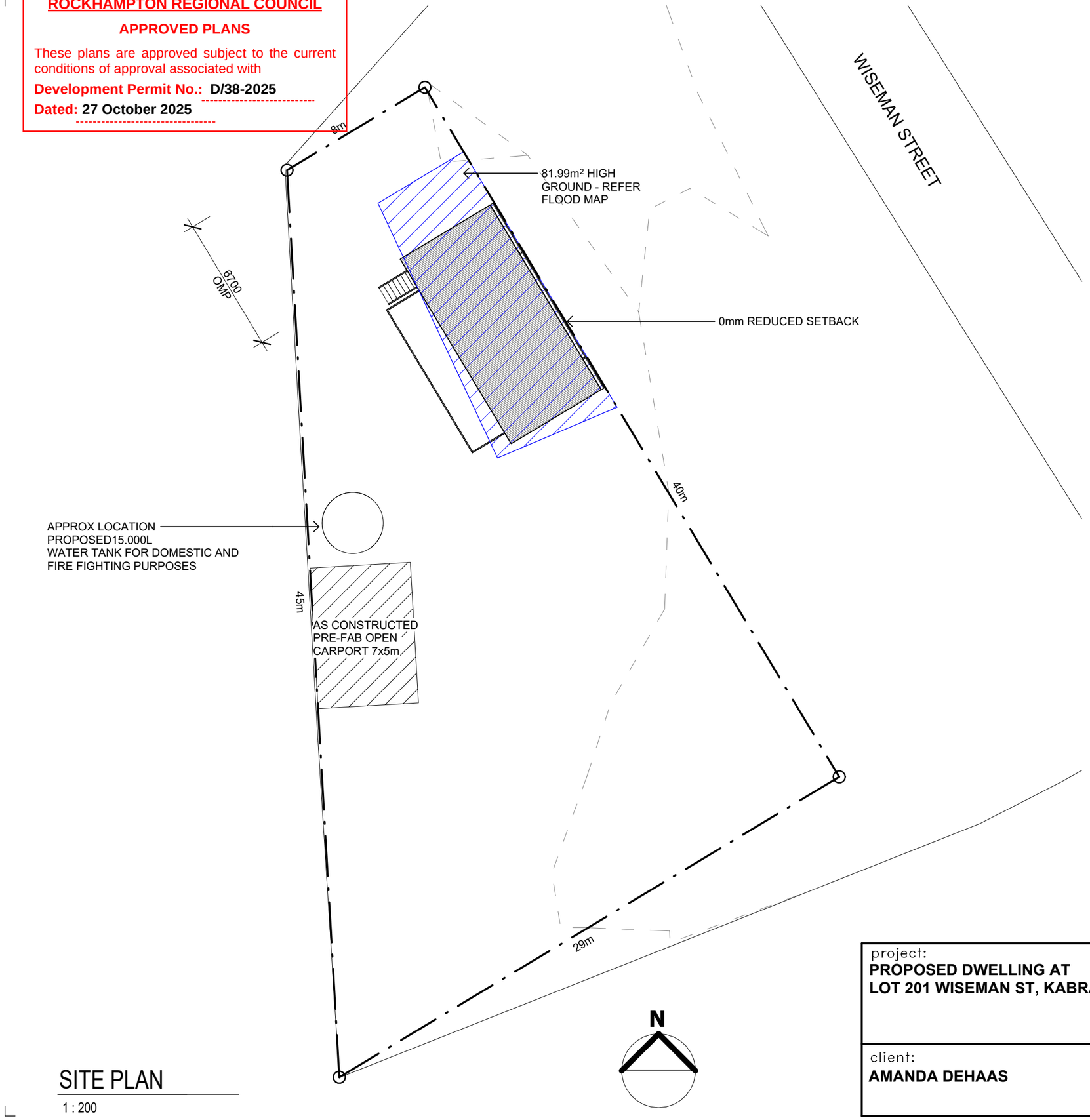
ROCKHAMPTON REGIONAL COUNCIL

APPROVED PLANS

These plans are approved subject to the current conditions of approval associated with

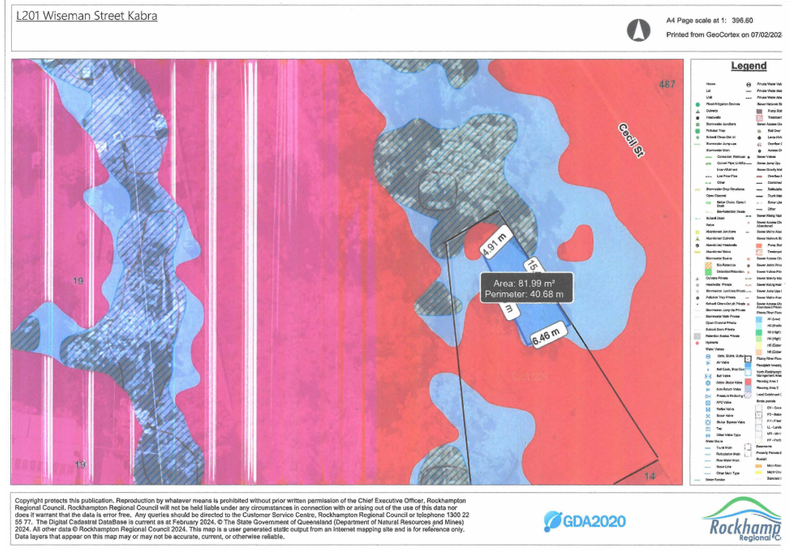
Development Permit No.: D/38-2025

Dated: 27 October 2025



SITE PLAN

1 : 200



Flood Report for Lot 201 Wiseman Street Kabra QLD 4702

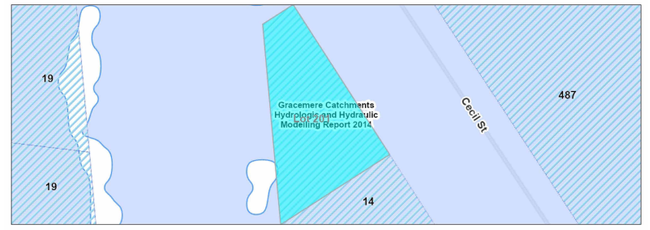
Printed from GeoCortex on 14/02/2024

Owners: A J Dehaas

Ratepayer Address: 11 Rahima Ct GRACEMERE QLD 4702

Parcel ID: K4221/201

Land use: Vacant Land



Riverine Catchment: N/A

Creek Catchment: Report 2014

Mitigation Area: N/A

Horizontal Datum: MGA 56, GDA 2020

Elevation / WSL: mAHD Velocity: m/sec

Comments: N/A

Riverine				Creek \ Local Catchment			
PMF WSL Min:	N/A	AEP 2% WSL Min:	N/A	PMF WSL Min:	N/A	AEP 5% WSL Min:	N/A
PMF WSL Max:	N/A	AEP 2% WSL Max:	N/A	PMF WSL Max:	N/A	AEP 5% WSL Max:	N/A
PMF Velocity Min:	N/A	AEP 2% Velocity Min:	N/A	PMF Velocity Min:	N/A	AEP 5% Velocity Min:	0.01
PMF Velocity Max:	N/A	AEP 2% Velocity Max:	N/A	PMF Velocity Max:	N/A	AEP 5% Velocity Max:	0.62
AEP 0.05% WSL Min:	N/A	AEP 5% WSL Min:	N/A	AEP 0.05% WSL Min:	N/A	AEP 10% WSL Min:	27.54
AEP 0.05% WSL Max:	N/A	AEP 5% WSL Max:	N/A	AEP 0.05% WSL Max:	N/A	AEP 10% WSL Max:	27.63
AEP 0.05% Velocity Min:	N/A	AEP 5% Velocity Min:	N/A	AEP 0.05% Velocity Min:	N/A	AEP 10% Velocity Min:	0.01
AEP 0.05% Velocity Max:	N/A	AEP 5% Velocity Max:	N/A	AEP 0.05% Velocity Max:	N/A	AEP 10% Velocity Max:	0.38
AEP 0.2% WSL Min:	N/A	AEP 10% WSL Min:	N/A	AEP 0.2% WSL Min:	N/A	AEP 18% WSL Min:	27.43
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AEP 0.2% Velocity Max:	N/A	AEP 10% Velocity Max:	N/A	AEP 0.2% Velocity Max:	N/A	AEP 18% Velocity Max:	0.26
AEP 0.5% WSL Min:	N/A	AEP 18% WSL Min:	N/A	AEP 0.5% WSL Min:	N/A	AEP 39% WSL Min:	N/A
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AEP 0.5% Velocity Max:	N/A	AEP 18% Velocity Max:	N/A	AEP 0.5% Velocity Max:	N/A	AEP 39% Velocity Max:	N/A
AEP 1% WSL Min:	N/A	AEP 39% WSL Min:	N/A	AEP 1% WSL Min:	27.86	AEP 63% WSL Min:	N/A
AEP 1% WSL Max:	N/A	AEP 39% WSL Max:	N/A	AEP 1% WSL Max:	27.89	AEP 63% WSL Max:	N/A
AEP 1% Velocity Min:	N/A	AEP 39% Velocity Min:	N/A	AEP 1% Velocity Min:	N/A	AEP 63% Velocity Min:	N/A
AEP 1% Velocity Max:	N/A	AEP 39% Velocity Max:	N/A	AEP 1% Velocity Max:	N/A	AEP 63% Velocity Max:	N/A

Property Elevation	
Ground Elevation (Min):	26.94
Ground Elevation (Max):	27.49

AEP 2% WSL Min:	N/A
AEP 2% WSL Max:	N/A
AEP 2% Velocity Min:	0.04
AEP 2% Velocity Max:	0.83

project:
PROPOSED DWELLING AT LOT 201 WISEMAN ST, KABRA

client:
AMANDA DEHAAS

designtek
Shop 5/10 Denham St
Rockhampton
QLD, 4700
p 0749 222880
building design - documentation
QBCC MEM. NO # 1123040
BDAQ MEM. NO # 0000761

title: **SITE PLAN**

scale: 1 : 200

project no: 2411-14

sheet no: 3 of 8

drawing no: SK03

rev: B

drawn: AG

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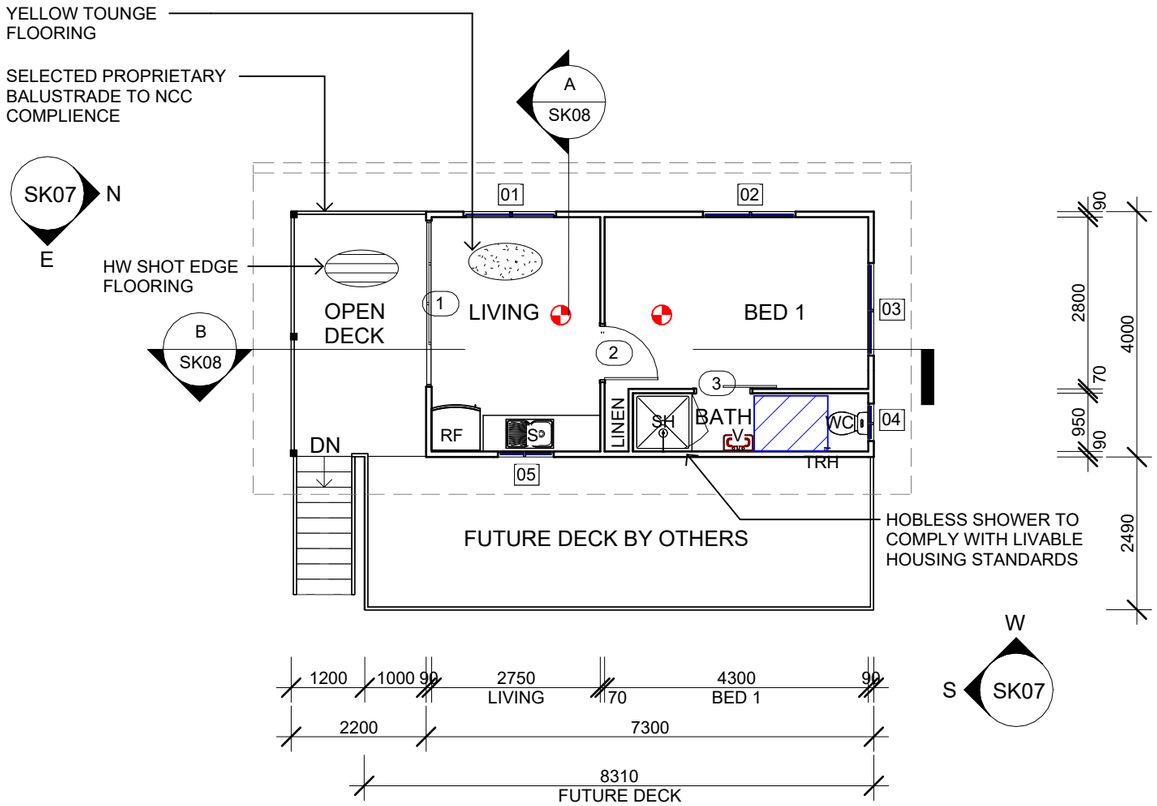

PROPOSED FLOOR PLAN

1 : 100

DOOR SCHEDULE			
CODE	WIDTH	HEIGHT	COMMENTS
1	2710	2100	SLIDING GLASS
2	950	2040	SWING
3	1820	2100	920 OPENING PLATINUM 4000 STEEL CAVITY UNIT OR EQUIVALENT

WINDOW SCHEDULE			
CODE	WIDTH	HEIGHT	COMMENTS
01	1510	1200	SLIDING XO
02	1510	1200	SLIDING XO
03	1510	600	SLIDING XO
04	610	600	SLIDING XO OBS
05	910	900	SLIDING XO

SECURITY SCREENS TO ALL EXTERNAL WINDOWS AND DOORS

SCHEDULE

RF - REFRIGERATOR
S - SINK
SH - SHOWER
TRH - TOILET ROLL OLDER
V - VANITY
WC - TOILET

AREA SCHEDULE	
NAME	AREA
BATH	5 m²
BED 1	13 m²
FUTURE DECK	21 m²
LIVING	11 m²
OPEN DECK	9 m²
TOTAL: 5	59m²

ROCKHAMPTON REGIONAL COUNCIL

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Development Permit No.: D/38-2025

Dated: 27 October 2025

project:
PROPOSED DWELLING AT LOT 201 WISEMAN ST, KABRA

client:
AMANDA DEHAAS

designtek
Shop 5/10 Denham St
Rockhampton
QLD, 4700
p 0749 222880
building design - documentation
QBCC MEM. NO # 1123040
BDAQ MEM. NO # 0000761

title:
PROPOSED FLOOR PLANS

scale: 1 : 100
project no: 2411-14
sheet no: 5 of 8
drawing no: SK05
rev: B
drawn: AG

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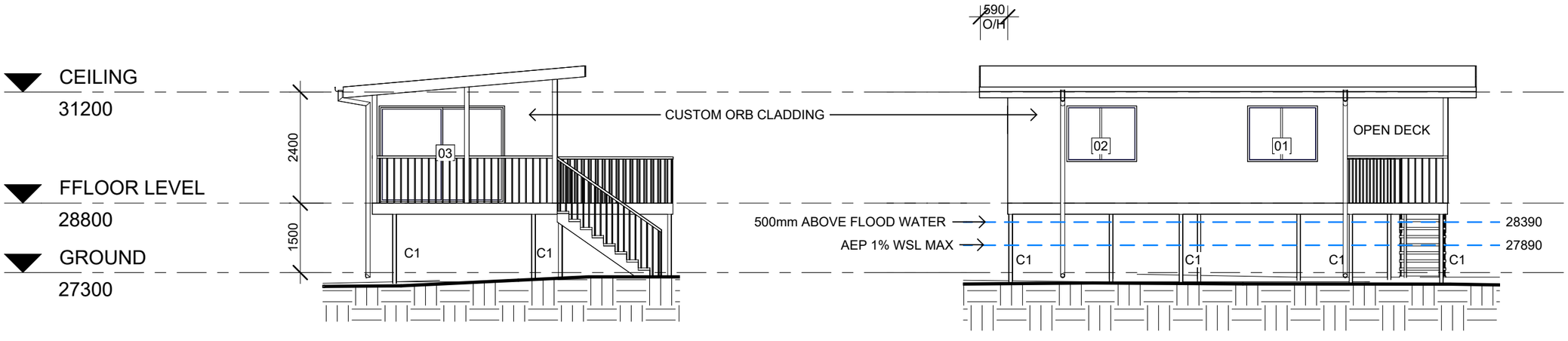
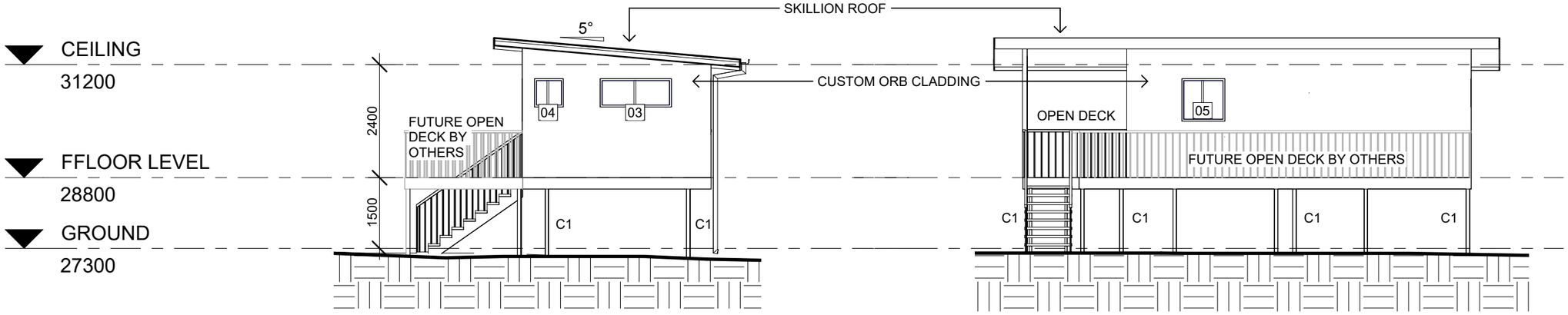


NORTH

1 : 100

EAST

1 : 100



SOUTH

1 : 100

WEST

1 : 100

ROCKHAMPTON REGIONAL COUNCIL

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Dated: 27 October 2025

project:
PROPOSED DWELLING AT LOT 201 WISEMAN ST, KABRA

client:
AMANDA DEHAAS

designtek
Shop 5/10 Denham St
Rockhampton
QLD, 4700
p 0749 222880
building design - documentation
QBCC MEM. NO # 1123040
BDAQ MEM. NO # 0000761

title: **ELEVATIONS**

scale: 1 : 100

project no: 2411-14

sheet no: 7 of 8

drawing no: SK07

rev: B

drawn: AG

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2 June 2025

Chief Executive Officer
Rockhampton Regional Council
PO Box 1860
Rockhampton QLD 4700

ROCKHAMPTON REGIONAL COUNCIL
APPROVED PLANS
These plans are approved subject to the current conditions of approval associated with
Development Permit No.: D/38-2025
Dated: 27 October 2025

Dear Sir/Madam,

Flood Hazard Assessment in Support of
Proposed Residential Dwelling at 201 Wiseman Street, Kabra

The subject land is located at 201 Wiseman Street, Kabra and is in a 'Township' zone. This property is described as 201 K4221 and has a total area of 751m^2. The property is currently undeveloped.

A new residence (the subject of this application) is proposed to be constructed on columns approximately 6.7m south-east of the northernmost corner of the property boundary. The residence will be oriented perpendicular to Wiseman Street.

The allotment was assessed in the Gracemere Catchments Hydrologic and Hydraulic Modelling Report 2014. The following Flood Hazard Assessment is provided based on the perceived impacts of the proposed development on the flood plain in this area.

A Flood Search undertaken by Rockhampton Regional Council (RRC) identifies the site as **Not Affected** by Riverine Flood and **Affected** by Creek Catchment Flood / Local Storm Event.

Current Natural Surface Levels

Existing ground surface levels of the lot vary between approximately 26.76m and 27.28m AH based on detailed survey information obtained by Sunrise Surveying on 23 January 2025 attached to this report. Level information denoted in a flood report provided by council on 14 February 2024 is generally consistent with the site survey.

Proposed adjustments to Natural Surface Levels

Due to the dwelling construction being proposed on columns in concrete piers with no ground level slab, there will be little to no adjustments to Natural Surface Levels.

Relevant Access Route

As the development is for residential purposes, which is consistent with the current overlays, it will not affect any or increase traffic volumes on the access route to and from the property beyond what has been allowed for in the external road planning and design.

Existing Flood Levels

A flood report provided by council on 12 May 2025 indicates maximum 1% AEP flood elevation to be 27.89m AHD and 1% flood water velocities to be 1.64m/s for local creek / catchment flooding. The property is not affected by Riverine flooding. Based on natural surface levels, flood depths at the site are expected to generally be between 0.61m and 1.13m.

Dileigh Pty Ltd, 47 Normanby Street, Yeppoon, QLD 4703
Phone/Fax: (07) 4911 2553 Email: admin@dileigh.com.au
ABN 49 121 309 171

Potential Impact of Development on Flood Depth and Velocity

Due to the dwelling construction requiring little or no earthworks, it will not result in any loss of storage, measurable impact to flood heights or actionable nuisances to the surrounding properties. Noting that the columns will be 75x75 SHS and proposed floor heights are well above flood levels, flood waters will be unimpeded and impacts to flood velocities and depths in the surrounding areas will be negligible.

Flood Hazard Classification

RRC Planning Scheme mapping indicates the site is subject to both 'Planning Area 1' (high and extreme hazard areas with very deep and/or fast moving water) and 'Planning Area 2' (low and medium hazard area), with the proposed residence being generally within the 'Planning Area 2' extents.

The aforementioned 1% AEP local flood velocity and depths across the site correspond to a flood hazard classification of between H4 and H5 as per *Australian Institute for Disaster Resilience Guideline 7-3: Figure 6.* This is considered "unsafe for vehicles and people", with H5 areas posing a risk of structural damage to buildings.

The house location and size has been nominated as such that it is contained within 'Planning Area 2' as much as practicable. The design of columns which are situated within the "Planning Area 1" overlay must consider possible collision with objects borne by flood waters in order to resist structural failure.

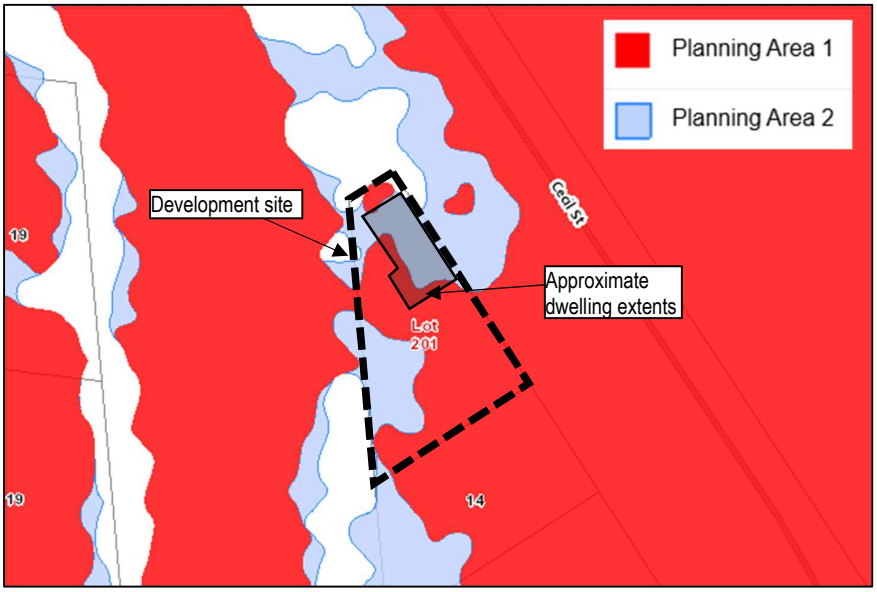

Figure 1: RRC Local Catchment Flood Mapping

Afflux

Due to the very low velocity of flood events and minimal obstruction caused by the small proposed columns, afflux, if any will be localized around the columns and not cause any notable disruptions to downstream flows even in very rare flood events.

Evacuation Options

The development will not affect any of the current evacuation options available as there will be no effects on the current flood level. Given the nature of local flooding, inundation of the site and the surrounding area is expected to be low in duration (<1 day) so evacuation is not likely to be required.

During local flooding, the majority of the surrounding Kabra township residential area is inundated and isolated from evacuation routes to the north (via Capricorn Highway) and south (Morgan Street). Noting velocities and depths aforementioned in this report and significant extents of the "Planning Area 1" overlay across Kabra, roads are expected to not be trafficable during flooding.

Residents would generally be able to shelter in place for the duration of the flooding without significant risk. Alternatively, residents may evacuate prior to a major storm event as directed by local weather / disaster management warnings or *Queensland Government Severe Weather, Flood, Cyclone Warnings and Emergency Alerts*.

If absolutely necessary, emergency vehicles can approach Kabra from Rockhampton via Capricorn Highway or Morgan Street in order to evacuate residents via watercraft or air.

As per RRC Planning Scheme Table 8.2.8.3.2 AO12.2, "trafficable access requirements for local catchment planning areas has not been identified and reference has been made to the provisions under the Queensland Urban Drainage Manual. This is due to the short period that property may be isolated."

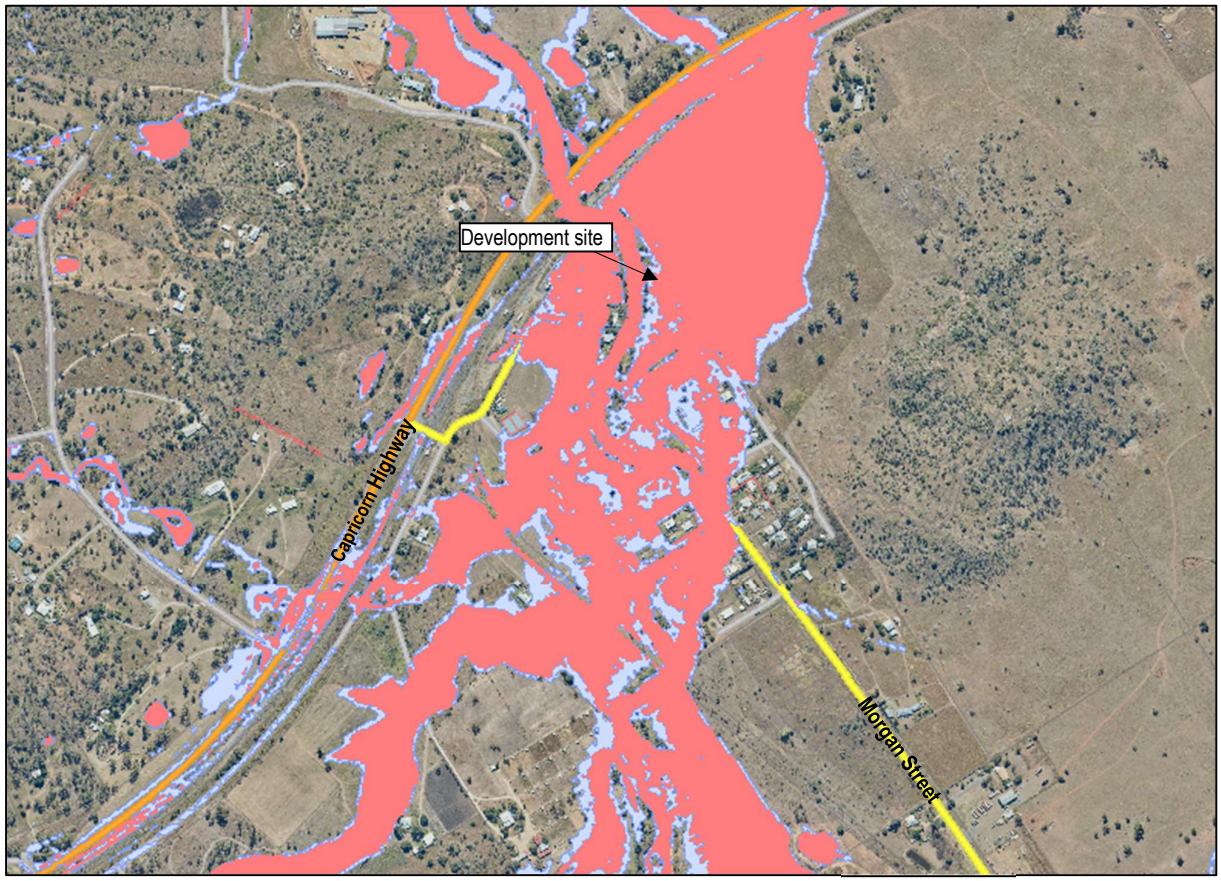

Figure 2: Kabra Flooding Extents (RRC Mapping)

Effective Warning Times

The proposed development shall have no impact on effective warning times due to there being no alterations to flood levels or velocities.

Conclusion

The developed site is expected to receive a combination of high to very high risk waters. The proposed residence is, as much as practicable, located within the shallowest area of flood waters to ensure the dwelling is subject to minimal risk of structural damage. Columns which may be located within the extent of deep, high velocity flood waters must be designed accordingly to resist structural failure.

The site and surrounding Kabra township are inaccessible by vehicles during local flooding events. However, given the nature of local catchment flooding, the duration of inundation is expected to limited and evacuation during flooding is unlikely to be required.

Based on advice from RRC, the minimum habitable flood level for the development site is 28.39m AHD (0.5m above flood height). The proposed finished flood level is 29.7m AHD, which well above the minimum required.

With existing flow paths maintained there will be no adverse impacts to surrounding properties Council can confidently approve the required operation to enable the construction of the proposed dwelling.

Please do not hesitate to contact the undersigned if you have any further queries.

Regards,

Ashleigh Lucas
Cadet Engineer

Endorsed,

Tony Lau
Senior Engineer / RPEQ

o

ROCKHAMPTON REGIONAL COUNCIL

APPROVED PLANS

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Dated: 27 October 2025

CQ SOIL TESTING

AS1547 Wastewater Design

SITE ADDRESS:	Lot 59 (MPH14360) 201 Wiseman Street, Kabra
Prepared for:	A Dehaas
Job Number:	CQ27005
Issue Date:	16/12/2024

Certified System OHS ISO 45001 SAI GLOBAL

Certified System Environment ISO 14001 SAI GLOBAL

Certified System Quality ISO 9001 SAI GLOBAL

SUMMARY OF RECOMMENDATIONS

Treatment

Aerated Water Treatment System (AWTS)
(Capable of producing advanced secondary quality effluent)

Disposal Mechanism

One (1) Evapotranspiration/Absorption Beds
2.5 metres x 14.8 metres – Total Area 37 sqm

CQ SOIL TESTING technical excellence

ABN 87 656 845 448
QBCC License 15 305 465

PO Box 9654
Park Avenue QLD 4701

P (07) 4936 1163
F (07) 4936 1162

info@cqsoiltesting.com.au

Client & Document Information

Client:	A Dehaas
Project:	Lot 59 (MPH14360)
	201 Wiseman Street, Kabra
Investigation Type:	**Wastewater Investigation**
Job Number:	CQ27005
Date of Issue:	16/12/2024

Contact Information

CQ SOIL TESTING
ABN 87 656 845 448

PO Box 9654
PARK AVENUE QLD 4701

Telephone: (07) 4936 1163
Facsimile: (07) 4936 1162

Email: info@cqsoiltesting.com.au

Document Control

Version	Concept By	Design Drawings	Design Review	Issue Approved By	Date
A	James Rider	P Munro	Scott Walton	Scott Walton	16/12/2024

1. INTRODUCTION

The purpose of this report is to evaluate and define a suitable on-site sewerage treatment and disposal system for household effluents in accordance with Australian Standard 1547 "On-site domestic-wastewater management". The Queensland Plumbing and Wastewater Code has been used for reference purposes during the compiling of this report.

The field investigation was carried out on the 3rd December, 2024. This report relates exclusively to the proposed dwelling at the site identified on Page 1 of this report. This document has been prepared for the express purpose stated above. This document does not cover any other elements related to construction on the site.

2. SITE DESCRIPTION AND SUPPLIED INFORMATION

2.1 Allotment and Effluent Disposal Site

- ***The landholder was interviewed. All information included in this report relating to the dwelling size, water source, fixtures etc have been provided by the landholder or the landholders representative.***

- ***The landholder shall read and understand all aspects of this design. CQ Soil Testing may carry out amendments to this design if requested, additional fees shall apply.***

- ***The landholder is to liaise with neighbouring properties regarding the presence of discrete/unregistered bores that may exist/be proposed on adjacent allotments prior to system installation.***

- The site is a rural type allotment located on Wiseman Street (a sealed road).
- The slope configuration in relation to surface drainage is linear planar.
- The proposed effluent disposal area is essentially level and is considered to have poor drainage.The soil surface condition was dry at the time of testing.
- There was no evidence of cracking of the surface during the investigation.
- There were visible boulders on the surface of the allotment.
- There were rock outcrops evident.
- There was no watercourse, bore, well, or dam evident within 10 m of the proposed disposal area at the time of this investigation.
- The proposed effluent disposal area is exposed to sun and wind.
- The proposed disposal site is an existing grassed area.
- Surface water will drain toward the southwest.
- Surface water drainage from adjoining allotments may traverse this site.
- The weather conditions prior to testing were periods of moist conditions.
- The site is not a known flood area.

2.2 Dwelling and Fixtures

- The dwelling type is single storey - 1 bedroom.
  (3 equivalent persons – AS 1547:2012 Appendix J)
- The water source is reticulated supply.
  (150 litre/person/day – AS 1547:2012 Appendix H)
- Standard water reducing fixtures ***are to be*** used throughout the dwelling.
- A spa bath ***is not*** proposed to be installed.
- A food waste disposal unit ***is not*** proposed to be installed.

3. SOIL PROFILE

The borelogs carried out at the site (refer attached Site Plan for localities) indicate that the soil profile typically consists of silty sand which is underlain by silty sandy clay. Soil logs are detailed in this report.

Groundwater was not encountered during the field investigation.
Weathered rock was not encountered during the field investigation.

Table 1 - Determination of Soil Category

Soil Category BH1	Soil Texture	Structure	Indicative Permeability	Indicative Drainage Class
3 (00-400 mm)	Loam	Weakly Structured	0.5 – 1.5 m/day	Moderately Well Drained
5 (400-1500 mm)	Light Clay	Strongly Structured	0.12 – 0.5 m/day	Poorly Drained

Table 2 – Permeability test results and conclusions

Test No.	Soil Permeability	Test hole depth	Recommended Design Loading Rate
PT 1	0.3	500 mm	
Average	**0.3**		**8 (mm/day)**

Permeability testing aids in the design of an "On-site domestic–wastewater management system". CQ Soil Testing carries out a permeability testing in accordance with Appendix 4.1F of the Australian Standard 1547.

Whilst every effort has been made to ensure that the borelogs carried out at the subject allotment are indicative of the soil profile over the site any discrepancy between the profile detailed in the borelogs and that observed during construction shall be referred to CQ Soil Testing for immediate attention.

4. INVESTIGATION DETAILS

The investigation carried out at the site included machine augured boreholes up to 1500 mm depth and a series of permeability test pits. These test pits are located in the proposed effluent disposal area as shown on the attached design drawings. The Queensland Plumbing and Wastewater Code and AS 1547 suggests that the use of a primary-treated effluent disposal system will be satisfactory provided:

- Sufficient permeable surface soil overlying rock is present over the disposal area, not less than 1.2 metres depth.
- A suitable soil category material (as per AS 1547) and minimum required depth is encountered.
- A minimum set-back distance of 50m is obtained.
- Acceptable permeability rates are obtained.

All the above requirements have not been met, therefore it is concluded that the use of a primary-treated effluent septic system is not acceptable.

5. FINDINGS AND RECOMMENDATIONS

- All work must be carried out by a licensed plumber or drainer.
- All pipework shall be installed in accordance with AS3500.2.2, National Plumbing and Drainage, Part 2.2, Sanitary Plumbing and Drainage.
- The Design Loading Rate of 8 mm/day has been adopted.
- A 100% reserve effluent disposal area can be obtained on this allotment and shall be kept clear of development for possible future expansion.

5.1. Treatment

- The site shall be provided with a ***"Wastewater-Treatment System" capable of producing advanced secondary quality effluent***, or an equivalent system, to Council's approval in lieu of a septic tank.
- A filter is to be installed between the Treatment Plant and the Irrigation System. Regular maintenance of the Filter shall be undertaken, according to manufacturer's recommendations.

5.2. Disposal

- For the purpose of calculating evaporation, the long term average monthly pan evaporation and rainfall figures from the Bureau of Meteorology weather station at Rockhampton have been adopted. Water Balance and design calculations are appended.
- All wastewater shall be disposed of by Evapotranspiration/Absorption.
- The land application facility shall be by evapotranspiration-absorption with a total minimum area of **37 sqm**.
- A diversion mound shall be constructed above/around the disposal area to divert overland water flows.
- Effluent shall be distributed evenly throughout the beds via the use of a distribution chamber or equivalent system.
- The beds shall be 2.5 m in width and 2.5 m in length. One (1) are required.
- The beds shall be installed level and across the natural contour of the land.
- The finished surface shall shed water.
- Detailed design drawings are attached to this report.
- The disposal area has been calculated on a daily all-waste flow rate of 450 litres/day, (1 bedroom/3 people each using 150 litres per day) and a design load rate of 8 mm/day. This flow rate will accommodate all-waste flows from the proposed one bedroom dwelling using Standard Water-Reducing Devices, which include using a dual flush 6/3 litre water closet (maximum), shower flow restrictors, aerated faucets and a water conserving washing machine.
- The disposal area should be located in the vicinity of BH1, BH2 & BH3 and as per attached site plan.
- All set-back distances as required by the local authority shall be met.
- Stormwater run-off including roofwater from buildings shall be diverted around and away from the disposal area. Imported fill may be required should there be insufficient soil available for the design of the disposal system.

For Category 5 and 6 type soils the base of the proposed system shall be scarified and conditioned by adding gypsum at a rate of not less than 1kg/1sqm.

5.3. Setback Distances

Table 3 - Setback distances for subsurface land application area for greywater treatment plant or an on-site sewage treatment plant (QLD Plumbing & Wastewater Code Version 1:2019)

Feature	Horizontal separation distance ①		
	Up slope	Down slope	Level
Property boundaries, pedestrian paths, walkways, recreation areas, retaining wall, and footings for buildings and other structures.	2	4	2
Inground swimming pools	6	6	6
Inground potable water *tank* not exposed to primary effluent	6	6	6
Inground potable water *tank* exposed to primary effluent	15	15	15

① Distances are given in metres and are measured from the edge of trench/bed excavation or subsurface irrigation distribution pipework to the nearest point of the feature

Table 4- Setback distances for on-site sewage facilities and greywater use facilities – Protection of surface water and groundwater (QLD Plumbing & Wastewater Code Version 1:2019)

Feature	Separation distance ①		
For onsite – see Table 2.1 in AS 1546.3	**Advanced Secondary**	**Secondary**	**Primary**
For *greywater* – see Table 2.1 in AS 1546.4	**Level 1 and Level 2**	**Level 3**	**Untreated**
Top of bank of permanent water course	10	30	50
Top of bank of intermittent water course			
Top of bank of a lake, bay, or estuary			
Open stormwater drainage channel or drain			
Bore or a dam			
Unsaturated soil depth to a permanent water table (vertically)	0.3	0.6	1.2

① Distances are given in metres and are measured from the edge of the irrigated wetted area to any point of the feature
② Note: Primary effluent typically has a (BOD^5) (Biochemical Oxygen Demand) of between 120 – 240 mg/L and Total Suspended Solids of between 65 – 180 mg/L.

5.4. Vegetation and signage

- Water tolerant vegetation shall be planted to maximize evapotranspiration and shall be carefully chosen. See vegetation specified in AS 1547:2012 "Disposal Systems for Effluent from Domestic Premises (Appendix C)". CQ Soil Testing recommends consultation with local nurseries for selection/density of plantings.
- At least two signs stating "Recycled water – Do Not Drink" are to be erected on boundaries.
- The presence of buried pipes shall:

  (a) Be indicated e.g. using underground marking tape to AS/NZS 2648.1; OR
  (b) Be indicated by signage. Signs shall be prominently displayed with the words:

  "Sewage effluent pipework installed below. DO NOT DIG."

5.5. Greywater

Surface irrigation of greywater directly (without treatment) from the dwelling's washing machine is permissible. CQ Soil Testing recommends the surface irrigation of greywater. The washing machine shall be connected to a flexible hose with the hose distributing greywater to the landholder's garden/lawn. Provide an air admittance valve and suspend drainage (per AS/NZS 3500) to a rigid, fixed position external to building and reduce to a flexible hose fitting (minimum diam. 32 mm). Greywater should be used with care and used responsibly - Avoid:

- *Ponding of water.*
- *Run-off to neighbouring properties.*
- *Causing an odour.*

When using greywater:

- Choose laundry detergents with low phosphorus, sodium and nitrogen content.
- Take care not to keep watering the same spot - it can affect soil and can cause plants to die.
- Be careful when using on native plants and do not use on edible parts of vegetables or fruits.
- Make sure it does not enter swimming pools or flow into neighbouring properties.
- Avoid ponding, bad smells or damage to plants by restricting use or moving the outlet.
- Keep away from children's play areas and the footings of buildings.

6. CERTIFICATION

The local authority may request that an inspection and certification is to be undertaken on the installation of the system when nearing completion. CQ Testing is qualified to undertake this task and issue the appropriate Form 8 **(additional fees apply)**. If certification is required, the installer must:

- Contact CQ Soil Testing prior to "burying" the system to arrange an inspection.
- Must photograph the entire installation process and supply to CQ Soil Testing.
- Supply to CQ Soil Testing a Form 8 signed by the licensed installer.

Yours faithfully

SCOTT WALTON
Laboratory Manager

Soil Logs

BOREHOLE 1

Depth (m)	Visual Class'n Symbol	Visual Description of Material
0.0 0.4	SM	Silty SAND, fine to medium grained, dark brown, D, MD. ***CAT 3 Loam – weakly structured***
0.4 1.5	CI	Silty Sandy CLAY, medium plasticity, fine to medium grained, dark brown/yellow mottled, D, VST. ***CAT 5 Light Clay – strongly structured***

Borehole terminated at 1.5 m

MOISTURE CONDITION	CONSISTENCY	RELATIVE DENSITY
D – Dry	VS – Very Soft	VL – Very Loose
M – Moist	S – Soft	L – Loose
W – Wet	F – Firm	MD – Med Dense
	ST – Stiff	D – Dense
	V/ST – Very Stiff	VD – Very Dense
	H – Hard	

Allowable Bearing Pressure calculated using the guidelines in "Determination of Allowable Bearing Pressure under Small Structures" by MI Stockwell (NZ Engineering June 1997)

DCP test results are to be used as a guide only to relative density and consistency of soils. Changes in moisture contents or the presence of coarse grained material can greatly influence the outcome of this test.

Soil Logs

BOREHOLE 2

Depth (m)	Visual Class'n Symbol	Visual Description of Material
0.0 0.4	SM	Silty SAND, fine to medium grained, dark brown, D, MD. ***CAT 3 Loam – weakly structured***
0.4 1.5	CI	Silty Sandy CLAY, medium plasticity, fine to medium grained, dark brown/yellow mottled, D, VST. ***CAT 5 Light Clay – strongly structured***

Borehole terminated at 1.5 m

MOISTURE CONDITION	CONSISTENCY	RELATIVE DENSITY
D – Dry	VS – Very Soft	VL – Very Loose
M – Moist	S – Soft	L – Loose
W – Wet	F – Firm	MD – Med Dense
	ST – Stiff	D – Dense
	V/ST – Very Stiff	VD – Very Dense
	H – Hard	

Allowable Bearing Pressure calculated using the guidelines in "Determination of Allowable Bearing Pressure under Small Structures" by MI Stockwell (NZ Engineering June 1997)

DCP test results are to be used as a guide only to relative density and consistency of soils. Changes in moisture contents or the presence of coarse grained material can greatly influence the outcome of this test.

Soil Logs

BOREHOLE 3

Depth (m)	Visual Class'n Symbol	Visual Description of Material
0.0 0.4	SM	Silty SAND, fine to medium grained, dark brown, D, MD. ***CAT 3 Loam – weakly structured***
0.4 1.5	CI	Silty Sandy CLAY, medium plasticity, fine to medium grained, dark brown/yellow mottled, D, VST. ***CAT 5 Light Clay – strongly structured***

Borehole terminated at 1.5 m

MOISTURE CONDITION	CONSISTENCY	RELATIVE DENSITY
D – Dry	VS – Very Soft	VL – Very Loose
M – Moist	S – Soft	L – Loose
W – Wet	F – Firm	MD – Med Dense
	ST – Stiff	D – Dense
	V/ST – Very Stiff	VD – Very Dense
	H – Hard	

Allowable Bearing Pressure calculated using the guidelines in "Determination of Allowable Bearing Pressure under Small Structures" by MI Stockwell (NZ Engineering June 1997)

DCP test results are to be used as a guide only to relative density and consistency of soils. Changes in moisture contents or the presence of coarse grained material can greatly influence the outcome of this test.

Photographs

Image 1 Proposed disposal area

Image 2 Proposed disposal area

APPENDIX 1 - NOTES

1. Recommendations given in this report are based on the information supplied by the client regarding the proposed building construction in conjunction with the findings of the investigation. Any change in construction type, building location or omission in the client supplied information, may require additional testing and/or make the recommendations invalid.
2. Every reasonable effort has been made to locate the test sites so that the borehole profiles are representative of the soil conditions within the area investigated. The client should be made aware however, that exploration is limited by time available and economic restraints. In some cases, soil conditions can change dramatically over short distances, therefore, even careful exploration programs may not locate all the variations.
3. If soil conditions different from those shown in this report are encountered or are inferred from other sources, then the author must be notified immediately.
4. This report may not be reproduced except in full, and only then with the permission of the entity trading as CQ Soil Testing. The information and site sketch shall only be used and will only be applicable for the development shown on the client-supplied information provided for this site.
5. All information contained within this report is the intellectual property of the entity trading as CQ Soil testing. All information contained with can only be used for the express purposes of the commissioned scope of works.
6. Any dimensions, contours, slope directions and magnitudes shown on the site sketch plan shall not be used for any building construction or costing calculations. The purpose of the plan is to show approximate location of field tests only.
7. Any changes made to these recommendations by persons unauthorized by the author will legally be interpreted at that person assuming the responsibility for the long-term performance of the system.
8. The following documents are available from various sources and shall be read and adhered to in relation to this site:

   AS/NZS 1547:2012 - On-site domestic wastewater management
   https://www.standards.org.au/standards-catalogue/sa-snz/waterandwasteservices/ws-013
   AS/NZS 1546.1 - On-site domestic wastewater treatment units - Septic tanks
   http://www.standards.com.au/
   AS/NZS 1546.2 - On-site domestic wastewater treatment units - Waterless composting toilets
   http://www.standards.com.au/
   AS/NZS 1546.3 - On-site domestic wastewater treatment units -Aerated wastewater treatment systems
   http://www.standards.com.au/
   Queensland Plumbing and Wastewater Code
   https://www.hpw.qld.gov.au/__data/assets/pdf_file/0019/3943/queenslandplumbingandwastewatercode_26march2019.pdf
   Standard Sewerage Law
   http://www.legislation.qld.gov.au/LEGISLTN/SLS/1998/98SL099.pdf

Periodically during the course of your trench, ETA bed or irrigation areas life span it will most likely require maintenance such as deep scarification to promote the uptake, and transmission of effluent. This can also be achieved via deeper drilling, rotary hoe or excavator tines.

The Land Application Area designed by CQ Soil Testing is in accordance with the relevant Australian Standards to provide the most economical solution. Generally, this initial installation will be sufficient to successfully handle the load from the dwelling and/or building. Occasionally, however, all of the effluent is not absorbed or transpired due to reasons such as:

- diversion drains are not effective and stormwater enters the Land Application area.
- plants used for the aid of transpiration have not reached maturity resulting in less than optimum transpiration.
- water conservation is not being practiced within the household or building.
- soils can vary significantly over short distances resulting in significant variations in absorption characteristics.

APPENDIX 2 - WASTEWATER TREATMENT SYSTEM "DO'S AND DON'TS"

DO'S

- Do use cleaning and laundry products labeled "septic safe" only.
- Do ensure you have the treatment system serviced regularly as specified by the manufacturer. Your local shire council requires that your system is serviced by an approved service person.
- Do make sure treated water from your system stays on your property, don't allow it to run-off into the street or onto your neighbours property.

DON'TS

- Don't use fine droplet or mist sprays on your irrigation line, the fine spray can be carried a long way by the wind.
- Don't allow surface water to flood the tank system or wastewater disposal area.
- Don't use bleaches, strong disinfectants, or large amounts of natural antibacterial's such as eucalyptus oil. Your treatment system relies on beneficial bacteria to treat the wastewater. Bleaches and other strong disinfectants can kill off these helpful bacteria, seriously reducing the system's effectiveness.
- Don't put cooking fat or oils down the sink.
- Don't wash paint brushes or pour other chemicals in the sink.
- Don't allow the treated water to come in contact with people or animals.
- Don't use the treated water on your vegetable garden.
- Don't pour Napisan or other soakers down the drain, soak clothes in a bucket and empty the bucket out on the grass instead.
- After mopping the floor, don't pour the bucket of water (with Pine O Clean or other disinfectant/cleaner), down the drain. Empty the bucket out on the grass instead.
- Don't use 'Toilet Blue' or toilet deodorizers that hang in the bowl. These add a continual low dose of disinfectant to the system.

Table 3 – Water Balance Calculations

EVAPO-TRANSPIRATION ABSORPTION

SITE DATA			***DESIGN DATA*** (AS1547:2000)			***DESIGN FLOWS*** (AS1547:2000)		
Soil Category:	5		Retension Rate:	0.5		No. Bedrooms:	1	
Soil Texture:	Light Clays		Evapotranspiration Factor:	0.75		Flow Rate per Person:	150 ltr/day	(A4.2D)
Soil Structure:	Strong		Design Loading Rate:	8 mm/day	(T4.2A2)	No. of persons:	3	(T4.3A1)
Measured Permeability:	0.3 m/day		Indicative Permeability:	0.12-0.5 mm/day	(T4.2A2)	Black Water Factor:	1.00	
						Daly Flow Rate (Total):	450.0 ltr/day	

http://www.bom.gov.au/climate/averages/tables/cw_039123_All.shtml

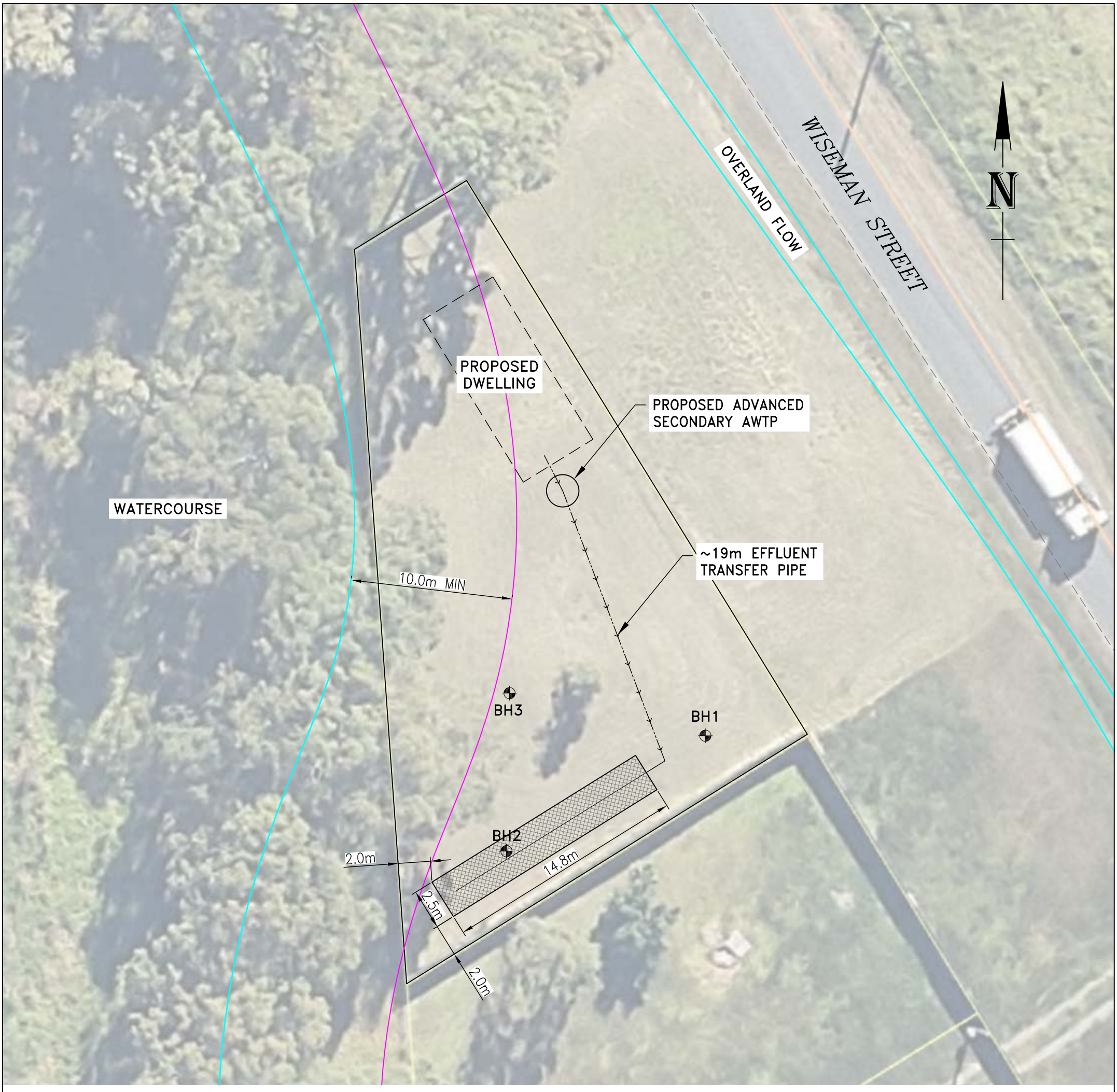
AREA CALCULATION

	Jan	Feb	Mar	April	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Sum	Ave
Days	31	28	31	30	31	30	31	31	30	31	30	31		
Mean rainfall (mm)	129.8	144	104.7	43	45.3	37.8	31.8	27.1	24.5	49.5	66.3	104.3	808.1	67.3
Retained Rainfall (mm)	64.9	72.0	52.4	21.5	22.7	18.9	15.9	13.6	12.3	24.8	33.2	52.2	404.1	33.7
Pan Evaporation	198.4	165.2	167.4	135.0	105.4	90.0	96.1	108.5	129.0	167.4	180.0	195.3	1737.7	144.8
Mean daily evaporation (mm)	7.4	6.7	6.2	5.3	4.1	3.5	3.6	4.4	5.8	6.8	7.6	7.7	69.1	5.8
Evapotranspiration (mm)	229.4	187.6	192.2	159.0	127.1	105.0	111.6	136.4	174.0	210.8	228.0	238.7	2099.8	175.0
DLR per month (mm)	248.0	224.0	248.0	240.0	248.0	240.0	248.0	248.0	240.0	248.0	240.0	248.0	2920.0	243.3
Disposal Rate per month (ltr)	412.5	339.6	387.9	377.5	352.5	326.1	343.7	370.9	401.8	434.1	434.9	434.6	4615.8	384.6
Effluent per month (ltr)	13950.0	12600.0	13950.0	13500.0	13950.0	13500.0	13950.0	13950.0	13500.0	13950.0	13500.0	13950.0	164250.0	13687.5
Area (sq.m)	33.8	37.1	36.0	35.8	39.6	41.4	40.6	37.6	33.6	32.1	31.0	32.1		35.9

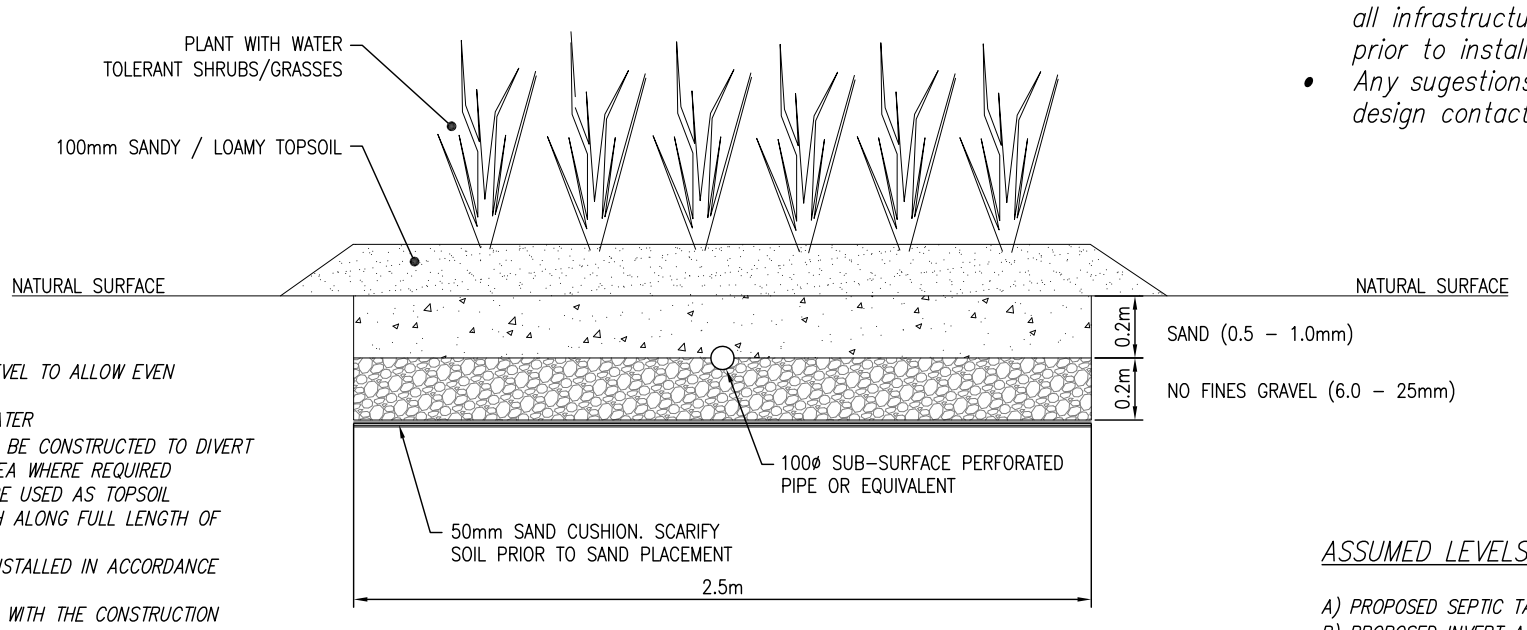
STORAGE CHECK

		Jan	Feb	Mar	April	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Area (sq.m)	37												
Application Rate (mm)		377.0	340.5	377.0	364.9	377.0	364.9	377.0	377.0	364.9	377.0	364.9	377.0
Disposal Rate (mm)		412.5	339.6	387.9	377.5	352.5	326.1	343.7	370.9	401.8	434.1	434.9	434.6
Excess Effluent (mm)		-35.5	0.9	-10.8	-12.6	24.6	38.8	33.3	6.2	-36.9	-57.0	-70.0	-57.5
Stored Effluent Increase (mm)		-118.2	3.1	-36.1	-42.1	81.9	129.2	111.1	20.6	-123.0	-190.1	-233.3	-191.7
Effluent Depth for month (mm)		0.0	0.0	3.1	0.0	0.0	81.9	211.1	322.2	342.8	219.9	29.8	0.0
Effluent Depth Total (mm)	0	0.0	3.1	0.0	0.0	81.9	211.1	322.2	342.8	219.9	29.8	0.0	0.0

Depth of Gravel	200	mm	Area of ETA Bed 37
Depth of Sand	200	mm	
Depth of Storage Area	400	mm	Bed Dimensions
			No. of Beds 1
Freeboard	50	mm	Bed Length 14.8 m
Permitted Depth of Effluent	350	mm	Bed Width 2.5 m



- *Plumber to confirm suitability of all infrastructure with landholder prior to installation.*
- *Any sugestions to change the design contact CQ Soil Testing.*



TYPICAL SECTION OF 37m² ETA BED

SEWERAGE NOTES:

- *ENSURE THE BED IS INSTALLED LEVEL TO ALLOW EVEN DISTRIBUTION OF EFFLUENT*
- *FINISHED SURFACE IS TO SHED WATER*
- *DIVERSION DRAINS/BANKS ARE TO BE CONSTRUCTED TO DIVERT WATER AROUND THE DISPOSAL AREA WHERE REQUIRED*
- *CLAY BASED SOILS ARE NOT TO BE USED AS TOPSOIL*
- *0.3m WIDE STRIP OF FILTER CLOTH ALONG FULL LENGTH OF PERFORATED PIPE*
- *AN INSPECTION PORT SHALL BE INSTALLED IN ACCORDANCE WITH AS1547_4.5*
- *ALL WORK TO BE IN ACCORDANCE WITH THE CONSTRUCTION TECHNIQUES STATED IN AS1547*
- *DISPOSAL AREA TO BE FENCED OFF FROM LIVESTOCK*

ASSUMED LEVELS:

A) PROPOSED SEPTIC TANK INVERT ≈ 9.70
B) PROPOSED INVERT AT HEADER LINE ≈ NOT APPLICABLE AS SYSTEM IS PRESSURISED

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Project:
LOT 201 WISEMAN STREET
KABRA, QLD

For:
A DEHAAS

Title: EFFLUENT DISPOSAL DESIGN

Scale:	1:400 (A3)	*Date:*	DEC '24
Sheet:	1 of 1	*Drawn:*	P.M.
Job No:	CQ27005	*Rev:*	A