

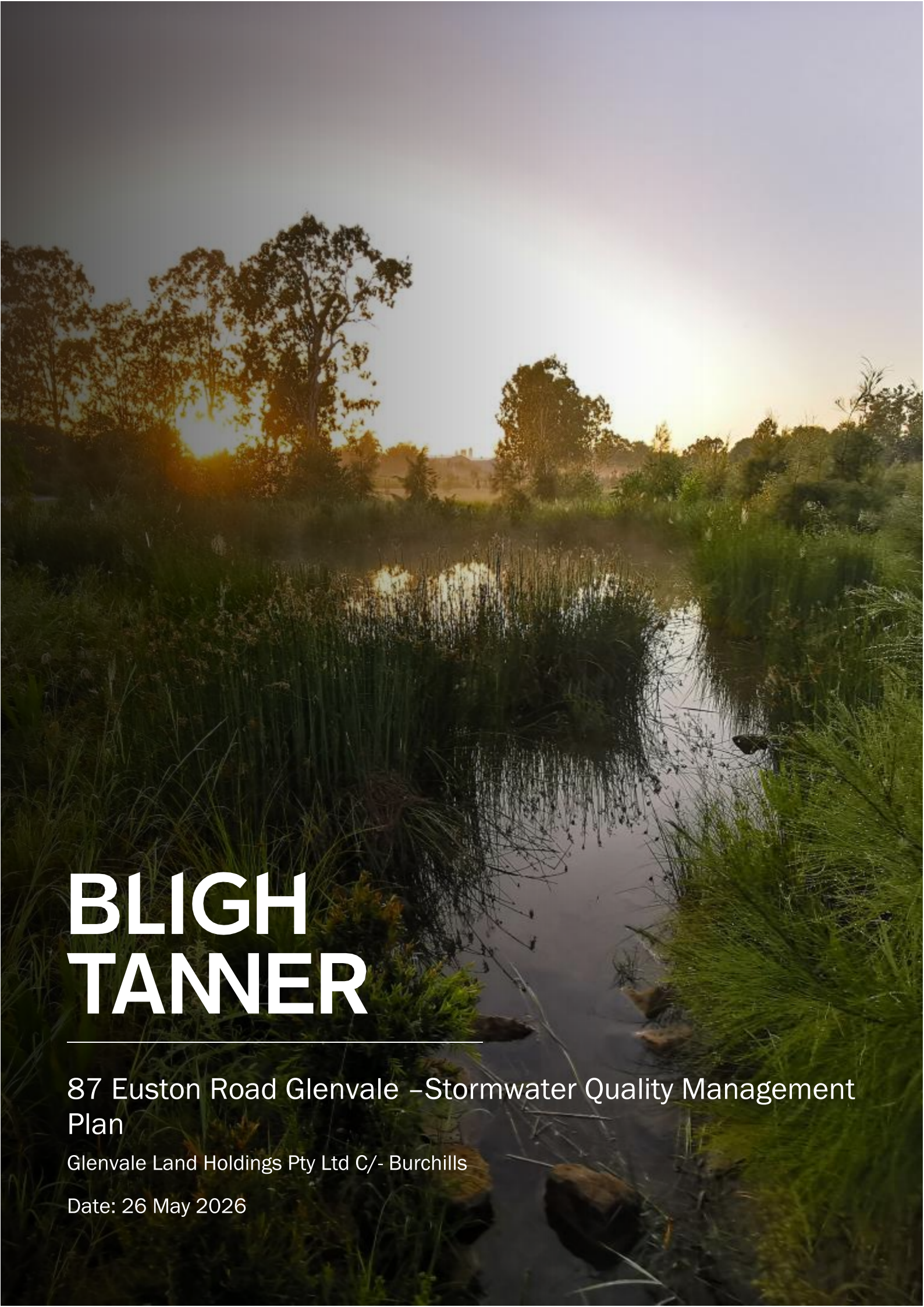


ATTACHMENT 4

Stormwater Quality Management Plan

Prepared by:

Bligh Tanner



BLIGH TANNER

87 Euston Road Glenvale – Stormwater Quality Management
Plan

Glenvale Land Holdings Pty Ltd C/- Burchills

Date: 26 May 2026

DOCUMENT	87 Euston Road Glenvale –Stormwater Quality Management Plan	
JOB NUMBER	2026.0176	
PROJECT ENGINEER	Alan Hoban, Chris Owen	
CLIENT	Glenvale Land Holdings Pty Ltd C/- Burchills	
CLIENT CONTACT	Jeremy Mooring (Burchills)	
VERSION	AUTHOR	DATE
P1	C Owen, A Hoban	15/05/2026
P2	C Owen, A Hoban	26/05/2026

© Bligh Tanner Pty Ltd 2026

Bligh Tanner Pty Ltd

ABN 32 061 537 666
blightanner@blightanner.com.au
blightanner.com.au

Brisbane

Level 9, 269 Wickham Street
PO Box 612
Fortitude Valley
QLD 4006 Australia
T +61 7 3251 8555

Sydney

Suite 3.02, Level 3
32 Walker Street
North Sydney
NSW 2060 Australia
T +61 2 9170 3777

Melbourne

Level 1, 111 Coventry Street
Southbank
VIC 3005 Australia
T +61 7 3251 8555

Adelaide

30 Pirie Street
Adelaide CBD
SA 5000 Australia
T +61 7 3251 8555



CONTENTS

1. INTRODUCTION.....3

2. SITE CONTEXT4

3. EXISTING CONDITIONS7

4. STORMWATER QUALITY BENCHMARKS..... 12

5. WATERWAY REHABILITATION WORKS 15

6. CONCLUSION 18

APPENDICES

A1. PROPOSED DEVELOPMENT LAYOUT.....

A2. SOIL TESTING REPORTS

A3. CONCEPT SKETCH

1. INTRODUCTION

1.1 This report

This Stormwater Quality Management Plan has been prepared in support of a Development Application for Stages 2-5 of a residential subdivision at 87 Euston Road, Glenvale QLD 4350 (the subject lot), formally described as Lot 1 on SP361099.

This report addresses the proposed stormwater quality management strategy of the proposed development.

1.2 Project summary

Stages 2-5 of the proposed subdivision encompasses a 11.39 hectare area within the north-east of the subject lot. It would create 96 residential allotments, along with associated road reserve, district park and a balance allotment (Stage 5) proposed to be a townhouse development (development layout to be determined). The 11.39 hectare area of Stage 2-5 is hereby referred to as the development site.

The residual western portion of the subject lot would become a separate allotment. There are further plans to develop an additional 5.65 hectares in the north-east of the residual portion as Stages 6 and 7 as a separate Development Application.

The proposed development layout for Stages 2-5 is shown in Figure 1 and Appendix A1. It is noted that Stage 1 is already under construction under a separate approval and is outside the scope of this report.

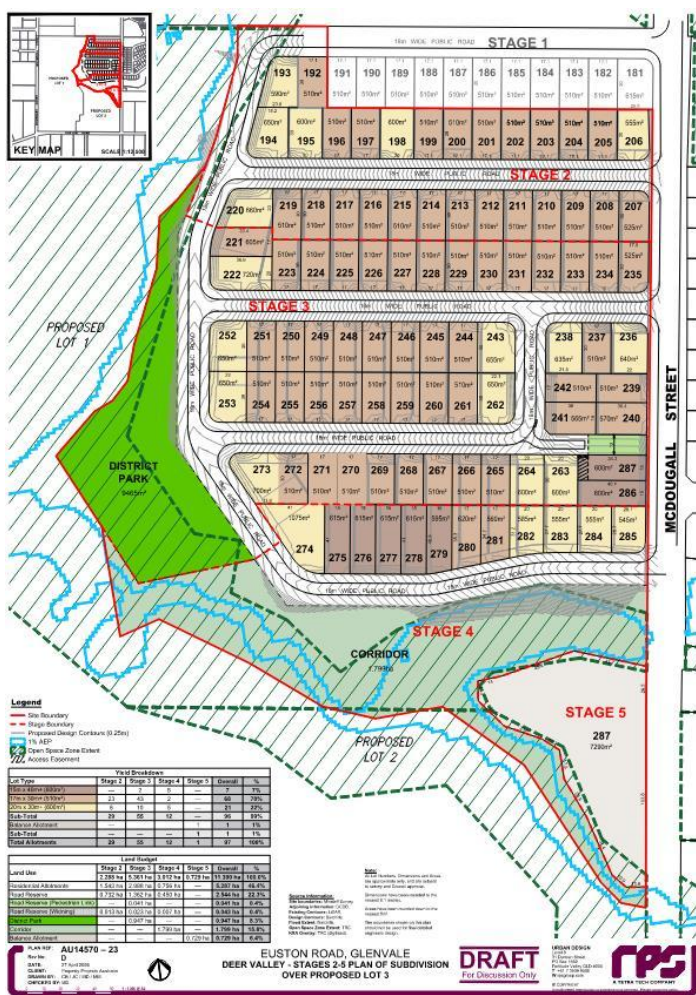


Figure 1 Proposed development layout (Stage 2-5)

2. SITE CONTEXT

The proposed development site is located at 87 Euston Road, Glenvale, approximately 5km south-west of Toowoomba. Site details are summarised in Table 1.

Table 1 Key site information

Site address	87 Euston Road, Glenvale
Real Property description	Lot 1 SP361099
Local government area	Toowoomba Regional Council
Current zoning	Low Density Residential and Open Space
Current land use	Undeveloped
Subject lot area	34.14 hectare
Development site area	11.39 hectare

The subject lot and development site location is shown in Figure 2.

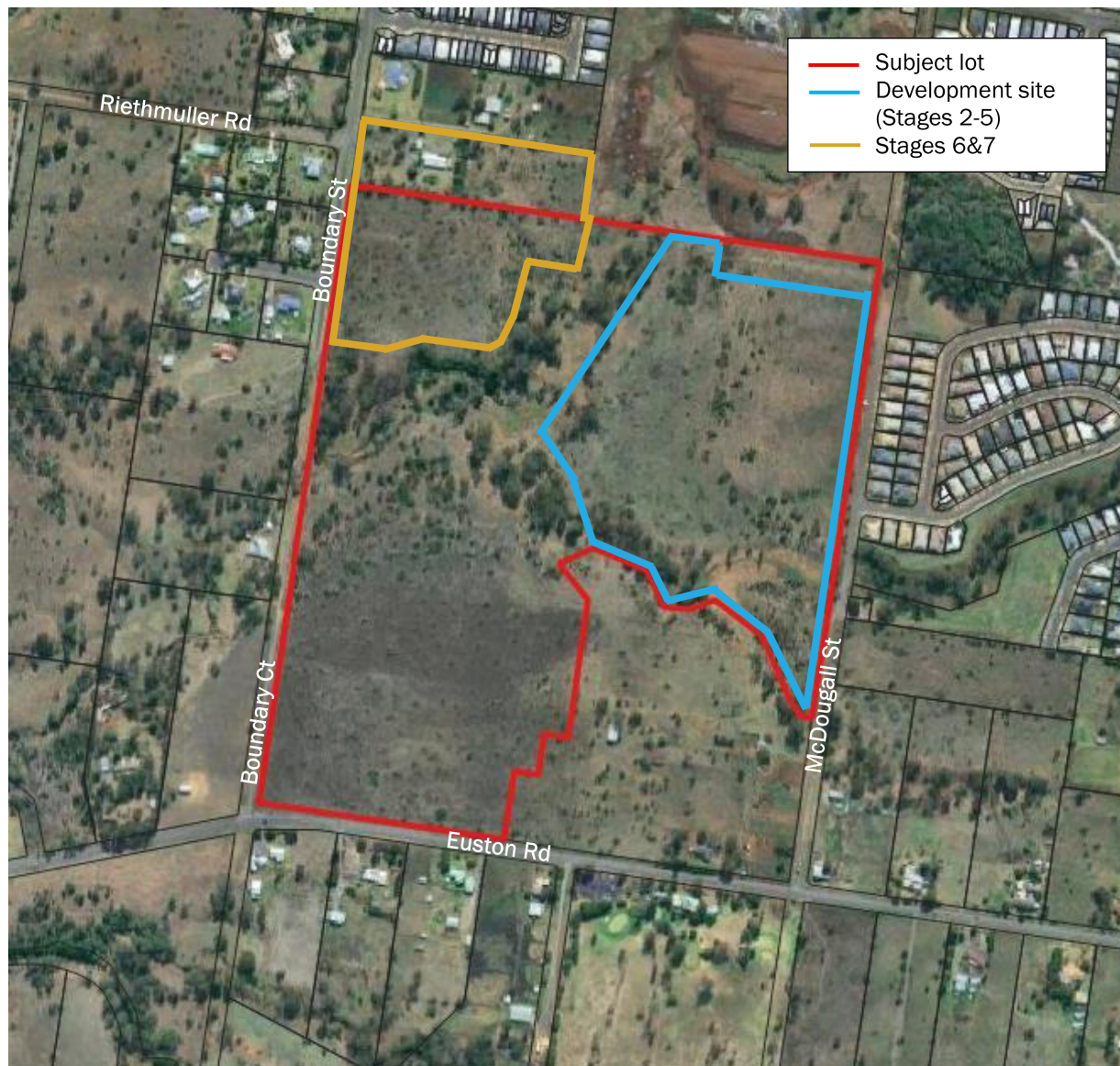


Figure 2 Site location

2.1 Topography and onsite watercourses

Two mapped watercourses flow into the subject lot from the north and east. The watercourses form a confluence within the subject lot and flow west, exiting the subject lot over the western allotment boundary, discharging to Spring Creek approximately 900m south-west of the subject lot. The topography of the lot steadily falls toward the central watercourse, including the development site which falls to the west at an average gradient of approximately 9%.

The alignment of the watercourses per Queensland Globe are shown in Figure 3.

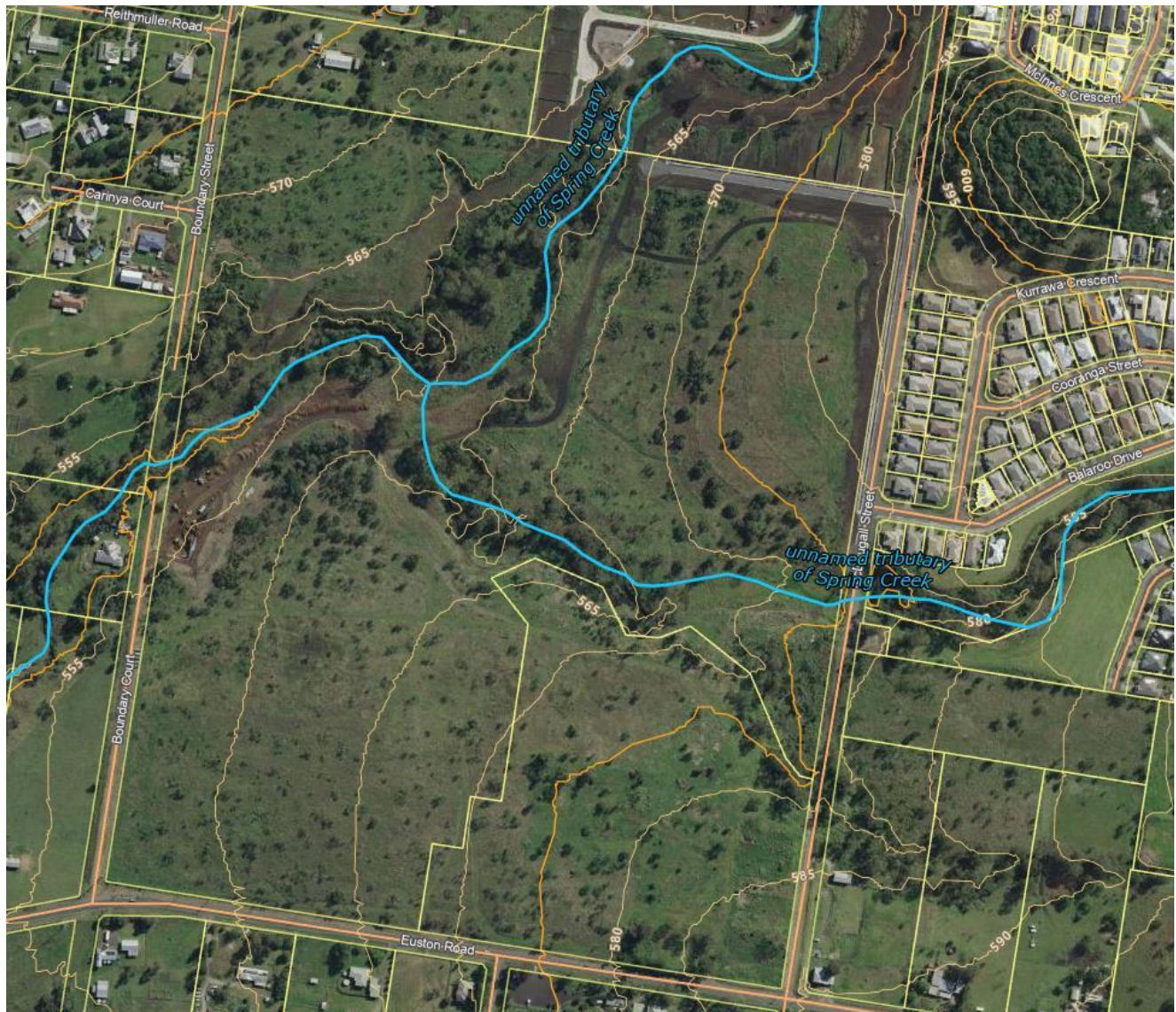


Figure 3 Existing site watercourses and topography (source: Queensland Globe)

2.2 Upstream catchment

Two upstream catchments drain through the site, one from the north east of about 468 ha, and one from the east of about 72 ha. These catchments have experienced, and continue to experience, significant urbanisation, with formal stormwater drainage networks. There does not appear to be any on-site detention systems associated with upstream development.

The total catchment draining to the site watercourses is shown in Figure 4.

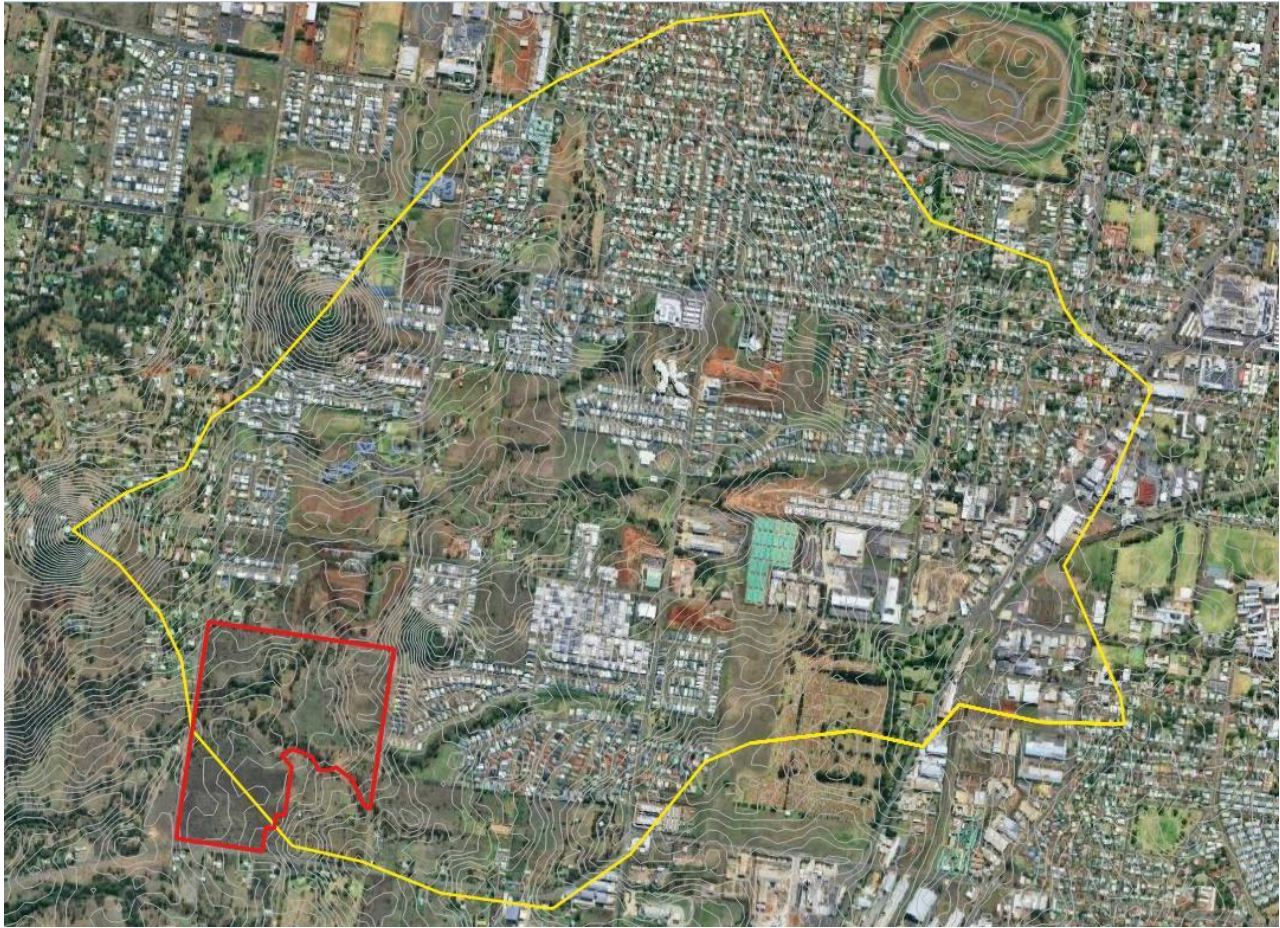


Figure 4 Catchment plan

3. EXISTING CONDITIONS

3.1 Waterway erosion

The waterway through the site is heavily degraded and eroded. The channel has incised and is progressively widening, with highly active erosion in multiple locations including head cuts and steep vertical banks, as shown in the following images.







Figure 5 Photos illustrating existing eroded condition of waterway within subject lot

The waterway erosion is likely to be caused by the unmitigated upstream urbanisation which has increased the erosion potential index, as explained by Lanes diagram in Figure 6. As the channel has enlarged, more streamflow is contained within the stream banks (rather than being overbank flow) and this creates a feedback loop that worsens erosion.

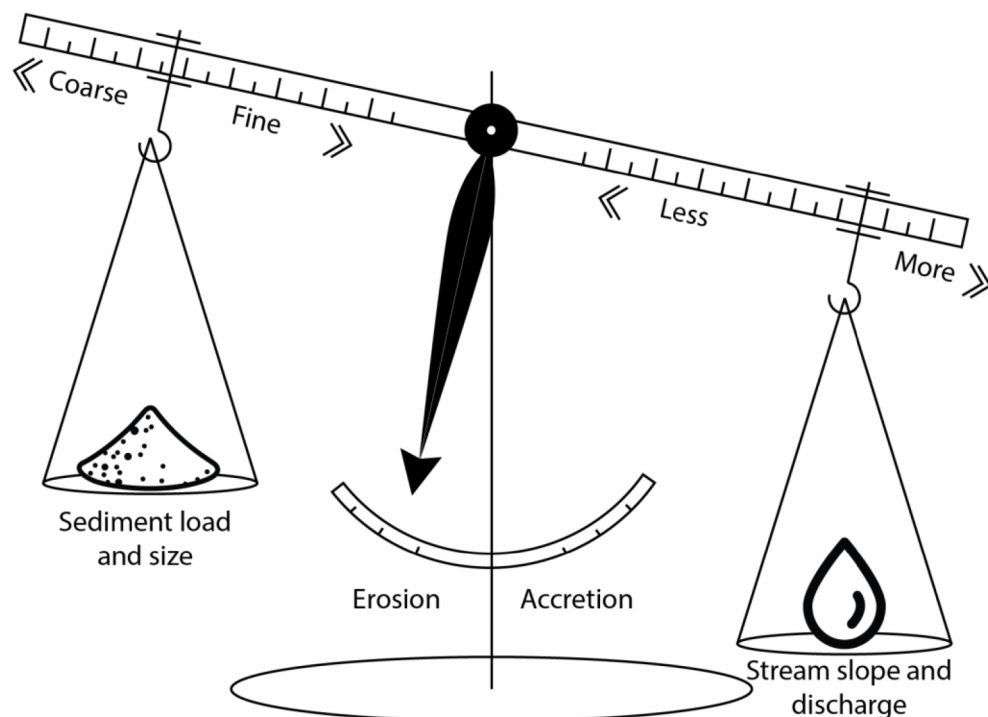


Figure 6 Lanes diagram explains the process where increased stream flow increases stream erosion

3.1.1 Quantification of soil loss

LiDAR datasets from 2010 and 2020 have been obtained from the Geoscience Australia ELVIS platform and analysed to quantify the rate of erosion from the subject lot. Various cross sections of the waterway are shown in Figure 7, illustrating the change to the channel geometry between 2010 and 2020.

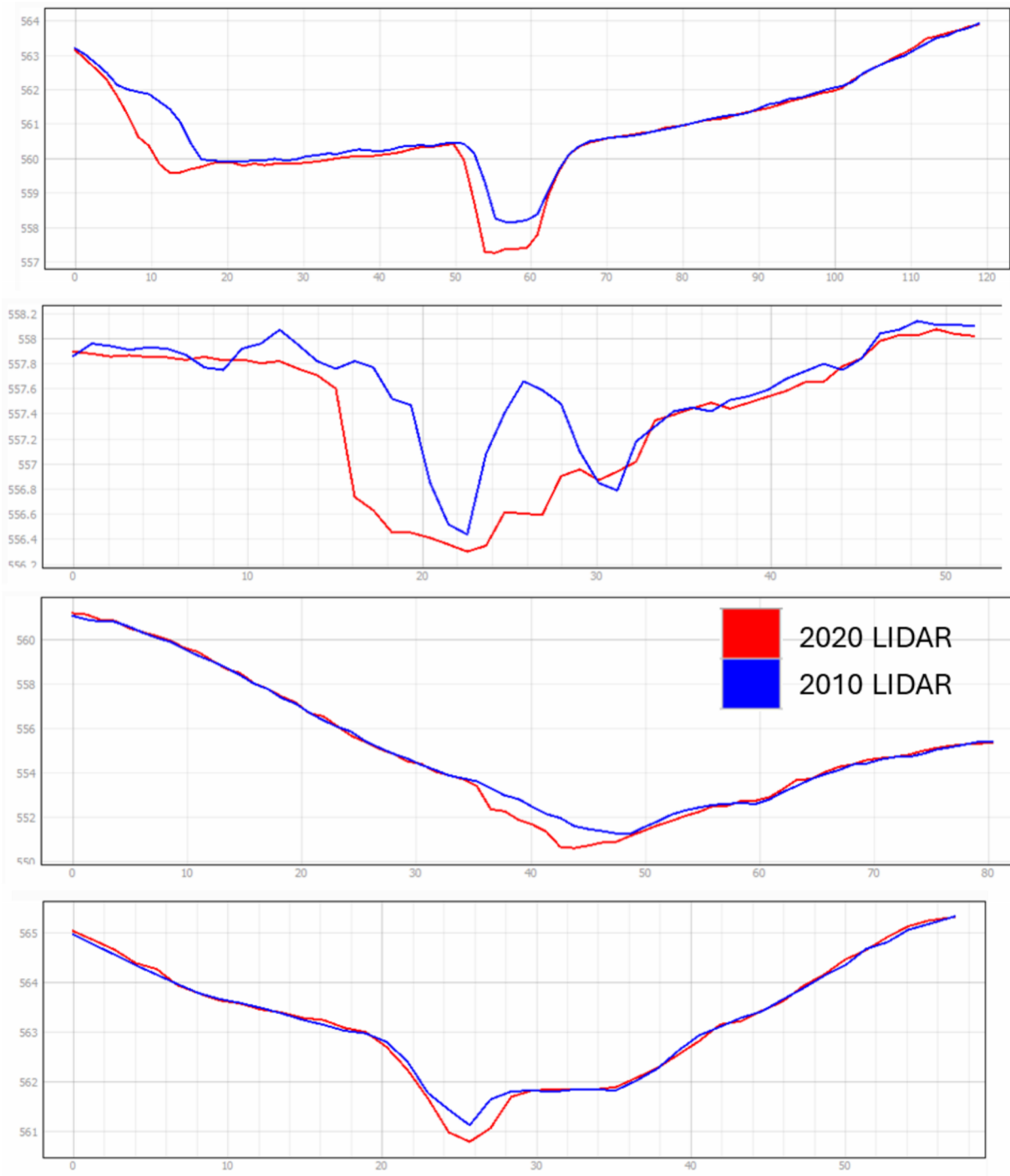


Figure 7 Cross sections comparing 2010 and 2020 lidar, showing channel deepening and widening during that time

Using the 12d software package to compare the 2010 and 2020 surfaces, it is found that on balance 8,015 m³ of material has been lost from the subject lot during the 10 year period. This averages to an annual rate of loss of **801.5m³/year**, or **1,282,400 kg/year** (assuming a soil bulk density of 1600 kg/m³). The annual soil loss from the subject lot is summarised in Table 2.

Table 2 Annual rate of soil loss from subject lot

Parameter	Value
Annual rate of soil loss (m ³ /year)	801.5 m ³ /year
Soil bulk density	1600 kg/m ³
Annual rate of soil loss (kg/year)	1,282,400 kg/year

3.1.2 Soil testing

Soil testing has been undertaken of two samples from the subject lot to establish relevant physical and chemical characteristics of the site material. Relevant parameters are summarised in Table 3, with the full test reports provided in Appendix A2. As the soil contains nitrogen and phosphorus, these stormwater pollutants are exported from the site whenever erosion occurs.

Table 3 Site soil characteristics per soil test results

Soil characteristic	Sample 1	Sample 2	Adopted value
Fraction of soil that is TSS ¹	85.2%	75%	80%
Total nitrogen (TN) (mg/kg)	360	780	400
Total phosphorus (TP) (mg/kg)	900	890	895

¹ Suspended sediment defined as particles smaller than 500µm per Brodie & Dunne (2009).

3.1.3 Stormwater pollutant load due to erosion

Considering the annual rate of soil loss calculated in Table 2 and the soil characteristics summarised in Table 3, the annual load of key stormwater pollutants that is currently being exported from the subject lot due to waterway erosion is calculated in Table 4. It is shown that a significant load of TSS, TP and TN is exported from the subject lot annually due to the erosion currently occurring.

Table 4 Annual load of key stormwater pollutants exported from subject lot due to erosion

Stormwater pollutant	Annual load exported from subject lot
Total suspended solids (TSS)	1,025,920 kg/year
Total phosphorus (TP)	512.9 kg/year
Total nitrogen (TN)	1,148 kg/year

4. STORMWATER QUALITY BENCHMARKS

The Queensland Government State Planning Policy (SPP) assessment benchmarks for stormwater quality inform the stormwater quality performance outcomes required of the proposed works. The benchmarks are summarised in Table 5.

Table 5 Stormwater quality benchmarks per SPP

Pollutant	Mean annual load reduction targets (compared to unmitigated development)
Total suspended solids (TSS)	85%
Total phosphorus (TP)	60%
Total nitrogen (TN)	45%
Gross pollutants > 5 mm	90%

4.1 Stormwater quality strategy

The proposed strategy to satisfy the stormwater quality targets is to undertake erosion mitigation works that reduce sediment, nitrogen and phosphorus loads in exceedance of the pollutant reduction targets for the site.

This approach has been previously implemented in the region and supported by DETSI, and is documented as part of the case study whereby Queensland Urban Utilities stabilised parts of the Logan River to meet its water quality target for the Beaudesert Sewage Treatment Plant. Further information on the DETSI Water Quality Offsets Scheme is available at: <https://environment.qld.gov.au/management/water/water-quality-offsets>

4.2 MUSIC modelling

The software package MUSIC X (Model for Urban Stormwater Improvement Conceptualisation) was utilised to simulate pollutant loads from the proposed development. Source node parameters are based on the standard parameters for 'residential' sites as outlined within the Water By Design MUSIC Modelling Guidelines Version 1.0 – 2010 (the MUSIC guidelines) Table 3.7 and 3.8. The meteorological data set uses the Toowoomba City Council (Station ID 41467) 6-minute timestep rainfall data from 1961 to 1970, per the MUSIC Guidelines.

4.2.1 Catchments

Catchment areas have been identified based on the proposed development layout provided in Appendix A1. Each new residential allotment is assumed to become 50% roof surface (100% impervious) and 50% ground surface (20-30% impervious).

Stage 5 is modelled as a lumped catchment as the development layout of this stage, and therefore the breakdown of surface types, is yet to be determined. A 90% impervious surface is attributed to represent the townhouse development proposed for this stage.

Future Stages 6 and 7 are included in the model to quantify the stormwater quality obligation of these future stages also. Refer to Appendix A3 for a draft layout of Stages 6&7 as used for inputs to the MUSIC model.

A summary of each catchment is provided in Table 6.

Table 6 Summary of catchment areas

Catchment ID	Area (ha)	Impervious %
Stage 1&2 Roof	1.472	100
Stage 1&2 Road	1.652	70
Stage 1&2 Ground	1.472	30
Stage 3 Roof	1.515	100
Stage 3 Road	1.370	70
Stage 3 Ground	2.522	20
Stage 4 Roof	0.382	100
Stage 4 Road	0.457	70
Stage 4 Ground	0.378	30
Stage 5 Lumped	0.729	90
Stages 6&7 Roof	1.833	100
Stages 6&7 Road	1.916	70
Stages 6&7 Ground	1.901	30

Refer to Figure 8 for a screenshot of the MUSIC model configuration.

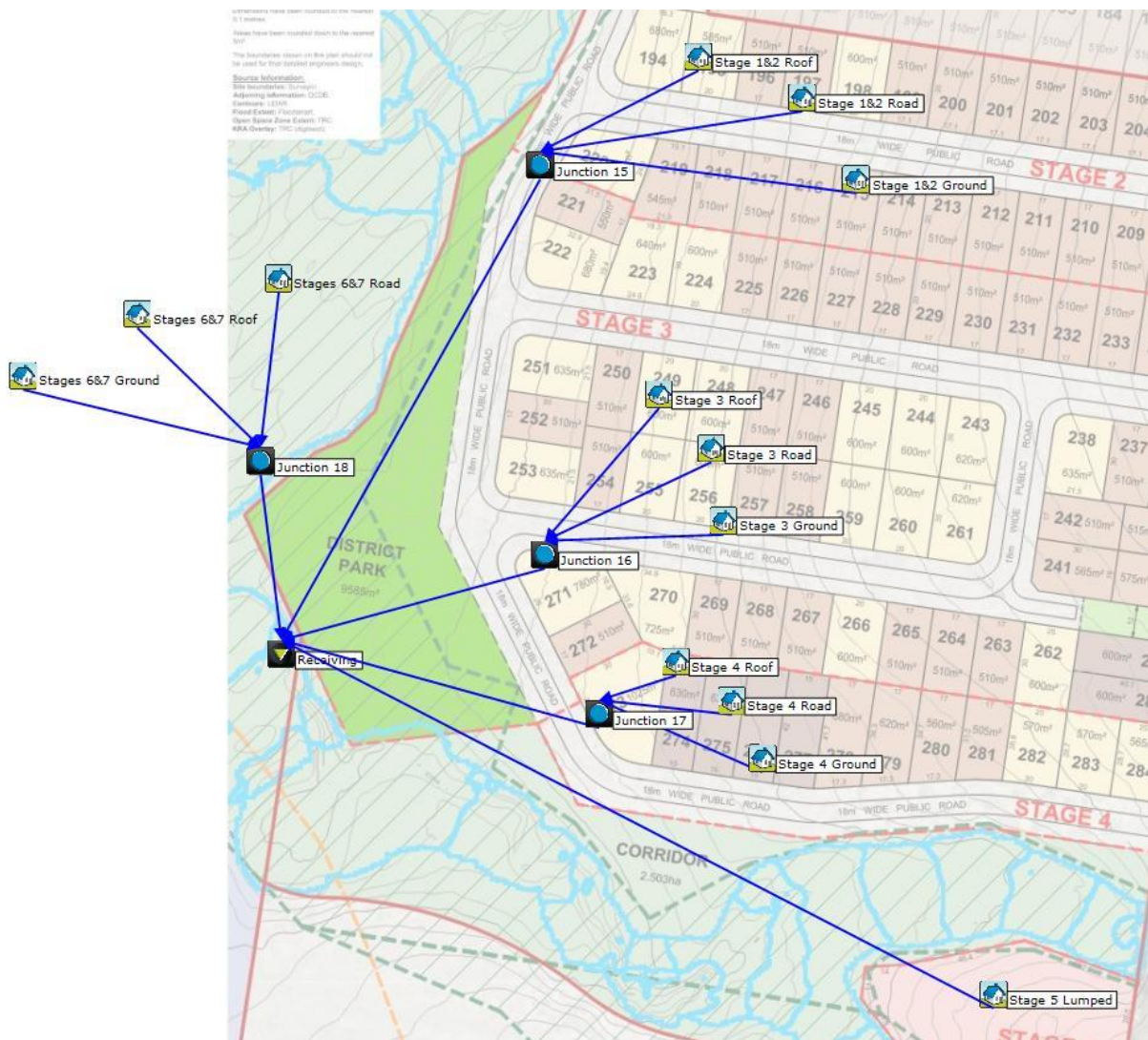


Figure 8 MUSIC model configuration

4.2.2 Results

MUSIC modelling demonstrates that the proposed development (Stages 2-7) is required to remove the pollutant loads summarised in Table 7 to meet the SPP benchmarks.

Table 7 Pollutant load generated by proposed development and required load reduction

Stormwater pollutant	Load generated (kg/yr)	Required % reduction	Required load reduction (kg/yr)
Total suspended solids	18,100	85%	15,385
Total phosphorus	34.05	60%	20.43
Total nitrogen	197.1	45%	88.7
Gross pollutants	2,909	90%	2618.1

A comparison of the stormwater quality obligation of the proposed development compared to the potential stormwater pollutant load reduction achieved by undertaking erosion mitigation works is provided in Table 8. It is seen that the potential load reductions by undertaking erosion mitigation works is orders of magnitude larger than the obligation of the proposed development.

Table 8 Pollutant load reduction achieved by mitigating current site erosion

Stormwater pollutant	Required load reduction (kg/yr)	Achieved reduction due to proposed waterway stabilisation works (kg/yr)	Meets/exceeds SPP benchmarks?
Total suspended solids	15,385	1,025,920	Yes
Total phosphorus	20.43	512.9	Yes
Total nitrogen	88.7	1,148	Yes

As such, it is proposed to undertake erosion mitigation works to the onsite waterway to satisfy the proposed development's stormwater quality obligations of the SPP. The water quality benefit achieved by undertaking erosion mitigation works is more than sufficient to satisfy the stormwater quality obligations of Stages 2-5 and Stages 6&7.

The proposed mitigation works, create a water quality benefit far in exceedance of the stormwater quality obligations of this development alone, and therefore provide a significant opportunity to provide cost-effective offsets for other development in the Toowoomba region.

5. WATERWAY REHABILITATION WORKS

The proposed waterway stabilisation works are intended to address active channel erosion and associated stormwater pollutant generation within the waterway corridor. The existing channel is experiencing progressive bed and bank instability, resulting in ongoing mobilisation of fine sediment and particulate-bound nutrients during runoff events. In addition to contributing to local channel degradation, this erosion process represents a continuing source of suspended sediment and to the downstream stormwater network and receiving waters. The proposed intervention adopts a stream stabilisation and erosion control approach that seeks to reduce sediment generation at the source, thereby delivering a direct and ongoing water quality benefit.

The proposed works comprise the construction of a series of rock chute structures installed across the waterway channel at selected locations along the degraded reach. The rock chutes are intended to function as grade control structures, reducing channel velocities and limiting further incision of the creek bed. By stabilising the longitudinal profile of the waterway, the structures will reduce erosive forces acting on both the channel bed and banks during frequent and moderate flow events.

Indicative locations of the rock chutes are shown in Figure 9.

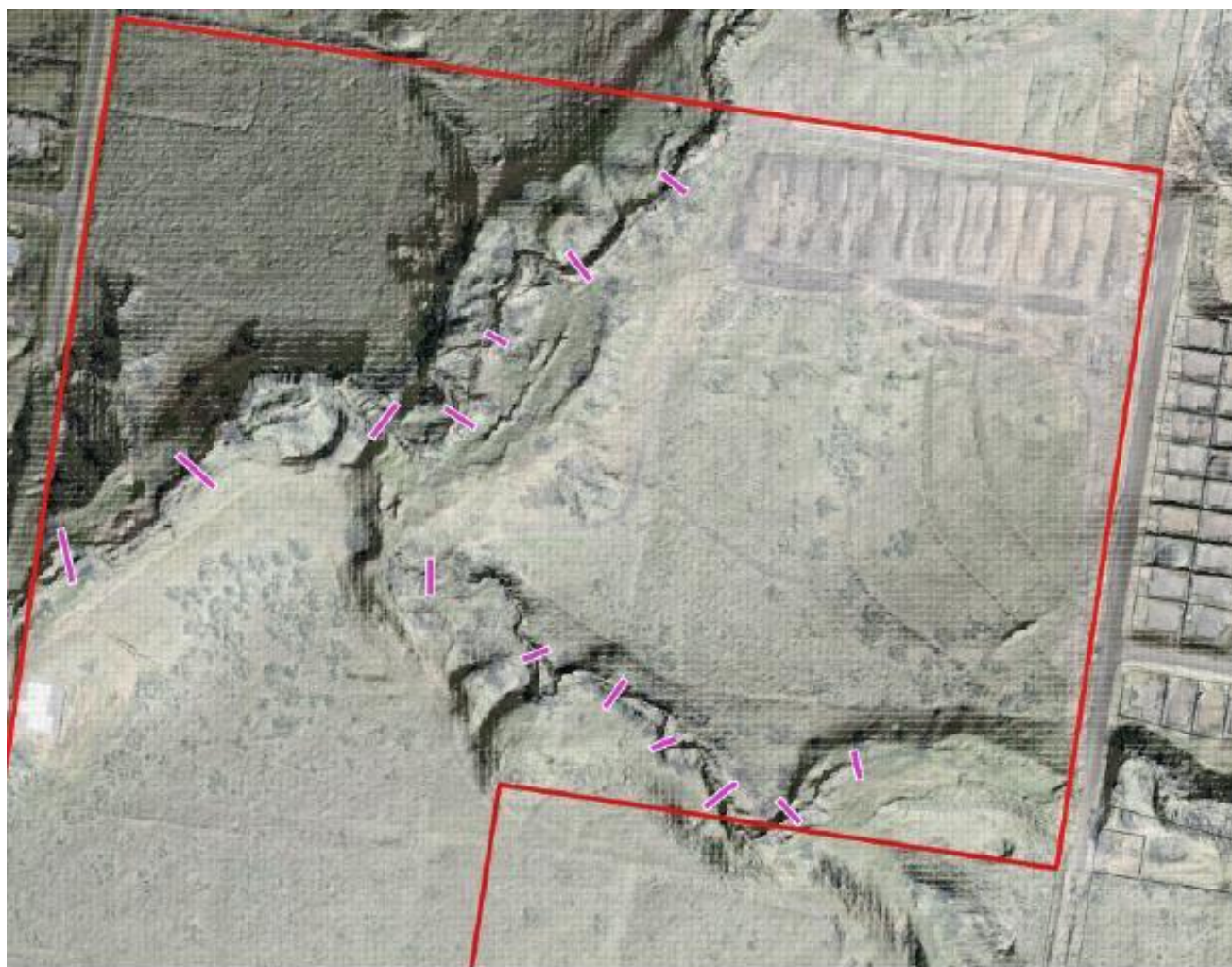


Figure 9 Indicative locations for rock chutes

Each rock chute will extend across the full width of the active channel and will be keyed into the bed and banks to provide structural stability and minimise the risk of flanking or undermining during high flow conditions. The structures will generally consist of appropriately sized rock armour underlain by filter material and and/or geotextile to prevent loss of underlying fine material. Rock sizing and structural configuration will be determined with consideration of expected design velocities, hydraulic loading, and site-specific geotechnical conditions.

The rock chute structures will be configured to maintain a stable low-flow flow path while also allowing conveyance of larger flood events without causing adverse afflux or redirection of flows. The structures are intended to mimic natural riffle or cascade features commonly observed in stable watercourses, thereby integrating with the existing channel form and hydraulic regime. Where practical, the works will incorporate irregular rock placement and variable crest geometry to promote hydraulic diversity and reduce the appearance of hard-engineered infrastructure.

Typical details of the proposed rock chutes are shown in Figure 10. Refer to Appendix A4 for a concept sketch.

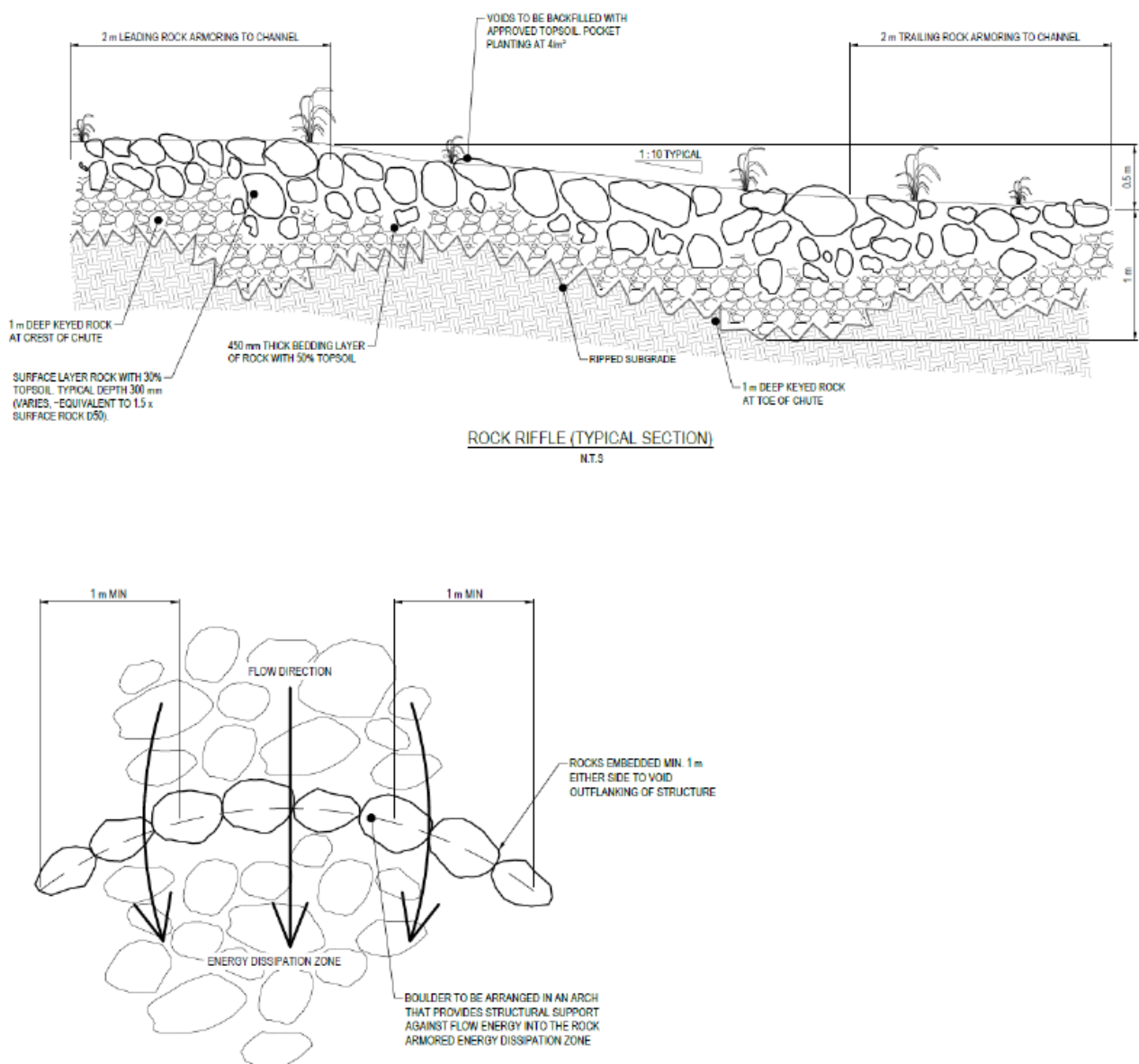


Figure 10 Typical details for proposed rock chutes

The stabilisation strategy focuses on preventing further erosion rather than treating sediment/nutrients after they have already been generated and transported. In this respect, the proposed works differ from conventional end-of-pipe stormwater quality treatment measures such as bioretention systems or sediment basins. By directly addressing the source of sediment production within the waterway corridor, the works are expected to provide a durable reduction in suspended sediment and nutrient loads exported downstream, particularly during larger runoff events where traditional treatment systems may have reduced effectiveness.

In addition to water quality benefits, the proposed works are expected to improve overall channel stability and reduce ongoing maintenance requirements associated with progressive erosion. The stabilised channel conditions are also expected to support improved riparian vegetation establishment over time, which will further enhance bank stability and provide secondary ecological and amenity benefits.

Construction activities will be undertaken in a manner that minimises disturbance to the existing waterway and surrounding vegetation as far as practical. Appropriate erosion and sediment control measures will be implemented during construction to manage temporary impacts associated with earthworks and rock placement.

The proposed mitigation works, create a water quality benefit far in exceedance of the stormwater quality obligations of this development alone, and therefore provide a significant opportunity to provide cost-effective offsets for other development in the Toowoomba region.

6. CONCLUSION

This Stormwater Quality Management Plan has been prepared in support of a Development Application for Stages 2-5 of a residential subdivision at 87 Euston Road, Glensvale QLD 4350 (the subject lot), formally described as Lot 1 on SP361099. Stages 2-5 of the proposed subdivision encompasses a 11.39 hectare area within the north-east of the subject lot.

There are multiple waterways within the site which are heavily degraded and eroded, likely due to the unmitigated urbanisation occurring upstream of the site. A comparison of LiDAR data between 2010 and 2020 indicates that an average annual soil loss of 801.5m³/year occurred over this timeframe, with site observations finding evidence that erosion shall continue to occur.

Soil testing results indicate that the average annual soil loss of 801.5m³/year results in 1,025,920 kg of total suspended solids (TSS), 512.9kg of total phosphorus (TP) and 1,148 kg of total nitrogen (TN) being exported from the subject lot annually. These pollutant loads far exceed the loads generated by the proposed development, and creates an opportunity to provide significant stormwater quality benefits far in exceedance of the stormwater quality obligations of the development alone.

To satisfy the proposed development's stormwater quality obligations under the SPP, it is proposed to undertake erosion mitigation works that reduce sediment, nitrogen and phosphorus loads exported from the subject lot. This approach has been previously implemented in the region and supported by DETSI. Section 4 of this report has demonstrated that the resulting stormwater quality benefit would far exceed the obligation of the proposed development (Stages 2-5) as well as future Stages 6&7 also.

The proposed waterway stabilisation works are intended to address active channel erosion and associated sediment generation within the waterway corridor. In addition to contributing to local channel degradation, this erosion process represents a continuing source of suspended sediment to the downstream stormwater network and receiving waters. The proposed intervention adopts a stream stabilisation and erosion control approach that seeks to reduce sediment generation at the source, thereby delivering a direct and ongoing water quality benefit.

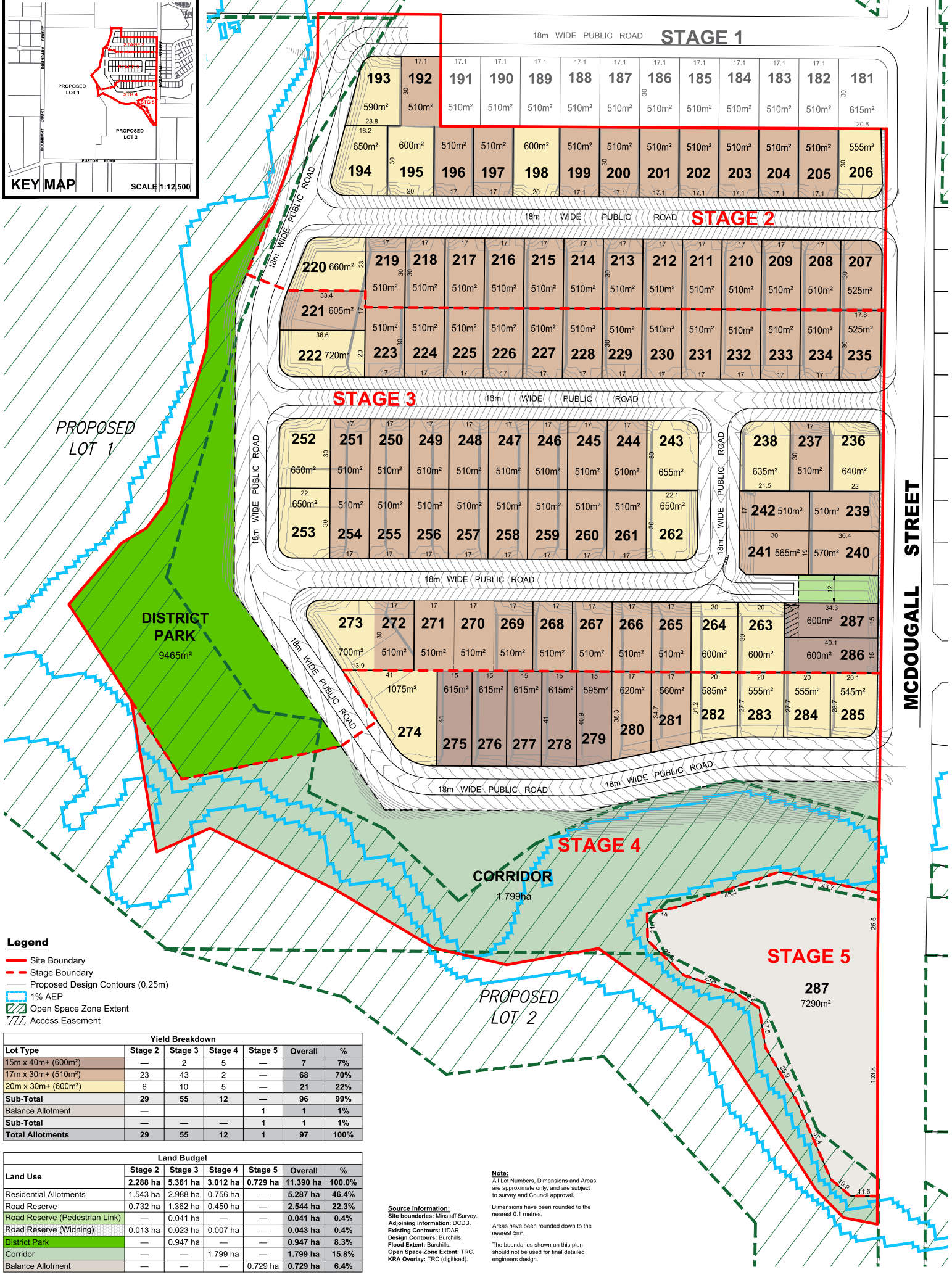
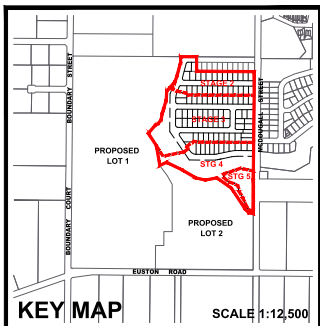
The proposed works comprise the construction of a series of rock chute structures installed across the waterway channel at selected locations along the degraded reach. The rock chutes are intended to function as grade control structures, reducing channel velocities and limiting further incision of the creek bed. By stabilising the longitudinal profile of the waterway, the structures will reduce erosive forces acting on both the channel bed and banks during frequent and moderate flow events. Further details of the proposed rock chutes have been provided in Section 5 of this report.

The rock chute structures will be configured to maintain a stable low-flow flow path while also allowing conveyance of larger flood events without causing adverse afflux or redirection of flows.

The stabilised channel conditions are also expected to support improved riparian vegetation establishment over time, which will further enhance bank stability and provide secondary ecological and amenity benefits.

The proposed mitigation works create a water quality benefit far in exceedance of the stormwater quality obligations of this development alone, and therefore provide a significant opportunity to provide cost-effective offsets for other development in the Toowoomba region.

A1. PROPOSED DEVELOPMENT LAYOUT



- Legend**
- Site Boundary
 - Stage Boundary
 - Proposed Design Contours (0.25m)
 - 1% AEP
 - Open Space Zone Extent
 - Access Easement

Yield Breakdown						
Lot Type	Stage 2	Stage 3	Stage 4	Stage 5	Overall	%
15m x 40m+ (600m²)	—	2	5	—	7	7%
17m x 30m+ (510m²)	23	43	2	—	68	70%
20m x 30m+ (600m²)	6	10	5	—	21	22%
Sub-Total	29	55	12	—	96	99%
Balance Allotment	—	—	—	1	1	1%
Sub-Total	—	—	—	1	1	1%
Total Allotments	29	55	12	1	97	100%

Land Budget						
Land Use	Stage 2	Stage 3	Stage 4	Stage 5	Overall	%
Residential Allotments	2.288 ha	5.361 ha	3.012 ha	0.729 ha	11.390 ha	100.0%
Road Reserve	1.543 ha	2.988 ha	0.756 ha	—	5.287 ha	46.4%
Road Reserve (Pedestrian Link)	0.732 ha	1.362 ha	0.450 ha	—	2.544 ha	22.3%
Road Reserve (Widening)	—	0.041 ha	—	—	0.041 ha	0.4%
District Park	0.013 ha	0.023 ha	0.007 ha	—	0.043 ha	0.4%
Corridor	—	0.947 ha	—	—	0.947 ha	8.3%
Balance Allotment	—	—	1.799 ha	—	1.799 ha	15.8%
Sub-Total	—	—	—	0.729 ha	0.729 ha	6.4%

Source Information:
Site boundaries: Minstaff Survey.
Adjoining Information: DCDB.
Existing Contours: LIDAR.
Design Contours: Burchills.
Flood Extent: Burchills.
Open Space Zone Extent: TRC.
KRA Overlay: TRC (digitised).

Note:
All Lot Numbers, Dimensions and Areas are approximate only, and are subject to survey and Council approval.
Dimensions have been rounded to the nearest 0.1 metres.
Areas have been rounded down to the nearest 5m².
The boundaries shown on this plan should not be used for final detailed engineers design.

PLAN REF: AU14570 – 23
Rev No: D
DATE: 27 April 2026
CLIENT: Property Projects Australia
DRAWN BY: CB / JC / MD / MM
CHECKED BY: MD

EUSTON ROAD, GLENVALE
DEER VALLEY - STAGES 2-5 PLAN OF SUBDIVISION
OVER PROPOSED LOT 3

DRAFT
For Discussion Only

URBAN DESIGN
Level 8
31 Duncan Street
PO Box 1559
Fortitude Valley QLD 4006
T +61 7 3539 9500
W rpsgroup.com

rps
A TETRA TECH COMPANY

© COPYRIGHT
Unauthorised reproduction or amendment not permitted. Please contact the author.

A2. SOIL TESTING REPORTS

Material Test Report

Report Number: TP261595-1
Issue Number: 1
Date Issued: 05/05/2026
Client: Burchills Engineering Solutions
PO Box 1439 , Toowoomba QLD 4350
Contact: Jeremy Mooring
Project Number: TP261595
Project Name: Soil Samples
Project Location: Unknown
Work Request: 8414
Sample Number: S-268414A
Date Sampled: 08/04/2026
Dates Tested: 08/04/2026 - 01/05/2026
Sampling Method: Sampled by Client
The results apply to the sample as received
Sample Location: 1, Depth: -
Material: Dark Brown Silty CLAY



www.soiltech.com.au
Soiltech Testing Services Pty Ltd
Site No. 2110

Soiltech Toowoomba Laboratory
194 Stephen Street Toowoomba QLD 4350

Phone: (07) 4633 1622

Email: makayla@soiltech.com

Accredited for compliance with ISO/IEC 17025 - Testing



M. S. Mudge

Approved Signatory: Makayla Mudge
Geotechnical Laboratory
Supervisor

Laboratory Number: 2117

Emerson Class Number of a Soil (AS 1289.3.8.1)		Min	Max
Emerson Class	5		
Soil Description	Dark Brown Silty CLAY		
Nature of Water	Distilled		

Material Test Report

Report Number: TP261595-1
Issue Number: 1
Date Issued: 05/05/2026
Client: Burchills Engineering Solutions
PO Box 1439 , Toowoomba QLD 4350
Contact: Jeremy Mooring
Project Number: TP261595
Project Name: Soil Samples
Project Location: Unknown
Work Request: 8414
Sample Number: S-268414B
Date Sampled: 08/04/2026
Dates Tested: 08/04/2026 - 01/05/2026
Sampling Method: Sampled by Client
The results apply to the sample as received
Sample Location: 2, Depth: -
Material: Dark Brown Silty CLAY



www.soiltech.com.au
Soiltech Testing Services Pty Ltd
Site No. 2110

Soiltech Toowoomba Laboratory
194 Stephen Street Toowoomba QLD 4350

Phone: (07) 4633 1622

Email: makayla@soiltech.com

Accredited for compliance with ISO/IEC 17025 - Testing



M. S. Mudge

Approved Signatory: Makayla Mudge
Geotechnical Laboratory
Supervisor

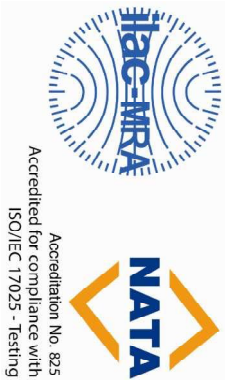
Laboratory Number: 2117

Emerson Class Number of a Soil (AS 1289.3.8.1)		Min	Max
Emerson Class	5		
Soil Description	Dark Brown Silty CLAY		
Nature of Water	Distilled		



CERTIFICATE OF ANALYSIS

Work Order	: EB2613470	Page	: 1 of 4
Client	: SOILTECH TESTING SERVICES PTY LTD	Laboratory	: Environmental Division Brisbane
Contact	: MAKAYLA MUDGE	Contact	: Customer Services EB
Address	: 19 POUND ROAD MILES QLD, AUSTRALIA 4415	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: ----	Telephone	: +61-7-3552-8685
Project	: Burchills soil samples	Date Samples Received	: 15-Apr-2026 11:47
Order number	: ----	Date Analysis Commenced	: 20-Apr-2026
C-O-C number	: ----	Issue Date	: 30-Apr-2026 17:15
Sampler	: CLIENT		
Site	: ----		
Quote number	: EN/333		
No. of samples received	: 2		
No. of samples analysed	: 2		



This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Beatriz Llarinas	Senior Chemist	Brisbane Inorganics, Stafford, QLD
Beatriz Llarinas	Senior Chemist	Brisbane Soil Preparation, Stafford, QLD
Ben Feigendrejers	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Tatijana Markoska	Senior Chemist - Organics	Brisbane Soil Preparation, Stafford, QLD



General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extractions/digestion and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

▲ = This result is computed from individual analyte detections at or above the level of reporting

∅ = ALS is not NATA accredited for these tests.

~ = Indicates an estimated value.

- **EK072 conducted by ALS Sydney, NATA accreditation no. 825, site no 10911.**
- ALS is not NATA accredited for the analysis of Exchangeable Aluminium and Exchange Acidity in soils when performed under ALS Method ED005.
- ALS is not NATA accredited for the analysis of Exchangeable Cations on Alkaline Soils when performed under ALS Method ED006.
- ED007 and ED008: When Exchangeable Al is reported from these methods, it should be noted that Rayment & Lyons (2011) suggests Exchange Acidity by 1M KCl - Method 15G1 (ED005) is a more suitable method for the determination of exchange acidity (H+ + Al3+).



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)		Sample ID		Sample 1	Sample 2				
		Sampling date / time		09-Apr-2026 00:00	09-Apr-2026 00:00				
Compound	CAS Number	LOR	Unit	EB2613470-001	EB2613470-002				
				Result	Result				
EA002: pH 1:5 (Soils)									
pH Value	---	0.1	pH Unit	8.4	8.3	---	---	---	---
EA010: Conductivity (1:5)									
Electrical Conductivity @ 25°C	---	1	µS/cm	300	143	---	---	---	---
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	---	0.1	%	31.8	12.6	---	---	---	---
ED006: Exchangeable Cations on Alkaline Soils									
ø Exchangeable Calcium	---	0.2	meq/100g	14.6	12.7	---	---	---	---
ø Exchangeable Magnesium	---	0.2	meq/100g	13.7	11.8	---	---	---	---
ø Exchangeable Potassium	---	0.2	meq/100g	0.2	0.3	---	---	---	---
ø Exchangeable Sodium	---	0.2	meq/100g	0.4	<0.2	---	---	---	---
ø Cation Exchange Capacity	---	0.2	meq/100g	29.0	24.8	---	---	---	---
ø Exchangeable Sodium Percent	---	0.2	%	1.3	<0.2	---	---	---	---
ø Calcium/Magnesium Ratio	---	0.2	-	1.1	1.1	---	---	---	---
ø Magnesium/Potassium Ratio	---	0.2	-	59.5	38.7	---	---	---	---
ED021: Bicarbonate Extractable Potassium (Colwell)									
Bicarbonate Extractable K (Colwell)	---	100	mg/kg	270	520	---	---	---	---
EK055-P: Ammonia as N									
Ammonia as N	7664-41-7	20	mg/kg	<20	<20	---	---	---	---
EK057-G: Nitrite as N by Discrete Analyser									
Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	<0.1	0.3	---	---	---	---
EK058-G: Nitrate as N by Discrete Analyser									
Nitrate as N (Sol.)	14797-65-8	0.1	mg/kg	0.6	10.4	---	---	---	---
EK059-G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N (Sol.)	---	0.1	mg/kg	0.6	10.7	---	---	---	---
EK061-G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	---	20	mg/kg	360	770	---	---	---	---
EK062: Total Nitrogen as N (TKN + NOx)									
^ Total Nitrogen as N	---	20	mg/kg	360	780	---	---	---	---



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)		Sample ID		Sample 1	Sample 2				
		Sampling date / time		09-Apr-2026 00:00	09-Apr-2026 00:00				
Compound	CAS Number	LOR	Unit	EB2613470-001	EB2613470-002				
				Result	Result				
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P		2	mg/kg	900	890				
EK073: Phosphate Sorption Index									
Phosphate Sorption Index		1	mgKg-1/log10 ugL-1	140	80				
EP003: Total Organic Carbon (TOC) in Soil									
Total Organic Carbon		0.02	%	0.50	1.10				

Inter-Laboratory Testing

Analysis conducted by ALS Sydney, NATA accreditation no. 825, site no. 10911 (Chemistry / Biology).
(SOIL) EK073: Phosphate Sorption Index



QUALITY CONTROL REPORT

Work Order : **EB2613470**

Page : 1 of 5

Client : **SOILTECH TESTING SERVICES PTY LTD**
Contact : **MAKAYLA MUDGE**
Address : **19 POUND ROAD**
MILES QLD, AUSTRALIA 4415

Laboratory : **Environmental Division Brisbane**
Contact : **Customer Services EB**
Address : **2 Byth Street Stafford QLD Australia 4053**

Telephone : **----**
Project : **Burchills soil samples**
Order number : **----**
C-O-C number : **----**
Sampler : **CLIENT**

Telephone : **+61-7-3552-8685**
Date Samples Received : **15-Apr-2026**
Date Analysis Commenced : **20-Apr-2026**
Issue Date : **30-Apr-2026**

Site : **----**
Quote number : **EN/333**
No. of samples received : **2**
No. of samples analysed : **2**

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

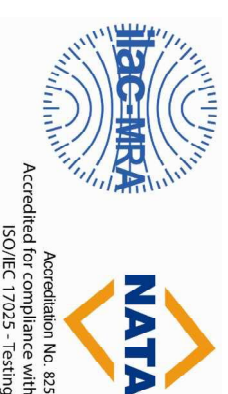
This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Beatriz Llarinas	Senior Chemist	Brisbane Inorganics, Stafford, QLD
Beatriz Llarinas	Senior Chemist	Brisbane Soil Preparation, Stafford, QLD
Ben Felgendrejeris	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Tatijana Markoska	Senior Chemist - Organics	Brisbane Soil Preparation, Stafford, QLD





General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEMP. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot

CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

RPD = Relative Percentage Difference

= Indicates failed QC

* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: SOIL

Laboratory sample ID		Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report						
EK055-P: Ammonia as N (QC Lot: 7353554)					LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)	
EB2613470-001		Sample 1	EK055-P: Ammonia as N	7664-41-7	20	mg/kg	<20	<20	0.0	0.0	No Limit
EB2613496-013		Anonymous	EK055-P: Ammonia as N	7664-41-7	20	mg/kg	90	100	0.0	0.0	No Limit
EK073: Phosphate Sorption Index (QC Lot: 7371678)											
EB2613470-001		Sample 1	EK073: Phosphate Sorption Index		1	mgkg-1/10g10 ugL-1	140	142	1.3		0% - 20%
EA002: pH 1:5 (Soils) (QC Lot: 7347510)											
EB2613469-001		Anonymous	EA002: pH Value		0.1	pH Unit	7.0	7.1	1.6		0% - 20%
EB2613490-003		Anonymous	EA002: pH Value		0.1	pH Unit	7.5	7.4	0.0		0% - 20%
EA010: Conductivity (1:5) (QC Lot: 7347509)											
EB2613469-001		Anonymous	EA010: Electrical Conductivity @ 25°C		1	µS/cm	21	26	18.4		0% - 20%
EB2613490-003		Anonymous	EA010: Electrical Conductivity @ 25°C		1	µS/cm	419	479	13.4		0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 7352834)											
EB2613470-001		Sample 1	EA055: Moisture Content		0.1	%	31.8	31.6	0.7		0% - 20%
EB2613496-013		Anonymous	EA055: Moisture Content		0.1 (1.0)*	%	53.2	53.3	0.0		0% - 20%
ED006: Exchangeable Cations on Alkaline Soils (QC Lot: 7351918)											
EB2613440-001		Anonymous	ED006: Exchangeable Calcium		0.2	meq/100g	6.1	6.5	5.2		0% - 20%
			ED006: Exchangeable Magnesium		0.2	meq/100g	3.2	3.4	4.0		0% - 50%
			ED006: Exchangeable Potassium		0.2	meq/100g	0.5	0.6	22.1		No Limit
			ED006: Exchangeable Sodium		0.2	meq/100g	2.6	3.0	12.8		0% - 50%
			ED006: Cation Exchange Capacity		0.2	meq/100g	12.5	13.4	7.3		0% - 20%



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)	
ED021: Bicarbonate Extractable Potassium (Colwell) (QC Lot: 7351281)										
EB2613470-001	Sample 1	ED021: Bicarbonate Extractable K (Colwell)	---	100	mg/kg	270	391	36.8	No Limit	
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 7347512)										
EB2613470-001	Sample 1	EK057G: Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	<0.1	<0.1	0.0	No Limit	
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 7347511)										
EB2613470-001	Sample 1	EK059G: Nitrite + Nitrate as N (Sol.)	---	0.1	mg/kg	0.6	0.7	0.0	No Limit	
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 7349772)										
EB2613470-001	Sample 1	EK061G: Total Kjeldahl Nitrogen as N	---	20	mg/kg	360	350	0.0	0% - 50%	
EB2613496-013	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	---	20	mg/kg	1260	1170	7.2	0% - 20%	
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 7349773)										
EB2613470-001	Sample 1	EK067G: Total Phosphorus as P	---	2	mg/kg	900	862	4.3	0% - 20%	
EB2613496-013	Anonymous	EK067G: Total Phosphorus as P	---	2	mg/kg	1050	996	5.0	0% - 20%	
EP003: Total Organic Carbon (TOC) in Soil (QC Lot: 7354781)										
EB2610985-042	Anonymous	EP003: Total Organic Carbon	---	0.02	%	0.06	0.08	21.6	No Limit	
EB2613496-006	Anonymous	EP003: Total Organic Carbon	---	0.02	%	2.44	2.48	1.6	0% - 20%	



Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: SOIL

Sub-Matrix: SOIL									
Method/Compound	CAS Number	LOR	Unit	Method Blank (MB) Report		Laboratory Control Spike (LCS) Report			
				Result	Spike Concentration	Spike Recovery (%)	Acceptable Limits (%)		
EKO55-P: Ammonia as N (QCLot: 7353554)									
EKO55-P: Ammonia as N	7664-41-7	20	mg/kg	<20	25 mg/kg	108	90.0	110	
EK073: Phosphate Sorption Index (QCLot: 7371678)									
EK073: Phosphate Sorption Index	---	---	mgkg-1/log10ugL-1	---	21.87 mgkg-1/log10ugL-1	75.3	70.0	130	
EA002: pH 1.5 (Soils) (QCLot: 7347510)									
EA002: pH Value	---	---	pH Unit	---	4 pH Unit 7 pH Unit	100 100	98.0 98.0	102 102	
EA010: Conductivity (1:5) (QCLot: 7347509)									
EA010: Electrical Conductivity @ 25°C	---	1	µS/cm	<1	1412 µS/cm	97.7	95.0	105	
ED006: Exchangeable Cations on Alkaline Soils (QCLot: 7351918)									
ED006: Exchangeable Calcium	---	0.2	meq/100g	<0.2	7.46 meq/100g	76.5	70.0	130	
ED006: Exchangeable Magnesium	---	0.2	meq/100g	<0.2	4.45 meq/100g	70.6	70.0	130	
ED006: Exchangeable Potassium	---	0.2	meq/100g	<0.2	0.75 meq/100g	76.1	70.0	130	
ED006: Exchangeable Sodium	---	0.2	meq/100g	<0.2	4.725 meq/100g	70.4	70.0	130	
ED006: Cation Exchange Capacity	---	0.2	meq/100g	<0.2	17.41 meq/100g	73.2	70.0	130	
ED021: Bicarbonate Extractable Potassium (Colwell) (QCLot: 7351281)									
ED021: Bicarbonate Extractable K (Colwell)	---	100	mg/kg	<100	300.66 mg/kg	72.6	70.0	130	
EK057G: Nitrite as N by Discrete Analyser (QCLot: 7347512)									
EK057G: Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	<0.1	2.5 mg/kg	102	83.0	111	
EK059G: Nitrite plus Nitrate as N (NOX) by Discrete Analyser (QCLot: 7347511)									
EK059G: Nitrite + Nitrate as N (Sol.)	---	0.1	mg/kg	<0.1	2.5 mg/kg	91.2	83.2	111	
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 7349772)									
EK061G: Total Kjeldahl Nitrogen as N	---	20	mg/kg	<20	306 mg/kg 2300 mg/kg	101 112	70.0 88.0	130 112	
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 7349773)									
EK067G: Total Phosphorus as P	---	2	mg/kg	<2	142 mg/kg 567 mg/kg	105 92.7	70.0 88.0	130 112	
EP003: Total Organic Carbon (TOC) in Soil (QCLot: 7354781)									
EP003: Total Organic Carbon	---	0.02	%	<0.02 <0.02	0.55 % 19.4 %	99.6 99.5	80.0 80.0	120 120	



Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

Sub-Matrix: SOIL			Matrix Spike (MS) Report				
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Spike	SpikeRecovery(%)	Acceptable Limits (%)	
				Concentration	MS	Low	High
EK055-P: Ammonia as N (QCLot: 7353554)							
EB2613470-002	Sample 2	EK055-P: Ammonia as N	7664-41-7	100 mg/kg	87.4	70.0	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 7347512)							
EB2613470-002	Sample 2	EK057G: Nitrite as N (Sol.)	14797-65-0	2.5 mg/kg	101	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 7347511)							
EB2613470-002	Sample 2	EK059G: Nitrite + Nitrate as N (Sol.)	---	25 mg/kg	84.5	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 7349772)							
EB2613470-002	Sample 2	EK061G: Total Kjeldahl Nitrogen as N	---	500 mg/kg	114	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 7349773)							
EB2613470-002	Sample 2	EK067G: Total Phosphorus as P	---	100 mg/kg	# Not Determined	70.0	130



QA/QC Compliance Assessment to assist with Quality Review

Work Order	: EB2613470	Page	: 1 of 8
Client	: SOILTECH TESTING SERVICES PTY LTD	Laboratory	: Environmental Division Brisbane
Contact	: MAKAYLA MUDGE	Telephone	: +61-7-3552-8685
Project	: Burchills soil samples	Date Samples Received	: 15-Apr-2026
Site	: ----	Issue Date	: 30-Apr-2026
Sampler	: CLIENT	No. of samples received	: 2
Order number	: ----	No. of samples analysed	: 2

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- NO Method Blank value outliers occur.
- NO Duplicate outliers occur.
- NO Laboratory Control outliers occur.
- Matrix Spike outliers exist - please see following pages for full details.
- For all regular sample matrices, where applicable to the methodology, NO surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- Quality Control Sample Frequency Outliers exist - please see following pages for full details.



Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: SOIL

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EK067G: Total Phosphorus as P by Discrete Analyser	EB2613470-002	Sample 2	Total Phosphorus as P	---	Not Determined	---	MS recovery not determined, background level greater than or equal to 4x spike level.

Outliers : Analysis Holding Time Compliance

Matrix: SOIL

Method	Extraction / Preparation				Analysis		
Container / Client Sample ID(s)	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue	
EA0002: pH 1:5 (Soils)							
Soil Glass Jar - Unpreserved							
Sample 1,	20-Apr-2026	16-Apr-2026	4	---	---	---	---
EA0710: Conductivity (1:5)							
Soil Glass Jar - Unpreserved							
Sample 1,	20-Apr-2026	16-Apr-2026	4	---	---	---	---
EK057G: Nitrite as N by Discrete Analyser							
Soil Glass Jar - Unpreserved							
Sample 1,	20-Apr-2026	16-Apr-2026	4	---	---	---	---

Outliers : Frequency of Quality Control Samples

Matrix: SOIL

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification		
Analytical Methods	Method	QC	Regular	Actual	Expected		
Laboratory Duplicates (DUP)							
Phosphate Sorption Index	EK073	0	2	0.00	10.00	NEPM 2013 B3 & ALS QC Standard	
Laboratory Control Samples (LCS)							
Phosphate Sorption Index	EK073	0	2	0.00	5.00	NEPM 2013 B3 & ALS QC Standard	

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation



Matrix: SOIL

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA002: pH 1:5 (Soils)							
Soil Glass Jar - Unpreserved (EA002) Sample 1,	09-Apr-2026	20-Apr-2026	16-Apr-2026	✖	20-Apr-2026	20-Apr-2026	✔
EA010: Conductivity (1:5)							
Soil Glass Jar - Unpreserved (EA010) Sample 1,	09-Apr-2026	20-Apr-2026	16-Apr-2026	✖	20-Apr-2026	18-May-2026	✔
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055) Sample 1,	09-Apr-2026	----	—	---	22-Apr-2026	23-Apr-2026	✔
ED005: Exchange Acidity							
Soil Glass Jar - Unpreserved (ED005) Sample 1,	09-Apr-2026	22-Apr-2026	07-May-2026	✔	22-Apr-2026	07-May-2026	✔
ED006: Exchangeable Cations on Alkaline Soils							
Soil Glass Jar - Unpreserved (ED006) Sample 1,	09-Apr-2026	22-Apr-2026	07-May-2026	✔	27-Apr-2026	07-May-2026	✔
ED007: Exchangeable Cations							
Soil Glass Jar - Unpreserved (ED007) Sample 1,	09-Apr-2026	22-Apr-2026	07-May-2026	✔	22-Apr-2026	07-May-2026	✔
ED008: Exchangeable Cations							
Soil Glass Jar - Unpreserved (ED008) Sample 1,	09-Apr-2026	22-Apr-2026	07-May-2026	✔	22-Apr-2026	07-May-2026	✔
ED021: Bicarbonate Extractable Potassium (Colwell)							
Soil Glass Jar - Unpreserved (ED021) Sample 1,	09-Apr-2026	22-Apr-2026	06-Oct-2026	✔	24-Apr-2026	06-Oct-2026	✔
EK055-P: Ammonia as N							
Soil Glass Jar - Unpreserved (EK055-P) Sample 1,	09-Apr-2026	----	—	---	22-Apr-2026	07-May-2026	✔
EK057G: Nitrite as N by Discrete Analyser							
Soil Glass Jar - Unpreserved (EK057G) Sample 1,	09-Apr-2026	20-Apr-2026	16-Apr-2026	✖	21-Apr-2026	22-Apr-2026	✔
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Soil Glass Jar - Unpreserved (EK059G) Sample 1,	09-Apr-2026	20-Apr-2026	07-May-2026	✔	21-Apr-2026	22-Apr-2026	✔
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Soil Glass Jar - Unpreserved (EK061G) Sample 1,	09-Apr-2026	21-Apr-2026	07-May-2026	✔	22-Apr-2026	19-May-2026	✔
EK067G: Total Phosphorus as P by Discrete Analyser							
Soil Glass Jar - Unpreserved (EK067G) Sample 1,	09-Apr-2026	21-Apr-2026	07-May-2026	✔	22-Apr-2026	19-May-2026	✔



Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation		Analysis			
		Date extracted	Due for extraction	Date analysed	Due for analysis	Evaluation	
EP003: Total Organic Carbon (TOC) in Soil							
Container / Client Sample ID(s)							
Pulp Bag (EP003)							
Sample 1,	09-Apr-2026	22-Apr-2026	07-May-2026	✓	23-Apr-2026	07-May-2026	✓
Sample 2							



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Actual	Rate (%)		Evaluation	Quality Control Specification
		QC	Regular		Expected			
Laboratory Duplicates (DUP)								
Ammonia Using Steam Distillation and Titrimetric Finish	EK055-P	2	16	12.50	10.00		✓	NEPM 2013 B3 & ALS QC Standard
Bicarbonate Extractable K (Colwell)	ED021	1	2	50.00	10.00		✓	NEPM 2013 B3 & ALS QC Standard
Electrical Conductivity (1:5)	EA010	2	20	10.00	10.00		✓	NEPM 2013 B3 & ALS QC Standard
Exchangeable Cations on Alkaline Soils	ED006	1	9	11.11	10.00		✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	2	20	10.00	10.00		✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	1	2	50.00	10.00		✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N - Soluble by Discrete Analyser	EK057G	1	2	50.00	10.00		✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	2	20	10.00	10.00		✓	NEPM 2013 B3 & ALS QC Standard
Phosphate Sorption Index	EK073	0	2	0.00	10.00		✗	NEPM 2013 B3 & ALS QC Standard
TKN as N By Discrete Analyser	EK061G	2	13	15.38	10.00		✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP003	2	17	11.76	10.00		✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus By Discrete Analyser	EK067G	2	13	15.38	10.00		✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)								
Ammonia Using Steam Distillation and Titrimetric Finish	EK055-P	1	16	6.25	5.00		✓	NEPM 2013 B3 & ALS QC Standard
Bicarbonate Extractable K (Colwell)	ED021	1	2	50.00	5.00		✓	NEPM 2013 B3 & ALS QC Standard
Electrical Conductivity (1:5)	EA010	1	20	5.00	5.00		✓	NEPM 2013 B3 & ALS QC Standard
Exchangeable Cations on Alkaline Soils	ED006	1	9	11.11	5.00		✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	1	2	50.00	5.00		✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N - Soluble by Discrete Analyser	EK057G	1	2	50.00	5.00		✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	2	20	10.00	10.00		✓	NEPM 2013 B3 & ALS QC Standard
Phosphate Sorption Index	EK073	0	2	0.00	5.00		✗	NEPM 2013 B3 & ALS QC Standard
TKN as N By Discrete Analyser	EK061G	2	13	15.38	10.00		✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP003	2	17	11.76	10.00		✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus By Discrete Analyser	EK067G	2	13	15.38	10.00		✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)								
Ammonia Using Steam Distillation and Titrimetric Finish	EK055-P	1	16	6.25	5.00		✓	NEPM 2013 B3 & ALS QC Standard
Bicarbonate Extractable K (Colwell)	ED021	1	2	50.00	5.00		✓	NEPM 2013 B3 & ALS QC Standard
Electrical Conductivity (1:5)	EA010	1	20	5.00	5.00		✓	NEPM 2013 B3 & ALS QC Standard
Exchangeable Cations on Alkaline Soils	ED006	1	9	11.11	5.00		✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	1	2	50.00	5.00		✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N - Soluble by Discrete Analyser	EK057G	1	2	50.00	5.00		✓	NEPM 2013 B3 & ALS QC Standard
TKN as N By Discrete Analyser	EK061G	1	13	7.69	5.00		✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP003	1	17	5.88	5.00		✓	NEPM 2013 B3 & ALS QC Standard



Matrix: **SOIL**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
Analytical Methods							
Method Blanks (MB) - Continued							
Total Phosphorus By Discrete Analyser	EK067G	1	13	7.69	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia Using Steam Distillation and Titrimetric Finish	EK055-P	1	16	6.25	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) - Soluble by Discrete Analyser	EK059G	1	2	50.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Nitrite as N - Soluble by Discrete Analyser	EK057G	1	2	50.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TKN as N By Discrete Analyser	EK061G	1	13	7.69	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus By Discrete Analyser	EK067G	1	13	7.69	5.00	✔	NEPM 2013 B3 & ALS QC Standard



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	In house: Referenced to Rayment and Lyons 4A1 and APHA 4500H+. pH is determined on soil samples after a 1:5 soil:water leach. This method is compliant with NEPM Schedule B(3).
Electrical Conductivity (1:5)	EA010	SOIL	In house: Referenced to Rayment and Lyons 3A1 and APHA 2510. Conductivity is determined on soil samples using a 1:5 soil:water leach. This method is compliant with NEPM Schedule B(3).
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Exchange Acidity by 1M Potassium Chloride	* ED005	SOIL	In house: referenced to Rayment and Lyons, method 15G1. This method is unsuitable for near neutral and alkaline soils. NATA accreditation does not cover performance of this service.
Exchangeable Cations on Alkaline Soils	* ED006	SOIL	In house: Referenced to Soil Survey Test Method C5. Soluble salts are removed from the sample prior to analysis. Cations are exchanged from the sample by contact with alcoholic ammonium chloride at pH 8.5. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil.
Exchangeable Cations	ED007	SOIL	In house: Referenced to Rayment & Lyons Method 15A1. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM Schedule B(3).
Exchangeable Cations	ED007 CALC	SOIL	In house: Referenced to Rayment & Lyons Method 15A1. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM Schedule B(3).
Exchangeable Cations with pre-treatment	ED008	SOIL	In house: Referenced to Rayment & Lyons Method 15A2. Soluble salts are removed from the sample prior to analysis. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM Schedule B(3).
Exchangeable Cations with pre-treatment	ED008	SOIL	In house: Referenced to Rayment & Lyons Method 15A2. Soluble salts are removed from the sample prior to analysis. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM Schedule B(3).
Exchangeable Cations with pre-treatment	ED008 CALC	SOIL	In house: Referenced to Rayment & Lyons Method 15A2. Soluble salts are removed from the sample prior to analysis. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM Schedule B(3).
Bicarbonate Extractable K (Colwell)	ED021	SOIL	In house: Referenced to Rayment & Lyons Method 18A1 Potassium is extracted from the soil using 0.5M NaHCO ₃ at a 1:100 soil:solution ratio and determined by ICP.
Ammonia Using Steam Distillation and Titrimetric Finish	EK055-P	SOIL	In house: Referenced to APHA 4500-NH ₃ B&G. H Samples are steam distilled prior to analysis and quantified using titration, FIA or Discrete Analyser.
Nitrite as N - Soluble by Discrete Analyser	EK057G	SOIL	In house: Referenced to APHA 4500-NO ₃ -B. Nitrite in a water extract is determined by direct colourimetry by Discrete Analyser.
Nitrate as N - Soluble by Discrete Analyser	EK058G	SOIL	In house: Referenced to APHA 4500-NO ₃ -F. Nitrate in the 1:5 soil:water extract is reduced to nitrite by way of a chemical reduction followed by quantification by Discrete Analyser. Nitrite is determined separately by direct colourimetry and result for Nitrate calculated as the difference between the two results.



Analytical Methods		Method	Matrix	Method Descriptions
Nitrite and Nitrate as N (NO _x)- Soluble by Discrete Analyser	EK059G	SOIL	In house: Thermo Scientific Method D08727 and NEMI (National Environmental Method Index) Method ID: 9171. This method covers the determination of total oxidised nitrogen (NO _x -N) and nitrate (NO ₃ -N) by calculation, Combined oxidised Nitrogen (NO ₂ +NO ₃) in a water extract is determined by direct colourimetry by Discrete Analyser.	
TKN as N By Discrete Analyser	EK061G	SOIL	In house: Referenced to APHA 4500-Norg-D Soil samples are digested using Kjeldahl digestion followed by determination by Discrete Analyser.	
Total Nitrogen as N (TKN + NO _x) By Discrete Analyser	EK062G	SOIL	In house: Referenced to APHA 4500 Norg/NO ₃ - Total Nitrogen is determined as the sum of TKN and Oxidised Nitrogen, each determined separately as N.	
Total Phosphorus By Discrete Analyser	EK067G	SOIL	In house: Referenced to APHA 4500 P-B&F This procedure involves sulfuric acid digestion and quantification using Discrete Analyser.	
Phosphate Sorption Index	EK073	SOIL	In house: Referenced to Rayment and Lyons, 911. Soil is bought to equilibrium with a solution of P at known concentration. P absorbed / released is determined by ICPAES analysis of the final solution.	
Total Organic Carbon	EP003	SOIL	In house C-IR17. Dried and pulverised sample is reacted with acid to remove inorganic Carbonates, then combusted in a furnace in the presence of strong oxidants / catalysts. The evolved (Organic) Carbon (as CO ₂) is automatically measured by infra-red detector.	
Preparation Methods				
	Method	Matrix	Method Descriptions	
Exchangeable Cations Preparation Method (Alkaline Soils)	* ED006PR	SOIL	In house: Referenced to Rayment and Lyons method 15C1.	
Exchangeable Cations Preparation Method	ED007PR	SOIL	In house: Referenced to Rayment & Lyons method 15A1. A 1M NH ₄ Cl extraction by end over end tumbling at a ratio of 1:20. There is no pretreatment for soluble salts. Extracts can be run by ICP for cations.	
Bicarbonate Extractable K (Colwell)	ED021PR	SOIL	In house: Referenced to Rayment & Lyons Method 18A1 Potassium is extracted from the soil using 0.5M NaHCO ₃ at a 1:100 soil:solution ratio and determined by ICP.	
TKN/TP Digestion	EK061/EK067	SOIL	In house: Referenced to APHA 4500 Norg- D; APHA 4500 P - H. Macro Kjeldahl digestion.	
Phosphate Sorption Index	EK073PR	SOIL	In house: Referenced to Rayment and Lyons, 911. Soil is bought to equilibrium with a solution of P at known concentration. P absorbed / released is determined by ICPAES analysis of the final solution.	
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of reagent grade water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.	
Dry and Pulverise (up to 100g)	GEO30	SOIL	#	

Material Test Report

Report Number: B-24-529-42
Issue Number: 1
Date Issued: 05/05/2026
Client: Soiltech Testing Services
PO Box 6055, Toowoomba West QLD 4350
Contact: Tim Miller
Project Number: B-24-529
Project Name: Quality Assurance 2025
Client Reference: TP261595
Work Request: 22240
Sample Number: B-22240A
Client Sample #: S-268414A
Date Sampled: 08/04/2026
Dates Tested: 21/04/2026 - 27/04/2026
Sampling Method: Sampled by Client - Tested as Received
The results apply to the sample as received
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Site Selection: Selected by Client
Sample Location: Sample 1
Material: Silty Clay
Material Source: Onsite/Existing



SQS www.sqs.net.au
SOIL QUALITY SERVICES
AMB Geotech SQS Pty Ltd
ABN 36 631 788 620

SQS

Brisbane Laboratory

105 Granite Street Geebung QLD 4034

Phone: (07) 3284 8766

Email: brisbane@sqs.net.au

Accredited for compliance with ISO/IEC 17025 - Testing



[Signature]

Approved Signatory: Torin Pegler

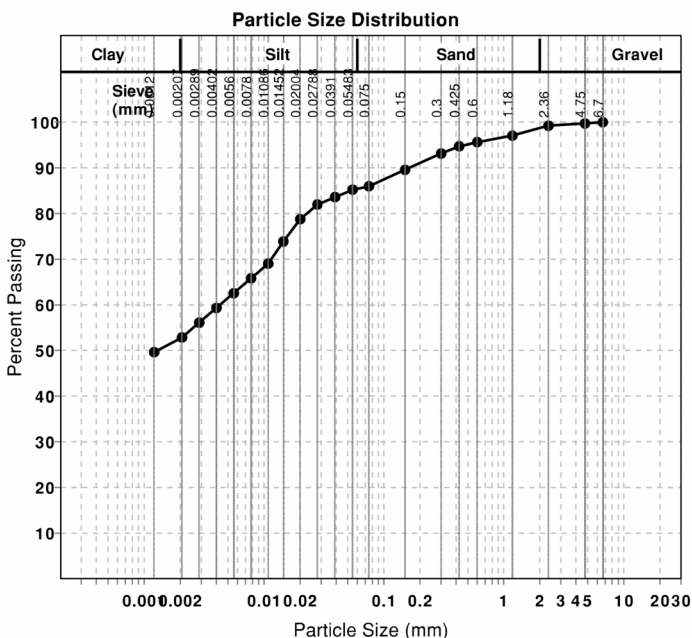
Senior Soil Technician

Laboratory Number: 2911

Apparent Particle Density of Soil (AS 1289.3.5.1)	
Mean Soil Particle Density Fine (g/cm^3)	2.52
Average Temperature of Fine Test ($^{\circ}\text{C}$)	22
Mean Soil Particle Density Coarse (g/cm^3)	
Soil Particle Density of Total Soil Sample (g/cm^3)	

Particle Size Distribution (AS 1289 3.6.1)		
Sieve	Passed %	Passing Limits
9.5 mm		
6.7 mm	100	
4.75 mm	100	
2.36 mm	99	
1.18 mm	97	
0.6 mm	96	
0.425 mm	95	
0.3 mm	93	
0.15 mm	90	
0.075 mm	86	

Fine Analysis Using a Hydrometer (AS 1289 3.6.3)	
Particle Size (mm)	Passed %
0.055	85.2
0.039	83.6
0.028	82.0
0.020	78.7
0.015	73.9
0.011	69.0
0.008	65.8
0.006	62.6
0.004	59.3
0.003	56.1
0.002	52.9
0.001	49.6



Fine Analysis Using a Hydrometer (AS 1289 3.6.3)	
Type of Hydrometer	Bouyoucos Scale
Method of Preparation	Oven Dried
Method of Dispersion	Mechanical Device
Loss in Pretreatment	0
Soil Particle Density (t/m^3)	2.52

Material Test Report

Report Number: B-24-529-42
Issue Number: 1
Date Issued: 05/05/2026
Client: Soiltech Testing Services
PO Box 6055, Toowoomba West QLD 4350
Contact: Tim Miller
Project Number: B-24-529
Project Name: Quality Assurance 2025
Client Reference: TP261595
Work Request: 22240
Sample Number: B-22240B
Client Sample #: S-268414B
Date Sampled: 08/04/2026
Dates Tested: 21/04/2026 - 27/04/2026
Sampling Method: Sampled by Client - Tested as Received
The results apply to the sample as received
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Site Selection: Selected by Client
Sample Location: Sample 2
Material: Silty Sand
Material Source: Onsite/Existing



SQS www.sqs.net.au
SOIL QUALITY SERVICES
AMB Geotech SQS Pty Ltd
ABN 36 631 788 620

SQS

Brisbane Laboratory

105 Granite Street Geebung QLD 4034

Phone: (07) 3284 8766

Email: brisbane@sqs.net.au

Accredited for compliance with ISO/IEC 17025 - Testing



Approved Signatory: Torin Pegler

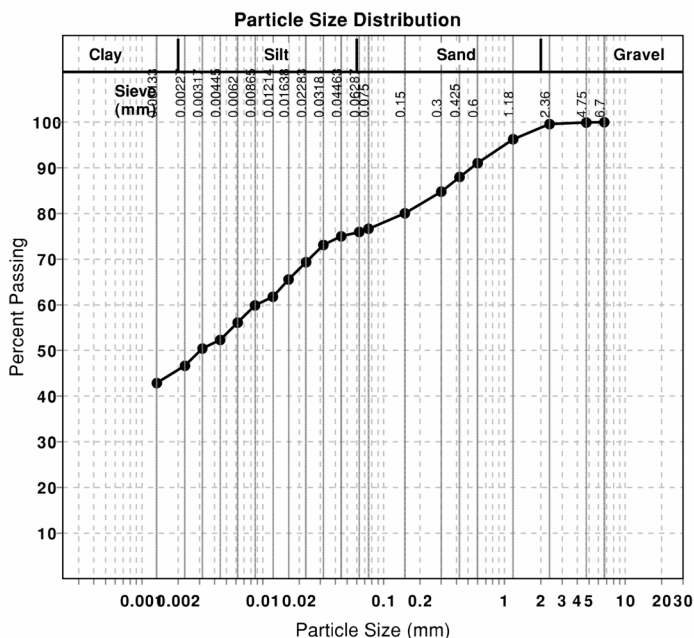
Senior Soil Technician

Laboratory Number: 2911

Apparent Particle Density of Soil (AS 1289.3.5.1)	
Mean Soil Particle Density Fine (g/cm^3)	2.41
Average Temperature of Fine Test ($^{\circ}\text{C}$)	22
Mean Soil Particle Density Coarse (g/cm^3)	
Soil Particle Density of Total Soil Sample (g/cm^3)	

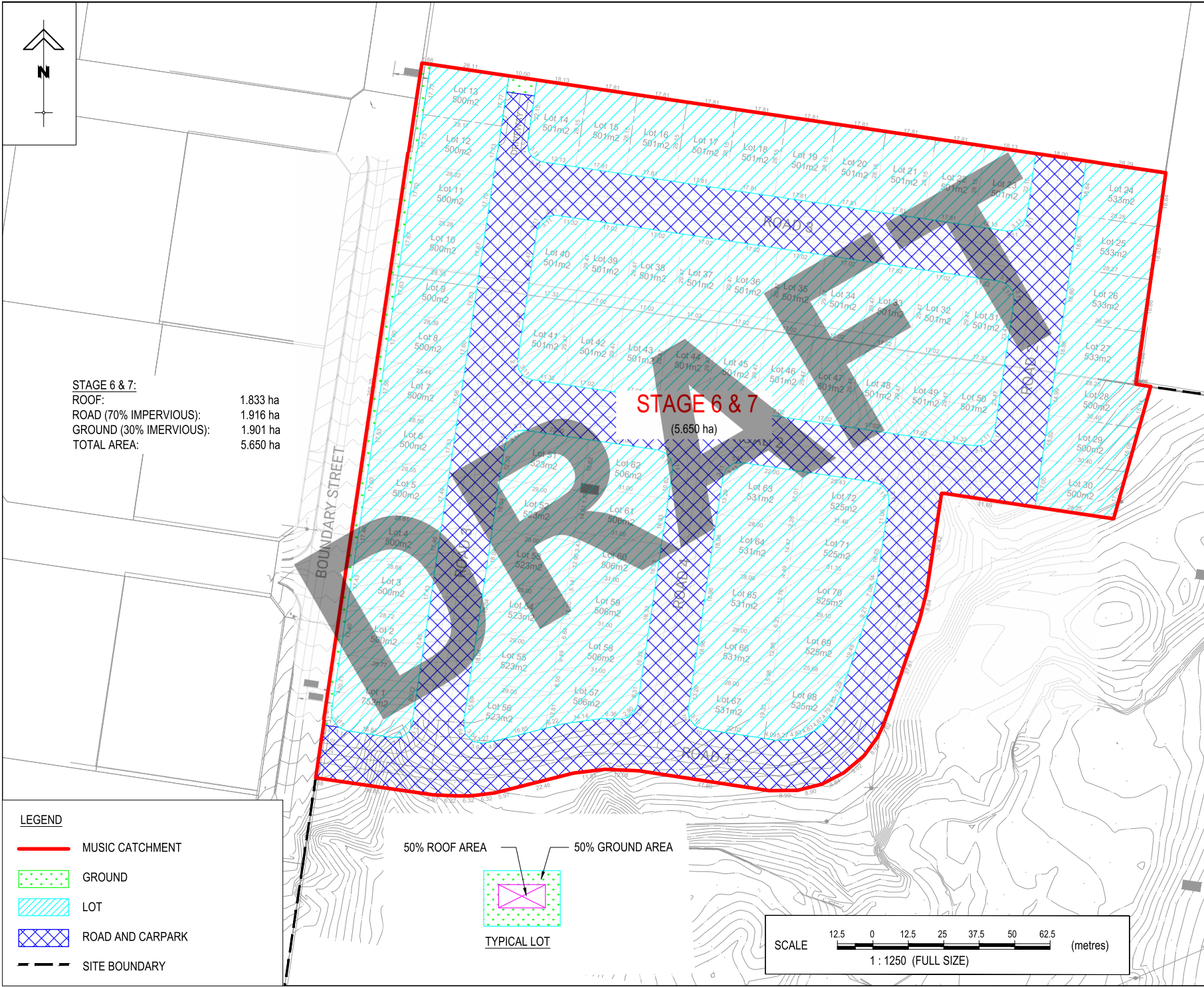
Particle Size Distribution (AS 1289 3.6.1)		
Sieve	Passed %	Passing Limits
9.5 mm		
6.7 mm	100	
4.75 mm	100	
2.36 mm	100	
1.18 mm	96	
0.6 mm	91	
0.425 mm	88	
0.3 mm	85	
0.15 mm	80	
0.075 mm	77	

Fine Analysis Using a Hydrometer (AS 1289 3.6.3)	
Particle Size (mm)	Passed %
0.063	76.0
0.045	75.0
0.032	73.1
0.023	69.3
0.016	65.5
0.012	61.8
0.009	59.9
0.006	56.1
0.004	52.3
0.003	50.4
0.002	46.6
0.001	42.9



Fine Analysis Using a Hydrometer (AS 1289 3.6.3)	
Type of Hydrometer	Bouyoucos Scale
Method of Preparation	Oven Dried
Method of Dispersion	Mechanical Device
Loss in Pretreatment	0
Soil Particle Density (t/m^3)	2.41

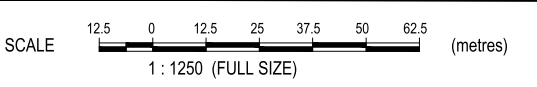
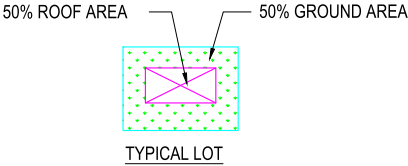
A3. DRAFT LAYOUT OF STAGES 6&7



STAGE 6 & 7:
ROOF: 1.833 ha
ROAD (70% IMPERVIOUS): 1.916 ha
GROUND (30% IMPERVIOUS): 1.901 ha
TOTAL AREA: 5.650 ha

LEGEND

- MUSIC CATCHMENT
- GROUND
- LOT
- ROAD AND CARPARK
- SITE BOUNDARY



RESIDENTIAL SUBDIVISION
(STAGE 6 & 7)

87 EUSTON ROAD,
GLENVALE
FOR
HF CAPITAL MANAGEMENT
PTY LTD

ORIGINAL SCALE BEFORE REDUCTION			
A3			
A	ORIGINAL ISSUE		10.04.26
VER.	DESCRIPTION	APPR.	DATE

REVISIONS

COPYRIGHT ©

This drawing is copyright and the property of Burchills Engineering Solutions. It must not be retained, copied or used without the authority of Burchills Engineering Solutions.

DISCLAIMER

This drawing and its contents are electronically generated, are confidential and may only be used for the purpose for which they were intended. Burchills Engineering Solutions will not accept responsibility for any consequences arising from the use of the drawing for other than its intended purpose or where the drawing has been altered, amended or changed either manually or electronically by any third party.

NOTE

This is an uncontrolled document issued for information purposes only, unless the checked sections are signed or completed. Figured dimensions take precedence over scale. Do not scale reduced size drawings. Verify dimensions prior to commencing any on-site or off-site works or fabrication.

BURCHILLS
ENGINEERING SOLUTIONS

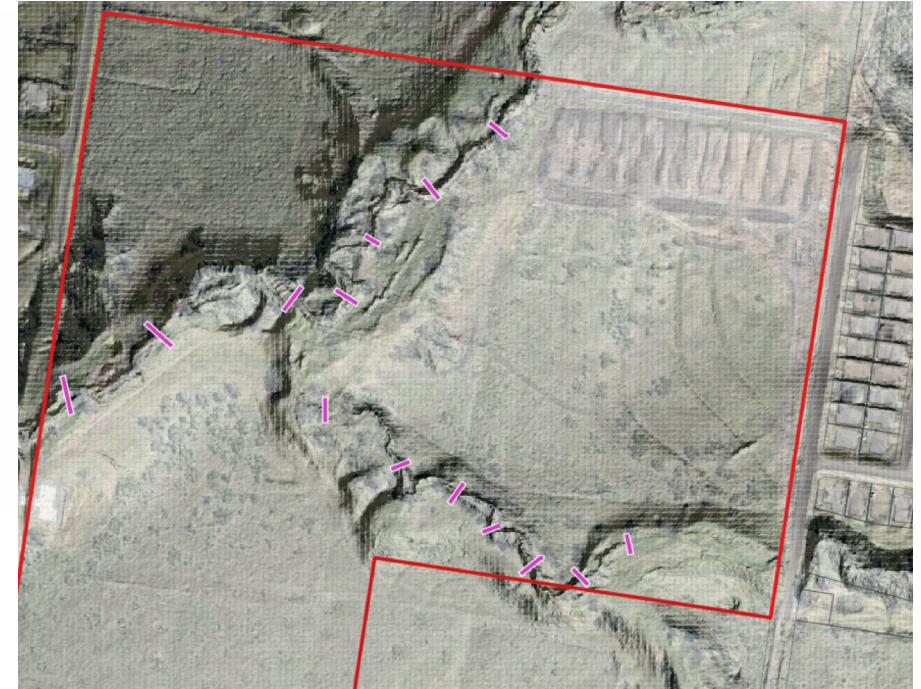
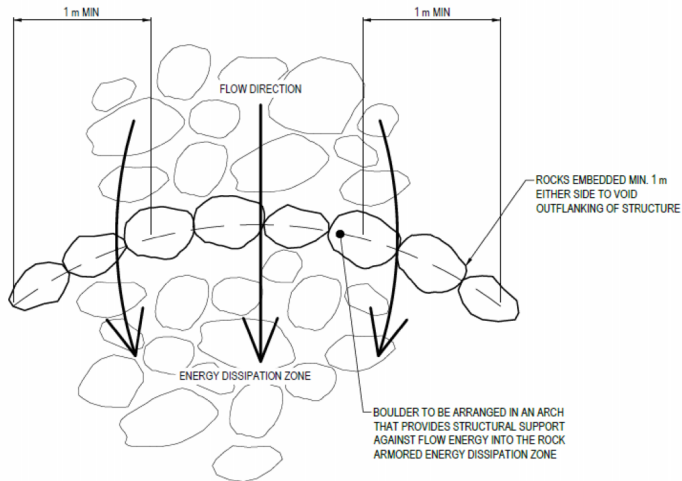
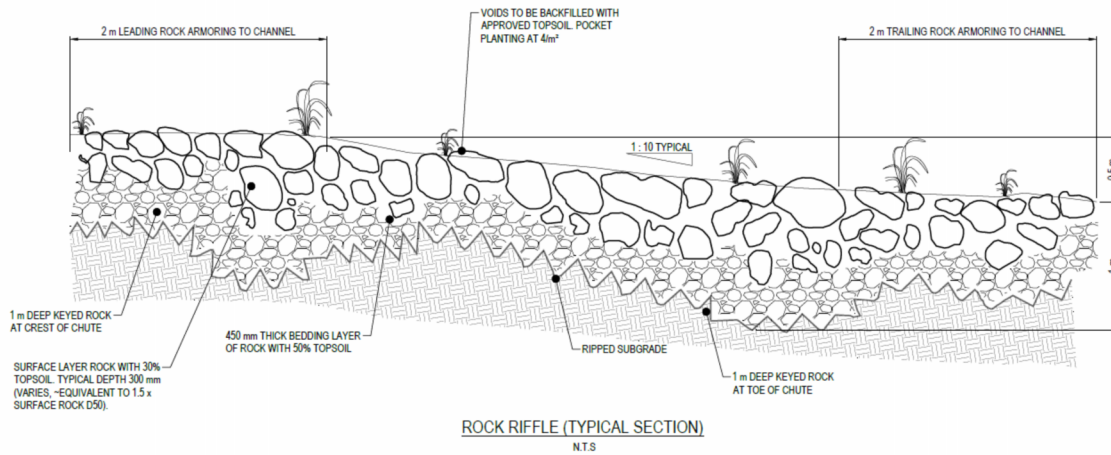
GOLD COAST | BRISBANE | TOOWOOMBA
IPSWICH | MORETONBAY
PHONE: +61 7 5509 6400
FAX: +61 7 5509 6411
EMAIL: ADMIN@BURCHILLS.COM.AU
COOTE BURCHILLS ENGINEERING PTY LTD
ABN 76 166 942 365

DRAWING TITLE :

MUSIC CATCHMENT PLAN

DEVEL. APPLIC. No. :		DATE : 10.04.26	
PROJECT LEADER : NN			
DESIGNER : AWE			
DRAFTSPERSON : TK			
CHECKED : JC			
APPROVED FOR AND ON BEHALF OF BURCHILLS ENGINEERING SOLUTIONS ABN 76 166 942 365			
RPEQ No. :			
SCALE : AS SHOWN		DATUM :	FULL SIZE : A3
PROJECT No. :		DRAWING No. :	VERSION:
BE260144		N202	A

A4. CONCEPT SKETCH



ROCK CHUTE LOCATIONS (INDICATIVE)

ROCK SPECIFICATION

ALL ROCK SHALL BE HARD, ANGULAR, WELL GRADED ROCK D50 = 250 MM AND MUST INCLUDE ROCK IN THE RANGE 50 - 500 MM. ROCK PRE-APPROVED BY SUPERINTENDENT PRIOR TO SUPPLY TO THE SITE.

BEDDING LAYER

BEDDING LAYER TO BE 450 MM THICK LAYER COMPRISING 50:50 MIX OF APPROVED TOPSOIL AND HARD, WELL GRADEDE ANGULAR ROCK 20-150 MM

GEOSYNTHETICS ARE NOT TO BE USED IN THE WATERWAY.

BULK EARTHWORKS TO ALL BATTER SLOPES ARE TO BE SCARIFIED HORIZONTALLY TO MINIMISE DELAMINATION. BENCHING TO IN ACCORDANCE WITH RPEQ CERTIFIED SITE GEOTECHNICAL REPORT.

THE BASE OF ALL EXCAVATIONS IS TO BE RIPPED TO A DEPTH OF 100 MM TO MAXIMISE ROOT GROWTH AND MINIMISE RISKS OF DE LAMINATION.

BLIGHT TANNER BRISBANE SYDNEY blightanner@blightanner.com.au blightanner.com.au	REV	DATE	DESCRIPTION	DESIGN	DRAWN	APPROVED	CLIENT	BURCHILLS	ARCHITECT	SCALES	N.T.S	DRAWN BY	AH	PROJECT										
	A	15/05/2026	CONCEPT DESIGN	AH	AH							DESIGN BY	AH	87 EUSTON ROAD GLENVALE										
												CHECKED BY	AH	DRAWING TITLE										
														PROPOSED ROCK CHUTE CONCEPT DESIGN										
														STATUS	NOT FOR CONSTRUCTION	SIGNED	PRINTING REQUIREMENTS							
																	PRINT THIS DRAWING IN		PROJECT NUMBER		DRAWING NUMBER		REVISION	
																			2026.0176		CSK001		A	

Bligh Tanner Pty Ltd

ABN 32 061 537 666

blightanner@blightanner.com.au

blightanner.com.au

Brisbane

Level 9, 269 Wickham Street

PO Box 612

Fortitude Valley

QLD 4006 Australia

T +61 7 3251 8555

F +61 7 3251 8599

Sydney

Suite 3.02, Level 3

32 Walker Street

North Sydney

NSW 2060 Australia

T +61 2 9170 3777

Melbourne

Level 1, 111 Coventry Street

Southbank

VIC 3005 Australia

T +61 7 3251 8555

Adelaide

30 Pirie Street

Adelaide CBD

SA 5000 Australia

T +61 7 3251 8555

**BLIGH
TANNER**