

LORD HOWE ISLAND BOARD

Development Application

Section 4.12, Environmental Planning and Assessment Act 1979

Date Received:

Development Application No.: DA2024.3.1 Date Lodged: 17/06/2024

Use this form to apply for development consent to:

- Erect, alter or demolish a building or structure;
- Change the use of land or a building;
- Subdivide land;
- Display an advertisement;
- Any other development that requires consent from the Lord Howe Island Board.

To minimise delay in receiving a decision about your application, please ensure you submit all relevant information. To complete the form, please place a cross in the boxes and fill out the sections provided as appropriate. When your application has been assessed, you will receive a Notice of Determination. If you need help please phone or call the Board's office and discuss your queries with a development officer.

APPLICANT DETAILS

Mr Mrs Ms Other: Miss

Name: Chloe McCarthy on behalf of Gai Wilson

Organisation: Room on Fire ABN: [REDACTED]

Postal Address: Somerset Apartments, [REDACTED]

Telephone: [REDACTED] Fax:

Email: [REDACTED]

OWNER CONSENT

Has Owner Consent been issued? Yes No Owner Consent No.:

Owners Consent is being issued in conjunction with the development application as per the Board's advice

IDENTIFY THE LAND YOU PROPOSE TO DEVELOP

Portion/Lot No.: 362 Deposited Plan No.: 1101462

Lease No.: 1954.12

Address: [REDACTED]

PROPOSED DEVELOPMENT

Describe the proposed development; give a detailed outline of what you are going to do. If it involves a building, indicated what it will be used for.

The proposed works involve the upgrade of the existing Somerset Wastewater System. Due to the size of the facility, the disperse nature of the built structure and the seasonal fluctuation of visitor numbers, Somerset's wastewater will continue to be serviced by multiple wastewater treatment systems. There will be two (2) individual treatment systems of varying sizes and design.

Wastewater hydraulic loads have been calculated by Brad Josephs, LHIB A/MIES, from the published effluent values in the LHI Onsite Wastewater Management Strategy (OWMS) and associated Design Guidelines and AS/NZS 1457:2012 Onsite Wastewater Management. All occupancy rates, water uses and water usage (as appropriate) have been supplied by Gai Wilson and Civcon Water Services PTY LTD.

Building Material: NA

Roofing Material: NA

PAST/PRESENT LAND USES

State the past known uses of the site: Tourist accommodation

State the present known uses of the site: Tourist accommodation

STAGED DEVELOPMENT

You can apply for development consent for only part of your proposal now, and for the remaining part/s at a later time.

Are you applying for development consent in stages? Yes No

If yes please attach:

- Information which describes the stages of your development;
- A copy of any development consents you already have which relate to your development.

PLANS OF THE LAND AND DEVELOPMENT

You need to provide a number of different plans that show what you intend to do. Step 4 of the Development Application Guide sets out which plans to provide and the details to include. Please submit 1 copy of the plans with the application. Please attach:

- A site plan of the land, drawn to scale;
- Plans or drawings of the proposal, drawn to scale and, where relevant;
- An A4 size plan of the proposed building and other structures on the site;
- A plan of any existing buildings (and uses), drawn to scale.

ENVIRONMENTAL EFFECTS OF YOUR DEVELOPMENT

To assess your proposal, we need to understand the impacts it will have. Depending upon the nature and scale of your proposal, you need to provide one or more of the statements listed below to explain the environmental effects of your proposal.

Is your proposal likely to cause a major environmental impact (e.g. designated development)?

- Yes Please attach an environmental impact statement.
 No Please attach a statement of environmental effects (SEE).

Is your proposal likely to cause have significant effect on threatened species, populations, ecological communities or their habitats?

- Yes Please attach a species impact statement.
 No

SUPPORTING INFORMATION

You can support your application with additional material such as photographs (including aerial photographs), slides and models to illustrate your proposal.

Please list what you have attached.

Please refer to the attached Somerset Wastewater Proposal for a detailed analysis of the proposed wastewater system upgrade including an overview of works and proposed wastewater system, water balance and storage calculations, soil analysis, options analysis and site plan.

NOTE: It will be necessary for you to place pegs showing the location of all building extremities and height of buildings within seven days of lodging your development application. These pegs will allow inspection by Board staff at an early stage of your development assessment.

APPLICATION FEE

For development that involves a building or other work, the fee for your application is based on the estimated cost of the development. If your development needs to be advertised to the public you may also need to include an advertising fee. Clauses 246 to 263 of the Environmental Planning and Assessment Regulation 2000 provide a schedule of fees.

NOTE: Fees will be calculated in accordance with Cordell's Building estimates and will form the basis for the fee. To save time and any delays in processing your application, please contact us if you need help to calculate the fee for your application.

Estimated cost of the development: \$150,000 - \$200,000 (fees based on NSW PP amount \$200k)
Total fees lodged: \$1345 Date: 17/06/2024 Receipt No.: 26573

APPLICANT/S OR APPLICANT'S AGENT DECLARATION

Have you or any associated persons with a financial interest in this application in the last two years made any political donations or given any gifts to any local Board Member or Board employee? Yes No

If you ticked yes please fill out a Political Donations and Gift Disclosure Statement.

IMPORTANT NOTICE: It is an offence under the EP&A Act 1979 if you fail to disclose reportable donations and gifts.

LEASEHOLDER AUTHORISATION - All leaseholder/s of the land must sign this application.

As the leaseholder/s of the above property, I/we consent to this application.

Signature: [Redacted] Signature: [Redacted]
Name: CAJ WILSON Name: Angus Murray - Executor
Date: 26-3-2025 Date: 02/04/24

APPLICANT AUTHORITY - The applicant/s or the applicant's agent must sign the application.

I apply for consent to carry out the development described in this application. I declare that all the information given is true and correct. I also understand that, if incomplete, the application may be delayed or rejected and more information may be requested within 21 days of lodgement.

Signature: [Redacted] Signature: [Redacted]
Name: Chloe McCarthy Name: [Redacted]
Date: 23.04.24 Date: [Redacted]

State the capacity in which you are signing if you are not the applicant: Designer who has assisted in lodging the DA

PRIVACY POLICY

The information you provide in this application will enable us, and any relevant state agency, to assess your application under the Environmental Planning and Assessment Act 1979 and other applicable state legislation. If the information is not provided, your application may not be accepted.

If your application is for designated development or advertised development, it will be available for public inspection and copying during a submission period. Your application, and any attached plans will be published on the Lord Howe Island Board website. Written notification of the application will also be provided to the neighbourhood. You have the right to access and have corrected information provided in your application. Please ensure that the information is accurate and advise us of any changes.

APPLICATION FEE

For development that involves a building or other work, the fee for your application is based on the estimated cost of the development. If your development needs to be advertised to the public you may also need to include an advertising fee. Clauses 246 to 263 of the Environmental Planning and Assessment Regulation 2000 provide a schedule of fees.

NOTE: Fees will be calculated in accordance with Cordell's Building estimates and will form the basis for the fee. To save time and any delays in processing your application, please contact us if you need help to calculate the fee for your application.

Estimated cost of the development:

Total fees lodged: Date: Receipt No.:

APPLICANT/S OR APPLICANT'S AGENT DECLARATION

Have you or any associated persons with a financial interest in this application in the last two years made any political donations or given any gifts to any local Board Member or Board employee? Yes No

If you ticked yes please fill out a Political Donations and Gift Disclosure Statement.

IMPORTANT NOTICE: It is an offence under the EP&A Act 1979 if you fail to disclose reportable donations and gifts.

LEASEHOLDER AUTHORISATION – All leaseholder/s of the land must sign this application.

As the leaseholder/s of the above property, I/we consent to this application.

Signature: Signature:

Name: GIA WILSON Name: PP. C.L. SIMPSON (STOKES)

Date: 26-3-2025 Date: 26.3.2024

APPLICANT AUTHORISATION – The applicant/s or the applicant's agent must sign the application.

I apply for consent to carry out the development described in this application. I declare that all the information given is true and correct. I also understand that, if incomplete, the application may be delayed or rejected and more information may be requested within 21 days of lodgement.

Signature: Signature:

Name: Name:

Date: Date:

State the capacity in which you are signing if you are not the applicant:

PRIVACY POLICY

The information you provide in this application will enable us, and any relevant state agency, to assess your application under the Environmental Planning and Assessment Act 1979 and other applicable state legislation. If the information is not provided, your application may not be accepted.

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NOTE: Fees will be calculated in accordance with Cordell's Building estimates and will form the basis for the fee. To save time and any delays in processing your application, please contact us if you need help to calculate the fee for your application.

Estimated cost of the development:

Total fees lodged: Date: Receipt No.:

APPLICANT/S OR APPLICANT'S AGENT DECLARATION

Have you or any associated persons with a financial interest in this application in the last two years made any political donations or given any gifts to any local Board Member or Board employee? Yes No

If you ticked yes please fill out a Political Donations and Gift Disclosure Statement.

IMPORTANT NOTICE: It is an offence under the EP&A Act 1979 if you fail to disclose reportable donations and gifts.

LEASEHOLDER AUTHORISATION – All leaseholder/s of the land must sign this application.

As the leaseholder/s of the above property, I/we consent to this application.

Signature: [Redacted]	Signature: [Redacted]
Name: Michael Murray on behalf of Anne Murray ANN	Name: Michael Murray on behalf of Peter Murray
Date: 12/6/24	Date: 12/6/24

APPLICANT AUTHORISATION – The applicant/s or the applicant's agent must sign the application.

I apply for consent to carry out the development described in this application. I declare that all the information given is true and correct. I also understand that, if incomplete, the application may be delayed or rejected and more information may be requested within 21 days of lodgement.

Signature:	Signature:
Name:	Name:
Date:	Date:

State the capacity in which you are signing if you are not the applicant:

PRIVACY POLICY

The information you provide in this application will enable us, and any relevant state agency, to assess your application under the Environmental Planning and Assessment Act 1979 and other applicable state legislation. If the information is not provided, your application may not be accepted.

If your application is for designated development or advertised development, it will be available for public inspection and copying during a submission period. Your application, and any attached plans will be published on the Lord Howe Island Board website. Written notification of the application will also be provided to the neighbourhood. You have the right to access and have corrected information provided in your application. Please ensure that the information is accurate and advise us of any changes.

Documentation provided with an application may also be accessed in accordance with the requirements of the Government Information Access (GIPA) Act 2009.

LODGEMENT

Before submitting your application, please ensure you have attached all the information the consent authority needs to assess your proposal. You can use the following checklist. Please place a cross in the box next to any items you have attached:

Plans

- A site plan of the land — **all applications**
- Plans or drawings of the proposal showing all dimensions — **all applications**
- An A4 size plan of the proposed building and other structures on the site - **all applications**
- A plan which is drawn to scale of all existing buildings.

Environmental effects

- An environmental impact statement for a designated development proposal and an electronic version of the executive summary
- A statement of environmental effects — **required for all applications** that are not designated development
- An environmental report — **if required under clause 42 of the LHI LEP 2010**. Contact the Board to see if you need to prepare an environmental report.
- A species impact statement
- A Basix Certificate – The Building Sustainability Index (BASIX) applies to all residential dwelling types and is part of the development application process in NSW. A BASIX certificate **MUST** be obtained for “**BASIX affected development**”. For further information please refer to www.basix.nsw.gov.au
- Electrical supply form must be completed (for new / alteration / addition to existing supply).

Staged development

- Information which describes the stages of the development
- A copy of any consents already granted for part of the development

Supporting information

- Other material to support your application, such as photos, slides and models. *Please ensure any items listed as an Advisory Note as part of the Owner Consent approval have been addressed.*

Application fee

- Your application fee — **required for all applications**.

Where to lodge your application

You can lodge your completed application form, together with attachments and fees at the Lord Howe Island Board's office.

CONTACT DETAILS FOR YOUR INFORMATION

Lord Howe Island Board

Bowker Avenue
(PO Box 5)
LORD HOWE ISLAND NSW 2898
Phone: 02 6563 2066
Fax: 02 6563 2127
Email: administration@lhib.nsw.gov.au
Website: www.lhib.nsw.gov.au

Lord Howe Island Marine Park Authority

Phone: 02 6563 2359
Fax: 02 6563 2367
Email: lordhowe.marinepark@npws.nsw.gov.au
Website: www.mpa.nsw.gov.au

Department of Infrastructure, Planning and Natural Resources – General Enquiries

Phone: 02 9228 6111
Email: infocentre@dipnr.nsw.gov.au
Website: www.dipnr.nsw.gov.au

Department of Infrastructure, Planning and Natural Resources – North Coast Office

49 Victoria Street
(PO Box 6)
GRAFTON NSW 2460
Phone: 02 6642 0622
Email: northcoast@dipnr.nsw.gov.au
Website: www.dipnr.nsw.gov.au
BASIX Certificate: www.basix.nsw.gov.au

LORD HOWE ISLAND BOARD

Statement of Environmental Effects

A Statement of Environmental Effects must be completed and submitted with your development application, this is a requirement under the *Environmental Planning & Assessment Act 1979*. The Statement of Environmental Effects report explains the likely impacts of the development proposal taking into consideration relevant planning and environmental matters. If you require any clarification about what information needs to be included, please contact the Board's office on (02) 6563 2066.

Failure to submit a completed Statement of Environmental Effects report will result in the development application being rejected or incurring unnecessary delays before the application can be determined.

APPLICANT DETAILS

Name: *Chloe McCarthy on behalf of Gai Wilson*
Signed: [Redacted] Date: 25.03.24

PROPOSED DEVELOPMENT

Portion/Lot No.: Lot 362 Deposited Plan No.: DP 1101462
Lease No.: PL:1954.12
Address: Somerset Apartments, [Redacted]

Please tick the type/s of development you are applying for:

- | | |
|--|--|
| <input type="checkbox"/> Dwelling House | <input type="checkbox"/> Shed or Garage |
| <input type="checkbox"/> Additions to Dwelling House | <input type="checkbox"/> Dual Occupancy |
| <input type="checkbox"/> Home Business | <input type="checkbox"/> Additions to Dual Occupancy |
| <input type="checkbox"/> Commercial | <input type="checkbox"/> Subdivision including Boundary Realignments |

Other – please describe: Wastewater Upgrade

DEVELOPMENT DESIGN ATTRIBUTES

EXISTING BUILDINGS

What buildings and/or structures already exist on the subject site? Existing structures located on the subject site (including their gross floor area where applicable) as well as adjoining properties need to be shown on a site plan. Please show floor space.

This DA is solely related to the upgrade of the existing wastewater systems servicing Somerset Apartments. Please refer to the attached Somerset Wastewater Upgrade – Overview document for further detail.

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DEVELOPMENT CONSENTS

If known, please list previous development and building approvals for the last 10 years which are considered relevant to this application. If necessary please consult Board staff.

DA Number	Development Description	Date of Consent

OWNERS CONSENT

Please provide the reference number for the Owners Consent application. Please confirm that all conditions of owners consent have been met for this development application.

Owner's consent is being submitted in conjunction with the DA as per the Board's advice.....

DEVELOPMENT REQUIREMENTS

DWELLINGS/RESIDENTIAL

Does your development comply with the **maximum gross floor area** and the **minimum dwelling area** (under Clause 20 & 23 LHI Local Environmental Plan 2010)? If yes, this must be demonstrated below.

NA
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Please specify if your development complies with the enlargements or extensions of a dwelling (under clause 27 LHI Local Environmental Plan 2010)? If yes, this must be demonstrated below.

NA
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COMMERCIAL

Please specify if your development complies with the requirements in Clause 22 for tourist accommodation, staff accommodation and commercial premises? If yes, this must be demonstrated below.

NA
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ALL BUILDINGS – MAXIMUM BUILDING HEIGHT

Please specify if your development complies with the maximum building height (under clause 29 LHI LEP 2010)? If yes, this must be demonstrated below.

NA
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SUBDIVISION

Please specify if your development complies with the subdivision requirements under clause 21 of LHI LEP 2010? If yes, this must be demonstrated below.

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NA
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ZONING

Does your development meet the objectives of the zone in which the site is in? Please provide how the development meets these objectives (clause 13-19 LHI LEP 2010).

NA
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ENERGY EFFICIENCY

Does the development achieve the minimum BASIX requirements? To determine whether a BASIX certificate needs to be submitted with your application, please refer to www.basix.nsw.gov.au/information/index.jsp. Each development application for a residential dwelling and each development application for alterations and additions must have a BASIX certificate.

NA
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BOUNDARY SETBACKS

How far is your development setback from the front boundary?

NA the locations of upgraded wasetwater systems are not being changed
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How far is your development setback from the side and rear boundaries?

NA
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Does the development comply with the Board’s minimum setback requirements? If no, provide reasons why the development should be supported?

NA
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LANDSCAPING

Please specify if the development complies with the landscaping requirements for Zone 2 land (clause 33 LHI LEP 2010)? If yes, this must be demonstrated below.

NA
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LAND ADJACENT TO ZONE 7 OR 8

Please specify if your development complies with the requirements for land adjacent to Zone 7 or 8 (under clause 34 LHI LEP 2010)? If yes, this must be demonstrated below.

NA
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CONSTRAINTS

FORESHORE DEVELOPMENT

Is your land within the foreshore development area? If yes, please how the development complies with foreshore development requirements (Clause 35 LHI LEP 2010).

NA
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AIRCRAFT NOISE

Is your land subject to the Australian Noise Exposure Forecast? If yes, the development may need to include an Acoustic Report with the application.

NA
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FLOODING

Is your land flood prone? If yes, what measures will be undertaken to ensure that:

- water is efficiently drained from your property without impacting upon any adjoining neighbours.
- the proposed development will not be adversely affected by flooding.

NA
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HERITAGE

Is the development listed as a heritage item, located in a heritage conservation area or located adjacent to any known heritage item or archaeological site? If yes, a Statement of Heritage Impact and referral to NSW Heritage Branch may be required.

NA
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SIGNIFICANT VEGETATION

Will the development require the removal of any vegetation in areas mapped as 'significant vegetation' in LHI LEP 2010 Sheet 3 as well as the proposed 'significant vegetation' map on exhibition? If yes, the proposed development may be prohibited.

Installation of the new wastewater systems will require removal of 16 native trees in order for machinery to access site. All trees will be replanted when works are complete. Christo Haselden has advised that the Request for Native Tree removal report will be prepared as an internal assessment once the DA is lodged.

Due to the current amount of infrastructure on Lot 362 and being surrounded by road reserve on private land, it is proposed to house the irrigation area within SNV. Somerset current has approximately 3900 square meters of SNV available for irrigation. Options paper supports the installation of the irrigation area within SNV.

The treated effluent will be disinfected with chlorine prior to discharge to the irrigation fields throughout existing SNV (see attached site plan). The irrigation fields will have small diameter 12mm drip pipe laid in a grid pattern and split into at least two fields. All pipework connecting the systems to the irrigation fields, located within areas mapped as SNV, will be laid on the surface. As per the OWMS the irrigation fields will be split into 400-metre sections. Please refer to the attached Somerset Wastewater Proposal for further info.

RETENTION OF TREES AND LANDSCAPING

Will the development require the removal of any native trees and/or shrubs? If yes, please specify how many trees/shrubs need to be removed and indicate their location on the site/landscape plan.

Installation of the new wastewater systems will require the removal of 16 native trees in order for machinery to access site. All native trees will be replanted when works are complete. Christo Haselden has advised that the Request for Native Tree removal report will be prepared as an internal assessment once the DA is lodged.

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RECOVERY PLANS AND HABITAT AREAS

Is the development consistent with approved Recovery Plans for the island? Does the development have any impacts on threatened species? If the answer to this question is yes then an Environmental Report, a seven part test or a Species Impact Statement may be required (Clause 42 of LHI Local Environment Plan 2010). It is important to remember that it is illegal to clear, modify, underscrub or remove any vegetation within areas of identified habitat.

Any significant native vegetation that is removed in order for works to be carried out will be replanted.

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Can the development be sited to retain existing vegetation? If no, explain why this is not possible.

Due to the current amount of infrastructure on Lot 362 and being surrounded by road reserve and private land, it is proposed to house the irrigation area within SNV. Somerset current has approximately 3900 square meters of SNV available for irrigation. Options paper supports the installation of the irrigation area within SNV. Please refer to the attached Somerset Wastewater Proposal for further info.

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Do you intend to provide any landscaping to compensate for the removal of vegetation? If yes, please include a landscape plans specifying the species to be used. If no, please explain why supplementary landscaping is not necessary.

Any significant native vegetation that is removed in order for works to be carried out will be replanted. Please refer to the attached Somerset Wastewater Proposal for further info.

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VISUAL APPEARANCE

Explain how the external appearance of the development has been designed to take into consideration of the adjoining properties and character of the area.

NA

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VISUAL AND ACOUSTIC PRIVACY

Describe how the development has been designed to reduce any possible impact on the visual or acoustic privacy of adjoining properties. Consider the use of screening, landscaping, offsetting windows and balconies.

NA

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SOLAR ACCESS

Has the development been designed so that the main indoor and outdoor living spaces face north and east to take advantage of solar access? If yes, please specify the parts of the dwelling facing north and east.

NA

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Does the development overshadow adjoining properties?

NA

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VIEWS

Does the development obstruct any views from adjoining properties?

NA

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Is it possible to site the development to minimise the obstruction of views? If no, explain why this is not possible.

NA

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PARKING AND TRAFFIC

How many on-site parking spaces are existing and how many will result from the proposed development?

NA

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Does the development provide adequate manoeuvring areas without impacting on existing access and parking arrangements? If no, please justify why the development should be supported.

NA

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EARTHWORKS AND RETAINING WALLS

Does the site need to be excavated or filled? If yes, specify the maximum retaining wall heights and type of construction. Retaining wall details need to be shown on the development plans.

Excavation may be required in order to replace existing wastewater tanks. No retaining walls will be necessary.

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WASTEWATER MANAGEMENT

Have you completed the Lord Howe Island Board Onsite Wastewater Management System checklist for Applicants and submitted with this application?

Yes

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STORMWATER RUNOFF DISPOSAL

How will excess stormwater runoff be disposed?

NA

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EROSION AND SEDIMENT CONTROL

What erosion and sediment control measure will be used to keep the soil on your site? Consider siltation fencing, diversion channels, stockpile protection, stormwater pit protection and gravel vehicle access.

NA

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Where will the erosion and sediment control measures be provided on-site? Please identify the location of the erosion and sediment control measures on the site plan.

NA

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OTHER CONSIDERATIONS

Are there any other particular measures proposed to mitigate and/or offset any significant impact caused by the development?

*Please refer to the attached Somerset Wastewater proposal for more **detailed information**.*

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On-site Wastewater Treatment

SOMERSET APARTMENTS

Address [REDACTED]

P/L No. DP Lot 362 DP 1101462

Somerset Wastewater Upgrade – Overview

Due to the size of the facility, the disperse nature of the built structure and the seasonal fluctuation of visitor numbers, Somersets wastewater will continue to be serviced by multiple wastewater treatment systems.

There will be two (2) individual treatment systems of varying sizes and design. It is anticipated that the Somersets wastewater upgrade will be completed by Winter 2024. Many factors can influence this completion date including supply of systems, shipping schedules and freight capacities, visitor occupancy and visitor experience.

Wastewater hydraulic loads have been calculated by Brad Josephs, LHIB A/MIES, from the published effluent values in the LHI Onsite Wastewater Management Strategy (OWMS) and associated Design Guidelines and AS/NZS 1457:2012 Onsite Wastewater Management.

All occupancy rates, water uses and water usage (as appropriate) have been supplied by Gai Wilson and Civcon Water Services PTY LTD.

System 1

It is proposed to install a FujiClean PCN10 for System 1. The PCN10 is an aerated wastewater treatment system which is capable of treating up to 10,000lt of wastewater per day and producing effluent quality compliance values as outlined in the OWMS.

The LHIB have been supplied the FujiClean PCN10 system information. This is the same system as installed by Blue Lagoon in winter of 2017 and Pinetrees in 2020.

The main septic tank located at the front of the property, adjacent to Ned's beach Rd, collects waste from the "Hibiscus rooms" Staff House, & Office with a hydraulic volume of 4750 liters per day.

Sarong rooms, has an old concrete septic tank, which again separates solids from effluent and pumps to a disposal area, with a hydraulic load of 1200 liters per day.

The proposed upgrade would involve removing all waste from concrete system via pump out truck, clearing an area, of a number of Kentia Palms and undergrowth to allow access for machinery to remove the concrete septic tank near Ned's beach Rd, and replace with a Fuji Clean PCN10 Commercial wastewater treatment plant, with a 3000 lt irrigation pump well installed at end of treatment.

At the **Sarong** building, remove the concrete lids off tank, remove all sludge, via pump out truck, install 2 x 1650 lt poly pump wells inside of old tank, linked together. Fit a Positive displacement grinder pump in 2nd tank with control panel and alarms, and pump waste to Fuji Clean PCN10 near Ned's beach Rd.

The proposed Fuji Clean PCN10 system is capable of treating up to **10,000** lt per day. The hydraulic load of System 1 is shown in table 1.

Area/Source	Numbers	Litres Per Person	Total Litres Per Day
Hibiscus Rooms	25	150	3750
Staff Residence (6 bedrooms)	7EP	120	840
Office	8	20	160
Sarong	8	150	1200
Totals			5950lt

System 2

The septic tank located behind the **Frangipani rooms**, is again an old concrete construction tank, which separates solids from effluent and pumps to a disposal area. A hydraulic load of **2400** liters per day from the Frangipani rooms.

The **Main House** has a poly septic tank at present which separates solids and pumps effluent to a disposal area, with a hydraulic load of **720** liters per day.

The proposed upgrade would involve removing all waste from concrete septic tank, installing a Fuji Clean CE6000 Wastewater treatment plant next to existing system, with a 3000-liter irrigation pump well at outlet of system.

At the Laundry, install a 5000-liter pump well, behind building to collect wastewater from Laundry, it is proposed to distribute the wastewater from laundry between the CE6000 system and the PCN10 system to allow the sharing of load, and enable better treatment of the laundry wastewater.

At the main house, remove all solids and waste from tank, install a positive displacement pump with controls and alarms, and pump waste to the Fuji CE6000 behind Frangipani rooms.

The proposed Fuji Clean CE6000 behind the Frangipani rooms would treat up to **5970** liters per day at maximum demand, but allowing for the laundry waste to alternate between the CE6000 & PCN10 this would be reduced by up to **2850** liters per day.

The proposed Fuji Clean CE6000 is capable of treating up to 6000 liters per day, at maximum demand including the laundry **5970 liters per day**.

Area/Source	Numbers	Litres Per Person	Total Litres Per Day
Frangipani rooms	16	150	2400
Main House (5 bedrooms)	6EP	120	720
Totals			3120lt

The laundry component for the Somerset guest is included within the hydraulic flow figures of tables 1 and 2 as per AS/NZS 1547:2012. The proposed layout of the systems shows the laundry component being split between both systems. The total hydraulic load of the laundry would be 2450lt/day. As such both the PCN10 and the CE6000 can efficiently handle the hydraulic load if directed completely to the system as shown in table 3.

System	Max daily load	Current proposed load	With additional load
PCN10	10,000	5950	8400
CE6000	6000	3120	5570

It should be noted these are overestimates as both systems are already including part of the laundry component. Also note that these figures do not affect the daily hydraulic load of the overall project.

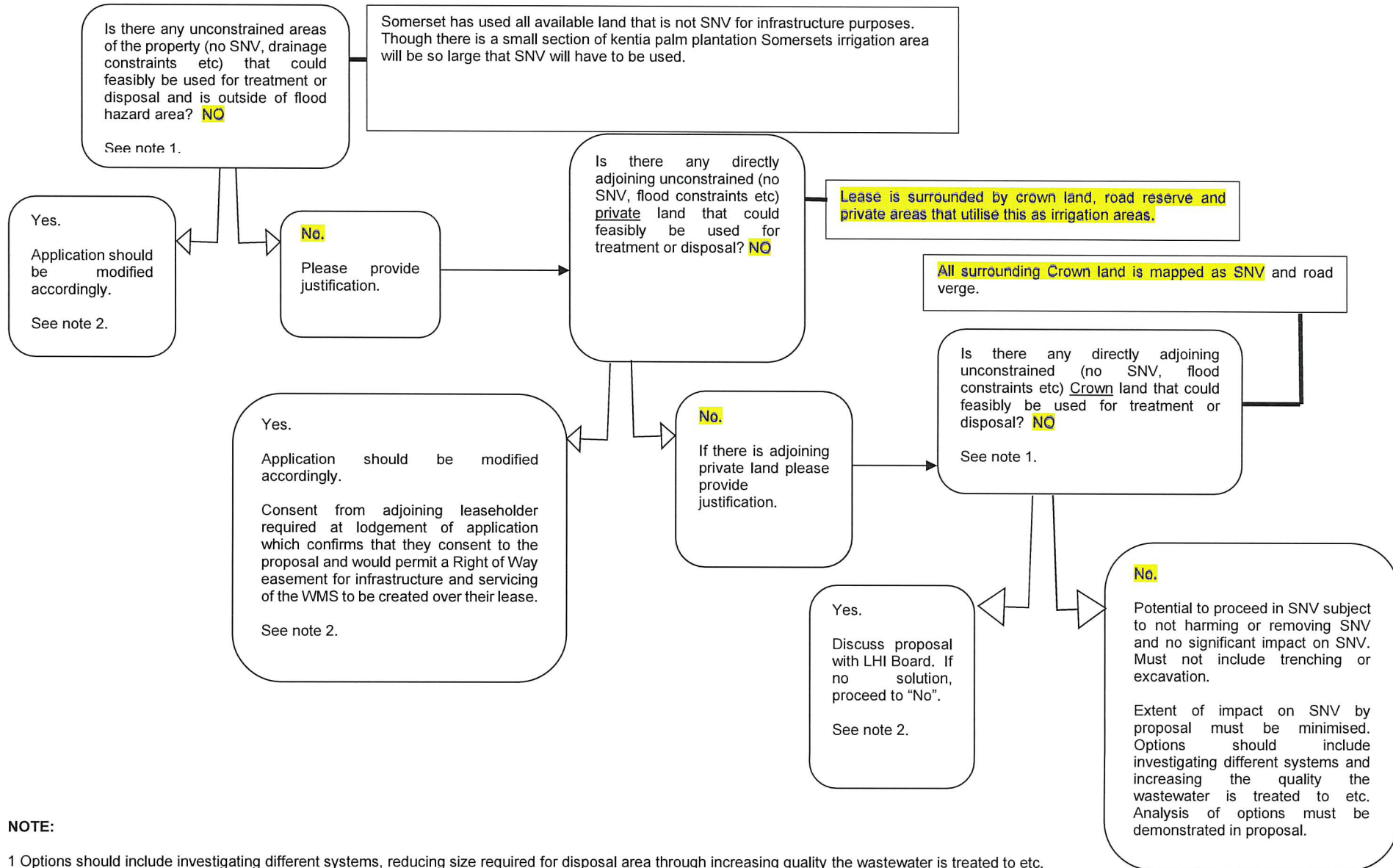
All treated wastewater from both the Fuji Clean PCN10 & CE6000 would be distributed via lilac stripe poly pipe, indexing valves to a disposal field of surface drip irrigation split into suitable sizes zones to allow even distribution of the wastewater with auto flush valves and air bleed valves installed on each zone.

In total the Somersets overall hydraulic load is 9070lt/day, the proposed effluent irrigation area is to be situated on Lot 362 of DP 1101462. The soil type on Lot 1 is sand. A soil sample will be provided to the Board for confirmation. The area required for the effluent irrigation with this soil type will be determined by water nutrient balance calculations made by the Lord Howe Island Board which requires 3655m².

Due to the current amount of infrastructure on Lot 362 and being surrounded by road reserve and private land It is proposed to house the irrigation area within SNV. Somerset current has approximately 3900 square meters of SNV available for irrigation. Options paper supports the installation of the irrigation area within SNV.

The treated effluent will be disinfected with chlorine prior to discharge to the irrigation fields throughout existing SNV (see attached site plan). The irrigation fields will have small diameter (12mm) drip pipe laid in a grid pattern and split into at least two fields. All pipework connecting the systems to the irrigation fields, located within areas mapped as SNV, will be laid on the surface. AS per the OWMS the irrigation fields will be split into 400 meter sections.

Options analysis for wastewater systems proposed within SNV – Somerset Upgrade



NOTE:

1 Options should include investigating different systems, reducing size required for disposal area through increasing quality the wastewater is treated to etc.

2 If a proposal is likely to affect threatened species, populations or ecological communities, or their habitats, a 7-part test must be prepared in accordance with Division 2 of Part 6 of the *Threatened Species Conservation Act 1995* and submitted with the application.

Nutrient Balance

Site Address: **Somerset**

Please read the attached notes before using this spreadsheet.

SUMMARY - LAND APPLICATION AREA REQUIRED BASED ON THE MOST LIMITING BALANCE =

2,648 m²

INPUT DATA ^[1]					
Wastewater Loading			Nutrient Crop Uptake		
Hydraulic Load	9,070	L/Day	Crop N Uptake	200	kg/ha/yr which equals 55 mg/m ² /day
Effluent N Concentration	20	mg/L	Crop P Uptake	20	kg/ha/yr which equals 5 mg/m ² /day
% Lost to Soil Processes (Geary & Gardner 1996)	0.2	Decimal	Phosphorus Sorption		
Total N Loss to Soil	36,280	mg/day	P-sorption result	170	mg/kg which equals 3,060 kg/ha
Remaining N Load after soil loss	145,120	mg/day	Bulk Density	1.8	g/cm ³
Effluent P Concentration	2	mg/L	Depth of Soil	1	m
Design Life of System	50	yrs	% of Predicted P-sorp. ^[2]	0.5	Decimal

METHOD 1: NUTRIENT BALANCE BASED ON ANNUAL CROP UPTAKE RATES					
Minimum Area required with zero buffer			Determination of Buffer Zone Size for a Nominated Land Application Area (LAA)		
Nitrogen	2,648	m ²	Nominated LAA Size	626	m ²
Phosphorus	1,309	m ²	Predicted N Export from LAA	40.45	kg/year
			Predicted P Export from LAA	3.45	kg/year
			Phosphorus Longevity for LAA	18	Years
			Minimum Buffer Required for excess nutrient	2022	m ²

PHOSPHORUS BALANCE

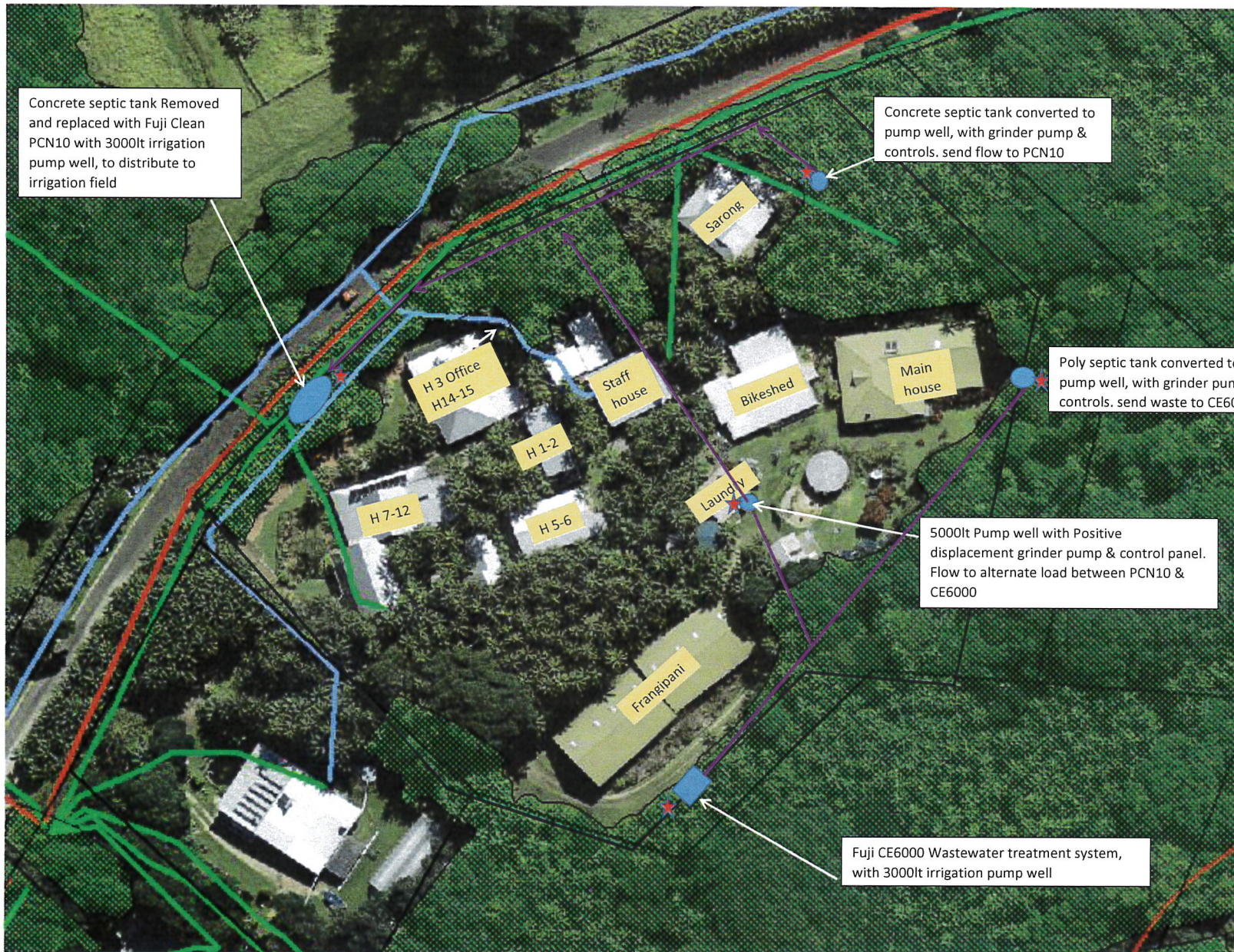
STEP 1: Using the nominated LAA Size

Nominated LAA Size	626	m ²				
Daily P Load	0.01814	kg/day	→ Phosphorus generated over life of system	331.055	kg	
Daily Uptake	0.00343	kg/day	→ Phosphorus vegetative uptake for life of system	0.100	kg/m ²	
Measured p-sorption capacity	0.306	kg/m ²				
Assumed p-sorption capacity	0.153	kg/m ²	→ Phosphorus adsorbed in 50 years	0.153	kg/m ²	
Site P-sorption capacity	95.78	kg	→ Desired Annual P Application Rate	3.168	kg/year	
				which equals	0.00868	kg/day
P-load to be sorbed	5.37	kg/year				

NOTES

Somerset

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Concrete septic tank Removed and replaced with Fuji Clean PCN10 with 3000lt irrigation pump well, to distribute to irrigation field

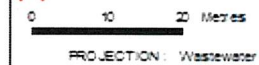
Concrete septic tank converted to pump well, with grinder pump & controls. send flow to PCN10

Poly septic tank converted to pump well, with grinder pump & controls. send waste to CE6000

5000lt Pump well with Positive displacement grinder pump & control panel. Flow to alternate load between PCN10 & CE6000

Fuji CE6000 Wastewater treatment system, with 3000lt irrigation pump well

- ★ Sewer
- # Wells
- LDL coastline, meannightwatermark
- LDL
- Well buffer - 50m
- Telecom_cable
- Low_voltage_cable
- High_voltage_cable

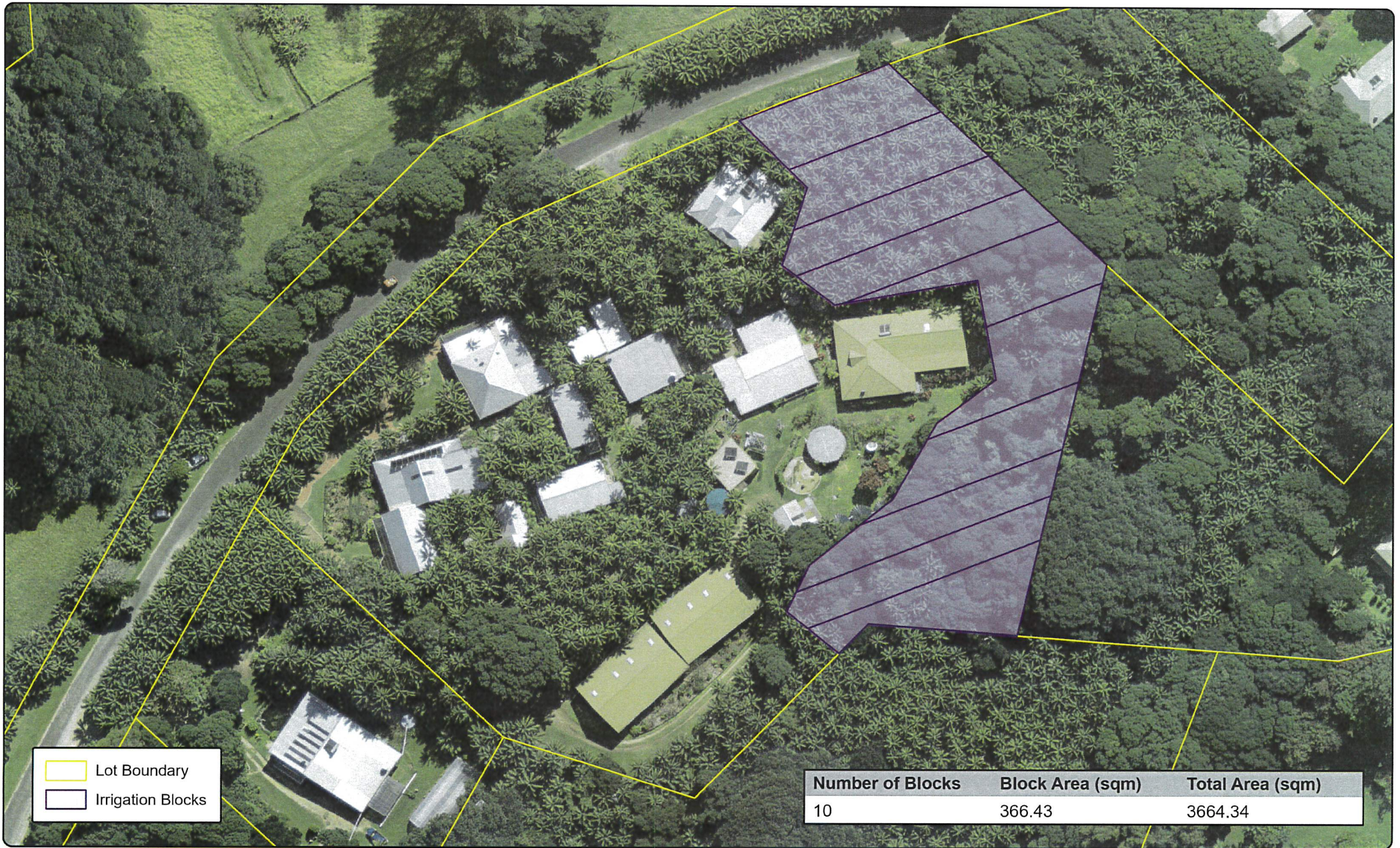


PROJECTION: Wastewater



18 April 2015

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Scale at A4 = 1:925
MGA 94 - Zone 57

This map is not guaranteed to be free from error or omission. Therefore, the Lord Howe Island Board and its employees disclaim liability of any act done or omission made on the information on the map and any consequences of such acts or omissions.

Somerset Irrigation Area Blocks

Lord Howe Island Board
Created on: 24/08/2023

0 50 m

