



MASTERPLAN REPORT

FOR

CIVIL ENGINEERING WORKS
(INCLUDING STORMWATER MANAGEMENT)

20-24 LOCKYER STREET, GOULBURN

REPORT NO. R02714

REVISION B

OCTOBER 2023

PROJECT DETAILS

Development Proposal: Industrial Rezoning of the Land

Property Address: 20-24 Lockyer Street, Goulburn

REPORT CERTIFICATION

Report prepared by:



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DOCUMENT CONTROL

REVISION	ISSUE DATE	ISSUED TO	ISSUED FOR
A	12 SEPTEMBER 2023	Novo Advisory	Review
A	18 OCTOBER 2023	Novo Advisory	Review

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APPENDIX A CIVIL ENGINEERING MASTERPLAN DRAWINGS

1. BACKGROUND

This report is a summary of the design principles to be adopted for the Civil Engineering Works (including Stormwater Management) for the development of 20-24 Lockyer Street, Goulburn. This report should be read in conjunction with the Civil Engineering Masterplan Drawing (refer Appendix A).

2. DESIGN STANDARDS AND CODES

The civil engineering works shall be designed in accordance with the latest issue of all relevant design standards, codes and other statutory and authority requirements. As a minimum requirement, the design will be based on but not limited to:

- Goulburn Mulwaree Council – Stormwater Drainage & Rainwater Collection Systems Policy
- Goulburn Mulwaree Council – Stormwater Drainage Design Handbook (2020) Section 7 – Onsite Stormwater Detention
- Managing Urban Stormwater: Soils and Construction Manual
- Australian Rainfall & Runoff
- Australian Water Quality Runoff
- AS 3500.3 – Stormwater Drainage
- AS 2890.1 – Off Street Car Parking
- AS 2890.2 – Commercial Parking Facilities
- AS 2890.6 – Off Street Parking for People with Disabilities
- AS 1428 – Design for Access and Mobility
- AS 1742 – Manual of Uniform Traffic Control Devices
- New South Wales Roads & Traffic Authority (RTA) Traffic Control at Worksites manual
- Austroads – Guide to Road Design
- Austroads – Pavement Design, A Guide to the Structural Design of Road Pavements

3. SEDIMENT AND EROSION CONTROL

Temporary sediment and erosion control measures are required to be incorporated into the construction works and sequencing of the project to ensure that the proposed construction activities on site do not pollute local drainage systems nor have a detrimental effect on downstream waterways.

The proposed sediment and erosion control measures have been shown on the Civil Engineering Master Plan Drawings.

4. BULK EARTHWORKS

The site landform is intended to be reshaped to allow for the proposed land use. The earthworks will generally comprise minor cutting of the existing topsoil, significant cut to fill, minor cut to export and respreading of the topsoil.

Preliminary earthworks calculations estimate the following volumes of cut to fill and cut to export:

- 123,185m³ (cut to fill)
- 39,071m³ (cut to export)

Retaining walls and batter slopes (permanent and temporary) will be designed based on the recommendations contained with the project's geotechnical report.

5. STORMWATER DRAINAGE

A "Water Cycle and Stormwater Management Strategy" has been prepared (C&M Report No. R02714-WCSMS, Revision C) for this project. Please refer to that Report for further detail.

In summary:

Stormwater drainage for the site shall be designed to collect and convey stormwater drainage via a conventional piped stormwater drainage system for storm events up to and including a 1 in 20 year Average Recurrence Interval (ARI) storm event.

Provision shall be made for the safe conveyance of storms via overland flow paths for storm events up to the 1 in 100 year ARI storm event.

Adequate freeboard will be provided within the overland flow paths to allow some protection from overland flows generated from storm events larger than a 1 in 100 year ARI event.

On-site stormwater detention (OSD) is required at this site. The OSD requirement for the development was calculated using the Goulburn Mulwaree Council Stormwater Drainage Handbook – Section 7. As per Section 7, the On-site Stormwater Detention system is to be designed to satisfy Site Storage Requirements (SSR) & Permitted Site Discharge (PSD). This will reduce scouring and instability within the downstream waterways.

A water sensitive urban design (WSUD) approach will be adopted for development. Bio-retention basins and stormwater pollution control devices

will be incorporated into the site stormwater drainage system as a treatment train to assist with the removal of gross pollutants, sediment, nutrients, oils and hydrocarbons from stormwater runoff.

6. ROADS AND CARPARKS

Roads and car park areas shall be designed to comply with the requirements of Council, AS2890.1: Off Street Parking Facilities, AS2890.2: Commercial Parking Facilities and AS2890.6: Off Street Parking for People with Disabilities

The horizontal and vertical alignment of the internal road and car park areas has been presented on the Civil Engineering Master Plan Drawings for the project.

Swept turning paths of suitable design vehicles have been reviewed and considered in the design of the road and car park geometry. In summary, the design will allow for the following:

Area / Road	Designed to accommodate
Car Park Areas	• Vehicles up to a B99 Vehicle (5.2m long car)
Access Roads	• Vehicles up to a 19.0m Articulated Vehicle AV

For future design phases, coordination with the client and project manager is required to establish preferred staging/sequencing of works so that suitable control plans can be developed/prepared.

7. PEDESTRIAN WALKWAYS AND GENERAL SITE GRADING

The proposed pedestrian walkways and footways within the site have been shown on the Civil Engineering Master Plan Drawings. The locations and treatments provided have been directed by the architect and landscape architect.

The grading of site areas between the buildings and roads shall ensure that the areas are adequately drained and always fall away from buildings.

For future design phases, coordination with the client and project manager is required to establish preferred staging/sequencing of works so that suitable control plans can be developed/prepared.

8. PAVEMENTS

Council road (Flexible Asphaltic Concrete) pavements are proposed for the road and car park areas.

Rigid (Concrete) pavements will be considered for areas with regular heavy vehicle activity and turning movements.

All pavements shall be designed in accordance with Austroads – Pavement Design, A Guide to the Structural Design of Road Pavements and in conjunction with the recommendations contained within the project's geotechnical report.

Pavements will be designed for the following loadings and design life:

	Traffic Loading	Design Life (Years)
Council Road (Flexible Pavement)	5×10^6 ESA	25
Heavy Vehicle Areas (Rigid Pavement)	5×10^5 HVAG	40
Carpark (Flexible Pavement)	1×10^4 ESA	20

APPENDIX A

CIVIL ENGINEERING MASTERPLAN DRAWINGS

P5	W.M.		A.M.	PRELIMINARY		CLIENT	 C&M CONSULTING ENGINEERS	CIVIL AND HYDRAULIC ENGINEERING DESIGN AND PROJECT MANAGEMENT SUITE 26 11 - 13 BROOKHOLLOW AVE NORWEST NSW 2153 PHONE: (02) 9680 3100 FAX: (02) 9634 6989 ABN 21 118 134 240	DESIGNER	W.M.	DATE	MAY 2023	20-24 LOCKYER STREET, GOULBURN									
P4	W.M.		A.M.	PRELIMINARY					ENGINEER	P.O.	LGA	GOULBURN MULWAREE	GENERAL ARRANGEMENT PLAN									
P3	W.M.		A.M.	PRELIMINARY					VERIFIER	A.M.	SCALE @ A1	1:750										
P2	W.M.		A.M.	PRELIMINARY					© THIS DRAWING AND DESIGN IS THE COPYRIGHT OF C&M CONSULTING ENGINEERS PTY. LTD. NO PART OF THIS DRAWING OR DESIGN SHALL BE REPRODUCED OR USED WITHOUT PRIOR WRITTEN CONSENT FROM C&M CONSULTING ENGINEERS PTY. LTD.								STATUS	PRELIMINARY	DRAWING No.	02714_201	REVISION	P5
P1	W.M.		A.M.	PRELIMINARY																		
REV.	DES.	DATE	VER.	DESCRIPTION																		

PRELIMINARY CUT VOLUME = 162,256m³
PRELIMINARY FILL VOLUME = 123,185m³
PRELIMINARY NET VOLUME = 39,071m³ (EXCESS)

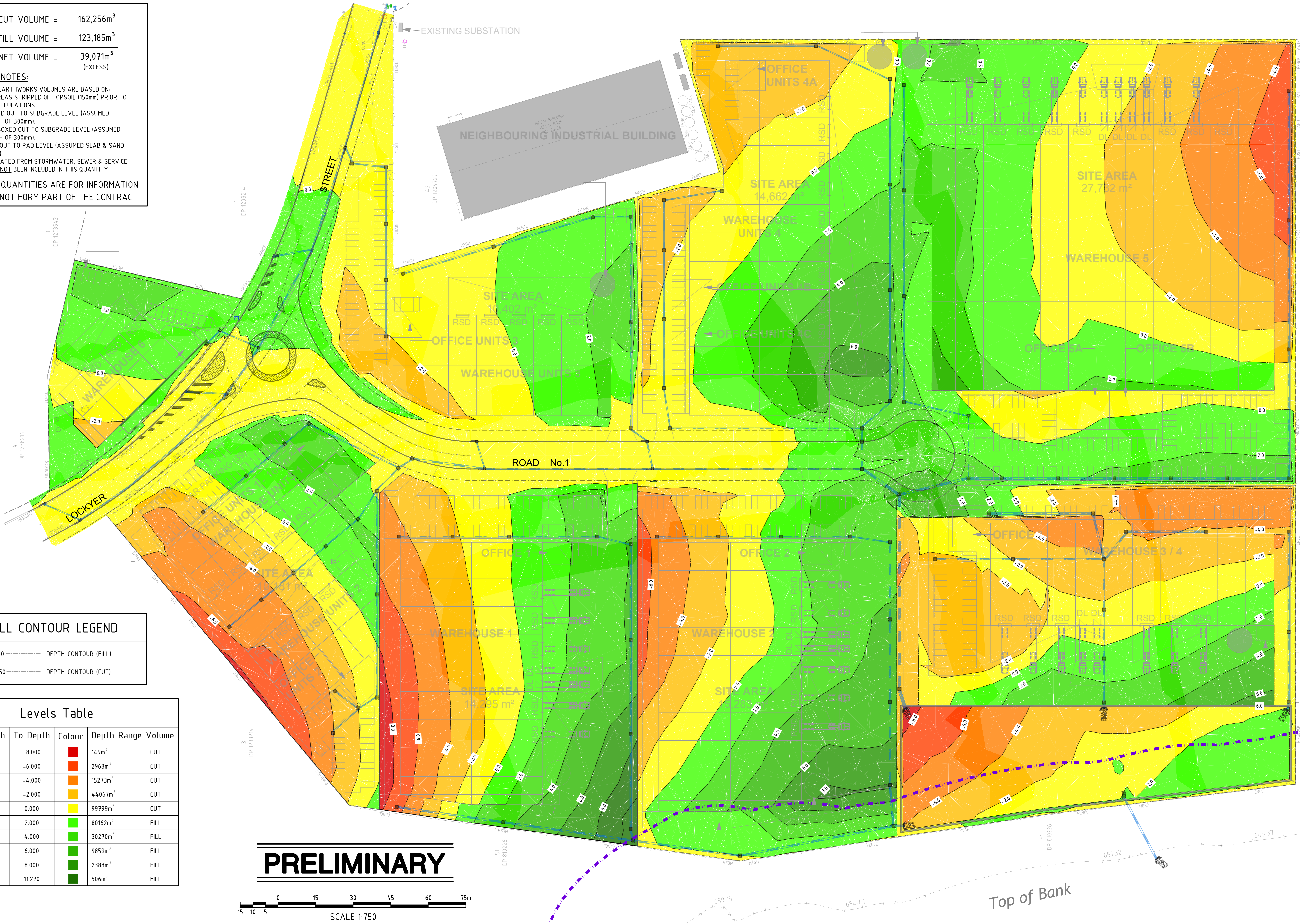
- EARTHWORKS NOTES:**
- PRELIMINARY BULK EARTHWORKS VOLUMES ARE BASED ON:
 - EARTHWORKS AREAS STRIPPED OF TOPSOIL (150mm) PRIOR TO EARTHWORKS CALCULATIONS.
 - ALL ROADS BOXED OUT TO SUBGRADE LEVEL (ASSUMED PAVEMENT DEPTH OF 300mm).
 - ALL CARPARKS BOXED OUT TO SUBGRADE LEVEL (ASSUMED PAVEMENT DEPTH OF 300mm).
 - BUILDING BOXED OUT TO PAD LEVEL (ASSUMED SLAB & SAND DEPTH OF 300mm).
 - MATERIAL GENERATED FROM STORMWATER, SEWER & SERVICE TRENCHES HAVE NOT BEEN INCLUDED IN THIS QUANTITY.

EARTHWORKS QUANTITIES ARE FOR INFORMATION ONLY AND DO NOT FORM PART OF THE CONTRACT

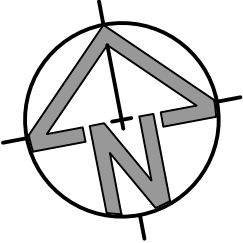
CUT FILL CONTOUR LEGEND	
0.50	DEPTH CONTOUR (FILL)
-0.50	DEPTH CONTOUR (CUT)

Levels Table				
No.	From Depth	To Depth	Colour	Depth Range Volume
1	-9.334	-8.000		149m ³ CUT
2	-8.000	-6.000		2968m ³ CUT
3	-6.000	-4.000		15273m ³ CUT
4	-4.000	-2.000		44067m ³ CUT
5	-2.000	0.000		99799m ³ CUT
6	0.000	2.000		80162m ³ FILL
7	2.000	4.000		30270m ³ FILL
8	4.000	6.000		9859m ³ FILL
9	6.000	8.000		2388m ³ FILL
10	8.000	11.270		506m ³ FILL

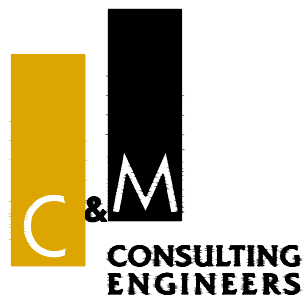
PRELIMINARY



P2	W.M.	A.M.	PRELIMINARY	
P1	W.M.	A.M.	PRELIMINARY	
REV.	DES.	DATE	VER.	DESCRIPTION



CLIENT	
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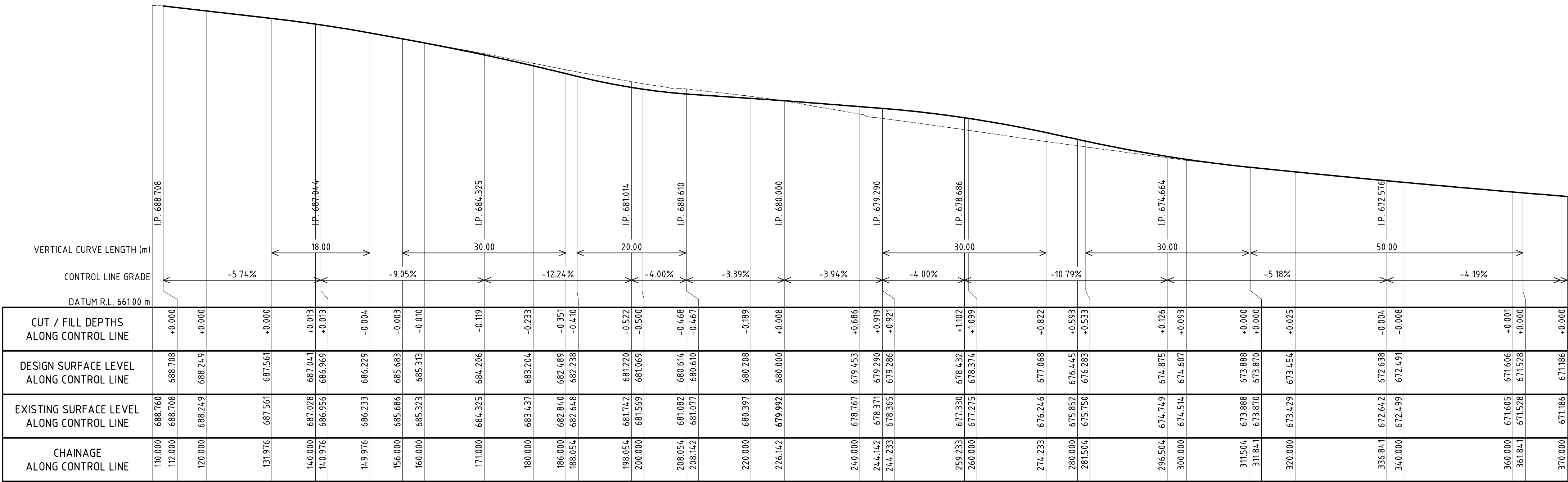
CIVIL AND HYDRAULIC
ENGINEERING DESIGN AND
PROJECT MANAGEMENT

SUITE 26
11 - 13 BROOKHOLLOW AVE
NORWEST NSW 2153

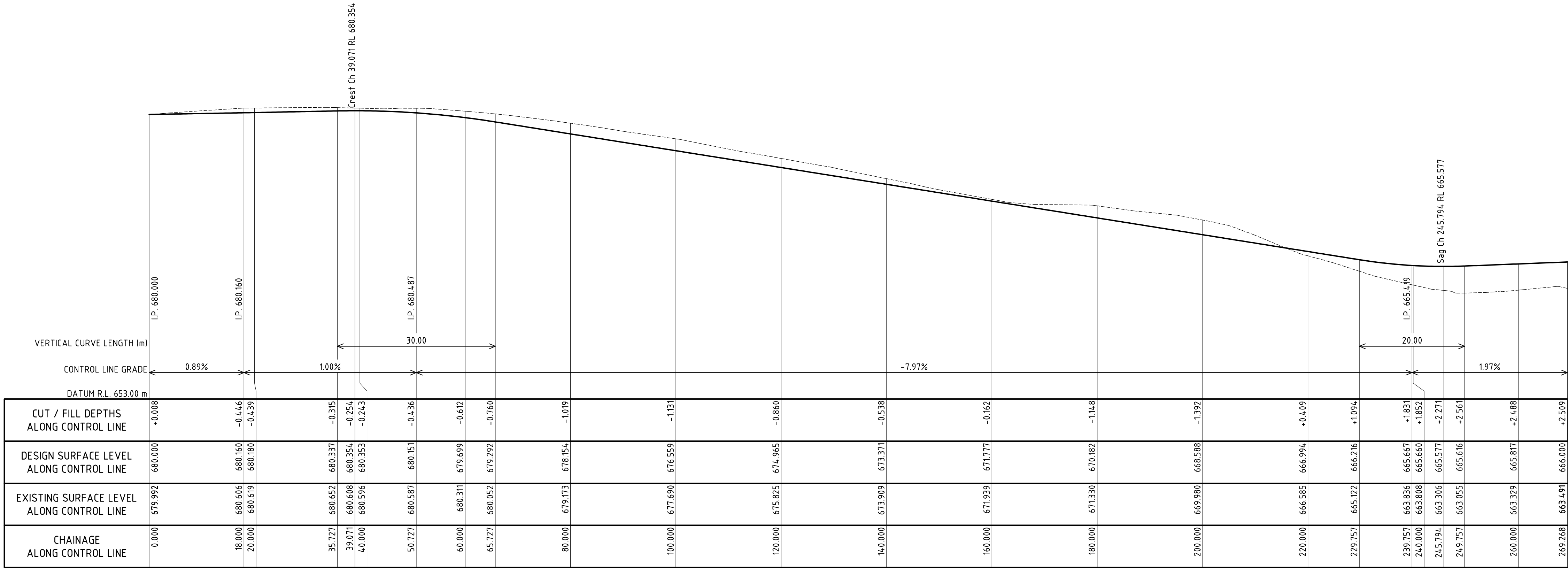
PHONE: (02) 9680 3100
FAX: (02) 9634 6989
ABN 21 118 134 240

DESIGNER	W.M.	DATE	MAY 2023
ENGINEER	P.O.	LGA	GOULBURN MULWAREE
VERIFIER	A.M.	SCALE @ A1	1:750
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20-24 LOCKYER STREET, GOULBURN	
BULK EARTHWORKS CUT/FILL PLAN	
STATUS	PRELIMINARY
DRAWING No.	02714_231
REVISION	P2

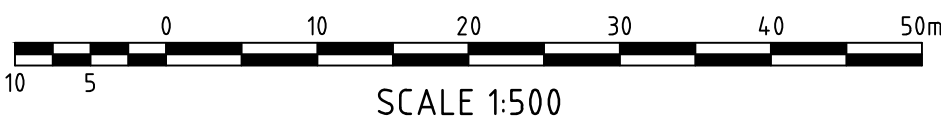


LONGITUDINAL SECTION ALONG LOCKYER STREET
SCALE: H 1 in 500 V 1 in 250



LONGITUDINAL SECTION ALONG ROAD No.1
SCALE: H 1 in 500 V 1 in 250

PRELIMINARY



P1	W.M.		A.M.	PRELIMINARY
REV.	DES.	DATE	VER.	DESCRIPTION

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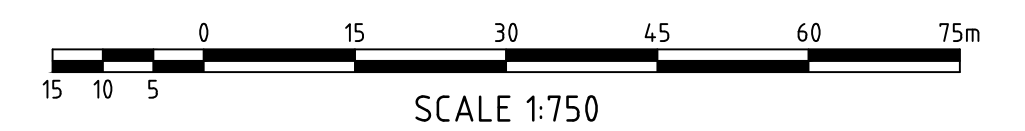
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ABN 21 118 134 240

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ENGINEER	P.O.	LGA	GOULBURN MULWAREE
VERIFIER	A.M.	SCALE @ A1	AS NOTED
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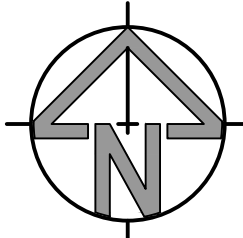
20-24 LOCKYER STREET, GOULBURN			
ROAD LONGITUDINAL SECTIONS			
STATUS	PRELIMINARY	DRAWING No.	02714_301
		REVISION	P1

[illegible]



PRELIMINARY

SCALE 1:750



P2	W.M.	A.M.	PRELIMINARY
P1	W.M.	A.M.	PRELIMINARY
REV.	DES.	DATE	VER. DESCRIPTION

CLIENT



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ENGINEER	P.O.	LGA	GOULBURN MULWAREE
VERIFIER	A.M.	SCALE @ A1	1:750
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20-24 LOCKYER STREET, GOULBURN		
CATCHMENT PLAN		
STATUS	PRELIMINARY	REVISION
DRAWING No.	02714_601	P2