GRIFFITH UNIVERSITY

Integrated Water Management Plan

2025 - 2030

CONTENTS

Acknowledgement of Country

Griffith University acknowledges the people who are the traditional custodians of the lands on which we learn and work and pays respect to the Elders, past and present, and extends that respect to all Aboriginal and Torres Strait Islander peoples.

Griffith University campuses sit on the lands of the Yugarabul, Yuggera, Jagera, Turrbal, Yugambeh and Kombumerri peoples. We acknowledge Aboriginal and Torres Strait Islanders' unique relationship with and understanding and ongoing stewardship of these lands. Through collaboration with staff, students and community members we are committed to embedding Indigenous cultures and diverse knowledge systems in our learning and teaching, research, operations, and partnerships. Griffith acknowledges Elders past and present who guide the way to a more sustainable future for all. Under the guidance of the Griffith University Elders and First Peoples Knowledge Holders Advisory Board we seek to ensure sustainability actions are aligned with First Peoples' knowledges and cultural practices.

Consultation

In the development of this plan, we have engaged a diverse array of experts from Griffith University spanning various disciplines pertinent to integrated water management. Our consultation process has included input from leading specialists in integrated water management, biodiversity conservation, erosion control, engineering, and sustainability. The Griffith University Frist Peoples Knowledge Holders Advisory Board was also consulted on the Plan and comprehensive workshops were held at Gold Coast, Logan and Brisbane South (Nathan) campuses to engage Aboriginal and/or Torres Strait Islander community members on place-based insights and knowledge. By harnessing the collective expertise of all these experts, we have done our best to ensure that these procedures are informed by the latest research, best practices, indigenous knowledge, and innovative approaches across multiple domains, thereby enhancing its comprehensiveness, effectiveness, and sustainability.

In accordance with Griffith University's commitment to continuous improvement and community engagement, this Integrated Water Management Plan is considered a living document. We recognise the importance of stakeholder and community feedback in shaping our approach to water management. As such, this plan will be regularly reviewed and adjusted based on input received from stakeholders, the community and monitoring to ensure its relevance, effectiveness, and alignment with evolving needs and priorities.

This plan was prepared by Mark Grant, Environmental Manager (Strategy, Policy & Planning) and Warwick Fegan, former Environmental Sustainability Manager, on behalf of Griffith Sustainability, Office of the Vice Chancellor, Griffith University.

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Executive Summary

Integrated water management is a process of managing water by considering all elements of the water cycle and collaborating with relevant governments, local stakeholders, and communities to achieve the best water outcomes for all, both within the catchment and beyond.

Griffith University is delivering integrated water management that aligns with integrated water management principles across all policy levels, from the United Nations Sustainable Development Goals through to Commonwealth, State and Local Government policy, planning and legislation.

This Integrated Water Management Plan enables Griffith University to deliver on its Sustainability Strategy 2023–2030 measures for water:

1. All new development actively seeks to manage its water cycle impacts in a sustainable way considering water-conscious building standards.
2. By 2030, annual potable water consumption (average per full-time equivalent staff and students) will have reduced by 10 per cent based on 2023 consumption.
3. By 2030, sensitive natural water bodies on campus will show no loss in ecological value or biodiversity, and sediment erosion monitoring will show no deterioration in levels of waterway and catchment health, based on ecological surveys compared with the baseline year (2025).

This plan implements integrated water management throughout our operations, academic activities and partnerships in order to support healthy catchments and acknowledge the social, cultural, environmental and economic values of South East Queensland's iconic waterways and marine environments.

Operationally, we seek to ensure our campuses meet best practice Integrated Water Management and are designed and operated using Water Sensitive Urban Design principles to:

- prevent pollution being released into the environment,
- reduce consumption of potable water,
- maximise water reuse,
- manage important aquatic environments, and
- adapt to the impacts of climate change.

This is supported by our world leading research which informs policies and actions to prevent waterway pollution and manage freshwater, estuarine, coastal and marine environments.

The plan also acknowledges and seeks to strengthen our partnerships with governments and conservation groups to deliver policy, education and actions that provide whole of community benefits and are consistent with sustainable management principles undertaken by First Nations people over many thousands of years.

Implementation of the actions within this plan will ensure Griffith University continues to be a leader in water management, continues to improve our performance and assists in protecting the important catchments of Moreton Bay where Griffith's physical campuses lie. The plan provides transparency and accountability for Griffith University's actions and supports our role to inform and influence others to improve water management, both locally and globally.

Vice Chancellor's Foreword

Water is not just a resource, it is the lifeblood of our ecosystems, communities, and cultures. At Griffith University, we recognise that the stewardship of water is a shared responsibility, one that demands vision, collaboration, and action.

This Integrated Water Management Plan sets out our pathway to 2030, guided by the principles of sustainability, inclusion, and respect for First Peoples' knowledge. It is shaped by the latest research, robust consultation with experts and community members, and our commitment to the United Nations Sustainable Development Goals. We are committed to reducing our potable water consumption, protecting and enhancing our natural water bodies, and preventing pollution—measures that will help build resilience in the face of climate change and hydrological extremes.

This plan, however, is about more than meeting targets - it is about doing things differently. At Griffith, we are integrating our waterway monitoring and management work directly into our teaching, learning and research. By treating our campuses as living laboratories, we empower students and staff to engage with real-world challenges, generate new knowledge, and drive innovation in water management. This approach not only builds capacity within our community, but also ensures that our actions are informed by evidence, creativity, and a spirit of collaboration.

This year, as Griffith continues its journey as a leader in environmental research and teaching, we reaffirm our dedication to embedding sustainability across all aspects of university life. This plan goes beyond compliance; it is about empowering our students, staff, and partners to lead change, to innovate, and to care for Country.

I want to thank the many contributors to this Plan. Your insights, expertise, and energy are helping Griffith University build a more resilient institution and a better future for all.

Professor Carolyn Evans

Vice Chancellor and President

Policy and Legislative Context

Water is integral to all life in South East Queensland, with all Griffith University campuses within the culturally, socially, economically and environmentally significant Moreton Bay. The sub-tropical climate of South East Queensland also means the University experiences hydrological extremes. Climate change modelling has shown that these extremes will increase, with more intense rainfall, more frequent droughts and harsher fire conditions creating hydrological management challenges within the catchments the University operates.

To address these challenges both on and off campus, Griffith University's Integrated Water Management Plan adopts a whole-of-catchment and water cycle approach, informed by international frameworks, state and local government legislation, and policies. Central to this approach is the explicit recognition of the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) as a guiding framework for cultural integration. UNDRIP affirms the rights of Indigenous peoples to maintain and strengthen their distinctive spiritual relationships with their traditionally owned or otherwise occupied and used lands, territories, waters, and coastal seas. Griffith University is committed to embedding these principles in our water management planning, ensuring that local Aboriginal and Torres Strait Islander cultural knowledge, practices, and values are respectfully integrated into all related environmental management plans.

Our leading academic and partnership programs strategically influence water policy through:

1. Educating future generations on sustainable water management;
2. Delivering impactful research that provides solutions to key water management challenges; and
3. Partnering with governments and industry on protecting and enhancing the values of our catchments, both now and for future generations.

In particular, the United Nations Sustainable Development Goal (SDG) 6 (Clean Water and Sanitation) and Goal 14 (Life Below Water) set the global strategic priorities for sustainable water management (United Nations 2015).This plan incorporates these SDG principles, and those from other Goals, including SDGs 11 (Sustainable Cities and Communities), 12 (Responsible Consumption and production) and 13 (Climate Action) within the local Griffith University context, to:

- Provide access to clean and affordable drinking water (UN SDG 6.1);
- Prevent waterway and marine pollution and promote water recycling and reuse (UN SDG 6.3);
- Protect and enhance South East Queensland catchments and marine ecosystems (UN SDG 6.6; UN SDG 14.2);
- Reduce water consumption and increase water-use efficiency across campuses (UN SDG 6.4);
- Provide integrated water resources management (UN SDG 6.5);
- Support sustainable management and research for catchments (UN SDG 14.2); and
- Support and strengthen local partnerships for water management (UN SDG 6.B).

State based water management policy and legislation shaping the Griffith University Water Management Plan includes:

1. *Shaping SEQ* which sets the regional strategic benchmarks (The State of Queensland, Department of Infrastructure, Local Government and Planning 2017). Goal 4, Element 5 identifies the need for water sensitive communities that:

a. “Protect and sustainably manage the region’s catchments to ensure the quality and quantity of water in our waterways, aquifers, wetlands, estuaries, Moreton Bay and oceans meets the needs of the environment, industry and community”
b. “Plan for a water sensitive region by supporting innovation in water cycle management that increases the efficient use of water, security of supply, addresses climate change and manages impacts on waterways and Moreton Bay”.

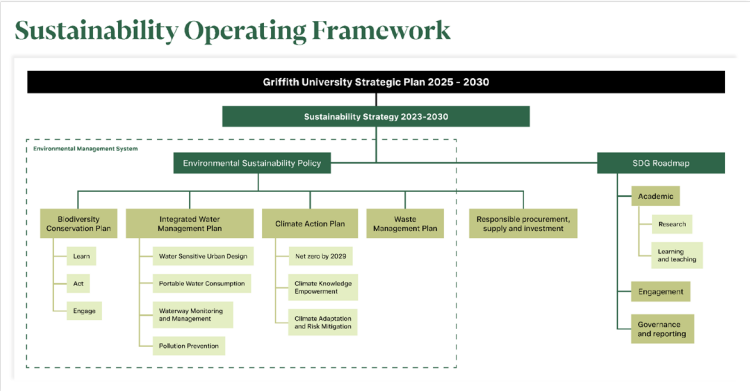
2. The legislative requirements for the protection of environmental values[1] of wetlands and waterways, including provisions for preventing adverse impacts on the environment, as outlined in the Environmental Protection Act 1994 and the Queensland Government Environmental Protection (Water and Wetland Biodiversity) Policy 2019 (Queensland Government 1994, 2019) and State Planning Policy (The State of Queensland, 2017).
3. The basin-level requirements relating to surface water, overland flow and groundwater to ensure minimum environmental and cultural flows[2] are maintained as per the Water Act (Queensland Government 2000).

State Government policy intent for urban water planning and management are delivered through local government planning. With 5 campuses across 3 local government areas, we align our operations with local government strategic planning intent[3], that considers:

- Water management that considers the whole of water cycle.
- Incorporation of water sensitive urban design into development.
- Sustainable water consumption, considering reuse and rainwater harvesting opportunities where practicable.
- Valuing the important role healthy waterways play for the local community, environment, and economy.
- Consideration of climate change impacts on the water cycle.

Griffith delivers environmental sustainability, including integrated water management, through the Sustainability Framework (Figure 1). This integrated water management plan supports outcome-focussed actions that align with the University’s Sustainability Strategy 2023 - 2030. The actions are supported by the Environmental Sustainability Policy and an Environmental Management System, which provides processes and procedures for operationally managing environmental risks and delivering improved water management outcomes.

Figure 1: Griffith University Sustainability Framework



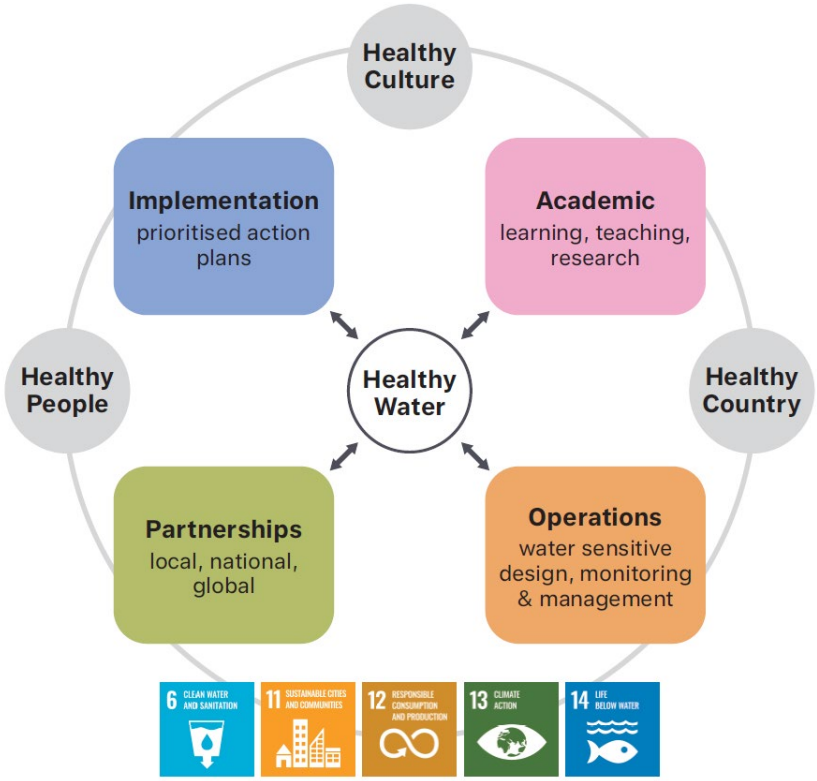
[1] The Environmental Protection Act (1994) defines environmental values as "a quality or physical characteristic of the environment that is conducive to ecological health or public amenity or safety"
[2] Seqwater Strategy defines environmental flows as mimicking the natural minimum flow of a catchment system: "Flow requirements…necessary to maintain and support aquatic biota and ecosystem processes."
Cultural flows are “water entitlements owned by First Nations people and communities. Cultural flows improve spiritual, cultural, environmental, social and economic health and wellbeing. Cultural flows support First Nations people’s right to use and manage water” (Department of Climate Change, Energy and Water, 2023).
[3] Brisbane's Total Water Cycle Management Plan and the Gold Coast Water Strategy 2019-2024.

Integrated Water Management at Griffith University

Griffith University is committed to the principles of clean water, sanitation, water security and healthy aquatic ecosystems, and adopts an integrated approach to water management. This approach considers the whole of the water cycle across our campus operations, academic activities and partnerships, and ensures challenges are addressed within the catchment, watershed and beyond. Our actions to improve freshwater and marine aquatic environments are underpinned by our strong commitment to reconciliation which acknowledges that Aboriginal and Torres Strait Islander people have ongoing unique relationships to the land, sea, waterways, and the air above and around us (Figure 2). The Gold Coast campus is situated on the land of the Kombumerri people of the Yugambeh language group. Logan is situated on the land of the Yuggera, Turrbal, Yugarabul, Jagera and Yugambeh peoples. Nathan and South Bank campuses are situated on the land of the Yugarabul, Yuggera, Jagera and Turrbal peoples. In line with the United Nations Declaration on the Rights of Indigenous Peoples, Griffith recognises the rights of Indigenous communities to maintain and strengthen their distinctive spiritual relationships with their traditionally owned or otherwise occupied and used lands, territories, waters and coastal seas.

Griffith University will continue to value and incorporate indigenous knowledge and practices into our environmental management approaches as we walk a path towards reconciliation, in line with the Kamilaroi philosophy *"If the water is healthy, Country is healthy. If Country is healthy then the People and Culture will be healthy."* (Moggridge 2010).

Figure 2: An Integrated Water Management approach at Griffith University



The following sections outline our commitment to integrated water management as reflected in our:

1. **Academic** initiatives, including learning, teaching and research.
2. **Operations**, including our water sensitive campus design, natural waterway management, marine ecosystem monitoring and pollution prevention.
3. **Partnerships**, including the impact of these locally and globally, for example supporting local councils that treat Griffith's wastewater to improve their facilities.
4. **Implementation** plans, including three key priorities and associated action plans.

ACADEMIC

Learning and Teaching

Griffith University is a top-ranked Australian university for natural and physical sciences teaching quality. Water management and whole of water cycle approaches to teaching are part of the interdisciplinary School of Environment and Science, including Queensland's only (and Australia's first) professionally accredited Environmental Science degree. Students are provided with catchment-scale expertise (Figure 3) to prepare them for real world water management challenges through specific water-related qualifications such as post-graduate certificates, diplomas and master degrees in integrated water management, water leadership, and catchment science.

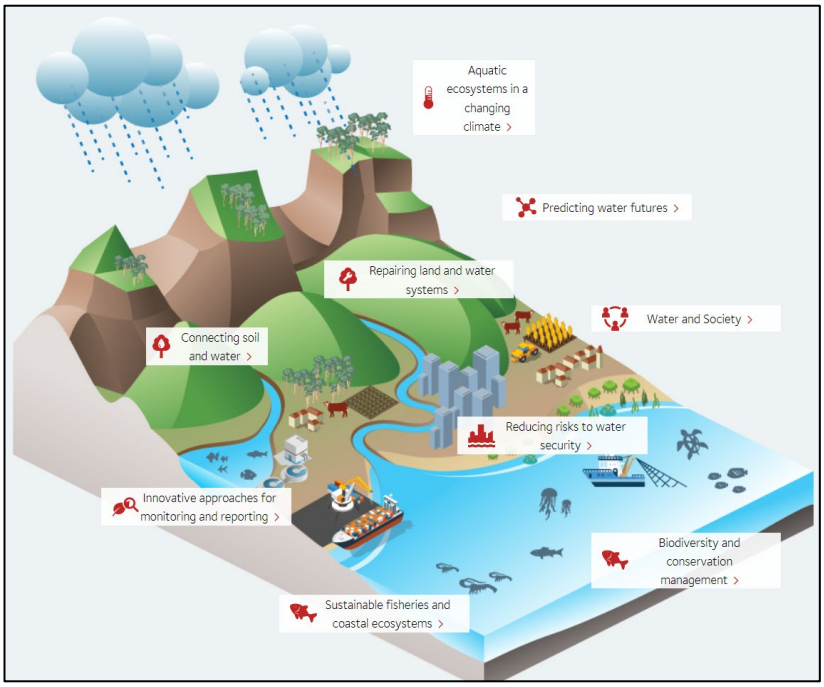
Many of the Griffith alumni of these water management degrees are actively working on improving water management across South East Queensland and are continuing to partner with Griffith to shape positive outcomes for our aquatic and marine environments.

These degrees are complemented by Griffith's professional development and training programs through the International WaterCentre, which include short courses within the following areas:

1. Water leadership
2. Water resilient communities and catchments
3. WASH (water, sanitation and hygiene) in the water cycle
4. Integrated Water Management (IWM), governance and finance
5. Climate change and water

The International WaterCentre also delivered the 9-month Water Leadership Program which has over 300 alumni across Australia. The IWC further delivers capacity development custom training programs for a range of clients including the Asian Development Bank, the Australian Water Partnership, and other national government agencies from countries including Indonesia, Pakistan, Sri Lanka and Fiji.

Figure 3: Catchment-scale expertise and project outcomes (Griffith University 2023a)



Research

Griffith University is a comprehensive research-intensive institution, ranking in the top 2% of universities worldwide and in the top 50 under 50 years old across a series of prestigious ranking systems. The University was host to one of the original centres of excellence established in 1987 by the Australian Water Research Advisory Council and has subsequently played a major role in 4 aquatic and catchment-based Cooperative Research Centres (CRC): Freshwater Ecology; Catchment Hydrology; eWater and Coastal and Estuarine Waterways Management.

In 2006, the University created the Australian Rivers Institute, with over 150 staff and students engaged in river, catchment and coastal research and training. Griffith University is also a founding partner of the International WaterCentre and is host to the Sustainable Water Future Programme, a new global science initiative established under Future Earth.

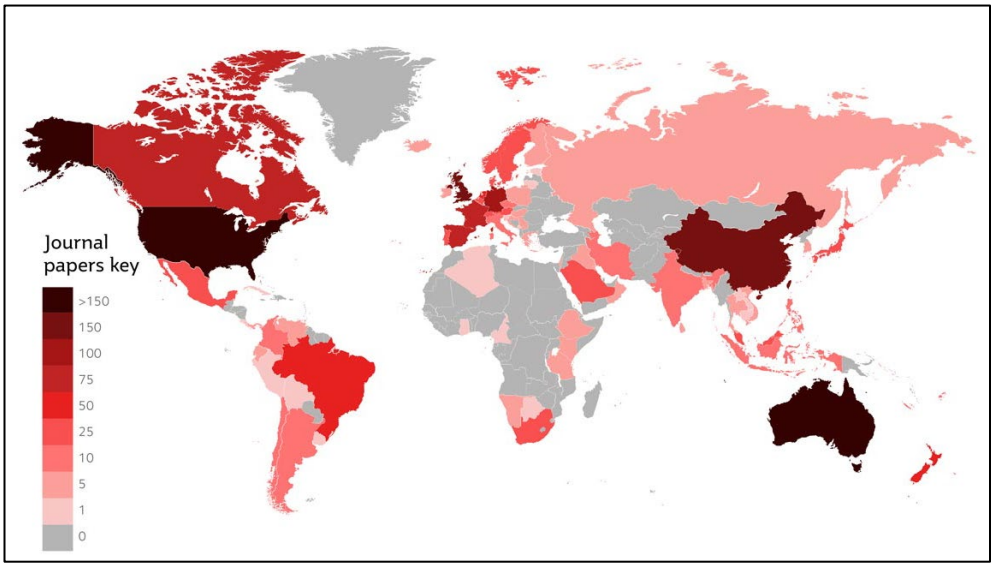
Australian Rivers Institute

The Australian Rivers Institute (ARI) is a world leader in research and education on rivers, coasts, and catchments. ARI provides a creative and collaborative environment that fosters the next generation of ecosystem scientists, supports sustainability, and promotes conservation of the world's natural resources. In 2020, ARI was named the Number One Global Water Security Think Tank by the independently curated Global Go-To Think Tank Index Report. ARI's research focuses on interdisciplinary research projects that consider a source-to-sea philosophy. The research targets four grand challenges globally, namely:

1. Balancing water needs for humans and nature
2. Arresting aquatic biodiversity decline
3. Tackling land-based waterways pollution
4. Making catchments more resilient to climate change

As shown in Figure 4, ARI collaborates extensively with researchers from across the globe.

Figure 4: ARI co-authored journal papers per country (Griffith University 2023a)



International WaterCentre (IWC)

The IWC develops, leads and participates in applied research activities, designed to address existing and emerging water-related problems, with a focus on human dimensions. Recognising the interconnectedness of issues affecting water, by adopting a transdisciplinary approach to research. The IWC convenes teams of researchers from diverse disciplines: environmental science, engineering, public health, anthropology, capacity development, and, international development.

The IWC works collaboratively, with both local research partners for place-based research, and with stakeholders – communities, governments, businesses and civil society that have an interest in solving the problem. Research processes are designed to delivery capacity development outcomes – to enhance the research capabilities of others.

Research Highlight: Pacific Water Research Program

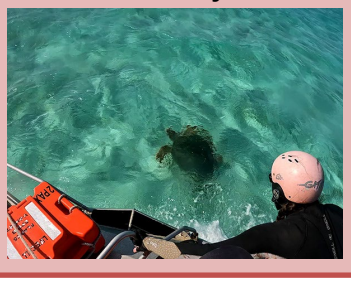
The Pacific Water Research Program brings together IWC researchers with Pacific and Australian Partners to undertake research targeting the complex water problems facing many Pacific Island Countries. The program is committed to developing regional and country-focused evidence, resources, and approaches, for use by practitioners, policy-makers, and communities across the Pacific who work on the human dimensions of climate-resilient water security, such as catchment and water resource management, and water supply, sanitation and hygiene (WASH)

Coastal and Marine Research

Griffith also hosts the Cities Research Institute. Within this institute, the Coastal and Marine Research Centre (CMRC) uses cutting-edge techniques supported by peer-reviewed science to bring together global scientific and management best practices and apply them at a local level through authentic engagement with government, councils, industry and community members, and traditional custodians.

Research Highlight: Monitoring the toxicology and health of green turtles in Cleveland Bay

Cleveland Bay seagrass meadows are significant foraging grounds and habitat sites for all six species of marine turtles that inhabit the Great Barrier Reef, with the vulnerable green turtles representing ~90% of turtles sighted during previous surveys. Funded by Port of Townsville Limited (POTL), this project provides a comprehensive assessment of the toxicology and health of green turtles foraging in Cleveland Bay to assist in the ongoing management of this environmentally protected and culturally significant species.



Water and Wastewater Management Research

While safe and sustainable water and waste management systems are essential in resilient cities, Griffith University recognises that the integration of these systems is equally important. The Cities Research Institute works with partners in industry and government to identify the key research challenges of integrating water and waste management in our ever-expanding cities, as well as Australia's remote indigenous communities.

Research Highlight: Exploring community-based water management options for remote Australia

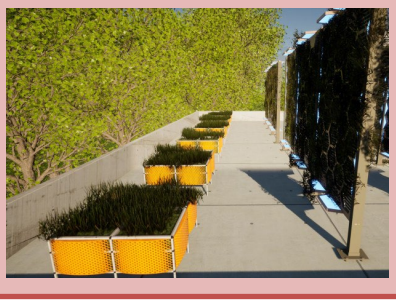
Griffith researchers brought their expertise to remote communities to help remote and isolated communities use less water and energy, empower communities and households through sharing data, and improve the environmental health and water, sanitation, and hygiene (WASH) outcomes in regional/remote/isolated Aboriginal and Torres Strait Islander communities.

Green Infrastructure Research Labs

Delivering the principles of water sensitive urban design presents an enduring challenge within many urban environments. Griffith's Green Infrastructure Research Labs supports water sensitive cities through a range of green assets, from green roofs, walls and sky gardens through to street trees, bioretention systems, constructed wetlands, parks and gardens, fauna overpasses and movement corridors, landfill and mine waste phytocapping.

Research Highlight: Embedding biodiversity in buildings

Griffith University's Green Infrastructure Research Labs has teamed with Aria Property Group in a new testing facility dedicated to researching the performance of trees and plants that are embedded in green buildings. The long-cycle facility, the first of its kind in a subtropical region anywhere in the world, will test the performance of different types of trees and different types of shrubs, embedded into the fabric of buildings, either into the walls of the buildings, or onto their roofs.



PARTNERSHIPS

Marine Ecosystem Health and Monitoring

As Griffith University campuses are in the culturally and environmentally significant Moreton Bay catchment (including the RAMSAR[4] protected wetlands), we have a key role in protecting and enhancing this important marine ecosystem health in Moreton Bay and the iconic Gold Coast marine environment, including partnering with local government to monitor the health of the marine receiving environment (Griffith University Coastal and Marine Research Centre 2023).

Through our research strengths and relationships with key partners, Griffith is delivering tangible improvements in the marine environment. This includes:

- Collaborating with leading conservation and community education organisations such as Sea World on the Gold Coast, to connect research and operational marine conservation practices, while providing public education of key marine issues (Griffith University School of Environment and Science 2023).
- Partnering with charitable trusts and private research foundations to deliver Australia's first marine wildlife cell culture bank (Australian Rivers Institute's Toxicology Research Group 2020).
- Ongoing partnerships with the City of Gold Coast to deliver a range of initiatives that contribute to improved social, cultural, and environmental outcomes for the Gold Coast marine and coastal systems (Griffith University Coastal and Marine Research Centre 2023).

Partnerships Highlight: Sea World and Sea Jellies Research

Our state-of-the-art laboratory, specially designed for studying sea jellies, is located within Sea World's 'Sea Jellies Illuminated' exhibit and is on display to the public. The laboratory provides fantastic opportunities for studying sea jellies and for engaging the public in scientific research.

The lab connects Griffith's research with the community in an interactive and fun manner, allowing marine conservation education and engagement for all ages through conservation partnerships.

Partnership Highlight: City of Gold Coast Research and Receiving Environment Monitoring Program

Since 1999, Griffith University has collaborated with the City of Gold Coast on major projects to improve coastal and estuarine environments and assets, including monitoring, analytical, and interpretive services through a Receiving Environment Monitoring Program (REMP) associated with the release of recycled water generated sewage treatment plants, including targeted water quality investigations in response to unique and complex incidences. The REMP is one of the largest water quality monitoring programs on the Gold Coast and ensures any potential impact to the environment, is accurately quantified and communicated to the appropriate government agencies.

[4] *The Convention on Wetlands of International Importance* is the United Nations intergovernmental treaty that provides the framework for the conservation and wise use of wetlands and their resources, signed in Ramsar, Iran in 1971, and adopted by Australia in 1974.

Sustainable Water Futures Program

Griffith University's Australian Rivers Institute (ARI) hosts the Sustainable Water Future Programme of Future Earth (Water Future), a global platform facilitating scientific collaboration to deliver solutions to the world's water problems.

Consistent with the objectives of the Sustainable Development Goals, research conducted through Water Future seeks to ensure a balance between the needs of humankind and nature, and to offer real solutions, underpinned by interdisciplinary science, to deliver a sustainable 'water world'. The programme serves as an ideas incubator, network hub and translator of scientific findings to address science, engineering, governance and management issues and drive policy change (Future Earth 2023).

Though the Sustainable Water Futures Program, ARI delivers world-class scientific research that improves understanding of catchment, river, estuarine and coastal ecosystems. ARI's research supports governments, resource managers, the water industry and the community in making informed decisions about the future of catchment, river, estuarine and coastal ecosystems.

Traditional Custodians and Indigenous Rangers

Based on feedback from workshops with Traditional Custodians and community members in 2024 and 2025, Griffith University is exploring ways to strengthen partnerships with Traditional Custodians, Indigenous rangers, and local environmental groups. This may include investigating Indigenous ranger models for shared campus stewardship and considering opportunities for collaborative waterway monitoring, signage, and native vegetation projects.

Workshop participants highlighted the importance of clear, accessible language and culturally safe engagement to support respectful knowledge exchange. Approaches such as storytelling, bilingual naming, and narrative-based frameworks were suggested to better reflect Indigenous perspectives. These insights are being considered as Griffith explores collaborative approaches to campus waterway management, aiming to integrate cultural knowledge and support practical care of campus waterways.

Healthy Land and Water

Healthy Land and Water (HLW) is a peak environmental non-government organisation for South East Queensland. For over 20 years HLW has been dedicated to investing in and leading initiatives to build the prosperity, liveability, and sustainability of our future region. Griffith University partners with HLW to provide community-focussed projects to improve water management and biodiversity conservation. Numerous Griffith University academics continue to contribute to HLW scientific and advisory committees to deliver meaningful environmental outcomes for South East Queensland Communities through partnerships and science-led solutions (Healthy Land & Water 2023).

Slacks Creek Restoration and Logan Arboretum

Ensuring healthy catchments requires engagement and collaboration across a range of public and private stakeholders. Griffith University builds on our research expertise to work with key stakeholders to support water management improvements within our local catchments, as well supporting global communities.

A key aspect of our community engagement work has been on the Logan Campus, where collaborating with the Slacks Creek Catchment Restoration Group, Griffith University has undertaken riparian restoration along the banks of Slacks Creek and built the native vegetation arboretum (The Water & Carbon Group 2023).

The campus also is used by Logan City Council for their Logan Eco Action Festival (LEAF), where Griffith University, in partnership with the Logan City Council, can use the arboretum to engage with the community about the value of restoring riparian zones as well as a range of other important sustainability issues (Logan City Council 2023).

OPERATIONS

Water Conscious Building Standards: Water Sensitive Urban Design and Stormwater Management

To align with contemporary urban water management principles, as well as State and Local Government strategic planning, Griffith University adopts a Water Sensitive Urban Design[5] approach to campus operations. This ensures Griffith University reduces water consumption through efficient water use which has a range of health, environmental, social, and economic benefits. This provides cooler campuses, reduces flood risk, improves air quality, allows staff and students to connect with nature, and prevents polluted water entering the water system, including pollution caused by accidents and incidents at the University.

Water Sensitive Urban Design is delivered at Griffith University through:

1. Campus Master Planning and Design Guidelines that incorporates Water Sensitive Urban Design and State Government urban stormwater guidelines, for example:
    a. Strategic consolidation of development to reduce requirements for clearing of native vegetation, minimising the edge-effect of our campuses on native ecosystems, and reducing the overall area of low permeability surfaces.
    b. Options to leverage stormwater on campus through natural retention and reuse systems that provide a range of ecosystem functions.
    c. Water efficient infrastructure and strategies to minimise or avoid the use of water, such as rainwater collection and reuse systems and waterless urinals.
    d. Water-conscious planting including landscaped gardens around buildings to minimise water usage by utilising drought tolerant native plants that require minimal irrigation while providing a range of ecosystem services and natural resilience on campus, as outlined in Griffith University's Biodiversity Conservation Plan 2022-2025 (and subordinate Landscape Management Plans).

2. A native vegetation approach to campuses, where:
    a. There is a focus on retention and enhancement of remanent vegetation.
    b. Campus design and green space management uses native vegetation, and if irrigation is required then collected rainwater is used where possible.
    c. Nature-based solutions are used on campus to reduce stormwater velocity and prevent contamination release and erosion, including leveraging vegetated and naturalised flow paths wherever possible.
    d. Risks posed by bushfires and extreme events are managed in a way that reduces the threat posed by such events, while protecting ecosystem functionality and services provided through natural assets.
    e. Riparian health is maintained through weed management and riparian restoration, and campus development maintains appropriate ecological buffers from any riparian zone.

Griffith University has campus Landscape Management Plans which include a local native plant palette designed to require minimal irrigation (Queensland Government 2020; Griffith University 2022). This ensures that we deliver on water-conscious planting, with plant landscapes to minimise water usage.

The Griffith University Biodiversity Conservation Plan 2022-2025 and associated Landscape Management Plans, also include local and native plant palettes designed to minimise, and where possible eliminate irrigation. This

[5] Water Sensitive Urban Design (WSUD) is a set of principles that can be applied to sustainably manage water, providing opportunities to achieve more liveable communities with vibrant and healthy waterways (Water by Design 2020).

ensures we deliver water-conscious planting and plant landscapes that reduce water usage across our campuses (Queensland Government 2020; Griffith University 2022).

Wastewater Treatment

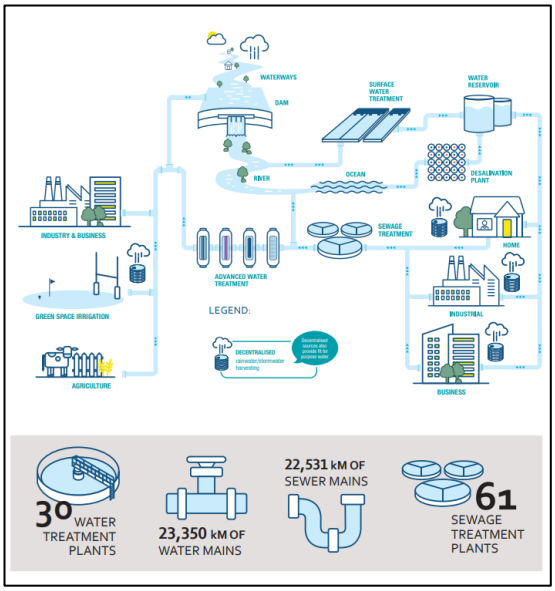
Griffith University utilises local council wastewater treatment processes and facilities to treat wastewater across all campuses. The Queensland Department of Natural Resources advises local governments on the management and maintenance of sewerage systems and treatment plants, and local councils are licensed under the *Environmental Protection Act 1994* to discharge wastewater that has been treated and achieved an acceptable environmental standard (Department of Environment & Science 2023). Providers for wastewater treatment include Queensland Urban Utilities for the Nathan and South Bank Campuses, Logan City Council for the Logan Campus and Gold Coast City Council for the Gold Coast Campus.

Since the millennium drought (1997-2009) Griffith University has partnered with local and state governments to ensure water security and improve water management. This partnership included Griffith's involvement in the Urban Water Security Research Alliance, the largest urban water research program in Australia at the time (Urban Water Security Research Alliance 2012). Research from this partnership provided a foundation for the reform of South East Queensland water management, including new water grid infrastructure and a desalination plant.

Upgrades to wastewater treatment operations in South East Queensland during and since the millennium drought means South East Queensland now delivers some of the highest quality drinking water in the world. Wastewater is cleaned and treated at water treatment plants to the stringent standards set by the Australian Drinking Water Quality Guidelines and returned to the water grid (Figure 5) (Seqwater 2023).

This world-leading wastewater treatment, combined with the widespread adoption of water-sensitive urban design measures (i.e., rainwater tanks, permeable pavements, and stormwater harvesting) has meant Griffith University has contributed to, and utilises, wastewater treatment networks that provide water security to South East Queensland, while minimising environmental impacts.

Figure 5: South east Queensland wastewater treatment water cycle (Seqwater 2020)



Our campuses are located within the catchment of Moreton Bay, which is a highly significant and protected marine environment. Given the world-leading standard of regional council-operated wastewater treatment facilities in this protected environment, Griffith University's wastewater treatment is conducted through the government-operated networks and facilities. This ensures high quality treated wastewater is returned to the water grid or released to the environment with minimal ecosystem impacts.

Water Consumption Reduction and Reuse: Water-Conscious Buildings

A key element to reducing potable water consumption across campuses is our process for building new buildings to sustainable standards , including our application of water-conscious building standards. These include the consideration of water use minimisation measures (e.g. using flow restriction fixtures and reduced water pressure on taps), and the implementation of rainwater capture and reuse systems (more than 50 buildings, collecting over 1.3 million litres of rainwater), to maximise water reuse across the university (see Appendix B). This, combined with our approach of maintaining healthy natural ecosystems in-lieu of irrigation-intensive grassed campuses, has supported Griffith University to have some of the lowest water consumption rates among universities in Queensland, Australia.[6]

Case Study: Sir Samuel Griffith Centre

The 6-green star rated Sir Samuel Griffith Centre, which opened in July 2013, harvests rainwater to irrigate landscaped green spaces and flush toilets. The building also includes water efficient fixtures to further reduce consumption and hosts the International WaterCentre.

Another way in which Griffith reduces its potable water consumption is through the use of overland flow, which is harvested and reused at Griffith University Logan campus via two inter-connected lakes. These provide a range of benefits, through:

1. Sports field irrigation (in-lieu of potable water). These sporting fields provide both the university and local community with access to in-demand, high quality recreational facilities.
2. Providing habitat for a range of local species, supporting ecological services in the catchment.
3. Managing local flood risk for low-lying parts of the campus and downstream communities.

Irrigation of sports fields and green spaces within our campus are important to provide high quality sporting and open space areas for students, staff and the community. Griffith University aligns with the Queensland Government's guidelines on efficient irrigation for water conservation and has campus Landscape Management Plans to support this.

As per these guidelines, rainwater, overland flow or water from constructed lakes (e.g. Logan Campus) is preferentially used for irrigation of sports fields and green spaces. The Griffith Design Guidelines require sustainable water extraction technologies (e.g. rain sensors on irrigation equipment) and seek to eliminate the need for landscape irrigation systems through careful plant selection (e.g. preferencing indigenous or drought resistant species to minimise the need for artificial irrigation following establishment). Potable water is only supplemented for irrigation when necessary, and subject to weather conditions, relevant water restrictions, supervisor approval and permits from local government.

[6] Water consumption measured as average volume of water per full-time equivalent staff and students (Tertiary Education Facilities Management Association 2023).

Natural Waterway Management and Monitoring

Water within the natural environmental is critical to sustaining a healthy ecosystem and maintaining the cultural, social, and economic benefits of waterways throughout the catchment and watershed. Griffith University manages several natural water bodies across our campuses, as well as key parts of the catchment for several locally significant creeks. Through our operations, research, and teaching we monitor the health of aquatic ecosystems to ensure each campus protects and enhances the catchments and watersheds in which they operate. The key receiving waters for each campus and their listed environmental values (Department of Environment and Science 2015) are outlined in table 1. Detailed water profiles for each campus, including site-specific challenges, opportunities, and management approaches are outlined Appendix A.

Table 1: Campus-Based Receiving Waters

Campus	Receiving Waters	Environmental Values[7]
Nathan	Mimosa Creek	• Aquatic Ecosystems (including areas of state environmental significance and high ecological significance). • Primary, Secondary and Visual Recreation • Cultural and Spiritual Values • Irrigation
	Oxley Creek	• Aquatic Ecosystems (including areas of state environmental significance and high ecological significance). • Secondary and Visual Recreation • Cultural and Spiritual Values
Gold Coast	Biggera and Loders Creek	• Aquatic Ecosystems (including state and local significant species as well as state and local significant wetlands) • Primary, Secondary and Visual Recreation • Cultural and Spiritual Values • Human Consumer Values (seafood consumption)
	Frog's Hollow Waterhole	
	Smith Street Wetland	
Logan	Slacks Creek	• Aquatic Ecosystems (including areas of state environmental significance and high ecological significance). • Secondary and Visual Recreation • Cultural and Spiritual Values
South Bank	Brisbane River	• Aquatic Ecosystems (including areas of state environmental significance and high ecological significance). • Human Consumption • Primary, Secondary and Visual Recreation • Industrial Use • Cultural and Spiritual Values

[7] Environmental Values as defined by the *Environmental Protection (Water and Wetland Biodiversity) Policy 2019.*

Water System Pollution Prevention

To prevent physical, biological and chemical alterations to the unique aquatic ecosystems on and around our campuses, Griffith minimises and prevents water system pollution through:

- The implementation of water quality standards and guidelines for water discharges, to uphold water quality and protect ecosystems, wildlife, and human health and welfare;
- Comprehensive contaminant management and response processes;
- Initiatives to prevent plastic contamination; and
- The development of erosion and sediment control processes.

In particular, all potential hazardous materials, chemicals and pollutants on campus are stored, handled and managed in accordance with Australian Standards and internal management guidelines and procedures for chemical management, chemical waste disposal and clinical waste management.

Further, Griffith University is committed to preventing and reducing marine pollution of all kinds. We recognise that microplastics entering the fresh and marine aquatic environment is a major societal challenge. Alongside Griffith University's leading research on microplastics within the marine environment, a range of plastic reduction initiatives are occurring including:

- Removal of plastic cutlery, utensils and straws from campuses.
- A Sustainable Event Guide to reduce the use of single use plastic at Griffith events and graduation ceremonies.
- Keep-cup and Bring-Your-Own water bottle campaigns to encourage reuse and limit the sale of single use plastic drink containers. The Accessing Free Drinking Water on Campus Guide provides free drinking water access locations across each campus and outlines the benefits of refilling and reusing water bottles.
- Development of waste management plans to avoid and limit plastic waste as Griffith strives towards becoming a zero-plastic university.

Griffith recognises that construction and maintenance works associated with campus development has the potential to cause erosion, releasing sediment into the natural environment. Projects over $80,000 require the Principal Contractor to prepare a Construction Safety and Environment Management Plan that addresses potential environmental risks posed by the project. Environmental risks arise from all construction sites, including refurbishment of existing buildings. Plans must clearly describe how these and other risks will be managed on each project, what control measures will be used and how their effectiveness will be monitored and reviewed.

Griffith University also requires that contractors undertaking high risk work, as part of minor works construction, maintenance or services, provide an appropriate safety plan or Work Method Statement, describing how the risks will be controlled before starting work.

Griffith University will take additional measures to monitor and control sediment erosion that occurs across our campuses naturally or as a result of non-construction-based activities that are not required regulated by the environment plans described above. These will be informed by Griffith experts, such as from the Precision Erosion and Sediment Management Research Group, which develops timely, cost-effective strategies to precisely define and manage erosion and sediment sources in our waterways and catchments.

IMPLEMENTATION

Griffith continues to provide leading research across a range of water management and associated environmental disciplines. This research is critical to informing and shaping government policy, industry action, and community engagement to deliver on the principles of the Sustainable Development Goals through healthy fresh and marine environments. To ensure our research continues to have local and global environmental impact, Griffith will:

1. Showcase our research strengths to a range of academic and non-academic audiences.
2. Seek new opportunities to partner with government, industry, and the community to deliver impactful research that supports positive environmental change.
3. Investigate options to expand existing partnerships and identify new channels for engaging with the community on improving fresh and marine ecosystem health.

To deliver cultural, social, and environmental improvements to the fresh and marine aquatic environments in which Griffith University operates, we will continue to deliver focussed and practical actions across the following areas:

1. Water Sensitive Campus Design and Stormwater Management
2. Potable Water and Consumption Reduction
3. Natural Waterway Management and Monitoring
4. Pollution Prevention
5. Continual Improvement

This Integrated Water Management Plan will deliver on the University's Sustainability Strategy 2023-2030, including the following success measures for water:

1. All new development actively seeks to manage its water cycle impacts in a sustainable way considering water-conscious building standards.[8]
2. By 2030, annual potable water consumption (average per full-time equivalent staff and students) will have reduced by 10 per cent based on 2023 consumption.
3. By 2030, sensitive natural water bodies on campus will show no loss in ecological value or biodiversity, and sediment erosion monitoring will show no deterioration in levels of waterway and catchment health, based on ecological surveys compared with the baseline year (2025).

These measures of success will form the basis for catchment health improvement that goes above and beyond our existing water management activities and obligations. Detailed actions for each area are specified in the tables below.

Progress against these measures of success under this Integrated Water Management Plan, will be reported in the publicly available annual Sustainability Report to provide transparency and accountability to our water management approach.

To ensure this plan not only delivers culturally, socially, and environmentally impactful outcomes, but is also cost-effective for the university, a continual improvement approach will be integrated, including:

1. Regular sediment erosion control inspections to prioritise remediation towards high-risk areas and identify key stormwater management challenges.
2. Riparian weed management reports to ensure the effectiveness of the control program.
3. Regular implementation updates to the University's Environmental Sustainability Committee.
4. A formal review and update to this plan in 2026.

[8] Such as Green Star, Water Sensitive Urban Technical Design Guidelines for South East Queensland and the Griffith University Design Guidelines

Action Plan 1: Water Sensitive Urban Design and Stormwater Management

Measure of Success: Griffith University actively seeks to manage its water cycle impacts in a sustainable way, taking into account water conscious building standards.

No.	Action	Time	Measure of Success	Campus(es)
1.1	Apply Water Sensitive Urban Technical Design (WSUD) guidelines for South East Queensland in Master Planning and Building Design	Ongoing	Master Plans actively seek to incorporate WSUD as a design principle, preferencing water reuse and naturalised solutions with habitat co-benefits to stormwater management where possible.	All
1.2	Introduce additional natural elements to the cement stormwater drainage channel adjoining G27 to enhance habitats and control erosion.	2025	Revegetation and landscaping work completed.	Gold Coast
1.3	Investigate options to improve water quality and ecological health in the lakes at Logan campus and the Yarning Circle Pond at Nathan campus, considering native vegetation, mechanical oxygenation, and input from Traditional Custodians. Identify risks and recommend practical monitoring and rehabilitation approaches.	By 2027	Management options investigation completed with relevant recommendations and costings, including community input on appropriate vegetation species and community use of campus areas.	Logan, Nathan
1.4	Seek water stewardship certification from a reputable external organisation to demonstrate commitment, show leadership and become the first university to receive such validation.	From 2024	Performance reporting process initiated, and verification granted under Water Stewardship Asia Pacific's Water Stewards Program.	Gold Coast, Logan, Nathan
1.5	Investigate the feasibility of creating a natural dry ephemeral stormwater system at Nathan Campus.	By 2030	Feasibility investigation completed with relevant recommendations, including community input on appropriate vegetation species and community use of campus areas.	Nathan

Action Plan 2: Potable Water and Consumption Reduction

Measure of Success: By 2030, annual potable water consumption (average per full-time equivalent staff and students) will have reduced by 10% based on 2023 consumption.

No.	Action	Time	Measure of Success	Campus(es)
2.1	Actively consider water reuse and reduction options for new buildings (e.g. rainwater collection and reuse systems)	Ongoing	Rainwater collection and reuse systems are installed and functional in new buildings wherever possible.	All
2.2	Review the current operation and optimisation potential of existing rainwater collection and re use systems.	Ongoing	Periodical audits of existing water tanks completed with recommendations.	All
2.3	Install water meters in all major buildings* (where feasible) to identify leaks and any possible water consumption improvement opportunities.	From 2025	Water meters installed in a prioritised manner.	All
2.4	Establish water consumption dashboards on Griffith Sustainability webpage that highlight relevant campus water consumption metrics and information on how to reduce water consumption.	By 2027	Dashboards publicly available.	All

Action Plan 3: Natural Waterway Monitoring and Management

Measure of Success: By 2030, sensitive natural water bodies on campus will show no loss in ecological value or biodiversity based on *ecological surveys compared with the baseline year (2025).*

No.	Action	Time	Measure of Success	Campus(es)
3.1	Reduce riparian weeds via targeted 'hotspot' management and additional management actions under the Biodiversity Conservation Plan.	From 2024	Annual reductions in riparian weed cover and at least an 80% reduction by 2030 (measured against 2025 levels).	Gold Coast, Logan, Nathan
3.2	Develop informed and appropriate procedures for the ecological monitoring of sensitive water bodies at Gold Coast, Logan and Nathan campuses. Procedures to include information on monitoring locations, parameters (e.g. biological, physico-chemical), timing, and people responsible.	By mid-2025	Procedures completed.	Gold Coast, Logan, Nathan
3.3	Conduct targeted waterway monitoring (as per 3.2) to measure the ecological condition of sensitive wetlands and provide management recommendations.	Ongoing from 2025	Monitoring completed and report delivered showing status, change, influencing factors (natural and anthropogenic) and management recommendations.	Gold Coast, Logan, Nathan

Action Plan 4: Pollution Prevention

Measure of Success: By 2030, erosion monitoring will show no deterioration in levels of waterway and catchment pollution.

No.	Action	Time	Measure of Success	Campus(es)
4.1	Revegetate (with appropriate species) the cleared area along the western edge of the G55 carpark to support erosion and pollution management.	2024	Area revegetated.	Gold Coast
4.2	Develop procedures for conducting proactive erosion inspections, including incident notification processes.	By mid-2025	Procedures established.	Gold Coast, Logan, Nathan
4.3	Conduct annual post-rainfall erosion audits for sediment and pollution control and compliance as per the established procedures (see 4.2).	Annually from 2025	Annual audit report completed with prioritised recommendations.	Gold Coast, Logan, Nathan

Action Plan 5: Continual Improvement

No.	Action	Time	Measure of Success	Campus(es)
5.1	Conduct community consultation, in particular with First Nations elders, knowledge holders, and community members, on the planning and implementation of all actions.	From 2024	Consultations with relevant stakeholders conducted and outcomes, including on appropriate species and community use of campus areas, incorporated into action and implementation plans.	All
5.2	Implement water management actions directly resulting from community consultation, waterway monitoring and erosion audits. Where appropriate, incorporate traditional cultural knowledge and western scientific principles, and explore opportunities for site-based stewardship and partnerships with Indigenous rangers and local environmental groups.	From 2025	Actions implemented on time and within budget, with evidence of cultural integration and ecological co-benefits.	Gold Coast, Logan, Nathan

APPENDIX A: CAMPUS WATER MANAGEMENT PROFILES

Campus Receiving Waters Summary

Campus	Receiving Waters	Environmental Values[9]	Key Management Approach
Nathan	Mimosa Creek Oxley Creek	• Aquatic Ecosystems (including areas of state environmental significance and high ecological significance). • Primary, Secondary and Visual Recreation • Cultural and Spiritual Values • Irrigation	• Contamination prevention and response procedures • Retain riparian vegetation and reduce weeds • Increase of campus permeability and restore native vegetation • Regular sediment erosion control audit • Regular waterway monitoring
Gold Coast	Biggera and Loders Creek Frog's Hollow Waterhole Smith Street Wetland	• Aquatic Ecosystems (including state and local significant species as well as state and local significant wetlands) • Primary, Secondary and Visual Recreation • Cultural and Spiritual Values • Human Consumer Values (seafood consumption)	• Contamination prevention and response procedures • Regular sediment erosion control audit • Retain riparian vegetation and reduce weeds • Educational engagement • Regular waterway monitoring
Logan	Slacks Creek	• Aquatic Ecosystems (including areas of state environmental significance and high ecological significance). • Secondary and Visual Recreation • Cultural and Spiritual Values	• Riparian restoration within the Arboretum • Contamination prevention and response procedures • Ecological and water quality monitoring of lakes

[9] Environmental Values as defined by the *Environmental Protection (Water and Wetland Biodiversity) Policy 2019.*

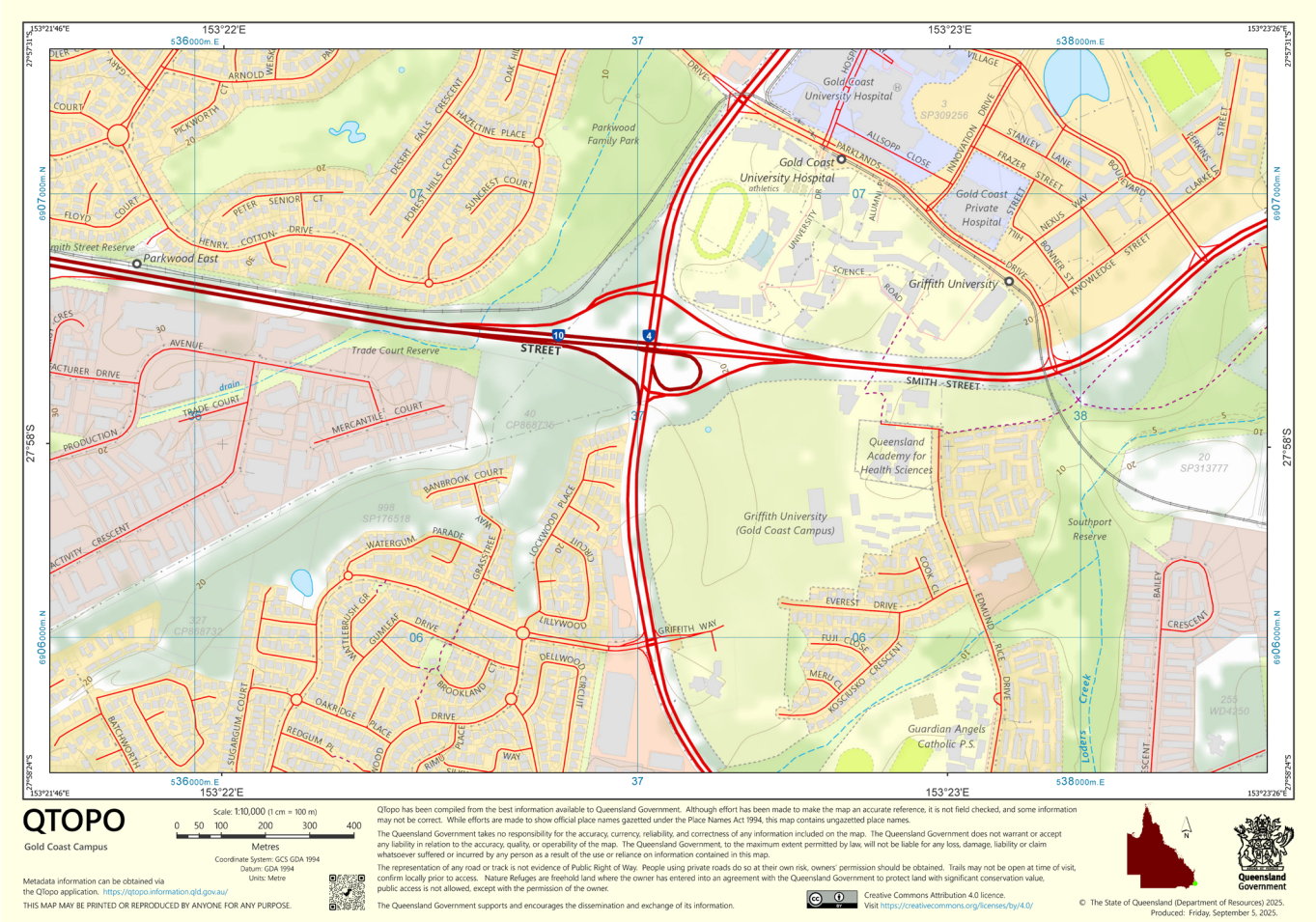
Gold Coast Campus: Water Profile

Receiving Environment

Surface and subsurface water from the Gold Coast campus flows into the Gold Coast Broadwater (including the Moreton Bay Ramsar internationally important wetland) via Biggera and Loders Creek. The Broadwater and Biggera / Loders Creeks have protected Environmental Values under the *Environmental Protection (Water and Wetland Biodiversity) 2019* for:

1. Aquatic Ecosystems (including state and local significant species as well as state and local significant wetlands)
2. Primary, Secondary and Visual Recreation
3. Cultural and Spiritual Values
4. Human Consumer Values (seafood consumption)

Appendix A: Figure 1 – Gold Coast Campus topographic and catchment map (QTOPO)



Water Movement Across Campus

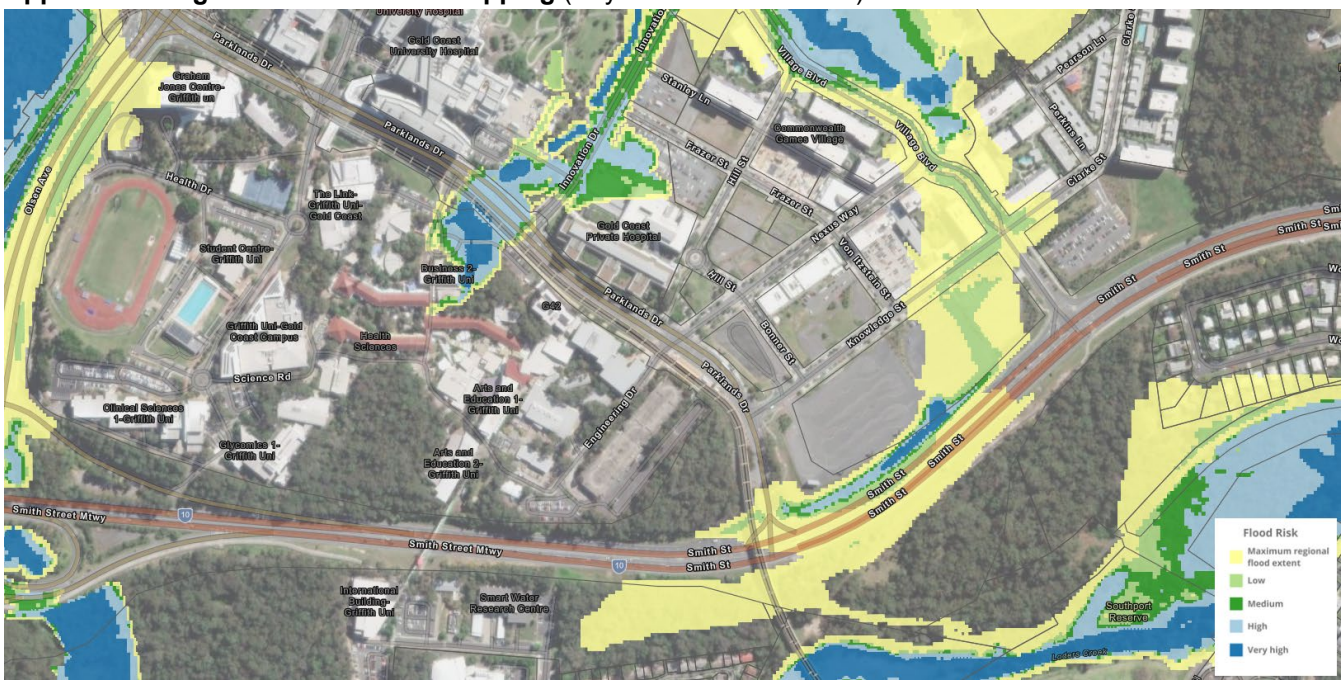
With a sub-tropical coastal environment, the Gold Coast campus experiences an average annual rainfall of approximately 1300 mm, however, is highly susceptible to both regional (e.g., La Nina / El Nino) and seasonal (e.g., cyclones) climatic events. Particularly during the summer months, the campus can experience intense or prolonged rainfall. As such, the campus does experience significant overland flow during intense events, creating potential challenges for:

- Channel erosion

- Localised flooding
- Infrastructure and environmental damage to due to high velocity flows

As the campus is elevated within the Southport area, it is unlikely to suffer major or widespread inundation from storm surge or intense rainfall (although localised flooding remains likely, including on campus access corridors). However, given the low permeability of some built-form surfaces across campus, there is potential for contribution to downstream flood peaks from the drainage channel around G27.

Appendix A: Figure 2 – Flood Risk Mapping (City of Gold Coast 2023)



To limit localised flooding, maintaining and increasing campus permeability and native vegetation will assist in reducing flood peaks and potential erosion. Frog's Lane native vegetation plays a key role in this ecosystem service, by not only providing habitat for a range of vulnerable and endangered species, but also increasing permeability and reducing flow velocities during flooding events.

Climate Change Considerations

While the Gold Coast campus is not within the modelled Sea Level Rise inundation zone, the Griffith University baseline climate risk assessment did identify the following changes which would affect integrated water management on the campus:

- Increases in both mean annual rainfall amounts, and event intensity would like to exacerbate pre-existing challenges with erosion, localised flooding, and water infrastructure impacts. Catchment flood hydrology from the City of Gold Coast indicates local creeks will be subject to elevated flood risk, which could affect campus access and operational management.
- Increases in cyclone tracking towards the Gold Coast, creating significant flooding and associated water management challenges.
- The campus is located above sand-lens aquifers which are likely connected to the marine environment. Saline groundwater incursion resulting in salinification of the subsurface aquifers and associated impacts on surface ecology as well as building and maintenance implications.
- Evaporation and drought frequency is also likely to increase and the campus may experience increased drying of natural areas during extended dry periods. In addition to impacts on water use and vegetation management, this is expected to have consequences for bushfire risk.

Gold Coast Campus Water Management Focus Areas

To ensure continued improvement of water management within campus, the following key focus areas are recommended for further action during the period of this plan:

- Development and implementation of a sediment erosion control program. This would include:
  - Annual post-rainfall event sediment erosion audits; and
  - Prioritised erosion mitigation action based on audit recommendations, focussed on nature-based solutions where feasible.
- Investigate options for naturalisation of key drainage areas on campus, including the drainage channel under and to the northern side of G27.
- Continue to incorporate and enhance rainwater collection and reuse across campus where practical.

Monitoring Regime

A monitoring program is recommended for the Gold Coast campus as follows:

- ***Sediment Erosion***
  Griffith University's Erosion and Sediment Management Protocol (ESMP) outlines a proactive approach to managing erosion risks across all campuses. Regular inspections, particularly after rainfall, are conducted by qualified environmental professionals. The ESMP focuses on preventing sediment mobilisation into stormwater systems. It includes a dual reporting system—one for students and the public, and one for staff—to support early intervention and continuous improvement. Reports are submitted via Microsoft Forms and reviewed annually through a dedicated erosion control meeting, which prioritises actions based on environmental risk.
  See the subordinate *Sediment and Erosion Management Protocol* for a full description of sediment and erosion control activities.

- ***Sensitive Waterways***
  Griffith University's Gold Coast campus contains a mix of perennial and ephemeral water systems that drain primarily to Biggera Creek, with some areas flowing to Loders Creek. Key wetlands and water bodies are monitored to assess ecological health, identify contaminants, and track climate-related impacts. Monitoring supports compliance with the Gold Coast Broadwater Basin Environmental Values and Water Quality Objectives.

  Primary monitoring sites include G2, a deep perennial pond equipped with a floating TracWater buoy that collects real-time data on pH, temperature and oxidation-reduction potential. G4, the northern ephemeral stormwater outfall, captures runoff from a wide catchment including hard surfaces and a possible emerging spring. It is a priority site for assessing stormwater quality and sediment transport, particularly after rainfall events.

  Supplementary sites include G1 (a biodiverse perennial pond used for teaching and research), G3 (an ephemeral runoff channel capturing sediment from urban infrastructure), and G5 (a southern outfall deprioritised due to external stormwater inputs). Together, these sites support targeted monitoring and long-term ecological assessments.

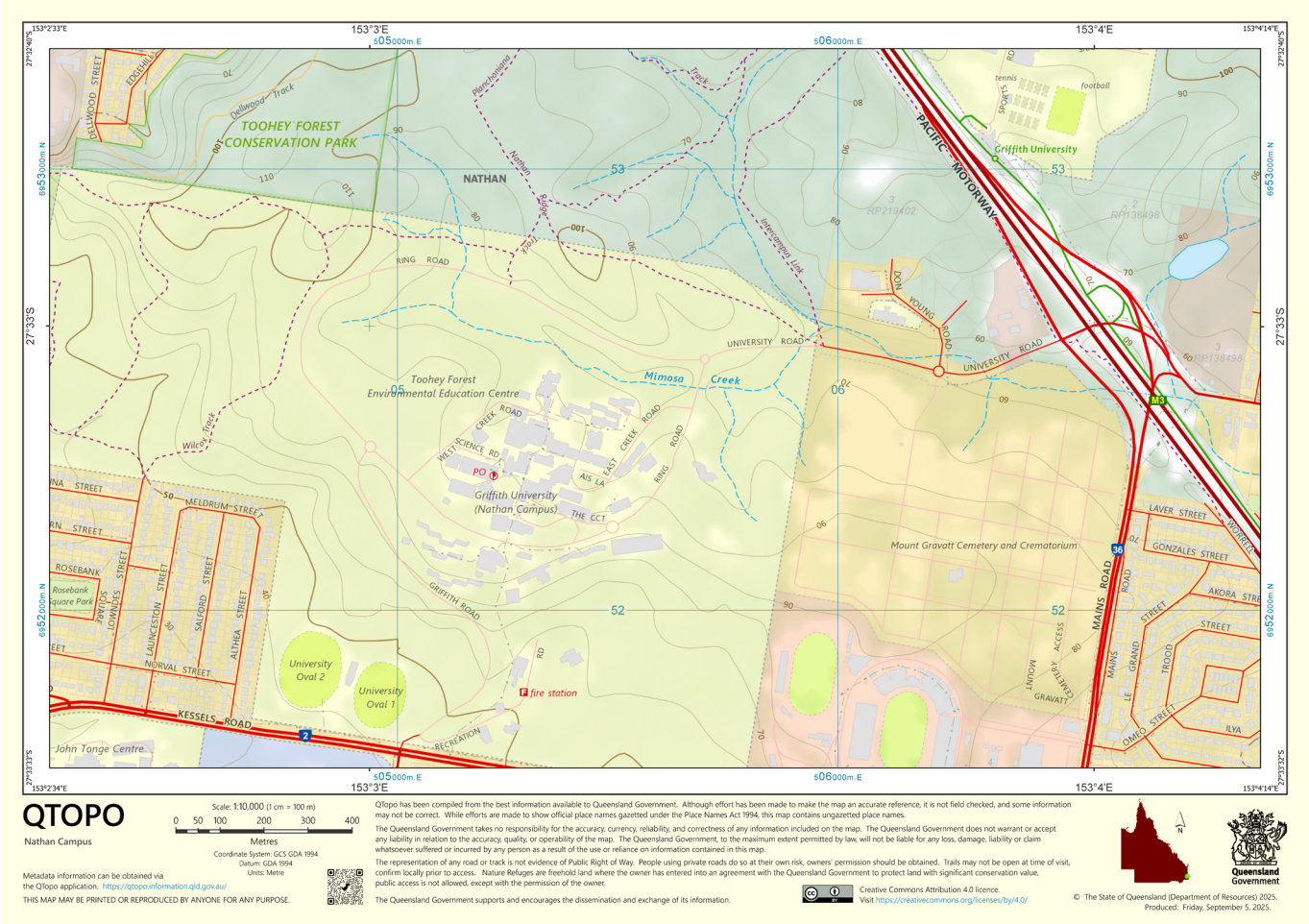
  See the subordinate *Waterway Monitoring Protocol* for a full description of on-campus waterway water quality monitoring activities.

Brisbane South (Nathan) Campus: Water Profile

Receiving Environment

Surface water from the Nathan campus flows primarily into Mimosa Creek. South of the Nathan Ring Road flows towards the Oxley Creek lower catchment, with the figure below demarcating the catchment boundaries.

Appendix A: Figure 4 – Brisbane South (Nathan) Campus topographic and catchment map (QTOPO)



The following Environmental Values have been identified in Mimosa Creek:

1. Aquatic Ecosystems (including areas of state environmental significance and high ecological significance).
2. Primary, Secondary and Visual Recreation
3. Cultural and Spiritual Values
4. Irrigation

Water Movement Across Campus

Nathan campus is situated within an open eucalypt forest at the headwaters of the Mimosa Creek, situated over fractured rock Devonian metamorphic (largely quartzite) and Jurassic sandstones. There are mapped Terrestrial Groundwater Dependant Ecosystems (GDE) along tributaries of Mimosa Creek which are likely fed by subsurface flows. Surface water in this upper catchment is highly ephemeral, however, sub-surface recharges are likely supporting this terrestrial GDE.

Surface flows across the built area of the campus primarily flows northeast towards University Road, with the exception of the buildings on the exterior of the Ring Road which flows south towards Kessels Road. The

placement of the campus along a topographic ridge means erosion and potential contaminant release into Mimosa Creek are high priority water management challenges for the site.

Climate Change Considerations

Climate modelling indicates that the Nathan campus is likely to experience increased annual rainfall volumes and rainfall event intensity. Additionally, evaporation and drought frequency are also likely to increase and the campus may experience increased drying of natural areas with impacts on water use, vegetation management, and bushfire risk.
To ensure climate resilience, campus water management will need to:

- Ensure overland flow is managed to reduce velocity during intense rainfall events in order to prevent channel erosion;
- Rainwater capture and water recycling options are maximised to ensure water security during drought periods; and
- Consider the impact and potential transitions of the campus ecosystems.

Nathan Campus Water Management Focus Areas

- Riparian weed management and reduction.
- Ensuring planning and construction of new campus developments incorporates rainwater capture, water sensitive urban design, and limits the potential for release of contaminants from site.
- Contamination prevention and response procedures are developed and implemented.
- Maximise riparian vegetation buffers.

Monitoring Regime

- **Sediment Erosion**
  Griffith University's Erosion and Sediment Management Protocol (ESMP) outlines a proactive approach to managing erosion risks across all campuses. Regular inspections, particularly after rainfall, are conducted by qualified environmental professionals. The ESMP focuses on preventing sediment mobilisation into stormwater systems. It includes a dual reporting system—one for students and the public, and one for staff—to support early intervention and continuous improvement. Reports are submitted via Microsoft Forms and reviewed annually through a dedicated erosion control meeting, which prioritises actions based on environmental risk.
  See the subordinate *Sediment and Erosion Management Protocol* for a full description of sediment and erosion control activities.

- **Sensitive Waterways**
  Griffith University's Nathan campus is characterised by a network of ephemeral waterways, with Mimosa Creek being the most prominent. While these systems often dry out, several deeper pools—such as site N5—retain water year-round and offer opportunities for targeted monitoring. Runoff from the campus flows either east into Mimosa Creek or west into stormwater infrastructure, with construction activity increasing the risk of sediment and pollutant discharge during rainfall events.
  Site N5, a perennial pool near the northern boundary, has been selected as the primary monitoring location. A TracWater buoy will be deployed to collect continuous data on turbidity, pH and temperature, supporting Griffith's 2030 sustainability targets and providing insight into cumulative campus impacts.
  Supplementary sites across the campus—including N1 (upstream ephemeral site), N4 (near construction zones), and N7 (southern runoff point)—have been identified for event-based or targeted monitoring. These sites help assess pollutant loads, erosion risks and ecological changes, and may be used for coursework, research or future investigations depending on available resources.
  See the subordinate *Waterway Monitoring Protocol* for a full description of on-campus waterway water quality monitoring activities.

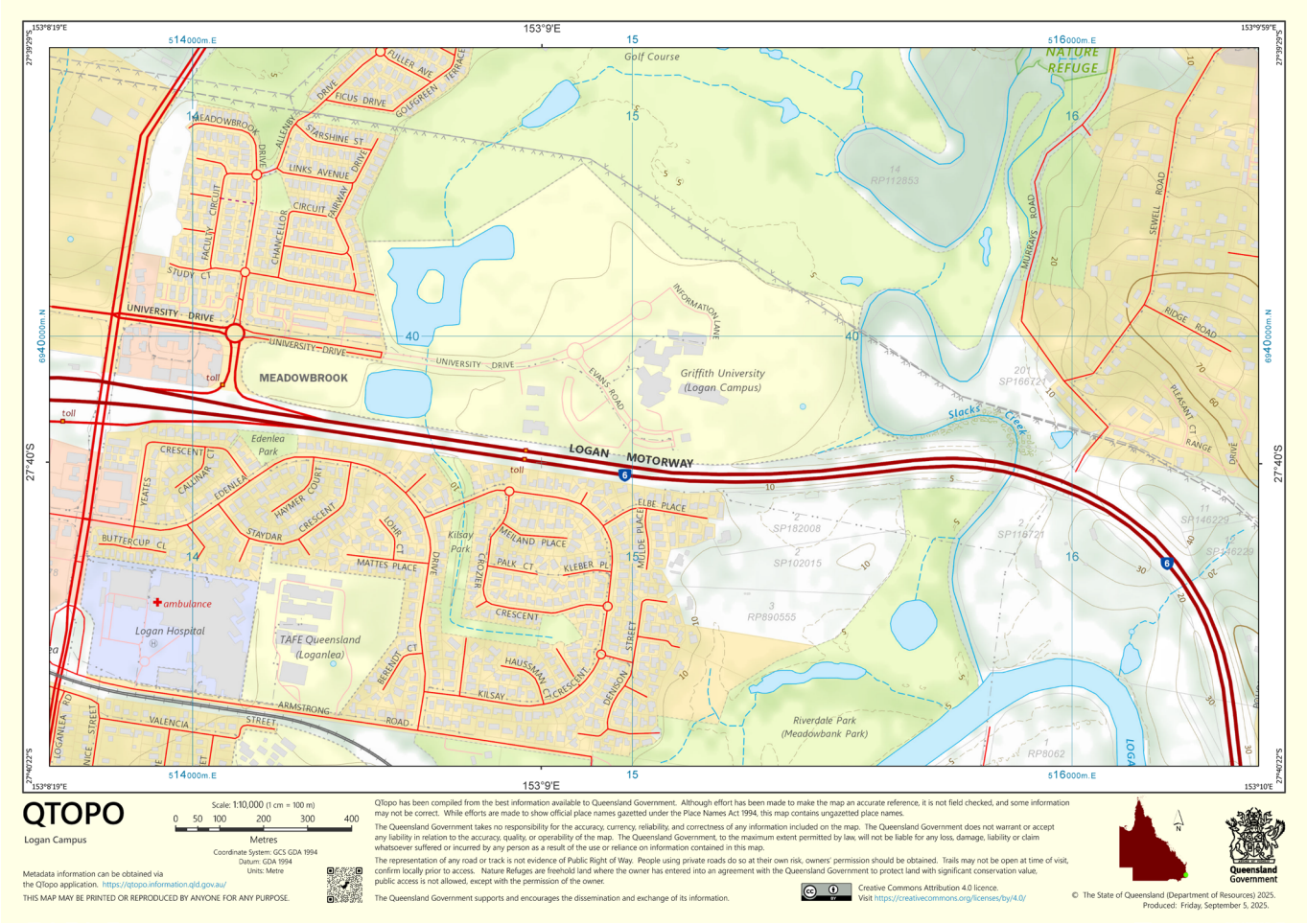
Logan Campus: Water Profile

Receiving Environment

Surface water from Logan campuses flows into Slacks Creek, a tributary of the Logan River.

1. Aquatic Ecosystems (including areas of state environmental significance and high ecological significance).
2. Secondary and Visual Recreation
3. Cultural and Spiritual Values

Appendix A: Figure 5 – Logan Campus topographic and catchment map (QTOPO)



Water Movement Across Campus

Two lakes are located on the Logan Campus which captures overland flow through the damming of a channel feeding Slacks Creek. Runoff from the built environment sections of the campus will primarily drain eastwards through overland flow to Slacks Creek via an area of restored ecosystem. This provides both water quality improvements, and also reductions in flow velocity to assist in flood mitigation.

For the campuses the water management challenges and priorities primarily relate to:

- Riparian stabilisation and water quality improvements through revegetation and restoration of environmental buffers to Slacks Creek.
- Maximising water reuse and limiting town water consumption.

Climate Change Considerations

Climate change may have two consequences on water management at Logan Campus. Expected prolonged dry periods will have consequences for water use and the condition of the campus's water bodies. Secondly, the predicted increase in the intensity of rainfall events in the area, with much of the surrounding catchment highly flood prone means that Griffith University will need to ensure runoff volumes from the Logan campus during heavy rainfall events are managed as to not exacerbate local flooding.

Focus Areas

- Continued riparian stabilisation through revegetation.
- Decrease consumption through improved water reuse or recycling.
- Master planning and design to increase campus permeability.
- Potential for community catchment partnerships to reduce flood impacts and improve water quality within Slacks Creek.

Monitoring Regime

- **Sediment Erosion**
  Griffith University's Erosion and Sediment Management Protocol (ESMP) outlines a proactive approach to managing erosion risks across all campuses. Regular inspections, particularly after rainfall, are conducted by qualified environmental professionals. The ESMP focuses on preventing sediment mobilisation into stormwater systems. It includes a dual reporting system—one for students and the public, and one for staff—to support early intervention and continuous improvement. Reports are submitted via Microsoft Forms and reviewed annually through a dedicated erosion control meeting, which prioritises actions based on environmental risk.
  See the subordinate *Sediment and Erosion Management Protocol* for a full description of sediment and erosion control activities.

- **Sensitive Waterways**
  Griffith University's Logan campus features Lake Ellerslie, a large perennial water body divided by University Drive. While generally hydrologically stable, flow between the lake's northern and southern sections is limited during dry periods. Current construction adjacent to the southern shore may affect water quality and ecological values over time.
  The primary monitoring site, L2, is located at the southern lake discharge point and is equipped with a TracWater "Maxi" buoy that continuously measures dissolved oxygen, conductivity, turbidity, pH and temperature. This real-time data supports early detection of ecological stress and contributes to Griffith's 2030 sustainability targets.
  A supplementary site, L1, at the northern inlet, receives runoff from high-risk sources including a golf course, sports fields, the Logan Motorway and surrounding suburbs. While not currently part of the TracWater program, L1 remains a valuable candidate for future targeted investigations, particularly to assess external pollution inputs.
  See the subordinate *Waterway Monitoring Protocol* for a full description of on-campus waterway water quality monitoring activities.

South Bank Campus: Water Profile

Receiving Environment

Located in the South Bank cultural precinct, Griffith's campus is part of a precinct-wide water management approach that flows into the Brisbane River. Under *Environmental Protection (Water and Wetland Biodiversity) 2019*, the Brisbane River has the following environmental values:

1. Aquatic Ecosystems (including areas of state environmental significance and high ecological significance).
2. Secondary and Visual Recreation
3. Cultural and Spiritual Values

Appendix A: Figure 7 – South Bank Campus topographic and catchment map (QTOPO)

Water Movement Across Campus

The urban campus has a limited catchment, with overland flow and runoff from Griffith University built structures entering the water management systems owned and operated by the South Bank Corporation and the Brisbane City Council.

Flood modelling from the Brisbane City Council highlight that Griffith University buildings would experience flood inundation in events between 1:100 (1% AEP) to 1:500 (0.2% AEP) year events. However, significant parts of the South Bank region, including key campus access corridors, could experience more significant flooding based on the modelling. Given the unique nature of the campus within the South Bank precinct, Griffith University has very

limited control over water movement across site, and instead, water management should focus on reuse and efficiency where possible.

Climate Change Considerations

Flooding and intense rainfall events are likely to increase under climate change scenarios, which could affect the operation of the campus. While this will need to be considered for business continuity and campus operational perspectives, this is outside of the scope of the water management plan.

Focus Areas

As an urban campus which is part of the South Bank Corporation managed precinct, the focus for this campus will be:

- Water efficiency and reuse improvements where available (including potential collaboration with South Bank Corporation of the Rain Bank project).
- Staff and student engagement on water initiatives.

Monitoring Regime

No water monitoring is recommended for South Bank campus; however, Griffith would work closely with Brisbane City Council in the highly unlikely event of contaminant spills within the South Bank campus.

APPENDIX B: Rainwater and water reuse options across Griffith campuses

Campus	Building(s)	Rainwater tank capacity (L)	Current use	Potential use options
Gold Coast	G02	21,985	Toilet flushing	TBC
	G02	1,570	Irrigation	TBC
	G09	12,500	Irrigation	TBC
	G11	25,000	Irrigation	TBC
	G11	25,000	Toilet flushing	TBC
	G11	25,000	Toilet flushing	TBC
	G16	20,000	Toilet flushing and irrigation	TBC
	G26	23,000	Toilet flushing	TBC
	G26	23,000	Toilet flushing	TBC
	G31	15,000	TBC	TBC
	G31	15,000	Irrigation	TBC
	G33	15,000	Irrigation	TBC
	G33	15,000	Irrigation	TBC
	G33	15,000	Irrigation	TBC
	G33	29,000	Toilet flushing	TBC
	G34	22,500	Irrigation	TBC
	G34	22,500	Toilet flushing	TBC
	G39	30,000	Irrigation	TBC
	G39	30,000	Toilet flushing	TBC
	G42	30,000	Irrigation	TBC
	G42	80,000	Toilet flushing	TBC
	G42	100,000	Toilet flushing (serves G39)	TBC
	G51	30,000	Toilet flushing	TBC
	G51	30,000	Toilet flushing	TBC
	G51	30,000	Toilet flushing	TBC
	G51	30,000	Toilet flushing	TBC
	G51	10,000	Toilet flushing	TBC
	G51	30,000	Toilet flushing	TBC
	G51	30,000	Toilet flushing	TBC
	G51	10,000	Irrigation	TBC
	G51	10,000	Irrigation	TBC
	G51	10,000	Irrigation	TBC
	G51	10,000	Irrigation	TBC
	G51	30,000	Irrigation	TBC
	G52	25,000	Toilet flushing and irrigation	TBC
	G52	25,000	Toilet flushing and irrigation	TBC
	G52	25,000	Toilet flushing and irrigation	TBC
	G52	25,000	Toilet flushing and irrigation	TBC
	L00	195,000	Irrigation	TBC

Logan	L01	4,000		Toilet flushing
	L01	4,000		Toilet flushing
	L08	40,000		Toilet flushing and irrigation
Nathan	N08	3,000	Irrigation	TBC
	N35	2,000	Irrigation	TBC
	N36	19,000	Toilet flushing	TBC
	N36	19,000	Toilet flushing	TBC
	N36	5,000	Irrigation	TBC
	N36	5,000	Irrigation	TBC
	N68	Unsure		Toilet flushing and irrigation
	N75	22,000		Toilet flushing
	N78	40,000		Toilet flushing and irrigation
	N79	6,000	Toilet flushing and irrigation	TBC
	N79	6,000	Toilet flushing and irrigation	TBC
	N79	6,000	Toilet flushing and irrigation	TBC
South Bank	No tanks			

REFERENCES

Australian Rivers Institute's Toxicology Research Group (2020) *Marine Wildlife CellBank*, *ARI-TOX*, https://aritox.com/mwcb/, accessed 6 July 2023.

Brisbane City Council (2013) *Brisbane's Total Water Cycle Management Plan*, https://www.brisbane.qld.gov.au/sites/default/files/20160204-total_water_cycle_management_plan.pdf, accessed 6 July 2023.

City of Gold Coast (2023) *Flood maps*, https://www.goldcoast.qld.gov.au/Planning-building/Buying-researching-property/Mapping-search/Flood-level-search/Flood-maps, accessed 6 July 2023.

Department of Environment and Science (2015) *South East Queensland basins - Environmental Protection (Water and Wetland Biodiversity) Policy 2019*, *Environment | Department of Environment and Science, Queensland*, https://environment.des.qld.gov.au/management/water/policy/seq-moretonbay, accessed 6 July 2023.

Department of Environment and Science (2023) *Wastewater | Department of Environment and Science, Queensland*, https://environment.des.qld.gov.au/management/water/pollution/wastewater, accessed 11 September 2023.

Department of Infrastructure, Local Government and Planning (2017) *Shaping SEQ: South East Queensland Regional Plan*, https://dsdmipprd.blob.core.windows.net/general/shapingseq.pdf, accessed 6 July 2023.

Future Earth (2023) 'Sustainable Water Future Programme', https://water-future.org/, accessed 6 July 2023.

Griffith University (2022) *Biodiversity Conservation Plan 2022 - 2025*, https://www.griffith.edu.au/__data/assets/pdf_file/0027/1672254/MC03340-Biodiversity-Conservation-Plan_FA-1.pdf, accessed 7 June 2023.

—— (2023a) *Australian Rivers Institute*, https://www.griffith.edu.au/australian-rivers-institute/our-research, accessed 6 July 2023.

Griffith University Coastal and Marine Research Centre (2023) *Industry collaboration*, https://www.griffith.edu.au/coastal-marine-research-centre/industry-collaboration, accessed 6 July 2023.

Griffith University School of Environment and Science (2023) *Seajellies Research*, https://www.griffith.edu.au/griffith-sciences/school-environment-science/seajellies-research, accessed 6 July 2023.

Healthy Land & Water (2023) *Our team*, *Environment & liveability projects and advice - official NRM group for SEQ - Healthy Land & Water*, https://hlw.org.au/about/people/team, accessed 6 July 2023.

Logan City Council (2023) *Logan Eco Action Festival (LEAF)*, *Logan City Council*, https://www.logan.qld.gov.au/logan-eco-action-festival-leaf, accessed 6 July 2023.

Moggridge B (2010) 'Indigenous water knowledge and connections', in *Water and its interdependencies in the Australian economy: the Grace Hotel, Sydney ; 22 - 23 June 2010*, ATSE international workshop series, Melbourne.

Pitch Black Group (2023) *Nathan Site Wide Services Capacity Assessment Report*, Griffith University Nathan Campus.

Queensland Government (1994) *Environmental Protection Act 1994*, https://www.legislation.qld.gov.au/view/html/inforce/current/act-1994-062, accessed 6 July 2023.

—— (2000) *Water Act 2000*, https://www.legislation.qld.gov.au/view/pdf/inforce/current/act-2000-034, accessed 7 June 2023.

—— (2019) *Environmental Protection (Water and Wetland Biodiversity) Policy 2019*, https://www.legislation.qld.gov.au/view/pdf/2019-09-01/sl-2019-0156, accessed 7 June 2023.

—— (2020) *Efficient irrigation for water conservation: guideline for water efficient urban gardens and landscapes*, https://www.resources.qld.gov.au/__data/assets/pdf_file/0010/1463779/efficient-irrigation-guideline.pdf, accessed 6 July 2023.

Seqwater (2020) *Water for South East Queensland: Planning for our future*, https://www.seqwater.com.au/sites/default/files/2021-02/J012898%20Water%20for%20SEQ%20Annual%20Report_base.pdf, accessed 7 June 2023.

—— (2023) *Water treatment*, https://www.seqwater.com.au/water-treatment, accessed 6 July 2023.

Tertiary Education Facilities Management Association (2023) 'Institution Benchmark Reporting', https://www.tefma.com/, accessed 7 June 2023.

The State of Queensland, Department of Infrastructure, Local Government and Planning (2017) *State Planning Policy, https://dsdmipprd.blob.core.windows.net/general/spp-july-2017.pdf, accessed 15 March 2024.*

The Water & Carbon Group (2023) *Griffith University Environmental Arboretum & Riparian Restoration - Slacks Creek Restoration Project (SCRP) - The Water & Carbon Group*, https://waterandcarbon.com.au/projects/griffith-university-environmental-arboretum-riparian-restoration-slacks-creek-restoration-project-scrp/, accessed 6 July 2023.

United Nations (2015) *Transforming our World: The 2030 Agenda for Sustainable Development*, https://sdgs.un.org/sites/default/files/publications/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf, accessed 7 July 2023.

Urban Water Security Research Alliance (2012) *Five years of Urban Water Research in South East Queensland 2007-2012*, http://www.urbanwateralliance.org.au/publications/UWSRA-final-synthesis-report.pdf, accessed 6 July 2023.

Water by Design (2020) *Water Sensitive Urban Design (WSUD)*, *Water by Design*, https://waterbydesign.com.au/wsud, accessed 6 July 2023.

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