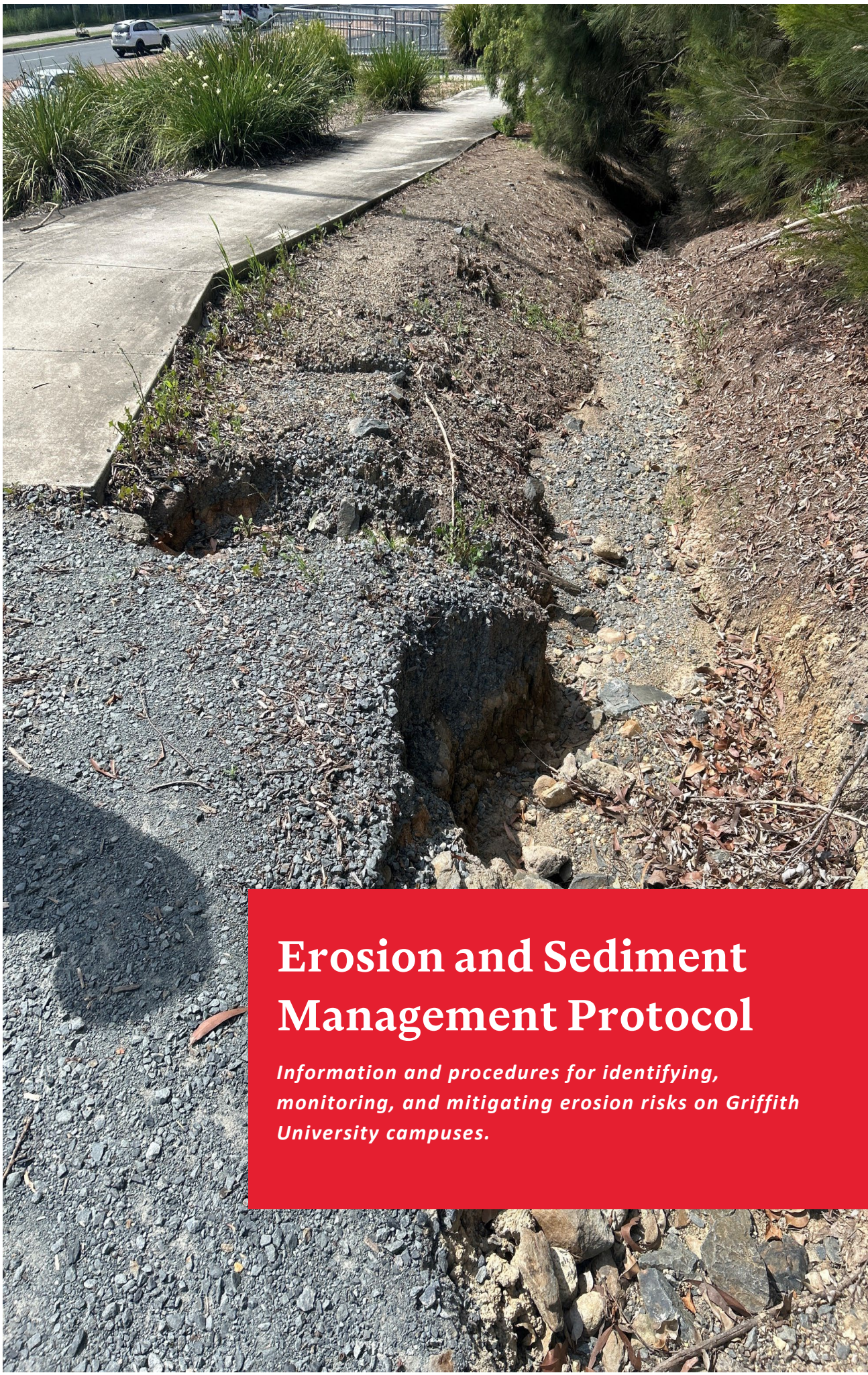
GRIFFITH UNIVERSITY



# Erosion and Sediment Management Protocol

***Information and procedures for identifying, monitoring, and mitigating erosion risks on Griffith University campuses.***

## 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.

## Authorship & Consultation

Focussed stakeholder consultation and specialist technical advice has occurred throughout all development stages of this document. This leveraged Griffith's leading soil and erosion experts and the Environmental Sustainability Committee as a key coordinating stakeholder body. The Griffith University Frist Peoples Knowledge Holders Advisory Board was also consulted on the Integrated Water Management Plan, within which this document sits, and 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 this protocol is 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 document is considered a living document. We recognise the importance of stakeholder and community feedback in shaping our approach to water management. As such, this protocol will be regularly reviewed and adjusted based on input received from stakeholders and the community to ensure its relevance, effectiveness, and alignment with evolving needs and priorities.

This report was prepared by Mark Grant, Environmental Manager (Strategy, Policy & Planning) and Timothy Miles, Work Integrated Learning Intern, on behalf of Griffith Sustainability, Office of the Vice Chancellor, Griffith University.

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# Executive Summary

Griffith University's Erosion and Sediment Management Protocol (ESMP) provides a structured approach to identifying, monitoring, and mitigating erosion risks across all campuses, regardless of the presence or absence of construction. It aligns with Queensland Government regulations and Griffith's Sustainability Strategy 2023-2030, supporting best-practice erosion and sediment control (ESC) measures.

It is a key component of Griffith University's Integrated Water Management Plan, which forms part of the University's broader Environmental Management System (EMS) framework. In conjunction with the University's On-campus Waterway Monitoring Protocol, it directly supports the Sustainability Strategy's success measure to ensure that "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 bi-annual ecological surveys compared with baseline year (2025)," (Griffith University Sustainability Strategy 2023–2030, p.9).

Importantly, the ESMP is focused on managing erosion risk before sediment is mobilised into stormwater systems; it does not prescribe engineering solutions for sediment that has already entered open or piped drains.

The ESMP outlines erosion causes, impacts, and control strategies, ensuring compliance and environmental stewardship. A key component is the erosion reporting system, which includes two reporting forms:

- A student/public reporting form, designed for accessibility and integrated into coursework to enhance student engagement.
- A detailed facilities/faculty reporting form, allowing staff to provide in-depth risk assessments and propose mitigation measures.

All reports are submitted via Microsoft Forms and directed to a shared email accessible by Campus Life and Griffith Sustainability. The Erosion Risk Checklist supports staff in assessing erosion-prone areas, with verification occurring annually and after heavy rainfall. An Annual Erosion Control Meeting reviews identified hazards, allocates resources, and enhances sediment control measures, prioritising intervention based on risk levels.

By implementing this comprehensive erosion and sediment control framework, Griffith University strengthens its commitment to sustainable land management, environmental protection, and campus resilience.

# Introduction

This Erosion and Sediment Management Protocol (ESMP) establishes a framework for identifying, monitoring, and mitigating erosion and sediment risks across all Griffith University campuses. It outlines best practice erosion and sediment control (ESC) measures to ensure compliance with environmental standards, protect natural ecosystems, and maintain campus infrastructure.

The scope of this protocol extends beyond construction and maintenance sites to include proactive monitoring of erosion risks across all campus environments, ensuring a comprehensive approach to erosion management.

This document has been developed with three key objectives:

- Establish a clear understanding of best practices and erosion control priorities at Griffith University.
- Provide employees, contractors, and students with clear guidance on their role in minimising erosion and maintaining compliance with ESC measures.
- Strengthen collaboration and reporting by facilitating the identification, discussion, and resolution of erosion issues with relevant staff members.

## Objectives

This ESMP outlines the procedures and work programs designed to assist in:

- Explain what erosion is and how to spot it.
- Set up clear guidelines for compliance when it comes to erosion and sediment control (ESC) on Griffith University campuses.
- Set up easy access to an erosion risk reporting system.
- Facilitate clear lines of communication between Griffith Sustainability (environmental management strategy, policy and planning) and Campus Life (facilities management and planning implementation) on erosion issues and fixes.
- Provide a framework for identifying and managing erosion risks early—before sediment is mobilised and enters stormwater drains.
- Allow for a clear understanding of Best Management Practices (BMPs).
- Align with the goals and key measures of success identified in Griffith University's Sustainability Strategy 2023-2030 and Integrated Water Management Plan to ensure sustainable sediment control practices.

| Objective | Description |
|---|---|
| Understand Erosion | Explain what erosion is and how to identify it. |
| Compliance Guidelines | Set clear rules for erosion and sediment control (ESC). |
| Hazard & Risk Reporting | Provide easy access to an erosion risk reporting form. |
| Communication | Ensure collaboration between Sustainability and Campus Life. |
| Sustainability Goals | Align with Griffith's Sustainability Strategy and Integrated Water Management Plan. |

## Scope

Griffith University recognises the risks posed by erosion and contaminant pollution resulting from construction, maintenance, and general campus activities. To mitigate these risks, the University has established a suite of regulatory control measures for contractors. For projects exceeding $80,000, the Principal Contractor must develop a Construction Safety and Environmental Management Plan (CSEMP) outlining how environmental risks will be managed, the control measures that will be implemented, and the process for monitoring and reviewing their effectiveness. Compliance with Environmental Health and Safety (EHS) requirements, including incident monitoring and notification processes, is overseen by contractors and supporting safety teams in collaboration with Griffith's Major Projects and Capital Works & Minor Projects teams. These measures include on-site EHS officers and monthly inspections by a site superintendent. In addition, contractors undertaking high-risk work—including minor construction, maintenance, or service projects—must submit an appropriate safety plan or Work Method Statement (WMS) outlining how environmental risks will be managed prior to commencing work. While "high-risk" in construction typically refers to activities with significant safety hazards, it's important to note that operations with a high potential for erosion and sediment control issues may not always fall under this category.

While existing compliance measures effectively manage environmental risks on construction and maintenance sites, these procedures expand Griffith University's approach by introducing proactive erosion monitoring and management across all campuses.
Currently, sediment and contamination risks outside of construction zones are not systematically assessed. This document addresses that gap by establishing structured inspection procedures and incident reporting systems to ensure that erosion risks—whether from natural processes or non-construction activities—are identified and managed in a timely manner. This document specifically focuses on preventing and managing erosion risk *before* sediment is mobilised and enters stormwater drains; it does not provide engineering solutions for managing sediment that has already entered open or piped stormwater systems.

By implementing these measures, Griffith University will enhance environmental stewardship, improve water quality protection, and create safer, more resilient campuses. To bridge this gap, this document recommends establishing proactive erosion monitoring and management procedures that apply campus-wide, regardless of construction activity. These additional measures will:

- Ensure compliance with environmental regulations and best practices.
- Reduce sediment, contaminants, nutrients, and microplastic pollution being washed into stormwater drains and subsequently into campus waterways and downstream ecosystems.
- Enhance campus safety by mitigating erosion-related hazards.
- Strengthen Griffith University's commitment to environmental stewardship.

Furthermore, implementing a structured incident monitoring and notification process will enable swift responses to environmental issues, minimising impacts while promoting transparency and accountability. The University's existing safety management system, GSafe, does not currently fulfill this function adequately, highlighting the need for an improved reporting framework.

# Policy Requirements and Strategic Alignment

## Australian Government

The ANZECC Guidelines for Fresh and Marine Water Quality, now part of the ANZG (Australian and New Zealand Guidelines for Fresh and Marine Water Quality), provide nationally consistent guidance for protecting aquatic ecosystems, drinking water, recreation, and agricultural uses. These guidelines establish water quality trigger values that help identify when water quality is at risk of causing harm to the environment or human health.

While not legally binding, they are widely adopted by regulatory authorities and serve as a benchmark for environmental compliance. To align with the guidelines, Griffith University is required to regularly monitor their water discharges and receiving environments, assess results against the relevant guideline values, and implement appropriate management or remediation actions if exceedances are identified.

## Queensland Government

State-based water management policy and legislation shaping the Griffith University Water Management Plan includes the legislative requirements for the protection of environmental values of wetlands and waterways, including provisions for preventing adverse impacts on the environment, as outlined in the Environmental Protection Act 1994 (EP Act), the Environmental Protection (Water and Wetland Biodiversity) Policy 2019, and the State Planning Policy (2017).

Under the EP Act, all persons must take all reasonable and practicable measures to prevent environmental harm (s.319). Environmental harm includes the release of sediment or sediment-laden water into stormwater systems or waterways, which is considered water contamination and an offence under the Act. Key obligations include:

- **Prescribed Water Contaminants**: Section 440ZG prohibits depositing prescribed water contaminants (including soil, sediment, and building materials) in roadside gutters, stormwater drains, or waters.
- **Duty to Prevent Harm**: Section 319 imposes a general environmental duty requiring individuals and organisations to minimise the risk of environmental harm through effective planning and implementation of erosion and sediment controls.
- **Compliance and Enforcement**: Breaches can result in penalties, including fines up to $222,000 for individuals and higher for corporations.

Effective erosion and sediment control measures are essential to comply with these requirements and the Queensland Government Soil Conservation Guidelines for Queensland (3rd edition). These guidelines emphasise:

- **Land Capability**: Use land according to its capability to prevent erosion
- **Ground Cover**: Maintain more than 70% vegetation cover to reduce erosion risk.
- **Runoff Control**: Implement measures to control runoff before it becomes an erosive force.

Additionally, development approvals and operational works must include an Erosion and Sediment Control Plan (ESCP) that demonstrates compliance with the EP Act and best practice standards. For sites greater than 2,500 m², procedural guides under the EP Act outline compliance inspections and enforcement provisions for managing releases to waters during construction

## Griffith University

Griffith University delivers environmental sustainability, including integrated water, erosion, and sediment management, through its Sustainability Framework (Figure 1). This Erosion and Sediment Management Protocol (ESMP) aligns with the Sustainability Strategy 2023-2030, supporting outcome-focused actions that enhance environmental management. The protocol is backed by the Environmental Sustainability Policy and the Environmental Management System (EMS) framework, which provides structured processes to manage environmental risks and improve water management outcomes.

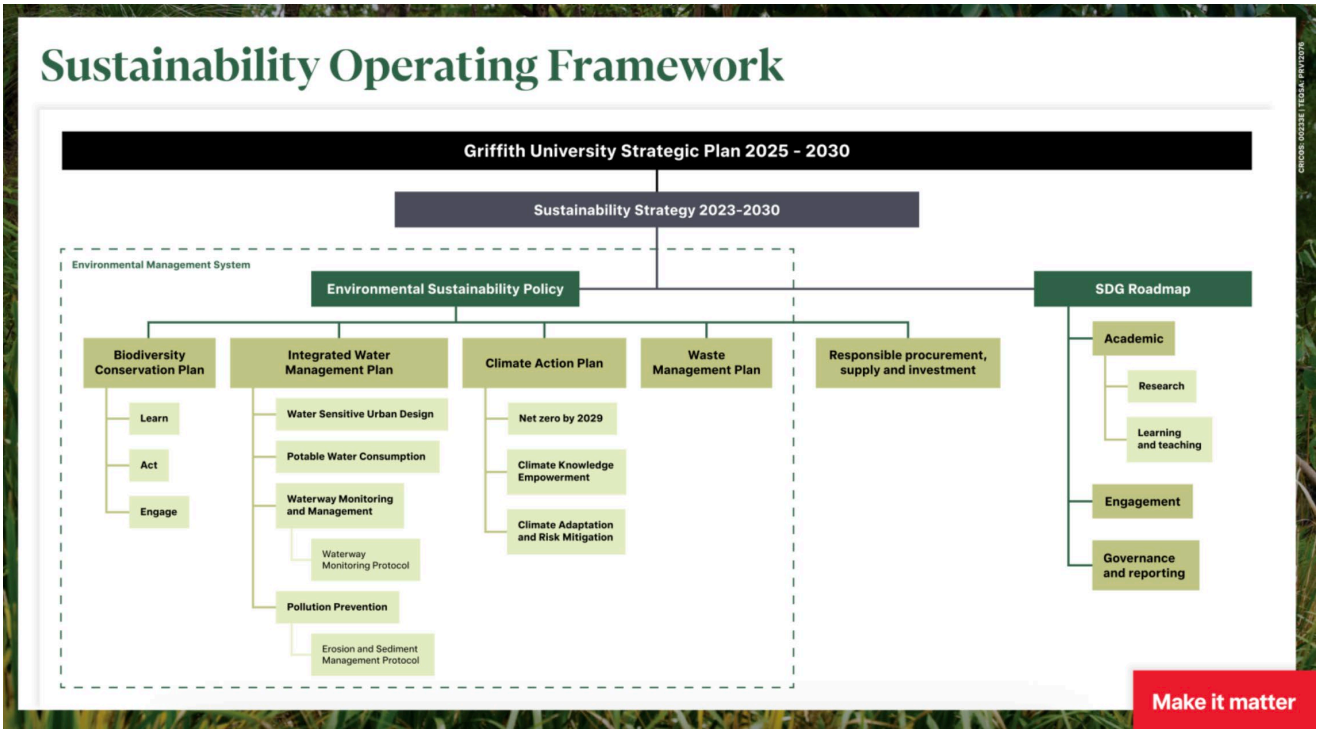



*Figure 1: Griffith University Sustainability Operating Framework*

## Integrated Water Management at Griffith

The Integrated Water Management Plan (IWMP) drives sustainable water management across Griffith's operations, academic activities, and partnerships, promoting healthy catchments and recognising the social, cultural, environmental, and economic importance of Southeast Queensland's waterways and marine environments. The IWMP incorporates key principles from the United Nations Sustainable Development Goals (SDGs), particularly:

- Goal 6 (Clean Water and Sanitation) – Ensuring access to clean water and efficient water use.
- Goal 14 (Life Below Water) – Preventing pollution and protecting aquatic ecosystems.

The IWMP directly supports Griffith's Sustainability Strategy 2023-2030, with the following key 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.[1]

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

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 (2025-26).

## How This Protocol Supports Water Management Goals

This protocol forms a key component of the Integrated Management Plan, which, in conjunction with the Griffith University Waterway Monitoring Protocol, allow the university to deliver on success measure number 3 documented above.

This document directly supports two of the three actions outlined in the Integrated Water Management Plan under Action Plan 4: Pollution Prevention (see Table 1) and one of the two actions under Action Plan 5: Continual Improvement (see Table 2). Specifically:

- Action 4.2 is fulfilled through the development of this protocol.
- Action 4.3 is addressed through its ongoing implementation.
- Action 5.2 will be achieved through future remediation of erosion hazards identified via proposed audits.

By delivering on these actions, this document ensures the University remains on track to meet Action Plan 4's Measure of Success: By 2030, erosion monitoring will show no deterioration in levels of waterway and catchment pollution. It also ensures the University's commitment to continuous improvement and alignment with evolving risks, needs and priorities.

| 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 |

*Table 1: Griffith University's Integrated Water Management Plan's Action Plan 4: Pollution Prevention*

| 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. | From 2025 | Actions implemented on time and within budget. | Gold Coast, Logan, Nathan |

*Table 2: Griffith University's Integrated Water Management Plan's Action Plan 5: Continual Improvement.*

# Understanding Erosion and Sediment

## What is Erosion?

Erosion is a natural process where soil and other surface materials are dislodged and transported by natural forces such as wind and water. This can be accelerated by activities like construction, landscaping, foot traffic and loss of vegetation. Erosion can lead to the loss of soil, destabilisation of slopes, and increased sedimentation in campus waterways, which can affect the local environment, infrastructure, and waterbodies.

## What is Sediment?

Sediment refers to particles of soil, sand, and minerals that are carried by wind or water and eventually deposited in a new location. Sediment can accumulate in stormwater systems, ponds, and other water bodies, leading to issues such as reduced water quality, clogged drainage systems, and damage to aquatic habitats. Effective sediment control is crucial to prevent these negative impacts.

## Causes of Erosion and Sediment

- **Natural causes**: Rainfall and water runoff, along with wind, are natural forces that contribute to erosion and sediment transport on campus.
- **Human activities**: Construction projects, landscaping, and high foot traffic can significantly accelerate erosion and increase sediment loads in campus water bodies.

## Impacts of Erosion and Sediment

- **Environmental impact**: Erosion can lead to the loss of soil, which is essential for maintaining green spaces and natural vegetation on campus. Sediment in water bodies can reduce water quality, harm aquatic life, and disrupt aquatic ecosystems (including disruption to downstream systems such as Moreton Bay).
- **Operational impact**: Sediment accumulation can clog stormwater systems and drainage channels, leading to increased maintenance costs and potential flooding issues.
- **Infrastructure impact**: Erosion can undermine the foundations of buildings, walkways, and other structures, leading to costly repairs and maintenance.

## Importance of Erosion and Sediment Control

Effective erosion and sediment control measures are essential to:

- **Protect campus green spaces**: Preventing erosion helps maintain the integrity of Griffith's forests, natural areas, gardens and lawns which are vital for the ecological and aesthetic value of the university.
- **Preserve water quality**: Reducing sediment runoff into campus water bodies helps maintain healthy waterways on and off campus.
- **Prevent infrastructure damage**: Erosion control measures can protect buildings, walkways, and other infrastructure from damage.
- **Demonstrate Griffith University's commitment to sustainability**: Align erosion and sediment control measures with the goals and success measures outlined in the Sustainability Strategy and Integrated Water Management Plan, showcasing our excellence in water management and erosion research.

## Identifying Erosion Types

Identifying different types of erosion on campus is crucial for implementing effective control measures. Here are some common signs of erosion and how to spot them:

**Exposed Roots**

- **Description**: Tree or plant roots that are visible above the ground or exposed along slopes.
- **How to Spot**: Look for roots that are no longer covered by soil, especially on slopes or areas with heavy foot traffic. This indicates that the topsoil has been eroded away, leaving the roots exposed.

**Muddy Water**

- **Description**: Plumes of unusually muddy-looking water entering drains or creeks during rain events.
- **How to spot**: Observe the water in drains, creeks, and other water bodies during and after rain events. If the water appears significantly muddier than usual, it suggests that soil is being washed away and carried into the water system.

**Gullies or Channels**

- **Description**: Small ditches or channels forming in the soil, especially after major rain events.
- **How to spot**: Look for narrow, deep channels or ditches in the soil, particularly on slopes or areas with poor vegetation cover. These gullies form when water runoff erodes the soil, creating visible channels.

**Sediment Buildup**

- **Description**: Piles of soil or sand in places where they were not before, often at the bottom of slopes.
- **How to spot**: Check for accumulations of soil, sand, or other sediments at the base of slopes, in drainage areas, or around stormwater outlets. This sediment buildup indicates that erosion is occurring uphill, and the material is being transported and deposited in these areas.

**Bare Patches**

- **Description**: Areas where vegetation has been removed or washed away, leaving bare soil that is vulnerable to splash erosion, which is caused by raindrops.
- **How to spot**: Identify patches of bare soil where vegetation is sparse or absent. These areas are particularly susceptible to erosion from raindrop impact, which can dislodge soil particles and lead to further erosion.

**Undercut Banks**

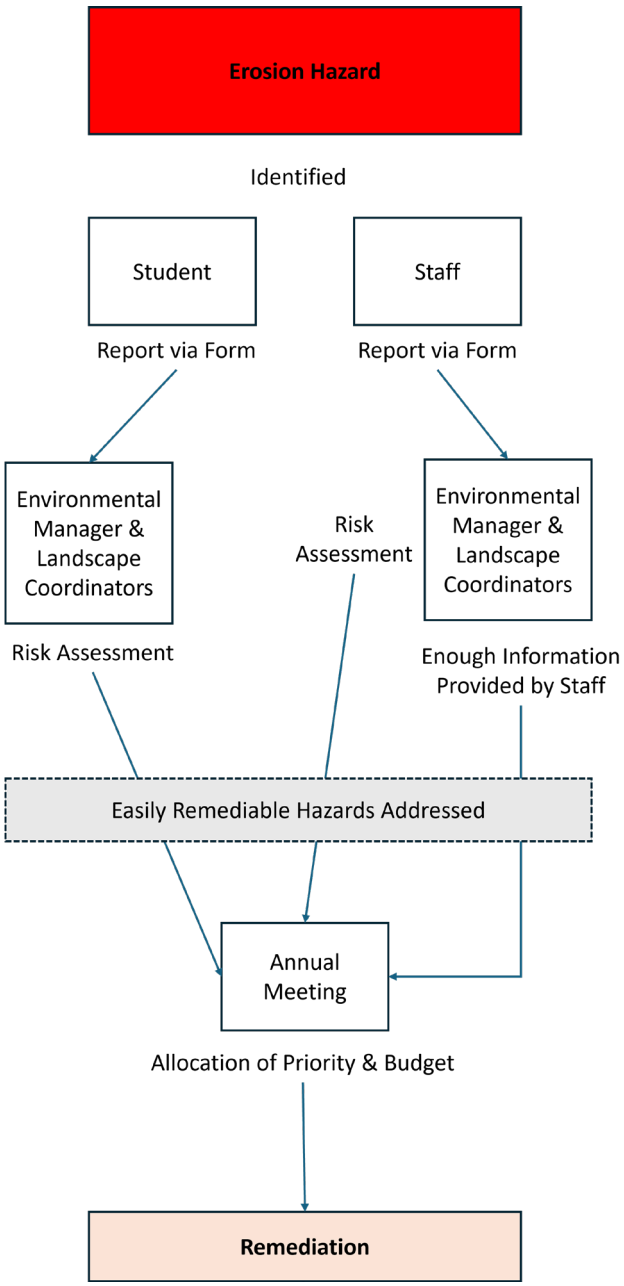
- **Description**: Edges of drainage areas, streams, or rivers that look like they've been cut away or are collapsing.
- **How to spot**: Examine the banks of streams, rivers, and drainage channels for signs of undercutting or collapse. Undercut banks often have overhanging sections of soil or vegetation, indicating that the lower part of the bank has been eroded away by flowing water.

**Holes or Cracks**

- **Description**: Large cracks or holes forming in the ground, often appearing during or shortly after major rain events.
- **How to spot**: Look for significant cracks or holes in the soil, particularly in areas with heavy rainfall or poor drainage. These features can indicate subsurface erosion or soil instability, which can lead to further erosion if not addressed.

## Erosion Reporting

Griffith University has developed an erosion reporting system to identify and manage erosion risks across its campuses. The system includes two forms: a simplified student/public reporting form, integrated into relevant courses to promote student engagement, and a detailed facilities/faculty reporting form for in-depth risk assessments and mitigation suggestions. Reports are submitted via Microsoft Forms and sent to a shared email accessible by Campus Life and Griffith Sustainability. An Erosion Risk Checklist guides staff in assessing hotspots. The Environmental Manager, alongside Campus Life Landscape Coordinators, oversee the process — verifying risks regularly and, in particular, after heavy rain. An annual Erosion Control Meeting is held to allocate resources, implement erosion control measures, and update best practices.



## Reporting Forms

To maintain a comprehensive understanding of the erosion risks facing each campus, an erosion reporting form has been developed. This form will primarily be used by staff in key environmental management roles, such as the Environmental Manager and Landscape Coordinators. It may also be used by academic staff working and teaching in relevant areas. Course convenors and lecturers may wish to share the form with students, encouraging them to use our campuses as "living labs" to learn about erosion management and contribute to real world projects.

Created using Microsoft Forms, the form is designed to be quick and easy to use, encouraging maximum participation. These reports will then be automatically emailed to a designated email that both Campus Life and Griffith Sustainability have access to environment@griffth.edu.au.

The reporting system is divided into two forms:

### Student Reporting Form

The student reporting form is intentionally simplified to increase accessibility and encourage submissions. After consultation with staff especially those who teach in the environmental and science fields, this form will be incorporated into classes and students will be encouraged to participate in identifying erosion risks. This will be used as not only an interesting learning opportunity for students but a way to increase overall University engagement with the erosion reporting system. The reporting form consists of three straightforward questions:

- **Location of the Erosion Risk:** Students will be asked to specify where the erosion risk is located on campus.
- **Type of Erosion Risk:** Students will describe what they see, identifying the type of erosion risk.
- **Photo Submission:** Students will have the option to submit a photo of the erosion risk.

This streamlined approach ensures that students can easily report issues without feeling overwhelmed by the process.

### Staff Reporting Form

The staff reporting form requires more detailed information and allows for suggestions on how to manage or mitigate the erosion risk. This form will include:

- **Detailed Location Information**: Faculty and facilities staff will provide precise details about the location of the erosion risk.
- **Photo Submission**: An option to upload photos of the erosion risk.
- **Question about the site:** These questions will be similar to the questions on the Erosion Risk Assessment Checklist, including how large the erosion risk is, land disturbances, loose sediment found at the site, etc.
- **Suggested Solutions**: Faculty and facilities staff can offer suggestions on how to address or fix the erosion issue.

This detailed form ensures that the reports from faculty and facilities staff are thorough and actionable, providing valuable insights for effective erosion management.

## Risk Assessment

This checklist is a practical tool designed to help identify and assess erosion hazards across Griffith University campuses. It enables staff to systematically evaluate areas at risk of erosion and prioritise them for intervention. While not a comprehensive risk assessment, it provides a clear framework for identifying key risk factors and ensuring that erosion control measures are effectively targeted and implemented.

| **Erosion Risk Checklist** | | | |
|---|---|---|---|
| 1 | Small (<10m2) | Medium (10-50m2) | Large (>50m2) |
| How large is the area of this erosion risk? | ☐ | ☐ | ☐ |
| 2 | None | Some | Significant |
| Is there significant lack of vegetation in the area? | ☐ | ☐ | ☐ |
| 3 | None | Rills (small) | Gullies (large) |
| Is there significant land disturbance? | ☐ | ☐ | ☐ |
| 4 | None | Some | Significant |
| Is there loose sediment found at the bottom of a slope or drainage area? | ☐ | ☐ | ☐ |
| 5 | No | Small | Significant |
| Is there a significant slope that impacts the erosion area? | ☐ | ☐ | ☐ |
| 7 | None (clear) | Slightly Cloudy | Turbid |
| If there is a waterbody directly impacted by the runoff of this area, is there significant suspended sediment? | ☐ | ☐ | ☐ |
| 8 | None | Some | Significant |
| Is there evidence of human activity that is/could be contributing to erosion? (e.g. car/foot traffic, construction etc) | ☐ | ☐ | ☐ |

**Risk Level Determination**

Assign a risk level based on the responses above:

- **Low Risk:** Small area, minimal vegetation loss, no significant disturbance, and no human activity.
- **Moderate Risk:** Medium area, some vegetation loss, minor land disturbance, and/or slight human activity.
- **High Risk:** Large area, significant vegetation loss, major land disturbance, and/or strong evidence of human activity contributing to erosion.

**Recommended Actions**

- **Low Risk:** Monitor periodically and apply preventative measures (e.g., planting vegetation, managing foot traffic).
- **Moderate Risk:** Implement erosion control solutions (e.g., install silt fences, revegetate areas, redirect runoff).
- **High Risk:** Take immediate action—escalate to Campus Life leadership for urgent mitigation (e.g., erect erosion barriers, apply stormwater controls, rehabilitate affected sites).

## Hazard Review and Prioritisation

The Environmental Manager will oversee the submitted erosion hazards through the reporting system. These hazards will be verified as soon as possible in person by either the Environmental Manager or a Landscape Coordinator. Assessments should also take place during or immediately after major rain events, when feasible.

Any easily remediable hazards—such as damage caused by contractors parking on vegetation or improper material storage—should be promptly reported to the relevant project managers within Campus Life or Major Projects. All other risks will be documented and reviewed at the annual erosion control meeting to plan further action.

The Environmental Manager and Landscape Coordinators will meet annually to assess the severity and risk levels of the erosion hazards identified. This meeting will focus on prioritising hazard areas most in need of remediation, allocating resources for erosion and sediment control (ESC) measures, and refining best processes.

### Training

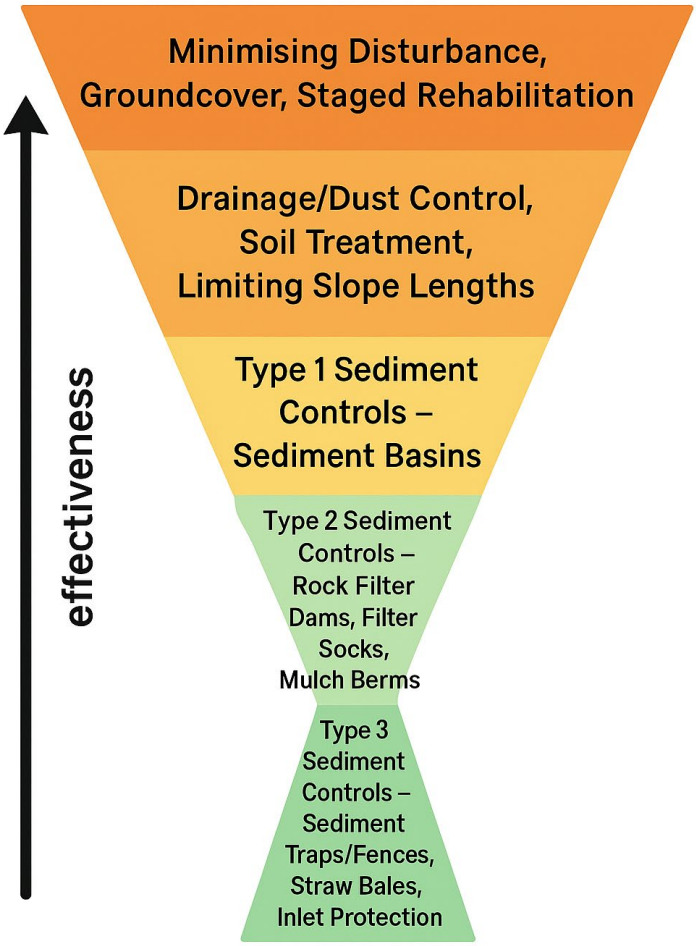
The Environmental Manager and Landscape Coordinators should undergo a registered training session for erosion and sediment control. These training sessions are regularly offered for construction managers but are also viable for other environmental management practitioners. This training will help them identify and assess erosion risks when reported and develop best practice remediation solutions.

## Best Management Practices

Best Management Practices (BMPs) are a way to mitigate future impacts and stop erosion before it becomes an issue. These should be the university's main priority and monitored heavily. Local, state, and federal regulations will be used as guiding principles in these practices. These practices will provide a base for the overall framework for ensuring that all activities related to erosion and sediment control are conducted in a manner that minimises environmental impact across the campuses and promotes sustainability.

To strengthen BMP implementation, Griffith University will adopt the **Hierarchy of Controls for Erosion and Sediment Management**, represented as an inverted pyramid that prioritises the most effective measures:

1. **Minimising Disturbance, Groundcover, Staged Rehabilitation**
    - Limit clearing and grading to essential areas only.
    - Preserve existing vegetation and apply stabilisation immediately after disturbance.
    - Sequence works to progressively rehabilitate disturbed areas.
2. **Drainage/Dust Control, Soil Treatment, Limiting Slope Lengths**
    - Install diversion drains and contour banks to manage water flow.
    - Apply soil binders or dust suppression techniques.
    - Reduce slope lengths through benching or terracing.
3. **Type 1 Sediment Controls – Sediment Basins**
    - Construct basins to capture and settle sediment before water leaves the site.
4. **Type 2 Sediment Controls – Rock Filter Dams, Filter Socks, Mulch Berms**
    - Use intermediate controls to slow water and trap sediment in concentrated flow paths.
5. **Type 3 Sediment Controls – Sediment Traps/Fences, Straw Bales, Inlet Protection**
    - Install perimeter controls and inlet protection for final sediment interception.




This hierarchy ensures that **source controls** (preventing erosion) are prioritised over **downstream controls** (capturing sediment), aligning with Queensland regulatory requirements.

## Vegetation

Stopping unnecessary loss in vegetation can be the first and most crucial step in BMP. This could involve reducing these activities:

- Minimising parking in non-designated parking areas, such as vegetation strips near roads
- Equipment and soil being stored in gardens or on nature strips for long periods of time
- Removing plants for maintenance purposes
- Creating unintended paths that damage vegetation, especially along slopes or hills

Maintaining appropriate vegetation buffer zones around man-made structures, walkways, parking areas and construction zones allows for a natural barrier for soil loss. If no buffer zone exists, the implementation of vegetation should be seen as a priority when it comes to landscaping. If appropriate vegetation cannot be established, biodegradable ESC measures may be put in place.

## Post-Project Rehabilitation Requirement

Where vegetation is removed to install underground services or other works, and bare land remains after project completion, a **Landscape/Rehabilitation Plan** must be developed and implemented. This plan should:

- Specify timelines for re-establishing vegetation cover.
- Include soil stabilisation measures during interim periods.
- Prioritise native species and groundcover to minimise erosion risk.
- Ensure monitoring until vegetation is fully established.

Failure to rehabilitate disturbed areas can lead to erosion and sediment accumulation at unintended sites, creating compliance risks and environmental harm.

## Biodegradable Erosion and Sediment Control

In line with the principles of Griffith University regarding Environmental Sustainability, biodegradable sediment control measures are an excellent option for ESC. These measures are not only effective in preventing soil loss and slowing water flow but are also crucial for successful revegetation efforts. Areas that have experienced significant vegetation loss and require revegetation remain vulnerable to erosion and need time for new plants to establish and stabilise the soil.

## Coir (Koy-uh) Log Guidelines

Coir logs, made from coconut fibre, are a versatile and environmentally friendly option for erosion and sediment control. They should be used on campus in these ways:

- **Slope Stabilisation**: Coir logs can be placed along slopes to reduce soil erosion by slowing down water flow and trapping sediment. Their fibrous structure helps to hold the soil in place, preventing it from being washed away during heavy rains.
- **Streambank Protection**: When placed along the banks of streams and rivers, coir logs help to protect against erosion by absorbing the energy of flowing water and trapping sediment. This is particularly useful in areas where vegetation has been lost and the banks are exposed.
- **Revegetation Support**: Coir logs help reduce flow around revegetation efforts, they give new plants the protection they need to establish themselves.
- **Temporary Control**: Coir logs are biodegradable, meaning they will naturally break down over time. This makes them an excellent temporary solution for erosion control while permanent vegetation is being established.

*Coir logs, made from coconut fibre, are a versatile and environmentally friendly option for erosion and sediment control, especially on slopes.*

## Coir and jute mesh rolls/matting

Coir and jute mesh rolls/matting are effective and environmentally friendly options for erosion and sediment control. These biodegradable materials are made from natural fibres and can be used in various ways on campus:

- **Slope Stabilisation**: Coir and jute mesh rolls can be laid over slopes to prevent soil erosion. The mesh structure helps to hold the soil in place, reducing the risk of washout during heavy rains. This is particularly useful for newly seeded areas where vegetation has not yet established.
- **Surface Protection**: When applied to bare soil surfaces, coir and jute matting protect against erosion by reducing the impact of raindrops (splash erosion) and slowing down surface water flow. This helps to prevent soil displacement and promotes the establishment of vegetation.
- **Revegetation Support**: These materials provide a stable environment for seed germination and plant growth. The mesh helps to retain moisture and provides a protective layer that supports the establishment of new vegetation
- **Temporary Control**: These materials are also biodegradable, meaning they will naturally break down over time. This makes them an excellent temporary solution for erosion control while permanent vegetation is being established.

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