



Ref: WP24 006 WIL
Council Ref: CA 2025_5786/1

17 November 2025

The Chief Executive Officer
Douglas Shire Council
PO Box 723
Mossman, QLD 4873

Attention: Jenny Elphinstone
Via email: Jenny.Elphinstone@douglas.qld.gov.au

Dear Jenny,

INFORMATION REQUEST RESPONSE REGARDING MATERIAL CHANGE OF USE (NATURE-BASED TOURISM (FOREST STAY); DWELLING HOUSE; COMBINED SERVICE STATION, FOOD AND DRINK OUTLET AND SHOP) AND OPERATIONAL WORKS (2 X ADVERTISING DEVICES) ON LAND AT LOT 7 CAMELOT CLOSE, CAPE TRIBULATION (LOT 7 ON RP733181)

We refer to the Information Request dated 11 July 2025 in relation to the above-mentioned development application (Council Ref: CA 2025_5786/1). Please find herein a complete response to the matters contained within the Information Notice, pursuant to section 13.2(a) of the Development Assessment Rules ('the DA Rules').

This Information Response is supported by the following technical documentation:

- **Schedule 1** – Updated proposal plans prepared by Clarke and Prince
- **Schedule 2** – Site Classification Report prepared by Soil Biz
- **Schedule 3** – Wastewater Report prepared by Soil Biz

For ease of reference, the item of the Information Request is replicated below with a separate response provided following.

ITEM / RESPONSE

Site Level Finishes

An indicative cut and fill plan has been provided. This plan does not detail the different fill level finishes nor any calculations of slope between levels. The site has a significant increase in slope from the road to the service station, car park and commercial use area. Concern is raised with the site plans that indicate the surface of the service station filling area is not level.

1. **Please provide a plan of anticipated finished site levels, together with a longitudinal section of the site access / driveway and for the service station filling area, car park and**

commercial building / vehicle movement areas that give certainty of compliance with disability parking and access and safe movement of vehicles as per best practise engineering. The site plan must also detail the location of proposed batters and any visual screening attributes. Cross-sections are also to be provided.

RESPONSE:

In response to Council's request for further detail, this submission offers supporting information to demonstrate how the proposed development achieves safety, accessibility, and compliance across key planning and engineering matters.

An indicative cut and fill plan was submitted to Council in association with the development application as lodged. Notwithstanding, Drawing 1661-DA A107.2 (refer **Schedule 1**) is provided as part of the updated suite of proposal plans that illustrates the natural ground line alongside the proposed service station and highlights the slope characteristics across the site. **Figure 1** is provided by way of further explanation, noting that existing contour has been marked-up in red for convenience.

In addition to this a Soil Classification report forms part of this Information Request Response (refer **Schedule 2**). The report includes a slope description and identifies the site as having a 2-3 degree slope to the east, and an 8-degree slope to east-southeast. Refer to **Figure 2** below which has been extracted from the Soil Classification Report.

The slope of the site remains below the threshold defined in the Douglas Shire Planning Scheme, which regulates gradients steeper than one in six, or approximately 16.6%. This grade is referenced throughout the relevant codes in the Planning Scheme, and specifically within the Access, Parking and Servicing Code.

While the Planning Scheme does not specifically regulate disability access, these requirements are addressed under the relevant Australian Standards. These include AS1428 for accessible design and AS2890.6 for accessible parking. Full compliance with these standards will be confirmed during the detailed design phase and relevant to the Building Works stage.

Indicative information regarding site earthworks has been provided in support of the development application. More precise details, including finished site levels and longitudinal and cross-sectional drawings for the driveway, service station forecourt, car park and commercial areas, will be prepared as part of a future Operational Works development application¹. These plans will demonstrate safe vehicle movement and compliance with accessibility standards. The Applicant has also proposed a set of recommended conditions which Council may choose to adopt to secure best-practice outcomes.

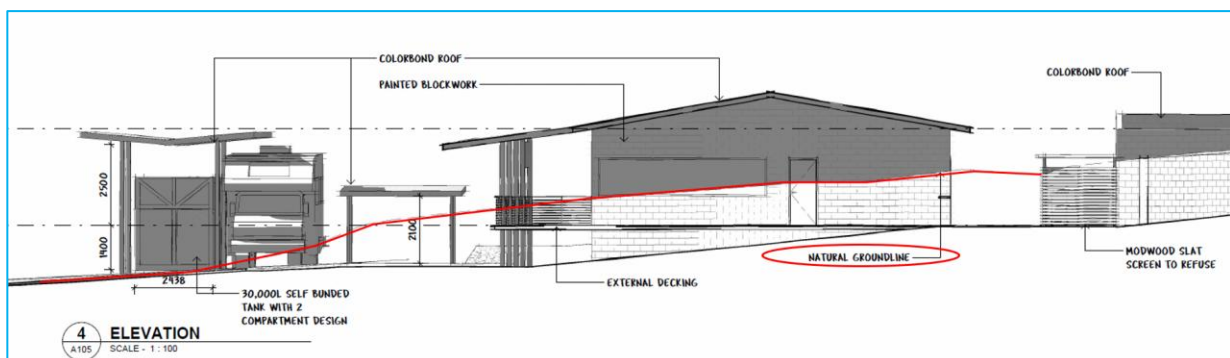


FIGURE 1 – ELEVATIONS PLANS INDICATING THE NATURAL GROUND LINE (SOURCE: SCHEDULE 1 – UPDATED PROPOSAL PLANS)

¹ Earthworks are likely to exceed the relevant threshold for Operational Works (earthworks).

SITE FACTORS:

The site was identified by the sites address, a photo was taken to confirm the sites identity. The lot has an area of 20890 square metres and is predominately covered with rainforest and bare/grassed clearings at the site.

The site has a 2-to-3-degree slope falling to the East and 8-degree slope falling to the East South-East.

No rock outcrops were observed at the site.

Six Dynamic Cone Penetrometer tests were performed at locations DCP1 through DCP6, four boreholes at BH1 through BH6 and one permeability test P1 as shown on the site plan.

Atterberg Limits tests were performed on a disturbed sample from Borehole 1, 3 and 5.

FIGURE 2 – SITE FACTORS INDICATING SITE SLOPE (SOURCE: SCHEDULE 3 - SOIL CLASSIFICATION REPORT)

2. **Clarify that the provided swept path turn for the garbage collection waste truck is suitable in respect to the proposed finished ground levels and any changes in slope through these turns. Compliment this plan with details of directional signs to ensure safe vehicle movements and to minimise conflict between pedestrians and vehicles and between vehicle movements.**

RESPONSE:

In response to Item 2, we note that slope transitions and turning paths, were included in the Traffic Impact Assessment (TIA) included in the development application (refer Schedule 7 of the Planning Report (as lodged)). Section 7 of the TIA outlines a one-way circulation pattern supported by two access points to Cape Tribulation Road. One driveway serves as an entry only, located to the south of the site. The other is an exit only, positioned to the north. Directional signage and pavement treatments will be incorporated into the detailed design to support this arrangement.

This configuration aligns with guidance from Austroads Part 12, which recommends unidirectional movement past fuel dispensing areas. Swept path diagrams for Heavy Rigid Vehicles are included in the TIA and demonstrate that critical turns can be made safely under the proposed geometry. Signage will be designed to minimise conflict between pedestrians and vehicles and support intuitive circulation throughout the site.

It is intended that the TIA form part of the Approved Documents. The recommendations within the TIA, together with the proposal plans, will ensure the development functions safely and complies with all relevant standards.

Recommended Conditions

It is recommended that the submitted TIA form part of the Approved documents list. In addition, Council may choose to impose the following conditions:

Operational Work

An Operational Work Approval is required for the earthworks. The application for Operational Work must include, but not be limited to, the following:

- a) *Volume of all cut and fill;*
- b) *Vegetation identified for removal;*
- c) *All earthworks must be carried out in accordance with section CP1.13 and D5 of the FNQROC Development Manual; and*
- d) *A copy of the contractors Erosion and Sediment Control Plan (ESCP) is to be submitted to Council prior to the issue of a Development Permit for Operational Work. Measures nominated in the ESCP must be implemented prior to*

commencement of any earthworks. The ESC Plan must address the Institution of Engineers' Australia Guidelines for Soil Erosion and Sediment Control and the Environment Protection (Water) Policy and Clauses CP1.06, CP1.13 and D5.10 of Council's FNQROC Development Manual.

Such works must be completed to the requirements and satisfaction of the Chief Executive Officer prior to commencement of use.

Car Parking Requirements

A minimum of 8 car parking spaces must be provided in association with the Service Station. The car parking layout must comply with the AS 2890.1:2004 Parking facilities – Off-street car parking and be constructed in accordance with Austroads and good engineering design.

A minimum of 2 covered car parking spaces must be provided in association with the Dwelling House and 1 covered car parking space in association with each Forest Stay accommodation unit.

Accessible car parking associated with the Service Station must be designed in accordance with AS 2890.6:2009 Parking facilities, Part 6: Off-Street parking for people with disabilities, including parking bay dimensions and shared area. The vehicle access and parking design must be approved by a suitably qualified RPEQ Engineer.

All parking, driveway and vehicular manoeuvring areas must be imperviously sealed, drained and line marked.

In addition, as part of an Operational Works application, clearly identify signage and directional markings.

Flood Overlay and drainage paths

- 3. Detail on the plans the areas to be finished in a sealed surface and those that are to be of a gravel surface finish.**

RESPONSE:

The proposed surface treatments were identified on the development plans included with the development application. Updated proposal plans are provided as part of this Information Request Response (refer **Schedule 1**), and we note that the updated Site Plan incorporates a revised legend that clearly distinguishes between the different surface finishes proposed across the site.

In particular, reference is made to Drawing No. 1661-DA A105 within **Schedule 1**, which illustrates the following:

- Service station forecourt and associated operational areas – to be finished in concrete.
- Main trafficable areas, including ingress and egress points – to be finished in bitumen seal.
- Car parking areas and internal access roads serving the cabins and dwelling – to be finished in gravel.

This combination of surface treatments reflects the functional requirements of each area, ensuring durability for high-use operational spaces, safe and efficient vehicle movements, and an appropriate treatment for lower-traffic internal access areas (refer to **Figure 3**).

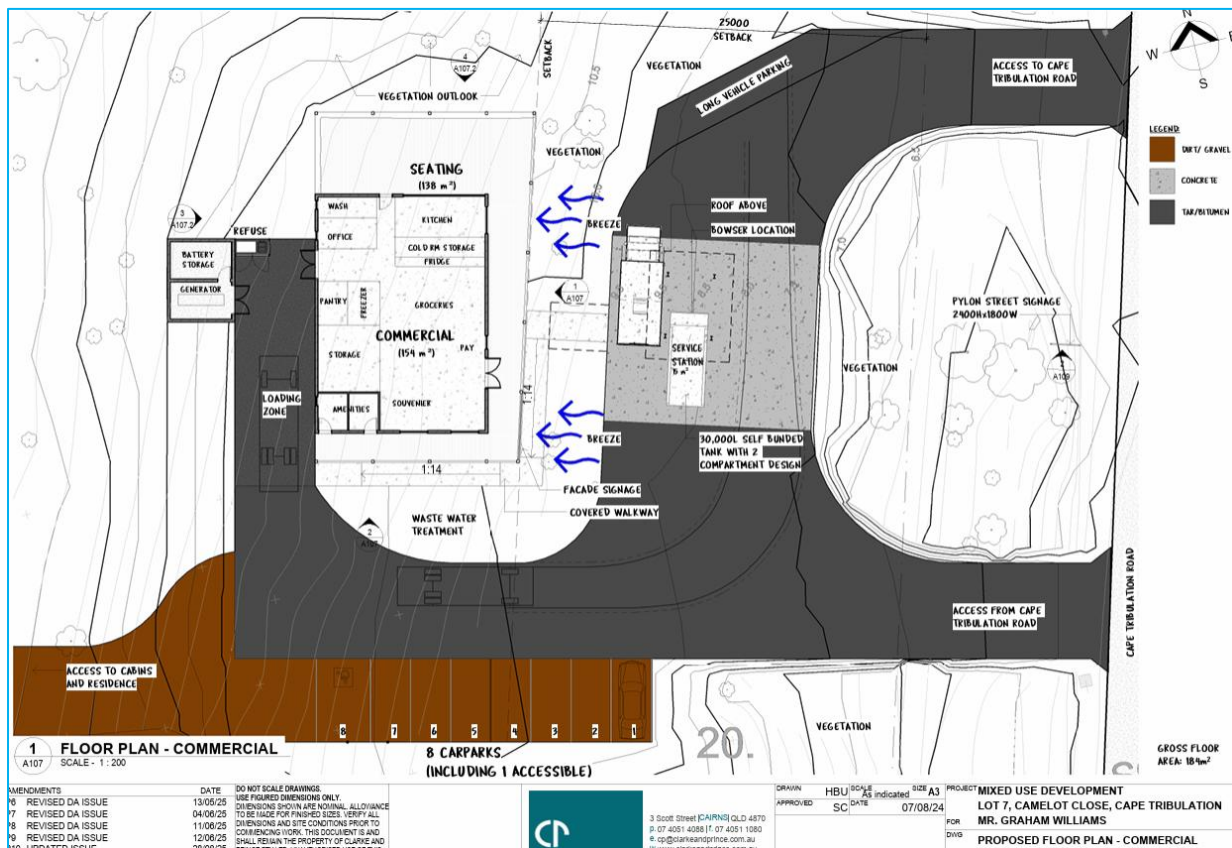


FIGURE 3 – SURFACE FINISHED MATERIALS (SOURCE: SCHEDULE 1)

- Provide details of the proposed finished levels supported and qualified by an RPEQ to ensure development is above the 1% AER for flood (overland flow) with suitable immunity for buildings and the service station filling area.

RESPONSE:

In response to Council's request for details of the proposed finished levels, it is recommended that the following condition be applied to the development approval, consistent with Council's contemporary decision-making in the Cape Tribulation area:

Minimum Fill and Floor Levels

The Finished Floor Level of all habitable rooms is not less than 400mm above ground level.

- Provide a stormwater management plan for the development to ensure environmental compliance is achievable. Consideration should be given to the extent of coverage to the filling area to reduce impact of spills.

RESPONSE:

In response to Council's request for a stormwater management plan to ensure environmental compliance, it is recommended that the following condition be applied to the development approval:

Site Based Stormwater Management Plan

A Site Based Stormwater Management Plan (SBSMP) and associated amended design which details a stormwater point of discharge is provided prior to commencement of works.

This document is required to report on the stormwater quantity and quality management required for the land, and must focus on, but not be limited to, the following:

- Nominate best practice site management procedures to control the severity and extent of soil erosion and pollutant transport and other water quality issues that may arise during the construction phase and post-construction phase;*
- Nominate requirements for ongoing post-construction management of any drainage channels*

All works must be carried out in accordance with the approved plan(s).

This condition secures the preparation of a Site Based Stormwater Management Plan (SBSMP), ensuring that both stormwater quality and quantity are appropriately managed, and that measures are in place to minimise potential impacts from spills within the Service Station filling area.

- 6. Provide an environmental management plan, prepared by a suitably qualified professional, regarding the holding tanks, distribution / filling points and service driveways for the fuel distribution. The plan must consider any need for bunding, roofing and holding tank for first flush storm water considerations. In particular refer to the Planning Scheme's Service Station Code and the Environmental Performance Code in respect to relevant purposes and performance outcomes.**

RESPONSE:

In response to Council's request for an Environmental Management Plan addressing the holding tanks, distribution/filling points, and service driveways for the fuel distribution, it is noted that the proposed fuel storage is minimal in nature, comprising a single 30,000L above-ground self-bunded fuel tank with a two-compartment design.

Unlike traditional underground tanks, the self-bunded configuration incorporates an integrated secondary containment system (a "tank within a tank"), which provides inherent spill protection without the need for separate bunding. This design is considered more environmentally sensitive as it:

- Minimises earthworks and site disturbance, avoiding excavation and potential groundwater interaction.
- Reduces contamination risk, as any leakage from the primary tank is contained within the secondary wall, allowing for rapid detection and remediation.
- Facilitates monitoring and maintenance, with above-ground visibility and integrated alarm systems.
- Aligns with Australian Standards, including AS1692 – Steel tanks for flammable and combustible liquids and AS1940 – The storage and handling of flammable and combustible liquids, which set out requirements for bunding, venting, and spill containment.

To ensure ongoing compliance with the Planning Scheme's Service Station Code and

Environmental Performance Code, it is recommended that the following condition be applied to the development approval:

Site Based Management Plan

Develop, implement and comply with a Site Based Management Plan for the operation and maintenance of the Service Station including relevant procedures for the management of potential human safety and environmental hazards. The Site Based Management Plan is to be provided to and endorsed by Council as part of the Operational Works application.

This condition provides Council with certainty that detailed environmental safeguards will be embedded in the operational design, while recognising that the above-ground self-bunded tank system inherently reduces environmental risk² compared to underground storage. The approach ensures compliance with relevant codes and best practice while allowing the detailed EMP to be finalised and endorsed at the Operational Works stage.

Waste Water Treatment

- 7. Provide a report on the proposed onsite wastewater treatment infrastructure by a suitably qualified expert catering for the different stages of development.**

RESPONSE:

A report prepared by ICE International & Soiltest.biz (RPEQ Certified) has been provided as **Schedule 3**. This report details the proposed onsite wastewater treatment infrastructure for each stage of the development, based on site-specific soil testing and design flows.

Key findings and recommendations are as follows:

- **Soil Classification:** Site soils are Category 4 (Ksat 0.42 m/day), requiring a secondary treatment system in accordance with AS/NZS 1547:2012 and the Queensland Plumbing and Drainage Act.
- **Preferred System:** An Advanced Enviro-Septic (AES) system is recommended, with reserve land application areas (LAA) identified. This system is considered more environmentally sensitive than traditional irrigation-based HSTPs, requiring a smaller footprint and minimising vegetation clearing.

The proposed systems and LAAs are designed to meet the requirements of the FNQROC Development Manual, AS/NZS 1547:2012, and relevant Queensland regulatory codes.

The report concludes that the proposed AES systems, supported by reserve areas and grease trap installation, will provide effective and environmentally responsible wastewater treatment across all stages of development.

² Primarily due to the ability to rapidly identify issues in the unlikely event of leaks and/or tank failure.

Potable Water Supply

- 8. Provide calculations for potable water supply demand for the development and demonstrate how this demand will be supplied and provided onsite.**

RESPONSE:

A report prepared by ICE International & Soiltest.biz (RPEQ Certified) has been provided at **Schedule 3**. This report includes detailed calculations of potable water demand for each stage of the development and demonstrates how this demand will be supplied onsite through rainwater harvesting and storage:

- **Total Site Demand: 2,650 L/day** across all stages, with storage capacity sized to provide a minimum of three months' supply.
- **Supply Method:** Potable water will be provided onsite via rainwater harvesting from roof catchments, stored in appropriately sized tanks at each stage. Bore water may also be an option should the landowner choose to pursue it.

The proposed potable water supply strategy is consistent with the *FNQROC Development Manual* and ensures that sufficient, reliable, and environmentally sustainable water supply is available for all stages of the development.

Landscape Values Overlay (Medium Landscape Values / Scenic Route Buffer)

- 9. Provide a visual assessment of the development, prepared by a suitably qualified professional, where considerations of proposed clearing and screening vegetation together with built form and advertising devices are detailed.**

RESPONSE:

The subject site is located within a Medium Landscape Values area and along a Scenic Buffer Route under the *Douglas Shire Planning Scheme*. In accordance with the Landscape Values Overlay Code (s.8.2.6), development in these areas must be managed to “integrate and limit the visual impact of development” and ensure that “landscape values are maintained when viewed from lookouts, scenic routes, gateways and public places”.

While a formal Visual Impact Assessment has not been provided, a series of contextual images are included to demonstrate the anticipated visual outcome and support Council's assessment of the proposal:

- **Figure 4** – Annotated Streetview overlayed on the Site Analysis Plan, identifying the portions of the development likely to be visible from Cape Tribulation Road
- **Figure 5** – Existing street view from Cape Tribulation Road
- **Figure 6** – Mock-up illustrating the anticipated view post-development

These images collectively illustrate the extent of proposed clearing, the retention and reinforcement of screening vegetation, and the integration of built form and advertising devices within the surrounding landscape.

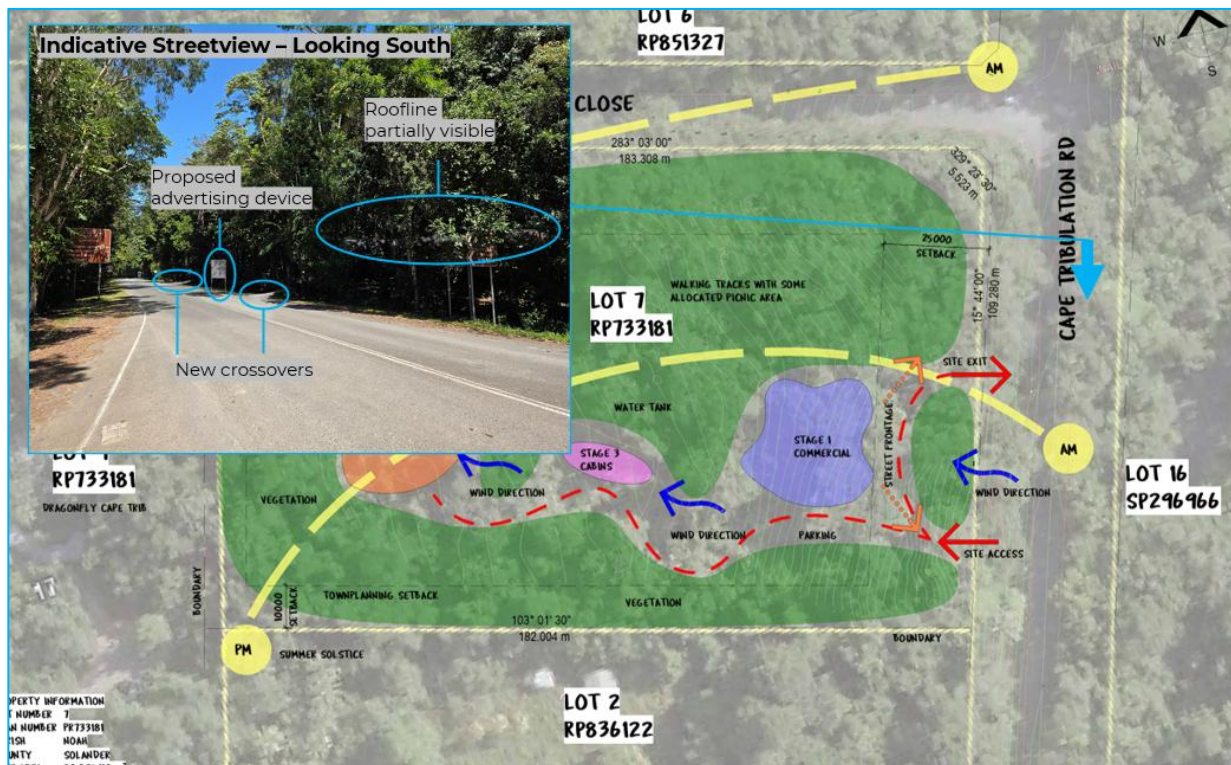


FIGURE 4- INDICATIVE STREETVIEW OVERLAYED ON SITE ANALYSIS PLAN

Key findings are as follows:

- **Viewlines from Cape Tribulation Road**

- The development footprint is limited in its visibility from the public realm.
- Only the site crossovers, advertising device, and a small portion of the service station forecourt will be visible from Cape Tribulation Road.
- The majority of the built form will be screened by retained vegetation along the road frontage, consistent with the Planning Scheme's intent that development is *"neither visually dominant nor visually intrusive"*.

- **Vegetation and Screening**

- Existing treeline vegetation is retained wherever possible to provide a natural visual buffer.

- **Built Form and Materials**

- The service station and associated structures have been designed to blend with the surrounding treeline through the use of:
 - Painted blockwork in muted tones to reduce visual contrast.
 - Colourbond roofing in recessive, non-reflective colours to minimise prominence.
 - Lightweight decking and structures that reduce bulk and integrate with the natural setting.

- **Advertising Device**

- The advertising device is limited in scale and positioned to avoid unnecessary visual clutter.
- Its design and placement have been considered to ensure legibility for

motorists while minimising intrusion into the broader landscape character, consistent with the Planning Scheme's requirement that *"advertising devices do not detract from the landscape values, character types or amenity of an area"*

To further ensure the development integrates with the natural environment and complies with the Planning Scheme, it is recommended that the following condition be applied:

Exterior Colour Scheme Requirements

The exterior colour and materials of any proposed structures must be non-reflective and must blend with the natural colours of the surrounding environment. Roofs and structures (including water tanks) must be of moderately dark to darker shades of green, grey, blue and brown.



FIGURE 5 –CURRENT STREETVIEW- LOOKING SOUTH



FIGURE 6 – STREETVIEW MOCK UP – LOOKING SOUTH

Disability Access

- 8. Provide details for the disability access to the commercial premises and qualified advice that the access between the disability car parking area and the front door of the commercial premises meets the relevant Australian Standards.**

RESPONSE:

While the Planning Scheme does not specifically regulate disability access, these requirements are addressed under the relevant Australian Standards, notably AS1428 for accessible design and AS2890.6 for accessible parking which is considered to be suitably addressed by the recommended condition of approval in response to Information Request Item 2.

Additional notations have been implemented on the proposal plans to indicate the applicant's intention to comply with the relevant Australian Standards.

- 9. Provide details of the disability parking for the cabins and that the access between the car parking space and the cabin front door meets the relevant standards.**

RESPONSE:

The proposed Forest Stay cabins are classified as Class 1b sole-occupancy buildings under Clause A6G2 of the National Construction Code (NCC) (refer **Figure 7**). In accordance with Table D4D2, accessible accommodation is only required where four or more dwellings are provided on a single allotment for short-term holiday use (refer **Figure 8**).

As this proposal includes fewer than four cabins, there is no statutory requirement to provide accessible cabins or associated disability parking under the NCC.

Class 1b buildings used for short-term holiday accommodation include cabins in caravan parks, tourist parks, farm stay, holiday resorts and similar tourist accommodation. This accommodation itself is typically rented out on a commercial basis for short periods and generally does not require the signing of a lease agreement. Short-term accommodation can also be provided in a boarding house, guest house, hostel, bed and breakfast accommodation or the like.

FIGURE 7 - CLAUSE A6G2 OF THE NATIONAL CONSTRUCTION CODE

Table D4D2a: Requirements for access for people with a disability – sole-occupancy units in a Class 1b building

Total number of dwellings	Number <i>required to be accessible</i>
4 to 10	1
11 to 40	2
41 to 60	3
61 to 80	4
81 to 100	5
More than 100	5 dwellings plus 1 additional dwelling for each additional 30 dwellings or part thereof in excess of 100 dwellings.

FIGURE 8 - TABLE D4D2 OF THE NATIONAL CONSTRUCTION CODE

Advertising Devices

8. Provide qualified RPEQ advice to clarify the proposed street signage location does not impede sight line requirements for safe vehicle egress from the site, having regard to the dimensions and nature of the advertising device. Sight lines need to be considered for a variety of different vehicle types.

RESPONSE:

The proposed advertising device has been assessed in accordance with the sight distance requirements outlined in AS 2890.1 – Parking Facilities Part 1: Off-street Car Parking and AS 2890.2 – Parking Facilities Part 2: Off-street Commercial Vehicle Facilities. These standards establish minimum sight line envelopes to ensure safe vehicle egress for a range of vehicle types, including passenger cars, service vehicles, and heavy commercial vehicles.

As detailed in Section 5.4 of the Traffic Impact Assessment (TIA) and illustrated in Appendix 2, Drawing 25-001-01 – Sight Lines, (refer **Figure 9** the signage is located outside the designated sight distance clear zone. This ensures that the device does not obstruct visibility for vehicles exiting the site, regardless of size or turning radius.

Based on this assessment, the proposed signage location complies with the relevant standards and does not compromise safety or operational efficiency for vehicles accessing the public road network.

In consideration of the above we recommend the following condition of approval:

Advertising Device Placement and Sight Line Protection

The placement of any advertising device, including the proposed street signage, must be undertaken in accordance with AS 2890.1 – Parking Facilities Part 1: Off-street Car Parking and AS 2890.2 – Parking Facilities Part 2: Off-street Commercial Vehicle Facilities. The device must remain outside the designated sight distance clear zone as illustrated in Appendix 2, Drawing 25-001-01 – Sight Lines of the approved Traffic Impact Assessment (TIA).

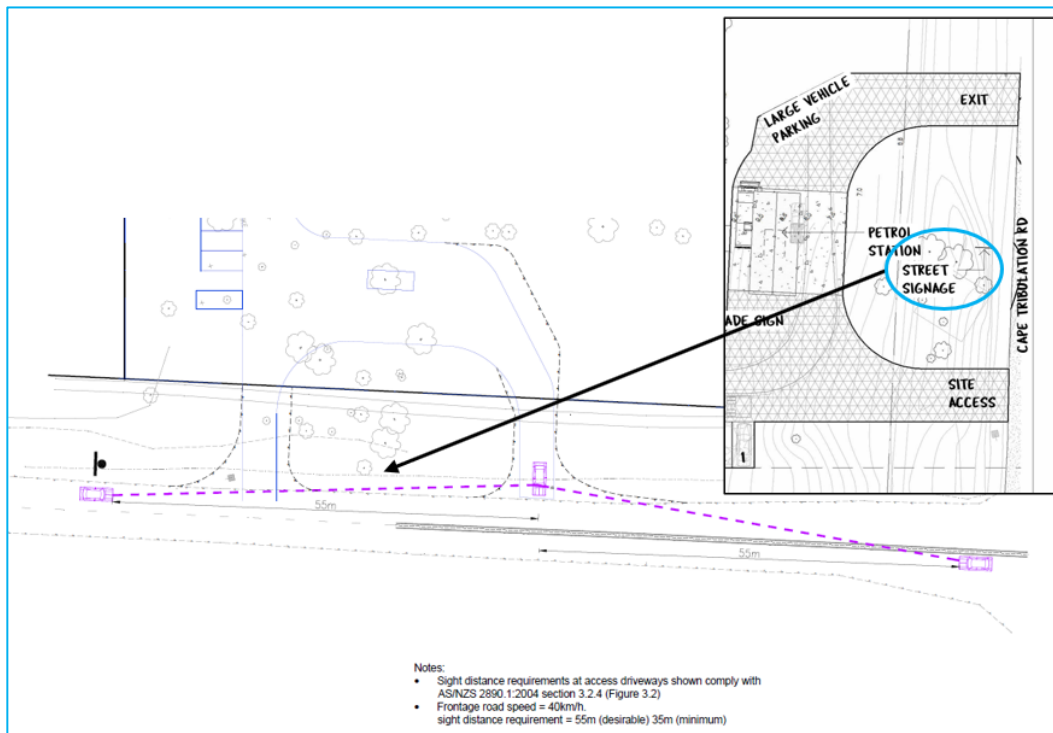


FIGURE 9 – MOCK UP INDICATING THE SIGN IN THE CONTEXT OF THE VEHICLE SITE LINE (SOURCE: DRAWING 25-001-01 – SIGHT LINES, MARKED UP BY WILDPLAN PTY LTD)

We trust that the information and supporting documentation provided herein adequately address the matters raised in Council's Information Request dated 11 July 2025. The Applicant remains committed to delivering a development that is safe, accessible, environmentally responsible, and consistent with the planning intent for the Cape Tribulation locality.

Should Council require any further clarification or wish to discuss specific aspects of the proposal, we welcome the opportunity to engage constructively.

Yours sincerely,



DOMINIC HAMMERSLEY

DIRECTOR / PRINCIPAL PLANNER

wildPLAN Pty Ltd | ABN 26 629 367 933

E dominic@wildplan.com.au | **M** 0487 967 533

SCHEDULE 1 –
UPDATED PLANS

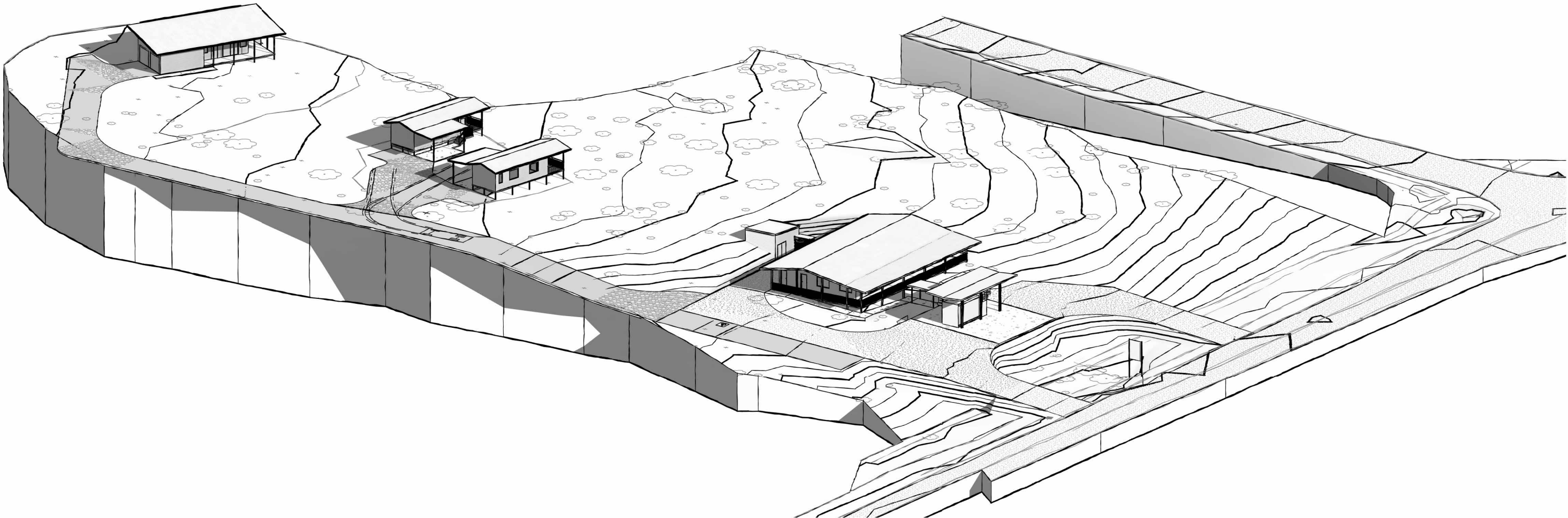


PROPOSED MIXED-USE DEVELOPMENT

LOT 7, CAMELOT CLOSE, CAPE TRIBULATION

DRAWING LIST

1661-DA-A000	COVER PAGE
1661-DA-A101	SITE ANALYSIS
1661-DA-A102	RELATIONSHIP DIAGRAMS
1661-DA-A103.1	DEMOLITION PLAN
1661-DA-A103.2	PROPOSED SITE PLAN
1661-DA-A104	STAGING PLAN
1661-DA-A105	PROPOSED FLOOR PLAN - COMMERCIAL
1661-DA-A106	PROPOSED FLOOR PLAN - ACCOMMODATION
1661-DA-A107	ELEVATION - COMMERCIAL
1661-DA-A107.2	ELEVATION - COMMERCIAL
1661-DA-A108	ELEVATION - RESIDENTIAL
1661-DA-A109	PROPOSED SITE SECTION

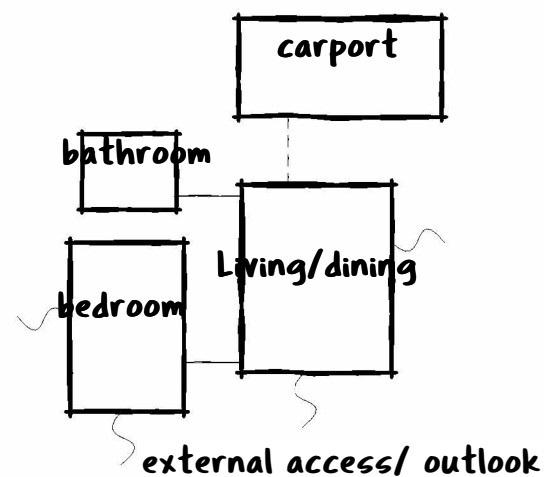
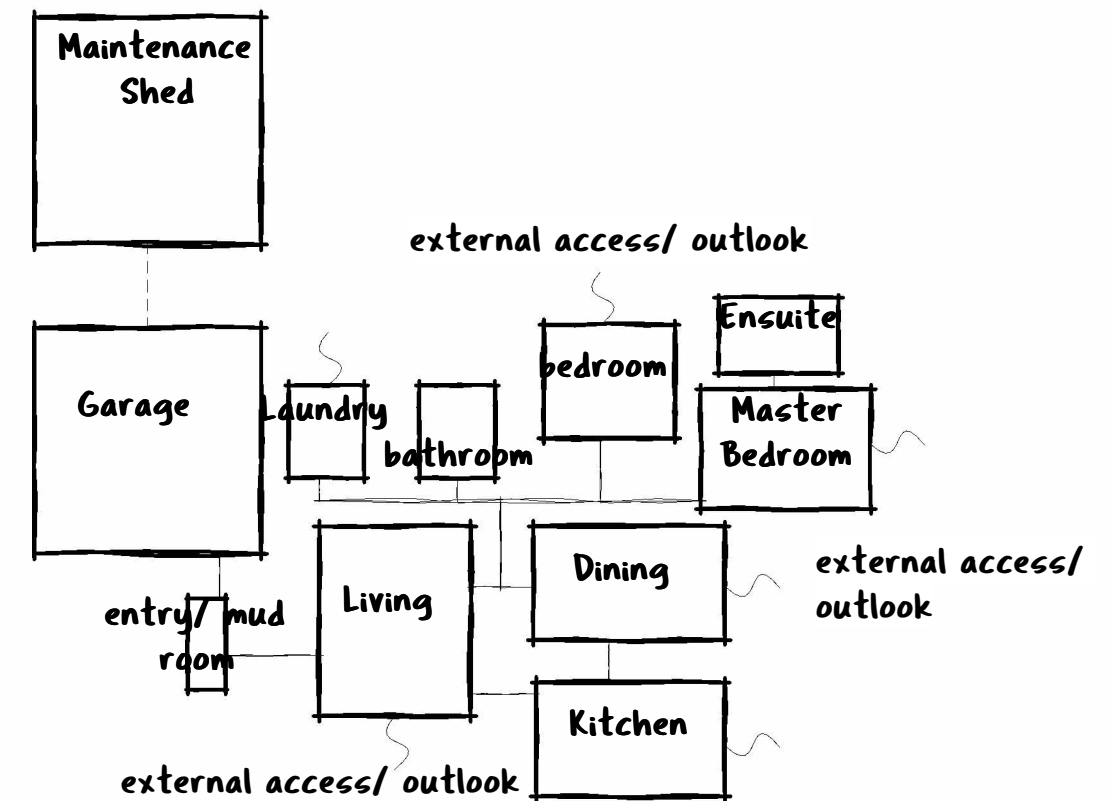
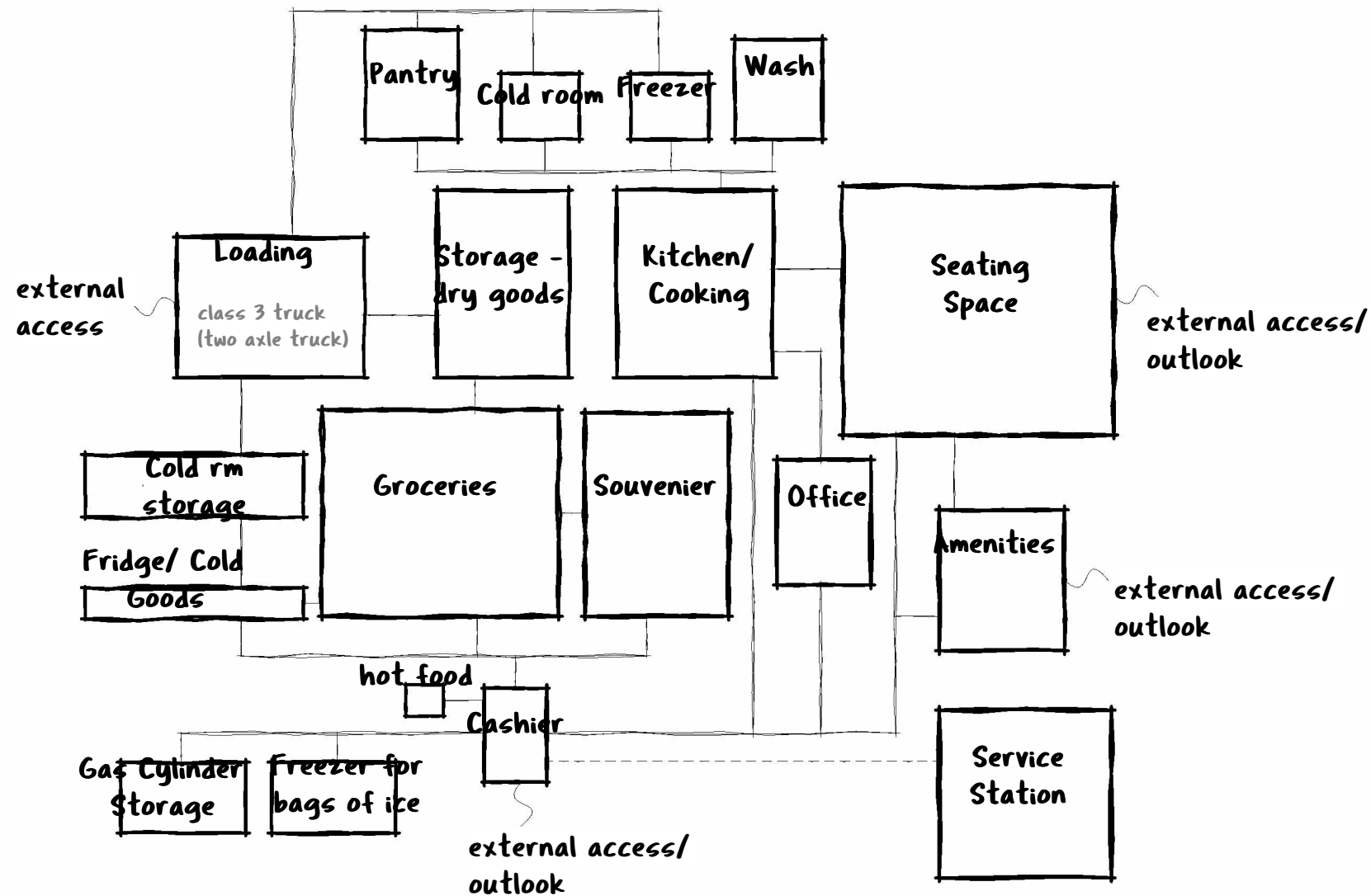


AMENDMENTS	DATE	DO NOT SCALE DRAWINGS. USE FIGURED DIMENSIONS ONLY. DIMENSIONS SHOWN ARE NOMINAL. ALLOWANCE TO BE MADE FOR FINISHED SIZES. VERIFY ALL DIMENSIONS AND SITE CONDITIONS PRIOR TO COMMENCING WORK. THIS DOCUMENT IS AND SHALL REMAIN THE PROPERTY OF CLARKE AND PRINCE PTY LTD. UNAUTHORISED USE OF THIS DOCUMENT IN ANY WAY IS PROHIBITED.
P5 DA ISSUE	07/05/25	
P6 REVISED DA ISSUE	13/05/25	
P7 REVISED DA ISSUE	04/06/25	
P8 REVISED DA ISSUE	11/06/25	
P9 UPDATED ISSUE	28/08/25	



3 Scott Street | CAIRNS | QLD 4870
p. 07 4051 4088 | f. 07 4051 1080
e. cp@clarkeandprince.com.au
w. www.clarkeandprince.com.au

DRAWN	HBU	SCALE	SIZE	A3	PROJECT	MIXED USE DEVELOPMENT				
APPROVED	SC	DATE	08/15/24			LOT 7, CAMELOT CLOSE, CAPE TRIBULATION				
						MR. GRAHAM WILLIAMS				
					FOR					
					DWG	COVER PAGE				
					DWG No.	1661-DA A000	STAMP	PRELIMINARY	ISSUE	P9



AMENDMENTS	DATE	DO NOT SCALE DRAWINGS. USE FIGURED DIMENSIONS ONLY. DIMENSIONS SHOWN ARE NOMINAL. ALLOWANCE TO BE MADE FOR FINISHED SIZES. VERIFY ALL DIMENSIONS AND SITE CONDITIONS PRIOR TO COMMENCING WORK. THIS DOCUMENT IS AND SHALL REMAIN THE PROPERTY OF CLARKE AND PRINCE PTY LTD. UNAUTHORISED USE OF THIS DOCUMENT IN ANY WAY IS PROHIBITED.
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3 Scott Street | CAIRNS | QLD 4870
p. 07 4051 4088 | f. 07 4051 1080
e. cp@clarkeandprince.com.au
w. www.clarkeandprince.com.au

DRAWN	HBU	SCALE	1 : 200	SIZE	A3	PROJECT	MIXED USE DEVELOPMENT
APPROVED	SC	DATE	07/08/24				LOT 7, CAMELOT CLOSE, CAPE TRIBULATION
						FOR	MR. GRAHAM WILLIAMS
						DWG	RELATIONSHIP DIAGRAMS
						DWG No.	1661-DA A102
						STAMP	PRELIMINARY
						ISSUE	P8

CAMELOT CLOSE

LEGEND:

CUT - APPROX.
STAGE 1: 1031m³
STAGE 2: 195m³
STAGE 3: 195m³

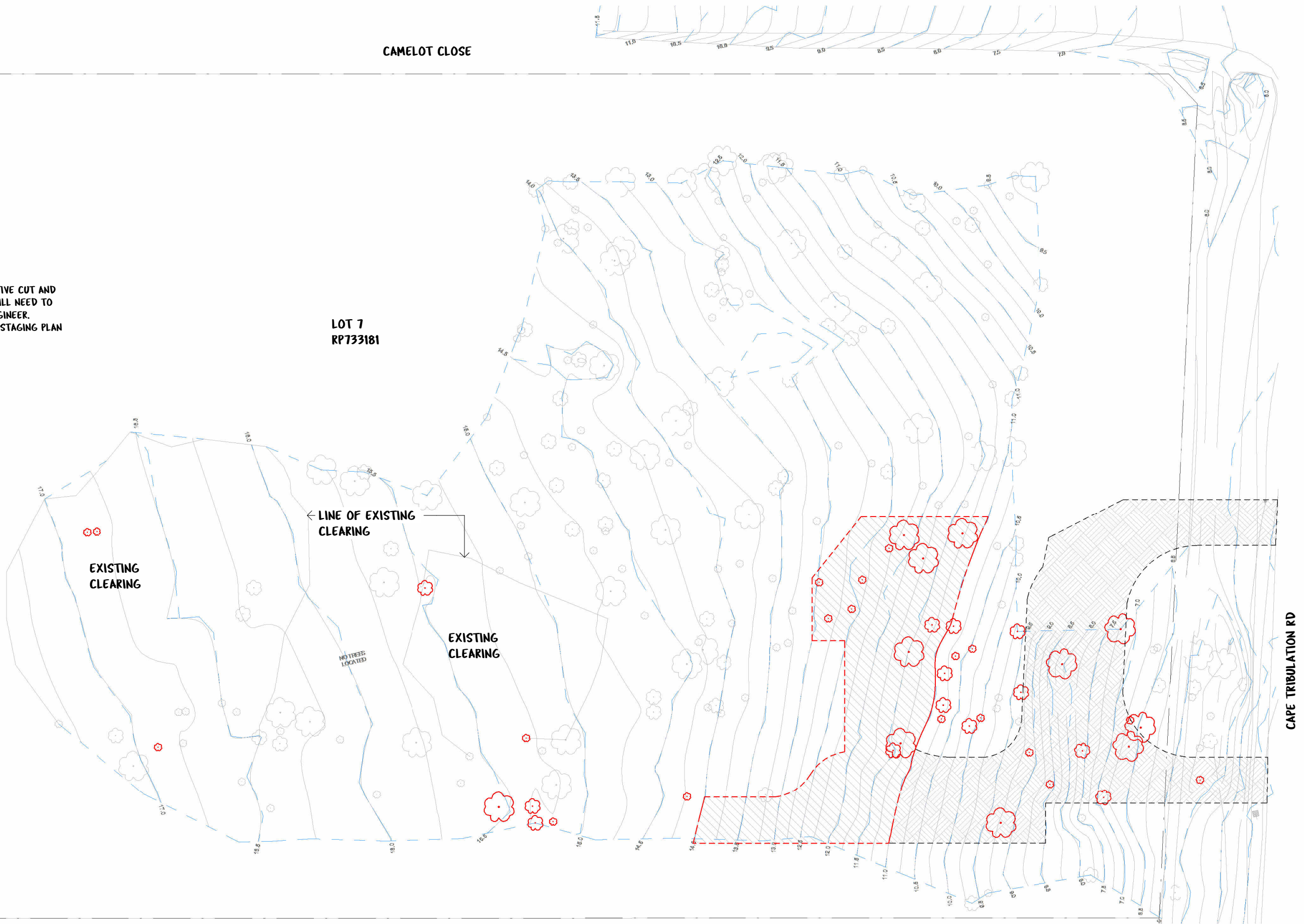
FILL - APPROX.
STAGE 1: 1131m³
STAGE 2: 295m³
STAGE 3: 295m³

TREES TO BE REMOVED

NOTE:

1. DRAWING ONLY SHOW INDICATIVE CUT AND FILL. THE ACTUAL AMOUNT WILL NEED TO BE DETERMINED WITH CIVIL ENGINEER.
2. REFER TO DRAWING A104 FOR STAGING PLAN

LOT 7
RP733181



AMENDMENTS	DATE	DO NOT SCALE DRAWINGS. USE FIGURED DIMENSIONS ONLY. DIMENSIONS SHOWN ARE NOMINAL. ALLOWANCE TO BE MADE FOR FINISHED SIZES. VERIFY ALL DIMENSIONS AND SITE CONDITIONS PRIOR TO COMMENCING WORK. THIS DOCUMENT IS AND SHALL REMAIN THE PROPERTY OF CLARKE AND PRINCE PTY LTD. UNAUTHORISED USE OF THIS DOCUMENT IN ANY WAY IS PROHIBITED.
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P4 UPDATED ISSUE	28/08/25	

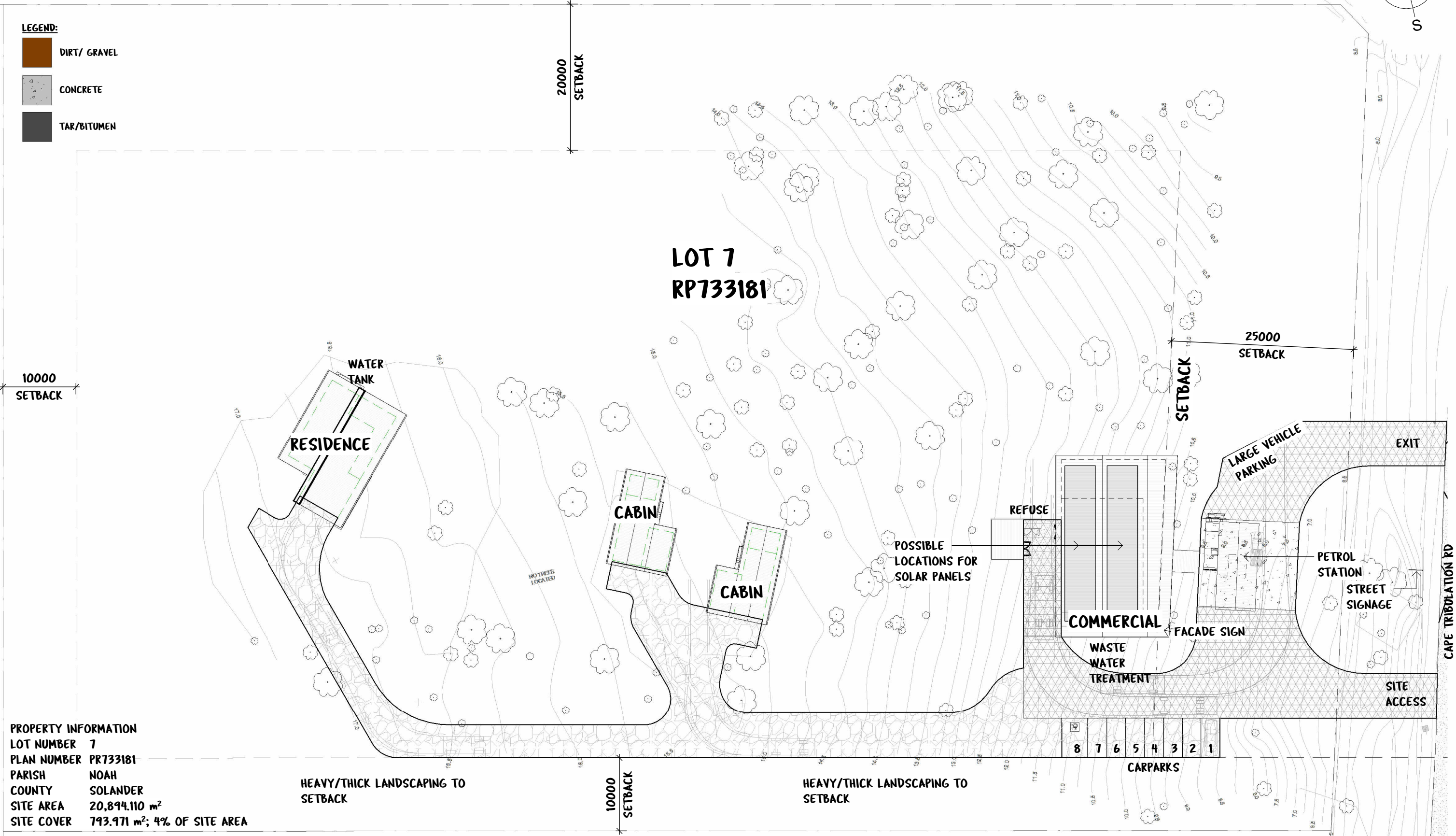
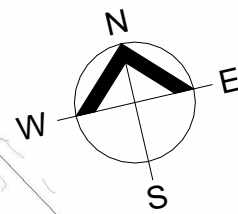


3 Scott Street CAIRNS QLD 4870
p. 07 4051 4088 | f. 07 4051 1080
e. cp@clarkeandprince.com.au
w. www.clarkeandprince.com.au

DRAWN HBU	SCALE As indicated	SIZE A3	PROJECT MIXED USE DEVELOPMENT
APPROVED SC	DATE 06/03/25		LOT 7, CAMELOT CLOSE, CAPE TRIBULATION
			MR. GRAHAM WILLIAMS
			FOR DWG DEMOLITION PLAN
DWG No. 1661-DA A103.1	STAMP PRELIMINARY	ISSUE P4	

CAMELOT CLOSE

- LEGEND:
- DIRT/ GRAVEL
 - CONCRETE
 - TAR/BITUMEN



PROPERTY INFORMATION
LOT NUMBER 7
PLAN NUMBER PR733181
PARISH NOAH
COUNTY SOLANDER
SITE AREA 20,894.110 m²
SITE COVER 793.971 m²; 4% OF SITE AREA

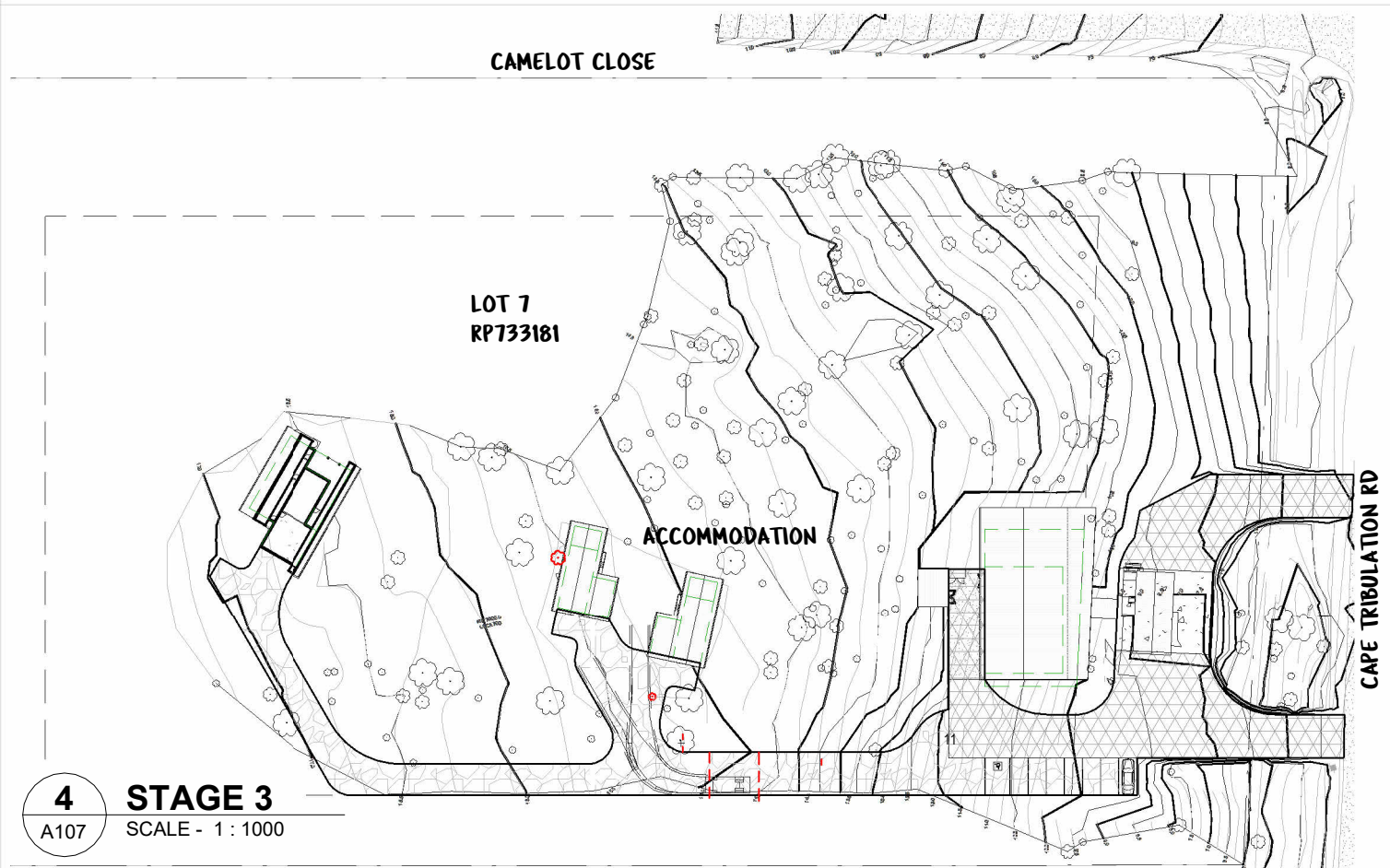
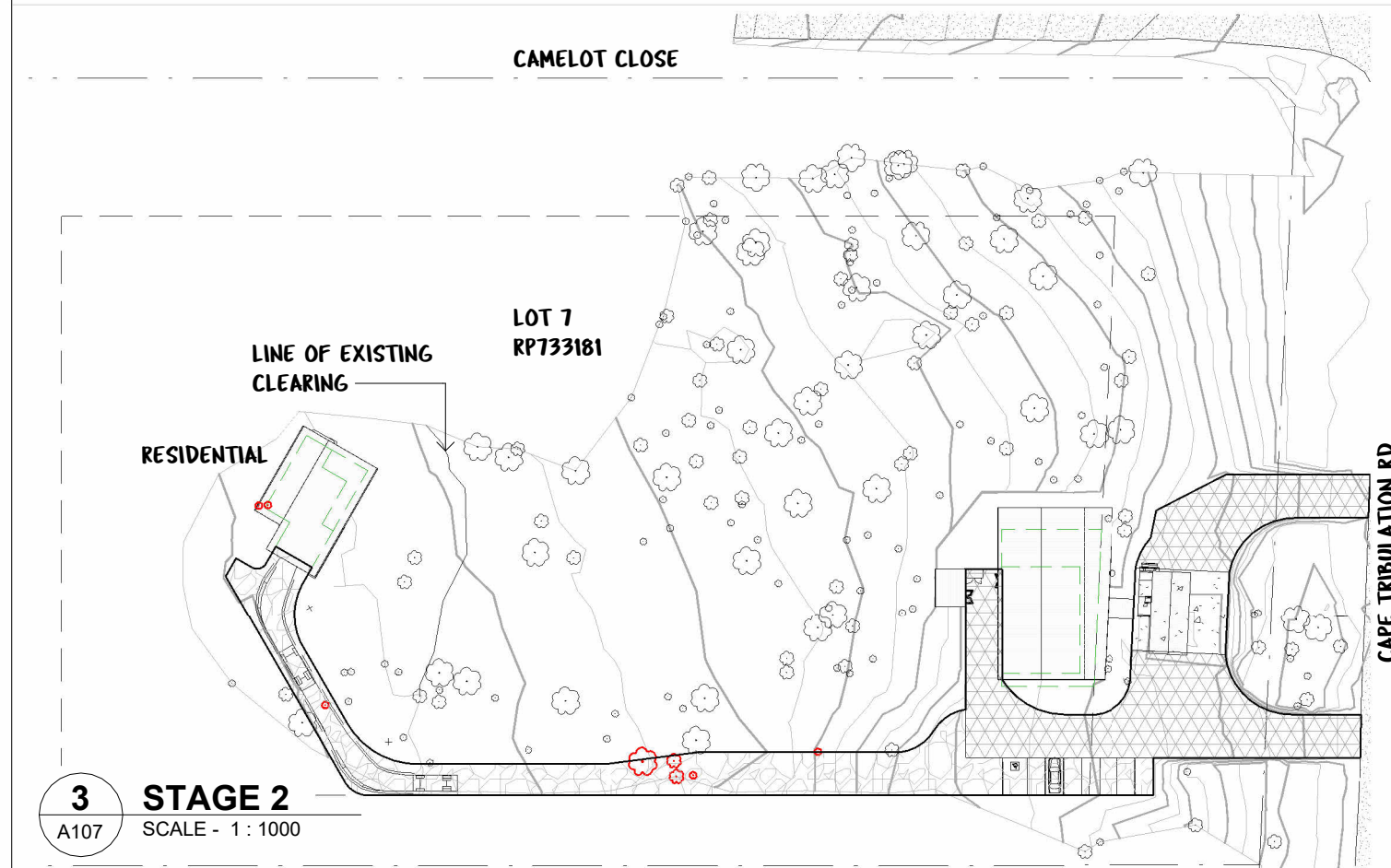
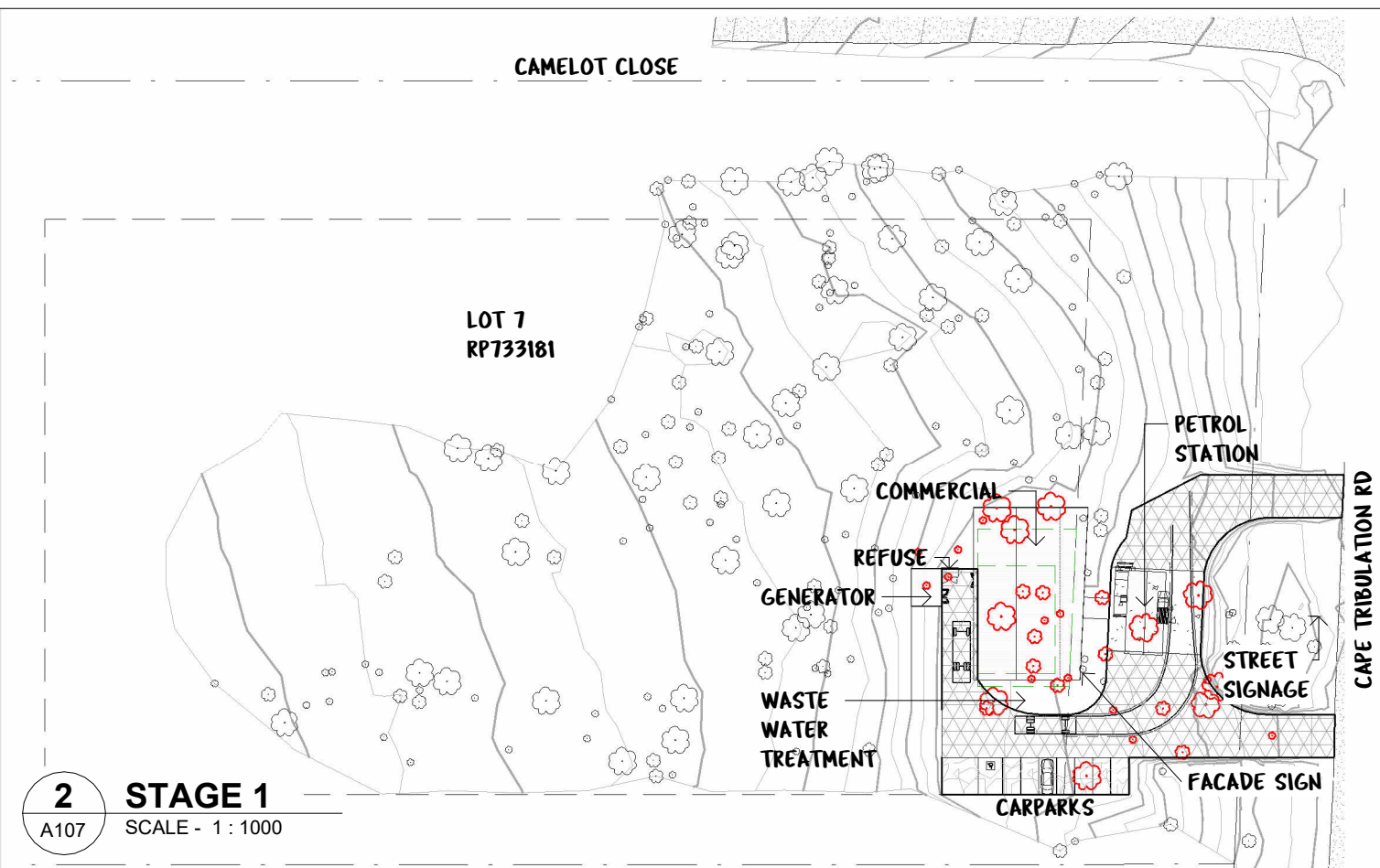
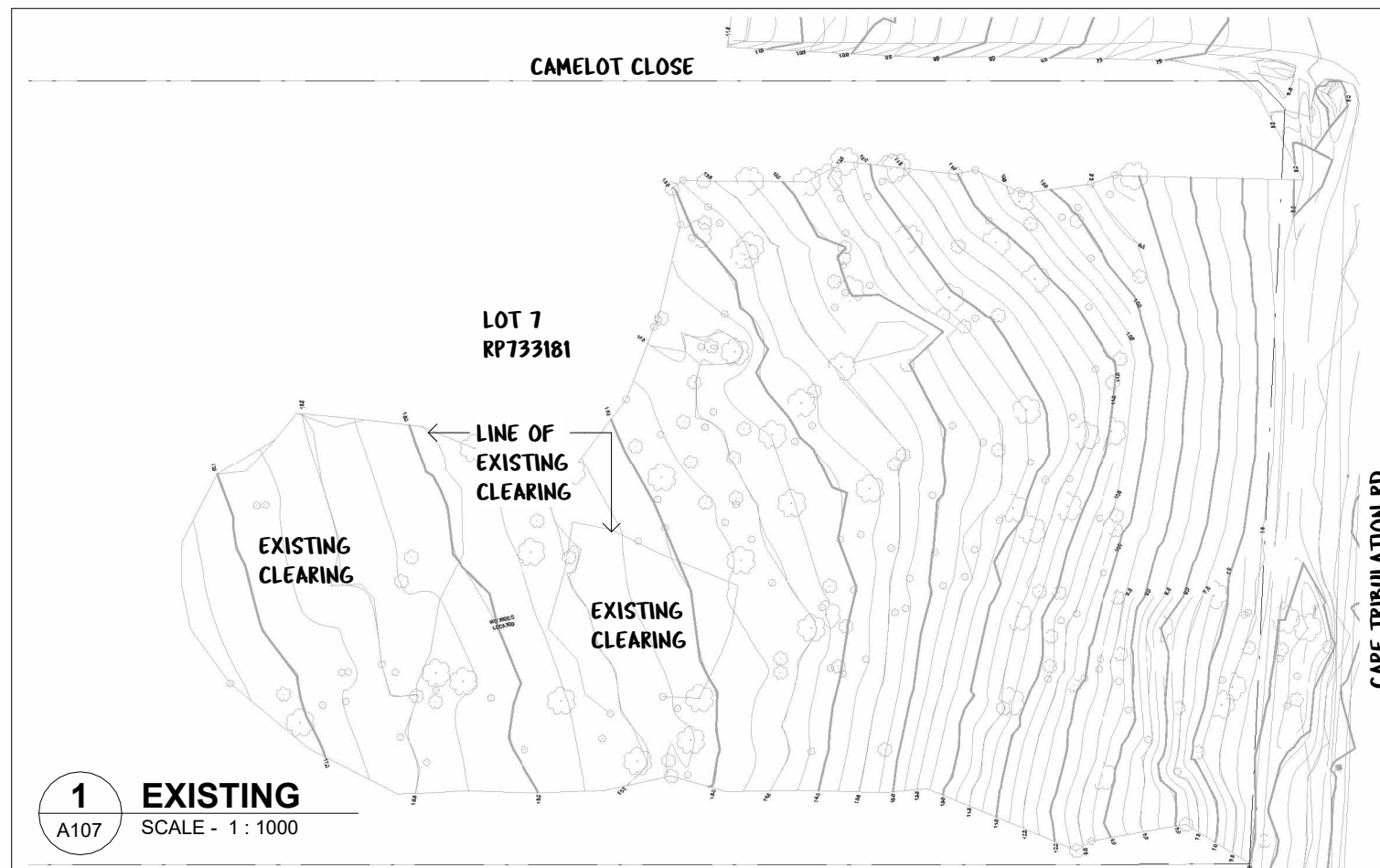
AMENDMENTS	DATE	DO NOT SCALE DRAWINGS. USE FIGURED DIMENSIONS ONLY. DIMENSIONS SHOWN ARE NOMINAL. ALLOWANCE TO BE MADE FOR FINISHED SIZES. VERIFY ALL DIMENSIONS AND SITE CONDITIONS PRIOR TO COMMENCING WORK. THIS DOCUMENT IS AND SHALL REMAIN THE PROPERTY OF CLARKE AND PRINCE PTY LTD. UNAUTHORISED USE OF THIS DOCUMENT IN ANY WAY IS PROHIBITED.
P6 REVISED DA ISSUE	13/05/25	
P7 REVISED DA ISSUE	04/06/25	
P8 REVISED DA ISSUE	11/06/25	
P9 REVISED DA ISSUE	12/06/25	
P10 UPDATED ISSUE	28/08/25	



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3 Scott Street | CAIRNS | QLD 4870
p. 07 4051 4088 | f. 07 4051 1080
e. cp@clarkeandprince.com.au
w. www.clarkeandprince.com.au

DRAWN HBU	SCALE As indicated	SIZE A3	PROJECT MIXED USE DEVELOPMENT
APPROVED SC	DATE 07/08/24		LOT 7, CAMELOT CLOSE, CAPE TRIBULATION
			MR. GRAHAM WILLIAMS
			FOR PROPOSED SITE PLAN
DWG No. 1661-DA A103.2	STAMP PRELIMINARY	ISSUE P10	

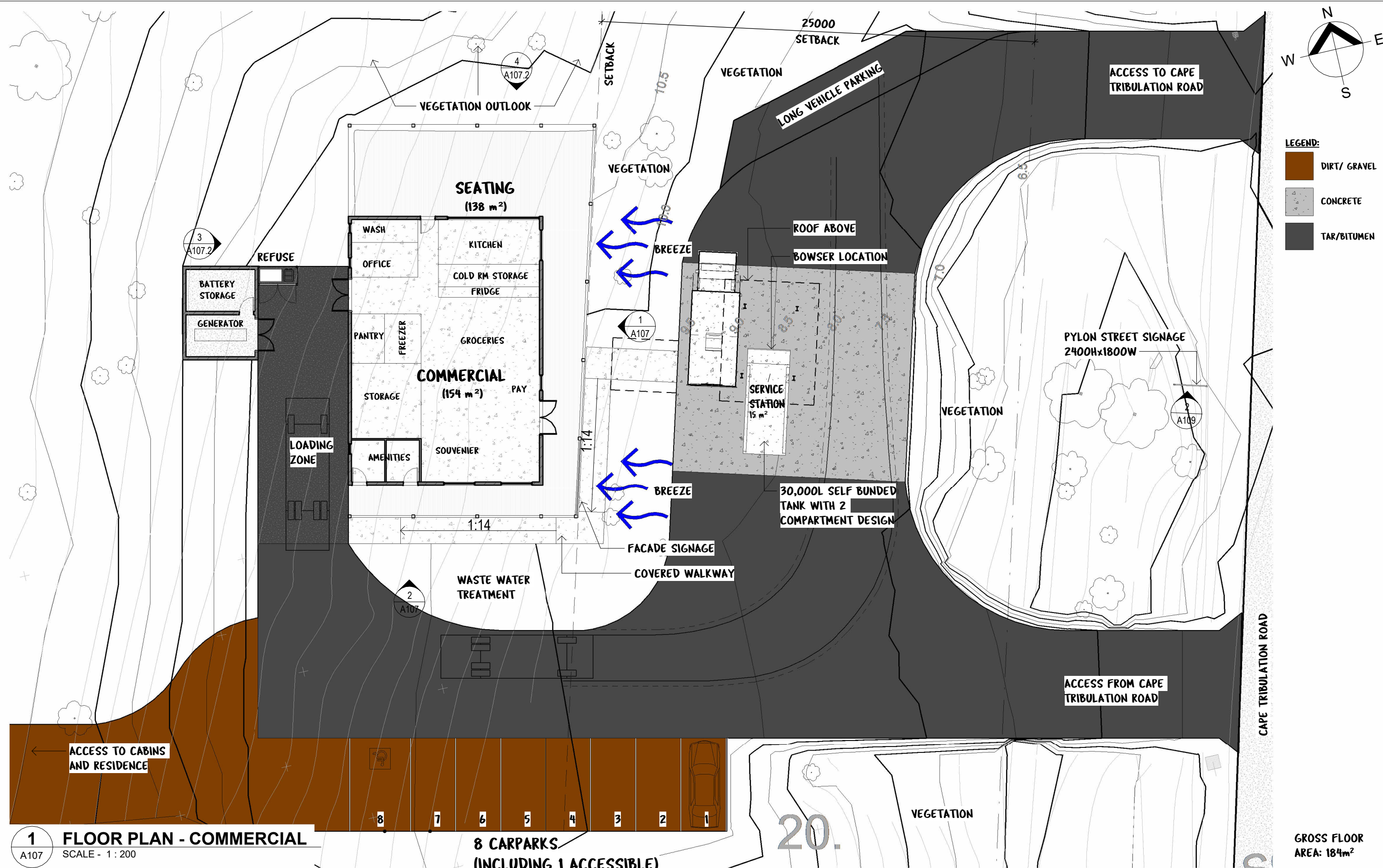


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P5 REVISED DA ISSUE	13/05/25	
P6 REVISED DA ISSUE	04/06/25	
P7 REVISED DA ISSUE	11/06/25	
P8 REVISED DA ISSUE	12/06/25	
P9 UPDATED ISSUE	28/08/25	



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p. 07 4051 4088 |f. 07 4051 1080
e. cp@clarkeandprince.com.au
w. www.clarkeandprince.com.au

DRAWN HBU	SCALE 1 : 1000	SIZE A3	PROJECT MIXED USE DEVELOPMENT LOT 7, CAMELOT CLOSE, CAPE TRIBULATION MR. GRAHAM WILLIAMS
APPROVED SC	DATE 08/15/24		FOR DWG STAGING PLAN
		DWG No. 1661-DA A104	STAMP PRELIMINARY
			ISSUE P9



1 FLOOR PLAN - COMMERCIAL
A107 SCALE - 1 : 200

**8 CARPARKS
(INCLUDING 1 ACCESSIBLE)**

GROSS FLOOR
AREA: 184m²

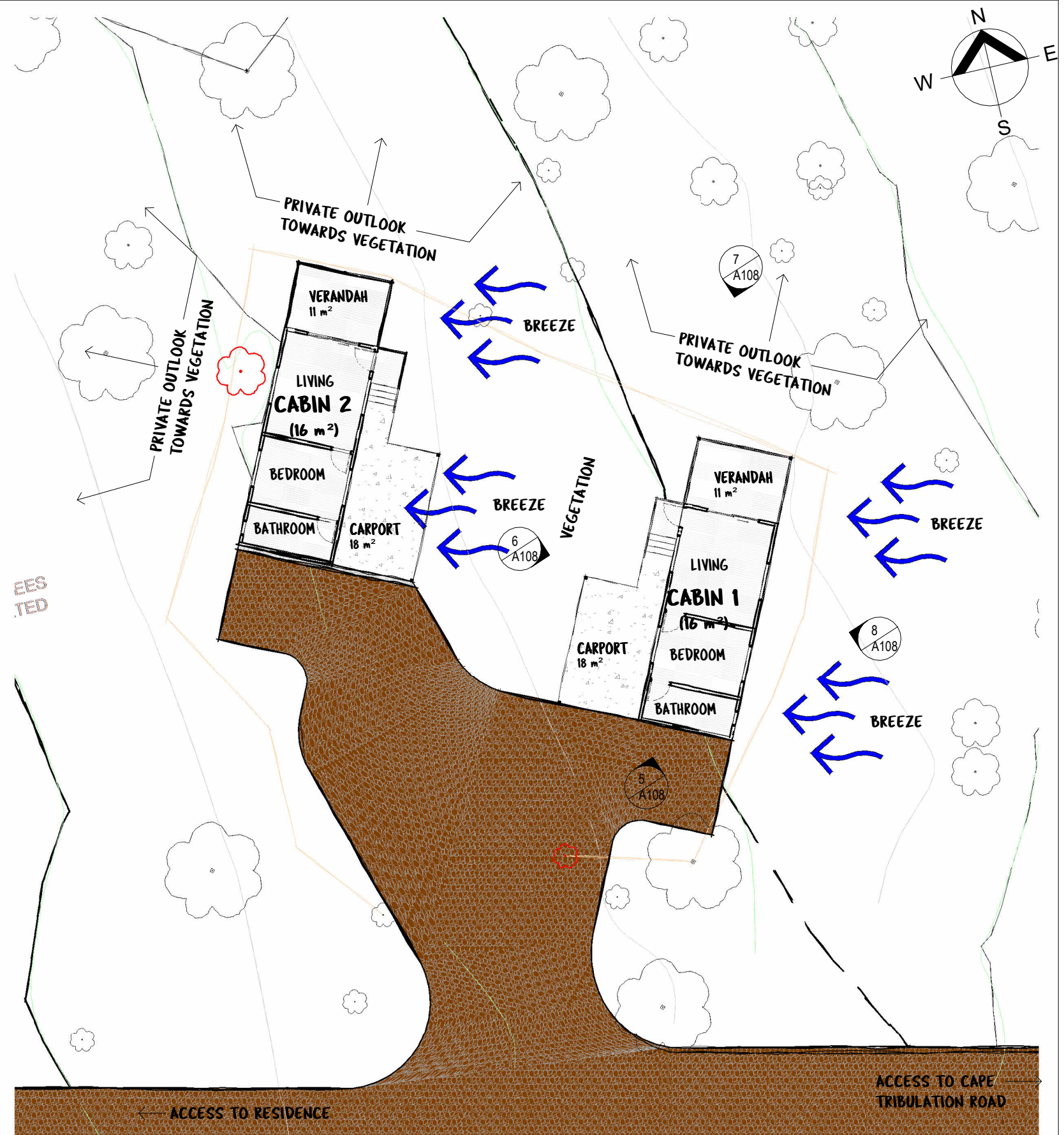
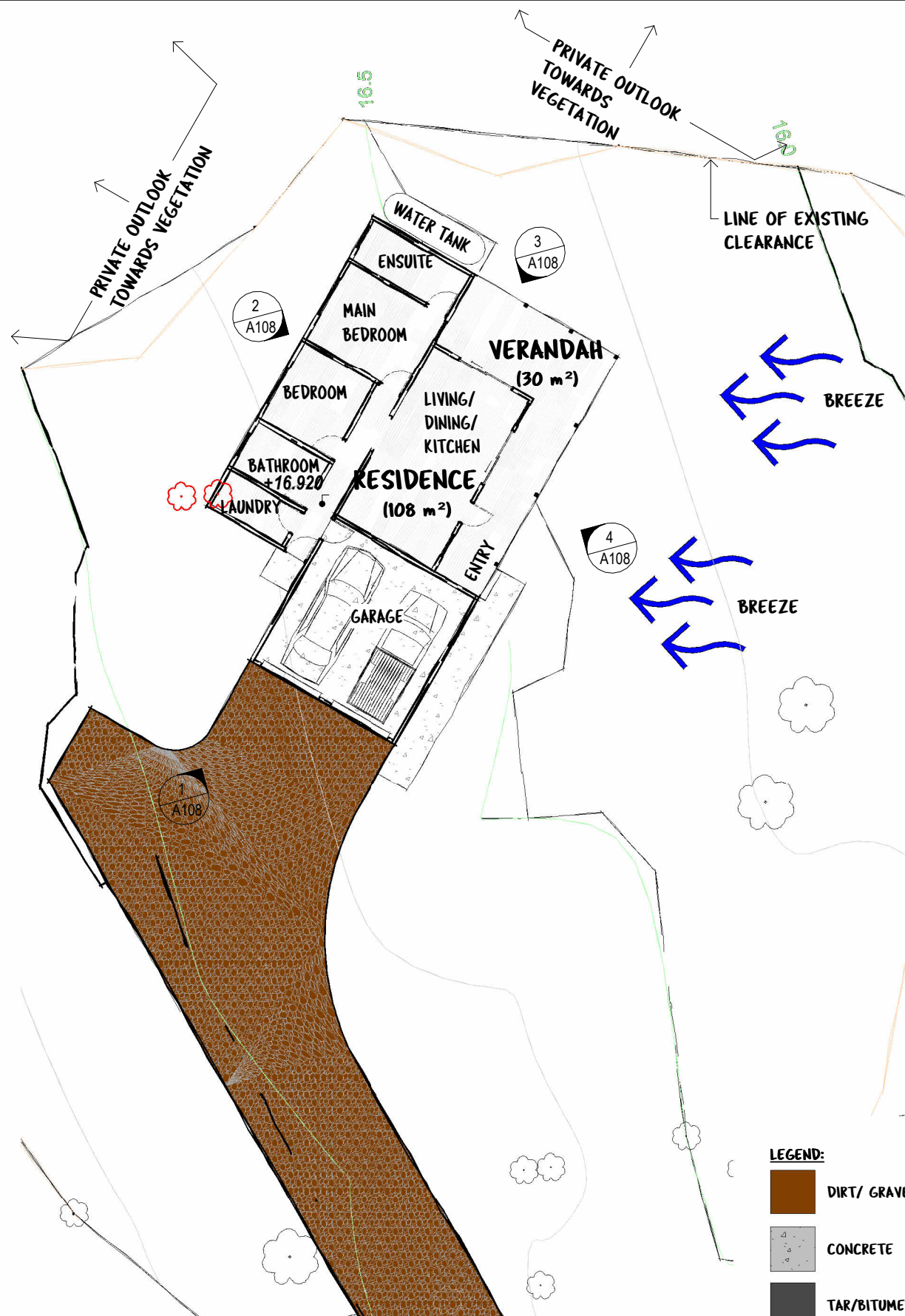
AMENDMENTS	DATE	DO NOT SCALE DRAWINGS. USE FIGURED DIMENSIONS ONLY. DIMENSIONS SHOWN ARE NOMINAL. ALLOWANCE TO BE MADE FOR FINISHED SIZES. VERIFY ALL DIMENSIONS AND SITE CONDITIONS PRIOR TO COMMENCING WORK. THIS DOCUMENT IS AND SHALL REMAIN THE PROPERTY OF CLARKE AND PRINCE PTY LTD. UNAUTHORISED USE OF THIS DOCUMENT IN ANY WAY IS PROHIBITED.
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P9 REVISED DA ISSUE	12/06/25	
P10 UPDATED ISSUE	28/08/25	



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p. 07 4051 4088 | f. 07 4051 1080
e. cp@clarkeandprince.com.au
w. www.clarkeandprince.com.au

DRAWN	HBU	SCALE	As indicated	SIZE	A3
APPROVED	SC	DATE	07/08/24		

PROJECT	MIXED USE DEVELOPMENT LOT 7, CAMELOT CLOSE, CAPE TRIBULATION MR. GRAHAM WILLIAMS		
FOR	PROPOSED FLOOR PLAN - COMMERCIAL		
DWG No.	1661-DA A105	STAMP	PRELIMINARY
ISSUE	P10		

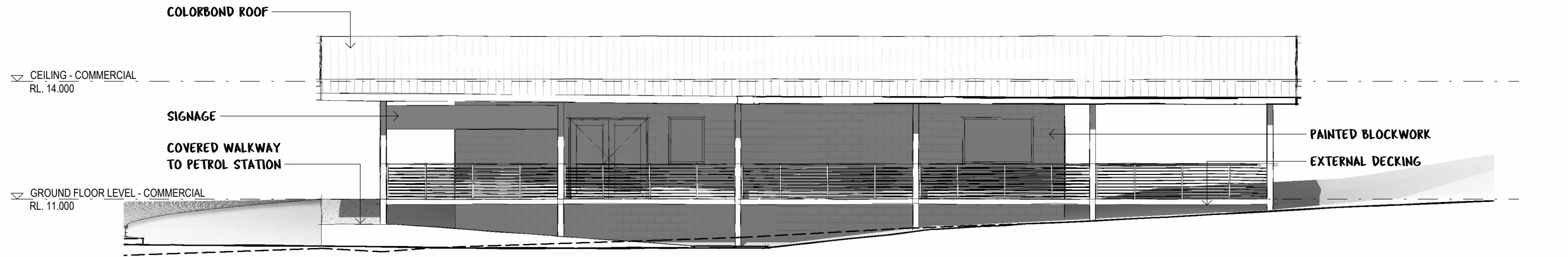


AMENDMENTS	DATE	DO NOT SCALE DRAWINGS. USE FIGURED DIMENSIONS ONLY. DIMENSIONS SHOWN ARE NOMINAL. ALLOWANCE TO BE MADE FOR FINISHED SIZES. VERIFY ALL DIMENSIONS AND SITE CONDITIONS PRIOR TO COMMENCING WORK. THIS DOCUMENT IS AND SHALL REMAIN THE PROPERTY OF CLARKE AND PRINCE PTY LTD. UNAUTHORISED USE OF THIS DOCUMENT IN ANY WAY IS PROHIBITED.
P4 DA ISSUE	07/05/25	
P5 REVISED DA ISSUE	13/05/25	
P6 REVISED DA ISSUE	04/06/25	
P7 REVISED DA ISSUE	11/06/25	
P8 UPDATED ISSUE	28/08/25	

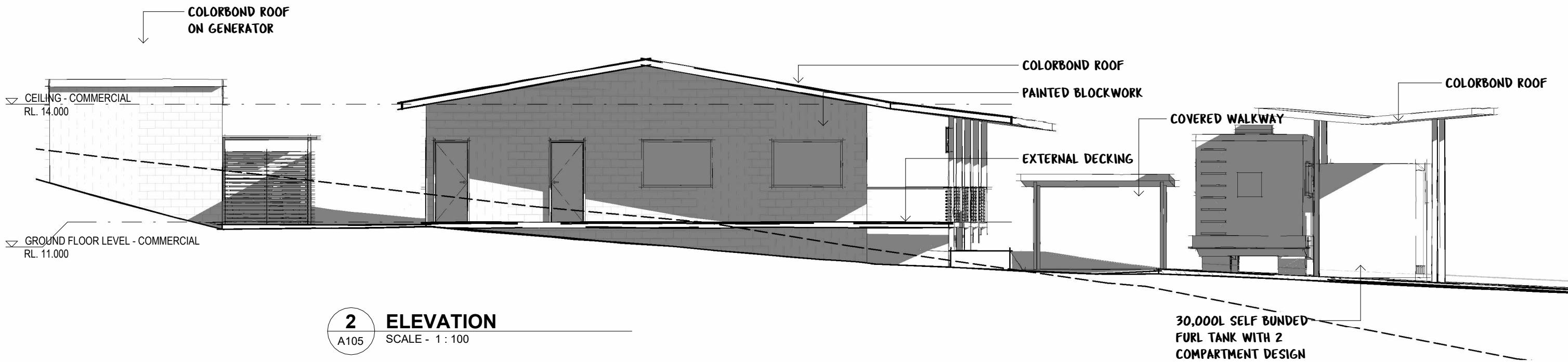


DRAWN	HBU	SCALE	As indicated	SIZE	A3
APPROVED	SC	DATE	08/07/24		

PROJECT	MIXED USE DEVELOPMENT LOT 7, CAMELOT CLOSE, CAPE TRIBULATION MR. GRAHAM WILLIAMS		
FOR	PROPOSED FLOOR PLAN - ACCOMMODATION		
DWG No.	1661-DA A106	STAMP	PRELIMINARY
ISSUE	P8		



1 ELEVATION
A105 SCALE - 1 : 100



2 ELEVATION
A105 SCALE - 1 : 100

AMENDMENTS	DATE	DO NOT SCALE DRAWINGS. USE FIGURED DIMENSIONS ONLY. DIMENSIONS SHOWN ARE NOMINAL. ALLOWANCE TO BE MADE FOR FINISHED SIZES. VERIFY ALL DIMENSIONS AND SITE CONDITIONS PRIOR TO COMMENCING WORK. THIS DOCUMENT IS AND SHALL REMAIN THE PROPERTY OF CLARKE AND PRINCE PTY LTD. UNAUTHORISED USE OF THIS DOCUMENT IN ANY WAY IS PROHIBITED.
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P6 REVISED DA ISSUE	11/06/25	
P7 REVISED DA ISSUE	12/06/25	
P8 UPDATED ISSUE	28/08/25	

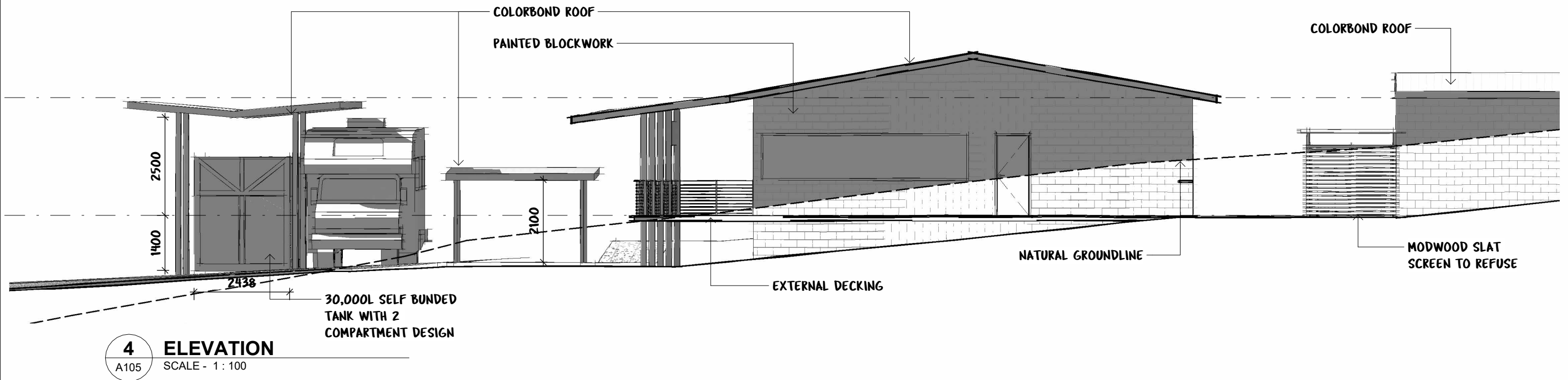
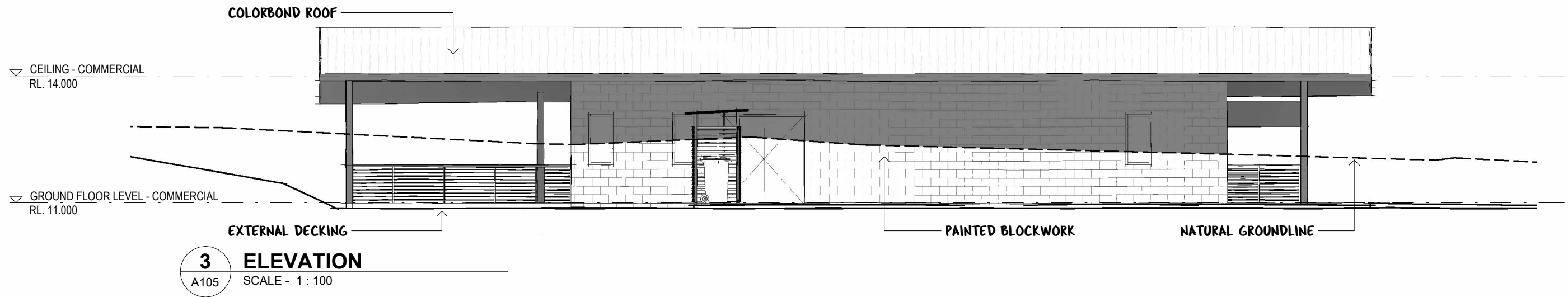


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p. 07 4051 4088 | f. 07 4051 1080
e. cp@clarkeandprince.com.au
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DRAWN	HBU	SCALE	1 : 100	SIZE	A3
APPROVED	SC	DATE	09/23/24		

PROJECT	MIXED USE DEVELOPMENT LOT 7, CAMELOT CLOSE, CAPE TRIBULATION MR. GRAHAM WILLIAMS		
FOR	ELEVATION - COMMERCIAL		
DWG No.	1661-DA A107	STAMP	PRELIMINARY
ISSUE	P8		



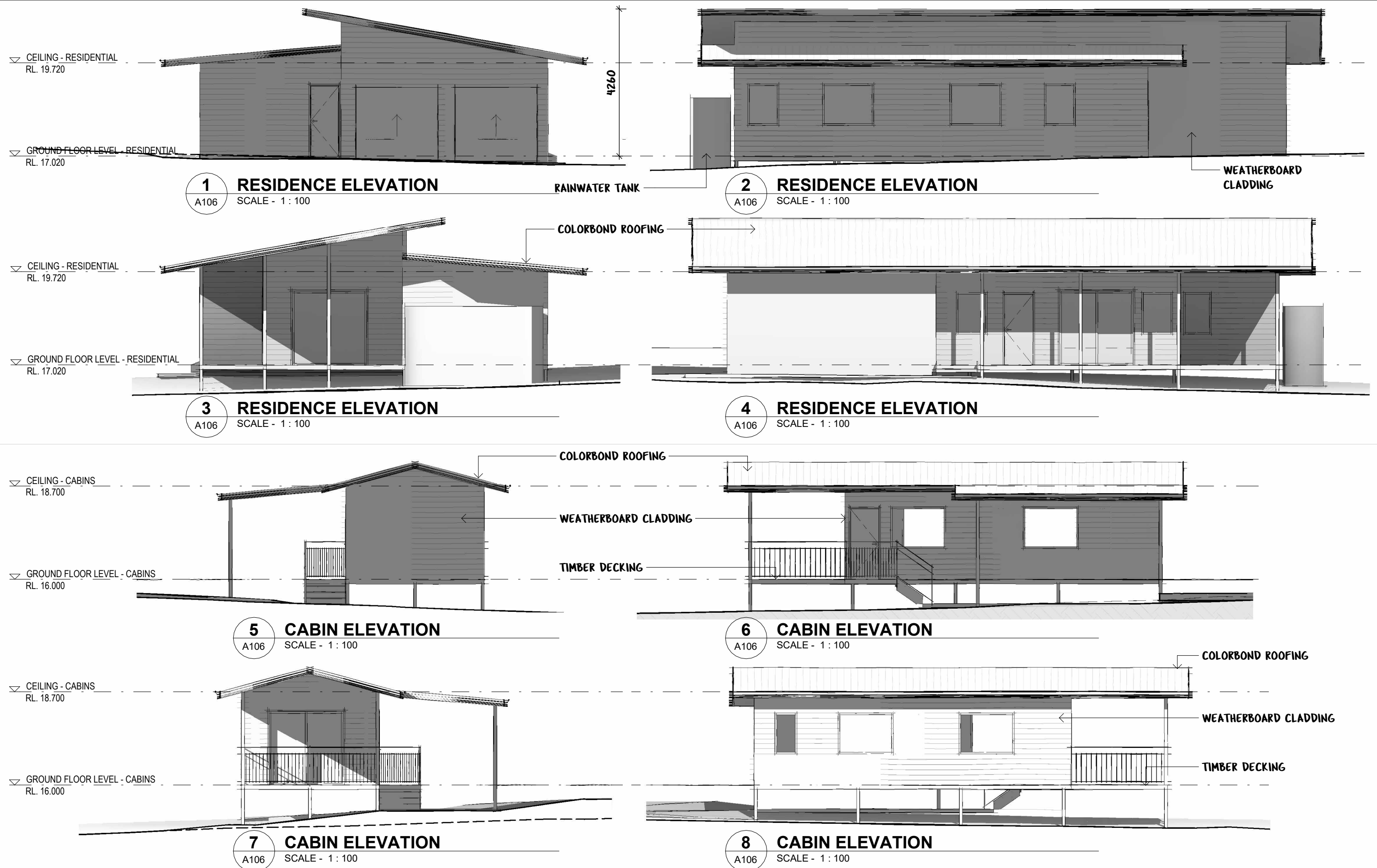
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P3 DA ISSUE	07/05/25	
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P5 REVISED DA ISSUE	04/06/25	
P6 REVISED DA ISSUE	11/06/25	
P7 UPDATED ISSUE	28/08/25	



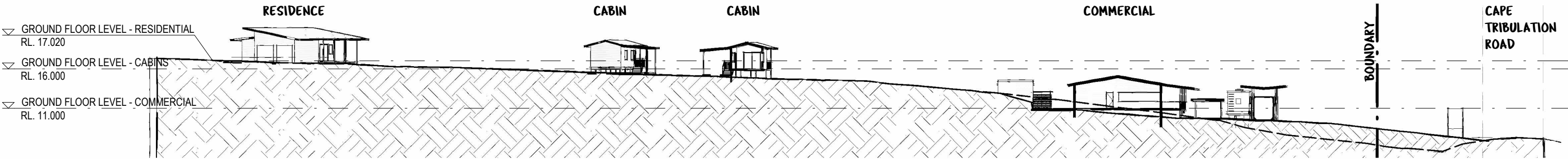
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DRAWN	HBU	SCALE	1 : 100	SIZE	A3
APPROVED	SC	DATE	09/23/24		

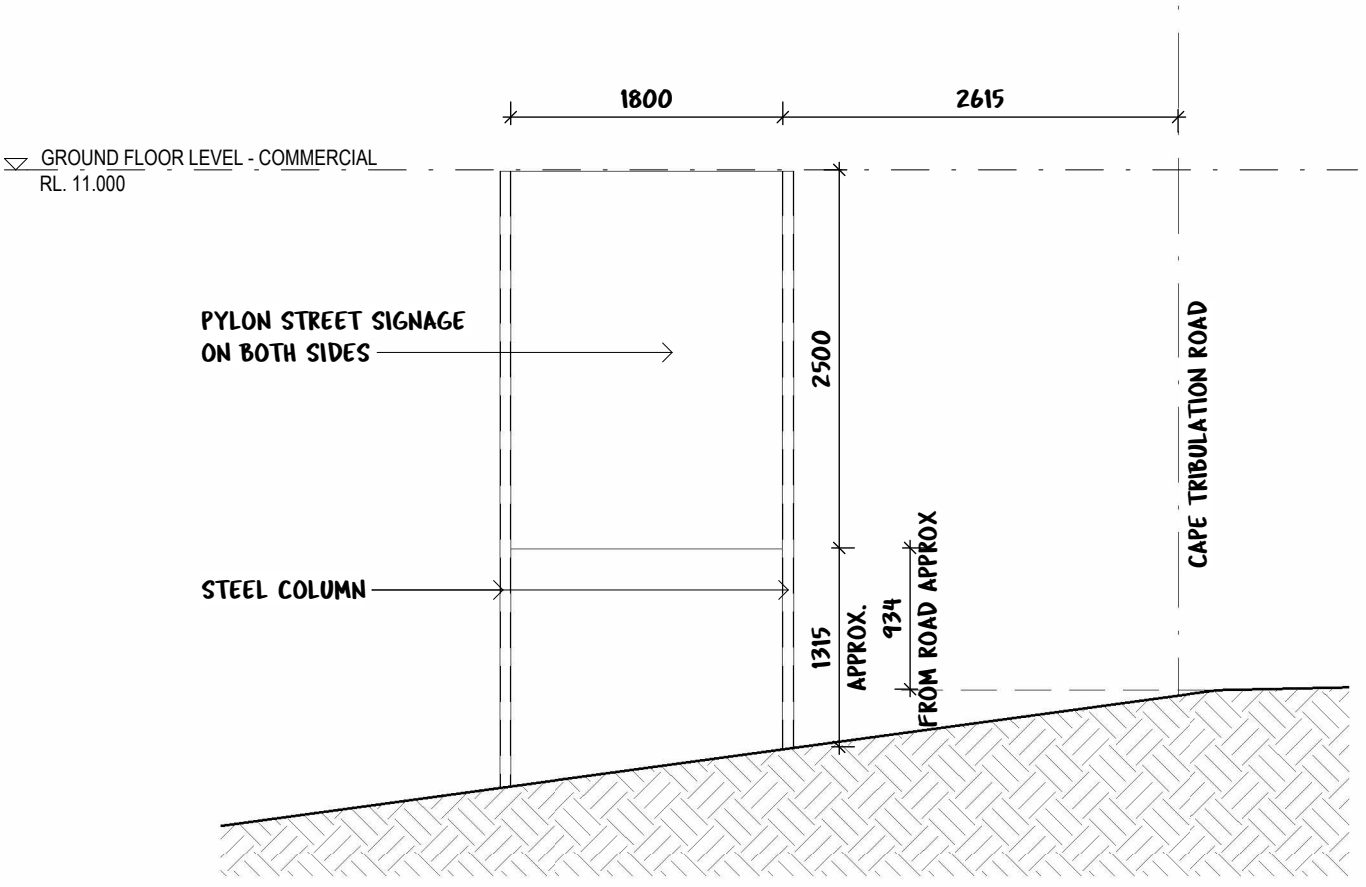
PROJECT	MIXED USE DEVELOPMENT
FOR	LOT 7, CAMELOT CLOSE, CAPE TRIBULATION
DWG	MR. GRAHAM WILLIAMS
DWG No.	1661-DA A107.2
STAMP	PRELIMINARY
ISSUE	P7



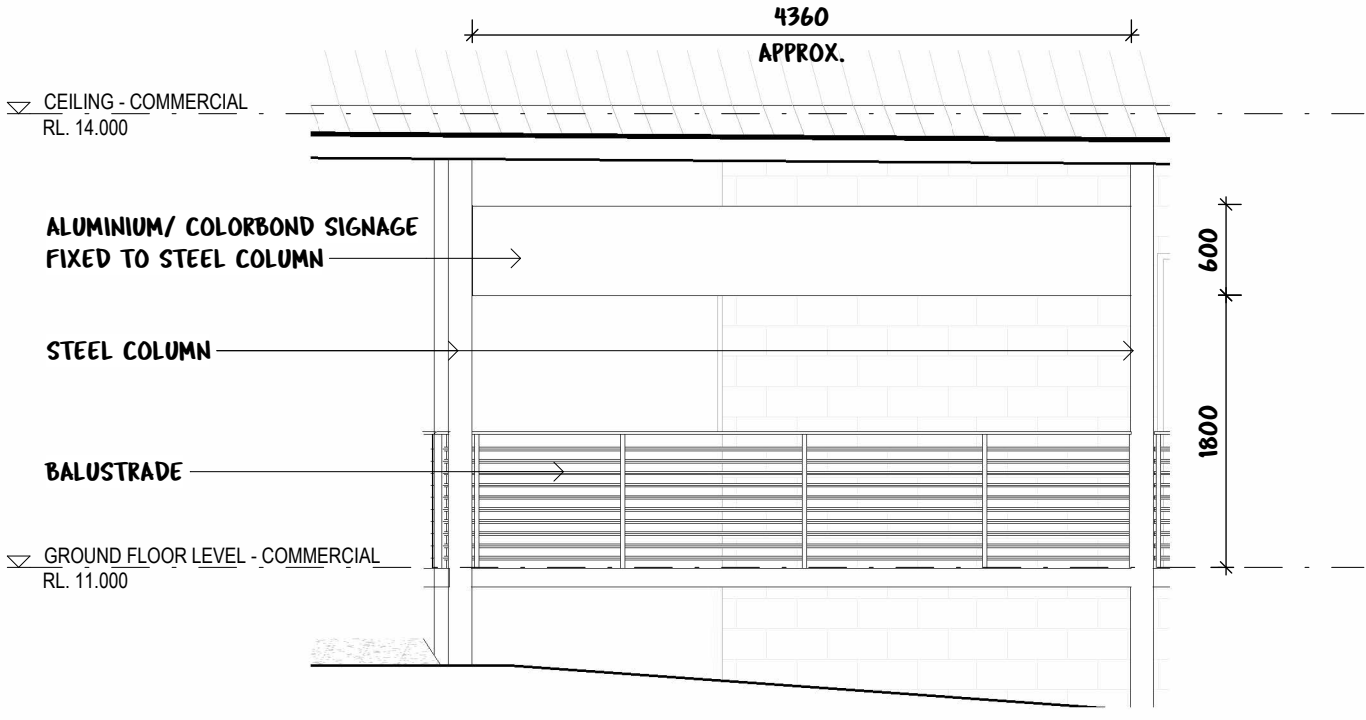
AMENDMENTS		DATE	DO NOT SCALE DRAWINGS. USE FIGURED DIMENSIONS ONLY. DIMENSIONS SHOWN ARE NOMINAL. ALLOWANCE TO BE MADE FOR FINISHED SIZES. VERIFY ALL DIMENSIONS AND SITE CONDITIONS PRIOR TO COMMENCING WORK. THIS DOCUMENT IS AND SHALL REMAIN THE PROPERTY OF CLARKE AND PRINCE PTY LTD. UNAUTHORISED USE OF THIS DOCUMENT IN ANY WAY IS PROHIBITED.	 clarke and prince ARCHITECTS	3 Scott Street [CAIRNS] QLD 4870 p. 07 4051 4088 f. 07 4051 1080 e. cp@clarkeandprince.com.au w. www.clarkeandprince.com.au	DRAWN	HBU	SCALE	SIZE	PROJECT MIXED USE DEVELOPMENT LOT 7, CAMELOT CLOSE, CAPE TRIBULATION MR. GRAHAM WILLIAMS	
		APPROVED				SC	DATE	09/23/24	FOR		
							DWG				
							DWG No.				
							1661-DA A108				
							STAMP				
							PRELIMINARY				
							ISSUE				
							P7				



1 SITE SECTION
SCALE - 1 : 500



2 STREET SIGNAGE
SCALE - 1 : 50



3 BUILDING/FACADE SIGNAGE
SCALE - 1 : 50

AMENDMENTS	DATE	DO NOT SCALE DRAWINGS. USE FIGURED DIMENSIONS ONLY. DIMENSIONS SHOWN ARE NOMINAL. ALLOWANCE TO BE MADE FOR FINISHED SIZES. VERIFY ALL DIMENSIONS AND SITE CONDITIONS PRIOR TO COMMENCING WORK. THIS DOCUMENT IS AND SHALL REMAIN THE PROPERTY OF CLARKE AND PRINCE PTY LTD. UNAUTHORISED USE OF THIS DOCUMENT IN ANY WAY IS PROHIBITED.
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P5 REVISED DA ISSUE	04/06/25	
P6 REVISED DA ISSUE	11/06/25	
P7 REVISED DA ISSUE	12/06/25	
P8 UPDATED ISSUE	28/08/25	



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w. www.clarkeandprince.com.au

DRAWN	HBU	SCALE	As indicated	SIZE	A3
APPROVED	SC	DATE	09/24/24		

PROJECT	MIXED USE DEVELOPMENT LOT 7, CAMELOT CLOSE, CAPE TRIBULATION MR. GRAHAM WILLIAMS		
FOR	PROPOSED SITE SECTION		
DWG No.	1661-DA A109	STAMP	PRELIMINARY
ISSUE	P8		

SCHEDULE 2 –
SOIL TEST REPORT



Soiltest.biz

COVER SHEET

DATE _____

September 9, 2025

JOB No:

17611

PROJECT

COMMERCIAL SERVICE STATION SITE - STAGE 1

ADDRESS

LOT 7 CAMELOT CLOSE CAPE TRIBULATION

CITY

CAPE TRIBULATION

CLIENT

GDUB HOLDINGS PTY LTD CO- WILDPLAN PTY LTD

FAX

TO

MATTHEW WARD - WILDPLAN

[illegible]

ABN 49 290 204 480

22 Templeton St.
Gordonvale Q4365
Australia

Ph: +61 7 4056 6324
test@soiltest.biz

Singapore, NZ, London

Soiltest.biz

SITE FACTORS & SITE PHOTO

DATE September 9, 2025
JOB No: 17611
PROJECT COMMERCIAL SERVICE STATION SITE - STAGE 1
ADDRESS LOT 7 CAMELOT CLOSE CAPE TRIBULATION
CITY CAPE TRIBULATION
CLIENT GDUB HOLDINGS PTY LTD CO- WILDPLAN PTY LTD

NTS

Real Property Description:

Lot 7, RP733181

Local Authority: Douglas Shire Council.

It is understood the intention is to construct a commercial development at the site.
Site testing was carried out in August 2025.

SITE FACTORS:

The site was identified by the sites address, a photo was taken to confirm the sites identity.
The lot has an area of 20890 square metres and is predominately covered with rainforest and bare/grassed clearings at the site.

The site has a 2-to-3-degree slope falling to the East and 8-degree slope falling to the East South-East.

No rock outcrops were observed at the site.

Six Dynamic Cone Penetrometer tests were performed at locations DCP1 through DCP6, four boreholes at BH1 through BH6 and one permeability test P1 as shown on the site plan.

Atterberg Limits tests were performed on a disturbed sample from Borehole 1, 3 and 5.



Site testing BH3 at Lot 7 Camelot Close, Cape Tribulation



ABN: 49 290 204 480

22 Templeton St.
Gordonvale Q4865
Australia

Ph: +61 7 4056 6324
test@soiltest.biz

Singapore, NZ, London

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FORM 15 - CLASSIFICATION / COMPLIANCE CERTIFICATE

DATE August 18, 2025 GRAHAM WILLIAMS
JOB No: 17611
PROJECT STAGE 1 - SERVICE STATION
ADDRESS LOT 7 CAMELOT CLOSE CAPE TRIBULATION
CITY CAPE TRIBULATION
CLIENT GRAHAM WILLIAMS
LOCAL GOVT AREA DOUGLAS SHIRE

Items classified

WIND CLASSIFICATION C2 (61m/s TC2.5) LIMIT STATE
SITE CLASSIFICATION H1 (does NOT include compaction test certification)

Standards and references used

Australian Standards and codes of practice – AS 1170.1, 1170.2, 1684.1-4, 1720.1, 2870, 3600, 3660, 3700, 4100, 4055, 4600, 5870, ASCM, Building code of Australia, Besser single storey design manual.

Documentation

Soil test.biz drawings

Certification and limitations

This classification is subject to ratification and/or review where any cut earthworks in excess of 0.5m or additional filling of the site is carried out.

Refer to 'Additional information for Site classification' attached with this report.

The site works must be carried out in accordance with AS 3798-2007 "Guidelines on earthworks for commercial and residential developments"

If the depth of any cut exceeds 0.5m or uncontrolled fill exceeds 0.4m the classification shall be reconsidered.

Because this investigation is limited in scope and extent, it is possible that areas may exist which differ from those shown on the test hole records and used in the site classification. Should any variation from the reported conditions be encountered during excavation work, this office must be notified immediately so that reappraisal of the classification can be made.

The recommended foundation treatment is that the top layer of approx 100 mm containing organic or loose material be stripped from the building site. Following this the exposed surface should be tested for deflection using an 8-10 tonne vibratory roller. Observed soft spots or ground movements Or if information obtained from initial site investigation shows the possibilities of ground problems should be notified to Soiltest.biz for further investigation.

The scope of this certificate is limited to the certification above and no responsibility is taken for any loss, damage or failure resulting from:

- Methods of construction including temporary bracing and propping.
- Bearing capacities of soils or fills failing to achieve their specified values.
- Variations or changes in soil conditions, elsewhere on the site. This is due to the limited extent of the site investigation carried out to specific positions and depths on the site.

Registered / competent person acting on behalf of the company



ABN 45 790 794 480

22 Templeton St.
Gordonvale Q4865
Australia

Ph: +61 7 4056 6324
test@soiltest.biz

Singapore, NZ, London

Signed for Soiltest.biz

PETER LENNOX QBCC 18267

Notes

Soiltest.biz

SOIL LOG

DATE September 9, 2025
JOB No: 17611
PROJECT COMMERCIAL SERVICE STATION SITE - STAGE 1
ADDRESS LOT 7 CAMELOT CLOSE CAPE TRIBULATION
CITY CAPE TRIBULATION
LOGGED BY GN

GDUB HOLDINGS
PTY LTD CO-

DEPTH

DESCRIPTION

BH3

0 - 700	RED BROWN SANDY SILTY CLAY
700 - 1500	RED BROWN SANDY SILTY CLAY. CONTAINS GRAVEL
600 - 900	DISTURBED SAMPLE
	LIQUID LIMIT = 44%; PLASTIC LIMIT = 27%; PLASTICITY INDEX = 17%; LINEAR SHRINKAGE = 11%
	WATERTABLE NOT ENCOUNTERED

BH6

0 - 700	RED BROWN SANDY SILTY CLAY
700 - 1500	RED BROWN SANDY SILTY CLAY. CONTAINS GRAVEL
	WATERTABLE NOT ENCOUNTERED



ABN: 40 200 204 480

22 Templeton St.
Gordonvale Q4865
Australia

Ph: +61 7 4050 6324
test@soiltest.biz

Singapore, NZ, London

PETER LENNOX QBCC 18267

DATE

September 9, 2025

JOB No:

17611

PROJECT

COMMERCIAL SERVICE STATION SITE - STAGE 1

ADDRESS

LOT 7 CAMELOT CLOSE,

CITY

CAPE TRIBULATION QLD 4873

DYNAMIC CONE PENETROMETER REPORT

LOGGED BY	GN	BLOWS DCP3	WS BEARING CAPACITY	LS BEARING CAPACITY	BLOWS DCP6	WS BEARING CAPACITY	LS BEARING CAPACITY
DEPTH							
0 - 100		3	100	150	4	120	180
100 - 200		4	120	180	4	120	180
200 - 300		3	100	150	4	120	180
300 - 400		4	120	180	5	160	240
400 - 500		5	160	240	5	160	240
500 - 600		8	220	330	4	120	180
600 - 700		6	180	270	4	120	180
700 - 800		5	160	240	8	220	330
800 - 900		5	160	240	6	180	270
900 - 1000		4	120	180	7	200	300
1000 - 1100		8	220	330	8	220	330
1100 - 1200		7	200	300	9	230	345
1200 - 1300		5	160	240	7	200	300
1300 - 1400		4	120	180	8	220	330
1400 - 1500							

AL

PETER LENNOX - QBCC 18267: RPEQ 1128

Soiltest.biz

COVER SHEET

DATE _____

September 9, 2025

JOB No:

17611

PROJECT

2 BEDROOM RESIDENCE - STAGE 2

ADDRESS

LOT 7 CAMELOT CLOSE CAPE TRIBULATION

CITY

CAPE TRIBULATION

CLIENT

GDUB HOLDINGS PTY LTD CO- WILDPLAN PTY LTD

FAX

TO

MATTHEW WARD - WILDPLAN

[illegible]

ABN 49 290 204 480

22 Templeton St.
Gordonvale Q4865
Australia

Ph: +61 7 4056 6324
test@soiltest.biz

Singapore, NZ, London

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SITE FACTORS & SITE PHOTO

DATE	September 9, 2025	
JOB No:	17611	
PROJECT	2 BEDROOM RESIDENCE - STAGE 2	
ADDRESS	LOT 7 CAMELOT CLOSE CAPE TRIBULATION	
CITY	CAPE TRIBULATION	
CLIENT	GDUB HOLDINGS PTY LTD CO- WILDPLAN PTY LTD	NTS

Real Property Description:

Lot 7, RP733181

Local Authority: Douglas Shire Council.

It is understood the intention is to construct a commercial development at the site.
Site testing was carried out in August 2025.

SITE FACTORS:

The site was identified by the sites address, a photo was taken to confirm the sites identity.
The lot has an area of 20890 square metres and is predominately covered with rainforest and bare/grassed clearings at the site.

The site has a 2-to-3-degree slope falling to the East and 8-degree slope falling to the East South-East.

No rock outcrops were observed at the site.

Six Dynamic Cone Penetrometer tests were performed at locations DCP1 through DCP6, four boreholes at BH1 through BH6 and one permeability test P1 as shown on the site plan.

Atterberg Limits tests were performed on a disturbed sample from Borehole 1, 3 and 5.



Site testing BH1 at Lot 7 Camelot Close, Cape Tribulation

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ABN 49 290 204 480

22 Templeton St.
Gordonvale Q4365
Australia

Ph: +61 7 4056 6324
test@soiltest.biz

Singapore, NZ, London

FORM 15 - CLASSIFICATION / COMPLIANCE CERTIFICATE

DATE	September 9, 2025	GDUB HOLDINGS PTY LTD CO- WILDPLAN PTY LTD
JOB No:	17611	
PROJECT	2 BEDROOM RESIDENCE - STAGE 2	
ADDRESS	LOT 7 CAMELOT CLOSE CAPE TRIBULATION	
CITY	CAPE TRIBULATION	
CLIENT	GDUB HOLDINGS PTY LTD CO- WILDPLAN PTY LTD	
LOCAL GOVT AREA	DOUGLAS SHIRE	

Items classified

WIND CLASSIFICATION	C2 (61m/s TC2.5)	LIMIT STATE
SITE CLASSIFICATION	H1	(does NOT include compaction test certification)

Standards and references used

Australian Standards and codes of practice – AS 1170.1, 1170.2, 1684.1-4, 1720.1, 2870, 3600, 3660, 3700, 4100, 4055, 4600, 5870, ASCM, Building code of Australia, Besser single storey design manual.

Documentation

Soil test.biz drawings

Certification and limitations

This classification is subject to ratification and/or review where any cut earthworks in excess of 0.5m or additional filling of the site is carried out.

Refer to 'Additional information for Site classification' attached with this report.

The site works must be carried out in accordance with AS 3798-2007 "Guidelines on earthworks for commercial and residential developments"

If the depth of any cut exceeds 0.5m or uncontrolled fill exceeds 0.4m the classification shall be reconsidered.

Because this investigation is limited in scope and extent, it is possible that areas may exist which differ from those shown on the test hole records and used in the site classification. Should any variation from the reported conditions be encountered during excavation work, this office must be notified immediately so that reappraisal of the classification can be made.

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- Bearing capacities of soils or fills failing to achieve their specified values.
- Variations or changes in soil conditions, elsewhere on the site. This is due to the limited extent of the site investigation carried out to specific positions and depths on the site.

Registered / competent person acting on behalf of the company

Signed for Soiltest.biz

Notes

PETER LENNOX QBCC 18267

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ABN: 49 000 204 480

22 Templeton St.
Gordonvale Q4365
Australia

Ph: +61 7 4056 6324
test@soiltest.biz

Singapore, NZ, London

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SOIL LOG

GDUB HOLDINGS
PTY LTD CO-

DATE September 9, 2025
JOB No: 17611
PROJECT 2 BEDROOM RESIDENCE - STAGE 2
ADDRESS LOT 7 CAMELOT CLOSE CAPE TRIBULATION
CITY CAPE TRIBULATION
LOGGED BY GN

DEPTH	DESCRIPTION
BH1	
0 - 400	BROWN SILTY CLAY
400 - 2000	RED BROWN SILTY CLAY.
600 - 900	DISTURBED SAMPLE
	LIQUID LIMIT = 47%; PLASTIC LIMIT = 28%; PLASTICITY INDEX = 19%; LINEAR SHRINKAGE = 12%
	WATERTABLE NOT ENCOUNTERED
BH4	
0 - 700	RED BROWN SANDY SILTY CLAY
700 - 1500	RED BROWN SANDY SILTY CLAY. CONTAINS GRAVEL
	WATERTABLE NOT ENCOUNTERED



ABN: 40 290 204 480

22 Templeton St.
Gordonvale Q4865
Australia

Ph: +61 7 4056 6324
test@soiltest.biz

Singapore, NZ, London

PETER LENNOX QBCC 18267

DYNAMIC CONE PENETROMETER REPORT

DATE September 9, 2025
JOB No: 17611
PROJECT RESIDENCE - STAGE 2
ADDRESS LOT 7 CAMELOT CLOSE,
CITY CAPE TRIBULATION QLD 4873

LOGGED BY	GN								
DEPTH	BLOWS DCP2	WS BEARING CAPACITY	LS BEARING CAPACITY	BLOWS DCP5	WS BEARING CAPACITY	LS BEARING CAPACITY			
0 - 100	3	100	150	3	100	150			
100 - 200	2	70	105	3	100	150			
200 - 300	4	120	180	3	100	150			
300 - 400	5	160	240	4	120	180			
400 - 500	4	120	180	4	120	180			
500 - 600	5	160	240	5	160	240			
600 - 700	4	120	180	4	120	180			
700 - 800	4	120	180	5	160	240			
800 - 900	5	160	240	4	120	180			
900 - 1000	5	160	240	3	100	150			
1000 - 1100	4	120	180	3	100	150			
1100 - 1200	4	120	180	3	100	150			
1200 - 1300	5	160	240	3	100	150			
1300 - 1400	4	120	180	3	100	150			
1400 - 1500									

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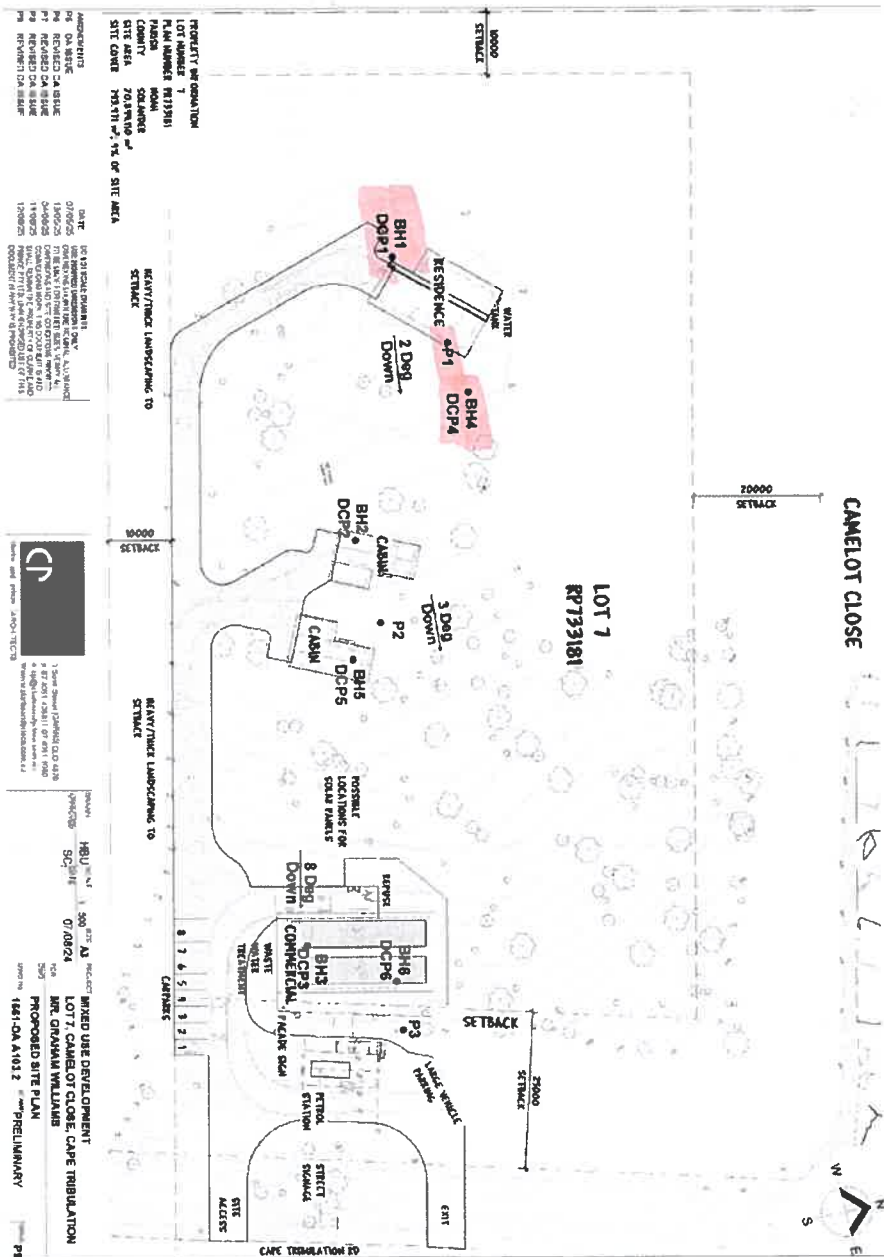
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SITE PLAN

DATE September 9, 2025
 JOB No: 17611
 PROJECT 2 BEDROOM RESIDENCE - STAGE 2
 ADDRESS LOT 7 CAMELOT CLOSE CAPE TRIBULATION
 CITY CAPE TRIBULATION
 CLIENT GDUB HOLDINGS PTY LTD CO- WILDPLAN PTY LTD

NTS

SITE PLAN Lot 7 Camelot Close, Cape Tribulation. Not to scale



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22 Templeton St.
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 Australia

Ph: +61 7 4056 6324
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COVER SHEET

DATE	September 9, 2025	
JOB No:	17611	
PROJECT	NATURE BASED TOURISM - CABINS - STAGE 3	
ADDRESS	LOT 7 CAMELOT CLOSE CAPE TRIBULATION	
CITY	CAPE TRIBULATION	
CLIENT	GDUB HOLDINGS PTY LTD CO- WILDPLAN PTY LTD	FAX
TO	MATTHEW WARD - WILDPLAN	

[illegible]

ABN 49 290 204 480

22 Templeton St.
Gordonvale Q4865
Australia

Ph: +61 7 4056 6324
test@soiltest.biz

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EXTRAS

GENERAL NOTES (7 PGS – DOUBLE SIDED)
CSIRO 'FOUNDATION MAINTENANCE & FOOTING PERFORMANCE' NOTES (2 PGS – DOUBLE SIDED)

AMENDMENT LIST

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SITE FACTORS & SITE PHOTO

DATE September 9, 2025
JOB No: 17611
PROJECT NATURE BASED TOURISM - CABINS - STAGE 3
ADDRESS LOT 7 CAMELOT CLOSE CAPE TRIBULATION
CITY CAPE TRIBULATION
CLIENT GDUB HOLDINGS PTY LTD CO- WILDPLAN PTY LTD

NTS

Real Property Description:

Lot 7, RP733181

Local Authority: Douglas Shire Council.

It is understood the intention is to construct a commercial development at the site.
Site testing was carried out in August 2025.

SITE FACTORS:

The site was identified by the sites address, a photo was taken to confirm the sites identity.
The lot has an area of 20890 square metres and is predominately covered with rainforest and bare/grassed clearings at the site.

The site has a 2-to-3-degree slope falling to the East and 8-degree slope falling to the East South-East.

No rock outcrops were observed at the site.

Six Dynamic Cone Penetrometer tests were performed at locations DCP1 through DCP6, four boreholes at BH1 through BH6 and one permeability test P1 as shown on the site plan.

Atterberg Limits tests were performed on a disturbed sample from Borehole 1, 3 and 5.



Site testing BH5 at Lot 7 Camelot Close, Cape Tribulation

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FORM 15 - CLASSIFICATION / COMPLIANCE CERTIFICATE

DATE	September 9, 2025	GDUB HOLDINGS PTY LTD CO- WILDPLAN PTY LTD
JOB No:	17611	
PROJECT	NATURE BASED TOURISM - CABINS - STAGE 3	
ADDRESS	LOT 7 CAMELOT CLOSE CAPE TRIBULATION	
CITY	CAPE TRIBULATION	
CLIENT	GDUB HOLDINGS PTY LTD CO- WILDPLAN PTY LTD	
LOCAL GOVT AREA	DOUGLAS SHIRE	

Items classified

WIND CLASSIFICATION	C2 (61m/s TC2.5)	LIMIT STATE
SITE CLASSIFICATION	H1	(does NOT include compaction test certification)

Standards and references used

Australian Standards and codes of practice – AS 1170.1, 1170.2, 1684.1-4, 1720.1, 2870, 3600, 3660, 3700, 4100, 4055, 4600, 5870, ASCM, Building code of Australia, Besser single storey design manual.

Documentation

Soil test.biz drawings

Certification and limitations

This classification is subject to ratification and/or review where any cut earthworks in excess of 0.5m or additional filling of the site is carried out.

Refer to 'Additional information for Site classification' attached with this report.

The site works must be carried out in accordance with AS 3798-2007 "Guidelines on earthworks for commercial and residential developments"

If the depth of any cut exceeds 0.5m or uncontrolled fill exceeds 0.4m the classification shall be reconsidered.

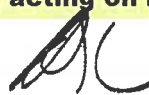
Because this investigation is limited in scope and extent, it is possible that areas may exist which differ from those shown on the test hole records and used in the site classification. Should any variation from the reported conditions be encountered during excavation work, this office must be notified immediately so that reappraisal of the classification can be made.

The recommended foundation treatment is that the top layer of approx 100 mm containing organic or loose material be stripped from the building site. Following this the exposed surface should be tested for deflection using an 8-10 tonne vibratory roller. Observed soft spots or ground movements Or if information obtained from initial site investigation shows the possibilities of ground problems should be notified to Soiltest.biz for further investigation.

The scope of this certificate is limited to the certification above and no responsibility is taken for any loss, damage or failure resulting from:

- Methods of construction including temporary bracing and propping.
- Bearing capacities of soils or fills failing to achieve their specified values.
- Variations or changes in soil conditions, elsewhere on the site. This is due to the limited extent of the site investigation carried out to specific positions and depths on the site.

Registered / competent person acting on behalf of the company



Signed for Soiltest.biz

Notes

PETER LENNOX QBCC 18267

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ABN 46 760 701 400

22 Templeton St.
Gordonvale Q4355
Australia

Ph: +61 7 4056 632
test@soiltest.biz

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SOIL LOG

DATE September 9, 2025 GDUB HOLDINGS
JOB No: 17611 PTY LTD CO-
PROJECT NATURE BASED TOURISM - CABINS - STAGE 3
ADDRESS LOT 7 CAMELOT CLOSE CAPE TRIBULATION
CITY CAPE TRIBULATION
LOGGED BY GN

DEPTH

DESCRIPTION

BH2

0 - 700 RED BROWN SANDY SILTY CLAY.
700 - 1500 RED BROWN SANDY SILTY CLAY. CONTAINS GRAVEL
600 - 900 DISTURBED SAMPLE
LIQUID LIMIT = 49%; PLASTIC LIMIT = 28%; PLASTICITY INDEX = 21%;
LINEAR SHRINKAGE = 13.5%
WATERTABLE NOT ENCOUNTERED

BH5

0 - 700 RED BROWN SANDY SILTY CLAY
700 - 1500 RED BROWN SANDY SILTY CLAY. CONTAINS GRAVEL
WATERTABLE NOT ENCOUNTERED



ABN 40 200 204 480

22 Templeton St,
Gordonvale Q4865
Australia

Ph: +61 7 4056 6324
test@soiltest.biz

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PETER LENNOX QBCC 18267

DYNAMIC CONE PENETROMETER REPORT

DATE

September 9, 2025

JOB No:

17611

PROJECT

NATURE BASED TOURISM - CABINS - STAGE 3

ADDRESS

LOT 7 CAMELOT CLOSE,

CITY

CAPE TRIBULATION QLD 4873

LOGGED BY

GN

DEPTH	BLOWS DCP2	WS BEARING CAPACITY	LS BEARING CAPACITY	BLOWS DCP5	WS BEARING CAPACITY	LS BEARING CAPACITY
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1300 - 1400	5	160	240	7	200	300
1400 - 1500						

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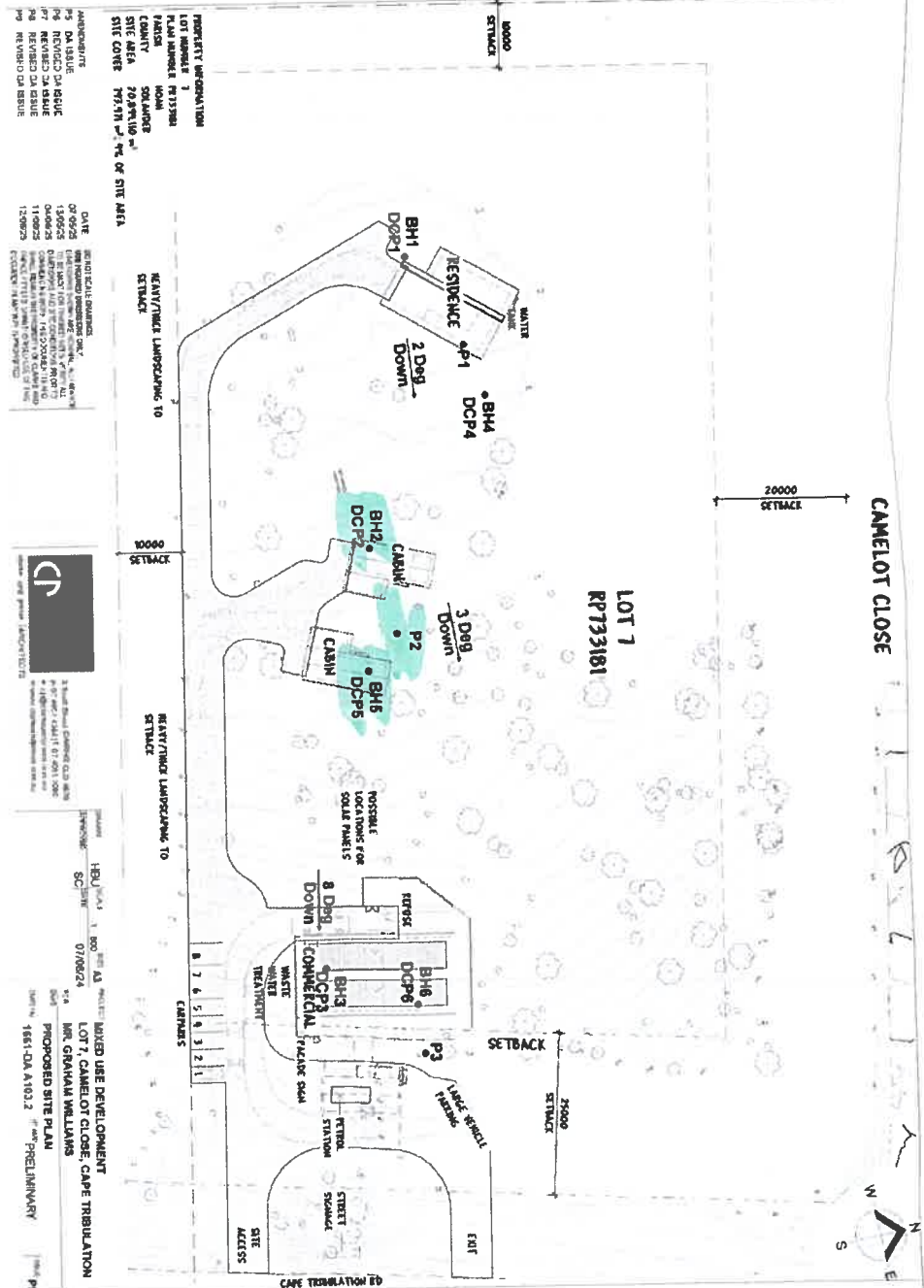
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Gordonvale Q4865
Australia

Ph: +61 7 4055 6324
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DATE	September 9, 2025
JOB No:	17611
PROJECT	NATURE BASED TOURISM - CABINS - STAGE 3
ADDRESS	LOT 7 CAMELOT CLOSE CAPE TRIBULATION
CITY	CAPE TRIBULATION
CLIENT	GDUB HOLDINGS PTY LTD CO- WILDPLAN PTY LTD

SITE PLAN
Lot 7 Camelot Close, Cape Tribulation.
Not to scale



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ABN 49 290 204 480

22 Templeton St.
Gordonvale Q4365
Australia

Ph: +61 7 4056 6324
test@soiltestbiz

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Foundation Maintenance and Footing Performance: A Homeowner's Guide



CSIRO

BTF 18
replaces
Information
Sheet 10/91

Buildings can and often do move. This movement can be up, down, lateral or rotational. The fundamental cause of movement in buildings can usually be related to one or more problems in the foundation soil. It is important for the homeowner to identify the soil type in order to ascertain the measures that should be put in place in order to ensure that problems in the foundation soil can be prevented, thus protecting against building movement.

This Building Technology File is designed to identify causes of soil-related building movement, and to suggest methods of prevention of resultant cracking in buildings.

Soil Types

The types of soils usually present under the topsoil in land zoned for residential buildings can be split into two approximate groups – granular and clay. Quite often, foundation soil is a mixture of both types. The general problems associated with soils having granular content are usually caused by erosion. Clay soils are subject to saturation and swell/shrink problems.

Classifications for a given area can generally be obtained by application to the local authority, but these are sometimes unreliable and if there is doubt, a geotechnical report should be commissioned. As most buildings suffering movement problems are founded on clay soils, there is an emphasis on classification of soils according to the amount of swell and shrinkage they experience with variations of water content. The table below is Table 2.1 from AS 2870, the Residential Slab and Footing Code.

Causes of Movement

Settlement due to construction

There are two types of settlement that occur as a result of construction:

- Immediate settlement occurs when a building is first placed on its foundation soil, as a result of compaction of the soil under the weight of the structure. The cohesive quality of clay soil mitigates against this, but granular (particularly sandy) soil is susceptible.
- Consolidation settlement is a feature of clay soil and may take place because of the expulsion of moisture from the soil or because of the soil's lack of resistance to local compressive or shear stresses. This will usually take place during the first few months after construction, but has been known to take many years in exceptional cases.

These problems are the province of the builder and should be taken into consideration as part of the preparation of the site for construction. Building Technology File 19 (BTF 19) deals with these problems.

Erosion

All soils are prone to erosion, but sandy soil is particularly susceptible to being washed away. Even clay with a sand component of say 10% or more can suffer from erosion.

Saturation

This is particularly a problem in clay soils. Saturation creates a bog-like suspension of the soil that causes it to lose virtually all of its bearing capacity. To a lesser degree, sand is affected by saturation because saturated sand may undergo a reduction in volume – particularly imported sand fill for bedding and blinding layers. However, this usually occurs as immediate settlement and should normally be the province of the builder.

Seasonal swelling and shrinkage of soil

All clays react to the presence of water by slowly absorbing it, making the soil increase in volume (see table below). The degree of increase varies considerably between different clays, as does the degree of decrease during the subsequent drying out caused by fair weather periods. Because of the low absorption and expulsion rate, this phenomenon will not usually be noticeable unless there are prolonged rainy or dry periods, usually of weeks or months, depending on the land and soil characteristics.

The swelling of soil creates an upward force on the footings of the building, and shrinkage creates subsidence that takes away the support needed by the footing to retain equilibrium.

Shear failure

This phenomenon occurs when the foundation soil does not have sufficient strength to support the weight of the footing. There are two major post-construction causes:

- Significant load increase.
- Reduction of lateral support of the soil under the footing due to erosion or excavation.
- In clay soil, shear failure can be caused by saturation of the soil adjacent to or under the footing.

GENERAL DEFINITIONS OF SITE CLASSES

Class	Foundation
A	Most sand and rock sites with little or no ground movement from moisture changes
S	Slightly reactive clay sites with only slight ground movement from moisture changes
M	Moderately reactive clay or silt sites, which can experience moderate ground movement from moisture changes
H	Highly reactive clay sites, which can experience high ground movement from moisture changes
E	Extremely reactive sites, which can experience extreme ground movement from moisture changes
A to P	Filled sites
P	Sites which include soft soils, such as soft clay or silt or loose sands; landslip; mine subsidence; collapsing soils; soils subject to erosion; reactive sites subject to abnormal moisture conditions or sites which cannot be classified otherwise

Tree root growth

Trees and shrubs that are allowed to grow in the vicinity of footings can cause foundation soil movement in two ways:

- Roots that grow under footings may increase in cross-sectional size, exerting upward pressure on footings.
- Roots in the vicinity of footings will absorb much of the moisture in the foundation soil, causing shrinkage or subsidence.

Unevenness of Movement

The types of ground movement described above usually occur unevenly throughout the building's foundation soil. Settlement due to construction tends to be uneven because of:

- Differing compaction of foundation soil prior to construction.
- Differing moisture content of foundation soil prior to construction.

Movement due to non-construction causes is usually more uneven still. Erosion can undermine a footing that traverses the flow or can create the conditions for shear failure by eroding soil adjacent to a footing that runs in the same direction as the flow.

Saturation of clay foundation soil may occur where subfloor walls create a dam that makes water pond. It can also occur wherever there is a source of water near footings in clay soil. This leads to a severe reduction in the strength of the soil which may create local shear failure.

Seasonal swelling and shrinkage of clay soil affects the perimeter of the building first, then gradually spreads to the interior. The swelling process will usually begin at the uphill extreme of the building, or on the weather side where the land is flat. Swelling gradually reaches the interior soil as absorption continues. Shrinkage usually begins where the sun's heat is greatest.

Effects of Uneven Soil Movement on Structures

Erosion and saturation

Erosion removes the support from under footings, tending to create subsidence of the part of the structure under which it occurs. Brickwork walls will resist the stress created by this removal of support by bridging the gap or cantilevering until the bricks or the mortar bedding fail. Older masonry has little resistance. Evidence of failure varies according to circumstances and symptoms may include:

- Step cracking in the mortar beds in the body of the wall or above/below openings such as doors or windows.
- Vertical cracking in the bricks (usually but not necessarily in line with the vertical beds or perpend).

Isolated piers affected by erosion or saturation of foundations will eventually lose contact with the bearers they support and may tilt or fall over. The floors that have lost this support will become bouncy, sometimes rattling ornaments etc.

Seasonal swelling/shrinkage in clay

Swelling foundation soil due to rainy periods first lifts the most exposed extremities of the footing system, then the remainder of the perimeter footings while gradually permeating inside the building footprint to lift internal footings. This swelling first tends to create a dish effect, because the external footings are pushed higher than the internal ones.

The first noticeable symptom may be that the floor appears slightly dished. This is often accompanied by some doors binding on the floor or the door head, together with some cracking of cornice mitres. In buildings with timber flooring supported by bearers and joists, the floor can be bouncy. Externally there may be visible dishing of the hip or ridge lines.

As the moisture absorption process completes its journey to the innermost areas of the building, the internal footings will rise. If the spread of moisture is roughly even, it may be that the symptoms will temporarily disappear, but it is more likely that swelling will be uneven, creating a difference rather than a disappearance in symptoms. In buildings with timber flooring supported by bearers and joists, the isolated piers will rise more easily than the strip footings or piers under walls, creating noticeable doming of flooring.

Trees can cause shrinkage and damage



As the weather pattern changes and the soil begins to dry out, the external footings will be first affected, beginning with the locations where the sun's effect is strongest. This has the effect of lowering the external footings. The doming is accentuated and cracking reduces or disappears where it occurred because of dishing, but other cracks open up. The roof lines may become convex.

Doming and dishing are also affected by weather in other ways. In areas where warm, wet summers and cooler dry winters prevail, water migration tends to be toward the interior and doming will be accentuated, whereas where summers are dry and winters are cold and wet, migration tends to be toward the exterior and the underlying propensity is toward dishing.

Movement caused by tree roots

In general, growing roots will exert an upward pressure on footings, whereas soil subject to drying because of tree or shrub roots will tend to remove support from under footings by inducing shrinkage.

Complications caused by the structure itself

Most forces that the soil causes to be exerted on structures are vertical – i.e. either up or down. However, because these forces are seldom spread evenly around the footings, and because the building resists uneven movement because of its rigidity, forces are exerted from one part of the building to another. The net result of all these forces is usually rotational. This resultant force often complicates the diagnosis because the visible symptoms do not simply reflect the original cause. A common symptom is binding of doors on the vertical member of the frame.

Effects on full masonry structures

Brickwork will resist cracking where it can. It will attempt to span areas that lose support because of subsided foundations or raised points. It is therefore usual to see cracking at weak points, such as openings for windows or doors.

In the event of construction settlement, cracking will usually remain unchanged after the process of settlement has ceased.

With local shear or erosion, cracking will usually continue to develop until the original cause has been remedied, or until the subsidence has completely neutralised the affected portion of footing and the structure has stabilised on other footings that remain effective.

In the case of swell/shrink effects, the brickwork will in some cases return to its original position after completion of a cycle, however it is more likely that the rotational effect will not be exactly reversed, and it is also usual that brickwork will settle in its new position and will resist the forces trying to return it to its original position. This means that in a case where swelling takes place after construction and cracking occurs, the cracking is likely to at least partly remain after the shrink segment of the cycle is complete. Thus, each time the cycle is repeated, the likelihood is that the cracking will become wider until the sections of brickwork become virtually independent.

With repeated cycles, once the cracking is established, if there is no other complication, it is normal for the incidence of cracking to stabilise, as the building has the articulation it needs to cope with the problem. This is by no means always the case, however, and monitoring of cracks in walls and floors should always be treated seriously.

Upheaval caused by growth of tree roots under footings is not a simple vertical shear stress. There is a tendency for the root to also exert lateral forces that attempt to separate sections of brickwork after initial cracking has occurred.

The normal structural arrangement is that the inner leaf of brickwork in the external walls and at least some of the internal walls (depending on the roof type) comprise the load-bearing structure on which any upper floors, ceilings and the roof are supported. In these cases, it is internally visible cracking that should be the main focus of attention, however there are a few examples of dwellings whose external leaf of masonry plays some supporting role, so this should be checked if there is any doubt. In any case, externally visible cracking is important as a guide to stresses on the structure generally, and it should also be remembered that the external walls must be capable of supporting themselves.

Effects on framed structures

Timber or steel framed buildings are less likely to exhibit cracking due to swell/shrink than masonry buildings because of their flexibility. Also, the doming/dishing effects tend to be lower because of the lighter weight of walls. The main risks to framed buildings are encountered because of the isolated pier footings used under walls. Where erosion or saturation cause a footing to fall away, this can double the span which a wall must bridge. This additional stress can create cracking in wall linings, particularly where there is a weak point in the structure caused by a door or window opening. It is, however, unlikely that framed structures will be so stressed as to suffer serious damage without first exhibiting some or all of the above symptoms for a considerable period. The same warning period should apply in the case of upheaval. It should be noted, however, that where framed buildings are supported by strip footings there is only one leaf of brickwork and therefore the externally visible walls are the supporting structure for the building. In this case, the subfloor masonry walls can be expected to behave as full brickwork walls.

Effects on brick veneer structures

Because the load-bearing structure of a brick veneer building is the frame that makes up the interior leaf of the external walls plus perhaps the internal walls, depending on the type of roof, the building can be expected to behave as a framed structure, except that the external masonry will behave in a similar way to the external leaf of a full masonry structure.

Water Service and Drainage

Where a water service pipe, a sewer or stormwater drainage pipe is in the vicinity of a building, a water leak can cause erosion, swelling or saturation of susceptible soil. Even a minuscule leak can be enough to saturate a clay foundation. A leaking tap near a building can have the same effect. In addition, trenches containing pipes can become watercourses even though backfilled, particularly where broken rubble is used as fill. Water that runs along these trenches can be responsible for serious erosion, interstrata seepage into subfloor areas and saturation.

Pipe leakage and trench water flows also encourage tree and shrub roots to the source of water, complicating and exacerbating the problem. Poor roof plumbing can result in large volumes of rainwater being concentrated in a small area of soil:

- Incorrect falls in roof guttering may result in overflows, as may gutters blocked with leaves etc.

- Corroded guttering or downpipes can spill water to ground.
- Downpipes not positively connected to a proper stormwater collection system will direct a concentration of water to soil that is directly adjacent to footings, sometimes causing large-scale problems such as erosion, saturation and migration of water under the building.

Seriousness of Cracking

In general, most cracking found in masonry walls is a cosmetic nuisance only and can be kept in repair or even ignored. The table below is a reproduction of Table C1 of AS 2870.

AS 2870 also publishes figures relating to cracking in concrete floors, however because wall cracking will usually reach the critical point significantly earlier than cracking in slabs, this table is not reproduced here.

Prevention/Cure

Plumbing

Where building movement is caused by water service, roof plumbing, sewer or stormwater failure, the remedy is to repair the problem. It is prudent, however, to consider also rerouting pipes away from the building where possible, and relocating taps to positions where any leakage will not direct water to the building vicinity. Even where gully traps are present, there is sometimes sufficient spill to create erosion or saturation, particularly in modern installations using smaller diameter PVC fixtures. Indeed, some gully traps are not situated directly under the taps that are installed to charge them, with the result that water from the tap may enter the backfilled trench that houses the sewer piping. If the trench has been poorly backfilled, the water will either pond or flow along the bottom of the trench. As these trenches usually run alongside the footings and can be at a similar depth, it is not hard to see how any water that is thus directed into a trench can easily affect the foundation's ability to support footings or even gain entry to the subfloor area.

Ground drainage

In all soils there is the capacity for water to travel on the surface and below it. Surface water flows can be established by inspection during and after heavy or prolonged rain. If necessary, a grated drain system connected to the stormwater collection system is usually an easy solution.

It is, however, sometimes necessary when attempting to prevent water migration that testing be carried out to establish watertable height and subsoil water flows. This subject is referred to in BTF 19 and may properly be regarded as an area for an expert consultant.

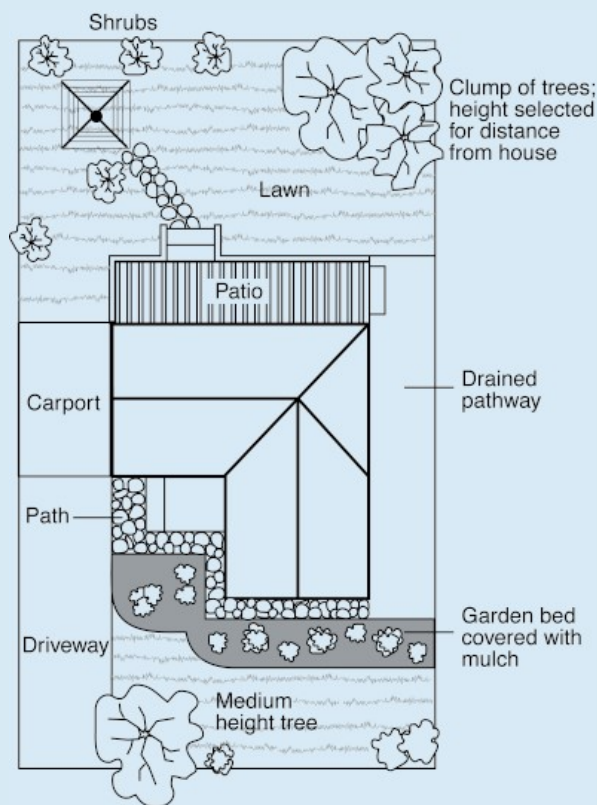
Protection of the building perimeter

It is essential to remember that the soil that affects footings extends well beyond the actual building line. Watering of garden plants, shrubs and trees causes some of the most serious water problems.

For this reason, particularly where problems exist or are likely to occur, it is recommended that an apron of paving be installed around as much of the building perimeter as necessary. This paving

CLASSIFICATION OF DAMAGE WITH REFERENCE TO WALLS		
Description of typical damage and required repair	Approximate crack width limit (see Note 3)	Damage category
Hairline cracks	<0.1 mm	0
Fine cracks which do not need repair	<1 mm	1
Cracks noticeable but easily filled. Doors and windows stick slightly	<5 mm	2
Cracks can be repaired and possibly a small amount of wall will need to be replaced. Doors and windows stick. Service pipes can fracture. Weathertightness often impaired	5–15 mm (or a number of cracks 3 mm or more in one group)	3
Extensive repair work involving breaking-out and replacing sections of walls, especially over doors and windows. Window and door frames distort. Walls lean or bulge noticeably, some loss of bearing in beams. Service pipes disrupted	15–25 mm but also depend on number of cracks	4

Gardens for a reactive site



- Water that is transmitted into masonry, metal or timber building elements causes damage and/or decay to those elements.
- High subfloor humidity and moisture content create an ideal environment for various pests, including termites and spiders.
- Where high moisture levels are transmitted to the flooring and walls, an increase in the dust mite count can ensue within the living areas. Dust mites, as well as dampness in general, can be a health hazard to inhabitants, particularly those who are abnormally susceptible to respiratory ailments.

The garden

The ideal vegetation layout is to have lawn or plants that require only light watering immediately adjacent to the drainage or paving edge, then more demanding plants, shrubs and trees spread out in that order.

Overwatering due to misuse of automatic watering systems is a common cause of saturation and water migration under footings. If it is necessary to use these systems, it is important to remove garden beds to a completely safe distance from buildings.

Existing trees

Where a tree is causing a problem of soil drying or there is the existence or threat of upheaval of footings, if the offending roots are subsidiary and their removal will not significantly damage the tree, they should be severed and a concrete or metal barrier placed vertically in the soil to prevent future root growth in the direction of the building. If it is not possible to remove the relevant roots without damage to the tree, an application to remove the tree should be made to the local authority. A prudent plan is to transplant likely offenders before they become a problem.

Information on trees, plants and shrubs

State departments overseeing agriculture can give information regarding root patterns, volume of water needed and safe distance from buildings of most species. Botanic gardens are also sources of information. For information on plant roots and drains, see Building Technology File 17.

Excavation

Excavation around footings must be properly engineered. Soil supporting footings can only be safely excavated at an angle that allows the soil under the footing to remain stable. This angle is called the angle of repose (or friction) and varies significantly between soil types and conditions. Removal of soil within the angle of repose will cause subsidence.

Remediation

Where erosion has occurred that has washed away soil adjacent to footings, soil of the same classification should be introduced and compacted to the same density. Where footings have been undermined, augmentation or other specialist work may be required. Remediation of footings and foundations is generally the realm of a specialist consultant.

Where isolated footings rise and fall because of swell/shrink effect, the homeowner may be tempted to alleviate floor bounce by filling the gap that has appeared between the bearer and the pier with blocking. The danger here is that when the next swell segment of the cycle occurs, the extra blocking will push the floor up into an accentuated dome and may also cause local shear failure in the soil. If it is necessary to use blocking, it should be by a pair of fine wedges and monitoring should be carried out fortnightly.

This BTF was prepared by John Lewer FAIB, MIAMA, Partner, Construction Diagnosis.

should extend outwards a minimum of 900 mm (more in highly reactive soil) and should have a minimum fall away from the building of 1:60. The finished paving should be no less than 100 mm below brick vent bases.

It is prudent to relocate drainage pipes away from this paving, if possible, to avoid complications from future leakage. If this is not practical, earthenware pipes should be replaced by PVC and backfilling should be of the same soil type as the surrounding soil and compacted to the same density.

Except in areas where freezing of water is an issue, it is wise to remove taps in the building area and relocate them well away from the building – preferably not uphill from it (see BTF 19).

It may be desirable to install a grated drain at the outside edge of the paving on the uphill side of the building. If subsoil drainage is needed this can be installed under the surface drain.

Condensation

In buildings with a subfloor void such as where bearers and joists support flooring, insufficient ventilation creates ideal conditions for condensation, particularly where there is little clearance between the floor and the ground. Condensation adds to the moisture already present in the subfloor and significantly slows the process of drying out. Installation of an adequate subfloor ventilation system, either natural or mechanical, is desirable.

Warning: Although this Building Technology File deals with cracking in buildings, it should be said that subfloor moisture can result in the development of other problems, notably:

The information in this and other issues in the series was derived from various sources and was believed to be correct when published.

The information is advisory. It is provided in good faith and not claimed to be an exhaustive treatment of the relevant subject.

Further professional advice needs to be obtained before taking any action based on the information provided.

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ANNEXURE FOR SITE CLASSIFICATION REPORT

A1 Site Classification to AS2870

A1.1 Natural Sites

Site Classification to AS2870 'Residential Slabs & Footings' of natural sites, based on soil reactivity, are classified as:

CLASS	Foundation	Characteristic Surface Movement y_s (mm)
A	Most sand & rock sites with little or no ground movement from moisture changes	-
S	Slightly reactive clay sites, which may experience only slight ground movement from moisture changes.	$0 < y_s \leq 20$
M	Moderately reactive clay sites, which may experience moderate ground movement from moisture changes.	$20 < y_s \leq 40$
H1	Highly reactive clay sites, which may experience high ground movement from moisture changes.	$40 < y_s \leq 60$
H2	Highly reactive clay sites, which may experience very high ground movement from moisture changes.	$60 < y_s \leq 75$
E	Extremely reactive clay sites, which may experience extreme ground movement from moisture changes.	$y_s > 75$

Footings for natural sites classified A to H can be designed in accordance with AS2870.

A1.2 Other Sites (including Filled Sites)

Site classification to AS2870 'Residential Slabs & Footings' of other sites are classified as Class P where inadequate bearing strength or where ground movement may be significantly affected by factors other than reactive soil movement due to normal moisture conditions. Uncontrolled fill and some controlled fill sites are classified as Class P (AS2870 – Clause 2.5.3 (a) & (b)).

Site classification to AS2870 'Residential Slabs & Footings' of controlled fill sites are classified as:

- Controlled sand fill $\leq 0.8\text{m}$ deep and controlled non-sand fill $\leq 0.4\text{m}$ deep: classified the same as the natural site prior to filling (AS2870 clause 2.5.3 (a)(i)).
- Controlled sand fill $> 0.8\text{m}$ deep: classified the same as the natural site prior to filling (AS2870 clause 2.5.3 (a)(ii)).
- Controlled non-sand fill $> 0.4\text{m}$ deep: Class P (AS2870 clause 2.5.3 (a)(ii)).

*Controlled fill = fill that is in accordance with the technical and control requirements specified as AS3798 'Guidelines on Earthworks for Commercial and Residential Developments' for structural fill for residential applications is controlled fill.

AS2870 clause 2.5.3 (c) allows for an alternative classification of Class P controlled filled sites, if assessed in accordance with engineering principles. Assessment considers fill & natural ground movement in regard to long-term equilibrium moisture conditions.

Alternative classification, where applied for this subdivision, are generally Class S, based on the estimated fill foundation soil reactivity (shrink/swell), & estimated fill settlement.

For Class P site AS2870 requires residential footings to be designed by a professional engineer using engineering principles.

A2 Comments for Footing Design & Foundation Preparation

Site classification does not apply to foundation area within:

- $\geq 2\text{m}$ from un-retained earthworks batter crest (height $< 1.5\text{m}$);
- $\geq 4\text{m}$ from un-retained earthworks batter crest (height $> 1.5\text{m}$ & 2.5m); greater height(s) require further assessment;
- 2m from any sewer or stormwater trench and or on sewer trench backfill (uncontrolled);
- Site classification does not apply to retaining wall backfill (uncontrolled).

Refer to design and or 'as constructed' drawings for un-retained batters, stormwater & sewer locations, and for retaining wall backfill width guidelines. Class S & re-classified Class S footings on allotments in this subdivision are limited to footings founded on natural ground or controlled fill. Footings founded within batters, service trenches and or retaining wall constraint area(s) shall be designed by a professional engineer from engineering principles.

A3 Foundation Maintenance / Remarks

Ongoing foundation maintenance is always essential for the durability and stability of the footings and foundations and the appropriate required maintenance is described in AS2870 'Residential Slabs & Footings'. Briefly, however, it is advised to keep away from the footings/ foundation all water taps, gardens and trees, and provide adequate compaction of loose ground around the outside of the footing perimeter. Rainwater/ water should not be allowed to pond against the perimeter of the footings/ foundations. Foundation maintenance should follow with the guidelines as set out in CSIRO 'Foundation Maintenance & Footing Performance: A Homeowner's Guide'.

A4 Limitations of Report

The Site Classification provided is an opinion of the foundation conditions based on the test results at the time of site visit, and in accordance with AS2870. This report is based on the extent of the soil investigation undertaken on the date performed. Interpolation to give soil parameters for areas not specifically tested beyond the scope of the investigation. The presence of seasonal spring activity, flood events, creek flows adjacent to batters, and variable seasonal groundwater levels, and the effect on footings, structures and or earthworks stability, is beyond the scope of the investigation. Foundation conditions may vary across the allotment from that reported at test pit/ borehole/ bank inspection location(s) for the proposed development siting on this allotment.

The site classification is limited to existing constructed allotment building platform(s) and or 'building envelopes' assessed. Stability of batters and retaining walls adjacent to allotments are outside the scope of this investigation and AS2870. Assessment of the site soils for chemical or biological contaminants, acid sulphate, or biological pests are not included and are beyond the scope of this investigation and report, and outside the expertise of this consultancy.

Excavated test pit(s) carried out on the site for the investigation were backfilled, but not compacted. Some slumping of the soil in these locations should be expected. Project design, earthworks and construction shall need to account for such conditions and allow for possible remediation. Soiltest.biz accepts no responsibility for the impact test locations may have on the safety and structural development of the site.

If during any phase of building development ground profile conditions revealed differ or vary from those described in the site classification report, our office or suitably qualified personnel should be contacted. This report is provided for the client and relevant consultants only. The information provided shall not be used by others, and for any purpose other than the stated scope.

SCHEDULE 3 –
WASTEWATER REPORT



CLIENT: GDUB HOLDINGS – Graham Williams
#17611 - LOT 7 CAMELOT CLOSE
CAPE TRIBULATION, QLD 4873
RP 733181

APPENDIX A

STAGE 1 – SERVICE STATION

WASTEWATER TREATMENT

REQUIREMENTS

SEPTIC NOTES

RECOMMENDATIONS:

Care should be taken if the site is to be excavated to form a level building platform, that sufficient fall is available to the wastewater area. This will allow for the base of the system to be installed to the recommended depth of 800mm. If sufficient fall cannot be achieved a pump well will need to be installed.

Care should be taken that the base of the system is level and no greater than 800mm below ground level. This can be obtained by orientating the system to follow contour, ensuring even distribution of the wastewater and avoiding any one part of the system being more heavily loaded.

During construction rip and scarify the base of the bed to a depth of 150mm min and apply gypsum at a rate of 1 kg/m² to prevent the clay dispersing. The bed shall be closed in, as soon as possible to protect the gypsum from raindrop impact.

This company is not responsible for the building levels and falls to the wastewater system. These will need to be calculated prior to construction, to determine the building platform heights and allow for sufficient fall to the wastewater area. Consideration should be given as to how the plumber will run the pipes, as this will determine the platform height. If sufficient fall is not available to construct the system as designed, a pump well will need to be installed to distribute the wastewater.

There should be no ponding of water during seasonal rains around the septic tank, pump well and wastewater area. Diversion drains will need to be put in place to divert water from the wastewater area.

The treatment system is to be installed as per the manufacturers specifications.

VALIDITY

The excavation of a limited number of holes does not preclude the possibility of some conditions on the site being different from those encountered in the holes. Should conditions be found which differ from those described in this report, then the recommendations are not valid and this organization should be contacted.

SYSTEM INSTALLATION

The entire bottom of the bed should be scarified a minimum of 150mm deep parallel to the AES pipes. Avoid compaction by keeping people and machinery off the finished trench or bed floor. They system shall be installed by a licensed plumber in accordance with the manufacturer's recommendations and the relevant Australian Standards.

OPERATION & MAINTENANCE

Homeowners should be fully informed of the proper operation and maintenance requirements of the on-site wastewater system. The proposed 100% reserve area will need to be treated to an advanced secondary level.

Care must be taken to maintain adequate fall from all fittings through the septic tank to the Land Application Area. A pump well may be required if there is not enough fall. Contact this office or approved plumber for more information if a pump well is needed. Depth of system shall not be increased without approval from designer.



DESIGN CERTIFICATE FOR ON SITE SEWERAGE FACILITIES

JOB NO. 17611
SITE STAGE 1 - SERVICE STATION - LOT 7 CAMELOT CLOSE,
CAPE TRIBULATION
DWG No. 01, 02
DATE 13/09/2025
LOC GOV DOUGLAS SHIRE

We Soiltest.biz being designers of the on site sewerage system, do hereby certify that the Site & Soil Evaluation Procedures used to design the On-Site Sewerage Facility for the above property have been conducted in accordance with:

- 1) Plumbing and Drainage Act 2018
- 2) AS 1547-2000 On Site Domestic Waste Water Management
- 3) Any additional requirements of the Council as required by them at time of certification

1. We are familiar with the regulatory requirements for the site evaluation.
2. We accept professional responsibility for the interpretation of, and conclusions drawn from and recommendations made as a result of the site evaluation/report
3. The On-Site Sewerage Facility (as designed) is an appropriate facility for the allotment.

DESIGN CRITERIA

Maximum Number of bedrooms in house	N/A
Number of Equivalent Persons	7 E.P
Maximum designed daily flow for facility (Litres)	1000
Soil Category and/ or soil texture	4
Irrigation Design Irrigation Rate DIR	25
OR	
Design Loading Rate for trench/s & beds DLR (Primary)	N/A
(Secondary)	20



ABN 49 290 204 480

22 Templeton St.
Gordonvale, QLD 4865
Australia

Ph: +61 7 4056 6324
test@soiltest.biz

Singapore, NZ, London

P. Lennox BSA 18267
Signed for SOIL TEST .BIZ

Soiltest.biz

WASTE WATER TREATMENT REQUIREMENTS IN AREAS WITHOUT SEWERAGE TREATMENT FACILITIES

DATE: 13/09/2025
JOB NO: 17611
SITE: STAGE 1 - SERVICE STATION - LOT 7 CAMELOT CLOSE,

OWNER'S NAME: GDUB HOLDINGS - GRAHAM WILLIAMS
ADDRESS:

CLIENT: GDUB HOLDINGS - C/O- WILDPLAN
LOCALGOVERNMENT AREA: DOUGLAS SHIRE

REAL PROPERTY DESCRIPTION:

LOT NO.	R.P. NO.	ASSESSMENT NO.	PARISH	COUNTY	
7	733181			NARES	

Area / length of trench

See Drawings

Soil Classification

No of bedrooms

No. of persons facility is designed for

Wastewater flow allowance

Total design flow allowance

4	
N/A	
7	E.P.
N/A	litres/person/day
1000	litres/day

Recommended facility type (a) :

absorption trenches	
absorption beds	
evapo-transpiration-absorption systems	X
mounds	
irrigation systems	

STATEMENT

The attached report and evaluation was performed for and on behalf of Soiltest.biz and in accordance with the "Queensland plumbing and wastewater code"



Authorised Signature:

M:\Data\Shared\Excel\SEPTIC\SOIseptic.xls

SITE EVALUATION

Type of Effluent:

Primary		Secondary	X	Advanced Secondary	X
Embankments:		Slope:	8 DEG	Ground Cover:	RAINFOREST

Drainage Patterns:

waxing divergent		linear divergent		waning divergent	
waxing planar		linear planar	X	waning planar	
waxing convergent		linear convergent		waning convergent	

Standards of trees, shrubs:

Site History (land use):

Bores –potable- Drinking water:

Bore- potable-distance to trench area:

Bores – non potable:

Bore-non potable-distance to trench area:

Watercourses distance to trench area:

Residence distance to trench area:

Swimming pool distance to trench area:

Boundary distance to trench area:

Flood return period 1:50 level checked:

Type of treatment facility:

Septic Tank All Purpose			
Tank size	3000 litre	4000 litre	X
Sewerage Treatment Plant -	Secondary	Advanced	
Separation of Grey water from sewerage	Yes	No	X
Use of grease trap recommended	Yes	No	X
Sand Filter	Type		
Reserve area located (see site plan):	Yes	No	X

Ground cover requirements: See Attached – "Suitable Vegetation for Wet Soils..." AS1547-1994

Soil Type (from soil maps etc.):

Climate

Annual Rainfall:	CAPE TRIBULATION	Mean BOM values
Annual Potential Evapotranspiration:	CAPE TRIBULATION	Mean BOM values
Annual Mean Evaporation Rate:	CAPE TRIBULATION	Mean BOM values mm/day

General Comment: (rainfall intensities, seasonal variation etc.)

Intended Water Supply Source

Public supply		Rainwater collection	X
Dam		Bore/well	
Other			

Environmental Concerns:

(eg. Native plants intolerant of phosphorous load, high water table, swamp, waterways, etc.)

NO

Site Stability

Is expert evaluation necessary?

If NO, why not?

If YES, attach stability report and give details here of:

Author:

Company/ Agency:

Date of Report:

Drainage Controls

Depth of permanent water table: >1.5m	Winter mm	Summer mm
NOT FOUND AT EX DEPTH	X	
Need for ground water cut-off drains? See drawings	YES	NO X
Need for surface water collector/ cut-off drains? See drawings	YES X	NO

SUBSOIL INVESTIGATION

Soil Profile Determination

Method:

Falling Water Test	
Pit	
Permeameter	X
Other (specify):	

Estimated Soil Category:

Soil Category

- 1
- 2
- 3
- 4
- 5
- 6

Description	Tick
Gravels and sands	
Sandy Loams	
Loams	
Clay loams	4
Light clays	
Medium to heavy clays	

Reason for placing in stated soil category: Visual and Texture test, percolation

(DIR) recommendation:

(DLR) recommendation

Secondary	25
Primary	N/A
Secondary	20

GENERAL COMMENTS

Need for Groundwater Quality Protection:

YES

NO

X

Evaluator's preliminary assessment of minimum Land Application Area for the site

(comprising absorption area, space between and surrounding the absorption area elements, setbacks and the reserve area).

Septic trench absorption:		See Drawings
Evapotranspiration:	X	See Drawings
Irrigation Field:		See Drawings
Mound:		See Drawings
Other		

Design Considerations

Any specific environmental constraints?

Any specific public health constraints?

Yes

No

X

Yes

No

X

Results of consultation with other interested parties (neighbours, environmental agencies, local environmental groups, etc.)

YES

NO

X

Other comments:

M:\Data\Shared\Excel\SEPTIC\SOIseptic.xls

LOCAL GOVERNMENT
AREA:

DOUGLAS SHIRE

COUNCIL CONDITIONS OF PERMIT FOR ON-SITE SEWERAGE FACILITIES

(To be completed by Owner at Application Stage)

WAPD

SITE ADDRESS STAGE 1 - SERVICE STATION - LOT 7 CAMELOT
CLOSE, CAPE TRIBULATION

RP: 738266

MAKE & MODEL NO. OF SEWERAGE TREATMENT FACILITY:

I/ We

being the owner/s of the above property do hereby confirm that:

- i. I/We hold a **Maintenance Contract** for the servicing and maintenance of the above facility with a Council approved servicing agent and will continue to renew this contact as and when the existing contract expires;
- ii. I/We have been issued with the **Operating and Maintenance Guidelines / Instructions** for the above facility;
- iii. I/We realise that the Sewerage Treatment Facility and Disposal Area located at the above address has been designed to cater for a dwelling as follows:

Number of bedrooms in the house	N/A
Maximum daily flow for entire house(litres)	1000
Number of equivalent persons	7 EP
- iv. I/We have been made aware of any reduced flow fixtures/ facilities that must be installed (and maintained) as specified in the site evaluation report/ design.
- v. I/We understand that contact with effluent can present serious health risks to frail and elderly persons, infants, persons with a history of chronic hepatitis, persons who are immunocompromised, persons with cystic fibrosis etc. I/We will take appropriate measures to restrict access to the disposal area by the above-mentioned people.
- vi. I/We understand that as owner, I/we have the following obligations:
 - a) All occupiers/ users of an on-site facility must be provided access to the manufacturers/ facility builder's operation and maintenance instructions,
 - b) Operation and maintenance procedures are to be undertaken to a regular schedule in accordance with instructions. (On site facilities may fail if not operated and maintained correctly),
 - c) Continuity of operation and maintenance is to be maintained throughout changes of ownership, occupancy or changes in use or development of the site,
 - d) Paying to Council the relevant Annual Licence Fee as determined by Council (to cover the cost of maintaining records and randomly inspecting installations).
- vii. Inspection reports are required to be provided to council every three (3) months unless a less frequent inspection regime is recommended in the Department of Natural Resources & Mines System Approval;
- viii. All future pools, buildings, driveways, bores and the like will remain the required set back distance away from the effluent disposal area.
- ix. I/We will ensure that any defective part of the on-site sewerage facility is repaired or replaced within 24 hours of written notice from Council that the facility is defective, or will have finalised any temporary arrangements to the satisfaction of the Senior Plumbing Inspector.
- x. I/We understand that effluent must not come in contact with edible fruit & vegetables.
- xi. I am aware that council may approve a request for dispensation (if required) for set-back distances that would allow an All-Purpose Septic Tank to be installed on this property.

Note: - If an All Purpose/ Septic Tank has been installed, Sections i), ii), vi) (d) & vii) above are not applicable

OWNER:

GDUB HOLDINGS - GRAHAM WILLIAMS

Owners Signature/s:

Date:

(To be completed by the LICENCED INSTALLER of the on-site sewerage facility on completion of the installation)

**COMPLIANCE CERTIFICATE FOR
ON- SITE SEWERAGE FACILITIES
BY THE INSTALLER**

Date : 13/09/2025
JOB: 17611
SITE: STAGE 1 - SERVICE STATION - LOT 7 CAMELOT CLOSE, CAPE TRIBULATION
OWNER: GDUB HOLDINGS - GRAHAM WILLIAMS

RP/SP: 733181
PERMIT REFERENCE:
LOCAL GOVERNMENT AREA: DOUGLAS SHIRE

MAKE MODEL NO OF FACILITY:

I, as installing contractor certify and accept all responsibility, that the on site sewerage facility and land application area for the above property has been installed in accordance with the approved on site design and the requirements of the Plumbing and Drainage Act 2018, Queensland Plumbing and Wastewater Code and AS/NZS 1547:2012 and any additional requirements specified on the approval by the Council. The on-site sewerage facility / land application area has been installed by an appropriately qualified person in accordance with clause 3.5 of the AS/NZS 1547:2012 whose details are as follows

Qualified Installer Details:

Name:
Address:
Phone:
Fax:
Mobile:
Drainers licence No:
Plumbers licence No:
QBSA Licence No:

SIGNED:

NAME:

CLIENT: GDUB HOLDINGS – Graham Williams
#17611 - LOT 7 CAMELOT CLOSE
CAPE TRIBULATION, QLD 4873
RP 733181

APPENDIX B

STAGE 1 – SERVICE STATION

OWNER'S MANUAL

Soiltest.biz

JOB No 17611
CLIENT GDUB HOLDINGS - C/O-WILDPLAN
SITE STAGE 1 - SERVICE STATION - LOT 7 CAMELOT CLOSE, CAPE TRIBULATION

OWNER: GDUB HOLDINGS - GRAHAM WILLIAMS

MANUAL WASTE WATER MANAGEMENT (OWNER COPY)

The system has been designed for effluent usage of
1000 litres/day maximum.

Excess usage may lead to failure of the system.



ABN 49 290 204 480

22 Templeton St
Gordonvale, QLD 4865
Australia

Ph: +61 7 4056 6324
test@soiltest.biz

Singapore, NZ, London

ON-SITE DOMESTIC WASTEWATER SYSTEM CONSTRUCTION, OPERATION AND MAINTENANCE REQUIREMENTS

DESIGN ASSUMPTIONS FOR SEWERAGE LAND APPLICATION AREAS (LAA)

The on site domestic wastewater system has been designed assuming a maximum life of 15 years without replacement or reworking therefore the following design assumptions **MUST** be followed.

1. That standard water reduction fixtures such as dual flush 11/5.5 litre water closets, shower flow restrictors, aerator faucets (taps) have been fitted to all fixtures and water-conserving automatic washing machines, **NO GARBAGE GRINDERS**.
2. Low phosphorus detergents, low sodium detergents and biodegradable soaps are used in the system.
3. **LAA MUST be fully DENSELY planted by either the owner or plumber, with recommended vegetation and grasses, PRIOR to commissioning the system. Planting must be maintained by pruning and replacement on a regular basis. The LAA has been designed assuming planting is in place.**
4. Inundation of the LAA by rain and /or surface drainage may lead to temporary or permanent failure of the LAA. Keep all surface water cut off drains clean and operational. Surface water cut off drains are to be placed to the high edge and sides of LAA, and to be graded away from the lower edge.
5. Durable metal warning signs are required on each side of an irrigation area LAA, and are to read, **“WARNING RECLAIMED EFFLUENT DO NOT DRINK” and “DO NOT DIG BURIED EFFLUENT PIPES” and “NO VEHICLE ACCESS”**.
6. Evapotranspiration and absorption LAA's do not require signs.
All LAA's shall not allow vehicle access.
7. For maintenance, Gypsum must be added to the top of the completed LAA, to replenish the Gypsum originally added, at the rate of 0.5kg/m² at intervals not exceeding 24 months (if town and low salts water is used). If bore water or high dissolved salts water is used apply Gypsum at the rate of 0.1 kg/m² on a monthly interval to the top of the LAA.
8. For above ground sprinkler systems. Sprinkler heads must be moved regularly to prevent local ponding and saturation.

ON-SITE DOMESTIC WASTEWATER SYSTEM CONSTRUCTION, OPERATION AND MAINTENANCE REQUIREMENTS

1. ADVICE TO HOME OWNER/OCCUPIER ON USE OF THE SYSTEM.

For the on-site wastewater system to work efficiently, there are some good habits to encourage and some bad habits to avoid.

A. In order to reduce sludge building up in the tank:

1. Scrape all dishes to remove fats, grease, etc. before washing;
2. Keep all possible solids out of the system;
3. **DO-NOT USE A GARAGE GRINDER** unless the system has been specifically designed to carry the extra load;
4. **DO-NOT** put sanitary napkins and other hygiene products into the System.

B. In order to keep the bacteria working in the tank and in the land-application area.

1. Use bio-degradable soaps;
2. Use a low-phosphorus detergent;
3. Use a low-sodium detergent;
4. Use detergents in the recommended quantities;
5. **DO-NOT** use powerful bleaches, whiteners, nappy soakers, spot removers and disinfectants;
6. **DO-NOT** put chemicals or paint down the drains.

C. Conservation of water will reduce the volume of effluent requiring disposal to the land-application area, making it last longer and improving it's performance. Conservation measures include:

1. Installing standard water reduction fixtures such as dual flush 11/5.5 litre water closets, shower flow restrictors, aerator faucets (taps) fitted to all fixtures and water-conserving automatic washing machines. **NO GARBAGE GRINDERS;**
2. Taking showers instead of baths;
3. Only washing clothes when there is a full load of washing;
4. Only using the dishwasher when there is a full load to be done.

NOTE: Avoid overloading the system by spacing out water use as evenly as possible.

ITEMS: Do not do all the washing on one day.
Do not run the washing machine and dishwasher at the same time.

ON-SITE DOMESTIC WASTEWATER SYSTEM CONSTRUCTION, OPERATION AND MAINTENANCE REQUIREMENTS

2. ADVICE ON MAINTENANCE

A. The primary wastewater-treatment unit (septic tank) will need to:

1. De-sludge regularly i.e. every three to five years or when scum and sludge occupy 2/3 of the volume of the tank (or the first of a two stage system).
2. Protect from vehicles.
3. Clean out the grease trap regularly.
4. Keep the vent and/or access cover of the septic tank exposed.
5. Inspect outlet filter and clean regularly.

B. The Land Application Area (LAA) needs protection as follows:

1. No vehicle or stock should be allowed on trenches or beds;
2. Deep rooting trees or shrubs should not be grown over absorption trenches or pipes;
3. The surface water interceptor drains around the LAA should be kept clean to reduce absorption of rainwater into trenches or beds;
4. Keep grass mowed and plants pruned to ensure that these areas take up nutrients with maximum efficiency. Replace plants or prune severely when plants reach maturity. Remove prunings and grass clippings from the LAA.

C. Check equipment and:

1. Follow the manufacturers instructions for the maintaining septic tank filters:

3. ADVICE ON OPERATION PROBLEMS

Problems can occur with systems which have not been maintained and where absorption areas have become blocked or clogged. The warning signs are obvious.

1. Absorption field is wet or soggy with wastewater ponding on the surface of the ground.
2. There is a smell of “sewage” near the septic tank or absorption areas;
3. The drains and toilets run slowly;
4. The grease trap (if applicable) is full or blocked;

ON-SITE DOMESTIC WASTEWATER SYSTEM CONSTRUCTION, OPERATION AND MAINTENANCE REQUIREMENTS

4. ADVICE ON THE CONSEQUENCES OF FAILURE

A failed septic tank and land-application system is a serious environmental hazard and can lead to.

1. Spread of infectious diseases;
2. Breeding of mosquitoes and attraction of flies and rodents;
3. Nuisance and unpleasantness;
4. Pollution and infection of waterways, beaches, streams;
5. Contamination of bores, well, and groundwater;
6. Alteration of local ecology.

5. ADVICE ON HOME OWNER/OCCUPIERS RESPONSIBILITIES

Homeowners and occupiers are legally responsible to keep their on-site wastewater system in good working order. If any of the warning signs in section 3 are evident, the homeowner or occupier must take steps to rectify the situation as quickly as possible.

ON-SITE DOMESTIC WASTEWATER SYSTEM CONSTRUCTION, OPERATION AND MAINTENANCE REQUIREMENTS

GENERAL NOTES:

1. SOILTEST.BIZ will not be liable for failure of any system if our design is not constructed in strict accordance with the drawings and if inspections are not carried out by SOILTEST.BIZ at the base of the LAA and when complete.
2. Restrict access to vehicle traffic to LAA no larger than ride on mowers.
3. Refer to Operation & Maintenance notes.
4. Owner is to be informed of their obligations for maintenance of system.

CONSTRUCTION NOTES:

1. If unforeseen ground changes occur at the base of the excavation of trenches plumber is to contact SOILTEST.BIZ immediately.
2. The base of trenches and evapotranspiration areas must remain level and have GYPSUM applied at a rate of 1KG/ M2 if clays are encountered at the base of the LAA.
3. Surface water interceptor must be constructed accordance with drawings to reduce storm water ponding. (See 'Design Assumptions' pg.2; item 4).
4. **Land Application Area (LAA) MUST be fully and DENSLY planted by either the owner or plumber with recommended vegetation and grasses PRIOR to commissioning the system. Planting must be maintained by pruning and replacement on a regular basis. The LAA has been designed assuming planting is in place.**
5. Durable metal warning signs are required on each side of an irrigation area LAA, and are to read, **"WARNING RECLAIMED EFFLUENT DO NOT DRINK" AND "DO NOT DIG BURIED EFFLUENT PIPES" AND "NO VEHICLE ACCESS"**.
6. Evapotranspiration and absorption LAA's do not require the above signs. All LAA's shall not allow vehicle access. See 'General Notes' above.
7. Pump discharge lines to be fitted with non-return valve as close as practical to the outlet of the pump.
8. Lateral drainage lines are to be installed level or following contours.
9. Distribution boxes installed on a level base of 100mm of concrete and 75mm min. below outlet of the septic tank. Distribution boxes to be fitted with a baffle suitable for pump discharge.
10. Trench moulds to be fitted with end caps and spreaders at 1500 centres.
11. Warning tape to be placed over effluent lines.
12. Base of the LAA is to be excavated by a machine with raker teeth. Tyne base to 200mm deep and place Gypsum at the rate of 1kg/m2 to the base in clay soils.
13. **Spray irrigation** sprinklers are to be spaced evenly. Sprinklers are to produce at the outlet of the pump a large droplet spray no more than 600mm high and 2000mm in diameter. A 150-200um strainer is to be fitted to the pump line prior to LAA.
14. **Subsurface irrigation systems** - provide non-return valves at the pump line near the distribution valve (K rain valve or similar). Provide 25mm ball valve to the end of each lateral to enable flushing of the line. An air admittance device is to be installed in the position indicated to prevent debris being drawn into the line by syphoning. A pressure-reducing valve is required on the pump line prior to the LAA.

**ON-SITE DOMESTIC WASTEWATER SYSTEM
CONSTRUCTION, OPERATION
AND MAINTENANCE REQUIREMENTS**

LAND APPLICATION AREAS (LAA)

**PLANTING FOR EVAPO-TRANSPIRATION/ ABSORPTION
SYSTEMS**

Plant species that have shallow root and high water uptake such as; Condamine couch; lomandra longisolia folia; Mondo grass; Canna Lily, Bananas (see planting species list attached).

PLANTING FOR SPRAY IRRIGATION SYSTEMS

Do not use grass on spray irrigation systems due to non-control of use and access. Instead, plant beds with flowers and plants, bushes etc. as per attached plant list. Grasses such as Vetiver grass is satisfactory and is deep rooted and high PH tolerance. This grass helps prevent erosion due to its root structure. Provide mulch to all beds such as Earthgrow (primarily composted bark and cow manure). Ensure mulch does not have too many fines. Hardwood chips are satisfactory. Apply Gypsum at the rate of 0.25kg/m². Keep irrigation even, young plants may require supplementary watering. Use automated intermittent watering allow the top 50mm to dry out prior to reapplying.

PLANTING FOR SUBSURFACE IRRIGATION SYSTEMS

Grasses as per attached list and plant species that have shallow root and high water uptake such as; Condamine couch; lomandra longisolia folia; Mondo grass; Canna Lily, Bananas, heliconias, (see planting species list attached). Provide minimum of 100 mm mulch to all beds, covering pipe work with 100 mm minimum such as Earthgrow (primarily composted bark and cow manure). Ensure mulch does not have too many fines. Hardwood chips are satisfactory. Apply Gypsum at the rate of 0.25kg/m².

APPENDIX C

SUITABLE VEGETATION FOR WET SOILS

(Informative)

C1 SCOPE This appendix sets out suitable vegetation for growing in wet soils, e.g. on evapotranspiration beds and areas.

C2 TYPES OF VEGETATION

- | | | |
|------------------------|---|--|
| a) Climbers | <i>Bougainvillea</i>
<i>Hardenbergia</i>
<i>Hibbertia scandens</i> | <i>Kennedia</i>
<i>Lonicera japonica</i>
<i>Pandorea jasminoides</i> |
| b) Grasses | <i>Buffalo</i> | <i>Kikuyu</i> |
| c) Ground Cover | <i>Acanthus mollis</i>
<i>Coprosma x kirki</i> | <i>Liriope muscari</i>
<i>Ophiopogon</i> |
| d) Perennials | <i>Agaphanthus preaecox</i>
<i>Astor novi-belgii</i>
<i>Canna x generalis</i>
<i>Chrysanthemum maximum</i> | <i>Gazania x hybrida</i>
<i>Salvia x superba</i>
<i>Stokesia laevis</i>
<i>Viola hederacea</i> |
| e) Shrubs | <i>Abelia x grandiflora</i>
<i>Acacia longifolia</i>
<i>Callistemon citrinus</i>
<i>Cassia bicapsularis</i>
<i>Ceratostigma</i>
<i>Chaenomeles lagenaria</i>
<i>Correa alba</i>
<i>Cotoneaster glaucophyllus</i>
<i>Cotoneaster lacteus</i>
<i>Cotoneaster pannosus</i>
<i>Cuphea ignea</i>
<i>Euonymus japonicus</i>
<i>Euphorbia millii</i> | <i>Euphorbia pulcherrima</i>
<i>Hebe speciosa</i>
<i>Jasminum mesnyi</i>
<i>Jasminum officinale</i> 'Grandiflorum'
<i>Jasminum polyanthum</i>
<i>Lantana camara</i> (cultivars only)
<i>Lantana montevidensis</i>
<i>Leptospermum flavescens</i>
<i>Nerium oleander</i>
<i>Plumbago auriculata</i>
<i>Pyracantha fortuneana</i>
<i>Thunbergia alta</i>
<i>Westringia fruticosa</i> |
| f) Trees | <i>Angophora costata</i>
<i>Banksia integrifolia</i>
<i>Callistemon salignus</i>
<i>Callistemon viminalis</i>
<i>Casuarina glauca</i>
<i>Casuarina stricta</i>
<i>Eucalyptus botryoides</i>
<i>Eucalyptus robusta</i>
<i>Hakea salicifolia</i>
<i>Hakea saligna</i> | <i>Leptospermum laevigatum</i>
<i>Leptospermum petersonii</i>
<i>Melaleuca armillaris</i> – Sandy soil
<i>Melaleuca linariifolia</i> – Clay soil
<i>Melaleuca quinquenervia</i> – Sandy Soil
<i>Melaleuca styphelioides</i> – Clay soil
<i>Nyssa sylvatica</i>
<i>Photinea x fraseri</i> 'Robusta'
<i>Tristaniopsis laurina</i> |

JOBNUM	17611	TO AS1547-2000	CAPE TRIBULATION
JOB	STG. 1 - SERVICE STATION - LOT 7 CAMELOT CLOSE, CAPE TRIBULATION	EVAPOTRANSPIRATION	
Bedrooms			
Persons			
Effluent/person/day			
Effluent/day			
Porosity in disposal area			
Design irrigation rate			
Design Loading Rate			
Design Loading Rate			
Retained rain coefficient			
Crop Transpiration rate			
Crop Transpiration rate			
Estimated area of effluent drainfield			
Maximum depth of stored effluent			

month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
days	pan	Evap	pan	evap	Evapo	rainfall	retained	DLR	disp	effluent	area	trial	applic	sum	depth	incr	depth
	/day		/mth	Evapo	trans	/mth	rainfall	/mth	rate	/mth	area	area	rate		incr	depth	computed
			1*2	3*ET		5*RR	1*DLR	4-6+7	1*eff/day	9/8			9/11	12-8	13/por	15+14	16+15
jan	31	7	217	174	595.1	357	620	437	32550	75	80		404	-32	-64	0	0
feb	28	5	140	112	735	441	560	231	29400	127			365	134	268	0	268
mar	31	4.5	140	112	751.7	451	620	281	32550	116			404	124	248	268	516
apr	30	4.7	141	113	523.5	314	600	399	31500	79			391	-7	-15	516	501
may	31	3.9	121	97	286.9	172	620	545	32550	60			404	-140	-280	501	221
jun	30	3.9	117	94	160.8	96	600	597	31500	53			391	-206	-412	221	0
jul	31	4.2	130	104	120.5	72	620	652	32550	50			404	-248	-495	0	0
aug	31	5	155	124	97.7	59	620	685	32550	47			404	-281	-562	0	0
sep	30	6.2	186	149	91.9	55	600	694	31500	45			391	-302	-605	0	0
oct	31	6.8	211	169	89.5	54	620	735	32550	44			404	-331	-661	0	0
nov	30	7.2	216	173	176.3	106	600	667	31500	47			391	-276	-551	0	0
dec	31	7.1	220	176	334.7	201	620	595	32550	55			404	-191	-382	0	0
JAN	31	7	217	174	595.1	357	620	437	32550	75			404	-32	-64	0	0
FEB	28	5	140	112	735	441	560	231	29400	127			365	134	268	0	268
year	365	66	1994	1595	3964	2378	8480	6517	383250							max	516
																min	0

USED
TRIAL AREA 80.5

A1 50
A2 28
must=0

MAX 127
MIN 44
RATIO 2.9

evapotranspiration calculation

base only	81
width W	length L
0.6	134
1.2	67
1.8	45
2.4	34
3.6	22
4	20
4.8	17

Absorbion trench calculation

abs area	53
width W	length L
0.6	88
1.2	44
1.8	29
2.4	22
3.6	15
4	13
4.8	11

Irrigation area calculation

irrig area	294
width W	length L
0.6	490
1.2	245
1.8	163
2.4	123
3.6	82
4	74
4.8	61

evapotranspiration calculation

trial area inc wall		81				
width W	length L	trial area	sum	A1	A2	
0.6		1	1	0	1	
1.2		2	2	0	2	
1.8		3	3	0	3	
2.0	12	47	47	24	23	
3.6	14	79	79	50	28	
14.0	16	272	272	224	48	
4.0	17.5	104	104	70	34	

Base Area=L*W

Base Area=L*W

Area=L*W+2*H*(L+W)/1000

AES The World Leader in Passive Solutions ©

Site Address	#17611 - STAGE 1-SERVICE STATION - LOT 7 CAMELOT CLS, CAPE TRIBUL	State	QLD	Post Code	4873
Client Name	GDUB HOLDINGS C/O- WILDPLAN			Date of Site Visit	13/8/2025
Designers Name	PETER LENNOX	Designers Ph Number	0429630442	Designer Lic (e.gQBCC)	18267
Lic Plumber	TBA	Plumber Ph Number	TBA	Plumb / Drainer Lic Number	TBA
Council Area	DOUGLAS SHIRE	Designers AES Cert Number	768	Date	11/9/2025

This Calculator is a guide only, receiving soil classification, surface water, water tables and all other site constraints addressed by the qualified designer.

System Designers site and soil calculation data entry		IMPORTANT NOTES	
Enter AES L/m loading rate, "30" for ADV Secondary or "38" Secondary	30	>> <i>This design is for an ADVANCED SECONDARY system</i>	
Is this a new installation Y or N	Y	>> Minimum single vent size is 80mm or 2 x 50mm house vents	
Number of Bedrooms	0	>> This is not used in ANY Calculation. If not known use 0 or leave blank.	
Number of persons	8	>> A septic tank outlet filter is NOT RECOMMENDED	
Daily Design Flow Allowance Litre/Person/Day	150		
Number of rows required to suit site constraints	2	>> The maximum length of a single AES pipe run is 30m or 10 PIPES	
Infiltration Soil Category from site/soil evaluation. CATEGORY	4	>> Catagory may require design considerations. Ref AS1547	
Design Loading Rate based on site & soil evaluation DLR (mm/day)	15	>> Soil conditioning may be necessary. Ref AS1547 & Comments.	
Bore log depth below system Basal area	0.6m	>> Check water table/restrictive layer	
Is this design a GRAVITY system with no outlet filter? Y or N	Y	>> GRAVITY. A House Vent & LOW VENT required on this system	

PLEASE CHECK YOU HAVE FALL FROM TANK TO AES SYSTEM PIPES

COMMENTS :- " *The outcome must be important to everyone. "*

- Ripping of receiving surface required in clay soil structures in Cat 4,5,6. In addition refer to AS 1547. Always excavate & rip parallel to the site slope/AES pipe.
- Specialist soils advice & special design techniques will be required for clay dominated soil having dispersive or shrink/swell behaviour. Refer AS1547
- Designers need to be familiar with special requirements of Local Authorities. ie - Minimum falls from Septic tank outlets to Land application areas etc
- Plumbers are reminded good construction techniques as per AS1547 are especially important in these soil types. Refer AS1547 & AES installation Instructions

AES System Calculator Outcomes			AES dimensions		
Total System load - litres / day (Q).	1200	l/d		AES System	System Extension
Min Length of AES pipe rows to treat loading	20.25	lm	Length:(L)	21.60m	21.60m
Number of FULL AES Pipe lengths per row	7	lths	Width:(W)	1.35m	2.35m
Total Capacity of AES System pipe in Litres	2968	ltr.	Sand Depth	0.75m	0.15m
			Area m2	29.2 m^2	50.8 m^2

USE CUT LENGTHS OF PIPE IN THIS DESIGN? (ENTER Y)

IF YOU WISH TO USE A TRENCH EXTENSION DESIGN OPTION ENTER "Y"

Enter Custom Width in metre

AES INFILTRATION FOOT PRINT AREA - $L = Q / (DLR \times W)$		Length	Width	Minimum AES foot print required	
<i>for this Basic Serial design is</i>		21.60m	x 3.70m	= 80.0	m2 total

AES pipes are best centered in the trench parallel to the site slope

Code	AES System Bill of Materials		Chankar Environmental Use Only	
AES-PIPE	AES 3 metre Lengths required	14	lths	
AESC	AES Couplings required	12	ea	
AESO	AES Offset adaptors	4	ea	
AESODV	AES Oxygen demand vent	1	ea	
AESODV	AES Oxygen demand vent EXTRA MULTI BEDS	0	ea	
AES-IPB	AES 100mm Inspection point base	2	ea	
TD Kit 4	4 Hole Distribution Box Kit		ea	
TD Kit 7	7 Hole Distribution Box Kit		ea	
VS43-4	Sweet Air Filter VS43-4		ea	
AES DESO	Double Offset Adaptors		ea	
TOTAL SYSTEM SAND REQUIRED (Estimate Only)		35	m3	
Please email your AES Calculator (EXCEL FORMAT), Site Layout & AES Design to designreview@enviro-septic.com.au		designreview@enviro-septic.com.au		

> The AES Calculator is a design aid to allow checking of the AES components, configuration and is a guide only. Site and soil conditions referencing AS1547 are calculated and designed by a Qualified Wastewater Designer.

> Chankar Environmental accepts no responsibility for the soil evaluation, loading calculations or DLR entered by the designer for this calculator.

> AES pipes can be cut to length on site. They are supplied in 3 meter lengths only.

> AES ONLY supply AES components as detailed in the Bill of Materials.

> SEPTIC Tank & other components including SAND will need to be sourced from other suppliers. Refer to our WEBSITE www.enviro-septic.com.au OR 07 5474 4055

AES-Design-V9.1-Calculator © Copy Right - Chankar Environmental Pty Ltd 5/7/2022

LOCALITY: CAPE TRIBULATION

WIND CLASSIFICATION C2

CERTIFIED DESIGN	
TREATMENT SYSTEM	ADVANCED ENVIRO-SEPTIC
EFFLUENT TYPE	ADVANCED SECONDARY
DISPOSAL TYPE	EVAPOTRANSPIRATION
BED WIDTH M	BED LENGTH M
3.70	21.6

DESIGN ASSUMPTIONS	
STG.I – SERVICE STATION	
BEDROOMS	N/A
6 STAFF/DAY – 30L/PP/DAY	
82 VISITORS/DAY – 10L/PP/DAY	
TOTAL DAILY FLOW	1000 LITRES
SOIL CATEGORY	4

HORIZONTAL SEPARATION DISTANCE FOR EFFLUENT DISPOSAL AREAS

1	TOP OF BANK WATER COURSE (RIVER STREAM LAKE DAM EASMENT BNDRY OPEN UNLINED DRAINAGE CHANNEL)	50	30	10
2	FARM DAMS INTERMITTENT WATER COURSE DRAINAGE CHANNELS	50	30	10
3	BORE OR WELL USED FOR DRINKING SUPPLY	50	30	10
4	BORE OR WELL USED FOR NON DRINKING SUPPLY	15	15	10
5	PROPERTY BOUNDARIES, PATHS, WALKWAYS, BUILDING FOOTINGS RETAINING WALLS	4 LOWER THAN DISPOSAL AREA 2 HIGHER THAN DISPOSAL AREA		
6	CHILDRENS PLAY AREAS DWELLINGS RECREATION AREAS	SUBSURFACE AS FOR 5 ABOVE NO SURFACE SPRAY PERMITTED	SUBSURFACE AS FOR 5 ABOVE 15 IF SURFACE SPRAYED	SUBSURFACE AS FOR 5 ABOVE 10 IF SURFACE SPRAYED
7	SWIMMING POOL WATER EDGE	6	6	6
8	IN GROUND POTABLE WATER TANK	15	6	6
9	UNSATURATED SOIL DEPTH TO PERMANENT WATER TABLE	1.2 VERT	0.6 VERT	0.3 VERT

1. HSTP INSTALLED WITH MANUFACTURERS INSTRUCTIONS
2. PLUMBING AND DRAINAGE IN ACCORDANCE WITH THE ON SITE SEWERAGE CODE AND THE NATIONAL PLUMBING AND DRAINAGE CODE AS3500
3. FUTURE BORE INSTALLATIONS MUST HAVE SEPARATION DISTANCES AS PER TABLE
4. DURABLE AGGREGATE AS PER AS 2758:1 20MM
5. GEOFABRIC TO BE BIDIM A12 OR EQUIVALENT
6. ALL INSTALLATION TO BE IN ACCORDANCE WITH AS1547-2000 "ON SITE DOMESTIC WASTEWATER MANAGEMENT"
7. PLANT APPROPRIATE LARGE TREES (5m APART MAX) or BANANA PLANTS (1.5m APART @ 5m ROW CRS) or VETIVER GRASS (1m ROW CRS); 3 PLANTS PER m2) WHERE SHOWN ON DWG 06.

"WARNING RECLAIMED EFFLUENT DO NOT DRINK"

ALL SEWERAGE DELIVERY LINES TO BE EITHER STRIPED OR COVERED WITH PURPLE SEWERAGE TAPE

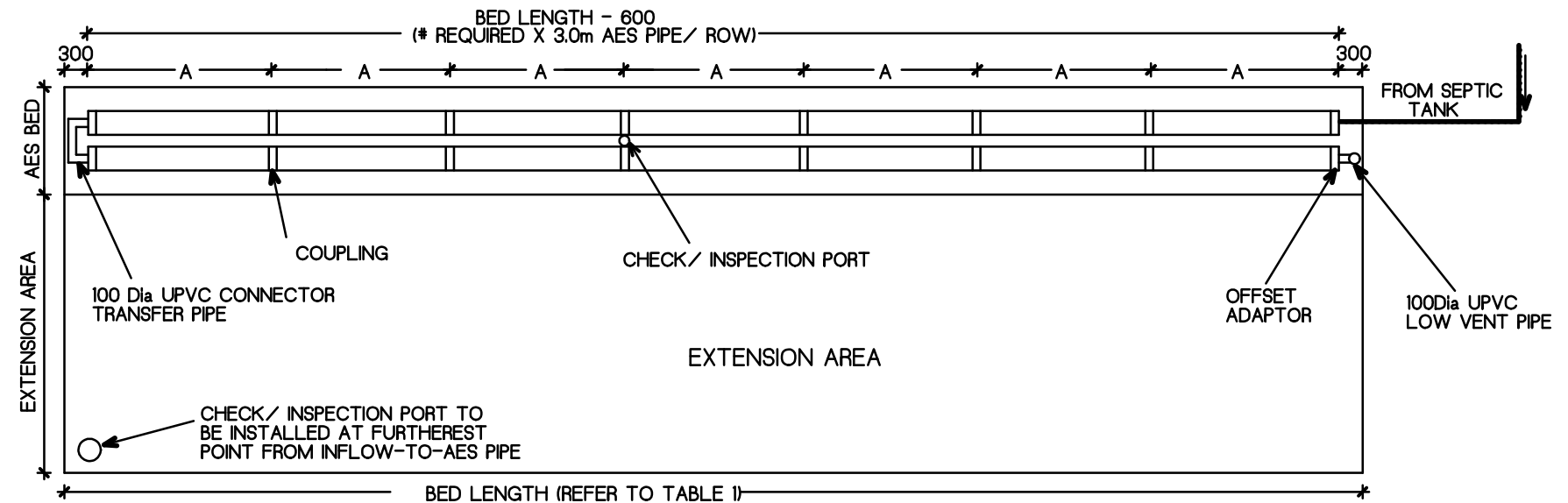
SIGNAGE FOR DELIVERY LINES TP READ:

"DO NOT DIG BURIED EFFLUENT PIPES"

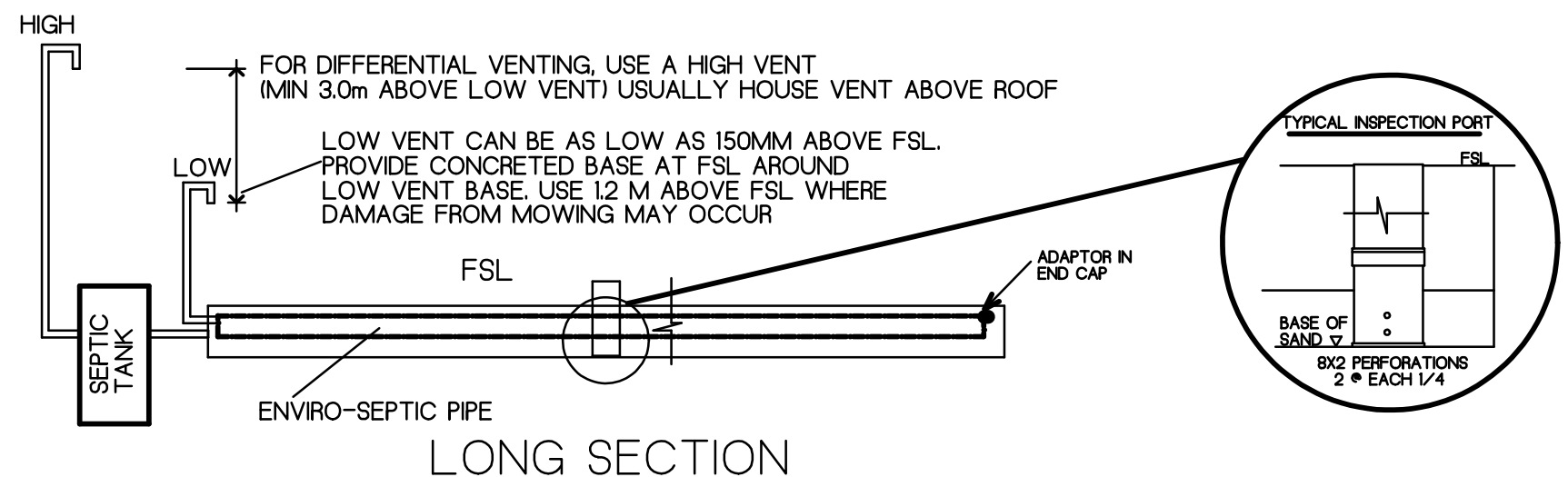
AND

"NO VEHICLE ACCESS"

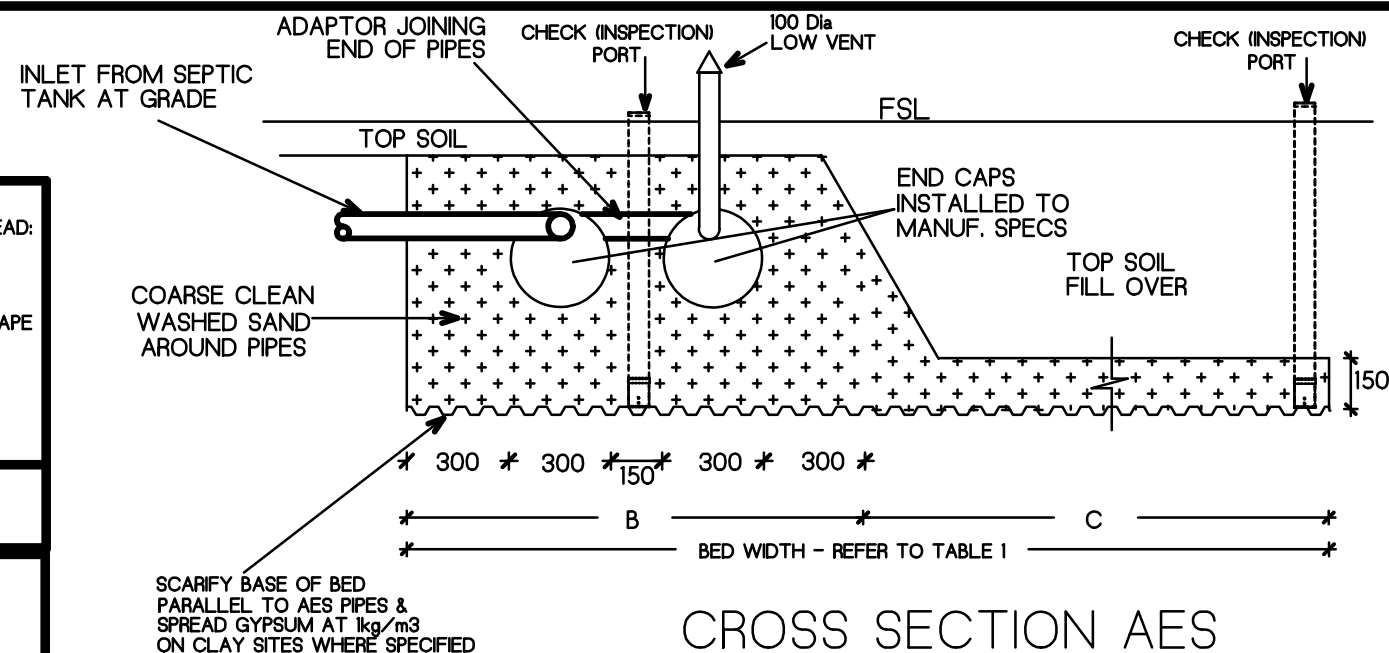
NOTE: SYSTEM HAS BEEN DESIGNED FOR THE USE OF STANDARD WATER REDUCTION FIXTURES, SUCH AS DUAL FLUSH 6/3 LTR WATER CLOSETS, SHOWER FLOW RESTRICTORS AERATOR FAUCETS (TAPS) AND WATER-CONSERVING WASHING MACHINES.
NO GARBAGE GRINDERS HAVE BEEN ALLOWED



AES SYSTEM ARRANGEMENT PLAN



LONG SECTION



CROSS SECTION AES LAA BEDDING DETAILS

PROVIDE FALLS AS FOLLOWS:
RESIDENCE TO SEPTIC TANK = MIN 1:60
SEPTIC TANK TO PIPES = MIN 1:300

STAGE 1 - SERVICE STATION DETAILS

22 Templeton Street
Gordonvale QLD 4865
Australia
Ph: 0429 630 442
email : test@solitest.biz

project: PROPOSED SEPTIC DETAILS
STG. 1 SERVICE STATION
FOR: GRAHAM WILLIAMS
GDUB HOLDINGS
LOT 7 CAMELOT CLOSE
CAPE TRIBULATION

designed	PL	drawn	KG	drawing no.
approved		job no.	17611	
code	NTS	date	SEP15	rev. no.
02				

CLIENT: GDUB HOLDINGS – Graham Williams
#17611 - LOT 7 CAMELOT CLOSE
CAPE TRIBULATION, QLD 4873
RP 733181

APPENDIX G

STAGE 2 – RESIDENCE

WASTEWATER TREATMENT
REQUIREMENTS

SEPTIC NOTES

RECOMMENDATIONS:

Care should be taken if the site is to be excavated to form a level building platform, that sufficient fall is available to the wastewater area. This will allow for the base of the system to be installed to the recommended depth of 800mm. If sufficient fall cannot be achieved a pump well will need to be installed.

Care should be taken that the base of the system is level and no greater than 800mm below ground level. This can be obtained by orientating the system to follow contour, ensuring even distribution of the wastewater and avoiding any one part of the system being more heavily loaded.

During construction rip and scarify the base of the bed to a depth of 150mm min and apply gypsum at a rate of 1 kg/m² to prevent the clay dispersing. The bed shall be closed in, as soon as possible to protect the gypsum from raindrop impact.

This company is not responsible for the building levels and falls to the wastewater system. These will need to be calculated prior to construction, to determine the building platform heights and allow for sufficient fall to the wastewater area. Consideration should be given as to how the plumber will run the pipes, as this will determine the platform height. If sufficient fall is not available to construct the system as designed, a pump well will need to be installed to distribute the wastewater.

There should be no ponding of water during seasonal rains around the septic tank, pump well and wastewater area. Diversion drains will need to be put in place to divert water from the wastewater area.

The treatment system is to be installed as per the manufacturers specifications.

VALIDITY

The excavation of a limited number of holes does not preclude the possibility of some conditions on the site being different from those encountered in the holes. Should conditions be found which differ from those described in this report, then the recommendations are not valid and this organization should be contacted.

SYSTEM INSTALLATION

The entire bottom of the bed should be scarified a minimum of 150mm deep parallel to the AES pipes. Avoid compaction by keeping people and machinery off the finished trench or bed floor. The system shall be installed by a licensed plumber in accordance with the manufacturer's recommendations and the relevant Australian Standards.

OPERATION & MAINTENANCE

Homeowners should be fully informed of the proper operation and maintenance requirements of the on-site wastewater system. The proposed 100% reserve area will need to be treated to an advanced secondary level.

Care must be taken to maintain adequate fall from all fittings through the septic tank to the Land Application Area. A pump well may be required if there is not enough fall. Contact this office or approved plumber for more information if a pump well is needed. Depth of system shall not be increased without approval from designer.

Soiltest.biz

DESIGN CERTIFICATE FOR ON SITE SEWERAGE FACILITIES

JOB NO. 17611
SITE STAGE 2 - RESIDENCE - LOT 7 CAMELOT CLOSE, CAPE
DWG No. 01, 03
DATE 13/09/2025
LOC GOV DOUGLAS SHIRE

We Soiltest.biz being designers of the on site sewerage system, do hereby certify that the Site & Soil Evaluation Procedures used to design the On-Site Sewerage Facility for the above property have been conducted in accordance with:

- 1) Plumbing and Drainage Act 2018
- 2) AS 1547-2000 On Site Domestic Waste Water Management
- 3) Any additional requirements of the Council as required by them at time of certification

1. We are familiar with the regulatory requirements for the site evaluation.
2. We accept professional responsibility for the interpretation of, and conclusions drawn from and recommendations made as a result of the site evaluation/report
3. The On-Site Sewerage Facility (as designed) is an appropriate facility for the allotment.

DESIGN CRITERIA

Maximum Number of bedrooms in house	2
Number of Equivalent Persons	4
Maximum designed daily flow for facility (Litres)	600
Soil Category and/ or soil texture	4
Irrigation Design Irrigation Rate DIR	25
OR	
Design Loading Rate for trench/s & beds DLR (Primary)	N/A
(Secondary)	20



ABN :9 290 204 480

22 Templeton St,
Gordonvale, QLD 4865
Australia

Ph: +61 7 4056 6324
test@soiltest.biz

Singapore, NZ, London

P. Lennox BSA 18267
Signed for SOIL TEST .BIZ

Soiltest.biz

WASTE WATER TREATMENT REQUIREMENTS IN AREAS WITHOUT SEWERAGE TREATMENT FACILITIES

DATE: 13/09/2025
JOB NO: 17611
SITE: STAGE 2 - RESIDENCE- LOT 7 CAMELOT CLOSE, CAPE
OWNER'S NAME: GDUB HOLDINGS - GRAHAM WILLIAMS
ADDRESS:
CLIENT: GDUB HOLDINGS - C/O- WILDPLAN
LOCAL GOVERNMENT AREA: DOUGLAS SHIRE

REAL PROPERTY DESCRIPTION:

LOT NO.	R.P. NO.	ASSESSMENT NO.	PARISH	COUNTY	
7	733181			NARES	

Area / length of trench

See Drawings

Soil Classification

No of bedrooms

No. of persons facility is designed for

Wastewater flow allowance

Total design flow allowance

4	
2	
4	persons
150	litres/person/day
600	litres/day

Recommended facility type (a) :

absorption trenches	
absorption beds	
evapo-transpiration-absorption systems	X
mounds	
irrigation systems	

STATEMENT

The attached report and evaluation was performed for and on behalf of Soiltest.biz and in accordance with the "Queensland plumbing and wastewater code"



Authorised Signature:

M:\Data\Shared\Excel\SEPTIC\SOIseptic.xls

SITE EVALUATION

Type of Effluent:			
Primary	☐	Secondary	☒
		Advanced Secondary	☒
Embankments: ☐			
Slope:		☐ 2 DEG	
Ground Cover:		☐ RAINFOREST	

Drainage Patterns:			
waxing divergent	☐	linear divergent	☐
waxing planar	☐	linear planar	☒
waxing convergent	☐	linear convergent	☐
		waning divergent	☐
		waning planar	☐
		waning convergent	☐

Standards of trees, shrubs:	RAINFOREST			
Site History (land use):	RAINFOREST			
Bores –potable- Drinking water:	Yes	☐	No	☒
Bore- potable-distance to trench area:	> 50m	☐ N/A	> 10m	☐ N/A
Bores – non potable:	Yes	☐	No	☒
Bore-non potable-distance to trench area:	> 15m	☐ N/A	> 6m	☐ N/A
Watercourses distance to trench area:	> 50m	☐	> 10m	☒
Residence distance to trench area:	> higher 4m	☒ X	>lower 2m	☒ X
Swimming pool distance to trench area:	> 6 m	☐ N/A		☐
	High Neighbour > 2m	☒ X	Low Neighbour > 4m	☒ X
Boundary distance to trench area:	Yes	☐	No	☒ X
Flood return period 1:50 level checked:	Yes	☐	No	☒ X

Type of treatment facility:			
Septic Tank All Purpose	☒ X		
Tank size	3000 litre	☒ X	4000 litre
Sewerage Treatment Plant -	Secondary	☐	Advanced
Separation of Grey water from sewerage	Yes	☐	No
Use of grease trap recommended	Yes	☐	No
Sand Filter	Type	☐	
Reserve area located (see site plan):	Yes	☐	No
Ground cover requirements: See Attached – "Suitable Vegetation for Wet Soils..." AS1547-1994			

Soil Type (from soil maps etc.):			
Climate			
Annual Rainfall:	CAPE TRIBULATION	Mean BOM values	
Annual Potential Evapotranspiration:	CAPE TRIBULATION	Mean BOM values	
Annual Mean Evaporation Rate:	CAPE TRIBULATION	Mean BOM values mm/day	
General Comment: (rainfall intensities, seasonal variation etc.)			

Intended Water Supply Source			
Public supply	☐	Rainwater collection	☒ X
Dam	☐	Bore/well	☐
Other	☐		☐

Environmental Concerns:	
(eg. Native plants intolerant of phosphorous load, high water table, swamp, waterways, etc.)	NO

Site Stability			
Is expert evaluation necessary?	YES	☐	NO
If NO, why not?	Flat	☐	Stable Site
If YES, attach stability report and give details here of:			
Author:	☐		
Company/ Agency:	Date of Report:	☐	

Drainage Controls			
Depth of permanent water table: >1.5m	Winter mm	☐	Summer mm
	NOT FOUND AT EX DEPTH	☒ X	☐
Need for ground water cut-off drains? See drawings	YES	☐	NO
Need for surface water collector/ cut-off drains? See drawings	YES	☒ X	NO

SUBSOIL INVESTIGATION

Soil Profile Determination

Method:

Falling Water Test	
Pit	
Permeameter	X
Other (specify):	

Estimated Soil Category:
Soil Category

1
2
3
4
5
6

Description	Tick
Gravels and sands	
Sandy Loams	
Loams	
Clay loams	4
Light clays	
Medium to heavy clays	

Reason for placing in stated soil category: Visual and Texture test, percolation
(DIR) recommendation:
(DLR) recommendation

Secondary	25
Primary	N/A
Secondary	20

GENERAL COMMENTS

Need for Groundwater Quality Protection:

YES

NO

X

Evaluator's preliminary assessment of minimum Land Application Area for the site

(comprising absorption area, space between and surrounding the absorption area elements, setbacks and the reserve area).

Septic trench absorption:		See Drawings
Evapotranspiration:	X	See Drawings
Irrigation Field:		See Drawings
Mound:		See Drawings
Other		

Design Considerations

Any specific environmental constraints?
Any specific public health constraints?

Yes

No

X

Yes

No

X

Results of consultation with other interested parties (neighbours, environmental agencies, local environmental groups, etc.)

YES

NO

X

Other comments:

M:\Data\Shared\Excel\SEPTIC\SOIseptic.xls

LOCAL GOVERNMENT
AREA:

DOUGLAS SHIRE

COUNCIL CONDITIONS OF PERMIT FOR ON-SITE SEWERAGE FACILITIES

(To be completed by Owner at Application Stage)

WAPD

SITE ADDRESS STAGE 2 - RESIDENCE - LOT 7 CAMELOT CLOSE,
CAPE TRIBULATION

RP: 738266

MAKE & MODEL NO. OF SEWERAGE TREATMENT FACILITY:

I/ We

being the owner/s of the above property do hereby confirm that:

i. I/We hold a **Maintenance Contract** for the servicing and maintenance of the above facility with a Council approved servicing agent and will continue to renew this contract as and when the existing contract expires;

ii. I/We have been issued with the **Operating and Maintenance Guidelines / Instructions** for the above facility;

iii. I/We realise that the Sewerage Treatment Facility and Disposal Area located at the above address has been designed to cater for a dwelling as follows;

Number of bedrooms in the house	2
Maximum daily flow for entire house (litres)	600
Number of equivalent persons	4

iv. I/We have been made aware of any reduced flow fixtures/ facilities that must be installed (and maintained) as specified in the site evaluation report/ design.

v. I/We understand that contact with effluent can present serious health risks to frail and elderly persons, infants, persons with a history of chronic hepatitis, persons who are immunocompromised, persons with cystic fibrosis etc. I/We will take appropriate measures to restrict access to the disposal area by the above-mentioned people.

vi. I/We understand that as owner, I/we have the following obligations:

- All occupiers/ users of an on-site facility must be provided access to the manufacturers/ facility builder's operation and maintenance instructions,
- Operation and maintenance procedures are to be undertaken to a regular schedule in accordance with instructions. (On site facilities may fail if not operated and maintained correctly),
- Continuity of operation and maintenance is to be maintained throughout changes of ownership, occupancy or changes in use or development of the site,
- Paying to Council the relevant Annual Licence Fee as determined by Council (to cover the cost of maintaining records and randomly inspecting installations).

vii. Inspection reports are required to be provided to council every three (3) months unless a less frequent inspection regime is recommended in the Department of Natural Resources & Mines System Approval;

viii. All future pools, buildings, driveways, bores and the like will remain the required set back distance away from the effluent disposal area.

ix. I/We will ensure that any defective part of the on-site sewerage facility is repaired or replaced within 24 hours of written notice from Council that the facility is defective, or will have finalised any temporary arrangements to the satisfaction of the Senior Plumbing Inspector.

x. I/We understand that effluent must not come in contact with edible fruit & vegetables.

xi. I am aware that council may approve a request for dispensation (if required) for set-back distances that would allow an All-Purpose Septic Tank to be installed on this property.

Note: - If an All Purpose/ Septic Tank has been installed, Sections i), ii), vi) (d) & vii) above are not applicable

OWNER:

GDUB HOLDINGS - GRAHAM WILLIAMS

Owners Signature/s:

Date:

(To be completed by the LICENCED INSTALLER of the on-site sewerage facility on completion of the installation)

COMPLIANCE CERTIFICATE FOR
ON- SITE SEWERAGE FACILITIES
BY THE INSTALLER

Date : 13/09/2025
JOB: 17611
SITE: STAGE 2 - RESIDENCE - LOT 7 CAMELOT CLOSE, CAPE TRIBULATION
OWNER: GDUB HOLDINGS - GRAHAM WILLIAMS

RP/SP: 738266
PERMIT REFERENCE:
LOCAL GOVERNMENT AREA: DOUGLAS SHIRE

MAKE MODEL NO OF FACILITY:

I, as installing contractor certify and accept all responsibility, that the on site sewerage facility and land application area for the above property has been installed in accordance with the approved on site design and the requirements of the Plumbing and Drainage Act 2018, Queensland Plumbing and Wastewater Code and AS/NZS 1547:2012 and any additional requirements specified on the approval by the Council. The on-site sewerage facility / land application area has been installed by an appropriately qualified person in accordance with clause 3.5 of the AS/NZS 1547:2012 whose details are as follows

Qualified Installer Details:

Name:
Address:
Phone:
Fax:
Mobile:
Drainers licence No:
Plumbers licence No:
QBSA Licence No:

SIGNED:

NAME:

CLIENT: GDUB HOLDINGS – Graham Williams
#17611 - LOT 7 CAMELOT CLOSE
CAPE TRIBULATION, QLD 4873
RP 733181

APPENDIX H

STAGE 2 – RESIDENCE

OWNER'S MANUAL

Soiltest.biz

JOB No 17611
CLIENT GDUB HOLDINGS - C/O-WILDPLAN
SITE STAGE 2 - RESIDENCE - LOT 7 CAMELOT CLOSE, CAPE TRIBULATION

OWNER: GDUB HOLDINGS - GRAHAM WILLIAMS

MANUAL WASTE WATER MANAGEMENT (OWNER COPY)

The system has been designed for effluent usage of

600 litres/day maximum.

Excess usage may lead to failure of the system.



ABN: 49 290 204 480

22 Templeton St.
Gordonvale, QLD 4865
Australia

Ph: +61 7 4056 6324
test@soiltest.biz

Singapore, NZ, London

C:\Users\peter\AppData\Local\Microsoft\Windows\NetCache\Content.Outlook\M18PWGW1\SOIseptic PAPERWORK.xls

ON-SITE DOMESTIC WASTEWATER SYSTEM CONSTRUCTION, OPERATION AND MAINTENANCE REQUIREMENTS

DESIGN ASSUMPTIONS FOR SEWERAGE LAND APPLICATION AREAS (LAA)

The on site domestic wastewater system has been designed assuming a maximum life of 15 years without replacement or reworking therefore the following design assumptions **MUST** be followed.

1. That standard water reduction fixtures such as dual flush 11/5.5 litre water closets, shower flow restrictors, aerator faucets (taps) have been fitted to all fixtures and water-conserving automatic washing machines, **NO GARBAGE GRINDERS**.
2. Low phosphorus detergents, low sodium detergents and biodegradable soaps are used in the system.
3. **LAA MUST be fully DENSLY planted by either the owner or plumber, with recommended vegetation and grasses, PRIOR to commissioning the system. Planting must be maintained by pruning and replacement on a regular basis. The LAA has been designed assuming planting is in place.**
4. Inundation of the LAA by rain and /or surface drainage may lead to temporary or permanent failure of the LAA. Keep all surface water cut off drains clean and operational. Surface water cut off drains are to be placed to the high edge and sides of LAA, and to be graded away from the lower edge.
5. Durable metal warning signs are required on each side of an irrigation area LAA, and are to read, **“WARNING RECLAIMED EFFLUENT DO NOT DRINK” and “DO NOT DIG BURIED EFFLUENT PIPES” and “NO VEHICLE ACCESS”**.
6. Evapotranspiration and absorption LAA's do not require signs.
All LAA's shall not allow vehicle access.
7. For maintenance, Gypsum must be added to the top of the completed LAA, to replenish the Gypsum originally added, at the rate of 0.5kg/m² at intervals not exceeding 24 months (if town and low salts water is used). If bore water or high dissolved salts water is used apply Gypsum at the rate of 0.1 kg/m² on a monthly interval to the top of the LAA.
8. For above ground sprinkler systems. Sprinkler heads must be moved regularly to prevent local ponding and saturation.

ON-SITE DOMESTIC WASTEWATER SYSTEM CONSTRUCTION, OPERATION AND MAINTENANCE REQUIREMENTS

1. ADVICE TO HOME OWNER/OCCUPIER ON USE OF THE SYSTEM.

For the on-site wastewater system to work efficiently, there are some good habits to encourage and some bad habits to avoid.

A. In order to reduce sludge building up in the tank:

1. Scrape all dishes to remove fats, grease, etc. before washing;
2. Keep all possible solids out of the system;
3. **DO-NOT USE A GARAGE GRINDER** unless the system has been specifically designed to carry the extra load;
4. **DO-NOT** put sanitary napkins and other hygiene products into the System.

B. In order to keep the bacteria working in the tank and in the land-application area.

1. Use bio-degradable soaps;
2. Use a low-phosphorus detergent;
3. Use a low-sodium detergent;
4. Use detergents in the recommended quantities;
5. **DO-NOT** use powerful bleaches, whiteners, nappy soakers, spot removers and disinfectants;
6. **DO-NOT** put chemicals or paint down the drains.

C. Conservation of water will reduce the volume of effluent requiring disposal to the land-application area, making it last longer and improving it's performance. Conservation measures include:

1. Installing standard water reduction fixtures such as dual flush 11/5.5 litre water closets, shower flow restrictors, aerator faucets (taps) fitted to all fixtures and water-conserving automatic washing machines. **NO GARBAGE GRINDERS;**
2. Taking showers instead of baths;
3. Only washing clothes when there is a full load of washing;
4. Only using the dishwasher when there is a full load to be done.

NOTE: Avoid overloading the system by spacing out water use as evenly as possible.

ITEMS: Do not do all the washing on one day.
Do not run the washing machine and dishwasher at the same time.

ON-SITE DOMESTIC WASTEWATER SYSTEM CONSTRUCTION, OPERATION AND MAINTENANCE REQUIREMENTS

2. ADVICE ON MAINTENANCE

A. The primary wastewater-treatment unit (septic tank) will need to:

1. De-sludge regularly i.e. every three to five years or when scum and sludge occupy 2/3 of the volume of the tank (or the first of a two stage system).
2. Protect from vehicles.
3. Clean out the grease trap regularly.
4. Keep the vent and/or access cover of the septic tank exposed.
5. Inspect outlet filter and clean regularly.

B. The Land Application Area (LAA) needs protection as follows:

1. No vehicle or stock should be allowed on trenches or beds;
2. Deep rooting trees or shrubs should not be grown over absorption trenches or pipes;
3. The surface water interceptor drains around the LAA should be kept clean to reduce absorption of rainwater into trenches or beds;
4. Keep grass mowed and plants pruned to ensure that these areas take up nutrients with maximum efficiency. Replace plants or prune severely when plants reach maturity. Remove prunings and grass clippings from the LAA.

C. Check equipment and:

1. Follow the manufacturers instructions for the maintaining septic tank filters:

3. ADVICE ON OPERATION PROBLEMS

Problems can occur with systems which have not been maintained and where absorption areas have become blocked or clogged. The warning signs are obvious.

1. Absorption field is wet or soggy with wastewater ponding on the surface of the ground.
2. There is a smell of “sewage” near the septic tank or absorption areas;
3. The drains and toilets run slowly;
4. The grease trap (if applicable) is full or blocked;

ON-SITE DOMESTIC WASTEWATER SYSTEM CONSTRUCTION, OPERATION AND MAINTENANCE REQUIREMENTS

4. ADVICE ON THE CONSEQUENCES OF FAILURE

A failed septic tank and land-application system is a serious environmental hazard and can lead to.

1. Spread of infectious diseases;
2. Breeding of mosquitoes and attraction of flies and rodents;
3. Nuisance and unpleasantness;
4. Pollution and infection of waterways, beaches, streams;
5. Contamination of bores, well, and groundwater;
6. Alteration of local ecology.

5. ADVICE ON HOME OWNER/OCCUPIERS RESPONSIBILITIES

Homeowners and occupiers are legally responsible to keep their on-site wastewater system in good working order. If any of the warning signs in section 3 are evident, the homeowner or occupier must take steps to rectify the situation as quickly as possible.

ON-SITE DOMESTIC WASTEWATER SYSTEM CONSTRUCTION, OPERATION AND MAINTENANCE REQUIREMENTS

GENERAL NOTES:

1. SOILTEST.BIZ will not be liable for failure of any system if our design is not constructed in strict accordance with the drawings and if inspections are not carried out by SOILTEST.BIZ at the base of the LAA and when complete.
2. Restrict access to vehicle traffic to LAA no larger than ride on mowers.
3. Refer to Operation & Maintenance notes.
4. Owner is to be informed of their obligations for maintenance of system.

CONSTRUCTION NOTES:

1. If unforeseen ground changes occur at the base of the excavation of trenches plumber is to contact SOILTEST.BIZ immediately.
2. The base of trenches and evapotranspiration areas must remain level and have GYPSUM applied at a rate of 1KG/ M2 if clays are encountered at the base of the LAA.
3. Surface water interceptor must be constructed accordance with drawings to reduce storm water ponding. (See 'Design Assumptions' pg.2; item 4).
4. **Land Application Area (LAA) MUST be fully and DENSLY planted by either the owner or plumber with recommended vegetation and grasses PRIOR to commissioning the system. Planting must be maintained by pruning and replacement on a regular basis. The LAA has been designed assuming planting is in place.**
5. Durable metal warning signs are required on each side of an irrigation area LAA, and are to read, **"WARNING RECLAIMED EFFLUENT DO NOT DRINK" AND "DO NOT DIG BURIED EFFLUENT PIPES" AND "NO VEHICLE ACCESS"**.
6. Evapotranspiration and absorption LAA's do not require the above signs. All LAA's shall not allow vehicle access. See 'General Notes' above.
7. Pump discharge lines to be fitted with non-return valve as close as practical to the outlet of the pump.
8. Lateral drainage lines are to be installed level or following contours.
9. Distribution boxes installed on a level base of 100mm of concrete and 75mm min. below outlet of the septic tank. Distribution boxes to be fitted with a baffle suitable for pump discharge.
10. Trench moulds to be fitted with end caps and spreaders at 1500 centres.
11. Warning tape to be placed over effluent lines.
12. Base of the LAA is to be excavated by a machine with raker teeth. Tyne base to 200mm deep and place Gypsum at the rate of 1kg/m2 to the base in clay soils.
13. **Spray irrigation** sprinklers are to be spaced evenly. Sprinklers are to produce at the outlet of the pump a large droplet spray no more than 600mm high and 2000mm in diameter. A 150-200um strainer is to be fitted to the pump line prior to LAA.
14. **Subsurface irrigation systems** - provide non-return valves at the pump line near the distribution valve (K rain valve or similar). Provide 25mm ball valve to the end of each lateral to enable flushing of the line. An air admittance device is to be installed in the position indicated to prevent debris being drawn into the line by syphoning. A pressure-reducing valve is required on the pump line prior to the LAA.

ON-SITE DOMESTIC WASTEWATER SYSTEM CONSTRUCTION, OPERATION AND MAINTENANCE REQUIREMENTS

LAND APPLICATION AREAS (LAA)

PLANTING FOR EVAPO-TRANSPIRATION/ ABSORPTION SYSTEMS

Plant species that have shallow root and high water uptake such as; Condamine couch; *Iomandra longisolia* folia; Mondo grass; Canna Lily, Bananas (see planting species list attached).

PLANTING FOR SPRAY IRRIGATION SYSTEMS

Do not use grass on spray irrigation systems due to non-control of use and access. Instead, plant beds with flowers and plants, bushes etc. as per attached plant list. Grasses such as Vetiver grass is satisfactory and is deep rooted and high PH tolerance. This grass helps prevent erosion due to its root structure. Provide mulch to all beds such as Earthgrow (primarily composted bark and cow manure). Ensure mulch does not have too many fines. Hardwood chips are satisfactory. Apply Gypsum at the rate of 0.25kg/m². Keep irrigation even, young plants may require supplementary watering. Use automated intermittent watering allow the top 50mm to dry out prior to reapplying.

PLANTING FOR SUBSURFACE IRRIGATION SYSTEMS

Grasses as per attached list and plant species that have shallow root and high water uptake such as; Condamine couch; *Iomandra longisolia* folia; Mondo grass; Canna Lily, Bananas, heliconias, (see planting species list attached). Provide minimum of 100 mm mulch to all beds, covering pipe work with 100 mm minimum such as Earthgrow (primarily composted bark and cow manure). Ensure mulch does not have too many fines. Hardwood chips are satisfactory. Apply Gypsum at the rate of 0.25kg/m².

APPENDIX C

SUITABLE VEGETATION FOR WET SOILS

(Informative)

C1 SCOPE This appendix sets out suitable vegetation for growing in wet soils, e.g. on evapotranspiration beds and areas.

C2 TYPES OF VEGETATION

a) Climbers

Bougainvillea
Hardenbergia
Hibbertia scandens

Kennedia
Lonicera japonica
Pandorea jasminoides

b) Grasses

Buffalo

Kikuyu

c) Ground Cover

Acanthus mollis
Coprosma x kirki

Liriope muscari
Ophiopogon

d) Perennials

Agaphanthus preaecox
Astor novi-belgii
Canna x generalis
Chrysanthemum maximum

Gazania x hybrida
Salvia x superba
Stokesia laevis
Viola hederacea

e) Shrubs

Abelia x grandiflora
Acacia longifolia
Callistemon citrinus
Cassia bicapsularis
Ceratostigma
Chaenomeles lagenaria
Correa alba
Cotoneaster glaucophyllus
Cotoneaster lacteus
Cotoneaster pannosus
Cuphea ignea
Euonymus japonicus
Euphorbia millii

Euphorbia pulcherrima
Hebe speciosa
Jasminum mesnyi
Jasminum officinale 'Grandiflorum'
Jasminum polyanthum
Lantana camara (cultivars only)
Lantana montevidensis
Leptospermum flavescens
Nerium oleander
Plumbago auriculata
Pyracantha fortuneana
Thunbergia alta
Westringia fruticosa

f) Trees

Angophora costata
Banksia integrifolia
Callistemon salignus
Callistemon viminalis
Casuarina glauca
Casuarina stricta
Eucalyptus botryoides
Eucalyptus robusta
Hakea salicifolia
Hakea saligna

Leptospermum laevigatum
Leptospermum petersonii
Melaleuca armillaris – Sandy soil
Melaleuca linariifolia – Clay soil
Melaleuca quinquenervia – Sandy Soil
Melaleuca styphelioides – Clay soil
Nyssa sylvatica
Photinea x fraseri 'Robusta'
Tristaniaopsis laurina

JOBNUM	17611		TO AS1547-2000			CAPE TRIBULATION				
JOB	STG. 2& 3 -RESIDENCE & CABINS - LOT 7		CAMELOT CLOSE, CAPE TRIBULATION			EVAPOTRANSPIRATION				
summer winter	Bedrooms		4							
	Persons		9							
	Effluent/person/day		150	litres/person/day	APPENDIX 4.2D AS 1547-2000					
	Effluent/day		1350	litres/day						
	Porosity in disposal area		0.5	por						
	Design irrigation rate	DIR	25	mm/week	[litres/m2/week]	site water use	0	litres/day		
	Design Loading Rate	BASE	DLR1	20	mm/day	[litres/m2/day]	add to LAA	0.0%	0	litres/day
	Design Loading Rate	WALL	DLR2	20						
	Retained rain coefficient		RR	0.6						
	Crop Transpiration rate	OCT-MAR	ET1	0.8						
	Crop Transpiration rate	APR-SEP	ET2	0.8						
Estimated area of effluent drainfield			101	m2						
Maximum depth of stored effluent			570	mm	H	800	mm			

month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
days	pan	Evap	pan	evap	Evapo	rainfall	retained	DLR	disp	effluent	area	trial	applic	sum	depth	incr	depth	computed
	/day		/mth	Evapo	trans	/mth	rainfall	/mth	rate	/mth	area	area	rate		incr	depth	depth	depth
			1*2	3*ET		5*RR	1*DLR	4-6+7	1*eff/day	9/8			9/11	12-8	13/por	15+14	15+14	16+15
jan	31	7	217	174	595.1	357	620	437	41850	96	100		416	-20	-40	0	-40	0
feb	28	5	140	112	735	441	560	231	37800	164			376	145	290	0	290	290
mar	31	4.5	140	112	751.7	451	620	281	41850	149			416	136	272	290	562	562
apr	30	4.7	141	113	523.5	314	600	399	40500	102			403	4	9	562	570	570
may	31	3.9	121	97	286.9	172	620	545	41850	77			416	-128	-256	570	314	314
jun	30	3.9	117	94	160.8	96	600	597	40500	68			403	-194	-388	314	-74	0
jul	31	4.2	130	104	120.5	72	620	652	41850	64			416	-235	-471	0	-471	0
aug	31	5	155	124	97.7	59	620	685	41850	61			416	-269	-538	0	-538	0
sep	30	6.2	186	149	91.9	55	600	694	40500	58			403	-291	-581	0	-581	0
oct	31	6.8	211	169	89.5	54	620	735	41850	57			416	-319	-637	0	-637	0
nov	30	7.2	216	173	176.3	106	600	667	40500	61			403	-264	-528	0	-528	0
dec	31	7.1	220	176	334.7	201	620	595	41850	70			416	-179	-358	0	-358	0
JAN	31	7	217	174	595.1	357	620	437	41850	96			416	-20	-40	0	-40	0
FEB	28	5	140	112	735	441	560	231	37800	164			376	145	290	0	290	290
year	365	66	1994	1595	3964	2378	8480	6517	492750							max	570	A1
																min	0	A2
																	0	must=0

MAX		164
MIN		57
RATIO		2.9

evapotranspiration calculation		
base only	101	
width W	length L	
0.6	168	
1.2	84	
1.8	56	
2.4	42	
3.6	28	
4	25	
4.8	21	

Absorbion trench calculation		
abs area	68	
width W	length L	
0.6	113	
1.2	56	
1.8	38	
2.4	28	
3.6	19	
4	17	
4.8	14	

Irrigation area calculation		
irrig area	378	
width W	length L	
0.6	630	
1.2	315	
1.8	210	
2.4	158	
3.6	105	
4	95	
4.8	79	

width	length	
4	95	
6	63	
8	47	
10	38	
12	32	
14	27	
16	24	

evapotranspiration calculation		
trial area inc wall	101	
width W	length L	
0.6	1	
1.2	2	
1.8	3	
2.0	12	
3.6	14	
4.0	16	
4.0	17.5	

sum	A1	A2	
1	1	0	1
2	2	0	2
3	3	0	3
47	47	24	23
79	79	50	28
96	96	64	32
104	104	70	34

Base Area=L*W

Base Area=L*W

Area=L*W+2*H*(L+W)/1000

TABLE 1

CERTIFIED DESIGN	
TREATMENT SYSTEM	ADVANCED ENVIRO-SEPTIC
EFFLUENT TYPE	ADVANCED SECONDARY
DISPOSAL TYPE	EVAPOTRANSPIRATION
BED WIDTH M	BED LENGTH M
3.62	27.6

TABLE 2

DESIGN ASSUMPTIONS STG.2&3 - RESIDENCE & CABINS	
A = STANDARD PIPE LENGTH (m)	3.0
B = STANDARD 2 PIPE BED WIDTH (m)	1.35
C = EXTENSION LENGTH (m)	2.27
RESIDENCE - 2 BED - 4 PEOPLE	
CABINS - 2X1 BED - 5 PEOPLE	
TOTAL DAILY FLOW	1350 LITRES
SOIL CATEGORY	4

TABLE 3

HORIZONTAL SEPARATION DISTANCE
FOR EFFLUENT DISPOSAL AREAS

	PRIMARY EFFLUENT (SEPTIC) M	SECONDARY EFFLUENT (HTSP) M	ADVANCED SECONDARY (HTSP) M
1 TOP OF BANK WATER COURSE (RIVER STREAM LAKE DAM EASMENT BNDRY OPEN UNLINED DRAINAGE CHANNEL)	50	30	10
2 FARM DAMS INTERMITTENT WATER COURSE DRAINAGE CHANNELS	50	30	10
3 BORE OR WELL USED FOR DRINKING SUPPLY	50	30	10
4 BORE OR WELL USED FOR NON DRINKING SUPPLY	15	15	10
5 PROPERTY BOUNDARIES, PATHS, WALKWAYS, BUILDING FOOTINGS RETAINING WALLS	4 LOWER THAN DISPOSAL AREA 2 HIGHER THAN DISPOSAL AREA		
6 CHILDRENS PLAY AREAS DWELLINGS RECREATION AREAS	SUBSURFACE AS FOR 5 ABOVE NO SURFACE SPRAY PERMITTED	SUBSURFACE AS FOR 5 ABOVE 15 IF SURFACE SPRAYED	SUBSURFACE AS FOR 5 ABOVE 10 IF SURFACE SPRAYED
7 SWIMMING POOL WATER EDGE	6	6	6
8 IN GROUND POTABLE WATER TANK	15	6	6
9 UNSATURATED SOIL DEPTH TO PERMANENT WATER TABLE	1.2 VERT	0.6 VERT	0.3 VERT

NOTES:

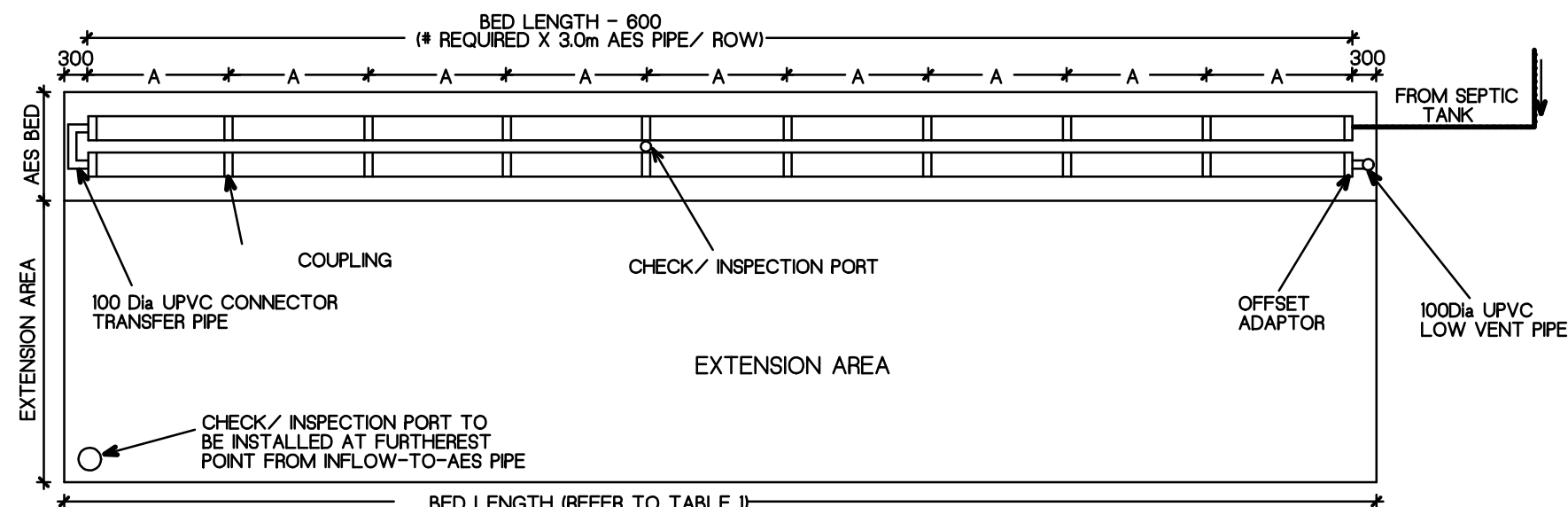
1. HSTP INSTALLED WITH MANUFACTURERS INSTRUCTIONS
2. PLUMBING AND DRAINAGE IN ACCORDANCE WITH THE ON SITE SEWERAGE CODE AND THE NATIONAL PLUMBING AND DRAINAGE CODE AS3500
3. FUTURE BORE INSTALLATIONS MUST HAVE SEPARATION DISTANCES AS PER TABLE
4. DURABLE AGGREGATE AS PER AS 2758.1 20MM
5. GEOFABRIC TO BE BIDIM A12 OR EQUIVALENT
6. ALL INSTALLATION TO BE IN ACCORDANCE WITH ASI547-2000 "ON SITE DOMESTIC WASTEWATER MANAGEMENT"
7. PLANT APPROPRIATE LARGE TREES (5m APART MAX) or BANANA PLANTS (1.5m APART @ 5m ROW CRS) or VETIVER GRASS (1m ROW CRS; 3 PLANTS PER m2) WHERE SHOWN ON DWG 06.

DURABLE METAL SIGNS ARE REQUIRED ON EACH SIDE OF AN IRRIGATION AREA LAA AND ARE TO READ:

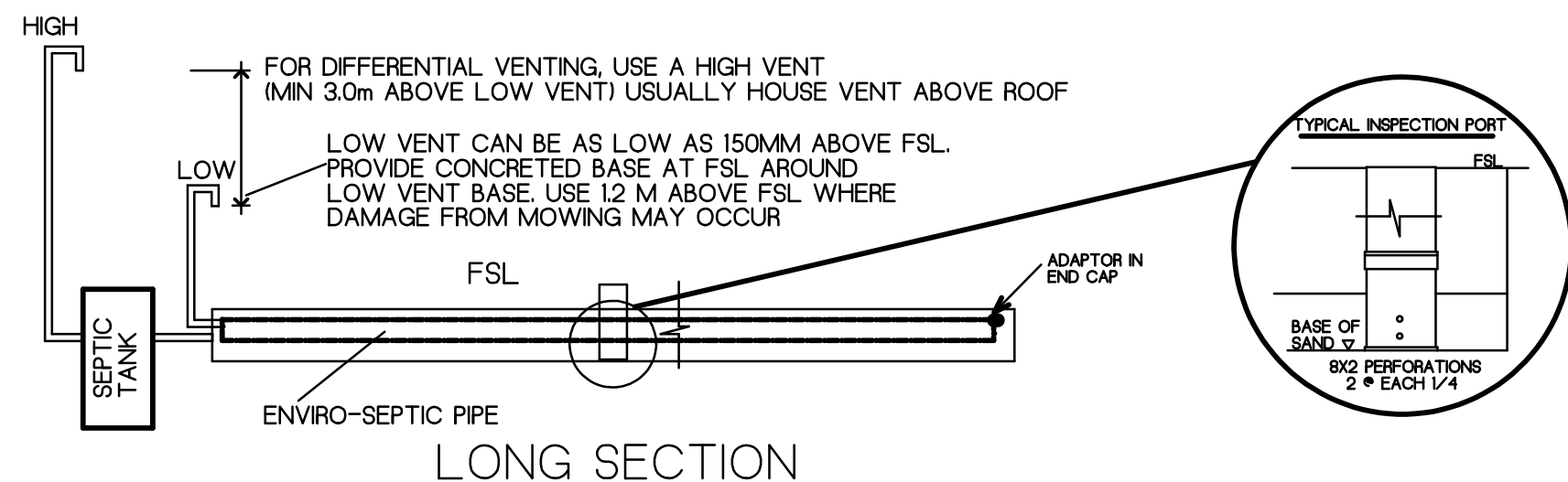
"WARNING RECLAIMED EFFLUENT DO NOT DRINK"
ALL SEWERAGE DELIVERY LINES TO BE EITHER STRIPED OR COVERED WITH PURPLE SEWERAGE TAPE
SIGNAGE FOR DELIVERY LINES TP READ: "DO NOT DIG BURIED EFFLUENT PIPES" AND "NO VEHICLE ACCESS"

REFER TO OWNERS MANUAL FOR ADDITIONAL NOTES

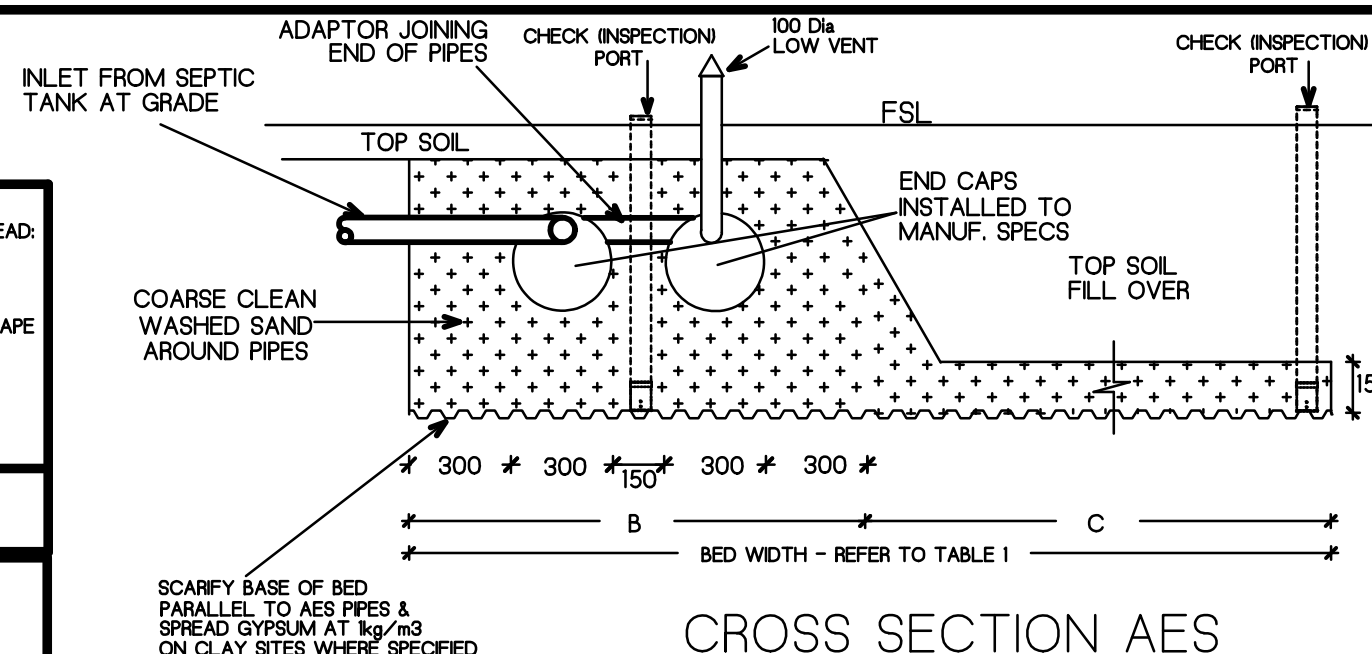
NOTE: SYSTEM HAS BEEN DESIGNED FOR THE USE OF STANDARD WATER REDUCTION FIXTURES, SUCH AS DUAL FLUSH 6/3 LTR WATER CLOSETS, SHOWER FLOW RESTRICTORS AERATOR FAUCETS (TAPS) AND WATER-CONSERVING WASHING MACHINES.
NO GARBAGE GRINDERS HAVE BEEN ALLOWED



AES SYSTEM ARRANGEMENT PLAN



LONG SECTION

CROSS SECTION AES
LAA BEDDING DETAILS

CONSTRUCTION NOTES:

PROVIDE FALLS AS FOLLOWS:
RESIDENCE TO SEPTIC TANK = MIN 1:60
SEPTIC TANK TO PIPES = MIN 1:300

NOTE: SEPTIC INLET & ADAPTOR JOINERS ARE ALWAYS TO TOP OF PIPES

Soiltest.biz

22 Templeton Street
Gordonvale QLD 4865
Australia
Ph: 0429 830 442
email: test@soiltest.biz

PROPOSED SEPTIC DETAILS
STG. 2&3 RESIDENCE & CABINS
FOR: GRAHAM WILLIAMS
GDUB HOLDINGS
LOT 7 CAMELOT CLOSE
CAPE TRIBULATION

designed	PL	drawn	KG	drawing no.	03
approved	NTS	date	SEP15	rev. no.	

STAGE 2&3
RESIDENCE & CABINS

CLIENT: GDUB HOLDINGS – Graham Williams
#17611 - LOT 7 CAMELOT CLOSE
CAPE TRIBULATION, QLD 4873
RP 733181

APPENDIX L

STAGE 3 – CABINS

WASTEWATER TREATMENT
REQUIREMENTS

SEPTIC NOTES

RECOMMENDATIONS:

Care should be taken if the site is to be excavated to form a level building platform, that sufficient fall is available to the wastewater area. This will allow for the base of the system to be installed to the recommended depth of 800mm. If sufficient fall cannot be achieved a pump well will need to be installed.

Care should be taken that the base of the system is level and no greater than 800mm below ground level. This can be obtained by orientating the system to follow contour, ensuring even distribution of the wastewater and avoiding any one part of the system being more heavily loaded.

During construction rip and scarify the base of the bed to a depth of 150mm min and apply gypsum at a rate of 1 kg/m² to prevent the clay dispersing. The bed shall be closed in, as soon as possible to protect the gypsum from raindrop impact.

This company is not responsible for the building levels and falls to the wastewater system. These will need to be calculated prior to construction, to determine the building platform heights and allow for sufficient fall to the wastewater area. Consideration should be given as to how the plumber will run the pipes, as this will determine the platform height. If sufficient fall is not available to construct the system as designed, a pump well will need to be installed to distribute the wastewater.

There should be no ponding of water during seasonal rains around the septic tank, pump well and wastewater area. Diversion drains will need to be put in place to divert water from the wastewater area.

The treatment system is to be installed as per the manufacturers specifications.

VALIDITY

The excavation of a limited number of holes does not preclude the possibility of some conditions on the site being different from those encountered in the holes. Should conditions be found which differ from those described in this report, then the recommendations are not valid and this organization should be contacted.

SYSTEM INSTALLATION

The entire bottom of the bed should be scarified a minimum of 150mm deep parallel to the AES pipes. Avoid compaction by keeping people and machinery off the finished trench or bed floor. The system shall be installed by a licensed plumber in accordance with the manufacturer's recommendations and the relevant Australian Standards.

OPERATION & MAINTENANCE

Homeowners should be fully informed of the proper operation and maintenance requirements of the on-site wastewater system. The proposed 100% reserve area will need to be treated to an advanced secondary level.

Care must be taken to maintain adequate fall from all fittings through the septic tank to the Land Application Area. A pump well may be required if there is not enough fall. Contact this office or approved plumber for more information if a pump well is needed. Depth of system shall not be increased without approval from designer.

Soiltest.biz

DESIGN CERTIFICATE FOR ON SITE SEWERAGE FACILITIES

JOB NO. 17611
SITE STAGE 3 - CABINS - LOT 7 CAMELOT CLOSE, CAPE
TRIBULATION
DWG No. 01, 03
DATE 13/09/2025
LOC GOV DOUGLAS SHIRE

We Soiltest.biz being designers of the on site sewerage system, do hereby certify that the Site & Soil Evaluation Procedures used to design the On-Site Sewerage Facility for the above property have been conducted in accordance with:

- 1) Plumbing and Drainage Act 2018
- 2) AS 1547-2000 On Site Domestic Waste Water Management
- 3) Any additional requirements of the Council as required by them at time of certification

1. We are familiar with the regulatory requirements for the site evaluation.
2. We accept professional responsibility for the interpretation of, and conclusions drawn from and recommendations made as a result of the site evaluation/report
3. The On-Site Sewerage Facility (as designed) is an appropriate facility for the allotment.

DESIGN CRITERIA

Maximum Number of bedrooms in house	2
Number of Equivalent Persons	5
Maximum designed daily flow for facility (Litres)	750
Soil Category and/ or soil texture	4
Irrigation Design Irrigation Rate DIR	25
OR	
Design Loading Rate for trench/s & beds DLR (Primary)	N/A
(Secondary)	20



ABN 49 290 204 480

22 Templeton St.
Gordonvale, QLD 4865
Australia

Ph: +61 7 4056 6324
test@soiltest.biz

Singapore, NZ, London

P. Lennox BSA 18267
Signed for SOIL TEST .BIZ

Soiltest.biz

WASTE WATER TREATMENT REQUIREMENTS IN AREAS WITHOUT SEWERAGE TREATMENT FACILITIES

DATE: 13/09/2025
JOB NO: 17611
SITE: STAGE 3 - CABINS - LOT 7 CAMELOT CLOSE, CAPE

OWNER'S NAME: GDUB HOLDINGS - GRAHAM WILLIAMS
ADDRESS:

CLIENT: GDUB HOLDINGS - C/O- WILDPLAN
LOCAL GOVERNMENT AREA: DOUGLAS SHIRE

REAL PROPERTY DESCRIPTION:

LOT NO.	R.P. NO.	ASSESSMENT NO.	PARISH	COUNTY	
7	733181			NARES	

Area / length of trench

See Drawings

Soil Classification

No of bedrooms

No. of persons facility is designed for

Wastewater flow allowance

Total design flow allowance

4	
2	
5	persons
150	litres/person/day
750	litres/day

Recommended facility type (a) :

absorption trenches	
absorption beds	
evapo-transpiration-absorption systems	X
mounds	
irrigation systems	

STATEMENT

The attached report and evaluation was performed for and on behalf of Soiltest.biz and in accordance with the "Queensland plumbing and wastewater code"



Authorised Signature:

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SITE EVALUATION

Type of Effluent:			
Primary		Secondary	X
		Advanced Secondary	X
Embankments:		Slope:	3 DEG
		Ground Cover:	RAINFOREST

Drainage Patterns:			
waxing divergent		linear divergent	
waxing planar		linear planar	X
waxing convergent		linear convergent	
		waning divergent	
		waning planar	
		waning convergent	

Standards of trees, shrubs:	RAINFOREST			
Site History (land use):	RAINFOREST			
Bores –potable- Drinking water:	Yes		No	X
Bore- potable-distance to trench area:	> 50m	N/A	> 10m	N/A
Bores – non potable:	Yes		No	X
Bore-non potable-distance to trench area:	> 15m	N/A	> 6m	N/A
Watercourses distance to trench area:	> 50m		> 10m	X
Residence distance to trench area:	> higher 4m	X	>lower 2m	X
Swimming pool distance to trench area:	> 6 m	N/A		
	High Neighbour > 2m	X	Low Neighbour > 4m	X
Boundary distance to trench area:	Yes		No	X
Flood return period 1:50 level checked:	Yes		No	X

Type of treatment facility:			
Septic Tank All Purpose			
Tank size	3000 litre	X	4000 litre
Sewerage Treatment Plant -	Secondary		Advanced
Separation of Grey water from sewerage	Yes		No
Use of grease trap recommended	Yes		No
Sand Filter	Type		
Reserve area located (see site plan):	Yes		No

Ground cover requirements: See Attached – "Suitable Vegetation for Wet Soils..." AS1547-1994

Soil Type (from soil maps etc.):

Climate			
Annual Rainfall:	CAPE TRIBULATION	Mean BOM values	
Annual Potential Evapotranspiration:	CAPE TRIBULATION	Mean BOM values	
Annual Mean Evaporation Rate:	CAPE TRIBULATION	Mean BOM values mm/day	
General Comment: (rainfall intensities, seasonal variation etc.)			

Intended Water Supply Source			
Public supply		Rainwater collection	X
Dam		Bore/well	
Other			

Environmental Concerns:	
(eg. Native plants intolerant of phosphorous load, high water table, swamp, waterways, etc.)	NO

Site Stability			
Is expert evaluation necessary?	YES		NO
If NO, why not?	Flat		Stable Site
If YES, attach stability report and give details here of:			
Author:			
Company/ Agency:			
Date of Report:			

Drainage Controls			
Depth of permanent water table: >1.5m	Winter mm		Summer mm
	NOT FOUND AT EX DEPTH	X	
Need for ground water cut-off drains? See drawings	YES		NO
	YES	X	NO

SUBSOIL INVESTIGATION

Soil Profile Determination

Method:

Falling Water Test	
Pit	
Permeameter	X
Other (specify):	

Estimated Soil Category:

Soil Category

1
2
3
4
5
6

Description	Tick
Gravels and sands	
Sandy Loams	
Loams	
Clay loams	4
Light clays	
Medium to heavy clays	

Reason for placing in stated soil category: Visual and Texture test, percolation

(DIR) recommendation:

(DLR) recommendation

Secondary	25
Primary	N/A
Secondary	20

GENERAL COMMENTS

Need for Groundwater Quality Protection:

YES

NO

X

Evaluator's preliminary assessment of minimum Land Application Area for the site

(comprising absorption area, space between and surrounding the absorption area elements, setbacks and the reserve area).

Septic trench absorption:		See Drawings
Evapotranspiration:	X	See Drawings
Irrigation Field:		See Drawings
Mound:		See Drawings
Other		

Design Considerations

Any specific environmental constraints?

Any specific public health constraints?

Yes

No

X

Yes

No

X

Results of consultation with other interested parties (neighbours, environmental agencies, local environmental groups, etc.)

YES

NO

X

Other comments:

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LOCAL GOVERNMENT
AREA:

DOUGLAS SHIRE

COUNCIL CONDITIONS OF PERMIT FOR ON-SITE SEWERAGE FACILITIES

(To be completed by Owner at Application Stage)

WAPD

SITE ADDRESS STAGE 3 - CABINS - LOT 7 CAMELOT CLOSE, CAPE
TRIBULATION

RP: 738266

MAKE & MODEL NO. OF SEWERAGE TREATMENT FACILITY:

I/ We

being the owner/s of the above property do hereby confirm that:

- i. I/We hold a **Maintenance Contract** for the servicing and maintenance of the above facility with a Council approved servicing agent and will continue to renew this contract as and when the existing contract expires;
- ii. I/We have been issued with the **Operating and Maintenance Guidelines / Instructions** for the above facility;
- iii. I/We realise that the Sewerage Treatment Facility and Disposal Area located at the above address has been designed to cater for a dwelling as follows;

Number of bedrooms in the house

2

Maximum daily flow for entire house (litres)

750

Number of equivalent persons

5

- iv. I/We have been made aware of any reduced flow fixtures/ facilities that must be installed (and maintained) as specified in the site evaluation report/ design.
- v. I/We understand that contact with effluent can present serious health risks to frail and elderly persons, infants, persons with a history of chronic hepatitis, persons who are immunocompromised, persons with cystic fibrosis etc. I/We will take appropriate measures to restrict access to the disposal area by the above-mentioned people.
- vi. I/We understand that as owner, I/we have the following obligations:
 - a) All occupiers/ users of an on-site facility must be provided access to the manufacturers/ facility builder's operation and maintenance instructions,
 - b) Operation and maintenance procedures are to be undertaken to a regular schedule in accordance with instructions. (On site facilities may fail if not operated and maintained correctly),
 - c) Continuity of operation and maintenance is to be maintained throughout changes of ownership, occupancy or changes in use or development of the site,
 - d) Paying to Council the relevant Annual Licence Fee as determined by Council (to cover the cost of maintaining records and randomly inspecting installations).
- vii. Inspection reports are required to be provided to council every three (3) months unless a less frequent inspection regime is recommended in the Department of Natural Resources & Mines System Approval;
- viii. All future pools, buildings, driveways, bores and the like will remain the required set back distance away from the effluent disposal area.
- ix. I/We will ensure that any defective part of the on-site sewerage facility is repaired or replaced within 24 hours of written notice from Council that the facility is defective, or will have finalised any temporary arrangements to the satisfaction of the Senior Plumbing Inspector.
- x. I/We understand that effluent must not come in contact with edible fruit & vegetables.
- xi. I am aware that council may approve a request for dispensation (if required) for set-back distances that would allow an All-Purpose Septic Tank to be installed on this property.

Note: - If an All Purpose/ Septic Tank has been installed, Sections i), ii), vi) (d) & vii) above are not applicable

OWNER:

GDUB HOLDINGS - GRAHAM WILLIAMS

Owners Signature/s:

Date:

(To be completed by the LICENCED INSTALLER of the on-site sewerage facility on completion of the installation)

COMPLIANCE CERTIFICATE FOR
ON- SITE SEWERAGE FACILITIES
BY THE INSTALLER

Date : 13/09/2025
JOB: 17611
SITE: STAGE 3 - CABINS - LOT 7 CAMELOT CLOSE, CAPE TRIBULATION
OWNER: GDUB HOLDINGS - GRAHAM WILLIAMS

RP/SP: 738266
PERMIT REFERENCE:
LOCAL GOVERNMENT AREA: DOUGLAS SHIRE

MAKE MODEL NO OF FACILITY:

I, as installing contractor certify and accept all responsibility, that the on site sewerage facility and land application area for the above property has been installed in accordance with the approved on site design and the requirements of the Plumbing and Drainage Act 2018, Queensland Plumbing and Wastewater Code and AS/NZS 1547:2012 and any additional requirements specified on the approval by the Council. The on-site sewerage facility / land application area has been installed by an appropriately qualified person in accordance with clause 3.5 of the AS/NZS 1547:2012 whose details are as follows

Qualified Installer Details:

Name:
Address:
Phone:
Fax:
Mobile:
Drainers licence No:
Plumbers licence No:
QBSA Licence No:

SIGNED:

NAME:

CLIENT: GDUB HOLDINGS – Graham Williams
#17611 - LOT 7 CAMELOT CLOSE
CAPE TRIBULATION, QLD 4873
RP 733181

APPENDIX M

STAGE 3 – CABINS

OWNER'S MANUAL

Soiltest.biz

JOB No 17611
CLIENT GDUB HOLDINGS - C/O-WILDPLAN
SITE STAGE 3 - CABINS - LOT 7 CAMELOT CLOSE, CAPE TRIBULATION

OWNER: GDUB HOLDINGS - GRAHAM WILLIAMS

MANUAL WASTE WATER MANAGEMENT (OWNER COPY)

The system has been designed for effluent usage of

750 litres/day maximum.

Excess usage may lead to failure of the system.



AEN 49 290 204 480

22 Templeton St.
Gordonvale, QLD 4865
Australia

Ph. +61 7 4056 6324
test@soiltest.biz

Singapore, NZ, London

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ON-SITE DOMESTIC WASTEWATER SYSTEM CONSTRUCTION, OPERATION AND MAINTENANCE REQUIREMENTS

DESIGN ASSUMPTIONS FOR SEWERAGE LAND APPLICATION AREAS (LAA)

The on site domestic wastewater system has been designed assuming a maximum life of 15 years without replacement or reworking therefore the following design assumptions **MUST** be followed.

1. That standard water reduction fixtures such as dual flush 11/5.5 litre water closets, shower flow restrictors, aerator faucets (taps) have been fitted to all fixtures and water-conserving automatic washing machines, **NO GARBAGE GRINDERS**.
2. Low phosphorus detergents, low sodium detergents and biodegradable soaps are used in the system.
3. **LAA MUST be fully DENSELY planted by either the owner or plumber, with recommended vegetation and grasses, PRIOR to commissioning the system. Planting must be maintained by pruning and replacement on a regular basis. The LAA has been designed assuming planting is in place.**
4. Inundation of the LAA by rain and /or surface drainage may lead to temporary or permanent failure of the LAA. Keep all surface water cut off drains clean and operational. Surface water cut off drains are to be placed to the high edge and sides of LAA, and to be graded away from the lower edge.
5. Durable metal warning signs are required on each side of an irrigation area LAA, and are to read, **“WARNING RECLAIMED EFFLUENT DO NOT DRINK” and “DO NOT DIG BURIED EFFLUENT PIPES” and “NO VEHICLE ACCESS”**.
6. Evapotranspiration and absorption LAA's do not require signs.
All LAA's shall not allow vehicle access.
7. For maintenance, Gypsum must be added to the top of the completed LAA, to replenish the Gypsum originally added, at the rate of 0.5kg/m² at intervals not exceeding 24 months (if town and low salts water is used). If bore water or high dissolved salts water is used apply Gypsum at the rate of 0.1 kg/m² on a monthly interval to the top of the LAA.
8. For above ground sprinkler systems. Sprinkler heads must be moved regularly to prevent local ponding and saturation.

ON-SITE DOMESTIC WASTEWATER SYSTEM CONSTRUCTION, OPERATION AND MAINTENANCE REQUIREMENTS

1. ADVICE TO HOME OWNER/OCCUPIER ON USE OF THE SYSTEM.

For the on-site wastewater system to work efficiently, there are some good habits to encourage and some bad habits to avoid.

A. In order to reduce sludge building up in the tank:

1. Scrape all dishes to remove fats, grease, etc. before washing;
2. Keep all possible solids out of the system;
3. **DO-NOT USE A GARAGE GRINDER** unless the system has been specifically designed to carry the extra load;
4. **DO-NOT** put sanitary napkins and other hygiene products into the System.

B. In order to keep the bacteria working in the tank and in the land-application area.

1. Use bio-degradable soaps;
2. Use a low-phosphorus detergent;
3. Use a low-sodium detergent;
4. Use detergents in the recommended quantities;
5. **DO-NOT** use powerful bleaches, whiteners, nappy soakers, spot removers and disinfectants;
6. **DO-NOT** put chemicals or paint down the drains.

C. Conservation of water will reduce the volume of effluent requiring disposal to the land-application area, making it last longer and improving it's performance. Conservation measures include:

1. Installing standard water reduction fixtures such as dual flush 11/5.5 litre water closets, shower flow restrictors, aerator faucets (taps) fitted to all fixtures and water-conserving automatic washing machines. **NO GARBAGE GRINDERS;**
2. Taking showers instead of baths;
3. Only washing clothes when there is a full load of washing;
4. Only using the dishwasher when there is a full load to be done.

NOTE: Avoid overloading the system by spacing out water use as evenly as possible.

ITEMS: Do not do all the washing on one day.
Do not run the washing machine and dishwasher at the same time.

ON-SITE DOMESTIC WASTEWATER SYSTEM CONSTRUCTION, OPERATION AND MAINTENANCE REQUIREMENTS

2. ADVICE ON MAINTENANCE

A. The primary wastewater-treatment unit (septic tank) will need to:

1. De-sludge regularly i.e. every three to five years or when scum and sludge occupy 2/3 of the volume of the tank (or the first of a two stage system).
2. Protect from vehicles.
3. Clean out the grease trap regularly.
4. Keep the vent and/or access cover of the septic tank exposed.
5. Inspect outlet filter and clean regularly.

B. The Land Application Area (LAA) needs protection as follows:

1. No vehicle or stock should be allowed on trenches or beds;
2. Deep rooting trees or shrubs should not be grown over absorption trenches or pipes;
3. The surface water interceptor drains around the LAA should be kept clean to reduce absorption of rainwater into trenches or beds;
4. Keep grass mowed and plants pruned to ensure that these areas take up nutrients with maximum efficiency. Replace plants or prune severely when plants reach maturity. Remove prunings and grass clippings from the LAA.

C. Check equipment and:

1. Follow the manufacturers instructions for the maintaining septic tank filters:

3. ADVICE ON OPERATION PROBLEMS

Problems can occur with systems which have not been maintained and where absorption areas have become blocked or clogged. The warning signs are obvious.

1. Absorption field is wet or soggy with wastewater ponding on the surface of the ground.
2. There is a smell of “**sewage**” near the septic tank or absorption areas;
3. The drains and toilets run slowly;
4. The grease trap (if applicable) is full or blocked;

ON-SITE DOMESTIC WASTEWATER SYSTEM CONSTRUCTION, OPERATION AND MAINTENANCE REQUIREMENTS

4. ADVICE ON THE CONSEQUENCES OF FAILURE

A failed septic tank and land-application system is a serious environmental hazard and can lead to.

1. Spread of infectious diseases;
2. Breeding of mosquitoes and attraction of flies and rodents;
3. Nuisance and unpleasantness;
4. Pollution and infection of waterways, beaches, streams;
5. Contamination of bores, well, and groundwater;
6. Alteration of local ecology.

5. ADVICE ON HOME OWNER/OCCUPIERS RESPONSIBILITIES

Homeowners and occupiers are legally responsible to keep their on-site wastewater system in good working order. If any of the warning signs in section 3 are evident, the homeowner or occupier must take steps to rectify the situation as quickly as possible.

ON-SITE DOMESTIC WASTEWATER SYSTEM CONSTRUCTION, OPERATION AND MAINTENANCE REQUIREMENTS

GENERAL NOTES:

1. SOILTEST.BIZ will not be liable for failure of any system if our design is not constructed in strict accordance with the drawings and if inspections are not carried out by SOILTEST.BIZ at the base of the LAA and when complete.
2. Restrict access to vehicle traffic to LAA no larger than ride on mowers.
3. Refer to Operation & Maintenance notes.
4. Owner is to be informed of their obligations for maintenance of system.

CONSTRUCTION NOTES:

1. If unforeseen ground changes occur at the base of the excavation of trenches plumber is to contact SOILTEST.BIZ immediately.
2. The base of trenches and evapotranspiration areas must remain level and have GYPSUM applied at a rate of 1KG/ M2 if clays are encountered at the base of the LAA.
3. Surface water interceptor must be constructed accordance with drawings to reduce storm water ponding. (See 'Design Assumptions' pg.2; item 4).
4. **Land Application Area (LAA) MUST be fully and DENSLY planted by either the owner or plumber with recommended vegetation and grasses PRIOR to commissioning the system. Planting must be maintained by pruning and replacement on a regular basis. The LAA has been designed assuming planting is in place.**
5. Durable metal warning signs are required on each side of an irrigation area LAA, and are to read, **"WARNING RECLAIMED EFFLUENT DO NOT DRINK" AND "DO NOT DIG BURIED EFFLUENT PIPES" AND "NO VEHICLE ACCESS"**.
6. Evapotranspiration and absorption LAA's do not require the above signs. All LAA's shall not allow vehicle access. See 'General Notes' above.
7. Pump discharge lines to be fitted with non-return valve as close as practical to the outlet of the pump.
8. Lateral drainage lines are to be installed level or following contours.
9. Distribution boxes installed on a level base of 100mm of concrete and 75mm min. below outlet of the septic tank. Distribution boxes to be fitted with a baffle suitable for pump discharge.
10. Trench moulds to be fitted with end caps and spreaders at 1500 centres.
11. Warning tape to be placed over effluent lines.
12. Base of the LAA is to be excavated by a machine with raker teeth. Tyne base to 200mm deep and place Gypsum at the rate of 1kg/m2 to the base in clay soils.
13. **Spray irrigation** sprinklers are to be spaced evenly. Sprinklers are to produce at the outlet of the pump a large droplet spray no more than 600mm high and 2000mm in diameter. A 150-200um strainer is to be fitted to the pump line prior to LAA.
14. **Subsurface irrigation systems** - provide non-return valves at the pump line near the distribution valve (K rain valve or similar). Provide 25mm ball valve to the end of each lateral to enable flushing of the line. An air admittance device is to be installed in the position indicated to prevent debris being drawn into the line by syphoning. A pressure-reducing valve is required on the pump line prior to the LAA.

**ON-SITE DOMESTIC WASTEWATER SYSTEM
CONSTRUCTION, OPERATION
AND MAINTENANCE REQUIREMENTS**

LAND APPLICATION AREAS (LAA)

**PLANTING FOR EVAPO-TRANSPIRATION/ ABSORPTION
SYSTEMS**

Plant species that have shallow root and high water uptake such as; Condamine couch; *Iomandra longisolia* folia; Mondo grass; Canna Lily, Bananas (see planting species list attached).

PLANTING FOR SPRAY IRRIGATION SYSTEMS

Do not use grass on spray irrigation systems due to non-control of use and access. Instead, plant beds with flowers and plants, bushes etc. as per attached plant list. Grasses such as Vetiver grass is satisfactory and is deep rooted and high PH tolerance. This grass helps prevent erosion due to its root structure. Provide mulch to all beds such as Earthgrow (primarily composted bark and cow manure). Ensure mulch does not have too many fines. Hardwood chips are satisfactory. Apply Gypsum at the rate of 0.25kg/m². Keep irrigation even, young plants may require supplementary watering. Use automated intermittent watering allow the top 50mm to dry out prior to reapplying.

PLANTING FOR SUBSURFACE IRRIGATION SYSTEMS

Grasses as per attached list and plant species that have shallow root and high water uptake such as; Condamine couch; *Iomandra longisolia* folia; Mondo grass; Canna Lily, Bananas, heliconias, (see planting species list attached). Provide minimum of 100 mm mulch to all beds, covering pipe work with 100 mm minimum such as Earthgrow (primarily composted bark and cow manure). Ensure mulch does not have too many fines. Hardwood chips are satisfactory. Apply Gypsum at the rate of 0.25kg/m².

APPENDIX C
SUITABLE VEGETATION FOR WET SOILS
(Informative)

C1 SCOPE This appendix sets out suitable vegetation for growing in wet soils, e.g. on evapotranspiration beds and areas.

C2 TYPES OF VEGETATION

a) Climbers

Bougainvillea
Hardenbergia
Hibbertia scandens

Kennedia
Lonicera japonica
Pandorea jasminoides

b) Grasses

Buffalo

Kikuyu

c) Ground Cover

Acanthus mollis
Coprosma x kirki

Liriope muscari
Ophiopogon

d) Perennials

Agaphanthus preaecox
Astor novi-belgii
Canna x generalis
Chrysanthemum maximum

Gazania x hybrida
Salvia x superba
Stokesia laevis
Viola hederacea

e) Shrubs

Abelia x grandiflora
Acacia longifolia
Callistemon citrinus
Cassia bicapsularis
Ceratostigma
Chaenomeles lagenaria
Correa alba
Cotoneaster glaucophyllus
Cotoneaster lacteus
Cotoneaster pannosus
Cuphea ignea
Euonymus japonicus
Euphorbia millii

Euphorbia pulcherrima
Hebe speciosa
Jasminum mesnyi
Jasminum officinale 'Grandiflorum'
Jasminum polyanthum
Lantana camara (cultivars only)
Lantana montevidensis
Leptospermum flavescens
Nerium oleander
Plumbago auriculata
Pyracantha fortuneana
Thunbergia alta
Westringia fruticosa

f) Trees

Angophora costata
Banksia integrifolia
Callistemon salignus
Callistemon viminalis
Casuarina glauca
Casuarina stricta
Eucalyptus botryoides
Eucalyptus robusta
Hakea salicifolia
Hakea saligna

Leptospermum laevigatum
Leptospermum petersonii
Melaleuca armillaris – Sandy soil
Melaleuca linariifolia – Clay soil
Melaleuca quinquenervia – Sandy Soil
Melaleuca styphelioides – Clay soil
Nyssa sylvatica
Photinea x fraseri 'Robusta'
Tristanopsis laurina

ON-SITE WASTE WATER SYSTEM OPTION CHECK SHEET.

Print out and compare your options.

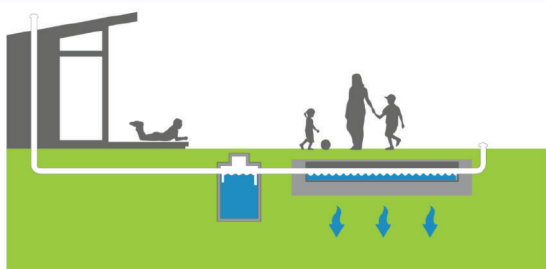
WHICH SYSTEM IS BEST FOR YOUR FAMILY		Advanced Secondary	Primary	Advanced Secondary	Advanced Secondary	
The System that you choose to treat your families sewerage is a very important. Failure to take the time to educate yourself on the best options available will have a major impact on your family budget for many years to come. Apply these questions to the system you are considering. Then you will at least make an informed decision before you sign up to a costly long term obligation.		Score your preferred waste water system	AES Advanced Enviro-septic Gravity System.	Conventional septic system	Sand Filter	AWTS Aerated Waste water System
1	Which System is approved by Councils if site and soil conditions permit?		✓	✓	✓	✓
2	Which system has been tested and approved by 3 internationally accredited Standards Regulators to be safe for the protection of family health and the environment?as per AS1547:2012 & Queensland Plumbing and Waste water code.		✓	✗	✗	✗
3	Which system can treat your waste water to the Safest Standard recognised by Australian Standards 1547-2012 (Advanced Secondary)?		✓	✗	✓	✓
4	Which System provides a 20yr manufacturers warranty for all componets		✓	✗	✗	✗
5	Which system has been proven to operate for 20yrs without failure or cost to the homeowner other than septic pump out every 5 years if required.		✓	✗	✗	✗
6	Which System achieves the Highest standard of waste water treatment without the need for electricity. Some systems use up \$800 worth of electricity per year.		✓	✗	✓	✗
7	Which system does not require you to enter into a contract for a long term obligation with the supplier for servicing of the system.		✓	✓	✗	✗
8	Which System does not require servicing and possible expensive repalcement parts 4 times per year. (minimum cost \$ 300.00)		✓	✓	✓	✗
9	Which System does not give rise to call outs that can cost \$175 or more. (How much is the call out charge for the system you are considering?)		✓	✓	✓	✗
10	Which system is not at risk of sudden failure if Sanitary items / nappy wipes are accidentally flushed down the toilet? (It is important to look after your system by referring to each home owners manual)		✓	✓	✗	✗
11	Which system is not at risk of failure if you go on hoildays for as little as a week.		✓	✓	✓	✗
12	Which System continues to function and treat your effluent even during a power blackout.		✓	✓	✓	✗
13	Which systems advanced secondary biological treatment process does not fail if the Blower fails?		✓	✓	✓	✗
14	Which system does not require expensive pumps with limited warranty that need replacement on a regular basis. (How much does a replacement pump cost? Ask if you replace a pump to save money is your warranty void?)		✓	✓	✓	✗
15	Which system does not require expensive blowers (aerators)that run 24 hrs per day? (Electricity cost for AWTS can be as high as \$800/year - Source - New Zealand Government testing Authority)		✓	✓	✓	✗
16	Which system does not require expensive and complicated electronic controllers with limited warranty. (you must purchase replacement controllers from the supplier otherwise it voids your warranty? They can cost up to \$900 plus install**)		✓	✓	✓	✗
17	Which System does not require harmful chemicals (Chlorine) to allow disposal on your property(if suitable for septic.)		✓	✓	✗	✗
18	Which system does not suffer from progressive failure or blockage of subsurface irrigation or sprinklers? (caused by Suspended solids) ?		✓	✗	✗	✗
19	Which System contains and promotes the active bacterial biomat with in the system preventing Suspended Solids from blocking the soil.		✓	✗	✗	✗
20	Which system can be installed by your local licenced plumber if he is certified? (AES training & certification is free for licenced plumbers). No exclusive installers.		✓	✓	✗	✗
21	Which System allows you to get mutiple quotes from qualified installers for the same product ensuring you are getting the best value for the system?		✓	✓	✗	✗
22	Which System protects you , the consumer from large unexpected bills when a componet fails?		✓	✓	✓	✗
23	Which System does not use above ground irrigation to dispose of effluent. (If a system is not working correctly, how do you know that they spray is not contaninate with viral and other potential heath risks.)		✓	✓	✓	✗
24	Which system allows you to use your current septic tank (if the number of bedrooms do not change) to replace a failed septic system and improve the quality of effluent treatment on your property		✓	✗	✗	✗
25	Which System has a high tolerance of antibiotic impact. (antibiotics kill the bacteria that treats your effluent. AWTS systems are especially susceptible due to the very small and confined baterial treatment area.)		✓	✓	✓	✗
26	Which system can be used on small blocks of land if the soil and house size permits? (Check how many m2 a system will need)		✓	✓	✓	✓
27	Which System allows you to prepare family meals and wash grease and oil down your sink without effecting the operation of the system or causing failure.?		✓	✓	✓	✗

WHAT IS ADVANCED ENVIRO-SEPTIC (AES)?

Advanced Enviro-Septic (AES) is an innovative onsite wastewater treatment facility, that is passive, non-mechanical and does not use pressure distribution. AES utilises natural micro-biological process to purify the wastewater to a higher standard effluent.

Advanced Enviro-Septic facilities are available in both secondary and advanced secondary models. AES facility can be built as a complete new system or as a replacement for failing traditional septic trenches or Aerated Wastewater Treatment Systems (AWTS).

HOW DOES ADVANCED ENVIRO-SEPTIC WORK?



Back to the Future Wastewater Treatment

1. The wastewater (both black and grey water) leaving the house goes into the septic tank for the primary treatment (separation of solids from the liquid).
2. After the primary treatment, the wastewater enters the AES treatment facility for passive micro-biological treatment. Natural air circulation through the low and high vents increases bacterial efficiency and the system sand surrounding the pipes, wicks liquid and enables air transfer to the bacterial surface.
3. After the required treatment, effluent will now safely infiltrate into the underlying soil protecting the environment and your family.

WHY IS ADVANCED ENVIRO-SEPTIC BETTER?

The AES facility has been around for over 20 years and more than 300,000 systems have been installed worldwide. Unlike the conventional septic trench systems, Advanced Enviro-Septic treatment facility retains micro suspended solids within the pipe system and provides multiple bacterial surfaces to treat effluent prior to release into the soil. Thus, the disposal interface with the natural soil is always clean and protected, and it stops the formation of clogging layer.



COST SAVINGS

- The AES system does not have expensive air blowers, membranes and pumps that require quarterly servicing and maintenance. This could save you thousands of dollars annually.
- The AES system does not require power. This could potentially save you up to \$800 in running cost

DESIGN FLEXIBILITY

- The AES system is scalable and can be designed to suit required daily design volume.
- The AES system can be installed in most site and soil conditions.
- Design flexibility allows the use of Absorption or ETA or Mound options.
- Requires less disposal area compared to surface irrigation options.

RELIABILITY

- The AES system can handle occasional shock loads.
- No owner intervention is needed for daily operations.
- The AES system can handle low/no flow periods without needing to restart the system.

WHAT TO DO NEXT

First step is to engage with a qualified AES site and soil evaluator to perform site evaluation and wastewater design report.

You can insist that you would prefer a passive system like the Advanced Enviro-Septic rather than expensive and costly treatment plants. Remember, you have a choice on which system you would like to have.

Once the council approval has been obtained, Installation can be undertaken by an AES certified installer.

Give us a call, we are here to help you.

Chankar Environmental Pty Ltd is the authorised distributor of Advanced Enviro-Septic products in Australia.

Head Office:
Advanced Enviro-Septic
4/100 Rene Street
Noosaville QLD 4566

National Distribution:
(07) 5474 4055
www.enviro-septic.com.au
info@enviro-septic.com.au





**ADVANCED
ENVIRO-SEPTIC™**
"Always The First Option"



HOME OWNERS MANUAL

HEAD OFFICE

Chankar Environmental Pty Ltd
62 Rene Street
Noosaville QLD 4566

(07) 5474 4055

www.enviro-septic.com.au
info@enviro-septic.com.au

Important Security instructions



It is extremely dangerous even potentially deadly to open a septic tank, pumping station or any enclosed space that is part of a wastewater treatment system. This work must be done by a person trained in enclosed space working and rescue procedures who has the necessary equipment.

The action of the bacteria on the organic matter present in the wastewater produces gases such as carbon gas (CO₂), methane gas (CH₄) and sulphuric hydrogen (H₂S). The H₂S present in the septic tank or a pumping station can cause the death of an individual in a matter of minutes. This is why this work must be left to competent personnel.



Pipes are buried near your septic installation. Please speak to your contractor or the technical service of Advanced Enviro-Septic™ in order to take all the necessary precautions prior to digging or undertaking excavation jobs near your septic system.



Please be sure that the covers of the septic tank, the pumping station, and the sampling device are always in place and that they remain accessible at all times for periodic inspections and interventions when necessary.

Advanced Enviro-Septic™ U.S. Brevet nos. 6,461,078; 5,954,451; 6,290,429; 6,899,359; 6,792,977; 7,270,532 and 5,606,786. Other patent pending.

Enviro-Septic® is a trademark of Presby Environmental, Inc. Advanced Enviro-Septic™ is a trademark of Presby Environmental, Inc. Bio-Accelerator^{MC} is a trademark of Presby Environmental, Inc.

Table of Contents

Introduction	4
The purpose of this document	4
Designation of the Enviro-Septic System	4
Definition of the Enviro-Septic System	5
What to do if a problem occurs?	5
Customer service and Technical support information	5
Certified Contractor	6
Enviro-Septic System Capacity	6
Residential Wastewater	7
Warranty certificate	8
Functioning of the Enviro-Septic System	8
Treatment process of the Enviro-Septic system	8
Diagram of the Enviro-Septic chain of treatment	9
Diagram of the Enviro-Septic system	1
Enviro-Septic System Components	11
Operating the Enviro-Septic System	12
Initial Use	12
Intermittent Use or Prolonged Absences	12
Enviro-Septic System Operating Instructions	12
Wastewater Volume	12
In the bathroom	13
In the kitchen	13
For the laundry	13
Elsewhere in and around the house	13
Chemicals for septic installation	14
Ventilation	14
Heavy machinery and motorized vehicle traffic	14
Vegetation	14
Enviro-Septic System Maintenance	15
Distribution box and flow equalizer	15
Advanced Enviro-Septic System Pipe Rows	16
Elements of the Enviro-Septic System installed in the ground	17
Elements of the Enviro-Septic System appearing above ground	17
Embankment surface above the Enviro-Septic System	18
Owners Responsibilities	19
What to do if water level is high	20
Appendix A - Presby Twenty Year Limited Warranty	21
Appendix B – Information Specific to Your Treatment System	22
Appendix C – Register of the Septic Tank Maintenance	23

User's Guide – Advanced Enviro-Septic

Introduction

Thank you for choosing the Advanced Enviro-Septic System for your septic installation. This system was developed to efficiently treat domestic wastewater. Instructions must be followed in order to maintain its treatment performance so that you can make use of it for many years.

Carefully read through this entire document and retain it in your files for future reference.

The purpose of this document

This user guide explains the proper use, procedures and inspections required in order to ensure the proper operation of your Advanced Enviro-Septic System for residential wastewater treatment.

It is the owner's responsibility to ensure that the system is used properly and according to its treatment capacity. It is also their responsibility to respect the rules and regulations in effect regarding associated council and government regulations.

Designation of the Enviro-Septic System

Name: Advanced Enviro-Septic™ Wastewater System

Application Domain: Residential Wastewater (sewage).

Class and treatment type: The Enviro-Septic system meets all the performance criteria requirements of both the Australian standard AS/NZS 1546.3: 2008, and the Queensland Plumbing and Wastewater Code: 2011 (for both Secondary and Advanced Secondary treatment)

The system cannot be used to treat wastewater to make it consumable. It is made to treat residential wastewater to an acceptable level for it to be reintroduced into the environment.

User's Guide –Enviro-Septic

Definition of the Advanced Enviro-Septic System

The Enviro-Septic system is composed primarily of two inseparable components: the rows of Advanced Enviro-Septic™ pipe and a layer of system sand.

The Enviro-Septic system must be preceded by a septic tank and a wastewater distribution device. The treated water is drained directly into the soil beneath the treatment system through a soil absorption system.

What to do if a problem occurs?

If in the course of normal use of your septic system you notice any of the following problems:

- presence of abnormal odours in the house, around the septic system or emanating from sources of drinking water,
- abnormally wet soil, presence of persistent puddles or odours in the area of the septic tank or the Enviro-Septic system,
- slow flushing toilets or other plumbing in the home,
- presence of abnormally abundant vegetation on the surface or around the septic tank or the Enviro-Septic system installation,
- flooding in the area where the Enviro-Septic system is installed,
- erosion of the land fill on or around the Enviro-Septic system,
- alarm from the pumping station if such a device is part of your installation...

...immediately contact your contractor.

Customer service and Technical support information

Please do not hesitate to contact us if you need further information.

We can be contacted at the following coordinates:

Telephone: (07) 5474 4055

Fax: (07) 5335 1691

Email: info@enviro-septic.com.au

Internet site: www.enviro-septic.com.au

User's Guide –Enviro-Septic

Certified Contractor

The Enviro-Septic System must be installed by a licensed contractor. Certified by Chankar Environmental. Certification is obtained by attending the online "Enviro-Septic Contractor Certification Course". The Advanced Enviro-Septic™ customer service can provide the name of contractors having the proper certification to install Enviro-Septic Systems.

Enviro-Septic System Capacity

The capacity of the Enviro-Septic System depends on two elements:

- The number of Enviro-Septic Pipes
- The capacity of the underlying soil to evacuate the treated water.

Tables 1 and 2 present the capacity of each system in relation with the number of pipe installed for a 1 to 6 bedroom residence or other building with a daily flow of 1800 L/d or less. The total volume of wastewater fed to the system must not be more then what is shown in the table.

The system may also be limited by the capacity of the underlying soil to permit the infiltration and evacuation of wastewater. This value should be evaluated by the designer mandated to create the plans and estimates for your septic installation. It is, therefore, important to verify with the designer if the capacity of the soil permits complete infiltration and evacuation of the maximum amount of water able to be treated by the pipes installed.

Number of Advanced Enviro-Septic Pipes (3.0 m each)	Total Length of Advanced Enviro-Septic Pipes (m)	Maximum Daily Flow (L/d)
4	12	360
5	15	450
6	18	540
7	21	630
8	24	720
9	27	810
10	30	900
11	33	990
12	36	1080
13	39	1170
14	42	1260
15	45	1350
16	48	1440
17	51	1530
18	54	1620
20	60	1800

Table 1
Enviro-Septic hydraulic capacity based on the number of pipes installed

User's Guide –Enviro-Septic System

Parameters
Table 2

Testing Parameters	Advanced Enviro-Septic™ Test Results	Qld Secondary	Qld Advanced Secondary	EPA Tertiary	NSF-40 Class 1	BNQ Advanced
CBOD (mg/L)	< 2	20	10	10	< 25	<15
TSS (mg/L)	< 2	30	10	10	< 30	<15
Fecal Coliforms (CFU/100ml)	N/A ** Subsoil Installation	N/A ** Subsoil Installation	N/A ** Subsoil Installation	1000	N/A ** Subsoil Installation	50,000

Residential Wastewater Table 3 indicates the normal characteristics of raw domestic sewage.

Table 3

Parameter	Units	Raw Sewage	Septic Tank Effluent
TSS	mg/L	237-600	50-90
CBOD ₅	mg/L	210-530	140-200
Fecal Coliforms	CFU/100 ml	10 ⁶ -10 ¹⁰	10 ³ -10 ⁶

Source: Tchobanoglous and Burton (1991)

³ The hydraulic capacities shown in table 1 are the same regulation for 1 to 6 bedroom isolated dwellings (clause 1.3). The difference between the minimum number of Enviro-Septic pipe for a similar daily flow between table 1 and 2 come after different security factors that are associated with 1 to 6 bedroom house vs other types of buildings.

Warranty certificate

Advanced Enviro-Septic™ comes with a manufacturer's limited warranty. The warranty details are presented in Appendix A.

Functioning of the Enviro-Septic System

The Enviro-Septic system is a passive technology which facilitates the proliferation of the bacteria responsible for wastewater treatment. It is comprised mainly of two inseparable components: the rows of Advanced Enviro-Septic pipes and a layer of system sand.

The Enviro-Septic system must be preceded by a septic tank and a distribution box (or another method of distribution). It must also be installed over a polishing leaching field.

Treatment process of the Enviro-Septic system

The rows of Advanced Enviro-Septic pipes and system sand permit the treatment and distribution of wastewater on the surface of the receiving soil (surface of the polishing leaching field).

The pipes support, first of all, the separation of particles through flotation and decantation. The water is then evacuated through perforations situated all around the pipes and through the pores of the two layers of synthetic media covering the pipes. These membranes facilitate the fixation of the microbial cultures which support wastewater treatment as well as longitudinal distribution.

The layer of sand continues the treatment process and helps in dispersing the water before it infiltrates into the natural soil. In this way, the Enviro-Septic system integrates both functions.

Diagram of the Enviro-Septic system

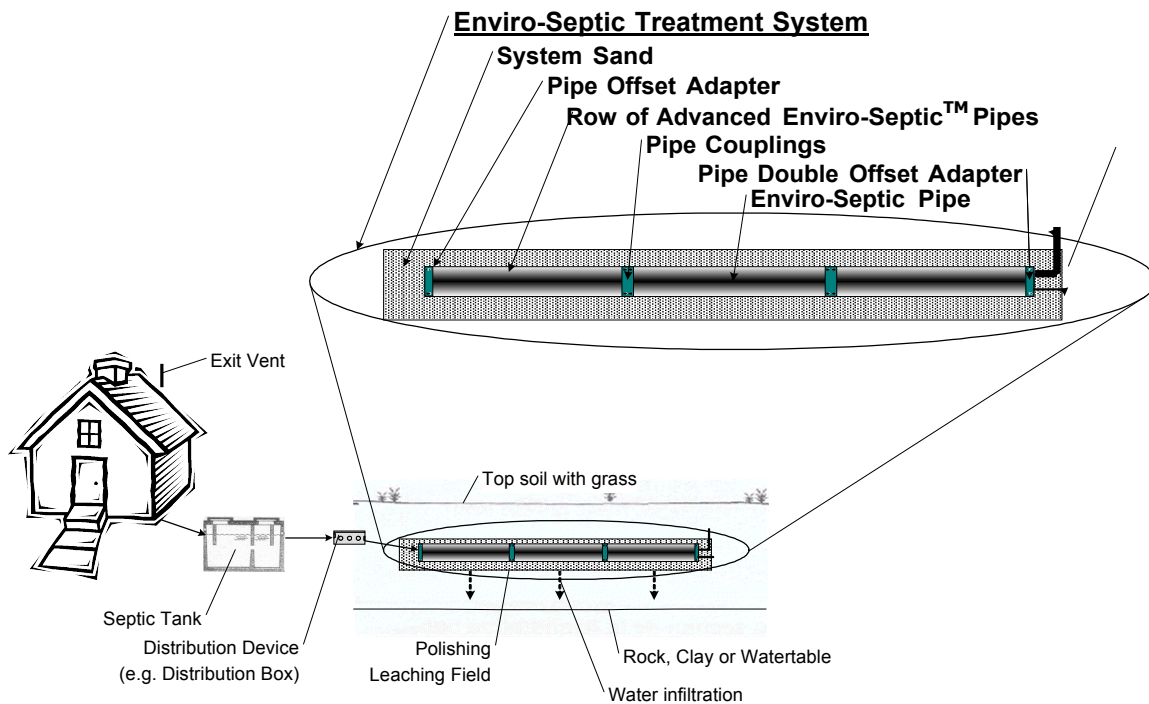


Fig. 4

Enviro-Septic System Components

Your septic installation includes several components. All of these components are parts of the chain of treatment of your installation. Table 4 presents the list of these elements. However it should be noted that some of these are only used when site conditions require them.

The table also presents a summary of inspections required for each component. More detailed information on this subject is presented in the sections that follow.

User's Guide –Enviro-Septic

Table 4 - Enviro-Septic System Components

Component of the septic system	Function	Follow-up needed	Frequency	Responsible for follow-up
Septic tank	Primary wastewater treatment	Periodic emptying	According to standards and regulations in effect	Owner is responsible to have work done by qualified person
Septic Tank Effluent Filter ⁴	Retention of solids in low pressure pumped applications.	According to manufacturer's instructions.		
Distribution systems if required for larger dual bed systems 3 options A) Gravity Dist box and flow equalizers B) Pressure distribution (feed) system C) Automatic distributing valve	Distributes the septic tank effluent to the rows of Advanced Enviro-Septic.	A) According to water level in the inspection port B) According to the manufacturer's directions. C) According to the manufacturer's directions.	A) As needed	A) Owner
Rows of Advanced Enviro-Septic Pipes.	Distribute and treat wastewater			
Sampling device	To verify the treatment performance of the Enviro-Septic System	Ensure that there is access to this device	Optional	Qualified person
Vent	To allow the circulation of air in the Enviro-Septic System	Ensure that the opening is not blocked	As needed	Owner
System sand	To complete the water treatment process and to improve the drainage	No		
Pumping station (optional)	Lift septic tank effluent to the Enviro-Septic System	According to supplier's specifications		

⁴ The effluent filter is necessary whenever the septic tank is followed by a low pressure distribution system.

Operating the Enviro-Septic System

Initial Use	At the time of installation the septic tank must be filled with clear water. If a pumping station is used, the contractor will verify that it is functioning properly at the time of installation. The home owner must make sure that there is adequate electricity to safely operate the equipment as well as the alarm component. The Enviro-Septic system is now ready for use.
Intermittent Use or Prolonged Absences	The Enviro-Septic system is a passive wastewater treatment system. When properly installed, it requires no particular attention for intermittent use or in the case of prolonged absence.

Enviro-Septic System Operating Instructions

The use and the maintenance of an Enviro-Septic System are relatively simple. In general, respecting the following rules will allow you use of your installation without problems for years to come.

Wastewater Volume	Large quantities of water that leave the house and enter the Enviro-Septic System in a short period of time could have a negative impact on the effectiveness of the treatment and the infiltration of wastewater causing agitation in the septic tank. A quantity of sludge or scum is likely to be put into suspension and be brought towards the system and the infiltration bed. You must ensure that the volume of wastewater entering the Enviro-Septic System is reasonable when compared to the total daily flow the system was designed for. After the installation, if changes are made to the residence (ex. addition of a bedroom), please contact the designer of the Enviro-Septic System. Make sure that the septic system is inspected by a qualified person to determine that it has the necessary capacity to treat and infiltrate the new daily design flow of wastewater being generated.
--------------------------	--

User's Guide –Enviro-Septic

In the bathroom

Do:

- immediately repair any leaking faucet or toilet,
- use a reasonable quantity of toilet paper.
- Minimise or avoid bleach, antiseptic disinfectants, and ammonia acids in the system

Do not :

- use disinfectant in tablet (puck) form, whether it is placed in the basin or the tank,
 - throw cigarettes, cigarette butts or medication in the toilet,
 - throw paper towels, paper napkins or other personal hygiene products in the toilet.
-

In the kitchen

Do:

- repair any leaking faucet,
- use dish soap or dishwasher soap that is low in phosphate (0 to 5%),
- use the necessary quantity of soap to do the work. Take note that the necessary quantity is often less than suggested by the manufacturer.
- use biodegradable soap, low-phosphorus or phosphorus free detergents.

Do not :

- use a food waste disposal unit in your sink that is connected to your septic installation. If you do have a waste disposal unit, your septic tank may require more frequent pump out to remove sludge build up
 - dispose of vegetables, meats, fat, oil, coffee beans, citrus products or other products into the septic system.
-

For the laundry

Do:

- use phosphate free detergent, preferably in liquid form. If it is not possible, use biodegradable powder detergent,
 - use the necessary quantity of soap to do the work. Take note that the necessary quantity is often less than that suggested by the manufacturer,
 - minimize the volume of water used for the laundry according to the quantity of clothing to wash,
 - if possible spread your loads of laundry throughout the week
 - prevent harsh chemicals or products entering the system (eg. paint, nappies)
-

Elsewhere in and around the house

Do:

- divert drainage and rain water away from the surface of the Advanced Enviro-Septic System.
- All vents should be mosquito-proofed to prevent mosquitoes from breeding in the tank.
- Roof and surface water should be redirected away from absorption trenches.

Do not :

- discharge water softener backwash into your septic system,
 - discharge any water from swimming pool filters, spas or other appliances that discharge chlorinated water into your septic system.
-

User's Guide –Enviro-Septic

- let water from sump pumps, roof drains (gutters) and drainage pipes. pipes discharge into the septic system,
 - dispose of solvents, paints, antifreeze, engine oil or other chemicals in the septic installation. This includes water used to wash brushes or rollers that were used with latex paint (latex paint contains elements that are harmful to septic system),
 - dispose of animal litter in the septic installation.
-

Chemicals for septic installation

Your Enviro-Septic System does not require any starting chemical, cleaning or other additives. The bacteria that carry out the treatment are naturally present in raw domestic sewage. Any chemicals or additives added to the Enviro-Septic System could possibly kill these bacteria.

Ventilation

It is very important to ensure that good ventilation occurs so that the septic system functions correctly. The vent(s) installed at the ends of the septic system encourage this air circulation. It is important to make sure that the opening is not blocked and that air can circulate freely at all times. Air enters through the vent, circulates through the rows of pipes and the septic tank and travels through the plumbing of the house to exit through the roof vent.

The owner must be sure to have a roof vent and to keep it clear at all times. When a pumping station is used, a bypass pipe or an extra vent must be used to ensure proper ventilation of the system.

Heavy machinery and motorized vehicle traffic

No vehicles or heavy machinery must be driven on a septic system, whether it is before, during or after its construction. Heavy machinery or motorized vehicle traffic on the soil closes the natural pores of the soil which reduces its permeability and allows for pounding and the accumulation of water.

Vegetation

The surface of the septic system must be planted with grass. The grass must be cut regularly in order to encourage growth without the use of fertilizers. Vegetation cover contributes to the elimination of nitrogen and phosphorus.

It is important not to plant trees or other plants with invasive roots within the proximity of the septic installation (minimum distance 3 meters).

Enviro-Septic System Maintenance

Septic Tank Maintenance

The septic tank preceding the Enviro-Septic System must be pumped out regularly (every 3-5 years for normal residential use or sludge exceeds 2/3 of the tank). Verify the current regulation, or get in touch with relevant council or government authorities.

If the septic tank is not emptied regularly, an increasingly large amount of solids and grease in suspension will leave the septic tank and end up in the treatment system and in time the performance of the Enviro-Septic System may be affected.

At all times, a professional using the proper equipment must carry out the pumping out of a septic tank

The owner is responsible to ensure his septic tank is pumped out according to council regulations. This work should always be done by a qualified person since it can be very dangerous to open a septic system without first taking the necessary precautions.

Note: It is the home owner's responsibility to make sure that at all times the septic tank lids are in their proper position and securely fastened. A lid that is not installed correctly can be harmful to the operation of the Enviro-Septic System.

Pre-filter (Septic tank effluent filter)

Effluent filter equipment is not necessary at the exit of the septic tank⁵. It is mandatory when a low pressure distribution system is used between the septic tank and the Advanced Enviro-Septic pipes.

The effluent filter must be cleaned according to the maintenance and inspection procedures provided by the manufacturer.

⁵ The effluent filter is necessary whenever the septic tank is followed by a low pressure distribution system.

User's Guide –Enviro-Septic

Advanced Enviro-Septic Pipe Rows

Under normal use, the rows of Advanced Enviro-Septic pipe do not require maintenance. It is normal to find fluctuation of the water level in the pipes. If the water level reaches 260 mm, a rejuvenation of the Enviro-Septic System must be considered. A qualified person⁶ must carry out this procedure.

⁶ There may be costs related to this operation, if the problem is due to improper use of the system or due to a design or installation problem.

User's Guide –Enviro-Septic

Vent	The owner must however ensure that nothing prevents the circulation of air. There must also be a difference of at least 3 meters, at all times, between the entry vent situated at the extremity of the Enviro-Septic system and the exit vent usually located on the roof.
System Sand	There is no maintenance to be done on the system sand during normal use of the Enviro-Septic System.
Pumping station or low pressure distribution system	In certain cases, the site constraints require the use of a pumping station or a low-pressure distribution system to evenly distribute the water. The owner is then responsible to comply with the manufacturer's scheduled maintenance requirements of this equipment.
Embankment surface above the Enviro-Septic System	The surface located above the Enviro-Septic system must be covered with herbaceous vegetation. A slight slope must be given to the surface in order to help the drainage of rainwater towards the outside of the system. The grass must also be cut regularly. Finally, any depression that could be created with time must be filled in order to avoid any accumulation of water above the system and to prevent erosion.

Owner's Responsibilities

Owner's Responsibilities

The owner is responsible for:

- using the Enviro-Septic System according to the instructions presented in the user guide.
 - pumping out the septic tank according to the regulations in effect.
 - maintaining the effluent filter (if present), the pumping station, the pressure distribution system or the automatic wastewater distributing valve according to manufacturer's specifications and recording the information if this equipment is part of the system.
 - ensuring that the vent openings are clear of any obstacle.
 - providing access at all times to the Enviro-Septic system.
 - adhering to the requirements of the applicable rules and regulations, in particular with regards to the discharge standards of the system to the environment.
-

Qualified person

The qualified person that performs the maintenance or the inspection of an Enviro-Septic System is a person who was trained and certified by Chankar Environmental or has certification from Presby Environmental to perform the tasks associated with the Enviro-Septic system. Chankar Environmental trains these people to carry out the inspections of the system, perform adjustments to the equalizers and/or carry out the rejuvenating procedure.

To obtain the name of a qualified person in your area, contact our customer service department on (07) 474 4055).

For maintenance on the pumping station and the low pressure distribution system, the owner must refer to the user guide specified by the manufacturer of these systems.

The pumping out of the septic tank must be performed by a company specializing in that field. Check with your council for the companies in your area that are qualified to do this work.

Appendix A- Presby Twenty Year Limited Warranty



PRESBY ENVIRONMENTAL, INC.
INNOVATIVE SEPTIC TECHNOLOGIES

This Twenty Year Limited Manufacturer's Warranty is provided by the Manufacturer, Presby Environmental, Inc., a New Hampshire corporation having a mailing address of 143 Airport Rd., Whitefield, New Hampshire, 03598 (hereinafter called "Presby"). This Warranty applies only to Presby Products sold by or through its duly authorized distributor Chankar Environmental an Australian corporation having a mailing address of Unit 6-62 Rene St, Noosaville, Qld 4566 (hereinafter called the "Distributor"). "Presby Products" means Presby's Enviro-Septic® leaching systems and Presby Maze® with the required accessories (couplings, offset adaptor).

Warranty: Presby warrants that Presby Products are free from defect for twenty years from the date of installation but in no event more than twenty-one years from the date of manufacture. Product Defects means defects or damage to the Products caused by or occurring during the manufacturing process. This Warranty does not cover or apply to damages to the Products caused by or resulting from transit or from accident, misuse, abuse, neglect, storage, installation, repair, maintenance or from use other than normal and ordinary use of the Products. This Warranty does not apply to damages to the Products caused by or resulting from failure to install or use the Products in accordance with distributor's instructions which have been approved by Presby or failure to properly inspect and maintain the Products.

Warranty Registration, Claim Process and Remedy: Any claim under the Warranty must be in writing and received by the distributor within thirty days of the date when the facts giving rise to such claim under this Warranty become known or are otherwise discovered. The distributor must be provided with an opportunity to inspect the Products as installed. Failure to comply with these requirements renders the Warranty null and void. If, during the Warranty period, the distributor and Presby find and determine that defects in Products exist, then the distributor and Presby's sole and exclusive obligation is to either repair the Products or provide replacement Products. The distributor and Presby, in their discretion, shall determine whether to repair the Products or provide replacement Products. The distributor and Presby shall have no obligation to remove any defective Products or to install any replacement Products. The distributor and Presby shall not be liable or responsible for any other damages or claims arising from or relating to defective Products, including but not limited to claims for general, consequential, or incidental damages, lost profits, or attorney fees.

Disclaimer: The distributor and Presby otherwise make no express warranty concerning the Products and the distributor and Presby disclaims any and all warranties, express or implied. Except as stated herein, there are no warranties express or implied, and the distributor and Presby do not warrant that the goods are merchantable or fit for any particular purpose. Any claim or controversy relating to this Warranty, or to matters of place of contracting, interpretation, performance or breach thereof, shall be brought in and adjudged in accordance with the applicable laws of state of New Hampshire.

Appendix B - Information Specific to Your Treatment System

**Information on
your Enviro-
Septic System**

Installation date: _____

Contractor /Engineer: _____

Contractor: _____

Plumbing inspector: _____

Number of rows of pipes: _____

Hydraulic capacity (L/d): _____

Number of 3m pipes per row: _____

Water Distribution

- Distribution box ☐
- Wastewater distributing valve ☐

Septic tank capacity: _____

Notes

23 September 2025

ATTN: MATTHEW WARD
EMAIL: matthew@wildplan.com.au

RE: CLIENT: GDUB HOLDINGS – Graham Williams
#17611 - LOT 7 CAMELOT CLOSE
CAPE TRIBULATION, QLD 4873
RP 733181

To whom it may concern,

We have been requested to carry out an on-site visit to complete soil & septic testing and evaluation for the proposed development at Lot 7 Camelot Close, Cape Tribulation. To follow are comments on an appropriate wastewater disposal system & water supply suitable for each part of the development.

Please find attached, a copy of our On-Site Sewerage Facility – Wastewater Treatment Requirements for each stage of the development at the property and for your information and submission to Council for approval of this proposed development.

The findings of this report and the results from the percolation and soil texture tests have proved that a secondary wastewater treatment system should be utilized on this site. An example of this using an Advanced Enviro-Septic System (AES) is included in our report. A pump well may be required if falls over the site are not sufficient.

Our designs have assumed the following:

STAGE 1 – SERVICE STATION WASTEWATER – LAND APPLICATION AREA

References:

- *Appendix A – Stage 1 Wastewater Treatment Requirements*
- *Appendix B -Stage 1 – Owner's Manual*
- *Appendix C – Stage 1 – Waste Water Calculation Including Rainfall*
- *Appendix D – Stage 1 – Advanced Enviro Septic Signed Calculator*
- *Appendix E – Drawing 01 – Septic Layout Site plan*
- *Appendix F – Drawing 02 – Stage 1 – Service Station Septic Details*

A wastewater allowance of 1000L per day has been used for the design of the Land Application Area. This allows for:

3 Staff members x 2 shifts each day (6 staff members per day) = 30L per person/ day = 180L/ day

82 visitors per day utilizing facilities = 10L per person/ day = 820L/ day

ice international & Soiltest.biz

Engineers, managers, Site classifiers, Sewerage design

A.B.N. 32 791 176 930 / 49 290 204 480
QBSA 18267

22 Templeton St.,
Gordonvale Q. 4865
Australia

Page 1 of 7

Ph: +61 7 4056 6324
aust@iceint.com.au
Singapore, NZ, London

Disposal Area sizing:

The site is considered to have Class 4 soils – Measured Permeability Ksat (m/day) 0.42. For an Advanced Enviro Septic System (AE) the following calculations would be used: DLR of 20 and a daily flow of 1000 L/day, the area required would be 80 m².

Appendix D – Stage 1 – Advanced Enviro Septic Signed Calculator

In addition, an equal reserve area should be allowed for.

We have checked the size of a Land Application Area if considering using a Home Septic Treatment Plant (HSTP) – Secondary System using an irrigation area.

DLR – 25; Daily Flow – 1000L/day – LAA = 295m².

Appendix C – Stage 1 – Waste Water Calculation Including Rainfall

Taking this into consideration and the fact that the client wishes to retain as much existing foliage/ vegetation as possible, the AES Land application area will take up less area on site. There is an option of providing drip irrigation into the rainforest area, however this would need to be covered in mulch and the mulch would be required to be upkept regularly in order to avoid damage to the pipes from rats etc.

The wastewater from the service station kitchen (greywater) will require a commercial grease trap to be placed before the septic tank.

Any wastewater treatment system must comply with the current codes & regulations as well as meeting the prospective clients' economic parameters.

- AS/NZ 1547:2012 On-site domestic-wastewater management
- Queensland PLUMBING & DRAINAGE ACT
- Queensland STANDARD PLUMBING & DRAINAGE REGULATION
- Queensland PLUMBING & WASTEWATER CODE

A water table was not encountered during on site investigations however, the water table would be elevated during the wet season.

The land application area must maintain the appropriate setback from all features when installed.

Results of our calculations for sizing of disposal areas using Australian Standard 1547-2011 'Category 4 Soil' equations on the proposed service station are attached for your information.

Appendix C – Stage 1 – Waste Water Calculation Including Rainfall

Appendix D – Stage 1 – Advanced Enviro Septic Signed Calculator

Prior to any on site works being carried out, notification and approval is required by local Council Plumbing and or Engineering Department.

STAGE 1 – SERVICE STATION ON SITE WATER STORAGE

It has been estimated that the following should be allowed for potable water storage on site to cover the following:

1000L/day (wastewater) + 100L/day (cleaning/ irrigation) = 1100L/day

Over a 3-month period this amounts to 99,000L required.

Due to high rainfall in the Cape Tribulation area our recommendation is that rainwater tanks be installed on site at each development location – Stage 1 Service Station; Stage 2 Residence & Stage 3 Cabins.

The roof area provided by the service station building has been calculated to be approx. 575m².

We have considered BOM average monthly rainfall figures and estimate that rainwater collection from the service station roof should provide adequate water supply to water tank storage. A single large water tank with capacity of approx. 100,000L or 2 smaller tanks of around 50,000L could be utilized in this location.

The installation of an onsite bore may also be a viable option for the site, however it is unknown how deep the bore would have to be taken to or the quality of the water that would be found. Any bores would need to be located a min of 10m away from Advanced Secondary System Land Application Areas or 30m away from Secondary System Land Application Areas. As an additional comment, the costs of installing a bore on site may be significantly higher than installing rainwater tanks at each stage, however, this could be an option to get quoted if preferred.

STAGE 2 &3 – RESIDENCE & CABINS WASTEWATER – LAND APPLICATION AREA

References:

- *Appendix G – Stage 2 Wastewater Treatment Requirements*
- *Appendix H -Stage 2 – Owner’s Manual*
- *Appendix I – Stage 2&3 - Waste Water Calculation Including Rainfall*
- *Appendix J – Stage 2&3 – Advanced Enviro Septic Signed Calculator*
- *Appendix E – Drawing 01 – Septic Layout Site plan*
- *Appendix K – Drawing 03 – Stage 2&3 – Residence & Cabins Septic Details*
- *Appendix L – Stage 3 Wastewater Treatment Requirements*
- *Appendix M -Stage 3 – Owner’s Manual*

We have designed a single wastewater system and Land Application Area to be used for both the proposed Residence and Cabins. It is recommended that two septic tanks (each 3000 Litres) be utilized for this land application area – one to be located at the Residence and one at the cabin locations. A wastewater allowance of 600L per day for the residence and 750L per day for the 2 cabins, has been used for the design of the Land Application Area.

Our design has assumed the following:

Residence - A population equivalent of four (4) persons for a two-bedroom dwelling. As per AS/NZ 1547:2012 Appendix H, Table H1 the “typical wastewater design flow” for a “Reticulated water supply” gives a flow allowance of 150 L/person/day) will be 600 L/day. The daily flow for a two-bedroom dwelling (4 persons @ 150 L/person/day) will be 600 L/day.

Cabins – Both Cabins are 1 bedroom. An estimated population of 2-3 people per cabin has been allowed (5 people max for both cabins). As per AS/NZ 1547:2012 Appendix H, Table H1 the “typical wastewater design flow” for a “Reticulated water supply” gives a flow allowance of 150 L/person/day. The daily flow for two single-bedroom dwellings (5 persons @ 150 L/person/day) will be 750 L/day.

Disposal Area sizing:

The site is considered to have Class 4 soils – Measured Permeability Ksat (m/day) 0.42. For an Advanced Enviro Septic System (AE) the following calculations would be used: DLR of 20 and a daily flow of 600 L/day (Residence) and 750L/day (Cabins), the area required would be 100 m². *Appendix J – Stage 2&3 – Advanced Enviro Septic Signed Calculator*
In addition, an equal reserve area should be allowed for.

We have checked the size of a Land Application Area if considering using a Home Septic Treatment Plant (HSTP) – Secondary System using an irrigation area.

DLR – 25; Daily Flow – 1350L/day – LAA = 378m².

Appendix I – Stage 2&3 - Waste Water Calculation Including Rainfall

Taking this into consideration and the fact that the client wishes to retain as much existing foliage/ vegetation as possible, the AES Land application area will take up less area on site.

Any wastewater treatment system must comply with the current codes & regulations as well as meeting the prospective clients' economic parameters.

- AS/NZ 1547:2012 On-site domestic-wastewater management
- Queensland PLUMBING & DRAINAGE ACT
- Queensland STANDARD PLUMBING & DRAINAGE REGULATION
- Queensland PLUMBING & WASTEWATER CODE

A water table was not encountered during on site investigations however, the water table would be elevated during the wet season.

The land application area must maintain the appropriate setback from all features when installed.

Results of our calculations for sizing of disposal areas using Australian Standard 1547-2011 'Category 4 Soil' equations on the proposed service station are attached for your information.

Appendix I – Stage 2&3 - Waste Water Calculation Including Rainfall

Appendix J – Stage 2&3 – Advanced Enviro Septic Signed Calculator

Prior to any on site works being carried out, notification and approval is required by local Council Plumbing and or Engineering Department.

DSTAGE 2 &3 – RESIDENCE & CABINS ON SITE WATER STORAGE

It has been estimated that the following should be allowed for potable water storage on site to cover the following:

Stage 2 - Residence

600L/day (wastewater) + 100L/day (cleaning/ irrigation) = 700L/day

Over a 3-month period this amounts to 63,000L required.

Stage 3 - Cabins

750L/day (wastewater) + 100L/day (cleaning/ irrigation) = 850L/day

Over a 3-month period this amounts to 76,500L required.

Due to high rainfall in the Cape Tribulation area our recommendation is that rainwater tanks be installed on site at each development location – Stage 1 Service Station; Stage 2 Residence & Stage 3 Cabins.

The roof area provided by the residence building has been calculated to be approx. 200m².

The roof area provided by the 2 cabins has been calculated to be approx. 170m².

We have considered BOM average monthly rainfall figures and estimate that rainwater collection from the residence & cabin roofs should provide adequate water supply to water tank storage. A single large water tank with sufficient capacity or 2 smaller tanks could be utilized in both the residence and cabin locations.

SUMMARY

STAGE	WASTE WATER ALLOWANCE	LAA - AES	LAA - IRRIGATION	ESTIMATED ON SITE WATER STORAGE REQUIRED	WATER TANK SIZE
1 – Service Station	1000 L/ day	80 m2	295 m2	1100 L/day 99,000 L stored	2 x 50,000L or 1x 100,000L
2 – Residence	600 L/ day	100 m2 (Stg. 2&3)	378 m2 (Stg. 2&3)	700L/day 63,000L stored	2 x 50,000L or 1x 100,000L
3 - Cabins	750 L/day	100 m2 (Stg. 2&3)	378 m2 (Stg. 2&3)	850L/day 76,500L stored	2 x 50,000L or 1x 100,000L

*LAA = Land application Area

NOTE REGARDING TOTAL EP DESIGNED FOR THE SITE:

Total Wastewater allowance (grey & black water) = Stg.1 – 1000L/day + Stg.2 – 600L/day + Stg.3 – 750L/ day = 2350L/ day.

Grey water would amount to approx. 2/3 of the total 2350L/day = 1566L/ day

Black water would amount to approx. 1/3 of the total 2350L/day = 784L/ day

This equates to approx. 16 E.P. for the total site.

If you require any further information, please feel free to contact us.

Regards,



Peter Lennox
RPEQ 1128 QBCC 18276
ICE INTERNATIONAL

ice international & Soiltest.biz
Engineers, managers, Site classifiers, Sewerage design

A.B.N. 32 791 176 930 / 49 290 204 480
QBSA 18267

22 Templeton St.,
Gordonvale Q. 4865
Australia

Page 7 of 7

Ph: +61 7 4056 6324
aust@iceint.com.au
Singapore, NZ, London

