Redland City Council

Water Netserv Plan

Part A



Version Control

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Executive summary

As a south-east Queensland (SEQ) water service provider, the *South-East Queensland Water (Distribution and Retail Restructuring) Act 2009* requires Redland City Council (RCC) to have a *Water Netserv Plan*. The *Water Netserv Plan* must be consistent with the SEQ Regional Plan, and with the planning assumptions for RCC. The *Water Netserv Plan* will be the key strategic document outlining the water and wastewater services RCC provides and will guide the delivery and operation of its infrastructure. The *Water Netserv Plan* comprises the following two parts:

- **Part A** – contains public information concerning RCC's water and wastewater services;
- **Part B** – comprises an internal planning document to inform RCC's overall strategic direction.

RCC is committed to providing its customers with highly efficient water and wastewater services. This *Water Netserv Plan – Part A* establishes the background and context for RCC's water and wastewater business, together with the infrastructure planning and development activities which are critical to meeting its customer commitments. It provides an overview of the following:

- Vision, mission, role within the SEQ water grid and key stakeholders;
- the alignment between the *Water Netserv Plan* and RCC's corporate strategies and goals;
- Core products and services, connection areas and service standards;
- the types of connections available and associated conditions of use;
- the demand management activities used to manage water consumption by the community;
- the charges to customers in order to provide the products, services and infrastructure;
- planning activities employed to support growth and sustainability across the region;
- existing infrastructure, together with related key performance indicators; and
- the capital works program and major projects planned over the near future.

1. Redland City Council

RCC's commercial water business recommenced operations on 1 July 2012, following the disestablishment of Allconnex Water. Its primary functions are to provide its customers with safe, reliable and high-quality water services, as well as to collect and treat wastewater. RCC is also responsible for charging customers for water and wastewater services.

RCC owns, operates and maintains assets currently valued at around $1.38 billion. Continued investment in water and wastewater infrastructure is essential to meet the requirements of a growing population, projected by *ShapingSEQ - South-east Queensland Regional Plan 2017* to be around 188,000 people by 2041.

1.1 Redland City Overview

RCC consists of 537 square kilometres comprising mainland and island communities (with approximately 9,769 hectares of bushland under conservation). It is located on Moreton Bay and borders Brisbane City, Logan City and Gold Coast City Councils. Its economy consists predominantly of retail, health and community, education, manufacturing and tourism.

1.2 Redland City Council vision, mission, values and outcomes

RCC's mission and organisational value statements are set out in Redland City Council's *Our Future Redlands – A Corporate Plan to 2026 and Beyond,* which can be found on the RCC website.



Figure 1-1 - Council's Mission and Values

Key Outcomes of the Corporate Plan

- City leadership
- Strong Communities
- Quandamooka Country
- Natural Environment
- Liveable Neighbourhoods
- Thriving economy
- Efficient and effective organisation

1.3 Strategic Alignment

The RCC corporate plan is directly linked to all council's long-term, strategic planning documents. This ensures a clear link exists between community needs and expectations, corporate strategic direction and priorities, policy and day-to-day activities. The link is described in the corporate plan by the following diagram:

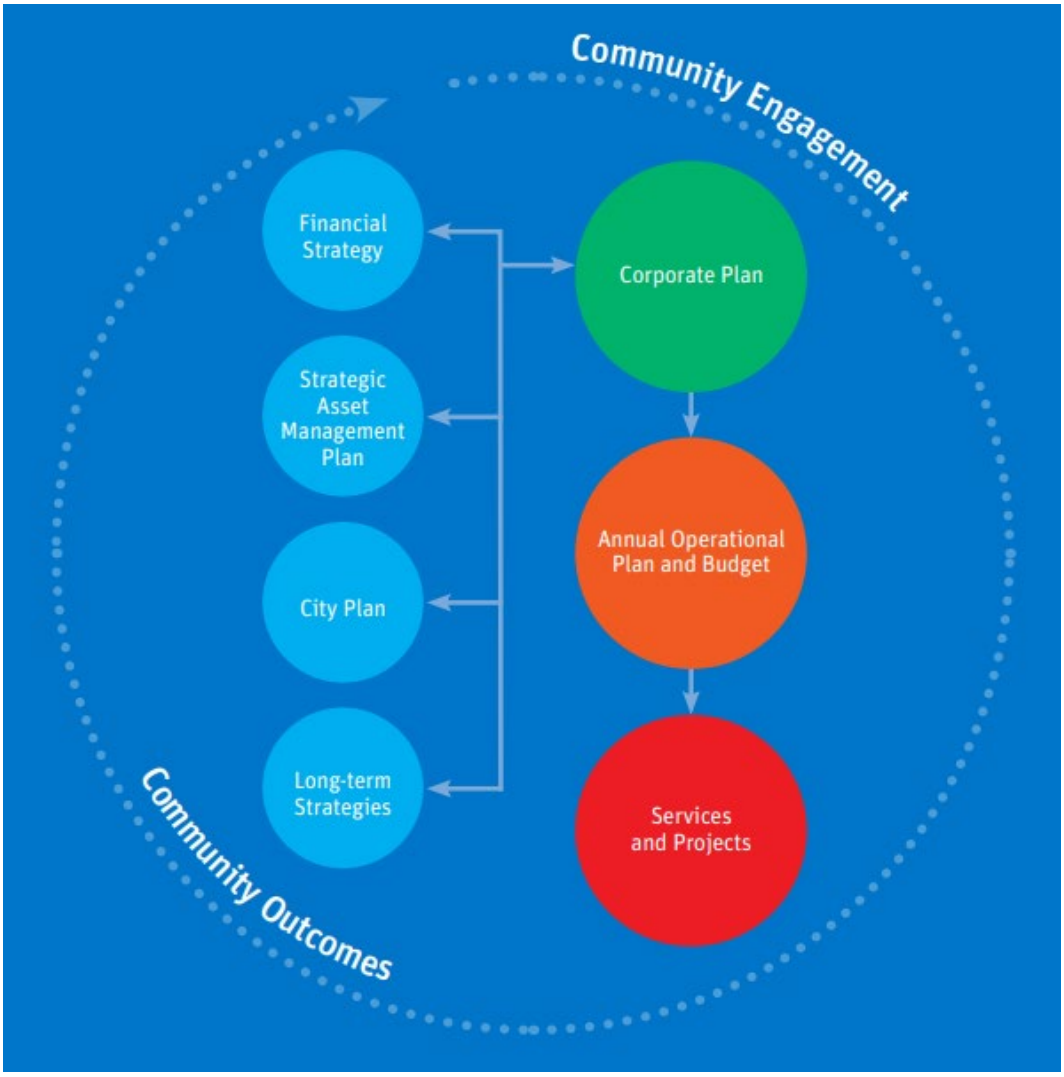


Figure 1-2 - Council's Strategic Planning Framework

This Water Netserv Plan supports Council's Corporate Plan by:

- Effectively managing our resources to ensure a sustainable future
- Infrastructure planning to support the growth and productivity of the City
- Planning for the future of the City

In order to address key result areas within RCC's 7 corporate plan objectives, we will strive to achieve the following goals:

- supply healthy water in an ecologically sustainable manner by planning, designing, constructing, operating and maintaining a high quality water distribution system; and
- collect and process wastewater in an ecologically sustainable manner by planning, designing, constructing, operating and maintaining a system for the collection, treatment, recycling and disposal of wastewater and biosolids.

RCC strategies such as the Strategic *Asset Management Plan (2019-2029)*, *Redland City Plan* and *Financial Strategy 2021-2031* will be key documents to drive RCC towards achieving its goals.

1.4 Redland City Council's Stakeholders

RCC places great importance on engaging with stakeholders, as well as maintaining and strengthening current relationships to improve the way it operates. Table 1-1 outlines a number of its key stakeholders and the associated requirements.

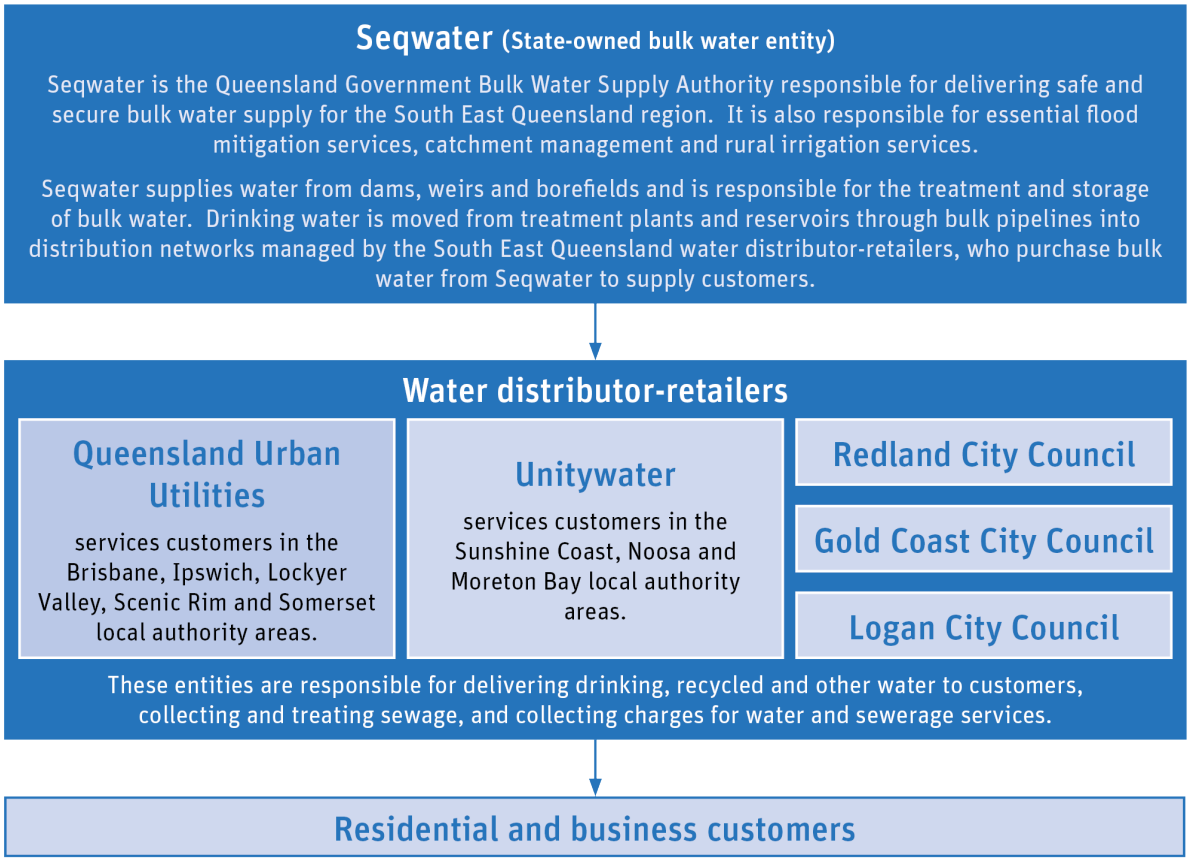
Table 1-1 – Key stakeholders and their requirements

STAKEHOLDERS	REQUIREMENTS
Our Customers	Our customers are at the centre of everything we do. We are committed to providing access to safe and reliable drinking water and sewerage services that our customers can trust and rely upon. We strive to provide high standards of customer care, at an affordable cost to the community.
Our Communities	We strive to achieve the key outcomes of Council's Corporate Plan by supporting social, environmental and sustainable economic development and growth.
State Government	At a strategic level, our affiliation with state government departments allows a full understanding of legislative and regulatory requirements to ensure we continually meets our responsibilities to protect the environment and support sustainable practices.
Industry	Within the industry, our relationship with participants of the SEQ water service providers partnership (SEQ Water Grid), developers, suppliers, industry associations and community reference groups will allow us to collaboratively work towards achieving common goals. We remain committed to maintaining and strengthening the already well-established relationships with our fellow Council's and service providers within the SEQ water grid (City of Gold Coast, Logan City Council, Urban Utilities and UnityWater).

1.5 Redland City Council's role within the SEQ water grid

RCC is one part of an extensive water grid operating in SEQ. Figure 1-3 shows its relationship with the other participants, in their roles, as they currently exist.

Figure 1-3 – South-East Queensland Water Grid



2. Products and Services

RCC is responsible for the provision of water and wastewater services to consumers throughout the Redland local government area. Its core products and services include:

- Drinking water supply;
- Non-Class A+ recycled water supply;
- Wastewater collection and treatment; and
- Trade waste management.

2.1 Drinking water

RCC distributes drinking water to around 63,200 properties via a network of reservoirs, pump stations and mains. This water is sourced from Seqwater, which operates dams, water treatment plants, reservoirs and the Gold Coast desalination plant and bulk transport mains. Seqwater determines the applicable source to be used based on the overall water security requirements for the region.

To ensure water quality meets applicable standards and guidelines, all water service providers including RCC are required to have an approved Drinking Water Quality Management Plan (DWQMP). These

plans are reviewed and approved by the regulator administering the *Water Supply (Safety and Reliability) Act*.

2.2 Special health needs

Customers have a right to register with RCC if there is a need for water to maintain life support, such as a dialysis machine. Customers may also register other special medical needs.

RCC maintains a register of residential properties and hospitals that operate dialysis machines. This information is available to our Operations personnel to ensure a continuous supply of drinking water is maintained (if necessary) at these locations. The water meter is coloured blue to denote these properties in the event of a burst water main or a planned shutdown of the water supply for maintenance purposes. Temporary alternative water supply may be provided from a drinking water tanker or by connecting the property to water supply from a nearby water main. If the situation becomes life threatening, emergency services should be called immediately on 000. To obtain a copy of RCC's policy and guidelines concerning the management of dialysis remissions or to register any special health needs, customers should contact Council's Customer Service team.

2.3 Recycled water

Recycled water is defined in the *Australian Guidelines for Water Recycling* as water that has been treated to a "fit for purpose" standard for a specific application, such as municipal open space irrigation, irrigation of pasture and fodder crops, irrigation of food crops or non-food crops, and dust suppression at construction sites.

In Queensland, recycled water is categorised in five categories (Class A+ through Class D) with the class determining the reuse options.

RCC currently utilises recycled water as follows:

- A portion of the treated and disinfected effluent from the Victoria Point WWTP is transferred by pipeline to the Redland Bay Golf Club for grounds irrigation as Class C recycled water.
- All of the treated and disinfected effluent from the Mount Cotton WWTP is transferred by pipeline to the Carbrook Golf Club for grounds irrigation as Class C recycled water.

Excess recycled water that is not re-used by RCC's recycled water customers is released to the environment in accordance with stringent regulatory conditions and release limits.

RCC is committed to protecting of our natural environment and improving environmental sustainability within Redland City. Planning and implementation of additional long term recycled water options will play an important role in conserving our precious water resources, increasing our water resilience, and ensuring sustainability as the City grows.

2.4 Wastewater collection and treatment

RCC owns and operates 7 Wastewater Treatment Plants (WWTPs) which treat incoming wastewater collected from almost 55,000 properties across the existing wastewater connection area via a network of sewage pumping stations and mains. Each year, these treatment plants collectively process around 9,600 megalitres of wastewater. The majority of the treated wastewater is released to the environment in accordance with relevant development permit conditions. Approximately 0.8% of the treated water is recycled and provided to customers as Class C recycled water.

RCC operates its WWTPs in accordance with conditions of approval, relevant guidelines and policies and its general environmental obligations under the *Environmental Protection Act 1994*. Substantial

equipment, systems and processes are utilised at each of the WWTPs to minimise the risk of wastewater overflows and to control odour. Comprehensive testing and analysis of wastewater is regularly undertaken to monitor process performance and effluent quality. A stringent reporting regime is in place for identified non-compliances with quality requirements. Extensive incident management plans have also been established should an event occur which may impact on the environment and/or public health and safety.

2.5 Trade waste management

Under the *Water Supply (Safety and Reliability) Act 2008*, trade waste is defined as "water-borne waste from business, trade or manufacturing premises", other than –

- Waste that is a prohibited substance
- Human waste (i.e. from toilets, showers, kitchens and laundries)
- Stormwater

Trade waste may have an organic strength many times that of domestic sewage and may overload the sewerage system. Trade waste may also contain a variety of other substances such as high levels of fats, oils or grease, heavy metals, organic solvents and chlorinated organic substances which Council's wastewater treatment facilities are not designed to treat. These substances may:

- Pose a serious risk to the health and safety of sewerage workers
- Block, damage or surcharge the infrastructure of the sewerage system
- Inhibit biological processes at the wastewater treatment plant
- Accumulate in biosolids, making their reuse difficult or impossible
- Pass through the wastewater treatment plant untreated, resulting in environmental contamination

Trade wastes may be produced by a range of commercial or industrial businesses including but not limited to restaurants, service stations, mechanics, spray painters, butchers, commercial laundries and shopping centres. Trade waste approvals are required for businesses likely to generate trade waste.

A variety of pre-treatment devices may be required to remove pollution from wastewater before it enters the wastewater network, including:

- Oil, grease or silt arrestors
- Plate or gravity separation devices
- Waste dilution and/or holding tanks
- On-site neutralisation or treatment systems

Council encourages businesses to manage their operations to reduce their trade waste production and applies trade waste charges to recover costs associated with managing the discharge of trade waste in accordance with RCC's wastewater admission standards. These standards set limits on the allowable concentration of many potentially harmful substances, and completely prohibit discharge of other substances.

More information regarding trade waste regulation, approvals and charges can be found on Council's website, or by contacting Council's Customer Service Team.

Water Netserv Plan

The *South-east Queensland Water (Distribution and Retail) Act 2009* requires RCC to have a *Water Netserv Plan* in place. The *Water Netserv Plan* must be consistent with the *ShapingSEQ – South-east Queensland Regional Plan 2017* and with the planning assumptions for RCC. It will be the key strategic document guiding the delivery and operation of RCC's water and wastewater infrastructure and services.

3. Purpose (statement of intent)

The purpose of the *Water Netserv Plan* is to:

- ensure the provision of safe, reliable and secure water and wastewater services;
- provide for strategic planning for the operation of the business;
- provide infrastructure planning for water and wastewater services for at least 20 years;
- integrate land use planning and infrastructure planning for water and wastewater services;
- provide for the management of water and wastewater services in a way that seeks to achieve ecological sustainability.

4. Form and content

To meet legislative requirements, the Water Netserv Plan comprises the following 2 separate parts. The content of each part is outlined in Table 4.1.

- **Part A** – contains public information concerning RCC's water and wastewater services
- **Part B** – comprises an internal planning document to inform its overall strategic direction.

Table 4-1 - Water Netserv Plan contents

PART A	PART B
Product and services Customer service standards Connections policy Demand management strategy Charges schedule relating to: • service usage; • connections; • infrastructure provision Assumptions about future development and infrastructure demand Desired standards of service Trunk network plans identifying existing and future trunk infrastructure Timeframes for the provision of future trunk infrastructure Mechanisms used to achieve effective outcomes Other matters prescribed under a regulation	Mechanisms used to meet performance targets and service standards for the operation, maintenance and replacement of existing infrastructure Planning of new infrastructure to meet expected future development and future growth Measures used to minimise system water leakage Measures used to minimise sewerage overflows Drinking water quality management measures undertaken to protect public health Total water cycle management information Mechanisms used to achieve ecological sustainability Trade waste management information Recycled water management information Other matters prescribed under a regulation

To assist with navigating this *Water Netserv Plan* relative to the requirements of the *South-East Queensland Water (Distribution and Retail Restructuring) Act 2009*, the following lookup (Table 4-2) is provided.

Table 4-2 - Legislation references

SECTION 99BO – Requirements of a Water Netserv plan	INCLUDED	WATER NETSERV PLAN LINK
(a) state the relevant planning assumptions on which the plan is based; and	✓	Planning assumptions
(b) include information outlining the SEQ service provider's infrastructure networks for its water service and wastewater service, including information about the capacity of each network to service existing and proposed customers; and	✓	Redland City Council's Networks Network Planning
(c) include information outlining any proposed increases in the capacity of the infrastructure networks, including information about the areas into which the networks are to be extended and time frames for increasing the capacity; and	✓	Network Upgrades
(d) state the desired standard of service for infrastructure used to provide the SEQ service provider's water service and wastewater service; and	✓	Desired standards of service
(e) include information outlining the SEQ service provider's strategy for demand management for water; and	✓	Demand management
(f) state the SEQ service provider's policy for connections, disconnections and alterations to its infrastructure networks for its water service and wastewater service (the connections policy), including— (i) the areas (each a connection area) in which the SEQ service provider guarantees to provide connections that comply with its connection criteria to its water service or wastewater service; and (ii) the areas (each a future connection area) in which the SEQ service provider intends to extend its infrastructure network; and (iii) the circumstances in which the SEQ service provider may approve connection outside a connection area; and (iv) the SEQ service provider's criteria for providing connection, with or without conditions, to its water service or wastewater service; and (v) if the SEQ service provider is a distributor-retailer—each matter stated in section 99BOA; and	✓	Connections policy Connection Areas Premises outside the existing connection area Additional conditions when connecting to an RCC network
(g) include a schedule (a charges schedule) containing details of— (i) charges, including charges under section 99AV(2)(b), to connect customers to the SEQ service provider's water service and wastewater service; and (ii) charges for a customer's use of the services; and	✓	Water and Wastewater Charges

SECTION 99BO – Requirements of a Water Netserv plan	INCLUDED	WATER NETSERV PLAN LINK
(iii) if the SEQ service provider is not a distributor-retailer—charges relating to providing infrastructure for the services; and (iv) if the SEQ service provider is a distributor-retailer—each matter stated in section 99BOB; and		
(h) indicate how the SEQ service provider proposes to achieve effective outcomes for the provision of water services and wastewater services in— (i) the SEQ service provider's relevant area; and (ii) the SEQ region; and	✓	Performance Reporting
(i) if the SEQ service provider is a distributor-retailer—include a schedule of works for the provider; and	N/A	
(j) include any other matters prescribed under a regulation.	✓	Development assessment

Redland City Council's Planning – supporting growth and sustainability

5. Role in land use and infrastructure planning

Land use planning for the Redland local government area is performed by RCC, in conjunction with the state government. Infrastructure planning is undertaken by RCC's City Assets group for transportation, stormwater, marine, open space, water supply and wastewater networks. As a major infrastructure provider, RCC plays an important role in achieving sustainable water and wastewater outcomes for the region. The *Planning Act 2016* details the powers, processes, roles and responsibilities of the various parties involved in land use planning and for councils when undertaking infrastructure planning. The *South East Queensland Water (Distribution and Retail Restructuring) Act 2009* sets out the requirements for water businesses when undertaking infrastructure planning.

6. South-east Queensland Regional Plan

ShapingSEQ - South-east Queensland Regional Plan 2017 is the state government's blueprint for managing regional growth, population change, economic development and for protecting the environment and infrastructure provision. The plan operates in conjunction with other statutory planning tools, including state planning polices, local government planning schemes, state regulatory provisions and development assessment processes.

6.1 SEQ Regional Plan

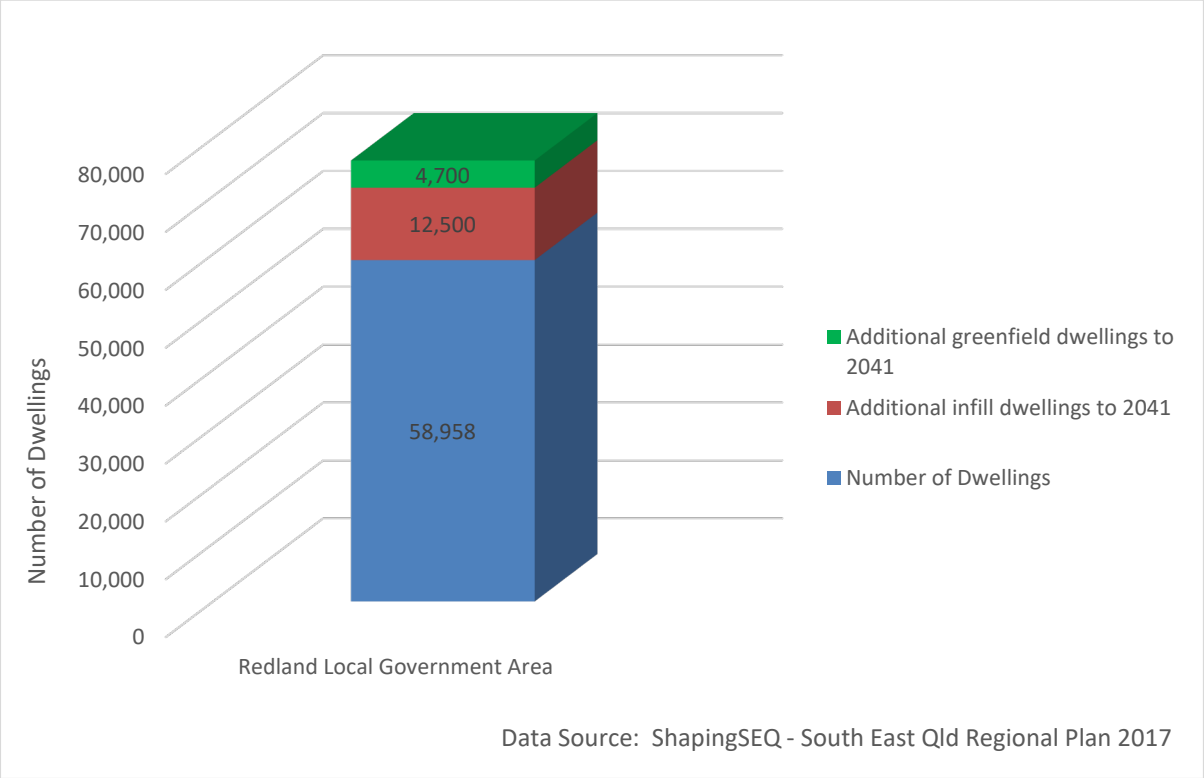
Table 6-1 - Projected population and dwelling forecasts for Redland City

YEAR	POPULATION	ADDITIONAL DWELLINGS (2016 – 2041)
2016	152,000	-
2041	188,000	17,200

The purpose of the *SEQ Regional Plan* is to manage regional growth and change in the most sustainable way to protect and enhance the quality of life in the region. The primary means for achieving this is through the identification of an urban footprint, as a means to control unplanned urban expansion. The *SEQ Regional Plan* is the pre-eminent plan for the SEQ region and reflects and informs state planning policy and priorities.

The *SEQ Regional Plan* was established in 2005 in response to rapid population growth and is reviewed every 5 years. The latest *SEQ Regional Plan* was published in 2017 – *ShapingSEQ – South East Queensland Regional Plan*. Over the last 20 years, the population of SEQ has increased rapidly. It is expected to reach 5.3 million people by 2041. To accommodate the additional 1.88 million people, it is estimated that an additional 793,700 dwellings will need to be constructed. The *SEQ Regional Plan* forecasts that around 2% of this growth will occur in the Redland local government area. The following figure shows the existing and planned dwelling forecasts for the Redland local government area in graphical format.

Figure 6-1 - Existing and planned dwelling distribution to 2041



Section 7 of this Netserv document provides more detailed and locally focussed population and dwelling projections, and identifies reasons behind variations in the projections provided by different authorities.

6.2 Population and employment key growth areas

The following table provides a snapshot of key elements contained in the *SEQ Regional Plan* with regards to population and employment growth areas in the Redland local government area.

Table 6-2 – Population and employment growth areas – Redland

RESIDENTIAL AREAS	
Greenfield	Southern Redland Bay
Existing urban areas	Cleveland, Capalaba, Victoria Point, Redland Bay, Thorneside, Thornlands, Birkdale, Wellington Point, Alexandra Hills and Ormiston
REGIONAL ACTIVITY CENTRES	
Principal	Capalaba and Cleveland
ECONOMIC OPPORTUNITIES	
Cleveland – Toondah Harbour	Cleveland–Toondah Harbour includes the Cleveland regional activity centre, Toondah Harbour Priority Development Area, Redlands Research Station, Redlands Health Precinct, and adjacent industry and enterprise area. While it does not have the scale or potential to be an area of regional economic significance, this area could support

	specialisations in priority sectors of tourism, health, and knowledge and professional services.
IDENTIFIED GROWTH AREAS	
Southern Thornlands	RCC is required to investigate this area, including its potential as a future employment area.

7. Redland City Plan

Local planning is both informed by and must reflect the *SEQ Regional Plan*. Local governments must ensure that the vision, strategic directions and land use pattern specified in the regional plan for the region's future development are furthered by local planning. In this context, planning schemes must integrate these regional requirements whilst balancing the economic, social and environmental needs and aspirations of the local community to provide an orderly approach to land use and change. Overall, a planning scheme:

- outlines the desired outcomes sought for the local government area as a whole;
- allocates land for different uses (e.g. residential, commercial, open spaces etc.);
- coordinates and integrates community, state and regional needs and wants;
- coordinates and integrates infrastructure and land use planning;
- indicates the location of existing and proposed infrastructure;
- includes a Local Government Infrastructure Plan;
- includes a structure plan for any master planned areas within the local council area;
- identifies areas or places that constrain the use of land;
- identifies the kind of development that requires approval;
- specifies the standards or criteria for assessing the suitability of a development proposal.

By establishing the future land use pattern for an area, the *Redland City Plan* provides important input into the development of plans for the provision of water and wastewater infrastructure. In this regard, land use planning allows estimates of future demand for infrastructure to be made. Infrastructure is then planned and provided in response to this demand. Key areas of future development and their accompanying land use planning are elaborated upon as follows.

7.1 Key development areas

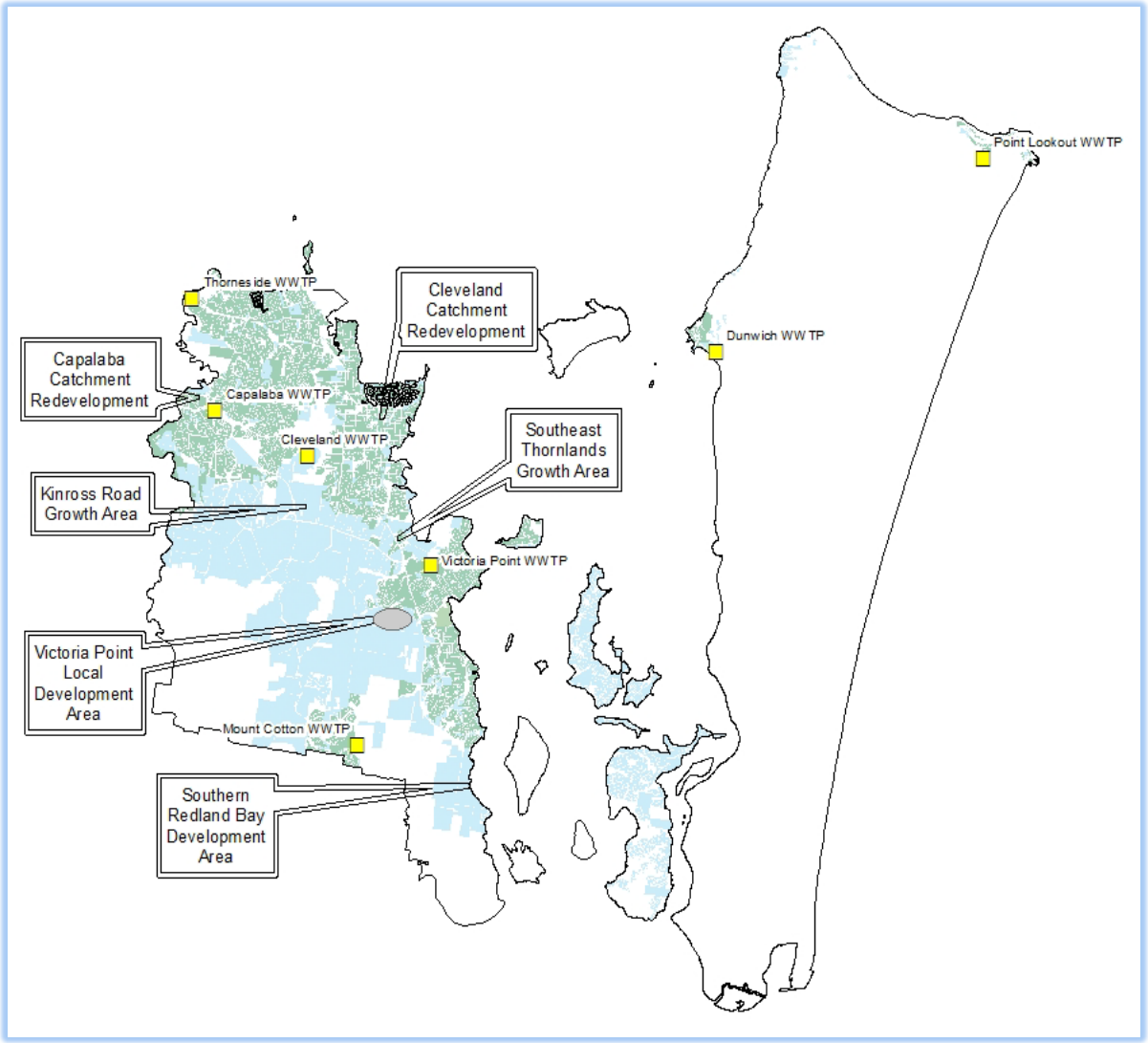
The following table outlines key areas of future development within the Redland local government area and the land use and infrastructure planning being undertaken in those areas. A map of these areas is provided below.

Table 7-1 – Key development areas

KEY DEVELOPMENT AREAS	LAND USE AND INFRASTRUCTURE PLANNING
South-east Thornlands growth area	Development in this area is nearing completion with a majority of trunk infrastructure (such as wastewater pump stations and rising mains) now in place. Development in this area will continue to use spare capacity in the trunk water supply network. Developer constructed reticulation will continue to be required to service new properties.
Kinross Road growth area	Development continues in the Kinross Road area in accordance with RCC's plans for the proposed networks required to service the area. The interaction of development in this area with Seqwater's operations between the Alexandra Hills reservoir complex and the Mount Cotton reservoir will require ongoing management.
Capalaba & Cleveland catchment redevelopment	Areas of Capalaba and Cleveland have undergone significant redevelopment in recent years, mainly through the construction of residential unit blocks. There is scope in the *Redland City Plan* for this to continue. RCC has prepared master plans for its infrastructure to cater for this redevelopment.

KEY DEVELOPMENT AREAS	LAND USE AND INFRASTRUCTURE PLANNING
Victoria Point	The South-West Victoria Point Structure Plan Area increases the demand on water and wastewater infrastructure within Victoria Point including the WWTP. Augmentations will be required in order to service this growth.
Southern Redland Bay	The development of the Southern Redland Bay area continues to progress. Water supply will be provided via connections and upgrades to the existing water supply network. Final solutions for the collection and treatment of wastewater from this development are currently being developed by the key developers in the area.
Birkdale Community Precinct	Master planning for the Birkdale Community Precinct development is currently underway in consultation with all relevant stakeholders, with water and wastewater connection planning to commence once the vision has been sufficiently progressed.

Figure 7-1 Key development areas



8. Network Planning

RCC has undertaken master planning for its water supply and wastewater networks. These plans identify trunk and non-trunk infrastructure. Trunk infrastructure is higher order or shared infrastructure, which services a number of users. Table 8-1 identifies typical trunk infrastructure items within each of the RCC networks.

Table 8-1– SEQ service provider trunk infrastructure networks

TRUNK NETWORK	IDENTIFIED TRUNK INFRASTRUCTURE
Water supply trunk infrastructure network	Water supply trunk infrastructure: (a) water treatment plants (where relevant) (b) the following distribution mains which satisfy the function and purpose of the water supply trunk infrastructure network: (i) for the Mainland and Southern Moreton Bay Islands, all mains of 300 mm diameter or more and specific mains of smaller diameter required to complete the interconnection of the trunk network; (ii) for the North Stradbroke Island townships, mains of 200 mm diameter or more connecting water treatment plants to reservoir complexes or township boundaries, and mains connecting reservoir complexes and high level zones (either pump boosted zones or elevated reservoir zones); and (c) for a trunk distribution mains: (i) associated pump stations and fittings; (ii) associated pressure reducing and sustaining valves; (iii) associated monitoring systems; and (d) firefighting devices; and (e) storages. Trunk infrastructure for the water supply network does not include: (a) minor water reticulation mains less than 300 mm diameter on the mainland and 200 mm diameter on North Stradbroke Island; (b) an existing water supply infrastructure item; (c) water supply infrastructure that performs one of the following functions: (i) water supply infrastructure that is internal to a development; or (ii) water supply infrastructure that connects a development to the external water supply infrastructure network.

Sewerage trunk infrastructure network	Sewerage trunk infrastructure (a) rising mains not associated with private sewerage pump stations; and (b) reuse transport mains; and (c) gravity sewers on the mainland which service a minimum 800 ET; and (d) gravity sewers on the mainland which provide a connecting function between an upstream trunk maintenance structure and downstream trunk maintenance structure; and (e) gravity sewers on North Stradbroke Island which service a minimum 400 ET; and (f) gravity sewers on North Stradbroke Island which provide a connecting function between an upstream trunk maintenance structure and downstream trunk maintenance structure; and (g) pump stations (excluding private pump stations), manholes and fittings associated with a trunk gravity sewer; and (h) odour and corrosion control systems; and (i) monitoring systems associated with a trunk item; and (j) sewerage treatment plants, storage facilities, release systems and associated monitoring systems. Trunk infrastructure for the sewerage network does not include land and work for the following: (a) minor sewage reticulation mains augmenting another gravity sewer as specified under subparagraphs (d) or (f) above; (b) an existing sewer infrastructure item; (c) sewerage infrastructure that performs one of the following functions: (i) sewerage infrastructure that is internal to a development; or (ii) sewerage infrastructure that connects a development to the external sewerage infrastructure network.

RCC has prepared trunk network plans that identify the existing and future trunk infrastructure required to service forecast growth. These trunk network plans have been prepared for its infrastructure networks based on a number of key inputs including:

- the demand for water and wastewater infrastructure generated by projected development in response to the land use provisions of the *Redland City Plan*; and
- the desired standard of service to be addressed by the network.

These Inputs are elaborated upon as follows.

9. Planning assumptions

One of the key inputs to the planning of RCC's networks is the demand for water and wastewater infrastructure generated by projected residential and non-residential development.

The projections of residential and non-residential development are referred to as the planning assumptions and have been prepared by RCC to provide a consistent basis for the planning of the following infrastructure networks:

- water;
- wastewater;
- stormwater;
- transport;
- parks and land for community facilities.

The planning assumptions prepared by RCC describe the type, scale, location and timing of future development and are based on the land use planning provisions of its planning scheme and the population and dwelling forecasts provided by the Queensland State Government. In doing so, the outcomes desired by the *SEQ Regional Plan* and which are reflected in the planning scheme are given effect. To ensure this is the case, the planning assumptions must also be approved by the Minister as being compliant with the desired outcomes of the *SEQ Regional Plan*.

In terms of actual numbers applied in the forecasts, there are variations between those used in the *SEQ Regional Plan* and the numbers used in the RCC Local Government Infrastructure Plan (LGIP). This is due to different parameters being used, and the level of detail adopted by each agency in completing their analyses.

Use of the RCC planning assumptions for planning the water and wastewater networks will help to ensure that sufficient water is supplied to meet the needs of urban growth in accordance with the requirements of the regional plan.

The detailed planning assumptions are shown in RCC's LGIP. The planning assumptions are also summarised in Table 9-1.

Table 9-1 – Planning assumptions summary

DESCRIPTION	DEVELOPMENT PROJECTIONS						
	2021	2026	2031	2036	2041	2046	2051
Population	161,027	170,996	179,241	185,631	192,431	194,411	196,422
Employment	51,910	56,042	60,390	64,329	68,299	72,334	76,437

9.1 Infrastructure demand

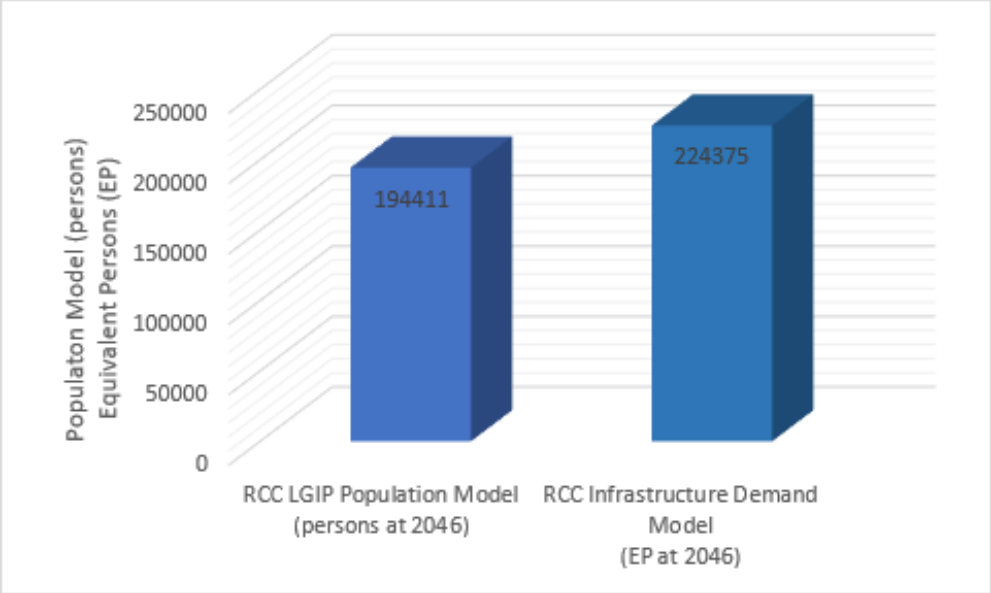
RCC has converted the planning assumptions into demand for water and wastewater infrastructure. Our connection area mapping identifies which premises will receive water and/or wastewater services to meet this demand. This typically includes premises intended for urban development under the relevant local government's planning scheme.

The area into which RCC plans to extend its networks is shown on the following maps:

- Appendix A – Water supply connection area and trunk infrastructure maps; and
- Appendix B – Wastewater connection area and trunk infrastructure maps

Alignment with the RCC population estimates is demonstrated in Figure 9-1 which shows the ultimate population capacity as detailed in the RCC LGIP, against the ultimate demand of RCC's infrastructure demand model (IDM). Note that the LGIP population model is a count of people while the IDM model is a count of Equivalent Persons which takes into account average water trends in dwellings.

Figure 9-1 - Alignment of demand projections



Demand for water and wastewater infrastructure is expressed in equivalent persons (EPs). An EP is defined as the average day (AD) water demand per person living in an average detached dwelling or the wastewater discharge per person living in an average detached dwelling. By definition – the relationship to average water consumption and/or average wastewater discharged, an EP is therefore not necessarily equal to a 'person' as defined in population projections.

The water demand projected for the area into which it is intended to extend the water network is summarised in **Table 9-2**.

Table 9-2 – Projected water demand

WATER SUPPLY ZONE	PROJECTED WATER DEMAND (EP)							
	2021	2026	2031	2036	2041	2046	2051	Ult.
Alexandra Hills	95,415	100,331	105,602	109,227	112,449	114,103	115,573	132,840
Heinemann Road	53,413	55,885	60,232	64,150	68,063	69,521	70,831	84,186
Mt Cotton	14,666	15,129	15,847	16,415	16,788	17,264	17,573	20,065
Southern Moreton Bay Islands	13,235	14,816	16,290	17,397	17,832	17,844	17,855	19,071
Mainland Sub-Total	**176,729**	**186,160**	**197,970**	**207,189**	**215,133**	**218,732**	**221,832**	**256,162**
Amity Point	1,068	1,073	1,130	1,170	1,176	1,176	1,176	1,418

WATER SUPPLY ZONE	PROJECTED WATER DEMAND (EP)							
	2021	2026	2031	2036	2041	2046	2051	Ult.
Dunwich	1,392	1,411	1,479	1,534	1,550	1,567	1,584	2,624
Point Lookout	2,742	2,759	2,816	2,862	2,884	2,900	2,914	3,005
Total All Zones	**181,930**	**191,403**	**203,395**	**212,755**	**220,743**	**224,375**	**227,506**	**263,209**

The wastewater demand projected for the area into which it is intended to extend the wastewater network is summarised in **Table 9-3.** Note that there is a lower total number of wastewater demand (EPs) as not all areas serviced with water are provided a wastewater service.

Table 9-3 – Projected wastewater demand

WWTP SERVICE AREA	PROJECTED WASTEWATER DEMAND (EP)							
	2021	2026	2031	2036	2041	2046	2051	ULT
Capalaba	29,510	30,280	31,241	31,603	31,730	32,027	32,398	39,808
Cleveland	42,969	46,448	50,227	53,154	55,666	56,959	58,134	65,274
Thorneside	44,433	45,547	46,670	47,583	48,302	48,609	48,827	55,623
Victoria Point	34,404	36,861	38,737	39,765	40,228	40,533	40,694	47,072
Mount Cotton	5,611	5,629	5,719	5,733	5,737	5,740	5,743	5,832
Dunwich	955	972	985	993	995	997	999	1,624
Point Lookout	2,744	2,761	2,818	2,864	2,886	2,902	2,918	3,010
Total	**160,626**	**168,498**	**176,397**	**181,695**	**185,544**	**187,767**	**189,713**	**218,243**

Redland City Council's Networks

RCC operates water and wastewater networks within Redland City as detailed in the following sections.

10. Existing water supply network

RCC's existing water supply network comprises both trunk and non-trunk infrastructure extending from the connection points with the SEQ water grid through to the service connection and meter at each premise. Table 10-1 provides a summary of the water network as at 30 June 2021.

Table 10-1 – Summary of existing water network

INFRASTRUCTURE DESCRIPTION	AMOUNT
Water mains (km)	1,320
Water reservoirs (No.)	5
Water pump stations (No.)	6

Details of RCC's existing trunk water infrastructure can be found on the RCC website.

11. Existing wastewater network

RCC's existing wastewater network includes both trunk and non-trunk infrastructure and includes WWTPs, wastewater pump stations and pipes. Table 11-1 provides a summary of the wastewater network as at 30 June 2021.

Table 11-1 – Summary of existing wastewater network

INFRASTRUCTURE DESCRIPTION	AMOUNT
Mains (km)	1,208
Pump stations (No.)	138
WWTPs (No.)	7

Table 11-2 provides a high-level overview of the WWTPs currently operating in the Redland local government area.

Table 11-2 – Summary of existing wastewater treatment plants

WASTEWATER TREATMENT PLANT	NOMINAL CAPACITY (EP)
Capalaba	30,000
Cleveland	43,005
Mt Cotton	5,600
Thorneside	51,000

WASTEWATER TREATMENT PLANT	NOMINAL CAPACITY (EP)
Victoria Point	38,300
Dunwich	1,100
Point Lookout	7,600
Total	**176,605**

Details of RCC's existing trunk wastewater infrastructure can be found on the RCC website

Desired standards of service

The desired standard of service (DSS) is the standard of performance for an RCC network stated in:

- for the water supply network, the Redland City Council *Water Supply Network Master Plan 2022*;
- for the wastewater network, the Redland City Council *Sewer Network Master Plan 2022*.

The DSS are the technical criteria behind the design of RCC's assets that allows RCC to meet our customer service standards (CSS). In this respect, the DSS are not publicly reported in the same manner as our CSS are reported in our annual performance report.

This section summarises the key design criteria for the DSS for each of the RCC networks.

The DSS shown below closely align to the Design Criteria from the SEQ Water Supply and Sewerage Design and Construction Manual. The SEQ Water Supply and Sewerage Design and Construction Manual is a requirement of the *South-East Queensland Water (Distribution and Retail Restructuring) Act 2009*.

12. Water supply DSS

Table 12-1 states the key DSS for RCC's water supply network.

Table 12-1 – Key desired standards of service for the water supply network

DESCRIPTION OF STANDARD	RCC STANDARD
Average day demand	230 L/EP/day (including NRW)
Minimum operating pressure	22m at the property boundary
Maximum operating pressure	55m at the property boundary
Fire flow	General urban category a) Residential (3 storeys and below): 15L/s (2hrs) b) Residential (>3 storey buildings): 30L/s (4hrs) c) Commercial / Industrial: 30L/s (4hrs) Small community category: a) Residential (up to 2 storeys): 7.5L/s (2hrs) b) Commercial / Industrial (up to 2 storeys): 15L/s (2hrs) c) All other buildings: refer to the General Urban category. Background demands: a) Predominately residential areas: 2/3 peak hour b) Predominately commercial / industrial: localised peak hour plus check of 2/3 peak hour
Maximum velocity pipeline design	2.5m/s

DESCRIPTION OF STANDARD	RCC STANDARD
Drinking water quality	Comply with National Health and Medical Research Council's *Australian Drinking Water Guidelines – 2011*.

13. Wastewater DSS

Table 13-1 identifies the key DSS for RCC's wastewater network.

Table 13-1 – Key desired standards of service for the wastewater network

DESCRIPTION OF STANDARD	RCC STANDARD
Average dry weather flow (ADWF)	210L/EP/d
Peak dry weather flow (PDWF)	PDWF = C2 x ADWF where C2= 4.7 x $(EP)^{-0.105}$
Peak wet weather flow (PWWF)	For RIGSS PWWF= 5 x ADWF
Pump station servicing requirements Operating Storage (m3)	Ops Storage = 0.9 x Q / N Q = pump rate (L/s) of duty pump or Total Pump Capacity (L/s) if multiple duty pumps However, Number of starts per hr are: N = 12 for motors < 100kW N = 8 for motors 100-200kW N=5 for motors > 200kW
Minimum wet well diameter	As shown in the Sewer Pump Station Code (As amended)
Emergency storage(New)	4hrs at ADWF
Emergency storage(existing)	No Requirement
Pump operation mode	Duty/assist
Single pump capacity	Min pump capacity for SP Stns (duty & assist) = C1 x ADWF

DESCRIPTION OF STANDARD	RCC STANDARD
Total pump station capacity	Where C1 = 15 x (EP) $^{-0.1587}$ Value of C1 to be within the range 3.5 - 5 PWWF
Size of pump station lot (and buffer)	Refer Clause 5.2.4 of Sewer Pump Station Code (As amended)
Rising Main Requirements	
Preferred Velocity	1.0 – 1.5 m/s
Minimum velocity	0.75m/s
Maximum Velocity	3 m/s

Network Upgrades

14. Future water supply infrastructure

RCC has identified future trunk infrastructure required to supply the projected water demand at the DSS. This future trunk infrastructure is consistent with regional and strategic planning undertaken by Seqwater.

Tables and maps detailing the future trunk water supply infrastructure can be found on the RCC website. Appendix A – Water supply connection area and trunk infrastructure maps provides the link to the maps.

15. Future wastewater infrastructure

RCC has identified the future trunk wastewater infrastructure required to service the projected wastewater demand at the desired standard of service.

Tables and maps detailing the future trunk wastewater infrastructure can be found on the RCC website. Appendix B – Wastewater connection area and trunk infrastructure maps provides the link to the maps.

Demand management

Demand management involves behavioural and technological approaches and techniques that reduce water consumption and manage wastewater sources. Key areas include the following:

- **Economic** – user pays pricing structures provide financial incentives for residents and businesses to save water;
- **Education** – community, industry and school education programs raise awareness about the need to conserve water;
- **Enforcement** – use of regulatory mechanisms and water use restrictions combined with appropriate compliance and enforcement regime to target water misuse;
- **Encouragement** – incentive schemes and targeted marketing persuade the public to increase the uptake of water-saving products;
- **Engineering** – new ways of planning and managing water and wastewater infrastructure.

16. Community relationships

Education and awareness is essential to achieve the change in attitudes and behaviours needed to reach and maintain sustainability. By creating interesting and engaging programs to empower students, teachers, residents and local businesses, the community will discover and appreciate the importance of living sustainably with water. The following table outlines a number of community education activities that have been undertaken by RCC.

Table 16-1 – Community education activities

EDUCATION ACTIVITIES	DESCRIPTION
Education programs for school students and local residents	RCC supports and contributes to a range of environmental awareness and education programs, aimed at improving ecological outcomes for Redlands Coast. Such programs aim to influence long-term sustainable behavioural change regarding water use through education programs that address the following aspects of water and water usage: • local water as a valuable resource; • local sources of water; • using water wisely (urban demand management).
Environmental Partnerships	RCC supports a range of environmental partnerships to offer advice and support to landholders make a difference to Redlands Coast natural environment, including: • Voluntary Conservation Agreement Program • Land for Wildlife • Waterways extension program • Rural Support Program • Koala Conservation Agreement Program • Your Backyard Garden Program

EDUCATION ACTIVITIES	DESCRIPTION
Community education program	RCC's website contains material, fact sheets and links to Queensland Government water conservation documents including harvesting rainwater, grey water reuse, irrigation and sprinklers, and being water wise in and around the home. RCC also delivers community education campaigns in times of drought and where water restrictions are in place.

17. Residential programs

Residential programs are aimed at assisting residential customers to become aware of their consumption and provide awareness of acceptable wastewater disposal practices. Programs are designed to provide both short and long term benefits. Key initiatives and programs include:

- residential high water users program (refer to **Residential high water users** program);
- leak awareness program;
- advisory field service program;
- providing additional educational information for residential customers.

These programs are subject to the water security situation in SEQ.

18. Commercial programs

Commercial programs are aimed at supporting mandatory and voluntary campaigns that influence the behaviour and technology practiced by non-residential customers in delivering best practices in water conservation and sustainability in commercial and industrial environments. Programs are designed to provide both short and long term benefits. Key initiatives and programs include ongoing contribution and collaboration with the State Government in policy decisions and are subject to the water security situation in SEQ.

19. Compliance

RCC works closely with regulatory bodies to protect its infrastructure and ensure the community is aware of the current water-saving initiatives and regulations in the region. RCC will carry out investigations and audits around the following matters where appropriate:

- theft of water;
- misuse of fire services;
- illegal water connections;
- damage to service providers' infrastructure;
- auditing of recycled water carriers;
- auditing of potable water carriers;
- illegal discharge to wastewater.

20. Wastewater source management

Wastewater source management concerns the quality of influent entering the WWTPs. Such influent includes sources from trade waste generators, illegal discharges, seawater infiltration, stormwater infiltration, domestic contributions, tankering operations and any other sources that may pose a risk to infrastructure and the environment.

RCC's wastewater source management is based on the *Australian Sewage Quality Management Guidelines 2012* and RCC's existing environmental management plan.

Connections policy

RCC is responsible for the provision of water and wastewater services to customers throughout the Redland local government area. This connections policy outlines the process of connecting to, disconnecting from, or changing a connection to an RCC network.

Connecting to, or changing a connection to an RCC network typically involves the following processes:

- obtaining all necessary approvals for development from Council;
- making an application to RCC for a service connection.

It is recommended that prior to making an application for development, early discussion with RCC be initiated to determine the feasibility and cost of providing a service connection. Costs may include infrastructure charges, network contributions and network connection charges. This is particularly relevant where the development to be connected is located outside of the network's existing connection area.

21. Connection Areas

RCC is responsible for the provision of water and wastewater services to consumers throughout the Redland local government area via the following infrastructure networks:

- water supply network;
- wastewater network.

RCC guarantees a connection to premises located in the existing connection area for a particular network (either water supply or wastewater), where it is technically feasible and economically viable. Connection is not guaranteed for any premises not within the existing connection area (water or wastewater) or within future connection areas not yet connected to RCC networks.

All premises within the existing connection area for a network for which a connection point is available are levied a network service charge. Under the *South-East Queensland Water (Distribution and Retail Restructuring) Act 2009,* RCC must review the existing connection area for each of its networks on an annual basis. Expansion of RCC's water and wastewater networks due to new land development, population growth and other factors are identified during these annual reviews.

The following sections outline the existing connection area for each RCC network.

21.1 Water network

The connection areas for the water network are identified on the maps in Appendix A – Water supply connection area .

Within the existing water connection area most premises are provided with the standard level of service.

21.2 Wastewater network

The connection areas for the wastewater network are shown on the maps in Appendix B – Wastewater connection area .

Within the existing wastewater connection area most premises are provided with a connection to the RCC gravity collection system.

22. Obtaining approvals for development

22.1 Development requiring approval

Where a development requiring connection to an existing RCC network is categorised as self-assessable, not an existing lawful use, or an exempt development, the appropriate building and plumbing approvals will need to be sought and approved by RCC, prior to making an application for a service connection:

The following types of development require RCC approval:

- reconfiguring a lot;
- material change of use;
- carrying out operational work;
- carrying out of building work;
- regulated plumbing or drainage works (as defined by the *Plumbing and Drainage Act 2018*).

22.2 Typical development conditions

When an application involving connection to the water or wastewater network is received, RCC will assess the application having regard to potential impacts on the water and wastewater networks.

This may result in RCC imposing conditions on the development approval or compliance permit. These conditions may require infrastructure to be provided at the applicant's cost to enable the development to be connected to the network.

Typical conditions may include the following:

- applicant to provide new and/or upgraded infrastructure for the purpose of connecting the development to an RCC network. This may include the provision of infrastructure external to the premises;
- applicant to pay all costs associated with providing infrastructure required to connect development to an RCC network. This may include additional costs associated with extending, upgrading or re-aligning an RCC network;
- applicant to pay the cost of RCC connecting the new and/or upgraded infrastructure to the live network;
- applicant to pay the cost of RCC installing new service connections and meters to the premises;
- applicant to design and construct any water and wastewater infrastructure in accordance with RCC's DSS and the design and construction standards specified by the *SEQ Design and Construction Code*;
- applicant to provide further design and/or approvals from external agencies as required by RCC. As an example, where works are proposed to be undertaken on State Controlled Roads, the applicant will be responsible for provision of Department of Transport and Main Roads (DTMR) Road Corridor Permit.
- applicant to seek further approvals from RCC (such as trade waste approval) where relevant.
- applicant to provide appropriate suitable access and/or easements (in accordance with the *SEQ Design and Construction Code* to all sewer maintenance structures (including any pre-existing sewer maintenance structures) on private property within the development.

In order to fulfil these conditions of approval, the applicant will, in most instances, need to make a subsequent application to RCC's City Water Group for service connection(s), after the development has been approved.

23. Making an application for a service connection

Application can be made to RCC's City Water Group to connect to or change a connection to an RCC network for development that is:

- an existing lawful use;
- an exempt development; or
- a development having the necessary development, building and plumbing approvals.

Where an application to connect or change an existing connection to an RCC network does not require the extension or upgrading of network infrastructure, the applicant will only be required to make application for a service connection. Most minor development within the relevant existing connection area will only require this type of application.

However, where an application to connect requires the applicant to extend or upgrade network infrastructure, an application will also need to be made to connect this extended or upgraded infrastructure to the live network. This is necessary to ensure the infrastructure complies with RCC design and construction standards.

23.1 General considerations

When considering an application for a service connection, regard will be had to any relevant infrastructure agreement or development approval conditions concerning the premise, and whether the agreement or conditions of approval have been satisfied. Regard will also be had to any outstanding infrastructure charges applicable to the premises.

A further important consideration for RCC will be whether the premise is located inside or outside the existing connection area for that network. This concept is explained in the following subsections.

23.2 Premises inside the existing connection area

RCC guarantees a service connection for premises within the existing connection area of that RCC network, where it is technically feasible and economically viable to be served. The process for making application for a service connection to RCC's water or wastewater networks is discussed in the remainder of Section 23.

The applicant will be required to pay all costs associated with the connection as part of the connection agreement.

23.3 Premises outside the existing connection area (including future connection areas)

RCC may agree to a service connection for a premise located outside an RCC network's existing connection area, including the future connection areas. The process for making an application is the same as that outlined in the remainder of Section 23, however in considering the application, RCC will have regard to the following additional matters:

- the proximity of the premise to the existing RCC network;
- the technical feasibility and cost of providing a connection;

- the capacity of the RCC network infrastructure to service the premise;
- any future RCC infrastructure planned to be provided in that area and the timeframe for its provision.

If RCC agrees to a service connection for the premises, the applicant will be required to pay all costs associated with the connection. This may include additional costs for the extension, upgrading and/or re-aligning of the RCC network.

Where the premise is an existing lawful use outside the existing connection area and has not previously paid infrastructure charges or made an infrastructure contribution, RCC may require a network contribution (infrastructure charge) to be made for the premise as part of the service connection charge.

23.4 Application for water connection, alteration or disconnection

Applications for water service connection, alteration or disconnection may be made using RCC's online application process. The applicant will be required to pay a quotation fee at the time of application, which will be deducted from the cost of the connection, should the work proceed.

Upon receipt of an application, RCC will review the request and may agree to provide a quotation to carry out the work. Upon quote acceptance and payment of the quoted sum, RCC will undertake the service installation, alteration or disconnection as quoted, and in accordance with its DSS and the *SEQ Design and Construction Code*.

If a premise no longer requires a water connection, RCC may agree to disconnect the existing service and remove the meter from the premise. Fixed water supply charges will still apply to the premise.

Applications can be made using RCC's online application process, or by contacting Council's customer service team.

23.5 Application for wastewater connection and disconnection

Applications for wastewater service connection or disconnection may be made using RCC's online application process. The applicant will be required to pay a quotation fee at the time of application, which will be deducted from the cost of the connection, should the work proceed.

Upon receipt of an application, RCC will review the request and may agree to provide a quotation to carry out the work. Upon quote acceptance and payment of the quoted sum, RCC will undertake the service connection or disconnection as quoted, and in accordance with its DSS and the *SEQ Design and Construction Code*.

If a premise no longer requires a wastewater connection, the service pipework connecting to RCC's wastewater network must be disconnected at the main by RCC. Fixed wastewater supply charges will still apply to the premise.

23.6 Application for low pressure sewer system connections and disconnections

In circumstances where a conventional gravity sewer connection is not available, RCC may consider Pressure Sewer Systems (PSS) in accordance with *WAT-003-P Pressure Sewerage System Policy*, as an alternative wastewater connection option.

Further information regarding PSS applications can be obtained by contacting Council's Customer Service Team.

23.7 Water filling stations

RCC operates a number of water tanker filling stations across Redlands Coast.

These stations are approved connection points to the City's water supply network for residential and commercial bulk water use.

Locations of Council's water filling stations:

- Capalaba – 171 Ney Road
- Ormiston – 101 Sturgeon Street, Fellmonger Park
- Thornlands – 226 Cleveland-Redland Bay Road
- Redland Bay – 47-49 Orchard Road
- Mount Cotton – 11 Valley Way

Instructions for use and addition customer information is available from Council's website

Commercial water businesses supplying water for domestic purposes must be licenced under the *Food Act 2006*. Further information regarding licencing requirements can be obtained from RCC's Environment & Regulation group.

23.8 Metered standpipes

Metered standpipes are no longer supplied by RCC. Customers seeking bulk water supply for residential or commercial use are directed to utilise Council's Water Filling Stations detailed in Section 23.7 above.

23.9 Trade waste approvals

All businesses that generate trade waste and discharge it to the wastewater network must have a current trade waste approval from RCC. Discharging waste to RCC's wastewater network without approval is illegal and can incur penalties. The trade waste approval stipulates the conditions for discharging trade waste into the wastewater network. The approval is issued to the waste generator and property owner and is not transferable.

RCC also operates a waste tracking program to monitor the regular removal and disposal of waste from grease traps and other industrial holding tanks. The trade waste approval granted by RCC stipulates how often the grease trap must be cleaned out.

An application for a trade waste discharge approval can be made by lodging a discharge of trade waste form. Applicants must ensure that all development approvals (e.g. development application, plumbing and drainage approval etc.) have been obtained from RCC prior to lodging the application for approval to discharge trade waste with RCC.

Trade waste application forms are available from Council's website, or from RCC's Customer Service team.

24. Additional conditions when connecting to an RCC network

Connection to an RCC water or wastewater network is subject to additional conditions concerning the protection of RCC's infrastructure, conservation of water, and the protection of RCC's natural environment. Customers are required to comply with these conditions. Penalties may be incurred if the conditions of use are not met.

24.1 Infrastructure construction standards

All infrastructure to be connected to RCC networks is to be designed and constructed in accordance with RCC's DSS and the *SEQ Design and Construction Code*. The *SEQ Design and Construction Code*, is a uniform code for the planning, design and construction of new water and wastewater infrastructure across SEQ.

24.2 Water restrictions and water conservation measures

In times of drought, water restrictions may be imposed across SEQ. Residents and businesses within Redland City are required to comply with any such restrictions that may come into force from time to time. As SEQ moves into potential drought weather patterns the SEQ Water Service Providers will work together to develop appropriate demand management and water conservation measures. These measures will be supported by a detailed communications strategy. Seqwater's Water Security Program provides the overarching guidance for this type of situation.

24.3 Residential high water users program

RCC monitors high usage to help control domestic water consumption by issuing high consumption alert letters to Redland residents to help them monitor their consumption and alert households of leaks.

24.5 Water efficiency management plans

A water efficiency management plan (WEMP) can help businesses and industry customers understand their water consumption and find and implement measures to improve water efficiency. Customers can be directed to prepare a WEMP by a water service provider (including a council), or by the Department of Regional Development, Manufacturing and Water. This can result in high water users reducing their urban water demands.

WEMPs assist businesses to:

- account for water use in a business or other non-residential premises;
- identify water-saving measures that can be readily applied to a business or other non-residential premises;
- prepare a plan for implementing the water-saving measures including timelines for their completion.

24.7 Building near or over services

Protecting the integrity of the water and wastewater network, as well as being able to undertake repair and maintenance activities, is critical to our business operations. The *Queensland Development Code* '*MP1.4 - Build Over or near relevant infrastructure*' *– December 2014* shall be utilised to minimise potential for adverse effects on our infrastructure and provides acceptable and alternative construction solutions.

In general, RCC requires:

- building work near or over a water or wastewater main to not interfere with or adversely affect the function of the service or place any additional load on the service;
- adequate access must be provided to the mains for future maintenance;
- adequate access must be provided and maintained to access covers;
- adequate access must be provided and maintained to water and wastewater connection points.

24.8 Discharge of stormwater into the wastewater network

It is the property owner's responsibility to ensure that stormwater is not discharged into the wastewater network. This can cause flooding of the system during periods of rainfall leading to overflows of wastewater into properties further downstream. Possible sources of stormwater inflow can include:

- illegal connection of roof downpipes into the wastewater network (especially carports, patio covers and extensions added after the house was originally constructed);
- illegal connection of garden drains and "agi" pipes from behind retaining walls into the wastewater network;
- concreting, paving or turfing up to the level of the overflow relief gully (ORG), resulting in stormwater runoff entering the wastewater network;
- inadequate allotment drainage leading to flooding of the allotment and inundation of the ORG during heavy rain.

RCC conducts smoke and dye testing programs in areas known to suffer from wet weather wastewater overflows.

24.9 Overflow relief gullies

An ORG is a drain-like fitting located outside the home, designed to release any wastewater overflow outside of the home in the event of a blockage in the wastewater main. If a blockage does occur, the ORG fitting should pop off to release the pressure and direct any wastewater away from the home.

The ORG must be installed at a level that is at least 150mm lower than the lowest drain inside the home, particularly the shower, toilet and any laundry or bathroom floor drains. The ORG must also be installed at least 75mm above the surrounding ground level to ensure stormwater does not flow into the wastewater network via the ORG. It is the property owner's responsibility to ensure that their home is fitted with a properly installed and operational ORG.

24.10 Wastewater reflux valves

A reflux valve is a one-way flap valve that is fitted to a property's private wastewater pipework to prevent any backflow from the wastewater mains due to overloading. RCC's wastewater network is designed to cater for predicted normal wastewater flows, plus a margin for additional flow during wet weather conditions caused by stormwater finding its way into the system. Stormwater can enter the wastewater network via illegal connections, stormwater flooding over the top of manholes or infiltration of groundwater through cracks in the pipes.

RCC may approve installation of reflux valves in properties that have experienced, or may experience problems with wastewater backing up from the mains and overflowing within the property during periods of heavy rain. If the wastewater main starts to back up, the flap valve will be pushed closed by the flow coming up the pipe to protect the property from an overflow.

It is important to note, however, that when the flap valve is pushed closed it cannot release any wastewater from the property until the back pressure has subsided. Occupiers of properties with reflux valves fitted must therefore avoid running showers, washing clothes or dishes, and flushing toilets during this period to prevent an overflow within the property. The installation of reflux valves is therefore a temporary measure to protect properties from wastewater overflows until RCC can implement a long term solution.

Water and Wastewater Charges

To provide its products and services, as well as to fund the development, operation, maintenance and replacement of infrastructure, RCC collects the following charges from its customers:

- **residential and non-residential access charges** are collected from customers within the existing connection areas (see **Connection Areas** section of this *Water Netserv Plan*) regardless of whether they are physically connected to the network. These charges relate to the costs of providing the products and services, and for maintaining the networks. Refer Sections 25 and 26 for further information;
- **connection charges** are collected from customers seeking a connection to, disconnection from, or a change to a connection to an RCC network. These charges relate to the costs of constructing connection infrastructure between the existing network and the customer's property boundary. A connection charge may include a network contribution charge. Refer to Section 28 for further information;
- **infrastructure charges** are collected from customers undertaking development that creates an additional demand for water and wastewater infrastructure. Refer to Section 29 for further information.

25. Residential charges

The following table outlines the charges to RCC's residential customers.

Table 25-1 – Residential charges

COMPONENT	DESCRIPTION
Fixed water access charge	The fixed water access charge is levied on premises within the existing water connection area regardless of whether there is a physical connection to the water network. The charge is levied in advance and is a fixed price (based on water meter size) regardless of the volume of water consumed.
Water consumption charge	The water consumption charge is calculated on the number of kilolitres (1,000 litres) of water consumed and is based on a reading from the premise's water meter. Unlike the fixed water access charge, this charge is levied after the water is used, not in advance. Water consumption charges have two parts, a State Government Bulk Water Charge and a Local Government and Retail Distribution Charge. The State Government Bulk Water Charge is levied by the Queensland Government for the cost of wholesale treated drinking water delivered to Redland City's bulk water supply points. The Local Government Retail and Distribution Charge is the cost of delivering this water to customers within local water networks.
Fixed wastewater access charge	The fixed wastewater service charge is levied on premises within the existing wastewater connection area regardless of whether there is a physical connection to the wastewater network. The charge is levied in advance and is a fixed price regardless of the volume of wastewater discharged.

The current service charges for residential customers, which apply until the end of the financial year, are detailed in RCC's pricing fact sheets available from Council's Customer Service team or on the RCC website.

RCC will publish details of proposed charges for the next financial year on the RCC website by 30 June.

26. Non-residential charges

The following table outlines the charges to RCC's non-residential customers.

Table 26-1 – Non-residential charges

COMPONENT	DESCRIPTION
Fixed water access charge	The fixed water access charge is levied on premises within the existing water connection area regardless of whether there is a physical connection to the water network. The charge is levied in advance and is a fixed price based on the size of the water meter (mm).
Water consumption charge	The water consumption charge is calculated on the number of kilolitres (1,000 litres) of water consumed and is based on a reading from the premise's water meter. Unlike the fixed water access charge, this charge is levied after the water is used, not in advance. Water consumption charges have two parts, a State Government Bulk Water Charge and a Local Government and Retail Distribution Charge. The State Government Bulk Water Charge is levied by the Queensland Government for the cost of wholesale treated drinking water delivered to Redland City's bulk water supply points. The Local Government Retail and Distribution Charge is the cost of delivering this water to customers within local water networks.
Fixed wastewater access charge	The wastewater service charge is levied on premises within the existing wastewater connection area regardless of whether there is a physical connection to the wastewater network. The charge is levied in advance and is a fixed price regardless of the volume of wastewater discharged.
Wastewater pedestal charge	This charge is calculated based on the number of pedestals installed in each property.
Trade waste charge	This charge applies to customers that operate commercial premises, industry, trade or manufacturing businesses that discharge liquid waste to the wastewater network other than domestic wastewater. The charge will be calculated based on access, volume, strength and quantity considerations.
Metered standpipes	Metered standpipes are no longer supplied for hire by RCC. Customers seeking bulk water supply for residential or commercial use are directed to utilise Council's water filling stations.
Water filling stations	Operation of Council's water filling stations is via use of a valid credit/debit card. Operating instructions and additional information is available from Council's website.

The current service charges for non-residential customers are stated in RCC's pricing fact sheets available from Council's Customer Service team or RCC website.

RCC will publish details of proposed charges for the next financial year on the RCC website by 30 June.

27. Rebates/remissions

RCC offers remissions in some situations as detailed below:

27.1 Remission for water leakage (concealed leaks)

RCC is responsible for repairing leaks to water mains up to and including the water meter which, in most cases, is located just inside the front boundary of the property. The property owner is responsible for repairing water leaks past the meter.

In cases where a concealed water leak has been found past the meter (within the property) and has been subsequently repaired by a licensed plumber, the property owner can lodge an application to RCC to claim relief from the Local Government water consumption charges. The leak remission is in the form of a partial refund of the charges. In all cases, the property owner is responsible for paying for the repairs.

Applications for leak remissions may only be lodged where a loss of water has occurred that is hidden from view for example; either underground, under or within concrete, underneath a building or within a wall cavity where the owner or occupant could not be reasonably expected to know of its existence.

Further information relating to RCC's concealed water leaks policy and the applicable remissions for water leaks can be found on Council's website

27.2 Rebate for fire-fighting

The *Water Supply (Safety and Reliability) Act 2009* states that RCC cannot charge for water used for fire-fighting purposes. In the event that water from a premise is used for fire-fighting purposes, the property owner can lodge an application in the form of a letter to RCC for a rebate stating:

- name/s of the property owner/s;
- address of property owner/s;
- telephone numbers, home and work;
- real property description of the property for which the rebate is being claimed;
- address of property for which the rebate is being claimed;
- type of property, i.e. residential, commercial, industrial;
- details of the fire and its location;
- proof in accordance with RCC's policy that a fire occurred such as:
  - written confirmation from the Fire Brigade;
  - a statutory declaration from the owner;
  - confirmation from an RCC officer following a visual inspection;
- the type of installation from which the water was drawn, i.e. hose, fire hose, hydrant;
- the actual or estimated quantity of water that was used.

27.3 Queensland State Government Water Subsidy

The Queensland Government offers concessions on water for eligible pensioners. Eligible pensioners can receive a maximum subsidy up to $120 each year off the cost of water access and usage charges.

The subsidy is allowed on only one property at a time and cannot be claimed on any additional properties. Eligibility is determined by the State Government. Full details are available on the Queensland Government website.

27.4 Haemodialysis Home Treatment Rebate

Council provides a rebate where an increase in consumption of water results from a resident in the household being reliant on haemodialysis treatment provided in the home.

Application is made through the treating hospital. The hospital forwards the completed home dialysis application form and the average kilolitres used per annum in the dialysis treatment to Council for processing.

In the event the dialysis patient is a member of a household in a tenanted property, evidence will be required to show the tenant is responsible for payment of the water consumption. Evidence may be a copy of a lease agreement, or letter from the owner or the owner's agent.

28. Connection charges

The section **Making an application for a service connection**, of this *Water Netserv Plan* outlines the process of connecting to, disconnecting from, or changing a connection to an RCC network. For standard works such as short-side water connections, customers can refer to Council's fees and charges schedule to determine the applicable cost.

Alternatively, a quotation for these works may be obtained by using the online application forms or by contacting Council's Customer Service team.

Where a customer seeks connection of an existing lawful use located outside an existing connection area to either the water or wastewater network, and no infrastructure charges or infrastructure contributions have previously been collected for that development for the network, the connection charge may also include a network contribution charge. A network contribution charge will be calculated having regard to the relevant adopted infrastructure charges resolution.

29. Infrastructure charges

RCC may levy an infrastructure charge on any development that places additional demand on its water and wastewater networks. The amount of the charge levied must be in accordance with the relevant adopted infrastructure charges resolution. An adopted infrastructure charges resolution has been prepared for the Redland local government area. Further information regarding the adopted infrastructure charges resolution can be obtained from RCC's Customer Service team or website.

Performance Reporting

In order to achieve effective outcomes for the provision of water and wastewater services, RCC sets high service standards that are consistent with our Corporate Plan and commitment to our community.

30. Annual performance plan

RCC's annual performance plan details how we plan to meet our customers' needs. It covers issues such as:

- customer service standards (including maintenance and service level goals);
- customer advice; and
- provision of stakeholder feedback.

RCC's Annual Performance Plan is included in RCC's annual Operational Plan and can be found on Council's website.

31. Key performance indicators

Key performance indicators (KPIs) in RCC's performance plan are directly related to the quality and capacity of its network. Actual performance against these standards is presented in RCC's annual report and is regulated by the appropriate authority. Details of RCC's performance can be found by visiting the RCC webpage.

32. Customer contact standards

RCC has developed a *Customer Service Charter* and *Water & Wastewater Commitment Statement* which outlines our commitment to our customers, community and environment. A copy of these documents can be found on the RCC website.

RCC operates a specialised Customer Service team for handling enquiries, faults and complaints in a prompt, knowledgeable, consistent and friendly manner. Customers can contact them via phone, email and in writing. The Customer Service team operates between 8:30am and 5.00pm on normal business days.

Customers are able to report service faults or concerns in relation to the water and wastewater networks (water quality, wastewater odours, system leakages, environmental overflows etc.) to Council's Customer Service team at any time 24 hours per day, 7 days per week. Calls made after normal business hours on weekdays, as well as those made on weekends and public holidays, are automatically routed to RCC's 24-hour after hours service.

RCC's website contains comprehensive information in relation to all facets of the business, as well as links to various forms required to be completed by customers.

33. Customer complaints

Customer complaints may include the provision of negative feedback or an expression of dissatisfaction in relation to business dealings, policy decisions, actions undertaken or the failure to perform certain actions. A complaint is not the same as a request for service, a request for information or an enquiry seeking clarification of an issue. Examples of matters that are not classified as complaints include:

- a request for service or assistance with clarification on a matter;
- an enquiry into the progress of a water or wastewater connection;
- a request to take action on a leaking water pipe or any other service fault;
- an inquiry to seek clarification or further information about a bill.

When customers contact RCC with a complaint, they can expect to:

- be treated with courtesy and respect;
- receive appropriate support where special needs are identified, e.g. interpreters etc.;
- be provided with a reference number for any future enquiry or follow-up;
- be kept informed of the process and outcome;
- have their complaint and personal details kept confidential;
- have the matter investigated thoroughly and objectively;

Further information relating to RCC's complaint management process can be found in RCC's *Water and Wastewater Customer Service Statement*, available on the RCC Website.

Water and Wastewater Bills

This section of the *Water Netserv Plan* outlines the billing arrangements in relation to service charges, connection charges and infrastructure charges.

34. Services

The following table outlines the key components in relation to bills issued for service charges for residential and non-residential customers.

Table 34-1 – Key bill components

COMPONENT	DESCRIPTION
Meter reading	Meter readings are used to calculate consumption charges that appear on the RCC bill. Water meters are read quarterly. This is undertaken on a rolling basis across the city. In most cases the water meter is located inside the property and RCC's meter reader will enter the property to take the reading. If their officers cannot read the meter (e.g. locked gates, a dog, etc.), RCC will contact the customer via a self-read card to obtain a reading. Where a reading cannot be obtained, an estimate of the property's water consumption will be applied. Estimates are based on the property's historical water consumption. Meter accuracy reduces with age or usage. If the water meter is found to have stopped or is damaged, an estimate of the property's water consumption may be applied based on historical consumption. RCC runs a program of meter replacement that accounts for the age of the meters they own and operate. When a water meter is replaced, the final reading is recorded for billing prior to the new meter being installed.
Water summary details	The following details will appear on a summary sheet that accompanies the RCC rates notice: • the date of issue; • the customer's postal address, account number and the address of the property to which the charges apply; • the date the water meter was read, or if an estimate was made, a clear statement that an estimate was made; • the amount the customer is required to pay; • the date by which the customer is required to pay; • RCC's contact details; • the daily rate of drinking water usage at an individually metered property for the current reading period, including a graph showing current drinking water usage, as well as usage over each period of the previous 12 months and a comparison of usage for the same period for the previous year; • state government bulk water kilolitre usage.
Bill frequency	RCC's billing occurs on a quarterly basis. Redland customers receive their water and wastewater bill as part of their rates notice.
Bill payment	There are many methods for accepting payment, including by mail, direct debit, BPAY and by telephone. The specific payment options can be viewed on the RCC website.

COMPONENT	DESCRIPTION
Late bill payment	Interest will be applied to unpaid bills in accordance RCC policies.
Payment arrangements	RCC recognises some customers may experience financial hardship (often due to circumstances beyond their control) which could affect their ability to meet the payment terms for their water and wastewater accounts. RCC provides assistance to customers experiencing difficulty in paying their account by way of a payment arrangement. A customer's eligibility to receive assistance under these provisions is contained within the RCC's hardship policies which can be found on Council's website.
Restriction of service	As a last resort, RCC may restrict the water supply to a property when the property owner refuses to pay the required charges. By law, the water supply may be reduced to the minimum level required for the health and sanitation of the occupier but not completely shut off. We will not restrict your water supply: • without explaining alternative payment options; • without giving the chance to get benefit or concessions; • if there is a dispute about the amount owing; • if the customer is a tenant and the landlord is responsible for the debt; • if the customer has proven financial hardship; • if the customer needs water for a life support machine or other special needs; • if the restriction will cause a health hazard having taken into consideration any customer concerns. Resumption of unrestricted supply will be prompt when the reason for the restriction no longer applies.

Additional information concerning the following items can be obtained by contacting RCC's Customer Service team or can be downloaded from RCC's website:

- special meter readings;
- sub-metering of multi-unit developments;
- meter accuracy testing;
- water consumption advice notices;
- fee for service items, such as:
  - water and wastewater laboratory testing services;
  - private works (installation and maintenance services).

35. Trade waste accounts

Trade waste accounts are issued quarterly and include the base charge for the current financial year together with conveyance and treatment charges.

36. Water filling station and metered standpipe charges

Operation of Council's water filling stations is via use of a valid credit/debit card. Operating instructions and additional information is available from Council's website

Metered standpipes are no longer supplied by RCC. Customers seeking bulk water supply for residential or commercial use are directed to utilise Council's Water Filling Stations as details within this Netserv Plan.

37. Connection charges

RCC will provide a written quotation for connections to, disconnections from, or changes to a connection to a water or wastewater network. The applicant will be required to pay all charges associated with the connection including any network contribution charge prior to RCC scheduling the works.

38. Infrastructure charges

Infrastructure charges may only be levied by giving a person an adopted infrastructure charges notice. RCC issues the infrastructure charges notice to the person with a development approval or compliance permit, inclusive of the charges for water and wastewater infrastructure.

Development assessment

Development assessment (DA) refers to the way RCC receives, manages and decides development applications made under the *Planning Act 2016*. This section of the *Water Netserv Plan* outlines how RCC handles DA.

DA functions within RCC are undertaken by the City Planning & Assessment Group. Close interaction between the assessment officers and relevant RCC teams in both the planning and operational business areas will be maintained through application review meetings and regular involvement from all relevant staff in complex and large development applications.

This process provides effective end results for development applicants as legislated timeframes are more easily met and better coordination of essential service provision is maintained in developments approved in the RCC area.

The delegation of assessment tasks to RCC also extends to the calculating of infrastructure charges associated with trunk water and wastewater infrastructure provision. This enables efficient and accurate processing of all development responses under a “one-stop-shop” philosophy.

To summarise, the functions undertaken by RCC City Planning & Assessment Group include:

- DA receipting;
- information requests;
- DA decision making;
- negotiated decision requests;
- infrastructure charge notice preparation, collection and receipting;
- compliance inspections.

Appendices

Appendix A – Water supply connection area
Appendix B – Wastewater connection area

Appendix A – Water supply connection area and trunk infrastructure maps

THORNESIDE
WELLINGTON POINT
BIRKDALE
ORMISTON
ALEXANDRA HILLS
CLEVELAND
CAPALABA
THORNLANDS
SHELDON
VICTORIA POINT

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A	31/07/2023	MI	MW	MI
Issue	Date	By	Chkd	Appd

Legend
- Water Existing Connection Areas
- Water Future Connection Areas
- Current Land
- Suburbs

Scale at A3: **1:40,000**

Map No: **1 of 5**

Date of Print: **31/07/2023**

Coordinate System: **GDA 1994 MGA Zone 56**

Job Title: **Water Supply Connection Areas**

Drawing Status: **Appendix A - 001**

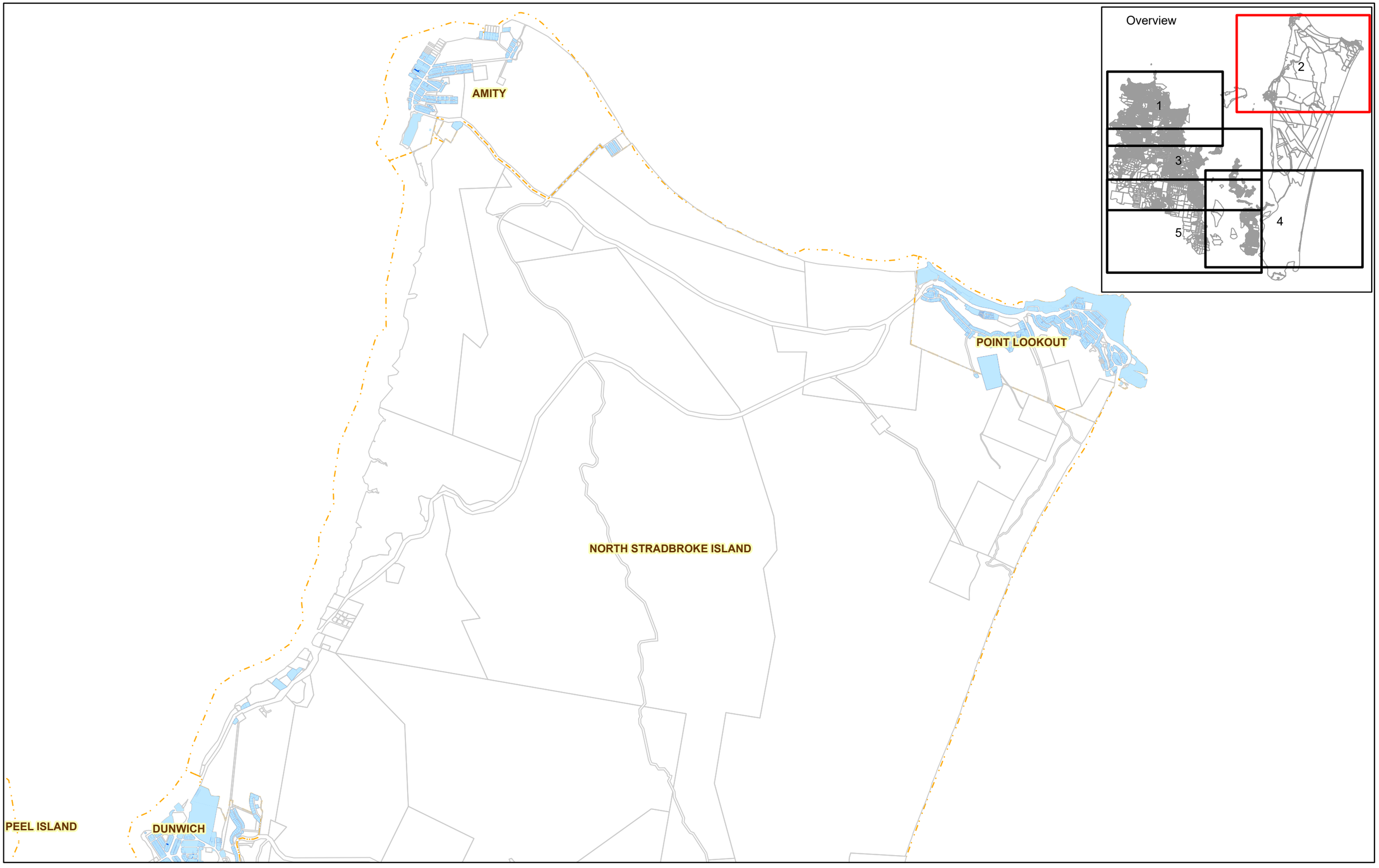
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Redland Water
PO Box 21
Cleveland QLD 4163

0 0.325 0.65 1.3 1.95 2.6 Kilometers

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Redland CITY COUNCIL

Issue	Date	By	Chkd	Appd
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Legend

- Water Existing Connection Areas
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- Suburbs

Scale at A3: **1:50,000**

Date of Print: **31/07/2023**

Job Title: **Water Existing Connection Areas**

Drawing Title: **Island 1 Existing & Future**

Map No: **2 of 5**

Coordinate System: **GDA 1994 MGA Zone 56**

Drawing Status: **Appendix A - 002**

Redland Water
PO Box 21
Cleveland QLD 4163

0 0.4 0.8 1.6 2.4 3.2 Kilometers

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CLEVELAND
CAPALABA
THORNLANDS
COOCHIEMUDLO ISLAND
SHELDON
VICTORIA POINT
MACLEAY ISLAND
MOUNT COTTON
REDLAND BAY
LAMB ISLAND
KARRAGARRA ISLAND

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- Suburbs

Scale at A3: **1:50,000**

Map No: **3 of 5**

Date of Print: **31/07/2023**

Coordinate System: **GDA 1994 MGA Zone 56**

Job Title: **Water Supply Connection Areas**

Drawing Status: **Appendix A - 003**

Drawing Title: **Mainland 2 Existing & Future**

Redland Water
PO Box 21
Cleveland QLD 4163

0 0.4 0.8 1.6 2.4 3.2 Kilometers

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VICTORIA POINT

MACLEAY ISLAND

LAMB ISLAND

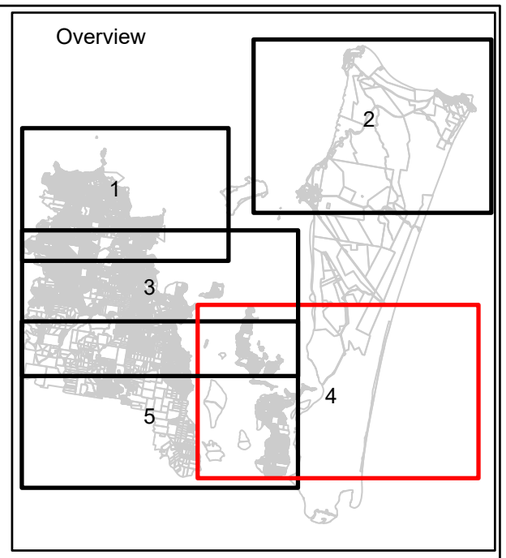
REDLAND BAY

KARRAGARRA ISLAND

NORTH STRADBROKE ISLAND

RUSSELL ISLAND

REDLAND BAY



Redland CITY COUNCIL

Issue	Date	By	Chkd	Appd
A	1/08/2023	MI	MW	MI

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- Water Existing Connection Areas
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Scale at A3 **1:58,000**	Date of Print **1/08/2023**	Job Title **Water Supply Connection Areas**	Drawing Title **Island 2 Existing & Future**
Map No **4 of 5**	Coordinate System **GDA 1994 MGA Zone 56**	Drawing Status **Appendix A - 004**	Redland Water PO Box 21 Cleveland QLD 4163

0 0.475 0.95 1.9 2.85 3.8 Kilometers

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THORNLANDS
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SHELDON
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MACLEAY ISLAND
NORTH STRADBROKE ISLAND
MOUNT COTTON
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NORTH STRADBROKE ISLAND

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Scale at A3
1:60,000

Map No
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Date of Print
1/08/2023

Coordinate System
GDA 1994 MGA Zone 56

Job Title
Water Supply Connection Areas

Drawing Status
Appendix A - 005

Drawing Title
Mainland 3 Existing & Future

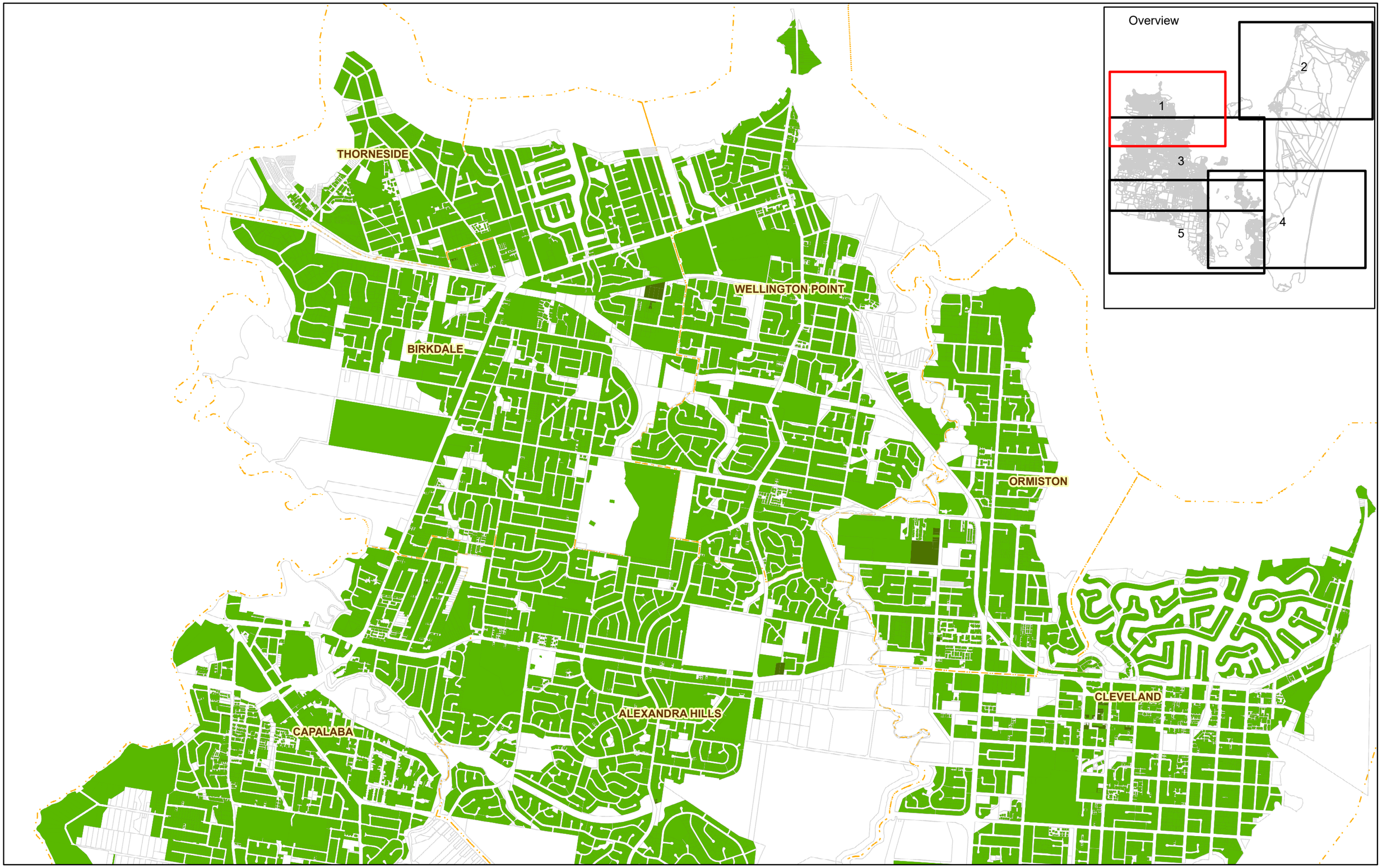
Redland Water
PO Box 21
Cleveland QLD 4163

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Appendix B – Wastewater connection area and trunk infrastructure maps



Redland CITY COUNCIL

Issue	Date	By	Chkd	Appd
A	1/08/2023	MI	MW	MI

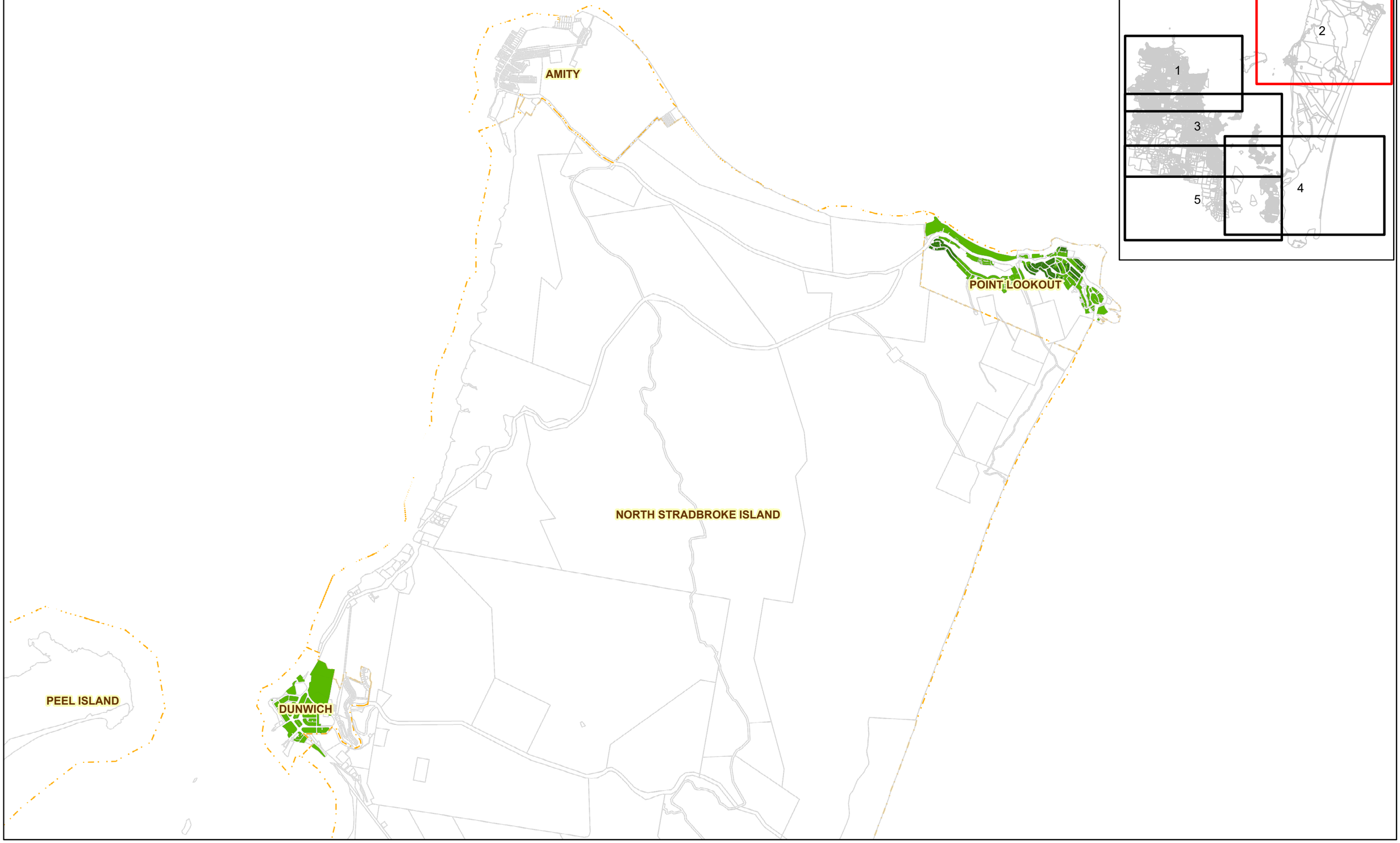
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- Wastewater Future Connection Areas
- Current Land
- Suburbs

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Map No **1 of 5**	Coordinate System **GDA 1994 MGA Zone 56**	Drawing Status **Appendix B - 001**	Redland Water PO Box 21 Cleveland QLD 4163

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Legend
- Wastewater Existing Connection Areas
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Scale at A3: **1:60,000**

Map No: **2 of 5**

Date of Print: **1/08/2023**

Coordinate System: **GDA 1994 MGA Zone 56**

Job Title: **Wastewater Connection Areas**

Drawing Status: **Appendix B - 002**

Drawing Title: **Island 1 Existing & Future**

Redland Water
PO Box 21
Cleveland QLD 4163

0 0.5 1 2 3 4 Kilometers

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THORNLANDS
COOCHIEMUDLO ISLAND
SHELDON
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MACLEAY ISLAND
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Legend
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Scale at A3: **1:50,000**

Date of Print: **1/08/2023**

Job Title: **Wastewater Connection Areas**

Drawing Title: **Mainland 2 Existing & Future**

Map No: **3 of 5**

Coordinate System: **GDA 1994 MGA Zone 56**

Drawing Status: **Appendix B - 003**

Redland Water
PO Box 21
Cleveland QLD 4163

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COOCHIEMUDLO ISLAND

VICTORIA POINT

MACLEAY ISLAND

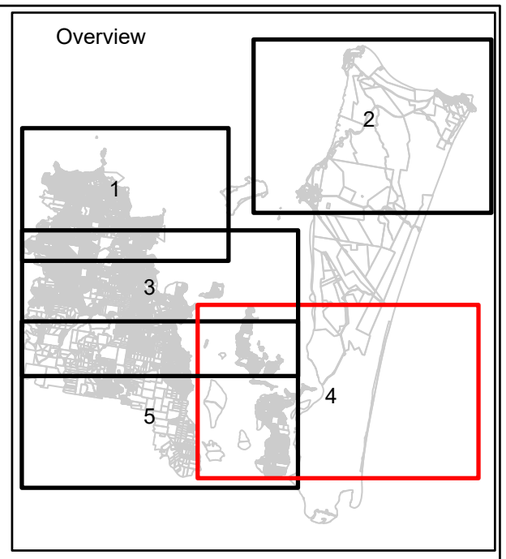
LAMB ISLAND

KARRAGARRA ISLAND

NORTH STRADBROKE ISLAND

REDLAND BAY

RUSSELL ISLAND



Redland CITY COUNCIL

Issue	Date	By	Chkd	Appd
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Scale at A3 **1:60,000**	Date of Print **1/08/2023**	Job Title **Wastewater Connection Areas**	Drawing Title **Island 2 Existing & Future**
Map No **4 of 5**	Coordinate System **GDA 1994 MGA Zone 56**	Drawing Status **Appendix B - 004**	Redland Water PO Box 21 Cleveland QLD 4163

0 0.5 1 2 3 4 Kilometers

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SHELDON

VICTORIA POINT

MOUNT COTTON

REDLAND BAY

MACLEAY ISLAND

LAMB ISLAND

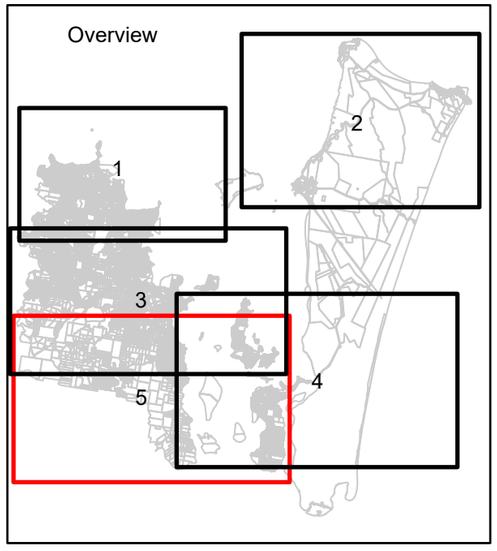
KARRAGARRA ISLAND

RUSSELL ISLAND

NORTH STRADBROKE ISLAND

Southern Redland Bay Infrastructure Agreement Areas

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Scale at A3: 1:50,000

Map No: **5 of 5**

Date of Print: **2/08/2023**

Coordinate System: **GDA 1994 MGA Zone 56**

Job Title: **Wastewater Connection Areas**

Drawing Status: **Appendix B - 005**

Drawing Title: **Mainland 3 Existing & Future**

Redland Water
PO Box 21
Cleveland QLD 4163

0 4 8 16 24 32 Kilometers

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