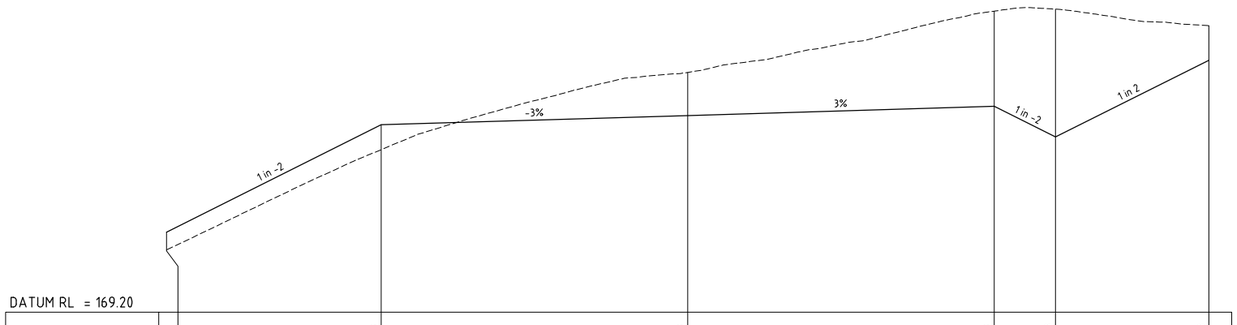
CH 1298.969



DATUM RL = 166.30

171.414	174.914	175.214	175.514	174.514	174.638					
168.311	170.898	173.466	174.801	174.659	174.638	174.584	174.511	174.390	174.313	174.230
-17.000	-10.000	0.000	10.000	12.000	12.247	13.000	14.000	15.000	16.000	17.000

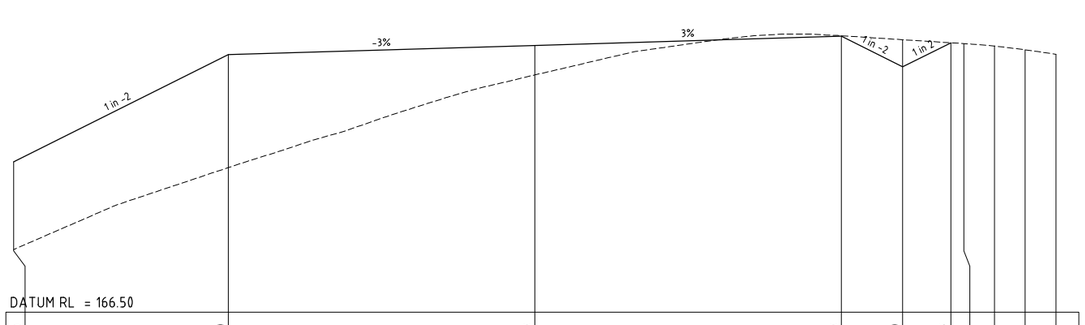
CH 1320.000



DATUM RL = 169.20

DESIGN SURFACE	171.813	175.313	175.613	175.913	174.913	177.413
NATURAL SURFACE	171.231	174.501	177.020	179.018	179.079	178.540
OFFSET	-17.000	-10.000	0.000	10.000	12.000	17.000

CH 1290.000



DATUM RL = 166.50

171.400	174.900	175.200	175.500	174.500	175.286					
168.546	171.214	174.237	175.516	175.386	175.286	175.259	175.178	175.054	174.911	
-17.000	-10.000	0.000	10.000	12.000	13.571	14.000	15.000	16.000	17.000	

CH 1315.297

PRELIMINARY ISSUE
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REVISION	Description	Drawn	App'd	Date
7	CLIENT COMMENTS	A.M	I.H	21.07.25
5	DRAWING NUMBER CHANGE	A.M	I.H	03.07.25
4	CLIENT COMMENTS	A.M	I.H	30/06/25
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2	GENERAL AMENDMENTS	A.M	I.H	12.06.25

North

Scale
0 2 4 6 8m
1:100 (A1) 1:200 (A3)

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Designed AM
Scale 1:100
Cad Reference 25090C C37 r7
Project Approval
IAN HILL (B.E)
Consulting Civil Engineer

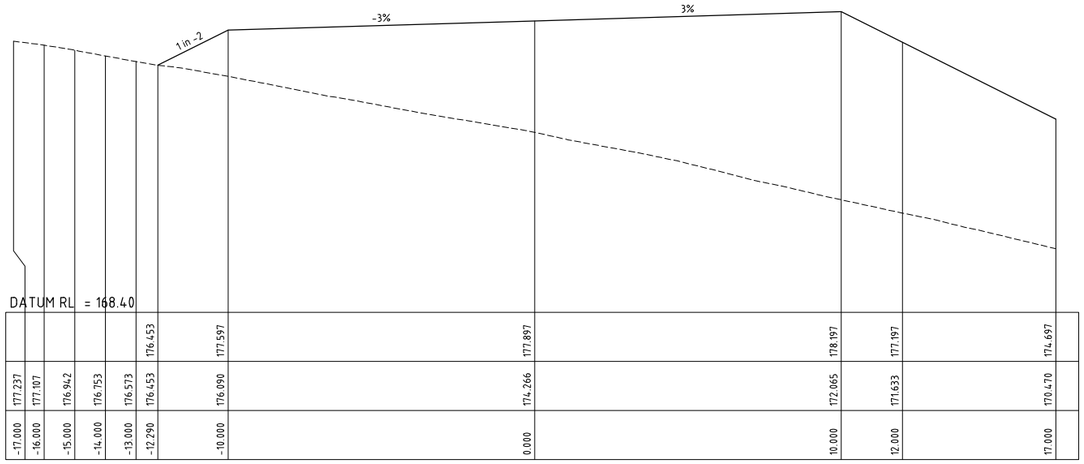
Client

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1 HARTLEY DRIVE, THORNTON NSW 2322
PO BOX 3337, THORNTON NSW 2322
PHONE: (02) 4964 1811

PROPOSED HAUL ROAD WORKS
BLUESTONE HARDROCK QUARRY
SPRINGVALE ROAD, ELDERSLIE
HAUL ROAD 2 CROSS SECTIONS SHEET 16 OF 21

Project No 25090C
Drawing No C37
Revision 7
A1 SHEET

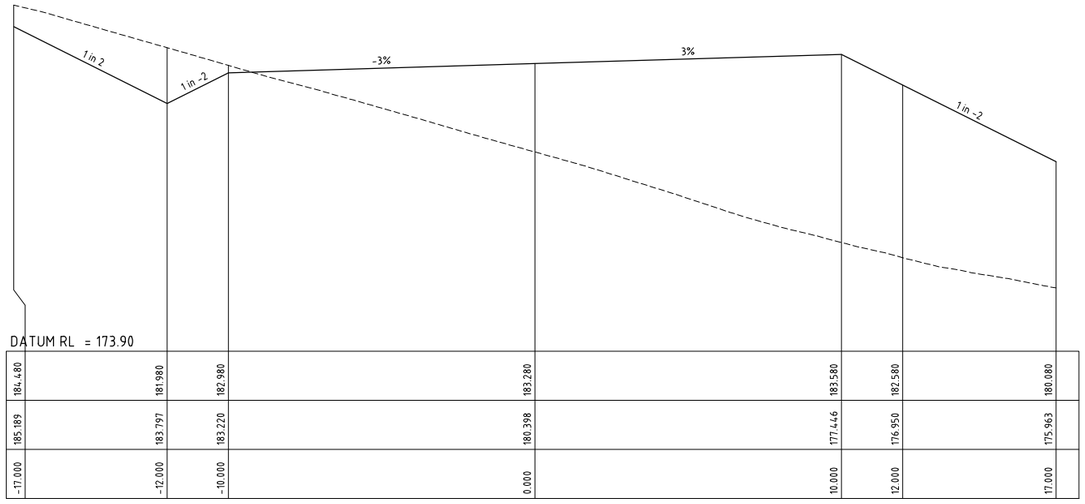
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DATUM RL = 168.40

-17.000	-16.000	-15.000	-14.000	-13.000	-12.290		-10.000	0.000	10.000	12.000	17.000
177.237	177.107	176.942	176.753	176.573	176.453		176.090	174.266	172.065	171.633	170.470
					176.453	177.597		177.897	178.197	177.197	174.697

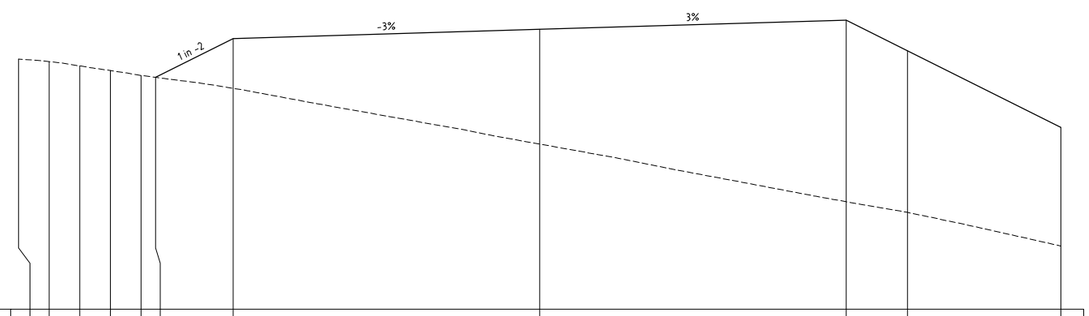
CH 1380.000



DATUM RL = 173.90

-17.000	-16.000	-15.000	-14.000	-13.000	-12.000	-11.000	-10.000	0.000	10.000	12.000	17.000
185.189	183.797	183.220	180.398	177.446	176.950	175.963					
184.480	181.980	182.980	183.280	183.580	182.580	180.080					

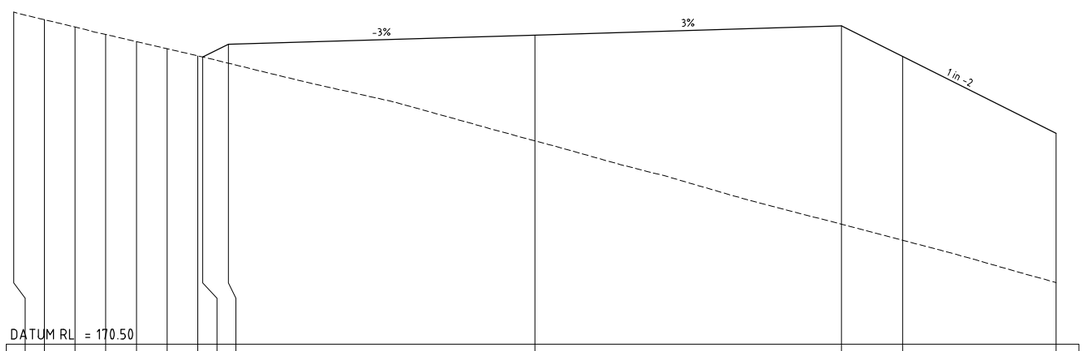
CH 1440.000



DATUM RL = 168.30

DESIGN SURFACE						175.860	177.127	177.427	177.727	176.727	174.227
NATURAL SURFACE	176.459	176.373	176.233	176.081	175.923	175.860	175.502	173.685	171.805	171.456	170.363
OFFSET	-17.000	-16.000	-15.000	-14.000	-13.000	-12.532	-10.000	0.000	10.000	12.000	17.000

CH 1374.082



DATUM RL = 170.50

							179.864	180.280	180.580	180.880	179.880	177.380
181.327	181.081	180.843	180.599	180.369	180.136	179.903	179.864	179.664	177.131	174.413	173.891	172.512
-17.000	-16.000	-15.000	-14.000	-13.000	-12.000	-11.000	-10.833	-10.000	0.000	10.000	12.000	17.000

CH 1410.000

PRELIMINARY ISSUE
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REVISION	Description	Drawn	App'd	Date
7	CLIENT COMMENTS	A.M	I.H	21.07.25
5	DRAWING NUMBER CHANGE	A.M	I.H	03.07.25
4	CLIENT COMMENTS	A.M	I.H	30/06/25
3	GENERAL AMENDMENTS	A.M	I.H	26.06.25
2	GENERAL AMENDMENTS	A.M	I.H	12.06.25

North

Scale
0 2 4 6 8m
1:100 (A1) 1:200 (A3)

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Designed AM | Scale 1:100
Cad Reference 25090C C38 r7
Project Approval
IAN HILL (B.E)
Consulting Civil Engineer

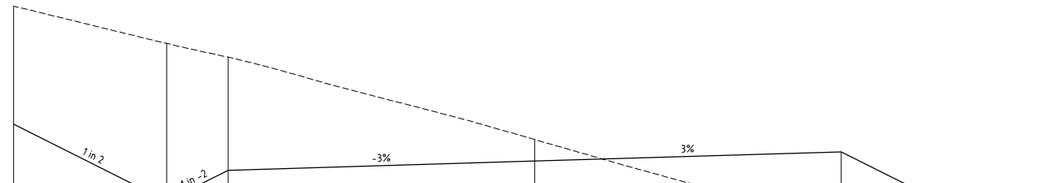
Client

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1 HARTLEY DRIVE, THORNTON NSW 2322
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PROPOSED HAUL ROAD WORKS
BLUESTONE HARDROCK QUARRY
SPRINGVALE ROAD, ELDERSLIE
HAUL ROAD 2 CROSS SECTIONS SHEET 17 OF 21

Project No 25090C
Drawing No C38 | Revision 7
A1 SHEET

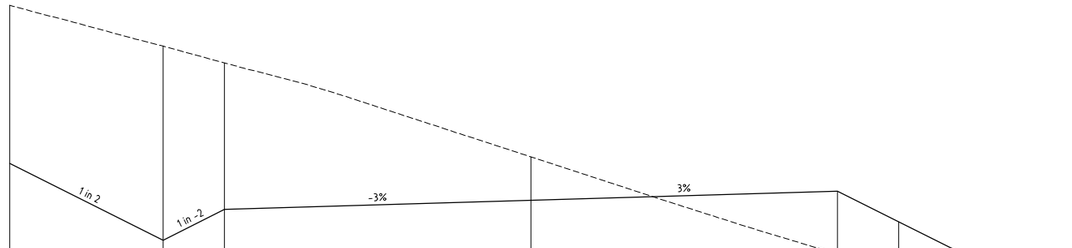
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DATUM RL = 182.50

189.880	187.380	188.380	188.680	188.980	187.980	185.480
193.730	192.513	192.069	189.380	186.528	186.000	184.561
-17.000	-12.000	-10.000	0.000	10.000	12.000	17.000

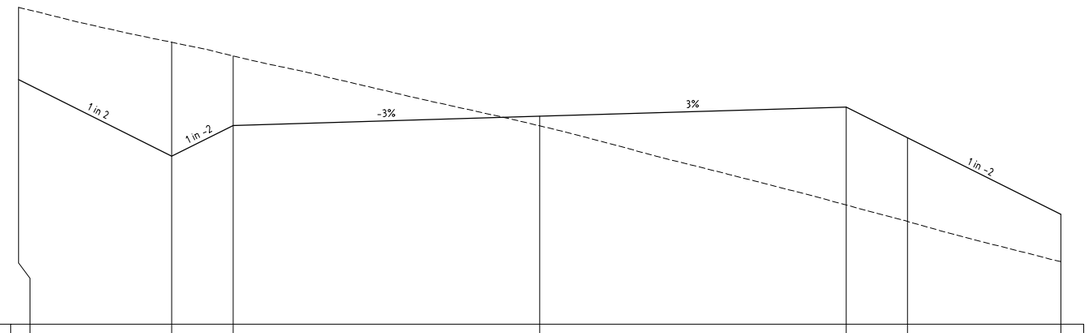
CH 1500.000



DATUM RL = 185.30

192.319	189.879	190.879	191.179	191.479	190.479	187.979
197.536	196.204	195.660	192.595	189.423	188.818	187.301
-17.000	-12.000	-10.000	0.000	10.000	12.000	17.000

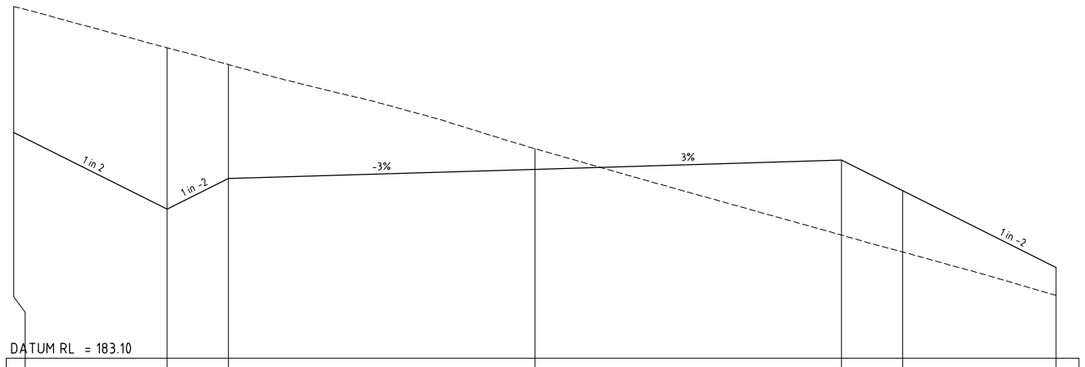
CH 1530.000



DATUM RL = 179.20

DESIGN SURFACE	187.180	184.680	185.680	185.980	186.280	185.280	182.780
NATURAL SURFACE	189.528	188.392	187.946	185.669	183.088	182.552	181.239
OFFSET	-17.000	-12.000	-10.000	0.000	10.000	12.000	17.000

CH 1470.000



DATUM RL = 183.10

190.460	187.960	188.960	189.260	189.560	188.560	186.060
194.568	193.223	192.674	189.933	187.118	186.563	185.151
-17.000	-12.000	-10.000	0.000	10.000	12.000	17.000

CH 1506.438

PRELIMINARY ISSUE
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REVISION	Description	Drawn	App'd	Date
7	CLIENT COMMENTS	A.M	I.H	21.07.25
5	DRAWING NUMBER CHANGE	A.M	I.H	03.07.25
4	CLIENT COMMENTS	A.M	I.H	30/06/25
3	GENERAL AMENDMENTS	A.M	I.H	26.06.25
2	GENERAL AMENDMENTS	A.M	I.H	12.06.25

North

Scale
0 2 4 6 8m
1:100 (A1) 1:200 (A3)

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Designed AM | Scale 1:100
Cad Reference 25090C C39 r7
Project Approval
IAN HILL (B.E)
Consulting Civil Engineer

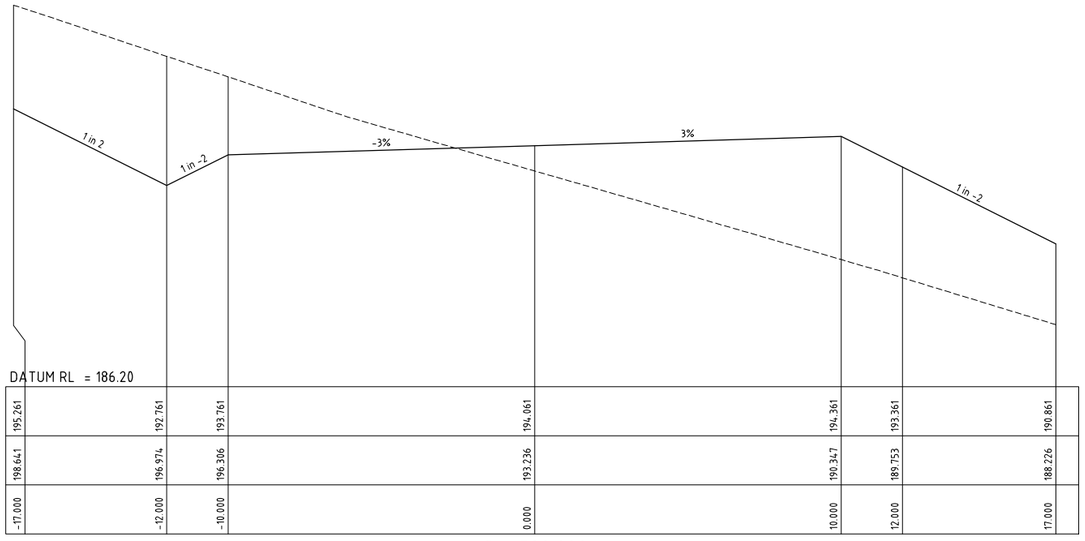
Client

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PO BOX 3337, THORNTON NSW 2322
PHONE: (02) 4964 1811

PROPOSED HAUL ROAD WORKS
BLUESTONE HARDROCK QUARRY
SPRINGVALE ROAD, ELDERSLIE
HAUL ROAD 2 CROSS SECTIONS SHEET 18 OF 21

Project No 25090C
Drawing No C39 | Revision 7
A1 SHEET

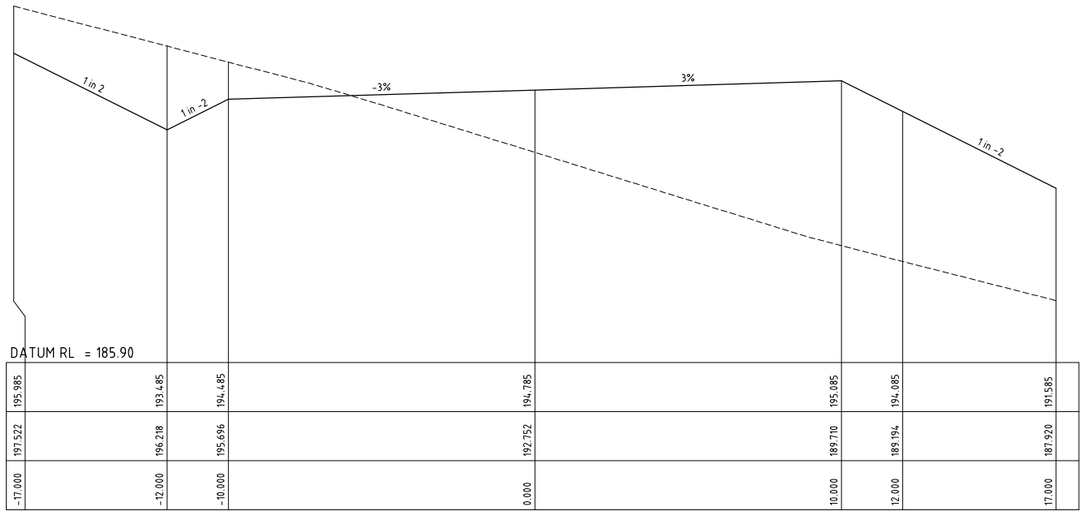
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DATUM RL = 186.20

195.261	192.761	193.761	194.061	194.361	193.361	190.861
198.641	196.974	196.306	193.236	190.347	189.753	188.226
-17.000	-12.000	-10.000	0.000	10.000	12.000	17.000

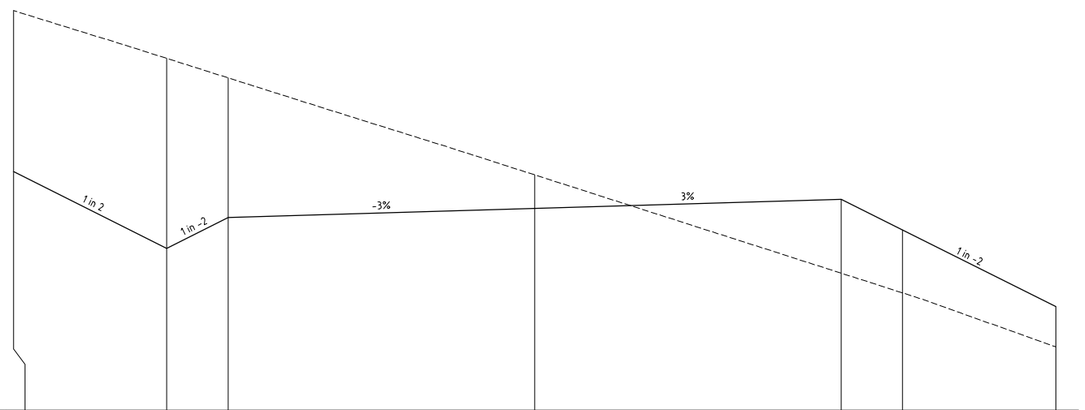
CH 1590.000



DATUM RL = 185.90

195.985	193.485	194.485	194.785	195.085	194.085	191.585
197.522	196.218	195.696	192.752	189.710	189.194	187.920
-17.000	-12.000	-10.000	0.000	10.000	12.000	17.000

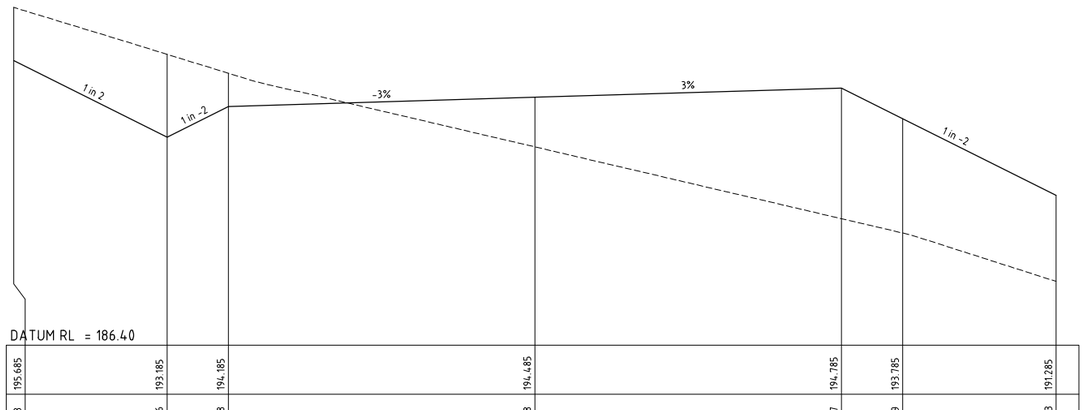
CH 1650.000



DATUM RL = 186.40

DESIGN SURFACE	194.180	191.680	192.680	192.980	193.280	192.280	189.780
NATURAL SURFACE	199.428	197.871	197.237	194.075	190.869	190.227	188.464
OFFSET	-17.000	-12.000	-10.000	0.000	10.000	12.000	17.000

CH 1560.000



DATUM RL = 186.40

195.685	193.185	194.185	194.485	194.785	193.785	191.285
197.413	195.886	195.268	192.868	190.527	190.059	188.483
-17.000	-12.000	-10.000	0.000	10.000	12.000	17.000

CH 1620.000

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
7	CLIENT COMMENTS	A.M	I.H	21.07.25
5	DRAWING NUMBER CHANGE	A.M	I.H	03.07.25
4	CLIENT COMMENTS	A.M	I.H	30/06/25
3	GENERAL AMENDMENTS	A.M	I.H	26.06.25
2	GENERAL AMENDMENTS	A.M	I.H	12.06.25

North

Scale

0 2 4 6 8m
1:100 (A1) 1:200 (A3)

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Designed AM | Scale 1:100

Cad Reference 25090C C40 r7

Project Approval
IAN HILL (B.E)
Consulting Civil Engineer

Client

GCA ENGINEERING SOLUTIONS
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PO BOX 3337, THORNTON NSW 2322
PHONE: (02) 4964 1811

PROPOSED HAUL ROAD WORKS
BLUESTONE HARDROCK QUARRY
SPRINGVALE ROAD, ELDERSLIE

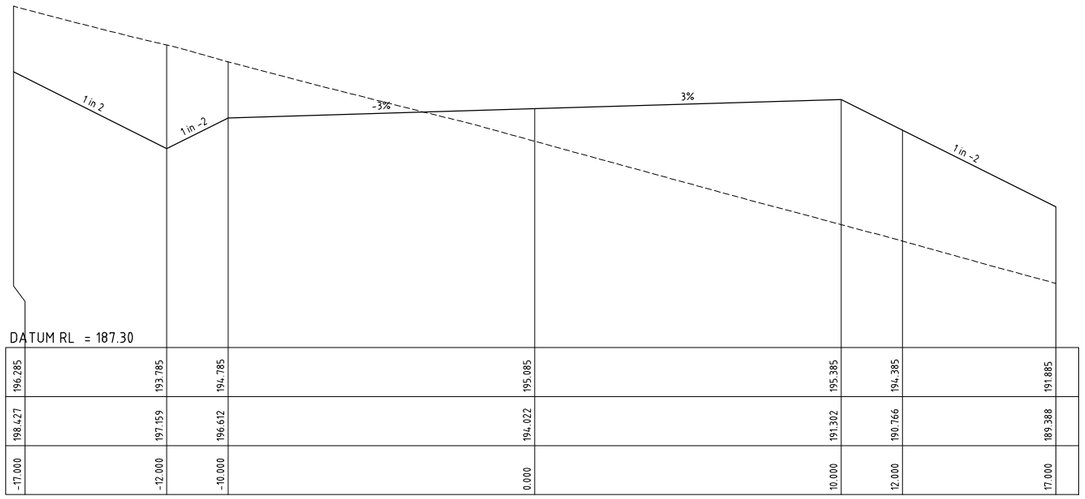
HAUL ROAD 2 CROSS SECTIONS SHEET 19 OF 21

Project No 25090C

Drawing No C40 | Revision 7

A1 SHEET

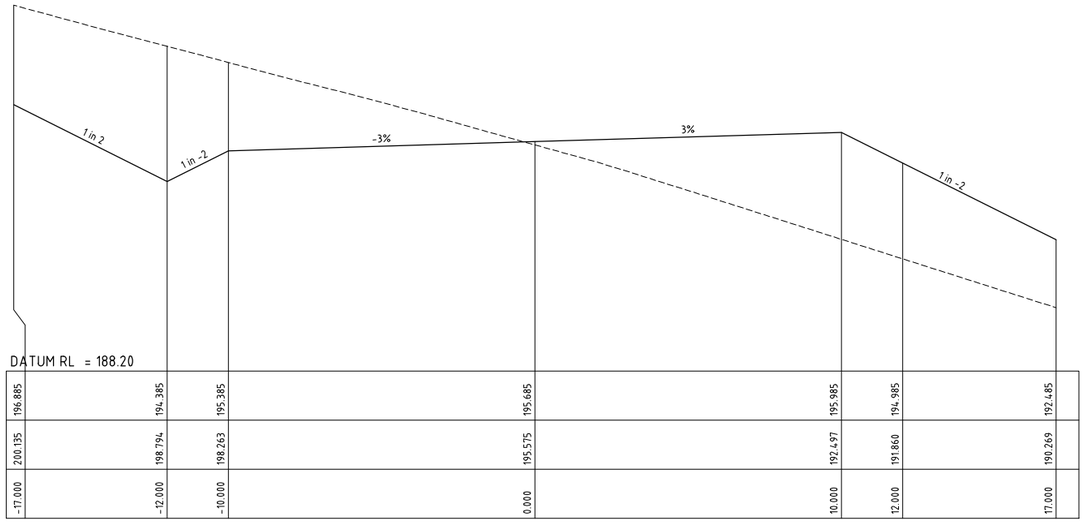
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DATUM RL = 187.30

196.285	193.785	194.785	195.085	195.385	194.385	191.885
198.427	197.159	196.612	194.022	191.302	190.766	189.388
-17.000	-12.000	-10.000	0.000	10.000	12.000	17.000

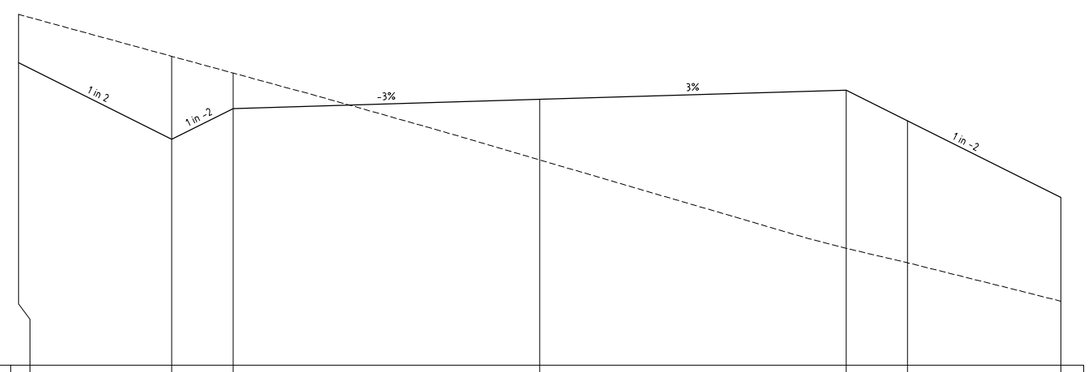
CH 1680.000



DATUM RL = 188.20

196.885	194.385	195.385	195.685	195.985	194.985	192.485
200.135	198.794	198.263	195.575	192.497	191.860	190.269
-17.000	-12.000	-10.000	0.000	10.000	12.000	17.000

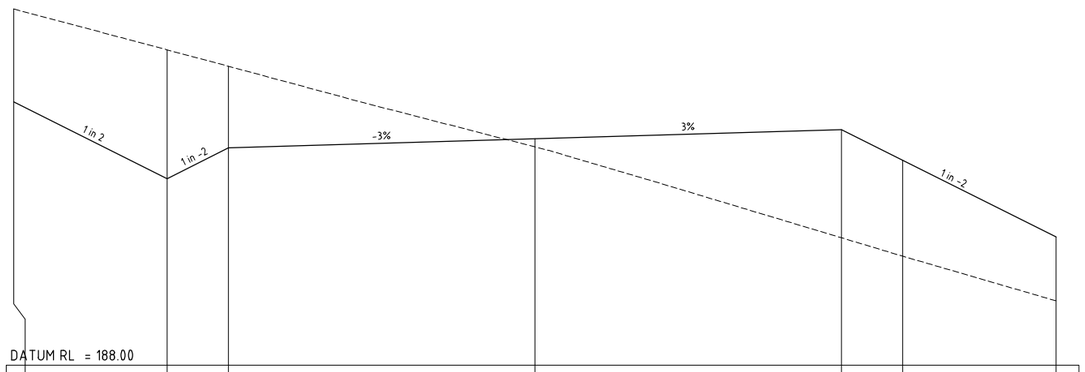
CH 1740.000



DATUM RL = 186.20

DESIGN SURFACE	196.069	193.569	194.569	194.869	195.169	194.169	191.669
NATURAL SURFACE	197.642	196.272	195.726	192.894	190.014	189.541	188.287
OFFSET	-17.000	-12.000	-10.000	0.000	10.000	12.000	17.000

CH 1658.491



DATUM RL = 188.00

196.585	194.085	195.085	195.385	195.685	194.685	192.185
199.614	198.284	197.749	195.120	192.156	191.556	190.098
-17.000	-12.000	-10.000	0.000	10.000	12.000	17.000

CH 1710.000

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
7	CLIENT COMMENTS	A.M	I.H	21.07.25
5	DRAWING NUMBER CHANGE	A.M	I.H	03.07.25
4	CLIENT COMMENTS	A.M	I.H	30/06/25
3	GENERAL AMENDMENTS	A.M	I.H	26.06.25
2	GENERAL AMENDMENTS	A.M	I.H	12.06.25

North

Scale
0 2 4 6 8m
1:100 (A1) 1:200 (A3)

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Designed AM | Scale 1:100
Cad Reference 25090C C41 r7
Project Approval
IAN HILL (B.E)
Consulting Civil Engineer

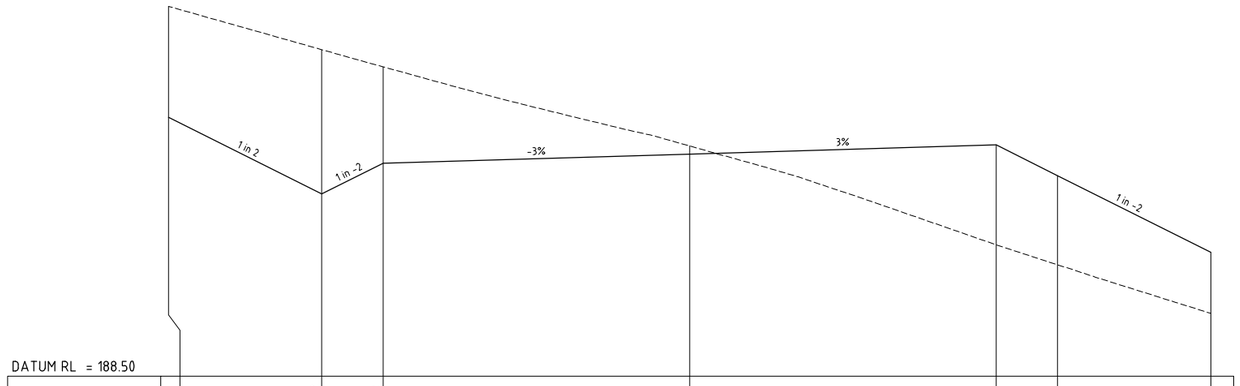
Client

GCA ENGINEERING SOLUTIONS
A.B.N. 92 086 017 745
1 HARTLEY DRIVE, THORNTON NSW 2322
PO BOX 3337, THORNTON NSW 2322
PHONE: (02) 4964 1811

PROPOSED HAUL ROAD WORKS
BLUESTONE HARDROCK QUARRY
SPRINGVALE ROAD, ELDERSLIE
HAUL ROAD 2 CROSS SECTIONS SHEET 20 OF 21

Project No 25090C
Drawing No C41 | Revision 7
A1 SHEET

PLOT DATE: 14/04/2026 1:29:58 PM
CAD FILE: Q:\25\25090 Bluerock Quarry\02_CAD\AutoCAD\Civil\25090C C41 r7.dwg



DATUM RL = 188.50								
DESIGN SURFACE	196.942	194.442	195.442	195.742	196.042	195.042	192.542	
NATURAL SURFACE	200.559	193.148	198.588	196.009	192.785	192.134	190.548	
OFFSET	-17.000	-12.000	-10.000	0.000	10.000	12.000	17.000	

CH 1745.760

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
7	CLIENT COMMENTS	A.M	I.H	21.07.25
5	DRAWING NUMBER CHANGE	A.M	I.H	03.07.25
4	CLIENT COMMENTS	A.M	I.H	30/06/25
3	GENERAL AMENDMENTS	A.M	I.H	26.06.25
2	GENERAL AMENDMENTS	A.M	I.H	12.06.25

North

Scale
0 2 4 6 8m
1:100 (A1) 1:200 (A3)

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Designed: AM
Scale: 1:100
Cad Reference: 25090C C42 r7
Project Approval: IAN HILL (B.E) Consulting Civil Engineer

Client

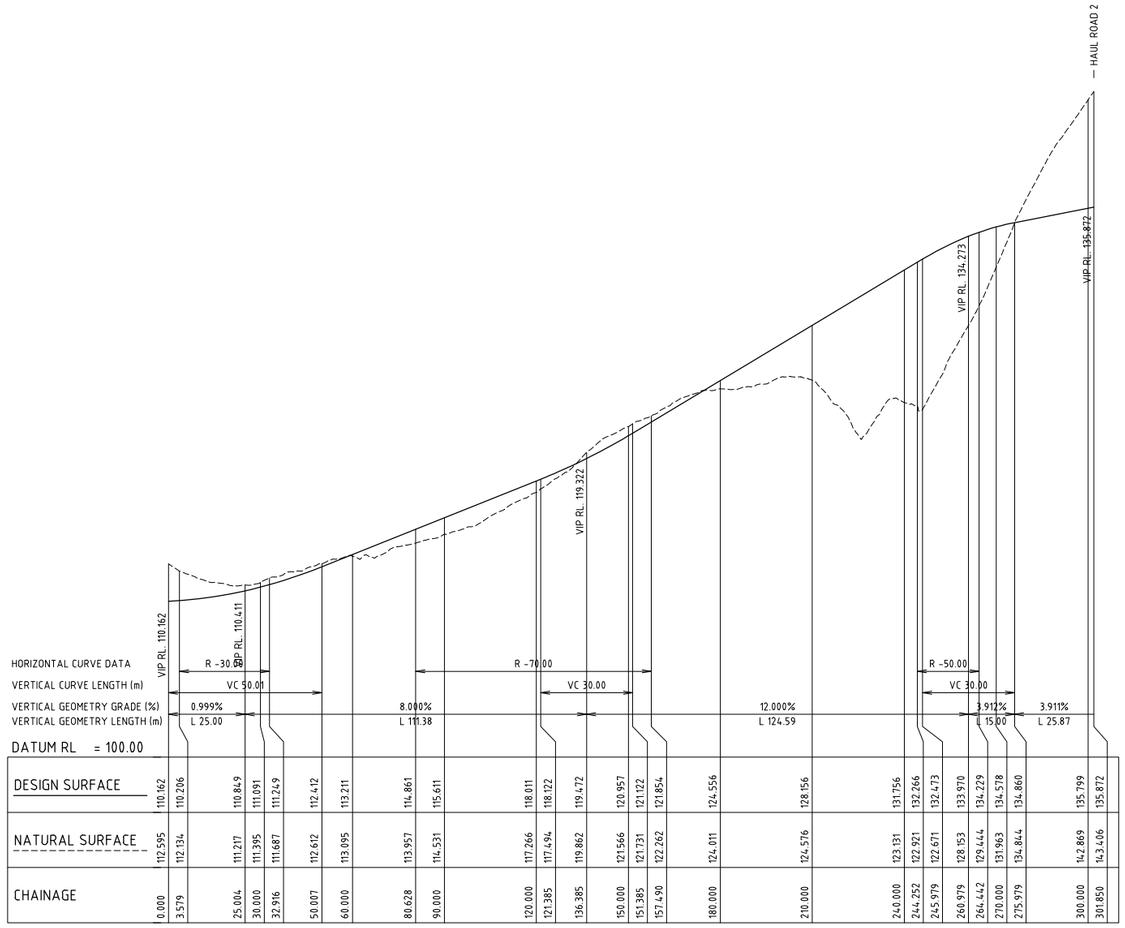
GCA ENGINEERING SOLUTIONS
A.B.N. 92 086 017 745
1 HARTLEY DRIVE, THORNTON NSW 2322
PO BOX 3337, THORNTON NSW 2322
PHONE: (02) 4964 1811

PROPOSED HAUL ROAD WORKS
BLUESTONE HARDROCK QUARRY
SPRINGVALE ROAD, ELDERSLIE

HAUL ROAD 2 CROSS SECTIONS SHEET 21 OF 21

Project No: 25090C
Drawing No: C42
Revision: 7
A1 SHEET

PLOT DATE: 14/04/2026 1:30:01 PM
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A1 SCALE: HORIZONTAL 1:1000, VERTICAL 1:200

LONGITUDINAL SECTION PROCESSING ACCESS ROAD

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
7	CLIENT COMMENTS	A.M	I.H	21.07.25
5	DRAWING NUMBER CHANGE	A.M	I.H	03.07.25
4	CLIENT COMMENTS	A.M	I.H	30/06/25
3	GENERAL AMENDMENTS	A.M	I.H	26.06.25
2	GENERAL AMENDMENTS	A.M	I.H	12.06.25

North

Scale

0 20 40 60 80m
1:1000 (A1) 1:2000 (A3)
0 4 8 12 16m
1:200 (A1) 1:400 (A3)

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Designed AM
Scale 1:1000H / 1:200V
Cad Reference 25090C C43 r7
Project Approval
IAN HILL (B.E)
Consulting Civil Engineer

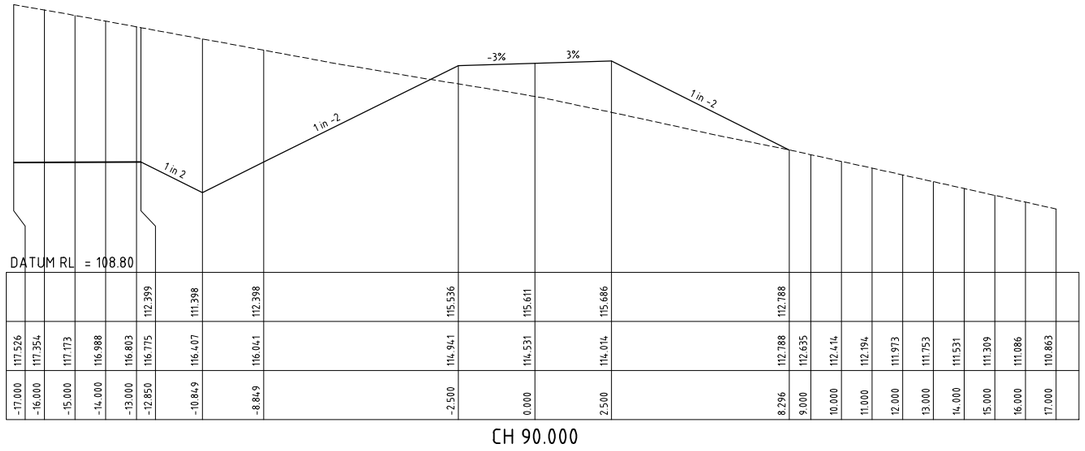
Client

GCA ENGINEERING SOLUTIONS
A.B.N. 92 086 017 745
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PO BOX 3337, THORNTON NSW 2322
PHONE: (02) 4964 1811

PROPOSED HAUL ROAD WORKS
BLUESTONE HARDROCK QUARRY
SPRINGVALE ROAD, ELDERSLIE
PROCESSING ACCESS ROAD LONGITUDINAL SECTION

Project No 25090C
Drawing No C43
Revision 7
A1 SHEET

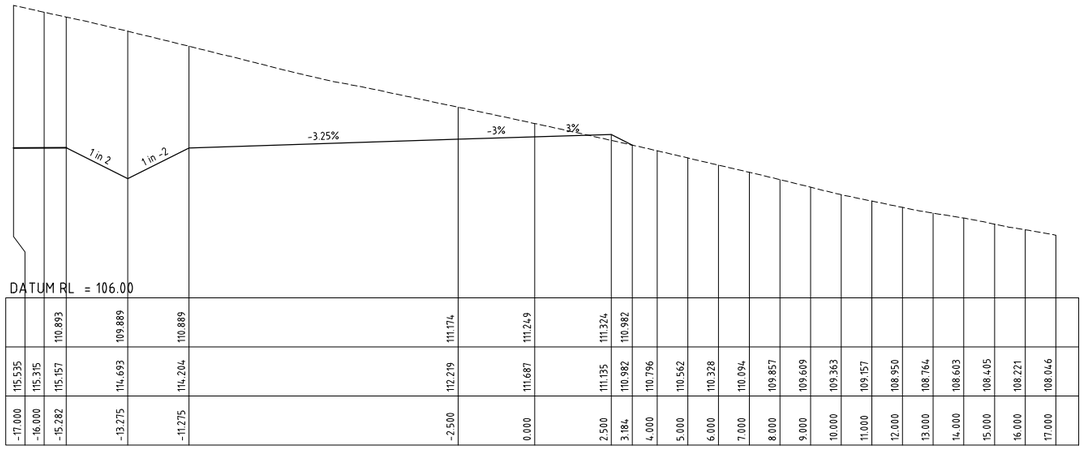
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DATUM RL = 108.80

						112.399	111.398	112.398			115.536	115.611	115.686		112.788									
117.526	117.354	117.173	116.988	116.803	116.775	116.407	116.041			114.941	114.531	114.014		112.788	112.635	112.414	112.194	111.973	111.753	111.531	111.309	111.086	110.863	
-17.000	-16.000	-15.000	-14.000	-13.000	-12.850	-10.849	-8.849			-2.500	0.000	2.500		8.296	9.000	10.000	11.000	12.000	13.000	14.000	15.000	16.000	17.000	

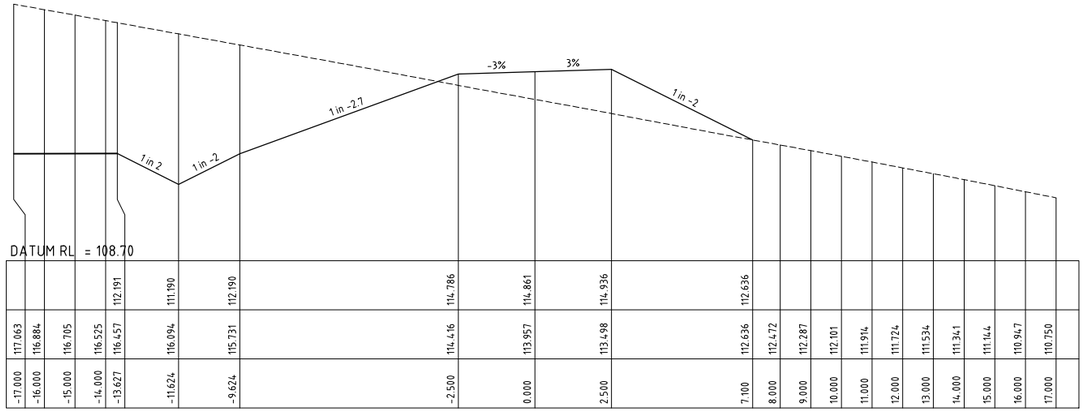
CH 90.000



DATUM RL = 106.00

		110.893	109.889	110.889			111.174		111.249		111.324	110.982												
115.535	115.315	115.157	114.693	114.204			112.219		111.687		111.135	110.982	110.796	110.562	110.328	110.094	109.857	109.609	109.363	109.157	108.950	108.764	108.603	108.405	108.221	108.046	
-17.000	-16.000	-15.282	-13.275	-11.275			-2.500		0.000		2.500	3.184	4.000	5.000	6.000	7.000	8.000	9.000	10.000	11.000	12.000	13.000	14.000	15.000	16.000	17.000	

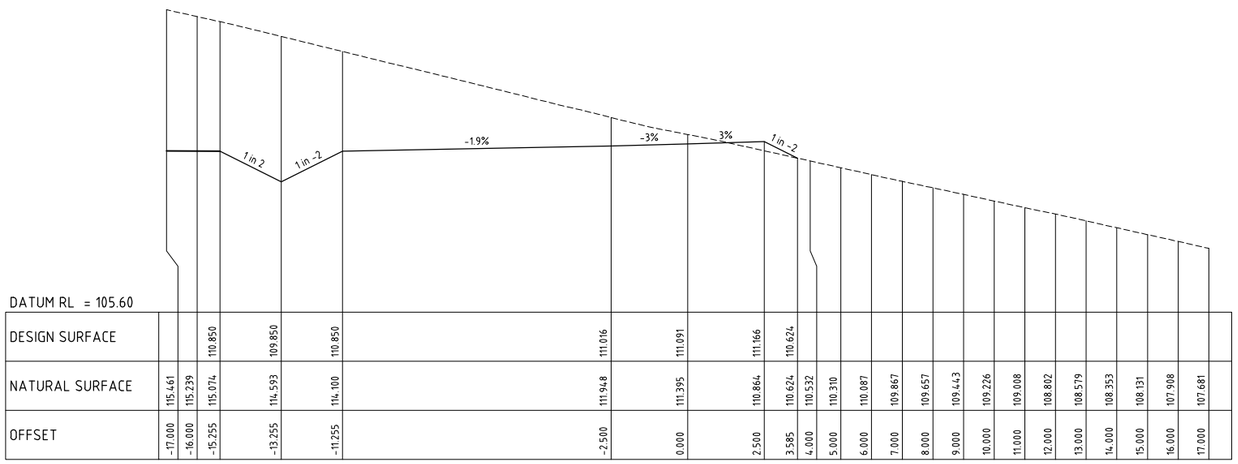
CH 32.916



DATUM RL = 108.70

				112.191	111.190	112.190			114.786		114.861		114.936		112.636									
117.063	116.884	116.705	116.525	116.457	116.094	115.731			114.416		113.957		113.498		112.636	112.472	112.287	112.101	111.914	111.724	111.534	111.341	111.144	110.947	110.750	
-17.000	-16.000	-15.000	-14.000	-13.627	-11.624	-9.624			-2.500		0.000		2.500		7.100	8.000	9.000	10.000	11.000	12.000	13.000	14.000	15.000	16.000	17.000	

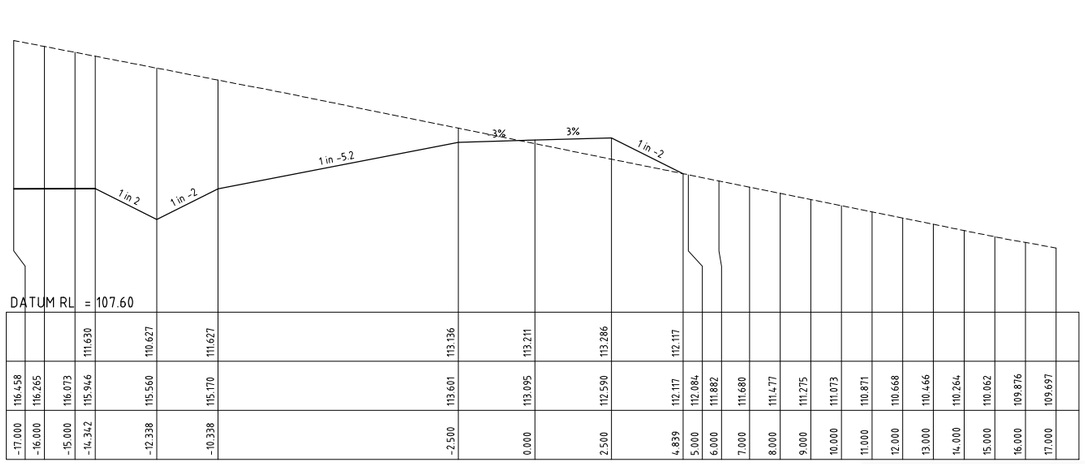
CH 80.628



DATUM RL = 105.60

DESIGN SURFACE		110.850	109.850	110.850			111.016		111.091		111.166	110.624												
NATURAL SURFACE	115.461	115.239	115.074	114.593	114.100			111.948		111.395		110.864	110.624	110.532	110.310	110.087	109.867	109.657	109.443	109.226	109.008	108.802	108.579	108.353	108.131	107.908	107.681
OFFSET	-17.000	-16.000	-15.255	-13.255	-11.255			-2.500		0.000		2.500	3.585	4.000	5.000	6.000	7.000	8.000	9.000	10.000	11.000	12.000	13.000	14.000	15.000	16.000	17.000

CH 30.000



DATUM RL = 107.60

			111.630		110.627	111.627			113.136		113.211		113.286		112.117									
116.458	116.265	116.073	115.946		115.560	115.170			113.601		113.095		112.590		112.117	112.084	111.882	111.680	111.477	111.275	111.073	110.871	110.668	110.466	110.264	110.062	109.876	109.697
-17.000	-16.000	-15.000	-14.342		-12.338	-10.338			-2.500		0.000		2.500		4.839	5.000	6.000	7.000	8.000	9.000	10.000	11.000	12.000	13.000	14.000	15.000	16.000	17.000

CH 60.000

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
7	CLIENT COMMENTS	A.M	I.H	21.07.25
5	DRAWING NUMBER CHANGE	A.M	I.H	03.07.25
4	CLIENT COMMENTS	A.M	I.H	30/06/25
3	GENERAL AMENDMENTS	A.M	I.H	26.06.25
2	GENERAL AMENDMENTS	A.M	I.H	12.06.25

North

Scale

0 2 4 6 8m

1:100 (A1) 1:200 (A3)

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Designed AM | Scale 1:100

Cad Reference 25090C C44 r7

Project Approval
IAN HILL (B.E)
Consulting Civil Engineer

Client

GCA ENGINEERING SOLUTIONS
A.B.N. 92 086 017 745
1 HARTLEY DRIVE, THORNTON NSW 2322
PO BOX 3337, THORNTON NSW 2322
PHONE: (02) 4964 1811

PROPOSED HAUL ROAD WORKS
BLUESTONE HARDROCK QUARRY
SPRINGVALE ROAD, ELDERSLIE

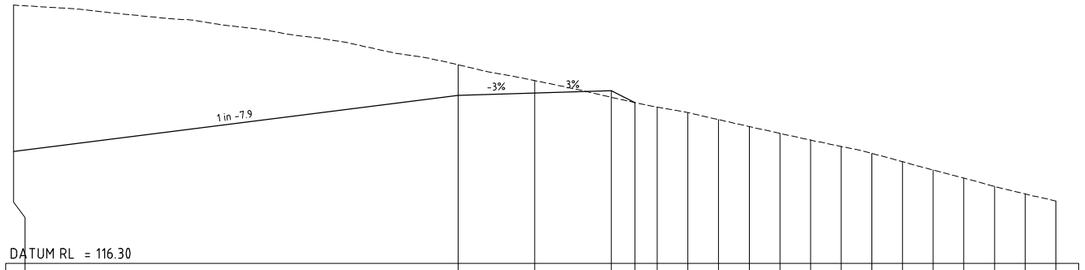
PROCESSING ACCESS ROAD CROSS SECTIONS SHEET 1 OF 3

Project No 25090C

Drawing No C44 | Revision 7

A1 SHEET

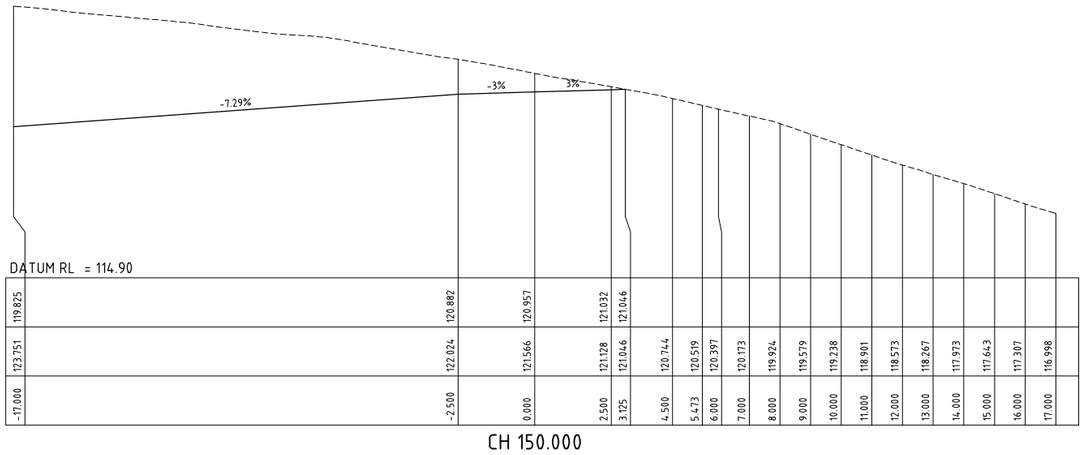
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DATUM RL = 116.30

-17.000	124.724	119.952	-2.500	122.779	121.779	0.000	122.262	121.854	2.500	121.717	121.929	3.267	121.546	121.546	4.000	121.396	5.000	121.214	6.000	120.989	7.000	120.763
8.000	120.542	9.000	120.322	10.000	120.115	11.000	119.887	12.000	119.616	13.000	119.348	14.000	119.080	15.000	118.814	16.000	118.564	17.000	118.330			

CH 157.490



DATUM RL = 114.90

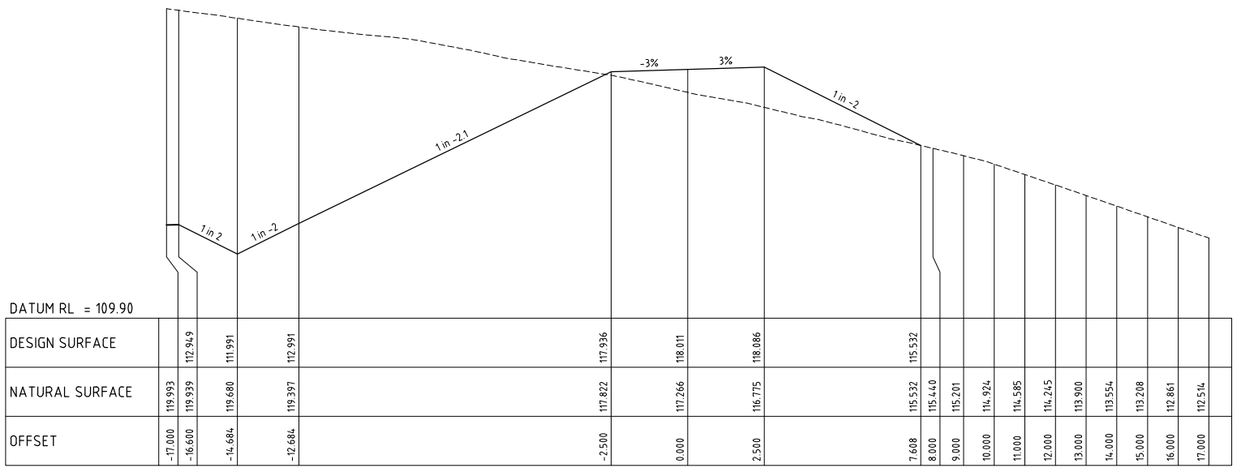
-17.000	123.751	119.825	-2.500	122.024	120.882	0.000	121.566	120.957	2.500	121.128	121.032	3.125	121.046	121.046	4.500	120.744	5.473	120.519	6.000	120.397	7.000	120.173
8.000	119.924	9.000	119.579	10.000	119.238	11.000	118.901	12.000	118.573	13.000	118.267	14.000	117.973	15.000	117.643	16.000	117.307	17.000	116.998			

CH 150.000

DATUM RL = 117.10

-17.000	128.847	128.626	-16.000	128.400	-15.000	128.157	-14.000	127.915	-13.000	127.670	-12.000	127.424	-11.000	127.179	-10.000	126.933	-9.000	126.687	-8.000	126.442	-7.000	126.240
-6.181	126.240	-2.500	125.333	128.081	0.000	124.576	128.156	2.500	123.689	128.231	17.000	119.338	120.981									

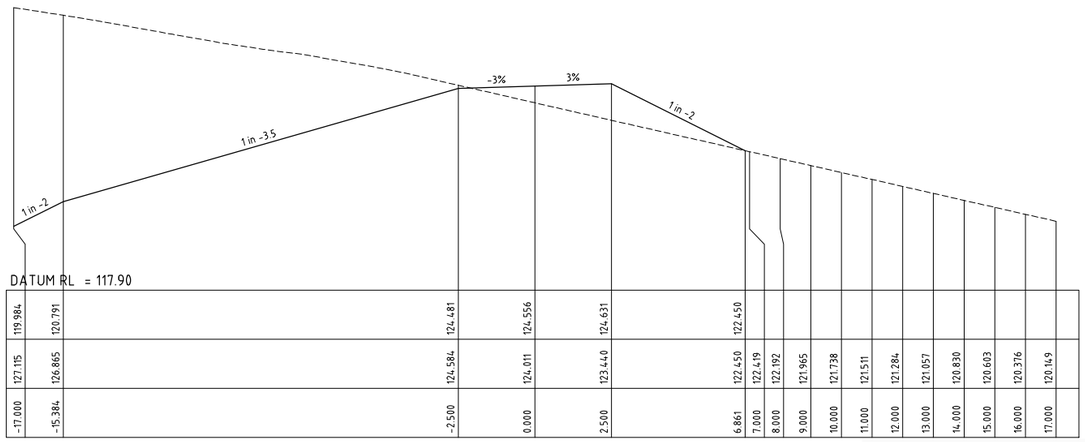
CH 210.000



DATUM RL = 109.90

DESIGN SURFACE		-17.000	112.949	-16.600	111.991	-14.684	112.991	-12.684	117.936	-2.500	118.011	0.000	118.086	2.500	115.532	7.608	115.440	8.000	115.201	9.000	114.924	10.000
NATURAL SURFACE	119.993	119.939	119.680	119.397	117.822	117.266	116.775	115.532	115.440	115.201	114.924	114.585	114.245	113.900	113.554	113.208	112.861	112.514				
OFFSET	-17.000	-16.600	-14.684	-12.684	-2.500	0.000	2.500	7.608	8.000	9.000	10.000	11.000	12.000	13.000	14.000	15.000	16.000	17.000				

CH 120.000



DATUM RL = 117.90

-17.000	127.115	119.984	-15.384	126.865	120.791	-2.500	124.584	124.481	0.000	124.011	124.556	2.500	123.440	124.631	6.861	122.450	122.450	7.000	122.419	8.000	122.192	9.000
121.965	10.000	121.738	11.000	121.511	12.000	121.284	13.000	121.057	14.000	120.830	15.000	120.603	16.000	120.376	17.000	120.149						

CH 180.000

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
5	DRAWING NUMBER CHANGE	A.M	I.H	03.07.25
4	CLIENT COMMENTS	A.M	I.H	30/06/25
3	GENERAL AMENDMENTS	A.M	I.H	26.06.25
2	GENERAL AMENDMENTS	A.M	I.H	12.06.25

North

Scale
0 2 4 6 8m
1:100 (A1) 1:200 (A3)

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Designed AM | Scale 1:100
Cad Reference 25090C C45 r5
Project Approval
IAN HILL (B.E)
Consulting Civil Engineer

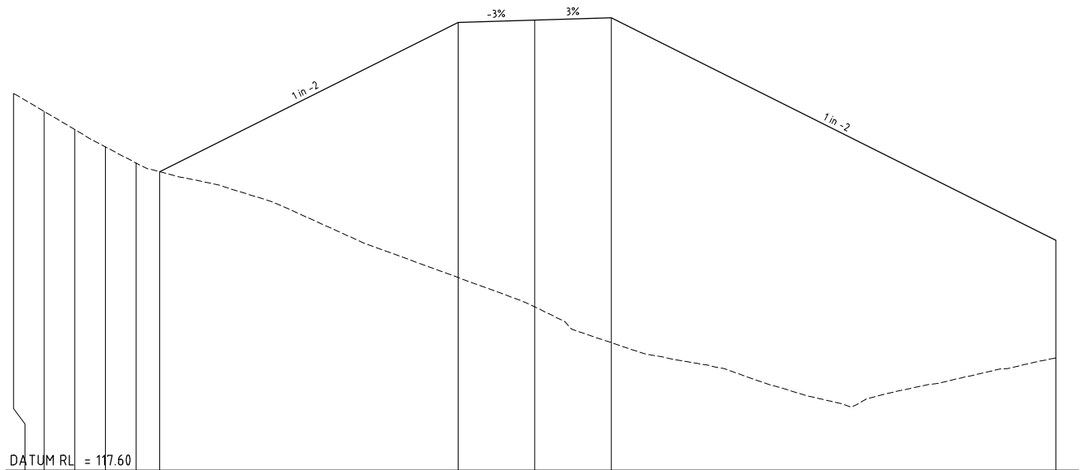
Client

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1 HARTLEY DRIVE, THORNTON NSW 2322
PO BOX 3337, THORNTON NSW 2322
PHONE: (02) 4964 1811

PROPOSED HAUL ROAD WORKS
BLUESTONE HARDROCK QUARRY
SPRINGVALE ROAD, ELDERSLIE
PROCESSING ACCESS ROAD CROSS SECTIONS SHEET 2 OF 3

Project No 25090C
Drawing No C45 | Revision 5
A1 SHEET

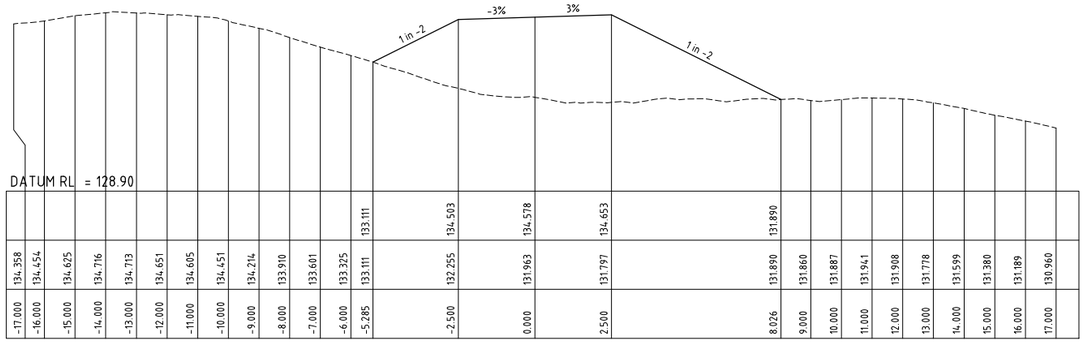
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DATUM RL = 117.60

						127.323		132.191	132.266	132.341		125.091	
-17.000	129.871	-16.000	129.291	-15.000	128.698	-14.000	128.133	-13.000	127.608	-12.235	127.323	-2.500	123.817	0.000	122.921	2.500	121.752	17.000	121.255

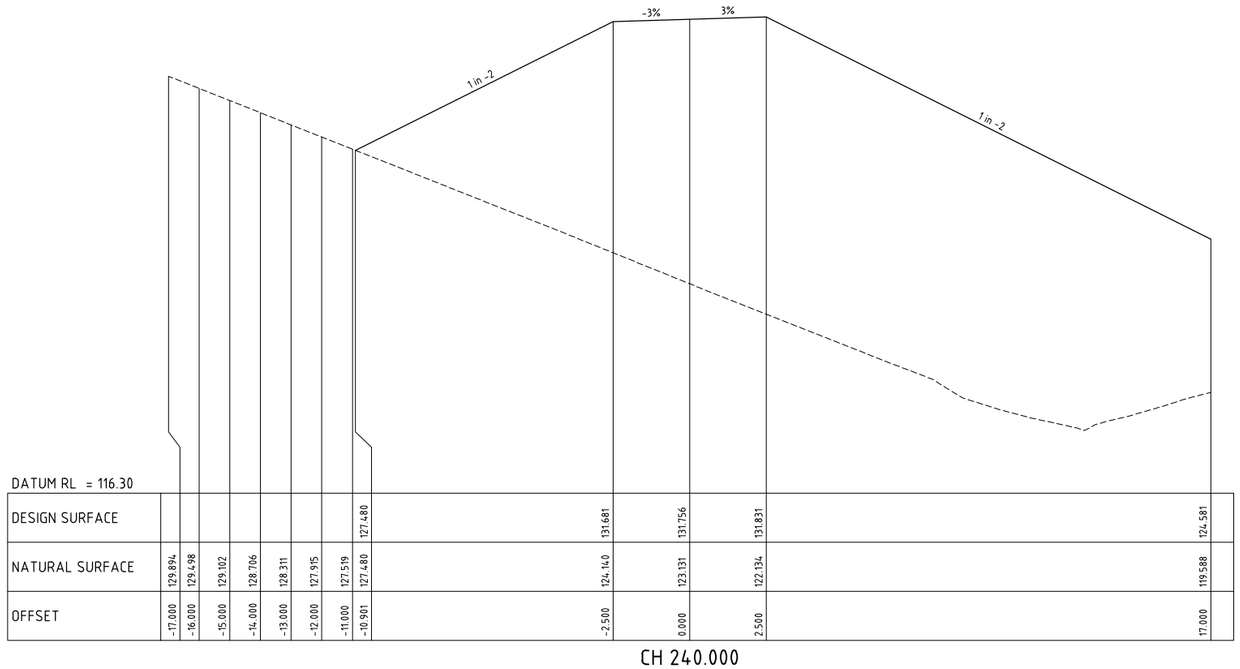
CH 244.252



DATUM RL = 128.90

												133.111		134.503		134.578		134.653	
134.358	-17.000	134.454	-16.000	134.625	-15.000	134.716	-14.000	134.713	-13.000	134.651	-12.000	134.605	-11.000	134.451	-10.000	134.214	-9.000	133.910	-8.000
133.601	-7.000	133.325	-6.000	133.111	-5.285			132.255	-2.500	131.963	0.000	131.797	2.500			131.890	8.026	131.860	9.000
131.887	10.000	131.941	11.000	131.908	12.000	131.778	13.000	131.599	14.000	131.380	15.000	131.189	16.000	130.960	17.000				

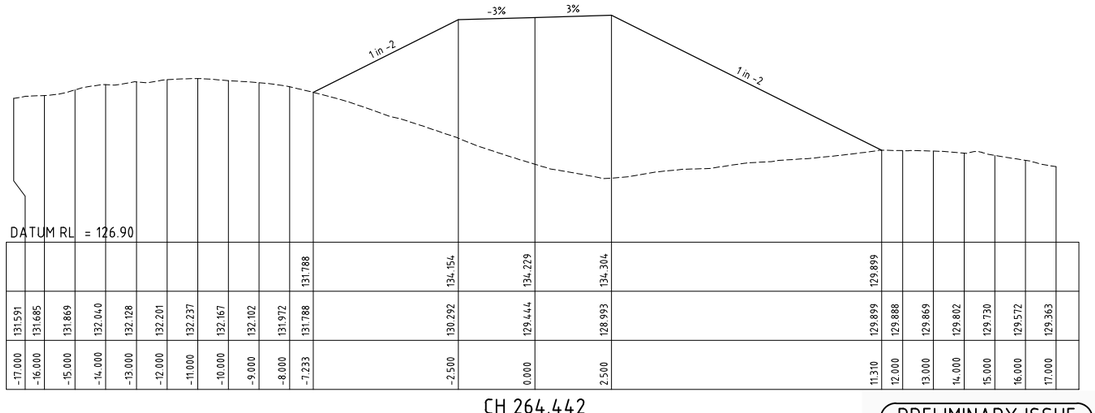
CH 270.000



DATUM RL = 116.30

DESIGN SURFACE								127.480		131.681		131.756		131.831		124.581			
NATURAL SURFACE	129.894	129.498	129.102	128.706	128.311	127.915	127.519	127.480		124.140		123.131		122.134		119.588			
OFFSET	-17.000	-16.000	-15.000	-14.000	-13.000	-12.000	-11.000	-10.901		-2.500		0.000		2.500		17.000			

CH 240.000



DATUM RL = 126.90

										131.788		134.154		134.229		134.304			
131.591	-17.000	131.685	-16.000	131.869	-15.000	132.040	-14.000	132.128	-13.000	132.201	-12.000	132.237	-11.000	132.167	-10.000	132.102	-9.000	131.972	-8.000
131.788	-7.233			130.292	-2.500	129.444	0.000	128.993	2.500							129.899	11.310	129.899	12.000
129.888	13.000	129.869	14.000	129.802	15.000	129.730	16.000	129.572	17.000	129.363									

CH 264.442

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
5	DRAWING NUMBER CHANGE	A.M	I.H	03.07.25
4	CLIENT COMMENTS	A.M	I.H	30/06/25
3	GENERAL AMENDMENTS	A.M	I.H	26.06.25
2	GENERAL AMENDMENTS	A.M	I.H	12.06.25

North

Scale
0 2 4 6 8m
1:100 (A1) 1:200 (A3)

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Designed AM | Scale 1:100
Cad Reference 25090C C46 r5
Project Approval
IAN HILL (B.E)
Consulting Civil Engineer

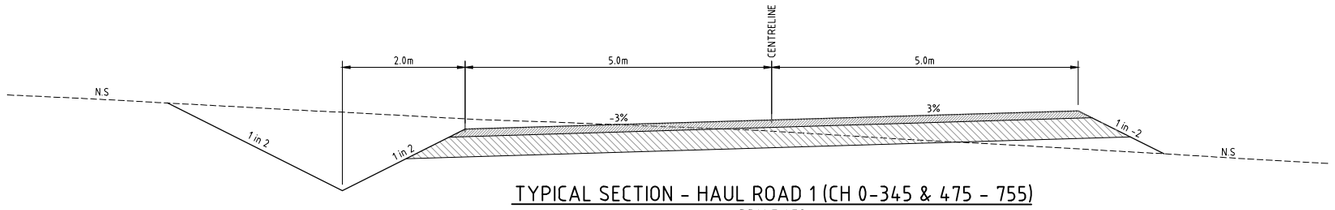
Client

GCA ENGINEERING SOLUTIONS
A.B.N. 92 086 017 745
1 HARTLEY DRIVE, THORNTON NSW 2322
PO BOX 3337, THORNTON NSW 2322
PHONE: (02) 4964 1811

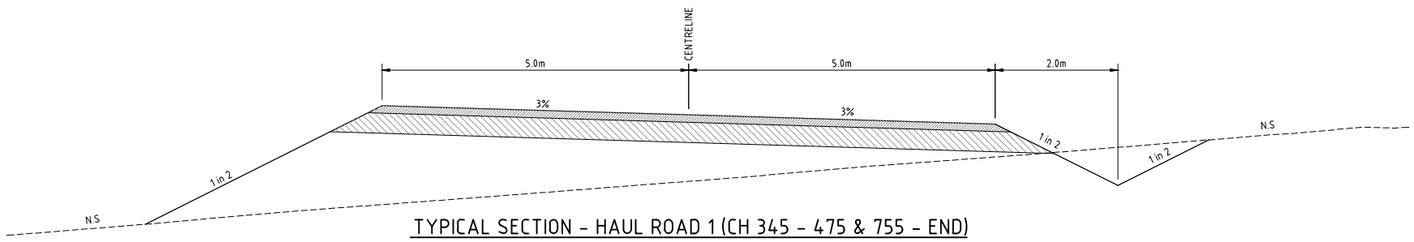
PROPOSED HAUL ROAD WORKS
BLUESTONE HARDROCK QUARRY
SPRINGVALE ROAD, ELDERSLIE
PROCESSING ACCESS ROAD CROSS SECTIONS SHEET 3 OF 3

Project No 25090C
Drawing No C46 | Revision 5
A1 SHEET

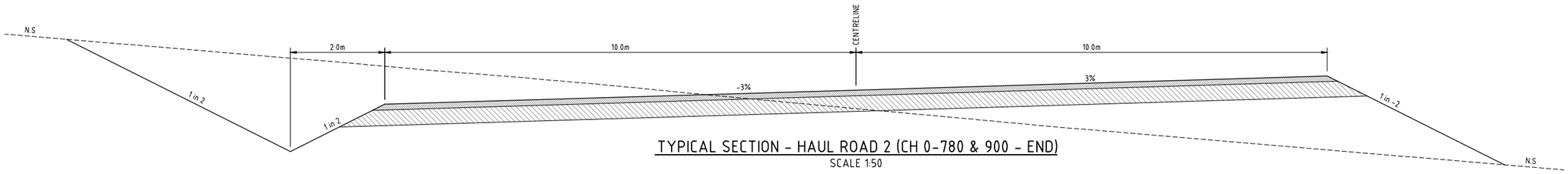
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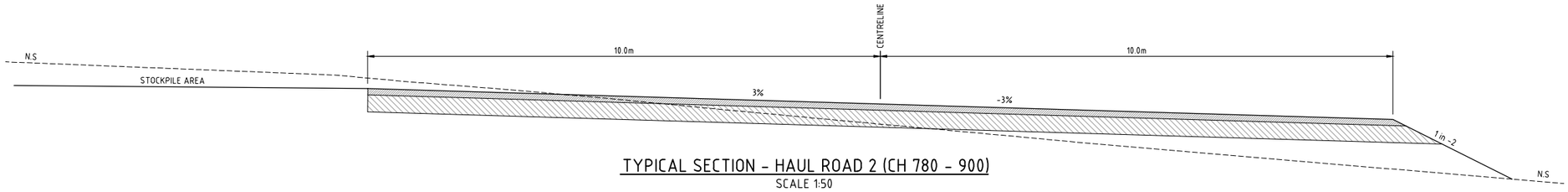
TYPICAL SECTION - HAUL ROAD 1 (CH 0-345 & 475 - 755)
SCALE 1:50



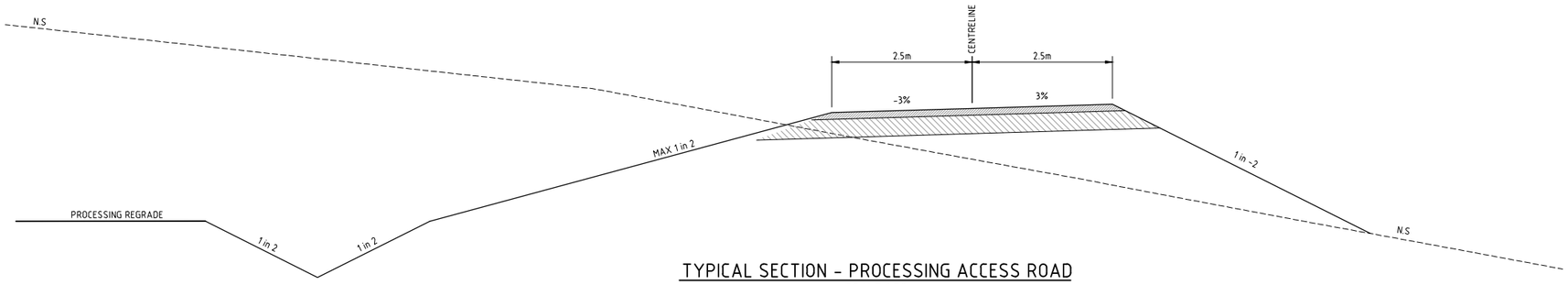
TYPICAL SECTION - HAUL ROAD 1 (CH 345 - 475 & 755 - END)
SCALE 1:50



TYPICAL SECTION - HAUL ROAD 2 (CH 0-780 & 900 - END)
SCALE 1:50



TYPICAL SECTION - HAUL ROAD 2 (CH 780 - 900)
SCALE 1:50



TYPICAL SECTION - PROCESSING ACCESS ROAD
SCALE 1:50

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
7	CLIENT COMMENTS	A.M	I.H	21.07.25
5	DRAWING NUMBER CHANGE	A.M	I.H	03.07.25
4	CLIENT COMMENTS	A.M	I.H	30/06/25
3	GENERAL AMENDMENTS	A.M	I.H	26.06.25
2	GENERAL AMENDMENTS	A.M	I.H	12.06.25

North

Scale
0 2 4 6 8m
1:100 (A1) 1:200 (A3)

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Designed AM | Scale 1:100
Cad Reference 25090C C47 r7
Project Approval
IAN HILL (B.E)
Consulting Civil Engineer

Client

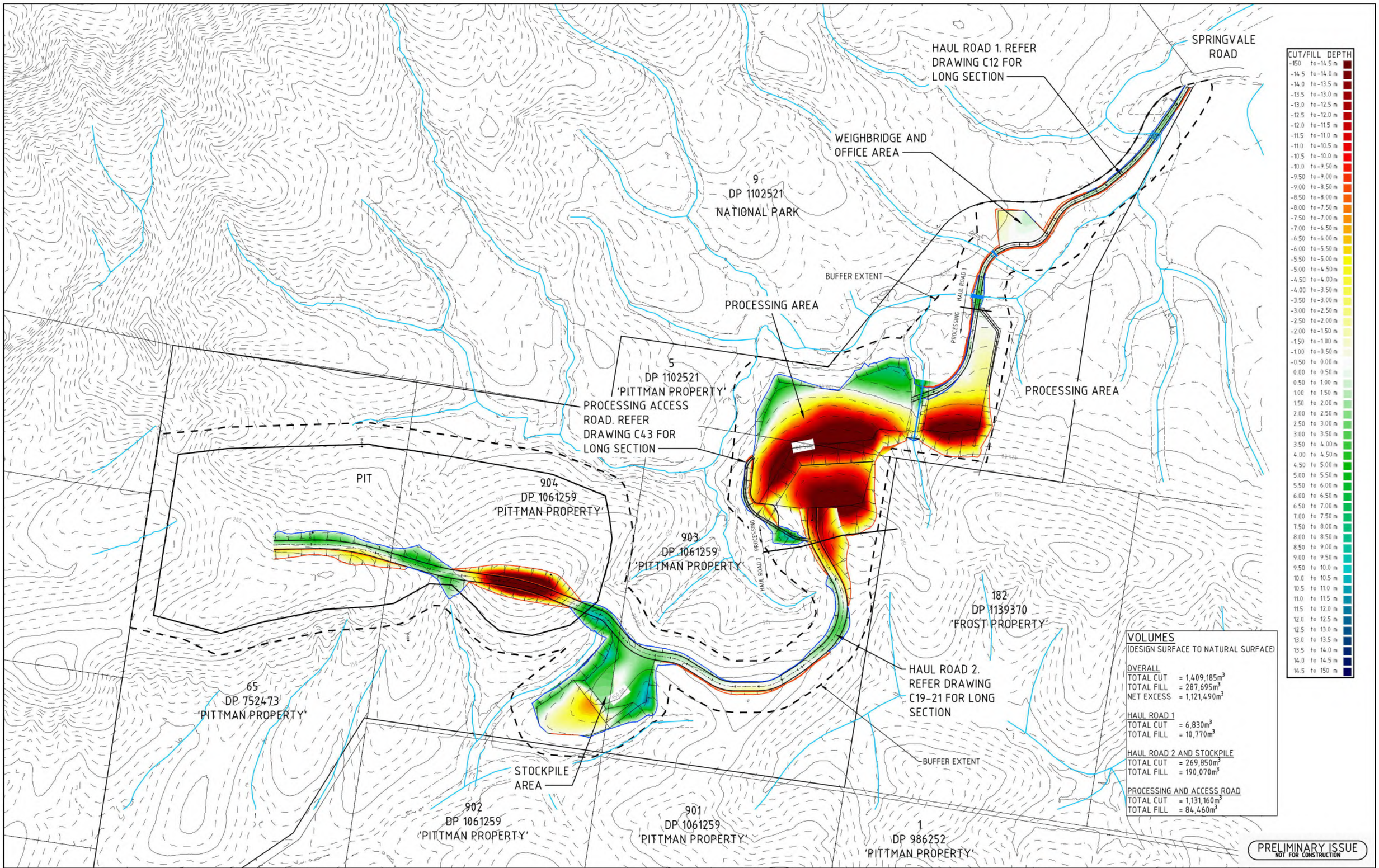
GCA ENGINEERING SOLUTIONS
A.B.N. 92 086 017 745
1 HARTLEY DRIVE, THORNTON NSW 2322
PO BOX 3337, THORNTON NSW 2322
PHONE: (02) 4964 1811

PROPOSED HAUL ROAD WORKS
BLUESTONE HARDROCK QUARRY
SPRINGVALE ROAD, ELDERSLIE

TYPICAL SECTIONS

Project No 25090C
Drawing No C47 | Revision 7
A1 SHEET

PLOT DATE: 14/04/2026 1:30:14 PM
CAD FILE: Q:\25\25090 Bluerock Quarry\02_CAD\AutoCAD\Civil\25090C C47 r7.dwg



VOLUMES
(DESIGN SURFACE TO NATURAL SURFACE)

OVERALL
TOTAL CUT = 1,409,185m³
TOTAL FILL = 287,695m³
NET EXCESS = 1,121,490m³

HAUL ROAD 1
TOTAL CUT = 6,830m³
TOTAL FILL = 10,770m³

HAUL ROAD 2 AND STOCKPILE
TOTAL CUT = 269,850m³
TOTAL FILL = 190,070m³

PROCESSING AND ACCESS ROAD
TOTAL CUT = 1,131,160m³
TOTAL FILL = 84,460m³

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
8	CULVERT AMENDMENTS	A.M	I.H	30.10.25
7	CLIENT COMMENTS	A.M	I.H	21.07.25
6	CLIENT COMMENTS	A.M	I.H	08.07.25
5	ORGINAL ISSUE	A.M	I.H	04.07.25

North

Scale
0 80 160 240 320m
1:4000 (A1) 1:8000 (A3)

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Designed AM | Scale 1:4000
Cad Reference 25090C C48 r8
Project Approval
IAN HILL (B.E)
Consulting Civil Engineer

Client

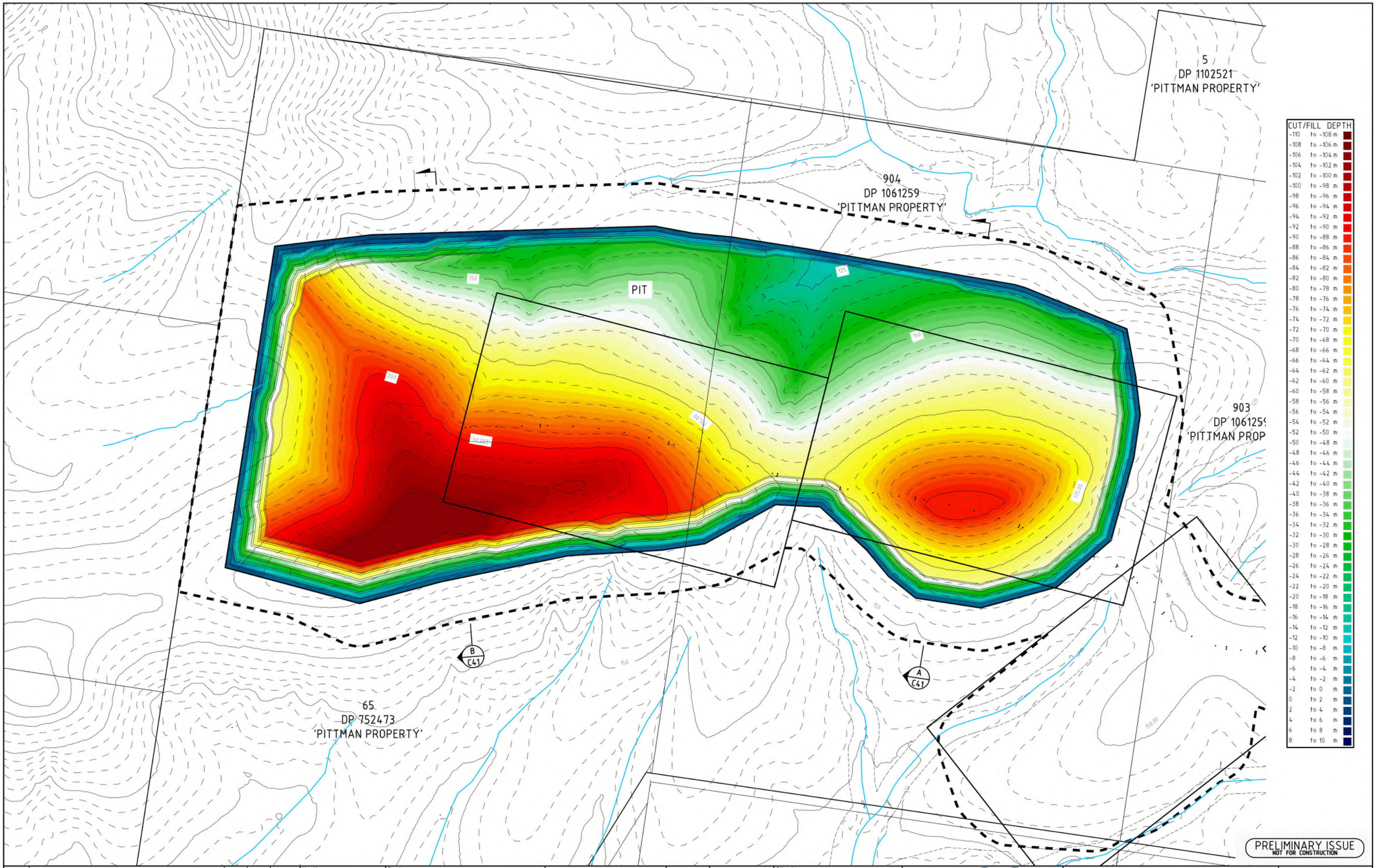
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PHONE: (02) 4964 1811

PROPOSED HAUL ROAD WORKS
BLUESTONE HARDROCK QUARRY
SPRINGVALE ROAD, ELDERSLIE

CUT FILL SHADE PLOT

Project No 25090C
Drawing No C48 | Revision 8
A1 SHEET

PLOT DATE: 14/04/2026 1:30:52 PM
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PRELIMINARY ISSUE
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REVISION	Description	Drawn	App'd	Date
5	DRAWING NUMBER CHANGE	A.M	I.H	03.07.25
4	CLIENT COMMENTS	A.M	I.H	30/06/25
3	GENERAL AMENDMENTS	A.M	I.H	26.06.25
2	GENERAL AMENDMENTS	A.M	I.H	12.06.25

North

Scale
0 80 160 240 320m
1:4000 (A1) 1:8000 (A3)

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Designed AM
Scale 1:2000
Cad Reference 25090C C49 r5
Project Approval
IAN HILL (B.E)
Consulting Civil Engineer

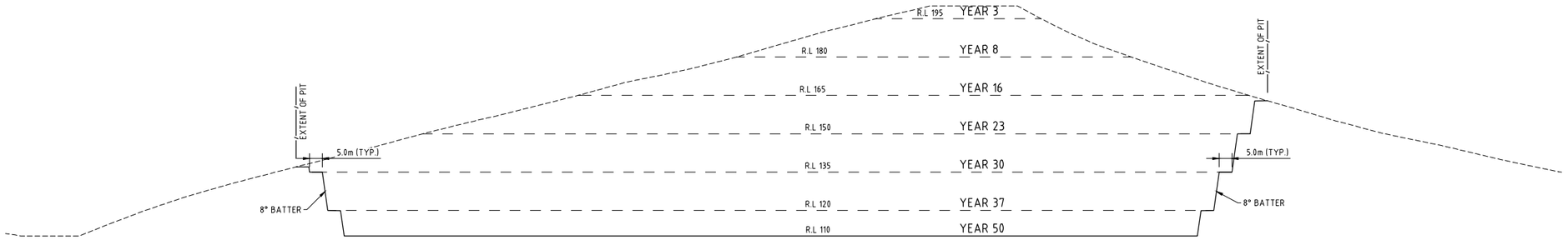
Client

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PO BOX 3337, THORNTON NSW 2322
PHONE: (02) 4964 1811

PROPOSED HAUL ROAD WORKS
BLUESTONE HARDROCK QUARRY
SPRINGVALE ROAD, ELDERSLIE
PROCESSING ACCESS ROAD CROSS SECTIONS SHEET 3 OF 3

Project No 25090C
Drawing No C49
Revision 5
A1 SHEET

PLOT DATE: 14/04/2026 1:31:38 PM
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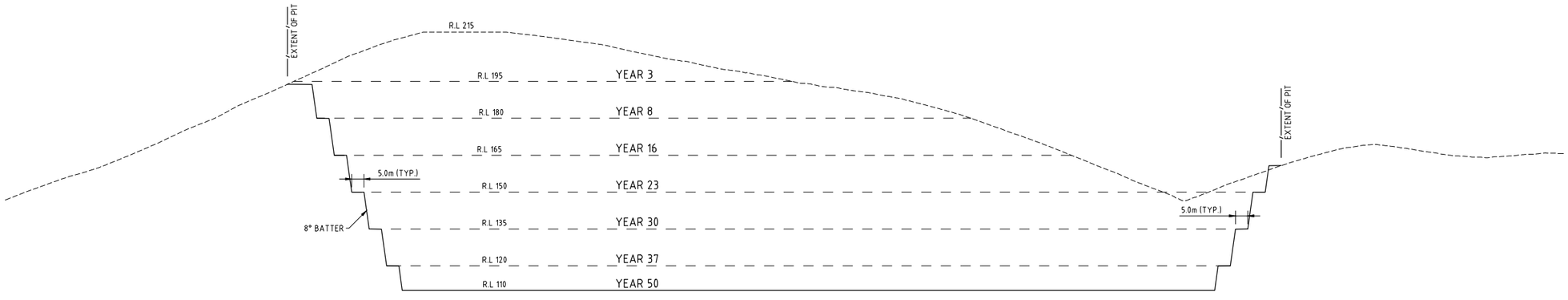


PIT SECTION
SCALE 1:1000

A
C40

APPROXIMATE PIT VOLUMES

STAGE	R.L	CUT VOLUME (m^3)
YEAR 3	215 - 195	835,951
YEAR 8	195 - 180	1,834,319
YEAR 16	180 - 165	2,918,828
YEAR 23	165 - 150	3,866,595
YEAR 30	150 - 135	4,517,433
YEAR 37	135 - 120	4,720,182
YEAR 50	120 - 110	3,011,050
TOTAL		21,704,359



PIT SECTION
SCALE 1:1000

B
C40

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
5	DRAWING NUMBER CHANGE	A.M	I.H	03.07.25
4	CLIENT COMMENTS	A.M	I.H	30/06/25
3	GENERAL AMENDMENTS	A.M	I.H	26.06.25
2	GENERAL AMENDMENTS	A.M	I.H	12.06.25

North

Scale
0 20 40 60 80m
1:1000 (A1) 1:2000 (A3)

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Designed: AM
Scale: 1:2000
Cad Reference: 25090C C50 r5
Project Approval: IAN HILL (B.E) Consulting Civil Engineer

Client

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PHONE: (02) 4964 1811

PROPOSED HAUL ROAD WORKS
BLUESTONE HARDROCK QUARRY
SPRINGVALE ROAD, ELDERSLIE

TYPICAL SECTIONS

Project No: 25090C
Drawing No: C50
Revision: 5
A1 SHEET

PLOT DATE: 14/04/2026 1:31:46 PM
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