



Technical Paper 10

Council's role, operations and operating context

September 2025

Central
Coast
Council

Water
and Sewer

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1 Key points

- Central Coast Council (Council) is a Local Water Utility (no longer a Water Supply Authority) – refer to Figure 1 for organisational structure.
- Council's population is over 340,000.
- Council's Local Government Area (LGA) is approximately 1,680 square kilometres.
- Council provides approximately 80-83 million litres of drinking water each day.
- Council's water network is approximately 2,264 km of water mains.
- Council's sewer network is approximately 2,686 km of sewer mains.
- Monitoring occurs throughout the water and sewage catchments.
- Council also monitors Ourimbah Creek adjacent to Mangrove Creek Mountain waste management facility.
- Polyfluoroalkyl substances (PFAS) sampling is also undertaken throughout our source and catchment areas, within our dams and treatment plants including biosolids and other high-risk areas.
- Council has three Environment Protection licences, which incorporates effluent ocean outfalls at Norah Head, Wonga Point and Winney Bay respectively.
- Council has pollution incident and management reporting.
- Council has a Quality Management System to develop, hold, review and manage relevant documents associated with water operations.
- Council's regulatory framework includes water planning and management, environment, pricing and finance, work health and safety and public health and safety including dam safety.



Figure 1: Central Coast Council organisational structure

2 Council's role and operations

Central Coast Council (Council) is a Local Water Utility located within the Central Coast Local Government Area (LGA). Council provides water services to a population of approximately 347,425, delivering water and sewer services to more than 139,392 homes and businesses, via a holistic model from catchment to tap. Council's Water and Sewer Directorate's primary focus is to provide quality and reliable water and sewer services, as well as trade waste services to the Central Coast. Refer to Figure 2 for Council's water and sewer business functions.

Council's Water and Sewer business functions

Assets and Projects	Business Strategy and Performance	Headworks and Treatment	Network Operations and Maintenance
Capital projects	Business performance	Water treatment plant operation	Water Operations Centre (WOC)
Asset management	Risk management	Sewer treatment plant operation	Civil engineering
Design	Pricing submissions	Trade waste	Operations and Maintenance
Construction	Engagement	Laboratories	Fault and emergency response
Project management	Water education	Engineering	Mechanical and electrical works
Planning	Customer relationships	Dam safety	
		Regulation management	

Figure 2: Council's Water and Sewer Directorate business functions

2.1 Role

On the 1 April 2025, Council's status was removed as a Water Supply Authority under the *Water Management Act 2000*. Water and Sewer services are now legislated under the *Local Government Act 1993*.

Council services extend north through to Summerland Point, south to Mooney Mooney, east to the Tasman Sea and west to the border of Wisemans Ferry. Council provides the following functions:

- Harvest, collection, treatment, and delivery of drinking water in accordance with the *Public Health Act 2010*, and Guidelines set by the National Health and Medical Research Council.
- Collection, transport, treatment, recycling or discharging of effluent in accordance with the Environmental Protection Licences (EPL) issued by the NSW Environment Protection Authority (EPA) in accordance with the *Protection of the Environment Operations Act 1997*.

Four basic business products of Council's water and sewer functions are:

- Harvesting raw water - catchment, storage, treatment
- Providing drinking water - treating water delivered to customers
- Collecting sewage - transport, treatment, and discharge
- Recycling treated water – advanced sewage treatment and reuse.

Figure 3 shows a snapshot of the integrated water and sewage treatment systems in the Central Coast LGA. Council's water delivery process includes managing its catchments, water treatment plants, bulk delivery, and reticulation systems. The sewerage network transfers sewerage to inland treatment plants and subsequently treated effluent to ocean outfalls or to recycling schemes.

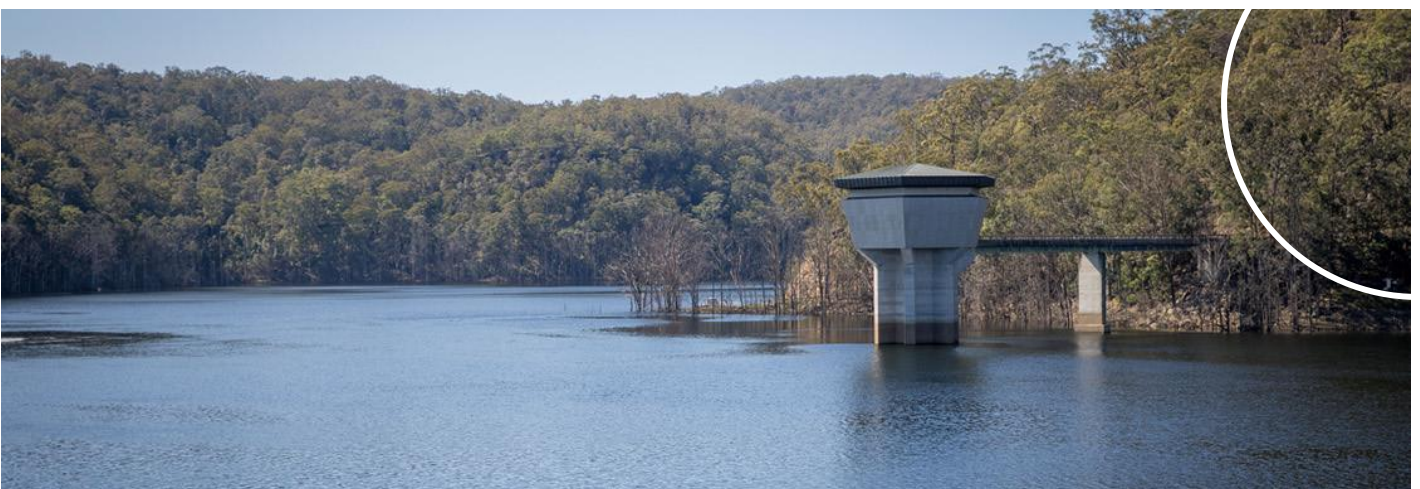
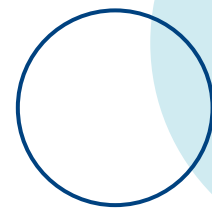




Figure 3: Water and Sewer System Map of Central Coast LGA



2.2 Operations

Council's water and sewer network is managed within an LGA of an estimated 1,680 square kilometres.

Currently on average, Council's water network supplies approximately 80 million litres (megalitres or ML) of drinking water each day to residential, commercial, and industrial customers. From the catchment to the tap, water passes through a series of processes to ensure the standard of delivery to the customer is high-quality. Water follows a life cycle from capture to disposal, changing from raw water to filtered to treated water to sewage, then finally treated effluent water.

Raw water enters the catchments as rainfall and flows to waterways, or percolates through the soil to recharge the groundwater aquifers. Water from the waterways either flows directly to the dams or is pumped there. Groundwater can be pumped from bores constructed to access the aquifer only during drought conditions. The collected raw water is transferred to Water Treatment Plants (WTP) for chemical treatment, filtration, and disinfection, and finally passed to the Clear Water Tank (CWT) for storage. The treated water is then dispersed to reservoirs by trunk mains, on to reticulation mains and finally to homes and businesses.

Once water is used in homes and businesses, sewage is transported through a series of sewer mains and moved through the system by pumps.

Sewage is treated to a quality standard specified by the Environment Protection Authority (EPA) and transferred to an outfall for discharge to the ocean at Norah Head, Wonga Point or Winnie Bay.

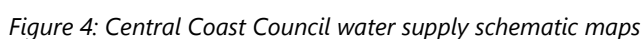
Some Sewage Treatment Plants (STPs) have the capacity to further treat effluent to be reused for onsite processes, or offsite for irrigation of sporting surfaces, in preference to ocean disposal.

There are four steps to the sewage treatment process:

- Preliminary treatment (removal of coarse solids)
- Primary treatment (removal of settleable solids)
- Secondary treatment (biological removal of organics and some nutrients, the standard set by the EPA for disposal to the ocean outfalls)
- Tertiary treatment (filtration and disinfection, to produce water quality suitable for recycled water use).

In the provision of these services (water and sewer), Council has a large asset base with a written down value of \$3.1 billion and a replacement value of \$5.7 billion as at 30 June 2024.

Central Coast Council was formed in 2016 following the amalgamation of Wyong Shire Council and Gosford City Council. The Central Coast LGA is located between Sydney and Newcastle. Most of the population is located around two major estuarine environments, Tuggerah Lakes and Brisbane Water. The water supply schematic maps in Figure 4 show the water network servicing residents of Council.



2.3.1 Water services

- Raw water extraction from the catchments
- Raw water storage
- Treating the raw water to produce drinking water
- Distribution to customers.

Raw water extraction and storages

Bulk raw water for the Central Coast is harvested from Wyong River, Ourimbah Creek, Mooney Mooney Creek, Mangrove Creek and several groundwater aquifers. Mangrove Creek Dam is the major raw water storage with a capacity of 190,000 ML. This storage is supplemented by Mooney Mooney and Mardi Dams, with capacities of 4,600 ML and 7,400 ML respectively.

Water treatment

Council owns and operates two potable Water Treatment Plants (WTPs) located at Mardi and Somersby, two stormwater treatment plants at East Gosford and Terrigal, a combined rainwater and groundwater treatment plant at Central Coast Stadium, Gosford and one groundwater treatment plant at Woy Woy. Figure 5 shows the schematic of water treatment processes for Mardi WTP and Figure 6 shows the schematic for Somersby WTP.

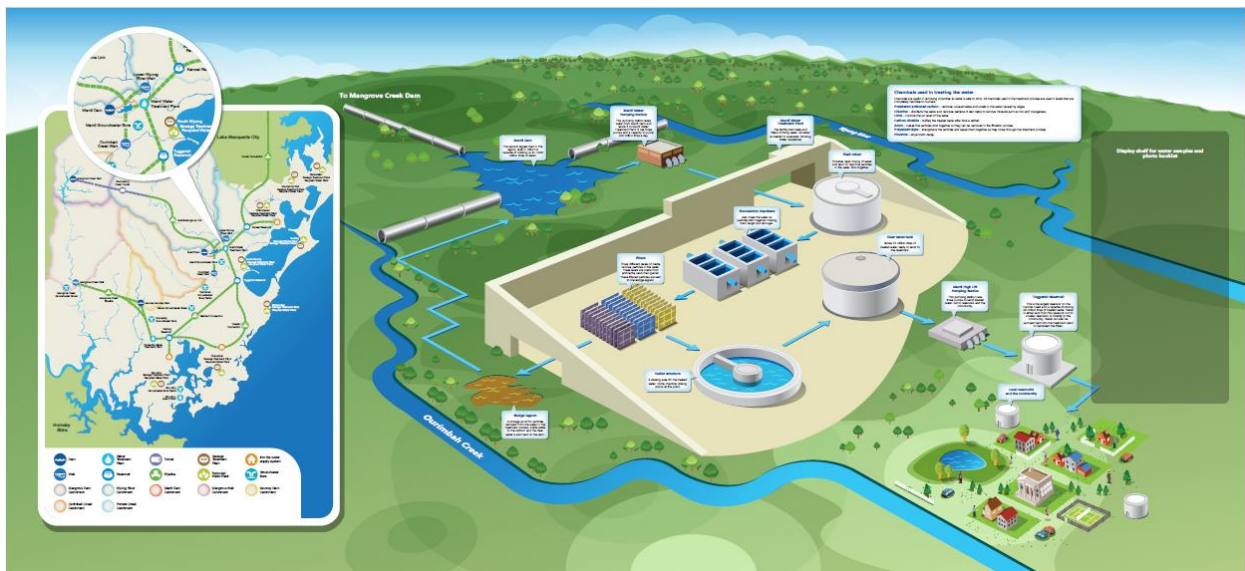


Figure 5: Schematic of Mardi Water Treatment Plant

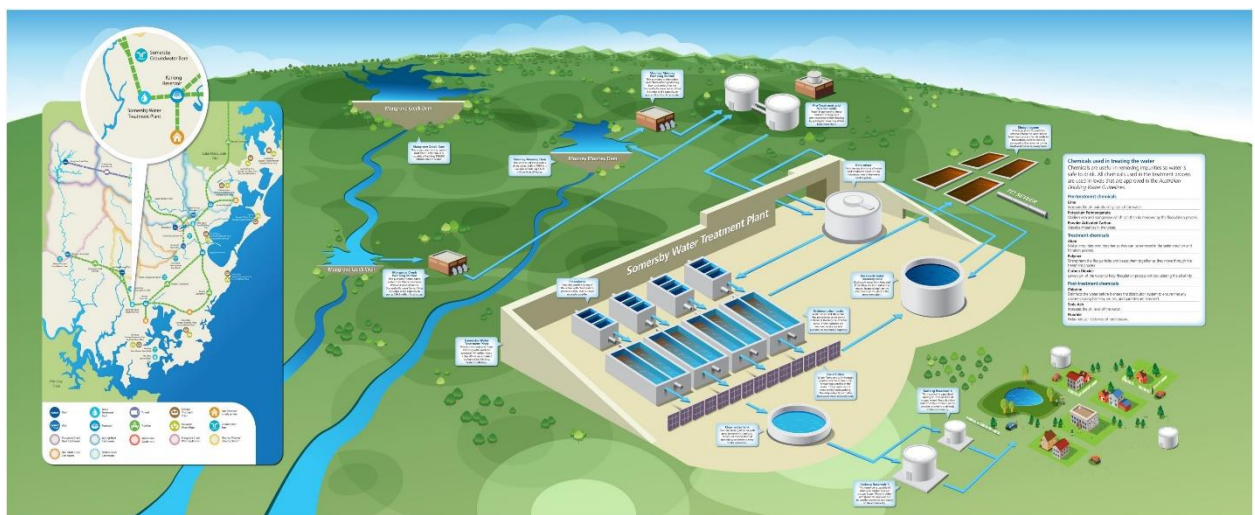


Figure 6: Schematic of Somersby Water Treatment Plant

Water supply network

The water supply network consists of approximately 2,280 km (not including recycled or bore water mains) of water mains, three potable water treatment plants, 71 reservoir structures and 48 water pump stations (including potable and raw). Raw water denotes water that has been taken from the source and has not been treated. A summary of Council's major water assets is provided in Table 1.

Table 1: Central Coast Council major water assets

Water Assets	Amount
Reticulation water mains	1,878 km
Recycled water mains	28 km
Trunk water mains	344 km
Raw water mains	58 km
Bore water mains	14 km
Reservoir structures	71
Water treatment plants	3
Stormwater water treatment plants	3
Declared dams	3
River intakes	3
Groundwater systems	5
Water boreholes	37
Raw water pump stations	6
Potable water pump stations	42
Tunnels	12 km

Three WTPs provide filtered drinking water treated to water quality standards specified in the Australian Drinking Water Guidelines. Somersby and Mardi Water Treatment Plants (WTPs) are conventional media filtration-based water treatment plants, and Woy Woy WTP is a membrane-based filtration plant tailored to its groundwater source. Mardi WTP is currently undergoing an upgrade to incorporate Dissolved Air Flotation¹ clarifiers upstream of the media filters, while Somersby WTP already has sedimentation clarifiers.²

¹ Is a water treatment process that uses tiny air bubbles to separate suspended solids.

² Also known as settling tanks, which are basins in the WTPs that use gravity to separate suspended solids.

Somersby and Mardi WTPs have similar capacities (140 ML and 160 ML per day respectively), whilst Woy Woy WTP, with a capacity of 5 ML per day, is only recommissioned during drought conditions.

An agreement is in place with Sydney Water to supply approximately 67 ML of potable water per annum to residents in the Mooney Mooney and Cheero Point area network. This area is not connected to the other Council water networks.

An agreement also exists with Hunter Water Corporation, to enable the transfer of treated water (in either direction) between Council and Hunter Water's reticulation systems. The inter-connection is known as the Hunter Connection. Day-to-day transfer rates are dependent on relative storage levels in each system, and operational needs. The pipeline provides yields to both parties with the current agreement expiring in 2026.

2.3.2 Sewer services

The former Wyong and Gosford LGA sewerage systems were developed as stand-alone systems, with no linkages to each other or to the Hunter region. The exception is at Mooney Mooney and Cheero Point, where untreated sewage is collected by Council and pumped to the Sydney Water-owned Brooklyn STP.

Sewage is collected through 2,686 km of sewage mains and 337 pumping stations. Treatment is undertaken at one of eight sewage treatment plants. The bulk of sewage undergoes secondary treatment and is discharged into the ocean via outfalls at Winnie Bay, Norah Head, and Wonga Point. An overview of Council's major sewer assets is shown in Table 2.

Table 2: Central Coast major sewer assets

Sewer Assets	Amount
Gravity sewer mains	2,299 km
Sewer rising mains	253 km
Effluent disposal mains	67 km
Low pressure mains	24 km
Vacuum mains	43 km
Sewer pump stations	337
Vacuum and low-pressure systems	7
Sewage treatment plants	8
Ocean outfalls	3
Tunnels	6 km
Declared dam	1

This process starts when the treated water used by customers is discharged as sewage from kitchen, bathroom, toilets, commercial and industrial sites and other wastewater disposal sites. Sewage flows to the sewer reticulations mains and is then pumped to STPs where it enters the head-of-works. At this point, sewage passes through coarse and fine screens to remove non-biodegradable material such as plastics, cotton tips and sanitary products.

Figure 7 shows the treatment process at Kincumber STP. Council has eight STPs and three ocean outfall sites shown in Table 3. The sewerage systems catchments are shown in Figure 8.



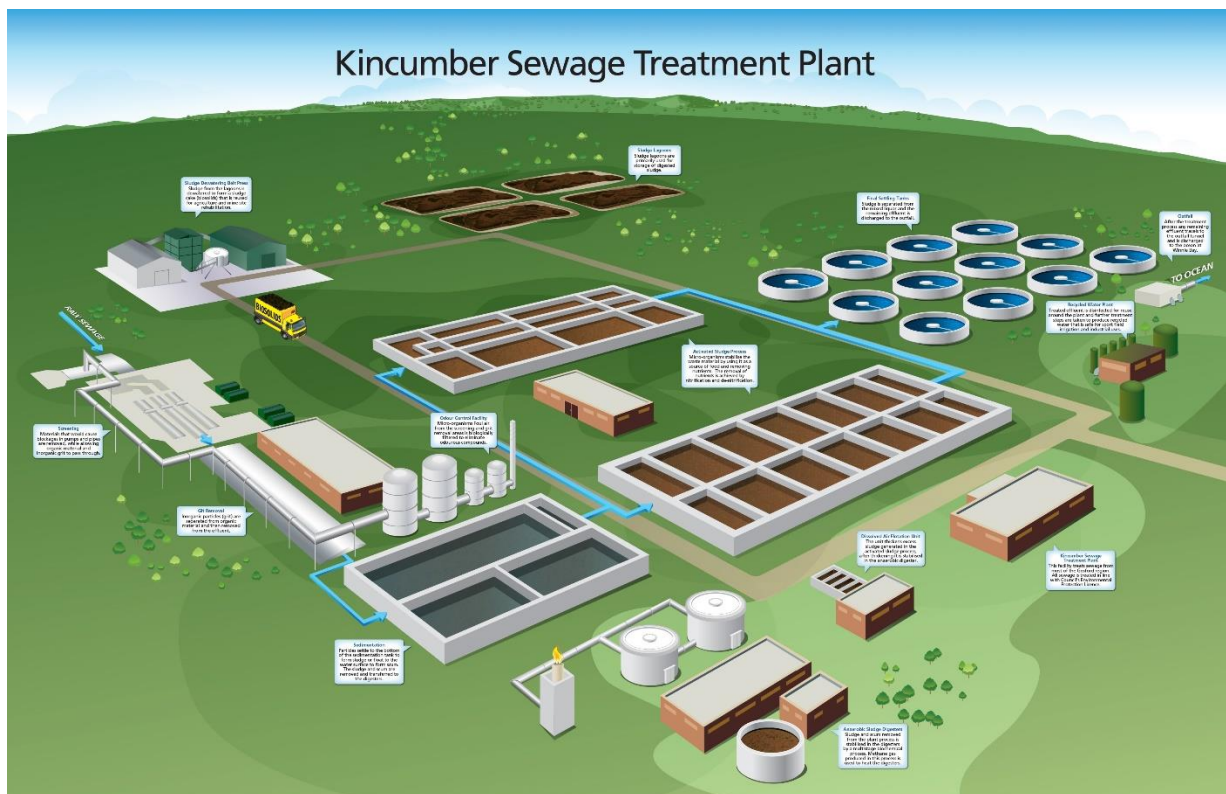
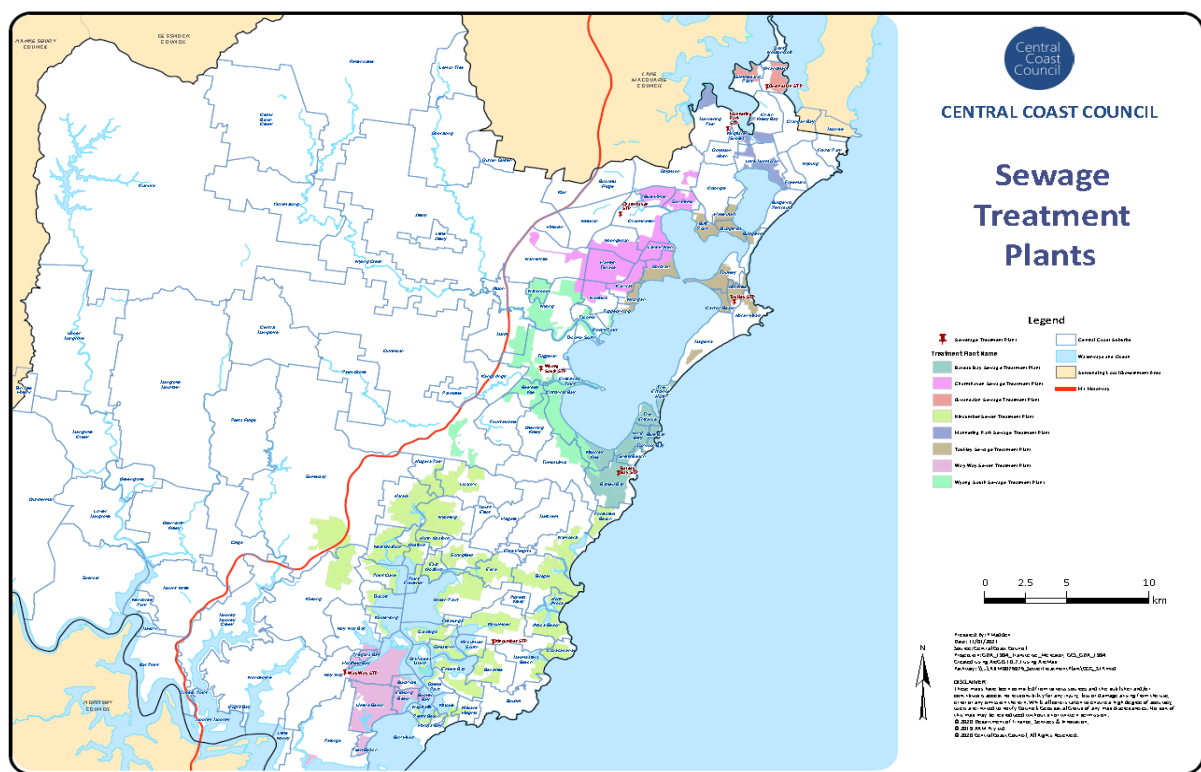


Figure 7: Kincumber Sewage Treatment Plant

Table 3: Central Coast sewage treatment plants

Treatment Plant	Capacity in EP	Treated effluent ocean outfall
Bateau Bay STP	76,800	Wonga Point (EPL 1942)
Charmhaven STP	40,000	Norah Head (EPL 2647)
Gwandalan STP	12,000 (currently operating at 6,000 EP)	
Mannering Park STP	12,000	
Toukley STP	41,500	
Wyong South STP	60,000	Winney Bay (EPL 1802)
Kincumber STP	180,000	
Woy Woy STP	50,000	



Monitoring for recurrent operational and regulatory quality purposes occurs throughout the water and sewage networks. Data collected informs the physical, chemical, gaseous, and microbiological composition of water and sewage reticulated, treated and discharged by Council.

In addition to the recurrent operational and regulatory sampling and monitoring programs, non-routine samples are taken at various times during network maintenance, water quality and environmental incidents, customer complaint management, process improvement investigations and proactive and responsive investigations. Council also undertakes routine operational programs such as contamination testing at Ourimbah Creek, adjacent to the Mangrove Mountain Waste Management Facility

Analytical testing of samples for the quality monitoring program is undertaken by:

- Sydney Water Monitoring Services (National Association of Testing Authorities – (NATA³ Accredited)
- Council, at its Kincumber and Charmhaven laboratories, and *in situ at operating STPs*.
- NSW Health - Water and Environmental Chemistry Laboratory
University of Newcastle and UTS (University Technology Service).

³ National association of Testing Authorities - national accreditation body, recognised by government to assess organisations against a number of international standards for laboratories, inspection bodies, proficiency testing providers and reference material producers.

Costs for monitoring in source and reticulation is a significant increase from Council's regular reticulation monitoring. Sampling for PFAS⁴ chemicals is undertaken by Council staff and conducted throughout our source and catchment areas (refer to Figure 8), within our dams and treatment plants, across our reticulation network, and in our biosolids and other high-risk areas. Analysis is performed by external NATA-accredited laboratories.

Treatment and disposal of sewage at the eight STPs is regulated by three Environmental Protection Licences (EPLs) issued by NSW Environment Protection Authority (EPA):

- EPL 2647 Norah Head
- EPL 1942 Wonga Point
- EPL 1802 Winney Bay.

EPLs specify the quantity of waste managed by a licence holder as well as the quality of effluent, permitted to be discharged to prevent pollution of the environment. Performance against EPL conditions must be reported to the EPA annually, and each EPL is reviewed by Council and the EPA every five years.

Performance related targets for EPLs regarding the treatment of effluent for quality and quantity (concentrations, and volume and mass limits of discharge of pollutants) are outlined in

Table 4. Each EPL specifies the monitoring location, frequency and location to demonstrate performance against these limits.

Table 4: EPA licence conditions for three sewerage systems

Parameter		EPL 1802	EPL 2647	EPL 1942
Daily flow to outfall limits				
Volume (ML)		150	60	36
Concentration limits				
pH		6.5 – 8.5	6.5 – 8.5	6.5 – 8.5
BOD (mg/L)	90 th %ile	30	-	-
	Maximum (100 th %ile)	30	-	30
Oil & grease (mg/L)	50 th %ile	5	5	5
	90 th %ile	10	10	10
	3DGM	15	15	15
	Maximum (100 th %ile)	10	-	10
Total suspended solids (mg/L)	50 th %ile	35	35	35
	90 th %ile	50	50	50
	3DGM	60	60	60
	Maximum (100 th %ile)	65	-	50
Ammonia (mg/L)	Maximum	30	-	30

⁴ PFAS- polyfluoroalkyl substances, are a group of man-made chemicals

Parameter		EPL 1802	EPL 2647	EPL 1942
	(100th %ile)			
Annual load limits				
Total nitrogen (kg)		227,682	175,750	75,745
Oil and grease (kg)		8,791	40,036	10,862
Total suspended solids (kg)		243,683	150,450	17,788
Cadmium (kg)		41.08	14	-
Chromium (kg)		63.84	14	-
Copper (kg)		113.26	160	-
Lead (kg)		4.43	14	-
Mercury (kg)		0.41	2	-
Selenium (kg)		101.69	14	-
Zinc (kg)		561.67	280	-
Pesticides and PCBs (kg)		1.77	3	-

Sampling is performed at an array of locations at each STP. Location, frequency and parameters can be modified depending on the operational requirements of the treatment plants. In addition to routine sampling and monitoring, non-routine samples are taken during network maintenance, environmental incidents, customer complaint management, process improvement investigations, and proactive and responsive investigations. The Australian Government's Expert Health Panel for PFAS found that although the scientific evidence in humans is limited, reviews and scientific research to date have provided consistent reports of an association with several health effects. The health effects reported in these associations are generally small and within normal ranges for the whole population. There is also limited to no evidence of human disease or other clinically significant harm resulting from PFAS exposure at this time. The monitoring sites associated with sewage treatment include:

- Rising mains and pump stations
- Raw influent entering the plant head of works
- Sedimentation tanks – sludge sampling
- Digester tanks – sludge
- Reactors/aerators
- Clarifier tanks
- Final holding tanks
- Bypass to sand dunes (Toukley)
- Tunnels
- Lagoon (supernatant)
- Recycled water
- Surf zone testing at adjacent beach sites
- Dewatered sludge cake (heavy metals and pesticides, total solids).

2.3.3 Pollution incident management and reporting

Council is obliged to manage and report to the EPA, other regulators and the local community. Council must attend to, contain, repair, remediate and report any incident that has the potential to cause significant environmental harm, public health risk, or incur a cost of more than \$10,000 to rectify. Such incidents may include:

- Spill of raw sewage or treated effluent
- Chemical spills
- Odour
- Biogas leak
- Chlorinated water discharge causing property damage or entering waterbodies
- Dam contamination.

Following an incident reported to the EPA by telephone, Council has seven days to submit a written report to the EPA. The report must detail the cause of the event, actions undertaken to identify and mitigate the environmental impacts, and suggest improvements to reduce the risk of reoccurrence.

Council has developed an extensive incident management framework, action plan and other protocols to:

- Minimise any potential harm to community, animals and the environment
- Inform relevant authorities and public
- Return to normal as soon as practicable.



2.3.4 Management systems

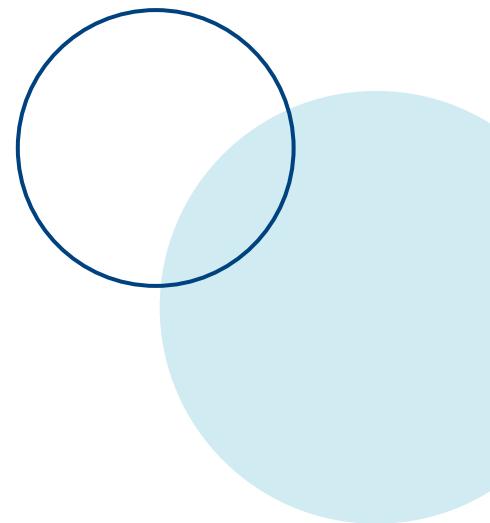
Council maintains a Water and Sewer Quality Management System (QMS) to develop, hold, review, and manage relevant documents associated with water operations to deliver a safe and consistent service. The QMS is designed to assure conformance to specified responsibilities, processes, and resources and encourages continuous improvement that will also benefit customer satisfaction.

The implementation of a well-structured QMS will enable Council to:

- Fulfil Council's commitment to delivery of high-quality drinking water and provide safe environment for all residents
- Ensure public health and protect environment
- Meet legislative, regulatory and operational requirements
- Reduce and manage risks through trend analysis, anomaly alerts
- Enable consistent delivery of services
- Carry out proactive and responsive monitoring and investigations
- Maintain reputation with customers, visitors, regulators and other stakeholders
- Enable strategic planning
- Maintain a QMS according to industry best practice.

Council's Water and Sewer QMS consists of a set of policies, processes and procedures required for planning and executing its water and sewer operations. Key purposes are:

- To ensure compliance with a standard or regulatory body
- To enable identification of non-conformances and the implementation of continual improvement.



3 Legislative and regulatory frameworks

3.1 Regulatory framework

Council's water and sewer operations are regulated through a range of legislative and other controls.

The current regulatory framework can be grouped into the categories presented in Figure 9. Some legislation is relevant to more than one category and is presented in its dominant category.

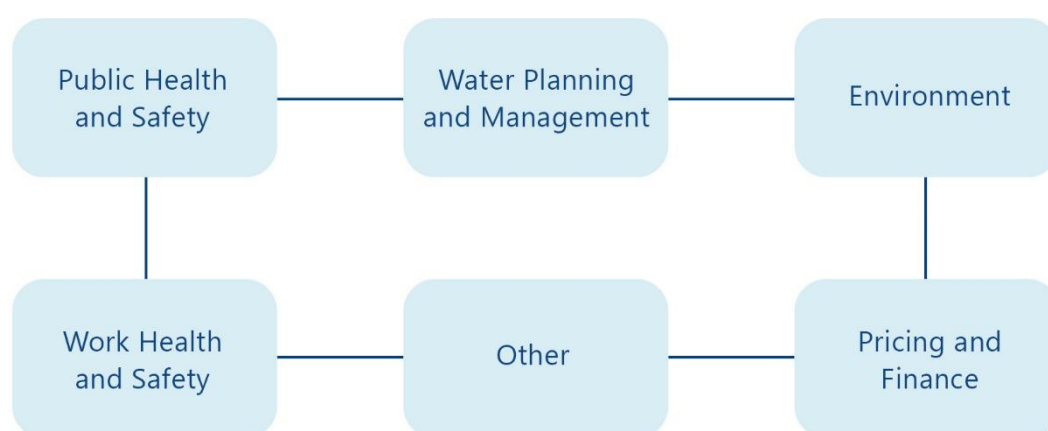


Figure 9: Regulatory categories for a water utility

The regulatory frameworks for Council's water and sewer businesses can be found in *Appendix A*.

Critical aspects of the regulatory framework for Council's water and sewer are described in Table 5 and the mechanism that IPART uses for regulation of Council's water and sewer services is detailed in Table 6:

Table 5: Summary of Council's regulatory framework

Category	Description
Water Planning and Management	Water Management Act 2000 s64 of the <i>Local Government Act 1993</i> , allows Council to use WMA 305 for developer works which will relate to the developer charges and works approval requirement. As a local water utility (without an operating licence), Council must comply with the Best Practice Guidelines for Water and Sewerage, and annually report performance to the NSW Department of Planning, Industry and Environment. <i>Administered by NSW Department of Planning, Industry and Environment – Water under the Minister for Water, Property and Housing.</i>

Category	Description
	Water Act 2007 (Cth) Council is required to provide water resources, usage and management data to the Bureau of Meteorology (BoM) in accordance with the prescribed timeframes and formats. <i>Administered by Bureau of Meteorology under the Minister for the Environment.</i> Security of Critical Infrastructure Act 2018 (Cth) The Security Legislation Amendment (Critical Infrastructure Protection) Act 2022 (SLACIP Act) amends the Security of Critical Infrastructure Act 2018 (the SOCI Act) to build upon the existing framework and uplift the security and resilience of Australia's critical infrastructure. <i>Administered by the Critical Infrastructure Centre under the Minister for Home Affairs.</i>
Environment	Protection of the Environment Operations Act 1997 Council is broadly required to take all practicable measures to prevent harm to the environment. An Environment Protection Licence (EPL) is required to manage several waste treatment functions, including operation of a sewerage system. <i>Administered by Environment Protection Authority under the Minister for the Environment.</i> Environmental Planning and Assessment Act 1979 Council is required to assess the environmental impacts of its activities and mitigate these appropriately. Development consent may be required for some works depending on their nature and location. <i>Administered by Department of Planning, Industry and Environment under the Minister for Planning and Public Spaces.</i>
Pricing and Finance	Independent Pricing and Regulatory Tribunal Act 1992 Council pricing for water and sewer services is statutorily determined by IPART. Council cannot charge any more than the price determined by IPART or charge a price less than that determined by IPART without the approval of the Treasurer. <i>Administered by Independent Pricing and Regulatory Tribunal (IPART).</i> Public Finance and Audit Act 1993 The Audit Office conducts financial and performance audits, principally under the <i>Public Finance and Audit Act 1983</i> and the <i>Corporations Act</i>

Category	Description
	2001 and examines allegations of serious and substantial waste of public money under the <i>Public Interest Disclosures Act 1994</i>. Local Government Act 1993 Council is required to prepare and maintain accounting records in accordance with Australian Standards and requirements of the Acts. <i>Administered by NSW Audit Office under the Treasurer.</i>
Public Health and Safety	Public Health Act 2010 Council is obliged to follow advice issued by the Chief Health Officer regarding drinking water safety, including the requirement to develop and maintain a Drinking Water Management System. <i>Administered by NSW Health under the Minister for Health.</i> Fluoridation of Public Water Supplies Act 1957 Council adds fluoride to the drinking water supply in accordance with the Act and Regulation, and the Fluoridation Code of Practice. <i>Administered by NSW Health under the Minister for Health.</i> Dams Safety Act 2015 Council is required to ensure the safety of its dams. Dams Safety Regulation 2019 Council is required to comply with the Dam Safety Regulations in relation to the management of its stormwater and water supply dams. <i>Administered by Dams Safety NSW under the Minister for Water, Property and Housing.</i>
Work Health and Safety	Work Health and Safety Regulation 2017 Council is required to secure and promote the health, safety and wellbeing of staff. <i>Administered by SafeWork NSW under Minister for Innovation and Better Regulation.</i>
Other	Competition and Consumer Act 2010 The Council must not engage in any misleading or deceptive conduct. <i>Administered by Australian Competition and Consumer Commission under the Treasurer.</i>
Australian Accounting Standard	Australian Accounting Standard AASB116 AASB 116 Property, Plant and Equipment prescribes the accounting treatment for property, plant and equipment (PPE) including their recognition, and the determination of their carrying amounts, depreciation and impairment losses.

Table 6: IPART's mechanism of regulation for Council's water and sewer services

Detail	How IPART regulates prices	In this submission?
Water supply services		
Drinking water supply	Price determination	✓
Voluntary reclaimed water schemes	As per Commercial Agreements as IPART encourages unregulated pricing agreements. IPART has deferred determining prices for each scheme until they receive a request for a scheme-specific review.	X
Sewer services		
Sewerage services	Price determination	✓
Backlog sewerage schemes	Price determination	✓
Trade waste services		
Trade waste services	Price determination	✓
Services supplied in connection with the provision of upgrading of water and sewer facilities for new developments		
Development Assessment for Water and Sewerage (forms part of the ancillary and miscellaneous customer service charges)	Price determination	✓
Ancillary and miscellaneous customer services		
IPART set a range of charges for miscellaneous services that are not used by all customers. These services are generally paid upfront and cover a wide range such as certification, property site plans, water connections, standpipe hire, special meter reads, etc. These charges are only incurred by customers who require these services.	Price determination	✓

4 Implementation of the 2022 determination

Council has implemented the IPART 2022 Price Determination for water, sewer and associated services since it came into effect 1 July 2022. Each year, Council updates prices for inflation in accordance with the Consumer Price Index (CPI) as notified by IPART, following the March quarter release of the CPI by the Australian Bureau of Statistics. Council also provides annual updates to IPART in the Annual Information Return to IPART.

It is unlawful to charge more than the price determined by IPART for a service, or a price calculated in accordance with a methodology determined by IPART. Council may only charge less than the IPART determined price, with the approval from the NSW Treasurer.

4.1 Public health and safety

4.1.1 Water quality

The NSW Department of Health provides advice to the NSW Government on drinking water standards and reclaimed water quality, to ensure Council supplies water that is safe to use for the purposes for which it is provided. Council is bound by legislation such as the *Public Health Act 2010* and the *Public Health Regulation 2022* to protect the health of users of its supplied water.

4.1.2 Dam safety

Council owns, operates, and maintains seven (7) dams that are prescribed under the *Dams Safety Act 1978* (NSW): Lower Mooney Dam, Upper Mooney Dam, Mangrove Creek Dam, Mardi Dam, Palm Tree Grove Detention Basin, Wyong Road Detention Basin and Pecan Close Detention Basin. These can be seen in Table 7 and Figure 10.

Table 7: Prescribed dams, consequence category and responsible Directorate

Name	Responsible Directorate	Consequence Category
Lower Mooney Dam	Water and Sewer	Low
Upper Mooney Dam	Water and Sewer	High C
Mangrove Creek Dam	Water and Sewer	High A
Mardi Dam	Water and Sewer	Extreme
Palm Tree Grove Detention Basin	Roads Transport Drainage	High C
Wyong Road Detention Basin	Roads Transport Drainage	High C
Pecan Close Detention Basin	Roads Transport Drainage	Low

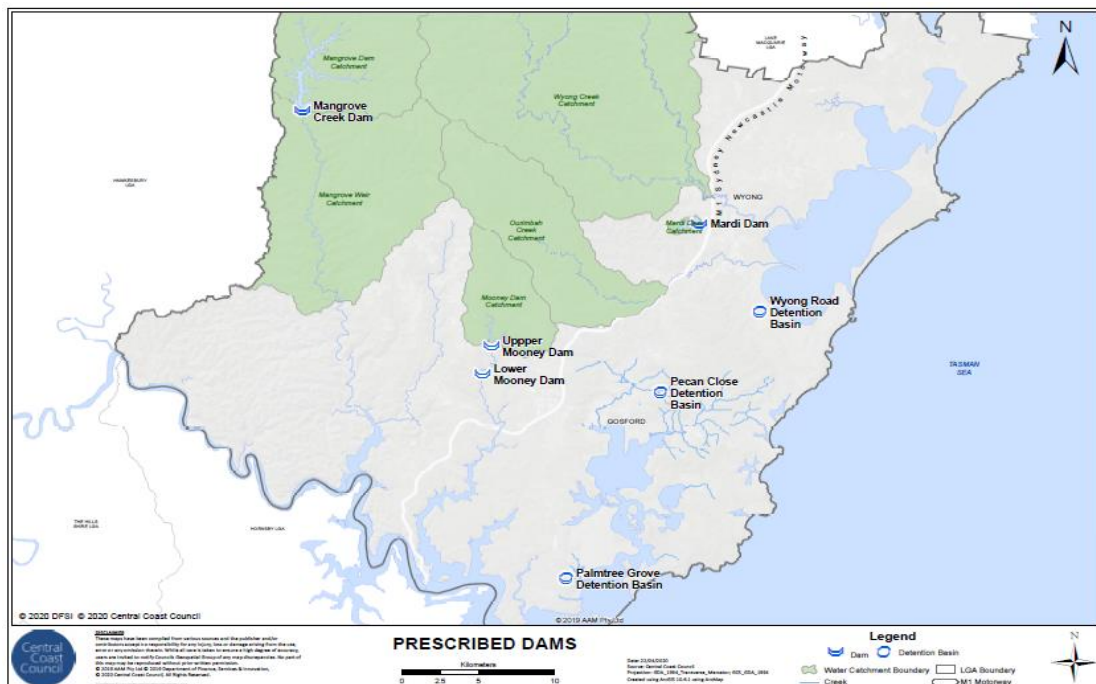


Figure 10: Council's seven (7) prescribed dam locations

The *Dam Safety Act 2015* and the *Dam Safety Regulation 2019* is in place to ensure that dams meet a level of safety acceptable to the community. Guidelines relevant to the design, operation and management of dams are produced by the Dams Safety NSW and the Australian National Committee on Large Dams.

Council is responsible for ensuring the following activities are undertaken:

- Proper operation, maintenance and surveillance of the dams using trained personnel.
- Ongoing assessment of dam behaviour based on surveillance information.
- Periodic review of each dam's compliance with current Dams Safety Committee requirements. Comprehensive surveillance reports are required to be submitted to the Dams Safety Committee at five yearly intervals.
- Review of all dam information and assessments by experienced personnel.
- Actions, in response to dam assessments, to ensure that the dams are maintained in a safe condition.
- Appropriate dam safety emergency plans in place for dams whose failure could cause loss of life.

Council has recently completed two major dam safety investigations at Mangrove Creek Dam and Mardi Dam which have confirmed confidence in the current management and operation of the two dams.

In 2020, Council completed a comprehensive risk analysis and investigation for the proposed upgrade of Mangrove Creek Dam's existing spillway. The investigation identified the proposed upgrade was not required to return the Full Supply Level (FSL) of the dam to the original operational 100 % FSL. This was due to the adoption of an alternate 'risk based'

assessment approach under the new *Dam Safety Regulation 2019*. The risk assessment was undertaken by specialist dam safety professionals and subject to an independent peer review, as required by Dam Safety NSW.

The review identified some potential capital works associated with the existing parametric joins in the dam wall and drainage works associated with the spillway. However, these works are not likely required unless Council was to raise the height of the dam beyond the current 100% FSL. Council has considered this option as part of development of the Central Coast Water Security Plan however, this option is not included in either of Council's preferred portfolios. Neither of these potential projects is therefore included in this pricing submission.

4.1.3 Environmental protection

Council undertakes a range of activities to manage any environmental impacts associated with the activities it undertakes in the delivery of its services.

Current activities under the banners of priorities that our customers would like to see addressed include:

- Protecting oceans and marine life:
 - Scoping and design of a marine benthic studies program around our three ocean outfalls in collaboration with a local university. The proposed monitoring program will be submitted to NSW EPA for review and approval prior to commencement as a Pollution Reduction Study under EPLs 2647, 1802 and 1942.
 - Routine water quality monitoring is undertaken downstream of critical assets and sensitive receiving environments to better understand background environmental conditions in the event of a sewage spill or other similar pollution event.
 - Water quality audit of Terrigal Lagoon catchment commenced to demonstrate the long-term benefits of the sewer lining program completed and identify if further investigations of sewer integrity issues are required.
 - Microbial Source Tracking investigated as a method for rapidly determining if high bacteria counts identified are human-sourced and indicative potential sewage discharge, or from other sources (dogs, birds).
- Minimising biodiversity impacts from our activities:
 - All infrastructure activities are assessed under a Review of Environmental Factors (Part 5 of the *Environmental Planning and Assessment Act 1979*), as set out in the Environmental Planning and Assessment Regulation 2000. This assessment considers flora, fauna, biodiversity, water, soil, heritage, community and social impacts.
 - Identified impacts are assessed and mitigated to protect waterways, biodiversity, threatened species and heritage.

- Disturbance to ground or trees is assessed to determine if there are impacts to Aboriginal heritage, using a Due Diligence Assessment. Staff that undertake this assessment have undertaken Aboriginal heritage training.
- Weeds and pest animals are managed in dam catchments to prevent spread to surrounding lands.
- Flora and fauna biodiversity monitoring and recording is undertaken throughout dam catchments to understand the ecological value under management and implement management programs where required.
- Using renewable energy for treatment plants:
 - Energy co-generation potential has been investigated at Kincumber STP, with four consultant studies having been completed since 2001, the last being in 2017. Further investigations will be undertaken as part of the planned climate change mitigation and adaptation project (2025-2027).
 - Solar PV has been installed at Bateau Bay STP, Wyong South STP, Kincumber STP, Charmhaven STP, Toukley STP, Somersby WTP and Mardi WPS, with the energy generated feeding into the operational demand of the plants.
 - Heat is recovered from combustion of methane generated from digestion of sewage sludge to heat the digesters and support the biological treatment processes at Kincumber STP, Toukley STP, and Bateau Bay STP. This reduces demand for fossil fuels and reduces discharge of greenhouse intensive methane.
 - Monitoring for calculation of greenhouse gas emissions has been done in accordance with Department of Climate Change Energy, the Environment and Water (DCCEEW) reporting requirements. Further investigations of monitoring requirements will be undertaken as part of the planned climate change mitigation and adaptation project (2025-2027).
 - Climate change risk and adaption – Consultants have been engaged to commence the Water and Sewer Master Plan, which will include identify climate change risk analysis and adaptation strategies to consider.

Projects to be undertaken in the 2025/26 financial year include:

- Preparation of a climate change mitigation and adaptation plan, including improved greenhouse gas emission quantification and asset resilience will commence. This three-year project will inform Council of the improvement actions required to reach compliance with the NSW *Climate Change (Net Zero Future) Act 2023*, with the project split into two areas of focus:
 - Climate change mitigation – greenhouse gas emissions reduction opportunities and operational efficiency requirements to mitigate the generation of greenhouse gases.

- Assets resilience and adaptation – how we ensure our assets are resilient to the impacts of changing climate, particularly with accelerated loss of capacity and physical integrity of the infrastructure.
- Continuation of the Terrigal Lagoon water quality audit and extension into the Avoca Lagoon catchment, to verify the beneficial outcome of the sewer relining works and identify additional sewer rehabilitation works that may be required.
- Review current efficiency performance of solar PV works currently installed and undertake improvements where required.
- Submit application for grant for upgrade of energy generation infrastructure at existing water and sewer facilities.
- Improve incorporation of sustainability metrics into current project planning and delivery to reduce long-term greenhouse gas, energy and ecological footprints of projects, and transparency for reporting improved environmental and sustainability outcomes to our customers.

4.1.4 Licenced activities

The *Protection of the Environment Operations Act 1997* (POEO Act) aims to minimise the environmental impact of Council operations. The POEO Act is enabled via the *Protection of the Environment Operations (General) Regulation 2022* and administered by the EPA.

Some Council activities prescribed in the POEO Act require an EPL. Each EPL has pollution prevention and monitoring guidelines for undertaking waste management activities.

Water and Sewer operates several premises in accordance with the following EPLs:

- 12633 Mooney Mooney and Cheero Point Sewage Scheme
- 12170 Waters of Mangrove Creek Dam and Mooney Dam (Application of algaecides)
- 2647 Toukley Sewerage System
- 1942 Bateau Bay Sewerage System
- 1802 Kincumber and Woy Woy Sewerage System.

Activities undertaken under the conditions of the EPLs must be reported annually to the EPA.

4.1.5 Access to water sources

Until 1975, Gosford City and Wyong Shire Councils had separate water supply schemes. The Gosford scheme was based on Mangrove Creek Weir and Mooney Dam, located on the upper reaches of Mooney Mooney Creek. Water could be transferred from Mangrove Creek Weir or Mooney Dam to the Somersby WTP before distribution through the Kariong Reservoirs to the Gosford community.

The Wyong water supply scheme was based on a weir and pumping station on the lower Wyong River, that transferred water to Mardi Dam for off-river storage. Mardi Dam provided the balancing storage and drought security where water was treated (disinfected) and distributed to the Wyong community.

In 1975, Gosford City and Wyong Shire Councils resolved to integrate and augment their water supply schemes. The joint scheme was designed to harvest water from Wyong River and Mangrove, Mooney Mooney and Ourimbah Creeks with the key element, a major new water storage dam (190,000 ML) on Mangrove Creek. Mangrove Creek Dam was commissioned in 1980.

Council's access to water sources is regulated by its Water Access Licences (WAL) that specify the volumetric entitlements of the licence holder. Council holds WALs for extracting water from several locations, refer Table 8.

Table 8: Fresh water sources accessible to Central Coast Council and their use

Location	Use
Ourimbah Creek	Town water
Wyong River	Town water and farming
Tuggerah Lakes	Recreational
Sydney Basin-North Coast Groundwater	Town water and recreational
Hawkesbury to Hunter Coastal Sands	Recreational
Mangrove Creek	Town water
Mooney Mooney Creek	Town water
Hunter Groundwater	Town water and recreation
Kulnura Mangrove Mountain Groundwater	Town water and recreation

Abbreviations

BoM	Bureau of Meteorology
CWT	Clear Water Tank
EPA	Environment Protection Authority
EPL	Environment Protection License
IPART	Independent Pricing and Regulatory Tribunal
LGA	Local Government Area
ML	Megalitre
POEO	Protection of the Environment Operations Act 1997
QMS	Quality Management System
RAB	Regulated Asset Base
STP	Sewage Treatment Plant
WAL	Water Access Licence
WTP	Water Treatment Plant

References

- Australian Accounting Standard AASB116
- Australian Drinking Water Guidelines 2011
- Competition and Consumer Act 2010
- Dams Safety Act 2015
- Dams Safety Regulation 2019
- Environmental Planning and Assessment Act 1979
- Fluoridation of Public Water Supplies Act 1957
- Independent Pricing and Regulatory Tribunal Act (IPART) Act 1992
- Local Government Act 1993
- New South Wales Code of Practice for the Fluoridation of Public Water Supplies 2018
- NSW Government "Best Practice" Guidelines for Water Utilities (Industry Guideline)
- Protection of the Environment Administration Act 1991
- Protection of the Environment Operations Act 1997
- Protection of the Environment Operations (General) Regulation 2022
- Public Finance and Audit Act 1983
- Public Health Act 2010
- Public Health Regulation 2022
- Security of Critical Infrastructure Act 2018 (Cth)
- Water Management Act 2000
- Water Act 2007 (Cth)
- Water Management (General) Regulation 2018
- Work Health and Safety Act 2011
- Work Health and Safety Regulation 2017

Appendix A

- Aboriginal Land Rights Act 1983
- Aboriginal Land Rights Regulation 2020
- Australian Drinking Water Guidelines 2018 (Industry Guideline)
- Biosecurity Act 2015
- Biosecurity Regulation 2017
- Biodiversity Conservation Act 2016
- Biodiversity Conservation Regulation 2017
- Climate Change (Net Zero Future) Act 2023
- Coastal Management Act 2016
- Competition and Consumer Act 2010 (Cth)
- Contaminated Land Management Act 1997
- Contaminated Land Management Regulation 2022
- Crown Land Management Act 2016
- Crown Land Management Regulation 2018
- Dams Safety Act 2015
- Dams Safety Regulation 2019
- Dangerous Goods (Road and Rail Transport) Act 2008
- Dangerous Goods (Road and Rail Transport) Regulation 2022
- Environment Protection and Biodiversity Conservation Act 1999 (Cth)
- Environment Protection and Biodiversity Conservation Regulations 2000 (Cth)
- Environmental Planning and Assessment Regulation 2021
- Fluoridation of Public Water Supplies Act 1957
- Fluoridation of Public Water Supplies Regulation 2022
- Fire and Rescue NSW Act 1989
- Fire and Rescue NSW Regulation 2023
- Fisheries Management Act 1994
- Fisheries Management (General) Regulation 2019
- Central Coast Development Control Plan 2022
- Central Coast Local Environmental Plan 2022
- Government Sector Audit Act 1983
- Heritage Act 1977
- Heritage Regulation 2012
- Independent Pricing and Regulatory Tribunal Act 1992
- Local Government Act 1993
- Local Government (General) Regulation 2021
- Local Land Services Act 2013

- Local Land Services Regulation 2014
- Marine Estate Management Act 2014
- National Parks and Wildlife Act 1974
- National Parks and Wildlife Regulation 2019
- Natural Resources Commission Act 2003
- NSW Government “Best Practice” Guidelines for Water Utilities (Industry Guideline)
- New South Wales Code of Practice for the Fluoridation of Public Water Supplies 2022
- Pesticides Act 1999
- Pesticides Regulation 2017
- Plantations and Reafforestation Act 1999
- Plantations and Reafforestation (Code) Regulation 2001
- Plumbing and Drainage Act 2011
- Plumbing and Drainage Regulation 2017
- Protection of the Environment Operations Act 1997
- Protection of the Environment Operations (Clean Air) Regulation 2022
- Protection of the Environment Operations (General) Regulation 2022
- Protection of the Environment Operations (Noise Control) Regulation 2017
- Protection of the Environment Operations (Waste) Regulation 2014
- Public Health Act 2010
- Public Health Regulation 2022
- Roads Act 1993
- Roads Regulation 2018
- Security Legislation Amendment (Critical Infrastructure Protection) Act 2022 (SLACIP Act)
- State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017
- State Environmental Planning Policy (Exempt and Complying Development Codes) 2008
- State Environmental Planning Policy (Infrastructure) 2007
- State Environmental Planning Policy (Koala Habitat Protection) 2021
- State Environmental Planning Policy (Mining, Petroleum, Production and Extractive Industries) 2007
- State Environmental Planning Policy (State and Regional Development) 2011
- State Environmental Planning Policy (State Significant Precincts) 2005
- State Environmental Planning Policy (Coastal Wetlands) 2018
- State Environmental Planning Policy No 19- Bushland in Urban Areas
- State Environmental Planning Policy 33- Hazardous and Offensive Development
- State Environmental Planning Policy 36- Manufactures Home Estates
- State Environmental Planning Policy 52- Farm Dams and Other works in Land and Water Management Plan Areas
- State Environmental Planning Policy No 55- Remediation of Land

- State Environmental Planning Policy No 62- Sustainable Aquaculture
- Sydney Regional Environmental Plan No 8 (Central Coast Plateau Areas)
- Water Act 1912
- Water Act 2007 (Cth)
- Water (Part 2- General) Regulation 1997
- Water (Part 5- Bore Licences) Regulation 1995
- Water (Part 5- Drillers' Licenses) Regulation 1995
- Water Management Act 2000
- Water Management (General) Regulation 2018
- Water Sharing Plan for the Central Coast Unregulated Water Sources 2009
- Water Sharing Plan for the Central Coast Unregulated and Alluvial Water Sources 2021
- Wilderness Act 1987
- Work Health and Safety Act 2011
- Wyong Development Control Plan 2013
- Wyong Local Environmental Plan 2013



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