CONCEPT DESIGN REPORT

PROJECT LOCATION
Karoo Rezoning - Yass

CLIENT NAME
Karoo Rezoning
c/o Catalyze Property Consulting

DRB PROJECT NUMBER
233126

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DRB Consulting Engineers PTY LTD | PO BOX 4105 Kotara East 2305 | 02 4040 0580 | ABN 64 755 482

DISCLAIMER

Project Number: 233126

Client: Karoo Rezoning c/o Catalyze Property Consulting

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Report Amendments

Revision	Date	Description	Author	Reviewer	Approver
A	13/10/2023	DRAFT ISSUE	BR	-	-
B	30/11/2023	ISSUED FOR PLANNING PROPOSAL SUBMISSION	BR	MM	BR
C	29/08/2024	DRAINAGE SYSTEM REDESIGN	JP	BR	BR
D	08/10/2024	ISSUED FOR PLANNING PROPOSAL SUBMISSION	JP	BR	BR

BACKGROUND

DRB Consulting Engineers (DRB) were engaged to undertake a review of the proposed rezoning of 16-21 Cusack Place, Yass (the Site). It is understood that a flood assessment undertaken by Torrent Consulting (Torrent) has reviewed the hydraulic behaviour of an overland flow path that currently traverses the site. DRB was approached to undertake a review of possible surface and sub-surface drainage solutions to convey the expected runoff modelled by Torrent safely through the proposed subdivision.

The site is located approximately 2.5km south of the Yass CBD and features a gully that runs through the western portion of the site from south to north. Site grades are in the order of 2% to 8% falling towards the main gully. The existing gully falls at approximately 1.5% towards the main city centre of Yass. Figure 1 below shows the site location.

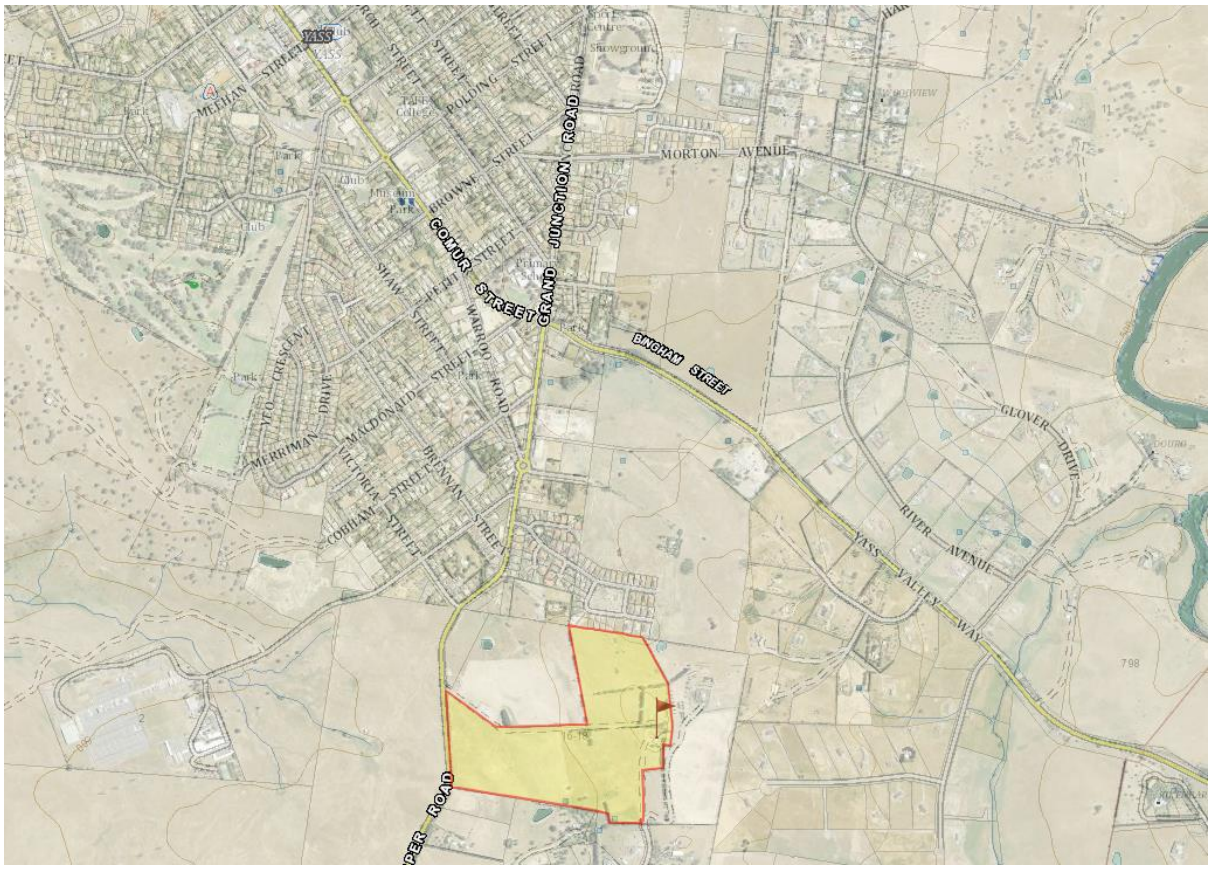


Figure 1 - Site location

A preliminary layout of the site has been prepared by Catalyze Property Consulting and this has formed the basis of our assessment. Further, design storm hydrographs from the upstream catchment have been provided by Torrent for the 10% AEP and 1% AEP events for use in this assessment.

MODELLING SUMMARY

The stormwater review has been prepared using the DRAINS stormwater modelling software. As noted above, hydrographs were received from Torrent and these hydrographs were used as the sole rainfall design input. No additional catchment assessment or hydrographical review has been undertaken by DRB. Attached to the rear of this report are two drawings depicting a plan view of the proposed stormwater solution along with drainage long sections for the 10% and 1% AEP events.

The hydrographs provided have been input into a pipe and swale design to assess the in-ground and above-ground stormwater infrastructure capacity to convey the flows safely. The stormwater model was setup based on AR&R 19 modelling methodologies. Input data for the IL/CL model was obtained from the AR&R Data Hub, however these inputs did not affect the modelling as the rainfall inputs were taken directly from the Torrent flood modelling, these hydrographs are shown below in Figure 2.

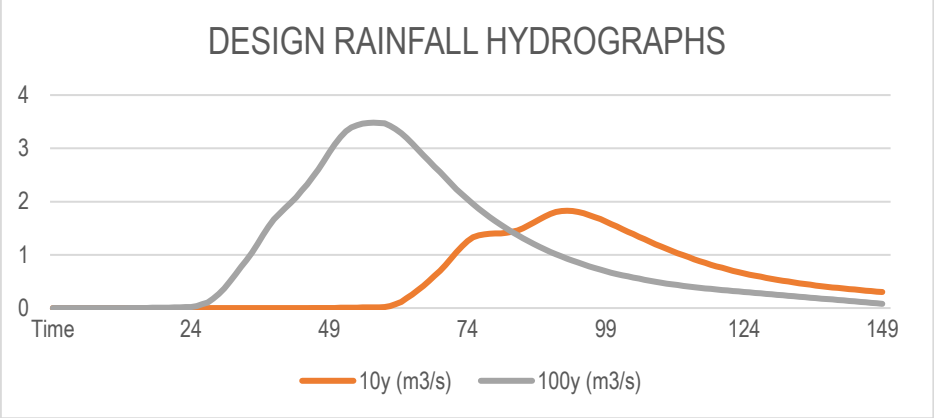


Figure 2 - Design Rainfall Hydrographs

The modelling has included assessment of two culverts under the proposed roadways and a connecting overland flow channel.

It is expected that all minor and major events would be contained wholly within the culverts and open grass swale. A basic image of the model used is shown below in Figure 3.

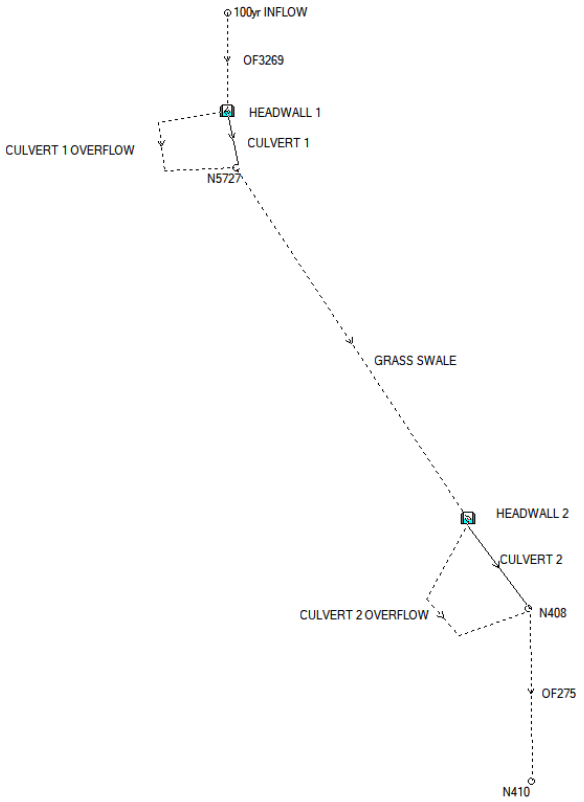


Figure 3: DRAINS Model Screenshot

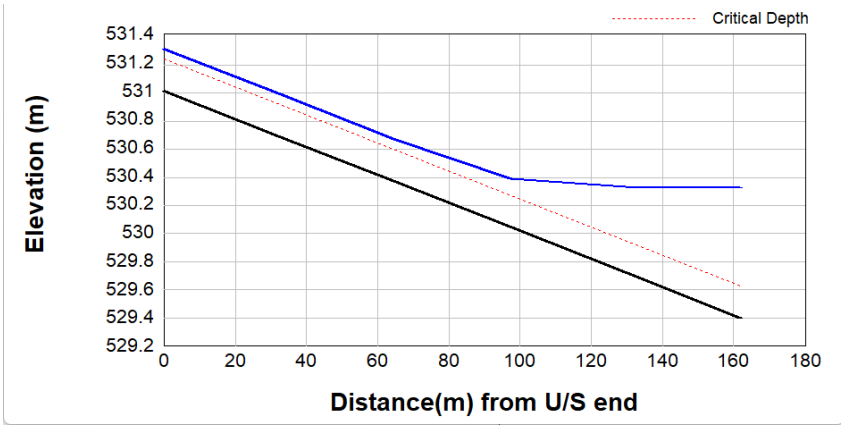


Figure 4: Ponding in Swale

The modelling showed that the proposed arrangement was capable of conveying the critical minor storm event (10% AEP) and the critical major storm event (1% AEP) in the proposed culverts and grass swale. In the event of a major storm, Ponding is expected upstream of both culverts. The expected depths of ponding are 1020mm and 915mm. Based on these depths, it is not expected that the proposed roadways will overtop. See Figure 5 & 6 below.

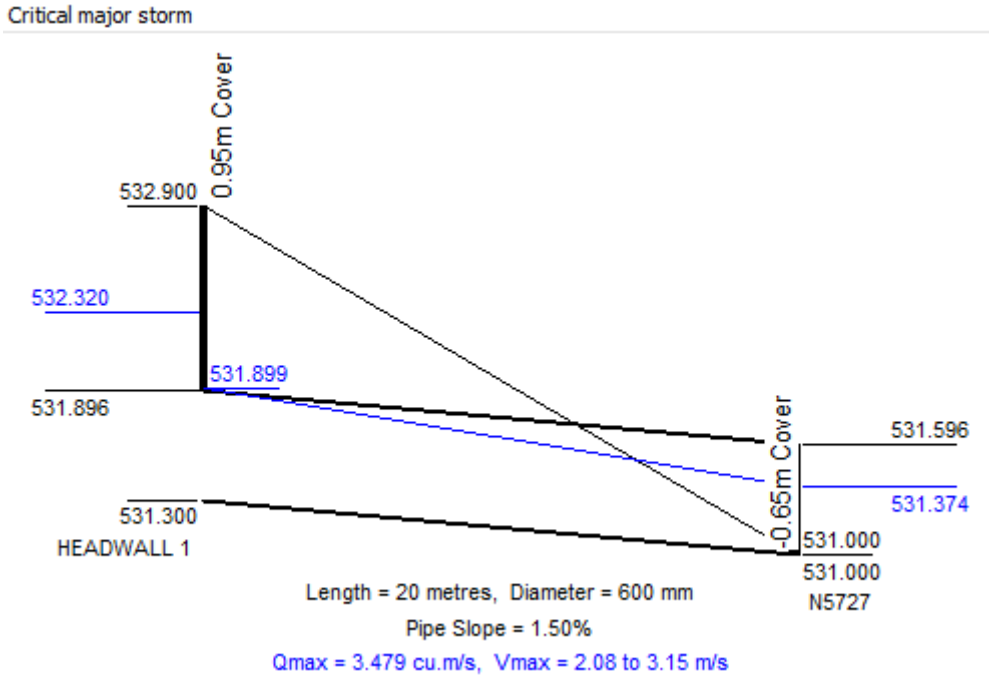


Figure 5: Headwall 1 Ponding

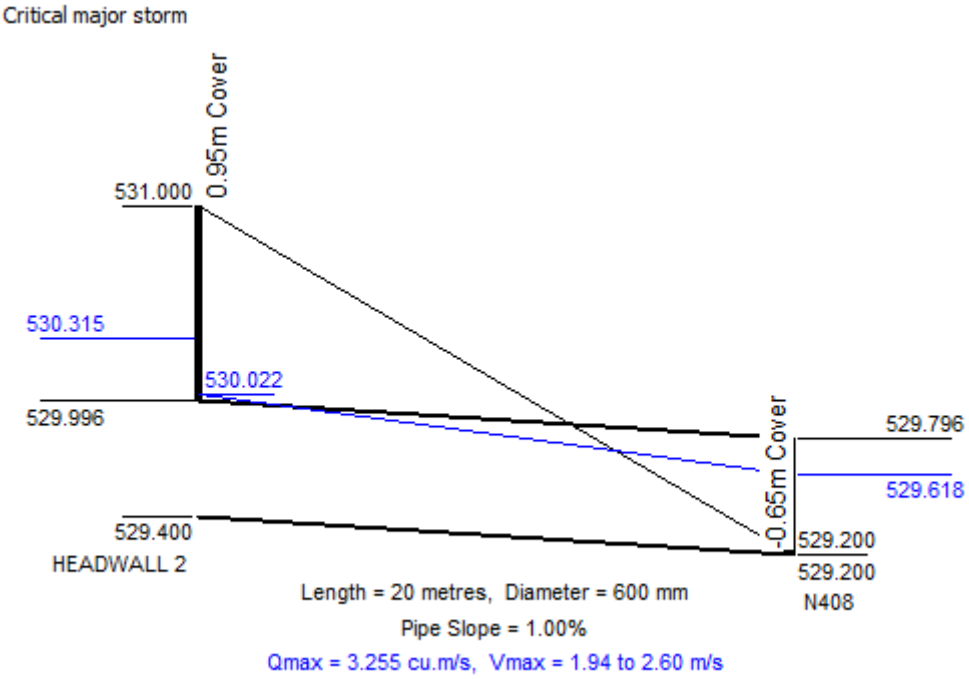


Figure 6: Headwall 2 Ponding

CONCLUSION

DRB Consulting Engineers has prepared this concept stormwater report to provide preliminary guidance and calculations in response to preliminary flood modelling prepared for the proposed subdivision. Based on the conceptual calculations prepared the proposed culverts and grass swale should be able to safely convey minor and major storm events. Ponding that is expected to occur at Headwall 1 and 2 is not considered to create a major impediment to the subdivision of the Site. Based on this review, it is expected that the properties immediately around the headwalls will be required to be filled to ensure adequate flood immunity is achieved.

Should you require any further advice or clarification of any of the above, please do not hesitate to contact us.

Yours faithfully

DRB CONSULTING ENGINEERS PTY LIMITED

Bryn Rodgers

Senior Engineer

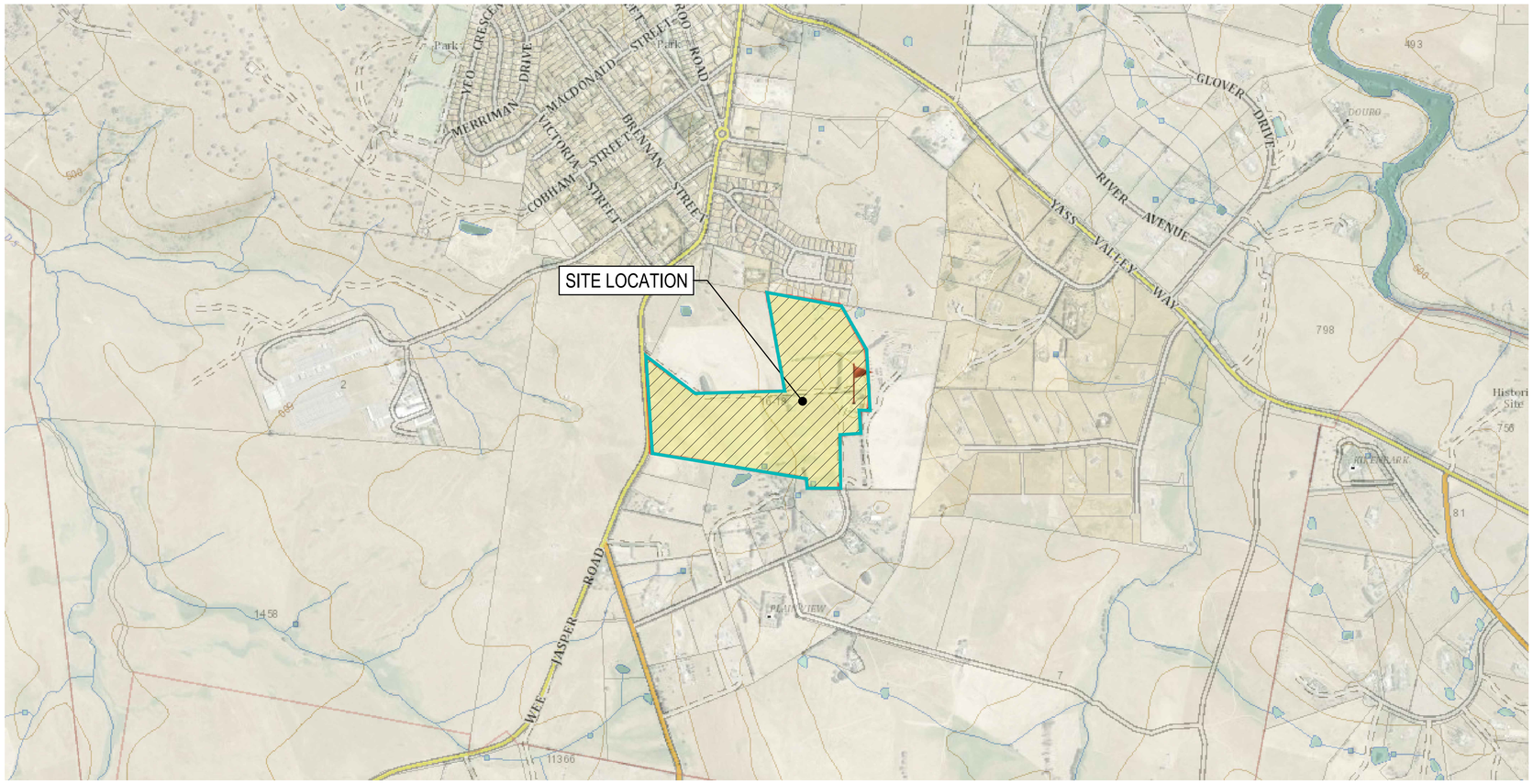
BEng Civil (Hons) MIEAust

ATTACHMENTS

KAROO REZONING

CIVIL DOCUMENTATION FOR REZONING

CUSACK PLACE, YASS, NSW 2582



LOCALITY PLAN
NTS

DRAWING LIST

DWG No.	DRAWING TITLE
CIV-001	COVER PAGE, DRAWING LIST AND LOCALITY PLAN
CIV-010	STORMWATER CONCEPT
CIV-020	STORMWATER LONGSECTIONS

REVISIONS

REV	DATE	DRN	CHK	APP	DRAWING STATUS
B	08.10.24	J.P	B.R	B.R	RE-ISSUED FOR CONCEPT
A	03.09.24	J.P	B.R	B.R	ISSUED FOR CONCEPT

This drawing is **not** approved for construction unless signed.

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CLIENT: KAROO REZONING c/o CATALYZE PROPERTY CONSULTING

TITLE: COVER PAGE, DRAWING LIST AND LOCALITY PLAN

PROJECT: KAROO REZONING

DRAWING STATUS: NOT FOR CONSTRUCTION

SHEET SIZE: A1

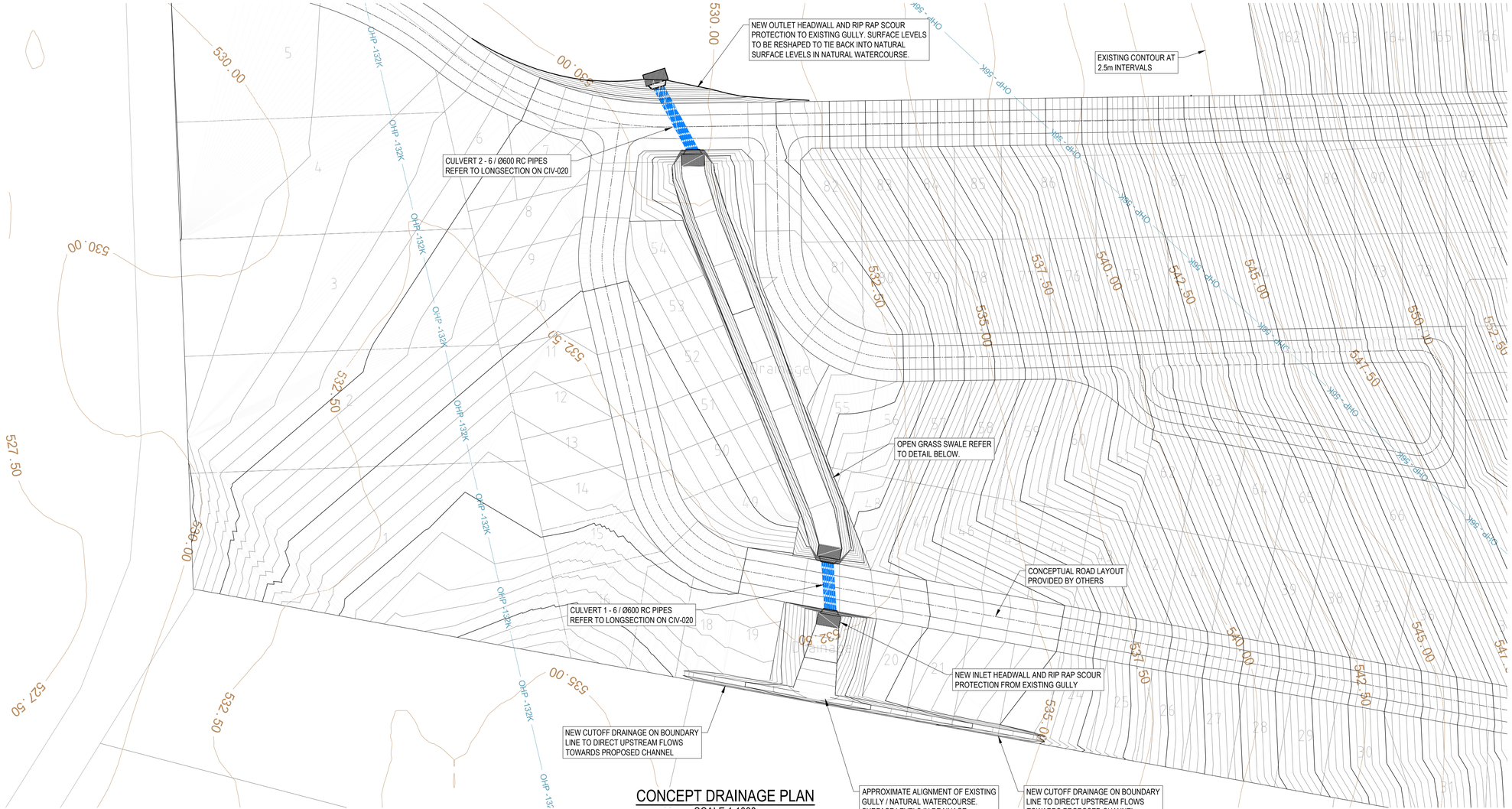
SCALE:

DRAWN: J.P

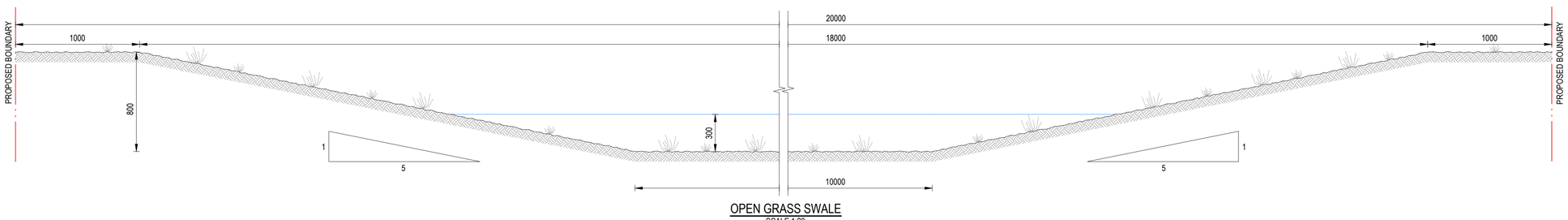
PROJECT REF No.: 233126

DRAWING No.: CIV-001

REVISION: B



CONCEPT DRAINAGE PLAN
SCALE 1:1000



OPEN GRASS SWALE
SCALE 1:20

REVISIONS						
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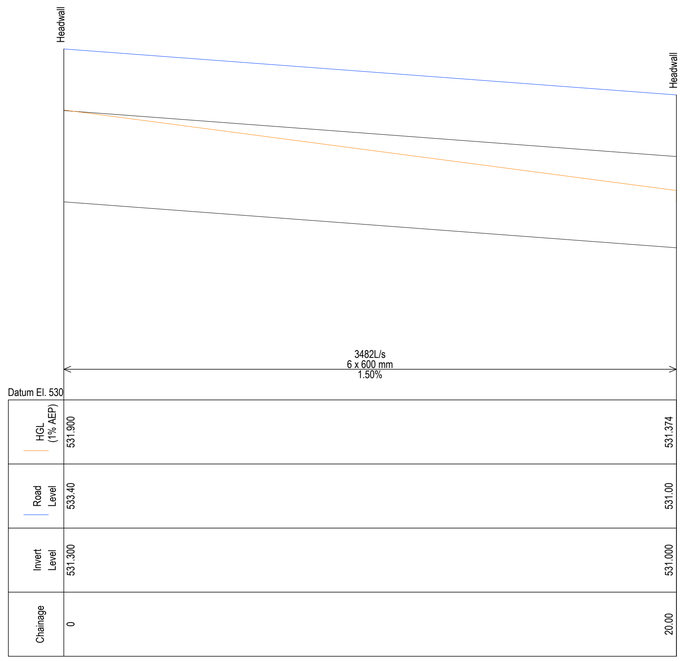
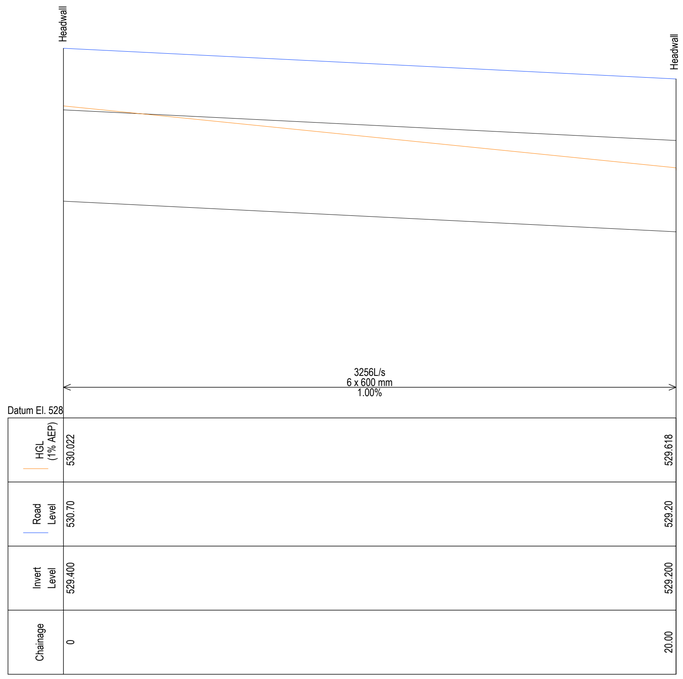
PROJECT: KAROO REZONING

DRAWING STATUS	NOT FOR CONSTRUCTION
SHEET SIZE	A1
SCALE	SCALE VARIES
DRAWN	J.P
PROJECT REF No.	233126
DRAWING No.	CIV-010
REVISION	B



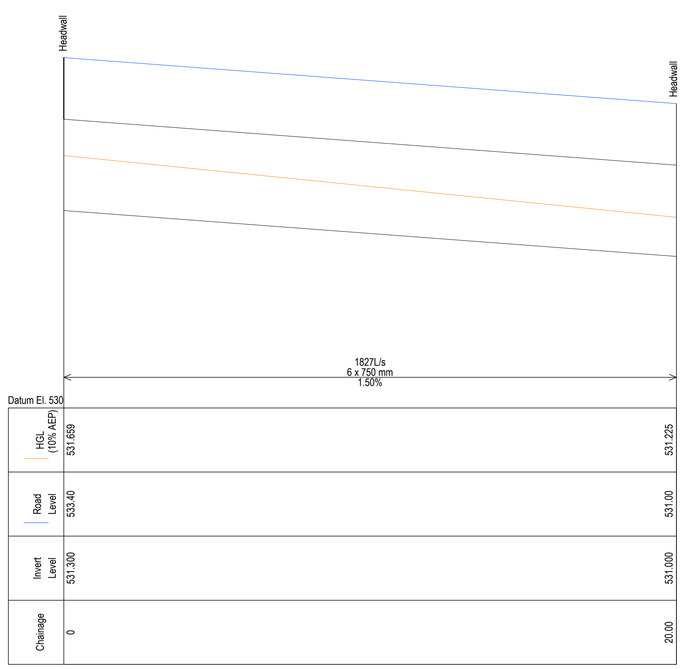
STORMWATER LONGITUDINAL SECTION
SCALES: HORIZONTAL 1:100 VERTICAL 1:20

1% AEP STORMWATER LONGSECTION (CULVERT 1)



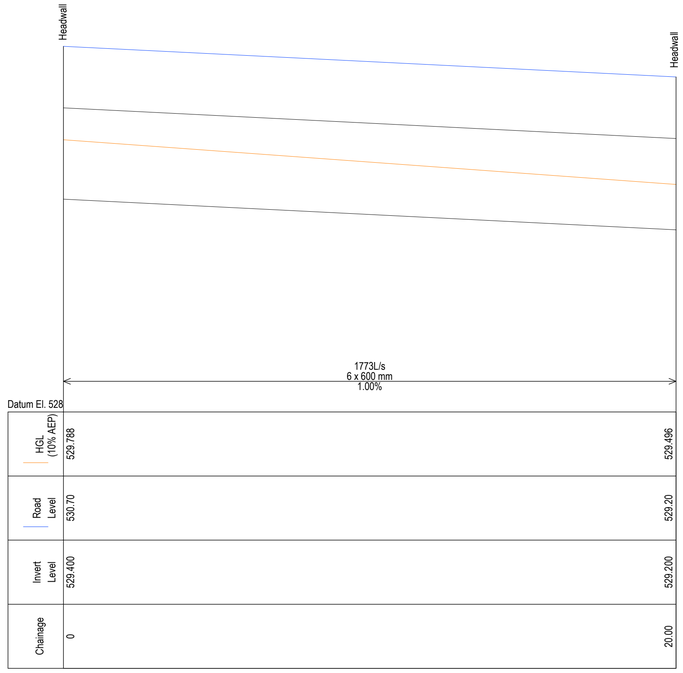
STORMWATER LONGITUDINAL SECTION
SCALES: HORIZONTAL 1:100 VERTICAL 1:20

1% AEP STORMWATER LONGSECTION (CULVERT 2)



STORMWATER LONGITUDINAL SECTION
SCALES: HORIZONTAL 1:100 VERTICAL 1:20

10% AEP STORMWATER LONGSECTION (CULVERT 1)



STORMWATER LONGITUDINAL SECTION
SCALES: HORIZONTAL 1:100 VERTICAL 1:20

10% AEP STORMWATER LONGSECTION (CULVERT 2)

REVISIONS

REV	DATE	DRN	CHK	APP	DRAWING STATUS
B	08.10.24	J.P	B.R	B.R	RE-ISSUED FOR CONCEPT
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SHEET SIZE: A1

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DRAWN: J.P

PROJECT REF No.: 233126

DRAWING No.: CIV-020

REVISION: B